

## 16. Symptom Related Diagnostic

### A: INSPECTION

| Symptom   | Problem parts   |
|---|---|
| Starter does not rotate when the select lever is in "P" or "N"; starter rotates when the select lever is in "R", "D", "3" or "2". | <ul style="list-style-type: none"> <li>Inhibitor switch</li> <li>Select cable</li> <li>Select lever</li> <li>Starter motor and harness</li> </ul>   |
| Abnormal noise when the select lever is in "P" or "N".  | <ul style="list-style-type: none"> <li>Strainer</li> <li>Transfer duty solenoid</li> <li>Oil pump</li> <li>Drive plate</li> <li>ATF level too high or too low</li> </ul>  |
| Hissing noise occurs during standing start.   | <ul style="list-style-type: none"> <li>Strainer</li> <li>ATF level too high or too low</li> </ul>   |
| Noise occurs while driving in "D1".   | <ul style="list-style-type: none"> <li>Final gear</li> <li>Planetary gear</li> <li>Reduction gear</li> <li>Differential gear oil level too high or too low</li> </ul>   |
| Noise occurs while driving in "D2".   | <ul style="list-style-type: none"> <li>Final gear</li> <li>Low &amp; reverse brake</li> <li>Reduction gear</li> <li>Differential gear oil level too high or too low</li> </ul>  |
| Noise occurs while driving in "D3".   | <ul style="list-style-type: none"> <li>Final gear</li> <li>Low &amp; reverse brake</li> <li>Planetary gear</li> <li>Reduction gear</li> <li>Differential gear oil level too high or too low</li> </ul>                    |
| Noise occurs while driving in "D4".   | <ul style="list-style-type: none"> <li>Final gear</li> <li>Low &amp; reverse brake</li> <li>Planetary gear</li> <li>Reduction gear</li> <li>Differential gear oil level too high or too low</li> </ul>                    |
| Engine stalls while shifting from one range to another.   | <ul style="list-style-type: none"> <li>Control valve</li> <li>Lock-up damper</li> <li>Engine performance</li> <li>Input shaft</li> </ul>  |
| Vehicle moves when the select lever is in "N".  | <ul style="list-style-type: none"> <li>TCM</li> <li>Low clutch</li> </ul>   |
| Shock occurs when the select lever is moved from "N" to "D".  | <ul style="list-style-type: none"> <li>TCM</li> <li>Harness</li> <li>Control valve</li> <li>ATF deterioration</li> </ul>  |
| Excessive time lag occurs when the select lever is moved from "N" to "D".   | <ul style="list-style-type: none"> <li>Control valve</li> <li>Low clutch</li> <li>Line pressure duty solenoid</li> <li>Seal ring</li> <li>Front gasket transmission case</li> </ul>                                       |
| Shock occurs when the select lever is moved from "N" to "R".  | <ul style="list-style-type: none"> <li>TCM</li> <li>Harness</li> <li>Control valve</li> <li>ATF deterioration</li> </ul>  |
| Excessive time lag occurs when the select lever is moved from "N" to "R".   | <ul style="list-style-type: none"> <li>Control valve</li> <li>Low &amp; reverse clutch</li> <li>Reverse clutch</li> <li>Line pressure duty solenoid</li> <li>Seal ring</li> <li>Front gasket transmission case</li> </ul> |
| Vehicle does not start in any shift range (engine stalls).  | <ul style="list-style-type: none"> <li>Parking brake mechanism</li> <li>Planetary gear</li> </ul>   |

## SYMPTOM RELATED DIAGNOSTIC

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Symptom  | Problem parts   |
|--|---|
| Vehicle does not start in any shift range (engine revving up).                             | <ul style="list-style-type: none"> <li>• Strainer</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• Drive pinion</li> <li>• Hypoid gear</li> <li>• Axle shaft</li> <li>• Differential gear</li> <li>• Oil pump</li> <li>• Input shaft</li> <li>• Output shaft</li> <li>• Planetary gear</li> <li>• Drive plate</li> <li>• ATF level too low</li> <li>• Front gasket transmission case</li> </ul> |
| Vehicle does not start in "R" range only (engine revving up).                              | <ul style="list-style-type: none"> <li>• Select cable</li> <li>• Select lever</li> <li>• Control valve</li> <li>• Low &amp; reverse clutch</li> <li>• Reverse clutch</li> </ul>   |
| Vehicle does not start in "R" range only (engine stalls).                                  | <ul style="list-style-type: none"> <li>• Low clutch</li> <li>• 2-4 brake</li> <li>• Planetary gear</li> <li>• Parking brake mechanism</li> </ul>  |
| Vehicle does not start in "D", "3" range only (engine revving up).                         | <ul style="list-style-type: none"> <li>• Low clutch</li> <li>• One-way clutch</li> </ul>  |
| Vehicle does not start in "D", "3" or "2" range only (engine revving up).                  | <ul style="list-style-type: none"> <li>• Low clutch</li> </ul>  |
| Vehicle does not start in "D", "3" or "2" range only (engine stalls).                      | <ul style="list-style-type: none"> <li>• Reverse clutch</li> </ul>  |
| Vehicle starts in "R" range only (engine revving up).                                      | <ul style="list-style-type: none"> <li>• Control valve</li> </ul>   |
| Acceleration during standing starts is poor (high stall rpm).                              | <ul style="list-style-type: none"> <li>• Control valve</li> <li>• Low clutch</li> <li>• Reverse clutch</li> <li>• ATF level too low</li> <li>• Front gasket transmission case</li> <li>• Differential gear oil level too high or too low</li> </ul>   |
| Acceleration during standing starts is poor (low stall rpm).                               | <ul style="list-style-type: none"> <li>• Oil pump</li> <li>• Torque converter one-way clutch</li> <li>• Engine performance</li> </ul>   |
| Acceleration is poor when the select lever is in "D", "3" or "2" range (normal stall rpm). | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Control valve</li> <li>• High clutch</li> <li>• 2-4 brake</li> <li>• Planetary gear</li> </ul>  |
| Acceleration is poor when the select lever is in "R" (normal stall rpm).                   | <ul style="list-style-type: none"> <li>• Control valve</li> <li>• High clutch</li> <li>• 2-4 brake</li> <li>• Planetary gear</li> </ul>   |
| No shift occurs from 1st to 2nd gear.  | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Rear vehicle speed sensor</li> <li>• Front vehicle speed sensor</li> <li>• Throttle position sensor</li> <li>• Shift solenoid 1</li> <li>• Control valve</li> <li>• 2-4 brake</li> </ul>  |
| No shift occurs from 2nd to 3rd gear.  | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Control valve</li> <li>• High clutch</li> <li>• Shift solenoid 2</li> </ul>   |

# SYMPTOM RELATED DIAGNOSTIC

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Symptom  | Problem parts   |
|--|---|
| No shift occurs from 3rd to 4th gear.                                      | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Shift solenoid 1</li> <li>• ATF temperature sensor</li> <li>• Control valve</li> <li>• 2-4 brake</li> </ul>   |
| Engine brake is not effected when the select lever is in "3" range.        | <ul style="list-style-type: none"> <li>• Inhibitor switch</li> <li>• TCM</li> <li>• Throttle position sensor</li> <li>• Control valve</li> </ul>  |
| Engine brake is not effected when the select lever is in "3" or "2" range. | <ul style="list-style-type: none"> <li>• Control valve</li> </ul>   |
| Engine brake is not effected when the select lever is in "1" range.        | <ul style="list-style-type: none"> <li>• Control valve</li> <li>• Low &amp; reverse brake</li> </ul>  |
| Shift characteristics are erroneous.                                       | <ul style="list-style-type: none"> <li>• Inhibitor switch</li> <li>• TCM</li> <li>• Front vehicle speed sensor</li> <li>• Rear vehicle speed sensor</li> <li>• Throttle position sensor</li> <li>• Control valve</li> <li>• Ground earth</li> </ul>   |
| No lock-up occurs.   | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Throttle position sensor</li> <li>• ATF temperature sensor</li> <li>• Control valve</li> <li>• Lock-up facing</li> <li>• Engine speed signal</li> </ul>   |
| Parking brake is not effected.   | <ul style="list-style-type: none"> <li>• Select cable</li> <li>• Select lever</li> <li>• Parking mechanism</li> </ul>   |
| Shift lever cannot be moved or is hard to move from "P" range.             |   |
| ATF spurts out.  | <ul style="list-style-type: none"> <li>• ATF level too high</li> </ul>  |
| Differential oil spurts out.   | <ul style="list-style-type: none"> <li>• Differential gear oil too high</li> </ul>  |
| Differential oil level changes excessively.                                | <ul style="list-style-type: none"> <li>• Seal pipe</li> <li>• Double oil seal</li> </ul>  |
| Odor is produced from ATF supply pipe.                                     | <ul style="list-style-type: none"> <li>• High clutch</li> <li>• 2-4 brake</li> <li>• Low &amp; reverse clutch</li> <li>• Reverse clutch</li> <li>• Lock-up facing</li> <li>• ATF deterioration</li> </ul>   |
| Shock occurs from 1st to 2nd gear.   | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Throttle position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• 2-4 brake</li> <li>• ATF deterioration</li> <li>• Engine performance</li> <li>• 2-4 brake timing solenoid</li> </ul> |
| Slippage occurs from 1st to 2nd gear.                                      | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Throttle position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• 2-4 brake</li> <li>• 2-4 brake timing solenoid</li> <li>• High clutch</li> </ul>                                     |

## SYMPTOM RELATED DIAGNOSTIC

### AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Symptom  | Problem parts   |
|--|---|
| Shock occurs from 2nd to 3rd gear.                                 | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Throttle position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• High clutch</li> <li>• 2-4 brake</li> <li>• ATF deterioration</li> <li>• Engine performance</li> <li>• 2-4 brake timing solenoid</li> </ul>                                      |
| Slippage occurs from 2nd to 3rd gear.                              | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Throttle position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• High clutch</li> <li>• 2-4 brake</li> <li>• 2-4 brake timing solenoid</li> </ul>   |
| Shock occurs from 3rd to 4th gear.                                 | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Throttle position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• 2-4 brake timing solenoid</li> <li>• 2-4 brake</li> <li>• ATF deterioration</li> <li>• Engine performance</li> <li>• Low clutch timing solenoid</li> <li>• Low clutch</li> </ul> |
| Slippage occurs from 3rd to 4th gear.                              | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Throttle position sensor</li> <li>• 2-4 brake duty solenoid</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• 2-4 brake</li> <li>• 2-4 brake timing solenoid</li> </ul>  |
| Shock occurs when the select lever is moved from "3" to "2" range. | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Throttle position sensor</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• 2-4 brake duty solenoid</li> <li>• 2-4 brake</li> <li>• ATF deterioration</li> <li>• 2-4 brake timing solenoid</li> </ul>   |
| Shock occurs when the select lever is moved from "D" to "1" range. | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Throttle position sensor</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• ATF deterioration</li> <li>• 2-4 brake duty solenoid</li> <li>• 2-4 brake timing solenoid</li> <li>• Low clutch timing solenoid</li> </ul>  |

# SYMPTOM RELATED DIAGNOSTIC

## AUTOMATIC TRANSMISSION (DIAGNOSTICS)

| Symptom  | Problem parts  |
|--|--|
| Shock occurs when the select lever is moved from "2" to "1" range.                         | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Throttle position sensor</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• Low &amp; reverse clutch</li> <li>• ATF deterioration</li> <li>• 2-4 brake duty solenoid</li> <li>• 2-4 brake timing solenoid</li> <li>• Low clutch timing solenoid</li> </ul> |
| Shock occurs when the accelerator pedal is released at medium speeds.                      | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Throttle position sensor</li> <li>• ATF temperature sensor</li> <li>• Line pressure duty solenoid</li> <li>• Control valve</li> <li>• Lock-up damper</li> <li>• Engine performance</li> <li>• 2-4 brake duty solenoid</li> <li>• 2-4 brake timing solenoid</li> <li>• Low clutch timing solenoid</li> </ul>          |
| Vibration occurs during straight-forward operation.  | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Lock-up duty solenoid</li> <li>• Lock-up facing</li> <li>• Lock-up damper</li> </ul>   |
| Vibration occurs during turns (tight corner "braking" phenomenon).                         | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Front vehicle speed sensor</li> <li>• Rear vehicle speed sensor</li> <li>• Throttle position sensor</li> <li>• ATF temperature sensor</li> <li>• Transfer clutch</li> <li>• Transfer valve</li> <li>• Transfer duty solenoid</li> <li>• ATF deterioration</li> <li>• Harness</li> </ul>                              |
| Front wheel slippage occurs during standing starts.  | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Front vehicle speed sensor</li> <li>• Throttle position sensor</li> <li>• ATF temperature sensor</li> <li>• Control valve</li> <li>• Transfer clutch</li> <li>• Transfer valve</li> <li>• Transfer pipe</li> <li>• Transfer duty solenoid</li> </ul>   |
| Vehicle is not set in FWD mode.  | <ul style="list-style-type: none"> <li>• TCM</li> <li>• Transfer clutch</li> <li>• Transfer valve</li> <li>• Transfer duty solenoid</li> </ul>   |
| Select lever is hard to move.  | <ul style="list-style-type: none"> <li>• Select cable</li> <li>• Select lever</li> <li>• Detent spring</li> <li>• Manual plate</li> </ul>  |
| Select lever is too high to move (unreasonable resistance).                                | <ul style="list-style-type: none"> <li>• Detent spring</li> <li>• Manual plate</li> </ul>  |
| Select lever slips out of operation during acceleration or while driving on rough terrain. | <ul style="list-style-type: none"> <li>• Select cable</li> <li>• Select lever</li> <li>• Detent spring</li> <li>• Manual plate</li> </ul>  |

## **SYMPTOM RELATED DIAGNOSTIC**

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

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