# SECTION PCS
# POWER CONTROL SYSTEM

## CONTENTS

### IPDM E/R

# PRECAUTION

## PRECAUTIONS

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

INFOID:0000000010741698

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:**

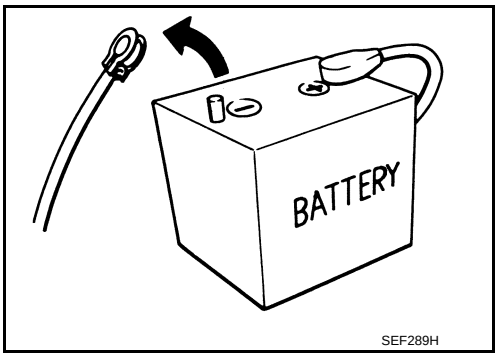
**Always observe the following items for preventing accidental activation.**

- **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.**

### Precautions for Removing Battery Terminal

INFOID:0000000010869315

- 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.



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#### 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 |
| 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)

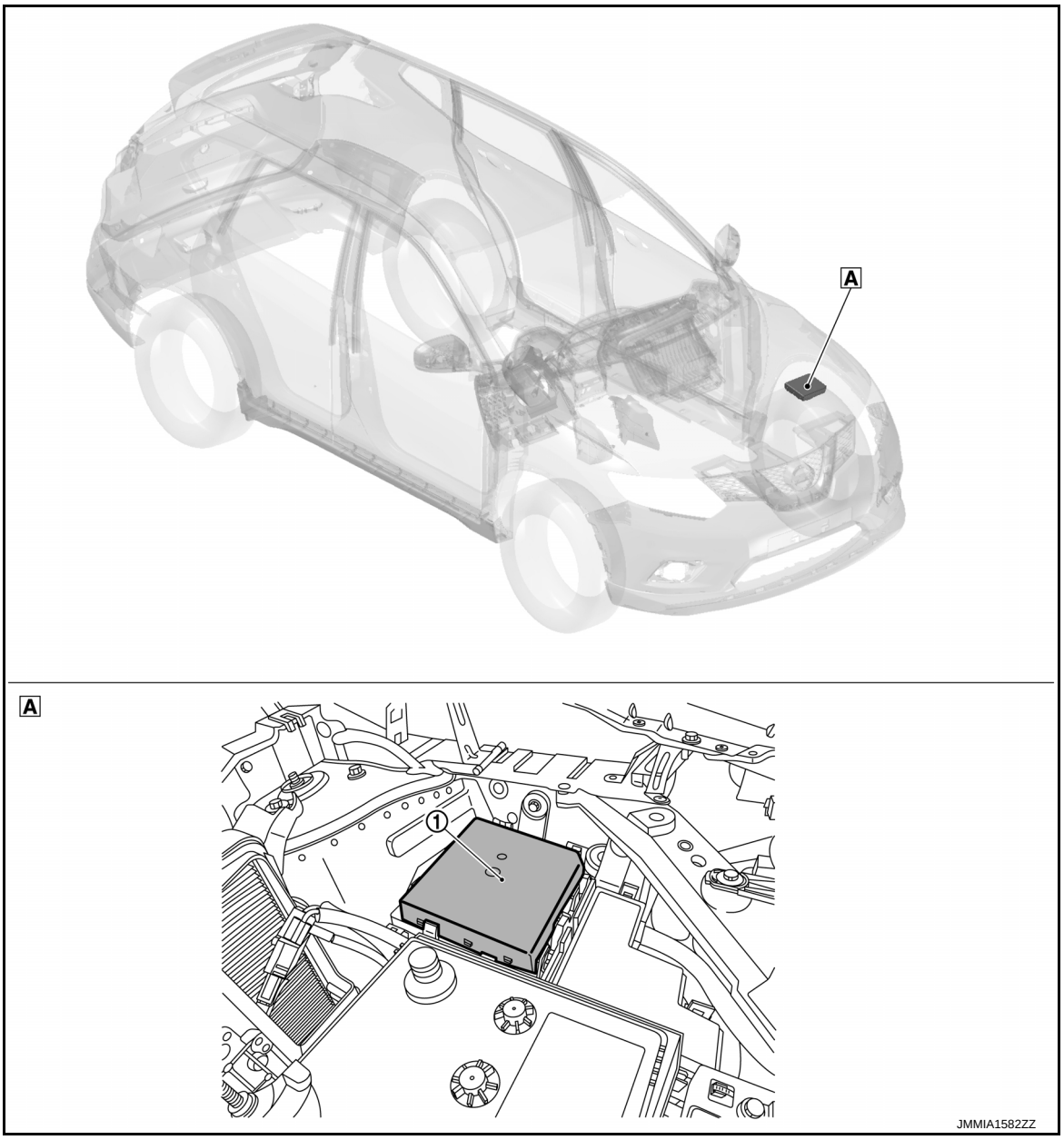
1. Unlock the door with intelligent key or remote keyless entry.
**NOTE:**
At this moment, ACC power is supplied.
2. Open the driver side door.
3. Open the hood.
4. Close the driver side door.
5. Wait at least 3 minutes.
**CAUTION:**
**While waiting, never operate the vehicle such as locking, opening, 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.**

# SYSTEM DESCRIPTION

## COMPONENT PARTS

### Component Parts Location

INFOID:0000000010741700




A Engine room (LH)

1 IPDM E/R

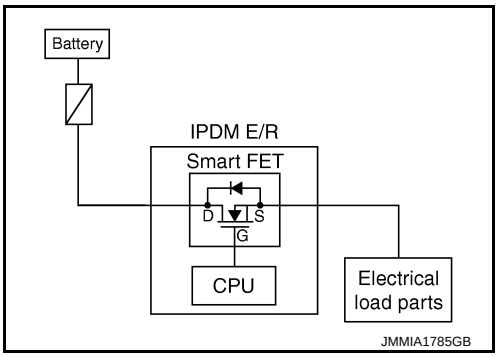
## Smart FET

INFOID:0000000010741701

Smart FET, that uses MOS field effect transistor, is adopted for each lamps control.

**NOTE:**

A MOS field effect transistor is a transistor in which the gate is composed of a metal-oxide-semiconductor (MOS). Field effect transistor is controlled by voltage, while ordinary transistor is controlled by current. Electrode of field effect transistor is called source, drain, or gate, while electrode of ordinary transistor is called emitter, collector, or base.



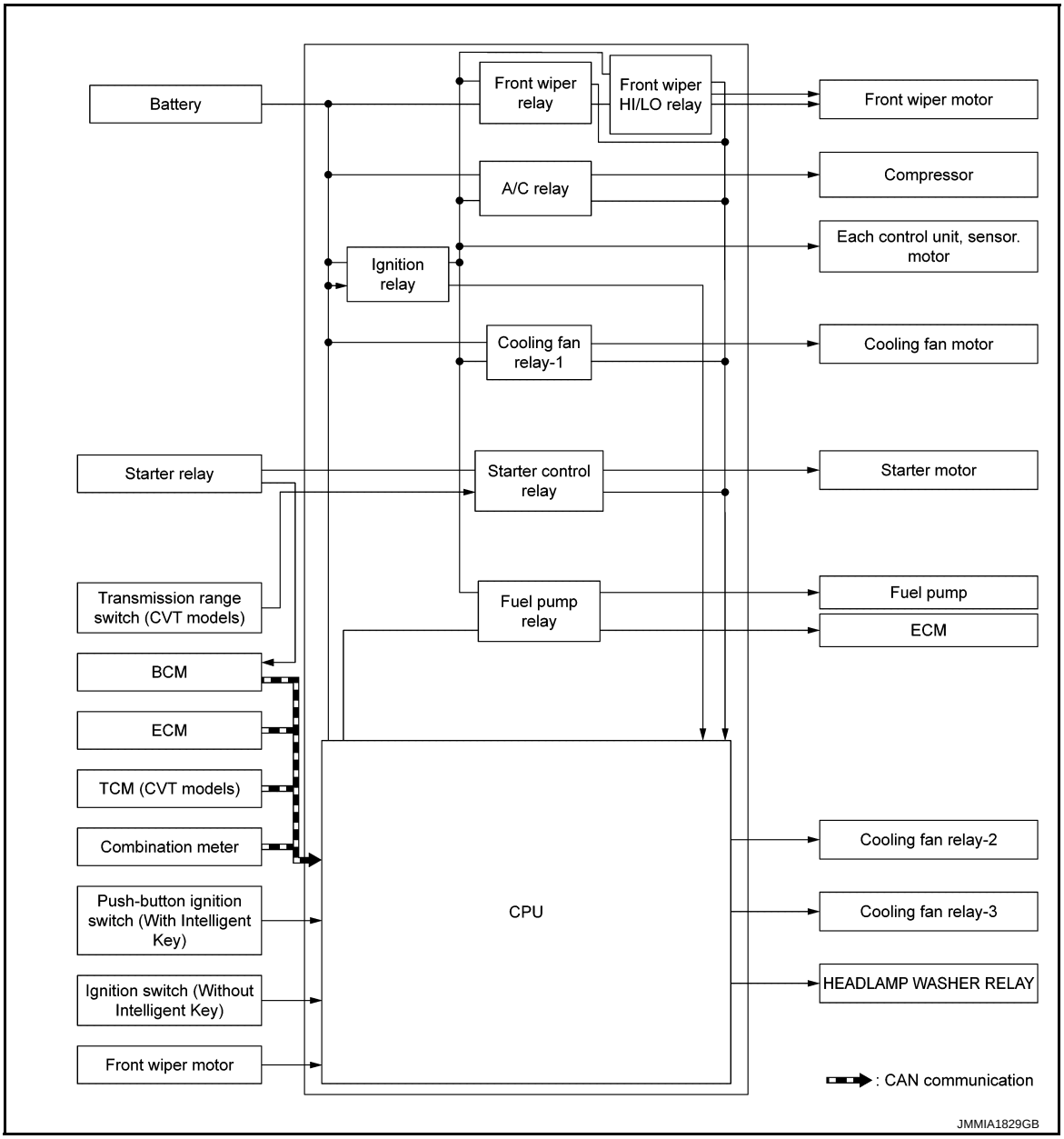
# SYSTEM

## RELAY CONTROL SYSTEM

### RELAY CONTROL SYSTEM : System Description

INFOID:0000000010741702

#### SYSTEM DIAGRAM




#### DESCRIPTION

IPDM E/R activates the internal control circuit to perform the relay ON-OFF control according to the input signals from various sensors and the request signals received from control units via CAN communication.

**NOTE:**

To prevent to the parts, IPDM E/R integrated relays cannot be removed.

| Control relay | Input/output | Transmit unit | Control part | Reference page |
|---|---|---|---|---|
| • Front wiper relay<br>• Front wiper HI/LO relay | Front wiper request signal | BCM (CAN) | Front wiper motor | WW-13 |
| | Front wiper stop position signal | Front wiper motor | | |

| Control relay | Input/output | Transmit unit | Control part | Reference page |
|---|---|---|---|---|
| Ignition relay | Ignition switch ON signal | BCM (CAN) | Each control unit, sensor, actuator and relay (Ignition power supply) | PCS-55 |
| | Vehicle speed signal (Meter) | Combination meter (CAN) | | |
| | Push-button ignition switch signal | Push-button ignition switch | | |
| Cooling fan relay 1 | Cooling fan speed request signal | ECM (CAN) | Cooling fan | EC-57 |
| Headlamp washer relay | Headlamp washer relay | BCM (CAN) | Headlamp washer pump | WW-25 |

## RELAY CONTROL SYSTEM : Fail-safe

INFOID:0000000010741703

### FAIL-SAFE CONTROL BY DTC

IPDM E/R performs fail-safe control when any DTC are detected.

| DTC | CONSULT display description | | Fail-safe |
|---|---|---|---|
| B121D | S/L LOCK PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply until the vehicle switches to sleep status. |
| B121A | FR FOG LAMP LH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the front fog lamp LH power supply circuit until the front fog lamp ON conditions are no longer satisfied. |
| B1231 | DTRL RH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the daytime running light RH power supply circuit until the daytime running light ON conditions are no longer satisfied. |
| B1256 | FR FOG LAMP RH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the front fog lamp RH power supply circuit until the front fog lamp ON conditions are no longer satisfied. |
| B1C00 | HEIGHT SENSOR PWR SPLY CIRC | [CIRC SHORT TO GRND] | Right and left headlamp aiming motors stop at the position when DTC is detected. |
| | | [CIRC SHORT TO BATTERY] | |
| B1C01 | FR HEIGHT SENSOR SIGNAL | [CIRC SHORT TO BATTERY] | Right and left headlamp aiming motors stop at the position when DTC is detected. |
| | | [CIRC SHORT TO GROUND OR OPEN] | |
| | | [CIRC VOLTAGE OUT OF RANGE] | |
| B1C02 | RR HEIGHT SENSOR SIGNAL | [CIRC SHORT TO BATTERY] | Right and left headlamp aiming motors stop at the position when DTC is detected. |
| | | [CIRC SHORT TO GROUND OR OPEN] | |
| | | [CIRC VOLTAGE OUT OF RANGE] | |

| DTC | CONSULT display description | | Fail-safe |
|---|---|---|---|
| B1C07 | AIMING MOTOR DRIVE SIGNAL | [CIRC SHORT TO GRND] | Right and left headlamp aiming motors stop at the position when DTC is detected. |
| | | [CIRC SHORT TO BATTERY] | |
| | | [SIGNAL COMPARE FAILURE] | |
| B1C11 | FR HEIGHT SENSOR SIGNAL | [SIG PRTCTN CLCLTN IN-CRCT] | Right and left headlamp aiming motors stop at the position when DTC is detected. |
| B1C12 | RR HEIGHT SENSOR SIGNAL | [SIG PRTCTN CLCLTN IN-CRCT] | Right and left headlamp aiming motors stop at the position when DTC is detected. |
| B20CB | DTRL LH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the daytime running light LH power supply circuit until the daytime running light ON conditions are no longer satisfied. |
| B20BD | BATTERY CURRENT SENSOR | [CIRC SHORT TO GRND] | Inhibit stop/start system operation |
| | | [CIRC SHORT TO BATTERY] | |
| | | [CIRC OPEN] | |
| | | [CMPNENT INTERNAL MLFNCTN] | |
| B20CE | HL (HI) LH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the headlamp (HI) LH power supply circuit until the headlamp (HI) ON conditions are no longer satisfied. |
| B20CF | HL (HI) RH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the headlamp (HI) RH power supply circuit until the headlamp (HI) ON conditions are no longer satisfied. |
| B20D0 | HL (LO) LH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the headlamp (LO) LH power supply circuit until the headlamp (LO) ON conditions are no longer satisfied. |
| B20D1 | HL (LO) RH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the headlamp (LO) RH power supply circuit until the headlamp (LO) ON conditions are no longer satisfied. |
| B20D2 | PARKING LAMP PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the parking lamp (LH/RH) power supply circuit until the parking lamp, license plate lamp, and tail lamp ON conditions are no longer satisfied. |
| B20D4 | TAIL LAMP LH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the following power supply circuits until the parking lamp, license plate lamp, and tail lamp ON conditions are no longer satisfied.<br>• Tail lamp LH (body side)<br>• Tail lamp LH (back door side)<br>• License plate lamp LH<br>• License plate lamp RH |
| B20D5 | TAIL LAMP RH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the following power supply circuits until the parking lamp, license plate lamp, and tail lamp ON conditions are no longer satisfied.<br>• Tail lamp RH (body side)<br>• Tail lamp RH (back door side) |

| DTC | CONSULT display description | | Fail-safe |
|---|---|---|---|
| B20DB | HEIGHT SENS INITIALIZE NOT DONE | [MISSING CALIBRATION] | Right and left headlamp aiming motors fix at the initial aiming position. |
| | | [NOT CONFIURED] | |
| B20E2 | LED HEADLAMP RH | [CMPNENT INTERNAL MLFNCTN] | Transmits the headlamp warning signal (CAN communication) to the combination meter when the headlamp (LO) ON conditions are satisfied. (When the ignition switch turns ON, the headlamp warning is displayed on the information display of the combination meter.) |
| B20E3 | LED HEADLAMP LH | [CMPNENT INTERNAL MLFNCTN] | Transmits the headlamp warning signal (CAN communication) to the combination meter when the headlamp (LO) ON conditions are satisfied. (When the ignition switch turns ON, the headlamp warning is displayed on the information display of the combination meter.) |

## CAN COMMUNICATION CONTROL

When CAN communication with ECM and BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If No CAN Communication Is Available With ECM

| Control part | Fail-safe operation |
|---|---|
| Cooling fan | • The cooling fan is operated at HI operation when the ignition switch is turned ON.<br>• Turn OFF the cooling fan operation when the ignition switch is turned OFF. |
| A/C compressor | A/C relay OFF |

If No CAN Communication Is Available With BCM

| Control part | Fail-safe operation |
|---|---|
| Headlamp | • Turns ON the headlamp (LO) when the ignition switch is turned ON.<br>• Turns OFF the headlamp (LO) when the ignition switch is turned OFF.<br>• Headlamp (HI): OFF |
| • Parking lamp<br>• License plate lamp<br>• Illumination<br>• Tail lamp | • Turns ON the tail lamp, parking lamp, license plate lamp and each illumination when the ignition switch is turned ON.<br>• Turns OFF the tail lamp, parking lamp, license plate lamp and each illumination when the ignition switch is turned OFF. |
| Front wiper | • The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed.<br>• The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating. |
| Daytime running light | Daytime running light: OFF |
| Front fog lamp | Front fog lamp: OFF |
| Ignition relay | The status just before activation of fail-safe is maintained. |
| Starter motor | Starter control relay: OFF |
| Headlamp washer | Headlamp washer relay: OFF |

## IGNITION RELAY CONTROL

- IPDM E/R monitors the voltage at the contact circuit of the ignition relay inside it.
- IPDM E/R judges the ignition relay error if the voltage differs between the contact circuit.

| Voltage judgment | | IPDM E/R judgment | Operation |
|---|---|---|---|
| Ignition relay contact side | Ignition relay control condition | | |
| ON | ON | Ignition relay ON normal | — |
| OFF | OFF | Ignition relay OFF normal | — |

| Voltage judgment | | IPDM E/R judgment | Operation |
|---|---|---|---|
| Ignition relay contact side | Ignition relay control condition | | |
| ON | OFF | Ignition relay ON stuck | Detects DTC [B20DD: IGN RELAY ON CIRC] |
| OFF | ON | Ignition relay OFF stuck | Detects DTC [B20DE: IGN RELAY OFF CIRC] |

### FRONT WIPER CONTROL

IPDM E/R detects front wiper stop position by front wiper stop position signal.
When front wiper stop position signal is in the condition listed below while the front wiper is operating, IPDM E/R activates the fail-safe.

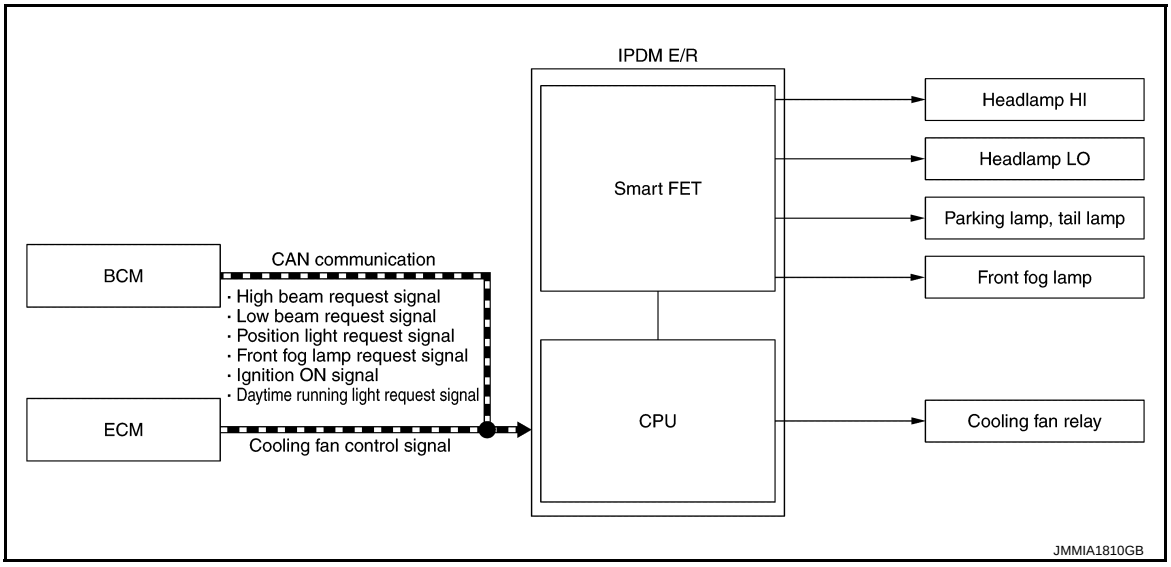
| Ignition switch | Front wiper switch | Front wiper stop position signal | Fail-safe |
|---|---|---|---|
| ON | OFF | The signal does not change from the battery voltage for 10 seconds. | Stops front wiper power supply for 20 seconds |
| | Except OFF | The signal does not change for 10 seconds. | |

## POWER CONTROL SYSTEM

## POWER CONTROL SYSTEM : System Description

INFOID:0000000010741704

### SYSTEM DIAGRAM




### EACH LAMP CONTROL

IPDM E/R controls the smart FET to control each lamp according to the control signal status of each lamp received via CAN communication. Refer to EXL-21, "HEADLAMP SYSTEM : System Description" (LED headlamp) or EXL-225, "HEADLAMP SYSTEM : System Description" (halogen headlamp).

### COOLING FAN CONTROL

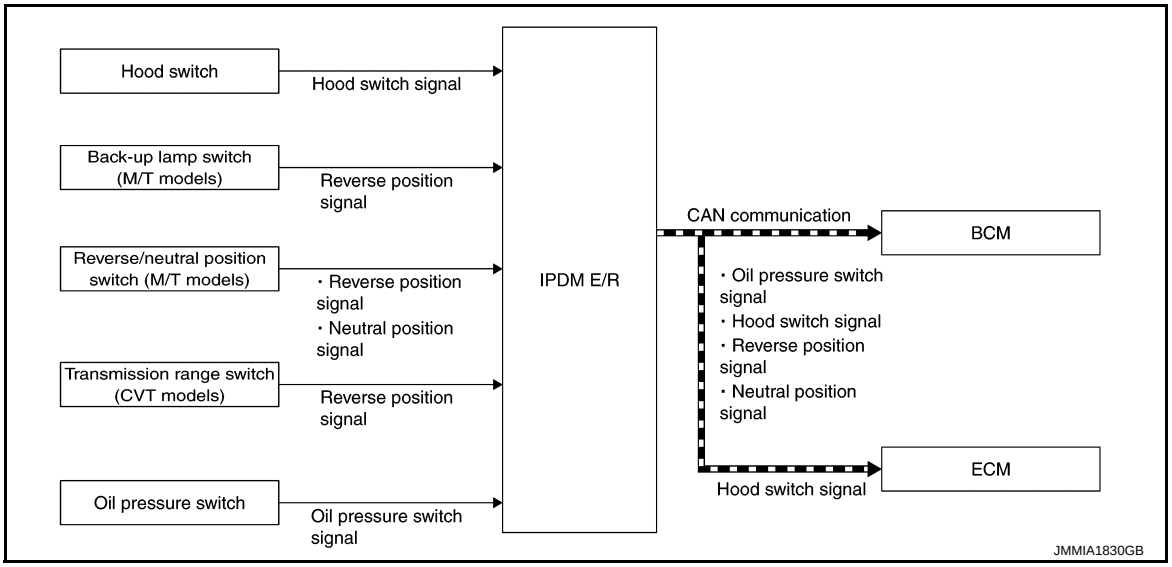
IPDM E/R controls the cooling fan according to the cooling fan control signal received from ECM via CAN communication. Refer to EC-57, "COOLING FAN CONTROL : System Description".

## SIGNAL BUFFER SYSTEM

## SIGNAL BUFFER SYSTEM : System Description

INFOID:0000000010741705

### SYSTEM DIAGRAM




### DESCRIPTION

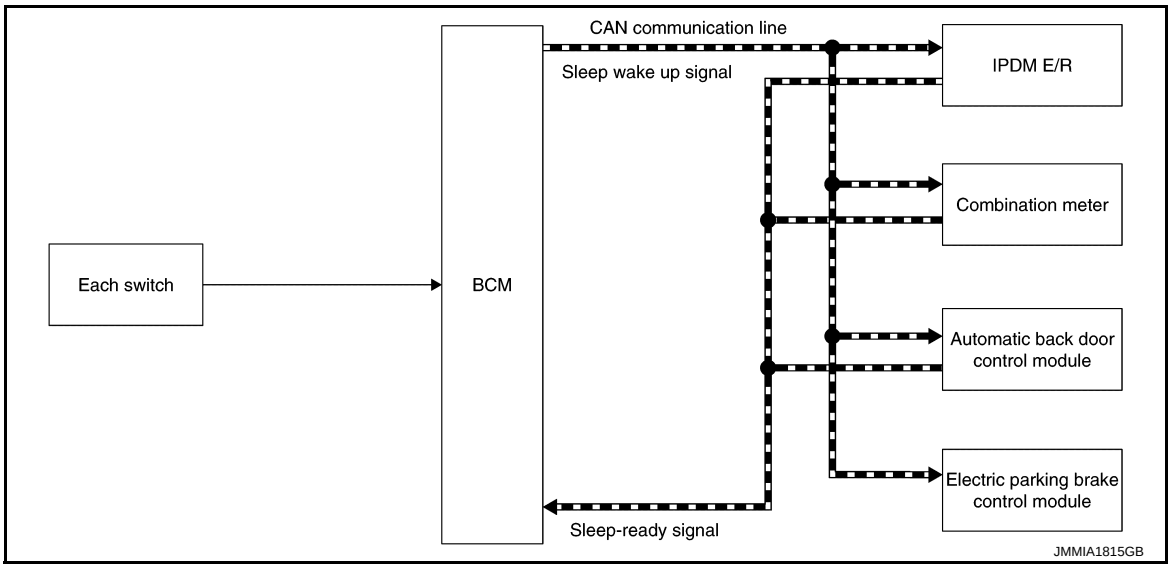
- IPDM E/R reads the status of the hood switch and transmits the hood switch signal to ECM and BCM via CAN communication.
- IPDM E/R receives the oil pressure switch signal from oil pressure switch and transmits the oil pressure signal to BCM via CAN communication.
- IPDM E/R receives the reverse position signal from transmission range switch and transmits the reverse position signal to BCM via CAN communication. (CVT models)
- IPDM E/R receives the reverse position signal and neutral position signal from reverse/neutral position switch. IPDM E/R transmits the reverse position signal and neutral position signal to BCM via CAN communication. (With MR20 engine with M/T models)
- IPDM E/R receives the reverse position signal from back-up lamp switch and transmits the reverse position signal to BCM via CAN communication. (With R9M engine and M/T models)

# POWER CONSUMPTION CONTROL SYSTEM

## POWER CONSUMPTION CONTROL SYSTEM : System Description

INFOID:0000000010741706

### SYSTEM DIAGRAM




### DESCRIPTION

Outline

- IPDM E/R incorporates a power consumption control function that reduces the power consumption according to the vehicle status.
- IPDM E/R changes its status (control mode) with the sleep wake up signal received from BCM via CAN communication.

Normal mode (wake-up)
- CAN communication is normally performed with other control units.
- Individual unit control by IPDM E/R is normally performed.

Low power consumption mode (sleep)
- Low power consumption control is active.
- CAN transmission is stopped.

Sleep Mode Activation
- IPDM E/R judges that the sleep-ready conditions are fulfilled when the ignition switch is OFF and none of the conditions below are present. Then it transmits a sleep-ready signal (ready) to BCM via CAN communication.
- Outputting signals to actuators
- Output requests are being received from control units via CAN communication.
- IPDM E/R stops CAN communication and enters the low power consumption mode when it receives a sleep wake up signal (sleep) from BCM and the sleep-ready conditions are fulfilled.

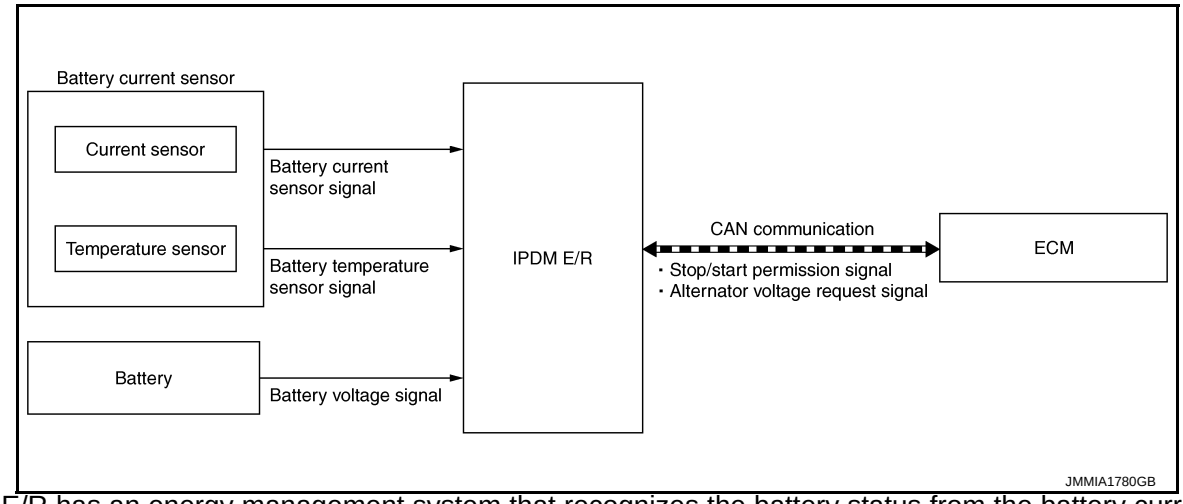
Wake-Up Operation
- IPDM E/R changes from the low power consumption mode to the normal mode when it receives a sleep wake-up signal (wake up) from BCM or any of the following conditions is fulfilled. In addition, it transmits a sleep-ready signal (not-ready) to BCM via CAN communication to report the CAN communication start.
- Ignition switch ON
- Hood switch status changes.
- An output request is received from a control unit via CAN communication.

# ENERGY MANAGEMENT SYSTEM

## ENERGY MANAGEMENT SYSTEM : System Description

INFOID:0000000010931269

### SYSTEM DIAGRAM




IPDM E/R has an energy management system that recognizes the battery status from the battery current signal from the battery current sensor, the battery temperature sensor signal, and the battery voltage from the battery and maintains normal battery status. Refer to the following for details.
- Charging system control: CHG-8, "ENERGY MANAGEMENT SYSTEM : System Description"
- Stop/Start system control: EC-856, "STOP/START SYSTEM : System Description (CVT models)" or EC-848, "STOP/START SYSTEM : System Description (M/T models)".

# DIAGNOSIS SYSTEM (IPDM E/R)

## CONSULT Function (IPDM E/R)

INFOID:0000000010741707

### APPLICATION ITEM

CONSULT performs the following functions via CAN communication with IPDM E/R.

| Diagnosis mode | Description |
|---|---|
| Self Diagnostic Result | Displays the diagnosis results judged by IPDM E/R. |
| Data Monitor | Displays the real-time input/output data from IPDM E/R input/output data. |
| Work Support | Changes the setting for each system function. |
| Active Test | IPDM E/R can provide a drive signal to electronic components to check their operations. |
| Ecu Identification | Allows confirmation of IPDM E/R part number. |
| Configuration | • Read and save the vehicle specification.<br>• White the vehicle specification when replacing IPDM E/R. |
| CAN Diag Support Monitor | The results of transmit/receive diagnosis of CAN communication can be read. |

### SELF DIAGNOSTIC RESULT

Refer to PCS-38, "DTC Index".

Freeze Frame Data (FFD)

The IPDM E/R records the vehicle condition at the time a particular DTC is detected, and displays on CONSULT.

### 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.

| Monitor Item [Unit] | Description |
|---|---|
| REVERSE SIGNAL [Open/Close] | Displays the status of reverse position signal judged by IPDM E/R. |
| IGN RELAY [Open/Close] | Displays the status of the ignition relay judged by IPDM E/R. |
| PUSH SW [Open/Close] | Displays the status of the push-button ignition switch judged by IPDM E/R. |
| NEUTRAL SW [Open/Close] | Displays the status of the neutral position signal (M/T) judged by IPDM E/R. |
| INTERLOCK/PNP SW [Open/Close] | Displays the status of the transmission range switch (CVT) judged by IPDM E/R. |
| OIL PRESSURE SW [Open/Close] | Displays the status of the oil pressure switch judged by IPDM E/R. |
| LED H/L RH STATUS [Open/Close] | Displays the LED headlamp (right) ON/OFF status judged by IPDM E/R.<br>**NOTE:**<br>This item is monitored only on the vehicle with LED headlamp. |
| LED H/L LH STATUS [Open/Close] | Displays the LED headlamp (left) ON/OFF status judged by IPDM E/R.<br>**NOTE:**<br>This item is monitored only on the vehicle with LED headlamp. |
| HOOD SW [Open/Close] | Displays the status of the hood switch judged by IPDM E/R. |
| COMPRESSOR [Off/On] | Displays the compressor drive status judged by IPDM E/R. |
| H/L WASHER PUMP [Off/On] | Displays the status of the headlamp washer relay judged by IPDM E/R. |

| Monitor Item [Unit] | Description |
|---|---|
| HORN RELAY [Off/On] | Displays the status of the horn relay judged by IPDM E/R. |
| COOLING FAN [Off/On] | Displays the cooling fan relay-4 drive status judged by IPDM E/R. |
| FRONT WIPER HI/LO RELAY [Off/On] | Displays the front wiper HI/LO relay drive status judged by IPDM E/R. |
| FRONT WIPER RELAY [Off/On] | Displays the front wiper relay drive status judged by IPDM E/R. |
| IGN RELAY OFF STATUS [Off/On] | Displays the status of the ignition relay OFF circuit judged by IPDM E/R. |
| IGN RELAY ON STATUS [Off/On] | Displays the status of the ignition relay ON circuit judged by IPDM E/R. |
| STEERING LOCK PWR SPLY [Off/On] | Displays the power supply status from IPDM E/R to the steering lock unit.<br>**NOTE:**<br>This item is monitored only on the vehicle with Intelligent Key system |
| HEIGHT SENSOR PWR SPLY [Off/On] | Displays the power supply status from IPDM E/R to the height sensor. |
| COOLING FAN RELAY 1 [Off/On] | Displays the status of the cooling fan relay-1 judged by IPDM E/R. |
| STARTER RELAY [Off/On] | Displays the status of the starter relay judged by IPDM E/R. |
| COMP ECV DUTY [%] | Displays the compressor control signal (PWM) status of IPDM E/R. |
| COOLING FAN RELAY 2 [%] | Displays the status of the cooling fan relay-5 judged by IPDM E/R. |
| FR FOG LAMP LH [%] | Displays the front fog lamp (left) output (PWM) status of IPDM E/R. |
| FR FOG LAMP RH [%] | Displays the front fog lamp (right) output (PWM) status of IPDM E/R. |
| LEVELIZER OUTPUT [%] | Displays the aiming motor drive signal (PWM) status of IPDM E/R. |
| PARKING LAMP [%] | Displays the parking lamp output (PWM) status of IPDM E/R. |
| TAIL LAMP LH [%] | Displays the tail lamp (left) output (PWM) status of IPDM E/R. |
| TAIL LAMP RH [%] | Displays the tail lamp (right) output (PWM) status of IPDM E/R. |
| DAYTIME RUNNING LIGHT LH [%] | Displays the daytime running light (left) output status of IPDM E/R. |
| DAYTIME RUNNING LIGHT RH [%] | Displays the daytime running light (right) output status of IPDM E/R. |
| HEADLAMP (HI) LH [%] | Displays the headlamp (HI) (left) output (PWM) status of IPDM E/R. |
| HEADLAMP (HI) RH [%] | Displays the headlamp (HI) (right) output (PWM) status of IPDM E/R. |
| HEADLAMP (LO) LH [%] | Displays the headlamp (LO) (left) output (PWM) status of IPDM E/R. |
| HEADLAMP (LO) RH [%] | Displays the headlamp (LO) (right) output (PWM) status of IPDM E/R. |
| A/C RELAY STUCK [OK/NG] | Displays the ON stuck status of the A/C relay judged by IPDM E/R. |

| Monitor Item [Unit] | Description |
|---|---|
| A/C RELAY [Off/On] | Displays the status of the A/C relay judged by IPDM E/R. |
| COMP ECV STATUS [OK/NG] | Displays the compressor malfunction diagnosis status judged by IPDM E/R. |
| VEHICLE SECURITY HORN [Off/On] | **NOTE:** The item is indicated, but not monitored. |
| BATTERY CURRENT SENSOR [OK/NG] | Displays the battery current sensor malfunction diagnosis status judged by IPDM E/R. |
| FRONT FOG LAMP [Off/On] | Displays the fog lamp illumination control status of IPDM E/R. |
| COMP ECV CURRENT [A] | Displays the electric current output to compressor judged by IPDM E/R. |
| BATTERY VOLTAGE [V] | Displays the status of the battery voltage judged by IPDM E/R. |
| COOLING FAN DUTY [%] | Displays the cooling fan output signal status of IPDM E/R. |
| HOOD SW (CAN) [Open/Close/NG] | Displays the status of the hood switch judged by IPDM E/R. |
| FRONT WIPER [STOP/HIGH/LOW/NG] | Displays the front wiper motor drive control status of IPDM E/R. |
| FR WIPER STOP POSITION [ACTIVE P/STOP P] | Displays the status of the front wiper position status judged by IPDM E/R. |
| HEADLAMP (HI) [Off/On] | Displays the headlamp (HI) illumination control status of IPDM E/R. |
| HEADLAMP (LO) [Off/On] | Displays the headlamp (LO) illumination control status of IPDM E/R. |
| IGNITION RELAY STATUS [Off/On] | Displays the ignition relay output status of IPDM E/R. |
| IGN RELAY MONITOR [Off/On] | Displays the status of the ignition relay judged by IPDM E/R. |
| IGNITION POWER SUPPLY [Off/On] | Displays the status of the ignition power supply judged by IPDM E/R. |
| INTERLOCK/PNP SW (CAN) [Off/On] | Displays the status of the transmission range switch signal that IPDM transmits via CAN communication. |
| NEUTRAL SWITCH (CAN) [Off/On/NG] | Displays the status of the neutral position switch (M/T) signal that IPDM transmits via CAN communication. |
| PUSH-BUTTON IGN SW (CAN) [Off/On] | Displays the status of the ignition switch signal that IPDM transmits via CAN communication. |
| TAIL LAMP [Off/On] | Displays the tail lamp illumination control status of IPDM E/R. |
| REVERSE SIGNAL (CAN) [Off/On/NG] | Displays the status of the reverse switch (M/T) signal that IPDM transmits via CAN communication. |
| ST&ST CONT RELAY STATUS [Off/Off, ON/ST R On] | Displays the status of the start control relay and start motor relay status judged by IPDM E/R. |
| STARTER MOTOR STATUS [Off/On/L-TIME] | Displays the status of the starter motor judged by IPDM E/R. |
| STARTER RELAY (CAN) [LOW/HIGH/NG] | Displays the status of the IPDM E/R transmits the starter control relay status signal via CAN communication. |
| IPDM NOT SLEEP [NO RDY/READY] | Displays the status of the IPDM E/R transmits the not sleep signal via CAN communication. |

| Monitor Item [Unit] | Description |
|---|---|
| AFTER COOLING TIME [No request/0.5min/1.0min/1.5min/ 2.0min/2.5min/3.0min/3.5min/4min/5min/ 6min/8min/10min/12min/14min/16min] | **NOTE:** The item is indicated, but not monitored. |
| AFTER COOLING SPEED [0%/25%/40%/55%/70%/78%/85%/ 100%] | **NOTE:** The item is indicated, but not monitored. |
| COOLING FAN TYPE [RENAULT/NISSAN] | **NOTE:** The item is indicated, but not monitored. |
| COMPRESSOR REQ 1 [Off/On] | Displays the status of the A/C compressor request signal received from ECM via CAN communication. |
| VHCL SECRITY HORN REQ [Off/On] | **NOTE:** The item is indicated, but not monitored. |
| DTRL REQ [Off/On] | Displays the status of the daytime running light request signal received from BCM via CAN communication. |
| SLEEP/WAKE UP [SLEEP/WAKEUP] | **NOTE:** The item is indicated, but not monitored. |
| CLUTCH INTERLOCK SW [Off/On/NG] | **NOTE:** The item is indicated, but not monitored. |
| CRANKING ENABLE-TCM [OK/NG] | Displays the status of the cranking enable signal received from TCM via CAN communication. |
| CRANKING ENABLE-ECM [OK/NG/STOP/No request] | Displays the status of the cranking enable signal received from ECM via CAN communication. |
| CAN DIAGNOSIS [OK/NG] | Displays the status of the CAN diagnosis signal received from BCM via CAN communication. |
| FRONT FOG LAMP REQ [Off/On] | Displays the status of the front fog light request signal received from BCM via CAN communication. |
| H/L WASHER REQ [Off/On] | Displays the status of the headlamp washer request signal received from BCM via CAN communication. |
| PASSING REQ [Off/On] | **NOTE:** The item is indicated, but not monitored. |
| HIGH BEAM REQ [Off/On] | Displays the status of the high beam request signal received from BCM via CAN communication. |
| HORN CHIRP [Off/On] | Displays the status of the horn reminder signal received from BCM via CAN communication. |
| COOLING FAN REQ [%] | Displays the status of the cooling fan speed request signal received from ECM via CAN communication. |
| ENGINE STATUS [STOP/IDLING/RUN] | Displays the status of the engine status signal received from ECM via CAN communication. |
| TURN SIGNAL REQ [Off/LH/RH] | Displays the status of the turn indicator signal received from BCM via CAN communication. |
| FR WIPER REQ [RETURN/STOP/NG/LOW/HIGH] | Displays the status of the front wiper request signal received from BCM via CAN communication. |
| SHIFT POSITION [OFF/P/R/N/D/S/L/B/1/2/3/4/5/6/7] | Displays the status of the shift position signal received from TCM via CAN communication. |
| LOW BEAM REQ [Off/On] | Displays the status of the low beam request signal received from BCM via CAN communication. |
| POSITION LIGHT REQ [Off/On] | Displays the status of the position light request signal received from BCM via CAN communication. |
| COMPRESSOR REQ 2 [Off/On] | Displays the status of the A/C ON signal received from A/C auto amp. via CAN communication. |
| IGNITION SW [Off/On/START/No request] | Displays the status of the ignition switch ON signal and starter control relay request signal received from BCM via CAN communication. |

| Monitor Item [Unit] | Description |
|---|---|
| VEHICLE SPEED (METER) [km/h] | Displays the status of the A/C ON signal received from A/C auto amp. via CAN communication. |
| BAT DISCHARGE COUNT [—] | Monitor the cumulative discharge value of the battery.<br>**NOTE:**<br>When 65,000 or more is counted, replace the battery. |
| P LAMP CIRC MALFUNCTN [0 – 1] | Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the parking lamp circuit.<br>**NOTE:**<br>When the number of parking lamp circuit retries count is 20, this item counts 1. |
| NMB P LAMP CIRC RETRY [0 – 20] | Monitor the number of times that the smart FET in IPDM E/R permits the retry of the parking lamp circuit.<br>**NOTE:**<br>When the number of short circuits in the parking lamp circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1. |
| NMB P LAMP CIRC SHORT [0 – 5] | Monitor the number of times that the smart FET in IPDM E/R detects the over current of the parking lamp circuit. |
| DTRL LH CIRC MALFUNCTN [0 – 1] | Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the daytime running light (left) circuit.<br>**NOTE:**<br>When the number of daytime running light (left) circuit retries count is 20, this item counts 1. |
| NMB DTRL LH CIRC RETRY [0 – 20] | Monitor the number of times that the smart FET in IPDM E/R permits the retry of the daytime running light (left) circuit.<br>**NOTE:**<br>When the number of short circuits in the daytime running light (left) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1. |
| NMB DTRL LH CIRC SHORT [0 – 5] | Monitor the number of times that the smart FET in IPDM E/R detects the over current of the daytime running light (left) circuit. |
| DTRL RH CIRC MALFUNCTN [0 – 1] | Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the daytime running light (right) circuit.<br>**NOTE:**<br>When the number of daytime running light (right) circuit retries count is 20, this item counts 1. |
| NMB DTRL RH CIRC RETRY [0 – 20] | Monitor the number of times that the smart FET in IPDM E/R permits the retry of the daytime running light (right) circuit.<br>**NOTE:**<br>When the number of short circuits in the daytime running light (right) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1. |
| NMB DTRL RH CIRC SHORT [0 – 5] | Monitor the number of times that the smart FET in IPDM E/R detects the over current of the daytime running light (right) circuit. |
| F FOG LH CIRC MALFUNCTN [0 – 1] | Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the front fog lamp (left) circuit.<br>**NOTE:**<br>When the number of front fog lamp (left) circuit retries count is 20, this item counts 1. |
| NMB F FOG LH CIRC RETRY [0 – 20] | Monitor the number of times that the smart FET in IPDM E/R permits the retry of the front fog lamp (left) circuit.<br>**NOTE:**<br>When the number of short circuits in the front fog lamp (left) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1. |
| NMB F FOG LH CIRC SHORT [0 – 5] | Monitor the number of times that the smart FET in IPDM E/R detects the over current of the front fog lamp (left) circuit. |
| F FOG RH CIRC MALFUNCTN [0 – 1] | Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the front fog lamp (right) circuit.<br>**NOTE:**<br>When the number of front fog lamp (right) circuit retries count is 20, this item counts 1. |

| Monitor Item [Unit] | Description |
|---|---|
| NMB F FOG RH CIRC RETRY [0 – 20] | Monitor the number of times that the smart FET in IPDM E/R permits the retry of the front fog lamp (right) circuit.<br>**NOTE:**<br>When the number of short circuits in the front fog lamp (right) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1. |
| NMB F FOG RH CIRC SHORT [0 – 5] | Monitor the number of times that the smart FET in IPDM E/R detects the over current of the front fog lamp (right) circuit. |
| HL (HI) LH CIRC MALFUNCTN [0 – 1] | Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the headlamp (HI) (left) circuit.<br>**NOTE:**<br>When the number of headlamp (HI) (left) circuit retries count is 20, this item counts 1. |
| NMB HL (HI) LH CIRC RETRY [0 – 20] | Monitor the number of times that the smart FET in IPDM E/R permits the retry of the headlamp (HI) (left) circuit.<br>**NOTE:**<br>When the number of short circuits in the headlamp (HI) (left) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1. |
| NMB HL (HI) LH CIRC SHORT [0 – 5] | Monitor the number of times that the smart FET in IPDM E/R detects the over current of the headlamp (HI) (left) circuit. |
| HL (HI) RH CIRC MALFUNCTN [0 – 1] | Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the headlamp (HI) (right) circuit.<br>**NOTE:**<br>When the number of headlamp (HI) (right) circuit retries count is 20, this item counts 1. |
| NMB HL (HI) RH CIRC RETRY [0 – 20] | Monitor the number of times that the smart FET in IPDM E/R permits the retry of the headlamp (HI) (right) circuit.<br>**NOTE:**<br>When the number of short circuits in the headlamp (HI) (right) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1. |
| NMB HL (HI) RH CIRC SHORT [0 – 5] | Monitor the number of times that the smart FET in IPDM E/R detects the over current of the headlamp (HI) (right) circuit. |
| S/L CIRC MALFUNCTN [0 – 1] | Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the steering lock circuit.<br>**NOTE:**<br>When the number of steering lock circuit retries count is 20, this item counts 1. |
| NMB S/L CIRC RETRY [0 – 20] | Monitor the number of times that the smart FET in IPDM E/R permits the retry of the steering lock circuit.<br>**NOTE:**<br>When the number of short circuits in the steering lock circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1. |
| NMB S/L CIRC SHORT [0 – 5] | Monitor the number of times that the smart FET in IPDM E/R detects the over current of the steering lock circuit. |
| HL (LO) LH CIRC MALFUNCTN [0 – 1] | Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the headlamp (LO) (left) circuit.<br>**NOTE:**<br>When the number of headlamp (LO) (left) circuit retries count is 20, this item counts 1. |
| NMB HL (LO) LH CIRC RETRY [0 – 20] | Monitor the number of times that the smart FET in IPDM E/R permits the retry of the headlamp (LO) (left) circuit.<br>**NOTE:**<br>When the number of short circuits in the headlamp (LO) (left) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1. |
| NMB HL (LO) LH CIRC SHORT [0 – 5] | Monitor the number of times that the smart FET in IPDM E/R detects the over current of the headlamp (LO) (left) circuit. |
| HL (LO) RH CIRC MALFUNCTN [0 – 1] | Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the headlamp (LO) (right) circuit.<br>**NOTE:**<br>When the number of headlamp (LO) (right) circuit retries count is 20, this item counts 1. |

| Monitor Item [Unit] | Description |
|---|---|
| NMB HL (LO) RH CIRC RETRY [0 – 20] | Monitor the number of times that the smart FET in IPDM E/R permits the retry of the headlamp (LO) (right) circuit.<br>**NOTE:**<br>When the number of short circuits in the headlamp (LO) (right) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1. |
| NMB HL (LO) RH CIRC SHORT [0 – 5] | Monitor the number of times that the smart FET in IPDM E/R detects the over current of the headlamp (LO) (right) circuit. |
| T LAMP LH CIRC MALFUNCTN [0 – 1] | Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the tail lamp (left) circuit.<br>**NOTE:**<br>When the number of tail lamp (left) circuit retries count is 20, this item counts 1. |
| NMB T LAMP LH CIRC RETRY [0 – 20] | Monitor the number of times that the smart FET in IPDM E/R permits the retry of the tail lamp (left) circuit.<br>**NOTE:**<br>When the number of short circuits in the tail lamp (left) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1. |
| NMB T LAMP LH CIRC SHORT [0 – 5] | Monitor the number of times that the smart FET in IPDM E/R detects the over current of the tail lamp (left) circuit. |
| T LAMP RH CIRC MALFUNCTN [0 – 1] | Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the tail lamp (right) circuit.<br>**NOTE:**<br>When the number of tail lamp (right) circuit retries count is 20, this item counts 1. |
| NMB T LAMP RH CIRC RETRY [0 – 20] | Monitor the number of times that the smart FET in IPDM E/R permits the retry of the tail lamp (right) circuit.<br>**NOTE:**<br>When the number of short circuits in the tail lamp (right) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1. |
| NMB T LAMP RH CIRC SHORT [0 – 5] | Monitor the number of times that the smart FET in IPDM E/R detects the over current of the tail lamp (right) circuit. |
| BATTERY STATUS [OK/NG] | Monitor the battery status from the battery output. |

## ACTIVE TEST

| Test item | Operation | Description |
|---|---|---|
| HORN | Off | OFF |
| | On | Operates horn relay for 20 ms. |
| HEADLAMP WASHER | Off | OFF |
| | On | Operates headlamp washer relay for 10 ms. |
| FRONT WIPER | Off | OFF |
| | Low | Operates the front wiper relay. |
| | High | Operates the front wiper relay and front wiper HI/LO relay. |
| COMPRESSOR | Off | OFF |
| | On | Operates the A/C relay. |
| COOLING FAN (MONO) | Off | OFF |
| | Lo | Run the cooling fan at low speed. |
| | Hi | Run the cooling fan at high speed. |
| HEADLAMP (HI) | Off | OFF |
| | On | Operates the headlamp (HI) |
| HEADLAMP (LO) | Off | OFF |
| | On | Operates the headlamp (LO). |

| Test item | Operation | Description |
|---|---|---|
| FRONT FOG LAMP | Off | OFF |
| | On | Operates the front fog lamp. |
| DAYTIME RUNNING LIGHT | Off | OFF |
| | On | Operates the parking lamp (daytime running light operation). |
| PARKING LAMP | Off | OFF |
| | On | Operates the parking lamp. |
| TAIL LAMP | Off | OFF |
| | On | Operates the tail lamp. |
| OPTIC AXIS ACTIVE TEST | Default | Return the optical axis to the default position.<br>**NOTE:**<br>While the headlamp is OFF, it does not return to the default position. |
| | Lower | Adjust the optical axis to the lowermost point. |

## WORK SUPPORT

| Work item | Description |
|---|---|
| SENSOR INITIALIZE | Adjusts the height sensor signal output value in the unloaded vehicle condition. |
| CML B/DCHRG CRNT CLEAR | In this mode, cumulative battery discharge current is cleared. |

# ECU DIAGNOSIS INFORMATION

## IPDM E/R

### Reference Value

INFOID:0000000010741708

VALUES ON THE DIAGNOSIS TOOL

**NOTE:**

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

| Monitor | Condition | | Value/Status |
|---|---|---|---|
| REVERSE SIGNAL | Ignition switch ON | Selector lever in R position | CLOSE |
| | | Selector lever in any position other than R | OPEN |
| IGN RELAY | Ignition switch OFF | | OPEN |
| | Ignition switch ON | | CLOSE |
| PUSH SW | Release the push-button ignition switch | | OPEN |
| | Press the push-button ignition switch | | CLOSE |
| NEUTRAL SW | Ignition switch ON | Selector lever in N position | CLOSE |
| | | Selector lever in any position other than N | OPEN |
| INTERLOCK/PNP SW | Ignition switch ON | Selector lever in P or N position | CLOSE |
| | | Selector lever in any position other than P or N | OPEN |
| OIL PRESSURE SW | Ignition switch OFF or engine running | | OPEN |
| | Ignition switch ON | | CLOSE |
| LED H/L RH STATUS | Lighting switch OFF | | CLOSE |
| | Lighting switch 2ND or AUTO (light is illuminated) | | OPEN |
| LED H/L LH STATUS | Lighting switch OFF | | CLOSE |
| | Lighting switch 2ND or AUTO (light is illuminated) | | OPEN |
| HOOD SW | Close the hood | | OPEN |
| | Open the hood | | CLOSE |
| COMPRESSOR | Engine running | A/C switch OFF | OFF |
| | | A/C switch ON | ON |
| H/L WASHER PUMP | Not operating | | OFF |
| | Headlamp washer operating | | ON |
| HORN RELAY | Horn | Not operation | OFF |
| | | Other than above | ON |
| COOLING FAN | Cooling fan | Stop or High speed operation | OFF |
| | | Low speed operation | ON |
| FRONT WIPER HI/LO RELAY | Ignition switch ON | Front wiper HI operated | ON |
| | | Other than above | OFF |
| FRONT WIPER RELAY | Ignition switch ON | Front wiper is operating | ON |
| | | Other than above | OFF |
| IGN RELAY OFF STATUS | Ignition switch OFF | | ON |
| | Ignition switch ON | | OFF |
| IGN RELAY ON STATUS | Ignition switch ON | | ON |
| | Ignition switch OFF | | OFF |

| Monitor | Condition | | Value/Status |
|---|---|---|---|
| STEERING LOCK PWR SPLY<br>**NOTE:**<br>Only models with Intelligent Key | Ignition switch OFF | | ON |
| | Ignition switch ON | | OFF |
| HEIGHT SENSOR PWR SPLY | Ignition switch ON | | ON |
| | Ignition switch OFF | | OFF |
| COOLING FAN RELAY 1 | Cooling fan | Low speed operation | ON |
| | | Stop or high speed operation | OFF |
| STARTER RELAY | Engine | Cranking | ON |
| | | Other than above | OFF |
| COMP ECV DUTY | Engine running | A/C switch OFF | 0 % |
| | | A/C switch ON | 0 – 100 % |
| COOLING FAN RELAY 2 | Cooling fan | Stop or low speed operation | 0 % |
| | | High speed operation | 100 % |
| FR FOG LAMP LH | Lighting switch 1ST, 2ND or AUTO (light is illuminated) | Front fog lamp switch OFF | 0 % |
| | | Front fog lamp switch ON | 80 – 100 % |
| FR FOG LAMP RH | Lighting switch 1ST, 2ND or AUTO (light is illuminated) | Front fog lamp switch OFF | 0 % |
| | | Front fog lamp switch ON | 80 – 100 % |
| LEVELIZER OUTPUT | Lighting switch 2ND or AUTO (light is illuminated) | Headlamp aiming: Unloaded vehicle condition | 70.0 % |
| | | Headlamp aiming: Low | Value decreases from the unladen status. |
| PARKING LAMP | Lighting switch OFF | | 0 % |
| | Lighting switch 1ST, 2ND or AUTO (light is illuminated) | | 100 % |
| TAIL LAMP LH | Lighting switch OFF | | 0 % |
| | Lighting switch 1ST, 2ND or AUTO (light is illuminated) | | 100 % |
| TAIL LAMP RH | Lighting switch OFF | | 0 % |
| | Lighting switch 1ST, 2ND or AUTO (light is illuminated) | | 100 % |
| DAYTIME RUNNING LIGHT LH | Engine running | Lighting switch 1ST | 0 % |
| | | Lighting switch OFF | 100 % |
| DAYTIME RUNNING LIGHT RH | Engine running | Lighting switch 1ST | 0 % |
| | | Lighting switch OFF | 100 % |
| HEADLAMP (HI) LH | Lighting switch 2ND or AUTO (light is illuminated) | Lighting switch HI or PASS | 80 – 100 % |
| | | Lighting switch other than HI and PASS | 0 % |
| HEADLAMP (HI) RH | Lighting switch 2ND or AUTO (light is illuminated) | Lighting switch HI or PASS | 80 – 100 % |
| | | Lighting switch other than HI and PASS | 0 % |
| HEADLAMP (LO) LH | Lighting switch OFF | | 0 % |
| | Lighting switch 2ND or AUTO (light is illuminated) | | 80 – 100 % |
| HEADLAMP (LO) RH | Lighting switch OFF | | 0 % |
| | Lighting switch 2ND or AUTO (light is illuminated) | | 80 – 100 % |
| A/C RELAY STUCK | A/C relay | Normal | OK |
| | | On stuck | NG |

| Monitor | Condition | | Value/Status |
|---|---|---|---|
| A/C RELAY | Engine running | A/C switch OFF | OFF |
| | | A/C switch ON<br>(A/C compressor is operating) | ON |
| COMP ECV STATUS | Compressor | Normal | OK |
| | | Malfunction | NG |
| VEHICLE SECURITY HORN | **NOTE:**<br>This item is indicated, but not monitored. | | OFF |
| BATTERY CURRENT SENSOR | Battery current sensor | Normal | OK |
| | | Malfunction | NG |
| FRONT FOG LAMP | Lighting switch 1ST, 2ND or AUTO (light is illuminated) | Front fog lamp switch OFF | OFF |
| | | Front fog lamp switch ON | ON |
| COMP ECV CURRENT | Compressor | Operating | 0.00 A – 1.00 A |
| | | Other than above | 0.00 A |
| BATTERY VOLTAGE | Ignition switch ON | | 11 V – 14 V |
| COOLING FAN DUTY | Engine running | | 0 – 100% |
| HOOD SW (CAN) | Open the hood | | OPEN |
| | Close the hood | | CLOSE |
| | CAN communication system malfunction | | NG |
| FRONT WIPER | Ignition switch ON | Front wiper stop | STOP |
| | | Front wiper INT or LO operation | LOW |
| | | Front wiper other than INT or LO operation | HIGH |
| | | IPDM E/R cannot detects front wiper status | NG |
| FR WIPER STOP POSITION | Ignition switch ON | Front wiper stop position | STOP P |
| | | Any position other than front wiper stop position | ACTIVE P |
| HEADLAMP (HI) | Lighting switch 2ND or AUTO (light is illuminated) | Lighting switch HI or PASS | ON |
| | | Other than above | OFF |
| HEADLAMP (LO) | Lighting switch OFF | | OFF |
| | Lighting switch 2ND or AUTO (light is illuminated) | | ON |
| IGNITION RELAY STATUS | Ignition switch ON | | ON |
| | Ignition switch OFF | | OFF |
| IGN RELAY MONITOR | Ignition switch ON | | ON |
| | Ignition switch OFF | | OFF |
| IGNITION POWER SUPPLY | Ignition switch ON | | ON |
| | Ignition switch OFF | | OFF |
| INTERLOCK/PNP SW (CAN) | Ignition switch ON | Selector lever in P or N position | ON |
| | | Other than above | OFF |
| NEUTRAL SWITCH (CAN) | Ignition switch ON | Selector lever in N position | ON |
| | | Other than above | OFF |
| | CAN communication system malfunction | | NG |
| PUSH-BUTTON IGN SW (CAN)<br>**NOTE:**<br>Only models with Intelligent Key | Release the push-button ignition switch | | OFF |
| | Press the push-button ignition switch | | ON |

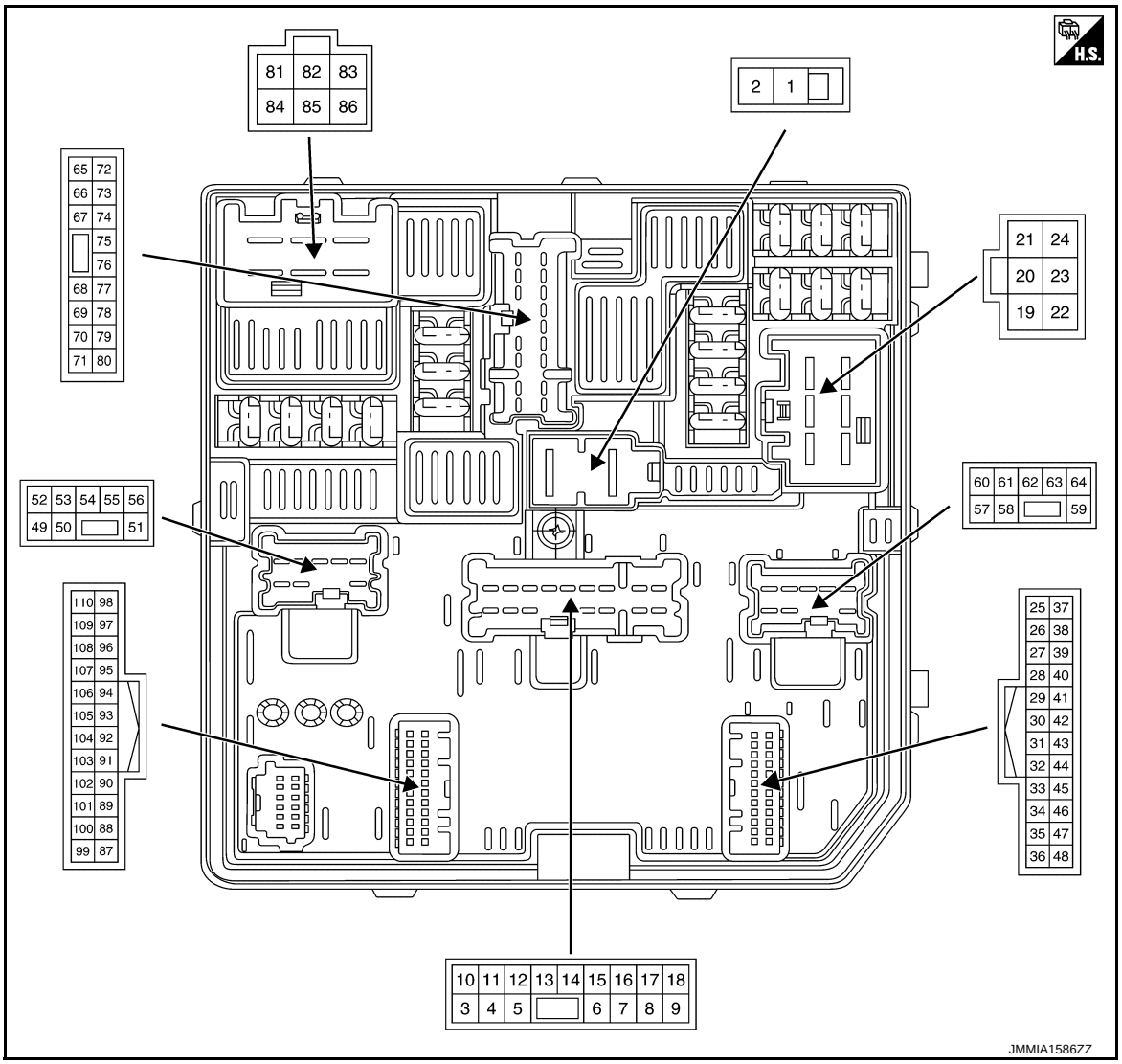
| Monitor | Condition | | Value/Status |
|---|---|---|---|
| TAIL LAMP | Lighting switch OFF | | OFF |
| | Lighting switch 1ST, 2ND or AUTO (light is illuminated) | | ON |
| REVERSE SIGNAL (CAN) | Ignition switch ON | Selector lever in R position | ON |
| | | Other than above | OFF |
| | CAN communication system malfunction | | NG |
| ST&ST CONT RELAY STATUS | Start control relay and start motor relay are OFF | | OFF |
| | Start control relay is ON | | OFF, ON |
| | Engine cranking | | ST R ON |
| STARTER MOTOR STATUS | Engine | Cranking | ON |
| | | Other than above | OFF |
| STARTER RELAY (CAN) | Engine | Cranking | HIGH |
| | | Other than above | LOW |
| | CAN communication system malfunction | | NG |
| IPDM NOT SLEEP | IPDM E/R | Operating | NO RDY |
| | | Other than above | READY |
| AFTER COOLING TIME | **NOTE:**<br>This item is indicated, but not monitored. | | 0min |
| AFTER COOLING SPEED | **NOTE:**<br>This item is indicated, but not monitored. | | 0 % |
| COOLING FAN TYPE | **NOTE:**<br>This item is indicated, but not monitored. | | NISSAN |
| COMPRESSOR REQ1 | Engine running | A/C switch OFF | OFF |
| | | A/C switch ON | ON |
| VHCL SECURITY HORN REQ | **NOTE:**<br>This item is indicated, but not monitored. | | OFF |
| DTRL REQ | Engine running | Lighting switch 1ST | OFF |
| | | Lighting switch OFF | ON |
| SLEEP/WAKE UP | **NOTE:**<br>This item is indicated, but not monitored. | | WAKEUP |
| CLUTCH INTERLOCK SW | **NOTE:**<br>This item is indicated, but not monitored. | | OFF |
| CRANKING ENABLE-TCM | Engine crank condition | Satisfied | OK |
| | | Other than above | NG |
| CRANKING ENABLE-ECM | Engine crank condition | Satisfied | OK |
| | | Other than above | NG |
| CAN DIAGNOSIS | Engine started | | OK |
| | Other than above | | NG |
| FRONT FOG LAMP REQ | Lighting switch 1ST, 2ND or AUTO (light is illuminated) | Front fog lamp switch OFF | OFF |
| | | Front fog lamp switch ON | ON |
| H/L WASHER REQ | Not operating | | OFF |
| | Headlamp washer operating | | ON |
| PASSING REQ | **NOTE:**<br>This item is indicated, but not monitored. | | OFF |
| HIGH BEAM REQ | Lighting switch 2ND or AUTO (light is illuminated) | Lighting switch HI or PASS | ON |
| | | Lighting switch other than HI and PASS | OFF |

| Monitor | Condition | | Value/Status |
|---|---|---|---|
| HORN CHIRP | **NOTE:**<br>This item is indicated, but not monitored. | | OFF |
| COOLING FAN REQ | Engine running | | 0 – 100 % |
| ENGINE STATUS | Engine stopped | | STOP |
| | Engine cranking | | IDLING |
| | Engine running | | RUN |
| TURN SIGNAL REQ | Turn signal switch | OFF | OFF |
| | | Right | RH |
| | | Left | LH |
| FR WIPER REQ | Ignition switch ON | Front wiper stopped | RETURN |
| | | Front wiper INT or LO operation | LOW |
| | | Front wiper HI operation | HIGH |
| | | Front wiper forced termination | STOP |
| SHIFT POSITION | Ignition switch ON | Selector lever in P position | P |
| | | Selector lever in R position | R |
| | | Selector lever in N position | N |
| | | Selector lever in D position | D |
| | | Selector lever in L position | L |
| LOW BEAM REQ | Lighting switch OFF | | OFF |
| | Lighting switch 2ND or AUTO (light is illuminated) | | ON |
| POSITION LIGHT REQ | Lighting switch OFF | | OFF |
| | Lighting switch 1ST, 2ND or AUTO (light is illuminated) | | ON |
| COMPRESSOR REQ2 | Engine running | A/C switch OFF | OFF |
| | | A/C switch ON | ON |
| IGNITION SW | Ignition switch OFF | | OFF |
| | Ignition switch ON | | ON |
| | Ignition switch START | | START |
| VEHICLE SPEED (METER) | While driving | | Equivalent to speedometer reading |
| BAT DISCHARGE COUNT | Ignition switch ON | | Discharge value of the battery |
| P LAMP CIRC MALFUNCTN | Parking lamp circuit reaches the retry upper limit. | | 0 – 1 |
| NMB P LAMP CIRC RETRY | Retry of parking lamp circuit is permitted. | | 0 – 20 |
| NMB P LAMP CIRC SHORT | Parking lamp circuit detects over current. | | 0 – 5 |
| DTRL LH CIRC MALFUNCTN | Daytime running light LH circuit reaches the retry upper limit. | | 0 – 1 |
| NMB DTRL LH CIRC RETRY | Retry of daytime running light LH circuit is permitted. | | 0 – 20 |
| NMB DTRL LH CIRC SHORT | Daytime running light LH circuit detects over current. | | 0 – 5 |
| DTRL RH CIRC MALFUNCTN | Daytime running light RH circuit reaches the retry upper limit. | | 0 – 1 |
| NMB DTRL RH CIRC RETRY | Retry of daytime running light RH circuit is permitted. | | 0 – 20 |
| NMB DTRL RH CIRC SHORT | Daytime running light RH circuit detects over current. | | 0 – 5 |
| F FOG LH CIRC MALFUNCTN | Front fog lamp LH circuit reaches the retry upper limit. | | 0 – 1 |

| Monitor | Condition | Value/Status |
|---|---|---|
| NMB F FOG LH CIRC RETRY | Retry of front fog lamp LH circuit is permitted. | 0 – 20 |
| NMB F FOG LH CIRC SHORT | Front fog lamp LH circuit detects over current. | 0 – 5 |
| F FOG RH CIRC MALFUNCTN | Front fog lamp RH circuit reaches the retry upper limit. | 0 – 1 |
| NMB F FOG RH CIRC RETRY | Retry of front fog lamp RH circuit is permitted. | 0 – 20 |
| NMB F FOG RH CIRC SHORT | Front fog lamp RH circuit detects over current. | 0 – 5 |
| HL (HI) LH CIRC MALFUNCTN | Headlamp (HI) LH circuit reaches the retry upper limit. | 0 – 1 |
| NMB HL (HI) LH CIRC RETRY | Retry of headlamp (HI) LH circuit is permitted. | 0 – 20 |
| NMB HL (HI) LH CIRC SHORT | Headlamp (HI) LH circuit detects over current. | 0 – 5 |
| HL (HI) RH CIRC MALFUNCTN | Headlamp (HI) RH circuit reaches the retry upper limit. | 0 – 1 |
| NMB HL (HI) RH CIRC RETRY | Retry of headlamp (HI) RH circuit is permitted. | 0 – 20 |
| NMB HL (HI) RH CIRC SHORT | Headlamp (HI) RH circuit detects over current. | 0 – 5 |
| S/L CIRC MALFUNCTN<br>**NOTE:**<br>Only models with Intelligent Key | Steering lock circuit reaches the retry upper limit. | 0 – 1 |
| NMB S/L CIRC RETRY<br>**NOTE:**<br>Only models with Intelligent Key | Retry of steering lock circuit is permitted. | 0 – 20 |
| NMB S/L CIRC SHORT<br>**NOTE:**<br>Only models with Intelligent Key | Steering lock circuit detects over current. | 0 – 5 |
| HL (LO) LH CIRC MALFUNCTN | Headlamp (LO) LH circuit reaches the retry upper limit. | 0 – 1 |
| NMB HL (LO) LH CIRC RETRY | Retry of headlamp (LO) LH circuit is permitted. | 0 – 5 |
| NMB HL (LO) LH CIRC SHORT | Headlamp (LO) LH circuit detects over current. | 0 – 20 |
| HL (LO) RH CIRC MALFUNCTN | Headlamp (LO) RH circuit reaches the retry upper limit. | 0 – 1 |
| NMB HL (LO) RH CIRC RETRY | Retry of headlamp (LO) RH circuit is permitted. | 0 – 20 |
| NMB HL (LO) RH CIRC SHORT | Headlamp (LO) RH circuit detects over current. | 0 – 5 |
| T LAMP LH CIRC MALFUNCTN | Tail lamp LH circuit reaches the retry upper limit. | 0 – 1 |
| NMB T LAMP LH CIRC RETRY | Retry of tail lamp LH circuit is permitted. | 0 – 20 |
| NMB T LAMP LH CIRC SHORT | Tail lamp LH circuit detects over current. | 0 – 5 |
| T LAMP RH CIRC MALFUNCTN | Tail lamp RH circuit reaches the retry upper limit. | 0 – 1 |

| Monitor | Condition | Value/Status |
|---|---|---|
| NMB T LAMP RH CIRC RETRY | Retry of tail lamp RH circuit is permitted. | 0 – 20 |
| NMB T LAMP RH CIRC SHORT | Tail lamp RH circuit detects over current. | 0 – 5 |
| BATTERY STATUS | Engine: idling | Displays the battery status judgment results when starting with the ignition switch. |

## TERMINAL LAYOUT




## PHYSICAL VALUES

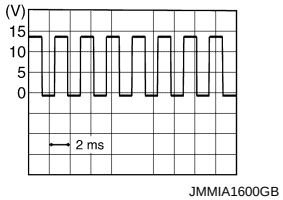
| Terminal No. (Wire color) | | Description | | Condition | Value |
|---|---|---|---|---|---|
| | | Signal name | Input/ Output | | |
| + | – | | | | |
| 1 (R) | Ground | Battery power supply | Input | Ignition switch OFF | 6 – 16 V |
| 2 (L) | Ground | Battery power supply | Input | Ignition switch OFF | 6 – 16 V |

| Terminal No. (Wire color) | | Description | | Condition | | Value |
|---|---|---|---|---|---|---|
| | | Signal name | Input/ Output | | | |
| + | – | | | | | |
| 3*2 (P) | Ground | Steering lock unit power supply | Output | Ignition switch OFF | | 6 – 16 V |
| | | | | Ignition switch ON | | 0 – 1 V |
| 4 (Y) | Ground | Tail lamp LH | Output | Lighting switch OFF | | 0 – 1 V |
| | | | | Lighting switch 1ST, 2ND or AUTO (light is illuminated) | | 9 – 16 V |
| 7 (L) | Ground | Headlamp washer relay control | Output | Ignition switch ON | Headlamp washer activated | 0 – 1 V |
| | | | | | Headlamp washer deactivated | 9 – 16 V |
| 8*8 (BG) | Ground | ECM relay | Output | Ignition switch OFF (More than a few seconds after turning ignition switch OFF) | | 0 – 1 V |
| | | | | • Ignition switch ON<br>• Ignition switch OFF (For a few seconds after turning ignition switch OFF) | | 6 – 16 V |
| 9 (L) | Ground | Horn relay (control) | Output | Horn is deactivated | | 9 – 16 V |
| | | | | Horn is activated | | 0 – 1 V |
| 12 (B) | Ground | Ground | — | Ignition switch ON | | 0 – 1 V |
| 16 (G) | Ground | Back up lamp | Output | Ignition switch ON | Selector lever in R | 9 – 16 V |
| | | | | | Selector lever in any position other than R | 0 – 1 V |
| 17 (W) | Ground | Tail lamp RH | Output | Lighting switch OFF | | 0 – 1 V |
| | | | | Lighting switch 1ST, 2ND or AUTO (light is illuminated) | | 9 – 16 V |
| 19 (V) | Ground | Front wiper HI | Output | Ignition switch ON | Front wiper switch OFF | 0 – 1 V |
| | | | | | Front wiper switch HI | 9 – 16 V |
| 20*13 (R) | Ground | Ignition power supply | Output | Ignition switch OFF | | 0 – 1 V |
| | | | | Ignition switch ON | | 6 – 16 V |
| 21*4 (LG) | Ground | Ignition power supply | Output | Ignition switch OFF | | 0 – 1 V |
| | | | | Ignition switch ON | | 6 – 16 V |
| 22 (Y) | Ground | Front wiper LO | Output | Ignition switch ON | | 0 – 1 V |
| | | | | | Front wiper switch LO | 9 – 16 V |
| 23 (B) | Ground | Ground | — | Ignition switch ON | | 0 – 1 V |
| 24 (W) | Ground | Fuel pump relay | Output | • Ignition switch OFF<br>• More than a few seconds after turning ignition switch ON | | 0 – 1 V |
| | | | | • For a few seconds after turning ignition switch ON<br>• Engine running | | 6 – 16 V |
| 25 (LG) | Ground | Ignition power supply | Output | Ignition switch OFF | | 0 – 1 V |
| | | | | Ignition switch ON | | 6 – 16 V |
| 26*12 (W) | Ground | Front height sensor | Input | Ignition switch ON | Vehicle front height: Unloaded vehicle condition | 2.4 V |
| | | | | | Vehicle front height: Low | Voltage increases from the unladen status. |

| Terminal No. (Wire color) | | Description | | Condition | | Value |
|---|---|---|---|---|---|---|
| | | Signal name | Input/ Output | | | |
| + | – | | | | | |
| 27*11 (SB) | Ground | Rear height sensor | Input | Ignition switch ON | Vehicle rear height: Unloaded vehicle condition | 1.8 V |
| | | | | | Vehicle rear height: Low | Voltage increases from the unladen status. |
| 28 (P) | Ground | CAN - L | Input/ Output | — | | — |
| 30 (L) | Ground | CAN - H | Input/ Output | — | | — |
| 31*11 (G) | Ground | Height sensor power supply | Output | Ignition switch ON | | 4 – 6 V |
| 32*11 (B) | Ground | Height sensor ground | — | Ignition switch ON | | 0 – 1 V |
| 33 (BG) | Ground | G sensor power supply | Input | Ignition switch ON | | 4 – 6 V |
| 34 (LG) | Ground | G sensor ground | — | Ignition switch ON | | 0 – 1 V |
| 35 (V) | Ground | G sensor | Input | Ignition switch ON | Vehicle stopped: plain land | 4 – 6 V |
| 36*1 (Y) | Ground | Atmospheric pressure sensor power supply | Input | Ignition switch ON | | 4 – 6 V |
| 37 (B) | Ground | Ground | — | Ignition switch ON | | 0 – 1 V |
| 38*10 (GR) | Ground | Ignition switch | Input | Ignition switch ON | | 0 – 1 V |
| | | | | Ignition switch OFF | | 9 – 16 V |
| 38*2 (GR) | Ground | Push-button ignition switch | Input | Press the push-button ignition switch | | 0 – 1 V |
| | | | | Release the push-button ignition switch | | 9 – 16 V |
| 39 (BR) | Ground | Front wiper stop position | Input | Ignition switch ON | Front wiper stop position | 0 – 1 V |
| | | | | | Other than above | 9 – 16 V |
| 45*5 (L) | — | CAN - H (TCM) | Input/ Output | — | | — |
| 46*5 (P) | — | CAN - L (TCM) | Input/ Output | — | | — |
| 47*1 (W) | Ground | Atmospheric pressure sensor signal | Input | Ignition switch ON | | 0 – 5 V<br>**NOTE:**<br>Change depending to atmospheric pressure |
| 48*1 (R) | Ground | Atmospheric pressure sensor ground | — | Ignition switch ON | | 0 – 1 V |
| 49 (R) | Ground | Daytime running light LH | Output | Engine running | Lighting switch 1ST | 0 – 1 V |
| | | | | | Lighting switch OFF | 9 – 16 V |
| 50 (L) | Ground | Headlamp (LO) LH | Output | Lighting switch OFF | | 0 – 1 V |
| | | | | Lighting switch 2ND | | 9 – 16 V |
| 51 (V) | Ground | Front fog lamp LH | Output | Lighting switch 1ST, 2ND or AUTO | Front fog lamp switch OFF | 0 – 1 V |
| | | | | | Front fog lamp switch ON | 9 – 16 V |

| Terminal No. (Wire color) | | Description | | Condition | | Value |
|---|---|---|---|---|---|---|
| | | Signal name | Input/ Output | | | |
| + | – | | | | | |
| 52 (W) | Ground | Hood switch | Input | Close the hood | | 9 – 16 V |
| | | | | Open the hood | | 0 – 1 V |
| 53*3 (GR) | Ground | LED headlamp warning LH | Output | Lighting switch OFF | | 9 – 16 V |
| | | | | Lighting switch 2ND | | 0 – 1 V |
| 54 (LG) | Ground | Headlamp (HI) RH | Output | Lighting switch 2ND or AUTO (light is illuminated) | Lighting switch OFF | 0 – 1 V |
| | | | | | • Lighting switch HI<br>• Lighting switch PASS | 9 – 16 V |
| 55 (SB) | Ground | Ignition power supply | Output | Ignition switch OFF | | 0 – 1 V |
| | | | | Ignition switch ON | | 6 – 16 V |
| 56 (BG) | Ground | Parking lamp LH | Output | Lighting switch OFF | | 0 – 1 V |
| | | | | Lighting switch 1ST or 2ND | | 9 – 16 V |
| 57 (W) | Ground | Front fog lamp RH | Output | Lighting switch 1ST, 2ND or AUTO | Front fog lamp switch OFF | 0 – 1 V |
| | | | | | Front fog lamp switch ON | 9 – 16 V |
| 58 (R) | Ground | Daytime running light RH | Output | Engine running | Lighting switch 1ST | 0 – 1 V |
| | | | | | Lighting switch OFF | 9 – 16 V |
| 59 (G) | Ground | Headlamp (HI) LH | Output | Lighting switch 2ND or AUTO (light is illuminated) | Lighting switch OFF | 0 – 1 V |
| | | | | | • Lighting switch HI<br>• Lighting switch PASS | 9 – 16 V |
| 60*3 (Y) | Ground | LED headlamp warning RH | Output | Lighting switch OFF | | 9 – 16 V |
| | | | | Lighting switch 2ND | | 0 – 1 V |
| 61 (GR) | Ground | Parking lamp RH | Output | Lighting switch OFF | | 0 – 1 V |
| | | | | Lighting switch 1ST or 2ND | | 9 – 16 V |
| 62 (SB) | Ground | Headlamp (LO) RH | Output | Lighting switch OFF | | 0 – 1 V |
| | | | | Lighting switch 2ND | | 9 – 16 V |
| 63*11 (B) | Ground | Headlamp aiming motors ground | — | Ignition switch ON | | 0 – 1 V |
| 64*11 (V) | Ground | Aiming motor drive signal | Output | Lighting switch 2ND or AUTO (light is illuminated) | Headlamp aiming: Unloaded vehicle condition | 8.75 V |
| | | | | | Headlamp aiming: Low | Voltage decreases from the unladen status. |
| 65 (P) | Ground | A/C relay | Output | Engine running | A/C switch OFF | 0 – 1 V |
| | | | | | A/C switch ON (A/C compressor is operating) | 9 – 16 V |

| Terminal No. (Wire color) | | Description | | Condition | | Value |
|---|---|---|---|---|---|---|
| | | Signal name | Input/ Output | | | |
| + | – | | | | | |
| 66 (R)*8 (L)*7 | Ground | ECM relay | Output | Ignition switch OFF | | 0 – 1 V |
| | | | | • Ignition switch ON<br>• Ignition switch OFF<br>(For a few seconds after turning ignition switch OFF) | | 6 – 16 V |
| 67*8 (V) | Ground | Throttle control motor relay control | Output | Ignition switch ON | | 0 – 1 V |
| | | | | • When ignition switch is turned from OFF to ON<br>• For a few seconds after turning ignition switch OFF | | 9 – 16 V |
| 70 (BG)*5 (GR)*6 | Ground | Ignition power supply | Output | Ignition switch OFF | | 0 – 1 V |
| | | | | Ignition switch ON | | 6 – 16 V |
| 71*6 (SB) | Ground | Ignition power supply | Output | Ignition switch OFF | | 0 – 1 V |
| | | | | Ignition switch ON | | 6 – 16 V |
| 72*8 (GR) | Ground | Throttle control motor relay | Output | Ignition switch OFF | | 0 – 1 V |
| | | | | • Ignition switch ON<br>• Ignition switch OFF<br>(For a few seconds after turning ignition switch OFF) | | 6 – 16 V |
| 73 (Y)*8 (R)*7 | Ground | ECM relay | Output | Ignition switch OFF | | 0 – 1 V |
| | | | | • Ignition switch ON<br>• Ignition switch OFF<br>(For a few seconds after turning ignition switch OFF) | | 6 – 16 V |
| 75 (BR)*8 (L)*7 | Ground | ECM relay | Output | Ignition switch OFF | | 0 – 1 V |
| | | | | • Ignition switch ON<br>• Ignition switch OFF<br>(For a few seconds after turning ignition switch OFF) | | 6 – 16 V |
| 76 (P) | Ground | Fuel pump relay control | Output | • Ignition switch OFF<br>• Approximately 1 second after turning the ignition switch ON | | 0 – 1 V |
| | | | | Approximately 1 second or more turning the ignition switch ON | | 6 – 16 V |
| 78*9 (L)*4 (R)*7 | Ground | ECM relay | Output | Ignition switch OFF | | 0 – 1 V |
| | | | | • Ignition switch ON<br>• Ignition switch OFF<br>(For a few seconds after turning ignition switch OFF) | | 6 – 16 V |
| 79 (G) | Ground | Reverse switch | Input | Ignition switch ON | Select lever in R | 9 – 16 V |
| | | | | | Select lever in any position other than R | 0 – 1 V |
| 81 (G) | Ground | Starter motor | Output | Other than at engine cranking | | 0 – 1 V |
| | | | | At engine cranking | | 6 – 16 V |
| 83 (L) | Ground | Battery power supply | Input | Ignition switch OFF | | 6 – 16 V |
| 84 (GR) | Ground | Starter relay power supply | Input | Other than at engine cranking | | 0 – 1 V |
| | | | | At engine cranking | | 6 – 16 V |

| Terminal No. (Wire color) | | Description | | Condition | | Value |
|---|---|---|---|---|---|---|
| | | Signal name | Input/ Output | | | |
| + | – | | | | | |
| 85 (P) | Ground | Cooling fan relay-1 | Output | Cooling fan | OFF | 0 – 1 V |
| | | | | | LO operation | 4 – 8 V |
| | | | | | MID or HI operation | 9 – 16 V |
| 86 (LG) | Ground | Battery power supply | Input | Ignition switch OFF | | 6 – 16 V |
| 87*5 (L) | — | CAN - H (TCM) | Input/ Output | — | | — |
| 88*5 (P) | — | CAN - L (TCM) | Input/ Output | — | | — |
| 89*1 (W) | Ground | Atmospheric pressure sensor signal | Input | Ignition switch ON | | 0 – 5 V<br>**NOTE:**<br>Change depending to atmospheric pressure |
| 90*1 (R) | Ground | Atmospheric pressure sensor ground | — | Ignition switch ON | | 0 – 1 V |
| 92*5 (GR) | Ground | Transmission range switch | Input | Ignition switch ON | Selector lever in P or N | 9 – 16 V |
| | | | | | Selector lever in any position other than P or N | 0 – 1 V |
| 92*6 (GR) | Ground | Ignition power supply | Input | Ignition switch OFF | | 0 – 1 V |
| | | | | Ignition switch ON | | 9 – 16 V |
| 93 (P)*8 (G)*7 | Ground | ECM relay control | Output | Ignition switch OFF<br>(More than a few seconds after turning ignition switch OFF) | | 6 – 16 V |
| | | | | • Ignition switch ON<br>• Ignition switch OFF<br>(For a few seconds after turning ignition switch OFF) | | 0 – 1 V |
| 94*6 (SB) | Ground | Neutral position switch | Output | Ignition switch ON | Select lever in N | 6 – 16 V |
| | | | | | Select lever in any position other than N | 0 – 1 V |
| 95 (LG) | Ground | Battery current sensor power supply | Input | Ignition switch ON | | 5 V |
| 96 (W) | Ground | Battery current sensor ground | — | Ignition switch ON | | 0 – 1 V |
| 97 (P) | Ground | Battery current sensor | Input | Engine running<br>• Battery: full charge<br>• Engine: idling | | 2.6 – 3.5 V |
| 98 (Y) | Ground | ECV control | Output | Ignition switch ON | Active test (ECV): 50 % |  <br>JMMIA1600GB |
| | | | | | Active test: 100 % | 0 – 1 V |
| 99 (BG) | Ground | G sensor power supply | Output | Ignition switch ON | | 4 – 6 V |
| 100 (LG) | Ground | G sensor ground | — | Ignition switch ON | | 0 – 1 V |

| Terminal No. (Wire color) | | Description | | Condition | | Value |
|---|---|---|---|---|---|---|
| | | Signal name | Input/ Output | | | |
| + | – | | | | | |
| 101 (V) | Ground | G sensor | Output | Ignition switch ON | Vehicle stopped: plain land | 4 – 6 V |
| 102*1 (Y) | Ground | Atmospheric pressure sensor power supply | Output | Ignition switch ON | | 4 – 6 V |
| 105*7 (W) | Ground | Oil pressure switch | Input | Ignition switch ON | Engine running | 9 – 16 V |
| | | | | | Engine stopped | 0 – 1 V |
| 106 (BR) | Ground | Cooling fan relay-5 | Output | Cooling fan | • Stop<br>• LO operation | 9 – 16 V |
| | | | | | HI operation | 0 – 1 V |
| 107*8 (V) | Ground | Cooling fan relay-4 | Output | Cooling fan | • Stop<br>• LO operation | 9 – 16 V |
| | | | | | HI operation | 0 – 1 V |
| 110 (SB) | Ground | Battery current sensor | Input | Engine running<br>• Battery temperature: 25°C<br>• Idling | | 3.3 V |

*1: With MR20 engine models
*2: With Intelligent Key models
*3: With LED headlamp
*4: With QR25 engine models
*5: With CVT models
*6: With M/T models
*7: With R9M engine models
*8: Except for R9M engine models
*9: Except for MR20 engine models
*10: Without Intelligent Key system
*11: With headlamp aiming control system (AUTO)
*12: With 3-rows seat models
*13: With stop/start system

## Fail-safe

INFOID:0000000010741709

### FAIL-SAFE CONTROL BY DTC

IPDM E/R performs fail-safe control when any DTC are detected.

| DTC | CONSULT display description | | Fail-safe |
|---|---|---|---|
| B121D | S/L LOCK PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply until the vehicle switches to sleep status. |
| B121A | FR FOG LAMP LH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the front fog lamp LH power supply circuit until the front fog lamp ON conditions are no longer satisfied. |
| B1231 | DTRL RH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the daytime running light RH power supply circuit until the daytime running light ON conditions are no longer satisfied. |
| B1256 | FR FOG LAMP RH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the front fog lamp RH power supply circuit until the front fog lamp ON conditions are no longer satisfied. |

| DTC | CONSULT display description | | Fail-safe |
|---|---|---|---|
| B1C00 | HEIGHT SENSOR PWR SPLY CIRC | [CIRC SHORT TO GRND] | Right and left headlamp aiming motors stop at the position when DTC is detected. |
| | | [CIRC SHORT TO BATTERY] | |
| B1C01 | FR HEIGHT SENSOR SIGNAL | [CIRC SHORT TO BATTERY] | Right and left headlamp aiming motors stop at the position when DTC is detected. |
| | | [CIRC SHORT TO GROUND OR OPEN] | |
| | | [CIRC VOLTAGE OUT OF RANGE] | |
| B1C02 | RR HEIGHT SENSOR SIGNAL | [CIRC SHORT TO BATTERY] | Right and left headlamp aiming motors stop at the position when DTC is detected. |
| | | [CIRC SHORT TO GROUND OR OPEN] | |
| | | [CIRC VOLTAGE OUT OF RANGE] | |
| B1C07 | AIMING MOTOR DRIVE SIGNAL | [CIRC SHORT TO GRND] | Right and left headlamp aiming motors stop at the position when DTC is detected. |
| | | [CIRC SHORT TO BATTERY] | |
| | | [SIGNAL COMPARE FAILURE] | |
| B1C11 | FR HEIGHT SENSOR SIGNAL | [SIG PRTCTN CLCLTN IN-CRCT] | Right and left headlamp aiming motors stop at the position when DTC is detected. |
| B1C12 | RR HEIGHT SENSOR SIGNAL | [SIG PRTCTN CLCLTN IN-CRCT] | Right and left headlamp aiming motors stop at the position when DTC is detected. |
| B20CB | DTRL LH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the daytime running light LH power supply circuit until the daytime running light ON conditions are no longer satisfied. |

| DTC | CONSULT display description | | Fail-safe |
|---|---|---|---|
| B20BD | BATTERY CURRENT SENSOR | [CIRC SHORT TO GRND] | Inhibit stop/start system operation |
| | | [CIRC SHORT TO BATTERY] | |
| | | [CIRC OPEN] | |
| | | [CMPNENT INTERNAL MLFNCTN] | |
| B20CE | HL (HI) LH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the headlamp (HI) LH power supply circuit until the headlamp (HI) ON conditions are no longer satisfied. |
| B20CF | HL (HI) RH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the headlamp (HI) RH power supply circuit until the headlamp (HI) ON conditions are no longer satisfied. |
| B20D0 | HL (LO) LH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the headlamp (LO) LH power supply circuit until the headlamp (LO) ON conditions are no longer satisfied. |
| B20D1 | HL (LO) RH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the headlamp (LO) RH power supply circuit until the headlamp (LO) ON conditions are no longer satisfied. |
| B20D2 | PARKING LAMP PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the parking lamp (LH/RH) power supply circuit until the parking lamp, license plate lamp, and tail lamp ON conditions are no longer satisfied. |
| B20D4 | TAIL LAMP LH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the following power supply circuits until the parking lamp, license plate lamp, and tail lamp ON conditions are no longer satisfied.<br>• Tail lamp LH (body side)<br>• Tail lamp LH (back door side)<br>• License plate lamp LH<br>• License plate lamp RH |
| B20D5 | TAIL LAMP RH PWR SPLY CIRC | [CIRC SHORT TO GRND] | Shuts off the power supply to the following power supply circuits until the parking lamp, license plate lamp, and tail lamp ON conditions are no longer satisfied.<br>• Tail lamp RH (body side)<br>• Tail lamp RH (back door side) |
| B20DB | HEIGHT SENS INITIALIZE NOT DONE | [MISSING CALIBRATION] | Right and left headlamp aiming motors fix at the initial aiming position. |
| | | [NOT CONFIURED] | |
| B20E2 | LED HEADLAMP RH | [CMPNENT INTERNAL MLFNCTN] | Transmits the headlamp warning signal (CAN communication) to the combination meter when the headlamp (LO) ON conditions are satisfied. (When the ignition switch turns ON, the headlamp warning is displayed on the information display of the combination meter.) |
| B20E3 | LED HEADLAMP LH | [CMPNENT INTERNAL MLFNCTN] | Transmits the headlamp warning signal (CAN communication) to the combination meter when the headlamp (LO) ON conditions are satisfied. (When the ignition switch turns ON, the headlamp warning is displayed on the information display of the combination meter.) |

## CAN COMMUNICATION CONTROL

When CAN communication with ECM and BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If No CAN Communication Is Available With ECM

| Control part | Fail-safe operation |
|---|---|
| Cooling fan | • The cooling fan is operated at HI operation when the ignition switch is turned ON.<br>• Turn OFF the cooling fan operation when the ignition switch is turned OFF. |
| A/C compressor | A/C relay OFF |

If No CAN Communication Is Available With BCM

| Control part | Fail-safe operation |
|---|---|
| Headlamp | • Turns ON the headlamp (LO) when the ignition switch is turned ON.<br>• Turns OFF the headlamp (LO) when the ignition switch is turned OFF.<br>• Headlamp (HI): OFF |
| • Parking lamp<br>• License plate lamp<br>• Illumination<br>• Tail lamp | • Turns ON the tail lamp, parking lamp, license plate lamp and each illumination when the ignition switch is turned ON.<br>• Turns OFF the tail lamp, parking lamp, license plate lamp and each illumination when the ignition switch is turned OFF. |
| Front wiper | • The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed.<br>• The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating. |
| Daytime running light | Daytime running light: OFF |
| Front fog lamp | Front fog lamp: OFF |
| Ignition relay | The status just before activation of fail-safe is maintained. |
| Starter motor | Starter control relay: OFF |
| Headlamp washer | Headlamp washer relay: OFF |

## IGNITION RELAY CONTROL

- IPDM E/R monitors the voltage at the contact circuit of the ignition relay inside it.
- IPDM E/R judges the ignition relay error if the voltage differs between the contact circuit.

| Voltage judgment | | IPDM E/R judgment | Operation |
|---|---|---|---|
| Ignition relay contact side | Ignition relay control condition | | |
| ON | ON | Ignition relay ON normal | — |
| OFF | OFF | Ignition relay OFF normal | — |
| ON | OFF | Ignition relay ON stuck | Detects DTC [B20DD: IGN RELAY ON CIRC] |
| OFF | ON | Ignition relay OFF stuck | Detects DTC [B20DE: IGN RELAY OFF CIRC] |

## FRONT WIPER CONTROL

IPDM E/R detects front wiper stop position by front wiper stop position signal.
When front wiper stop position signal is in the condition listed below while the front wiper is operating, IPDM E/R activates the fail-safe.

| Ignition switch | Front wiper switch | Front wiper stop position signal | Fail-safe |
|---|---|---|---|
| ON | OFF | The signal does not change from the battery voltage for 10 seconds. | Stops front wiper power supply for 20 seconds |
| | Except OFF | The signal does not change for 10 seconds. | |

# DTC Inspection Priority Chart

INFOID:0000000010741710

| Priority | DTC No. | CONSULT display |
|---|---|---|
| 1 | U1000 | CAN COMM CIRCUIT |

| Priority | DTC No. | CONSULT display | |
|---|---|---|---|
| 2 | B120E | IPDM E/R | [SYSTEM INTERNAL FAILURES] |
| | | | [NOT CONFIURED] |
| | B121D | S/L LOCK PWR SPLY CIRC | [CIRC SHORT TO GRND] |
| 3 | B20BD | BATTERY CURRENT SENSOR | [CIRC SHORT TO GRND] |
| | | | [CIRC SHORT TO BATTERY] |
| | | | [CIRC OPEN] |
| | | | [CMPNENT INTERNAL MLFNCTN] |
| | B20DB | HEIGHT SENS INITIALIZE NOT DONE | [MISSING CALIBRATION] |
| | | | [NOT CONFIURED] |
| | B20DD | IGN RELAY ON CIRC | [CIRC SHORT TO BATTERY] |
| | B20DE | IGN RELAY OFF CIRC | [CIRC SHORT TO GROUND OR OPEN] |
| | B20DF | STARTER RELAY OFF CIRC | [CIRC SHORT TO GROUND OR OPEN] |
| 4 | B121A | FR FOG LAMP LH PWR SPLY CIRC | [CIRC SHORT TO GRND] |
| | B1231 | DTRL RH PWR SPLY CIRC | [CIRC SHORT TO GRND] |
| | B1256 | FR FOG LAMP RH PWR SPLY CIRC | [CIRC SHORT TO GRND] |
| | B1C00 | HEIGHT SENSOR PWR SPLY CIRC | [CIRC SHORT TO BATTERY] |
| | | | [CIRC SHORT TO GRND] |
| | B1C01 | FR HEIGHT SENSOR SIGNAL | [CIRC SHORT TO BATTERY] |
| | | | [CIRC SHORT TO GROUND OR OPEN] |
| | | | [CIRC VOLTAGE OUT OF RANGE] |
| | B1C02 | RR HEIGHT SENSOR SIGNAL | [CIRC SHORT TO BATTERY] |
| | | | [CIRC SHORT TO GROUND OR OPEN] |
| | | | [CIRC VOLTAGE OUT OF RANGE] |
| | B1C07 | AIMING MOTOR DRIVE SIGNAL | [CIRC SHORT TO BATTERY] |
| | | | [CIRC SHORT TO GRND] |
| | | | [SIGNAL COMPARE FAILURE] |
| | B1C11 | FR HEIGHT SENSOR SIGNAL | [SIG PRTCTN CLCLTN INCRCT] |
| | B1C12 | RR HEIGHT SENSOR SIGNAL | [SIG PRTCTN CLCLTN INCRCT] |
| | B20BE | BATTERY TEMPERATURE SENSOR | [CIRC SHORT TO GRND] |
| | | | [CIRC SHORT TO BATTERY OR OPEN] |
| | B20CB | DTRL LH PWR SPLY CIRC | [CIRC SHORT TO GRND] |
| | B20CE | HL (HI) LH PWR SPLY CIRC | [CIRC SHORT TO GRND] |
| | B20CF | HL (HI) RH PWR SPLY CIRC | [CIRC SHORT TO GRND] |
| | B20D0 | HL (LO) LH PWR SPLY CIRC | [CIRC SHORT TO GRND] |
| | B20D1 | HL (LO) RH PWR SPLY CIRC | [CIRC SHORT TO GRND] |
| | B20D2 | PARKING LAMP PWR SPLY CIRC | [CIRC SHORT TO GRND] |
| | B20D4 | TAIL LAMP LH PWR SPLY CIRC | [CIRC SHORT TO GRND] |
| | B20D5 | TAIL LAMP RH PWR SPLY CIRC | [CIRC SHORT TO GRND] |
| 5 | B20E2 | LED HEADLAMP RH | [CMPNENT INTERNAL MLFNCTN] |
| | B20E3 | LED HEADLAMP LH | [CMPNENT INTERNAL MLFNCTN] |

## DTC Index

INFOID:0000000010741711

**NOTE:**
The details of time display are as follows.
- CRNT: A malfunction is detected now.

• PASS: A malfunction was detected in the past.

×: Applicable

| DTC No. | CONSULT display | | Fail-safe | Reference |
|---|---|---|---|---|
| B120E | IPDM E/R | [SYSTEM INTERNAL FAILURES] | — | PCS-54 |
| | | [NOT CONFIURED] | | |
| B121A | FR FOG LAMP LH PWR SPLY CIRC | [CIRC SHORT TO GRND] | × | • EXL-100 (LED headlamp)<br>• EXL-300 (halogen headlamp) |
| B121D | S/L LOCK PWR SPLY CIRC | [CIRC SHORT TO GRND] | × | SEC-106 |
| B1231 | DTRL RH PWR SPLY CIRC | [CIRC SHORT TO GRND] | × | • EXL-102 (LED headlamp)<br>• EXL-302 (halogen headlamp) |
| B1256 | FR FOG LAMP RH PWR SPLY CIRC | [CIRC SHORT TO GRND] | × | • EXL-104 (LED headlamp)<br>• EXL-304 (halogen headlamp) |
| B1C00 | HEIGHT SENSOR PWR SPLY CIRC | [CIRC SHORT TO BATTERY] | × | EXL-106 |
| | | [CIRC SHORT TO GRND] | | |
| B1C01 | FR HEIGHT SENSOR SIGNAL | [CIRC SHORT TO BATTERY] | × | EXL-108 |
| | | [CIRC SHORT TO GROUND OR OPEN] | | |
| | | [CIRC VOLTAGE OUT OF RANGE] | | |
| B1C02 | RR HEIGHT SENSOR SIGNAL | [CIRC SHORT TO BATTERY] | × | EXL-111 |
| | | [CIRC SHORT TO GROUND OR OPEN] | | |
| | | [CIRC VOLTAGE OUT OF RANGE] | | |
| B1C07 | AIMING MOTOR DRIVE SIGNAL | [CIRC SHORT TO BATTERY] | × | EXL-114 |
| | | [CIRC SHORT TO GRND] | | |
| | | [SIGNAL COMPARE FAILURE] | | |
| B1C11 | FR HEIGHT SENSOR SIGNAL | [SIG PRTCTN CLCLTN INCRCT] | × | EXL-117 |
| B1C12 | RR HEIGHT SENSOR SIGNAL | [SIG PRTCTN CLCLTN INCRCT] | × | EXL-119 |
| B20BD | BATTERY CURRENT SENSOR | [CIRC SHORT TO GRND] | × | CHG-16 |
| | | [CIRC SHORT TO BATTERY] | | |
| | | [CIRC OPEN] | | |
| | | [CMPNENT INTERNAL MLFNCTN] | | |
| B20BE | BATTERY TEMPERATURE SENSOR | [CIRC SHORT TO GRND] | — | CHG-20 |
| | | [CIRC SHORT TO BATTERY OR OPEN] | | |
| B20CB | DTRL LH PWR SPLY CIRC | [CIRC SHORT TO GRND] | × | • EXL-121 (LED headlamp)<br>• EXL-306 (halogen headlamp) |
| B20CE | HL (HI) LH PWR SPLY CIRC | [CIRC SHORT TO GRND] | × | • EXL-123 (LED headlamp)<br>• EXL-308 (halogen headlamp) |

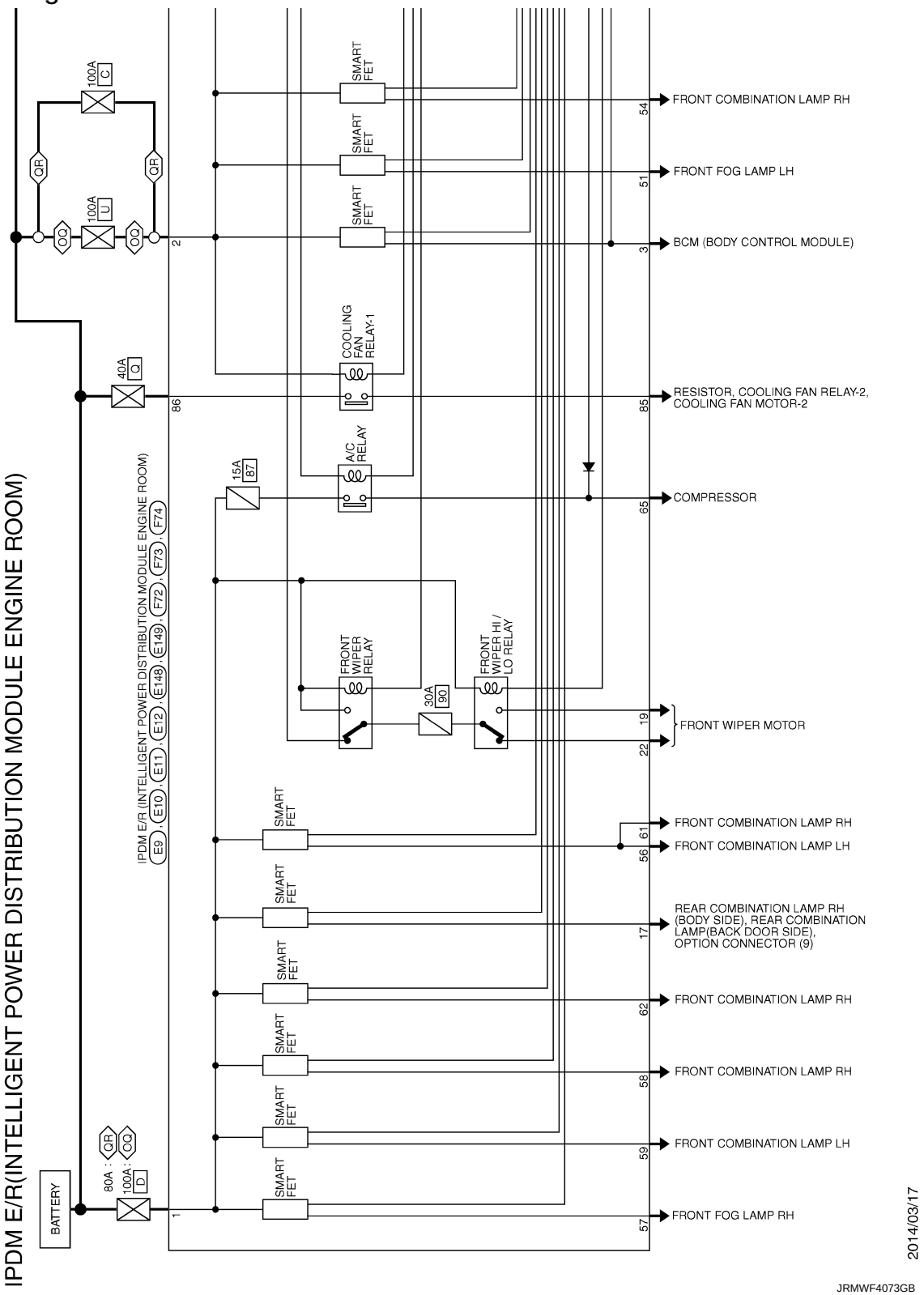
| DTC No. | CONSULT display | | Fail-safe | Reference |
|---|---|---|---|---|
| B20CF | HL (HI) RH PWR SPLY CIRC | [CIRC SHORT TO GRND] | × | • EXL-125 (LED headlamp)<br>• EXL-311 (halogen headlamp) |
| B20D0 | HL (LO) LH PWR SPLY CIRC | [CIRC SHORT TO GRND] | × | • EXL-127 (LED headlamp)<br>• EXL-314 (halogen headlamp) |
| B20D1 | HL (LO) RH PWR SPLY CIRC | [CIRC SHORT TO GRND] | × | • EXL-129 (LED headlamp)<br>• EXL-317 (halogen headlamp) |
| B20D2 | PARKING LAMP PWR SPLY CIRC | [CIRC SHORT TO GRND] | × | • EXL-131 (LED headlamp)<br>• EXL-320 (halogen headlamp) |
| B20D4 | TAIL LAMP LH PWR SPLY CIRC | [CIRC SHORT TO GRND] | × | • EXL-134 (LED headlamp)<br>• EXL-323 (halogen headlamp) |
| B20D5 | TAIL LAMP RH PWR SPLY CIRC | [CIRC SHORT TO GRND] | × | • EXL-138 (LED headlamp)<br>• EXL-327 (halogen headlamp) |
| B20DB | HEIGHT SENS INITIALIZE NOT DONE | [MISSING CALIBRATION] | × | EXL-141 |
| | | [NOT CONFIURED] | | |
| B20DD | IGN RELAY ON CIRC | [CIRC SHORT TO BATTERY] | — | PCS-55 |
| B20DE | IGN RELAY OFF CIRC | [CIRC SHORT TO GROUND OR OPEN] | — | PCS-58 |
| B20DF | STARTER RELAY OFF CIRC | [CIRC SHORT TO GROUND OR OPEN] | — | SEC-108 |
| B20E2 | LED HEADLAMP RH | [CMPNENT INTERNAL MLFNCTN] | × | EXL-142 |
| B20E3 | LED HEADLAMP LH | [CMPNENT INTERNAL MLFNCTN] | × | EXL-144 |
| U1000 | CAN COMM CIRCUIT | | × | PCS-52 |

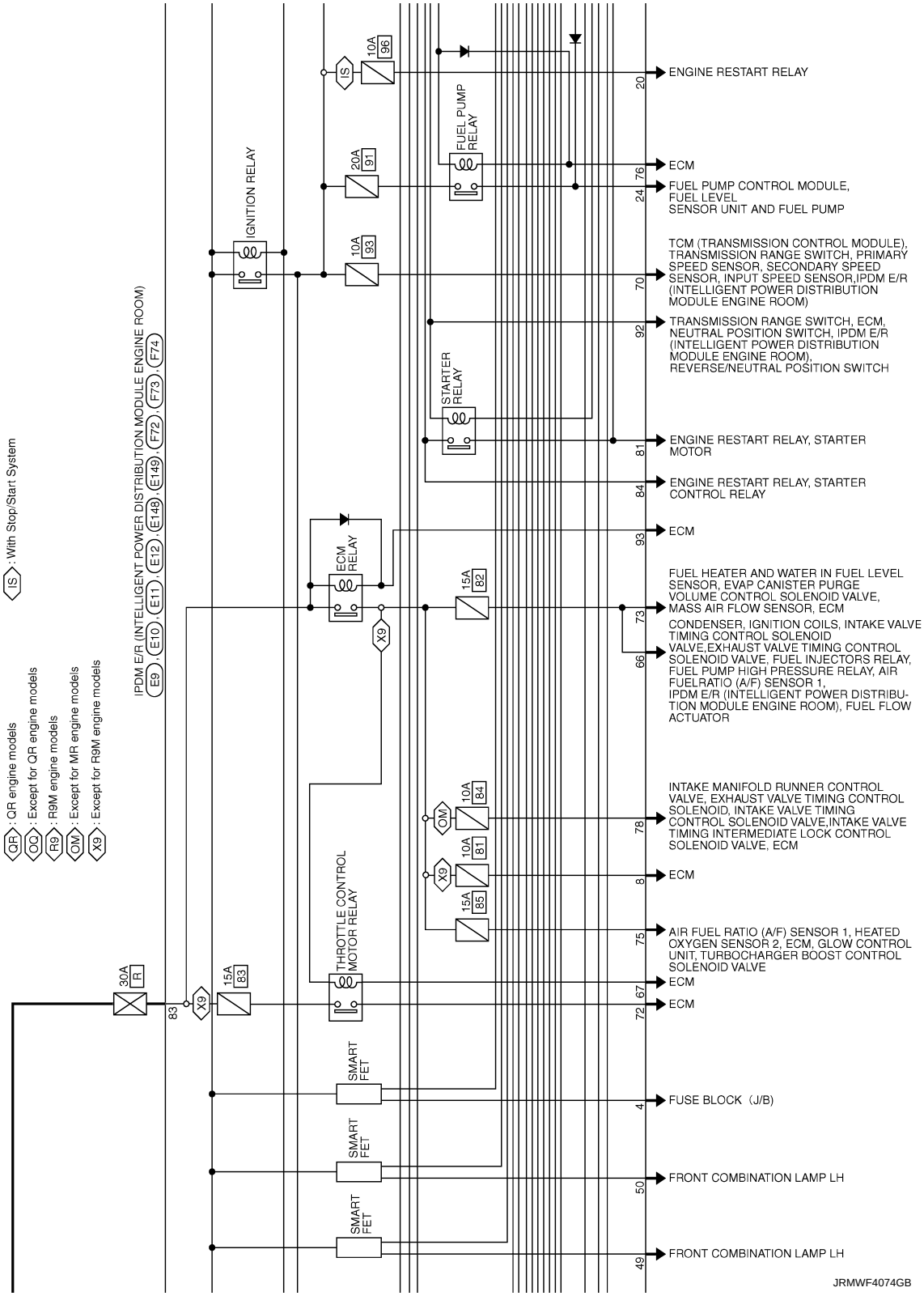
# WIRING DIAGRAM

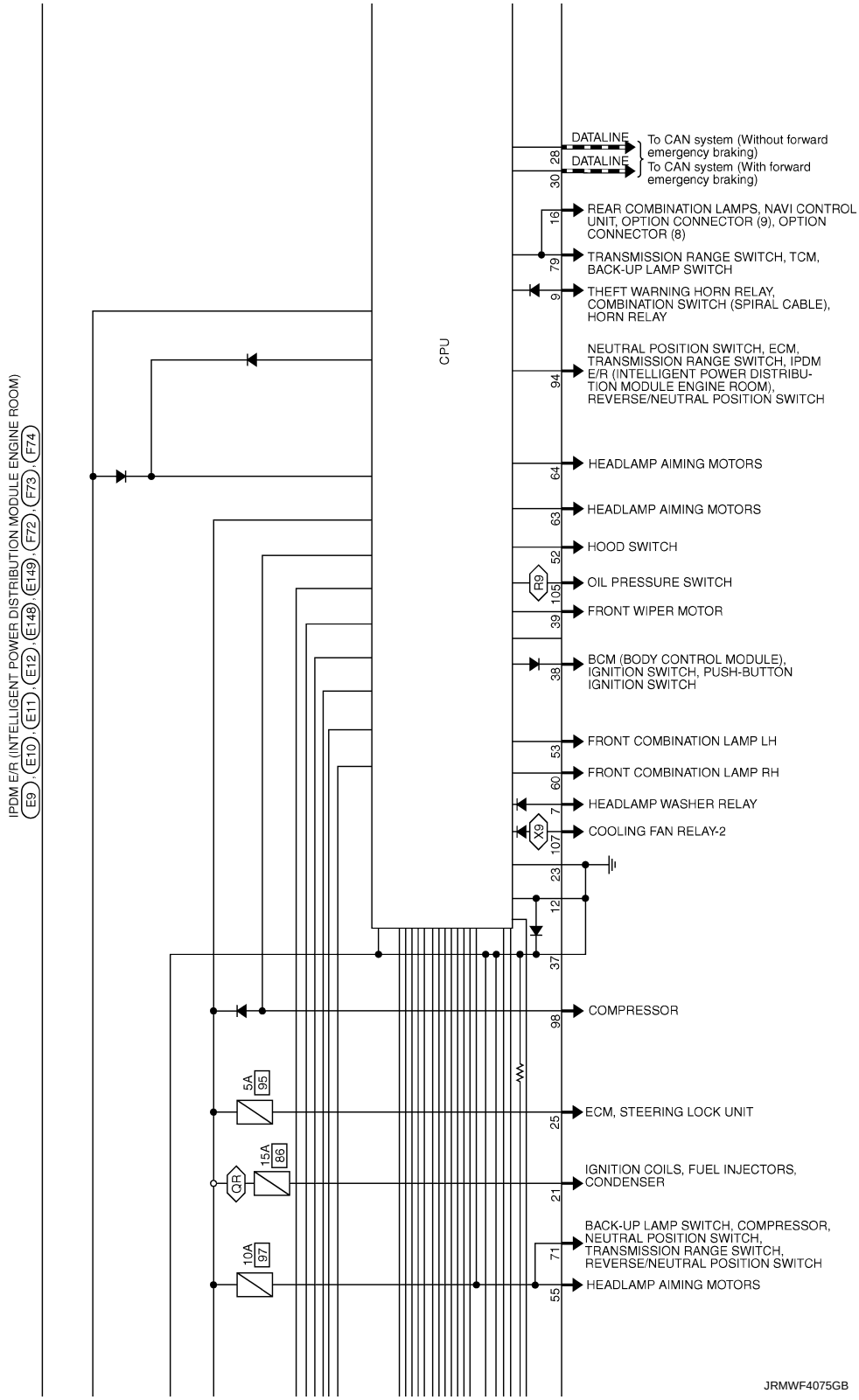
## IPDM E/R

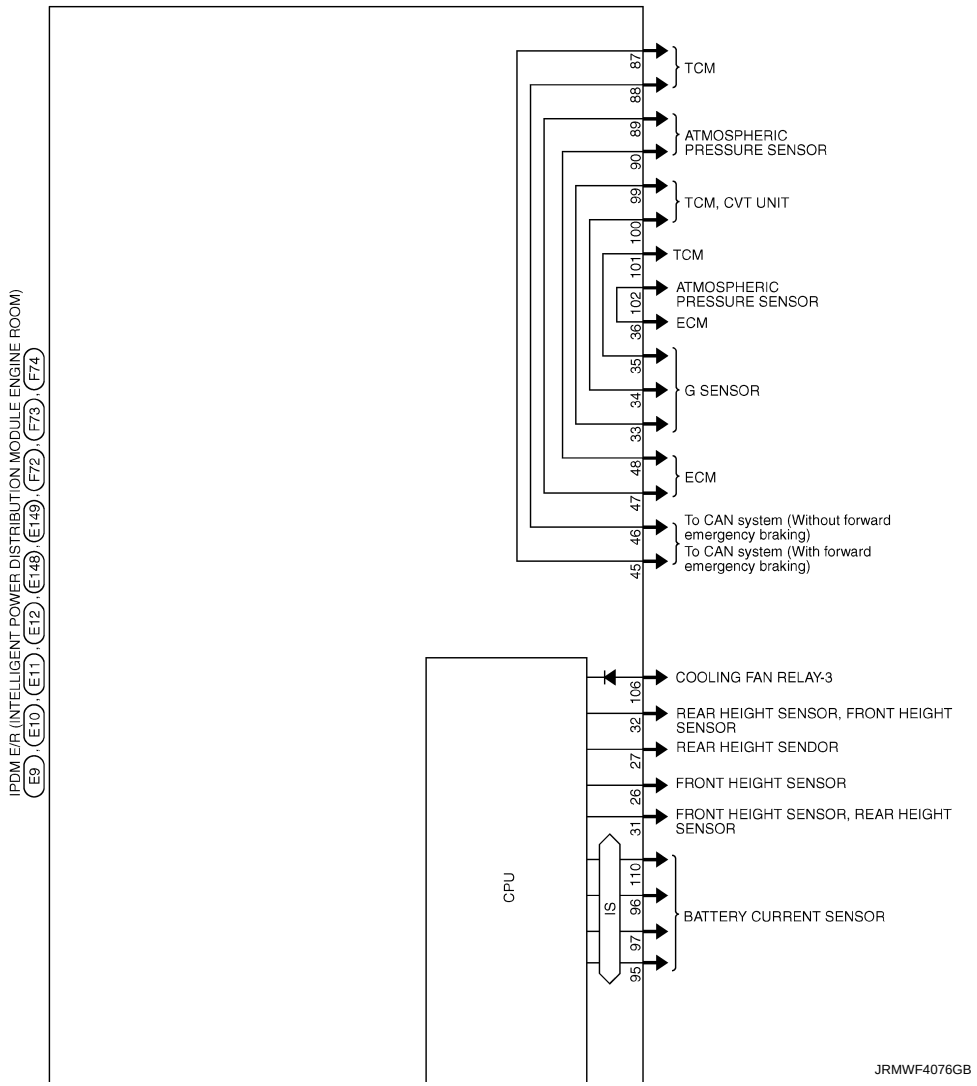
### Wiring Diagram

INFOID:0000000010741712

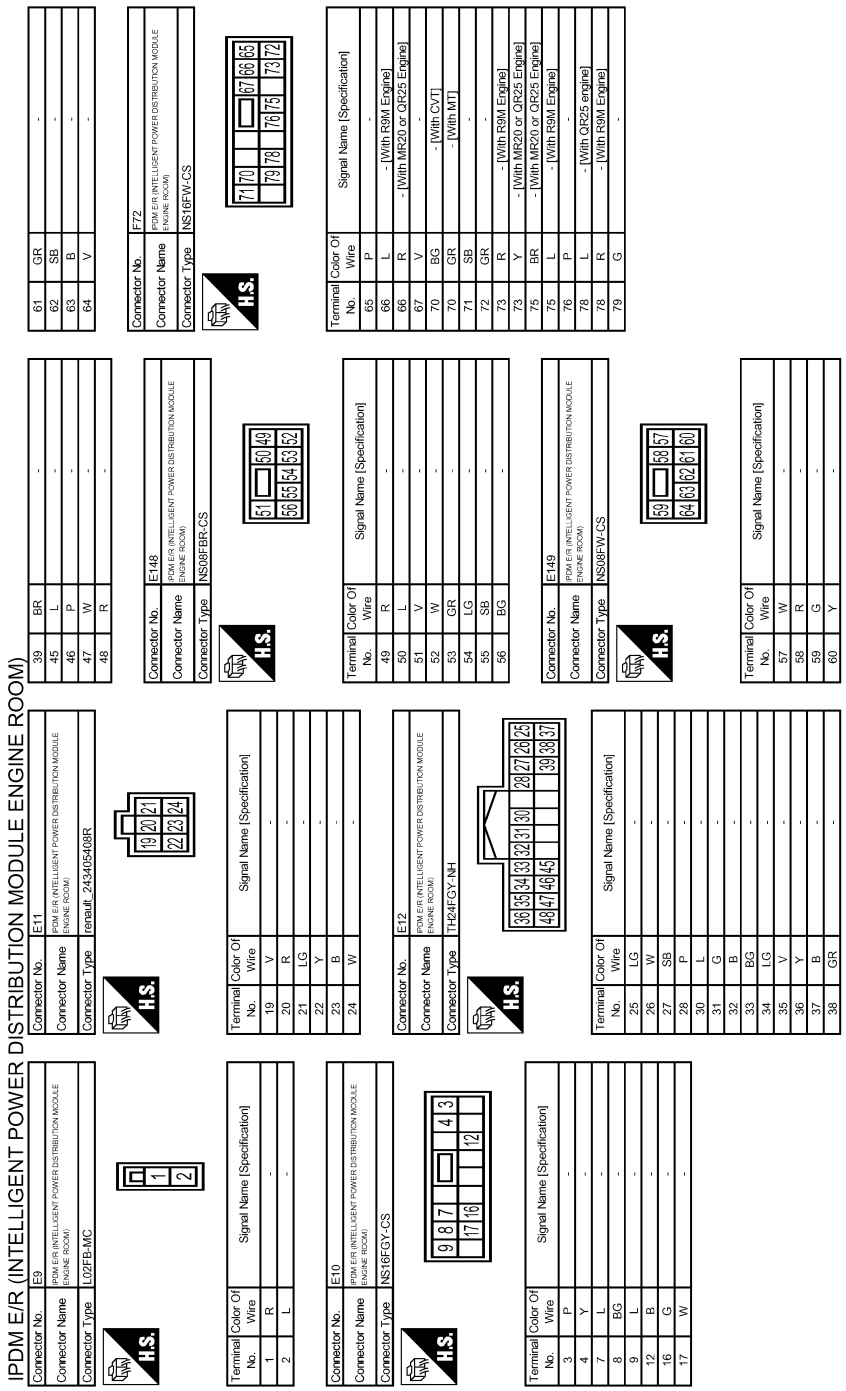



IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E9, E10, E11, E12, E148, E149, F72, F73, F74
IS : With Stop/Start System
QR : QR engine models
OQ : Except for QR engine models
R9 : R9M engine models
OM : Except for MR engine models
X9 : Except for R9M engine models
IGNITION RELAY
FUEL PUMP RELAY
STARTER RELAY
ECM RELAY
THROTTLE CONTROL MOTOR RELAY
SMART FET
SMART FET
SMART FET
30A R
15A 83
10A 96
20A 91
10A 93
15A 82
10A 84
10A 81
15A 85
ENGINE RESTART RELAY
ECM
FUEL PUMP CONTROL MODULE, FUEL LEVEL SENSOR UNIT AND FUEL PUMP
TCM (TRANSMISSION CONTROL MODULE), TRANSMISSION RANGE SWITCH, PRIMARY SPEED SENSOR, SECONDARY SPEED SENSOR, INPUT SPEED SENSOR,IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
TRANSMISSION RANGE SWITCH, ECM, NEUTRAL POSITION SWITCH, IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM), REVERSE/NEUTRAL POSITION SWITCH
ENGINE RESTART RELAY, STARTER MOTOR
ENGINE RESTART RELAY, STARTER CONTROL RELAY
ECM
FUEL HEATER AND WATER IN FUEL LEVEL SENSOR, EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE, MASS AIR FLOW SENSOR, ECM
CONDENSER, IGNITION COILS, INTAKE VALVE TIMING CONTROL SOLENOID VALVE,EXHAUST VALVE TIMING CONTROL SOLENOID VALVE, FUEL INJECTORS RELAY, FUEL PUMP HIGH PRESSURE RELAY, AIR FUELRATIO (A/F) SENSOR 1, IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM), FUEL FLOW ACTUATOR
INTAKE MANIFOLD RUNNER CONTROL VALVE, EXHAUST VALVE TIMING CONTROL SOLENOID, INTAKE VALVE TIMING CONTROL SOLENOID VALVE,INTAKE VALVE TIMING INTERMEDIATE LOCK CONTROL SOLENOID VALVE, ECM
ECM
AIR FUEL RATIO (A/F) SENSOR 1, HEATED OXYGEN SENSOR 2, ECM, GLOW CONTROL UNIT, TURBOCHARGER BOOST CONTROL SOLENOID VALVE
ECM
ECM
FUSE BLOCK (J/B)
FRONT COMBINATION LAMP LH
FRONT COMBINATION LAMP LH
20
76
24
70
92
81
84
93
73
66
78
8
75
67
72
4
50
49
83
JRMWF4074GB


IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E9, E10, E11, E12, E148, E149, F72, F73, F74
CPU
DATALINE
To CAN system (Without forward emergency braking)
DATALINE
To CAN system (With forward emergency braking)
28
30
REAR COMBINATION LAMPS, NAVI CONTROL UNIT, OPTION CONNECTOR (9), OPTION CONNECTOR (8)
16
TRANSMISSION RANGE SWITCH, TCM, BACK-UP LAMP SWITCH
79
THEFT WARNING HORN RELAY, COMBINATION SWITCH (SPIRAL CABLE), HORN RELAY
9
NEUTRAL POSITION SWITCH, ECM, TRANSMISSION RANGE SWITCH, IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM), REVERSE/NEUTRAL POSITION SWITCH
94
HEADLAMP AIMING MOTORS
64
HEADLAMP AIMING MOTORS
63
HOOD SWITCH
52
R9
OIL PRESSURE SWITCH
105
FRONT WIPER MOTOR
39
BCM (BODY CONTROL MODULE), IGNITION SWITCH, PUSH-BUTTON IGNITION SWITCH
38
FRONT COMBINATION LAMP LH
53
FRONT COMBINATION LAMP RH
60
HEADLAMP WASHER RELAY
7
X9
COOLING FAN RELAY-2
107
23
12
37
COMPRESSOR
98
5A
95
ECM, STEERING LOCK UNIT
25
15A
86
QR
IGNITION COILS, FUEL INJECTORS, CONDENSER
21
BACK-UP LAMP SWITCH, COMPRESSOR, NEUTRAL POSITION SWITCH, TRANSMISSION RANGE SWITCH, REVERSE/NEUTRAL POSITION SWITCH
71
10A
97
HEADLAMP AIMING MOTORS
55
JRMWF4075GB


IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E9, E10, E11, E12, E148, E149, F72, F73, F74
87
88
89
90
99
100
101
102
36
35
34
33
48
47
46
45
106
32
27
26
31
110
96
97
95
TCM
ATMOSPHERIC PRESSURE SENSOR
TCM, CVT UNIT
TCM
ATMOSPHERIC PRESSURE SENSOR
ECM
G SENSOR
ECM
To CAN system (Without forward emergency braking)
To CAN system (With forward emergency braking)
COOLING FAN RELAY-3
REAR HEIGHT SENSOR, FRONT HEIGHT SENSOR
REAR HEIGHT SENDOR
FRONT HEIGHT SENSOR
FRONT HEIGHT SENSOR, REAR HEIGHT SENSOR
BATTERY CURRENT SENSOR
CPU
IS
JRMWF4076GB

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)




JRMWF4077GB

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

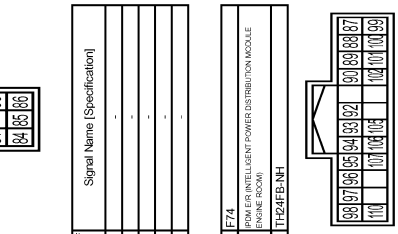
| Connector No. | F73 |
|---|---|
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Type | YLA06FGY |

H.S.


| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 81 | G | - |
| 83 | L | - |
| 84 | GR | - |
| 85 | P | - |
| 86 | LG | - |

| Connector No. | F74 |
|---|---|
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Type | TH24FB-NH |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 87 | L | - |
| 88 | P | - |
| 89 | W | - |
| 90 | R | - |
| 92 | GR | - |
| 93 | G | - [With R9M Engine] |
| 93 | P | - [With MR20 or QR25 Engine] |
| 94 | SB | - |
| 95 | LG | - |
| 96 | W | - |
| 97 | P | - |
| 98 | Y | - |
| 99 | BG | - |
| 100 | LG | - |
| 101 | V | - |

| 102 | Y | - |
|---|---|---|
| 105 | W | - |
| 106 | BR | - |
| 107 | V | - |
| 110 | SB | - |

JRMWF4078GB

# BASIC INSPECTION

## ADDITIONAL SERVICE WHEN REPLACING IPDM E/R

### Description

INFOID:0000000010741713

After replaced IPDM E/R, it is necessary to perform control unit configuration and height sensor initialize (For LED headlamp models) with CONSULT.

BEFORE REPLACEMENT

When replacing IPDM E/R, save or print current vehicle specification with CONSULT configuration before replacement.

**NOTE:**

If “Before Replace ECU” of “Read/Write Configuration” cannot be used, use the “Manual Configuration” after replacing IPDM E/R.

AFTER REPLACEMENT

**CAUTION:**

- **When replacing IPDM E/R, always perform “Read/Write Configuration” or “Manual Configuration” with CONSULT. Or not doing so, IPDM E/R control function does not operate normally.**
- **Never perform “Read / Write Configuration” or “Manual Configuration” except for new IPDM E/R or the control function may not operate normally.**

### Work Procedure

INFOID:0000000010741714

1. SAVING VEHICLE SPECIFICATION (IPDM E/R)

CONSULT Configuration

Perform “Before Replace ECU” of “Read / Write Configuration” to save or print current vehicle specification. Refer to PCS-48, "Description".

**NOTE:**

If “Before Replace ECU” of “Read/Write Configuration” cannot be used, use the “Manual Configuration” after replacing IPDM E/R.

>> GO TO 2.

2. REPLACE IPDM E/R

Replace IPDM E/R. Refer to PCS-60, "Removal and Installation".

>> GO TO 3.

3. WRITING VEHICLE SPECIFICATION (IPDM E/R)

CONSULT Configuration

Perform “After Replace ECU” of “Read/Write Configuration” or “Manual Configuration” to write vehicle specification. Refer to PCS-48, "Work Procedure".

>> GO TO 4.

4. CHECK HEADLAMP TYPE

Check headlamp type.

LED headlamp>>GO TO 5.
Halogen headlamp>>WORK END

5. HEIGHT SENSOR INITIALIZE

Perform height sensor initialize. Refer to EXL-99, "Work Procedure".

>> WORK END

# CONFIGURATION (IPDM E/R)

## Description

INFOID:0000000010741715

There is no vehicle specification in new IPDM E/R, so the vehicle specification needs to be written in IPDM E/R with CONSULT.
Configuration has three functions as follows.

| Function | | Description |
|---|---|---|
| READ/WRITE CONFIGURATION | Before Replace ECU | • Reads the vehicle configuration of current BCM.<br>• Saves the read vehicle configuration. |
| | After Replace ECU | Writes the vehicle configuration with saved data. |
| MANUAL CONFIGURATION | | Writes the vehicle configuration with manual selection. |

**CAUTION:**
- **When replacing IPDM E/R, always perform “Read/Write Configuration” or “Manual Configuration” with CONSULT. Or not doing so, IPDM E/R control function does not operate normally.**
- **Never perform “Read / Write Configuration” or “Manual Configuration” except for new IPDM E/R or the control function may not operate normally.**

## Work Procedure

INFOID:0000000010741716

### 1.WRITING MODE SELECTION

CONSULT Configuration
Select “CONFIGURATION” of IPDM E/R.

When writing saved data>>GO TO 2.
When writing manually>>GO TO 3.

### 2.PERFORM “WRITE CONFIGURATION”

CONSULT Configuration
1. Select “READ/WRITE CONFIGURATION”.
2. Select “After Replace ECU”.

>> GO TO 4.

### 3.PERFORM “MANUAL CONFIGURATION”

CONSULT Configuration
1. Select “MANUAL CONFIGURATION”.
2. Identify the correct model and configuration list. Refer to PCS-49, "Configuration list".
   **CAUTION:**
   - **Thoroughly read and understand the vehicle specification. ECU control may not operate normally if the setting is not correct.**
   - **Make sure to select “SETTING” even if the indicated configuration of brand new IPDM E/R is same as the desirable configuration. If not, configuration which is set automatically by selecting vehicle model cannot be memorized**
3. Sets the displayed item and then select “NEXT”.
   **NOTE:**
   If item is not displayed, select “NEXT”.
4. Check that the configuration has been successfully written and touch “End”.

>> GO TO 4.

### 4.OPERATION CHECK

Confirm that each function controlled by IPDM E/R operates normally.

>> WORK END

## Configuration list

INFOID:0000000010741717

**CAUTION:**
**Check vehicle specifications before servicing.**

| MANUAL SETTING ITEM | | | NOTE |
|---|---|---|---|
| System | Item | Setting value | |
| IPDM-E | Data part number | 284B7-4CB1A | All of the following are satisfied<br>• MR20 engine<br>• M/T<br>• Headlamp aiming control system (manual)<br>• Halogen headlamp<br>• Without Intelligent Key system<br>• Without stop/start system |
| IPDM-E | Data part number | 284B7-4CB1C | All of the following are satisfied<br>• MR20 engine<br>• CVT<br>• Headlamp aiming control system (manual)<br>• Halogen headlamp<br>• With Intelligent Key system<br>• Without stop/start system |
| IPDM-E | Data part number | 284B7-4CB1E | All of the following are satisfied<br>• MR20 engine<br>• CVT<br>• Headlamp aiming control system (manual)<br>• Halogen headlamp<br>• Without Intelligent Key system<br>• Without stop/start system |
| IPDM-E | Data part number | 284B7-4CB2B | All of the following are satisfied<br>• MR20 engine<br>• CVT<br>• Headlamp aiming control system (auto)<br>• LED headlamp<br>• With Intelligent Key system<br>• Without stop/start system |
| IPDM-E | Data part number | 284B7-4CB2E | All of the following are satisfied<br>• QR25 engine<br>• CVT<br>• Headlamp aiming control system (manual)<br>• Halogen headlamp<br>• With Intelligent Key system<br>• Without stop/start system |
| IPDM-E | Data part number | 284B7-4CB3B | All of the following are satisfied<br>• QR25 engine<br>• CVT<br>• Headlamp aiming control system (auto)<br>• LED headlamp<br>• With Intelligent Key system<br>• Without stop/start system |
| IPDM-E | Data part number | 284B7-4CB3D | All of the following are satisfied<br>• R9M engine<br>• M/T<br>• Headlamp aiming control system (manual)<br>• Halogen headlamp<br>• Without Intelligent Key system<br>• With stop/start system |

| MANUAL SETTING ITEM | | | NOTE |
|---|---|---|---|
| System | Item | Setting value | |
| IPDM-E | Data part number | 284B7-4CB3E | All of the following are satisfied<br>• R9M engine<br>• M/T<br>• Headlamp aiming control system (manual)<br>• Halogen headlamp<br>• With Intelligent Key system<br>• With stop/start system |
| IPDM-E | Data part number | 284B7-4CB4A | All of the following are satisfied<br>• R9M engine<br>• M/T<br>• Headlamp aiming control system (auto)<br>• LED headlamp<br>• With Intelligent Key system<br>• With stop/start system |
| IPDM-E | Data part number | 284B7-4CB4C | All of the following are satisfied<br>• R9M engine<br>• CVT<br>• Headlamp aiming control system (manual)<br>• Halogen headlamp<br>• Without Intelligent Key system<br>• With stop/start system |
| IPDM-E | Data part number | 284B7-4CB4D | All of the following are satisfied<br>• R9M engine<br>• CVT<br>• Headlamp aiming control system (manual)<br>• Halogen headlamp<br>• With Intelligent Key system<br>• With stop/start system |
| IPDM-E | Data part number | 284B7-4CB4E | All of the following are satisfied<br>• R9M engine<br>• CVT<br>• Headlamp aiming control system (auto)<br>• LED headlamp<br>• With Intelligent Key system<br>• With stop/start system |
| HLL | Seat | 2-ROM SEAT | Select the number of the seat |
| | | 3-ROM SEAT | |

# CUMULATIVE BATTERY DISCHARGE CURRENT CLEAR

## Description

INFOID:0000000011009276

CUMULATIVE BATTERY DISCHARGE CURRENT CLEAR is an operation to clear the cumulative value of battery discharge current which is memorized in IPDM E/R. This operation is necessary after replaced the battery.

## Work Procedure

INFOID:0000000011009277

### 1. CLEAR CUMULATIVE BATTERY DISCHARGE CURRENT VALUE

1. Turn ignition switch ON.
2. Select “CML B/DCHRG CRNT CLEAR” in “Work Support” mode of “IPDM E/R” using CONSULT.
3. Touch “CLEAR” to clear the cumulative value of battery discharge current.

>> WORK END

# DTC/CIRCUIT DIAGNOSIS

## U1000 CAN COMM CIRCUIT

### DTC Description

INFOID:0000000010741718

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control unit, and each control unit shares information and links with other control units during operation (not independent). 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 No. | CONSULT screen items (Trouble diagnosis content) | DTC Detection Condition |
|---|---|---|
| U1000 | CAN COMM CIRCUIT (CAN communication circuit) | When IPDM E/R cannot communicate CAN communication signal continuously for 2 seconds or more |

### POSSIBLE CAUSE

CAN communication system

### FAIL-SAFE

When CAN communication with ECM and BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If No CAN Communication Is Available With ECM

| Control part | Fail-safe operation |
|---|---|
| Cooling fan | • Cooling fan operates at high speed when the ignition switch is turned ON<br>• Cooling fan stops when the ignition switch is turned OFF |
| A/C compressor | A/C relay OFF |

If No CAN Communication Is Available With BCM

| Control part | Fail-safe operation |
|---|---|
| Headlamp | • Turns ON the headlamp low when the ignition switch is turned ON<br>• Turns OFF the headlamp low when the ignition switch is turned OFF<br>• Turn OFF the headlamp high |
| • Parking lamp<br>• License plate lamp<br>• Illumination<br>• Tail lamp | • Turns ON the tail lamp, parking lamp, license plate lamp and illumination when the ignition switch is turned ON<br>• Turns OFF the tail lamp, parking lamp, license plate lamp and illumination when the ignition switch is turned OFF |
| Front wiper motor | • The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed.<br>• The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating. |
| Front fog lamp | Turns OFF the front fog lamp |
| Ignition relay | The status just before activation of fail-safe is maintained. |
| Starter motor | Starter relay OFF |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the ignition switch OFF.
2. Turn the ignition switch ON and wait for 2 seconds or more.
3. Check “Self Diagnostic Result” of IPDM E/R.

s DTC “U1000” displayed?

YES >> Refer to PCS-53, "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:0000000010741719

### 1. PERFORM SELF DIAGNOSTIC

1. Turn the ignition switch OFF.
2. Turn the ignition switch ON and wait for 2 seconds or more.
3. Check “Self Diagnostic Result” of IPDM E/R.

Is DTC “U1000” displayed?

YES >> Refer to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-44, "Intermittent Incident".

# B120E IPDM E/R

## DTC Description

INFOID:0000000010741720

### DTC DETECTION LOGIC

| DTC No. | CONSULT screen items (Trouble diagnosis content) | | DTC Detection Condition |
|---|---|---|---|
| B120E | IPDM E/R (Intelligent power distribution module engine room) | [SYSTEM INTERNAL FAILURES] | EEPROM in IPDM E/R is malfunctioning |
| | | [NOT CONFIURED] | Control unit setting is not performed |

### POSSIBLE CAUSE

IPDM E/R

### FAIL-SAFE

—

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch OFF.
2. Turn ignition switch ON.
3. Check DTC in “Self Diagnostic Result” mode of “IPDM E/R” using CONSULT.

Is DTC detected?

YES >> Refer to PCS-54, "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:0000000010741721

#### 1.CHECK DTC

Perform each inspection according to the displayed DTC.

Which DTC is detected?

[NOT CONFIURED]>>GO TO 2.
[SYSTEM INTERNAL FAILURES]>>GO TO 3.

#### 2.PERFORM CONFIGURATION (IPDM E/R)

1. Perform Configuration (IPDM E/R). Refer to PCS-48, "Description".
2. Perform DTC confirmation procedure. Refer to PCS-54, "DTC Description"

Is DTC detected?

YES >> GO TO 3.
NO >> INSPECTION END

#### 3.REPLACE IPDM E/R

1. Replace IPDM E/R. Refer to PCS-60, "Removal and Installation".
2. Perform DTC confirmation procedure. Refer to PCS-54, "DTC Description"

Is DTC detected?

YES >> Refer to GI-44, "Intermittent Incident".
NO >> INSPECTION END

# B20DD IGNITION RELAY ON CIRCUIT

## DTC Description

INFOID:0000000010741722

- IPDM E/R operates the ignition relay when it receives an ignition switch ON signal from BCM via CAN communication.
- Turn the ignition relay OFF by pressing the push-button ignition switch once when the vehicle speed is 4 km/h (2.5 MPH) or less.
- Turn the ignition relay OFF with the following operation when the vehicle speed is more than 4 km/h (2.5 MPH) or when an abnormal condition occurs in CAN communication from the combination meter (Emergency OFF)

- Press and hold the push-button ignition switch for 2 seconds or more.
- Press the push-button ignition switch 3 times within 1.5 seconds.

**NOTE:**
The ignition relay does not turn ON for 3 seconds after emergency OFF even if the push-button ignition switch is pressed.

### DTC DETECTION LOGIC

| DTC No. | CONSULT screen items (Trouble diagnosis content) | | DTC Detection Condition |
|---|---|---|---|
| B20DD | IGN RELAY ON CIRC (Ignition relay on circuit) | [CIRC SHORT TO BATTERY] | The ignition relay OFF is detected for 1 second at ignition switch ON (CPU monitors the status at the contact circuits of the ignition relay inside it) |

### POSSIBLE CAUSE

IPDM E/R

### FAIL-SAFE

—

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch OFF.
2. Turn ignition switch ON.
3. Check DTC in “Self Diagnostic Result” mode of “IPDM E/R” using CONSULT.

Is DTC detected?

YES >> Refer to PCS-55, "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:0000000010741723

#### 1.CHECK IGNITION RELAY POWER SUPPLY CIRCUIT 1

1. Turn ignition switch ON
2. Display “Self-diagnosis Result” of IPDM E/R with CONSULT.
3. Remove fuse [No. 91 (20 A)] at the downstream of ignition relay in IPDM E/R, and check the change in “Self-diagnosis Result”.

Is it now a past malfunction?

YES >> Perform an inspection of the downstream circuit of fuse [No. 91 (20 A)] at the downstream of ignition relay in IPDM E/R.
NO >> GO TO 2.

#### 2.CHECK IGNITION RELAY POWER SUPPLY CIRCUIT 2

1. Return fuse [No. 91 (20 A)] downstream of ignition relay in IPDM E/R back to the original position.
2. Remove fuse [No. 95 (5 A)] at the downstream of ignition relay in IPDM E/R, and check the change in “Self-diagnosis Result”.

Is it now a past malfunction?

YES >> Perform an inspection of the downstream circuit of fuse [No. 95 (5 A)] at the downstream of ignition relay in IPDM E/R.
NO >> GO TO 3.

## 3. CHECK IGNITION RELAY POWER SUPPLY CIRCUIT 3

1. Return fuse [No. 95 (5 A)] downstream of ignition relay in IPDM E/R back to the original position
2. Remove fuse [No. 97 (10 A)] at the downstream of ignition relay in IPDM E/R, and check the change in "Self-diagnosis Result".

Is it now a past malfunction?

YES >> Perform an inspection of the downstream circuit of fuse [No. 97 (10 A)] at the downstream of ignition relay in IPDM E/R.
NO >> GO TO 4.

## 4. CHECK IGNITION RELAY POWER SUPPLY CIRCUIT 4

1. Return fuse [No. 97 (10 A)] downstream of ignition relay in IPDM E/R back to the original position
2. Remove fuse [No. 93 (10 A)] at the downstream of ignition relay in IPDM E/R, and check the change in "Self-diagnosis Result".

Is it now a past malfunction?

YES >> Perform an inspection of the downstream circuit of fuse [No. 93 (10 A)] at the downstream of ignition relay in IPDM E/R.
NO-1 >> With stop/start system models: GO TO 5.
NO-2 >> With QR engine models: GO TO 7.
NO-3 >> Except for QR engine and stop/start system models: GO TO 9.

## 5. CHECK IGNITION RELAY POWER SUPPLY CIRCUIT 5

1. Return fuse [No. 93 (10 A)] downstream of ignition relay in IPDM E/R back to the original position
2. Remove fuse [No. 96 (10 A)] at the downstream of ignition relay in IPDM E/R, and check the change in "Self-diagnosis Result".

Is it now a past malfunction?

YES >> Perform an inspection of the downstream circuit of fuse [No. 96 (10 A)] at the downstream of ignition relay in IPDM E/R.
NO-1 >> With QR engine models: GO TO 6.
NO-2 >> Except for QR engine models: GO TO 9.

## 6. CHECK IGNITION RELAY POWER SUPPLY CIRCUIT 6

1. Return fuse [No. 96 (10 A)] downstream of ignition relay in IPDM E/R back to the original position
2. Remove fuse [No. 86 (15 A)] at the downstream of ignition relay in IPDM E/R, and check the change in "Self-diagnosis Result".

Is it now a past malfunction?

YES >> Perform an inspection of the downstream circuit of fuse [No. 86 (15 A)] at the downstream of ignition relay in IPDM E/R.
NO >> GO TO 9.

## 7. CHECK IGNITION RELAY POWER SUPPLY CIRCUIT 7

1. Return fuse [No. 93 (10 A)] downstream of ignition relay in IPDM E/R back to the original position
2. Remove fuse [No. 86 (15 A)] at the downstream of ignition relay in IPDM E/R, and check the change in "Self-diagnosis Result".

Is it now a past malfunction?

YES >> Perform an inspection of the downstream circuit of fuse [No. 86 (15 A)] at the downstream of ignition relay in IPDM E/R.
NO-1 >> With stop/start system models: GO TO 8.
NO-2 >> Except for stop/start system models: GO TO 9.

## 8. CHECK IGNITION RELAY POWER SUPPLY CIRCUIT 8

1. Return fuse [No. 86 (15 A)] downstream of ignition relay in IPDM E/R back to the original position
2. Remove fuse [No. 96 (10 A)] at the downstream of ignition relay in IPDM E/R, and check the change in "Self-diagnosis Result".

Is it now a past malfunction?

YES >> Perform an inspection of the downstream circuit of fuse [No. 96 (10 A)] at the downstream of ignition relay in IPDM E/R.
NO >> GO TO 9.

## 9. REPLACE IPDM E/R

1. Replace IPDM E/R. Refer to PCS-60, "Removal and Installation".
2. Perform DTC confirmation procedure. Refer to PCS-55, "DTC Description".

Is DTC detected?

YES >> Refer to GI-44, "Intermittent Incident".
NO >> INSPECTION END

# B20DE IGNITION RELAY OFF CIRCUIT

## DTC Description

INFOID:0000000010741724

- IPDM E/R operates the ignition relay when it receives an ignition switch ON signal from BCM via CAN communication.
- Turn the ignition relay OFF by pressing the push-button ignition switch once when the vehicle speed is 4 km/h (2.5 MPH) or less.
- Turn the ignition relay OFF with the following operation when the vehicle speed is more than 4 km/h (2.5 MPH) or when an abnormal condition occurs in CAN communication from the combination meter (Emergency OFF)

- Press and hold the push-button ignition switch for 2 seconds or more.
- Press the push-button ignition switch 3 times within 1.5 seconds.

**NOTE:**
The ignition relay does not turn ON for 3 seconds after emergency OFF even if the push-button ignition switch is pressed.

### DTC DETECTION LOGIC

| DTC No. | CONSULT screen items (Trouble diagnosis content) | | DTC Detection Condition |
|---|---|---|---|
| B20DE | IGN RELAY OFF CIRC (Ignition relay OFF circuit) | [CIRC SHORT TO GROUND OR OPEN] | The ignition relay OFF is detected for 1 second at ignition switch ON<br>(CPU monitors the status at the contact circuits of the ignition relay inside it) |

### POSSIBLE CAUSE

IPDM E/R

### FAIL-SAFE

—

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch OFF.
2. Turn ignition switch ON.
3. Check DTC in “Self Diagnostic Result” mode of “IPDM E/R” using CONSULT.

Is DTC detected?

YES >> Refer to PCS-58, "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:0000000010741725

#### 1.REPLACE IPDM E/R

1. Replace IPDM E/R. Refer to PCS-60, "Removal and Installation".
2. Perform DTC confirmation procedure. Refer to PCS-58, "DTC Description".

Is DTC detected?

YES >> Refer to GI-44, "Intermittent Incident".
NO >> INSPECTION END

# POWER SUPPLY AND GROUND CIRCUIT

## Diagnosis Procedure

INFOID:0000000010741726

### 1.CHECK FUSIBLE LINK

Check that the following IPDM E/R fusible links are not blown.

With QR engine models

| Signal name | Fusible link No. |
|---|---|
| Battery power supply | D (80 A) |
| | Q (40 A) |
| | C (100 A) |
| | R (30 A) |

Except for QR engine models

| Signal name | Fusible link No. |
|---|---|
| Battery power supply | D (100 A) |
| | Q (40 A) |
| | U (100 A) |
| | R (30 A) |

Is the fuse fusing?

YES >> Replace the blown fusible link after repairing the affected circuit if a fusible link is blown.
NO >> GO TO 2.

### 2.CHECK POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check voltage between IPDM E/R harness connector and the ground.

| (+) | | (–) | Voltage |
|---|---|---|---|
| IPDM E/R | | | |
| Connector | Terminal | | |
| E9 | 1 | Ground | 6 – 16 V |
| | 2 | | |
| F73 | 83 | | |
| | 86 | | |

Is the measurement value normal?

YES >> GO TO 3.
NO >> Repair the harness or connector.

### 3.CHECK GROUND CIRCUIT

Check continuity between IPDM E/R harness connectors and the ground.

| IPDM E/R | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E10 | 12 | | Existed |
| E11 | 23 | | |
| E12 | 37 | | |

Does continuity exist?

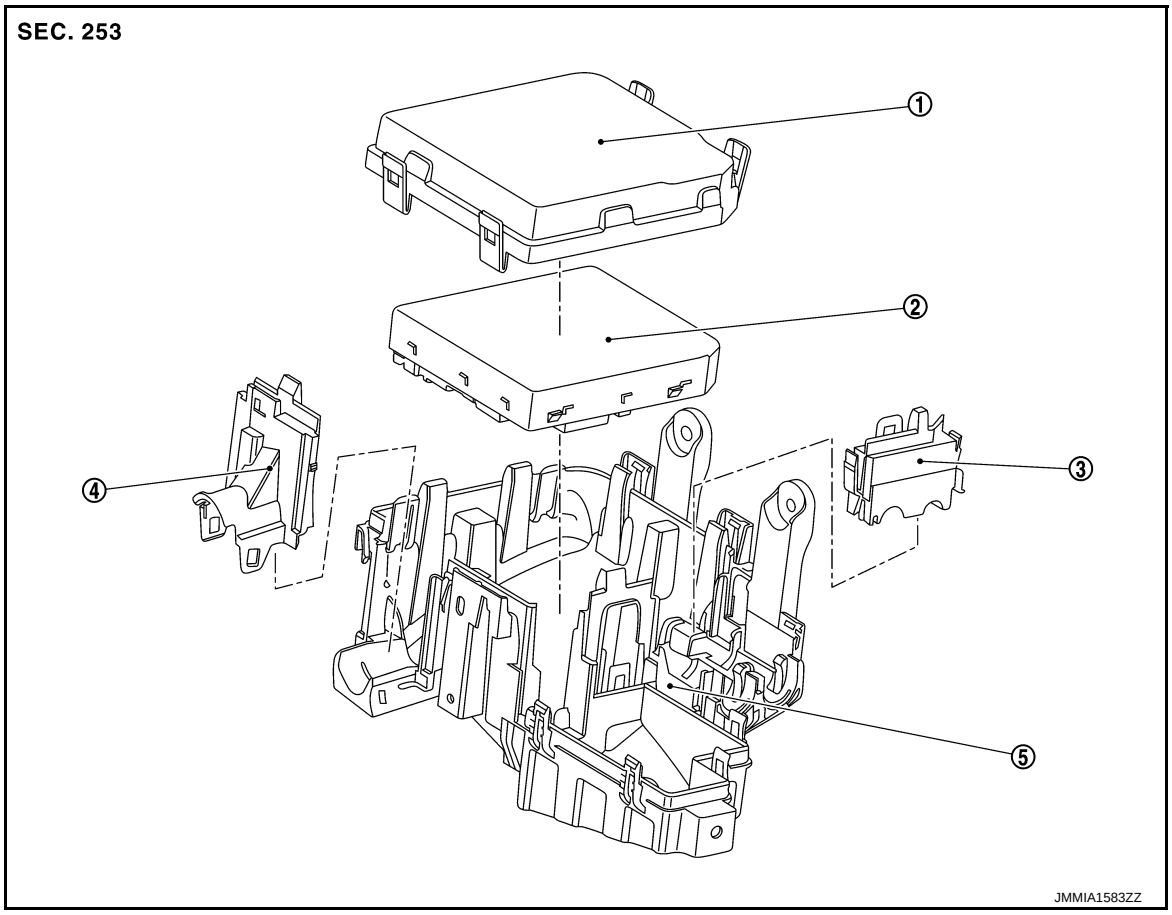
YES >> INSPECTION END
NO >> Repair the harness or connector.

# REMOVAL AND INSTALLATION

## IPDM E/R

### Exploded View

INFOID:0000000010741727




① IPDM E/R cover A ② IPDM E/R ③ IPDM E/R cover B
④ IPDM E/R cover C ⑤ IPDM E/R cover D

### Removal and Installation

INFOID:0000000010741728

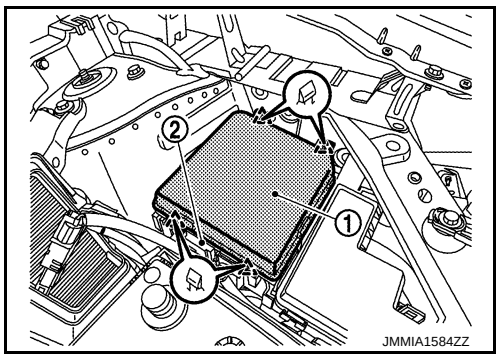
**CAUTION:**
**When replacing IPDM E/R, save or print current vehicle specification with CONSULT configuration before replacement. Refer to PCS-47, "Work Procedure".**

REMOVAL

1. Disconnect the battery cable from the negative terminal.
2. Remove air resonator and air duct. Refer to EM-31, "Removal and Installation" (for MR20DD engine), EM-175, "Removal and Installation" (for QR25DE engine) or EM-308, "Removal and Installation" (for R9M engine).

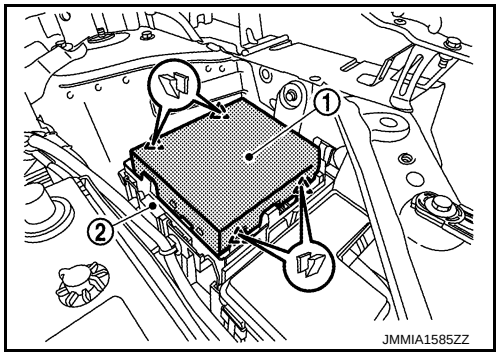
3. Pull up IPDM E/R cover A ① from IPDM E/R cover D ② with pressing the pawls of IPDM E/R cover A ①.

△ : Pawl




4. Pull up IPDM E/R ① with disengaging the pawls of IPDM E/R cover D ②

△ : Pawl




5. Disconnect the connector and remove IPDM E/R from the vehicle.

## INSTALLATION

Install in the reverse order of removal.

**CAUTION:**

**Be sure to perform “Read/Write Configuration” when replacing IPDM E/R. Or not doing so, IPDM E/R control function does not operate normally. Refer to PCS-47, "Work Procedure".**

# PRECAUTION

## PRECAUTIONS

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

INFOID:0000000010741729

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:0000000010741730

**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.

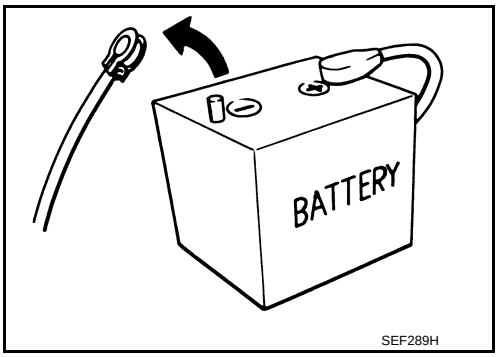
- The auto acc function is adapted to this vehicle. For this reason, even when the ignition switch is turned to OFF position, the accessory power source does not turned OFF and continues to be supplied for a certain amount of time.

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.

## Precautions for Removing Battery Terminal

INFOID:0000000010869316

- 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 |
| 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.

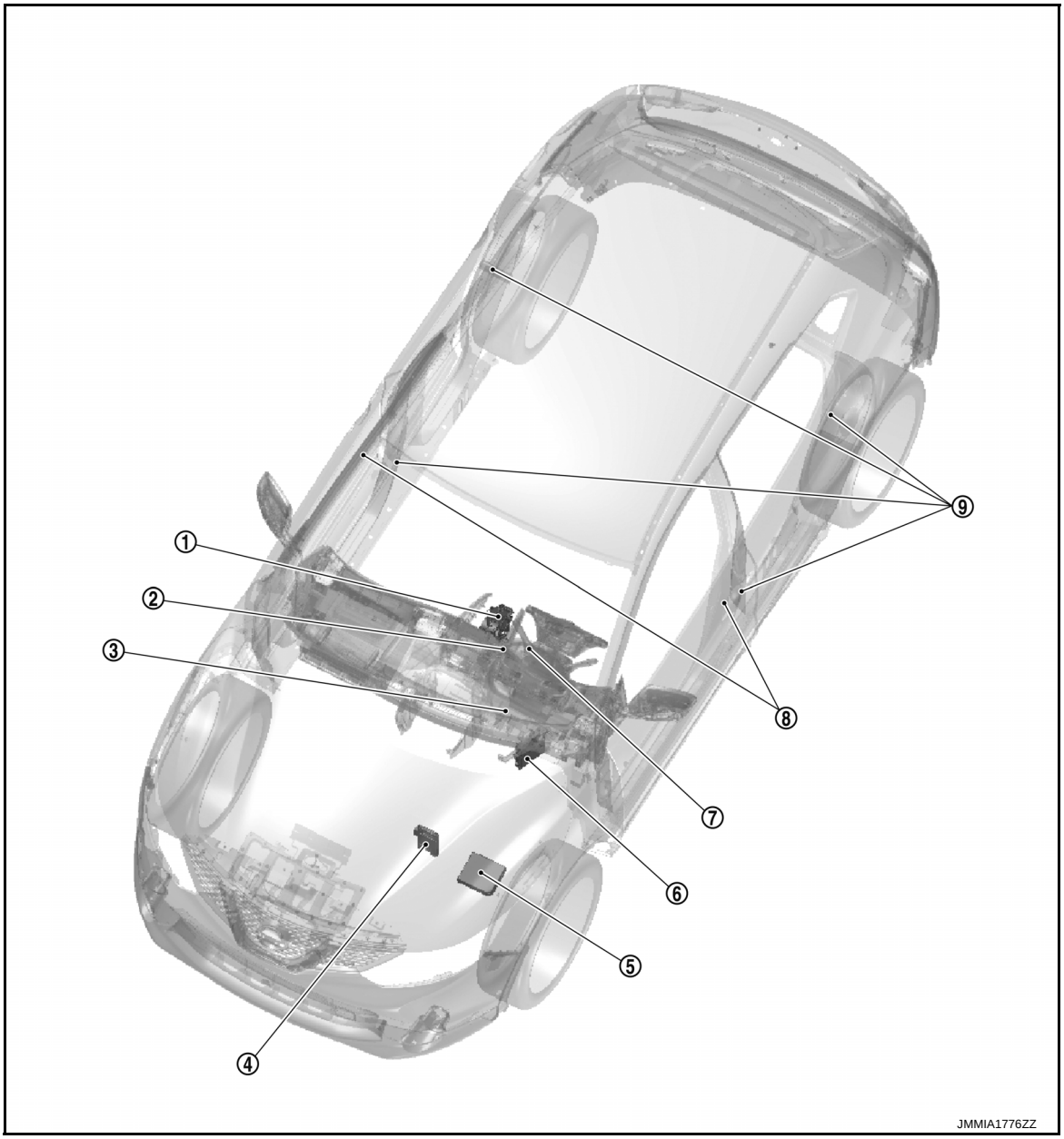
2. Open the driver side door.
3. Open the hood.
4. Close the driver side door.
5. Wait at least 3 minutes.
   **CAUTION:**
   **While waiting, never operate the vehicle such as locking, opening, and closing doors. Violation of this caution results in the activation of ACC power supply according to the Auto ACC function.**
6. Remove 12V battery terminal.
   **CAUTION:**
   **After installing 12V battery, always check self-diagnosis results of all ECUs and erase DTC.**

# SYSTEM DESCRIPTION

## COMPONENT PARTS

### Component Parts Location

INFOID:0000000010741732




JMMIA1776ZZ

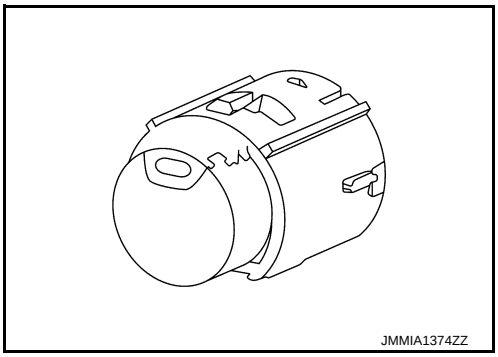
| No. | Component | Description |
|---|---|---|
| ① | CVT shift selector (detention switch) (CVT models) | CVT shift selector (detention switch) detects shift lever status, transmits detention switch signal to BCM.<br>Refer to TM-235, "CVT CONTROL SYSTEM : Component Parts Location" for detailed installation location. |
| ② | Push-button ignition switch (with Intelligent Key system) | Refer to PCS-66, "Push-button Ignition Switch". |
| ③ | Stop lamp switch | Stop lamp switch detects that brake pedal is depressed, and transmits the signal to BCM.<br>Refer to EC-812, "Component Parts Location". |
| ④ | TCM | Transmits shift position signal to BCM via CAN communication line.<br>Refer to TM-235, "CVT CONTROL SYSTEM : Component Parts Location". |

| No. | Component | Description |
|---|---|---|
| ⑤ | IPDM E/R | IPDM E/R detects push-button ignition switch (push switch) status, and transmits push-button ignition switch status signal (CAN) to BCM.<br>Refer to PCS-5, "Component Parts Location" for detailed installation location. |
| ⑥ | BCM | • BCM controls power distribution system.<br>• BCM judges ignition switch position by push-button ignition switch (push switch) and vehicle condition<br>• BCM checks the ignition switch position internally.<br>Refer to BCS-6, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location. |
| ⑦ | Key switch (without Intelligent Key system) | Key switch detects that ignition key is inserted into the ignition key cylinder, and then transmits the signal to BCM. |
| ⑧ | Door request switch (with Intelligent Key system) | Door request switch detects door lock/unlock operation and transmits door request switch signal to BCM |
| ⑨ | Door switch | Detects door open/close condition. |

## Push-button Ignition Switch

INFOID:0000000010741733

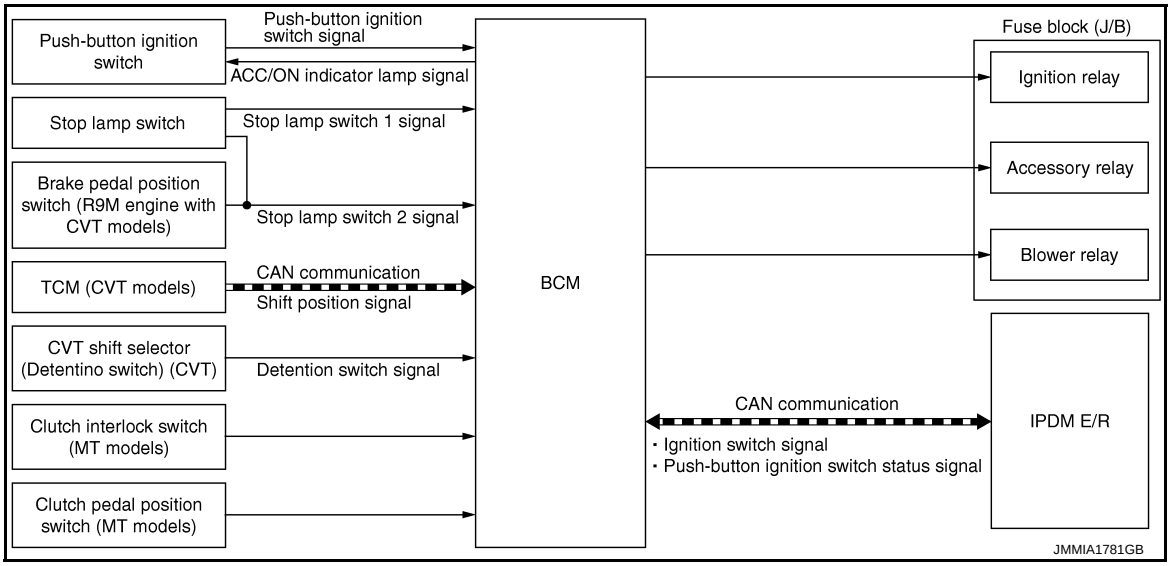
Push-button ignition switch is pressed, and transmits the status signal to BCM and IPDM E/R.



# SYSTEM
## POWER DISTRIBUTION SYSTEM
### POWER DISTRIBUTION SYSTEM : System Description

INFOID:0000000010741734

#### SYSTEM DIADRAM




#### SYSTEM DESCRIPTION

- POWER DISTRIBUTION SYSTEM is the system that BCM controls with the operation of push-button ignition switch and performs the power distribution to each power circuit. This system is used instead of the mechanical power supply changing mechanism with the operation of the conventional key cylinder.
- Push-button ignition switch can be operated when Intelligent Key is in the following condition.
  - Intelligent Key is in the detection area of the inside key antenna.
  - Intelligent Key backside is contacted to push-button ignition switch.
- Push-button ignition switch operation is input to BCM as a signal. BCM changes the ignition switch position according to the status and operates the following relays to supply power to each power circuit.
  - Ignition relay (IPDM E/R)
  - Ignition relay [fuse block (J/B)]
  - Accessory relay
  - Blower relay
- The ignition switch position can be confirmed with the lighting of the ON indicator lamp in push-button ignition switch.

#### IGNITION BATTERY SAVER SYSTEM

When all the following conditions are met for 10 minutes, the battery saver system will cut off the power supply (ignition switch position ON → OFF) to prevent battery discharge.

- Ignition switch is in the ON position
- Turn signal lamp is not in operation
- Selector lever is in the P position (CVT models)

**NOTE:**

For one minute after thirty minutes have passed or three minutes after twenty-seven minutes are passed, the following display is indicated on information display in combination meter and sounds buzzer in combination meter.

| Combination meter | | Time |
|---|---|---|
| Information display | Buzzer | |
| Power turned off to save the battery | Pipi-Pipi (two seconds) | For 1 minute after 10 minutes have passed |
| Power will turn off to save the battery | | 3 minutes after 7 minutes are passed |

Reset Condition of Ignition Battery Saver System

If any of the following conditions are met the battery saver system is released.

- Ignition switch is not in the ON position.

- Turn signal lamp is operation.
- Selector lever is not in the P position.

**NOTE:**
The ignition battery saver system can be temporarily disabled, without using CONSULT, to prevent it from functioning when performing trouble diagnosis. Refer to PCS-100, "Work Procedure".

IGNITION SWITCH POSITION CHANGE TABLE BY PUSH-BUTTON IGNITION SWITCH OPERATION
Refer to PCS-68, "AUTO ACC FUNCTION : System Description".

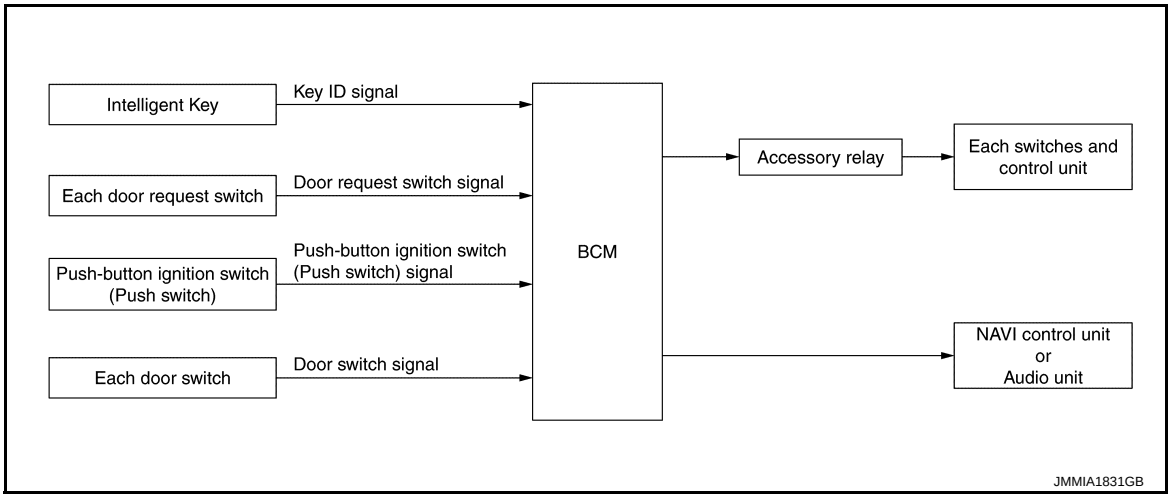
# AUTO ACC FUNCTION

## AUTO ACC FUNCTION : System Description

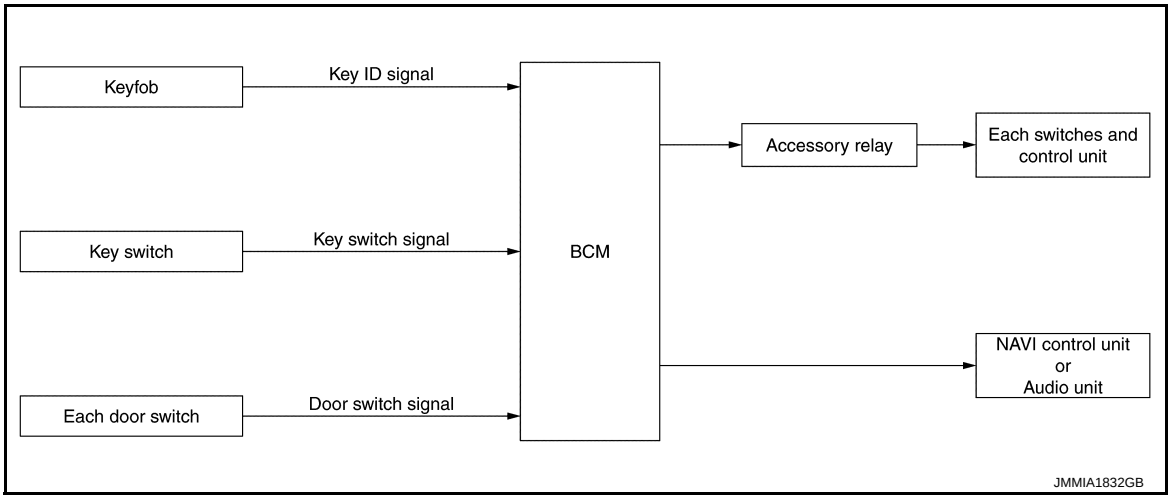
INFOID:0000000010741735

### SYSTEM DIAGRAM

MODELS WITH INTELLIGENT KEY SYSTEM



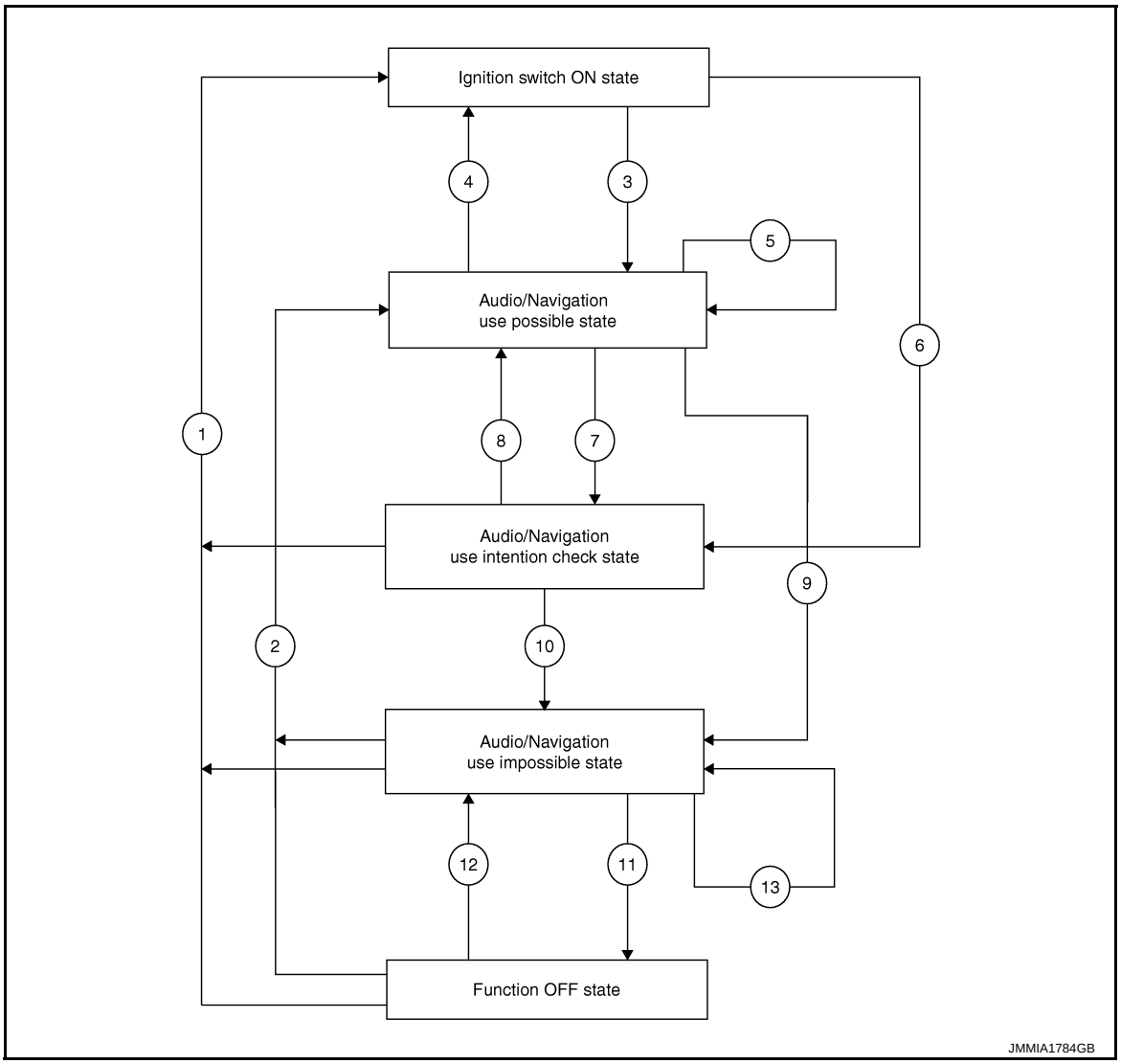

MODELS WITHOUT INTELLIGENT KEY SYSTEM




### DESCRIPTION

In conventional vehicles, power is supplied to the accessories of the vehicle after the ignition switch is turned to the ACC position.
The AUTO ACC function is a function that bypasses the ignition switch ACC position and automatically distributes the accessory power supply to each switch and unit by door unlock operation, etc. using the Intelligent Key (models with Intelligent Key) or the remote controller key (models without Intelligent Key).

OPERATION FLOW




Ignition Switch On Status

In this status the ignition switch is operated and turned ON.

Audio / Navigation Available Status

- In this status the audio, navigation, and each switch and unit that is activated by the accessory power source can be operated.
- When 10 minutes pass after conditions are satisfied while and audio and navigation are not operated, audio and navigation turn OFF.
- When audio or navigation is operated within 10 minutes after conditions are satisfied, operation time is extended for 10 minutes. Audio and navigation can be operated for a maximum of 30 minutes after the status is satisfied.

Audio / navigation use intention check status

This is a status for checking the intention of using audio and navigation again after audio and navigation are stopped.

Audio / navigation unavailable status

In this status audio and navigation become unavailable, but the switches and units other than those for audio or navigation that can operate by using the accessory power source are available until the accessory power source turns OFF.

OFF status

In this status the AUTO ACC function stops and power to the accessories is not supplied.

| No. | Function status | Shifting condition | Accessory power source |
|---|---|---|---|
| ① | • Shifting from “OFF status” to "Ignition switch ON status"<br>• Shifting from “Audio / navigation unavailable status” to “Ignition switch ON status”<br>• Shifting from “Audio / navigation use intention confirmation status” to “Ignition switch ON status” | Turn the ignition switch ON from OFF. | OFF → ON |
| ② | • Shifting from “OFF status” to “Audio / navigation available status”<br>• Shifting from “Audio / navigation unavailable status” to “Audio / navigation available status” | • Models with Intelligent Key: Operate either the door request switch or the unlock button of the Intelligent Key to unlock the door.<br>• Models without Intelligent Key: Operate the unlock button of remote controller button to unlock the door. | OFF → ON |
| ③ | Shifting from “Ignition switch ON status” to “Audio / navigation available status” | Turn the ignition switch OFF from ON while driver door is closed. | ON |
| ④ | Shifting from “Audio / navigation available status” to “Ignition switch ON status” | Turn the ignition switch ON from OFF. | ON |
| ⑤ | “Audio / navigation available status” Time extension (10 minutes) | Operate audio or navigation. | ON |
| ⑥ | Shifting from “Ignition switch ON status” to “Audio / navigation use intention confirmation status” | Turn the ignition switch OFF from ON while driver door is open. | ON |
| ⑦ | Shifting from “Audio / navigation available status” to “Audio / navigation use intention confirmation status” | • For models with Intelligent Key, any of the following conditions is satisfied.<br>- Close all doors, and lock all doors with the Intelligent Key or door request switch.<br>- Ten minutes pass from “Audio / navigation available status.”<br>- Open driver door.<br>• For models without Intelligent Key, any of the following conditions is satisfied.<br>- Close all doors, and lock all doors with the remote controller button.<br>- Remove the key from the ignition key cylinder.<br>- Ten minutes pass from “Audio / navigation available status.”<br>- Driver door is opened. | ON |
| ⑧ | Shifting from “Audio / navigation use intention confirmation status” to “Audio / navigation available status” | Any of the following conditions is satisfied.<br>• Models with Intelligent Key: Operate either the door request switch or the unlock button of the Intelligent Key to unlock the door.<br>• Models without Intelligent Key: Operate the unlock button of remote controller button to unlock the door.<br>• Operate audio or navigation power switch | ON |
| ⑨ | Shifting from “Audio / navigation available status” to “Audio / navigation unavailable status” | Thirty minutes pass from “Audio / navigation available status.” | ON |
| ⑩ | Shifting from “Audio / navigation use intention confirmation status” to “Audio / navigation unavailable status” | Any of the following conditions is satisfied.<br>• Two minutes pass from “Audio / navigation use intention confirmation status.”<br>• In “Audio / navigation use intention confirmation status,” 30 minutes pass after “Audio / navigation available status” is satisfied. | ON |
| ⑪ | Shifting from “Audio / navigation unavailable status” to “OFF status” | One minute passes from “Audio / navigation unavailable status.” | ON → OFF |

| No. | Function status | Shifting condition | Accessory power source |
|---|---|---|---|
| ⑫ | Shifting from “OFF status” to “Audio / navigation unavailable status” | Any of the following conditions is satisfied.<br>• Driver door is opened or closed.<br>• The steering lock operates. | OFF → ON |
| ⑬ | “Audio / navigation unavailable status” time extension (1 minute) | Any of the following conditions is satisfied.<br>• Driver door is opened or closed.<br>• The steering lock operates. | ON |

## Fail-safe

INFOID:0000000010741736

### FAIL-SAFE CONTROL BY DTC

BCM performs fail-safe control when any DTC are detected.

| Display contents of CONSULT | Fail-safe |
|---|---|
| B2190–00: CHAIN OF BCM-IMM ANT | Inhibit engine cranking |
| B2191–00: ID DISCORD, BCM-IMMANT | Inhibit engine cranking |
| B2192–00: ID DISCORD BCM-ECM | Inhibit engine cranking |
| B2193–00: CHAIN OF BCM-ECM | Inhibit engine cranking |
| B2195–00: ANTI-SCANNING | Inhibit engine cranking |
| B2198–00: NATS ANTENNA AMP | Inhibit engine cranking |
| B2557–00: VEHICLE SPEED | Inhibit steering lock |
| B2602–00: SHIFT POSITION | Inhibit steering lock |
| B2604–00: PNP/CLUTCH SW | Inhibit steering lock |
| B2608–00: STARTER RELAY | Inhibit engine cranking |
| B260F–00: ENG STATE SIG LOST | Inhibit engine cranking |
| B26F1–00: IGN RELAY OFF | Inhibit engine cranking |
| B26F2–00: IGN RELAY ON | Inhibit engine cranking |
| B27D4–00: BCM - S/L SENSOR CIRCUIT | Inhibit steering unlock |
| B27D5–00: S/L SENSOR TEST OUTPUT | Inhibit steering unlock |
| B27D6–00: S/L CAN COMM CIRCUIT | Inhibit steering lock |
| B27D7–00: S/L PWR RELAY | Inhibit steering lock |
| B27D8–00: S/L VEHICLE SPEED MALFUNCTION | Inhibit steering lock |
| B27D9–00: S/L IGN MALFUNCTION | Inhibit steering lock/unlock |
| B27DA–00: IPDM CAN COMM CIRCUIT | Inhibit steering lock |
| B27DC–00: S/L POWER SUPPLY | Inhibit steering lock |
| B27DD–00: BCM - S/L ID DISCORD | Inhibit steering lock |
| B27DE–00: S/L MECHANICAL MALFUNCTION | Inhibit steering lock |
| B27DF–00: S/L HIGH LEVEL MALFUNCTION | Inhibit steering lock/unlock |
| B27E0–00: S/L LOW LEVEL MALFUNCTION | Inhibit steering lock |
| B27E1–00: S/L SAFETY CIRCUIT | Inhibit steering lock |
| B27E5–00: S/L IGN OFF POSITION | Inhibit steering lock |
| B27E6–00: S/L ANTI-SCAN MODE | Inhibit steering lock |
| B27E8–00: S/L UNDETERMINED LOCK POS | Inhibit steering lock |
| U0415: VEHICLE SPEED | Inhibit steering lock |

### REAR WIPER MOTOR PROTECTION

BCM detects the rear wiper stopping position according to the rear wiper stop position signal.
When the rear wiper stop position signal does not change for more than 5 seconds while driving the rear wiper, BCM stops power supply to protect the rear wiper motor.

Condition of cancellation
1. More than 1 minute is passed after the rear wiper stop.
2. Turn rear wiper switch OFF.
3. Operate the rear wiper switch or rear washer switch.

### FAIL-SAFE CONTROL BY RAIN SENSOR MALFUNCTION

BCM detects the rain sensor serial link error and the rain sensor malfunction.
BCM controls the following fail-safe when rain sensor has a malfunction.
- Front wiper switch AUTO and sensing rain drop: The condition just before the activation of fail-safe is maintained until the front wiper switch is turned OFF.
- Front wiper switch AUTO and not sensing rain drop: Front wiper is LO operation until the front wiper switch is turned off.

### FAIL-SAFE CONTROL OF COMBINATION SWITCH READING FUNCTION CAUSED BY LOW POWER SUPPLY VOLTAGE

If voltage of battery power supply lower, BCM maintains combination switch reading to the status when input voltage is less than approximately 9 V.

**NOTE:**
When voltage of battery power supply is approximately 9 V or more, combination switch reading function returns to normal operation.

# DIAGNOSIS SYSTEM (BCM)

## COMMON ITEM

### COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010869011

#### APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

| Diagnosis mode | Function Description |
|---|---|
| Work Support | Changes the setting for each system function. |
| Self Diagnostic Result | Displays the diagnosis results judged by BCM. |
| CAN Diag Support Monitor | Monitors the reception status of CAN communication viewed from BCM. |
| Data Monitor | The BCM input/output signals are displayed. |
| Active Test | The signals used to activate each device are forcibly supplied from BCM. |
| Ecu Identification | The BCM part number is displayed. |
| Configuration | • Read and save the vehicle specification.<br>• Write the vehicle specification when replacing BCM. |

#### SYSTEM APPLICATION

BCM can perform the following functions for each system.

**NOTE:**

It can perform the diagnosis modes except the following for all sub system selection items.

×: Applicable item

| System | Sub system selection item | Diagnosis mode | | |
|---|---|---|---|---|
| | | Work Support | Data Monitor | Active Test |
| Door lock | DOOR LOCK | × | × | |
| Rear window defogger | REAR DEFOGGER | | × | × |
| Warning chime | BUZZER | | × | × |
| Exterior lamp | HEAD LAMP | × | × | × |
| Interior room lamp control | INT LAMP | | × | |
| Wiper and washer | WIPER | × | × | × |
| Turn signal and hazard warning lamps | FLASHER | × | × | |
| — | AIR CONDITONER* | | × | × |
| Intelligent Key system | INTELLIGENT KEY | × | × | × |
| Combination switch | COMB SW | | × | |
| Body control system | BCM | × | | |
| NVIS - NATS | IMMU | | × | |
| Interior room lamp battery saver | BATTERY SAVER | | × | |
| Back door open | TRUNK | | × | |
| Vehicle security | THEFT ALM | × | × | |
| RAP | RETAINED PWR | | × | |
| Remote keyless entry system | MULTI REMOTE ENT | × | × | |
| Signal buffer system | SIGNAL BUFFER | | × | × |

**NOTE:**

*: This item is displayed, but not used.

#### FREEZE FRAME DATA (FFD)

The BCM records the following vehicle condition at the time a particular DTC is detected, and displays on CONSULT.

| CONSULT screen item | Indication/Unit | Description |
|---|---|---|
| BATTERY VOLTAGE | V | Battery voltage of the moment a particular DTC is detected. |
| VEHICLE SPEED | km/h | Vehicle speed of the moment a particular DTC is detected. |
| EXTERNAL TEMP | °C | External temperature of the moment a particular DTC is detected |
| VEHICLE COND | — | **NOTE:**<br>This item is displayed, but cannot be use this item. |
| DOOR LOCK STATUS | — | **NOTE:**<br>This item is displayed, but cannot be use this item. |
| POWER SUPPLY COUNTER | min | Displays the cumulative time from the time that the battery terminal is connected. |

# INTELLIGENT KEY

## INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY) (With Super Lock)

*INFOID:0000000010869012*

### WORK SUPPORT

| Monitor item | Description |
|---|---|
| INSIDE ANT DIAGNOSIS | This function allows inside key antenna self-diagnosis |
| LOCK/UNLOCK BY I-KEY | Door lock/unlock function by door request switch mode can be changed to operation in this mode<br>• On: Operate<br>• Off: Non-operation |
| ENGINE START BY I-KEY | Engine start function mode can be changed to operation with this mode<br>• On: Operate<br>• Off: Non-operation |
| TRUNK/GLASS HATCH OPEN | **NOTE:**<br>This item is displayed, but cannot be monitored |
| AUTO LOCK SET | Auto door lock operation time can be changed in this mode<br>• MODE 1: OFF<br>• MODE 2: 30 sec<br>• MODE 3: 1 minute<br>• MODE 4: 2 minutes<br>• MODE 5: 3 minutes<br>• MODE 6: 4 minutes<br>• MODE 7: 5 minutes |
| SHORT CRANKING OUTPUT | **NOTE:**<br>This item is displayed, but cannot be monitored |
| IGN/ACC BATTERY SAVER | Ignition battery saver system mode can be changed to operation with this mode<br>• On: Operate<br>• Off: Non-operation |
| ANSWER BACK | **NOTE:**<br>This item is displayed, but cannot be used |
| ANSWER BACK I-KEY LOCK UNLOCK | **NOTE:**<br>This item is displayed, but cannot be monitored |
| ANSWER BACK KEYLESS LOCK UNLOCK | **NOTE:**<br>This item is displayed, but cannot be monitored |

### SELF-DIAG RESULT

Refer to BCS-78, "DTC Index".

### 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.

| Monitor Item | Condition |
|---|---|
| REQ SW -DR | Indicates [On/Off] condition of door request switch (driver side) |
| REQ SW -AS | Indicates [On/Off] condition of door request switch (passenger side) |
| REQ SW -BD/TR | Indicates [On/Off] condition of back door request switch |
| PUSH SW | Indicates [On/Off] condition of push-button ignition switch |
| CLUTCH SW*1 | Indicates [On/Off] condition of clutch interlock switch |
| BRAKE SW 1 | Indicates [On/Off]*2 condition of stop lamp switch power supply |
| BRAKE SW 2 | Indicates [On/Off] condition of stop lamp switch |
| DETE/CANCL SW | Indicates [On/Off] condition of P position |
| START CLUTCH SW | Indicates [On/Off] condition of clutch pedal position switch |
| PUSH SW -IPDM | Indicates [On/Off] condition of push-button ignition switch |
| IGN RLY1 -F/B | Indicates [On/Off] condition of ignition relay 1 |
| NEUTRAL SW - IPDM | Indicates [On/Off] condition of reverse/neutral position switch |
| SFT PN -IPDM | Indicates [On/Off] condition of P or N position |
| STARTER RELAY - IPDM | Indicates [On/Off] condition of starter relay |
| ENGINE STATE | Indicates [Stop/Stall/Crank/Run] condition of engine states |
| ST/INHIRELAY-IPDM | Display the starter relay/starter control relay status signal from IPDM E/R via CAN communication |
| REVERSE SIGNAL - IPDM | Indicates [On/Off] condition of R position |
| CRANKING PERMIT - ECM | Display the engine cranking permit signal from ECM via CAN communication |
| IS STATUS - ECM | Indicates [On/Off] condition of stop/start system |
| STARTER CUT RELAY - ECM | Indicates [On/Off] condition of starter control relay signal from ECM via CAN communication |
| VEH SPEED 1 | Display the vehicle speed signal received from combination meter by numerical value [Km/h] |
| VEH SPEED 2 | Display the vehicle speed signal received from ABS actuator and electric unit (control unit) by numerical value [Km/h] |
| IGN REQ - IPDM | Display the ignition request signal from IPDM E/R via CAN communication |
| STARTER REQ - IPDM | Display the starter request signal from IPDM E/R via CAN communication |
| DOOR STAT-DR | Indicates [LOCK/READY/UNLK] condition of driver door status |
| DOOR STAT-AS | Indicates [LOCK/READY/UNLK] condition of passenger door status |
| DOOR STAT-RR | Indicates [LOCK/READY/UNLK] condition of rear door RH status |
| DOOR STAT-RL | Indicates [LOCK/READY/UNLK] condition of rear door LH status |
| BK DOOR STATE | **NOTE:**<br>This item is displayed, but cannot be monitored |
| ID OK FLAG | Indicates [Set/Reset] condition of Intelligent Key ID |
| PRMT ENG STRT | Indicates [Set/Reset] condition of engine start possibility |
| PRMT RKE STRT | **NOTE:**<br>This item is displayed, but cannot be monitored |
| I-KEY OK FLAG | Indicates [KEY On/NOT On] condition of Intelligent Key ID and Intelligent Key is detected inside vehicle |
| PRBT ENG STRT | Indicates whether or not the engine is in start prohibited status |
| ID AUTHENT CANCEL TIMER | Indicates whether or not it is in engine start possible status when Intelligent Key verification is unnecessary |
| ACC BATTERY SAVER | Indicates [On/Off] whether or not ignition battery saver is in operation |
| CRNK PRBT TMR | Indicates [On/Off] whether or not in cranking prohibited status due to starter motor protection function operation |
| AUT CRANK TMR | Indicates [On/Off] whether or not in AUTO CRANKING MODE status |
| CRNK PRBT TME | Indicates the time for changing from cranking prohibited status to cranking possible status |

| Monitor Item | Condition |
|---|---|
| AUT CRANK TMR | Indicates the time that AUTO CRANKING MODE operates |
| CRANKING TME | Indicates the cranking operation time |
| SHORT CRANK | **NOTE:**<br>This item is displayed, but not used |
| RKE OPE COUN1 | When remote keyless entry receiver receives the signal transmitted while operating on Intelligent Key, the numerical value start changing |
| RKE OPE COUN2 | **NOTE:**<br>This item is displayed, but cannot be monitored |
| S/L IGN OFF POSITION | Indicates [On/Off] condition of Ignition OFF signal |
| S/L SENSOR CIRCUIT 1 | Indicates [Gnd/On] condition of steering lock unit sensor circuit |
| S/L SENSOR CIRCUIT 2 | Indicates [On/Off] condition of steering lock unit sensor circuit |
| S/L POWER OUTPUT | Indicates [On/Off] condition of steering lock unit power supply |
| S/L POWER CHECK | Indicates [On/Off] condition of steering lock unit power supply |
| ANTICIPATED POWER | Indicates [On/Off] condition of anticipated power supply |
| S/L LOCK REQ | Indicates [On/Off] condition of steering lock unit lock request signal |
| S/L - BCM (CAN) | Indicates [On/Off] condition of CAN communication |
| S/L POWER ERROR | Indicates [On/Off] condition of steering lock unit power supply error |
| VEH SPEED ERROR (S/L) | Indicates [On/Off] condition of vehicle speed signal |
| VEH SPEED NORMAL (S/L) | Indicates [On/Off] condition of vehicle speed signal |
| ENGINE RUNNING (S/L) | Indicates [On/Off] condition of engine running |
| S/L ID DISCORD | Indicates [Correct/Incorrect] condition of ID verification |
| S/L ANTI-SCAN MODE | Indicates [On/Off] condition of antiscan mode |
| S/L LOCK NOT PERMIT | Indicates [Inhibition/No inhbt] condition of inhibit steering lock |
| S/L UNLOCK (CAN) | Indicates [Finished/Unfinished] condition of steering lock unit unlock |
| S/L ID STATUS (CAN) | Indicates [Coded/Blank] condition of registration ID |
| S/L RESET STATUS (CAN) | Indicates [Exit/No exit] condition of steering lock unit reset signal |
| S/L LO-LEVEL MALFUNC (CAN) | Indicates [Malf/No malf] condition of lo-level malfunction |
| S/L LOCK POSITION (CAN) | Indicates [Armed/Malf/Unlocked/Undefined] condition of lock/unlock position signal |
| S/L ACT MALFUNCTION (CAN) | Indicates [Malf/No malf] condition of steering lock unit malfunction |
| S/L HI-LEVEL MALFUNC (CAN) | Indicates [Malf/No malf] condition of hi-level malfunction |
| S/L OPERATION PRHBT (SPD) | Indicates [On/Off] condition of vehicle speed signal |
| S/L OPERATION PRHBT (PWR) | Indicates [Allowed/Forbid] condition of safety line inhibition |
| S/L SENSOR POWER (CAN) | Indicates [On/Off] condition of sensor test power supply |
| S/L SEN TEST PERMIT (CAN) | Indicates [Forbid/Authorize] condition of sensor test |
| S/L STAT NOT DETECT (CAN) | Indicates [Ok/Undefind] condition of steering lock undefined position signal |
| S/L LOCKING FINISHED (CAN) | Indicates [Unfinshd/Finished] condition of steering lock unit lock status signal |
| STOP/START SW | Indicates [On/Off] condition of stop/start off switch |
| RKE-LOCK | Indicates [On/Off] condition of LOCK signal from Intelligent Key |
| RKE-UNLOCK | Indicates [On/Off] condition of UNLOCK signal from Intelligent Key |
| RKE-TR/BD | **NOTE:**<br>This item is displayed, but cannot be monitored |
| RKE-PANIC | **NOTE:**<br>This item is displayed, but cannot be monitored |
| RKE-MODE CHG | Indicates [On/Off] condition of MODE CHANGE signal from Intelligent Key |
| RKE PBD | Indicates [On/Off] condition of back door open request signal from Intelligent Key |

| Monitor Item | Condition |
|---|---|
| KEY SW | **NOTE:**<br>This item is displayed, but cannot be monitored |
| IGN SW | **NOTE:**<br>This item is displayed, but cannot be monitored |
| START SW | **NOTE:**<br>This item is displayed, but cannot be monitored |

*1: It is displayed but does not operate on CVT models.

*2: OFF is displayed when brake pedal is depressed while brake switch power supply is OFF.

## ACTIVE TEST

| Test item | Description |
|---|---|
| OUTSIDE BUZZER | This test is able to check Intelligent Key warning buzzer operation<br>• On: Operate<br>• Off: Non-operation |
| INSIDE BUZZER | This test is able to check warning chime in combination meter operation<br>• Buzzer 1: Combination meter buzzer sounds (pipipi...) when CONSULT screen is touched<br>• Buzzer 2: Combination meter buzzer sounds (pipi-pipi-...) when CONSULT screen is touched<br>• Buzzer 3: Combination meter buzzer sounds (pipipipi-pipipipi-...) when CONSULT screen is touched<br>• Off: Non-operation |
| INDICATOR | This test is able to check warning lamp operation<br>• KEY ON: [Intelligent Key system malfunction] displays when CONSULT screen is touched<br>• KEY IND: “KEY” Warning lamp blinks when CONSULT screen is touched<br>• Off: Non-operation |
| FLASHER | This test is able to check security hazard lamp operation<br>The hazard lamps are activated after “LH/RH/Off” on CONSULT screen is touched |
| HORN | **NOTE:**<br>This item is displayed, but cannot be used |
| IGN CONT2 | This test is able to operate the blower relay in fuse block (J/B)<br>• On: Operates<br>• Off: Non-operation |
| ENGINE SW ILLUMI | This test is able to check push-ignition switch illumination operation<br>Push-ignition switch illumination illuminates when “ON” on CONSULT screen is touched |
| ENGINE START REQUEST | This test is able to check BCM sends starter request signal to IPDM E/R via CAN communication<br>• MODE 1: IGN ON, START request OFF<br>• MODE 2: IGN OFF, START request ON<br>• MODE 3: IGN ON, START request ON<br>• Off: Non-operation |
| IGNITION RELAY | **NOTE:**<br>This item is displayed, but cannot be used |
| STARTER CUT RELAY | This test is able to operate the starter control relay<br>• On: Operates<br>• Off: Non-operation |
| ENGINE START | **NOTE:**<br>This item is displayed, but cannot be used |
| TRUNK/BACK DOOR | **NOTE:**<br>This item is displayed, but cannot be used |
| RETRACTABLE MIRROR | **NOTE:**<br>This item is displayed, but cannot be used |
| AUTO ACC 2 | This test is able to check BCM sends power supply to audio unit or NAVI control unit<br>• On: Operate<br>• Off: Non-operation |

| Test item | Description |
|---|---|
| AUTOMATIC BACK DOOR | **NOTE:**<br>This item is displayed, but cannot be used |
| AUTO ACC 1 | This test is able to check BCM sends power supply to ignition relay<br>• On: Operate<br>• Off: Non-operation |
| TRUNK/LUGGAGE LAMP TEST | This test is able to check trunk/luggage room lamp operation<br>• On: Operates<br>• Off: Non-operation |

## INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY) (Without Super Lock)

*INFOID:0000000010869013*

### WORK SUPPORT

| Monitor item | Description |
|---|---|
| INSIDE ANT DIAGNOSIS | This function allows inside key antenna self-diagnosis |
| LOCK/UNLOCK BY I-KEY | Door lock/unlock function by door request switch mode can be changed to operation in this mode<br>• On: Operate<br>• Off: Non-operation |
| ENGINE START BY I-KEY | Engine start function mode can be changed to operation with this mode<br>• On: Operate<br>• Off: Non-operation |
| TRUNK/GLASS HATCH OPEN | **NOTE:**<br>This item is displayed, but cannot be monitored |
| AUTO LOCK SET | Auto door lock operation time can be changed in this mode<br>• MODE 1: OFF<br>• MODE 2: 30 sec<br>• MODE 3: 1 minute<br>• MODE 4: 2 minutes<br>• MODE 5: 3 minutes<br>• MODE 6: 4 minutes<br>• MODE 7: 5 minutes |
| SHORT CRANKING OUTPUT | **NOTE:**<br>This item is displayed, but cannot be monitored |
| IGN/ACC BATTERY SAVER | Ignition battery saver system mode can be changed to operation with this mode<br>• On: Operate<br>• Off: Non-operation |
| ANSWER BACK | **NOTE:**<br>This item is displayed, but cannot be used |
| ANSWER BACK I-KEY LOCK UN-LOCK | **NOTE:**<br>This item is displayed, but cannot be used |
| ANSWER BACK KEYLESS LOCK UNLOCK | **NOTE:**<br>This item is displayed, but cannot be used |

### SELF-DIAG RESULT

Refer to BCS-78, "DTC Index".

### 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.

| Monitor Item | Condition |
|---|---|
| REQ SW -DR | Indicates [On/Off] condition of door request switch (driver side) |
| REQ SW -AS | Indicates [On/Off] condition of door request switch (passenger side) |

| Monitor Item | Condition |
|---|---|
| REQ SW -BD/TR | Indicates [On/Off] condition of back door request switch |
| PUSH SW | Indicates [On/Off] condition of push-button ignition switch |
| CLUTCH SW*1 | Indicates [On/Off] condition of clutch interlock switch |
| BRAKE SW 1 | Indicates [On/Off]*2 condition of stop lamp switch power supply |
| BRAKE SW 2 | Indicates [On/Off] condition of stop lamp switch |
| DETE/CANCL SW | Indicates [On/Off] condition of P position |
| START CLUTCH SW | Indicates [On/Off] condition of clutch pedal position switch |
| PUSH SW -IPDM | Indicates [On/Off] condition of push-button ignition switch |
| IGN RLY1 -F/B | Indicates [On/Off] condition of ignition relay 1 |
| NEUTRAL SW - IPDM | Indicates [On/Off] condition of reverse/neutral position switch |
| SFT PN -IPDM | Indicates [On/Off] condition of P or N position |
| STARTER RELAY - IPDM | Indicates [On/Off] condition of starter relay |
| ENGINE STATE | Indicates [Stop/Stall/Crank/Run] condition of engine states |
| ST/INHIRELAY-IPDM | Display the starter relay/starter control relay status signal from IPDM E/R via CAN communication |
| REVERSE SIGNAL - IPDM | Indicates [On/Off] condition of R position |
| CRANKING PERMIT - ECM | Display the engine cranking permit signal from ECM via CAN communication |
| IS STATUS - ECM | Indicates [On/Off] condition of stop/start system |
| STARTER CUT RELAY - ECM | Indicates [On/Off] condition of starter control relay signal from ECM via CAN communication |
| VEH SPEED 1 | Display the vehicle speed signal received from combination meter by numerical value [Km/h] |
| VEH SPEED 2 | Display the vehicle speed signal received from ABS actuator and electric unit (control unit) by numerical value [Km/h] |
| IGN REQ - IPDM | Display the ignition request signal from IPDM E/R via CAN communication |
| STARTER REQ - IPDM | Display the starter request signal from IPDM E/R via CAN communication |
| DOOR STAT-DR | Indicates [LOCK/READY/UNLK] condition of driver door status |
| DOOR STAT-AS | Indicates [LOCK/READY/UNLK] condition of passenger door status |
| DOOR STAT-RR | Indicates [LOCK/READY/UNLK] condition of rear door RH status |
| DOOR STAT-RL | Indicates [LOCK/READY/UNLK] condition of rear door LH status |
| BK DOOR STATE | **NOTE:**<br>This item is displayed, but cannot be monitored |
| ID OK FLAG | Indicates [Set/Reset] condition of Intelligent Key ID |
| PRMT ENG STRT | Indicates [Set/Reset] condition of engine start possibility |
| PRMT RKE STRT | **NOTE:**<br>This item is displayed, but cannot be monitored |
| I-KEY OK FLAG | Indicates [KEY On/NOT On] condition of Intelligent Key ID and Intelligent Key is detected inside vehicle |
| PRBT ENG STRT | Indicates whether or not the engine is in start prohibited status |
| ID AUTHENT CANCEL TIMER | Indicates whether or not it is in engine start possible status when Intelligent Key verification is unnecessary |
| ACC BATTERY SAVER | Indicates [On/Off] whether or not ignition battery saver is in operation |
| CRNK PRBT TMR | Indicates [On/Off] whether or not in cranking prohibited status due to starter motor protection function operation |
| AUT CRANK TMR | Indicates [On/Off] whether or not in AUTO CRANKING MODE status |
| CRNK PRBT TME | Indicates the time for changing from cranking prohibited status to cranking possible status |
| AUT CRANK TMR | Indicates the time that AUTO CRANKING MODE operates |
| CRANKING TME | Indicates the cranking operation time |

| Monitor Item | Condition |
|---|---|
| SHORT CRANK | **NOTE:**<br>This item is displayed, but not used |
| RKE OPE COUN1 | When remote keyless entry receiver receives the signal transmitted while operating on Intelligent Key, the numerical value start changing |
| RKE OPE COUN2 | **NOTE:**<br>This item is displayed, but cannot be monitored |
| S/L IGN OFF POSITION | Indicates [On/Off] condition of Ignition OFF signal |
| S/L SENSOR CIRCUIT 1 | Indicates [Gnd/On] condition of steering lock unit sensor circuit |
| S/L SENSOR CIRCUIT 2 | Indicates [On/Off] condition of steering lock unit sensor circuit |
| S/L POWER OUTPUT | Indicates [On/Off] condition of steering lock unit power supply |
| S/L POWER CHECK | Indicates [On/Off] condition of steering lock unit power supply |
| ANTICIPATED POWER | Indicates [On/Off] condition of anticipated power supply |
| S/L LOCK REQ | Indicates [On/Off] condition of steering lock unit lock request signal |
| S/L - BCM (CAN) | Indicates [On/Off] condition of CAN communication |
| S/L POWER ERROR | Indicates [On/Off] condition of steering lock unit power supply error |
| VEH SPEED ERROR (S/L) | Indicates [On/Off] condition of vehicle speed signal |
| VEH SPEED NORMAL (S/L) | Indicates [On/Off] condition of vehicle speed signal |
| ENGINE RUNNING (S/L) | Indicates [On/Off] condition of engine running |
| S/L ID DISCORD | Indicates [Correct/Incorrect] condition of ID verification |
| S/L ANTI-SCAN MODE | Indicates [On/Off] condition of antiscan mode |
| S/L LOCK NOT PERMIT | Indicates [Inhibition/No inhbt] condition of inhibit steering lock |
| S/L UNLOCK (CAN) | Indicates [Finished/Unfinished] condition of steering lock unit unlock |
| S/L ID STATUS (CAN) | Indicates [Coded/Blank] condition of registration ID |
| S/L RESET STATUS (CAN) | Indicates [Exit/No exit] condition of steering lock unit reset signal |
| S/L LO-LEVEL MALFUNC (CAN) | Indicates [Malf/No malf] condition of lo-level malfunction |
| S/L LOCK POSITION (CAN) | Indicates [Armed/Malf/Unlocked/Undefined] condition of lock/unlock position signal |
| S/L ACT MALFUNCTION (CAN) | Indicates [Malf/No malf] condition of steering lock unit malfunction |
| S/L HI-LEVEL MALFUNC (CAN) | Indicates [Malf/No malf] condition of hi-level malfunction |
| S/L OPERATION PRHBT (SPD) | Indicates [On/Off] condition of vehicle speed signal |
| S/L OPERATION PRHBT (PWR) | Indicates [Allowed/Forbid] condition of safety line inhibition |
| S/L SENSOR POWER (CAN) | Indicates [On/Off] condition of sensor test power supply |
| S/L SEN TEST PERMIT (CAN) | Indicates [Forbid/Authorize] condition of sensor test |
| S/L STAT NOT DETECT (CAN) | Indicates [Ok/Undefind] condition of steering lock undefined position signal |
| S/L LOCKING FINISHED (CAN) | Indicates [Unfinshd/Finished] condition of steering lock unit lock status signal |
| STOP/START SW | Indicates [On/Off] condition of stop/start off switch |
| RKE-LOCK | Indicates [On/Off] condition of LOCK signal from Intelligent Key |
| RKE-UNLOCK | Indicates [On/Off] condition of UNLOCK signal from Intelligent Key |
| RKE-TR/BD | **NOTE:**<br>This item is displayed, but cannot be monitored |
| RKE-PANIC | **NOTE:**<br>This item is displayed, but cannot be monitored |
| RKE-MODE CHG | Indicates [On/Off] condition of MODE CHANGE signal from Intelligent Key |
| RKE PBD | Indicates [On/Off] condition of back door open request signal from Intelligent Key |
| KEY SW | **NOTE:**<br>This item is displayed, but cannot be monitored |

| Monitor Item | Condition |
|---|---|
| IGN SW | **NOTE:**<br>This item is displayed, but cannot be monitored |
| START SW | **NOTE:**<br>This item is displayed, but cannot be monitored |

*1: It is displayed but does not operate on CVT models.

*2: OFF is displayed when brake pedal is depressed while brake switch power supply is OFF.

## ACTIVE TEST

| Test item | Description |
|---|---|
| OUTSIDE BUZZER | This test is able to check Intelligent Key warning buzzer operation<br>• On: Operate<br>• Off: Non-operation |
| INSIDE BUZZER | This test is able to check warning chime in combination meter operation<br>• Buzzer 1: Combination meter buzzer sounds (pipipi...) when CONSULT screen is touched<br>• Buzzer 2: Combination meter buzzer sounds (pipi-pipi-...) when CONSULT screen is touched<br>• Buzzer 3: Combination meter buzzer sounds (pipipipi-pipipipi-...) when CONSULT screen is touched<br>• Off: Non-operation |
| INDICATOR | This test is able to check warning lamp operation<br>• KEY ON: [Intelligent Key system malfunction] displays when CONSULT screen is touched<br>• KEY IND: “KEY” Warning lamp blinks when CONSULT screen is touched<br>• Off: Non-operation |
| FLASHER | This test is able to check security hazard lamp operation<br>The hazard lamps are activated after “LH/RH/Off” on CONSULT screen is touched |
| HORN | **NOTE:**<br>This item is displayed, but cannot be used |
| IGN CONT2 | This test is able to operate the blower relay in fuse block (J/B)<br>• On: Operates<br>• Off: Non-operation |
| ENGINE SW ILLUMI | This test is able to check push-ignition switch illumination operation<br>Push-ignition switch illumination illuminates when “ON” on CONSULT screen is touched |
| ENGINE START REQUEST | This test is able to check BCM sends starter request signal to IPDM E/R via CAN communication<br>• MODE 1: IGN ON, START request OFF<br>• MODE 2: IGN OFF, START request ON<br>• MODE 3: IGN ON, START request ON<br>• Off: Non-operation |
| IGNITION RELAY | **NOTE:**<br>This item is displayed, but cannot be used |
| STARTER CUT RELAY | This test is able to operate the starter control relay<br>• On: Operates<br>• Off: Non-operation |
| ENGINE START | **NOTE:**<br>This item is displayed, but cannot be used |
| TRUNK/BACK DOOR | **NOTE:**<br>This item is displayed, but cannot be used |
| RETRACTABLE MIRROR | **NOTE:**<br>This item is displayed, but cannot be used |
| AUTO ACC 2 | This test is able to check BCM sends power supply to audio unit or NAVI control unit<br>• On: Operate<br>• Off: Non-operation |
| AUTOMATIC BACK DOOR | **NOTE:**<br>This item is displayed, but cannot be used |

| Test item | Description |
|---|---|
| AUTO ACC 1 | This test is able to check BCM sends power supply to ignition relay<br>• On: Operate<br>• Off: Non-operation |
| TRUNK/LUGGAGE LAMP TEST | This test is able to check trunk/luggage room lamp operation<br>• On: Operates<br>• Off: Non-operation |

# ECU DIAGNOSIS INFORMATION

## BCM

### List of ECU Reference

INFOID:0000000010741740

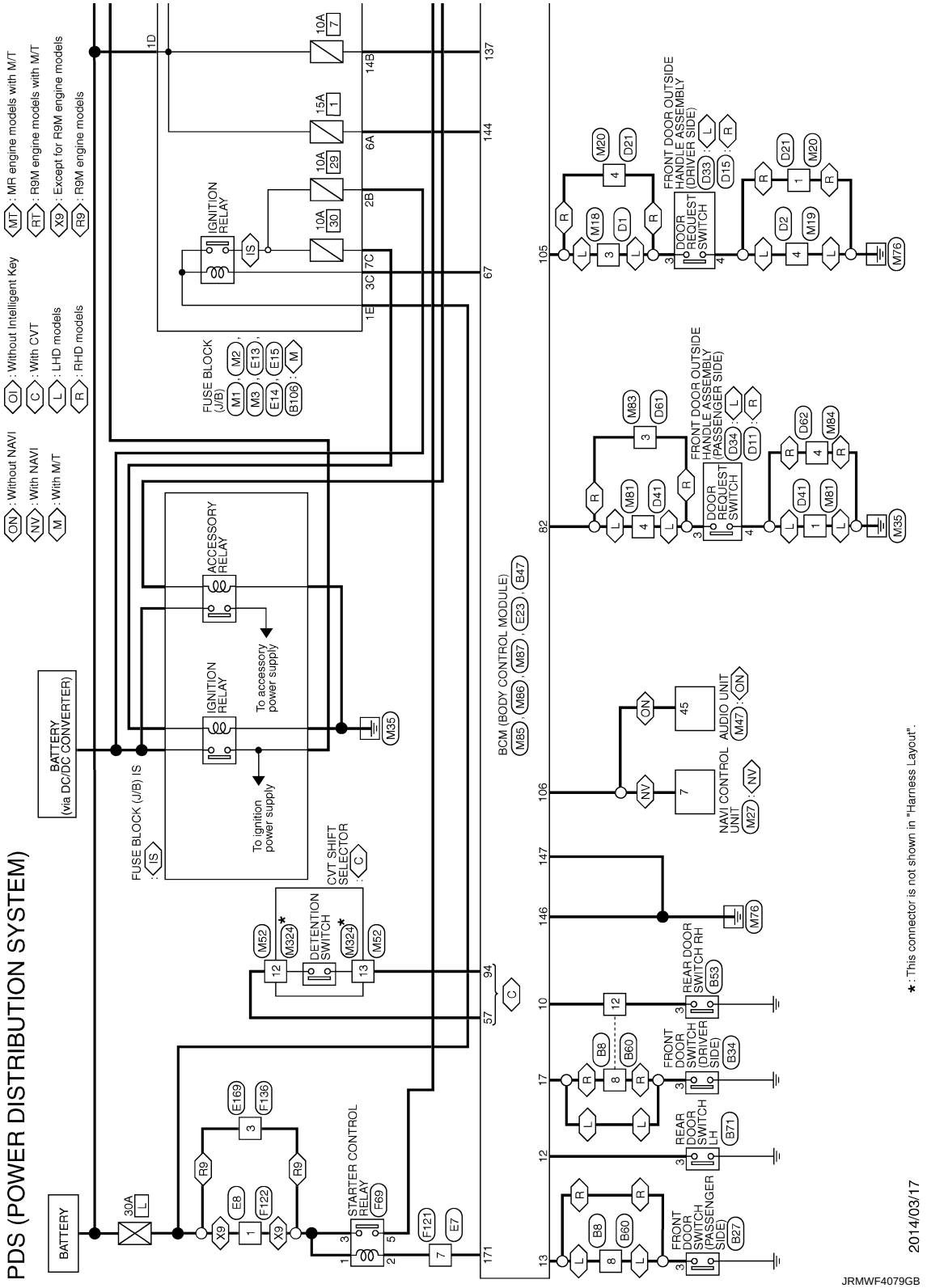
| ECU | Reference |
|---|---|
| BCM | BCS-53, "Reference Value" |
| | BCS-76, "Fail-safe" |
| | BCS-77, "DTC Inspection Priority Chart" |
| | BCS-78, "DTC Index" |

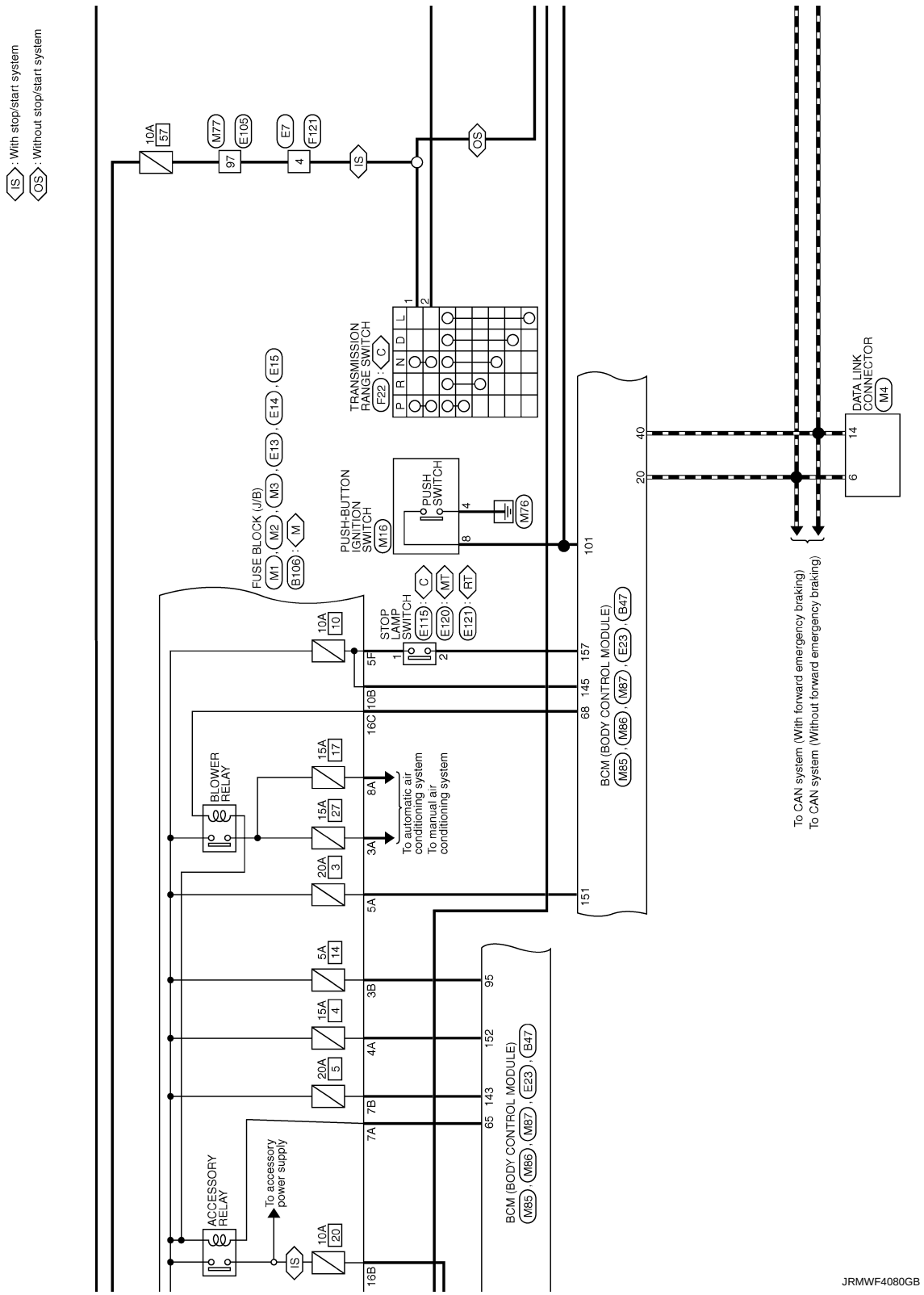
# WIRING DIAGRAM

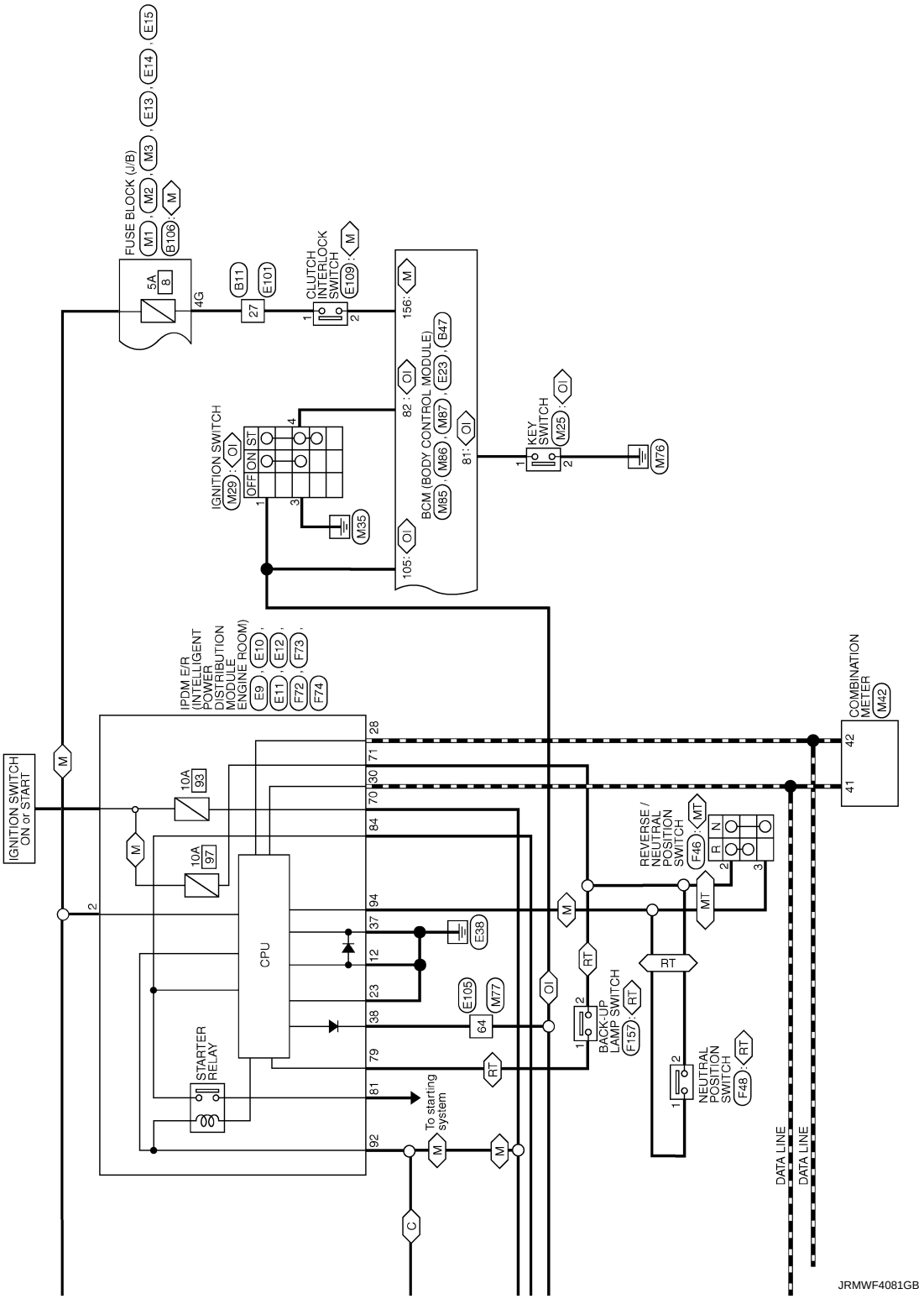
## POWER DISTRIBUTION SYSTEM

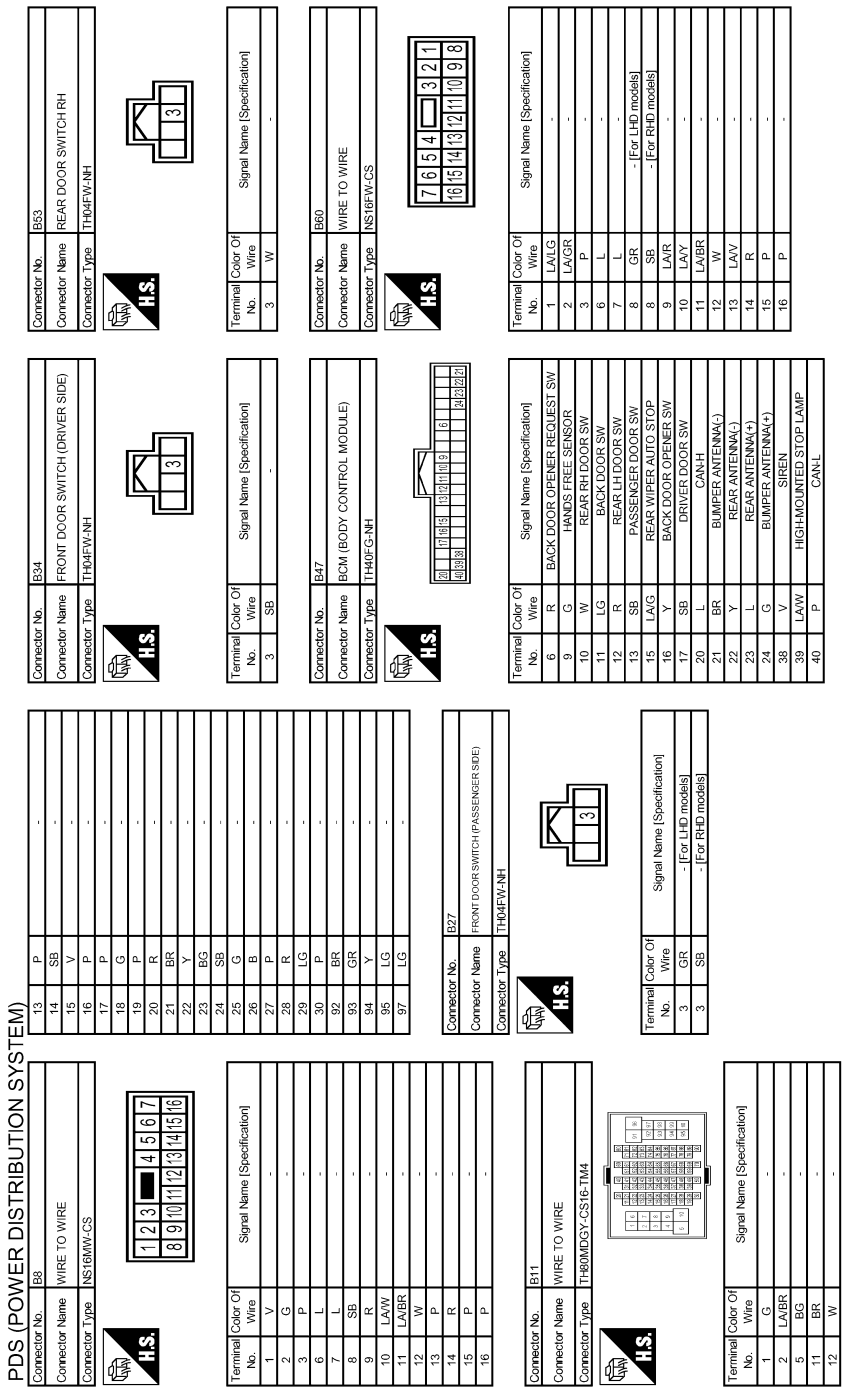
### Wiring Diagram

INFOID:0000000010741741




IS : With stop/start system
OS : Without stop/start system
10A 57
M77
E105
97
E7
F121
4
IS
OS
TRANSMISSION RANGE SWITCH
C
F22
P R N D L
1 2
FUSE BLOCK (J/B)
M1 , M2 , M3 , E13 , E14 , E15
B106 : M
PUSH-BUTTON IGNITION SWITCH
M16
PUSH SWITCH
4 8
M76
101
STOP LAMP SWITCH
C MT RT
E115 E120 E121
1 2
10A 10
5F
10B
16C
BLOWER RELAY
15A 17
15A 27
20A 3
8A
3A
5A
To automatic air conditioning system
To manual air conditioning system
BCM (BODY CONTROL MODULE)
M85 , M86 , M87 , E23 , B47
157
145
68
151
40
20
DATA LINK CONNECTOR
M4
14
6
To CAN system (With forward emergency braking)
To CAN system (Without forward emergency braking)
5A 14
15A 4
20A 5
3B
4A
7B
7A
95
152
143
65
ACCESSORY RELAY
To accessory power supply
10A 20
16B
JRMWF4080GB


FUSE BLOCK (J/B)
M1, M2, M3, E13, E14, E15
B106
5A
8
4G
B11
27
E101
CLUTCH INTERLOCK SWITCH
E109
156
82
105
BCM (BODY CONTROL MODULE)
M85, M86, M87, E23, B47
81
KEY SWITCH
M25
M76
IGNITION SWITCH
M29
OFF ON ST
M35
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E9, E10, E11, E12, F72, F73, F74
IGNITION SWITCH ON or START
10A 93
10A 97
CPU
STARTER RELAY
To starting system
COMBINATION METER
M42
REVERSE / NEUTRAL POSITION SWITCH
F46
BACK-UP LAMP SWITCH
F157
NEUTRAL POSITION SWITCH
F48
DATA LINE
DATA LINE
JRMWF4081GB




JRMWF4082GB

PDS (POWER DISTRIBUTION SYSTEM)

| Connector No. | B71 |
|---|---|
| Connector Name | REAR DOOR SWITCH LH |
| Connector Type | TH04FW-NH |

H.S.

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 3 | R | - |

| Connector No. | D1 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH24FW-NH |

H.S.

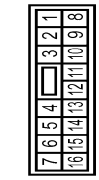


| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | LA/B | - |
| 2 | LA/B | - |
| 3 | W | - |
| 4 | V | - |
| 5 | SB | - |
| 6 | LG | - |
| 7 | GR | - |
| 8 | G | - |
| 9 | Y | - |
| 10 | B | - |
| 11 | R | - |
| 13 | LA/W | - |
| 14 | LA/Y | - |
| 15 | LA/L | - |
| 16 | LA/L | - |
| 17 | LA/L | - |
| 18 | LA/BG | - |
| 19 | LA/R | - |
| 22 | LA/G | - |

| 23 | L | - |
|---|---|---|
| 24 | BG | - |

| Connector No. | D2 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | NS16FW-CS |

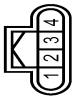
H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | LA/V | - |
| 2 | R | - |
| 3 | LA/G | - |
| 4 | B | - |
| 5 | B | - |
| 6 | LA/L | - |
| 7 | LA/BR | - |
| 8 | SB | - |
| 9 | LA/GR | - |
| 10 | LA/SB | - |
| 11 | P | - |
| 12 | LG | - |
| 13 | LA/Y | - |
| 14 | LA/W | - |
| 15 | LA/R | - |
| 16 | B | - |

| Connector No. | D11 |
|---|---|
| Connector Name | FRONT DOOR OUTSIDE HANDLE ASSEMBLY (PASSENGER SIDE) |
| Connector Type | RH04FB |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | R | - |
| 2 | SB | - |
| 3 | P | - |
| 4 | B | - |

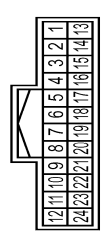
| Connector No. | D15 |
|---|---|
| Connector Name | FRONT DOOR OUTSIDE HANDLE ASSEMBLY (DRIVER SIDE) |
| Connector Type | RH04FB |

H.S.

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | V | - |
| 2 | SB | - |
| 3 | W | - |
| 4 | B | - |

| Connector No. | D21 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH24FW-NH |

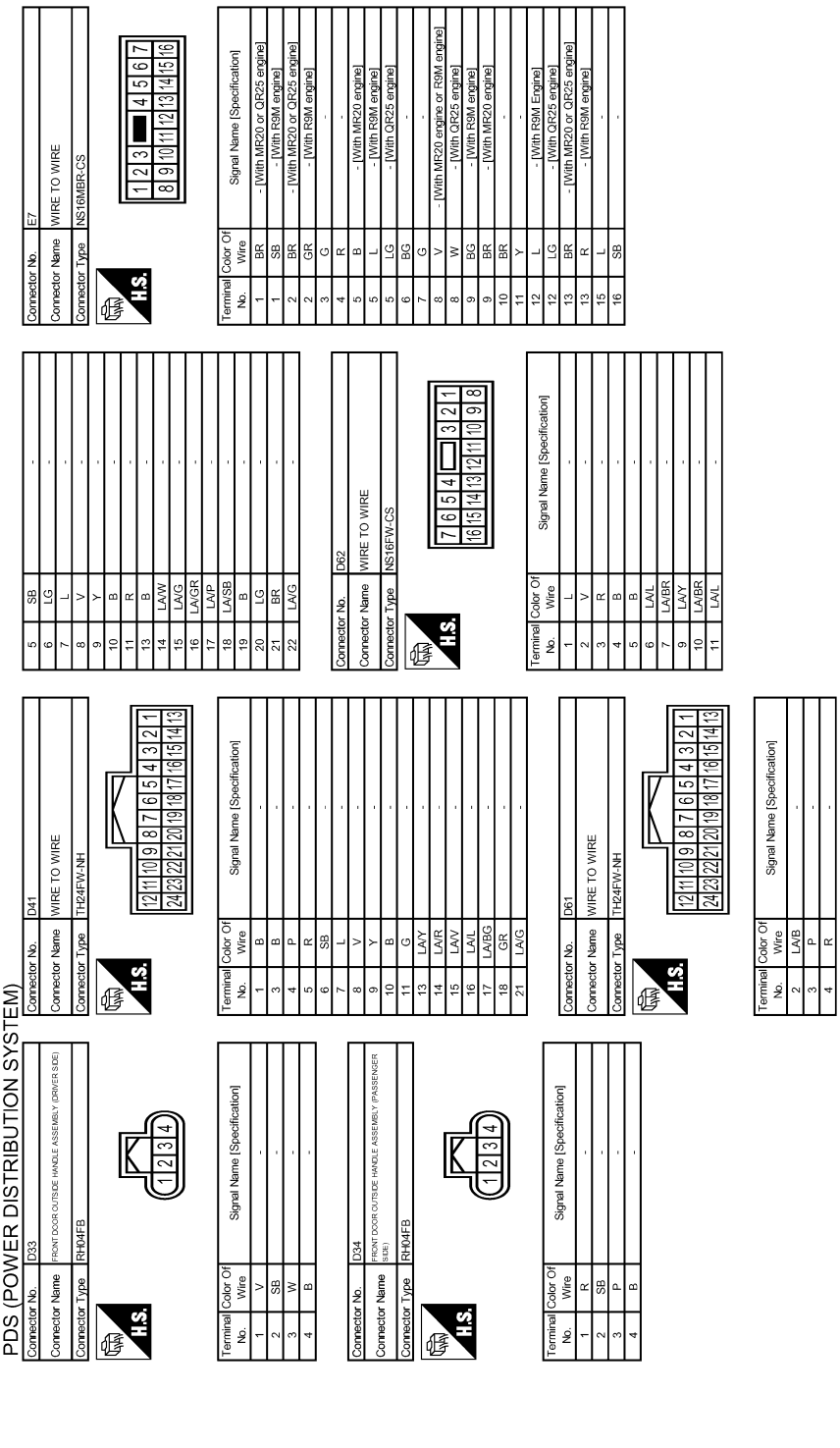
H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | B | - |
| 3 | B | - |
| 4 | W | - |
| 5 | V | - |
| 6 | SB | - |
| 7 | L | - |
| 8 | G | - |
| 9 | Y | - |
| 10 | B | - |
| 11 | G | - |
| 13 | LA/W | - |
| 14 | LA/G | - |
| 15 | LA/GR | - |
| 16 | LA/P | - |
| 17 | LA/SB | - |
| 18 | LA/R | - |
| 19 | LA/SB | - |
| 20 | GR | - |
| 21 | LA/G | - |
| 22 | R | - |
| 23 | BG | - |
| 24 | L | - |

JRMWF4083GB

PDS (POWER DISTRIBUTION SYSTEM)




JRMWF4084GB

PDS (POWER DISTRIBUTION SYSTEM)

| Connector No. | E8 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | M02MW-LC |

H.S.

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | L | - |

| Connector No. | E9 |
|---|---|
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Type | L02FB-MC |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | R | - |
| 2 | L | - |

| Connector No. | E10 |
|---|---|
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Type | NS16FGY-CS |

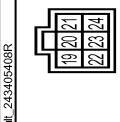
H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 3 | P | - |
| 4 | Y | - |
| 7 | L | - |
| 8 | BG | - |
| 9 | L | - |
| 12 | B | - |
| 16 | G | - |
| 17 | W | - |

| Connector No. | E11 |
|---|---|
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Type | renault: 243405408R |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 19 | V | - |
| 20 | R | - |
| 21 | LG | - |
| 22 | Y | - |
| 23 | B | - |
| 24 | W | - |

| Connector No. | E12 |
|---|---|
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Type | TH24FGY-NH |

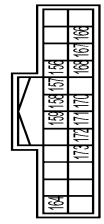
H.S.



| Terminal No. | Color Of 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. | E23 |
|---|---|
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Type | TH24FB-NH |

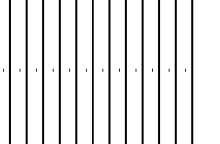
H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 156 | V | CLUTCH INTERLOCK SW |
| 157 | LG | STOP LAMP SW 2 |
| 158 | W | STOP LAMP SW 1 |
| 159 | R | ASCD CLUTCH SWITCH |
| 164 | Y | INTELLIGENT KEY WARNING BUZZER |
| 166 | P | STEERING LOCK UNIT POWER SUPPLY |
| 167 | BR | TURN SIG LH (FRONT) |
| 168 | GR | TURN SIG RH (FRONT) |
| 170 | L | PTC RELAY-3 CONTROL |
| 171 | G | STARTER RELAY CONT |
| 172 | V | PTC RELAY-1 CONTROL |
| 173 | BG | PTC RELAY-2 CONTROL |

| Connector No. | E101 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80FBGY-CS16-TM4 |

H.S.



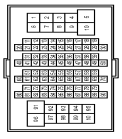
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | G | - |
| 2 | W | - |
| 5 | G | - |
| 11 | BR | - |
| 12 | W | - |
| 13 | P | - |
| 14 | SB | - |
| 15 | V | - |
| 16 | P | - |
| 17 | P | - |
| 18 | G | - |
| 19 | P | - |
| 20 | G | - |
| 21 | BR | - |
| 22 | LG | - |
| 23 | Y | - |
| 24 | SB | - |
| 25 | G | - |
| 26 | B | - |
| 27 | P | - |
| 28 | R | - |
| 29 | LG | - |
| 30 | P | - |
| 92 | BR | - |
| 93 | GR | - |
| 94 | R | - |
| 95 | L | - |
| 97 | LG | - |

JRMWF4085GB

PDS (POWER DISTRIBUTION SYSTEM)

| Connector No. | E105 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80FW-CS16-TM4 |

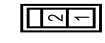
H.S.



| 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 | 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. | E109 |
|---|---|
| Connector Name | CLUTCH INTERLOCK SWITCH |
| Connector Type | M02FBR-LC |

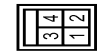
H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | P | - |
| 2 | V | - |

| Connector No. | E115 |
|---|---|
| Connector Name | STOP LAMP SWITCH |
| Connector Type | M04FW-LC |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | V | - |
| 2 | LG | - |
| 3 | L | - |
| 4 | W | - |

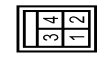
| Connector No. | E120 |
|---|---|
| Connector Name | STOP LAMP SWITCH |
| Connector Type | M04FW-LC |

H.S.

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | V | - |
| 2 | LG | - |
| 3 | Y | - |
| 4 | W | - |

| Connector No. | E121 |
|---|---|
| Connector Name | STOP LAMP SWITCH |
| Connector Type | M04FW-LC |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | V | - |
| 2 | LG | - |
| 3 | Y | - |
| 4 | W | - |

| Connector No. | E169 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | M06MW-LC |

H.S.

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | W | - |
| 2 | BG | - |
| 3 | L | - |
| 4 | W | - |
| 5 | G | - |
| 6 | W | - |

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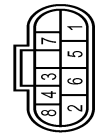
PDS (POWER DISTRIBUTION SYSTEM)

| Connector No. | F22 |
|---|---|
| Connector Name | TRANSMISSION RANGE SWITCH |
| Connector Type | YDX06FB-HS4 |

H.S.




| 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. | F46 |
|---|---|
| Connector Name | REVERSE / NEUTRAL POSITION SWITCH |
| Connector Type | FEA03FG-LC |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | G | - |
| 2 | W | - |
| 3 | SB | - |

| Connector No. | F48 |
|---|---|
| Connector Name | NEUTRAL POSITION SWITCH |
| Connector Type | RK02FB |

H.S.


| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | SB | - |
| 2 | R | - |

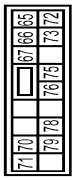
| Connector No. | F69 |
|---|---|
| Connector Name | STARTER CONTROL RELAY |
| Connector Type | IMS02FL-M2-LC |

H.S.


| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | SB | - |
| 2 | G | - |
| 3 | L | - |
| 5 | GR | - |

| Connector No. | F72 |
|---|---|
| Connector Name | PDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Type | NS16FW-CS |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 65 | P | - |
| 66 | L | - [With R9M Engine] |
| 66 | R | - [With MR20 or QR25 Engine] |
| 67 | V | - |
| 70 | BG | - [With CVT] |
| 70 | GR | - [With MT] |
| 71 | SB | - |
| 72 | GR | - |
| 73 | R | - [With R9M Engine] |
| 73 | Y | - [With MR20 or QR25 Engine] |
| 75 | BR | - [With MR20 or QR25 Engine] |
| 75 | L | - [With R9M Engine] |
| 76 | P | - |
| 78 | L | - [With QR25 engine] |
| 78 | R | - [With R9M Engine] |
| 79 | G | - |

| Connector No. | F73 |
|---|---|
| Connector Name | PDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Type | YLA06FGY |

H.S.


| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 81 | G | - |
| 83 | L | - |
| 84 | GR | - |
| 85 | P | - |

| 86 | LG | - |
|---|---|---|

| Connector No. | F74 |
|---|---|
| Connector Name | PDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Type | TH24FB-NH |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 87 | L | - |
| 88 | P | - |
| 89 | W | - |
| 90 | R | - |
| 92 | GR | - |
| 93 | G | - [With R9M Engine] |
| 93 | P | - [With MR20 or QR25 Engine] |
| 94 | SB | - |
| 95 | LG | - |
| 96 | W | - |
| 97 | P | - |
| 98 | Y | - |
| 99 | BG | - |
| 100 | LG | - |
| 101 | V | - |
| 102 | Y | - |
| 105 | W | - |
| 106 | BR | - |
| 107 | V | - |
| 110 | SB | - |

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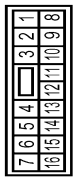
PDS (POWER DISTRIBUTION SYSTEM)

| Connector No. | F121 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | NS16FBR-CS |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | B | - [With MR20 or QR25 engine] |
| 1 | P | - [With R9M engine] |
| 2 | BR | - [With QR25 engine] |
| 2 | GR | - [With MR20 engine] |
| 2 | Y | - [With R9M engine] |
| 3 | G | - |
| 4 | BG | - |
| 5 | B | - [With MR20 engine] |
| 5 | L | - [With R9M engine] |
| 5 | LG | - [With QR25 engine] |
| 6 | V | - |
| 7 | G | - |
| 8 | V | - [With MR20 engine or R9M engine] |
| 8 | W | - [With QR25 engine] |
| 9 | B | - [With MR20 engine] |
| 9 | W | - [With R9M engine] |
| 10 | BR | - |
| 11 | P | - [Without ISS] |
| 11 | R | - [With ISS] |
| 12 | G | - [With QR25 engine] |
| 12 | L | - [With R9M Engine] |
| 13 | R | - [With R9M engine] |
| 13 | Y | - [With MR20 or QR25 engine] |
| 15 | L | - |
| 16 | LG | - |

| Connector No. | F122 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | M02FW-LC |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | L | - |

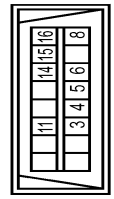
| Connector No. | F136 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | M06FW-LC |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | L | - |
| 2 | BG | - |
| 3 | L | - |
| 4 | W | - |
| 5 | BG | - |
| 6 | W | - |

| Connector No. | F157 |
|---|---|
| Connector Name | BACK-UP LAMP SWITCH |
| Connector Type | RK02FB |

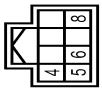
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | G | - |
| 2 | W | - |

| Connector No. | M4 |
|---|---|
| Connector Name | DATA LINK CONNECTOR |
| Connector Type | BD16FW |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 3 | LG | - |
| 4 | B | - |
| 5 | B | - |
| 6 | L | - |
| 8 | Y | - |
| 11 | SB | - |
| 14 | P | - |
| 15 | BR | - |
| 16 | W | - |

| Connector No. | M16 |
|---|---|
| Connector Name | PUSH-BUTTON IGNITION SWITCH |
| Connector Type | TH08FW-NH |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 4 | B | - |
| 5 | W | - |
| 6 | B | - |
| 8 | Y | - |

| Connector No. | M18 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH24MW-NH |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | B | - |
| 2 | B | - |
| 3 | Y | - |
| 4 | V | - |
| 5 | BR | - |
| 6 | LG | - |
| 7 | L | - |
| 8 | Y | - |
| 9 | G | - |
| 10 | SHIELD | - |
| 11 | R | - |
| 13 | GR | - |
| 14 | LA/SB | - |
| 15 | LA/GR | - |
| 16 | LA/V | - |
| 17 | LA/L | - |

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PDS (POWER DISTRIBUTION SYSTEM)

| | |
|---|---|
| 18 | LA/BG |
| 19 | LA/R |
| 22 | LA/G |
| 23 | BG |
| 24 | SB |

| | |
|---|---|
| Connector No. | M20 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TH24MW-NH |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | B | - |
| 3 | GR | - |
| 4 | Y | - |
| 5 | V | - |
| 6 | BR | - |
| 7 | L | - |
| 8 | Y | - |
| 9 | G | - |
| 10 | SHIELD | - |
| 11 | G | - |
| 13 | LA/W | - |
| 14 | LA/G | - |
| 15 | LA/GR | - |
| 16 | LA/P | - |
| 17 | LA/SB | - |
| 18 | LA/R | - |
| 19 | GR | - |
| 20 | GR | - |
| 21 | LA/Y | - |
| 22 | R | - |
| 23 | SB | - |
| 24 | B/G | - |

| | |
|---|---|
| Connector No. | M19 |
| Connector Name | WIRE TO WIRE |
| Connector Type | NS16MW-CS |

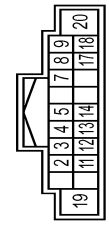


| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | V | - |
| 2 | R | - |
| 3 | G | - |
| 4 | B | - |
| 5 | B | - |
| 6 | Y | - |
| 7 | R | - |
| 8 | L | - |
| 9 | BR | - |
| 10 | GR | - |
| 11 | Y | - |
| 12 | BG | - |
| 13 | G | - |
| 14 | R | - |
| 15 | P | - |
| 16 | B | - |

| | |
|---|---|
| Connector No. | M25 |
| Connector Name | KEY SWITCH |
| Connector Type | TH02FW |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | L | - |
| 2 | B | - |

| | |
|---|---|
| Connector No. | M27 |
| Connector Name | NAVI CONTROL UNIT |
| Connector Type | NH18FW-CS2 |



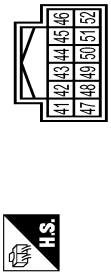
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 2 | W | SOUND SIGNAL FRONT SPEAKER LH + [With 6 Speaker] |
| 2 | Y | SOUND SIGNAL FRONT SPEAKER LH + [With 4 Speaker] |
| 3 | P | SOUND SIGNAL FRONT LH - [With 6 Speaker] |
| 3 | R | SOUND SIGNAL FRONT LH - [With 4 Speaker] |
| 4 | GR | SOUND SIGNAL REAR LH + |
| 5 | BR | SOUND SIGNAL REAR LH - |
| 7 | W | AUTO ACC INPUT SIGNAL |
| 8 | L | CAN-H |
| 9 | V | ILLUMINATION SIGNAL |
| 11 | G | SOUND SIGNAL FRONT RH + [With 6 Speaker] |
| 11 | W | SOUND SIGNAL FRONT RH + [With 4 Speaker] |
| 12 | GR | SOUND SIGNAL FRONT RH - [With 4 Speaker] |
| 12 | V | SOUND SIGNAL FRONT RH - [With 6 Speaker] |
| 13 | LG | SOUND SIGNAL REAR RH + |
| 14 | Y | SOUND SIGNAL REAR RH - |
| 17 | R | CAN-L |
| 18 | G | VEHICLE SPEED SIGNAL (8 PULSE) |
| 19 | L | BATTERY POWER SUPPLY |

| | | |
|---|---|---|
| 20 | B | GROUND |

| | |
|---|---|
| Connector No. | M29 |
| Connector Name | IGNITION SWITCH |
| Connector Type | TH04FW-NH |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | Y | - |
| 3 | B | - |
| 4 | LA/R | - |

| | |
|---|---|
| Connector No. | M42 |
| Connector Name | COMBINATION METER |
| Connector Type | TH12FW-NH |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 41 | L | CAN-H |
| 42 | P | CAN-L |
| 43 | W | ILLUMINATION CONTROL SIGNAL |
| 44 | LA/B | FUEL LEVEL SENSOR GROUND |
| 45 | LA/G | BATTERY POWER SUPPLY |
| 46 | LA/BR | 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 | B/G | OIL LEVEL SENSOR GROUND |
| 51 | LA/L | FUEL LEVEL SENSOR SIGNAL |
| 52 | B | GROUND |

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PDS (POWER DISTRIBUTION SYSTEM)

| Connector No. | M47 |
|---|---|
| Connector Name | AUDIO UNIT |
| Connector Type | TH32FW-NH |





| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 21 | B | MICROPHONE VCC |
| 23 | L | AUX SOUND SIGNAL LH |
| 24 | G | AUX SOUND SIGNAL RH |
| 25 | Y | AUX SOUND SIGNAL GROUND |
| 26 | SHIELD | SHIELD |
| 30 | R | ILLUMINATION SIGNAL |
| 37 | W | MICROPHONE SIGNAL |
| 38 | SHIELD | MICROPHONE GROUND |
| 43 | B | EQ1 |
| 45 | W | AUTO ACC INPUT SIGNAL |
| 46 | SB | AV COMMUNICATION SIGNAL (H) |
| 47 | LG | AV COMMUNICATION SIGNAL (L) |
| 48 | SB | AV COMMUNICATION SIGNAL (H) |
| 49 | LG | AV COMMUNICATION SIGNAL (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 | - |

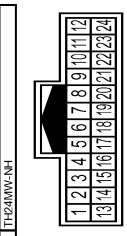
| Connector No. | M77 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80MW-CS16-TM4 |





| 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 | - |
| 57 | B | - |
| 58 | L | - |
| 59 | W | - |
| 60 | LA/R | - |
| 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 | LA/L | - [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. | M81 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH24MW-NH |





| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | B | - |
| 3 | GR | - [With SOW] |
| 3 | Y | - [Without SOW] |
| 4 | V | - |
| 5 | BR | - |
| 6 | SB | - |
| 7 | B | - |
| 8 | L | - |
| 9 | Y | - |
| 10 | SHIELD | - |
| 11 | G | - |
| 13 | LA/SB | - |
| 14 | LA/GR | - |
| 15 | LA/V | - |
| 16 | LA/L | - |
| 17 | LA/BG | - |
| 18 | GR | - |
| 21 | LA/Y | - |

| Connector No. | M83 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH24MW-NH |





| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 2 | B | - |
| 3 | W | - |
| 4 | P | - |
| 5 | SB | - |
| 6 | LG | - |
| 7 | B | - |
| 8 | L | - |
| 9 | Y | - |
| 10 | SHIELD | - |
| 11 | R | - |
| 13 | B | - |
| 14 | LA/W | - |
| 15 | LA/G | - |
| 16 | LA/GR | - |

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PDS (POWER DISTRIBUTION SYSTEM)

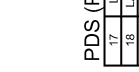
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 17 | LA/P | - |
| 18 | LA/SB | - |
| 19 | B | - |
| 20 | LG | - |
| 21 | BR | - |
| 22 | LA/G | - |

| Connector No. | M84 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | NS16MW-CS |




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | L | - |
| 2 | Y | - |
| 3 | W | - |
| 4 | B | - |
| 5 | B | - |
| 6 | Y | - |
| 7 | R | - |
| 9 | BR | - |
| 10 | GR | - |
| 11 | SB | - |

| Connector No. | M85 |
|---|---|
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Type | NS16FBR-CS |

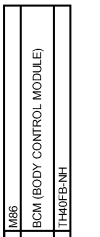



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 137 | W | BAT POWER SUPPLY (FUSE) |
| 138 | SB | INT ROOM LAMP CONT |
| 139 | L | PASSENGER DOOR UNLOCK OUTPUT |
| 141 | V | FRONT DOOR LOCK OUTPUT |
| 143 | LA/V | POWER SUPPLY (FR DOOR LK ACT) |
| 144 | BG | POWER SUPPLY (TURN SIGNAL) |
| 145 | GR | POWER SUPPLY (STOP LAMP) |
| 146 | B | GROUND |
| 147 | B | GROUND |
| 148 | G | DRIVER DOOR UNLOCK OUTPUT |
| 149 | W | FRONT DOOR SUPERLOCK OUTPUT |
| 151 | R | POWER SUPPLY (REAR DOOR LK ACT) |
| 152 | LG | POWER SUPPLY (REAR WIPER) |

| Connector No. | M86 |
|---|---|
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Type | TH40FB-NH |

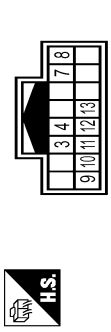

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 81 | L | KEY SWITCH |
| 82 | LA/R | KEY SW (ST) [Without intelligent key] |
| 82 | W | PASS DOOR REQ SW [With intelligent key] |
| 84 | BR | COMBI SW OUTPUT 2 |
| 85 | SB | COMBI SW OUTPUT 1 |
| 86 | P | COMBI SW OUTPUT 3 |
| 87 | BG | COMBI SW OUTPUT 4 |
| 88 | W | PUSH-BTN IGN SW ILL CONT |
| 90 | Y | S/L CONDITION |
| 94 | G | DETENTION SW |
| 95 | V | EXTENDED STORAGE FUSE SW |
| 99 | R | STOP/START OFF SW |
| 100 | V | DRIVER DOOR ANT + |
| 101 | Y | PUSH SW |
| 104 | R | DR DOOR UNLK SENS |
| 105 | Y | DR DOOR REQ SW |
| 106 | W | ACC OUTPUT |
| 107 | V | SENSOR CANCEL SW |
| 109 | P | NATS ANTENNA AMP. |
| 110 | BG | DIMMER SIGNAL |
| 111 | R | DOOR LK STAT IND OUTPUT |
| 112 | SB | STOP/START OFF SW INDICATOR |
| 113 | LG | NATS ANTENNA AMP. |
| 114 | Y | NATS ANTENNA AMP. |
| 115 | W | NATS ANTENNA AMP. |
| 116 | BG | ROOM ANT 1 - |
| 117 | GR | ROOM ANT 1 + |
| 118 | SB | PASSENGER DOOR ANT - |
| 119 | P | PASSENGER DOOR ANT + |
| 120 | BR | RRIVER DOOR ANT + |

| Connector No. | M87 |
|---|---|
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Type | TH40FGY-NH |




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 41 | V | STEERING LOCK UNIT POWER SUPPLY |
| 42 | LA/G | TURN SIG LH (SIDE) |
| 43 | LA/Y | TURN SIG RH (SIDE) |
| 44 | P | INTERIOR ROOM LAMP RELAY CONT |
| 45 | R | CAN-L |
| 46 | L | CAN-H |
| 47 | G | LIGHT & RAIN SENSOR |
| 48 | L | CAN-H |
| 49 | R | CAN-L |
| 50 | BG | DOOR LOCK SW |
| 51 | Y | HAZARD SW |
| 56 | P | DONGLE |
| 57 | L | CVT SHIFT SELECT (DETENT SW) PWR |
| 60 | R | HEADLAMP WASHER SW |
| 63 | G | POWER WINDOW RELAY CON |
| 64 | LA/R | REAR WINDOW DEFOGGER RELAY CONT |
| 65 | BR | ACC RELAY CONT |
| 67 | Y | IGN RELAY (F/B) CONT OUTPUT |
| 68 | LA/W | BLOWER RELAY CONT |
| 73 | LG | COMBI SW INPUT 5 |
| 74 | Y | COMBI SW OUTPUT 5 |
| 75 | BG | SECURITY IND LAMP CONT |
| 76 | G | COMBI SW INPUT 3 |
| 77 | GR | COMBI SW INPUT 4 |
| 78 | V | COMBI SW INPUT 1 |
| 79 | W | COMBI SW INPUT 2 |
| 80 | SB | DOOR UNLOCK SW |

| Connector No. | M324 |
|---|---|
| Connector Name | CVT SHIFT SELECTOR |
| Connector Type | TH16MW-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 | L/W | - |
| 12 | O | - |
| 13 | L/G | - |

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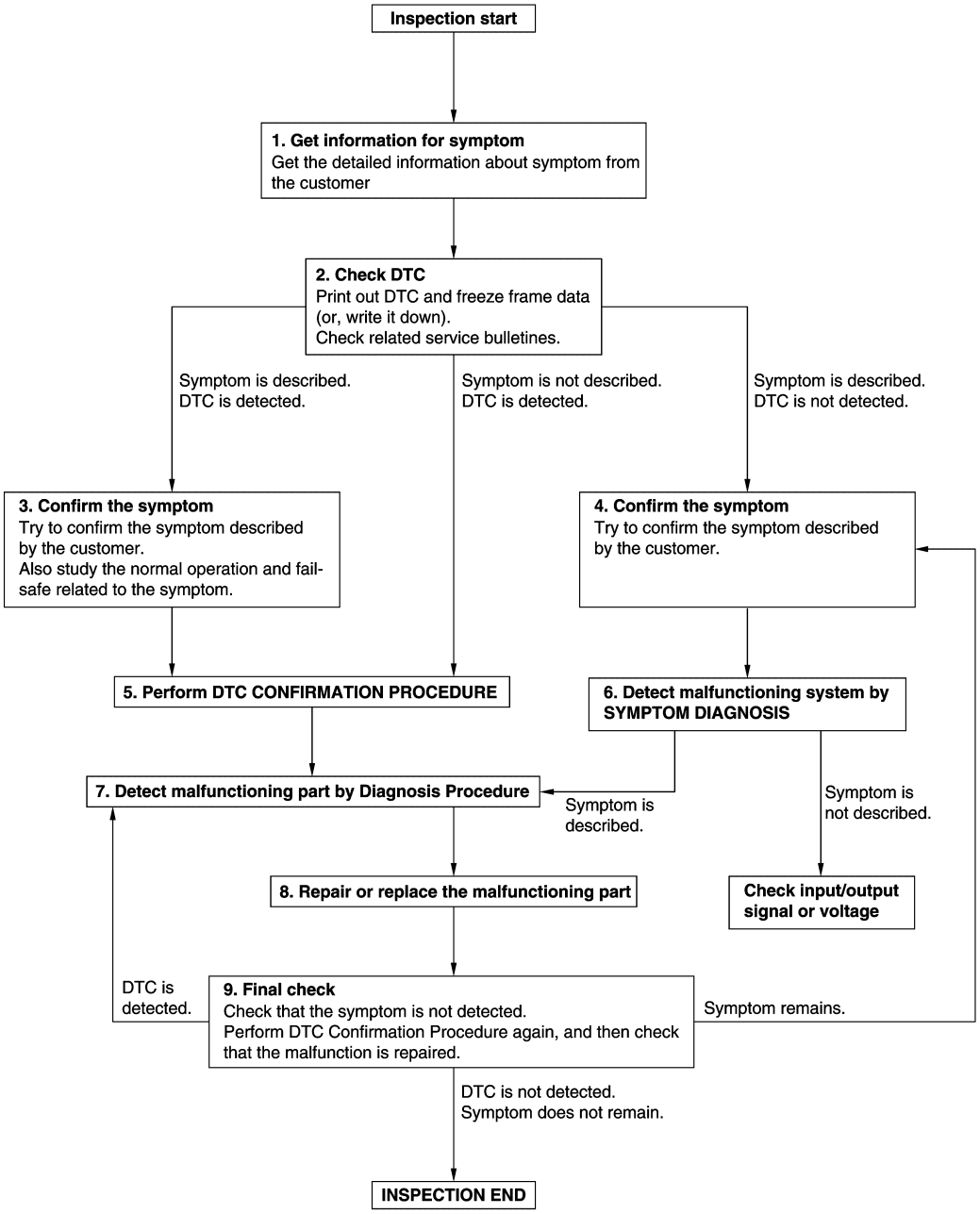
# BASIC INSPECTION

## DIAGNOSIS AND REPAIR WORK FLOW

### Work Flow

INFOID:0000000010741742

#### OVERALL SEQUENCE

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#### DETAILED FLOW

## 1.GET INFORMATION ABOUT SYMPTOM

Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurs).

>> GO TO 2.

## 2.CHECK DTC

1. Check DTC for BCM and IPDM E/R.
2. Perform the following procedure if DTC is displayed.
- Record DTC and freeze frame data (Print them out with CONSULT.)
- Erase DTC.
- Study the relationship between the cause detected by DTC and the symptom described by the customer.
3. Check related service bulletins for information.

Are any symptoms described and any DTC detected?

Symptom is described, DTC is displayed>>GO TO 3.
Symptom is described, DTC is not displayed>>GO TO 4.
Symptom is not described, DTC is displayed>>GO TO 5.

## 3.CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.
Connect CONSULT to the vehicle in the “DATA MONITOR” mode and check real time diagnosis results.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

## 4.CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.
Connect CONSULT to the vehicle in the “DATA MONITOR ” mode and check real time diagnosis results.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

## 5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC Confirmation Procedure for the displayed DTC, and then check that DTC is detected again.
At this time, always connect CONSULT to the vehicle, and check diagnostic results in real time.
If two or more DTCs are detected, refer to BCS-77, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

**NOTE:**
Perform Component Function Check if DTC Confirmation Procedure is not included in Service Manual. This simplified check procedure is an effective alternative, although DTC cannot be detected during this check.
If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC Confirmation Procedure.

Is DTC detected?

YES >> GO TO 7.
NO >> Refer to GI-44, "Intermittent Incident".

## 6.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

Detect malfunctioning system according to SYMPTOM DIAGNOSIS based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

>> GO TO 7.

## 7.DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

**NOTE:**
The Diagnostic Procedure described based on open circuit inspection. A short circuit inspection is also required for the circuit check in the Diagnostic Procedure.

Is malfunctioning part detected?

YES >> GO TO 8.
NO >> Check voltage of related BCM terminals using CONSULT.

## 8. REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnostic Procedure again after repair and replacement.
3. Check DTC. If DTC is displayed, erase it.

>> GO TO 9.

## 9. FINAL CHECK

When DTC was detected in step 2, perform DTC Confirmation Procedure or Component Function Check again, and then check that the malfunction is repaired securely.
When symptom was described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Does the symptom reappear?

YES (DTC is detected)>>GO TO 7.
YES (Symptom remains)>>GO TO 6.
NO >> INSPECTION END

# PROCEDURE FOR TEMPORARILY DISABLING THE IGNITION BATTERY SAVER SYSTEM

## Description

INFOID:0000000010741743

The ignition battery saver system can be temporarily disabled, without using CONSULT, to prevent it from functioning when performing trouble diagnosis.

## Work Procedure

INFOID:0000000010741744

1. Enter the vehicle carrying a registered Intelligent Key.
2. Place the ignition switch in the ACC position by operating the push-button ignition switch without depressing the brake pedal.
3. Press and hold the push button ignition switch continuously for ten seconds.
4. Check that the buzzer in the combination meter sounds for two seconds.
5. Operation is completed.
   **NOTE:**
   When the ignition switch is placed in any position other than ON, the ignition battery saver system is activated again.

# DTC/CIRCUIT DIAGNOSIS

## B261A PUSH-BUTTON IGNITION SWITCH

### DTC Description

INFOID:0000000010741745

#### DTC DETECTION LOGIC

| DTC No. | CONSULT screen items (Trouble diagnosis content) | DTC detecting condition |
|---|---|---|
| B261A-00 | PUSH-BTN IGN SW (Push-button ignition switch) | The following signal status that BCM receives are compared, and it do not match for 1 second or more.<br>• Push-button Ignition switch (push switch) signal<br>• Push-button Ignition switch (push switch) status signal (CAN) |

#### POSSIBLE CAUSE

- Harness or connectors
  [Push-button ignition switch (push switch) circuit is open or shorted.]
- BCM
- IPDM E/R

#### FAIL-SAFE

—

#### DTC CONFIRMATION PROCEDURE

**1.** CHECK DTC PRIORITY

If DTC B261A is displayed with DTC 1000 or 1010, first perform the trouble diagnosis for DTC U1000 or U1010.

Is DTC detected?

YES >> Perform diagnosis of applicable. U1000: Refer to BCS-110, "DTC Description". U1010: Refer to BCS-111, "DTC Description".
NO >> GO TO 2.

**2.** PERFORM DTC CONFIRMATION PROCEDURE

1. Press push-button ignition switch (push switch) under the following conditions, and wait for 1 second or more.
- Shift position is in the P position
- Do not depress brake pedal
2. Check “Self-diagnosis result” of BCM with CONSULT.

Is DTC detected?

YES >> Refer to PCS-101, "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:0000000010741746

**1.** CHECK PUSH-BUTTON IGNITION SWITCH (PUSH SWITCH) OUTPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect push-button ignition switch connector and IPDM E/R connector.
3. Check voltage between push-button ignition switch harness connector and ground.

| (+) | | (–) | Voltage |
|---|---|---|---|
| Push-button Ignition switch | | | |
| Connector | Terminal | | |
| M16 | 8 | Ground | 9 – 16 V |

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

## 2. CHECK PUSH-BUTTON IGNITION SWITCH CIRCUIT (BCM)

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector and push-button ignition switch harness connector.

| BCM | | Push-button Ignition switch | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M86 | 101 | M16 | 8 | Existed |

3. Check continuity between push-button ignition switch harness connector and ground.

| Push-button Ignition switch | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M16 | 8 | | Not existed |

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-121, "Removal and Installation".
NO >> Repair or replace harness.

## 3. CHECK PUSH-BUTTON IGNITION SWITCH (PUSH SWITCH) OUTPUT SIGNAL (IPDM E/R)

1. Disconnect BCM connector.
2. Connect IPDM E/R connector.
3. Check voltage between IPDM E/R harness connector and ground.

| (+) | | (–) | Voltage |
|---|---|---|---|
| IPDM E/R | | | |
| Connector | Terminal | | |
| E12 | 38 | Ground | 6 – 16 V |

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-60, "Removal and Installation".
NO >> GO TO 4.

## 4. CHECK PUSH-BUTTON IGNITION SWITCH (PUSH SWITCH) CIRCUIT (IPDM E/R)

1. Check continuity between IPDM E/R harness connector and push-button ignition switch harness connector.

| IPDM E/R | | Push-button Ignition switch | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E12 | 38 | M16 | 8 | Existed |

2. Check continuity between push-button ignition switch harness connector and ground.

| Push-button Ignition switch | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M16 | 8 | | Not existed |

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace harness.

## 5. CHECK INTERMITTENT INCIDENT

Refer to GI-44, "Intermittent Incident".

>> INSPECTION END

# B26F1 IGNITION RELAY

## DTC Description

INFOID:0000000010741747

### DTC DETECTION LOGIC

| DTC No. | CONSULT screen items (Trouble diagnosis content) | DTC detecting condition |
|---|---|---|
| B26F1-00 | IGN RELAY OFF (Ignition relay off) | BCM transmits the ignition relay control signal (ON) or ignition switch ON signal (ON) (CAN), but does not receives ignition switch ON signal (ON) (CAN) from IPDM E/R. |

### POSSIBLE CAUSE

- Harness or connectors
  (Ignition relay circuit is open)
- BCM
- IPDM E/R

### FAIL-SAFE

Inhibit engine cranking

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON, and wait for 2 seconds or more.
2. Check “Self-diagnosis result” with CONSULT.

Is DTC detected?

YES >> Refer to PCS-103, "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:0000000010741748

#### 1.CHECK IPDM E/R SELF-DIAGNOSTIC RESULT

1. Turn ignition switch ON.
2. Erase the DTC of IPDM E/R.
3. Turn ignition switch OFF.
4. Turn ignition switch ON and check the DTC again.

Is DTC detected?

YES >> Repair or replace the malfunctioning part. Refer to PCS-38, "DTC Index".
NO >> GO TO 2.

#### 2.CHECK IGNITION RELAY CONTROL SIGNAL

1. Turn ignition switch OFF.
2. Check voltage between BCM harness connector and ground.

| (+) | | (–) | Condition | | Voltage |
|---|---|---|---|---|---|
| BCM | | | | | |
| Connector | Terminal | | | | |
| M87 | 67 | Ground | Ignition switch | ON | 0 – 0.5 V |

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 3.

#### 3.CHECK IGNITION RELAY CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connectors.
3. Check continuity between BCM harness connector and fuse block (J/B) harness connector.

| BCM | | Fuse block (J/B) | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M87 | 67 | M3 | 3C | Existed |

4. Check continuity between BCM harness connector and ground.

| BCM | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M87 | 67 | Ground | Not existed |

Is the inspection result normal?

YES >> Replace ignition relay.
NO >> Repair or replace harness.

## 4.CHECK IGNITION RELAY

Check ignition relay. Refer to PCS-104, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Replace ignition relay.

## 5.REPLACE IPDM E/R

1. Replace IPDM E/R. Refer to PCS-60, "Removal and Installation".
2. Turn ignition switch ON and check the DTC again.

Is DTC "B26F1-00" displayed?

YES >> Replace BCM. Refer to BCS-121, "Removal and Installation".
NO >> INSPECTION END.

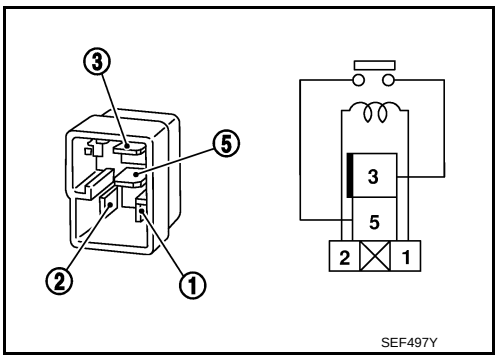
# Component Inspection

INFOID:0000000010741749

## 1.CHECK IGNITION RELAY

1. Turn ignition switch OFF.
2. Remove ignition relay.
3. Check continuity between ignition relay terminals.

| Terminal | | Condition | Continuity |
|---|---|---|---|
| Ignition relay | | | |
| ③ | ⑤ | 12 V direct current supply between terminals ① and ②. | Existed |
| | | No current supply | Not existed |




Is the inspection result normal?

YES >> INSPECTION END.
NO >> Replace ignition relay.

# B26F2 IGNITION RELAY

## DTC Description

INFOID:0000000010741750

### DTC DETECTION LOGIC

| DTC No. | CONSULT screen items (Trouble diagnosis content) | DTC detecting condition |
|---|---|---|
| B26F2-00 | IGN RELAY ON (Ignition relay on) | BCM transmits the ignition relay control signal (OFF) or ignition switch ON signal (OFF) (CAN), but does not receives ignition switch ON signal (OFF) (CAN) from IPDM E/R. |

### POSSIBLE CAUSE

- Harness or connectors
  (Ignition relay circuit is short)
- BCM
- IPDM E/R

### FAIL-SAFE

Inhibit engine cranking

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON, and wait for 2 seconds or more.
2. Check “Self-diagnosis result” with CONSULT.

Is DTC detected?

YES >> Refer to PCS-105, "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:0000000010741751

#### 1.CHECK IPDM E/R SELF-DIAGNOSTIC RESULT

1. Turn ignition switch ON.
2. Erase the DTC of IPDM E/R.
3. Turn ignition switch OFF.
4. Turn ignition switch ON and check the DTC again.

Is DTC detected?

YES >> Repair or replace the malfunctioning part. Refer to PCS-38, "DTC Index".
NO >> GO TO 2.

#### 2.CHECK IGNITION RELAY CONTROL SIGNAL

1. Turn ignition switch OFF.
2. Check voltage between BCM harness connector and ground.

| (+) | | (–) | Condition | | Voltage |
|---|---|---|---|---|---|
| BCM | | | | | |
| Connector | Terminal | | | | |
| M87 | 67 | Ground | Ignition switch | ON | 0 – 0.5 V |

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 3.

#### 3.CHECK IGNITION RELAY CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM and fuse block (J/B) connectors.
3. Check continuity between BCM harness connector and fuse block (J/B) harness connector.

| BCM | | Fuse block (J/B) | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M87 | 67 | M3 | 3C | Existed |

4. Check continuity between BCM harness connector and ground.

| BCM | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M87 | 67 | Ground | Not existed |

Is the inspection result normal?

YES >> Replace ignition relay.
NO >> Repair or replace harness.

## 4.CHECK IGNITION RELAY

Check ignition relay. Refer to PCS-104, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Replace ignition relay.

## 5.REPLACE IPDM E/R

1. Replace IPDM E/R. Refer to PCS-60, "Removal and Installation".
2. Turn ignition switch ON and check the DTC again.

Is DTC "B26F2-00" displayed?

YES >> Replace BCM. Refer to BCS-121, "Removal and Installation".
NO >> INSPECTION END.

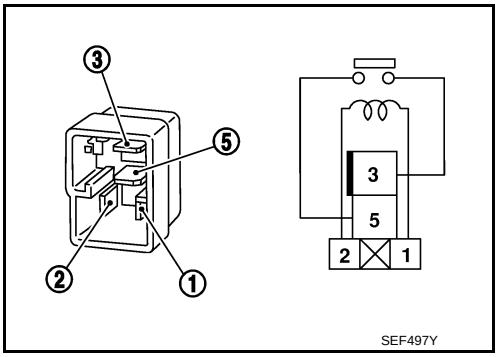
# Component Inspection

INFOID:0000000010741752

## 1.CHECK IGNITION RELAY

1. Turn ignition switch OFF.
2. Remove ignition relay.
3. Check continuity between ignition relay terminals.

| Terminal | | Condition | Continuity |
|---|---|---|---|
| Ignition relay | | | |
| ③ | ⑤ | 12 V direct current supply between terminals ① and ②. | Existed |
| | | No current supply | Not existed |




Is the inspection result normal?

YES >> INSPECTION END.
NO >> Replace ignition relay.

# ACCESSORY RELAY

## Diagnosis Procedure

INFOID:0000000010741753

### 1.CHECK ACCESSORY RELAY POWER SUPPLY

1. Turn ignition switch OFF.
2. Remove accessory relay.
3. Check voltage between accessory relay connector and ground.

| (+) Fuse block (J/B) | (–) | Voltage |
|---|---|---|
| Accessory relay (Upstream side of relay excitation coil circuit) | Ground | Battery voltage |

Is the inspection normal?

YES >> GO TO 3.
NO >> GO TO 2.

### 2.CHECK ACCESSORY RELAY POWER SUPPLY CIRCUIT 1

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector and accessory relay connector.

| Fuse block (J/B) | BCM | | Continuity |
|---|---|---|---|
| | Connector | Terminal | |
| Accessory relay (Downstream side of relay excitation coil circuit) | M87 | 65 | Existed |

3. Check continuity between accessory relay connector and ground.

| Fuse block (J/B) | – | Continuity |
|---|---|---|
| Accessory relay (Downstream side of relay excitation coil circuit | Ground | Not existed |

Is the inspection normal?

YES >> Replace BCM. Refer to BCS-121, "Removal and Installation".
NO >> Repair or replace harness.

### 3.CHECK ACCESSORY RELAY GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between accessory relay connector and ground.

| (+) Fuse block (J/B) | — | Continuity |
|---|---|---|
| Accessory relay (Downstream side of relay excitation coil circuit) | Ground | Existed |

Is the inspection normal?

YES >> GO TO 4.
NO >> Repair or replace harness.

### 4.CHECK ACCESSORY RELAY POWER SUPPLY CIRCUIT 2

Check voltage between accessory relay connector and ground.

| (+) Fuse block (J/B) | — | Voltage |
|---|---|---|
| Accessory relay (Upstream side of relay contact circuit) | Ground | Battery voltage |

Is the inspection normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

## 5.CHECK ACCESSORY RELAY

Check accessory relay. Refer to PCS-108, "Component Inspection".

Is the inspection normal?

YES >> INSPECTION END.
NO >> Replace accessory relay.

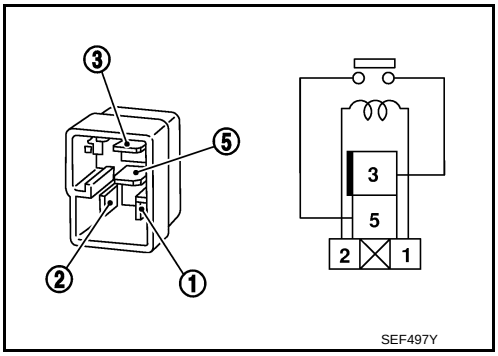
# Component Inspection

INFOID:0000000010741754

## 1.CHECK ACCESSORY RELAY

1. Turn ignition switch OFF.
2. Remove accessory relay.
3. Check continuity between accessory relay terminals.

| Terminal | | Condition | Continuity |
|---|---|---|---|
| Accessory relay | | | |
| ③ | ⑤ | 12 V direct current supply between terminals ① and ②. | Existed |
| | | No current supply | Not existed |




Is the inspection result normal?

YES >> INSPECTION END.
NO >> Replace accessory relay.

# POWER SUPPLY AND GROUND CIRCUIT

## Diagnosis Procedure

INFOID:0000000010741755

### 1.CHECK FUNCTION

1. Turn ignition switch OFF.
2. Disconnect audio unit or NAVI control unit connector.
3. Turn ignition switch ON.
4. Select "INTELLIGENT KEY" of "BCM" using CONSULT.
5. Select "AUTO ACC 2" in "ACTIVE TEST" mode.
6. Check continuity between audio unit or NAVI control unit harness connector and ground.

Without NAVI models

| (+) | | (–) | Voltage (Approx.) |
|---|---|---|---|
| Audio unit | | | |
| Connector | Terminal | | |
| M47 | 45 | Ground | 3.15 V |

With NAVI models

| (+) | | (–) | Voltage (Approx.) |
|---|---|---|---|
| NAVI control unit | | | |
| Connector | Terminal | | |
| M27 | 7 | Ground | 3.15 V |

Is the inspection normal?

YES >> Refer to GI-44, "Intermittent Incident".
NO >> GO TO 2.

### 2.CHECK BCM OUTPUT CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check continuity between BCM harness connector and audio unit or NAVI control unit connector.

Without NAVI models

| BCM | | Audio unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M86 | 106 | M47 | 45 | Existed |

With NAVI models

| BCM | | NAVI control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M86 | 106 | M27 | 7 | Existed |

4. Check continuity between BCM harness connector and ground.

| BCM | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M86 | 106 | Ground | Not existed |

Is the inspection normal?

YES >> Replace BCM. Refer to BCS-121, "Removal and Installation".
NO >> Repair or replace harness.

# PUSH-BUTTON IGNITION SWITCH

## Component Function Check

INFOID:0000000010741756

### 1.CHECK FUNCTION

1. Select “INTELLIGENT KEY” in “BCM” using CONSULT.
2. Select “PUSH SW” in “Data Monitor” mode with CONSULT.
3. Check that the function operates normally according to the following conditions.

| Test item | Condition | Status |
|---|---|---|
| PUSH SW | Push-button ignition switch is pressed | ON |
| | Push-button ignition switch is not pressed | OFF |

Is the indication normal?

YES >> INSPECTION END.
NO >> Refer to PCS-110, "Diagnosis Procedure".

## Diagnosis Procedure

INFOID:0000000010741757

### 1.CHECK PUSH-BUTTON IGNITION SWITCH OUTPUT SIGNAL 1

1. Turn ignition switch OFF.
2. Disconnect push-button ignition switch connector and IPDM E/R connector.
3. Check voltage between push-button ignition switch harness connector and ground.

| (+) | | (–) | Voltage |
|---|---|---|---|
| Push-button ignition switch | | | |
| Connector | Terminal | | |
| M16 | 8 | Ground | 9 – 16 V |

Is the inspection result normal?

YES >> GO TO 3.
NO >> GO TO 2.

### 2.CHECK PUSH-BUTTON IGNITION SWITCH CIRCUIT 1

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector and push-button ignition switch harness connector.

| BCM | | Push-button ignition switch | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M86 | 101 | M16 | 8 | Existed |

3. Check continuity between BCM harness connector and ground.

| BCM | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M86 | 101 | | Not existed |

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-121, "Removal and Installation".
NO >> Repair or replace harness.

### 3.CHECK PUSH-BUTTON IGNITION SWITCH OUTPUT SIGNAL 2

1. Disconnect BCM connector.
2. Connect IPDM E/R connector.
3. Check voltage between IPDM E/R harness connector and ground.

| (+) | | (–) | Voltage |
|---|---|---|---|
| IPDM E/R | | | |
| Connector | Terminal | | |
| E12 | 38 | Ground | 6 – 16 V |

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

## 4. CHECK PUSH-BUTTON IGNITION SWITCH CIRCUIT 2

1. Check continuity between IPDM E/R harness connector and push-button ignition switch harness connector.

| IPDM E/R | | Push-button ignition switch | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E12 | 38 | M16 | 8 | Existed |

2. Check continuity between IPDM E/R harness connector and ground.

| IPDM E/R | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E12 | 38 | | Not existed |

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-60, "Removal and Installation".
NO >> Repair or replace harness.

## 5. CHECK PUSH-BUTTON IGNITION SWITCH GROUND CIRCUIT

Check continuity between push-button ignition switch harness connector and ground.

| Push-button ignition switch | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M16 | 4 | | Existed |

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace harness.

## 6. CHECK PUSH-BUTTON IGNITION SWITCH

Refer to PCS-111, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace push-button ignition switch. Refer to PCS-116, "Removal and Installation".

## 7. CHECK INTERMITTENT INCIDENT

Refer to GI-44, "Intermittent Incident".

>> INSPECTION END

# Component Inspection

INFOID:0000000010741758

## 1. CHECK PUSH-BUTTON IGNITION SWITCH

1. Turn ignition switch OFF.
2. Disconnect push-button ignition switch connector.
3. Check continuity between push-button ignition switch terminals.

| Push-button ignition switch | | Condition | Continuity |
|---|---|---|---|
| Terminal | | | |
| 4 | 8 | Pressed | Existed |
| | | Not pressed | Not existed |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace push-button ignition switch. Refer to PCS-116, "Removal and Installation".

# SYMPTOM DIAGNOSIS

## PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE

### Diagnosis Procedure

INFOID:0000000010741759

**1.** PERFORM WORK SUPPORT

Perform “INSIDE ANT DIAGNOSIS” on Work Support of “INTELLIGENT KEY”.
Refer to DLK-75, "INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY) (With Super Lock)".

>> GO TO 2.

**2.** PERFORM SELF-DIAGNOSIS RESULT

Perform Self-Diagnosis Result of “BCM”.

Is DTC detected?

YES >> Refer to BCS-78, "DTC Index".
NO >> GO TO 3.

**3.** CHECK PUSH-BUTTON IGNITION SWITCH

Check push-button ignition switch.
Refer to PCS-110, "Component Function Check".

Is the operation normal?

YES >> GO TO 4.
NO >> Repair or replace malfunctioning parts.

**4.** REPLACE BCM

Replace BCM. Refer to BCS-121, "Removal and Installation"

Is the inspection result normal?

YES >> INSPECTION END
NO >> Check intermittent incident. Refer to GI-44, "Intermittent Incident".

# ACCESSORY POWER SUPPLY IS NOT SUPPLIED EVEN IF DOOR IS UNLOCKED BY KEY

## ALL SWITCHES AND UNITS

### ALL SWITCHES AND UNITS : Diagnosis Procedure

INFOID:0000000010741760

#### 1.CHECK ACCESSORY RELAY

Check accessory relay
Refer to PCS-107, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

#### 2.CHECK AUTO ACC 2 POWER SUPPLY

Check auto ACC 2 power supply.
Refer to PCS-109, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace the malfunctioning parts.

#### 3.REPLACE BCM

Replace BCM. Refer to BCS-121, "Removal and Installation"

Is the inspection result normal?

YES >> INSPECTION END
NO >> Check intermittent incident. Refer to GI-44, "Intermittent Incident".

## EXCEPT AUDIO/NAVIGATION

### EXCEPT AUDIO/NAVIGATION : Diagnosis Procedure

INFOID:0000000010741761

#### 1.CHECK ACCESSORY RELAY

Check accessory relay
Refer to PCS-107, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

#### 2.REPLACE BCM

Replace BCM. Refer to BCS-121, "Removal and Installation"

Is the inspection result normal?

YES >> INSPECTION END
NO >> Check intermittent incident. Refer to GI-44, "Intermittent Incident".

## AUDIO/NAVIGATION ONLY

### AUDIO/NAVIGATION ONLY : Diagnosis Procedure

INFOID:0000000010741762

#### 1.CHECK AUTO ACC 2 POWER SUPPLY

Check auto ACC 2 power supply.
Refer to PCS-109, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

#### 2.REPLACE BCM

Replace BCM. Refer to BCS-121, "Removal and Installation"

Is the inspection result normal?

YES >> INSPECTION END
NO >> Check intermittent incident. Refer to GI-44, "Intermittent Incident".

# REMOVAL AND INSTALLATION

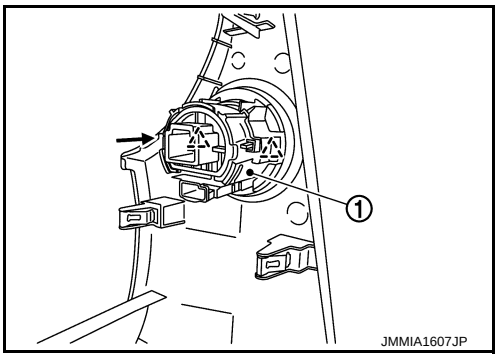
## PUSH-BUTTON IGNITION SWITCH

### Removal and Installation

INFOID:0000000010741763

REMOVAL

1. Remove instrument finisher E. Refer to IP-41, "Removal and Installation".
2. Disconnect push-button ignition switch connector and NATS antenna amp. connector.
3. Disengage NATS antenna amp. fixing pawls and then remove NATS antenna amp. and push-button ignition switch ① as a set from instrument finisher E.

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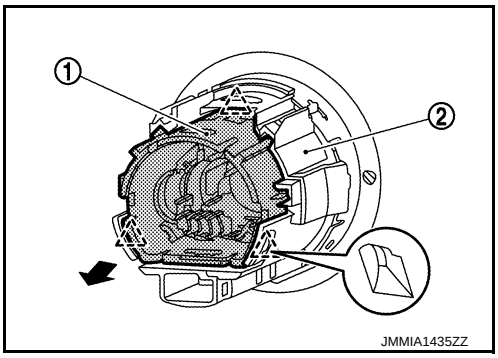
4. Disengage push-button ignition switch fixing pawl and then remove push-button ignition switch ① from NATS antenna amp. ②.

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INSTALLATION

Install in the reverse order of removal.