

# TM

## SECTION

### TRANSAXLE & TRANSMISSION

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TM

## CONTENTS

E

### 6MT: RS6F94R

|                                                                                               |    |                                            |    |
|-----------------------------------------------------------------------------------------------|----|--------------------------------------------|----|
| <b>PRECAUTION</b> .....                                                                       | 13 | NVH Troubleshooting Chart .....            | 26 |
| <b>PRECAUTIONS</b> .....                                                                      | 13 | <b>PERIODIC MAINTENANCE</b> .....          | 27 |
| Caution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" ..... | 13 | <b>M/T OIL</b> .....                       | 27 |
| Caution Necessary for Steering Wheel Rotation After Battery Disconnect .....                  | 13 | Inspection .....                           | 27 |
| Caution for Procedure without Cowl Top Cover... ..                                            | 14 | Draining .....                             | 27 |
| Precautions for Removing Battery Terminal .....                                               | 14 | Refilling .....                            | 27 |
| Service Notice or Precautions for Manual Transaxle .....                                      | 15 | <b>REMOVAL AND INSTALLATION</b> .....      | 28 |
| <b>PREPARATION</b> .....                                                                      | 16 | <b>M/T SHIFT SELECTOR</b> .....            | 28 |
| <b>PREPARATION</b> .....                                                                      | 16 | Exploded View .....                        | 28 |
| Special Service Tools .....                                                                   | 16 | Removal and Installation .....             | 28 |
| Commercial Service Tools .....                                                                | 18 | <b>CONTROL LINKAGE</b> .....               | 31 |
| Lubricant or/and Sealant .....                                                                | 20 | Exploded View .....                        | 31 |
| <b>SYSTEM DESCRIPTION</b> .....                                                               | 21 | Removal and Installation .....             | 31 |
| <b>COMPONENT PARTS</b> .....                                                                  | 21 | Inspection .....                           | 35 |
| Component Parts Location .....                                                                | 21 | <b>POSITION SWITCH</b> .....               | 36 |
| <b>STRUCTURE AND OPERATION</b> .....                                                          | 22 | Exploded View .....                        | 36 |
| Sectional View .....                                                                          | 22 | Removal and Installation .....             | 36 |
| System Description .....                                                                      | 23 | Inspection .....                           | 37 |
| <b>DTC/CIRCUIT DIAGNOSIS</b> .....                                                            | 24 | <b>DIFFERENTIAL SIDE OIL SEAL</b> .....    | 38 |
| <b>POSITION SWITCH</b> .....                                                                  | 24 | Exploded View .....                        | 38 |
| Component Function Check .....                                                                | 24 | Removal and Installation .....             | 38 |
| Diagnosis Procedure .....                                                                     | 24 | Inspection .....                           | 39 |
| Component Inspection .....                                                                    | 24 | <b>AIR BREATHER</b> .....                  | 40 |
| <b>SYMPTOM DIAGNOSIS</b> .....                                                                | 26 | Exploded View .....                        | 40 |
| <b>NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING</b> .....                             | 26 | Removal and Installation .....             | 40 |
|                                                                                               |    | <b>UNIT REMOVAL AND INSTALLATION</b> ..... | 41 |
|                                                                                               |    | <b>TRANSAXLE ASSEMBLY</b> .....            | 41 |
|                                                                                               |    | Exploded View .....                        | 41 |
|                                                                                               |    | Removal and Installation .....             | 41 |
|                                                                                               |    | Inspection .....                           | 42 |
|                                                                                               |    | <b>UNIT DISASSEMBLY AND ASSEMBLY</b> ...   | 43 |

F

G

H

I

J

K

L

M

N

O

P

|                                                   |           |                                             |            |
|---------------------------------------------------|-----------|---------------------------------------------|------------|
| <b>TRANSAXLE ASSEMBLY</b> .....                   | <b>43</b> | Component Parts Location .....              | 89         |
| Exploded View .....                               | 43        | <b>STRUCTURE AND OPERATION</b> .....        | <b>90</b>  |
| Disassembly and Assembly .....                    | 48        | Sectional View .....                        | 90         |
| <b>INPUT SHAFT AND GEAR</b> .....                 | <b>60</b> | System Description .....                    | 92         |
| Exploded View .....                               | 60        | <b>DTC/CIRCUIT DIAGNOSIS</b> .....          | <b>93</b>  |
| Disassembly and Assembly .....                    | 61        | <b>BACK-UP LAMP SWITCH</b> .....            | <b>93</b>  |
| Inspection .....                                  | 64        | Component Function Check .....              | 93         |
| <b>MAINSHAFT AND GEAR</b> .....                   | <b>66</b> | Diagnosis Procedure .....                   | 93         |
| Exploded View .....                               | 66        | Component Inspection .....                  | 93         |
| Disassembly and Assembly .....                    | 67        | <b>NEUTRAL POSITION SWITCH</b> .....        | <b>94</b>  |
| Inspection .....                                  | 70        | Component Function Check .....              | 94         |
| <b>REVERSE IDLER SHAFT AND GEAR</b> .....         | <b>72</b> | Diagnosis Procedure .....                   | 94         |
| Exploded View .....                               | 72        | Component Inspection .....                  | 94         |
| Disassembly and Assembly .....                    | 72        | <b>SYMPTOM DIAGNOSIS</b> .....              | <b>95</b>  |
| Inspection .....                                  | 73        | <b>SHIFTING IS DIFFICULT OR GEAR SQUEAL</b> |            |
| <b>SHIFT FORK AND FORK ROD</b> .....              | <b>75</b> | <b>OCCURS WHEN SHIFTING TO THE 2ND</b>      |            |
| Exploded View .....                               | 75        | <b>GEAR</b> .....                           | <b>95</b>  |
| Disassembly and Assembly .....                    | 75        | Description .....                           | 95         |
| Inspection .....                                  | 75        | Diagnosis Procedure .....                   | 95         |
| <b>FINAL DRIVE</b> .....                          | <b>77</b> | <b>SHIFTING IS DIFFICULT OR GEAR SQUEAL</b> |            |
| Exploded View .....                               | 77        | <b>OCCURS WHEN SHIFTING TO THE 3RD</b>      |            |
| Disassembly and Assembly .....                    | 77        | <b>GEAR</b> .....                           | <b>97</b>  |
| Inspection .....                                  | 78        | Description .....                           | 97         |
| <b>SERVICE DATA AND SPECIFICATIONS</b>            |           | Diagnosis Procedure .....                   | 97         |
| <b>(SDS)</b> .....                                | <b>80</b> | <b>GEAR SHIFT TO 1ST OR 2ND IS HARD OR</b>  |            |
| <b>SERVICE DATA AND SPECIFICATIONS</b>            |           | <b>LEVER BECOMES STUCK</b> .....            | <b>99</b>  |
| <b>(SDS)</b> .....                                | <b>80</b> | Description .....                           | 99         |
| General Specifications .....                      | 80        | Diagnosis Procedure .....                   | 99         |
| <b>6MT: RS6F52A</b>                               |           | <b>UNUSUAL NOISE OCCURS DURING DRIV-</b>    |            |
| <b>PRECAUTION</b> .....                           | <b>81</b> | <b>ING</b> .....                            | <b>100</b> |
| <b>PRECAUTIONS</b> .....                          | <b>81</b> | Description .....                           | 100        |
| Precaution for Supplemental Restraint System      |           | Diagnosis Procedure .....                   | 100        |
| (SRS) "AIR BAG" and "SEAT BELT PRE-TEN-           |           | <b>NOISE, VIBRATION AND HARSHNESS</b>       |            |
| SIONER" .....                                     | 81        | <b>(NVH) TROUBLESHOOTING</b> .....          | <b>101</b> |
| Precaution Necessary for Steering Wheel Rota-     |           | NVH Troubleshooting Chart .....             | 101        |
| tion After Battery Disconnect .....               | 81        | <b>PERIODIC MAINTENANCE</b> .....           | <b>103</b> |
| Precaution for Procedure without Cowl Top Cover.. | 82        | <b>M/T OIL</b> .....                        | <b>103</b> |
| Precautions for Removing Battery Terminal .....   | 82        | <b>2WD</b> .....                            | <b>103</b> |
| Precaution for Stop/Start System Service .....    | 83        | 2WD : Inspection .....                      | 103        |
| Service Notice or Precautions for Manual Tran-    |           | 2WD : Draining .....                        | 103        |
| saxle .....                                       | 83        | 2WD : Refilling .....                       | 103        |
| <b>PREPARATION</b> .....                          | <b>84</b> | <b>4WD</b> .....                            | <b>104</b> |
| <b>PREPARATION</b> .....                          | <b>84</b> | 4WD : Inspection .....                      | 104        |
| Special Service Tools .....                       | 84        | 4WD : Draining .....                        | 104        |
| Commercial Service Tools .....                    | 87        | 4WD : Refilling .....                       | 104        |
| Lubricant or/and Sealant .....                    | 88        | <b>REMOVAL AND INSTALLATION</b> .....       | <b>106</b> |
| <b>SYSTEM DESCRIPTION</b> .....                   | <b>89</b> |                                             |            |
| <b>COMPONENT PARTS</b> .....                      | <b>89</b> |                                             |            |

|                                           |            |                                                                                                  |            |
|-------------------------------------------|------------|--------------------------------------------------------------------------------------------------|------------|
| <b>M/T SHIFT SELECTOR .....</b>           | <b>106</b> | Inspection .....                                                                                 | 204        |
| Exploded View .....                       | 106        | <b>SHIFT FORK AND FORK ROD .....</b>                                                             | <b>206</b> |
| Removal and Installation .....            | 106        | Exploded View .....                                                                              | 206        |
| <b>CONTROL LINKAGE .....</b>              | <b>109</b> | Disassembly and Assembly .....                                                                   | 206        |
| Exploded View .....                       | 109        | Inspection .....                                                                                 | 208        |
| Removal and Installation .....            | 109        | <b>FINAL DRIVE .....</b>                                                                         | <b>210</b> |
| Inspection .....                          | 113        | <b>2WD .....</b>                                                                                 | <b>210</b> |
| <b>BACK-UP LAMP SWITCH .....</b>          | <b>114</b> | 2WD : Exploded View .....                                                                        | 210        |
| Exploded View .....                       | 114        | 2WD : Disassembly and Assembly .....                                                             | 210        |
| Removal and Installation .....            | 114        | 2WD : Inspection .....                                                                           | 213        |
| Inspection .....                          | 115        | <b>4WD .....</b>                                                                                 | <b>214</b> |
| <b>NEUTRAL POSITION SWITCH .....</b>      | <b>116</b> | 4WD : Exploded View .....                                                                        | 215        |
| Exploded View .....                       | 116        | 4WD : Disassembly and Assembly .....                                                             | 215        |
| Removal and Installation .....            | 116        | 4WD : Inspection .....                                                                           | 221        |
| Inspection .....                          | 117        | <b>SERVICE DATA AND SPECIFICATIONS</b>                                                           |            |
| <b>DIFFERENTIAL SIDE OIL SEAL .....</b>   | <b>118</b> | <b>(SDS) .....</b>                                                                               | <b>223</b> |
| Exploded View .....                       | 118        | <b>SERVICE DATA AND SPECIFICATIONS</b>                                                           |            |
| Removal and Installation .....            | 118        | <b>(SDS) .....</b>                                                                               | <b>223</b> |
| Inspection .....                          | 119        | General Specifications .....                                                                     | 223        |
| <b>AIR BREATHER .....</b>                 | <b>120</b> | End Play .....                                                                                   | 224        |
| Exploded View .....                       | 120        | Baulk Ring Clearance .....                                                                       | 224        |
| Removal and Installation .....            | 120        | Dimension .....                                                                                  | 225        |
| <b>UNIT REMOVAL AND INSTALLATION ...</b>  | <b>122</b> | Differential Side Bearing Preload .....                                                          | 226        |
| <b>TRANSAXLE ASSEMBLY .....</b>           | <b>122</b> | Differential Side Gear Clearance .....                                                           | 226        |
| Exploded View .....                       | 122        | <b>CVT: RE0F10D</b>                                                                              |            |
| Removal and Installation .....            | 122        | <b>HOW TO USE THIS MANUAL .....</b>                                                              | <b>227</b> |
| Inspection .....                          | 123        | <b>HOW TO USE THIS SECTION .....</b>                                                             | <b>227</b> |
| <b>UNIT DISASSEMBLY AND ASSEMBLY .</b>    | <b>124</b> | Information .....                                                                                | 227        |
| <b>TRANSAXLE ASSEMBLY .....</b>           | <b>124</b> | <b>PRECAUTION .....</b>                                                                          | <b>228</b> |
| <b>2WD .....</b>                          | <b>124</b> | <b>PRECAUTIONS .....</b>                                                                         | <b>228</b> |
| 2WD : Exploded View .....                 | 124        | Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" ..... | 228        |
| 2WD : Disassembly and Assembly .....      | 129        | Precaution Necessary for Steering Wheel Rotation After Battery Disconnect .....                  | 228        |
| 2WD : Inspection and Adjustment .....     | 147        | Precaution for Procedure without Cowl Top Cover .....                                            | 229        |
| <b>4WD .....</b>                          | <b>153</b> | Precautions for Removing Battery Terminal .....                                                  | 229        |
| 4WD : Exploded View .....                 | 153        | Precaution for TCM and Transaxle Assembly Replacement .....                                      | 230        |
| 4WD : Disassembly and Assembly .....      | 159        | General Precautions .....                                                                        | 230        |
| 4WD : Inspection and Adjustment .....     | 178        | On Board Diagnosis (OBD) System of CVT and Engine .....                                          | 231        |
| <b>INPUT SHAFT AND GEAR .....</b>         | <b>185</b> | Removal and Installation Procedure for CVT Unit Connector .....                                  | 231        |
| Exploded View .....                       | 185        | <b>PREPARATION .....</b>                                                                         | <b>233</b> |
| Disassembly and Assembly .....            | 186        | <b>PREPARATION .....</b>                                                                         | <b>233</b> |
| Inspection .....                          | 191        | Special Service Tools .....                                                                      | 233        |
| <b>MAINSHAFT AND GEAR .....</b>           | <b>193</b> | Commercial Service Tools .....                                                                   | 233        |
| Exploded View .....                       | 193        |                                                                                                  |            |
| Disassembly and Assembly .....            | 194        |                                                                                                  |            |
| Inspection .....                          | 200        |                                                                                                  |            |
| <b>REVERSE IDLER SHAFT AND GEAR .....</b> | <b>203</b> |                                                                                                  |            |
| Exploded View .....                       | 203        |                                                                                                  |            |
| Disassembly and Assembly .....            | 203        |                                                                                                  |            |

|                                                                   |            |                                                                                         |            |
|-------------------------------------------------------------------|------------|-----------------------------------------------------------------------------------------|------------|
| <b>SYSTEM DESCRIPTION .....</b>                                   | <b>235</b> | CVT CONTROL SYSTEM : Circuit Diagram .....                                              | 258        |
| <b>COMPONENT PARTS .....</b>                                      | <b>235</b> | CVT CONTROL SYSTEM : Fail-safe .....                                                    | 258        |
| <b>CVT CONTROL SYSTEM .....</b>                                   | <b>235</b> | CVT CONTROL SYSTEM : Protection Control ....                                            | 261        |
| CVT CONTROL SYSTEM : Component Parts Location .....               | 235        | <b>LINE PRESSURE CONTROL .....</b>                                                      | <b>262</b> |
| CVT CONTROL SYSTEM : TCM .....                                    | 238        | LINE PRESSURE CONTROL : System Description .....                                        | 262        |
| CVT CONTROL SYSTEM : Transmission Range Switch .....              | 238        | <b>SHIFT CONTROL .....</b>                                                              | <b>263</b> |
| CVT CONTROL SYSTEM : Primary Speed Sensor .....                   | 238        | SHIFT CONTROL : System Description .....                                                | 263        |
| CVT CONTROL SYSTEM : Output Speed Sensor .....                    | 239        | <b>SELECT CONTROL .....</b>                                                             | <b>266</b> |
| CVT CONTROL SYSTEM : Input Speed Sensor .....                     | 239        | SELECT CONTROL : System Description .....                                               | 266        |
| CVT CONTROL SYSTEM : CVT Fluid Temperature Sensor .....           | 240        | <b>LOCK-UP CONTROL .....</b>                                                            | <b>266</b> |
| CVT CONTROL SYSTEM : Primary Pressure Sensor .....                | 241        | LOCK-UP CONTROL : System Description .....                                              | 267        |
| CVT CONTROL SYSTEM : Secondary Pressure Sensor .....              | 241        | <b>ECO MODE SYSTEM .....</b>                                                            | <b>267</b> |
| CVT CONTROL SYSTEM : Primary Pressure Solenoid Valve .....        | 242        | ECO MODE SYSTEM : System Description .....                                              | 267        |
| CVT CONTROL SYSTEM : Secondary Pressure Solenoid Valve .....      | 242        | <b>INFORMATION DISPLAY (COMBINATION METER) .....</b>                                    | <b>268</b> |
| CVT CONTROL SYSTEM : Select Solenoid Valve .....                  | 242        | INFORMATION DISPLAY (COMBINATION METER) : Shift Position Indicator .....                | 268        |
| CVT CONTROL SYSTEM : Torque Converter Clutch Solenoid Valve ..... | 243        | <b>WARNING/INDICATOR/CHIME LIST .....</b>                                               | <b>268</b> |
| CVT CONTROL SYSTEM : Line Pressure Solenoid Valve .....           | 243        | WARNING/INDICATOR/CHIME LIST : Warning Lamp/Indicator Lamp .....                        | 268        |
| CVT CONTROL SYSTEM : Manual Mode Switch .....                     | 243        | WARNING/INDICATOR/CHIME LIST : Warning/Indicator (On Information Display) .....         | 268        |
| <b>SHIFT LOCK SYSTEM .....</b>                                    | <b>244</b> | <b>ON BOARD DIAGNOSTIC (OBD) SYSTEM ...</b>                                             | <b>269</b> |
| SHIFT LOCK SYSTEM : Component Parts Location .....                | 244        | Description .....                                                                       | 269        |
| SHIFT LOCK SYSTEM : Stop Lamp Switch .....                        | 244        | GST (Generic Scan Tool) .....                                                           | 269        |
| SHIFT LOCK SYSTEM : Shift Lock Solenoid .....                     | 245        | <b>DIAGNOSIS SYSTEM (TCM) .....</b>                                                     | <b>270</b> |
| SHIFT LOCK SYSTEM : Park Position Switch .....                    | 245        | <b>DIAGNOSIS DESCRIPTION .....</b>                                                      | <b>270</b> |
| <b>STRUCTURE AND OPERATION .....</b>                              | <b>246</b> | DIAGNOSIS DESCRIPTION : 1 Trip Detection Diagnosis and 2 Trip Detection Diagnosis ..... | 270        |
| <b>TRANSAXLE .....</b>                                            | <b>246</b> | DIAGNOSIS DESCRIPTION : DTC and DTC of 1st Trip .....                                   | 270        |
| TRANSAXLE : Cross-Sectional View .....                            | 246        | DIAGNOSIS DESCRIPTION : Malfunction Indicator Lamp (MIL) .....                          | 270        |
| TRANSAXLE : Operation Status .....                                | 247        | DIAGNOSIS DESCRIPTION : Counter System ..                                               | 270        |
| TRANSAXLE : Transaxle Mechanism .....                             | 247        | CONSULT Function .....                                                                  | 272        |
| TRANSAXLE : Oil Pressure System .....                             | 250        | <b>ECU DIAGNOSIS INFORMATION .....</b>                                                  | <b>277</b> |
| TRANSAXLE : Component Description .....                           | 251        | <b>TCM .....</b>                                                                        | <b>277</b> |
| <b>FLUID COOLER &amp; FLUID WARMER SYSTEM .....</b>               | <b>251</b> | Reference Value .....                                                                   | 277        |
| FLUID COOLER & FLUID WARMER SYSTEM : System Description .....     | 252        | Fail-safe .....                                                                         | 284        |
| <b>SHIFT LOCK SYSTEM .....</b>                                    | <b>253</b> | Protection Control .....                                                                | 286        |
| SHIFT LOCK SYSTEM : System Description .....                      | 254        | DTC Inspection Priority Chart .....                                                     | 287        |
| <b>KEY LOCK SYSTEM .....</b>                                      | <b>255</b> | DTC Index .....                                                                         | 288        |
| KEY LOCK SYSTEM : System Description .....                        | 255        | <b>WIRING DIAGRAM .....</b>                                                             | <b>290</b> |
| <b>SYSTEM .....</b>                                               | <b>256</b> | <b>CVT CONTROL SYSTEM .....</b>                                                         | <b>290</b> |
| <b>CVT CONTROL SYSTEM .....</b>                                   | <b>256</b> | Wiring Diagram .....                                                                    | 290        |
| CVT CONTROL SYSTEM : System Description ..                        | 256        | <b>CVT SHIFT LOCK SYSTEM .....</b>                                                      | <b>295</b> |
|                                                                   |            | Wiring Diagram .....                                                                    | 295        |



|                                                                           |            |                                                                |            |    |
|---------------------------------------------------------------------------|------------|----------------------------------------------------------------|------------|----|
| <b>BASIC INSPECTION .....</b>                                             | <b>298</b> | <b>U110F LOST COMMUNICATION (ECM) .....</b>                    | <b>318</b> |    |
|                                                                           |            | DTC Description .....                                          | 318        | A  |
| <b>DIAGNOSIS AND REPAIR WORK FLOW .....</b>                               | <b>298</b> | Diagnosis Procedure .....                                      | 318        |    |
| Work Flow .....                                                           | 298        |                                                                |            |    |
| Diagnostic Work Sheet .....                                               | 299        | <b>U1111 LOST COMMUNICATION (CHASSIS CONTROL MODULE) .....</b> | <b>319</b> | B  |
|                                                                           |            | DTC Description .....                                          | 319        |    |
| <b>ADDITIONAL SERVICE WHEN REPLACING TCM .....</b>                        | <b>301</b> | Diagnosis Procedure .....                                      | 319        | C  |
| Description .....                                                         | 301        |                                                                |            |    |
| Work Procedure .....                                                      | 301        | <b>U1117 LOST COMMUNICATION (ABS) .....</b>                    | <b>320</b> |    |
|                                                                           |            | DTC Description .....                                          | 320        |    |
| <b>ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY .....</b>         | <b>303</b> | Diagnosis Procedure .....                                      | 320        | TM |
| Description .....                                                         | 303        |                                                                |            |    |
| Work Procedure .....                                                      | 303        | <b>P062F EEPROM .....</b>                                      | <b>321</b> |    |
|                                                                           |            | DTC Description .....                                          | 321        | E  |
| <b>ADDITIONAL SERVICE WHEN REPLACING TCM AND TRANSAXLE ASSEMBLY .....</b> | <b>305</b> | Diagnosis Procedure .....                                      | 321        |    |
| Description .....                                                         | 305        |                                                                |            |    |
| Work Procedure .....                                                      | 305        | <b>P0705 TRANSMISSION RANGE SENSOR A .</b>                     | <b>322</b> | F  |
|                                                                           |            | DTC Description .....                                          | 322        |    |
| <b>STALL TEST .....</b>                                                   | <b>307</b> | Diagnosis Procedure .....                                      | 322        |    |
| Work Procedure .....                                                      | 307        | Component Inspection .....                                     | 325        |    |
| <b>CVT POSITION .....</b>                                                 | <b>308</b> | <b>P0706 TRANSMISSION RANGE SENSOR A .</b>                     | <b>327</b> | G  |
| Inspection .....                                                          | 308        | DTC Description .....                                          | 327        |    |
| Adjustment .....                                                          | 308        | Diagnosis Procedure .....                                      | 327        | H  |
|                                                                           |            | Component Inspection .....                                     | 329        |    |
| <b>DTC/CIRCUIT DIAGNOSIS .....</b>                                        | <b>310</b> | <b>P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A .....</b>     | <b>330</b> | I  |
|                                                                           |            | DTC Description .....                                          | 330        |    |
| <b>U0073 COMMUNICATION BUS A OFF .....</b>                                | <b>310</b> | Diagnosis Procedure .....                                      | 330        |    |
| DTC Description .....                                                     | 310        |                                                                |            |    |
| Diagnosis Procedure .....                                                 | 310        | <b>P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A .....</b>     | <b>332</b> | J  |
| <b>U0100 LOST COMMUNICATION (ECM A) ....</b>                              | <b>311</b> | DTC Description .....                                          | 332        |    |
| DTC Description .....                                                     | 311        | Diagnosis Procedure .....                                      | 332        | K  |
| Diagnosis Procedure .....                                                 | 311        |                                                                |            |    |
| <b>U0102 LOST COMMUNICATION (TRANSFER) .....</b>                          | <b>312</b> | <b>P0715 INPUT SPEED SENSOR A .....</b>                        | <b>334</b> | L  |
| DTC Description .....                                                     | 312        | DTC Description .....                                          | 334        |    |
| Diagnosis Procedure .....                                                 | 312        | Diagnosis Procedure .....                                      | 335        |    |
| <b>U0140 LOST COMMUNICATION (BCM) .....</b>                               | <b>313</b> | <b>P0717 INPUT SPEED SENSOR A .....</b>                        | <b>337</b> | M  |
| DTC Description .....                                                     | 313        | DTC Description .....                                          | 337        |    |
| Diagnosis Procedure .....                                                 | 313        | Diagnosis Procedure .....                                      | 338        |    |
| <b>U0141 LOST COMMUNICATION (BCM A) ....</b>                              | <b>314</b> | <b>P0740 TORQUE CONVERTER .....</b>                            | <b>340</b> | N  |
| DTC Description .....                                                     | 314        | DTC Description .....                                          | 340        |    |
| Diagnosis Procedure .....                                                 | 314        | Diagnosis Procedure .....                                      | 341        |    |
| <b>U0155 LOST COMMUNICATION (IPC) .....</b>                               | <b>315</b> | <b>P0743 TORQUE CONVERTER .....</b>                            | <b>342</b> | O  |
| DTC Description .....                                                     | 315        | DTC Description .....                                          | 342        |    |
| Diagnosis Procedure .....                                                 | 315        | Diagnosis Procedure .....                                      | 343        |    |
| <b>U0300 CAN COMMUNICATION DATA .....</b>                                 | <b>316</b> | <b>P0744 TORQUE CONVERTER .....</b>                            | <b>344</b> | P  |
| DTC Description .....                                                     | 316        | DTC Description .....                                          | 344        |    |
| Diagnosis Procedure .....                                                 | 316        | Diagnosis Procedure .....                                      | 345        |    |
| <b>U1000 CAN COMM CIRCUIT .....</b>                                       | <b>317</b> | <b>P0746 PRESSURE CONTROL SOLENOID A.</b>                      | <b>346</b> |    |
| DTC Description .....                                                     | 317        | DTC Description .....                                          | 346        |    |
| Diagnosis Procedure .....                                                 | 317        | Diagnosis Procedure .....                                      | 347        |    |
|                                                                           |            | <b>P0776 PRESSURE CONTROL SOLENOID B.</b>                      | <b>348</b> |    |

|                                           |            |                                                   |            |
|-------------------------------------------|------------|---------------------------------------------------|------------|
| DTC Description .....                     | 348        | <b>P0966 PRESSURE CONTROL SOLENOID B.</b>         | <b>375</b> |
| Diagnosis Procedure .....                 | 349        | DTC Description .....                             | 375        |
| <b>P0778 PRESSURE CONTROL SOLENOID B.</b> | <b>350</b> | Diagnosis Procedure .....                         | 375        |
| DTC Description .....                     | 350        | <b>P0967 PRESSURE CONTROL SOLENOID B.</b>         | <b>377</b> |
| Diagnosis Procedure .....                 | 350        | DTC Description .....                             | 377        |
| <b>P0779 PRESSURE CONTROL SOLENOID B.</b> | <b>352</b> | Diagnosis Procedure .....                         | 377        |
| DTC Description .....                     | 352        | <b>P2765 INPUT SPEED SENSOR B</b>                 | <b>379</b> |
| Diagnosis Procedure .....                 | 352        | DTC Description .....                             | 379        |
| <b>P0826 UP AND DOWN SHIFT SW</b>         | <b>354</b> | Diagnosis Procedure .....                         | 380        |
| DTC Description .....                     | 354        | <b>P2813 SELECT SOLENOID</b>                      | <b>382</b> |
| Diagnosis Procedure .....                 | 355        | DTC Description .....                             | 382        |
| Component Inspection .....                | 356        | Diagnosis Procedure .....                         | 383        |
| <b>P0841 TRANSMISSION FLUID PRESSURE</b>  |            | <b>P2814 SELECT SOLENOID</b>                      | <b>384</b> |
| <b>SEN/SW A</b>                           | <b>357</b> | DTC Description .....                             | 384        |
| DTC Description .....                     | 357        | Diagnosis Procedure .....                         | 384        |
| Diagnosis Procedure .....                 | 357        | <b>P2815 SELECT SOLENOID</b>                      | <b>386</b> |
| <b>P0847 TRANSMISSION FLUID PRESSURE</b>  |            | DTC Description .....                             | 386        |
| <b>SEN/SW B</b>                           | <b>358</b> | Diagnosis Procedure .....                         | 386        |
| DTC Description .....                     | 358        | <b>MAIN POWER SUPPLY AND GROUND CIR-</b>          |            |
| Diagnosis Procedure .....                 | 358        | <b>CUIT</b>                                       | <b>388</b> |
| <b>P0848 TRANSMISSION FLUID PRESSURE</b>  |            | Diagnosis Procedure .....                         | 388        |
| <b>SEN/SW B</b>                           | <b>360</b> | <b>SHIFT POSITION INDICATOR CIRCUIT</b>           | <b>390</b> |
| DTC Description .....                     | 360        | Component Parts Function Inspection .....         | 390        |
| Diagnosis Procedure .....                 | 360        | Diagnosis Procedure .....                         | 390        |
| <b>P084C TRANSMISSION FLUID PRESSURE</b>  |            | <b>SHIFT LOCK SYSTEM</b>                          | <b>391</b> |
| <b>SEN/SW H</b>                           | <b>362</b> | Component Function Check .....                    | 391        |
| DTC Description .....                     | 362        | Diagnosis Procedure .....                         | 391        |
| Diagnosis Procedure .....                 | 362        | Component Inspection (Shift Lock Solenoid) .....  | 392        |
| <b>P084D TRANSMISSION FLUID PRESSURE</b>  |            | Component Inspection (Park Position Switch) ..... | 393        |
| <b>SEN/SW H</b>                           | <b>364</b> | Component Inspection (CVT Shift Selector Har-     |            |
| DTC Description .....                     | 364        | ness) .....                                       | 393        |
| Diagnosis Procedure .....                 | 364        | Component Inspection (Stop Lamp Switch) .....     | 394        |
| <b>P0863 TCM COMMUNICATION</b>            | <b>366</b> | <b>SYMPTOM DIAGNOSIS</b>                          | <b>395</b> |
| DTC Description .....                     | 366        | <b>CVT CONTROL SYSTEM</b>                         | <b>395</b> |
| Diagnosis Procedure .....                 | 366        | Symptom Table .....                               | 395        |
| <b>P0890 TCM</b>                          | <b>367</b> | <b>PERIODIC MAINTENANCE</b>                       | <b>399</b> |
| DTC Description .....                     | 367        | <b>CVT FLUID</b>                                  | <b>399</b> |
| Diagnosis Procedure .....                 | 367        | Inspection .....                                  | 399        |
| <b>P0962 PRESSURE CONTROL SOLENOID A.</b> | <b>369</b> | Replacement .....                                 | 399        |
| DTC Description .....                     | 369        | Adjustment .....                                  | 401        |
| Diagnosis Procedure .....                 | 369        | <b>REMOVAL AND INSTALLATION</b>                   | <b>403</b> |
| <b>P0963 PRESSURE CONTROL SOLENOID A.</b> | <b>371</b> | <b>CVT SHIFT SELECTOR</b>                         | <b>403</b> |
| DTC Description .....                     | 371        | Exploded View .....                               | 403        |
| Diagnosis Procedure .....                 | 371        | Removal and Installation .....                    | 403        |
| <b>P0965 PRESSURE CONTROL SOLENOID B.</b> | <b>373</b> | Disassembly and Assembly .....                    | 404        |
| DTC Description .....                     | 373        | Inspection .....                                  | 405        |
| Diagnosis Procedure .....                 | 374        | <b>CONTROL CABLE</b>                              | <b>406</b> |

|                                          |            |                                          |            |    |
|------------------------------------------|------------|------------------------------------------|------------|----|
| <b>MR20DD</b> .....                      | <b>406</b> | <b>MR20DD</b> .....                      | <b>431</b> |    |
| MR20DD : Exploded View .....             | 406        | MR20DD : Exploded View .....             | 431        | A  |
| MR20DD : Removal and Installation .....  | 406        | MR20DD : Removal and Installation .....  | 431        |    |
| MR20DD : Inspection .....                | 408        | MR20DD : Inspection .....                | 432        |    |
| <b>QR25DE</b> .....                      | <b>408</b> | <b>QR25DE</b> .....                      | <b>433</b> | B  |
| QR25DE : Exploded View .....             | 409        | QR25DE : Exploded View .....             | 433        |    |
| QR25DE : Removal and Installation .....  | 409        | QR25DE : Removal and Installation .....  | 433        |    |
| QR25DE : Inspection .....                | 411        | QR25DE : Inspection .....                | 434        | C  |
| <b>KEY INTERLOCK CABLE</b> .....         | <b>412</b> | <b>CVT FLUID COOLER SYSTEM</b> .....     | <b>436</b> |    |
| Exploded View .....                      | 412        | <b>MR20DD</b> .....                      | <b>436</b> | TM |
| Removal and Installation .....           | 412        | MR20DD : Exploded View .....             | 436        |    |
| Inspection .....                         | 413        | MR20DD : Removal and Installation .....  | 437        |    |
| <b>TCM</b> .....                         | <b>415</b> | MR20DD : Inspection and Adjustment ..... | 440        | E  |
| Exploded View .....                      | 415        | <b>QR25DE</b> .....                      | <b>440</b> |    |
| Removal and Installation .....           | 415        | QR25DE : Exploded View .....             | 441        | F  |
| Adjustment .....                         | 416        | QR25DE : Removal and Installation .....  | 441        |    |
| <b>AIR BREATHER</b> .....                | <b>417</b> | QR25DE : Inspection and Adjustment ..... | 444        |    |
| <b>MR20DD</b> .....                      | <b>417</b> | <b>CVT OIL WARMER</b> .....              | <b>445</b> | G  |
| MR20DD : Exploded View .....             | 417        | <b>MR20DD</b> .....                      | <b>445</b> |    |
| MR20DD : Removal and Installation .....  | 417        | MR20DD : Exploded View .....             | 445        |    |
| <b>QR25DE</b> .....                      | <b>417</b> | MR20DD : Removal and Installation .....  | 445        | H  |
| QR25DE : Exploded View .....             | 418        | MR20DD : Inspection and Adjustment ..... | 446        |    |
| QR25DE : Removal and Installation .....  | 418        | <b>QR25DE</b> .....                      | <b>446</b> | I  |
| <b>OIL PAN</b> .....                     | <b>419</b> | QR25DE : Exploded View .....             | 446        |    |
| Exploded View .....                      | 419        | QR25DE : Removal and Installation .....  | 446        |    |
| Removal and Installation .....           | 419        | QR25DE : Inspection and Adjustment ..... | 447        | J  |
| Inspection .....                         | 421        | <b>PLUG</b> .....                        | <b>448</b> |    |
| <b>INPUT SPEED SENSOR</b> .....          | <b>422</b> | Description .....                        | 448        |    |
| <b>MR20DD</b> .....                      | <b>422</b> | Exploded View .....                      | 448        | K  |
| MR20DD : Exploded View .....             | 422        | Removal and Installation .....           | 448        |    |
| MR20DD : Removal and Installation .....  | 422        | Inspection and Adjustment .....          | 448        |    |
| MR20DD : Inspection and Adjustment ..... | 423        | <b>UNIT REMOVAL AND INSTALLATION</b> ... | <b>449</b> | L  |
| <b>QR25DE</b> .....                      | <b>423</b> | <b>TRANSAXLE ASSEMBLY</b> .....          | <b>449</b> |    |
| QR25DE : Exploded View .....             | 423        | Exploded View .....                      | 449        | M  |
| QR25DE : Removal and Installation .....  | 424        | Removal and Installation .....           | 450        |    |
| QR25DE : Inspection and Adjustment ..... | 424        | Inspection and Adjustment .....          | 452        |    |
| <b>PRIMARY SPEED SENSOR</b> .....        | <b>425</b> | <b>UNIT DISASSEMBLY AND ASSEMBLY</b> .   | <b>453</b> | N  |
| Exploded View .....                      | 425        | <b>TORQUE CONVERTER AND CONVERTER</b>    |            |    |
| Removal and Installation .....           | 425        | <b>HOUSING OIL SEAL</b> .....            | <b>453</b> | O  |
| Inspection and Adjustment .....          | 426        | Exploded View .....                      | 453        |    |
| <b>OUTPUT SPEED SENSOR</b> .....         | <b>427</b> | Disassembly .....                        | 453        |    |
| Exploded View .....                      | 427        | Assembly .....                           | 453        | P  |
| Removal and Installation .....           | 427        | Inspection .....                         | 454        |    |
| Inspection and Adjustment .....          | 428        | <b>SERVICE DATA AND SPECIFICATIONS</b>   |            |    |
| <b>DIFFERENTIAL SIDE OIL SEAL</b> .....  | <b>429</b> | <b>(SDS)</b> .....                       | <b>456</b> |    |
| Exploded View .....                      | 429        | <b>SERVICE DATA AND SPECIFICATIONS</b>   |            |    |
| Removal and Installation .....           | 429        | <b>(SDS)</b> .....                       | <b>456</b> |    |
| Inspection and Adjustment .....          | 430        | General Specification .....              | 456        |    |
| <b>WATER HOSE</b> .....                  | <b>431</b> |                                          |            |    |

|                                                                                                  |            |                                                               |            |
|--------------------------------------------------------------------------------------------------|------------|---------------------------------------------------------------|------------|
| Shift Characteristics .....                                                                      | 456        | CVT CONTROL SYSTEM : Torque Converter                         |            |
| Stall Speed .....                                                                                | 456        | Clutch Solenoid Valve .....                                   | 476        |
| Torque Converter .....                                                                           | 457        | CVT CONTROL SYSTEM : Line Pressure Solenoid Valve .....       | 477        |
| Heater Thermostat .....                                                                          | 457        | CVT CONTROL SYSTEM : G Sensor .....                           | 477        |
| <b>CVT: RE0F10G</b>                                                                              |            | CVT CONTROL SYSTEM : Electric Oil Pump .....                  | 477        |
| <b>HOW TO USE THIS MANUAL .....</b>                                                              | <b>458</b> | CVT CONTROL SYSTEM : Electric Oil Pump Relay .....            | 478        |
| <b>HOW TO USE THIS SECTION .....</b>                                                             | <b>458</b> | CVT CONTROL SYSTEM : Manual Mode Switch .....                 | 478        |
| Information .....                                                                                | 458        | <b>SHIFT LOCK SYSTEM .....</b>                                | <b>478</b> |
| <b>PRECAUTION .....</b>                                                                          | <b>459</b> | SHIFT LOCK SYSTEM : Component Parts Location .....            | 478        |
| <b>PRECAUTIONS .....</b>                                                                         | <b>459</b> | SHIFT LOCK SYSTEM : Stop Lamp Switch .....                    | 480        |
| Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" ..... | 459        | SHIFT LOCK SYSTEM : Shift Lock Solenoid .....                 | 481        |
| Precaution Necessary for Steering Wheel Rotation After Battery Disconnect .....                  | 459        | SHIFT LOCK SYSTEM : Park Position Switch .....                | 481        |
| Precaution for Procedure without Cowl Top Cover .....                                            | 460        | <b>STRUCTURE AND OPERATION .....</b>                          | <b>482</b> |
| Precautions for Removing Battery Terminal .....                                                  | 460        | <b>TRANSAXLE .....</b>                                        | <b>482</b> |
| Precaution for TCM and Transaxle Assembly Replacement .....                                      | 461        | TRANSAXLE : Cross-Sectional View .....                        | 482        |
| General Precautions .....                                                                        | 461        | TRANSAXLE : Operation Status .....                            | 483        |
| On Board Diagnosis (OBD) System of CVT and Engine .....                                          | 462        | TRANSAXLE : Transaxle Mechanism .....                         | 483        |
| Removal and Installation Procedure for CVT Unit Connector .....                                  | 462        | TRANSAXLE : Oil Pressure System .....                         | 485        |
| <b>PREPARATION .....</b>                                                                         | <b>464</b> | TRANSAXLE : Component Description .....                       | 486        |
| <b>PREPARATION .....</b>                                                                         | <b>464</b> | <b>FLUID COOLER &amp; FLUID WARMER SYSTEM .....</b>           | <b>486</b> |
| Special Service Tools .....                                                                      | 464        | FLUID COOLER & FLUID WARMER SYSTEM : System Description ..... | 487        |
| Commercial Service Tools .....                                                                   | 464        | <b>SHIFT LOCK SYSTEM .....</b>                                | <b>487</b> |
| <b>SYSTEM DESCRIPTION .....</b>                                                                  | <b>466</b> | SHIFT LOCK SYSTEM : System Description .....                  | 487        |
| <b>COMPONENT PARTS .....</b>                                                                     | <b>466</b> | <b>KEY LOCK SYSTEM .....</b>                                  | <b>489</b> |
| <b>CVT CONTROL SYSTEM .....</b>                                                                  | <b>466</b> | KEY LOCK SYSTEM : System Description .....                    | 489        |
| CVT CONTROL SYSTEM : Component Parts Location .....                                              | 466        | <b>SYSTEM .....</b>                                           | <b>490</b> |
| CVT CONTROL SYSTEM : TCM .....                                                                   | 472        | <b>CVT CONTROL SYSTEM .....</b>                               | <b>490</b> |
| CVT CONTROL SYSTEM : Transmission Range Switch .....                                             | 472        | CVT CONTROL SYSTEM : System Description .....                 | 490        |
| CVT CONTROL SYSTEM : Primary Speed Sensor .....                                                  | 472        | CVT CONTROL SYSTEM : Circuit Diagram .....                    | 492        |
| CVT CONTROL SYSTEM : Output Speed Sensor .....                                                   | 473        | CVT CONTROL SYSTEM : Fail-safe .....                          | 492        |
| CVT CONTROL SYSTEM : Input Speed Sensor .....                                                    | 474        | CVT CONTROL SYSTEM : Protection Control .....                 | 497        |
| CVT CONTROL SYSTEM : CVT Fluid Temperature Sensor .....                                          | 474        | <b>LINE PRESSURE CONTROL .....</b>                            | <b>498</b> |
| CVT CONTROL SYSTEM : Primary Pressure Sensor .....                                               | 475        | LINE PRESSURE CONTROL : System Description .....              | 498        |
| CVT CONTROL SYSTEM : Secondary Pressure Sensor .....                                             | 475        | <b>SHIFT CONTROL .....</b>                                    | <b>498</b> |
| CVT CONTROL SYSTEM : Primary Pressure Solenoid Valve .....                                       | 475        | SHIFT CONTROL : System Description .....                      | 499        |
| CVT CONTROL SYSTEM : Secondary Pressure Solenoid Valve .....                                     | 476        | <b>SELECT CONTROL .....</b>                                   | <b>502</b> |
| CVT CONTROL SYSTEM : Select Solenoid Valve .....                                                 | 476        | SELECT CONTROL : System Description .....                     | 502        |
|                                                                                                  |            | <b>LOCK-UP CONTROL .....</b>                                  | <b>502</b> |
|                                                                                                  |            | LOCK-UP CONTROL : System Description .....                    | 503        |
|                                                                                                  |            | <b>ECO MODE SYSTEM .....</b>                                  | <b>503</b> |
|                                                                                                  |            | ECO MODE SYSTEM : System Description .....                    | 503        |
|                                                                                                  |            | <b>STOP/START SYSTEM .....</b>                                | <b>504</b> |
|                                                                                                  |            | STOP/START SYSTEM : System Description .....                  | 504        |

|                                                                                         |            |    |
|-----------------------------------------------------------------------------------------|------------|----|
| <b>INFORMATION DISPLAY (COMBINATION METER) .....</b>                                    | <b>505</b> |    |
| INFORMATION DISPLAY (COMBINATION METER) : Shift Position Indicator .....                | 505        |    |
| <b>WARNING/INDICATOR/CHIME LIST .....</b>                                               | <b>506</b> |    |
| WARNING/INDICATOR/CHIME LIST : Warning Lamp/Indicator Lamp .....                        | 506        |    |
| WARNING/INDICATOR/CHIME LIST : Warning/Indicator (On Information Display) .....         | 506        |    |
| <b>ON BOARD DIAGNOSTIC (OBD) SYSTEM ...</b>                                             | <b>507</b> |    |
| Description .....                                                                       | 507        |    |
| GST (Generic Scan Tool) .....                                                           | 507        |    |
| <b>DIAGNOSIS SYSTEM (TCM) .....</b>                                                     | <b>508</b> |    |
| <b>DIAGNOSIS DESCRIPTION .....</b>                                                      | <b>508</b> |    |
| DIAGNOSIS DESCRIPTION : 1 Trip Detection Diagnosis and 2 Trip Detection Diagnosis ..... | 508        |    |
| DIAGNOSIS DESCRIPTION : DTC and DTC of 1st Trip .....                                   | 508        |    |
| DIAGNOSIS DESCRIPTION : Malfunction Indicator Lamp (MIL) .....                          | 508        |    |
| DIAGNOSIS DESCRIPTION : Counter System ...                                              | 508        |    |
| CONSULT Function .....                                                                  | 510        |    |
| <b>ECU DIAGNOSIS INFORMATION .....</b>                                                  | <b>515</b> |    |
| <b>TCM .....</b>                                                                        | <b>515</b> |    |
| Reference Value .....                                                                   | 515        |    |
| Fail-safe .....                                                                         | 522        |    |
| Protection Control .....                                                                | 527        |    |
| DTC Inspection Priority Chart .....                                                     | 528        |    |
| DTC Index .....                                                                         | 529        |    |
| <b>WIRING DIAGRAM .....</b>                                                             | <b>531</b> |    |
| <b>CVT CONTROL SYSTEM .....</b>                                                         | <b>531</b> |    |
| Wiring Diagram .....                                                                    | 531        |    |
| <b>CVT SHIFT LOCK SYSTEM .....</b>                                                      | <b>538</b> |    |
| Wiring Diagram .....                                                                    | 538        |    |
| <b>BASIC INSPECTION .....</b>                                                           | <b>541</b> |    |
| <b>DIAGNOSIS AND REPAIR WORK FLOW ....</b>                                              | <b>541</b> |    |
| Work Flow .....                                                                         | 541        |    |
| Diagnostic Work Sheet .....                                                             | 542        |    |
| <b>ADDITIONAL SERVICE WHEN REPLACING TCM .....</b>                                      | <b>544</b> |    |
| Description .....                                                                       | 544        |    |
| Work Procedure .....                                                                    | 544        |    |
| <b>ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY .....</b>                       | <b>546</b> |    |
| Description .....                                                                       | 546        |    |
| Work Procedure .....                                                                    | 546        |    |
| <b>ADDITIONAL SERVICE WHEN REPLACING TCM AND TRANSAXLE ASSEMBLY .....</b>               | <b>548</b> |    |
| Description .....                                                                       | 548        |    |
| Work Procedure .....                                                                    | 548        | A  |
| <b>CALIBRATION OF G SENSOR .....</b>                                                    | <b>551</b> |    |
| Description .....                                                                       | 551        | B  |
| Work Procedure .....                                                                    | 551        |    |
| <b>BLEEDING ELECTRIC OIL PUMP .....</b>                                                 | <b>552</b> |    |
| Description .....                                                                       | 552        | C  |
| Work Procedure .....                                                                    | 552        |    |
| <b>STALL TEST .....</b>                                                                 | <b>553</b> |    |
| Work Procedure .....                                                                    | 553        | TM |
| <b>CVT POSITION .....</b>                                                               | <b>554</b> |    |
| Inspection .....                                                                        | 554        | E  |
| Adjustment .....                                                                        | 554        |    |
| <b>DTC/CIRCUIT DIAGNOSIS .....</b>                                                      | <b>555</b> |    |
| <b>U0073 COMMUNICATION BUS A OFF .....</b>                                              | <b>555</b> |    |
| DTC Description .....                                                                   | 555        | F  |
| Diagnosis Procedure .....                                                               | 555        | G  |
| <b>U0100 LOST COMMUNICATION (ECM A) ....</b>                                            | <b>556</b> |    |
| DTC Description .....                                                                   | 556        | H  |
| Diagnosis Procedure .....                                                               | 556        |    |
| <b>U0102 LOST COMMUNICATION (TRANSFER) .....</b>                                        | <b>557</b> |    |
| DTC Description .....                                                                   | 557        | I  |
| Diagnosis Procedure .....                                                               | 557        |    |
| <b>U0140 LOST COMMUNICATION (BCM) .....</b>                                             | <b>558</b> |    |
| DTC Description .....                                                                   | 558        | J  |
| Diagnosis Procedure .....                                                               | 558        |    |
| <b>U0141 LOST COMMUNICATION (BCM A) ....</b>                                            | <b>559</b> |    |
| DTC Description .....                                                                   | 559        | K  |
| Diagnosis Procedure .....                                                               | 559        |    |
| <b>U0155 LOST COMMUNICATION (IPC) .....</b>                                             | <b>560</b> |    |
| DTC Description .....                                                                   | 560        | L  |
| Diagnosis Procedure .....                                                               | 560        |    |
| <b>U0300 CAN COMMUNICATION DATA .....</b>                                               | <b>561</b> |    |
| DTC Description .....                                                                   | 561        | M  |
| Diagnosis Procedure .....                                                               | 561        |    |
| <b>U1000 CAN COMM CIRCUIT .....</b>                                                     | <b>563</b> |    |
| DTC Description .....                                                                   | 563        | N  |
| Diagnosis Procedure .....                                                               | 563        |    |
| <b>U110F LOST COMMUNICATION (ECM) .....</b>                                             | <b>564</b> |    |
| DTC Description .....                                                                   | 564        | O  |
| Diagnosis Procedure .....                                                               | 564        |    |
| <b>U1111 LOST COMMUNICATION (CHASSIS CONTROL MODULE) .....</b>                          | <b>565</b> |    |
| DTC Description .....                                                                   | 565        | P  |
| Diagnosis Procedure .....                                                               | 565        |    |

|                                               |            |                                               |            |
|-----------------------------------------------|------------|-----------------------------------------------|------------|
| <b>U1117 LOST COMMUNICATION (ABS) .....</b>   | <b>566</b> | Diagnosis Procedure .....                     | 598        |
| DTC Description .....                         | 566        |                                               |            |
| Diagnosis Procedure .....                     | 566        |                                               |            |
| <b>P062F EEPROM .....</b>                     | <b>567</b> | <b>P0826 UP AND DOWN SHIFT SW .....</b>       | <b>600</b> |
| DTC Description .....                         | 567        | DTC Description .....                         | 600        |
| Diagnosis Procedure .....                     | 567        | Diagnosis Procedure .....                     | 601        |
|                                               |            | Component Inspection .....                    | 602        |
| <b>P0705 TRANSMISSION RANGE SENSOR A. 568</b> |            | <b>P0841 TRANSMISSION FLUID PRESSURE</b>      |            |
| DTC Description .....                         | 568        | <b>SEN/SW A .....</b>                         | <b>603</b> |
| Diagnosis Procedure .....                     | 568        | DTC Description .....                         | 603        |
| Component Inspection .....                    | 572        | Diagnosis Procedure .....                     | 603        |
| <b>P0706 TRANSMISSION RANGE SENSOR A. 573</b> |            | <b>P0847 TRANSMISSION FLUID PRESSURE</b>      |            |
| DTC Description .....                         | 573        | <b>SEN/SW B .....</b>                         | <b>605</b> |
| Diagnosis Procedure .....                     | 573        | DTC Description .....                         | 605        |
| Component Inspection .....                    | 575        | Diagnosis Procedure .....                     | 605        |
| <b>P0712 TRANSMISSION FLUID TEMPERA-</b>      |            | <b>P0848 TRANSMISSION FLUID PRESSURE</b>      |            |
| <b>TURE SENSOR A .....</b>                    | <b>576</b> | <b>SEN/SW B .....</b>                         | <b>607</b> |
| DTC Description .....                         | 576        | DTC Description .....                         | 607        |
| Diagnosis Procedure .....                     | 576        | Diagnosis Procedure .....                     | 607        |
| <b>P0713 TRANSMISSION FLUID TEMPERA-</b>      |            | <b>P084C TRANSMISSION FLUID PRESSURE</b>      |            |
| <b>TURE SENSOR A .....</b>                    | <b>578</b> | <b>SEN/SW H .....</b>                         | <b>609</b> |
| DTC Description .....                         | 578        | DTC Description .....                         | 609        |
| Diagnosis Procedure .....                     | 579        | Diagnosis Procedure .....                     | 609        |
| <b>P0715 INPUT SPEED SENSOR A .....</b>       | <b>580</b> | <b>P084D TRANSMISSION FLUID PRESSURE</b>      |            |
| DTC Description .....                         | 580        | <b>SEN/SW H .....</b>                         | <b>611</b> |
| Diagnosis Procedure .....                     | 581        | DTC Description .....                         | 611        |
|                                               |            | Diagnosis Procedure .....                     | 611        |
| <b>P0717 INPUT SPEED SENSOR A .....</b>       | <b>583</b> | <b>P0863 TCM COMMUNICATION .....</b>          | <b>613</b> |
| DTC Description .....                         | 583        | DTC Description .....                         | 613        |
| Diagnosis Procedure .....                     | 584        | Diagnosis Procedure .....                     | 613        |
| <b>P0740 TORQUE CONVERTER .....</b>           | <b>586</b> | <b>P0890 TCM .....</b>                        | <b>614</b> |
| DTC Description .....                         | 586        | DTC Description .....                         | 614        |
| Diagnosis Procedure .....                     | 587        | Diagnosis Procedure .....                     | 614        |
| <b>P0743 TORQUE CONVERTER .....</b>           | <b>588</b> | <b>P0962 PRESSURE CONTROL SOLENOID A. 616</b> |            |
| DTC Description .....                         | 588        | DTC Description .....                         | 616        |
| Diagnosis Procedure .....                     | 589        | Diagnosis Procedure .....                     | 616        |
| <b>P0744 TORQUE CONVERTER .....</b>           | <b>590</b> | <b>P0963 PRESSURE CONTROL SOLENOID A. 618</b> |            |
| DTC Description .....                         | 590        | DTC Description .....                         | 618        |
| Diagnosis Procedure .....                     | 591        | Diagnosis Procedure .....                     | 618        |
| <b>P0746 PRESSURE CONTROL SOLENOID A. 592</b> |            | <b>P0965 PRESSURE CONTROL SOLENOID B. 620</b> |            |
| DTC Description .....                         | 592        | DTC Description .....                         | 620        |
| Diagnosis Procedure .....                     | 593        | Diagnosis Procedure .....                     | 621        |
| <b>P0776 PRESSURE CONTROL SOLENOID B. 594</b> |            | <b>P0966 PRESSURE CONTROL SOLENOID B. 622</b> |            |
| DTC Description .....                         | 594        | DTC Description .....                         | 622        |
| Diagnosis Procedure .....                     | 595        | Diagnosis Procedure .....                     | 622        |
| <b>P0778 PRESSURE CONTROL SOLENOID B. 596</b> |            | <b>P0967 PRESSURE CONTROL SOLENOID B. 624</b> |            |
| DTC Description .....                         | 596        | DTC Description .....                         | 624        |
| Diagnosis Procedure .....                     | 596        | Diagnosis Procedure .....                     | 624        |
| <b>P0779 PRESSURE CONTROL SOLENOID B. 598</b> |            | <b>P1586 G SENSOR .....</b>                   | <b>626</b> |
| DTC Description .....                         | 598        | DTC Description .....                         | 626        |

|                                                              |            |    |
|--------------------------------------------------------------|------------|----|
| Diagnosis Procedure .....                                    | 626        |    |
| <b>P1588 G SENSOR .....</b>                                  | <b>629</b> |    |
| DTC Description .....                                        | 629        |    |
| Diagnosis Procedure .....                                    | 630        |    |
| <b>P188E ELECTRIC OIL PUMP .....</b>                         | <b>632</b> |    |
| DTC Description .....                                        | 632        |    |
| Diagnosis Procedure .....                                    | 633        |    |
| Component Inspection (Electric Oil Pump Relay) ..            | 635        |    |
| Component Inspection (Diode) .....                           | 635        |    |
| <b>P188F ELECTRIC OIL PUMP .....</b>                         | <b>637</b> |    |
| DTC Description .....                                        | 637        |    |
| Diagnosis Procedure .....                                    | 638        |    |
| <b>P1890 ELECTRIC OIL PUMP RELAY .....</b>                   | <b>639</b> |    |
| DTC Description .....                                        | 639        |    |
| Diagnosis Procedure .....                                    | 639        |    |
| Component Inspection (Electric Oil Pump Relay) ..            | 641        |    |
| Component Inspection (Diode) .....                           | 641        |    |
| <b>P2765 INPUT SPEED SENSOR B .....</b>                      | <b>643</b> |    |
| DTC Description .....                                        | 643        |    |
| Diagnosis Procedure .....                                    | 644        |    |
| <b>P2813 SELECT SOLENOID .....</b>                           | <b>646</b> |    |
| DTC Description .....                                        | 646        |    |
| Diagnosis Procedure .....                                    | 647        |    |
| <b>P2814 SELECT SOLENOID .....</b>                           | <b>648</b> |    |
| DTC Description .....                                        | 648        |    |
| Diagnosis Procedure .....                                    | 648        |    |
| <b>P2815 SELECT SOLENOID .....</b>                           | <b>650</b> |    |
| DTC Description .....                                        | 650        |    |
| Diagnosis Procedure .....                                    | 650        |    |
| <b>MAIN POWER SUPPLY AND GROUND CIR-<br/>CUIT .....</b>      | <b>652</b> |    |
| Diagnosis Procedure .....                                    | 652        |    |
| <b>SHIFT POSITION INDICATOR CIRCUIT .....</b>                | <b>654</b> |    |
| Component Parts Function Inspection .....                    | 654        |    |
| Diagnosis Procedure .....                                    | 654        |    |
| <b>SHIFT LOCK SYSTEM .....</b>                               | <b>655</b> |    |
| Component Function Check .....                               | 655        |    |
| Diagnosis Procedure .....                                    | 655        |    |
| Component Inspection (Shift Lock Solenoid) .....             | 656        |    |
| Component Inspection (Park Position Switch) .....            | 657        |    |
| Component Inspection (CVT Shift Selector Har-<br>ness) ..... | 657        |    |
| Component Inspection (Stop Lamp Switch) .....                | 658        |    |
| <b>SYMPTOM DIAGNOSIS .....</b>                               | <b>659</b> |    |
| <b>CVT CONTROL SYSTEM .....</b>                              | <b>659</b> |    |
| Symptom Table .....                                          | 659        |    |
| <b>PERIODIC MAINTENANCE .....</b>                            | <b>663</b> |    |
| <b>CVT FLUID .....</b>                                       | <b>663</b> |    |
| Inspection .....                                             | 663        | A  |
| Replacement .....                                            | 663        |    |
| Adjustment .....                                             | 665        |    |
| <b>REMOVAL AND INSTALLATION .....</b>                        | <b>667</b> | B  |
| <b>CVT SHIFT SELECTOR .....</b>                              | <b>667</b> |    |
| Exploded View .....                                          | 667        | C  |
| Removal and Installation .....                               | 667        |    |
| Disassembly and Assembly .....                               | 668        |    |
| Inspection .....                                             | 669        | TM |
| <b>CONTROL CABLE .....</b>                                   | <b>670</b> |    |
| Exploded View .....                                          | 670        |    |
| Removal and Installation .....                               | 670        | E  |
| Inspection .....                                             | 672        |    |
| <b>KEY INTERLOCK CABLE .....</b>                             | <b>673</b> |    |
| Exploded View .....                                          | 673        | F  |
| Removal and Installation .....                               | 673        |    |
| Inspection .....                                             | 674        | G  |
| <b>TCM .....</b>                                             | <b>676</b> |    |
| Exploded View .....                                          | 676        |    |
| Removal and Installation .....                               | 676        | H  |
| Adjustment .....                                             | 677        |    |
| <b>G SENSOR .....</b>                                        | <b>678</b> |    |
| Exploded View .....                                          | 678        | I  |
| Removal and Installation .....                               | 678        |    |
| Adjustment .....                                             | 679        | J  |
| <b>AIR BREATHER .....</b>                                    | <b>680</b> |    |
| Exploded View .....                                          | 680        | K  |
| Removal and Installation .....                               | 680        |    |
| <b>OIL PAN .....</b>                                         | <b>681</b> |    |
| Exploded View .....                                          | 681        | L  |
| Removal and Installation .....                               | 681        |    |
| Inspection .....                                             | 683        |    |
| <b>INPUT SPEED SENSOR .....</b>                              | <b>684</b> |    |
| Exploded View .....                                          | 684        | M  |
| Removal and Installation .....                               | 684        |    |
| Inspection and Adjustment .....                              | 685        | N  |
| <b>PRIMARY SPEED SENSOR .....</b>                            | <b>686</b> |    |
| Exploded View .....                                          | 686        | O  |
| Removal and Installation .....                               | 686        |    |
| Inspection and Adjustment .....                              | 687        | P  |
| <b>OUTPUT SPEED SENSOR .....</b>                             | <b>688</b> |    |
| Exploded View .....                                          | 688        |    |
| Removal and Installation .....                               | 688        |    |
| Inspection and Adjustment .....                              | 689        |    |
| <b>DIFFERENTIAL SIDE OIL SEAL .....</b>                      | <b>690</b> |    |
| Exploded View .....                                          | 690        |    |
| Removal and Installation .....                               | 690        |    |
| Inspection and Adjustment .....                              | 691        |    |

|                                      |            |                                          |            |
|--------------------------------------|------------|------------------------------------------|------------|
| <b>WATER HOSE .....</b>              | <b>692</b> | <b>UNIT REMOVAL AND INSTALLATION ...</b> | <b>704</b> |
| Exploded View .....                  | 692        | <b>TRANSAXLE ASSEMBLY .....</b>          | <b>704</b> |
| Removal and Installation .....       | 692        | Exploded View .....                      | 704        |
| Inspection .....                     | 693        | Removal and Installation .....           | 704        |
| <b>CVT FLUID COOLER SYSTEM .....</b> | <b>694</b> | Inspection and Adjustment .....          | 706        |
| Exploded View .....                  | 694        | <b>UNIT DISASSEMBLY AND ASSEMBLY ..</b>  | <b>707</b> |
| Removal and Installation .....       | 695        | <b>TORQUE CONVERTER AND CONVERTER</b>    |            |
| Inspection and Adjustment .....      | 698        | <b>HOUSING OIL SEAL .....</b>            | <b>707</b> |
| <b>CVT OIL WARMER .....</b>          | <b>699</b> | Exploded View .....                      | 707        |
| Exploded View .....                  | 699        | Disassembly .....                        | 707        |
| Removal and Installation .....       | 699        | Assembly .....                           | 707        |
| Inspection and Adjustment .....      | 700        | Inspection .....                         | 708        |
| <b>PLUG .....</b>                    | <b>701</b> | <b>SERVICE DATA AND SPECIFICATIONS</b>   |            |
| Description .....                    | 701        | <b>(SDS) .....</b>                       | <b>710</b> |
| Exploded View .....                  | 701        | <b>SERVICE DATA AND SPECIFICATIONS</b>   |            |
| Removal and Installation .....       | 701        | <b>(SDS) .....</b>                       | <b>710</b> |
| Inspection and Adjustment .....      | 701        | General Specification .....              | 710        |
| <b>ELECTRIC OIL PUMP .....</b>       | <b>702</b> | Shift Characteristics .....              | 710        |
| Exploded View .....                  | 702        | Stall Speed .....                        | 710        |
| Removal and Installation .....       | 702        | Torque Converter .....                   | 710        |
| Inspection and Adjustment .....      | 703        |                                          |            |



## PRECAUTION

### PRECAUTIONS

#### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010842510

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

#### **WARNING:**

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

#### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

#### **WARNING:**

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

#### Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:0000000010842511

#### **CAUTION:**

Comply with the following cautions to prevent any error and malfunction.

- Before removing and installing any control units, first turn the ignition power source and accessory power source to the OFF, then disconnect both battery cables.
- After finishing work, confirm that all control unit connectors are connected properly, then re-connect both battery cables.
- Always use CONSULT to perform self-diagnosis as a part of each function inspection after finishing work. If a DTC is detected, perform trouble diagnosis according to self-diagnosis results.

For vehicle with steering lock unit, if the battery is disconnected or discharged, the steering wheel will lock and cannot be turned.

If turning the steering wheel is required with the battery disconnected or discharged, follow the operation procedure below before starting the repair operation.

#### OPERATION PROCEDURE

1. Connect both battery cables.

#### **NOTE:**

Supply power using jumper cables if battery is discharged.

2. Open driver door.
3. Turn the ignition switch to the ON position.  
(At this time, the steering lock will be released.)
4. Turn the ignition switch to OFF position with driver door open.
5. Wait for 3 minutes or longer with driver door open.

#### **NOTE:**

- Do not close driver door because the steering wheel locks when driver door is closed.

## PRECAUTIONS

< PRECAUTION >

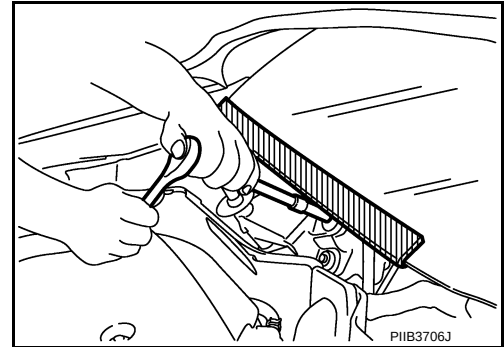
[6MT: RS6F94R]

- The auto acc function is adapted to this vehicle. For this reason, even when the ignition switch is turned to OFF position, the accessory power source does not turned OFF and continues to be supplied for a certain amount of time.
- 6. Disconnect both battery cables. The steering lock will remain released with both battery cables disconnected and the steering wheel can be turned.
- 7. Perform the necessary repair operation.
- 8. When the repair work is completed, re-connect both battery cables. With the brake pedal released, turn the ignition switch from OFF position to ON position, then to LOCK position. (The steering wheel will lock when the ignition switch is turned to LOCK position.)
- 9. Perform self-diagnosis check of all control units using CONSULT.

### Precaution for Procedure without Cowl Top Cover

INFOID:000000010842512

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



### Precautions for Removing Battery Terminal

INFOID:000000010842513

- With the adoption of Auto ACC function, ACC power is automatically supplied by operating the intelligent key or remote keyless entry or by opening/closing the driver side door. In addition, ACC power is supplied even after the ignition switch is turned to the OFF position, i.e. ACC power is supplied for a certain fixed time.
- When disconnecting the 12V battery terminal, turn off the ACC power before disconnecting the 12V battery terminal, observing "How to disconnect 12V battery terminal" described below.

#### NOTE:

Some ECUs operate for a certain fixed time even after ignition switch is turned OFF and ignition power supply is stopped. If the battery terminal is disconnected before ECU stops, accidental DTC detection or ECU data damage may occur.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

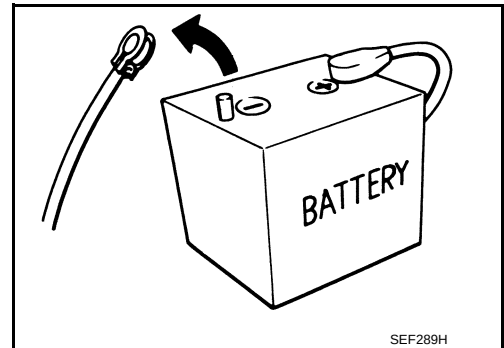
#### NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

#### NOTE:

The removal of 12V battery may cause a DTC detection error.



### HOW TO DISCONNECT 12V BATTERY TERMINAL

Disconnect 12V battery terminal according to Instruction 1 or Instruction 2 described below.

For vehicles parked by ignition switch OFF, refer to Instruction 2.

#### INSTRUCTION 1

1. Open the hood.
2. Turn key switch to the OFF position with the driver side door opened.
3. Get out of the vehicle and close the driver side door.
4. Wait at least 3 minutes. For vehicle with the engine listed below, remove the battery terminal after a lapse of the specified time.

D4D engine : 20 minutes

HRA2DDT : 12 minutes

# PRECAUTIONS

< PRECAUTION >

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- K9K engine : 4 minutes
- M9R engine : 4 minutes
- R9M engine : 4 minutes
- V9X engine : 4 minutes

## CAUTION:

While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.

5. Remove 12V battery terminal.

## CAUTION:

After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

## INSTRUCTION 2 (FOR VEHICLES PARKED BY IGNITION SWITCH OFF)

1. Unlock the door with intelligent key or remote keyless entry.

## NOTE:

At this moment, ACC power is supplied.

2. Open the driver side door.
3. Open the hood.
4. Close the driver side door.
5. Wait at least 3 minutes.

## CAUTION:

While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.

6. Remove 12V battery terminal.

## CAUTION:

After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

## Service Notice or Precautions for Manual Transaxle

INFOID:0000000010842433

## CAUTION:

Never reuse CSC (Concentric Slave Cylinder). Because CSC slides back to the original position every time when removing transaxle assembly. At this timing, dust on the sliding parts may damage a seal of CSC and may cause clutch fluid leakage. Refer to [CL-30, "Removal and Installation"](#).

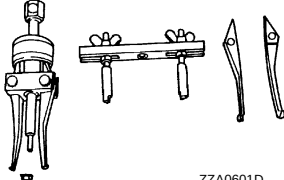
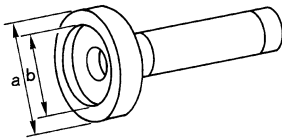
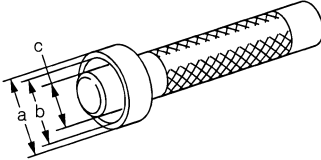
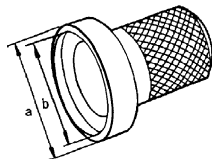
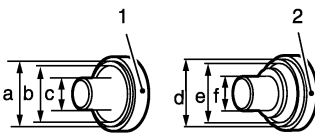
- Use recommended gear oil only, refer to [MA-23, "Fluids and Lubricants"](#).
- Never reuse transaxle gear oil, once it has been drained.
- Check oil level or replace gear oil with vehicle on level surface.
- During removal or installation, keep inside of transaxle clear of dust or dirt.
- Check for the correct installation status prior to removal or disassembly. If matching marks are required, be certain they never interfere with the function of the parts when applied.
- Overhaul should be done in a clean work area, it is preferable to work in dustproof area.
- Before disassembly, using steam or white gasoline, completely remove sand and mud from the exterior of the unit, preventing them from entering into the unit during disassembly or assembly.
- Check appearance of the disassembled parts for damage, deformation, and unusual wear. Replace them with a new ones if necessary.
- Gaskets, seals and O-rings should be replaced any time when the unit is disassembled.
- In principle, tighten bolts or nuts gradually in several steps working diagonally from inside to outside. If tightening sequence is specified, observe it.
- Clean and flush the parts sufficiently and blow-dry them.
- Never damage sliding surfaces and mating surfaces.
- When applying sealant, remove the old sealant from the mounting surface; then remove any moisture, oil, and foreign materials from the application and mounting surfaces.
- During assembly, observe the specified tightening torque, and apply new gear oil, petroleum jelly, or multi-purpose grease as specified for each vehicle, if necessary.

## PREPARATION

### PREPARATION

#### Special Service Tools

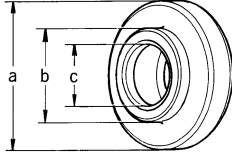
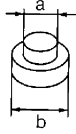
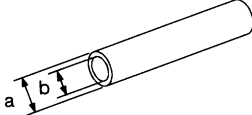
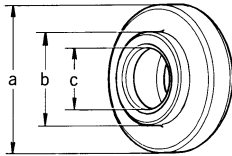
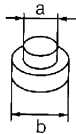
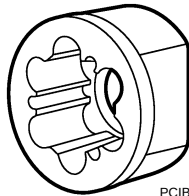
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| Tool number<br>Tool name                                                                                                                                                                                                                                                                                                                |                                                                                     | Description                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| KV381054S0<br>Puller                                                                                                                                                                                                                                                                                                                    |    | Removing mainshaft front bearing outer race                                                                                                                                                                                          |
| KV38100200<br>Drift<br>a: 65 mm (2.56 in) dia.<br>b: 49 mm (1.93 in) dia.                                                                                                                                                                                                                                                               |    | <ul style="list-style-type: none"> <li>Installing mainshaft front bearing outer race</li> <li>Installing mainshaft rear bearing outer race</li> <li>Installing differential side bearing outer race (clutch housing side)</li> </ul> |
| ST33220000<br>Drift<br>a: 37 mm (1.46 in) dia.<br>b: 31 mm (1.22 in) dia.<br>c: 22 mm (0.87 in) dia.                                                                                                                                                                                                                                    |  | Installing input shaft oil seal                                                                                                                                                                                                      |
| ST33400001<br>Drift<br>a: 60 mm (2.36 in) dia.<br>b: 47 mm (1.85 in) dia.                                                                                                                                                                                                                                                               |  | Installing differential side bearing outer race (transaxle case side)                                                                                                                                                                |
| KV32500QAA<br>(Renault SST: B.vi 1666)<br>Drift set<br>1. —<br>(Stamping number: B.vi 1666-A)<br>Drift<br>a: 54.3 mm (2.138 in) dia.<br>b: 45 mm (1.77 in) dia.<br>c: 26.6 mm (1.047 in) dia.<br>2. —<br>(Stamping number: B.vi 1666-B)<br>Drift<br>d: 54 mm (2.13 in) dia.<br>e: 48.6 mm (1.913 in) dia.<br>f: 26.6 mm (1.047 in) dia. |  | Installing differential side oil seal                                                                                                                                                                                                |

# PREPARATION

< PREPARATION >

[6MT: RS6F94R]

| Tool number<br>Tool name                                                                                | Description                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ST36720030<br>Drift<br>a: 70 mm (2.76 in) dia.<br>b: 40 mm (1.57 in) dia.<br>c: 29 mm (1.14 in) dia.    | <br>ZZA0978D    | <ul style="list-style-type: none"> <li>• Installing input shaft rear bearing</li> <li>• Installing mainshaft front bearing inner race</li> </ul>                                                                                                                                                                                                                                                                                                    |
| ST33052000<br>Drift<br>a: 22 mm (0.87 in) dia.<br>b: 28 mm (1.10 in) dia.                               | <br>ZZA0969D    | <ul style="list-style-type: none"> <li>• Removing mainshaft rear bearing inner race</li> <li>• Removing 6th main gear</li> <li>• Removing 5th main gear</li> <li>• Removing 4th main gear</li> <li>• Removing 1st main gear</li> <li>• Removing 1st-2nd synchronizer hub assembly</li> <li>• Removing 2nd main gear</li> <li>• Removing bushing</li> <li>• Removing 3rd main gear</li> <li>• Removing mainshaft front bearing inner race</li> </ul> |
| KV32102700<br>Drift<br>a: 48.6 mm (1.913 in) dia.<br>b: 41.6 mm (1.638 in) dia.                         | <br>S-NT065    | <ul style="list-style-type: none"> <li>• Installing bushing</li> <li>• Installing 2nd main gear</li> <li>• Installing 3rd main gear</li> <li>• Installing 4th main gear</li> <li>• Installing 5th main gear</li> <li>• Installing 6th main gear</li> </ul>                                                                                                                                                                                          |
| ST30901000<br>Drift<br>a: 79 mm (3.11 in) dia.<br>b: 45 mm (1.77 in) dia.<br>c: 35.2 mm (1.386 in) dia. | <br>ZZA0978D  | Installing mainshaft rear bearing inner race                                                                                                                                                                                                                                                                                                                                                                                                        |
| ST33061000<br>Drift<br>a: 28.5 mm (1.122 in) dia.<br>b: 38 mm (1.50 in) dia.                            | <br>ZZA0969D  | Removing differential side bearing inner race (clutch housing side)                                                                                                                                                                                                                                                                                                                                                                                 |
| KV32300QAM<br>(Renault SST: B.vi 1823)<br>Drift                                                         | <br>PCIB2078J | Removing and installing input shaft rear bearing mounting bolt                                                                                                                                                                                                                                                                                                                                                                                      |

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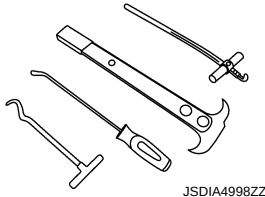
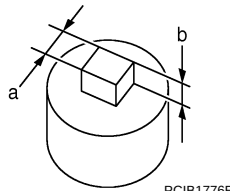
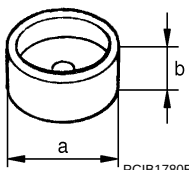
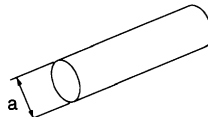
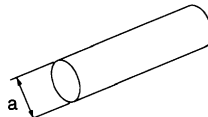
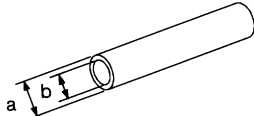
# PREPARATION

< PREPARATION >

[6MT: RS6F94R]

## Commercial Service Tools

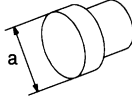
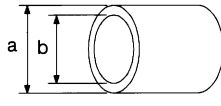
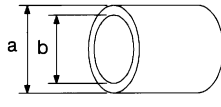
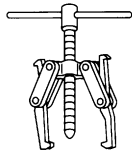
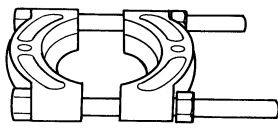
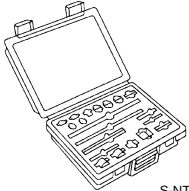
INFOID:000000010842435

| Tool name                                                                                                                                                                     | Description                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <p>Oil seal remover</p>  <p>JSDIA4998ZZ</p>                                                  | <ul style="list-style-type: none"> <li>Removing differential side oil seal</li> <li>Removing input shaft oil seal</li> </ul> |
| <p>Socket</p> <p>a: 8 mm (0.31 in)</p> <p>b: 5 mm (0.20 in)</p>  <p>PCIB1776E</p>            | <p>Removing and installing drain plug</p>                                                                                    |
| <p>Spacer</p> <p>a: 25 mm (0.98 in) dia.</p> <p>b: 25 mm (0.98 in)</p>  <p>PCIB1780E</p>    | <p>Removing mainshaft front bearing outer race</p>                                                                           |
| <p>Drift</p> <p>a: 17 mm (0.67 in) dia.</p>  <p>S-NT063</p>                                | <p>Installing bushing</p>                                                                                                    |
| <p>Drift</p> <p>a: 24 mm (0.94 in) dia.</p>  <p>S-NT063</p>                                | <p>Removing input shaft rear bearing</p>                                                                                     |
| <p>Drift</p> <p>a: 35 mm (1.38 in) dia.</p> <p>b: 25 mm (0.98 in) dia.</p>  <p>S-NT065</p> | <p>Installing input shaft front bearing</p>                                                                                  |

# PREPARATION

< PREPARATION >

[6MT: RS6F94R]

| Tool name                                                                                                                                                   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Drift<br>a: 43 mm (1.69 in) dia.<br><br>NT109                              | <ul style="list-style-type: none"> <li>Installing input shaft rear bearing</li> <li>Removing differential side bearing inner race (transaxle case side)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Drift<br>a: 45 mm (1.77 in) dia.<br>b: 39 mm (1.54 in) dia.<br><br>S-NT474 | Installing differential side bearing inner race (clutch housing side)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Drift<br>a: 52 mm (2.05 in) dia.<br>b: 45 mm (1.77 in) dia.<br><br>S-NT474 | Installing differential side bearing inner race (transaxle case side)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Puller<br><br>NT077                                                      | <ul style="list-style-type: none"> <li>Removing differential side bearing inner race (clutch housing side)</li> <li>Removing differential side bearing inner race (transaxle case side)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Separator<br><br>ZZB0823D                                                | <ul style="list-style-type: none"> <li>Removing differential side bearing inner race (clutch housing side)</li> <li>Removing differential side bearing inner race (transaxle case side)</li> <li>Removing input shaft rear bearing</li> <li>Removing input shaft front bearing</li> <li>Removing mainshaft rear bearing inner race</li> <li>Removing 6th main gear</li> <li>Removing 4th main gear</li> <li>Removing 5th main gear</li> <li>Removing 1st main gear</li> <li>Removing 1st-2nd synchronizer hub assembly</li> <li>Removing 2nd main gear</li> <li>Removing 3rd main gear</li> <li>Removing mainshaft front bearing inner race</li> </ul> |
| Remover<br><br>S-NT134                                                   | <ul style="list-style-type: none"> <li>Removing bushing</li> <li>Removing mainshaft rear bearing outer race</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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## PREPARATION

< PREPARATION >

[6MT: RS6F94R]

### Lubricant or/and Sealant

INFOID:0000000010842436

| Item                                                     | Use                                                                                                                                                   |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Genuine Liquid Gasket<br>(Three Bond 1215 or equivalent) | <ul style="list-style-type: none"><li>• Application to threads of position switch</li><li>• Application to mating surface of transaxle case</li></ul> |

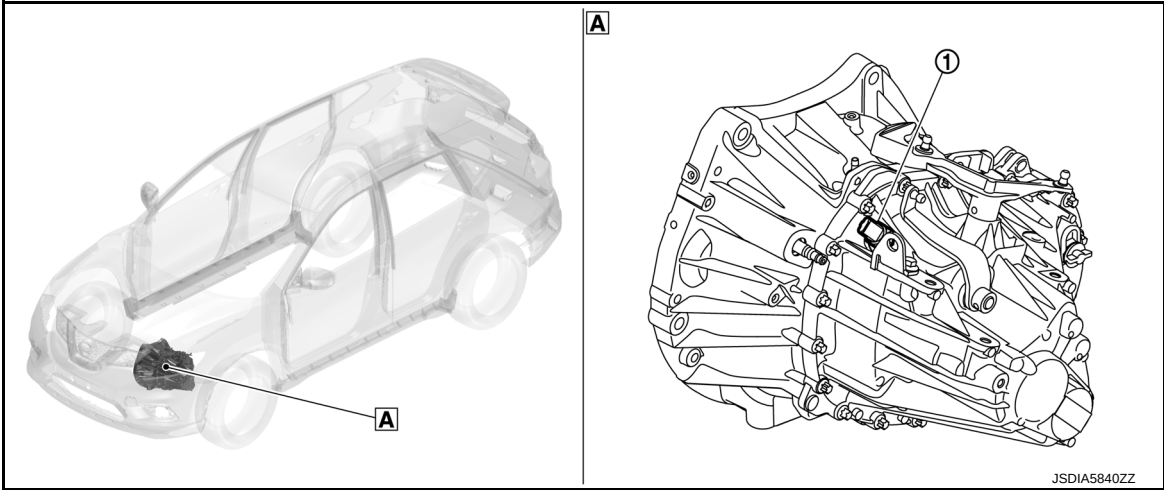


SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010842437



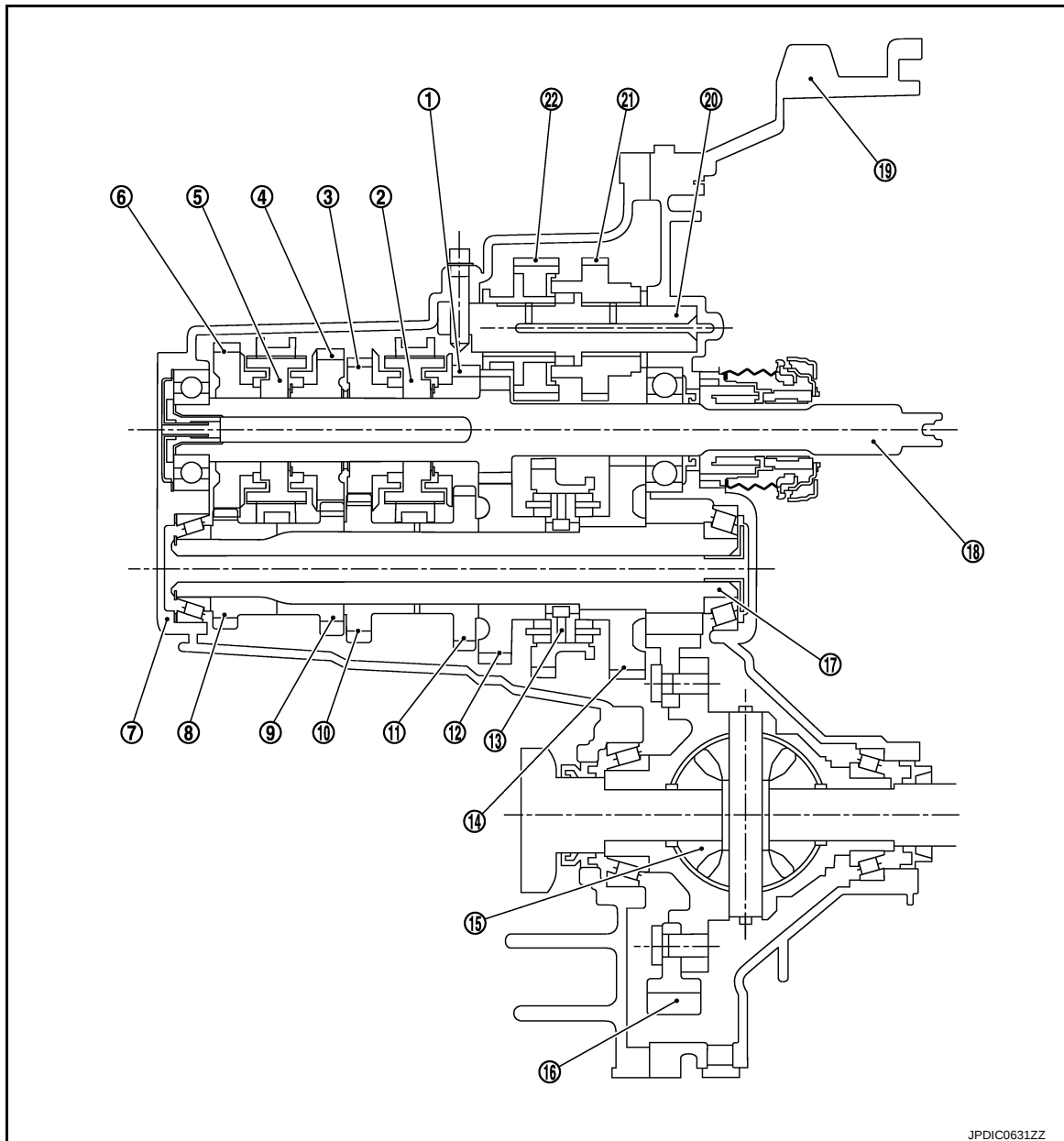
**A** Transaxle assembly

| No. | Component                                                                                                                          | Function                                                                                                                                                                                                                                                                                                                                     |
|-----|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ①   | Position switch <ul style="list-style-type: none"><li>• Park/Neutral position (PNP) switch</li><li>• Back-up lamp switch</li></ul> | Position switch includes park/neutral position (PNP) switch and back-up lamp switch. <ul style="list-style-type: none"><li>• Park/Neutral position (PNP) switch</li><li>• It detects that the transaxle is in neutral position.</li><li>• Back-up lamp switch</li><li>• It detects that the transaxle is in reverse gear position.</li></ul> |

## STRUCTURE AND OPERATION

### Sectional View

INFOID:000000010842438



JPDIC0631ZZ

- |                                     |                                     |                      |
|-------------------------------------|-------------------------------------|----------------------|
| ① 3rd input gear                    | ② 3rd-4th synchronizer hub assembly | ③ 4th input gear     |
| ④ 5th input gear                    | ⑤ 5th-6th synchronizer hub assembly | ⑥ 6th input gear     |
| ⑦ Transaxle case                    | ⑧ 6th main gear                     | ⑨ 5th main gear      |
| ⑩ 4th main gear                     | ⑪ 3rd main gear                     | ⑫ 2nd main gear      |
| ⑬ 1st-2nd synchronizer hub assembly | ⑭ 1st main gear                     | ⑮ Differential       |
| ⑯ Final gear                        | ⑰ Mainshaft                         | ⑱ Input shaft        |
| ⑲ Clutch housing                    | ⑳ Reverse idler shaft               | ㉑ Reverse input gear |
| ㉒ Reverse output gear               |                                     |                      |

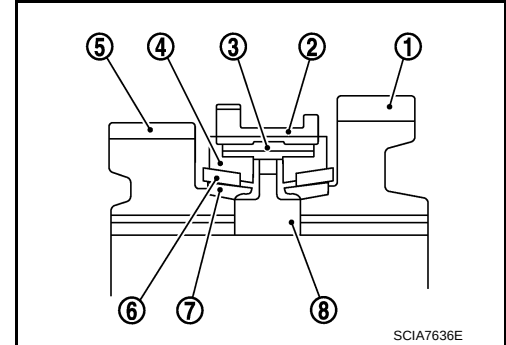
## System Description

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### TRIPLE-CONE SYNCHRONIZER

Triple-cone synchronizers are adopted for the 1st and the 2nd gears to reduce operating force of the shift lever.

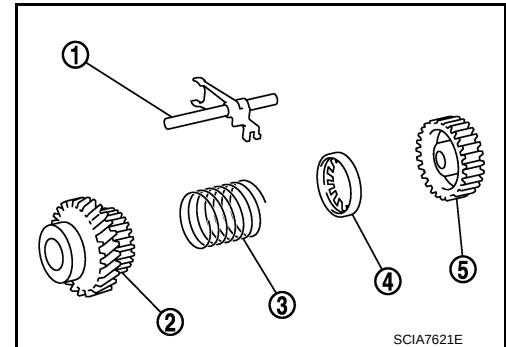
- ① : 1st main gear
- ② : 1st-2nd coupling sleeve
- ③ : Insert key
- ④ : Outer baulk ring
- ⑤ : 2nd main gear
- ⑥ : Synchronizer cone
- ⑦ : Inner baulk ring
- ⑧ : 1st-2nd synchronizer hub



### REVERSE GEAR NOISE PREVENTION FUNCTION (SYNCHRONIZING METHOD)

Reverse gear assembly consists of reverse input gear, return spring, reverse baulk ring, and reverse output gear. When the shift lever is shifted to the reverse position, the construction allows smooth shift operation by stopping the reverse idler shaft rotation by frictional force of synchronizer.

- ① : Reverse fork rod
- ② : Reverse output gear
- ③ : Return spring
- ④ : Reverse baulk ring
- ⑤ : Reverse input gear



## DTC/CIRCUIT DIAGNOSIS

### POSITION SWITCH

#### Component Function Check

INFOID:0000000010929178

#### 1. REVERSE POSITION SIGNAL OUTPUT CHECK

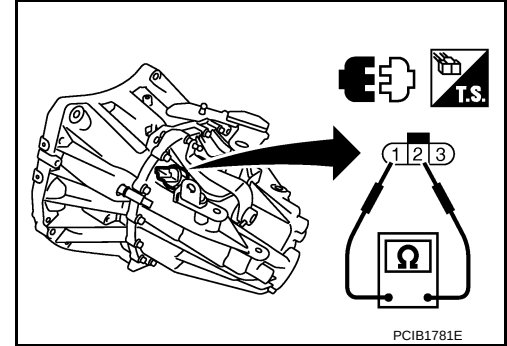
1. Turn the ignition switch OFF.
2. Disconnect position switch harness connector.
3. Operate shift lever to each position and check continuity between position switch terminals.

| Terminals |   | Condition                    | Continuity  |
|-----------|---|------------------------------|-------------|
| 1         | 2 | Reverse gear position        | Existed     |
|           |   | Except reverse gear position | Not existed |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Proceed to [TM-24. "Diagnosis Procedure"](#).



#### 2. NEUTRAL POSITION SIGNAL OUTPUT CHECK

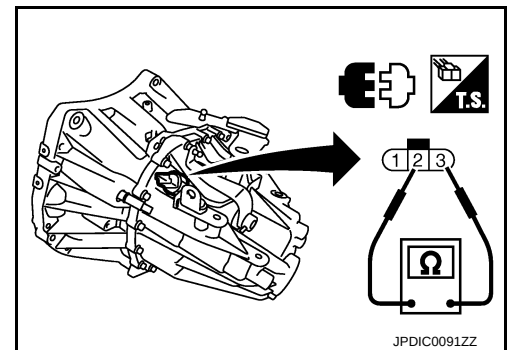
Operate shift lever to each position and check continuity between position switch terminals.

| Terminals |   | Condition                    | Continuity  |
|-----------|---|------------------------------|-------------|
| 2         | 3 | Neutral gear position        | Existed     |
|           |   | Except neutral gear position | Not existed |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Proceed to [TM-24. "Diagnosis Procedure"](#).



#### Diagnosis Procedure

INFOID:0000000010929196

#### 1. CHECK POSITION SWITCH

Check position switch. Refer to [TM-24. "Component Inspection"](#).

Is the inspection results normal?

YES >> Repair shift control function or transaxle for mechanical malfunction.

NO >> Replace position switch. Refer to [TM-36. "Removal and Installation"](#).

#### Component Inspection

INFOID:0000000010842440

#### 1. CHECK BACK-UP LAMP SWITCH

1. Turn the ignition switch OFF.
2. Disconnect position switch harness connector.
3. Remove position switch. Refer to [TM-36. "Removal and Installation"](#).

# POSITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[6MT: RS6F94R]

4. Check continuity between position switch terminals.

| Terminals |   | Condition              | Continuity  |
|-----------|---|------------------------|-------------|
| 1         | 2 | Plunger ① is pressed.  | Existed     |
|           |   | Plunger ① is released. | Not existed |

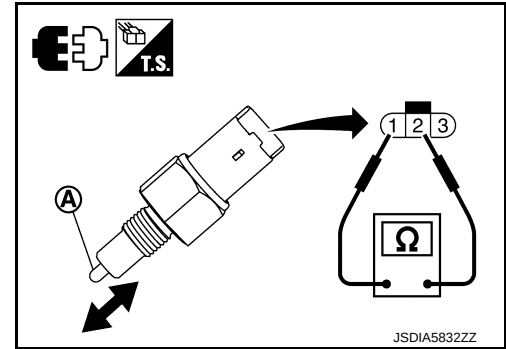
## NOTE:

When shift lever is in reverse gear position, plunger is pressed.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace position switch. Refer to [TM-36, "Removal and Installation"](#).



## 2.CHECK PARK/NEUTRAL POSITION (PNP) SWITCH

Check continuity between position switch terminals.

| Terminals |   | Condition                                      | Continuity  |
|-----------|---|------------------------------------------------|-------------|
| 2         | 3 | Plunger ① is fully pressed and fully released. | Not existed |
|           |   | Plunger ① is pressed approx. 2 mm (0.08 in).   | Existed     |

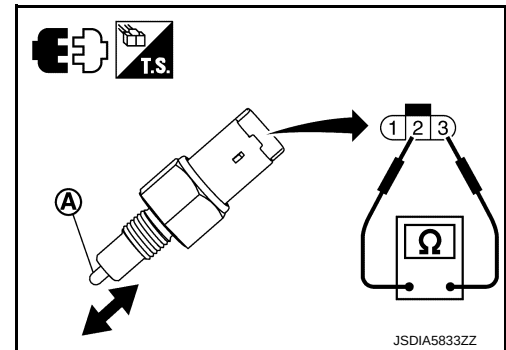
## NOTE:

When shift lever is in neutral gear position, plunger is slightly pressed.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace position switch. Refer to [TM-36, "Removal and Installation"](#).



# NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

[6MT: RS6F94R]

## SYMPTOM DIAGNOSIS

### NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

#### NVH Troubleshooting Chart

INFOID:000000010842442

Use the chart below to find the cause of the symptom. The numbers indicate the order of the inspection. If necessary, repair or replace these parts.

| SUSPECTED PARTS<br>(Possible cause) |                                 | OIL (Oil level is low)              | OIL (Wrong oil) | OIL (Oil level is high) | GASKET (Damaged)                       | OIL SEAL (Worn or damaged) | O-RING (Worn or damaged) | SHIFT CONTROL LINKAGE (Worn)        | SHIFT FORK (Worn)                      | GEAR (Worn or damaged)                 | BEARING (Worn or damaged) | BAULK RING (Worn or damaged) | INSERT SPRING (Damaged) |
|-------------------------------------|---------------------------------|-------------------------------------|-----------------|-------------------------|----------------------------------------|----------------------------|--------------------------|-------------------------------------|----------------------------------------|----------------------------------------|---------------------------|------------------------------|-------------------------|
| Reference                           |                                 | <a href="#">TM-27, "Inspection"</a> |                 |                         | <a href="#">TM-43, "Exploded View"</a> |                            |                          | <a href="#">TM-35, "Inspection"</a> | <a href="#">TM-43, "Exploded View"</a> | <a href="#">TM-43, "Exploded View"</a> |                           |                              |                         |
| Symptoms                            | Noise                           | 1                                   | 2               |                         |                                        |                            |                          |                                     |                                        | 3                                      | 3                         |                              |                         |
|                                     | Oil leakage                     |                                     | 3               | 1                       | 2                                      | 2                          | 2                        |                                     |                                        |                                        |                           |                              |                         |
|                                     | Hard to shift or will not shift |                                     | 1               | 1                       |                                        |                            |                          | 2                                   |                                        |                                        |                           | 3                            | 3                       |
|                                     | Jumps out of gear               |                                     |                 |                         |                                        |                            |                          | 1                                   | 2                                      | 2                                      |                           |                              |                         |

# PERIODIC MAINTENANCE

## M/T OIL

### Inspection

INFOID:0000000010842443

#### OIL LEAKAGE

Make sure that gear oil is not leaking from transaxle or around it.

#### OIL LEVEL

1. Check oil level from filler plug mounting hole as shown in the figure, after removing filler plug ① and gasket from transaxle assembly.

**CAUTION:**

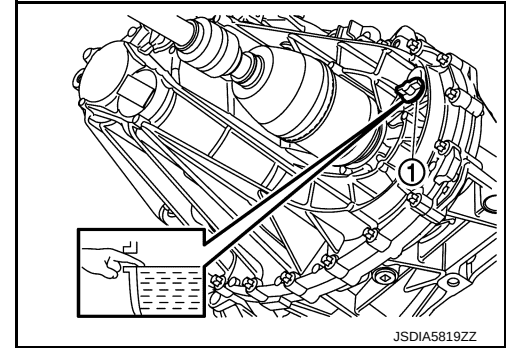
**Turn the ignition switch OFF while checking oil level.**

2. Set a gasket on filler plug and install it on transaxle assembly.

**CAUTION:**

**Never reuse gasket.**

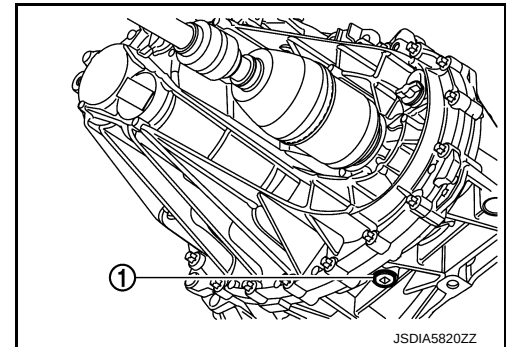
3. Tighten filler plug to the specified torque. Refer to [TM-43, "Exploded View"](#).



### Draining

INFOID:0000000010842444

1. Start engine and let it run to warm up transaxle.
  2. Stop engine. Remove drain plug ① and gasket, then drain gear oil.
  3. Set a gasket on drain plug and install it to transaxle assembly.
- CAUTION:**
- Never reuse gasket.**
4. Tighten drain plug to the specified torque. Refer to [TM-43, "Exploded View"](#).



### Refilling

INFOID:0000000010842445

1. Fill with new gear oil until oil level reaches the specified level (A) at filler plug mounting hole, after removing filler plug ① and gasket from transaxle assembly.

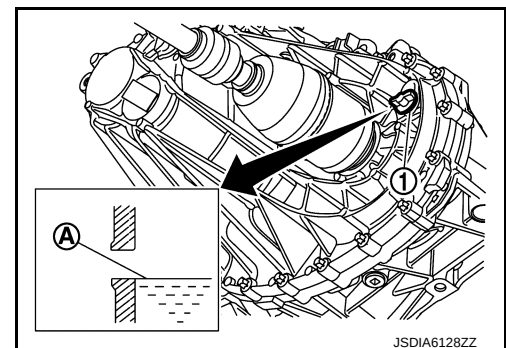
**Recommended oil and capacity** : Refer to [MA-23, "Fluids and Lubricants"](#).

2. After refilling gear oil, check the oil level. Refer to [TM-27, "Inspection"](#).
3. Set a gasket on filler plug, and install it to transaxle assembly.

**CAUTION:**

**Never reuse gasket.**

4. Tighten filler plug to the specified torque. Refer to [TM-43, "Exploded View"](#).



# M/T SHIFT SELECTOR

< REMOVAL AND INSTALLATION >

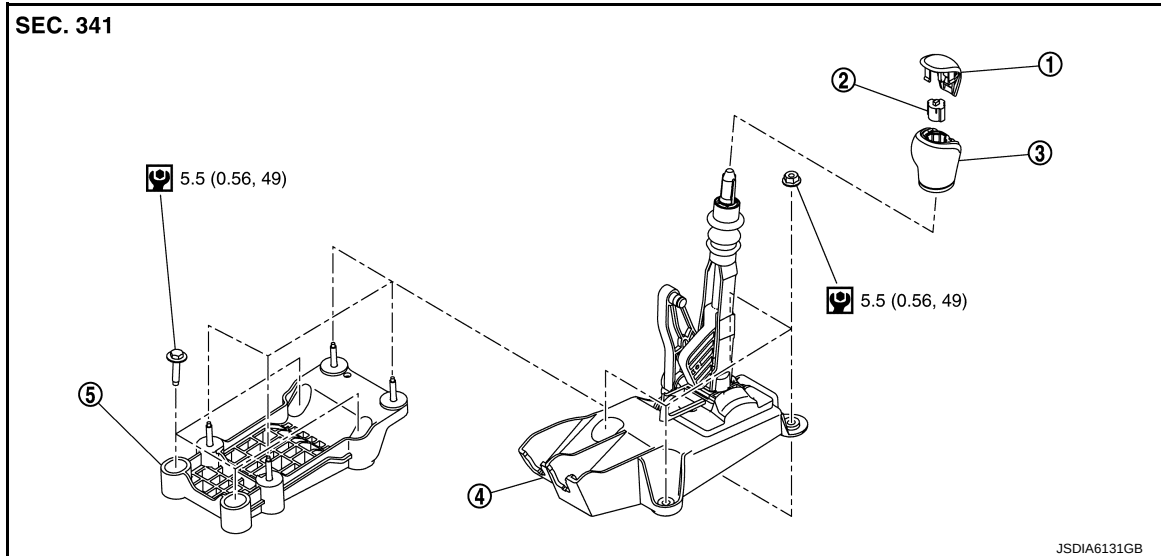
[6MT: RS6F94R]

## REMOVAL AND INSTALLATION

### M/T SHIFT SELECTOR

#### Exploded View

INFOID:0000000010842446



- ① Ornament
- ② Retainer
- ③ Shift lever knob
- ④ M/T shift selector assembly
- ⑤ M/T shift selector bracket

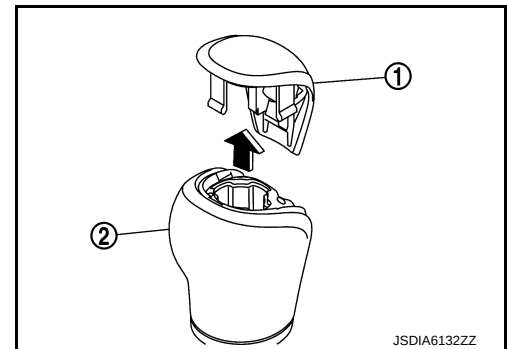
: N·m (kg-m, in-lb)

#### Removal and Installation

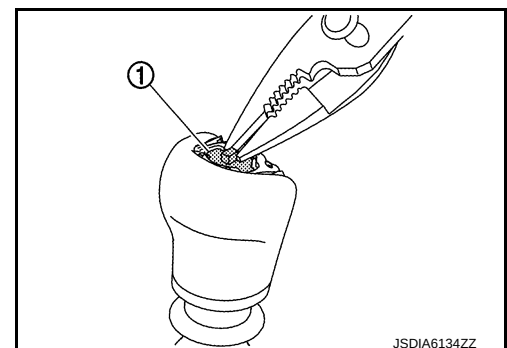
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##### REMOVAL

1. Shift shift lever to the neutral position.
2. Remove ornament ① from shift lever knob ②.  
**CAUTION:**  
**Never damage ornament and shift lever knob.**



3. Pull out retainer ① using suitable pliers.



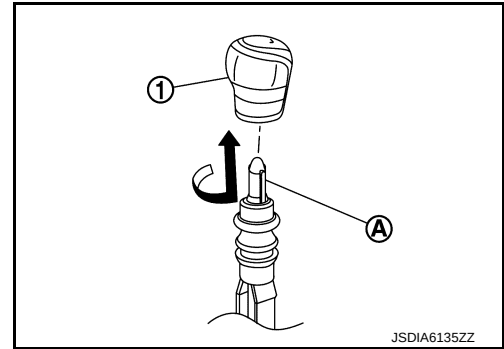


# M/T SHIFT SELECTOR

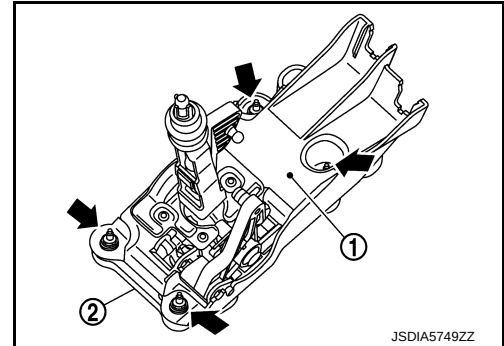
## < REMOVAL AND INSTALLATION >

[6MT: RS6F94R]

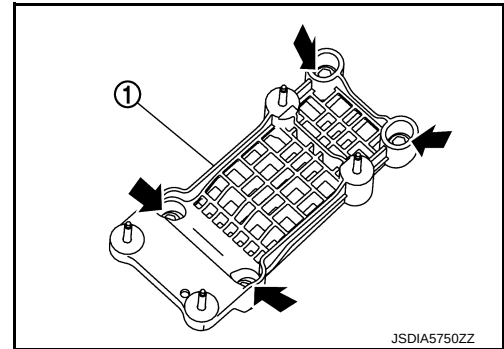
4. Turn shift lever knob ① counterclockwise (30 degrees) and remove it straight from the shift lever ②.
5. Remove center console assembly. Refer to [IP-25, "Removal and Installation"](#).
6. Disconnect and remove shift cable and select cable from M/T shift selector assembly. Refer to [TM-31, "Removal and Installation"](#).



7. Remove M/T shift selector assembly ① from M/T shift selector bracket ②.



8. Remove M/T shift selector bracket ①.



## INSTALLATION

Note the following, and install in the reverse order of removal.

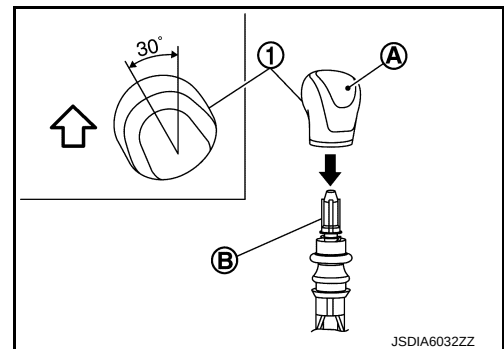
- For each tightening torque, refer to [TM-28, "Exploded View"](#).
- Install shift lever knob to the shift lever, as per the following procedure.

### CAUTION:

**Never reuse shift lever knob.**

1. Set retainer and ornament into shift lever knob.
2. Displace shift lever knob ① counterclockwise (30 degrees) and insert it straight to the shift lever ② without pressing the ornament ③.

← : Vehicle front



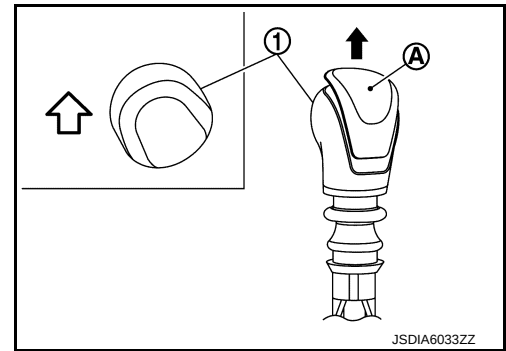
## M/T SHIFT SELECTOR

### < REMOVAL AND INSTALLATION >

[6MT: RS6F94R]

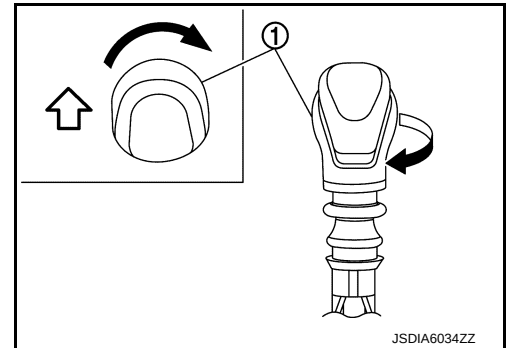
3. Protrude the ornament ④ of shift lever knob ①.

⇐ : Vehicle front



4. Turn shift lever knob ① clockwise (30 degrees) until coming to a stop.

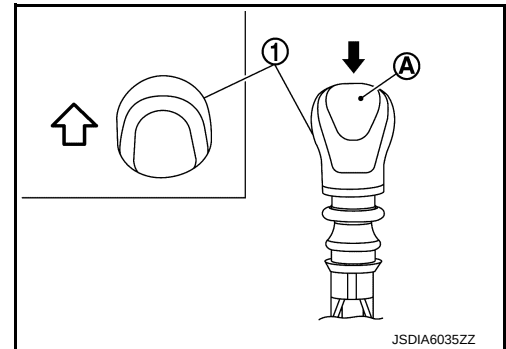
⇐ : Vehicle front



5. Press the ornament ④ down and lock shift lever knob ①.

⇐ : Vehicle front

**CAUTION:**  
Be careful with orientation of shift lever knob.



# CONTROL LINKAGE

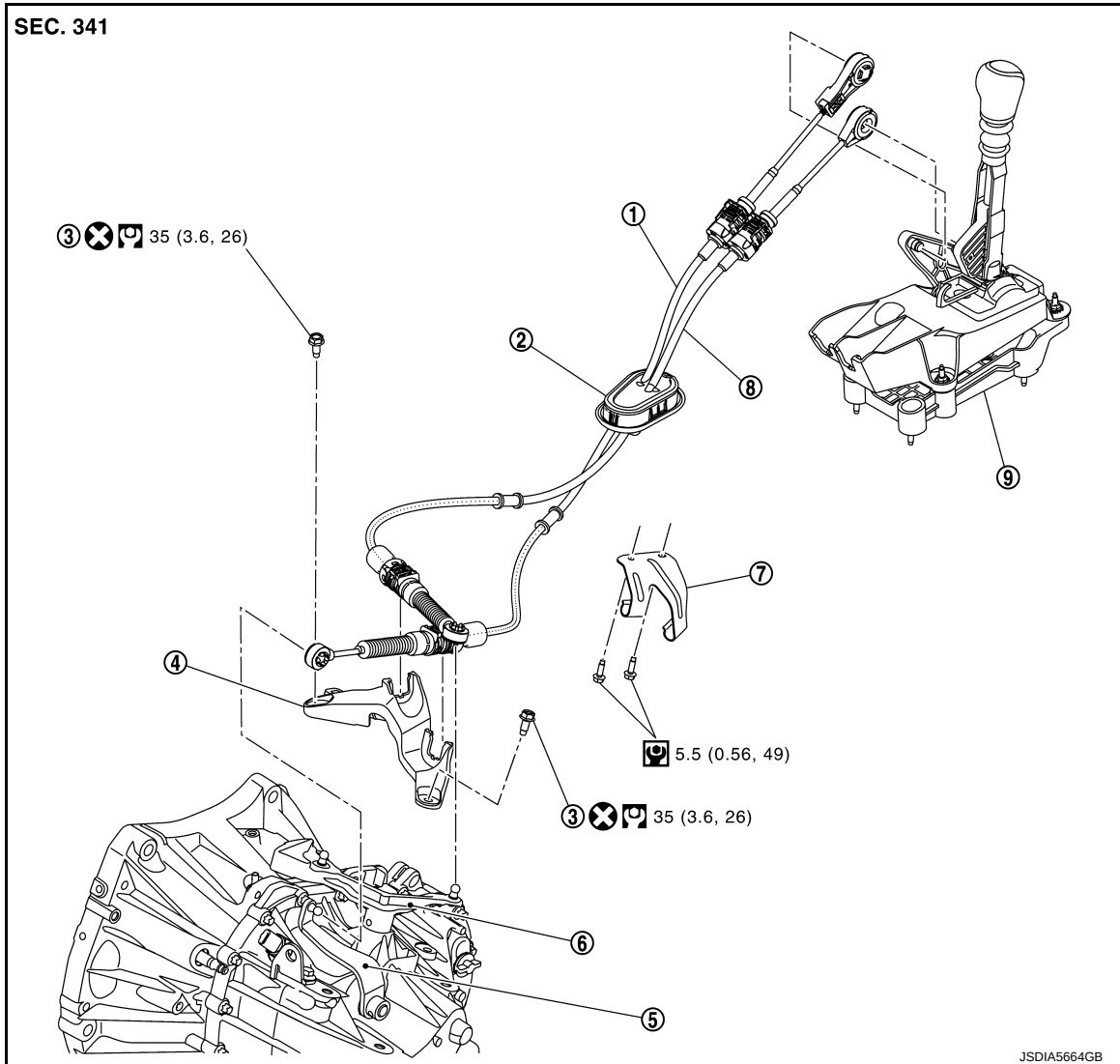
< REMOVAL AND INSTALLATION >

[6MT: RS6F94R]

## CONTROL LINKAGE

### Exploded View

INFOID:000000010842448



- |                                  |                |                               |
|----------------------------------|----------------|-------------------------------|
| ① Select cable                   | ② Grommet      | ③ Tapping bolt                |
| ④ Cable mounting bracket (M/T)   | ⑤ Select lever | ⑥ Shift lever                 |
| ⑦ Cable mounting bracket (floor) | ⑧ Shift cable  | ⑨ M/T shift selector assembly |

: N·m (kg-m, in-lb)

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

## Removal and Installation

INFOID:000000010842449

### REMOVAL

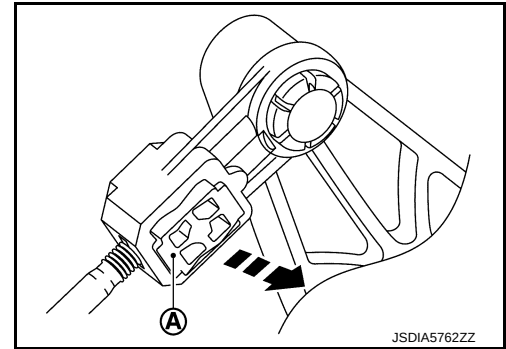
1. Shift shift lever to the neutral position.
2. Remove center console assembly. Refer to [IP-25, "Removal and Installation"](#).

## CONTROL LINKAGE

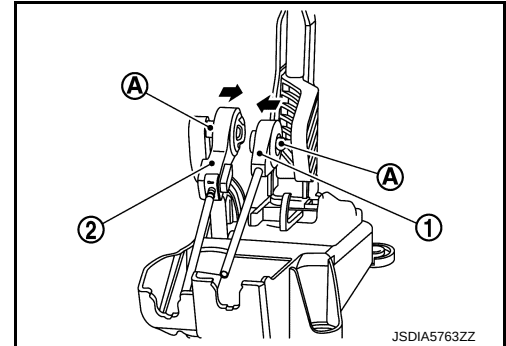
### < REMOVAL AND INSTALLATION >

[6MT: RS6F94R]

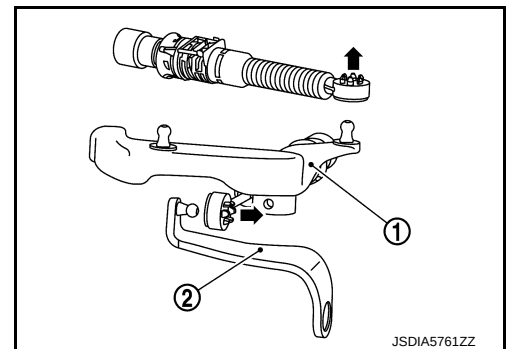
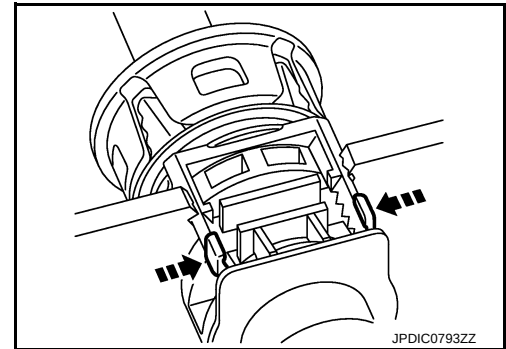
3. Pull up the stopper ① of the select cable in the direction of the arrow as shown in the figure.



4. Pull out and disconnect shift cable ① and select cable ② from each pin ③ of M/T shift selector assembly.



5. Remove shift cable and select cable from M/T shift selector assembly, as per the following procedure.
  - a. While pressing the lock of the shift cable in the direction of the arrow shown in the figure, remove shift cable from M/T shift selector assembly.
  - b. While pressing the lock of the select cable in the direction of the arrow shown in the figure, remove select cable from M/T shift selector assembly.
6. Remove air duct and air cleaner body. Refer to [EM-31, "Removal and Installation"](#).
7. Remove battery and battery trays. Refer to [PG-148, "EXCEPT FOR R9M : Removal and Installation"](#).
8. Pull out and disconnect the each cable from shift lever ① and select lever ②.

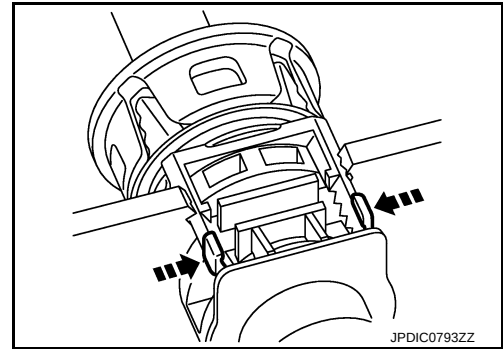


## CONTROL LINKAGE

### < REMOVAL AND INSTALLATION >

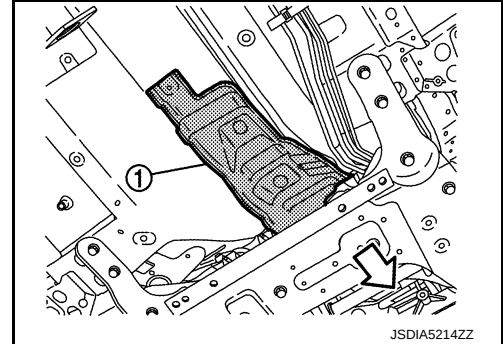
[6MT: RS6F94R]

9. Remove shift cable and select cable from cable mounting bracket (M/T), as per the following procedure.
  - a. While pressing the lock of the shift cable in the direction of the arrow shown in the figure, remove shift cable from cable mounting bracket (M/T).
  - b. While pressing the lock of the select cable in the direction of the arrow shown in the figure, remove select cable from cable mounting bracket (M/T).
10. Remove cable mounting bracket (M/T) from transaxle assembly.



11. Remove heat shield plate ①.

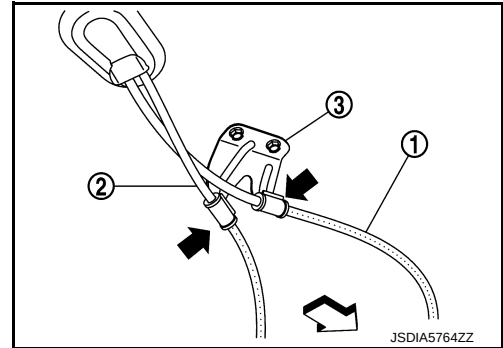
← : Vehicle front



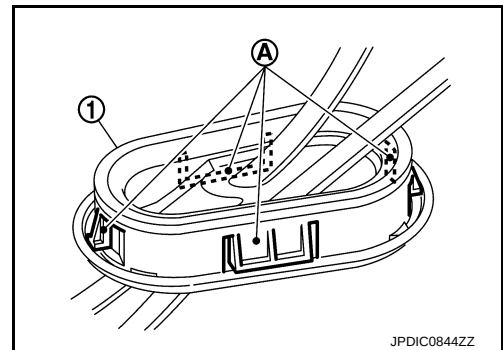
12. Remove shift cable ① and select cable ② from cable mounting bracket (floor) ③.

← : Vehicle front

13. Remove cable mounting bracket (floor).



14. Disengage the pawls ① of grommet ①, and pull downwards to remove.
15. Remove shift cable and select cable from the vehicle.



### INSTALLATION

Note the following, and install in the reverse order of removal.

- For each tightening torque, refer to [TM-31, "Exploded View"](#).
- Before working, set transaxle and M/T shift selector assembly to the neutral position.
- No occurrence of interference between cables and other parts, bent with a radius of 120 mm (4.72 in) or less, and twist of 180 degrees or more.
- Do not damage the boot of each cable and prevent the occurrence of twist of 90 degrees or more.
- Tapping work for tapping bolts is not applied to new transaxle case. Do not perform tapping by other than screwing tapping bolts because tapping is formed by screwing tapping bolts into transaxle case.

#### CAUTION:

Never reuse tapping bolt.

## CONTROL LINKAGE

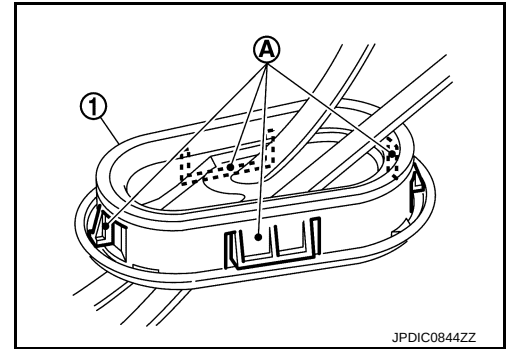
### < REMOVAL AND INSTALLATION >

[6MT: RS6F94R]

- From under the vehicle, press grommet ① into place until the pawls ② securely.

**CAUTION:**

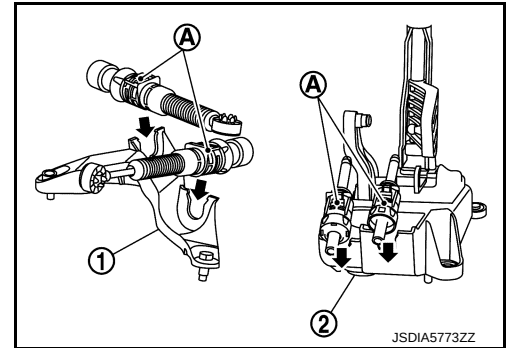
Check that pulling down on the grommet does not fall out it.



- Insert the each socket part ③ of cable until it reaches the cable mounting bracket (M/T) ① and M/T shift selector assembly ② securely.

**CAUTION:**

Check that pulling up on the socket does not disconnect it.



- Install select cable (M/T shift selector assembly side), as per the following procedure.

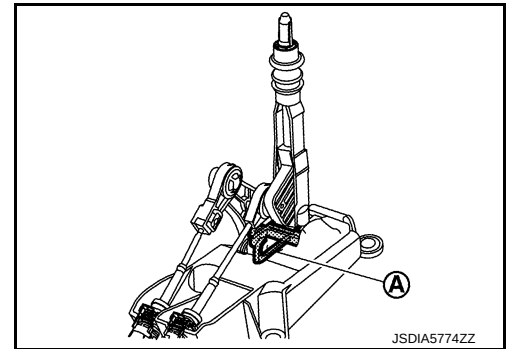
When M/T shift selector assembly is replaced with new one:

1. Install the select cable to the M/T shift selector assembly.
2. Shift the shift lever to the neutral position.
3. Install the lock pin ④ to the M/T shift selector assembly as shown in the figure.

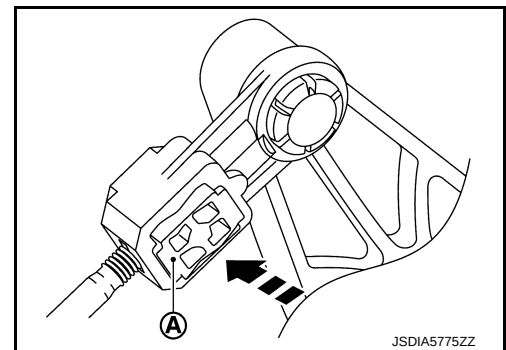
**CAUTION:**

Select cable cannot be adjusted accurately without using the lock pin.

4. Check that shift lever does not move in the direction of the select. If it moves, re-install lock pin.



5. Push the stopper ⑤ until it reaches the select cable.
6. Remove the lock pin from M/T shift selector assembly.
7. Shift shift lever to each gear position to check that there are no bindings. If any, re-install select cable with lock pin.



When M/T shift selector assembly is reused or without lock pin:

1. Install the select cable to the M/T shift selector assembly.
2. Shift the shift lever to the 4th gear position.

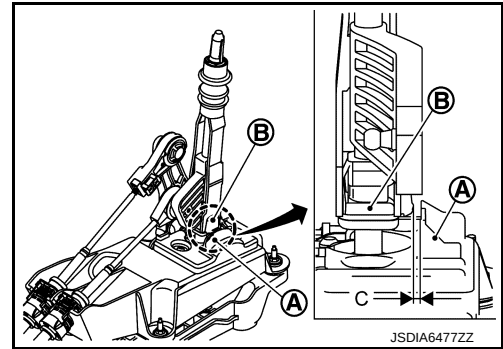
## CONTROL LINKAGE

### < REMOVAL AND INSTALLATION >

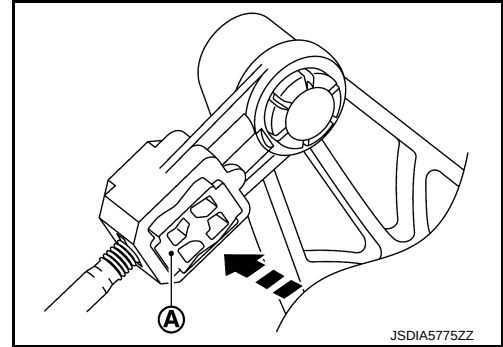
[6MT: RS6F94R]

- Adjust the clearance (C) between the stopper (A) and the lever (B) to the standard value.

**Clearance : 3.8 – 4.0 mm (0.150 – 0.157 in)**



- Push the stopper (A) until it reaches the select cable.
  - Shift shift lever to each gear position to check that there are no bindings. If any, re-install select cable and re-adjust the clearance.
- Perform inspection after installation. Refer to [TM-35. "Inspection"](#).



### Inspection

INFOID:0000000110842450

#### INSPECTION AFTER INSTALLATION

- When the shift lever is shifted to each position, check that the shift lever moves smoothly (no-hook up, no-noise, no-backlash and non-contact to other parts). If any malfunction is detected, repair the malfunctioning parts or replace cable assembly.
- When the shift lever is shifted to reverse gear side and 5th-6th side, confirm the shift lever returns to neutral position. When the shift lever does not return to the neutral position smoothly, check M/T shift selector assembly and select cable condition. If any malfunction is detected, repair or replace the malfunctioning part.

# POSITION SWITCH

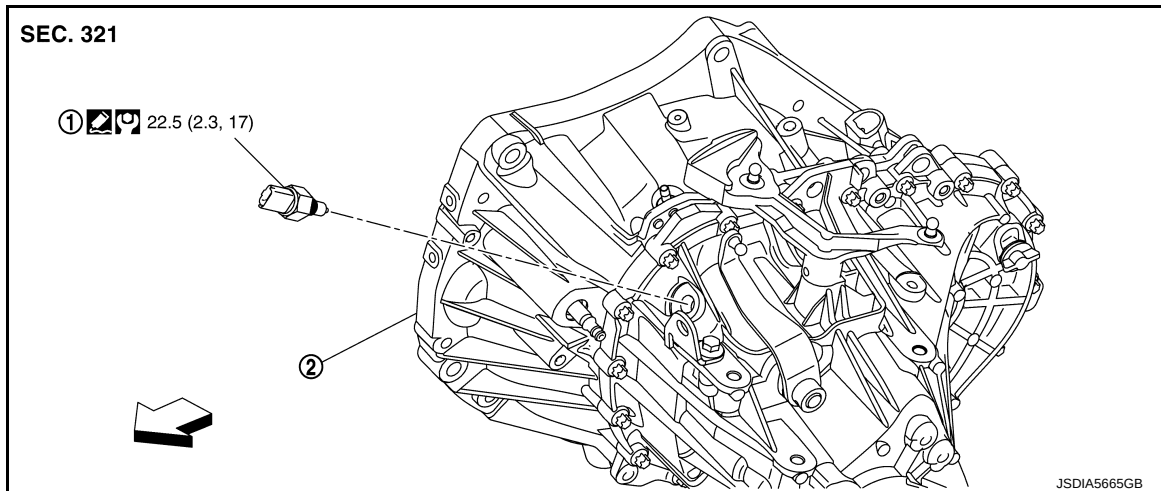
< REMOVAL AND INSTALLATION >

[6MT: RS6F94R]

## POSITION SWITCH

### Exploded View

INFOID:0000000010842451



- ① Position switch                      ② Transaxle assembly

Vehicle front

N·m (kg-m, ft-lb)

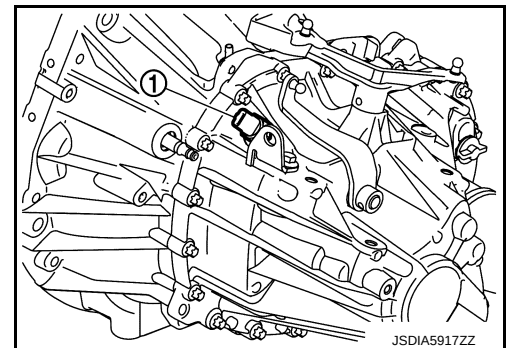
Apply Genuine Liquid Gasket, Three Bond 1215 or equivalent.

### Removal and Installation

INFOID:0000000010842452

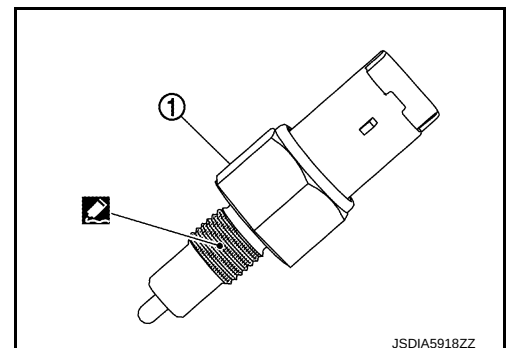
#### REMOVAL

1. Remove battery and battery trays. Refer to [PG-148, "EXCEPT FOR R9M : Removal and Installation"](#).
2. Disconnect position switch harness connector.
3. Remove position switch ①.
4. Perform inspection after removal. Refer to [TM-37, "Inspection"](#).



#### INSTALLATION

1. Apply recommended sealant to threads of position switch ①.
  - For sealant to use, refer to [TM-36, "Exploded View"](#).**CAUTION:**  
Remove old sealant and oil adhering to threads.



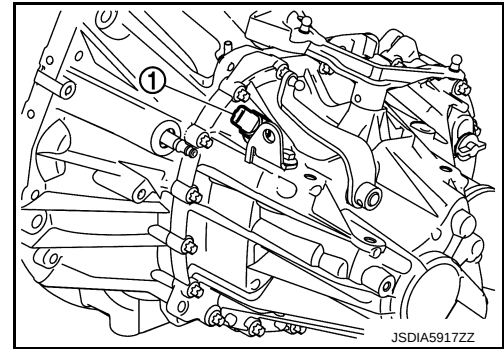


## POSITION SWITCH

### < REMOVAL AND INSTALLATION >

[6MT: RS6F94R]

2. Install position switch ①.
3. Tighten position switch to the specified torque. Refer to [TM-36, "Exploded View"](#).
4. For the next step and after, install in the reverse order of removal.
5. Perform inspection after installation. Refer to [TM-37, "Inspection"](#).



INFOID:000000010842453

### Inspection

#### INSPECTION AFTER REMOVAL

Check continuity between position switch terminals. Refer to [TM-24, "Component Inspection"](#).

#### INSPECTION AFTER INSTALLATION

Check the oil leakage. Refer to [TM-27, "Inspection"](#).

# DIFFERENTIAL SIDE OIL SEAL

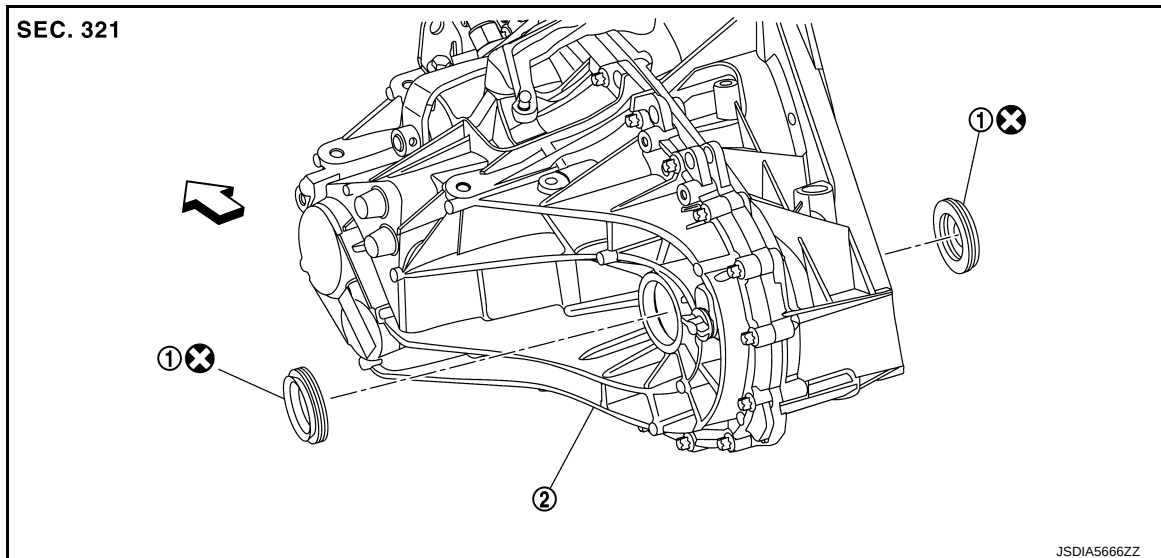
< REMOVAL AND INSTALLATION >

[6MT: RS6F94R]

## DIFFERENTIAL SIDE OIL SEAL

Exploded View

INFOID:000000010842454



① Differential side oil seal

② Transaxle assembly

⇐ Vehicle front

⊗: Always replace after every disassembly.

## Removal and Installation

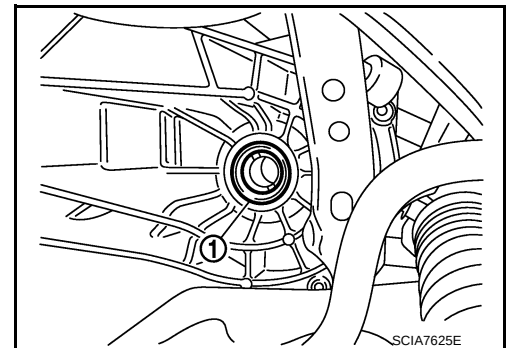
INFOID:000000010842455

### REMOVAL

1. Remove front drive shafts. Refer to [FAX-36, "MR20DD : Removal and Installation"](#).
2. Remove differential side oil seals ① from clutch housing and transaxle case, using oil seal remover (commercial service tool).

**CAUTION:**

**Never damage transaxle case and clutch housing.**



### INSTALLATION

Note the following, and install in the reverse order of removal.

- Install differential side oil seals ① to clutch housing and transaxle case, using the drift (Stamping number: B.vi 1666-B) of the drift set (SST: KV32500QAA).

(A) : Transaxle case side

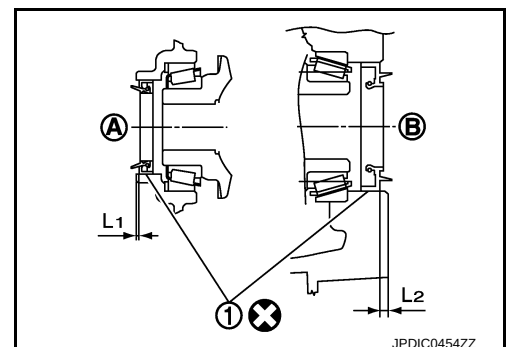
(B) : Clutch housing side

**Dimension (L1) : 1.2 – 1.8 mm (0.047 – 0.071 in)**

**Dimension (L2) : 2.7 – 3.3 mm (0.106 – 0.130 in)**

**CAUTION:**

- **Never incline differential side oil seal.**



DIFFERENTIAL SIDE OIL SEAL

< REMOVAL AND INSTALLATION >

[6MT: RS6F94R]

- **Never damage clutch housing and transaxle case.**
- Perform inspection after installation. Refer to [TM-39, "Inspection"](#).

Inspection

INFOID:0000000010842456

INSPECTION AFTER INSTALLATION

Check the oil level and oil leakage. Refer to [TM-27, "Inspection"](#).

|    |
|----|
| A  |
| B  |
| C  |
| TM |
| E  |
| F  |
| G  |
| H  |
| I  |
| J  |
| K  |
| L  |
| M  |
| N  |
| O  |
| P  |

# AIR BREATHER

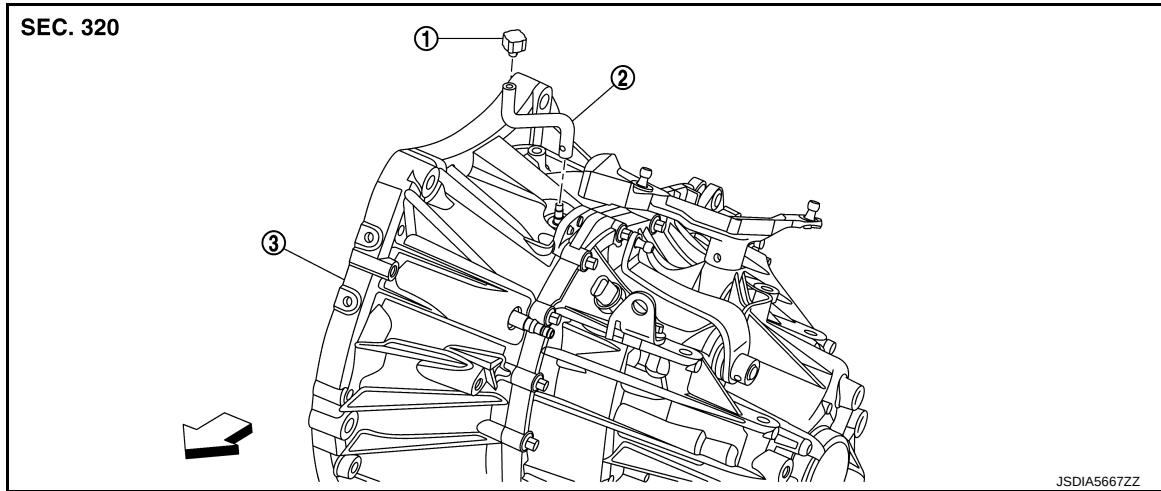
< REMOVAL AND INSTALLATION >

[6MT: RS6F94R]

## AIR BREATHER

### Exploded View

INFOID:000000010842457



① Air breather cap

② Air breather hose

③ Transaxle assembly

⇐: Vehicle front

## Removal and Installation

INFOID:000000010842458

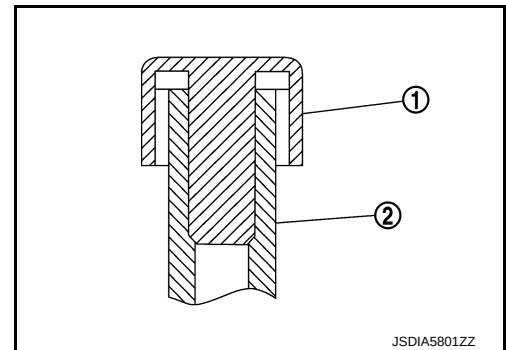
### REMOVAL

1. Remove battery and battery trays. Refer to [PG-148, "EXCEPT FOR R9M : Removal and Installation"](#).
2. Remove air breather hose from transaxle assembly.
3. Remove air breather cap from air breather hose.

### INSTALLATION

Note the following, and install in the reverse order of removal.

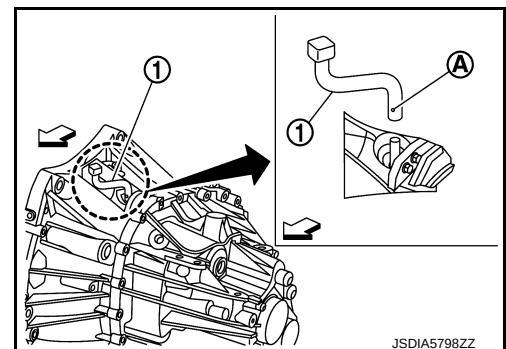
- When inserting air breather cap ① to air breather hose ②, be sure to insert the hose until end of the cap.



- Install air breather hose ① so that the paint mark (A) is faced forward of the vehicle as shown in the figure.

⇐ : Vehicle front

- When inserting air breather hose to transaxle assembly, be sure to insert it fully until its end reaches the stop.
- When installing air breather hose, make sure there are no pinched or restricted areas on air breather hose caused by bending or winding.

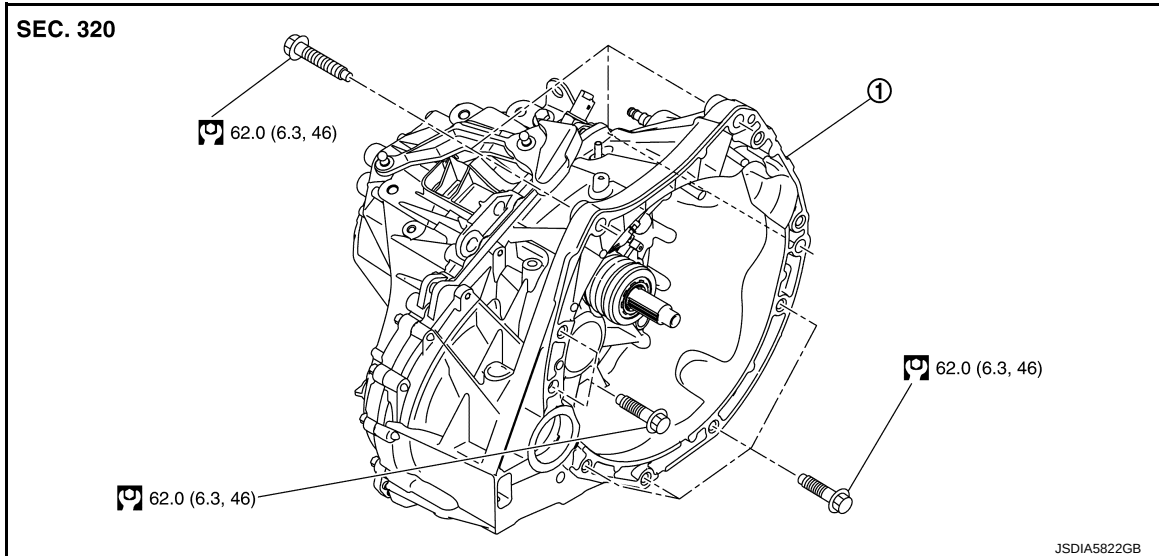


## UNIT REMOVAL AND INSTALLATION

### TRANSAXLE ASSEMBLY

#### Exploded View

INFOID:000000010842459



① Transaxle assembly

: N·m (kg-m, ft-lb)

#### Removal and Installation

INFOID:000000010842460

##### CAUTION:

Never reuse CSC (Concentric Slave Cylinder). Because CSC slides back to the original position every time when removing transaxle assembly. At this timing, dust on the sliding parts may damage a seal of CSC and may cause clutch fluid leakage. Refer to [CL-30, "Removal and Installation"](#).

##### NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

#### REMOVAL

1. Shift the shift lever to the neutral position.
2. Remove engine assembly together with transaxle assembly from vehicle. Refer to [EM-56, "Removal and Installation"](#).
3. Remove air breather hose. Refer to [TM-40, "Removal and Installation"](#).
4. Remove starter motor. Refer to [STR-27, "MR20DD : Removal and Installation"](#).
5. Remove clutch tube from CSC (Concentric Slave Cylinder). Refer to [CL-27, "Removal and Installation"](#).

##### CAUTION:

Keep painted surface on the body or other parts free of clutch fluid. If it spills, wipe up immediately and wash the affected area with water.

6. Remove the bolts that fasten the transaxle assembly and engine assembly.
7. Remove transaxle assembly from the engine assembly.
8. Remove engine mounting bracket (LH). Refer to [EM-56, "Removal and Installation"](#).
9. Remove CSC. Refer to [CL-30, "Removal and Installation"](#).

#### INSTALLATION

Note the following, and install in the reverse order of removal.

##### CAUTION:

- The transaxle assembly must not interfere with the wire harnesses and clutch tube.

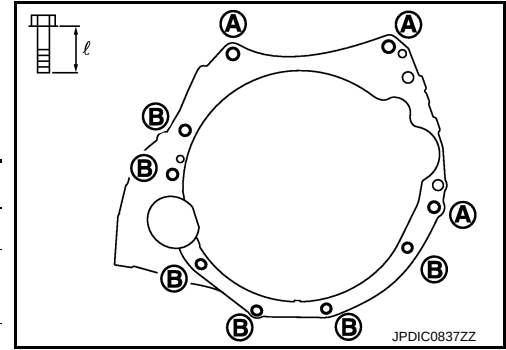
## TRANSAXLE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[6MT: RS6F94R]

- When installing transaxle assembly, never bring input shaft into contact with clutch cover.
- When installing the transaxle assembly to the engine assembly, install mounting bolts following the standard below, tighten bolts to the specified torque. For each tightening torque, refer to [TM-41, "Exploded View"](#).

| Bolt symbol                | (A)                 | (B)                 |
|----------------------------|---------------------|---------------------|
| Quantity                   | 3                   | 6                   |
| Bolt length<br>"ℓ" mm (in) | 60 (2.36)           | 50 (1.97)           |
| Insertion direction        | Transaxle to engine | Engine to transaxle |



- Perform inspection after installation. Refer to [TM-42, "Inspection"](#).

### Inspection

INFOID:0000000010842461

#### INSPECTION AFTER INSTALLATION

Check the oil leakage and the oil level. Refer to [TM-27, "Inspection"](#).

# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

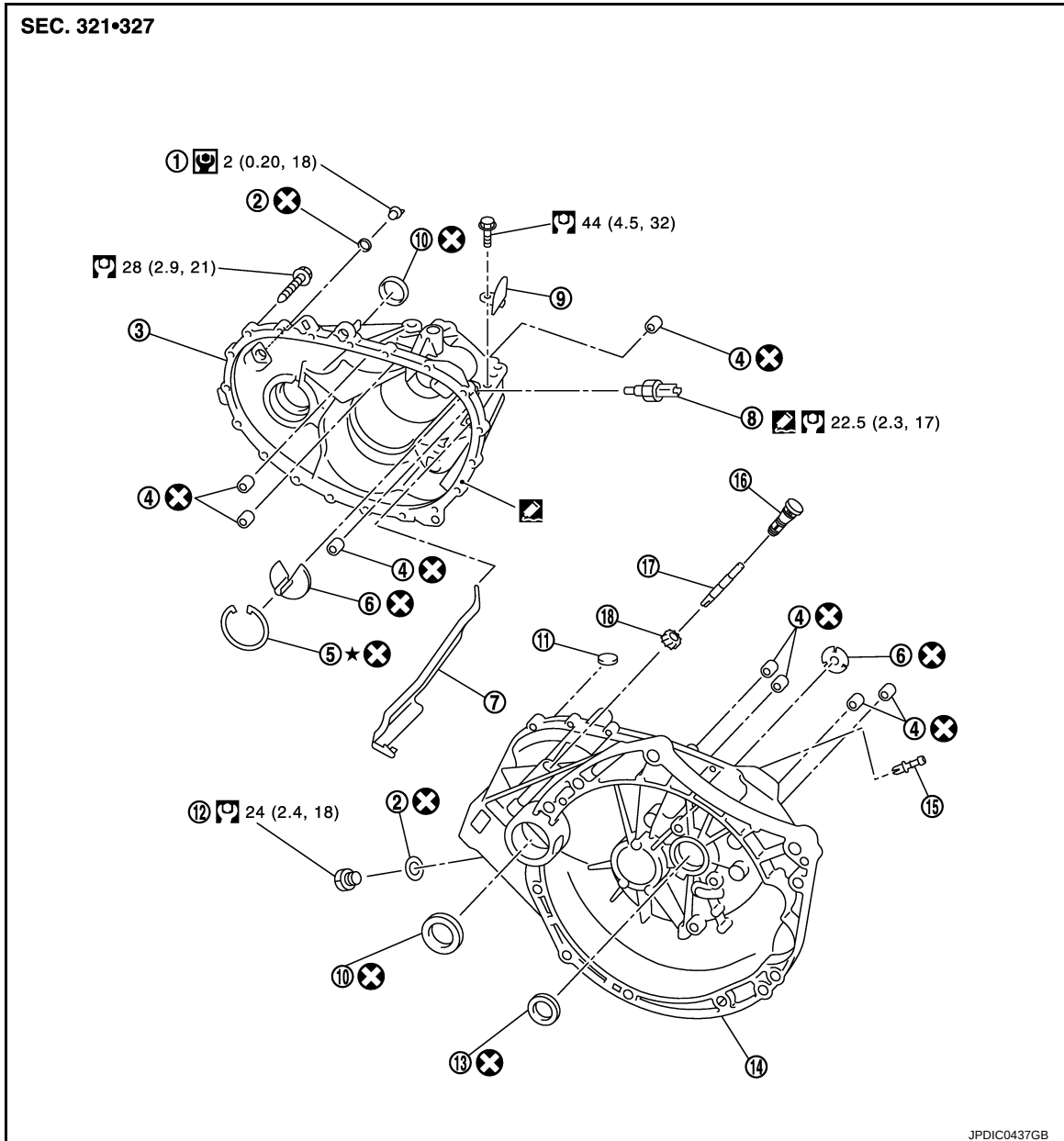
## UNIT DISASSEMBLY AND ASSEMBLY

### TRANSAXLE ASSEMBLY

Exploded View

INFOID:0000000010842462

### CASE AND HOUSING



- |                              |                   |                   |
|------------------------------|-------------------|-------------------|
| ① Filler plug                | ② Gasket          | ③ Transaxle case  |
| ④ Bushing                    | ⑤ Snap ring       | ⑥ Oil channel     |
| ⑦ Oil gutter                 | ⑧ Position switch | ⑨ Bracket         |
| ⑩ Differential side oil seal | ⑪ Magnet          | ⑫ Drain plug      |
| ⑬ Input shaft oil seal       | ⑭ Clutch housing  | ⑮ 2 way connector |
| ⑯ Plug                       | ⑰ Pinion shaft    | ⑱ Pinion gear     |

: N·m (kg-m, in-lb)

# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

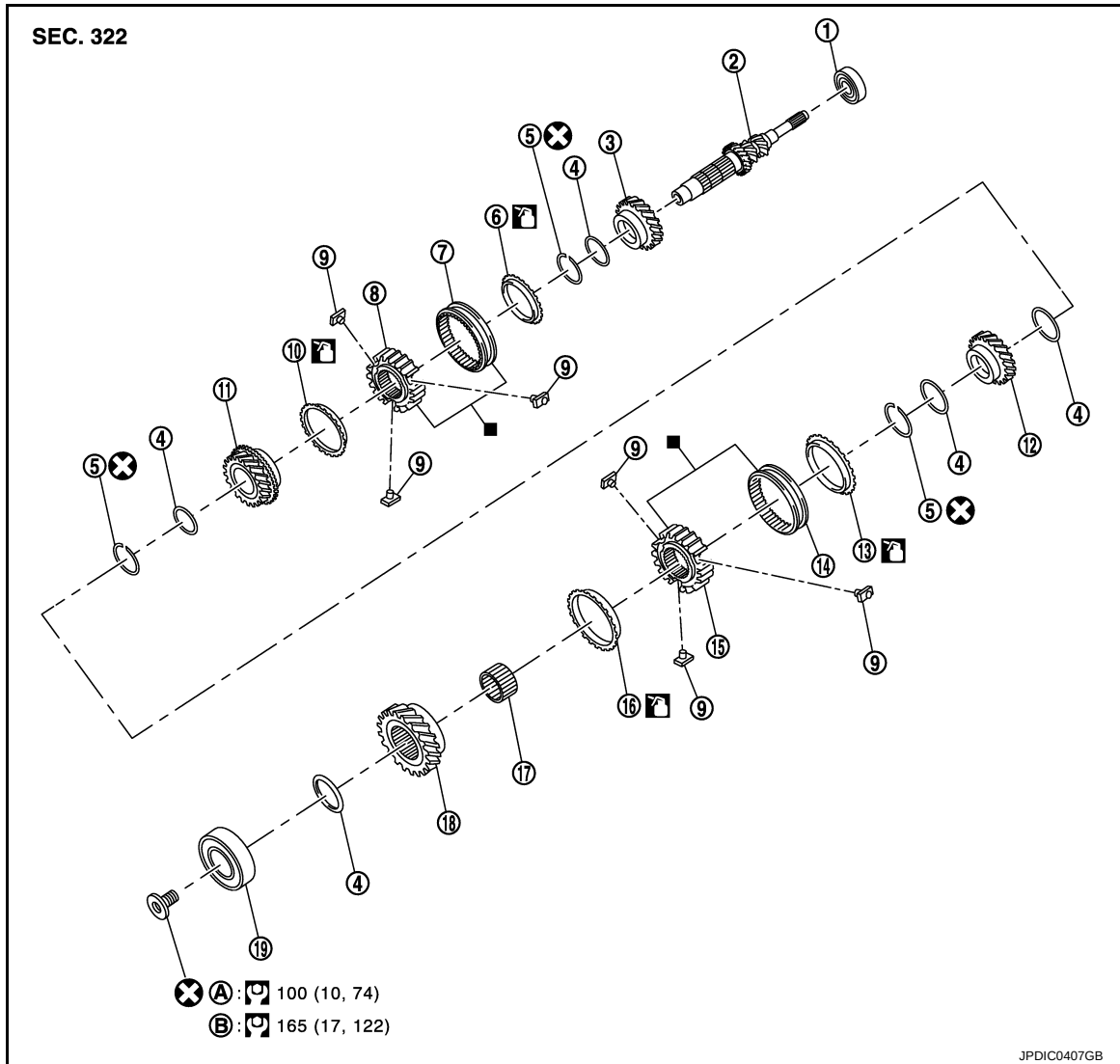
: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

★: Select with proper thickness.

: Apply Genuine Liquid Gasket, Three Bond 1215 or an equivalent.

## SHAFT AND GEAR



① Input shaft front bearing

④ Spacer

⑦ 3rd-4th coupling sleeve

⑩ 4th baulk ring

⑬ 5th baulk ring

⑯ 6th baulk ring

⑱ Input shaft rear bearing

(A) First step

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

② Input shaft

⑤ Snap ring

⑧ 3rd-4th synchronizer hub

⑪ 4th input gear

⑭ 5th-6th coupling sleeve

⑰ Needle bearing

(B) Final step

③ 3rd input gear

⑥ 3rd baulk ring

⑨ Insert key

⑫ 5th input gear

⑮ 5th-6th synchronizer hub

⑱ 6th input gear



# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

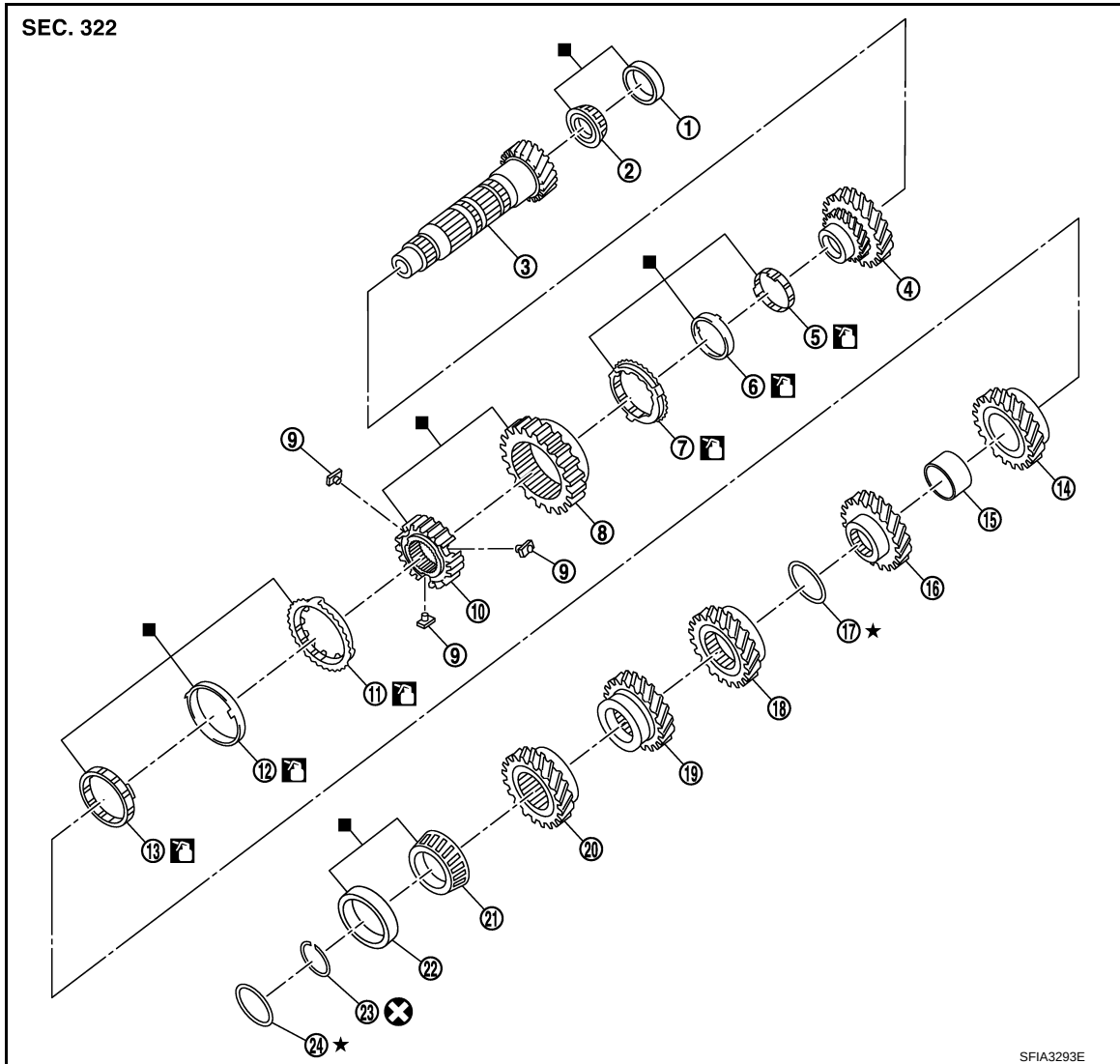
[6MT: RS6F94R]



Apply gear oil.



Replace the parts as a set.



- |                                      |                                      |                                         |
|--------------------------------------|--------------------------------------|-----------------------------------------|
| ① Mainshaft front bearing outer race | ② Mainshaft front bearing inner race | ③ Mainshaft                             |
| ④ 1st main gear                      | ⑤ 1st inner baulk ring               | ⑥ 1st synchronizer cone                 |
| ⑦ 1st outer baulk ring               | ⑧ 1st-2nd coupling sleeve            | ⑨ Insert key                            |
| ⑩ 1st-2nd synchronizer hub           | ⑪ 2nd outer baulk ring               | ⑫ 2nd synchronizer cone                 |
| ⑬ 2nd inner baulk ring               | ⑭ 2nd main gear                      | ⑮ Bushing                               |
| ⑯ 3rd main gear                      | ⑰ Mainshaft adjusting shim           | ⑱ 4th main gear                         |
| ⑲ 5th main gear                      | ⑳ 6th main gear                      | ㉑ Mainshaft rear bearing inner race     |
| ㉒ Mainshaft rear bearing outer race  | ㉓ Snap ring                          | ㉔ Mainshaft rear bearing adjusting shim |



Always replace after every disassembly.



Select with proper thickness.



Apply gear oil.



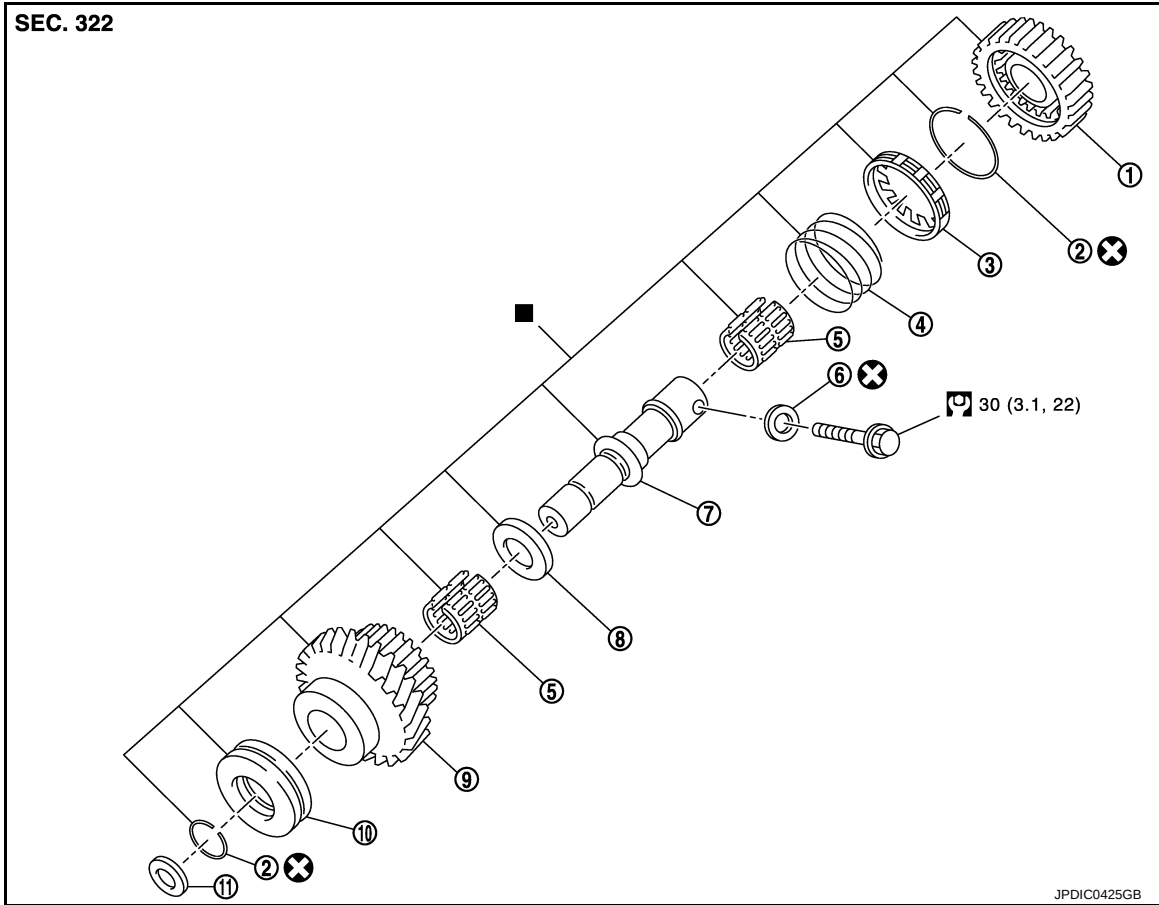
Replace the parts as a set.

# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

## SEC. 322



JPDIC0425GB

① Reverse output gear

② Snap ring

③ Reverse baulk ring

④ Return spring

⑤ Needle bearing

⑥ Seal washer

⑦ Reverse idler shaft

⑧ Spacer

⑨ Reverse input gear

⑩ Lock washer

⑪ Spring washer

■: N·m (kg-m, ft-lb)

✕: Always replace after every disassembly.

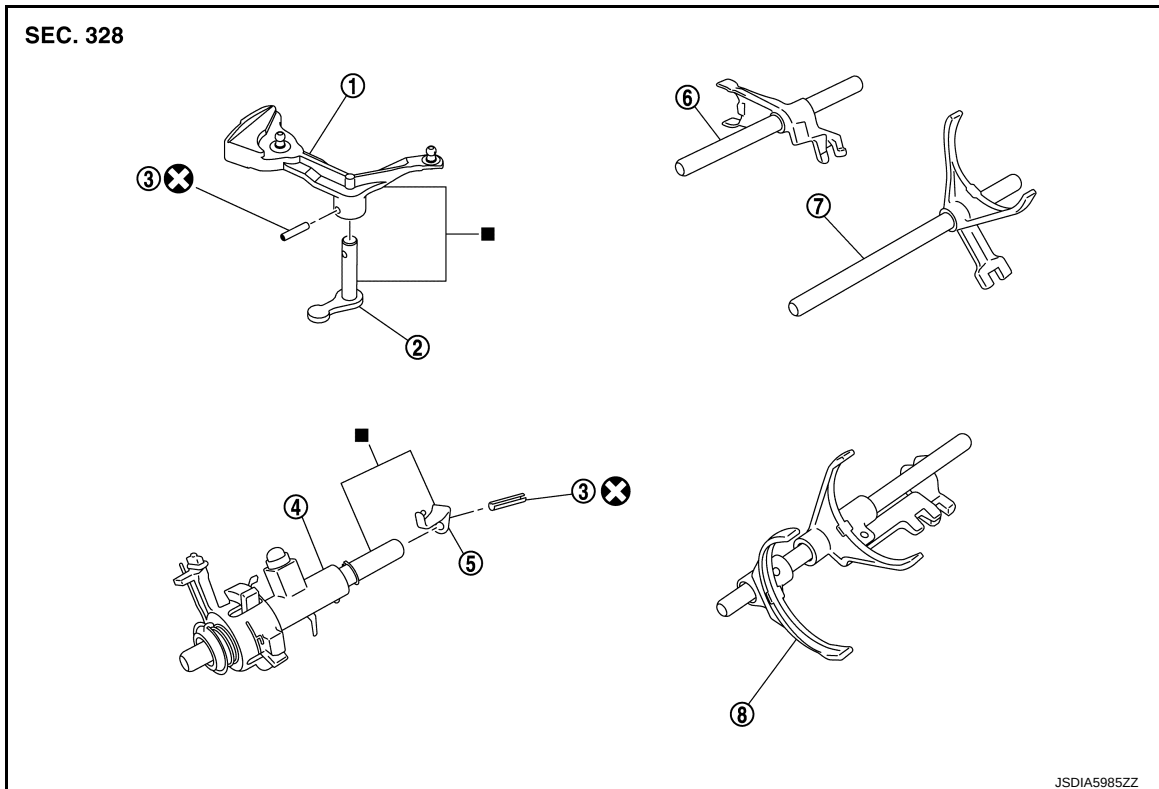
■: Replace the parts as a set.

## SHIFT FORK AND FORK ROD

# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]



① Shift lever (outer)

④ Selector

⑦ 1st-2nd fork rod

⊗: Always replace after every disassembly.

■: Replace the parts as a set.

② Shift lever (inner)

⑤ Select lever

⑧ Fork rod

③ Retaining pin

⑥ Reverse fork rod

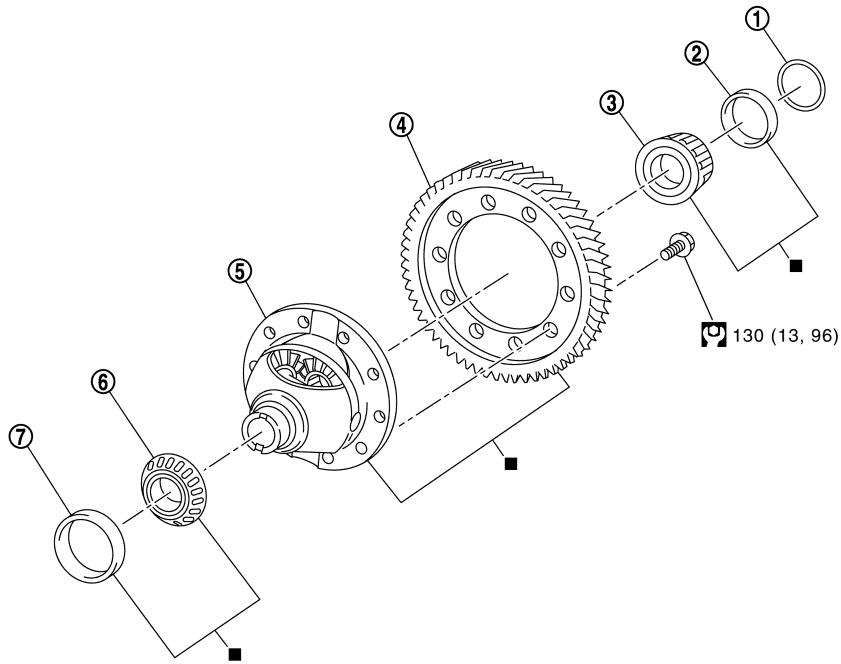
FINAL DRIVE

# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

SEC. 381



JSDIA5987GB

- |                                                              |                                                              |                                                              |
|--------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|
| ① Shim                                                       | ② Differential side bearing outer race (transaxle case side) | ③ Differential side bearing inner race (transaxle case side) |
| ④ Final gear                                                 | ⑤ Differential assembly                                      | ⑥ Differential side bearing inner race (clutch housing side) |
| ⑦ Differential side bearing outer race (clutch housing side) |                                                              |                                                              |

: N·m (kg-m, ft-lb)

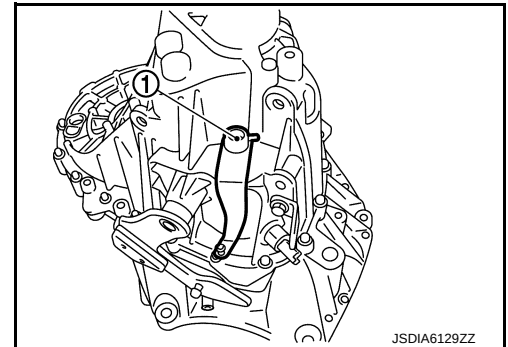
: Replace the parts as a set.

## Disassembly and Assembly

INFOID:0000000010842463

### DISASSEMBLY

1. Remove drain plug and gasket from clutch housing, then drain gear oil.
2. Remove filler plug and gasket from transaxle case.
3. Remove retaining pin with a pin punch to remove select lever ①.



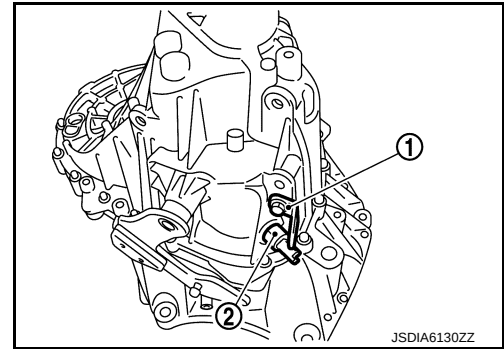
JSDIA6129ZZ

# TRANSAXLE ASSEMBLY

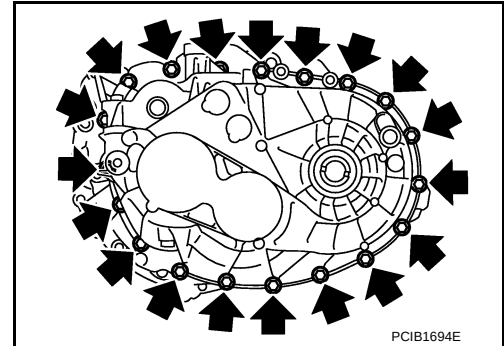
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

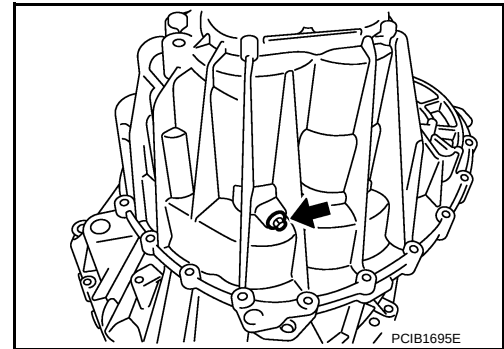
4. Remove bracket ① and position switch ② from transaxle case.



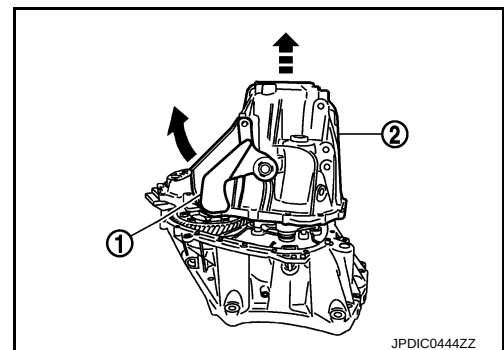
5. Remove transaxle case mounting bolts (←).



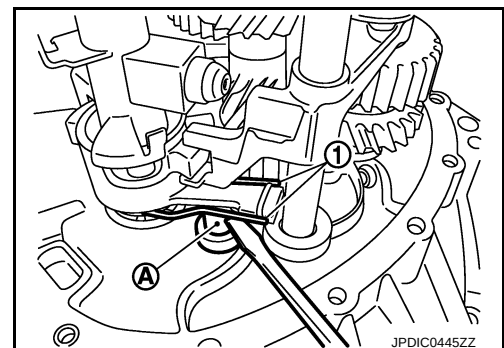
6. Remove reverse idler shaft mounting bolt (←) and seal washer.



7. Remove transaxle case ② while rotating shift lever (outer) ① in the direction as shown in the figure.



8. Remove selector spring ① from return bushing (A).



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# TRANSAXLE ASSEMBLY

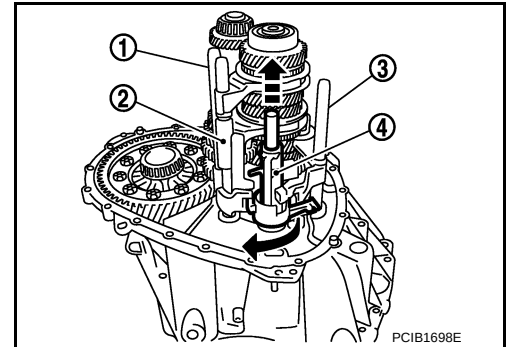
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

9. Shift 1st-2nd fork rod ①, fork rod ②, and reverse fork rod ③ to the neutral position.

④ : Selector

10. Remove selector from clutch housing.



11. Remove reverse idler shaft assembly ①, as per the following procedure.

② : Input shaft assembly

③ : Mainshaft assembly

④ : Fork rod

⑤ : 1st-2nd fork rod

⑥ : Reverse fork rod

- a. Pull up input shaft assembly, mainshaft assembly, fork rod, and 1st-2nd fork rod.

**NOTE:**

It is easier to pull up when shifting each fork rod to each shaft side.

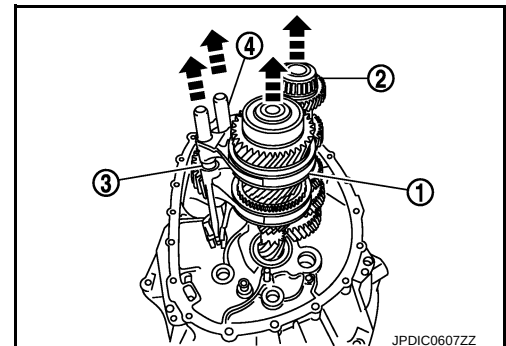
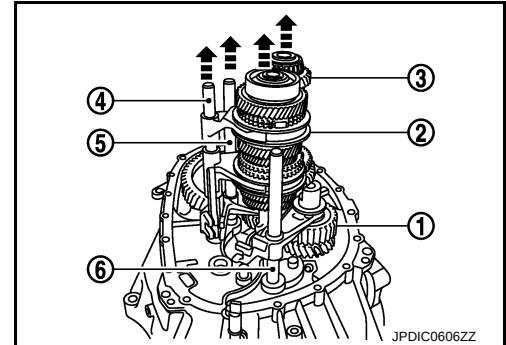
- b. Remove reverse idler shaft assembly and reverse fork rod from clutch housing.

12. Remove spring washer from clutch housing.

13. Pull up and remove input shaft assembly ①, mainshaft assembly ②, fork rod ③, and 1st-2nd fork rod ④ from clutch housing.

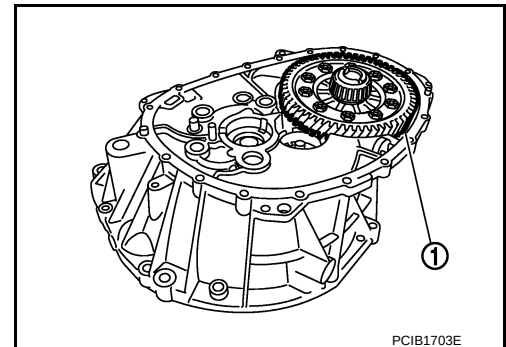
**NOTE:**

It is easier to pull up when shifting each fork rod to each shaft side.



14. Remove final drive assembly ① from clutch housing.

15. Remove magnet from clutch housing.



# TRANSAXLE ASSEMBLY

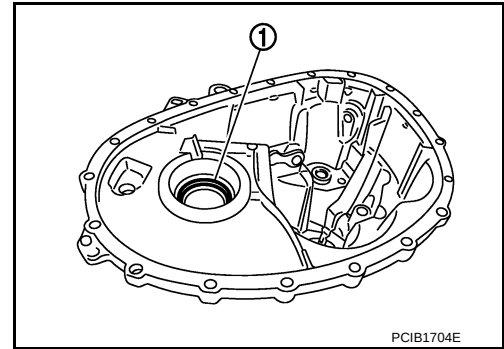
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

16. Remove differential side oil seals ① from clutch housing and transaxle case, using oil seal remover (commercial service tool).

**CAUTION:**

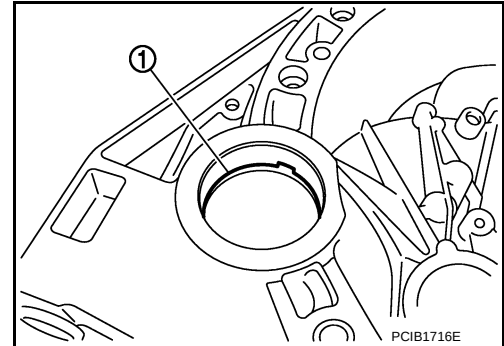
**Never damage clutch housing and transaxle case.**



17. Remove differential side bearing outer race ① from clutch housing, using a brass rod.

**CAUTION:**

**Never damage clutch housing.**



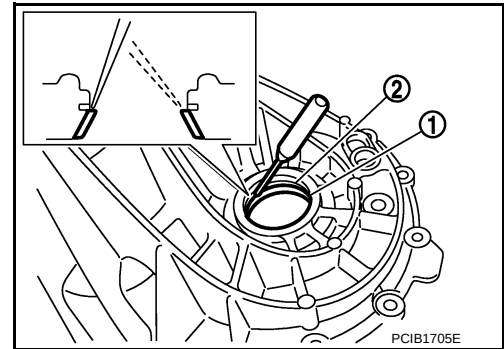
18. Remove differential side bearing outer race ① from transaxle case, using a brass rod.

② : Shim

**CAUTION:**

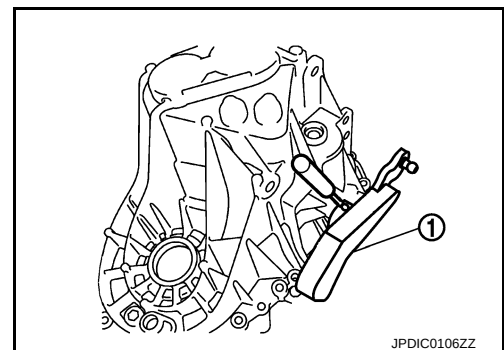
**Never damage transaxle case.**

19. Remove shim from transaxle case.

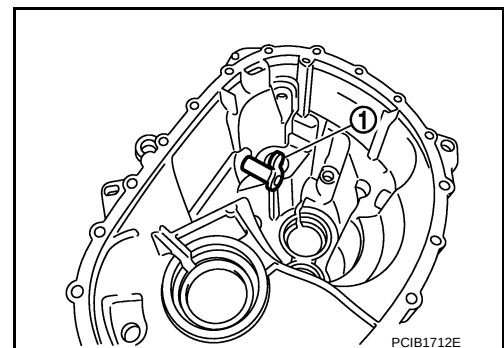


20. Remove retaining pin from shift lever (outer) ①, using a pin punch.

21. Remove shift lever (outer) from transaxle case.



22. Remove shift lever (inner) ① from transaxle case.

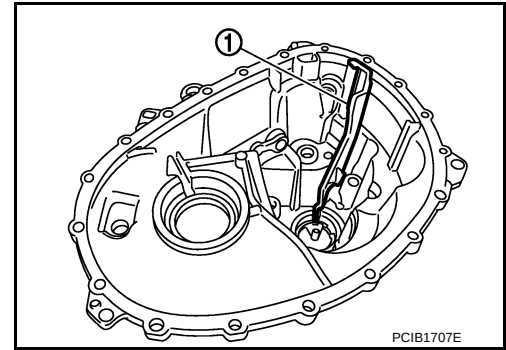


## TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

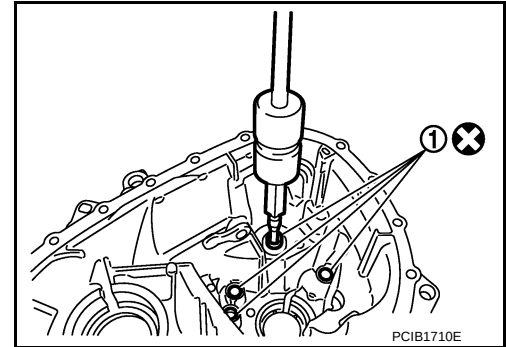
23. Remove oil gutter ① from transaxle case.



24. Remove bushings ① from transaxle case, using a remover (commercial service tool).

**CAUTION:**

**Never damage transaxle case.**

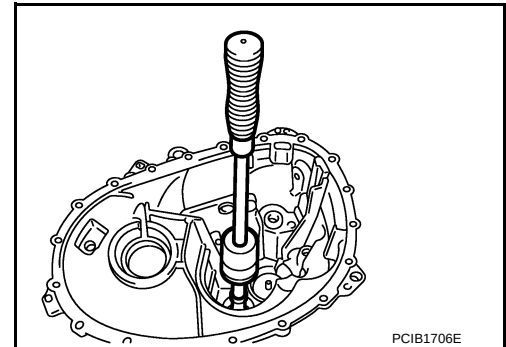


25. Remove mainshaft rear bearing outer race from transaxle case, using a remover (commercial service tool).

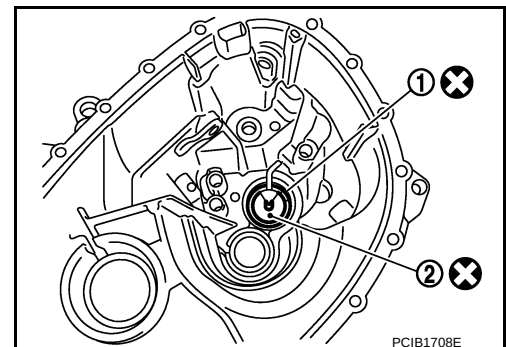
**CAUTION:**

**Never damage transaxle case.**

26. Remove mainshaft rear bearing adjusting shim from transaxle case.



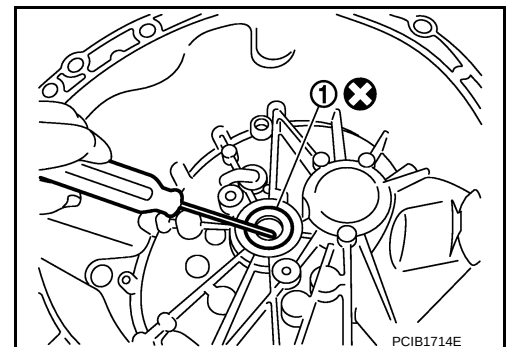
27. Remove snap ring ① and oil channel ② from transaxle case.



28. Remove input shaft oil seal ① from clutch housing, using oil seal remover (commercial service tool).

**CAUTION:**

**Never damage clutch housing.**





# TRANSAXLE ASSEMBLY

## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

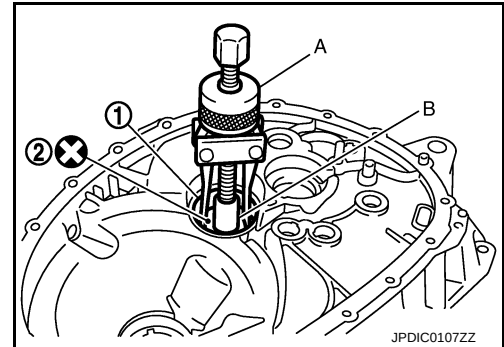
29. Remove mainshaft front bearing outer race ① from clutch housing, using the puller (A) (SST: KV381054S0) and a spacer (B) (commercial service tool).

② : Oil channel

### CAUTION:

**Never damage clutch housing.**

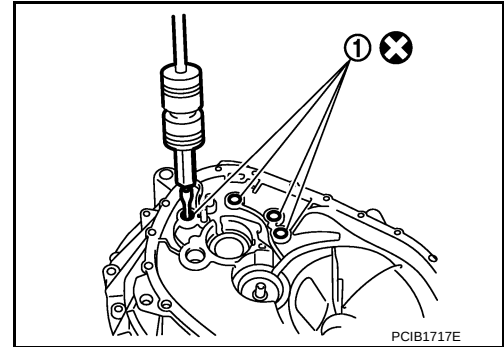
30. Remove oil channel from clutch housing.



31. Remove bushing ① from clutch housing, using a remover (commercial service tool).

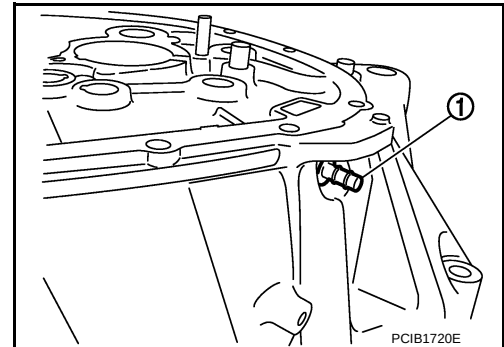
### CAUTION:

**Never damage clutch housing.**

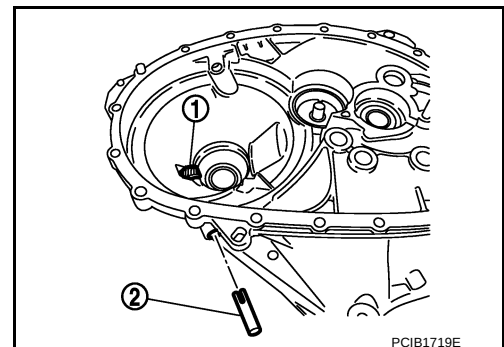


32. Remove 2 way connector ① from clutch housing.

33. Remove plug from clutch housing.



34. Remove pinion gear ① and pinion shaft ② from clutch housing.



## ASSEMBLY

### CAUTION:

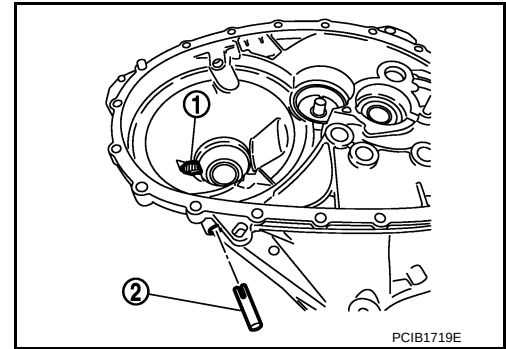
**Replace transaxle assembly when replacing clutch housing.**

# TRANSAXLE ASSEMBLY

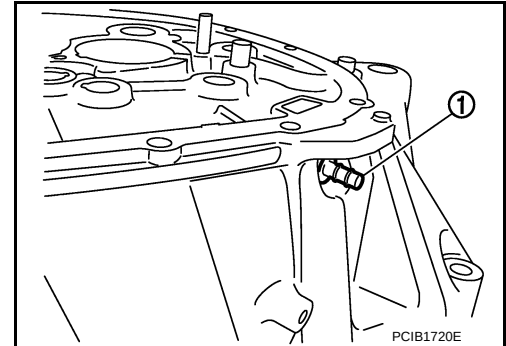
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

1. Install pinion gear ① and pinion shaft ② to clutch housing.
2. Install plug to clutch housing.



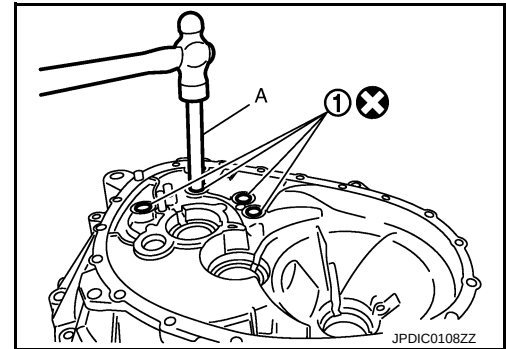
3. Install 2 way connector ① to clutch housing.



4. Install bushings ① so that they become even to clutch housing edge surface, using a drift (A) (commercial service tool).
5. Install oil channel to clutch housing.

**CAUTION:**

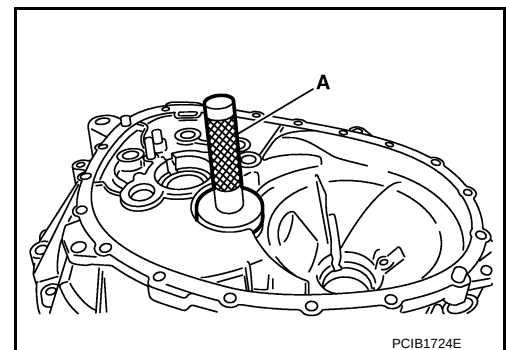
**Never reuse oil channel.**



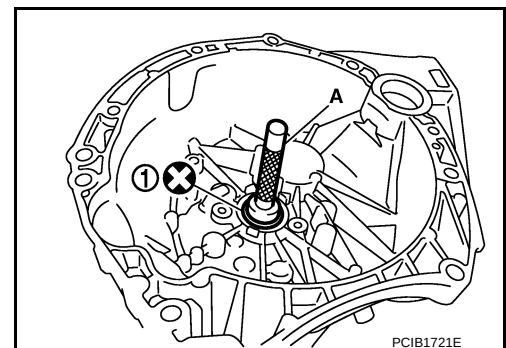
6. Install mainshaft front bearing outer race to clutch housing, using the drift (A) (SST: KV38100200).

**CAUTION:**

**Replace mainshaft front bearing outer race and mainshaft front bearing inner race as a set.**



7. Install input shaft oil seal ① to clutch housing, using the drift (A) (SST: ST33220000).



# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

8. Install snap ring ① and oil channel ② to transaxle case.

**CAUTION:**

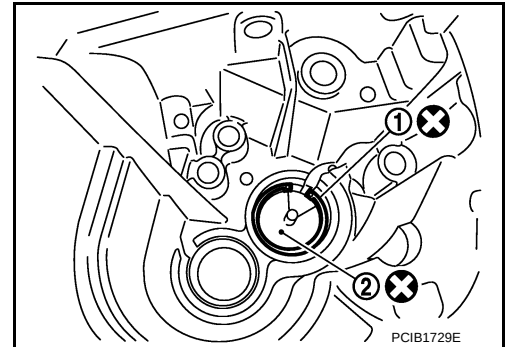
- Select and install snap ring that has the same thickness as previous one.
- Replace transaxle assembly when replacing transaxle case.

9. Install mainshaft rear bearing adjusting shim to transaxle case.

**CAUTION:**

Select mainshaft rear bearing adjusting shim, as per the following procedure when replacing mainshaft adjusting shim, 6th main gear, 5th main gear, or 4th main gear.

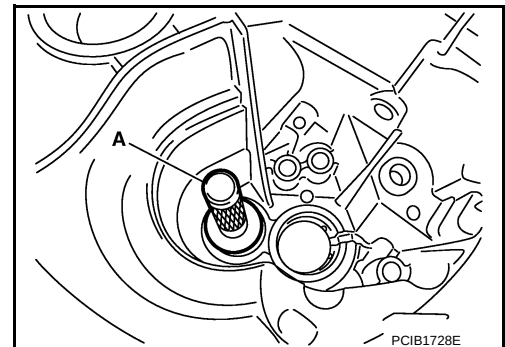
- Replace mainshaft adjusting shim.
- If new mainshaft adjusting shim is thinner than previous one, offset the thickness difference by selecting thicker mainshaft rear bearing adjusting shim.
- If new mainshaft adjusting shim is thicker than previous one, offset the thickness difference by selecting thinner mainshaft rear bearing adjusting shim.
- Replace 6th main gear, 5th main gear, or 4th main gear.
- Measure the thickness of the main gear used before and the new main gear.
- Increase the thickness of the mainshaft rear bearing adjusting shim, if the difference is smaller than 0.025 mm (0.0010 in).
- Decrease the thickness of the mainshaft rear bearing adjusting shim, if the difference is greater than 0.025 mm (0.0010 in).



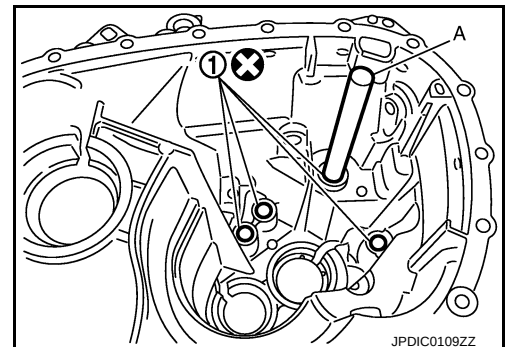
10. Install mainshaft rear bearing outer race to transaxle case, using the drift (A) (SST: KV38100200).

**CAUTION:**

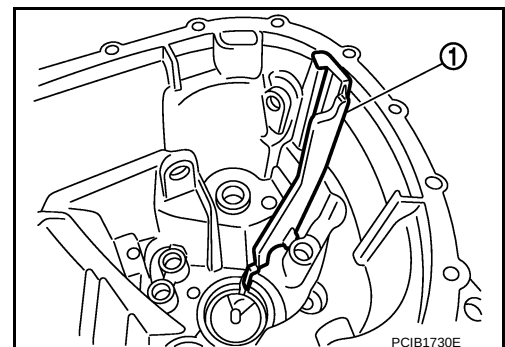
Replace mainshaft rear bearing outer race and mainshaft rear bearing inner race as a set.



11. Install bushings ① to transaxle case, using a drift (A) (commercial service tool).



12. Install oil gutter ① to transaxle case.



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# TRANSAXLE ASSEMBLY

## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

13. Install shift lever (inner) ① to transaxle case.

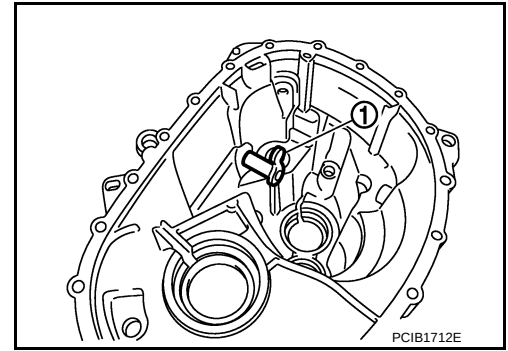
**CAUTION:**

Replace shift lever (outer) and shift lever (inner) as a set.

14. Install shift lever (outer) to transaxle case.

**CAUTION:**

Replace shift lever (outer) and shift lever (inner) as a set.

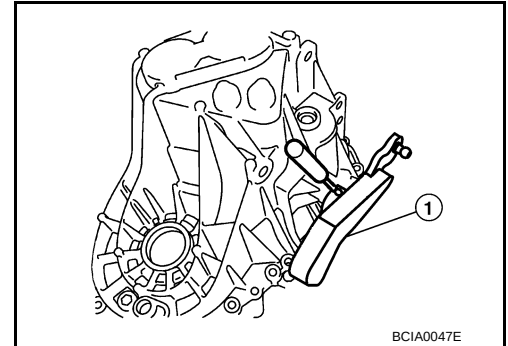


15. Install retaining pin to shift lever (outer) ①, using a pin punch.

**CAUTION:**

Never reuse retaining pin.

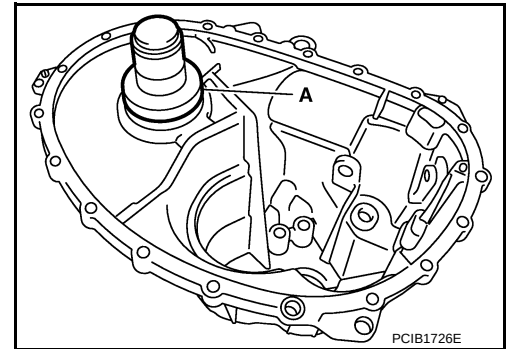
16. Install shim to transaxle case.



17. Install differential side bearing outer race (transaxle case side) to transaxle case, using the drift (A) (SST: ST33400001).

**CAUTION:**

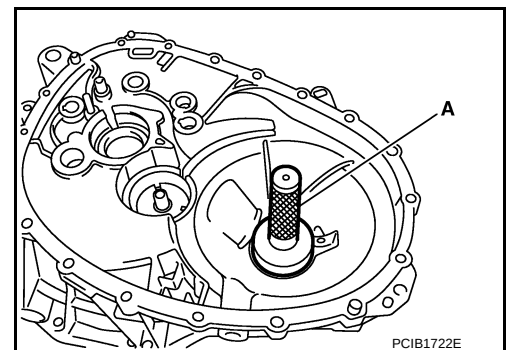
Replace differential side bearing outer race and differential side bearing inner race as a set.



18. Install differential side bearing outer race (clutch housing side) to clutch housing, using the drift (A) (SST: KV38100200).

**CAUTION:**

Replace differential side bearing outer race and differential side bearing inner race as a set.



19. Install differential side oil seals ① to clutch housing and transaxle case, using the drift (Stamping number: B.vi 1666-B) of the drift set (SST: KV32500QAA).

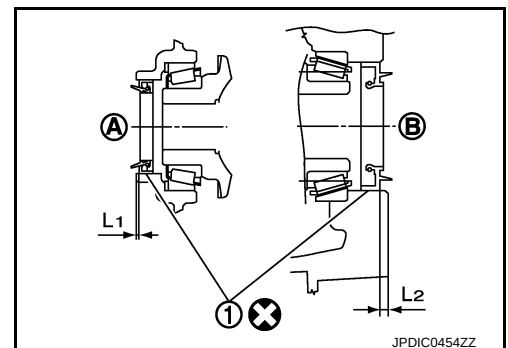
Ⓐ : Transaxle case side

Ⓑ : Clutch housing side

Dimension (L1) : 1.2 – 1.8 mm (0.047 – 0.071 in)

Dimension (L2) : 2.7 – 3.3 mm (0.106 – 0.130 in)

**CAUTION:**



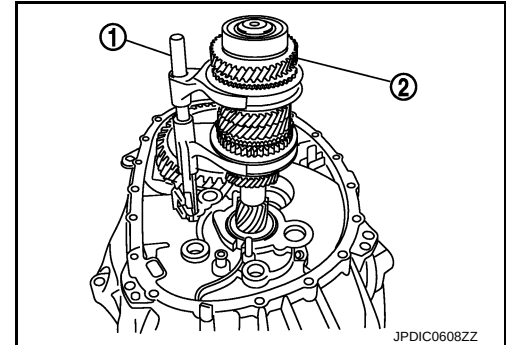
# TRANSAXLE ASSEMBLY

## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

- **Never incline differential side oil seal.**
- **Never damage clutch housing and transaxle case.**

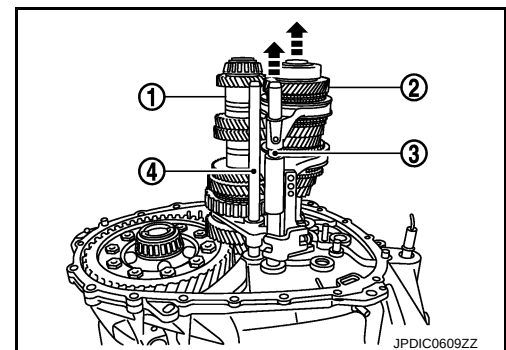
20. Install magnet to clutch housing.
21. Install final drive assembly to clutch housing.
22. Set fork rod ① to input shaft assembly ②, and then install them to clutch housing.



23. Install mainshaft assembly ①, as per the following procedure.

- ② : Input shaft assembly
- ③ : Fork rod
- ④ : 1st-2nd fork rod

- a. Pull up input shaft assembly and fork rod.
- b. Set 1st-2nd fork rod to mainshaft assembly, and then install them to clutch housing.



24. Install reverse idler shaft assembly ①, as per the following procedure.

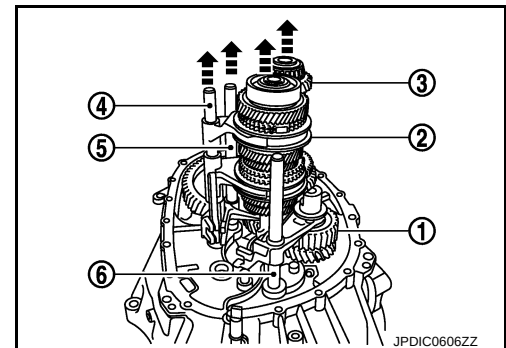
- ② : Input shaft assembly
- ③ : Mainshaft assembly
- ④ : Fork rod
- ⑤ : 1st-2nd fork rod
- ⑥ : Reverse fork rod

- a. Install spring washer to clutch housing.
- b. Pull up input shaft assembly, mainshaft assembly, fork rod, and 1st-2nd fork rod.

### NOTE:

It is easier to pull up when shifting each fork rod to each shaft side.

- c. Set reverse fork rod to reverse idler shaft assembly, and then install them to clutch housing.



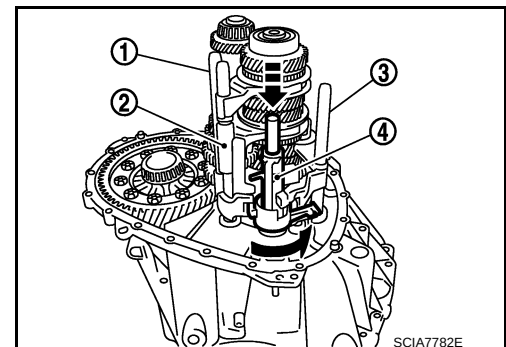
25. Shift 1st-2nd fork rod ①, fork rod ②, and reverse fork rod ③ to the neutral position.

- ④ : Selector

26. Install selector to clutch housing.

### CAUTION:

Replace select lever and selector as a set.

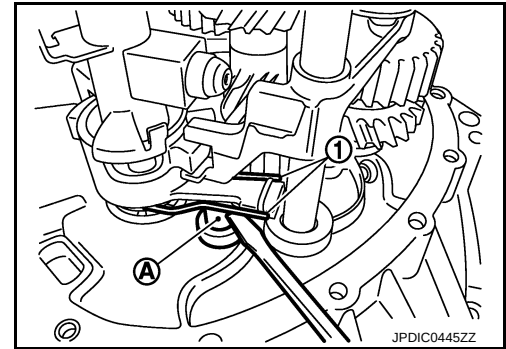


## TRANSAXLE ASSEMBLY

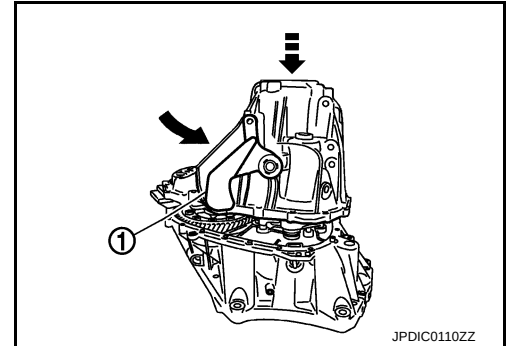
### < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

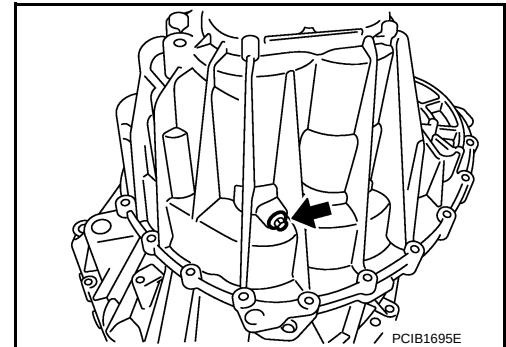
27. Install selector spring ① to return bushing ②.
28. Apply recommended sealant to mounting surface of transaxle case.
- For sealant to use, refer to [TM-43, "Exploded View"](#).
- CAUTION:**
- **Never allow old liquid gasket, moisture, oil, or foreign matter to remain on mounting surface.**
  - **Check that mounting surface is not damaged.**
  - **Apply sealant bead continuously.**



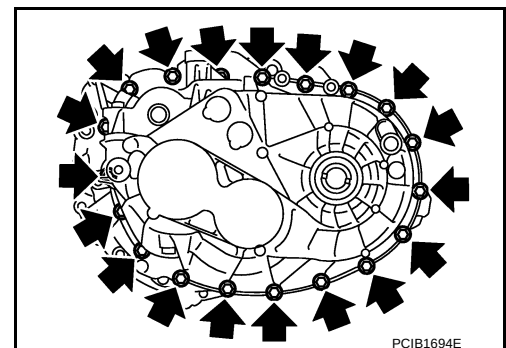
29. Install transaxle case to clutch housing while rotating shift lever (outer) ① in the direction as shown in the figure.



30. Install reverse idler shaft mounting bolt (⬅), as per the following procedure.
- a. Install seal washer to reverse idler shaft mounting bolt, and install reverse idler shaft mounting bolt to transaxle case.
- CAUTION:**
- Never reuse seal washer.**
- b. Tighten reverse idler shaft mounting bolt to the specified torque.



31. Tighten transaxle case mounting bolts (⬅) to the specified torque.



32. Install position switch, as per the following procedure.



# TRANSAXLE ASSEMBLY

## < UNIT DISASSEMBLY AND ASSEMBLY >

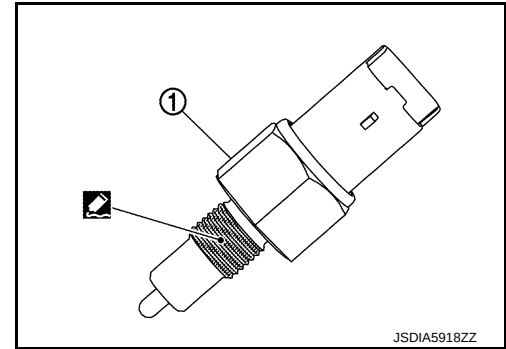
[6MT: RS6F94R]

- a. Apply recommended sealant to threads of position switch ①.

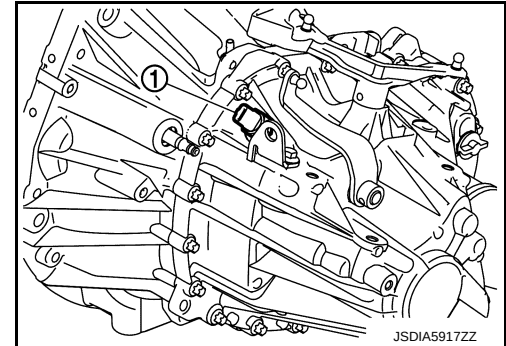
• For sealant to use, refer to [TM-43, "Exploded View"](#).

**CAUTION:**

**Never allow old liquid gasket, moisture, oil, or foreign matter to remain on thread.**

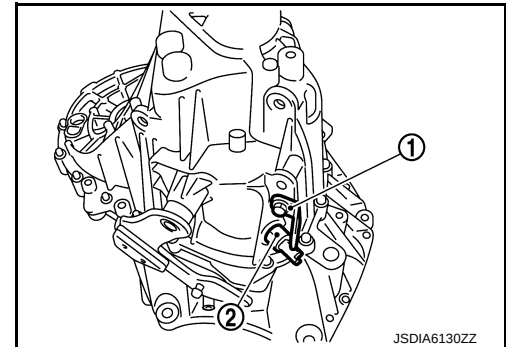


- b. Install position switch ① to transaxle case, and tighten it to the specified torque.



33. Install bracket ① to transaxle case, and tighten mounting bolt to the specified torque.

② : Position switch



34. Install select lever ①, as per the following procedure.

- a. Install select lever to transaxle case.

**CAUTION:**

**Replace select lever and selector as a set.**

- b. Install retaining pin to select lever, using a pin punch.

**CAUTION:**

**Never reuse retaining pin.**

35. Install drain plug, as per the following procedure.

- a. Install gasket to drain plug.

**CAUTION:**

**Never reuse gasket.**

- b. Install drain plug to clutch housing.

- c. Tighten drain plug to the specified torque.

36. Install filler plug, as per the following procedure.

- a. Install gasket to filler plug, and then install them to transaxle case.

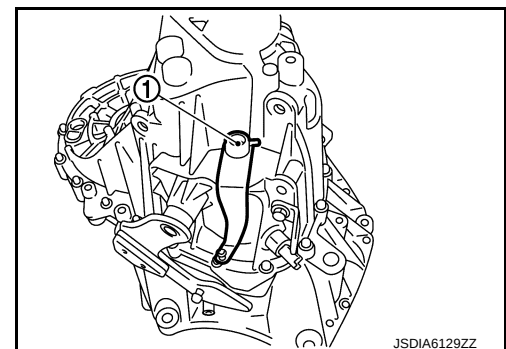
**CAUTION:**

**Never reuse gasket.**

- b. Tighten filler plug to the specified torque.

**CAUTION:**

**Fill with gear oil before tightening filler plug to the specified torque.**



# INPUT SHAFT AND GEAR

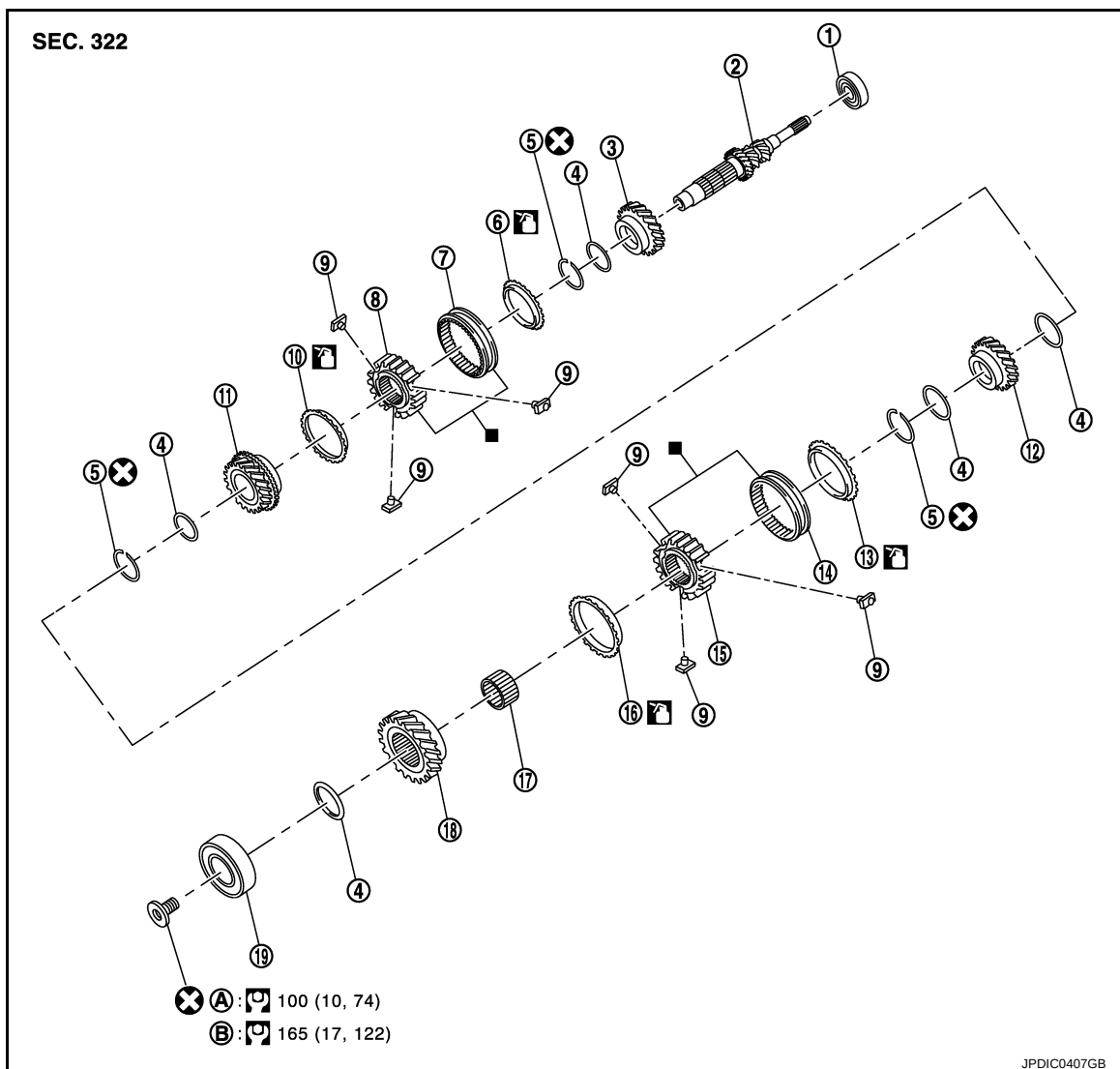
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

## INPUT SHAFT AND GEAR

### Exploded View

INFOID:000000010842464



- |                             |                            |                            |
|-----------------------------|----------------------------|----------------------------|
| ① Input shaft front bearing | ② Input shaft              | ③ 3rd input gear           |
| ④ Spacer                    | ⑤ Snap ring                | ⑥ 3rd baulk ring           |
| ⑦ 3rd-4th coupling sleeve   | ⑧ 3rd-4th synchronizer hub | ⑨ Insert key               |
| ⑩ 4th baulk ring            | ⑪ 4th input gear           | ⑫ 5th input gear           |
| ⑬ 5th baulk ring            | ⑭ 5th-6th coupling sleeve  | ⑮ 5th-6th synchronizer hub |
| ⑯ 6th baulk ring            | ⑰ Needle bearing           | ⑱ 6th input gear           |
| ⑲ Input shaft rear bearing  |                            |                            |
| Ⓐ First step                | Ⓑ Final step               |                            |

Ⓐ: N·m (kg-m, ft-lb)

ⓧ: Always replace after every disassembly.

Ⓐ: Apply gear oil.

■: Replace the parts as a set.



# INPUT SHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

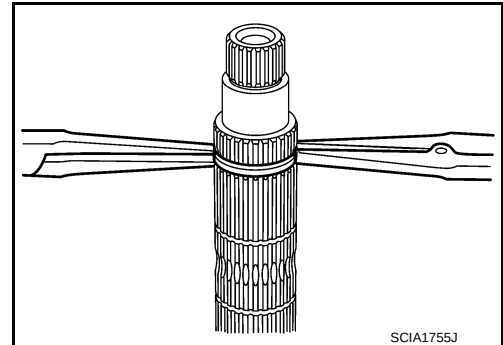
## Disassembly and Assembly

INFOID:000000010842465

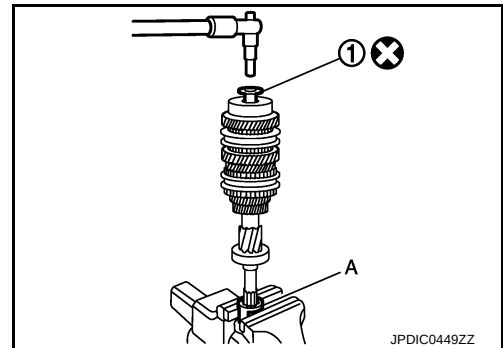
### DISASSEMBLY

#### CAUTION:

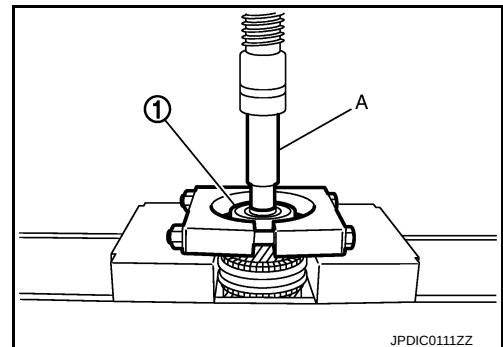
- Fix input shaft in a vise with back plate, and then remove gears and snap rings.
- For removal of snap ring, set snap ring pliers and flat pliers at both sides of snap ring. While expanding snap ring with snap ring pliers, move snap ring with flat pliers.
- Disassemble gear components putting direction marks on the parts that do not affect any functions.



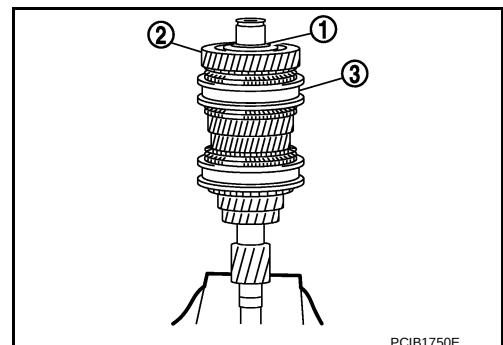
1. Remove input shaft rear bearing mounting bolt ①, using the drift (A) (SST: KV32300QAM).



2. Remove input shaft rear bearing, as per the following procedure.
  - a. Set a separator (commercial service tool) to input shaft rear bearing.
  - b. Remove input shaft rear bearing ①, using a drift (A) (commercial service tool).



3. Remove spacer ①, 6th input gear ②, needle bearing, 6th baulk ring, and 5th-6th synchronizer hub assembly ③.
4. Remove insert keys and 5th-6th coupling sleeve from 5th-6th synchronizer hub.



## INPUT SHAFT AND GEAR

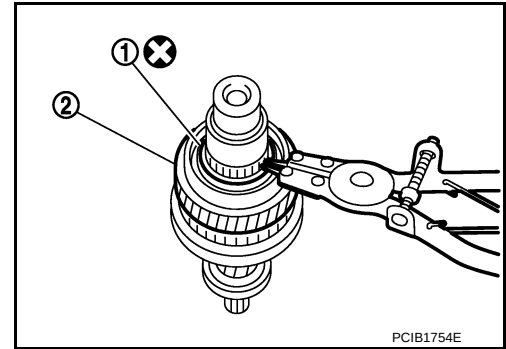
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

5. Remove snap ring ①.

② : 5th input gear

6. Remove spacer, 5th baulk ring, 5th input gear, and spacer.



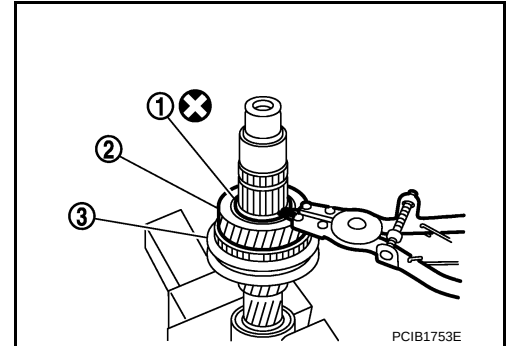
7. Remove snap ring ①.

② : 4th input gear

③ : 3rd-4th synchronizer hub assembly

8. Remove spacer, 4th input gear, 4th baulk ring, and 3rd-4th synchronizer hub assembly.

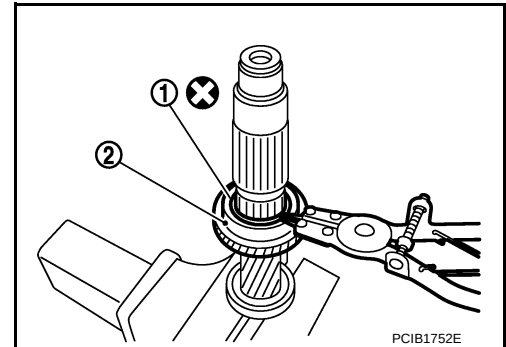
9. Remove insert keys and 3rd-4th coupling sleeve from 3rd-4th synchronizer hub.



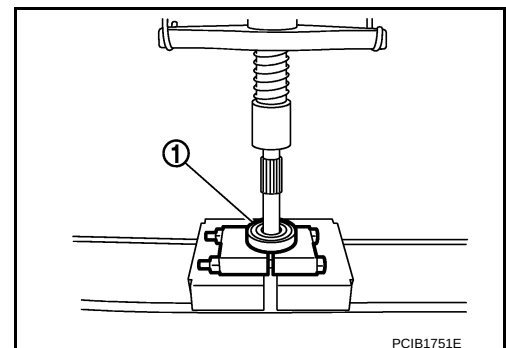
10. Remove snap ring ①.

② : 3rd input gear

11. Remove spacer, 3rd baulk ring, and 3rd input gear.



12. Set a separator (commercial service tool) to input shaft front bearing ①, and then remove input shaft front bearing.



### ASSEMBLY

Note the following procedures, and assemble in the reverse order of disassembly.

#### CAUTION:

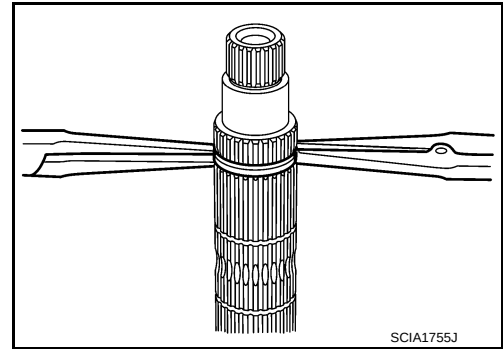
- Replace transaxle assembly when replacing input shaft.

# INPUT SHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

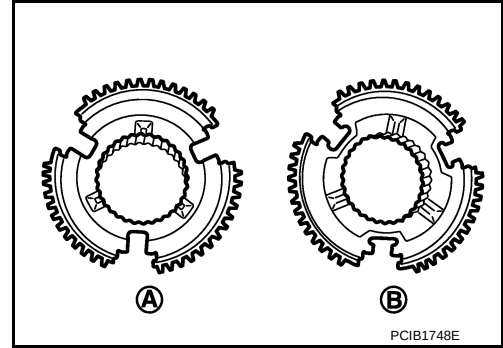
[6MT: RS6F94R]

- For installation of snap ring, set snap ring pliers and flat pliers at both sides of snap ring. While expanding snap ring with snap ring pliers, move snap ring with flat pliers.
- Never reuse snap ring.
- Check that snap ring is securely installed in a groove.
- Replace 3rd-4th coupling sleeve and 3rd-4th synchronizer hub as a set.
- Replace 5th-6th coupling sleeve and 5th-6th synchronizer hub as a set.



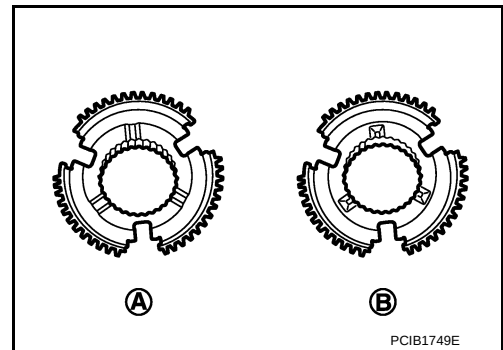
- Be careful to install 3rd-4th synchronizer hub according to the specified direction.

- Ⓐ : 3rd input gear side
- Ⓑ : 4th input gear side

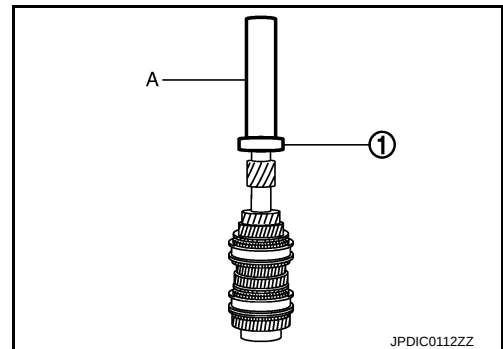


- Be careful to install 5th-6th synchronizer hub according to the specified direction.

- Ⓐ : 5th input gear side
- Ⓑ : 6th input gear side



- Install input shaft front bearing ①, using a drift (A) (commercial service tool).

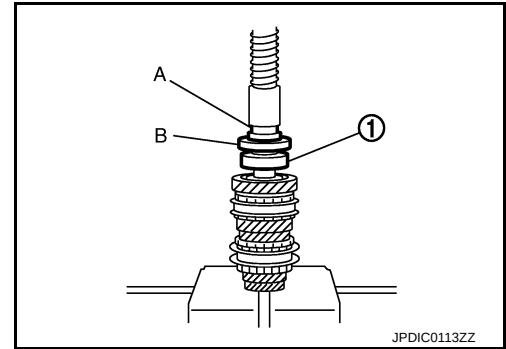


# INPUT SHAFT AND GEAR

## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

- Install input shaft rear bearing ①, using a drift (A) (commercial service tool) and the drift (B) (SST: ST36720030).
- Apply gear oil to 3rd baulk ring, 4th baulk ring, 5th baulk ring, and 6th baulk ring.

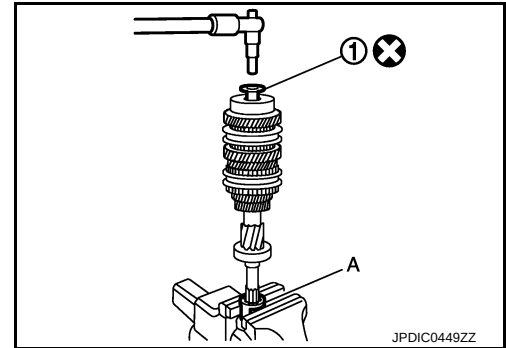


- Install input shaft rear bearing mounting bolt ①, as per the following procedure.

### CAUTION:

**Follow the procedures. Otherwise it may cause a transaxle malfunction.**

1. Fix the drift (A) (SST: KV32300QAM) in a vise, and then set input shaft assembly.
2. Install input shaft rear bearing mounting bolt, and then tighten it to the specified torque of the first step.
3. Loosen input shaft rear bearing mounting bolt by a half turn.
4. Tighten input shaft rear bearing mounting bolt to the specified torque of the final step.



## Inspection

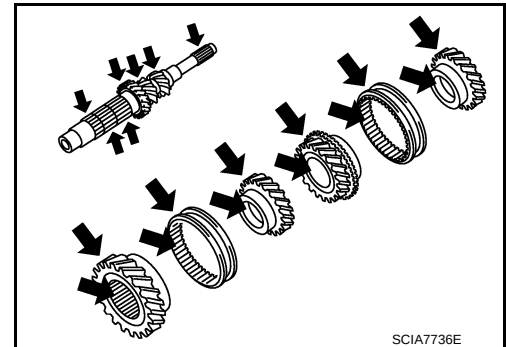
INFOID:0000000010842466

### INSPECTION AFTER DISASSEMBLY

#### Input Shaft and Gear

Check the following items and replace if necessary.

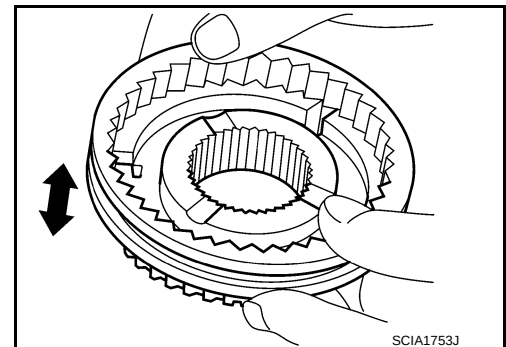
- Damage, peeling, bend, uneven wear, and distortion of shaft.
- Excessive wear, damage, and peeling of gear.



#### Synchronizer Hub and Coupling Sleeve

Check the following items and replace if necessary.

- Breakage, damage, and unusual wear on contact surface of coupling sleeve, synchronizer hub, and insert key.
- Coupling sleeve and synchronizer hub move smoothly.



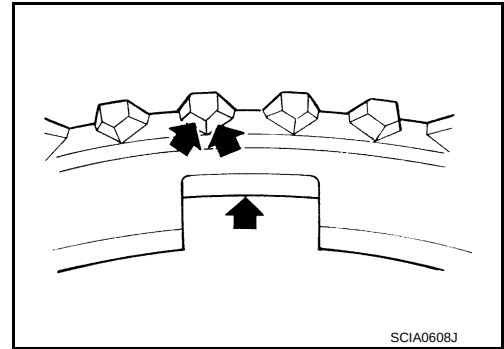
#### Baulk Ring

## INPUT SHAFT AND GEAR

### < UNIT DISASSEMBLY AND ASSEMBLY >

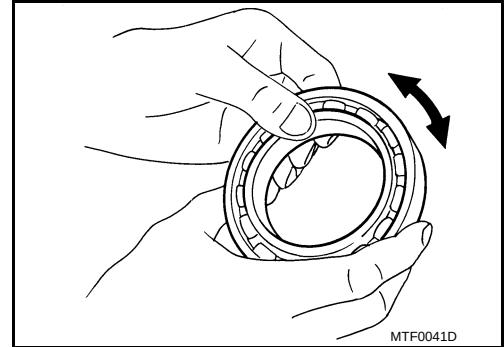
[6MT: RS6F94R]

Check contact surface of baulk ring cam and insert key for excessive wear, uneven wear, bend, and damage. Replace if necessary.



#### Bearing

Check bearing for damage and unsmooth rotation. Replace if necessary.



A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

# MAINSHAFT AND GEAR

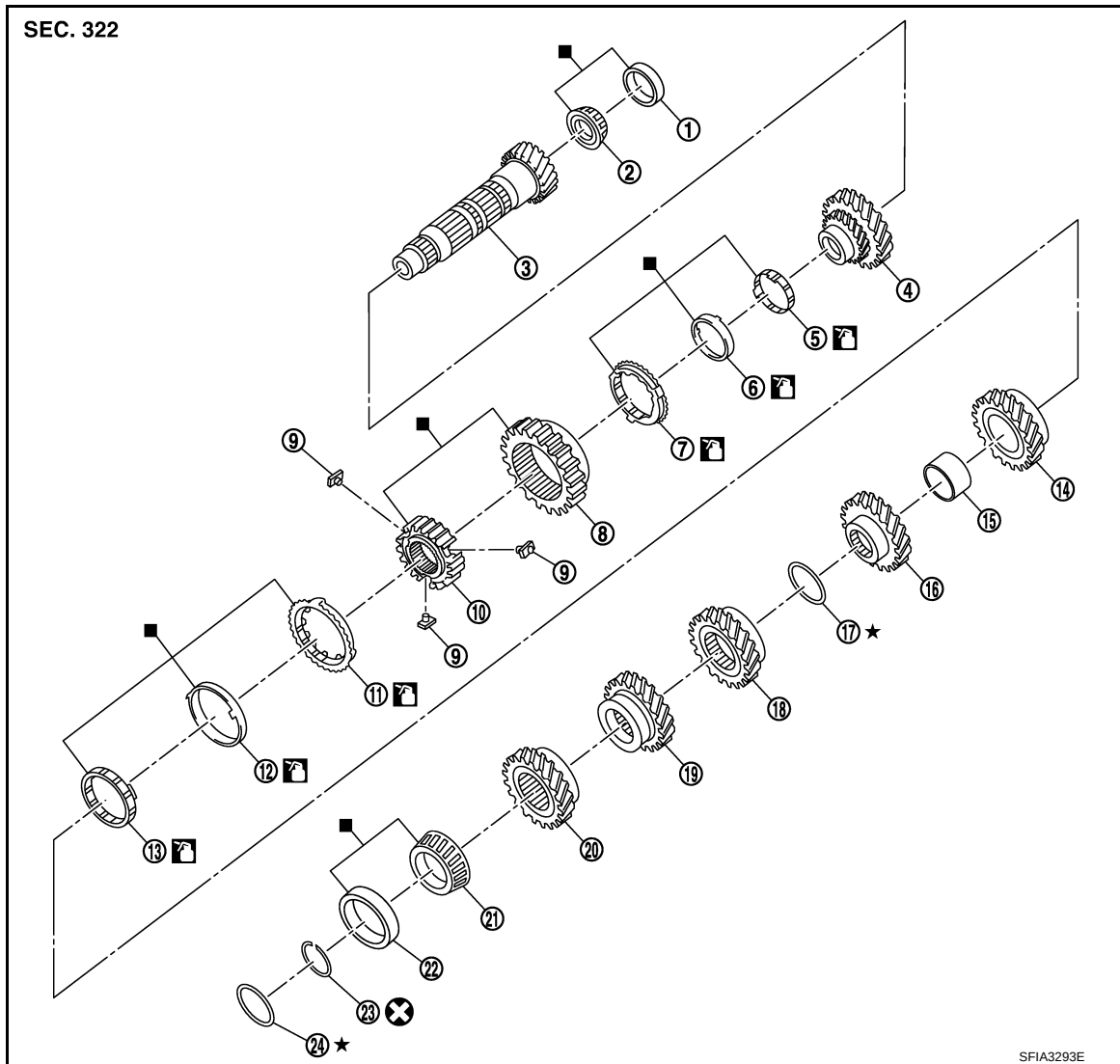
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

## MAINSHAFT AND GEAR

### Exploded View

INFOID:000000010842467



- |                                      |                                      |                                         |
|--------------------------------------|--------------------------------------|-----------------------------------------|
| ① Mainshaft front bearing outer race | ② Mainshaft front bearing inner race | ③ Mainshaft                             |
| ④ 1st main gear                      | ⑤ 1st inner baulk ring               | ⑥ 1st synchronizer cone                 |
| ⑦ 1st outer baulk ring               | ⑧ 1st-2nd coupling sleeve            | ⑨ Insert key                            |
| ⑩ 1st-2nd synchronizer hub           | ⑪ 2nd outer baulk ring               | ⑫ 2nd synchronizer cone                 |
| ⑬ 2nd inner baulk ring               | ⑭ 2nd main gear                      | ⑮ Bushing                               |
| ⑯ 3rd main gear                      | ⑰ Mainshaft adjusting shim           | ⑱ 4th main gear                         |
| ⑲ 5th main gear                      | ⑳ 6th main gear                      | ㉑ Mainshaft rear bearing inner race     |
| ㉒ Mainshaft rear bearing outer race  | ㉓ Snap ring                          | ㉔ Mainshaft rear bearing adjusting shim |

✗: Always replace after every disassembly.

★: Select with proper thickness.

: Apply gear oil.

: Replace the parts as a set.

# MAINSHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

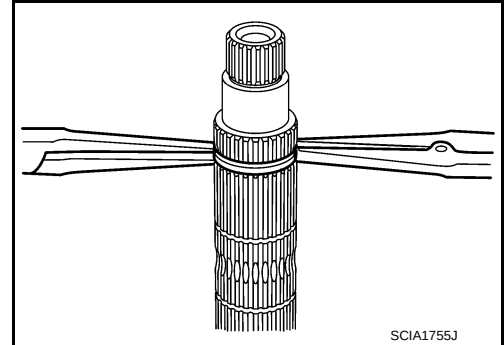
## Disassembly and Assembly

INFOID:0000000110842468

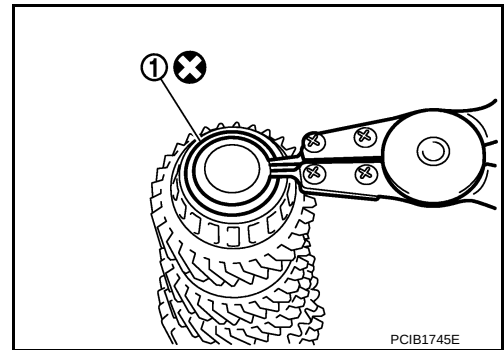
### DISASSEMBLY

#### CAUTION:

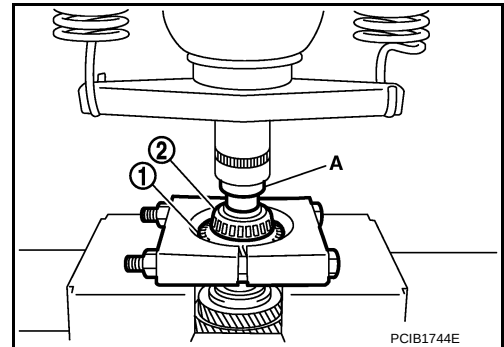
- Fix mainshaft in a vise with back plate, and then remove gears and snap rings.
- For removal of snap ring, set snap ring pliers and flat pliers at both sides of snap ring. While expanding snap ring with snap ring pliers, move snap ring with flat pliers.
- Disassemble gear components putting direction marks on the parts that never affect any functions.



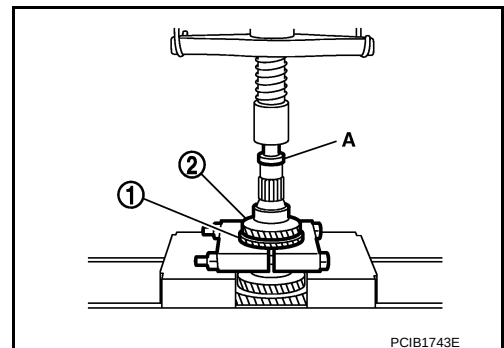
1. Remove snap ring ①.



2. Remove 6th main gear and mainshaft rear bearing inner race, as per the following procedure.
  - a. Set a separator (commercial service tool) to 6th main gear.
  - b. Remove mainshaft rear bearing inner race ② and 6th main gear ①, using the drift (A) (SST: ST33052000).



3. Remove 4th main gear and 5th main gear, as per the following procedure.
  - a. Set a separator (commercial service tool) to 4th main gear.
  - b. Remove 4th main gear ① and 5th main gear ②, using the drift (A) (SST: ST33052000).
4. Remove mainshaft adjusting shim.

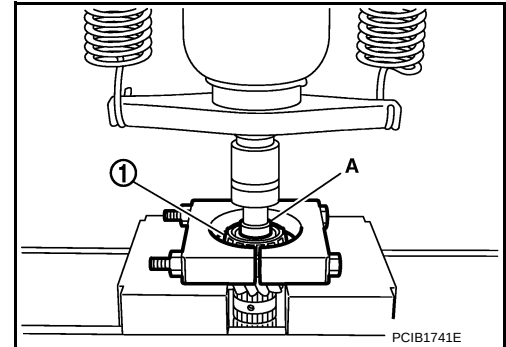
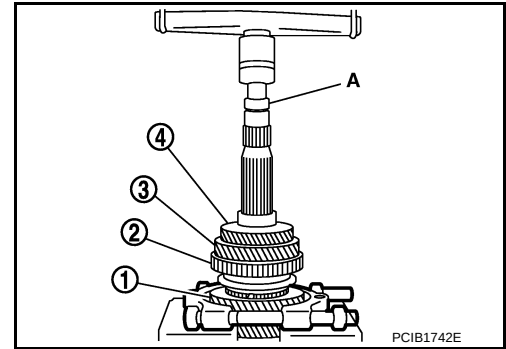


## MAINSHAFT AND GEAR

### < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

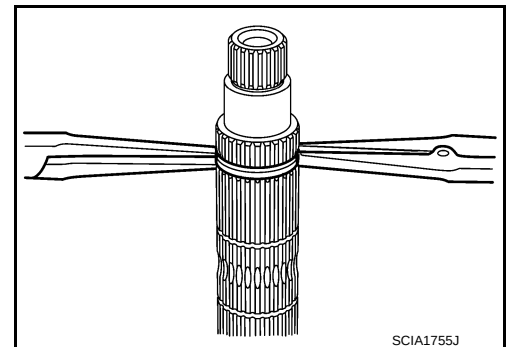
5. Remove 1st main gear ①, 1st-2nd synchronizer hub assembly ②, 2nd main gear ③, and 3rd main gear ④, as per the following procedure.
  - a. Set a separator (commercial service tool) to 1st main gear.
  - b. Remove 3rd main gear, busing, 2nd main gear, 2nd inner baulk ring, 2nd synchronizer cone, 2nd outer baulk ring, 1st-2nd synchronizer hub assembly, 1st outer baulk ring, 1st synchronizer cone, 1st inner baulk ring, and 1st main gear, using the drift (A) (SST: ST33052000).
  - c. Remove insert keys and 1st-2nd coupling sleeve from 1st-2nd synchronizer hub.
6. Remove mainshaft front bearing inner race, as per the following procedure.
  - a. Set a separator (commercial service tool) to mainshaft front bearing inner race.
  - b. Remove mainshaft front bearing inner race ①, using the drift (A) (SST: ST33052000).



### ASSEMBLY

#### CAUTION:

- Select mainshaft rear bearing adjusting shim, as per the following procedure when replacing mainshaft adjusting shim, 6th main gear, 5th main gear, or 4th main gear.
- Replace mainshaft adjusting shim.
- If new mainshaft adjusting shim is thinner than previous one, offset the thickness difference by selecting thicker mainshaft rear bearing adjusting shim.
- If new mainshaft adjusting shim is thicker than previous one, offset the thickness difference by selecting thinner mainshaft rear bearing adjusting shim.
- Replace 6th main gear, 5th main gear, or 4th main gear.
- Measure the thickness of the main gear used before and the new main gear.
- Increase the thickness of the mainshaft rear bearing adjusting shim, if the difference is smaller than 0.025 mm (0.0010 in).
- Replace transaxle assembly when replacing mainshaft.
- For installation of snap ring, set snap ring pliers and flat pliers at both sides of snap ring. While expanding snap ring with snap ring pliers, move snap ring with flat pliers.





# 

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

1. Install mainshaft front bearing inner race ①, using the drift (A) (SST: ST36720030).

**CAUTION:**

**Replace mainshaft front bearing outer race and mainshaft front bearing inner race as a set.**

2. Apply gear oil to 1st inner baulk ring, 1st synchronizer cone, 1st outer baulk ring, 2nd inner baulk ring, 2nd synchronizer cone, and 2nd outer baulk ring.

**CAUTION:**

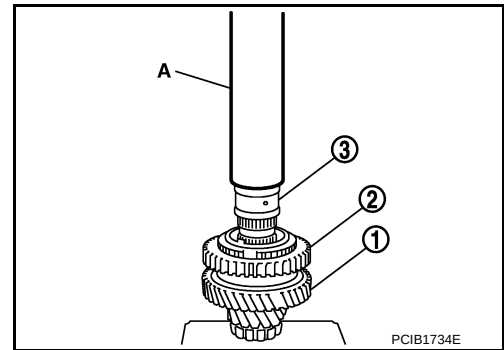
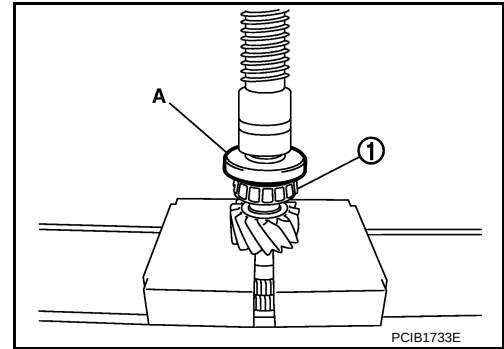
- **Replace 1st inner baulk ring, 1st synchronizer cone, and 1st outer baulk ring as a set.**
- **Replace 2nd inner baulk ring, 2nd synchronizer cone, and 2nd outer baulk ring as a set.**

3. Install insert keys and 1st-2nd coupling sleeve to 1st-2nd synchronizer hub.

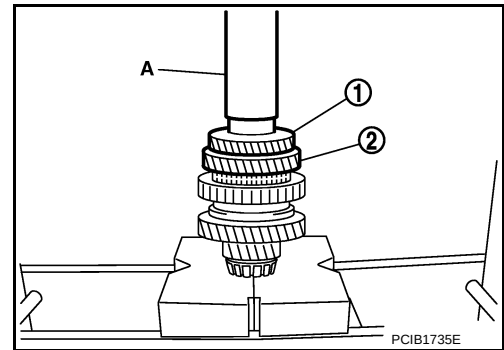
**CAUTION:**

**Replace 1st-2nd synchronizer hub and 1st-2nd coupling sleeve as a set.**

4. Assemble 1st main gear ①, 1st inner baulk ring, 1st synchronizer cone, 1st outer baulk ring, 1st-2nd synchronizer hub assembly ②, 2nd inner baulk ring, 2nd synchronizer cone, and 2nd outer baulk ring then install bushing ③, using the drift (A) (SST: KV32102700).



5. Install 3rd main gear ① and 2nd main gear ②, using the drift (A) (SST: KV32102700).

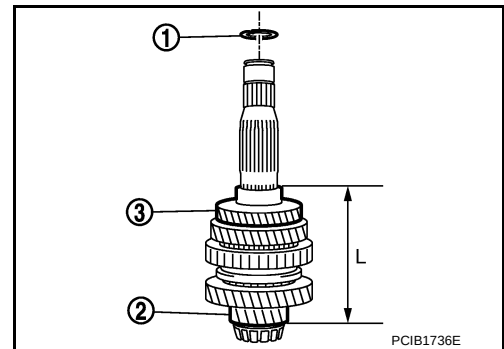


6. Measure dimension "L" as shown in the figure. Select mainshaft adjusting shim ① according to the following list, and then install it to mainshaft.

- ② : Mainshaft  
③ : 3rd main gear

Unit: mm (in)

| Dimension "L"                       | Mainshaft adjusting shim thickness |
|-------------------------------------|------------------------------------|
| 147.690 – 147.666 (5.8146 – 5.8136) | 1.500 (0.0591)                     |
| 147.665 – 147.641 (5.8136 – 5.8126) | 1.525 (0.0600)                     |
| 147.640 – 147.616 (5.8126 – 5.8116) | 1.550 (0.0610)                     |
| 147.615 – 147.591 (5.8116 – 5.8107) | 1.575 (0.0620)                     |
| 147.590 – 147.566 (5.8106 – 5.8097) | 1.600 (0.0630)                     |
| 147.565 – 147.541 (5.8096 – 5.8087) | 1.625 (0.0640)                     |
| 147.540 – 147.516 (5.8086 – 5.8077) | 1.650 (0.0650)                     |



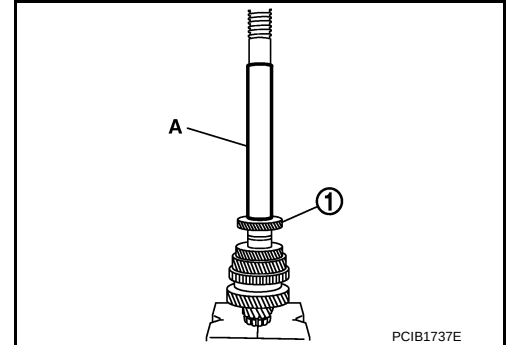
# MAINSHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

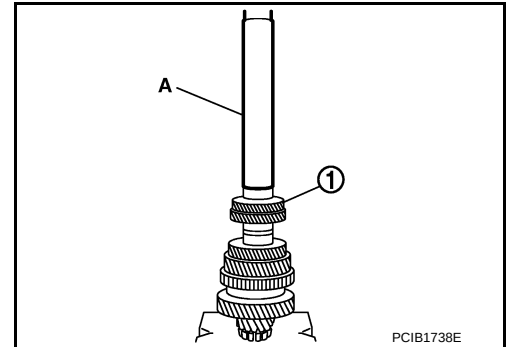
[6MT: RS6F94R]

| Dimension "L"                       | Mainshaft adjusting shim thickness |
|-------------------------------------|------------------------------------|
| 147.515 – 147.491 (5.8077 – 5.8067) | 1.675 (0.0659)                     |
| 147.490 – 147.466 (5.8067 – 5.8057) | 1.700 (0.0669)                     |
| 147.465 – 147.441 (5.8057 – 5.8048) | 1.725 (0.0679)                     |
| 147.440 – 147.416 (5.8047 – 5.8038) | 1.750 (0.0689)                     |
| 147.415 – 147.391 (5.8037 – 5.8028) | 1.775 (0.0699)                     |

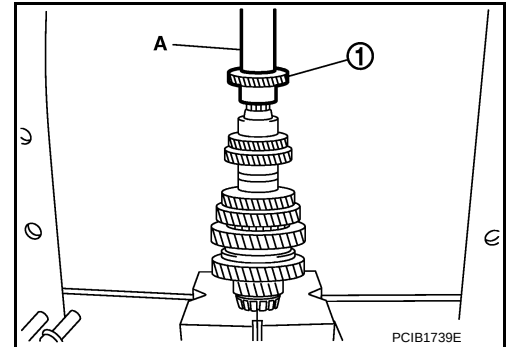
7. Install 4th main gear ①, using the drift (A) (SST: KV32102700).



8. Install 5th main gear ①, using the drift (A) (SST: KV32102700).



9. Install 6th main gear ①, using the drift (A) (SST: KV32102700).



10. Install mainshaft rear bearing inner race ①, using the drift (A) (SST: ST30901000).

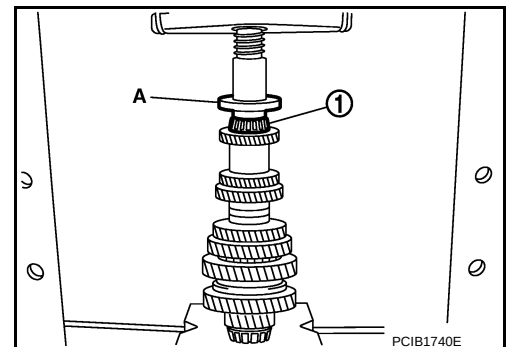
**CAUTION:**

**Replace mainshaft rear bearing inner race and mainshaft rear bearing outer race as a set.**

11. Install snap ring.

**CAUTION:**

**Never reuse snap ring.**



Inspection

INFOID:0000000010842469

INSPECTION AFTER DISASSEMBLY

# 

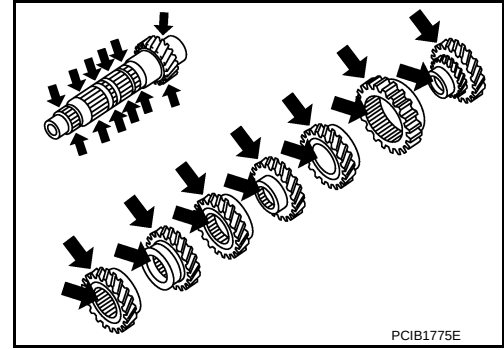
### 

[6MT: RS6F94R]

#### 

Check the following items and replace if necessary.

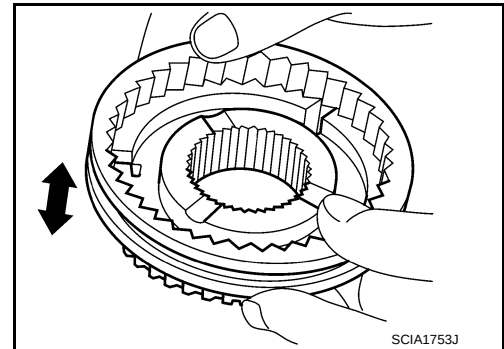
- Damage, peeling, bend, uneven wear, and distortion of shaft.
- Excessive wear, damage, and peeling of gear.



#### 

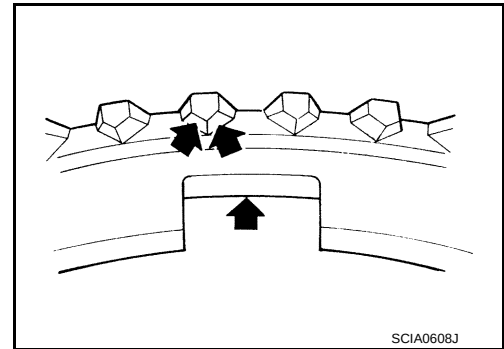
Check the following items and replace if necessary.

- Breakage, damage, and unusual wear on contact surface of coupling sleeve, synchronizer hub, and insert key.
- Coupling sleeve and synchronizer hub move smoothly.



#### 

Check contact surface of baulk ring cam and insert key for excessive wear, uneven wear, bend, and damage. Replace if necessary.

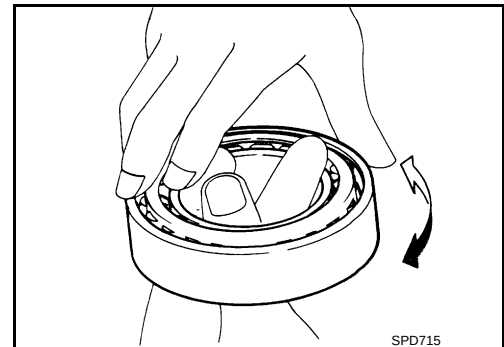


#### 

Check bearing for damage and unsmooth rotation. Replace if necessary.

#### 

- **Replace mainshaft front bearing outer race and mainshaft front bearing inner race as a set.**
- **Replace mainshaft rear bearing inner race and mainshaft rear bearing outer race as a set.**



# REVERSE IDLER SHAFT AND GEAR

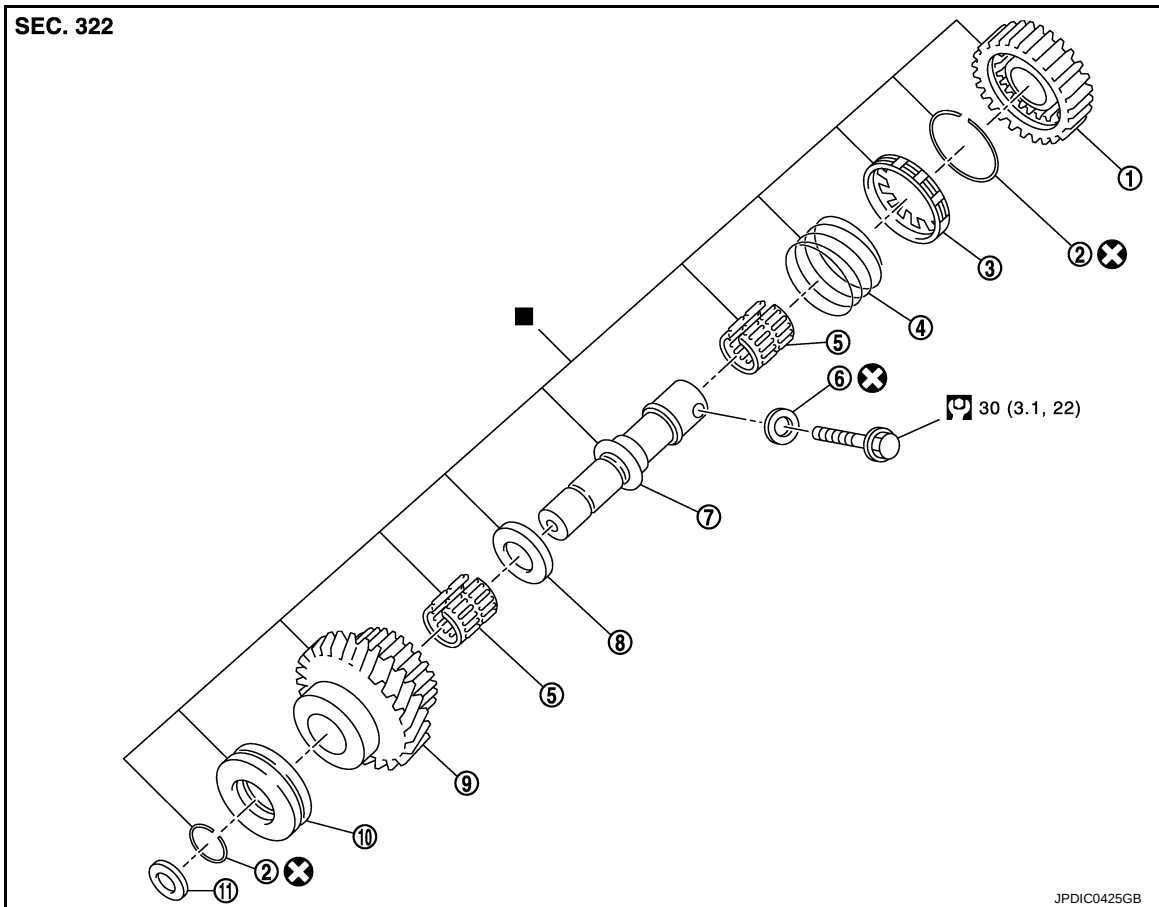
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

## REVERSE IDLER SHAFT AND GEAR

Exploded View

INFOID:0000000110842470



- |                       |                  |                      |
|-----------------------|------------------|----------------------|
| ① Reverse output gear | ② Snap ring      | ③ Reverse baulk ring |
| ④ Return spring       | ⑤ Needle bearing | ⑥ Seal washer        |
| ⑦ Reverse idler shaft | ⑧ Spacer         | ⑨ Reverse input gear |
| ⑩ Lock washer         | ⑪ Spring washer  |                      |

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

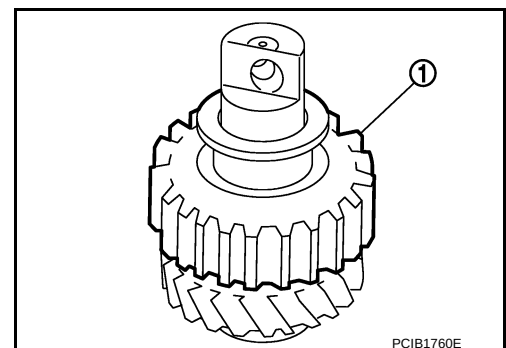
: Replace the parts as a set.

## Disassembly and Assembly

INFOID:0000000110842471

### DISASSEMBLY

1. Remove reverse output gear ①.

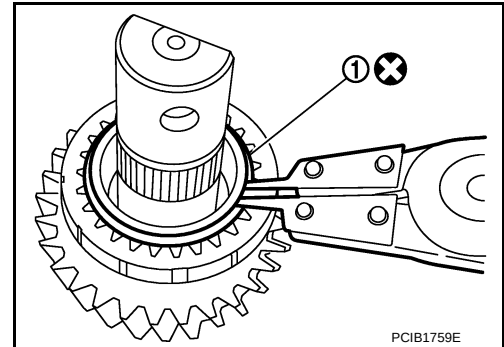


## REVERSE IDLER SHAFT AND GEAR

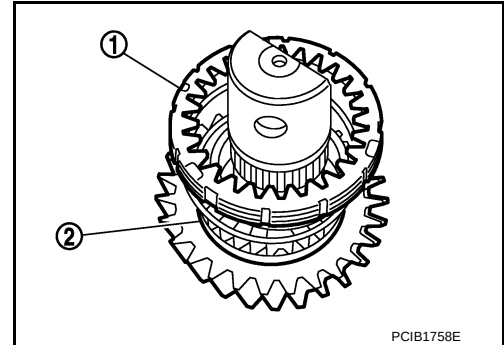
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

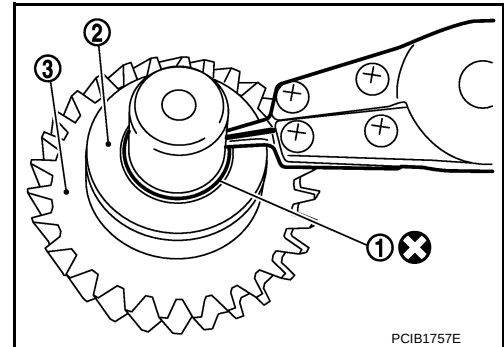
2. Remove snap ring ①.



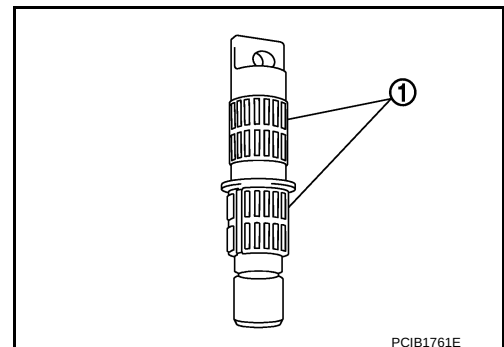
3. Remove reverse baulk ring ① and return spring ②.



4. Remove snap ring ①, lock washer ②, and reverse input gear ③.



5. Remove needle bearings ① and washer.



### ASSEMBLY

Note the following procedures, and assemble in the reverse order of disassembly.

#### CAUTION:

- Never reuse snap ring.
- Check that snap ring is securely installed in a groove.
- Replace reverse output gear, snap ring, reverse baulk ring, return spring, needle bearing, reverse idler shaft, spacer, reverse input gear, and lock washer as a set.

### Inspection

INFOID:0000000010842472

### INSPECTION AFTER DISASSEMBLY

## REVERSE IDLER SHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

---

### Shaft and Gear

Check the following items. Replace reverse output gear, snap ring, reverse baulk ring, return spring, needle bearing, reverse idler shaft, spacer, reverse input gear, and lock washer as a set, if necessary.

- Damage, peeling, bend, uneven wear, and distortion of shaft
- Excessive wear, damage, and peeling of gear

### Bearing

Check damage and rotation of bearing. Replace reverse output gear, snap ring, reverse baulk ring, return spring, needle bearing, reverse idler shaft, spacer, reverse input gear, and lock washer as a set, if necessary.

# SHIFT FORK AND FORK ROD

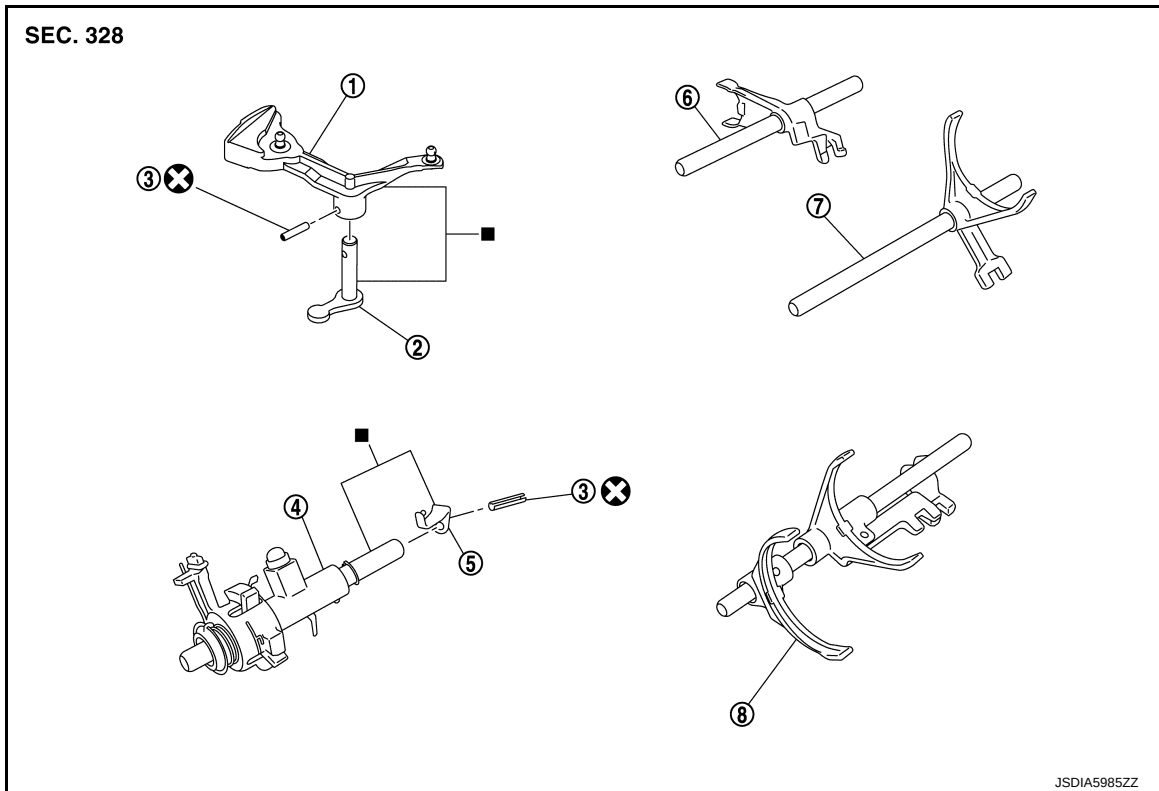
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

## SHIFT FORK AND FORK ROD

### Exploded View

INFOID:0000000010842473



① Shift lever (outer)

② Shift lever (inner)

③ Retaining pin

④ Selector

⑤ Select lever

⑥ Reverse fork rod

⑦ 1st-2nd fork rod

⑧ Fork rod

⊗: Always replace after every disassembly.

■: Replace the parts as a set.

### Disassembly and Assembly

INFOID:0000000010842474

For disassembly and assembly procedures, refer to [TM-48. "Disassembly and Assembly"](#).

### Inspection

INFOID:0000000010842475

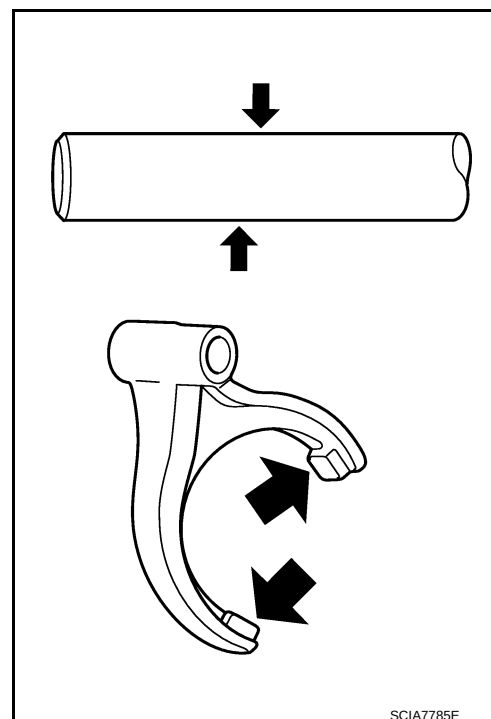
### INSPECTION AFTER DISASSEMBLY

## SHIFT FORK AND FORK ROD

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

Check contact surface and sliding surface for excessive wear, uneven wear, bend, and damage. Replace if necessary.

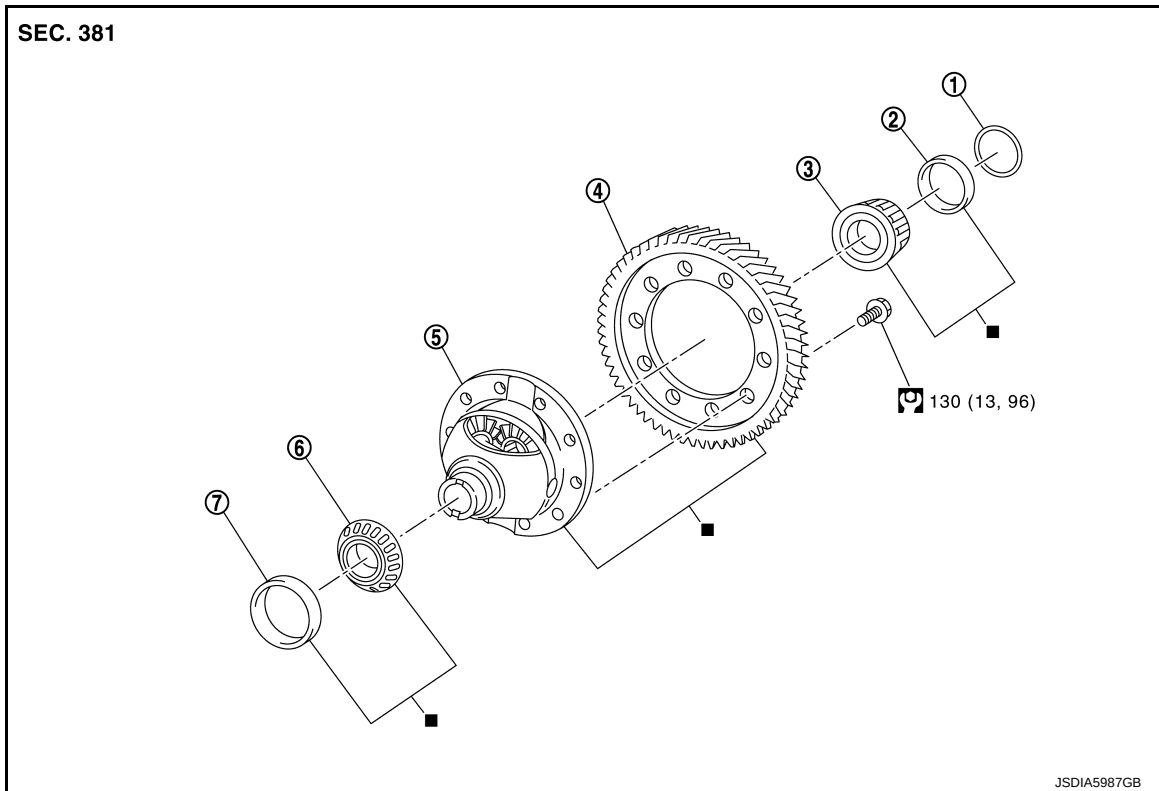




## FINAL DRIVE

### Exploded View

INFOID:0000000110842476

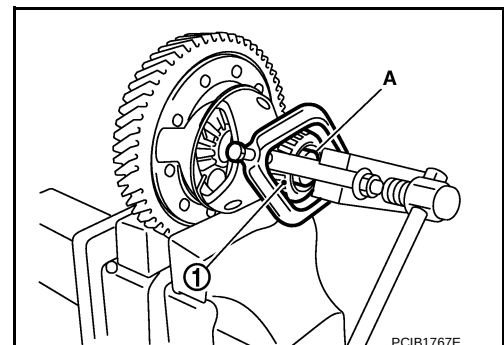


## Disassembly and Assembly

INFOID:0000000110842477

### DISASSEMBLY

1. Remove differential side bearing inner race (clutch housing side), as per the following procedure.
  - a. Set a puller (commercial service tool) and a separator (commercial service tool) to differential side bearing inner race (clutch housing side).
  - b. Remove differential side bearing inner race (clutch housing side) ①, using the drift (A) (SST: ST33061000).

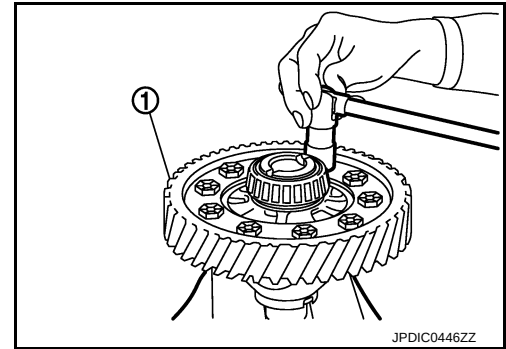


## FINAL DRIVE

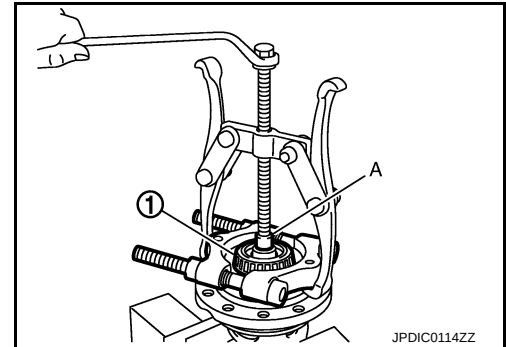
### < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F94R]

2. Remove final gear mounting bolts, and then remove final gear  
①.



3. Remove differential side bearing inner race (transaxle case side), as per the following procedure.
  - a. Set a puller (commercial service tool) and a separator (commercial service tool) to differential side bearing inner race (transaxle case side).
  - b. Remove differential side bearing inner race (transaxle case side) ①, using a drift (A) (commercial service tool).



### ASSEMBLY

1. Install final gear, and then tighten final gear mounting bolts to the specified torque.

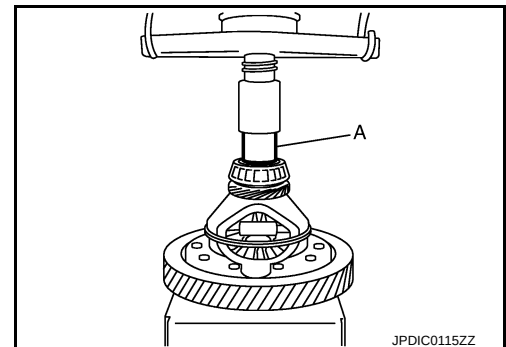
#### **CAUTION:**

**Replace final gear and differential assembly as a set.**

2. Install differential side bearing inner race (clutch housing side), using a drift (A) (commercial service tool).

#### **CAUTION:**

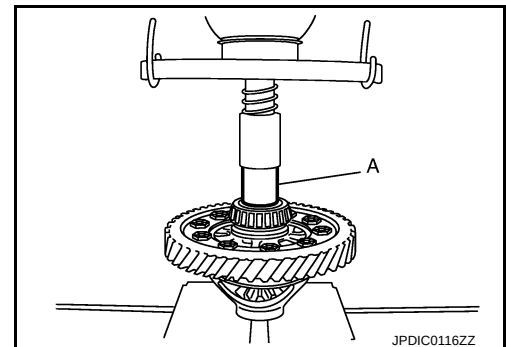
**Replace differential side bearing inner race and differential side bearing outer race as a set.**



3. Install differential side bearing inner race (transaxle case side), using a drift (A) (commercial service tool).

#### **CAUTION:**

**Replace differential side bearing inner race and differential side bearing outer race as a set.**



### Inspection

INFOID:0000000010842478

### INSPECTION AFTER DISASSEMBLY

## FINAL DRIVE

### < UNIT DISASSEMBLY AND ASSEMBLY >

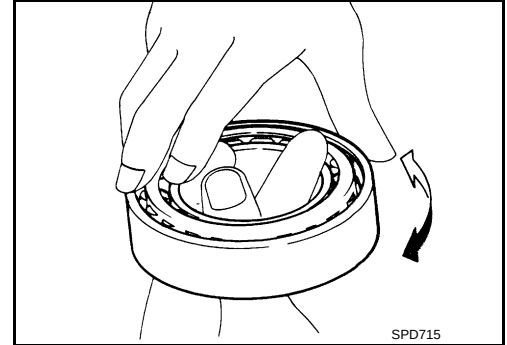
[6MT: RS6F94R]

#### Gear and Case

Check final gear and differential case. Replace if necessary.

#### Bearing

Check bearing for damage and unsmooth rotation. Replace if necessary.



A

B

C

TM

E

F

G

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I

J

K

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M

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O

P

# SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

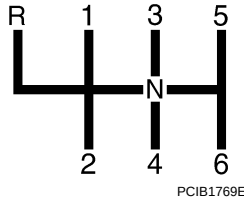
[6MT: RS6F94R]

## SERVICE DATA AND SPECIFICATIONS (SDS)

### SERVICE DATA AND SPECIFICATIONS (SDS)

#### General Specifications

INFOID:0000000010842479

|                  |                          |                            |                                                                                                |
|------------------|--------------------------|----------------------------|------------------------------------------------------------------------------------------------|
| Applied model    |                          | Axle                       | 2WD                                                                                            |
|                  |                          | Engine                     | MR20DD                                                                                         |
| Transaxle model  |                          |                            | RS6F94R                                                                                        |
| Number of speed  |                          |                            | 6                                                                                              |
| Synchronesh type |                          |                            | Warner                                                                                         |
| Shift pattern    |                          |                            | <div></div> |
| Gear ratio       | 1st                      |                            | 3.7273                                                                                         |
|                  | 2nd                      |                            | 2.1053                                                                                         |
|                  | 3rd                      |                            | 1.5185                                                                                         |
|                  | 4th                      |                            | 1.1714                                                                                         |
|                  | 5th                      |                            | 0.9143                                                                                         |
|                  | 6th                      |                            | 0.7674                                                                                         |
|                  | Reverse                  |                            | 3.6865                                                                                         |
|                  | Final gear               |                            | 4.7333                                                                                         |
| Number of teeth  | Input gear               | 1st                        | 11                                                                                             |
|                  |                          | 2nd                        | 19                                                                                             |
|                  |                          | 3rd                        | 27                                                                                             |
|                  |                          | 4th                        | 35                                                                                             |
|                  |                          | 5th                        | 35                                                                                             |
|                  |                          | 6th                        | 43                                                                                             |
|                  |                          | Reverse                    | 11                                                                                             |
|                  | Main gear                | 1st                        | 41                                                                                             |
|                  |                          | 2nd                        | 40                                                                                             |
|                  |                          | 3rd                        | 41                                                                                             |
|                  |                          | 4th                        | 41                                                                                             |
|                  |                          | 5th                        | 32                                                                                             |
|                  |                          | 6th                        | 33                                                                                             |
|                  |                          | Reverse                    | 42                                                                                             |
|                  | Reverse idler gear       | Input/Output               | 28/29                                                                                          |
|                  | Final gear               | Final gear/Pinion          | 71/16                                                                                          |
|                  |                          | Side gear/Pinion mate gear | 13/10                                                                                          |
| Oil capacity     |                          |                            | Refer to <a href="#">MA-23, "Fluids and Lubricants"</a> .                                      |
| Remarks          | Reverse synchronizer     |                            | Installed                                                                                      |
|                  | Triple-cone synchronizer |                            | 1st and 2nd                                                                                    |

## PRECAUTION

### PRECAUTIONS

#### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010921067

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

#### **WARNING:**

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

#### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

#### **WARNING:**

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

#### Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:0000000010921068

#### **CAUTION:**

Comply with the following cautions to prevent any error and malfunction.

- Before removing and installing any control units, first turn the ignition power source and accessory power source to the OFF, then disconnect both battery cables.
- After finishing work, confirm that all control unit connectors are connected properly, then re-connect both battery cables.
- Always use CONSULT to perform self-diagnosis as a part of each function inspection after finishing work. If a DTC is detected, perform trouble diagnosis according to self-diagnosis results.

For vehicle with steering lock unit, if the battery is disconnected or discharged, the steering wheel will lock and cannot be turned.

If turning the steering wheel is required with the battery disconnected or discharged, follow the operation procedure below before starting the repair operation.

#### OPERATION PROCEDURE

1. Connect both battery cables.

#### **NOTE:**

Supply power using jumper cables if battery is discharged.

2. Open driver door.
3. Turn the ignition switch to the ON position.  
(At this time, the steering lock will be released.)
4. Turn the ignition switch to OFF position with driver door open.
5. Wait for 3 minutes or longer with driver door open.

#### **NOTE:**

- Do not close driver door because the steering wheel locks when driver door is closed.

## PRECAUTIONS

### < PRECAUTION >

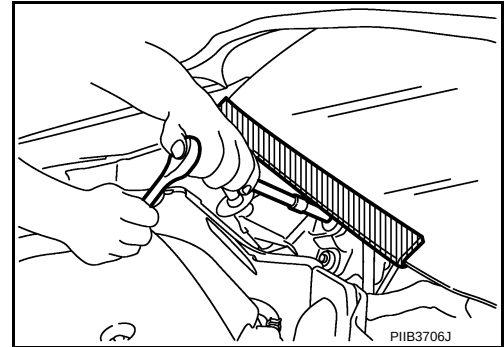
[6MT: RS6F52A]

- The auto acc function is adapted to this vehicle. For this reason, even when the ignition switch is turned to OFF position, the accessory power source does not turned OFF and continues to be supplied for a certain amount of time.
- 6. Disconnect both battery cables. The steering lock will remain released with both battery cables disconnected and the steering wheel can be turned.
- 7. Perform the necessary repair operation.
- 8. When the repair work is completed, re-connect both battery cables. With the brake pedal released, turn the ignition switch from OFF position to ON position, then to LOCK position. (The steering wheel will lock when the ignition switch is turned to LOCK position.)
- 9. Perform self-diagnosis check of all control units using CONSULT.

### Precaution for Procedure without Cowl Top Cover

INFOID:0000000010921069

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



### Precautions for Removing Battery Terminal

INFOID:0000000010921070

- With the adoption of Auto ACC function, ACC power is automatically supplied by operating the intelligent key or remote keyless entry or by opening/closing the driver side door. In addition, ACC power is supplied even after the ignition switch is turned to the OFF position, i.e. ACC power is supplied for a certain fixed time.
- When disconnecting the 12V battery terminal, turn off the ACC power before disconnecting the 12V battery terminal, observing "How to disconnect 12V battery terminal" described below.

#### NOTE:

Some ECUs operate for a certain fixed time even after ignition switch is turned OFF and ignition power supply is stopped. If the battery terminal is disconnected before ECU stops, accidental DTC detection or ECU data damage may occur.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

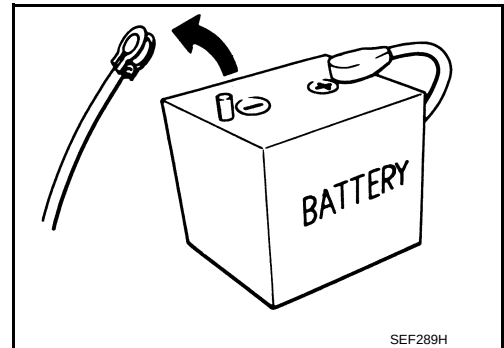
#### NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

#### NOTE:

The removal of 12V battery may cause a DTC detection error.



### HOW TO DISCONNECT 12V BATTERY TERMINAL

Disconnect 12V battery terminal according to Instruction 1 or Instruction 2 described below.

For vehicles parked by ignition switch OFF, refer to Instruction 2.

#### INSTRUCTION 1

1. Open the hood.
2. Turn key switch to the OFF position with the driver side door opened.
3. Get out of the vehicle and close the driver side door.
4. Wait at least 3 minutes. For vehicle with the engine listed below, remove the battery terminal after a lapse of the specified time.

D4D engine : 20 minutes

HRA2DDT : 12 minutes

# PRECAUTIONS

< PRECAUTION >

[6MT: RS6F52A]

- K9K engine : 4 minutes
- M9R engine : 4 minutes
- R9M engine : 4 minutes
- V9X engine : 4 minutes

## CAUTION:

While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.

5. Remove 12V battery terminal.

## CAUTION:

After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

## INSTRUCTION 2 (FOR VEHICLES PARKED BY IGNITION SWITCH OFF)

1. Unlock the door with intelligent key or remote keyless entry.

## NOTE:

At this moment, ACC power is supplied.

2. Open the driver side door.
3. Open the hood.
4. Close the driver side door.
5. Wait at least 3 minutes.

## CAUTION:

While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.

6. Remove 12V battery terminal.

## CAUTION:

After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

## Precaution for Stop/Start System Service

INFOID:0000000011045997

## CAUTION:

When performing an inspection and its related work with the engine at idle, always turn the stop/start OFF switch ON or open the hood to release the stop/start system.

## Service Notice or Precautions for Manual Transaxle

INFOID:0000000010921071

## CAUTION:

Never reuse CSC (Concentric Slave Cylinder). Because CSC slides back to the original position every time when removing transaxle assembly. At this timing, dust on the sliding parts may damage a seal of CSC and may cause clutch fluid leakage. Refer to [CL-30, "Removal and Installation"](#).

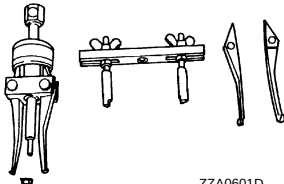
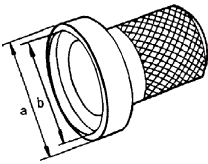
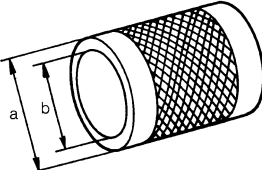
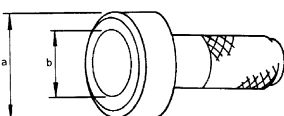
- Use recommended gear oil only, refer to [MA-23, "Fluids and Lubricants"](#).
- Never reuse transaxle gear oil, once it has been drained.
- Check oil level or replace gear oil with vehicle on level surface.
- During removal or installation, keep inside of transaxle clear of dust or dirt.
- Check for the correct installation status prior to removal or disassembly. If matching marks are required, be certain they never interfere with the function of the parts when applied.
- Overhaul should be done in a clean work area, it is preferable to work in dustproof area.
- Before disassembly, using steam or white gasoline, completely remove sand and mud from the exterior of the unit, preventing them from entering into the unit during disassembly or assembly.
- Check appearance of the disassembled parts for damage, deformation, and unusual wear. Replace them with a new ones if necessary.
- Gaskets, seals and O-rings should be replaced any time when the unit is disassembled.
- In principle, tighten bolts or nuts gradually in several steps working diagonally from inside to outside. If tightening sequence is specified, observe it.
- Clean and flush the parts sufficiently and blow-dry them.
- Never damage sliding surfaces and mating surfaces.
- When applying sealant, remove the old sealant from the mounting surface; then remove any moisture, oil, and foreign materials from the application and mounting surfaces.
- During assembly, observe the specified tightening torque, and apply new gear oil, petroleum jelly, or multi-purpose grease as specified for each vehicle, if necessary.

## PREPARATION

### PREPARATION

#### Special Service Tools

INFOID:000000010921072

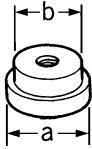
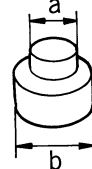
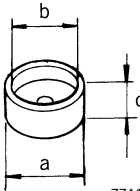
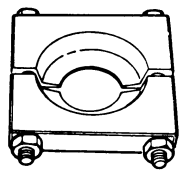
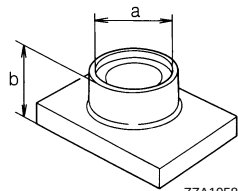
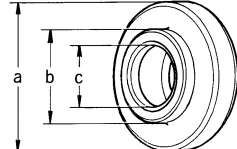
| Tool number<br>Tool name                                                     |                                                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| KV381054S0<br>Puller                                                         | <br>ZZA0601D   | <ul style="list-style-type: none"> <li>Removing differential side bearing outer race (transaxle case side)</li> <li>Removing mainshaft front bearing</li> <li>Removing differential side bearing outer race (clutch housing side)</li> </ul>                                                                                                                                                                                                                   |
| ST33400001<br>Drift<br>a: 60 mm (2.36 in) dia.<br>b: 47 mm (1.85 in) dia.    | <br>ZZA0814D   | Installing differential side oil seal (clutch housing side)                                                                                                                                                                                                                                                                                                                                                                                                    |
| ST35321000<br>Drift<br>a: 49 mm (1.93 in) dia.<br>b: 41 mm (1.61 in) dia.    | <br>ZZA1000D  | <ul style="list-style-type: none"> <li>Installing input shaft oil seal</li> <li>Installing reverse main gear</li> <li>Installing 1st main gear bushing</li> <li>Installing 1st-2nd synchronizer hub assembly</li> <li>Installing 2nd main gear bushing</li> <li>Installing 3rd main gear</li> </ul>                                                                                                                                                            |
| KV40105320<br>Drift<br>a: 88 mm (3.46 in) dia.<br>b: 80 mm (3.15 in) dia.    | <br>ZZA1000D | Installing differential side bearing outer race (clutch housing side)                                                                                                                                                                                                                                                                                                                                                                                          |
| ST33200000<br>Drift<br>a: 60 mm (2.36 in) dia.<br>b: 44.5 mm (1.752 in) dia. | <br>ZZA1002D | <ul style="list-style-type: none"> <li>Installing mainshaft front bearing</li> <li>Installing 6th input gear bushing</li> <li>Installing 4th main gear</li> <li>Installing 5th main gear</li> <li>Installing 6th main gear</li> </ul>                                                                                                                                                                                                                          |
| ST30720000<br>Drift<br>a: 77 mm (3.03 in) dia.<br>b: 55.5 mm (2.185 in) dia. | <br>ZZA0811D | <ul style="list-style-type: none"> <li>Installing differential side oil seal (transaxle case side)</li> <li>Installing differential side bearing outer race (clutch housing side)</li> <li>Installing differential side bearing outer race (transaxle case side)</li> <li>Installing mainshaft rear bearing</li> <li>Installing differential side bearing (clutch housing side)</li> <li>Installing differential side bearing (transaxle case side)</li> </ul> |



# PREPARATION

< PREPARATION >

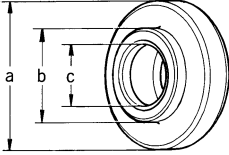
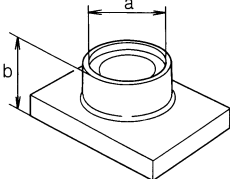
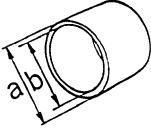
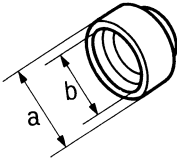
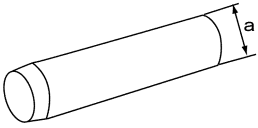
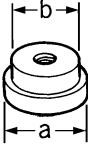
[6MT: RS6F52A]

| Tool number<br>Tool name                                                                                |                                                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |              |
|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| ST33061000<br>Drift<br>a: 38 mm (1.50 in) dia.<br>b: 28.5 mm (1.122 in) dia.                            | <br>ZZA1000D   | <ul style="list-style-type: none"> <li>Installing bore plug</li> <li>Removing differential side bearing (transaxle case side)</li> <li>Removing differential side bearing (clutch housing side)</li> </ul>                                                                                                                                                                                                                                                                                                           | A<br>B<br>C  |
| ST33052000<br>Drift<br>a: 22 mm (0.87 in) dia.<br>b: 28 mm (1.10 in) dia.                               | <br>ZZA1023D   | <ul style="list-style-type: none"> <li>Removing input shaft rear bearing</li> <li>Removing 6th input gear, 6th input gear bushing, 5th-6th synchronizer hub assembly, and 5th input gear</li> <li>Removing 5th input gear bushing, 4th input gear, 4th input gear bushing, 3rd-4th synchronizer hub assembly, and 3rd input gear</li> <li>Installing input shaft front bearing</li> <li>Removing mainshaft rear bearing</li> <li>Removing 6th main gear</li> <li>Removing 4th main gear and 5th main gear</li> </ul> | TM<br>E<br>F |
| KV40105020<br>Drift<br>a: 39.7 mm (1.563 in) dia.<br>b: 35 mm (1.38 in) dia.<br>c: 15 mm (0.59 in)      | <br>ZZA1133D  | Removing 3rd main gear, 2nd main gear, 2nd main gear bushing, 1st-2nd synchronizer hub assembly, 1st main gear, 1st main gear bushing, and reverse main gear                                                                                                                                                                                                                                                                                                                                                         | G<br>H       |
| ST30031000<br>Puller                                                                                    | <br>ZZA0537D | Measuring wear of inner baulk ring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | I<br>J<br>K  |
| KV40105710<br>Press stand<br>a: 46 mm (1.81 in) dia.<br>b: 41 mm (1.61 in)                              | <br>ZZA1058D | <ul style="list-style-type: none"> <li>Installing 3rd-4th synchronizer hub assembly</li> <li>Installing 4th input gear bushing</li> <li>Installing 5th input gear bushing</li> <li>Installing 5th-6th synchronizer hub assembly</li> <li>Installing 2nd main gear bushing</li> <li>Installing 3rd main gear</li> </ul>                                                                                                                                                                                               | L<br>M       |
| ST30901000<br>Drift<br>a: 79 mm (3.11 in) dia.<br>b: 45 mm (1.77 in) dia.<br>c: 35.2 mm (1.386 in) dia. | <br>ZZA0978D | <ul style="list-style-type: none"> <li>Installing input shaft rear bearing</li> <li>Installing 4th main gear</li> <li>Installing 5th main gear</li> <li>Installing 6th main gear</li> <li>Installing mainshaft rear bearing</li> </ul>                                                                                                                                                                                                                                                                               | N<br>O<br>P  |

# PREPARATION

< PREPARATION >

[6MT: RS6F52A]

| Tool number<br>Tool name                                                                             |                                                                                                  | Description                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ST30032000<br>Drift<br>a: 80 mm (3.15 in) dia.<br>b: 38 mm (1.50 in) dia.<br>c: 31 mm (1.22 in) dia. | <br>ZZA0978D    | Installing input shaft front bearing                                                                                                                                                                         |
| ST38220000<br>Press stand<br>a: 63 mm (2.48 in) dia.<br>b: 65 mm (2.56 in)                           | <br>ZZA1058D    | <ul style="list-style-type: none"> <li>Installing reverse main gear</li> <li>Installing 1st main gear bushing</li> <li>Installing 1st-2nd synchronizer hub assembly</li> </ul>                               |
| KV40101630<br>Drift<br>a: 68 mm (2.68 in) dia.<br>b: 60 mm (2.36 in) dia.                            | <br>ZZA1003D    | Installing reverse main gear                                                                                                                                                                                 |
| KV38102510<br>Drift<br>a: 71 mm (2.80 in) dia.<br>b: 65 mm (2.56 in) dia.                            | <br>ZZA0838D  | <ul style="list-style-type: none"> <li>Installing 1st main gear bushing</li> <li>Installing 1st-2nd synchronizer hub assembly</li> <li>Installing differential side bearing (transaxle case side)</li> </ul> |
| ST15243000<br>Drift<br>a: 30 mm (1.18 in) dia.                                                       | <br>SCIA1088J | Measuring the clearance of side gear                                                                                                                                                                         |
| ST30612000<br>Drift<br>b: 62 mm (2.44 in) dia.<br>b: 40 mm (1.57 in) dia.                            | <br>ZZA1000D  | Removing output gear bearing                                                                                                                                                                                 |

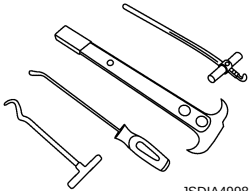
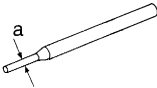
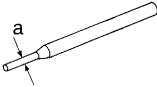
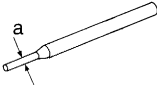
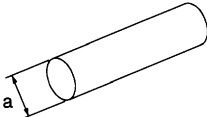
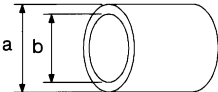
# PREPARATION

< PREPARATION >

[6MT: RS6F52A]

## Commercial Service Tools

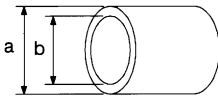
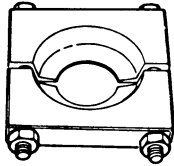
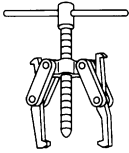
INFOID:000000010921073

| Tool name                                                                                                                                                     | Description                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Oil seal remover<br><br>JSDIA4998ZZ                                          | <ul style="list-style-type: none"> <li>• Removing differential side oil seal</li> <li>• Removing shift lever oil seal</li> <li>• Removing striking rod oil seal</li> <li>• Removing input shaft oil seal</li> </ul> |
| Pin punch<br>a: 4.5 mm (0.177 in) dia.<br><br>NT410                          | Removing and installing retaining pin                                                                                                                                                                               |
| Pin punch<br>a: 5.5 mm (0.217 in) dia.<br><br>NT410                          | Removing and installing retaining pin of selector lever                                                                                                                                                             |
| Pin punch<br>a: 7.5 mm (0.295 in) dia.<br><br>NT410                        | Removing and installing retaining pin of each shift lever                                                                                                                                                           |
| Drift<br>a: 24.5 mm (0.965 in) dia.<br><br>S-NT063                         | Installing striking rod oil seal and shift lever oil seal                                                                                                                                                           |
| Drift<br>a: 57 mm (2.24 in) dia.<br>b: 51 mm (2.01 in) dia.<br><br>S-NT474 | Installing differential side bearing (clutch housing side)                                                                                                                                                          |

# PREPARATION

< PREPARATION >

[6MT: RS6F52A]

| Tool name                                                                                                                                                                   | Description                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| <p>Drift</p> <p>a: 80 mm (3.15 in) dia.</p> <p>b: 70 mm (2.76 in) dia.</p>  <p>S-NT474</p> | Installing output gear bearing           |
| <p>Separator</p>  <p>ZZA0537D</p>                                                          | Removing each bearing, gear, and bushing |
| <p>Puller</p>  <p>NT077</p>                                                                | Removing each bearing, gear, and bushing |

## Lubricant or/and Sealant

INFOID:0000000010921074

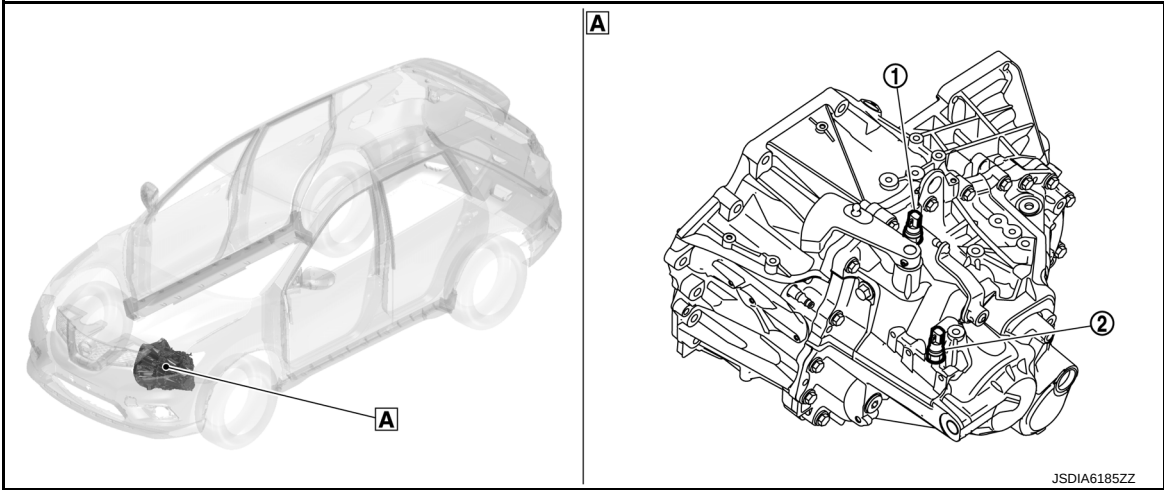
| Item                                                     | Use                                                                                                                                                                                                                       |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Genuine Liquid Gasket<br>(Three Bond 1215 or equivalent) | <ul style="list-style-type: none"> <li>• Application to threads of back-up lamp switch</li> <li>• Application to threads of neutral position switch</li> <li>• Application to mating surface of clutch housing</li> </ul> |

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000010921075



A Transaxle assembly

| No. | Component               | Function                                                   |
|-----|-------------------------|------------------------------------------------------------|
| ①   | Neutral position switch | It detects that the transaxle is in neutral position.      |
| ②   | Back-up lamp switch     | It detects that the transaxle is in reverse gear position. |

# STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

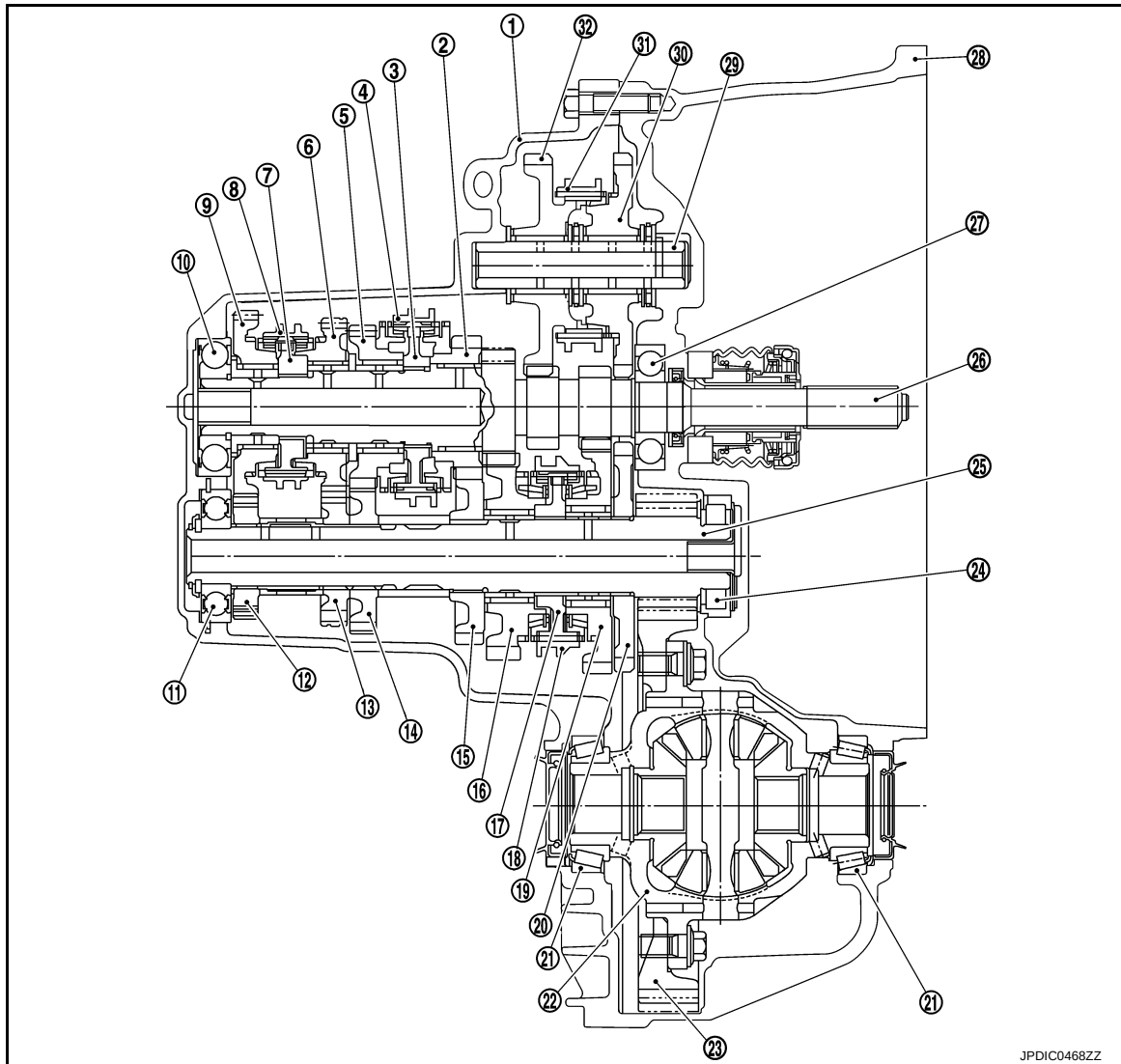
[6MT: RS6F52A]

## STRUCTURE AND OPERATION

### Sectional View

INFOID:0000000010921076

2WD



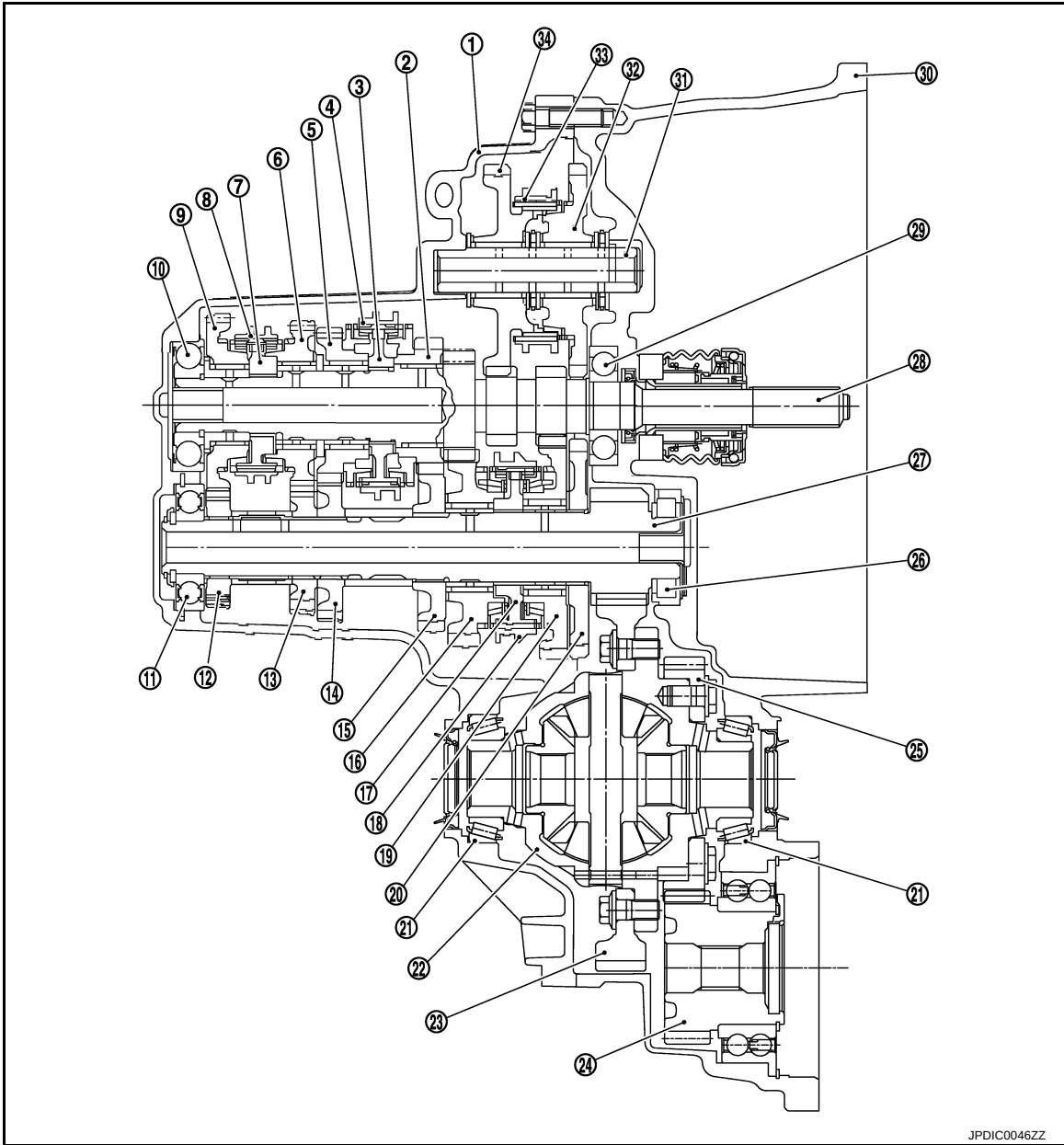
- |                            |                             |                              |
|----------------------------|-----------------------------|------------------------------|
| ① Transaxle case           | ② 3rd input gear            | ③ 3rd-4th synchronizer hub   |
| ④ 3rd-4th coupling sleeve  | ⑤ 4th input gear            | ⑥ 5th input gear             |
| ⑦ 5th-6th synchronizer hub | ⑧ 5th-6th coupling sleeve   | ⑨ 6th input gear             |
| ⑩ Input shaft rear bearing | ⑪ Mainshaft rear bearing    | ⑫ 6th main gear              |
| ⑬ 5th main gear            | ⑭ 4th main gear             | ⑮ 3rd main gear              |
| ⑯ 2nd main gear            | ⑰ 1st-2nd synchronizer hub  | ⑱ 1st-2nd coupling sleeve    |
| ⑲ 1st main gear            | ⑳ Reverse main gear         | ㉑ Differential side bearing  |
| ㉒ Differential assembly    | ㉓ Final gear                | ㉔ Mainshaft front bearing    |
| ㉕ Mainshaft                | ㉖ Input shaft               | ㉗ Input shaft front bearing  |
| ㉘ Clutch housing           | ㉙ Reverse idler shaft       | ㉚ Reverse idler gear (front) |
| ㉛ Reverse coupling sleeve  | ㉜ Reverse idler gear (rear) |                              |

4WD

# STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[6MT: RS6F52A]



- |                             |                              |                             |
|-----------------------------|------------------------------|-----------------------------|
| ① Transaxle case            | ② 3rd input gear             | ③ 3rd-4th synchronizer hub  |
| ④ 3rd-4th coupling sleeve   | ⑤ 4th input gear             | ⑥ 5th input gear            |
| ⑦ 5th-6th synchronizer hub  | ⑧ 5th-6th coupling sleeve    | ⑨ 6th input gear            |
| ⑩ Input shaft rear bearing  | ⑪ Mainshaft rear bearing     | ⑫ 6th main gear             |
| ⑬ 5th main gear             | ⑭ 4th main gear              | ⑮ 3rd main gear             |
| ⑯ 2nd main gear             | ⑰ 1st-2nd synchronizer hub   | ⑱ 1st-2nd coupling sleeve   |
| ⑲ 1st main gear             | ⑳ Reverse main gear          | ㉑ Differential side bearing |
| ㉒ Differential assembly     | ㉓ Final gear                 | ㉔ Output gear assembly      |
| ㉕ Reduction gear            | ㉖ Mainshaft front bearing    | ㉗ Mainshaft                 |
| ㉘ Input shaft               | ㉙ Input shaft front bearing  | ㉚ Clutch housing            |
| ㉛ Reverse idler shaft       | ㉜ Reverse idler gear (front) | ㉝ Reverse coupling sleeve   |
| ㉞ Reverse idler gear (rear) |                              |                             |

## System Description

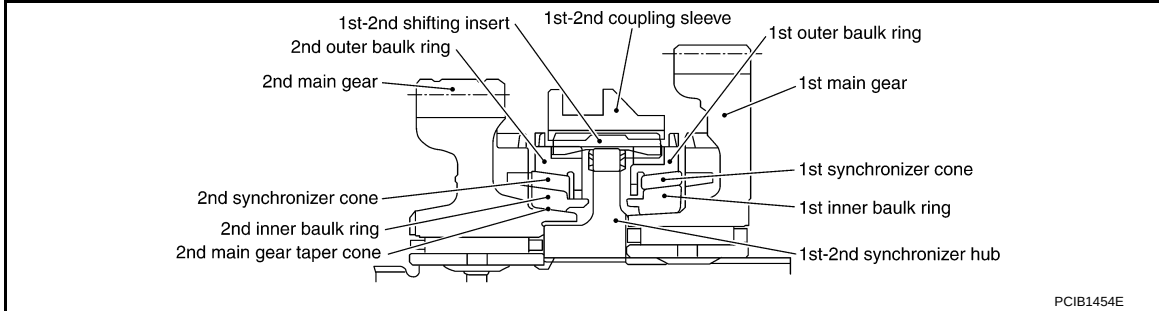
INFOID:000000010921077

### DOUBLE-CONE SYNCHRONIZER

Double-cone synchronizer is adopted for 3rd gear to reduce operating force of the shift lever.

### TRIPLE-CONE SYNCHRONIZER

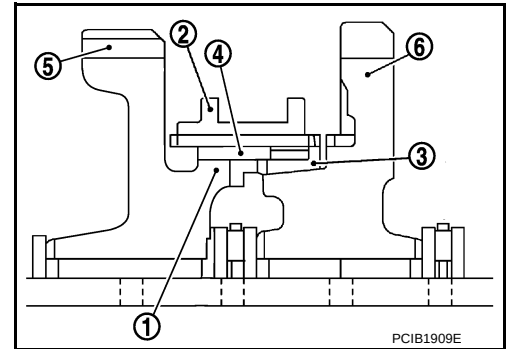
Triple-cone synchronizers are adopted for 1st and 2nd gears to reduce operating force of the shift lever.



### REVERSE GEAR NOISE PREVENTION FUNCTION (SYNCHRONIZING METHOD)

Reverse gear noise prevention makes smooth operation possible and restrains the gear's grating noise by stopping the rotation of each gear when gear is shifted to reverse position.

- ① : Synchronizer hub of reverse idler gear (rear)
- ② : Reverse coupling sleeve
- ③ : Reverse baulk ring
- ④ : Reverse insert spring
- ⑤ : Reverse idler gear (rear)
- ⑥ : Reverse idler gear (front)





**DTC/CIRCUIT DIAGNOSIS****BACK-UP LAMP SWITCH****Component Function Check**

INFOID:0000000010929570

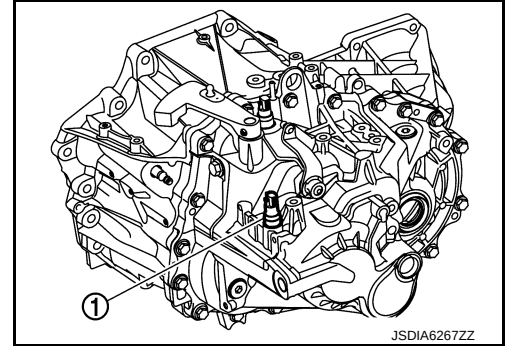
**1. REVERSE POSITION SIGNAL OUTPUT CHECK**

1. Turn the ignition switch OFF.
2. Disconnect back-up lamp switch harness connector.
3. Operate shift lever to each position and check continuity between back-up lamp switch ① terminals.

| Terminals |   | Condition                    | Continuity  |
|-----------|---|------------------------------|-------------|
| 1         | 2 | Reverse gear position        | Existed     |
|           |   | Except reverse gear position | Not existed |

Is the inspection result normal?

YES &gt;&gt; INSPECTION END

NO >> Proceed to [TM-93. "Diagnosis Procedure"](#).

INFOID:0000000010929571

**Diagnosis Procedure****1. CHECK BACK-UP LAMP SWITCH**Check back-up lamp switch. Refer to [TM-93. "Component Inspection"](#).

Is the inspection results normal?

YES &gt;&gt; Repair shift control function or transaxle for mechanical malfunction.

NO >> Replace back-up lamp switch. Refer to [TM-114. "Removal and Installation"](#).**Component Inspection**

INFOID:0000000010929572

**1. CHECK BACK-UP LAMP SWITCH**

1. Turn the ignition switch OFF.
2. Disconnect back-up lamp switch harness connector.
3. Remove back-up lamp switch. Refer to [TM-114. "Removal and Installation"](#).
4. Check continuity between back-up lamp switch terminals.

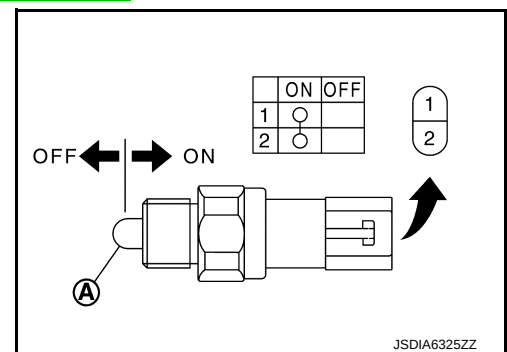
| Terminals |   | Condition                | Continuity  |
|-----------|---|--------------------------|-------------|
| 1         | 2 | Plunger (A) is pressed.  | Existed     |
|           |   | Plunger (A) is released. | Not existed |

**NOTE:**

When shift lever is in reverse gear position, plunger is pressed.

Is the inspection result normal?

YES &gt;&gt; INSPECTION END

NO >> Replace back-up lamp switch. Refer to [TM-114. "Removal and Installation"](#).

# NEUTRAL POSITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[6MT: RS6F52A]

## NEUTRAL POSITION SWITCH

### Component Function Check

INFOID:0000000010929206

#### 1. NEUTRAL POSITION SIGNAL OUTPUT CHECK

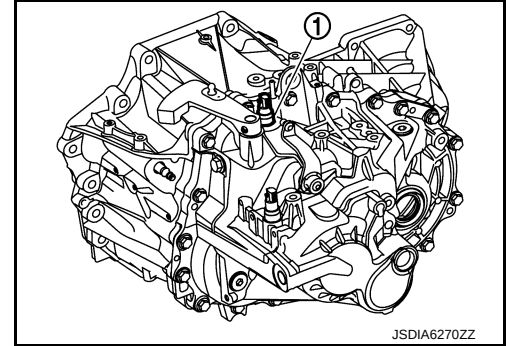
1. Turn the ignition switch OFF.
2. Disconnect neutral position switch harness connector.
3. Operate shift lever to each position and check continuity between neutral position switch ① terminals.

| Terminals |   | Condition                    | Continuity  |
|-----------|---|------------------------------|-------------|
| 1         | 2 | Neutral gear position        | Existed     |
|           |   | Except neutral gear position | Not existed |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Proceed to [TM-94, "Diagnosis Procedure"](#).



### Diagnosis Procedure

INFOID:0000000010929207

#### 1. CHECK NEUTRAL POSITION SWITCH

Check neutral position switch. Refer to [TM-94, "Component Inspection"](#).

Is the inspection results normal?

YES >> Repair shift control function or transaxle for mechanical malfunction.

NO >> Replace neutral position switch. Refer to [TM-116, "Removal and Installation"](#).

### Component Inspection

INFOID:0000000010921078

#### 1. CHECK NEUTRAL POSITION SWITCH

1. Turn the ignition switch OFF.
2. Disconnect neutral position switch harness connector.
3. Remove neutral position switch. Refer to [TM-116, "Removal and Installation"](#).
4. Check continuity between neutral position switch terminals.

| Terminals |   | Condition                | Continuity  |
|-----------|---|--------------------------|-------------|
| 1         | 2 | Plunger (A) is pressed.  | Not existed |
|           |   | Plunger (A) is released. | Existed     |

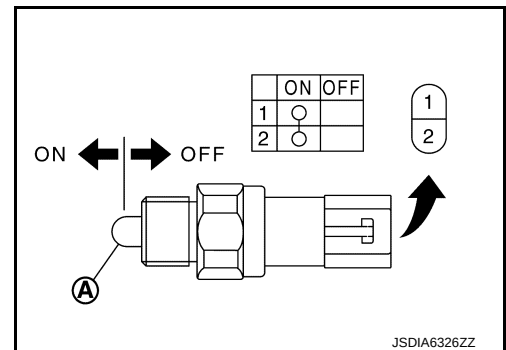
#### NOTE:

When shift lever is in neutral gear position, plunger is released.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace neutral position switch. Refer to [TM-116, "Removal and Installation"](#).



# SHIFTING IS DIFFICULT OR GEAR SQUEAL OCCURS WHEN SHIFTING TO THE 2ND GEAR

< SYMPTOM DIAGNOSIS >

[6MT: RS6F52A]

## SYMPTOM DIAGNOSIS

### SHIFTING IS DIFFICULT OR GEAR SQUEAL OCCURS WHEN SHIFTING TO THE 2ND GEAR

#### Description

INFOID:0000000010980339

- The shift lever shifting is heavy or difficult during driving when the shift lever is shifted from 1st gear to 2nd gear position or 3rd gear to 2nd gear position.
- Gear squeal occurs during driving when the shift lever is shifted from 1st gear to 2nd gear position or from 3rd gear to 2nd gear position.

#### Diagnosis Procedure

INFOID:0000000010980340

#### 1.CHECK SYMPTOM

When the clutch pedal is fully depressed, check whether or not this malfunction occurs. Refer to [TM-95, "Description"](#).

Does the malfunction occur?

YES >> GO TO 2.

- NO >> Check for malfunction on the following parts and repair or replace the malfunctioning part, if any.
- M/T shift selector assembly, shift cable, and select cable. Refer to [TM-113, "Inspection"](#).
  - Clutch disc and clutch cover. Refer to [CL-39, "R9M : Inspection"](#).

#### 2.CHECK THE OIL TYPE

Check that the gear oil is genuine NISSAN oil. Refer to [MA-23, "Fluids and Lubricants"](#).

Is the gear oil genuine NISSAN oil?

YES >> GO TO 3.

- NO >> Replace the gear oil. Refer to [TM-103, "2WD : Draining"/TM-103, "2WD : Refilling"](#) (2WD) or [TM-104, "4WD : Draining"/TM-104, "4WD : Refilling"](#) (4WD).

#### 3.CHECK THE OIL LEVEL

Check the oil level. Refer to [TM-103, "2WD : Inspection"](#) (2WD) or [TM-104, "4WD : Inspection"](#) (4WD).

Is the inspection result normal?

YES >> GO TO 4.

- NO >> Adjust the gear oil to the specified level. Refer to [TM-103, "2WD : Refilling"](#) (2WD) or [TM-104, "4WD : Refilling"](#) (4WD).

#### 4.CHECK THE SHIFTING OPERATION

Check the gear position that causes the following malfunctions when the shift lever is shifted to each gear position.

- The shift lever shifting is heavy or difficult.
- Gear squeaks.

In what gear position does the malfunction occur?

All gear positions>>Check the clutch disc and clutch cover, and repair or replace malfunctions, if any. Refer to [CL-39, "R9M : Inspection"](#).

Specific gear positions>>GO TO 5.

#### 5.CHECK THE M/T SHIFT SELECTOR ASSEMBLY, SHIFT CABLE AND SELECT CABLE

Check the M/T shift selector assembly, shift cable, and select cable for damage or trapped foreign material. Refer to [TM-113, "Inspection"](#).

Is the inspection result normal?

YES >> GO TO 6.

- NO >> Repair or replace the error-detected parts.

#### 6.CHECK SYMPTOM AGAIN (1)

When the shift lever is shifted to the 2nd gear position, check that rough touch (rough and scraping feel) can be felt in all of the following situations.

- Rough touch can only be felt in cold start and it is reduced after warming up.

# SHIFTING IS DIFFICULT OR GEAR SQUEAL OCCURS WHEN SHIFTING TO THE 2ND GEAR

< SYMPTOM DIAGNOSIS >

[6MT: RS6F52A]

- Rough touch occurs in slow shifting and does not occur in quick shifting.
- Rough touch occurs and does not occur depending on the situation.

Does rough touch apply to all situations?

YES >> • Change the gear oil and fill the gear oil to the lowest limit of the specified level. Refer to [TM-103, "2WD : Refilling"](#) (2WD) or [TM-104, "4WD : Refilling"](#) (4WD).

**NOTE:**

When oil level is the lowest limit, viscosity resistance of the gear oil is reduced, resulting in improvement of the shift lever operability.

NO >> GO TO 7.

## 7. CHECK SYMPTOM AGAIN (2)

When the shift lever is shifted to the 2nd gear position, check that gear squeal (rasping noise is heard) applies to all of the following situations.

- Gear squeal occurs when cold starting and after warming up.
- Gear squeal occurs when slow shifting and quick shifting.

Does gear squeal apply to all situations?

YES >> GO TO 8.

NO >> INSPECTION END.

## 8. CHECK THE 2ND BAULK RING CLEARANCE

Check the 2nd baulk ring clearance. Refer to [TM-200, "Inspection"](#).

Is the inspection result normal?

YES >> INSPECTION END.

- NO >> • Replace the following parts. Refer to [TM-194, "Disassembly and Assembly"](#).
- 1st-2nd spread spring
  - 1st-2nd shifting insert
  - 1st-2nd synchronizer hub
  - 1st-2nd coupling sleeve
  - 2nd outer baulk ring
  - 2nd synchronizer cone
  - 2nd inner baulk ring
  - 2nd main gear
  - 1st-2nd shift fork

# SHIFTING IS DIFFICULT OR GEAR SQUEAL OCCURS WHEN SHIFTING TO THE 3RD GEAR

< SYMPTOM DIAGNOSIS >

[6MT: RS6F52A]

## SHIFTING IS DIFFICULT OR GEAR SQUEAL OCCURS WHEN SHIFTING TO THE 3RD GEAR

### Description

INFOID:000000010980341

- The shift lever shifting is heavy or difficult during driving when the shift lever is shifted from 2nd gear to 3rd gear position or 4th gear to 3rd gear position.
- Gear squeal occurs during driving when the shift lever is shifted from 2nd gear to 3rd gear position or from 4th gear to 3rd gear position.

### Diagnosis Procedure

INFOID:000000010980342

#### 1.CHECK SYMPTOM

When the clutch pedal is fully depressed, check whether or not this malfunction occurs. Refer to [TM-97, "Description"](#).

Does the malfunction occur?

YES >> GO TO 2.

- NO >> Check for malfunction on the following parts and repair or replace the malfunctioning part, if any.
- M/T shift selector assembly, shift cable, and select cable. Refer to [TM-113, "Inspection"](#).
  - Clutch disc and clutch cover. Refer to [CL-39, "R9M : Inspection"](#).

#### 2.CHECK THE OIL TYPE

Check that the gear oil is genuine NISSAN oil. Refer to [MA-23, "Fluids and Lubricants"](#).

Is the gear oil genuine NISSAN oil?

YES >> GO TO 3.

- NO >> Replace the gear oil. Refer to [TM-103, "2WD : Draining"/TM-103, "2WD : Refilling"](#) (2WD) or [TM-104, "4WD : Draining"/TM-104, "4WD : Refilling"](#) (4WD).

#### 3.CHECK THE OIL LEVEL

Check the oil level. Refer to [TM-103, "2WD : Inspection"](#) (2WD) or [TM-104, "4WD : Inspection"](#) (4WD).

Is the inspection result normal?

YES >> GO TO 4.

- NO >> Adjust the gear oil to the specified level. Refer to [TM-103, "2WD : Refilling"](#) (2WD) or [TM-104, "4WD : Refilling"](#) (4WD).

#### 4.CHECK THE SHIFTING OPERATION

Check the gear position that causes the following malfunctions when the shift lever is shifted to each gear position.

- The shift lever shifting is heavy or difficult.
- Gear squeaks.

In what gear position does the malfunction occur?

All gear positions>>Check the clutch disc and clutch cover, and repair or replace malfunctions, if any. Refer to [CL-39, "R9M : Inspection"](#).

Specific gear positions>>GO TO 5.

#### 5.CHECK THE M/T SHIFT SELECTOR ASSEMBLY, SHIFT CABLE AND SELECT CABLE

Check the M/T shift selector assembly, shift cable, and select cable for damage or trapped foreign material. Refer to [TM-113, "Inspection"](#).

Is the inspection result normal?

YES >> GO TO 6.

- NO >> Repair or replace the error-detected parts.

#### 6.CHECK SYMPTOM AGAIN (1)

When the shift lever is shifted to the 3rd gear position, check that rough touch (rough and scraping feel) can be felt in all of the following situations.

- Rough touch can only be felt in cold start and it is reduced after warming up.
- Rough touch occurs in slow shifting and does not occur in quick shifting.
- Rough touch occurs and does not occur depending on the situation.

# SHIFTING IS DIFFICULT OR GEAR SQUEAL OCCURS WHEN SHIFTING TO THE 3RD GEAR

< SYMPTOM DIAGNOSIS >

[6MT: RS6F52A]

Does rough touch apply to all situations?

YES >> • Change the gear oil and fill the gear oil to the lowest limit of the specified level. Refer to [TM-103. "2WD : Refilling"](#) (2WD) or [TM-104. "4WD : Refilling"](#) (4WD).

**NOTE:**

When oil level is the lowest limit, viscosity resistance of the gear oil is reduced, resulting in improvement of the shift lever operability.

NO >> GO TO 7.

## 7. CHECK SYMPTOM AGAIN (2)

When the shift lever is shifted to the 3rd gear position, check that gear squeal (rasping noise is heard) applies to all of the following situations.

- Gear squeal occurs when cold starting and after warming up.
- Gear squeal occurs when slow shifting and quick shifting.

Does gear squeal apply to all situations?

YES >> GO TO 8.

NO >> INSPECTION END.

## 8. CHECK THE 3RD BAULK RING CLEARANCE

Check the 3rd baulk ring clearance. Refer to [TM-191. "Inspection"](#).

Is the inspection result normal?

YES >> INSPECTION END.

NO >> • Replace the following parts. Refer to [TM-186. "Disassembly and Assembly"](#).

- 3rd-4th spread spring
- 3rd-4th shifting insert
- 3rd-4th synchronizer hub
- 3rd-4th coupling sleeve
- 3rd outer baulk ring
- 3rd synchronizer cone
- 3rd inner baulk ring
- 3rd main gear
- 3rd-4th shift fork

# GEAR SHIFT TO 1ST OR 2ND IS HARD OR LEVER BECOMES STUCK

< SYMPTOM DIAGNOSIS >

[6MT: RS6F52A]

## GEAR SHIFT TO 1ST OR 2ND IS HARD OR LEVER BECOMES STUCK

### Description

INFOID:0000000010980343

- When the shift lever is shifted during driving or while stopped (engine stopped) as per the following, shifting is heavy, difficult or sticks.
  - From neutral to 1st gear position
  - From 1st gear position to 2nd gear position
  - From 3rd gear position to 2nd gear position
  - From 2nd gear position to 1st gear position

### Diagnosis Procedure

INFOID:0000000010980344

#### 1.CHECK THE OIL TYPE

Check that the gear oil is genuine NISSAN oil. Refer to [MA-23, "Fluids and Lubricants"](#).

Is the gear oil genuine NISSAN oil?

YES >> GO TO 2.

NO >> Replace the gear oil. Refer to [TM-103, "2WD : Draining"/TM-103, "2WD : Refilling"](#) (2WD) or [TM-104, "4WD : Draining"/TM-104, "4WD : Refilling"](#) (4WD).

#### 2.CHECK THE M/T SHIFT SELECTOR ASSEMBLY, SHIFT CABLE AND SELECT CABLE

Check the M/T shift selector assembly, shift cable, and select cable for damage or trapped foreign material. Refer to [TM-113, "Inspection"](#).

Is the inspection result normal?

YES >> Adjust the select cable (the M/T shift selector assembly side). Refer to [TM-109, "Removal and Installation"](#).

NO >> Repair or replace the error-detected parts.

# UNUSUAL NOISE OCCURS DURING DRIVING

< SYMPTOM DIAGNOSIS >

[6MT: RS6F52A]

## UNUSUAL NOISE OCCURS DURING DRIVING

### Description

INFOID:0000000010980345

Whine noise occurs at all gear positions or specific gear positions during driving.

#### NOTE:

- Whine noise occurs during driving while the gear of the manual transmission is engaged. It is different from unusual noise during gear shifting.
- Whine noise occurs due to wear or bend of gear teeth.

### Diagnosis Procedure

INFOID:0000000010980346

#### 1.CHECK SYMPTOM

Check that unusual noise disappears when the clutch is disengaged during driving.

Does unusual noise disappear with the clutch disengaged in driving?

YES >> GO TO 2.

- NO >> Check for malfunction on the following parts and repair or replace the malfunctioning part, if any.
- M/T shift selector assembly, shift cable, and select cable. Refer to [TM-113, "Inspection"](#).
  - Clutch disc and clutch cover. Refer to [CL-39, "R9M : Inspection"](#).

#### 2.CHECK THE OIL TYPE

Check that the gear oil is genuine NISSAN oil. Refer to [MA-23, "Fluids and Lubricants"](#).

Is the gear oil genuine NISSAN oil?

YES >> GO TO 3.

- NO >> Replace the gear oil. Refer to [TM-103, "2WD : Draining"/TM-103, "2WD : Refilling"](#) (2WD) or [TM-104, "4WD : Draining"/TM-104, "4WD : Refilling"](#) (4WD).

#### 3.CHECK THE OIL LEVEL

Check the oil level. Refer to [TM-103, "2WD : Inspection"](#) (2WD) or [TM-104, "4WD : Inspection"](#) (4WD).

Is the inspection result normal?

YES >> GO TO 4.

- NO >> Adjust the gear oil to the specified level. Refer to [TM-103, "2WD : Refilling"](#) (2WD) or [TM-104, "4WD : Refilling"](#) (4WD).

#### 4.CHECK SYMPTOM AGAIN (1)

Check that unusual noise applies to any of the following situations.

- Unusual noise changes in proportion to the vehicle speed.
- Unusual noise occurs only at constant speed and during acceleration.
- Unusual noise occurs only during deceleration.

Does unusual noise apply to any of the following situations?

YES >> GO TO 5.

- NO >> Check for malfunction on the following parts and repair or replace the malfunctioning part, if any.
- Input shaft, input shaft front bearing, and input shaft rear bearing. Refer to [TM-191, "Inspection"](#).
  - Mainshaft, mainshaft front bearing, and mainshaft rear bearing. Refer to [TM-200, "Inspection"](#).

#### 5.CHECK SYMPTOM AGAIN (2)

Check the gear position in which unusual noise occurs.

In what gear position does unusual noise occur?

All gear positions>>Check gear teeth of all gears and the mainshaft, final gear for wear and bend, and repair or replace malfunctioning part, if any. Refer to [TM-129, "2WD : Disassembly and Assembly"](#) (2WD) or [TM-159, "4WD : Disassembly and Assembly"](#) (4WD).

Specific gear positions>>Check gear teeth of the gear that is causing unusual noise for wear and bend, and repair or replace malfunctioning part, if any. Refer to [TM-129, "2WD : Disassembly and Assembly"](#) (2WD) or [TM-159, "4WD : Disassembly and Assembly"](#) (4WD).



NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

[6MT: RS6F52A]

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:0000000010980338

Use the chart below to find the cause of the symptom. The numbers indicate the order of the inspection. If necessary, repair or replace these parts.

- A
- B
- C
- TM
- E
- F
- G
- H
- I
- J
- K
- L
- M
- N
- O
- P

# NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

[6MT: RS6F52A]

| Symptoms                        |  | Reference                                                                |  | SUSPECTED PARTS<br>(Possible cause) |  |  |  |  |  |  |  |  |  |  |  |
|---------------------------------|--|--------------------------------------------------------------------------|--|-------------------------------------|--|--|--|--|--|--|--|--|--|--|--|
|                                 |  |                                                                          |  |                                     |  |  |  |  |  |  |  |  |  |  |  |
| Noise                           |  | TM-103, "2WD : Inspection" (2WD), TM-104, "4WD : Inspection" (4WD)       |  |                                     |  |  |  |  |  |  |  |  |  |  |  |
|                                 |  |                                                                          |  |                                     |  |  |  |  |  |  |  |  |  |  |  |
|                                 |  |                                                                          |  |                                     |  |  |  |  |  |  |  |  |  |  |  |
|                                 |  |                                                                          |  |                                     |  |  |  |  |  |  |  |  |  |  |  |
| Oil leakage                     |  | TM-124, "2WD : Exploded View" (2WD), TM-153, "4WD : Exploded View" (4WD) |  |                                     |  |  |  |  |  |  |  |  |  |  |  |
|                                 |  |                                                                          |  |                                     |  |  |  |  |  |  |  |  |  |  |  |
|                                 |  |                                                                          |  |                                     |  |  |  |  |  |  |  |  |  |  |  |
|                                 |  |                                                                          |  |                                     |  |  |  |  |  |  |  |  |  |  |  |
| Hard to shift or will not shift |  | TM-113, "Inspection"                                                     |  |                                     |  |  |  |  |  |  |  |  |  |  |  |
|                                 |  |                                                                          |  |                                     |  |  |  |  |  |  |  |  |  |  |  |
|                                 |  |                                                                          |  |                                     |  |  |  |  |  |  |  |  |  |  |  |
|                                 |  |                                                                          |  |                                     |  |  |  |  |  |  |  |  |  |  |  |
| Jumps out of gear               |  | TM-124, "2WD : Exploded View" (2WD), TM-153, "4WD : Exploded View" (4WD) |  |                                     |  |  |  |  |  |  |  |  |  |  |  |
|                                 |  |                                                                          |  |                                     |  |  |  |  |  |  |  |  |  |  |  |
|                                 |  |                                                                          |  |                                     |  |  |  |  |  |  |  |  |  |  |  |
|                                 |  |                                                                          |  |                                     |  |  |  |  |  |  |  |  |  |  |  |

# PERIODIC MAINTENANCE

## M/T OIL

### 2WD

### 2WD : Inspection

INFOID:000000010921081

#### OIL LEAKAGE

Make sure that gear oil is not leaking from transaxle or around it.

#### OIL LEVEL

1. Remove plug ①.
2. Measure the oil level (L) using a suitable gauge (A) as shown in the figure and check if it is within the specifications.

**Oil level** : Refer to [TM-223, "General Specifications"](#).

#### CAUTION:

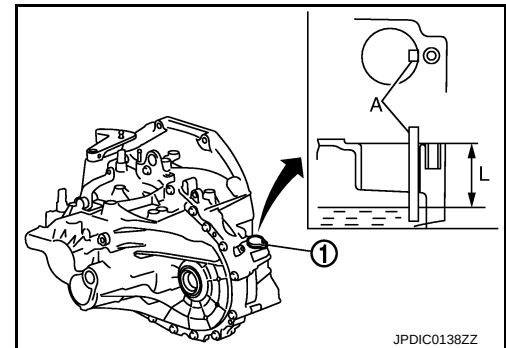
- Turn the ignition switch OFF while checking oil level.
- Attach the suitable gauge to the wall of the plug mounting hole for accurate measurement.

3. Set O-ring on plug and install it to transaxle assembly.

#### CAUTION:

**Never reuse O-ring.**

4. Tighten plug mounting bolt to the specified torque. Refer to [TM-124, "2WD : Exploded View"](#).



JPDIC0138ZZ

### 2WD : Draining

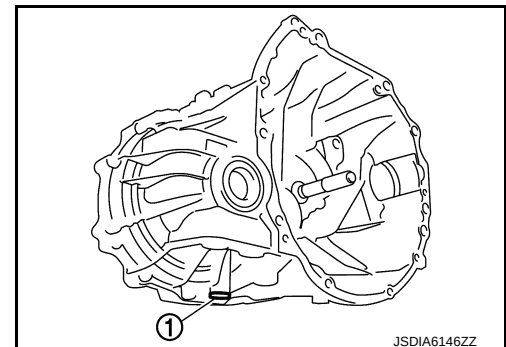
INFOID:000000010921082

1. Start engine and let it run to warm up transaxle.
2. Stop engine. Remove drain plug ① and gasket, then drain gear oil.
3. Set a gasket on drain plug and install it to transaxle assembly.

#### CAUTION:

**Never reuse gasket.**

4. Tighten drain plug to the specified torque. Refer to [TM-124, "2WD : Exploded View"](#).



JSDIA6146ZZ

### 2WD : Refilling

INFOID:000000010921083

1. Remove plug ①.
2. Fill with new gear oil.

**Recommended oil and capacity (reference)** : Refer to [MA-23, "Fluids and Lubricants"](#).

#### NOTE:

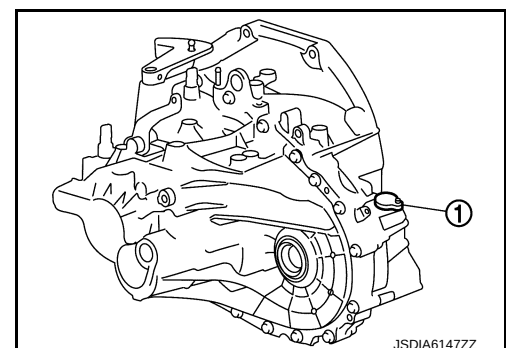
Oil capacity is reference. Because oil level is controlled by oil surface position.

3. After refilling gear oil, check the oil level. Refer to [TM-103, "2WD : Inspection"](#).

4. Set O-ring on plug and install it to transaxle assembly.

#### CAUTION:

**Never reuse O-ring.**



JSDIA6147ZZ

5. Tighten plug mounting bolt to the specified torque. Refer to [TM-124, "2WD : Exploded View"](#).

## 4WD

### 4WD : Inspection

INFOID:0000000010924928

#### OIL LEAKAGE

Make sure that gear oil is not leaking from transaxle or around it.

#### OIL LEVEL

1. Remove filler plug ①.

↔ : Vehicle front

2. Measure the oil level (L) using a suitable gauge (A) as shown in the figure and check if it is within the specifications.

**Oil level** : Refer to [TM-223, "General Specifications"](#).

#### CAUTION:

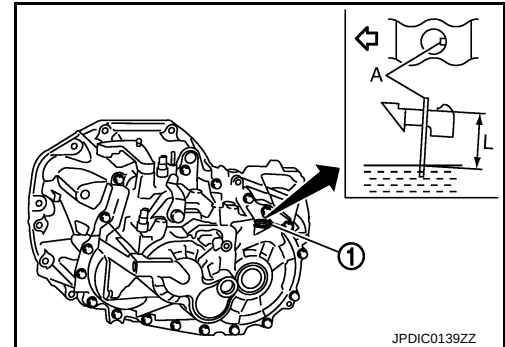
- Turn the ignition switch OFF while checking oil level.
- Attach the suitable gauge to the wall of the plug mounting hole for accurate measurement.

3. Set gasket on filler plug and install it to transaxle assembly.

#### CAUTION:

**Never reuse gasket.**

4. Tighten filler plug to the specified torque. Refer to [TM-153, "4WD : Exploded View"](#).



### 4WD : Draining

INFOID:0000000010924929

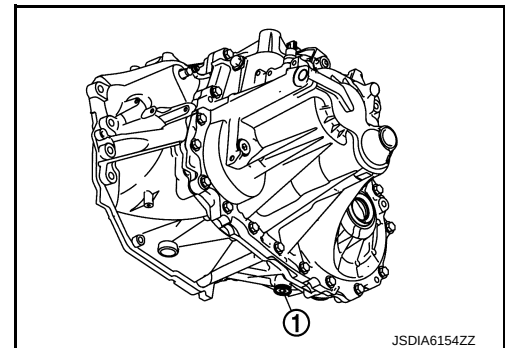
1. Start engine and let it run to warm up transaxle.  
2. Stop engine. Remove drain plug ① and gasket, then drain gear oil.

3. Set a gasket on drain plug and install it to transaxle assembly.

#### CAUTION:

**Never reuse gasket.**

4. Tighten drain plug to the specified torque. Refer to [TM-153, "4WD : Exploded View"](#).



### 4WD : Refilling

INFOID:0000000010924930

1. Remove filler plug ①.  
2. Fill with new gear oil.

**Recommended oil and capacity (reference)** : Refer to [MA-23, "Fluids and Lubricants"](#).

#### NOTE:

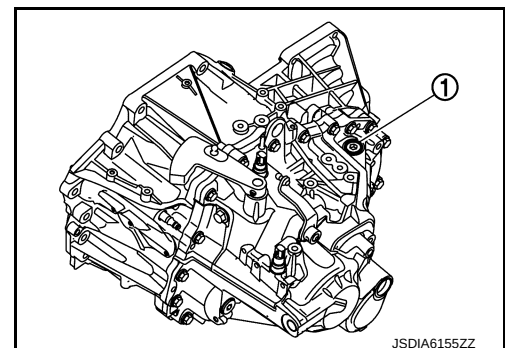
Oil capacity is reference. Because oil level is controlled by oil surface position.

3. After refilling gear oil, check the oil level. Refer to [TM-104, "4WD : Inspection"](#).

4. Set gasket on filler plug and install it to transaxle assembly.

#### CAUTION:

**Never reuse gasket.**



5. Tighten filler plug to the specified torque. Refer to [TM-153, "4WD : Exploded View"](#).

A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

# M/T SHIFT SELECTOR

< REMOVAL AND INSTALLATION >

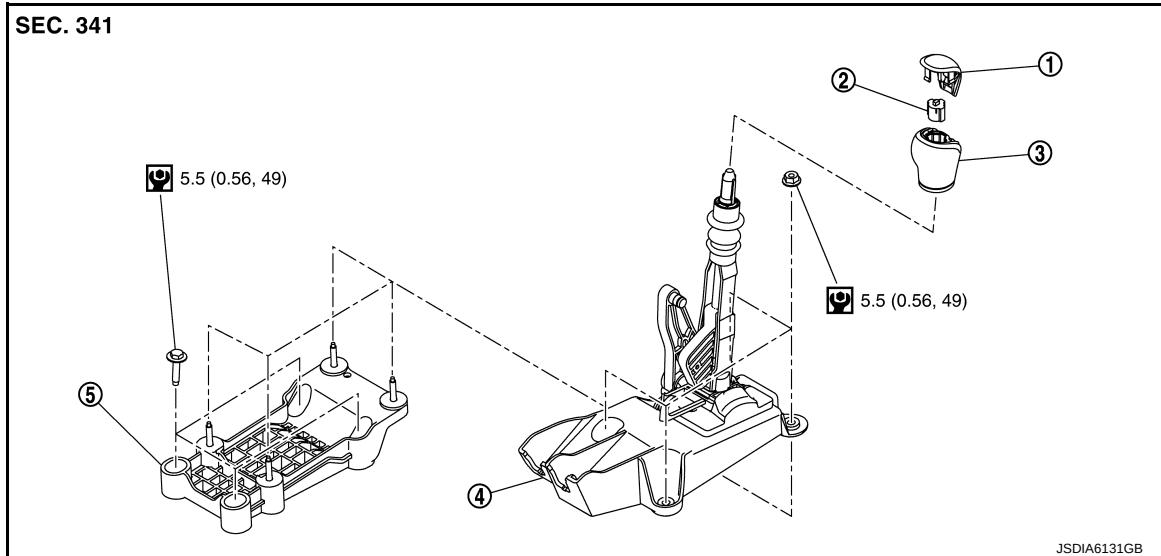
[6MT: RS6F52A]

## REMOVAL AND INSTALLATION

### M/T SHIFT SELECTOR

#### Exploded View

INFOID:0000000010921084



- ① Ornament
- ② Retainer
- ③ Shift lever knob
- ④ M/T shift selector assembly
- ⑤ M/T shift selector bracket

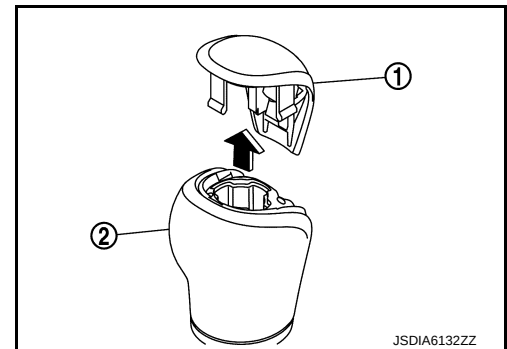
: N·m (kg-m, in-lb)

#### Removal and Installation

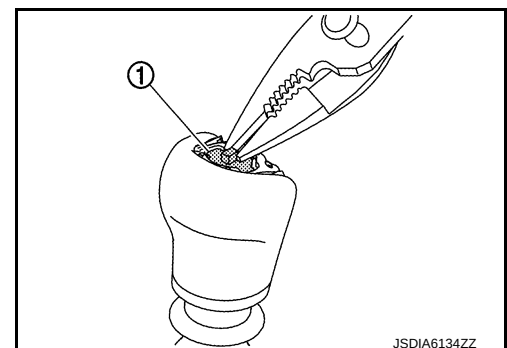
INFOID:0000000010921085

##### REMOVAL

1. Shift shift lever to the neutral position.
2. Remove ornament ① from shift lever knob ②.  
**CAUTION:**  
**Never damage ornament and shift lever knob.**



3. Pull out retainer ① using suitable pliers.

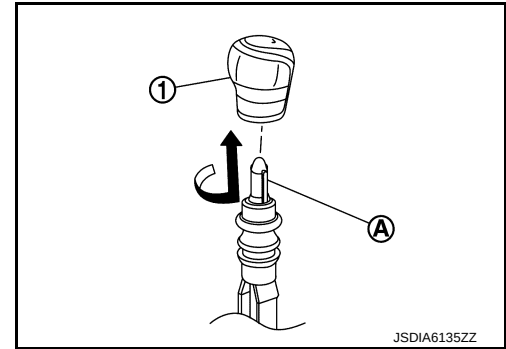


# M/T SHIFT SELECTOR

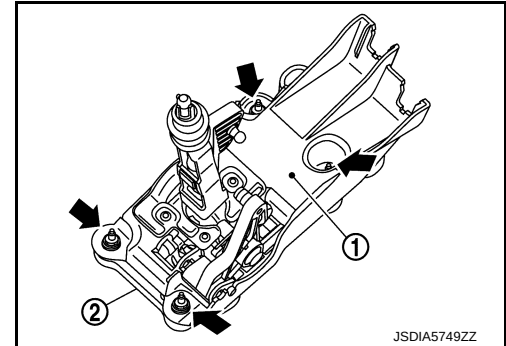
## < REMOVAL AND INSTALLATION >

[6MT: RS6F52A]

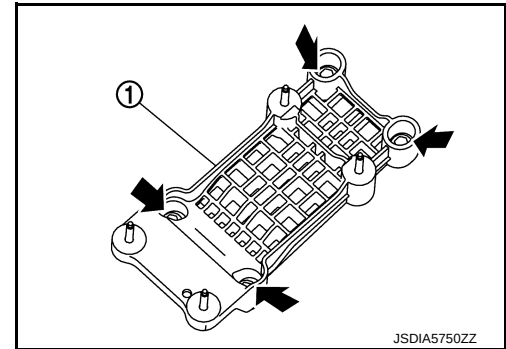
4. Turn shift lever knob ① counterclockwise (30 degrees) and remove it straight from the shift lever ②.
5. Remove center console assembly. Refer to [IP-25, "Removal and Installation"](#) (LHD models), [IP-52, "Removal and Installation"](#) (RHD models).
6. Disconnect and remove shift cable and select cable from M/T shift selector assembly. Refer to [TM-109, "Removal and Installation"](#).



7. Remove M/T shift selector assembly ① from M/T shift selector bracket ②.



8. Remove M/T shift selector bracket ①.



## INSTALLATION

Note the following, and install in the reverse order of removal.

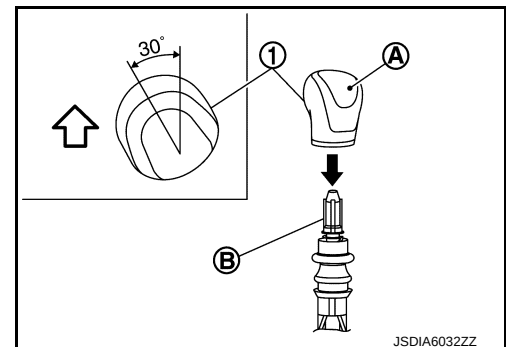
- For each tightening torque, refer to [TM-106, "Exploded View"](#).
- Install shift lever knob to the shift lever, as per the following procedure.

### CAUTION:

**Never reuse shift lever knob.**

1. Set retainer and ornament into shift lever knob.
2. Displace shift lever knob ① counterclockwise (30 degrees) and insert it straight to the shift lever ② without pressing the ornament ③.

← : Vehicle front



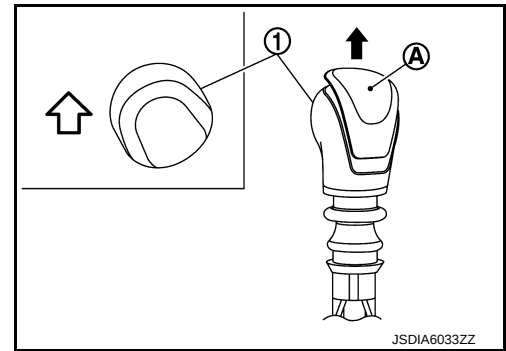
## M/T SHIFT SELECTOR

### < REMOVAL AND INSTALLATION >

[6MT: RS6F52A]

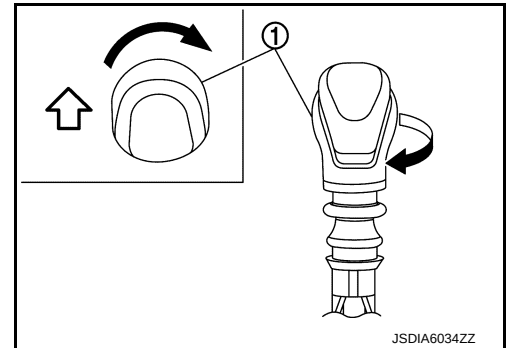
3. Protrude the ornament ④ of shift lever knob ①.

⇐ : Vehicle front



4. Turn shift lever knob ① clockwise (30 degrees) until coming to a stop.

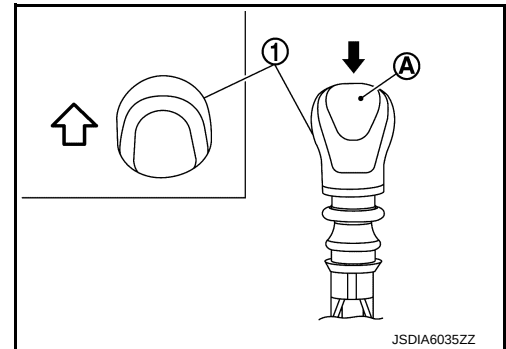
⇐ : Vehicle front



5. Press the ornament ④ down and lock shift lever knob ①.

⇐ : Vehicle front

**CAUTION:**  
Be careful with orientation of shift lever knob.





# CONTROL LINKAGE

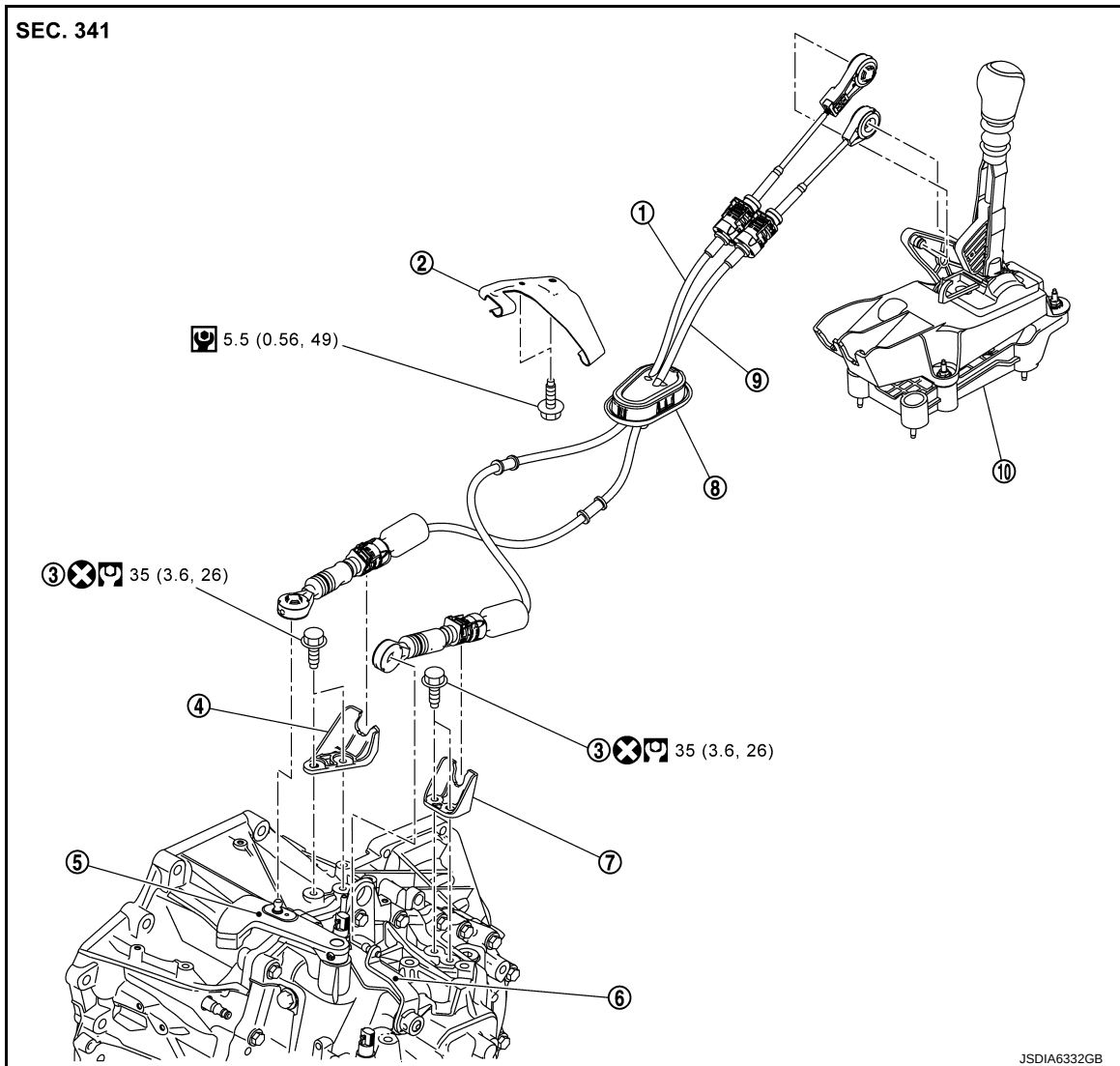
< REMOVAL AND INSTALLATION >

[6MT: RS6F52A]

## CONTROL LINKAGE

### Exploded View

INFOID:000000010921086



- |                                |                                  |                |
|--------------------------------|----------------------------------|----------------|
| ① Select cable                 | ② Cable mounting bracket (floor) | ③ Tapping bolt |
| ④ Cable mounting bracket (M/T) | ⑤ Shift lever                    | ⑥ Select lever |
| ⑦ Cable mounting bracket (M/T) | ⑧ Grommet                        | ⑨ Shift cable  |
| ⑩ M/T shift selector assembly  |                                  |                |

: N·m (kg-m, in-lb)

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

### Removal and Installation

INFOID:000000010921087

#### REMOVAL

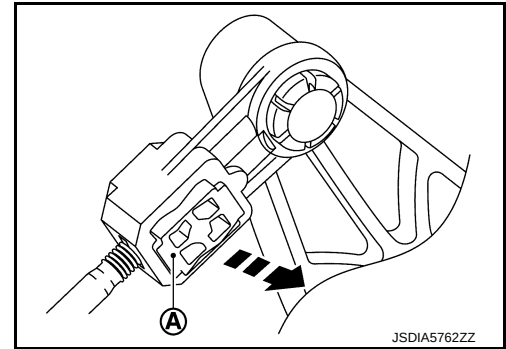
- Shift shift lever to the neutral position.
- Remove center console assembly. Refer to [IP-25, "Removal and Installation"](#) (LHD models), [IP-52, "Removal and Installation"](#) (RHD models).

## CONTROL LINKAGE

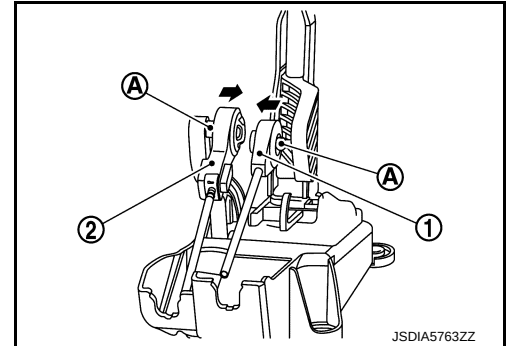
### < REMOVAL AND INSTALLATION >

[6MT: RS6F52A]

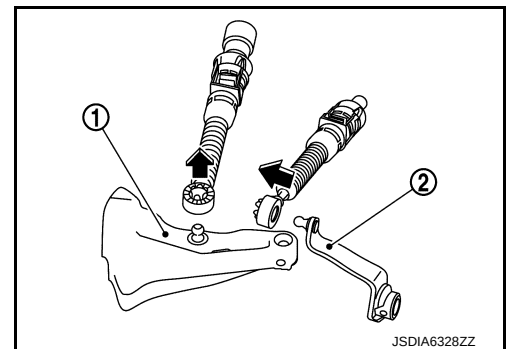
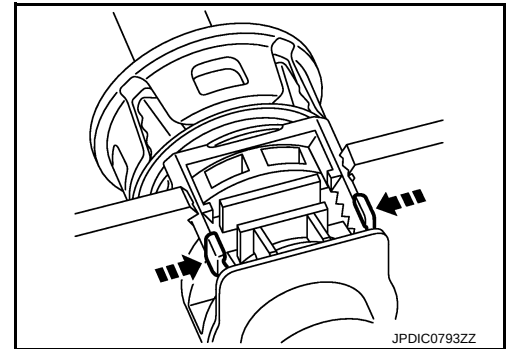
3. Pull up the stopper ① of the select cable in the direction of the arrow as shown in the figure.



4. Pull out and disconnect shift cable ① and select cable ② from each pin ③ of M/T shift selector assembly.



5. Remove shift cable and select cable from M/T shift selector assembly, as per the following procedure.
  - a. While pressing the lock of the shift cable in the direction of the arrow shown in the figure, remove shift cable from M/T shift selector assembly.
  - b. While pressing the lock of the select cable in the direction of the arrow shown in the figure, remove select cable from M/T shift selector assembly.
6. Remove battery and battery trays. Refer to [PG-143, "R9M : Removal and Installation"](#).
7. Remove air duct and air cleaner body. Refer to [EM-308, "Removal and Installation"](#).
8. Pull out and disconnect the each cable from shift lever ① and select lever ②.

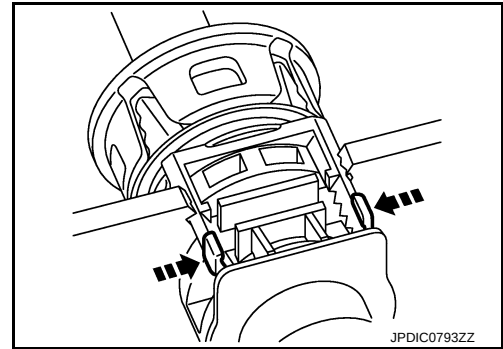


## CONTROL LINKAGE

### < REMOVAL AND INSTALLATION >

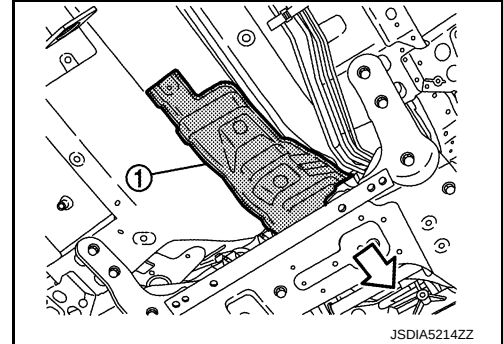
[6MT: RS6F52A]

9. Remove shift cable and select cable from cable mounting bracket (M/T), as per the following procedure.
  - a. While pressing the lock of the shift cable in the direction of the arrow shown in the figure, remove shift cable from cable mounting bracket (M/T).
  - b. While pressing the lock of the select cable in the direction of the arrow shown in the figure, remove select cable from cable mounting bracket (M/T).
10. Remove cable mounting brackets (M/T) from transaxle assembly.



11. Remove heat shield plate ①. (2WD models)

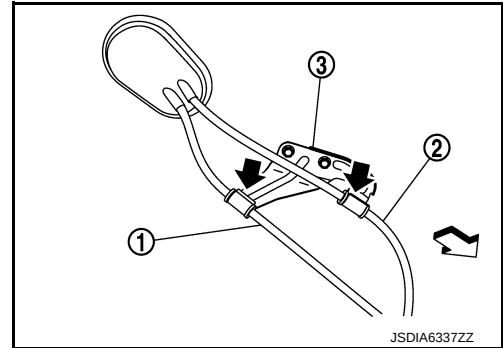
← : Vehicle front



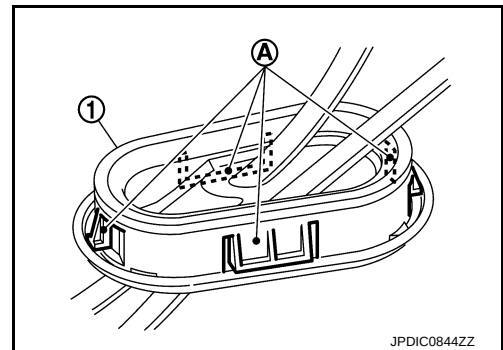
12. Remove shift cable ① and select cable ② from cable mounting bracket (floor) ③.

← : Vehicle front

13. Remove cable mounting bracket (floor).



14. Disengage the pawls ① of grommet ①, and pull downwards to remove.
15. Remove shift cable and select cable from the vehicle.



### INSTALLATION

Note the following, and install in the reverse order of removal.

- For each tightening torque, refer to [TM-109, "Exploded View"](#).
- Before working, set transaxle and M/T shift selector assembly to the neutral position.
- No occurrence of interference between cables and other parts, bent with a radius of 120 mm (4.72 in) or less, and twist of 180 degrees or more.
- Do not damage the boot of each cable and prevent the occurrence of twist of 90 degrees or more.
- Tapping work for tapping bolts is not applied to new transaxle case. Do not perform tapping by other than screwing tapping bolts because tapping is formed by screwing tapping bolts into transaxle case.

#### CAUTION:

Never reuse tapping bolt.

## CONTROL LINKAGE

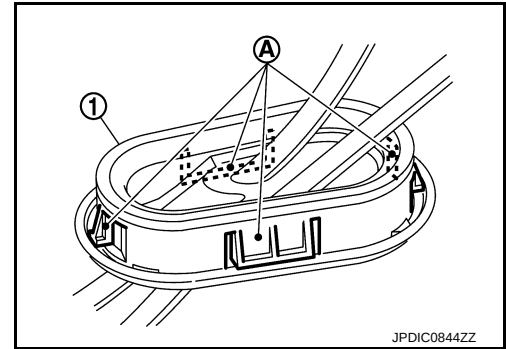
### < REMOVAL AND INSTALLATION >

[6MT: RS6F52A]

- From under the vehicle, press grommet ① into place until the pawls ② securely.

**CAUTION:**

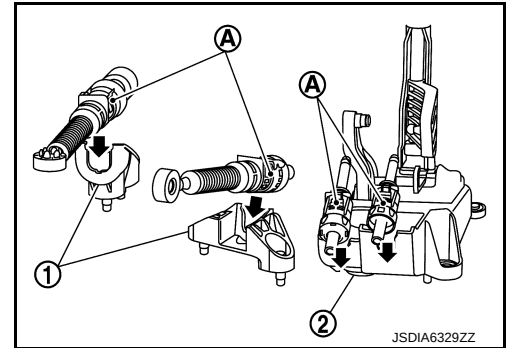
Check that pulling down on the grommet does not fall out it.



- Insert the each socket part ③ of cable until it reaches the cable mounting brackets (M/T) ① and M/T shift selector assembly ② securely.

**CAUTION:**

Check that pulling up on the socket does not disconnect it.



- Install select cable (M/T shift selector assembly side), as per the following procedure.

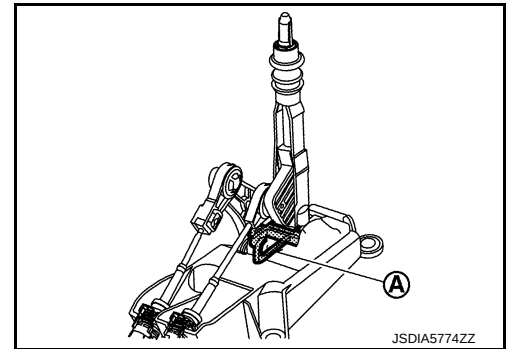
When M/T shift selector assembly is replaced with new one:

1. Install the select cable to the M/T shift selector assembly.
2. Shift the shift lever to the neutral position.
3. Install the lock pin ④ to the M/T shift selector assembly as shown in the figure.

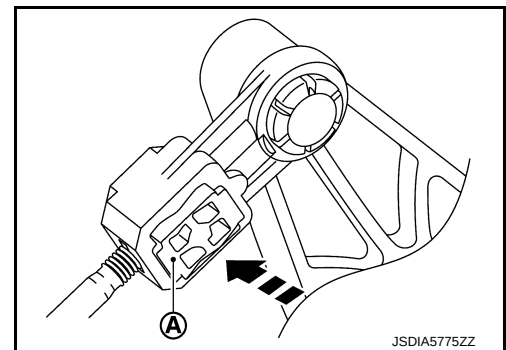
**CAUTION:**

Select cable cannot be adjusted accurately without using the lock pin.

4. Check that shift lever does not move in the direction of the select. If it moves, re-install lock pin.



5. Push the stopper ⑤ until it reaches the select cable.
6. Remove the lock pin from M/T shift selector assembly.
7. Shift shift lever to each gear position to check that there are no bindings. If any, re-install select cable with lock pin.



When M/T shift selector assembly is reused or without lock pin:

1. Install the select cable to the M/T shift selector assembly.
2. Shift the shift lever to the 4th gear position.

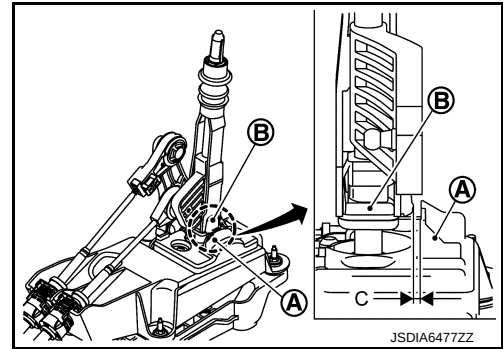
## CONTROL LINKAGE

### < REMOVAL AND INSTALLATION >

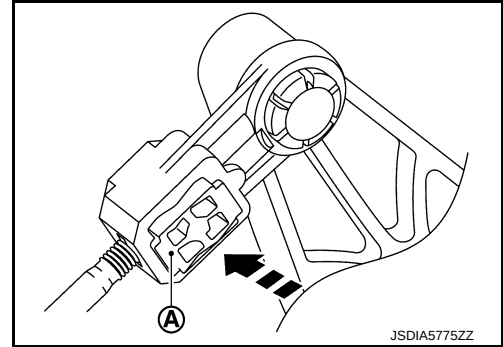
[6MT: RS6F52A]

- Adjust the clearance (C) between the stopper (A) and the lever (B) to the standard value.

**Clearance : 3.8 – 4.0 mm (0.150 – 0.157 in)**



- Push the stopper (A) until it reaches the select cable.
  - Shift shift lever to each gear position to check that there are no bindings. If any, re-install select cable and re-adjust the clearance.
- Perform inspection after installation. Refer to [TM-113. "Inspection"](#).



### Inspection

INFOID:0000000110921088

#### INSPECTION AFTER INSTALLATION

- When the shift lever is shifted to each position, check that the shift lever moves smoothly (no-hook up, no-noise, no-backlash and non-contact to other parts). If any malfunction is detected, repair the malfunctioning parts or replace cable assembly.
- When the shift lever is shifted to reverse gear side and 5th-6th side, confirm the shift lever returns to neutral position. When the shift lever does not return to the neutral position smoothly, check M/T shift selector assembly and select cable condition. If any malfunction is detected, repair or replace the malfunctioning part.

# BACK-UP LAMP SWITCH

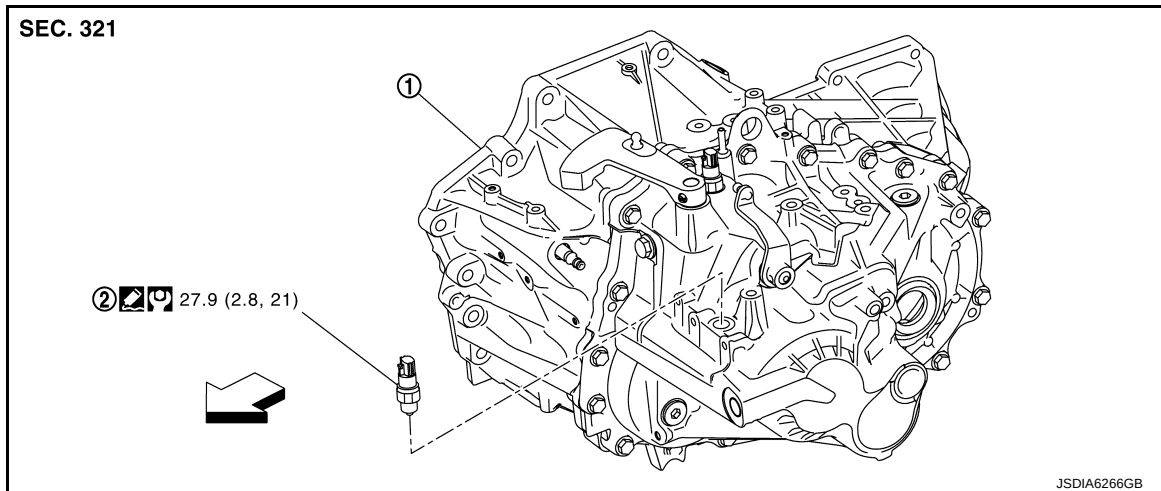
< REMOVAL AND INSTALLATION >

[6MT: RS6F52A]

## BACK-UP LAMP SWITCH

Exploded View

INFOID:0000000010921089



① Transaxle assembly

② Back-up lamp switch

Vehicle front

N·m (kg-m, ft-lb)

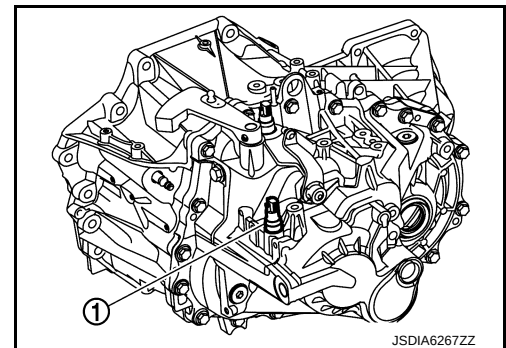
Apply Genuine Liquid Gasket, Three Bond 1215 or equivalent.

## Removal and Installation

INFOID:0000000010921090

### REMOVAL

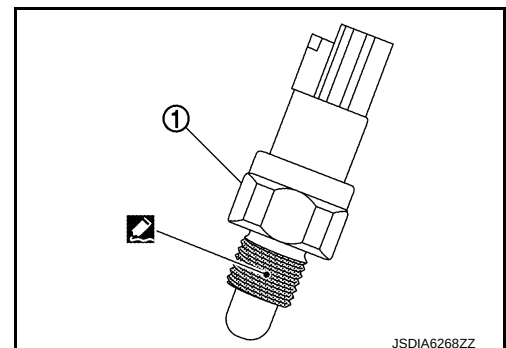
1. Remove battery and battery trays. Refer to [PG-143, "R9M : Removal and Installation"](#).
2. Disconnect back-up lamp switch harness connector.
3. Remove back-up lamp switch ①.
4. Perform inspection after removal. Refer to [TM-115, "Inspection"](#).



### INSTALLATION

1. Apply recommended sealant to threads of back-up lamp switch ①.
  - For sealant to use, refer to [TM-114, "Exploded View"](#).

**CAUTION:**  
Remove old sealant and oil adhering to threads.

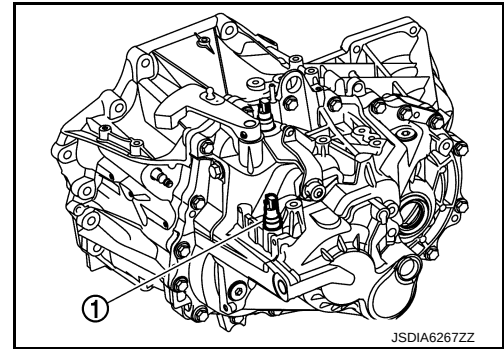


## BACK-UP LAMP SWITCH

### < REMOVAL AND INSTALLATION >

[6MT: RS6F52A]

2. Install back-up lamp switch ①.
3. Tighten back-up lamp switch to the specified torque. Refer to [TM-114, "Exploded View"](#).
4. For the next step and after, install in the reverse order of removal.
5. Perform inspection after installation. Refer to [TM-115, "Inspection"](#).



INFOID:0000000010921091

### Inspection

#### INSPECTION AFTER REMOVAL

Check continuity between back-up lamp switch terminals. Refer to [TM-93, "Component Inspection"](#).

#### INSPECTION AFTER INSTALLATION

Check the oil leakage. Refer to [TM-103, "2WD : Inspection"](#) (2WD), [TM-104, "4WD : Inspection"](#) (4WD).

# NEUTRAL POSITION SWITCH

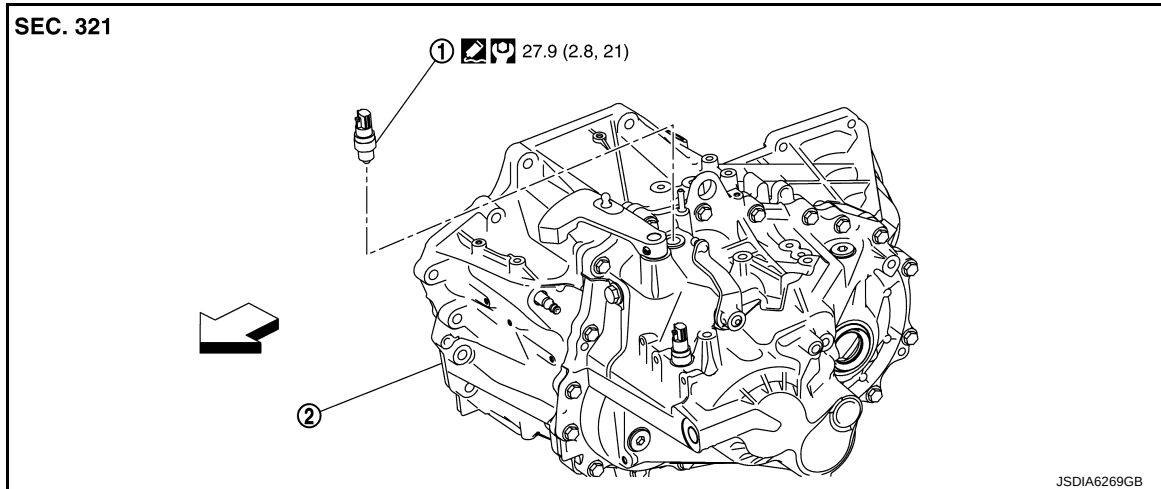
< REMOVAL AND INSTALLATION >

[6MT: RS6F52A]

## NEUTRAL POSITION SWITCH

### Exploded View

INFOID:0000000010929613



① Neutral position switch

② Transaxle assembly

Vehicle front

N·m (kg-m, ft-lb)

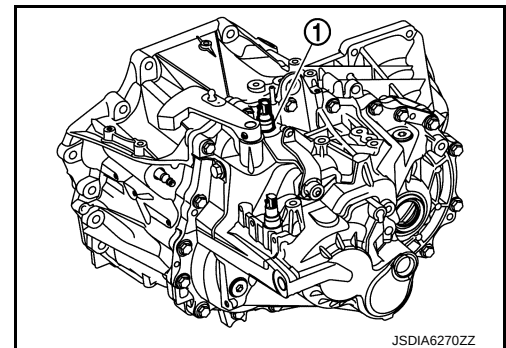
Apply Genuine Liquid Gasket, Three Bond 1215 or equivalent.

### Removal and Installation

INFOID:0000000010929614

#### REMOVAL

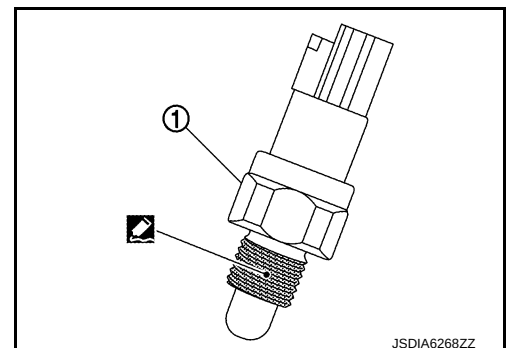
1. Remove battery and battery trays. Refer to [PG-143, "R9M : Removal and Installation"](#).
2. Disconnect neutral position switch harness connector.
3. Remove neutral position switch ①.
4. Perform inspection after removal. Refer to [TM-117, "Inspection"](#).



#### INSTALLATION

1. Apply recommended sealant to threads of neutral position switch ①.
  - For sealant to use, refer to [TM-116, "Exploded View"](#).

**CAUTION:**  
Remove old sealant and oil adhering to threads.



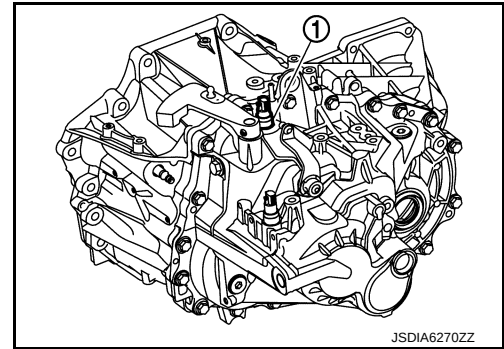


# NEUTRAL POSITION SWITCH

## < REMOVAL AND INSTALLATION >

[6MT: RS6F52A]

2. Install neutral position switch ①.
3. Tighten neutral position switch to the specified torque. Refer to [TM-116, "Exploded View"](#).
4. For the next step and after, install in the reverse order of removal.
5. Perform inspection after installation. Refer to [TM-117, "Inspection"](#).



INFOID:000000010929615

## Inspection

### INSPECTION AFTER REMOVAL

Check continuity between neutral position switch terminals. Refer to [TM-94, "Component Inspection"](#).

### INSPECTION AFTER INSTALLATION

Check the oil leakage. Refer to [TM-103, "2WD : Inspection"](#) (2WD), [TM-104, "4WD : Inspection"](#) (4WD).

# DIFFERENTIAL SIDE OIL SEAL

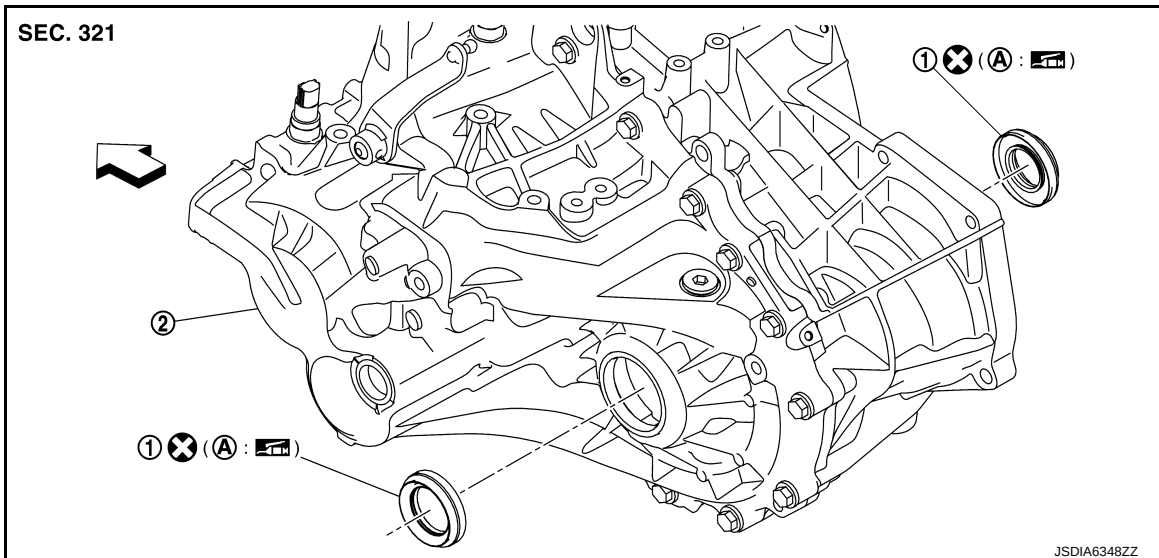
< REMOVAL AND INSTALLATION >

[6MT: RS6F52A]

## DIFFERENTIAL SIDE OIL SEAL

Exploded View

INFOID:0000000010921092



① Differential side oil seal                      ② Transaxle assembly

(A) Oil seal lip

↔: Vehicle front

⊗: Always replace after every disassembly.

🔧: Apply multi-purpose grease.

## Removal and Installation

INFOID:0000000010921093

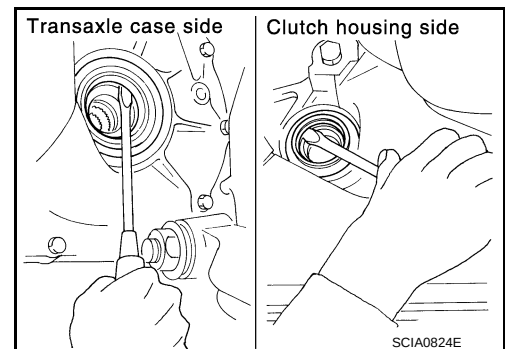
### REMOVAL

1. Remove front drive shafts. Refer to [FAX-50. "R9M : Removal and Installation"](#) (2WD), [FAX-125. "R9M : Removal and Installation"](#) (4WD).

2. Remove differential side oil seals from clutch housing and transaxle case, using oil seal remover (commercial service tool).

**CAUTION:**

**Never damage transaxle case and clutch housing.**



### INSTALLATION

Note the following, and install in the reverse order of removal.

## DIFFERENTIAL SIDE OIL SEAL

### < REMOVAL AND INSTALLATION >

[6MT: RS6F52A]

- Install differential side oil seals to clutch housing and transaxle case, using the tool.

Ⓐ : Transaxle case side

Ⓑ : Clutch housing side

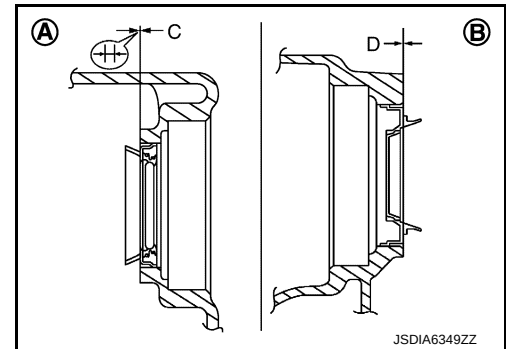
**Dimension (C) :  $0 \pm 0.5$  mm ( $0 \pm 0.020$  in)**

**Dimension (D) :  $0 \pm 0.5$  mm ( $0 \pm 0.020$  in)**

Tool to use

Transaxle case side : Drift (SST: ST30720000)

Clutch housing side : Drift (SST: ST33400001)



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### CAUTION:

- Never reuse differential side oil seal.
- Apply multi-purpose grease onto oil seal lip.
- Never incline differential side oil seal.
- Never damage clutch housing and transaxle case.
- Perform inspection after installation. Refer to [TM-119, "Inspection"](#).

### Inspection

INFOID:0000000010921094

### INSPECTION AFTER INSTALLATION

Check the oil level and oil leakage. Refer to [TM-103, "2WD : Inspection"](#).

# AIR BREATHER

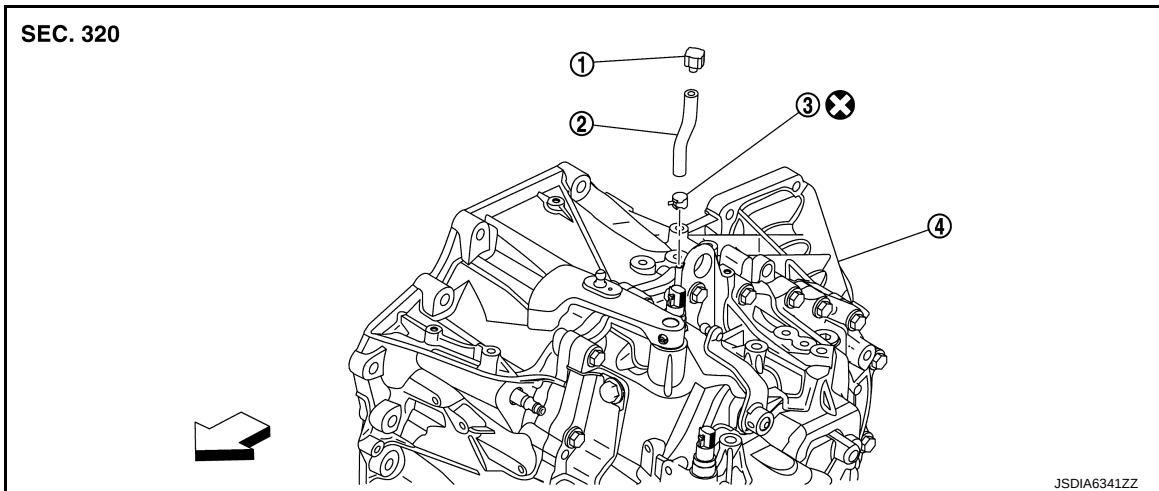
< REMOVAL AND INSTALLATION >

[6MT: RS6F52A]

## AIR BREATHER

### Exploded View

INFOID:000000010921095



### Removal and Installation

INFOID:000000010921096

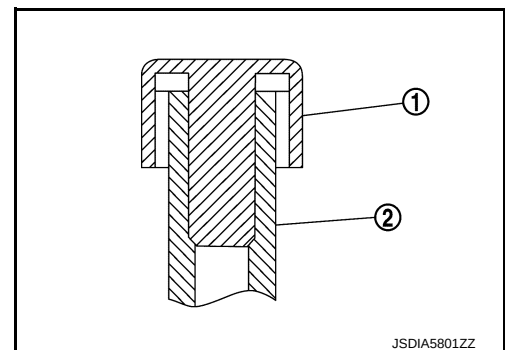
#### REMOVAL

1. Remove battery and battery trays. Refer to [PG-143. "R9M : Removal and Installation"](#).
2. Loosen hose clamp, and remove air breather hose from transaxle assembly.
3. Remove air breather cap and hose clamp from air breather hose.

#### INSTALLATION

Note the following, and install in the reverse order of removal.

- When inserting air breather cap ① to air breather hose ②, be sure to insert the hose until end of the cap.



## AIR BREATHER

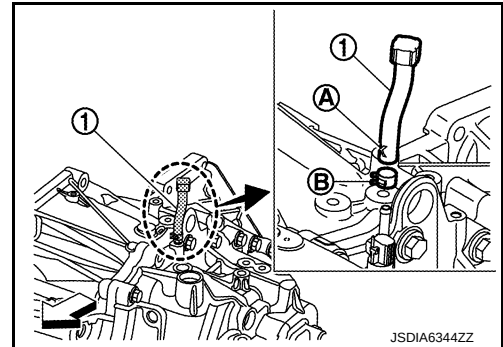
### < REMOVAL AND INSTALLATION >

[6MT: RS6F52A]

- Install air breather hose ① so that the paint mark ① and hose clamp tab ② are faced forward of the vehicle as shown in the figure.

⇐ : Vehicle front

- When inserting air breather hose to transaxle assembly, be sure to insert it fully until its end reaches the stop.
- When installing air breather hose, make sure there are no pinched or restricted areas on air breather hose caused by bending or winding.



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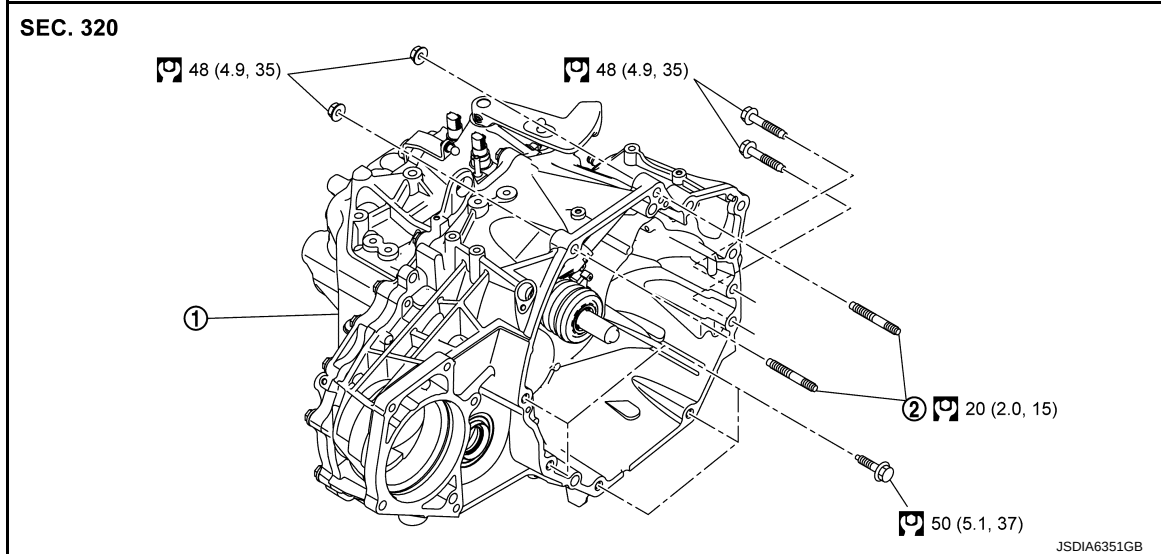
P

## UNIT REMOVAL AND INSTALLATION

### TRANSAXLE ASSEMBLY

#### Exploded View

INFOID:0000000010921097



① Transaxle assembly

② Stud bolt

: N·m (kg-m, ft-lb)

#### Removal and Installation

INFOID:0000000010921098

#### CAUTION:

Never reuse CSC (Concentric Slave Cylinder). Because CSC slides back to the original position every time when removing transaxle assembly. At this timing, dust on the sliding parts may damage a seal of CSC and may cause clutch fluid leakage. Refer to [CL-30, "Removal and Installation"](#).

#### NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

#### REMOVAL

1. Shift the shift lever to the neutral position.
2. Remove engine assembly together with transaxle assembly from vehicle. Refer to [EM-366, "Removal and Installation"](#).
3. Remove starter motor. Refer to [STR-39, "R9M : Removal and Installation"](#).
4. Remove clutch tube from CSC (Concentric Slave Cylinder). Refer to [CL-27, "Removal and Installation"](#).

#### CAUTION:

Keep painted surface on the body or other parts free of clutch fluid. If it spills, wipe up immediately and wash the affected area with water.

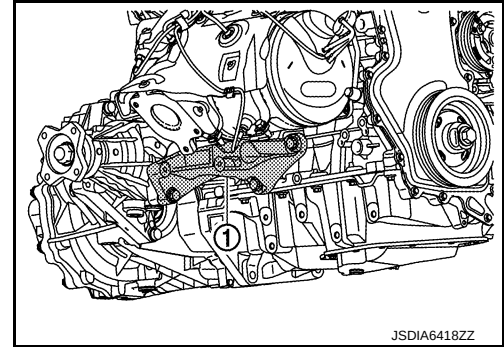
5. Remove air breather hose. Refer to [TM-120, "Removal and Installation"](#).

# TRANSAXLE ASSEMBLY

## < UNIT REMOVAL AND INSTALLATION >

[6MT: RS6F52A]

6. Remove transfer gusset ①. (4WD models only)
7. Remove the bolts that fasten the transaxle assembly and engine assembly.
8. Remove transaxle assembly from the engine assembly.  
**NOTE:**  
For 4WD models, remove together with transfer assembly.
9. Remove transfer assembly. (4WD models only) Refer to [DLN-181, "Removal and Installation"](#).
10. Remove engine mounting bracket (LH). Refer to [EM-365, "Exploded View"](#).
11. Remove CSC. Refer to [CL-30, "Removal and Installation"](#).



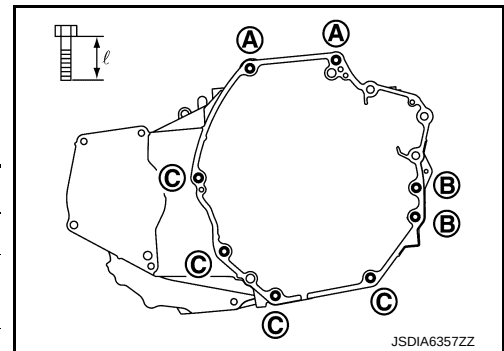
## INSTALLATION

Note the following, and install in the reverse order of removal.

### CAUTION:

- The transaxle assembly must not interfere with the wire harnesses and clutch tube.
- When installing transaxle assembly, never bring input shaft into contact with clutch cover.
- When installing the transaxle assembly to the engine assembly, install mounting bolts and nuts following the standard below, tighten bolts to the specified torque. For each tightening torque, refer to [TM-122, "Exploded View"](#).

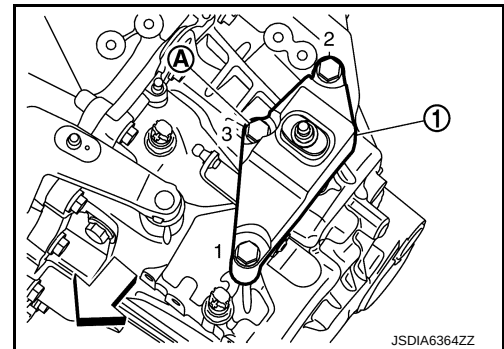
| Bolt/Nut symbol            | Ⓐ                   | Ⓑ         | Ⓒ                   |
|----------------------------|---------------------|-----------|---------------------|
| Quantity                   | 2                   | 2         | 4                   |
| Bolt length<br>"ℓ" mm (in) | —                   | 55 (2.17) | 55 (2.17)           |
| Insertion direction        | Transaxle to engine |           | Engine to transaxle |



### NOTE:

Symbol Ⓐ is composed a stud bolt and a nut.

- When installing engine mounting bracket (LH) ① to transaxle assembly, temporarily tighten the short bolt Ⓐ then tighten the mounting bolts to the specified torque in the order shown in the figure. For tightening torque, refer to [EM-365, "Exploded View"](#).
- Perform inspection after installation. Refer to [TM-123, "Inspection"](#).



INFOID:0000000010921099

## Inspection

### INSPECTION AFTER INSTALLATION

Check the oil leakage and the oil level. Refer to [TM-103, "2WD : Inspection"](#).

# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

## UNIT DISASSEMBLY AND ASSEMBLY

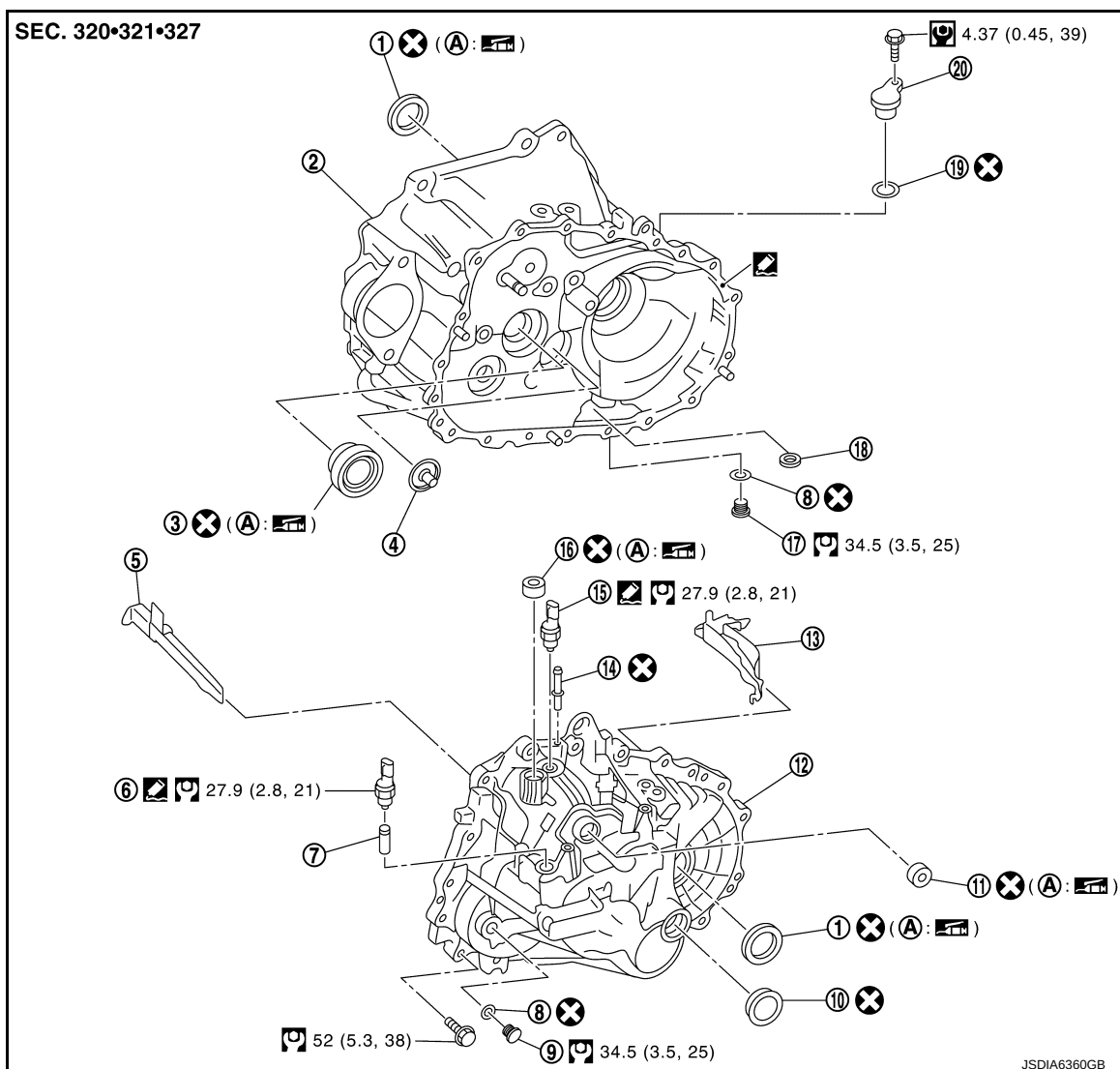
### TRANSAXLE ASSEMBLY

2WD

2WD : Exploded View

INFOID:0000000010919402

### CASE AND HOUSING



- |                              |                         |                           |
|------------------------------|-------------------------|---------------------------|
| ① Differential side oil seal | ② Clutch housing        | ③ Input shaft oil seal    |
| ④ Oil channel                | ⑤ Oil gutter A          | ⑥ Back-up lamp switch     |
| ⑦ Plunger                    | ⑧ Gasket                | ⑨ Plug                    |
| ⑩ Bore plug                  | ⑪ Striking rod oil seal | ⑫ Transaxle case          |
| ⑬ Oil gutter B               | ⑭ Air breather tube     | ⑮ Neutral position switch |
| ⑯ Shift lever oil seal       | ⑰ Drain plug            | ⑱ Magnet                  |
| ⑲ O-ring                     | ⑳ Plug                  |                           |
| (A) Oil seal lip             |                         |                           |

: N·m (kg-m, in-lb)

: N·m (kg-m, ft-lb)



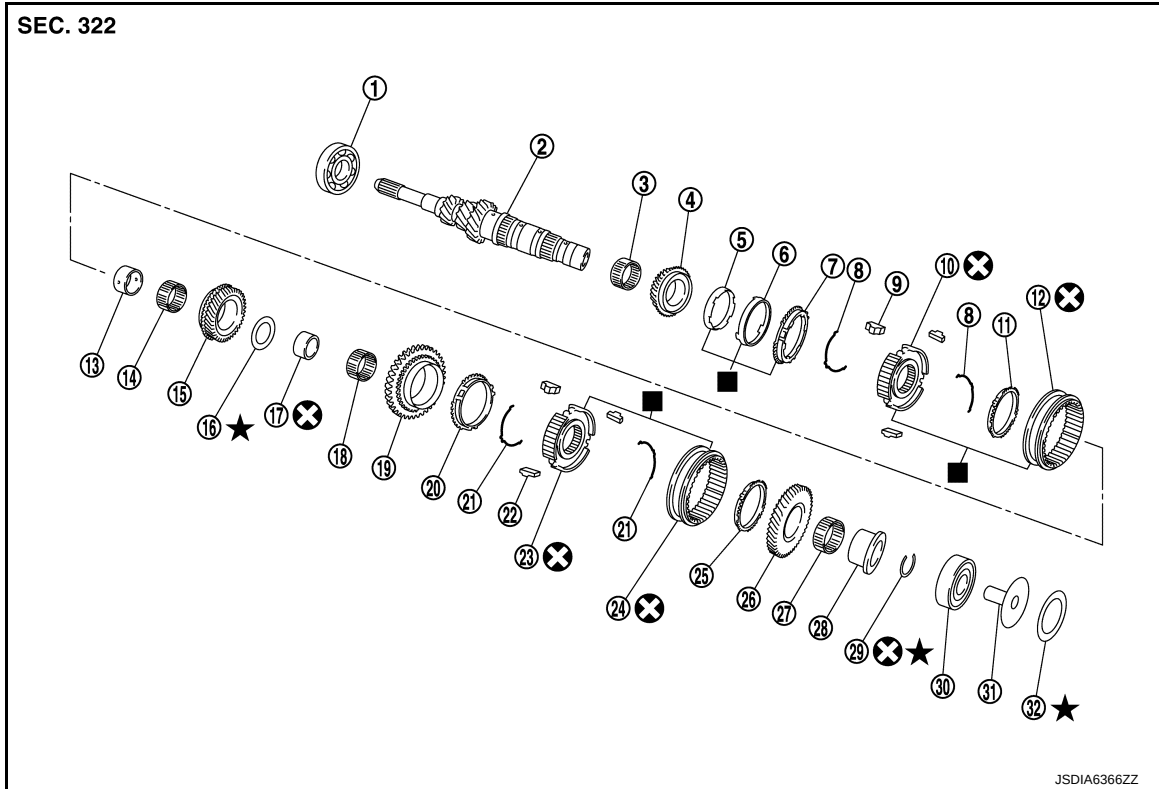
# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

- ⊗: Always replace after every disassembly.
- : Apply multi-purpose grease.
- : Apply Genuine Liquid Gasket, Three Bond 1215 or an equivalent.

## SHAFT AND GEAR



- |                             |                                           |                            |
|-----------------------------|-------------------------------------------|----------------------------|
| ① Input shaft front bearing | ② Input shaft                             | ③ 3rd needle bearing       |
| ④ 3rd input gear            | ⑤ 3rd inner baulk ring                    | ⑥ 3rd synchronizer cone    |
| ⑦ 3rd outer baulk ring      | ⑧ 3rd-4th spread spring                   | ⑨ 3rd-4th shifting insert  |
| ⑩ 3rd-4th synchronizer hub  | ⑪ 4th baulk ring                          | ⑫ 3rd-4th coupling sleeve  |
| ⑬ 4th input gear bushing    | ⑭ 4th needle bearing                      | ⑮ 4th input gear           |
| ⑯ Thrust washer             | ⑰ 5th input gear bushing                  | ⑱ 5th needle bearing       |
| ⑲ 5th input gear            | ⑳ 5th baulk ring                          | ㉑ 5th-6th spread spring    |
| ㉒ 5th-6th shifting insert   | ㉓ 5th-6th synchronizer hub                | ㉔ 5th-6th coupling sleeve  |
| ㉕ 6th baulk ring            | ㉖ 6th input gear                          | ㉗ 6th needle bearing       |
| ㉘ 6th input gear bushing    | ㉙ Snap ring                               | ㉚ Input shaft rear bearing |
| ㉛ Oil channel               | ㉜ Input shaft rear bearing adjusting shim |                            |

- ⊗: Always replace after every disassembly.
- ★: Select with proper thickness.
- : Replace the parts as a set.

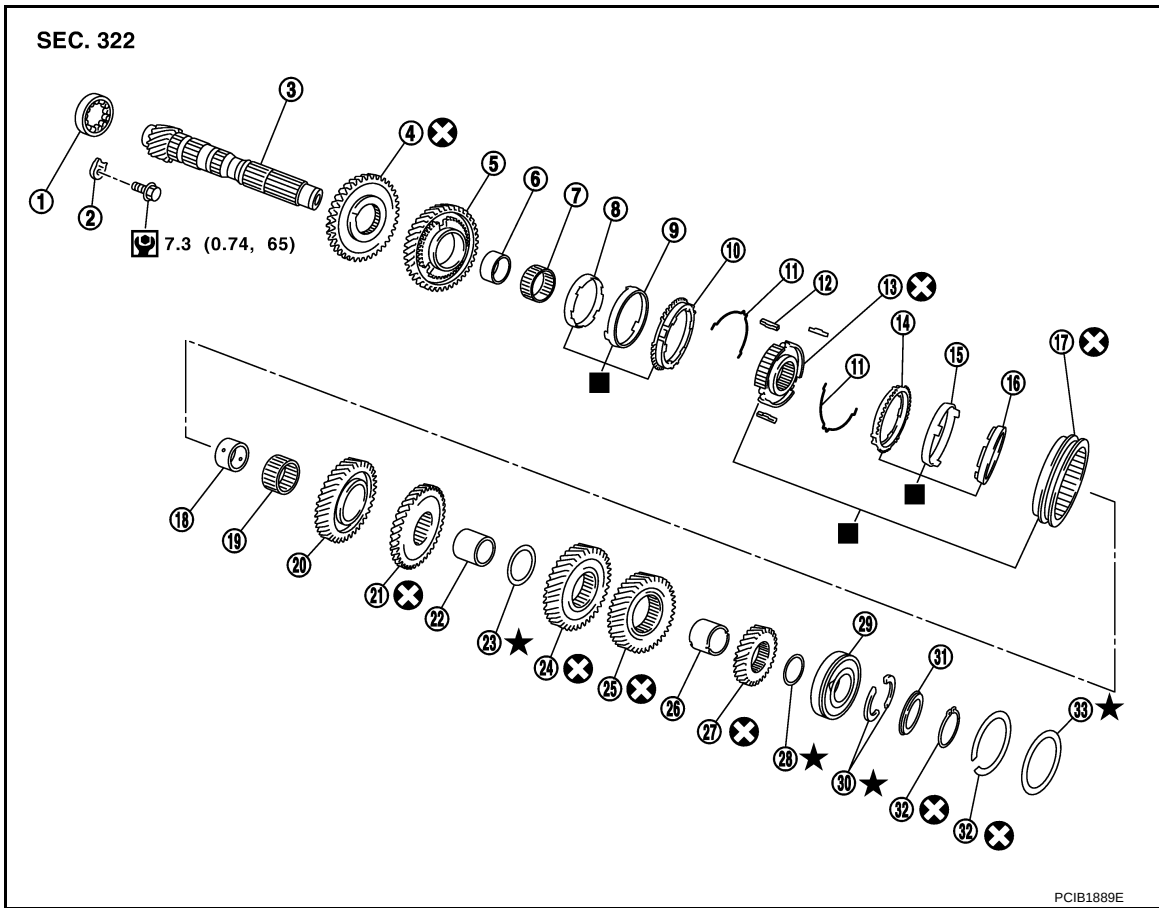
### CAUTION:

Apply gear oil to gears, shafts, synchronizers, and bearings when assembly.

# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]



- |                                |                                |                                         |
|--------------------------------|--------------------------------|-----------------------------------------|
| ① Mainshaft front bearing      | ② Mainshaft bearing retainer   | ③ Mainshaft                             |
| ④ Reverse main gear            | ⑤ 1st main gear                | ⑥ 1st main gear bushing                 |
| ⑦ 1st needle bearing           | ⑧ 1st inner baulk ring         | ⑨ 1st synchronizer cone                 |
| ⑩ 1st outer baulk ring         | ⑪ 1st-2nd spread spring        | ⑫ 1st-2nd shifting insert               |
| ⑬ 1st-2nd synchronizer hub     | ⑭ 2nd outer baulk ring         | ⑮ 2nd synchronizer cone                 |
| ⑯ 2nd inner baulk ring         | ⑰ 1st-2nd coupling sleeve      | ⑱ 2nd main gear bushing                 |
| ⑲ 2nd needle bearing           | ⑳ 2nd main gear                | ㉑ 3rd main gear                         |
| ㉒ 3rd-4th mainshaft spacer     | ㉓ 4th main gear adjusting shim | ㉔ 4th main gear                         |
| ㉕ 5th main gear                | ㉖ 5th-6th mainshaft spacer     | ㉗ 6th main gear                         |
| ㉘ 6th main gear adjusting shim | ㉙ Mainshaft rear bearing       | ㉚ Mainshaft C-ring                      |
| ㉛ C-ring holder                | ㉜ Snap ring                    | ㉝ Mainshaft rear bearing adjusting shim |

: N·m (kg·m, in·lb)

: Always replace after every disassembly.

★: Select with proper thickness.

: Replace the parts as a set.

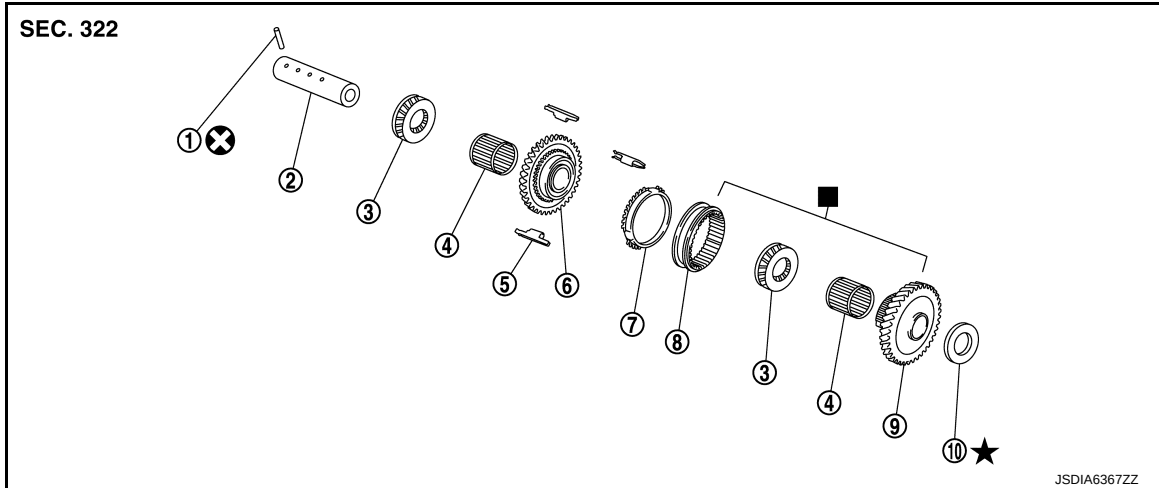
## CAUTION:

Apply gear oil to gears, shafts, synchronizers, and bearings when assembly.

# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]



- |                                     |                           |                              |
|-------------------------------------|---------------------------|------------------------------|
| ① Retaining pin                     | ② Reverse idler shaft     | ③ Thrust needle bearing      |
| ④ Reverse idler gear needle bearing | ⑤ Reverse insert spring   | ⑥ Reverse idler gear (front) |
| ⑦ Reverse baulk ring                | ⑧ Reverse coupling sleeve | ⑨ Reverse idler gear (rear)  |
| ⑩ Reverse idler gear adjusting shim |                           |                              |

⊗: Always replace after every disassembly.

★: Select with proper thickness.

■: Replace the parts as a set.

## CAUTION:

Apply gear oil to gears, shafts, synchronizers, and bearings when assembly.

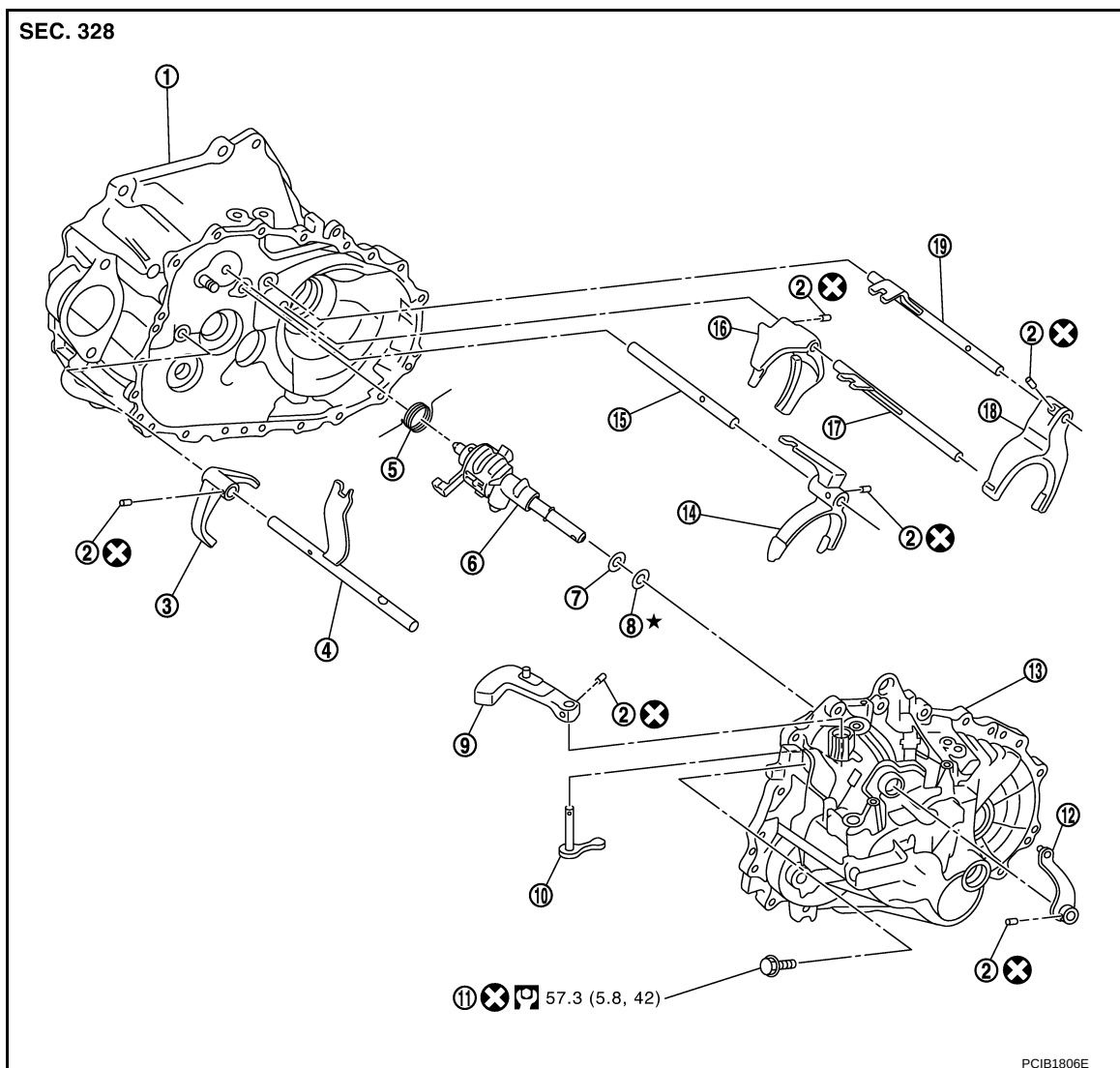
SHIFT FORK AND FORK ROD

# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

SEC. 328



- |                       |                               |                       |
|-----------------------|-------------------------------|-----------------------|
| ① Clutch housing      | ② Retaining pin               | ③ Reverse shift fork  |
| ④ Reverse fork rod    | ⑤ Return spring               | ⑥ Striking rod        |
| ⑦ Striking rod shim   | ⑧ Striking rod adjusting shim | ⑨ Shift lever (outer) |
| ⑩ Shift lever (inner) | ⑪ Guide bolt                  | ⑫ Select lever        |
| ⑬ Transaxle case      | ⑭ 3rd-4th shift fork          | ⑮ 3rd-4th fork rod    |
| ⑯ 1st-2nd shift fork  | ⑰ 1st-2nd fork rod            | ⑱ 5th-6th shift fork  |
| ⑲ 5th-6th fork rod    |                               |                       |

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

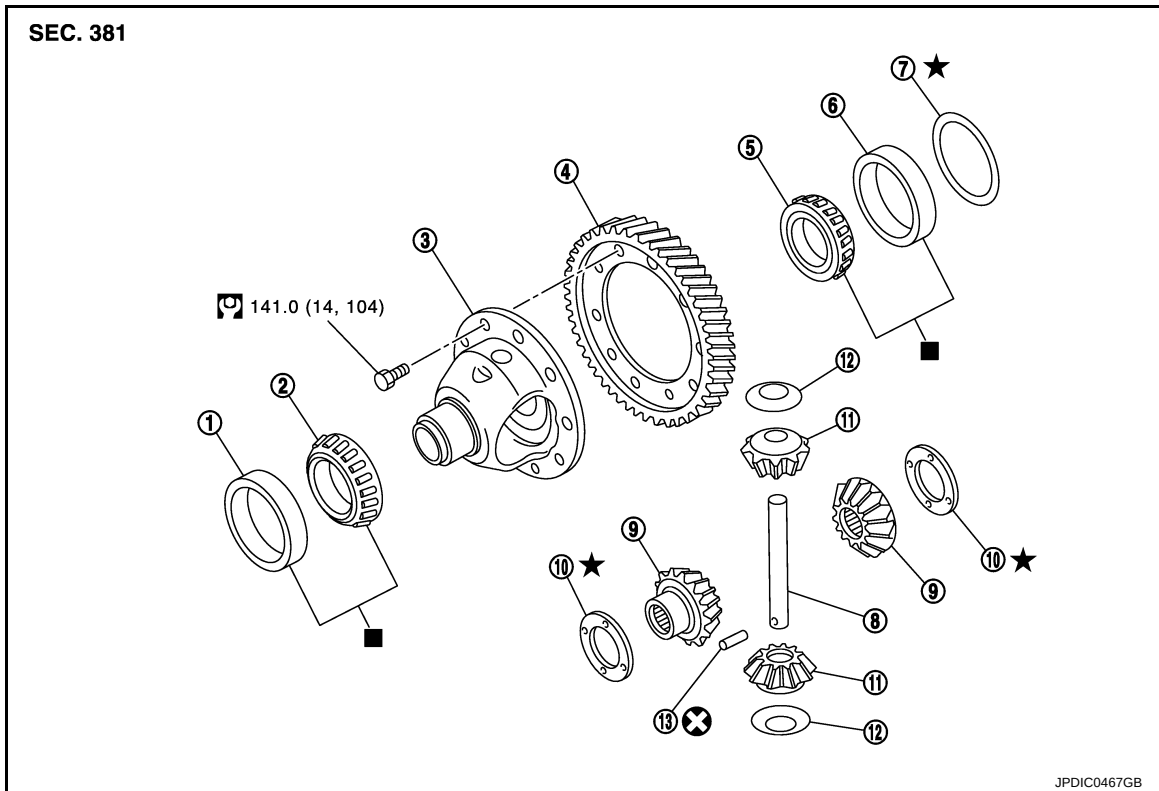
★: Select with proper thickness.

FINAL DRIVE

# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]



- |                                                              |                                                   |                                                              |
|--------------------------------------------------------------|---------------------------------------------------|--------------------------------------------------------------|
| ① Differential side bearing outer race (clutch housing side) | ② Differential side bearing (clutch housing side) | ③ Differential case                                          |
| ④ Final gear                                                 | ⑤ Differential side bearing (transaxle case side) | ⑥ Differential side bearing outer race (transaxle case side) |
| ⑦ Differential side bearing adjusting shim                   | ⑧ Pinion mate shaft                               | ⑨ Side gear                                                  |
| ⑩ Side gear thrust washer                                    | ⑪ Pinion mate gear                                | ⑫ Pinion mate thrust washer                                  |
| ⑬ Retaining pin                                              |                                                   |                                                              |

N·m (kg-m, ft-lb)

Always replace after every disassembly.

★: Select with proper thickness.

Replace the parts as a set.

## CAUTION:

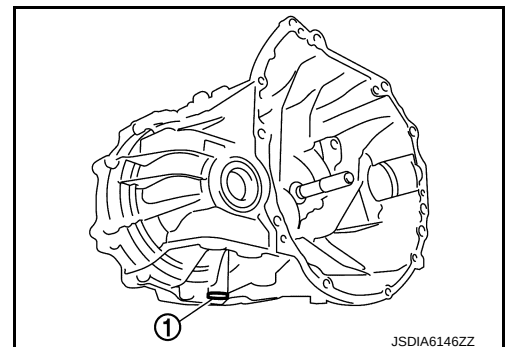
Apply gear oil to gears, shafts, and bearings when assembly.

## 2WD : Disassembly and Assembly

INFOID:0000000010919403

### DISASSEMBLY

1. Remove drain plug ① with gasket from clutch housing and then drain gear oil.

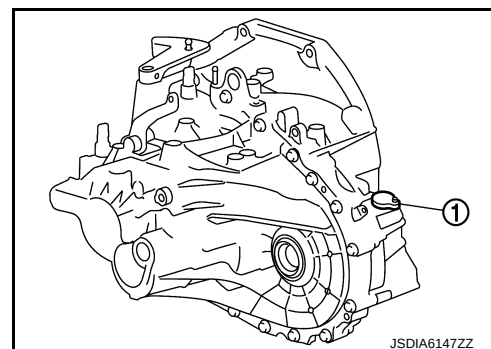


## TRANSAXLE ASSEMBLY

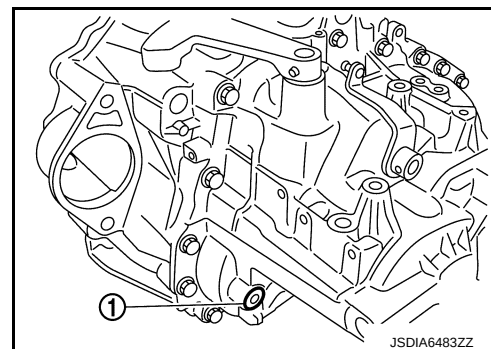
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

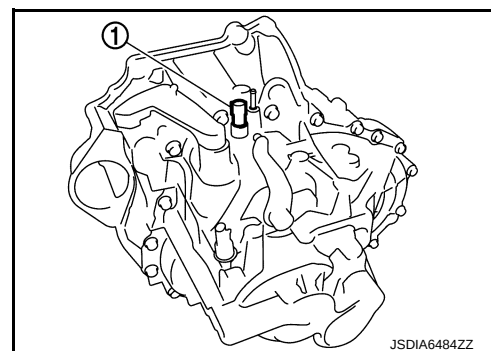
2. Remove plug ① with O-ring from clutch housing.



3. Remove plug ① with gasket from transaxle case.

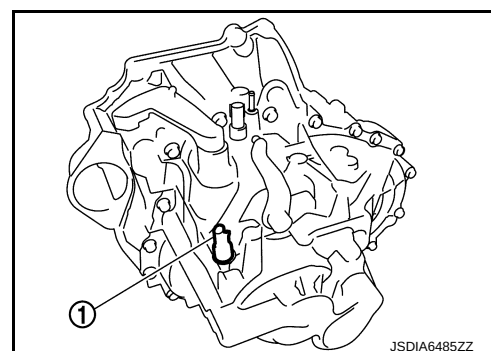


4. Remove neutral position switch ① from transaxle case.

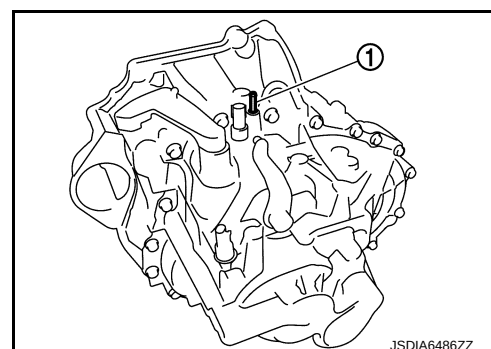


5. Remove back-up lamp switch ① and plunger from transaxle case.

**CAUTION:**  
Never lose plunger.



6. Remove air breather tube ① from transaxle case.

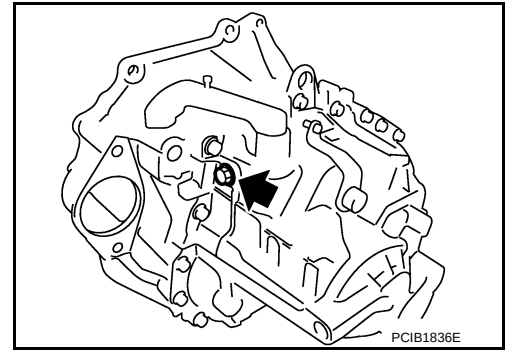


# TRANSAXLE ASSEMBLY

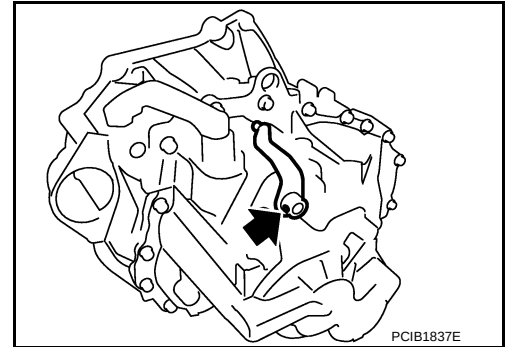
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

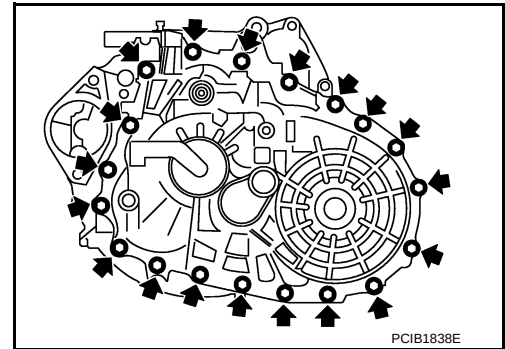
7. Remove guide bolt from transaxle case.



8. Remove retaining pin using a pin punch (commercial service tool) and then remove select lever from transaxle case.



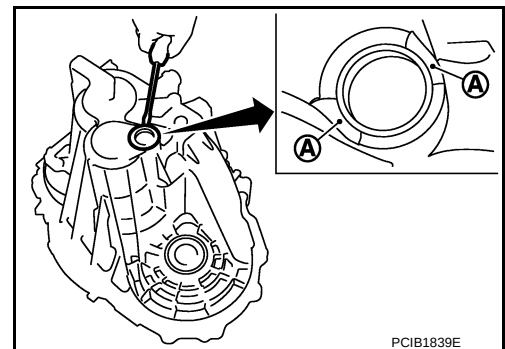
9. Remove transaxle case mounting bolts.



10. Remove bore plug from transaxle case.

**CAUTION:**

- Never damage transaxle case.
- Access bore plug from cutout (A) of transaxle case when removing.



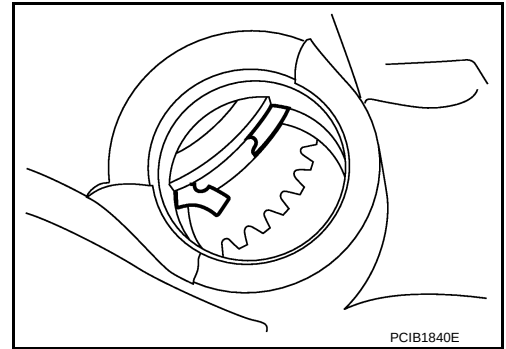
11. Remove transaxle case, as per the following procedure.

# TRANSAXLE ASSEMBLY

## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

- a. Expand snap ring at mainshaft rear bearing accessing from the bore plug hole. Then pull up transaxle case from clutch housing until snap ring comes off.



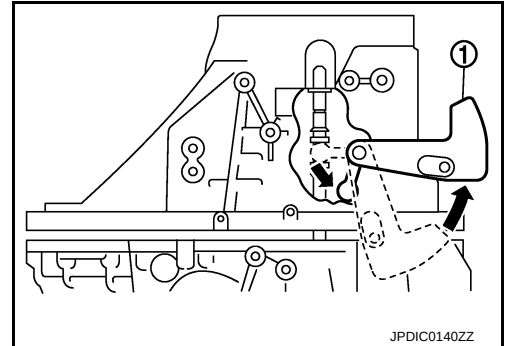
- b. While rotating shift lever (outer) ① in the direction of the arrow in the figure, remove transaxle case from clutch housing.

**CAUTION:**

**Never drop each adjusting shim.**

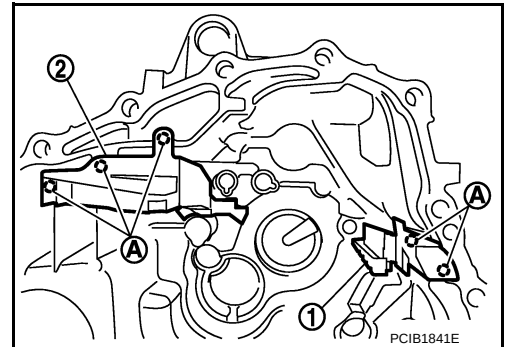
**NOTE:**

Make sure to hold shift lever (outer) in the position shown in the figure. Otherwise transaxle case cannot be removed from clutch housing.

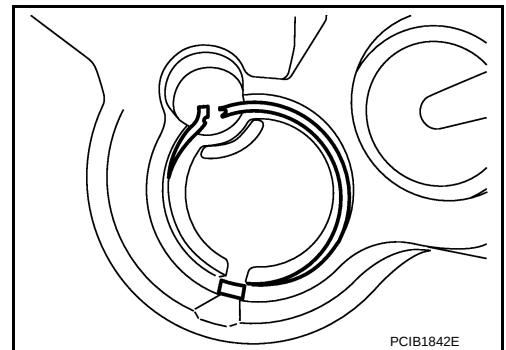


12. Remove oil gutter A ① and oil gutter B ② from transaxle case.

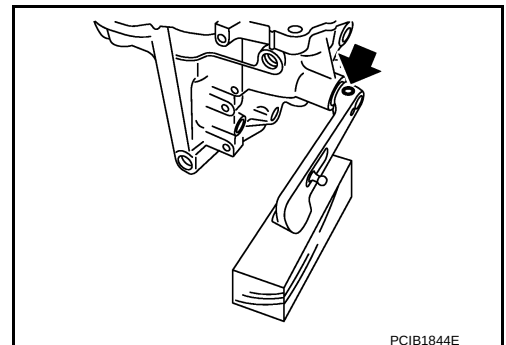
Ⓐ : Tab of oil gutter



13. Remove snap ring from transaxle case.



14. Remove retaining pin using a pin punch (commercial service tool) and then remove shift lever (outer) and shift lever (inner) from transaxle case.





# TRANSAXLE ASSEMBLY

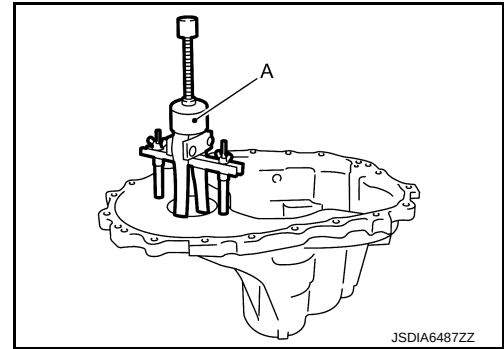
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

15. Remove differential side bearing outer race (transaxle case side) from transaxle case using the puller (A) (SST: KV381054S0) and then remove differential side bearing adjusting shim from transaxle case.

**CAUTION:**

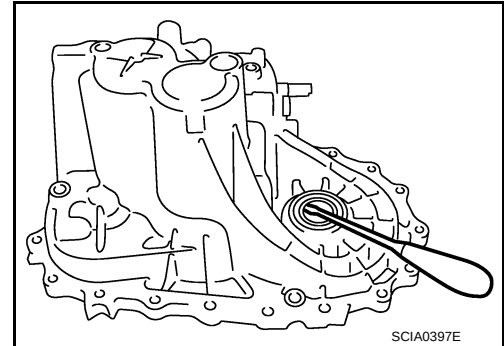
**Never damage transaxle case and differential side bearing outer race.**



16. Remove differential side oil seal from transaxle case, using oil seal remover (commercial service tool).

**CAUTION:**

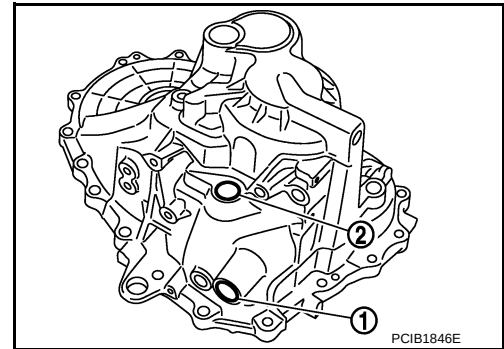
**Never damage transaxle case.**



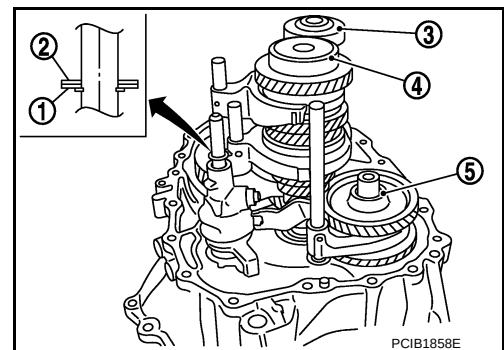
17. Remove shift lever oil seal ① and striking rod oil seal ② from transaxle case, using oil seal remover (commercial service tool).

**CAUTION:**

**Never damage transaxle case.**

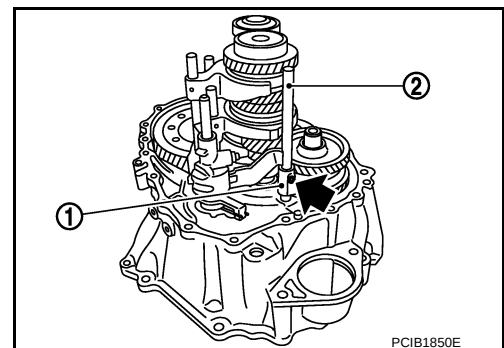


18. Remove striking rod shim ①, striking rod adjusting shim ②, mainshaft rear bearing adjusting shim ③, input shaft rear bearing adjusting shim ④, and reverse idler gear adjusting shim ⑤.



19. Remove retaining pin of reverse shift fork ① using a pin punch (commercial service tool).

② : Reverse fork rod

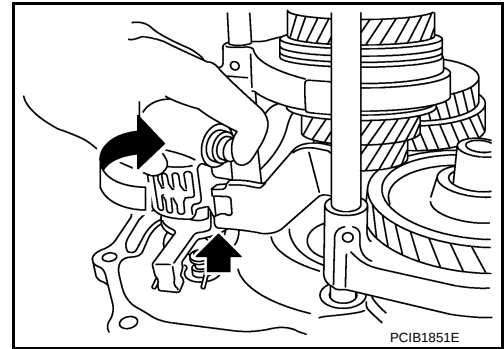


# TRANSAXLE ASSEMBLY

## < UNIT DISASSEMBLY AND ASSEMBLY >

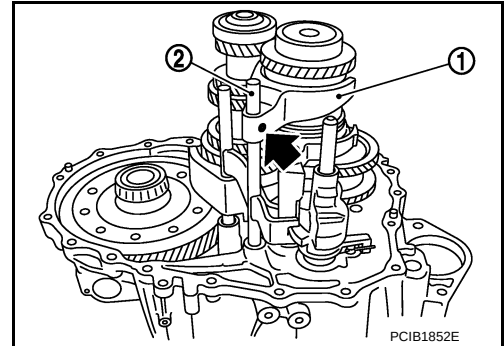
[6MT: RS6F52A]

20. Rotate striking lever of striking rod as shown in the figure. Then rotate reverse fork rod to a position where bracket of reverse fork rod does not interfere with striking lever of striking rod.
21. Pull out reverse shift fork and reverse fork rod.



22. Remove retaining pin of 5th-6th shift fork ① using a pin punch (commercial service tool).

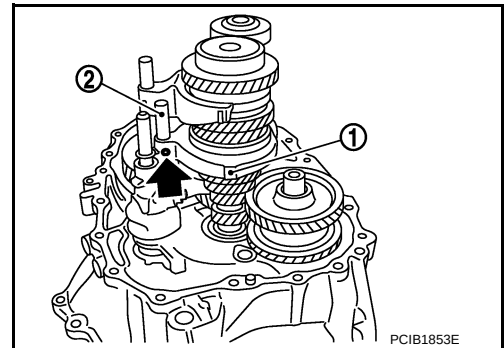
② : 5th-6th fork rod



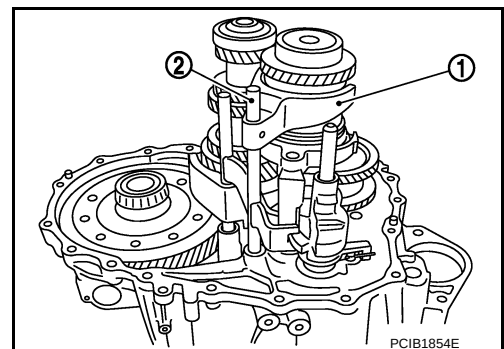
23. Remove retaining pin of 3rd-4th shift fork ① using a pin punch (commercial service tool).

② : 3rd-4th fork rod

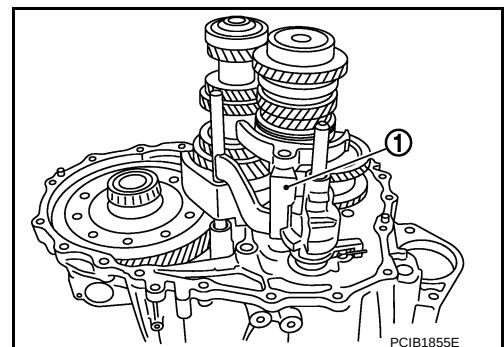
24. Pull out 3rd-4th fork rod.



25. Pull out 5th-6th shift fork ① and 5th-6th fork rod ②.



26. Pull out 3rd-4th shift fork ①.



# TRANSAXLE ASSEMBLY

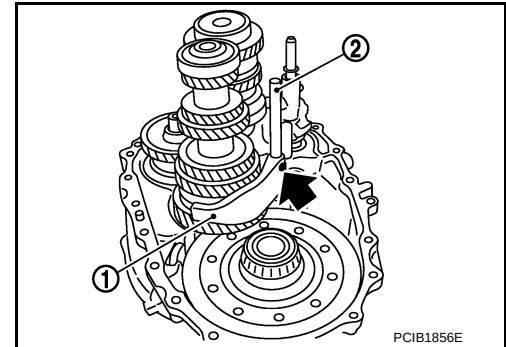
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

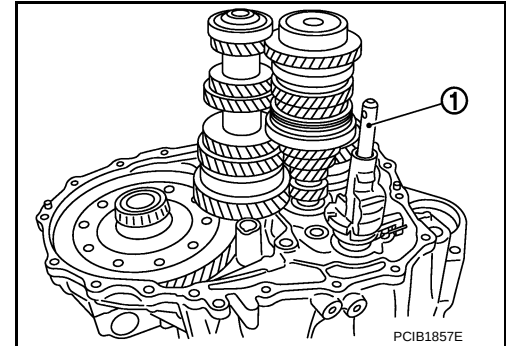
27. Remove retaining pin of 1st-2nd shift fork ① using a pin punch (commercial service tool).

② : 1st-2nd fork rod

28. Pull out 1st-2nd shift fork and 1st-2nd fork rod.



29. Remove striking rod assembly ①.



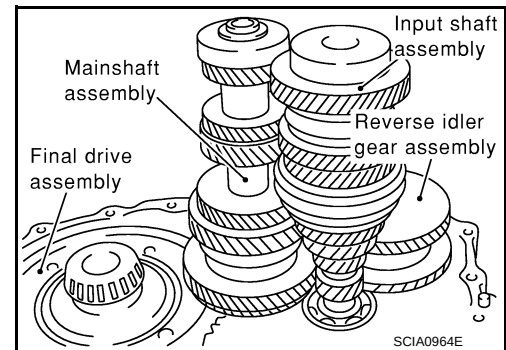
30. Remove gear components from clutch housing, as per the following procedure.

- a. Remove a set of input shaft assembly, mainshaft assembly, and reverse idler gear assembly by tapping the tip of input shaft from the back of the clutch housing with a plastic hammer.

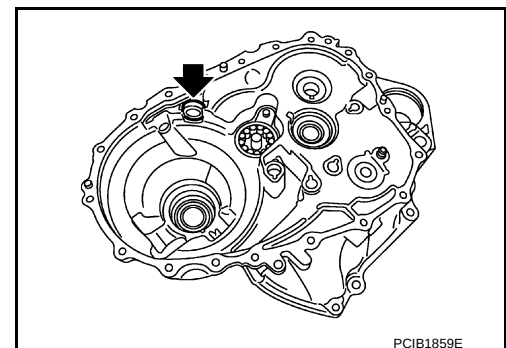
**CAUTION:**

**Always withdraw mainshaft straight out. Failure to do so can damage resin oil channel on clutch housing side.**

- b. Remove final drive assembly.



31. Remove magnet from clutch housing.

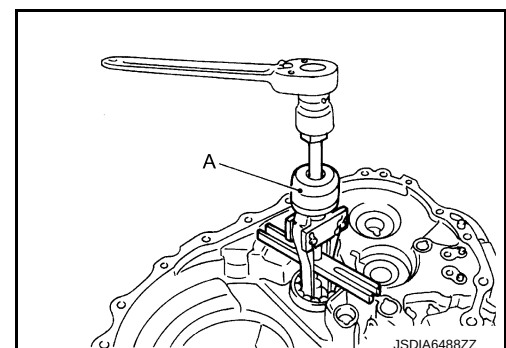


32. Remove mainshaft bearing retainer and then mainshaft front bearing from clutch housing using the puller (A) (SST: KV381054S0).

**CAUTION:**

**Never damage clutch housing, mainshaft front bearing, and oil channel.**

33. Remove oil channel from clutch housing.



# TRANSAXLE ASSEMBLY

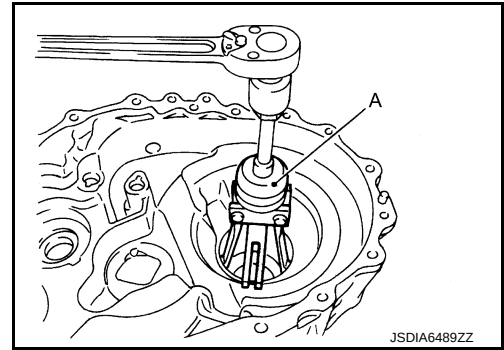
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

34. Remove differential side bearing outer race (clutch housing side) from clutch housing using the puller (A) (SST: KV381054S0).

**CAUTION:**

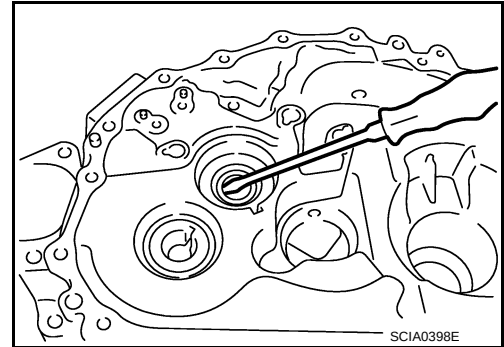
**Never damage clutch housing and differential side bearing outer race.**



35. Remove input shaft oil seal from clutch housing, using oil seal remover (commercial service tool).

**CAUTION:**

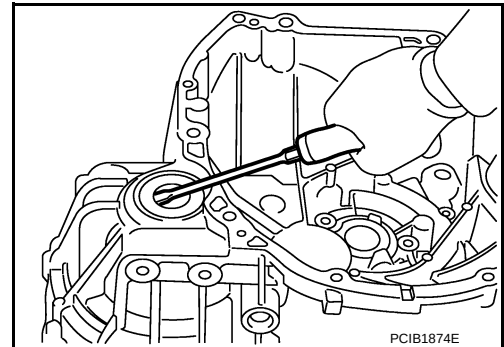
**Never damage clutch housing.**



36. Remove differential side oil seal from clutch housing, using oil seal remover (commercial service tool).

**CAUTION:**

**Never damage clutch housing.**



## ASSEMBLY

# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

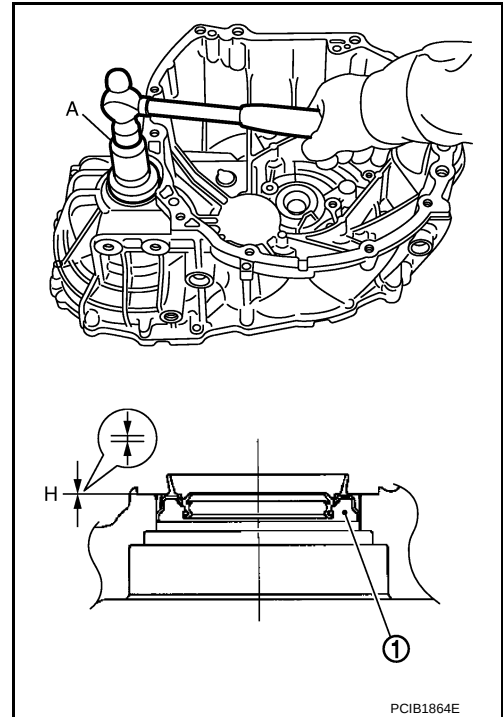
[6MT: RS6F52A]

1. Install differential side oil seal ① to clutch housing using the drift (A) (SST: ST33400001).

**Dimension (H) : -0.5 – 0.5 mm (-0.020 – 0.020 in)**

**CAUTION:**

- Never reuse differential side oil seal.
- Apply multi-purpose grease onto oil seal lip.
- Never incline differential side oil seal.
- Never damage clutch housing.

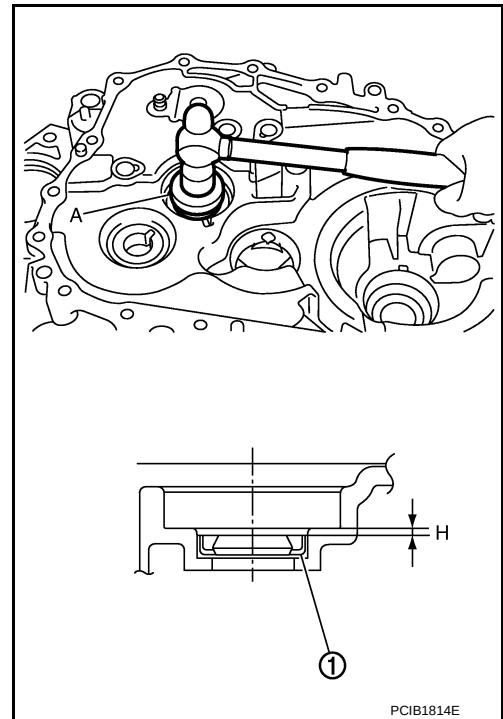


2. Install input shaft oil seal ① to clutch housing using the drift (A) (SST: ST35321000).

**Dimension (H) : 1.1 – 2.1 mm (0.043 – 0.083 in)**

**CAUTION:**

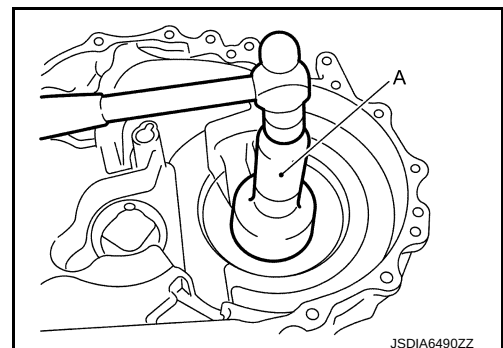
- Never reuse input shaft oil seal.
- Apply multi-purpose grease onto oil seal lip.
- Never incline input shaft oil seal.
- Never damage clutch housing.



3. Install differential side bearing outer race (clutch housing side) to clutch housing using the drift (A) (SST: ST30720000).

**CAUTION:**

**Replace differential side bearing and differential side bearing outer race as a set.**



# TRANSAXLE ASSEMBLY

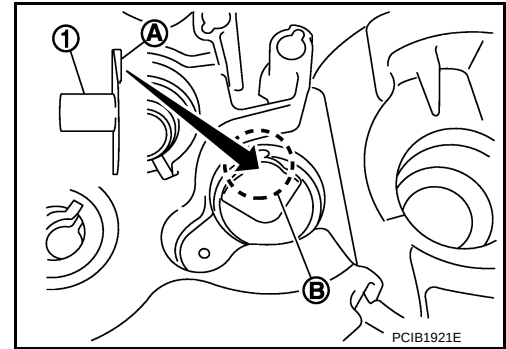
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

4. Install oil channel ① on mainshaft side.

**CAUTION:**

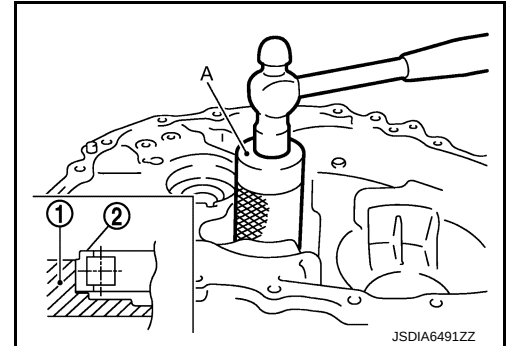
When installing oil channel, fit the rib ① of oil channel into the processed area of the spot facing ②.



5. Install mainshaft front bearing ① to clutch housing ② using the drift (A) (SST: ST33200000).

**CAUTION:**

Be careful with the orientation of mainshaft front bearing.



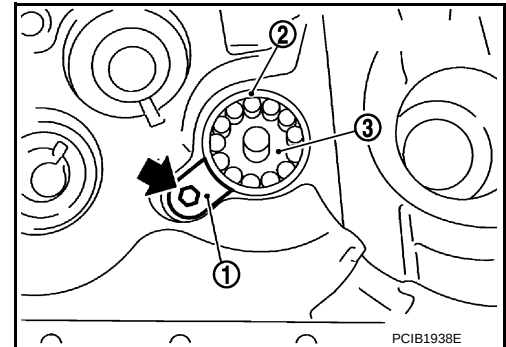
6. Install mainshaft bearing retainer ① to clutch housing and tighten mounting bolt to the specified torque.

② : Mainshaft front bearing

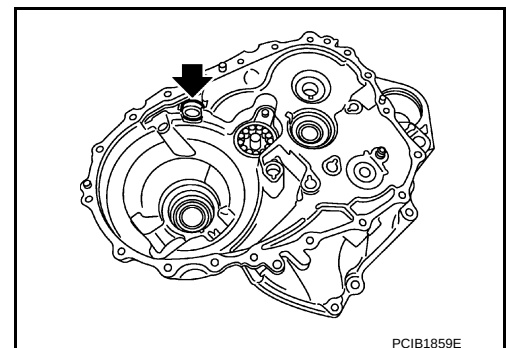
③ : Oil channel

**CAUTION:**

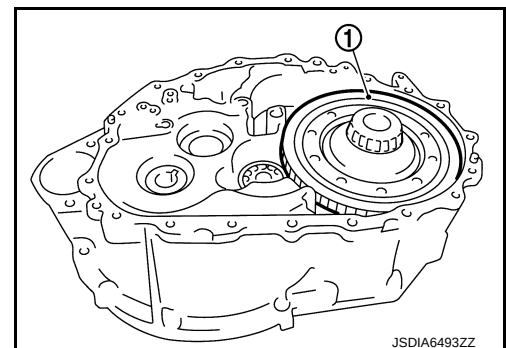
Install with punched surface facing up.



7. Install magnet to clutch housing.



8. Install final drive assembly ① into clutch housing.



# TRANSAXLE ASSEMBLY

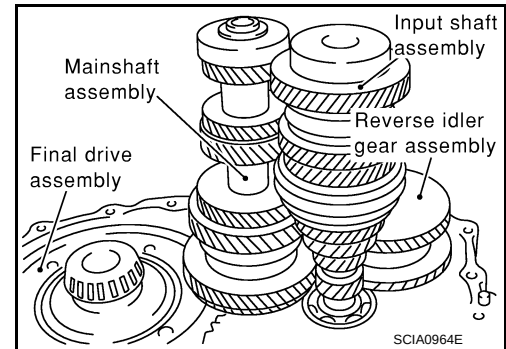
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

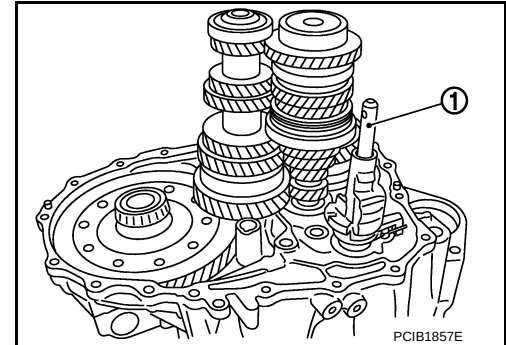
9. Install input shaft assembly, mainshaft assembly, and reverse idler gear assembly into clutch housing.

**CAUTION:**

- Wrap a tape, etc. to the spline of input shaft so as not to damage the input shaft oil seal.
- Be careful with the orientation of reverse idler shaft.

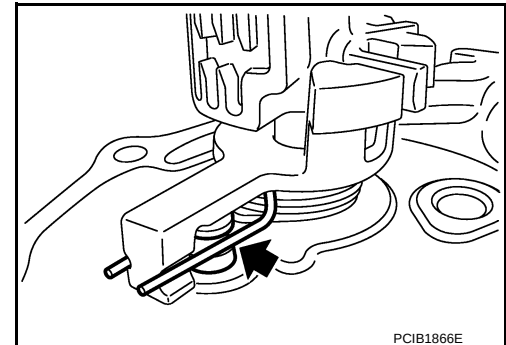


10. Install striking rod assembly ① into clutch housing.



**CAUTION:**

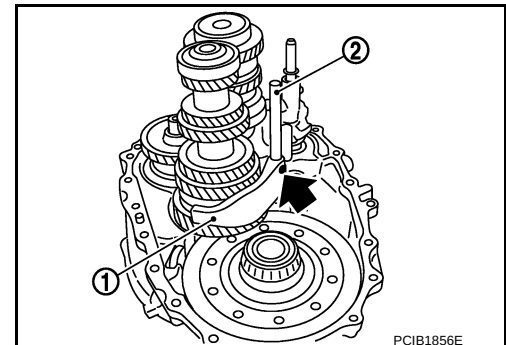
Check that return spring is securely seated in the groove on return pin.



11. Install 1st-2nd shift fork ① and 1st-2nd fork rod ② and then install retaining pin to 1st-2nd shift fork.

**CAUTION:**

- Never reuse retaining pin.
- Be careful with the orientation of 1st-2nd shift fork and 1st-2nd fork rod.
- Assemble retaining pin from the direction shown by the arrow in the figure until it becomes flush with the end surface of 1st-2nd shift fork.





# TRANSAXLE ASSEMBLY

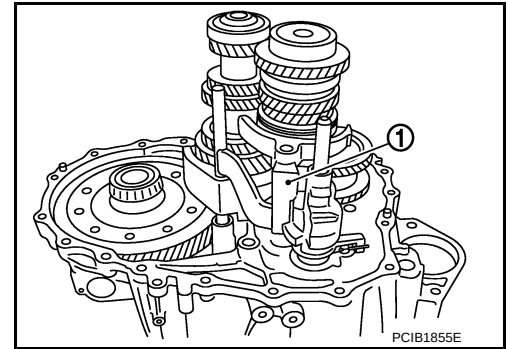
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

12. Install 3rd-4th shift fork ① to 3rd-4th coupling sleeve.

**CAUTION:**

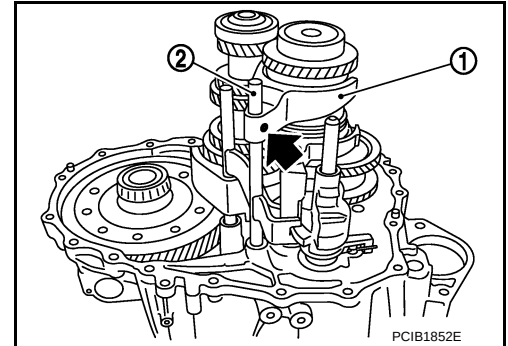
Be careful with the orientation of 3rd-4th shift fork.



13. Install 5th-6th shift fork ① and 5th-6th fork rod ② and then install retaining pin to 5th-6th shift fork.

**CAUTION:**

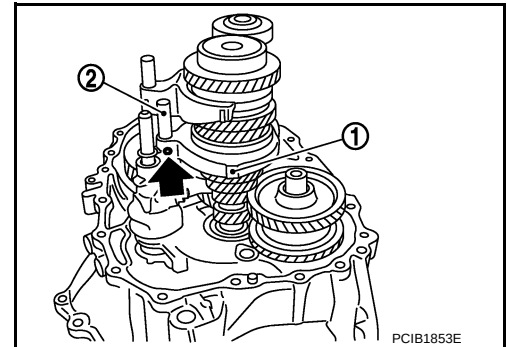
- Never reuse retaining pin.
- Be careful with the orientation of 5th-6th shift fork and 5th-6th fork rod.
- Assemble retaining pin from the direction shown by the arrow in the figure until it becomes flush with the end surface of 5th-6th shift fork.



14. Install 3rd-4th fork rod ② and then install retaining pin to 3rd-4th shift fork ①.

**CAUTION:**

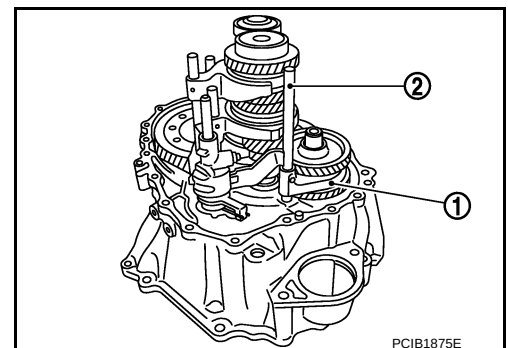
- Never reuse retaining pin.
- Be careful with the orientation of 3rd-4th fork rod.
- Assemble retaining pin from the direction shown by the arrow in the figure until it becomes flush with the end surface of 3rd-4th shift fork.



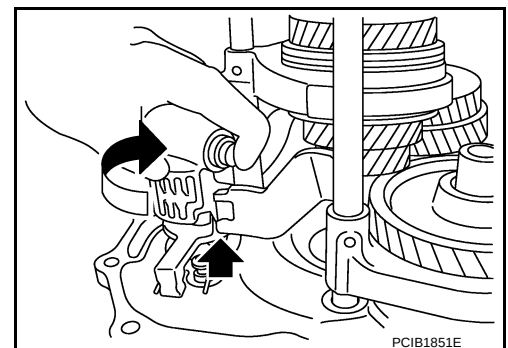
15. Install reverse shift fork ① and reverse fork rod ②.

**CAUTION:**

Be careful with the orientation of reverse shift fork and reverse fork rod.



16. Rotate striking lever of striking rod as shown in the figure. Then rotate reverse fork rod to a position where bracket of reverse fork rod does not interfere with striking lever of striking rod.





# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

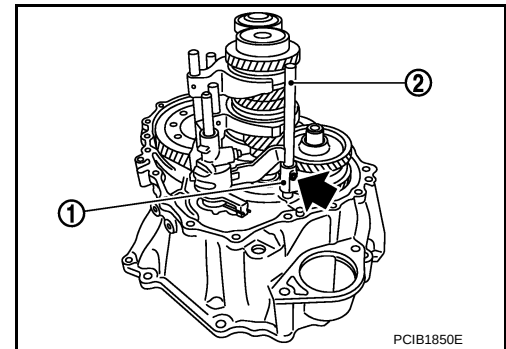
[6MT: RS6F52A]

17. Install retaining pin to reverse shift fork ①.

② : Reverse fork rod

**CAUTION:**

- Never reuse retaining pin.
- Assemble retaining pin from the direction shown by the arrow in the figure until it becomes flush with the end surface of reverse shift fork.



18. Install selected differential side bearing adjusting shim and differential side bearing outer race (transaxle case side).

- For selection of adjusting shim, refer to [TM-147, "2WD : Inspection and Adjustment"](#).

19. Install selected reverse idler gear adjusting shim onto reverse idler gear assembly.

- For selection of adjusting shim, refer to [TM-147, "2WD : Inspection and Adjustment"](#).

20. Install selected input shaft rear bearing adjusting shim onto input shaft.

- For selection of adjusting shim, refer to [TM-147, "2WD : Inspection and Adjustment"](#).

21. Install selected striking rod adjusting shim and striking rod shim onto striking rod assembly.

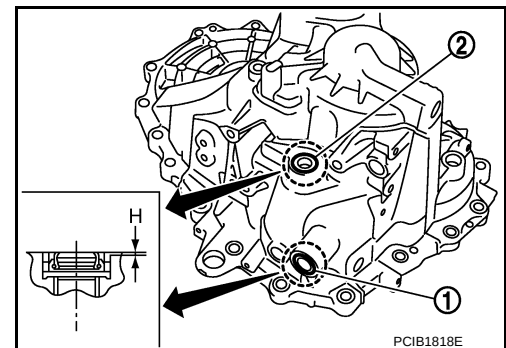
- For selection of adjusting shim, refer to [TM-147, "2WD : Inspection and Adjustment"](#).

22. Install shift lever oil seal ① and striking rod oil seal ② to transaxle case using a drift (commercial service tool).

**Dimension (H) : 0 – 1.0 mm (0 – 0.039 in)**

**CAUTION:**

- Never reuse shift lever oil seal and striking rod oil seal.
- Apply multi-purpose grease onto oil seal lip.
- Never incline shift lever oil seal and striking rod oil seal.
- Never damage transaxle case.

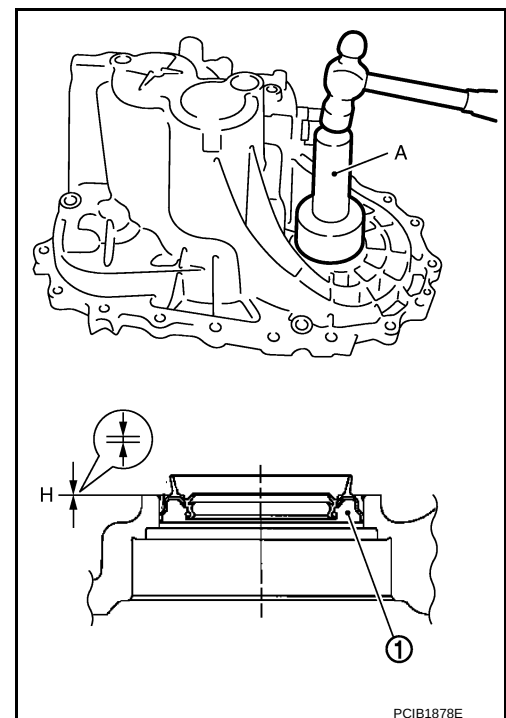


23. Install differential side oil seal ① to transaxle case using the drift (A) (SST: ST30720000).

**Dimension (H) : -0.5 – 0.5 mm (-0.020 – 0.020 in)**

**CAUTION:**

- Never reuse differential side oil seal.
- Apply multi-purpose grease onto oil seal lip.
- Never incline differential side oil seal.
- Never damage transaxle case.



# TRANSAXLE ASSEMBLY

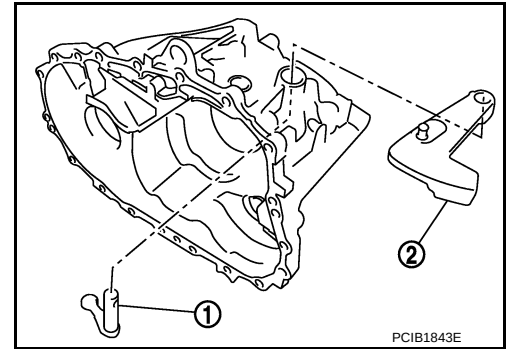
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

24. Install shift lever (inner) ① and shift lever (outer) ② to transaxle case.

**CAUTION:**

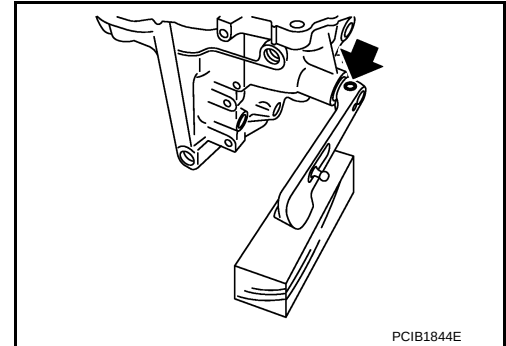
Be careful with the orientation of shift lever (inner) and shift lever (outer).



25. Install retaining pin to shift lever (outer).

**CAUTION:**

- Never reuse retaining pin.
- Assemble retaining pin from the direction shown by the arrow in the figure until it becomes flush with the end surface of shift lever (outer).



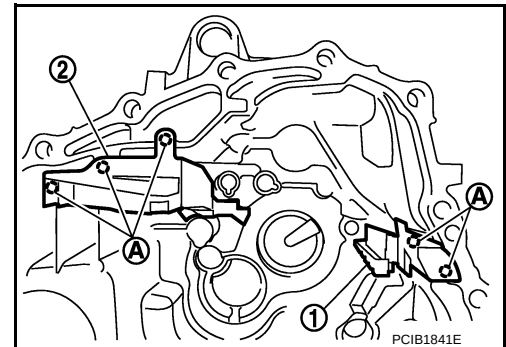
26. Install transaxle case, as per the following procedure.

- a. Install selected mainshaft rear bearing adjusting shim into transaxle case.
- For selection of adjusting shim, refer to [TM-147, "2WD : Inspection and Adjustment"](#).

- b. Install oil gutter A ① and oil gutter B ② to transaxle case.

**CAUTION:**

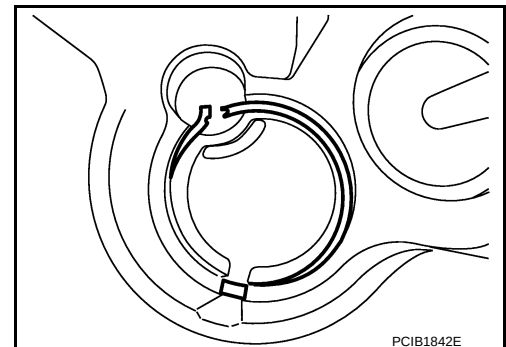
Insert the tab ① of oil gutter A and oil gutter B into transaxle case.



- c. Temporarily install snap ring of mainshaft rear bearing into transaxle case.

**CAUTION:**

Never reuse snap ring.



# TRANSAXLE ASSEMBLY

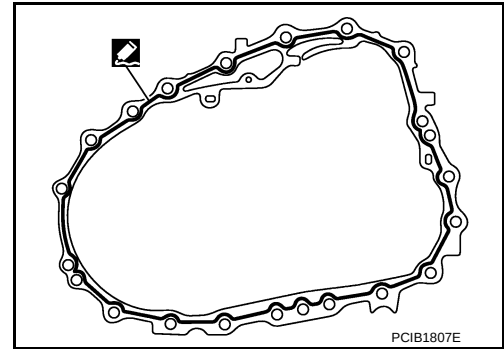
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

- d. Apply recommended sealant to mating surface of clutch housing as shown in the figure.
- For sealant to use, refer to [TM-124, "2WD : Exploded View"](#).

**CAUTION:**

- Remove old sealant adhering to the mounting surfaces. Also remove any moisture, oil, or foreign material adhering to both mounting surfaces.
- Apply sealant so as not to break the bead.
- The width of sealant bead is 1 – 2 mm (0.04 – 0.08 in).
- The height of sealant bead is 0.4 – 1 mm (0.016 – 0.04 in).
- The overlap length of both ends of sealant bead is 3 – 5 mm (0.12 – 0.20 in).



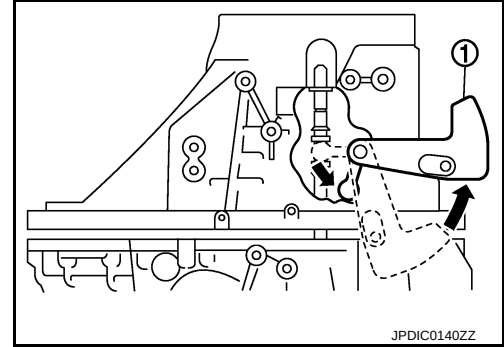
- e. With shift lever (outer) ① held in the position shown in the figure, temporarily assemble transaxle case to clutch housing.

**CAUTION:**

**Never damage striking rod oil seal.**

**NOTE:**

Make sure to hold shift lever (outer) in the position shown in the figure. Otherwise transaxle case cannot be installed to clutch housing.

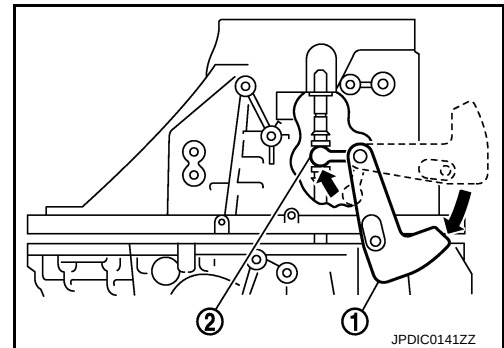


- f. While rotating shift lever (outer) ① in the direction of the arrow in the figure, assemble transaxle case to clutch housing.

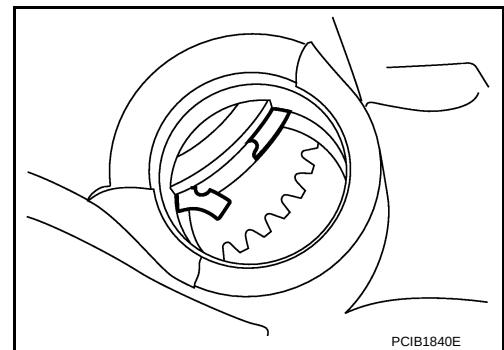
② : Shift lever (inner)

**NOTE:**

The shift lever (inner) can be inserted into the groove of striking rod.



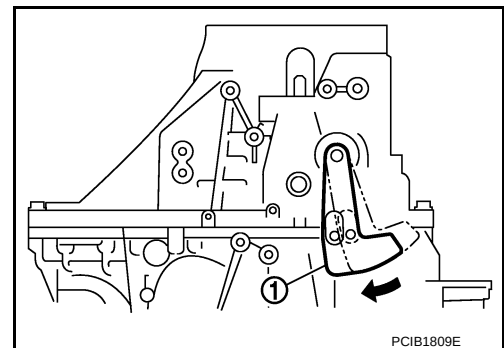
- g. Accessing from the bore plug hole, expand snap ring at main-shaft rear bearing so that the ring catches the periphery of main-shaft rear bearing.
- h. Temporarily tighten transaxle case mounting bolts.



- i. Shift the shift lever (outer) ① to 2nd gear position.

**NOTE:**

- The 2nd gear position is attained when shift lever (outer) is in the position shown in the figure.



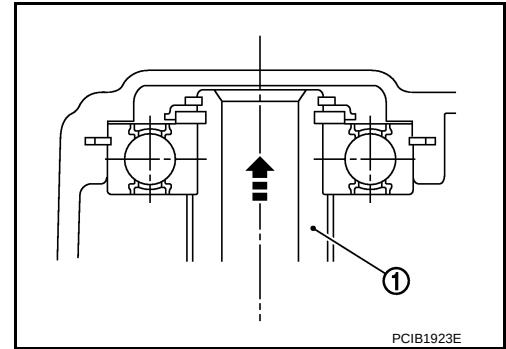
# TRANSAXLE ASSEMBLY

## < UNIT DISASSEMBLY AND ASSEMBLY >

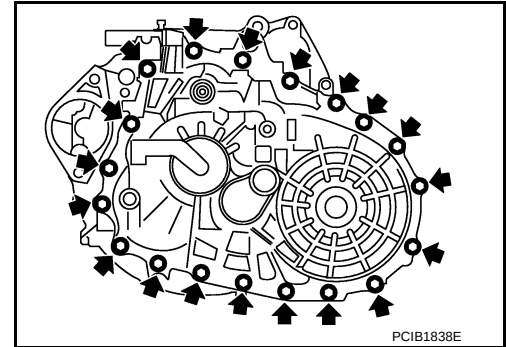
[6MT: RS6F52A]

- When transaxle is shifted to the 2nd gear position, mainshaft assembly ① is lifted.

- j. Seat snap ring in the groove on mainshaft rear bearing. If snap ring is not seated in the groove on mainshaft rear bearing, remove transaxle case and repeat the procedure from step d.



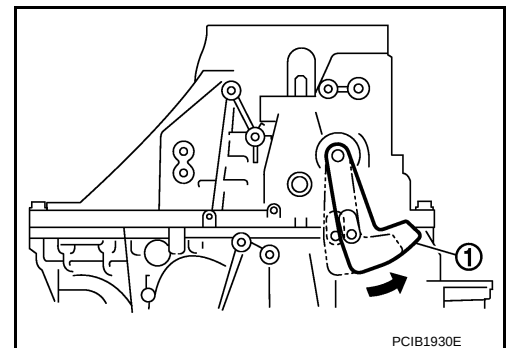
- k. Tighten transaxle case mounting bolts to the specified torque.



- l. Shift the shift lever (outer) ① to neutral position.

**NOTE:**

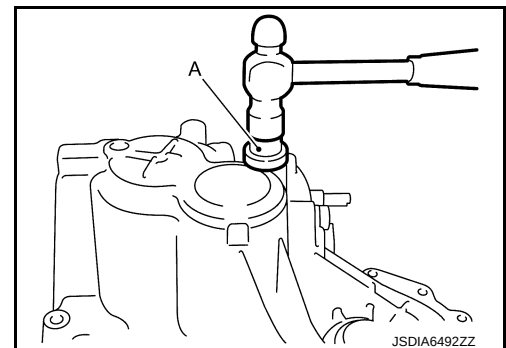
The neutral position is attained when shift lever (outer) is in the position shown in the figure.



27. Install bore plug to transaxle case using the drift (A) (SST: ST33061000).

**CAUTION:**

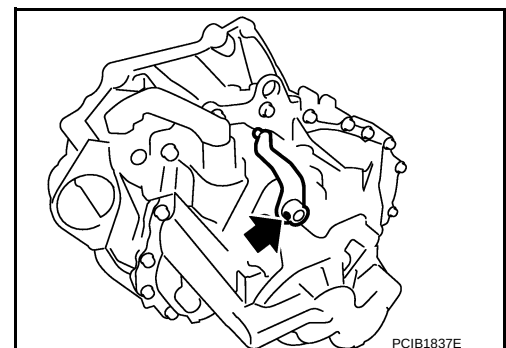
Never reuse bore plug.



28. Install select lever to transaxle case and then install retaining pin to select lever.

**CAUTION:**

- Never reuse retaining pin.
- Assemble retaining pin from the direction shown by the arrow in the figure until it becomes flush with the end surface of select lever.



# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

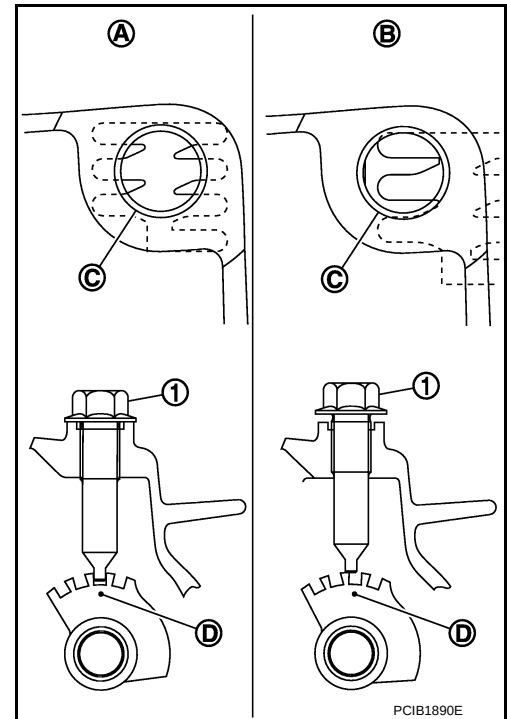
29. Install guide bolt, as per the following procedure.
- Shift the shift lever (outer) and select lever to neutral position.
  - Visually confirm from the guide bolt mounting hole ③ that the lever is securely set to neutral position. If it is not in the neutral position, repeat the procedure from step a.

- ① : Neutral position  
② : Except neutral position  
③ : Groove of striking rod

**CAUTION:**

The guide bolt ① may damage striking rod by running into outer-groove points, if guide bolt is tightened in the state of (B) shown in the figure.

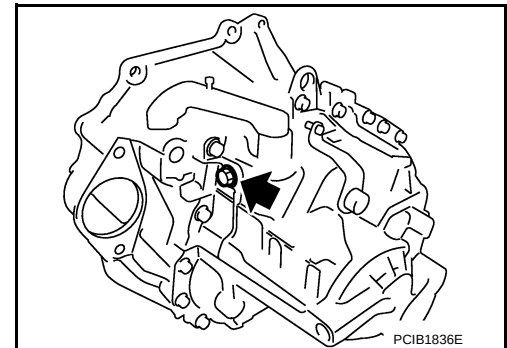
- Check continuity between terminals of neutral position switch to confirm it in the neutral position. If it is not in the neutral position, repeat the procedure from step a. Refer to [TM-94, "Component Function Check"](#).



- Install guide bolt to transaxle case and then tighten guide bolt to the specified torque.

**CAUTION:**

Never reuse guide bolt.

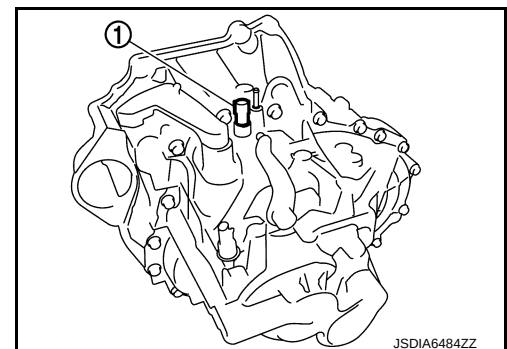


30. Apply recommended sealant to threads of neutral position switch ①. Then install it to transaxle case and tighten to the specified torque.

- For sealant to use, refer to [TM-124, "2WD : Exploded View"](#).

**CAUTION:**

Remove old sealant and oil adhering to threads.



## TRANSAXLE ASSEMBLY

### < UNIT DISASSEMBLY AND ASSEMBLY >

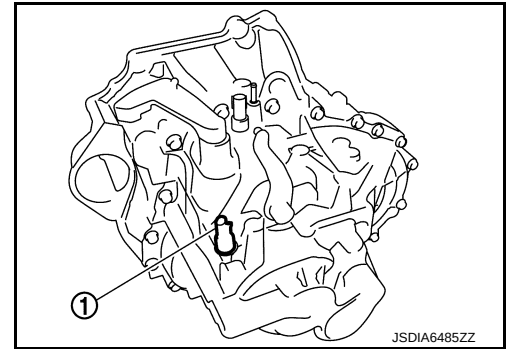
[6MT: RS6F52A]

31. Apply recommended sealant to threads of back-up lamp switch ①. Then install it with plunger to transaxle case and tighten to the specified torque.

- For sealant to use, refer to [TM-124, "2WD : Exploded View"](#).

**CAUTION:**

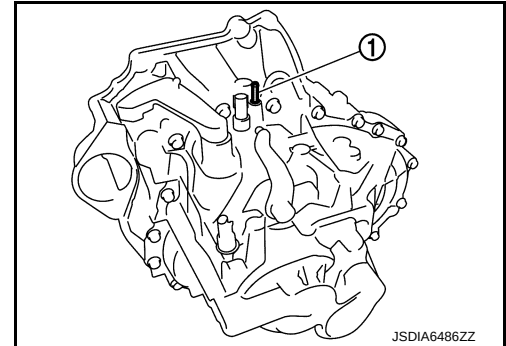
Remove old sealant and oil adhering to threads.



32. Install air breather tube ① to transaxle case.

**CAUTION:**

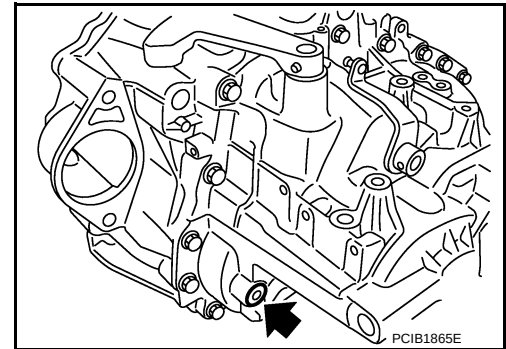
- Never reuse air breather tube.
- Assemble air breather tube until its collar element contacts with transaxle case.



33. Install gasket onto plug and then install them into transaxle case. Tighten plug to the specified torque.

**CAUTION:**

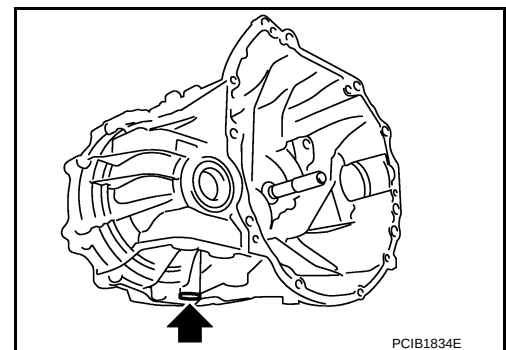
Never reuse gasket.



34. Install gasket onto drain plug and then install them into clutch housing. Tighten drain plug to the specified torque.

**CAUTION:**

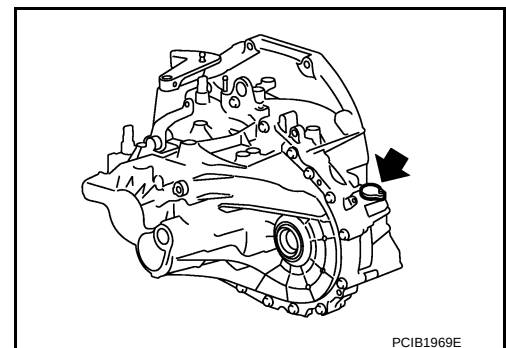
Never reuse gasket.



35. Install O-ring onto plug and then install it into clutch housing. Tighten mounting bolt to the specified torque.

**CAUTION:**

- Never reuse O-ring.
- After oil is filled, tighten mounting bolt to specified torque.



## 2WD : Inspection and Adjustment

INFOID:000000010919405

### INSPECTION AFTER DISASSEMBLY

#### Case and Housing

- Check the bearing mounting surface for wear, cracks, and damages. Replace if necessary.
- Check the mating surface for wear, cracks, and damages. Replace if necessary.
- Check the oil seal mounting surface for wear, cracks, and damages. Replace if necessary.

#### Bearing

Check the bearing for damage and unsmooth rotation. Replace if necessary.

### ADJUSTMENT

#### Differential Side Bearing Preload

- When adjusting differential side bearing preload, select adjusting shim for differential side bearing. To select adjusting shim ①, measure clearance (L) between transaxle case ② and differential side bearing outer race ③. For selecting adjusting shim, refer to the latest parts information.

#### CAUTION:

**Up to 2 adjusting shims can be selected.**

- Calculate dimension (L) (thickness of adjusting shim) using the following procedure to satisfy specification of preload for differential side bearing.

**Preload** : Refer to [TM-226, "Differential Side Bearing Preload"](#).

**Dimension (L) = [(L1) – (L2)] + Preload**

**L** : Thickness of adjusting shim

**L1** : Distance between transaxle case end face and mounting face of adjusting shim

**L2** : Distance between differential side bearing outer race and clutch housing end face

1. Using a depth micrometer and a straightedge, measure dimension (L1) between transaxle case end face and mounting face of adjusting shim.

#### CAUTION:

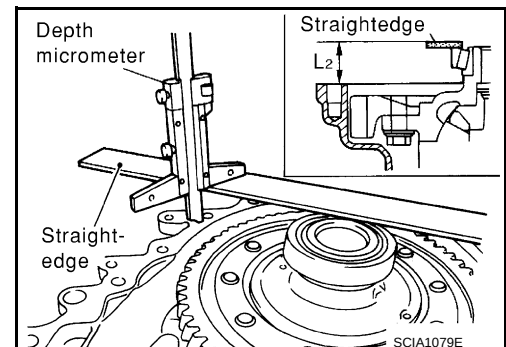
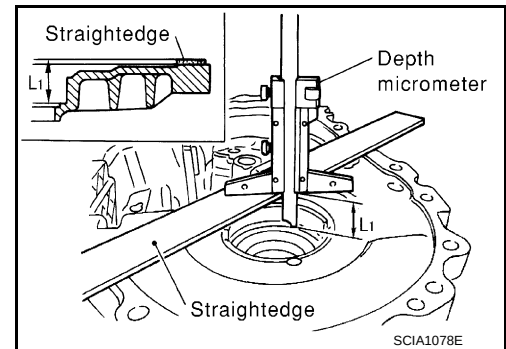
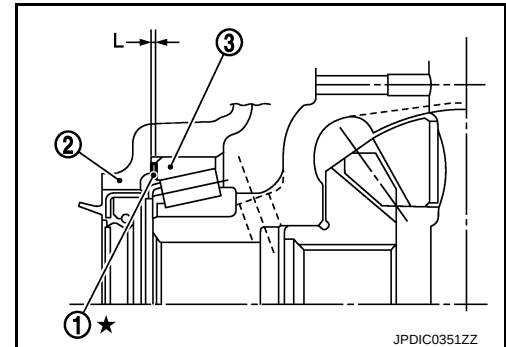
**L1: Measure at 4 point by approximately 90 degrees and use the average value.**

2. Install differential side bearing outer race onto differential side bearing on transaxle case side. Holding lightly differential side bearing outer race horizontally by hand, rotate final gear five times or more (for smooth movement of bearing roller).

3. Using a depth micrometer and a straightedge as shown in the figure, measure dimension (L2) between differential side bearing outer race and clutch housing end face.

#### CAUTION:

**L2: Measure at 4 point by approximately 90 degrees and use the average value.**





# TRANSAXLE ASSEMBLY

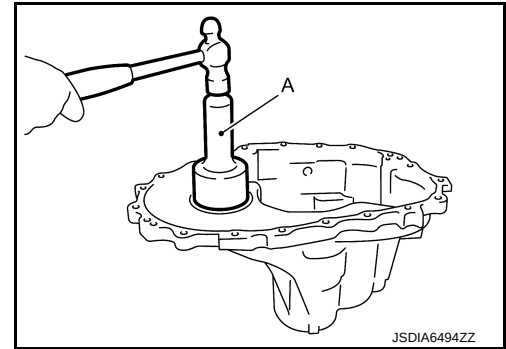
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

- Install selected differential side bearing adjusting shim and then install differential side bearing outer race (transaxle case side) using the drift (A) (SST: ST30720000).

**CAUTION:**

**Replace differential side bearing and differential side bearing outer race as a set.**



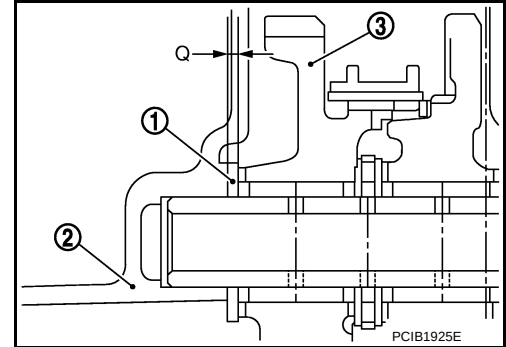
### Reverse Idler Gear End Play

- When adjusting reverse idler gear end play, select adjusting shim for reverse idler gear. To select adjusting shim ①, measure clearance between transaxle case ② and reverse idler gear (rear) ③. For selecting adjusting shim, refer to the latest parts information.

**CAUTION:**

**Only 1 adjusting shim can be selected.**

- Calculate dimension (Q) (thickness of adjusting shim) using the following procedure to satisfy specification of end play for reverse idler gear.



**End play** : Refer to [TM-224, "End Play"](#).

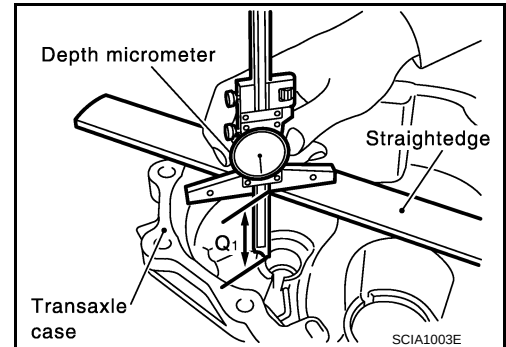
**Dimension (Q) = [(Q1) – (Q2)] – End play**

**Q** : Thickness of adjusting shim

**Q1** : Distance between transaxle case end face and mounting face of adjusting shim

**Q2** : Distance between clutch housing end face and end face of reverse idler gear (rear)

- Using a depth micrometer and a straightedge, measure dimension (Q1) between transaxle case end face and mounting face of adjusting shim.

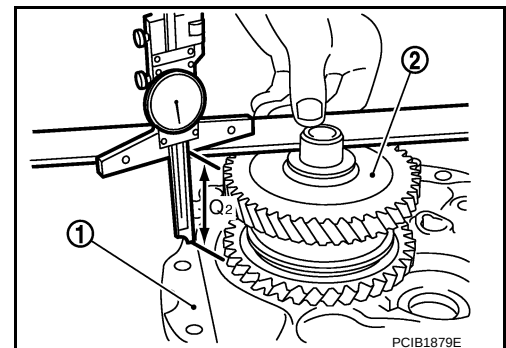


- Using a depth micrometer and a straightedge as shown in the figure, measure dimension (Q2) between clutch housing ① end face and end face of reverse idler gear (rear) ②.

**CAUTION:**

**Q2: Measure at 4 point by approximately 90 degrees and use the average value.**

- Install selected reverse idler gear adjusting shim onto reverse idler gear (rear).



### Input Shaft End Play



# TRANSAXLE ASSEMBLY

## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

- When adjusting input shaft end play, select adjusting shim for input shaft rear bearing. To select adjusting shim, measure clearance between transaxle case and input shaft rear bearing. For selecting adjusting shim, refer to the latest parts information.

**CAUTION:**

**Only 1 adjusting shim can be selected.**

- Calculate dimension (O) (thickness of adjusting shim) using the following procedure to satisfy specification of end play for input shaft rear bearing.

**End play** : Refer to [TM-224, "End Play"](#).

**Dimension (O) = [(O<sub>1</sub>) – (O<sub>2</sub>)] – End play**

**O** : Thickness of adjusting shim

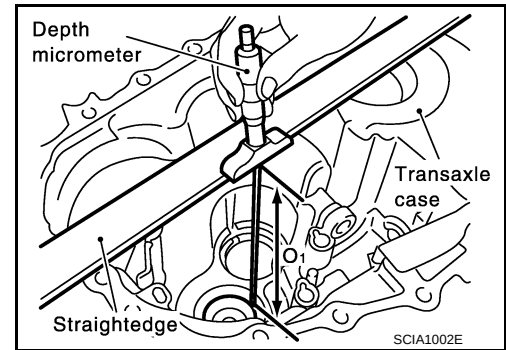
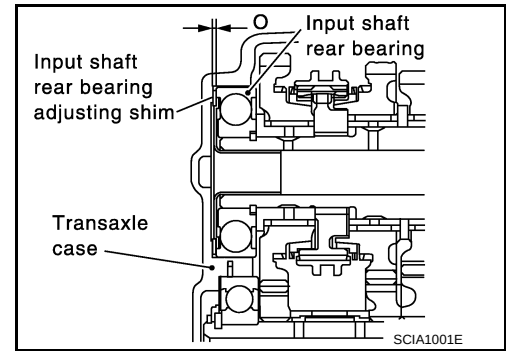
**O<sub>1</sub>** : Distance between transaxle case end face and mounting face of adjusting shim

**O<sub>2</sub>** : Distance between clutch housing end face and end face of input shaft rear bearing

- Using a depth micrometer and a straightedge, measure dimension (O<sub>1</sub>) between transaxle case end face and mounting face of adjusting shim.

**CAUTION:**

**O<sub>1</sub>: Measure at 4 point by approximately 90 degrees and use the average value.**

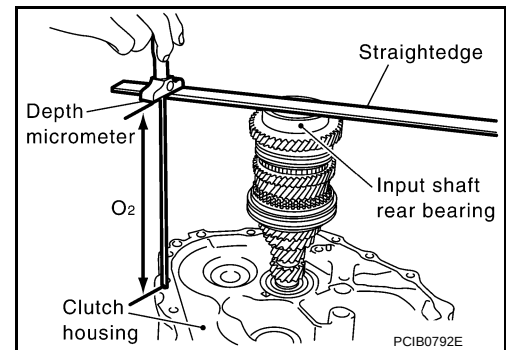


- Using a depth micrometer and a straightedge as shown in the figure, measure dimension (O<sub>2</sub>) between clutch housing end face and end face of input shaft rear bearing.

**CAUTION:**

**O<sub>2</sub>: Measure at 4 point by approximately 90 degrees and use the average value.**

- Install selected input shaft rear bearing adjusting shim onto input shaft.



### Striking Rod End Play

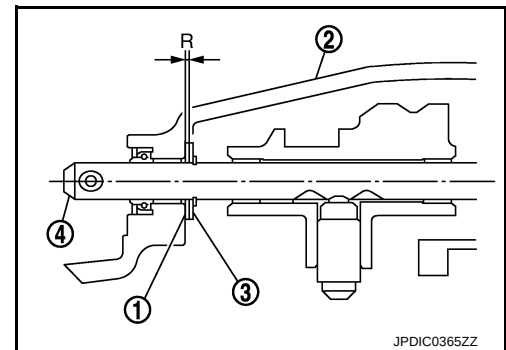
- When adjusting striking rod end play, select adjusting shim for striking rod. To select adjusting shim ①, measure clearance between transaxle case ② and striking rod shim ③. For selecting adjusting shim, refer to the latest parts information.

④ : Striking rod

**CAUTION:**

**Only 1 adjusting shim can be selected.**

- Calculate dimension (R) (thickness of adjusting shim) using the following procedure to satisfy specification of end play for striking rod.



**End play** : Refer to [TM-224, "End Play"](#).

**Dimension (R) = [(R<sub>1</sub>) – (R<sub>2</sub>)] – End play**

# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

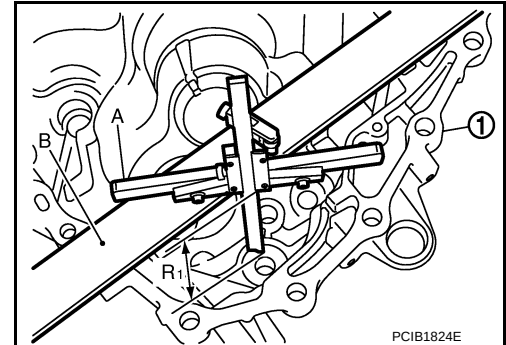
[6MT: RS6F52A]

- R** : Thickness of adjusting shim  
**R1** : Distance between transaxle case end face and mounting face of adjusting shim  
**R2** : Distance between clutch housing end face and end face of striking rod shim

- Using a depth micrometer (A) and a straightedge (B), measure dimension (R1) between transaxle case ① end face and mounting face of adjusting shim.

**CAUTION:**

**R1: Measure at 4 point by approximately 90 degrees and use the average value.**

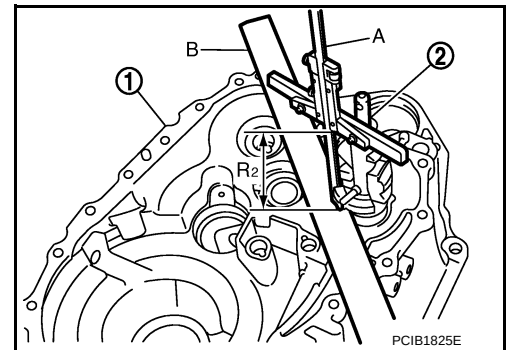


- Using a depth micrometer (A) and a straightedge (B) as shown in the figure, measure dimension (R2) between clutch housing ① end face and end face of striking rod shim ②.

**CAUTION:**

- R2: Measure at 4 point by approximately 90 degrees and use the average value.**
- When measuring, be careful for the inclination of striking rod assembly and striking rod shim.**

- Install selected striking rod adjusting shim onto striking rod assembly.



## Mainshaft End Play

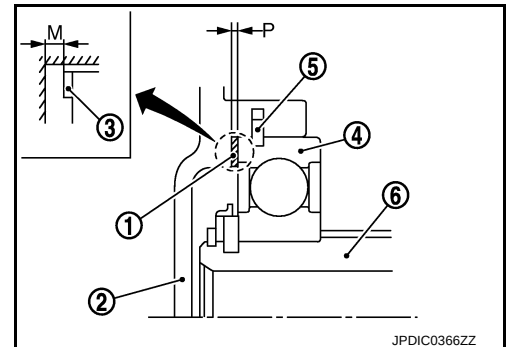
- When adjusting mainshaft end play, select adjusting shim for mainshaft rear bearing. To select adjusting shim ①, measure clearance (M) between transaxle case ② and dummy adjusting shim ③ on mainshaft rear bearing ④. For selecting adjusting shim, refer to the latest parts information.

- ⑤ : Snap ring  
 ⑥ : Mainshaft

**CAUTION:**

**Only 1 adjusting shim can be selected.**

- Calculate dimension (P) (thickness of adjusting shim) using the following procedure to satisfy specification of end play for mainshaft rear bearing.



**End play** : Refer to [TM-224, "End Play"](#).

**Dimension (P) = [(M) + (N)] – End play**

**P** : Thickness of adjusting shim

**M** : Distance between dummy adjusting shim on mainshaft rear bearing end face and transaxle case end face

**N\*** : Thickness of dummy adjusting shim

\*: Refer to the latest parts information to use a dummy adjusting shim of which part number is the thinnest in thickness.

- Install transaxle case, as per the following procedure.

# TRANSAXLE ASSEMBLY

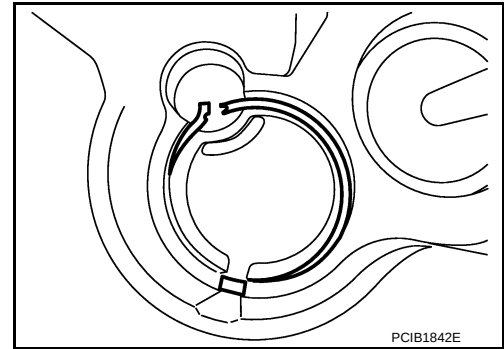
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

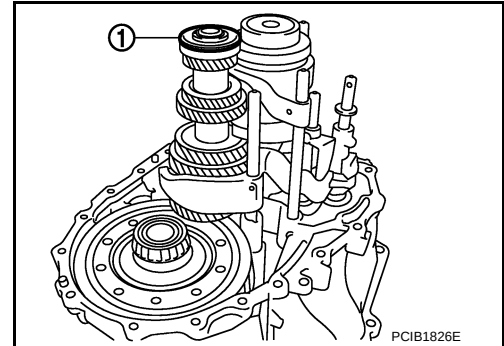
- a. Temporarily install snap ring of mainshaft rear bearing into transaxle case.

**CAUTION:**

**Never reuse snap ring.**



- b. Install dummy adjusting shim ① to mainshaft assembly.



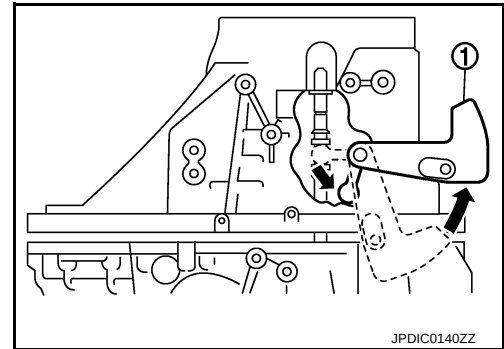
- c. With shift lever (outer) ① held in the position shown in the figure, temporarily assemble transaxle case to clutch housing.

**CAUTION:**

**Never damage striking rod oil seal.**

**NOTE:**

Make sure to hold shift lever (outer) in the position shown in the figure. Otherwise transaxle case cannot be installed to clutch housing.

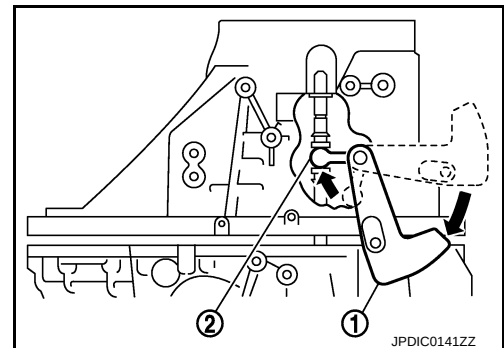


- d. While rotating shift lever (outer) ① in the direction of the arrow shown in the figure, assemble transaxle case to clutch housing.

② : Shift lever (inner)

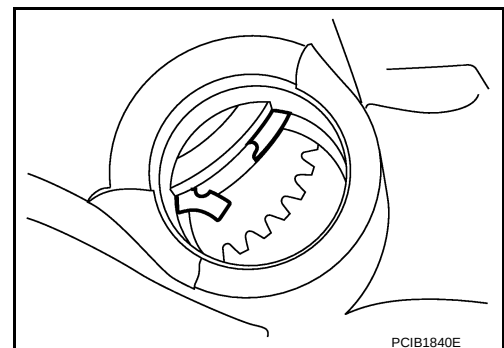
**NOTE:**

The shift lever (inner) can be inserted into the groove of striking rod.



- e. Accessing from the bore plug hole, expand snap ring at mainshaft rear bearing so that the ring catches the periphery of mainshaft rear bearing.

- f. Temporarily tighten transaxle case mounting bolts.



# TRANSAXLE ASSEMBLY

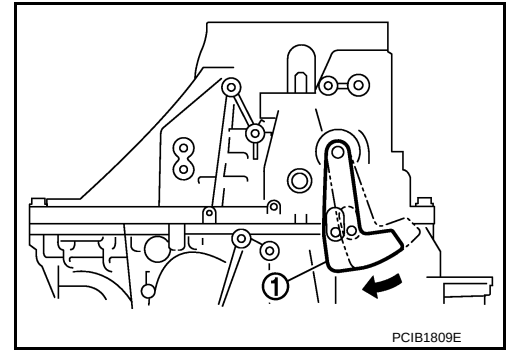
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

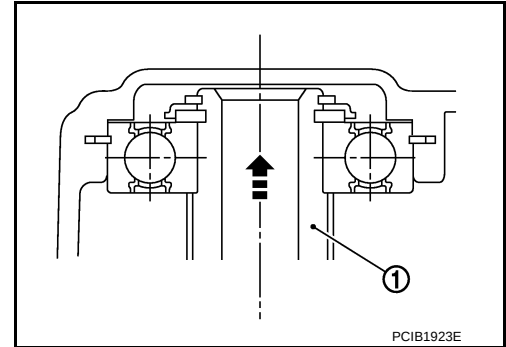
2. Shift the shift lever (outer) ① to 2nd gear position.

**NOTE:**

- The 2nd gear position is attained when shift lever (outer) is in the position shown in the figure.



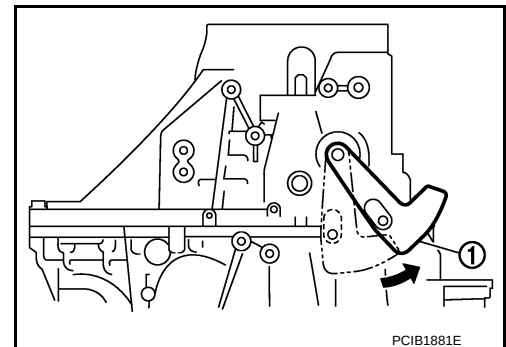
- When transaxle is shifted to the 2nd gear position, mainshaft assembly ① is lifted.



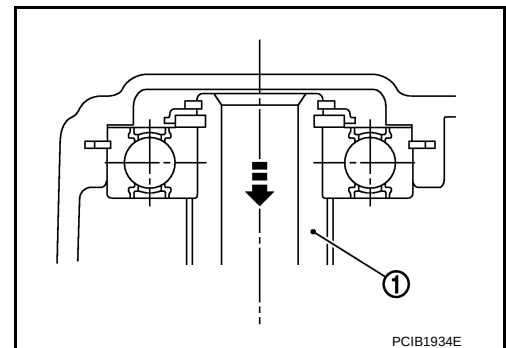
3. Seat snap ring in the groove on mainshaft rear bearing. If snap ring is not seated in the groove on mainshaft rear bearing, remove transaxle case and repeat the procedure 1 from step c.
4. Shift the shift lever (outer) to 1st gear position, and then shift it to 2nd gear position. Repeat 3 times.

**NOTE:**

- The mainshaft rear bearing position will be stabilized by shifting between 1st gear position and 2nd gear position alternately.
- The 1st gear position is attained when shift lever (outer) ① is in the position shown in the figure.



- When transaxle is shifted to the 1st gear position, mainshaft assembly ① is declined.



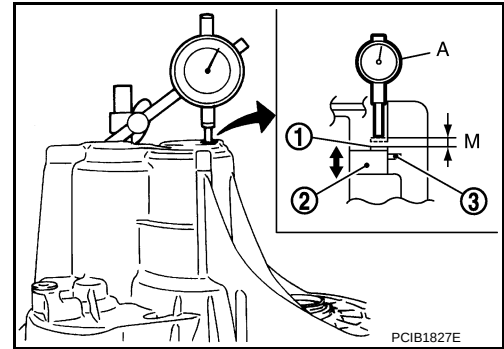
# TRANSAXLE ASSEMBLY

## < UNIT DISASSEMBLY AND ASSEMBLY >

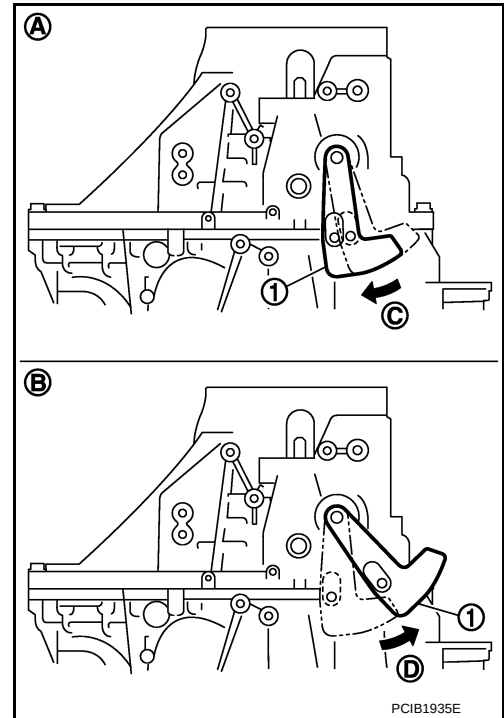
[6MT: RS6F52A]

5. Set the dial indicator (A) to dummy adjusting shim ① through the bore plug mounting hole.

- ② : Mainshaft rear bearing  
 ③ : Snap ring  
 M : Distance between dummy adjusting shim on mainshaft rear bearing end face and transaxle case end face



6. Shift the shift lever (outer) ① to 2nd gear position ①, and then rotate it in the direction of the arrow ③ in the figure until it stops. Using this position as the reference point, measure the amount of movement when shifting shift lever (outer) to 1st gear position ② and rotating it in the direction of the arrow ④ in the figure until it stops. This measurement is the (M) dimension.
7. When measurement (M) is 0 – 0.06 mm (0 – 0.0024 in), adjustment terminates, and the dummy adjusting shim becomes regular adjusting shim. Select adjusting shim from the computed expressions when measurement (M) is over 0.06 mm (0.0024 in).



4WD

4WD : Exploded View

CASE AND HOUSING

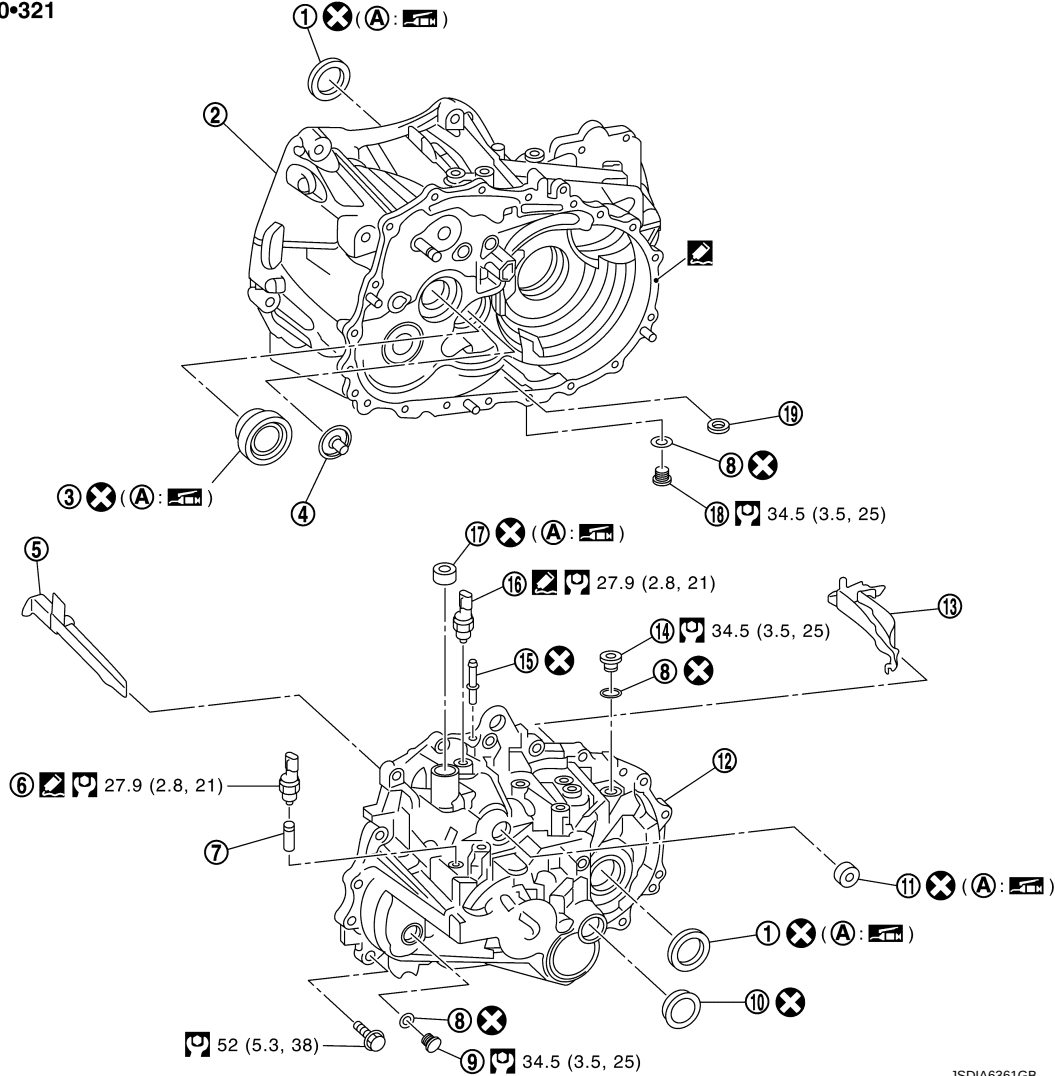
INFOID:0000000010919406

# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

SEC. 320•321



JSD/A6361GB

- |                              |                         |                        |
|------------------------------|-------------------------|------------------------|
| ① Differential side oil seal | ② Clutch housing        | ③ Input shaft oil seal |
| ④ Oil channel                | ⑤ Oil gutter A          | ⑥ Back-up lamp switch  |
| ⑦ Plunger                    | ⑧ Gasket                | ⑨ Plug                 |
| ⑩ Bore plug                  | ⑪ Striking rod oil seal | ⑫ Transaxle case       |
| ⑬ Oil gutter B               | ⑭ Filler plug           | ⑮ Air breather tube    |
| ⑯ Neutral position switch    | ⑰ Shift lever oil seal  | ⑱ Drain plug           |
| ⑲ Magnet                     |                         |                        |
| (A) Oil seal lip             |                         |                        |

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

: Apply multi-purpose grease.

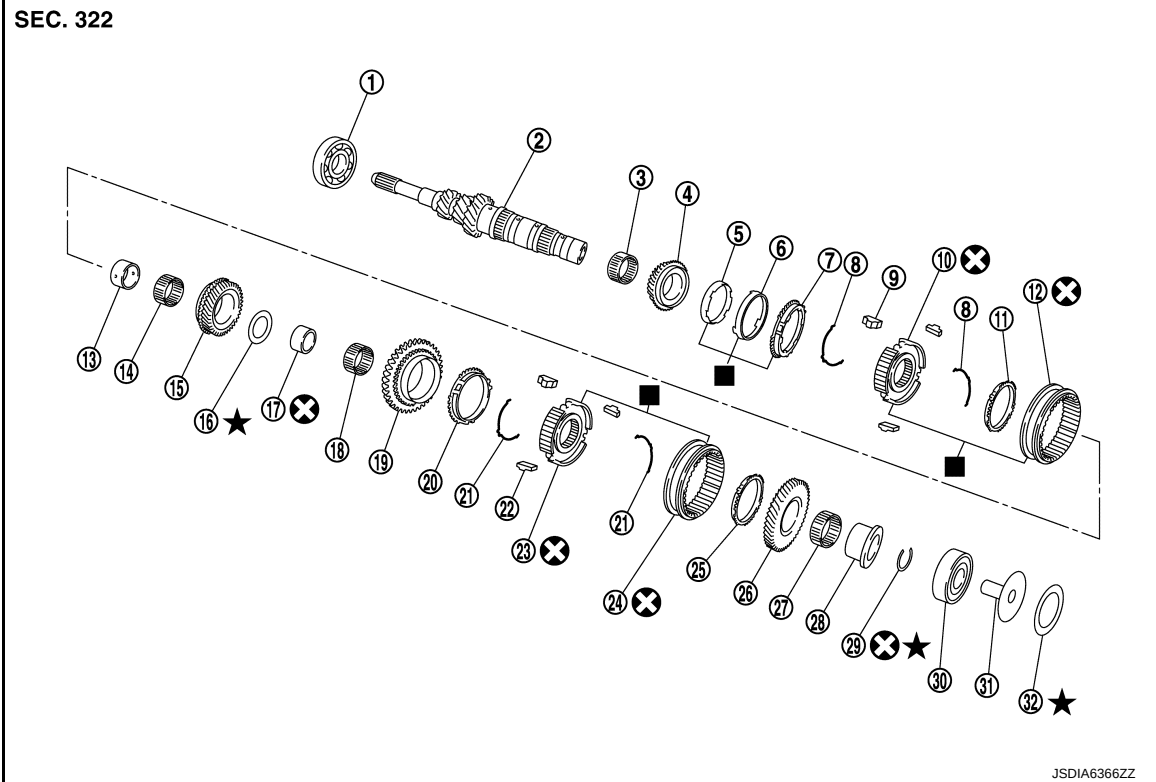
: Apply Genuine Liquid Gasket, Three Bond 1215 or an equivalent.

SHAFT AND GEAR

# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]



- |                             |                                           |                            |
|-----------------------------|-------------------------------------------|----------------------------|
| ① Input shaft front bearing | ② Input shaft                             | ③ 3rd needle bearing       |
| ④ 3rd input gear            | ⑤ 3rd inner baulk ring                    | ⑥ 3rd synchronizer cone    |
| ⑦ 3rd outer baulk ring      | ⑧ 3rd-4th spread spring                   | ⑨ 3rd-4th shifting insert  |
| ⑩ 3rd-4th synchronizer hub  | ⑪ 4th baulk ring                          | ⑫ 3rd-4th coupling sleeve  |
| ⑬ 4th input gear bushing    | ⑭ 4th needle bearing                      | ⑮ 4th input gear           |
| ⑯ Thrust washer             | ⑰ 5th input gear bushing                  | ⑱ 5th needle bearing       |
| ⑲ 5th input gear            | ⑳ 5th baulk ring                          | ㉑ 5th-6th spread spring    |
| ㉒ 5th-6th shifting insert   | ㉓ 5th-6th synchronizer hub                | ㉔ 5th-6th coupling sleeve  |
| ㉕ 6th baulk ring            | ㉖ 6th input gear                          | ㉗ 6th needle bearing       |
| ㉘ 6th input gear bushing    | ㉙ Snap ring                               | ㉚ Input shaft rear bearing |
| ㉛ Oil channel               | ㉜ Input shaft rear bearing adjusting shim |                            |

⊗: Always replace after every disassembly.

★: Select with proper thickness.

■: Replace the parts as a set.

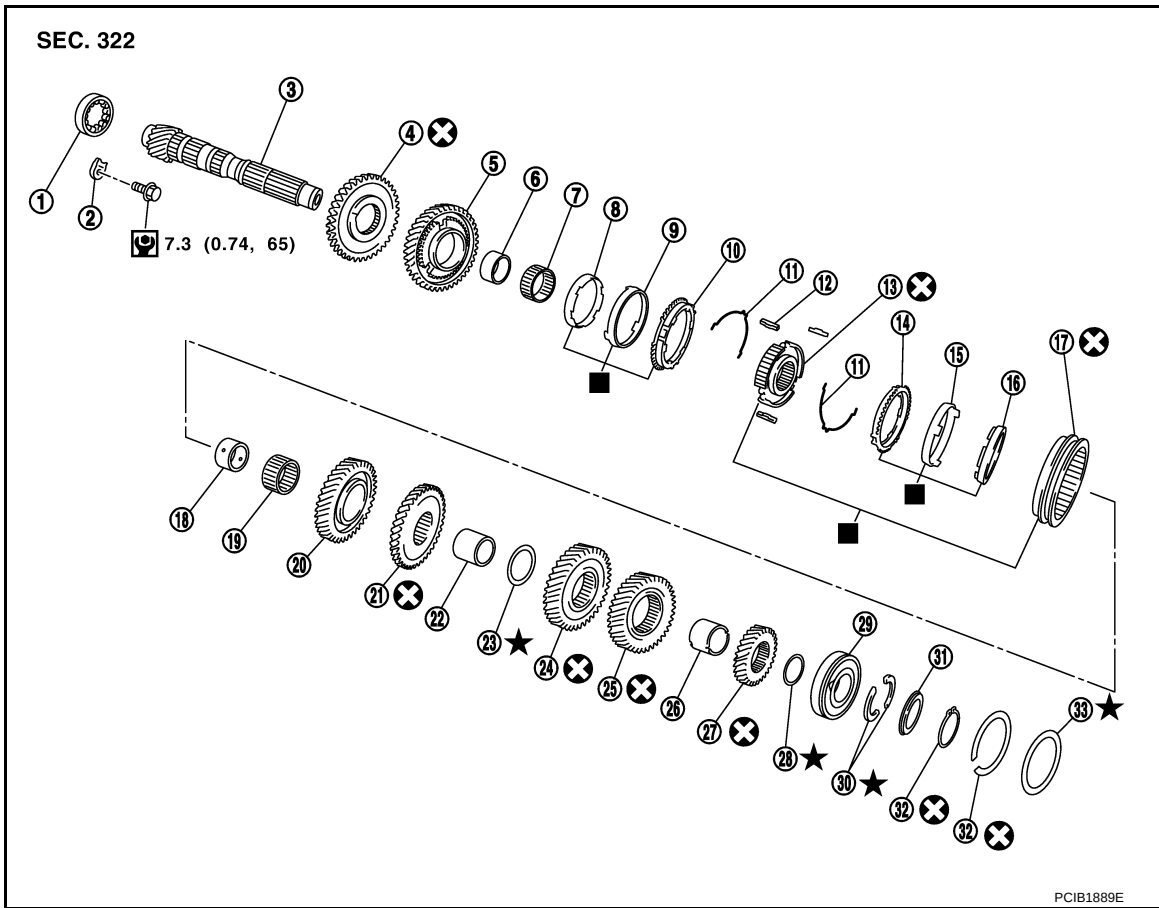
## CAUTION:

Apply gear oil to gears, shafts, synchronizers, and bearings when assembly.

# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]



- |                                |                                |                                         |
|--------------------------------|--------------------------------|-----------------------------------------|
| ① Mainshaft front bearing      | ② Mainshaft bearing retainer   | ③ Mainshaft                             |
| ④ Reverse main gear            | ⑤ 1st main gear                | ⑥ 1st main gear bushing                 |
| ⑦ 1st needle bearing           | ⑧ 1st inner baulk ring         | ⑨ 1st synchronizer cone                 |
| ⑩ 1st outer baulk ring         | ⑪ 1st-2nd spread spring        | ⑫ 1st-2nd shifting insert               |
| ⑬ 1st-2nd synchronizer hub     | ⑭ 2nd outer baulk ring         | ⑮ 2nd synchronizer cone                 |
| ⑯ 2nd inner baulk ring         | ⑰ 1st-2nd coupling sleeve      | ⑱ 2nd main gear bushing                 |
| ⑲ 2nd needle bearing           | ⑳ 2nd main gear                | ㉑ 3rd main gear                         |
| ㉒ 3rd-4th mainshaft spacer     | ㉓ 4th main gear adjusting shim | ㉔ 4th main gear                         |
| ㉕ 5th main gear                | ㉖ 5th-6th mainshaft spacer     | ㉗ 6th main gear                         |
| ㉘ 6th main gear adjusting shim | ㉙ Mainshaft rear bearing       | ㉚ Mainshaft C-ring                      |
| ㉛ C-ring holder                | ㉜ Snap ring                    | ㉝ Mainshaft rear bearing adjusting shim |

Ⓜ: N·m (kg·m, in·lb)

⊗: Always replace after every disassembly.

★: Select with proper thickness.

■: Replace the parts as a set.

## CAUTION:

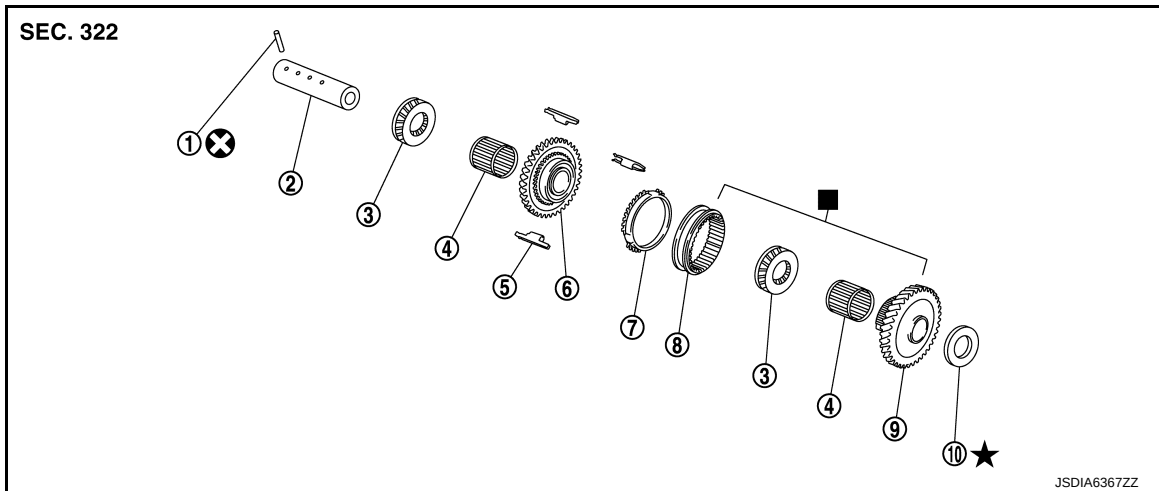
Apply gear oil to gears, shafts, synchronizers, and bearings when assembly.



# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]



- |                                     |                           |                              |
|-------------------------------------|---------------------------|------------------------------|
| ① Retaining pin                     | ② Reverse idler shaft     | ③ Thrust needle bearing      |
| ④ Reverse idler gear needle bearing | ⑤ Reverse insert spring   | ⑥ Reverse idler gear (front) |
| ⑦ Reverse baulk ring                | ⑧ Reverse coupling sleeve | ⑨ Reverse idler gear (rear)  |
| ⑩ Reverse idler gear adjusting shim |                           |                              |

⊗: Always replace after every disassembly.

★: Select with proper thickness.

■: Replace the parts as a set.

## CAUTION:

Apply gear oil to gears, shafts, synchronizers, and bearings when assembly.

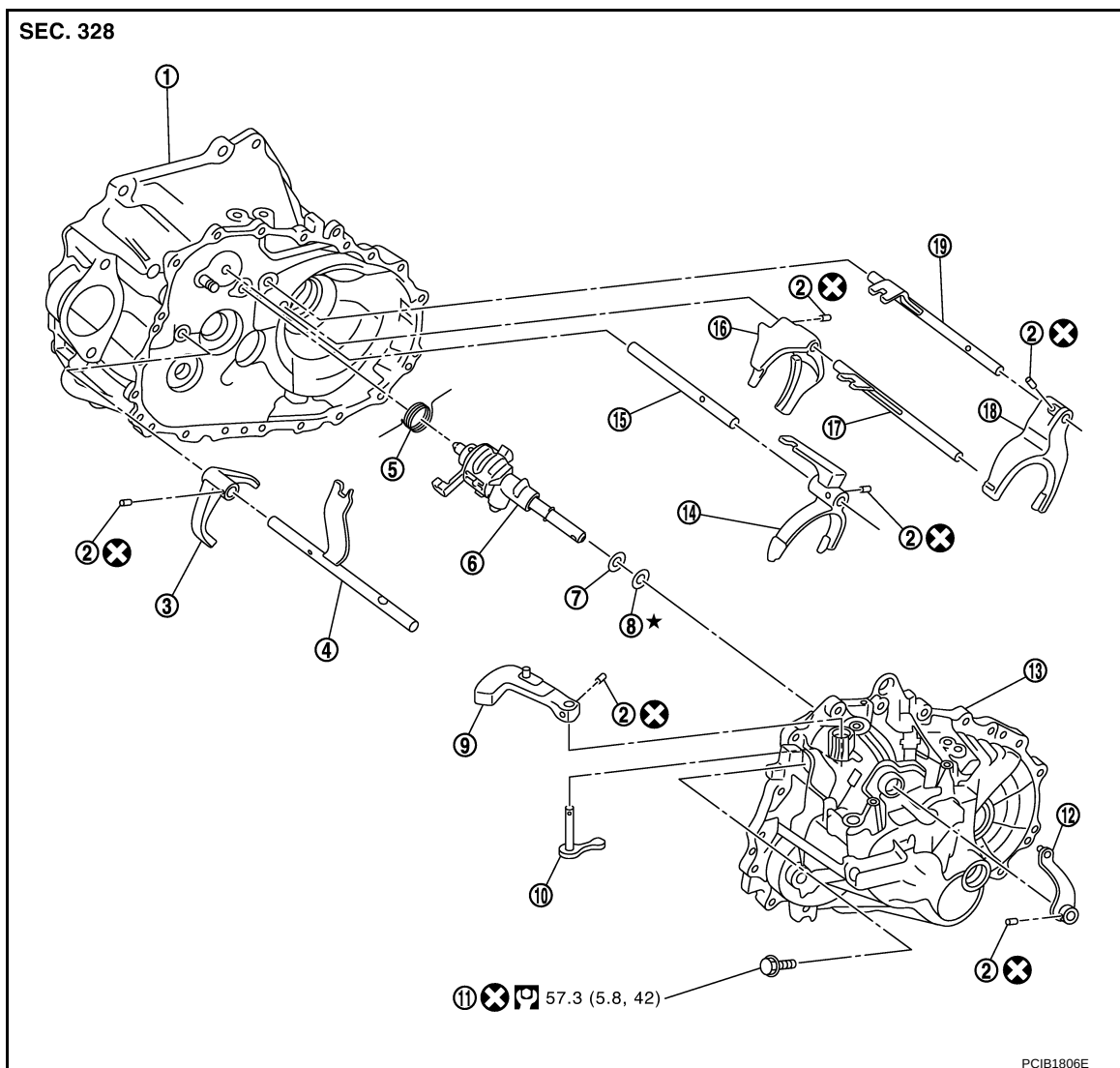
## SHIFT FORK AND FORK ROD

# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

SEC. 328



- |                       |                               |                         |
|-----------------------|-------------------------------|-------------------------|
| ① Clutch housing      | ② Retaining pin               | ③ Reverse shift fork    |
| ④ Reverse fork rod    | ⑤ Return spring               | ⑥ Striking rod assembly |
| ⑦ Striking rod shim   | ⑧ Striking rod adjusting shim | ⑨ Shift lever (outer)   |
| ⑩ Shift lever (inner) | ⑪ Guide bolt                  | ⑫ Select lever          |
| ⑬ Transaxle case      | ⑭ 3rd-4th shift fork          | ⑮ 3rd-4th fork rod      |
| ⑯ 1st-2nd shift fork  | ⑰ 1st-2nd fork rod            | ⑱ 5th-6th shift fork    |
| ⑲ 5th-6th fork rod    |                               |                         |

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

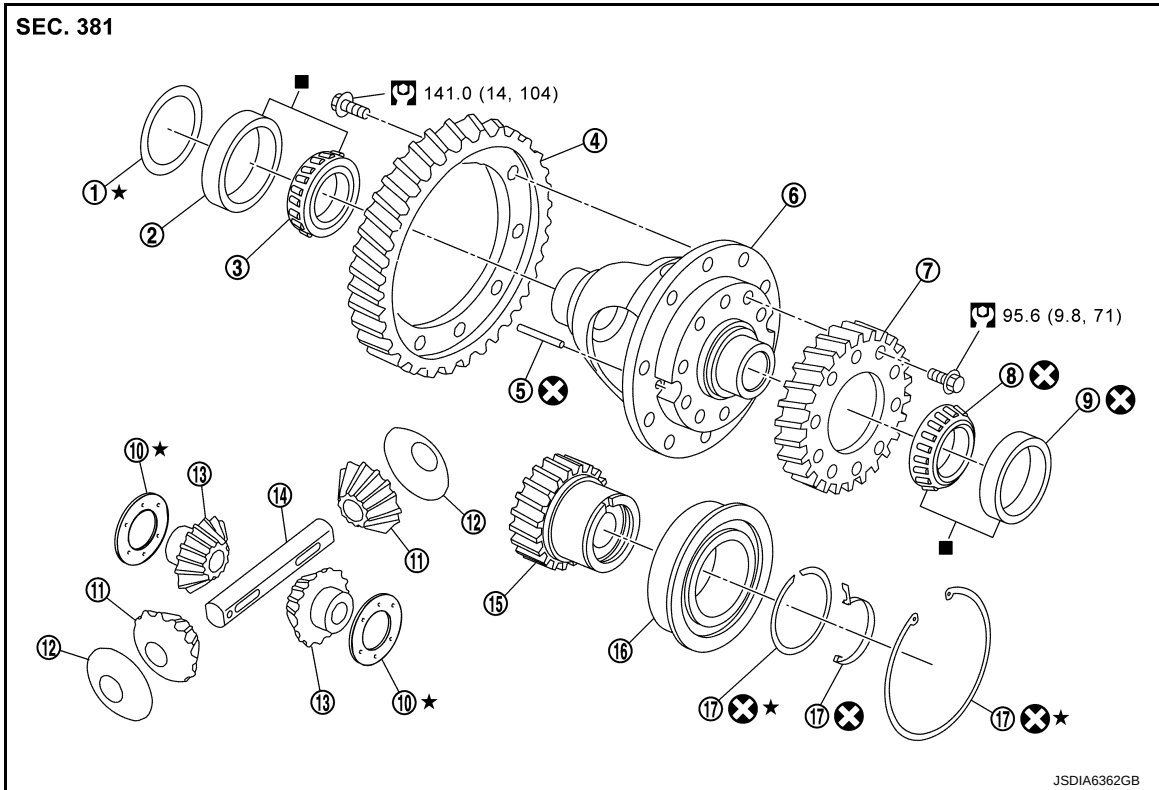
★: Select with proper thickness.

FINAL DRIVE

# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]



- |                                            |                                                              |                                                              |
|--------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|
| ① Differential side bearing adjusting shim | ② Differential side bearing outer race (transaxle case side) | ③ Differential side bearing (transaxle case side)            |
| ④ Final gear                               | ⑤ Retaining pin                                              | ⑥ Differential case                                          |
| ⑦ Reduction gear                           | ⑧ Differential side bearing (clutch housing side)            | ⑨ Differential side bearing outer race (clutch housing side) |
| ⑩ Side gear thrust washer                  | ⑪ Pinion mate gear                                           | ⑫ Pinion mate thrust washer                                  |
| ⑬ Side gear                                | ⑭ Pinion mate shaft                                          | ⑮ Output gear                                                |
| ⑯ Output gear bearing                      | ⑰ Snap ring                                                  |                                                              |

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

★: Select with proper thickness.

: Replace the parts as a set.

## CAUTION:

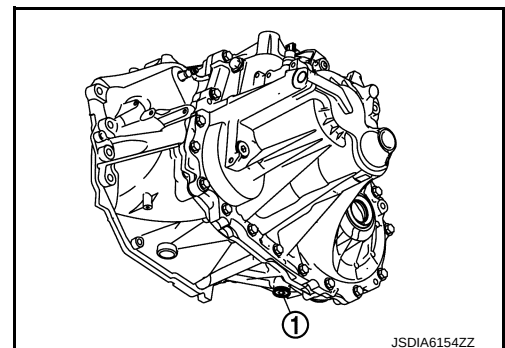
Apply gear oil to gears, shafts, and bearings when assembly.

## 4WD : Disassembly and Assembly

INFOID:0000000010919407

### DISASSEMBLY

1. Remove drain plug ① with gasket from clutch housing and then drain gear oil.

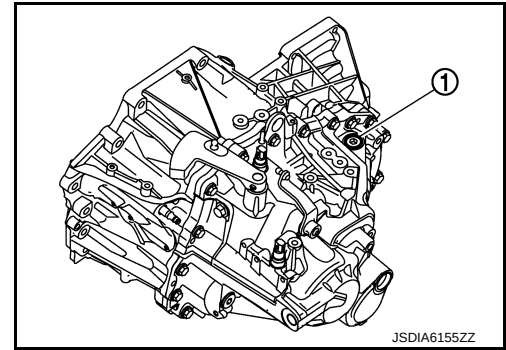


# TRANSAXLE ASSEMBLY

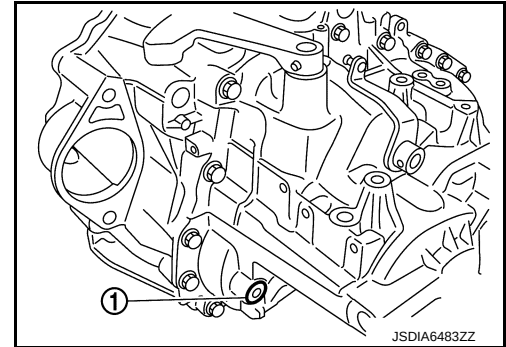
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

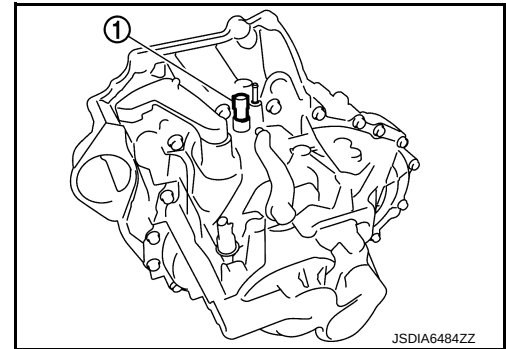
2. Remove filler plug ① with gasket from transaxle case.



3. Remove plug ① with gasket from transaxle case.

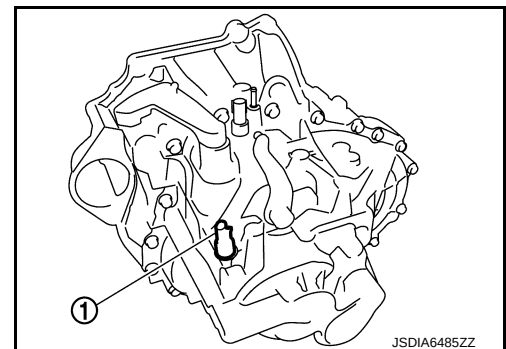


4. Remove neutral position switch ① from transaxle case.

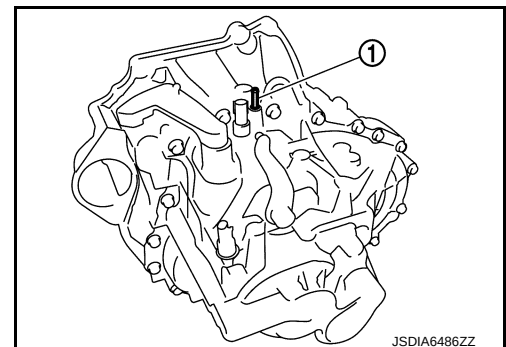


5. Remove back-up lamp switch ② and plunger from transaxle case.

**CAUTION:**  
Never lose plunger.



6. Remove air breather tube ③ from transaxle case.

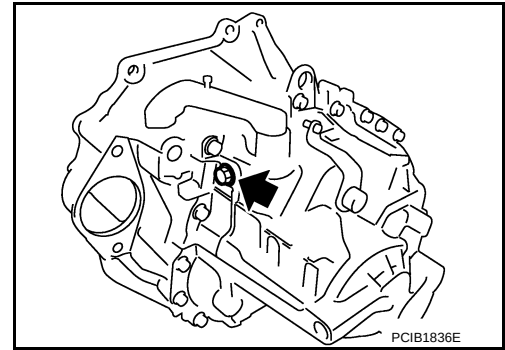


# TRANSAXLE ASSEMBLY

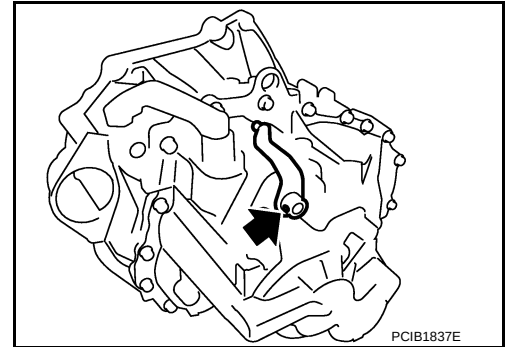
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

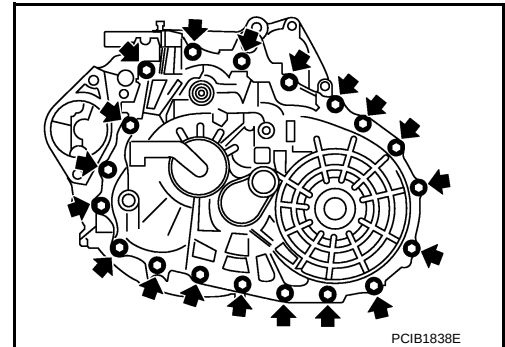
7. Remove guide bolt from transaxle case.



8. Remove retaining pin using a pin punch (commercial service tool) and then remove select lever from transaxle case.



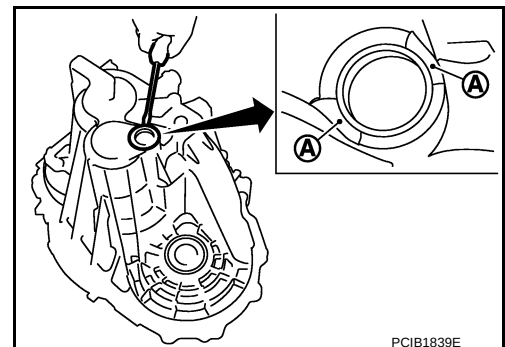
9. Remove transaxle case mounting bolts.



10. Remove bore plug from transaxle case.

**CAUTION:**

- Never damage transaxle case.
- Access bore plug from cutout (A) of transaxle case when removing.



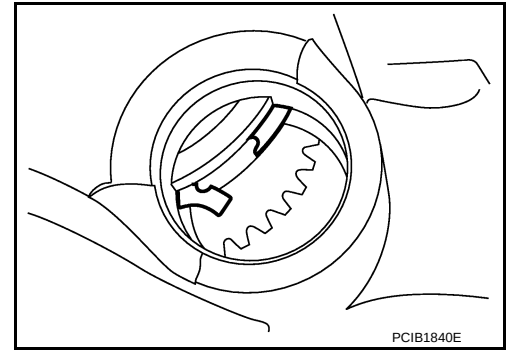
11. Remove transaxle case, as per the following procedure.

# TRANSAXLE ASSEMBLY

## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

- a. Expand snap ring at mainshaft rear bearing accessing from the bore plug hole. Then pull up transaxle case from clutch housing until snap ring comes off.



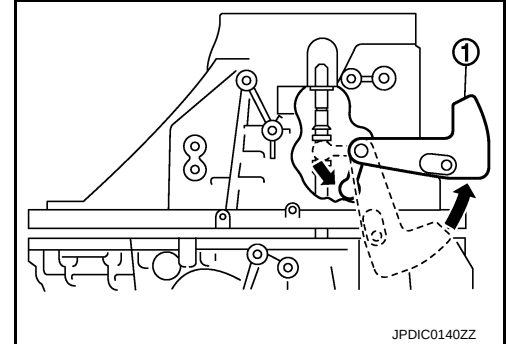
- b. While rotating shift lever (outer) ① in the direction of the arrow in the figure, remove transaxle case from clutch housing.

**CAUTION:**

**Never drop each adjusting shim.**

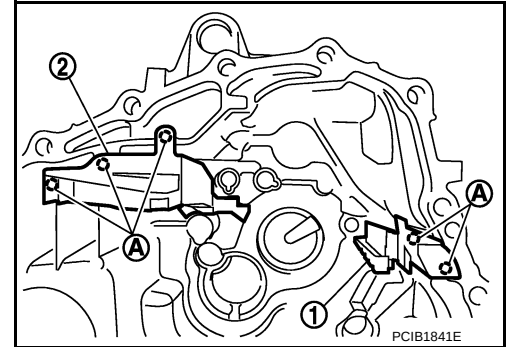
**NOTE:**

Make sure to hold shift lever (outer) in the position shown in the figure. Otherwise transaxle case cannot be removed from clutch housing.

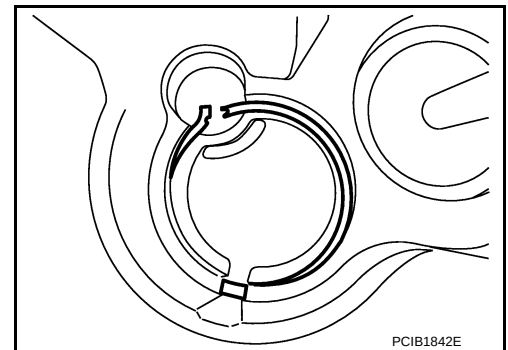


12. Remove oil gutter A ① and oil gutter B ② from transaxle case.

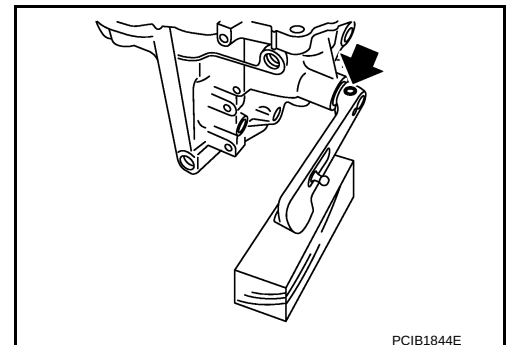
Ⓐ : Tab of oil gutter



13. Remove snap ring from transaxle case.



14. Remove retaining pin using a pin punch (commercial service tool) and then remove shift lever (outer) and shift lever (inner) from transaxle case.



# TRANSAXLE ASSEMBLY

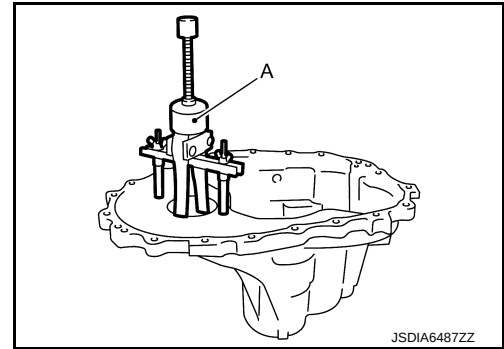
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

15. Remove differential side bearing outer race (transaxle case side) from transaxle case using the puller (A) (SST: KV381054S0) and then remove differential side bearing adjusting shim from transaxle case.

**CAUTION:**

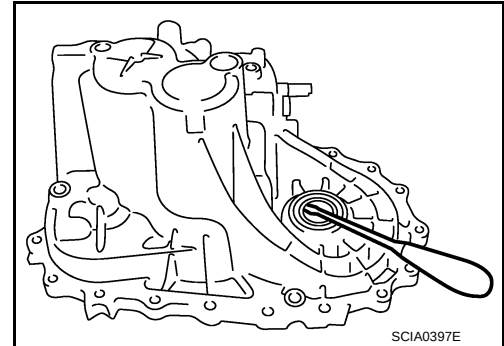
**Never damage transaxle case and differential side bearing outer race.**



16. Remove differential side oil seal from transaxle case, using oil seal remover (commercial service tool).

**CAUTION:**

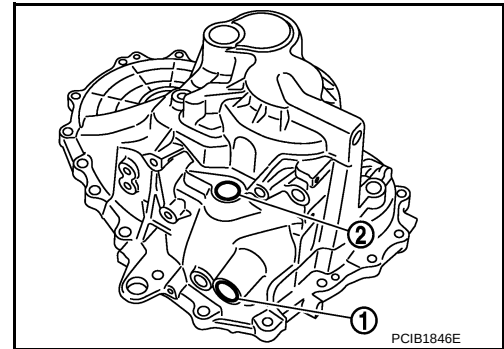
**Never damage transaxle case.**



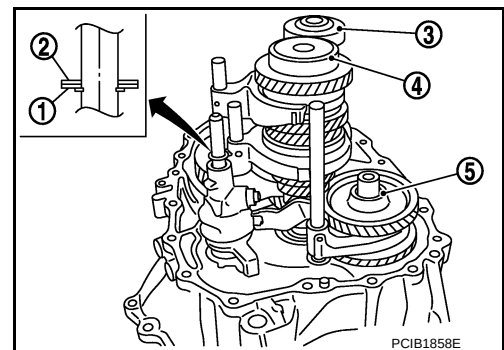
17. Remove shift lever oil seal ① and striking rod oil seal ② from transaxle case, using oil seal remover (commercial service tool).

**CAUTION:**

**Never damage transaxle case.**

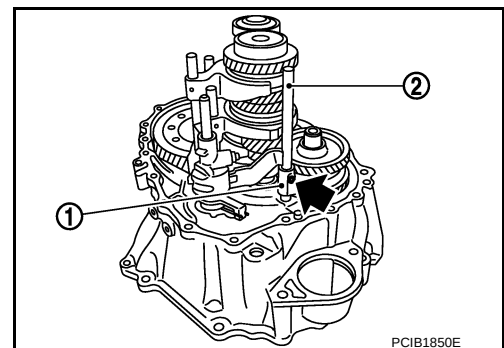


18. Remove striking rod shim ①, striking rod adjusting shim ②, mainshaft rear bearing adjusting shim ③, input shaft rear bearing adjusting shim ④, and reverse idler gear adjusting shim ⑤.



19. Remove retaining pin of reverse shift fork ① using a pin punch (commercial service tool).

② : Reverse fork rod

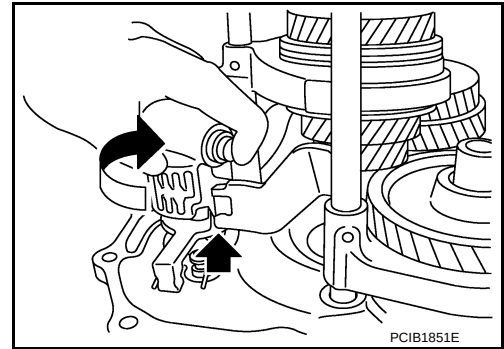


## TRANSAXLE ASSEMBLY

### < UNIT DISASSEMBLY AND ASSEMBLY >

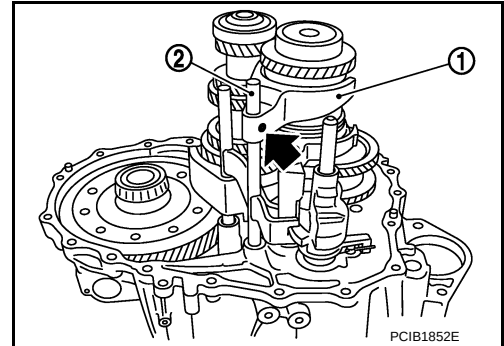
[6MT: RS6F52A]

20. Rotate striking lever of striking rod as shown in the figure. Then rotate reverse fork rod to a position where bracket of reverse fork rod does not interfere with striking lever of striking rod.
21. Pull out reverse shift fork and reverse fork rod.



22. Remove retaining pin of 5th-6th shift fork ① using a pin punch (commercial service tool).

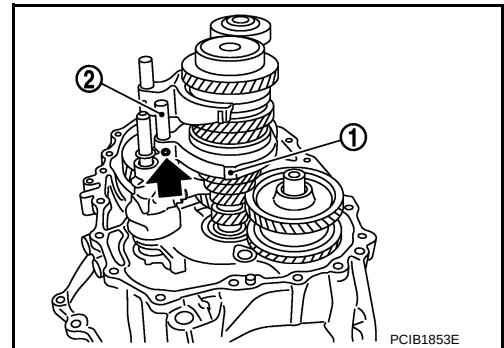
② : 5th-6th fork rod



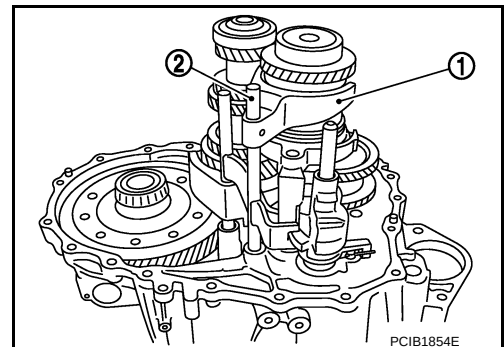
23. Remove retaining pin of 3rd-4th shift fork ① using a pin punch (commercial service tool).

② : 3rd-4th fork rod

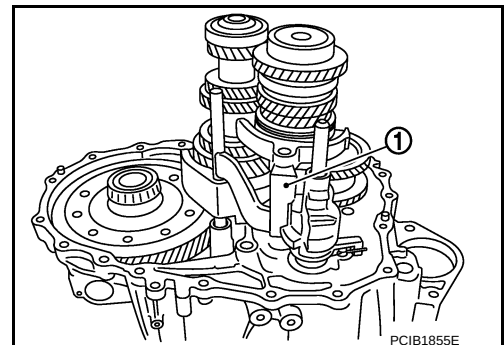
24. Pull out 3rd-4th fork rod.



25. Pull out 5th-6th shift fork ① and 5th-6th fork rod ②.



26. Pull out 3rd-4th shift fork ①.





# TRANSAXLE ASSEMBLY

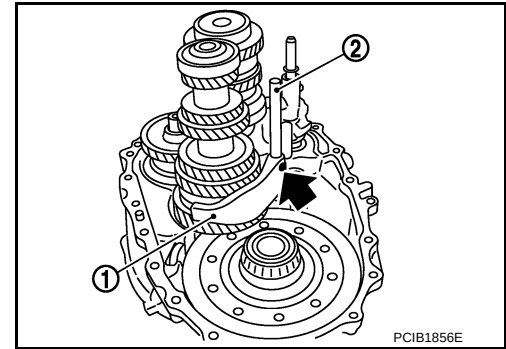
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

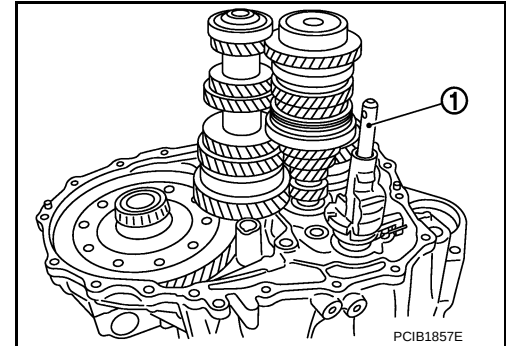
27. Remove retaining pin of 1st-2nd shift fork ① using a pin punch (commercial service tool).

② : 1st-2nd fork rod

28. Pull out 1st-2nd shift fork and 1st-2nd fork rod.



29. Remove striking rod assembly ①.



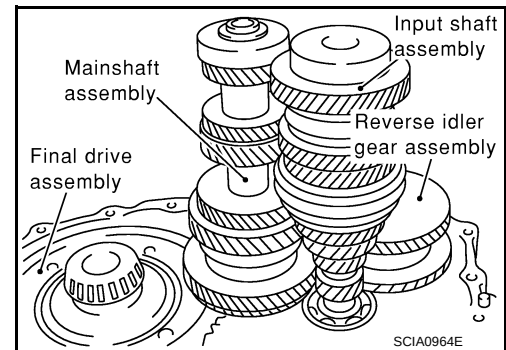
30. Remove gear components from clutch housing, as per the following procedure.

- a. Remove a set of input shaft assembly, mainshaft assembly, and reverse idler gear assembly by tapping the tip of input shaft from the back of the clutch housing with a plastic hammer.

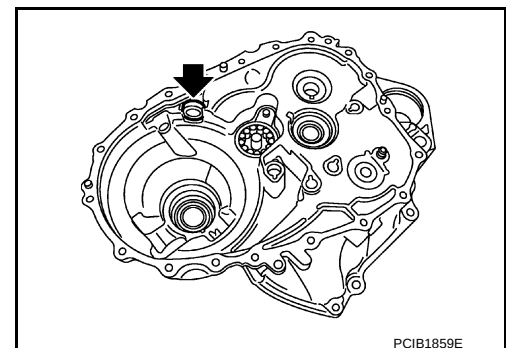
**CAUTION:**

**Always withdraw mainshaft straight out. Failure to do so can damage resin oil channel on clutch housing side.**

- b. Remove final drive assembly.



31. Remove magnet from clutch housing.

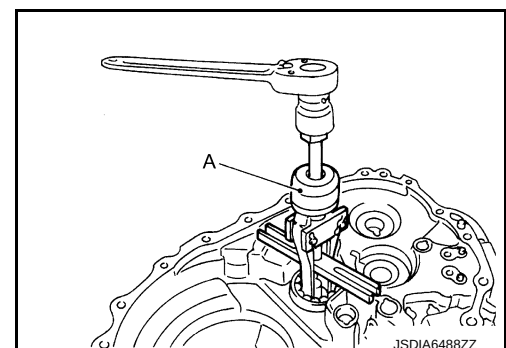


32. Remove mainshaft bearing retainer and then mainshaft front bearing from clutch housing using the puller (A) (SST: KV381054S0).

**CAUTION:**

**Never damage clutch housing, mainshaft front bearing, and oil channel.**

33. Remove oil channel from clutch housing.



## TRANSAXLE ASSEMBLY

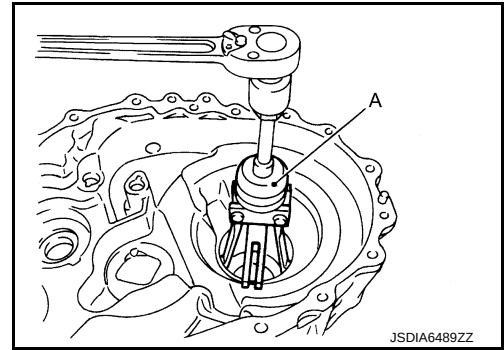
### < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

34. Remove differential side bearing outer race (clutch housing side) from clutch housing using the puller (A) (SST: KV381054S0).

**CAUTION:**

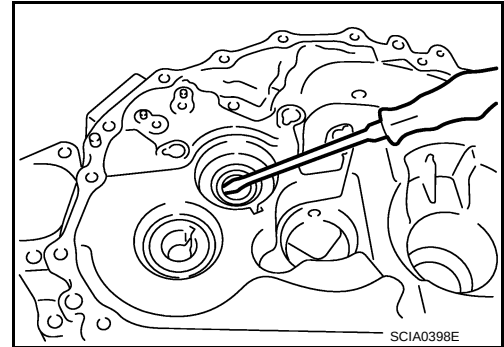
**Never damage clutch housing.**



35. Remove input shaft oil seal from clutch housing, using oil seal remover (commercial service tool).

**CAUTION:**

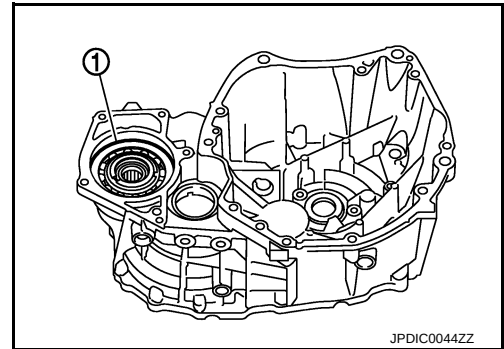
**Never damage clutch housing.**



36. Remove snap ring ① from clutch housing.

**CAUTION:**

**Never damage clutch housing.**



37. With output gear assembly ① held by hand, turn clutch housing upside down as shown in the figure.

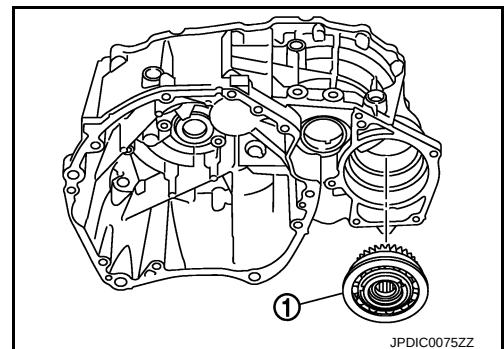
**CAUTION:**

- When turning clutch housing upside down, hold output gear assembly by hand so that it will not become detached.
- Never damage clutch housing.

**NOTE:**

Output gear assembly spontaneously falls when changing the clutch housing direction as shown in the figure.

38. With output gear assembly held by hand, slowly remove output gear assembly from clutch housing. If output gear assembly can not be removed, tap it with a plastic hammer from the transaxle case contact surface side of clutch housing for removal.



# TRANSAXLE ASSEMBLY

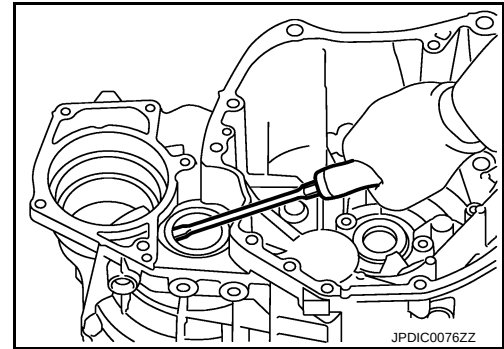
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

39. Remove differential side oil seal from clutch housing, using oil seal remover (commercial service tool).

**CAUTION:**

**Never damage clutch housing.**



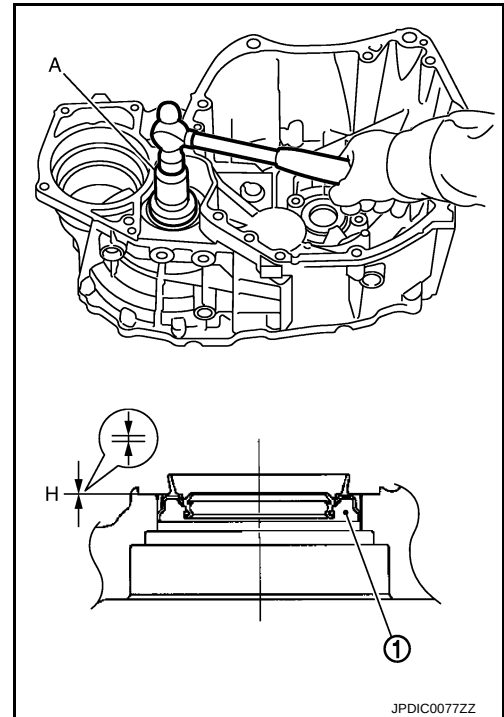
## ASSEMBLY

1. Install differential side oil seal ① to clutch housing using the drift (A) (SST: ST33400001).

**Dimension (H) : -0.5 – 0.5 mm (-0.020 – 0.020 in)**

**CAUTION:**

- Never reuse differential side oil seal.
- Apply multi-purpose grease onto oil seal lip.
- Never incline differential side oil seal.
- Never damage clutch housing.



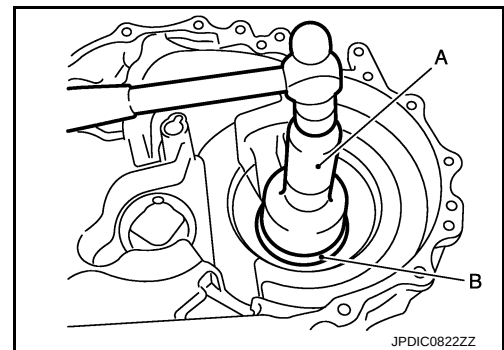
2. Install differential side bearing outer race (clutch housing side) to clutch housing using the drifts.

A : Drift (SST: ST30720000)

B : Drift (SST: KV40105320)

**CAUTION:**

- Never reuse differential side bearing outer race.
- Replace differential side bearing and differential side bearing outer race as a set.

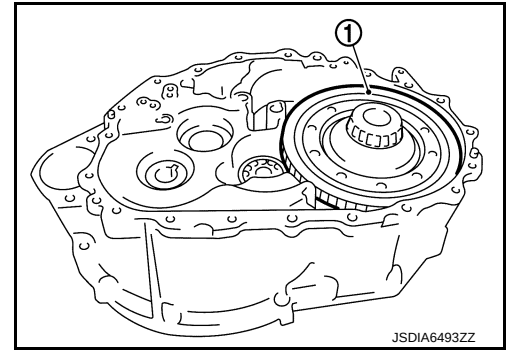


# TRANSAXLE ASSEMBLY

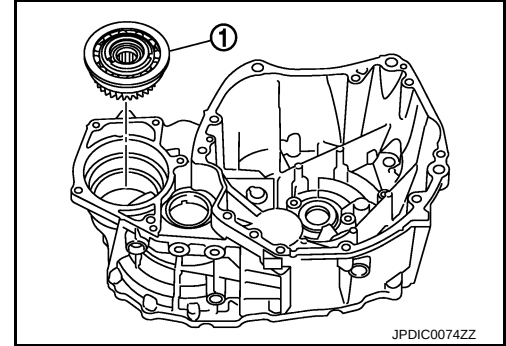
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

3. Install final drive assembly ① into clutch housing.
4. Select differential side bearing adjusting shim. Refer to [TM-178, "4WD : Inspection and Adjustment"](#).  
**CAUTION:**  
Never select differential side bearing adjusting shim with output gear assembly installed on clutch housing.
5. Remove final drive assembly.



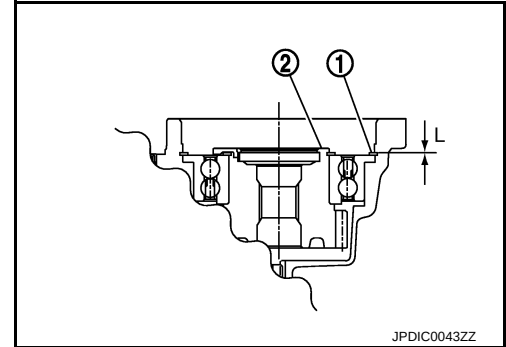
6. Turn clutch housing upside down as shown in the figure. And then install output gear assembly ① into clutch housing.  
**CAUTION:**
  - Gently install it, aligning the clutch housing hole with the center of output gear assembly.
  - Install output gear assembly, straightening it with a magnet.
  - Never damage clutch housing and output gear assembly.



7. Install snap ring ① onto clutch housing and make sure that end play (gap between snap ring and groove) of output gear assembly ② satisfies the standard value.

End play (L) : Refer to [TM-224, "End Play"](#).

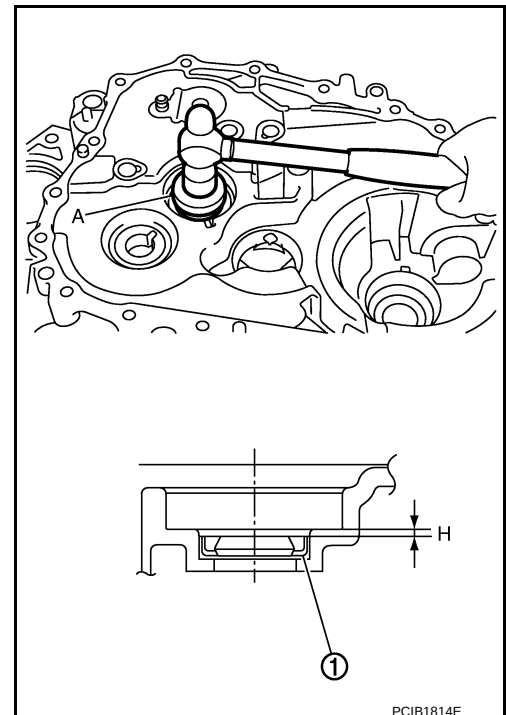
- CAUTION:**
- Only one snap ring can be selected.
  - Never reuse snap ring.
  - Never damage clutch housing.



8. Install input shaft oil seal ① to clutch housing using the drift (A) (SST: ST35321000).

Dimension (H) : 1.1 – 2.1 mm (0.043 – 0.083 in)

- CAUTION:**
- Never reuse input shaft oil seal.
  - Apply multi-purpose grease onto oil seal lip.
  - Never incline input shaft oil seal.
  - Never damage clutch housing.



# TRANSAXLE ASSEMBLY

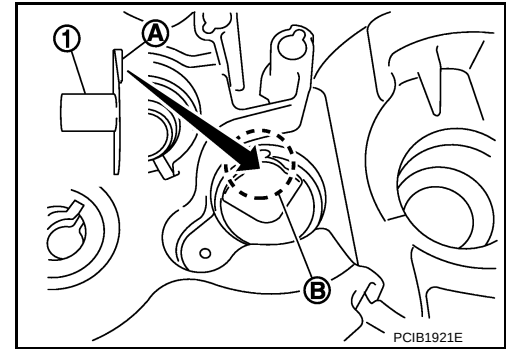
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

9. Install oil channel ① on mainshaft side.

**CAUTION:**

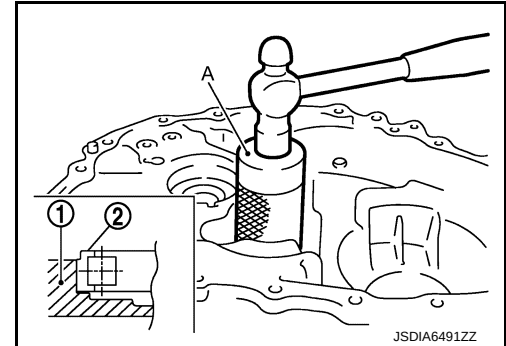
When installing oil channel, fit the rib ① of oil channel into the processed area of the spot facing ②.



10. Install mainshaft front bearing ① to clutch housing ② using the drift (A) (SST: ST33200000).

**CAUTION:**

Be careful with the orientation of mainshaft front bearing.



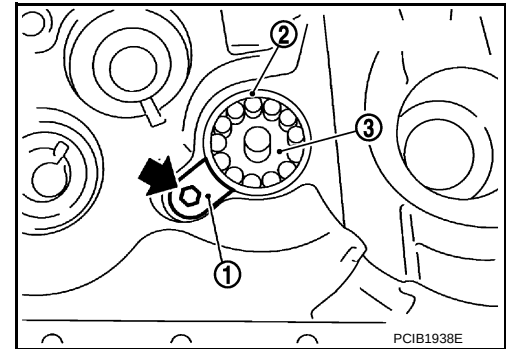
11. Install mainshaft bearing retainer ① to clutch housing and tighten mounting bolt to the specified torque.

② : Mainshaft front bearing

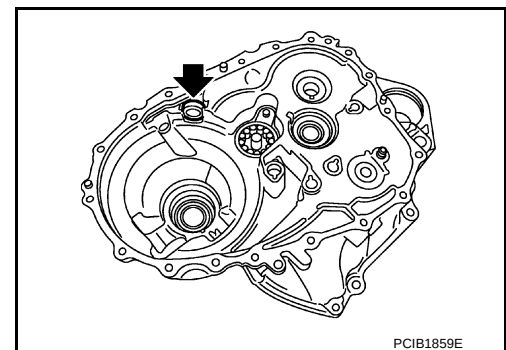
③ : Oil channel

**CAUTION:**

Install with punched surface facing up.



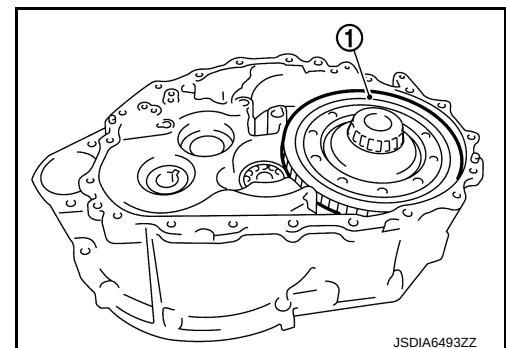
12. Install magnet to clutch housing.



13. Install final drive assembly ① into clutch housing.

**CAUTION:**

Engage reduction gear teeth in output gear teeth.



# TRANSAXLE ASSEMBLY

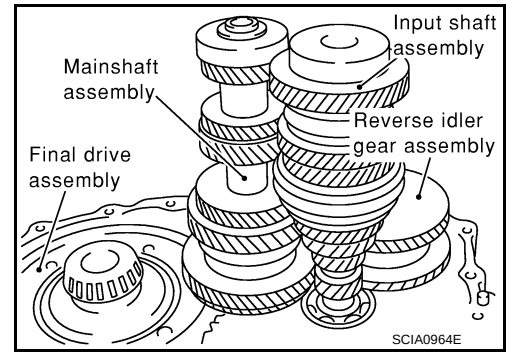
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

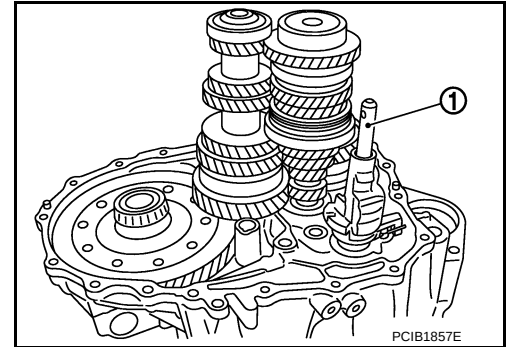
14. Install input shaft assembly, mainshaft assembly, and reverse idler gear assembly into clutch housing.

**CAUTION:**

- Wrap a tape, etc. to the spline of input shaft so as not to damage the input shaft oil seal.
- Be careful with the orientation of reverse idler shaft.

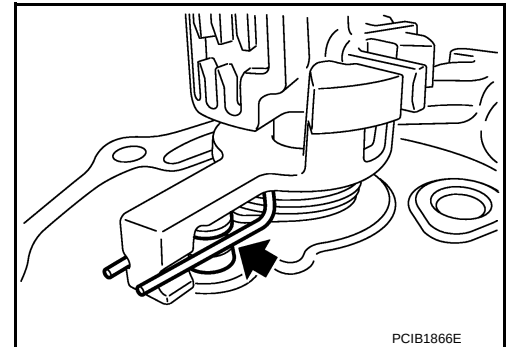


15. Install striking rod assembly ① into clutch housing.



**CAUTION:**

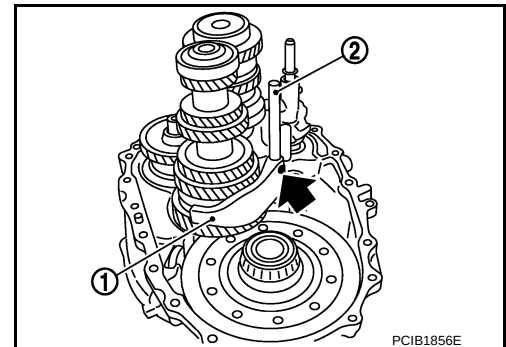
Check that return spring is securely seated in the groove on return pin.



16. Install 1st-2nd shift fork ① and 1st-2nd fork rod ② and then install retaining pin to 1st-2nd shift fork.

**CAUTION:**

- Never reuse retaining pin.
- Be careful with the orientation of 1st-2nd shift fork and 1st-2nd fork rod.
- Assemble retaining pin from the direction shown by the arrow in the figure until it becomes flush with the end surface of 1st-2nd shift fork.





# TRANSAXLE ASSEMBLY

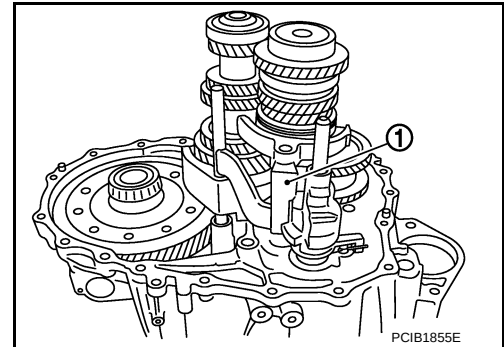
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

17. Install 3rd-4th shift fork ① to 3rd-4th coupling sleeve.

**CAUTION:**

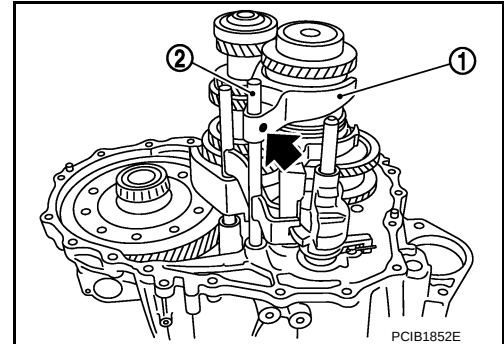
Be careful with the orientation of 3rd-4th shift fork.



18. Install 5th-6th shift fork ① and 5th-6th fork rod ② and then install retaining pin to 5th-6th shift fork.

**CAUTION:**

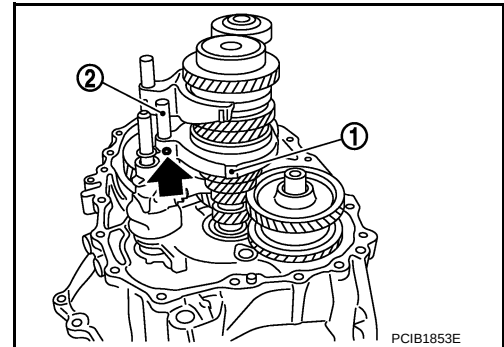
- Never reuse retaining pin.
- Be careful with the orientation of 5th-6th shift fork and 5th-6th fork rod.
- Assemble retaining pin from the direction shown by the arrow in the figure until it becomes flush with the end surface of 5th-6th shift fork.



19. Install 3rd-4th fork rod ② and then install retaining pin to 3rd-4th shift fork ①.

**CAUTION:**

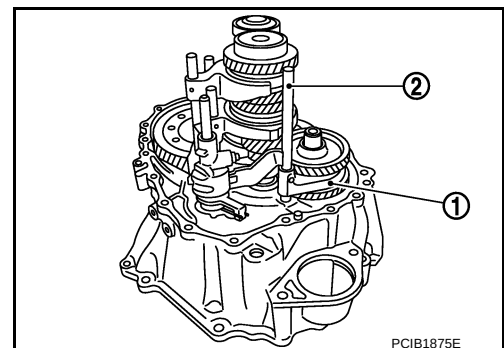
- Never reuse retaining pin.
- Be careful with the orientation of 3rd-4th fork rod.
- Assemble retaining pin from the direction shown by the arrow in the figure until it becomes flush with the end surface of 3rd-4th shift fork.



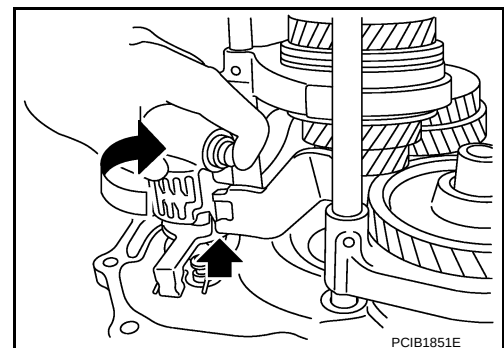
20. Install reverse shift fork ① and reverse fork rod ②.

**CAUTION:**

Be careful with the orientation of reverse shift fork and reverse fork rod.



21. Rotate striking lever of striking rod as shown in the figure. Then rotate reverse fork rod to a position where bracket of reverse fork rod does not interfere with striking lever of striking rod.



A  
B  
C  
TM  
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# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

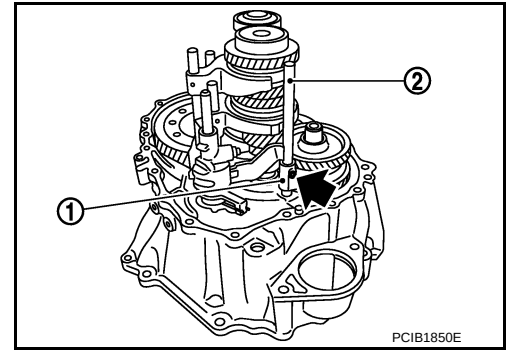
[6MT: RS6F52A]

22. Install retaining pin to reverse shift fork ①.

② : Reverse fork rod

**CAUTION:**

- Never reuse retaining pin.
- Assemble retaining pin from the direction shown by the arrow in the figure until it becomes flush with the end surface of reverse shift fork.



23. Install selected differential side bearing adjusting shim and differential side bearing outer race (transaxle case side).

- For selection of adjusting shim, refer to [TM-178, "4WD : Inspection and Adjustment"](#).

24. Install selected reverse idler gear adjusting shim onto reverse idler gear assembly.

- For selection of adjusting shim, refer to [TM-178, "4WD : Inspection and Adjustment"](#).

25. Install selected input shaft rear bearing adjusting shim onto input shaft.

- For selection of adjusting shim, refer to [TM-178, "4WD : Inspection and Adjustment"](#).

26. Install selected striking rod adjusting shim and striking rod shim onto striking rod assembly.

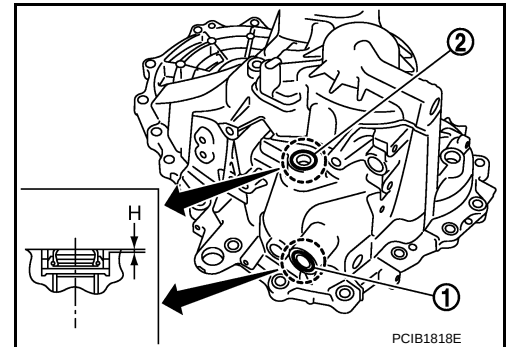
- For selection of adjusting shim, refer to [TM-178, "4WD : Inspection and Adjustment"](#).

27. Install shift lever oil seal ① and striking rod oil seal ② to transaxle case using a drift (commercial service tool).

**Dimension (H) : 0 – 1.0 mm (0 – 0.039 in)**

**CAUTION:**

- Never reuse shift lever oil seal and striking rod oil seal.
- Apply multi-purpose grease onto oil seal lip.
- Never incline shift lever oil seal and striking rod oil seal.
- Never damage transaxle case.

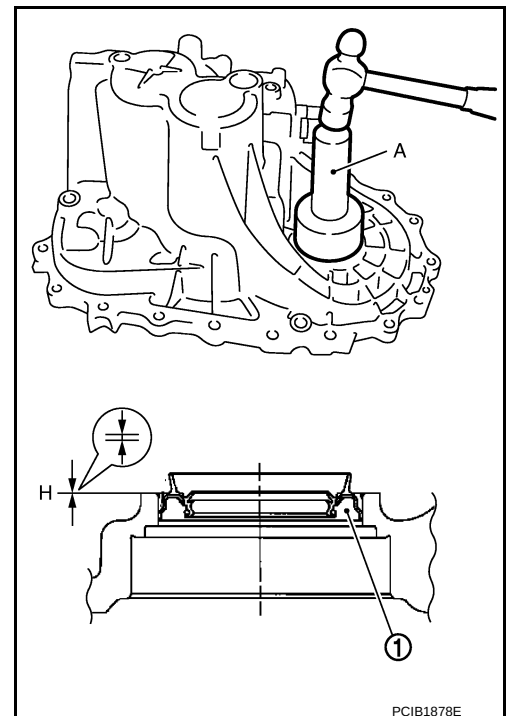


28. Install differential side oil seal ① to transaxle case using the drift (A) (SST: ST30720000).

**Dimension (H) : -0.5 – 0.5 mm (-0.020 – 0.020 in)**

**CAUTION:**

- Never reuse differential side oil seal.
- Apply multi-purpose grease onto oil seal lip.
- Never incline differential side oil seal.
- Never damage transaxle case.





# TRANSAXLE ASSEMBLY

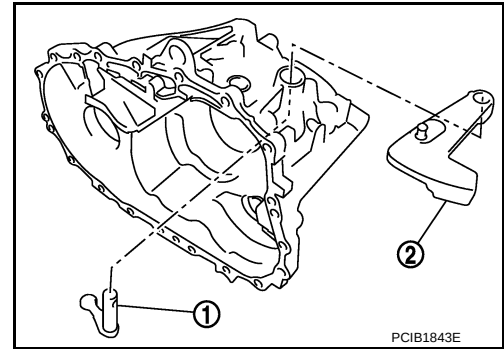
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

29. Install shift lever (inner) ① and shift lever (outer) ② to transaxle case.

**CAUTION:**

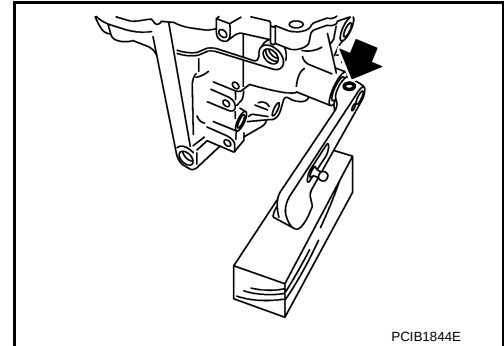
Be careful with the orientation of shift lever (inner) and shift lever (outer).



30. Install retaining pin to shift lever (outer).

**CAUTION:**

- Never reuse retaining pin.
- Assemble retaining pin from the direction shown by the arrow in the figure until it becomes flush with the end surface of shift lever (outer).



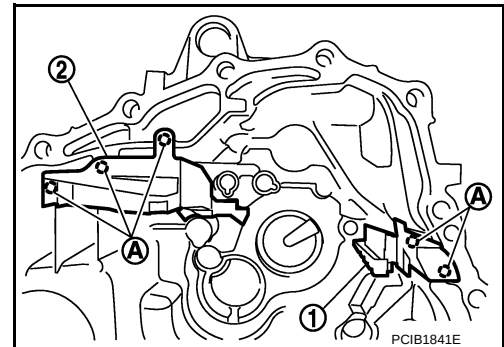
31. Install transaxle case, as per the following procedure.

- a. Install selected mainshaft rear bearing adjusting shim into transaxle case.
- For selection of adjusting shim, refer to [TM-178, "4WD : Inspection and Adjustment"](#).

- b. Install oil gutter A ① and oil gutter B ② to transaxle case.

**CAUTION:**

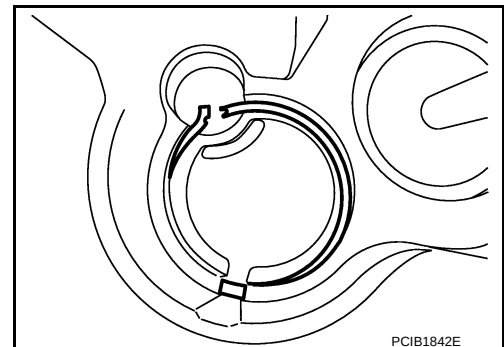
Insert the tab ① of oil gutter A and oil gutter B into transaxle case.



- c. Temporarily install snap ring of mainshaft rear bearing into transaxle case.

**CAUTION:**

Never reuse snap ring.



# TRANSAXLE ASSEMBLY

## < UNIT DISASSEMBLY AND ASSEMBLY >

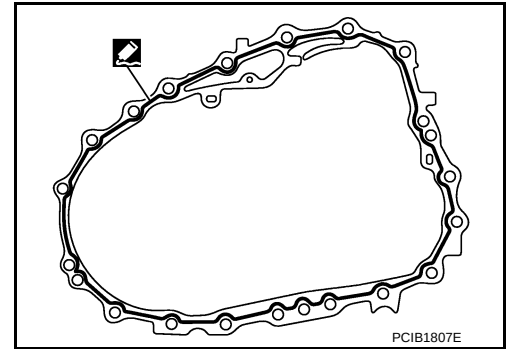
[6MT: RS6F52A]

- d. Apply recommended sealant to mating surface of clutch housing as shown in the figure.

• For sealant to use, refer to [TM-153. "4WD : Exploded View"](#).

**CAUTION:**

- Remove old sealant adhering to the mounting surfaces. Also remove any moisture, oil, or foreign material adhering to both mounting surfaces.
- Apply sealant so as not to break the bead.
- The width of sealant bead is 1 – 2 mm (0.04 – 0.08 in).
- The height of sealant bead is 0.4 – 1 mm (0.016 – 0.04 in).
- The overlap length of both ends of sealant bead is 3 – 5 mm (0.12 – 0.20 in).



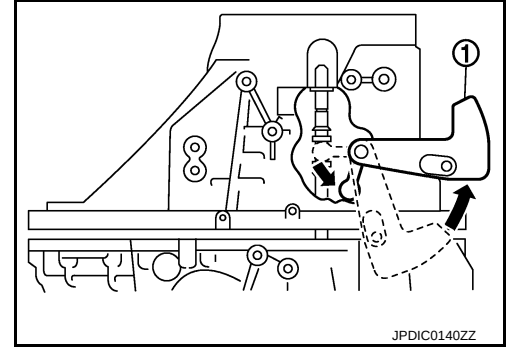
- e. With shift lever (outer) ① held in the position shown in the figure, temporarily assemble transaxle case to clutch housing.

**CAUTION:**

Never damage striking rod oil seal.

**NOTE:**

Make sure to hold shift lever (outer) in the position shown in the figure. Otherwise transaxle case cannot be installed to clutch housing.

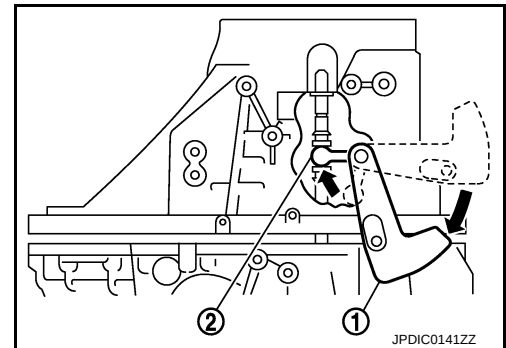


- f. While rotating shift lever (outer) ① in the direction of the arrow in the figure, assemble transaxle case to clutch housing.

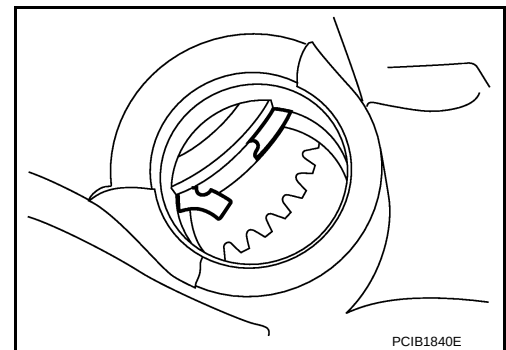
② : Shift lever (inner)

**NOTE:**

The shift lever (inner) can be inserted into the groove of striking rod.



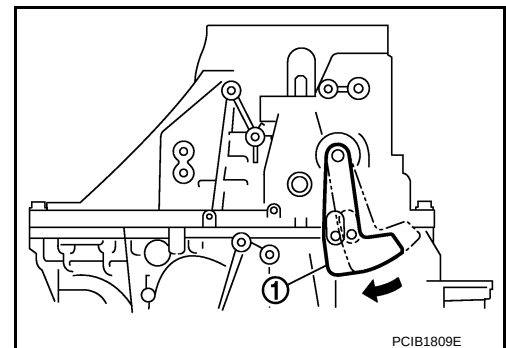
- g. Accessing from the bore plug hole, expand snap ring at mainshaft rear bearing so that the ring catches the periphery of mainshaft rear bearing.
- h. Temporarily tighten transaxle case mounting bolts.



- i. Shift the shift lever (outer) ① to 2nd gear position.

**NOTE:**

- The 2nd gear position is attained when shift lever (outer) is in the position shown in the figure.



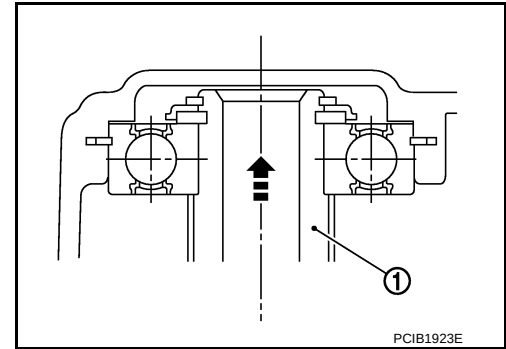
# TRANSAXLE ASSEMBLY

## < UNIT DISASSEMBLY AND ASSEMBLY >

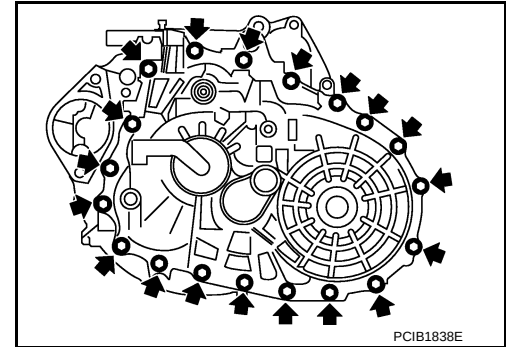
[6MT: RS6F52A]

- When transaxle is shifted to the 2nd gear position, mainshaft assembly ① is lifted.

- j. Seat snap ring in the groove on mainshaft rear bearing. If snap ring is not seated in the groove on mainshaft rear bearing, remove transaxle case and repeat the procedure from step d.



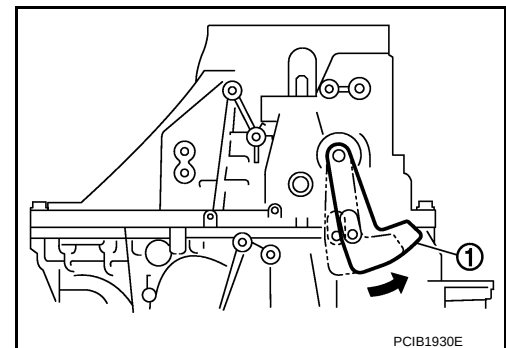
- k. Tighten transaxle case mounting bolts to the specified torque.



- l. Shift the shift lever (outer) ① to neutral position.

**NOTE:**

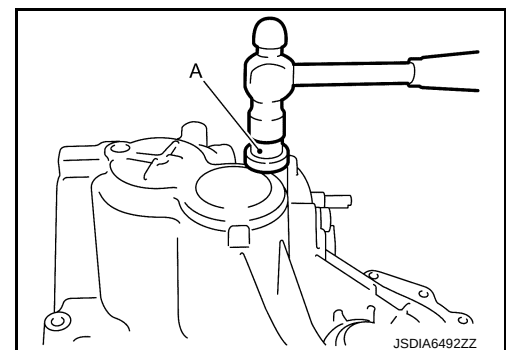
The neutral position is attained when shift lever (outer) is in the position shown in the figure.



32. Install bore plug to transaxle case using the drift (A) (SST: ST33061000).

**CAUTION:**

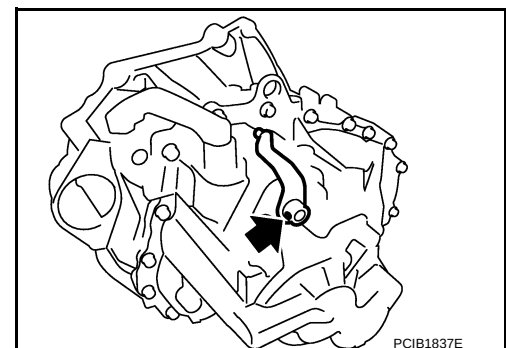
Never reuse bore plug.



33. Install select lever to transaxle case and then install retaining pin to select lever.

**CAUTION:**

- Never reuse retaining pin.
- Assemble retaining pin from the direction shown by the arrow in the figure until it becomes flush with the end surface of select lever.



# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

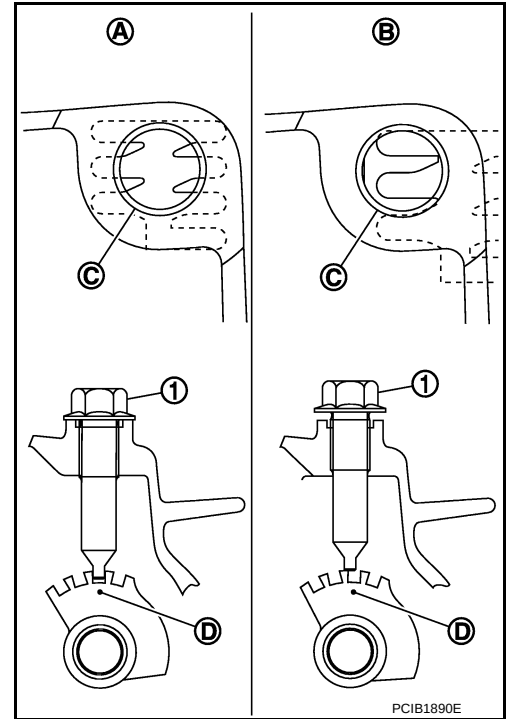
34. Install guide bolt, as per the following procedure.
- Shift the shift lever (outer) and select lever to neutral position.
  - Visually confirm from the guide bolt mounting hole ③ that the lever is securely set to neutral position. If it is not in the neutral position, repeat the procedure from step a.

- ① : Neutral position  
② : Except neutral position  
③ : Groove of striking rod

**CAUTION:**

The guide bolt ① may damage striking rod by running into outer-groove points, if guide bolt is tightened in the state of ② shown in the figure.

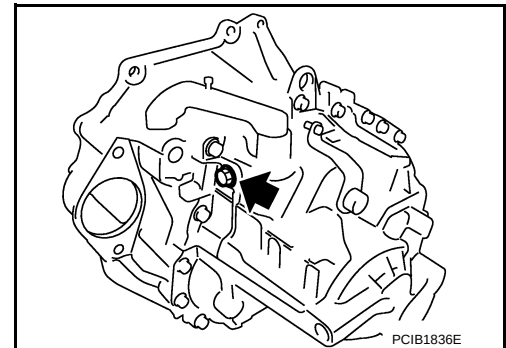
- Check continuity between terminals of neutral position switch to confirm it in the neutral position. If it is not in the neutral position, repeat the procedure from step a. Refer to [TM-94, "Component Function Check"](#).



- Install guide bolt to transaxle case and then tighten guide bolt to the specified torque.

**CAUTION:**

Never reuse guide bolt.

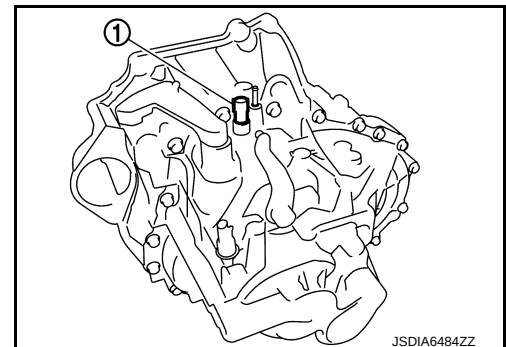


35. Apply recommended sealant to threads of neutral position switch ①. Then install it to transaxle case and tighten to the specified torque.

- For sealant to use, refer to [TM-153, "4WD : Exploded View"](#).

**CAUTION:**

Remove old sealant and oil adhering to threads.



# TRANSAXLE ASSEMBLY

## < UNIT DISASSEMBLY AND ASSEMBLY >

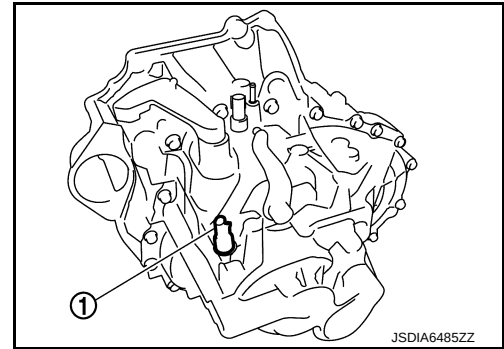
[6MT: RS6F52A]

36. Apply recommended sealant to threads of back-up lamp switch ①. Then install it with plunger to transaxle case and tighten to the specified torque.

- For sealant to use, refer to [TM-153, "4WD : Exploded View"](#).

**CAUTION:**

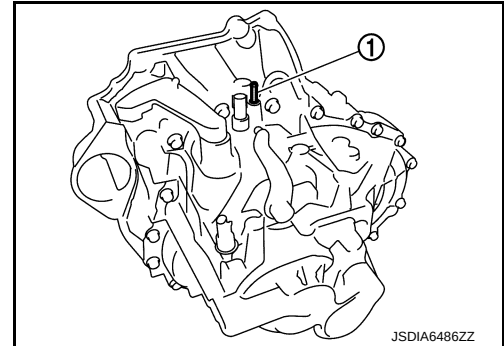
Remove old sealant and oil adhering to threads.



37. Install air breather tube ① to transaxle case.

**CAUTION:**

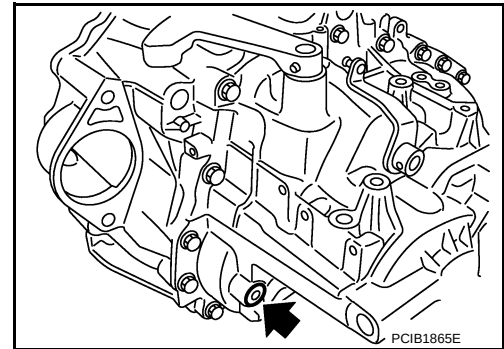
- Never reuse air breather tube.
- Assemble air breather tube until its collar element contacts with transaxle case.



38. Install gasket onto plug and then install them into transaxle case. Tighten plug to the specified torque.

**CAUTION:**

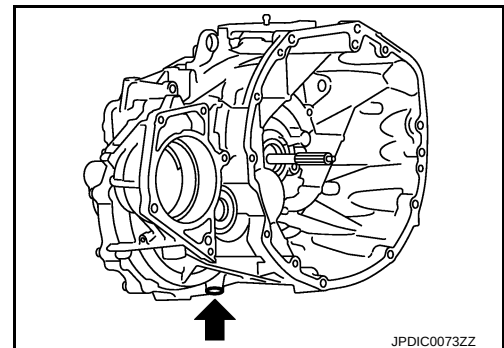
Never reuse gasket.



39. Install gasket onto drain plug and then install them into clutch housing. Tighten drain plug to the specified torque.

**CAUTION:**

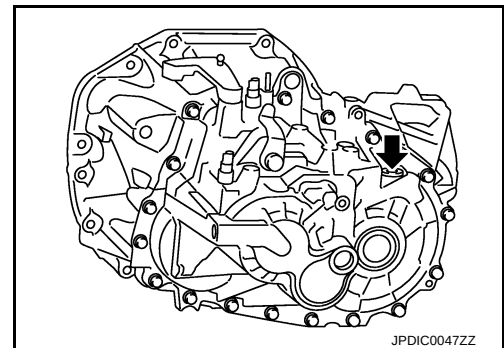
Never reuse gasket.



40. Install gasket onto filler plug and then install them into transaxle case. Tighten filler plug to the specified torque.

**CAUTION:**

- Never reuse gasket.
- After gear oil is filled, tighten filler plug to specified torque.



## 4WD : Inspection and Adjustment

INFOID:000000010919409

### INSPECTION AFTER DISASSEMBLY

#### Case and Housing

- Check the bearing mounting surface for wear, cracks, and damages. Replace if necessary.
- Check the mating surface for wear, cracks, and damages. Replace if necessary.
- Check the oil seal mounting surface for wear, cracks, and damages. Replace if necessary.

#### Bearing

Check the bearing for damage and unsmooth rotation. Replace if necessary.

### ADJUSTMENT

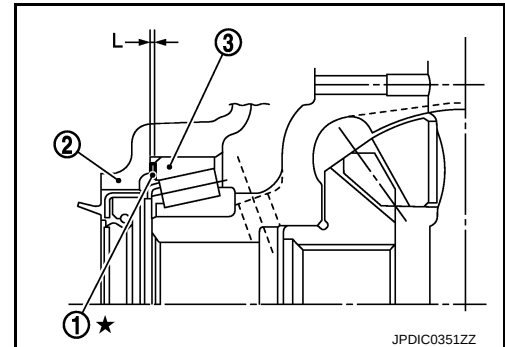
#### Differential Side Bearing Preload

- When adjusting differential side bearing preload, select adjusting shim for differential side bearing. To select adjusting shim ①, measure clearance (L) between transaxle case ② and differential side bearing outer race ③. For selecting adjusting shim, refer to the latest parts information.

#### CAUTION:

**Up to 2 adjusting shims can be selected.**

- Calculate dimension (L) (thickness of adjusting shim) using the following procedure to satisfy specification of preload for differential side bearing.



**Preload** : Refer to [TM-226, "Differential Side Bearing Preload"](#).

**Dimension (L) = [(L1) – (L2)] + Preload**

**L** : Thickness of adjusting shim

**L1** : Distance between transaxle case end face and mounting face of adjusting shim

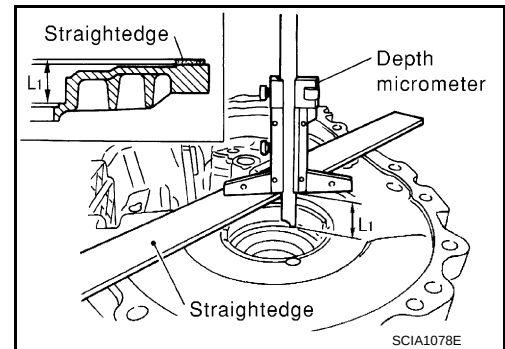
**L2** : Distance between differential side bearing outer race and clutch housing end face

1. Using a depth micrometer and a straightedge, measure dimension (L1) between transaxle case end face and mounting face of adjusting shim.

#### CAUTION:

**L1: Measure at 4 point by approximately 90 degrees and use the average value.**

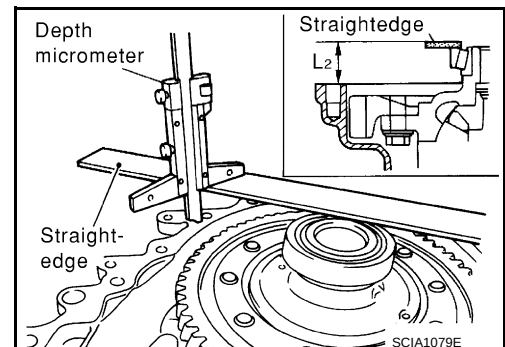
2. Install differential side bearing outer race onto differential side bearing on transaxle case side. Holding lightly differential side bearing outer race horizontally by hand, rotate final gear five times or more (for smooth movement of bearing roller).



3. Using a depth micrometer and a straightedge as shown in the figure, measure dimension (L2) between differential side bearing outer race and clutch housing end face.

#### CAUTION:

**L2: Measure at 4 point by approximately 90 degrees and use the average value.**



# TRANSAXLE ASSEMBLY

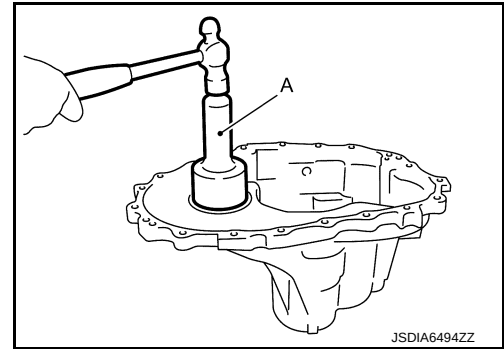
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

4. Install selected differential side bearing adjusting shim and then install differential side bearing outer race (transaxle case side) using the drift (A) (SST: ST30720000).

**CAUTION:**

**Replace differential side bearing and differential side bearing outer race as a set.**



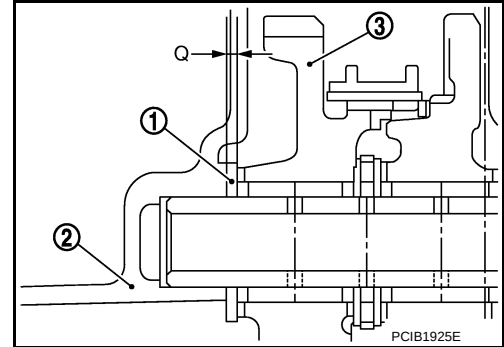
## Reverse Idler Gear End Play

- When adjusting reverse idler gear end play, select adjusting shim for reverse idler gear. To select adjusting shim ①, measure clearance between transaxle case ② and reverse idler gear (rear) ③. For selecting adjusting shim, refer to the latest parts information.

**CAUTION:**

**Only 1 adjusting shim can be selected.**

- Calculate dimension (Q) (thickness of adjusting shim) using the following procedure to satisfy specification of end play for reverse idler gear.



**End play** : Refer to [TM-224, "End Play"](#).

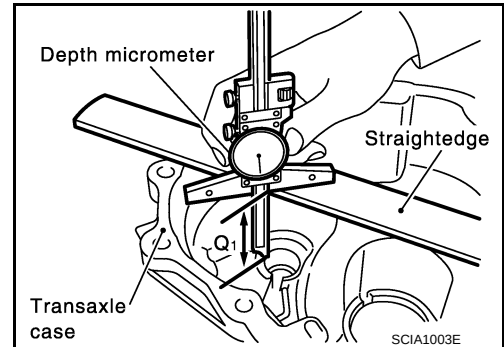
**Dimension (Q) = [(Q1) – (Q2)] – End play**

**Q** : Thickness of adjusting shim

**Q1** : Distance between transaxle case end face and mounting face of adjusting shim

**Q2** : Distance between clutch housing end face and end face of reverse idler gear (rear)

1. Using a depth micrometer and a straightedge, measure dimension (Q1) between transaxle case end face and mounting face of adjusting shim.

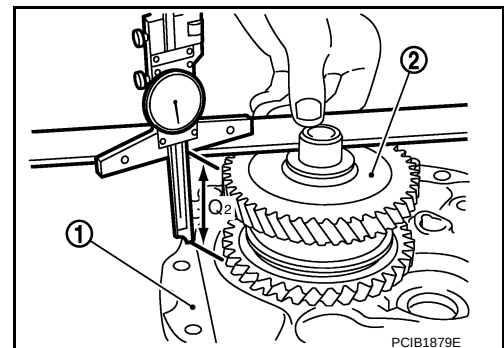


2. Using a depth micrometer and a straightedge as shown in the figure, measure dimension (Q2) between clutch housing ① end face and end face of reverse idler gear (rear) ②.

**CAUTION:**

**Q2: Measure at 4 point by approximately 90 degrees and use the average value.**

3. Install selected reverse idler gear adjusting shim onto reverse idler gear (rear).



## Input Shaft End Play



# TRANSAXLE ASSEMBLY

## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

- When adjusting input shaft end play, select adjusting shim for input shaft rear bearing. To select adjusting shim, measure clearance between transaxle case and input shaft rear bearing. For selecting adjusting shim, refer to the latest parts information.

**CAUTION:**

**Only 1 adjusting shim can be selected.**

- Calculate dimension (O) (thickness of adjusting shim) using the following procedure to satisfy specification of end play for input shaft rear bearing.

**End play** : Refer to [TM-224, "End Play"](#).

**Dimension (O) = [(O<sub>1</sub>) – (O<sub>2</sub>)] – End play**

**O** : Thickness of adjusting shim

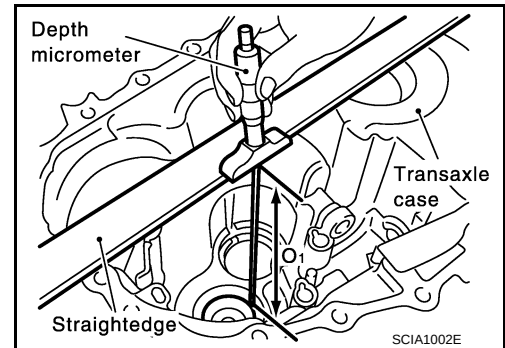
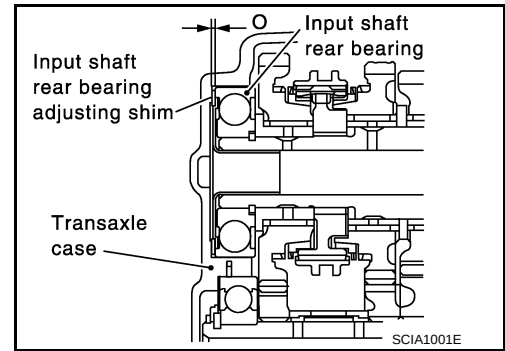
**O<sub>1</sub>** : Distance between transaxle case end face and mounting face of adjusting shim

**O<sub>2</sub>** : Distance between clutch housing end face and end face of input shaft rear bearing

- Using a depth micrometer and a straightedge, measure dimension (O<sub>1</sub>) between transaxle case end face and mounting face of adjusting shim.

**CAUTION:**

**O<sub>1</sub>: Measure at 4 point by approximately 90 degrees and use the average value.**

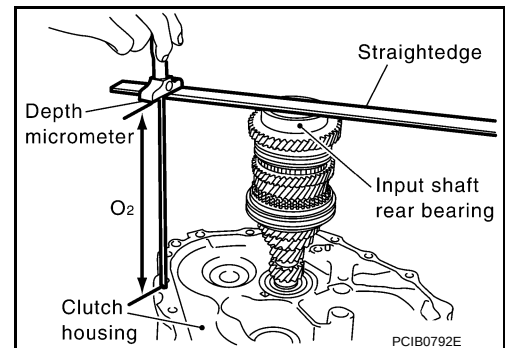


- Using a depth micrometer and a straightedge as shown in the figure, measure dimension (O<sub>2</sub>) between clutch housing end face and end face of input shaft rear bearing.

**CAUTION:**

**O<sub>2</sub>: Measure at 4 point by approximately 90 degrees and use the average value.**

- Install selected input shaft rear bearing adjusting shim onto input shaft.



### Striking Rod End Play

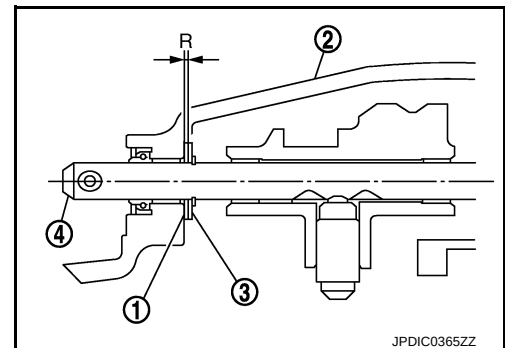
- When adjusting striking rod end play, select adjusting shim for striking rod. To select adjusting shim ①, measure clearance between transaxle case ② and striking rod shim ③. For selecting adjusting shim, refer to the latest parts information.

⑤ : Striking rod

**CAUTION:**

**Only 1 adjusting shim can be selected.**

- Calculate dimension (R) (thickness of adjusting shim) using the following procedure to satisfy specification of end play for striking rod.



**End play** : Refer to [TM-224, "End Play"](#).

**Dimension (R) = [(R<sub>1</sub>) – (R<sub>2</sub>)] – End play**



# TRANSAXLE ASSEMBLY

< UNIT DISASSEMBLY AND ASSEMBLY >

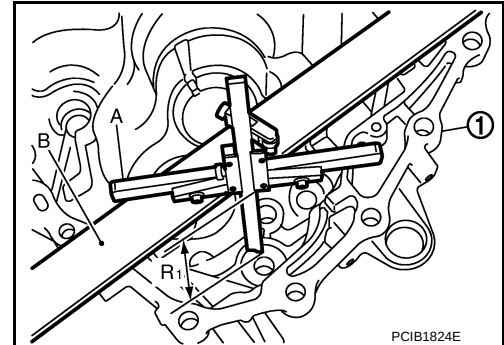
[6MT: RS6F52A]

- R** : Thickness of adjusting shim  
**R1** : Distance between transaxle case end face and mounting face of adjusting shim  
**R2** : Distance between clutch housing end face and end face of striking rod shim

- Using a depth micrometer (A) and a straightedge (B), measure dimension (R1) between transaxle case ① end face and mounting face of adjusting shim.

**CAUTION:**

**R1: Measure at 4 point by approximately 90 degrees and use the average value.**

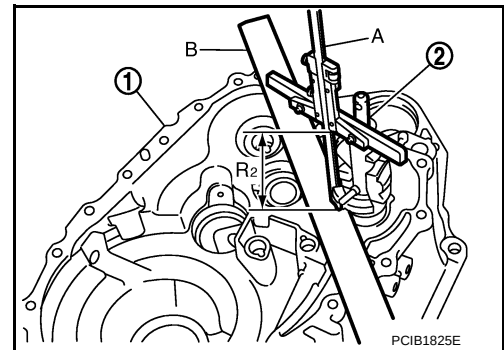


- Using a depth micrometer (A) and a straightedge (B) as shown in the figure, measure dimension (R2) between clutch housing ① end face and end face of striking rod shim ②.

**CAUTION:**

- R2: Measure at 4 point by approximately 90 degrees and use the average value.**
- When measuring, be careful for the inclination of striking rod assembly and striking rod shim.**

- Install selected striking rod adjusting shim onto striking rod assembly.



## Mainshaft End Play

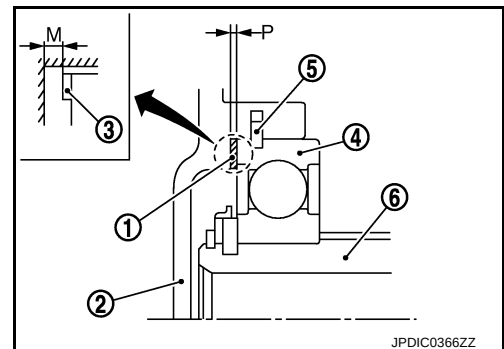
- When adjusting mainshaft end play, select adjusting shim for mainshaft rear bearing. To select adjusting shim ①, measure clearance (M) between transaxle case ② and dummy adjusting shim ③ on mainshaft rear bearing ④. For selecting adjusting shim, refer to the latest parts information.

- ⑤ : Snap ring  
 ⑥ : Mainshaft

**CAUTION:**

**Only 1 adjusting shim can be selected.**

- Calculate dimension (P) (thickness of adjusting shim) using the following procedure to satisfy specification of end play for mainshaft rear bearing.



**End play** : Refer to [TM-224, "End Play"](#).

**Dimension (P) = [(M) + (N)] – End play**

**P** : Thickness of adjusting shim

**M** : Distance between dummy adjusting shim on mainshaft rear bearing end face and transaxle case end face

**N\*** : Thickness of dummy adjusting shim

\*: Refer to the latest parts information to use a dummy adjusting shim of which part number is the thinnest in thickness.

- Install transaxle case, as per the following procedure.

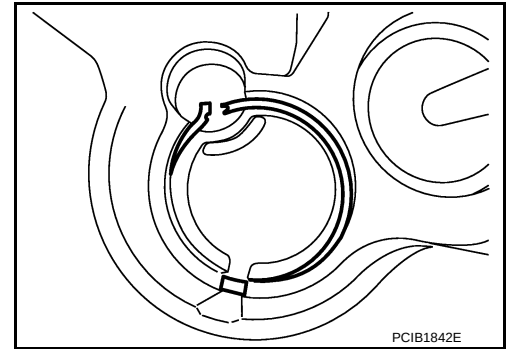
# TRANSAXLE ASSEMBLY

## < UNIT DISASSEMBLY AND ASSEMBLY >

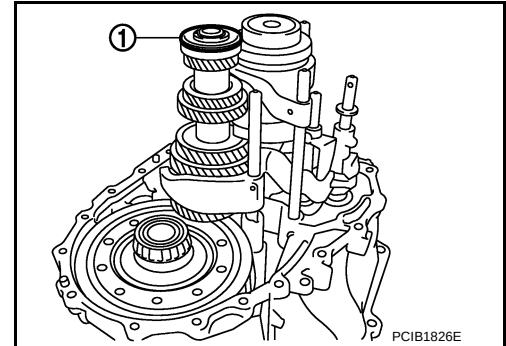
[6MT: RS6F52A]

- a. Temporarily install snap ring of mainshaft rear bearing into transaxle case.

**CAUTION:**  
Never reuse snap ring.



- b. Install dummy adjusting shim ① to mainshaft assembly.

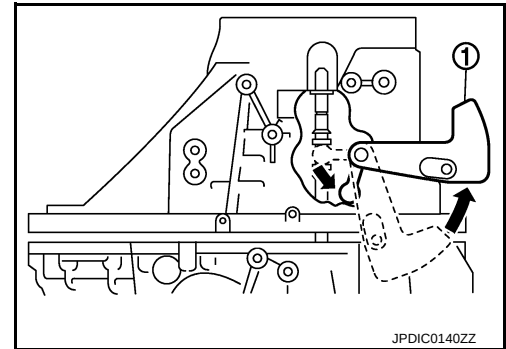


- c. With shift lever (outer) ① held in the position shown in the figure, temporarily assemble transaxle case to clutch housing.

**CAUTION:**  
Never damage striking rod oil seal.

**NOTE:**

Make sure to hold shift lever (outer) in the position shown in the figure. Otherwise transaxle case cannot be installed to clutch housing.

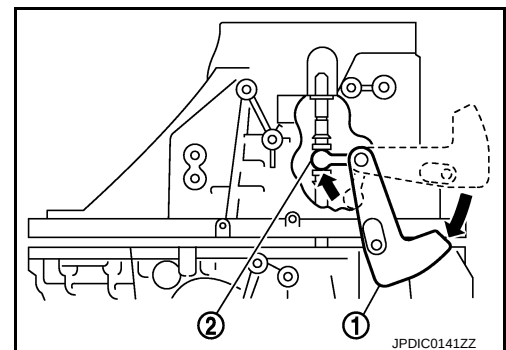


- d. While rotating shift lever (outer) ① in the direction of the arrow shown in the figure, assemble transaxle case to clutch housing.

② : Shift lever (inner)

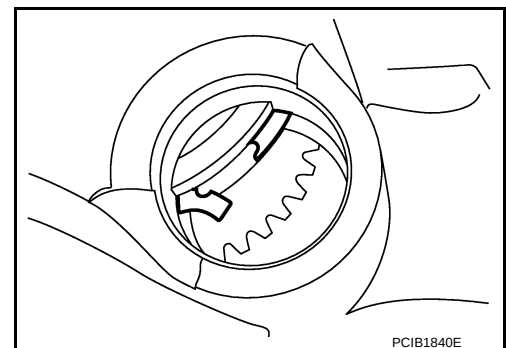
**NOTE:**

The shift lever (inner) can be inserted into the groove of striking rod.



- e. Accessing from the bore plug hole, expand snap ring at mainshaft rear bearing so that the ring catches the periphery of mainshaft rear bearing.

- f. Temporarily tighten transaxle case mounting bolts.



# TRANSAXLE ASSEMBLY

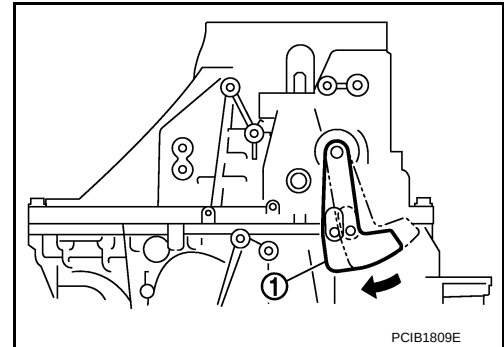
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

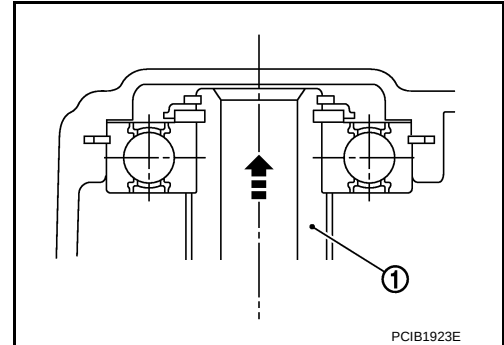
2. Shift the shift lever (outer) ① to 2nd gear position.

**NOTE:**

- The 2nd gear position is attained when shift lever (outer) is in the position shown in the figure.



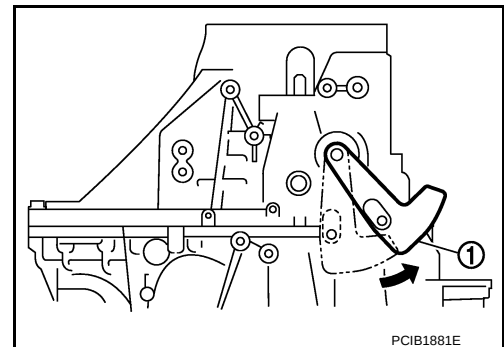
- When transaxle is shifted to the 2nd gear position, mainshaft assembly ① is lifted.



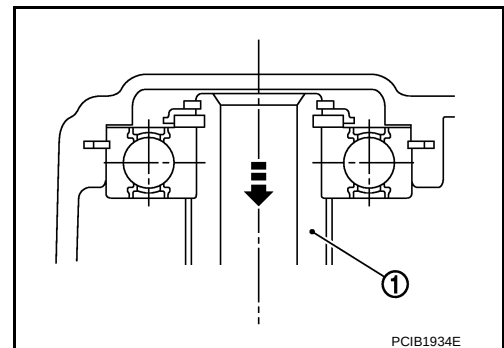
3. Seat snap ring in the groove on mainshaft rear bearing. If snap ring is not seated in the groove on mainshaft rear bearing, remove transaxle case and repeat the procedure 1 from step c.
4. Shift the shift lever (outer) to 1st gear position, and then shift it to 2nd gear position. Repeat 3 times.

**NOTE:**

- The mainshaft rear bearing position will be stabilized by shifting between 1st gear position and 2nd gear position alternately.
- The 1st gear position is attained when shift lever (outer) ① is in the position shown in the figure.



- When transaxle is shifted to the 1st gear position, mainshaft assembly ① is declined.



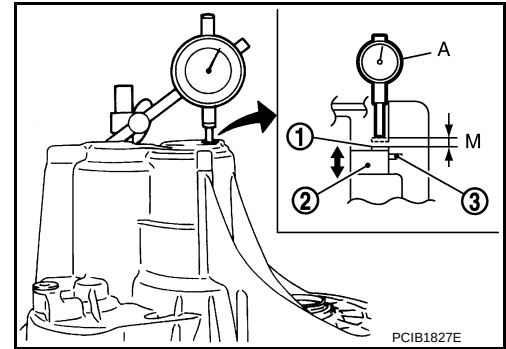
# TRANSAXLE ASSEMBLY

## < UNIT DISASSEMBLY AND ASSEMBLY >

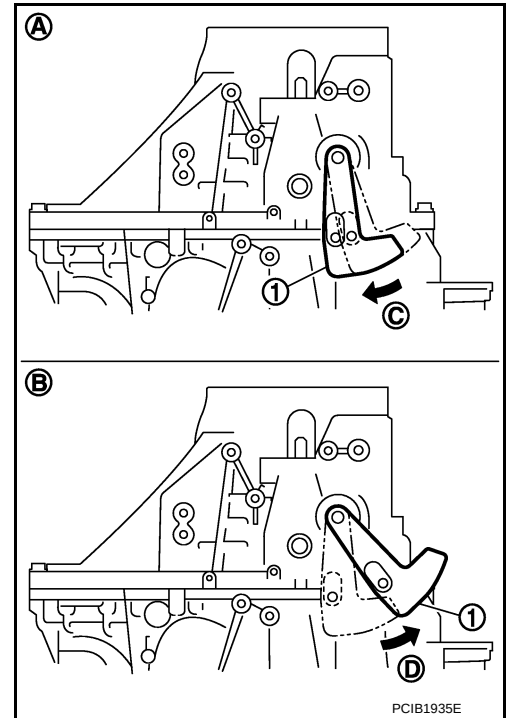
[6MT: RS6F52A]

5. Set the dial indicator (A) to dummy adjusting shim ① through the bore plug mounting hole.

- ② : Mainshaft rear bearing  
③ : Snap ring  
M : Distance between dummy adjusting shim on mainshaft rear bearing end face and transaxle case end face



6. Shift the shift lever (outer) ① to 2nd gear position ①, and then rotate it in the direction of the arrow ③ in the figure until it stops. Using this position as the reference point, measure the amount of movement when shifting shift lever (outer) to 1st gear position ② and rotating it in the direction of the arrow ④ in the figure until it stops. This measurement is the (M) dimension.
7. When measurement (M) is 0 – 0.06 mm (0 – 0.0024 in), adjustment terminates, and the dummy adjusting shim becomes regular adjusting shim. Select adjusting shim from the computed expressions when measurement (M) is over 0.06 mm (0.0024 in).



# INPUT SHAFT AND GEAR

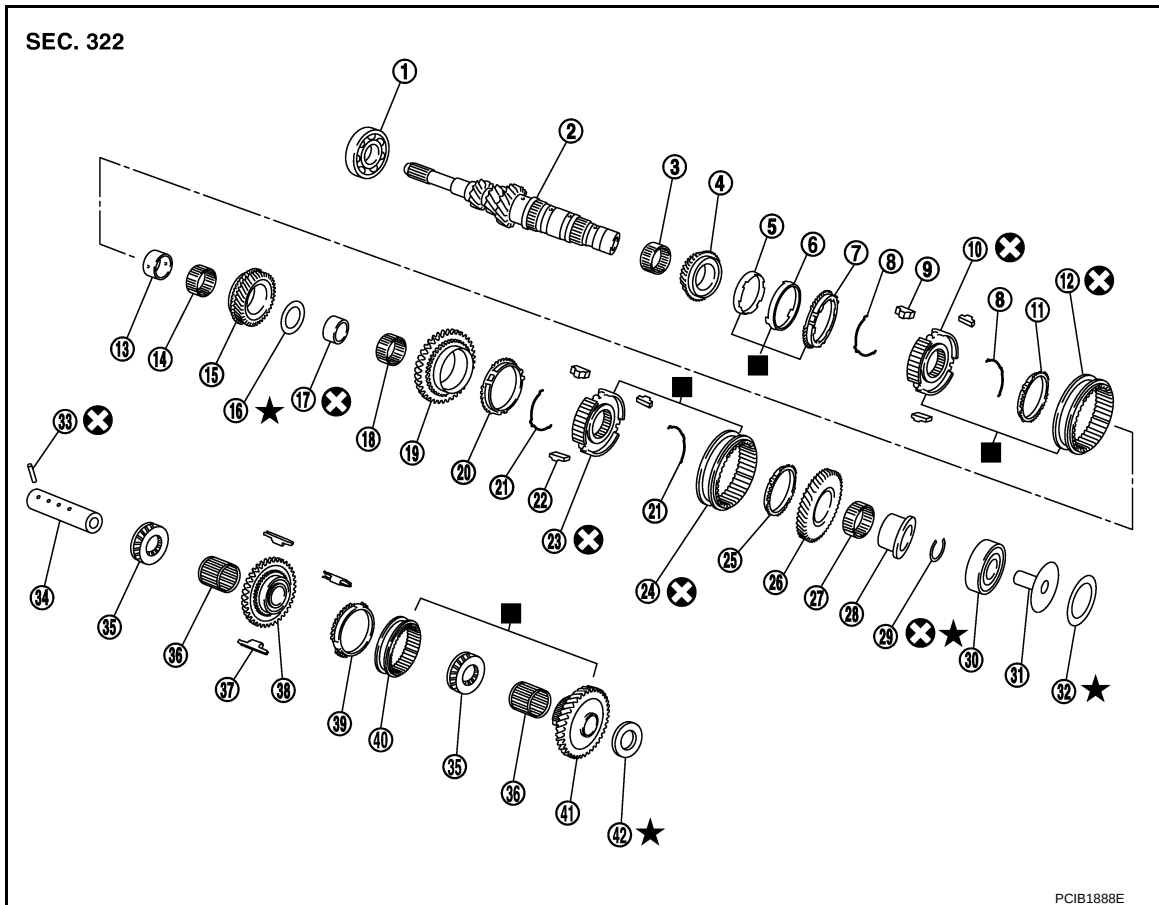
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

## INPUT SHAFT AND GEAR

### Exploded View

INFOID:000000010957984



- |                             |                                           |                                     |
|-----------------------------|-------------------------------------------|-------------------------------------|
| ① Input shaft front bearing | ② Input shaft                             | ③ 3rd needle bearing                |
| ④ 3rd input gear            | ⑤ 3rd inner baulk ring                    | ⑥ 3rd synchronizer cone             |
| ⑦ 3rd outer baulk ring      | ⑧ 3rd-4th spread spring                   | ⑨ 3rd-4th shifting insert           |
| ⑩ 3rd-4th synchronizer hub  | ⑪ 4th baulk ring                          | ⑫ 3rd-4th coupling sleeve           |
| ⑬ 4th input gear bushing    | ⑭ 4th needle bearing                      | ⑮ 4th input gear                    |
| ⑯ Thrust washer             | ⑰ 5th input gear bushing                  | ⑱ 5th needle bearing                |
| ⑲ 5th input gear            | ⑳ 5th baulk ring                          | ㉑ 5th-6th spread spring             |
| ㉒ 5th-6th shifting insert   | ㉓ 5th-6th synchronizer hub                | ㉔ 5th-6th coupling sleeve           |
| ㉕ 6th baulk ring            | ㉖ 6th input gear                          | ㉗ 6th needle bearing                |
| ㉘ 6th input gear bushing    | ㉙ Snap ring                               | ㉚ Input shaft rear bearing          |
| ㉛ Oil channel               | ㉜ Input shaft rear bearing adjusting shim | ㉝ Retaining pin                     |
| ㉞ Reverse idler shaft       | ㉟ Thrust needle bearing                   | ㊱ Reverse idler gear needle bearing |
| ㊲ Reverse insert spring     | ㊳ Reverse idler gear (front)              | ㊴ Reverse baulk ring                |
| ㊵ Reverse coupling sleeve   | ㊶ Reverse idler gear (rear)               | ㊷ Reverse idler gear adjusting shim |

⊗: Always replace after every disassembly.

★: Select with proper thickness.

■: Replace the parts as a set.

**CAUTION:**

# INPUT SHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

Apply gear oil to gears, shafts, synchronizers, and bearings when assembly.

## Disassembly and Assembly

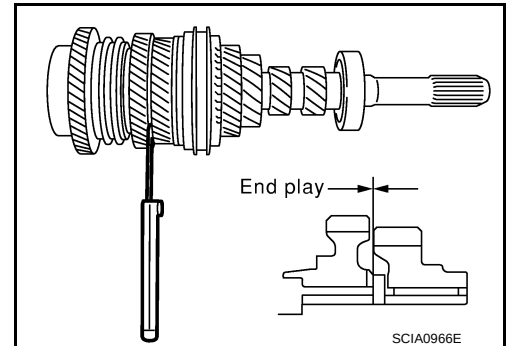
INFOID:000000010919411

### DISASSEMBLY

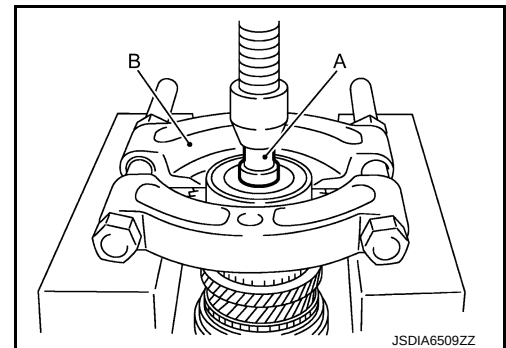
1. Before disassembling, measure end play for 3rd, 4th, 5th, and 6th input gears.

**End play** : Refer to [TM-224, "End Play"](#).

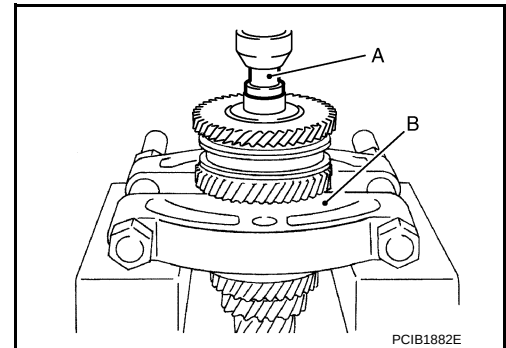
2. Remove oil channel.



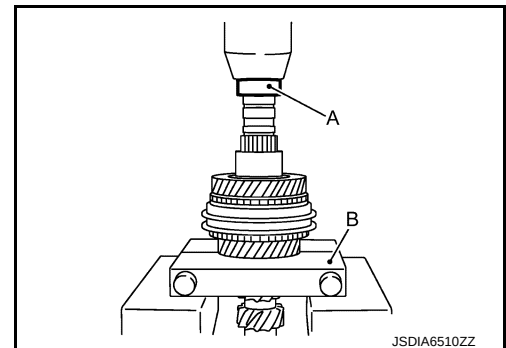
3. Press out input shaft rear bearing using the drift (A) (SST: ST33052000) and separator (B) (commercial service tool).
4. Remove snap ring.



5. Press out 6th input gear, 6th needle bearing, 6th input gear bushing, 5th-6th synchronizer hub assembly, and 5th input gear using the drift (A) (SST: ST33052000) and separator (B) (commercial service tool).
6. Remove 5th needle bearing.



7. Press out 5th input gear bushing, thrust washer, 4th input gear, 4th needle bearing, 4th input gear bushing, 3rd-4th synchronizer hub assembly, and 3rd input gear using the drift (A) and separator (B) (commercial service tool).
8. Remove 3rd needle bearing.

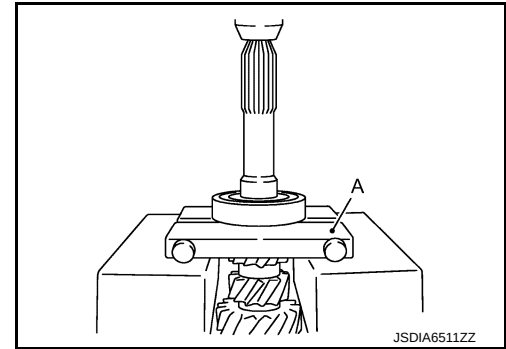


# INPUT SHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

9. Press out input shaft front bearing using separator (A) (commercial service tool).

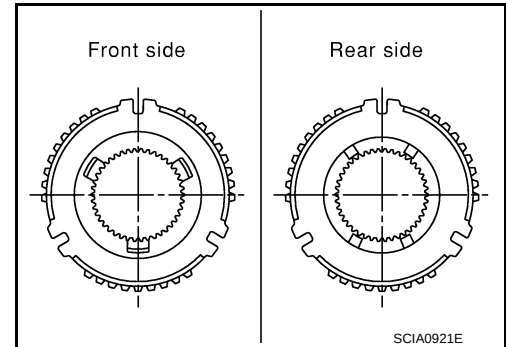


## ASSEMBLY

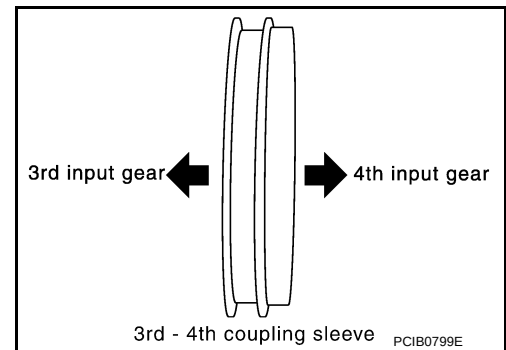
1. Install 3rd needle bearing to input shaft.
2. Install 3rd input gear, 3rd inner baulk ring, 3rd synchronizer cone, and 3rd outer baulk ring to input shaft.  
**CAUTION:**  
**Replace 3rd inner baulk ring, 3rd synchronizer cone, and 3rd outer baulk ring as a set.**
3. Install 3rd-4th spread springs, 3rd-4th shifting inserts, and 3rd-4th synchronizer hub onto 3rd-4th coupling sleeve.

### **CAUTION:**

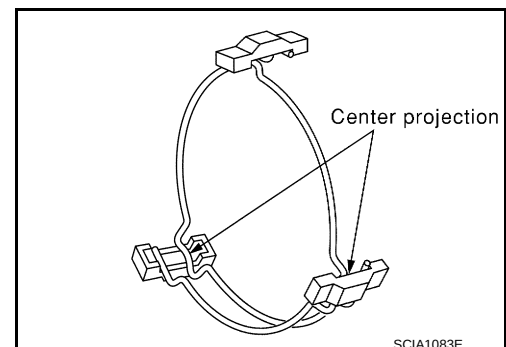
- Be careful with the orientation of 3rd-4th synchronizer hub.
- Never reuse 3rd-4th synchronizer hub and 3rd-4th coupling sleeve.
- Replace 3rd-4th synchronizer hub and 3rd-4th coupling sleeve as a set.



- Be careful with the orientation of 3rd-4th coupling sleeve.



- Be sure not to hook center projection of 2 spread springs on same shifting insert.



## INPUT SHAFT AND GEAR

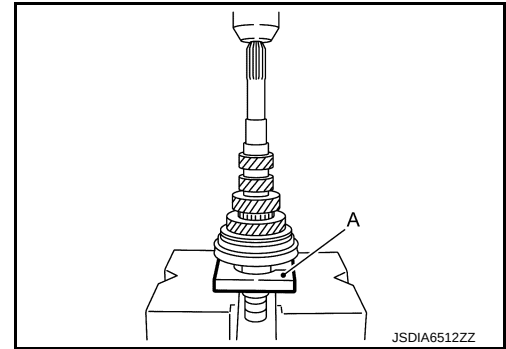
### < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

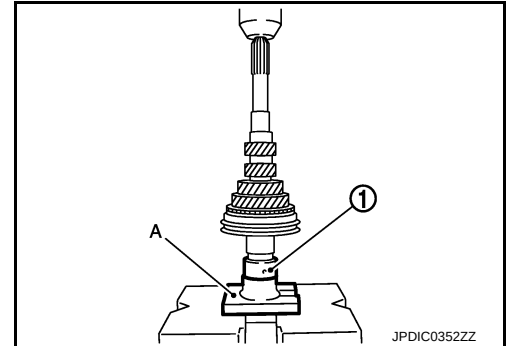
4. Press-fit 3rd-4th synchronizer hub assembly using the press stand (A) (SST: KV40105710).

**CAUTION:**

**Align grooves of 3rd-4th shifting insert and 3rd outer baulk ring.**



5. Press-fit 4th input gear bushing ① using the press stand (A) (SST: KV40105710).  
6. Install 4th baulk ring.  
7. Install 4th needle bearing and 4th input gear to input shaft.



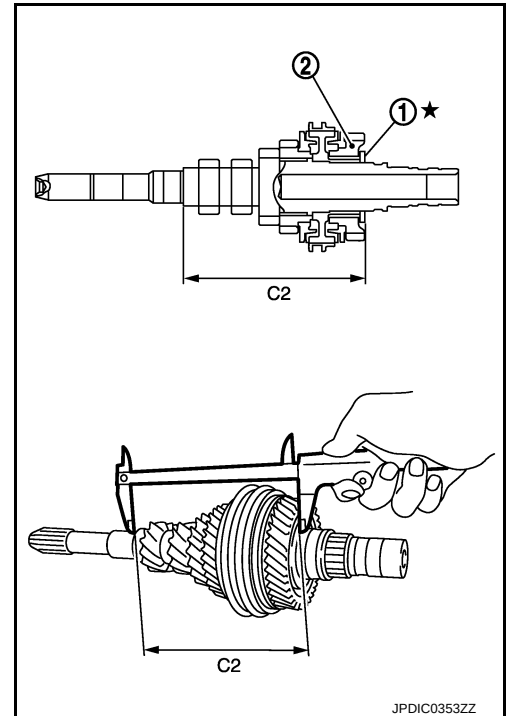
8. Select thrust washer ① so that dimension (C2) satisfies the standard value below. Then install thrust washer onto input shaft. For selecting thrust washer, refer to the latest parts information.

② : 4th input gear

**Dimension (C2) : Refer to [TM-225, "Dimension"](#).**

**CAUTION:**

**Only one thrust washer can be selected.**

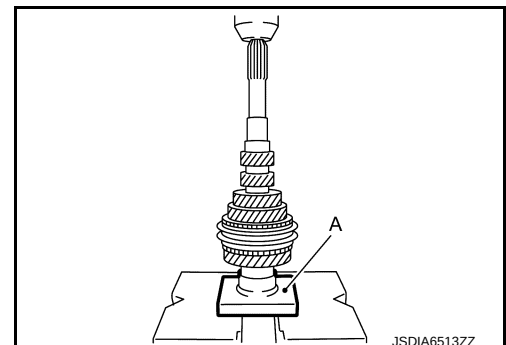


9. Press-fit 5th input gear bushing using the press stand (A) (SST: KV40105710).

**CAUTION:**

**Never reuse 5th input gear bushing.**

10. Install 5th needle bearing and 5th input gear to input shaft.  
11. Install 5th baulk ring.





## INPUT SHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

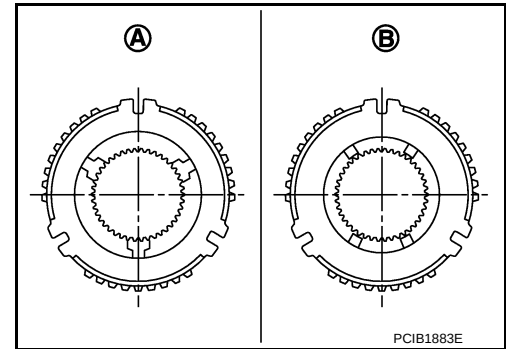
12. Install 5th-6th synchronizer hub, 5th-6th spread springs, and 5th-6th shifting inserts onto 5th-6th coupling sleeve.

**CAUTION:**

- Be careful with the orientation of 5th-6th synchronizer hub.

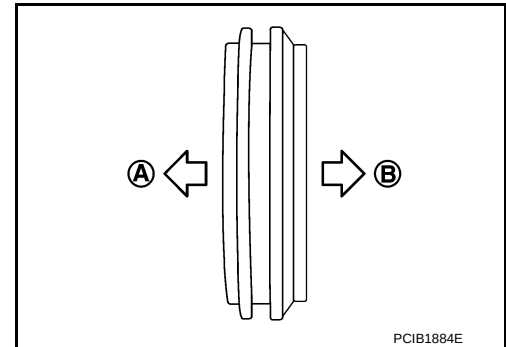
- Ⓐ : Transaxle front side  
Ⓑ : Transaxle rear side

- Never reuse 5th-6th synchronizer hub and 5th-6th coupling sleeve.
- Replace 5th-6th synchronizer hub and 5th-6th coupling sleeve as a set.

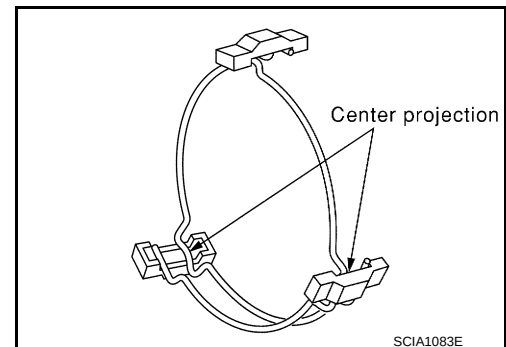


- Be careful with the orientation of 5th-6th coupling sleeve.

- Ⓐ : 5th input gear side  
Ⓑ : 6th input gear side



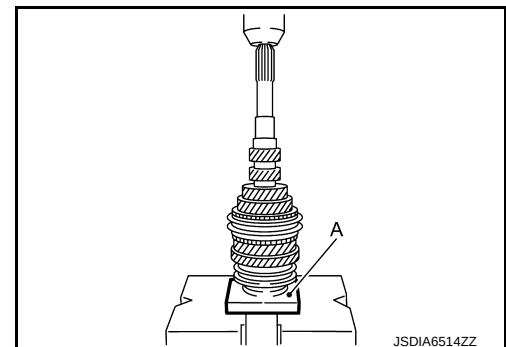
- Be sure not to hook center projection of 2 spread springs on same shifting insert.



13. Press-fit 5th-6th synchronizer hub assembly using the press stand (A) (SST: KV40105710).

**CAUTION:**

- Align grooves of 5th-6th shifting insert and 5th baulk ring.

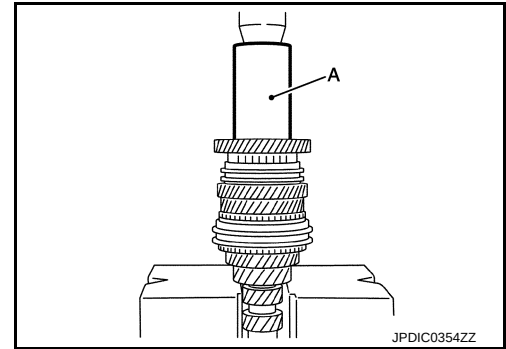


## INPUT SHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

14. Install 6th needle bearing, 6th input gear, 6th baulk ring onto 6th input gear bushing and then press-fit 6th input gear bushing onto input shaft using the drift (A) (SST: ST33200000).



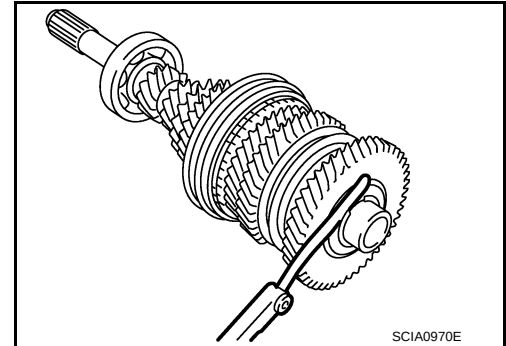
15. Install snap ring onto input shaft and make sure that end play (gap between snap ring and groove) of 6th input gear bushing satisfies the standard value.

**End play** : Refer to [TM-224, "End Play"](#).

- If measurement is outside the standard range, select snap ring. For selecting snap ring, refer to the latest parts information.

**CAUTION:**

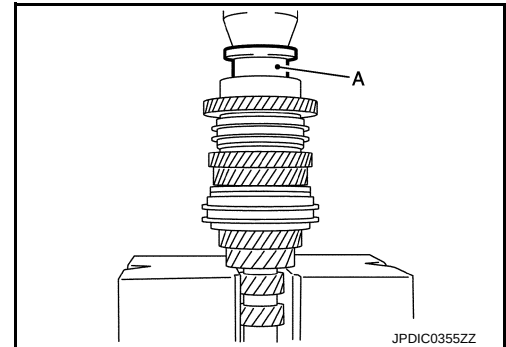
**Never reuse snap ring.**



16. Press-fit input shaft rear bearing using the drift (A) (SST: ST30901000).

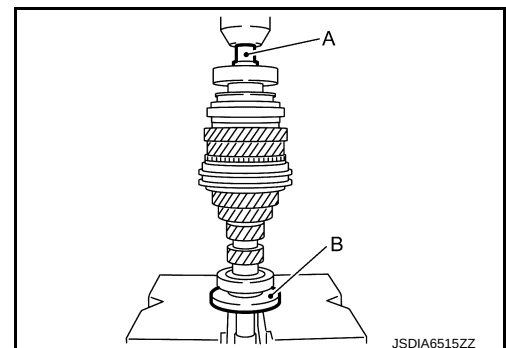
**CAUTION:**

**Install input shaft rear bearing with its brown surface facing the 6th input gear side.**



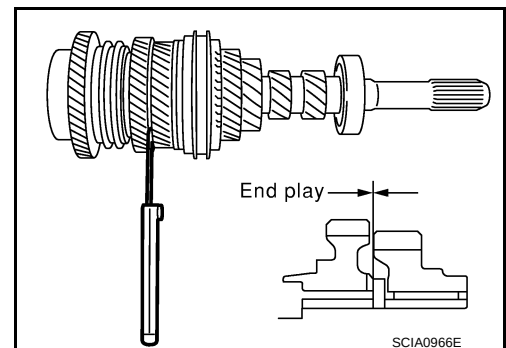
17. Press-fit input shaft front bearing using the drift (A) (SST: ST33052000) and the drift (B) (SST: ST30032000).

18. Install oil channel onto input shaft.



19. Check end play of 3rd, 4th, 5th, and 6th input gears.

**End play** : Refer to [TM-224, "End Play"](#).



# INPUT SHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

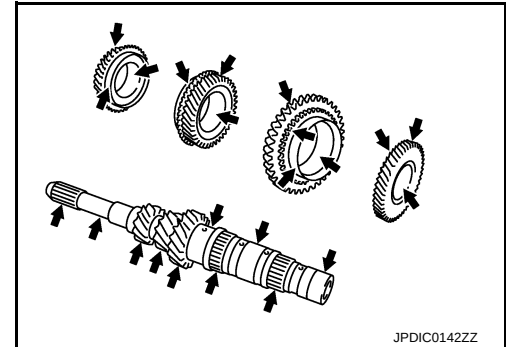
## Inspection

INFOID:000000010919413

### INPUT SHAFT AND GEAR

Check items below. If necessary, replace them with new ones.

- Damage, peeling, dent, uneven wear, bending, etc. of shaft.
- Excessive wear, damage, peeling, etc. of gears.
- Excessive wear, damage, peeling, etc. of cam side of clutch gears.

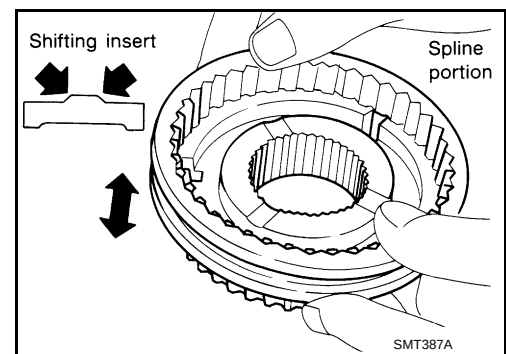


### SYNCHRONIZER

#### Synchronizer Hub and Coupling Sleeve

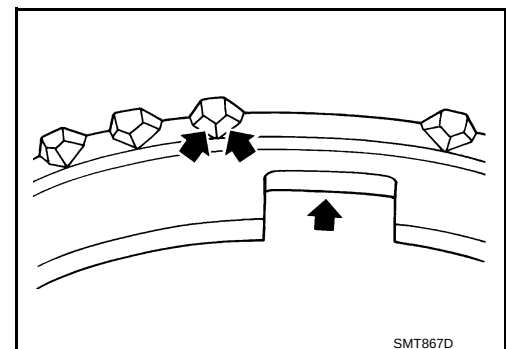
Check items below. If necessary, replace them with new ones.

- Damage and excessive wear of contact surfaces of coupling sleeve, synchronizer hub and shifting insert.
- Coupling sleeve and synchronizer hub must move smoothly.



#### Baulk Ring and Spread Spring

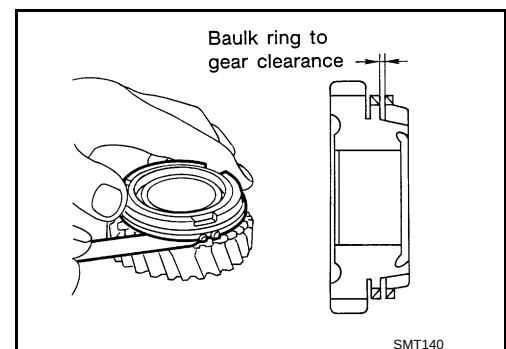
Check damage or excessive wear on cam face of baulk ring or working face of insert. If necessary, replace it with new ones.



#### Baulk Ring Clearance for Single Cone Synchronizer (4th, 5th, and 6th)

Push baulk ring on the cone and measure the clearance between baulk ring and cone. If measurement is below limit, replace it with a new one.

**Clearance** : Refer to [TM-224, "Baulk Ring Clearance"](#).



#### Baulk Ring Clearance for Double Cone Synchronizer (3rd)

# INPUT SHAFT AND GEAR

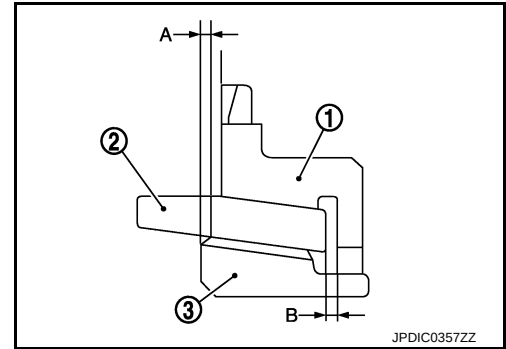
## < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

Check the clearance between outer baulk ring ①, synchronizer cone ②, and inner baulk ring ③ as follows.

### CAUTION:

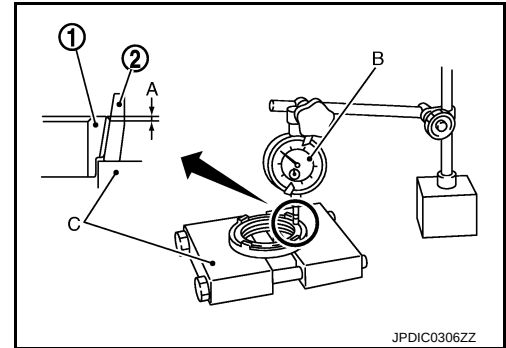
The clearances (A) and (B) are controlled with outer baulk ring, synchronizer cone, and inner baulk ring as a set. Replace them as a set if the clearances are outside the limit value.



1. Measure the clearance (A) at 2 points or more diagonally opposite using a dial indicator (B) and the puller (C) (SST: ST30031000). And then calculate mean value.

- ① : Inner baulk ring
- ② : Synchronizer cone

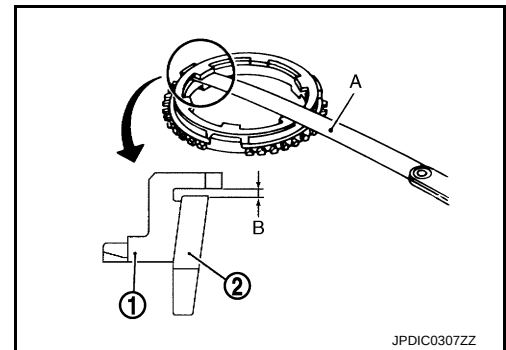
**Clearance (A) : Refer to [TM-224, "Baulk Ring Clearance"](#).**



2. Measure the clearance (B) at 2 points or more diagonally opposite using a feeler gauge (A). And then calculate mean value.

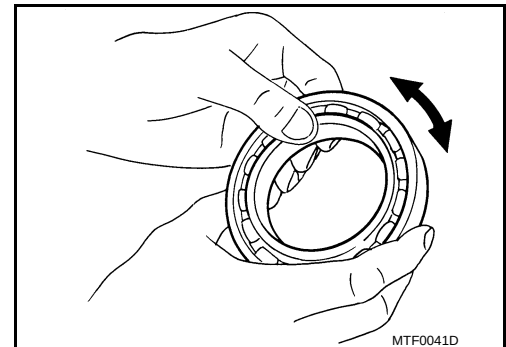
- ① : Outer baulk ring
- ② : Synchronizer cone

**Clearance (B) : Refer to [TM-224, "Baulk Ring Clearance"](#).**



## BEARING

Check for bearing damage and rough rotation. If necessary, replace with a new one.



# MAINSHAFT AND GEAR

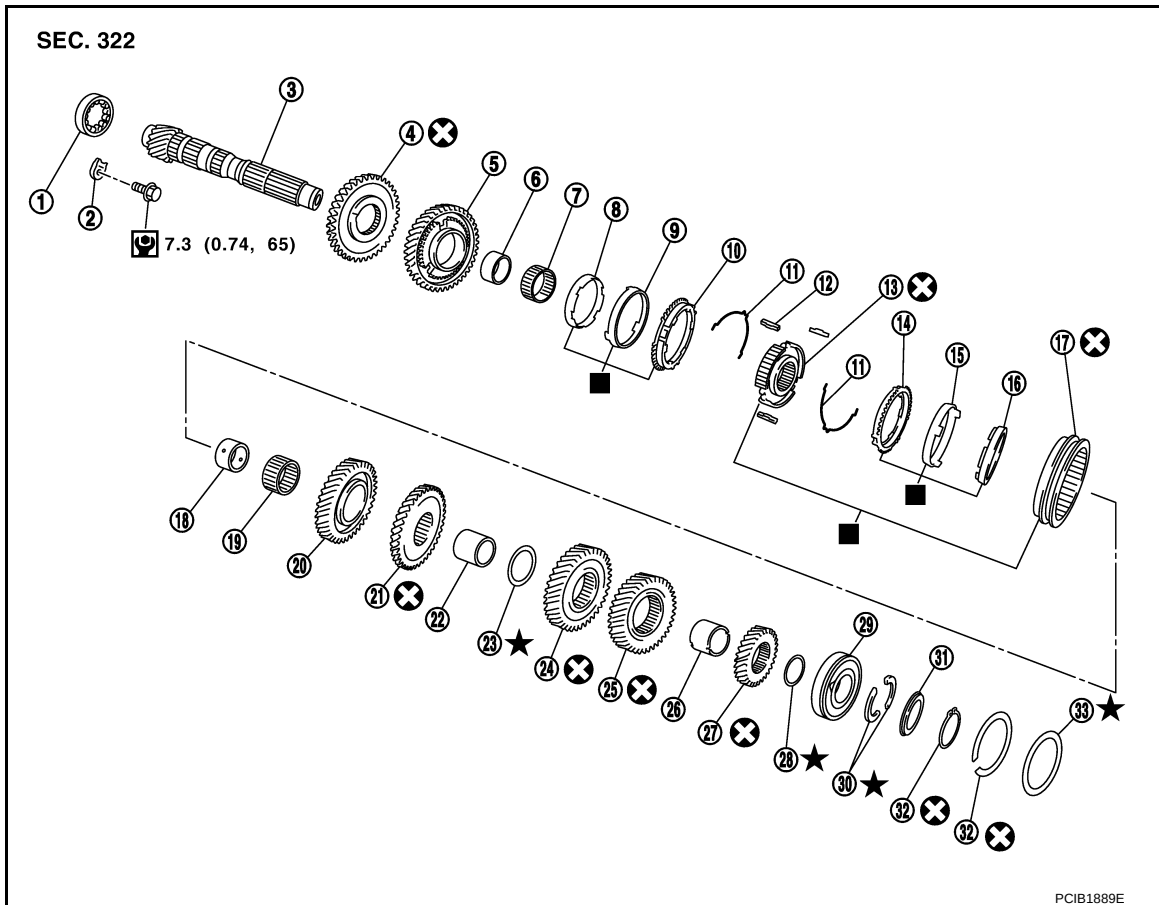
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

## MAINSHAFT AND GEAR

### Exploded View

INFOID:000000010957985



- |                                |                                |                                         |
|--------------------------------|--------------------------------|-----------------------------------------|
| ① Mainshaft front bearing      | ② Mainshaft bearing retainer   | ③ Mainshaft                             |
| ④ Reverse main gear            | ⑤ 1st main gear                | ⑥ 1st main gear bushing                 |
| ⑦ 1st needle bearing           | ⑧ 1st inner baulk ring         | ⑨ 1st synchronizer cone                 |
| ⑩ 1st outer baulk ring         | ⑪ 1st-2nd spread spring        | ⑫ 1st-2nd shifting insert               |
| ⑬ 1st-2nd synchronizer hub     | ⑭ 2nd outer baulk ring         | ⑮ 2nd synchronizer cone                 |
| ⑯ 2nd inner baulk ring         | ⑰ 1st-2nd coupling sleeve      | ⑱ 2nd main gear bushing                 |
| ⑲ 2nd needle bearing           | ⑳ 2nd main gear                | ㉑ 3rd main gear                         |
| ㉒ 3rd-4th mainshaft spacer     | ㉓ 4th main gear adjusting shim | ㉔ 4th main gear                         |
| ㉕ 5th main gear                | ㉖ 5th-6th mainshaft spacer     | ㉗ 6th main gear                         |
| ㉘ 6th main gear adjusting shim | ㉙ Mainshaft rear bearing       | ㉚ Mainshaft C-ring                      |
| ㉛ C-ring holder                | ㉜ Snap ring                    | ㉝ Mainshaft rear bearing adjusting shim |

: N·m (kg·m, in·lb)

: Always replace after every disassembly.

★: Select with proper thickness.

: Replace the parts as a set.

#### CAUTION:

Apply gear oil to gears, shafts, synchronizers, and bearings when assembly.

# MAINSHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

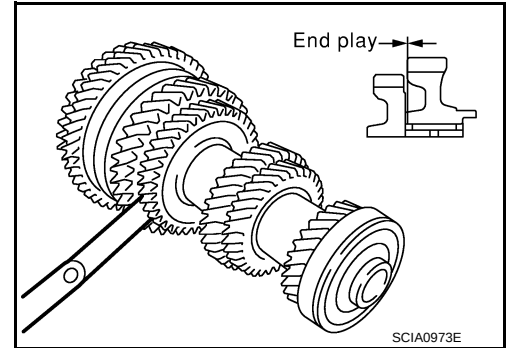
## Disassembly and Assembly

INFOID:000000010919415

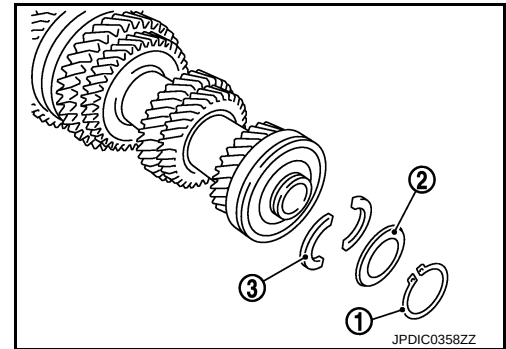
### DISASSEMBLY

1. Before disassembling, measure the end play of 1st and 2nd main gears.

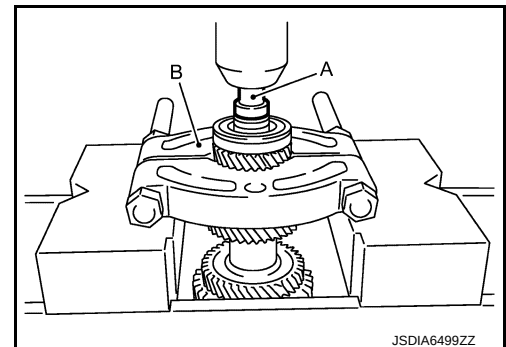
**End play** : Refer to [TM-224, "End Play"](#).



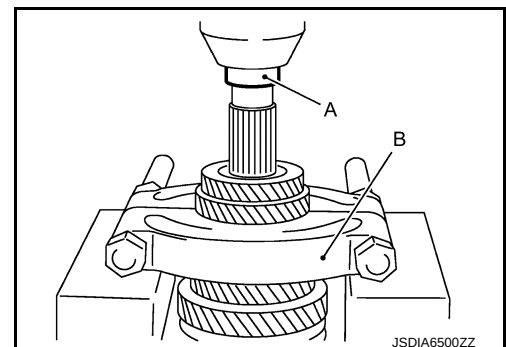
2. Remove snap ring ①, C-ring holder ② and then remove mainshaft C-rings ③.



3. Press out mainshaft rear bearing, 6th main gear adjusting shim, and 6th main gear using the drift (A) (SST: ST33052000) and a separator (commercial service tool).
4. Remove 5th-6th mainshaft spacer.



5. Press out 4th main gear and 5th main gear using the drift (SST) and a separator (commercial service tool).
6. Remove 4th main gear adjusting shim.
7. Remove 3rd-4th mainshaft spacer.

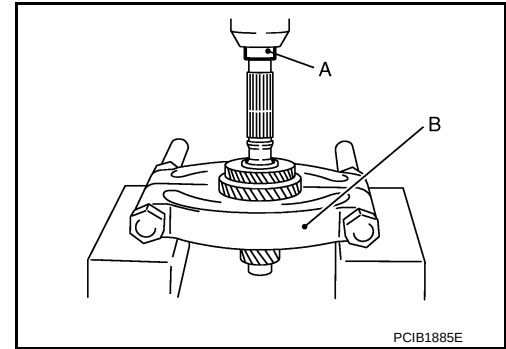


# 

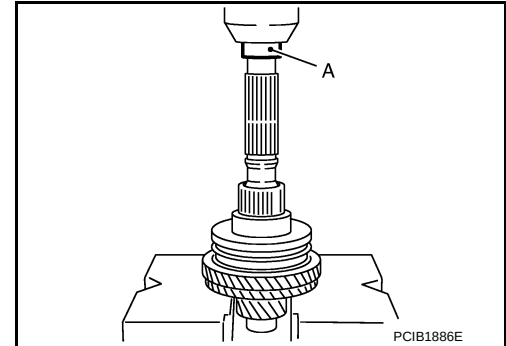
### 

[6MT: RS6F52A]

8. Press out 3rd main gear and 2nd main gear using the drift (A) (SST: KV40105020) and a separator (B) (commercial service tool).
9. Remove 2nd needle bearing.



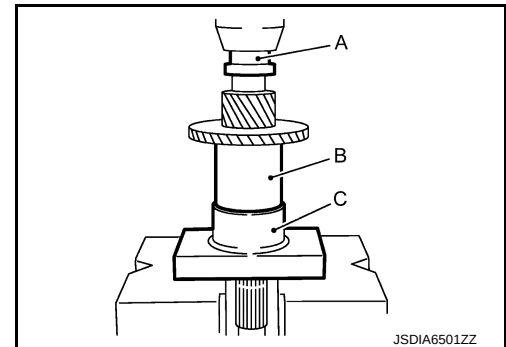
10. Press out 2nd main gear bushing, 1st-2nd synchronizer hub assembly, 1st main gear, 1st needle bearing, 1st main gear bushing, and reverse main gear using the drift (A) (SST: KV40105020).



### 

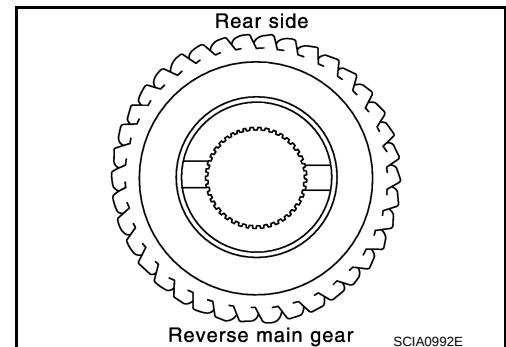
1. Press-fit reverse main gear using the drifts (A and B) and the press stand (C).

- A : Drift (SST: ST35321000)
- B : Drift (SST: KV40106330)
- C : Press stand (SST: ST38220000)



### 

- Be careful with the orientation of reverse main gear.
- Never reuse reverse main gear.



## MAINSHAFT AND GEAR

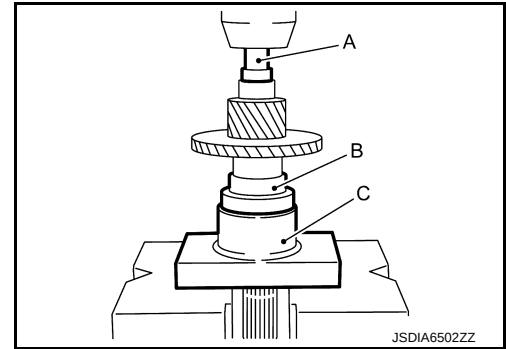
### < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

2. Press-fit 1st main gear bushing using the drifts (A and B) and the press stand (C).

- A : Drift (SST: ST35321000)  
B : Drift (SST: KV38102510)  
C : Press stand (SST: ST38220000)

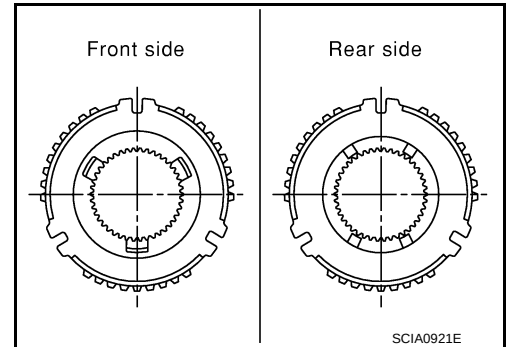
3. Install 1st needle bearing and then 1st main gear.



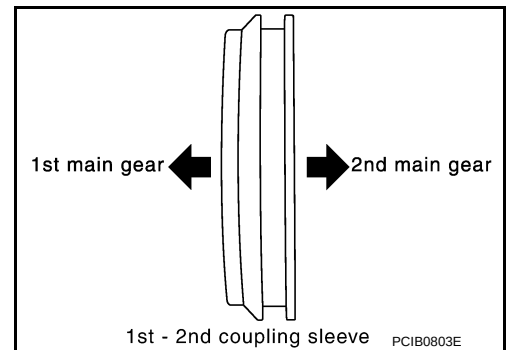
4. Install 1st-2nd spread springs, 1st-2nd shifting inserts, and 1st-2nd synchronizer hub onto 1st-2nd coupling sleeve.

**CAUTION:**

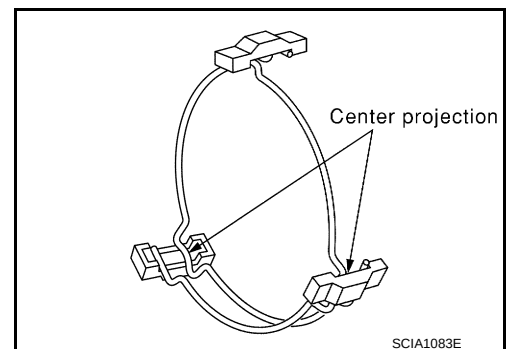
- Be careful with the orientation of 1st-2nd synchronizer hub.
- Never reuse 1st-2nd synchronizer hub and 1st-2nd coupling sleeve.
- Replace 1st-2nd synchronizer hub and 1st-2nd coupling sleeve as a set.



- Be careful with the orientation of 1st-2nd coupling sleeve.



- Be sure not to hook center projection of 2 spread springs on same 1st-2nd shifting insert.





## MAINSHAFT AND GEAR

### < UNIT DISASSEMBLY AND ASSEMBLY >

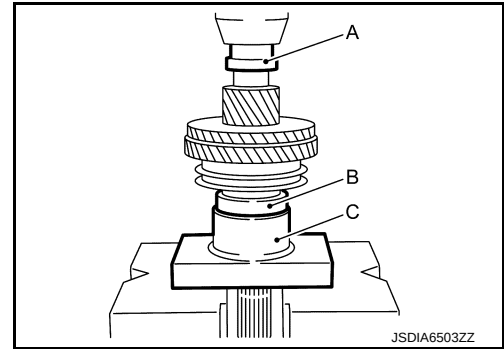
[6MT: RS6F52A]

5. Install 1st inner baulk ring, 1st synchronizer cone, and 1st outer baulk ring onto mainshaft and then press-fit 1st-2nd synchronizer hub assembly onto mainshaft using the drifts (A and B) and the press stand (C).

- A : Drift (SST: ST35321000)  
B : Drift (SST: KV38102510)  
C : Press stand (SST: ST38220000)

**CAUTION:**

- **Outer baulk ring, synchronizer cone, and inner baulk ring on 2nd gear-side must have been removed.**
- **Be careful with the orientation of coupling sleeve.**
- **Replace 1st inner baulk ring, 1st synchronizer cone, and 1st outer baulk ring as a set.**



6. Press-fit 2nd main gear bushing using the drift (A) and the press stand (B).

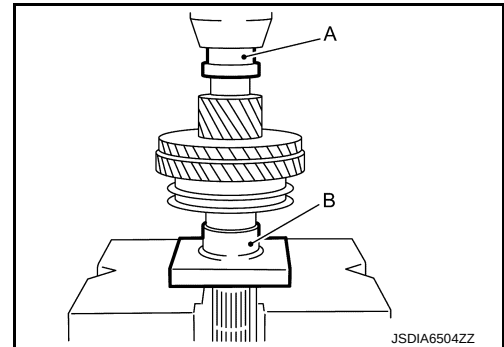
- A : Drift (SST: ST35321000)  
B : Press stand (SST: KV40105710)

7. Install 2nd outer baulk ring, 2nd synchronizer cone, and 2nd inner baulk ring.

**CAUTION:**

- Replace 2nd outer baulk ring, 2nd synchronizer cone, and 2nd inner baulk ring as a set.**

8. Install 2nd needle bearing and 2nd main gear.



9. Press-fit 3rd main gear ① using the drift (A) and the press stand (B).

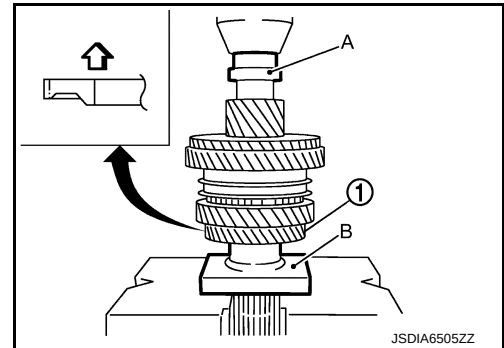
← : Transaxle front side

- A : Drift (SST: ST35321000)  
B : Press stand (SST: KV40105710)

**CAUTION:**

- **Be careful with the orientation of 3rd main gear.**
- **Never reuse 3rd main gear.**

10. Install 3rd-4th mainshaft spacer.



# 

### 

[6MT: RS6F52A]

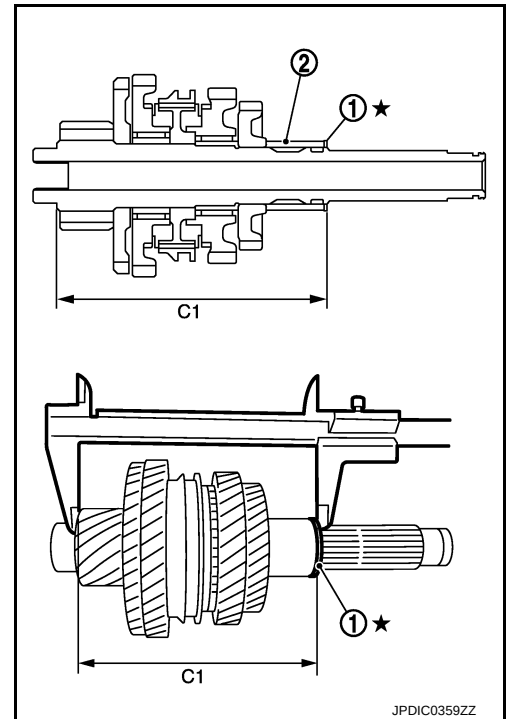
- Select 4th main gear adjusting shim so that dimension (C1) satisfies the standard value below and install 4th main gear adjusting shim ① onto mainshaft. For selecting 4th main gear adjusting shim, refer to the latest parts information.

② : 3rd-4th mainshaft spacer

Dimension (C1) : Refer to [TM-225, "Dimension"](#).

#### CAUTION:

Only one adjusting shim can be selected.



- Press-fit 4th main gear ① using the drifts (A and B).

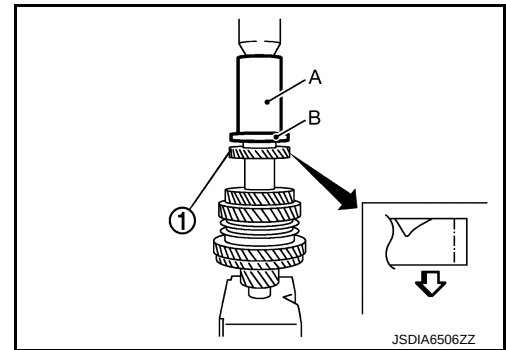
⇐ : Transaxle front side

A : Drift (SST: ST33200000)

B : Drift (SST: ST30901000)

#### CAUTION:

- Be careful with the orientation of 4th main gear.
- Never reuse 4th main gear.



- Press-fit 5th main ① gear using the drifts (A and B).

⇐ : Transaxle front side

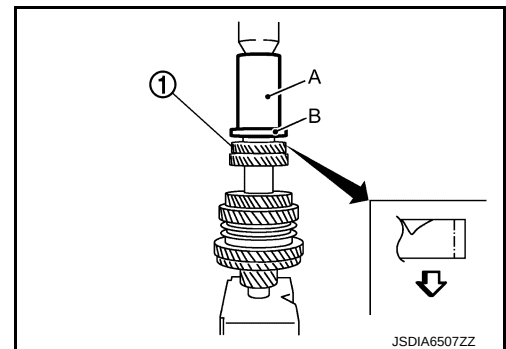
A : Drift (SST: ST33200000)

B : Drift (SST: ST30901000)

#### CAUTION:

- Be careful with the orientation of 5th main gear.
- Never reuse 5th main gear.

- Install 5th-6th mainshaft spacer.



- Press-fit 6th main gear using the drifts (A and B).

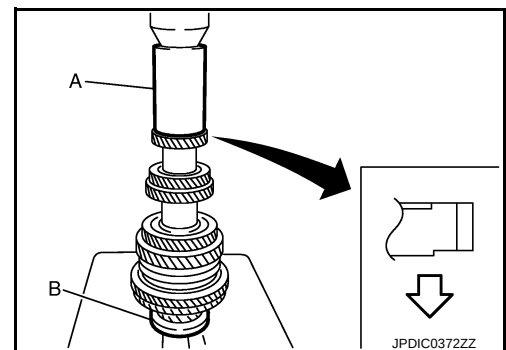
⇐ : Transaxle front side

A : Drift (SST: ST33200000)

B : Drift (SST: ST30901000)

#### CAUTION:

- Be careful with the orientation of 6th main gear.
- Never reuse 6th main gear.



# MAINSHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

16. Select 6th main gear adjusting shim and then install it onto mainshaft.

- Calculate thickness (S) of 6th main gear adjusting shim, as per the following procedure so that end play dimension between 6th main gear and mainshaft rear bearing becomes the dimension shown below. For selecting 6th main gear adjusting shim, refer to the latest parts information.

**End play** : Refer to [TM-224, "End Play"](#).

**Dimension (S) = [(S<sub>1</sub>) – (S<sub>2</sub>)] – End play**

**S** : Thickness of adjusting shim

**S<sub>1</sub>** : Dimension from mainshaft standard face to mainshaft rear bearing press-fit end face

**S<sub>2</sub>** : Dimension from mainshaft standard face to 6th main gear end face

A : Height gauge

B : Pick tester

## CAUTION:

**Only one adjusting shim can be selected.**

- Measure dimension (S<sub>1</sub>) and (S<sub>2</sub>) using a height gauge and a pick tester.
- Install selected 6th main gear adjusting shim to mainshaft.

17. Press-fit mainshaft rear bearing using the drifts (A and B).

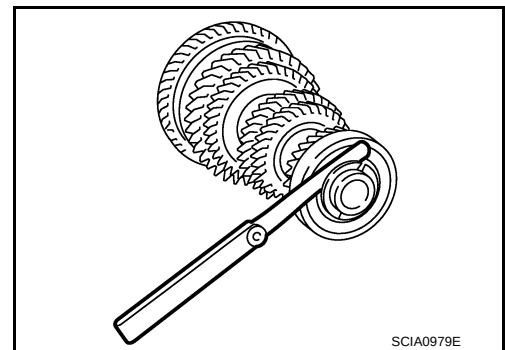
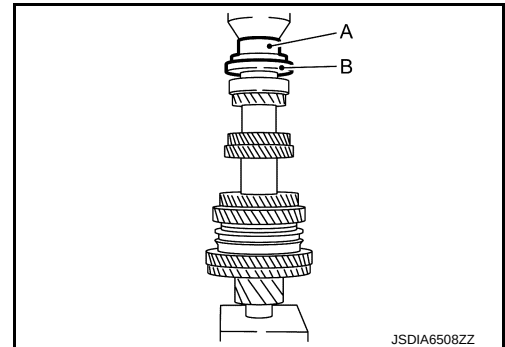
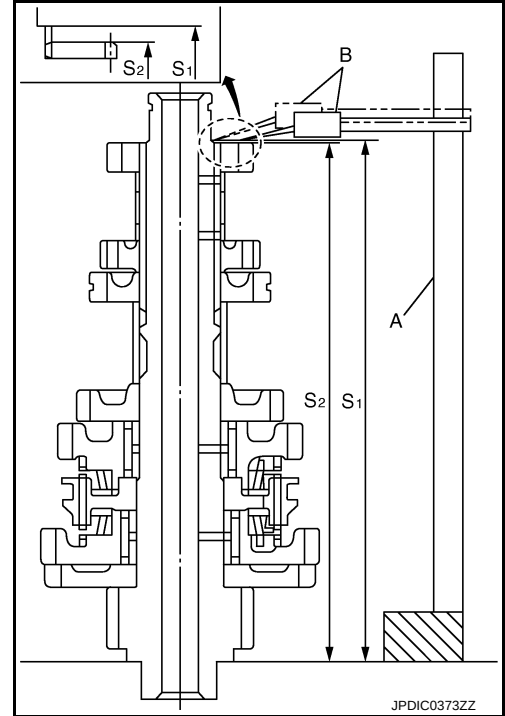
A : Drift (SST: ST30720000)

B : Drift (SST: ST30901000)

18. Install mainshaft C-rings onto mainshaft and check that end play of mainshaft rear bearing satisfies the standard value.

**End play** : Refer to [TM-224, "End Play"](#).

- If measurement is outside the standard range, reselect mainshaft C-rings. For selecting mainshaft C-ring, refer to the latest parts information.

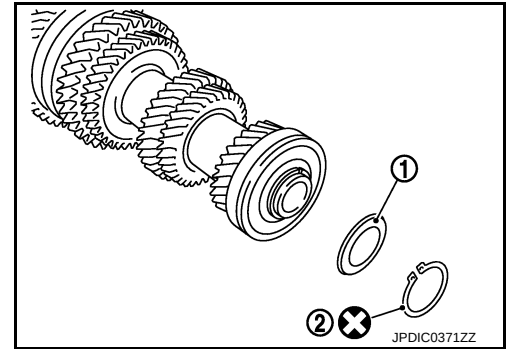


## MAINSHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

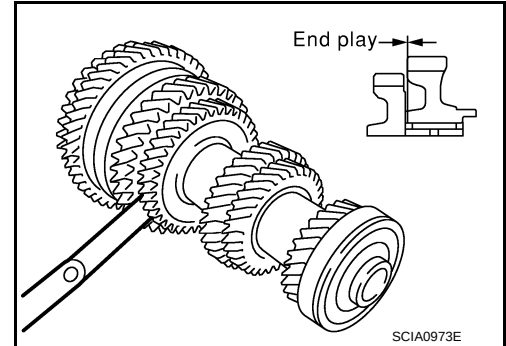
[6MT: RS6F52A]

19. Install C-ring holder ① and then install snap ring ②.



20. Check end play of 1st and 2nd main gears.

**End play** : Refer to [TM-224, "End Play"](#).



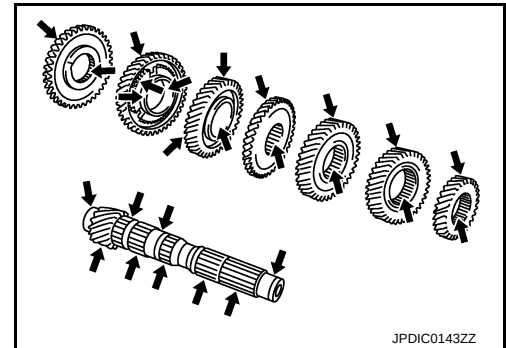
INFOID:0000000010919417

## Inspection

### MAINSHAFT AND GEAR

Check items below. If necessary, replace them with new ones.

- Damage, peeling, dent, uneven wear, bending, etc. of shaft.
- Excessive wear, damage, peeling, etc. of gears.
- Excessive wear, damage, peeling, etc. of cam side of clutch gears.

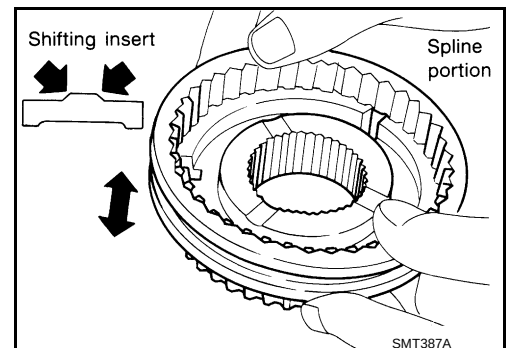


### SYNCHRONIZER

#### Synchronizer Hub and Coupling Sleeve

Check items below. If necessary, replace them with new ones.

- Damage and excessive wear of contact surfaces of coupling sleeve, synchronizer hub and shifting insert.
- Coupling sleeve and synchronizer hub must move smoothly.



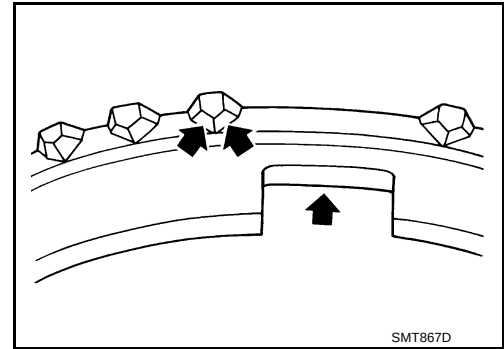
#### Baulk Ring and Spread Spring

# 

### 

[6MT: RS6F52A]

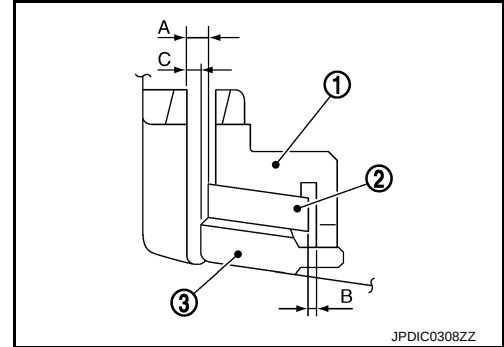
Check damage or excessive wear on cam face of baulk ring or working face of insert. If necessary, replace it with new ones.



Baulk Ring Clearance for Triple Cone Synchronizer (1st and 2nd)  
Check the clearance between outer baulk ring ①, synchronizer cone ②, and inner baulk ring ③ as follows.

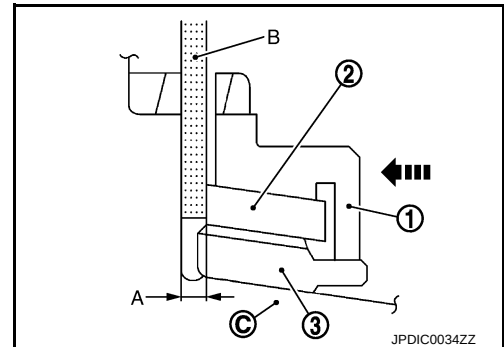
#### CAUTION:

The clearances (A), (B), and (C) are controlled with outer baulk ring, synchronizer cone, and inner baulk ring as a set. Replace them as a set if the clearances are outside the limit value.



1. Measure the clearance (A) at 2 points or more diagonally opposite using a feeler gauge (B) when pressing outer baulk ring ①, synchronizer cone ②, and inner baulk ring ③ toward gear taper cone ④. And then calculate mean value.

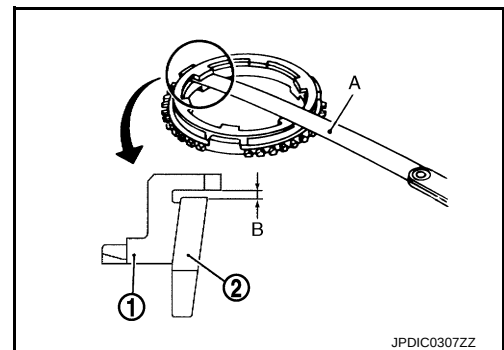
Clearance (A) : Refer to [TM-224, "Baulk Ring Clearance"](#).



2. Measure the clearance (B) at 2 points or more diagonally opposite using a feeler gauge (A). And then calculate mean value.

- ① : Outer baulk ring
- ② : Synchronizer cone

Clearance (B) : Refer to [TM-224, "Baulk Ring Clearance"](#).



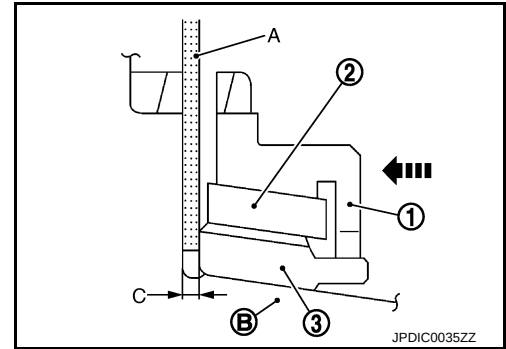
## MAINSHAFT AND GEAR

### < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

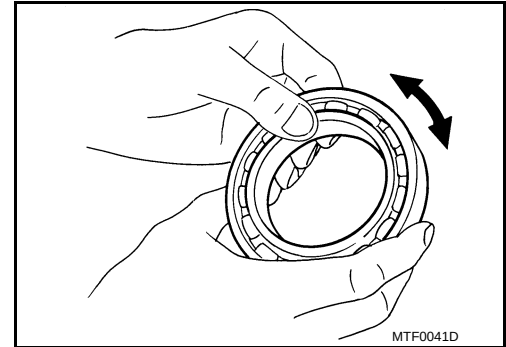
3. Measure the clearance (C) at 2 points or more diagonally opposite using a feeler gauge (A) when pressing outer baulk ring ①, synchronizer cone ②, and inner baulk ring ③ toward gear taper cone ④. And then calculate mean value.

**Clearance (C)** : Refer to [TM-224, "Baulk Ring Clearance"](#).



### BEARING

Check for bearing damage and rough rotation. If necessary, replace with a new one.



# REVERSE IDLER SHAFT AND GEAR

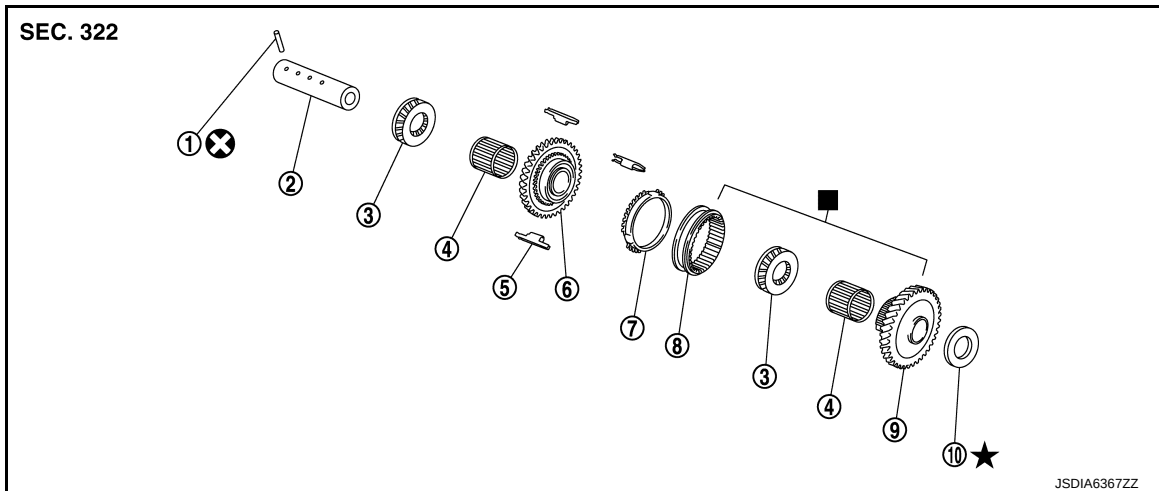
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

## REVERSE IDLER SHAFT AND GEAR

### Exploded View

INFOID:000000010957986



- |                                     |                           |                              |
|-------------------------------------|---------------------------|------------------------------|
| ① Retaining pin                     | ② Reverse idler shaft     | ③ Thrust needle bearing      |
| ④ Reverse idler gear needle bearing | ⑤ Reverse insert spring   | ⑥ Reverse idler gear (front) |
| ⑦ Reverse baulk ring                | ⑧ Reverse coupling sleeve | ⑨ Reverse idler gear (rear)  |
| ⑩ Reverse idler gear adjusting shim |                           |                              |

⊗: Always replace after every disassembly.

★: Select with proper thickness.

■: Replace the parts as a set.

#### CAUTION:

Apply gear oil to gears, shafts, synchronizers, and bearings when assembly.

### Disassembly and Assembly

INFOID:000000010919419

#### DISASSEMBLY

1. Remove reverse idler gear (rear), reverse coupling sleeve, and reverse insert springs simultaneously.
2. Remove reverse idler gear needle bearing of the rear side.
3. Remove thrust needle bearing of the rear side.
4. Remove reverse baulk ring.
5. Remove reverse idler gear (front).
6. Remove reverse idler gear needle bearing of the front side.
7. Remove thrust needle bearing of the front side.
8. Remove retaining pin from reverse idler shaft.

#### ASSEMBLY

Note the following, and assemble in the reverse order of disassembly.

#### CAUTION:

## REVERSE IDLER SHAFT AND GEAR

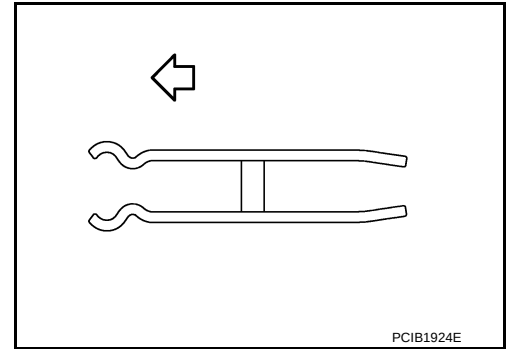
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

- Be careful with the orientation of reverse insert spring.

⇐ : Transaxle front side

- Never reuse retaining pin.



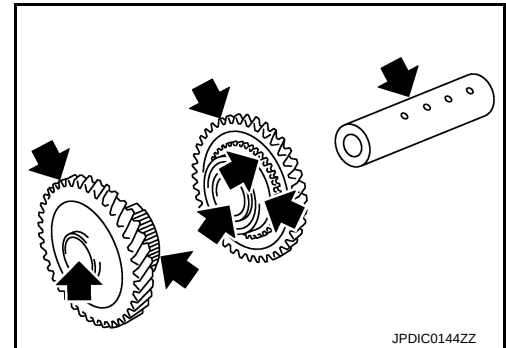
INFOID:0000000010919421

### Inspection

#### REVERSE IDLER SHAFT AND GEAR

Check items below. If necessary, replace them with new ones.

- Damage, peeling, dent, uneven wear, bending, etc. of shaft.
- Excessive wear, damage, peeling, etc. of gears.
- Excessive wear, damage, peeling, etc. of cam side of clutch gears.

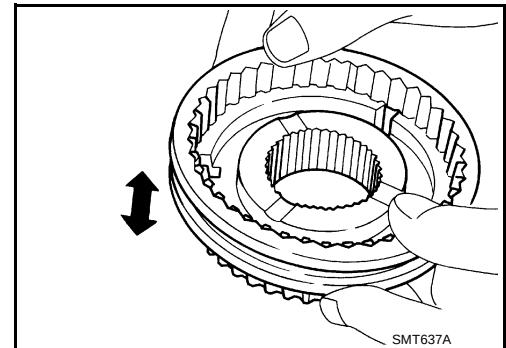


#### SYNCHRONIZER

##### Synchronizer Hub and Coupling Sleeve

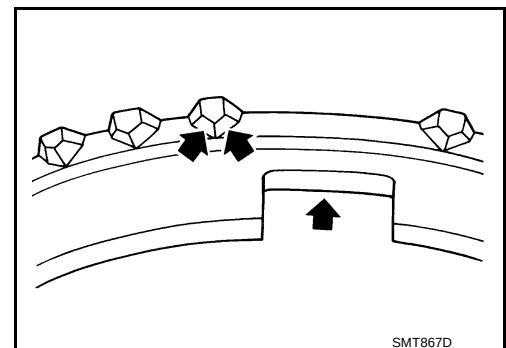
Check items below. If necessary, replace them with new ones.

- Damage and excessive wear of contact surfaces of coupling sleeve, synchronizer hub of reverse idler gear (rear), and insert spring.
- Coupling sleeve and synchronizer hub of reverse idler gear (rear) must move smoothly.



##### Baulk Ring

Check damage or excessive wear on cam face of baulk ring or working face of insert. If necessary, replace it with new ones.



Baulk Ring Clearance for Single Cone Synchronizer (Reverse)



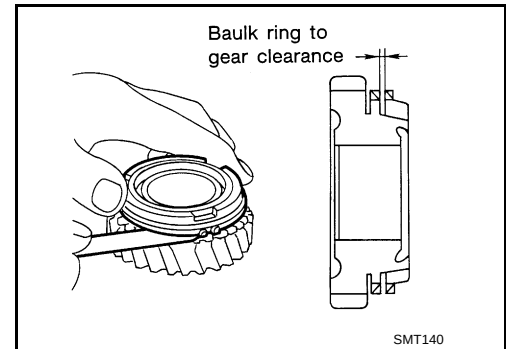
## REVERSE IDLER SHAFT AND GEAR

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

Push baulk ring on the cone and measure the clearance between baulk ring and cone. If the measurement is below limit, replace it with a new one.

**Clearance** : Refer to [TM-224, "Baulk Ring Clearance"](#).



### BEARING

Check for bearing damage and rough rotation. If necessary, replace with a new one.

# SHIFT FORK AND FORK ROD

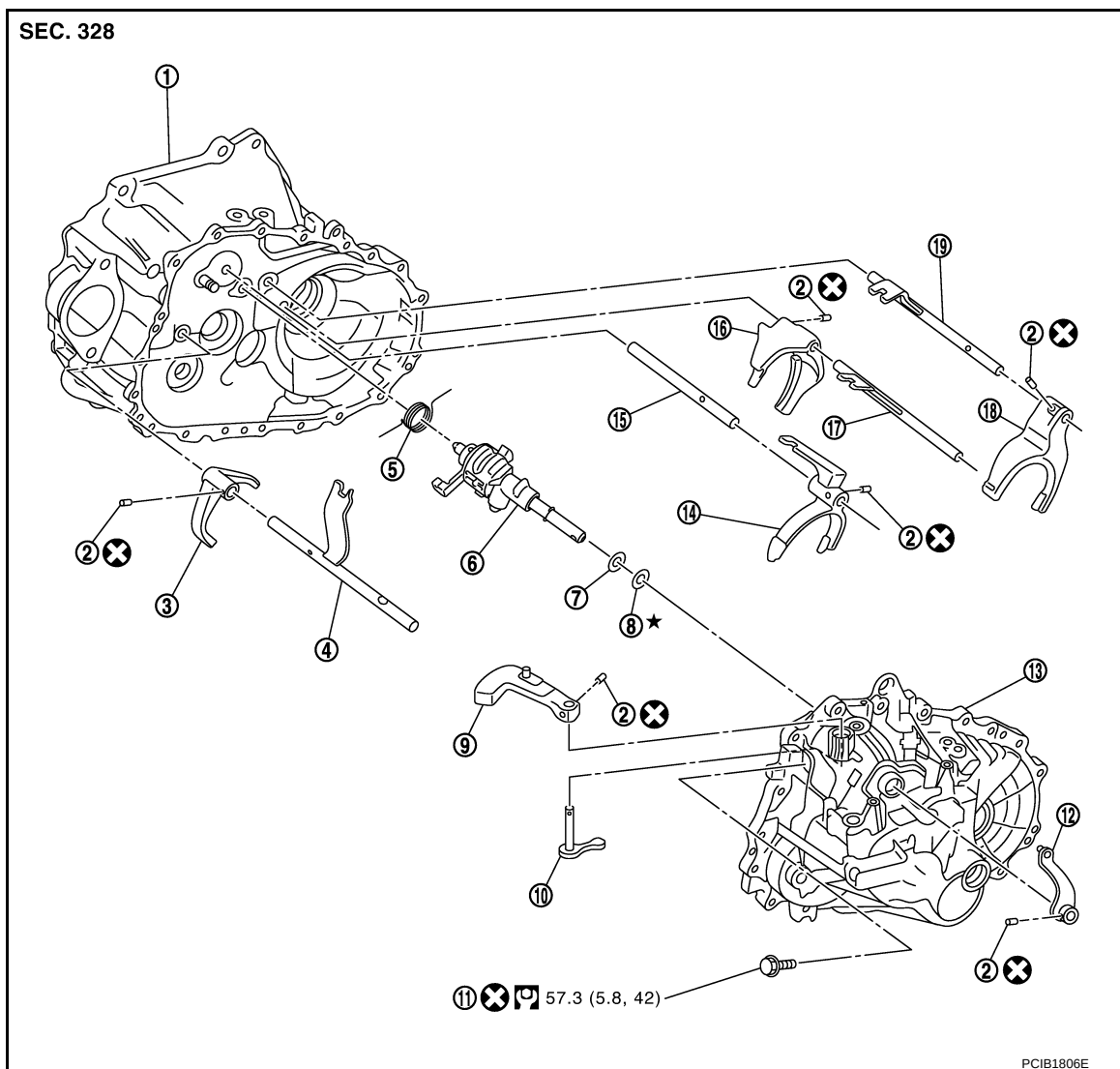
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

## SHIFT FORK AND FORK ROD

Exploded View

INFOID:000000010957987



- |                       |                               |                       |
|-----------------------|-------------------------------|-----------------------|
| ① Clutch housing      | ② Retaining pin               | ③ Reverse shift fork  |
| ④ Reverse fork rod    | ⑤ Return spring               | ⑥ Striking rod        |
| ⑦ Striking rod shim   | ⑧ Striking rod adjusting shim | ⑨ Shift lever (outer) |
| ⑩ Shift lever (inner) | ⑪ Guide bolt                  | ⑫ Select lever        |
| ⑬ Transaxle case      | ⑭ 3rd-4th shift fork          | ⑮ 3rd-4th fork rod    |
| ⑯ 1st-2nd shift fork  | ⑰ 1st-2nd fork rod            | ⑱ 5th-6th shift fork  |
| ⑲ 5th-6th fork rod    |                               |                       |

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

★: Select with proper thickness.

Disassembly and Assembly

INFOID:000000010919431

DISASSEMBLY

# SHIFT FORK AND FORK ROD

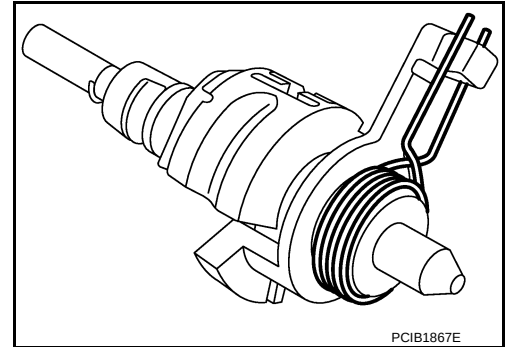
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

For disassembly procedures other than the following items, refer to [TM-129, "2WD : Disassembly and Assembly"](#) (2WD) or [TM-159, "4WD : Disassembly and Assembly"](#) (4WD).

Striking Rod

Remove return spring to striking rod.



## ASSEMBLY

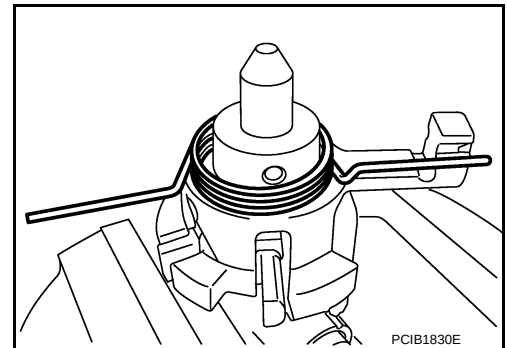
For assembly procedures other than the following items, refer to [TM-129, "2WD : Disassembly and Assembly"](#) (2WD) or [TM-159, "4WD : Disassembly and Assembly"](#) (4WD).

Striking Rod

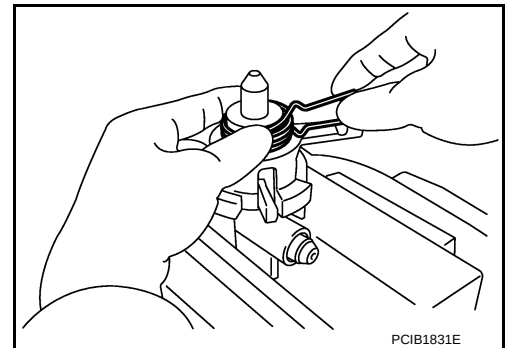
1. Temporarily install return spring to striking rod.

**CAUTION:**

**Be careful with the orientation of return spring.**

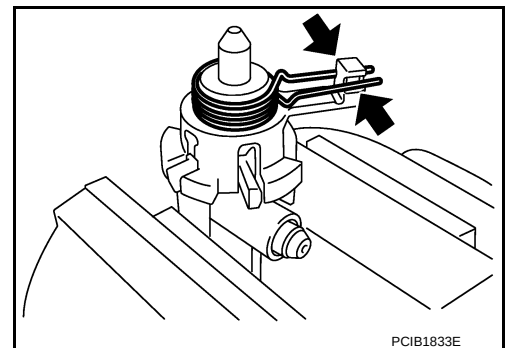


2. Attach one end of the return spring to striking interlock of striking rod while holding return spring.



**CAUTION:**

**When installing, check that return spring is securely seated in the groove of striking interlock of striking rod.**



## SHIFT FORK AND FORK ROD

< UNIT DISASSEMBLY AND ASSEMBLY >

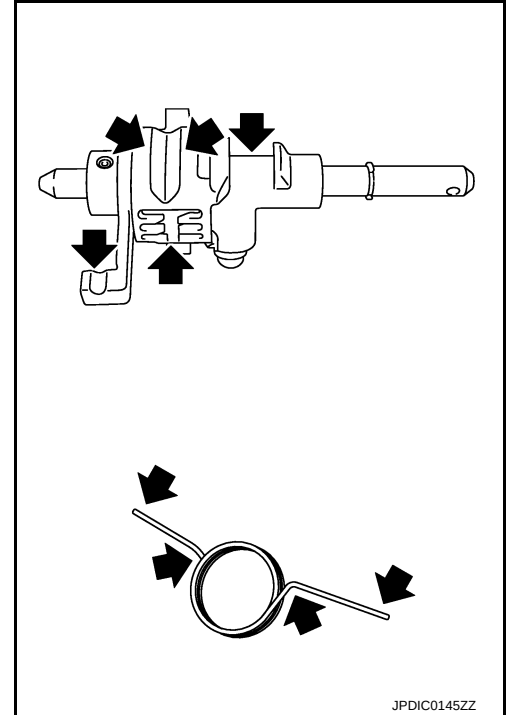
[6MT: RS6F52A]

### Inspection

INFOID:000000010919433

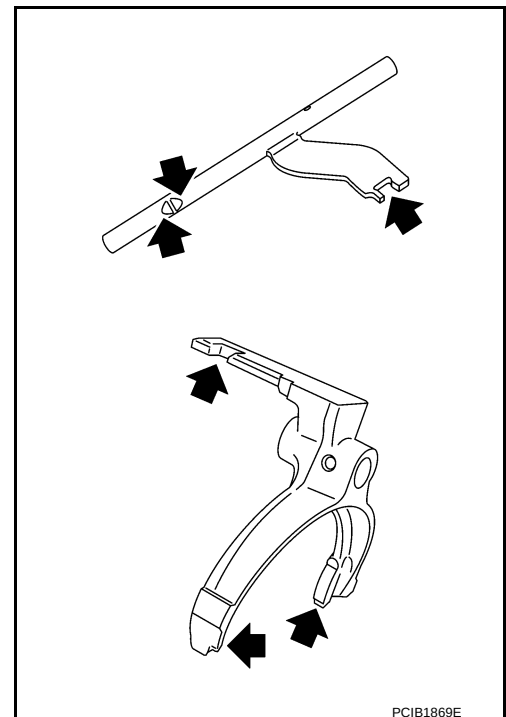
#### STRIKING ROD AND RETURN SPRING

Check contact surfaces and sliding area for wear, damage, bending, etc. If necessary, replace parts.



#### FORK ROD AND SHIFT FORK

- Check contact surfaces and sliding area for wear, damage, bending, etc. If necessary, replace parts.



## SHIFT FORK AND FORK ROD

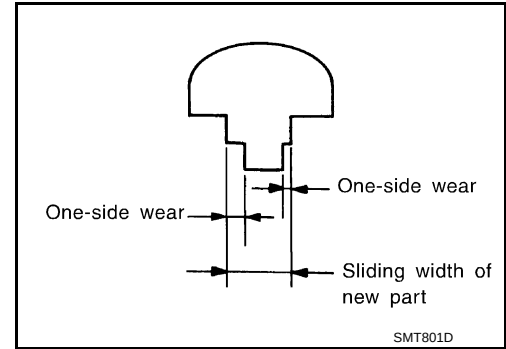
< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

- Check if the width of shift fork hook (sliding area with coupling sleeve) is within allowable specification below.

**One-side wear specification** : Refer to [TM-225, "Dimension"](#).

**Sliding width of new part** : Refer to [TM-225, "Dimension"](#).



A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

# FINAL DRIVE

< UNIT DISASSEMBLY AND ASSEMBLY >

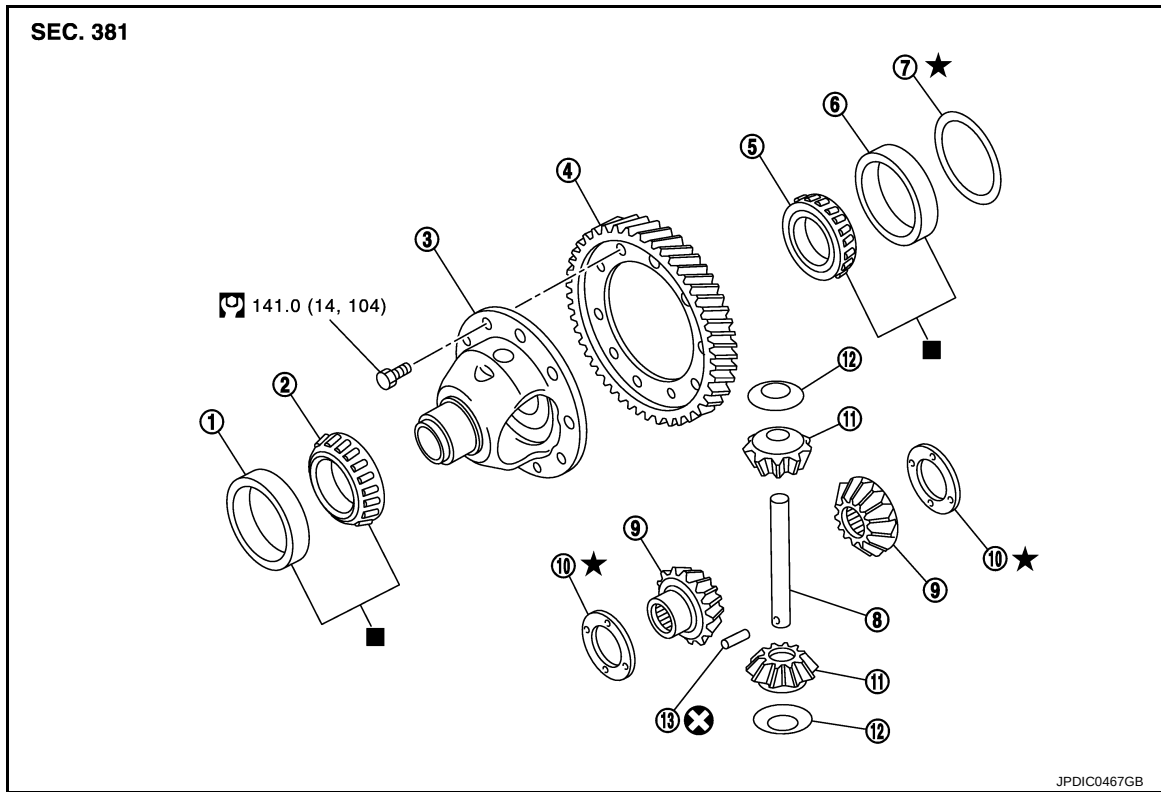
[6MT: RS6F52A]

## FINAL DRIVE

2WD

2WD : Exploded View

INFOID:0000000010957988



- |                                                              |                                                   |                                                              |
|--------------------------------------------------------------|---------------------------------------------------|--------------------------------------------------------------|
| ① Differential side bearing outer race (clutch housing side) | ② Differential side bearing (clutch housing side) | ③ Differential case                                          |
| ④ Final gear                                                 | ⑤ Differential side bearing (transaxle case side) | ⑥ Differential side bearing outer race (transaxle case side) |
| ⑦ Differential side bearing adjusting shim                   | ⑧ Pinion mate shaft                               | ⑨ Side gear                                                  |
| ⑩ Side gear thrust washer                                    | ⑪ Pinion mate gear                                | ⑫ Pinion mate thrust washer                                  |
| ⑬ Retaining pin                                              |                                                   |                                                              |

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

★: Select with proper thickness.

: Replace the parts as a set.

### CAUTION:

Apply gear oil to gears, shafts, and bearings when assembly.

## 2WD : Disassembly and Assembly

INFOID:0000000010919423

### DISASSEMBLY

1. Remove final gear mounting bolts and then separate the final gear from differential case.

## FINAL DRIVE

### < UNIT DISASSEMBLY AND ASSEMBLY >

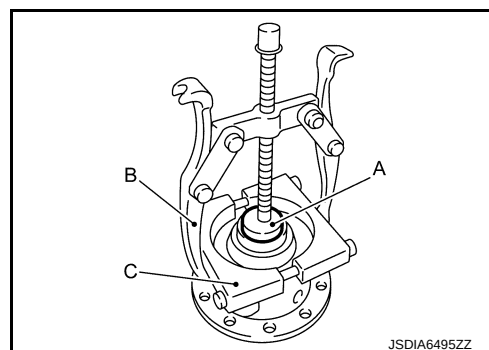
[6MT: RS6F52A]

2. Remove differential side bearing (clutch housing side) using drift (A), puller (B), and separator (C).

- A : Drift (SST: ST33061000)  
B : Puller (commercial service tool)  
C : Separator (commercial service tool)

**CAUTION:**

- Hook a separator on the inner race of differential side bearing.
- Never damage differential side bearing.

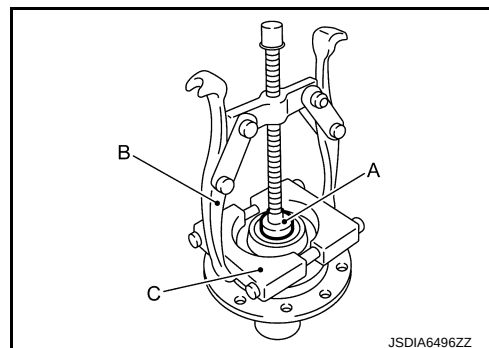


3. Remove differential side bearing (transaxle case side) using drift (A), puller (B), and separator (C).

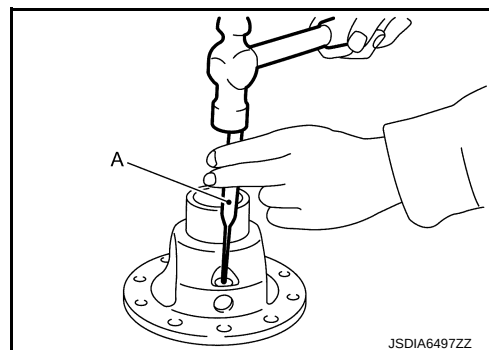
- A : Drift (SST: ST33061000)  
B : Puller (commercial service tool)  
C : Separator (commercial service tool)

**CAUTION:**

- Hook a separator on the inner race of differential side bearing.
- Never damage differential side bearing.

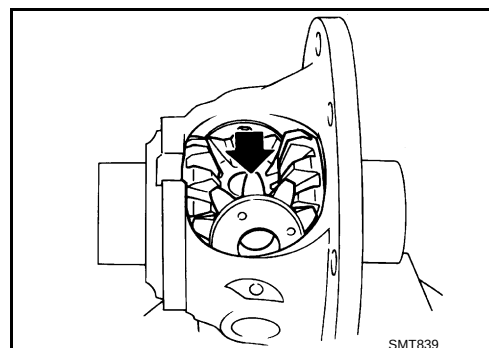


4. Remove retaining pin from differential case using a pin punch (A) (commercial service tool) and then remove pinion mate shaft.
5. Rotate pinion mate gears and remove pinion mate gears, pinion mate thrust washers, side gears, and side gear thrust washers from differential case.



### ASSEMBLY

1. Apply gear oil to sliding area of differential case, each gear, and thrust washer.
2. Install side gear thrust washers and side gears into differential case.
3. While rotating pinion mate thrust washers and pinion mate gears, aligning them diagonally, install them into differential case.



## FINAL DRIVE

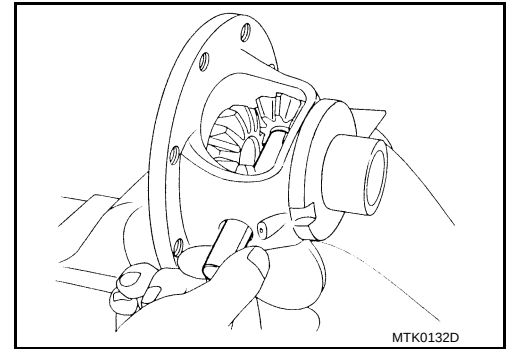
### < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

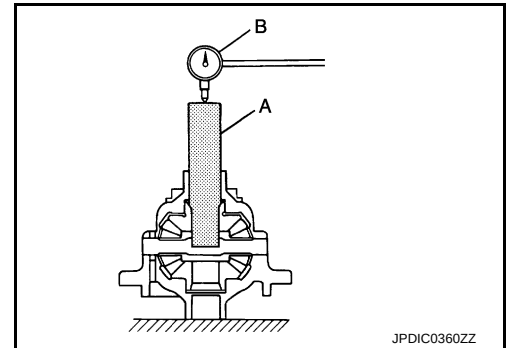
4. Insert pinion mate shaft into differential case.

**CAUTION:**

Be sure not to damage pinion mate thrust washers.



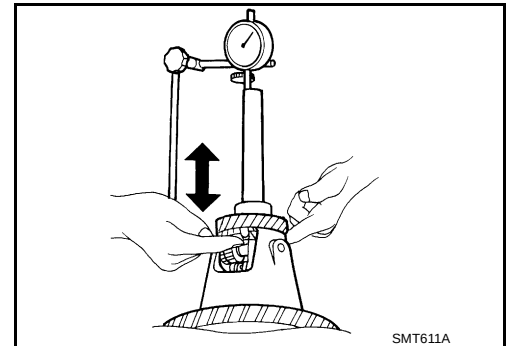
5. Measure the end play of side gears, as per the following procedure. Then select side gear thrust washer.
- Put differential case vertically so that its side gear to be measured faces upward.
  - Place the drift (A) (SST: ST15243000) and a dial indicator (B) onto side gears.



- Move side gears up and down to measure the clearance and select side gear thrust washer so that it satisfies the standard value. For selecting side gear thrust washer, refer to the latest parts information.

Allowable Clearance between side gear and differential case with thrust washer

: Refer to [TM-226, "Differential Side Gear Clearance"](#).



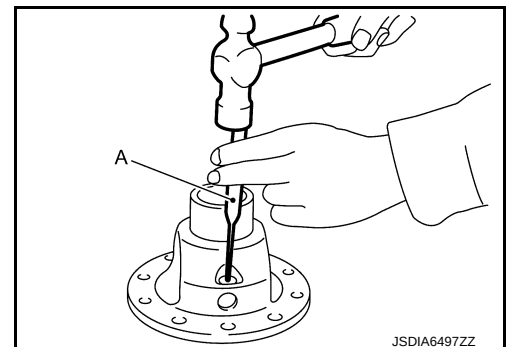
**CAUTION:**

- There should be no resistance and gears should rotate freely.
- Place differential case upside down. Measure the end play for opposite side gears likewise securely.
- Only one thrust washer can be selected.

6. Install retaining pin into pinion mate shaft using a pin punch (A) (commercial service tool).

**CAUTION:**

Never reuse retaining pin.





## FINAL DRIVE

### < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

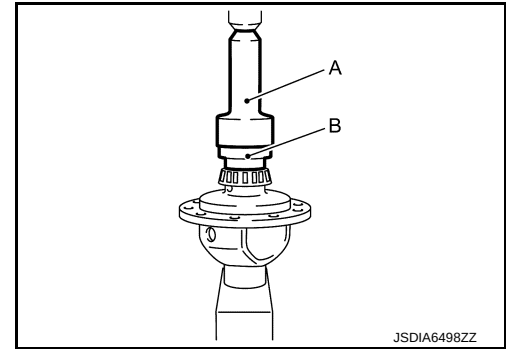
7. Press-fit differential side bearing (transaxle case side) to differential case using the drifts (A and B).

A : Drift (SST: ST30720000)

B : Drift (SST: KV38102510)

**CAUTION:**

Replace differential side bearing and differential side bearing outer race as a set.



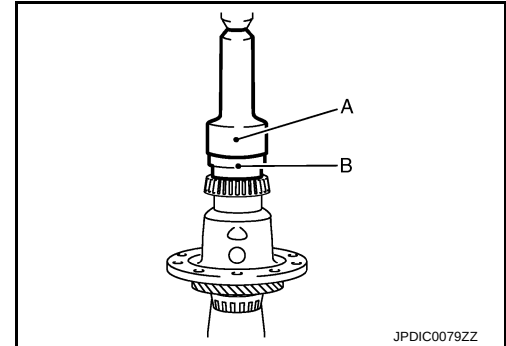
8. Press-fit differential side bearing (clutch housing side) to differential case using the drifts (A and B).

A : Drift (SST: ST30720000)

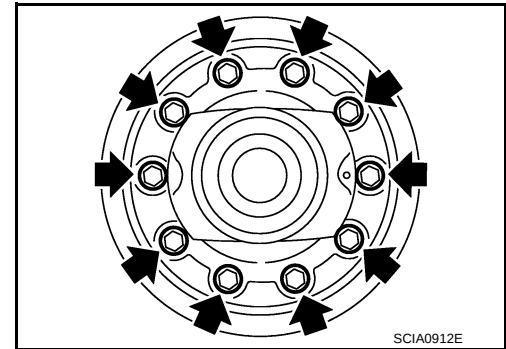
B : Drift (SST: KV38102510)

**CAUTION:**

Replace differential side bearing and differential side bearing outer race as a set.



9. Install final gear into differential case and tighten final gear mounting bolts to the specified torque.



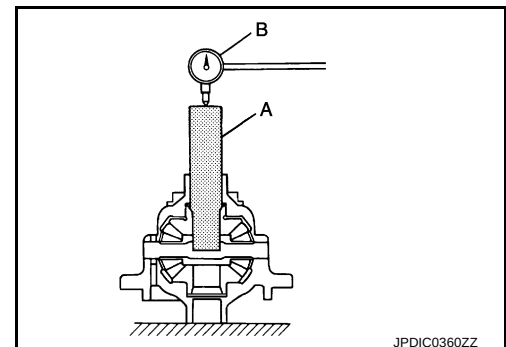
## 2WD : Inspection

INFOID:0000000010919425

### INSPECTION BEFORE DISASSEMBLY

Check the clearance between side gears and differential case as follows.

1. Clean final drive assembly sufficiently to prevent side gear thrust washer, differential case, side gear, and other parts from sticking by gear oil.
2. Put differential case vertically so that its side gear to be measured faces upward.
3. Place the drift (A) (SST: ST15243000) and a dial indicator (B) onto side gear.



## FINAL DRIVE

### < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

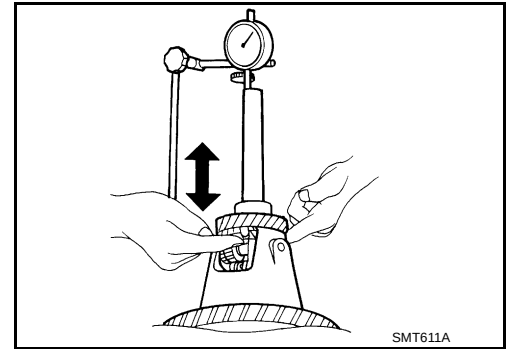
4. Move side gear up and down, and measure the clearance.

**Allowable Clearance between side gear and differential case with thrust washer** : Refer to [TM-226, "Differential Side Gear Clearance"](#).

**CAUTION:**

There should be no resistance and gears should rotate freely.

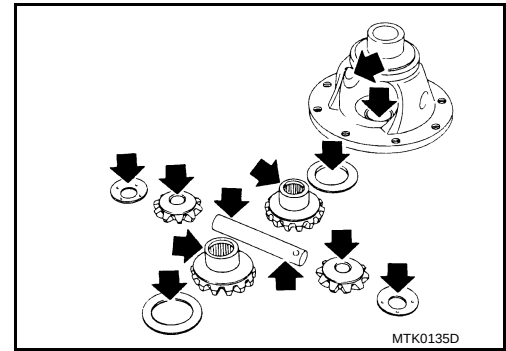
5. If not within specification, adjust the clearance by changing side gear thrust washer thickness. For selecting side gear thrust washer, refer to the latest parts information.
6. Turn differential case upside down and measure the clearance between side gear and differential case on the other side in the same way.



### INSPECTION AFTER DISASSEMBLY

Gear, Washer, Shaft, and Case

Check side gears, side gear thrust washers, pinion mate shaft, pinion mate gears, pinion mate thrust washers and differential case. If necessary, replace with a new one.

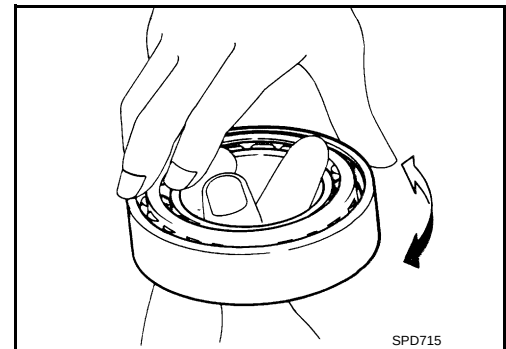


Bearing

Check for bearing damage and rough rotation. If necessary, replace with a new one.

**CAUTION:**

When replacing tapered roller bearing, replace outer and inner races as a set.



4WD

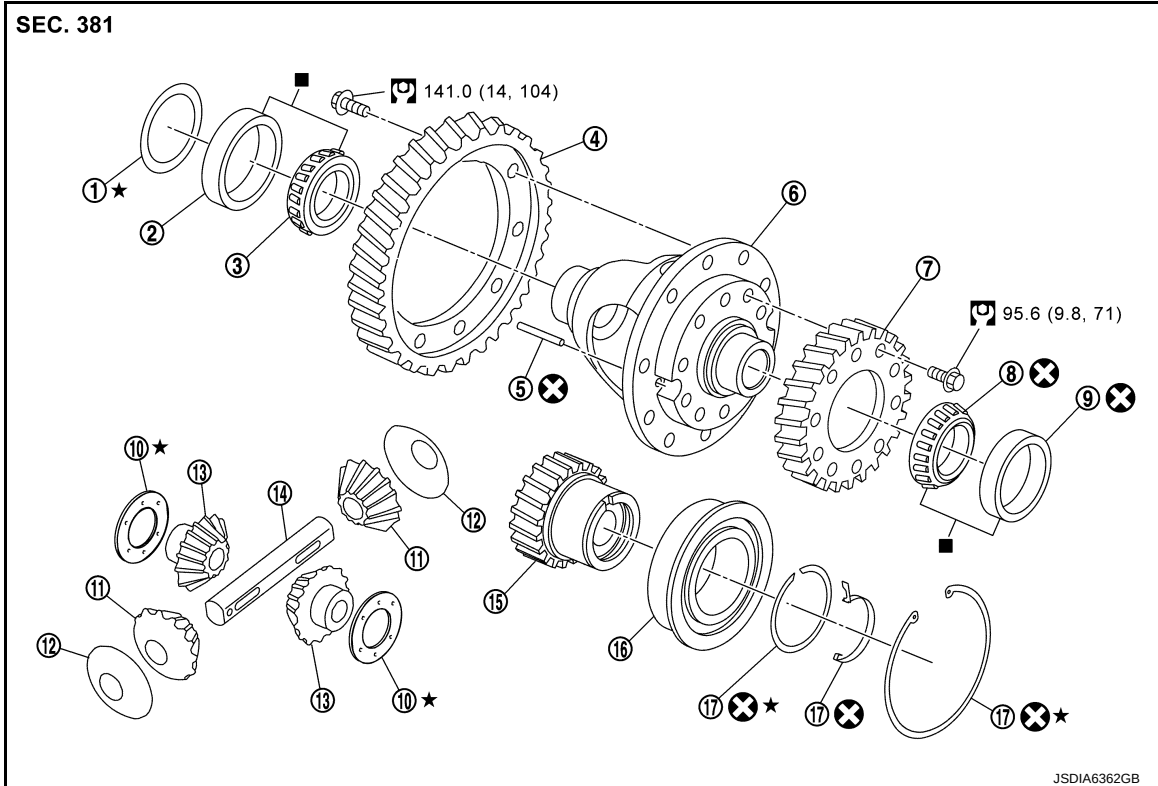
# FINAL DRIVE

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

## 4WD : Exploded View

INFOID:0000000110957989



- |                                            |                                                              |                                                              |
|--------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|
| ① Differential side bearing adjusting shim | ② Differential side bearing outer race (transaxle case side) | ③ Differential side bearing (transaxle case side)            |
| ④ Final gear                               | ⑤ Retaining pin                                              | ⑥ Differential case                                          |
| ⑦ Reduction gear                           | ⑧ Differential side bearing (clutch housing side)            | ⑨ Differential side bearing outer race (clutch housing side) |
| ⑩ Side gear thrust washer                  | ⑪ Pinion mate gear                                           | ⑫ Pinion mate thrust washer                                  |
| ⑬ Side gear                                | ⑭ Pinion mate shaft                                          | ⑮ Output gear                                                |
| ⑯ Output gear bearing                      | ⑰ Snap ring                                                  |                                                              |

: N·m (kg-m, ft-lb)

: Always replace after every disassembly.

★: Select with proper thickness.

: Replace the parts as a set.

### CAUTION:

Apply gear oil to gears, shafts, and bearings when assembly.

## 4WD : Disassembly and Assembly

INFOID:0000000110919427

### DISASSEMBLY

#### Differential Case

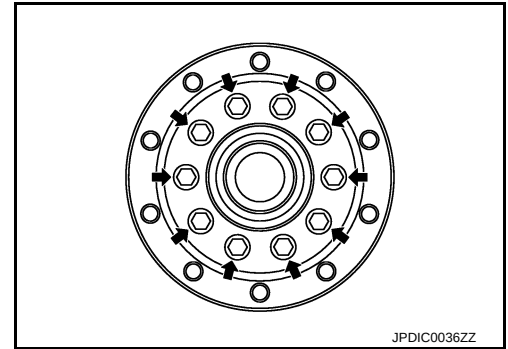
1. Remove final gear mounting bolts and then separate the final gear from differential case.

## FINAL DRIVE

< UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

2. Remove reduction gear mounting bolts.



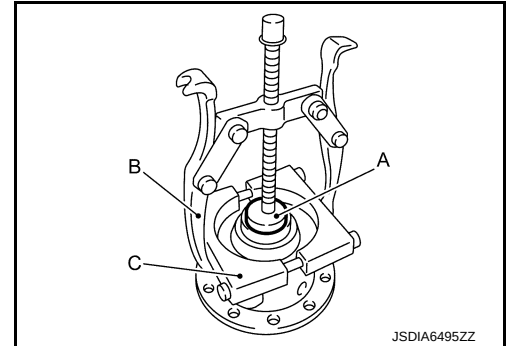
3. Remove differential side bearing (clutch housing side) using the drift (A), puller (B), and separator (C).

- A : Drift (SST: ST33061000)  
B : Puller (commercial service tool)  
C : Separator (commercial service tool)

**CAUTION:**

**Hook a separator on the inner race of differential side bearing.**

4. Remove reduction gear.

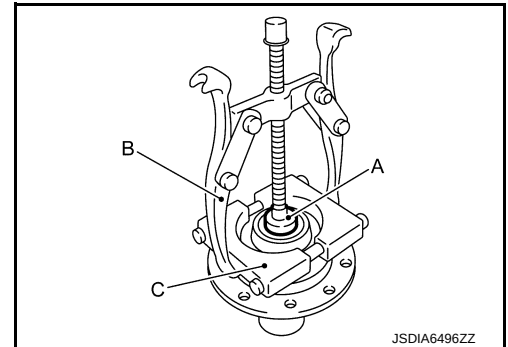


5. Remove differential side bearing (transaxle case side) using drift (A), puller (B), and separator (C).

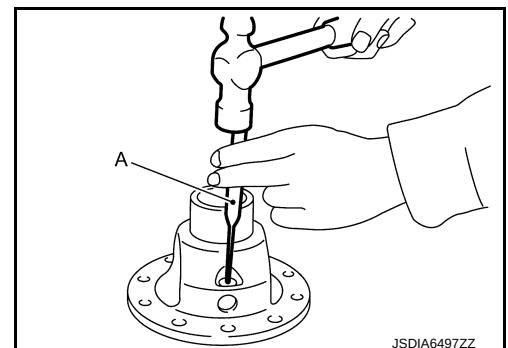
- A : Drift (SST: ST33061000)  
B : Puller (commercial service tool)  
C : Separator (commercial service tool)

**CAUTION:**

- **Hook a separator on the inner race of differential side bearing.**
- **Never damage differential side bearing.**



6. Remove retaining pin from differential case using a pin punch (A) (commercial service tool) and then remove pinion mate shaft.
7. Rotate pinion mate gears and remove pinion mate gears, pinion mate thrust washers, side gears, and side gear thrust washers from differential case.



Output Gear

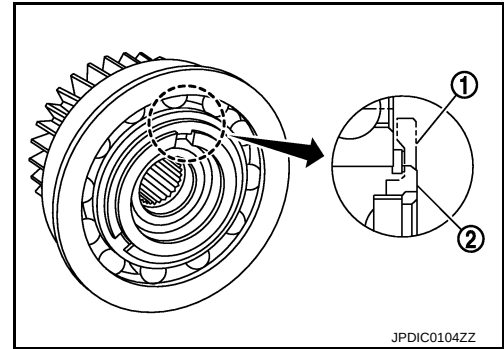
## FINAL DRIVE

### < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

1. Remove snap ring ①.

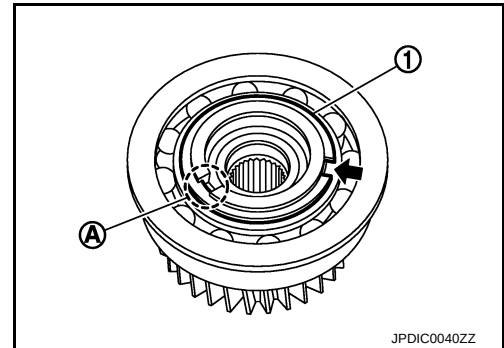
② : Output gear



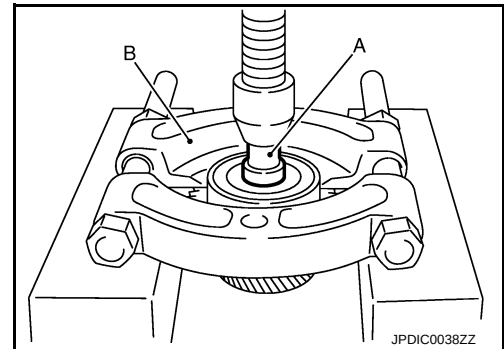
2. Remove snap ring ①.

Ⓐ : Output gear groove

◀ : Snap ring notch



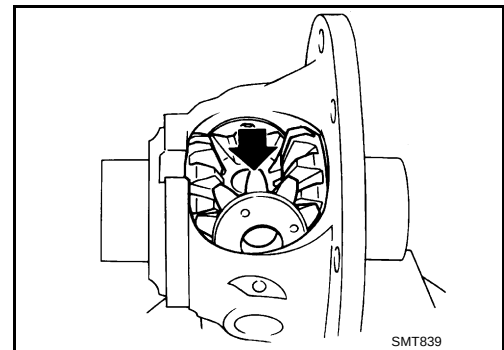
3. Remove output gear bearing using the drift (A) (SST: ST30612000) and separator (B) (commercial service tool).



## ASSEMBLY

### Differential Case

1. Apply gear oil to sliding area of differential case, each gear, and thrust washer.
2. Install side gear thrust washers and side gears into differential case.
3. While rotating pinion mate thrust washers and pinion mate gears, aligning them diagonally, install them into differential case.



## FINAL DRIVE

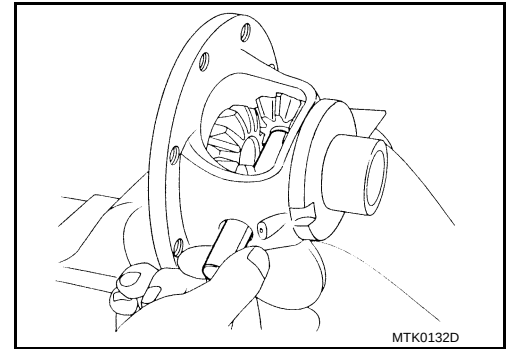
### < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

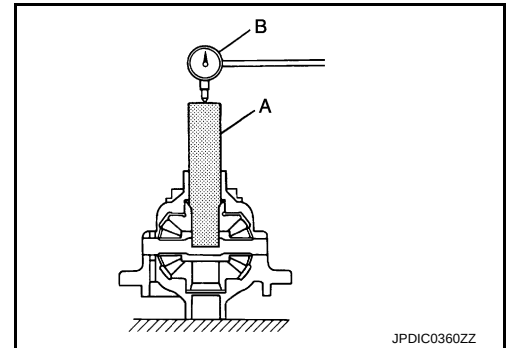
4. Insert pinion mate shaft into differential case.

**CAUTION:**

Be sure not to damage pinion mate thrust washers.



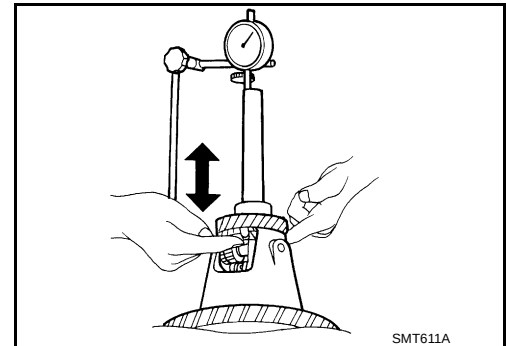
5. Measure the end play of side gears, as per the following procedure. Then select side gear thrust washer.
- Put differential case vertically so that its side gear to be measured faces upward.
  - Place the drift (A) (SST: ST15243000) and a dial indicator (B) onto side gear.



- Move side gears up and down to measure the clearance and select side gear thrust washer so that it satisfies the standard value. For selecting side gear thrust washer, refer to the latest parts information.

Allowable Clearance between side gear and differential case with thrust washer

: Refer to [TM-226, "Differential Side Gear Clearance"](#).



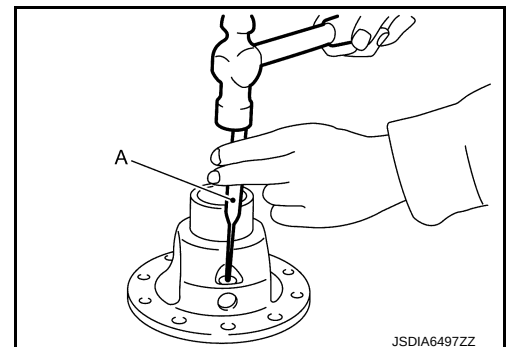
**CAUTION:**

- There should be no resistance and gears should rotate freely.
- Place differential case upside down. Measure the end play for opposite side gears likewise securely.
- Only one thrust washer can be selected.

6. Install retaining pin into pinion mate shaft using a pin punch (A) (commercial service tool).

**CAUTION:**

Never reuse retaining pin.

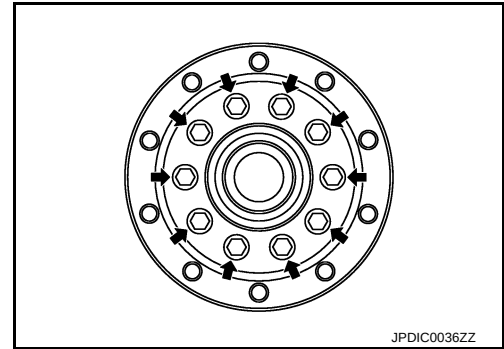


## FINAL DRIVE

### < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

7. Install reduction gear into differential case and tighten reduction gear mounting bolts to the specified torque.

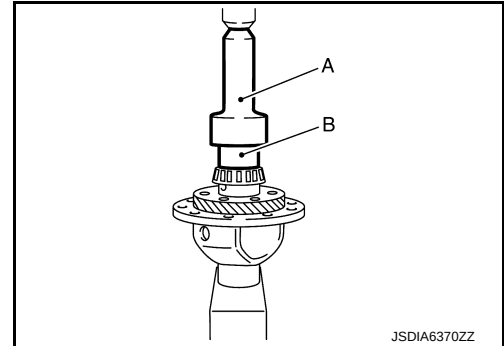


8. Press-fit differential side bearing (clutch housing side) to differential case using the drifts (A and B).

- A : Drift (SST: ST30720000)  
B : Drift (commercial service tool)

**CAUTION:**

- Never reuse differential side bearing.
- Replace differential side bearing and differential side bearing outer race as a set.

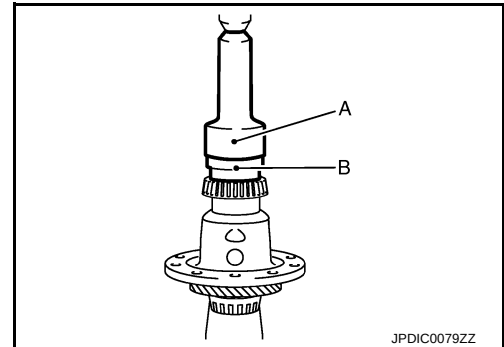


9. Press-fit differential side bearing (transaxle case side) to differential case using the drifts (A and B).

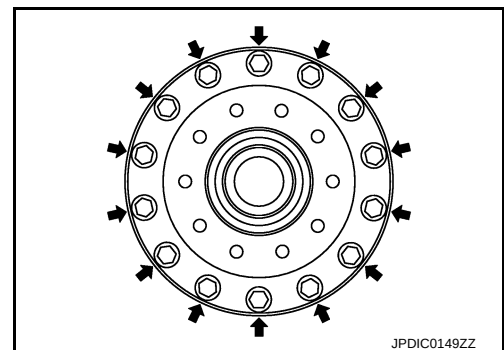
- A : Drift (SST: ST30720000)  
B : Drift (SST: KV38102510)

**CAUTION:**

- Replace differential side bearing and differential side bearing outer race as a set.



10. Install final gear to differential case and tighten final gear mounting bolts to the specified torque.



Output Gear

## FINAL DRIVE

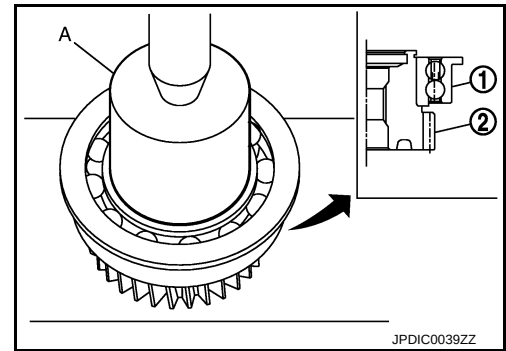
### < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

1. Install output gear bearing ① to output gear ② using a drift (A) (commercial service tool).

**CAUTION:**

Be careful with the orientation of output gear bearing.

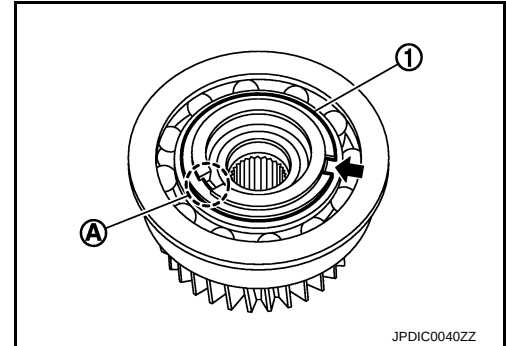


2. Install snap ring ① onto output gear and make sure that the end play (gap between snap ring and groove) of output gear bearing satisfies the standard value.

**End play** : Refer to [TM-224, "End Play"](#).

**CAUTION:**

- Only one snap ring can be selected.
- Never reuse snap ring.
- Never align snap ring notch with output gear groove ④ when assembling.



3. Install snap ring, as per the following procedure.

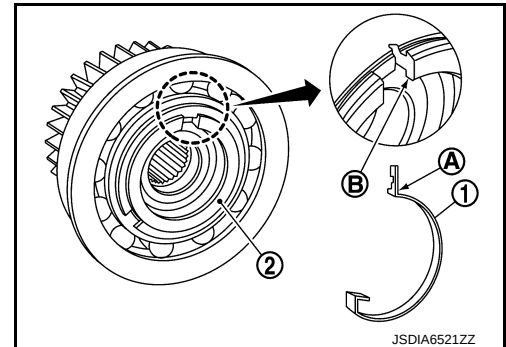
**CAUTION:**

If the following steps b and c are not performed when installing snap ring, it may become detached from output gear.

- a. Press ④ of the snap ring ① against ⑤ of the output gear ②.

**CAUTION:**

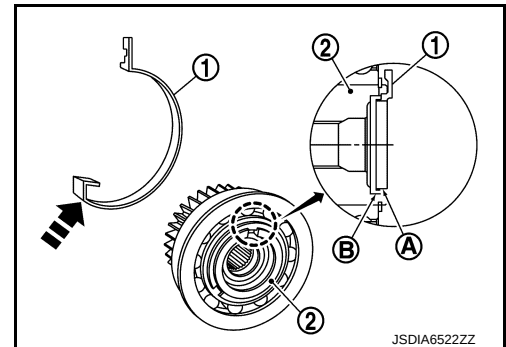
Never reuse snap ring.



- b. Press snap ring ① from the direction shown in the figure. Temporarily install it so that the rim of snap ring contacts with ④ of output gear ②.

**CAUTION:**

- When compressing snap ring, outside diameter of snap ring must not become 46 mm (1.81 in) or less.
- Never press snap ring excessively.
- Never insert snap ring in ⑤ of output gear.





## FINAL DRIVE

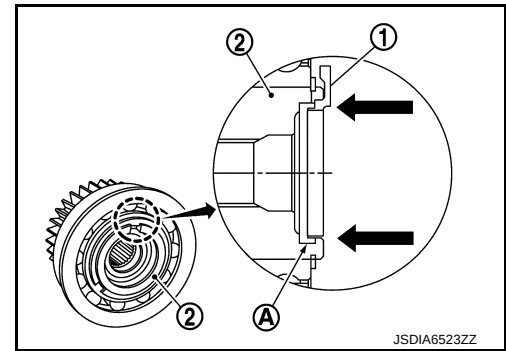
### < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

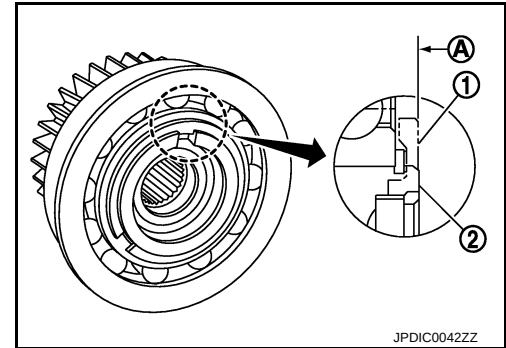
- c. Evenly press snap ring ① in the axial direction to install it on ② of output gear.

**CAUTION:**

- Securely install snap ring on ② of output gear.



- Snap ring ① must not lie off ② of output gear ②.



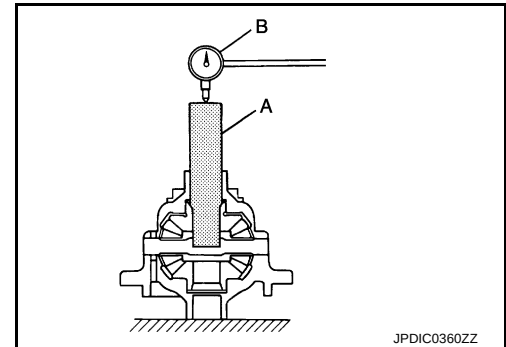
### 4WD : Inspection

INFOID:0000000010919429

#### INSPECTION BEFORE DISASSEMBLY

Check the clearance between side gears and differential case as follows.

1. Clean final drive assembly sufficiently to prevent side gear thrust washer, differential case, side gear, and other parts from sticking by gear oil.
2. Put differential case vertically so that its side gear to be measured faces upward.
3. Place the drift (A) (SST: ST15243000) and a dial indicator (B) onto side gear.



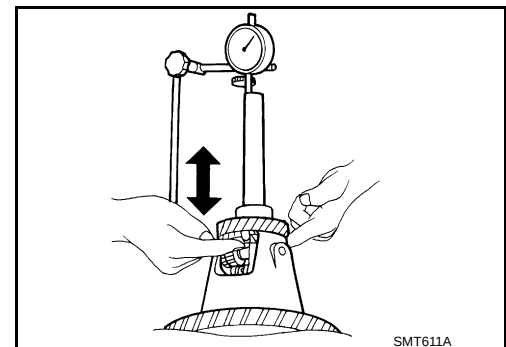
4. Move side gear up and down, and measure the clearance.

**Allowable Clearance between side gear and differential case with thrust washer** : Refer to [TM-226, "Differential Side Gear Clearance"](#).

**CAUTION:**

There should be no resistance and gears should rotate freely.

5. If not within specification, adjust the clearance by changing side gear thrust washer thickness. For selecting side gear thrust washer, refer to the latest parts information.
6. Turn differential case upside down and measure the clearance between side gear and differential case on the other side in the same way.



#### INSPECTION AFTER DISASSEMBLY

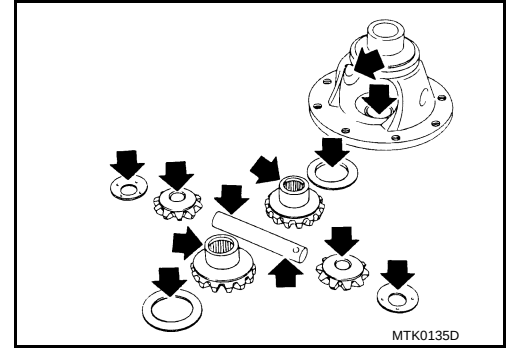
## FINAL DRIVE

### < UNIT DISASSEMBLY AND ASSEMBLY >

[6MT: RS6F52A]

Gear, Washer, Shaft, and Case

Check side gears, side gear thrust washers, pinion mate shaft, pinion mate gears, pinion mate thrust washers and differential case. If necessary, replace with a new one.



Output Gear and Reduction Gear

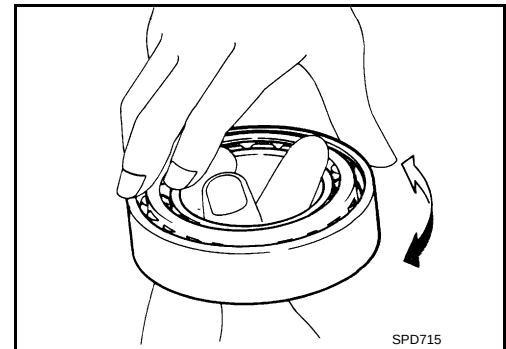
Check output gear and reduction gear. If necessary, replace with a new one.

Bearing

Check for bearings damage and rough rotation. If necessary, replace with a new one.

**CAUTION:**

**When replacing tapered roller bearing, replace outer and inner races as a set.**



# SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

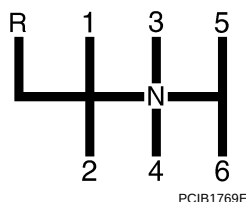
[6MT: RS6F52A]

## SERVICE DATA AND SPECIFICATIONS (SDS)

### SERVICE DATA AND SPECIFICATIONS (SDS)

#### General Specifications

INFOID:0000000010921117

|                          |                    |                            |                                                                                                |  |                                      |  |
|--------------------------|--------------------|----------------------------|------------------------------------------------------------------------------------------------|--|--------------------------------------|--|
| Applied model            |                    | Axle                       | 2WD                                                                                            |  | 4WD                                  |  |
|                          |                    | Engine                     | R9M                                                                                            |  |                                      |  |
| Transaxle model          |                    |                            | RS6F52A                                                                                        |  |                                      |  |
| Number of speed          |                    |                            | 6                                                                                              |  |                                      |  |
| Synchronesh type         |                    |                            | Warner                                                                                         |  |                                      |  |
| Shift pattern            |                    |                            | <div></div> |  |                                      |  |
| Gear ratio               | 1st                |                            | 3.727                                                                                          |  |                                      |  |
|                          | 2nd                |                            | 2.043                                                                                          |  |                                      |  |
|                          | 3rd                |                            | 1.322                                                                                          |  |                                      |  |
|                          | 4th                |                            | 0.947                                                                                          |  |                                      |  |
|                          | 5th                |                            | 0.723                                                                                          |  |                                      |  |
|                          | 6th                |                            | 0.596                                                                                          |  |                                      |  |
|                          | Reverse            |                            | 3.641                                                                                          |  |                                      |  |
|                          | Final gear         |                            | 4.428                                                                                          |  |                                      |  |
| Number of teeth          | Input gear         | 1st                        | 11                                                                                             |  |                                      |  |
|                          |                    | 2nd                        | 23                                                                                             |  |                                      |  |
|                          |                    | 3rd                        | 31                                                                                             |  |                                      |  |
|                          |                    | 4th                        | 38                                                                                             |  |                                      |  |
|                          |                    | 5th                        | 47                                                                                             |  |                                      |  |
|                          |                    | 6th                        | 52                                                                                             |  |                                      |  |
|                          |                    | Reverse                    | 11                                                                                             |  |                                      |  |
|                          | Main gear          | 1st                        | 41                                                                                             |  |                                      |  |
|                          |                    | 2nd                        | 47                                                                                             |  |                                      |  |
|                          |                    | 3rd                        | 41                                                                                             |  |                                      |  |
|                          |                    | 4th                        | 36                                                                                             |  |                                      |  |
|                          |                    | 5th                        | 34                                                                                             |  |                                      |  |
|                          |                    | 6th                        | 31                                                                                             |  |                                      |  |
|                          |                    | Reverse                    | 39                                                                                             |  |                                      |  |
|                          | Reverse idler gear | Front/Rear (Input/Output)  | 37/38                                                                                          |  |                                      |  |
|                          | Final gear         | Final gear/Pinion          | 62/14                                                                                          |  |                                      |  |
|                          |                    | Side gear/Pinion mate gear | 13/10                                                                                          |  |                                      |  |
| Oil level                |                    |                            | 43.0 – 48.0 mm<br>(1.693 – 1.890 in)                                                           |  | 87.0 – 92.0 mm<br>(3.425 – 3.622 in) |  |
| Oil capacity (Reference) |                    |                            | Refer to <a href="#">MA-23, "Fluids and Lubricants"</a> .                                      |  |                                      |  |

# SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[6MT: RS6F52A]

|                 |                          |             |     |
|-----------------|--------------------------|-------------|-----|
| Applied model   | Axle                     | 2WD         | 4WD |
|                 | Engine                   | R9M         |     |
| Transaxle model |                          | RS6F52A     |     |
| Remarks         | Reverse synchronizer     | Installed   |     |
|                 | Double-cone synchronizer | 3rd         |     |
|                 | Triple-cone synchronizer | 1st and 2nd |     |

## End Play

INFOID:0000000010919435

Unit: mm (in)

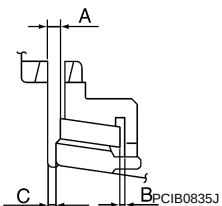
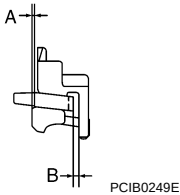
| Item                                |     | Standard                       |
|-------------------------------------|-----|--------------------------------|
| Input gear                          | 3rd | 0.18 – 0.31 (0.0071 – 0.0122)  |
|                                     | 4th | 0.20 – 0.30 (0.0079 – 0.0118)  |
|                                     | 5th | 0.06 – 0.16 (0.0024 – 0.0063)  |
|                                     | 6th | 0.06 – 0.16 (0.0024 – 0.0063)  |
| Main gear                           | 1st | 0.20 – 0.30 (0.0079 – 0.0118)  |
|                                     | 2nd | 0.06 – 0.16 (0.0024 – 0.0063)  |
|                                     | 6th | 0 – 0.1 (0 – 0.004)            |
| Reverse idler gear                  |     | 0.04 – 0.10 (0.0016 – 0.0039)  |
| 6th input gear bushing              |     | 0 – 0.1 (0 – 0.004)            |
| Input shaft                         |     | 0 – 0.06 (0 – 0.0024)          |
| Mainshaft                           |     | 0 – 0.06 (0 – 0.0024)          |
| Mainshaft C-ring                    |     | 0 – 0.06 (0 – 0.0024)          |
| Striking rod                        |     | 0.05 – 0.152 (0.0020 – 0.0060) |
| Output gear bearing (For 4WD only)  |     | 0 – 0.06 (0 – 0.0024)          |
| Output gear assembly (For 4WD only) |     | 0 – 0.06 (0 – 0.0024)          |

## Baulk Ring Clearance

INFOID:0000000010919436

Unit: mm (in)

| Measurement point                         |                                                                       | Standard                   | Limit       |
|-------------------------------------------|-----------------------------------------------------------------------|----------------------------|-------------|
| 3rd<br>(Double-cone synchronizer)         | Clearance (A) between synchronizer cone and inner baulk ring end face | 0.6 – 0.8 (0.024 – 0.031)  | 0.2 (0.008) |
|                                           | Clearance (B) between outer baulk ring pawl and synchronizer cone     | 0.6 – 1.1 (0.024 – 0.043)  | 0.2 (0.008) |
| 1st and 2nd<br>(Triple-cone synchronizer) | Clearance (A) between synchronizer cone and clutch gear end face      | 0.6 – 1.2 (0.024 – 0.047)  | 0.3 (0.012) |
|                                           | Clearance (B) between outer baulk ring pawl and synchronizer cone     | 0.6 – 1.1 (0.024 – 0.043)  | 0.2 (0.008) |
|                                           | Clearance (C) between inner baulk ring and clutch gear end face       | 0.7 – 1.1 (0.028 – 0.043)  | 0.3 (0.012) |
| 4th                                       |                                                                       | 0.9 – 1.45 (0.035 – 0.057) | 0.7 (0.028) |
| 5th                                       |                                                                       | 0.95 – 1.4 (0.037 – 0.055) | 0.7 (0.028) |



# SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[6MT: RS6F52A]

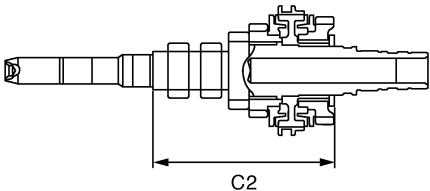
| Measurement point | Standard                   | Limit       |
|-------------------|----------------------------|-------------|
| 6th               | 0.95 – 1.4 (0.037 – 0.055) | 0.7 (0.028) |
| Reverse           | 0.95 – 1.4 (0.037 – 0.055) | 0.7 (0.028) |

## Dimension

INFOID:0000000010919437

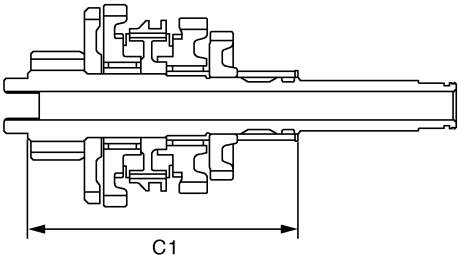
### INPUT SHAFT

Unit: mm (in)

| Measurement point                                                                                                                                                                                     | Standard                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Dimension (C2) between mounting face of input shaft front bearing and thrust washer end face<br><br><br>JPDIC0364ZZ | 161.8 – 161.9 (6.370 – 6.374) |

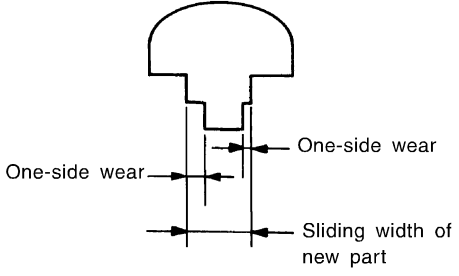
### MAINSHAFT

Unit: mm (in)

| Measurement point                                                                                                                                                                                                    | Standard                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| Dimension (C1) between mounting face of mainshaft front bearing and 4th main gear adjusting shim end face<br><br><br>JPDIC0363ZZ | 182.85 – 182.95 (7.199 – 7.203) |

### SHIFT FORK

Unit: mm (in)

| Measurement point                                                                              | One-side wear specification | Sliding width of new part       |
|------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------|
| <br>SMT801D | 1st-2nd                     | 0.2 (0.008)                     |
|                                                                                                | 3rd-4th                     | 0.2 (0.008)                     |
|                                                                                                | 5th-6th                     | 0.2 (0.008)                     |
|                                                                                                | Reverse                     | 0.2 (0.008)                     |
|                                                                                                |                             | 7.80 – 7.93 (0.3071 – 0.3122)   |
|                                                                                                |                             | 7.80 – 7.93 (0.3071 – 0.3122)   |
|                                                                                                |                             | 6.10 – 6.23 (0.2402 – 0.2453)   |
|                                                                                                |                             | 12.80 – 12.93 (0.5039 – 0.5091) |

## SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[6MT: RS6F52A]

### Differential Side Bearing Preload

INFOID:0000000010919438

Unit: mm (in)

| Item                                  |     | Standard                      |
|---------------------------------------|-----|-------------------------------|
| Differential side bearing preload: L* | 2WD | 0.15 – 0.21 (0.0059 – 0.0083) |
|                                       | 4WD | 0.11 – 0.17 (0.0043 – 0.0067) |

\*: Install shims which are “deflection of differential case” + “L” in thickness.

### Differential Side Gear Clearance

INFOID:0000000010919439

Unit: mm (in)

| Item                                                                           | Standard                  |
|--------------------------------------------------------------------------------|---------------------------|
| Allowable clearance between side gear and differential case with thrust washer | 0.1 – 0.2 (0.004 – 0.008) |

## HOW TO USE THIS MANUAL

### HOW TO USE THIS SECTION

#### Information

INFOID:0000000011046249

Both “VDC” and “ESP” are used in this manual. These indicate the same system.

A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

## PRECAUTION

### PRECAUTIONS

#### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010622414

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

#### **WARNING:**

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

#### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

#### **WARNING:**

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

#### Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:0000000010622415

#### **CAUTION:**

Comply with the following cautions to prevent any error and malfunction.

- Before removing and installing any control units, first turn the ignition power source and accessory power source to the OFF, then disconnect both battery cables.
- After finishing work, confirm that all control unit connectors are connected properly, then re-connect both battery cables.
- Always use CONSULT to perform self-diagnosis as a part of each function inspection after finishing work. If a DTC is detected, perform trouble diagnosis according to self-diagnosis results.

For vehicle with steering lock unit, if the battery is disconnected or discharged, the steering wheel will lock and cannot be turned.

If turning the steering wheel is required with the battery disconnected or discharged, follow the operation procedure below before starting the repair operation.

#### OPERATION PROCEDURE

1. Connect both battery cables.

#### **NOTE:**

Supply power using jumper cables if battery is discharged.

2. Open driver door.
3. Turn the ignition switch to the ON position.  
(At this time, the steering lock will be released.)
4. Turn the ignition switch to OFF position with driver door open.
5. Wait for 3 minutes or longer with driver door open.

#### **NOTE:**

- Do not close driver door because the steering wheel locks when driver door is closed.



## PRECAUTIONS

< PRECAUTION >

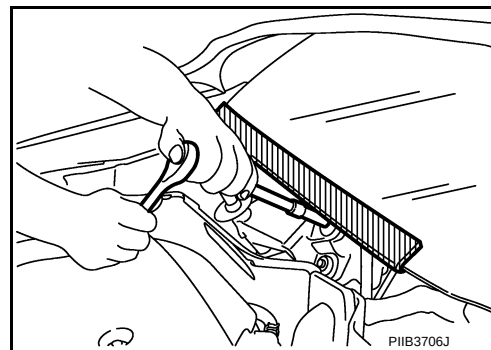
[CVT: RE0F10D]

- The auto acc function is adapted to this vehicle. For this reason, even when the ignition switch is turned to OFF position, the accessory power source does not turned OFF and continues to be supplied for a certain amount of time.
- 6. Disconnect both battery cables. The steering lock will remain released with both battery cables disconnected and the steering wheel can be turned.
- 7. Perform the necessary repair operation.
- 8. When the repair work is completed, re-connect both battery cables. With the brake pedal released, turn the ignition switch from OFF position to ON position, then to LOCK position. (The steering wheel will lock when the ignition switch is turned to LOCK position.)
- 9. Perform self-diagnosis check of all control units using CONSULT.

### Precaution for Procedure without Cowl Top Cover

INFOID:0000000010622416

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



### Precautions for Removing Battery Terminal

INFOID:0000000010630886

- With the adoption of Auto ACC function, ACC power is automatically supplied by operating the intelligent key or remote keyless entry or by opening/closing the driver side door. In addition, ACC power is supplied even after the ignition switch is turned to the OFF position, i.e. ACC power is supplied for a certain fixed time.
- When disconnecting the 12V battery terminal, turn off the ACC power before disconnecting the 12V battery terminal, observing "How to disconnect 12V battery terminal" described below.

#### NOTE:

Some ECUs operate for a certain fixed time even after ignition switch is turned OFF and ignition power supply is stopped. If the battery terminal is disconnected before ECU stops, accidental DTC detection or ECU data damage may occur.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

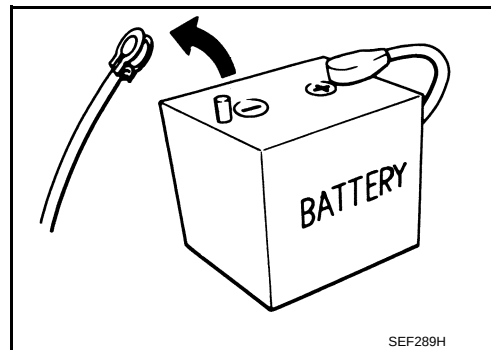
#### NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

#### NOTE:

The removal of 12V battery may cause a DTC detection error.



### HOW TO DISCONNECT 12V BATTERY TERMINAL

Disconnect 12V battery terminal according to Instruction 1 or Instruction 2 described below.

For vehicles parked by ignition switch OFF, refer to Instruction 2.

#### INSTRUCTION 1

1. Open the hood.
2. Turn key switch to the OFF position with the driver side door opened.
3. Get out of the vehicle and close the driver side door.
4. Wait at least 3 minutes. For vehicle with the engine listed below, remove the battery terminal after a lapse of the specified time.

D4D engine : 20 minutes

HRA2DDT : 12 minutes

# PRECAUTIONS

< PRECAUTION >

[CVT: RE0F10D]

- K9K engine : 4 minutes
- M9R engine : 4 minutes
- R9M engine : 4 minutes
- V9X engine : 4 minutes

## CAUTION:

While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.

5. Remove 12V battery terminal.

## CAUTION:

After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

### INSTRUCTION 2 (FOR VEHICLES PARKED BY IGNITION SWITCH OFF)

1. Unlock the door with intelligent key or remote keyless entry.

## NOTE:

At this moment, ACC power is supplied.

2. Open the driver side door.
3. Open the hood.
4. Close the driver side door.
5. Wait at least 3 minutes.

## CAUTION:

While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.

6. Remove 12V battery terminal.

## CAUTION:

After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

### Precaution for TCM and Transaxle Assembly Replacement

INFOID:0000000010622418

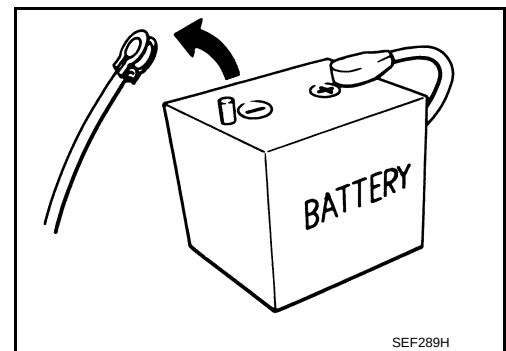
## CAUTION:

- To replace TCM, refer to [TM-301, "Description"](#).
- To replace transaxle assembly, refer to [TM-303, "Description"](#).
- To replace TCM and transaxle assembly simultaneously, refer to [TM-305, "Description"](#).

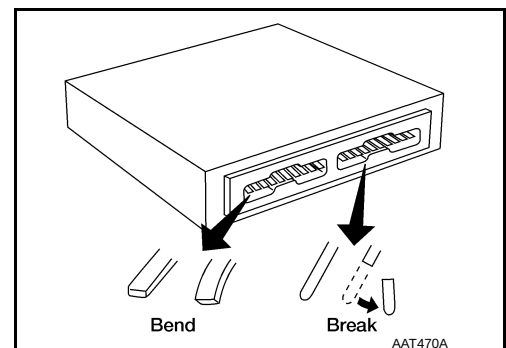
### General Precautions

INFOID:0000000010622419

- Turn ignition switch OFF and disconnect the battery cable from the negative terminal before connecting or disconnecting the CVT assembly harness connector. Because battery voltage is applied to TCM even if ignition switch is turned OFF.



- When connecting or disconnecting pin connectors into or from TCM, do not damage pin terminals (bend or break). Check that there are not any bends or breaks on TCM pin terminal, when connecting pin connectors.

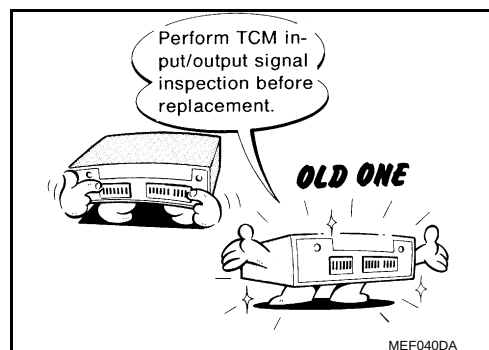


## PRECAUTIONS

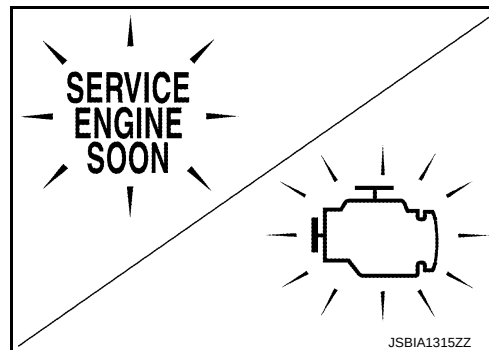
< PRECAUTION >

[CVT: RE0F10D]

- Perform TCM input/output signal inspection and check whether TCM functions normally or not before replacing TCM. Refer to [TM-277, "Reference Value"](#).



- Perform "DTC (Diagnostic Trouble Code) CONFIRMATION PROCEDURE".  
If the repair is completed DTC should not be displayed in the "DTC CONFIRMATION PROCEDURE".



- Always use the specified brand of CVT fluid. Refer to [MA-23, "Fluids and Lubricants"](#).
- Use lint-free paper not cloth rags during work.
- Dispose of the waste oil using the methods prescribed by law, ordinance, etc. after replacing the CVT fluid.

### On Board Diagnosis (OBD) System of CVT and Engine

INFOID:000000010622420

The TCM and ECM have an on board diagnostic system. It will light up the malfunction indicator lamp (MIL) to warn the driver of a malfunction causing emission deterioration.

#### CAUTION:

- Be sure to turn the ignition switch OFF and disconnect the battery cable from the negative terminal before any repair or inspection work. The open/short circuit of related switches, sensors, solenoid valves, etc. will cause the MIL to light up.
- Be sure to connect and lock the connectors securely after work. A loose (unlocked) connector will cause the MIL to light up due to an open circuit. (Be sure the connector is free from water, grease, dirt, bent terminals, etc.)
- Be sure to route and secure the harnesses properly after work. Interference of the harness with a bracket, etc. may cause the MIL to light up due to a short circuit.
- Be sure to connect rubber tubes properly after work. A misconnected or disconnected rubber tube may cause the MIL to light up due to a malfunction of the EGR system or fuel injection system, etc.
- Be sure to erase the unnecessary malfunction information (repairs completed) from the TCM and ECM before returning the vehicle to the customer.

### Removal and Installation Procedure for CVT Unit Connector

INFOID:000000010622421

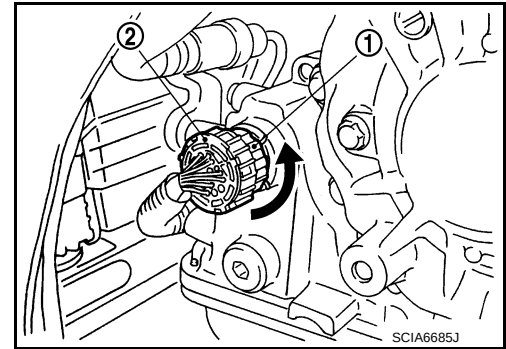
#### REMOVAL

## PRECAUTIONS

### < PRECAUTION >

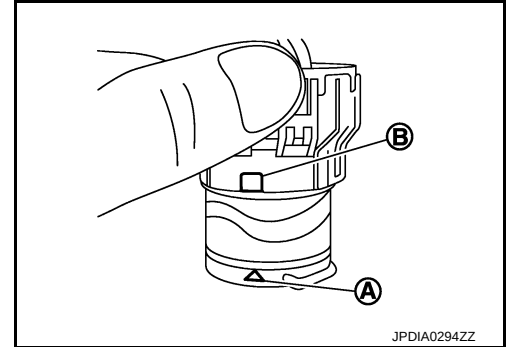
[CVT: RE0F10D]

- Rotate bayonet ring ① counterclockwise. Pull out CVT unit harness connector ② upward and remove it.

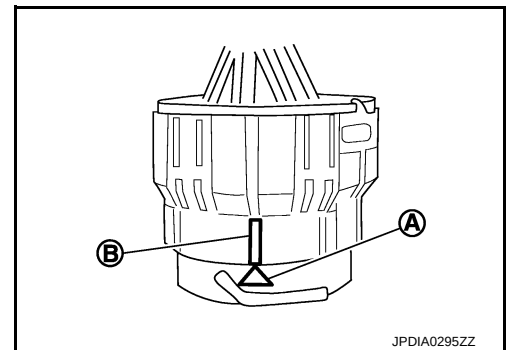


### INSTALLATION

1. Align marking ① on CVT unit harness connector terminal with marking ② on bayonet ring. Insert CVT unit harness connector.
2. Rotate bayonet ring clockwise.

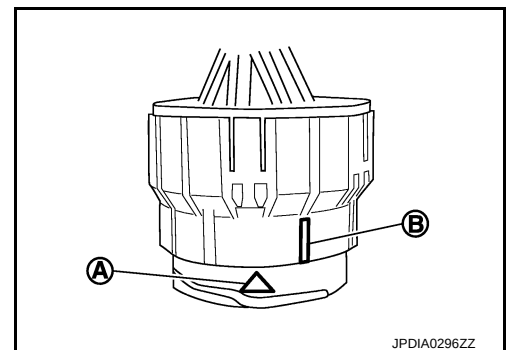


3. Rotate bayonet ring clockwise until marking ① on CVT unit harness connector terminal body is aligned with the slit ② on bayonet ring as shown in the figure (correctly fitting condition).



### CAUTION:

- Securely align marking ① on CVT unit harness connector terminal body with bayonet ring slit ②. Then, be careful not to make a half fit condition as shown in the figure.
- Never mistake the slit of bayonet ring for other dent portion.



# PREPARATION

< PREPARATION >

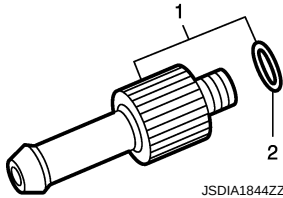
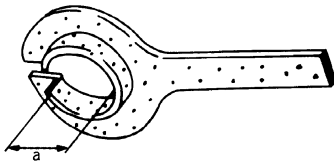
[CVT: RE0F10D]

## PREPARATION

### PREPARATION

#### Special Service Tools

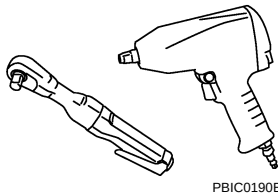
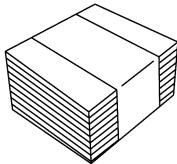
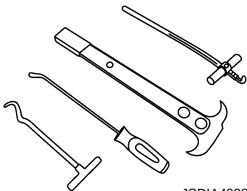
INFOID:0000000010622422

| Tool number<br>Tool name                                                                             | Description                       |
|------------------------------------------------------------------------------------------------------|-----------------------------------|
| 1. KV311039S0<br>Charging pipe set<br>2. KV31103920*<br>O-ring                                       | CVT fluid changing and adjustment |
|  <p>JSDIA1844ZZ</p> |                                   |
| KV38107900<br>Protector<br>a: 32 mm (1.26 in) dia.                                                   | Installing drive shaft            |
|  <p>PDIA1183J</p>  |                                   |

\*: The O-ring as a unit part is set as a SST.

#### Commercial Service Tools

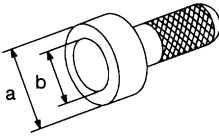
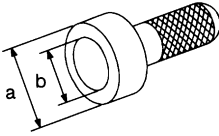
INFOID:0000000010622423

| Tool number<br>Tool name                                                                               | Description              |
|--------------------------------------------------------------------------------------------------------|--------------------------|
| Power tool                                                                                             | Loosening nuts and bolts |
|  <p>PBIC0190E</p>   |                          |
| Lint-free paper                                                                                        | Cleaning transaxle       |
|  <p>JSDIA4746ZZ</p> |                          |
| Oil seal remover                                                                                       | Removing each oil seal   |
|  <p>JSDIA4998ZZ</p> |                          |

# PREPARATION

< PREPARATION >

[CVT: RE0F10D]

| Tool number<br>Tool name                                                                                                                               | Description                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Drift<br>a: 56 mm (2.20 in) dia.<br>b: 50 mm (1.97 in) dia. <br>NT115 | Installing differential side oil seal |
| Drift<br>a: 65 mm (2.56 in) dia.<br>b: 60 mm (2.36 in) dia. <br>NT115 | Installing converter housing oil seal |

## SYSTEM DESCRIPTION

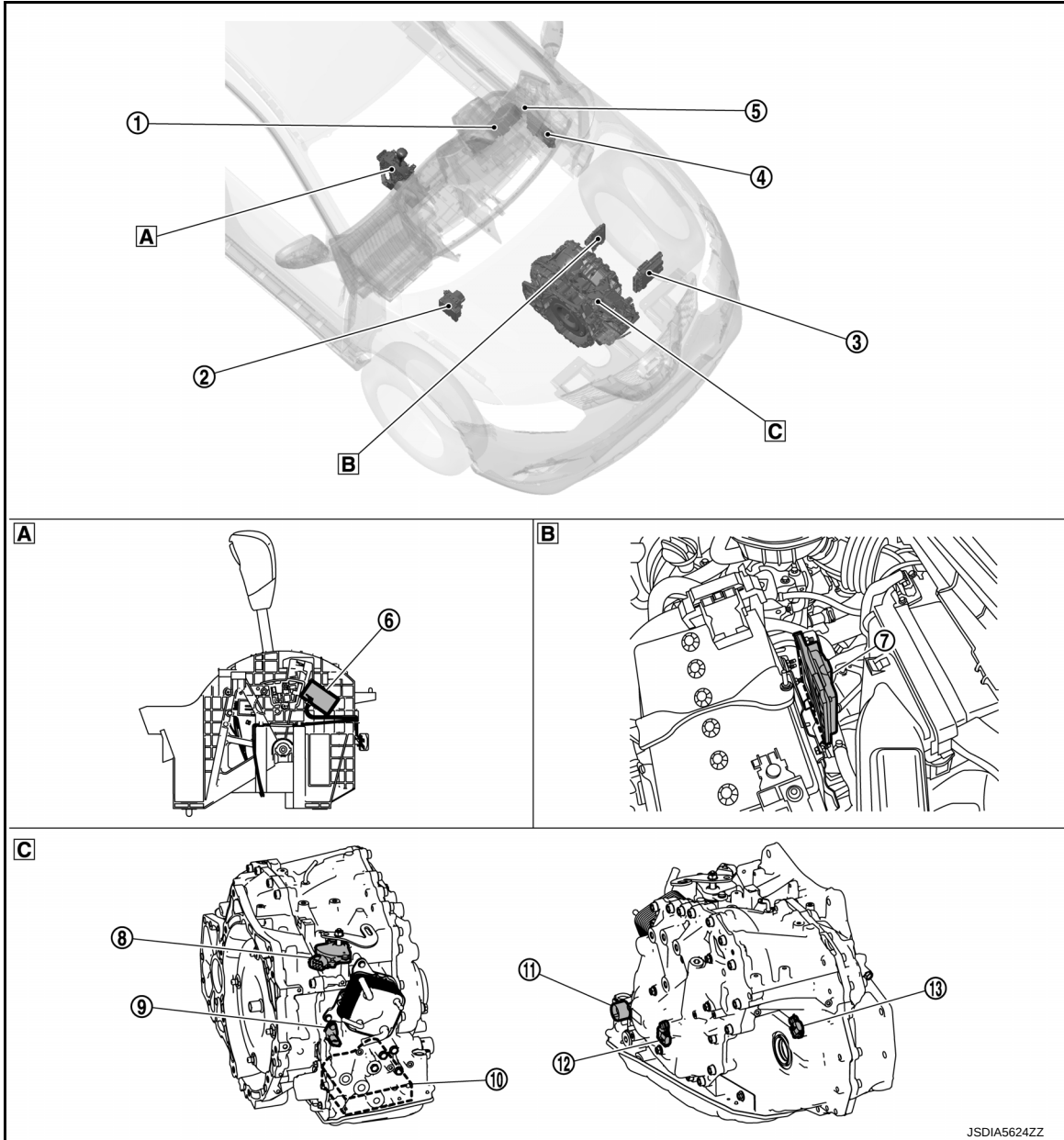
### COMPONENT PARTS

#### CVT CONTROL SYSTEM

#### CVT CONTROL SYSTEM : Component Parts Location

INFOID:0000000010622424

MR20DD Models



**A** CVT shift selector assembly

**B** Engine room, LH

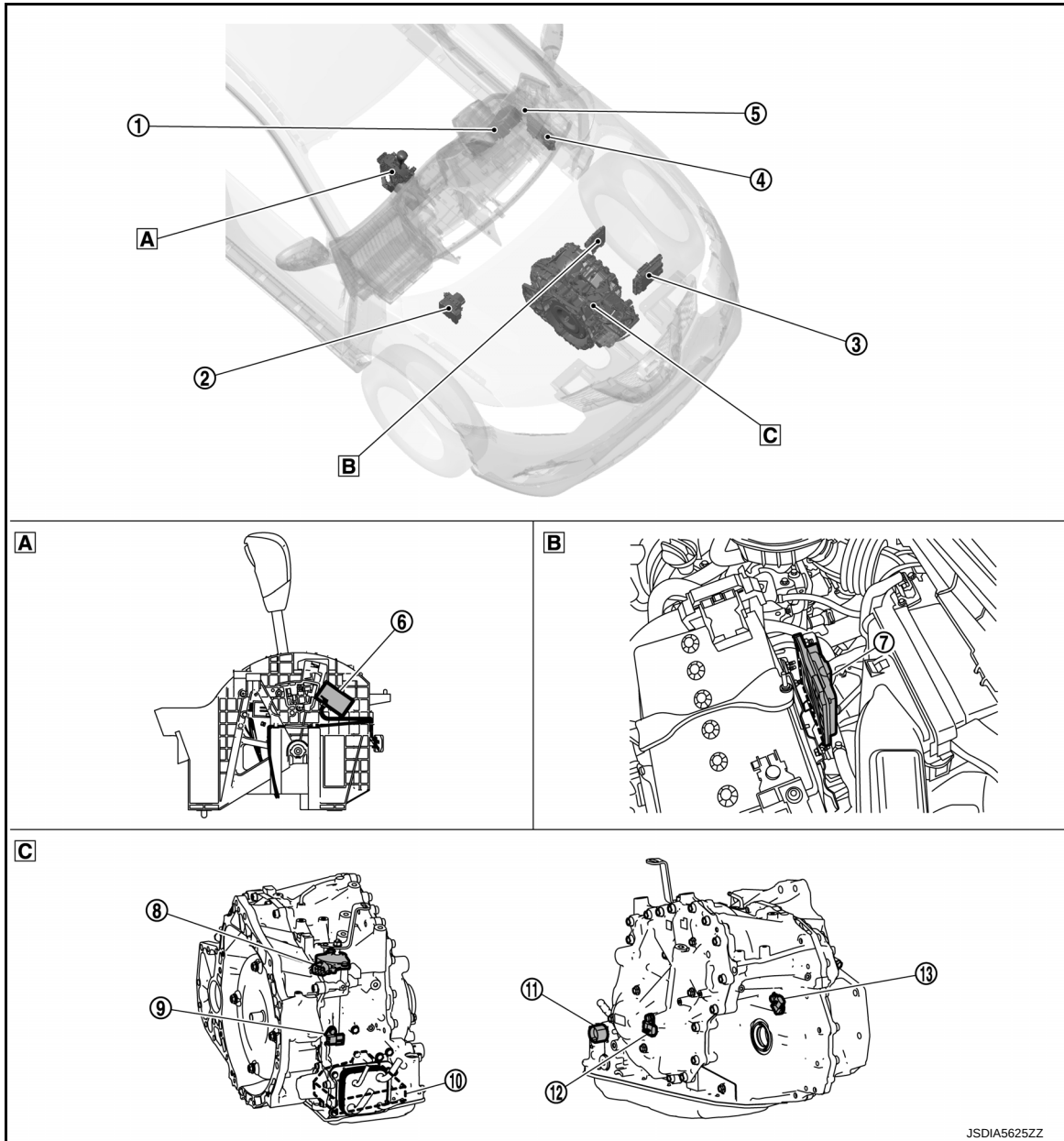
**C** Transaxle assembly

# COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

QR25DE Models



**A** CVT shift selector assembly

**B** Engine room, LH

**C** Transaxle assembly



# COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

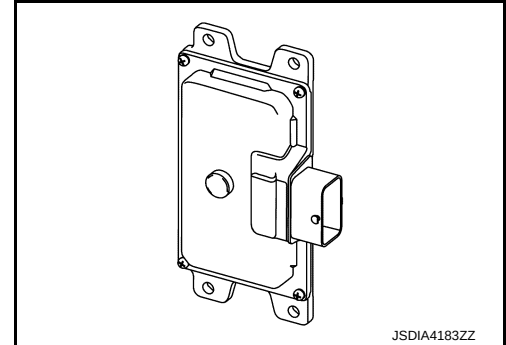
| No. | Component                                     |                                         | Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----|-----------------------------------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ①   | Combination meter                             |                                         | <p>Mainly transmits the following signal to TCM via CAN communication.</p> <ul style="list-style-type: none"> <li>• Manual mode signal</li> <li>• Non-manual mode signal</li> <li>• Manual mode upshift signal</li> <li>• Manual mode downshift signal</li> </ul> <p>Mainly receives the following signals from TCM via CAN communication.</p> <ul style="list-style-type: none"> <li>• Shift position signal</li> <li>• Manual mode shift refusal signal</li> </ul> <p>Refer to <a href="#">MWI-7, "METER SYSTEM : Component Parts Location"</a> for detailed installation location.</p>                                                                                                                                                                                                                                                                                                                        |
| ②   | ABS actuator and electric unit (control unit) |                                         | <p>Mainly transmits the following signal to TCM via CAN communication.</p> <ul style="list-style-type: none"> <li>• ABS operation signal</li> <li>• TCS operation signal</li> <li>• VDC operation signal</li> <li>• ABS malfunction signal</li> <li>• Vehicle speed signal</li> <li>• Decel G signal</li> </ul> <p>Refer to <a href="#">BRC-14, "Component Parts Location"</a> for detailed installation location.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| ③   | ECM                                           |                                         | <p>Mainly transmits the following signal to TCM via CAN communication.</p> <ul style="list-style-type: none"> <li>• Engine and CVT integrated control signal</li> </ul> <p><b>NOTE:</b><br/>General term for the communication (torque-down permission, torque-down request, etc.) exchanged between the ECM and TCM.</p> <ul style="list-style-type: none"> <li>• Engine speed signal</li> <li>• Engine coolant temperature signal</li> <li>• Accelerator pedal position signal</li> <li>• Closed throttle position signal</li> </ul> <p>Mainly receives the following signals from TCM via CAN communication.</p> <ul style="list-style-type: none"> <li>• Malfunctioning indicator lamp signal</li> </ul> <p>Refer to <a href="#">EC-28, "ENGINE CONTROL SYSTEM : Component Parts Location"</a> (MR20DD), <a href="#">EC-440, "Component Parts Location"</a> (QR25DE) for detailed installation location.</p> |
| ④   | BCM                                           |                                         | <p>Mainly transmits the following signal to TCM via CAN communication.</p> <ul style="list-style-type: none"> <li>• Stop lamp switch signal</li> </ul> <p>Refer to <a href="#">BCS-6, "BODY CONTROL SYSTEM : Component Parts Location"</a> for detailed installation location.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| ⑤   | ECO mode switch                               |                                         | <a href="#">DMS-6, "ECO Mode Switch"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| ⑥   | Manual mode switch                            |                                         | <a href="#">TM-243, "CVT CONTROL SYSTEM : Manual Mode Switch"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| ⑦   | TCM                                           |                                         | <a href="#">TM-238, "CVT CONTROL SYSTEM : TCM"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| ⑧   | Transmission range switch                     |                                         | <a href="#">TM-238, "CVT CONTROL SYSTEM : Transmission Range Switch"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| ⑨   | Input speed sensor                            |                                         | <a href="#">TM-239, "CVT CONTROL SYSTEM : Input Speed Sensor"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| ⑩   | Control valve                                 | CVT fluid temperature sensor*           | <a href="#">TM-240, "CVT CONTROL SYSTEM : CVT Fluid Temperature Sensor"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|     |                                               | Primary pressure sensor*                | <a href="#">TM-241, "CVT CONTROL SYSTEM : Primary Pressure Sensor"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|     |                                               | Secondary pressure sensor*              | <a href="#">TM-241, "CVT CONTROL SYSTEM : Secondary Pressure Sensor"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|     |                                               | Line pressure solenoid valve*           | <a href="#">TM-243, "CVT CONTROL SYSTEM : Line Pressure Solenoid Valve"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|     |                                               | Primary pressure solenoid valve*        | <a href="#">TM-242, "CVT CONTROL SYSTEM : Primary Pressure Solenoid Valve"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|     |                                               | Secondary pressure solenoid valve*      | <a href="#">TM-242, "CVT CONTROL SYSTEM : Secondary Pressure Solenoid Valve"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|     |                                               | Torque converter clutch solenoid valve* | <a href="#">TM-243, "CVT CONTROL SYSTEM : Torque Converter Clutch Solenoid Valve"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|     |                                               | Select solenoid valve*                  | <a href="#">TM-242, "CVT CONTROL SYSTEM : Select Solenoid Valve"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| ⑪   | CVT unit connector                            |                                         | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| ⑫   | Primary speed sensor                          |                                         | <a href="#">TM-238, "CVT CONTROL SYSTEM : Primary Speed Sensor"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| ⑬   | Output speed sensor                           |                                         | <a href="#">TM-239, "CVT CONTROL SYSTEM : Output Speed Sensor"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

\*: These components are included in control valve assembly.

### CVT CONTROL SYSTEM : TCM

INFOID:0000000010622425

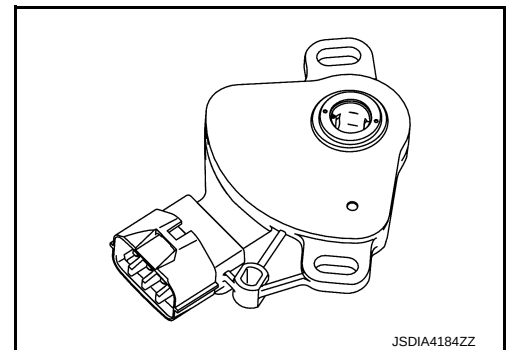
- The TCM consists of a microcomputer and connectors for signal input and output and for power supply.
- The vehicle driving status is judged based on the signals from the sensors, switches, and other control units, and the optimal transaxle control is performed.
- For TCM control items, refer to [TM-490, "CVT CONTROL SYSTEM : System Description"](#).



### CVT CONTROL SYSTEM : Transmission Range Switch

INFOID:0000000010622426

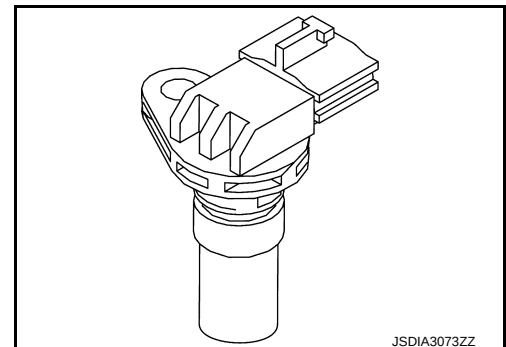
- The transmission range switch is installed to upper part of transaxle case.
- The transmission range switch detects the selector lever position.



### CVT CONTROL SYSTEM : Primary Speed Sensor

INFOID:0000000010622427

- The primary speed sensor is installed to side cover of transaxle.
- The primary speed sensor detects primary pulley speed.

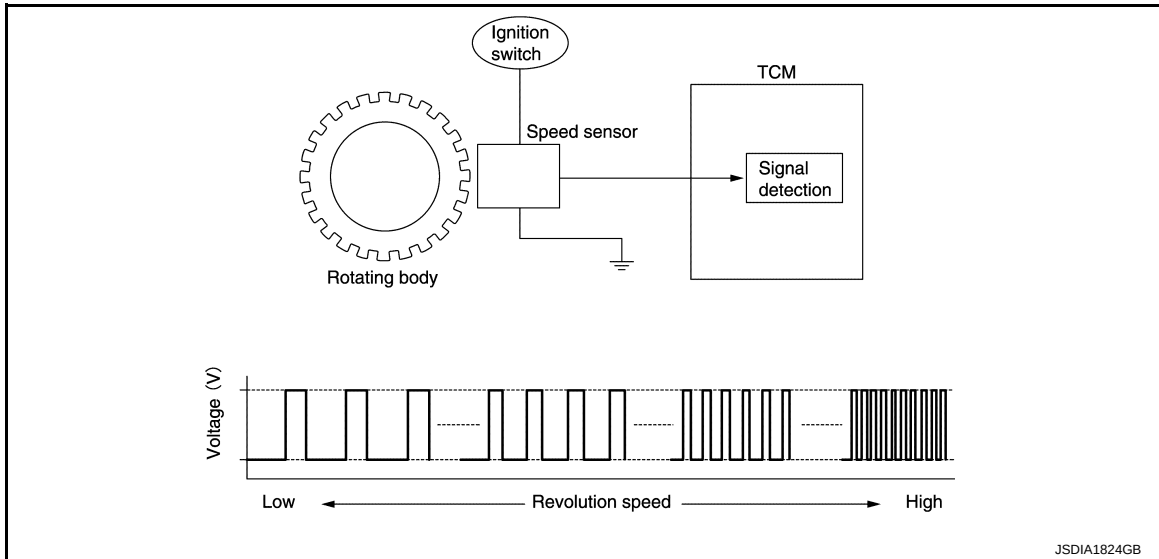


## COMPONENT PARTS

### < SYSTEM DESCRIPTION >

[CVT: RE0F10D]

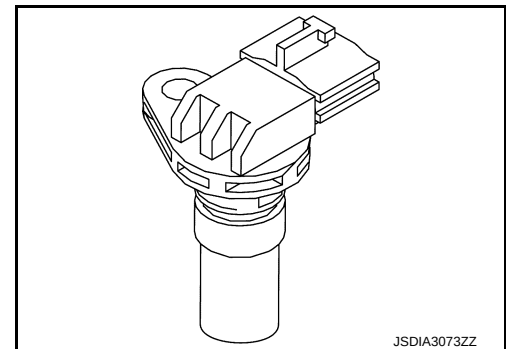
- The primary speed sensor generates an ON-OFF pulse signal according to the rotating body speed. TCM judges the rotating body speed from the pulse signal.



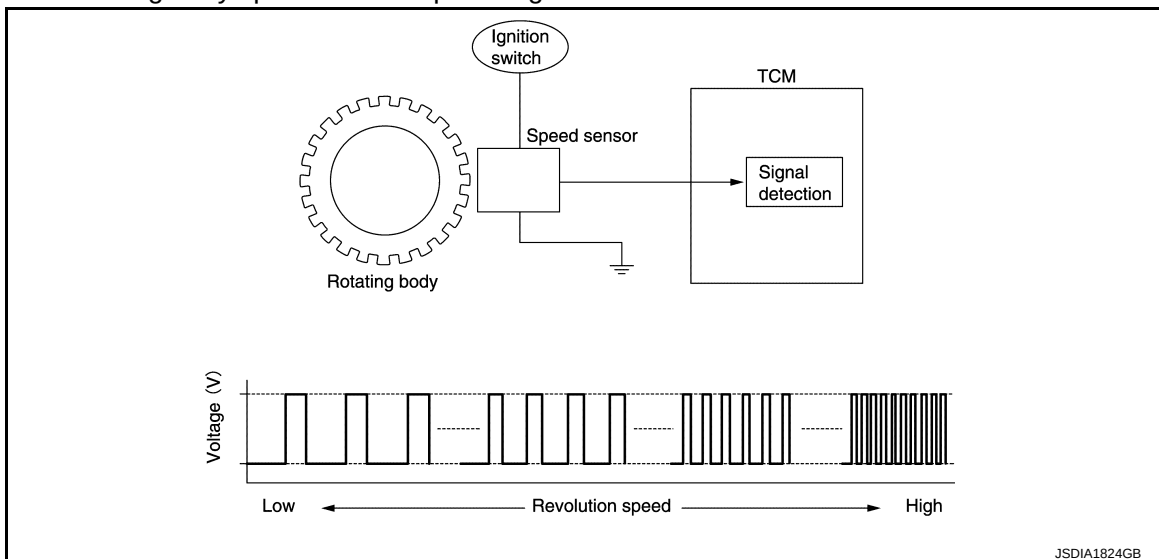
### CVT CONTROL SYSTEM : Output Speed Sensor

INFOID:0000000010622428

- The output speed sensor is installed to back side of transaxle.
- The output speed sensor detects final gear speed.



- The output speed sensor generates an ON-OFF pulse signal according to the rotating body speed. TCM judges the rotating body speed from the pulse signal.



### CVT CONTROL SYSTEM : Input Speed Sensor

INFOID:0000000010622429

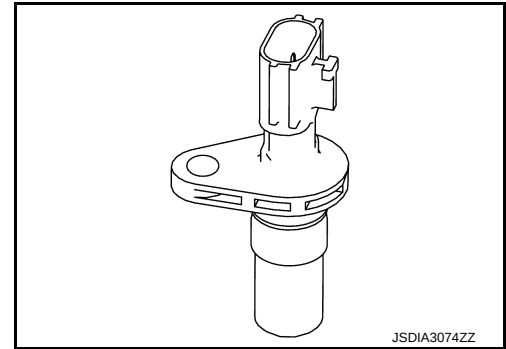
- The input speed sensor is installed to the front side of transaxle case.

## COMPONENT PARTS

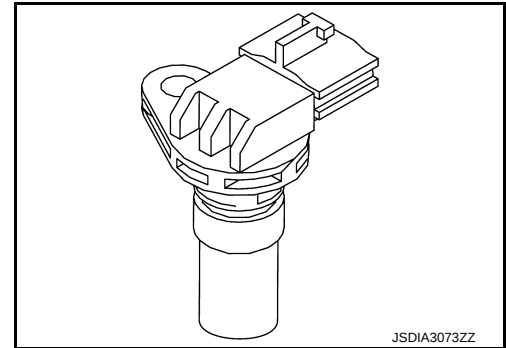
### < SYSTEM DESCRIPTION >

[CVT: RE0F10D]

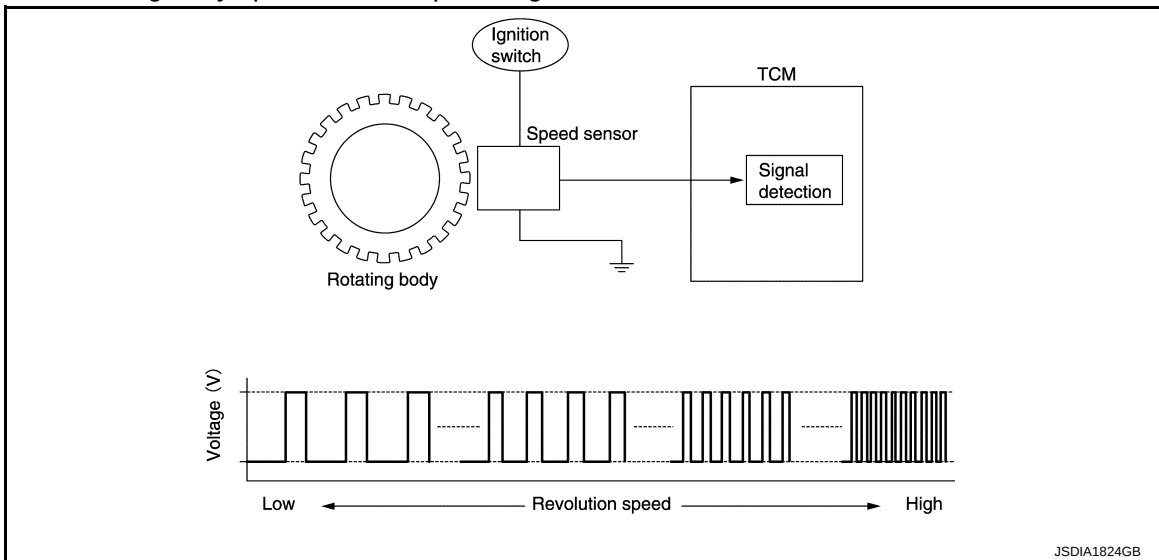
- MR20DD models



- QR25DE models



- The input speed sensor detects input shaft speed.
- The input speed sensor generates an ON-OFF pulse signal according to the rotating body speed. TCM judges the rotating body speed from the pulse signal.



### CVT CONTROL SYSTEM : CVT Fluid Temperature Sensor

INFOID:0000000010622430

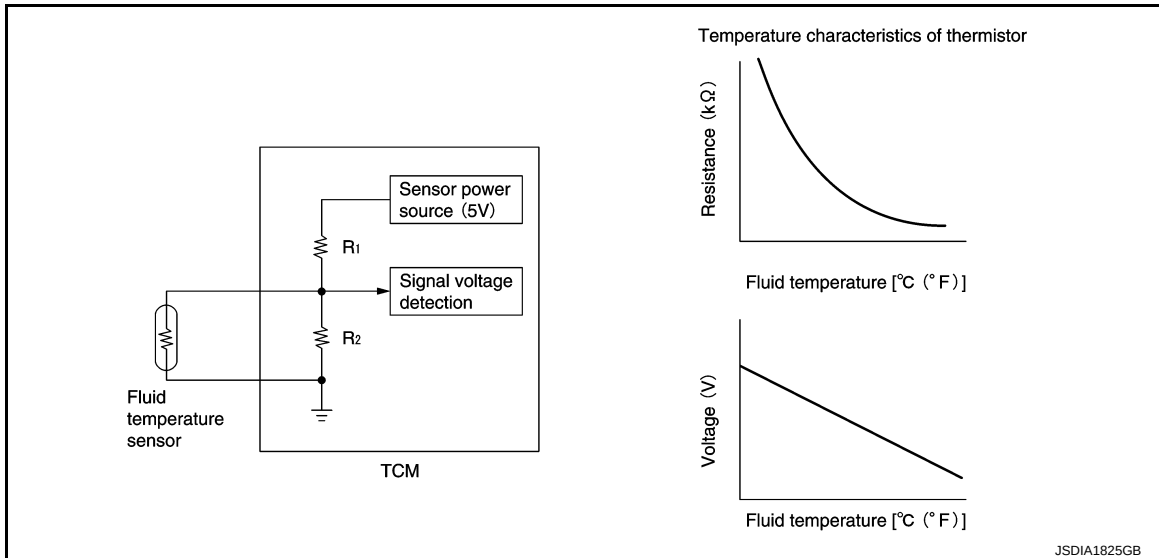
- The CVT fluid temperature sensor is installed to control valve.
- The CVT fluid temperature sensor detects CVT fluid temperature in oil pan.

## COMPONENT PARTS

### < SYSTEM DESCRIPTION >

[CVT: RE0F10D]

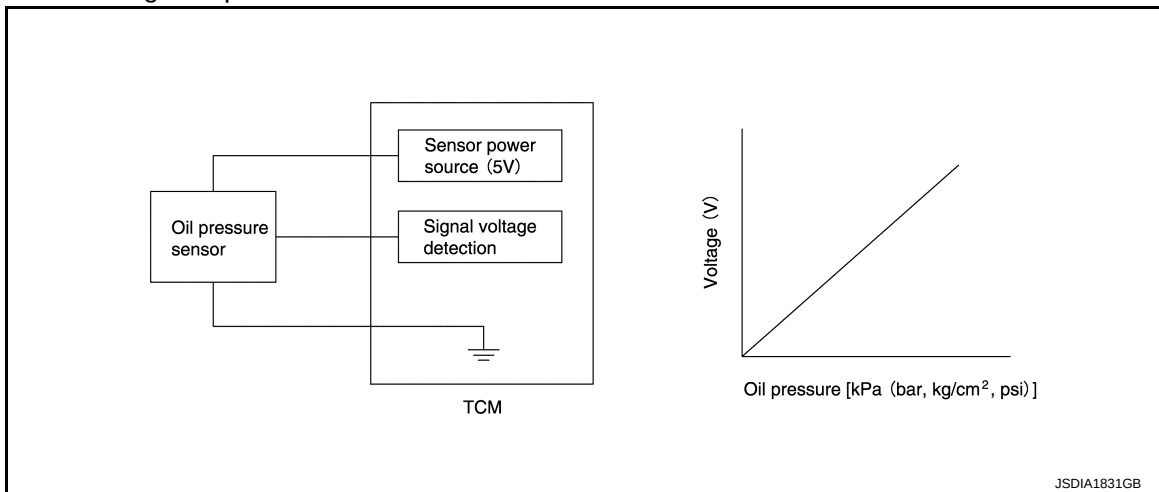
- The fluid temperature sensor uses a thermistor, and changes the signal voltage by converting changes in the CVT fluid temperature to a resistance value. TCM evaluates the CVT fluid temperature from the signal voltage value.



### CVT CONTROL SYSTEM : Primary Pressure Sensor

INFOID:0000000010622431

- The primary pressure sensor is installed to control valve.
- The primary pressure sensor detects the pressure applied to the primary pulley.
- When pressure is applied to the ceramic device in the primary pressure sensor, the ceramic device is deformed, resulting in voltage change. TCM evaluates the primary pressure from its voltage change. Voltage is increased along with pressure increase.



### CVT CONTROL SYSTEM : Secondary Pressure Sensor

INFOID:0000000010622432

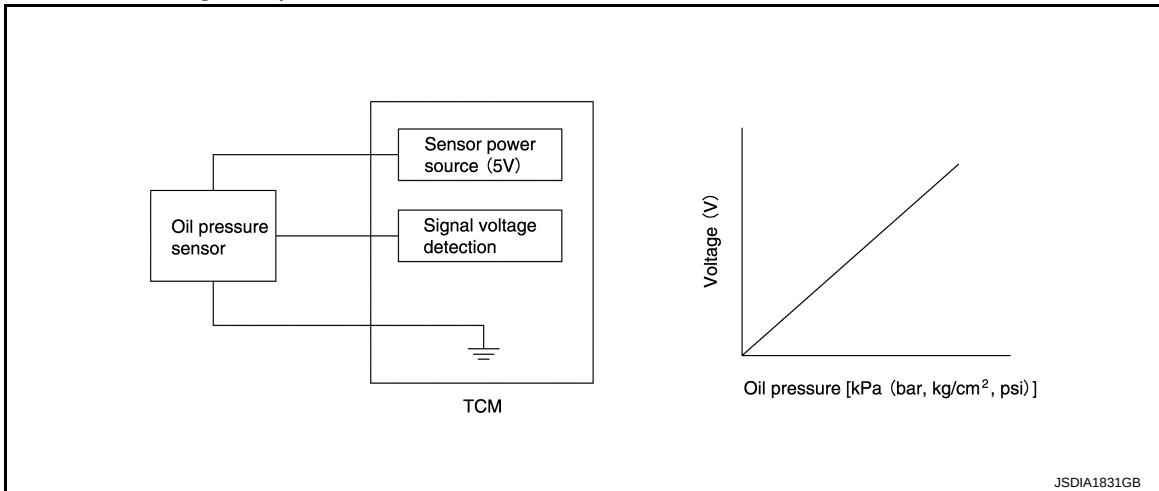
- The secondary pressure sensor is installed to control valve.
- The secondary pressure sensor detects the pressure applied to the secondary pulley.

## COMPONENT PARTS

### < SYSTEM DESCRIPTION >

[CVT: RE0F10D]

- When pressure is applied to the metal diaphragm in the secondary pressure sensor, the metal diaphragm is deformed, resulting in voltage change. TCM evaluates the secondary pressure from its voltage change. Voltage is increased along with pressure increase.



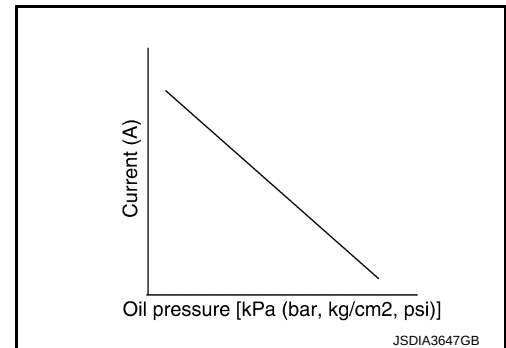
### CVT CONTROL SYSTEM : Primary Pressure Solenoid Valve

INFOID:0000000010622433

- The primary pressure solenoid valve is installed to control valve.
- The primary pressure solenoid valve controls the primary reducing valve. For information about the primary reducing valve, refer to [TM-251, "TRANSAXLE : Component Description"](#).
- The primary pressure solenoid valve uses the linear solenoid valve [N/H (normal high) type].

#### NOTE:

- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/H (normal high) produces hydraulic control when the coil is not energized.



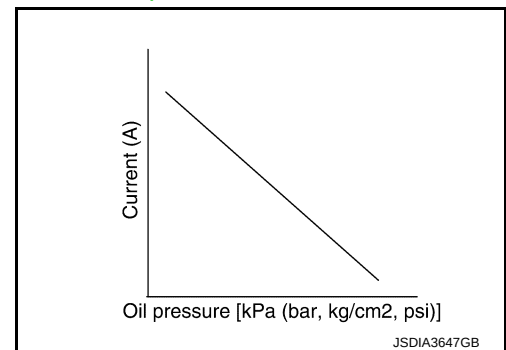
### CVT CONTROL SYSTEM : Secondary Pressure Solenoid Valve

INFOID:0000000010622434

- The secondary pressure solenoid valve is installed to control valve.
- The secondary pressure solenoid valve controls the secondary reducing valve. For information about the secondary reducing valve, refer to [TM-251, "TRANSAXLE : Component Description"](#).
- The secondary pressure solenoid valve uses the linear solenoid valve [N/H (normal high) type].

#### NOTE:

- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/H (normal high) produces hydraulic control when the coil is not energized.



### CVT CONTROL SYSTEM : Select Solenoid Valve

INFOID:0000000010622435

- The select solenoid valve is installed to control valve.
- The select solenoid valve adjusts the forward clutch engaging pressure and the reverse brake engaging pressure. For information about the forward clutch and reverse brake, refer to [TM-251, "TRANSAXLE : Component Description"](#).

## COMPONENT PARTS

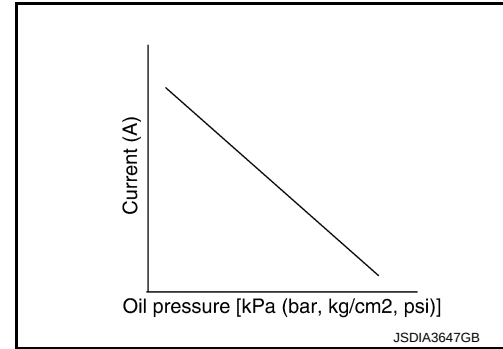
### < SYSTEM DESCRIPTION >

[CVT: RE0F10D]

- The select solenoid valve uses the linear solenoid valve [N/H (normal high) type].

#### NOTE:

- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/H (normal high) type produces hydraulic control when the coil is not energized.



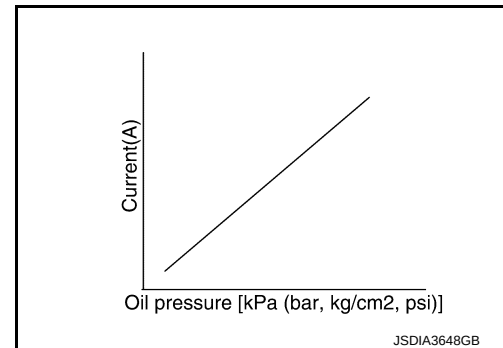
### CVT CONTROL SYSTEM : Torque Converter Clutch Solenoid Valve

INFOID:0000000010622436

- The torque converter clutch solenoid valve is installed to control valve.
- The torque converter clutch solenoid valve controls the torque converter clutch control valve. For information about the torque converter clutch control valve, refer to [TM-251. "TRANSAXLE : Component Description"](#).
- The torque converter clutch solenoid valve utilizes a linear solenoid valve [N/L (normal low) type].

#### NOTE:

- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/L (normal low) type does not produce hydraulic control when the coil is not energized.



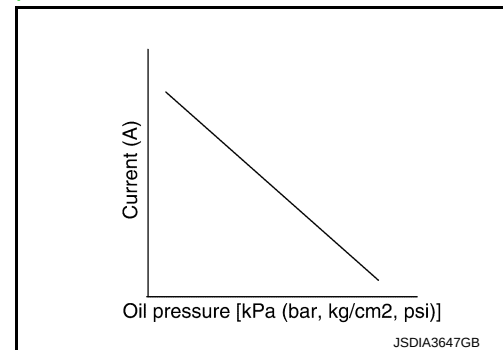
### CVT CONTROL SYSTEM : Line Pressure Solenoid Valve

INFOID:0000000010622437

- The line pressure solenoid valve is installed to control valve.
- The line pressure solenoid valve controls the pressure regulator valve. For information about the pressure regulator valve, refer to [TM-251. "TRANSAXLE : Component Description"](#).
- The line pressure solenoid valve uses the linear solenoid valve [N/H (normal high) type].

#### NOTE:

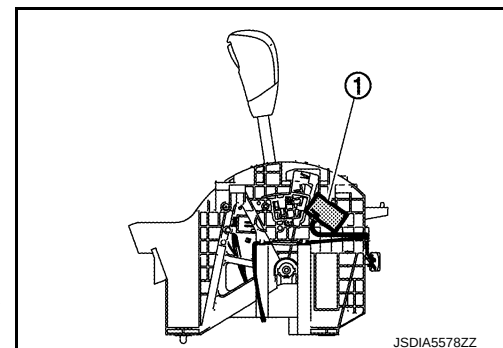
- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/H (normal high) produces hydraulic control when the coil is not energized.



### CVT CONTROL SYSTEM : Manual Mode Switch

INFOID:0000000010622438

- The manual mode switch ① [mode select switch and position select switch (upshift/downshift)] is installed in the CVT shift selector assembly.
- The mode select switch detects the position (the main shift gate side or manual shift gate side) of the selector lever and transmits a manual mode signal or a not manual mode signal to the combination meter. Then, the TCM receives a manual mode signal or non-manual mode signal from the combination meter.
- The position select switch (upshift) detects that the selector lever is shifted to the upshift side of the manual shift gate and transmits a manual mode upshift signal to the combination meter. Then, the TCM receives a manual mode upshift signal from the combination meter.



## COMPONENT PARTS

< SYSTEM DESCRIPTION >

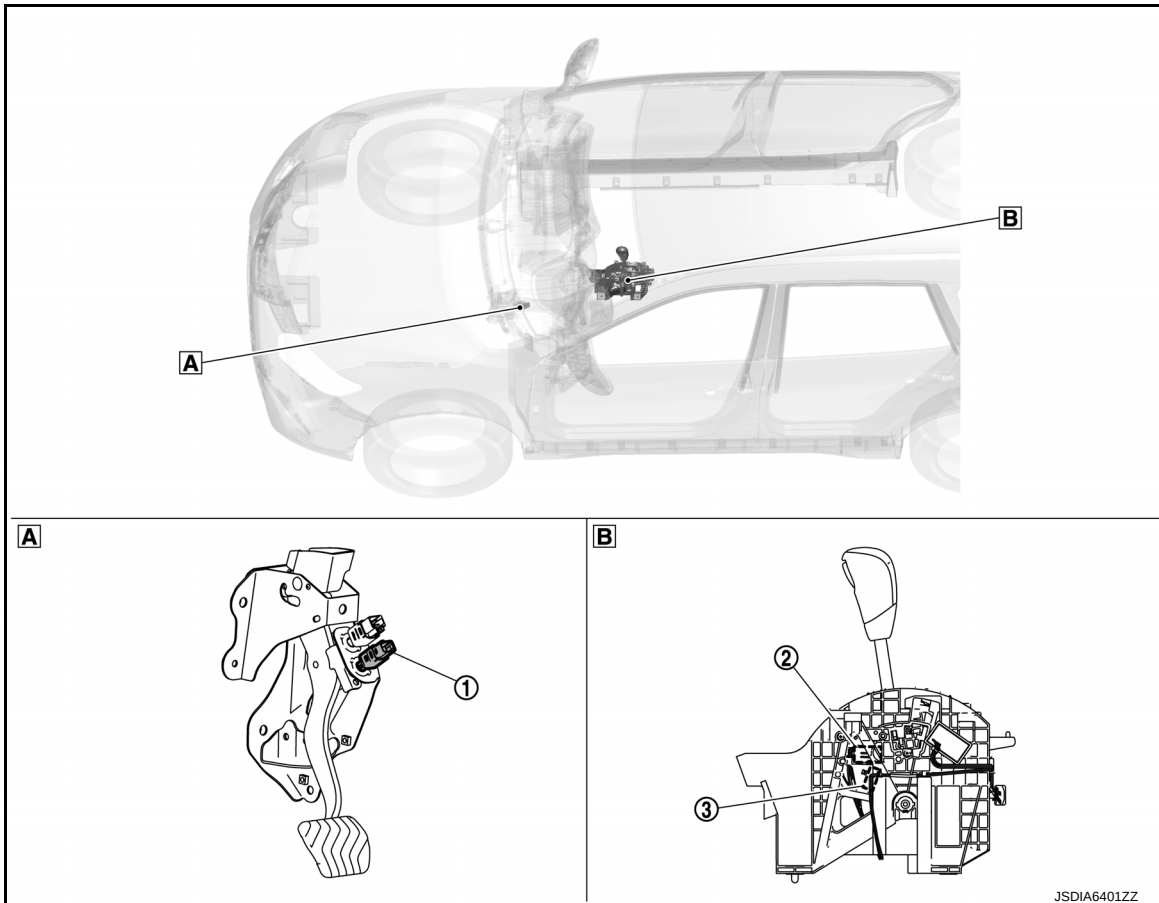
[CVT: RE0F10D]

- The position select switch (downshift) detects that the selector lever is shifted to the downshift side of the manual shift gate and transmits a manual mode downshift signal to the combination meter. Then, the TCM receives a manual mode downshift signal from the combination meter.

### SHIFT LOCK SYSTEM

#### SHIFT LOCK SYSTEM : Component Parts Location

INFOID:0000000010622440



**A** Brake pedal, upper

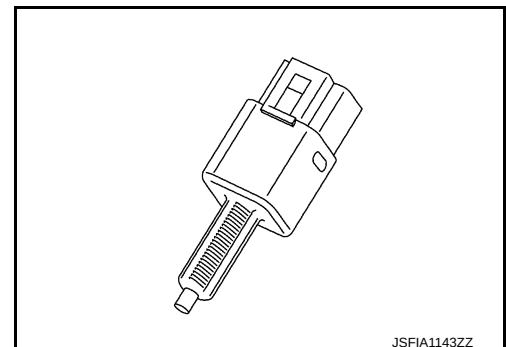
**B** CVT shift selector assembly

| No. | Component            | Function                                                           |
|-----|----------------------|--------------------------------------------------------------------|
| ①   | Stop lamp switch     | <a href="#">TM-244, "SHIFT LOCK SYSTEM : Stop Lamp Switch"</a>     |
| ②   | Shift lock solenoid  | <a href="#">TM-245, "SHIFT LOCK SYSTEM : Shift Lock Solenoid"</a>  |
| ③   | Park position switch | <a href="#">TM-245, "SHIFT LOCK SYSTEM : Park Position Switch"</a> |

#### SHIFT LOCK SYSTEM : Stop Lamp Switch

INFOID:0000000010622441

- The stop lamp switch turns ON when the brake pedal is depressed.
- When the stop lamp switch turns ON, shift lock solenoid is energized.



JSFIA1143ZZ



## COMPONENT PARTS

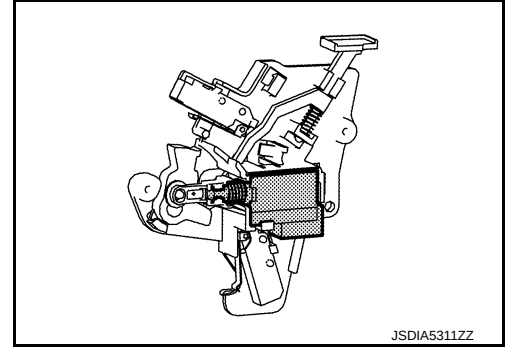
< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

### SHIFT LOCK SYSTEM : Shift Lock Solenoid

INFOID:000000010622442

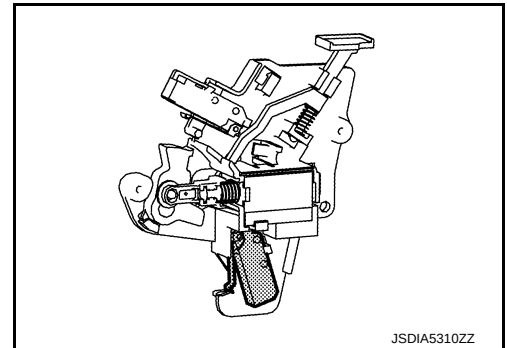
The shift lock solenoid operates according to the signal from the BCM and moves the lock lever. For shift lock operation, refer to [TM-254, "SHIFT LOCK SYSTEM : System Description"](#).



### SHIFT LOCK SYSTEM : Park Position Switch

INFOID:000000010622443

The park position switch detects that the selector lever is in "P" position.



A  
B  
C  
TM  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

# STRUCTURE AND OPERATION

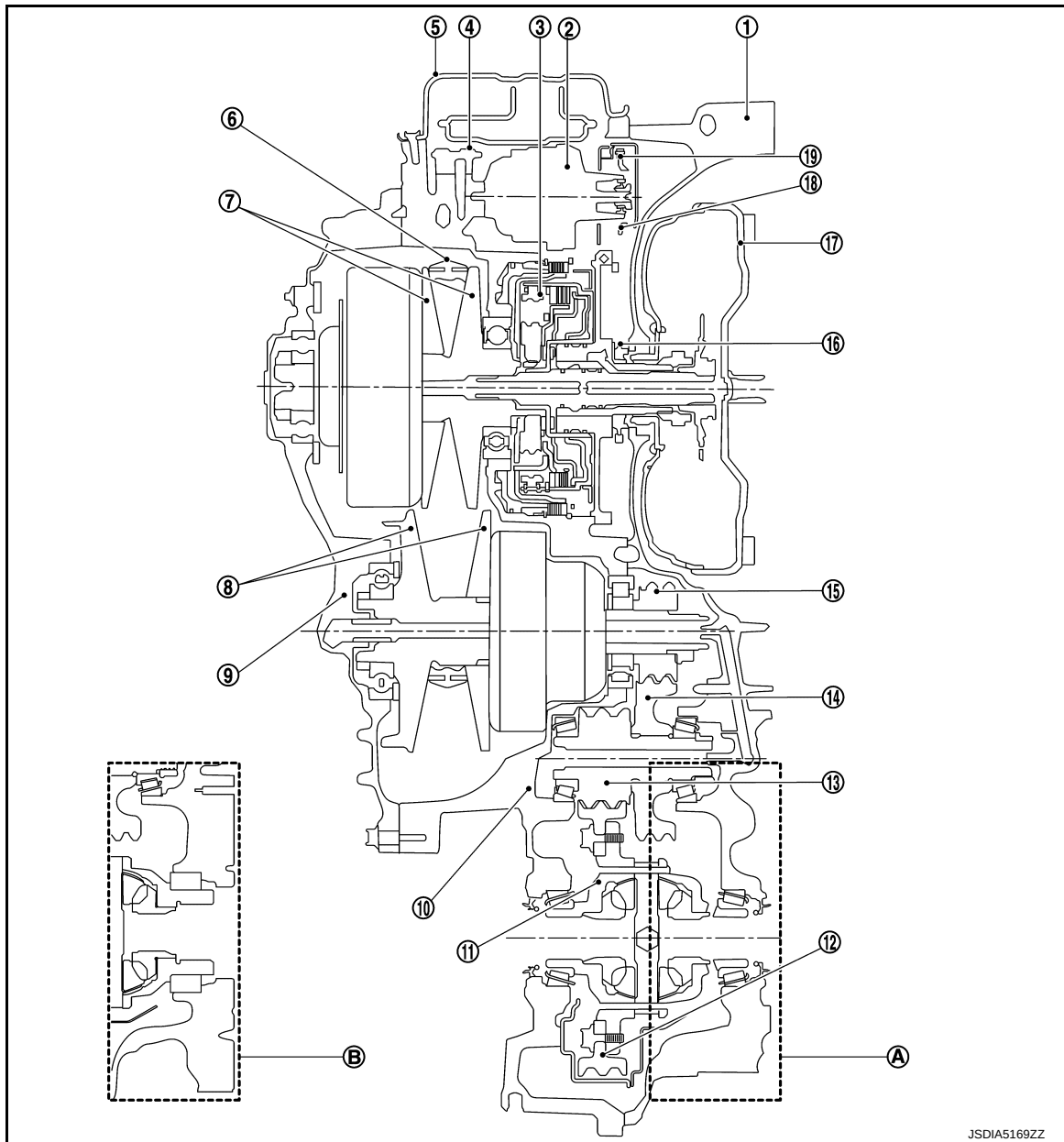
< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

## STRUCTURE AND OPERATION TRANSAXLE

TRANSAXLE : Cross-Sectional View

INFOID:000000010622444



- |                     |                     |                   |
|---------------------|---------------------|-------------------|
| ① Converter housing | ② Oil pump          | ③ Planetary gear  |
| ④ Control valve     | ⑤ Oil pan           | ⑥ Steel belt      |
| ⑦ Primary pulley    | ⑧ Secondary pulley  | ⑨ Side cover      |
| ⑩ Transaxle case    | ⑪ Differential case | ⑫ Final gear      |
| ⑬ Reduction gear    | ⑭ Idler gear        | ⑮ Output gear     |
| ⑯ Drive sprocket    | ⑰ Torque converter  | ⑱ Driven sprocket |
| ⑲ Oil pump chain    |                     |                   |
| Ⓐ 2WD               | Ⓑ 4WD               |                   |

# STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

## TRANSAXLE : Operation Status

INFOID:0000000110622445

×: Engaged or applied.

| Selector lever position | Parking mechanism | Forward clutch | Reverse brake | Primary pulley | Secondary pulley | Steel belt | Final drive |
|-------------------------|-------------------|----------------|---------------|----------------|------------------|------------|-------------|
| P                       | ×                 |                |               |                |                  |            |             |
| R                       |                   |                | ×             | ×              | ×                | ×          | ×           |
| N                       |                   |                |               |                |                  |            |             |
| D, M                    |                   | ×              |               | ×              | ×                | ×          | ×           |

## TRANSAXLE : Transaxle Mechanism

INFOID:0000000110622446

### TORQUE CONVERTER (WITH LOCK-UP FUNCTION)

The torque converter is a system that increases the engine torque and transmits the torque to the transaxle. A symmetrical 3-element, 1-stage, 2-phase type is used here.

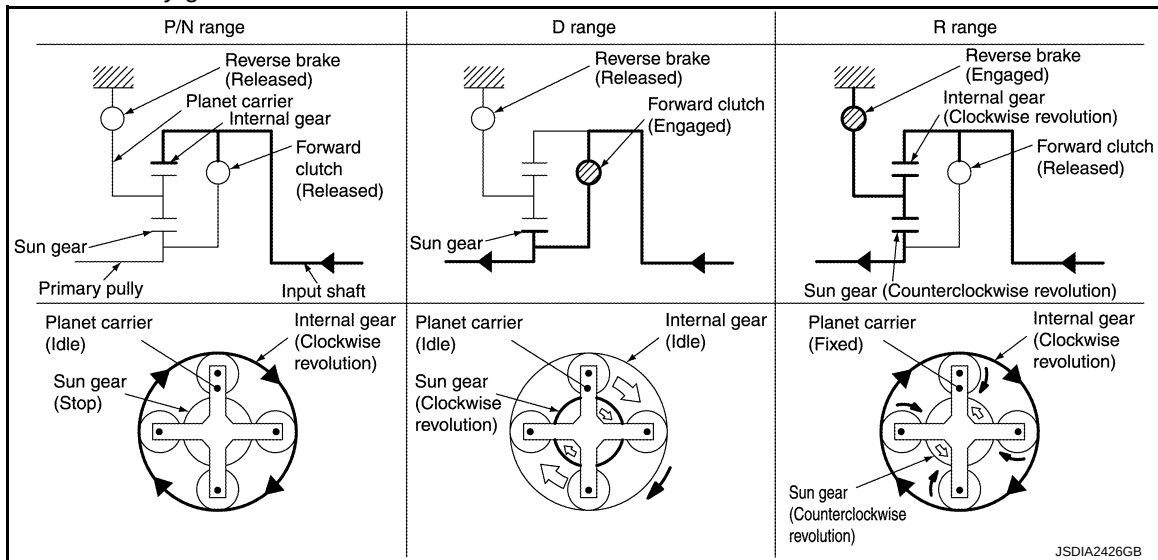
### OIL PUMP

Utilizes a vane-type oil pump that is driven by the engine through the oil pump drive chain in order to increase efficiency of pump discharge volume in low-speed zone and optimize pump discharge volume in high-speed zone. Discharged oil from oil pump is transmitted to control valve. It is used as the oil of primary and secondary pulley operation, the oil of clutch operation, and the lubricant for each part.

### PLANETARY GEAR

- A planetary gear type of forward/reverse selector mechanism is installed between the torque converter and primary pulley.
- The power from the torque converter is input via the input shaft, operating a wet multi-plate clutch by means of hydraulic pressure to switch between forward and reverse driving.

#### Operation of Planetary gear



### BELT & PULLEY

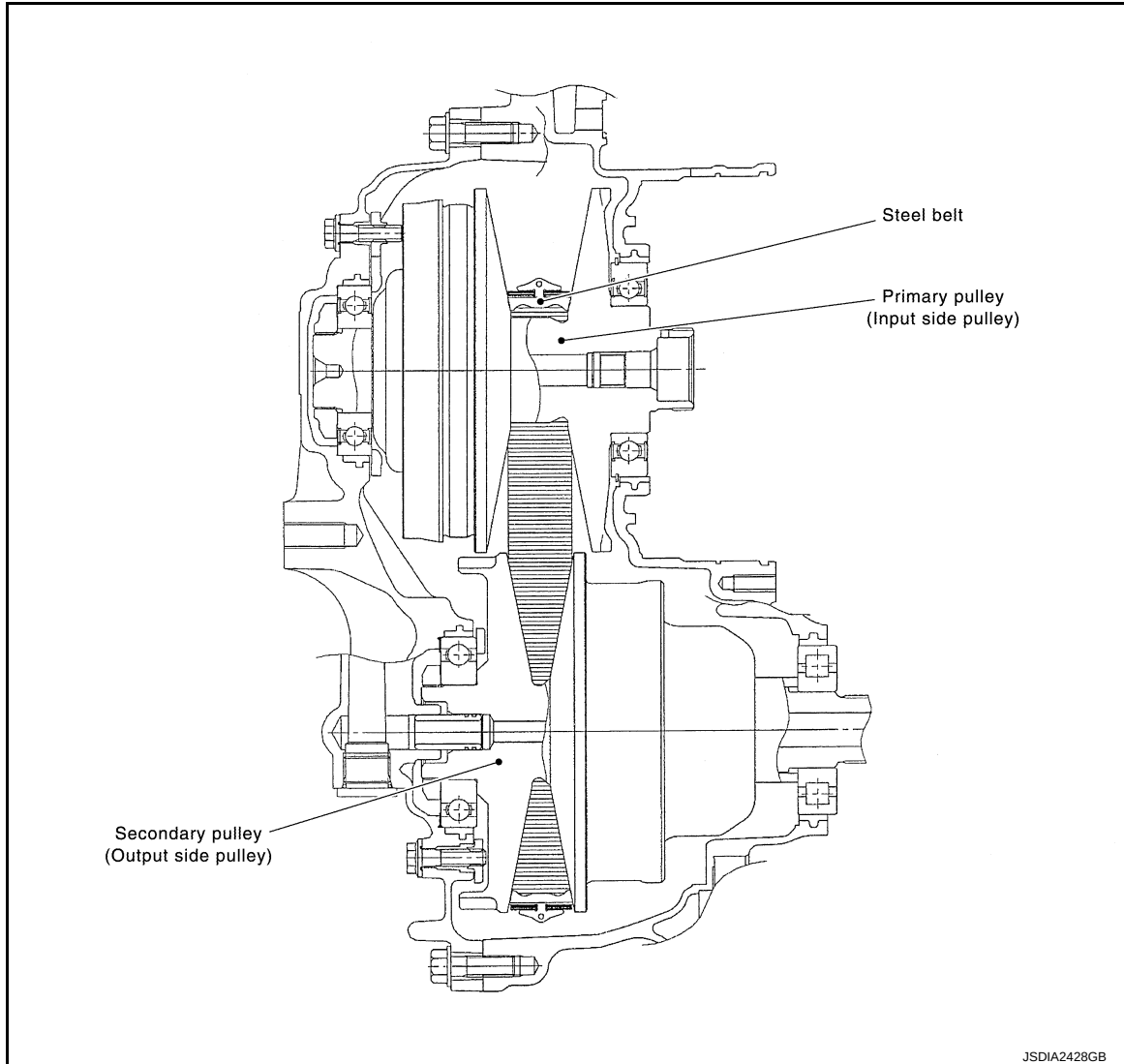
It is composed of a pair of pulleys (the groove width is changed freely in the axial direction) and the steel belt (the steel plates are placed continuously and the belt is guided with the multilayer steel rings on both sides).

## STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

The groove width changes according to wrapping radius of steel belt and pulley from low status to overdrive status continuously with non-step. It is controlled with the oil pressures of primary pulley and secondary pulley.



### Steel Belt

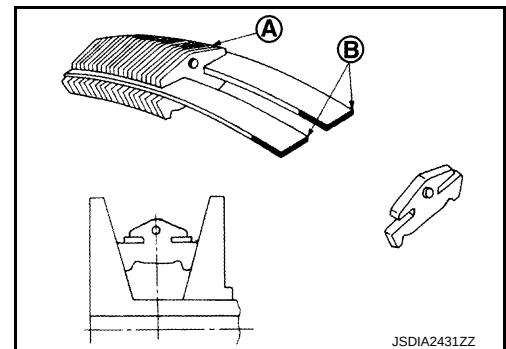
It is composed of multiple steel plates (A) and two steel rings (B) stacked to a several number. The feature of this steel belt transmits power with compression of the steel plate in contrast with transmission of power in pulling with a rubber belt. Friction force is required with the pulley slope to transmit power from the steel plate. The force is generated with the following mechanism:

Oil pressure applies to the secondary pulley to nip the plate. ⇒The plate is pushed and extended outward. ⇒The steel ring shows with-stands. ⇒Pulling force is generated on the steel ring. ⇒The plate of the primary pulley is nipped between the pulley. ⇒Friction force is generated between the steel belt and the pulley.

Therefore, responsibilities are divided by the steel plate that transmits the power with compression and the steel ring that maintains necessary friction force. In this way, the tension of the steel ring is distributed on the entire surface and stress variation is limited, resulting in good durability.

### Pulley

The primary pulley (input shaft side) and the secondary pulley (output shaft side) have the shaft with slope (fixed cone surface), movable sheave (movable cone surface that can move in the axial direction) and oil pressure chamber at the back of the movable sheave.

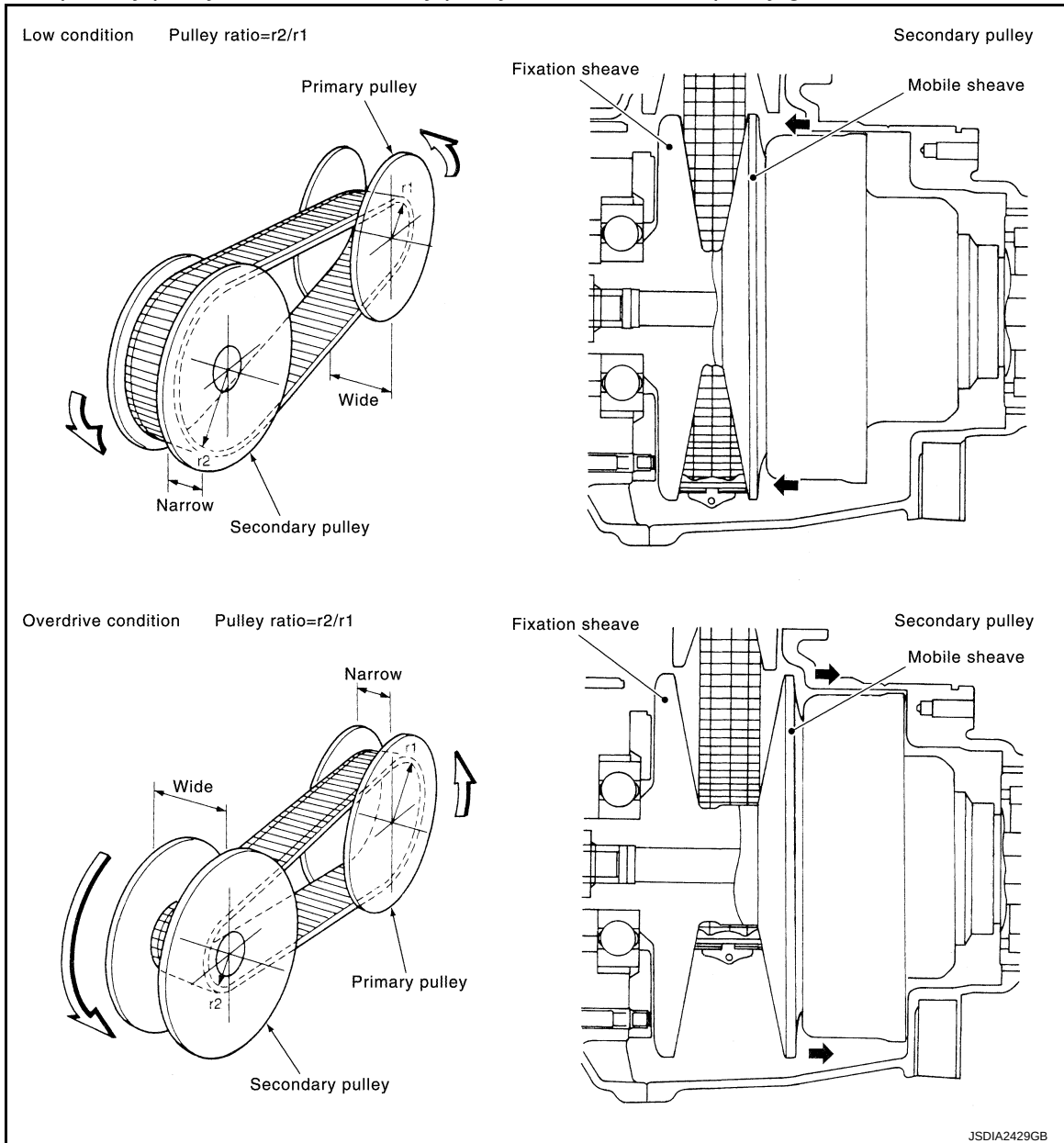


# STRUCTURE AND OPERATION

## < SYSTEM DESCRIPTION >

[CVT: RE0F10D]

The movable sheave slides on the shaft to change the groove width of the pulley. Input signals of engine load (accelerator pedal opening), primary pulley speed and secondary pulley speed change the operation pressures of the primary pulley and the secondary pulley, and controls the pulley groove width.



## FINAL DRIVE AND DIFFERENTIAL

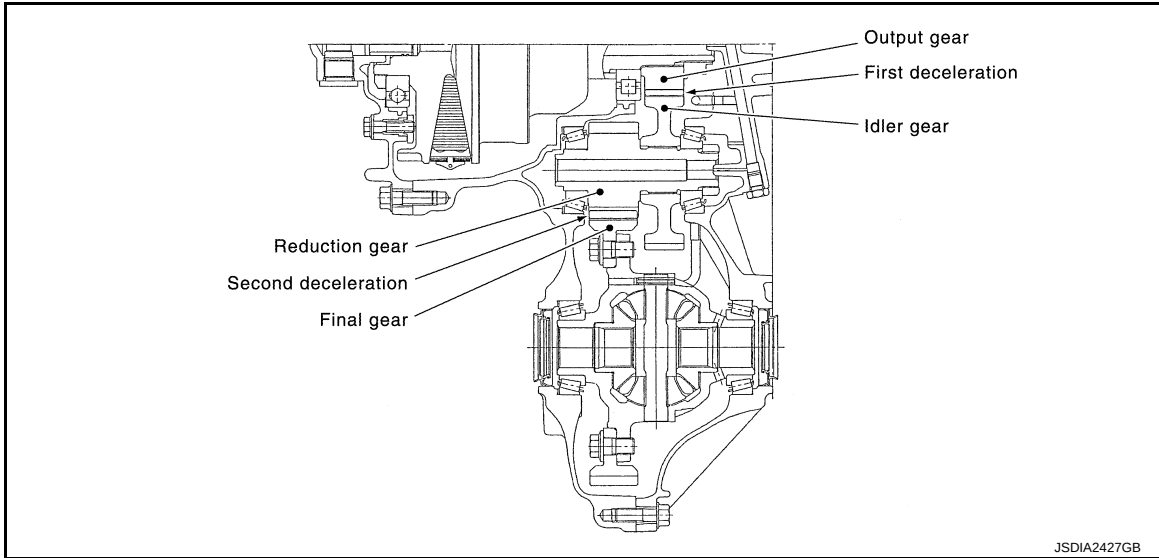
The deceleration gears are composed of 2 stages: primary deceleration (output gear, idler gear pair) and secondary deceleration (reduction gear, final gear pair). All of these gears are helical gears.

# STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

The lubrication oil is the same as the CVT fluid which lubricates the entire transaxle.

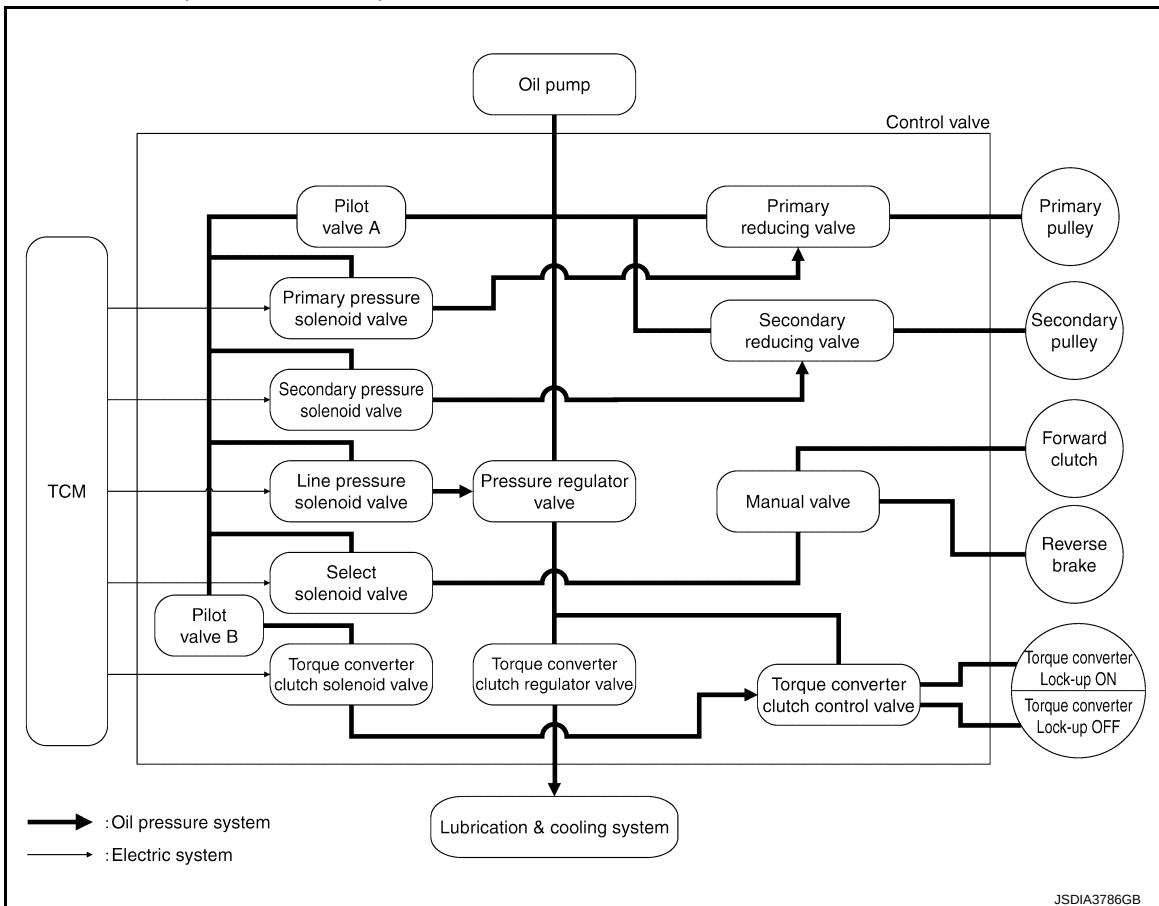


JSDIA2427GB

## TRANSAXLE : Oil Pressure System

INFOID:000000010622447

Oil pressure required for operation of the transaxle transmission mechanism is generated by oil pump, oil pressure control valve, solenoid valve, etc.



JSDIA3786GB

# STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

## TRANSAXLE : Component Description

INFOID:000000010622448

| Part name                             | Function                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Torque converter                      | Increases engine torque and transmits it to the transaxle.                                                                                                                                                                                                                                                                                                                                                                 |
| Oil pump                              | Utilizes a vane-type oil pump that is driven by the engine through the oil pump drive chain in order to increase efficiency of pump discharge volume in low-speed zone and optimize pump discharge volume in high-speed zone. Discharged oil from oil pump is transmitted to control valve. It is used as the oil of primary and secondary pulley operation, the oil of clutch operation, and the lubricant for each part. |
| Forward clutch                        | The forward clutch is wet and multiple plate type clutch that consists of clutch drum, piston, drive plate, and driven plate. It is a clutch to move the vehicle forward by activating piston hydraulically, engaging plates, and directly connecting sun gear and input shaft.                                                                                                                                            |
| Reverse brake                         | The reverse brake is a wet multiple-plate type brake that consists of transaxle case, piston, drive plate, and driven plate. It is a brake to move the vehicle in reverse by activating piston hydraulically, engaging plates, and fixing planetary gear.                                                                                                                                                                  |
| Internal gear                         | The internal gear is directly connected to forward clutch drum. It is a gear that moves the outer edge of pinion planet of planet carrier. It transmits power to move the vehicle in reverse when the planet carrier is fixed.                                                                                                                                                                                             |
| Planet carrier                        | Composed of a carrier, pinion planet, and pinion shaft. This gear fixes and releases the planet carrier in order to switch between forward and reverse driving.                                                                                                                                                                                                                                                            |
| Sun gear                              | Sun gear is a set part with planet carrier and internal gear. It transmits transmitted force to primary fixed sheave. It rotates in forward or reverse direction according to activation of either forward clutch or reverse brake.                                                                                                                                                                                        |
| Input shaft                           | The input shaft is directly connected to forward clutch drum and transmits traction force from torque converter. In shaft center, there are holes for hydraulic distribution to primary pulley and hydraulic distribution for lockup ON/OFF.                                                                                                                                                                               |
| Primary pulley                        | It is composed of a pair of pulleys (the groove width is changed freely in the axial direction) and the steel belt. The groove width changes according to wrapping radius of steel belt and pulley from low status to overdrive status continuously with non-step. It is controlled with the oil pressures of primary pulley and secondary pulley.                                                                         |
| Secondary pulley                      |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Steel belt                            |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Manual shaft                          | When the manual shaft is in the P position, the parking rod that is linked to the manual shaft rotates the parking pole. When the parking pole rotates, it engages with the parking gear, fixing the parking gear. As a result, the secondary pulley that is integrated with the parking gear is fixed.                                                                                                                    |
| Parking rod                           |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Parking pawl                          |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Parking gear                          |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Output gear                           | The deceleration gears are composed of 2 stages: primary deceleration (output gear, idler gear pair) and secondary deceleration (reduction gear, final gear pair). All of these gears are helical gears.                                                                                                                                                                                                                   |
| Idler gear                            |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Reduction gear                        |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Differential                          |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Torque converter regulator valve      | Adjusts the feed pressure to the torque converter to the optimum pressure corresponding to the driving condition.                                                                                                                                                                                                                                                                                                          |
| Pressure regulator valve              | Adjusts the discharge pressure from the oil pump to the optimum pressure (line pressure) corresponding to the driving condition.                                                                                                                                                                                                                                                                                           |
| Torque converter clutch control valve | Adjusts the torque converter engage and disengage pressures.                                                                                                                                                                                                                                                                                                                                                               |
| Manual valve                          | Distributes the clutch operation pressure to each circuit according to the selector lever position.                                                                                                                                                                                                                                                                                                                        |
| Secondary reducing valve              | Reduces line pressure and adjusts secondary pressure.                                                                                                                                                                                                                                                                                                                                                                      |
| Primary reducing valve                | Reduces line pressure and adjusts primary pressure.                                                                                                                                                                                                                                                                                                                                                                        |
| Pilot valve A                         | Reduces line pressure and adjusts pilot pressure to the solenoid valves listed below. <ul style="list-style-type: none"> <li>• Primary pressure solenoid valve</li> <li>• Secondary pressure solenoid valve</li> <li>• Select solenoid valve</li> <li>• Line pressure solenoid valve</li> </ul>                                                                                                                            |
| Pilot valve B                         | Reduces pilot pressure and adjusts pilot pressure to the torque converter clutch solenoid valve.                                                                                                                                                                                                                                                                                                                           |

## FLUID COOLER & FLUID WARMER SYSTEM

# STRUCTURE AND OPERATION

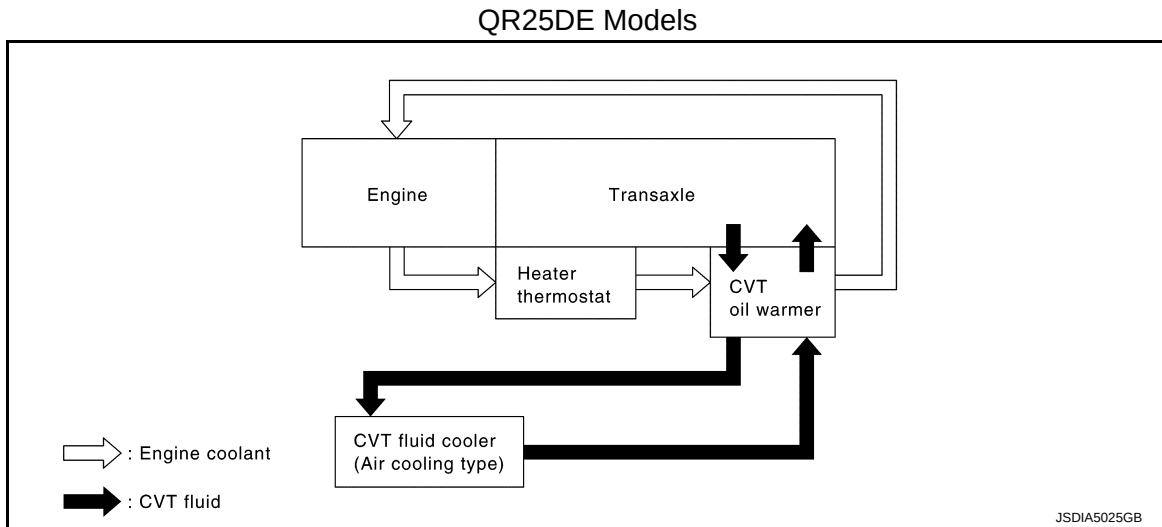
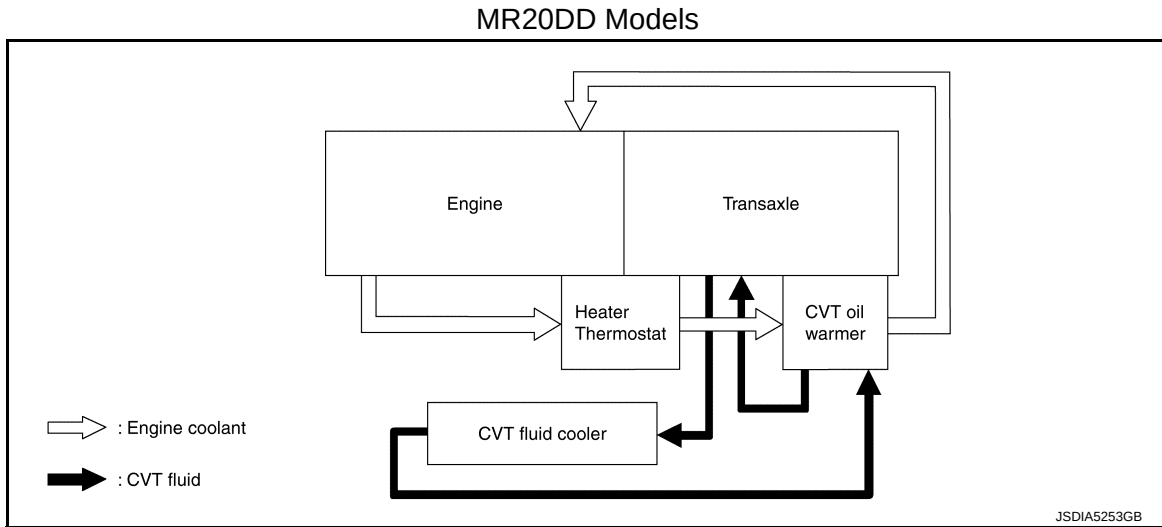
< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

## FLUID COOLER & FLUID WARMER SYSTEM : System Description

INFOID:000000010622449

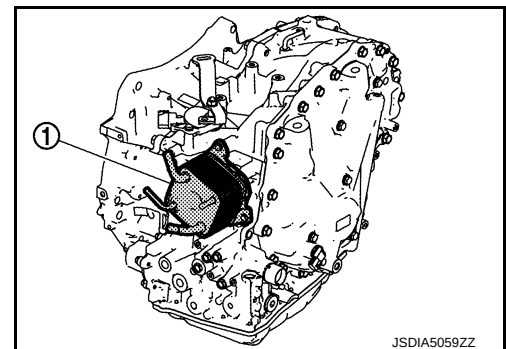
### CVT FLUID COOLER SCHEMATIC



### COMPONENT DESCRIPTION

#### CVT Oil Warmer

- The CVT oil warmer ① is installed on the front part of transaxle assembly.
- MR20DD models



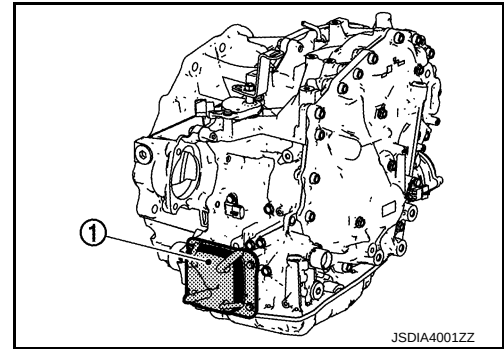


## STRUCTURE AND OPERATION

### < SYSTEM DESCRIPTION >

[CVT: RE0F10D]

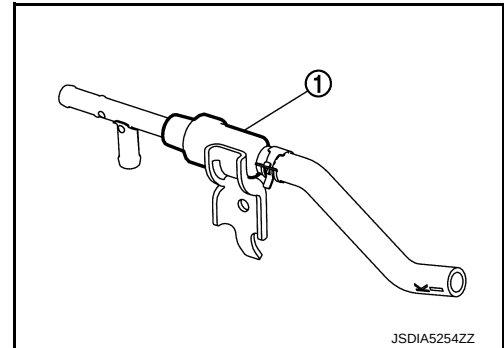
- QR25DE models



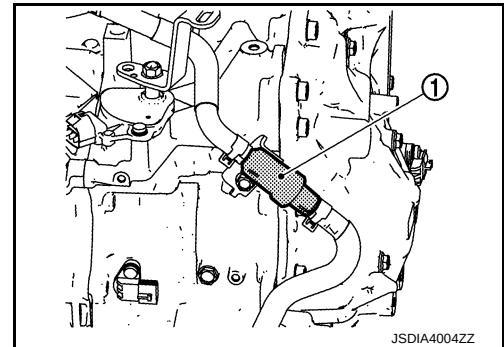
- When engine is started while engine and CVT are cold, engine coolant temperature rises more quickly than CVT fluid temperature. CVT oil warmer is provided with two circuits for CVT and engine coolant respectively so that warmed engine coolant warms CVT quickly. This helps shorten CVT warming up time, improving fuel economy.
- A cooling effect is obtained when CVT fluid temperature is high.

#### Heater Thermostat

- The heater thermostat ① is installed on the front part of transaxle assembly.
- MR20DD models



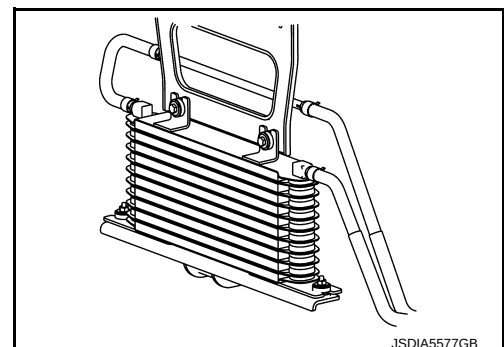
- QR25DE models



- The heater thermostat open and close with set temperature.

#### CVT Fluid Cooler (Air Cooling Type)

- The CVT fluid cooler (air cooling type) is installed to the vehicle front.
- CVT fluid is cooled by driving blast while driving the vehicle.



## SHIFT LOCK SYSTEM

A  
B  
C  
TM  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

## SHIFT LOCK SYSTEM : System Description

INFOID:000000010622450

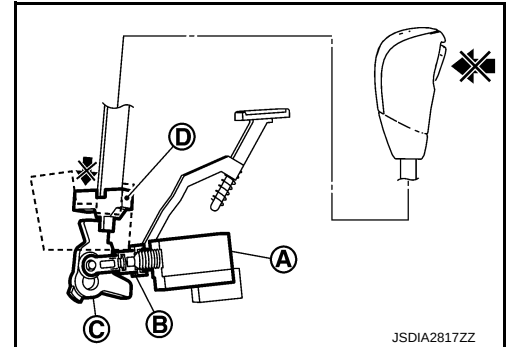
- The shift lock system prevents the select lever from being moved from "P" position to other positions due to a driver's improper operation and prevents the occurrence of an abrupt start.
- Shift lock can be released when the following conditions are satisfied.
  - Ignition switch is ON.
  - Brake pedal is depressed. (Stop lamp switch is ON)

### SHIFT LOCK OPERATION AT P POSITION

When brake pedal is not depressed (no selector operation allowed)

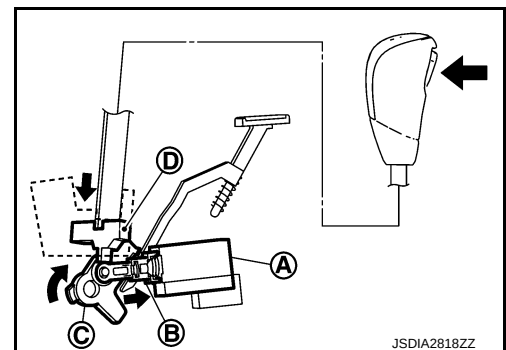
When the brake pedal is not depressed with the ignition switch ON, the shift lock solenoid (A) is OFF (not energized) and the solenoid rod (B) is extended with spring.

The connecting lock lever (C) is located at the position shown in the figure when the solenoid rod is extended. It prevents the movement of the detent rod (D). The selector lever cannot be shifted from the "P" position for this reason.



When brake pedal is depressed (selector lever operation allowed)

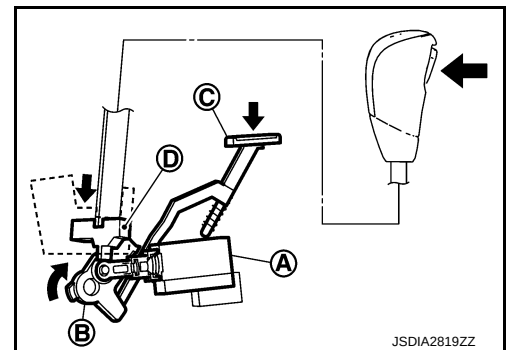
The shift lock solenoid (A) is turned ON (energized) when the brake pedal is depressed with the ignition switch ON. The solenoid rod (B) is compressed with the electromagnetic force. The connecting lock lever (C) rotates when the solenoid rod is compressed. Therefore, the detent rod (D) can be moved. The selector lever can be shifted to other positions for this reason.



### FORCIBLE RELEASE OF SHIFT LOCK

- When battery voltage decreases or an electrical/mechanical malfunction occurs in the shift lock system, the selector lever cannot be operated in "P" position. When shift lock release rod (C) is pressed in this state, lock lever (B) is forcibly rotated, and then it becomes possible to release shift lock.

- (A) : Shift lock solenoid  
(D) : Detent rod



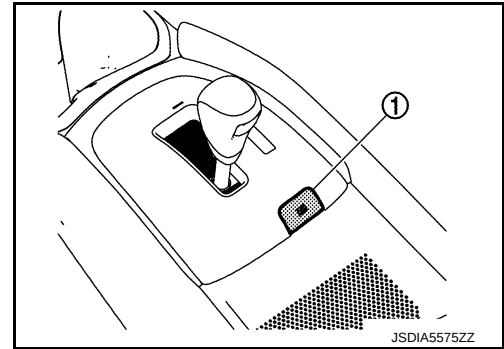
- To release the shift lock forcibly and shift the selector lever from "P" position to other positions, follow the steps below.
  1. Turn ignition switch OFF.
  2. Apply parking brake.

# STRUCTURE AND OPERATION

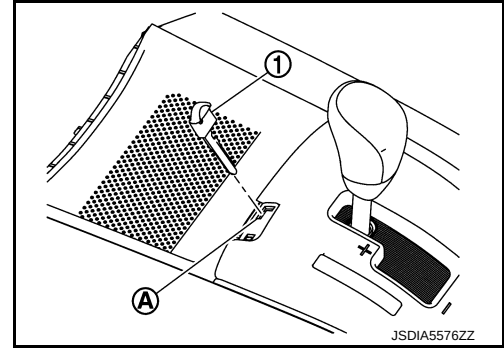
< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

3. Remove shift lock cover ①.



4. Insert key ① to finisher opening ④ and press the shift lock release rod.
5. Press the selector lever knob button and move the selector lever from "P" position to other positions.



## KEY LOCK SYSTEM

### KEY LOCK SYSTEM : System Description

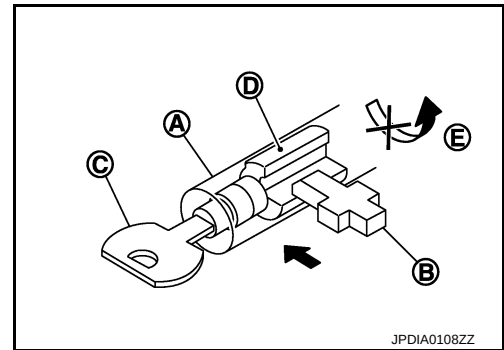
INFOID:0000000011009337

#### KEY LOCK MECHANISM

The key is not set to LOCK when the selector lever is not selected to P position. This prevents the key from being removed from the key cylinder.

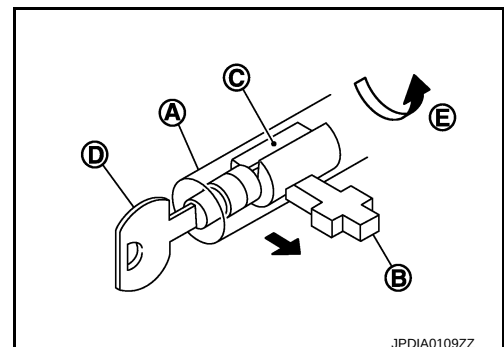
##### Key lock status

The slider ② in the key cylinder ④ is moved to the left side of the figure when the selector lever is in any position other than P position. The rotator ③ that rotates together with the key ① cannot be rotated for this reason. The key cannot be removed from the key cylinder because it cannot be turned to LOCK ⑤.



##### Key unlock status

The slider ② in the key cylinder ④ is moved to the right side of the figure when the selector lever is in P position and the finger is removed from the selector button. The rotator ③ can be rotated for this reason. The key ① can be removed from the key cylinder because it can be turned to LOCK ⑤.



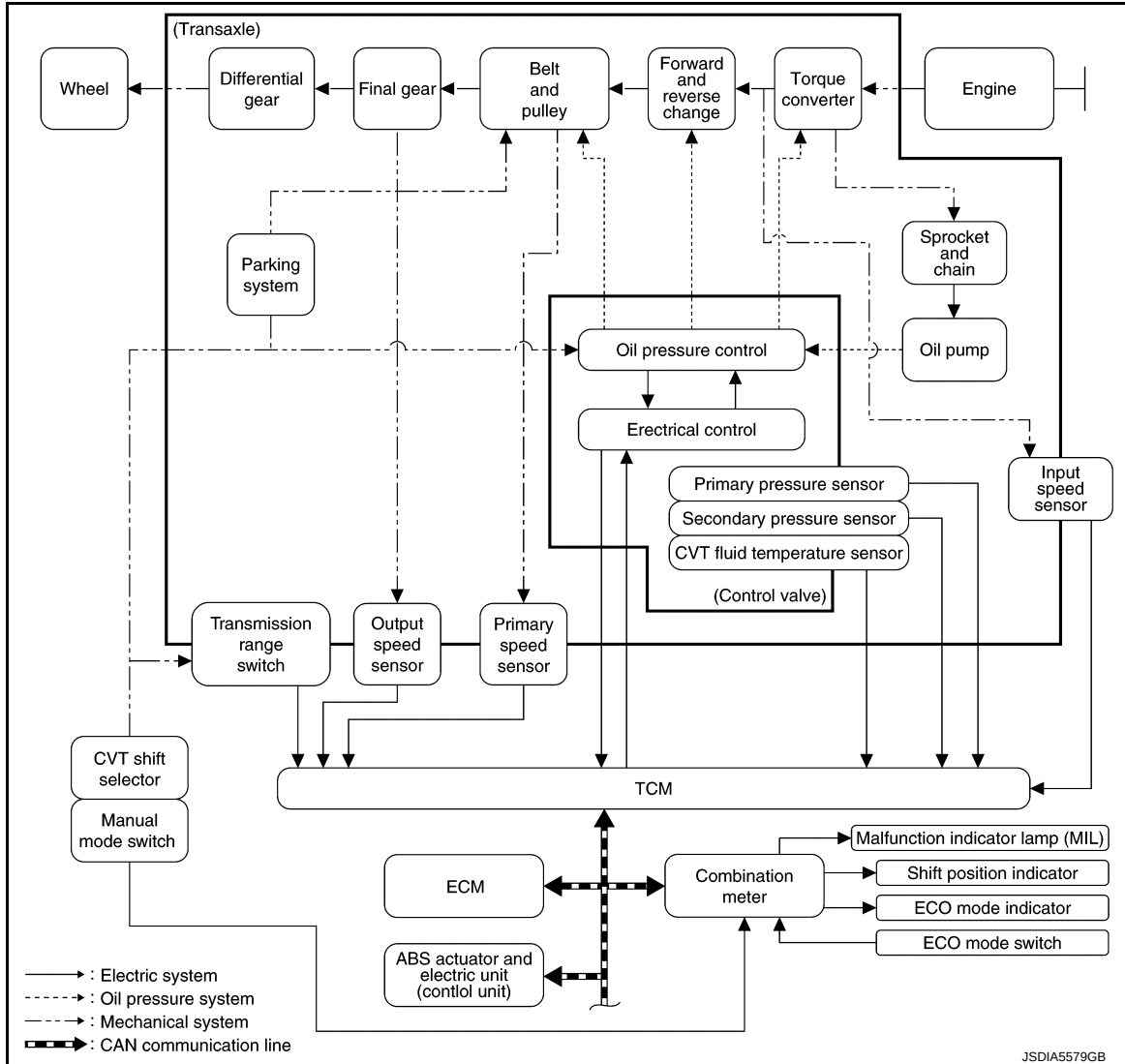
## SYSTEM

### CVT CONTROL SYSTEM

#### CVT CONTROL SYSTEM : System Description

INFOID:0000000110622451

#### SYSTEM DIAGRAM



#### MAIN CONTROL CONTENTS OF TCM

| Controls                            | Reference                                                            |
|-------------------------------------|----------------------------------------------------------------------|
| Line pressure control               | <a href="#">TM-262, "LINE PRESSURE CONTROL : System Description"</a> |
| Shift control                       | <a href="#">TM-263, "SHIFT CONTROL : System Description"</a>         |
| Select control                      | <a href="#">TM-266, "SELECT CONTROL : System Description"</a>        |
| Lock-up control                     | <a href="#">TM-267, "LOCK-UP CONTROL : System Description"</a>       |
| ECO mode control                    | <a href="#">TM-267, "ECO MODE SYSTEM : System Description"</a>       |
| Fail-safe                           | <a href="#">TM-258, "CVT CONTROL SYSTEM : Fail-safe"</a>             |
| Self-diagnosis function             | <a href="#">TM-272, "CONSULT Function"</a>                           |
| Communication function with CONSULT | <a href="#">TM-272, "CONSULT Function"</a>                           |

#### LIST OF CONTROL ITEMS AND INPUT/OUTPUT

# SYSTEM

< SYSTEM DESCRIPTION >

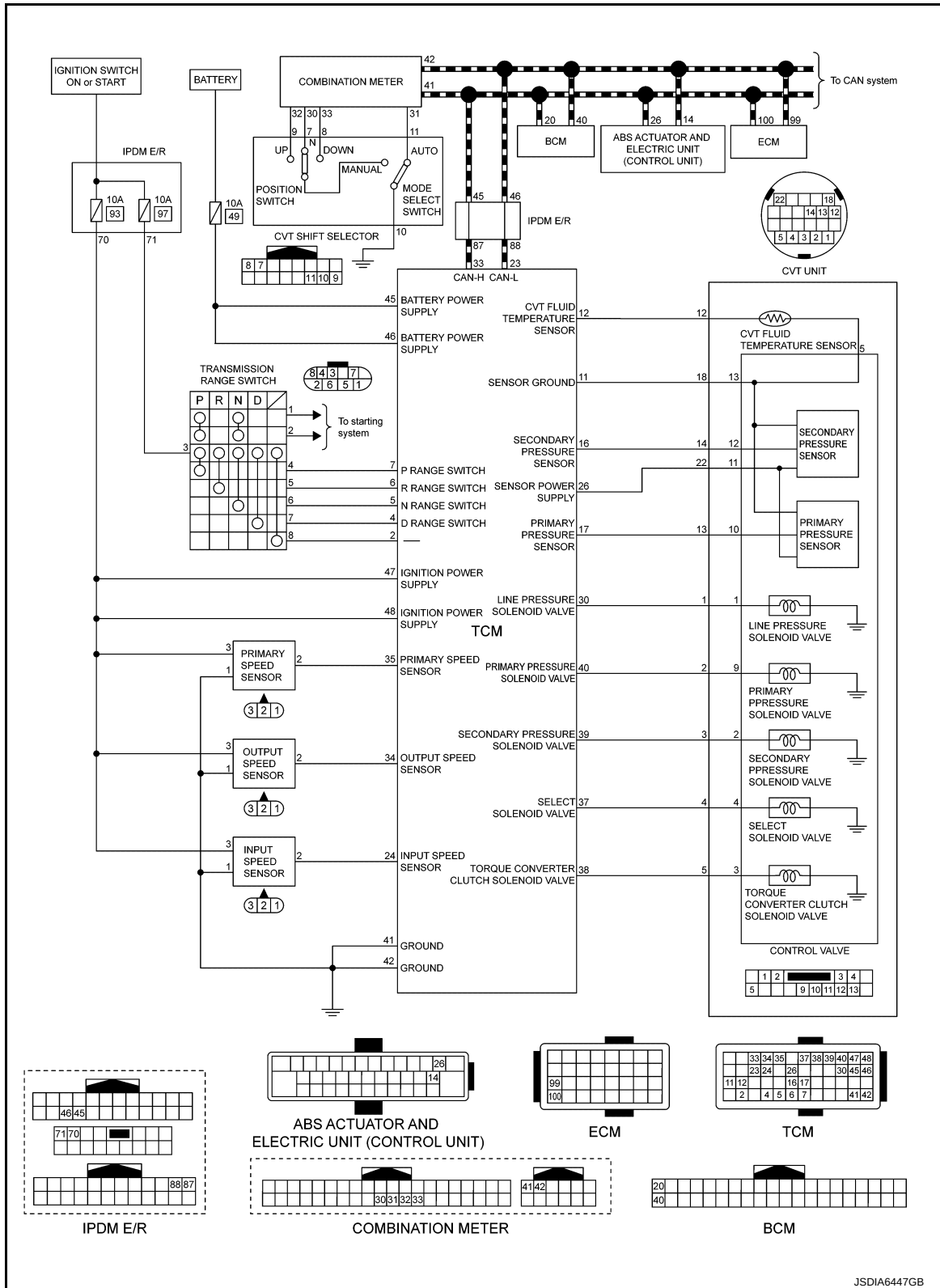
[CVT: RE0F10D]

| Control Item |                                                                                                                                                      | Shift control | Line pressure control | Select control | Lock-up control | Fail-safe function* |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------|----------------|-----------------|---------------------|
| Input        | Engine torque signal (CAN communication)                                                                                                             | ×             | ×                     | ×              | ×               | ×                   |
|              | Engine speed signal (CAN communication)                                                                                                              | ×             | ×                     | ×              | ×               | ×                   |
|              | Accelerator pedal position signal (CAN communication)                                                                                                | ×             | ×                     | ×              | ×               |                     |
|              | Closed throttle position signal (CAN communication)                                                                                                  | ×             | ×                     |                | ×               |                     |
|              | Stop lamp switch signal (CAN communication)                                                                                                          | ×             | ×                     | ×              | ×               |                     |
|              | Primary pressure sensor                                                                                                                              |               |                       |                |                 | ×                   |
|              | Secondary pressure sensor                                                                                                                            | ×             | ×                     |                |                 | ×                   |
|              | CVT fluid temperature sensor                                                                                                                         | ×             | ×                     | ×              | ×               | ×                   |
|              | Primary speed sensor                                                                                                                                 | ×             | ×                     | ×              | ×               | ×                   |
|              | Output speed sensor                                                                                                                                  | ×             | ×                     |                | ×               | ×                   |
|              | Input speed sensor                                                                                                                                   | ×             | ×                     | ×              | ×               | ×                   |
|              | Transmission range switch                                                                                                                            | ×             | ×                     | ×              | ×               | ×                   |
|              | Manual mode switch signal (Manual mode signal, non-manual mode signal, manual mode upshift signal, manual mode downshift signal) (CAN communication) | ×             | ×                     |                | ×               |                     |
| Output       | Line pressure solenoid valve                                                                                                                         | ×             | ×                     | ×              |                 | ×                   |
|              | Primary pressure solenoid valve                                                                                                                      | ×             | ×                     |                |                 | ×                   |
|              | Torque converter clutch solenoid valve                                                                                                               |               |                       |                | ×               | ×                   |
|              | Secondary pressure solenoid valve                                                                                                                    | ×             | ×                     |                |                 | ×                   |
|              | Select solenoid valve                                                                                                                                | ×             |                       | ×              |                 | ×                   |
|              | Shift position indicator (CAN communication)                                                                                                         |               |                       | ×              |                 |                     |

\*: If these input/output signals show errors, TCM activates the fail-safe function.

## CVT CONTROL SYSTEM : Circuit Diagram

INFOID:000000010622452



JSDIA6447GB

## CVT CONTROL SYSTEM : Fail-safe

INFOID:000000010622453

TCM has a fail-safe mode. The mode functions so that operation can be continued even if the signal circuit of the main electronically controlled input/output parts is damaged.

If the vehicle shows following behaviors including "poor acceleration", a malfunction of the applicable system is detected by TCM and the vehicle may be in a fail-safe mode. At this time, check the DTC code and perform inspection and repair according to the malfunction diagnosis procedures.

# SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

## Fail-safe function

| DTC   | Vehicle behavior                                                                                                                                                                                                                         | Conditions of vehicle                                                                                                                                         |    |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| P062F | Not changed from normal driving                                                                                                                                                                                                          | —                                                                                                                                                             | A  |
| P0705 | <ul style="list-style-type: none"> <li>Shift position indicator on combination meter is not displayed</li> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul> | —                                                                                                                                                             | B  |
| P0706 | <ul style="list-style-type: none"> <li>Shift position indicator on combination meter is not displayed</li> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul> | —                                                                                                                                                             | C  |
| P0712 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                                                            | Engine coolant temperature when engine start:<br>Temp. $\geq 10^{\circ}\text{C}$ ( $50^{\circ}\text{F}$ )                                                     | TM |
| P0712 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                           | Engine coolant temperature when engine start:<br>$-35^{\circ}\text{C}$ ( $-31^{\circ}\text{F}$ ) $\leq$ Temp. $< 10^{\circ}\text{C}$ ( $50^{\circ}\text{F}$ ) | E  |
| P0712 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                           | Engine coolant temperature when engine start:<br>Temp. $< -35^{\circ}\text{C}$ ( $-31^{\circ}\text{F}$ )                                                      | F  |
| P0713 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                                                            | Engine coolant temperature when engine start:<br>Temp. $\geq 10^{\circ}\text{C}$ ( $50^{\circ}\text{F}$ )                                                     | G  |
| P0713 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                           | Engine coolant temperature when engine start:<br>$-35^{\circ}\text{C}$ ( $-31^{\circ}\text{F}$ ) $\leq$ Temp. $< 10^{\circ}\text{C}$ ( $50^{\circ}\text{F}$ ) | H  |
| P0713 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                           | Engine coolant temperature when engine start:<br>Temp. $< -35^{\circ}\text{C}$ ( $-31^{\circ}\text{F}$ )                                                      | I  |
| P0715 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Manual mode is not activated</li> </ul>                                                                    | —                                                                                                                                                             | J  |
| P0717 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                                                          | —                                                                                                                                                             | K  |
| P0740 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                                                          | —                                                                                                                                                             | L  |
| P0743 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                                                          | —                                                                                                                                                             | M  |
| P0744 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                                                          | —                                                                                                                                                             | N  |
| P0746 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                         | —                                                                                                                                                             | O  |
| P0746 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                         | —                                                                                                                                                             | P  |

# SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

| DTC   | Vehicle behavior                                                                                                                                                                                                   | Conditions of vehicle                                   |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| P0776 | <ul style="list-style-type: none"> <li>• Selector shock is large</li> <li>• Start is slow</li> <li>• Acceleration is slow</li> <li>• Lock-up is not performed</li> <li>• Vehicle speed is not increased</li> </ul> | When a malfunction occurs on the low oil pressure side  |
|       | <ul style="list-style-type: none"> <li>• Selector shock is large</li> <li>• Start is slow</li> <li>• Acceleration is slow</li> <li>• Lock-up is not performed</li> </ul>                                           | When a malfunction occurs on the high oil pressure side |
| P0778 | <ul style="list-style-type: none"> <li>• Selector shock is large</li> <li>• Start is slow</li> <li>• Acceleration is slow</li> <li>• Lock-up is not performed</li> </ul>                                           | —                                                       |
| P0779 | <ul style="list-style-type: none"> <li>• Selector shock is large</li> <li>• Start is slow</li> <li>• Acceleration is slow</li> <li>• Lock-up is not performed</li> </ul>                                           | —                                                       |
| P0826 | Manual mode is not activated                                                                                                                                                                                       | —                                                       |
| P0841 | Not changed from normal driving                                                                                                                                                                                    | —                                                       |
| P0847 | Not changed from normal driving                                                                                                                                                                                    | —                                                       |
| P0848 | Not changed from normal driving                                                                                                                                                                                    | —                                                       |
| P084C | Not changed from normal driving                                                                                                                                                                                    | —                                                       |
| P084D | Not changed from normal driving                                                                                                                                                                                    | —                                                       |
| P0863 | <ul style="list-style-type: none"> <li>• Selector shock is large</li> <li>• Start is slow</li> <li>• Acceleration is slow</li> <li>• Lock-up is not performed</li> </ul>                                           | —                                                       |
| P0890 | <ul style="list-style-type: none"> <li>• Selector shock is large</li> <li>• Start is slow</li> <li>• Acceleration is slow</li> <li>• Lock-up is not performed</li> <li>• Vehicle speed is not increased</li> </ul> | —                                                       |
| P0962 | <ul style="list-style-type: none"> <li>• Selector shock is large</li> <li>• Start is slow</li> <li>• Acceleration is slow</li> <li>• Lock-up is not performed</li> </ul>                                           | —                                                       |
| P0963 | <ul style="list-style-type: none"> <li>• Selector shock is large</li> <li>• Start is slow</li> <li>• Acceleration is slow</li> <li>• Lock-up is not performed</li> </ul>                                           | —                                                       |
| P0965 | <ul style="list-style-type: none"> <li>• Selector shock is large</li> <li>• Start is slow</li> <li>• Acceleration is slow</li> <li>• Lock-up is not performed</li> </ul>                                           | When a malfunction occurs on the low oil pressure side  |
|       | <ul style="list-style-type: none"> <li>• Selector shock is large</li> <li>• Lock-up is not performed</li> </ul>                                                                                                    | When a malfunction occurs on the high oil pressure side |
| P0966 | <ul style="list-style-type: none"> <li>• Selector shock is large</li> <li>• Start is slow</li> <li>• Acceleration is slow</li> <li>• Lock-up is not performed</li> </ul>                                           | —                                                       |
| P0967 | <ul style="list-style-type: none"> <li>• Selector shock is large</li> <li>• Start is slow</li> <li>• Acceleration is slow</li> <li>• Lock-up is not performed</li> </ul>                                           | —                                                       |



# SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

| DTC   | Vehicle behavior                                                                                                                                                       | Conditions of vehicle                                   |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| P2765 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Manual mode is not activated</li> </ul>  | —                                                       |
| P2813 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Vehicle speed is not increased</li> </ul> | When a malfunction occurs on the low oil pressure side  |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> </ul>                                                                                              | When a malfunction occurs on the high oil pressure side |
| P2814 | Selector shock is large                                                                                                                                                | —                                                       |
| P2815 | Selector shock is large                                                                                                                                                | —                                                       |
| U0073 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>       | —                                                       |
| U0100 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>       | —                                                       |
| U0102 | Not changed from normal driving                                                                                                                                        | —                                                       |
| U0140 | Not changed from normal driving                                                                                                                                        | —                                                       |
| U0141 | Not changed from normal driving                                                                                                                                        | —                                                       |
| U0155 | Not changed from normal driving                                                                                                                                        | —                                                       |
| U0300 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>       | —                                                       |
| U1000 | Not changed from normal driving                                                                                                                                        | —                                                       |
| U110F | Not changed from normal driving                                                                                                                                        | —                                                       |
| U1111 | Not changed from normal driving                                                                                                                                        | —                                                       |
| U1117 | Not changed from normal driving                                                                                                                                        | —                                                       |

## CVT CONTROL SYSTEM : Protection Control

INFOID:000000010622454

The TCM becomes the protection control status temporarily to protect the safety when the safety of TCM and transmission is lost. It automatically returns to the normal status if the safety is secured.

The TCM has the following protection control.

### CONTROL FOR WHEEL SPIN

|                             |                                                                                                                                                                                                      |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control                     | When a wheel spin is detected, the engine output and gear ratio are limited and the line pressure is increased. Limits engine output when a wheel spin occurs in any of right and left drive wheels. |
| Vehicle behavior in control | If the accelerator is kept depressing during wheel spin, the engine revolution and vehicle speed are limited to a certain degree.                                                                    |
| Normal return condition     | Wheel spin convergence returns the control to the normal control.                                                                                                                                    |

### TORQUE IS REDUCED WHEN DRIVING WITH THE REVERSE GEAR

|                             |                                                                                                |
|-----------------------------|------------------------------------------------------------------------------------------------|
| Control                     | Engine output is controlled according to a vehicle speed while reversing the vehicle.          |
| Vehicle behavior in control | Power performance may be lowered while reversing the vehicle.                                  |
| Normal return condition     | Torque returns to normal by positioning the selector lever in a range other than "R" position. |

### CONTROL WHEN FLUID TEMPERATURE IS HIGH

# SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

|                             |                                                                                                                                                                                |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control                     | When the CVT fluid temperature is high, the gear shift permission maximum revolution and the maximum torque are reduced than usual to prevent increase of the oil temperature. |
| Vehicle behavior in control | Power performance may be lowered, compared to normal control.                                                                                                                  |
| Normal return condition     | The control returns to the normal control when CVT fluid temperature is lowered.                                                                                               |

## REVERSE PROHIBIT CONTROL

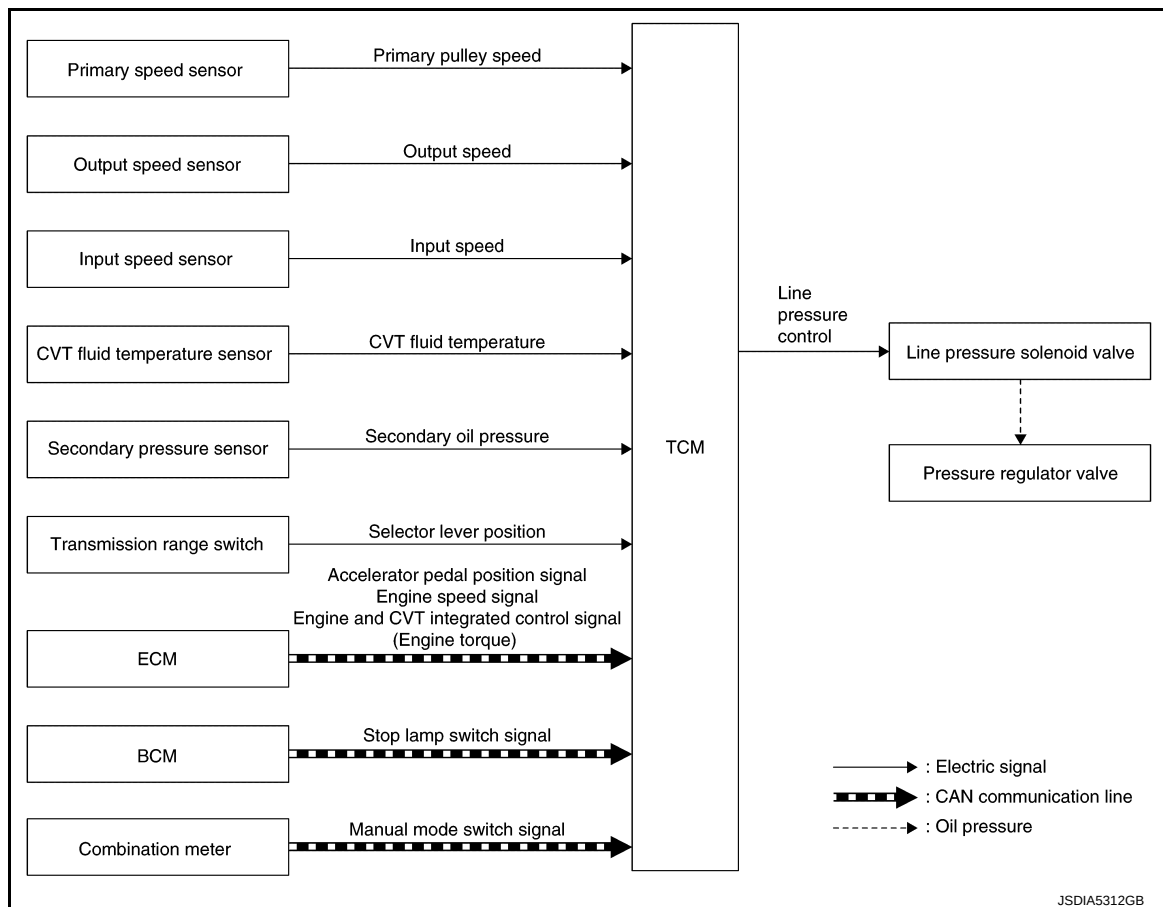
|                             |                                                                                                                                                                               |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control                     | The reverse brake is controlled to avoid becoming engaged when the selector lever is set in "R" position while driving in forward direction at more than the specified speed. |
| Vehicle behavior in control | If the selector lever is put at "R" position when driving with the forward gear, the gear becomes neutral, not reverse.                                                       |
| Normal return condition     | The control returns to normal control when the vehicle is driven at low speeds. (The reverse brake becomes engaged.)                                                          |

## LINE PRESSURE CONTROL

### LINE PRESSURE CONTROL : System Description

INFOID:0000000010622455

### SYSTEM DIAGRAM



### DESCRIPTION

Highly accurate line pressure control and secondary pressure control reduces friction for improvement of fuel economy.

#### Normal Oil Pressure Control

Appropriate line pressure and secondary pressure suitable for driving condition are determined based on the accelerator pedal position, engine speed, primary pulley (input) speed, secondary pulley (output) speed, vehicle speed, input torque, stop lamp switch signal, transmission range switch signal, lock-up signal, power voltage, target shift ratio, oil temperature, oil pressure, and manual mode switch signal.

## Secondary Pressure Feedback Control

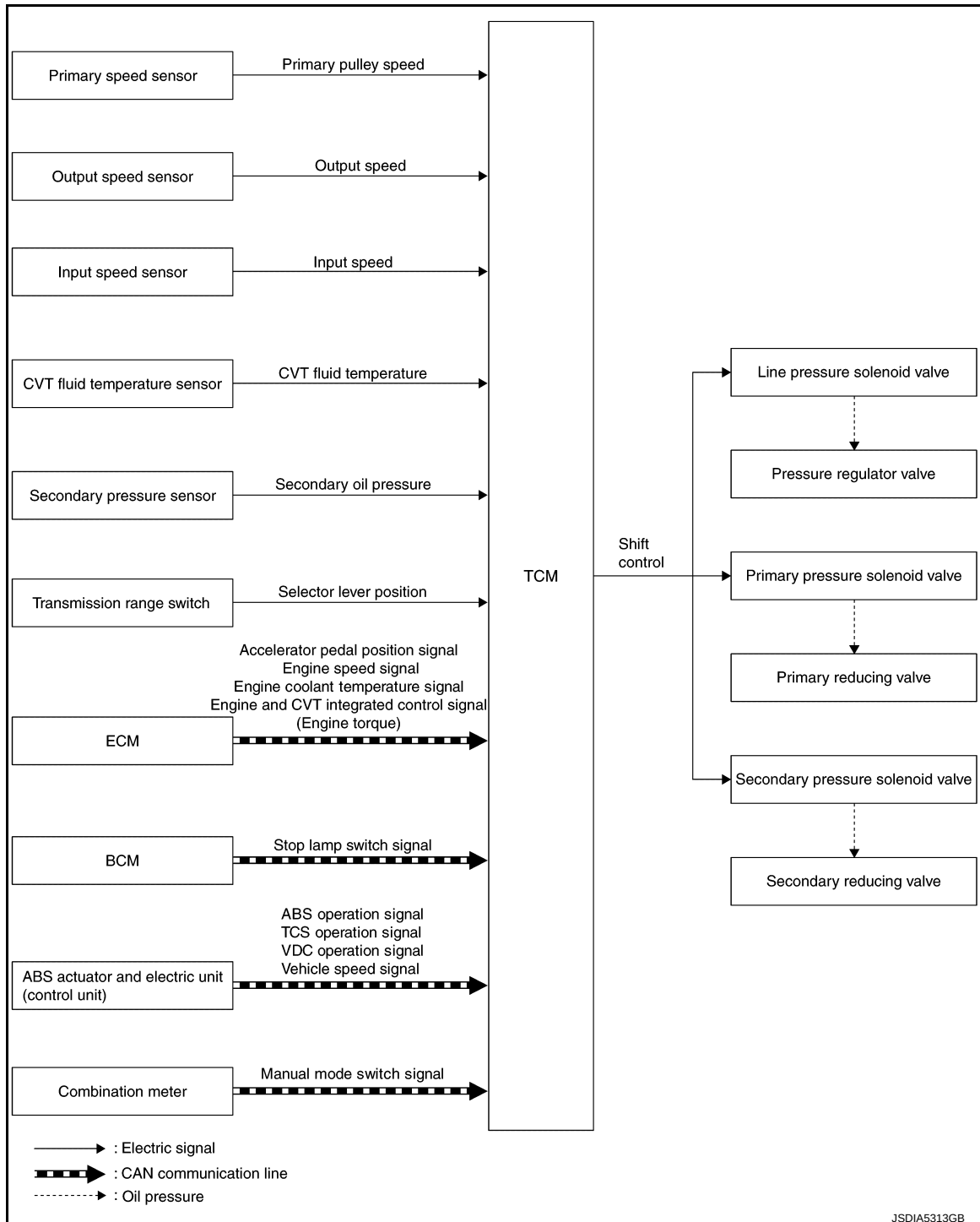
In normal oil pressure control and oil pressure control in shifting, highly accurate secondary pressure is determined by detecting the secondary pressure using an oil pressure sensor and by feedback control.

## SHIFT CONTROL

## SHIFT CONTROL : System Description

INFOID:0000000010622456

## SYSTEM DIAGRAM



## DESCRIPTION

To select the gear ratio that can give the driving force to meet driver's intent or vehicle situation, the vehicle driving condition such as vehicle speed or accelerator pedal position is detected and the most appropriate gear ratio is selected and the shifting method before reaching the speed is determined. The information is out-

# SYSTEM

## < SYSTEM DESCRIPTION >

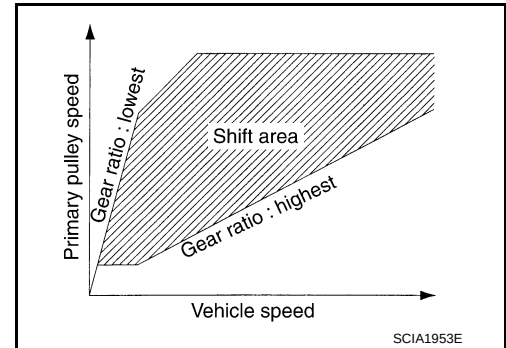
[CVT: RE0F10D]

put to the primary pressure solenoid valve and secondary pressure solenoid valve to control the line pressure input/output to the pulley, to determine the pulley (movable pulley) position and to control the gear position.

### Shift Position Function

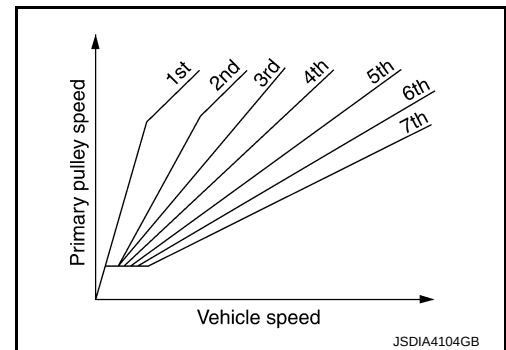
- D Position

Gear shifting is performed in all shifting ranges from the lowest to the highest gear ratio.



- M Position (Manual Mode)

When the selector lever is put in the manual shift gate side, the fixed changing gear line is set. By moving the selector lever to + side or -side, the manual mode switch is changed over, and shift change like M/T becomes possible following the changing gear set line step by step.



- Manual Mode Information

The TCM transmits the manual mode shift refusal signal to the combination meter if the TCM refuses the transmission from the driving status of vehicle when the selector lever shifts to UP side (+ side) or DOWN side (-side). The combination meter blinks shift indicator on the combination meter and sounds the buzzer to indicate the driver that the shifting is not performed when receiving this signal. However, the TCM does not transmit the manual mode shift refusal signal in the conditions as per the following.

- When the selector lever shifts to DOWN side (-side) while driving in M1.
- When the selector lever shifts to UP (+ side) side while driving in M7.

### Blipping Control

Using engine torque, the blipping control enables a faster and more responsive gear shifting by compensating inertia torque generated from the rotational change during gear shifting in real time.

### Operation

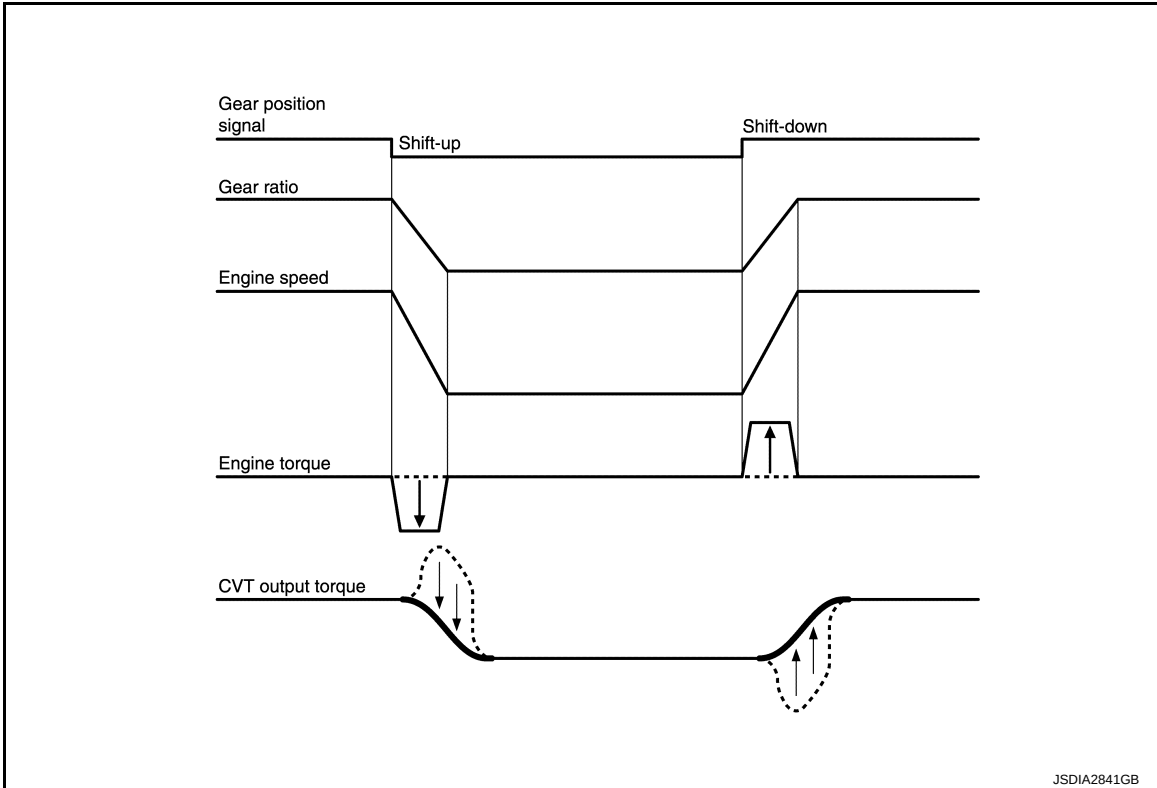
- The blipping control is activated when shifting up/down in manual mode.

#### NOTE:

The blipping control is not activated when the vehicle is in the following conditions:

- When CAN communication is abnormal.
- During the retard inhibit signal transmission from ECM within the engine-CVT integrated control.
- Engine coolant temperature is less than 20°C (68°F).
- CVT fluid temperature is more than 120°C (248°F).
- Vehicle speed is less than 20 km/h (13 MPH).
- When ABS, TCS or VDC is active.
- During wheel spin.
- ECM selects blipping control or normal shift control according to the gear position, the selector lever position, etc.
- The blipping control is activated when ECM judges it controllable after receiving a control permit signal from TCM.

- ECM controls engine torque, based on generated inertia torque.

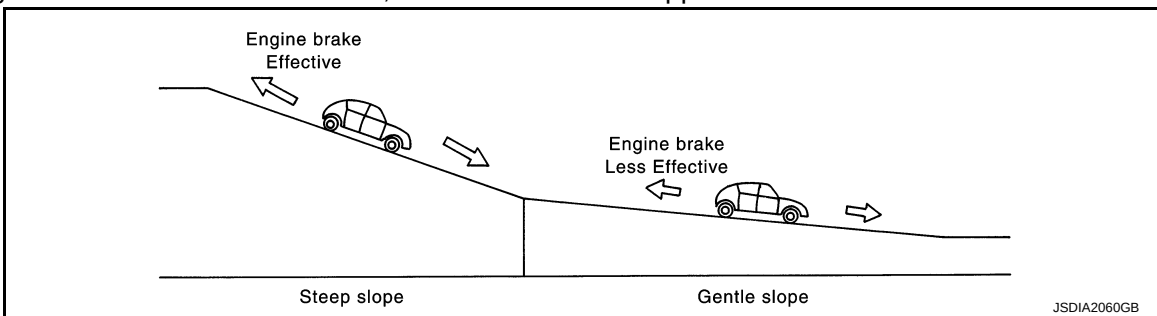


### Hill Climbing And Descending Control

If a downhill is detected with the accelerator pedal is released, the system performs downshift to increase the engine brake force so that vehicle may not be accelerated more than necessary. If a climbing hill is detected, the system improves the acceleration performance in re-acceleration by limiting the gear shift range on the high side.

#### NOTE:

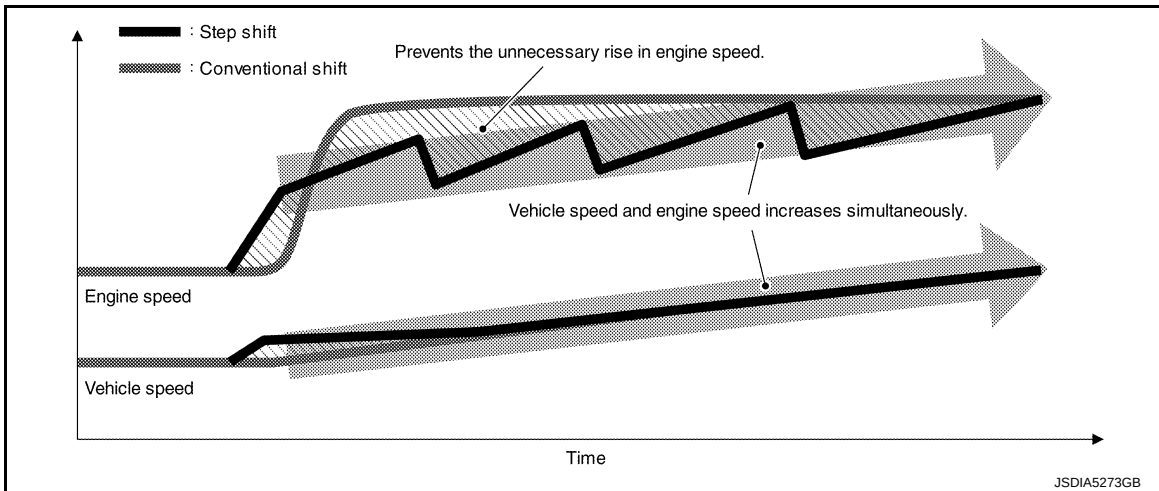
For engine brake control on a downhill, the control can be stopped with CONSULT.



### Control In Acceleration

From change of the vehicle speed or accelerator pedal position, the acceleration request level of the driver or driving scene is evaluated. In start or acceleration during driving, the gear shift characteristics with linearity of revolution increase and vehicle speed increase are gained to improve the acceleration feel.

- When the accelerator pedal is depressed 4/8 or more in D position, CVT performs step shifting to allow the vehicle speed and engine speed to increase simultaneously. This improves the feel of acceleration and enables the fuel economy by preventing unnecessary rise in engine speed, compared to the conventional shifting.

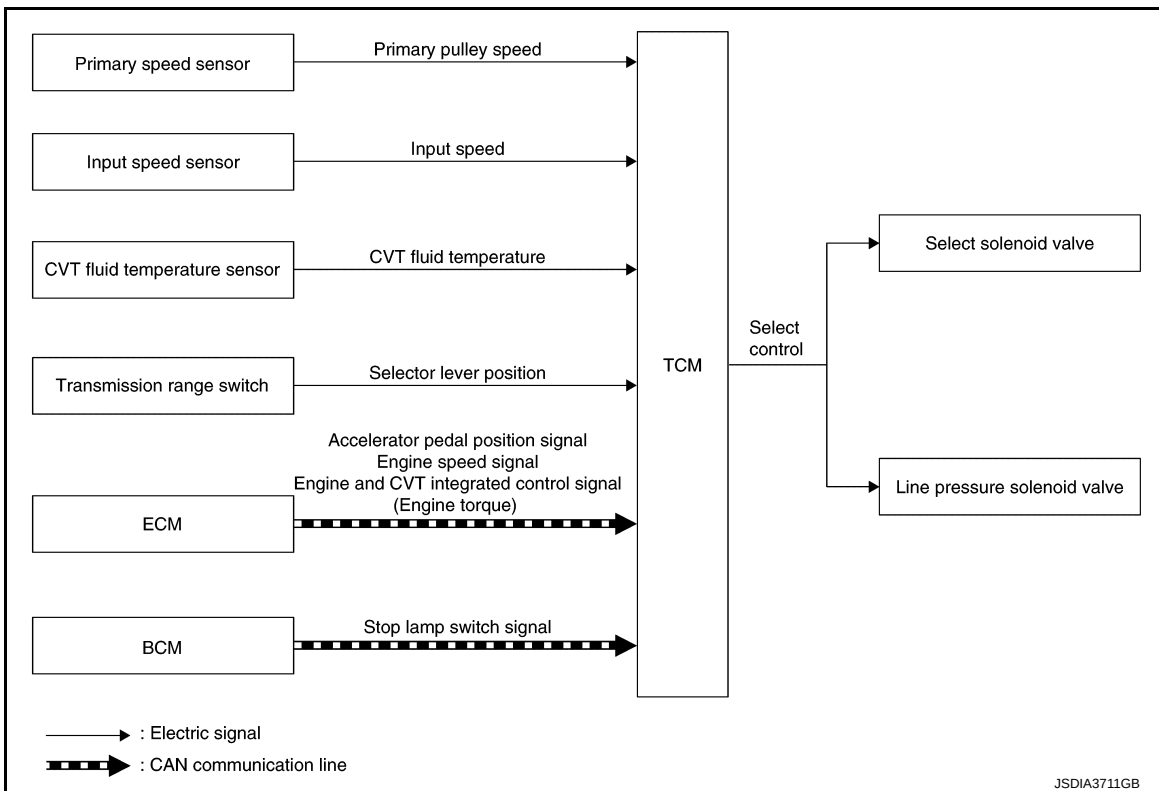


## SELECT CONTROL

### SELECT CONTROL : System Description

INFOID:0000000010622457

## SYSTEM DIAGRAM



## DESCRIPTION

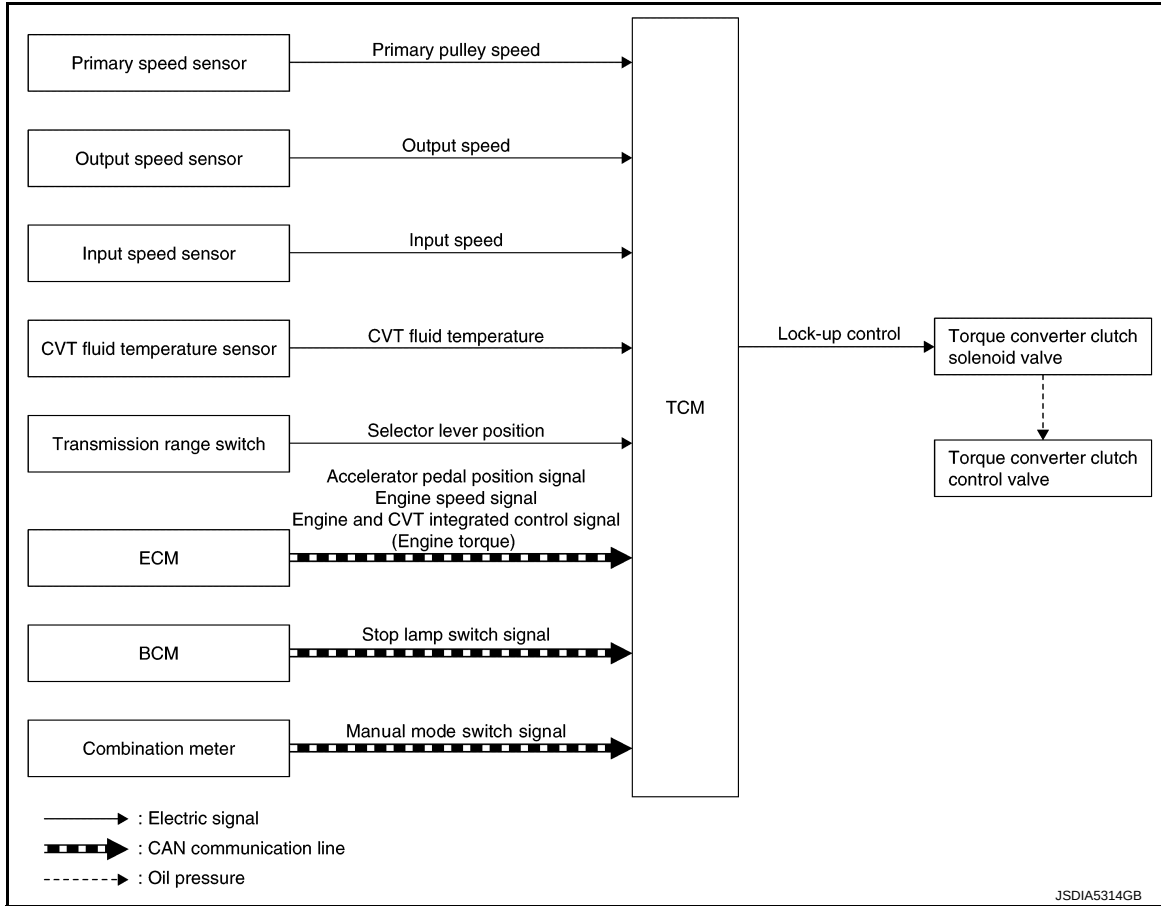
Based on accelerator pedal angle, engine speed, primary pulley speed, and the input speed, the optimum operating pressure is set to reduce impact of a selector lever operation while shifting from "N" ("P") to "D" ("R") position.

## LOCK-UP CONTROL

## LOCK-UP CONTROL : System Description

INFOID:000000010622458

### SYSTEM DIAGRAM



### DESCRIPTION

- Controls for improvement of the transmission efficiency by engaging the torque converter clutch in the torque converter and eliminating slip of the converter. Achieves comfortable driving with slip control of the torque converter clutch.
- The oil pressure feed circuit for the torque converter clutch piston chamber is connected to the torque converter clutch control valve. The torque converter clutch control valve is switched by the torque converter clutch solenoid valve with the signal from TCM. This controls the oil pressure circuit, which is supplied to the torque converter clutch piston chamber, to the release side or engagement side.
- If the CVT fluid temperature is low or the vehicle is in fail-safe mode due to malfunction, lock-up control is prohibited.

#### Lock-up engagement

In lock-up engagement, the torque converter clutch solenoid valve makes the torque converter clutch control valve locked up to generate the lock-up apply pressure. This pushes the torque converter clutch piston for engagement.

#### Lock-up release condition

In lock-up release, the torque converter clutch solenoid valve makes the torque converter clutch control valve non-locked up to drain the lock-up apply pressure. This does not engage the torque converter clutch piston.

### ECO MODE SYSTEM

#### ECO MODE SYSTEM : System Description

INFOID:000000010622459

- Driving mode that selects the shift schedule with priority on fuel economy which gives low engine revolution.
- For details on ECO mode control, refer to [DMS-7, "ECO MODE CONTROL : System Description"](#).
- The gear shift line is not changed with the control mode change for the following conditions:
  - When the selector lever is in "M" position.

#### FAIL-SAFE

# SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

If a malfunction occurs in the system of CVT during ECO mode, the ECO mode indicator turns OFF and the control switches to the normal mode control.

## INFORMATION DISPLAY (COMBINATION METER)

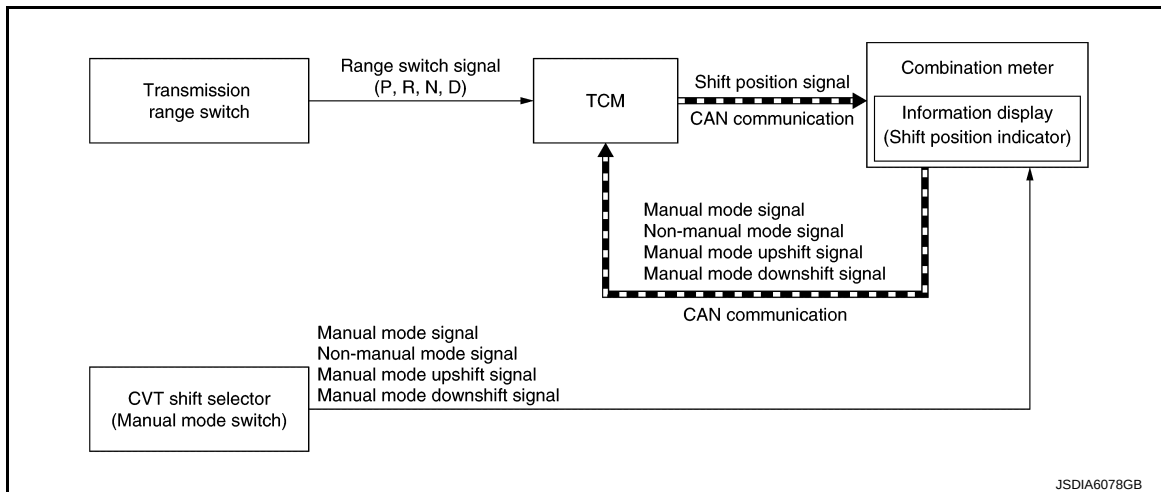
### INFORMATION DISPLAY (COMBINATION METER) : Shift Position Indicator

INFOID:0000000010622460

#### PURPOSE

The shift position indicator displays the shift position of transmission.

#### SYSTEM DIAGRAM



#### NOTE:

Paddle shifter is applied to vehicle with paddle shifter.

#### SIGNAL PATH

- The TCM judges the shift position by the transmission range switch signal, manual mode switch signal, non-manual mode switch signal, manual mode upshift signal, and manual mode downshift signal.
- The TCM transmits the shift position signal to the combination meter via CAN communication. The combination meter shows the shift position indicator on the information display, according to the signal.

#### LIGHTING CONDITION

Ignition switch: ON

#### SHUTOFF CONDITION

Ignition switch: Other than ON

## WARNING/INDICATOR/CHIME LIST

### WARNING/INDICATOR/CHIME LIST : Warning Lamp/Indicator Lamp

INFOID:0000000010622461

| Name                             | Design                                                                              | Arrangement/Function                                                                                                          |
|----------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Malfunction indicator lamp (MIL) |  | Regarding the arrangement. Refer to <a href="#">MWI-10, "METER SYSTEM : Design"</a> .                                         |
|                                  |                                                                                     | Regarding the function. Refer to <a href="#">MWI-50, "WARNING LAMPS/INDICATOR LAMPS : Malfunction Indicator Lamp (MIL)"</a> . |

### WARNING/INDICATOR/CHIME LIST : Warning/Indicator (On Information Display)

INFOID:0000000010622462

| Item                     | Reference                                                                                               |
|--------------------------|---------------------------------------------------------------------------------------------------------|
| Shift position indicator | Refer to <a href="#">TM-268, "INFORMATION DISPLAY (COMBINATION METER) : Shift Position Indicator"</a> . |



ON BOARD DIAGNOSTIC (OBD) SYSTEM

Description

INFOID:0000000010622463

This system is an on board diagnostic system that records exhaust emission-related diagnostic information and detects a sensors/actuator-related malfunction. A malfunction is indicated by the malfunction indicator lamp (MIL) and stored in ECU memory as a DTC. The diagnostic information can be obtained with the diagnostic tool (GST: Generic Scan Tool).

GST (Generic Scan Tool)

INFOID:0000000010622464

When GST is connected with a data link connector equipped on the vehicle side, it will communicate with the control module equipped in the vehicle and then enable various kinds of diagnostic tests. Refer to [GI-52](#), "Description".

NOTE:

Service \$0A is not applied for regions where it is not mandated.

A  
B  
C  
TM  
E  
F  
G  
H  
I  
J  
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O  
P

## DIAGNOSIS SYSTEM (TCM)

## DIAGNOSIS DESCRIPTION

## DIAGNOSIS DESCRIPTION : 1 Trip Detection Diagnosis and 2 Trip Detection Diagnosis

INFOID:0000000010622465

**NOTE:**

"Start the engine and turn OFF the ignition switch after warm-up." This is defined as 1 trip.

**1 TRIP DETECTION DIAGNOSIS**

When initial malfunction is detected, TCM memorizes DTC. In these diagnoses, some illuminate MIL and some do not. Refer to [TM-288, "DTC Index"](#).

**2 TRIP DETECTION DIAGNOSIS**

When initial malfunction is detected, TCM memorizes DTC of the 1st trip. MIL does not light at this stage. <1 trip>

If the same malfunction is detected again in next driving, TCM memorizes DTC. When DTC is memorized, MIL lights. <2 trip>

"Trip" of the "2 trip detection diagnosis" indicates the driving mode that executes self-diagnosis during driving.

×: Check possible —: Check not possible

| Item                                                                          | DTC at the 1st trip     |                         | DTC                     |                         | MIL                          |                              |
|-------------------------------------------------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|------------------------------|------------------------------|
|                                                                               | Display at the 1st trip | Display at the 2nd trip | Display at the 1st trip | Display at the 2nd trip | Illumination at the 1st trip | Illumination at the 2nd trip |
| 1 trip detection diagnosis<br>(Refer to <a href="#">TM-288, "DTC Index"</a> ) | —                       | —                       | ×                       | —                       | ×                            | —                            |
| 2 trip detection diagnosis<br>(Refer to <a href="#">TM-288, "DTC Index"</a> ) | ×                       | —                       | —                       | ×                       | —                            | ×                            |

## DIAGNOSIS DESCRIPTION : DTC and DTC of 1st Trip

INFOID:0000000010622466

**2 TRIP DETECTION DIAGNOSIS THAT ILLUMINATES MIL**

- The DTC number of the 1st trip is the same as the DTC number.
- When a malfunction is detected at the 1st trip, TCM memorizes DTC of the 1st trip. MIL does not light at this stage. If the same malfunction is not detected at the 2nd trip (conforming to necessary driving conditions), DTC at the 1st trip is erased from TCM. If the same malfunction is detected at the 2nd trip, TCM memorizes DTC and MIL lights at the same time.
- The DTC of the 1st trip is specified in Service \$01 of SAE J1979/ISO 15031-5. Since detection of DTC at the 1st trip does not illuminate MIL, warning for a problem is not given to a driver.
- For procedure to delete DTC and 1st trip DTC from TCM, refer to [TM-272, "CONSULT Function"](#).
- If DTC of the 1st trip is detected, it is necessary to check the cause according to the "Diagnosis flow". Refer to [TM-298, "Work Flow"](#).

## DIAGNOSIS DESCRIPTION : Malfunction Indicator Lamp (MIL)

INFOID:0000000010622467

- TCM not only detects DTC, but also sends the MIL signal to ECM through CAN communication. ECM sends the MIL signal to the combination meter through CAN communication according to the signal, and illuminates MIL.
- For malfunction indicator lamp (MIL) description, refer to [EC-78, "DIAGNOSIS DESCRIPTION : Malfunction Indicator Lamp \(MIL\)"](#) (MR20DD), [EC-487, "DIAGNOSIS DESCRIPTION : Malfunction Indicator Lamp \(MIL\)"](#) (QR25DE).

## DIAGNOSIS DESCRIPTION : Counter System

INFOID:0000000010622468

## RELATION BETWEEN DTC AT 1ST TRIP/DTC/MIL AND DRIVING CONDITIONS (FOR 2 TRIP DETECTION DIAGNOSIS THAT ILLUMINATES MIL)

- When initial malfunction is detected, TCM memorizes DTC of the 1st trip. MIL does not light at this stage.
- If the same malfunction is detected at the 2nd trip, TCM memorizes DTC and MIL lights at the same time.
- Then, MIL goes after driving the vehicle for 3 trips under "Driving condition B" without malfunction.

# DIAGNOSIS SYSTEM (TCM)

## < SYSTEM DESCRIPTION >

[CVT: RE0F10D]

- DTC is displayed until 40 trips of "Driving condition A" are satisfied without detecting the same malfunction. DTC is erased when 40 trips are satisfied.
- When the self-diagnosis result is acceptable at the 2nd trip (conforming to driving condition B), DTC of the 1st trip is erased.

## COUNTER SYSTEM LIST

| Item                    | Driving condition | Trip |
|-------------------------|-------------------|------|
| MIL (OFF)               | B                 | 3    |
| DTC (clear)             | A                 | 40   |
| DTC at 1st trip (clear) | B                 | 1    |

## DRIVING CONDITION

### Driving condition A

Driving condition A is the driving condition that provides warm-up.

In specific, count-up is performed when all of the following conditions are satisfied.

- Engine speed is 400 rpm or more.
- After start of the engine, the water temperature increased by 20°C (36°F) or more.
- Water temperature was 70°C (158°F) or more.
- The ignition switch was changed from ON to OFF.

#### NOTE:

- If the same malfunction is detected regardless of the driving condition, reset the A counter.
- When the above is satisfied without detecting the same malfunction, count up the A counter.
- When MIL goes off due to the malfunction and the A counter reaches 40, the DTC is erased.

### Driving condition B

Driving condition B is the driving condition that performs all diagnoses once.

In specific, count-up is performed when all of the following conditions are satisfied.

- Engine speed is 400 rpm or more.
- Water temperature was 70°C (158°F) or more.
- In closed loop control, vehicle speed of 70 – 120 km/h (43 – 75 MPH) continued for 60 seconds or more.
- In closed loop control, vehicle speed of 30 – 60 km/h (19 – 37 MPH) continued for 10 seconds or more.
- In closed loop control, vehicle speed of 4 km/h (2 MPH) or less and idle determination ON continued for 12 seconds or more.
- After start of the engine, 22 minutes or more have passed.
- The condition that the vehicle speed is 10 km/h (6 MPH) or more continued for 10 seconds or more in total.
- The ignition switch was changed from ON to OFF.

#### NOTE:

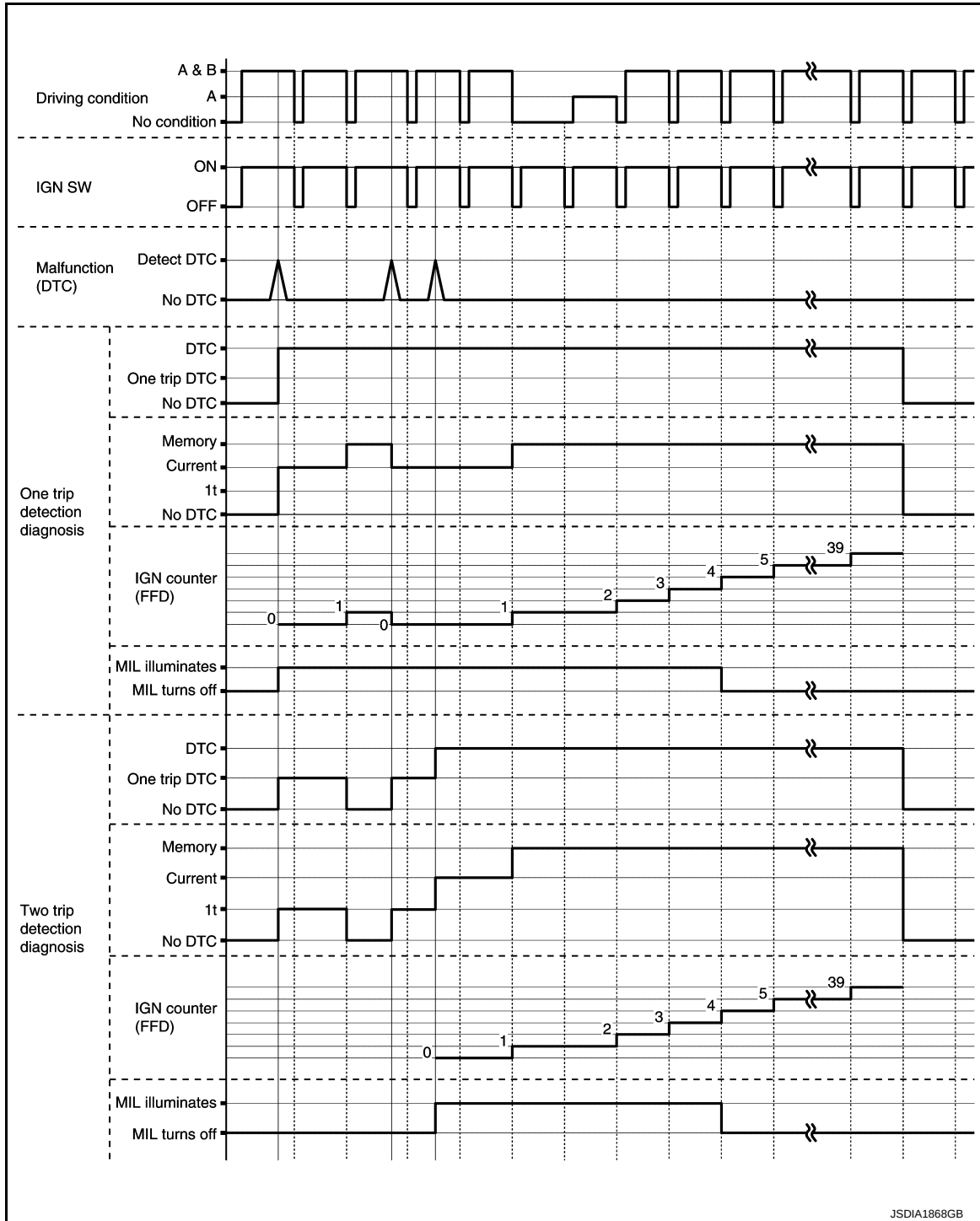
- If the same malfunction is detected regardless of the driving condition, reset the B counter.
- When the above is satisfied without detecting the same malfunction, count up the B counter.
- When the B counter reaches 3 without malfunction, MIL goes off.
- When the B counter is counted once without detecting the same malfunction after TCM memorizes DTC of the 1st trip, DTC of the 1st trip is erased.

# DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

## TIME CHART



JSDIA1868GB

## CONSULT Function

INFOID:0000000010622469

## APPLICABLE ITEM

| Conditions              | Function                                             |
|-------------------------|------------------------------------------------------|
| Work Support            | The settings for ECU functions can be changed.       |
| Self Diagnostic Results | The ECU self diagnostic results are displayed.       |
| Data Monitor            | The ECU input/output data is displayed in real time. |
| ECU Identification      | The ECU part number is displayed.                    |
| CALIB DATA              | The calibration data status of TCM can be checked.   |

## &lt; SYSTEM DESCRIPTION &gt;

## SELF DIAGNOSTIC RESULTS

Refer to [TM-288, "DTC Index"](#).

DTC at 1st trip and method to read DTC

- DTC (P0705, P0712, P0715, etc.) is specified by SAE J2012/ISO 15031-6.
- DTC and DTC at 1st trip are displayed on "Self Diagnostic results" of CONSULT.  
When DTC is currently detected, "CRNT" is displayed. If "PAST" is displayed, it shows a malfunction occurred in the past. The trip number of drive without malfunction of concerned DTC can be confirmed with "IGN counter" inside "FFD".
- When the DTC at the 1st trip is detected, "1t" is displayed.

DTC deletion method

**NOTE:**

If the ignition switch is left ON after repair, turn OFF the ignition switch and wait for 10 seconds or more. Then, turn the ignition ON again. (Engine stop)

1. Touch "TRANSMISSION" of CONSULT.
2. Touch "Self Diagnostic Result".
3. Touch "Erase". (DTC memorized in TCM is erased.)

IGN counter

The ignition counter is displayed in "FFD" and the number of times of satisfied "Driving condition A" is displayed after normal recovery of DTC. Refer to [TM-270, "DIAGNOSIS DESCRIPTION : Counter System"](#).

- If malfunction (DTC) is currently detected, "0" is displayed.
- After normal recovery, every time "Driving condition A" is satisfied, the display value increases from 1 → 2 → 3...38 → 39.
- When MIL turns OFF due to the malfunction and the counter reaches 40, the DTC is erased.

**NOTE:**

The counter display of "40" cannot be checked.

## DATA MONITOR

**NOTE:**

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

| Monitored item     | (Unit)        | Remarks                                                                                          |
|--------------------|---------------|--------------------------------------------------------------------------------------------------|
| VSP SENSOR         | (km/h or mph) | Displays the vehicle speed calculated from the CVT output shaft speed.                           |
| ESTM VSP SIG       | (km/h or mph) | Displays the vehicle speed signal (ABS) received through CAN communication.                      |
| INPUT SPEED SENSOR | (rpm)         | Displays the input speed calculated from the pulse signal of the input speed sensor.             |
| PRI SPEED SEN      | (rpm)         | Displays the primary pulley speed calculated from the pulse signal of the primary speed sensor.  |
| SEC REV SENSOR     | (rpm)         | Displays the secondary pulley speed calculated from the pulse signal of the output speed sensor. |
| ENG SPEED SIG      | (rpm)         | Displays the engine speed received through CAN communication.                                    |
| SEC PRESSURE SEN   | (V)           | Displays the signal voltage of the secondary pressure sensor.                                    |
| PRI PRESSURE SEN   | (V)           | Displays the signal voltage of the primary pressure sensor.                                      |
| ATF TEMP SEN       | (V)           | Displays the signal voltage of the CVT fluid temperature sensor.                                 |
| G SENSOR           | (G)           | Displays the decel G signal received through CAN communication.                                  |
| VIGN SEN           | (V)           | Displays the battery voltage applied to TCM.                                                     |
| PVING VOLT         | (V)           | Displays the backup voltage of TCM.                                                              |
| VEHICLE SPEED      | (km/h or mph) | Displays the vehicle speed recognized by TCM.                                                    |
| INPUT REV          | (rpm)         | Displays the input shaft speed of CVT recognized by TCM.                                         |
| PRI SPEED          | (rpm)         | Displays the primary pulley speed recognized by TCM.                                             |
| SEC SPEED          | (rpm)         | Displays the secondary pulley speed recognized by TCM.                                           |
| ENG SPEED          | (rpm)         | Displays the engine speed recognized by TCM.                                                     |
| SLIP REV           | (rpm)         | Displays the speed difference between the input shaft speed of CVT and the engine speed.         |

# DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

| Monitored item          | (Unit)     | Remarks                                                                                                                                       |
|-------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| PULLEY GEAR RATIO       |            | Displays the pulley gear ratio calculated from primary pulley speed/secondary pulley speed.                                                   |
| G SPEED                 | (G)        | Displays the acceleration and deceleration speed of the vehicle calculated from vehicle speed change.                                         |
| ACCEL POSI SEN 1        | (deg)      | Displays the estimated throttle position received through CAN communication.                                                                  |
| VENG TRQ                | (Nm)       | Display the engine torque recognized by TCM.                                                                                                  |
| PRI TRQ                 | (Nm)       | Display the input shaft torque of CVT.                                                                                                        |
| TRQ RTO                 |            | Display the torque ratio of torque converter.                                                                                                 |
| SEC PRESSURE            | (MPa)      | Displays the secondary pressure calculated from the signal voltage of the secondary pressure sensor.                                          |
| PRI PRESSURE            | (MPa)      | Displays the primary pressure calculated from the signal voltage of the primary pressure sensor.                                              |
| FLUID TEMP              | (°C or °F) | Displays the CVT fluid temperature calculated from the signal voltage of the CVT fluid temperature sensor.                                    |
| DSR REV                 | (rpm)      | Displays the target primary pulley speed calculated from processing of gear shift control.                                                    |
| TGT PLY GR RATIO        |            | Displays the target gear ratio of the pulley from processing of gear shift control.                                                           |
| LU PRS                  | (MPa)      | Displays the target oil pressure of the torque converter clutch solenoid valve calculated from oil pressure processing of gear shift control. |
| LINE PRS                | (MPa)      | Displays the target oil pressure of the line pressure solenoid valve calculated from oil pressure processing of gear shift control.           |
| TRGT PRI PRESSURE       | (MPa)      | Displays the target oil pressure of the primary pressure solenoid valve calculated from oil pressure processing of gear shift control.        |
| TRGT SELECT PRESSURE    | (MPa)      | Displays the target oil pressure of the select solenoid valve calculated from oil pressure processing of gear shift control.                  |
| TRGT SEC PRESSURE       | (MPa)      | Displays the target oil pressure of the secondary pressure solenoid valve calculated from oil pressure processing of gear shift control.      |
| ISOLT1                  | (A)        | Displays the command current from TCM to the torque converter clutch solenoid valve.                                                          |
| ISOLT2                  | (A)        | Displays the command current from TCM to the line pressure solenoid valve.                                                                    |
| PRI SOLENOID            | (A)        | Displays the command current from TCM to the primary pressure solenoid valve.                                                                 |
| SEC SOLENOID CURRENT    | (A)        | Displays the command current from TCM to the secondary pressure solenoid valve.                                                               |
| SELECT SOLENOID CURRENT | (A)        | Displays the command current from TCM to the select solenoid valve.                                                                           |
| SOLMON1                 | (A)        | Monitors the command current from TCM to the torque converter clutch solenoid valve and displays the monitored value.                         |
| SOLMON2                 | (A)        | Monitors the command current from TCM to the line pressure solenoid valve and displays the monitored value.                                   |
| PRI SOL MON             | (A)        | Monitors the command current from TCM to the primary pressure solenoid valve and displays the monitored value.                                |
| SEC SOL MON CURRENT     | (A)        | Monitors the command current from TCM to the secondary pressure solenoid valve and displays the monitored value.                              |
| SELECT SOL MON CURRENT  | (A)        | Monitors the command current from TCM to the select solenoid valve and displays the monitored value.                                          |
| D POSITION SW           | (On/Off)   | Displays the operation status of the transmission range switch (D position).                                                                  |
| N POSITION SW           | (On/Off)   | Displays the operation status of the transmission range switch (N position).                                                                  |
| R POSITION SW           | (On/Off)   | Displays the operation status of the transmission range switch (R position).                                                                  |
| P POSITION SW           | (On/Off)   | Displays the operation status of the transmission range switch (P position).                                                                  |
| L POSITION SW*          | (On/Off)   | Displays the operation status of the transmission range switch (L position).                                                                  |
| DS RANGE SW*            | (On/Off)   | Displays the operation status of the transmission range switch (Ds position).                                                                 |

# DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

| Monitored item     | (Unit)        | Remarks                                                                                                  |
|--------------------|---------------|----------------------------------------------------------------------------------------------------------|
| BRAKESW            | (On/Off)      | Displays the reception status of the stop lamp switch signal received through CAN communication.         |
| IDLE SW            | (On/Off)      | Displays the reception status of the closed throttle position signal received through CAN communication. |
| SPORT MODE SW*     | (On/Off)      | Displays the reception status of the overdrive control switch signal received through CAN communication. |
| ECO MODE SW        | (On/Off)      | Displays the reception status of the ECO mode switch signal received through CAN communication.          |
| STRDWSW*           | (On/Off)      | Displays the operation status of the paddle shifter (down switch).                                       |
| STRUPSW*           | (On/Off)      | Displays the operation status of the paddle shifter (up switch).                                         |
| DOWNLVR            | (On/Off)      | Displays the operation status of the selector lever (down switch).                                       |
| UPLVR              | (On/Off)      | Displays the operation status of the selector lever (up switch).                                         |
| NONMMODE           | (On/Off)      | Displays if the selector lever position is not at the manual shift gate.                                 |
| MMODE              | (On/Off)      | Displays if the selector lever position is at the manual shift gate.                                     |
| TOW MODE SW*       | (On/Off)      | Displays the reception status of the TOW mode switch signal received through CAN communication.          |
| SHIFT IND SIGNAL   |               | Displays the transaxle value of shift position signal transmitted via CAN communication.                 |
| CVT LAMP*          | (On/Off)      | Displays the transaxle status of the CVT warning lamp signal transmitted through CAN communication.      |
| SPORT MODE IND*    | (On/Off)      | Displays the transaxle status of the OD OFF indicator lamp signal transmitted through CAN communication. |
| MANU MODE SIGNAL   | (On/Off)      | Displays the transaxle status of the manual mode signal transmitted through CAN communication.           |
| DS RANGE SIGNAL*   | (On/Off)      | Displays the shift position signal status from transmission range switch (Ds position).                  |
| ECO MODE SIGNAL    | (On/Off)      | Displays the transaxle status of the ECO mode signal transmitted through CAN communication.              |
| VDC ON             | (On/Off)      | Displays the reception status of the VDC operation signal received through CAN communication.            |
| TCS ON             | (On/Off)      | Displays the reception status of the TCS operation signal received through CAN communication.            |
| ABS FAIL SIGNAL    | (On/Off)      | Displays the reception status of the ABS malfunction signal received through CAN communication.          |
| ABS ON             | (On/Off)      | Displays the reception status of the ABS operation signal received through CAN communication.            |
| RANGE              |               | Displays the gear position recognized by TCM.                                                            |
| M GEAR POS         |               | Display the target gear of manual mode                                                                   |
| G SEN SLOPE*       | (%)           | Displays the gradient angle calculated from the G sensor signal voltage.                                 |
| G SEN CALIBRATION* | (YET/DONE)    | Displays the status of "G SENSOR CALIBRATION" in "Work Support".                                         |
| N IDLE STATUS*     | (On/Off)      | Displays idle neutral status.                                                                            |
| ENGBRKLVL          | (On/Off)      | Displays the setting of "ENGINE BRAKE ADJ" in "Work Support".                                            |
| DRIVE MODE STATS   |               | Displays the drive mode status recognized by TCM.                                                        |
| SNOW MODE*         | (On/Off)      | Displays whether it is the SNOW mode.                                                                    |
| ECO MODE*          | (On/Off)      | Displays whether it is the ECO mode.                                                                     |
| NORMAL MODE*       | (On/Off)      | Displays whether it is the NORMAL mode.                                                                  |
| SPORT MODE*        | (On/Off)      | Displays whether it is the SPORT mode.                                                                   |
| AIR BLDING STATE*  | (INCOMP/COMP) | Displays the status of "ELECTRIC O.P. AIR BLEEDING" in "Work Support".                                   |

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# DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F10D]

| Monitored item     | (Unit)   | Remarks                                                                                                                          |
|--------------------|----------|----------------------------------------------------------------------------------------------------------------------------------|
| ELECTRIC OP DUTY*  | (%)      | Displays the command signal value (duty) of the electric oil pump transmitted from TCM.                                          |
| E-OP DUTY MON*     | (%)      | Monitors the status signal value (duty) transmitted from the electric oil pump and displays the monitored value.                 |
| ELECTRIC OP RELAY* | (On/Off) | Displays the command status from TCM to the electric oil pump relay.                                                             |
| E-OP RELAY MON*    | (On/Off) | Monitors the command status from TCM to the oil pump relay and displays the monitored value.                                     |
| CVT-B              |          | <ul style="list-style-type: none"> <li>Displays CVT fluid temperature count.</li> <li>This monitor item does not use.</li> </ul> |
| CVT-A              |          | <ul style="list-style-type: none"> <li>Displays CVT fluid temperature count.</li> <li>This monitor item does not use.</li> </ul> |
| G SENSOR*          | (V)      | Displays the signal voltage of the G sensor.                                                                                     |

\*: Not applicable but displayed.

## WORK SUPPORT

| Item name                           | Description                                                                                                                                                                                                                                                       |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CONFORM CVTF DETERIORATION          | Checks the degradation level of the CVT fluid under severe conditions.                                                                                                                                                                                            |
| G SENSOR CALIBRATION*               | Compensates the G sensor.                                                                                                                                                                                                                                         |
| ERASE LEARNING VALUE *              | Erases learning value memorized by TCM.                                                                                                                                                                                                                           |
| ENGINE BRAKE ADJ.                   | Although there is no malfunction on the transaxle and the CVT system, if a customer make a complaint like "I do not feel comfortable with automatic operation of the engine brake on downhill", the engine brake may be cancelled with "engine brake adjustment". |
| WRITE IP CHARA - REPLACEMENT AT/CVT | Writes IP characteristics when transaxle assembly is replaced.                                                                                                                                                                                                    |
| READ IP CHARA - REPLACEMENT TCM     | Reads IP characteristics when TCM is replaced.                                                                                                                                                                                                                    |
| WRITE IP CHARA - REPLACEMENT TCM    | Writes IP characteristics when TCM is replaced.                                                                                                                                                                                                                   |

\*: These items do not use.

## Engine brake adjustment

### ENGINE BRAKE LEVEL

ON : Turn ON the engine brake control.

OFF : Turn OFF the engine brake control.

## Check the degradation level of the CVT fluid.

### CVTF degradation level data

210,000 or more : Replacement of the CVT fluid is required.

Less than 210,000 : Replacement of the CVT fluid is not required.



# ECU DIAGNOSIS INFORMATION

## TCM

### Reference Value

INFOID:0000000010622470

#### CONSULT DATA MONITOR STANDARD VALUE

- In CONSULT, electric shift timing or lock-up timing, i.e. operation timing of each solenoid valve, is displayed. Therefore, if there is an obvious difference between the shift timing estimated from a shift shock (or engine speed variations) and that shown on the CONSULT, the mechanism parts (including the hydraulic circuit) excluding the solenoids and sensors may be malfunctioning. In this case, check the mechanical parts following the appropriate diagnosis procedure.
- Shift point (gear position) displayed on CONSULT slightly differs from shift pattern described in Service Manual. This is due to the following reasons.
  - Actual shift pattern may vary slightly within specified tolerances.
  - While shift pattern described in Service Manual indicates start of each shift, CONSULT shows gear position at end of shift.
  - The solenoid display (ON/OFF) on CONSULT is changed at the start of gear shifting. In contrast, the gear position display is changed at the time when gear shifting calculated in the control unit is completed.

#### NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

| Monitor item       | Condition                                                             | Value/Status (Approx.)                                          |
|--------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------|
| VSP SENSOR         | While driving                                                         | Almost same as the speedometer display.                         |
| ESTM VSP SIG       | While driving                                                         | Almost same as the speedometer display.                         |
| INPUT SPEED SENSOR | In driving (lock-up ON)                                               | Approximately matches the engine speed.                         |
| PRI SPEED SEN      | In driving (lock-up ON)                                               | Approximately matches the engine speed.                         |
| SEC REV SENSOR     | While driving                                                         | •QR engine: VSP SENSOR × 40<br>•MR engine: VSP SENSOR × 50      |
| ENG SPEED SIG      | Engine running                                                        | Almost same reading as tachometer                               |
| SEC PRESSURE SEN   | • After engine warm up<br>• Selector lever: "N" position<br>• At idle | 1.2 – 1.3 V                                                     |
| PRI PRESSURE SEN   | • After engine warm up<br>• Selector lever: "N" position<br>• At idle | 0.7 – 0.9 V                                                     |
| ATF TEMP SEN       | CVT fluid: Approx. 20°C (68°F)                                        | 2.0 – 2.1 V                                                     |
|                    | CVT fluid: Approx. 50°C (122°F)                                       | 1.4 – 1.5 V                                                     |
|                    | CVT fluid: Approx. 80°C (176°F)                                       | 0.9 – 1.0 V                                                     |
| G SENSOR           | • Vehicle stopped<br>• Vehicle is level                               | 0 G                                                             |
|                    | During acceleration                                                   | The value changes to the positive side along with acceleration. |
|                    | During deceleration                                                   | The value changes to the positive side along with deceleration. |
| VIGN SEN           | Ignition switch: ON                                                   | 10 – 16 V                                                       |
| PVIGN VOLT         | Ignition switch: ON                                                   | 10 – 16 V                                                       |
| VEHICLE SPEED      | While driving                                                         | Almost same as the speedometer display.                         |
| INPUT REV          | In driving (lock-up ON)                                               | Almost same as the engine speed.                                |
| PRI SPEED          | In driving (lock-up ON)                                               | Approximately matches the engine speed.                         |
| SEC SPEED          | While driving                                                         | •QR engine: VSP SENSOR × 40<br>•MR engine: VSP SENSOR × 50      |
| ENG SPEED          | Engine running                                                        | Almost same reading as tachometer                               |

# TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10D]

| Monitor item             | Condition                                                                                                                                                                        | Value/Status (Approx.)                                          |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| SLIP REV                 | While driving                                                                                                                                                                    | Engine speed – Input speed                                      |
| PULLEY GEAR RATIO        | In driving (forward)                                                                                                                                                             | 2.6310 – 0.3780                                                 |
|                          | In driving (reverse)                                                                                                                                                             | 2.6310                                                          |
| G SPEED                  | Vehicle stopped                                                                                                                                                                  | 0.00 G                                                          |
|                          | During acceleration                                                                                                                                                              | The value changes to the positive side along with acceleration. |
|                          | During deceleration                                                                                                                                                              | The value changes to the positive side along with deceleration. |
| ACCEL POSI SEN 1         | Accelerator pedal released                                                                                                                                                       | 0.00 deg                                                        |
|                          | Accelerator pedal fully depressed                                                                                                                                                | 80.00 deg                                                       |
| VENG TRQ                 | While driving                                                                                                                                                                    | The value changes along with acceleration/ deceleration.        |
| PRI TRQ                  | While driving                                                                                                                                                                    | The value changes along with acceleration/ deceleration.        |
| TRQ RTO                  | While driving                                                                                                                                                                    | The value changes along with acceleration/ deceleration.        |
| SEC PRESSURE             | <ul style="list-style-type: none"> <li>After engine warm up</li> <li>Selector lever: “N” position</li> <li>At idle</li> </ul>                                                    | 1.1 MPa                                                         |
| PRI PRESSURE             | <ul style="list-style-type: none"> <li>After engine warm up</li> <li>Selector lever: “N” position</li> <li>At idle</li> </ul>                                                    | 0.4 – 0.5 MPa                                                   |
| FLUID TEMP               | Ignition switch ON.                                                                                                                                                              | Displays the CVT fluid temperature.                             |
| DSR REV                  | While driving                                                                                                                                                                    | It varies along with the driving condition.                     |
| TGT PLY GR RATIO         | In driving (forward)                                                                                                                                                             | 2.6310 – 0.3780                                                 |
|                          | In driving (reverse)                                                                                                                                                             | 2.6310                                                          |
| LU PRS                   | <ul style="list-style-type: none"> <li>Engine started</li> <li>Vehicle is stopped.</li> </ul>                                                                                    | –0.50 MPa                                                       |
|                          | <ul style="list-style-type: none"> <li>Selector lever: “D” position</li> <li>Accelerator pedal position: 1/8 or less</li> <li>Vehicle speed: 20 km/h (12 MPH) or more</li> </ul> | 0.65 MPa                                                        |
| LINE PRS                 | <ul style="list-style-type: none"> <li>After engine warm up</li> <li>Selector lever: “N” position</li> <li>At idle</li> </ul>                                                    | 1.1 MPa                                                         |
| TRGT PRI PRESSURE        | <ul style="list-style-type: none"> <li>After engine warm up</li> <li>Selector lever: “N” position</li> <li>At idle</li> </ul>                                                    | 0.4 – 0.5 MPa                                                   |
| TARGET SELECT PRESSURE   | <ul style="list-style-type: none"> <li>After engine warm up</li> <li>Selector lever: “N” position</li> <li>At idle</li> </ul>                                                    | 0 MPa                                                           |
|                          | <ul style="list-style-type: none"> <li>Selector lever: “D” position</li> <li>At idle</li> </ul>                                                                                  | 0.3 – 0.5 MPa                                                   |
| TARGET SEC PRESSURE      | <ul style="list-style-type: none"> <li>After engine warm up</li> <li>Selector lever: “N” position</li> <li>At idle</li> </ul>                                                    | 1.1 MPa                                                         |
| ISOLT1*                  | —                                                                                                                                                                                | —                                                               |
| ISOLT2*                  | —                                                                                                                                                                                | —                                                               |
| PRI SOLENOID*            | —                                                                                                                                                                                | —                                                               |
| SEC SOLENOID CURRENT*    | —                                                                                                                                                                                | —                                                               |
| SELECT SOLENOID CURRENT* | —                                                                                                                                                                                | —                                                               |

# TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10D]

| Monitor item            | Condition                                            | Value/Status (Approx.) |
|-------------------------|------------------------------------------------------|------------------------|
| SOLMON1*                | —                                                    | —                      |
| SOLMON2*                | —                                                    | —                      |
| PRI SOL MON*            | —                                                    | —                      |
| SEC SOL MON CURRENT*    | —                                                    | —                      |
| SELECT SOL MON CURRENT* | —                                                    | —                      |
| D POSITION SW           | Selector lever: "D" position                         | On                     |
|                         | Other than the above                                 | Off                    |
| N POSITION SW           | Selector lever: "N" position                         | On                     |
|                         | Other than the above                                 | Off                    |
| R POSITION SW           | Selector lever: "R" position                         | On                     |
|                         | Other than the above                                 | Off                    |
| P POSITION SW           | Selector lever: "P" position                         | On                     |
|                         | Other than the above                                 | Off                    |
| L POSITION SW           | Always                                               | Off                    |
| DS RANGE SW             | Always                                               | Off                    |
| BRAKESW                 | Brake pedal is depressed                             | On                     |
|                         | Brake pedal is released                              | Off                    |
| IDLE SW                 | Accelerator pedal is released                        | On                     |
|                         | Accelerator pedal is fully depressed                 | Off                    |
| SPORT MODE SW           | Always                                               | Off                    |
| ECO MODE SW             | Press the ECO mode switch                            | On                     |
|                         | Release the ECO mode switch                          | Off                    |
| STRDWNSW                | Always                                               | Off                    |
| STRUPSW                 | Always                                               | Off                    |
| DOWNLVR                 | Selector lever: – side                               | On                     |
|                         | Other than the above                                 | Off                    |
| UPLVR                   | Selector lever: + side                               | On                     |
|                         | Other than the above                                 | Off                    |
| NONMMODE                | Manual shift gate position (neutral, + side, – side) | Off                    |
|                         | Other than the above                                 | On                     |
| MMODE                   | Manual shift gate position (neutral, + side, – side) | On                     |
|                         | Other than the above                                 | Off                    |
| TOW MODE SW             | Always                                               | Off                    |

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< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10D]

| Monitor item      | Condition                                                                   | Value/Status (Approx.) |
|-------------------|-----------------------------------------------------------------------------|------------------------|
| SHIFT IND SIGNAL  | When the selector lever is positioned in between each position.             | OFF                    |
|                   | Selector lever: "P" position                                                | P                      |
|                   | Selector lever: "R" position                                                | R                      |
|                   | Selector lever: "N" position                                                | N                      |
|                   | Selector lever: "D" position                                                | D                      |
|                   | Manual mode: 1st                                                            | 1st                    |
|                   | Manual mode: 2nd                                                            | 2nd                    |
|                   | Manual mode: 3rd                                                            | 3rd                    |
|                   | Manual mode: 4th                                                            | 4th                    |
|                   | Manual mode: 5th                                                            | 5th                    |
|                   | Manual mode: 6th                                                            | 6th                    |
|                   | Manual mode: 7th                                                            | 7th                    |
| CVT LAMP          | Approx. 2 seconds after ignition switch ON                                  | On                     |
|                   | Other than the above                                                        | Off                    |
| SPORT MODE IND    | Always                                                                      | Off                    |
| MANU MODE SIGNAL  | Driving with manual mode                                                    | On                     |
|                   | Other than the above                                                        | Off                    |
| DS RANGE SIGNAL   | Always                                                                      | Off                    |
| ECO MODE SIGNAL   | Always                                                                      | Off                    |
| VDC ON            | When VDC malfunction signal is received                                     | On                     |
|                   | Other than the above                                                        | Off                    |
| TCS ON            | When TCS malfunction signal is received                                     | On                     |
|                   | Other than the above                                                        | Off                    |
| ABS FAIL SIGNAL   | When ABS malfunction signal is received                                     | On                     |
|                   | Other than the above                                                        | Off                    |
| ABS ON            | ABS is activated                                                            | On                     |
|                   | Other than the above                                                        | Off                    |
| RANGE             | Selector lever: "P" and "N" positions                                       | N/P                    |
|                   | Selector lever: "R" position                                                | R                      |
|                   | Selector lever: "D" position                                                | D                      |
|                   | Selector lever: "M" position                                                |                        |
| M GEAR POS        | Manual mode: 1st – 7th                                                      | 1 to 7                 |
| G SEN SLOPE       | Always                                                                      | 0%                     |
| G SEN CALIBRATION | When G sensor calibration is completed                                      | DONE                   |
|                   | When G sensor calibration is not completed                                  | YET                    |
| N IDLE STATUS     | Always                                                                      | Off                    |
| ENGBRKLVL         | When the engine brake level of "ENGINE BRAKE ADJ". in "Work Support" is ON  | On                     |
|                   | When the engine brake level of "ENGINE BRAKE ADJ". in "Work Support" is OFF | Off                    |
| DRIVE MODE STATS  | While driving in ECO mode                                                   | ECO                    |
|                   | Other than the above                                                        | NORMAL                 |
| SNOW MODE         | Always                                                                      | Off                    |
| ECO MODE          | Always                                                                      | Off                    |

# TCM

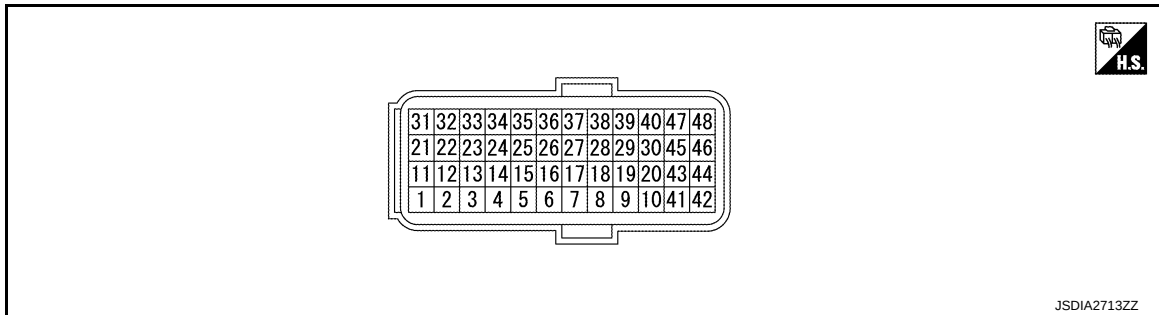
< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10D]

| Monitor item      | Condition | Value/Status (Approx.) |
|-------------------|-----------|------------------------|
| NORMAL MODE       | Always    | Off                    |
| SPORT MODE        | Always    | Off                    |
| AIR BLDING STATE  | Always    | INCOMP                 |
| ELECTRIC OP DUTY  | Always    | 0%                     |
| E-OP DUTY MON     | Always    | 0%                     |
| ELECTRIC OP RELAY | Always    | Off                    |
| E-OP RELAY MON    | Always    | Off                    |
| CVT-B*            | —         | —                      |
| CVT-A*            | —         | —                      |
| G SENSOR          | Always    | 0 V                    |

\*: These monitor items do not use.

## TERMINAL LAYOUT



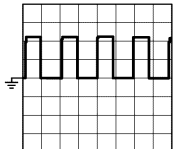
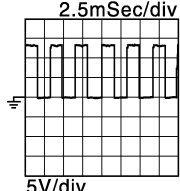
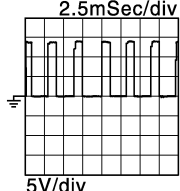
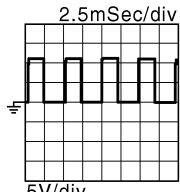
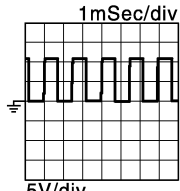
## INPUT/OUTPUT SIGNAL STANDARD

| Terminal No.<br>(Wire color) |        | Description                       |                  | Condition                                                                                                                     |                                    | Value (Approx.) |
|------------------------------|--------|-----------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-----------------|
| +                            | —      | Signal                            | Input/<br>Output |                                                                                                                               |                                    |                 |
| 2*<br>(GR)                   | —      | —                                 | —                | —                                                                                                                             |                                    | —               |
| 4<br>(Y)                     | Ground | D range switch                    | Input            | Ignition<br>switch<br>ON                                                                                                      | Selector lever: "D" position       | 10 – 16 V       |
|                              |        |                                   |                  |                                                                                                                               | Other than the above               | 0 V             |
| 5<br>(BR)                    | Ground | N range switch                    | Input            |                                                                                                                               | Selector lever: "N" position       | 10 – 16 V       |
|                              |        |                                   |                  |                                                                                                                               | Other than the above               | 0 V             |
| 6<br>(G)                     | Ground | R range switch                    | Input            |                                                                                                                               | Selector lever: "R" position       | 10 – 16 V       |
|                              |        |                                   |                  |                                                                                                                               | Other than the above               | 0 V             |
| 7<br>(V)                     | Ground | P range switch                    | Input            |                                                                                                                               | Selector lever: "P" position       | 10 – 16 V       |
|                              |        |                                   |                  |                                                                                                                               | Other than the above               | 0 V             |
| 11<br>(LG)                   | Ground | Sensor ground                     | —                | Always                                                                                                                        |                                    | 0 V             |
| 12<br>(BR)                   | Ground | CVT fluid tempera-<br>ture sensor | Output           | Ignition<br>switch<br>ON                                                                                                      | CVT fluid: Approx. 20°C<br>(68°F)  | 2.01 – 2.05 V   |
|                              |        |                                   |                  |                                                                                                                               | CVT fluid: Approx. 50°C<br>(122°F) | 1.45 – 1.50 V   |
|                              |        |                                   |                  |                                                                                                                               | CVT fluid: Approx. 80°C<br>(176°F) | 0.90 – 0.94 V   |
| 16<br>(SB)                   | Ground | Secondary pres-<br>sure sensor    | Input            | <ul style="list-style-type: none"> <li>After engine warm up</li> <li>Selector lever: "N" position</li> <li>At idle</li> </ul> |                                    | 1.23 – 1.25 V   |

# TCM

< ECU DIAGNOSIS INFORMATION >

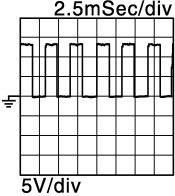
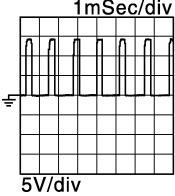
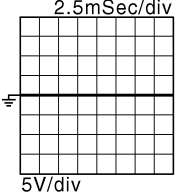
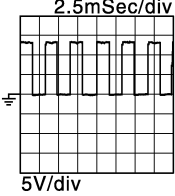
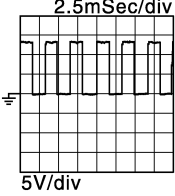
[CVT: RE0F10D]

| Terminal No.<br>(Wire color) |        | Description                  |                  | Condition                                                                                                                                                    | Value (Approx.)                                                                                                                                         |
|------------------------------|--------|------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| +                            | —      | Signal                       | Input/<br>Output |                                                                                                                                                              |                                                                                                                                                         |
| 17<br>(R)                    | Ground | Primary pressure sensor      | Input            | <ul style="list-style-type: none"> <li>After engine warm up</li> <li>Selector lever: "N" position</li> <li>At idle</li> </ul>                                | 0.7 – 0.9 V                                                                                                                                             |
| 23<br>(P)                    | —      | CAN-L                        | Input/<br>Output | —                                                                                                                                                            | —                                                                                                                                                       |
| 24<br>(LG)                   | Ground | Input speed sensor           | Input            | <ul style="list-style-type: none"> <li>Shift position: "M1" position</li> <li>Vehicle speed: 20 km/h (12 MPH)</li> </ul>                                     | <p>880 Hz</p> <p>1mSec/div</p>  <p>5V/div</p> <p>JSDIA3769GB</p>     |
| 26<br>(BG)                   | Ground | Sensor power supply          | Output           | Ignition switch: ON                                                                                                                                          | 5.0 V                                                                                                                                                   |
|                              |        |                              |                  | Ignition switch: OFF                                                                                                                                         | 0 V                                                                                                                                                     |
| 30<br>(GR)                   | Ground | Line pressure solenoid valve | Output           | <ul style="list-style-type: none"> <li>After engine warming up</li> <li>Selector lever: "N" position</li> <li>At idle</li> </ul>                             | <p>2.5mSec/div</p>  <p>5V/div</p> <p>JSDIA1897GB</p>                |
|                              |        |                              |                  | <ul style="list-style-type: none"> <li>After engine warming up</li> <li>Selector lever: "N" position</li> <li>Depress the accelerator pedal fully</li> </ul> | <p>2.5mSec/div</p>  <p>5V/div</p> <p>JSDIA1898GB</p>               |
| 33<br>(L)                    | —      | CAN-H                        | Input/<br>Output | —                                                                                                                                                            | —                                                                                                                                                       |
| 34<br>(W)                    | Ground | Output speed sensor          | Input            | <ul style="list-style-type: none"> <li>Shift position: "M1" position</li> <li>Vehicle speed: 20 km/h (12 MPH)</li> </ul>                                     | <p>200 Hz</p> <p>2.5mSec/div</p>  <p>5V/div</p> <p>JSDIA1904GB</p> |
| 35<br>(GR)                   | Ground | Primary speed sensor         | Input            | <ul style="list-style-type: none"> <li>Shift position: "M1" position</li> <li>Vehicle speed: 20 km/h (12 MPH)</li> </ul>                                     | <p>700 Hz</p> <p>1mSec/div</p>  <p>5V/div</p> <p>JSDIA1905GB</p>   |

# TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10D]

| Terminal No.<br>(Wire color) |        | Description                            |                  | Condition                                                                                                                                                                        | Value (Approx.)                                                                       |
|------------------------------|--------|----------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| +                            | —      | Signal                                 | Input/<br>Output |                                                                                                                                                                                  |                                                                                       |
| 37<br>(Y)                    | Ground | Select solenoid valve                  | Output           | <ul style="list-style-type: none"> <li>Engine started</li> <li>Vehicle is stopped</li> <li>Selector lever: "N" position</li> </ul>                                               |    |
| 38<br>(G)                    | Ground | Torque converter clutch solenoid valve | Output           | <ul style="list-style-type: none"> <li>Selector lever: "D" position</li> <li>Accelerator pedal position: 1/8 or less</li> <li>Vehicle speed: 20 km/h (12 MPH) or more</li> </ul> |    |
|                              |        |                                        |                  | <ul style="list-style-type: none"> <li>Engine started</li> <li>Vehicle is stopped</li> </ul>                                                                                     |   |
| 39<br>(W)                    | Ground | Secondary pressure solenoid valve      | Output           | <ul style="list-style-type: none"> <li>Shift position: "M1" position</li> <li>Vehicle speed: 20 km/h (12 MPH)</li> </ul>                                                         |  |
| 40<br>(V)                    | Ground | Primary pressure solenoid valve        | Output           | <ul style="list-style-type: none"> <li>Shift position: "M1" position</li> <li>Vehicle speed: 20 km/h (12 MPH)</li> </ul>                                                         |  |
| 41<br>(B)                    | Ground | Ground                                 | —                | Always                                                                                                                                                                           | 0 V                                                                                   |
| 42<br>(B)                    | Ground | Ground                                 | —                | Always                                                                                                                                                                           | 0 V                                                                                   |
| 45<br>(V)                    | Ground | Battery power supply (Memory back-up)  | Input            | Always                                                                                                                                                                           | 10 – 16 V                                                                             |
| 46<br>(V)                    | Ground | Battery power supply (Memory back-up)  | Input            | Always                                                                                                                                                                           | 10 – 16 V                                                                             |
| 47<br>(BG)                   | Ground | Ignition power supply                  | Input            | Ignition switch: ON                                                                                                                                                              | 10 – 16 V                                                                             |
|                              |        |                                        |                  | Ignition switch: OFF                                                                                                                                                             | 0 V                                                                                   |

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| Terminal No.<br>(Wire color) |        | Description           |                  | Condition            | Value (Approx.) |
|------------------------------|--------|-----------------------|------------------|----------------------|-----------------|
| +                            | —      | Signal                | Input/<br>Output |                      |                 |
| 48<br>(BG)                   | Ground | Ignition power supply | Input            | Ignition switch: ON  | 10 – 16 V       |
|                              |        |                       |                  | Ignition switch: OFF | 0 V             |

\*: This harness does not use.

## Fail-safe

INFOID:0000000010622471

TCM has a fail-safe mode. The mode functions so that operation can be continued even if the signal circuit of the main electronically controlled input/output parts is damaged.

If the vehicle shows following behaviors including “poor acceleration”, a malfunction of the applicable system is detected by TCM and the vehicle may be in a fail-safe mode. At this time, check the DTC code and perform inspection and repair according to the malfunction diagnosis procedures.

### Fail-safe function

| DTC   | Vehicle behavior                                                                                                                                                                                                                         | Conditions of vehicle                                                                                                                                         |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P062F | Not changed from normal driving                                                                                                                                                                                                          | —                                                                                                                                                             |
| P0705 | <ul style="list-style-type: none"> <li>Shift position indicator on combination meter is not displayed</li> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul> | —                                                                                                                                                             |
| P0706 | <ul style="list-style-type: none"> <li>Shift position indicator on combination meter is not displayed</li> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul> | —                                                                                                                                                             |
| P0712 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                                                            | Engine coolant temperature when engine start:<br>Temp. $\geq 10^{\circ}\text{C}$ ( $50^{\circ}\text{F}$ )                                                     |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                           | Engine coolant temperature when engine start:<br>$-35^{\circ}\text{C}$ ( $-31^{\circ}\text{F}$ ) $\leq$ Temp. $< 10^{\circ}\text{C}$ ( $50^{\circ}\text{F}$ ) |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                           | Engine coolant temperature when engine start:<br>Temp. $< -35^{\circ}\text{C}$ ( $-31^{\circ}\text{F}$ )                                                      |
| P0713 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                                                            | Engine coolant temperature when engine start:<br>Temp. $\geq 10^{\circ}\text{C}$ ( $50^{\circ}\text{F}$ )                                                     |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                           | Engine coolant temperature when engine start:<br>$-35^{\circ}\text{C}$ ( $-31^{\circ}\text{F}$ ) $\leq$ Temp. $< 10^{\circ}\text{C}$ ( $50^{\circ}\text{F}$ ) |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                           | Engine coolant temperature when engine start:<br>Temp. $< -35^{\circ}\text{C}$ ( $-31^{\circ}\text{F}$ )                                                      |
| P0715 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Manual mode is not activated</li> </ul>                                                                    | —                                                                                                                                                             |
| P0717 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                                                          | —                                                                                                                                                             |
| P0740 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                                                          | —                                                                                                                                                             |



# TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10D]

| DTC   | Vehicle behavior                                                                                                                                                                                         | Conditions of vehicle                                   |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| P0743 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                          | —                                                       |
| P0744 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                          | —                                                       |
| P0746 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                         | —                                                       |
| P0776 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Vehicle speed is not increased</li> </ul> | When a malfunction occurs on the low oil pressure side  |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                         | When a malfunction occurs on the high oil pressure side |
| P0778 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                         | —                                                       |
| P0779 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                         | —                                                       |
| P0826 | Manual mode is not activated                                                                                                                                                                             | —                                                       |
| P0841 | Not changed from normal driving                                                                                                                                                                          | —                                                       |
| P0847 | Not changed from normal driving                                                                                                                                                                          | —                                                       |
| P0848 | Not changed from normal driving                                                                                                                                                                          | —                                                       |
| P084C | Not changed from normal driving                                                                                                                                                                          | —                                                       |
| P084D | Not changed from normal driving                                                                                                                                                                          | —                                                       |
| P0863 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                         | —                                                       |
| P0890 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Vehicle speed is not increased</li> </ul> | —                                                       |
| P0962 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                         | —                                                       |
| P0963 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                         | —                                                       |
| P0965 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                         | When a malfunction occurs on the low oil pressure side  |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Lock-up is not performed</li> </ul>                                                                                              | When a malfunction occurs on the high oil pressure side |

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# TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10D]

| DTC   | Vehicle behavior                                                                                                                                                       | Conditions of vehicle                                   |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| P0966 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>       | —                                                       |
| P0967 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>       | —                                                       |
| P2765 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Manual mode is not activated</li> </ul>  | —                                                       |
| P2813 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Vehicle speed is not increased</li> </ul> | When a malfunction occurs on the low oil pressure side  |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> </ul>                                                                                              | When a malfunction occurs on the high oil pressure side |
| P2814 | Selector shock is large                                                                                                                                                | —                                                       |
| P2815 | Selector shock is large                                                                                                                                                | —                                                       |
| U0073 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>       | —                                                       |
| U0100 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>       | —                                                       |
| U0102 | Not changed from normal driving                                                                                                                                        | —                                                       |
| U0140 | Not changed from normal driving                                                                                                                                        | —                                                       |
| U0141 | Not changed from normal driving                                                                                                                                        | —                                                       |
| U0155 | Not changed from normal driving                                                                                                                                        | —                                                       |
| U0300 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>       | —                                                       |
| U1000 | Not changed from normal driving                                                                                                                                        | —                                                       |
| U110F | Not changed from normal driving                                                                                                                                        | —                                                       |
| U1111 | Not changed from normal driving                                                                                                                                        | —                                                       |
| U1117 | Not changed from normal driving                                                                                                                                        | —                                                       |

## Protection Control

INFOID:0000000010622472

The TCM becomes the protection control status temporarily to protect the safety when the safety of TCM and transmission is lost. It automatically returns to the normal status if the safety is secured.

The TCM has the following protection control.

## CONTROL FOR WHEEL SPIN

|                             |                                                                                                                                                                                                      |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control                     | When a wheel spin is detected, the engine output and gear ratio are limited and the line pressure is increased. Limits engine output when a wheel spin occurs in any of right and left drive wheels. |
| Vehicle behavior in control | If the accelerator is kept depressing during wheel spin, the engine revolution and vehicle speed are limited to a certain degree.                                                                    |
| Normal return condition     | Wheel spin convergence returns the control to the normal control.                                                                                                                                    |

TORQUE IS REDUCED WHEN DRIVING WITH THE REVERSE GEAR

|                             |                                                                                                |
|-----------------------------|------------------------------------------------------------------------------------------------|
| Control                     | Engine output is controlled according to a vehicle speed while reversing the vehicle.          |
| Vehicle behavior in control | Power performance may be lowered while reversing the vehicle.                                  |
| Normal return condition     | Torque returns to normal by positioning the selector lever in a range other than "R" position. |

## CONTROL WHEN FLUID TEMPERATURE IS HIGH

|                             |                                                                                                                                                                                |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control                     | When the CVT fluid temperature is high, the gear shift permission maximum revolution and the maximum torque are reduced than usual to prevent increase of the oil temperature. |
| Vehicle behavior in control | Power performance may be lowered, compared to normal control.                                                                                                                  |
| Normal return condition     | The control returns to the normal control when CVT fluid temperature is lowered.                                                                                               |

## REVERSE PROHIBIT CONTROL

|                             |                                                                                                                                                                               |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control                     | The reverse brake is controlled to avoid becoming engaged when the selector lever is set in "R" position while driving in forward direction at more than the specified speed. |
| Vehicle behavior in control | If the selector lever is put at "R" position when driving with the forward gear, the gear becomes neutral, not reverse.                                                       |
| Normal return condition     | The control returns to normal control when the vehicle is driven at low speeds. (The reverse brake becomes engaged.)                                                          |

## DTC Inspection Priority Chart

INFOID:0000000010622473

If multiple malfunction codes are detected at the same time, check each code according to the DTC check priority list below.

| Priority | DTC   | Items<br>(CONSULT screen terms) | Reference                                 |
|----------|-------|---------------------------------|-------------------------------------------|
| 1        | P0863 | CONTROL UNIT (CAN)              | <a href="#">TM-366, "DTC Description"</a> |
|          | U0073 | COMM BUS A OFF                  | <a href="#">TM-310, "DTC Description"</a> |
|          | U0100 | LOST COMM (ECM A)               | <a href="#">TM-311, "DTC Description"</a> |
|          | U0102 | LOST COMM (TRANSFER)            | <a href="#">TM-312, "DTC Description"</a> |
|          | U0140 | LOST COMM (BCM)                 | <a href="#">TM-313, "DTC Description"</a> |
|          | U0141 | LOST COMM (BCM A)               | <a href="#">TM-314, "DTC Description"</a> |
|          | U0155 | LOST COMM (IPC)                 | <a href="#">TM-315, "DTC Description"</a> |
|          | U0300 | CAN COMM DATA                   | <a href="#">TM-316, "DTC Description"</a> |
|          | U1000 | CAN COMM CIRCUIT                | <a href="#">TM-317, "DTC Description"</a> |
|          | U110F | LOST COMM (ECM)                 | <a href="#">TM-318, "DTC Description"</a> |
|          | U1111 | LOST COMM (CHASSIS CONT MDUL)   | <a href="#">TM-319, "DTC Description"</a> |
|          | U1117 | LOST COMM (ABS)                 | <a href="#">TM-320, "DTC Description"</a> |

# TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10D]

| Priority | DTC   | Items<br>(CONSULT screen terms) | Reference                                 |
|----------|-------|---------------------------------|-------------------------------------------|
| 2        | P0740 | TORQUE CONVERTER                | <a href="#">TM-340, "DTC Description"</a> |
|          | P0743 | TORQUE CONVERTER                | <a href="#">TM-342, "DTC Description"</a> |
|          | P0778 | PC SOLENOID B                   | <a href="#">TM-350, "DTC Description"</a> |
|          | P0779 | PC SOLENOID B                   | <a href="#">TM-352, "DTC Description"</a> |
|          | P0962 | PC SOLENOID A                   | <a href="#">TM-369, "DTC Description"</a> |
|          | P0963 | PC SOLENOID A                   | <a href="#">TM-371, "DTC Description"</a> |
|          | P0966 | PC SOLENOID B                   | <a href="#">TM-375, "DTC Description"</a> |
|          | P0967 | PC SOLENOID B                   | <a href="#">TM-377, "DTC Description"</a> |
|          | P2814 | SELECT SOLENOID                 | <a href="#">TM-384, "DTC Description"</a> |
|          | P2815 | SELECT SOLENOID                 | <a href="#">TM-386, "DTC Description"</a> |
| 3        | P062F | EEPROM                          | <a href="#">TM-321, "DTC Description"</a> |
|          | P0705 | T/M RANGE SENSOR A              | <a href="#">TM-322, "DTC Description"</a> |
|          | P0706 | T/M RANGE SENSOR A              | <a href="#">TM-327, "DTC Description"</a> |
|          | P0712 | FLUID TEMP SENSOR A             | <a href="#">TM-330, "DTC Description"</a> |
|          | P0713 | FLUID TEMP SENSOR A             | <a href="#">TM-332, "DTC Description"</a> |
|          | P0715 | INPUT SPEED SENSOR A            | <a href="#">TM-334, "DTC Description"</a> |
|          | P0717 | INPUT SPEED SENSOR A            | <a href="#">TM-337, "DTC Description"</a> |
|          | P0826 | UP/DOWN SHIFT SWITCH            | <a href="#">TM-354, "DTC Description"</a> |
|          | P0841 | FLUID PRESS SEN/SW A            | <a href="#">TM-357, "DTC Description"</a> |
|          | P0847 | FLUID PRESS SEN/SW B            | <a href="#">TM-358, "DTC Description"</a> |
|          | P0848 | FLUID PRESS SEN/SW B            | <a href="#">TM-360, "DTC Description"</a> |
|          | P084C | FLUID PRESS SEN/SW H            | <a href="#">TM-362, "DTC Description"</a> |
|          | P084D | FLUID PRESS SEN/SW H            | <a href="#">TM-364, "DTC Description"</a> |
|          | P0890 | TCM                             | <a href="#">TM-367, "DTC Description"</a> |
|          | P2765 | INPUT SPEED SENSOR B            | <a href="#">TM-379, "DTC Description"</a> |
| 4        | P0744 | TORQUE CONVERTER                | <a href="#">TM-344, "DTC Description"</a> |
|          | P0746 | PC SOLENOID A                   | <a href="#">TM-346, "DTC Description"</a> |
|          | P0776 | PC SOLENOID B                   | <a href="#">TM-348, "DTC Description"</a> |
|          | P0965 | PC SOLENOID B                   | <a href="#">TM-373, "DTC Description"</a> |
|          | P2813 | SELECT SOLENOID                 | <a href="#">TM-382, "DTC Description"</a> |

## DTC Index

INFOID:0000000010622474

### NOTE:

- If multiple malfunction codes are detected at the same time, check each code according to the "DTC check priority list". Refer to [TM-287, "DTC Inspection Priority Chart"](#).
- The ignition counter is displayed in "FFD". Refer to [TM-272, "CONSULT Function"](#).

| DTC*1, *2 |                           | Items<br>(CONSULT screen terms) | Trip | MIL *3 | Reference              |
|-----------|---------------------------|---------------------------------|------|--------|------------------------|
| GST       | CONSULT<br>(TRANSMISSION) |                                 |      |        |                        |
| P062F     | P062F                     | EEPROM                          | 1    | ON     | <a href="#">TM-321</a> |
| P0705     | P0705                     | T/M RANGE SENSOR A              | 2    | ON     | <a href="#">TM-322</a> |
| P0706     | P0706                     | T/M RANGE SENSOR A              | 2    | ON     | <a href="#">TM-327</a> |
| P0712     | P0712                     | FLUID TEMP SENSOR A             | 2    | ON     | <a href="#">TM-330</a> |
| P0713     | P0713                     | FLUID TEMP SENSOR A             | 2    | ON     | <a href="#">TM-332</a> |

# TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10D]

| DTC*1, *2 |                           | Items<br>(CONSULT screen terms) | Trip | MIL*3 | Reference              |
|-----------|---------------------------|---------------------------------|------|-------|------------------------|
| GST       | CONSULT<br>(TRANSMISSION) |                                 |      |       |                        |
| P0715     | P0715                     | INPUT SPEED SENSOR A            | 2    | ON    | <a href="#">TM-334</a> |
| P0717     | P0717                     | INPUT SPEED SENSOR A            | 2    | ON    | <a href="#">TM-337</a> |
| P0740     | P0740                     | TORQUE CONVERTER                | 2    | ON    | <a href="#">TM-340</a> |
| P0743     | P0743                     | TORQUE CONVERTER                | 2    | ON    | <a href="#">TM-342</a> |
| P0744     | P0744                     | TORQUE CONVERTER                | 2    | ON    | <a href="#">TM-344</a> |
| P0746     | P0746                     | PC SOLENOID A                   | 2    | ON    | <a href="#">TM-346</a> |
| P0776     | P0776                     | PC SOLENOID B                   | 2    | ON    | <a href="#">TM-348</a> |
| P0778     | P0778                     | PC SOLENOID B                   | 2    | ON    | <a href="#">TM-350</a> |
| P0779     | P0779                     | PC SOLENOID B                   | 2    | ON    | <a href="#">TM-352</a> |
| —         | P0826                     | UP/DOWN SHIFT SWITCH            | 1    | —     | <a href="#">TM-354</a> |
| P0841     | P0841                     | FLUID PRESS SEN/SW A            | 2    | —     | <a href="#">TM-357</a> |
| P0847     | P0847                     | FLUID PRESS SEN/SW B            | 2    | ON    | <a href="#">TM-358</a> |
| P0848     | P0848                     | FLUID PRESS SEN/SW B            | 2    | ON    | <a href="#">TM-360</a> |
| P084C     | P084C                     | FLUID PRESS SEN/SW H            | 2    | ON    | <a href="#">TM-362</a> |
| P084D     | P084D                     | FLUID PRESS SEN/SW H            | 2    | ON    | <a href="#">TM-364</a> |
| P0863     | P0863                     | CONTROL UNIT (CAN)              | 1    | ON    | <a href="#">TM-366</a> |
| P0890     | P0890                     | TCM                             | 1    | ON    | <a href="#">TM-367</a> |
| P0962     | P0962                     | PC SOLENOID A                   | 2    | ON    | <a href="#">TM-369</a> |
| P0963     | P0963                     | PC SOLENOID A                   | 2    | ON    | <a href="#">TM-371</a> |
| P0965     | P0965                     | PC SOLENOID B                   | 2    | ON    | <a href="#">TM-373</a> |
| P0966     | P0966                     | PC SOLENOID B                   | 2    | ON    | <a href="#">TM-375</a> |
| P0967     | P0967                     | PC SOLENOID B                   | 2    | ON    | <a href="#">TM-377</a> |
| P2765     | P2765                     | INPUT SPEED SENSOR B            | 2    | ON    | <a href="#">TM-379</a> |
| P2813     | P2813                     | SELECT SOLENOID                 | 2    | ON    | <a href="#">TM-382</a> |
| P2814     | P2814                     | SELECT SOLENOID                 | 2    | ON    | <a href="#">TM-384</a> |
| P2815     | P2815                     | SELECT SOLENOID                 | 2    | ON    | <a href="#">TM-386</a> |
| U0073     | U0073                     | COMM BUS A OFF                  | 1    | ON    | <a href="#">TM-310</a> |
| U0100     | U0100                     | LOST COMM (ECM A)               | 1    | ON    | <a href="#">TM-311</a> |
| —         | U0102                     | LOST COMM (TRANSFER)            | 1    | —     | <a href="#">TM-312</a> |
| —         | U0140                     | LOST COMM (BCM)                 | 1    | —     | <a href="#">TM-313</a> |
| —         | U0141                     | LOST COMM (BCM A)               | 1    | —     | <a href="#">TM-314</a> |
| —         | U0155                     | LOST COMM (IPC)                 | 1    | —     | <a href="#">TM-315</a> |
| —         | U0300                     | CAN COMM DATA                   | 1    | —     | <a href="#">TM-316</a> |
| —         | U1000                     | CAN COMM CIRCUIT                | 1    | —     | <a href="#">TM-317</a> |
| —         | U110F                     | LOST COMM (ECM)                 | 1    | —     | <a href="#">TM-318</a> |
| —         | U1111                     | LOST COMM (CHASSIS CONT MDUL)   | 1    | —     | <a href="#">TM-319</a> |
| —         | U1117                     | LOST COMM (ABS)                 | 1    | —     | <a href="#">TM-320</a> |

\*1: These numbers are specified by SAE J2012/ISO 15031-6.

\*2: The DTC number of the 1st trip is the same as the DTC number.

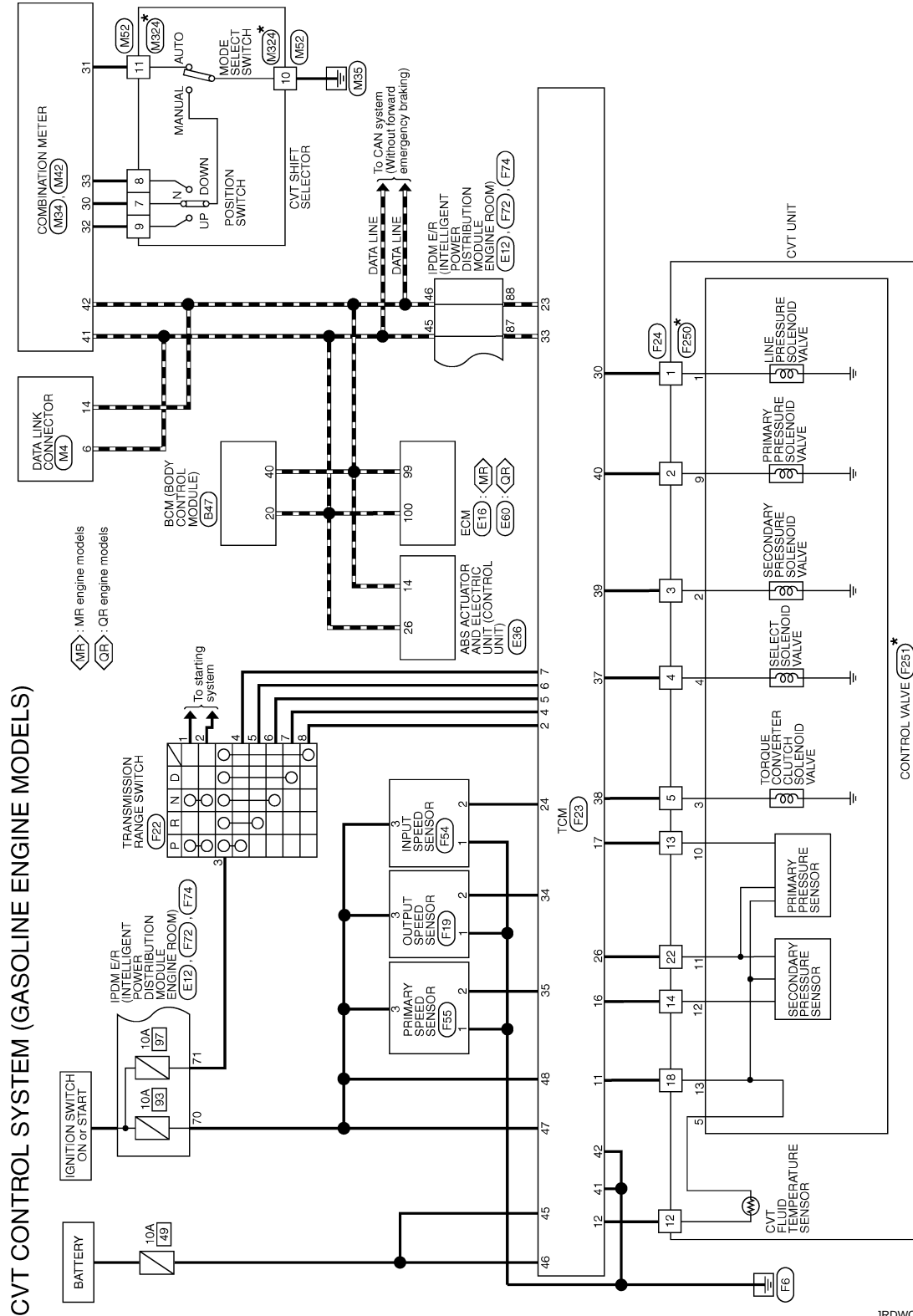
\*3: Refer to [TM-270, "DIAGNOSIS DESCRIPTION : Malfunction Indicator Lamp \(MIL\)"](#).

## WIRING DIAGRAM

## CVT CONTROL SYSTEM

## Wiring Diagram

INFOID:000000010622475



2014/03/17

JRDWC2842GB

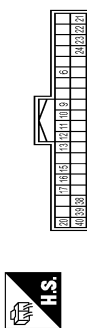
# CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F10D]

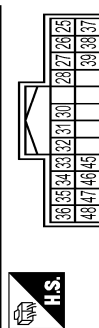
## CVT CONTROL SYSTEM (GASOLINE ENGINE MODELS)

|                |                           |
|----------------|---------------------------|
| Connector No.  | B47                       |
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Type | TH40FG-NH                 |



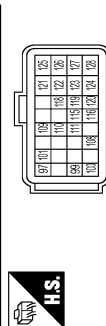
| Terminal No. | Color | Wire | Signal Name [Specification] |
|--------------|-------|------|-----------------------------|
| 6            | R     |      | BACK DOOR OPENER REQUEST SW |
| 9            | G     |      | HANDS FREE SENSOR           |
| 10           | W     |      | REAR RH DOOR SW             |
| 11           | LG    |      | BACK DOOR SW                |
| 12           | R     |      | REAR LH DOOR SW             |
| 13           | SB    |      | PASSENGER DOOR SW           |
| 15           | LAG   |      | REAR WHEEL AUTO STOP        |
| 16           | Y     |      | BACK DOOR OPENER SW         |
| 17           | SB    |      | DRIVER DOOR SW              |
| 20           | L     |      | CANH                        |
| 21           | BR    |      | BUMPER ANTENNA (-)          |
| 22           | Y     |      | REAR ANTENNA (+)            |
| 23           | L     |      | REAR ANTENNA (+)            |
| 24           | G     |      | BUMPER ANTENNA (+)          |
| 38           | V     |      | SIREN                       |
| 39           | LA/W  |      | HIGH-MOUNTED STOP LAMP      |
| 40           | P     |      | CANH                        |

|                |                                                           |
|----------------|-----------------------------------------------------------|
| Connector No.  | E12                                                       |
| Connector Name | POWER INTELLIGENT POWER DISTRIBUTION MODULE (ENGINE ROOM) |
| Connector Type | TH24FGY-NH                                                |



| Terminal No. | Color | Wire | Signal Name [Specification] |
|--------------|-------|------|-----------------------------|
| 25           | LG    |      |                             |
| 26           | W     |      |                             |
| 27           | SB    |      |                             |
| 28           | P     |      |                             |
| 30           | L     |      |                             |
| 31           | G     |      |                             |
| 32           | B     |      |                             |
| 33           | BG    |      |                             |
| 34           | LG    |      |                             |
| 35           | V     |      |                             |
| 36           | Y     |      |                             |
| 37           | B     |      |                             |
| 38           | GR    |      |                             |
| 39           | BR    |      |                             |
| 45           | P     |      |                             |
| 46           | P     |      |                             |
| 47           | W     |      |                             |
| 48           | R     |      |                             |

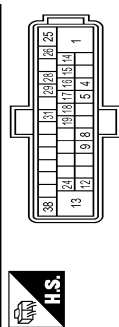
|                |                |
|----------------|----------------|
| Connector No.  | E16            |
| Connector Name | ECM            |
| Connector Type | RH24FB-RZ8-L-H |



| Terminal No. | Color | Wire | Signal Name [Specification]         |
|--------------|-------|------|-------------------------------------|
| 97           | W     |      | BAROMETRIC PRESSURE SENSOR          |
| 99           | P     |      | CANH                                |
| 100          | L     |      | SENSOR POWER SUPPLY                 |
| 101          | Y     |      | CLUTCH PEDAL POSITION SWITCH        |
| 108          | R     |      | IGNITION SWITCH                     |
| 109          | LG    |      | ASCD STEERING SWITCH                |
| 110          | G     |      | SENSOR GROUND                       |
| 111          | BR    |      | STOP LAMP SWITCH                    |
| 115          | V     |      | BRAKE PEDAL POSITION SWITCH         |
| 118          | GR    |      | SENSOR POWER SUPPLY                 |
| 119          | SB    |      | ACCELERATOR PEDAL POSITION SENSOR 2 |
| 120          | LG    |      | SENSOR GROUND                       |

|     |    |                                     |
|-----|----|-------------------------------------|
| 121 | BR | POWER SUPPLY FOR ECM                |
| 122 | V  | SENSOR POWER SUPPLY                 |
| 123 | R  | ECM GROUND                          |
| 124 | B  | SENSOR GROUND                       |
| 125 | B  | ECM GROUND                          |
| 126 | GR | ACCELERATOR PEDAL POSITION SENSOR 1 |
| 127 | R  | SENSOR GROUND                       |
| 128 | B  | ECM GROUND                          |

|                |                                               |
|----------------|-----------------------------------------------|
| Connector No.  | E36                                           |
| Connector Name | ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) |
| Connector Type | BE234FB-BHY2-BL22-RH                          |



| Terminal No. | Color  | Wire | Signal Name [Specification]        |
|--------------|--------|------|------------------------------------|
| 1            | Y      |      | MOTOR POWER SUPPLY                 |
| 4            | SB     |      | FR RH WHEEL SENSOR POWER SUPPLY    |
| 5            | V      |      | BRAKE VACUUM SENSOR POWER SUPPLY   |
| 8            | P      |      | FR LH WHEEL SENSOR SIGNAL          |
| 9            | Y      |      | hill descent control SWITCH SIGNAL |
| 12           | LG     |      | BRAKE VACUUM SENSOR SIGNAL         |
| 13           | B      |      | GROUND (MOTOR)                     |
| 14           | P      |      | CAN-L                              |
| 15           | BR     |      | VDC OFF SWITCH SIGNAL              |
| 16           | R      |      | FR RH WHEEL SENSOR POWER SUPPLY    |
| 17           | Y      |      | RR RH WHEEL SENSOR POWER SUPPLY    |
| 18           | G      |      | RR LH WHEEL SENSOR SIGNAL          |
| 19           | W      |      | FR LH WHEEL SENSOR POWER SUPPLY    |
| 24           | SHIELD |      | BRAKE VACUUM SENSOR GROUND         |
| 25           | BR     |      | VALVE POWER SUPPLY                 |
| 26           | L      |      | CANH                               |
| 28           | GR     |      | IGNITION POSITION SUPPLY           |
| 29           | LG     |      | RR RH WHEEL SENSOR SIGNAL          |
| 31           | BR     |      | RR LH WHEEL SENSOR POWER SUPPLY    |
| 38           | B      |      | GROUND (VALVE)                     |

|                |                |
|----------------|----------------|
| Connector No.  | E60            |
| Connector Name | ECM            |
| Connector Type | RH24FB-RZ8-L-H |



| Terminal No. | Color | Wire | Signal Name [Specification]         |
|--------------|-------|------|-------------------------------------|
| 99           | P     |      | CAN COMMUNICATION LINE (CANL)       |
| 100          | L     |      | CAN COMMUNICATION LINE (CANH)       |
| 103          | Y     |      | REFRIGERANT PRESSURE SENSOR         |
| 104          | R     |      | SENSOR POWER SUPPLY                 |
| 109          | LG    |      | IGNITION SWITCH                     |
| 110          | G     |      | ASCD STEERING SWITCH                |
| 111          | BR    |      | SENSOR GROUND                       |
| 115          | V     |      | STOP LAMP SWITCH                    |
| 116          | GR    |      | BRAKE PEDAL POSITION SWITCH         |
| 117          | W     |      | PNP SIGNAL                          |
| 118          | SB    |      | SENSOR POWER SUPPLY                 |
| 119          | Y     |      | ACCELERATOR PEDAL POSITION SENSOR 2 |
| 120          | LG    |      | SENSOR GROUND                       |
| 121          | BR    |      | POWER SUPPLY FOR ECM                |
| 122          | V     |      | SENSOR POWER SUPPLY                 |
| 123          | BR    |      | ECM GROUND                          |
| 124          | W     |      | SENSOR GROUND                       |
| 126          | GR    |      | ACCELERATOR PEDAL POSITION SENSOR 1 |
| 127          | R     |      | SENSOR GROUND                       |
| 128          | BR    |      | ECM GROUND                          |

# CVT CONTROL SYSTEM

< WIRING DIAGRAM >

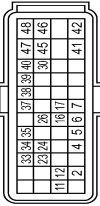
[CVT: RE0F10D]

## CVT CONTROL SYSTEM (GASOLINE ENGINE MODELS)

|                |                     |
|----------------|---------------------|
| Connector No.  | F19                 |
| Connector Name | OUTPUT SPEED SENSOR |
| Connector Type | RK03FB              |

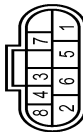


|                |                 |
|----------------|-----------------|
| Connector No.  | F23             |
| Connector Name | TCM             |
| Connector Type | RH40FB-EZ8-L-RH |



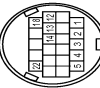
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1            | GR            | -                           |
| 2            | W             | -                           |
| 3            | BG            | -                           |

|                |                           |
|----------------|---------------------------|
| Connector No.  | F22                       |
| Connector Name | TRANSMISSION RANGE SWITCH |
| Connector Type | YDX06FB-HS4               |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1            | BG            | -                           |
| 2            | GR            | -                           |
| 3            | W             | -                           |
| 4            | V             | -                           |
| 5            | G             | -                           |
| 6            | BR            | -                           |
| 7            | Y             | -                           |
| 8            | GR            | -                           |

|                |          |
|----------------|----------|
| Connector No.  | F24      |
| Connector Name | CVT UNIT |
| Connector Type | RK22FGY  |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1            | GR            | -                           |
| 2            | V             | -                           |
| 3            | W             | -                           |
| 4            | Y             | -                           |
| 5            | G             | -                           |
| 12           | BR            | -                           |
| 13           | R             | -                           |
| 14           | SB            | -                           |
| 18           | LG            | -                           |
| 22           | BG            | -                           |

|                |                    |
|----------------|--------------------|
| Connector No.  | F54                |
| Connector Name | INPUT SPEED SENSOR |
| Connector Type | RK03FB             |



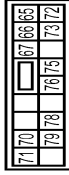
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1            | GR            | -                           |
| 2            | LG            | -                           |
| 3            | BR            | -                           |

|                |                      |
|----------------|----------------------|
| Connector No.  | F55                  |
| Connector Name | PRIMARY SPEED SENSOR |
| Connector Type | RK03FB               |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1            | B             | -                           |
| 2            | GR            | -                           |
| 3            | BR            | -                           |

|                |                                                                 |
|----------------|-----------------------------------------------------------------|
| Connector No.  | F72                                                             |
| Connector Name | POWER RELAY, ILLUMINANT POWER DISTRIBUTION MODULE (ENGINE ROOM) |
| Connector Type | NS16FW-CS                                                       |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 65           | P             | -                           |
| 66           | L             | - [With R3M Engine]         |
| 67           | R             | - [With M20 or QF25 Engine] |
| 67           | V             | -                           |
| 70           | BG            | - [With CVT]                |
| 70           | GR            | - [With M1]                 |
| 71           | SB            | -                           |
| 72           | GR            | -                           |
| 73           | R             | - [With R3M Engine]         |
| 73           | Y             | - [With M20 or QF25 Engine] |
| 75           | BR            | - [With M20 or QF25 Engine] |
| 75           | L             | - [With R3M Engine]         |
| 76           | P             | -                           |
| 78           | L             | - [With QF25 engine]        |
| 78           | R             | - [With R3M Engine]         |
| 79           | G             | -                           |

JRDWC2844GB



# CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F10D]

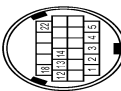
## CVT CONTROL SYSTEM (GASOLINE ENGINE MODELS)

|                |                                                           |
|----------------|-----------------------------------------------------------|
| Connector No.  | F74                                                       |
| Connector Name | POWER INTELLIGENT POWER DISTRIBUTION MODULE (ENGINE ROOM) |
| Connector Type | TH24FB-NH                                                 |



|     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 110 | 107 | 103 | 102 | 101 | 100 | 99 | 98 | 97 | 96 | 95 | 94 | 93 | 92 | 91 | 90 | 89 | 88 | 87 |
|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|

|                |           |
|----------------|-----------|
| Connector No.  | F250      |
| Connector Name | CVT UNIT  |
| Connector Type | RC22MGY-X |



| Terminal No. | Color | Wire | Signal Name [Specification]  |
|--------------|-------|------|------------------------------|
| 87           | L     | -    | -                            |
| 88           | P     | -    | -                            |
| 89           | W     | -    | -                            |
| 90           | R     | -    | -                            |
| 92           | GR    | -    | -                            |
| 93           | G     | -    | - [With R04 Engine]          |
| 94           | P     | -    | - [With MK20 or QK25 Engine] |
| 95           | SB    | -    | -                            |
| 96           | LG    | -    | -                            |
| 97           | W     | -    | -                            |
| 98           | P     | -    | -                            |
| 99           | Y     | -    | -                            |
| 100          | BG    | -    | -                            |
| 101          | LG    | -    | -                            |
| 102          | V     | -    | -                            |
| 103          | Y     | -    | -                            |
| 105          | W     | -    | -                            |
| 106          | BR    | -    | -                            |
| 107          | V     | -    | -                            |
| 110          | SB    | -    | -                            |

| Terminal No. | Color | Wire | Signal Name [Specification] |
|--------------|-------|------|-----------------------------|
| 1            | -     | -    | -                           |
| 2            | -     | -    | -                           |
| 3            | -     | -    | -                           |
| 4            | -     | -    | -                           |
| 5            | -     | -    | -                           |
| 12           | -     | -    | -                           |
| 13           | -     | -    | -                           |
| 14           | -     | -    | -                           |
| 18           | -     | -    | -                           |
| 22           | -     | -    | -                           |

|                |               |
|----------------|---------------|
| Connector No.  | F251          |
| Connector Name | CONTROL VALVE |
| Connector Type | IP16FGY       |



|   |   |   |   |   |   |    |    |    |    |    |    |
|---|---|---|---|---|---|----|----|----|----|----|----|
| 5 | 1 | 2 | 3 | 4 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|----|----|----|----|----|----|

| Terminal No. | Color | Wire | Signal Name [Specification] |
|--------------|-------|------|-----------------------------|
| 1            | GY    | -    | -                           |
| 2            | BR    | -    | -                           |
| 3            | Y     | -    | -                           |
| 4            | P     | -    | -                           |
| 5            | B     | -    | -                           |
| 9            | O     | -    | -                           |
| 10           | L     | -    | -                           |
| 11           | W     | -    | -                           |
| 12           | R     | -    | -                           |
| 13           | BY    | -    | -                           |

|                |                     |
|----------------|---------------------|
| Connector No.  | M4                  |
| Connector Name | DATA LINK CONNECTOR |
| Connector Type | BD16FW              |



|    |    |    |    |   |   |   |   |   |
|----|----|----|----|---|---|---|---|---|
| 11 | 14 | 15 | 16 | 3 | 4 | 5 | 6 | 8 |
|----|----|----|----|---|---|---|---|---|

| Terminal No. | Color | Wire | Signal Name [Specification] |
|--------------|-------|------|-----------------------------|
| 3            | LG    | -    | -                           |
| 4            | B     | -    | -                           |
| 5            | B     | -    | -                           |
| 6            | L     | -    | -                           |
| 8            | Y     | -    | -                           |
| 11           | SB    | -    | -                           |
| 14           | P     | -    | -                           |
| 15           | BR    | -    | -                           |
| 16           | W     | -    | -                           |

|                |                   |
|----------------|-------------------|
| Connector No.  | M34               |
| Connector Name | COMBINATION METER |
| Connector Type | TH40FW-NH         |



|   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

| Terminal No. | Color | Wire | Signal Name [Specification] |
|--------------|-------|------|-----------------------------|
| 1            | B     | -    | -                           |
| 7            | BG    | -    | -                           |
| 9            | GR    | -    | -                           |
| 15           | L     | -    | -                           |
| 17           | BG    | -    | -                           |
| 18           | SB    | -    | -                           |
| 20           | Y     | -    | -                           |
| 21           | L     | -    | -                           |
| 22           | Y     | -    | -                           |
| 23           | GR    | -    | -                           |
| 25           | V     | -    | -                           |

|    |    |                                              |
|----|----|----------------------------------------------|
| 28 | Y  | SEAT BELT BUCKLE SWITCH SIGNAL (DRIVER SIDE) |
| 30 | LG | MANUAL MODE SIGNAL                           |
| 31 | SB | NON-MANUAL MODE SIGNAL                       |
| 32 | BG | MANUAL MODE SHIFT UP SIGNAL                  |
| 33 | BR | MANUAL MODE SHIFT DOWN SIGNAL                |
| 36 | GR | ILLUMINATION CONTROL SWITCH SIGNAL (+)       |
| 37 | V  | ILLUMINATION CONTROL SWITCH SIGNAL (-)       |
| 38 | G  | VEHICLE SPEED SIGNAL (8-PULSE)               |
| 39 | W  | VEHICLE SPEED SIGNAL (2-PULSE)               |

|                |                   |
|----------------|-------------------|
| Connector No.  | M42               |
| Connector Name | COMBINATION METER |
| Connector Type | TH12FW-NH         |



|    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 |
|----|----|----|----|----|----|----|----|----|----|----|----|

| Terminal No. | Color | Wire | Signal Name [Specification] |
|--------------|-------|------|-----------------------------|
| 41           | L     | -    | -                           |
| 42           | P     | -    | -                           |
| 43           | W     | -    | -                           |
| 44           | LA/B  | -    | -                           |
| 45           | LA/G  | -    | -                           |
| 46           | LA/BR | -    | -                           |
| 47           | V     | -    | -                           |
| 48           | LG    | -    | -                           |
| 49           | Y     | -    | -                           |
| 50           | BG    | -    | -                           |
| 51           | LA/L  | -    | -                           |
| 52           | B     | -    | -                           |

|                |                   |
|----------------|-------------------|
| Connector No.  | M34               |
| Connector Name | COMBINATION METER |
| Connector Type | TH40FW-NH         |

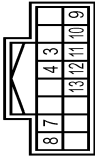


|   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

JRDWC2845GB

CVT CONTROL SYSTEM (GASOLINE ENGINE MODELS)

|                |                    |
|----------------|--------------------|
| Connector No.  | M52                |
| Connector Name | CVT SHIFT SELECTOR |
| Connector Type | TH6FW-NH           |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 3            | R             | -                           |
| 4            | B             | -                           |
| 7            | LG            | -                           |
| 8            | BR            | -                           |
| 9            | EG            | -                           |
| 10           | B             | -                           |
| 11           | SB            | -                           |
| 12           | L             | -                           |
| 13           | G             | -                           |

|                |                    |
|----------------|--------------------|
| Connector No.  | M324               |
| Connector Name | CVT SHIFT SELECTOR |
| Connector Type | TH6MW-NH           |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 3            | W             | -                           |
| 4            | P             | -                           |
| 7            | BR            | -                           |
| 8            | G             | - [LHD models]              |
| 8            | GR            | - [RHD models]              |
| 9            | G             | - [RHD models]              |
| 9            | GR            | - [LHD models]              |
| 10           | Y             | -                           |
| 11           | LW            | -                           |
| 12           | O             | -                           |
| 13           | LG            | -                           |

# CVT SHIFT LOCK SYSTEM

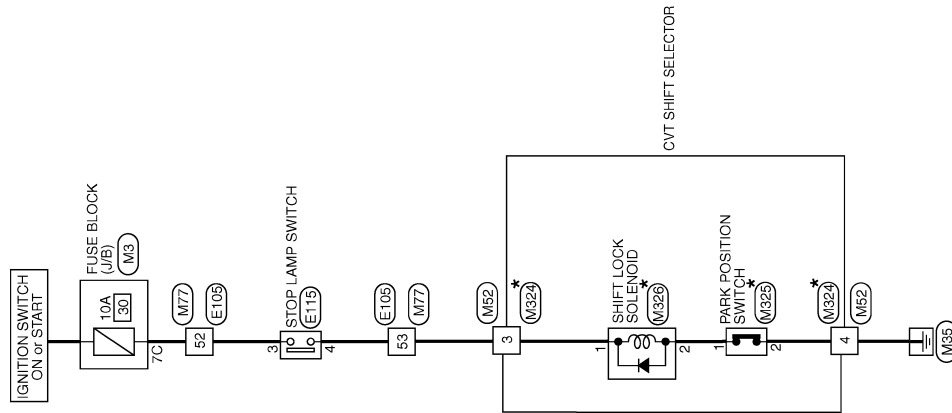
< WIRING DIAGRAM >

[CVT: RE0F10D]

## CVT SHIFT LOCK SYSTEM

### Wiring Diagram

INFOID:0000000010622476



\*: This connector is not shown in "Harness Layout".

CVT SHIFT LOCK SYSTEM

2014/03/17

JRDWC2854GB

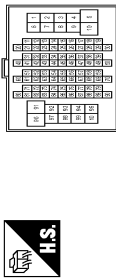
# CVT SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F10D]

## CVT SHIFT LOCK SYSTEM

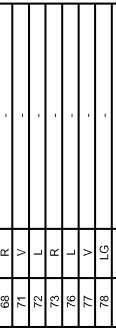
|                |                 |
|----------------|-----------------|
| Connector No.  | E105            |
| Connector Name | WIRE TO WIRE    |
| Connector Type | TH80FW-CS16-TM4 |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 2            | W             | -                           |
| 5            | V             | - [Without ISS]             |
| 5            | W             | - [With ISS]                |
| 8            | L             | -                           |
| 9            | LG            | -                           |
| 10           | W             | -                           |
| 20           | B             | -                           |
| 21           | B             | -                           |
| 22           | SHIELD        | -                           |
| 31           | Y             | -                           |
| 32           | W             | -                           |
| 33           | SB            | -                           |
| 34           | LG            | -                           |
| 35           | BG            | -                           |
| 36           | LG            | -                           |
| 37           | V             | -                           |
| 38           | G             | -                           |
| 39           | BR            | -                           |
| 40           | L             | -                           |
| 41           | P             | -                           |
| 47           | GR            | -                           |
| 48           | SB            | -                           |
| 51           | P             | -                           |
| 52           | L             | -                           |
| 53           | W             | -                           |
| 54           | Y             | -                           |
| 55           | BR            | -                           |
| 56           | P             | -                           |
| 57           | B             | -                           |
| 58           | L             | -                           |
| 59           | W             | -                           |
| 60           | G             | -                           |
| 61           | BR            | -                           |
| 62           | V             | -                           |
| 63           | BR            | -                           |

## CVT SHIFT LOCK SYSTEM

|                |   |
|----------------|---|
| Connector No.  | - |
| Connector Name | - |
| Connector Type | - |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 64           | GR            | -                           |
| 65           | LG            | -                           |
| 66           | BG            | -                           |
| 67           | L             | -                           |
| 68           | R             | -                           |
| 71           | V             | -                           |
| 72           | L             | -                           |
| 73           | R             | -                           |
| 76           | L             | -                           |
| 77           | V             | -                           |
| 78           | LG            | -                           |
| 79           | SHIELD        | -                           |
| 80           | GR            | -                           |
| 82           | Y             | -                           |
| 83           | SB            | -                           |
| 84           | L             | -                           |
| 85           | G             | -                           |
| 86           | Y             | -                           |
| 87           | B             | -                           |
| 88           | B             | -                           |
| 91           | R             | -                           |
| 92           | BR            | -                           |
| 93           | W             | -                           |
| 96           | GR            | -                           |
| 97           | R             | -                           |
| 98           | V             | -                           |
| 99           | Y             | -                           |

|                |                  |
|----------------|------------------|
| Connector No.  | E115             |
| Connector Name | STOP LAMP SWITCH |
| Connector Type | M04FW-LC         |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1            | V             | -                           |
| 2            | LG            | -                           |
| 3            | L             | -                           |
| 4            | W             | -                           |

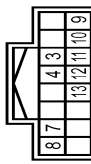
## CVT SHIFT LOCK SYSTEM

|                |                 |
|----------------|-----------------|
| Connector No.  | M3              |
| Connector Name | FUSE BLOCK (JB) |
| Connector Type | NS16FW-CS       |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 10C          | LG            | -                           |
| 13C          | LA/G          | -                           |
| 14C          | R             | -                           |
| 15C          | L             | -                           |
| 16C          | LA/W          | -                           |
| 1C           | R             | -                           |
| 2C           | G             | -                           |
| 3C           | Y             | -                           |
| 4C           | LG            | -                           |
| 5C           | GR            | -                           |
| 6C           | LA/R          | -                           |
| 7C           | Y             | -                           |
| 8C           | BR            | - [With ISS]                |
| 8C           | LA/BR         | - [Without ISS]             |
| 9C           | L             | -                           |

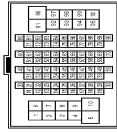
|                |                    |
|----------------|--------------------|
| Connector No.  | M52                |
| Connector Name | CVT SHIFT SELECTOR |
| Connector Type | TH16FW-NH          |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 3            | R             | -                           |
| 4            | B             | -                           |
| 7            | LG            | -                           |
| 8            | BR            | -                           |

|    |    |   |
|----|----|---|
| 9  | BG | - |
| 10 | B  | - |
| 11 | SB | - |
| 12 | L  | - |
| 13 | G  | - |

|                |                 |
|----------------|-----------------|
| Connector No.  | M77             |
| Connector Name | WIRE TO WIRE    |
| Connector Type | TH80MW-CS16-TM4 |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 2            | LA/R          | -                           |
| 5            | V             | - [Without ISS]             |
| 5            | W             | - [With ISS]                |
| 8            | G             | -                           |
| 9            | Y             | -                           |
| 10           | R             | -                           |
| 20           | W             | -                           |
| 21           | B             | -                           |
| 22           | SHIELD        | -                           |
| 31           | V             | -                           |
| 32           | GR            | -                           |
| 33           | G             | -                           |
| 34           | LG            | -                           |
| 35           | BG            | -                           |
| 36           | LG            | -                           |
| 37           | V             | -                           |
| 38           | G             | -                           |
| 39           | BR            | -                           |
| 40           | L             | -                           |
| 41           | P             | -                           |
| 47           | Y             | -                           |
| 48           | BG            | -                           |
| 51           | GR            | -                           |
| 52           | SB            | -                           |
| 53           | R             | -                           |
| 54           | LA/L          | -                           |
| 55           | BR            | -                           |
| 56           | P             | -                           |

# CVT SHIFT LOCK SYSTEM

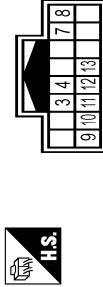
< WIRING DIAGRAM >

[CVT: RE0F10D]

## CVT SHIFT LOCK SYSTEM

|    |        |                 |
|----|--------|-----------------|
| 57 | B      | -               |
| 58 | L      | -               |
| 59 | W      | -               |
| 60 | LAR    | -               |
| 61 | P      | -               |
| 62 | V      | -               |
| 63 | LA/BR  | -               |
| 64 | Y      | -               |
| 65 | GR     | -               |
| 66 | BG     | -               |
| 67 | L      | -               |
| 68 | R      | -               |
| 71 | V      | -               |
| 72 | L      | -               |
| 73 | Y      | -               |
| 76 | L      | -               |
| 77 | V      | -               |
| 78 | LG     | -               |
| 79 | SHIELD | -               |
| 80 | L      | - [With ISS]    |
| 80 | LAL    | - [Without ISS] |
| 82 | GR     | -               |
| 83 | LG     | -               |
| 84 | SB     | -               |
| 85 | G      | -               |
| 86 | G      | -               |
| 87 | B      | -               |
| 88 | B      | -               |
| 91 | L      | -               |
| 92 | W      | -               |
| 93 | W      | -               |
| 96 | LG     | -               |
| 97 | BR     | -               |
| 98 | V      | -               |
| 99 | R      | -               |

|                |                    |
|----------------|--------------------|
| Connector No.  | M324               |
| Connector Name | CVT SHIFT SELECTOR |
| Connector Type | TH16MM-AH          |



|                |                     |
|----------------|---------------------|
| Connector No.  | M326                |
| Connector Name | SHIFT LOCK SOLENOID |
| Connector Type | TK02FW-2V           |



| Terminal No. | Color | Off Wire | Signal Name [Specification] |
|--------------|-------|----------|-----------------------------|
| 3            | W     | -        | -                           |
| 4            | P     | -        | -                           |
| 7            | BR    | -        | -                           |
| 8            | G     | -        | - [LHD models]              |
| 8            | GR    | -        | - [RHD models]              |
| 9            | G     | -        | - [RHD models]              |
| 9            | GR    | -        | - [LHD models]              |
| 10           | Y     | -        | -                           |
| 11           | L/W   | -        | -                           |
| 12           | O     | -        | -                           |
| 13           | LG    | -        | -                           |

| Terminal No. | Color | Off Wire | Signal Name [Specification] |
|--------------|-------|----------|-----------------------------|
| 1            | W     | -        | -                           |
| 2            | B     | -        | -                           |

|                |                      |
|----------------|----------------------|
| Connector No.  | M325                 |
| Connector Name | PARK POSITION SWITCH |
| Connector Type | TK02F                |



| Terminal No. | Color | Off Wire | Signal Name [Specification] |
|--------------|-------|----------|-----------------------------|
| 1            | B     | -        | -                           |
| 2            | P     | -        | -                           |

JRDWC2856GB

A  
B  
C  
TM  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORK FLOW

#### Work Flow

INFOID:000000010622477

#### NOTE:

"DTC" includes DTC at the 1st trip.

#### 1.OBTAIN INFORMATION ABOUT SYMPTOM

Refer to [TM-299, "Diagnostic Work Sheet"](#) and interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred) as much as possible when the customer brings in the vehicle.

>> GO TO 2.

#### 2.CHECK DTC

1. Before checking the malfunction, check whether any DTC exists.
2. If DTC exists, perform the following operations.
  - Records the DTCs. (Print out using CONSULT and affix to the Work Order Sheet.)
  - Erase DTCs.
  - Check the relation between the cause found by DTC and the malfunction information from customer. [TM-395, "Symptom Table"](#) can be used effectively.
3. Check the relevant information including STI, etc.

##### Do malfunction information and DTC exists?

Malfunction information and DTC exists.>>GO TO 3.

Malfunction information exists but no DTC.>>GO TO 4.

No malfunction information, but DTC exists.>>GO TO 5.

#### 3.REPRODUCE MALFUCTION SYSTEM

Check the malfunction described by the customer on the vehicle.

Check if the behavior is fail safe or normal operation. Refer to [TM-284, "Fail-safe"](#).

Interview sheet can be used effectively when reproduce malfunction conditions. Refer to [TM-299, "Diagnostic Work Sheet"](#).

Verify the relationship between the symptom and the conditions in which the malfunction described by the customer occurs.

>> GO TO 5.

#### 4.REPRODUCE MALFUNCTION SYMPTOM

Check the malfunction described by the customer on the vehicle.

Check if the behavior is fail safe or normal operation. Refer to [TM-284, "Fail-safe"](#).

Interview sheet can be used effectively when reproduce malfunction conditions. Refer to [TM-299, "Diagnostic Work Sheet"](#).

Verify the relationship between the symptom and the conditions in which the malfunction described by the customer occurs.

>> GO TO 6.

#### 5.PERFORM "DTC CONFIRMATION PROCEDURE"

Perform "DTC CONFIRMATION PROCEDURE" of the appropriate DTC to check if DTC is detected again.

Refer to [TM-287, "DTC Inspection Priority Chart"](#) when multiple DTCs are detected, and then determine the order for performing the diagnosis.

##### Is any DTC detected?

YES >> GO TO 7.

NO >> Follow [GI-44, "Intermittent Incident"](#) to check.

#### 6.IDENTIFY MALFUNCTIONING SYSTEM WITH "DIAGNOSIS CHART BY SYMPTOM"

# DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[CVT: RE0F10D]

Use [TM-395, "Symptom Table"](#) from the symptom inspection result in step 4. Then identify where to start performing the diagnosis based on possible causes and symptoms.

>> GO TO 8.

## 7. REPAIR OR REPLACE THE MALFUNCTIONING PARTS

Repair or replace the detected malfunctioning parts.

Reconnect parts or connector after repairing or replacing, and then erase DTC if necessary.

>> GO TO 8.

## 8. FINAL CHECK

Perform "DTC CONFIRMATION PROCEDURE" again to make sure that the repair is correctly performed. Check that malfunctions are not reproduced when obtaining the malfunction information from the customer, referring to the symptom inspection result in step 3 or 4.

Is DTC or malfunction symptom reproduced?

YES-1 (DTC is reproduced.)>>GO TO 5.

YES-2 (Malfunction is reproduced.)>>GO TO 6.

NO >> Before delivering the vehicle to the customer, make sure that DTC is erased.

## Diagnostic Work Sheet

INFOID:0000000010622478

### DESCRIPTION

There are many operating conditions that may cause a malfunction of the transmission parts. By understanding those conditions properly, a quick and exact diagnosis can be achieved.

In general, perception of a problem varies depending on individuals. Ask the customer about his/her concerns carefully. It is important to understand the phenomenon or status. To systemize all the information for the diagnosis, prepare the question sheet referring to the question points.

In some cases, multiple conditions that appear simultaneously may cause a DTC to be detected.

### KEY POINTS

**WHAT** ..... Vehicle & engine model  
**WHEN** ..... Date, Frequencies  
**WHERE**..... Road conditions  
**HOW** ..... Operating conditions,  
Weather conditions,  
Symptoms

SEF907L

### Worksheet Sample

| Question sheet          |                |                                                                                                                                                                                                     |  |                           |                |
|-------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------|----------------|
| Customer's name         | MR/MS          | Registration number                                                                                                                                                                                 |  | Initial year registration | Year Month day |
|                         |                | Vehicle type                                                                                                                                                                                        |  | Chassis No.               |                |
| Storage date            | Year Month day | Engine                                                                                                                                                                                              |  | Mileage                   | km/mile        |
| Symptom                 |                | <input type="checkbox"/> Vehicle does not start. ( <input type="checkbox"/> R position <input type="checkbox"/> D position <input type="checkbox"/> L position <input type="checkbox"/> M position) |  |                           |                |
|                         |                | <input type="checkbox"/> Upshifting does not occur. <input type="checkbox"/> Downshifting does not occur.                                                                                           |  |                           |                |
|                         |                | <input type="checkbox"/> Lock-up malfunction                                                                                                                                                        |  |                           |                |
|                         |                | <input type="checkbox"/> Shift point is too high. <input type="checkbox"/> Shift point is too low.                                                                                                  |  |                           |                |
|                         |                | <input type="checkbox"/> Shift shock ( <input type="checkbox"/> N⇒D <input type="checkbox"/> Lock-up <input type="checkbox"/> R, D, L, and M)                                                       |  |                           |                |
|                         |                | <input type="checkbox"/> Slip ( <input type="checkbox"/> N⇒D <input type="checkbox"/> Lock-up <input type="checkbox"/> R, D, L, and M)                                                              |  |                           |                |
|                         |                | <input type="checkbox"/> Noise <input type="checkbox"/> Vibration                                                                                                                                   |  |                           |                |
|                         |                | When selector lever position is shifted, shift pattern does not change.                                                                                                                             |  |                           |                |
|                         |                | <input type="checkbox"/> Other ( )                                                                                                                                                                  |  |                           |                |
| First occurrence        |                | <input type="checkbox"/> Recently (as from month of year )                                                                                                                                          |  |                           |                |
| Frequency of occurrence |                | <input type="checkbox"/> Always <input type="checkbox"/> Under certain conditions <input type="checkbox"/> Sometimes ( time(s)/day)                                                                 |  |                           |                |

# DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[CVT: RE0F10D]

| Question sheet            |       |                                                                                                                                                                                                                                                                                                                                                              |        |                           |         |           |
|---------------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------------------------|---------|-----------|
| Customer's name           | MR/MS | Registration number                                                                                                                                                                                                                                                                                                                                          |        | Initial year registration | Year    | Month day |
|                           |       | Vehicle type                                                                                                                                                                                                                                                                                                                                                 |        | Chassis No.               |         |           |
| Storage date              | Year  | Month day                                                                                                                                                                                                                                                                                                                                                    | Engine |                           | Mileage | km/mile   |
| Climate conditions        |       | Irrelevant                                                                                                                                                                                                                                                                                                                                                   |        |                           |         |           |
| Weather                   |       | <input type="checkbox"/> Clear <input type="checkbox"/> Cloud <input type="checkbox"/> Rain <input type="checkbox"/> Snow <input type="checkbox"/> Others    )                                                                                                                                                                                               |        |                           |         |           |
| Temperature               |       | <input type="checkbox"/> Hot <input type="checkbox"/> Warm <input type="checkbox"/> Cool <input type="checkbox"/> Cold <input type="checkbox"/> Temperature (Approx. °C/°F)                                                                                                                                                                                  |        |                           |         |           |
| Relative humidity         |       | <input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low                                                                                                                                                                                                                                                                 |        |                           |         |           |
| Transaxle condition       |       | <input type="checkbox"/> In cold-start <input type="checkbox"/> During warm-up (approx. °C/°F) <input type="checkbox"/> After warm-up<br><input type="checkbox"/> Engine speed:    rpm                                                                                                                                                                       |        |                           |         |           |
| Road conditions           |       | <input type="checkbox"/> Urban area <input type="checkbox"/> Suburb area <input type="checkbox"/> Highway<br><input type="checkbox"/> Mountainous road (uphill or downhill)                                                                                                                                                                                  |        |                           |         |           |
| Operating condition, etc. |       | Irrelevant<br><input type="checkbox"/> When engine starts <input type="checkbox"/> During idling <input type="checkbox"/> During driving<br><input type="checkbox"/> During acceleration <input type="checkbox"/> At constant speed driving <input type="checkbox"/> During deceleration<br><input type="checkbox"/> During cornering (RH curve or LH curve) |        |                           |         |           |
| Other conditions          |       |                                                                                                                                                                                                                                                                                                                                                              |        |                           |         |           |



# ADDITIONAL SERVICE WHEN REPLACING TCM

< BASIC INSPECTION >

[CVT: RE0F10D]

## ADDITIONAL SERVICE WHEN REPLACING TCM

### Description

INFOID:0000000010622479

Always perform the following items when the TCM is replaced.

#### TCM PROGRAMMING

- Since vehicle specifications are not yet written in a new TCM, it is necessary to write them with CONSULT.

#### CAUTION:

**When replacing TCM, save TCM data on CONSULT before removing TCM.**

#### SAVING AND WRITING OF TCM DATA

- TCM performs accurate control by retrieving data (inherent characteristic value) of each solenoid. For this reason, it is necessary to save data of current TCM in CONSULT before replacing the TCM. After this, the saved data must be written in new TCM.

### Work Procedure

INFOID:0000000010622480

#### 1.SAVE TCM DATA (IP CHARACTERISTICS VALUE)

##### NOTE:

Save necessary data stored in TCM in CONSULT according to the following instructions:

##### With CONSULT

1. Turn ignition switch OFF.
2. Connect all of disconnected connectors.
3. Turn ignition switch ON.
4. Select "Work Support" in "TRANSMISSION".
5. Select "READ IP CHARA - REPLACEMENT TCM".
6. Import data according to the instructions on the CONSULT screen.

>> GO TO 2.

#### 2.SAVE TCM DATA (VEHICLE SPECIFICATIONS)

##### NOTE:

Save necessary data stored in TCM in CONSULT according to the following instructions:

##### With CONSULT

1. Turn ignition switch OFF.
2. Turn ignition switch ON.
3. Select "Re/programming, Configuration".
4. Select "AT/CVT".

##### NOTE:

If "AT/CVT" is not displayed and TCM data cannot be saved on CONSULT, GO TO 3.

5. Select "Programming".
6. Save TCM data on CONSULT according to the CONSULT display.

>> GO TO 3.

#### 3.REPLACE TCM

1. Turn ignition switch OFF and wait for 10 seconds.
2. Replace TCM. Refer to [TM-415. "Removal and Installation"](#).

>> GO TO 4.

#### 4.WRITE TCM DATA (VEHICLE SPECIFICATIONS)

##### NOTE:

Write data saved in CONSULT into a new TCM according to the following instructions:

##### With CONSULT

1. Select "Programming".
2. Perform programming according to the CONSULT display.

## ADDITIONAL SERVICE WHEN REPLACING TCM

< BASIC INSPECTION >

[CVT: RE0F10D]

>> GO TO 5.

### 5. WRITE TCM DATA (IP CHARACTERISTICS VALUE)

#### NOTE:

Write data saved in CONSULT into a new TCM according to the following instructions:

#### With CONSULT

1. Turn ignition switch OFF and wait for 10 seconds.
2. Turn ignition switch ON.
3. Select "Work Support" in "TRANSMISSION".
4. Select "WRITE IP CHARA - REPLACEMENT TCM".
5. Write data saved in CONSULT in TCM according to the instructions on the CONSULT screen.

>> WORK END

# ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F10D]

## ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

### Description

INFOID:0000000010622481

Perform the following work after the transaxle assembly is replaced.

#### WRITING TCM DATA

- TCM performs accurate control by retrieving data (inherent characteristic value) of each solenoid. For this reason, after replacing transaxle assembly, it is necessary to write new data in TCM.

#### ERASING OF CVT FLUID DEGRADATION LEVEL DATA

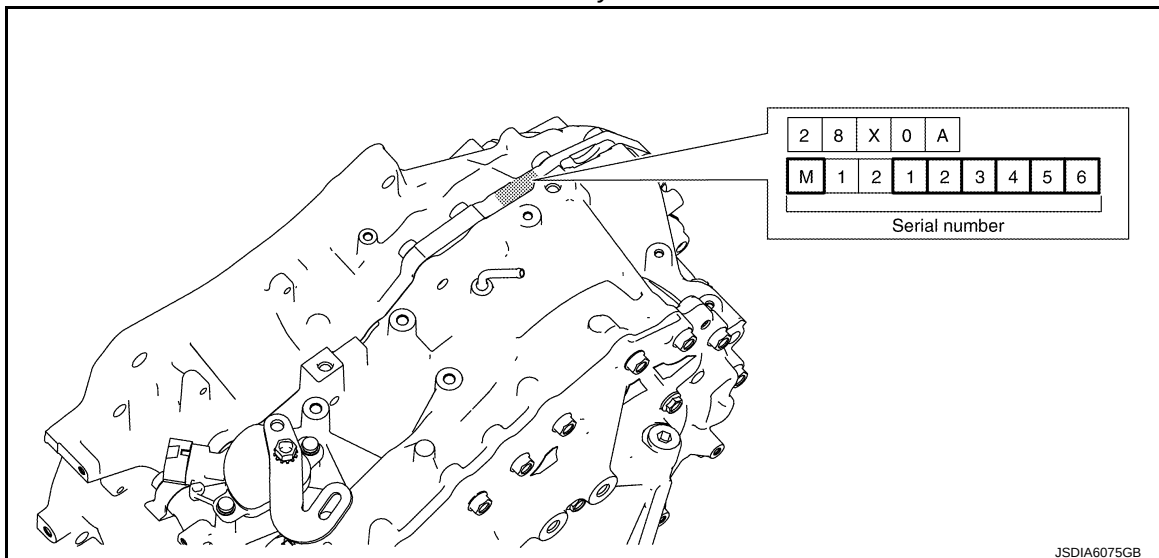
- TCM records the degradation level of the CVT fluid calculated from the vehicle driving status. Therefore, if the transaxle assembly is replaced, it is necessary to erase the CVT fluid degradation level data recorded by TCM.

### Work Procedure

INFOID:0000000010622482

#### 1.CHECK THE SERIAL NUMBER

Write down the serial number of new transaxle assembly.



>> GO TO 2.

#### 2.WRITE TCM DATA (IP CHARACTERISTICS VALUE)

##### NOTE:

Write data of new solenoid in TCM according to the following instructions:

With CONSULT

##### CAUTION:

**When the work is interrupted, obtain data again from the supplied CD.**

1. Shift the selector lever to the P position.
2. Turn ignition switch OFF and wait for 10 seconds.
3. Turn ignition switch ON.
4. Insert the supplied CD into CONSULT.
5. Select "Work Support" in "TRANSMISSION".
6. Select "WRITE IP CHARA - REPLACEMENT AT/CVT".
7. Check that the serial number displayed on CONSULT screen and those written in the memo agree.
8. Write data in TCM according to the instructions on the CONSULT screen.

##### NOTE:

When writing is complete, the shift position indicator of the combination meter displays P.

>> GO TO 3.

#### 3.ERASE CVT FLUID DEGRADATION LEVEL DATA

## ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F10D]

---

### ⑧ With CONSULT

1. Select "WORK SUPPORT" in "TRANSMISSION".
2. Select "CONFORM CVTF DETERIORATION".
3. Touch "Clear".

>> WORK END

# ADDITIONAL SERVICE WHEN REPLACING TCM AND TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F10D]

## ADDITIONAL SERVICE WHEN REPLACING TCM AND TRANSAXLE ASSEMBLY

### Description

INFOID:0000000110622483

When replacing TCM and transaxle assembly simultaneously, perform the following work.

#### TCM PROGRAMMING

- Since vehicle specifications are not yet written in a new TCM, it is necessary to write them with CONSULT.

#### CAUTION:

When replacing TCM, save TCM data on CONSULT before removing TCM.

#### WRITING TCM DATA

- TCM performs accurate control by retrieving data (inherent characteristic value) of each solenoid. For this reason, after replacing TCM and transaxle assembly, it is necessary to write new data in TCM.

### Work Procedure

INFOID:0000000110622484

#### 1.SAVE TCM DATA (VEHICLE SPECIFICATIONS)

##### With CONSULT

- Turn ignition switch OFF.
- Connect all of disconnected connectors.
- Turn ignition switch ON.
- Select "Re/programming, Configuration".
- Select "AT/CVT".

#### NOTE:

If "AT/CVT" is not displayed and TCM data cannot be saved on CONSULT, GO TO 2.

- Select "Programming".
- Save TCM data on CONSULT according to the CONSULT display.

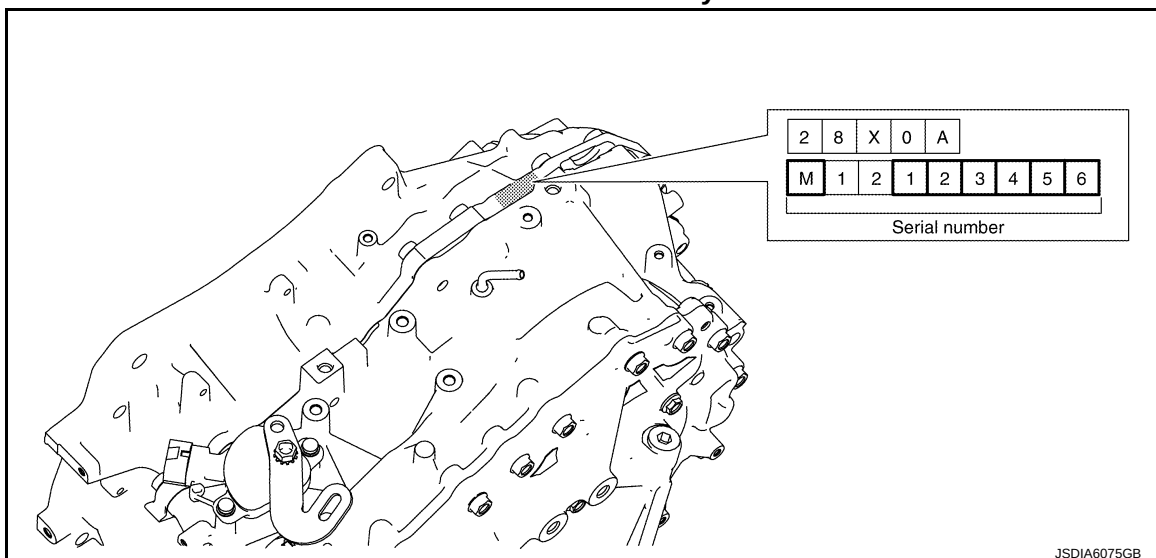
>> GO TO 2.

#### 2.REPLACE TCM AND TRANSAXLE ASSEMBLY

- Turn ignition switch OFF and wait for 10 seconds.
- Replace TCM and transaxle assembly. Refer to [TM-415. "Removal and Installation"](#) (TCM), [TM-450. "Removal and Installation"](#) (Transaxle assembly).

#### CAUTION:

Write down the serial number of new transaxle assembly.



>> GO TO 3.

# ADDITIONAL SERVICE WHEN REPLACING TCM AND TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F10D]

---

## 3. WRITE TCM DATA (VEHICLE SPECIFICATIONS)

---

### NOTE:

Write data saved in CONSULT into a new TCM according to the following instructions:

#### With CONSULT

1. Select "Programming".
2. Perform programming according to the CONSULT display.

>> GO TO 4.

---

## 4. WRITE TCM DATA (IP CHARACTERISTICS VALUE)

---

### NOTE:

Write data of new solenoid in TCM according to the following instructions:

#### With CONSULT

#### CAUTION:

**When the work is interrupted, obtain data again from the supplied CD.**

1. Shift the selector lever to the P position.
2. Turn ignition switch OFF and wait for 10 seconds.
3. Turn ignition switch ON.
4. Insert the supplied CD into CONSULT.
5. Select "Work Support" in "TRANSMISSION".
6. Select "WRITE IP CHARA - REPLACEMENT AT/CVT".
7. Check that the serial number displayed on CONSULT screen and those written in the memo agree.
8. Write data in TCM according to the instructions on the CONSULT screen.

### NOTE:

When writing is complete, the shift position indicator of the combination meter displays P.

>> WORK END

# STALL TEST

< BASIC INSPECTION >

[CVT: RE0F10D]

## STALL TEST

### Work Procedure

INFOID:000000010622485

### INSPECTION

1. Check the engine oil level. Replenish if necessary. Refer to [LU-9, "Inspection"](#) (MR20DD), [LU-25, "Inspection"](#) (QR25DE).
2. Check for leak of the CVT fluid. Refer to [TM-399, "Inspection"](#).
3. Drive for about 10 minutes to warm up the vehicle so that the CVT fluid temperature is 50 to 80°C (122 to 176°F).
4. Be sure to apply the parking brake and block the tires.
5. Start the engine, depress the brake pedal and put the selector lever to the D position.
6. While depressing the brake pedal, depress the accelerator pedal gradually.
7. Read the stall speed quickly. Then, release your foot from the accelerator pedal quickly.

#### CAUTION:

**Do not depress the accelerator pedal for 5 seconds or more during the test.**

**Stall speed** : Refer to [TM-456, "Stall Speed"](#).

8. Place the selector lever in the N position.
9. Cool the CVT fluid.
- CAUTION:**  
**Run the engine with the idle speed for at least 1 minute.**
10. Put the selector lever to the R position and perform Step 6 to Step 9 again.

### NARROWING-DOWN MALFUNCTIONING PARTS

|             | Selector lever position |   | Possible cause                                                                    |
|-------------|-------------------------|---|-----------------------------------------------------------------------------------|
|             | D                       | R |                                                                                   |
| Stall speed | H                       | O | • Forward clutch                                                                  |
|             | O                       | H | • Reverse brake                                                                   |
|             | L                       | L | • Engine<br>• Torque converter one way clutch                                     |
|             | H                       | H | • Line pressure is low.<br>• Primary pulley<br>• Secondary pulley<br>• Steel belt |

O: Within the stall speed standard value.

H: Stall speed is higher than the standard value.

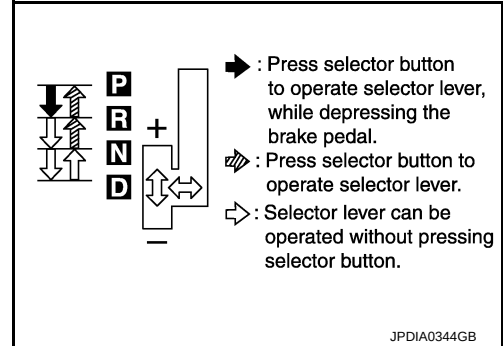
L: Stall speed is lower than the standard value.

## CVT POSITION

## Inspection

INFOID:000000010622486

1. Turn ON the ignition switch with the shift selector at the "P" position.
2. Press the shift selector button with the brake pedal depressed, and confirm that the shift selector can be moved to positions other than "P". Also confirm that movement is not allowed from the "P" position to other position without depressing the brake pedal.
3. Move the shift selector and check for "excessive effort", "sticking", "noise" or "rattle".
4. Confirm that shift selector stops at each position with the feel of engagement when it is moved through all the positions. Check whether or not the actual position the shift selector is in matches the position shown by the transaxle body.
5. Make sure that the shift selector is moved to all the shift positions in the manner shown.
6. When the shift selector button is pressed without applying forward/backward force to the shift selector at "P", "R", "N", or "D" positions, there should be no "sticking" on the shift selector button operation.
7. The relationship between selector lever, engine starting ability, and shift position indicator lighting should satisfy the conditions of the following table.



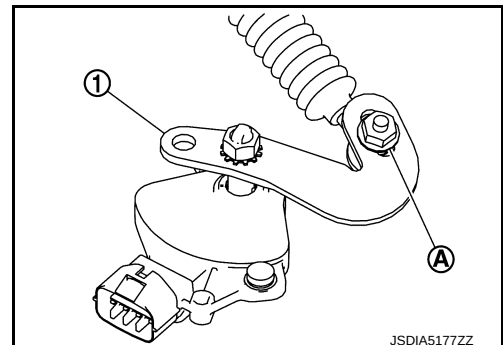
| Selector lever position | Load direction to the selector lever | Applied load to the selector lever | Engine starting ability | Shift position indicator lighting |
|-------------------------|--------------------------------------|------------------------------------|-------------------------|-----------------------------------|
| P                       | P (over stroke) ← P → R              | 30 N (3.1 kg, 6.7 lb)              | Start                   | P indicator shall be illuminated  |
| R                       | P ← R                                |                                    | Not start               | R indicator shall be illuminated  |
| N                       | R ← N                                |                                    | Start                   | N indicator shall be illuminated  |
| D                       | —                                    | —                                  | Not start               | —                                 |

8. Confirm that the back-up lamps illuminate only when lever is placed in the "R" position. Confirm that the back-up lamps does not illuminate when selector lever is pushed against "R" position in the "P" or "N" position.
9. Check that the transaxle is locked when the selector lever is in the "P" position.
10. When selector lever is set to manual shift gate, make sure that manual mode is displayed on combination meter. Shift selector lever to "+" and "-" sides, and check that set shift position changes.

## Adjustment

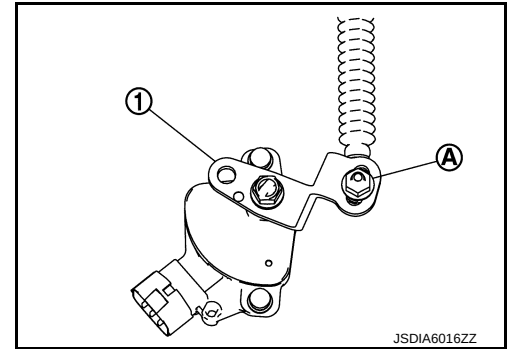
INFOID:000000010622487

1. Shift the selector lever to the "P" position.  
**CAUTION:**  
 Rotate the wheels at least a quarter turn and be certain the Park position mechanism is fully engaged.
2. Loosen nut ① and set manual lever ① to the "P" position.  
**CAUTION:**  
 Never apply force to the manual lever.  
 • MR20DD models





- QR25DE models



3. Tighten the nut to the specified torque. Refer to [TM-406, "MR20DD : Exploded View"](#) (MR20DD), [TM-409, "QR25DE : Exploded View"](#) (QR25DE).

**CAUTION:**

**In tightening, fix the manual lever.**

# U0073 COMMUNICATION BUS A OFF

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## DTC/CIRCUIT DIAGNOSIS

### U0073 COMMUNICATION BUS A OFF

#### DTC Description

INFOID:0000000010622488

#### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)        | DTC detection condition                                                                                                      |
|-------|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| U0073 | COMM BUS A OFF<br>(Control Module Communication Bus A Off) | TCM communication blockage lasts for 2 seconds or more when turning ON the ignition switch. (Communication not established.) |

#### POSSIBLE CAUSE

Harness or connector (CAN communication line is error)

#### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

#### DTC CONFIRMATION PROCEDURE

##### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

##### 2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

##### Is "U0073" detected?

YES >> Go to [TM-310, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

#### Diagnosis Procedure

INFOID:0000000010622489

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

# U0100 LOST COMMUNICATION (ECM A)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## U0100 LOST COMMUNICATION (ECM A)

### DTC Description

INFOID:0000000010622490

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)      | DTC detection condition                                                                                                             |
|-------|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| U0100 | LOST COMM (ECM A)<br>(Lost Communication With ECM/PCM A) | When the ignition switch is ON, TCM is unable to receive the CAN communications signal from ECM continuously for 2 seconds or more. |

### POSSIBLE CAUSE

- ECM
- Harness or connector (CAN communication line is open or shorted)

### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

#### Is "U0100" detected?

- YES >> Go to [TM-311, "Diagnosis Procedure"](#).
- NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).
- NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622491

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

## U0102 LOST COMMUNICATION (TRANSFER)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

### U0102 LOST COMMUNICATION (TRANSFER)

#### DTC Description

INFOID:0000000010622492

#### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                            | DTC detection condition                                                                                                                          |
|-------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| U0102 | LOST COMM (TRANSFER)<br>(Lost Communication With Transfer Case Control Module) | When the ignition switch is ON, TCM is unable to receive the CAN communications signal from AWD control unit continuously for 2 seconds or more. |

#### POSSIBLE CAUSE

- AWD control unit
- Harness or connector (CAN communication line is open or shorted)

#### FAIL-SAFE

Not changed from normal driving

#### DTC CONFIRMATION PROCEDURE

##### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

##### 2. PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

##### Is "U0102" detected?

YES >> Go to [TM-312, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

#### Diagnosis Procedure

INFOID:0000000010622493

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

# U0140 LOST COMMUNICATION (BCM)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## U0140 LOST COMMUNICATION (BCM)

### DTC Description

INFOID:000000010622494

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)              | DTC detection condition                                                                                                             |
|-------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| U0140 | LOST COMM (BCM)<br>(Lost Communication With Body Control Module) | When the ignition switch is ON, TCM is unable to receive the CAN communications signal from BCM continuously for 2 seconds or more. |

### POSSIBLE CAUSE

- BCM
- Harness or connector (CAN communication line is open or shorted)

### FAIL-SAFE

Not changed from normal driving

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

##### Is "U0140" detected?

YES >> Go to [TM-313, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:000000010622495

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

# U0141 LOST COMMUNICATION (BCM A)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## U0141 LOST COMMUNICATION (BCM A)

### DTC Description

INFOID:0000000010622496

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                  | DTC detection condition                                                                                                                |
|-------|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| U0141 | LOST COMM (BCM A)<br>(Lost Communication With Body Control Module A) | When the ignition switch is turned ON, TCM continues no reception of the CAN communication signal from IPDM E/R for 2 seconds or more. |

### POSSIBLE CAUSE

- IPDM E/R
- Harness or connector (CAN communication line is open or shorted)

### FAIL-SAFE

Not changed from normal driving

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

##### Is "U0141" detected?

YES >> Go to [TM-314, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622497

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

# U0155 LOST COMMUNICATION (IPC)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## U0155 LOST COMMUNICATION (IPC)

### DTC Description

INFOID:000000010622498

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>[Trouble diagnosis content]                                           | DTC detection condition                                                                                                                               |
|-------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| U0155 | LOST COMM (IPC)<br>[Lost Communication With Instrument Panel<br>Cluster (IPC) Control Module] | When the ignition switch is ON, TCM is unable to receive the CAN communications signal from the combination meter continuously for 2 seconds or more. |

### POSSIBLE CAUSE

- Combination meter
- Harness or connector (CAN communication line is open or shorted)

### FAIL-SAFE

Not changed from normal driving

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

##### Is "U0155" detected?

- YES >> Go to [TM-315, "Diagnosis Procedure"](#).
- NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).
- NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:000000010622499

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

## U0300 CAN COMMUNICATION DATA

## DTC Description

INFOID:000000010622500

## DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                 | DTC detection condition                                                                                                                                                 |
|-------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| U0300 | CAN COMM DATA<br>(Internal Control Module Software Incompatibility) | When the ignition switch is ON, the data length transmitted from each control unit is shorter than the specified length and the status continues for 2 seconds or more. |

## POSSIBLE CAUSE

Control unit other than TCM

## FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

## DTC CONFIRMATION PROCEDURE

## 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

&gt;&gt; GO TO 2.

## 2. CHECK DTC DETECTION

 With CONSULT

1. Start the engine and wait for 5 seconds or more.
2. Check the DTC.

Is "U0300" detected?YES >> Go to [TM-316, "Diagnosis Procedure"](#).NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 &gt;&gt; Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:000000010622501

## 1. CONTROL UNIT CHECK

Check the number of control units replaced before "U0300" is detected.

Is one control unit replaced?

YES &gt;&gt; The specification of the control unit replaced may be incorrect. Check the part number and the specification.

NO &gt;&gt; GO TO 2.

## 2. CONTROL UNIT CHECK

 With CONSULT

1. Remove one of the control unit replaced.
2. Assemble the old control unit before replacement.
3. Turn ignition switch ON, and wait for 2 seconds or more.
4. Select "Self Diagnostic Results" in "TRANSMISSION".

Is "U0300" detected?

YES &gt;&gt; Turn OFF the ignition switch and check other control units in the same manner.

NO &gt;&gt; The specification of the control unit removed may be incorrect. Check the part number and the specification.



## U1000 CAN COMM CIRCUIT

### DTC Description

INFOID:0000000010622502

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent malfunction detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                                                                          |
|-------|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| U1000 | CAN COMM CIRCUIT<br>(CAN Communication Line)        | When the ignition switch is ON, TCM cannot send the CAN communication signal continuously for 2 seconds or more. |

### POSSIBLE CAUSE

Harness or connector (CAN communication line is open or shorted)

### FAIL-SAFE

Not changed from normal driving

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

##### With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

##### Is "U1000" detected?

- YES >> Go to [TM-317, "Diagnosis Procedure"](#).  
 NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
 NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622503

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

# U110F LOST COMMUNICATION (ECM)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## U110F LOST COMMUNICATION (ECM)

### DTC Description

INFOID:0000000010622504

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                                                                                             |
|-------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| U110F | LOST COMM (ECM)<br>(Lost Communication With ECM)    | When the ignition switch is ON, TCM is unable to receive the CAN communications signal from ECM continuously for 2 seconds or more. |

### POSSIBLE CAUSE

- ECM
- Harness or connector (CAN communication line is open or shorted)

### FAIL-SAFE

Not changed from normal driving

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

##### Is "U110F" detected?

- YES >> Go to [TM-318, "Diagnosis Procedure"](#).
- NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).
- NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622505

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

# U1111 LOST COMMUNICATION (CHASSIS CONTROL MODULE)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## U1111 LOST COMMUNICATION (CHASSIS CONTROL MODULE)

### DTC Description

INFOID:000000010622506

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                               | DTC detection condition                                                                                                                                |
|-------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| U1111 | LOST COMM (CHASSIS CONT MDUL)<br>(Lost Communication With Chassis Control Module) | When the ignition switch is ON, TCM is unable to receive the CAN communications signal from chassis control module continuously for 2 seconds or more. |

### POSSIBLE CAUSE

- Chassis control module
- Harness or connector (CAN communication line is open or shorted)

### FAIL-SAFE

Not changed from normal driving

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

##### Is "U1111" detected?

YES >> Go to [TM-319, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:000000010622507

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

# U1117 LOST COMMUNICATION (ABS)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## U1117 LOST COMMUNICATION (ABS)

### DTC Description

INFOID:000000010622508

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                                                                                                                                       |
|-------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| U1117 | LOST COMM (ABS)<br>(Lost Communication With ABS)    | When the ignition switch is ON, TCM is unable to receive the CAN communications signal from ABS actuator and electric unit (control unit) continuously for 2 seconds or more. |

### POSSIBLE CAUSE

- ABS actuator and electric unit (control unit)
- Harness or connector (CAN communication line is open or shorted)

### FAIL-SAFE

Not changed from normal driving

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Start the engine and wait for 5 seconds or more.
2. Check the DTC.

##### Is "U1117" detected?

- YES >> Go to [TM-320, "Diagnosis Procedure"](#).
- NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).
- NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:000000010622509

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

## P062F EEPROM

## DTC Description

INFOID:000000010622510

TCM compares the calculated value stored in the flash ROM with the value stored in TCM. If the calculated value does not agree with the stored value, TCM judges this as a malfunction.

## DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                          |
|-------|-----------------------------------------------------|------------------------------------------------------------------|
| P062F | EEPROM<br>(Internal Control Module EEPROM Error)    | Flash ROM error is detected when turning ON the ignition switch. |

## POSSIBLE CAUSE

- TCM (Flash ROM)
- Harness or connector [TCM power supply (back-up) circuit is open or shorted]

## FAIL-SAFE

Not changed from normal driving

## DTC CONFIRMATION PROCEDURE

**1.**PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

**2.**CHECK DTC DETECTION

1. Start the engine.
2. Check the DTC.

Is "P062F" detected?

- YES >> Go to [TM-321, "Diagnosis Procedure"](#).  
 NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
 NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:000000010622511

**1.**REPLACE TCM

Replace the TCM. Refer to [TM-415, "Removal and Installation"](#).

>> WORK END

# P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P0705 TRANSMISSION RANGE SENSOR A

### DTC Description

INFOID:0000000010622512

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                       | DTC detection condition                                                                                                                                                                                                                                           |
|-------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0705 | T/M RANGE SENSOR A<br>[Transmission Range Sensor A Circuit (PRNDL Input)] | When all of the following conditions are satisfied and this state is maintained for 2 seconds: <ul style="list-style-type: none"><li>• Two or more range signals simultaneously stay ON continuously</li><li>• TCM power supply voltage: More than 11 V</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Short circuit between transmission range switch and TCM)
- Transmission range switch

### FAIL-SAFE

- Shift position indicator on combination meter is not displayed
- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Turn ignition switch ON.
2. Shift the selector lever through entire positions from "P" to "D". (Hold the selector lever at each position for 5 seconds or more.)
3. Check the first trip DTC.

##### Is "P0705" detected?

YES >> Go to [TM-322, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622513

#### 1. CHECK TCM INPUT SIGNALS

##### With CONSULT

1. Turn ignition switch ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "D POSITION SW", "N POSITION SW", "R POSITION SW", and "P POSITION SW".
4. Shift the selector lever through entire positions from "P" to "D" and check ON/OFF of each monitor item.

| Monitor item  | Condition                    | Condition |
|---------------|------------------------------|-----------|
| D POSITION SW | Selector lever: "D" position | On        |
|               | Other than the above         | Off       |
| N POSITION SW | Selector lever: "N" position | On        |
|               | Other than the above         | Off       |

# P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

| Monitor item  | Condition                    | Condition |
|---------------|------------------------------|-----------|
| R POSITION SW | Selector lever: "R" position | On        |
|               | Other than the above         | Off       |
| P POSITION SW | Selector lever: "P" position | On        |
|               | Other than the above         | Off       |

## ⊗ Without CONSULT

- Turn ignition switch OFF.
- Disconnect TCM connector.
- Turn ignition switch ON.
- Shift the selector lever from "P" to "D" and check voltage between TCM harness connector terminals and ground.

| +         |          | –      | Condition                    | Voltage     |
|-----------|----------|--------|------------------------------|-------------|
| TCM       |          |        |                              |             |
| Connector | Terminal |        |                              |             |
| F23       | 4        | Ground | Selector lever: “D” position | 10 – 16 V   |
|           |          |        | Other than the above         | Approx. 0 V |
|           | 5        |        | Selector lever: “N” position | 10 – 16 V   |
|           |          |        | Other than the above         | Approx. 0 V |
|           | 6        |        | Selector lever: “R” position | 10 – 16 V   |
|           |          |        | Other than the above         | Approx. 0 V |
|           | 7        |        | Selector lever: “P” position | 10 – 16 V   |
|           |          |        | Other than the above         | Approx. 0 V |

Is the inspection result normal?

YES >> INSPECTION END

NO-1 ["D POSITION SW" is "ON" when selector is not in "D" position. (Or connector terminal 4 is at power voltage.)]>>GO TO 2.

NO-2 ["N POSITION SW" is "ON" when selector is not in "N" position. (Or connector terminal 5 is at power voltage.)]>>GO TO 4.

NO-3 ["R POSITION SW" is "ON" when selector is not in "R" position. (Or connector terminal 6 is at power voltage.)]>>GO TO 6.

NO-4 ["P POSITION SW" is "ON" when selector is not in "P" position. (Or connector terminal 7 is at power voltage.)]>>GO TO 8.

## 2.CHECK D POSITION SW CIRCUIT (PART 1)

- Turn ignition switch OFF.
- Disconnect TCM connector.
- Check continuity between TCM harness connector terminals.

| TCM       |          |   | Continuity  |
|-----------|----------|---|-------------|
| Connector | Terminal |   |             |
| F23       | 4        | 2 | Not existed |
|           |          | 5 |             |
|           |          | 6 |             |
|           |          | 7 |             |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

## 3.CHECK D POSITION SW CIRCUIT (PART 2)

- Disconnect transmission range switch connector.

## P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

2. Turn ignition switch ON.
3. Check voltage between TCM harness connector terminal and ground.

| +         |          | −      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| TCM       |          |        |                      |
| Connector | Terminal |        |                      |
| F23       | 4        | Ground | 0 V                  |

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair or replace malfunctioning parts.

### 4.CHECK N POSITION SW CIRCUIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between TCM harness connector terminals.

| TCM       |          |   | Continuity  |
|-----------|----------|---|-------------|
| Connector | Terminal |   |             |
| F23       | 5        | 2 | Not existed |
|           |          | 4 |             |
|           |          | 6 |             |
|           |          | 7 |             |

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning parts.

### 5.CHECK N POSITION SW CIRCUIT (PART 2)

1. Disconnect transmission range switch connector.
2. Turn ignition switch ON.
3. Check voltage between TCM harness connector terminal and ground.

| +         |          | -      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| TCM       |          |        |                      |
| Connector | Terminal |        |                      |
| F23       | 5        | Ground | 0 V                  |

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair or replace malfunctioning parts.

### 6.CHECK P POSITION SW CIRCUIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between TCM harness connector terminals.

| TCM       |          |   | Continuity  |
|-----------|----------|---|-------------|
| Connector | Terminal |   |             |
| F23       | 7        | 2 | Not existed |
|           |          | 4 |             |
|           |          | 5 |             |
|           |          | 6 |             |

Is the inspection result normal?



# P0705 TRANSMISSION RANGE SENSOR A

## < DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

- YES >> GO TO 7.  
NO >> Repair or replace malfunctioning parts.

### 7.CHECK P POSITION SW CIRCUIT (PART 2)

1. Disconnect transmission range switch connector.
2. Turn ignition switch ON.
3. Check voltage between TCM harness connector terminal and ground.

| +         |          | -      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| TCM       |          |        |                      |
| Connector | Terminal |        |                      |
| F23       | 7        | Ground | 0 V                  |

Is the inspection result normal?

- YES >> GO TO 10.  
NO >> Repair or replace malfunctioning parts.

### 8.CHECK R POSITION SW CIRCUIT (PART1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between TCM harness connector terminals.

| TCM       |          |   | Continuity  |
|-----------|----------|---|-------------|
| Connector | Terminal |   |             |
| F23       | 6        | 2 | Not existed |
|           |          | 4 |             |
|           |          | 5 |             |
|           |          | 7 |             |

Is the inspection result normal?

- YES >> GO TO 9.  
NO >> Repair or replace malfunctioning parts.

### 9.CHECK R POSITION SW CIRCUIT (PART 2)

1. Disconnect transmission range switch connector.
2. Turn ignition switch ON.
3. Check voltage between TCM harness connector terminal and ground.

| +         |          | -      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| TCM       |          |        |                      |
| Connector | Terminal |        |                      |
| F23       | 6        | Ground | 0 V                  |

Is the inspection result normal?

- YES >> GO TO 10.  
NO >> Repair or replace malfunctioning parts.

### 10.CHECK TRANSMISSION RANGE SWITCH

Check transmission range switch. Refer to [TM-325, "Component Inspection"](#).

Is the check result normal?

- YES >> INSPECTION END  
NO >> Repair or replace malfunctioning parts.

## Component Inspection

INFOID:0000000010622514

### 1.CHECK TRANSMISSION RANGE SWITCH

## P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Check continuity between transmission range switch connector terminals.

| Transmission range switch<br>Terminal | Condition                           | Continuity  |
|---------------------------------------|-------------------------------------|-------------|
| 1 – 2                                 | Manual lever: "P" and "N" positions | Existed     |
|                                       | Other than the above                | Not existed |
| 3 – 4                                 | Manual lever: "P" position          | Existed     |
|                                       | Other than the above                | Not existed |
| 3 – 5                                 | Manual lever: "R" position          | Existed     |
|                                       | Other than the above                | Not existed |
| 3 – 6                                 | Manual lever: "N" position          | Existed     |
|                                       | Other than the above                | Not existed |
| 3 – 7                                 | Manual lever: "D" position          | Existed     |
|                                       | Other than the above                | Not existed |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of transmission range switch. Replace transaxle assembly. Refer to [TM-450. "Removal and Installation"](#).

# P0706 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P0706 TRANSMISSION RANGE SENSOR A

### DTC Description

INFOID:0000000010622515

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                               | DTC detection condition                                                                                                                                                                                                         |
|-------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0706 | T/M RANGE SENSOR A<br>(Transmission Range Sensor A Circuit Range/<br>Performance) | When all of the following conditions are satisfied and this state is maintained for 30 seconds: <ul style="list-style-type: none"><li>• All range signals stay OFF</li><li>• TCM power supply voltage: More than 11 V</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Open circuit between ignition switch and transmission range switch/open circuit between transmission range switch and TCM)
  - Transmission range switch
  - Control cable
- Harness or connector (CAN communication line is error)

### FAIL-SAFE

- Shift position indicator on combination meter is not displayed
- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Shift the selector lever through entire positions from "P" to "D". (Hold the selector lever at each position for 40 seconds or more.)
3. Check the first trip DTC.

Is "P0706" detected?

YES >> Go to [TM-327, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622516

#### 1. ADJUSTMENT OF CONTROL CABLE

Adjust control cable. Refer to [TM-308, "Adjustment"](#).

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Results" in "TRANSMISSION".
3. Touch "Erase".
4. Perform "DTC CONFIRMATION PROCEDURE". Refer to [TM-288, "DTC Index"](#).

Is "P0706" detected?

## P0706 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

YES >> GO TO 3.  
NO >> INSPECTION END

### 3.CHECK POWER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect transmission range switch connector.
3. Turn ignition switch ON.
4. Check voltage between transmission range switch harness connector terminal and ground.

| +                         |          | –      | Voltage   |
|---------------------------|----------|--------|-----------|
| Transmission range switch |          |        |           |
| Connector                 | Terminal |        |           |
| F22                       | 3        | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 4.  
NO >> GO TO 7.

### 4.CHECK CIRCUIT BETWEEN TRANSMISSION RANGE SWITCH AND TCM (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between transmission range switch harness connector terminals and TCM harness connector terminals.

| Transmission range switch |          | TCM       |          | Continuity |
|---------------------------|----------|-----------|----------|------------|
| Connector                 | Terminal | Connector | Terminal |            |
| F22                       | 4        | F23       | 7        | Existed    |
|                           | 5        |           | 6        |            |
|                           | 6        |           | 5        |            |
|                           | 7        |           | 4        |            |

Is the inspection result normal?

YES >> GO TO 5.  
NO >> Repair or replace malfunctioning parts.

### 5.CHECK CIRCUIT BETWEEN TRANSMISSION RANGE SWITCH AND TCM (PART 2)

Check continuity between transmission range switch harness connector terminals and ground.

| Transmission range switch |          | —      | Continuity  |
|---------------------------|----------|--------|-------------|
| Connector                 | Terminal |        |             |
| F22                       | 4        | Ground | Not existed |
|                           | 5        |        |             |
|                           | 6        |        |             |
|                           | 7        |        |             |

Is the inspection result normal?

YES >> GO TO 6.  
NO >> Repair or replace malfunctioning parts.

### 6.CHECK TRANSMISSION RANGE SWITCH

Check transmission range switch. Refer to [TM-329, "Component Inspection"](#).

Is the inspection result normal?

YES >> INSPECTION END  
NO >> Repair or replace malfunctioning parts.

### 7.CHECK CIRCUIT BETWEEN IPDM E/R AND TRANSMISSION RANGE SWITCH

# P0706 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector terminal and transmission range switch harness connector terminal.

| IPDM E/R  |          | Transmission range switch |          | Continuity |
|-----------|----------|---------------------------|----------|------------|
| Connector | Terminal | Connector                 | Terminal |            |
| F72       | 71       | F22                       | 3        | Existed    |

Is the check result normal?

- YES >> GO TO 8.  
NO >> Repair or replace malfunctioning parts.

## 8.DETECT MALFUNCTIONING ITEMS

Check the following items:

- Open circuit or short circuit in harness between ignition switch and IPDM E/R. Refer to [PG-52. "Wiring Diagram - IGNITION POWER SUPPLY -"](#).
- Short circuit in harness between IPDM E/R harness connector terminal 71 and transmission range switch harness connector terminal 3.
- 10A fuse (No. 97, located in the IPDM E/R). Refer to [PG-89. "Fuse, Connector and Terminal Arrangement"](#).
- IPDM E/R

Is the check result normal?

- YES >> INSPECTION END  
NO >> Repair or replace malfunctioning parts.

## Component Inspection

INFOID:0000000010622517

### 1.CHECK TRANSMISSION RANGE SWITCH

Check continuity between transmission range switch connector terminals.

| Transmission range switch | Condition                           | Continuity  |
|---------------------------|-------------------------------------|-------------|
| Terminal                  |                                     |             |
| 1 – 2                     | Manual lever: “P” and “N” positions | Existed     |
|                           | Other than the above                | Not existed |
| 3 – 4                     | Manual lever: “P” position          | Existed     |
|                           | Other than the above                | Not existed |
| 3 – 5                     | Manual lever: “R” position          | Existed     |
|                           | Other than the above                | Not existed |
| 3 – 6                     | Manual lever: “N” position          | Existed     |
|                           | Other than the above                | Not existed |
| 3 – 7                     | Manual lever: “D” position          | Existed     |
|                           | Other than the above                | Not existed |

Is the inspection result normal?

- YES >> INSPECTION END  
NO >> There is a malfunction of transmission range switch. Replace transaxle assembly. Refer to [TM-450, "Removal and Installation"](#).

# P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A

### DTC Description

INFOID:0000000010622518

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                          | DTC detection condition                                                                                                                                                                                                                                        |
|-------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0712 | FLUID TEMP SENSOR A<br>(Transmission Fluid Temperature Sensor A Circuit Low) | When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• Fluid temperature sensor detection voltage: 0.15 V or less</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (CVT fluid temperature sensor circuit is shorted to ground)
- CVT fluid temperature sensor

### FAIL-SAFE

- Engine coolant temperature when engine start: Temp.  $\geq 10^{\circ}\text{C}$  ( $50^{\circ}\text{F}$ )
  - Start is slow
  - Acceleration is slow
- Engine coolant temperature when engine start:  $-35^{\circ}\text{C}$  ( $-31^{\circ}\text{F}$ )  $\leq$  Temp.  $< 10^{\circ}\text{C}$  ( $50^{\circ}\text{F}$ )
  - Selector shock is large
- Engine coolant temperature when engine start: Temp.  $< -35^{\circ}\text{C}$  ( $-31^{\circ}\text{F}$ )
  - Start is slow
  - Acceleration is slow

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine and wait for 10 seconds or more.
2. Check the first trip DTC.

Is "P0712" detected?

YES >> Go to [TM-330, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622519

#### 1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F23       | 12       | Ground | Not existed |

Is the inspection result normal?

YES >> GO TO 2.

## P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

NO >> Repair or replace malfunctioning part.

### 2.CHECK CVT UNIT TERMINAL CODE ASSEMBLY

Check continuity between CVT unit connector terminal and ground.

| CVT unit  |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F24       | 12       | Ground | Not existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> There is a malfunction of the CVT unit terminal code assembly. Replace the transaxle assembly.  
Refer to [TM-450, "Removal and Installation"](#).

### 3.CHECK CVT FLUID TEMPERATURE SENSOR

Check resistance between CVT unit connector terminals.

| CVT unit  |          | Condition                           | Resistance<br>(Approx.) |
|-----------|----------|-------------------------------------|-------------------------|
| Connector | Terminal |                                     |                         |
| F250      | 12 – 18  | CVT fluid temperature: 20°C (68°F)  | 6.5 kΩ                  |
|           |          | CVT fluid temperature: 50°C (122°F) | 2.2 kΩ                  |
|           |          | CVT fluid temperature: 80°C (176°F) | 0.87 kΩ                 |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the CVT fluid temperature sensor. Replace the transaxle assembly.  
Refer to [TM-450, "Removal and Installation"](#).

# P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A

### DTC Description

INFOID:0000000010622520

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                           | DTC detection condition                                                                                                                                                                                                                                                                                           |
|-------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0713 | FLUID TEMP SENSOR A<br>(Transmission Fluid Temperature Sensor A Circuit High) | When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• Vehicle speed: More than 10 km/h (7 MPH)</li><li>• Fluid temperature sensor detection voltage: 2.48 V or more</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (CVT fluid temperature sensor circuit is open or shorted to power supply)
- CVT fluid temperature sensor

### FAIL-SAFE

- Engine coolant temperature when engine start: Temp.  $\geq 10^{\circ}\text{C}$  ( $50^{\circ}\text{F}$ )
  - Start is slow
  - Acceleration is slow
- Engine coolant temperature when engine start:  $-35^{\circ}\text{C}$  ( $-31^{\circ}\text{F}$ )  $\leq$  Temp.  $< 10^{\circ}\text{C}$  ( $50^{\circ}\text{F}$ )
  - Selector shock is large
  - Start is slow
  - Acceleration is slow
- Engine coolant temperature when engine start: Temp.  $< -35^{\circ}\text{C}$  ( $-31^{\circ}\text{F}$ )
  - Selector shock is large
  - Start is slow
  - Acceleration is slow

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Maintain the following condition for 10 seconds or more.

Vehicle speed : 20 km/h (12 MPH) or more

3. Stop the vehicle.
4. Check the first trip DTC.

#### Is "P0713" detected?

YES >> Go to [TM-332, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622521

#### 1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminals and CVT unit harness connector terminals.



# P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

| TCM       |          | CVT unit  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F23       | 11       | F24       | 18       | Existed    |
|           | 12       |           | 12       |            |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning parts.

## 2.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 2)

1. Turn ignition switch ON.
2. Check voltage between TCM harness connector terminal and ground.

| +         |          | –      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| TCM       |          |        |                      |
| Connector | Terminal |        |                      |
| F23       | 12       | Ground | 0 V                  |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

## 3.CHECK CVT FLUID TEMPERATURE SENSOR

1. Turn ignition switch OFF.
2. Check resistance between CVT unit connector terminals.

| CVT unit  |          | Condition                           | Resistance<br>(Approx.) |
|-----------|----------|-------------------------------------|-------------------------|
| Connector | Terminal |                                     |                         |
| F250      | 12 – 18  | CVT fluid temperature: 20°C (68°F)  | 6.5 kΩ                  |
|           |          | CVT fluid temperature: 50°C (122°F) | 2.2 kΩ                  |
|           |          | CVT fluid temperature: 80°C (176°F) | 0.87 kΩ                 |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the CVT fluid temperature sensor. Replace the transaxle assembly.  
Refer to [TM-450. "Removal and Installation"](#).

# P0715 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P0715 INPUT SPEED SENSOR A

### DTC Description

INFOID:000000010622522

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)            | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0715 | INPUT SPEED SENSOR A<br>(Input/Turbine Speed Sensor A Circuit) | <p>When 1 is satisfied and any of 2, 3 or 4 is satisfied:</p> <ol style="list-style-type: none"><li>When the following conditions are satisfied:<ul style="list-style-type: none"><li>TCM power supply voltage: More than 11 V</li><li>After range change completion, it spends 2 seconds or more.</li></ul></li><li>When all of the following conditions are satisfied and this state is maintained for 5 seconds:<ul style="list-style-type: none"><li>Primary pulley speed: Less than 150 rpm</li><li>Secondary pulley speed: 500 rpm or more</li></ul></li><li>When all of the following conditions are satisfied and this state is maintained for 0.5 seconds:<ul style="list-style-type: none"><li>10-msec-ago primary pulley speed: 1,000 rpm or more</li><li>Now primary pulley speed: 0 rpm</li></ul></li><li>When all of the following conditions are satisfied and this state is maintained for 5 seconds:<ul style="list-style-type: none"><li>Range: D or L</li><li>Engine speed: 450 rpm or more</li><li>Input speed: 300 rpm or more</li><li>Primary pulley speed: 300 rpm or more</li><li>Secondary pulley speed: 300 rpm or more</li><li>Differences between engine speed and primary pulley speed: More than 1,000 rpm</li><li>Differences between primary pulley speed and input speed: More than 1,000 rpm</li><li>Differences between engine speed and input speed: 1,000 rpm or less</li><li>Lock-up command is being given (except for slip lock-up)</li><li>DTC other than the applicable DTC is not detected.</li></ul></li></ol> |

### POSSIBLE CAUSE

- Harness or connector (Primary speed sensor circuit is open or shorted)
- Primary speed sensor

### FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

**Be careful of the driving speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 10 seconds or more.

Selector lever : "D" POSITION  
Engine speed : 1,200 rpm or more  
Vehicle speed : 40 km/h (25 MPH) or more

# P0715 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0715" detected?

- YES >> Go to [TM-335, "Diagnosis Procedure"](#).
- NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).
- NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622523

### 1.CHECK PRIMARY SPEED SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect primary speed sensor connector.
3. Turn ignition switch ON.
4. Check voltage between primary speed sensor harness connector terminal and ground.

| +                    |          | –      | Voltage   |
|----------------------|----------|--------|-----------|
| Primary speed sensor |          |        |           |
| Connector            | Terminal |        |           |
| F55                  | 3        | Ground | 10 – 16 V |

Is the inspection result normal?

- YES >> GO TO 2.
- NO >> GO TO 6.

### 2.CHECK PRIMARY SPEED SENSOR GROUND CIRCUIT

Check continuity between primary speed sensor harness connector terminal and ground.

| Primary speed sensor |          | —      | Continuity |
|----------------------|----------|--------|------------|
| Connector            | Terminal |        |            |
| F55                  | 1        |        |            |
| F55                  | 1        | Ground | Existed    |

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair or replace malfunctioning parts.

### 3.CHECK CIRCUIT BETWEEN PRIMARY SPEED SENSOR AND TCM (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between primary speed sensor harness connector terminal and TCM harness connector terminal.

| Primary speed sensor |          | TCM       |          | Continuity |
|----------------------|----------|-----------|----------|------------|
| Connector            | Terminal | Connector | Terminal |            |
| F55                  | 2        | F23       | 35       |            |
| F55                  | 2        | F23       | 35       | Existed    |

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair or replace malfunctioning parts.

### 4.CHECK CIRCUIT BETWEEN PRIMARY SPEED SENSOR AND TCM (PART 2)

Check continuity between primary speed sensor harness connector terminal and ground.

| Primary speed sensor |          | —      | Continuity  |
|----------------------|----------|--------|-------------|
| Connector            | Terminal |        |             |
| F55                  | 2        |        |             |
| F55                  | 2        | Ground | Not existed |

Is the inspection result normal?

## P0715 INPUT SPEED SENSOR A

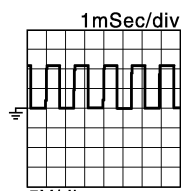
[CVT: RE0F10D]

### < DTC/CIRCUIT DIAGNOSIS >

- YES >> GO TO 5.  
NO >> Repair or replace malfunctioning parts.

### 5.CHECK TCM INPUT SIGNALS

1. Connect all of disconnected connectors.
2. Lift the vehicle.
3. Start the engine.
4. Check frequency of primary speed sensor.

| +         |          | -      | Condition                                                                                                                 | Frequency<br>(Approx.)                                                                                                                                                         |
|-----------|----------|--------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TCM       |          |        |                                                                                                                           |                                                                                                                                                                                |
| Connector | Terminal |        |                                                                                                                           |                                                                                                                                                                                |
| F23       | 35       | Ground | <ul style="list-style-type: none"><li>• Shift position: "M1" position</li><li>• Vehicle speed: 20 km/h (12 MPH)</li></ul> | <div>700 Hz</div> <div>1mSec/div</div> <div></div> <div>5V/div</div> <div>JSDIA1905GB</div> |

#### Is the inspection result normal?

- YES >> INSPECTION END  
NO >> Replace primary speed sensor. Refer to [TM-425, "Removal and Installation"](#).

### 6.CHECK CIRCUIT BETWEEN IPDM E/R AND PRIMARY SPEED SENSOR

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector terminal and primary speed sensor harness connector terminal.

| IPDM E/R  |          | Primary speed sensor |          | Continuity |
|-----------|----------|----------------------|----------|------------|
| Connector | Terminal | Connector            | Terminal |            |
| F72       | 70       | F55                  | 3        | Existed    |

#### Is the check result normal?

- YES >> GO TO 7.  
NO >> Repair or replace malfunctioning parts.

### 7.DETECT MALFUNCTIONING ITEMS

Check the following items:

- Open circuit or short circuit in harness between ignition switch and IPDM E/R. Refer to [PG-52, "Wiring Diagram - IGNITION POWER SUPPLY -"](#).
- Short circuit in harness between IPDM E/R harness connector terminal 70 and primary speed sensor harness connector terminal 3.
- 10A fuse (No.93, located in the IPDM E/R). Refer to [PG-89, "Fuse, Connector and Terminal Arrangement"](#).
- IPDM E/R

#### Is the check result normal?

- YES >> INSPECTION END  
NO >> Repair or replace malfunctioning parts.

# P0717 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P0717 INPUT SPEED SENSOR A

### DTC Description

INFOID:000000010622524

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                        | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0717 | INPUT SPEED SENSOR A<br>(Input/Turbine Speed Sensor "A" Circuit No Signal) | <p>When 1 is satisfied and any of 2, 3 or 4 is satisfied:</p> <ol style="list-style-type: none"> <li>When the following conditions are satisfied: <ul style="list-style-type: none"> <li>- TCM power supply voltage: More than 11 V</li> <li>- After range change completion, it spends 2 seconds or more.</li> </ul> </li> <li>When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"> <li>- Primary pulley speed: 500 rpm or more</li> <li>- Input speed: Less than 150 rpm</li> <li>- Range: Other than P, N</li> <li>- P0715 is not detected</li> </ul> </li> <li>When all of the following conditions are satisfied and this state is maintained for 0.5 seconds: <ul style="list-style-type: none"> <li>- 10-msec-ago input speed: 1,000 rpm or more</li> <li>- Now input speed: 0 rpm</li> </ul> </li> <li>When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"> <li>- Range: D or L</li> <li>- Engine speed: 450 rpm or more</li> <li>- Input speed: 300 rpm or more</li> <li>- Primary pulley speed: 300 rpm or more</li> <li>- Secondary pulley speed: 300 rpm or more</li> <li>- Differences between engine speed and primary pulley speed: 1,000 rpm or less</li> <li>- Differences between primary pulley speed and input speed: More than 1,000 rpm</li> <li>- Differences between engine speed and input speed: More than 1,000 rpm</li> <li>- Lock-up command is being given (except for slip lock-up)</li> <li>- DTC other than the applicable DTC is not detected.</li> </ul> </li> </ol> |

### POSSIBLE CAUSE

- Harness or connector (Input speed sensor circuit is open or shorted)
- Input speed sensor

### FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

**Always drive vehicle at a safe speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

#### With CONSULT

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 10 seconds or more.

# P0717 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Selector lever : "D" position  
Engine speed : 1,200 rpm or more  
Vehicle speed : 40 km/h (25 MPH) or more

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0717" detected?

YES >> Go to [TM-338, "Diagnosis Procedure"](#).  
NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622525

### 1.CHECK INPUT SPEED SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect input speed sensor connector.
3. Turn ignition switch ON.
4. Check voltage between input speed sensor harness connector terminal and ground.

| +                  |          | –      | Voltage   |
|--------------------|----------|--------|-----------|
| Input speed sensor |          |        |           |
| Connector          | Terminal |        |           |
| F54                | 3        | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 2.  
NO >> GO TO 6.

### 2.CHECK INPUT SPEED SENSOR GROUND CIRCUIT

Check continuity between input speed sensor harness connector terminal and ground.

| Input speed sensor |          | —      | Continuity |
|--------------------|----------|--------|------------|
| Connector          | Terminal |        |            |
| F54                | 1        | Ground | Existed    |

Is the inspection result normal?

YES >> GO TO 3.  
NO >> Repair or replace malfunctioning parts.

### 3.CHECK CIRCUIT BETWEEN INPUT SPEED SENSOR AND TCM (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between input speed sensor harness connector terminal and TCM harness connector terminal.

| Input speed sensor |          | TCM       |          | Continuity |
|--------------------|----------|-----------|----------|------------|
| Connector          | Terminal | Connector | Terminal |            |
| F54                | 2        | F23       | 24       | Existed    |

Is the inspection result normal?

YES >> GO TO 4.  
NO >> Repair or replace malfunctioning parts.

### 4.CHECK CIRCUIT BETWEEN INPUT SPEED SENSOR AND TCM (PART 2)

Check continuity between input speed sensor harness connector terminal and ground.

# P0717 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

| Input speed sensor |          | —      | Continuity  |
|--------------------|----------|--------|-------------|
| Connector          | Terminal |        |             |
| F54                | 2        | Ground | Not existed |

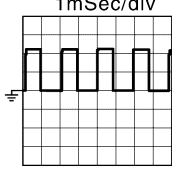
Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning parts.

## 5.CHECK TCM INPUT SIGNALS

1. Connect all of disconnected connectors.
2. Lift the vehicle.
3. Start the engine.
4. Check frequency of input speed sensor.

| +         |          | —      | Condition                                                                                                                 | Frequency<br>(Approx.)                                                                                                                                                         |
|-----------|----------|--------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TCM       |          |        |                                                                                                                           |                                                                                                                                                                                |
| Connector | Terminal |        |                                                                                                                           |                                                                                                                                                                                |
| F23       | 24       | Ground | <ul style="list-style-type: none"><li>• Shift position: “M1” position</li><li>• Vehicle speed: 20 km/h (12 MPH)</li></ul> | <div>880 Hz</div> <div>1mSec/div</div> <div></div> <div>5V/div</div> <div>JSDIA3769GB</div> |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace input speed sensor. Refer to [TM-422, "MR20DD : Removal and Installation"](#) (MR20DD), [TM-424, "QR25DE : Removal and Installation"](#) (QR25DE).

## 6.CHECK CIRCUIT BETWEEN IPDM E/R AND INPUT SPEED SENSOR

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector terminal and input speed sensor harness connector terminals.

| IPDM E/R  |          | Input speed sensor |          | Continuity |
|-----------|----------|--------------------|----------|------------|
| Connector | Terminal | Connector          | Terminal |            |
| F72       | 70       | F54                | 3        | Existed    |

Is the check result normal?

YES >> GO TO 7.

NO >> Repair or replace malfunctioning parts.

## 7.DETECT MALFUNCTIONING ITEMS

Check the following items:

- Open circuit or short circuit in harness between ignition switch and IPDM E/R. Refer to [PG-52, "Wiring Diagram - IGNITION POWER SUPPLY -"](#).
- Short circuit in harness between IPDM E/R harness connector terminal 70 and input speed sensor harness connector terminal 3.
- 10A fuse (No.93, located in the IPDM E/R). Refer to [PG-89, "Fuse, Connector and Terminal Arrangement"](#).
- IPDM E/R

Is the check result normal?

YES >> INSPECTION END

NO >> Repair or replace malfunctioning parts.

## P0740 TORQUE CONVERTER

### DTC Description

INFOID:0000000010622526

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)        | DTC detection condition                                                                                                                                                                                                                                                                     |
|-------|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0740 | TORQUE CONVERTER<br>(Torque Converter Clutch Circuit/Open) | When all of the following conditions are satisfied and this state is maintained for 5 seconds:<br><ul style="list-style-type: none"> <li>• TCM power supply voltage: More than 11 V</li> <li>• P0743 is not detected.</li> <li>• TCM judges that solenoid valve circuit is open.</li> </ul> |

### POSSIBLE CAUSE

- Harness or connector (Torque converter clutch solenoid valve circuit is open or shorted to power supply)
- Torque converter clutch solenoid valve

### FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

**Be careful of the driving speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PREPARATION BEFORE OPERATION

##### With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Confirm that the CVT fluid temperature is in the following range.

FLUID TEMP : 20°C (68°F) or more

##### With GST

1. Start the engine.
2. Set the CVT fluid to 20°C (68°F) or more.

#### NOTE:

When the ambient temperature is 20°C (68°F), the CVT fluid usually increases to 50 to 80°C (122 to 176°F) with driving in an urban area for approximately 10 minutes.

Is the CVT fluid 20°C (68°F) or more?

YES >> GO TO 3.

NO >> 1. Warm the transaxle.  
2. GO TO 3.

#### 3. CHECK DTC DETECTION

1. Drive the vehicle.
2. Maintain the following conditions for 10 seconds or more.

Selector lever : "D" position

Vehicle speed : 40 km/h (25 MPH) or more

3. Stop the vehicle.



# P0740 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

4. Check the first trip DTC.

Is "P0740" detected?

YES >> Go to [TM-341. "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44. "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622527

### 1.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.

2. Disconnect TCM connector and CVT unit connector.

3. Check continuity between TCM harness connector terminal and CVT unit harness connector terminal.

| TCM       |          | CVT unit  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F23       | 38       | F24       | 5        | Existed    |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning parts.

### 2.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE CIRCUIT

Check resistance between CVT unit harness connector terminal and ground.

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 5        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of torque converter clutch solenoid valve. Replace transaxle assembly. Refer to [TM-450. "Removal and Installation"](#).

## P0743 TORQUE CONVERTER

### DTC Description

INFOID:000000010622528

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)              | DTC detection condition                                                                                                                                                                                                                                               |
|-------|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0743 | TORQUE CONVERTER<br>(Torque Converter Clutch Circuit Electrical) | When all of the following conditions are satisfied and this state is maintained for 0.48 seconds:<br><ul style="list-style-type: none"> <li>TCM power supply voltage: More than 11 V</li> <li>TCM judges that solenoid valve circuit is shorted to ground.</li> </ul> |

### POSSIBLE CAUSE

- Harness or connector (Torque converter clutch solenoid valve circuit is shorted to ground)
- Torque converter clutch solenoid valve

### FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

Be careful of the driving speed.

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PREPARATION BEFORE OPERATION

##### With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Confirm that the CVT fluid temperature is in the following range.

FLUID TEMP : 20°C (68°F) or more

##### With GST

1. Start the engine.
2. Set the CVT fluid to 20°C (68°F) or more.

#### NOTE:

When the ambient temperature is 20°C (68°F), the CVT fluid usually increases to 50 to 80°C (122 to 176°F) with driving in an urban area for approximately 10 minutes.

#### Is the CVT fluid 20°C (68°F) or more?

YES >> GO TO 3.

NO >> 1. Warm the transaxle.  
2. GO TO 3.

#### 3. CHECK DTC DETECTION

1. Drive the vehicle.
2. Maintain the following conditions for 10 seconds or more.

Selector lever : "D" position

Vehicle speed : 40 km/h (25 MPH) or more

3. Stop the vehicle.
4. Check the first trip DTC.

# P0743 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Is "P0743" detected?

- YES >> Go to [TM-343, "Diagnosis Procedure"](#).  
NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622529

### 1.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F23       | 38       | Ground | Not existed |

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair or replace malfunctioning parts.

### 2.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE CIRCUIT

Check resistance between CVT unit harness connector terminal and ground.

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 5        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

- YES >> INSPECTION END  
NO >> There is malfunction of torque converter clutch solenoid valve. Replace transaxle assembly. Refer to [TM-450, "Removal and Installation"](#).

## P0744 TORQUE CONVERTER

### DTC Description

INFOID:000000010622530

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                | DTC detection condition                                                                                                                                                                                                                                                                                                                                                             |
|-------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0744 | TORQUE CONVERTER<br>(Torque converter clutch circuit intermittent) | When all of the following conditions are satisfied and this state is maintained for 30 seconds:<br><ul style="list-style-type: none"> <li>• TCM power supply voltage: More than 11 V</li> <li>• P0717 is not detected.</li> <li>• CAN communication is normal</li> <li>• Torque converter slip speed: (40+vehicle speed/2) rpm</li> <li>• LU pressure: More than 0.2 MPa</li> </ul> |

### POSSIBLE CAUSE

- Torque converter clutch solenoid valve
- Control valve assembly
- Torque converter

### FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

**Be careful of the driving speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PREPARATION BEFORE OPERATION

##### With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Confirm that the CVT fluid temperature is in the following range.

FLUID TEMP : 20°C (68°F) or more

##### With GST

1. Start the engine.
2. Set the CVT fluid to 20°C (68°F) or more.

#### NOTE:

When the ambient temperature is 20°C (68°F), the CVT fluid usually increases to 50 to 80°C (122 to 176°F) with driving in an urban area for approximately 10 minutes.

#### Is the CVT fluid 20°C (68°F) or more?

YES >> GO TO 3.

NO >> 1. Warm the transaxle.  
2. GO TO 3.

#### 3. CHECK DTC DETECTION

1. Drive the vehicle.
2. Maintain the following conditions for 30 seconds or more.

# P0744 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Selector lever : "D" position  
Accelerator pedal position : 0.5/8 or more  
Vehicle speed : 40 km/h (25 MPH) or more

3. Stop the vehicle.
4. Check the first trip DTC.

Is "P0744" detected?

YES >> Go to [TM-345, "Diagnosis Procedure"](#).  
NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622531

### 1.REPLACE TRANSAXLE ASSEMBLY

Replace transaxle assembly. Refer to [TM-450, "Removal and Installation"](#).

>> WORK END

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# P0746 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P0746 PRESSURE CONTROL SOLENOID A

### DTC Description

INFOID:000000010622532

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                      | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0746 | PC SOLENOID A<br>(Pressure Control Solenoid A Performance/<br>Stuck Off) | <p>The detecting condition A or detection condition B is detected twice or more (1 second or more later after detection of the first) in the same DC under the following diagnosis conditions:</p> <ul style="list-style-type: none"><li>• Diagnosis conditions<ul style="list-style-type: none"><li>- Engine speed: More than 600 rpm</li><li>- Primary pulley speed: More than 450 rpm</li><li>- Idle is not being detected.</li><li>- Acceleration/deceleration speed: <math>-0.49 \text{ m/s}^2</math> (<math>-0.05 \text{ G}</math>) or more</li><li>- The primary pulley speed experienced 300 rpm or more and the secondary pulley speed experienced 250 rpm or more at least once.</li><li>- Secondary pulley speed: More than 150 rpm</li><li>- TCM power supply voltage: More than 11 V</li></ul></li><li>• Detection condition A<ul style="list-style-type: none"><li>- Status with the shifting ratio of the primary pulley speed/secondary pulley ratio exceeding 2.981 is 0.2 sec. or more continuously.</li></ul></li><li>• Detection condition B<ul style="list-style-type: none"><li>- Status with the shifting ratio of the primary pulley speed/secondary pulley ratio exceeding 3.781 is 0.1 sec. or more continuously.</li></ul></li></ul> |

#### NOTE:

DC stands for "DRIVING CYCLE" and indicates a series of driving cycle of "Ignition switch OFF → ON → driving → OFF".

#### POSSIBLE CAUSE

- Line pressure solenoid valve
- Control valve assembly

#### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

#### DTC CONFIRMATION PROCEDURE

##### CAUTION:

**Be careful of the driving speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 10 seconds or more.

|                            |                            |
|----------------------------|----------------------------|
| Selector lever             | : "D" position             |
| Accelerator pedal position | : 0.5/8 or more            |
| Vehicle speed              | : 40 km/h (25 MPH) or more |

4. Stop the vehicle.
5. Check the first trip DTC.

## P0746 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Is "P0746"detected?

YES >> Go to [TM-347, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622533

#### 1.REPLACE TRANSAXLE ASSEMBLY

Replace transaxle assembly. Refer to [TM-450, "Removal and Installation"](#).

>> WORK END

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## P0776 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

### P0776 PRESSURE CONTROL SOLENOID B

#### DTC Description

INFOID:000000010622534

#### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                        | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0776 | PC SOLENOID B<br>(Pressure Control Solenoid "B" Performance/<br>Stuck Off) | <p>When any of 1 or 2 is satisfied and this state is maintained for 10 seconds:</p> <ol style="list-style-type: none"><li>When all of the following conditions are satisfied:<ul style="list-style-type: none"><li>- DTC other than the applicable DTC is not detected.</li><li>- Engine speed: More than 625 rpm</li><li>- Selector lever: Other than P/N position</li><li>- CVT fluid temperature: More than -20°C (-4°F)</li><li>- TCM power supply: More than 11 V</li><li>- The difference between instruction pressure of secondary pressure and 10-msec-ago instruction secondary pressure is 0 MPa or more</li><li>- Instruction pressure of secondary pressure: 0 MPa or more</li><li>- Instruction pressure of secondary pressure - secondary pressure: More than 1.2 MPa</li></ul></li><li>When all of the following conditions are satisfied and this state is maintained for 1.52 seconds:<ul style="list-style-type: none"><li>• DTC other than the applicable DTC is not detected.</li><li>• CVT fluid temperature: More than -20°C (-4°F)</li><li>• Selector lever: Other than P/N position</li><li>• Instruction pressure of secondary pressure – secondary pressure: 0.25 MPa or more</li></ul></li></ol> <ol style="list-style-type: none"><li>When all of the following conditions are satisfied:<ul style="list-style-type: none"><li>- DTC other than the applicable DTC is not detected.</li><li>- CVT fluid temperature: More than -20°C (-4°F)</li><li>- Selector lever: Other than P/N position</li><li>- TCM power supply: More than 11 V</li></ul></li><li>When all of the following conditions are satisfied and this state is maintained for 5.5 seconds:<ul style="list-style-type: none"><li>• DTC other than the applicable DTC is not detected.</li><li>• CVT fluid temperature: More than -20°C (-4°F)</li><li>• Selector lever: Other than P/N position</li><li>• Secondary pressure - instruction pressure of secondary pressure: 1.2 MPa or more</li></ul></li><li>The difference between instruction pressure of secondary pressure and 10-msec-ago instruction secondary pressure is 0 MPa or more</li><li>Secondary pressure - instruction pressure of secondary pressure: More than 1.2 MPa</li></ol> |

#### POSSIBLE CAUSE

Secondary pressure solenoid valve

#### FAIL-SAFE

- When a malfunction occurs on the low oil pressure side
  - Selector shock is large
  - Start is slow
  - Acceleration is slow
  - Lock-up is not performed
  - Vehicle speed is not increased
- When a malfunction occurs on the high oil pressure side
  - Selector shock is large
  - Start is slow
  - Acceleration is slow
  - Lock-up is not performed

#### DTC CONFIRMATION PROCEDURE

##### CAUTION:

Always drive vehicle at a safe speed.



# P0776 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

## 2. CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following condition for 20 seconds or more.

|                            |                            |
|----------------------------|----------------------------|
| Selector lever             | : "D" position             |
| Vehicle speed              | : 40 km/h (25 MPH) or more |
| Accelerator pedal position | : 1.0/8 or more            |

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0776" detected?

- |      |                                                                                                          |
|------|----------------------------------------------------------------------------------------------------------|
| YES  | >> Go to <a href="#">TM-349, "Diagnosis Procedure"</a> .                                                 |
| NO-1 | >> To check malfunction symptom before repair: Refer to <a href="#">GI-44, "Intermittent Incident"</a> . |
| NO-2 | >> Confirmation after repair: INSPECTION END                                                             |

## Diagnosis Procedure

INFOID:0000000010622535

## 1. REPLACE TRANSAXLE ASSEMBLY

Replace transaxle assembly. Refer to [TM-450, "Removal and Installation"](#).

>> WORK END

## P0778 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

### P0778 PRESSURE CONTROL SOLENOID B

#### DTC Description

INFOID:000000010622536

#### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)         | DTC detection condition                                                                                                                                                                                                                                             |
|-------|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0778 | PC SOLENOID B<br>(Pressure Control Solenoid "B" Electrical) | When all of the following conditions are satisfied and this state is maintained for 0.48 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• TCM judges that solenoid valve circuit is shorted to ground.</li></ul> |

#### POSSIBLE CAUSE

- Harness or connector (Secondary pressure solenoid valve circuit is shorted to ground)
- Secondary pressure solenoid valve

#### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

#### DTC CONFIRMATION PROCEDURE

##### CAUTION:

**Always drive vehicle at a safe speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

##### Is "P0778" detected?

YES >> Go to [TM-350, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

#### Diagnosis Procedure

INFOID:000000010622537

#### 1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F23       | 39       | Ground | Not existed |

##### Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

#### 2. CHECK SECONDARY PRESSURE SOLENOID VALVE CIRCUIT

Check continuity between CVT unit harness connector terminal and ground.

## P0778 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 3        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of secondary pressure solenoid valve. Replace transaxle assembly. Refer to [TM-450, "Removal and Installation"](#).

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## P0779 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

### P0779 PRESSURE CONTROL SOLENOID B

#### DTC Description

INFOID:0000000010622538

#### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)         | DTC detection condition                                                                                                                                                                                                                                                                                          |
|-------|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0779 | PC SOLENOID B<br>(Pressure control solenoid B Intermittent) | When all of the following conditions are satisfied and this state is maintained for 0.2 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• P0778 is not detected</li><li>• TCM judges that solenoid valve circuit is open or shorted to power supply.</li></ul> |

#### POSSIBLE CAUSE

- Harness or connector (Secondary pressure solenoid valve circuit open or shorted to power supply)
- Secondary pressure solenoid valve

#### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

#### DTC CONFIRMATION PROCEDURE

##### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

##### 2. CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 5 seconds or more.

Selector lever : "D" position

Vehicle speed : 40 km/h (25 MPH) or more

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0779" detected?

YES >> Go to [TM-352, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

#### Diagnosis Procedure

INFOID:0000000010622539

##### 1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and CVT unit harness connector terminal.

| TCM       |          | CVT unit  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F23       | 39       | F24       | 3        | Existed    |

Is the inspection result normal?

## P0779 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

YES >> GO TO 2.  
NO >> Repair or replace damaged parts.

### 2.CHECK SECONDARY PRESSURE SOLENOID VALVE CIRCUIT

Check continuity between CVT unit harness connector terminal and ground.

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 3        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END  
NO >> There is malfunction of secondary pressure solenoid valve. Replace transaxle assembly. Refer to [TM-450, "Removal and Installation"](#).

## P0826 UP AND DOWN SHIFT SW

### DTC Description

INFOID:000000010622540

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)        | DTC detection condition                                                                                                                              |
|-------|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0826 | UP/DOWN SHIFT SWITCH<br>(Up and Down Shift Switch Circuit) | TCM monitors manual mode, non-manual mode, up or down switch signal, and detects as irregular when impossible input pattern occurs 1 second or more. |

### POSSIBLE CAUSE

- Harness or connector (Manual mode switch circuit are open or shorted)
- Manual mode switch

### FAIL-SAFE

Manual mode is not activated

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION (PART 1)

##### With CONSULT

1. Start the engine.
2. Shift the selector lever to "D" position and wait for 1 second or more.
3. Select "Self Diagnostic Results" in "TRANSMISSION".

##### Is "P0826" detected?

- YES >> Go to [TM-355, "Diagnosis Procedure"](#).  
NO >> GO TO 3.

#### 3. CHECK DTC DETECTION (PART 2)

##### With CONSULT

1. Shift the selector lever to manual shift gate and wait for 1 second or more.
2. Select "Self Diagnostic Results" in "TRANSMISSION".

##### Is "P0826" detected?

- YES >> Go to [TM-355, "Diagnosis Procedure"](#).  
NO >> GO TO 4.

#### 4. CHECK DTC DETECTION (PART 3)

##### With CONSULT

1. Shift the selector lever to "UP side (+ side)" and wait for 1 second or more.
2. Select "Self Diagnostic Results" in "TRANSMISSION".

##### Is "P0826" detected?

- YES >> Go to [TM-355, "Diagnosis Procedure"](#).  
NO >> GO TO 5.

#### 5. CHECK DTC DETECTION (PART 4)

##### With CONSULT

1. Shift the selector lever to "DOWN side (- side)" and wait for 1 second or more.
2. Select "Self Diagnostic Results" in "TRANSMISSION".

##### Is "P0826" detected?

- YES >> Go to [TM-355, "Diagnosis Procedure"](#).

# P0826 UP AND DOWN SHIFT SW

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622541

### 1.CHECK DTC (COMBINATION METER)

#### With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Results" in "METER/M&A".

#### Is any DTC detected?

YES >> Check DTC detected item. Refer to [TM-288, "DTC Index"](#).

NO >> GO TO 2.

### 2.CHECK MANUAL MODE SWITCH POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect CVT shift selector connector.
3. Turn ignition switch ON.
4. Check voltage between CVT shift selector harness connector terminal and ground.

| +                  |          | –      | Condition            | Voltage<br>(Approx.) |
|--------------------|----------|--------|----------------------|----------------------|
| CVT shift selector |          |        |                      |                      |
| Connector          | Terminal |        |                      |                      |
| M52                | 7        | Ground | Ignition switch: ON  | 12 V                 |
|                    |          |        | Ignition switch: OFF | 0 V                  |
|                    | 8        |        | Ignition switch: ON  | 12 V                 |
|                    |          |        | Ignition switch: OFF | 0 V                  |
|                    | 9        |        | Ignition switch: ON  | 12 V                 |
|                    |          |        | Ignition switch: OFF | 0 V                  |
|                    | 11       |        | Ignition switch: ON  | 12 V                 |
|                    |          |        | Ignition switch: OFF | 0 V                  |

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 4.

### 3.CHECK MANUAL MODE SWITCH

1. Turn ignition switch OFF.
2. Check manual mode switch. Refer to [TM-356, "Component Inspection"](#).

#### Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

### 4.CHECK CIRCUIT BETWEEN CVT SHIFT SELECTOR AND COMBINATION METER

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Check continuity between CVT shift selector harness connector terminals and combination meter harness connector terminals.

| CVT shift selector |          | Combination meter |          | Continuity |
|--------------------|----------|-------------------|----------|------------|
| Connector          | Terminal | Connector         | Terminal |            |
| M52                | 7        | M34               | 30       | Existed    |
|                    | 8        |                   | 33       |            |
|                    | 9        |                   | 32       |            |
|                    | 11       |                   | 31       |            |

## P0826 UP AND DOWN SHIFT SW

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

4. Check continuity between CVT shift selector harness connector terminals and ground.

| CVT shift selector |          | —      | Continuity  |
|--------------------|----------|--------|-------------|
| Connector          | Terminal |        |             |
| M52                | 7        | Ground | Not existed |
|                    | 8        |        |             |
|                    | 9        |        |             |
|                    | 11       |        |             |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace damaged parts.

### 5.CHECK GROUND CIRCUIT

Check continuity between CVT shift selector harness connector terminal and ground.

| CVT shift selector |          | —      | Continuity |
|--------------------|----------|--------|------------|
| Connector          | Terminal |        |            |
| M52                | 10       | Ground | Existed    |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace damaged parts.

## Component Inspection

INFOID:0000000010622542

### 1.MANUAL MODE SWITCH

Check continuity between CVT shift selector connector terminals.

| CVT shift selector | Condition                            | Continuity  |
|--------------------|--------------------------------------|-------------|
| Terminal           |                                      |             |
| 7 – 10             | Manual shift gate position (neutral) | Existed     |
|                    | Other than the above                 | Not existed |
| 8 – 10             | Selector lever: DOWN (– side)        | Existed     |
|                    | Other than the above                 | Not existed |
| 9 – 10             | Selector lever: UP (+ side)          | Existed     |
|                    | Other than the above                 | Not existed |
| 10 – 11            | Manual shift gate position           | Not existed |
|                    | Other than the above                 | Existed     |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of manual mode switch. Replace CVT shift selector assembly. Refer to [TM-403. "Removal and Installation"](#).



# P0841 TRANSMISSION FLUID PRESSURE SEN/SW A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P0841 TRANSMISSION FLUID PRESSURE SEN/SW A

### DTC Description

INFOID:000000010622543

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                                                  | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0841 | FLUID PRESS SEN/SW A<br>(Transmission Fluid Pressure Sensor/Switch<br>"A" Circuit Range/Performance) | When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• DTC other than the applicable DTC is not detected.</li><li>• Primary pulley speed: 300 rpm or more</li><li>• Secondary pulley speed: 250 rpm or more</li><li>• Target speed for shifting: Less than 0.1 seconds</li><li>• Primary pulley pressure is outside the specified value.</li><li>• Pulley ratio: 0.5 – 1.0</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Secondary pressure sensor circuit is open or shorted)
- Harness or connector (Primary pressure sensor circuit is open or shorted)
- Secondary pressure sensor

### FAIL-SAFE

Not changed from normal driving

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

**Always drive vehicle at a safe speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following condition for 10 seconds or more.

Selector lever : "D" position

Vehicle speed : Constant speed of 40 km/h (25 MPH)

#### CAUTION:

**Also keep the accelerator pedal position constant.**

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0841" detected?

YES >> Go to [TM-357, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:000000010622544

#### 1. REPLACE TRANSAXLE ASSEMBLY

Replace transaxle assembly. Refer to [TM-450, "Removal and Installation"](#).

>> WORK END

# P0847 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P0847 TRANSMISSION FLUID PRESSURE SEN/SW B

### DTC Description

INFOID:0000000010622545

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                                  | DTC detection condition                                                                                                                                                                                                                                                                                                                                           |
|-------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0847 | FLUID PRESS SEN/SW B<br>(Transmission Fluid Pressure Sensor/Switch B<br>Circuit Low) | When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"><li>• CVT fluid temperature: More than <math>-20^{\circ}\text{C}</math> (<math>-4^{\circ}\text{F}</math>)</li><li>• TCM power supply voltage: 11 V or more</li><li>• Secondary pressure sensor voltage: 0.09 V or less</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Secondary pressure sensor circuit is open or shorted to ground)
- Secondary pressure sensor
- Control valve assembly

### FAIL-SAFE

Not changed from normal driving

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

##### With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Maintain the following conditions for 10 seconds or more.

FLUID TEMP :  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ )

5. Check the first trip DTC.

##### With GST

1. Start the engine and wait for at least 10 seconds.

##### **CAUTION:**

**When the ambient temperature is less than  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ ) and the engine is cold, warm up the engine for approximately 5 minutes.**

2. Check the first trip DTC.

##### Is "P0847" detected?

YES >> Go to [TM-358, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622546

#### 1. CHECK TCM INPUT SIGNALS

1. Turn ignition switch OFF.
2. Start the engine.
3. Check voltage between TCM harness connector terminals.

# P0847 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

| +         |          | –      | Condition                                                                                                                       | Voltage       |
|-----------|----------|--------|---------------------------------------------------------------------------------------------------------------------------------|---------------|
| TCM       |          |        |                                                                                                                                 |               |
| Connector | Terminal |        |                                                                                                                                 |               |
| F23       | 16       | Ground | <ul style="list-style-type: none"><li>• After engine warm up</li><li>• Selector lever: “N” position</li><li>• At idle</li></ul> | 1.23 – 1.25 V |

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

## 2.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminals and CVT unit harness connector terminals.

| TCM       |          | CVT unit  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F23       | 11       | F24       | 18       | Existed    |
|           | 16       |           | 14       |            |
|           | 26       |           | 22       |            |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

## 3.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 2)

Check continuity between TCM harness connector terminals and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F23       | 16       | Ground | Not existed |
|           | 26       |        |             |

Is the inspection result normal?

YES >> There is malfunction of secondary pressure sensor. Replace transaxle assembly. Refer to [TM-450, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

# P0848 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P0848 TRANSMISSION FLUID PRESSURE SEN/SW B

### DTC Description

INFOID:000000010622547

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                                  | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0848 | FLUID PRESS SEN/SW B<br>(Transmission Fluid Pressure Sensor/Switch B<br>Circuit Low) | When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"><li>• CVT fluid temperature: More than <math>-20^{\circ}\text{C}</math> (<math>-4^{\circ}\text{F}</math>)</li><li>• TCM power supply voltage: More than 11 V</li><li>• Instruction secondary pressure: 5.7 MPa or less</li><li>• Secondary pressure sensor voltage: 4.7 V or more</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Secondary pressure sensor circuit is shorted to power supply)
- Secondary pressure sensor
- Control valve assembly

### FAIL-SAFE

Not changed from normal driving

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, the ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

##### With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Maintain the following conditions for 10 seconds or more.

FLUID TEMP : More than  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ )

5. Check the first trip DTC.

##### With GST

1. Start the engine and wait for at least 10 seconds.

##### **CAUTION:**

**When the ambient temperature is less than  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ ) and the engine is cold, warm up the engine for approximately 5 minutes.**

2. Check the first trip DTC.

##### Is "P0848" detected?

YES >> Go to [TM-360, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:000000010622548

#### 1. CHECK TCM INPUT SIGNALS

1. Turn ignition switch OFF.
2. Start the engine.
3. Check voltage between TCM harness connector terminals.

# P0848 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

| +         |          | –      | Condition                                                                                                                       | Voltage       |
|-----------|----------|--------|---------------------------------------------------------------------------------------------------------------------------------|---------------|
| TCM       |          |        |                                                                                                                                 |               |
| Connector | Terminal |        |                                                                                                                                 |               |
| F23       | 16       | Ground | <ul style="list-style-type: none"><li>• After engine warm up</li><li>• Selector lever: “N” position</li><li>• At idle</li></ul> | 1.23 – 1.25 V |

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

## 2.CHECK SECONDARY PRESSURE SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Connect TCM connector.
3. Disconnect CVT unit connector.
4. Check voltage between CVT unit harness connector terminal and ground.

| +         |          | -      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| CVT unit  |          |        |                      |
| Connector | Terminal |        |                      |
| F24       | 22       | Ground | 5.0 V                |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

## 3.CHECK SECONDARY PRESSURE SENSOR SIGNAL CIRCUIT

Check voltage between CVT unit harness connector terminal and ground.

| +         |          | -      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| CVT unit  |          |        |                      |
| Connector | Terminal |        |                      |
| F24       | 14       | Ground | 0 V                  |

Is the inspection result normal?

YES >> There is malfunction of secondary pressure sensor. Replace transaxle assembly. Refer to [TM-450, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

# P084C TRANSMISSION FLUID PRESSURE SEN/SW H

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P084C TRANSMISSION FLUID PRESSURE SEN/SW H

### DTC Description

INFOID:0000000010622549

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                               | DTC detection condition                                                                                                                                                                                                                                                                                                                                           |
|-------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P084C | FLUID PRESS SEN/SW H<br>(Transmission Fluid Pressure Sensor/Switch H Circuit Low) | When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"><li>• CVT fluid temperature: More than <math>-20^{\circ}\text{C}</math> (<math>-4^{\circ}\text{F}</math>)</li><li>• TCM power supply voltage: More than 11 V</li><li>• Primary pressure sensor voltage: 0.09 V or less</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Primary pressure sensor circuit is open or shorted to ground)
- Primary pressure sensor
- Control valve assembly

### FAIL-SAFE

Not changed from normal driving

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

##### With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Maintain the following conditions for 10 seconds or more.

FLUID TEMP : More than  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ )

5. Check the first trip DTC.

##### With GST

1. Start the engine and wait for at least 10 seconds.

##### **CAUTION:**

**When the ambient temperature is less than  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ ) and the engine is cold, warm up the engine for approximately 5 minutes.**

2. Check the first trip DTC.

##### Is "P084C" detected?

YES >> Go to [TM-362, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622550

#### 1. CHECK TCM INPUT SIGNALS

1. Turn ignition switch OFF.
2. Start the engine.
3. Check voltage between TCM harness connector terminals.

# P084C TRANSMISSION FLUID PRESSURE SEN/SW H

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

| +         |          | –      | Condition                                                                                                                       | Voltage     |
|-----------|----------|--------|---------------------------------------------------------------------------------------------------------------------------------|-------------|
| TCM       |          |        |                                                                                                                                 |             |
| Connector | Terminal |        |                                                                                                                                 |             |
| F23       | 17       | Ground | <ul style="list-style-type: none"><li>• After engine warm up</li><li>• Selector lever: “N” position</li><li>• At idle</li></ul> | 0.7 – 0.9 V |

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

## 2.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminals and CVT unit harness connector terminals.

| TCM       |          | CVT unit  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F23       | 11       | F24       | 18       | Existed    |
|           | 17       |           | 13       |            |
|           | 26       |           | 22       |            |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

## 3.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 2)

Check continuity between TCM harness connector terminals and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F23       | 17       | Ground | Not existed |
|           | 26       |        |             |

Is the inspection result normal?

YES >> There is malfunction of primary pressure sensor. Replace transaxle assembly. Refer to [TM-450, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

# P084D TRANSMISSION FLUID PRESSURE SEN/SW H

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P084D TRANSMISSION FLUID PRESSURE SEN/SW H

### DTC Description

INFOID:0000000010622551

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                                     | DTC detection condition                                                                                                                                                                                                                                                                                                                                          |
|-------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P084D | FLUID PRESS SEN/SW H<br>(Transmission Fluid Pressure Sensor/Switch<br>"H" Circuit High) | When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"><li>• CVT fluid temperature: More than <math>-20^{\circ}\text{C}</math> (<math>-4^{\circ}\text{F}</math>)</li><li>• TCM power supply voltage: More than 11 V</li><li>• Primary pressure sensor voltage: 4.7 V or more</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Primary pressure sensor circuit is open or shorted to ground)
- Primary pressure sensor
- Control valve assembly

### FAIL-SAFE

Not changed from normal driving

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

##### With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Maintain the following conditions for 10 seconds or more.

FLUID TEMP : More than  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ )

5. Check the first trip DTC.

##### With GST

1. Start the engine and wait for at least 10 seconds.

##### **CAUTION:**

**When the ambient temperature is less than  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ ) and the engine is cold, warm up the engine for approximately 5 minutes.**

2. Check the first trip DTC.

##### Is "P084D" detected?

YES >> Go to [TM-364, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622552

#### 1. CHECK TCM INPUT SIGNALS

1. Turn ignition switch OFF.
2. Start the engine.
3. Check voltage between TCM harness connector terminals.



# P084D TRANSMISSION FLUID PRESSURE SEN/SW H

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

| +         |          | –      | Condition                                                                                                                       | Voltage     |
|-----------|----------|--------|---------------------------------------------------------------------------------------------------------------------------------|-------------|
| TCM       |          |        |                                                                                                                                 |             |
| Connector | Terminal |        |                                                                                                                                 |             |
| F23       | 17       | Ground | <ul style="list-style-type: none"><li>• After engine warm up</li><li>• Selector lever: “N” position</li><li>• At idle</li></ul> | 0.7 – 0.9 V |

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

## 2. CHECK PRIMARY PRESSURE SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Connect TCM connector.
3. Disconnect CVT unit connector.
4. Check voltage between CVT unit harness connector terminal and ground.

| +         |          | -      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| CVT unit  |          |        |                      |
| Connector | Terminal |        |                      |
| F24       | 22       | Ground | 5.0 V                |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

## 3. CHECK PRIMARY PRESSURE SENSOR SIGNAL CIRCUIT

Check voltage between CVT unit harness connector terminal and ground.

| +         |          | -      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| CVT unit  |          |        |                      |
| Connector | Terminal |        |                      |
| F23       | 13       | Ground | 0 V                  |

Is the inspection result normal?

YES >> There is malfunction of primary pressure sensor. Replace transaxle assembly. Refer to [TM-450](#), "[Removal and Installation](#)".

NO >> Repair or replace malfunctioning parts.

# P0863 TCM COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P0863 TCM COMMUNICATION

### DTC Description

INFOID:0000000010622553

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                   |
|-------|-----------------------------------------------------|-----------------------------------------------------------|
| P0863 | CONTROL UNIT (CAN)<br>(TCM Communication Circuit)   | An error is detected at the initial CAN diagnosis of TCM. |

### POSSIBLE CAUSE

TCM

#### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Start the engine.
2. Check the DTC.

##### Is "P0863" detected?

YES >> Go to [TM-366, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622554

#### 1. REPLACE TCM

Replace TCM. Refer to [TM-450, "Removal and Installation"](#).

>> WORK END

## P0890 TCM

### DTC Description

INFOID:0000000010622555

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                   | DTC detection condition                                                                                                                                                              |
|-------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0890 | TCM<br>(Transmission Control Module Power Relay<br>Sense Circuit Low) | When all of the following conditions are satisfied and this state is maintained for 0.2 seconds:<br>• TCM power supply voltage: More than 11 V<br>• Battery voltage: Less than 8.4 V |

### POSSIBLE CAUSE

- Harness or connector [TCM power supply (back-up) circuit is open or shorted]
- TCM

### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Vehicle speed is not increased

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the DTC.

##### Is "P0890" detected?

- YES >> Go to [TM-367, "Diagnosis Procedure"](#).  
 NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
 NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622556

#### 1. CHECK TCM POWER SUPPLY (BACK-UP) CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check voltage between TCM harness connector terminals and ground.

| +         |          | –      | Voltage   |
|-----------|----------|--------|-----------|
| TCM       |          |        |           |
| Connector | Terminal |        |           |
| F23       | 45       | Ground | 10 – 16 V |
|           | 46       |        |           |

##### Is the inspection result normal?

- YES >> Replace TCM. Refer to [TM-415, "Removal and Installation"](#).  
 NO >> GO TO 2.

#### 2. DETECT MALFUNCTIONING ITEMS

## P0890 TCM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Check the following items:

- Open circuit or short circuit in harness between battery positive terminal and TCM connector terminals 45, and 46. Refer to [PG-12, "Wiring Diagram - BATTERY POWER SUPPLY -"](#).
- 10A fuse (No.49, located in the fuse and fusible link block). Refer to [PG-86, "Fuse and Fusible Link Arrangement"](#).

Is the inspection result normal?

YES    >> INSPECTION END

NO     >> Repair or replace malfunctioning parts.

# P0962 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P0962 PRESSURE CONTROL SOLENOID A

### DTC Description

INFOID:0000000010622557

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                | DTC detection condition                                                                                                                                                                                                                                            |
|-------|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0962 | PC SOLENOID A<br>(Pressure Control Solenoid A Control Circuit Low) | When all of the following conditions are satisfied and this state is maintained for 0.2 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• TCM judges that solenoid valve circuit is shorted to ground.</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Line pressure solenoid valve circuit is shorted to ground)
- Line pressure solenoid valve

### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P0962" detected?

- YES >> Go to [TM-369, "Diagnosis Procedure"](#).  
NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622558

#### 1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F23       | 30       | Ground | Not existed |

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair or replace damaged parts.

#### 2. CHECK LINE PRESSURE SOLENOID VALVE CIRCUIT

Check continuity between CVT unit harness connector terminal and ground.

## P0962 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 1        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of line pressure solenoid valve. Replace transaxle assembly. Refer to [TM-450, "Removal and Installation"](#).

# P0963 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P0963 PRESSURE CONTROL SOLENOID A

### DTC Description

INFOID:0000000010622559

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                 | DTC detection condition                                                                                                                                                                                                                                                               |
|-------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0963 | PC SOLENOID A<br>(Pressure Control Solenoid A Control Circuit High) | When all of the following conditions are satisfied and this state is maintained for 0.2 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• P0962 is not detected</li><li>• TCM judges that solenoid valve circuit is open.</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Line pressure solenoid valve circuit is open or shorted to power supply)
- Line pressure solenoid valve

### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

### DTC CONFIRMATION PROCEDURE

#### 1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P0963" detected?

YES >> Go to [TM-371, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622560

#### 1.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and CVT unit harness connector terminal.

| TCM       |          | CVT unit  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F23       | 30       | F24       | 1        | Existed    |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

#### 2.CHECK LINE PRESSURE SOLENOID VALVE CIRCUIT

Check continuity between CVT unit harness connector terminal and ground.

## P0963 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 1        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of line pressure solenoid valve. Replace transaxle assembly. Refer to [TM-450, "Removal and Installation"](#).



# P0965 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P0965 PRESSURE CONTROL SOLENOID B

### DTC Description

INFOID:000000010622561

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                                 | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0965 | PC SOLENOID B<br>(Pressure Control Solenoid B Control Circuit<br>Range Performance) | <p>When any of 1 or 2 is satisfied and this state is maintained for 10 seconds:</p> <ol style="list-style-type: none"><li>When all of the following conditions are satisfied:<ul style="list-style-type: none"><li>- DTC other than the applicable DTC is not detected.</li><li>- Engine speed: More than 625 rpm</li><li>- Selector lever: Other than P/N position</li><li>- CVT fluid temperature: More than -20°C (-4°F)</li><li>- TCM power supply: More than 11 V</li><li>- The difference between instruction pressure of primary pressure and 10-msec-ago instruction primary pressure is 0 MPa or more</li><li>- Instruction pressure of primary pressure: 0.86 MPa or more</li><li>- Instruction pressure of primary pressure - primary pressure: More than 1.2 MPa</li></ul></li><li>When all of the following conditions are satisfied and this state is maintained for 1 second:<ul style="list-style-type: none"><li>• DTC other than the applicable DTC is not detected.</li><li>• CVT fluid temperature: More than -20°C (-4°F)</li><li>• Selector lever: Other than P/N position</li><li>• Engine speed: More than 625 rpm</li><li>• Instruction pressure of primary pressure: More than 2 MPa</li><li>• Primary pressure: 0.4 MPa or less</li></ul></li></ol> <p>2. When all of the following conditions are satisfied:</p> <ul style="list-style-type: none"><li>- DTC other than the applicable DTC is not detected.</li><li>- CVT fluid temperature: More than -20°C (-4°F)</li><li>- Selector lever: Other than P/N position</li><li>- TCM power supply: More than 11 V</li></ul> <p>When all of the following conditions are satisfied and this state is maintained for 5.5 seconds:</p> <ul style="list-style-type: none"><li>• DTC other than the applicable DTC is not detected.</li><li>• CVT fluid temperature: More than -20°C (-4°F)</li><li>• Selector lever: Other than P/N position</li><li>• Primary pressure - instruction pressure of primary pressure: 1.2 MPa or more</li></ul> <ul style="list-style-type: none"><li>- The difference between instruction pressure of primary pressure and 10-msec-ago instruction primary pressure is 0 MPa or more</li><li>- Primary pressure - instruction pressure of primary pressure: More than 1.2 MPa</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Primary pressure solenoid valve circuit is open or shorted)
- Primary pressure solenoid valve

### FAIL-SAFE

- When a malfunction occurs on the low oil pressure side
  - Selector shock is large
  - Start is slow
  - Acceleration is slow
  - Lock-up is not performed
- When a malfunction occurs on the high oil pressure side
  - Selector shock is large
  - Lock-up is not performed

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

## P0965 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

### 2.CHECK DTC DETECTION

---

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 20 seconds or more.

Vehicle speed : 40 km/h (25 MPH) or more

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0965"detected?

YES >> Go to [TM-374, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622562

### 1.REPLACE TRANSAXLE ASSEMBLY

---

Replace transaxle assembly. Refer to [TM-450, "Removal and Installation"](#).

>> WORK END

# P0966 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P0966 PRESSURE CONTROL SOLENOID B

### DTC Description

INFOID:0000000010622563

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                | DTC detection condition                                                                                                                                                                                                                                             |
|-------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0966 | PC SOLENOID B<br>(Pressure Control Solenoid B Control Circuit Low) | When all of the following conditions are satisfied and this state is maintained for 0.48 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• TCM judges that solenoid valve circuit is shorted to ground.</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Primary pressure solenoid valve circuit shorted to ground)
- Primary pressure solenoid valve

### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

### DTC CONFIRMATION PROCEDURE

#### 1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P0966" detected?

- YES >> Go to [TM-375, "Diagnosis Procedure"](#).  
NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622564

#### 1.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F23       | 40       | Ground | Not existed |

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair or replace damaged parts.

#### 2.CHECK PRIMARY PRESSURE SOLENOID VALVE CIRCUIT

Check continuity between CVT unit harness connector terminal and ground.

## P0966 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 2        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of primary pressure solenoid valve. Replace transaxle assembly. Refer to [TM-450, "Removal and Installation"](#).

# P0967 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P0967 PRESSURE CONTROL SOLENOID B

### DTC Description

INFOID:0000000010622565

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                 | DTC detection condition                                                                                                                                                                                                                                                               |
|-------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0967 | PC SOLENOID B<br>(Pressure Control Solenoid B Control Circuit High) | When all of the following conditions are satisfied and this state is maintained for 0.2 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• P0966 is not detected</li><li>• TCM judges that solenoid valve circuit is open.</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Primary pressure solenoid valve circuit open or shorted to power supply)
- Primary pressure solenoid valve

### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

### DTC CONFIRMATION PROCEDURE

#### 1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P0967" detected?

YES >> Go to [TM-377, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622566

#### 1.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and CVT unit harness connector terminal.

| TCM       |          | CVT unit  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F23       | 40       | F24       | 2        | Existed    |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

#### 2.CHECK PRIMARY PRESSURE SOLENOID VALVE CIRCUIT

Check continuity between CVT unit harness connector terminal and ground.

## P0967 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 2        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of primary pressure solenoid valve. Replace transaxle assembly. Refer to [TM-450, "Removal and Installation"](#).

# P2765 INPUT SPEED SENSOR B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P2765 INPUT SPEED SENSOR B

### DTC Description

INFOID:0000000010622567

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)            | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2765 | INPUT SPEED SENSOR B<br>(Input/Turbine Speed Sensor B Circuit) | <p>When 1 is satisfied and any of 2, 3 or 4 is satisfied and this state is maintained for 5 seconds:</p> <ol style="list-style-type: none"><li>When all of the following conditions are satisfied:<ul style="list-style-type: none"><li>TCM power supply voltage: More than 11 V</li><li>After range change completion, it spends 2 seconds or more.</li></ul></li><li>When all of the following conditions are satisfied and this state is maintained for 5 seconds:<ul style="list-style-type: none"><li>Secondary pulley speed: Less than 150 rpm</li><li>Primary pulley speed: 1,000 rpm or more</li></ul></li><li>When all of the following conditions are satisfied and this state is maintained for 0.5 seconds:<ul style="list-style-type: none"><li>10-msec-ago secondary pulley speed: 1000 rpm or more</li><li>Now secondary pulley speed: 0 rpm</li></ul></li><li>When all of the following conditions are satisfied and this state is maintained for 5 seconds:<ul style="list-style-type: none"><li>Range: D or L</li><li>Engine speed: 450 rpm or more</li><li>Primary pulley speed: 300 rpm or more</li><li>Secondary pulley speed: 300 rpm or more</li><li>Input speed: 300 rpm or more</li><li>The difference between engine speed and primary pulley speed is 1,000 rpm or less</li><li>The difference between engine speed and input speed is 1,000 rpm or less</li><li>The difference between primary pulley speed and input speed is 1,000 rpm or less</li><li>Lock-up command is being given (except for slip lock-up)</li><li>DTC other than the applicable DTC is not detected.</li><li>When any of following items are satisfied:<ul style="list-style-type: none"><li>Primary pulley speed/secondary pulley speed: More than 2.9</li><li>Primary pulley speed/secondary pulley speed: Less than 0.3</li></ul></li></ul></li></ol> |

### POSSIBLE CAUSE

- Harness or connector (Output speed sensor circuit is open or shorted)
- Output speed sensor

### FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

**Be careful of the driving speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 10 seconds or more.

# P2765 INPUT SPEED SENSOR B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

Selector lever : "D" position  
Engine speed : 1,200 rpm or more  
Vehicle speed : 55 km/h (34 MPH) or more

4. Stop the vehicle.
5. Check the first trip DTC.

## Is "P2765" detected?

YES >> Go to [TM-380, "Diagnosis Procedure"](#).  
NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622568

### 1.CHECK OUTPUT SPEED SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect output speed sensor connector.
3. Turn ignition switch ON.
4. Check voltage between output speed sensor harness connector terminal and ground.

| +                   |          | –      | Voltage   |
|---------------------|----------|--------|-----------|
| Output speed sensor |          |        |           |
| Connector           | Terminal |        |           |
| F19                 | 3        | Ground | 10 – 16 V |

#### Is the inspection result normal?

YES >> GO TO 2.  
NO >> GO TO 6.

### 2.CHECK OUTPUT SPEED SENSOR GROUND CIRCUIT

Check continuity between output speed sensor harness connector terminal and ground.

| Output speed sensor |          | —      | Continuity |
|---------------------|----------|--------|------------|
| Connector           | Terminal |        |            |
| F19                 | 1        | Ground | Existed    |

#### Is the inspection result normal?

YES >> GO TO 3.  
NO >> Repair or replace malfunctioning parts.

### 3.CHECK CIRCUIT BETWEEN OUTPUT SPEED SENSOR AND TCM (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between output speed sensor harness connector terminal and TCM harness connector terminal.

| Output speed sensor |          | TCM       |          | Continuity |
|---------------------|----------|-----------|----------|------------|
| Connector           | Terminal | Connector | Terminal |            |
| F19                 | 2        | F23       | 34       | Existed    |

#### Is the inspection result normal?

YES >> GO TO 4.  
NO >> Repair or replace malfunctioning parts.

### 4.CHECK CIRCUIT BETWEEN OUTPUT SPEED SENSOR AND TCM (PART 2)

Check continuity between output speed sensor harness connector terminal and ground.



## P2765 INPUT SPEED SENSOR B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

| Output speed sensor |          | —      | Continuity  |
|---------------------|----------|--------|-------------|
| Connector           | Terminal |        |             |
| F19                 | 2        | Ground | Not existed |

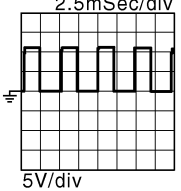
Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning parts.

### 5.CHECK TCM INPUT SIGNALS

1. Connect all of disconnected connectors.
2. Lift the vehicle.
3. Start the engine.
4. Check frequency of output speed sensor.

| +         |          | —      | Condition                                                                                                                 | Frequency<br>(Approx.)                                                                                                                                                |
|-----------|----------|--------|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TCM       |          |        |                                                                                                                           |                                                                                                                                                                       |
| Connector | Terminal |        |                                                                                                                           |                                                                                                                                                                       |
| F23       | 34       | Ground | <ul style="list-style-type: none"><li>• Shift position: “M1” position</li><li>• Vehicle speed: 20 km/h (12 MPH)</li></ul> | <div>200 Hz</div> <div>2.5mSec/div</div>  <div>5V/div</div> <div>JSDIA1904GB</div> |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace output speed sensor. Refer to [TM-427, "Removal and Installation"](#).

### 6.CHECK CIRCUIT BETWEEN IPDM E/R AND OUTPUT SPEED SENSOR

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector terminal and output speed sensor harness connector terminals.

| IPDM E/R  |          | Output speed sensor |          | Continuity |
|-----------|----------|---------------------|----------|------------|
| Connector | Terminal | Connector           | Terminal |            |
| F72       | 70       | F19                 | 3        | Existed    |

Is the check result normal?

YES >> GO TO 7.

NO >> Repair or replace malfunctioning parts.

### 7.DETECT MALFUNCTIONING ITEMS

Check the following items:

- Open circuit or short circuit in harness between ignition switch and IPDM E/R. Refer to [PG-52, "Wiring Diagram - IGNITION POWER SUPPLY -"](#).
- Short circuit in harness between IPDM E/R harness connector terminal 70 and output speed sensor harness connector terminal 3.
- 10A fuse (No.93, located in the IPDM E/R). Refer to [PG-89, "Fuse, Connector and Terminal Arrangement"](#).
- IPDM E/R

Is the check result normal?

YES >> INSPECTION END

NO >> Repair or replace malfunctioning parts.

# P2813 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P2813 SELECT SOLENOID

### DTC Description

INFOID:000000010622569

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2813 | SELECT SOLENOID<br>(Select solenoid)                | <p>When any of 1, or 2 is satisfied:</p> <ol style="list-style-type: none"><li>When all the following conditions are established three times in 1DC<ul style="list-style-type: none"><li>- Precondition</li><li>• DTC other than the applicable DTC is not detected.</li><li>• Throttle position: More than 6.27 deg.</li><li>• Vehicle speed: Less than 3 km/h (1 MPH)</li><li>• CVT fluid temperature: More than 20°C (68°F)</li><li>• Selector lever: Other than P, N</li><li>• Turbine speed when performed N → D, N (P) → R: More than 500 rpm</li><li>• TCM power supply voltage: More than 11 V</li><li>- Detection time</li><li>• N → D: 0.4 seconds</li><li>• N → R: 0.3 seconds</li><li>• P → R: 0.3 seconds</li></ul></li><li>When all of the following conditions are satisfied and this state is maintained for 30 seconds:<ul style="list-style-type: none"><li>- The counting of time continues while all of the following conditions are satisfied and stops when the conditions become unsatisfied (the count is maintained). When accumulated time reaches 30 seconds (Clutch is judged as engaged and the count is reset.)</li><li>• Selector lever: Other than P, N</li><li>• Vehicle speed: Less than 3 km/h (1 MPH)</li><li>• Differences between primary pulley speed and secondary speed: Less than 120 rpm</li><li>• Clutch instructions pressure: 0.95 MPa or more</li><li>• Differences between turbine speed and input speed: Less than 200 rpm</li><li>• Turbine speed – speed: More than 450 rpm</li><li>• DTC other than the applicable DTC is not detected.</li><li>• TCM power supply voltage: More than 11 V</li></ul></li></ol> |

#### NOTE:

DC stands for "DRIVING CYCLE" and indicates a series of driving cycle of "Ignition switch OFF → ON → driving → OFF".

#### POSSIBLE CAUSE

Select solenoid valve

#### FAIL-SAFE

- When a malfunction occurs on the low oil pressure side
  - Selector shock is large
  - Start is slow
  - Acceleration is slow
  - Vehicle speed is not increased
- When a malfunction occurs on the high oil pressure side
  - Selector shock is large

#### DTC CONFIRMATION PROCEDURE

##### CAUTION:

**Be careful of the driving speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

# P2813 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

>> GO TO 2.

## 2.CHECK DTC DETECTION 1

1. Start the engine.
2. Maintain the following conditions. (Keep 30seconds or more after the selector lever shifted.)

Selector lever : N→ D, N → R, P→ R

3. Check the first trip DTC.

Is "P2813"detected?

YES >> Go to [TM-383. "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44. "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622570

## 1.REPLACE TRANSAXLE ASSEMBLY

Replace transaxle assembly. Refer to [TM-450. "Removal and Installation"](#).

>> WORK END

A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

# P2814 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P2814 SELECT SOLENOID

### DTC Description

INFOID:0000000010622571

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                                                                                                                                                                                                                           |
|-------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2814 | SELECT SOLENOID<br>(Select solenoid)                | When all of the following conditions are satisfied and this state is maintained for 0.48 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: 11 V or more</li><li>• TCM judges that solenoid valve circuit is shorted to ground.</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Select solenoid valve circuit shorted to ground)
- Select solenoid valve

### FAIL-SAFE

Selector shock is large

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

**Be careful of the driving speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Start the engine.
2. Maintain the following conditions. (Keep 5 seconds or more after the selector lever shifted.)

Selector lever : N → D, N → R, P → R

3. Check the first trip DTC.

Is "P2814" detected?

YES >> Go to [TM-384, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622572

#### 1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F23       | 37       | Ground | Not existed |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

#### 2. CHECK SELECT SOLENOID VALVE CIRCUIT

Check continuity between CVT unit harness connector terminal and ground.

## P2814 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 4        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of select solenoid valve. Replace transaxle assembly. Refer to [TM-450](#),  
["Removal and Installation"](#).

# P2815 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## P2815 SELECT SOLENOID

### DTC Description

INFOID:0000000010622573

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                                                                                                                                                                                                                                                |
|-------|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2815 | SELECT SOLENOID<br>(Select solenoid)                | When all of the following conditions are satisfied and this state is maintained for 0.2 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• TCM judges that solenoid valve circuit is open.</li><li>• P2814 is not detected.</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Select solenoid valve circuit open or shorted to power supply)
- Select solenoid valve

### FAIL-SAFE

Selector shock is large

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Start the engine.
2. Maintain the following conditions. (Keep 5 seconds or more after the selector lever shifted.)

Selector lever : N → D, N → R, P → R

3. Check the first trip DTC.

#### Is "P2815" detected?

YES >> Go to [TM-386, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622574

#### 1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and CVT unit harness connector terminal.

| TCM       |          | CVT unit  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F23       | 37       | F24       | 4        | Existed    |

#### Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

#### 2. CHECK SELECT SOLENOID VALVE CIRCUIT

Check continuity between CVT unit harness connector terminal and ground.

## P2815 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 4        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of select solenoid valve. Replace transaxle assembly. Refer to [TM-450](#),  
["Removal and Installation"](#).

A

B

C

TM

E

F

G

H

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O

P

# MAIN POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## MAIN POWER SUPPLY AND GROUND CIRCUIT

### Diagnosis Procedure

INFOID:000000010622575

#### 1. CHECK TCM POWER CIRCUIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check voltage between TCM harness connector terminals and ground.

| +         |          | –      | Voltage   |
|-----------|----------|--------|-----------|
| TCM       |          |        |           |
| Connector | Terminal |        |           |
| F23       | 45       | Ground | 10 – 16 V |
|           | 46       |        |           |

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> GO TO 4.

#### 2. CHECK TCM POWER CIRCUIT (PART 2)

Check voltage between TCM harness connector terminals and ground.

| +         |          | –      | Condition           | Voltage     |
|-----------|----------|--------|---------------------|-------------|
| TCM       |          |        |                     |             |
| Connector | Terminal |        |                     |             |
| F23       | 47       | Ground | Ignition switch ON  | 10 – 16 V   |
|           |          |        | Ignition switch OFF | Approx. 0 V |
|           | 48       |        | Ignition switch ON  | 10 – 16 V   |
|           |          |        | Ignition switch OFF | Approx. 0 V |

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> GO TO 5.

#### 3. CHECK TCM GROUND CIRCUIT

Check continuity between TCM harness connector terminals and ground.

| TCM       |          | —      | Continuity |
|-----------|----------|--------|------------|
| Connector | Terminal |        |            |
| F23       | 41       | Ground | Existed    |
|           | 42       |        |            |

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-44, "Intermittent Incident"](#).  
NO >> Repair or replace malfunctioning parts.

#### 4. DETECT MALFUNCTION ITEMS (PART 1)

Check the following items:

- Open circuit or short circuit in harness between battery positive terminal and TCM connector terminal 45, and 46. Refer to [PG-12, "Wiring Diagram - BATTERY POWER SUPPLY -"](#).
- 10A fuse (No.49, located in the fuse and fusible link block). Refer to [PG-86, "Fuse and Fusible Link Arrangement"](#).

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-44, "Intermittent Incident"](#).  
NO >> Repair or replace malfunctioning parts.



# MAIN POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## 5.CHECK CIRCUIT BETWEEN IPDM E/R AND TCM

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between IPDM E/R harness connector terminal and TCM harness connector terminals.

| IPDM E/R  |          | TCM       |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F72       | 70       | F23       | 47       | Existed    |
|           |          |           | 48       |            |

Is the check result normal?

YES >> GO TO 6.

NO >> Repair or replace malfunctioning parts.

## 6.DETECT MALFUNCTIONING ITEMS (PART 2)

Check the following items:

- Open circuit or short circuit in harness between ignition switch and IPDM E/R. Refer to [PG-52, "Wiring Diagram - IGNITION POWER SUPPLY -"](#).
- Short circuit in harness between IPDM E/R harness connector terminal 70 and TCM harness connector terminals 47, and 48.
- 10A fuse (No.93, located in the IPDM E/R). Refer to [PG-89, "Fuse, Connector and Terminal Arrangement"](#).
- IPDM E/R

Is the check result normal?

YES >> Check intermittent incident. Refer to [GI-44, "Intermittent Incident"](#).

NO >> Repair or replace malfunctioning parts.

# SHIFT POSITION INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## SHIFT POSITION INDICATOR CIRCUIT

### Component Parts Function Inspection

INFOID:000000010622576

#### 1.CHECK SHIFT POSITION INDICATOR

1. Start the engine.
2. Shift selector lever.
3. Check that the selector lever position and the shift position indicator on the combination meter are identical.

Is the inspection result normal?

- YES >> INSPECTION END  
NO >> Go to [TM-390, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000010622577

#### 1.CHECK TCM INPUT/OUTPUT SIGNAL

##### With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "RANGE".
4. Shift selector lever.
5. Check that selector lever position, "RANGE" on CONSULT screen, and shift position indicator display on combination meter are identical.

Is the check result normal?

- YES >> INSPECTION END  
NO-1 ("RANGE" is changed but is not displayed on shift position indicator.)>>Check "Self Diagnostic Result" in "TRANSMISSION".  
NO-2 ("RANGE" and shift position indicator are different.)>>Check "Self Diagnostic Result" in "TRANSMISSION".  
NO-3 (Specific "RANGE" is not displayed on shift position indicator.)>>Check "Self Diagnostic Result" in "METER/M&A".

# SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

## SHIFT LOCK SYSTEM

### Component Function Check

INFOID:000000010622578

#### 1.CHECK SHIFT LOCK OPERATION (PART 1)

1. Turn ignition switch ON.
2. Shift the selector lever to "P" position.
3. Attempt to shift the selector lever to any other than position with the brake pedal released.

Can the selector lever be shifted to any other position?

- YES >> Go to [TM-391, "Diagnosis Procedure"](#).  
NO >> GO TO 2.

#### 2.CHECK SHIFT LOCK OPERATION (PART 2)

Attempt to shift the selector lever to any other than position with the brake pedal depressed.

Can the selector lever be shifted to any other position?

- YES >> INSPECTION END  
NO >> Go to [TM-391, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000010622579

#### 1.CHECK POWER SOURCE (PART 1)

1. Turn ignition switch OFF.
2. Disconnect stop lamp switch connector
3. Turn ignition switch ON.
4. Check the voltage between the stop lamp switch harness connector terminal and ground.

| +                |          | -      | Voltage         |
|------------------|----------|--------|-----------------|
| Stop lamp switch |          |        |                 |
| Connector        | Terminal |        |                 |
| E115             | 3        | Ground | Battery voltage |

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> GO TO 9.

#### 2.CHECK STOP LAMP SWITCH MOUNTING POSITION

Check stop lamp switch mounting position. Refer to [BR-11, "Inspection and Adjustment"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Adjust stop lamp switch mounting position.

#### 3.CHECK STOP LAMP SWITCH

Check stop lamp switch. Refer to [TM-394, "Component Inspection \(Stop Lamp Switch\)"](#).

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Repair or replace stop lamp switch.

#### 4.CHECK CIRCUIT BETWEEN STOP LAMP SWITCH AND CVT SHIFT SELECTOR

1. Disconnect CVT shift selector connector
2. Check the continuity between the stop lamp switch harness connector terminal and the CVT shift selector harness connector terminal.

| Stop lamp switch |          | CVT shift selector |          | Continuity |
|------------------|----------|--------------------|----------|------------|
| Connector        | Terminal | Connector          | Terminal |            |
| E115             | 4        | M52                | 3        | Existed    |

# SHIFT LOCK SYSTEM

[CVT: RE0F10D]

## < DTC/CIRCUIT DIAGNOSIS >

3. Also check short circuit in harness.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

## 5.CHECK GROUND CIRCUIT

Check the continuity between the CVT shift selector harness connector terminal and ground.

| CVT shift selector |          | —      | Continuity |
|--------------------|----------|--------|------------|
| Connector          | Terminal |        |            |
| M52                | 4        | Ground | Existed    |

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace damaged parts.

## 6.CHECK PART POSITION SWITCH

1. Disconnect park position switch connector.

2. Check park position switch. Refer to [TM-393, "Component Inspection \(Park Position Switch\)"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts.

## 7.CHECK SHIFT LOCK SOLENOID

1. Disconnect shift lock solenoid connector.

2. Check shift lock solenoid. Refer to [TM-392, "Component Inspection \(Shift Lock Solenoid\)"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace damaged parts.

## 8.CHECK CVT SHIFT SELECTOR HARNESS

Check CVT shift selector harness. Refer to [TM-393, "Component Inspection \(CVT Shift Selector Harness\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-44, "Intermittent Incident"](#).

NO >> Repair or replace damaged parts.

## 9.DETECT MALFUNCTIONING ITEM

Check the following items:

- Open or short circuit of the harness between ignition switch and stop lamp switch connector. Refer to [PG-52, "Wiring Diagram - IGNITION POWER SUPPLY -"](#).
- Ignition switch
- 10A fuse [No.30, fuse block (J/B)]. Refer to [PG-84, "Fuse, Connector and Terminal Arrangement"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-44, "Intermittent Incident"](#).

NO >> Repair or replace damaged parts.

## Component Inspection (Shift Lock Solenoid)

INFOID:000000010622580

## 1.CHECK SHIFT LOCK SOLENOID

Apply voltage to terminals of shift lock solenoid connector and check that shift lock solenoid is activated.

### CAUTION:

- Connect the fuse between the terminals when applying the voltage.
- Never cause shorting between terminals.

# SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

| + (fuse)            | – | Condition                                        | Status                       |
|---------------------|---|--------------------------------------------------|------------------------------|
| Shift lock solenoid |   |                                                  |                              |
| Terminal            |   |                                                  |                              |
| 1                   | 2 | Apply battery voltage between terminals 1 and 2. | Shift lock solenoid operates |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace shift lock unit. Refer to [TM-404, "Disassembly and Assembly"](#).

## Component Inspection (Park Position Switch)

INFOID:000000010622581

### 1.CHECK PARK POSITION SWITCH

Check the continuity between park position switch connector terminals.

**CAUTION:**

- Connect the fuse between the terminals when applying the voltage.
- Never cause shorting between terminals.

| Park position switch | Condition                                 | Continuity  |
|----------------------|-------------------------------------------|-------------|
| Terminal             |                                           |             |
| 1 - 2                | Shift the selector lever to "P" position. | Existed     |
|                      | Other than above                          | Not existed |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace park position switch. Refer to [TM-404, "Disassembly and Assembly"](#).

## Component Inspection (CVT Shift Selector Harness)

INFOID:000000010622582

### 1.CHECK CVT SHIFT SELECTOR HARNESS (PART 1)

Check the continuity between the CVT shift selector harness connector terminal and the shift lock solenoid harness connector terminal.

| CVT shift selector |          | Shift lock solenoid |          | Continuity |
|--------------------|----------|---------------------|----------|------------|
| Connector          | Terminal | Connector           | Terminal |            |
| M324               | 3        | M326                | 1        | Existed    |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace CVT shift selector assembly. Refer to [TM-403, "Removal and Installation"](#).

### 2.CHECK CVT SHIFT SELECTOR HARNESS (PART 2)

Check the continuity between the shift lock solenoid harness connector terminal and the park position switch harness connector terminal.

| Shift lock solenoid |          | Park position switch |          | Continuity |
|---------------------|----------|----------------------|----------|------------|
| Connector           | Terminal | Connector            | Terminal |            |
| M326                | 2        | M325                 | 1        | Existed    |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace CVT shift selector assembly. Refer to [TM-403, "Removal and Installation"](#).

### 3.CHECK CVT SHIFT SELECTOR HARNESS (PART 3)

Check the continuity between the park position switch harness connector terminal and the CVT shift selector harness connector terminal.

## SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10D]

| Park position switch |          | CVT shift selector |          | Continuity |
|----------------------|----------|--------------------|----------|------------|
| Connector            | Terminal | Connector          | Terminal |            |
| M325                 | 2        | M324               | 4        | Existed    |

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace CVT shift selector assembly. Refer to [TM-403, "Removal and Installation"](#).

### 4.CHECK CVT SHIFT SELECTOR HARNESS (PART 4)

Check harness cladding CVT shift selector harness for damage.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace CVT shift selector assembly. Refer to [TM-403, "Removal and Installation"](#).

## Component Inspection (Stop Lamp Switch)

INFOID:0000000010622583

### 1.CHECK STOP LAMP SWITCH

Check the continuity between the stop lamp switch connector terminals.

| Stop lamp switch | Condition             | Continuity  |
|------------------|-----------------------|-------------|
| Terminal         |                       |             |
| 3 – 4            | Depressed brake pedal | Existed     |
|                  | Released brake pedal  | Not existed |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace stop lamp switch. Refer to [BR-21, "Exploded View"](#).

## SYMPTOM DIAGNOSIS

## CVT CONTROL SYSTEM

## Symptom Table

INFOID:0000000010622584

- The diagnosis item number indicates the order of check. Start checking in the order from 1.
- Perform diagnoses of symptom table 1 before symptom table 2.

## Symptom Table 1

| Symptom               |                                                                    | Engine system                      | CAN communication line | Transmission range switch (P0705, P0706) | Input speed sensor (P0717) | Primary speed sensor (P0715) | Output speed sensor (P2765) | CVT fluid temperature sensor (P0712, P0713) | Primary pressure sensor (P084C, P084D) | Secondary pressure sensor (P0841, P0847, P0848) | Torque converter clutch solenoid valve (P0740, P0743, P0744) | Stall test | CVT position | Power supply | Control valve | CVT fluid level and state | Ignition switch and starter |
|-----------------------|--------------------------------------------------------------------|------------------------------------|------------------------|------------------------------------------|----------------------------|------------------------------|-----------------------------|---------------------------------------------|----------------------------------------|-------------------------------------------------|--------------------------------------------------------------|------------|--------------|--------------|---------------|---------------------------|-----------------------------|
|                       |                                                                    | EC-136 (MR20DD)<br>EC-542 (QR25DE) | TM-288                 |                                          |                            |                              |                             |                                             |                                        |                                                 |                                                              | TM-307     | TM-308       | TM-388       | TM-449        | TM-401                    | PG-52, STR-11               |
| Shift Shock           | Large shock (N→D position)                                         | 1                                  | 4                      | 7                                        |                            |                              |                             | 3                                           |                                        |                                                 | 6                                                            |            | 2            |              | 8             | 5                         |                             |
|                       | Large shock (N→R position)                                         | 1                                  | 4                      | 7                                        |                            |                              |                             | 3                                           |                                        |                                                 | 6                                                            |            | 2            |              | 8             | 5                         |                             |
|                       | Shock is too large for lock-up.                                    | 2                                  | 3                      |                                          |                            |                              |                             |                                             |                                        |                                                 | 6                                                            |            | 1            |              | 5             | 4                         |                             |
| Slips/Will Not Engage | Vehicle cannot be started from D position.                         | 8                                  | 3                      |                                          | 5                          | 6                            | 7                           | 9                                           | 10                                     | 11                                              |                                                              | 4          | 2            | 12           | 13            | 1                         |                             |
|                       | Vehicle cannot be started from R position.                         | 8                                  | 3                      |                                          | 5                          | 6                            | 7                           | 9                                           | 10                                     | 11                                              |                                                              | 4          | 2            | 12           | 13            | 1                         |                             |
|                       | Does not lock-up.                                                  | 2                                  | 6                      | 8                                        | 3                          | 4                            | 10                          | 9                                           | 11                                     | 12                                              | 5                                                            | 7          |              |              | 13            | 1                         |                             |
|                       | Does not hold lock-up condition.                                   | 2                                  | 6                      | 8                                        | 3                          | 4                            | 10                          | 9                                           | 11                                     | 12                                              | 5                                                            | 7          |              |              | 13            | 1                         |                             |
|                       | Lock-up is not released.                                           | 2                                  | 6                      |                                          | 3                          | 4                            |                             |                                             |                                        |                                                 | 5                                                            | 7          |              |              | 8             | 1                         |                             |
|                       | With selector lever in D position, acceleration is extremely poor. | 3                                  | 4                      | 5                                        | 7                          | 8                            | 9                           | 12                                          | 10                                     | 11                                              |                                                              | 2          | 6            | 13           | 14            | 1                         |                             |
|                       | With selector lever in R position, acceleration is extremely poor. | 3                                  | 4                      | 5                                        | 7                          | 8                            | 9                           | 12                                          | 10                                     | 11                                              |                                                              | 2          | 6            | 13           | 14            | 1                         |                             |
|                       | Slips at lock-up.                                                  | 2                                  | 6                      | 8                                        | 3                          | 4                            | 10                          | 9                                           | 11                                     | 12                                              | 5                                                            | 7          |              |              | 13            | 1                         |                             |

# CVT CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F10D]

| Symptom |                                                                                                                                                              | Engine system                      | CAN communication line | Transmission range switch (P0705, P0706) |   |   |   |    |    |    |    |   |   | Input speed sensor (P0717) |    |   |   |  |  |  |  |  |  | Primary speed sensor (P0715) |  |  |  |  |  |  |  |  |  | Output speed sensor (P2765) |  |  |  |  |  |  |  |  |        | CVT fluid temperature sensor (P0712, P0713) |        |        |        |               |  |  |  |  |  | Primary pressure sensor (P084C, P084D) |  |  |  |  |  |  |  |  |  | Secondary pressure sensor (P0841, P0847, P0848) |  |  |  |  |  |  |  |  |  | Torque converter clutch solenoid valve (P0740, P0743, P0744) |  |  |  |  |  |  |  |  |  | Stall test |  |  |  |  |  |  |  |  |  | CVT position |  |  |  |  |  |  |  |  |  | Power supply |  |  |  |  |  |  |  |  |  | Control valve |  |  |  |  |  |  |  |  |  | CVT fluid level and state |  |  |  |  |  |  |  |  |  | Ignition switch and starter |  |  |  |  |  |  |  |  |  |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------|------------------------------------------|---|---|---|----|----|----|----|---|---|----------------------------|----|---|---|--|--|--|--|--|--|------------------------------|--|--|--|--|--|--|--|--|--|-----------------------------|--|--|--|--|--|--|--|--|--------|---------------------------------------------|--------|--------|--------|---------------|--|--|--|--|--|----------------------------------------|--|--|--|--|--|--|--|--|--|-------------------------------------------------|--|--|--|--|--|--|--|--|--|--------------------------------------------------------------|--|--|--|--|--|--|--|--|--|------------|--|--|--|--|--|--|--|--|--|--------------|--|--|--|--|--|--|--|--|--|--------------|--|--|--|--|--|--|--|--|--|---------------|--|--|--|--|--|--|--|--|--|---------------------------|--|--|--|--|--|--|--|--|--|-----------------------------|--|--|--|--|--|--|--|--|--|
|         |                                                                                                                                                              | EC-136 (MR20DD)<br>EC-542 (QR25DE) | TM-288                 |                                          |   |   |   |    |    |    |    |   |   |                            |    |   |   |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  | TM-307 | TM-308                                      | TM-388 | TM-449 | TM-401 | PG-52, STR-11 |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
| Other   | No creep at all.                                                                                                                                             | 2                                  | 4                      | 3                                        | 7 | 8 | 9 | 10 | 11 | 12 |    | 5 | 6 | 13                         | 14 | 1 |   |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
|         | Vehicle cannot run in any position.                                                                                                                          | 8                                  |                        | 2                                        | 5 | 6 | 7 | 9  | 10 | 11 |    | 3 | 4 | 12                         | 13 | 1 |   |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
|         | With selector lever in D position, driving is not possible.                                                                                                  | 8                                  |                        | 2                                        | 5 | 6 | 7 | 9  | 10 | 11 |    | 3 | 4 | 12                         | 13 | 1 |   |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
|         | With selector lever in R position, driving is not possible.                                                                                                  | 8                                  |                        | 2                                        | 5 | 6 | 7 | 9  | 10 | 11 |    | 3 | 4 | 12                         | 13 | 1 |   |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
|         | Judder occurs during lock-up.                                                                                                                                | 2                                  | 6                      |                                          | 3 | 4 | 5 |    |    |    | 7  |   |   |                            | 8  | 1 |   |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
|         | Strange noise in D position.                                                                                                                                 | 2                                  | 3                      |                                          |   |   |   |    |    |    |    |   |   |                            | 4  | 1 |   |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
|         | Strange noise in R position.                                                                                                                                 | 2                                  | 3                      |                                          |   |   |   |    |    |    |    |   |   |                            | 4  | 1 |   |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
|         | Strange noise in N position.                                                                                                                                 | 2                                  | 3                      |                                          |   |   |   |    |    |    |    |   |   |                            | 4  | 1 |   |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
|         | Vehicle does not decelerate by engine brake.                                                                                                                 | 7                                  | 3                      |                                          | 4 | 5 | 6 |    |    |    |    |   | 2 |                            | 8  | 1 |   |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
|         | Maximum speed low.                                                                                                                                           | 2                                  | 3                      |                                          | 5 | 6 | 7 |    | 8  | 9  | 11 | 4 |   |                            | 10 | 1 |   |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
|         | With selector lever in P position, vehicle does not enter parking condition or, with selector lever in another position, parking condition is not cancelled. |                                    |                        | 1                                        |   |   |   |    |    |    |    |   | 2 |                            |    |   |   |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
|         | Vehicle runs with CVT in P position.                                                                                                                         |                                    |                        | 1                                        |   |   |   |    |    |    |    |   | 3 |                            | 4  | 2 |   |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
|         | Vehicle runs with CVT in N position.                                                                                                                         |                                    |                        | 1                                        |   |   |   |    |    |    |    |   | 3 |                            | 4  | 2 |   |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
|         | Engine stall.                                                                                                                                                | 2                                  | 6                      |                                          | 3 | 4 |   |    | 8  | 9  | 5  | 7 |   |                            | 10 | 1 |   |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
|         | Engine stalls when selector lever shifted N → D or R.                                                                                                        | 2                                  | 6                      |                                          | 3 | 4 |   |    |    |    | 5  |   |   |                            | 7  | 1 |   |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
|         | Engine speed does not return to idle.                                                                                                                        | 2                                  | 4                      |                                          |   |   | 3 |    |    |    |    |   |   |                            | 5  | 1 |   |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
|         | Engine does not start in N or P position.                                                                                                                    |                                    |                        | 3                                        |   |   |   |    |    |    |    |   | 2 |                            |    |   | 1 |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |
|         | Engine starts in positions other than N or P.                                                                                                                |                                    |                        | 3                                        |   |   |   |    |    |    |    |   | 2 |                            |    |   | 1 |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |        |                                             |        |        |        |               |  |  |  |  |  |                                        |  |  |  |  |  |  |  |  |  |                                                 |  |  |  |  |  |  |  |  |  |                                                              |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |              |  |  |  |  |  |  |  |  |  |               |  |  |  |  |  |  |  |  |  |                           |  |  |  |  |  |  |  |  |  |                             |  |  |  |  |  |  |  |  |  |



# CVT CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F10D]

Symptom Table 2

| Symptom               |                                                                    | Torque converter | Transmission range switch | Oil pump | Forward clutch | Reverse brake | Planetary gear | Bearings | Parking mechanism | Stop lamp switch | Shift lock solenoid | CVT shift selector |
|-----------------------|--------------------------------------------------------------------|------------------|---------------------------|----------|----------------|---------------|----------------|----------|-------------------|------------------|---------------------|--------------------|
|                       |                                                                    | TM-453           | TM-449                    |          |                |               |                |          |                   | TM-394           | TM-392              | TM-403             |
| Shift Shock           | Large shock (N→D position)                                         |                  | 2                         |          | 1              |               |                |          |                   |                  |                     |                    |
|                       | Large shock (N→R position)                                         |                  | 2                         |          |                | 1             |                |          |                   |                  |                     |                    |
|                       | Shock is too large for lock-up.                                    | 1                |                           |          |                |               |                |          |                   |                  |                     |                    |
| Slips/Will Not Engage | Vehicle cannot be started from D position.                         |                  | 3                         | 1        | 2              |               |                |          |                   |                  |                     |                    |
|                       | Vehicle cannot be started from R position.                         |                  | 4                         | 1        |                | 2             |                |          | 3                 |                  |                     |                    |
|                       | Does not lock-up.                                                  | 1                | 3                         | 2        |                |               |                |          |                   |                  |                     |                    |
|                       | Does not hold lock-up condition.                                   | 1                | 3                         | 2        |                |               |                |          |                   |                  |                     |                    |
|                       | Lock-up is not released.                                           | 1                |                           | 2        |                |               |                |          |                   |                  |                     |                    |
|                       | With selector lever in D position, acceleration is extremely poor. | 1                | 3                         |          | 2              |               |                |          |                   |                  |                     |                    |
|                       | With selector lever in R position, acceleration is extremely poor. | 1                | 4                         | 2        |                | 3             |                |          |                   |                  |                     |                    |
|                       | Slips at lock-up.                                                  | 1                |                           | 2        |                |               |                |          |                   |                  |                     |                    |

# CVT CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F10D]

| Symptom |                                                                                                                                                              | Torque converter | Transmission range switch | Oil pump | Forward clutch | Reverse brake | Planetary gear | Bearings | Parking mechanism | Stop lamp switch | Shift lock solenoid | CVT shift selector |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------|----------|----------------|---------------|----------------|----------|-------------------|------------------|---------------------|--------------------|
|         |                                                                                                                                                              | TM-453           | TM-449                    |          |                |               |                |          |                   | TM-394           | TM-392              | TM-403             |
| Other   | No creep at all.                                                                                                                                             | 1                | 6                         | 2        | 4              | 5             | 3              |          |                   |                  |                     |                    |
|         | Vehicle cannot run in all positions.                                                                                                                         | 1                |                           | 2        | 4              | 5             | 3              |          | 6                 |                  |                     |                    |
|         | With selector lever in D position, driving is not possible.                                                                                                  | 1                |                           | 2        | 4              |               | 3              |          | 5                 |                  |                     |                    |
|         | With selector lever in R position, driving is not possible.                                                                                                  | 1                |                           | 2        |                | 4             | 3              |          | 5                 |                  |                     |                    |
|         | Judder occurs during lock-up.                                                                                                                                | 1                |                           |          |                |               |                |          |                   |                  |                     |                    |
|         | Strange noise in D position.                                                                                                                                 | 1                |                           | 2        | 4              |               | 3              | 5        |                   |                  |                     |                    |
|         | Strange noise in R position.                                                                                                                                 | 1                |                           | 2        |                | 4             | 3              |          |                   |                  |                     |                    |
|         | Strange noise in N position.                                                                                                                                 | 1                |                           | 2        |                |               | 3              |          |                   |                  |                     |                    |
|         | Maximum speed low.                                                                                                                                           | 1                | 5                         | 2        | 4              |               | 3              |          |                   |                  |                     |                    |
|         | With selector lever in P position, vehicle does not enter parking condition or, with selector lever in another position, parking condition is not cancelled. |                  |                           |          |                |               |                |          | 1                 |                  |                     |                    |
|         | Vehicle runs with CVT in P position.                                                                                                                         |                  |                           |          |                |               | 2              |          | 1                 |                  |                     |                    |
|         | Vehicle runs with CVT in N position.                                                                                                                         |                  |                           |          | 2              | 3             | 1              |          |                   |                  |                     |                    |
|         | Engine stall.                                                                                                                                                | 1                |                           |          |                |               |                |          |                   |                  |                     |                    |
|         | Engine stalls when selector lever shifted N → D or R.                                                                                                        | 1                |                           |          |                |               |                |          |                   |                  |                     |                    |
|         | When brake pedal is depressed with ignition switch ON, selector lever cannot be shifted from P position to other position.                                   |                  |                           |          |                |               |                |          |                   | 1                | 2                   | 3                  |
|         | When brake pedal is not depressed with ignition switch ON, selector lever can be shifted from P position to other position.                                  |                  |                           |          |                |               |                |          |                   | 1                | 2                   | 3                  |

## PERIODIC MAINTENANCE

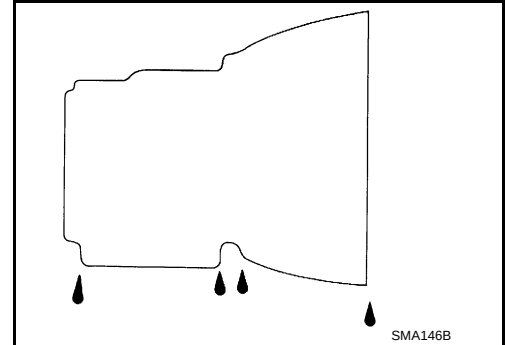
### CVT FLUID

#### Inspection

INFOID:0000000010622585

#### FLUID LEAKAGE

- Check transaxle surrounding area (oil seal and plug etc.)for fluid leakage.
- If anything is found, repair or replace damaged parts and adjust CVT fluid level. Refer to [TM-401, "Adjustment"](#).



INFOID:0000000010622586

#### Replacement

**Recommended fluid and fluid capacity** : Refer to [MA-23, "Fluids and Lubricants"](#).

#### CAUTION:

- Always use shop paper. Never use shop cloth.
- Replace a drain plug gasket with new ones at the final stage of the operation when installing.
- Use caution when looking into the drain hole as there is a risk of dripping fluid entering the eye.
- After replacement, always perform CVT fluid leakage check.

1. Select "Data Monitor" in "TRANSMISSION" using CONSULT.
2. Select "FLUID TEMP" and confirm that the CVT fluid temperature is 40°C (104°F) or less.
3. Check that the selector lever is in the "P" position, then completely engage the parking brake.
4. Lift up the vehicle.
5. Remove the drain plug and drain the CVT fluid from the oil pan. Refer to [TM-419, "Exploded View"](#).
6. Install the drain plug to oil pan.

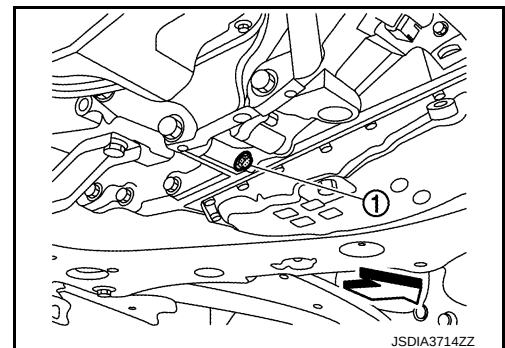
#### CAUTION:

**Drain plug gasket use the old one.**

7. Remove the overflow plug ① from converter housing.



: Vehicle front



## CVT FLUID

< PERIODIC MAINTENANCE >

[CVT: RE0F10D]

8. Install the charging pipe set (A) (SST: KV311039S0) into the overflow plug hole.

**CAUTION:**

**Tighten the charging pipe by hand.**

9. Install the ATF changer hose (B) to the charging pipe.

**CAUTION:**

**Press the ATF changer hose all the way onto the charging pipe until it stops.**

10. Fill approximately 3 liter (2-5/8 Imp qt) of the CVT fluid.  
11. Remove the ATF changer hose and charging pipe, then install the overflow plug.

**NOTE:**

Perform this work quickly because CVT fluid leaks.

12. Lift down the vehicle.

13. Start the engine.

14. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "D", and shift it to the "P" position.

**NOTE:**

Hold the lever at each position for 5 seconds.

15. Check that the CONSULT "Data Monitor" in "FLUID TEMP" is 35°C (95°F) to 45°C (113°F).

16. Stop the engine.

17. Lift up the vehicle.

18. Remove the drain plug, and then drain CVT fluid from oil pan.

19. Repeat steps 6 to 18 (one time).

20. Tighten the drain plug to the specified torque. Refer to [TM-419, "Exploded View"](#).

21. Remove the overflow plug.

22. Install the charging pipe set (A) (SST: KV311039S0) into the overflow plug hole.

**CAUTION:**

**Tighten the charging pipe by hand.**

23. Install the ATF changer hose to the charging pipe.

**CAUTION:**

**Press the ATF changer hose all the way onto the charging pipe until it stops.**

24. Fill approximately 3 liter (2-5/8 Imp qt) of the CVT fluid.

25. Remove the ATF changer hose and charging pipe, then install the overflow plug.

**NOTE:**

Perform this work quickly because CVT fluid leaks.

26. Lift down the vehicle.

27. Start the engine.

28. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "D", and shift it to the "P" position.

**NOTE:**

Hold the lever at each position for 5 seconds.

29. Check that the CONSULT "Data Monitor" in "FLUID TEMP" is 35°C (95°F) to 45°C (113°F).

30. Lift up the vehicle.

31. Remove the overflow plug and confirm that the CVT fluid is drained from the overflow plug hole.

**CAUTION:**

**Perform this work with the vehicle idling.**

**NOTE:**

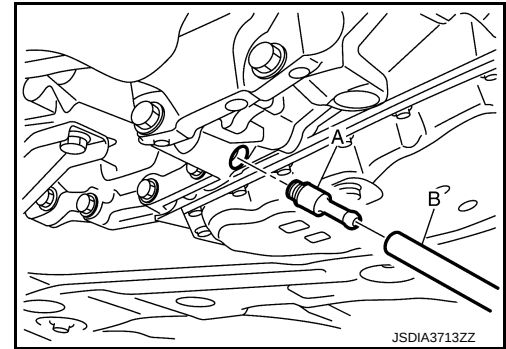
If the CVT fluid is not drained, refer to "Adjustment" and refill with the CVT fluid.

32. When the flow of CVT fluid slows to a drip, tighten the overflow plug to the specified torque. Refer to [TM-419, "Exploded View"](#).

**CAUTION:**

**Never reuse O-ring.**

33. Lift down the vehicle.



# CVT FLUID

< PERIODIC MAINTENANCE >

[CVT: RE0F10D]

34. Select "Data Monitor" in "TRANSMISSION" using CONSULT.
35. Select "CONFORM CVTF DETERIORATION".
36. Select "Erase".
37. Stop the engine.

## Adjustment

INFOID:0000000010622587

**Recommended fluid and fluid capacity** : Refer to [MA-23, "Fluids and Lubricants"](#).

### CAUTION:

- During adjustment of the CVT fluid level, check CONSULT so that the oil temperature may be maintained from 35 to 45°C (95 to 113°F).
- During adjustment of the CVT fluid level, check that the engine speed is maintaining 500 rpm.
- Use caution when looking into the drain hole as there is a risk of dripping fluid entering the eye.

1. Check that the selector lever is in the "P" position, then completely engage the parking brake.
2. Start the engine.
3. Adjust the CVT fluid temperature to be approximately 40°C (104°F).

### NOTE:

The CVT fluid is largely affected by temperature. Therefore be sure to use CONSULT and check the "FLUID TEMP" under "TRANSMISSION" in "Data Monitor" while adjusting.

4. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "D", and shift it to the "P" position.

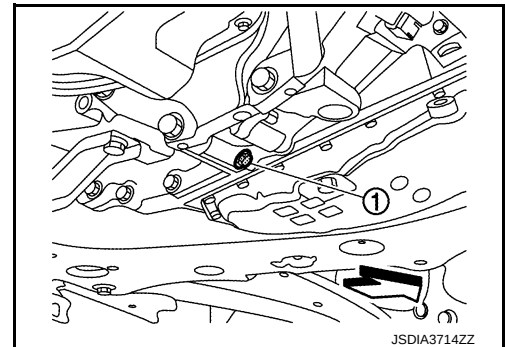
### NOTE:

Hold the lever at each position for 5 seconds.

5. Lift up the vehicle.
6. Check that there is no CVT fluid leakage.
7. Remove the overflow plug ① from converter housing.



: Vehicle front



8. Install the charging pipe set (A) (SST: KV311039S0) into the overflow plug hole.

### CAUTION:

**Tighten the charging pipe by hand.**

9. Install the ATF changer hose (B) to the charging pipe.

### CAUTION:

**Press the ATF changer hose all the way onto the charging pipe until it stops.**

10. Fill approximately 0.5 liter (1/2 Imp qt) of the CVT fluid.
11. Remove the ATF changer hose from the charging pipe, and check that the CVT fluid drains out from the charging pipe. If it does not drain out, perform charging again.

### CAUTION:

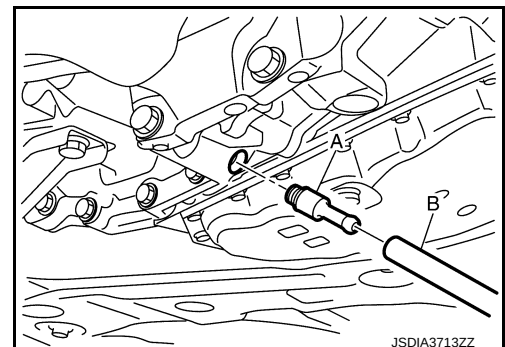
**Perform this work with the vehicle idling.**

12. When the flow of CVT fluid slows to a drip, remove the charging pipe from the converter housing.
13. Tighten the overflow plug to the specified torque. Refer to [TM-419, "Exploded View"](#).

### CAUTION:

**Never reuse O-ring.**

14. Lift down the vehicle.



## CVT FLUID

< PERIODIC MAINTENANCE >

[CVT: RE0F10D]

---

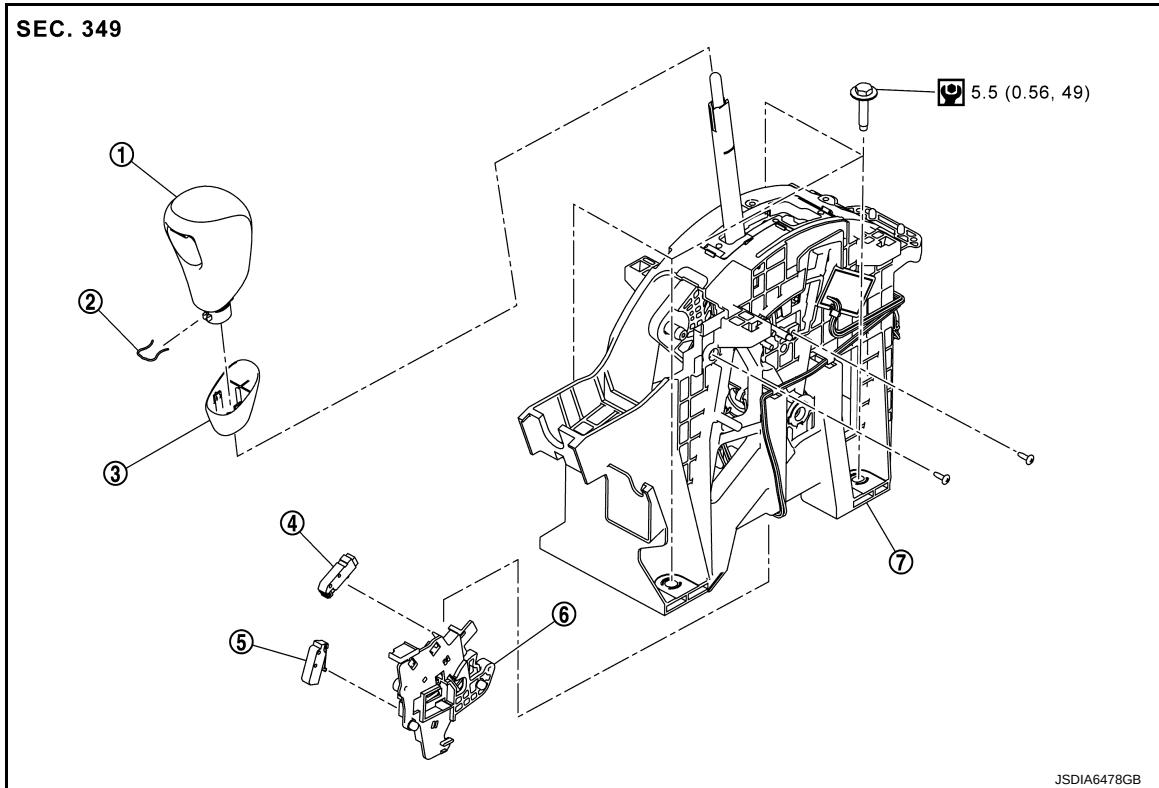
15. Stop the engine.

## REMOVAL AND INSTALLATION

### CVT SHIFT SELECTOR

#### Exploded View

INFOID:000000010622588



- |                               |                        |                   |
|-------------------------------|------------------------|-------------------|
| ① Selector lever knob         | ② Lock pin             | ③ Knob cover      |
| ④ Detent switch*              | ⑤ Park position switch | ⑥ Shift lock unit |
| ⑦ CVT shift selector assembly |                        |                   |

:N·m (kg-m, in-lb)

\*: With intelligent key system

### Removal and Installation

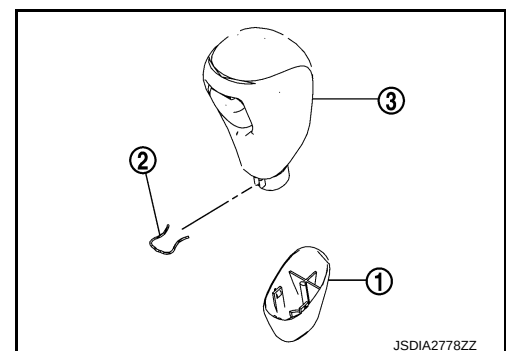
INFOID:000000010622589

#### REMOVAL

##### CAUTION:

**Always apply the parking brake before performing removal and installation.**

- Shift the selector lever to "N" position.
- Slide the selector lever knob cover ① down.
- CAUTION:**  
**Never damage the knob cover.**
- Pull out the lock pin ②.
- Pull the selector lever knob ③ and knob cover upwards to remove them.
- Remove the center console assembly. Refer to [IP-25, "Removal and Installation"](#).
- Disconnect the CVT shift selector connector.
- Shift the selector lever to "P" position.

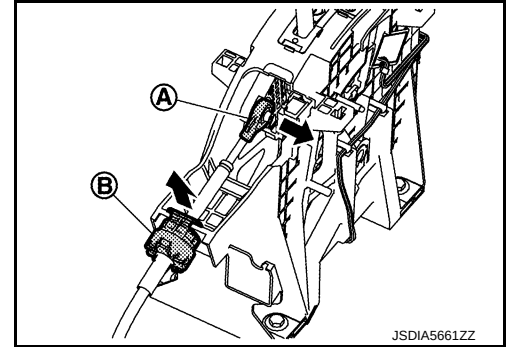


# CVT SHIFT SELECTOR

## < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

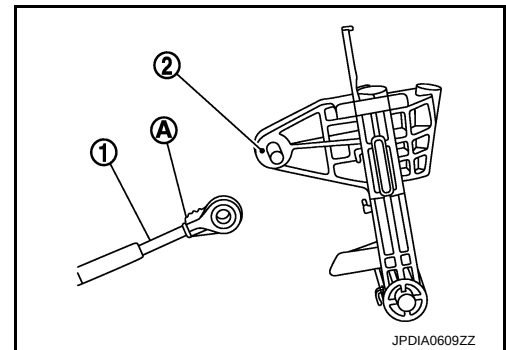
8. Disconnect the key interlock cable from CVT shift selector assembly. Refer to [TM-412, "Removal and Installation"](#). (Without intelligent key system)
9. Remove the control cable from the CVT shift selector assembly with the following procedure.
  - a. Disconnect the tip ① of control cable from the CVT shift selector assembly.
  - b. Remove socket ② from CVT shift selector assembly.  
**CAUTION:**  
**Never damage the pawl of socket.**
10. Remove harness clips from the CVT shift selector with a clip remover.
11. Remove CVT shift selector assembly mounting bolts.
12. Remove the CVT shift selector assembly.



## INSTALLATION

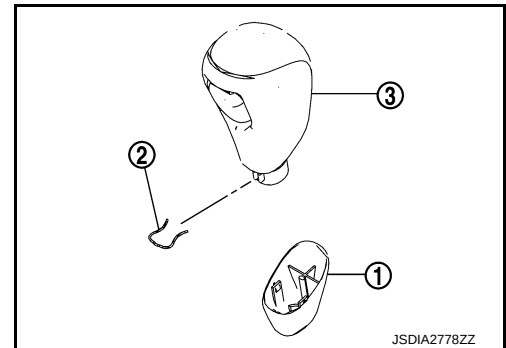
Note the following, and install in the reverse order of removal.

- When connecting the control cable ① to the CVT shift selector assembly ②, face the grooved surface of the rib ③ up and insert the control cable until it stops.



- Follow the procedure below and place the selector knob onto the CVT shift selector.

1. Install the lock pin ② onto the selector lever knob ③.
2. Install the knob cover ① onto the selector lever knob.
3. Press the selector lever knob onto the selector lever until it clicks.  
**CAUTION:**
  - When pressing the selector lever knob onto the selector lever, never press the selector lever knob button.
  - Never strike the selector lever knob to press it into place.
4. After installing selector lever knob, pull the knob to check that it does not become disconnected.



## Disassembly and Assembly

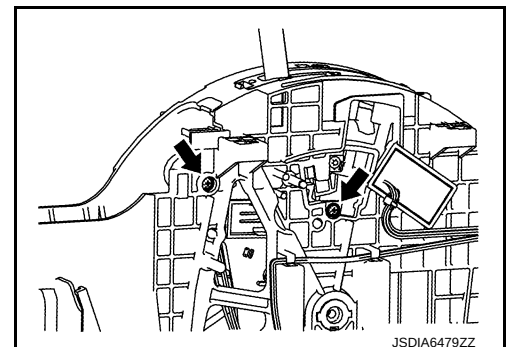
INFOID:000000010622590

## DISASSEMBLY

### **CAUTION:**

**Confirm the installation condition of wiring before disassembly.**

1. Remove shift lock unit mounting screws (←).





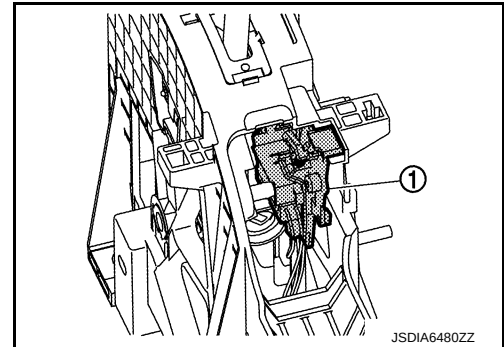
# CVT SHIFT SELECTOR

## < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

2. Remove the shift lock unit ① from the CVT shift selector assembly.
3. Disconnect shift lock solenoid harness connector, park position switch harness connector, and detent switch harness connector\*.

\*: With intelligent key system

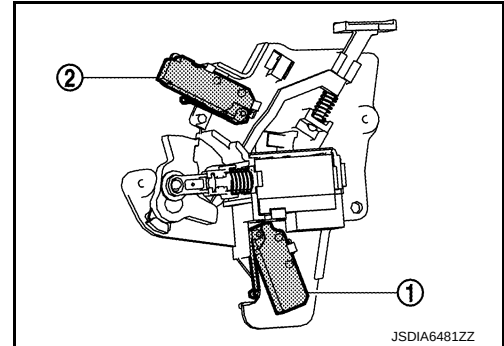


4. Remove park position switch ① and detent switch\* ② from shift lock unit.

\*: With intelligent key system

**CAUTION:**

**Never damage pawls.**



## ASSEMBLY

Assemble in the reverse order of disassembly.

## Inspection

INFOID:0000000010622591

## INSPECTION AFTER INSTALLATION

Check the CVT position. If a malfunction is found, adjust the CVT position. Refer to [TM-308, "Inspection"](#).

# CONTROL CABLE

< REMOVAL AND INSTALLATION >

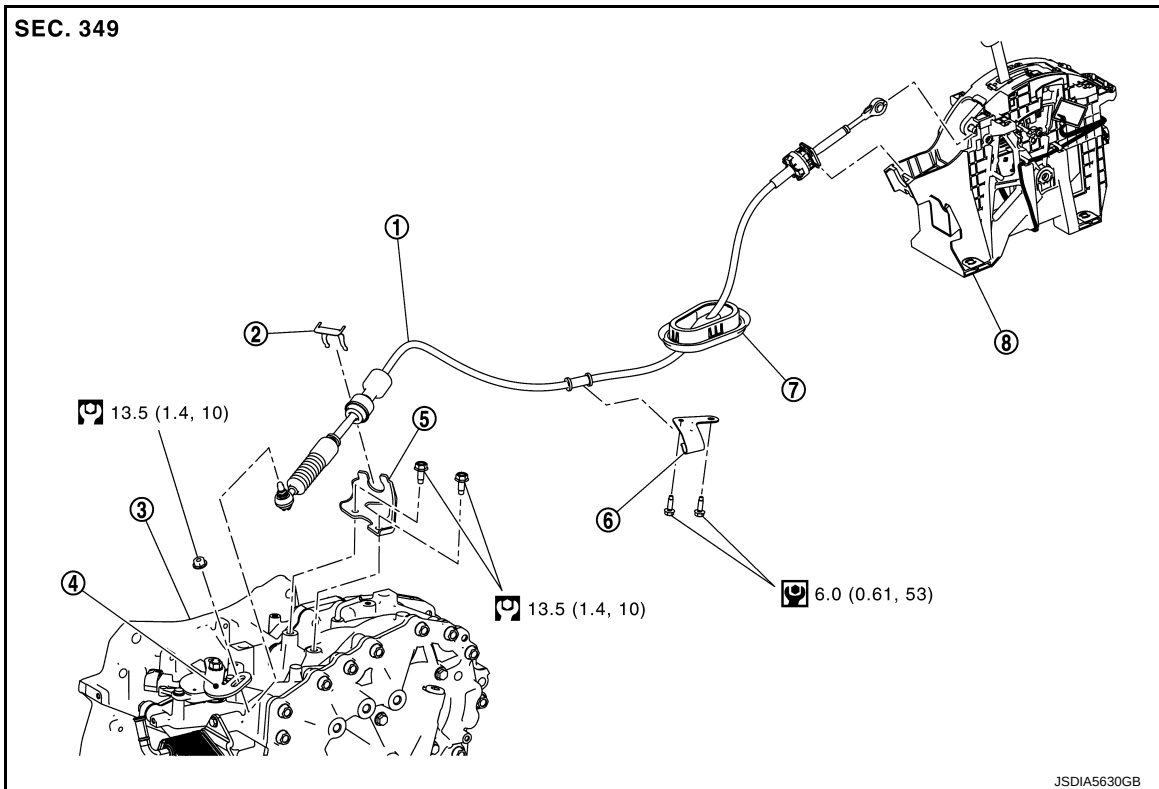
[CVT: RE0F10D]

## CONTROL CABLE

MR20DD

MR20DD : Exploded View

INFOID:0000000010622592



- ① Control cable  
② Lock plate  
③ Transaxle assembly  
④ Manual lever  
⑤ Bracket A  
⑥ Bracket B  
⑦ Grommet  
⑧ CVT shift selector assembly
- : N·m (kg-m, ft-lb)  
 : N·m (kg-m, in-lb)

## MR20DD : Removal and Installation

INFOID:0000000010622593

### REMOVAL

#### CAUTION:

- Always apply the parking brake before performing removal and installation.
- Be careful not to cut your hand on heat insulator edges.

1. Turn ignition switch OFF.
2. Shift the selector lever to "P" position.
3. Remove battery tray. Refer to [PG-148, "EXCEPT FOR R9M : Removal and Installation"](#).

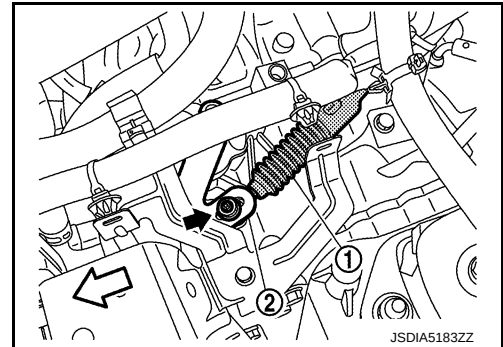
# CONTROL CABLE

## < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

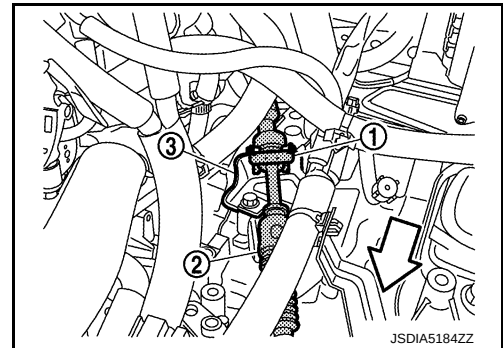
4. Remove the control cable nut (➡) and remove the control cable ① from the manual lever ②.

➡ : Vehicle front



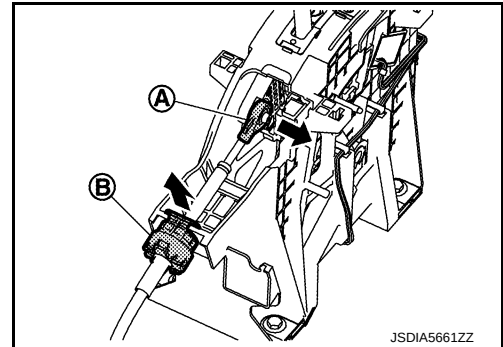
5. Remove the lock plate ① and remove the control cable ② from bracket ③.

➡ : Vehicle front

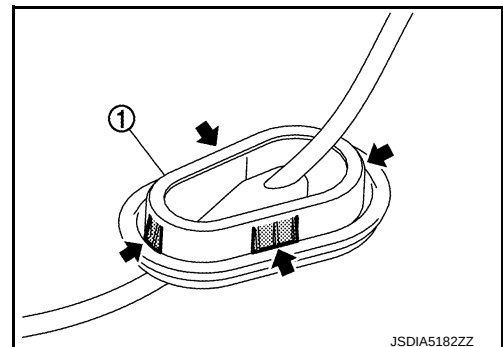


7. Disconnect the tip (A) of control cable from the CVT shift selector assembly.
8. Remove socket (B) from CVT shift selector assembly.

**CAUTION:**  
Never damage pawl of socket.

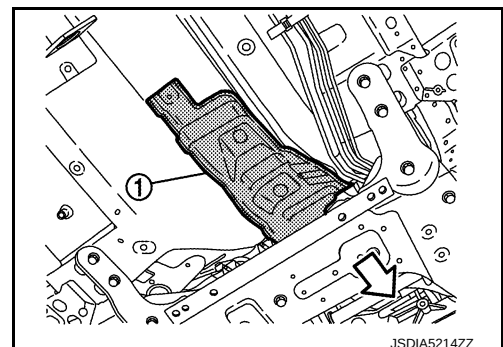


9. Disengage the pawls (➡) of the grommet ①, and pull downwards to remove.
10. Lift up the vehicle.
11. Remove the exhaust front tube. Refer to [EX-6. "Exploded View"](#).



12. Remove the heat plate fixtures ①.

➡ : Vehicle front



## CONTROL CABLE

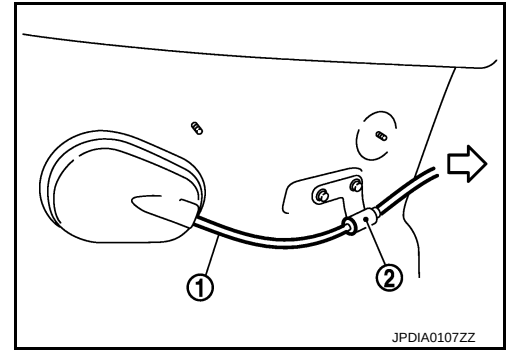
### < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

13. Remove the control cable ① from bracket ②.

↔ : Vehicle front

14. Remove the control cable from the vehicle.



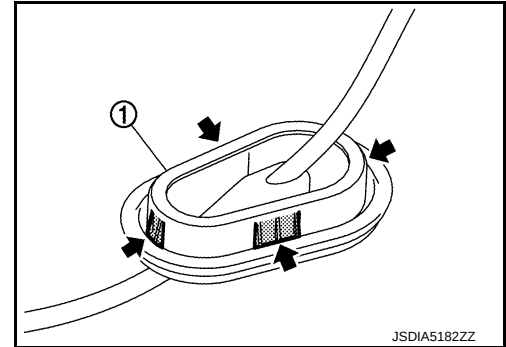
### INSTALLATION

Note the followings and install in the reverse order of removal.

- From below the vehicle, press the grommet ① into place until the pawls (↔) make a click sound.

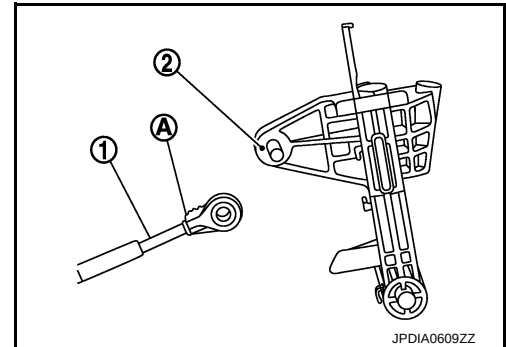
#### CAUTION:

- Place the grommet on the floor, then fasten it in place from below the vehicle.
- Check that pulling down on the grommet does not disconnect it.



- Pay attention to the following when connecting the control cable to the CVT shift selector.

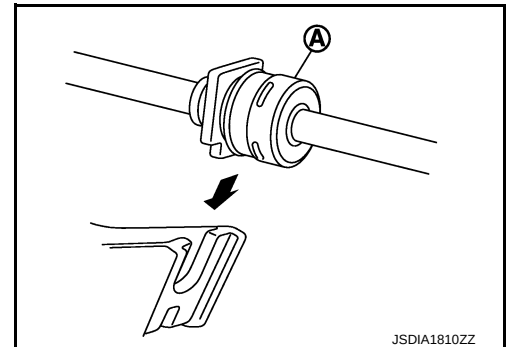
1. Shift the selector lever and Manual lever to "P" position.
2. When connecting the control cable ① to the CVT shift selector assembly ②, face the grooved surface of the rib ③ up and insert the control cable until it stops.



3. Install the socket ④ onto the CVT shift selector assembly.

#### CAUTION:

- Place the socket onto the CVT shift selector assembly, then fasten it in place from above.
- Check that the pulling on the socket does not disconnect it.



MR20DD : Inspection

INFOID:0000000010622594

### INSPECTION AFTER INSTALLATION

Check the CVT position. If a malfunction is found, adjust the CVT position. Refer to [TM-308, "Inspection"](#).

QR25DE

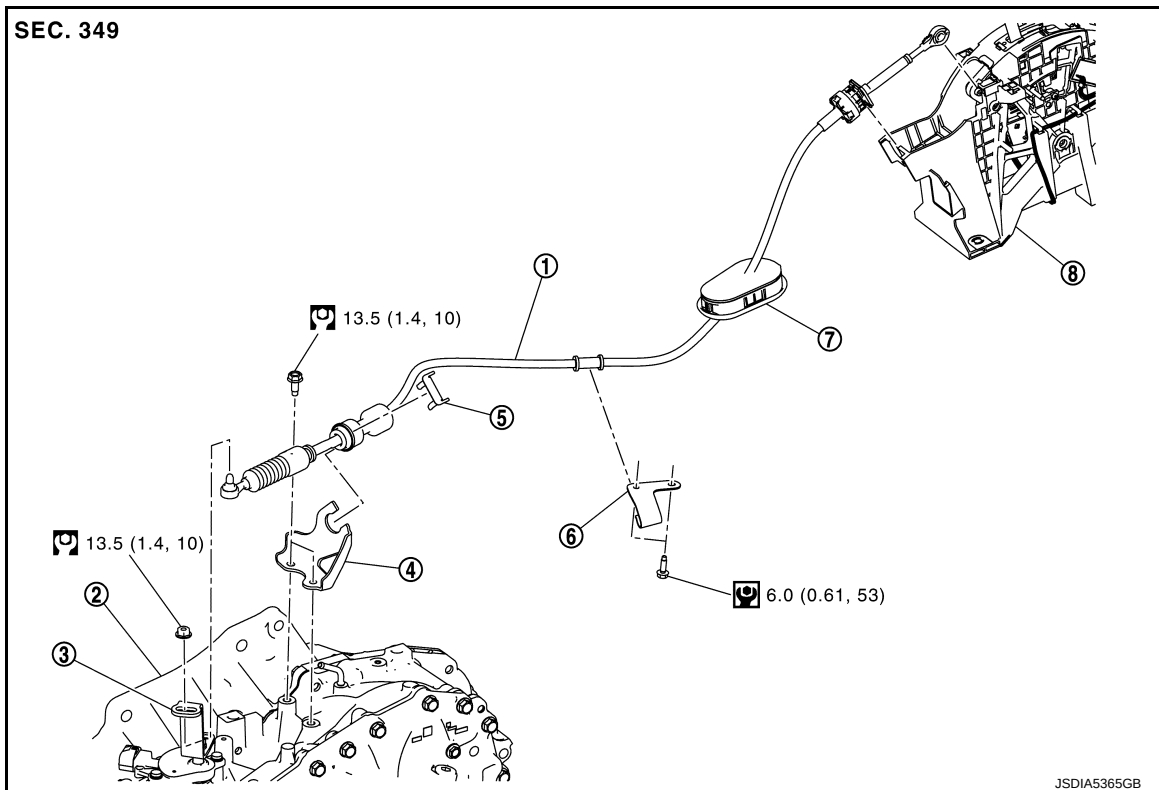
# CONTROL CABLE

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

QR25DE : Exploded View

INFOID:0000000110622595



- |                 |                               |                |
|-----------------|-------------------------------|----------------|
| ① Control cable | ② Transaxle assembly          | ③ Manual lever |
| ④ Bracket A     | ⑤ Lock plate                  | ⑥ Bracket B    |
| ⑦ Grommet       | ⑧ CVT shift selector assembly |                |

⌚ : N·m (kg-m, ft-lb)

⌚ : N·m (kg-m, in-lb)

## QR25DE : Removal and Installation

INFOID:0000000110622596

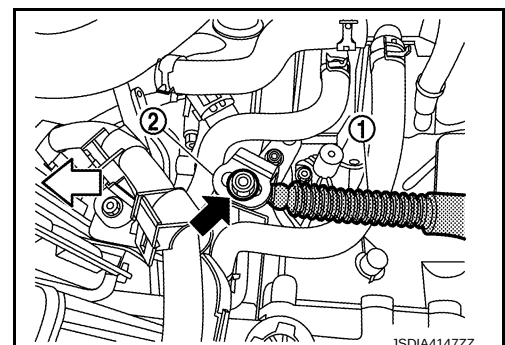
### REMOVAL

#### CAUTION:

- Always apply the parking brake before performing removal and installation.
- Be careful not to cut your hand on heat insulator edges.

1. Turn ignition switch OFF.
2. Shift the selector lever to "P" position.
3. Remove battery tray. Refer to [PG-148. "EXCEPT FOR R9M : Removal and Installation"](#).
4. Remove the control cable nut (⬅) and remove the control cable ① from the manual lever ②.

⬅ : Vehicle front



## CONTROL CABLE

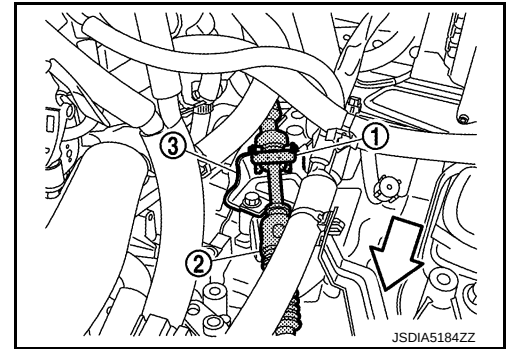
### < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

5. Remove the lock plate ① and remove the control cable ② from bracket ③.

⇐ : Vehicle front

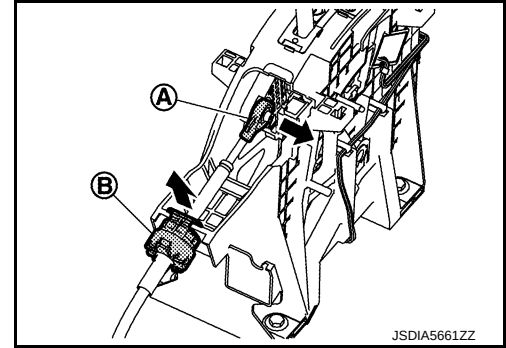
6. Remove the center console. Refer to [IP-25. "Removal and Installation"](#).



7. Disconnect the tip (A) of control cable from the CVT shift selector assembly.

8. Remove socket (B) from CVT shift selector assembly.

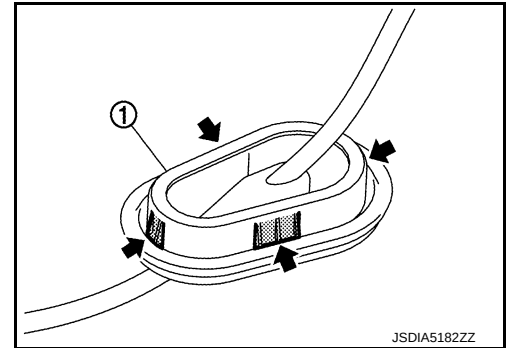
**CAUTION:**  
Never damage pawl of socket.



9. Disengage the pawls (⇐) of the grommet (1), and pull downwards to remove.

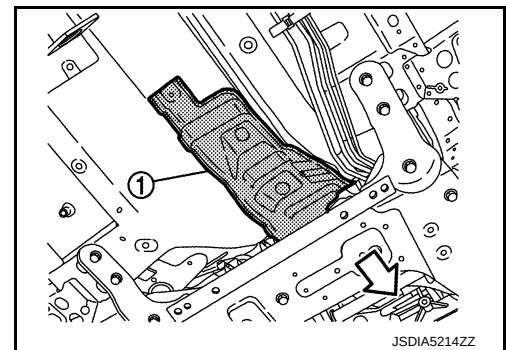
10. Lift up the vehicle.

11. Remove exhaust front tube. Refer to [EX-12. "Exploded View"](#).



12. Remove the heat plate fixtures (1).

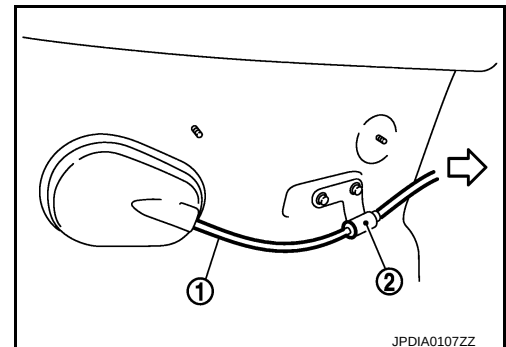
⇐ : Vehicle front



13. Remove the control cable (1) from bracket (2).

⇐ : Vehicle front

14. Remove the control cable from the vehicle.



# CONTROL CABLE

## < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

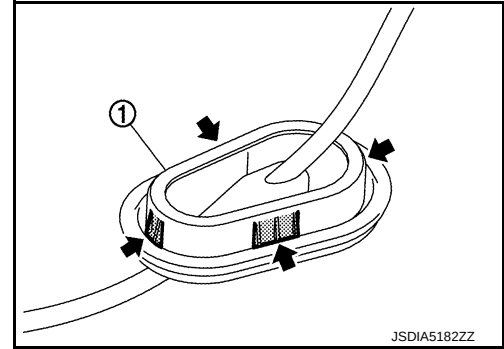
### INSTALLATION

Note the followings and install in the reverse order of removal.

- From below the vehicle, press the grommet ① into place until the pawls (↔) make a click sound.

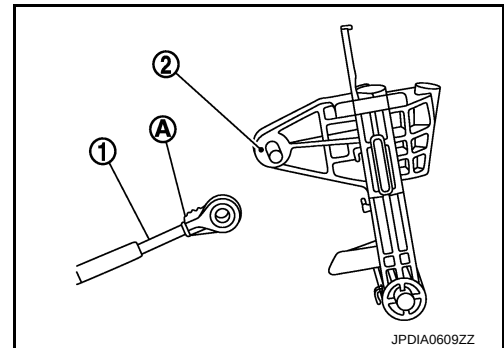
#### CAUTION:

- Place the grommet on the floor, then fasten it in place from below the vehicle.
- Check that pulling down on the grommet does not disconnect it.



- Pay attention to the following when connecting the control cable to the CVT shift selector.

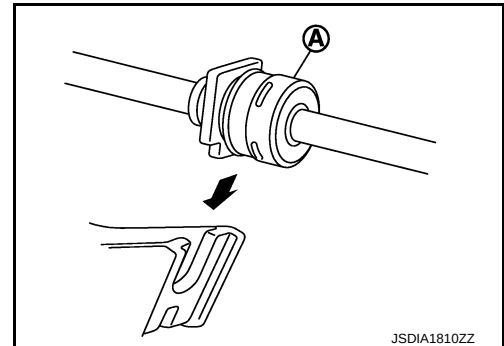
1. Shift the selector lever and Manual lever to "P" position.
2. When connecting the control cable ① to the CVT shift selector assembly ②, face the grooved surface of the rib ④ up and insert the control cable until it stops.



3. Install the socket ④ onto the CVT shift selector assembly.

#### CAUTION:

- Place the socket onto the CVT shift selector assembly, then fasten it in place from above.
- Check that the pulling on the socket does not disconnect it.



### QR25DE : Inspection

INFOID:0000000010622597

### INSPECTION AFTER INSTALLATION

Check the CVT position. If a malfunction is found, adjust the CVT position. Refer to [TM-308, "Inspection"](#).

# KEY INTERLOCK CABLE

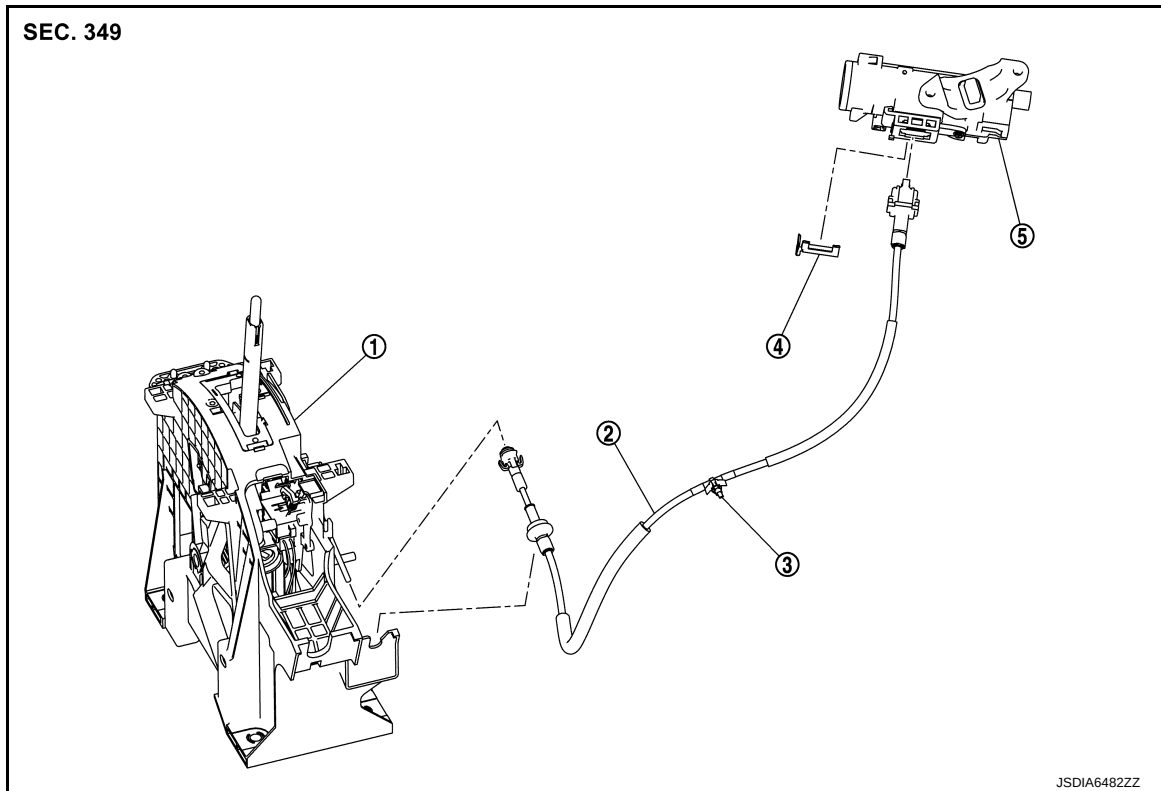
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

## KEY INTERLOCK CABLE

Exploded View

INFOID:000000011009338



- |                           |                       |        |
|---------------------------|-----------------------|--------|
| ① Shift selector assembly | ② Key interlock cable | ③ Clip |
| ④ Clip                    | ⑤ Key cylinder        |        |

## Removal and Installation

INFOID:000000011009339

### REMOVAL

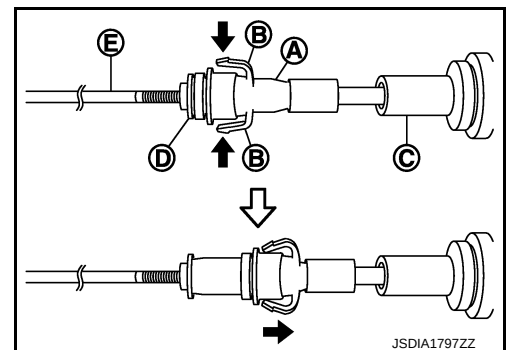
#### CAUTION:

**Always apply the parking brake before performing removal and installation.**

1. Remove the instrument lower panel (driver side) and steering column cover. Refer to [IP-14, "Removal and Installation"](#).
2. Remove the center console. Refer to [IP-25, "Removal and Installation"](#).
3. Press the pawls **B** of the key interlock cable slider **A** while sliding it in the direction of the casing cap **C**, and separate the adjusting holder **D** and slider.

Ⓔ :Key interlock rod

4. Remove the key interlock cable from the shift selector.





# KEY INTERLOCK CABLE

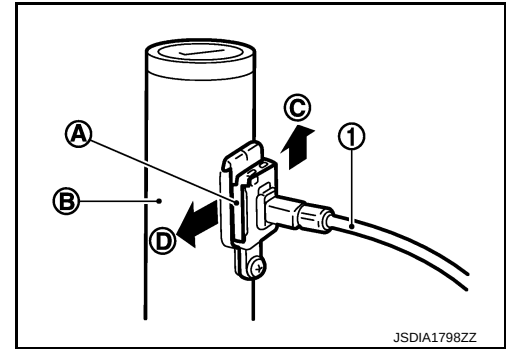
## < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

- Lift the clip (A) in the direction of the arrow (← (C)) and remove in the direction of the arrow (← (D)).

- ① : Key interlock cable
- ② : Key cylinder

- Remove the key interlock cable from the key cylinder.
- Disengage the clip and disconnect the key interlock cable from the vehicle.

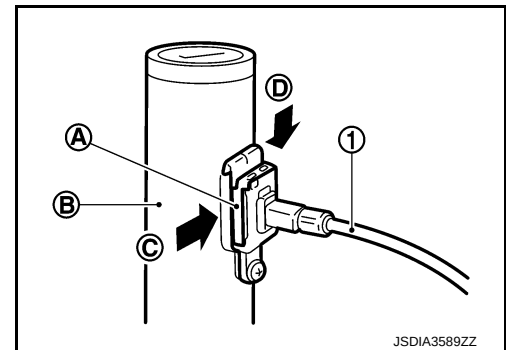


## INSTALLATION

- Move the shift selector to "P" position.
- Turn the ignition switch to ACC or ON position.
- Install the holder of key interlock cable to key cylinder.
- Install the clip (A) in the direction of the arrow (← (C)) and push it in the direction of the arrow (← (D)).

- ① : Key interlock cable
- ② : Key cylinder

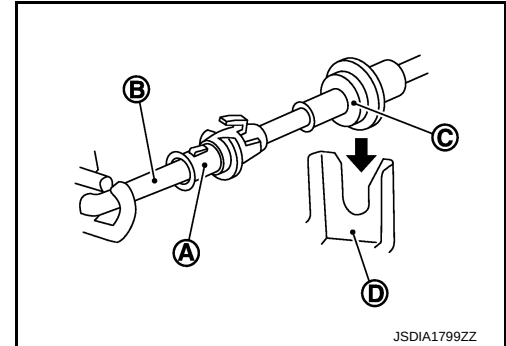
- Turn the ignition switch to LOCK position.



- Install the adjusting holder (A) onto the key interlock rod (B), then install the casing cap (C) onto the shift selector cable bracket (D).

### CAUTION:

- When installing the key interlock cable, do not bend or twist the cable forcefully.
- After connecting the key interlock cable to the shift selector cable bracket, be sure to check that the casing cap is completely fastened to the cable bracket. If the casing cap is easily displaced, replace the key interlock cable.

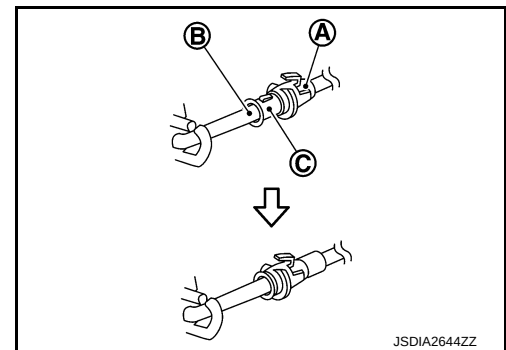


- Slide the key interlock cable slider (A) toward the key interlock rod (B) side and install the adjusting holder (C) and key interlock rod.

### CAUTION:

- Never squeeze the pawls on the key interlock cable slider when holding the slider.
- Never apply force in a perpendicular direction to the key interlock rod when sliding the slider.

- Install the center console. Refer to [IP-25, "Removal and Installation"](#).
- Install the instrument lower panel (driver side) and steering column cover. Refer to [IP-14, "Removal and Installation"](#).



## Inspection

INFOID:0000000011009340

## INSPECTION AFTER INSTALLATION

- Check the CVT position. If a malfunction is found, adjust the CVT position. Refer to [TM-308, "Inspection"](#).
- The key can be removed only when the selector lever is in the "P" position.

## KEY INTERLOCK CABLE

< REMOVAL AND INSTALLATION >

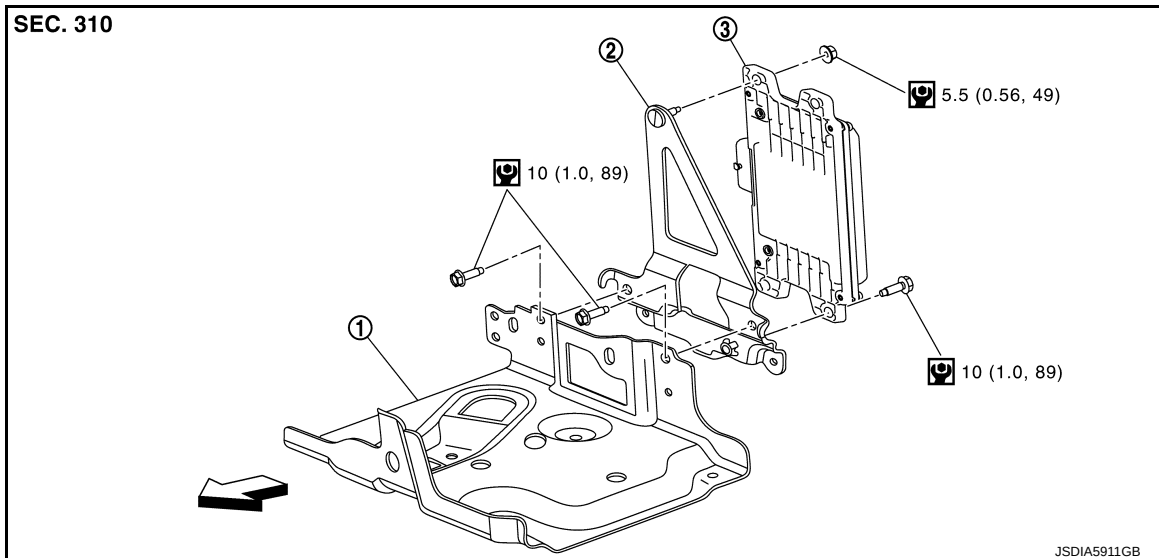
[CVT: RE0F10D]

- It must not be possible to turn the ignition switch to LOCK when the selector lever is not in the “P” position.

## TCM

## Exploded View

INFOID:0000000110622598



① Bracket

② Bracket

③ TCM

↖ : Vehicle front

⊙ : N·m (kg-m, in-lb)

## Removal and Installation

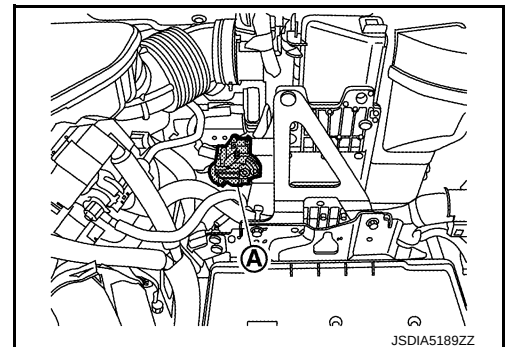
INFOID:0000000110622599

**CAUTION:**

- Never impact the TCM when removing or installing TCM.
- Before replacing TCM, perform "ADDITIONAL SERVICE WHEN REPLACING TCM". Refer to [TM-301, "Work Procedure"](#).
- When replacing TCM and transaxle assembly simultaneously, perform "ADDITIONAL SERVICE WHEN REPLACING TCM AND TRANSAXLE ASSEMBLY". Refer to [TM-305, "Work Procedure"](#).
- When replacing TCM, note the "CVTF DETERIORATION DATE" value displayed on CONSULT "CONFORM CVTF DETERIORATION" in MAINTENANCE BOOKLET, before start the operation.

## REMOVAL

1. Remove the battery. Refer to [PG-142, "EXCEPT FOR R9M : Removal and Installation"](#).
2. Disconnect the TCM connector (A).

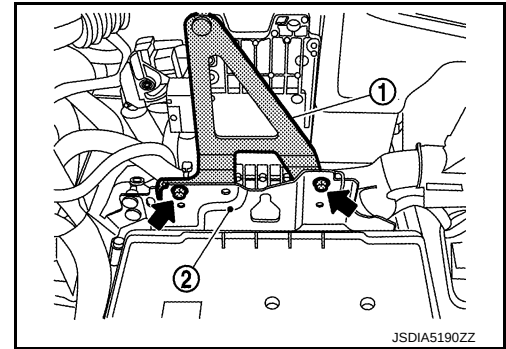


## TCM

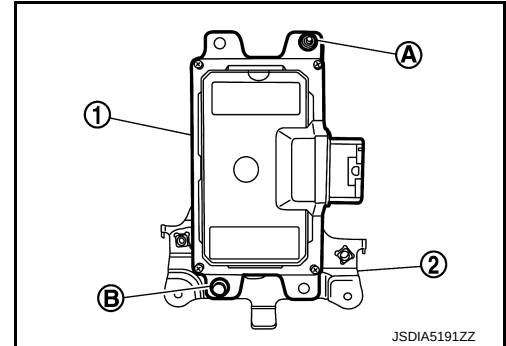
### < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

3. Remove the TCM bracket mounting bolts (←) and remove the TCM bracket ① from battery tray ②.
4. Remove the harness clip from TCM bracket.



5. Remove the TCM mounting nut (A) and bolt (B), and remove the TCM ① from TCM bracket ②.



### INSTALLATION

Installation is in the reverse order of removal.

### Adjustment

INFOID:0000000010622600

### ADJUSTMENT AFTER INSTALLATION

When replacing TCM, perform "ADDITIONAL SERVICE WHEN REPLACING TCM". Refer to [TM-301, "Work Procedure"](#).

# AIR BREATHER

< REMOVAL AND INSTALLATION >

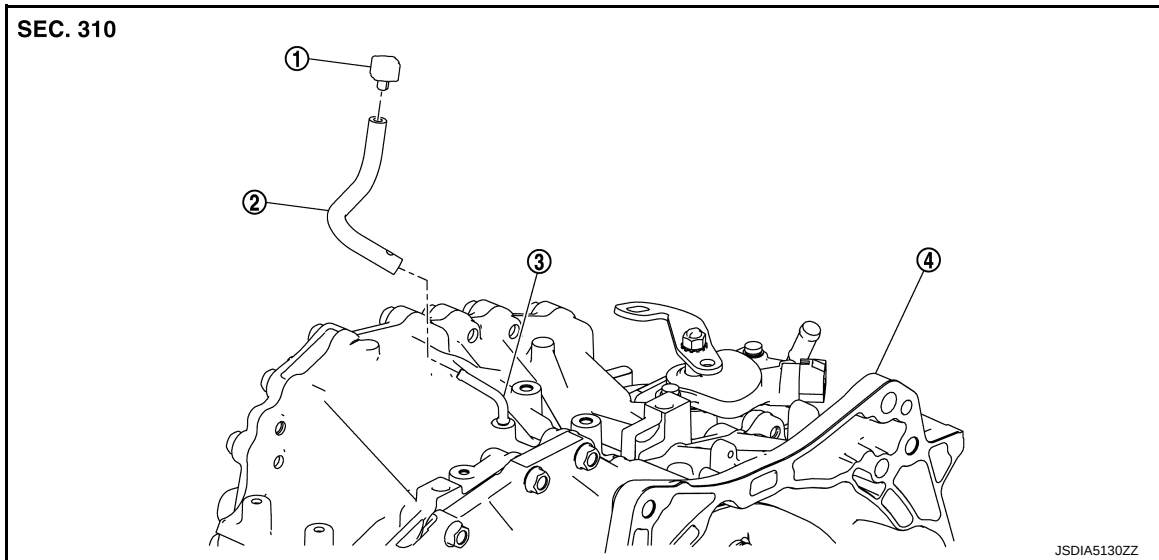
[CVT: RE0F10D]

## AIR BREATHER

MR20DD

MR20DD : Exploded View

INFOID:0000000010622601



① Air breather cap

② Air breather hose

③ Air breather tube

④ Transaxle assembly

## MR20DD : Removal and Installation

INFOID:0000000010622602

### REMOVAL

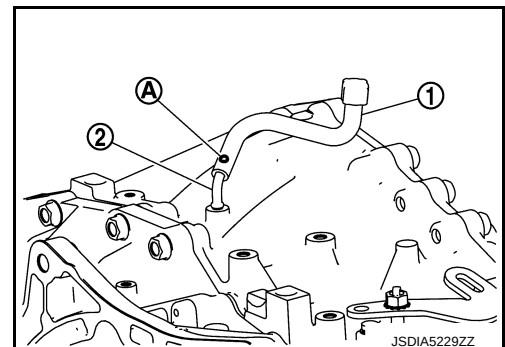
1. Remove air duct 1 and air duct 2. Refer to [EM-31, "Removal and Installation"](#).
2. Remove air breather hose from transaxle assembly.

### INSTALLATION

Note the followings and installation is in the reverse order of removal.

#### CAUTION:

- Never bend the air breather hose to prevent damage to the hose.
- Insert air breather hose to the end of air breather cap.
- Insert air breather hose ① to air breather tube ② all the way to the curve of the tube.
- Insert air breather hose to air breather tube so that the paint mark (A) is facing upward.



QR25DE

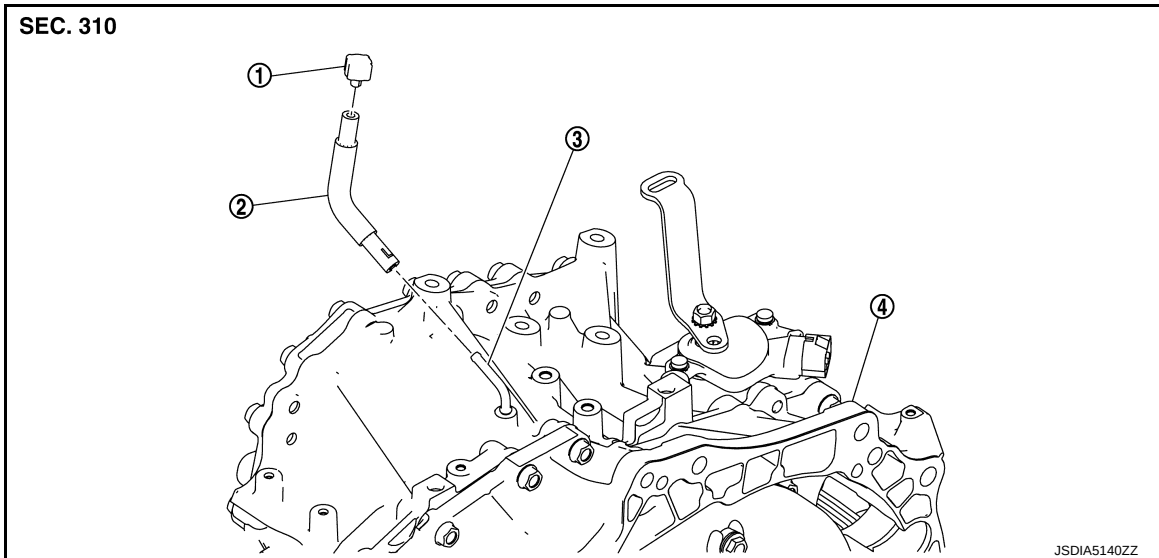
# AIR BREATHER

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

QR25DE : Exploded View

INFOID:000000010622603



- ① Air breather cap                      ② Air breather hose                      ③ Air breather tube  
④ Transaxle assembly

QR25DE : Removal and Installation

INFOID:000000010622604

## REMOVAL

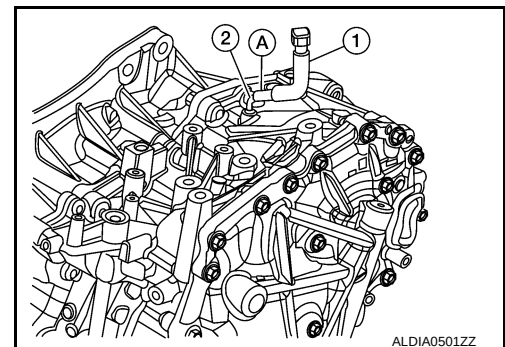
1. Remove air duct 1 and air duct 2. Refer to [EM-175, "Removal and Installation"](#).
2. Remove air breather hose from transaxle assembly.

## INSTALLATION

Note the followings and installation is in the reverse order of removal.

### CAUTION:

- Never bend the air breather hose to prevent damage to the hose.
- Insert air breather hose to the end of air breather cap.
- Insert air breather hose ① to air breather tube ② all the way to the curve of the tube.
- Insert air breather hose to air breather tube so that the paint mark (A) is facing upward.



# OIL PAN

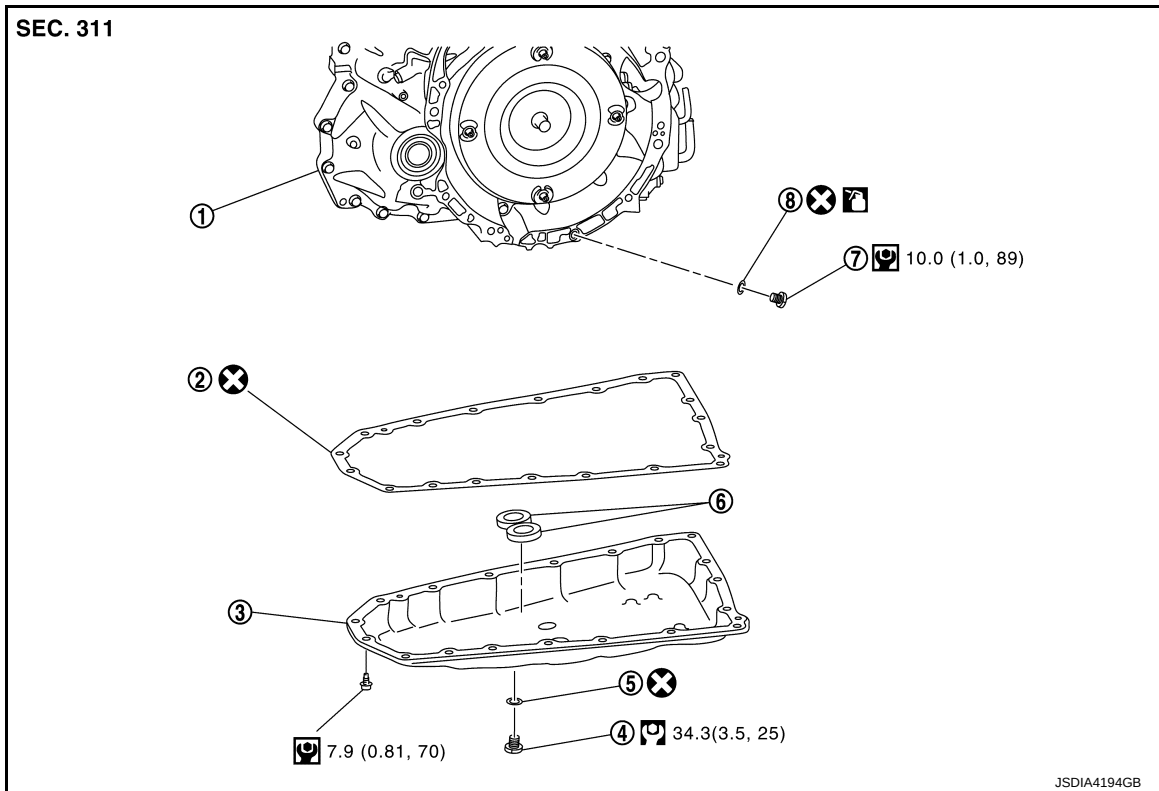
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

## OIL PAN

### Exploded View

INFOID:0000000010622605



- |                      |                     |           |
|----------------------|---------------------|-----------|
| ① Transaxle assembly | ② Oil pan gasket    | ③ Oil pan |
| ④ Drain plug         | ⑤ Drain plug gasket | ⑥ Magnet  |
| ⑦ Overflow plug      | ⑧ O-ring            |           |

⊗ : Always replace after every disassembly.

⊙ : N·m (kg-m, ft-lb)

⊕ : N·m (kg-m, in-lb)

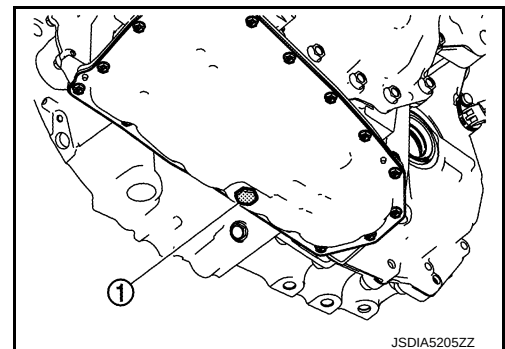
⊖ : Apply CVT fluid

### Removal and Installation

INFOID:0000000010622606

#### REMOVAL

1. Remove the engine under cover. Refer to [EXT-40, "ENGINE UNDER COVER : Removal and Installation"](#).
2. Remove the drain plug ① from oil pan and drain the CVT fluid.

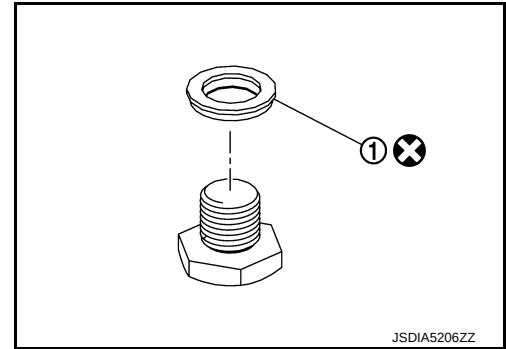


## OIL PAN

### < REMOVAL AND INSTALLATION >

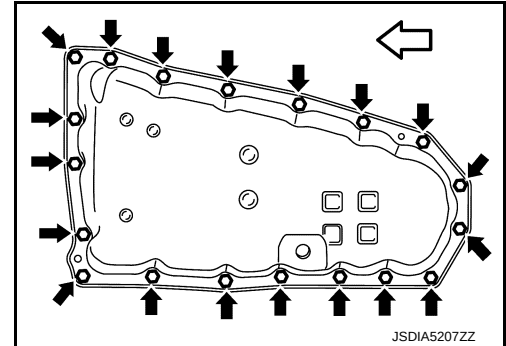
[CVT: RE0F10D]

3. Remove the drain plug gasket ①.

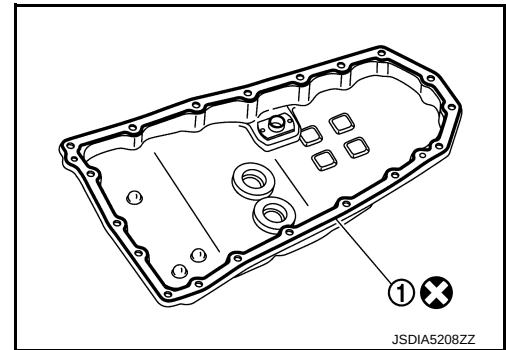


4. Remove the oil pan bolts (←) and remove the oil pan and oil pan gasket.

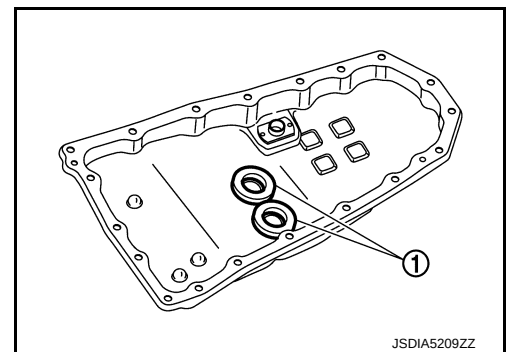
← : Vehicle front



5. Remove the oil pan gasket ① from the oil pan.



6. Remove the magnets ① from the oil pan.



### INSTALLATION

Note the followings and installation is in the reverse order of removal.

#### CAUTION:

- Never reuse oil pan gasket.
- Never reuse drain plug gasket.
- Completely clean the iron powder from the magnet area of oil pan and the magnets.
- Install the oil pan to the transaxle case with the following procedure.

1. Install the oil pan gasket to the oil pan.

#### CAUTION:

Completely wipe out any moisture, oil, and old gasket from the oil pan gasket surface and bolt hole of oil pan and transaxle case.

2. Install the oil pan assembly to the transaxle case and temporarily tighten the oil pan bolt.



## OIL PAN

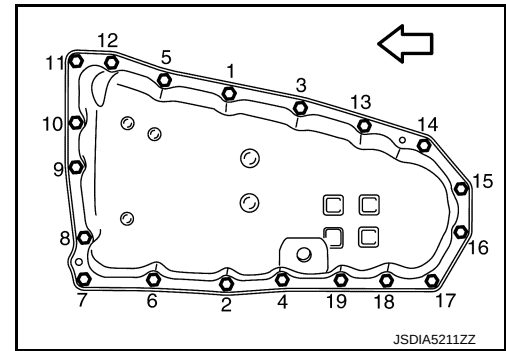
### < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

3. Tighten the oil pan bolts in the order shown to the specified torque.

↩ : Vehicle front

4. Tighten the oil pan bolts again clockwise from (1) shown to the specified torque.
- Fill ATF after installation. Refer to [TM-399, "Replacement"](#).



INFOID:000000010622607

## Inspection

### INSPECTION AFTER REMOVAL

Check oil pan for foreign material.

- If a large amount of worn material is found, clutch plate may be worn.
  - If iron powder is found, bearings, gears, or clutch plates may be worn.
  - If aluminum powder is found, bushing may be worn, or chips or burrs of aluminum casting parts may enter.
- Check points where wear is found in all cases.

### INSPECTION AFTER INSTALLATION

Check the CVT fluid leakage. Refer to [TM-399, "Inspection"](#).

# INPUT SPEED SENSOR

< REMOVAL AND INSTALLATION >

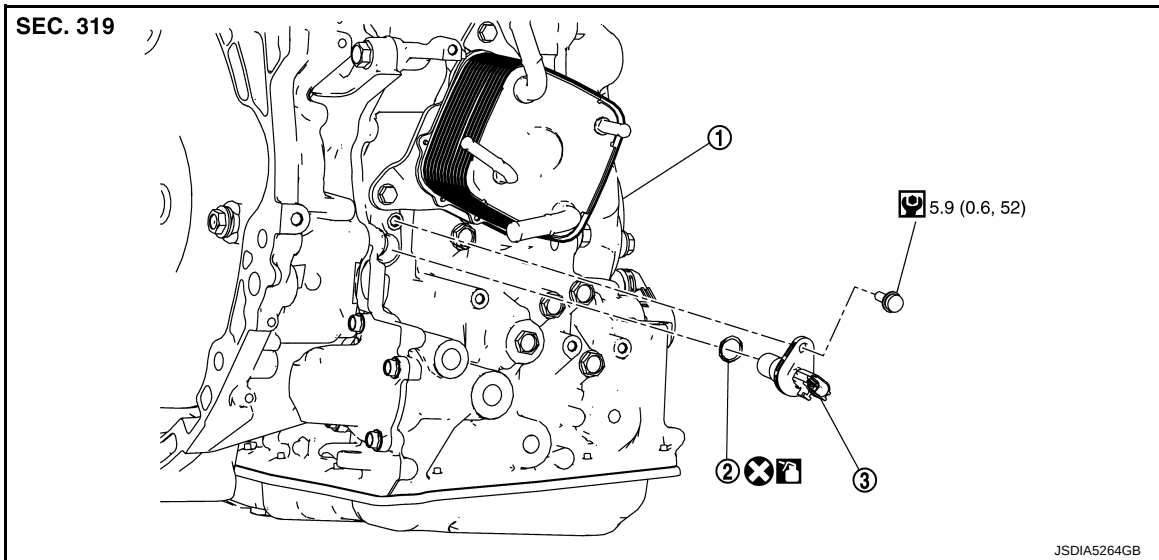
[CVT: RE0F10D]

## INPUT SPEED SENSOR

MR20DD

MR20DD : Exploded View

INFOID:0000000010622608



① Transaxle assembly

② O-ring

③ Input speed sensor

⊗ : Always replace after every disassembly.

N·m (kg·m, in·lb)

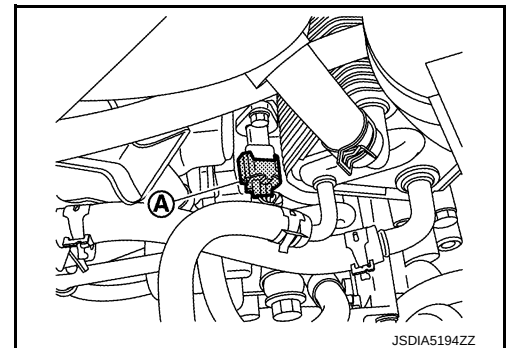
Apply CVT fluid

## MR20DD : Removal and Installation

INFOID:0000000010622609

### REMOVAL

1. Turn ignition switch OFF.
2. Remove air duct 1. Refer to [EM-30. "Exploded View"](#).
3. Disconnect input speed sensor connector (A).

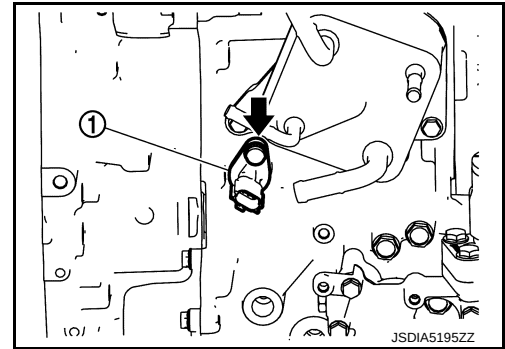


# INPUT SPEED SENSOR

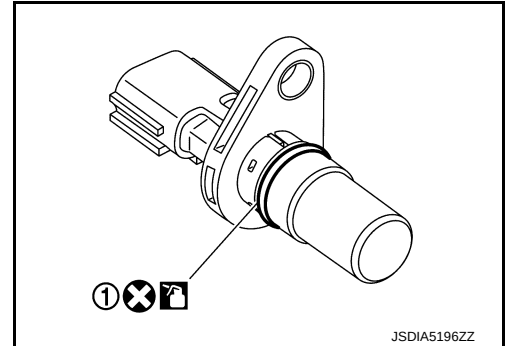
## < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

4. Remove mounting bolt (➡) and remove input speed sensor ① from transaxle assembly.



5. Remove O-ring ① from input speed sensor.



## INSTALLATION

Note the followings and installation is in the reverse order of removal.

### CAUTION:

- Never reuse O-ring.
- Apply CVT fluid to the O-ring.

## MR20DD : Inspection and Adjustment

INFOID:0000000010622610

## INSPECTION AFTER INSTALLATION

Start the engine and check visually that there is no leakage of CVT fluid.

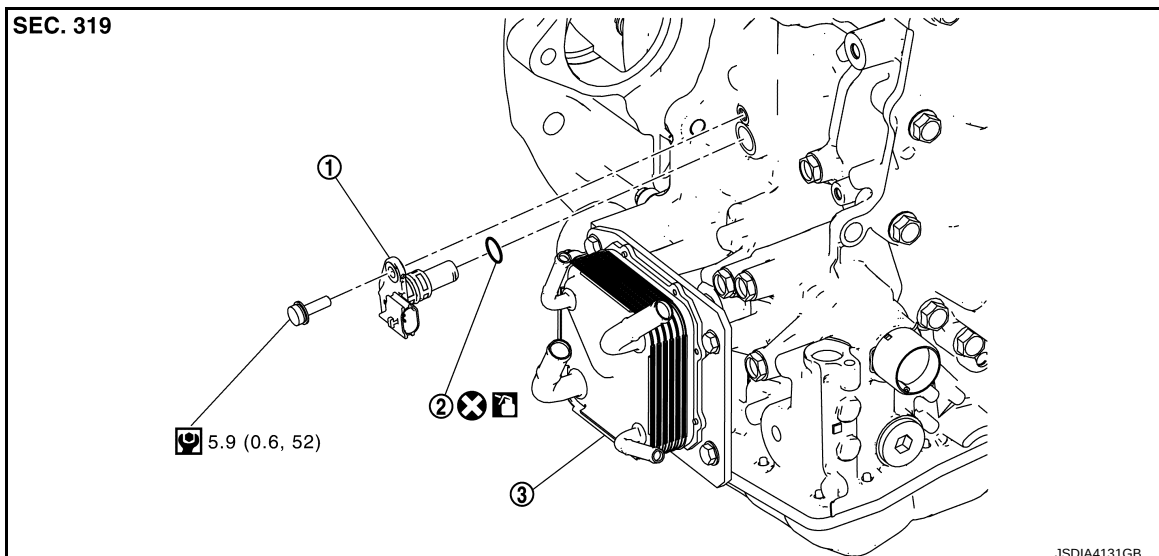
## ADJUSTMENT AFTER INSTALLATION

If CVT fluid leaks during work, adjust the CVT fluid level. Refer to [TM-401. "Adjustment"](#).

## QR25DE

## QR25DE : Exploded View

INFOID:0000000010622611



# INPUT SPEED SENSOR

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

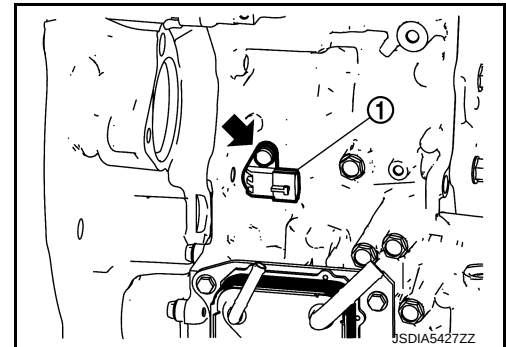
- ① Input speed sensor                      ② O-ring                      ③ Transaxle assembly
- ✕ : Always replace after every disassembly.
- ⌚ : N·m (kg-m, in-lb)
- 🔧 : Apply CVT fluid

## QR25DE : Removal and Installation

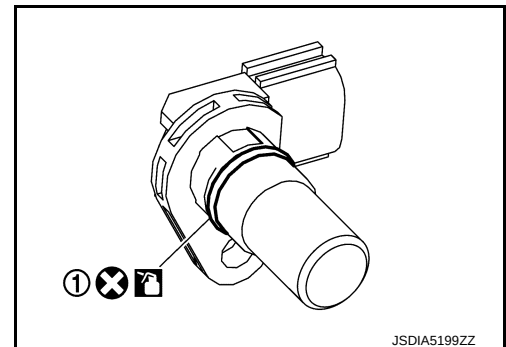
INFOID:0000000010622612

### REMOVAL

1. Turn ignition switch OFF.
2. Remove the starter motor. Refer to [STR-34, "QR25DE : Removal and Installation"](#).
3. Disconnect the input speed sensor harness connector.
4. Remove the input speed sensor bolt (➡) and remove the input speed sensor ①.



5. Remove the O-ring ① from the input speed sensor.



### INSTALLATION

Note the followings and installation is in the reverse order of removal.

#### CAUTION:

- **Never reuse O-ring.**
- **Apply CVT fluid to the O-ring.**

## QR25DE : Inspection and Adjustment

INFOID:0000000010622613

### INSPECTION AFTER INSTALLATION

Start the engine and check visually that there is no leakage of CVT fluid.

### ADJUSTMENT AFTER INSTALLATION

If CVT fluid leaks during work, adjust the CVT fluid level. Refer to [TM-401, "Adjustment"](#).

# PRIMARY SPEED SENSOR

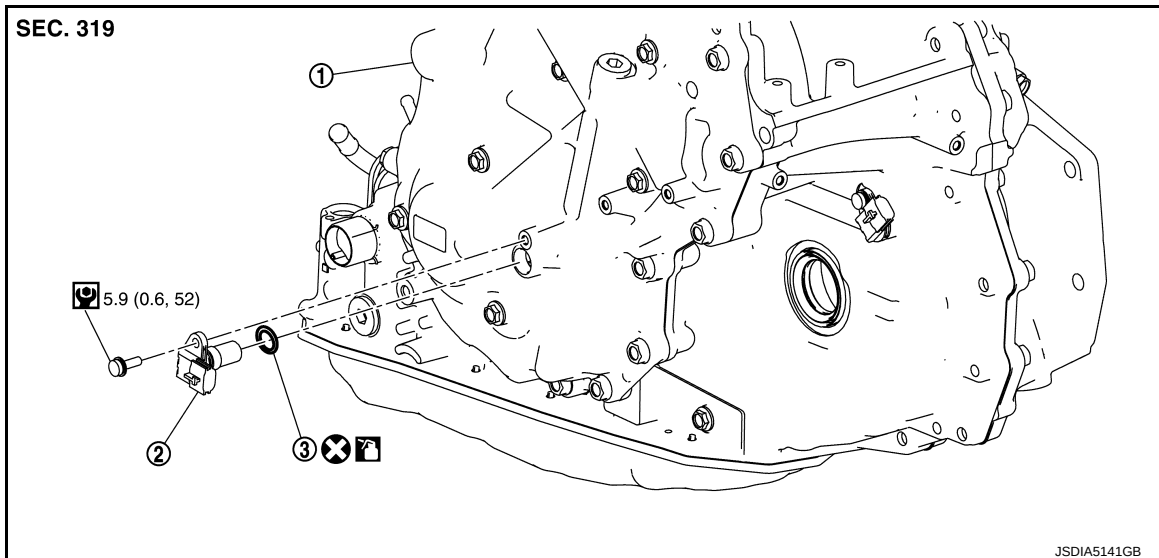
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

## PRIMARY SPEED SENSOR

### Exploded View

INFOID:0000000010622614



- ① Transaxle assembly      ② O-ring      ③ Primary speed sensor

⊗ : Always replace after every disassembly.

Ⓐ : N·m (kg-m, in-lb)

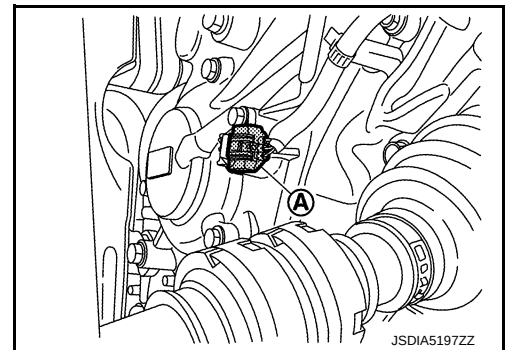
🔧 : Apply CVT fluid

### Removal and Installation

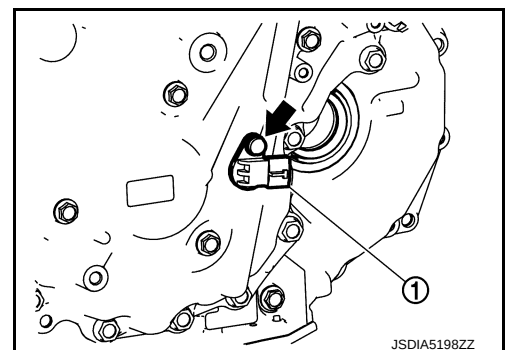
INFOID:0000000010622615

#### REMOVAL

1. Turn ignition switch OFF.
2. Disconnect the primary speed connector Ⓐ.



3. Remove the primary speed sensor bolt (⬅) and remove the primary speed sensor ①.

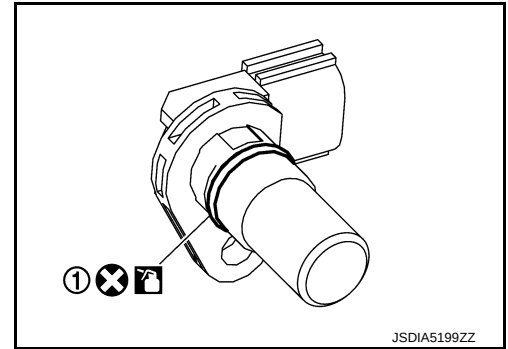


## PRIMARY SPEED SENSOR

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

4. Remove the O-ring ① from the primary speed sensor.



### INSTALLATION

Note the followings and installation is in the reverse order of removal.

#### CAUTION:

- Never reuse O-ring.
- Apply CVT fluid to the O-ring.

### Inspection and Adjustment

INFOID:0000000010622616

### INSPECTION AFTER INSTALLATION

Start the engine and check visually that there is no leakage of CVT fluid.

### ADJUSTMENT AFTER INSTALLATION

If CVT fluid leaks during work, adjust the CVT fluid level. Refer to [TM-401, "Adjustment"](#).

# OUTPUT SPEED SENSOR

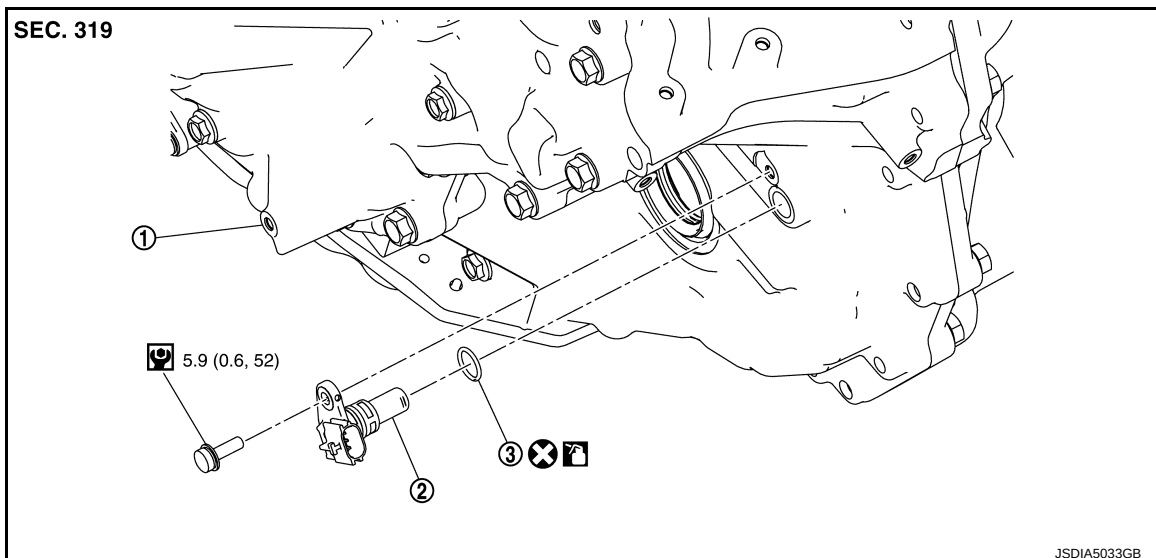
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

## OUTPUT SPEED SENSOR

### Exploded View

INFOID:0000000010622617



① Transaxle assembly

② Output speed sensor

③ O-ring

⊗ : Always replace after every disassembly.

Ⓐ : N·m (kg-m, in-lb)

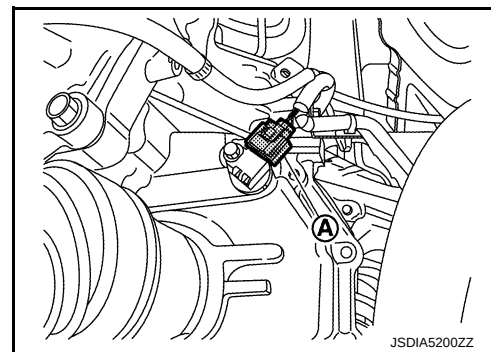
Ⓐ : Apply CVT fluid

## Removal and Installation

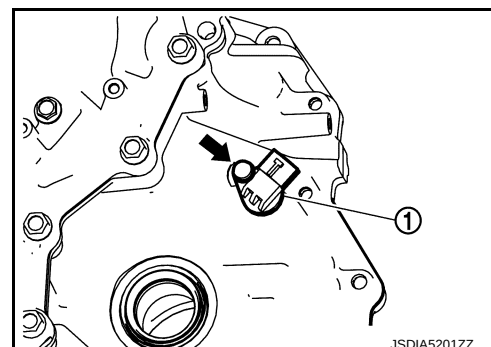
INFOID:0000000010622618

### REMOVAL

1. Turn ignition switch OFF.
2. Disconnect the output speed sensor connector (A).



3. Remove the output speed sensor bolt (⬅) and remove the output speed sensor (1).

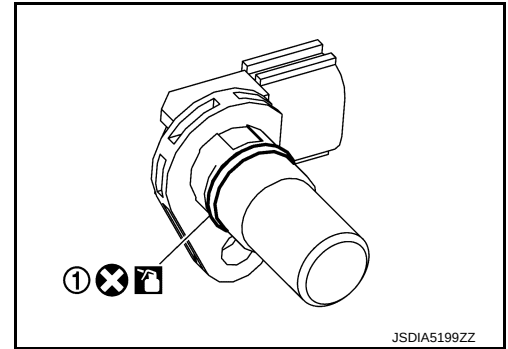


## OUTPUT SPEED SENSOR

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

4. Remove the O-ring ① from the output speed sensor.



### INSTALLATION

Note the followings and installation is in the reverse order of removal.

#### CAUTION:

- **Never reuse O-ring.**
- **Apply CVT fluid to the O-ring.**

### Inspection and Adjustment

INFOID:0000000010622619

### INSPECTION AFTER INSTALLATION

Start the engine and check visually that there is no leakage of CVT fluid.

### ADJUSTMENT AFTER INSTALLATION

If CVT fluid leaks during work, adjust the CVT fluid level. Refer to [TM-401, "Adjustment"](#).



# DIFFERENTIAL SIDE OIL SEAL

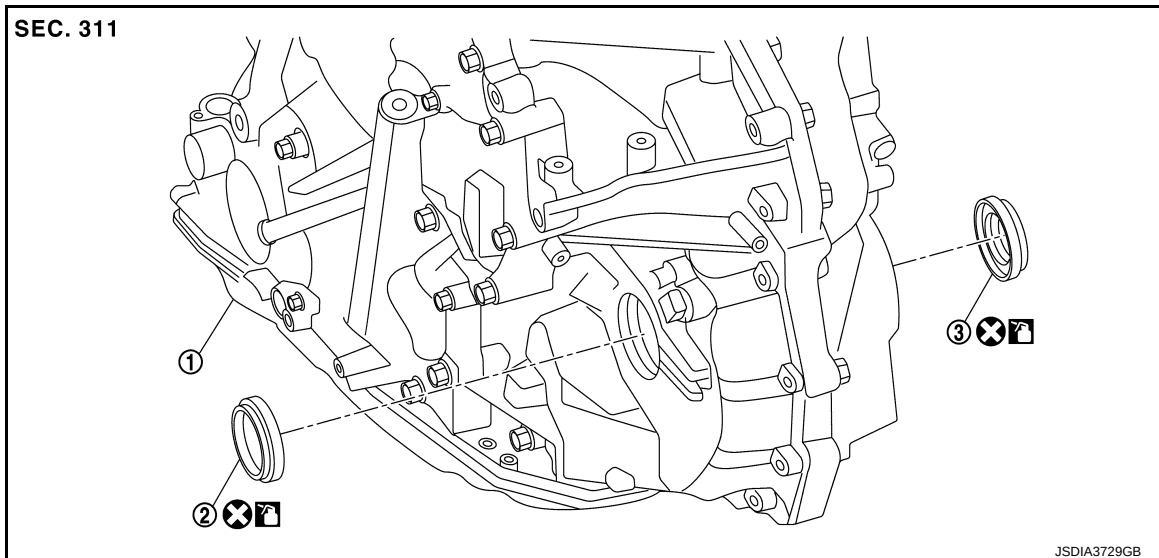
< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

## DIFFERENTIAL SIDE OIL SEAL

Exploded View

INFOID:0000000110622620



① Transaxle assembly

② Differential side oil seal (left side)

③ Differential side oil seal (right side)  
(2WD models only)

⊗ : Always replace after every disassembly.

🔧 : Apply CVT fluid

## Removal and Installation

INFOID:0000000110622621

### REMOVAL

#### NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

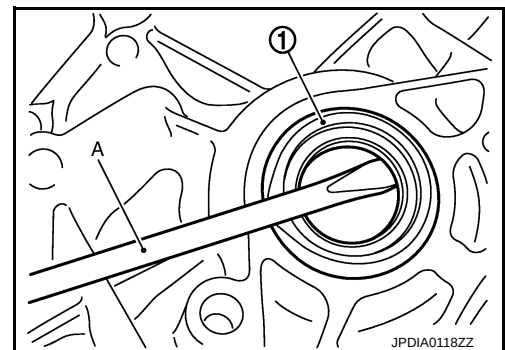
#### Differential Side Oil Seal (Left Side)

1. Remove front drive shaft. Refer to [FAX-36, "MR20DD : Removal and Installation"](#) (2WD with MR20DD), [FAX-101, "MR20DD : Removal and Installation"](#) (4WD with MR20DD), [FAX-113, "QR25DE : Removal and Installation"](#) (QR25DE).

2. Remove differential side oil seal ① using oil seal remover (A) (commercial service tool).

#### CAUTION:

Be careful not to scratch transaxle case and converter housing.



#### Differential Side Oil Seal (Right Side) (2WD Models Only)

1. Remove front drive shaft. Refer to [FAX-36, "MR20DD : Removal and Installation"](#).

## DIFFERENTIAL SIDE OIL SEAL

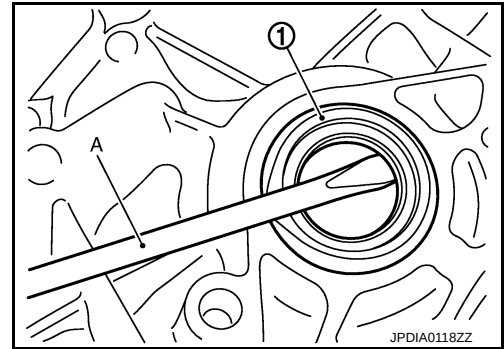
### < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

2. Remove differential side oil seal (A) using oil seal remover (A) (commercial service tool).

**CAUTION:**

Be careful not to scratch transaxle case and converter housing.



### INSTALLATION

Note the followings and installation is in the reverse order of removal.

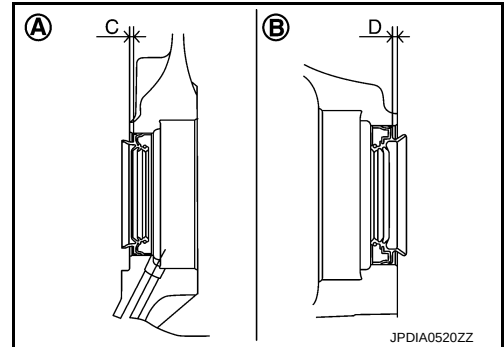
**CAUTION:**

- Never reuse differential side oil seal.
- Apply CVT fluid to differential side oil seals.
- When inserting the drive shaft, be sure to use Tool.

Tool number : KV38107900

Install each differential side oil seal evenly using suitable tool so that differential side oil seal protrudes by the dimension (C) and (D) respectfully.

- (A) : Differential side oil seal (LH)  
(B) : Differential side oil seal (RH) (2WD models only)



Dimension (C) : Height difference from case end surface is within  $1.8 \pm 0.5$  mm ( $0.071 \pm 0.020$  in).

Dimension (D) : Height difference from case end surface is within  $2.2 \pm 0.5$  mm ( $0.087 \pm 0.020$  in).

**NOTE:**

The reference is the installation direction of the differential side oil seal.

Drift to be used:

| Location               | Commercial Service Tools                                                               |
|------------------------|----------------------------------------------------------------------------------------|
| Transaxle case side    | Commercial service tool with outer dia. 56 mm (2.20 in) and inner dia. 50 mm (1.97 in) |
| Converter housing side |                                                                                        |

### Inspection and Adjustment

INFOID:000000010622622

#### INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage. Refer to [TM-399, "Inspection"](#).

#### ADJUSTMENT AFTER INSTALLATION

If CVT fluid leaks during work, adjust the CVT fluid level. Refer to [TM-401, "Adjustment"](#).

# WATER HOSE

< REMOVAL AND INSTALLATION >

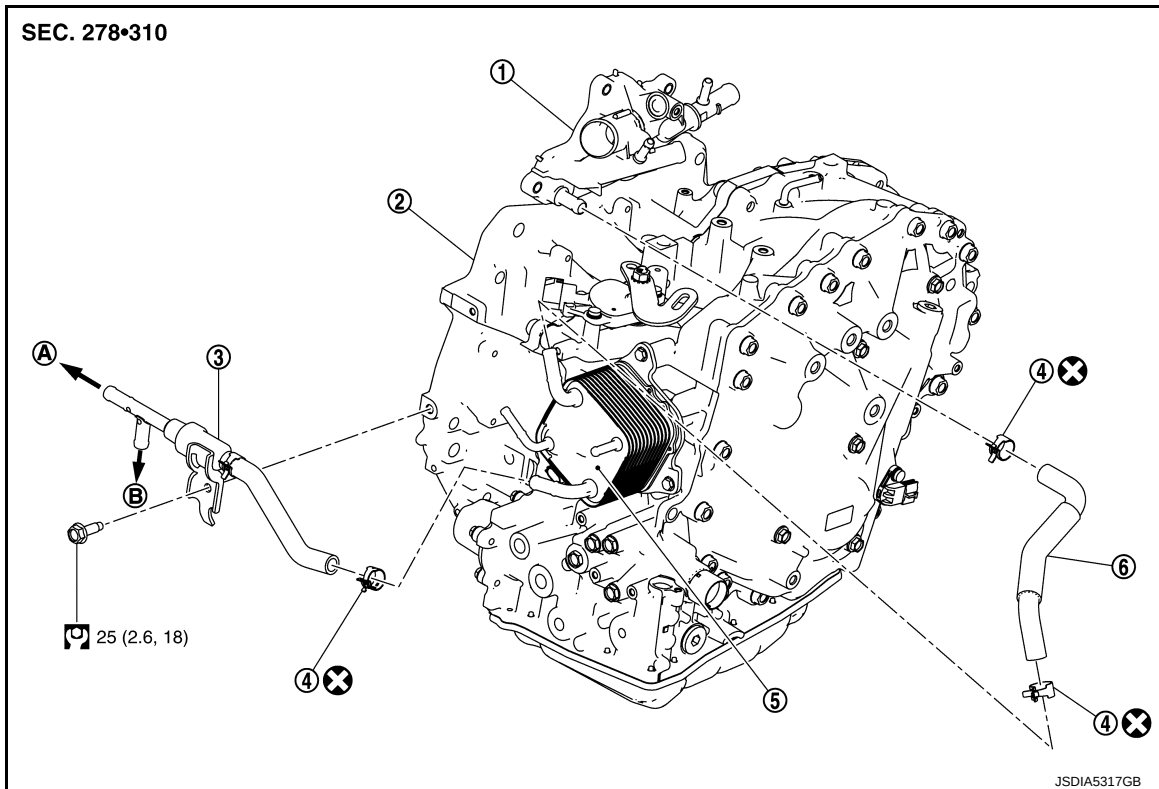
[CVT: RE0F10D]

## WATER HOSE

MR20DD

MR20DD : Exploded View

INFOID:0000000010622623



- |                                             |                        |                              |
|---------------------------------------------|------------------------|------------------------------|
| ① Water outlet                              | ② Transaxle assembly   | ③ Heater thermostat assembly |
| ④ Hose clamp                                | ⑤ CVT oil warmer       | ⑥ Water hose                 |
| Ⓐ To thermostat housing                     | Ⓑ To engine oil cooler |                              |
| ✕ : Always replace after every disassembly. |                        |                              |
| Ⓜ : N-m (kg-m, ft-lb)                       |                        |                              |

## MR20DD : Removal and Installation

INFOID:0000000010622624

### REMOVAL

#### **WARNING:**

Never remove the radiator cap when the engine is hot. Serious burns could occur from high pressure coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.

#### **CAUTION:**

Perform when the engine is cold.

#### **NOTE:**

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Remove air duct 1. Refer to [EM-30. "Exploded View"](#).
2. Remove water hose and heater thermostat assembly.

### INSTALLATION

Note the followings and installation is in the reverse order of removal.

#### **CAUTION:**

- Never reuse hose clamps.

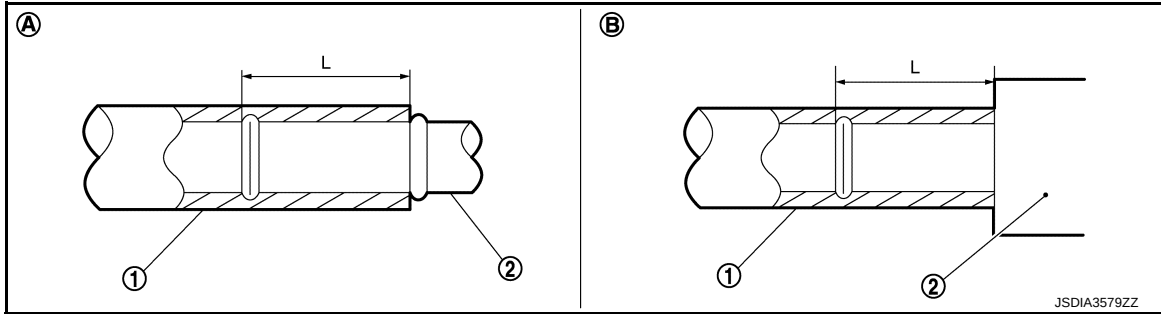
# WATER HOSE

## < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

- **Securely install the water hose clip to the converter housing.**
- Refer to the following when installing water hoses.

| Hose ①                     | Installation side tube ② | Direction of paint mark | Hose insertion depth (L)            |
|----------------------------|--------------------------|-------------------------|-------------------------------------|
| Heater thermostat assembly | CVT oil warmer           | Frontward               | Hose end reaches the 2-stage bulge. |
|                            | CVT oil warmer           | Frontward               |                                     |
| Water hose                 | Water outlet             | Frontward               | Hose end reaches the end of tube.   |

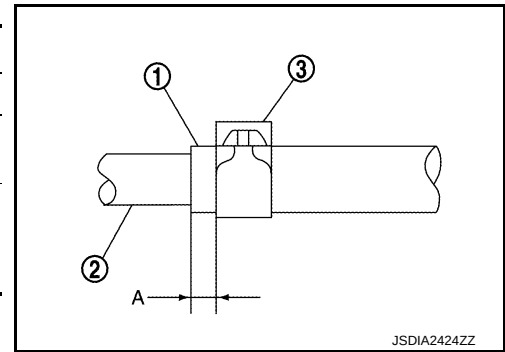


- Refer to the followings when installing hose clamp.

### CAUTION:

**Hose clamp should not interfere with the bulge of tube.**

| Hose ①                      | Installation side tube ② | Hose clamp ③             |                                         |
|-----------------------------|--------------------------|--------------------------|-----------------------------------------|
|                             |                          | Direction of tab         | Clamping position (A)                   |
| Heater thermo-stat assembly | CVT oil warmer           | Frontward                | 5 – 9 mm (0.20 – 0.35 in) from hose end |
| Water hose                  | CVT oil warmer           | Upward and 30° frontward | 5 – 7 mm (0.20 – 0.28 in) from hose end |
|                             | Water outlet             | Frontward                |                                         |



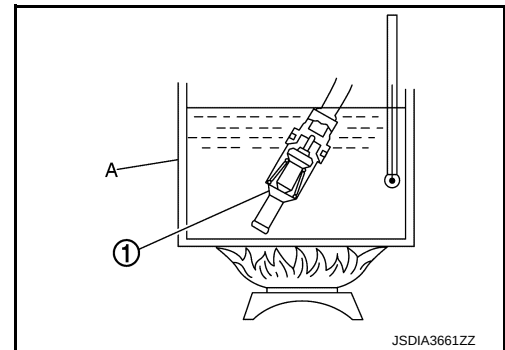
## MR20DD : Inspection

INFOID:0000000010622625

### INSPECTION AFTER REMOVAL

#### Heater Thermostat

1. Fully immerse the heater thermostat ① in a container (A) filled with water. Continue heating the water while stirring.
2. Continue heating the heater thermostat for 5 minutes or more after bringing the water to a boil.



3. Quickly take the heater thermostat out of the hot water, measure the heater thermostat within 10 seconds.

# WATER HOSE

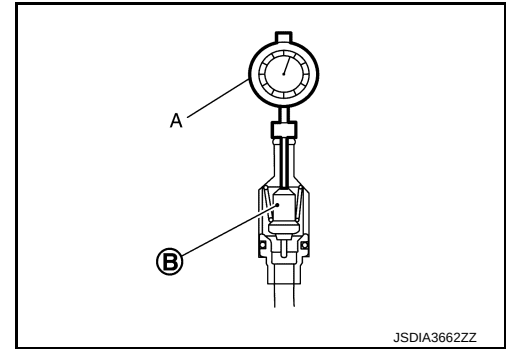
## < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

- Place dial indicator (A) on the pellet (B) and measure the elongation from the initial state.

**Standard** : Refer to [TM-457, "Heater Thermostat"](#).

- If out of standard, replace heater thermostat.



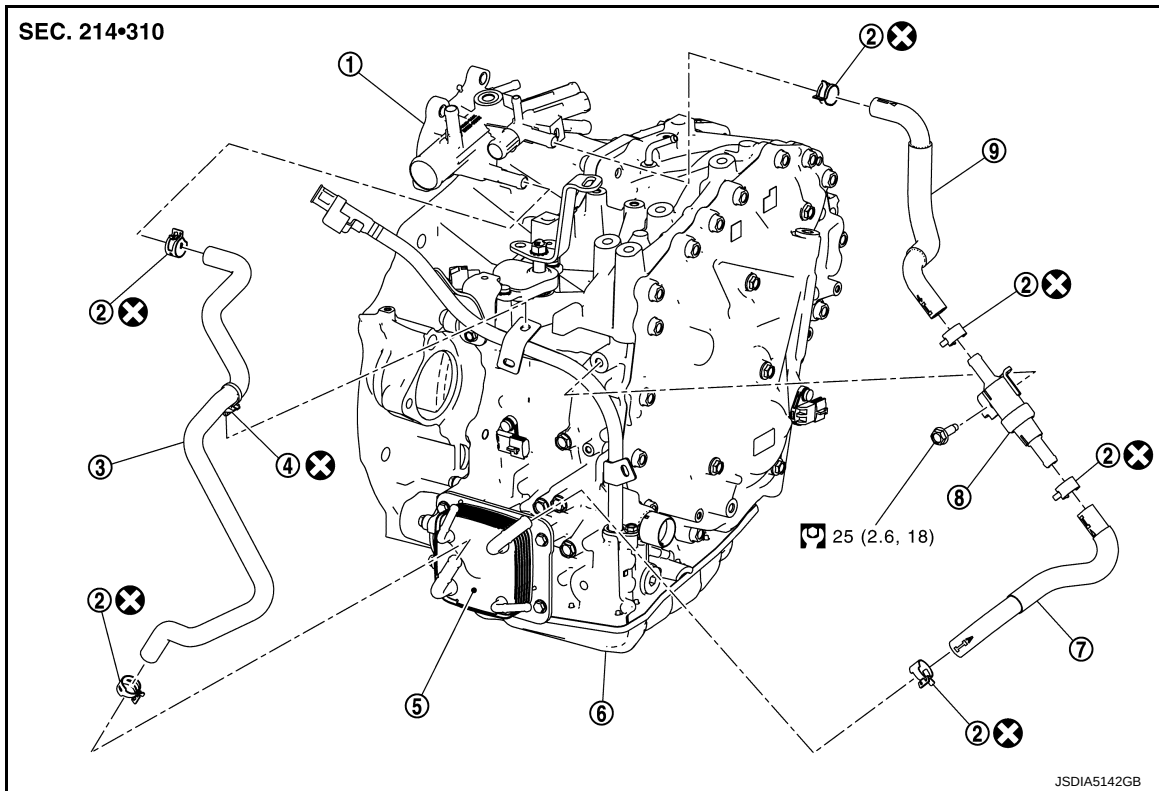
## INSPECTION AFTER INSTALLATION

Start the engine and check visually that there is no leakage of engine coolant.

QR25DE

QR25DE : Exploded View

INFOID:0000000010622626



- |                |                     |                      |
|----------------|---------------------|----------------------|
| ① Water outlet | ② Hose clamp        | ③ Water hose A       |
| ④ Clip         | ⑤ CVT oil warmer    | ⑥ Transaxle assembly |
| ⑦ Water hose B | ⑧ Heater thermostat | ⑨ Water hose C       |

⊗ : Always replace after every disassembly.

Ⓐ : N·m (kg-m, ft-lb)

## QR25DE : Removal and Installation

INFOID:0000000010622627

### REMOVAL

#### **WARNING:**

Never remove the radiator cap when the engine is hot. Serious burns could occur from high pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.

# WATER HOSE

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

## CAUTION:

Perform when the engine is cold.

## NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Remove battery tray. Refer to [PG-148, "EXCEPT FOR R9M : Removal and Installation"](#).
2. Remove engine under cover. Refer to [EXT-40, "ENGINE UNDER COVER : Removal and Installation"](#).
3. Remove CVT fluid charging pipe. Refer to [TM-449, "Exploded View"](#).
4. Remove splash side cover LH. Refer to [EXT-35, "FENDER PROTECTOR : Exploded View"](#).
5. Remove water hose A, B, C, and heater thermostat.

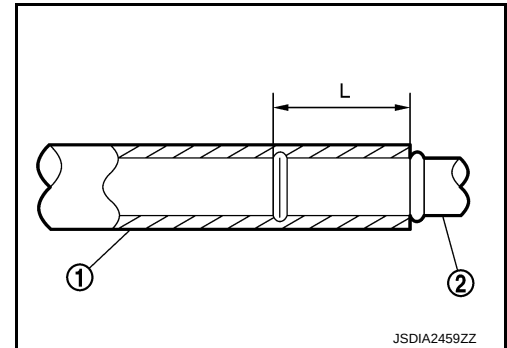
## INSTALLATION

Note the followings and installation is in the reverse order of removal.

## CAUTION:

- Never reuse hose clamps.
- Never reuse hose clip
- Securely install the water hose clip to the bracket hole of charging pipe.
- Refer to the following when installing water hoses.

| Hhose ①      | Installation side tube ② | Direction of paint mark                      | Hose insertion depth (L)        |
|--------------|--------------------------|----------------------------------------------|---------------------------------|
| Water hose A | Water outlet             | Upward                                       | End reaches the end of tube.    |
|              | CVT oil warmer           | Frontward                                    | End reaches the 2-stage bulge.  |
| Water hose B | CVT oil warmer           | Frontward                                    |                                 |
|              | Heater thermostat        | Align with the mark on the heater thermostat | End reaches the expansion part. |
| Water hose C | Heater thermostat        | Align with the mark on the heater thermostat |                                 |
|              | Water outlet             | Upward                                       | End reaches the end of tube.    |

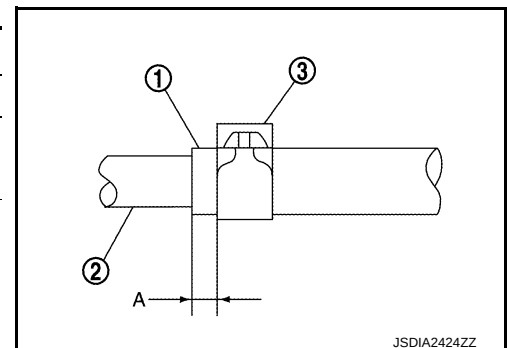


- Refer to the followings when installing hose clamp.

## CAUTION:

Hose clamp should not interfere with the bulge of tube.

| Hose ①       | Installation side tube ② | Hose clamp ③                    |                                         |
|--------------|--------------------------|---------------------------------|-----------------------------------------|
|              |                          | Direction of tab                | Clamping position (A)                   |
| Water hose A | Water outlet             | Upward                          | 5 – 7 mm (0.20 – 0.28 in) from hose end |
|              | CVT oil warmer           | Leftward                        |                                         |
| Water hose B | CVT oil warmer           | Leftward                        | 5 – 9 mm (0.20 – 0.35 in) from hose end |
|              | Heater thermostat        | Align with the mark on the hose |                                         |
| Water hose C | Heater thermostat        | Align with the mark on the hose |                                         |
|              | Water outlet             | Upward and 45° forward          |                                         |



QR25DE : Inspection

INFOID:0000000010622628

INSPECTION AFTER REMOVAL

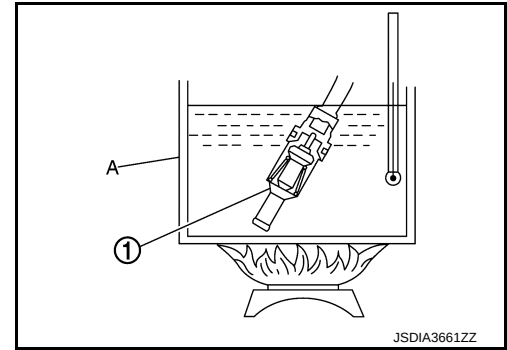
# WATER HOSE

## < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

### Heater Thermostat

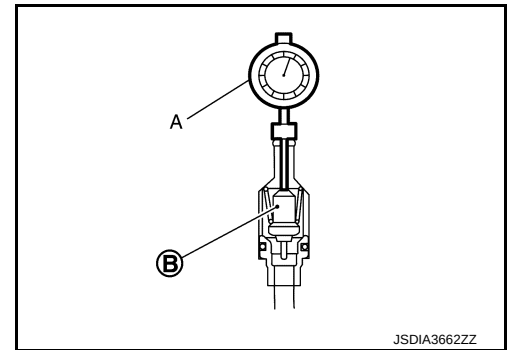
1. Fully immerse the heater thermostat ① in a container (A) filled with water. Continue heating the water while stirring.
2. Continue heating the heater thermostat for 5 minutes or more after bringing the water to a boil.



3. Quickly take the heater thermostat out of the hot water, measure the heater thermostat within 10 seconds.
  - Place dial indicator (A) on the pellet ② and measure the elongation from the initial state.

**Standard** : Refer to [TM-457, "Heater Thermostat"](#).

4. If out of standard, replace heater thermostat.



### INSPECTION AFTER INSTALLATION

Start the engine and check visually that there is no leakage of engine coolant.

# CVT FLUID COOLER SYSTEM

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

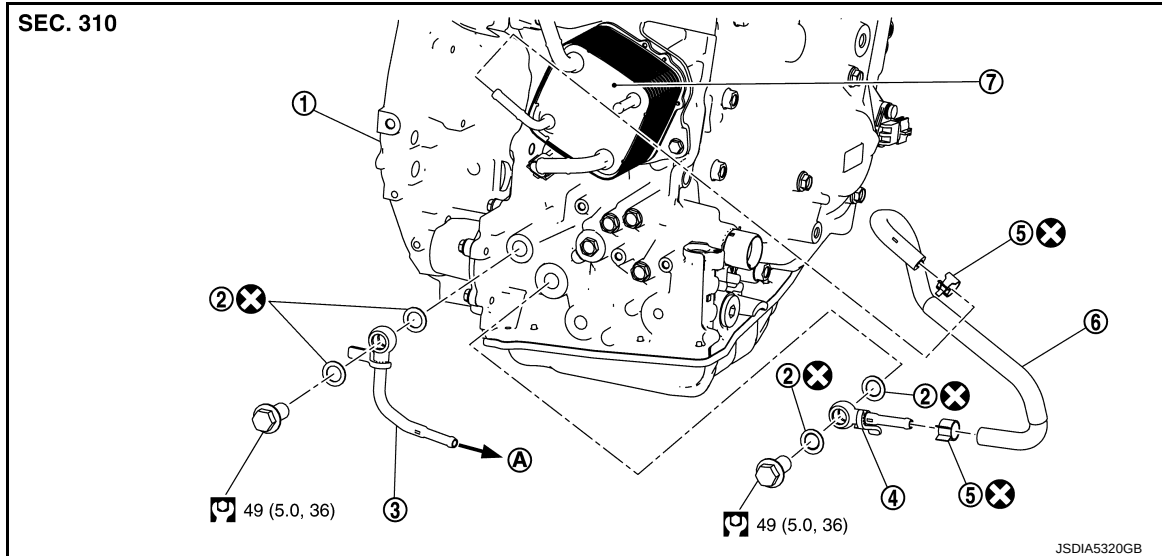
## CVT FLUID COOLER SYSTEM

MR20DD

MR20DD : Exploded View

INFOID:0000000110622629

Transaxle side



① Transaxle assembly

② Copper washer

③ Fluid cooler tube A

④ Fluid cooler tube B

⑤ Hose clamp

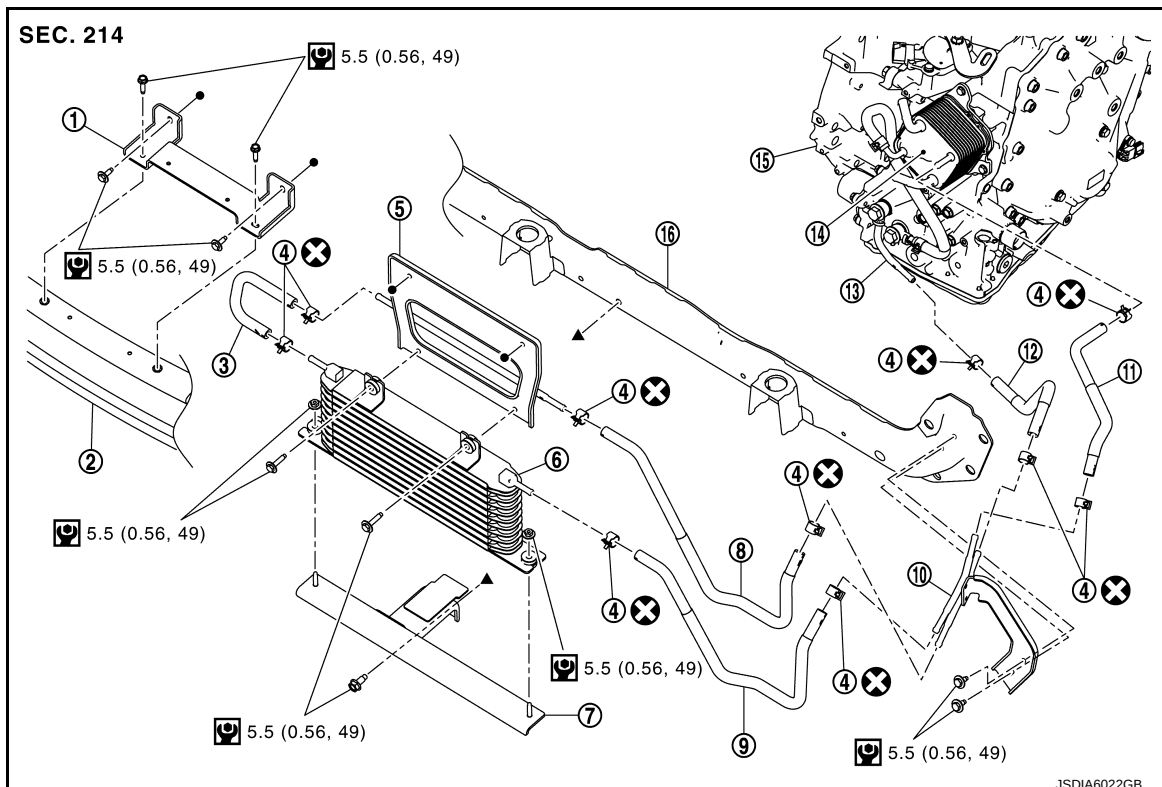
⑥ Fluid cooler hose A

⑦ CVT oil warmer

⊗ : Always replace after every disassembly.

⊙ : N-m (kg-m, ft-lb)

Vehicle side





# CVT FLUID COOLER SYSTEM

## < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

- |                              |                                    |                       |
|------------------------------|------------------------------------|-----------------------|
| ① Bracket                    | ② Bumper reinforcement             | ③ Fluid cooler hose D |
| ④ Hose clamp                 | ⑤ Fluid cooler bracket (with tube) | ⑥ CVT fluid cooler    |
| ⑦ Bracket                    | ⑧ Fluid cooler hose C              | ⑨ Fluid cooler hose E |
| ⑩ Fluid cooler tube assembly | ⑪ Fluid cooler hose F              | ⑫ Fluid cooler hose B |
| ⑬ Fluid cooler tube A        | ⑭ CVT oil warmer                   | ⑮ Transaxle assembly  |
| ⑯ Bumper reinforcement lower |                                    |                       |

⊗ : Always replace after every disassembly.

Ⓐ : N·m (kg-m, in-lb)

## MR20DD : Removal and Installation

INFOID:000000010622630

### REMOVAL

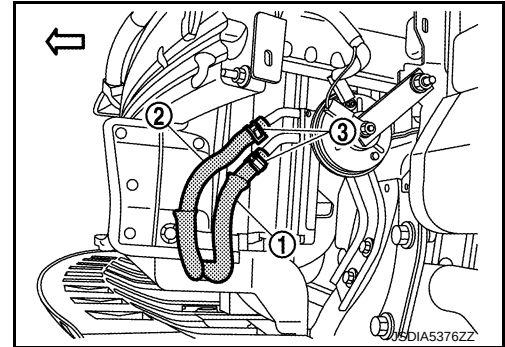
#### NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Remove front bumper. Refer to [EXT-15, "Removal and Installation"](#).
2. Pull out fluid cooler hose C ① and fluid cooler hose E ② from fluid cooler tube assembly.

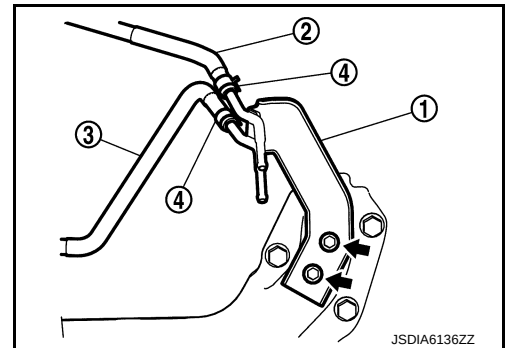
③ : Hose clamp

⇐ : Vehicle front



3. Remove the mounting bolts (⇐) of fluid cooler tube assembly ①.
4. Pull out fluid cooler hose F ② and fluid cooler hose B ③ from fluid cooler tube assembly.

④ : Hose clamp

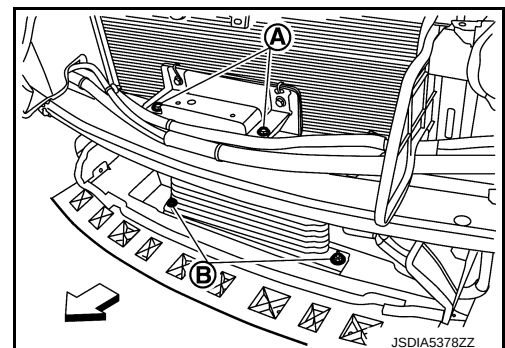


5. Remove CVT fluid cooler mounting bolts ① and mounting nuts ② and take out the CVT fluid cooler.

#### CAUTION:

Be careful not to damage the radiator fins while taking out the CVT fluid cooler.

⇐ : Vehicle front



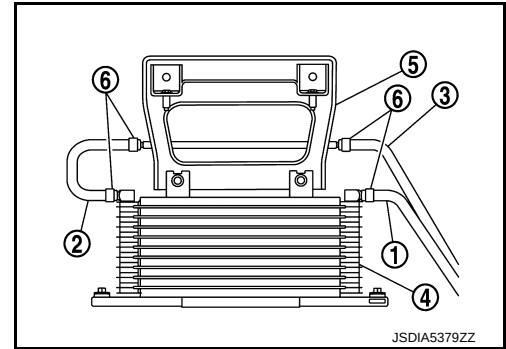
# CVT FLUID COOLER SYSTEM

## < REMOVAL AND INSTALLATION >

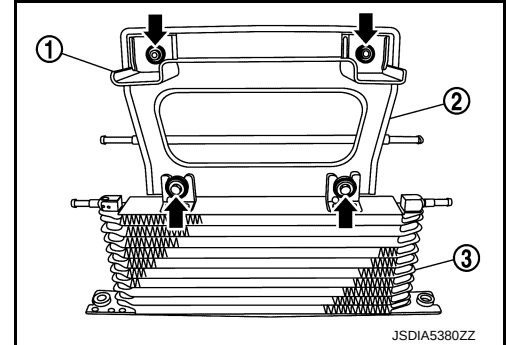
[CVT: RE0F10D]

6. Pull out fluid cooler hose E ①, fluid cooler hose D ② and fluid cooler hose C ③ from CVT fluid cooler ④ and fluid cooler bracket (with tube) ⑤.

⑥ : Hose clamp



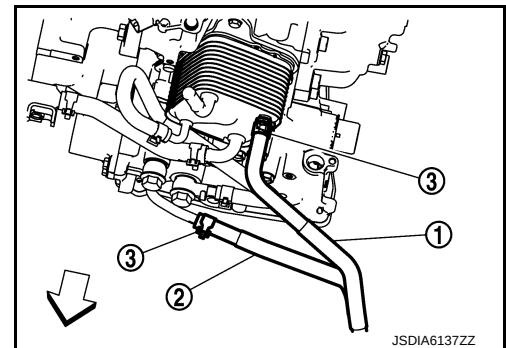
7. Remove the four bolts (↖) and separate bracket ① and fluid cooler bracket (with tube) ② from CVT fluid cooler ③.



8. Pull out fluid cooler hose F ① and fluid cooler hose B ② from CVT oil warmer.

③ : Hose clamp

↖ : Vehicle front



## INSTALLATION

Note the followings and Installation is in the reverse order of removal.

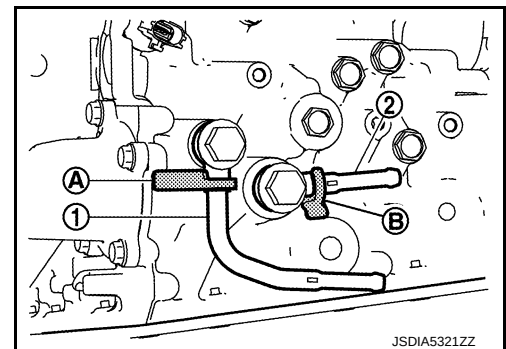
### CAUTION:

- Be careful not to damage CVT fluid cooler.
- Never reuse hose clamps.

Transaxle side

Refer to the followings when installing CVT fluid cooler tube.

- When installing fluid cooler tube A ① and fluid cooler tube B ② to transaxle assembly, contact fluid cooler tubes stopper (A) and (B) to transaxle case.



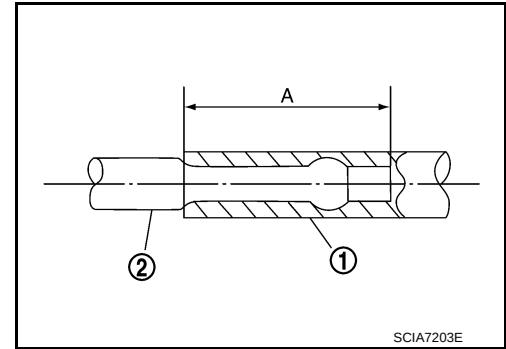
- Refer to the followings when installing fluid cooler hose.

# CVT FLUID COOLER SYSTEM

## < REMOVAL AND INSTALLATION >

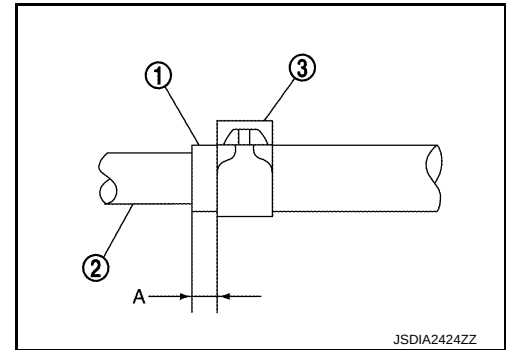
[CVT: RE0F10D]

| Hose ①              | Installation side tube ② | Direction of paint mark                                   | Hose insertion depth (A)          |
|---------------------|--------------------------|-----------------------------------------------------------|-----------------------------------|
| Fluid cooler hose A | CVT oil warmer           | Frontward                                                 | Hose end reaches the end of tube. |
|                     | CVT fluid cooler tube B  | Align with the paint marks on the CVT fluid cooler tube B |                                   |



- Refer to the followings when installing hose clamp.
- CAUTION:**  
Hose clamp should not interfere with the bulge of tube.

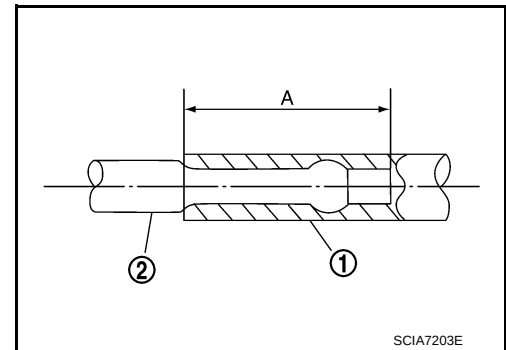
| Hose ①              | Installation side tube ② | Hose clamp ③     |                                             |
|---------------------|--------------------------|------------------|---------------------------------------------|
|                     |                          | Direction of tab | Clamping position                           |
| Fluid cooler hose A | CVT oil warmer           | Frontward        | 5 – 9 mm (0.20 – 0.35 in) (A) from hose end |
|                     | CVT fluid cooler tube B  |                  |                                             |



### Vehicle side

- Refer to the followings when installing fluid cooler hose.

| Hose ①              | Installation side tube ②         | Direction of paint mark | Hose insertion depth (A)            |
|---------------------|----------------------------------|-------------------------|-------------------------------------|
| Fluid cooler hose B | Fluid cooler tube A              | Frontward               | Hose end reaches the 2-stage bulge. |
|                     | Fluid cooler tube assembly       | Leftward                |                                     |
| Fluid cooler hose C | Fluid cooler tube assembly       |                         | Frontward                           |
|                     | Fluid cooler bracket (with tube) |                         |                                     |
| Fluid cooler hose D | Fluid cooler bracket (with tube) | Leftward                | Hose end reaches the end of tube    |
|                     | CVT fluid cooler                 |                         |                                     |
| Fluid cooler hose E | CVT fluid cooler                 | Leftward                | Hose end reaches the 2-stage bulge. |
|                     | Fluid cooler tube assembly A     |                         |                                     |
| Fluid cooler hose F | Fluid cooler tube assembly A     | Upward                  |                                     |
|                     | CVT oil warmer                   |                         |                                     |



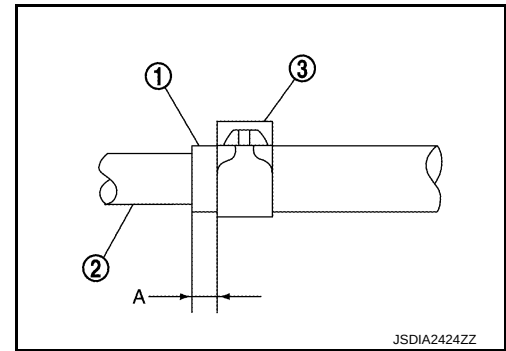
- Refer to the followings when installing hose clamp.
- CAUTION:**  
Hose clamp should not interfere with the bulge of fluid cooler tube.

# CVT FLUID COOLER SYSTEM

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

| Hose ①              | Installation side tube ②         | Hose clamp ③     |                                         |
|---------------------|----------------------------------|------------------|-----------------------------------------|
|                     |                                  | Direction of tab | Clamping position (A)                   |
| Fluid cooler hose B | Fluid cooler tube A              | Frontward        | 5 – 9 mm (0.20 – 0.35 in) from hose end |
|                     | Fluid cooler tube assembly       | Leftward         |                                         |
| Fluid cooler hose C | Fluid cooler tube assembly       |                  |                                         |
|                     | Fluid cooler bracket (with tube) |                  |                                         |
| Fluid cooler hose D | Fluid cooler bracket (with tube) |                  |                                         |
|                     | CVT fluid cooler                 |                  |                                         |
| Fluid cooler hose E | CVT fluid cooler                 |                  |                                         |
|                     | Fluid cooler tube assembly A     | Leftward         |                                         |
| Fluid cooler hose F | Fluid cooler tube assembly A     |                  |                                         |
|                     | CVT oil warmer                   |                  |                                         |



## MR20DD : Inspection and Adjustment

INFOID:000000010622631

### INSPECTION AFTER INSTALLATION

Start the engine and check visually that there is no leakage of CVT fluid.

### ADJUSTMENT AFTER INSTALLATION

Adjust the CVT fluid level. Refer to [TM-401. "Adjustment"](#).

QR25DE

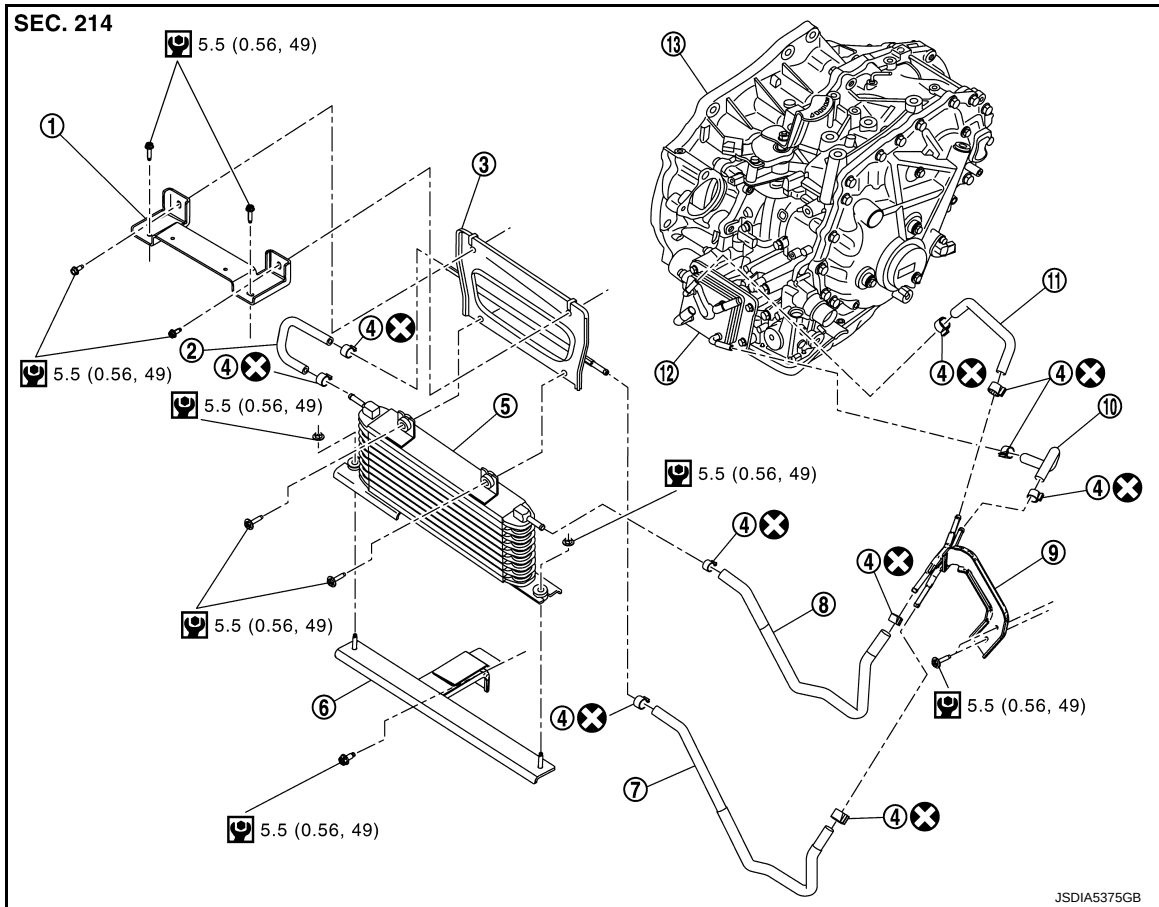
# CVT FLUID COOLER SYSTEM

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

QR25DE : Exploded View

INFOID:000000010622632



- |                       |                       |                              |
|-----------------------|-----------------------|------------------------------|
| ① Bracket             | ② Fluid cooler hose C | ③ Bracket                    |
| ④ Hose clamp          | ⑤ CVT fluid cooler    | ⑥ Bracket                    |
| ⑦ Fluid cooler hose D | ⑧ Fluid cooler hose B | ⑨ Fluid cooler tube assembly |
| ⑩ Fluid cooler hose E | ⑪ Fluid cooler hose A | ⑫ CVT oil warmer             |
| ⑬ Transaxle assembly  |                       |                              |

⊗ : Always replace after every disassembly.

⊙ : N·m (kg-m, in-lb)

## QR25DE : Removal and Installation

INFOID:000000010622633

### REMOVAL

#### NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Remove front bumper. Refer to [EXT-15, "Removal and Installation"](#).

# CVT FLUID COOLER SYSTEM

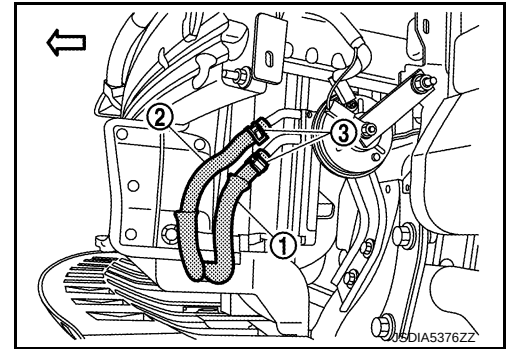
## < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

2. Pull out fluid cooler hose B ① and fluid cooler hose D ② from fluid cooler tube assembly.

③ : Hose clamp

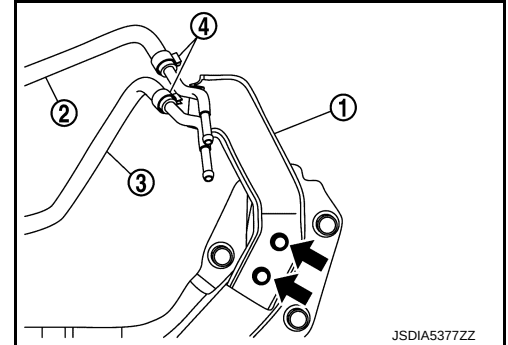
⇐ : Vehicle front



3. Remove the mounting bolts (⇐) of fluid cooler tube assembly ①.

4. Pull out fluid cooler hose A ② and fluid cooler hose E ③ from fluid cooler tube assembly.

④ : Hose clamp

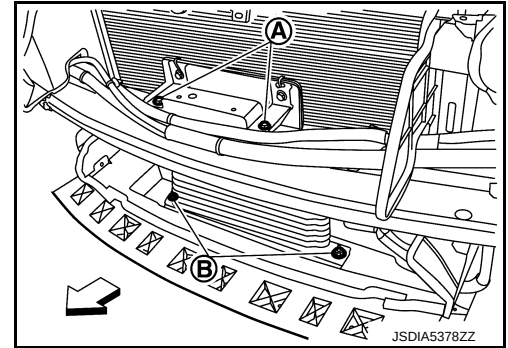


5. Remove CVT fluid cooler mounting bolts ① and mounting nuts ② and take out the CVT fluid cooler.

**CAUTION:**

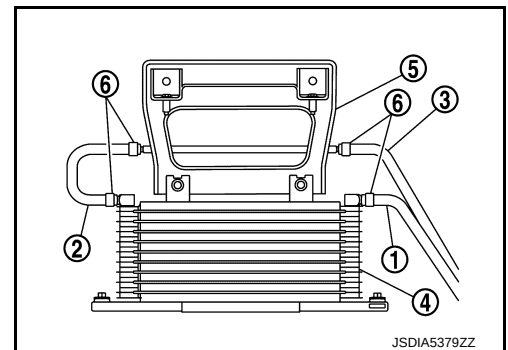
**Be careful not to damage the radiator fins while taking out the CVT fluid cooler.**

⇐ : Vehicle front

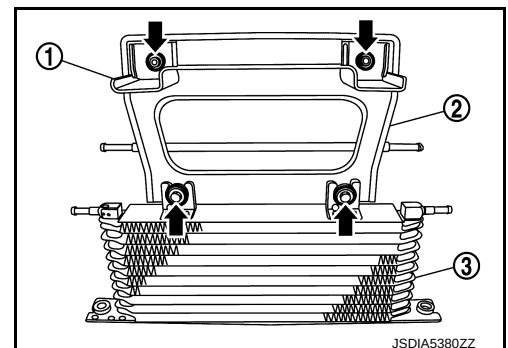


6. Pull out fluid cooler hose B ①, fluid cooler hose C ② and fluid cooler hose D ③ from CVT fluid cooler ④ and fluid cooler bracket (with tube) ⑤.

⑥ : Hose clamp



7. Remove the four bolts (⇐) and separate bracket ① and fluid cooler bracket (with tube) ② from CVT fluid cooler ③.



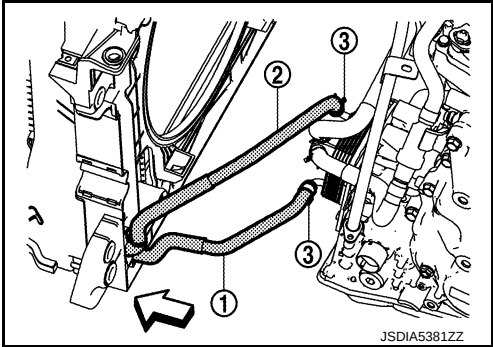
# CVT FLUID COOLER SYSTEM

## < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

8. Pull out fluid cooler hose E ① and fluid cooler hose A ② from CVT oil warmer.

- ③ : Hose clamp  
⇐ : Vehicle front



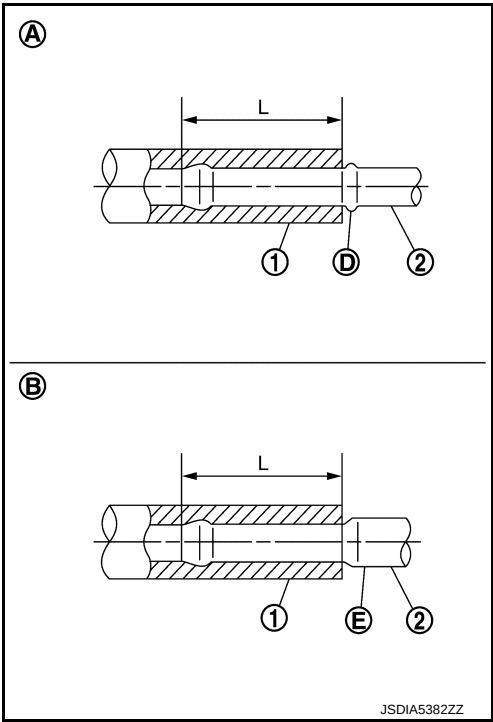
## INSTALLATION

Note the followings and Install in the reverse order of removal.

### CAUTION:

- **Never reuse hose clamp.**
- Refer to the followings when installing fluid cooler hoses.

| Hose ①              | Installation side tube ②         | Direction of paint mark | Hose insertion depth (L)            |
|---------------------|----------------------------------|-------------------------|-------------------------------------|
| Fluid cooler hose A | CVT oil warmer                   | Frontward               | Ⓐ: End reaches the 2 stage bulge ④. |
|                     | Fluid cooler tube assembly       | Leftward                | Ⓑ: End reaches the 2 stage bulge ⑤. |
| Fluid cooler hose B | Fluid cooler tube assembly       | Leftward                | Ⓑ: End reaches the 2 stage bulge ⑤. |
|                     | CVT fluid cooler                 | Frontward               | Ⓑ: End reaches the 2 stage bulge ⑤. |
| Fluid cooler hose C | CVT fluid cooler                 | Frontward               | Ⓑ: End reaches the 2 stage bulge ⑤. |
|                     | Fluid cooler bracket (with tube) | Frontward               | Ⓑ: End reaches the 2 stage bulge ⑤. |
| Fluid cooler hose D | Fluid cooler bracket (with tube) | Frontward               | Ⓑ: End reaches the 2 stage bulge ⑤. |
|                     | Fluid cooler tube assembly       | Leftward                | Ⓑ: End reaches the 2 stage bulge ⑤. |
| Fluid cooler hose E | Fluid cooler tube assembly       | Leftward                | Ⓑ: End reaches the 2 stage bulge ⑤. |
|                     | CVT oil warmer                   | Frontward               | Ⓐ: End reaches the 2 stage bulge ④. |



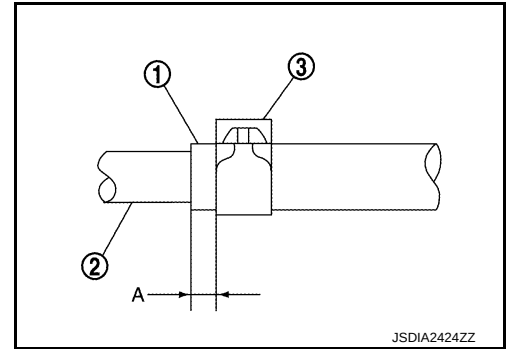
- Refer to the followings when installing hose clamps.
- CAUTION:**  
Hose clamp should not interfere with the bulge of tube.

# CVT FLUID COOLER SYSTEM

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

| Hose ①              | Installation side tube ②         | Hose clamp ③     |                                         |
|---------------------|----------------------------------|------------------|-----------------------------------------|
|                     |                                  | Direction of tab | Clamping position (A)                   |
| Fluid cooler hose A | CVT oil warmer                   | Leftward         | 5 – 9 mm (0.20 – 0.35 in) from hose end |
|                     | Fluid cooler tube assembly       | Leftward         |                                         |
| Fluid cooler hose B | Fluid cooler tube assembly       | Leftward         |                                         |
|                     | CVT fluid cooler                 | Frontward        |                                         |
| Fluid cooler hose C | CVT fluid cooler                 | Frontward        |                                         |
|                     | Fluid cooler bracket (with tube) | Frontward        |                                         |
| Fluid cooler hose D | Fluid cooler bracket (with tube) | Frontward        |                                         |
|                     | Fluid cooler tube assembly       | Leftward         |                                         |
| Fluid cooler hose E | Fluid cooler tube assembly       | Leftward         |                                         |
|                     | CVT oil warmer                   | Frontward        |                                         |



## QR25DE : Inspection and Adjustment

INFOID:0000000010622634

### INSPECTION AFTER INSTALLATION

Start the engine and check visually that there is no leakage of CVT fluid.

### ADJUSTMENT AFTER INSTALLATION

Adjust the CVT fluid level. Refer to [TM-401, "Adjustment"](#).



# CVT OIL WARMER

< REMOVAL AND INSTALLATION >

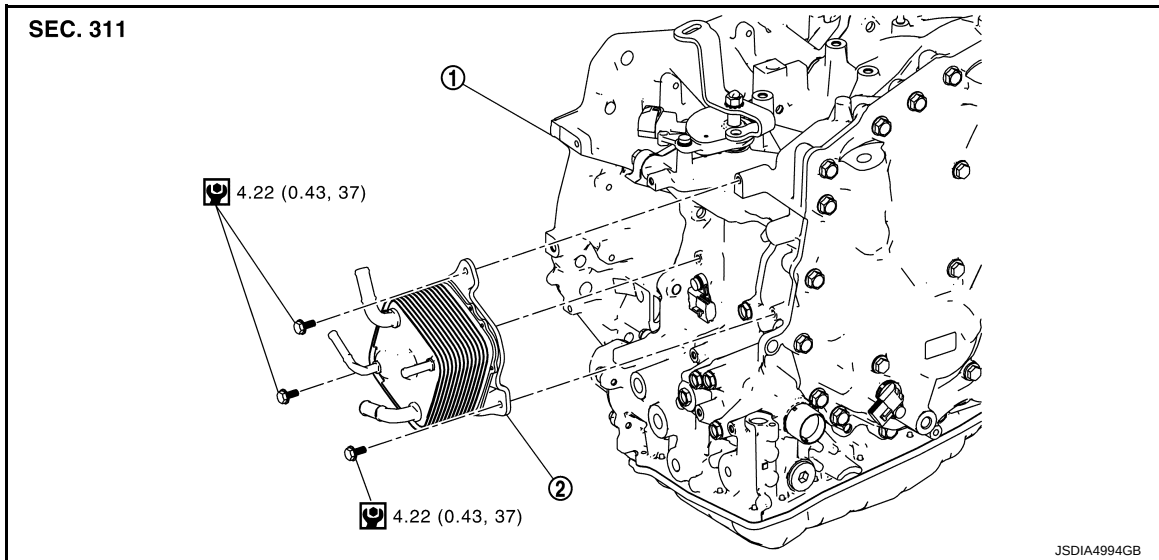
[CVT: RE0F10D]

## CVT OIL WARMER

MR20DD

MR20DD : Exploded View

INFOID:0000000010622638



① Transaxle assembly

② CVT oil warmer

: N·m (kg-m, in-lb)

## MR20DD : Removal and Installation

INFOID:0000000010622639

### REMOVAL

#### **WARNING:**

Never remove the radiator cap when the engine is hot. Serious burns could occur from high pressure coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.

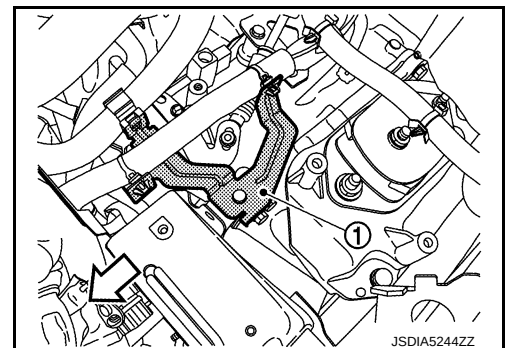
#### **CAUTION:**

Perform when the engine is cold.

#### **NOTE:**

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid/coolant from spilling.

1. Remove battery tray. Refer to [PG-148, "EXCEPT FOR R9M : Removal and Installation"](#).
2. Remove harness bracket ①.
3. Pull out water hose from CVT oil warmer. Refer to [TM-431, "MR20DD : Removal and Installation"](#).
4. Pull out fluid cooler hose from CVT oil warmer. Refer to [TM-437, "MR20DD : Removal and Installation"](#).

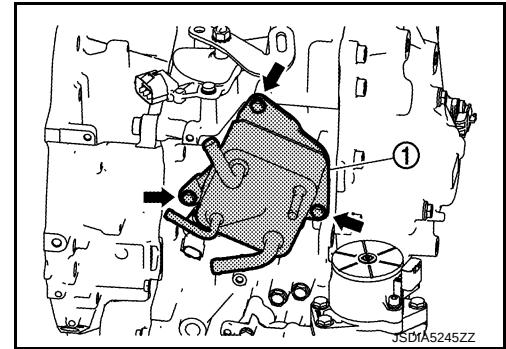


## CVT OIL WARMER

### < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

5. Remove mounting bolts (➡) and remove CVT oil warmer from transaxle assembly.



### INSTALLATION

Installation is in the reverse order of removal.

### MR20DD : Inspection and Adjustment

INFOID:0000000010622640

### INSPECTION AFTER INSTALLATION

Start the engine and check visually that there is no leakage of CVT fluid and engine coolant.

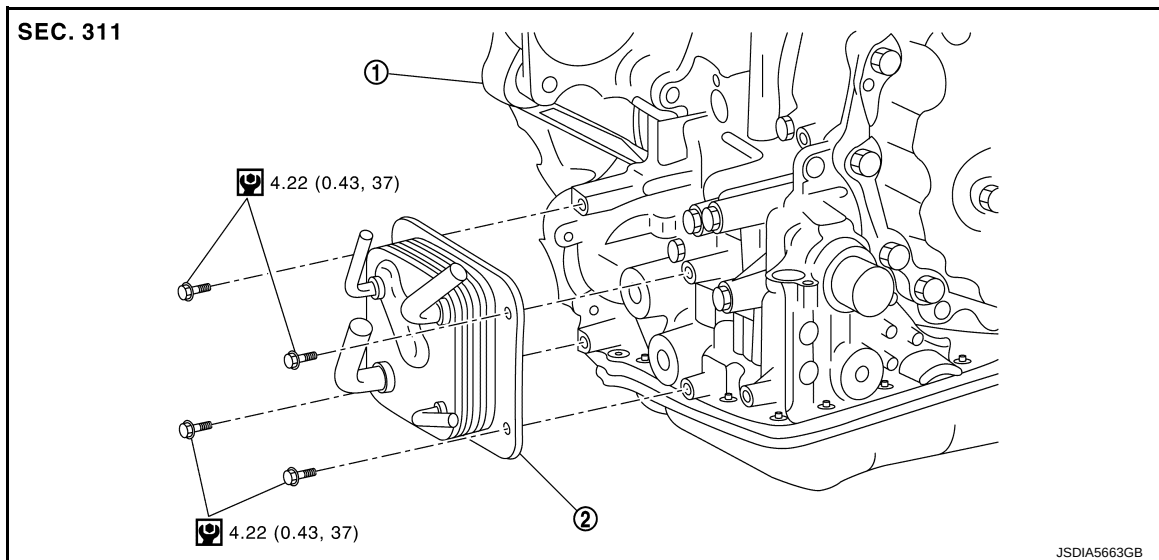
### ADJUSTMENT AFTER INSTALLATION

Adjust the CVT fluid level. Refer to [TM-401, "Adjustment"](#).

### QR25DE

### QR25DE : Exploded View

INFOID:0000000010622641



① Transaxle assembly

② CVT oil warmer

⚙ : N·m (kg-m, in-lb)

### QR25DE : Removal and Installation

INFOID:0000000010622642

### REMOVAL

#### **WARNING:**

Never remove the radiator cap when the engine is hot. Serious burns could occur from high pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.

#### **CAUTION:**

Perform when the engine is cold.

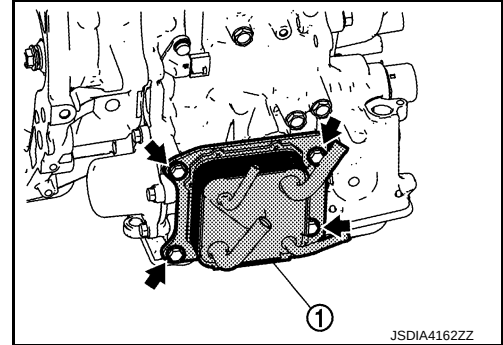
1. Remove engine under cover. Refer to [EXT-40, "ENGINE UNDER COVER : Removal and Installation"](#).

## CVT OIL WARMER

### < REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

2. Remove battery tray. Refer to [PG-148, "EXCEPT FOR R9M : Removal and Installation"](#).
3. Remove splash side cover LH. Refer to [EXT-35, "FENDER PROTECTOR : Exploded View"](#).
4. Disconnect water hoses from CVT oil warmer. Refer to [TM-433, "QR25DE : Removal and Installation"](#).
5. Disconnect fluid cooler hoses from CVT oil warmer. Refer to [TM-441, "QR25DE : Removal and Installation"](#).
6. Remove CVT oil warmer bolts (⬅) and remove CVT oil warmer ① from transaxle assembly.



### INSTALLATION

Installation is in the reverse order of removal.

### QR25DE : Inspection and Adjustment

INFOID:0000000010622643

### INSPECTION AFTER INSTALLATION

Start the engine and check visually that there is no leakage of CVT fluid and engine coolant.

### ADJUSTMENT AFTER INSTALLATION

Adjust the CVT fluid level. Refer to [TM-401, "Adjustment"](#).

# PLUG

< REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

## PLUG

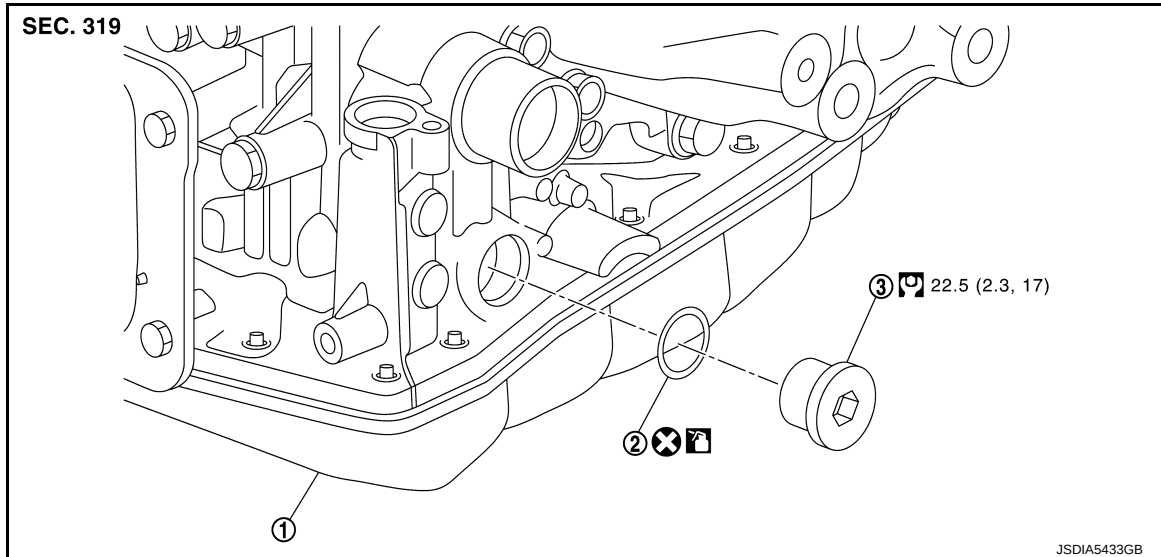
### Description

INFOID:0000000010622644

Replace the O-ring if oil leakage or exudes from the plug.

### Exploded View

INFOID:0000000010622645



① Transaxle assembly

② O-ring

③ Plug

⊗ : Always replace after every disassembly.

⌚ : N·m (kg-m, ft-lb)

🔧 : Apply CVT fluid

### Removal and Installation

INFOID:0000000010622646

#### REMOVAL

1. Remove splash side cover LH. Refer to [EXT-35, "FENDER PROTECTOR : Exploded View"](#).
2. Remove the plug and O-ring.

#### INSTALLATION

Installation is in the reverse order of removal.

#### CAUTION:

- **Never reuse O-ring.**
- **Apply CVT fluid to O-ring.**

### Inspection and Adjustment

INFOID:0000000010622647

#### INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage. Refer to [TM-399, "Inspection"](#).

#### ADJUSTMENT AFTER INSTALLATION

Adjust the CVT fluid level. Refer to [TM-401, "Adjustment"](#).

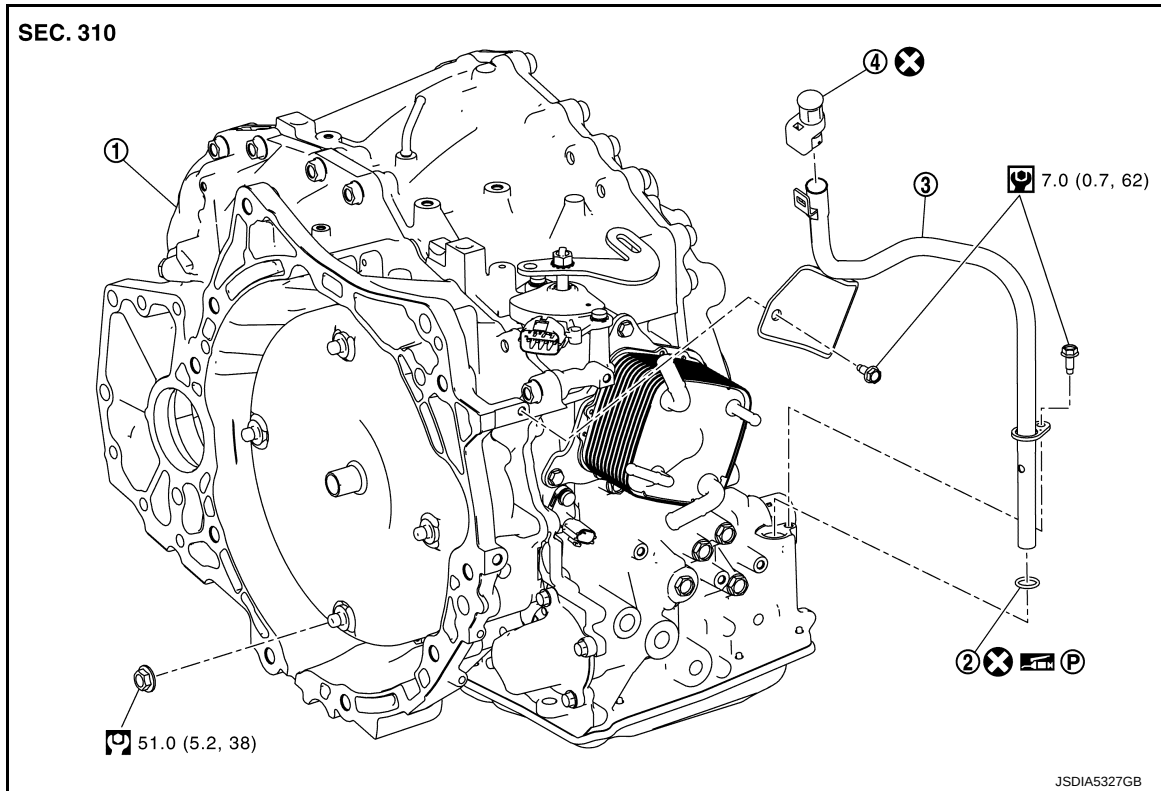
## UNIT REMOVAL AND INSTALLATION

### TRANSAXLE ASSEMBLY

#### Exploded View

INFOID:0000000010622648

#### MR20DD Models



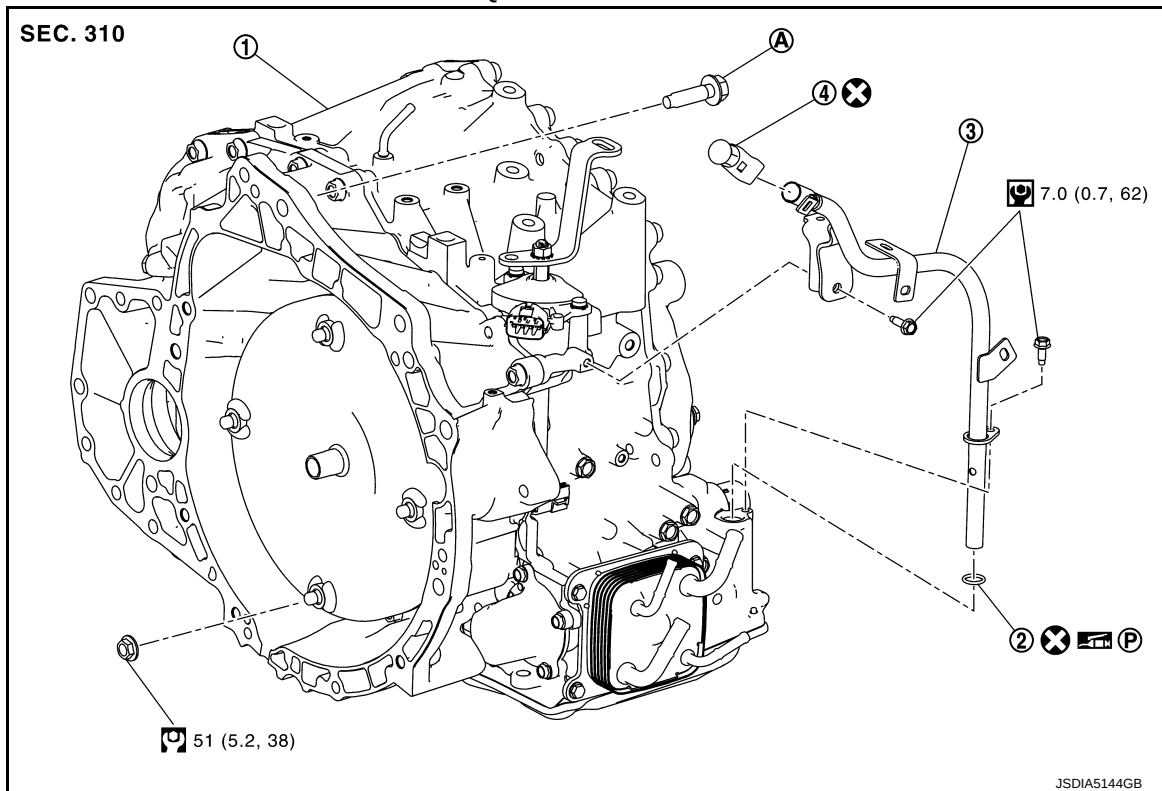
- ① Transaxle assembly
- ② O-ring
- ③ CVT fluid charging pipe
- ④ CVT fluid charging pipe cap
- Ⓐ : For the tightening torque, refer to [TM-450, "Removal and Installation"](#).
- ⊗ : Always replace after every disassembly.
- Ⓜ : N·m (kg-m, ft-lb)
- Ⓢ : N·m (kg-m, in-lb)
- Ⓟ : Apply petroleum jelly

# TRANSAXLE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

QR25DE Models



- ① Transaxle assembly
- ② O-ring
- ③ CVT fluid charging pipe
- ④ CVT fluid charging pipe cap
- A : For the tightening torque, refer to [TM-450, "Removal and Installation"](#).
- ⊗ : Always replace after every disassembly.
- Ⓜ : N·m (kg-m, ft-lb)
- Ⓟ : N·m (kg-m, in-lb)
- Ⓟ : Apply petroleum jelly

## Removal and Installation

INFOID:0000000010622649

### REMOVAL

#### **WARNING:**

Do not remove the radiator cap when the engine is hot. Serious burns could occur from high pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.

#### **CAUTION:**

Perform when the engine is cold.

#### **NOTE:**

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Remove engine and transaxle assembly. Refer to [EM-56, "Removal and Installation"](#) (MR20DD), [EM-200, "Removal and Installation"](#) (QR25DE).
2. Remove starter motor. Refer to [STR-27, "MR20DD : Removal and Installation"](#) (MR20DD), [STR-34, "QR25DE : Removal and Installation"](#) (QR25DE).
3. Remove the CVT water hoses from engine side. Refer to [TM-431, "MR20DD : Exploded View"](#) (MR20DD), [TM-433, "QR25DE : Exploded View"](#) (QR25DE).
4. Remove transfer assembly. Refer to [DLN-80, "MR20DD : Removal and Installation"](#) (MR20DD), [DLN-81, "QR25DE : Removal and Installation"](#) (QR25DE). (4WD models only)

# TRANSAXLE ASSEMBLY

## < UNIT REMOVAL AND INSTALLATION >

[CVT: RE0F10D]

5. Remove the bolts that fasten the transaxle assembly and engine assembly.
6. Separate the engine from the transaxle assembly.

### NOTE:

Using paint, put matching marks on the drive plate and torque converter when removing the torque converter to drive plate nuts.

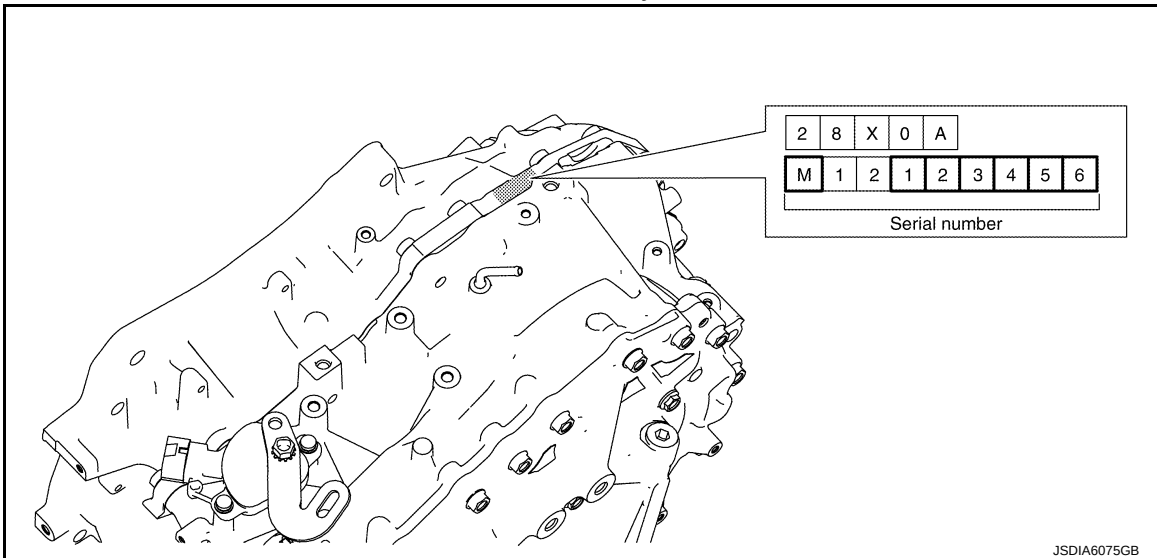
7. Remove following parts from transaxle assembly.
  - Control cable bracket [Refer to [TM-406, "MR20DD : Exploded View"](#) (MR20DD), [TM-409, "QR25DE : Exploded View"](#) (QR25DE).]
  - Air breather hose [Refer to [TM-417, "MR20DD : Exploded View"](#) (MR20DD), [TM-418, "QR25DE : Exploded View"](#) (QR25DE).]
  - CVT water hoses and heater thermostat [Refer to [TM-431, "MR20DD : Exploded View"](#) (MR20DD), [TM-433, "QR25DE : Exploded View"](#) (QR25DE).]
  - CVT fluid cooler hose and tube [Refer to [TM-436, "MR20DD : Exploded View"](#) (MR20DD), [TM-441, "QR25DE : Exploded View"](#) (QR25DE).]
  - Charging pipe and O-ring

## INSTALLATION

Note the followings and installation is in the reverse order of removal.

### NOTE:

Write down the serial number of the new transaxle assembly.



### CAUTION:

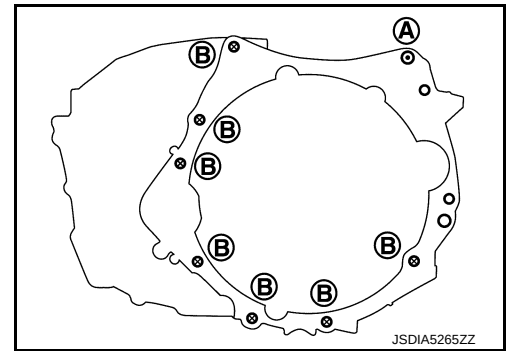
- When replacing an engine or transaxle you must make sure any dowels are installed correctly during re-assembly
  - Improper alignment caused by missing dowels may cause vibration, oil leaks or breakage of drive train components.
  - Do not reuse O-rings or copper sealing washers.
  - When turning crankshaft, turn it clockwise as viewed from the front of the engine.
  - When tightening the nuts for the torque converter while securing the crankshaft pulley bolt, be sure to confirm the tightening torque of the crankshaft pulley bolt. Refer to [EM-67, "Exploded View"](#) (MR20DD), [EM-210, "Exploded View"](#) (QR25DE).
  - After converter is installed to drive plate, rotate crankshaft several turns to check that CVT rotates freely without binding.
  - When installing the CVT to the engine, align the matching mark on the drive plate with the matching mark on the torque converter.
- 
- When installing the drive plate to torque converter nuts, tighten them temporarily. then tighten the nuts to the specified torque.
  - Install the transaxle assembly and engine assembly mounting bolts according to the following standards.
  - MR20DE

# TRANSAXLE ASSEMBLY

## < UNIT REMOVAL AND INSTALLATION >

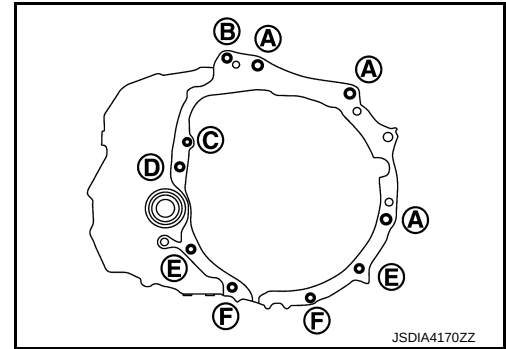
[CVT: RE0F10D]

| Bolt No.                               | (A)                 | (B)                 |
|----------------------------------------|---------------------|---------------------|
| Insertion direction                    | Transaxle to engine | Engine to transaxle |
| Number of bolts                        | 1                   | 7                   |
| Bolt length<br>mm (in)                 | 55 (2.17)           | 50 (1.97)           |
| Tightening torque<br>N·m (kg-m, ft-lb) | 62 (6.3, 46)        |                     |



### - QR25DE

| Bolt No.                               | (A)                 | (B)               | (C)                 | (D)               | (E)               | (F)          |
|----------------------------------------|---------------------|-------------------|---------------------|-------------------|-------------------|--------------|
| Insertion direction                    | Transaxle to engine |                   | Engine to transaxle |                   |                   |              |
| Number of bolts                        | 3                   | 1                 | 1                   | 1                 | 2                 | 2            |
| Bolt length<br>mm (in)                 | 45<br>(1.77)        | 45<br>(1.77)      | 45<br>(1.77)        | 45<br>(1.77)      | 45<br>(1.77)      | 35<br>(1.38) |
| Bolt pitch<br>mm                       | 1.75                | 1.5               | 1.5                 | 1.75              | 1.5               | —            |
| Tightening torque<br>N·m (kg-m, ft-lb) | 74.5<br>(7.6, 55)   | 35.3<br>(3.6, 26) | 48 (4.9, 35)        | 74.5<br>(7.6, 55) | 42.7<br>(4.4, 31) |              |



## Inspection and Adjustment

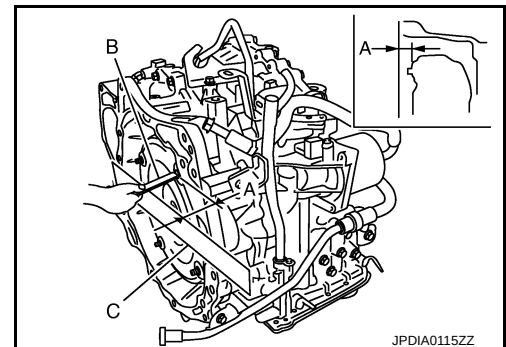
INFOID:0000000010622650

### INSPECTION BEFORE INSTALLATION

After inserting a torque converter to the CVT, check dimension (A) with in the reference value limit.

- B : Scale  
C : Straightedge

**Dimension (A) : Refer to [TM-457, "Torque Converter"](#).**



### INSPECTION AFTER INSTALLATION

Check the following items:

- CVT fluid leakage, refer to [TM-399, "Inspection"](#).
- For CVT position, refer to [TM-308, "Inspection"](#).
- Start the engine and check for coolant leakage from the parts which are removed and reinstalled.

### ADJUSTMENT AFTER INSTALLATION

- Adjust the CVT fluid level. Refer to [TM-401, "Adjustment"](#).
- Perform "ADDITIONAL SERVICE WHEN REPLACE TRANSAXLE ASSEMBLY". Refer to [TM-303, "Work Procedure"](#).

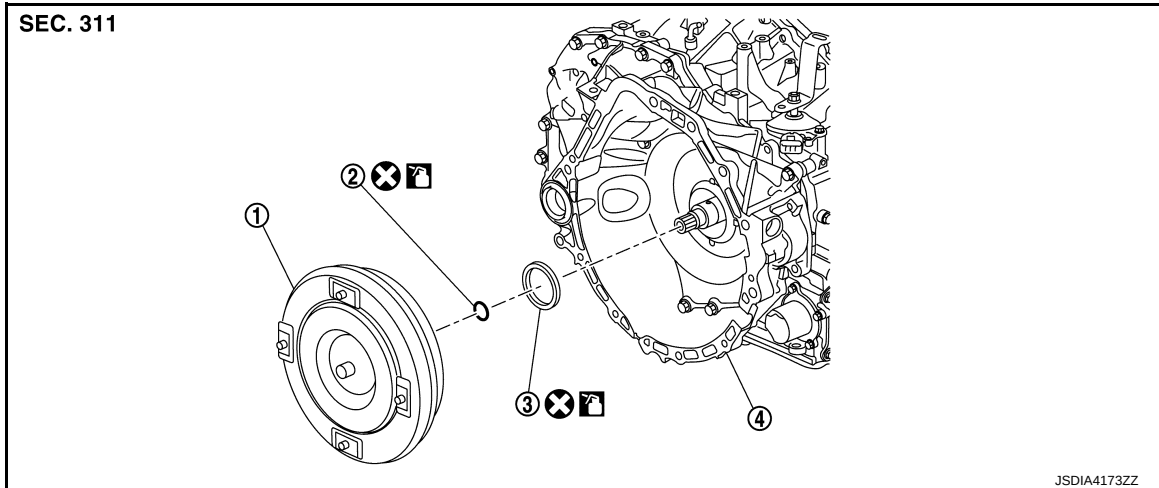


## UNIT DISASSEMBLY AND ASSEMBLY

## TORQUE CONVERTER AND CONVERTER HOUSING OIL SEAL

Exploded View

INFOID:0000000010622651



① Torque converter                      ② O-ring                      ③ Converter housing oil seal

④ Transaxle assembly

⊗ : Always replace after every disassembly.

🔧 : Apply CVT fluid

## Disassembly

INFOID:0000000010622652

1. Remove transaxle assembly. Refer to [TM-450, "Removal and Installation"](#).
2. Remove torque converter from transaxle assembly.

**CAUTION:**

**Never damage the bushing on the inside of torque converter sleeve when removing torque converter.**

3. Remove O-ring from input shaft.
4. Remove converter housing oil seal using a suitable tool.

**CAUTION:**

**Be careful not to scratch converter housing.**

## Assembly

INFOID:0000000010622653

Note the followings and assembly is in the reverse order of disassembly.

**CAUTION:**

- Never reuse O-ring.
- Never reuse converter housing oil seal.
- Apply CVT fluid to O-ring.
- Apply CVT fluid to converter housing oil seal.

# TORQUE CONVERTER AND CONVERTER HOUSING OIL SEAL

< UNIT DISASSEMBLY AND ASSEMBLY >

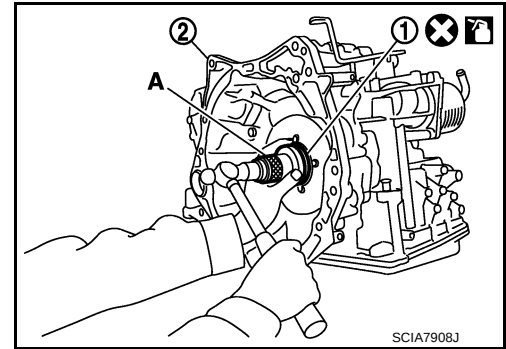
[CVT: RE0F10D]

- Drive converter housing oil seal ① evenly using a drift (A) (commercial service tool) so that converter housing oil seal protrudes by the dimension (B) respectively.

Unit: mm (in)

|           |                           |
|-----------|---------------------------|
| Drift (A) | Outer diameter: 65 (2.56) |
|           | Inner diameter: 60 (2.36) |

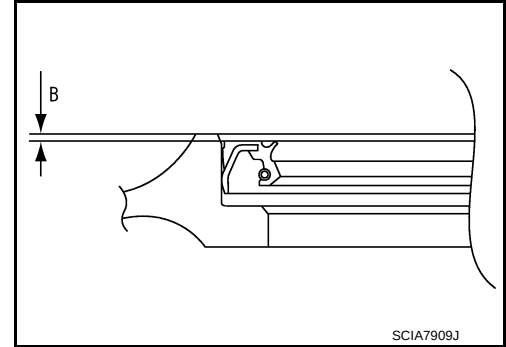
② : Transaxle assembly



**Dimension (B) :  $1.0 \pm 0.5$  mm ( $0.039 \pm 0.020$  in)**

## NOTE:

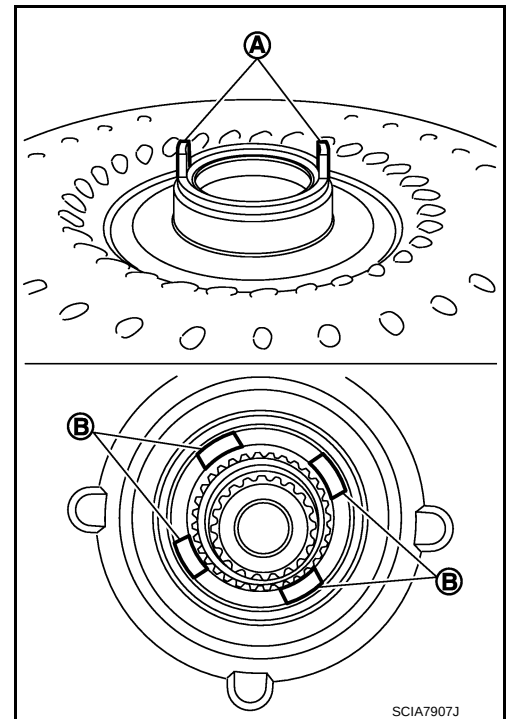
Converter housing oil seal pulling direction is used as the reference.



- Attach the pawl (A) of the torque converter to the drive sprocket hole (B) on the transaxle assembly side.

## CAUTION:

- Rotate the torque converter for installing torque converter.
- Never damage the bushing inside the torque converter sleeve when installing the converter housing oil seal.



Inspection

INFOID:0000000010622654

INSPECTION AFTER INSTALLATION

# TORQUE CONVERTER AND CONVERTER HOUSING OIL SEAL

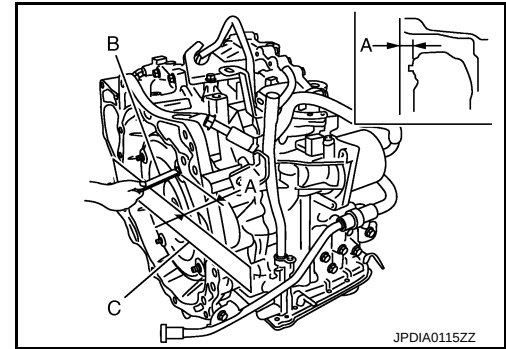
< UNIT DISASSEMBLY AND ASSEMBLY >

[CVT: RE0F10D]

- After inserting a torque converter to the CVT, check dimension (A) with in the reference value limit.

B : Scale  
C : Straightedge

**Dimension (A)** : Refer to [TM-457, "Torque Converter"](#).



A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

## SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[CVT: RE0F10D]

## SERVICE DATA AND SPECIFICATIONS (SDS)

### SERVICE DATA AND SPECIFICATIONS (SDS)

#### General Specification

INFOID:0000000010622655

|                                      |             |                                                           |        |
|--------------------------------------|-------------|-----------------------------------------------------------|--------|
| Applied model                        | Engine      | MR20DD                                                    | QR25DE |
|                                      | Axle        | 2WD/4WD                                                   | 4WD    |
| Transaxle model                      |             | RE0F10D                                                   |        |
| Transaxle gear ratio                 | D position  | 2.631 – 0.378                                             |        |
|                                      | R position  | 1.960                                                     |        |
|                                      | Final drive | 6.386                                                     | 5.694  |
| Recommended fluid and fluid capacity |             | Refer to <a href="#">MA-23, "Fluids and Lubricants"</a> . |        |

#### Shift Characteristics

INFOID:0000000010622656

##### MR20DD

Unit: rpm

| Throttle position | Shift pattern         | CVT input speed     |                     |
|-------------------|-----------------------|---------------------|---------------------|
|                   |                       | At 40 km/h (25 MPH) | At 60 km/h (37 MPH) |
| 2/8               | "D" position (Normal) | 1,720 – 3,320       | 1,780 – 3,660       |
|                   | "D" position (ECO)    | 1,720 – 3,320       | 1,780 – 3,660       |
| 8/8               | "D" position (Normal) | 3,200 – 4,250       | 3,780 – 5,920       |
|                   | "D" position (ECO)    | 3,200 – 4,250       | 3,780 – 5,920       |

##### NOTE:

Lock-up is engaged at the vehicle speed of approximately 14 km/h (9 MPH) to 130 km/h (81 MPH).

##### QR25DE

Unit: rpm

| Throttle position | Shift pattern         | CVT input speed     |                     |
|-------------------|-----------------------|---------------------|---------------------|
|                   |                       | At 40 km/h (25 MPH) | At 60 km/h (37 MPH) |
| 2/8               | "D" position (Normal) | 1,680 – 3,050       | 1,860 – 4,100       |
|                   | "D" position (ECO)    | 1,680 – 3,050       | 1,860 – 4,100       |
| 8/8               | "D" position (Normal) | 3,420 – 4,020       | 4,980 – 5,580       |
|                   | "D" position (ECO)    | 3,420 – 4,020       | 4,980 – 5,580       |

##### NOTE:

Lock-up is engaged at the vehicle speed of approximately 18 km/h (11 MPH) to 25 km/h (16 MPH).

#### Stall Speed

INFOID:0000000010622657

##### MR20DD

Unit: rpm

|             |               |
|-------------|---------------|
| Stall speed | 2,520 – 2,980 |
|-------------|---------------|

##### QR25DE

Unit: rpm

|             |               |
|-------------|---------------|
| Stall speed | 2,370 – 2,760 |
|-------------|---------------|

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[CVT: RE0F10D]

Torque Converter

INFOID:0000000010622658

Unit: mm (in)

|                                                                  |              |
|------------------------------------------------------------------|--------------|
| Dimension "A" between the converter housing and torque converter | 14.4 (0.567) |
|------------------------------------------------------------------|--------------|

Heater Thermostat

INFOID:0000000011009420

Standard

|                           |                              |
|---------------------------|------------------------------|
| Valve opening temperature | 69 – 73°C (156 –163°F)       |
| Maximum valve lift        | 5.0 mm/85°C (0.197 in/185°F) |
| Valve closing temperature | 65°C (149°F)                 |

A  
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P

# HOW TO USE THIS MANUAL

## HOW TO USE THIS SECTION

### Information

INFOID:0000000010631360

- Both “VDC” and “ESP” are used in this manual. These indicate the same system.
- In this manual, “Idling Stop System” is referred to as “Stop/Start System”.

## PRECAUTION

### PRECAUTIONS

#### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000010622695

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

#### **WARNING:**

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

#### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

#### **WARNING:**

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

#### Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:0000000010622696

#### **CAUTION:**

Comply with the following cautions to prevent any error and malfunction.

- Before removing and installing any control units, first turn the ignition power source and accessory power source to the OFF, then disconnect both battery cables.
- After finishing work, confirm that all control unit connectors are connected properly, then re-connect both battery cables.
- Always use CONSULT to perform self-diagnosis as a part of each function inspection after finishing work. If a DTC is detected, perform trouble diagnosis according to self-diagnosis results.

For vehicle with steering lock unit, if the battery is disconnected or discharged, the steering wheel will lock and cannot be turned.

If turning the steering wheel is required with the battery disconnected or discharged, follow the operation procedure below before starting the repair operation.

#### OPERATION PROCEDURE

1. Connect both battery cables.

#### **NOTE:**

Supply power using jumper cables if battery is discharged.

2. Open driver door.
3. Turn the ignition switch to the ON position.  
(At this time, the steering lock will be released.)
4. Turn the ignition switch to OFF position with driver door open.
5. Wait for 3 minutes or longer with driver door open.

#### **NOTE:**

- Do not close driver door because the steering wheel locks when driver door is closed.

## PRECAUTIONS

< PRECAUTION >

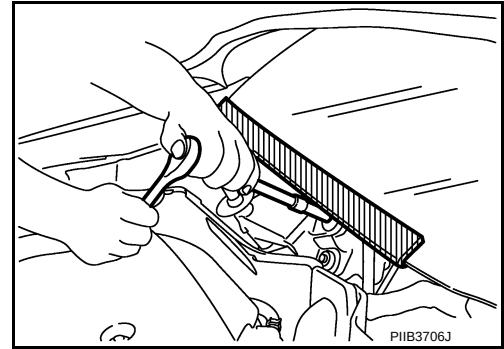
[CVT: RE0F10G]

- The auto acc function is adapted to this vehicle. For this reason, even when the ignition switch is turned to OFF position, the accessory power source does not turned OFF and continues to be supplied for a certain amount of time.
- 6. Disconnect both battery cables. The steering lock will remain released with both battery cables disconnected and the steering wheel can be turned.
- 7. Perform the necessary repair operation.
- 8. When the repair work is completed, re-connect both battery cables. With the brake pedal released, turn the ignition switch from OFF position to ON position, then to LOCK position. (The steering wheel will lock when the ignition switch is turned to LOCK position.)
- 9. Perform self-diagnosis check of all control units using CONSULT.

### Precaution for Procedure without Cowl Top Cover

INFOID:000000010622697

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



### Precautions for Removing Battery Terminal

INFOID:000000010631359

- With the adoption of Auto ACC function, ACC power is automatically supplied by operating the intelligent key or remote keyless entry or by opening/closing the driver side door. In addition, ACC power is supplied even after the ignition switch is turned to the OFF position, i.e. ACC power is supplied for a certain fixed time.
- When disconnecting the 12V battery terminal, turn off the ACC power before disconnecting the 12V battery terminal, observing "How to disconnect 12V battery terminal" described below.

#### NOTE:

Some ECUs operate for a certain fixed time even after ignition switch is turned OFF and ignition power supply is stopped. If the battery terminal is disconnected before ECU stops, accidental DTC detection or ECU data damage may occur.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

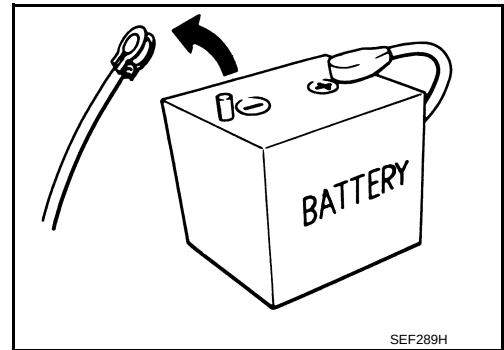
#### NOTE:

If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

#### NOTE:

The removal of 12V battery may cause a DTC detection error.



### HOW TO DISCONNECT 12V BATTERY TERMINAL

Disconnect 12V battery terminal according to Instruction 1 or Instruction 2 described below.

For vehicles parked by ignition switch OFF, refer to Instruction 2.

#### INSTRUCTION 1

1. Open the hood.
2. Turn key switch to the OFF position with the driver side door opened.
3. Get out of the vehicle and close the driver side door.
4. Wait at least 3 minutes. For vehicle with the engine listed below, remove the battery terminal after a lapse of the specified time.

D4D engine : 20 minutes

HRA2DDT : 12 minutes



# PRECAUTIONS

< PRECAUTION >

[CVT: RE0F10G]

- K9K engine : 4 minutes
- M9R engine : 4 minutes
- R9M engine : 4 minutes
- V9X engine : 4 minutes

## CAUTION:

While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.

- Remove 12V battery terminal.

## CAUTION:

After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

## INSTRUCTION 2 (FOR VEHICLES PARKED BY IGNITION SWITCH OFF)

- Unlock the door with intelligent key or remote keyless entry.

## NOTE:

At this moment, ACC power is supplied.

- Open the driver side door.
- Open the hood.
- Close the driver side door.
- Wait at least 3 minutes.

## CAUTION:

While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.

- Remove 12V battery terminal.

## CAUTION:

After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.

## Precaution for TCM and Transaxle Assembly Replacement

INFOID:0000000010622699

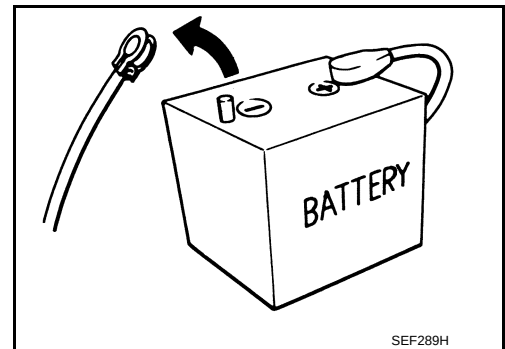
## CAUTION:

- To replace TCM, refer to [TM-544, "Description"](#).
- To replace transaxle assembly, refer to [TM-546, "Description"](#).
- To replace TCM and transaxle assembly simultaneously, refer to [TM-548, "Description"](#).

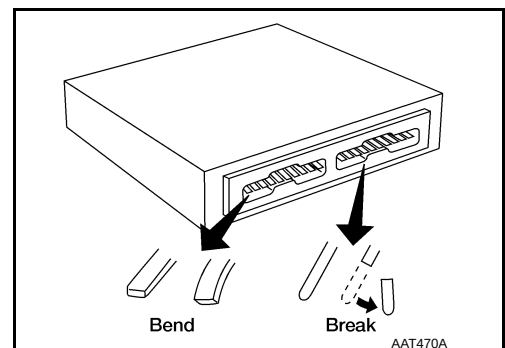
## General Precautions

INFOID:0000000010622700

- Turn ignition switch OFF and disconnect the battery cable from the negative terminal before connecting or disconnecting the CVT assembly harness connector. Because battery voltage is applied to TCM even if ignition switch is turned OFF.



- When connecting or disconnecting pin connectors into or from TCM, do not damage pin terminals (bend or break). Check that there are not any bends or breaks on TCM pin terminal, when connecting pin connectors.

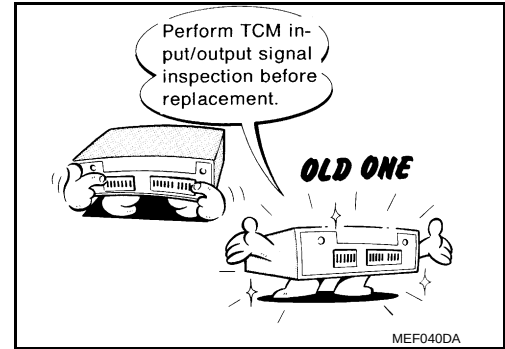


## PRECAUTIONS

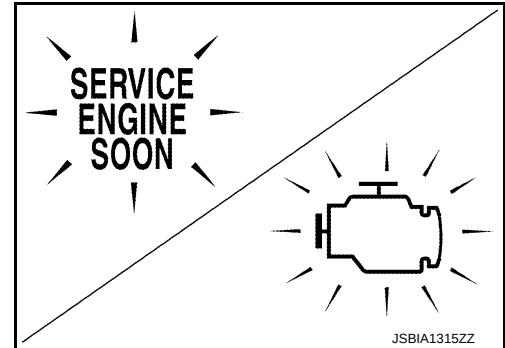
< PRECAUTION >

[CVT: RE0F10G]

- Perform TCM input/output signal inspection and check whether TCM functions normally or not before replacing TCM. Refer to [TM-515, "Reference Value"](#).



- Perform "DTC (Diagnostic Trouble Code) CONFIRMATION PROCEDURE".  
If the repair is completed DTC should not be displayed in the "DTC CONFIRMATION PROCEDURE".



- Always use the specified brand of CVT fluid. Refer to [MA-23, "Fluids and Lubricants"](#).
- Use lint-free paper not cloth rags during work.
- Dispose of the waste oil using the methods prescribed by law, ordinance, etc. after replacing the CVT fluid.

### On Board Diagnosis (OBD) System of CVT and Engine

INFOID:000000010622701

The TCM and ECM have an on board diagnostic system. It will light up the malfunction indicator lamp (MIL) to warn the driver of a malfunction causing emission deterioration.

#### CAUTION:

- Be sure to turn the ignition switch OFF and disconnect the battery cable from the negative terminal before any repair or inspection work. The open/short circuit of related switches, sensors, solenoid valves, etc. will cause the MIL to light up.
- Be sure to connect and lock the connectors securely after work. A loose (unlocked) connector will cause the MIL to light up due to an open circuit. (Be sure the connector is free from water, grease, dirt, bent terminals, etc.)
- Be sure to route and secure the harnesses properly after work. Interference of the harness with a bracket, etc. may cause the MIL to light up due to a short circuit.
- Be sure to connect rubber tubes properly after work. A misconnected or disconnected rubber tube may cause the MIL to light up due to a malfunction of the EGR system or fuel injection system, etc.
- Be sure to erase the unnecessary malfunction information (repairs completed) from the TCM and ECM before returning the vehicle to the customer.

### Removal and Installation Procedure for CVT Unit Connector

INFOID:000000010622702

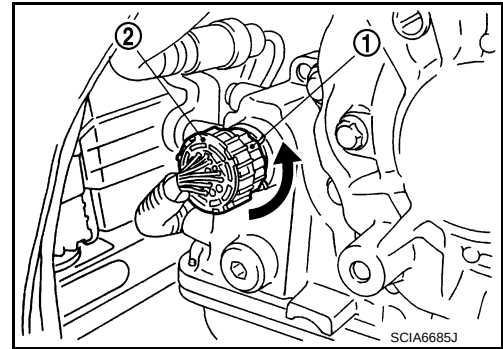
#### REMOVAL

## PRECAUTIONS

### < PRECAUTION >

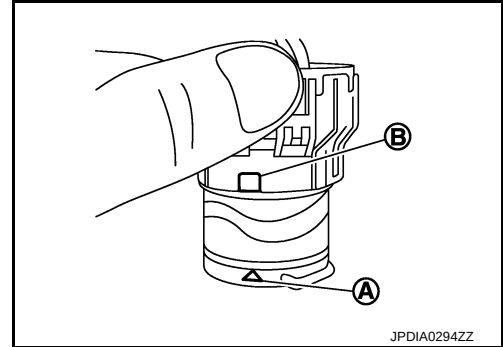
[CVT: RE0F10G]

- Rotate bayonet ring ① counterclockwise. Pull out CVT unit harness connector ② upward and remove it.

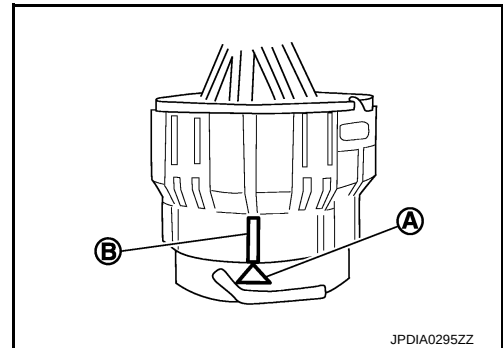


### INSTALLATION

1. Align marking ① on CVT unit harness connector terminal with marking ② on bayonet ring. Insert CVT unit harness connector.
2. Rotate bayonet ring clockwise.

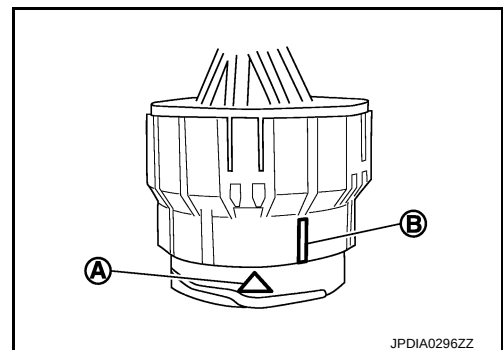


3. Rotate bayonet ring clockwise until marking ① on CVT unit harness connector terminal body is aligned with the slit ② on bayonet ring as shown in the figure (correctly fitting condition).



### CAUTION:

- Securely align marking ① on CVT unit harness connector terminal body with bayonet ring slit ②. Then, be careful not to make a half fit condition as shown in the figure.
- Never mistake the slit of bayonet ring for other dent portion.



# PREPARATION

< PREPARATION >

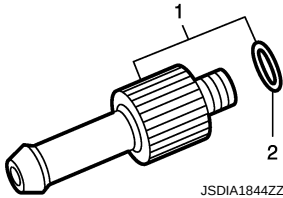
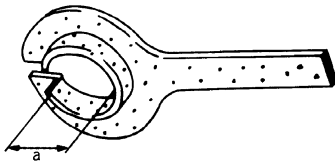
[CVT: RE0F10G]

## PREPARATION

### PREPARATION

#### Special Service Tools

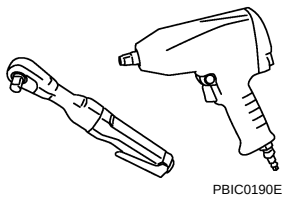
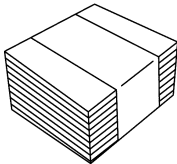
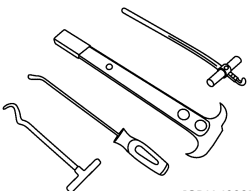
INFOID:0000000010622703

| Tool number<br>Tool name                                                                         | Description                       |
|--------------------------------------------------------------------------------------------------|-----------------------------------|
| 1. KV311039S0<br>Charging pipe set<br>2. KV31103920*<br>O-ring                                   | CVT fluid changing and adjustment |
| <br>JSDIA1844ZZ |                                   |
| KV38107900<br>Protector<br>a: 32 mm (1.26 in) dia.                                               | Installing drive shaft            |
| <br>PDIA1183J  |                                   |

\*: The O-ring as a unit part is set as a SST.

#### Commercial Service Tools

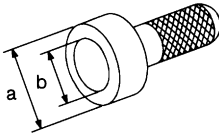
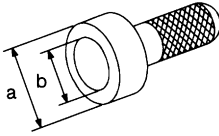
INFOID:0000000010622704

| Tool number<br>Tool name                                                                           | Description              |
|----------------------------------------------------------------------------------------------------|--------------------------|
| Power tool                                                                                         | Loosening nuts and bolts |
| <br>PBIC0190E   |                          |
| Lint-free paper                                                                                    | Cleaning transaxle       |
| <br>JSDIA4746ZZ |                          |
| Oil seal remover                                                                                   | Removing each oil seal   |
| <br>JSDIA4998ZZ |                          |

# PREPARATION

< PREPARATION >

[CVT: RE0F10G]

| Tool number<br>Tool name                                                                   | Description                           |
|--------------------------------------------------------------------------------------------|---------------------------------------|
| Drift<br>a: 56 mm (2.20 in) dia.<br>b: 50 mm (1.97 in) dia.                                | Installing differential side oil seal |
| <br>NT115 |                                       |
| Drift<br>a: 65 mm (2.56 in) dia.<br>b: 60 mm (2.36 in) dia.                                | Installing converter housing oil seal |
| <br>NT115 |                                       |

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## SYSTEM DESCRIPTION

COMPONENT PARTS

CVT CONTROL SYSTEM

CVT CONTROL SYSTEM : Component Parts Location

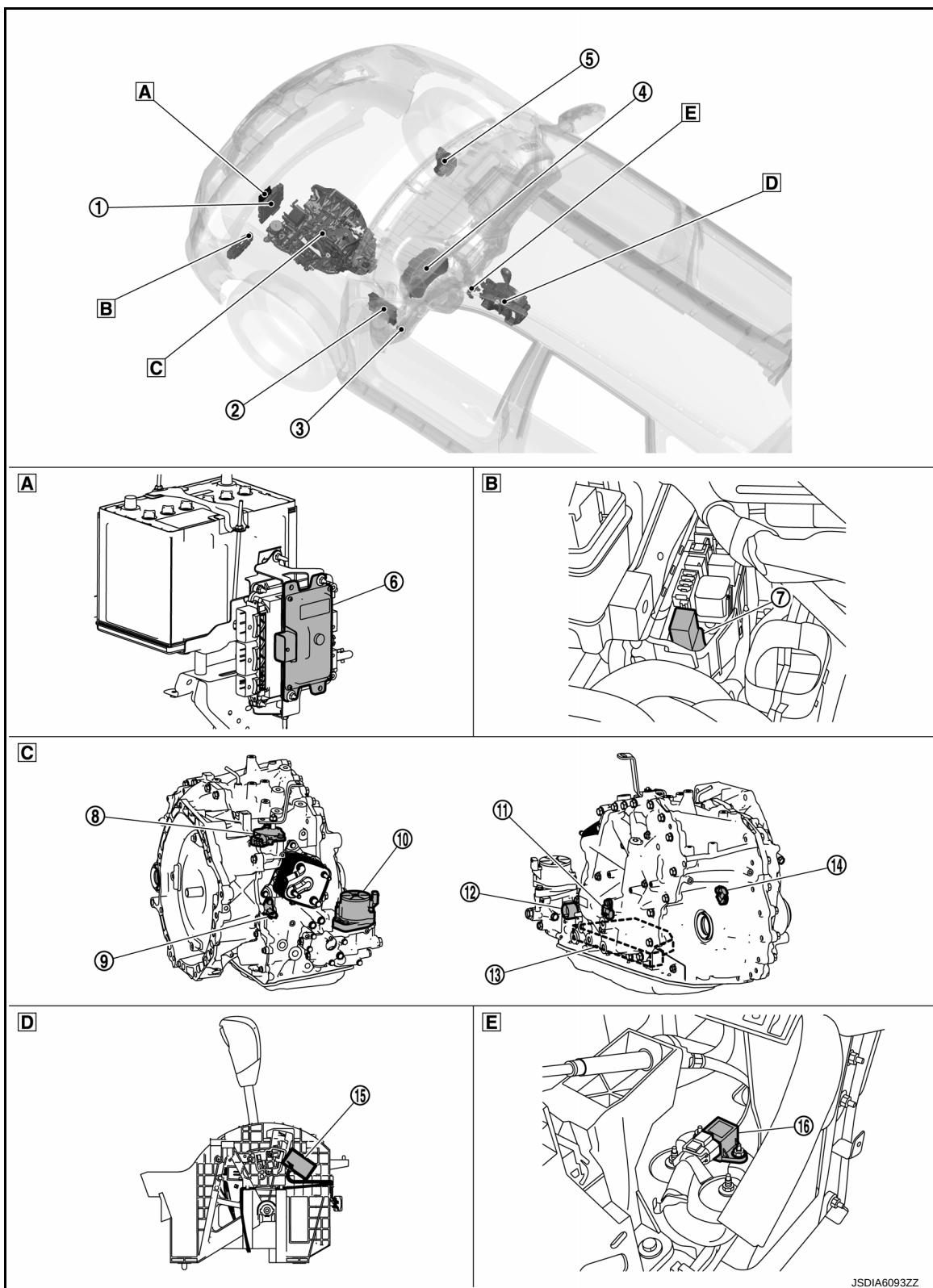
INFOID:0000000010622705

LHD MODELS

# COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]



**A** Battery, front

**B** Engine room, LH

**C** Transaxle assembly

**D** CVT shift selector assembly

**E** CVT shift selector assembly, front

# COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

| No. | Component                                     | Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ①   | ECM                                           | <p>Mainly transmits the following signal to TCM via CAN communication.</p> <ul style="list-style-type: none"> <li>• Engine and CVT integrated control signal</li> </ul> <p><b>NOTE:</b><br/>General term for the communication (torque-down permission, torque-down request, etc.) exchanged between the ECM and TCM.</p> <ul style="list-style-type: none"> <li>• Engine speed signal</li> <li>• Engine coolant temperature signal</li> <li>• Accelerator pedal position signal</li> <li>• Closed throttle position signal</li> </ul> <p>Mainly receives the following signals from TCM via CAN communication.</p> <ul style="list-style-type: none"> <li>• Malfunctioning indicator lamp signal</li> <li>• Stop/start indicator lamp signal</li> </ul> <p>Refer to <a href="#">EC-812, "Component Parts Location"</a> for detailed installation location.</p> |
| ②   | BCM                                           | <p>Mainly transmits the following signal to TCM via CAN communication.</p> <ul style="list-style-type: none"> <li>• Stop lamp switch signal</li> </ul> <p>Refer to <a href="#">BCS-6, "BODY CONTROL SYSTEM : Component Parts Location"</a> for detailed installation location.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| ③   | ECO mode switch                               | <a href="#">DMS-6, "ECO Mode Switch"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| ④   | Combination meter                             | <p>Mainly transmits the following signal to TCM via CAN communication.</p> <ul style="list-style-type: none"> <li>• Manual mode signal</li> <li>• Non-manual mode signal</li> <li>• Manual mode upshift signal</li> <li>• Manual mode downshift signal</li> </ul> <p>Mainly receives the following signals from TCM via CAN communication.</p> <ul style="list-style-type: none"> <li>• Shift position signal</li> <li>• Manual mode shift refusal signal</li> </ul> <p>Refer to <a href="#">MWI-7, "METER SYSTEM : Component Parts Location"</a> for detailed installation location.</p>                                                                                                                                                                                                                                                                       |
| ⑤   | ABS actuator and electric unit (control unit) | <p>Mainly transmits the following signal to TCM via CAN communication.</p> <ul style="list-style-type: none"> <li>• ABS operation signal</li> <li>• TCS operation signal</li> <li>• VDC operation signal</li> <li>• ABS malfunction signal</li> <li>• Vehicle speed signal</li> <li>• Decel G signal</li> </ul> <p>Refer to <a href="#">BRC-14, "Component Parts Location"</a> for detailed installation location.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ⑥   | TCM                                           | <a href="#">TM-472, "CVT CONTROL SYSTEM : TCM"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| ⑦   | Electric oil pump relay                       | <a href="#">TM-478, "CVT CONTROL SYSTEM : Electric Oil Pump Relay"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ⑧   | Transmission range switch                     | <a href="#">TM-472, "CVT CONTROL SYSTEM : Transmission Range Switch"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| ⑨   | Input speed sensor                            | <a href="#">TM-474, "CVT CONTROL SYSTEM : Input Speed Sensor"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| ⑩   | Electric oil pump                             | <a href="#">TM-477, "CVT CONTROL SYSTEM : Electric Oil Pump"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| ⑪   | Primary speed sensor                          | <a href="#">TM-472, "CVT CONTROL SYSTEM : Primary Speed Sensor"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| ⑫   | CVT unit connector                            | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| ⑬   | Control valve                                 | CVT fluid temperature sensor*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|     |                                               | Primary pressure sensor*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|     |                                               | Secondary pressure sensor*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|     |                                               | Line pressure solenoid valve*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|     |                                               | Primary pressure solenoid valve*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|     |                                               | Secondary pressure solenoid valve*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|     |                                               | Torque converter clutch solenoid valve*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|     |                                               | Select solenoid valve*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |



## COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

| No. | Component           | Function                                                           |
|-----|---------------------|--------------------------------------------------------------------|
| ⑭   | Output speed sensor | <a href="#">TM-473, "CVT CONTROL SYSTEM : Output Speed Sensor"</a> |
| ⑮   | Manual mode switch  | <a href="#">TM-478, "CVT CONTROL SYSTEM : Manual Mode Switch"</a>  |
| ⑯   | G sensor            | <a href="#">TM-477, "CVT CONTROL SYSTEM : G Sensor"</a>            |

\*: These components are included in control valve assembly.

RHD MODELS

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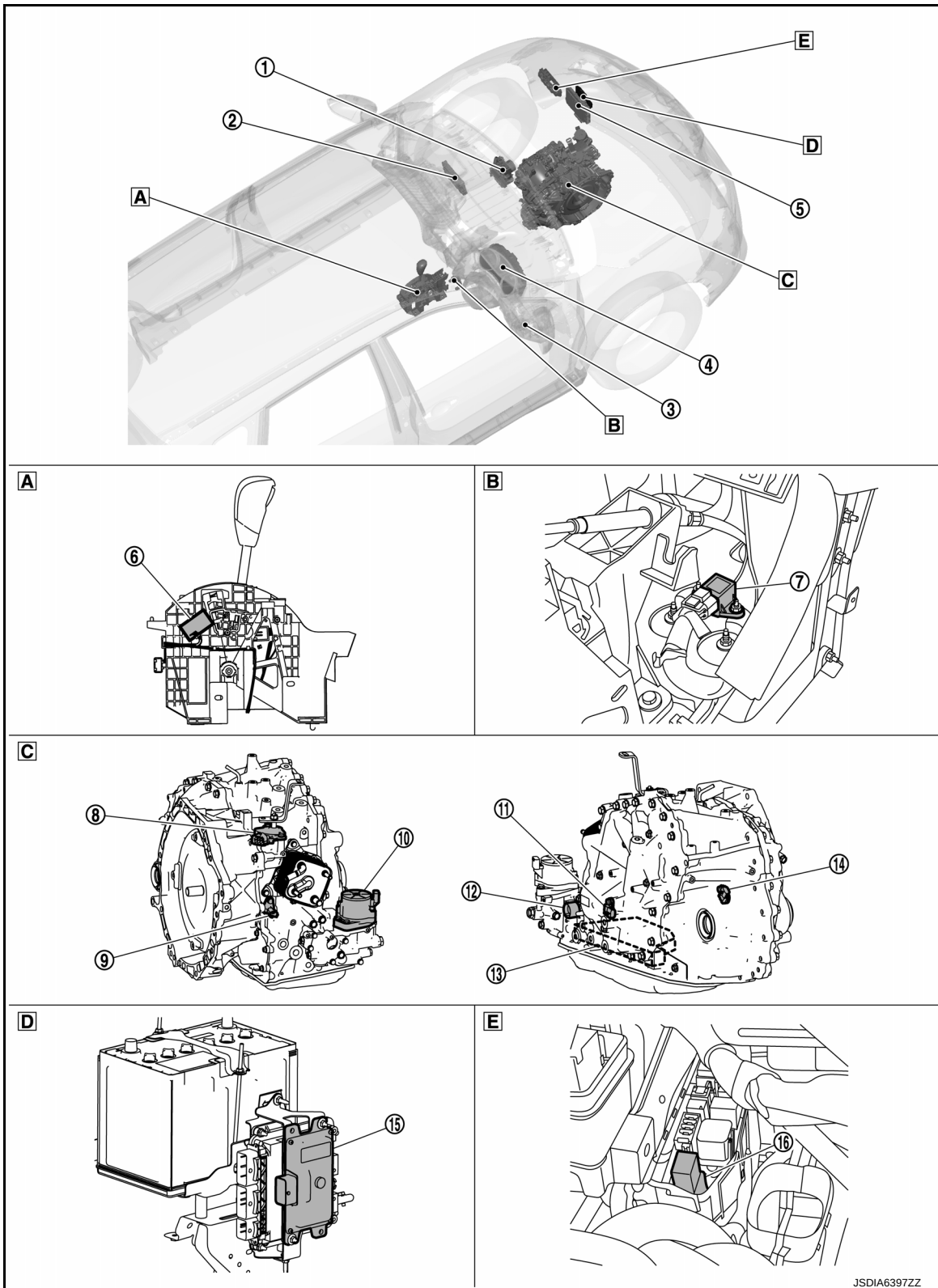
O

P

# COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]



**A** CVT shift selector assembly

**B** CVT shift selector assembly, front

**C** Transaxle assembly

**D** Battery, front

**E** Engine room, LH

# COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

| No. | Component                                     | Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ①   | ABS actuator and electric unit (control unit) | Mainly transmits the following signal to TCM via CAN communication. <ul style="list-style-type: none"> <li>• ABS operation signal</li> <li>• TCS operation signal</li> <li>• VDC operation signal</li> <li>• ABS malfunction signal</li> <li>• Vehicle speed signal</li> <li>• Decel G signal</li> </ul> Refer to <a href="#">BRC-14, "Component Parts Location"</a> for detailed installation location.                                                                                                                                                                                                                                                                                                                                                                                                                           |
| ②   | BCM                                           | Mainly transmits the following signal to TCM via CAN communication. <ul style="list-style-type: none"> <li>• Stop lamp switch signal</li> </ul> Refer to <a href="#">BCS-6, "BODY CONTROL SYSTEM : Component Parts Location"</a> for detailed installation location.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| ③   | Combination meter                             | Mainly transmits the following signal to TCM via CAN communication. <ul style="list-style-type: none"> <li>• Manual mode signal</li> <li>• Non-manual mode signal</li> <li>• Manual mode upshift signal</li> <li>• Manual mode downshift signal</li> </ul> Mainly receives the following signals from TCM via CAN communication. <ul style="list-style-type: none"> <li>• Shift position signal</li> <li>• Manual mode shift refusal signal</li> </ul> Refer to <a href="#">MWI-7, "METER SYSTEM : Component Parts Location"</a> for detailed installation location.                                                                                                                                                                                                                                                               |
| ④   | ECO mode switch                               | <a href="#">DMS-6, "ECO Mode Switch"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| ⑤   | ECM                                           | Mainly transmits the following signal to TCM via CAN communication. <ul style="list-style-type: none"> <li>• Engine and CVT integrated control signal</li> </ul> <b>NOTE:</b><br>General term for the communication (torque-down permission, torque-down request, etc.) exchanged between the ECM and TCM. <ul style="list-style-type: none"> <li>• Engine speed signal</li> <li>• Engine coolant temperature signal</li> <li>• Accelerator pedal position signal</li> <li>• Closed throttle position signal</li> </ul> Mainly receives the following signals from TCM via CAN communication. <ul style="list-style-type: none"> <li>• Malfunctioning indicator lamp signal</li> <li>• Stop/start indicator lamp signal</li> </ul> Refer to <a href="#">EC-812, "Component Parts Location"</a> for detailed installation location. |
| ⑥   | Manual mode switch                            | <a href="#">TM-478, "CVT CONTROL SYSTEM : Manual Mode Switch"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| ⑦   | G sensor                                      | <a href="#">TM-477, "CVT CONTROL SYSTEM : G Sensor"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| ⑧   | Transmission range switch                     | <a href="#">TM-472, "CVT CONTROL SYSTEM : Transmission Range Switch"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| ⑨   | Input speed sensor                            | <a href="#">TM-474, "CVT CONTROL SYSTEM : Input Speed Sensor"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| ⑩   | Electric oil pump                             | <a href="#">TM-477, "CVT CONTROL SYSTEM : Electric Oil Pump"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| ⑪   | Primary speed sensor                          | <a href="#">TM-472, "CVT CONTROL SYSTEM : Primary Speed Sensor"</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| ⑫   | CVT unit connector                            | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| ⑬   | Control valve                                 | CVT fluid temperature sensor*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|     |                                               | Primary pressure sensor*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|     |                                               | Secondary pressure sensor*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|     |                                               | Line pressure solenoid valve*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|     |                                               | Primary pressure solenoid valve*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|     |                                               | Secondary pressure solenoid valve*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|     |                                               | Torque converter clutch solenoid valve*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|     |                                               | Select solenoid valve*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

# COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

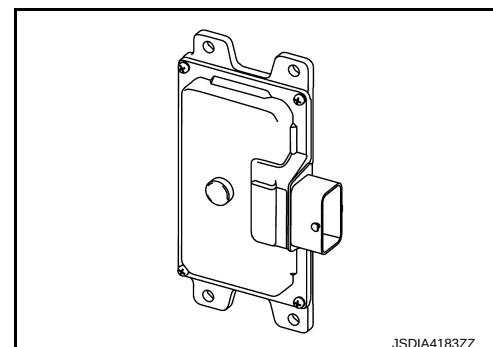
| No. | Component               | Function                                                               |
|-----|-------------------------|------------------------------------------------------------------------|
| ⑭   | Output speed sensor     | <a href="#">TM-473, "CVT CONTROL SYSTEM : Output Speed Sensor"</a>     |
| ⑮   | TCM                     | <a href="#">TM-472, "CVT CONTROL SYSTEM : TCM"</a>                     |
| ⑯   | Electric oil pump relay | <a href="#">TM-478, "CVT CONTROL SYSTEM : Electric Oil Pump Relay"</a> |

\*: These components are included in control valve assembly.

## CVT CONTROL SYSTEM : TCM

INFOID:000000010622706

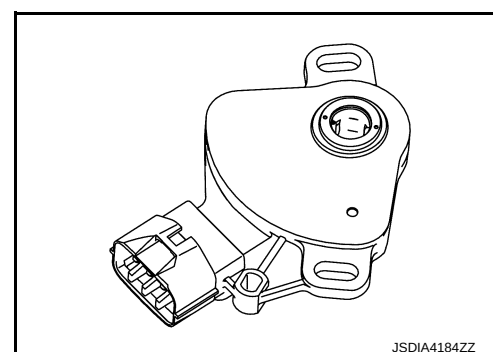
- The TCM consists of a microcomputer and connectors for signal input and output and for power supply.
- The vehicle driving status is judged based on the signals from the sensors, switches, and other control units, and the optimal transaxle control is performed.
- For TCM control items, refer to [TM-490, "CVT CONTROL SYSTEM : System Description"](#).



## CVT CONTROL SYSTEM : Transmission Range Switch

INFOID:000000010622707

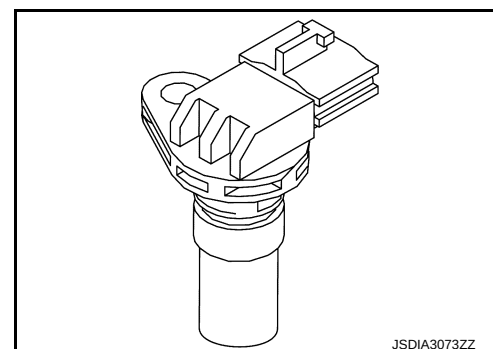
- The transmission range switch is installed to upper part of transaxle case.
- The transmission range switch detects the selector lever position.



## CVT CONTROL SYSTEM : Primary Speed Sensor

INFOID:000000010622708

- The primary speed sensor is installed to side cover of transaxle.
- The primary speed sensor detects primary pulley speed.

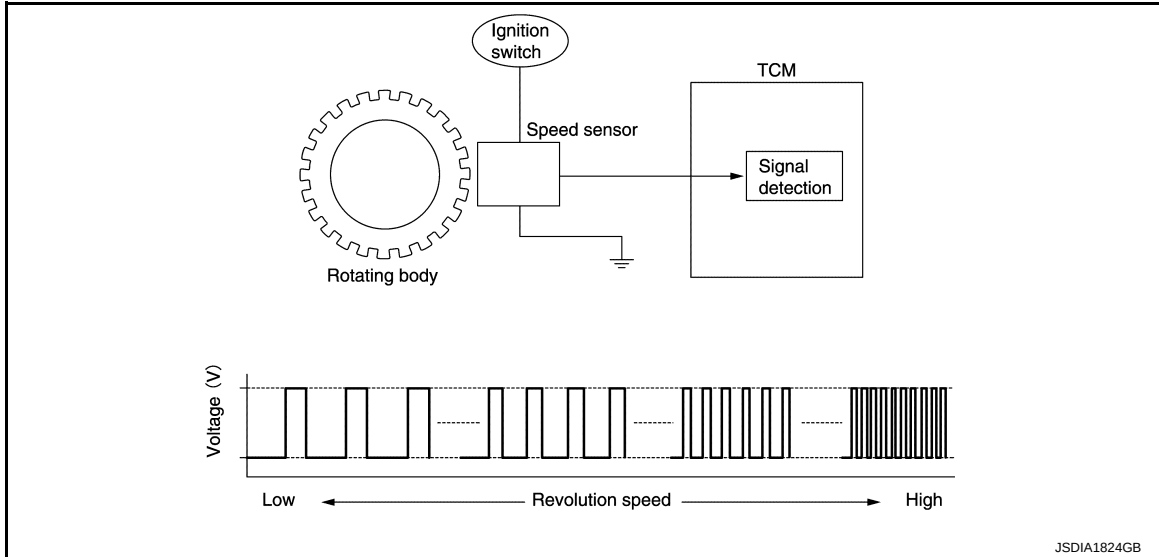


# COMPONENT PARTS

## < SYSTEM DESCRIPTION >

[CVT: RE0F10G]

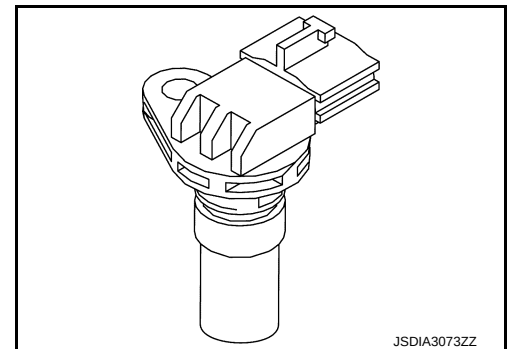
- The primary speed sensor generates an ON-OFF pulse signal according to the rotating body speed. TCM judges the rotating body speed from the pulse signal.



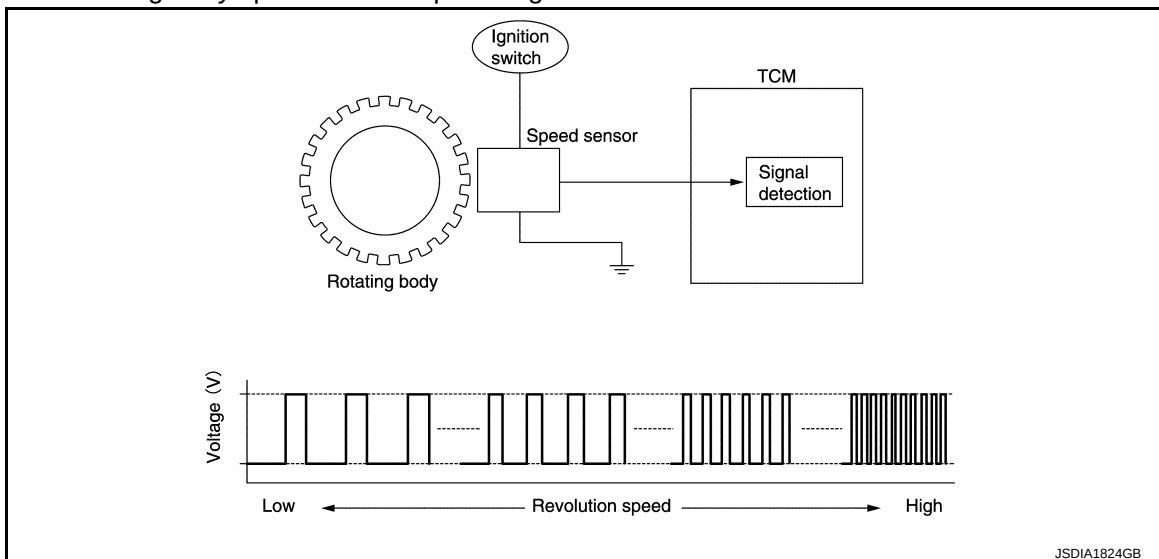
## CVT CONTROL SYSTEM : Output Speed Sensor

INFOID:000000010622709

- The output speed sensor is installed to back side of transaxle.
- The output speed sensor detects final gear speed.



- The output speed sensor generates an ON-OFF pulse signal according to the rotating body speed. TCM judges the rotating body speed from the pulse signal.



## COMPONENT PARTS

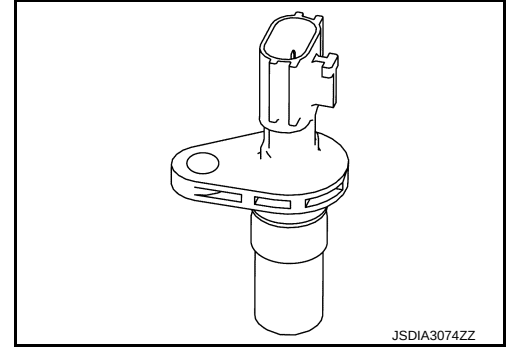
< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

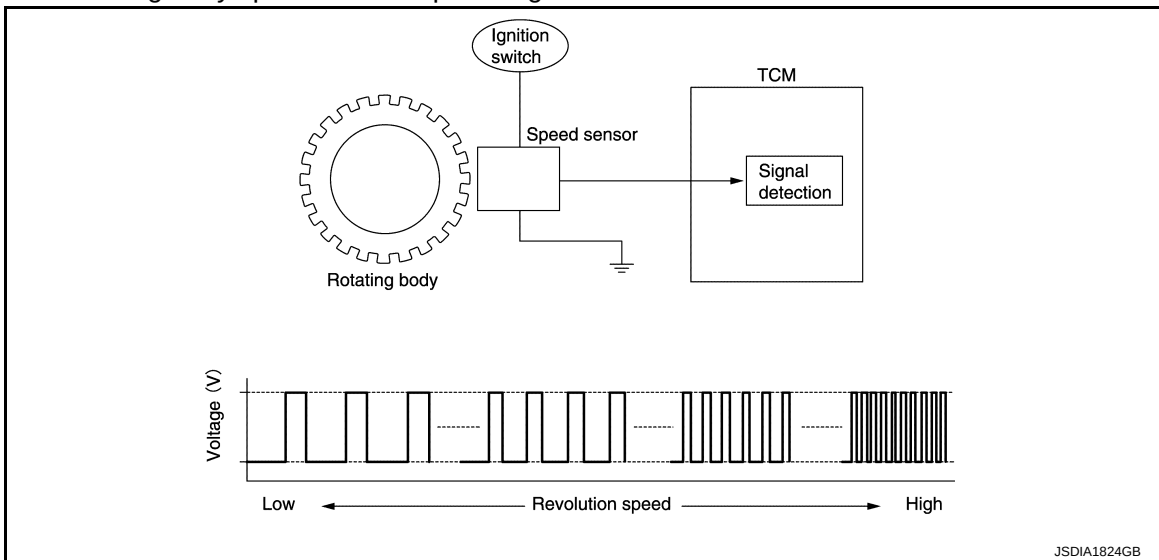
### CVT CONTROL SYSTEM : Input Speed Sensor

INFOID:000000010622710

- The input speed sensor is installed to the front side of transaxle case.
- The input speed sensor detects input shaft speed.



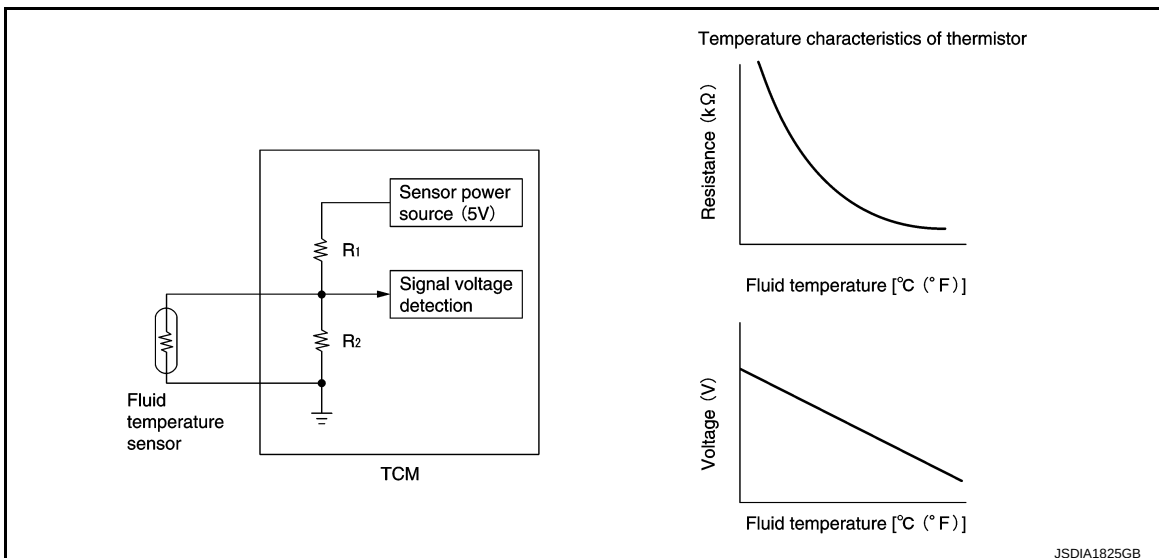
- The input speed sensor generates an ON-OFF pulse signal according to the rotating body speed. TCM judges the rotating body speed from the pulse signal.



### CVT CONTROL SYSTEM : CVT Fluid Temperature Sensor

INFOID:000000010622711

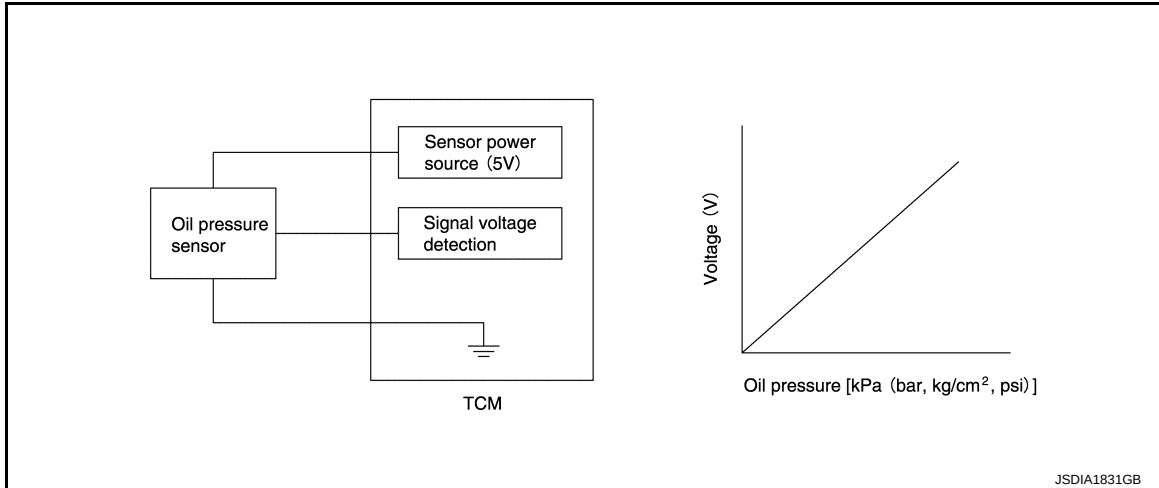
- The CVT fluid temperature sensor is installed to control valve.
- The CVT fluid temperature sensor detects CVT fluid temperature in oil pan.
- The fluid temperature sensor uses a thermistor, and changes the signal voltage by converting changes in the CVT fluid temperature to a resistance value. TCM evaluates the CVT fluid temperature from the signal voltage value.



## CVT CONTROL SYSTEM : Primary Pressure Sensor

INFOID:000000010622712

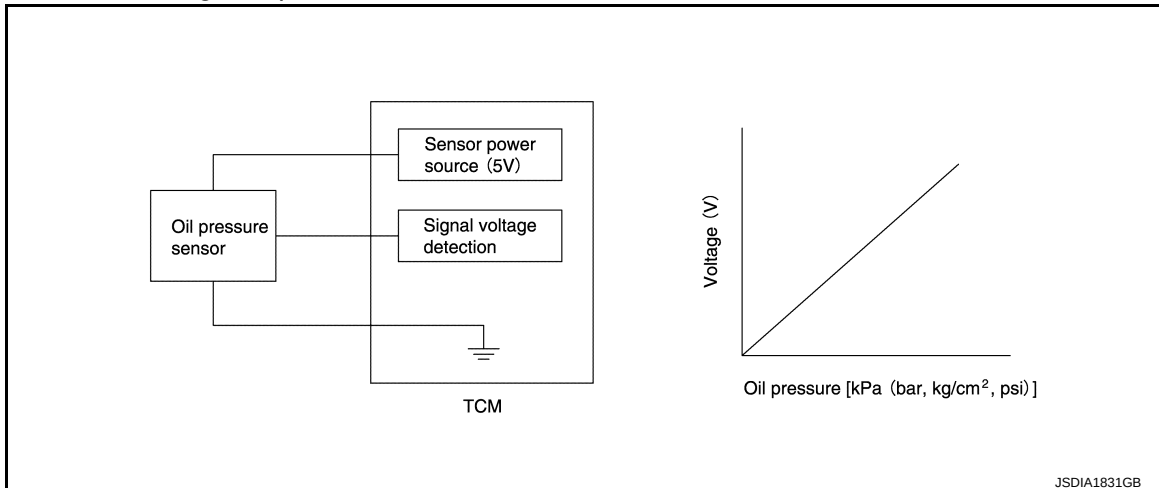
- The primary pressure sensor is installed to control valve.
- The primary pressure sensor detects the pressure applied to the primary pulley.
- When pressure is applied to the ceramic device in the primary pressure sensor, the ceramic device is deformed, resulting in voltage change. TCM evaluates the primary pressure from its voltage change. Voltage is increased along with pressure increase.



## CVT CONTROL SYSTEM : Secondary Pressure Sensor

INFOID:000000010622713

- The secondary pressure sensor is installed to control valve.
- The secondary pressure sensor detects the pressure applied to the secondary pulley.
- When pressure is applied to the metal diaphragm in the secondary pressure sensor, the metal diaphragm is deformed, resulting in voltage change. TCM evaluates the secondary pressure from its voltage change. Voltage is increased along with pressure increase.



## CVT CONTROL SYSTEM : Primary Pressure Solenoid Valve

INFOID:000000010622714

- The primary pressure solenoid valve is installed to control valve.
- The primary pressure solenoid valve controls the primary reducing valve. For information about the primary reducing valve, refer to [TM-486, "TRANSAXLE : Component Description"](#).

## COMPONENT PARTS

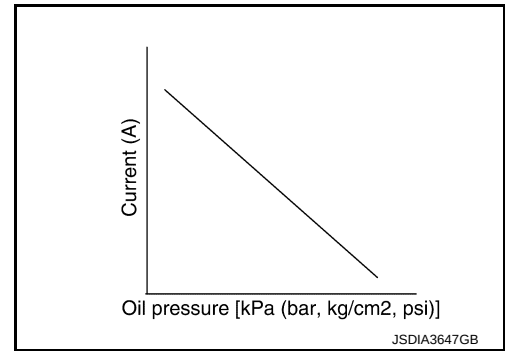
### < SYSTEM DESCRIPTION >

[CVT: RE0F10G]

- The primary pressure solenoid valve uses the linear solenoid valve [N/H (normal high) type].

**NOTE:**

- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/H (normal high) produces hydraulic control when the coil is not energized.



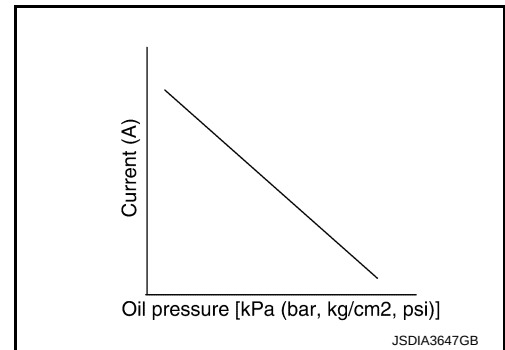
### CVT CONTROL SYSTEM : Secondary Pressure Solenoid Valve

INFOID:0000000010622715

- The secondary pressure solenoid valve is installed to control valve.
- The secondary pressure solenoid valve controls the secondary reducing valve. For information about the secondary reducing valve, refer to [TM-486. "TRANSAXLE : Component Description"](#).
- The secondary pressure solenoid valve uses the linear solenoid valve [N/H (normal high) type].

**NOTE:**

- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/H (normal high) produces hydraulic control when the coil is not energized.



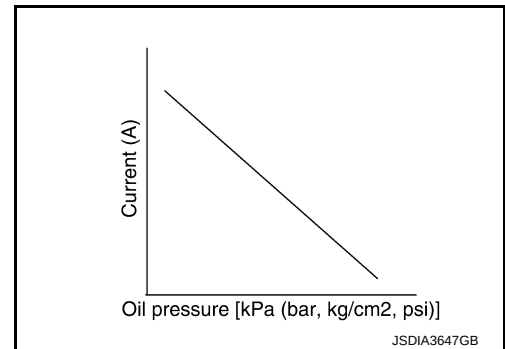
### CVT CONTROL SYSTEM : Select Solenoid Valve

INFOID:0000000010622716

- The select solenoid valve is installed to control valve.
- The select solenoid valve adjusts the forward clutch engaging pressure and the reverse brake engaging pressure. For information about the forward clutch and reverse brake, refer to [TM-486. "TRANSAXLE : Component Description"](#).
- The select solenoid valve uses the linear solenoid valve [N/H (normal high) type].

**NOTE:**

- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/H (normal high) type produces hydraulic control when the coil is not energized.



### CVT CONTROL SYSTEM : Torque Converter Clutch Solenoid Valve

INFOID:0000000010622717

- The torque converter clutch solenoid valve is installed to control valve.
- The torque converter clutch solenoid valve controls the torque converter clutch control valve. For information about the torque converter clutch control valve, refer to [TM-486. "TRANSAXLE : Component Description"](#).



## COMPONENT PARTS

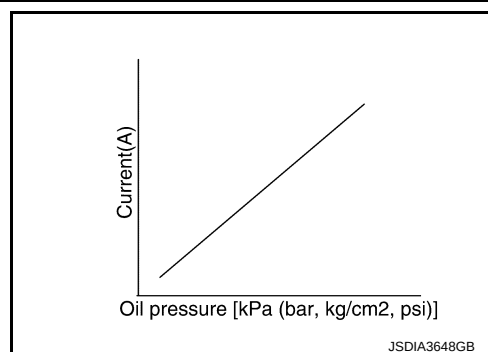
### < SYSTEM DESCRIPTION >

[CVT: RE0F10G]

- The torque converter clutch solenoid valve utilizes a linear solenoid valve [N/L (normal low) type].

#### NOTE:

- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/L (normal low) type does not produce hydraulic control when the coil is not energized.



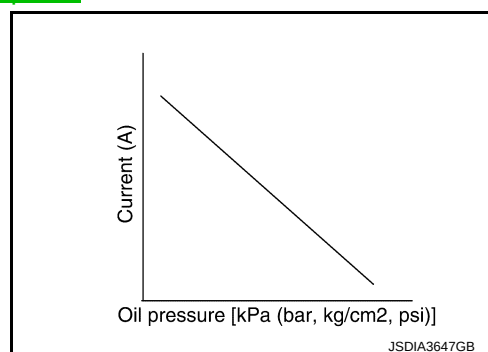
### CVT CONTROL SYSTEM : Line Pressure Solenoid Valve

INFOID:000000010622718

- The line pressure solenoid valve is installed to control valve.
- The line pressure solenoid valve controls the pressure regulator valve. For information about the pressure regulator valve, refer to [TM-486, "TRANSAXLE : Component Description"](#).
- The line pressure solenoid valve uses the linear solenoid valve [N/H (normal high) type].

#### NOTE:

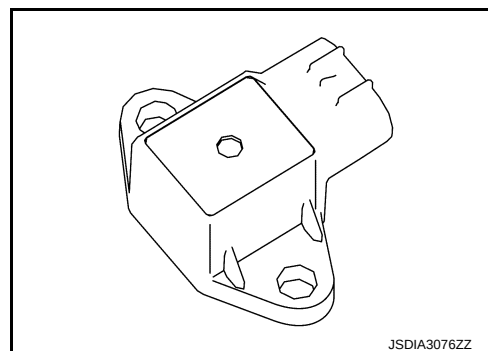
- The principle of the linear solenoid valve utilizes the fact that the force pressing on the valve spool installed inside the coil increases nearly in proportion to the current. This allows it to produce a fluid pressure that is proportional to this pressing force.
- The N/H (normal high) produces hydraulic control when the coil is not energized.



### CVT CONTROL SYSTEM : G Sensor

INFOID:000000010632036

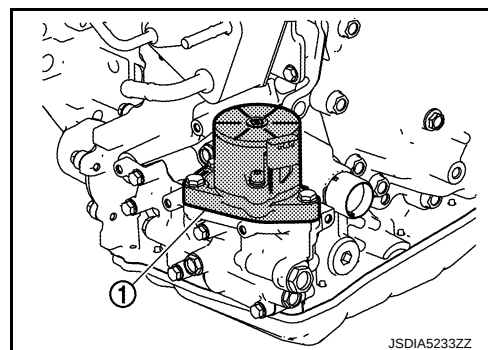
- G sensor detects front/rear G and inclination applied to the vehicle.
- G sensor converts front/rear G and inclination applied to the vehicle to voltage signal. TCM evaluates front/rear G and inclination angle of the vehicle from the voltage signal.



### CVT CONTROL SYSTEM : Electric Oil Pump

INFOID:000000010632037

- Electric oil pump ① is operated with the signal from TCM during stop/start operation. Oil pressure required for restart of the engine is obtained instead of the mechanical oil pump.
- During operation, the status signal (Duty) is sent to TCM.



## COMPONENT PARTS

### < SYSTEM DESCRIPTION >

[CVT: RE0F10G]

#### Electric oil pump status signal characteristics

| Status signal (Duty) | Condition                   |
|----------------------|-----------------------------|
| 0 %                  | Electric oil pump power OFF |
| 10 %                 | —                           |
| 20 %                 | Overheat protection         |
| 30 %                 | In normal stop              |
| 40 %                 | In activation               |
| 50 %                 | In normal operation         |
| 60 – 100 %           | Possible malfunction        |

### CVT CONTROL SYSTEM : Electric Oil Pump Relay

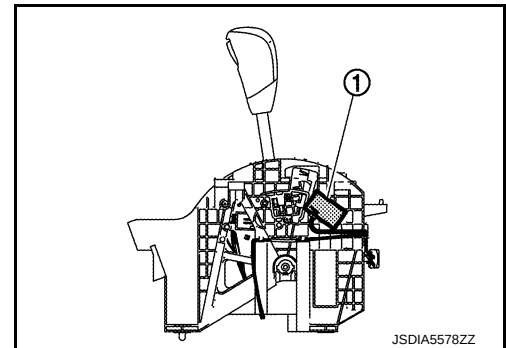
INFOID:000000010632038

- The electric oil pump relay is deactivated when the vehicle speed reaches 11 km/h (7 MPH) or more and becomes activated when it reaches 6 km/h (4 MPH) or less.
- It is ON with the signal from TCM. It is ready for operation of the electric oil pump by TCM.

### CVT CONTROL SYSTEM : Manual Mode Switch

INFOID:000000010622719

- The manual mode switch ① [mode select switch and position select switch (upshift/downshift)] is installed in the CVT shift selector assembly.
- The mode select switch detects the position (the main shift gate side or manual shift gate side) of the selector lever and transmits a manual mode signal or a not manual mode signal to the combination meter. Then, the TCM receives a manual mode signal or non-manual mode signal from the combination meter.
- The position select switch (upshift) detects that the selector lever is shifted to the upshift side of the manual shift gate and transmits a manual mode upshift signal to the combination meter. Then, the TCM receives a manual mode upshift signal from the combination meter.
- The position select switch (downshift) detects that the selector lever is shifted to the downshift side of the manual shift gate and transmits a manual mode downshift signal to the combination meter. Then, the TCM receives a manual mode downshift signal from the combination meter.



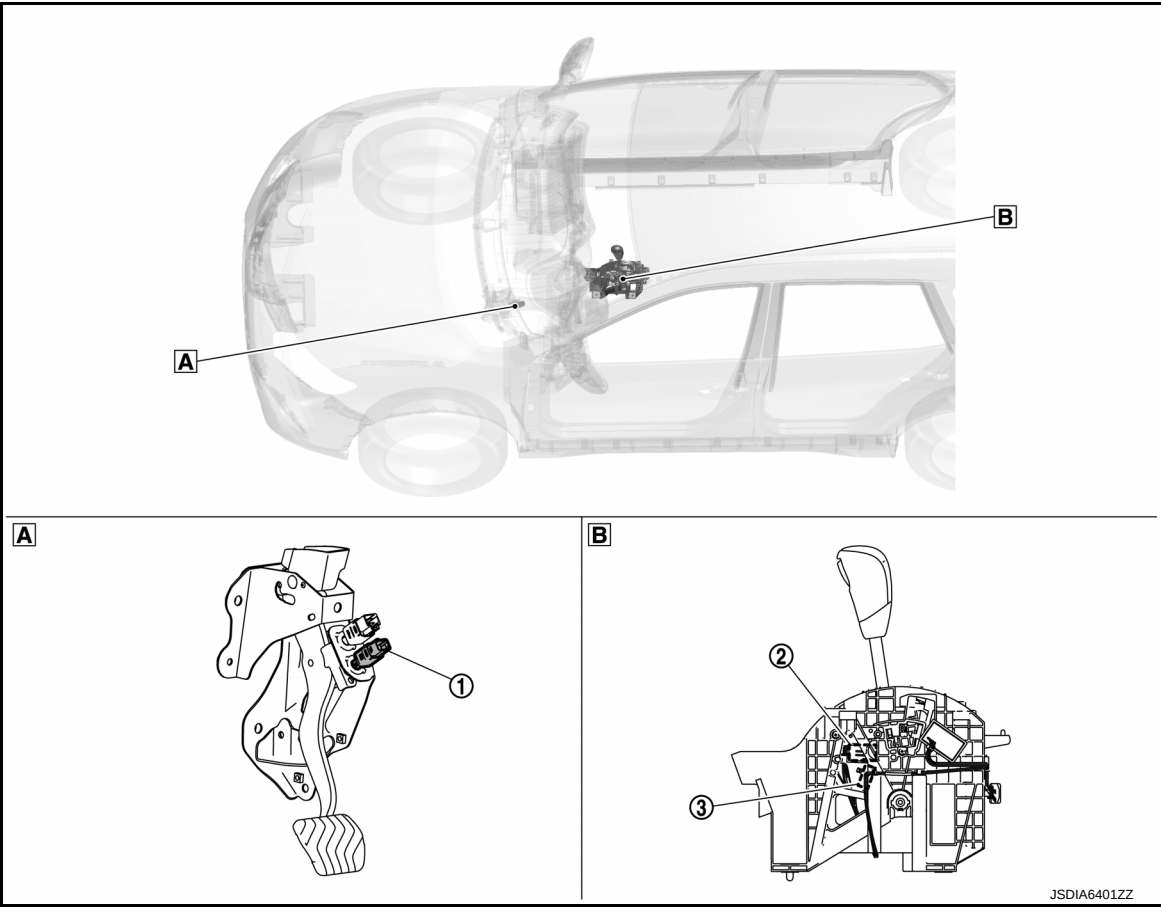
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## SHIFT LOCK SYSTEM

### SHIFT LOCK SYSTEM : Component Parts Location

INFOID:000000010622721

#### LHD MODELS



**A** Brake pedal

**B** CVT shift selector assembly

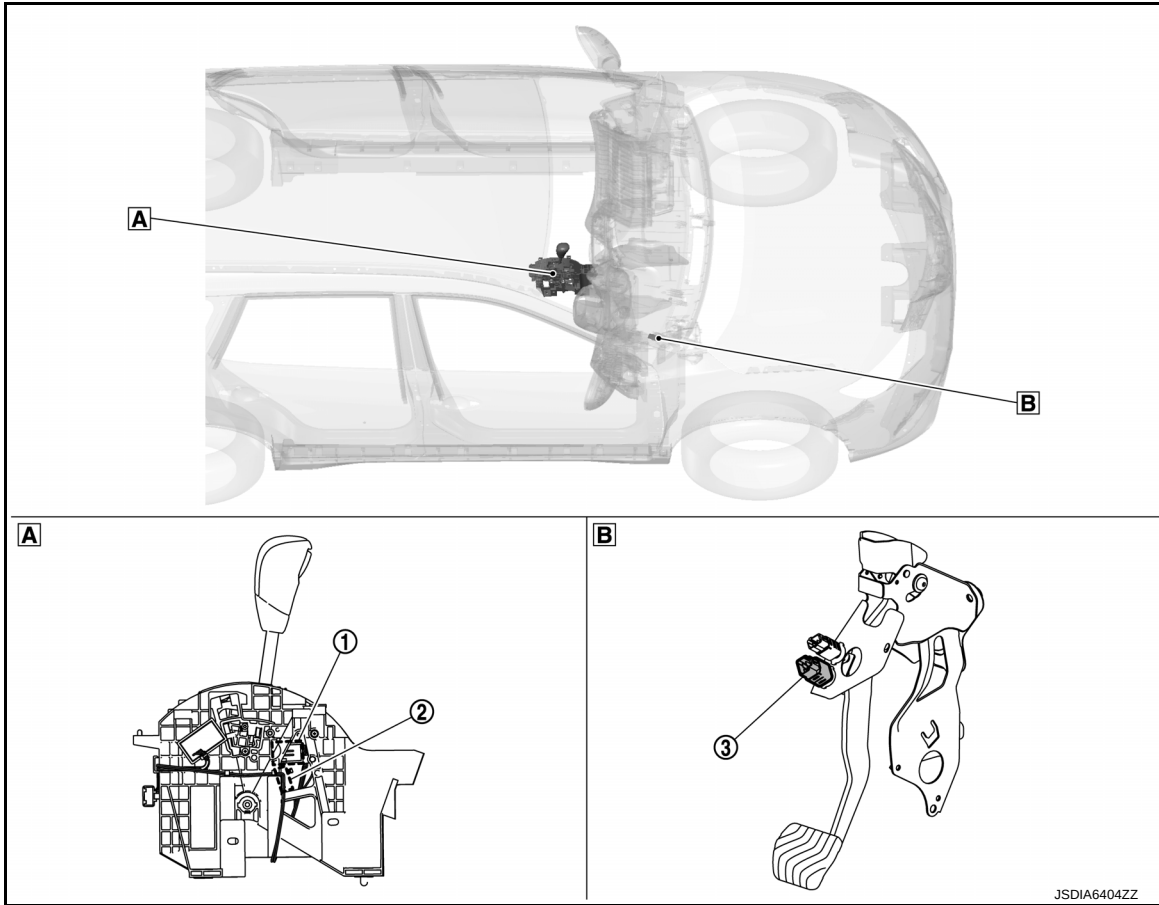
| No. | Component            | Function                                                           |
|-----|----------------------|--------------------------------------------------------------------|
| ①   | Stop lamp switch     | <a href="#">TM-480, "SHIFT LOCK SYSTEM : Stop Lamp Switch"</a>     |
| ②   | Shift lock solenoid  | <a href="#">TM-481, "SHIFT LOCK SYSTEM : Shift Lock Solenoid"</a>  |
| ③   | Park position switch | <a href="#">TM-481, "SHIFT LOCK SYSTEM : Park Position Switch"</a> |

RHD MODELS

# COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]



**A** CVT shift selector assembly

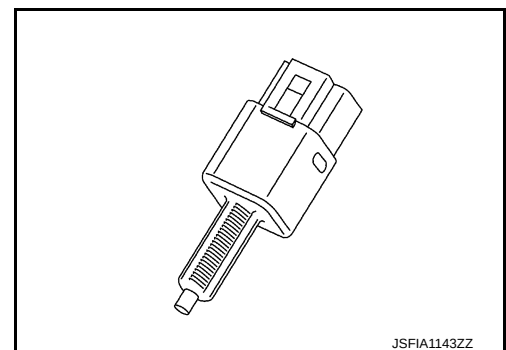
**B** Brake pedal

| No. | Component            | Function                                                           |
|-----|----------------------|--------------------------------------------------------------------|
| ①   | Shift lock solenoid  | <a href="#">TM-481, "SHIFT LOCK SYSTEM : Shift Lock Solenoid"</a>  |
| ②   | Park position switch | <a href="#">TM-481, "SHIFT LOCK SYSTEM : Park Position Switch"</a> |
| ③   | Stop lamp switch     | <a href="#">TM-480, "SHIFT LOCK SYSTEM : Stop Lamp Switch"</a>     |

## SHIFT LOCK SYSTEM : Stop Lamp Switch

INFOID:0000000010622722

- The stop lamp switch turns ON when the brake pedal is depressed.
- When the stop lamp switch turns ON, shift lock solenoid is energized.



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## COMPONENT PARTS

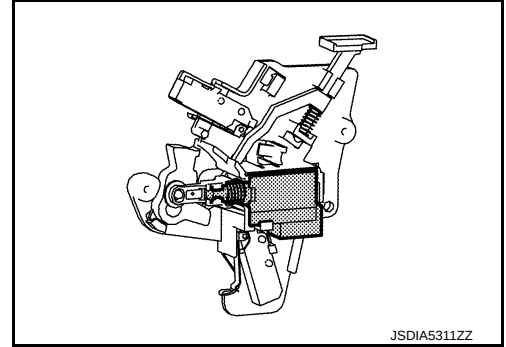
< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

### SHIFT LOCK SYSTEM : Shift Lock Solenoid

INFOID:000000010622723

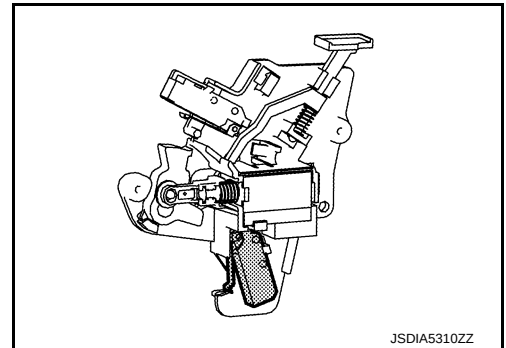
The shift lock solenoid operates according to the signal from the BCM and moves the lock lever. For shift lock operation, refer to [TM-487, "SHIFT LOCK SYSTEM : System Description"](#).



### SHIFT LOCK SYSTEM : Park Position Switch

INFOID:000000010622724

The park position switch detects that the selector lever is in "P" position.

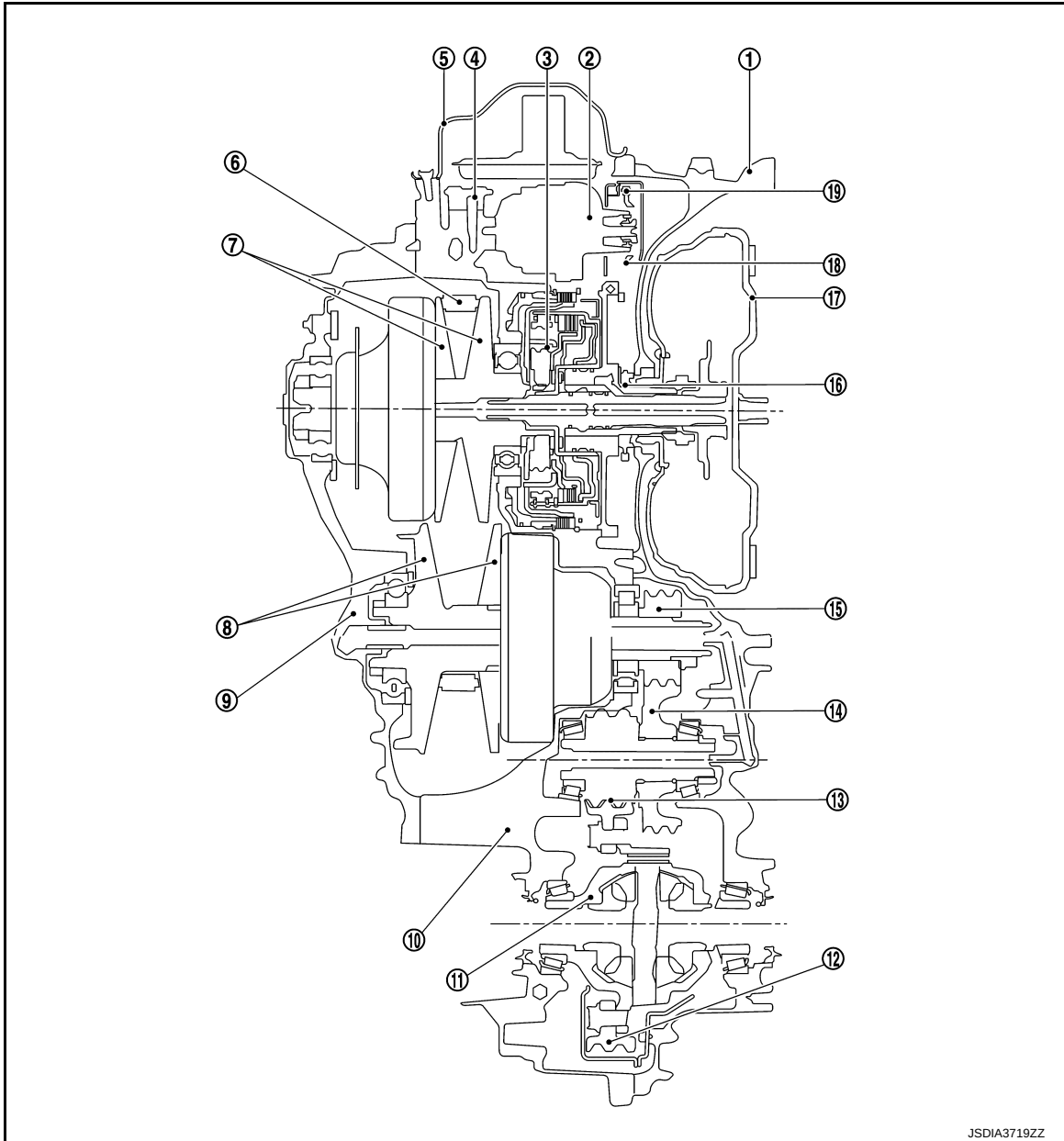


A  
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## STRUCTURE AND OPERATION TRANSAXLE

### TRANSAXLE : Cross-Sectional View

INFOID:000000010622725



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- |                     |                     |                   |
|---------------------|---------------------|-------------------|
| ① Converter housing | ② Oil pump          | ③ Planetary gear  |
| ④ Control valve     | ⑤ Oil pan           | ⑥ Chain belt      |
| ⑦ Primary pulley    | ⑧ Secondary pulley  | ⑨ Side cover      |
| ⑩ Transaxle case    | ⑪ Differential case | ⑫ Final gear      |
| ⑬ Reduction gear    | ⑭ Idler gear        | ⑮ Output gear     |
| ⑯ Drive sprocket    | ⑰ Torque converter  | ⑱ Driven sprocket |
| ⑲ Oil pump chain    |                     |                   |

# STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

## TRANSAXLE : Operation Status

INFOID:0000000110622726

×: Engaged or applied.

| Selector lever position | Parking mechanism | Forward clutch | Reverse brake | Primary pulley | Secondary pulley | Chain belt | Final drive |
|-------------------------|-------------------|----------------|---------------|----------------|------------------|------------|-------------|
| P                       | ×                 |                |               |                |                  |            |             |
| R                       |                   |                | ×             | ×              | ×                | ×          | ×           |
| N                       |                   |                |               |                |                  |            |             |
| D                       |                   | ×              |               | ×              | ×                | ×          | ×           |
| Ds, M                   |                   | ×              |               | ×              | ×                | ×          | ×           |

## TRANSAXLE : Transaxle Mechanism

INFOID:0000000110622727

### TORQUE CONVERTER (WITH LOCK-UP FUNCTION)

The torque converter is a system that increases the engine torque and transmits the torque to the transaxle. A symmetrical 3-element, 1-stage, 2-phase type is used here.

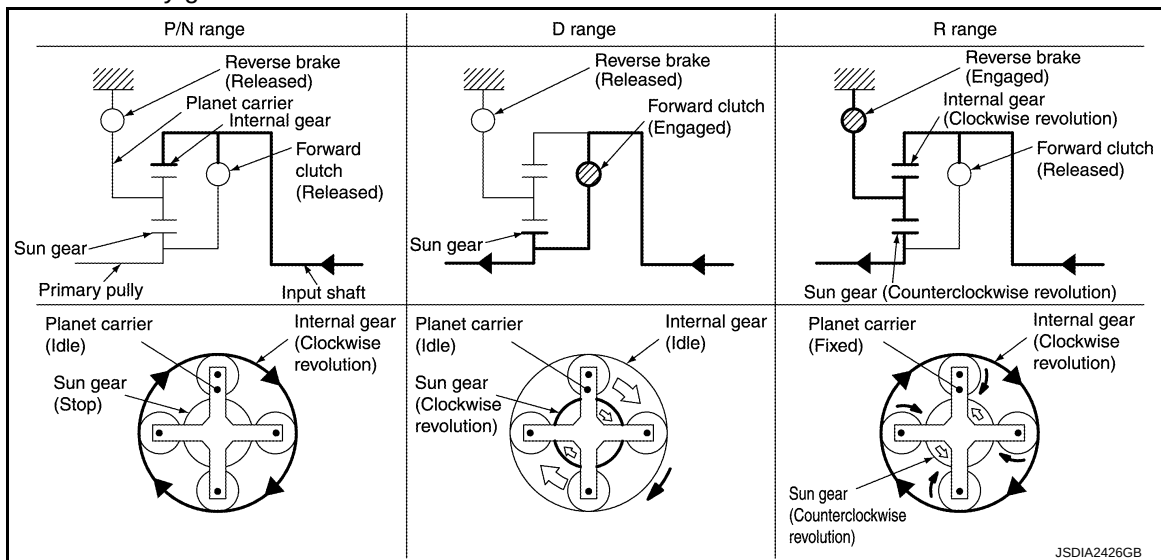
### OIL PUMP

Utilizes a vane-type oil pump that is driven by the engine through the oil pump drive chain in order to increase efficiency of pump discharge volume in low-speed zone and optimize pump discharge volume in high-speed zone. Discharged oil from oil pump is transmitted to control valve. It is used as the oil of primary and secondary pulley operation, the oil of clutch operation, and the lubricant for each part.

### PLANETARY GEAR

- A planetary gear type of forward/reverse selector mechanism is installed between the torque converter and primary pulley.
- The power from the torque converter is input via the input shaft, operating a wet multi-plate clutch by means of hydraulic pressure to switch between forward and reverse driving.

#### Operation of Planetary gear



### BELT & PULLEY

It is composed of a pair of pulleys (the groove width is changed freely in the axial direction) and the chain belt. The groove width changes according to wrapping radius of chain belt and pulley from low status to overdrive status continuously with non-step. It is controlled with the oil pressures of primary pulley and secondary pulley.

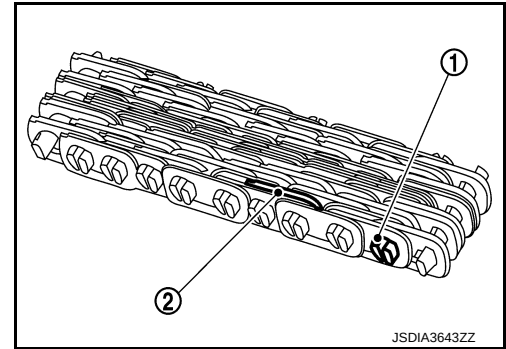
#### Chain belt

# STRUCTURE AND OPERATION

## < SYSTEM DESCRIPTION >

[CVT: RE0F10G]

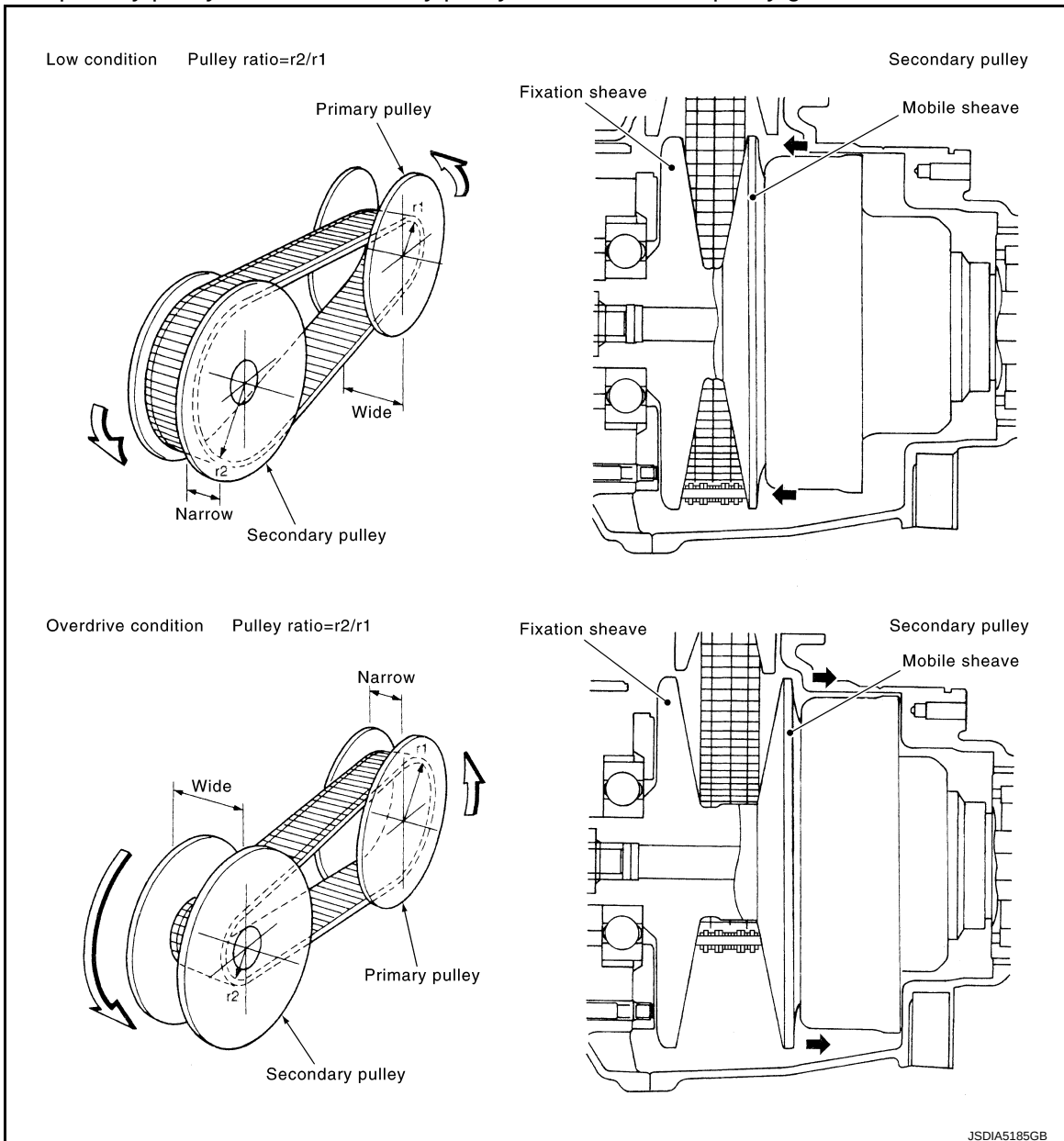
The chain belt consists of approximately 150 locker pins ① and 1,000 link plates ②. Chains are rotated by locker pins sandwiched by pulleys. This produces tension difference in chains among pulleys. Accordingly, the power is transferred by the tension.



### Pulley

The primary pulley (input shaft side) and the secondary pulley (output shaft side) have the shaft with slope (fixed cone surface), movable sheave (movable cone surface that can move in the axial direction) and oil pressure chamber at the back of the movable sheave.

The movable sheave slides on the shaft to change the groove width of the pulley. Input signals of engine load (accelerator pedal opening), primary pulley speed and secondary pulley speed change the operation pressures of the primary pulley and the secondary pulley, and controls the pulley groove width.



## FINAL DRIVE AND DIFFERENTIAL

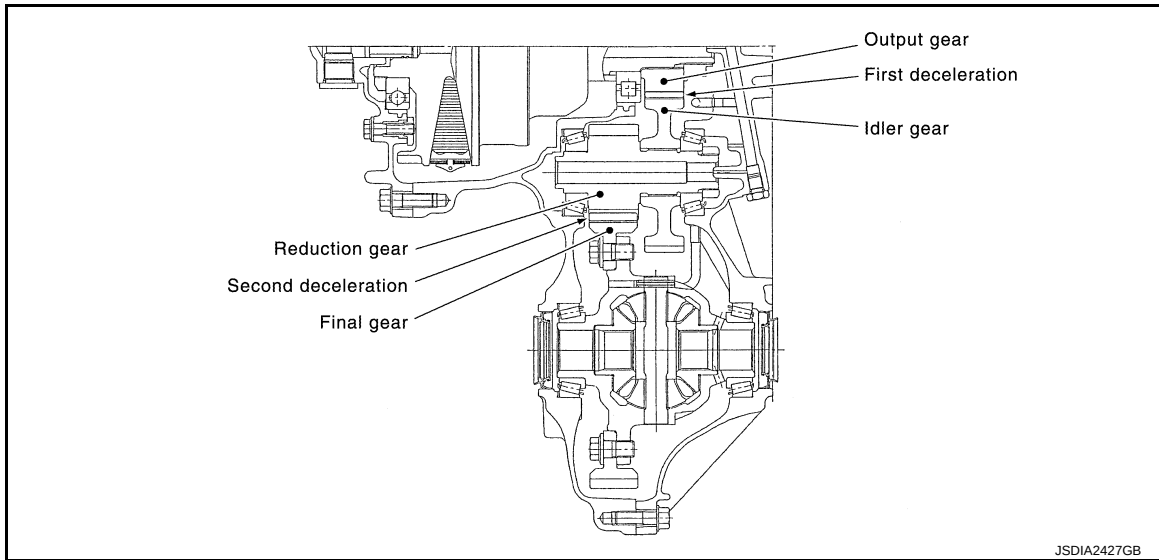


# STRUCTURE AND OPERATION

## < SYSTEM DESCRIPTION >

[CVT: RE0F10G]

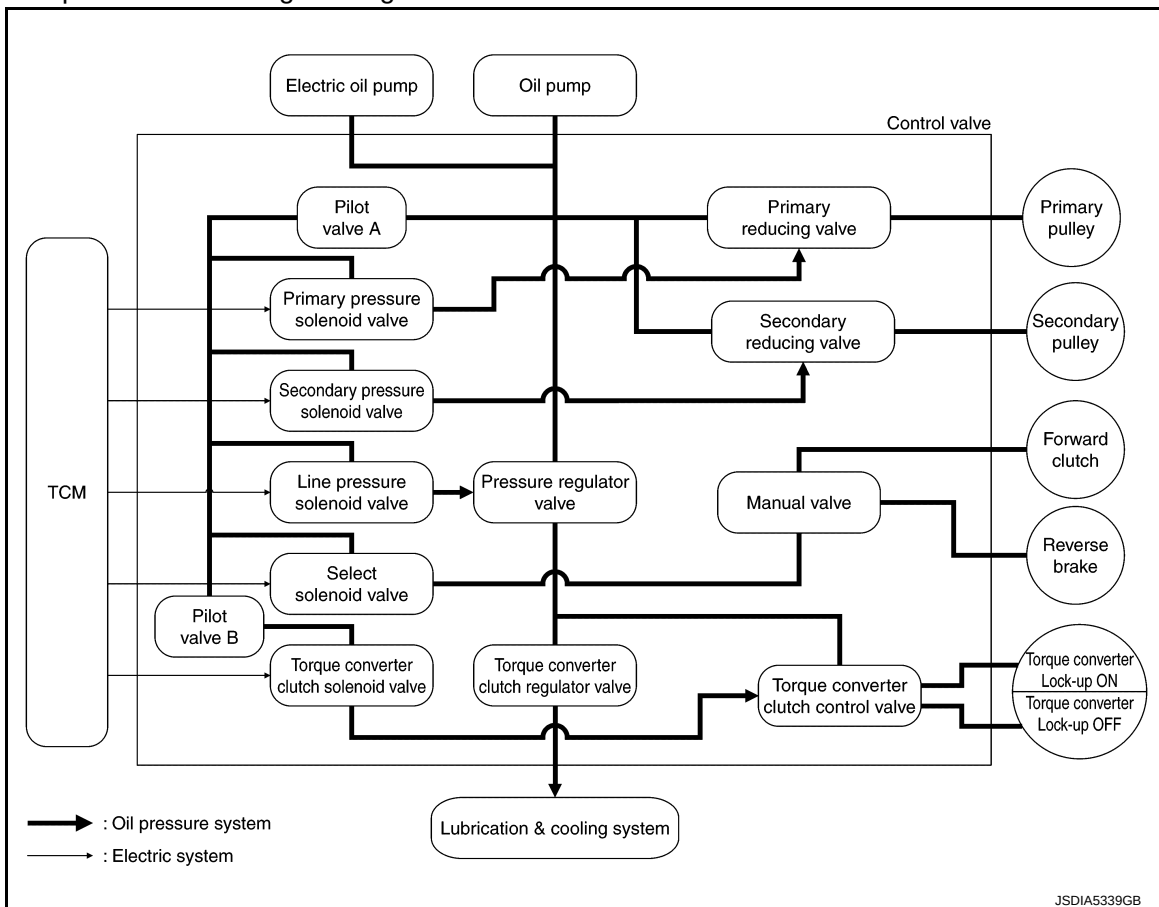
The deceleration gears are composed of 2 stages: primary deceleration (output gear, idler gear pair) and secondary deceleration (reduction gear, final gear pair). All of these gears are helical gears. The lubrication oil is the same as the CVT fluid which lubricates the entire transaxle.



## TRANSAXLE : Oil Pressure System

INFOID:0000000010622728

Oil pressure required for operation of the transaxle transmission mechanism is generated by oil pump, oil pressure control valve, solenoid valve, etc. During idling stop, the electric oil pump is activated to generate oil pressure required for restarting the engine.



# STRUCTURE AND OPERATION

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

## TRANSAXLE : Component Description

INFOID:000000010622729

| Part name                             | Function                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Torque converter                      | Increases engine torque and transmits it to the transaxle.                                                                                                                                                                                                                                                                                                                                                                 |
| Oil pump                              | Utilizes a vane-type oil pump that is driven by the engine through the oil pump drive chain in order to increase efficiency of pump discharge volume in low-speed zone and optimize pump discharge volume in high-speed zone. Discharged oil from oil pump is transmitted to control valve. It is used as the oil of primary and secondary pulley operation, the oil of clutch operation, and the lubricant for each part. |
| Forward clutch                        | The forward clutch is wet and multiple plate type clutch that consists of clutch drum, piston, drive plate, and driven plate. It is a clutch to move the vehicle forward by activating piston hydraulically, engaging plates, and directly connecting sun gear and input shaft.                                                                                                                                            |
| Reverse brake                         | The reverse brake is a wet multiple-plate type brake that consists of transaxle case, piston, drive plate, and driven plate. It is a brake to move the vehicle in reverse by activating piston hydraulically, engaging plates, and fixing planetary gear.                                                                                                                                                                  |
| Internal gear                         | The internal gear is directly connected to forward clutch drum. It is a gear that moves the outer edge of pinion planet of planet carrier. It transmits power to move the vehicle in reverse when the planet carrier is fixed.                                                                                                                                                                                             |
| Planet carrier                        | Composed of a carrier, pinion planet, and pinion shaft. This gear fixes and releases the planet carrier in order to switch between forward and reverse driving.                                                                                                                                                                                                                                                            |
| Sun gear                              | Sun gear is a set part with planet carrier and internal gear. It transmits transmitted force to primary fixed sheave. It rotates in forward or reverse direction according to activation of either forward clutch or reverse brake.                                                                                                                                                                                        |
| Input shaft                           | The input shaft is directly connected to forward clutch drum and transmits traction force from torque converter. In shaft center, there are holes for hydraulic distribution to primary pulley and hydraulic distribution for lockup ON/OFF.                                                                                                                                                                               |
| Primary pulley                        | It is composed of a pair of pulleys (the groove width is changed freely in the axial direction) and the chain belt. The groove width changes according to wrapping radius of steel belt and pulley from low status to overdrive status continuously with non-step. It is controlled with the oil pressures of primary pulley and secondary pulley.                                                                         |
| Secondary pulley                      |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Chain belt                            |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Manual shaft                          | When the manual shaft is in the P position, the parking rod that is linked to the manual shaft rotates the parking pole. When the parking pole rotates, it engages with the parking gear, fixing the parking gear. As a result, the secondary pulley that is integrated with the parking gear is fixed.                                                                                                                    |
| Parking rod                           |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Parking pawl                          |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Parking gear                          |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Output gear                           | The deceleration gears are composed of 2 stages: primary deceleration (output gear, idler gear pair) and secondary deceleration (reduction gear, final gear pair). All of these gears are helical gears.                                                                                                                                                                                                                   |
| Idler gear                            |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Reduction gear                        |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Differential                          |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Torque converter regulator valve      | Adjusts the feed pressure to the torque converter to the optimum pressure corresponding to the driving condition.                                                                                                                                                                                                                                                                                                          |
| Pressure regulator valve              | Adjusts the discharge pressure from the oil pump to the optimum pressure (line pressure) corresponding to the driving condition.                                                                                                                                                                                                                                                                                           |
| Torque converter clutch control valve | Adjusts the torque converter engage and disengage pressures.                                                                                                                                                                                                                                                                                                                                                               |
| Manual valve                          | Distributes the clutch operation pressure to each circuit according to the selector lever position.                                                                                                                                                                                                                                                                                                                        |
| Secondary reducing valve              | Reduces line pressure and adjusts secondary pressure.                                                                                                                                                                                                                                                                                                                                                                      |
| Primary reducing valve                | Reduces line pressure and adjusts primary pressure.                                                                                                                                                                                                                                                                                                                                                                        |
| Pilot valve A                         | Reduces line pressure and adjusts pilot pressure to the solenoid valves listed below. <ul style="list-style-type: none"> <li>• Primary pressure solenoid valve</li> <li>• Secondary pressure solenoid valve</li> <li>• Select solenoid valve</li> <li>• Line pressure solenoid valve</li> </ul>                                                                                                                            |
| Pilot valve B                         | Reduces pilot pressure and adjusts pilot pressure to the torque converter clutch solenoid valve.                                                                                                                                                                                                                                                                                                                           |

## FLUID COOLER & FLUID WARMER SYSTEM

# STRUCTURE AND OPERATION

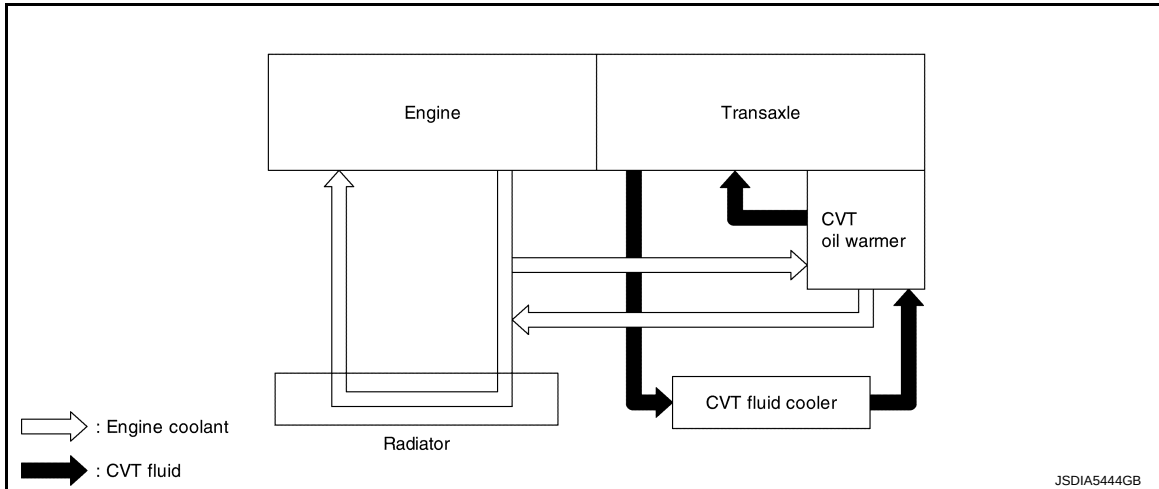
< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

## FLUID COOLER & FLUID WARMER SYSTEM : System Description

INFOID:000000010622730

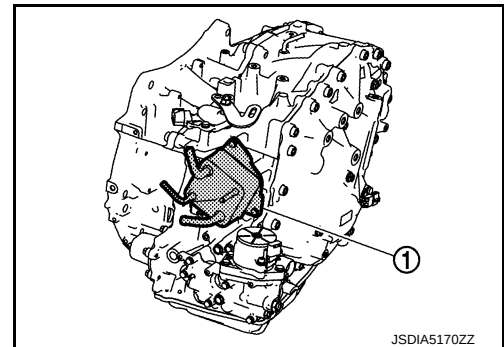
### CVT FLUID COOLER SCHEMATIC



### COMPONENT DESCRIPTION

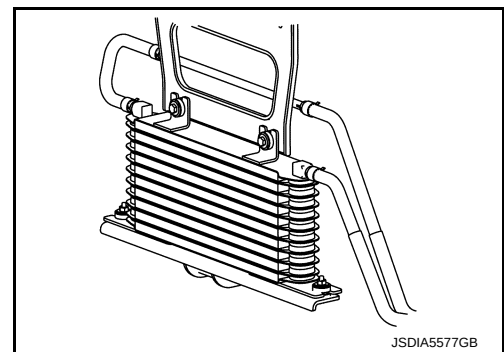
#### CVT Oil Warmer

- The CVT oil warmer ① is installed on the front part of transaxle assembly.
- When engine is started while engine and CVT are cold, engine coolant temperature rises more quickly than CVT fluid temperature. CVT oil warmer is provided with two circuits for CVT and engine coolant respectively so that warmed engine coolant warms CVT quickly. This helps shorten CVT warming up time, improving fuel economy.
- A cooling effect is obtained when CVT fluid temperature is high.



#### CVT Fluid Cooler (Air Cooling Type)

- The CVT fluid cooler (air cooling type) is installed to the vehicle front.
- CVT fluid is cooled by driving blast while driving the vehicle.



## SHIFT LOCK SYSTEM

### SHIFT LOCK SYSTEM : System Description

INFOID:000000010622731

- The shift lock system prevents the select lever from being moved from "P" position to other positions due to a driver's improper operation and prevents the occurrence of an abrupt start.
- Shift lock can be released when the following conditions are satisfied.
  - Ignition switch is ON.
  - Brake pedal is depressed. (Stop lamp switch is ON)

#### SHIFT LOCK OPERATION AT P POSITION

When brake pedal is not depressed (no selector operation allowed)

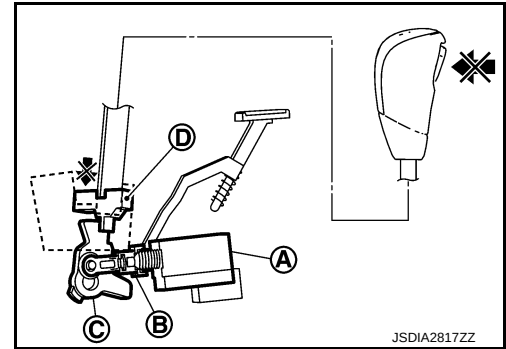
## STRUCTURE AND OPERATION

### < SYSTEM DESCRIPTION >

[CVT: RE0F10G]

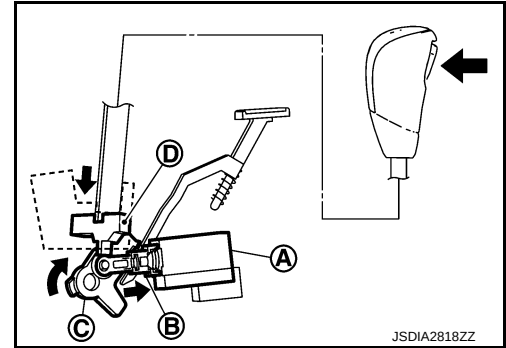
When the brake pedal is not depressed with the ignition switch ON, the shift lock solenoid (A) is OFF (not energized) and the solenoid rod (B) is extended with spring.

The connecting lock lever (C) is located at the position shown in the figure when the solenoid rod is extended. It prevents the movement of the detent rod (D). The selector lever cannot be shifted from the "P" position for this reason.



When brake pedal is depressed (selector lever operation allowed)

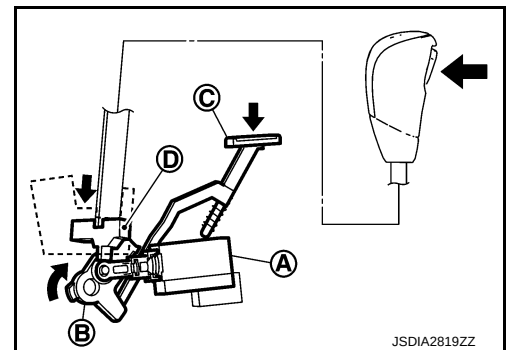
The shift lock solenoid (A) is turned ON (energized) when the brake pedal is depressed with the ignition switch ON. The solenoid rod (B) is compressed with the electromagnetic force. The connecting lock lever (C) rotates when the solenoid rod is compressed. Therefore, the detent rod (D) can be moved. The selector lever can be shifted to other positions for this reason.



### FORCIBLE RELEASE OF SHIFT LOCK

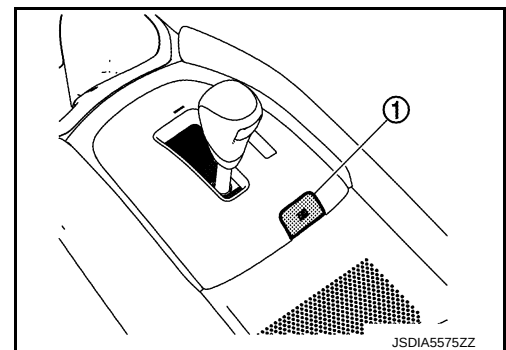
- When battery voltage decreases or an electrical/mechanical malfunction occurs in the shift lock system, the selector lever cannot be operated in "P" position. When shift lock release rod (C) is pressed in this state, lock lever (B) is forcibly rotated, and then it becomes possible to release shift lock.

- (A) : Shift lock solenoid  
(D) : Detent rod



- To release the shift lock forcibly and shift the selector lever from "P" position to other positions, follow the steps below.

1. Turn ignition switch OFF.
2. Apply parking brake.
3. Remove shift lock cover (1).

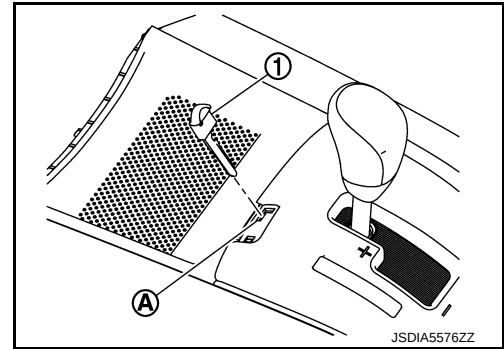


# STRUCTURE AND OPERATION

## < SYSTEM DESCRIPTION >

[CVT: RE0F10G]

4. Insert key ① to finisher opening ④ and press the shift lock release rod.
5. Press the selector lever knob button and move the selector lever from "P" position to other positions.



## KEY LOCK SYSTEM

### KEY LOCK SYSTEM : System Description

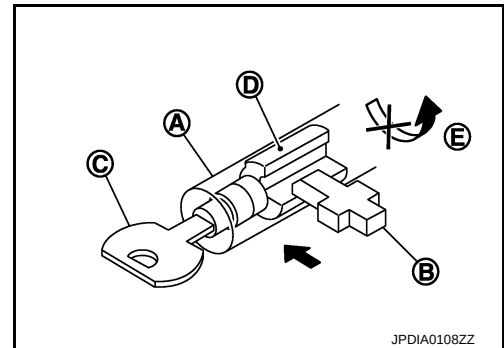
INFOID:0000000011009348

#### KEY LOCK MECHANISM

The key is not set to LOCK when the selector lever is not selected to P position. This prevents the key from being removed from the key cylinder.

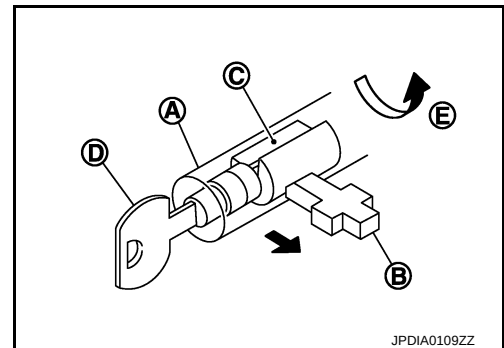
##### Key lock status

The slider ② in the key cylinder ① is moved to the left side of the figure when the selector lever is in any position other than P position. The rotator ④ that rotates together with the key ③ cannot be rotated for this reason. The key cannot be removed from the key cylinder because it cannot be turned to LOCK ⑤.



##### Key unlock status

The slider ② in the key cylinder ① is moved to the right side of the figure when the selector lever is in P position and the finger is removed from the selector button. The rotator ③ can be rotated for this reason. The key ④ can be removed from the key cylinder because it can be turned to LOCK ⑤.



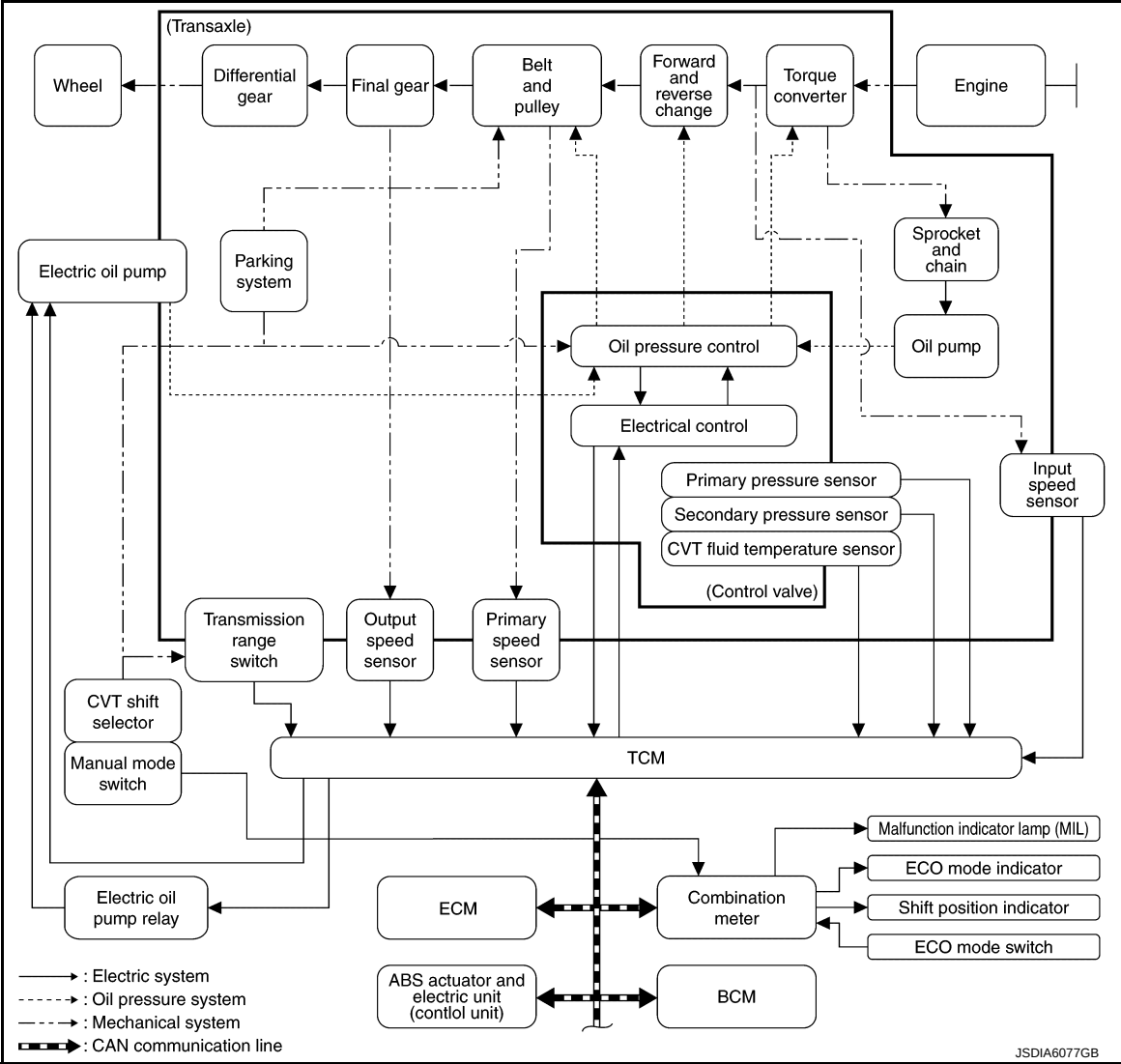
SYSTEM

CVT CONTROL SYSTEM

CVT CONTROL SYSTEM : System Description

INFOID:000000010622732

SYSTEM DIAGRAM



MAIN CONTROL CONTENTS OF TCM

| Controls                            | Reference                                                            |
|-------------------------------------|----------------------------------------------------------------------|
| Line pressure control               | <a href="#">TM-498, "LINE PRESSURE CONTROL : System Description"</a> |
| Shift control                       | <a href="#">TM-499, "SHIFT CONTROL : System Description"</a>         |
| Select control                      | <a href="#">TM-502, "SELECT CONTROL : System Description"</a>        |
| Lock-up control                     | <a href="#">TM-503, "ECO MODE SYSTEM : System Description"</a>       |
| ECO mode control                    | <a href="#">TM-503, "ECO MODE SYSTEM : System Description"</a>       |
| Stop/start system                   | <a href="#">TM-504, "STOP/START SYSTEM : System Description"</a>     |
| Fail-safe                           | <a href="#">TM-522, "Fail-safe"</a>                                  |
| Self-diagnosis function             | <a href="#">TM-510, "CONSULT Function"</a>                           |
| Communication function with CONSULT | <a href="#">TM-510, "CONSULT Function"</a>                           |

LIST OF CONTROL ITEMS AND INPUT/OUTPUT

# SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

| Control Item |                                                                                                                                                      | Shift control | Line pressure control | Select control | Lock-up control | Fail-safe function* |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------|----------------|-----------------|---------------------|
| Input        | Engine torque signal (CAN communication)                                                                                                             | ×             | ×                     | ×              | ×               | ×                   |
|              | Engine speed signal (CAN communication)                                                                                                              | ×             | ×                     | ×              | ×               | ×                   |
|              | Accelerator pedal position signal (CAN communication)                                                                                                | ×             | ×                     | ×              | ×               |                     |
|              | Closed throttle position signal (CAN communication)                                                                                                  | ×             | ×                     |                | ×               |                     |
|              | Stop lamp switch signal (CAN communication)                                                                                                          | ×             | ×                     | ×              | ×               |                     |
|              | Primary pressure sensor                                                                                                                              |               |                       |                |                 | ×                   |
|              | Secondary pressure sensor                                                                                                                            | ×             | ×                     |                |                 | ×                   |
|              | CVT fluid temperature sensor                                                                                                                         | ×             | ×                     | ×              | ×               | ×                   |
|              | Primary speed sensor                                                                                                                                 | ×             | ×                     | ×              | ×               | ×                   |
|              | Output speed sensor                                                                                                                                  | ×             | ×                     |                | ×               | ×                   |
|              | Input speed sensor                                                                                                                                   | ×             | ×                     | ×              | ×               | ×                   |
|              | Transmission range switch                                                                                                                            | ×             | ×                     | ×              | ×               | ×                   |
|              | Manual mode switch signal (Manual mode signal, non-manual mode signal, manual mode upshift signal, manual mode downshift signal) (CAN communication) | ×             | ×                     |                | ×               |                     |
| Output       | Line pressure solenoid valve                                                                                                                         | ×             | ×                     | ×              |                 | ×                   |
|              | Primary pressure solenoid valve                                                                                                                      | ×             | ×                     |                |                 | ×                   |
|              | Torque converter clutch solenoid valve                                                                                                               |               |                       |                | ×               | ×                   |
|              | Secondary pressure solenoid valve                                                                                                                    | ×             | ×                     |                |                 | ×                   |
|              | Select solenoid valve                                                                                                                                | ×             |                       | ×              |                 | ×                   |
|              | Shift position indicator (CAN communication)                                                                                                         |               |                       | ×              |                 |                     |

\*: If these input/output signals show errors, TCM activates the fail-safe function.

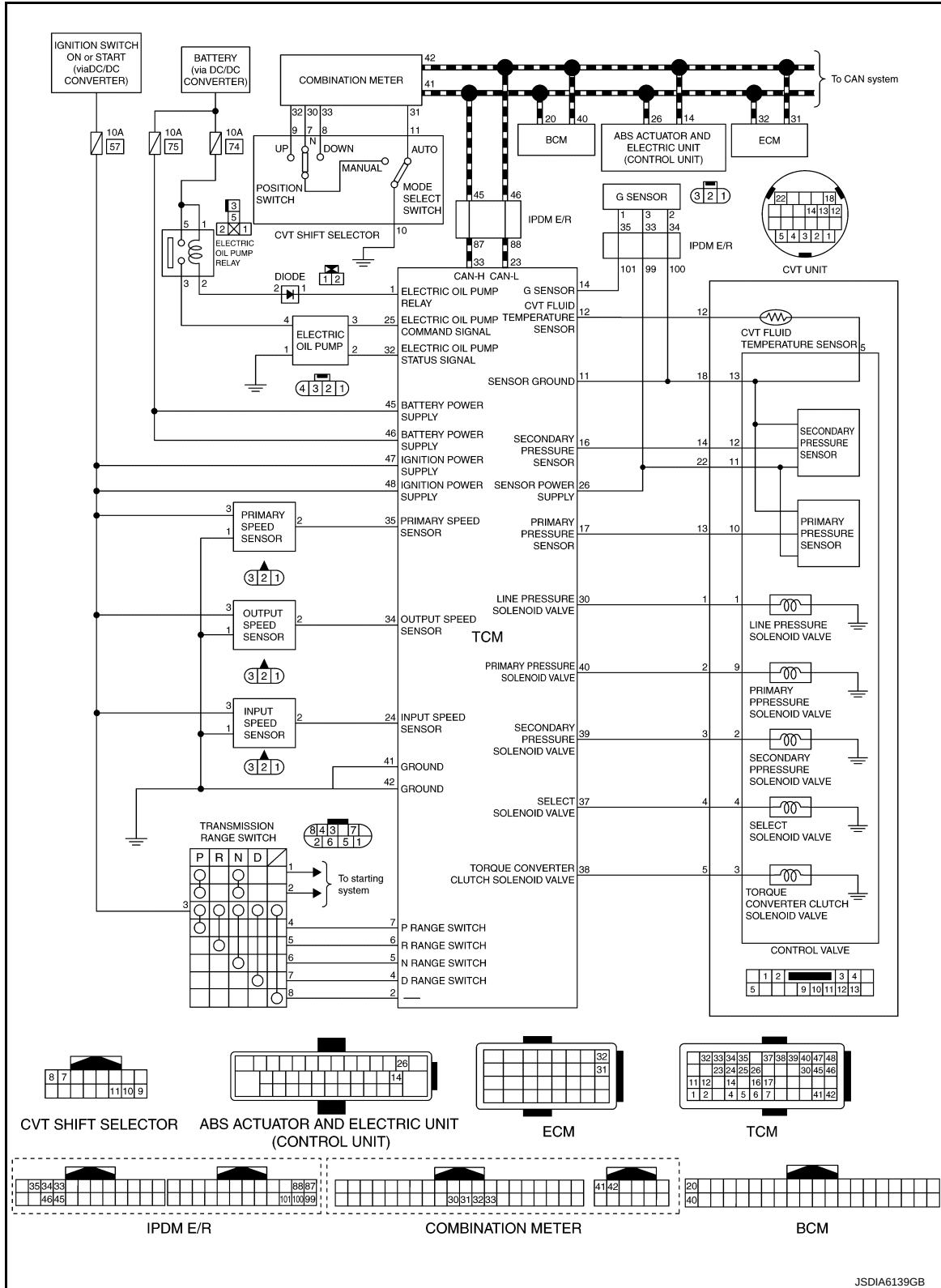
# SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

## CVT CONTROL SYSTEM : Circuit Diagram

INFOID:000000010622733



JSDIA6139GB

## CVT CONTROL SYSTEM : Fail-safe

INFOID:000000011007388

TCM has a fail-safe mode. The mode functions so that operation can be continued even if the signal circuit of the main electronically controlled input/output parts is damaged.

If the vehicle shows following behaviors including "poor acceleration", a malfunction of the applicable system is detected by TCM and the vehicle may be in a fail-safe mode. At this time, check the DTC code and perform inspection and repair according to the malfunction diagnosis procedures.



# SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

## Fail-safe function

| DTC   | Vehicle behavior                                                                                                                                                                                                                                                                                                                                                                                | Conditions of vehicle                                                                                                                                         |             |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| P062F | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                                                                                                 | —                                                                                                                                                             | A<br>B      |
| P0705 | <ul style="list-style-type: none"> <li>Shift position indicator on combination meter is not displayed</li> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul> | —                                                                                                                                                             | C<br>TM     |
| P0706 | <ul style="list-style-type: none"> <li>Shift position indicator on combination meter is not displayed</li> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul> | —                                                                                                                                                             | E<br>F<br>G |
| P0712 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                                                                                                                                                                                                                   | Engine coolant temperature when engine start:<br>Temp. $\geq 10^{\circ}\text{C}$ ( $50^{\circ}\text{F}$ )                                                     | H           |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                                                                                                                                                                                  | Engine coolant temperature when engine start:<br>$-35^{\circ}\text{C}$ ( $-31^{\circ}\text{F}$ ) $\leq$ Temp. $< 10^{\circ}\text{C}$ ( $50^{\circ}\text{F}$ ) | I           |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                                                                                                                                                                                  | Engine coolant temperature when engine start:<br>Temp. $< -35^{\circ}\text{C}$ ( $-31^{\circ}\text{F}$ )                                                      | J           |
|       | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                                                                                                 | —                                                                                                                                                             | K           |
| P0713 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                                                                                                                                                                                                                   | Engine coolant temperature when engine start:<br>Temp. $\geq 10^{\circ}\text{C}$ ( $50^{\circ}\text{F}$ )                                                     | L           |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                                                                                                                                                                                  | Engine coolant temperature when engine start:<br>$-35^{\circ}\text{C}$ ( $-31^{\circ}\text{F}$ ) $\leq$ Temp. $< 10^{\circ}\text{C}$ ( $50^{\circ}\text{F}$ ) | M           |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                                                                                                                                                                                  | Engine coolant temperature when engine start:<br>Temp. $< -35^{\circ}\text{C}$ ( $-31^{\circ}\text{F}$ )                                                      | N           |
|       | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                                                                                                 | —                                                                                                                                                             | O           |
| P0715 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Manual mode is not activated</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                    | —                                                                                                                                                             | P           |
| P0717 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                          | —                                                                                                                                                             |             |

# SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

| DTC   | Vehicle behavior                                                                                                                                                                                                                                                                                                        | Conditions of vehicle                                   |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| P0740 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                  | —                                                       |
| P0743 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                  | —                                                       |
| P0744 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                                                                                                                                         | —                                                       |
| P0746 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul> | —                                                       |
| P0776 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Vehicle speed is not increased</li> </ul>                                                                                                                | When a malfunction occurs on the low oil pressure side  |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                                                                                                        | When a malfunction occurs on the high oil pressure side |
| P0778 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                                                                                                        | —                                                       |
| P0779 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                                                                                                        | —                                                       |
| P0826 | Manual mode is not activated                                                                                                                                                                                                                                                                                            | —                                                       |
| P0841 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                         | —                                                       |
| P0847 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                         | —                                                       |
| P0848 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                         | —                                                       |
| P084C | Not changed from normal driving                                                                                                                                                                                                                                                                                         | —                                                       |
| P084D | Not changed from normal driving                                                                                                                                                                                                                                                                                         | —                                                       |
| P0863 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul> | —                                                       |

# SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

| DTC   | Vehicle behavior                                                                                                                                                                                                                                                                                                                                                | Conditions of vehicle                                   |    |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|----|
| P0890 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Vehicle speed is not increased</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul> | —                                                       | A  |
|       |                                                                                                                                                                                                                                                                                                                                                                 |                                                         | B  |
|       |                                                                                                                                                                                                                                                                                                                                                                 |                                                         | C  |
| P0962 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                         | —                                                       | TM |
|       |                                                                                                                                                                                                                                                                                                                                                                 |                                                         | E  |
| P0963 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                         | —                                                       | F  |
|       |                                                                                                                                                                                                                                                                                                                                                                 |                                                         | G  |
|       |                                                                                                                                                                                                                                                                                                                                                                 |                                                         | H  |
| P0965 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                         | When a malfunction occurs on the low oil pressure side  | I  |
|       |                                                                                                                                                                                                                                                                                                                                                                 | When a malfunction occurs on the high oil pressure side | J  |
| P0966 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                         | —                                                       | K  |
|       |                                                                                                                                                                                                                                                                                                                                                                 |                                                         | L  |
| P0967 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                         | —                                                       | M  |
|       |                                                                                                                                                                                                                                                                                                                                                                 |                                                         | N  |
| P1586 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                                                                 | —                                                       | O  |
| P1588 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                                                                 | —                                                       | P  |
| P188E | <ul style="list-style-type: none"> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> <li>When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately</li> </ul>                                                                                      | —                                                       |    |

# SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

| DTC   | Vehicle behavior                                                                                                                                                                                                                                                                                                              | Conditions of vehicle                                   |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| P188F | <ul style="list-style-type: none"> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> <li>When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately</li> </ul>                                                    | —                                                       |
| P1890 | <ul style="list-style-type: none"> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> <li>When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately</li> </ul>                                                    | —                                                       |
| P2765 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Manual mode is not activated</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>  | —                                                       |
| P2813 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Vehicle speed is not increased</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul> | When a malfunction occurs on the low oil pressure side  |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                              | When a malfunction occurs on the high oil pressure side |
| P2814 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                              | —                                                       |
| P2815 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                              | —                                                       |
| U0073 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>       | —                                                       |
| U0100 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>       | —                                                       |
| U0140 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                               | —                                                       |
| U0141 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                               | —                                                       |
| U0155 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                               | —                                                       |

# SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

| DTC   | Vehicle behavior                                                                                                                                                                                                                                                                                                        | Conditions of vehicle |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| U0300 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                                                                                                        | —                     |
| U1000 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul> | —                     |
| U110F | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                         | —                     |
| U1111 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                         | —                     |
| U1117 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                         | —                     |

## CVT CONTROL SYSTEM : Protection Control

INFOID:0000000011007389

The TCM becomes the protection control status temporarily to protect the safety when the safety of TCM and transmission is lost. It automatically returns to the normal status if the safety is secured.  
The TCM has the following protection control.

### CONTROL FOR WHEEL SPIN

|                             |                                                                                                                                                                                                      |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control                     | When a wheel spin is detected, the engine output and gear ratio are limited and the line pressure is increased. Limits engine output when a wheel spin occurs in any of right and left drive wheels. |
| Vehicle behavior in control | If the accelerator is kept depressing during wheel spin, the engine revolution and vehicle speed are limited to a certain degree.                                                                    |
| Normal return condition     | Wheel spin convergence returns the control to the normal control.                                                                                                                                    |

### TORQUE IS REDUCED WHEN DRIVING WITH THE REVERSE GEAR

|                             |                                                                                                |
|-----------------------------|------------------------------------------------------------------------------------------------|
| Control                     | Engine output is controlled according to a vehicle speed while reversing the vehicle.          |
| Vehicle behavior in control | Power performance may be lowered while reversing the vehicle.                                  |
| Normal return condition     | Torque returns to normal by positioning the selector lever in a range other than "R" position. |

### CONTROL WHEN FLUID TEMPERATURE IS HIGH

|                             |                                                                                                                                                                                |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control                     | When the CVT fluid temperature is high, the gear shift permission maximum revolution and the maximum torque are reduced than usual to prevent increase of the oil temperature. |
| Vehicle behavior in control | Power performance may be lowered, compared to normal control.                                                                                                                  |
| Normal return condition     | The control returns to the normal control when CVT fluid temperature is lowered.                                                                                               |

### REVERSE PROHIBIT CONTROL

|         |                                                                                                                                                                               |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control | The reverse brake is controlled to avoid becoming engaged when the selector lever is set in "R" position while driving in forward direction at more than the specified speed. |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

# SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

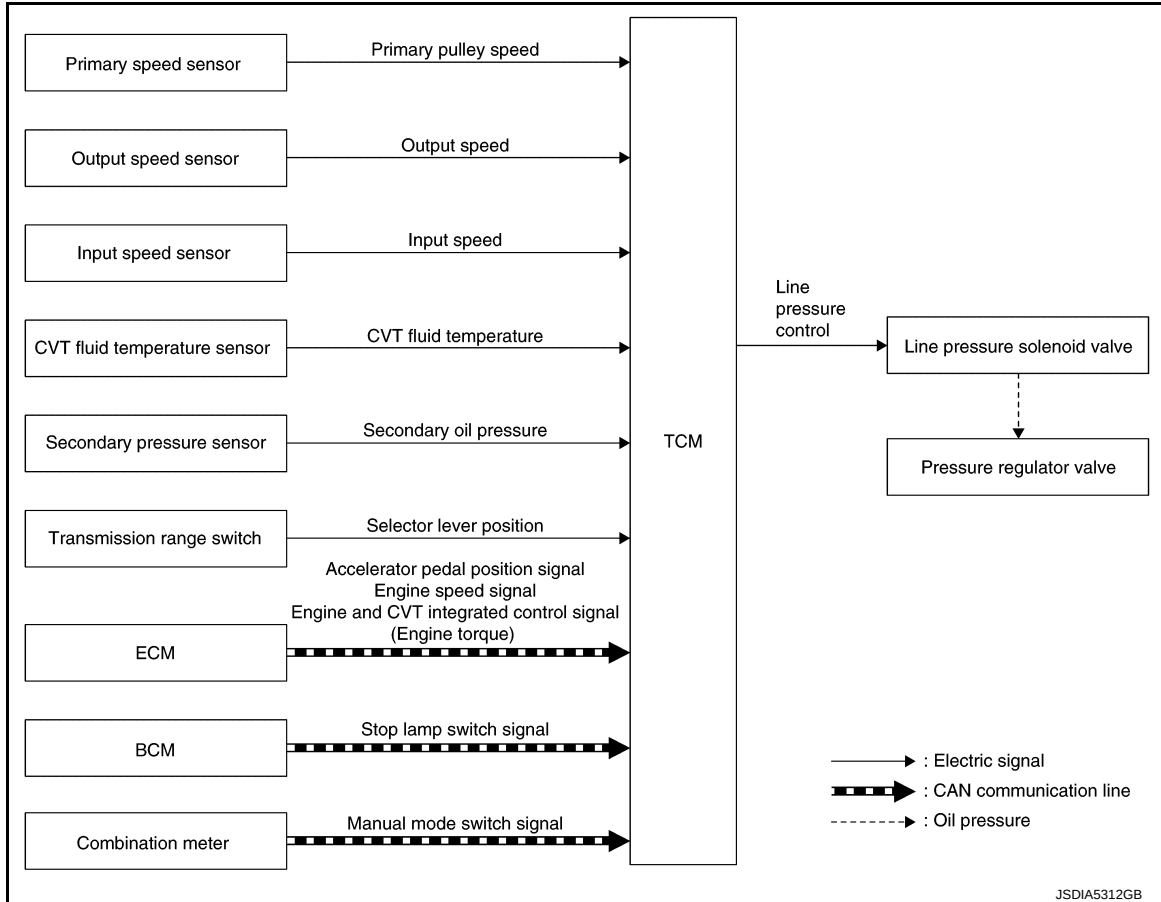
|                             |                                                                                                                         |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Vehicle behavior in control | If the selector lever is put at "R" position when driving with the forward gear, the gear becomes neutral, not reverse. |
| Normal return condition     | The control returns to normal control when the vehicle is driven at low speeds. (The reverse brake becomes engaged.)    |

## LINE PRESSURE CONTROL

### LINE PRESSURE CONTROL : System Description

INFOID:0000000010622736

#### SYSTEM DIAGRAM



#### DESCRIPTION

Highly accurate line pressure control and secondary pressure control reduces friction for improvement of fuel economy.

##### Normal Oil Pressure Control

Appropriate line pressure and secondary pressure suitable for driving condition are determined based on the accelerator pedal position, engine speed, primary pulley (input) speed, secondary pulley (output) speed, vehicle speed, input torque, stop lamp switch signal, transmission range switch signal, lock-up signal, power voltage, target shift ratio, oil temperature, oil pressure, and manual mode switch signal.

##### Secondary Pressure Feedback Control

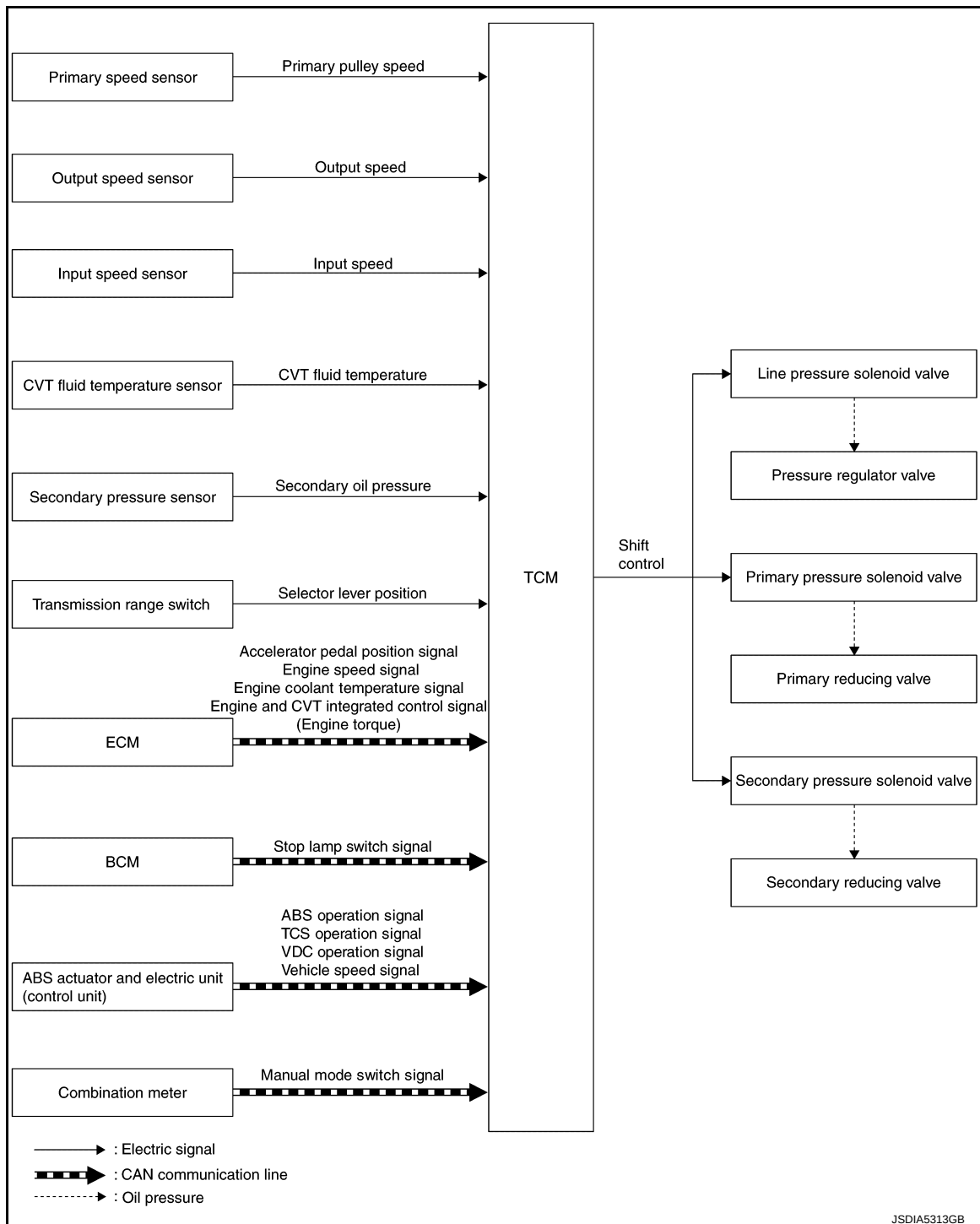
In normal oil pressure control and oil pressure control in shifting, highly accurate secondary pressure is determined by detecting the secondary pressure using an oil pressure sensor and by feedback control.

#### SHIFT CONTROL

## SHIFT CONTROL : System Description

INFOID:000000010622737

## SYSTEM DIAGRAM



## DESCRIPTION

To select the gear ratio that can give the driving force to meet driver's intent or vehicle situation, the vehicle driving condition such as vehicle speed or accelerator pedal position is detected and the most appropriate gear ratio is selected and the shifting method before reaching the speed is determined. The information is output to the primary pressure solenoid valve and secondary pressure solenoid valve to control the line pressure input/output to the pulley, to determine the pulley (movable pulley) position and to control the gear position.

## Shift Position Function

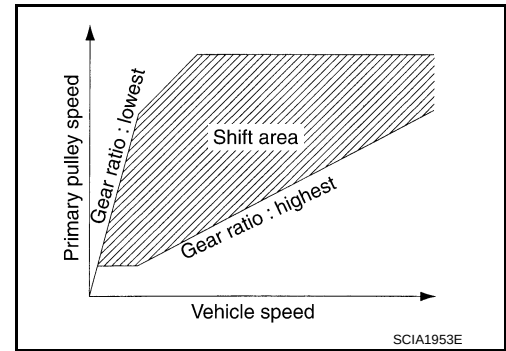
- D Position

# SYSTEM

## < SYSTEM DESCRIPTION >

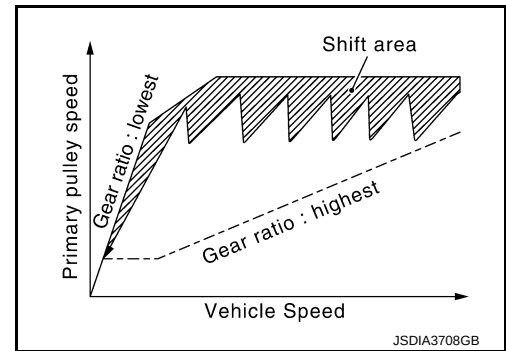
[CVT: RE0F10G]

Gear shifting is performed in all shifting ranges from the lowest to the highest gear ratio.



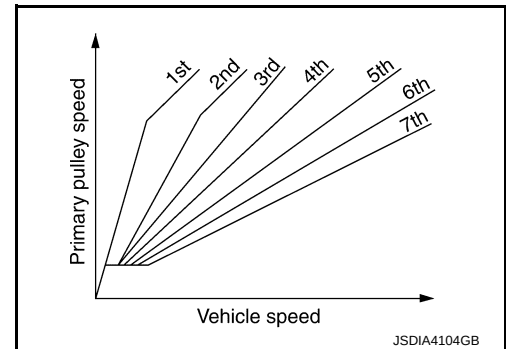
- Ds Position

Pressing down the accelerator pedal allows to drive the vehicle with a feeling of A/T-like gear shifting.



- M Position (Manual Mode)

When the selector lever is put in the manual shift gate side, the fixed changing gear line is set. By moving the selector lever to + side or -side, the manual mode switch is changed over, and shift change like M/T becomes possible following the changing gear set line step by step.



- Manual Mode Information

The TCM transmits the manual mode shift refusal signal to the combination meter if the TCM refuses the transmission from the driving status of vehicle when the selector lever shifts to UP side (+ side) or DOWN side (-side). The combination meter blinks shift indicator on the combination meter and sounds the buzzer to indicate the driver that the shifting is not performed when receiving this signal. However, the TCM does not transmit the manual mode shift refusal signal in the conditions as per the following.

- When the selector lever shifts to DOWN side (-side) while driving in M1.
- When the selector lever shifts to UP (+ side) side while driving in M7.

### Blipping Control

Using engine torque, the blipping control enables a faster and more responsive gear shifting by compensating inertia torque generated from the rotational change during gear shifting in real time.

### Operation

- The blipping control is activated when shifting up/down in manual mode.

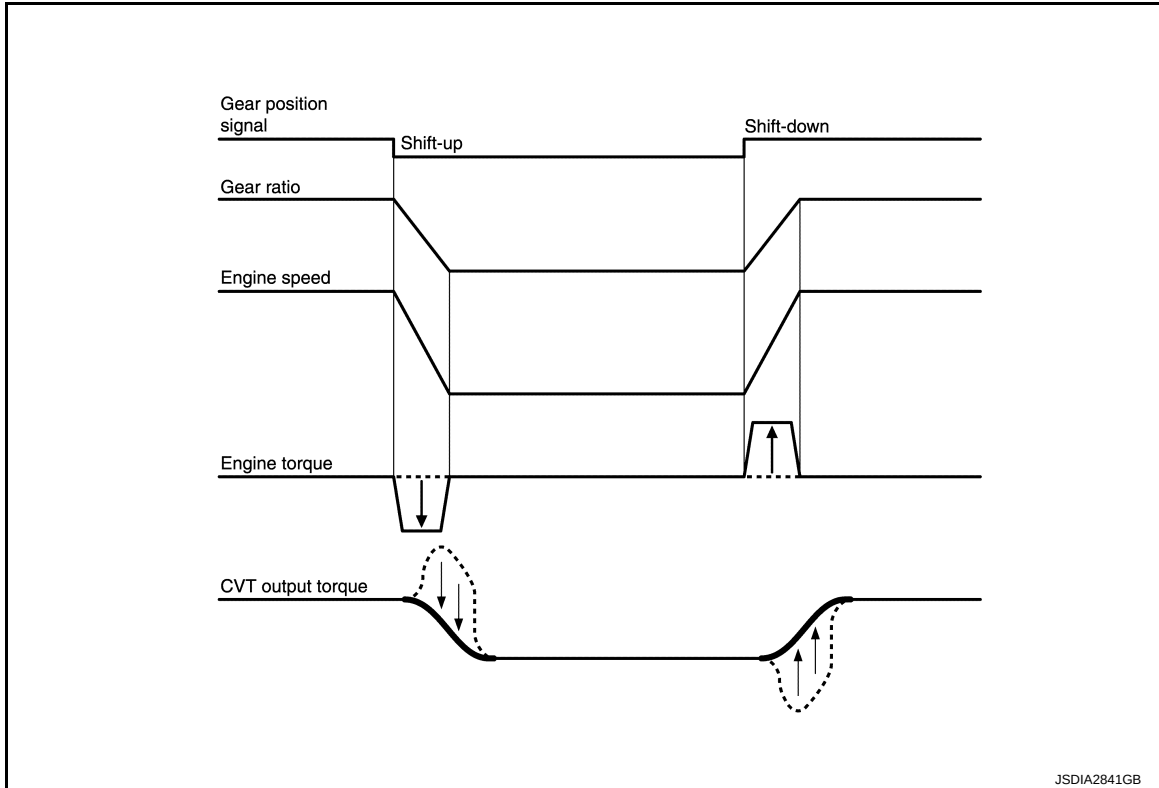
#### NOTE:

The blipping control is not activated when the vehicle is in the following conditions:

- When CAN communication is abnormal.
- During the retard inhibit signal transmission from ECM within the engine-CVT integrated control.
- Engine coolant temperature is less than 20°C (68°F).
- CVT fluid temperature is more than 120°C (248°F).
- Vehicle speed is less than 20 km/h (13 MPH).



- When ABS, TCS or VDC is active.
- During wheel spin.
- ECM selects blipping control or normal shift control according to the gear position, the selector lever position, etc.
- The blipping control is activated when ECM judges it controllable after receiving a control permit signal from TCM.
- ECM controls engine torque, based on generated inertia torque.

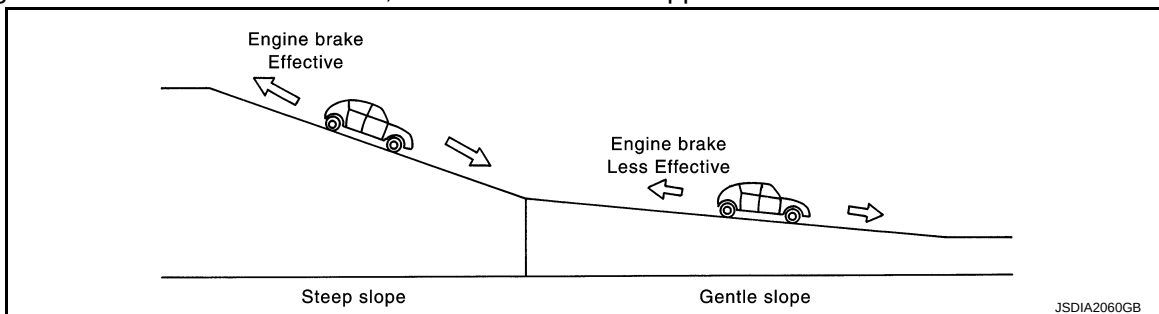


### Hill Climbing And Descending Control

If a downhill is detected with the accelerator pedal is released, the system performs downshift to increase the engine brake force so that vehicle may not be accelerated more than necessary. If a climbing hill is detected, the system improves the acceleration performance in re-acceleration by limiting the gear shift range on the high side.

#### NOTE:

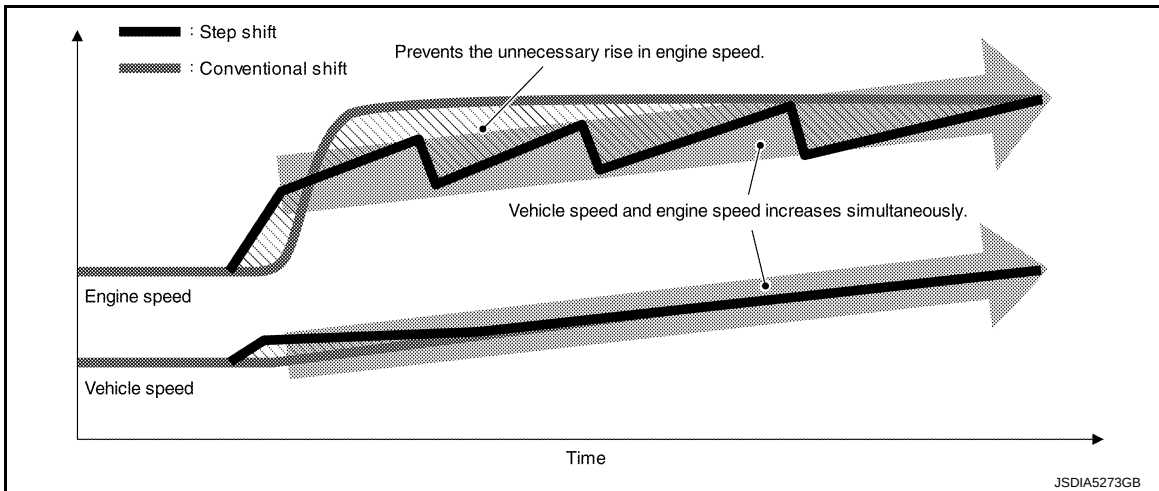
For engine brake control on a downhill, the control can be stopped with CONSULT.



### Control In Acceleration

From change of the vehicle speed or accelerator pedal position, the acceleration request level of the driver or driving scene is evaluated. In start or acceleration during driving, the gear shift characteristics with linearity of revolution increase and vehicle speed increase are gained to improve the acceleration feel.

- When the accelerator pedal is depressed 4/8 or more in D position, CVT performs step shifting to allow the vehicle speed and engine speed to increase simultaneously. This improves the feel of acceleration and enables the fuel economy by preventing unnecessary rise in engine speed, compared to the conventional shifting.

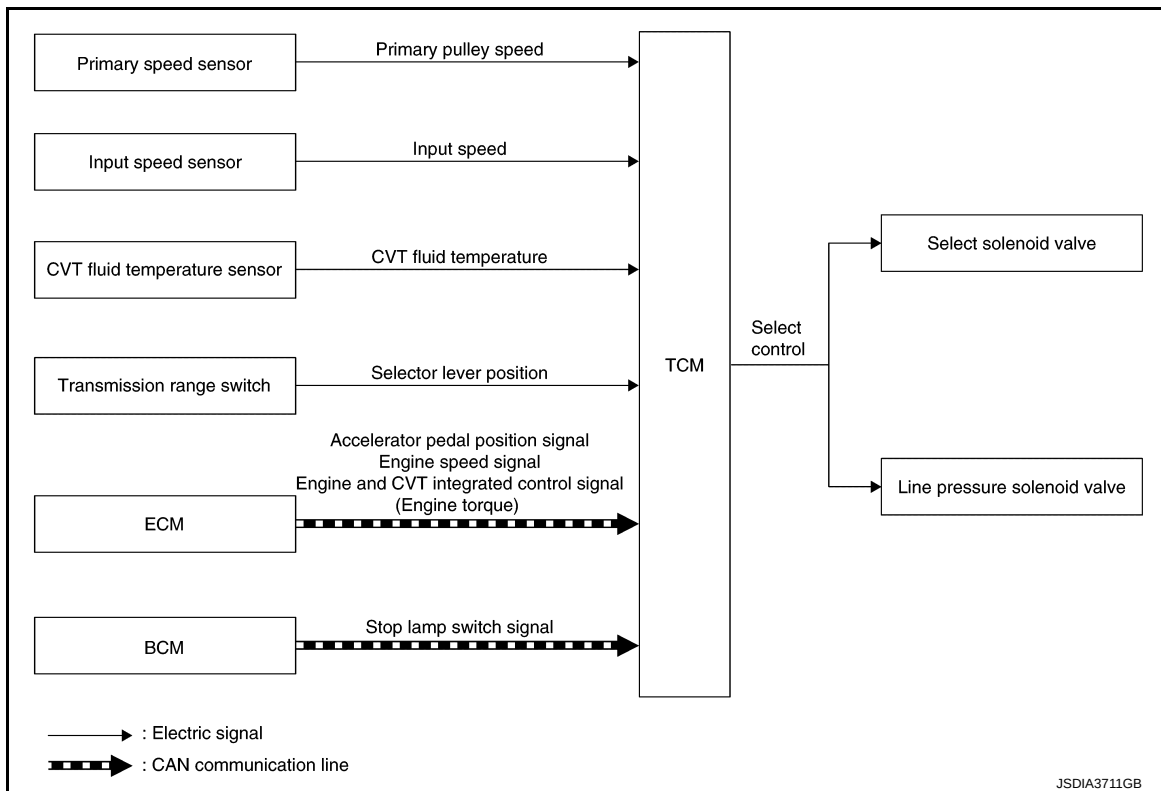


## SELECT CONTROL

### SELECT CONTROL : System Description

INFOID:0000000010622738

## SYSTEM DIAGRAM



## DESCRIPTION

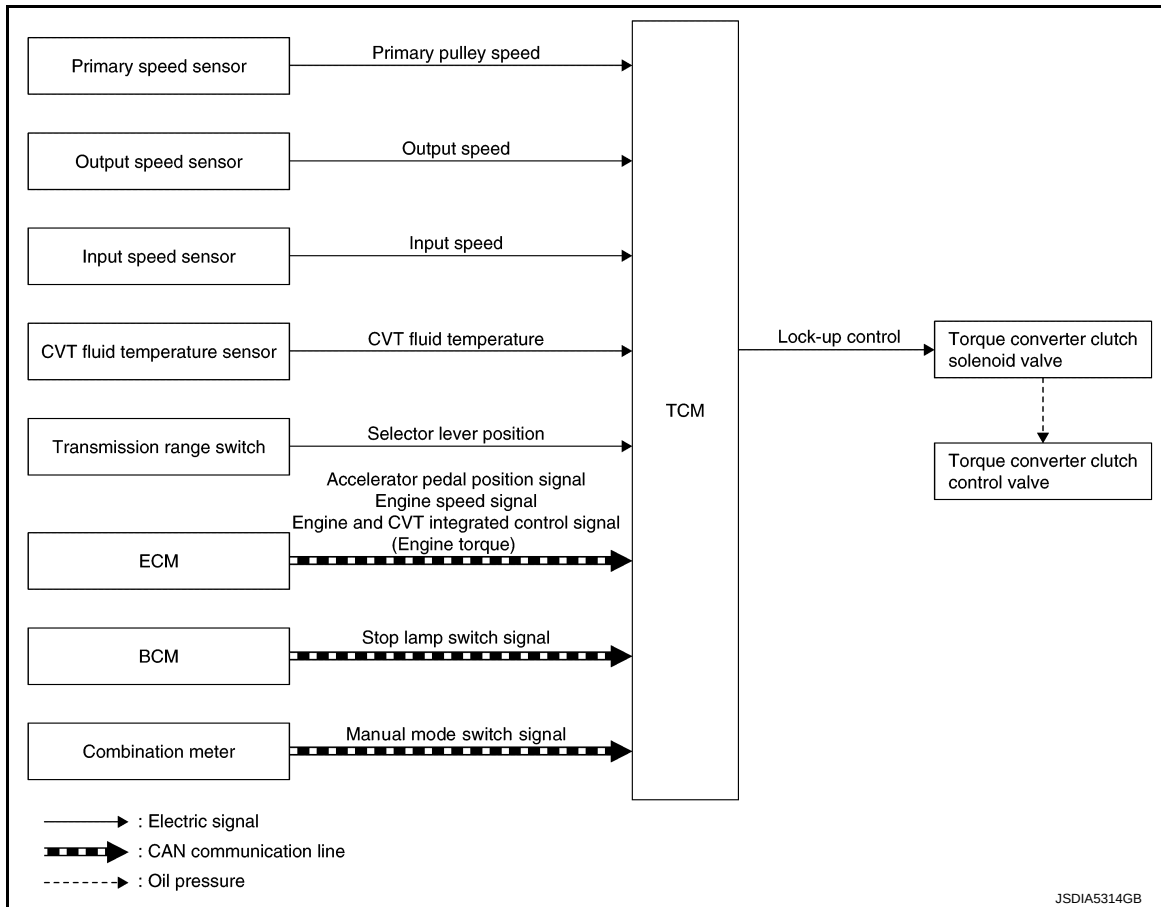
Based on accelerator pedal angle, engine speed, primary pulley speed, and the input speed, the optimum operating pressure is set to reduce impact of a selector lever operation while shifting from "N" ("P") to "D" ("R") position.

## LOCK-UP CONTROL

## LOCK-UP CONTROL : System Description

INFOID:000000010622739

### SYSTEM DIAGRAM



### DESCRIPTION

- Controls for improvement of the transmission efficiency by engaging the torque converter clutch in the torque converter and eliminating slip of the converter. Achieves comfortable driving with slip control of the torque converter clutch.
- The oil pressure feed circuit for the torque converter clutch piston chamber is connected to the torque converter clutch control valve. The torque converter clutch control valve is switched by the torque converter clutch solenoid valve with the signal from TCM. This controls the oil pressure circuit, which is supplied to the torque converter clutch piston chamber, to the release side or engagement side.
- If the CVT fluid temperature is low or the vehicle is in fail-safe mode due to malfunction, lock-up control is prohibited.

#### Lock-up engagement

In lock-up engagement, the torque converter clutch solenoid valve makes the torque converter clutch control valve locked up to generate the lock-up apply pressure. This pushes the torque converter clutch piston for engagement.

#### Lock-up release condition

In lock-up release, the torque converter clutch solenoid valve makes the torque converter clutch control valve non-locked up to drain the lock-up apply pressure. This does not engage the torque converter clutch piston.

### ECO MODE SYSTEM

#### ECO MODE SYSTEM : System Description

INFOID:000000010622740

- Driving mode that selects the shift schedule with priority on fuel economy which gives low engine revolution.
- For details on ECO mode control, refer to [DMS-7, "ECO MODE CONTROL : System Description"](#).
- The gear shift line is not changed with the control mode change for the following conditions:
  - When the selector lever is in "M" position.

#### FAIL-SAFE

# SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

If a malfunction occurs in the system of CVT during ECO mode, the ECO mode indicator turns OFF and the control switches to the normal mode control.

## STOP/START SYSTEM

### STOP/START SYSTEM : System Description

INFOID:0000000010632035

- In the stop/start system, ECM performs integrated control based on the information from control units, sensors and switches. For information, refer to [EC-856, "STOP/START SYSTEM : System Description \(CVT models\)"](#).
- stop/start system operation OK is evaluated based on signals from sensors and switches.
- When stop/start system operation OK is determined, stop/start enable OK signal is sent to ECM through CAN communication.
- stop/start readiness signal is received from ECM through CAN communication and the electric oil pump is driven based on the signal.
- The electric oil pump relay is turned ON to prepare operation of the electric oil pump.
- The electric oil pump is driven in duty control.

### STOP/START OPERATION PERMISSION CONDITION EVALUATED BY TCM

When TCM detects the vehicle status and stop/start system operation OK is determined, stop/start enable signal is sent to ECM through CAN communication.

| Item                         | Description             | Permission conditions                                                       |
|------------------------------|-------------------------|-----------------------------------------------------------------------------|
| Transmission range switch    | Selector lever position | Other than "R" position                                                     |
| G sensor                     | Gradient                | ±14%                                                                        |
| CVT fluid temperature sensor | CVT fluid temperature   | 25 – 110°C                                                                  |
| Electric oil pump            | Malfunction             | Normal                                                                      |
|                              | Interval time           | 5 seconds or more from cancellation of previous stop/start system operation |
| Secondary pressure           | Control oil pressure    | 0.03 MPa or more                                                            |

### TCM INDICATION CHARACTERISTICS

| TCM indication signal (Duty) | Condition                                                 |
|------------------------------|-----------------------------------------------------------|
| 0 – 5%                       | Disconnection or battery short-circuit                    |
| 5 – 15%                      | Indicating stop of electric oil pump                      |
| 15 – 85%                     | Indicating operation of electric oil pump                 |
| 85 – 95%                     | Indicating operation of electric oil pump (Maximum power) |
| 95 – 100%                    | Short to ground                                           |

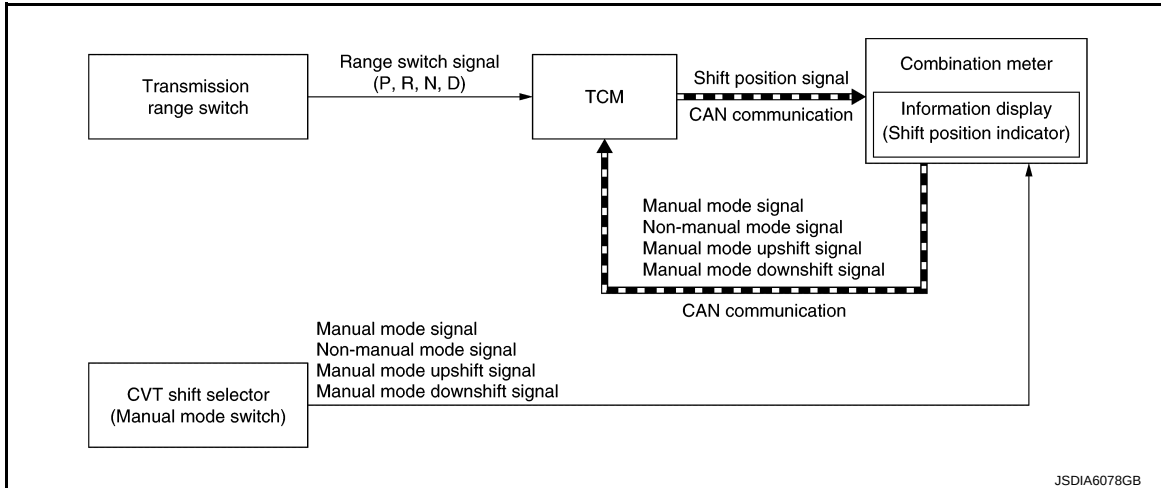
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# SYSTEM

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

## SYSTEM DIAGRAM



### NOTE:

Paddle shifter is applied to vehicle with paddle shifter.

### SIGNAL PATH

- The TCM judges the shift position by the transmission range switch signal, manual mode switch signal, non-manual mode switch signal, manual mode upshift signal, and manual mode downshift signal.
- The TCM transmits the shift position signal to the combination meter via CAN communication. The combination meter shows the shift position indicator on the information display, according to the signal.

### LIGHTING CONDITION

Ignition switch: ON

### SHUTOFF CONDITION

Ignition switch: Other than ON

## WARNING/INDICATOR/CHIME LIST

### WARNING/INDICATOR/CHIME LIST : Warning Lamp/Indicator Lamp

INFOID:0000000010622742

| Name                             | Design                                                                              | Arrangement/Function                                                                                                          |
|----------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Malfunction indicator lamp (MIL) |  | Regarding the arrangement. Refer to <a href="#">MWI-10, "METER SYSTEM : Design"</a> .                                         |
|                                  |                                                                                     | Regarding the function. Refer to <a href="#">MWI-50, "WARNING LAMPS/INDICATOR LAMPS : Malfunction Indicator Lamp (MIL)"</a> . |

### WARNING/INDICATOR/CHIME LIST : Warning/Indicator (On Information Display)

INFOID:0000000010622743

| Item                     | Reference                                                                                               |
|--------------------------|---------------------------------------------------------------------------------------------------------|
| Shift position indicator | Refer to <a href="#">TM-505, "INFORMATION DISPLAY (COMBINATION METER) : Shift Position Indicator"</a> . |

ON BOARD DIAGNOSTIC (OBD) SYSTEM

Description

INFOID:0000000010622744

This system is an on board diagnostic system that records exhaust emission-related diagnostic information and detects a sensors/actuator-related malfunction. A malfunction is indicated by the malfunction indicator lamp (MIL) and stored in ECU memory as a DTC. The diagnostic information can be obtained with the diagnostic tool (GST: Generic Scan Tool).

GST (Generic Scan Tool)

INFOID:0000000010622745

When GST is connected with a data link connector equipped on the vehicle side, it will communicate with the control module equipped in the vehicle and then enable various kinds of diagnostic tests. Refer to [GI-52](#), "Description".

NOTE:

Service \$0A is not applied for regions where it is not mandated.

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## DIAGNOSIS SYSTEM (TCM)

## DIAGNOSIS DESCRIPTION

## DIAGNOSIS DESCRIPTION : 1 Trip Detection Diagnosis and 2 Trip Detection Diagnosis

INFOID:0000000010622746

**NOTE:**

"Start the engine and turn OFF the ignition switch after warm-up." This is defined as 1 trip.

**1 TRIP DETECTION DIAGNOSIS**

When initial malfunction is detected, TCM memorizes DTC. In these diagnoses, some illuminate MIL and some do not. Refer to [TM-529, "DTC Index"](#).

**2 TRIP DETECTION DIAGNOSIS**

When initial malfunction is detected, TCM memorizes DTC of the 1st trip. MIL does not light at this stage. <1 trip>

If the same malfunction is detected again in next driving, TCM memorizes DTC. When DTC is memorized, MIL lights. <2 trip>

"Trip" of the "2 trip detection diagnosis" indicates the driving mode that executes self-diagnosis during driving.

×: Check possible —: Check not possible

| Item                                                                          | DTC at the 1st trip     |                         | DTC                     |                         | MIL                          |                              |
|-------------------------------------------------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|------------------------------|------------------------------|
|                                                                               | Display at the 1st trip | Display at the 2nd trip | Display at the 1st trip | Display at the 2nd trip | Illumination at the 1st trip | Illumination at the 2nd trip |
| 1 trip detection diagnosis<br>(Refer to <a href="#">TM-529, "DTC Index"</a> ) | —                       | —                       | ×                       | —                       | ×                            | —                            |
| 2 trip detection diagnosis<br>(Refer to <a href="#">TM-529, "DTC Index"</a> ) | ×                       | —                       | —                       | ×                       | —                            | ×                            |

## DIAGNOSIS DESCRIPTION : DTC and DTC of 1st Trip

INFOID:0000000010622747

**2 TRIP DETECTION DIAGNOSIS THAT ILLUMINATES MIL**

- The DTC number of the 1st trip is the same as the DTC number.
- When a malfunction is detected at the 1st trip, TCM memorizes DTC of the 1st trip. MIL does not light at this stage. If the same malfunction is not detected at the 2nd trip (conforming to necessary driving conditions), DTC at the 1st trip is erased from TCM. If the same malfunction is detected at the 2nd trip, TCM memorizes DTC and MIL lights at the same time.
- The DTC of the 1st trip is specified in Service \$01 of SAE J1979/ISO 15031-5. Since detection of DTC at the 1st trip does not illuminate MIL, warning for a problem is not given to a driver.
- For procedure to delete DTC and 1st trip DTC from TCM, refer to [TM-510, "CONSULT Function"](#).
- If DTC of the 1st trip is detected, it is necessary to check the cause according to the "Diagnosis flow". Refer to [TM-541, "Work Flow"](#).

## DIAGNOSIS DESCRIPTION : Malfunction Indicator Lamp (MIL)

INFOID:0000000010622748

- TCM not only detects DTC, but also sends the MIL signal to ECM through CAN communication. ECM sends the MIL signal to the combination meter through CAN communication according to the signal, and illuminates MIL.
- For malfunction indicator lamp (MIL) description, refer to [EC-823, "Malfunction Indicator Lamp"](#).

## DIAGNOSIS DESCRIPTION : Counter System

INFOID:0000000010622749

## RELATION BETWEEN DTC AT 1ST TRIP/DTC/MIL AND DRIVING CONDITIONS (FOR 2 TRIP DETECTION DIAGNOSIS THAT ILLUMINATES MIL)

- When initial malfunction is detected, TCM memorizes DTC of the 1st trip. MIL does not light at this stage.
- If the same malfunction is detected at the 2nd trip, TCM memorizes DTC and MIL lights at the same time.
- Then, MIL goes after driving the vehicle for 3 trips under "Driving condition B" without malfunction.
- DTC is displayed until 40 trips of "Driving condition A" are satisfied without detecting the same malfunction. DTC is erased when 40 trips are satisfied.



## DIAGNOSIS SYSTEM (TCM)

### < SYSTEM DESCRIPTION >

[CVT: RE0F10G]

- When the self-diagnosis result is acceptable at the 2nd trip (conforming to driving condition B), DTC of the 1st trip is erased.

### COUNTER SYSTEM LIST

| Item                    | Driving condition | Trip |
|-------------------------|-------------------|------|
| MIL (OFF)               | B                 | 3    |
| DTC (clear)             | A                 | 40   |
| DTC at 1st trip (clear) | B                 | 1    |

### DRIVING CONDITION

#### Driving condition A

Driving condition A is the driving condition that provides warm-up.

In specific, count-up is performed when all of the following conditions are satisfied.

- Engine speed is 400 rpm or more.
- After start of the engine, the water temperature increased by 20°C (36°F) or more.
- Water temperature was 70°C (158°F) or more.
- The ignition switch was changed from ON to OFF.

#### NOTE:

- If the same malfunction is detected regardless of the driving condition, reset the A counter.
- When the above is satisfied without detecting the same malfunction, count up the A counter.
- When MIL goes off due to the malfunction and the A counter reaches 40, the DTC is erased.

#### Driving condition B

Driving condition B is the driving condition that performs all diagnoses once.

In specific, count-up is performed when all of the following conditions are satisfied.

- Engine speed is 400 rpm or more.
- Water temperature was 70°C (158°F) or more.
- In closed loop control, vehicle speed of 70 – 120 km/h (43 – 75 MPH) continued for 60 seconds or more.
- In closed loop control, vehicle speed of 30 – 60 km/h (19 – 37 MPH) continued for 10 seconds or more.
- In closed loop control, vehicle speed of 4 km/h (2 MPH) or less and idle determination ON continued for 12 seconds or more.
- After start of the engine, 22 minutes or more have passed.
- The condition that the vehicle speed is 10 km/h (6 MPH) or more continued for 10 seconds or more in total.
- The ignition switch was changed from ON to OFF.

#### NOTE:

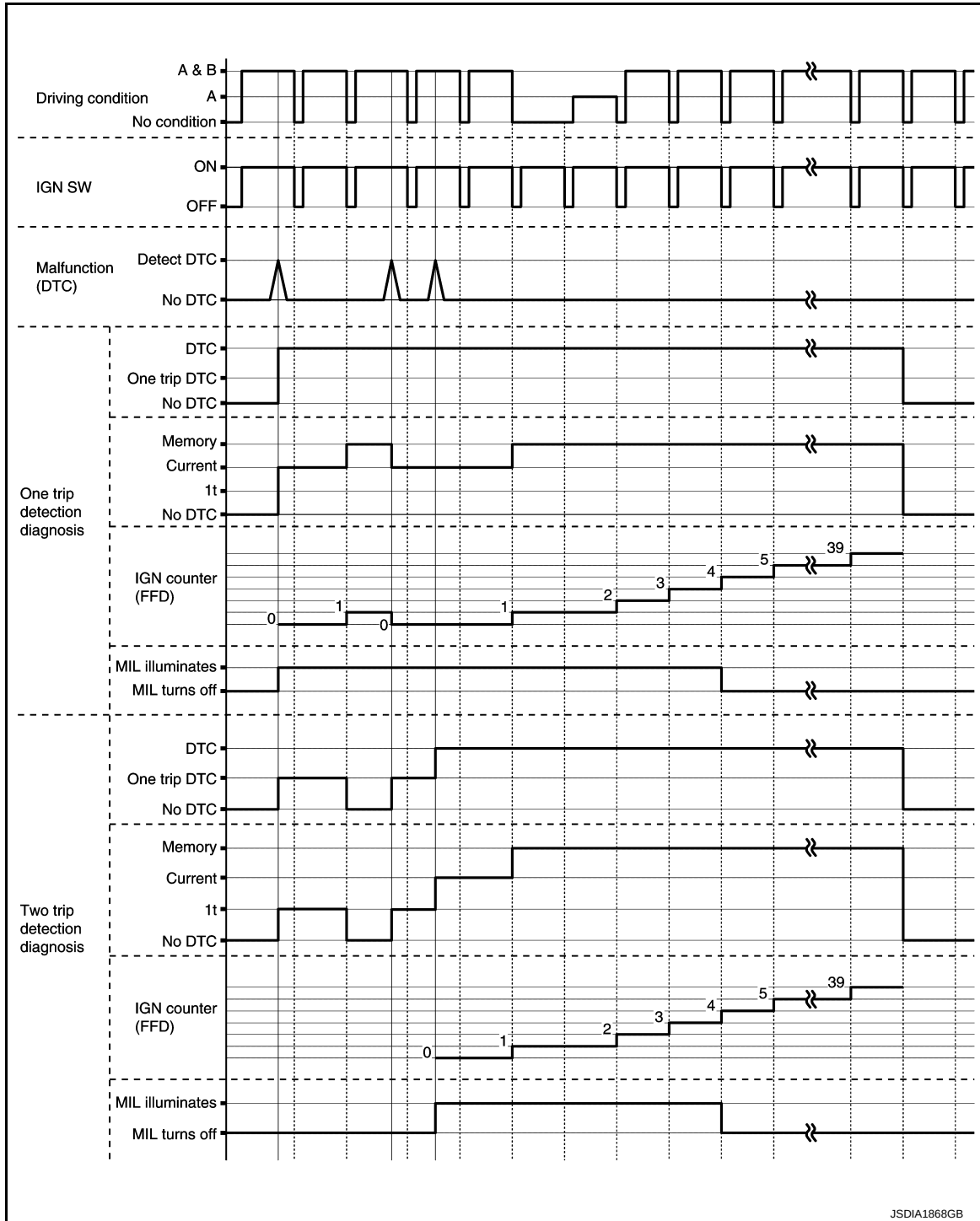
- If the same malfunction is detected regardless of the driving condition, reset the B counter.
- When the above is satisfied without detecting the same malfunction, count up the B counter.
- When the B counter reaches 3 without malfunction, MIL goes off.
- When the B counter is counted once without detecting the same malfunction after TCM memorizes DTC of the 1st trip, DTC of the 1st trip is erased.

# DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

## TIME CHART



JSDIA1868GB

## CONSULT Function

INFOID:0000000010622750

## APPLICABLE ITEM

| Conditions              | Function                                             |
|-------------------------|------------------------------------------------------|
| Work Support            | The settings for ECU functions can be changed.       |
| Self Diagnostic Results | The ECU self diagnostic results are displayed.       |
| Data Monitor            | The ECU input/output data is displayed in real time. |
| ECU Identification      | The ECU part number is displayed.                    |
| CALIB DATA              | The calibration data status of TCM can be checked.   |

## &lt; SYSTEM DESCRIPTION &gt;

## SELF DIAGNOSTIC RESULTS

Refer to [TM-529, "DTC Index"](#).

DTC at 1st trip and method to read DTC

- DTC (P0705, P0712, P0715, etc.) is specified by SAE J2012/ISO 15031-6.
- DTC and DTC at 1st trip are displayed on "Self Diagnostic results" of CONSULT.  
When DTC is currently detected, "CRNT" is displayed. If "PAST" is displayed, it shows a malfunction occurred in the past. The trip number of drive without malfunction of concerned DTC can be confirmed with "IGN counter" inside "FFD".
- When the DTC at the 1st trip is detected, "1t" is displayed.

DTC deletion method

**NOTE:**

If the ignition switch is left ON after repair, turn OFF the ignition switch and wait for 10 seconds or more. Then, turn the ignition ON again. (Engine stop)

1. Touch "TRANSMISSION" of CONSULT.
2. Touch "Self Diagnostic Result".
3. Touch "Erase". (DTC memorized in TCM is erased.)

IGN counter

The ignition counter is displayed in "FFD" and the number of times of satisfied "Driving condition A" is displayed after normal recovery of DTC. Refer to [TM-508, "DIAGNOSIS DESCRIPTION : Counter System"](#).

- If malfunction (DTC) is currently detected, "0" is displayed.
- After normal recovery, every time "Driving condition A" is satisfied, the display value increases from 1 → 2 → 3...38 → 39.
- When MIL turns OFF due to the malfunction and the counter reaches 40, the DTC is erased.

**NOTE:**

The counter display of "40" cannot be checked.

## DATA MONITOR

**NOTE:**

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

| Monitored item     | (Unit)        | Remarks                                                                                          |
|--------------------|---------------|--------------------------------------------------------------------------------------------------|
| VSP SENSOR         | (km/h or mph) | Displays the vehicle speed calculated from the CVT output shaft speed.                           |
| ESTM VSP SIG       | (km/h or mph) | Displays the vehicle speed signal (ABS) received through CAN communication.                      |
| INPUT SPEED SENSOR | (rpm)         | Displays the input speed calculated from the pulse signal of the input speed sensor.             |
| PRI SPEED SEN      | (rpm)         | Displays the primary pulley speed calculated from the pulse signal of the primary speed sensor.  |
| SEC REV SENSOR     | (rpm)         | Displays the secondary pulley speed calculated from the pulse signal of the output speed sensor. |
| ENG SPEED SIG      | (rpm)         | Displays the engine speed received through CAN communication.                                    |
| SEC PRESSURE SEN   | (V)           | Displays the signal voltage of the secondary pressure sensor.                                    |
| PRI PRESSURE SEN   | (V)           | Displays the signal voltage of the primary pressure sensor.                                      |
| ATF TEMP SEN       | (V)           | Displays the signal voltage of the CVT fluid temperature sensor.                                 |
| G SENSOR           | (G)           | Displays the decel G signal received through CAN communication.                                  |
| VIGN SEN           | (V)           | Displays the battery voltage applied to TCM.                                                     |
| PVING VOLT         | (V)           | Displays the backup voltage of TCM.                                                              |
| VEHICLE SPEED      | (km/h or mph) | Displays the vehicle speed recognized by TCM.                                                    |
| INPUT REV          | (rpm)         | Displays the input shaft speed of CVT recognized by TCM.                                         |
| PRI SPEED          | (rpm)         | Displays the primary pulley speed recognized by TCM.                                             |
| SEC SPEED          | (rpm)         | Displays the secondary pulley speed recognized by TCM.                                           |
| ENG SPEED          | (rpm)         | Displays the engine speed recognized by TCM.                                                     |
| SLIP REV           | (rpm)         | Displays the speed difference between the input shaft speed of CVT and the engine speed.         |

# DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

| Monitored item          | (Unit)     | Remarks                                                                                                                                       |
|-------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| PULLEY GEAR RATIO       |            | Displays the pulley gear ratio calculated from primary pulley speed/secondary pulley speed.                                                   |
| G SPEED                 | (G)        | Displays the acceleration and deceleration speed of the vehicle calculated from vehicle speed change.                                         |
| ACCEL POSI SEN 1        | (deg)      | Displays the estimated throttle position received through CAN communication.                                                                  |
| VENG TRQ                | (Nm)       | Display the engine torque recognized by TCM.                                                                                                  |
| PRI TRQ                 | (Nm)       | Display the input shaft torque of CVT.                                                                                                        |
| TRQ RTO                 |            | Display the torque ratio of torque converter.                                                                                                 |
| SEC PRESSURE            | (MPa)      | Displays the secondary pressure calculated from the signal voltage of the secondary pressure sensor.                                          |
| PRI PRESSURE            | (MPa)      | Displays the primary pressure calculated from the signal voltage of the primary pressure sensor.                                              |
| FLUID TEMP              | (°C or °F) | Displays the CVT fluid temperature calculated from the signal voltage of the CVT fluid temperature sensor.                                    |
| DSR REV                 | (rpm)      | Displays the target primary pulley speed calculated from processing of gear shift control.                                                    |
| TGT PLY GR RATIO        |            | Displays the target gear ratio of the pulley from processing of gear shift control.                                                           |
| LU PRS                  | (MPa)      | Displays the target oil pressure of the torque converter clutch solenoid valve calculated from oil pressure processing of gear shift control. |
| LINE PRS                | (MPa)      | Displays the target oil pressure of the line pressure solenoid valve calculated from oil pressure processing of gear shift control.           |
| TRGT PRI PRESSURE       | (MPa)      | Displays the target oil pressure of the primary pressure solenoid valve calculated from oil pressure processing of gear shift control.        |
| TRGT SELECT PRESSURE    | (MPa)      | Displays the target oil pressure of the select solenoid valve calculated from oil pressure processing of gear shift control.                  |
| TRGT SEC PRESSURE       | (MPa)      | Displays the target oil pressure of the secondary pressure solenoid valve calculated from oil pressure processing of gear shift control.      |
| ISOLT1                  | (A)        | Displays the command current from TCM to the torque converter clutch solenoid valve.                                                          |
| ISOLT2                  | (A)        | Displays the command current from TCM to the line pressure solenoid valve.                                                                    |
| PRI SOLENOID            | (A)        | Displays the command current from TCM to the primary pressure solenoid valve.                                                                 |
| SEC SOLENOID CURRENT    | (A)        | Displays the command current from TCM to the secondary pressure solenoid valve.                                                               |
| SELECT SOLENOID CURRENT | (A)        | Displays the command current from TCM to the select solenoid valve.                                                                           |
| SOLMON1                 | (A)        | Monitors the command current from TCM to the torque converter clutch solenoid valve and displays the monitored value.                         |
| SOLMON2                 | (A)        | Monitors the command current from TCM to the line pressure solenoid valve and displays the monitored value.                                   |
| PRI SOL MON             | (A)        | Monitors the command current from TCM to the primary pressure solenoid valve and displays the monitored value.                                |
| SEC SOL MON CURRENT     | (A)        | Monitors the command current from TCM to the secondary pressure solenoid valve and displays the monitored value.                              |
| SELECT SOL MON CURRENT  | (A)        | Monitors the command current from TCM to the select solenoid valve and displays the monitored value.                                          |
| D POSITION SW           | (On/Off)   | Displays the operation status of the transmission range switch (D position).                                                                  |
| N POSITION SW           | (On/Off)   | Displays the operation status of the transmission range switch (N position).                                                                  |
| R POSITION SW           | (On/Off)   | Displays the operation status of the transmission range switch (R position).                                                                  |
| P POSITION SW           | (On/Off)   | Displays the operation status of the transmission range switch (P position).                                                                  |
| L POSITION SW*          | (On/Off)   | Displays the operation status of the transmission range switch (L position).                                                                  |
| DS RANGE SW             | (On/Off)   | Displays the operation status of the transmission range switch (Ds position).                                                                 |

# DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

| Monitored item    | (Unit)        | Remarks                                                                                                  |
|-------------------|---------------|----------------------------------------------------------------------------------------------------------|
| BRAKESW           | (On/Off)      | Displays the reception status of the stop lamp switch signal received through CAN communication.         |
| IDLE SW           | (On/Off)      | Displays the reception status of the closed throttle position signal received through CAN communication. |
| SPORT MODE SW*    | (On/Off)      | Displays the reception status of the overdrive control switch signal received through CAN communication. |
| ECO MODE SW       | (On/Off)      | Displays the reception status of the ECO mode switch signal received through CAN communication.          |
| STRDWSW*          | (On/Off)      | Displays the operation status of the paddle shifter (down switch).                                       |
| STRUPSW*          | (On/Off)      | Displays the operation status of the paddle shifter (up switch).                                         |
| DOWNLVR           | (On/Off)      | Displays the operation status of the selector lever (down switch).                                       |
| UPLVR             | (On/Off)      | Displays the operation status of the selector lever (up switch).                                         |
| NONMMODE          | (On/Off)      | Displays if the selector lever position is not at the manual shift gate.                                 |
| MMODE             | (On/Off)      | Displays if the selector lever position is at the manual shift gate.                                     |
| TOW MODE SW*      | (On/Off)      | Displays the reception status of the TOW mode switch signal received through CAN communication.          |
| SHIFT IND SIGNAL  |               | Displays the transaxle value of shift position signal transmitted via CAN communication.                 |
| CVT LAMP*         | (On/Off)      | Displays the transaxle status of the CVT warning lamp signal transmitted through CAN communication.      |
| SPORT MODE IND*   | (On/Off)      | Displays the transaxle status of the OD OFF indicator lamp signal transmitted through CAN communication. |
| MANU MODE SIGNAL  | (On/Off)      | Displays the transaxle status of the manual mode signal transmitted through CAN communication.           |
| DS RANGE SIGNAL   | (On/Off)      | Displays the shift position signal status from transmission range switch (Ds position).                  |
| ECO MODE SIGNAL   | (On/Off)      | Displays the transaxle status of the ECO mode signal transmitted through CAN communication.              |
| VDC ON            | (On/Off)      | Displays the reception status of the VDC operation signal received through CAN communication.            |
| TCS ON            | (On/Off)      | Displays the reception status of the TCS operation signal received through CAN communication.            |
| ABS FAIL SIGNAL   | (On/Off)      | Displays the reception status of the ABS malfunction signal received through CAN communication.          |
| ABS ON            | (On/Off)      | Displays the reception status of the ABS operation signal received through CAN communication.            |
| RANGE             |               | Displays the gear position recognized by TCM.                                                            |
| M GEAR POS        |               | Display the target gear of manual mode                                                                   |
| G SEN SLOPE       | (%)           | Displays the gradient angle calculated from the G sensor signal voltage.                                 |
| G SEN CALIBRATION | (YET/DONE)    | Displays the status of "G SENSOR CALIBRATION" in "Work Support".                                         |
| N IDLE STATUS*    | (On/Off)      | Displays idle neutral status.                                                                            |
| ENGBRKLV          | (On/Off)      | Displays the setting of "ENGINE BRAKE ADJ" in "Work Support".                                            |
| DRIVE MODE STATS  |               | Displays the drive mode status recognized by TCM.                                                        |
| SNOW MODE*        | (On/Off)      | Displays whether it is the SNOW mode.                                                                    |
| ECO MODE*         | (On/Off)      | Displays whether it is the ECO mode.                                                                     |
| NORMAL MODE*      | (On/Off)      | Displays whether it is the NORMAL mode.                                                                  |
| SPORT MODE*       | (On/Off)      | Displays whether it is the SPORT mode.                                                                   |
| AIR BLDING STATE  | (INCOMP/COMP) | Displays the status of "ELECTRIC O.P. AIR BLEEDING" in "Work Support".                                   |

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# DIAGNOSIS SYSTEM (TCM)

< SYSTEM DESCRIPTION >

[CVT: RE0F10G]

| Monitored item    | (Unit)   | Remarks                                                                                                                          |
|-------------------|----------|----------------------------------------------------------------------------------------------------------------------------------|
| ELECTRIC OP DUTY  | (%)      | Displays the command signal value (duty) of the electric oil pump transmitted from TCM.                                          |
| E-OP DUTY MON     | (%)      | Monitors the status signal value (duty) transmitted from the electric oil pump and displays the monitored value.                 |
| ELECTRIC OP RELAY | (On/Off) | Displays the command status from TCM to the electric oil pump relay.                                                             |
| E-OP RELAY MON    | (On/Off) | Monitors the command status from TCM to the oil pump relay and displays the monitored value.                                     |
| CVT-B             |          | <ul style="list-style-type: none"> <li>Displays CVT fluid temperature count.</li> <li>This monitor item does not use.</li> </ul> |
| CVT-A             |          | <ul style="list-style-type: none"> <li>Displays CVT fluid temperature count.</li> <li>This monitor item does not use.</li> </ul> |
| G SENSOR          | (V)      | Displays the signal voltage of the G sensor.                                                                                     |

\*: Not applicable but displayed.

## WORK SUPPORT

| Item name                           | Description                                                                                                                                                                                                                                                       |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CONFORM CVTF DETERIORATION          | Checks the degradation level of the CVT fluid under severe conditions.                                                                                                                                                                                            |
| G SENSOR CALIBRATION                | Compensates the G sensor.                                                                                                                                                                                                                                         |
| ERASE LEARNING VALUE*               | Erases learning value memorized by TCM.                                                                                                                                                                                                                           |
| ENGINE BRAKE ADJ.                   | Although there is no malfunction on the transaxle and the CVT system, if a customer make a complaint like "I do not feel comfortable with automatic operation of the engine brake on downhill", the engine brake may be cancelled with "engine brake adjustment". |
| ELECTRIC O.P. AIR BLEEDING          | Bleed air from the electric oil pump.                                                                                                                                                                                                                             |
| WRITE IP CHARA - REPLACEMENT AT/CVT | Writes IP characteristics when transaxle assembly is replaced.                                                                                                                                                                                                    |
| READ IP CHARA - REPLACEMENT TCM     | Reads IP characteristics when TCM is replaced.                                                                                                                                                                                                                    |
| WRITE IP CHARA - REPLACEMENT TCM    | Writes IP characteristics when TCM is replaced.                                                                                                                                                                                                                   |

\*: This item does not use.

### Engine brake adjustment

#### ENGINE BRAKE LEVEL

ON : Turn ON the engine brake control.

OFF : Turn OFF the engine brake control.

### Check the degradation level of the CVT fluid.

#### CVTF degradation level data

210,000 or more : Replacement of the CVT fluid is required.

Less than 210,000 : Replacement of the CVT fluid is not required.

# ECU DIAGNOSIS INFORMATION

## TCM

### Reference Value

INFOID:0000000010622751

#### CONSULT DATA MONITOR STANDARD VALUE

- In CONSULT, electric shift timing or lock-up timing, i.e. operation timing of each solenoid valve, is displayed. Therefore, if there is an obvious difference between the shift timing estimated from a shift shock (or engine speed variations) and that shown on the CONSULT, the mechanism parts (including the hydraulic circuit) excluding the solenoids and sensors may be malfunctioning. In this case, check the mechanical parts following the appropriate diagnosis procedure.
- Shift point (gear position) displayed on CONSULT slightly differs from shift pattern described in Service Manual. This is due to the following reasons.
  - Actual shift pattern may vary slightly within specified tolerances.
  - While shift pattern described in Service Manual indicates start of each shift, CONSULT shows gear position at end of shift.
  - The solenoid display (ON/OFF) on CONSULT is changed at the start of gear shifting. In contrast, the gear position display is changed at the time when gear shifting calculated in the control unit is completed.

#### NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

| Monitor item       | Condition                                                                                                                           | Value/Status (Approx.)                                          |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| VSP SENSOR         | While driving                                                                                                                       | Almost same as the speedometer display.                         |
| ESTM VSP SIG       | While driving                                                                                                                       | Almost same as the speedometer display.                         |
| INPUT SPEED SENSOR | In driving (lock-up ON)                                                                                                             | Approximately matches the engine speed.                         |
| PRI SPEED SEN      | In driving (lock-up ON)                                                                                                             | Approximately matches the engine speed.                         |
| SEC REV SENSOR     | While driving                                                                                                                       | VSP SENSOR × 40                                                 |
| ENG SPEED SIG      | Engine running                                                                                                                      | Almost same reading as tachometer                               |
| SEC PRESSURE SEN   | <ul style="list-style-type: none"> <li>• After engine warm up</li> <li>• Selector lever: "N" position</li> <li>• At idle</li> </ul> | 1.6 – 1.8 V                                                     |
| PRI PRESSURE SEN   | <ul style="list-style-type: none"> <li>• After engine warm up</li> <li>• Selector lever: "N" position</li> <li>• At idle</li> </ul> | 1.2 – 1.3 V                                                     |
| ATF TEMP SEN       | CVT fluid: Approx. 20°C (68°F)                                                                                                      | 2.0 – 2.1 V                                                     |
|                    | CVT fluid: Approx. 50°C (122°F)                                                                                                     | 1.4 – 1.5 V                                                     |
|                    | CVT fluid: Approx. 80°C (176°F)                                                                                                     | 0.9 – 1.0 V                                                     |
| G SENSOR           | <ul style="list-style-type: none"> <li>• Vehicle stopped</li> <li>• Vehicle is level</li> </ul>                                     | 0 G                                                             |
|                    | During acceleration                                                                                                                 | The value changes to the positive side along with acceleration. |
|                    | During deceleration                                                                                                                 | The value changes to the positive side along with deceleration. |
| VIGN SEN           | Ignition switch: ON                                                                                                                 | 10 – 16 V                                                       |
| PVIGN VOLT         | Ignition switch: ON                                                                                                                 | 10 – 16 V                                                       |
| VEHICLE SPEED      | While driving                                                                                                                       | Almost same as the speedometer display.                         |
| INPUT REV          | In driving (lock-up ON)                                                                                                             | Almost same as the engine speed.                                |
| PRI SPEED          | In driving (lock-up ON)                                                                                                             | Approximately matches the engine speed.                         |
| SEC SPEED          | While driving                                                                                                                       | VSP SENSOR × 40                                                 |
| ENG SPEED          | Engine running                                                                                                                      | Almost same reading as tachometer                               |
| SLIP REV           | While driving                                                                                                                       | Engine speed – Input speed                                      |

# TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10G]

| Monitor item             | Condition                                                                                                                                                                        | Value/Status (Approx.)                                          |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| PULLEY GEAR RATIO        | In driving (forward)                                                                                                                                                             | 2.4130 – 0.3830                                                 |
|                          | In driving (reverse)                                                                                                                                                             | 2.4130                                                          |
| G SPEED                  | Vehicle stopped                                                                                                                                                                  | 0.00 G                                                          |
|                          | During acceleration                                                                                                                                                              | The value changes to the positive side along with acceleration. |
|                          | During deceleration                                                                                                                                                              | The value changes to the positive side along with deceleration. |
| ACCEL POSI SEN 1         | Accelerator pedal released                                                                                                                                                       | 0.00 deg                                                        |
|                          | Accelerator pedal fully depressed                                                                                                                                                | 80.00 deg                                                       |
| VENG TRQ                 | While driving                                                                                                                                                                    | The value changes along with acceleration/ deceleration.        |
| PRI TRQ                  | While driving                                                                                                                                                                    | The value changes along with acceleration/ deceleration.        |
| TRQ RTO                  | While driving                                                                                                                                                                    | The value changes along with acceleration/ deceleration.        |
| SEC PRESSURE             | <ul style="list-style-type: none"> <li>After engine warm up</li> <li>Selector lever: "N" position</li> <li>At idle</li> </ul>                                                    | 1.8 MPa                                                         |
| PRI PRESSURE             | <ul style="list-style-type: none"> <li>After engine warm up</li> <li>Selector lever: "N" position</li> <li>At idle</li> </ul>                                                    | 1.2 MPa                                                         |
| FLUID TEMP               | Ignition switch ON.                                                                                                                                                              | Displays the CVT fluid temperature.                             |
| DSR REV                  | While driving                                                                                                                                                                    | It varies along with the driving condition.                     |
| TGT PLY GR RATIO         | In driving (forward)                                                                                                                                                             | 2.4130 – 0.3830                                                 |
|                          | In driving (reverse)                                                                                                                                                             | 2.4130                                                          |
| LU PRS                   | <ul style="list-style-type: none"> <li>Engine started</li> <li>Vehicle is stopped.</li> </ul>                                                                                    | –0.50 MPa                                                       |
|                          | <ul style="list-style-type: none"> <li>Selector lever: "D" position</li> <li>Accelerator pedal position: 1/8 or less</li> <li>Vehicle speed: 20 km/h (12 MPH) or more</li> </ul> | 0.550 MPa                                                       |
| LINE PRS                 | <ul style="list-style-type: none"> <li>After engine warm up</li> <li>Selector lever: "N" position</li> <li>At idle</li> </ul>                                                    | 1.8 MPa                                                         |
| TRGT PRI PRESSURE        | <ul style="list-style-type: none"> <li>After engine warm up</li> <li>Selector lever: "N" position</li> <li>At idle</li> </ul>                                                    | 1.2 MPa                                                         |
| TARGET SELECT PRESSURE   | <ul style="list-style-type: none"> <li>After engine warm up</li> <li>Selector lever: "N" position</li> <li>At idle</li> </ul>                                                    | 0 MPa                                                           |
|                          | <ul style="list-style-type: none"> <li>Selector lever: "D" position</li> <li>At idle</li> </ul>                                                                                  | 0.3 – 0.5 MPa                                                   |
| TARGET SEC PRESSURE      | <ul style="list-style-type: none"> <li>After engine warm up</li> <li>Selector lever: "N" position</li> <li>At idle</li> </ul>                                                    | 1.8 MPa                                                         |
| ISOLT1*                  | —                                                                                                                                                                                | —                                                               |
| ISOLT2*                  | —                                                                                                                                                                                | —                                                               |
| PRI SOLENOID*            | —                                                                                                                                                                                | —                                                               |
| SEC SOLENOID CURRENT*    | —                                                                                                                                                                                | —                                                               |
| SELECT SOLENOID CURRENT* | —                                                                                                                                                                                | —                                                               |
| SOLMON1*                 | —                                                                                                                                                                                | —                                                               |



# TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10G]

| Monitor item            | Condition                                            | Value/Status (Approx.) |
|-------------------------|------------------------------------------------------|------------------------|
| SOLMON2*                | —                                                    | —                      |
| PRI SOL MON*            | —                                                    | —                      |
| SEC SOL MON CURRENT*    | —                                                    | —                      |
| SELECT SOL MON CURRENT* | —                                                    | —                      |
| D POSITION SW           | Selector lever: "D" position                         | On                     |
|                         | Other than the above                                 | Off                    |
| N POSITION SW           | Selector lever: "N" position                         | On                     |
|                         | Other than the above                                 | Off                    |
| R POSITION SW           | Selector lever: "R" position                         | On                     |
|                         | Other than the above                                 | Off                    |
| P POSITION SW           | Selector lever: "P" position                         | On                     |
|                         | Other than the above                                 | Off                    |
| L POSITION SW           | Always                                               | Off                    |
| DS RANGE SW             | Selector lever: "DS" position                        | On                     |
|                         | Other than the above                                 | Off                    |
| BRAKESW                 | Brake pedal is depressed                             | On                     |
|                         | Brake pedal is released                              | Off                    |
| IDLE SW                 | Accelerator pedal is released                        | On                     |
|                         | Accelerator pedal is fully depressed                 | Off                    |
| SPORT MODE SW           | Always                                               | Off                    |
| ECO MODE SW             | Press the ECO mode switch                            | On                     |
|                         | Release the ECO mode switch                          | Off                    |
| STRDWNSW                | Always                                               | Off                    |
| STRUPSW                 | Always                                               | Off                    |
| DOWNLVR                 | Selector lever: – side                               | On                     |
|                         | Other than the above                                 | Off                    |
| UPLVR                   | Selector lever: + side                               | On                     |
|                         | Other than the above                                 | Off                    |
| NONMMODE                | Manual shift gate position (neutral, + side, – side) | Off                    |
|                         | Other than the above                                 | On                     |
| MMODE                   | Manual shift gate position (neutral, + side, – side) | On                     |
|                         | Other than the above                                 | Off                    |
| TOW MODE SW             | Always                                               | Off                    |

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< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10G]

| Monitor item      | Condition                                                       | Value/Status (Approx.)                                                                  |
|-------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| SHIFT IND SIGNAL  | When the selector lever is positioned in between each position. | OFF                                                                                     |
|                   | Selector lever: "P" position                                    | P                                                                                       |
|                   | Selector lever: "R" position                                    | R                                                                                       |
|                   | Selector lever: "N" position                                    | N                                                                                       |
|                   | Selector lever: "D" position                                    | D                                                                                       |
|                   | Manual mode: 1st                                                | 1st                                                                                     |
|                   | Manual mode: 2nd                                                | 2nd                                                                                     |
|                   | Manual mode: 3rd                                                | 3rd                                                                                     |
|                   | Manual mode: 4th                                                | 4th                                                                                     |
|                   | Manual mode: 5th                                                | 5th                                                                                     |
|                   | Manual mode: 6th                                                | 6th                                                                                     |
|                   | Manual mode: 7th                                                | 7th                                                                                     |
| CVT LAMP          | Approx. 2 seconds after ignition switch ON                      | On                                                                                      |
|                   | Other than the above                                            | Off                                                                                     |
| SPORT MODE IND    | Always                                                          | Off                                                                                     |
| MANU MODE SIGNAL  | Driving with manual mode                                        | On                                                                                      |
|                   | Other than the above                                            | Off                                                                                     |
| DS RANGE SIGNAL   | Selector lever: "DS" position                                   | On                                                                                      |
|                   | Other than the above                                            | Off                                                                                     |
| ECO MODE SIGNAL   | Always                                                          | Off                                                                                     |
| VDC ON            | When VDC malfunction signal is received                         | On                                                                                      |
|                   | Other than the above                                            | Off                                                                                     |
| TCS ON            | When TCS malfunction signal is received                         | On                                                                                      |
|                   | Other than the above                                            | Off                                                                                     |
| ABS FAIL SIGNAL   | When ABS malfunction signal is received                         | On                                                                                      |
|                   | Other than the above                                            | Off                                                                                     |
| ABS ON            | ABS is activated                                                | On                                                                                      |
|                   | Other than the above                                            | Off                                                                                     |
| RANGE             | Selector lever: "P" and "N" positions                           | N/P                                                                                     |
|                   | Selector lever: "R" position                                    | R                                                                                       |
|                   | Selector lever: "D" position                                    | D                                                                                       |
|                   | Selector lever: "M" position                                    |                                                                                         |
| M GEAR POS        | Manual mode: 1st – 7th                                          | 1 to 7                                                                                  |
| G SEN SLOPE       | Flat road                                                       | 0%                                                                                      |
|                   | Uphill gradient                                                 | The value changes to the positive side along with uphill gradient. (Maximum 40.45%)     |
|                   | Downhill gradient                                               | The value changes to the negative side along with downhill gradient. (Minimum – 40.45%) |
| G SEN CALIBRATION | When G sensor calibration is completed                          | DONE                                                                                    |
|                   | When G sensor calibration is not completed                      | YET                                                                                     |
| N IDLE STATUS     | Always                                                          | Off                                                                                     |

# TCM

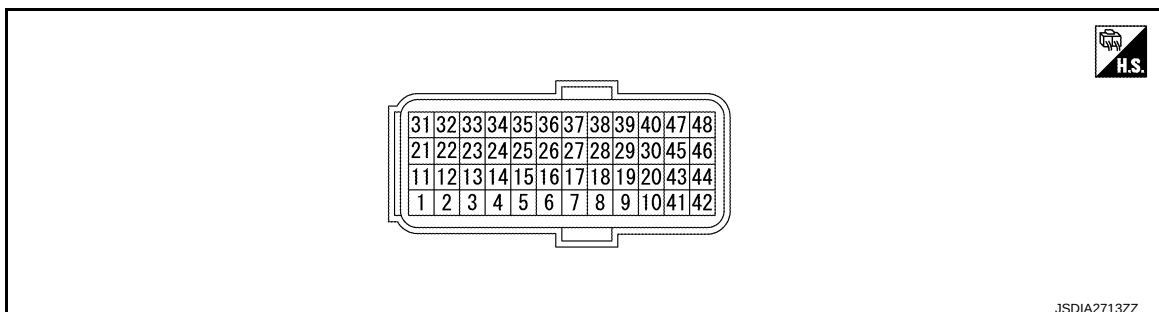
< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10G]

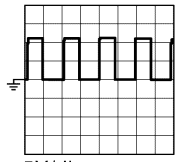
| Monitor item      | Condition                                                                   | Value/Status (Approx.)                                          |
|-------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------|
| ENGBRKLVL         | When the engine brake level of "ENGINE BRAKE ADJ". in "Work Support" is ON  | On                                                              |
|                   | When the engine brake level of "ENGINE BRAKE ADJ". in "Work Support" is OFF | Off                                                             |
| DRIVE MODE STATS  | While driving in ECO mode                                                   | ECO                                                             |
|                   | Other than the above                                                        | NORMAL                                                          |
| SNOW MODE         | Always                                                                      | Off                                                             |
| ECO MODE          | Always                                                                      | Off                                                             |
| NORMAL MODE       | Always                                                                      | Off                                                             |
| SPORT MODE        | Always                                                                      | Off                                                             |
| AIR BLDING STATE  | When air bleeding of the electric oil pump is completed                     | COMP                                                            |
|                   | When air bleeding of the electric oil pump is not completed                 | INCOMP                                                          |
| ELECTRIC OP DUTY  | Ignition switch: ON                                                         | 5 – 15%                                                         |
|                   | • Selector lever: D position<br>• Vehicle speed: 11 km/h (7 MPH) or more    | 5 – 15%                                                         |
|                   | During the stop/start system operation                                      | 55 – 85%                                                        |
| E-OP DUTY MON     | Ignition switch: ON                                                         | 25 – 35%                                                        |
|                   | • Selector lever: D position<br>• Vehicle speed: 11 km/h (7 MPH) or more    | 0%                                                              |
|                   | During the stop/start system operation                                      | 45 – 55%                                                        |
| ELECTRIC OP RELAY | • Selector lever: D position<br>• Vehicle speed: 6 km/h (4 MPH) or less     | On                                                              |
|                   | • Selector lever: D position<br>• Vehicle speed: 11 km/h (7 MPH) or more    | Off                                                             |
| E-OP RELAY MON    | • Selector lever: D position<br>• Vehicle speed: 6 km/h (4 MPH) or less     | On                                                              |
|                   | • Selector lever: D position<br>• Vehicle speed: 11 km/h (7 MPH) or more    | Off                                                             |
| CVT-B*            | —                                                                           | —                                                               |
| CVT-A*            | —                                                                           | —                                                               |
| G SENSOR          | • Vehicle stopped<br>• Vehicle is level                                     | 0 G                                                             |
|                   | During acceleration                                                         | The value changes to the positive side along with acceleration. |
|                   | During deceleration                                                         | The value changes to the positive side along with deceleration. |

\*: These monitor items do not use.

## TERMINAL LAYOUT



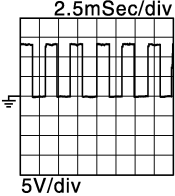
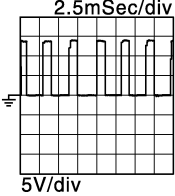
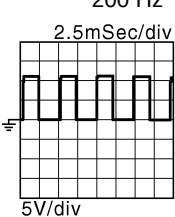
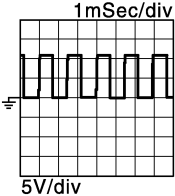
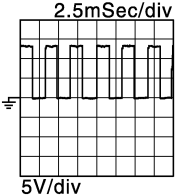
## INPUT/OUTPUT SIGNAL STANDARD

| Terminal No.<br>(Wire color) |        | Description                         |                  | Condition                                                                  |                                        | Value (Approx.)                                                                                                                       |
|------------------------------|--------|-------------------------------------|------------------|----------------------------------------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| +                            | —      | Signal                              | Input/<br>Output |                                                                            |                                        |                                                                                                                                       |
| 1<br>(P)                     | Ground | Electric oil pump re-<br>lay        | Output           | • Selector lever: “D” position<br>• Vehicle speed: 6 km/h (3 MPH) or less  |                                        | 0 V                                                                                                                                   |
|                              |        |                                     |                  | • Selector lever: “D” position<br>• Vehicle speed: 11 km/h (7 MPH) or more |                                        | 10 – 16 V                                                                                                                             |
| 2*<br>(GR)                   | —      | —                                   | —                | —                                                                          |                                        | —                                                                                                                                     |
| 4<br>(Y)                     | Ground | D range switch                      | Input            | Ignition<br>switch<br>ON                                                   | Selector lever: “D” position           | 10 – 16 V                                                                                                                             |
|                              |        |                                     |                  |                                                                            | Other than the above                   | 0 V                                                                                                                                   |
| 5<br>(BR)                    | Ground | N range switch                      | Input            |                                                                            | Selector lever: “N” position           | 10 – 16 V                                                                                                                             |
|                              |        |                                     |                  |                                                                            | Other than the above                   | 0 V                                                                                                                                   |
| 6<br>(G)                     | Ground | R range switch                      | Input            |                                                                            | Selector lever: “R” position           | 10 – 16 V                                                                                                                             |
|                              |        |                                     |                  |                                                                            | Other than the above                   | 0 V                                                                                                                                   |
| 7<br>(V)                     | Ground | P range switch                      | Input            |                                                                            | Selector lever: “P” position           | 10 – 16 V                                                                                                                             |
|                              |        |                                     |                  |                                                                            | Other than the above                   | 0 V                                                                                                                                   |
| 11<br>(LG)                   | Ground | Sensor ground                       | —                | Always                                                                     |                                        | 0 V                                                                                                                                   |
| 12<br>(BR)                   | Ground | CVT fluid tempera-<br>ture sensor   | Output           | Ignition<br>switch<br>ON                                                   | CVT fluid: Approx. 20°C<br>(68°F)      | 2.01 – 2.05 V                                                                                                                         |
|                              |        |                                     |                  |                                                                            | CVT fluid: Approx. 50°C<br>(122°F)     | 1.45 – 1.50 V                                                                                                                         |
|                              |        |                                     |                  |                                                                            | CVT fluid: Approx. 80°C<br>176°F)      | 0.90 – 0.94 V                                                                                                                         |
| 14<br>(V)                    | Ground | G sensor                            | Input            | Ignition<br>switch<br>ON                                                   | When the vehicle stops on<br>flat road | 2.5 V                                                                                                                                 |
| 16<br>(SB)                   | Ground | Secondary pres-<br>sure sensor      | Input            | • After engine warm up<br>• Selector lever: “N” position<br>• At idle      |                                        | 1.65 – 1.75 V                                                                                                                         |
| 17<br>(R)                    | Ground | Primary pressure<br>sensor          | Input            | • After engine warm up<br>• Selector lever: “N” position<br>• At idle      |                                        | 1.25 – 1.35 V                                                                                                                         |
| 23<br>(P)                    | —      | CAN-L                               | Input/<br>Output | —                                                                          |                                        | —                                                                                                                                     |
| 24<br>(LG)                   | Ground | Input speed sensor                  | Input            | • Shift position: “M1” position<br>• Vehicle speed: 20 km/h (12 MPH)       |                                        | 880 Hz<br>1mSec/div<br><br>5V/div<br>JSDIA3769GB |
| 25<br>(R)                    | Ground | Electric oil pump<br>command signal | Output           | During the stop/start system operation                                     |                                        | 100 Hz                                                                                                                                |
|                              |        |                                     |                  | Ignition switch: OFF                                                       |                                        | 0 Hz                                                                                                                                  |
| 26<br>(BG)                   | Ground | Sensor power sup-<br>ply            | Output           | Ignition switch: ON                                                        |                                        | 5.0 V                                                                                                                                 |
|                              |        |                                     |                  | Ignition switch: OFF                                                       |                                        | 0 V                                                                                                                                   |

# TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10G]

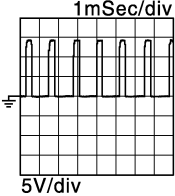
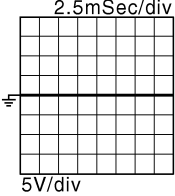
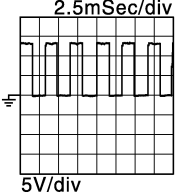
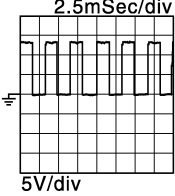
| Terminal No.<br>(Wire color) |        | Description                     |                  | Condition                                                                                                                                                    | Value (Approx.)                                                                       |
|------------------------------|--------|---------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| +                            | —      | Signal                          | Input/<br>Output |                                                                                                                                                              |                                                                                       |
| 30<br>(GR)                   | Ground | Line pressure solenoid valve    | Output           | <ul style="list-style-type: none"> <li>After engine warming up</li> <li>Selector lever: "N" position</li> <li>At idle</li> </ul>                             |    |
|                              |        |                                 |                  | <ul style="list-style-type: none"> <li>After engine warming up</li> <li>Selector lever: "N" position</li> <li>Depress the accelerator pedal fully</li> </ul> |    |
| 32<br>(SB)                   | Ground | Electric oil pump status signal | Input            | During the stop/start system operation                                                                                                                       | 100 Hz                                                                                |
|                              |        |                                 |                  | Ignition switch: OFF                                                                                                                                         | 0 Hz                                                                                  |
| 33<br>(L)                    | —      | CAN-H                           | Input/<br>Output | —                                                                                                                                                            | —                                                                                     |
| 34<br>(W)                    | Ground | Output speed sensor             | Input            | <ul style="list-style-type: none"> <li>Shift position: "M1" position</li> <li>Vehicle speed: 20 km/h (12 MPH)</li> </ul>                                     |   |
|                              |        |                                 |                  |                                                                                                                                                              |                                                                                       |
| 35<br>(GR)                   | Ground | Primary speed sensor            | Input            | <ul style="list-style-type: none"> <li>Shift position: "M1" position</li> <li>Vehicle speed: 20 km/h (12 MPH)</li> </ul>                                     |  |
|                              |        |                                 |                  |                                                                                                                                                              |                                                                                       |
| 37<br>(Y)                    | Ground | Select solenoid valve           | Output           | <ul style="list-style-type: none"> <li>Engine started</li> <li>Vehicle is stopped</li> <li>Selector lever: "N" position</li> </ul>                           |  |
|                              |        |                                 |                  |                                                                                                                                                              |                                                                                       |

A  
B  
C  
TM  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

# TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10G]

| Terminal No.<br>(Wire color) |        | Description                                    |                  | Condition                                                                                                                                                                        | Value (Approx.)                                                                       |
|------------------------------|--------|------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| +                            | —      | Signal                                         | Input/<br>Output |                                                                                                                                                                                  |                                                                                       |
| 38<br>(G)                    | Ground | Torque converter<br>clutch solenoid<br>valve   | Output           | <ul style="list-style-type: none"> <li>Selector lever: "D" position</li> <li>Accelerator pedal position: 1/8 or less</li> <li>Vehicle speed: 20 km/h (12 MPH) or more</li> </ul> |    |
|                              |        |                                                |                  | <ul style="list-style-type: none"> <li>Engine started</li> <li>Vehicle is stopped</li> </ul>                                                                                     |    |
| 39<br>(W)                    | Ground | Secondary pres-<br>sure solenoid valve         | Output           | <ul style="list-style-type: none"> <li>Shift position: "M1" position</li> <li>Vehicle speed: 20 km/h (12 MPH)</li> </ul>                                                         |   |
| 40<br>(V)                    | Ground | Primary pressure<br>solenoid valve             | Output           | <ul style="list-style-type: none"> <li>Shift position: "M1" position</li> <li>Vehicle speed: 20 km/h (12 MPH)</li> </ul>                                                         |  |
| 41<br>(B)                    | Ground | Ground                                         | —                | Always                                                                                                                                                                           | 0 V                                                                                   |
| 42<br>(B)                    | Ground | Ground                                         | —                | Always                                                                                                                                                                           | 0 V                                                                                   |
| 45<br>(V)                    | Ground | Battery power sup-<br>ply (Memory back-<br>up) | Input            | Always                                                                                                                                                                           | 10 – 16 V                                                                             |
| 46<br>(V)                    | Ground | Battery power sup-<br>ply (Memory back-<br>up) | Input            | Always                                                                                                                                                                           | 10 – 16 V                                                                             |
| 47<br>(BG)                   | Ground | Ignition power sup-<br>ply                     | Input            | Ignition switch: ON                                                                                                                                                              | 10 – 16 V                                                                             |
|                              |        |                                                |                  | Ignition switch: OFF                                                                                                                                                             | 0 V                                                                                   |
| 48<br>(BG)                   | Ground | Ignition power sup-<br>ply                     | Input            | Ignition switch: ON                                                                                                                                                              | 10 – 16 V                                                                             |
|                              |        |                                                |                  | Ignition switch: OFF                                                                                                                                                             | 0 V                                                                                   |

\*: This harness does not use.

## Fail-safe

INFOID:0000000010622752

TCM has a fail-safe mode. The mode functions so that operation can be continued even if the signal circuit of the main electronically controlled input/output parts is damaged.

If the vehicle shows following behaviors including “poor acceleration”, a malfunction of the applicable system is detected by TCM and the vehicle may be in a fail-safe mode. At this time, check the DTC code and perform inspection and repair according to the malfunction diagnosis procedures.

## Fail-safe function

| DTC   | Vehicle behavior                                                                                                                                                                                                                                                                                                                                                                                | Conditions of vehicle                                                                                                                                         |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P062F | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                                                                                                 | —                                                                                                                                                             |
| P0705 | <ul style="list-style-type: none"> <li>Shift position indicator on combination meter is not displayed</li> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul> | —                                                                                                                                                             |
| P0706 | <ul style="list-style-type: none"> <li>Shift position indicator on combination meter is not displayed</li> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul> | —                                                                                                                                                             |
| P0712 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                                                                                                                                                                                                                   | Engine coolant temperature when engine start:<br>Temp. $\geq 10^{\circ}\text{C}$ ( $50^{\circ}\text{F}$ )                                                     |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                                                                                                                                                                                  | Engine coolant temperature when engine start:<br>$-35^{\circ}\text{C}$ ( $-31^{\circ}\text{F}$ ) $\leq$ Temp. $< 10^{\circ}\text{C}$ ( $50^{\circ}\text{F}$ ) |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                                                                                                                                                                                  | Engine coolant temperature when engine start:<br>Temp. $< -35^{\circ}\text{C}$ ( $-31^{\circ}\text{F}$ )                                                      |
|       | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                                                                                                 | —                                                                                                                                                             |
| P0713 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                                                                                                                                                                                                                   | Engine coolant temperature when engine start:<br>Temp. $\geq 10^{\circ}\text{C}$ ( $50^{\circ}\text{F}$ )                                                     |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                                                                                                                                                                                  | Engine coolant temperature when engine start:<br>$-35^{\circ}\text{C}$ ( $-31^{\circ}\text{F}$ ) $\leq$ Temp. $< 10^{\circ}\text{C}$ ( $50^{\circ}\text{F}$ ) |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> </ul>                                                                                                                                                                                                                                                                  | Engine coolant temperature when engine start:<br>Temp. $< -35^{\circ}\text{C}$ ( $-31^{\circ}\text{F}$ )                                                      |
|       | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                                                                                                 | —                                                                                                                                                             |
| P0715 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Manual mode is not activated</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                    | —                                                                                                                                                             |

| DTC   | Vehicle behavior                                                                                                                                                                                                                                                                                                        | Conditions of vehicle                                   |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| P0717 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                  | —                                                       |
| P0740 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                  | —                                                       |
| P0743 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                  | —                                                       |
| P0744 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                                                                                                                                         | —                                                       |
| P0746 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul> | —                                                       |
| P0776 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Vehicle speed is not increased</li> </ul>                                                                                                                | When a malfunction occurs on the low oil pressure side  |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                                                                                                        | When a malfunction occurs on the high oil pressure side |
| P0778 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                                                                                                        | —                                                       |
| P0779 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                                                                                                        | —                                                       |
| P0826 | Manual mode is not activated                                                                                                                                                                                                                                                                                            | —                                                       |
| P0841 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                         | —                                                       |
| P0847 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                         | —                                                       |
| P0848 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                         | —                                                       |
| P084C | Not changed from normal driving                                                                                                                                                                                                                                                                                         | —                                                       |
| P084D | Not changed from normal driving                                                                                                                                                                                                                                                                                         | —                                                       |



# TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10G]

| DTC   | Vehicle behavior                                                                                                                                                                                                                                                                                                                                                | Conditions of vehicle                                   |    |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|----|
| P0863 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                         | —                                                       | A  |
|       |                                                                                                                                                                                                                                                                                                                                                                 |                                                         | B  |
| P0890 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Vehicle speed is not increased</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul> | —                                                       | C  |
|       |                                                                                                                                                                                                                                                                                                                                                                 |                                                         | TM |
| P0962 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                         | —                                                       | E  |
|       |                                                                                                                                                                                                                                                                                                                                                                 |                                                         | F  |
| P0963 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                         | —                                                       | G  |
|       |                                                                                                                                                                                                                                                                                                                                                                 |                                                         | H  |
| P0965 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                         | When a malfunction occurs on the low oil pressure side  | I  |
|       |                                                                                                                                                                                                                                                                                                                                                                 |                                                         | J  |
| P0966 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                         | When a malfunction occurs on the high oil pressure side | K  |
|       |                                                                                                                                                                                                                                                                                                                                                                 |                                                         | L  |
| P0967 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                         | —                                                       | M  |
|       |                                                                                                                                                                                                                                                                                                                                                                 |                                                         | N  |
| P1586 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                                                                 | —                                                       | O  |
|       |                                                                                                                                                                                                                                                                                                                                                                 |                                                         | P  |
| P1588 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                                                                 | —                                                       |    |
|       |                                                                                                                                                                                                                                                                                                                                                                 |                                                         |    |

| DTC   | Vehicle behavior                                                                                                                                                                                                                                                                                                              | Conditions of vehicle                                   |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| P188E | <ul style="list-style-type: none"> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> <li>When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately</li> </ul>                                                    | —                                                       |
| P188F | <ul style="list-style-type: none"> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> <li>When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately</li> </ul>                                                    | —                                                       |
| P1890 | <ul style="list-style-type: none"> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> <li>When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately</li> </ul>                                                    | —                                                       |
| P2765 | <ul style="list-style-type: none"> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Manual mode is not activated</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>  | —                                                       |
| P2813 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Vehicle speed is not increased</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul> | When a malfunction occurs on the low oil pressure side  |
|       | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                              | When a malfunction occurs on the high oil pressure side |
| P2814 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                              | —                                                       |
| P2815 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                              | —                                                       |
| U0073 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>       | —                                                       |
| U0100 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>       | —                                                       |
| U0140 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                               | —                                                       |
| U0141 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                               | —                                                       |

| DTC   | Vehicle behavior                                                                                                                                                                                                                                                                                                        | Conditions of vehicle |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| U0155 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                         | —                     |
| U0300 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> </ul>                                                                                                                                                        | —                     |
| U1000 | <ul style="list-style-type: none"> <li>Selector shock is large</li> <li>Start is slow</li> <li>Acceleration is slow</li> <li>Lock-up is not performed</li> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul> | —                     |
| U110F | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                         | —                     |
| U1111 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                         | —                     |
| U1117 | <ul style="list-style-type: none"> <li>Stop/start system prohibited</li> <li>Restart the engine during the stop/start system operation</li> <li>Turn OFF the electric oil pump relay</li> </ul>                                                                                                                         | —                     |

## Protection Control

INFOID:0000000010622753

The TCM becomes the protection control status temporarily to protect the safety when the safety of TCM and transmission is lost. It automatically returns to the normal status if the safety is secured.  
The TCM has the following protection control.

### CONTROL FOR WHEEL SPIN

|                             |                                                                                                                                                                                                      |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control                     | When a wheel spin is detected, the engine output and gear ratio are limited and the line pressure is increased. Limits engine output when a wheel spin occurs in any of right and left drive wheels. |
| Vehicle behavior in control | If the accelerator is kept depressing during wheel spin, the engine revolution and vehicle speed are limited to a certain degree.                                                                    |
| Normal return condition     | Wheel spin convergence returns the control to the normal control.                                                                                                                                    |

### TORQUE IS REDUCED WHEN DRIVING WITH THE REVERSE GEAR

|                             |                                                                                                |
|-----------------------------|------------------------------------------------------------------------------------------------|
| Control                     | Engine output is controlled according to a vehicle speed while reversing the vehicle.          |
| Vehicle behavior in control | Power performance may be lowered while reversing the vehicle.                                  |
| Normal return condition     | Torque returns to normal by positioning the selector lever in a range other than "R" position. |

### CONTROL WHEN FLUID TEMPERATURE IS HIGH

|                             |                                                                                                                                                                                |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control                     | When the CVT fluid temperature is high, the gear shift permission maximum revolution and the maximum torque are reduced than usual to prevent increase of the oil temperature. |
| Vehicle behavior in control | Power performance may be lowered, compared to normal control.                                                                                                                  |
| Normal return condition     | The control returns to the normal control when CVT fluid temperature is lowered.                                                                                               |

### REVERSE PROHIBIT CONTROL

|                             |                                                                                                                                                                               |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control                     | The reverse brake is controlled to avoid becoming engaged when the selector lever is set in "R" position while driving in forward direction at more than the specified speed. |
| Vehicle behavior in control | If the selector lever is put at "R" position when driving with the forward gear, the gear becomes neutral, not reverse.                                                       |
| Normal return condition     | The control returns to normal control when the vehicle is driven at low speeds. (The reverse brake becomes engaged.)                                                          |

## DTC Inspection Priority Chart

INFOID:0000000010622754

If multiple malfunction codes are detected at the same time, check each code according to the DTC check priority list below.

| Priority | DTC   | Items<br>(CONSULT screen terms) | Reference                                 |
|----------|-------|---------------------------------|-------------------------------------------|
| 1        | P0863 | CONTROL UNIT (CAN)              | <a href="#">TM-613, "DTC Description"</a> |
|          | U0073 | COMM BUS A OFF                  | <a href="#">TM-555, "DTC Description"</a> |
|          | U0100 | LOST COMM (ECM A)               | <a href="#">TM-556, "DTC Description"</a> |
|          | U0140 | LOST COMM (BCM)                 | <a href="#">TM-558, "DTC Description"</a> |
|          | U0141 | LOST COMM (BCM A)               | <a href="#">TM-559, "DTC Description"</a> |
|          | U0155 | LOST COMM (IPC)                 | <a href="#">TM-560, "DTC Description"</a> |
|          | U0300 | CAN COMM DATA                   | <a href="#">TM-561, "DTC Description"</a> |
|          | U1000 | CAN COMM CIRCUIT                | <a href="#">TM-563, "DTC Description"</a> |
|          | U110F | LOST COMM (ECM)                 | <a href="#">TM-564, "DTC Description"</a> |
|          | U1111 | LOST COMM (CHASSIS CONT MDUL)   | <a href="#">TM-565, "DTC Description"</a> |
|          | U1117 | LOST COMM (ABS)                 | <a href="#">TM-566, "DTC Description"</a> |
| 2        | P0740 | TORQUE CONVERTER                | <a href="#">TM-586, "DTC Description"</a> |
|          | P0743 | TORQUE CONVERTER                | <a href="#">TM-588, "DTC Description"</a> |
|          | P0778 | PC SOLENOID B                   | <a href="#">TM-596, "DTC Description"</a> |
|          | P0779 | PC SOLENOID B                   | <a href="#">TM-598, "DTC Description"</a> |
|          | P0962 | PC SOLENOID A                   | <a href="#">TM-616, "DTC Description"</a> |
|          | P0963 | PC SOLENOID A                   | <a href="#">TM-618, "DTC Description"</a> |
|          | P0966 | PC SOLENOID B                   | <a href="#">TM-622, "DTC Description"</a> |
|          | P0967 | PC SOLENOID B                   | <a href="#">TM-624, "DTC Description"</a> |
|          | P2814 | SELECT SOLENOID                 | <a href="#">TM-648, "DTC Description"</a> |
|          | P2815 | SELECT SOLENOID                 | <a href="#">TM-650, "DTC Description"</a> |

# TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10G]

| Priority | DTC   | Items<br>(CONSULT screen terms) | Reference                                 |
|----------|-------|---------------------------------|-------------------------------------------|
| 3        | P062F | EEPROM                          | <a href="#">TM-567, "DTC Description"</a> |
|          | P0705 | T/M RANGE SENSOR A              | <a href="#">TM-568, "DTC Description"</a> |
|          | P0706 | T/M RANGE SENSOR A              | <a href="#">TM-573, "DTC Description"</a> |
|          | P0712 | FLUID TEMP SENSOR A             | <a href="#">TM-576, "DTC Description"</a> |
|          | P0713 | FLUID TEMP SENSOR A             | <a href="#">TM-578, "DTC Description"</a> |
|          | P0715 | INPUT SPEED SENSOR A            | <a href="#">TM-580, "DTC Description"</a> |
|          | P0717 | INPUT SPEED SENSOR A            | <a href="#">TM-583, "DTC Description"</a> |
|          | P0826 | UP/DOWN SHIFT SWITCH            | <a href="#">TM-600, "DTC Description"</a> |
|          | P0841 | FLUID PRESS SEN/SW A            | <a href="#">TM-603, "DTC Description"</a> |
|          | P0847 | FLUID PRESS SEN/SW B            | <a href="#">TM-605, "DTC Description"</a> |
|          | P0848 | FLUID PRESS SEN/SW B            | <a href="#">TM-607, "DTC Description"</a> |
|          | P084C | FLUID PRESS SEN/SW H            | <a href="#">TM-609, "DTC Description"</a> |
|          | P084D | FLUID PRESS SEN/SW H            | <a href="#">TM-611, "DTC Description"</a> |
|          | P0890 | TCM                             | <a href="#">TM-614, "DTC Description"</a> |
|          | P1586 | G SENSOR                        | <a href="#">TM-626, "DTC Description"</a> |
|          | P188E | ELECTRIC OIL PUMP               | <a href="#">TM-632, "DTC Description"</a> |
|          | P1890 | ELECTRIC OIL PUMP RELAY         | <a href="#">TM-639, "DTC Description"</a> |
|          | P2765 | INPUT SPEED SENSOR B            | <a href="#">TM-643, "DTC Description"</a> |
| 4        | P0744 | TORQUE CONVERTER                | <a href="#">TM-590, "DTC Description"</a> |
|          | P0746 | PC SOLENOID A                   | <a href="#">TM-592, "DTC Description"</a> |
|          | P0776 | PC SOLENOID B                   | <a href="#">TM-594, "DTC Description"</a> |
|          | P0965 | PC SOLENOID B                   | <a href="#">TM-620, "DTC Description"</a> |
|          | P1588 | G SENSOR                        | <a href="#">TM-629, "DTC Description"</a> |
|          | P188F | ELECTRIC OIL PUMP               | <a href="#">TM-637, "DTC Description"</a> |
|          | P2813 | SELECT SOLENOID                 | <a href="#">TM-646, "DTC Description"</a> |

## DTC Index

INFOID:000000010622755

### NOTE:

- If multiple malfunction codes are detected at the same time, check each code according to the "DTC check priority list". Refer to [TM-528, "DTC Inspection Priority Chart"](#).
- The ignition counter is displayed in "FFD". Refer to [TM-510, "CONSULT Function"](#).

| DTC <sup>*1, *2</sup> |                           | Items<br>(CONSULT screen terms) | Trip | MIL <sup>*3</sup> | Stop/start<br>indicator<br>lamp | Reference              |
|-----------------------|---------------------------|---------------------------------|------|-------------------|---------------------------------|------------------------|
| GST                   | CONSULT<br>(TRANSMISSION) |                                 |      |                   |                                 |                        |
| P062F                 | P062F                     | EEPROM                          | 1    | ON                | Blinking                        | <a href="#">TM-567</a> |
| P0705                 | P0705                     | T/M RANGE SENSOR A              | 2    | ON                | Blinking                        | <a href="#">TM-568</a> |
| P0706                 | P0706                     | T/M RANGE SENSOR A              | 2    | ON                | Blinking                        | <a href="#">TM-573</a> |
| P0712                 | P0712                     | FLUID TEMP SENSOR A             | 2    | ON                | Blinking                        | <a href="#">TM-576</a> |
| P0713                 | P0713                     | FLUID TEMP SENSOR A             | 2    | ON                | Blinking                        | <a href="#">TM-578</a> |
| P0715                 | P0715                     | INPUT SPEED SENSOR A            | 2    | ON                | Blinking                        | <a href="#">TM-580</a> |
| P0717                 | P0717                     | INPUT SPEED SENSOR A            | 2    | ON                | Blinking                        | <a href="#">TM-583</a> |
| P0740                 | P0740                     | TORQUE CONVERTER                | 2    | ON                | Blinking                        | <a href="#">TM-586</a> |
| P0743                 | P0743                     | TORQUE CONVERTER                | 2    | ON                | Blinking                        | <a href="#">TM-588</a> |
| P0744                 | P0744                     | TORQUE CONVERTER                | 2    | ON                | —                               | <a href="#">TM-590</a> |

# TCM

< ECU DIAGNOSIS INFORMATION >

[CVT: RE0F10G]

| DTC*1, *2 |                           | Items<br>(CONSULT screen terms)  | Trip | MIL*3 | Stop/start<br>indicator<br>lamp | Reference              |
|-----------|---------------------------|----------------------------------|------|-------|---------------------------------|------------------------|
| GST       | CONSULT<br>(TRANSMISSION) |                                  |      |       |                                 |                        |
| P0746     | P0746                     | PC SOLENOID A                    | 2    | ON    | Blinking                        | <a href="#">TM-592</a> |
| P0776     | P0776                     | PC SOLENOID B                    | 2    | ON    | —                               | <a href="#">TM-594</a> |
| P0778     | P0778                     | PC SOLENOID B                    | 2    | ON    | —                               | <a href="#">TM-596</a> |
| P0779     | P0779                     | PC SOLENOID B                    | 2    | ON    | —                               | <a href="#">TM-598</a> |
| —         | P0826                     | UP/DOWN SHIFT<br>SWITCH          | 1    | —     | —                               | <a href="#">TM-600</a> |
| P0841     | P0841                     | FLUID PRESS SEN/SW A             | 2    | —     | Blinking                        | <a href="#">TM-603</a> |
| P0847     | P0847                     | FLUID PRESS SEN/SW B             | 2    | ON    | Blinking                        | <a href="#">TM-605</a> |
| P0848     | P0848                     | FLUID PRESS SEN/SW B             | 2    | ON    | Blinking                        | <a href="#">TM-607</a> |
| P084C     | P084C                     | FLUID PRESS SEN/SW H             | 2    | ON    | —                               | <a href="#">TM-609</a> |
| P084D     | P084D                     | FLUID PRESS SEN/SW H             | 2    | ON    | —                               | <a href="#">TM-611</a> |
| P0863     | P0863                     | CONTROL UNIT (CAN)               | 1    | ON    | Blinking                        | <a href="#">TM-613</a> |
| P0890     | P0890                     | TCM                              | 1    | ON    | Blinking                        | <a href="#">TM-614</a> |
| P0962     | P0962                     | PC SOLENOID A                    | 2    | ON    | Blinking                        | <a href="#">TM-616</a> |
| P0963     | P0963                     | PC SOLENOID A                    | 2    | ON    | Blinking                        | <a href="#">TM-618</a> |
| P0965     | P0965                     | PC SOLENOID B                    | 2    | ON    | Blinking                        | <a href="#">TM-620</a> |
| P0966     | P0966                     | PC SOLENOID B                    | 2    | ON    | Blinking                        | <a href="#">TM-622</a> |
| P0967     | P0967                     | PC SOLENOID B                    | 2    | ON    | Blinking                        | <a href="#">TM-624</a> |
| —         | P1586                     | G SENSOR                         | 1    | —     | Blinking                        | <a href="#">TM-626</a> |
| —         | P1588                     | G SENSOR                         | 1    | —     | Blinking                        | <a href="#">TM-629</a> |
| —         | P188E                     | ELECTRIC OIL PUMP                | 1    | —     | —                               | <a href="#">TM-632</a> |
| —         | P188F                     | ELECTRIC OIL PUMP                | 1    | —     | —                               | <a href="#">TM-637</a> |
| —         | P1890                     | ELECTRIC OIL PUMP RE-<br>LAY     | 1    | —     | —                               | <a href="#">TM-639</a> |
| P2765     | P2765                     | INPUT SPEED SENSOR B             | 2    | ON    | Blinking                        | <a href="#">TM-643</a> |
| P2813     | P2813                     | SELECT SOLENOID                  | 2    | ON    | Blinking                        | <a href="#">TM-646</a> |
| P2814     | P2814                     | SELECT SOLENOID                  | 2    | ON    | Blinking                        | <a href="#">TM-648</a> |
| P2815     | P2815                     | SELECT SOLENOID                  | 2    | ON    | Blinking                        | <a href="#">TM-650</a> |
| U0073     | U0073                     | COMM BUS A OFF                   | 1    | ON    | Blinking                        | <a href="#">TM-555</a> |
| U0100     | U0100                     | LOST COMM (ECM A)                | 1    | ON    | Blinking                        | <a href="#">TM-556</a> |
| —         | U0140                     | LOST COMM (BCM)                  | 1    | —     | Blinking                        | <a href="#">TM-558</a> |
| —         | U0141                     | LOST COMM (BCM A)                | 1    | —     | Blinking                        | <a href="#">TM-559</a> |
| —         | U0155                     | LOST COMM (IPC)                  | 1    | —     | Blinking                        | <a href="#">TM-560</a> |
| —         | U0300                     | CAN COMM DATA                    | 1    | —     | Blinking                        | <a href="#">TM-561</a> |
| —         | U1000                     | CAN COMM CIRCUIT                 | 1    | —     | Blinking                        | <a href="#">TM-563</a> |
| —         | U110F                     | LOST COMM (ECM)                  | 1    | —     | —                               | <a href="#">TM-564</a> |
| —         | U1111                     | LOST COMM (CHASSIS<br>CONT MDUL) | 1    | —     | —                               | <a href="#">TM-565</a> |
| —         | U1117                     | LOST COMM (ABS)                  | 1    | —     | Blinking                        | <a href="#">TM-566</a> |

\*1: These numbers are specified by SAE J2012/ISO 15031-6.

\*2: The DTC number of the 1st trip is the same as the DTC number.

\*3: Refer to [TM-508, "DIAGNOSIS DESCRIPTION : Malfunction Indicator Lamp \(MIL\)"](#).

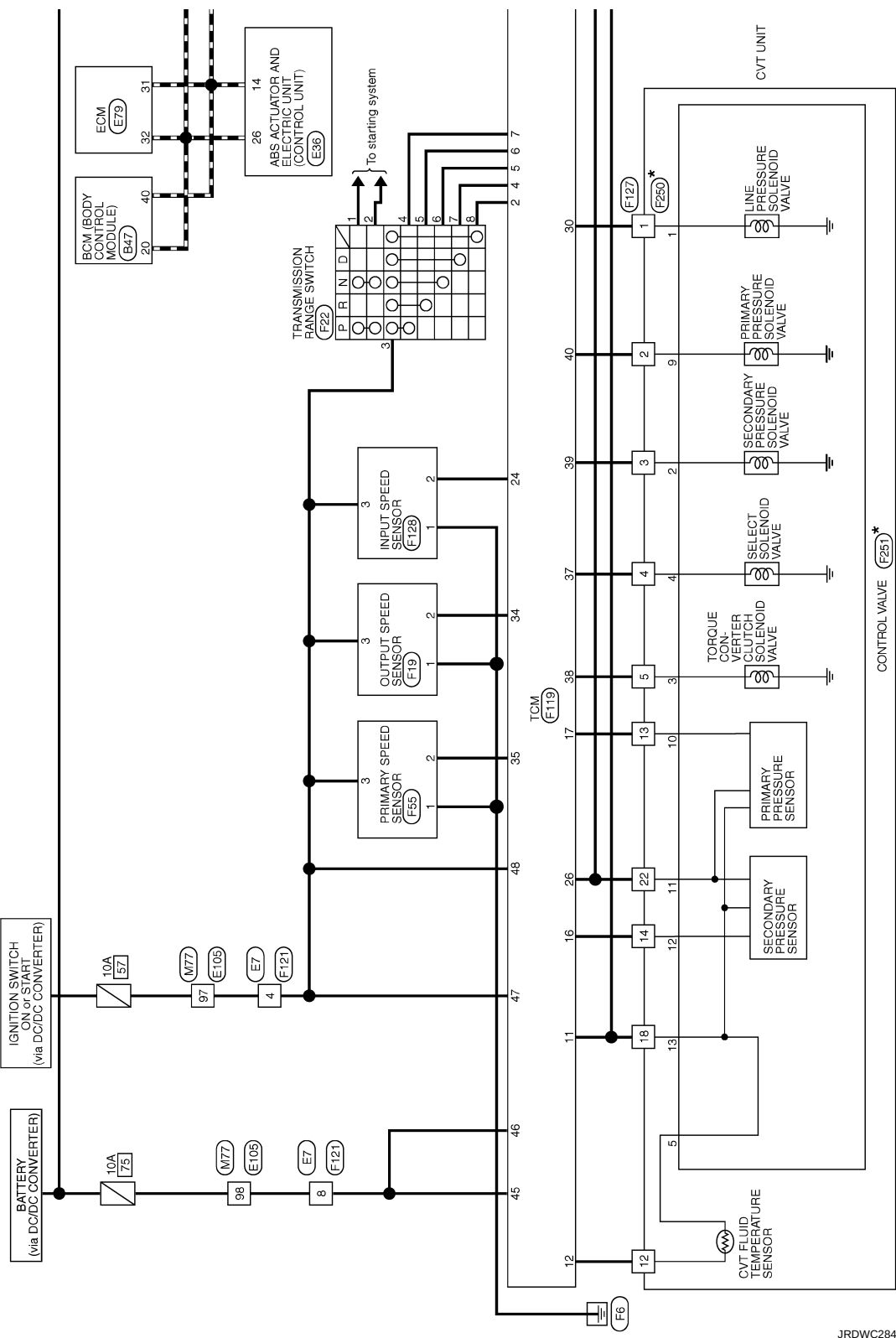
WIRING DIAGRAM

CVT CONTROL SYSTEM

Wiring Diagram

INFOID:0000000010622756

CVT CONTROL SYSTEM (DIESEL ENGINE MODELS)



\*: This connector is not shown in "Harness Layout".

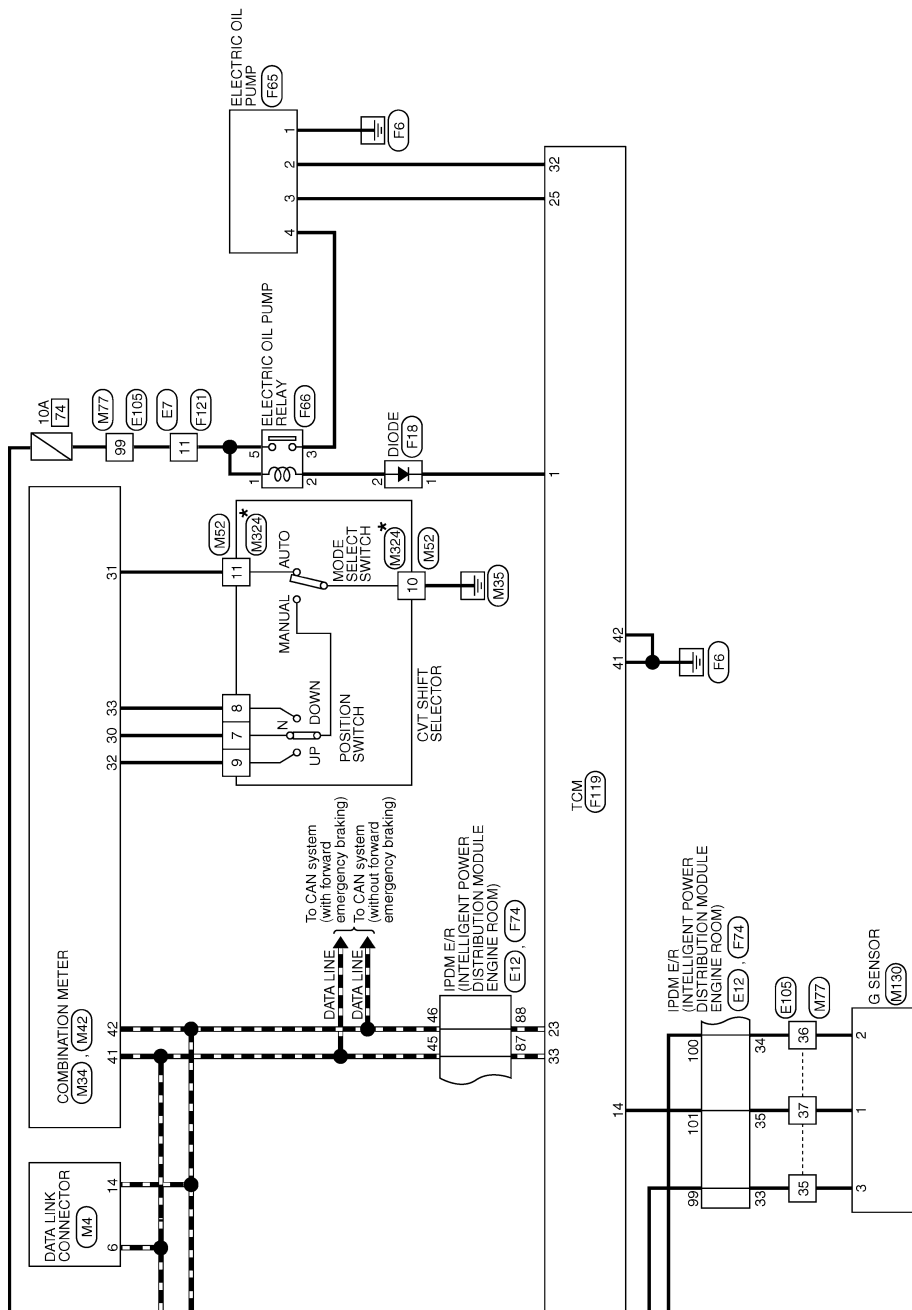
2014/03/17

JRDWC2847GB

## CVT CONTROL SYSTEM

## < WIRING DIAGRAM >

**[CVT: RE0F10G]**



JRDWC2848GB



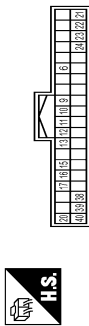
# CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F10G]

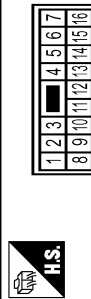
## CVT CONTROL SYSTEM (DIESEL ENGINE MODELS)

|                |                           |
|----------------|---------------------------|
| Connector No.  | B47                       |
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Type | TH40FG-NH                 |

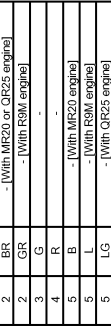


| Terminal No. | Color | Wire | Signal Name [Specification] |
|--------------|-------|------|-----------------------------|
| 6            | R     |      | BACK DOOR OPENER REQUEST SW |
| 9            | G     |      | HANDS FREE SENSOR           |
| 10           | W     |      | REAR RH DOOR SW             |
| 11           | LG    |      | BACK DOOR SW                |
| 12           | R     |      | REAR LH DOOR SW             |
| 13           | SB    |      | PASSENGER DOOR SW           |
| 15           | LAG   |      | REAR WHEEL AUTO STOP        |
| 16           | Y     |      | BACK DOOR OPENER SW         |
| 17           | SB    |      | DRIVER DOOR SW              |
| 20           | L     |      | CANH                        |
| 21           | BR    |      | BUMPER ANTENNA (-)          |
| 22           | Y     |      | REAR ANTENNA (-)            |
| 23           | L     |      | REAR ANTENNA (+)            |
| 24           | G     |      | BUMPER ANTENNA (+)          |
| 38           | V     |      | SIREN                       |
| 39           | LA/W  |      | HIGH-MOUNTED STOP LAMP      |
| 40           | P     |      | CANL                        |

|                |              |
|----------------|--------------|
| Connector No.  | E7           |
| Connector Name | WIRE TO WIRE |
| Connector Type | NS16MR-CS    |

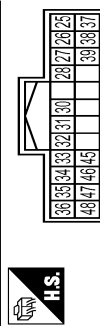


| Terminal No. | Color | Wire | Signal Name [Specification]        |
|--------------|-------|------|------------------------------------|
| 1            | SB    |      | - [With MR20 or QR25 engine]       |
| 2            | BR    |      | - [With R9M engine]                |
| 3            | G     |      | - [With MR20 or QR25 engine]       |
| 4            | R     |      | - [With R9M engine]                |
| 5            | B     |      | - [With MR20 engine]               |
| 6            | LG    |      | - [With R9M engine]                |
| 7            | G     |      | - [With QR25 engine]               |
| 8            | V     |      | - [With MR20 engine or R9M engine] |
| 9            | EG    |      | - [With R9M engine]                |
| 10           | BR    |      | - [With MR20 engine]               |
| 11           | Y     |      | - [With R9M engine]                |
| 12           | L     |      | - [With QR25 engine]               |
| 13           | BR    |      | - [With MR20 or QR25 engine]       |
| 15           | L     |      | - [With R9M engine]                |
| 16           | SB    |      | -                                  |



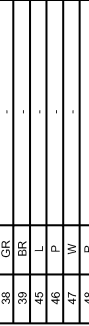
| Terminal No. | Color | Wire | Signal Name [Specification]        |
|--------------|-------|------|------------------------------------|
| 1            | SB    |      | - [With MR20 or QR25 engine]       |
| 2            | BR    |      | - [With R9M engine]                |
| 3            | G     |      | - [With MR20 or QR25 engine]       |
| 4            | R     |      | - [With R9M engine]                |
| 5            | B     |      | - [With MR20 engine]               |
| 6            | LG    |      | - [With R9M engine]                |
| 7            | G     |      | - [With QR25 engine]               |
| 8            | V     |      | - [With MR20 engine or R9M engine] |
| 9            | EG    |      | - [With R9M engine]                |
| 10           | BR    |      | - [With MR20 engine]               |
| 11           | Y     |      | - [With R9M engine]                |
| 12           | L     |      | - [With QR25 engine]               |
| 13           | BR    |      | - [With MR20 or QR25 engine]       |
| 15           | L     |      | - [With R9M engine]                |
| 16           | SB    |      | -                                  |

|                |                                                               |
|----------------|---------------------------------------------------------------|
| Connector No.  | E12                                                           |
| Connector Name | IFM ER INTELLIGENT POWER LOSS PREVENTION MODULE (ENGINE ROOM) |
| Connector Type | TH40FG-NH                                                     |

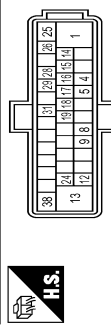


| Terminal No. | Color | Wire | Signal Name [Specification] |
|--------------|-------|------|-----------------------------|
| 25           | LG    |      | -                           |
| 26           | W     |      | -                           |
| 27           | SB    |      | -                           |
| 28           | P     |      | -                           |
| 30           | L     |      | -                           |
| 31           | G     |      | -                           |
| 32           | B     |      | -                           |
| 33           | BG    |      | -                           |

|    |    |  |   |
|----|----|--|---|
| 34 | LG |  | - |
| 35 | V  |  | - |
| 36 | Y  |  | - |
| 37 | B  |  | - |
| 38 | GR |  | - |
| 39 | BR |  | - |
| 45 | L  |  | - |
| 46 | P  |  | - |
| 47 | W  |  | - |
| 48 | R  |  | - |

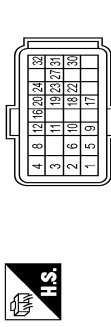


|                |                                               |
|----------------|-----------------------------------------------|
| Connector No.  | E36                                           |
| Connector Name | ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) |
| Connector Type | BEZ24FB-BHY2-BJZ2-RH                          |



| Terminal No. | Color  | Wire | Signal Name [Specification]        |
|--------------|--------|------|------------------------------------|
| 1            | Y      |      | MOTOR POWER SUPPLY                 |
| 4            | SB     |      | FR RH WHEEL SENSOR SIGNAL          |
| 5            | V      |      | BRAKE VACUUM SENSOR POWER SUPPLY   |
| 8            | P      |      | FR LH WHEEL SENSOR SIGNAL          |
| 9            | Y      |      | hill descent control SWITCH SIGNAL |
| 12           | LG     |      | BRAKE VACUUM SENSOR SIGNAL         |
| 13           | B      |      | GROUND (MOTOR)                     |
| 14           | P      |      | CANL                               |
| 15           | BR     |      | VDC OFF SWITCH SIGNAL              |
| 16           | R      |      | FR RH WHEEL SENSOR POWER SUPPLY    |
| 17           | Y      |      | RR RH WHEEL SENSOR POWER SUPPLY    |
| 18           | G      |      | RR LH WHEEL SENSOR SIGNAL          |
| 19           | W      |      | FR LH WHEEL SENSOR POWER SUPPLY    |
| 24           | SHIELD |      | BRAKE VACUUM SENSOR GROUND         |
| 25           | BR     |      | VALVE POWER SUPPLY                 |
| 26           | L      |      | CANH                               |
| 28           | GR     |      | IGNITION POWER SUPPLY              |
| 29           | LG     |      | RR RH WHEEL SENSOR SIGNAL          |
| 31           | BR     |      | RR LH WHEEL SENSOR POWER SUPPLY    |
| 38           | B      |      | GROUND (VALVE)                     |

|                |               |
|----------------|---------------|
| Connector No.  | E79           |
| Connector Name | ECM           |
| Connector Type | RH24FB-RZ8-RH |



| Terminal No. | Color | Wire | Signal Name [Specification]                             |
|--------------|-------|------|---------------------------------------------------------|
| 1            | B     |      | ECM GROUND                                              |
| 2            | W     |      | ACCELERATOR PEDAL POSITION SENSOR 1                     |
| 3            | Y     |      | SENSOR GROUND (ACCELERATOR PEDAL POSITION SENSOR 1)     |
| 4            | B     |      | ECM GROUND                                              |
| 5            | L     |      | POWER SUPPLY FOR ECM                                    |
| 6            | G     |      | SENSOR GROUND (ACCELERATOR PEDAL POSITION SENSOR 2)     |
| 8            | B     |      | ECM GROUND                                              |
| 9            | L     |      | FUEL HEATER AND WATER FUEL LEVEL SENSOR                 |
| 10           | L     |      | SENSOR GROUND (FUEL HEATER AND WATER FUEL LEVEL SENSOR) |
| 11           | V     |      | ACCELERATOR PEDAL POSITION SENSOR 2                     |
| 12           | P     |      | STOP LAMP SWITCH [With M/T]                             |
| 16           | BG    |      | BRAKE PEDAL POSITION SWITCH [With CVT]                  |
| 17           | LG    |      | IGNITION SWITCH                                         |
| 18           | G     |      | ASCD STEERING SWITCH                                    |
| 19           | BR    |      | SENSOR GROUND (ASCD STEERING SWITCH)                    |
| 20           | BR    |      | FUEL PUMP CONTROL MODULE (COMMAND)                      |
| 22           | G     |      | FUEL PUMP CONTROL MODULE (DIAGNOSIS)                    |
| 23           | V     |      | SPEED LIMITER MAIN SWITCH                               |
| 24           | R     |      | CLUTCH PEDAL POSITION SWITCH                            |
| 27           | V     |      | CLUTCH INTERLOCK SWITCH                                 |
| 30           | BR    |      | ASCD MAIN SWITCH                                        |
| 31           | P     |      | CANL                                                    |
| 32           | L     |      | CANH                                                    |

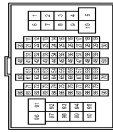
# CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F10G]

## CVT CONTROL SYSTEM (DIESEL ENGINE MODELS)

|                |                 |
|----------------|-----------------|
| Connector No.  | IE105           |
| Connector Name | WIRE TO WIRE    |
| Connector Type | TH80FW-CS16-TM4 |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 2            | W             | -                           |
| 5            | V             | -                           |
| 5            | W             | - [Without ISS]             |
| 5            | W             | - [With ISS]                |
| 8            | L             | -                           |
| 9            | LG            | -                           |
| 10           | W             | -                           |
| 20           | W             | -                           |
| 21           | B             | -                           |
| 22           | SHIELD        | -                           |
| 31           | Y             | -                           |
| 32           | W             | -                           |
| 33           | SB            | -                           |
| 34           | LG            | -                           |
| 35           | BG            | -                           |
| 36           | LG            | -                           |
| 37           | V             | -                           |
| 38           | G             | -                           |
| 39           | BR            | -                           |
| 40           | L             | -                           |
| 41           | P             | -                           |
| 47           | GR            | -                           |
| 48           | SB            | -                           |
| 51           | P             | -                           |
| 52           | L             | -                           |
| 53           | W             | -                           |
| 54           | Y             | -                           |
| 55           | BR            | -                           |
| 56           | P             | -                           |
| 57           | B             | -                           |
| 58           | L             | -                           |
| 59           | W             | -                           |
| 60           | G             | -                           |
| 61           | BR            | -                           |
| 62           | V             | -                           |
| 63           | BR            | -                           |
| 64           | GR            | -                           |

|    |        |   |
|----|--------|---|
| 65 | LG     | - |
| 66 | BG     | - |
| 67 | L      | - |
| 68 | R      | - |
| 71 | V      | - |
| 72 | L      | - |
| 73 | R      | - |
| 76 | L      | - |
| 77 | V      | - |
| 78 | LG     | - |
| 79 | SHIELD | - |
| 80 | GR     | - |
| 82 | Y      | - |
| 83 | SB     | - |
| 84 | L      | - |
| 85 | G      | - |
| 86 | Y      | - |
| 87 | B      | - |
| 88 | B      | - |
| 91 | R      | - |
| 92 | BR     | - |
| 93 | W      | - |
| 96 | GR     | - |
| 97 | R      | - |
| 98 | V      | - |
| 99 | Y      | - |

|                |             |
|----------------|-------------|
| Connector No.  | F18         |
| Connector Name | DIODE       |
| Connector Type | 24335 C3900 |



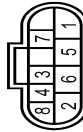
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1            | P             | -                           |
| 2            | L             | -                           |

|                |                     |
|----------------|---------------------|
| Connector No.  | F19                 |
| Connector Name | OUTPUT SPEED SENSOR |
| Connector Type | RK03FB              |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1            | GR            | -                           |
| 2            | W             | -                           |
| 3            | BG            | -                           |

|                |                           |
|----------------|---------------------------|
| Connector No.  | F22                       |
| Connector Name | TRANSMISSION RANGE SWITCH |
| Connector Type | YD06FB-HS4                |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1            | BG            | -                           |
| 2            | GR            | -                           |
| 3            | W             | -                           |
| 4            | V             | -                           |
| 5            | G             | -                           |
| 6            | BR            | -                           |
| 7            | Y             | -                           |
| 8            | GR            | -                           |

|                |                      |
|----------------|----------------------|
| Connector No.  | F55                  |
| Connector Name | PRIMARY SPEED SENSOR |
| Connector Type | RK03FB               |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1            | B             | -                           |
| 2            | GR            | -                           |
| 3            | BR            | -                           |

|                |                   |
|----------------|-------------------|
| Connector No.  | F65               |
| Connector Name | ELECTRIC OIL PUMP |
| Connector Type | HS4FGY            |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1            | B             | GND                         |
| 2            | SB            | STATE                       |
| 3            | R             | SIGNAL                      |
| 4            | Y             | BATT                        |

JRDWC2850GB

# CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F10G]

## CVT CONTROL SYSTEM (DIESEL ENGINE MODELS)

|                |                         |
|----------------|-------------------------|
| Connector No.  | F66                     |
| Connector Name | ELECTRIC OIL PUMP RELAY |
| Connector Type | MS02FL-M2-LC            |



# CVT CONTROL SYSTEM

< WIRING DIAGRAM >

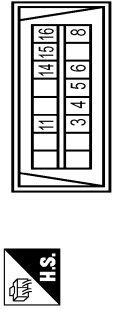
[CVT: RE0F10G]

## CVT CONTROL SYSTEM (DIESEL ENGINE MODELS)

|                |           |
|----------------|-----------|
| Connector No.  | P250      |
| Connector Name | CVT UNIT  |
| Connector Type | RK22MGY-X |



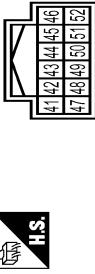
|                |                     |
|----------------|---------------------|
| Connector No.  | M4                  |
| Connector Name | DATA LINK CONNECTOR |
| Connector Type | BD16FW              |



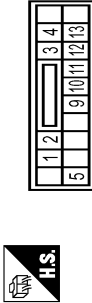
|    |    |                                              |
|----|----|----------------------------------------------|
| 28 | Y  | SEAT BELT BUCKLE SWITCH SIGNAL (DRIVER SIDE) |
| 30 | LG | MANUAL MODE SIGNAL                           |
| 31 | SB | NON-MANUAL MODE SIGNAL                       |
| 32 | BG | MANUAL MODE SHIFT UP SIGNAL                  |
| 33 | BR | MANUAL MODE SHIFT DOWN SIGNAL                |
| 36 | GR | ILLUMINATION CONTROL SWITCH SIGNAL (+)       |
| 37 | V  | ILLUMINATION CONTROL SWITCH SIGNAL (-)       |
| 38 | G  | VEHICLE SPEED SIGNAL (6-PULSE)               |
| 39 | W  | VEHICLE SPEED SIGNAL (2-PULSE)               |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1            | -             | -                           |
| 2            | -             | -                           |
| 3            | LG            | -                           |
| 4            | B             | -                           |
| 5            | B             | -                           |
| 6            | Y             | -                           |
| 8            | Y             | -                           |
| 11           | SB            | -                           |
| 12           | -             | -                           |
| 13           | -             | -                           |
| 14           | P             | -                           |
| 15           | BR            | -                           |
| 16           | W             | -                           |
| 22           | -             | -                           |

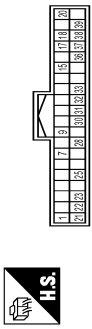
|                |                   |
|----------------|-------------------|
| Connector No.  | M42               |
| Connector Name | COMBINATION METER |
| Connector Type | TH12FW-NH         |



|                |               |
|----------------|---------------|
| Connector No.  | P251          |
| Connector Name | CONTROL VALVE |
| Connector Type | IP16FGY       |



|                |                   |
|----------------|-------------------|
| Connector No.  | M34               |
| Connector Name | COMBINATION METER |
| Connector Type | TH40FW-NH         |

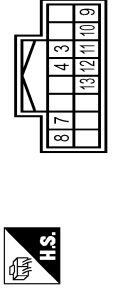


| Terminal No. | Color Of Wire | Signal Name [Specification]   |
|--------------|---------------|-------------------------------|
| 41           | L             | CAN-H                         |
| 42           | P             | CAN-L                         |
| 43           | W             | ILLUMINATION CONTROL SIGNAL   |
| 44           | LAB           | FUEL LEVEL SENSOR GROUND      |
| 45           | LAG           | BATTERY POWER SUPPLY          |
| 46           | LABR          | IGNITION SIGNAL [Without ISS] |
| 46           | V             | IGNITION SIGNAL [With ISS]    |
| 47           | SB            | AV COMMUNICATION SIGNAL (H)   |
| 48           | LG            | AV COMMUNICATION SIGNAL (L)   |
| 49           | Y             | OIL LEVEL SENSOR SIGNAL       |
| 50           | BG            | OIL LEVEL SENSOR GROUND       |
| 51           | LAVL          | FUEL LEVEL SENSOR SIGNAL      |
| 52           | B             | GROUND                        |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1            | GY            | -                           |
| 2            | BR            | -                           |
| 3            | Y             | -                           |
| 4            | P             | -                           |
| 5            | B             | -                           |
| 9            | O             | -                           |
| 10           | L             | -                           |
| 11           | W             | -                           |
| 12           | R             | -                           |
| 13           | BY            | -                           |

| Terminal No. | Color Of Wire | Signal Name [Specification]     |
|--------------|---------------|---------------------------------|
| 1            | B             | GROUND                          |
| 7            | BG            | SECURITY SIGNAL                 |
| 9            | GR            | ECO MODE SWITCH SIGNAL          |
| 15           | L             | AMBIENT SENSOR SIGNAL           |
| 17           | BG            | METER CONTROL SWITCH GROUND     |
| 18           | SB            | TRIP RESET SWITCH SIGNAL        |
| 20           | Y             | AMBIENT SENSOR GROUND           |
| 21           | L             | STEERING SWITCH GROUND          |
| 22           | Y             | STEERING SWITCH SIGNAL A        |
| 23           | GR            | STEERING SWITCH SIGNAL B        |
| 25           | V             | BRAKE FLUID LEVEL SWITCH SIGNAL |

|                |                    |
|----------------|--------------------|
| Connector No.  | M52                |
| Connector Name | CVT SHIFT SELECTOR |
| Connector Type | TH16FW-NH          |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 3            | R             | -                           |
| 4            | R             | -                           |
| 7            | LG            | -                           |
| 8            | BR            | -                           |
| 9            | BG            | -                           |
| 10           | B             | -                           |
| 11           | SB            | -                           |
| 12           | L             | -                           |
| 13           | G             | -                           |

|                |                 |
|----------------|-----------------|
| Connector No.  | M77             |
| Connector Name | WIRE TO WIRE    |
| Connector Type | TH80MW-CS16-TM4 |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 2            | LAVR          | -                           |
| 5            | V             | - [Without ISS]             |
| 5            | W             | - [With ISS]                |
| 8            | G             | -                           |
| 9            | Y             | -                           |
| 10           | R             | -                           |
| 20           | W             | -                           |
| 21           | B             | -                           |
| 22           | SHIELD        | -                           |
| 31           | V             | -                           |
| 32           | GR            | -                           |

JRDWC2852GB

CVT CONTROL SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F10G]

CVT CONTROL SYSTEM (DIESEL ENGINE MODELS)

|    |        |                                 |    |   |   |
|----|--------|---------------------------------|----|---|---|
| 33 | G      | -                               | 98 | V | - |
| 34 | LG     | -                               | 99 | R | - |
| 35 | BG     | -                               |    |   |   |
| 36 | LG     | -                               |    |   |   |
| 37 | V      | -                               |    |   |   |
| 38 | G      | -                               |    |   |   |
| 39 | BR     | -                               |    |   |   |
| 40 | L      | -                               |    |   |   |
| 41 | P      | -                               |    |   |   |
| 47 | Y      | -                               |    |   |   |
| 48 | BG     | -                               |    |   |   |
| 51 | GR     | -                               |    |   |   |
| 52 | SB     | -                               |    |   |   |
| 53 | R      | -                               |    |   |   |
| 54 | LAL    | -                               |    |   |   |
| 55 | BR     | -                               |    |   |   |
| 56 | P      | -                               |    |   |   |
| 57 | B      | -                               |    |   |   |
| 58 | L      | -                               |    |   |   |
| 59 | W      | -                               |    |   |   |
| 60 | LAW    | -                               |    |   |   |
| 61 | P      | -                               |    |   |   |
| 62 | V      | -                               |    |   |   |
| 63 | LAWR   | -                               |    |   |   |
| 64 | Y      | -                               |    |   |   |
| 65 | GR     | -                               |    |   |   |
| 66 | BG     | -                               |    |   |   |
| 67 | L      | -                               |    |   |   |
| 68 | R      | -                               |    |   |   |
| 71 | V      | -                               |    |   |   |
| 72 | L      | -                               |    |   |   |
| 73 | Y      | -                               |    |   |   |
| 76 | L      | -                               |    |   |   |
| 77 | V      | -                               |    |   |   |
| 78 | LG     | -                               |    |   |   |
| 79 | SHIELD | -                               |    |   |   |
| 80 | L      | - [With ISS]<br>- [Without ISS] |    |   |   |
| 80 | LAL    | -                               |    |   |   |
| 82 | GR     | -                               |    |   |   |
| 83 | LG     | -                               |    |   |   |
| 84 | SB     | -                               |    |   |   |
| 85 | G      | -                               |    |   |   |
| 86 | G      | -                               |    |   |   |
| 87 | B      | -                               |    |   |   |
| 88 | B      | -                               |    |   |   |
| 91 | L      | -                               |    |   |   |
| 92 | W      | -                               |    |   |   |
| 93 | W      | -                               |    |   |   |
| 96 | LG     | -                               |    |   |   |
| 97 | BR     | -                               |    |   |   |

|                |           |
|----------------|-----------|
| Connector No.  | M130      |
| Connector Name | G SENSOR  |
| Connector Type | HS03FB-2V |

|                             |   |    |    |
|-----------------------------|---|----|----|
| Terminal No.                | 1 | 2  | 3  |
| Color Of Wire               | V | LG | BG |
| Signal Name [Specification] | - | -  | -  |

|                |                    |
|----------------|--------------------|
| Connector No.  | M324               |
| Connector Name | CVT SHIFT SELECTOR |
| Connector Type | TH6MM-NH           |

|                             |   |   |    |                                  |
|-----------------------------|---|---|----|----------------------------------|
| Terminal No.                | 3 | 4 | 7  | 8                                |
| Color Of Wire               | W | P | BR | G                                |
| Signal Name [Specification] | - | - | -  | - [LHD models]<br>- [RHD models] |
|                             |   |   |    | - [RHD models]<br>- [LHD models] |
|                             |   |   |    | - [LHD models]                   |
|                             |   |   |    | -                                |
|                             |   |   |    | -                                |
|                             |   |   |    | -                                |
|                             |   |   |    | -                                |

|                             |   |   |    |                                  |
|-----------------------------|---|---|----|----------------------------------|
| Terminal No.                | 3 | 4 | 7  | 8                                |
| Color Of Wire               | W | P | BR | G                                |
| Signal Name [Specification] | - | - | -  | - [LHD models]<br>- [RHD models] |
|                             |   |   |    | - [RHD models]<br>- [LHD models] |
|                             |   |   |    | - [LHD models]                   |
|                             |   |   |    | -                                |
|                             |   |   |    | -                                |
|                             |   |   |    | -                                |
|                             |   |   |    | -                                |

JRDWC2853GB

# CVT SHIFT LOCK SYSTEM

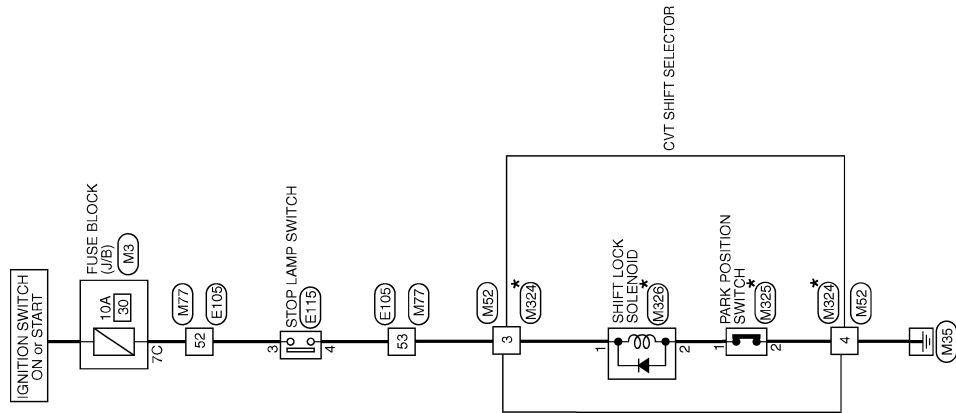
< WIRING DIAGRAM >

[CVT: RE0F10G]

## CVT SHIFT LOCK SYSTEM

### Wiring Diagram

INFOID:0000000010622757



\*: This connector is not shown in "Harness Layout".

CVT SHIFT LOCK SYSTEM

2014/03/17

JRDWC2854GB

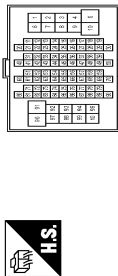
# CVT SHIFT LOCK SYSTEM

< WIRING DIAGRAM >

[CVT: RE0F10G]

## CVT SHIFT LOCK SYSTEM

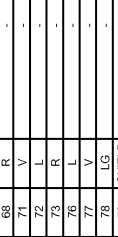
|                |                 |
|----------------|-----------------|
| Connector No.  | E105            |
| Connector Name | WIRE TO WIRE    |
| Connector Type | TH80FW-CS16-TM4 |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 2            | W             | -                           |
| 5            | V             | - [Without ISS]             |
| 8            | W             | - [With ISS]                |
| 8            | L             | -                           |
| 9            | LG            | -                           |
| 10           | W             | -                           |
| 20           | W             | -                           |
| 21           | B             | -                           |
| 22           | SHIELD        | -                           |
| 31           | Y             | -                           |
| 32           | W             | -                           |
| 33           | SB            | -                           |
| 34           | LG            | -                           |
| 35           | BG            | -                           |
| 36           | LG            | -                           |
| 37           | V             | -                           |
| 38           | G             | -                           |
| 39           | BR            | -                           |
| 40           | L             | -                           |
| 41           | P             | -                           |
| 47           | GR            | -                           |
| 48           | SB            | -                           |
| 51           | P             | -                           |
| 52           | L             | -                           |
| 53           | W             | -                           |
| 54           | Y             | -                           |
| 55           | BR            | -                           |
| 56           | P             | -                           |
| 57           | B             | -                           |
| 58           | L             | -                           |
| 59           | W             | -                           |
| 60           | G             | -                           |
| 61           | BR            | -                           |
| 62           | V             | -                           |
| 63           | BR            | -                           |

## CVT SHIFT LOCK SYSTEM

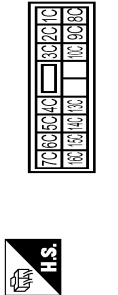
|                |                  |
|----------------|------------------|
| Connector No.  | E115             |
| Connector Name | STOP LAMP SWITCH |
| Connector Type | M04FW-LC         |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1            | V             | -                           |
| 2            | LG            | -                           |
| 3            | L             | -                           |
| 4            | W             | -                           |

## CVT SHIFT LOCK SYSTEM

|                |                 |
|----------------|-----------------|
| Connector No.  | M3              |
| Connector Name | FUSE BLOCK (UB) |
| Connector Type | NS16FW-CS       |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 10C          | LG            | -                           |
| 13C          | LAG           | -                           |
| 14C          | R             | -                           |
| 15C          | L             | -                           |
| 16C          | LAW           | -                           |
| 2C           | R             | -                           |
| 3C           | Y             | -                           |
| 4C           | LG            | -                           |
| 5C           | GR            | -                           |
| 6C           | LAR           | -                           |
| 7C           | Y             | -                           |
| 8C           | BR            | - [With ISS]                |
| 8C           | LAR           | - [Without ISS]             |
| 9C           | L             | -                           |

## CVT SHIFT LOCK SYSTEM

|                |                 |
|----------------|-----------------|
| Connector No.  | M77             |
| Connector Name | WIRE TO WIRE    |
| Connector Type | TH80MW-CS16-TM4 |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 2            | LAR           | -                           |
| 5            | V             | - [Without ISS]             |
| 5            | W             | - [With ISS]                |
| 8            | G             | -                           |
| 9            | Y             | -                           |
| 10           | R             | -                           |
| 20           | W             | -                           |
| 21           | B             | -                           |
| 22           | SHIELD        | -                           |
| 31           | V             | -                           |
| 32           | GR            | -                           |
| 33           | G             | -                           |
| 34           | LG            | -                           |
| 35           | BG            | -                           |
| 36           | LG            | -                           |
| 37           | V             | -                           |
| 38           | G             | -                           |
| 39           | BR            | -                           |
| 40           | L             | -                           |
| 41           | P             | -                           |
| 47           | Y             | -                           |
| 48           | BG            | -                           |
| 51           | GR            | -                           |
| 52           | SB            | -                           |
| 53           | R             | -                           |
| 54           | LAL           | -                           |
| 55           | BR            | -                           |
| 56           | P             | -                           |

# CVT SHIFT LOCK SYSTEM

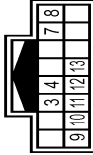
< WIRING DIAGRAM >

[CVT: RE0F10G]

## CVT SHIFT LOCK SYSTEM

|    |        |                 |
|----|--------|-----------------|
| 57 | B      | -               |
| 58 | L      | -               |
| 59 | W      | -               |
| 60 | LAR    | -               |
| 61 | P      | -               |
| 62 | V      | -               |
| 63 | LA/BR  | -               |
| 64 | Y      | -               |
| 65 | GR     | -               |
| 66 | BG     | -               |
| 67 | L      | -               |
| 68 | R      | -               |
| 71 | V      | -               |
| 72 | L      | -               |
| 73 | Y      | -               |
| 76 | L      | -               |
| 77 | V      | -               |
| 78 | LG     | -               |
| 79 | SHIELD | -               |
| 80 | L      | - [With ISS]    |
| 80 | LAL    | - [Without ISS] |
| 82 | GR     | -               |
| 83 | LG     | -               |
| 84 | SB     | -               |
| 85 | G      | -               |
| 86 | G      | -               |
| 87 | B      | -               |
| 88 | B      | -               |
| 91 | L      | -               |
| 92 | W      | -               |
| 93 | W      | -               |
| 96 | LG     | -               |
| 97 | BR     | -               |
| 98 | V      | -               |
| 99 | R      | -               |

|                |                    |
|----------------|--------------------|
| Connector No.  | M324               |
| Connector Name | CVT SHIFT SELECTOR |
| Connector Type | TH16MM-AH          |



|                |                     |
|----------------|---------------------|
| Connector No.  | M326                |
| Connector Name | SHIFT LOCK SOLENOID |
| Connector Type | TK02FW-2V           |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 3            | W             | -                           |
| 4            | P             | -                           |
| 7            | BR            | -                           |
| 8            | G             | - [LHD models]              |
| 8            | GR            | - [RHD models]              |
| 9            | G             | - [RHD models]              |
| 9            | GR            | - [LHD models]              |
| 10           | Y             | -                           |
| 11           | L/W           | -                           |
| 12           | O             | -                           |
| 13           | LG            | -                           |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1            | W             | -                           |
| 2            | B             | -                           |

|                |                      |
|----------------|----------------------|
| Connector No.  | M325                 |
| Connector Name | PARK POSITION SWITCH |
| Connector Type | TK02F                |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|--------------|---------------|-----------------------------|
| 1            | B             | -                           |
| 2            | P             | -                           |

JRDWC2856GB



## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORK FLOW

#### Work Flow

INFOID:0000000010622758

#### NOTE:

"DTC" includes DTC at the 1st trip.

#### 1.OBTAIN INFORMATION ABOUT SYMPTOM

Refer to [TM-542, "Diagnostic Work Sheet"](#) and interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred) as much as possible when the customer brings in the vehicle.

>> GO TO 2.

#### 2.CHECK DTC

1. Before checking the malfunction, check whether any DTC exists.
2. If DTC exists, perform the following operations.
  - Records the DTCs. (Print out using CONSULT and affix to the Work Order Sheet.)
  - Erase DTCs.
  - Check the relation between the cause found by DTC and the malfunction information from customer. [TM-659, "Symptom Table"](#) can be used effectively.
3. Check the relevant information including STI, etc.

#### Do malfunction information and DTC exists?

Malfunction information and DTC exists.>>GO TO 3.

Malfunction information exists but no DTC.>>GO TO 4.

No malfunction information, but DTC exists.>>GO TO 5.

#### 3.REPRODUCE MALFUCTION SYSTEM

Check the malfunction described by the customer on the vehicle.

Check if the behavior is fail safe or normal operation. Refer to [TM-522, "Fail-safe"](#).

Interview sheet can be used effectively when reproduce malfunction conditions. Refer to [TM-542, "Diagnostic Work Sheet"](#).

Verify the relationship between the symptom and the conditions in which the malfunction described by the customer occurs.

>> GO TO 5.

#### 4.REPRODUCE MALFUNCTION SYMPTOM

Check the malfunction described by the customer on the vehicle.

Check if the behavior is fail safe or normal operation. Refer to [TM-522, "Fail-safe"](#).

Interview sheet can be used effectively when reproduce malfunction conditions. Refer to [TM-542, "Diagnostic Work Sheet"](#).

Verify the relationship between the symptom and the conditions in which the malfunction described by the customer occurs.

>> GO TO 6.

#### 5.PERFORM "DTC CONFIRMATION PROCEDURE"

Perform "DTC CONFIRMATION PROCEDURE" of the appropriate DTC to check if DTC is detected again.

Refer to [TM-528, "DTC Inspection Priority Chart"](#) when multiple DTCs are detected, and then determine the order for performing the diagnosis.

#### Is any DTC detected?

YES >> GO TO 7.

NO >> Follow [GI-44, "Intermittent Incident"](#) to check.

#### 6.IDENTIFY MALFUNCTIONING SYSTEM WITH "DIAGNOSIS CHART BY SYMPTOM"

# DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[CVT: RE0F10G]

Use [TM-659, "Symptom Table"](#) from the symptom inspection result in step 4. Then identify where to start performing the diagnosis based on possible causes and symptoms.

>> GO TO 8.

## 7. REPAIR OR REPLACE THE MALFUNCTIONING PARTS

Repair or replace the detected malfunctioning parts.

Reconnect parts or connector after repairing or replacing, and then erase DTC if necessary.

>> GO TO 8.

## 8. FINAL CHECK

Perform "DTC CONFIRMATION PROCEDURE" again to make sure that the repair is correctly performed. Check that malfunctions are not reproduced when obtaining the malfunction information from the customer, referring to the symptom inspection result in step 3 or 4.

Is DTC or malfunction symptom reproduced?

YES-1 (DTC is reproduced.)>>GO TO 5.

YES-2 (Malfunction is reproduced.)>>GO TO 6.

NO >> Before delivering the vehicle to the customer, make sure that DTC is erased.

## Diagnostic Work Sheet

INFOID:0000000010622759

### DESCRIPTION

There are many operating conditions that may cause a malfunction of the transmission parts. By understanding those conditions properly, a quick and exact diagnosis can be achieved.

In general, perception of a problem varies depending on individuals. Ask the customer about his/her concerns carefully. It is important to understand the phenomenon or status. To systemize all the information for the diagnosis, prepare the question sheet referring to the question points.

In some cases, multiple conditions that appear simultaneously may cause a DTC to be detected.

### KEY POINTS

**WHAT** ..... Vehicle & engine model  
**WHEN** ..... Date, Frequencies  
**WHERE**..... Road conditions  
**HOW** ..... Operating conditions,  
Weather conditions,  
Symptoms

SEF907L

### Worksheet Sample

| Question sheet          |       |                     |                                                                                                                                                                                                      |                           |      |           |
|-------------------------|-------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------|-----------|
| Customer's name         | MR/MS | Registration number |                                                                                                                                                                                                      | Initial year registration | Year | Month day |
|                         |       | Vehicle type        |                                                                                                                                                                                                      | Chassis No.               |      |           |
| Storage date            | Year  | Month day           | Engine                                                                                                                                                                                               | Mileage                   |      | km/mile   |
| Symptom                 |       |                     | <input type="checkbox"/> Vehicle does not start. ( <input type="checkbox"/> R position <input type="checkbox"/> D position <input type="checkbox"/> Ds position <input type="checkbox"/> M position) |                           |      |           |
|                         |       |                     | <input type="checkbox"/> Upshifting does not occur. <input type="checkbox"/> Downshifting does not occur.                                                                                            |                           |      |           |
|                         |       |                     | <input type="checkbox"/> Lock-up malfunction                                                                                                                                                         |                           |      |           |
|                         |       |                     | <input type="checkbox"/> Shift point is too high. <input type="checkbox"/> Shift point is too low.                                                                                                   |                           |      |           |
|                         |       |                     | <input type="checkbox"/> Shift shock ( <input type="checkbox"/> N⇒D <input type="checkbox"/> Lock-up <input type="checkbox"/> R, D, Ds, and M)                                                       |                           |      |           |
|                         |       |                     | <input type="checkbox"/> Slip ( <input type="checkbox"/> N⇒D <input type="checkbox"/> Lock-up <input type="checkbox"/> R, D, Ds, and M)                                                              |                           |      |           |
|                         |       |                     | <input type="checkbox"/> Noise <input type="checkbox"/> Vibration                                                                                                                                    |                           |      |           |
|                         |       |                     | When selector lever position is shifted, shift pattern does not change.                                                                                                                              |                           |      |           |
|                         |       |                     | <input type="checkbox"/> Other ( )                                                                                                                                                                   |                           |      |           |
| First occurrence        |       |                     | <input type="checkbox"/> Recently (as from month of year )                                                                                                                                           |                           |      |           |
| Frequency of occurrence |       |                     | <input type="checkbox"/> Always <input type="checkbox"/> Under certain conditions <input type="checkbox"/> Sometimes ( time(s)/day)                                                                  |                           |      |           |

# DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[CVT: RE0F10G]

| Question sheet            |       |                                                                                                                                                                                                                                                                                                                                                              |        |                           |         |           |
|---------------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------------------------|---------|-----------|
| Customer's name           | MR/MS | Registration number                                                                                                                                                                                                                                                                                                                                          |        | Initial year registration | Year    | Month day |
|                           |       | Vehicle type                                                                                                                                                                                                                                                                                                                                                 |        | Chassis No.               |         |           |
| Storage date              | Year  | Month day                                                                                                                                                                                                                                                                                                                                                    | Engine |                           | Mileage | km/mile   |
| Climate conditions        |       | Irrelevant                                                                                                                                                                                                                                                                                                                                                   |        |                           |         |           |
|                           |       | <input type="checkbox"/> Clear <input type="checkbox"/> Cloud <input type="checkbox"/> Rain <input type="checkbox"/> Snow <input type="checkbox"/> Others    )                                                                                                                                                                                               |        |                           |         |           |
|                           |       | <input type="checkbox"/> Hot <input type="checkbox"/> Warm <input type="checkbox"/> Cool <input type="checkbox"/> Cold <input type="checkbox"/> Temperature (Approx. °C/°F)                                                                                                                                                                                  |        |                           |         |           |
|                           |       | <input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low                                                                                                                                                                                                                                                                 |        |                           |         |           |
| Transaxle condition       |       | <input type="checkbox"/> In cold-start <input type="checkbox"/> During warm-up (approx. °C/°F) <input type="checkbox"/> After warm-up<br><input type="checkbox"/> Engine speed:    rpm                                                                                                                                                                       |        |                           |         |           |
| Road conditions           |       | <input type="checkbox"/> Urban area <input type="checkbox"/> Suburb area <input type="checkbox"/> Highway<br><input type="checkbox"/> Mountainous road (uphill or downhill)                                                                                                                                                                                  |        |                           |         |           |
| Operating condition, etc. |       | Irrelevant<br><input type="checkbox"/> When engine starts <input type="checkbox"/> During idling <input type="checkbox"/> During driving<br><input type="checkbox"/> During acceleration <input type="checkbox"/> At constant speed driving <input type="checkbox"/> During deceleration<br><input type="checkbox"/> During cornering (RH curve or LH curve) |        |                           |         |           |
| Other conditions          |       |                                                                                                                                                                                                                                                                                                                                                              |        |                           |         |           |

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## ADDITIONAL SERVICE WHEN REPLACING TCM

### Description

INFOID:0000000010622760

Always perform the following items when the TCM is replaced.

#### TCM PROGRAMMING

- Since vehicle specifications are not yet written in a new TCM, it is necessary to write them with CONSULT.

#### **CAUTION:**

**When replacing TCM, save TCM data on CONSULT before removing TCM.**

#### SAVING AND WRITING OF TCM DATA

- TCM performs accurate control by retrieving data (inherent characteristic value) of each solenoid. For this reason, it is necessary to save data of current TCM in CONSULT before replacing the TCM. After this, the saved data must be written in new TCM.

#### CALIBRATION OF G SENSOR

- TCM stores calibration data (inherent characteristic value) of G sensor to provide accurate control. Therefore, it is required to perform calibration of G sensor after the replacement of TCM.

#### BLEEDING OF ELECTRIC OIL PUMP

- If TCM is replaced, air bleeding of the electric oil pump memorized in TCM is reset. The data monitor displays "INCOMP". It is necessary to bleed air to "COMP" the value.

### Work Procedure

INFOID:0000000010622761

#### 1.SAVE TCM DATA (IP CHARACTERISTICS VALUE)

##### **NOTE:**

Save necessary data stored in TCM in CONSULT according to the following instructions:

##### **Ⓔ With CONSULT**

1. Turn ignition switch OFF.
2. Connect all of disconnected connectors.
3. Turn ignition switch ON.
4. Select "Work Support" in "TRANSMISSION".
5. Select "READ IP CHARA - REPLACEMENT TCM".
6. Import data according to the instructions on the CONSULT screen.

>> GO TO 2.

#### 2.SAVE TCM DATA (VEHICLE SPECIFICATIONS)

##### **NOTE:**

Save necessary data stored in TCM in CONSULT according to the following instructions:

##### **Ⓔ With CONSULT**

1. Turn ignition switch OFF.
2. Turn ignition switch ON.
3. Select "Re/programming, Configuration".
4. Select "AT/CVT".

##### **NOTE:**

If "AT/CVT" is not displayed and TCM data cannot be saved on CONSULT, GO TO 3.

5. Select "Programming".
6. Save TCM data on CONSULT according to the CONSULT display.

>> GO TO 3.

#### 3.REPLACE TCM

1. Turn ignition switch OFF and wait for 10 seconds.
2. Replace TCM. Refer to [TM-676, "Removal and Installation"](#).

>> GO TO 4.

## ADDITIONAL SERVICE WHEN REPLACING TCM

< BASIC INSPECTION >

[CVT: RE0F10G]

### 4. WRITE TCM DATA (VEHICLE SPECIFICATIONS)

**NOTE:**

Write data saved in CONSULT into a new TCM according to the following instructions:

 **With CONSULT**

1. Select "Programming".
2. Perform programming according to the CONSULT display.

>> GO TO 5.

### 5. WRITE TCM DATA (IP CHARACTERISTICS VALUE)

**NOTE:**

Write data saved in CONSULT into a new TCM according to the following instructions:

 **With CONSULT**

1. Turn ignition switch OFF and wait for 10 seconds.
2. Turn ignition switch ON.
3. Select "Work Support" in "TRANSMISSION".
4. Select "WRITE IP CHARA - REPLACEMENT TCM".
5. Write data saved in CONSULT in TCM according to the instructions on the CONSULT screen.

>> GO TO 6.

### 6. CALIBRATE G SENSOR

Refer to [TM-551, "Work Procedure"](#).

>> GO TO 7.

### 7. BLEED ELECTRIC OIL PUMP

Refer to [TM-552, "Work Procedure"](#).

>> WORK END

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# ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F10G]

## ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

### Description

INFOID:0000000010622762

Perform the following work after the transaxle assembly is replaced.

#### WRITING TCM DATA

- TCM performs accurate control by retrieving data (inherent characteristic value) of each solenoid. For this reason, after replacing transaxle assembly, it is necessary to write new data in TCM.

#### ERASING OF CVT FLUID DEGRADATION LEVEL DATA

- TCM records the degradation level of the CVT fluid calculated from the vehicle driving status. Therefore, if the transaxle assembly is replaced, it is necessary to erase the CVT fluid degradation level data recorded by TCM.

#### BLEEDING OF ELECTRIC OIL PUMP

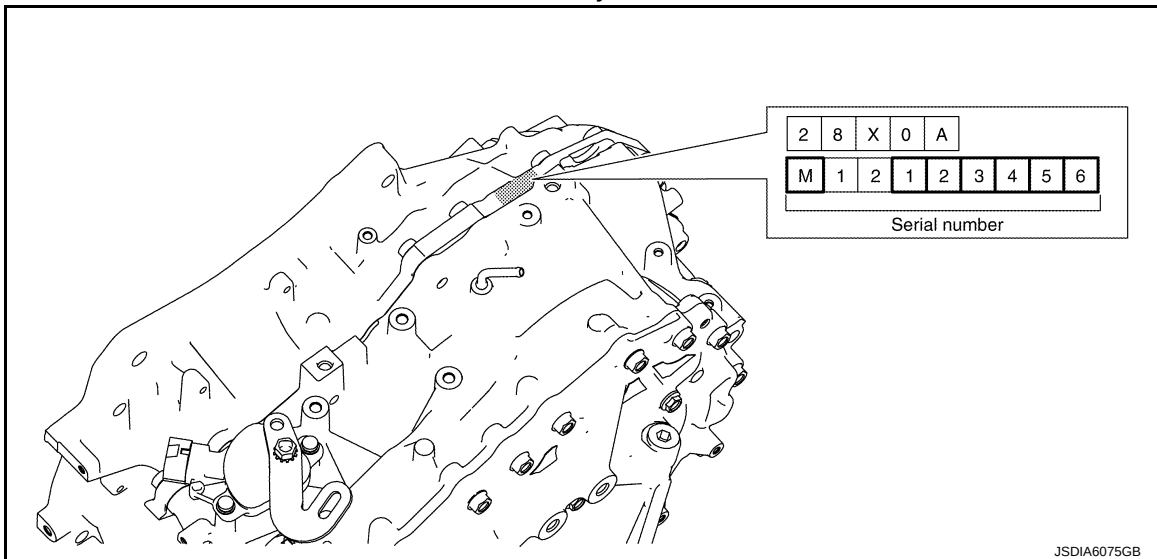
- The electric oil pump suctions oil from the oil pan through the sub-strainer. If air is contained in the sub-strainer, oil pressure cannot be generated and it is necessary to bleed air.

### Work Procedure

INFOID:0000000010622763

#### 1.CHECK THE SERIAL NUMBER

Write down the serial number of new transaxle assembly.



>> GO TO 2.

#### 2.WRITE TCM DATA (IP CHARACTERISTICS VALUE)

##### NOTE:

Write data of new solenoid in TCM according to the following instructions:

With CONSULT

##### CAUTION:

**When the work is interrupted, obtain data again from the supplied CD.**

1. Shift the selector lever to the P position.
2. Turn ignition switch OFF and wait for 10 seconds.
3. Turn ignition switch ON.
4. Insert the supplied CD into CONSULT.
5. Select "Work Support" in "TRANSMISSION".
6. Select "WRITE IP CHARA - REPLACEMENT AT/CVT".
7. Check that the serial number displayed on CONSULT screen and those written in the memo agree.
8. Write data in TCM according to the instructions on the CONSULT screen.

##### NOTE:

When writing is complete, the shift position indicator of the combination meter displays P.

ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F10G]

>> GO TO 3.

3.ERASE CVT FLUID DEGRADATION LEVEL DATA

A

With CONSULT

1. Select "WORK SUPPORT" in "TRANSMISSION".
2. Select "CONFORM CVTF DETERIORTN".
3. Touch "Clear".

B

>> GO TO 4.

C

4.BLEED ELECTRIC OIL PUMP

Refer to [TM-552, "Work Procedure"](#).

TM

>> WORK END

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# ADDITIONAL SERVICE WHEN REPLACING TCM AND TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F10G]

## ADDITIONAL SERVICE WHEN REPLACING TCM AND TRANSAXLE ASSEMBLY

### Description

INFOID:0000000010622764

When replacing TCM and transaxle assembly simultaneously, perform the following work.

#### TCM PROGRAMMING

- Since vehicle specifications are not yet written in a new TCM, it is necessary to write them with CONSULT.

#### **CAUTION:**

**When replacing TCM, save TCM data on CONSULT before removing TCM.**

#### WRITING TCM DATA

- TCM performs accurate control by retrieving data (inherent characteristic value) of each solenoid. For this reason, after replacing TCM and transaxle assembly, it is necessary to write new data in TCM.

#### CALIBRATION OF G SENSOR

- TCM stores calibration data (inherent characteristic value) of G sensor to provide accurate control. Therefore, it is required to perform calibration of G sensor after the replacement of TCM.

#### BLEEDING OF ELECTRIC OIL PUMP

- The electric oil pump suctions oil from the oil pan through the sub-strainer. If air is contained in the sub-strainer, oil pressure cannot be generated and it is necessary to bleed air.

### Work Procedure

INFOID:0000000010622765

## 1. SAVE TCM DATA (VEHICLE SPECIFICATIONS)

### With CONSULT

1. Turn ignition switch OFF.
2. Connect all of disconnected connectors.
3. Turn ignition switch ON.
4. Select "Re/programming, Configuration".
5. Select "AT/CVT".

#### **NOTE:**

If "AT/CVT" is not displayed and TCM data cannot be saved on CONSULT, GO TO 2.

6. Select "Programming".
7. Save TCM data on CONSULT according to the CONSULT display.

>> GO TO 2.

## 2. REPLACE TCM AND TRANSAXLE ASSEMBLY

1. Turn ignition switch OFF and wait for 10 seconds.
2. Replace TCM and transaxle assembly. Refer to [TM-676. "Removal and Installation"](#) (TCM), [TM-704. "Removal and Installation"](#) (Transaxle assembly).

#### **CAUTION:**

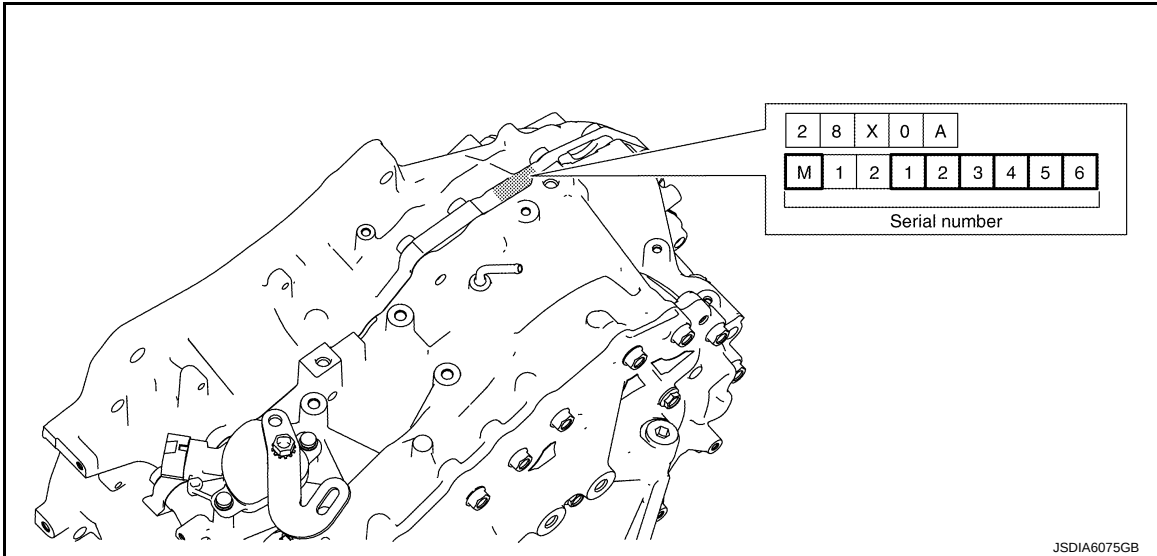


# ADDITIONAL SERVICE WHEN REPLACING TCM AND TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F10G]

Write down the serial number of new transaxle assembly.



>> GO TO 3.

## 3. WRITE TCM DATA (VEHICLE SPECIFICATIONS)

### NOTE:

Write data saved in CONSULT into a new TCM according to the following instructions:

#### With CONSULT

1. Select "Programming".
2. Perform programming according to the CONSULT display.

>> GO TO 4.

## 4. WRITE TCM DATA (IP CHARACTERISTICS VALUE)

### NOTE:

Write data of new solenoid in TCM according to the following instructions:

#### With CONSULT

#### CAUTION:

**When the work is interrupted, obtain data again from the supplied CD.**

1. Shift the selector lever to the P position.
2. Turn ignition switch OFF and wait for 10 seconds.
3. Turn ignition switch ON.
4. Insert the supplied CD into CONSULT.
5. Select "Work Support" in "TRANSMISSION".
6. Select "WRITE IP CHARA - REPLACEMENT AT/CVT".
7. Check that the serial number displayed on CONSULT screen and those written in the memo agree.
8. Write data in TCM according to the instructions on the CONSULT screen.

### NOTE:

When writing is complete, the shift position indicator of the combination meter displays P.

>> GO TO 5.

## 5. CALIBRATE G SENSOR

Refer to [TM-551. "Work Procedure"](#).

>> GO TO 6.

## 6. BLEED ELECTRIC OIL PUMP

Refer to [TM-552. "Work Procedure"](#).

# ADDITIONAL SERVICE WHEN REPLACING TCM AND TRANSAXLE ASSEMBLY

< BASIC INSPECTION >

[CVT: RE0F10G]

---

>> WORK END

## CALIBRATION OF G SENSOR

### Description

INFOID:0000000010623993

TCM stores calibration data (inherent characteristic value) of G sensor to provide accurate control. Therefore, it is required to perform calibration of G sensor after the following work is performed.

- Removal/installation or replacement of G sensor
- Replacement of TCM

### Work Procedure

INFOID:0000000010623994

#### 1. PREPARATION BEFORE CALIBRATION PROCEDURE

1. Park the vehicle on a level surface.
2. Adjust air pressure of all tires to the specified pressure. Refer to [WT-66, "Tire Air Pressure"](#).

>> GO TO 2.

#### 2. CALIBRATE G SENSOR

##### With CONSULT

1. Turn ignition switch ON.
- CAUTION:**  
**Never start engine.**
2. Select "Work Support" in "TRANSMISSION".
3. Select "G SENSOR CALIBRATION".
4. Touch "Start".

**CAUTION:**  
**Never swing the vehicle during "G sensor calibration".**

Is "COMPLETED" displayed?

YES >> GO TO 3.

NO >> Perform steps 1 and 2 again.

#### 3. CHECK DTC

##### With CONSULT

1. Turn ignition switch OFF and wait for 10 seconds.
2. Turn ignition switch ON.
3. Select "Self Diagnostic Results" in "TRANSMISSION".

Is "P1586" or "P1588" detected?

YES >> Go to [TM-529, "DTC Index"](#).

NO >> Calibration end

## BLEEDING ELECTRIC OIL PUMP

## Description

INFOID:000000010623995

The electric oil pump suctions oil from the oil pan through the sub-strainer. If air is contained in the sub-strainer, oil pressure cannot be generated and it is necessary to bleed air.

## Work Procedure

INFOID:000000010623996

## 1. PREPARATION BEFORE WORK

1. Start the engine and warm it up.
2. After warm-up, stop the engine and wait for 60 seconds or more.

&gt;&gt; GO TO 2.

## 2. BLEED ELECTRIC OIL PUMP

 With CONSULT

1. Turn ignition switch ON.
- CAUTION:**  
**Never start the engine.**
2. Shift the selector lever to the P position.
3. Select "WORK SUPPORT" in "TRANSMISSION".
4. Select "ELECTRIC O.P. AIR BLEEDING".
5. Touch "Start".

**CAUTION:****Never start the engine during air bleeding.****NOTE:**

It may take approximately 20 seconds until completion.

Is "COMPLETED" displayed?

YES &gt;&gt; GO TO 3.

NO &gt;&gt; Turn OFF the ignition switch and wait for 10 seconds or more. Then, start the work again.

## 3. CHECK THE COMPLETION OF BLEEDING ELECTRIC OIL PUMP (PART 1)

 With CONSULT

1. Start the engine.
2. Wait for 10 seconds.
3. Turn ignition switch OFF.
4. Wait for 10 seconds.
5. Turn ignition switch ON.
- CAUTION:**  
**Never start the engine.**
6. Select "Data Monitor" in "TRANSMISSION".
7. Select "AIR BLDING STATE".

Is "COMP" displayed?

YES &gt;&gt; GO TO 4.

NO &gt;&gt; Turn OFF the ignition switch and wait for 10 seconds or more. Then, start the work again.

## 4. CHECK THE COMPLETION OF BLEEDING ELECTRIC OIL PUMP (PART 2)

1. Start the engine.
2. Activate stop/start system. Refer to [EC-856, "STOP/START SYSTEM : System Description \(CVT models\)"](#).

Does the stop/start system start?

YES &gt;&gt; WORK END

NO >> Check DTC "P188F". Refer to [TM-529, "DTC Index"](#).

# STALL TEST

< BASIC INSPECTION >

[CVT: RE0F10G]

## STALL TEST

### Work Procedure

INFOID:0000000010622766

### INSPECTION

1. Check the engine oil level. Replenish if necessary. Refer to [LU-38, "Inspection"](#).
2. Check for leak of the CVT fluid. Refer to [TM-663, "Inspection"](#).
3. Drive for about 10 minutes to warm up the vehicle so that the CVT fluid temperature is 50 to 80°C (122 to 176°F).
4. Be sure to apply the parking brake and block the tires.
5. Start the engine, depress the brake pedal and put the selector lever to the D position.
6. While depressing the brake pedal, depress the accelerator pedal gradually.
7. Read the stall speed quickly. Then, release your foot from the accelerator pedal quickly.

#### CAUTION:

**Do not depress the accelerator pedal for 5 seconds or more during the test.**

**Stall speed** : Refer to [TM-710, "Stall Speed"](#).

8. Place the selector lever in the N position.
9. Cool the CVT fluid.
- CAUTION:**  
**Run the engine with the idle speed for at least 1 minute.**
10. Put the selector lever to the R position and perform Step 6 to Step 9 again.

### NARROWING-DOWN MALFUNCTIONING PARTS

|             | Selector lever position |   | Possible cause                                                                    |
|-------------|-------------------------|---|-----------------------------------------------------------------------------------|
|             | D                       | R |                                                                                   |
| Stall speed | H                       | O | • Forward clutch                                                                  |
|             | O                       | H | • Reverse brake                                                                   |
|             | L                       | L | • Engine<br>• Torque converter one way clutch                                     |
|             | H                       | H | • Line pressure is low.<br>• Primary pulley<br>• Secondary pulley<br>• Steel belt |

O: Within the stall speed standard value.

H: Stall speed is higher than the standard value.

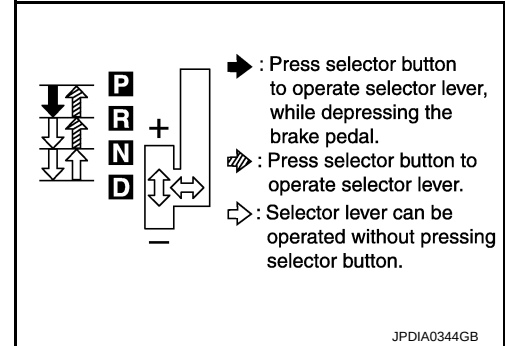
L: Stall speed is lower than the standard value.

## CVT POSITION

## Inspection

INFOID:000000010622767

1. Turn ON the ignition switch with the shift selector at the "P" position.
2. Press the shift selector button with the brake pedal depressed, and confirm that the shift selector can be moved to positions other than "P". Also confirm that movement is not allowed from the "P" position to other position without depressing the brake pedal.
3. Move the shift selector and check for "excessive effort", "sticking", "noise" or "rattle".
4. Confirm that shift selector stops at each position with the feel of engagement when it is moved through all the positions. Check whether or not the actual position the shift selector is in matches the position shown by the transaxle body.
5. Make sure that the shift selector is moved to all the shift positions in the manner shown.
6. When the shift selector button is pressed without applying forward/backward force to the shift selector at "P", "R", "N", or "D" positions, there should be no "sticking" on the shift selector button operation.
7. The relationship between selector lever, engine starting ability, and shift position indicator lighting should satisfy the conditions of the following table.



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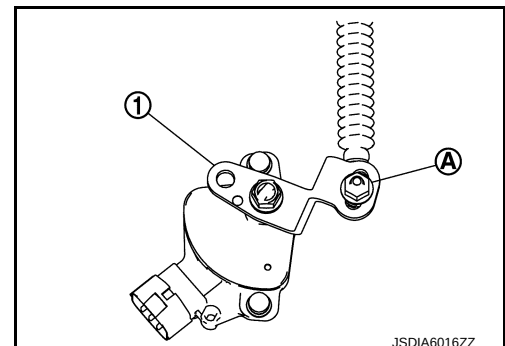
| Selector lever position | Load direction to the selector lever | Applied load to the selector lever | Engine starting ability | Shift position indicator lighting |
|-------------------------|--------------------------------------|------------------------------------|-------------------------|-----------------------------------|
| P                       | P (over stroke) ← P → R              | 30 N (3.1 kg, 6.7 lb)              | Start                   | P indicator shall be illuminated  |
| R                       | P ← R                                |                                    | Not start               | R indicator shall be illuminated  |
| N                       | R ← N                                |                                    | Start                   | N indicator shall be illuminated  |
| D                       | —                                    | —                                  | Not start               | —                                 |

8. Confirm that the back-up lamps illuminate only when lever is placed in the "R" position. Confirm that the back-up lamps does not illuminate when selector lever is pushed against "R" position in the "P" or "N" position.
9. Check that the transaxle is locked when the selector lever is in the "P" position.
10. When selector lever is set to manual shift gate, make sure that manual mode is displayed on combination meter. Shift selector lever to "+" and "-" sides, and check that set shift position changes.

## Adjustment

INFOID:000000010622768

1. Shift the selector lever to the "P" position.  
**CAUTION:**  
Rotate the wheels at least a quarter turn and be certain the Park position mechanism is fully engaged.
2. Loosen nut ① and set manual lever ① to the "P" position.  
**CAUTION:**  
Never apply force to the manual lever.
3. Tighten the nut to the specified torque. Refer to [TM-670](#).  
**CAUTION:**  
In tightening, fix the manual lever.



JSDIA6016ZZ

# U0073 COMMUNICATION BUS A OFF

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## DTC/CIRCUIT DIAGNOSIS

### U0073 COMMUNICATION BUS A OFF

#### DTC Description

INFOID:0000000010622769

#### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)        | DTC detection condition                                                                                                      |
|-------|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| U0073 | COMM BUS A OFF<br>(Control Module Communication Bus A Off) | TCM communication blockage lasts for 2 seconds or more when turning ON the ignition switch. (Communication not established.) |

#### POSSIBLE CAUSE

Harness or connector (CAN communication line is error)

#### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

#### DTC CONFIRMATION PROCEDURE

##### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

##### 2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

##### Is "U0073" detected?

- YES >> Go to [TM-555, "Diagnosis Procedure"](#).
- NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).
- NO-2 >> Confirmation after repair: INSPECTION END

#### Diagnosis Procedure

INFOID:0000000010622770

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

# U0100 LOST COMMUNICATION (ECM A)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## U0100 LOST COMMUNICATION (ECM A)

### DTC Description

INFOID:0000000010622771

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)      | DTC detection condition                                                                                                             |
|-------|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| U0100 | LOST COMM (ECM A)<br>(Lost Communication With ECM/PCM A) | When the ignition switch is ON, TCM is unable to receive the CAN communications signal from ECM continuously for 2 seconds or more. |

### POSSIBLE CAUSE

- ECM
- Harness or connector (CAN communication line is open or shorted)

### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

Is "U0100" detected?

YES >> Go to [TM-556, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622772

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).



# U0102 LOST COMMUNICATION (TRANSFER)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## U0102 LOST COMMUNICATION (TRANSFER)

### DTC Description

INFOID:0000000010622773

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                            | DTC detection condition                                                                                                                          |
|-------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| U0102 | LOST COMM (TRANSFER)<br>(Lost Communication With Transfer Case Control Module) | When the ignition switch is ON, TCM is unable to receive the CAN communications signal from 4WD control unit continuously for 2 seconds or more. |

### POSSIBLE CAUSE

- 4WD control unit
- Harness or connector (CAN communication line is open or shorted)

### FAIL-SAFE

- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

##### Is "U0102" detected?

YES >> Go to [TM-557, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622774

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

## U0140 LOST COMMUNICATION (BCM)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

### U0140 LOST COMMUNICATION (BCM)

#### DTC Description

INFOID:0000000010622775

#### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)              | DTC detection condition                                                                                                             |
|-------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| U0140 | LOST COMM (BCM)<br>(Lost Communication With Body Control Module) | When the ignition switch is ON, TCM is unable to receive the CAN communications signal from BCM continuously for 2 seconds or more. |

#### POSSIBLE CAUSE

- BCM
- Harness or connector (CAN communication line is open or shorted)

#### FAIL-SAFE

- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

#### DTC CONFIRMATION PROCEDURE

##### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

##### 2. PERFORM DTC CONFIRMATION PROCEDURE

###### With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

###### Is "U0140" detected?

YES >> Go to [TM-558, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

#### Diagnosis Procedure

INFOID:0000000010622776

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

# U0141 LOST COMMUNICATION (BCM A)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## U0141 LOST COMMUNICATION (BCM A)

### DTC Description

INFOID:0000000010622777

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                  | DTC detection condition                                                                                                                |
|-------|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| U0141 | LOST COMM (BCM A)<br>(Lost Communication With Body Control Module A) | When the ignition switch is turned ON, TCM continues no reception of the CAN communication signal from IPDM E/R for 2 seconds or more. |

### POSSIBLE CAUSE

- IPDM E/R
- Harness or connector (CAN communication line is open or shorted)

### FAIL-SAFE

- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

##### Is "U0141" detected?

- YES >> Go to [TM-559, "Diagnosis Procedure"](#).
- NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).
- NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622778

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

# U0155 LOST COMMUNICATION (IPC)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## U0155 LOST COMMUNICATION (IPC)

### DTC Description

INFOID:0000000010622779

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>[Trouble diagnosis content]                                           | DTC detection condition                                                                                                                               |
|-------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| U0155 | LOST COMM (IPC)<br>[Lost Communication With Instrument Panel<br>Cluster (IPC) Control Module] | When the ignition switch is ON, TCM is unable to receive the CAN communications signal from the combination meter continuously for 2 seconds or more. |

### POSSIBLE CAUSE

- Combination meter
- Harness or connector (CAN communication line is open or shorted)

### FAIL-SAFE

- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

##### Is "U0155" detected?

YES >> Go to [TM-560, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622780

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

# U0300 CAN COMMUNICATION DATA

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## U0300 CAN COMMUNICATION DATA

### DTC Description

INFOID:0000000010622781

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                 | DTC detection condition                                                                                                                                                 |
|-------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| U0300 | CAN COMM DATA<br>(Internal Control Module Software Incompatibility) | When the ignition switch is ON, the data length transmitted from each control unit is shorter than the specified length and the status continues for 2 seconds or more. |

### POSSIBLE CAUSE

Control unit other than TCM

### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

##### With CONSULT

1. Start the engine and wait for 5 seconds or more.
2. Check the DTC.

Is "U0300" detected?

- YES >> Go to [TM-561, "Diagnosis Procedure"](#).  
NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622782

#### 1. CONTROL UNIT CHECK

Check the number of control units replaced before "U0300" is detected.

Is one control unit replaced?

- YES >> The specification of the control unit replaced may be incorrect. Check the part number and the specification.  
NO >> GO TO 2.

#### 2. CONTROL UNIT CHECK

##### With CONSULT

1. Remove one of the control unit replaced.
2. Assemble the old control unit before replacement.
3. Turn ignition switch ON, and wait for 2 seconds or more.
4. Select "Self Diagnostic Results" in "TRANSMISSION".

Is "U0300" detected?

- YES >> Turn OFF the ignition switch and check other control units in the same manner.

## U0300 CAN COMMUNICATION DATA

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

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NO     >> The specification of the control unit removed may be incorrect. Check the part number and the specification.

## U1000 CAN COMM CIRCUIT

### DTC Description

INFOID:0000000010622783

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent malfunction detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                                                                          |
|-------|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| U1000 | CAN COMM CIRCUIT<br>(CAN Communication Line)        | When the ignition switch is ON, TCM cannot send the CAN communication signal continuously for 2 seconds or more. |

### POSSIBLE CAUSE

- Harness or connector (CAN communication line is open or shorted)

### FAIL-SAFE

- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

##### With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

Is "U1000" detected?

- YES >> Go to [TM-563, "Diagnosis Procedure"](#).  
 NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
 NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622784

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

# U110F LOST COMMUNICATION (ECM)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## U110F LOST COMMUNICATION (ECM)

### DTC Description

INFOID:0000000010622785

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                                                                                             |
|-------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| U110F | LOST COMM (ECM)<br>(Lost Communication With ECM)    | When the ignition switch is ON, TCM is unable to receive the CAN communications signal from ECM continuously for 2 seconds or more. |

### POSSIBLE CAUSE

- ECM
- Harness or connector (CAN communication line is open or shorted)

### FAIL-SAFE

Not changed from normal driving

### DTC CONFIRMATION PROCEDURE

#### 1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2.PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

##### Is "U110F" detected?

- YES >> Go to [TM-564, "Diagnosis Procedure"](#).
- NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).
- NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622786

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).



# U1111 LOST COMMUNICATION (CHASSIS CONTROL MODULE)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## U1111 LOST COMMUNICATION (CHASSIS CONTROL MODULE)

### DTC Description

INFOID:0000000010622787

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                               | DTC detection condition                                                                                                                                |
|-------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| U1111 | LOST COMM (CHASSIS CONT MDUL)<br>(Lost Communication With Chassis Control Module) | When the ignition switch is ON, TCM is unable to receive the CAN communications signal from chassis control module continuously for 2 seconds or more. |

### POSSIBLE CAUSE

- Chassis control module
- Harness or connector (CAN communication line is open or shorted)

### FAIL-SAFE

Not changed from normal driving

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Start the engine and wait for at least 5 seconds.
2. Check the DTC.

##### Is "U1111" detected?

YES >> Go to [TM-565, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622788

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

# U1117 LOST COMMUNICATION (ABS)

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## U1117 LOST COMMUNICATION (ABS)

### DTC Description

INFOID:0000000010622789

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                                                                                                                                       |
|-------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| U1117 | LOST COMM (ABS)<br>(Lost Communication With ABS)    | When the ignition switch is ON, TCM is unable to receive the CAN communications signal from ABS actuator and electric unit (control unit) continuously for 2 seconds or more. |

### POSSIBLE CAUSE

- ABS actuator and electric unit (control unit)
- Harness or connector (CAN communication line is open or shorted)

### FAIL-SAFE

- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Start the engine and wait for 5 seconds or more.
2. Check the DTC.

##### Is "U1117" detected?

- YES >> Go to [TM-566, "Diagnosis Procedure"](#).
- NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).
- NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622790

For the diagnosis procedure, refer to [LAN-17, "Trouble Diagnosis Flow Chart"](#).

## P062F EEPROM

## DTC Description

INFOID:0000000010622791

TCM compares the calculated value stored in the flash ROM with the value stored in TCM. If the calculated value does not agree with the stored value, TCM judges this as a malfunction.

## DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                          |
|-------|-----------------------------------------------------|------------------------------------------------------------------|
| P062F | EEPROM<br>(Internal Control Module EEPROM Error)    | Flash ROM error is detected when turning ON the ignition switch. |

## POSSIBLE CAUSE

- TCM (Flash ROM)
- Harness or connector [TCM power supply (back-up) circuit is open or shorted]

## FAIL-SAFE

- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

## DTC CONFIRMATION PROCEDURE

**1.**PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

&gt;&gt; GO TO 2.

**2.**CHECK DTC DETECTION

1. Start the engine.
2. Check the DTC.

Is "P062F" detected?

- YES >> Go to [TM-567, "Diagnosis Procedure"](#).  
 NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
 NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622792

**1.**REPLACE TCM

Replace the TCM. Refer to [TM-676, "Removal and Installation"](#).

&gt;&gt; WORK END

# P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0705 TRANSMISSION RANGE SENSOR A

### DTC Description

INFOID:0000000010622793

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                       | DTC detection condition                                                                                                                                                                                                                                           |
|-------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0705 | T/M RANGE SENSOR A<br>[Transmission Range Sensor A Circuit (PRNDL Input)] | When all of the following conditions are satisfied and this state is maintained for 2 seconds: <ul style="list-style-type: none"><li>• Two or more range signals simultaneously stay ON continuously</li><li>• TCM power supply voltage: More than 11 V</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Short circuit between transmission range switch and TCM)
- Transmission range switch

### FAIL-SAFE

- Shift position indicator on combination meter is not displayed
- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Turn ignition switch ON.
2. Shift the selector lever through entire positions from "P" to "D". (Hold the selector lever at each position for 5 seconds or more.)
3. Check the first trip DTC.

Is "P0705" detected?

YES >> Go to [TM-568, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622794

#### 1. CHECK TCM INPUT SIGNALS

##### With CONSULT

1. Turn ignition switch ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "D POSITION SW", "N POSITION SW", "R POSITION SW", and "P POSITION SW".
4. Shift the selector lever through entire positions from "P" to "D" and check ON/OFF of each monitor item.

| Monitor item  | Condition                    | Condition |
|---------------|------------------------------|-----------|
| D POSITION SW | Selector lever: "D" position | On        |
|               | Other than the above         | Off       |

# P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

| Monitor item  | Condition                    | Condition |
|---------------|------------------------------|-----------|
| N POSITION SW | Selector lever: "N" position | On        |
|               | Other than the above         | Off       |
| R POSITION SW | Selector lever: "R" position | On        |
|               | Other than the above         | Off       |
| P POSITION SW | Selector lever: "P" position | On        |
|               | Other than the above         | Off       |

## ⊗ Without CONSULT

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Turn ignition switch ON.
4. Shift the selector lever from "P" to "D" and check voltage between TCM harness connector terminals and ground.

| +         |          | –      | Condition                    | Voltage     |
|-----------|----------|--------|------------------------------|-------------|
| TCM       |          |        |                              |             |
| Connector | Terminal |        |                              |             |
| F119      | 4        | Ground | Selector lever: “D” position | 10 – 16 V   |
|           |          |        | Other than the above         | Approx. 0 V |
|           | 5        |        | Selector lever: “N” position | 10 – 16 V   |
|           |          |        | Other than the above         | Approx. 0 V |
|           | 6        |        | Selector lever: “R” position | 10 – 16 V   |
|           |          |        | Other than the above         | Approx. 0 V |
|           | 7        |        | Selector lever: “P” position | 10 – 16 V   |
|           |          |        | Other than the above         | Approx. 0 V |

## Is the inspection result normal?

YES >> INSPECTION END

NO-1 ["D POSITION SW" is "ON" when selector is not in "D" position. (Or connector terminal 4 is at power voltage.)]>>GO TO 2.

NO-2 ["N POSITION SW" is "ON" when selector is not in "N" position. (Or connector terminal 5 is at power voltage.)]>>GO TO 4.

NO-3 ["R POSITION SW" is "ON" when selector is not in "R" position. (Or connector terminal 6 is at power voltage.)]>>GO TO 6.

NO-4 ["P POSITION SW" is "ON" when selector is not in "P" position. (Or connector terminal 7 is at power voltage.)]>>GO TO 8.

## 2.CHECK D POSITION SW CIRCUIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between TCM harness connector terminals.

| TCM       |          |   | Continuity  |
|-----------|----------|---|-------------|
| Connector | Terminal |   |             |
| F119      | 4        | 2 | Not existed |
|           |          | 5 |             |
|           |          | 6 |             |
|           |          | 7 |             |

## Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

## P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

### 3. CHECK D POSITION SW CIRCUIT (PART 2)

1. Disconnect transmission range switch connector.
2. Turn ignition switch ON.
3. Check voltage between TCM harness connector terminal and ground.

| +         |          | -      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| TCM       |          |        |                      |
| Connector | Terminal |        |                      |
| F119      | 4        | Ground | 0 V                  |

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair or replace malfunctioning parts.

### 4. CHECK N POSITION SW CIRCUIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between TCM harness connector terminals.

| TCM       |          |   | Continuity  |
|-----------|----------|---|-------------|
| Connector | Terminal |   |             |
| F119      | 5        | 2 | Not existed |
|           |          | 4 |             |
|           |          | 6 |             |
|           |          | 7 |             |

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning parts.

### 5. CHECK N POSITION SW CIRCUIT (PART 2)

1. Disconnect transmission range switch connector.
2. Turn ignition switch ON.
3. Check voltage between TCM harness connector terminal and ground.

| +         |          | -      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| TCM       |          |        |                      |
| Connector | Terminal |        |                      |
| F119      | 5        | Ground | 0 V                  |

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair or replace malfunctioning parts.

### 6. CHECK P POSITION SW CIRCUIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between TCM harness connector terminals.

# P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

| TCM       |          |   | Continuity  |
|-----------|----------|---|-------------|
| Connector | Terminal |   |             |
| F119      | 7        | 2 | Not existed |
|           |          | 4 |             |
|           |          | 5 |             |
|           |          | 6 |             |

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace malfunctioning parts.

## 7.CHECK P POSITION SW CIRCUIT (PART 2)

1. Disconnect transmission range switch connector.
2. Turn ignition switch ON.
3. Check voltage between TCM harness connector terminal and ground.

| +         |          | -      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| TCM       |          |        |                      |
| Connector | Terminal |        |                      |
| F119      | 7        | Ground | 0 V                  |

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair or replace malfunctioning parts.

## 8.CHECK R POSITION SW CIRCUIT (PART1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between TCM harness connector terminals.

| TCM       |          |   | Continuity  |
|-----------|----------|---|-------------|
| Connector | Terminal |   |             |
| F119      | 6        | 2 | Not existed |
|           |          | 4 |             |
|           |          | 5 |             |
|           |          | 7 |             |

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair or replace malfunctioning parts.

## 9.CHECK R POSITION SW CIRCUIT (PART 2)

1. Disconnect transmission range switch connector.
2. Turn ignition switch ON.
3. Check voltage between TCM harness connector terminal and ground.

| +         |          | −      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| TCM       |          |        |                      |
| Connector | Terminal |        |                      |
| F119      | 6        | Ground | 0 V                  |

Is the inspection result normal?

YES >> GO TO 10.

NO >> Repair or replace malfunctioning parts.

## P0705 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

### 10. CHECK TRANSMISSION RANGE SWITCH

Check transmission range switch. Refer to [TM-572, "Component Inspection"](#).

Is the check result normal?

YES >> INSPECTION END

NO >> Repair or replace malfunctioning parts.

### Component Inspection

INFOID:0000000010622795

#### 1. CHECK TRANSMISSION RANGE SWITCH

Check continuity between transmission range switch connector terminals.

| Transmission range switch<br>Terminal | Condition                           | Continuity  |
|---------------------------------------|-------------------------------------|-------------|
| 1 – 2                                 | Manual lever: "P" and "N" positions | Existed     |
|                                       | Other than the above                | Not existed |
| 3 – 4                                 | Manual lever: "P" position          | Existed     |
|                                       | Other than the above                | Not existed |
| 3 – 5                                 | Manual lever: "R" position          | Existed     |
|                                       | Other than the above                | Not existed |
| 3 – 6                                 | Manual lever: "N" position          | Existed     |
|                                       | Other than the above                | Not existed |
| 3 – 7                                 | Manual lever: "D" position          | Existed     |
|                                       | Other than the above                | Not existed |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of transmission range switch. Replace transaxle assembly. Refer to [TM-681, "Removal and Installation"](#).



# P0706 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0706 TRANSMISSION RANGE SENSOR A

### DTC Description

INFOID:0000000010622796

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                               | DTC detection condition                                                                                                                                                                                                         |
|-------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0706 | T/M RANGE SENSOR A<br>(Transmission Range Sensor A Circuit Range/<br>Performance) | When all of the following conditions are satisfied and this state is maintained for 30 seconds: <ul style="list-style-type: none"><li>• All range signals stay OFF</li><li>• TCM power supply voltage: More than 11 V</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Open circuit between ignition switch and transmission range switch/open circuit between transmission range switch and TCM)
  - Transmission range switch
  - Control cable
- Harness or connector (CAN communication line is error)

### FAIL-SAFE

- Shift position indicator on combination meter is not displayed
- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Shift the selector lever through entire positions from "P" to "D". (Hold the selector lever at each position for 40 seconds or more.)
3. Check the first trip DTC.

Is "P0706" detected?

YES >> Go to [TM-573, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622797

#### 1. ADJUSTMENT OF CONTROL CABLE

Adjust control cable. Refer to [TM-308, "Adjustment"](#).

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

##### With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Results" in "TRANSMISSION".

## P0706 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

3. Touch "Erase".
4. Perform "DTC CONFIRMATION PROCEDURE". Refer to [TM-573, "DTC Description"](#).

Is "P0706" detected?

- YES >> GO TO 3.  
NO >> INSPECTION END

### 3.CHECK POWER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect transmission range switch connector.
3. Turn ignition switch ON.
4. Check voltage between transmission range switch harness connector terminal and ground.

| +                         |          | –      | Voltage   |
|---------------------------|----------|--------|-----------|
| Transmission range switch |          |        |           |
| Connector                 | Terminal |        |           |
| F22                       | 3        | Ground | 10 – 16 V |

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> GO TO 7.

### 4.CHECK CIRCUIT BETWEEN TRANSMISSION RANGE SWITCH AND TCM (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between transmission range switch harness connector terminals and TCM harness connector terminals.

| Transmission range switch |          | TCM       |          | Continuity |
|---------------------------|----------|-----------|----------|------------|
| Connector                 | Terminal | Connector | Terminal |            |
| F22                       | 4        | F119      | 7        | Existed    |
|                           | 5        |           | 6        |            |
|                           | 6        |           | 5        |            |
|                           | 7        |           | 4        |            |

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Repair or replace malfunctioning parts.

### 5.CHECK CIRCUIT BETWEEN TRANSMISSION RANGE SWITCH AND TCM (PART 2)

Check continuity between transmission range switch harness connector terminals and ground.

| Transmission range switch |          | —      | Continuity  |
|---------------------------|----------|--------|-------------|
| Connector                 | Terminal |        |             |
| F22                       | 4        | Ground | Not existed |
|                           | 5        |        |             |
|                           | 6        |        |             |
|                           | 7        |        |             |

Is the inspection result normal?

- YES >> GO TO 6.  
NO >> Repair or replace malfunctioning parts.

### 6.CHECK TRANSMISSION RANGE SWITCH

Check transmission range switch. Refer to [TM-575, "Component Inspection"](#).

Is the inspection result normal?

# P0706 TRANSMISSION RANGE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

- YES >> INSPECTION END  
NO >> Repair or replace malfunctioning parts.

## 7. ETECT MALFUNCTIONING ITEMS

Check the following items:

- Open circuit or short circuit in harness between ignition switch and transmission range switch harness connector terminal 3. Refer to [PG-52, "Wiring Diagram - IGNITION POWER SUPPLY -"](#).
- 10A fuse [No. 57, located in the fuse block (J/B)]. Refer to [PG-84, "Fuse, Connector and Terminal Arrangement"](#).

Is the check result normal?

- YES >> INSPECTION END  
NO >> Repair or replace malfunctioning parts.

## Component Inspection

INFOID:0000000110622798

### 1. CHECK TRANSMISSION RANGE SWITCH

Check continuity between transmission range switch connector terminals.

| Transmission range switch | Condition                           | Continuity  |
|---------------------------|-------------------------------------|-------------|
| Terminal                  |                                     |             |
| 1 – 2                     | Manual lever: "P" and "N" positions | Existed     |
|                           | Other than the above                | Not existed |
| 3 – 4                     | Manual lever: "P" position          | Existed     |
|                           | Other than the above                | Not existed |
| 3 – 5                     | Manual lever: "R" position          | Existed     |
|                           | Other than the above                | Not existed |
| 3 – 6                     | Manual lever: "N" position          | Existed     |
|                           | Other than the above                | Not existed |
| 3 – 7                     | Manual lever: "D" position          | Existed     |
|                           | Other than the above                | Not existed |

Is the inspection result normal?

- YES >> INSPECTION END  
NO >> There is a malfunction of transmission range switch. Replace transaxle assembly. Refer to [TM-704, "Removal and Installation"](#).

# P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A

### DTC Description

INFOID:0000000010622799

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                          | DTC detection condition                                                                                                                                                                                                                                        |
|-------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0712 | FLUID TEMP SENSOR A<br>(Transmission Fluid Temperature Sensor A Circuit Low) | When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• Fluid temperature sensor detection voltage: 0.15 V or less</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (CVT fluid temperature sensor circuit is shorted to ground)
- CVT fluid temperature sensor

### FAIL-SAFE

- Engine coolant temperature when engine start: Temp.  $\geq 10^{\circ}\text{C}$  ( $50^{\circ}\text{F}$ )
  - Start is slow
  - Acceleration is slow
  - Stop/start system prohibited
  - Restart the engine during the stop/start system operation
  - Turn OFF the electric oil pump relay
- Engine coolant temperature when engine start:  $-35^{\circ}\text{C}$  ( $-31^{\circ}\text{F}$ )  $\leq$  Temp.  $< 10^{\circ}\text{C}$  ( $50^{\circ}\text{F}$ )
  - Selector shock is large
  - Start is slow
  - Acceleration is slow
  - Stop/start system prohibited
  - Restart the engine during the stop/start system operation
  - Turn OFF the electric oil pump relay
- Engine coolant temperature when engine start: Temp.  $< -35^{\circ}\text{C}$  ( $-31^{\circ}\text{F}$ )
  - Selector shock is large
  - Start is slow
  - Acceleration is slow
  - Stop/start system prohibited
  - Restart the engine during the stop/start system operation
  - Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine and wait for 10 seconds or more.
2. Check the first trip DTC.

#### Is "P0712" detected?

YES >> Go to [TM-576, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622800

#### 1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.

## P0712 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

3. Check continuity between TCM harness connector terminal and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F119      | 12       | Ground | Not existed |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning part.

### 2.CHECK CVT UNIT TERMINAL CODE ASSEMBLY

Check continuity between CVT unit connector terminal and ground.

| CVT unit  |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F127      | 12       | Ground | Not existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> There is a malfunction of the CVT unit terminal code assembly. Replace the transaxle assembly.

Refer to [TM-704, "Removal and Installation"](#).

### 3.CHECK CVT FLUID TEMPERATURE SENSOR

Check resistance between CVT unit connector terminals.

| CVT unit  |          | Condition                           | Resistance<br>(Approx.) |
|-----------|----------|-------------------------------------|-------------------------|
| Connector | Terminal |                                     |                         |
| F250      | 12 – 18  | CVT fluid temperature: 20°C (68°F)  | 6.5 kΩ                  |
|           |          | CVT fluid temperature: 50°C (122°F) | 2.2 kΩ                  |
|           |          | CVT fluid temperature: 80°C (176°F) | 0.87 kΩ                 |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the CVT fluid temperature sensor. Replace the transaxle assembly.

Refer to [TM-704, "Removal and Installation"](#).

# P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A

### DTC Description

INFOID:000000010622801

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                           | DTC detection condition                                                                                                                                                                                                                                                                                           |
|-------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0713 | FLUID TEMP SENSOR A<br>(Transmission Fluid Temperature Sensor A Circuit High) | When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• Vehicle speed: More than 10 km/h (7 MPH)</li><li>• Fluid temperature sensor detection voltage: 2.48 V or more</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (CVT fluid temperature sensor circuit is open or shorted to power supply)
- CVT fluid temperature sensor

### FAIL-SAFE

- Engine coolant temperature when engine start: Temp.  $\geq 10^{\circ}\text{C}$  ( $50^{\circ}\text{F}$ )
  - Start is slow
  - Acceleration is slow
  - Stop/start system prohibited
  - Restart the engine during the stop/start system operation
  - Turn OFF the electric oil pump relay
- Engine coolant temperature when engine start:  $-35^{\circ}\text{C}$  ( $-31^{\circ}\text{F}$ )  $\leq$  Temp.  $< 10^{\circ}\text{C}$  ( $50^{\circ}\text{F}$ )
  - Selector shock is large
  - Start is slow
  - Acceleration is slow
  - Stop/start system prohibited
  - Restart the engine during the stop/start system operation
  - Turn OFF the electric oil pump relay
- Engine coolant temperature when engine start: Temp.  $< -35^{\circ}\text{C}$  ( $-31^{\circ}\text{F}$ )
  - Selector shock is large
  - Start is slow
  - Acceleration is slow
  - Stop/start system prohibited
  - Restart the engine during the stop/start system operation
  - Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start the engine.
2. Maintain the following condition for 10 seconds or more.

Vehicle speed : 20 km/h (12 MPH) or more

3. Stop the vehicle.
4. Check the first trip DTC.

Is "P0713" detected?

- YES >> Go to [TM-579, "Diagnosis Procedure"](#).
- NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).
- NO-2 >> Confirmation after repair: INSPECTION END

# P0713 TRANSMISSION FLUID TEMPERATURE SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## Diagnosis Procedure

INFOID:000000010622802

### 1.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminals and CVT unit harness connector terminals.

| TCM       |          | CVT unit  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F119      | 11       | F127      | 18       | Existed    |
|           | 12       |           | 12       |            |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace malfunctioning parts.

### 2.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 2)

1. Turn ignition switch ON.
2. Check voltage between TCM harness connector terminal and ground.

| +         |          | -      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| TCM       |          |        |                      |
| Connector | Terminal |        |                      |
| F119      | 12       | Ground | 0 V                  |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

### 3.CHECK CVT FLUID TEMPERATURE SENSOR

1. Turn ignition switch OFF.
2. Check resistance between CVT unit connector terminals.

| CVT unit  |          | Condition                           | Resistance<br>(Approx.) |
|-----------|----------|-------------------------------------|-------------------------|
| Connector | Terminal |                                     |                         |
| F250      | 12 – 18  | CVT fluid temperature: 20°C (68°F)  | 6.5 kΩ                  |
|           |          | CVT fluid temperature: 50°C (122°F) | 2.2 kΩ                  |
|           |          | CVT fluid temperature: 80°C (176°F) | 0.87 kΩ                 |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the CVT fluid temperature sensor. Replace the transaxle assembly.  
Refer to [TM-704, "Removal and Installation"](#).

# P0715 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0715 INPUT SPEED SENSOR A

### DTC Description

INFOID:000000010622803

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)            | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0715 | INPUT SPEED SENSOR A<br>(Input/Turbine Speed Sensor A Circuit) | <p>When 1 is satisfied and any of 2, 3 or 4 is satisfied:</p> <ol style="list-style-type: none"><li>When the following conditions are satisfied:<ul style="list-style-type: none"><li>TCM power supply voltage: More than 11 V</li><li>After range change completion, it spends 2 seconds or more.</li></ul></li><li>When all of the following conditions are satisfied and this state is maintained for 5 seconds:<ul style="list-style-type: none"><li>Primary pulley speed: Less than 150 rpm</li><li>Secondary pulley speed: 500 rpm or more</li></ul></li><li>When all of the following conditions are satisfied and this state is maintained for 0.5 seconds:<ul style="list-style-type: none"><li>10-msec-ago primary pulley speed: 1,000 rpm or more</li><li>Now primary pulley speed: 0 rpm</li></ul></li><li>When all of the following conditions are satisfied and this state is maintained for 5 seconds:<ul style="list-style-type: none"><li>Range: D or L</li><li>Engine speed: 450 rpm or more</li><li>Input speed: 300 rpm or more</li><li>Primary pulley speed: 300 rpm or more</li><li>Secondary pulley speed: 300 rpm or more</li><li>Differences between engine speed and primary pulley speed: More than 1,000 rpm</li><li>Differences between primary pulley speed and input speed: More than 1,000 rpm</li><li>Differences between engine speed and input speed: 1,000 rpm or less</li><li>Lock-up command is being given (except for slip lock-up)</li><li>DTC other than the applicable DTC is not detected.</li></ul></li></ol> |

### POSSIBLE CAUSE

- Harness or connector (Primary speed sensor circuit is open or shorted)
- Primary speed sensor

### FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

**Be careful of the driving speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 10 seconds or more.



# P0715 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

Selector lever : "D" POSITION  
Engine speed : 1,200 rpm or more  
Vehicle speed : 40 km/h (25 MPH) or more

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0715" detected?

YES >> Go to [TM-581, "Diagnosis Procedure"](#).  
NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622804

### 1.CHECK PRIMARY SPEED SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect primary speed sensor connector.
3. Turn ignition switch ON.
4. Check voltage between primary speed sensor harness connector terminal and ground.

| +                    |          | –      | Voltage   |
|----------------------|----------|--------|-----------|
| Primary speed sensor |          |        |           |
| Connector            | Terminal |        |           |
| F55                  | 3        | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 2.  
NO >> GO TO 6.

### 2.CHECK PRIMARY SPEED SENSOR GROUND CIRCUIT

Check continuity between primary speed sensor harness connector terminal and ground.

| Primary speed sensor |          | —      | Continuity |
|----------------------|----------|--------|------------|
| Connector            | Terminal |        |            |
| F55                  | 1        | Ground | Existed    |

Is the inspection result normal?

YES >> GO TO 3.  
NO >> Repair or replace malfunctioning parts.

### 3.CHECK CIRCUIT BETWEEN PRIMARY SPEED SENSOR AND TCM (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between primary speed sensor harness connector terminal and TCM harness connector terminal.

| Primary speed sensor |          | TCM       |          | Continuity |
|----------------------|----------|-----------|----------|------------|
| Connector            | Terminal | Connector | Terminal |            |
| F55                  | 2        | F119      | 35       | Existed    |

Is the inspection result normal?

YES >> GO TO 4.  
NO >> Repair or replace malfunctioning parts.

### 4.CHECK CIRCUIT BETWEEN PRIMARY SPEED SENSOR AND TCM (PART 2)

Check continuity between primary speed sensor harness connector terminal and ground.

## P0715 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

| Primary speed sensor |          | —      | Continuity  |
|----------------------|----------|--------|-------------|
| Connector            | Terminal |        |             |
| F55                  | 2        | Ground | Not existed |

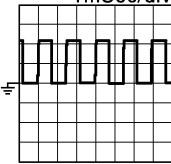
Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning parts.

### 5. CHECK TCM INPUT SIGNALS

1. Connect all of disconnected connectors.
2. Lift the vehicle.
3. Start the engine.
4. Check frequency of primary speed sensor.

| +         |          | —      | Condition                                                                                                                 | Frequency<br>(Approx.)                                                                                                                                              |
|-----------|----------|--------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TCM       |          |        |                                                                                                                           |                                                                                                                                                                     |
| Connector | Terminal |        |                                                                                                                           |                                                                                                                                                                     |
| F119      | 35       | Ground | <ul style="list-style-type: none"><li>• Shift position: "M1" position</li><li>• Vehicle speed: 20 km/h (12 MPH)</li></ul> | <div>700 Hz</div> <div>1mSec/div</div>  <div>5V/div</div> <div>JSDIA1905GB</div> |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace primary speed sensor. Refer to [TM-686, "Removal and Installation"](#).

### 6. DETECT MALFUNCTIONING ITEMS

Check the following items:

- Open circuit or short circuit in harness between ignition switch and primary speed sensor harness connector terminal 3. Refer to [PG-52, "Wiring Diagram - IGNITION POWER SUPPLY -"](#).
- 10A fuse [No. 57, located in the fuse block (J/B)]. Refer to [PG-84, "Fuse, Connector and Terminal Arrangement"](#).

Is the check result normal?

YES >> INSPECTION END

NO >> Repair or replace malfunctioning parts.

# P0717 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0717 INPUT SPEED SENSOR A

### DTC Description

INFOID:000000010622805

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                        | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0717 | INPUT SPEED SENSOR A<br>(Input/Turbine Speed Sensor "A" Circuit No Signal) | <p>When 1 is satisfied and any of 2, 3 or 4 is satisfied:</p> <ol style="list-style-type: none"> <li>When the following conditions are satisfied: <ul style="list-style-type: none"> <li>- TCM power supply voltage: More than 11 V</li> <li>- After range change completion, it spends 2 seconds or more.</li> </ul> </li> <li>When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"> <li>- Primary pulley speed: 500 rpm or more</li> <li>- Input speed: Less than 150 rpm</li> <li>- Range: Other than P, N</li> <li>- P0715 is not detected</li> </ul> </li> <li>When all of the following conditions are satisfied and this state is maintained for 0.5 seconds: <ul style="list-style-type: none"> <li>- 10-msec-ago input speed: 1,000 rpm or more</li> <li>- Now input speed: 0 rpm</li> </ul> </li> <li>When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"> <li>- Range: D or L</li> <li>- Engine speed: 450 rpm or more</li> <li>- Input speed: 300 rpm or more</li> <li>- Primary pulley speed: 300 rpm or more</li> <li>- Secondary pulley speed: 300 rpm or more</li> <li>- Differences between engine speed and primary pulley speed: 1,000 rpm or less</li> <li>- Differences between primary pulley speed and input speed: More than 1,000 rpm</li> <li>- Differences between engine speed and input speed: More than 1,000 rpm</li> <li>- Lock-up command is being given (except for slip lock-up)</li> <li>- DTC other than the applicable DTC is not detected.</li> </ul> </li> </ol> |

### POSSIBLE CAUSE

- Harness or connector (Input speed sensor circuit is open or shorted)
- Input speed sensor

### FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

**Always drive vehicle at a safe speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

#### With CONSULT

1. Start the engine.

# P0717 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

2. Drive the vehicle.
3. Maintain the following conditions for 10 seconds or more.

Selector lever : "D" position  
Engine speed : 1,200 rpm or more  
Vehicle speed : 40 km/h (25 MPH) or more

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0717" detected?

YES >> Go to [TM-584, "Diagnosis Procedure"](#).  
NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622806

### 1.CHECK INPUT SPEED SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect input speed sensor connector.
3. Turn ignition switch ON.
4. Check voltage between input speed sensor harness connector terminal and ground.

| +                  |          | –      | Voltage   |
|--------------------|----------|--------|-----------|
| Input speed sensor |          |        |           |
| Connector          | Terminal |        |           |
| F128               | 3        | Ground | 10 – 16 V |

Is the inspection result normal?

YES >> GO TO 2.  
NO >> GO TO 6.

### 2.CHECK INPUT SPEED SENSOR GROUND CIRCUIT

Check continuity between input speed sensor harness connector terminal and ground.

| Input speed sensor |          | —      | Continuity |
|--------------------|----------|--------|------------|
| Connector          | Terminal |        |            |
| F128               | 1        | Ground | Existed    |

Is the inspection result normal?

YES >> GO TO 3.  
NO >> Repair or replace malfunctioning parts.

### 3.CHECK CIRCUIT BETWEEN INPUT SPEED SENSOR AND TCM (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between input speed sensor harness connector terminal and TCM harness connector terminal.

| Input speed sensor |          | TCM       |          | Continuity |
|--------------------|----------|-----------|----------|------------|
| Connector          | Terminal | Connector | Terminal |            |
| F128               | 2        | F119      | 24       | Existed    |

Is the inspection result normal?

YES >> GO TO 4.  
NO >> Repair or replace malfunctioning parts.

### 4.CHECK CIRCUIT BETWEEN INPUT SPEED SENSOR AND TCM (PART 2)

Check continuity between input speed sensor harness connector terminal and ground.

# P0717 INPUT SPEED SENSOR A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

| Input speed sensor |          | —      | Continuity  |
|--------------------|----------|--------|-------------|
| Connector          | Terminal |        |             |
| F128               | 2        | Ground | Not existed |

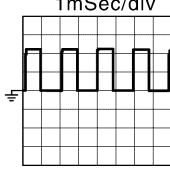
Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning parts.

## 5.CHECK TCM INPUT SIGNALS

1. Connect all of disconnected connectors.
2. Lift the vehicle.
3. Start the engine.
4. Check frequency of input speed sensor.

| +         |          | —      | Condition                                                                                                                 | Frequency<br>(Approx.)                                                                                                                                                         |
|-----------|----------|--------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TCM       |          |        |                                                                                                                           |                                                                                                                                                                                |
| Connector | Terminal |        |                                                                                                                           |                                                                                                                                                                                |
| F119      | 24       | Ground | <ul style="list-style-type: none"><li>• Shift position: “M1” position</li><li>• Vehicle speed: 20 km/h (12 MPH)</li></ul> | <div>880 Hz</div> <div>1mSec/div</div> <div></div> <div>5V/div</div> <div>JSDIA3769GB</div> |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace input speed sensor. Refer to [TM-684, "Removal and Installation"](#).

## 6.ETECT MALFUNCTIONING ITEMS

Check the following items:

- Open circuit or short circuit in harness between ignition switch and input speed sensor harness connector terminal 3. Refer to [PG-52, "Wiring Diagram - IGNITION POWER SUPPLY -"](#).
- 10A fuse [No. 57, located in the fuse block (J/B)]. Refer to [PG-84, "Fuse, Connector and Terminal Arrangement"](#).

Is the check result normal?

YES >> INSPECTION END

NO >> Repair or replace malfunctioning parts.

# P0740 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0740 TORQUE CONVERTER

### DTC Description

INFOID:0000000010622807

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)        | DTC detection condition                                                                                                                                                                                                                                                              |
|-------|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0740 | TORQUE CONVERTER<br>(Torque Converter Clutch Circuit/Open) | When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• P0743 is not detected.</li><li>• TCM judges that solenoid valve circuit is open.</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Torque converter clutch solenoid valve circuit is open or shorted to power supply)
- Torque converter clutch solenoid valve

### FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

**Be careful of the driving speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PREPARATION BEFORE OPERATION

##### With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Confirm that the CVT fluid temperature is in the following range.

FLUID TEMP : 20°C (68°F) or more

##### With GST

1. Start the engine.
2. Set the CVT fluid to 20°C (68°F) or more.

#### NOTE:

When the ambient temperature is 20°C (68°F), the CVT fluid usually increases to 50 to 80°C (122 to 176°F) with driving in an urban area for approximately 10 minutes.

#### Is the CVT fluid 20°C (68°F) or more?

- YES >> GO TO 3.  
NO >> 1. Warm the transaxle.  
2. GO TO 3.

#### 3. CHECK DTC DETECTION

1. Drive the vehicle.
2. Maintain the following conditions for 10 seconds or more.

# P0740 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

Selector lever : "D" position  
Vehicle speed : 40 km/h (25 MPH) or more

3. Stop the vehicle.
4. Check the first trip DTC.

Is "P0740" detected?

YES >> Go to [TM-587, "Diagnosis Procedure"](#).  
NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622808

### 1.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and CVT unit harness connector terminal.

| TCM       |          | CVT unit  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F119      | 38       | F127      | 5        | Existed    |

Is the inspection result normal?

YES >> GO TO 2.  
NO >> Repair or replace malfunctioning parts.

### 2.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE CIRCUIT

Check resistance between CVT unit harness connector terminal and ground.

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 5        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END  
NO >> There is malfunction of torque converter clutch solenoid valve. Replace transaxle assembly. Refer to [TM-704, "Removal and Installation"](#).

# P0743 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0743 TORQUE CONVERTER

### DTC Description

INFOID:000000010622809

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)              | DTC detection condition                                                                                                                                                                                                                                             |
|-------|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0743 | TORQUE CONVERTER<br>(Torque Converter Clutch Circuit Electrical) | When all of the following conditions are satisfied and this state is maintained for 0.48 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• TCM judges that solenoid valve circuit is shorted to ground.</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Torque converter clutch solenoid valve circuit is shorted to ground)
- Torque converter clutch solenoid valve

### FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

**Be careful of the driving speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PREPARATION BEFORE OPERATION

##### With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Confirm that the CVT fluid temperature is in the following range.

FLUID TEMP : 20°C (68°F) or more

##### With GST

1. Start the engine.
2. Set the CVT fluid to 20°C (68°F) or more.

#### NOTE:

When the ambient temperature is 20°C (68°F), the CVT fluid usually increases to 50 to 80°C (122 to 176°F) with driving in an urban area for approximately 10 minutes.

Is the CVT fluid 20°C (68°F) or more?

YES >> GO TO 3.

NO >> 1. Warm the transaxle.  
2. GO TO 3.

#### 3. CHECK DTC DETECTION

1. Drive the vehicle.
2. Maintain the following conditions for 10 seconds or more.



# P0743 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

Selector lever : "D" position  
Vehicle speed : 40 km/h (25 MPH) or more

3. Stop the vehicle.
4. Check the first trip DTC.

Is "P0743" detected?

YES >> Go to [TM-589, "Diagnosis Procedure"](#).  
NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622810

TM

### 1.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F119      | 38       | Ground | Not existed |

Is the inspection result normal?

YES >> GO TO 2.  
NO >> Repair or replace malfunctioning parts.

### 2.CHECK TORQUE CONVERTER CLUTCH SOLENOID VALVE CIRCUIT

Check resistance between CVT unit harness connector terminal and ground.

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 5        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END  
NO >> There is malfunction of torque converter clutch solenoid valve. Replace transaxle assembly. Refer to [TM-704, "Removal and Installation"](#).

## P0744 TORQUE CONVERTER

### DTC Description

INFOID:000000010622811

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                | DTC detection condition                                                                                                                                                                                                                                                                                                                                                             |
|-------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0744 | TORQUE CONVERTER<br>(Torque converter clutch circuit intermittent) | When all of the following conditions are satisfied and this state is maintained for 30 seconds:<br><ul style="list-style-type: none"> <li>• TCM power supply voltage: More than 11 V</li> <li>• P0717 is not detected.</li> <li>• CAN communication is normal</li> <li>• Torque converter slip speed: (40+vehicle speed/2) rpm</li> <li>• LU pressure: More than 0.2 MPa</li> </ul> |

### POSSIBLE CAUSE

- Torque converter clutch solenoid valve
- Control valve assembly
- Torque converter

### FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

**Be careful of the driving speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. PREPARATION BEFORE OPERATION

##### With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Confirm that the CVT fluid temperature is in the following range.

FLUID TEMP : 20°C (68°F) or more

##### With GST

1. Start the engine.
2. Set the CVT fluid to 20°C (68°F) or more.

#### NOTE:

When the ambient temperature is 20°C (68°F), the CVT fluid usually increases to 50 to 80°C (122 to 176°F) with driving in an urban area for approximately 10 minutes.

#### Is the CVT fluid 20°C (68°F) or more?

YES >> GO TO 3.

NO >> 1. Warm the transaxle.  
2. GO TO 3.

#### 3. CHECK DTC DETECTION

1. Drive the vehicle.
2. Maintain the following conditions for 30 seconds or more.

# P0744 TORQUE CONVERTER

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

Selector lever : "D" position  
Accelerator pedal position : 0.5/8 or more  
Vehicle speed : 40 km/h (25 MPH) or more

3. Stop the vehicle.
4. Check the first trip DTC.

Is "P0744" detected?

YES >> Go to [TM-591, "Diagnosis Procedure"](#).  
NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622812

### 1.REPLACE TRANSAXLE ASSEMBLY

Replace transaxle assembly. Refer to [TM-704, "Removal and Installation"](#).

>> WORK END

A  
B  
C  
TM  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

# P0746 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0746 PRESSURE CONTROL SOLENOID A

### DTC Description

INFOID:0000000010622813

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                      | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0746 | PC SOLENOID A<br>(Pressure Control Solenoid A Performance/<br>Stuck Off) | <p>The detecting condition A or detection condition B is detected twice or more (1 second or more later after detection of the first) in the same DC under the following diagnosis conditions:</p> <ul style="list-style-type: none"><li>• Diagnosis conditions<ul style="list-style-type: none"><li>- Engine speed: More than 600 rpm</li><li>- Primary pulley speed: More than 450 rpm</li><li>- Idle is not being detected.</li><li>- Acceleration/deceleration speed: <math>-0.49 \text{ m/s}^2</math> (<math>-0.05 \text{ G}</math>) or more</li><li>- The primary pulley speed experienced 300 rpm or more and the secondary pulley speed experienced 250 rpm or more at least once.</li><li>- Secondary pulley speed: More than 150 rpm</li><li>- TCM power supply voltage: More than 11 V</li></ul></li><li>• Detection condition A<ul style="list-style-type: none"><li>- Status with the shifting ratio of the primary pulley speed/secondary pulley ratio exceeding 2.981 is 0.2 sec. or more continuously.</li></ul></li><li>• Detection condition B<ul style="list-style-type: none"><li>- Status with the shifting ratio of the primary pulley speed/secondary pulley ratio exceeding 3.781 is 0.1 sec. or more continuously.</li></ul></li></ul> |

#### NOTE:

DC stands for "DRIVING CYCLE" and indicates a series of driving cycle of "Ignition switch OFF → ON → driving → OFF".

#### POSSIBLE CAUSE

- Line pressure solenoid valve
- Control valve assembly

#### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

#### DTC CONFIRMATION PROCEDURE

##### CAUTION:

**Be careful of the driving speed.**

### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

### 2. CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 10 seconds or more.

Selector lever : "D" position  
Accelerator pedal position : 0.5/8 or more  
Vehicle speed : 40 km/h (25 MPH) or more

## P0746 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0746"detected?

- YES >> Go to [TM-593, "Diagnosis Procedure"](#).
- NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).
- NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622814

#### 1.REPLACE TRANSAXLE ASSEMBLY

Replace transaxle assembly. Refer to [TM-704, "Removal and Installation"](#).

>> WORK END

A  
B  
C  
TM  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

## P0776 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

### P0776 PRESSURE CONTROL SOLENOID B

#### DTC Description

INFOID:000000010622815

#### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                        | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0776 | PC SOLENOID B<br>(Pressure Control Solenoid "B" Performance/<br>Stuck Off) | <p>When any of 1 or 2 is satisfied and this state is maintained for 10 seconds:</p> <ol style="list-style-type: none"><li>When all of the following conditions are satisfied:<ul style="list-style-type: none"><li>- DTC other than the applicable DTC is not detected.</li><li>- Engine speed: More than 625 rpm</li><li>- Selector lever: Other than P/N position</li><li>- CVT fluid temperature: More than -20°C (-4°F)</li><li>- TCM power supply: More than 11 V</li><li>- The difference between instruction pressure of secondary pressure and 10-msec-ago instruction secondary pressure is 0 MPa or more</li><li>- Instruction pressure of secondary pressure: 0 MPa or more</li><li>- Instruction pressure of secondary pressure - secondary pressure: More than 1.2 MPa</li></ul></li><li>When all of the following conditions are satisfied and this state is maintained for 1.52 seconds:<ul style="list-style-type: none"><li>• DTC other than the applicable DTC is not detected.</li><li>• CVT fluid temperature: More than -20°C (-4°F)</li><li>• Selector lever: Other than P/N position</li><li>• Instruction pressure of secondary pressure – secondary pressure: 0.25 MPa or more</li></ul></li></ol> <ol style="list-style-type: none"><li>When all of the following conditions are satisfied:<ul style="list-style-type: none"><li>- DTC other than the applicable DTC is not detected.</li><li>- CVT fluid temperature: More than -20°C (-4°F)</li><li>- Selector lever: Other than P/N position</li><li>- TCM power supply: More than 11 V</li></ul></li><li>When all of the following conditions are satisfied and this state is maintained for 5.5 seconds:<ul style="list-style-type: none"><li>• DTC other than the applicable DTC is not detected.</li><li>• CVT fluid temperature: More than -20°C (-4°F)</li><li>• Selector lever: Other than P/N position</li><li>• Secondary pressure - instruction pressure of secondary pressure: 1.2 MPa or more</li></ul></li><li>The difference between instruction pressure of secondary pressure and 10-msec-ago instruction secondary pressure is 0 MPa or more</li><li>Secondary pressure - instruction pressure of secondary pressure: More than 1.2 MPa</li></ol> |

#### POSSIBLE CAUSE

Secondary pressure solenoid valve

#### FAIL-SAFE

- When a malfunction occurs on the low oil pressure side
  - Selector shock is large
  - Start is slow
  - Acceleration is slow
  - Lock-up is not performed
  - Vehicle speed is not increased
- When a malfunction occurs on the high oil pressure side
  - Selector shock is large
  - Start is slow
  - Acceleration is slow
  - Lock-up is not performed

#### DTC CONFIRMATION PROCEDURE

##### CAUTION:

Always drive vehicle at a safe speed.

# P0776 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

## 2. CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following condition for 20 seconds or more.

|                            |                            |
|----------------------------|----------------------------|
| Selector lever             | : "D" position             |
| Vehicle speed              | : 40 km/h (25 MPH) or more |
| Accelerator pedal position | : 1.0/8 or more            |

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0776" detected?

|      |                                                                                                          |
|------|----------------------------------------------------------------------------------------------------------|
| YES  | >> Go to <a href="#">TM-595, "Diagnosis Procedure"</a> .                                                 |
| NO-1 | >> To check malfunction symptom before repair: Refer to <a href="#">GI-44, "Intermittent Incident"</a> . |
| NO-2 | >> Confirmation after repair: INSPECTION END                                                             |

## Diagnosis Procedure

INFOID:0000000010622816

## 1. REPLACE TRANSAXLE ASSEMBLY

Replace transaxle assembly. Refer to [TM-704, "Removal and Installation"](#).

>> WORK END

## P0778 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

### P0778 PRESSURE CONTROL SOLENOID B

#### DTC Description

INFOID:0000000010622817

#### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)         | DTC detection condition                                                                                                                                                                                                                                             |
|-------|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0778 | PC SOLENOID B<br>(Pressure Control Solenoid "B" Electrical) | When all of the following conditions are satisfied and this state is maintained for 0.48 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• TCM judges that solenoid valve circuit is shorted to ground.</li></ul> |

#### POSSIBLE CAUSE

- Harness or connector (Secondary pressure solenoid valve circuit is shorted to ground)
- Secondary pressure solenoid valve

#### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

#### DTC CONFIRMATION PROCEDURE

##### CAUTION:

**Always drive vehicle at a safe speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

##### Is "P0778" detected?

YES >> Go to [TM-596, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

#### Diagnosis Procedure

INFOID:0000000010622818

#### 1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F119      | 39       | Ground | Not existed |

##### Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

#### 2. CHECK SECONDARY PRESSURE SOLENOID VALVE CIRCUIT

Check continuity between CVT unit harness connector terminal and ground.



## P0778 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 3        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of secondary pressure solenoid valve. Replace transaxle assembly. Refer to [TM-704, "Removal and Installation"](#).

## P0779 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

### P0779 PRESSURE CONTROL SOLENOID B

#### DTC Description

INFOID:0000000010622819

#### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)         | DTC detection condition                                                                                                                                                                                                                                                                                          |
|-------|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0779 | PC SOLENOID B<br>(Pressure control solenoid B Intermittent) | When all of the following conditions are satisfied and this state is maintained for 0.2 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• P0778 is not detected</li><li>• TCM judges that solenoid valve circuit is open or shorted to power supply.</li></ul> |

#### POSSIBLE CAUSE

- Harness or connector (Secondary pressure solenoid valve circuit open or shorted to power supply)
- Secondary pressure solenoid valve

#### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed

#### DTC CONFIRMATION PROCEDURE

##### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

##### 2. CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 5 seconds or more.

Selector lever : "D" position

Vehicle speed : 40 km/h (25 MPH) or more

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0779" detected?

YES >> Go to [TM-598, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

#### Diagnosis Procedure

INFOID:0000000010622820

##### 1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and CVT unit harness connector terminal.

| TCM       |          | CVT unit  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F119      | 39       | F127      | 3        | Existed    |

Is the inspection result normal?

## P0779 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

YES >> GO TO 2.  
NO >> Repair or replace damaged parts.

### 2.CHECK SECONDARY PRESSURE SOLENOID VALVE CIRCUIT

Check continuity between CVT unit harness connector terminal and ground.

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 3        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END  
NO >> There is malfunction of secondary pressure solenoid valve. Replace transaxle assembly. Refer to [TM-704, "Removal and Installation"](#).

## P0826 UP AND DOWN SHIFT SW

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

### P0826 UP AND DOWN SHIFT SW

#### DTC Description

INFOID:000000010622821

#### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)        | DTC detection condition                                                                                                                              |
|-------|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0826 | UP/DOWN SHIFT SWITCH<br>(Up and Down Shift Switch Circuit) | TCM monitors manual mode, non-manual mode, up or down switch signal, and detects as irregular when impossible input pattern occurs 1 second or more. |

#### POSSIBLE CAUSE

- Harness or connector (Manual mode switch circuit are open or shorted)
- Manual mode switch

#### FAIL-SAFE

Manual mode is not activated

#### DTC CONFIRMATION PROCEDURE

##### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

##### 2. CHECK DTC DETECTION (PART 1)

###### With CONSULT

1. Start the engine.
2. Shift the selector lever to "D" position and wait for 1 second or more.
3. Select "Self Diagnostic Results" in "TRANSMISSION".

###### Is "P0826" detected?

- YES >> Go to [TM-601, "Diagnosis Procedure"](#).  
NO >> GO TO 3.

##### 3. CHECK DTC DETECTION (PART 2)

###### With CONSULT

1. Shift the selector lever to manual shift gate and wait for 1 second or more.
2. Select "Self Diagnostic Results" in "TRANSMISSION".

###### Is "P0826" detected?

- YES >> Go to [TM-601, "Diagnosis Procedure"](#).  
NO >> GO TO 4.

##### 4. CHECK DTC DETECTION (PART 3)

###### With CONSULT

1. Shift the selector lever to "UP side (+ side)" and wait for 1 second or more.
2. Select "Self Diagnostic Results" in "TRANSMISSION".

###### Is "P0826" detected?

- YES >> Go to [TM-601, "Diagnosis Procedure"](#).  
NO >> GO TO 5.

##### 5. CHECK DTC DETECTION (PART 4)

###### With CONSULT

1. Shift the selector lever to "DOWN side (- side)" and wait for 1 second or more.
2. Select "Self Diagnostic Results" in "TRANSMISSION".

###### Is "P0826" detected?

- YES >> Go to [TM-601, "Diagnosis Procedure"](#).

# P0826 UP AND DOWN SHIFT SW

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622822

### 1.CHECK DTC (COMBINATION METER)

#### With CONSULT

1. Turn ignition switch ON.
2. Select "Self Diagnostic Results" in "METER/M&A".

#### Is any DTC detected?

YES >> Check DTC detected item. Refer to [MWI-105, "DTC Index"](#).

NO >> GO TO 2.

### 2.CHECK MANUAL MODE SWITCH POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect CVT shift selector connector.
3. Turn ignition switch ON.
4. Check voltage between CVT shift selector harness connector terminal and ground.

| +                  |          | –      | Condition            | Voltage<br>(Approx.) |
|--------------------|----------|--------|----------------------|----------------------|
| CVT shift selector |          |        |                      |                      |
| Connector          | Terminal |        |                      |                      |
| M52                | 7        | Ground | Ignition switch: ON  | 12 V                 |
|                    |          |        | Ignition switch: OFF | 0 V                  |
|                    | 8        |        | Ignition switch: ON  | 12 V                 |
|                    |          |        | Ignition switch: OFF | 0 V                  |
|                    | 9        |        | Ignition switch: ON  | 12 V                 |
|                    |          |        | Ignition switch: OFF | 0 V                  |
|                    | 11       |        | Ignition switch: ON  | 12 V                 |
|                    |          |        | Ignition switch: OFF | 0 V                  |

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 4.

### 3.CHECK MANUAL MODE SWITCH

1. Turn ignition switch OFF.
2. Check manual mode switch. Refer to [TM-602, "Component Inspection"](#).

#### Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

### 4.CHECK CIRCUIT BETWEEN CVT SHIFT SELECTOR AND COMBINATION METER

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Check continuity between CVT shift selector harness connector terminals and combination meter harness connector terminals.

| CVT shift selector |          | Combination meter |          | Continuity |
|--------------------|----------|-------------------|----------|------------|
| Connector          | Terminal | Connector         | Terminal |            |
| M52                | 7        | M34               | 30       | Existed    |
|                    | 8        |                   | 33       |            |
|                    | 9        |                   | 32       |            |
|                    | 11       |                   | 31       |            |

## P0826 UP AND DOWN SHIFT SW

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

4. Check continuity between CVT shift selector harness connector terminals and ground.

| CVT shift selector |          | —      | Continuity  |
|--------------------|----------|--------|-------------|
| Connector          | Terminal |        |             |
| M52                | 7        | Ground | Not existed |
|                    | 8        |        |             |
|                    | 9        |        |             |
|                    | 11       |        |             |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace damaged parts.

### 5.CHECK GROUND CIRCUIT

Check continuity between CVT shift selector harness connector terminal and ground.

| CVT shift selector |          | —      | Continuity |
|--------------------|----------|--------|------------|
| Connector          | Terminal |        |            |
| M52                | 10       | Ground | Existed    |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace damaged parts.

### Component Inspection

INFOID:0000000010622823

### 1.MANUAL MODE SWITCH

Check continuity between CVT shift selector connector terminals.

| CVT shift selector | Condition                            | Continuity  |
|--------------------|--------------------------------------|-------------|
| Terminal           |                                      |             |
| 7 – 10             | Manual shift gate position (neutral) | Existed     |
|                    | Other than the above                 | Not existed |
| 8 – 10             | Selector lever: DOWN (– side)        | Existed     |
|                    | Other than the above                 | Not existed |
| 9 – 10             | Selector lever: UP (+ side)          | Existed     |
|                    | Other than the above                 | Not existed |
| 10 – 11            | Manual shift gate position           | Not existed |
|                    | Other than the above                 | Existed     |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of manual mode switch. Replace CVT shift selector assembly. Refer to [TM-667, "Removal and Installation"](#).

# P0841 TRANSMISSION FLUID PRESSURE SEN/SW A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0841 TRANSMISSION FLUID PRESSURE SEN/SW A

### DTC Description

INFOID:0000000010622824

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                                                  | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0841 | FLUID PRESS SEN/SW A<br>(Transmission Fluid Pressure Sensor/Switch<br>"A" Circuit Range/Performance) | When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• DTC other than the applicable DTC is not detected.</li><li>• Primary pulley speed: 300 rpm or more</li><li>• Secondary pulley speed: 250 rpm or more</li><li>• Target speed for shifting: Less than 0.1 seconds</li><li>• Primary pulley pressure is outside the specified value.</li><li>• Pulley ratio: 0.5 – 1.0</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Secondary pressure sensor circuit is open or shorted)
- Harness or connector (Primary pressure sensor circuit is open or shorted)
- Secondary pressure sensor

### FAIL-SAFE

- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

**Always drive vehicle at a safe speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following condition for 10 seconds or more.

Selector lever : "D" position

Vehicle speed : Constant speed of 40 km/h (25 MPH)

#### CAUTION:

**Also keep the accelerator pedal position constant.**

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0841" detected?

YES >> Go to [TM-603, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622825

#### 1. REPLACE TRANSAXLE ASSEMBLY

Replace transaxle assembly. Refer to [TM-704, "Removal and Installation"](#).

## **P0841 TRANSMISSION FLUID PRESSURE SEN/SW A**

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

---

>> WORK END



# P0847 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0847 TRANSMISSION FLUID PRESSURE SEN/SW B

### DTC Description

INFOID:000000010622826

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                                  | DTC detection condition                                                                                                                                                                                                                                                                                     |
|-------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0847 | FLUID PRESS SEN/SW B<br>(Transmission Fluid Pressure Sensor/Switch B<br>Circuit Low) | When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"><li>• CVT fluid temperature: More than -20°C (-4°F)</li><li>• TCM power supply voltage: 11 V or more</li><li>• Secondary pressure sensor voltage: 0.09 V or less</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Secondary pressure sensor circuit is open or shorted to ground)
- Secondary pressure sensor
- Control valve assembly

### FAIL-SAFE

- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

##### With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Maintain the following conditions for 10 seconds or more.

FLUID TEMP : -20°C (-4°F)

5. Check the first trip DTC.

##### With GST

1. Start the engine and wait for at least 10 seconds.

##### **CAUTION:**

**When the ambient temperature is less than -20°C (-4°F) and the engine is cold, warm up the engine for approximately 5 minutes.**

2. Check the first trip DTC.

##### Is "P0847" detected?

YES >> Go to [TM-605, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:000000010622827

#### 1. CHECK TCM INPUT SIGNALS

1. Turn ignition switch OFF.
2. Start the engine.
3. Check voltage between TCM harness connector terminals.

## P0847 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

| +         |          | –      | Condition                                                                                                                       | Voltage       |
|-----------|----------|--------|---------------------------------------------------------------------------------------------------------------------------------|---------------|
| TCM       |          |        |                                                                                                                                 |               |
| Connector | Terminal |        |                                                                                                                                 |               |
| F119      | 16       | Ground | <ul style="list-style-type: none"><li>• After engine warm up</li><li>• Selector lever: “N” position</li><li>• At idle</li></ul> | 1.65 – 1.75 V |

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

### 2. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminals and CVT unit harness connector terminals.

| TCM       |          | CVT unit  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F119      | 11       | F127      | 18       | Existed    |
|           | 16       |           | 14       |            |
|           | 26       |           | 22       |            |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

### 3. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 2)

Check continuity between TCM harness connector terminals and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F119      | 16       | Ground | Not existed |
|           | 26       |        |             |

Is the inspection result normal?

YES >> There is malfunction of secondary pressure sensor. Replace transaxle assembly. Refer to [TM-704, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

# P0848 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0848 TRANSMISSION FLUID PRESSURE SEN/SW B

### DTC Description

INFOID:000000010622828

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                                  | DTC detection condition                                                                                                                                                                                                                                                                                                                                                |
|-------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0848 | FLUID PRESS SEN/SW B<br>(Transmission Fluid Pressure Sensor/Switch B<br>Circuit Low) | When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"><li>• CVT fluid temperature: More than -20°C (-4°F)</li><li>• TCM power supply voltage: More than 11 V</li><li>• Instruction secondary pressure: 5.7 MPa or less</li><li>• Secondary pressure sensor voltage: 4.7 V or more</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Secondary pressure sensor circuit is shorted to power supply)
- Secondary pressure sensor
- Control valve assembly

### FAIL-SAFE

- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, the ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

##### With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Maintain the following conditions for 10 seconds or more.

FLUID TEMP : More than -20°C (-4°F)

5. Check the first trip DTC.

##### With GST

1. Start the engine and wait for at least 10 seconds.

##### **CAUTION:**

**When the ambient temperature is less than -20°C (-4°F) and the engine is cold, warm up the engine for approximately 5 minutes.**

2. Check the first trip DTC.

##### Is "P0848" detected?

YES >> Go to [TM-607, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:000000010622829

#### 1. CHECK TCM INPUT SIGNALS

1. Turn ignition switch OFF.
2. Start the engine.
3. Check voltage between TCM harness connector terminals.

## P0848 TRANSMISSION FLUID PRESSURE SEN/SW B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

| +         |          | –      | Condition                                                                                                                       | Voltage       |
|-----------|----------|--------|---------------------------------------------------------------------------------------------------------------------------------|---------------|
| TCM       |          |        |                                                                                                                                 |               |
| Connector | Terminal |        |                                                                                                                                 |               |
| F119      | 16       | Ground | <ul style="list-style-type: none"><li>• After engine warm up</li><li>• Selector lever: “N” position</li><li>• At idle</li></ul> | 1.65 – 1.75 V |

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

### 2.CHECK SECONDARY PRESSURE SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Connect TCM connector.
3. Disconnect CVT unit connector.
4. Check voltage between CVT unit harness connector terminal and ground.

| +         |          | -      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| CVT unit  |          |        |                      |
| Connector | Terminal |        |                      |
| F127      | 22       | Ground | 5.0 V                |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

### 3.CHECK SECONDARY PRESSURE SENSOR SIGNAL CIRCUIT

Check voltage between CVT unit harness connector terminal and ground.

| +         |          | -      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| CVT unit  |          |        |                      |
| Connector | Terminal |        |                      |
| F127      | 14       | Ground | 0 V                  |

Is the inspection result normal?

YES >> There is malfunction of secondary pressure sensor. Replace transaxle assembly. Refer to [TM-704, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

# P084C TRANSMISSION FLUID PRESSURE SEN/SW H

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P084C TRANSMISSION FLUID PRESSURE SEN/SW H

### DTC Description

INFOID:0000000010622830

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                               | DTC detection condition                                                                                                                                                                                                                                                                                     |
|-------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P084C | FLUID PRESS SEN/SW H<br>(Transmission Fluid Pressure Sensor/Switch H Circuit Low) | When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"><li>• CVT fluid temperature: More than -20°C (-4°F)</li><li>• TCM power supply voltage: More than 11 V</li><li>• Primary pressure sensor voltage: 0.09 V or less</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Primary pressure sensor circuit is open or shorted to ground)
- Primary pressure sensor
- Control valve assembly

### FAIL-SAFE

Not changed from normal driving

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

##### With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Maintain the following conditions for 10 seconds or more.

FLUID TEMP : More than -20°C (-4°F)

5. Check the first trip DTC.

##### With GST

1. Start the engine and wait for at least 10 seconds.

##### **CAUTION:**

**When the ambient temperature is less than -20°C (-4°F) and the engine is cold, warm up the engine for approximately 5 minutes.**

2. Check the first trip DTC.

##### Is "P084C" detected?

YES >> Go to [TM-609, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622831

#### 1. CHECK TCM INPUT SIGNALS

1. Turn ignition switch OFF.
2. Start the engine.
3. Check voltage between TCM harness connector terminals.

## P084C TRANSMISSION FLUID PRESSURE SEN/SW H

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

| +         |          | –      | Condition                                                                                                                       | Voltage       |
|-----------|----------|--------|---------------------------------------------------------------------------------------------------------------------------------|---------------|
| TCM       |          |        |                                                                                                                                 |               |
| Connector | Terminal |        |                                                                                                                                 |               |
| F119      | 17       | Ground | <ul style="list-style-type: none"><li>• After engine warm up</li><li>• Selector lever: “N” position</li><li>• At idle</li></ul> | 1.25 – 1.35 V |

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

### 2. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminals and CVT unit harness connector terminals.

| TCM       |          | CVT unit  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F119      | 11       | F127      | 18       | Existed    |
|           | 17       |           | 13       |            |
|           | 26       |           | 22       |            |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

### 3. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT (PART 2)

Check continuity between TCM harness connector terminals and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F119      | 17       | Ground | Not existed |
|           | 26       |        |             |

Is the inspection result normal?

YES >> There is malfunction of primary pressure sensor. Replace transaxle assembly. Refer to [TM-704](#), "[Removal and Installation](#)".

NO >> Repair or replace malfunctioning parts.

# P084D TRANSMISSION FLUID PRESSURE SEN/SW H

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P084D TRANSMISSION FLUID PRESSURE SEN/SW H

### DTC Description

INFOID:0000000010622832

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                                     | DTC detection condition                                                                                                                                                                                                                                                                                                                                          |
|-------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P084D | FLUID PRESS SEN/SW H<br>(Transmission Fluid Pressure Sensor/Switch<br>"H" Circuit High) | When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"><li>• CVT fluid temperature: More than <math>-20^{\circ}\text{C}</math> (<math>-4^{\circ}\text{F}</math>)</li><li>• TCM power supply voltage: More than 11 V</li><li>• Primary pressure sensor voltage: 4.7 V or more</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Primary pressure sensor circuit is open or shorted to ground)
- Primary pressure sensor
- Control valve assembly

### FAIL-SAFE

Not changed from normal driving

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

##### With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "FLUID TEMP".
4. Maintain the following conditions for 10 seconds or more.

FLUID TEMP : More than  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ )

5. Check the first trip DTC.

##### With GST

1. Start the engine and wait for at least 10 seconds.

##### **CAUTION:**

**When the ambient temperature is less than  $-20^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$ ) and the engine is cold, warm up the engine for approximately 5 minutes.**

2. Check the first trip DTC.

##### Is "P084D" detected?

YES >> Go to [TM-611, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622833

#### 1. CHECK TCM INPUT SIGNALS

1. Turn ignition switch OFF.
2. Start the engine.
3. Check voltage between TCM harness connector terminals.

# P084D TRANSMISSION FLUID PRESSURE SEN/SW H

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

| +         |          | –      | Condition                                                                                                                       | Voltage       |
|-----------|----------|--------|---------------------------------------------------------------------------------------------------------------------------------|---------------|
| TCM       |          |        |                                                                                                                                 |               |
| Connector | Terminal |        |                                                                                                                                 |               |
| F119      | 17       | Ground | <ul style="list-style-type: none"><li>• After engine warm up</li><li>• Selector lever: “N” position</li><li>• At idle</li></ul> | 1.25 – 1.35 V |

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

## 2. CHECK PRIMARY PRESSURE SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Connect TCM connector.
3. Disconnect CVT unit connector.
4. Check voltage between CVT unit harness connector terminal and ground.

| +         |          | -      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| CVT unit  |          |        |                      |
| Connector | Terminal |        |                      |
| F127      | 22       | Ground | 5.0 V                |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning parts.

## 3. CHECK PRIMARY PRESSURE SENSOR SIGNAL CIRCUIT

Check voltage between CVT unit harness connector terminal and ground.

| +         |          | -      | Voltage<br>(Approx.) |
|-----------|----------|--------|----------------------|
| CVT unit  |          |        |                      |
| Connector | Terminal |        |                      |
| F127      | 13       | Ground | 0 V                  |

Is the inspection result normal?

YES >> There is malfunction of primary pressure sensor. Replace transaxle assembly. Refer to [TM-704](#),  
"Removal and Installation".

NO >> Repair or replace malfunctioning parts.



# P0863 TCM COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0863 TCM COMMUNICATION

### DTC Description

INFOID:000000010622834

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                   |
|-------|-----------------------------------------------------|-----------------------------------------------------------|
| P0863 | CONTROL UNIT (CAN)<br>(TCM Communication Circuit)   | An error is detected at the initial CAN diagnosis of TCM. |

### POSSIBLE CAUSE

TCM

### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Start the engine.
2. Check the DTC.

Is "P0863" detected?

- YES >> Go to [TM-613, "Diagnosis Procedure"](#).  
NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:000000010622835

#### 1. REPLACE TCM

Replace TCM. Refer to [TM-676, "Removal and Installation"](#).

>> WORK END

## P0890 TCM

## DTC Description

INFOID:0000000010622836

## DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                   | DTC detection condition                                                                                                                                                                                                                      |
|-------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0890 | TCM<br>(Transmission Control Module Power Relay<br>Sense Circuit Low) | When all of the following conditions are satisfied and this state is maintained for 0.2 seconds:<br><ul style="list-style-type: none"> <li>• TCM power supply voltage: More than 11 V</li> <li>• Battery voltage: Less than 8.4 V</li> </ul> |

## POSSIBLE CAUSE

- Harness or connector [TCM power supply (back-up) circuit is open or shorted]
- TCM

## FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Vehicle speed is not increased
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

## DTC CONFIRMATION PROCEDURE

## 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

## 2. CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the DTC.

## Is "P0890" detected?

YES >> Go to [TM-614, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622837

## 1. CHECK TCM POWER SUPPLY (BACK-UP) CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check voltage between TCM harness connector terminals and ground.

| +         |          | –      | Voltage   |
|-----------|----------|--------|-----------|
| TCM       |          |        |           |
| Connector | Terminal |        |           |
| F119      | 45       | Ground | 10 – 16 V |
|           | 46       |        |           |

## Is the inspection result normal?

YES >> Replace TCM. Refer to [TM-676, "Removal and Installation"](#).

NO     >> GO TO 2.

2.DETECT MALFUNCTIONING ITEMS

Check the following items:

- Open circuit or short circuit in harness between battery positive terminal and TCM connector terminals 45, and 46. Refer to [PG-12, "Wiring Diagram - BATTERY POWER SUPPLY -"](#).
- 10A fuse [No.75, located in the fuse block (J/B)]. Refer to [PG-84, "Fuse, Connector and Terminal Arrangement"](#).

Is the inspection result normal?

YES    >> INSPECTION END

NO     >> Repair or replace malfunctioning parts.

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# P0962 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0962 PRESSURE CONTROL SOLENOID A

### DTC Description

INFOID:0000000010622838

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                | DTC detection condition                                                                                                                                                                                                                                            |
|-------|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0962 | PC SOLENOID A<br>(Pressure Control Solenoid A Control Circuit Low) | When all of the following conditions are satisfied and this state is maintained for 0.2 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• TCM judges that solenoid valve circuit is shorted to ground.</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Line pressure solenoid valve circuit is shorted to ground)
- Line pressure solenoid valve

### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P0962" detected?

YES >> Go to [TM-616, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622839

#### 1.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F119      | 30       | Ground | Not existed |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

#### 2.CHECK LINE PRESSURE SOLENOID VALVE CIRCUIT

Check continuity between CVT unit harness connector terminal and ground.

## P0962 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 1        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of line pressure solenoid valve. Replace transaxle assembly. Refer to [TM-704, "Removal and Installation"](#).

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# P0963 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0963 PRESSURE CONTROL SOLENOID A

### DTC Description

INFOID:000000010622840

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                 | DTC detection condition                                                                                                                                                                                                                                                               |
|-------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0963 | PC SOLENOID A<br>(Pressure Control Solenoid A Control Circuit High) | When all of the following conditions are satisfied and this state is maintained for 0.2 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• P0962 is not detected</li><li>• TCM judges that solenoid valve circuit is open.</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Line pressure solenoid valve circuit is open or shorted to power supply)
- Line pressure solenoid valve

### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P0963" detected?

YES >> Go to [TM-618, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:000000010622841

#### 1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and CVT unit harness connector terminal.

| TCM       |          | CVT unit  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F119      | 30       | F127      | 1        | Existed    |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

#### 2. CHECK LINE PRESSURE SOLENOID VALVE CIRCUIT

## P0963 PRESSURE CONTROL SOLENOID A

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

Check continuity between CVT unit harness connector terminal and ground.

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 1        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of line pressure solenoid valve. Replace transaxle assembly. Refer to [TM-704. "Removal and Installation"](#).

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# P0965 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0965 PRESSURE CONTROL SOLENOID B

### DTC Description

INFOID:000000010622842

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                                 | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0965 | PC SOLENOID B<br>(Pressure Control Solenoid B Control Circuit<br>Range Performance) | <p>When any of 1 or 2 is satisfied and this state is maintained for 10 seconds:</p> <ol style="list-style-type: none"><li>When all of the following conditions are satisfied:<ul style="list-style-type: none"><li>- DTC other than the applicable DTC is not detected.</li><li>- Engine speed: More than 625 rpm</li><li>- Selector lever: Other than P/N position</li><li>- CVT fluid temperature: More than -20°C (-4°F)</li><li>- TCM power supply: More than 11 V</li><li>- The difference between instruction pressure of primary pressure and 10-msec-ago instruction primary pressure is 0 MPa or more</li><li>- Instruction pressure of primary pressure: 0.86 MPa or more</li><li>- Instruction pressure of primary pressure - primary pressure: More than 1.2 MPa</li></ul></li><li>When all of the following conditions are satisfied and this state is maintained for 1 second:<ul style="list-style-type: none"><li>• DTC other than the applicable DTC is not detected.</li><li>• CVT fluid temperature: More than -20°C (-4°F)</li><li>• Selector lever: Other than P/N position</li><li>• Engine speed: More than 625 rpm</li><li>• Instruction pressure of primary pressure: More than 2 MPa</li><li>• Primary pressure: 0.4 MPa or less</li></ul></li></ol> <p>2. When all of the following conditions are satisfied:</p> <ul style="list-style-type: none"><li>- DTC other than the applicable DTC is not detected.</li><li>- CVT fluid temperature: More than -20°C (-4°F)</li><li>- Selector lever: Other than P/N position</li><li>- TCM power supply: More than 11 V</li><li>- When all of the following conditions are satisfied and this state is maintained for 5.5 seconds:<ul style="list-style-type: none"><li>• DTC other than the applicable DTC is not detected.</li><li>• CVT fluid temperature: More than -20°C (-4°F)</li><li>• Selector lever: Other than P/N position</li><li>• Primary pressure - instruction pressure of primary pressure: 1.2 MPa or more</li></ul></li><li>- The difference between instruction pressure of primary pressure and 10-msec-ago instruction primary pressure is 0 MPa or more</li><li>- Primary pressure - instruction pressure of primary pressure: More than 1.2 MPa</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Primary pressure solenoid valve circuit is open or shorted)
- Primary pressure solenoid valve

### FAIL-SAFE

- When a malfunction occurs on the low oil pressure side
  - Selector shock is large
  - Start is slow
  - Acceleration is slow
  - Lock-up is not performed
  - Stop/start system prohibited
  - Restart the engine during the stop/start system operation
  - Turn OFF the electric oil pump relay
- When a malfunction occurs on the high oil pressure side
  - Selector shock is large
  - Lock-up is not performed
  - Stop/start system prohibited
  - Restart the engine during the stop/start system operation



# P0965 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

- Turn OFF the electric oil pump relay

## DTC CONFIRMATION PROCEDURE

### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

### 2. CHECK DTC DETECTION

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 20 seconds or more.

Vehicle speed : 40 km/h (25 MPH) or more

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P0965" detected?

YES >> Go to [TM-621, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622843

### 1. REPLACE TRANSAXLE ASSEMBLY

Replace transaxle assembly. Refer to [TM-704, "Removal and Installation"](#).

>> WORK END

# P0966 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0966 PRESSURE CONTROL SOLENOID B

### DTC Description

INFOID:0000000010622844

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                | DTC detection condition                                                                                                                                                                                                                                             |
|-------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0966 | PC SOLENOID B<br>(Pressure Control Solenoid B Control Circuit Low) | When all of the following conditions are satisfied and this state is maintained for 0.48 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• TCM judges that solenoid valve circuit is shorted to ground.</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Primary pressure solenoid valve circuit shorted to ground)
- Primary pressure solenoid valve

### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P0966" detected?

YES >> Go to [TM-622, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622845

#### 1.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F119      | 40       | Ground | Not existed |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

#### 2.CHECK PRIMARY PRESSURE SOLENOID VALVE CIRCUIT

Check continuity between CVT unit harness connector terminal and ground.

## P0966 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 2        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of primary pressure solenoid valve. Replace transaxle assembly. Refer to [TM-704, "Removal and Installation"](#).

# P0967 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P0967 PRESSURE CONTROL SOLENOID B

### DTC Description

INFOID:0000000010622846

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)                 | DTC detection condition                                                                                                                                                                                                                                                               |
|-------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P0967 | PC SOLENOID B<br>(Pressure Control Solenoid B Control Circuit High) | When all of the following conditions are satisfied and this state is maintained for 0.2 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• P0966 is not detected</li><li>• TCM judges that solenoid valve circuit is open.</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Primary pressure solenoid valve circuit open or shorted to power supply)
- Primary pressure solenoid valve

### FAIL-SAFE

- Selector shock is large
- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Start the engine and wait for 5 seconds or more.
2. Check the first trip DTC.

Is "P0967" detected?

YES >> Go to [TM-624, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622847

#### 1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and CVT unit harness connector terminal.

| TCM       |          | CVT unit  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F119      | 40       | F127      | 2        | Existed    |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

#### 2. CHECK PRIMARY PRESSURE SOLENOID VALVE CIRCUIT

## P0967 PRESSURE CONTROL SOLENOID B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

Check continuity between CVT unit harness connector terminal and ground.

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 2        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of primary pressure solenoid valve. Replace transaxle assembly. Refer to [TM-704, "Removal and Installation"](#).

A

B

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## P1586 G SENSOR

### DTC Description

INFOID:0000000010646390

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P1586 | G SENSOR<br>(G Sensor Circuit Electrical)           | When 1 or 2 is satisfied and maintained for 5 seconds or more, and this state is satisfied two times within the same DC:<br>1. When all of the following conditions are satisfied:<br>- G sensor detection voltage: 0.675 V or less<br>- TCM power supply voltage: More than 11 V<br>2. When all of the following conditions are satisfied:<br>- G sensor detection voltage: 3.13 V or more<br>- TCM power supply voltage: More than 11 V |

#### NOTE:

DC stands for "DRIVING CYCLE" and indicates a series of driving cycle of "Ignition switch OFF → ON → driving → OFF".

#### POSSIBLE CAUSE

- Harness or connector (G sensor circuit)
- G sensor

#### FAIL-SAFE

- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

#### DTC CONFIRMATION PROCEDURE

##### CAUTION:

**Be careful of the driving speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

##### ④ With CONSULT

1. Start the engine.
2. Drive the vehicle for 5 seconds or more.
3. Stop the vehicle.

##### CAUTION:

**Never stop the engine.**

4. Repeat step 2 through 3.
5. Check the DTC.

##### "P1586" detected?

YES >> Go to [TM-626, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010646391

#### 1. CHECK G SENSOR SIGNAL

##### ④ With CONSULT

1. Park the vehicle on a level surface.
2. Turn ignition switch ON.
3. Select "Data Monitor" in "TRANSMISSION"

# P1586 G SENSOR

## < DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

4. Select "G SEN SLOPE".
5. Swing the vehicle and check if value varies between -40.45% and 40.45%.

| Monitor item | Condition | Standard                         |
|--------------|-----------|----------------------------------|
| G SEN SLOPE  | Flat road | 0%                               |
|              | Uphill    | Positive value (Maximum 40.45%)  |
|              | Downhill  | Negative value (Minimum -40.45%) |

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 3.

## 2.G SENSOR CALIBRATION (PART 1)

Ⓜ With CONSULT

1. Select "Self Diagnostic Results" in "TRANSMISSION".
2. Touch "Erase".

>> Perform "G SENSOR CALIBRATION". Refer to [TM-551. "Work Procedure"](#).

## 3.CHECK SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect G sensor connector.
3. Turn ignition switch ON.
4. Check voltage between G sensor harness connector terminal and ground.

| +         |          | —      | Voltage (Approx.) |
|-----------|----------|--------|-------------------|
| G sensor  |          |        |                   |
| Connector | Terminal |        |                   |
| M130      | 3        | Ground | 5.0 V             |

Is the inspection result normal?

YES >> GO TO 4.

NO >> GO TO 8.

## 4.CHECK CIRCUIT BETWEEN TCM AND G SENSOR (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between TCM harness connector terminals and G sensor harness connector terminals.

| TCM       |          | G sensor  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F119      | 11       | M130      | 2        | Existed    |
|           | 14       |           | 1        |            |

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning parts.

## 5.CHECK CIRCUIT BETWEEN TCM AND G SENSOR (PART 2)

Check continuity between TCM harness connector terminals and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F119      | 11       | Ground | Not existed |
|           | 14       |        |             |

# P1586 G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

Is the inspection result normal?

YES >> GO TO 6.

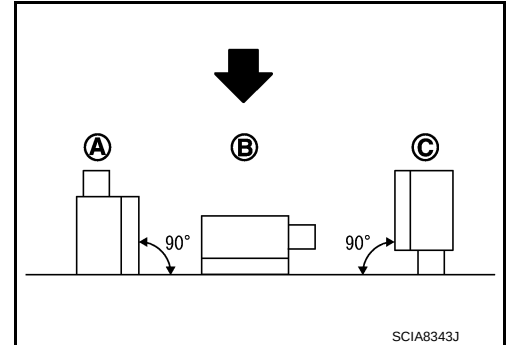
NO >> Repair or replace malfunctioning parts.

## 6.CHECK G SENSOR

1. Remove G sensor. Refer to [TM-678. "Removal and Installation"](#).
2. Connect the all connectors.
3. Turn ignition switch ON.
4. Check voltage between TCM harness connector terminal and ground.

← : Direction of gravitational force

| +         |          | —      | Test condition   | Voltage (Approx.) |
|-----------|----------|--------|------------------|-------------------|
| TCM       |          |        |                  |                   |
| Connector | Terminal |        |                  |                   |
| F119      | 14       | Ground | Vertical (−1G) ㉠ | 1.17 V            |
|           |          |        | Horizontal ㉢     | 2.5 V             |
|           |          |        | Vertical (1G) ㉡  | 3.83 V            |



Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace G sensor. Refer to [TM-678. "Removal and Installation"](#).

## 7.G SENSOR CALIBRATION (PART 2)

④ With CONSULT

1. Install G sensor. Refer to [TM-678. "Removal and Installation"](#).
2. Select "Self Diagnostic Results" in "TRANSMISSION".
3. Touch "Erase".

>> Perform "G SENSOR CALIBRATION". Refer to [TM-551. "Work Procedure"](#).

## 8.CHECK SENSOR POWER SUPPLY CIRCUIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between TCM harness connector terminal and G sensor harness connector terminal.

| TCM       |          | G sensor  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F119      | 26       | M130      | 3        | Existed    |

Is the inspection result normal?

YES >> GO TO 9.

NO >> Repair or replace malfunctioning parts.

## 9.CHECK SENSOR POWER SUPPLY CIRCUIT (PART 2)

Check continuity between TCM harness connector terminal and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F119      | 26       | Ground | Not existed |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace malfunctioning parts.



## P1588 G SENSOR

### DTC Description

INFOID:000000010646392

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P1588 | G SENSOR<br>(G Sensor Circuit Range/Performance)    | <p>When 1 is satisfied and 2 is satisfied two times within the same DC:</p> <ol style="list-style-type: none"> <li>When all of the following conditions are satisfied and this state is maintained for 1 second: <ul style="list-style-type: none"> <li>TCM power supply voltage: More than 11 V</li> <li>The difference between the current G sensor detection voltage and the previous G sensor detection voltage of 10 msec. before: <math>\pm 0.015</math> V or less</li> </ul> </li> <li>When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"> <li>The difference between the current acceleration and the previous acceleration of 1 second before: <math>0.2677\text{m/s}^2</math> (0.0273 G)</li> <li>The difference between the current G sensor detection voltage and the previous G sensor detection voltage of 10 msec. before: <math>\pm 0.015</math> V or more</li> </ul> </li> </ol> |

#### NOTE:

DC stands for "DRIVING CYCLE" and indicates a series of driving cycle of "Ignition switch OFF → ON → driving → OFF".

#### POSSIBLE CAUSE

G sensor

#### FAIL-SAFE

- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

#### DTC CONFIRMATION PROCEDURE

##### CAUTION:

**Be careful of the driving speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

##### With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "G SPEED".
4. Drive the vehicle.
5. Maintain the following conditions for 5 seconds or more.

Selector lever : "L" position

G SPEED : 0.05 G or more

6. Stop the vehicle.

##### CAUTION:

**Never stop the engine.**

7. Repeat step 4 through 6.
8. Check the DTC.

"P1588" detected?

- YES >> Go to [TM-630, "Diagnosis Procedure"](#).  
 NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
 NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010646393

### 1. CHECK G SENSOR SIGNAL

#### Ⓐ With CONSULT

1. Park the vehicle on a level surface.
2. Turn ignition switch ON.
3. Select "Data Monitor" in "TRANSMISSION"
4. Select "G SEN SLOPE".
5. Swing the vehicle and check if value varies between -40.45% and 40.45%.

| Monitor item | Condition | Standard                         |
|--------------|-----------|----------------------------------|
| G SEN SLOPE  | Flat road | 0%                               |
|              | Uphill    | Positive value (Maximum 40.45%)  |
|              | Downhill  | Negative value (Minimum -40.45%) |

#### Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> GO TO 3.

### 2. G SENSOR CALIBRATION (PART 1)

#### Ⓐ With CONSULT

1. Select "Self Diagnostic Results" in "TRANSMISSION".
2. Touch "Erase".

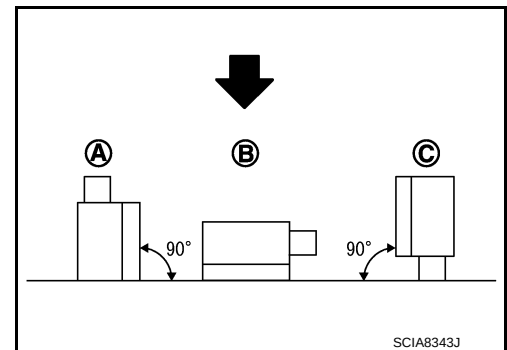
>> Perform "G SENSOR CALIBRATION". Refer to [TM-551, "Work Procedure"](#).

### 3. CHECK G SENSOR

1. Remove G sensor. [TM-678, "Removal and Installation"](#).
2. Connect the all connectors.
3. Turn ignition switch ON.
4. Check voltage between TCM harness connector terminal and ground.

← : Direction of gravitational force

| +         |          | —      | Test condition   | Voltage (Approx.) |
|-----------|----------|--------|------------------|-------------------|
| TCM       |          |        |                  |                   |
| Connector | Terminal |        |                  |                   |
| F119      | 14       | Ground | Vertical (−1G) ㉠ | 1.17 V            |
|           |          |        | Horizontal ㉢     | 2.5 V             |
|           |          |        | Vertical (1G) ㉡  | 3.83 V            |



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#### Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Replace G sensor. [TM-678, "Removal and Installation"](#).

### 4. G SENSOR CALIBRATION (PART 2)

#### Ⓐ With CONSULT

1. Install G sensor. [TM-678, "Removal and Installation"](#).
2. Select "Self Diagnostic Results" in "TRANSMISSION".
3. Touch "Erase".

P1588 G SENSOR

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

>> Perform “G SENSOR CALIBRATION”. Refer to [TM-551, "Work Procedure"](#).

- A
- B
- C
- TM
- E
- F
- G
- H
- I
- J
- K
- L
- M
- N
- O
- P

# P188E ELECTRIC OIL PUMP

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P188E ELECTRIC OIL PUMP

### DTC Description

INFOID:000000010646394

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P188E | ELECTRIC OIL PUMP<br>(Electric Oil Pump)            | <p>When 1 is not satisfied and 2 is satisfied, and this state is maintained for 1 second or more:</p> <ol style="list-style-type: none"><li>When any of the following conditions are satisfied (diagnosis prohibition condition):<ul style="list-style-type: none"><li>Battery voltage: 10 V or less</li><li>Electric oil pump relay ON is being instructed and within 0.52 seconds after battery voltage recovers from the state that is 10 V or less</li><li>Electric oil pump relay OFF is being instructed</li><li>Within 0.35 seconds after ignition switch is turned ON</li><li>Within 1 second after electric oil pump traction is instructed</li></ul></li><li>When all of the following conditions are satisfied:<ul style="list-style-type: none"><li>Electric oil pump traction is instructed</li><li>Electric oil pump relay ON is being instructed</li><li>Electric oil pump duty: Less than 46% or more than 54%</li></ul></li></ol> <p>When 1 is not satisfied and 2 is satisfied, and this state is maintained for 1 second or more:</p> <ol style="list-style-type: none"><li>When any of the following conditions are satisfied (diagnosis prohibition condition):<ul style="list-style-type: none"><li>Battery voltage: 10 V or less</li><li>Electric oil pump relay ON is being instructed and within 0.52 seconds after battery voltage recovers from the state that is 10 V or less</li><li>Electric oil pump relay OFF is being instructed</li><li>Within 0.35 seconds after ignition switch is turned ON</li><li>Within 0.52 seconds after electric oil pump relay ON is being instructed</li><li>Within 0.25 seconds after electric oil pump stop is instructed</li></ul></li><li>When all of the following conditions are satisfied:<ul style="list-style-type: none"><li>Electric oil pump stop is instructed</li><li>Electric oil pump relay ON is being instructed</li><li>Electric oil pump duty: Less than 26% or more than 34%</li></ul></li></ol> |

### POSSIBLE CAUSE

- Harness or connector (Open circuit or short circuit in harness between the TCM and the electric oil pump)
- Electric oil pump
- Electric oil pump relay
- TCM

### FAIL-SAFE

- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay
- When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

**Be careful of the driving speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

Ⓔ With CONSULT

1. Start the engine.

# P188E ELECTRIC OIL PUMP

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

2. Maintain stop/start system operation state for 5 seconds or more. Refer to [EC-856, "STOP/START SYSTEM : System Description \(CVT models\)"](#).

**NOTE:**

If the engine restarts automatically, the system may be in fail safe.

3. Check the DTC.

"P188E" detected?

YES >> Go to [TM-633, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010646395

### 1. ELECTRIC OIL PUMP RELAY

1. Check the electric oil pump relay. Refer to [TM-635, "Component Inspection \(Electric Oil Pump Relay\)"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the electric oil pump relay.

### 2. CHECK ELECTRIC OIL PUMP RELAY POWER CIRCUIT

Check voltage between the electric oil pump relay harness connector terminal and ground.

| +                       |          | —      | Condition | Voltage   |
|-------------------------|----------|--------|-----------|-----------|
| Electric oil pump relay |          |        |           |           |
| Connector               | Terminal |        |           |           |
| F66                     | 1        | Ground | Always    | 10 – 16 V |
|                         | 5        |        |           |           |

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 8.

### 3. CHECK CIRCUIT BETWEEN TCM AND ELECTRIC OIL PUMP RELAY (PART 1)

1. Disconnect the TCM connector.
2. Check continuity between TCM harness connector terminal and electric oil pump relay harness connector terminal.

**NOTE:**

- A diode is located between TCM and the electric oil pump relay.
- To check diode, refer to [TM-635, "Component Inspection \(Diode\)"](#).

| +         |          | —                       |          | Continuity |
|-----------|----------|-------------------------|----------|------------|
| TCM       |          | Electric oil pump relay |          |            |
| Connector | Terminal | Connector               | Terminal |            |
| F119      | 1        | F66                     | 2        | Existed    |

| +                       |          | —         |          | Continuity  |
|-------------------------|----------|-----------|----------|-------------|
| Electric oil pump relay |          | TCM       |          |             |
| Connector               | Terminal | Connector | Terminal |             |
| F66                     | 2        | F119      | 1        | Not existed |

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace malfunctioning parts.

### 4. CHECK CIRCUIT BETWEEN TCM AND ELECTRIC OIL PUMP RELAY (PART 2)

Check continuity between the electric oil pump relay harness connector terminal and ground.

# P188E ELECTRIC OIL PUMP

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

| Electric oil pump relay |          | —      | Continuity  |
|-------------------------|----------|--------|-------------|
| Connector               | Terminal |        |             |
| F66                     | 2        | Ground | Not existed |

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning parts.

## 5.CHECK ELECTRIC OIL PUMP RELAY SIGNAL

1. Install the electric oil pump relay.
2. Connect the TCM connector.
3. Check the voltage between the TCM harness connector terminal and ground.

| +         |          | —      | Condition                                                                                                                      | Voltage     |
|-----------|----------|--------|--------------------------------------------------------------------------------------------------------------------------------|-------------|
| TCM       |          |        |                                                                                                                                |             |
| Connector | Terminal |        |                                                                                                                                |             |
| F119      | 1        | Ground | <ul style="list-style-type: none"><li>• Selector lever: "D"position</li><li>• Vehicle speed: 11 km/h (7 MPH) or more</li></ul> | 10 – 16 V   |
|           |          |        | <ul style="list-style-type: none"><li>• Selector lever: "D"position</li><li>• Vehicle speed: 6 km/h (3 MPH) or less</li></ul>  | Approx. 0 V |

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace TCM. Refer to [TM-676, "Removal and Installation"](#).

## 6.CHECK TCM COMMAND SIGNAL

④With CONSULT

1. Turn ignition switch ON.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "ELECTRIC OP DUTY".

| Monitor item     | Condition           | Reference value/Status |
|------------------|---------------------|------------------------|
| ELECTRIC OP DUTY | Ignition switch: ON | 5 – 15%                |

4. Start the engine.
5. Drive the vehicle and maintain the following condition.

| Monitor item     | Condition                                                                 | Reference value/Status |
|------------------|---------------------------------------------------------------------------|------------------------|
| ELECTRIC OP DUTY | • Selector lever: "D"position<br>• Vehicle speed: 11 km/h (7 MPH) or more | 5 – 15%                |

6. Activate stop/start system. Refer to [EC-856, "STOP/START SYSTEM : System Description \(CVT models\)"](#).

| Monitor item     | Condition                   | Reference value/Status |
|------------------|-----------------------------|------------------------|
| ELECTRIC OP DUTY | Stop/start system operating | 55 – 85%               |

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace TCM. Refer to [TM-676, "Removal and Installation"](#).

## 7.CHECK ELECTRIC OIL PUMP STATUS SIGNAL

④With CONSULT

1. Turn ignition switch OFF.
2. Turn ignition switch ON.
3. Select "E-OP DUTY MON".

# P188E ELECTRIC OIL PUMP

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

| Monitor item  | Condition           | Reference value/Status |
|---------------|---------------------|------------------------|
| E-OP DUTY MON | Ignition switch: ON | 25 – 35%               |

4. Start the engine.
5. Drive the vehicle and maintain the following condition.

| Monitor item  | Condition                                                                                                                      | Reference value/Status |
|---------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------|
| E-OP DUTY MON | <ul style="list-style-type: none"><li>• Selector lever: "D"position</li><li>• Vehicle speed: 11 km/h (7 MPH) or more</li></ul> | 0%                     |

6. Activate stop/start system. Refer to [EC-856. "STOP/START SYSTEM : System Description \(CVT models\)"](#).

| Monitor item  | Condition                   | Reference value/Status |
|---------------|-----------------------------|------------------------|
| E-OP DUTY MON | Stop/start system operating | 45 – 55%               |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is a malfunction of the electric oil pump. Replace the electric oil pump & motor assembly.  
Refer to [TM-702. "Removal and Installation"](#).

## 8.DETECTION OF MALFUNCTION ITEMS

Check the following items:

- Fuse block (J/B)
- 10A fuse [No. 74, located in fuse block (J/B)] Refer to [PG-84. "Fuse, Connector and Terminal Arrangement"](#).
- Open circuit or short circuit in harness between battery positive terminal and electric oil pump relay harness connector terminal 1, and 5. Refer to [PG-12. "Wiring Diagram - BATTERY POWER SUPPLY -"](#).
- Battery

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace malfunctioning parts.

## Component Inspection (Electric Oil Pump Relay)

INFOID:0000000010646396

### 1.ELECTRIC OIL PUMP RELAY

1. Remove the electric oil pump relay. Refer to [TM-466. "CVT CONTROL SYSTEM : Component Parts Location"](#).

2. Apply voltage of 12 V between the electric oil pump relay connector terminals 1 and 2.

#### CAUTION:

- **Never cause shorting between terminals.**
- **When applying voltage, put a fuse between terminals.**

3. Check continuity between the electric oil pump relay connector terminals 3 and 5.

| Electric oil pump relay | Condition                                       | Continuity  |
|-------------------------|-------------------------------------------------|-------------|
| Terminal                |                                                 |             |
| 3 – 5                   | Apply voltage between terminals 1 and 2.        | Existed     |
|                         | Do not apply voltage between terminals 1 and 2. | Not existed |

Is the check result normal?

YES >> INSPECTION END

NO >> Replace the electric oil pump relay.

## Component Inspection (Diode)

INFOID:0000000010646397

- Check continuity with a tester.

## P188E ELECTRIC OIL PUMP

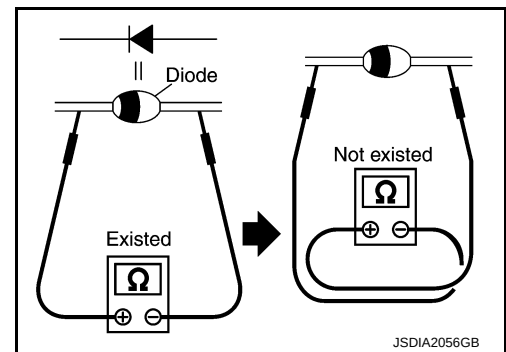
### < DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

- The diode is normal if the result is as shown in the figure when the polarity is reversed.

**NOTE:**

Tester specifications may vary depending on the tester type. Refer to the handling manual of the tester before checking continuity.





# P188F ELECTRIC OIL PUMP

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P188F ELECTRIC OIL PUMP

### DTC Description

INFOID:000000010646398

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P188F | ELECTRIC OIL PUMP<br>(Electric Oil Pump)            | <p>When 1 is not satisfied and 2 and 3 are satisfied:</p> <ol style="list-style-type: none"> <li>When any of the following conditions are satisfied (diagnosis prohibition condition): <ul style="list-style-type: none"> <li>Battery voltage: 10 V or less</li> <li>Electric oil pump relay ON is being instructed and within 0.52 seconds after battery voltage recovers from the state that is 10 V or less</li> <li>Electric oil pump relay OFF is being instructed</li> <li>Within 0.35 seconds after ignition switch is turned ON</li> <li>Electric oil pump system malfunction is being determined</li> <li>Secondary pressure sensor malfunction is being determined</li> </ul> </li> <li>When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"> <li>During idling stop</li> <li>Secondary pressure: Less than 0.03 MPa</li> </ul> </li> <li>When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"> <li>Judgment for 2 is complete (Idling stop oil pressure lowering judgment for the first time is complete.)</li> <li>Electric oil pump air bleeding is complete after ignition switch is turned OFF</li> <li>Secondary pressure: Less than 0.03 MPa</li> <li>None of the following items are satisfied: <ul style="list-style-type: none"> <li>A sudden deceleration of <math>-5.88 \text{ m/s}^2</math> (<math>-0.6 \text{ G}</math>) or less is experienced</li> <li>Ignition switch is turned OFF after judgment of 2 is complete</li> </ul> </li> </ul> </li> </ol> <p>1 (diagnosis prohibition condition) is not satisfied<br/>During idling stop<br/>Secondary pressure: 0.03 MPa or more</p> |

### POSSIBLE CAUSE

- Electric oil pump
- Secondary pressure sensor

### FAIL-SAFE

- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay
- When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

**Be careful of the driving speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION (PART 1)

Ⓔ With CONSULT

1. Start the engine.
2. Maintain stop/start system operation state for 10 seconds or more. Refer to [EC-856. "STOP/START SYSTEM : System Description \(CVT models\)".](#)
3. Restart the engine and drive.

## P188F ELECTRIC OIL PUMP

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

4. Maintain stop/start system operation state for 10 seconds or more again.

**NOTE:**

If the engine restarts automatically 10 seconds later, the system may be in fail safe.

5. Check the DTC.

"P188F" detected?

YES >> Go to [TM-638, "Diagnosis Procedure"](#).

NO >> GO TO 3.

### 3.CHECK DTC DETECTION (PART 2)

Ⓟ With CONSULT

1. Turn ignition switch OFF.
2. Start the engine.
3. Maintain stop/start system operation state for 10 seconds or more. Refer to [EC-856, "STOP/START SYSTEM : System Description \(CVT models\)"](#).
4. Restart the engine and drive.
5. Maintain stop/start system operation state for 10 seconds or more again.

**NOTE:**

If the engine restarts automatically 10 seconds later, the system may be in fail safe.

6. Check the DTC.

"P188F" detected?

YES >> Go to [TM-638, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010646399

### 1.AIR BLEEDING OF ELECTRIC OIL PUMP

Perform air bleeding of the electric oil pump. Refer to [TM-552, "Work Procedure"](#).

>> GO TO 2.

### 2.CHECK DTC DETECTION

Perform DTC confirmation procedure. Refer to [TM-637, "DTC Description"](#).

"P188F" detected?

YES >> Replace the electric oil pump & motor assembly. Refer to [TM-702, "Removal and Installation"](#).

NO >> INSPECTION END

# P1890 ELECTRIC OIL PUMP RELAY

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P1890 ELECTRIC OIL PUMP RELAY

### DTC Description

INFOID:0000000110646400

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)  | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P1890 | ELECTRIC OIL PUMP RELAY<br>(Electric Oil Pump Relay) | When 1 is not satisfied and 2 is satisfied, and this state is maintained for 5 seconds or more:<br>1. When any of the following conditions are satisfied (diagnosis prohibition condition): <ul style="list-style-type: none"><li>- Battery voltage: 10 V or less</li><li>- Within 0.35 seconds after ignition switch is turned ON</li><li>- Electric oil pump air bleed judgment: Air bleeding in progress or air bleeding is in judgment</li></ul> 2. When all of the following conditions are satisfied: <ul style="list-style-type: none"><li>- Electric oil pump relay OFF is being instructed and electric oil pump duty 0 %</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Open circuit or short circuit in harness between the TCM and the electric oil pump)
- Electric oil pump relay
- TCM

### FAIL-SAFE

- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay
- When the vehicle is in stop/start system operation and the engine stops, restart the engine immediately

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

**Be careful of the driving speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

##### Ⓔ With CONSULT

1. Turn ignition switch ON and wait for 5 seconds or more.
2. Check the DTC.

##### "P1890" detected?

- YES >> Go to [TM-639, "Diagnosis Procedure"](#).  
NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000110646401

#### 1. ELECTRIC OIL PUMP RELAY

1. Check the electric oil pump relay. Refer to [TM-641, "Component Inspection \(Electric Oil Pump Relay\)"](#).

##### Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the electric oil pump relay.

#### 2. CHECK ELECTRIC OIL PUMP RELAY POWER CIRCUIT

Check voltage between the electric oil pump relay harness connector terminal and ground.

# P1890 ELECTRIC OIL PUMP RELAY

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

| +                       |          | —      | Condition | Voltage   |
|-------------------------|----------|--------|-----------|-----------|
| Electric oil pump relay |          |        |           |           |
| Connector               | Terminal |        |           |           |
| F66                     | 1        | Ground | Always    | 10 – 16 V |
|                         | 5        |        |           |           |

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 6.

## 3.CHECK CIRCUIT BETWEEN TCM AND ELECTRIC OIL PUMP RELAY (PART 1)

1. Disconnect the TCM connector.
2. Check continuity between TCM harness connector terminal and electric oil pump relay harness connector terminal.

### NOTE:

- A diode is located between TCM and the electric oil pump relay.
- To check diode, refer to [TM-641, "Component Inspection \(Diode\)"](#).

| +         |          | —                       |          | Continuity |
|-----------|----------|-------------------------|----------|------------|
| TCM       |          | Electric oil pump relay |          |            |
| Connector | Terminal | Connector               | Terminal |            |
| F119      | 1        | F66                     | 2        | Existed    |

| +                       |          | —         |          | Continuity  |
|-------------------------|----------|-----------|----------|-------------|
| Electric oil pump relay |          | TCM       |          |             |
| Connector               | Terminal | Connector | Terminal |             |
| F66                     | 2        | F119      | 1        | Not existed |

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace malfunctioning parts.

## 4.CHECK CIRCUIT BETWEEN TCM AND ELECTRIC OIL PUMP RELAY (PART 2)

Check continuity between the electric oil pump relay harness connector terminal and ground.

| Electric oil pump relay |          | —      | Continuity  |
|-------------------------|----------|--------|-------------|
| Connector               | Terminal |        |             |
| F66                     | 2        | Ground | Not existed |

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning parts.

## 5.CHECK ELECTRIC OIL PUMP RELAY SIGNAL

1. Install the electric oil pump relay.
2. Connect the TCM connector.
3. Check the voltage between the TCM harness connector terminal and ground.

# P1890 ELECTRIC OIL PUMP RELAY

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

| +         |          | —      | Condition                                                                                                                      | Voltage     |
|-----------|----------|--------|--------------------------------------------------------------------------------------------------------------------------------|-------------|
| TCM       |          |        |                                                                                                                                |             |
| Connector | Terminal |        |                                                                                                                                |             |
| F119      | 1        | Ground | <ul style="list-style-type: none"><li>• Selector lever: “D”position</li><li>• Vehicle speed: 11 km/h (7 MPH) or more</li></ul> | 10 – 16 V   |
|           |          |        | <ul style="list-style-type: none"><li>• Selector lever: “D”position</li><li>• Vehicle speed: 6 km/h (3 MPH) or less</li></ul>  | Approx. 0 V |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace TCM. Refer to [TM-676, "Removal and Installation"](#).

## 6.DETECTION OF MALFUNCTION ITEMS

Check the following items:

- Fuse block (J/B)
- 10A fuse [No. 74, located in fuse block (J/B)] Refer to [PG-84, "Fuse, Connector and Terminal Arrangement"](#).
- Open circuit or short circuit in harness between battery positive terminal and electric oil pump relay harness connector terminal 1, and 5. Refer to [PG-12, "Wiring Diagram - BATTERY POWER SUPPLY -"](#).
- Battery

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace malfunctioning parts.

## Component Inspection (Electric Oil Pump Relay)

INFOID:0000000010646402

### 1.ELECTRIC OIL PUMP RELAY

1. Remove the electric oil pump relay. Refer to [TM-466, "CVT CONTROL SYSTEM : Component Parts Location"](#).
2. Apply voltage of 12 V between the electric oil pump relay connector terminals 1 and 2.  
**CAUTION:**
  - **Never cause shorting between terminals.**
  - **When applying voltage, put a fuse between terminals.**
3. Check continuity between the electric oil pump relay connector terminals 3 and 5.

| Electric oil pump relay | Condition                                       | Continuity  |
|-------------------------|-------------------------------------------------|-------------|
| Terminal                |                                                 |             |
| 3 – 5                   | Apply voltage between terminals 1 and 2.        | Existed     |
|                         | Do not apply voltage between terminals 1 and 2. | Not existed |

Is the check result normal?

YES >> INSPECTION END

NO >> Replace the electric oil pump relay.

## Component Inspection (Diode)

INFOID:0000000010646403

- Check continuity with a tester.

## P1890 ELECTRIC OIL PUMP RELAY

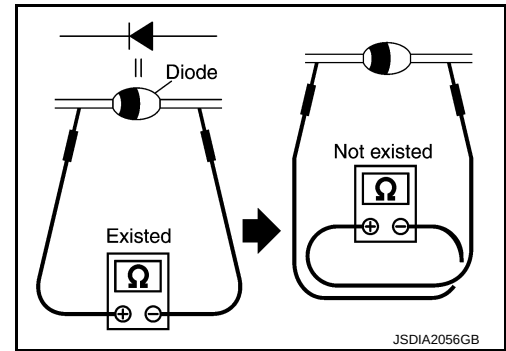
### < DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

- The diode is normal if the result is as shown in the figure when the polarity is reversed.

**NOTE:**

Tester specifications may vary depending on the tester type. Refer to the handling manual of the tester before checking continuity.



# P2765 INPUT SPEED SENSOR B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P2765 INPUT SPEED SENSOR B

### DTC Description

INFOID:000000010622848

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content)            | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2765 | INPUT SPEED SENSOR B<br>(Input/Turbine Speed Sensor B Circuit) | <p>When 1 is satisfied and any of 2, 3 or 4 is satisfied and this state is maintained for 5 seconds:</p> <ol style="list-style-type: none"> <li>When all of the following conditions are satisfied: <ul style="list-style-type: none"> <li>TCM power supply voltage: More than 11 V</li> <li>After range change completion, it spends 2 seconds or more.</li> </ul> </li> <li>When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"> <li>Secondary pulley speed: Less than 150 rpm</li> <li>Primary pulley speed: 1,000 rpm or more</li> </ul> </li> <li>When all of the following conditions are satisfied and this state is maintained for 0.5 seconds: <ul style="list-style-type: none"> <li>10-msec-ago secondary pulley speed: 1000 rpm or more</li> <li>Now secondary pulley speed: 0 rpm</li> </ul> </li> <li>When all of the following conditions are satisfied and this state is maintained for 5 seconds: <ul style="list-style-type: none"> <li>Range: D or L</li> <li>Engine speed: 450 rpm or more</li> <li>Primary pulley speed: 300 rpm or more</li> <li>Secondary pulley speed: 300 rpm or more</li> <li>Input speed: 300 rpm or more</li> <li>The difference between engine speed and primary pulley speed is 1,000 rpm or less</li> <li>The difference between engine speed and input speed is 1,000 rpm or less</li> <li>The difference between primary pulley speed and input speed is 1,000 rpm or less</li> <li>Lock-up command is being given (except for slip lock-up)</li> <li>DTC other than the applicable DTC is not detected.</li> <li>When any of following items are satisfied: <ul style="list-style-type: none"> <li>Primary pulley speed/secondary pulley speed: More than 2.9</li> <li>Primary pulley speed/secondary pulley speed: Less than 0.3</li> </ul> </li> </ul> </li> </ol> |

### POSSIBLE CAUSE

- Harness or connector (Output speed sensor circuit is open or shorted)
- Output speed sensor

### FAIL-SAFE

- Start is slow
- Acceleration is slow
- Lock-up is not performed
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

**Be careful of the driving speed.**

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

## P2765 INPUT SPEED SENSOR B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

1. Start the engine.
2. Drive the vehicle.
3. Maintain the following conditions for 10 seconds or more.

Selector lever : "D" position  
Engine speed : 1,200 rpm or more  
Vehicle speed : 55 km/h (34 MPH) or more

4. Stop the vehicle.
5. Check the first trip DTC.

Is "P2765" detected?

- YES >> Go to [TM-644, "Diagnosis Procedure"](#).  
NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).  
NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622849

#### 1.CHECK OUTPUT SPEED SENSOR POWER CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect output speed sensor connector.
3. Turn ignition switch ON.
4. Check voltage between output speed sensor harness connector terminal and ground.

| +                   |          | –      | Voltage   |
|---------------------|----------|--------|-----------|
| Output speed sensor |          |        |           |
| Connector           | Terminal |        |           |
| F19                 | 3        | Ground | 10 – 16 V |

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> GO TO 6.

#### 2.CHECK OUTPUT SPEED SENSOR GROUND CIRCUIT

Check continuity between output speed sensor harness connector terminal and ground.

| Output speed sensor |          | —      | Continuity |
|---------------------|----------|--------|------------|
| Connector           | Terminal |        |            |
| F19                 | 1        | Ground | Existed    |

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair or replace malfunctioning parts.

#### 3.CHECK CIRCUIT BETWEEN OUTPUT SPEED SENSOR AND TCM (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check continuity between output speed sensor harness connector terminal and TCM harness connector terminal.

| Output speed sensor |          | TCM       |          | Continuity |
|---------------------|----------|-----------|----------|------------|
| Connector           | Terminal | Connector | Terminal |            |
| F19                 | 2        | F119      | 34       | Existed    |

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Repair or replace malfunctioning parts.

#### 4.CHECK CIRCUIT BETWEEN OUTPUT SPEED SENSOR AND TCM (PART 2)



## P2765 INPUT SPEED SENSOR B

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

Check continuity between output speed sensor harness connector terminal and ground.

| Output speed sensor |          | —      | Continuity  |
|---------------------|----------|--------|-------------|
| Connector           | Terminal |        |             |
| F19                 | 2        | Ground | Not existed |

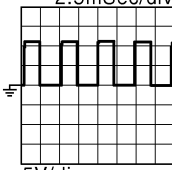
Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace malfunctioning parts.

### 5. CHECK TCM INPUT SIGNALS

1. Connect all of disconnected connectors.
2. Lift the vehicle.
3. Start the engine.
4. Check frequency of output speed sensor.

| +         |          | —      | Condition                                                                                                                 | Frequency<br>(Approx.)                                                                                                                                                            |
|-----------|----------|--------|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TCM       |          |        |                                                                                                                           |                                                                                                                                                                                   |
| Connector | Terminal |        |                                                                                                                           |                                                                                                                                                                                   |
| F119      | 34       | Ground | <ul style="list-style-type: none"><li>• Shift position: "M1" position</li><li>• Vehicle speed: 20 km/h (12 MPH)</li></ul> | <div>200 Hz</div> <div>2.5mSec/div</div> <div></div> <div>5V/div</div> <div>JSDIA1904GB</div> |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace output speed sensor. Refer to [TM-688, "Removal and Installation"](#).

### 6. ETECT MALFUNCTIONING ITEMS

Check the following items:

- Open circuit or short circuit in harness between ignition switch and output speed sensor harness connector terminal 3. Refer to [PG-52, "Wiring Diagram - IGNITION POWER SUPPLY -"](#).
- 10A fuse [No. 57, located in the fuse block (J/B)]. Refer to [PG-84, "Fuse, Connector and Terminal Arrangement"](#).

Is the check result normal?

YES >> INSPECTION END

NO >> Repair or replace malfunctioning parts.

# P2813 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P2813 SELECT SOLENOID

### DTC Description

INFOID:000000010622850

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2813 | SELECT SOLENOID<br>(Select solenoid)                | <p>When any of 1, or 2 is satisfied:</p> <ol style="list-style-type: none"><li>When all the following conditions are established three times in 1DC<ul style="list-style-type: none"><li>- Precondition</li><li>• DTC other than the applicable DTC is not detected.</li><li>• Throttle position: More than 6.27 deg.</li><li>• Vehicle speed: Less than 3 km/h (1 MPH)</li><li>• CVT fluid temperature: More than 20°C (68°F)</li><li>• Selector lever: Other than P, N</li><li>• Turbine speed when performed N → D, N (P) → R: More than 500 rpm</li><li>• TCM power supply voltage: More than 11 V</li><li>- Detection time</li><li>• N → D: 0.4 seconds</li><li>• N → R: 0.3 seconds</li><li>• P → R: 0.3 seconds</li></ul></li><li>When all of the following conditions are satisfied and this state is maintained for 30 seconds:<ul style="list-style-type: none"><li>- The counting of time continues while all of the following conditions are satisfied and stops when the conditions become unsatisfied (the count is maintained). When accumulated time reaches 30 seconds (Clutch is judged as engaged and the count is reset.)</li><li>• Selector lever: Other than P, N</li><li>• Vehicle speed: Less than 3 km/h (1 MPH)</li><li>• Differences between primary pulley speed and secondary speed: Less than 120 rpm</li><li>• Clutch instructions pressure: 0.95 MPa or more</li><li>• Differences between turbine speed and input speed: Less than 200 rpm</li><li>• Turbine speed – speed: More than 450 rpm</li><li>• DTC other than the applicable DTC is not detected.</li><li>• TCM power supply voltage: More than 11 V</li></ul></li></ol> |

#### NOTE:

DC stands for "DRIVING CYCLE" and indicates a series of driving cycle of "Ignition switch OFF → ON → driving → OFF".

#### POSSIBLE CAUSE

Select solenoid valve

#### FAIL-SAFE

- When a malfunction occurs on the low oil pressure side
  - Selector shock is large
  - Start is slow
  - Acceleration is slow
  - Vehicle speed is not increased
  - Stop/start system prohibited
  - Restart the engine during the stop/start system operation
  - Turn OFF the electric oil pump relay
- When a malfunction occurs on the high oil pressure side
  - Selector shock is large
  - Stop/start system prohibited
  - Restart the engine during the stop/start system operation
  - Turn OFF the electric oil pump relay

#### DTC CONFIRMATION PROCEDURE

#### CAUTION:

# P2813 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

**Be careful of the driving speed.**

## 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

## 2. CHECK DTC DETECTION 1

1. Start the engine.
2. Maintain the following conditions. (Keep 30seconds or more after the selector lever shifted.)

Selector lever : N→ D, N → R, P→ R

3. Check the first trip DTC.

Is "P2813" detected?

YES >> Go to [TM-647, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000010622851

## 1. REPLACE TRANSAXLE ASSEMBLY

Replace transaxle assembly. Refer to [TM-704, "Removal and Installation"](#).

>> WORK END

# P2814 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P2814 SELECT SOLENOID

### DTC Description

INFOID:0000000010622852

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                                                                                                                                                                                                                           |
|-------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2814 | SELECT SOLENOID<br>(Select solenoid)                | When all of the following conditions are satisfied and this state is maintained for 0.48 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: 11 V or more</li><li>• TCM judges that solenoid valve circuit is shorted to ground.</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Select solenoid valve circuit shorted to ground)
- Select solenoid valve

### FAIL-SAFE

- Selector shock is large
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### CAUTION:

Be careful of the driving speed.

#### 1. PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2. CHECK DTC DETECTION

1. Start the engine.
2. Maintain the following conditions. (Keep 5 seconds or more after the selector lever shifted.)

Selector lever : N → D, N → R, P → R

3. Check the first trip DTC.

#### Is "P2814" detected?

YES >> Go to [TM-648, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622853

#### 1. CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and ground.

| TCM       |          | —      | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| F119      | 37       | Ground | Not existed |

#### Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

## P2814 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

### 2.CHECK SELECT SOLENOID VALVE CIRCUIT

Check continuity between CVT unit harness connector terminal and ground.

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 4        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of select solenoid valve. Replace transaxle assembly. Refer to [TM-704](#),  
["Removal and Installation"](#).

A  
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P

# P2815 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## P2815 SELECT SOLENOID

### DTC Description

INFOID:0000000010622854

### DTC DETECTION LOGIC

| DTC   | CONSULT screen terms<br>(Trouble diagnosis content) | DTC detection condition                                                                                                                                                                                                                                                                |
|-------|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P2815 | SELECT SOLENOID<br>(Select solenoid)                | When all of the following conditions are satisfied and this state is maintained for 0.2 seconds: <ul style="list-style-type: none"><li>• TCM power supply voltage: More than 11 V</li><li>• TCM judges that solenoid valve circuit is open.</li><li>• P2814 is not detected.</li></ul> |

### POSSIBLE CAUSE

- Harness or connector (Select solenoid valve circuit open or shorted to power supply)
- Select solenoid valve

### FAIL-SAFE

- Selector shock is large
- Stop/start system prohibited
- Restart the engine during the stop/start system operation
- Turn OFF the electric oil pump relay

### DTC CONFIRMATION PROCEDURE

#### 1.PREPARATION BEFORE WORK

If another "DTC CONFIRMATION PROCEDURE" occurs just before, turn ignition switch OFF and wait for at least 10 seconds, then perform the next test.

>> GO TO 2.

#### 2.CHECK DTC DETECTION

1. Start the engine.
2. Maintain the following conditions. (Keep 5 seconds or more after the selector lever shifted.)

Selector lever : N → D, N → R, P → R

3. Check the first trip DTC.

#### Is "P2815" detected?

YES >> Go to [TM-650, "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: Refer to [GI-44, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000010622855

#### 1.CHECK CIRCUIT BETWEEN TCM AND CVT UNIT

1. Turn ignition switch OFF.
2. Disconnect TCM connector and CVT unit connector.
3. Check continuity between TCM harness connector terminal and CVT unit harness connector terminal.

| TCM       |          | CVT unit  |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| F119      | 37       | F127      | 4        | Existed    |

#### Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace damaged parts.

#### 2.CHECK SELECT SOLENOID VALVE CIRCUIT

## P2815 SELECT SOLENOID

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

Check continuity between CVT unit harness connector terminal and ground.

| CVT unit  |          | —      | Condition                           | Resistance  |
|-----------|----------|--------|-------------------------------------|-------------|
| Connector | Terminal |        |                                     |             |
| F250      | 4        | Ground | CVT fluid temperature: 20°C (68°F)  | 5.5 – 7.0 Ω |
|           |          |        | CVT fluid temperature: 50°C (122°F) | 6.0 – 8.0 Ω |
|           |          |        | CVT fluid temperature: 80°C (176°F) | 6.5 – 8.5 Ω |

Is the inspection result normal?

YES >> INSPECTION END

NO >> There is malfunction of select solenoid valve. Replace transaxle assembly. Refer to [TM-704](#).  
["Removal and Installation"](#).

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# MAIN POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## MAIN POWER SUPPLY AND GROUND CIRCUIT

### Diagnosis Procedure

INFOID:000000010622856

#### 1.CHECK TCM POWER CIRCUIT (PART 1)

1. Turn ignition switch OFF.
2. Disconnect TCM connector.
3. Check voltage between TCM harness connector terminals and ground.

| +         |          | –      | Voltage   |
|-----------|----------|--------|-----------|
| TCM       |          |        |           |
| Connector | Terminal |        |           |
| F119      | 45       | Ground | 10 – 16 V |
|           | 46       |        |           |

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 4.

#### 2.CHECK TCM POWER CIRCUIT (PART 2)

Check voltage between TCM harness connector terminals and ground.

| +         |          | –      | Condition           | Voltage     |
|-----------|----------|--------|---------------------|-------------|
| TCM       |          |        |                     |             |
| Connector | Terminal |        |                     |             |
| F119      | 47       | Ground | Ignition switch ON  | 10 – 16 V   |
|           |          |        | Ignition switch OFF | Approx. 0 V |
|           | 48       |        | Ignition switch ON  | 10 – 16 V   |
|           |          |        | Ignition switch OFF | Approx. 0 V |

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 5.

#### 3.CHECK TCM GROUND CIRCUIT

Check continuity between TCM harness connector terminals and ground.

| TCM       |          | —      | Continuity |
|-----------|----------|--------|------------|
| Connector | Terminal |        |            |
| F119      | 41       | Ground | Existed    |
|           | 42       |        |            |

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-44, "Intermittent Incident"](#).

NO >> Repair or replace malfunctioning parts.

#### 4.DETECT MALFUNCTION ITEMS (PART 1)

Check the following items:

- Open circuit or short circuit in harness between battery positive terminal and TCM connector terminal 45, and 46. Refer to [PG-12, "Wiring Diagram - BATTERY POWER SUPPLY -"](#).
- 10A fuse [No.75, located in the fuse block (J/B)]. Refer to [PG-84, "Fuse, Connector and Terminal Arrangement"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-44, "Intermittent Incident"](#).

NO >> Repair or replace malfunctioning parts.



5.DETECT MALFUNCTIONING ITEMS (PART 2)

Check the following items:

- Open circuit or short circuit in harness between ignition switch and TCM harness connector terminals 47, and 48. Refer to [PG-52, "Wiring Diagram - IGNITION POWER SUPPLY -"](#).
- 10A fuse [No. 57, located in the fuse block (J/B)]. Refer to [PG-84, "Fuse, Connector and Terminal Arrangement"](#).

Is the check result normal?

- YES    >> Check intermittent incident. Refer to [GI-44, "Intermittent Incident"](#).
- NO     >> Repair or replace malfunctioning parts.

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# SHIFT POSITION INDICATOR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## SHIFT POSITION INDICATOR CIRCUIT

### Component Parts Function Inspection

INFOID:000000010622857

#### 1.CHECK SHIFT POSITION INDICATOR

1. Start the engine.
2. Shift selector lever.
3. Check that the selector lever position and the shift position indicator on the combination meter are identical.

Is the inspection result normal?

- YES >> INSPECTION END  
NO >> Go to [TM-654, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000010622858

#### 1.CHECK TCM INPUT/OUTPUT SIGNAL

##### With CONSULT

1. Start the engine.
2. Select "Data Monitor" in "TRANSMISSION".
3. Select "RANGE".
4. Shift selector lever.
5. Check that selector lever position, "RANGE" on CONSULT screen, and shift position indicator display on combination meter are identical.

Is the check result normal?

- YES >> INSPECTION END  
NO-1 ("RANGE" is changed but is not displayed on shift position indicator.)>>Check "Self Diagnostic Result" in "TRANSMISSION".  
NO-2 ("RANGE" and shift position indicator are different.)>>Check "Self Diagnostic Result" in "TRANSMISSION".  
NO-3 (Specific "RANGE" is not displayed on shift position indicator.)>>Check "Self Diagnostic Result" in "METER/M&A".

# SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

## SHIFT LOCK SYSTEM

### Component Function Check

INFOID:0000000010622859

#### 1.CHECK SHIFT LOCK OPERATION (PART 1)

1. Turn ignition switch ON.
2. Shift the selector lever to "P" position.
3. Attempt to shift the selector lever to any other than position with the brake pedal released.

Can the selector lever be shifted to any other position?

- YES >> Go to [TM-655, "Diagnosis Procedure"](#).  
NO >> GO TO 2.

#### 2.CHECK SHIFT LOCK OPERATION (PART 2)

Attempt to shift the selector lever to any other than position with the brake pedal depressed.

Can the selector lever be shifted to any other position?

- YES >> INSPECTION END  
NO >> Go to [TM-655, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:0000000010622860

#### 1.CHECK POWER SOURCE (PART 1)

1. Turn ignition switch OFF.
2. Disconnect stop lamp switch connector
3. Turn ignition switch ON.
4. Check the voltage between the stop lamp switch harness connector terminal and ground.

| +                |          | –      | Voltage         |
|------------------|----------|--------|-----------------|
| Stop lamp switch |          |        |                 |
| Connector        | Terminal |        |                 |
| E115             | 3        | Ground | Battery voltage |

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> GO TO 9.

#### 2.CHECK STOP LAMP SWITCH MOUNTING POSITION

Check stop lamp switch mounting position. Refer to [BR-11, "Inspection and Adjustment"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Adjust stop lamp switch mounting position.

#### 3.CHECK STOP LAMP SWITCH

Check stop lamp switch. Refer to [TM-658, "Component Inspection \(Stop Lamp Switch\)"](#).

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Repair or replace stop lamp switch.

#### 4.CHECK CIRCUIT BETWEEN STOP LAMP SWITCH AND CVT SHIFT SELECTOR

1. Disconnect CVT shift selector connector
2. Check the continuity between the stop lamp switch harness connector terminal and the CVT shift selector harness connector terminal.

| Stop lamp switch |          | CVT shift selector |          | Continuity |
|------------------|----------|--------------------|----------|------------|
| Connector        | Terminal | Connector          | Terminal |            |
| E115             | 4        | M52                | 3        | Existed    |

# SHIFT LOCK SYSTEM

[CVT: RE0F10G]

## < DTC/CIRCUIT DIAGNOSIS >

3. Also check short circuit in harness.

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace damaged parts.

## 5.CHECK GROUND CIRCUIT

Check the continuity between the CVT shift selector harness connector terminal and ground.

| CVT shift selector |          | —      | Continuity |
|--------------------|----------|--------|------------|
| Connector          | Terminal |        |            |
| M52                | 4        | Ground | Existed    |

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace damaged parts.

## 6.CHECK PART POSITION SWITCH

1. Disconnect park position switch connector.

2. Check park position switch. Refer to [TM-657, "Component Inspection \(Park Position Switch\)"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair or replace damaged parts.

## 7.CHECK SHIFT LOCK SOLENOID

1. Disconnect shift lock solenoid connector.

2. Check shift lock solenoid. Refer to [TM-656, "Component Inspection \(Shift Lock Solenoid\)"](#).

Is the inspection result normal?

YES >> GO TO 8.

NO >> Repair or replace damaged parts.

## 8.CHECK CVT SHIFT SELECTOR HARNESS

Check CVT shift selector harness. Refer to [TM-657, "Component Inspection \(CVT Shift Selector Harness\)"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-44, "Intermittent Incident"](#).

NO >> Repair or replace damaged parts.

## 9.DETECT MALFUNCTIONING ITEM

Check the following items:

- Open or short circuit of the harness between ignition switch and stop lamp switch connector. Refer to [PG-52, "Wiring Diagram - IGNITION POWER SUPPLY -"](#).
- Ignition switch
- 10A fuse [No.30, fuse block (J/B)]. Refer to [PG-84, "Fuse, Connector and Terminal Arrangement"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-44, "Intermittent Incident"](#).

NO >> Repair or replace damaged parts.

## Component Inspection (Shift Lock Solenoid)

INFOID:0000000010622861

## 1.CHECK SHIFT LOCK SOLENOID

Apply voltage to terminals of shift lock solenoid connector and check that shift lock solenoid is activated.

### CAUTION:

- Connect the fuse between the terminals when applying the voltage.
- Never cause shorting between terminals.

# SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

| + (fuse)            | – | Condition                                        | Status                       |
|---------------------|---|--------------------------------------------------|------------------------------|
| Shift lock solenoid |   |                                                  |                              |
| Terminal            |   |                                                  |                              |
| 1                   | 2 | Apply battery voltage between terminals 1 and 2. | Shift lock solenoid operates |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace shift lock unit. Refer to [TM-668, "Disassembly and Assembly"](#).

## Component Inspection (Park Position Switch)

INFOID:0000000010622862

### 1.CHECK PARK POSITION SWITCH

Check the continuity between park position switch connector terminals.

**CAUTION:**

- Connect the fuse between the terminals when applying the voltage.
- Never cause shorting between terminals.

| Park position switch | Condition                                 | Continuity  |
|----------------------|-------------------------------------------|-------------|
| Terminal             |                                           |             |
| 1 - 2                | Shift the selector lever to "P" position. | Existed     |
|                      | Other than above                          | Not existed |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace park position switch. Refer to [TM-668, "Disassembly and Assembly"](#).

## Component Inspection (CVT Shift Selector Harness)

INFOID:0000000010622863

### 1.CHECK CVT SHIFT SELECTOR HARNESS (PART 1)

Check the continuity between the CVT shift selector harness connector terminal and the shift lock solenoid harness connector terminal.

| CVT shift selector |          | Shift lock solenoid |          | Continuity |
|--------------------|----------|---------------------|----------|------------|
| Connector          | Terminal | Connector           | Terminal |            |
| M324               | 3        | M326                | 1        | Existed    |

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace CVT shift selector assembly. Refer to [TM-667, "Removal and Installation"](#).

### 2.CHECK CVT SHIFT SELECTOR HARNESS (PART 2)

Check the continuity between the shift lock solenoid harness connector terminal and the park position switch harness connector terminal.

| Shift lock solenoid |          | Park position switch |          | Continuity |
|---------------------|----------|----------------------|----------|------------|
| Connector           | Terminal | Connector            | Terminal |            |
| M326                | 2        | M325                 | 1        | Existed    |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace CVT shift selector assembly. Refer to [TM-667, "Removal and Installation"](#).

### 3.CHECK CVT SHIFT SELECTOR HARNESS (PART 3)

Check the continuity between the park position switch harness connector terminal and the CVT shift selector harness connector terminal.

## SHIFT LOCK SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

[CVT: RE0F10G]

| Park position switch |          | CVT shift selector |          | Continuity |
|----------------------|----------|--------------------|----------|------------|
| Connector            | Terminal | Connector          | Terminal |            |
| M325                 | 2        | M324               | 4        | Existed    |

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace CVT shift selector assembly. Refer to [TM-667, "Removal and Installation"](#).

### 4.CHECK CVT SHIFT SELECTOR HARNESS (PART 4)

Check harness cladding CVT shift selector harness for damage.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair or replace CVT shift selector assembly. Refer to [TM-667, "Removal and Installation"](#).

## Component Inspection (Stop Lamp Switch)

INFOID:0000000010622864

### 1.CHECK STOP LAMP SWITCH

Check the continuity between the stop lamp switch connector terminals.

| Stop lamp switch | Condition             | Continuity  |
|------------------|-----------------------|-------------|
| Terminal         |                       |             |
| 3 – 4            | Depressed brake pedal | Existed     |
|                  | Released brake pedal  | Not existed |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace stop lamp switch. Refer to [BR-21, "Exploded View"](#).

# CVT CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F10G]

## SYMPTOM DIAGNOSIS

### CVT CONTROL SYSTEM

#### Symptom Table

INFOID:0000000010622865

- The diagnosis item number indicates the order of check. Start checking in the order from 1.
- Perform diagnoses of symptom table 1 before symptom table 2.

#### Symptom Table 1

| Symptom               |                                                                    | Engine system | CAN communication line | Transmission range switch (P0705, P0706) | Input speed sensor (P0717) | Primary speed sensor (P0715) | Output speed sensor (P2765) | CVT fluid temperature sensor (P0712, P0713) | Primary pressure sensor (P084C, P084D) | Secondary pressure sensor (P0841, P0847, P0848) | Torque converter clutch solenoid valve (P0740, P0743, P0744) | Stall test | CVT position | Power supply | Control valve | CVT fluid level and state | Ignition switch and starter |
|-----------------------|--------------------------------------------------------------------|---------------|------------------------|------------------------------------------|----------------------------|------------------------------|-----------------------------|---------------------------------------------|----------------------------------------|-------------------------------------------------|--------------------------------------------------------------|------------|--------------|--------------|---------------|---------------------------|-----------------------------|
|                       |                                                                    | EC-937        | TM-529                 |                                          |                            |                              |                             |                                             |                                        |                                                 |                                                              | TM-553     | TM-669       | TM-652       | TM-681        | TM-665                    | PG-52, SIR-11               |
| Shift Shock           | Large shock (N→D position)                                         | 1             | 4                      | 7                                        |                            |                              |                             | 3                                           |                                        |                                                 | 6                                                            |            | 2            |              | 8             | 5                         |                             |
|                       | Large shock (N→R position)                                         | 1             | 4                      | 7                                        |                            |                              |                             | 3                                           |                                        |                                                 | 6                                                            |            | 2            |              | 8             | 5                         |                             |
|                       | Shock is too large for lock-up.                                    | 2             | 3                      |                                          |                            |                              |                             |                                             |                                        |                                                 | 6                                                            |            | 1            |              | 5             | 4                         |                             |
| Slips/Will Not Engage | Vehicle cannot be started from D position.                         | 8             | 3                      |                                          | 5                          | 6                            | 7                           | 9                                           | 10                                     | 11                                              |                                                              | 4          | 2            | 12           | 13            | 1                         |                             |
|                       | Vehicle cannot be started from R position.                         | 8             | 3                      |                                          | 5                          | 6                            | 7                           | 9                                           | 10                                     | 11                                              |                                                              | 4          | 2            | 12           | 13            | 1                         |                             |
|                       | Does not lock-up.                                                  | 2             | 6                      | 8                                        | 3                          | 4                            | 10                          | 9                                           | 11                                     | 12                                              | 5                                                            | 7          |              |              | 13            | 1                         |                             |
|                       | Does not hold lock-up condition.                                   | 2             | 6                      | 8                                        | 3                          | 4                            | 10                          | 9                                           | 11                                     | 12                                              | 5                                                            | 7          |              |              | 13            | 1                         |                             |
|                       | Lock-up is not released.                                           | 2             | 6                      |                                          | 3                          | 4                            |                             |                                             |                                        |                                                 | 5                                                            | 7          |              |              | 8             | 1                         |                             |
|                       | With selector lever in D position, acceleration is extremely poor. | 3             | 4                      | 5                                        | 7                          | 8                            | 9                           | 12                                          | 10                                     | 11                                              |                                                              | 2          | 6            | 13           | 14            | 1                         |                             |
|                       | With selector lever in R position, acceleration is extremely poor. | 3             | 4                      | 5                                        | 7                          | 8                            | 9                           | 12                                          | 10                                     | 11                                              |                                                              | 2          | 6            | 13           | 14            | 1                         |                             |
|                       | Slips at lock-up.                                                  | 2             | 6                      | 8                                        | 3                          | 4                            | 10                          | 9                                           | 11                                     | 12                                              | 5                                                            | 7          |              |              | 13            | 1                         |                             |

# CVT CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F10G]

| Symptom |                                                                                                                                                              | Engine system | CAN communication line | Transmission range switch (P0705, P0706) | Input speed sensor (P0717) | Primary speed sensor (P0715) | Output speed sensor (P2765) | CVT fluid temperature sensor (P0712, P0713) | Primary pressure sensor (P084C, P084D) | Secondary pressure sensor (P0841, P0847, P0848) | Torque converter clutch solenoid valve (P0740, P0743, P0744) | Stall test | CVT position | Power supply | Control valve | CVT fluid level and state | Ignition switch and starter |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------------|------------------------------------------|----------------------------|------------------------------|-----------------------------|---------------------------------------------|----------------------------------------|-------------------------------------------------|--------------------------------------------------------------|------------|--------------|--------------|---------------|---------------------------|-----------------------------|
|         |                                                                                                                                                              | EC-937        | TM-529                 |                                          |                            |                              |                             |                                             |                                        |                                                 |                                                              | TM-553     | TM-669       | TM-652       | TM-681        | TM-665                    | PG-52, STR-11               |
| Other   | No creep at all.                                                                                                                                             | 2             | 4                      | 3                                        | 7                          | 8                            | 9                           | 10                                          | 11                                     | 12                                              |                                                              | 5          | 6            | 13           | 14            | 1                         |                             |
|         | Vehicle cannot run in any position.                                                                                                                          | 8             |                        | 2                                        | 5                          | 6                            | 7                           | 9                                           | 10                                     | 11                                              |                                                              | 3          | 4            | 12           | 13            | 1                         |                             |
|         | With selector lever in D position, driving is not possible.                                                                                                  | 8             |                        | 2                                        | 5                          | 6                            | 7                           | 9                                           | 10                                     | 11                                              |                                                              | 3          | 4            | 12           | 13            | 1                         |                             |
|         | With selector lever in R position, driving is not possible.                                                                                                  | 8             |                        | 2                                        | 5                          | 6                            | 7                           | 9                                           | 10                                     | 11                                              |                                                              | 3          | 4            | 12           | 13            | 1                         |                             |
|         | Judder occurs during lock-up.                                                                                                                                | 2             | 6                      |                                          | 3                          | 4                            | 5                           |                                             |                                        |                                                 | 7                                                            |            |              |              | 8             | 1                         |                             |
|         | Strange noise in D position.                                                                                                                                 | 2             | 3                      |                                          |                            |                              |                             |                                             |                                        |                                                 |                                                              |            |              |              | 4             | 1                         |                             |
|         | Strange noise in R position.                                                                                                                                 | 2             | 3                      |                                          |                            |                              |                             |                                             |                                        |                                                 |                                                              |            |              |              | 4             | 1                         |                             |
|         | Strange noise in N position.                                                                                                                                 | 2             | 3                      |                                          |                            |                              |                             |                                             |                                        |                                                 |                                                              |            |              |              | 4             | 1                         |                             |
|         | Vehicle does not decelerate by engine brake.                                                                                                                 | 7             | 3                      |                                          | 4                          | 5                            | 6                           |                                             |                                        |                                                 |                                                              |            | 2            |              | 8             | 1                         |                             |
|         | Maximum speed low.                                                                                                                                           | 2             | 3                      |                                          | 5                          | 6                            | 7                           |                                             | 8                                      | 9                                               | 11                                                           | 4          |              |              | 10            | 1                         |                             |
|         | With selector lever in P position, vehicle does not enter parking condition or, with selector lever in another position, parking condition is not cancelled. |               |                        | 1                                        |                            |                              |                             |                                             |                                        |                                                 |                                                              |            | 2            |              |               |                           |                             |
|         | Vehicle runs with CVT in P position.                                                                                                                         |               |                        | 1                                        |                            |                              |                             |                                             |                                        |                                                 |                                                              |            | 3            |              | 4             | 2                         |                             |
|         | Vehicle runs with CVT in N position.                                                                                                                         |               |                        | 1                                        |                            |                              |                             |                                             |                                        |                                                 |                                                              |            | 3            |              | 4             | 2                         |                             |
|         | Engine stall.                                                                                                                                                | 2             | 6                      |                                          | 3                          | 4                            |                             |                                             | 8                                      | 9                                               | 5                                                            | 7          |              |              | 10            | 1                         |                             |
|         | Engine stalls when selector lever shifted N → D or R.                                                                                                        | 2             | 6                      |                                          | 3                          | 4                            |                             |                                             |                                        |                                                 | 5                                                            |            |              |              | 7             | 1                         |                             |
|         | Engine speed does not return to idle.                                                                                                                        | 2             | 4                      |                                          |                            |                              | 3                           |                                             |                                        |                                                 |                                                              |            |              |              | 5             | 1                         |                             |
|         | Engine does not start in N or P position.                                                                                                                    |               |                        | 3                                        |                            |                              |                             |                                             |                                        |                                                 |                                                              |            | 2            |              |               |                           | 1                           |
|         | Engine starts in positions other than N or P.                                                                                                                |               |                        | 3                                        |                            |                              |                             |                                             |                                        |                                                 |                                                              |            | 2            |              |               |                           | 1                           |



# CVT CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F10G]

Symptom Table 2

| Symptom               |                                                                    | Torque converter | Transmission range switch | Oil pump | Forward clutch | Reverse brake | Planetary gear | Bearings | Parking mechanism | Stop lamp switch | Shift lock solenoid | CVT shift selector |
|-----------------------|--------------------------------------------------------------------|------------------|---------------------------|----------|----------------|---------------|----------------|----------|-------------------|------------------|---------------------|--------------------|
|                       |                                                                    | TM-707           | TM-704                    |          |                |               |                |          |                   | TM-658           | TM-656              | TM-667             |
| Shift Shock           | Large shock (N→D position)                                         |                  | 2                         |          | 1              |               |                |          |                   |                  |                     |                    |
|                       | Large shock (N→R position)                                         |                  | 2                         |          |                | 1             |                |          |                   |                  |                     |                    |
|                       | Shock is too large for lock-up.                                    | 1                |                           |          |                |               |                |          |                   |                  |                     |                    |
| Slips/Will Not Engage | Vehicle cannot be started from D position.                         |                  | 3                         | 1        | 2              |               |                |          |                   |                  |                     |                    |
|                       | Vehicle cannot be started from R position.                         |                  | 4                         | 1        |                | 2             |                |          | 3                 |                  |                     |                    |
|                       | Does not lock-up.                                                  | 1                | 3                         | 2        |                |               |                |          |                   |                  |                     |                    |
|                       | Does not hold lock-up condition.                                   | 1                | 3                         | 2        |                |               |                |          |                   |                  |                     |                    |
|                       | Lock-up is not released.                                           | 1                |                           | 2        |                |               |                |          |                   |                  |                     |                    |
|                       | With selector lever in D position, acceleration is extremely poor. | 1                | 3                         |          | 2              |               |                |          |                   |                  |                     |                    |
|                       | With selector lever in R position, acceleration is extremely poor. | 1                | 4                         | 2        |                | 3             |                |          |                   |                  |                     |                    |
|                       | Slips at lock-up.                                                  | 1                |                           | 2        |                |               |                |          |                   |                  |                     |                    |

# CVT CONTROL SYSTEM

< SYMPTOM DIAGNOSIS >

[CVT: RE0F10G]

| Symptom |                                                                                                                                                              | Torque converter | Transmission range switch | Oil pump | Forward clutch | Reverse brake | Planetary gear | Bearings | Parking mechanism | Stop lamp switch | Shift lock solenoid | CVT shift selector |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------|----------|----------------|---------------|----------------|----------|-------------------|------------------|---------------------|--------------------|
|         |                                                                                                                                                              | TM-707           | TM-704                    |          |                |               |                |          |                   | TM-658           | TM-656              | TM-667             |
| Other   | No creep at all.                                                                                                                                             | 1                | 6                         | 2        | 4              | 5             | 3              |          |                   |                  |                     |                    |
|         | Vehicle cannot run in all positions.                                                                                                                         | 1                |                           | 2        | 4              | 5             | 3              |          | 6                 |                  |                     |                    |
|         | With selector lever in D position, driving is not possible.                                                                                                  | 1                |                           | 2        | 4              |               | 3              |          | 5                 |                  |                     |                    |
|         | With selector lever in R position, driving is not possible.                                                                                                  | 1                |                           | 2        |                | 4             | 3              |          | 5                 |                  |                     |                    |
|         | Judder occurs during lock-up.                                                                                                                                | 1                |                           |          |                |               |                |          |                   |                  |                     |                    |
|         | Strange noise in D position.                                                                                                                                 | 1                |                           | 2        | 4              |               | 3              | 5        |                   |                  |                     |                    |
|         | Strange noise in R position.                                                                                                                                 | 1                |                           | 2        |                | 4             | 3              |          |                   |                  |                     |                    |
|         | Strange noise in N position.                                                                                                                                 | 1                |                           | 2        |                |               | 3              |          |                   |                  |                     |                    |
|         | Maximum speed low.                                                                                                                                           | 1                | 5                         | 2        | 4              |               | 3              |          |                   |                  |                     |                    |
|         | With selector lever in P position, vehicle does not enter parking condition or, with selector lever in another position, parking condition is not cancelled. |                  |                           |          |                |               |                |          | 1                 |                  |                     |                    |
|         | Vehicle runs with CVT in P position.                                                                                                                         |                  |                           |          |                |               | 2              |          | 1                 |                  |                     |                    |
|         | Vehicle runs with CVT in N position.                                                                                                                         |                  |                           |          | 2              | 3             | 1              |          |                   |                  |                     |                    |
|         | Engine stall.                                                                                                                                                | 1                |                           |          |                |               |                |          |                   |                  |                     |                    |
|         | Engine stalls when selector lever shifted N → D or R.                                                                                                        | 1                |                           |          |                |               |                |          |                   |                  |                     |                    |
|         | When brake pedal is depressed with ignition switch ON, selector lever cannot be shifted from P position to other position.                                   |                  |                           |          |                |               |                |          |                   | 1                | 2                   | 3                  |
|         | When brake pedal is not depressed with ignition switch ON, selector lever can be shifted from P position to other position.                                  |                  |                           |          |                |               |                |          |                   | 1                | 2                   | 3                  |

# PERIODIC MAINTENANCE

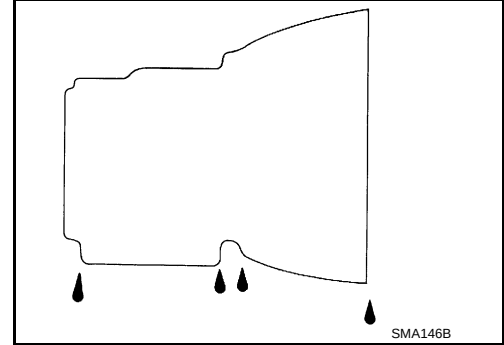
## CVT FLUID

### Inspection

INFOID:0000000010622866

#### FLUID LEAKAGE

- Check transaxle surrounding area (oil seal and plug etc.)for fluid leakage.
- If anything is found, repair or replace damaged parts and adjust CVT fluid level. Refer to [TM-665, "Adjustment"](#).



INFOID:0000000010622867

### Replacement

**Recommended fluid and fluid capacity** : Refer to [MA-23, "Fluids and Lubricants"](#).

#### CAUTION:

- Always use shop paper. Never use shop cloth.
- Replace a drain plug gasket with new ones at the final stage of the operation when installing.
- Use caution when looking into the drain hole as there is a risk of dripping fluid entering the eye.
- After replacement, always perform CVT fluid leakage check.

1. Select "Data Monitor" in "TRANSMISSION" using CONSULT.
2. Select "FLUID TEMP" and confirm that the CVT fluid temperature is 40°C (104°F) or less.
3. Check that the selector lever is in the "P" position, then completely engage the parking brake.
4. Lift up the vehicle.
5. Remove the drain plug and drain the CVT fluid from the oil pan. Refer to [TM-681, "Exploded View"](#).
6. Install the drain plug to oil pan.

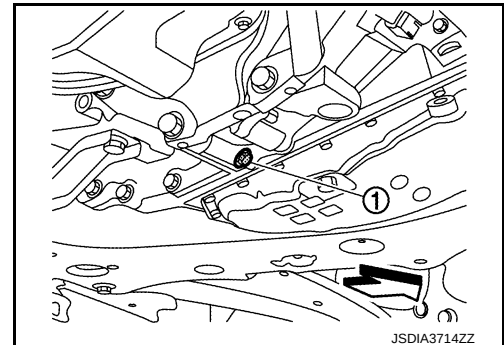
#### CAUTION:

**Drain plug gasket use the old one.**

7. Remove the overflow plug ① from converter housing.



: Vehicle front



## CVT FLUID

< PERIODIC MAINTENANCE >

[CVT: RE0F10G]

8. Install the charging pipe set (KV311039S0) (A) into the overflow plug hole.

**CAUTION:**

**Tighten the charging pipe by hand.**

9. Install the ATF changer hose (B) to the charging pipe.

**CAUTION:**

**Press the ATF changer hose all the way onto the charging pipe until it stops.**

10. Fill approximately 3 liter (2-5/8 Imp qt) of the CVT fluid.

11. Remove the ATF changer hose and charging pipe, then install the overflow plug.

**NOTE:**

Perform this work quickly because CVT fluid leaks.

12. Lift down the vehicle.

13. Start the engine.

14. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "D", and shift it to the "P" position.

**NOTE:**

Hold the lever at each position for 5 seconds.

15. Check that the CONSULT "Data Monitor" in "FLUID TEMP" is 35°C (95°F) to 45°C (113°F).

16. Stop the engine.

17. Lift up the vehicle.

18. Remove the drain plug, and then drain CVT fluid from oil pan.

19. Repeat steps 6 to 18 (one time).

20. Tighten the drain plug to the specified torque. Refer to [TM-681, "Exploded View"](#).

21. Remove the overflow plug.

22. Install the charging pipe set (KV311039S0) into the overflow plug hole.

**CAUTION:**

**Tighten the charging pipe by hand.**

23. Install the ATF changer hose to the charging pipe.

**CAUTION:**

**Press the ATF changer hose all the way onto the charging pipe until it stops.**

24. Fill approximately 3 liter (2-5/8 Imp qt) of the CVT fluid.

25. Remove the ATF changer hose and charging pipe, then install the overflow plug.

**NOTE:**

Perform this work quickly because CVT fluid leaks.

26. Lift down the vehicle.

27. Start the engine.

28. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "D", and shift it to the "P" position.

**NOTE:**

Hold the lever at each position for 5 seconds.

29. Check that the CONSULT "Data Monitor" in "FLUID TEMP" is 35°C (95°F) to 45°C (113°F).

30. Lift up the vehicle.

31. Remove the overflow plug and confirm that the CVT fluid is drained from the overflow plug hole.

**CAUTION:**

**Perform this work with the vehicle idling.**

**NOTE:**

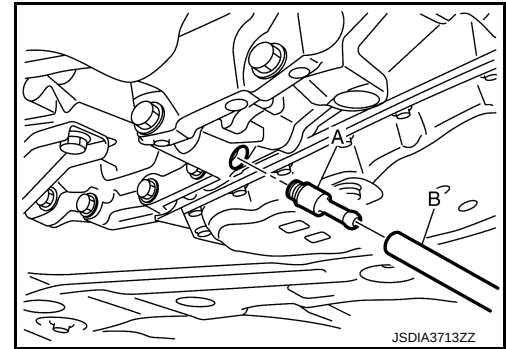
If the CVT fluid is not drained, refer to "Adjustment" and refill with the CVT fluid.

32. When the flow of CVT fluid slows to a drip, tighten the overflow plug to the specified torque. Refer to [TM-681, "Exploded View"](#).

**CAUTION:**

**Never reuse O-ring.**

33. Lift down the vehicle.



# CVT FLUID

< PERIODIC MAINTENANCE >

[CVT: RE0F10G]

34. Select "Data Monitor" in "TRANSMISSION" using CONSULT.
35. Select "CONFORM CVTF DETERIORATION".
36. Select "Erase".
37. Perform air bleeding of electric oil pump. Refer to [TM-552, "Work Procedure"](#).
38. Stop the engine.

## Adjustment

INFOID:000000010622868

**Recommended fluid and fluid capacity** : Refer to [MA-23, "Fluids and Lubricants"](#).

### CAUTION:

- During adjustment of the CVT fluid level, check CONSULT so that the oil temperature may be maintained from 35 to 45°C (95 to 113°F).
- During adjustment of the CVT fluid level, check that the engine speed is maintaining 500 rpm.
- Use caution when looking into the drain hole as there is a risk of dripping fluid entering the eye.

1. Check that the selector lever is in the "P" position, then completely engage the parking brake.
2. Start the engine.
3. Adjust the CVT fluid temperature to be approximately 40°C (104°F).

#### NOTE:

The CVT fluid is largely affected by temperature. Therefore be sure to use CONSULT and check the "FLUID TEMP" under "TRANSMISSION" in "Data Monitor" while adjusting.

4. While depressing the brake pedal, shift the selector lever to the entire position from "P" to "D", and shift it to the "P" position.

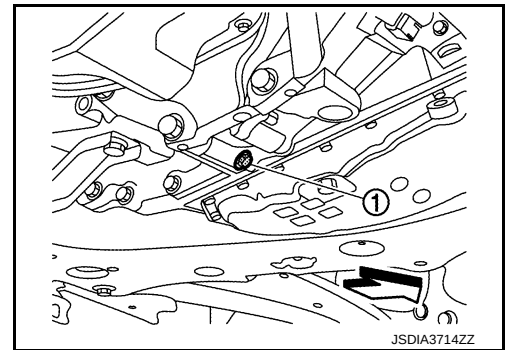
#### NOTE:

Hold the lever at each position for 5 seconds.

5. Lift up the vehicle.
6. Check that there is no CVT fluid leakage.
7. Remove the overflow plug ① from converter housing.



: Vehicle front



8. Install the charging pipe set (A) (SST: KV311039S0) into the overflow plug hole.

#### CAUTION:

**Tighten the charging pipe by hand.**

9. Install the ATF changer hose (B) to the charging pipe.

#### CAUTION:

**Press the ATF changer hose all the way onto the charging pipe until it stops.**

10. Fill approximately 0.5 liter (1/2 Imp qt) of the CVT fluid.
11. Remove the ATF changer hose from the charging pipe, and check that the CVT fluid drains out from the charging pipe. If it does not drain out, perform charging again.

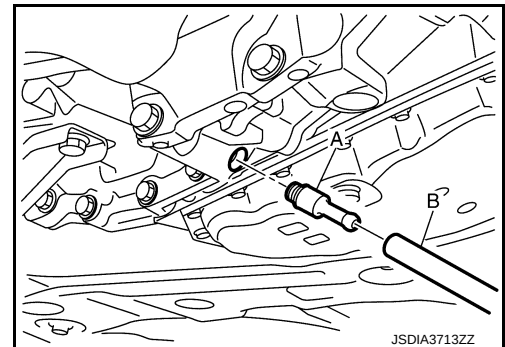
#### CAUTION:

**Perform this work with the vehicle idling.**

12. When the flow of CVT fluid slows to a drip, remove the charging pipe from the converter housing.
13. Tighten the overflow plug to the specified torque. Refer to [TM-681, "Exploded View"](#).

#### CAUTION:

**Never reuse O-ring.**



## CVT FLUID

< PERIODIC MAINTENANCE >

[CVT: RE0F10G]

---

14. Lift down the vehicle.
15. Stop the engine.

# CVT SHIFT SELECTOR

< REMOVAL AND INSTALLATION >

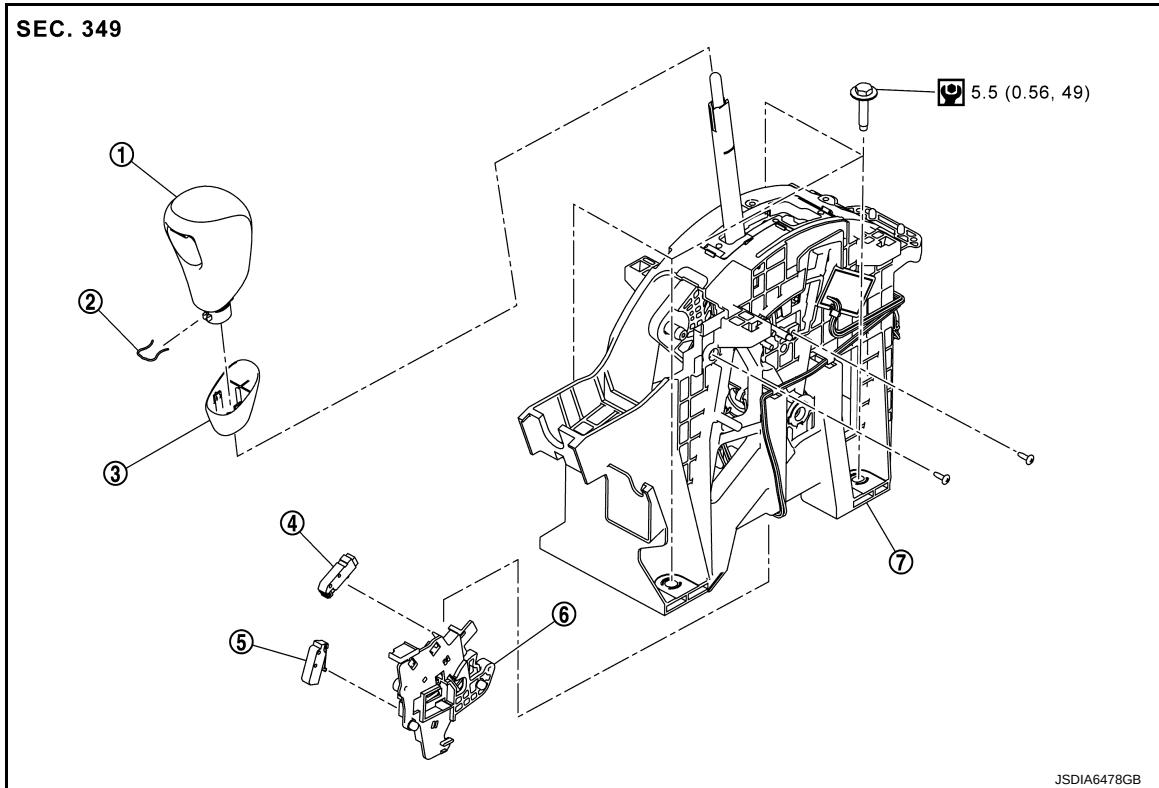
[CVT: RE0F10G]

## REMOVAL AND INSTALLATION

### CVT SHIFT SELECTOR

#### Exploded View

INFOID:0000000010622869



- |                               |                        |                   |
|-------------------------------|------------------------|-------------------|
| ① Selector lever knob         | ② Lock pin             | ③ Knob cover      |
| ④ Detent switch*              | ⑤ Park position switch | ⑥ Shift lock unit |
| ⑦ CVT shift selector assembly |                        |                   |

:N·m (kg-m, in-lb)

\*: With intelligent key system

### Removal and Installation

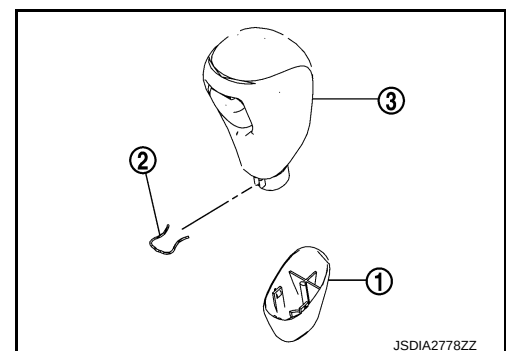
INFOID:0000000010622870

#### REMOVAL

##### CAUTION:

**Always apply the parking brake before performing removal and installation.**

1. Shift the selector lever to "N" position.
2. Slide the selector lever knob cover ① down.  
**CAUTION:**  
**Never damage the knob cover.**
3. Pull out the lock pin ②.
4. Pull the selector lever knob ③ and knob cover upwards to remove them.
5. Remove the center console assembly. Refer to [IP-25, "Removal and Installation"](#) (LHD models), [IP-52, "Removal and Installation"](#) (RHD models).
6. Disconnect the CVT shift selector connector.
7. Shift the selector lever to "P" position.

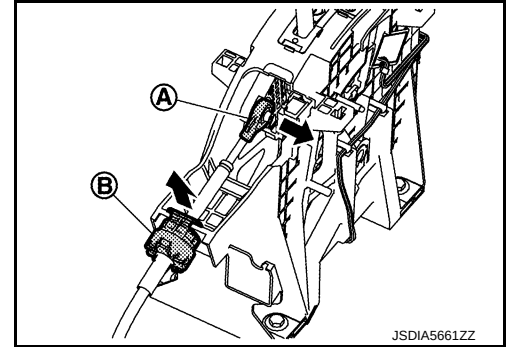


# CVT SHIFT SELECTOR

## < REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

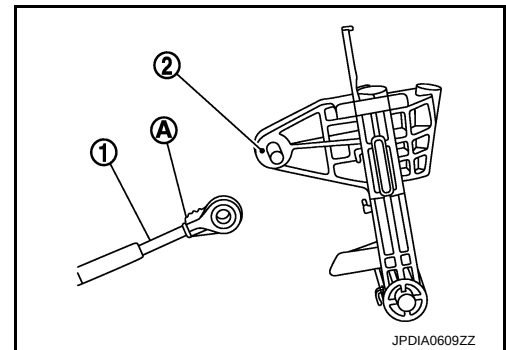
8. Disconnect the key interlock cable from CVT shift selector assembly. Refer to [TM-673, "Removal and Installation"](#). (Without intelligent key system)
9. Remove the control cable from the CVT shift selector assembly with the following procedure.
  - a. Disconnect the tip ① of control cable from the CVT shift selector assembly.
  - b. Remove socket ② from CVT shift selector assembly.  
**CAUTION:**  
**Never damage the pawl of socket.**
10. Remove harness clips from the CVT shift selector with a clip remover.
11. Remove CVT shift selector assembly mounting bolts.
12. Remove the CVT shift selector assembly.



## INSTALLATION

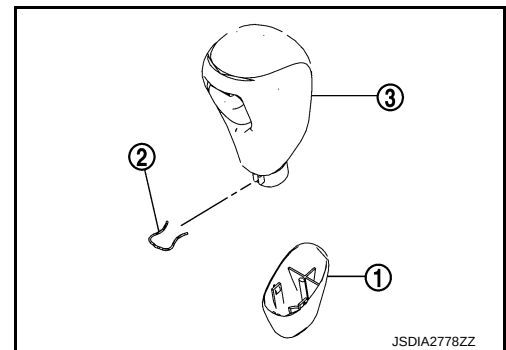
Note the following, and install in the reverse order of removal.

- When connecting the control cable ① to the CVT shift selector assembly ②, face the grooved surface of the rib ③ up and insert the control cable until it stops.



- Follow the procedure below and place the selector knob onto the CVT shift selector.

1. Install the lock pin ② onto the selector lever knob ③.
2. Install the knob cover ① onto the selector lever knob.
3. Press the selector lever knob onto the selector lever until it clicks.  
**CAUTION:**
  - When pressing the selector lever knob onto the selector lever, never press the selector lever knob button.
  - Never strike the selector lever knob to press it into place.
4. After installing selector lever knob, pull the knob to check that it does not become disconnected.



## Disassembly and Assembly

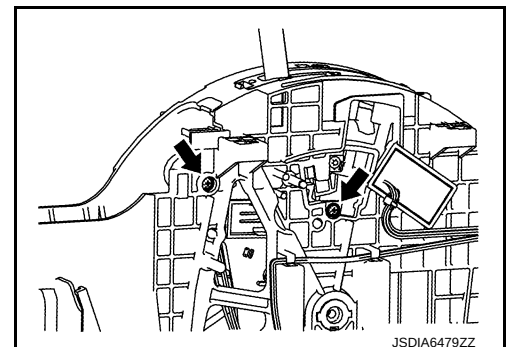
INFOID:000000010622871

## DISASSEMBLY

### CAUTION:

Confirm the installation condition of wiring before disassembly.

1. Remove shift lock unit mounting screws (←).





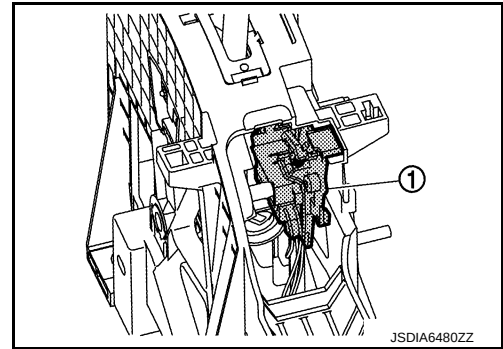
# CVT SHIFT SELECTOR

## < REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

2. Remove the shift lock unit ① from the CVT shift selector assembly.
3. Disconnect shift lock solenoid harness connector, park position switch harness connector, and detent switch harness connector\*.

\*: With intelligent key system

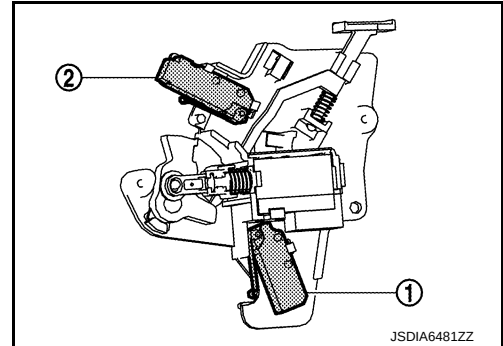


4. Remove park position switch ① and detent switch\* ② from shift lock unit.

\*: With intelligent key system

**CAUTION:**

**Never damage pawls.**



## ASSEMBLY

Assemble in the reverse order of disassembly.

## Inspection

INFOID:0000000010622872

## INSPECTION AFTER INSTALLATION

Check the CVT position. If a malfunction is found, adjust the CVT position. Refer to [TM-554, "Inspection"](#).

# CONTROL CABLE

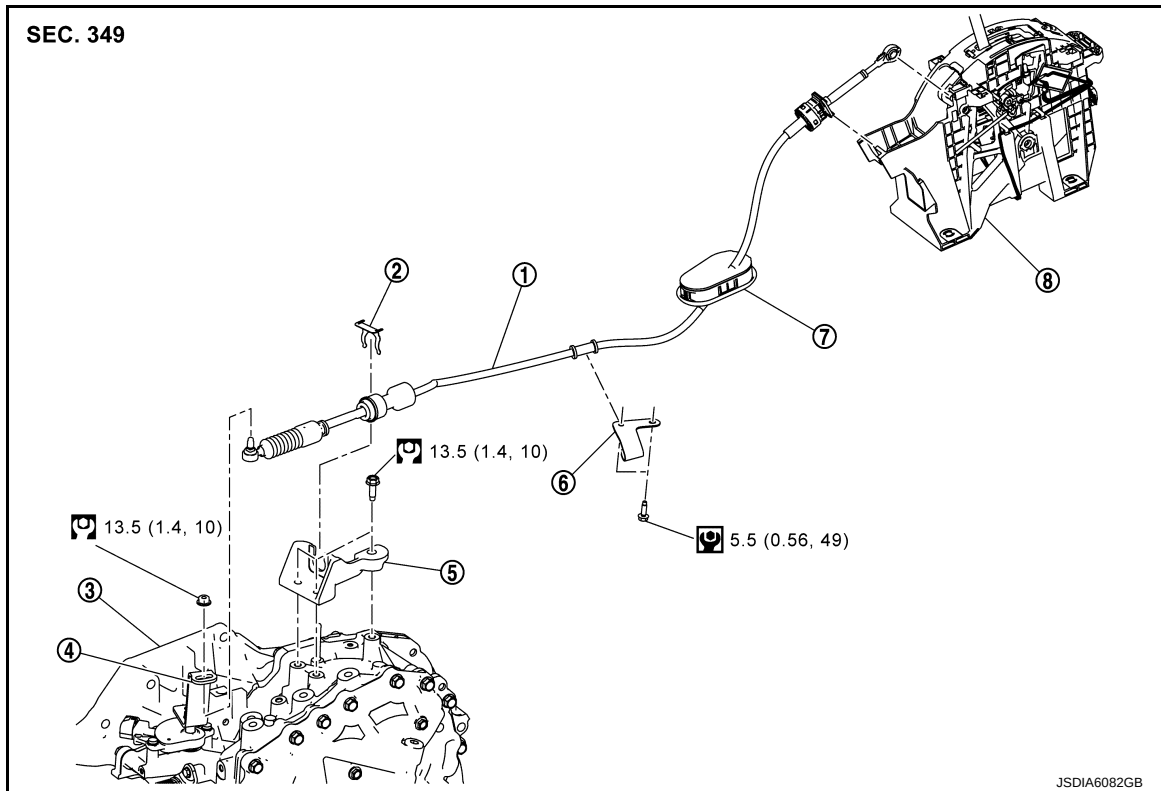
< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

## CONTROL CABLE

### Exploded View

INFOID:000000010622873



- |                 |                               |                      |
|-----------------|-------------------------------|----------------------|
| ① Control cable | ② Lock plate                  | ③ Transaxle assembly |
| ④ Manual lever  | ⑤ Bracket A                   | ⑥ Bracket B          |
| ⑦ Grommet       | ⑧ CVT shift selector assembly |                      |

 : N·m (kg-m, ft-lb)

 : N·m (kg-m, in-lb)

### Removal and Installation

INFOID:000000010622874

#### REMOVAL

##### CAUTION:

- Always apply the parking brake before performing removal and installation.
- Be careful not to cut your hand on heat insulator edges.

1. Turn ignition switch OFF.
2. Shift the selector lever to "P" position.
3. Remove battery tray. Refer to [PG-143, "R9M : Removal and Installation"](#).

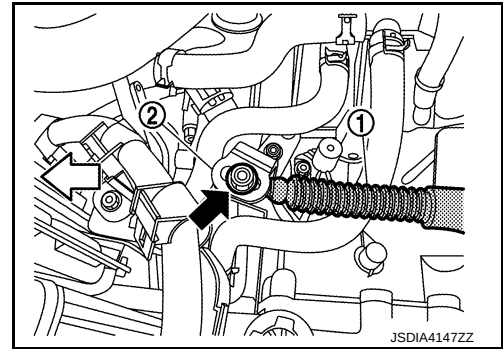
# CONTROL CABLE

## < REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

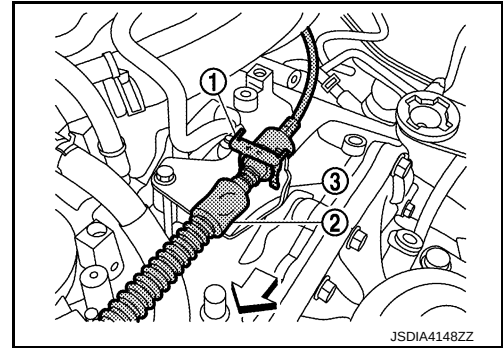
4. Remove the control cable nut (➡) and remove the control cable ① from the manual lever ②.

➡ : Vehicle front



5. Remove the lock plate ① and remove the control cable ② from bracket ③.

➡ : Vehicle front



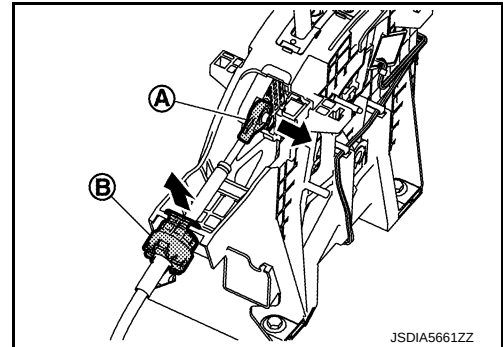
6. Remove the center console assembly. Refer to [IP-25, "Removal and Installation"](#) (LHD models), [IP-52, "Removal and Installation"](#) (RHD models).

7. Disconnect the tip ① of control cable from the CVT shift selector assembly.

8. Remove socket ② from CVT shift selector assembly.

**CAUTION:**

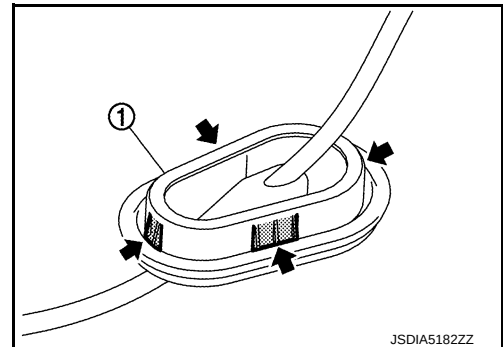
**Never damage pawl of socket.**



9. Disengage the pawls (➡) of the grommet ①, and pull downwards to remove.

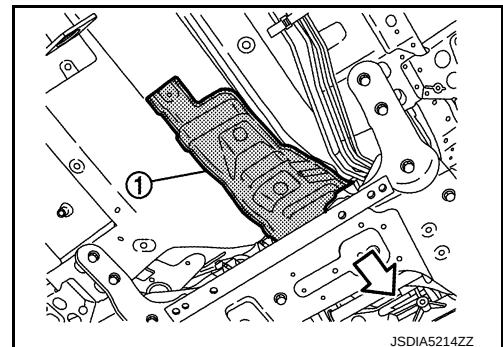
10. Lift up the vehicle.

11. Remove the exhaust front tube. Refer to [EX-17, "Exploded View"](#).



12. Remove the heat plate fixtures ①.

➡ : Vehicle front



# CONTROL CABLE

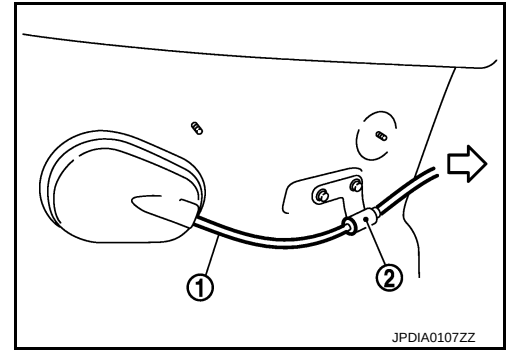
## < REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

13. Remove the control cable ① from bracket ②.

↔ : Vehicle front

14. Remove the control cable from the vehicle.



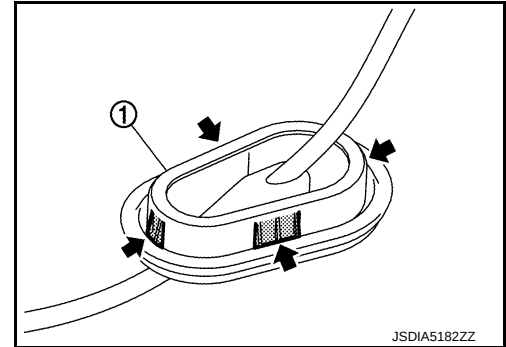
## INSTALLATION

Note the followings and install in the reverse order of removal.

- From below the vehicle, press the grommet ① into place until the pawls (↔) make a click sound.

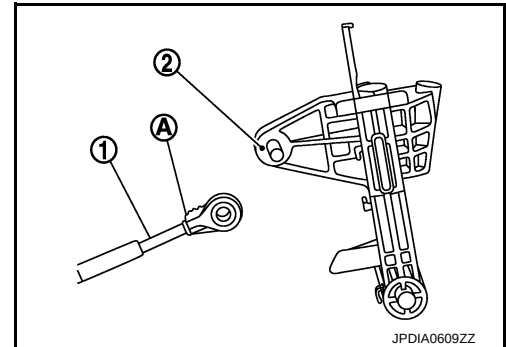
### CAUTION:

- Place the grommet on the floor, then fasten it in place from below the vehicle.
- Check that pulling down on the grommet does not disconnect it.



- Pay attention to the following when connecting the control cable to the CVT shift selector.

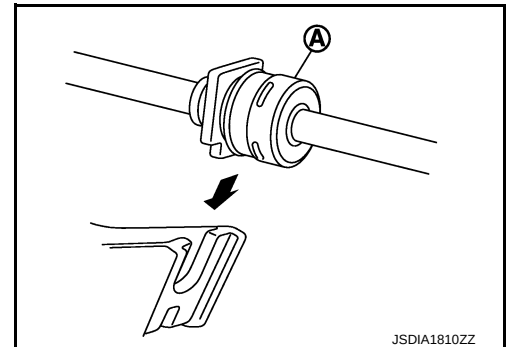
- Shift the selector lever and Manual lever to "P" position.
- When connecting the control cable ① to the CVT shift selector assembly ②, face the grooved surface of the rib ③ up and insert the control cable until it stops.



- Install the socket ④ onto the CVT shift selector assembly.

### CAUTION:

- Place the socket onto the CVT shift selector assembly, then fasten it in place from above.
- Check that the pulling on the socket does not disconnect it.



## Inspection

INFOID:0000000010622875

## INSPECTION AFTER INSTALLATION

Check the CVT position. If a malfunction is found, adjust the CVT position. Refer to [TM-554, "Inspection"](#).

# KEY INTERLOCK CABLE

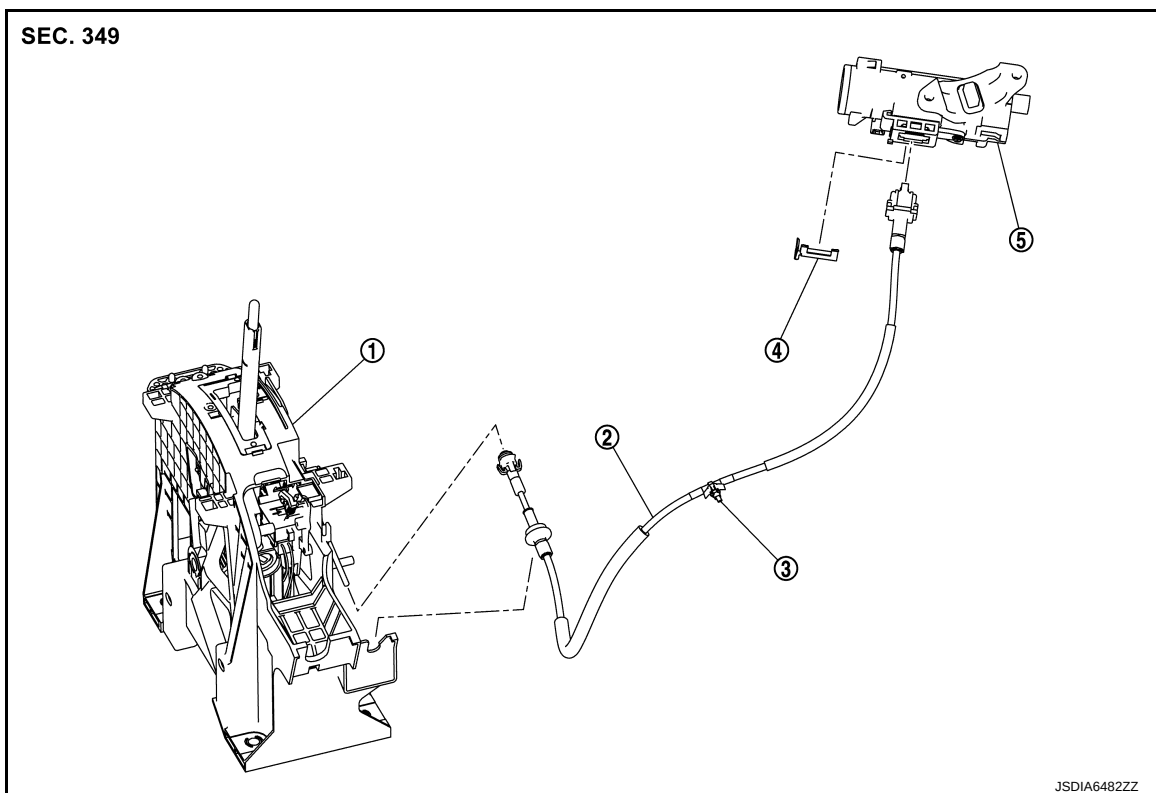
< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

## KEY INTERLOCK CABLE

### Exploded View

INFOID:0000000011009350



- |                           |                       |        |
|---------------------------|-----------------------|--------|
| ① Shift selector assembly | ② Key interlock cable | ③ Clip |
| ④ Clip                    | ⑤ Key cylinder        |        |

### Removal and Installation

INFOID:0000000011009351

#### REMOVAL

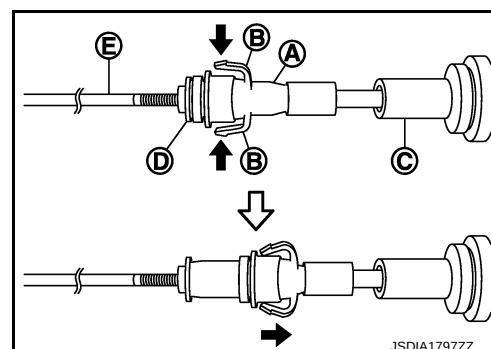
#### CAUTION:

**Always apply the parking brake before performing removal and installation.**

1. Remove the instrument lower panel (driver side) and steering column cover. Refer to [IP-14, "Removal and Installation"](#) (LHD models), [IP-41, "Removal and Installation"](#) (RHD models).
2. Remove the center console. Refer to [IP-25, "Removal and Installation"](#) (LHD models), [IP-52, "Removal and Installation"](#) (RHD models).
3. Press the pawls (B) of the key interlock cable slider (A) while sliding it in the direction of the casing cap (C), and separate the adjusting holder (D) and slider.

(E) :Key interlock rod

4. Remove the key interlock cable from the shift selector.



## KEY INTERLOCK CABLE

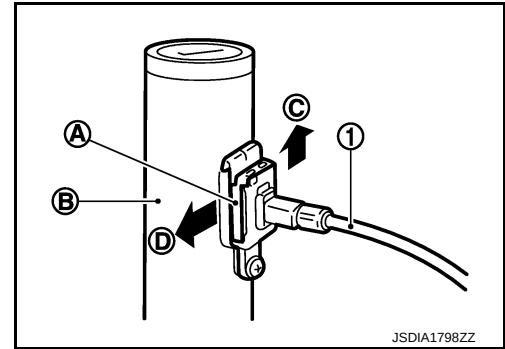
### < REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

5. Lift the clip ① in the direction of the arrow (← ③) and remove in the direction of the arrow (← ④).

- ① : Key interlock cable  
② : Key cylinder

6. Remove the key interlock cable from the key cylinder.  
7. Disengage the clip and disconnect the key interlock cable from the vehicle.

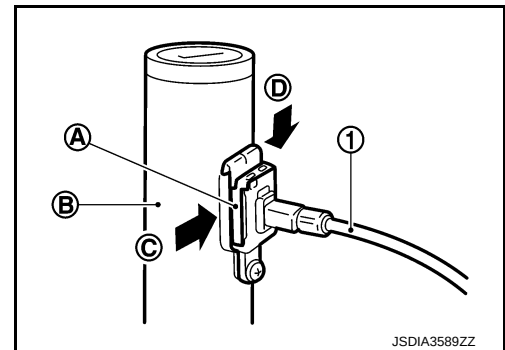


### INSTALLATION

1. Move the shift selector to "P" position.  
2. Turn the ignition switch to ACC or ON position.  
3. Install the holder of key interlock cable to key cylinder.  
4. Install the clip ① in the direction of the arrow (← ③) and push it in the direction of the arrow (← ④).

- ① : Key interlock cable  
② : Key cylinder

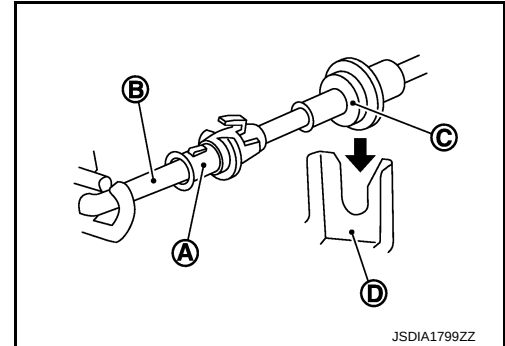
5. Turn the ignition switch to LOCK position.



6. Install the adjusting holder ① onto the key interlock rod ②, then install the casing cap ③ onto the shift selector cable bracket ④.

#### CAUTION:

- When installing the key interlock cable, do not bend or twist the cable forcefully.
- After connecting the key interlock cable to the shift selector cable bracket, be sure to check that the casing cap is completely fastened to the cable bracket. If the casing cap is easily displaced, replace the key interlock cable.



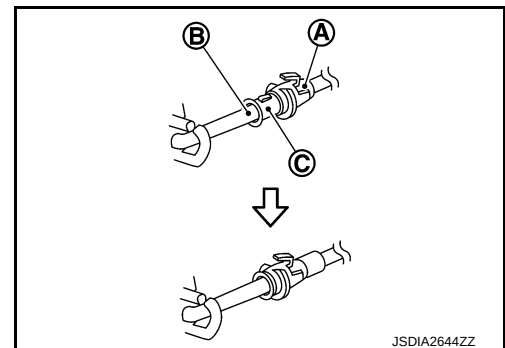
7. Slide the key interlock cable slider ① toward the key interlock rod ② side and install the adjusting holder ③ and key interlock rod.

#### CAUTION:

- Never squeeze the pawls on the key interlock cable slider when holding the slider.
- Never apply force in a perpendicular direction to the key interlock rod when sliding the slider.

8. Install the center console. Refer to [IP-25, "Removal and Installation"](#) (LHD models), [IP-52, "Removal and Installation"](#) (RHD models).

9. Install the instrument lower panel (driver side) and steering column cover. Refer to [IP-14, "Removal and Installation"](#) (LHD models), [IP-41, "Removal and Installation"](#) (RHD models).



### Inspection

INFOID:000000011009352

### INSPECTION AFTER INSTALLATION

## KEY INTERLOCK CABLE

[CVT: RE0F10G]

### < REMOVAL AND INSTALLATION >

- Check the CVT position. If a malfunction is found, adjust the CVT position. Refer to [TM-554, "Inspection"](#).
- The key can be removed only when the selector lever is in the "P" position.
- It must not be possible to turn the ignition switch to LOCK when the selector lever is not in the "P" position.

A

B

C

TM

E

F

G

H

I

J

K

L

M

N

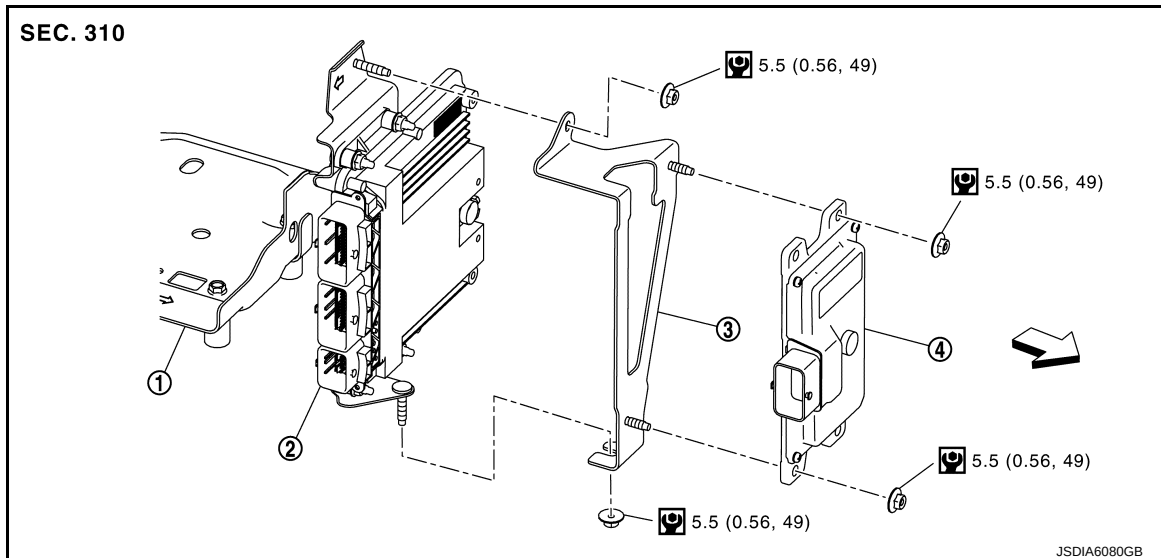
O

P

## TCM

## Exploded View

INFOID:000000010622879



① Battery tray

② ECM

③ Bracket

④ TCM

◀ : Vehicle front

⌚ : N·m (kg·m, in·lb)

## Removal and Installation

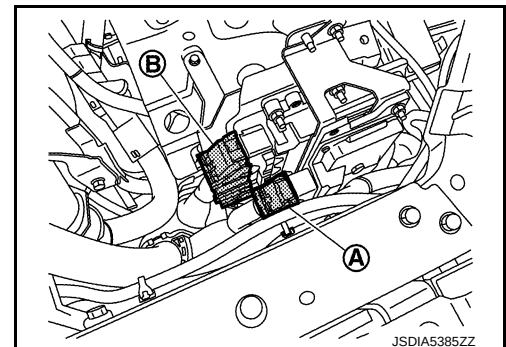
INFOID:000000010622880

**CAUTION:**

- Never impact the TCM when removing or installing TCM.
- Before replacing TCM, perform "ADDITIONAL SERVICE WHEN REPLACING TCM". Refer to [TM-544, "Work Procedure"](#).
- When replacing TCM and transaxle assembly simultaneously, perform "ADDITIONAL SERVICE WHEN REPLACING TCM AND TRANSAXLE ASSEMBLY". Refer to [TM-546, "Work Procedure"](#).
- When replacing TCM, note the "CVTF DETERIORATION DATE" value displayed on CONSULT "CONFORM CVTF DETERIORTN" in MAINTENANCE BOOKLET, before start the operation.

## REMOVAL

1. Remove the battery. Refer to [PG-139, "R9M : Removal and Installation"](#)
2. Remove the air duct (inlet). Refer to [EM-308, "Exploded View"](#).
3. Disconnect the TCM harness connector ① and the ECM harness connector ②.



4. Remove the battery tray with ECM and TCM. Refer to [PG-148, "EXCEPT FOR R9M : Removal and Installation"](#).

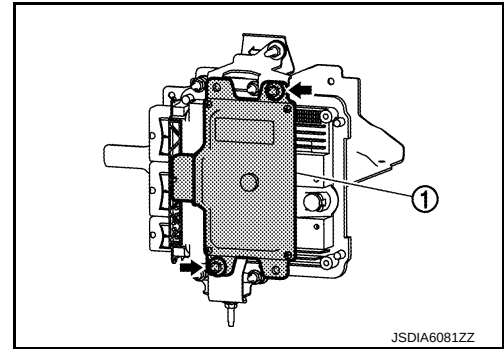


## TCM

### < REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

5. Remove TCM mounting nuts (➡) and remove TCM ① from bracket.



### INSTALLATION

Installation is in the reverse order of removal.

### Adjustment

INFOID:0000000010622881

### ADJUSTMENT AFTER INSTALLATION

When replaced TCM, perform "ADDITIONAL SERVICE WHEN REPLACING TCM". Refer to [TM-544, "Work Procedure"](#).

# G SENSOR

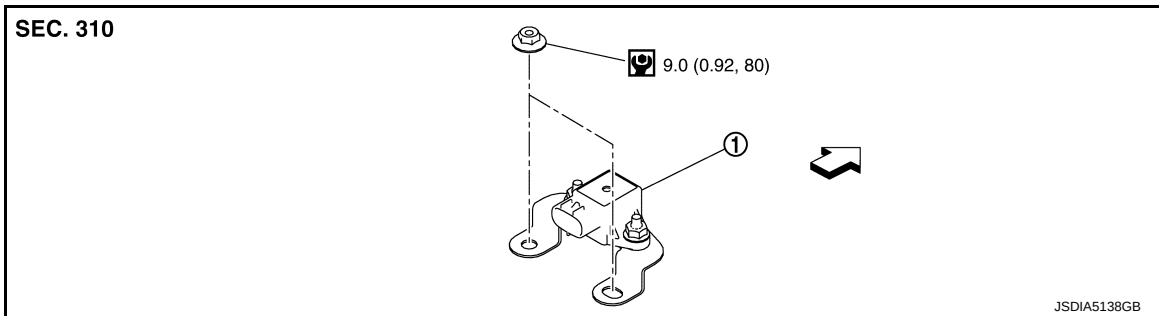
< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

## G SENSOR

### Exploded View

INFOID:0000000010623977



- ① G sensor
- ↔ : Vehicle front
- Ⓐ : N·m (kg-m, in-lb)

### Removal and Installation

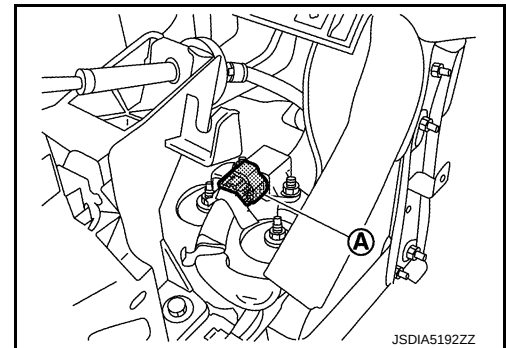
INFOID:0000000010623978

#### CAUTION:

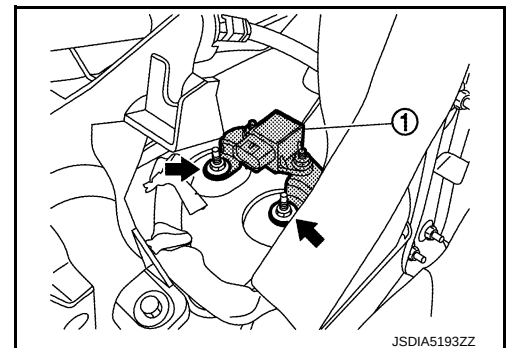
- Never drop or strike G sensor, because it has little tolerance for impact.
- Never use a power tool to avoid impact.

#### REMOVAL

1. Turn ignition switch OFF.
2. Remove the center console assembly. Refer to [IP-25, "Removal and Installation"](#) (LHD models), [IP-52, "Removal and Installation"](#) (RHD models).
3. Disconnect the G sensor harness connector Ⓐ.



4. Remove G sensor mounting nuts (↔) and remove G sensor ①.



#### INSTALLATION

Installation is the reverse order of removal.

Adjustment

INFOID:0000000010623979

ADJUSTMENT AFTER INSTALLATION

Perform "CALIBRATION OF G SENSOR". Refer to [TM-551, "Work Procedure"](#).

- A
- B
- C
- TM
- E
- F
- G
- H
- I
- J
- K
- L
- M
- N
- O
- P

# AIR BREATHER

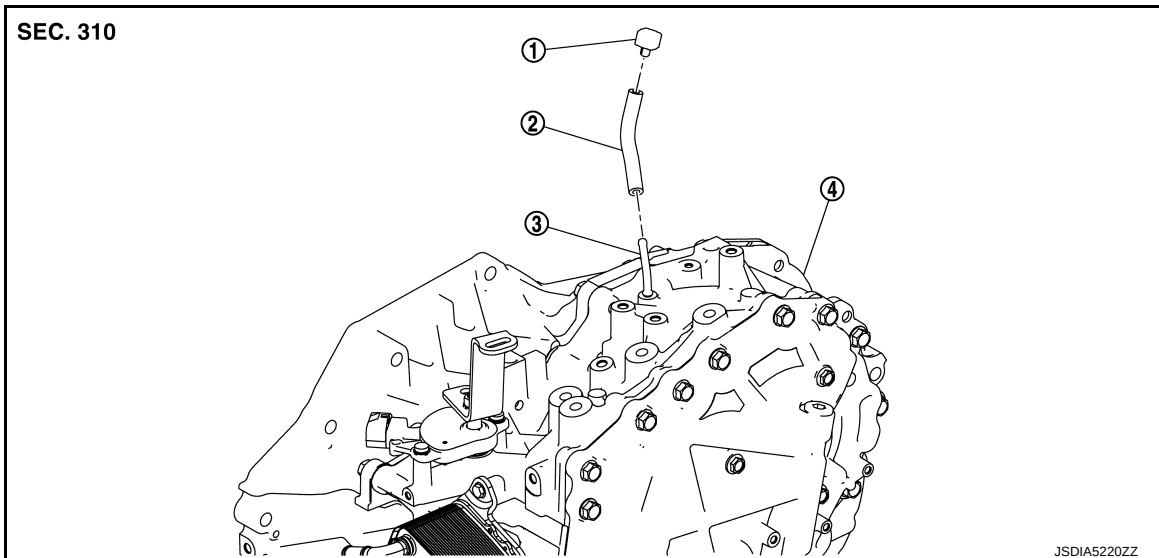
< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

## AIR BREATHER

### Exploded View

INFOID:00000001062282



### Removal and Installation

INFOID:00000001062283

#### REMOVAL

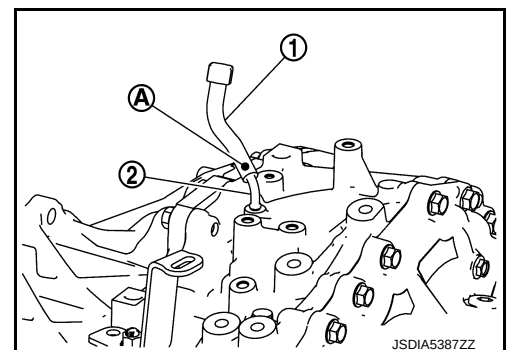
1. Remove the air duct (inlet), air cleaner cases assembly with mass air flow sensor, and air duct assembly. Refer to [EM-308, "Removal and Installation"](#).
2. Remove air breather hose.

#### INSTALLATION

Installation is in the reverse order of removal.

#### CAUTION:

- Never bend the air breather hose to prevent damage to the hose.
- Insert air breather hose to the end of air breather.
- Insert air breather hose ① to air breather tube ② all the way to the curve of the tube.
- Insert air breather hose to air breather tube so that the paint mark (A) is facing upward.



# OIL PAN

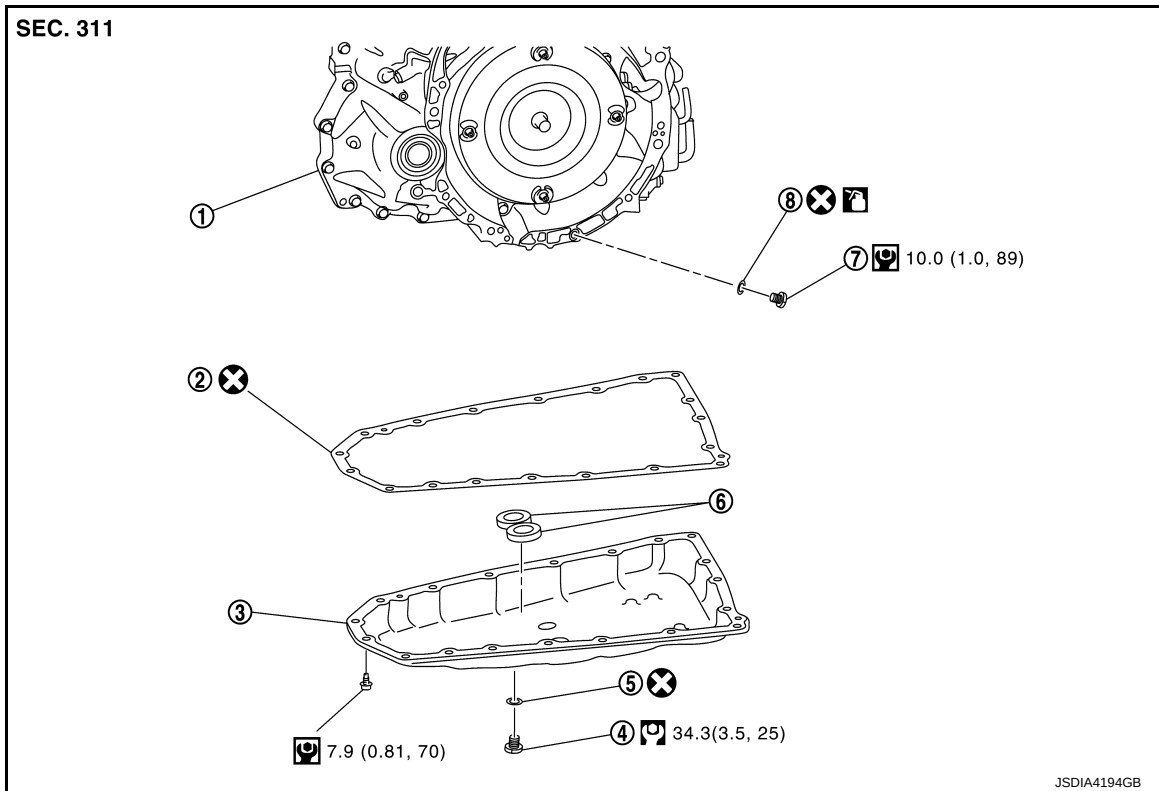
< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

## OIL PAN

### Exploded View

INFOID:0000000010622886



- |                      |                     |           |
|----------------------|---------------------|-----------|
| ① Transaxle assembly | ② Oil pan gasket    | ③ Oil pan |
| ④ Drain plug         | ⑤ Drain plug gasket | ⑥ Magnet  |
| ⑦ Overflow plug      | ⑧ O-ring            |           |

✕ : Always replace after every disassembly.

⊙ : N·m (kg-m, ft-lb)

⊙ : N·m (kg-m, in-lb)

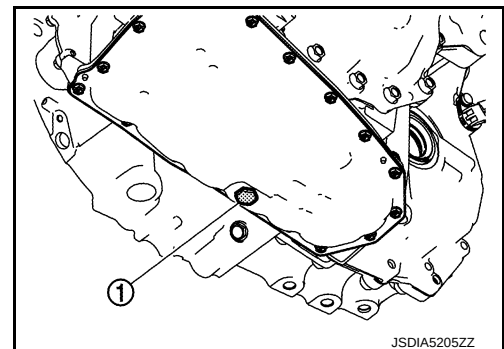
⊙ : Apply CVT fluid

### Removal and Installation

INFOID:0000000010622887

#### REMOVAL

1. Remove the engine under cover. Refer to [EXT-40, "ENGINE UNDER COVER : Removal and Installation"](#).
2. Remove the drain plug ① from oil pan and drain the CVT fluid.

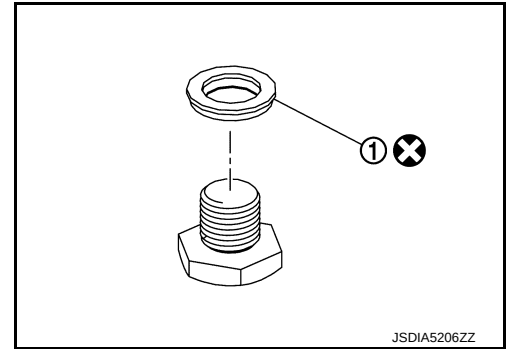


## OIL PAN

### < REMOVAL AND INSTALLATION >

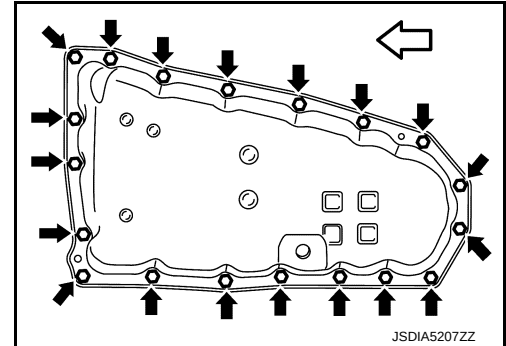
[CVT: RE0F10G]

3. Remove the drain plug gasket ①.

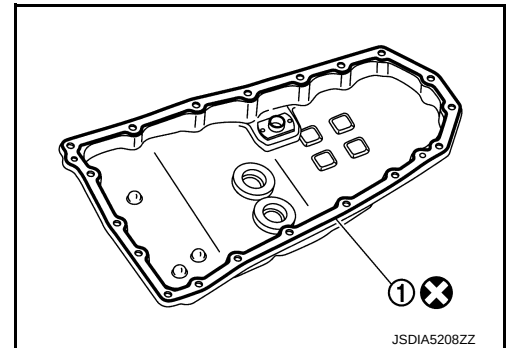


4. Remove the oil pan bolts (←) and remove the oil pan and oil pan gasket.

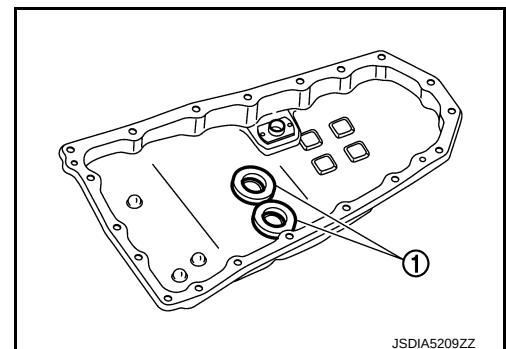
← : Vehicle front



5. Remove the oil pan gasket ① from the oil pan.



6. Remove the magnets ① from the oil pan.



### INSTALLATION

Note the followings and installation is in the reverse order of removal.

#### CAUTION:

- Never reuse oil pan gasket.
- Never reuse drain plug gasket.
- Completely clean the iron powder from the magnet area of oil pan and the magnets.
- Install the oil pan to the transaxle case with the following procedure.

1. Install the oil pan gasket to the oil pan.

#### CAUTION:

Completely wipe out any moisture, oil, and old gasket from the oil pan gasket surface and bolt hole of oil pan and transaxle case.

2. Install the oil pan assembly to the transaxle case and temporarily tighten the oil pan bolt.

## OIL PAN

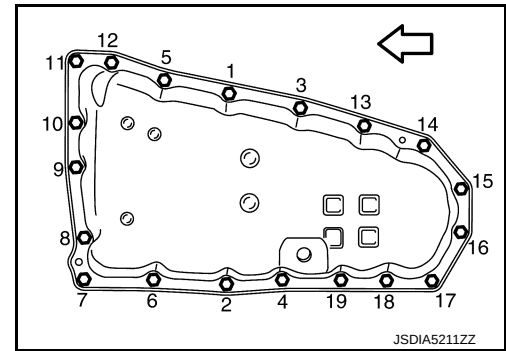
### < REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

3. Tighten the oil pan bolts in the order shown to the specified torque.

↶ : Vehicle front

4. Tighten the oil pan bolts again clockwise from (1) shown to the specified torque.
- Fill ATF after installation. Refer to [TM-663, "Replacement"](#).



INFOID:000000010622888

### Inspection

#### INSPECTION AFTER REMOVAL

Check oil pan for foreign material.

- If a large amount of worn material is found, clutch plate may be worn.
  - If iron powder is found, bearings, gears, or clutch plates may be worn.
  - If aluminum powder is found, bushing may be worn, or chips or burrs of aluminum casting parts may enter.
- Check points where wear is found in all cases.

#### INSPECTION AFTER INSTALLATION

Check the CVT fluid leakage. Refer to [TM-663, "Inspection"](#).

# INPUT SPEED SENSOR

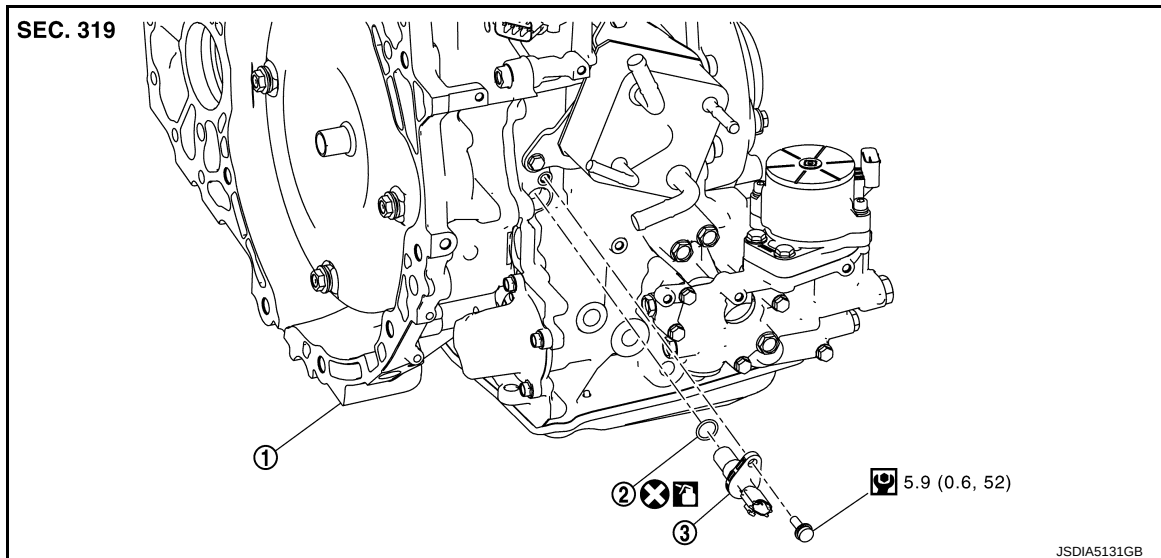
< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

## INPUT SPEED SENSOR

### Exploded View

INFOID:000000010622889



① Transaxle assembly

② O-ring

③ Input speed sensor



: Always replace after every disassembly.



: N·m (kg-m, in-lb)



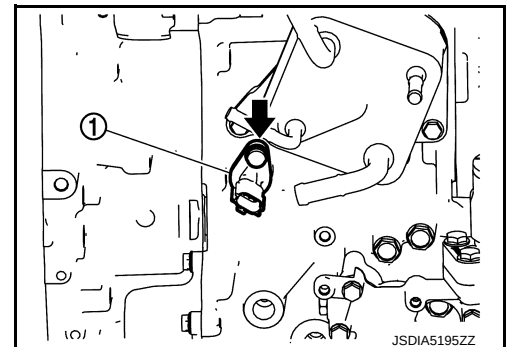
: Apply CVT fluid

### Removal and Installation

INFOID:000000010622890

#### REMOVAL

1. Turn ignition switch OFF.
2. Remove the battery tray. Refer to [PG-148, "EXCEPT FOR R9M : Removal and Installation"](#).
3. Remove the fluid cooler hose A. Refer to [TM-694, "Exploded View"](#)
4. Remove the fluid cooler hose B and fluid cooler hose F from CVT oil warmer side. Refer to [TM-694, "Exploded View"](#)
5. Remove the water hose A and water hose B. Refer to [TM-692, "Exploded View"](#)
6. Disconnect the input speed sensor harness connector.
7. Remove mounting bolt (➡) and remove input speed sensor ① from transaxle assembly.



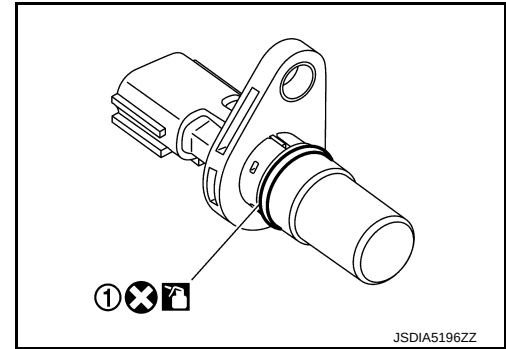


## INPUT SPEED SENSOR

< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

8. Remove O-ring ① from input speed sensor.



### INSTALLATION

Note the followings and installation is in the reverse order of removal.

#### CAUTION:

- Never reuse O-ring.
- Apply CVT fluid to the O-ring.

### Inspection and Adjustment

INFOID:0000000010622891

### INSPECTION AFTER INSTALLATION

Start the engine and check visually that there is no leakage of CVT fluid.

### ADJUSTMENT AFTER INSTALLATION

If CVT fluid leaks during work, adjust the CVT fluid level. Refer to [TM-665, "Adjustment"](#).

# PRIMARY SPEED SENSOR

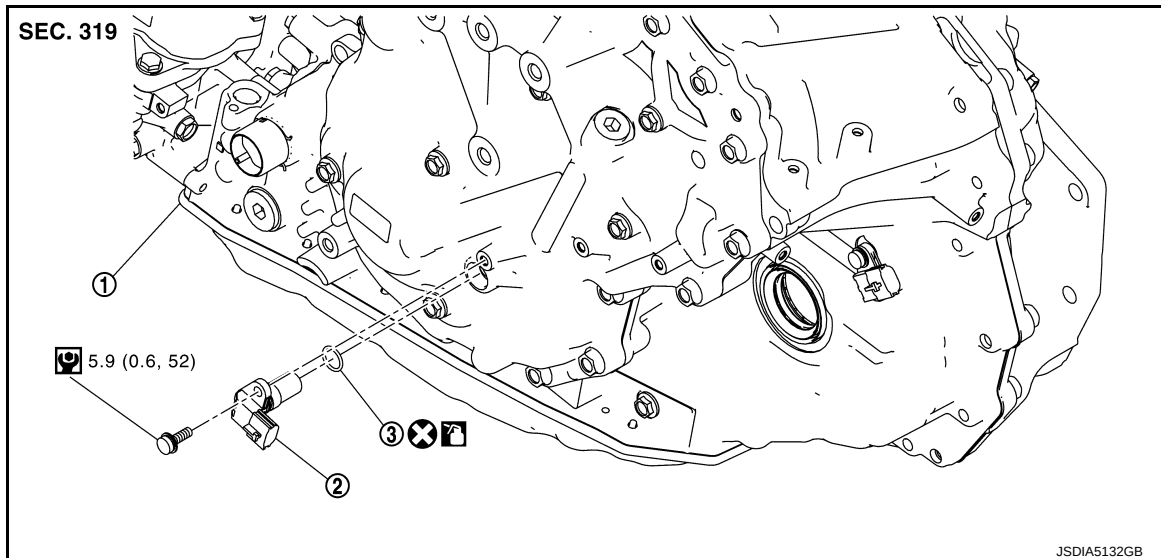
< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

## PRIMARY SPEED SENSOR

### Exploded View

INFOID:000000010622895



① Transaxle assembly

② Primary speed sensor

③ O-ring

⊗ : Always replace after every disassembly.

⌘ : N·m (kg-m, in-lb)

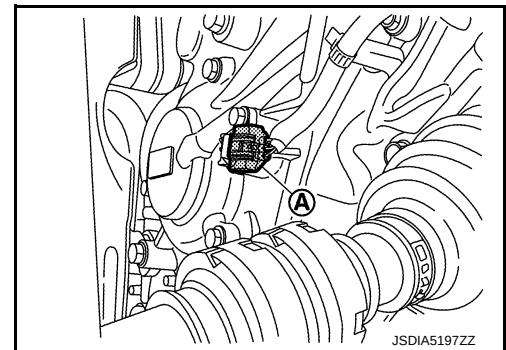
🔧 : Apply CVT fluid

### Removal and Installation

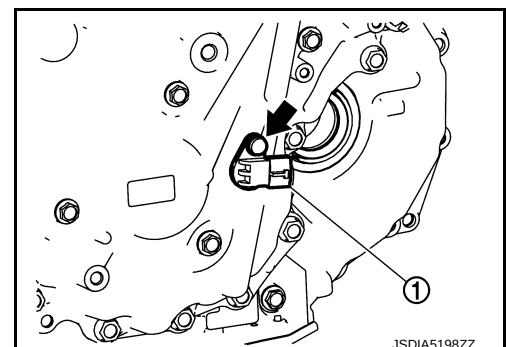
INFOID:000000010622896

#### REMOVAL

1. Turn ignition switch OFF.
2. Disconnect the primary speed harness connector (A).



3. Remove the primary speed sensor bolt (⬅) and remove the primary speed sensor (1).

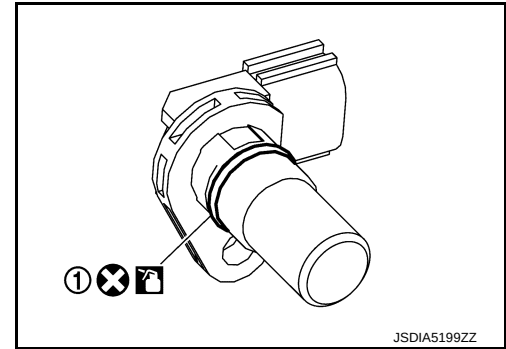


## PRIMARY SPEED SENSOR

### < REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

4. Remove the O-ring ① from the primary speed sensor.



### INSTALLATION

Note the followings and installation is in the reverse order of removal.

#### CAUTION:

- **Never reuse O-ring.**
- **Apply CVT fluid to the O-ring.**

### Inspection and Adjustment

INFOID:0000000010622897

### INSPECTION AFTER INSTALLATION

Start the engine and check visually that there is no leakage of CVT fluid.

### ADJUSTMENT AFTER INSTALLATION

If CVT fluid leaks during work, adjust the CVT fluid level. Refer to [TM-665, "Adjustment"](#).

# OUTPUT SPEED SENSOR

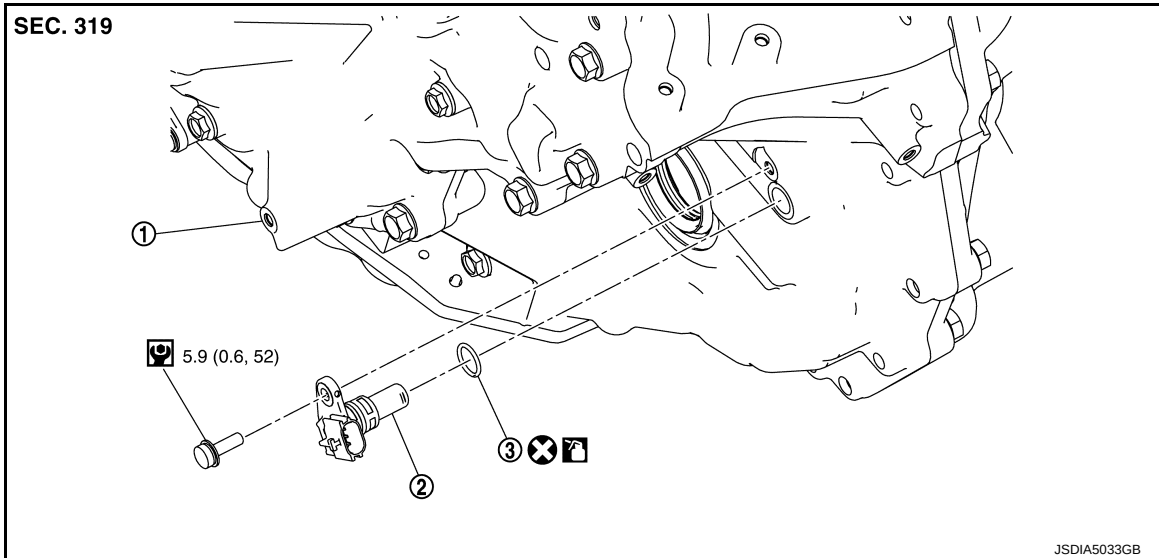
< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

## OUTPUT SPEED SENSOR

### Exploded View

INFOID:000000010622898

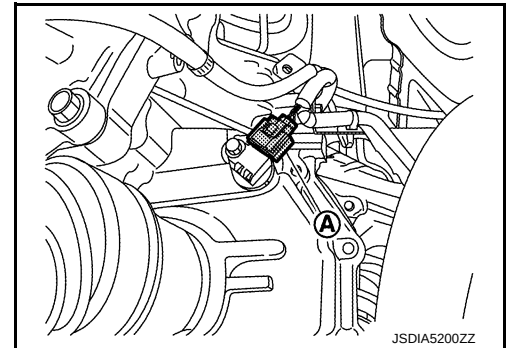


### Removal and Installation

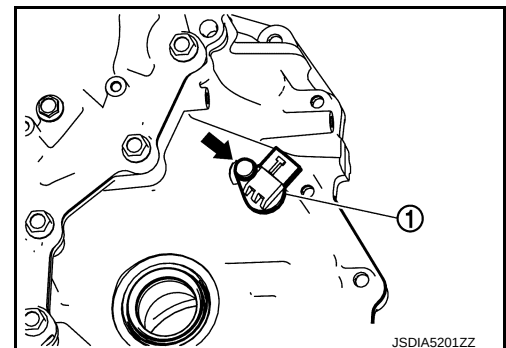
INFOID:000000010622899

#### REMOVAL

1. Turn ignition switch OFF.
2. Disconnect the output speed sensor harness connector (A).



3. Remove the output speed sensor bolt (⬅) and remove the output speed sensor (①).

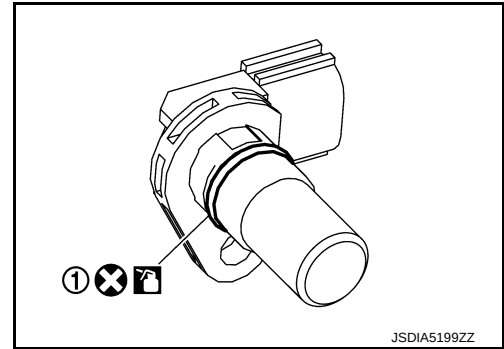


## OUTPUT SPEED SENSOR

< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

4. Remove the O-ring ① from the output speed sensor.



### INSTALLATION

Note the followings and installation is in the reverse order of removal.

#### CAUTION:

- Never reuse O-ring.
- Apply CVT fluid to the O-ring.

### Inspection and Adjustment

INFOID:0000000010622900

### INSPECTION AFTER INSTALLATION

Start the engine and check visually that there is no leakage of CVT fluid.

### ADJUSTMENT AFTER INSTALLATION

If CVT fluid leaks during work, adjust the CVT fluid level. Refer to [TM-665, "Adjustment"](#).

# DIFFERENTIAL SIDE OIL SEAL

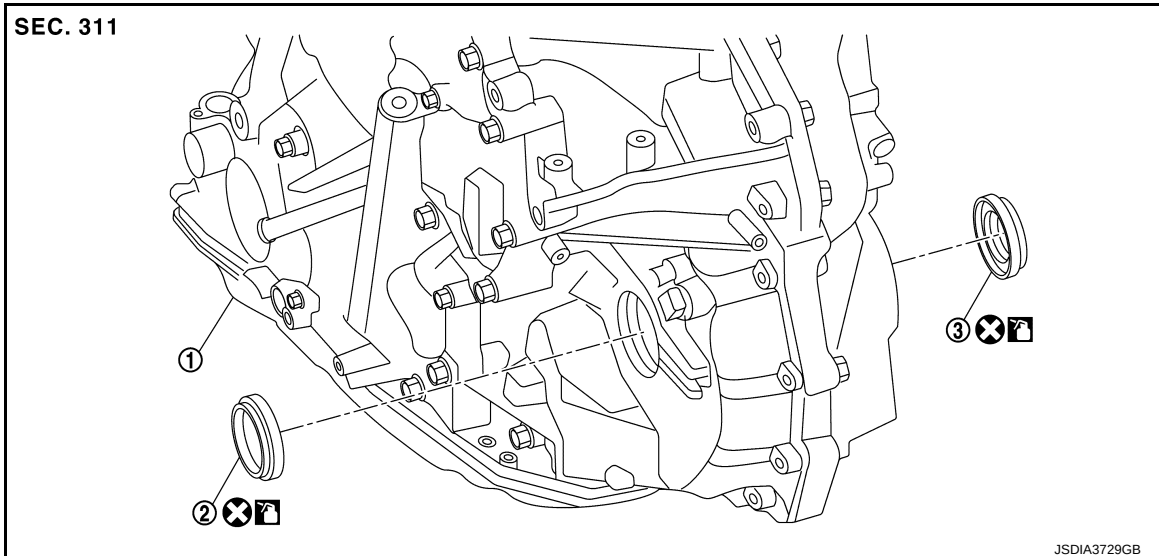
< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

## DIFFERENTIAL SIDE OIL SEAL

Exploded View

INFOID:0000000010622901



- ① Transaxle assembly      ② Differential side oil seal (left side)      ③ Differential side oil seal (right side)
- ⊗ : Always replace after every disassembly.
- ☞ : Apply CVT fluid

## Removal and Installation

INFOID:0000000010622902

### REMOVAL

#### NOTE:

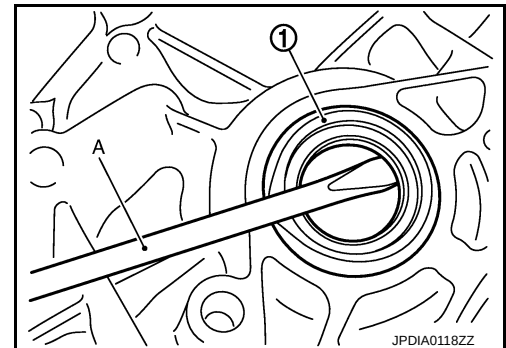
When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

#### Differential Side Oil Seal (Left Side)

1. Remove front drive shaft. Refer to [FAX-50. "R9M : Removal and Installation"](#).
2. Remove differential side oil seal (A) using an oil seal remover (A) (commercial service tool).

#### CAUTION:

**Be careful not to scratch transaxle case and converter housing.**



#### Differential Side Oil Seal (Right Side)

1. Remove front drive shaft. Refer to [FAX-50. "R9M : Removal and Installation"](#).

# DIFFERENTIAL SIDE OIL SEAL

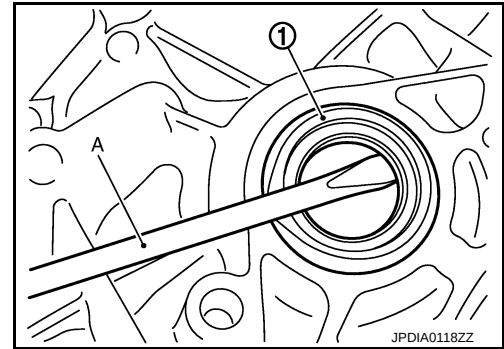
## < REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

- Remove differential side oil seal ① using an oil seal remover (A) (commercial service tool).

### CAUTION:

Be careful not to scratch transaxle case and converter housing.



## INSTALLATION

Note the followings and installation is in the reverse order of removal.

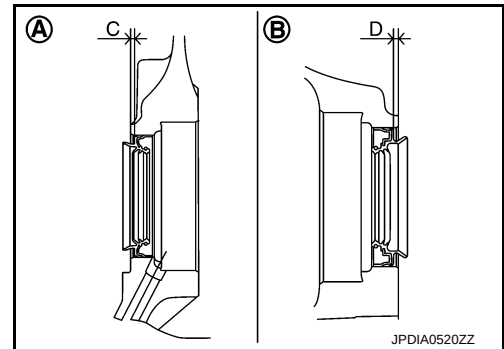
### CAUTION:

- Never reuse differential side oil seal.
- Apply CVT fluid to differential side oil seals.
- When inserting the drive shaft, be sure to use Tool.

Tool number : KV38107900

Install each differential side oil seal evenly using suitable tool so that differential side oil seal protrudes by the dimension (C) and (D) respectfully.

- ① : Differential side oil seal (LH)  
② : Differential side oil seal (RH)



Dimension (C) :Height difference from case end surface is within  $1.8 \pm 0.5$  mm ( $0.071 \pm 0.020$  in).

Dimension (D) :Height difference from case end surface is within  $2.2 \pm 0.5$  mm ( $0.087 \pm 0.020$  in).

### NOTE:

The reference is the installation direction of the differential side oil seal.

Drift to be used:

| Location               | Commercial Service Tools                                                               |
|------------------------|----------------------------------------------------------------------------------------|
| Transaxle case side    | Commercial service tool with outer dia. 56 mm (2.20 in) and inner dia. 50 mm (1.97 in) |
| Converter housing side |                                                                                        |

## Inspection and Adjustment

INFOID:000000010622903

### INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage. Refer to [TM-663, "Inspection"](#).

### ADJUSTMENT AFTER INSTALLATION

If CVT fluid leaks during work, adjust the CVT fluid level. Refer to [TM-665, "Adjustment"](#).

# WATER HOSE

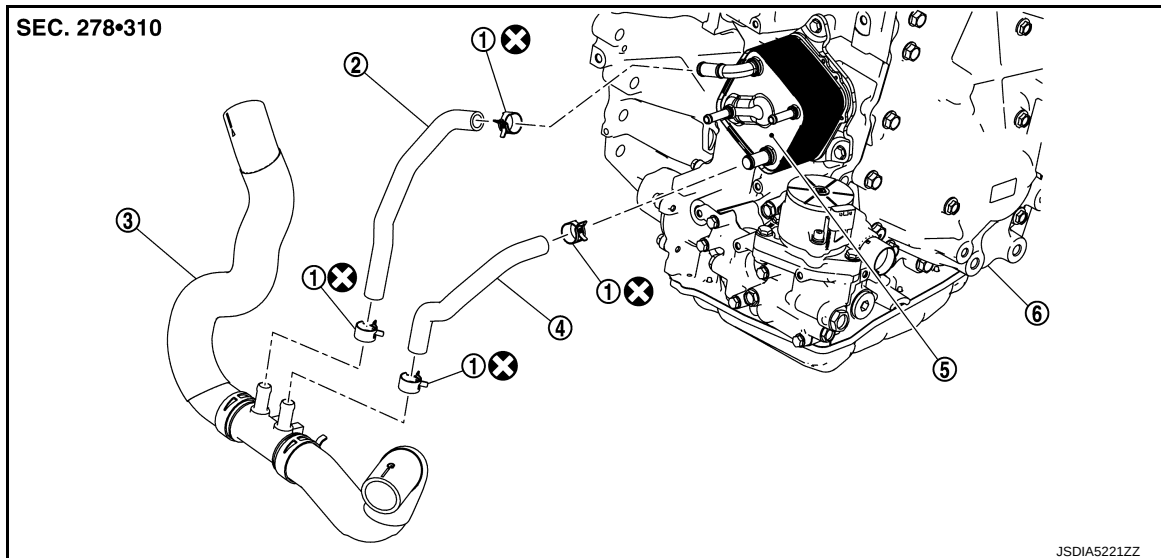
< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

## WATER HOSE

### Exploded View

INFOID:000000010622904



- ① Hose clamp
- ② Water hose A
- ③ Radiator hose assembly
- ④ Water hose B
- ⑤ CVT oil warmer
- ⑥ Transaxle assembly
- ⊗ : Always replace after every disassembly.

### Removal and Installation

INFOID:000000010622905

#### REMOVAL

##### **WARNING:**

Never remove the radiator cap when the engine is hot. Serious burns could occur from high pressure coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.

##### **CAUTION:**

Perform when the engine is cold.

##### **NOTE:**

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Remove the battery tray. Refer to [PG-143, "R9M : Removal and Installation"](#).
2. Remove the engine undercover. Refer to [EXT-40, "ENGINE UNDER COVER : Removal and Installation"](#).
3. Release hose clamps and remove water hose A and B.

#### INSTALLATION

Note the followings and installation is in the reverse order of removal.

##### **CAUTION:**

- Never reuse hose clamps.
- Securely install the water hose clip to the converter housing.
- Refer to the following when installing water hoses.

| Hose ①       | Installation side tube ② | Direction of paint mark | Hose insertion depth (L)                                    |
|--------------|--------------------------|-------------------------|-------------------------------------------------------------|
| Water hose A | Radiator hose assembly   | Frontward               | Ⓐ: Hose end reaches the end of radiator hose assembly tube. |
|              | CVT oil warmer           | Frontward               | Ⓑ: End reaches the 2-stage bulge.                           |

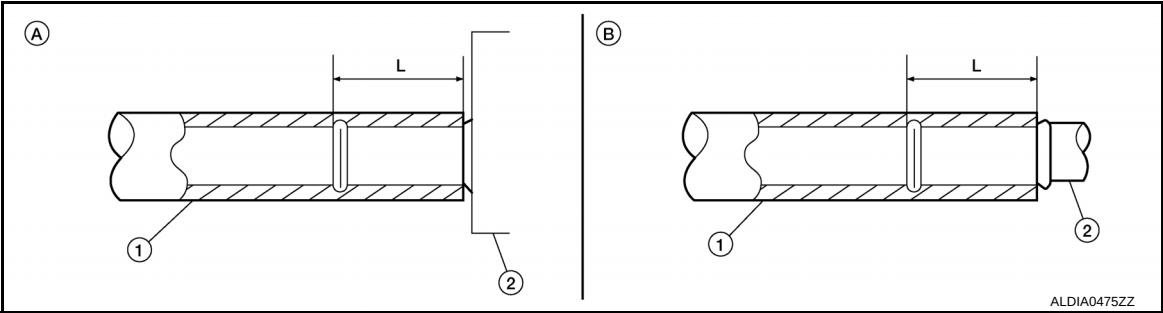


# WATER HOSE

< REMOVAL AND INSTALLATION >

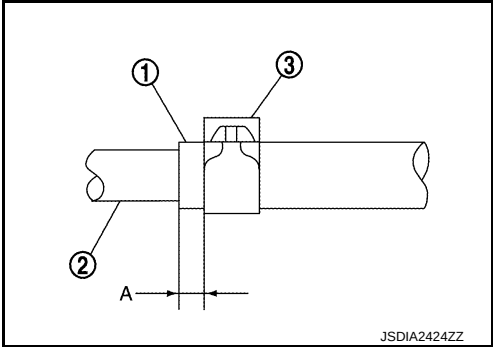
[CVT: RE0F10G]

| Hose ①       | Installation side tube ② | Direction of paint mark | Hose insertion depth (L)                                    |
|--------------|--------------------------|-------------------------|-------------------------------------------------------------|
| Water hose B | Radiator hose assembly   | Frontward               | Ⓐ: Hose end reaches the end of radiator hose assembly tube. |
|              | CVT oil warmer           | Upward                  | Ⓑ: End reaches the 2-stage bulge.                           |



- Refer to the followings when installing hose clamp.
- CAUTION:**  
Hose clamp should not interfere with the bulge of tube.

| Hose ①       | Installation side tube ② | Hose clamp ③     |                                         |
|--------------|--------------------------|------------------|-----------------------------------------|
|              |                          | Direction of tab | Clamping position (A)                   |
| Water hose A | Radiator hose assembly   | Rearward         | 5 – 7 mm (0.20 – 0.28 in) from hose end |
|              | CVT oil warmer           | Frontward        |                                         |
| Water hose B | Radiator hose assembly   | Rearward         |                                         |
|              | CVT oil warmer           | Leftward         |                                         |



## Inspection

INFOID:0000000010622906

### INSPECTION AFTER INSTALLATION

Start the engine and check visually that there is no leakage of engine coolant.

# CVT FLUID COOLER SYSTEM

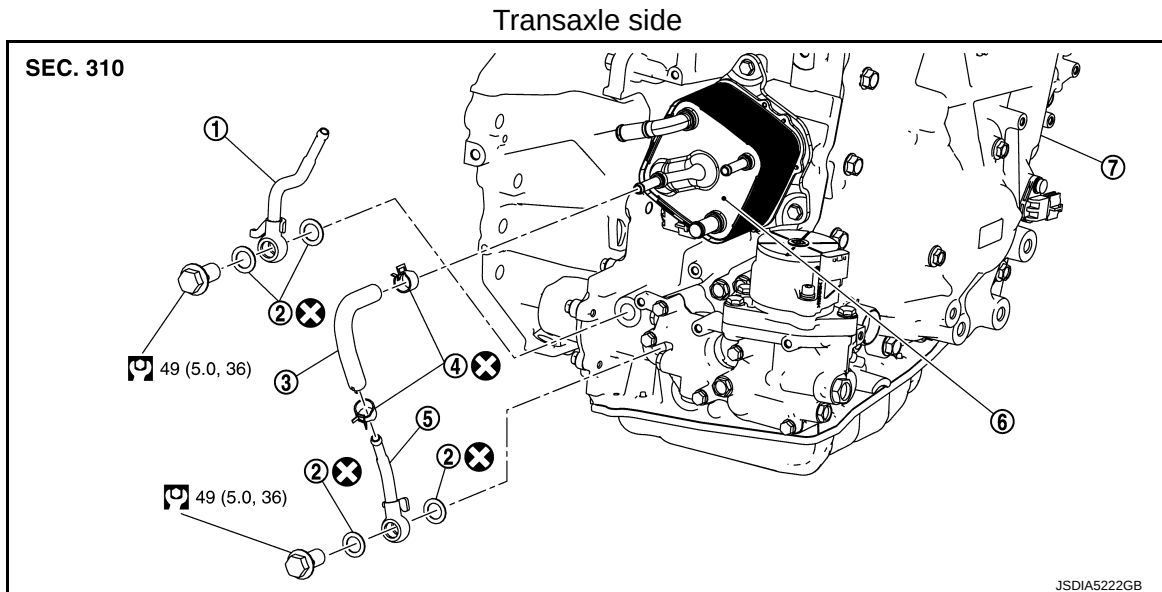
< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

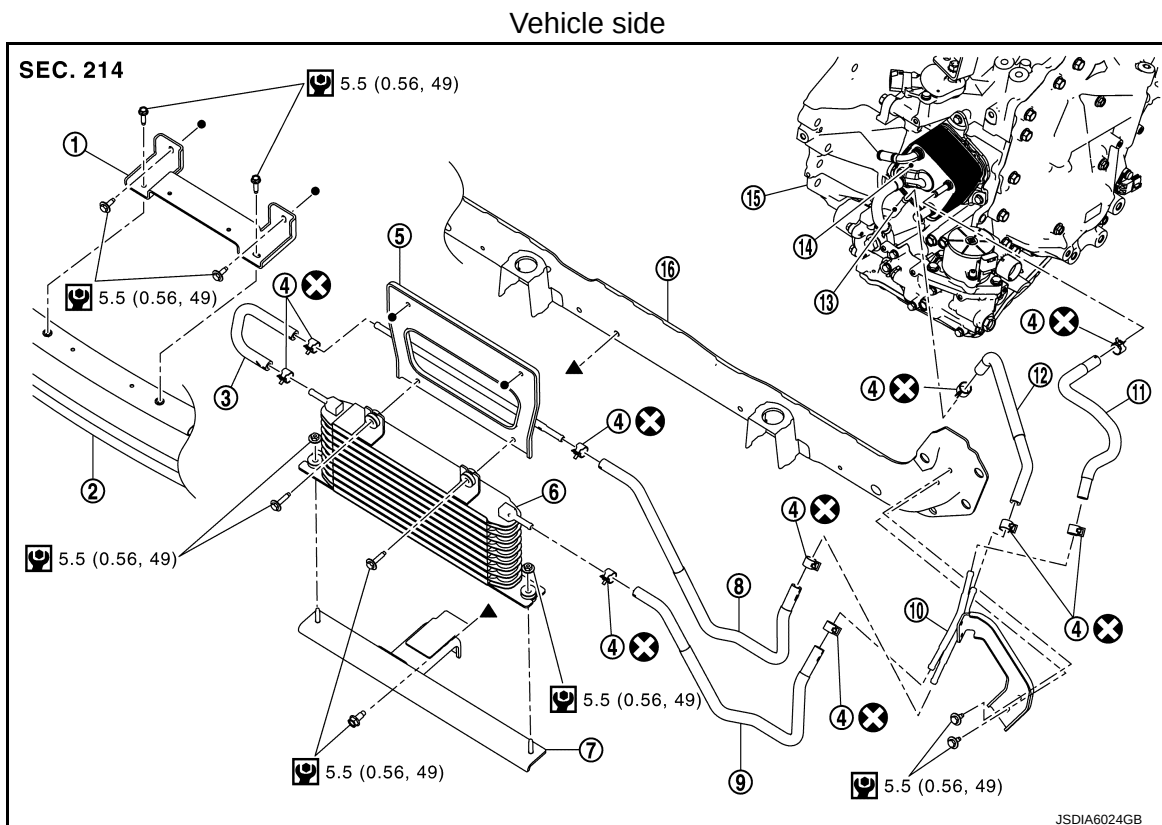
## CVT FLUID COOLER SYSTEM

### Exploded View

INFOID:000000010622910



- |                                             |                       |                       |
|---------------------------------------------|-----------------------|-----------------------|
| ① Fluid cooler tube A                       | ② Copper washer       | ③ Fluid cooler hose A |
| ④ Hose clamp                                | ⑤ Fluid cooler tube B | ⑥ CVT oil warmer      |
| ⑦ Transaxle assembly                        |                       |                       |
| ⊗ : Always replace after every disassembly. |                       |                       |
| ⊙ : N-m (kg-m, ft-lb)                       |                       |                       |



# CVT FLUID COOLER SYSTEM

< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

- |                              |                                    |                       |
|------------------------------|------------------------------------|-----------------------|
| ① Bracket                    | ② Bumper reinforcement             | ③ Fluid cooler hose D |
| ④ Hose clamp                 | ⑤ Fluid cooler bracket (with tube) | ⑥ CVT fluid cooler    |
| ⑦ Bracket                    | ⑧ Fluid cooler hose C              | ⑨ Fluid cooler hose E |
| ⑩ Fluid cooler tube assembly | ⑪ Fluid cooler hose F              | ⑫ Fluid cooler hose B |
| ⑬ Fluid cooler tube A        | ⑭ CVT oil warmer                   | ⑮ Transaxle assembly  |
| ⑯ Bumper reinforcement lower |                                    |                       |

⊗ : Always replace after every disassembly.

⊙ : N·m (kg·m, in·lb)

## Removal and Installation

INFOID:000000010622911

### REMOVAL

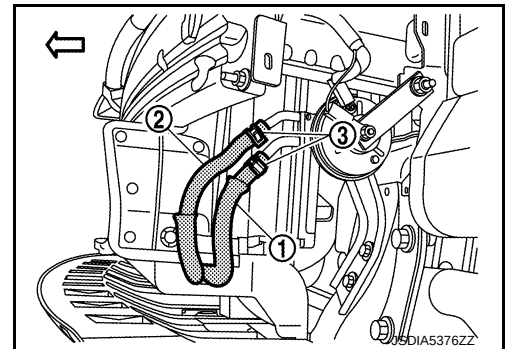
#### NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Remove the front bumper. Refer to [EXT-15, "Removal and Installation"](#).
2. Remove the engine under cover. Refer to [EXT-40, "ENGINE UNDER COVER : Removal and Installation"](#).
3. Remove the battery tray. Refer to [PG-143, "R9M : Removal and Installation"](#).
4. Remove fluid cooler hose C ① and fluid cooler hose E ② from fluid cooler tube assembly.

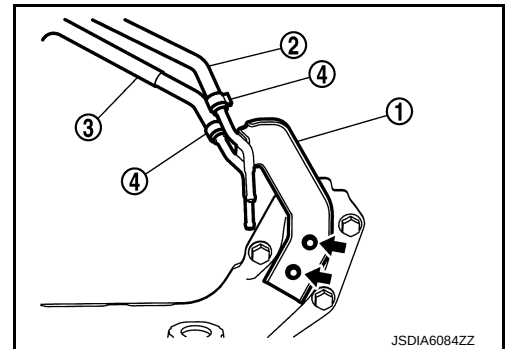
③ : Hose clamp

← : Vehicle front



5. Remove mounting bolts (⬅) of fluid cooler tube assembly ①.
6. Remove fluid cooler hose F ② and fluid cooler hose B ③ from fluid cooler tube assembly.

④ : Hose clamp

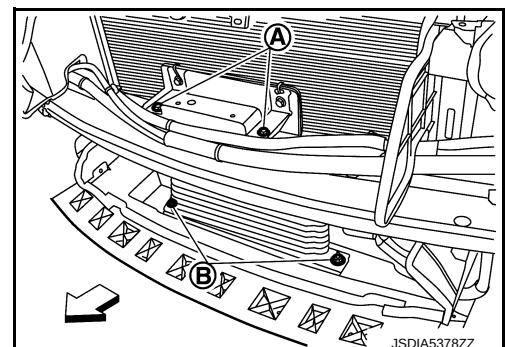


7. Remove CVT fluid cooler mounting bolts ① and mounting nuts ② and take out the CVT fluid cooler.

#### CAUTION:

Be careful not to damage the radiator fins while taking out the CVT fluid cooler.

← : Vehicle front



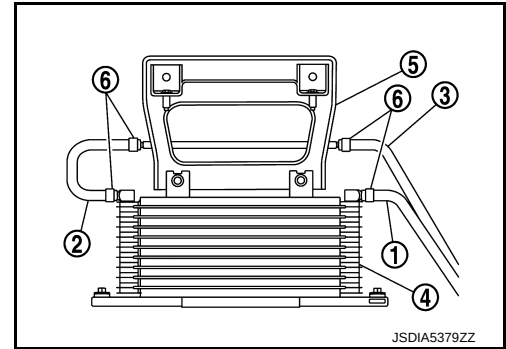
# CVT FLUID COOLER SYSTEM

## < REMOVAL AND INSTALLATION >

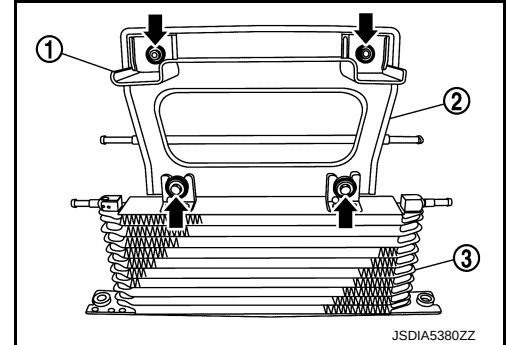
[CVT: RE0F10G]

8. Remove fluid cooler hose E ①, fluid cooler hose D ② and fluid cooler hose C ③ from CVT fluid cooler ④ and fluid cooler bracket (with tube) ⑤.

⑥ : Hose clamp



9. Remove bolts (←) and separate fluid cooler bracket (with tube) ① and bracket ② from CVT fluid cooler ③.

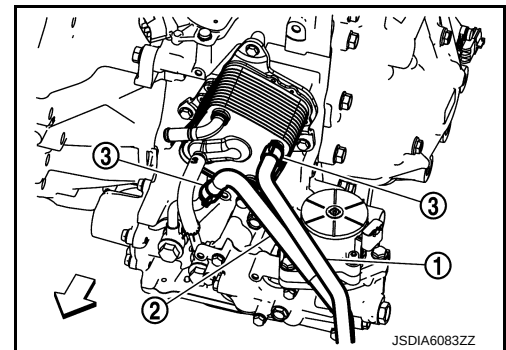


10. Remove fluid cooler hose F ① and fluid cooler hose B ② from CVT oil warmer.

③ : Hose clamp

← : Vehicle front

11. Remove fluid cooler tube A and fluid cooler tube B.



## INSTALLATION

Note the followings and Installation is in the reverse order of removal.

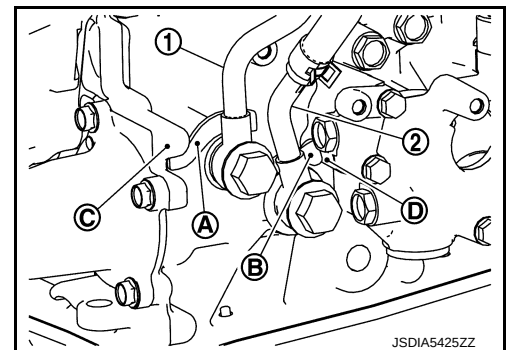
### CAUTION:

- Be careful not to damage CVT fluid cooler.
- Never reuse hose clamps.

Transaxle side

Refer to the followings when installing fluid cooler tubes.

- When installing fluid cooler tube A ① and fluid cooler tube B ② to transaxle assembly.
  - Contact fluid cooler tube A stopper ④ to transaxle case boss ③.
  - Contact fluid cooler tube B stopper ⑤ to transaxle case boss ⑥.



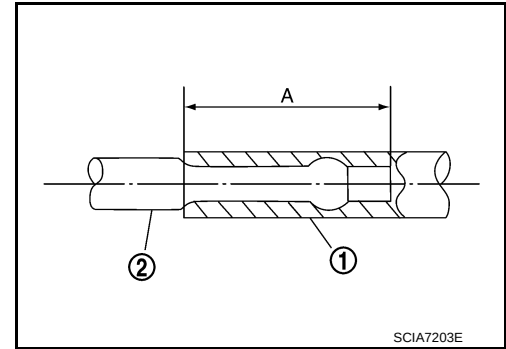
- Refer to the followings when installing fluid cooler hose.

# CVT FLUID COOLER SYSTEM

## < REMOVAL AND INSTALLATION >

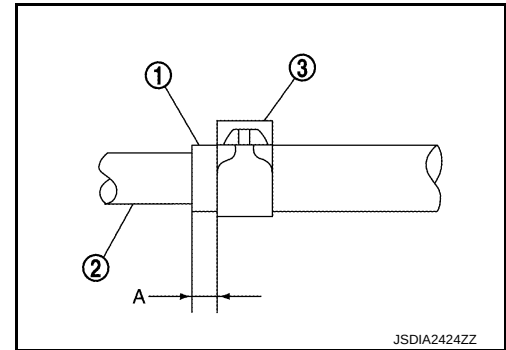
[CVT: RE0F10G]

| Hose ①              | Installation side tube ② | Direction of paint mark                                   | Hose insertion depth (A)          |
|---------------------|--------------------------|-----------------------------------------------------------|-----------------------------------|
| Fluid cooler hose A | CVT oil warmer           | Frontward                                                 | Hose end reaches the end of tube. |
|                     | CVT fluid cooler tube B  | Align with the paint marks on the CVT fluid cooler tube B |                                   |



- Refer to the followings when installing hose clamp.
- CAUTION:**  
Hose clamp should not interfere with the bulge of tube.

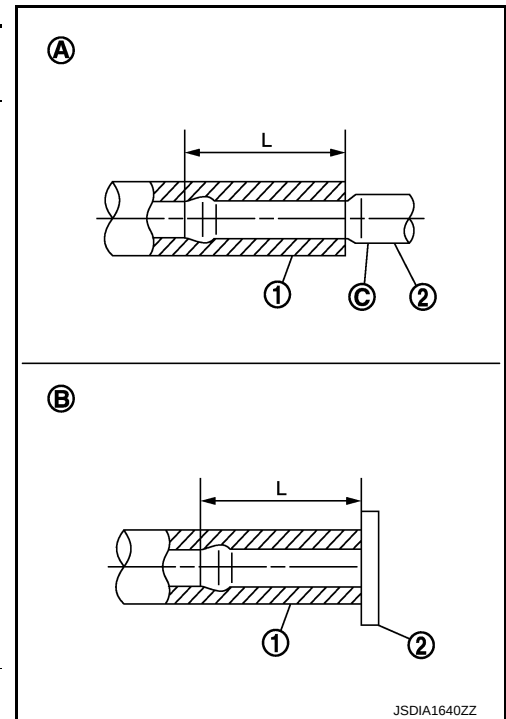
| Hose ①              | Installation side tube ② | Hose clamp ③     |                                             |
|---------------------|--------------------------|------------------|---------------------------------------------|
|                     |                          | Direction of tab | Clamping position                           |
| Fluid cooler hose A | CVT oil warmer           | Frontward        | 5 – 9 mm (0.20 – 0.35 in) (A) from hose end |
|                     | CVT fluid cooler tube B  |                  |                                             |



### Vehicle side

- Refer to the followings when installing fluid cooler hoses.

| Hose ①              | Installation side tube ②         | Direction of paint mark | Hose insertion depth (L)                            |
|---------------------|----------------------------------|-------------------------|-----------------------------------------------------|
| Fluid cooler hose B | CVT fluid cooler tube A          | Frontward               | Ⓐ: Hose end reaches the 2-stage bulge ㉔.            |
|                     | Fluid cooler tube assembly       | Leftward                |                                                     |
| Fluid cooler hose C | Fluid cooler tube assembly       |                         |                                                     |
|                     | CVT fluid cooler                 |                         |                                                     |
| Fluid cooler hose D | CVT fluid cooler                 | Leftward                |                                                     |
|                     | Fluid cooler bracket (with tube) |                         |                                                     |
| Fluid cooler hose E | Fluid cooler bracket (with tube) |                         |                                                     |
|                     | Fluid cooler tube assembly       |                         |                                                     |
| Fluid cooler hose F | Fluid cooler tube assembly       | Upward                  | ㉕: Hose end reaches the end of CVT oil warmer tube. |
|                     | CVT oil warmer                   |                         |                                                     |



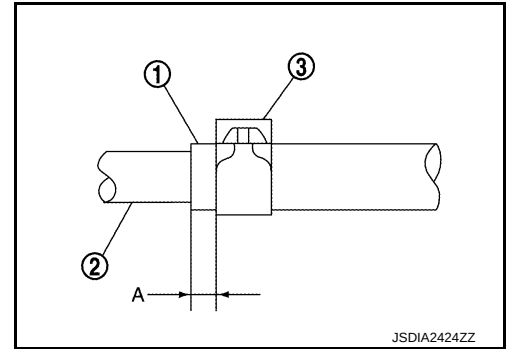
- Refer to the followings when installing hose clamps.
- CAUTION:**  
Hose clamp should not interfere with the bulge of tube.

# CVT FLUID COOLER SYSTEM

< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

| Hose ①              | Installation side tube ②         | Hose clamp ③     |                                         |
|---------------------|----------------------------------|------------------|-----------------------------------------|
|                     |                                  | Direction of tab | Clamping position (A)                   |
| Fluid cooler hose B | CVT fluid cooler tube A          | Frontward        | 5 – 9 mm (0.20 – 0.35 in) from hose end |
|                     | Fluid cooler tube as-<br>sembly  | Leftward         |                                         |
| Fluid cooler hose C | Fluid cooler tube as-<br>sembly  |                  |                                         |
|                     | CVT fluid cooler                 |                  |                                         |
| Fluid cooler hose D | CVT fluid cooler                 | Leftward         |                                         |
|                     | Fluid cooler bracket (with tube) |                  |                                         |
| Fluid cooler hose E | Fluid cooler bracket (with tube) |                  |                                         |
|                     | Fluid cooler tube as-<br>sembly  |                  |                                         |
| Fluid cooler hose F | Fluid cooler tube as-<br>sembly  | Upward           |                                         |
|                     | CVT oil warmer                   |                  |                                         |



## Inspection and Adjustment

INFOID:0000000010622912

### INSPECTION AFTER INSTALLATION

Start the engine and check visually that there is no leakage of CVT fluid.

### ADJUSTMENT AFTER INSTALLATION

Adjust the CVT fluid level. Refer to [TM-665, "Adjustment"](#).

# CVT OIL WARMER

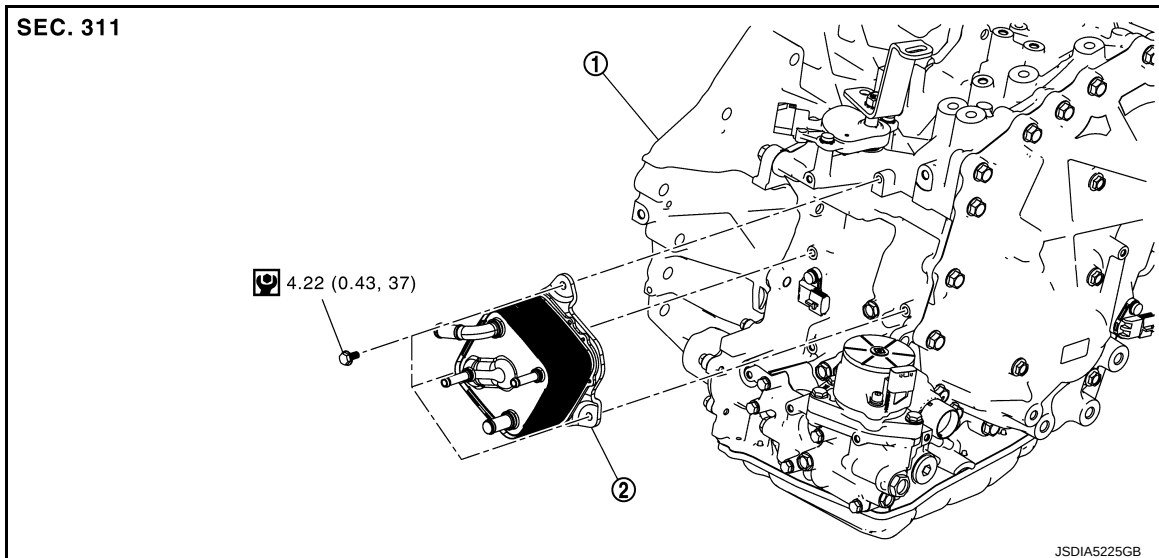
< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

## CVT OIL WARMER

### Exploded View

INFOID:0000000010622919



① Transaxle assembly

② CVT oil warmer

: N·m (kg-cm, in-lb)

### Removal and Installation

INFOID:0000000010622920

#### REMOVAL

##### **WARNING:**

Never remove the radiator cap when the engine is hot. Serious burns could occur from high pressure coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.

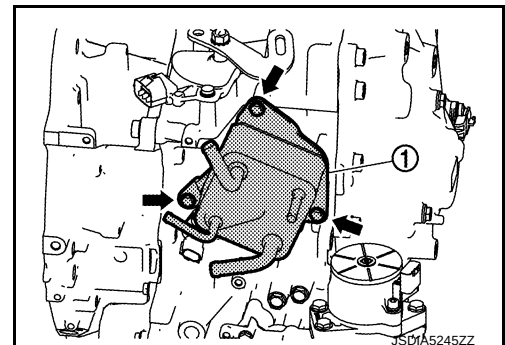
##### **CAUTION:**

Perform when the engine is cold.

##### **NOTE:**

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid/coolant from spilling.

1. Remove the battery tray. Refer to [PG-148, "EXCEPT FOR R9M : Removal and Installation"](#).
2. Remove harness bracket ①.
3. Remove water hose A and B from CVT oil warmer. Refer to [TM-692, "Removal and Installation"](#).
4. Remove fluid cooler hose A and F from CVT oil warmer. Refer to [TM-695, "Removal and Installation"](#).
5. Remove fluid cooler tube A from transaxle assembly. Refer to [TM-695, "Removal and Installation"](#).
6. Remove mounting bolts () and remove CVT oil warmer ① from transaxle assembly.



#### INSTALLATION

Installation is in the reverse order of removal.

### Inspection and Adjustment

INFOID:0000000010622921

#### INSPECTION AFTER INSTALLATION

Start the engine and check visually that there is no leakage of CVT fluid and engine coolant.

#### ADJUSTMENT AFTER INSTALLATION

Adjust the CVT fluid level. Refer to [TM-665, "Adjustment"](#).



# PLUG

< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

## PLUG

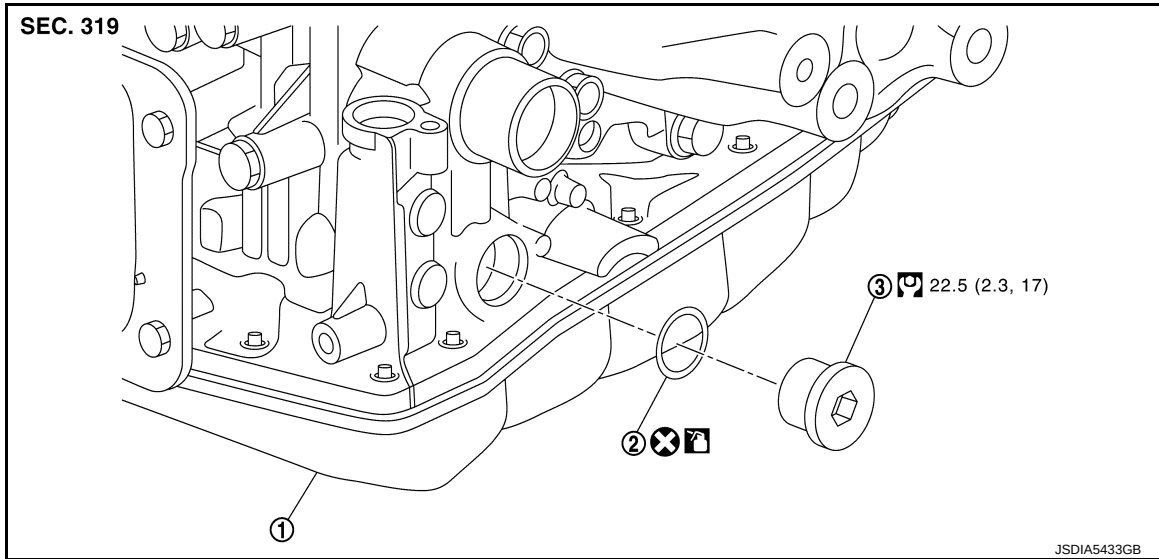
### Description

INFOID:0000000010622925

Replace the O-ring if oil leakage or exudes from the plug.

### Exploded View

INFOID:0000000010622926



① Transaxle assembly

② O-ring

③ Plug



: Always replace after every disassembly.



: N·m (kg-m, ft-lb)



: Apply CVT fluid

### Removal and Installation

INFOID:0000000010622927

#### REMOVAL

1. Remove splash side cover LH. Refer to [EXT-35, "FENDER PROTECTOR : Exploded View"](#).
2. Remove the plug and O-ring.

#### INSTALLATION

Installation is in the reverse order of removal.

#### CAUTION:

- Never reuse O-ring.
- Apply CVT fluid to O-ring.

### Inspection and Adjustment

INFOID:0000000010622928

#### INSPECTION AFTER INSTALLATION

Check for CVT fluid leakage. Refer to [TM-663, "Inspection"](#).

#### ADJUSTMENT AFTER INSTALLATION

Adjust the CVT fluid level. Refer to [TM-665, "Adjustment"](#).

# ELECTRIC OIL PUMP

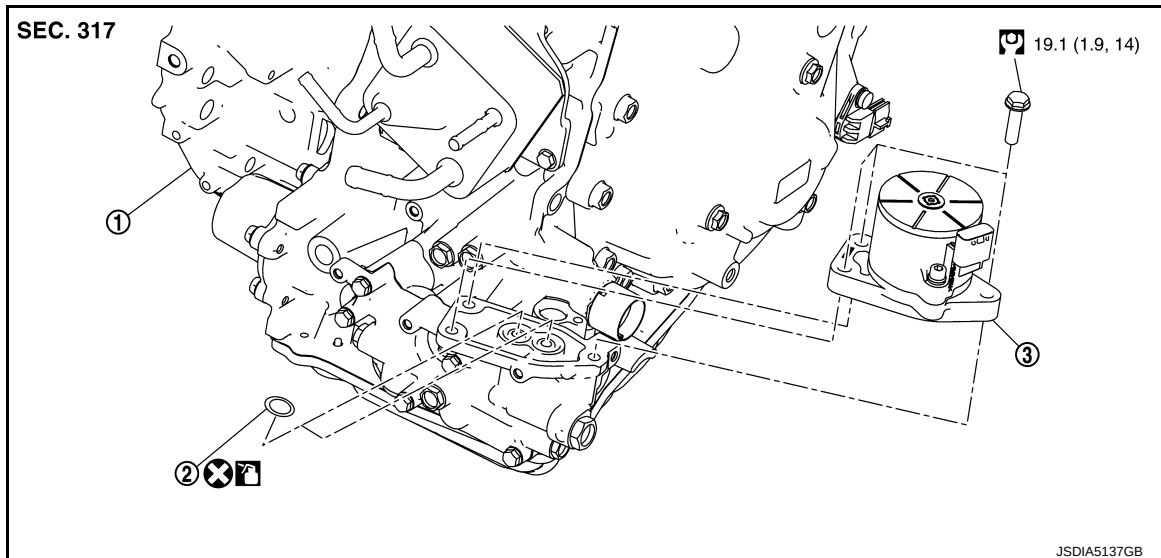
< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

## ELECTRIC OIL PUMP

### Exploded View

INFOID:000000010742044



① Transaxle assembly

② O-ring

③ Electric oil pump & motor assembly

⊗ : Always replace after every disassembly.

⌚ : N·m (kg-m, ft-lb)

🔧 : Apply CVT fluid

### Removal and Installation

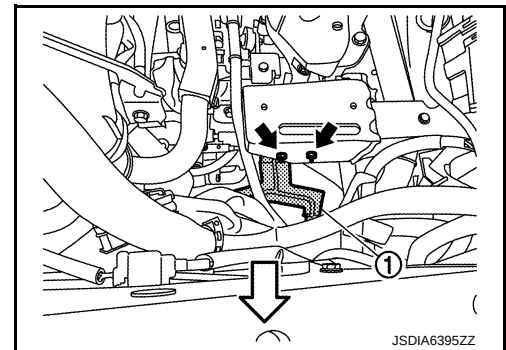
INFOID:000000010742045

#### REMOVAL

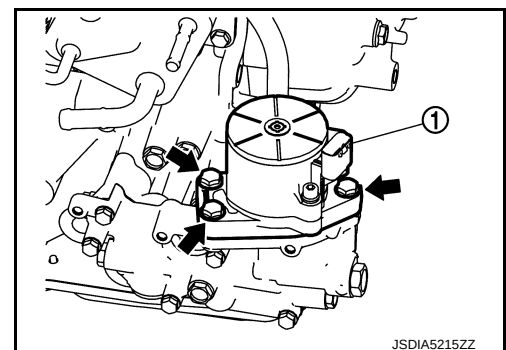
1. Remove the battery tray. Refer to [PG-148. "EXCEPT FOR R9M : Removal and Installation"](#).
2. Remove nuts (↖) and remove harness bracket ①.

↖ : Vehicle front

3. Disconnect the electric oil pump harness connector.



4. Remove electric oil pump mounting bolts (↖) and remove electric oil pump & motor assembly ①.

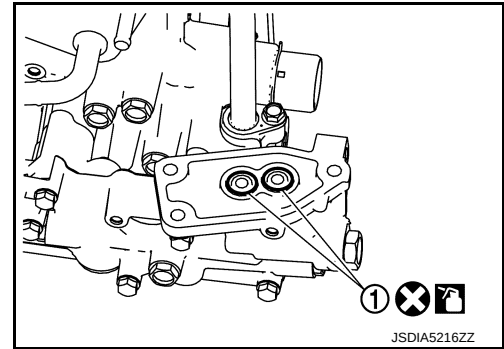


# ELECTRIC OIL PUMP

< REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

5. Remove O-rings ①.



## INSTALLATION

Note the followings and install in the reverse order of removal.

### CAUTION:

- Never reuse O-ring.
- Apply CVT fluid to the O-ring.

## Inspection and Adjustment

INFOID:0000000010742046

## INSPECTION AFTER INSTALLATION

Start the engine and check visually that there is no leakage of CVT fluid.

## ADJUSTMENT AFTER INSTALLATION

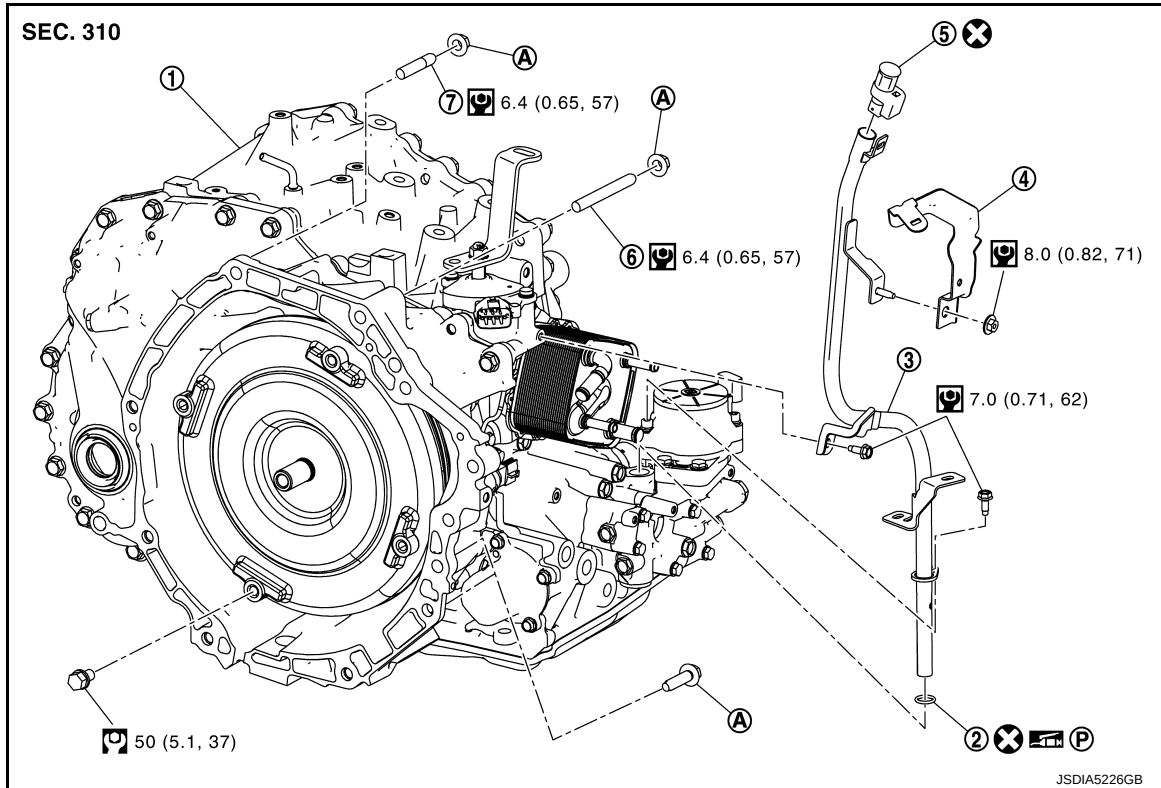
- Adjust the CVT fluid level. Refer to [TM-665, "Adjustment"](#).
- Perform "BLEEDING ELECTRIC OIL PUMP". Refer to [TM-552, "Work Procedure"](#).

## UNIT REMOVAL AND INSTALLATION

### TRANSAXLE ASSEMBLY

#### Exploded View

INFOID:0000000010622929



- |                                                                                              |                               |                           |
|----------------------------------------------------------------------------------------------|-------------------------------|---------------------------|
| ① Transaxle assembly                                                                         | ② O-ring                      | ③ CVT fluid charging pipe |
| ④ Bracket                                                                                    | ⑤ CVT fluid charging pipe cap | ⑥ Stud bolt B             |
| ⑦ Stud bolt A                                                                                |                               |                           |
| Ⓐ : For the tightening torque, refer to <a href="#">TM-704, "Removal and Installation"</a> . |                               |                           |
| ✕ : Always replace after every disassembly.                                                  |                               |                           |
| Ⓜ : N·m (kg-m, ft-lb)                                                                        |                               |                           |
| Ⓜ : N·m (kg-m, in-lb)                                                                        |                               |                           |
| ⓂⓅ : Apply petroleum jelly                                                                   |                               |                           |

#### Removal and Installation

INFOID:0000000010622930

##### REMOVAL

##### **WARNING:**

Do not remove the radiator cap when the engine is hot. Serious burns could occur from high pressure engine coolant escaping from the radiator. Wrap a thick cloth around the cap. Slowly turn it a quarter turn to allow built-up pressure to escape. Carefully remove the cap by turning it all the way.

##### **CAUTION:**

- Perform when the engine is cold.
- When replacing the TCM and transaxle assembly as a set, replace the transaxle assembly first and then replace the TCM. Refer to [TM-544, "Description"](#).

##### **NOTE:**

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

# TRANSAXLE ASSEMBLY

## < UNIT REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

1. Remove engine and transaxle assembly. Refer to [EM-366, "Removal and Installation"](#).
2. Remove starter motor. Refer to [STR-39, "R9M : Removal and Installation"](#).
3. Remove the CVT water hoses from engine side. Refer to [TM-692, "Removal and Installation"](#).
4. Turn crankshaft, and remove the tightening nuts for drive plate and torque converter.

**CAUTION:**

**Rotate crankshaft clockwise (as viewed from the crankshaft pulley side).**

5. Remove the bolts that fasten the transaxle assembly and engine assembly.
6. Separate the engine from the transaxle assembly.

**NOTE:**

Using paint, put matching marks on the drive plate and torque converter when removing the torque converter to drive plate nuts.

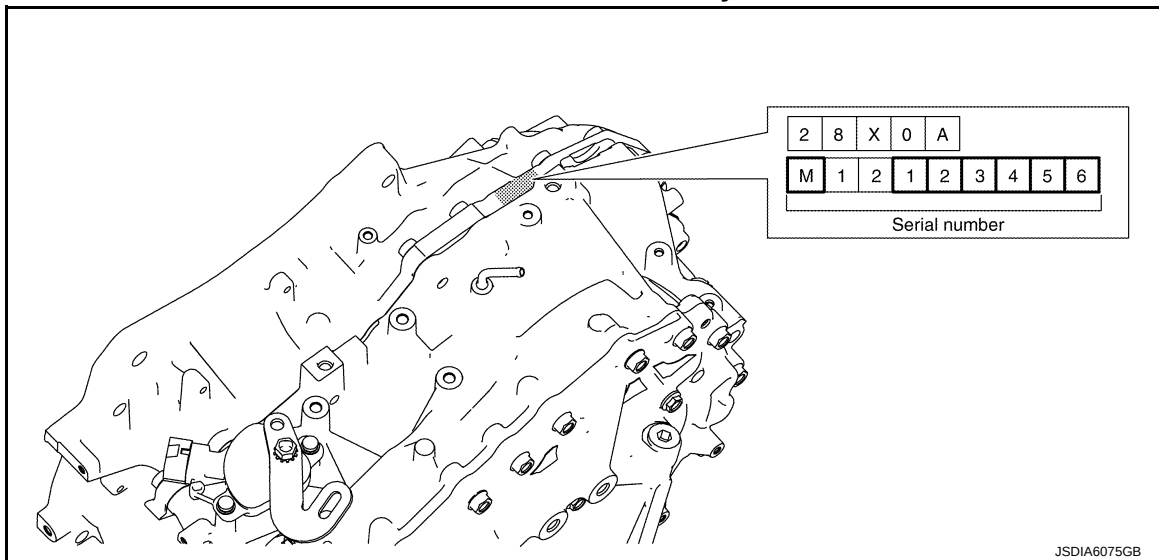
7. Remove following parts from transaxle assembly.
  - Control cable bracket (Refer to [TM-670, "Exploded View"](#).)
  - Air breather hose (Refer to [TM-680, "Exploded View"](#).)
  - CVT water hoses (Refer to [TM-692, "Exploded View"](#).)
  - CVT fluid cooler hose and tube (Refer to [TM-694, "Exploded View"](#).)
  - Charging pipe and O-ring

## INSTALLATION

Note the followings and installation is in the reverse order of removal.

**CAUTION:**

- Write down the serial number of the new transaxle assembly.



- When replacing an engine or transaxle you must make sure any dowels are installed correctly during re-assembly
  - Improper alignment caused by missing dowels may cause vibration, oil leaks or breakage of drive train components.
  - Never reuse O-rings or copper sealing washers.
  - When turning crankshaft, turn it clockwise as viewed from the front of the engine.
  - When tightening the nuts for the torque converter while securing the crankshaft pulley bolt, be sure to confirm the tightening torque of the crankshaft pulley bolt. Refer to [EM-346, "Exploded View"](#).
  - After converter is installed to drive plate, rotate crankshaft several turns to check that CVT rotates freely without binding.
  - When installing the CVT to the engine, align the matching mark on the drive plate with the matching mark on the torque converter.
- 
- When installing the drive plate to torque converter nuts, tighten them temporarily. then tighten the nuts to the specified torque.
  - Install the transaxle assembly and engine assembly mounting bolts according to the following standards.

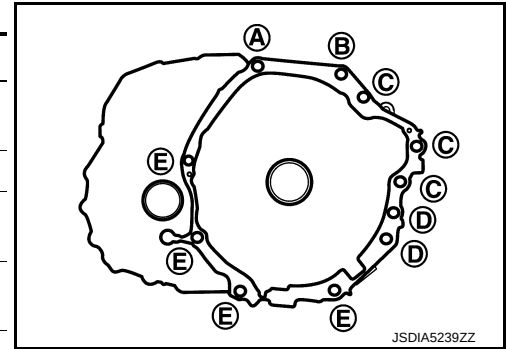
# TRANSAXLE ASSEMBLY

< UNIT REMOVAL AND INSTALLATION >

[CVT: RE0F10G]

| Bolt No.                               | (A)*                | (B)*     | (C)                 | (D)                 | (E)                 |
|----------------------------------------|---------------------|----------|---------------------|---------------------|---------------------|
| Insertion direction                    | Transaxle to engine |          | Engine to transaxle | Transaxle to engine | Engine to transaxle |
| Number of bolts                        | 1                   | 1        | 3                   | 2                   | 4                   |
| Bolt length<br>mm (in)                 | —                   | —        | 60 (2.36)           | 30(1.18)            | 55 (2.17)           |
| Stud length<br>mm (in)                 | 56(2.20)            | 96(3.78) | —                   | —                   | —                   |
| Tightening torque<br>N·m (kg·m, ft·lb) | 48.0 (4.9, 35)      |          |                     |                     |                     |

\*: Stud bolt



## Inspection and Adjustment

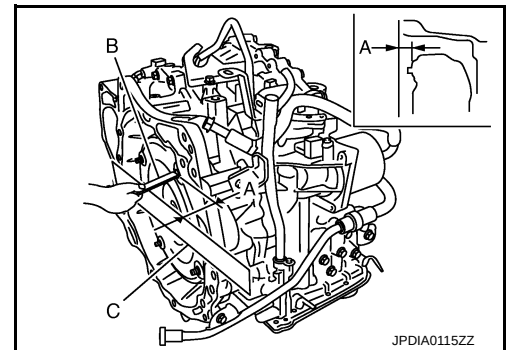
INFOID:0000000010622931

### INSPECTION BEFORE INSTALLATION

After inserting a torque converter to the CVT, check dimension (A) with in the reference value limit.

- B : Scale
- C : Straightedge

**Dimension (A) : Refer to [TM-710, "Torque Converter"](#).**



### INSPECTION AFTER INSTALLATION

Check the following items:

- CVT fluid leakage, refer to [TM-663, "Inspection"](#).
- For CVT position, refer to [TM-669, "Inspection"](#).
- Start the engine and check for coolant leakage from the parts which are removed and reinstalled.

### ADJUSTMENT AFTER INSTALLATION

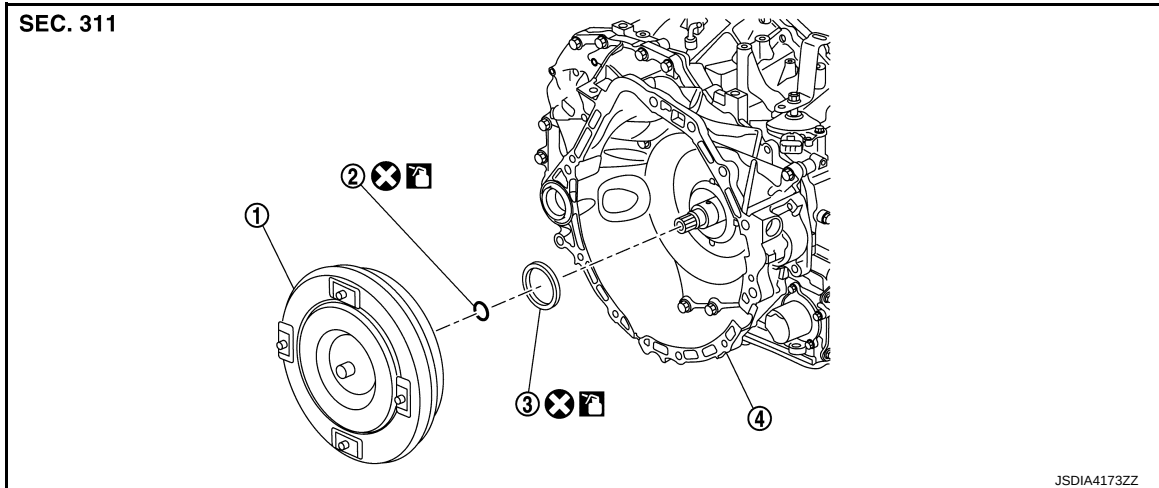
- Adjust the CVT fluid level. Refer to [TM-665, "Adjustment"](#).
- When replaced transaxle assembly, perform "ADDITIONAL SERVICE WHEN REPLACING TRANSAXLE ASSEMBLY". Refer to [TM-546, "Work Procedure"](#).

## UNIT DISASSEMBLY AND ASSEMBLY

## TORQUE CONVERTER AND CONVERTER HOUSING OIL SEAL

Exploded View

INFOID:0000000010622932



① Torque converter                      ② O-ring                      ③ Converter housing oil seal

④ Transaxle assembly

⊗ : Always replace after every disassembly.

🔧 : Apply CVT fluid

## Disassembly

INFOID:0000000010622933

1. Remove transaxle assembly. Refer to [TM-704, "Removal and Installation"](#).
2. Remove torque converter from transaxle assembly.

**CAUTION:**

**Never damage the bushing on the inside of torque converter sleeve when removing torque converter.**

3. Remove O-ring from input shaft.
4. Remove converter housing oil seal using a suitable tool.

**CAUTION:**

**Be careful not to scratch converter housing.**

## Assembly

INFOID:0000000010622934

Note the followings and assembly is in the reverse order of disassembly.

**CAUTION:**

- Never reuse O-ring.
- Never reuse converter housing oil seal.
- Apply CVT fluid to O-ring.
- Apply CVT fluid to converter housing oil seal.

# TORQUE CONVERTER AND CONVERTER HOUSING OIL SEAL

< UNIT DISASSEMBLY AND ASSEMBLY >

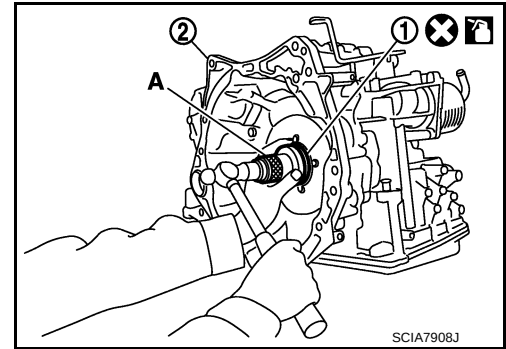
[CVT: RE0F10G]

- Drive converter housing oil seal ① evenly using a drift (A) (commercial service tool) so that converter housing oil seal protrudes by the dimension (B) respectively.

Unit: mm (in)

|           |                           |
|-----------|---------------------------|
| Drift (A) | Outer diameter: 65 (2.56) |
|           | Inner diameter: 60 (2.36) |

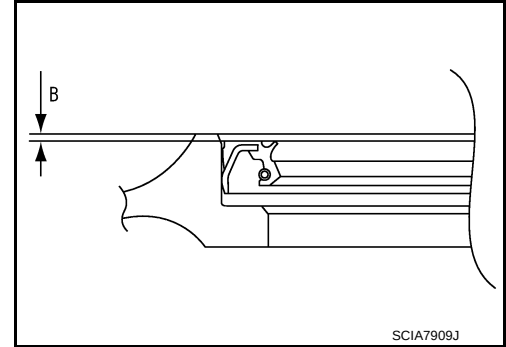
② : Transaxle assembly



**Dimension (B) :  $1.0 \pm 0.5$  mm ( $0.039 \pm 0.020$  in)**

## NOTE:

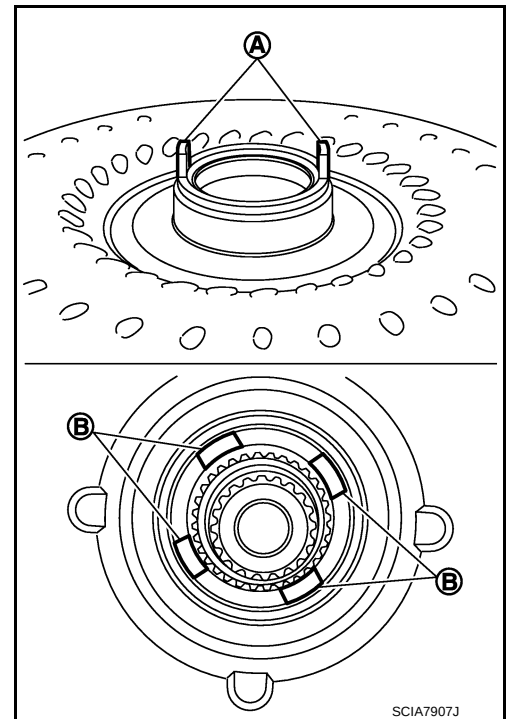
Converter housing oil seal pulling direction is used as the reference.



- Attach the pawl (A) of the torque converter to the drive sprocket hole (B) on the transaxle assembly side.

## CAUTION:

- Rotate the torque converter for installing torque converter.
- Never damage the bushing inside the torque converter sleeve when installing the converter housing oil seal.



Inspection

INFOID:0000000010622935

INSPECTION AFTER INSTALLATION



# TORQUE CONVERTER AND CONVERTER HOUSING OIL SEAL

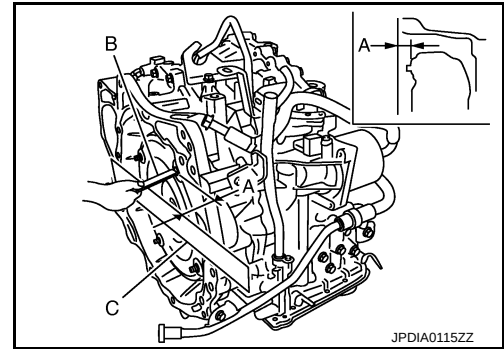
< UNIT DISASSEMBLY AND ASSEMBLY >

[CVT: RE0F10G]

- After inserting a torque converter to the CVT, check dimension (A) with in the reference value limit.

B : Scale  
C : Straightedge

**Dimension (A)** : Refer to [TM-710, "Torque Converter"](#).



A

B

C

TM

E

F

G

H

I

J

K

L

M

N

O

P

## SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

[CVT: RE0F10G]

## SERVICE DATA AND SPECIFICATIONS (SDS)

### SERVICE DATA AND SPECIFICATIONS (SDS)

#### General Specification

INFOID:0000000010622936

|                                      |             |                                                           |
|--------------------------------------|-------------|-----------------------------------------------------------|
| Applied model                        | Engine      | R9M                                                       |
|                                      | Axle        | 2WD                                                       |
| Transaxle model                      |             | RE0F10G                                                   |
| Transaxle gear ratio                 | D position  | 2.413 – 0.383                                             |
|                                      | R position  | 1.798                                                     |
|                                      | Final drive | 5.577                                                     |
| Recommended fluid and fluid capacity |             | Refer to <a href="#">MA-23, "Fluids and Lubricants"</a> . |

#### Shift Characteristics

INFOID:0000000010622937

Unit: rpm

| Throttle position | Shift pattern         | CVT input speed     |                     |
|-------------------|-----------------------|---------------------|---------------------|
|                   |                       | At 40 km/h (25 MPH) | At 60 km/h (37 MPH) |
| 2/8               | "D" position (Normal) | 1,470 – 2,510       | 1,570 – 3,200       |
|                   | "D" position (ECO)    | 1,470 – 2,510       | 1,570 – 3,200       |
| 8/8               | "D" position (Normal) | 3,430 – 4,030       | 4,100 – 4,700       |
|                   | "D" position (ECO)    | 3,430 – 4,030       | 4,100 – 4,700       |

#### NOTE:

Lock-up is engaged at the vehicle speed of approximately 14 km/h (9 MPH) to 40 km/h (24 MPH).

#### Stall Speed

INFOID:0000000010622938

Unit: rpm

|             |               |
|-------------|---------------|
| Stall speed | 2,670 – 3,010 |
|-------------|---------------|

#### Torque Converter

INFOID:0000000010622939

Unit: mm (in)

|                                                                  |              |
|------------------------------------------------------------------|--------------|
| Dimension "A" between the converter housing and torque converter | 18.1 (0.713) |
|------------------------------------------------------------------|--------------|