

# PCS

## SECTION

### POWER CONTROL SYSTEM

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## PRECAUTION

### PRECAUTIONS

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

INFOID:000000007563476

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. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. 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 for Battery Service

INFOID:000000007563477

Before disconnecting the battery, lower both the driver and passenger windows. This will prevent any interference between the window edge and the vehicle when the door is opened/closed. During normal operation, the window slightly raises and lowers automatically to prevent any window to vehicle interference. The automatic window function will not work with the battery disconnected.

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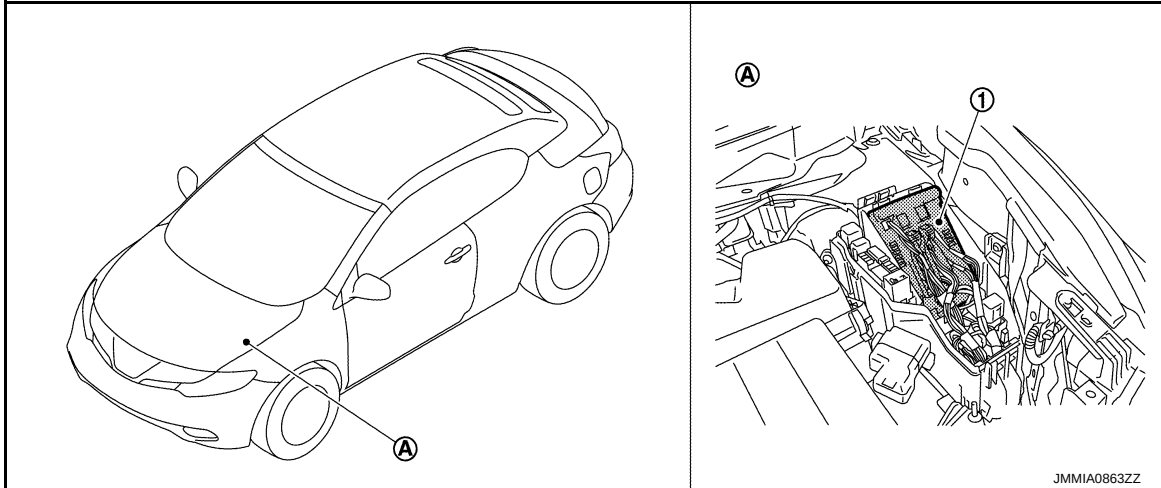
PCS

## SYSTEM DESCRIPTION

### COMPONENT PARTS

#### Component Parts Location

INFOID:000000007563478



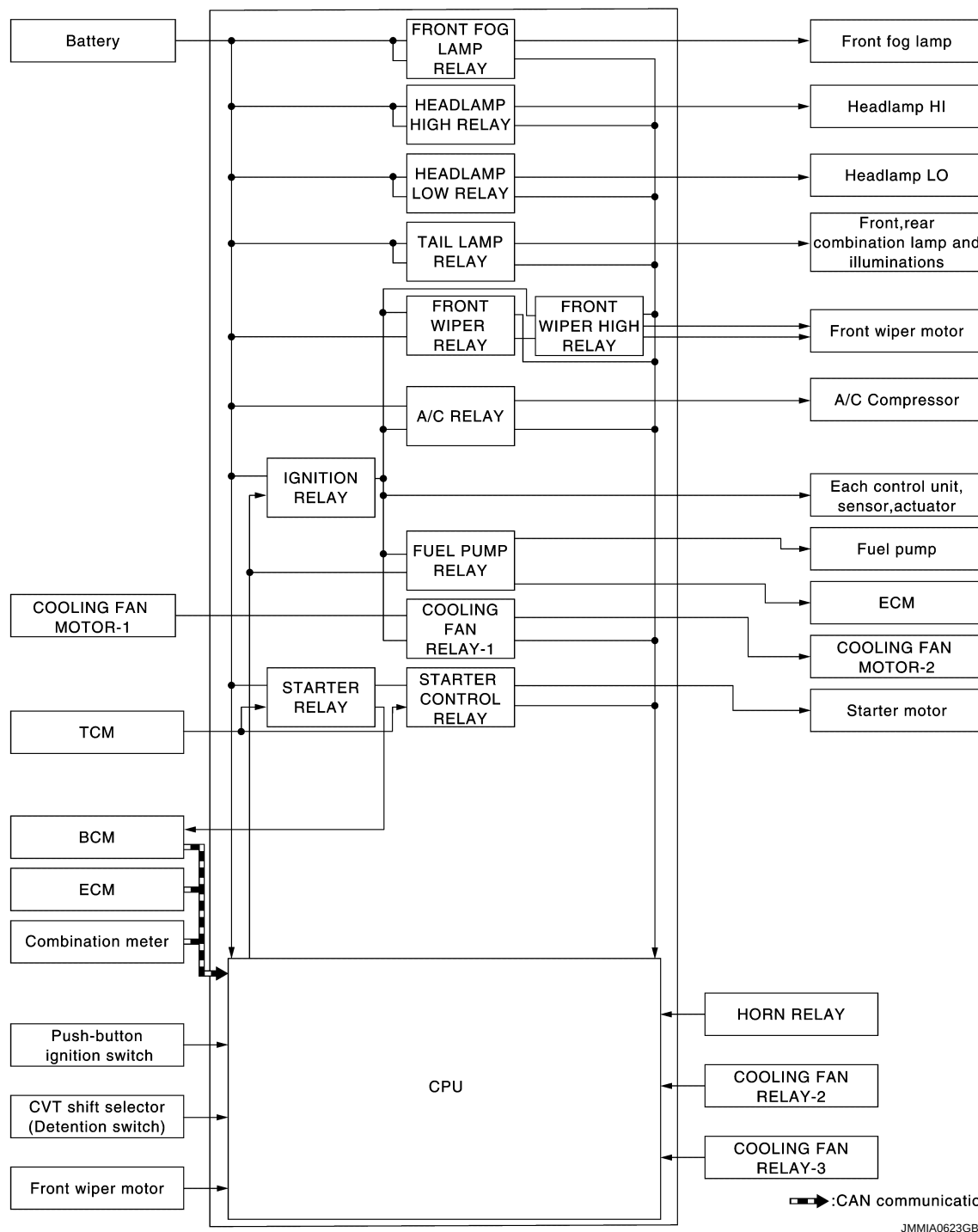
- 1. IPDM E/R
- A. Engine room (LH)

## SYSTEM

## RELAY CONTROL SYSTEM

## RELAY CONTROL SYSTEM : System Diagram

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## RELAY CONTROL SYSTEM : System Description

INFOID:000000007563480

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

# SYSTEM

## < SYSTEM DESCRIPTION >

[IPDM E/R]

| Control relay                                                                                                                   | Input/output                                                                                                      | Transmit unit               | Control part                                                                                                                            | Reference page                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Headlamp low relay</li> <li>Headlamp high relay</li> </ul>                               | <ul style="list-style-type: none"> <li>Low beam request signal</li> <li>High beam request signal</li> </ul>       | BCM (CAN)                   | <ul style="list-style-type: none"> <li>Headlamp low</li> <li>Headlamp high</li> </ul>                                                   | <a href="#">EXL-9</a>                                                                                  |
| Front fog lamp relay                                                                                                            | Front fog light request signal                                                                                    | BCM (CAN)                   | Front fog lamp                                                                                                                          | <a href="#">EXL-13</a>                                                                                 |
| Tail lamp relay                                                                                                                 | Position light request signal                                                                                     | BCM (CAN)                   | <ul style="list-style-type: none"> <li>Parking lamp</li> <li>Side marker lamp</li> <li>License plate lamp</li> <li>Tail lamp</li> </ul> | <a href="#">EXL-12</a>                                                                                 |
|                                                                                                                                 |                                                                                                                   |                             | Illuminations                                                                                                                           | <a href="#">INL-9</a>                                                                                  |
| <ul style="list-style-type: none"> <li>Front wiper relay</li> <li>Front wiper high relay</li> </ul>                             | Front wiper request signal                                                                                        | BCM (CAN)                   | Front wiper motor                                                                                                                       | <a href="#">WW-7</a>                                                                                   |
|                                                                                                                                 | Front wiper stop position signal                                                                                  | Front wiper motor           |                                                                                                                                         |                                                                                                        |
| Horn relay                                                                                                                      | <ul style="list-style-type: none"> <li>Theft warning horn request signal</li> <li>Horn reminder signal</li> </ul> | BCM (CAN)                   | <ul style="list-style-type: none"> <li>Horn (low)</li> <li>Horn (high)</li> </ul>                                                       | <a href="#">SEC-16</a>                                                                                 |
| <ul style="list-style-type: none"> <li>Starter relay<sup>NOTE</sup></li> <li>Starter control relay</li> </ul>                   | Starter control relay signal                                                                                      | BCM (CAN)                   | Starter motor                                                                                                                           | <ul style="list-style-type: none"> <li><a href="#">SEC-9</a></li> <li><a href="#">SEC-9</a></li> </ul> |
|                                                                                                                                 | Starter relay control signal                                                                                      | TCM                         |                                                                                                                                         |                                                                                                        |
| A/C relay                                                                                                                       | A/C compressor request signal                                                                                     | ECM (CAN)                   | A/C compressor (magnet clutch)                                                                                                          | <a href="#">HAC-14</a>                                                                                 |
| <ul style="list-style-type: none"> <li>Cooling fan relay-1</li> <li>Cooling fan relay-2</li> <li>Cooling fan relay-3</li> </ul> | Cooling fan speed request signal                                                                                  | ECM (CAN)                   | <ul style="list-style-type: none"> <li>Cooling fan motor-1</li> <li>Cooling fan motor-2</li> </ul>                                      | <a href="#">EC-40</a>                                                                                  |
| Ignition relay                                                                                                                  | Ignition switch ON signal                                                                                         | BCM (CAN)                   | Ignition relay                                                                                                                          | <a href="#">PCS-28</a>                                                                                 |
|                                                                                                                                 | Vehicle speed signal                                                                                              | Combination meter (CAN)     |                                                                                                                                         |                                                                                                        |
|                                                                                                                                 | Push-button ignition switch signal                                                                                | Push-button ignition switch |                                                                                                                                         |                                                                                                        |

### NOTE:

BCM controls the starter relay.

## RELAY CONTROL SYSTEM : Fail-safe

INFOID:000000007563481

### 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    | <ul style="list-style-type: none"> <li>Turns ON the cooling fan relay-2 and the cooling fan relay-3 when ignition switch is turned ON (Cooling fan operates at HI)</li> <li>Turns OFF the cooling fan relay-1, the cooling fan relay-2 and the cooling fan relay-3 when the ignition switch is turned OFF (Cooling fan does not operate)</li> </ul> |
| A/C compressor | A/C relay OFF                                                                                                                                                                                                                                                                                                                                       |
| Alternator     | Outputs the power generation command signal (PWM signal) 0%                                                                                                                                                                                                                                                                                         |

If No CAN Communication Is Available With BCM

# SYSTEM

## < SYSTEM DESCRIPTION >

[IPDM E/R]

| Control part                                                                                                                                                           | Fail-safe operation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Headlamp                                                                                                                                                               | <ul style="list-style-type: none"> <li>• Turns ON the headlamp low relay when the ignition switch is turned ON</li> <li>• Turns OFF the headlamp low relay when the ignition switch is turned OFF</li> <li>• Headlamp high relay OFF</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                             |
| <ul style="list-style-type: none"> <li>• Parking lamp</li> <li>• License plate lamp</li> <li>• Side maker lamp</li> <li>• Illumination</li> <li>• Tail lamp</li> </ul> | <ul style="list-style-type: none"> <li>• Turns ON the tail lamp relay when the ignition switch is turned ON</li> <li>• Turns OFF the tail lamp relay when the ignition switch is turned OFF</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Front wiper motor                                                                                                                                                      | <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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/AUTO mode and the front wiper motor is operating.</li> <li>• Returns automatically wiper to stop position when ignition switch is turned ON if fail-safe control is activated while front wiper motor is operated and wiper stop in the other than stop position.</li> </ul> |
| Front fog lamp                                                                                                                                                         | Front fog lamp relay OFF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Horn                                                                                                                                                                   | Horn relay OFF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Ignition relay                                                                                                                                                         | The status just before activation of fail-safe is maintained.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Starter motor                                                                                                                                                          | Starter control relay OFF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

### IGNITION RELAY MALFUNCTION DETECTION FUNCTION

- IPDM E/R monitors the voltage at the contact circuit and excitation coil circuit of the ignition relay inside it.
- IPDM E/R judges the ignition relay error if the voltage differs between the contact circuit and the excitation coil circuit.
- If the ignition relay cannot turn OFF due to contact seizure, it activates the tail lamp relay for 10 minutes to alert the user to the ignition relay malfunction when the ignition switch is turned OFF.

| Voltage judgment            |                                     | IPDM E/R judgment         | Operation                                                                                                                                    |
|-----------------------------|-------------------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Ignition relay contact side | Ignition relay excitation coil side |                           |                                                                                                                                              |
| ON                          | ON                                  | Ignition relay ON normal  | —                                                                                                                                            |
| OFF                         | OFF                                 | Ignition relay OFF normal | —                                                                                                                                            |
| ON                          | OFF                                 | Ignition relay ON stuck   | <ul style="list-style-type: none"> <li>• Detects DTC "B2098: IGN RELAY ON"</li> <li>• Turns ON the tail lamp relay for 10 minutes</li> </ul> |
| OFF                         | ON                                  | Ignition relay OFF stuck  | Detects DTC "B2099: IGN RELAY OFF"                                                                                                           |

### FRONT WIPER PROTECTION FUNCTION

IPDM E/R detects front wiper stop position by a front wiper auto stop signal.

When a front wiper stop position signal is in the conditions listed below, IPDM E/R stops power supply to wiper after repeating a front wiper 10 seconds activation and 20 seconds stop five times.

| Ignition switch | Front wiper switch | Front wiper stop position signal                                                     |
|-----------------|--------------------|--------------------------------------------------------------------------------------|
| ON              | OFF                | The front wiper stop position signal (stop position) cannot be input for 10 seconds. |
|                 | ON                 | The front wiper auto stop signal does not change for 10 seconds.                     |

#### NOTE:

This operation status can be confirmed on the IPDM E/R "Data Monitor" that displays "BLOCK" for the item "WIP PROT" while the wiper is stopped.

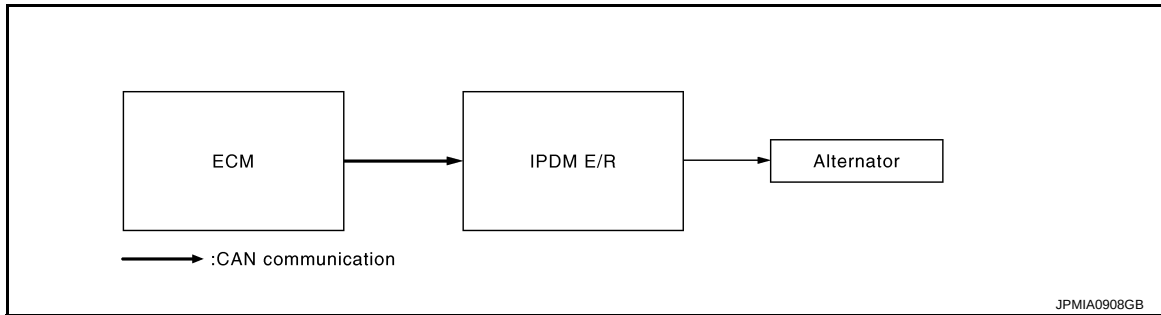
### STARTER MOTOR PROTECTION FUNCTION

IPDM E/R turns OFF the starter control relay to protect the starter motor when the starter control relay remains active for 90 seconds.

### POWER CONTROL SYSTEM

## POWER CONTROL SYSTEM : System Diagram

INFOID:000000007563482



## POWER CONTROL SYSTEM : System Description

INFOID:000000007563483

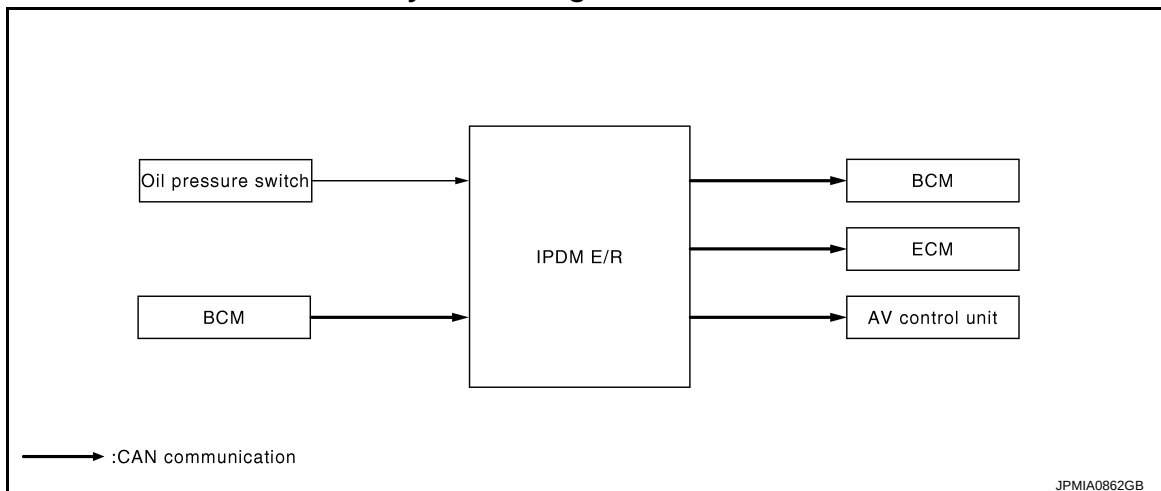
### ALTERNATOR CONTROL

IPDM E/R outputs power generation command signal (PWM signal) to the alternator according to the status of the power generation command value signal received from ECM via CAN communication. Refer to [CHG-8, "POWER GENERATION VOLTAGE VARIABLE CONTROL SYSTEM : System Diagram"](#).

## SIGNAL BUFFER SYSTEM

## SIGNAL BUFFER SYSTEM : System Diagram

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## SIGNAL BUFFER SYSTEM : System Description

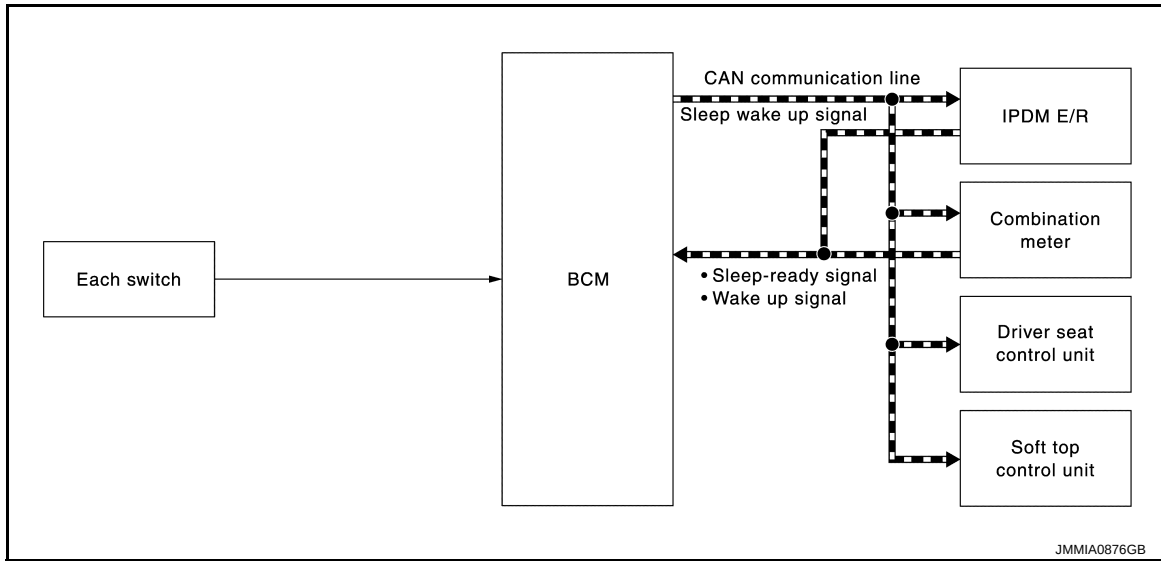
INFOID:000000007563485

- IPDM E/R reads the status of the oil pressure switch and transmits the oil pressure switch signal to BCM via CAN communication. Refer to [MWI-13, "WARNING LAMPS/INDICATOR LAMPS : System Diagram"](#).
- IPDM E/R receives the rear window defogger control signal from BCM via CAN communication and transmits it to ECM and AV control unit via CAN communication. Refer to [DEF-5, "System Diagram"](#).

## POWER CONSUMPTION CONTROL SYSTEM

## POWER CONSUMPTION CONTROL SYSTEM : System Diagram

INFOID:000000007563486



## POWER CONSUMPTION CONTROL SYSTEM : System Description

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### 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
- Switches or relays operating
- 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
- An output request is received from a control unit via CAN communication.

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## DIAGNOSIS SYSTEM (IPDM E/R)

## Diagnosis Description

INFOID:000000007563488

## AUTO ACTIVE TEST

## Description

In auto active test mode, the IPDM E/R sends a drive signal to the following systems to check their operation.

- Oil pressure warning lamp
- Front wiper (LO, HI)
- Parking lamp
- License plate lamp
- Side maker lamp
- Tail lamp
- Front fog lamp
- Headlamp (LO, HI)
- A/C compressor (magnet clutch)
- Cooling fan

## Operation Procedure

**NOTE:**

Never perform auto active test in the following conditions.

- CONSULT is connected
- Passenger door is open

1. Close the hood and lift the wiper arms from the windshield. (Prevent windshield damage due to wiper operation)

**NOTE:**

When auto active test is performed with hood opened, sprinkle water on windshield beforehand.

2. Turn the ignition switch OFF.
3. Turn the ignition switch ON, and within 20 seconds, press the front door switch (driver side) 10 times. Then turn the ignition switch OFF.
4. Turn the ignition switch ON within 10 seconds. After that the horn sounds once and the auto active test starts.
5. After a series of the following operations is repeated 3 times, auto active test is completed.

**NOTE:**

- When auto active test has to be cancelled halfway through test, turn the ignition switch OFF.
- When auto active test is not activated, door switch may be the cause. Check door switch. Refer to [DLK-55, "Component Function Check"](#).

## Inspection in Auto Active Test Mode

When auto active test mode is actuated, the following 6 steps are repeated 3 times.

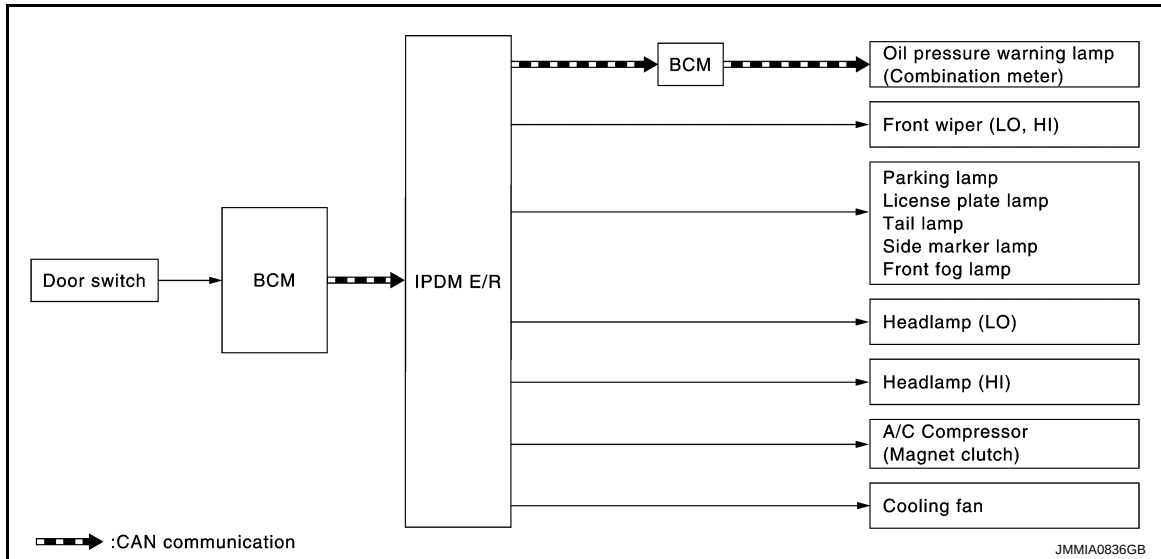
| Operation sequence | Inspection location                                                                                                                                                      | Operation                                                |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| 1                  | Oil pressure warning lamp                                                                                                                                                | Blinks continuously during operation of auto active test |
| 2                  | Front wiper motor                                                                                                                                                        | LO for 5 seconds → HI for 5 seconds                      |
| 3                  | <ul style="list-style-type: none"> <li>• Parking lamp</li> <li>• License plate lamp</li> <li>• Side maker lamp</li> <li>• Tail lamp</li> <li>• Front fog lamp</li> </ul> | 10 seconds                                               |
| 4                  | Headlamp                                                                                                                                                                 | LO ⇔ HI 5 times                                          |
| 5                  | A/C compressor (magnet clutch)                                                                                                                                           | ON ⇔ OFF 5 times                                         |
| 6                  | Cooling fan                                                                                                                                                              | LO for 5 seconds → MID for 3 seconds → HI for 2 seconds  |

# DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R]

Concept of auto active test



- IPDM E/R starts the auto active test with the door switch signals transmitted by BCM via CAN communication. Therefore, the CAN communication line between IPDM E/R and BCM is considered normal if the auto active test starts successfully.
- The auto active test facilitates troubleshooting if any systems controlled by IPDM E/R cannot be operated.

Diagnosis chart in auto active test mode

| Symptom                                                                                                                                                                                                                                                                            | Inspection contents                                                    |     | Possible cause                                                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Any of the following components do not operate <ul style="list-style-type: none"> <li>• Parking lamp</li> <li>• License plate lamp</li> <li>• Side marker lamp</li> <li>• Tail lamp</li> <li>• Front fog lamp</li> <li>• Headlamp (HI, LO)</li> <li>• Front motor wiper</li> </ul> | Perform auto active test.<br>Does the applicable system operate?       | YES | BCM signal input circuit                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                                                    |                                                                        | NO  | <ul style="list-style-type: none"> <li>• Lamp or motor</li> <li>• Lamp or motor ground circuit</li> <li>• Harness or connector between IPDM E/R and applicable system</li> <li>• IPDM E/R</li> </ul>        |
| A/C compressor does not operate                                                                                                                                                                                                                                                    | Perform auto active test.<br>Does the magnet clutch operate?           | YES | <ul style="list-style-type: none"> <li>• A/C amp. signal input circuit</li> <li>• CAN communication signal between A/C amp. and ECM</li> <li>• CAN communication signal between ECM and IPDM E/R</li> </ul> |
|                                                                                                                                                                                                                                                                                    |                                                                        | NO  | <ul style="list-style-type: none"> <li>• Magnet clutch</li> <li>• Harness or connector between IPDM E/R and magnet clutch</li> <li>• IPDM E/R</li> </ul>                                                    |
| Oil pressure warning lamp does not operate                                                                                                                                                                                                                                         | Perform auto active test.<br>Does the oil pressure warning lamp blink? | YES | <ul style="list-style-type: none"> <li>• Harness or connector between IPDM E/R and oil pressure switch</li> <li>• Oil pressure switch</li> <li>• IPDM E/R</li> </ul>                                        |
|                                                                                                                                                                                                                                                                                    |                                                                        | NO  | <ul style="list-style-type: none"> <li>• CAN communication signal between IPDM E/R and BCM</li> <li>• CAN communication signal between BCM and combination meter</li> <li>• Combination meter</li> </ul>    |

# DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R]

| Symptom                      | Inspection contents                                        |     | Possible cause                                                                                                                                                                                                                                             |
|------------------------------|------------------------------------------------------------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cooling fan does not operate | Perform auto active test.<br>Does the cooling fan operate? | YES | <ul style="list-style-type: none"> <li>ECM signal input circuit</li> <li>CAN communication signal between ECM and IPDM E/R</li> </ul>                                                                                                                      |
|                              |                                                            | NO  | <ul style="list-style-type: none"> <li>Harness or connector between IPDM E/R and cooling fan motor</li> <li>Harness or connector between IPDM E/R and cooling fan relay</li> <li>Cooling fan motor</li> <li>Cooling fan relay</li> <li>IPDM E/R</li> </ul> |

## CONSULT Function (IPDM E/R)

INFOID:000000007563489

### APPLICATION ITEM

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

| Diagnosis mode           | Description                                                                             |
|--------------------------|-----------------------------------------------------------------------------------------|
| Ecu Identification       | Allows confirmation of IPDM E/R part number.                                            |
| 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.               |
| Active Test              | IPDM E/R can provide a drive signal to electronic components to check their operations. |
| CAN Diag Support Monitor | The results of transmit/receive diagnosis of CAN communication can be read.             |

### SELF DIAGNOSTIC RESULT

Refer to [PCS-23. "DTC Index"](#).

### DATA MONITOR

Monitor item

| Monitor Item<br>[Unit]           | MAIN SIG-<br>NALS | Description                                                                                         |
|----------------------------------|-------------------|-----------------------------------------------------------------------------------------------------|
| MOTOR FAN REQ<br>[1/2/3/4]       | ×                 | Displays the value of the cooling fan speed request signal received from ECM via CAN communication. |
| AC COMP REQ<br>[Off/On]          | ×                 | Displays the status of the A/C compressor request signal received from ECM via CAN communication.   |
| TAIL&CLR REQ<br>[Off/On]         | ×                 | Displays the status of the position light request signal received from BCM via CAN communication.   |
| HL LO REQ<br>[Off/On]            | ×                 | Displays the status of the low beam request signal received from BCM via CAN communication.         |
| HL HI REQ<br>[Off/On]            | ×                 | Displays the status of the high beam request signal received from BCM via CAN communication.        |
| FR FOG REQ<br>[Off/On]           | ×                 | Displays the status of the front fog light request signal received from BCM via CAN communication.  |
| FR WIP REQ<br>[Stop/1LOW/Low/Hi] | ×                 | Displays the status of the front wiper request signal received from BCM via CAN communication.      |
| WIP AUTO STOP<br>[STOP P/ACT P]  | ×                 | Displays the status of the front wiper auto stop signal judged by IPDM E/R.                         |
| WIP PROT<br>[Off/BLOCK]          | ×                 | Displays the status of the front wiper fail-safe operation judged by IPDM E/R.                      |
| IGN RLY1 -REQ<br>[Off/On]        |                   | Displays the status of the ignition switch ON signal received from BCM via CAN communication.       |
| IGN RLY<br>[Off/On]              | ×                 | Displays the status of the ignition relay judged by IPDM E/R.                                       |
| PUSH SW<br>[Off/On]              |                   | Displays the status of the push-button ignition switch judged by IPDM E/R.                          |

# DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R]

| Monitor Item<br>[Unit]                    | MAIN SIG-<br>NALS | Description                                                                                           |
|-------------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------|
| INTER/NP SW<br>[Off/On]                   |                   | Displays the status of the shift position judged by IPDM E/R.                                         |
| ST RLY CONT<br>[Off/On]                   |                   | Displays the status of the starter relay status signal received from BCM via CAN communication.       |
| IHBT RLY -REQ<br>[Off/On]                 |                   | Displays the status of the starter control relay signal received from BCM via CAN communication.      |
| ST/INHI RLY<br>[Off/ ST ON/INHI ON/UNKWN] |                   | Displays the status of the starter relay and starter control relay judged by IPDM E/R.                |
| DETENT SW<br>[Off/On]                     |                   | Displays the status of the CVT shift selector (detention switch) judged by IPDM E/R.                  |
| S/L RLY -REQ<br>[Off/On]                  |                   | <b>NOTE:</b><br>The item is indicated, but not monitored.                                             |
| S/L STATE<br>[LOCK/UNLOCK/UNKWN]          |                   | <b>NOTE:</b><br>The item is indicated, but not monitored.                                             |
| DTRL REQ<br>[Off/On]                      |                   | <b>NOTE:</b><br>The item is indicated, but not monitored.                                             |
| OIL P SW<br>[Open/Close]                  |                   | Displays the status of the oil pressure switch judged by IPDM E/R.                                    |
| HOOD SW<br>[Off/On]                       |                   | <b>NOTE:</b><br>The item is indicated, but not monitored.                                             |
| HL WASHER REQ<br>[Off/On]                 |                   | <b>NOTE:</b><br>The item is indicated, but not monitored.                                             |
| THFT HRN REQ<br>[Off/On]                  |                   | Displays the status of the theft warning horn request signal received from BCM via CAN communication. |
| HORN CHIRP<br>[Off/On]                    |                   | Displays the status of the horn reminder signal received from BCM via CAN communication.              |
| CRNRNG LMP REQ<br>[Off/On]                |                   | <b>NOTE:</b><br>The item is indicated, but not monitored.                                             |

## ACTIVE TEST

Test item

| Test item        | Operation | Description                                                  |
|------------------|-----------|--------------------------------------------------------------|
| CORNERING LAMP   | Off       | <b>NOTE:</b><br>The item is indicated, but cannot be tested. |
|                  | LH        |                                                              |
|                  | RH        |                                                              |
| HORN             | On        | Operates horn relay for 20 ms.                               |
| FRONT WIPER      | Off       | OFF                                                          |
|                  | Lo        | Operates the front wiper relay.                              |
|                  | Hi        | Operates the front wiper relay and front wiper high relay.   |
| MOTOR FAN        | 1         | OFF                                                          |
|                  | 2         | Operates the cooling fan relay-1.                            |
|                  | 3         | Operates the cooling fan relay-2.                            |
|                  | 4         | Operates the cooling fan relay-2 and cooling fan relay-3.    |
| HEAD LAMP WASHER | On        | <b>NOTE:</b><br>The item is indicated, but cannot be tested. |

## DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R]

| Test item      | Operation | Description                                                                               |
|----------------|-----------|-------------------------------------------------------------------------------------------|
| EXTERNAL LAMPS | Off       | OFF                                                                                       |
|                | TAIL      | Operates the tail lamp relay.                                                             |
|                | Lo        | Operates the headlamp low relay.                                                          |
|                | Hi        | Operates the headlamp low relay and ON/OFF the headlamp high relay at 1 second intervals. |
|                | Fog       | Operates the front fog lamp relay.                                                        |

## ECU DIAGNOSIS INFORMATION

## IPDM E/R

## Reference Value

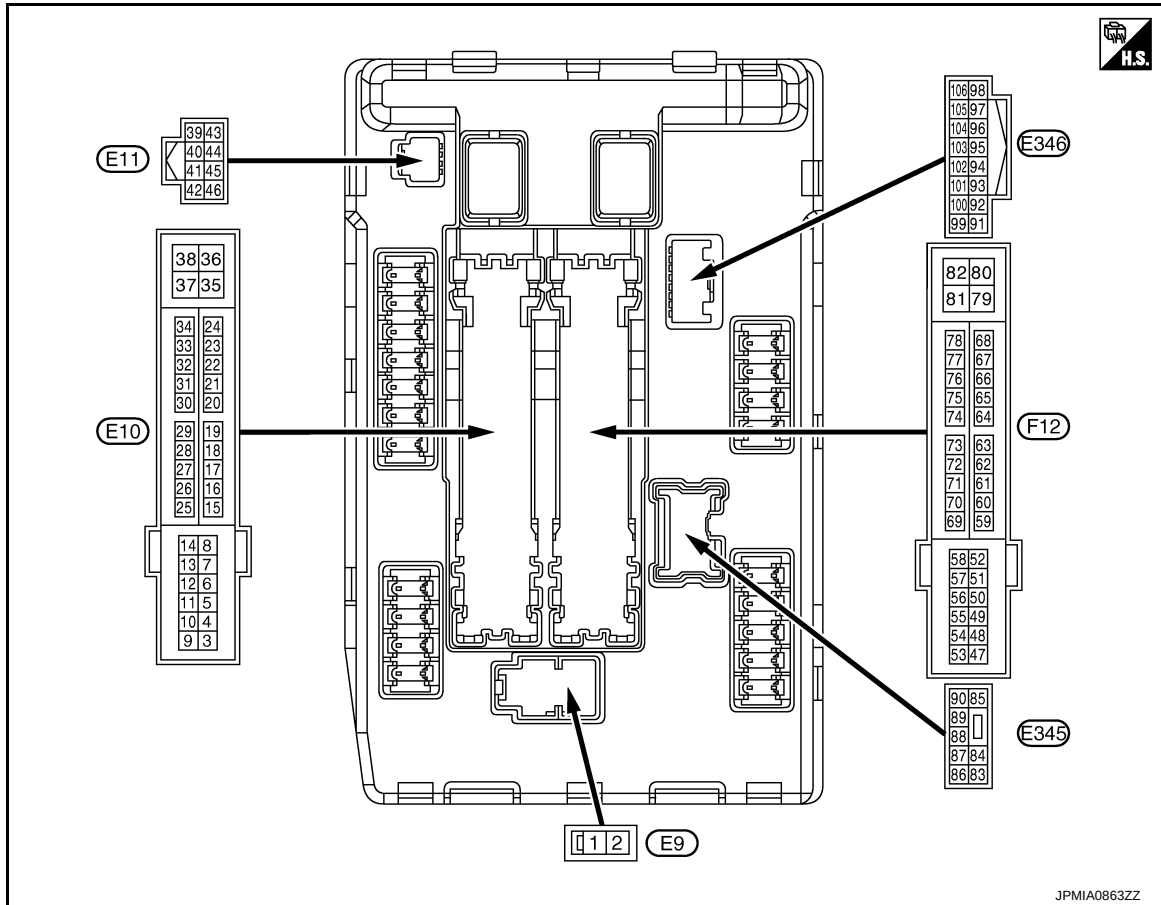
INFOID:000000007563490

## VALUES ON THE DIAGNOSIS TOOL

| Monitor Item  | Condition                                                   |                                                                                                        | Value/Status |
|---------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|--------------|
| MOTOR FAN REQ | Engine idle speed                                           | Changes depending on engine coolant temperature, air conditioner operation status, vehicle speed, etc. | 1/2/3/4      |
| AC COMP REQ   | Engine running                                              | A/C switch OFF                                                                                         | Off          |
|               |                                                             | A/C switch ON<br>(Compressor is operating)                                                             | On           |
| TAIL&CLR REQ  | Lighting switch OFF                                         |                                                                                                        | Off          |
|               | Lighting switch 1ST, 2ND, HI or AUTO (Light is illuminated) |                                                                                                        | On           |
| HL LO REQ     | Lighting switch OFF                                         |                                                                                                        | Off          |
|               | Lighting switch 2ND HI or AUTO (Light is illuminated)       |                                                                                                        | On           |
| HL HI REQ     | Lighting switch 2ND or AUTO (light is illuminated)          | Lighting switch other than HI and PASS                                                                 | Off          |
|               |                                                             | Lighting switch HI or PASS                                                                             | On           |
| FR FOG REQ    | Lighting switch 2ND or AUTO (Light is illuminated)          | Front fog lamp switch OFF                                                                              | Off          |
|               |                                                             | Front fog lamp switch ON                                                                               | On           |
| FR WIP REQ    | Ignition switch ON                                          | Front wiper switch OFF                                                                                 | Stop         |
|               |                                                             | Front wiper switch INT                                                                                 | 1LOW         |
|               |                                                             | Front wiper switch LO                                                                                  | Low          |
|               |                                                             | Front wiper switch HI                                                                                  | Hi           |
| WIP AUTO STOP | Ignition switch ON                                          | Front wiper stop position                                                                              | STOP P       |
|               |                                                             | Any position other than front wiper stop position                                                      | ACT P        |
| WIP PROT      | Ignition switch ON                                          | Front wiper operates normally                                                                          | Off          |
|               |                                                             | Front wiper stops at fail-safe operation                                                               | BLOCK        |
| IGN RLY1 -REQ | Ignition switch OFF or ACC                                  |                                                                                                        | Off          |
|               | Ignition switch ON                                          |                                                                                                        | On           |
| IGN RLY       | Ignition switch OFF or ACC                                  |                                                                                                        | Off          |
|               | Ignition switch ON                                          |                                                                                                        | On           |
| PUSH SW       | Release the push-button ignition switch                     |                                                                                                        | Off          |
|               | Press the push-button ignition switch                       |                                                                                                        | On           |
| INTER/NP SW   | Ignition switch ON                                          | Selector lever in any position other than P or N                                                       | Off          |
|               |                                                             | Selector lever in P or N position                                                                      | On           |
| ST RLY CONT   | Ignition switch ON                                          |                                                                                                        | Off          |
|               | At engine cranking                                          |                                                                                                        | On           |
| IHBT RLY -REQ | Ignition switch ON                                          |                                                                                                        | Off          |
|               | At engine cranking                                          |                                                                                                        | On           |

| Monitor Item   | Condition                                                                                                                                                                            |                                                                                                                                                                    | Value/Status    |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| ST/INHI RLY    | Ignition switch ON                                                                                                                                                                   |                                                                                                                                                                    | Off             |
|                | At engine cranking                                                                                                                                                                   |                                                                                                                                                                    | INHI ON → ST ON |
|                | The status of starter relay or starter control relay cannot be recognized by the battery voltage malfunction, etc. when the starter relay is ON and the starter control relay is OFF |                                                                                                                                                                    | UNKWN           |
| DETENT SW      | Ignition switch ON                                                                                                                                                                   | <ul style="list-style-type: none"> <li>Press the selector button with selector lever in P position</li> <li>Selector lever in any position other than P</li> </ul> | Off             |
|                | Release the selector button with selector lever in P position                                                                                                                        |                                                                                                                                                                    | On              |
| S/L RLY -REQ   | <b>NOTE:</b><br>The item is indicated, but not monitored.                                                                                                                            |                                                                                                                                                                    | Off             |
| S/L STATE      | <b>NOTE:</b><br>The item is indicated, but not monitored.                                                                                                                            |                                                                                                                                                                    | UNLOCK          |
| DTRL REQ       | <b>NOTE:</b><br>The item is indicated, but not monitored.                                                                                                                            |                                                                                                                                                                    | Off             |
| OIL P SW       | Ignition switch OFF, ACC or engine running                                                                                                                                           |                                                                                                                                                                    | Open            |
|                | Ignition switch ON                                                                                                                                                                   |                                                                                                                                                                    | Close           |
| HOOD SW        | <b>NOTE:</b><br>The item is indicated, but not monitored.                                                                                                                            |                                                                                                                                                                    | Off             |
| HL WASHER REQ  | <b>NOTE:</b><br>The item is indicated, but not monitored.                                                                                                                            |                                                                                                                                                                    | Off             |
| THFT HRN REQ   | Not operating                                                                                                                                                                        |                                                                                                                                                                    | Off             |
|                | <ul style="list-style-type: none"> <li>Panic alarm is activated</li> <li>Theft warning alarm is activated</li> </ul>                                                                 |                                                                                                                                                                    | On              |
| HORN CHIRP     | Not operating                                                                                                                                                                        |                                                                                                                                                                    | Off             |
|                | Door locking with Intelligent Key (horn chirp mode)                                                                                                                                  |                                                                                                                                                                    | On              |
| CRNRNG LMP REQ | <b>NOTE:</b><br>The item is indicated, but not monitored.                                                                                                                            |                                                                                                                                                                    | Off             |

## TERMINAL LAYOUT



## PHYSICAL VALUES

| Terminal No.<br>(Wire color) |        | Description                                                     |                  | Condition                                                                                                                                                             |                        | Value<br>(Approx.) |
|------------------------------|--------|-----------------------------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------|
| +                            | -      | Signal name                                                     | Input/<br>Output |                                                                                                                                                                       |                        |                    |
| 1<br>(R)                     | Ground | Battery power supply                                            | Input            | Ignition switch OFF                                                                                                                                                   |                        | Battery voltage    |
| 2<br>(L)                     | Ground | Battery power supply                                            | Input            | Ignition switch OFF                                                                                                                                                   |                        | Battery voltage    |
| 4<br>(LG)                    | Ground | Front wiper LO                                                  | Output           | Ignition<br>switch ON                                                                                                                                                 | Front wiper switch OFF | 0 V                |
|                              |        |                                                                 |                  |                                                                                                                                                                       | Front wiper switch LO  | Battery voltage    |
| 5<br>(Y)                     | Ground | Front wiper HI                                                  | Output           | Ignition<br>switch ON                                                                                                                                                 | Front wiper switch OFF | 0 V                |
|                              |        |                                                                 |                  |                                                                                                                                                                       | Front wiper switch HI  | Battery voltage    |
| 7<br>(GR)                    | Ground | Tail, license plate, side<br>marker lamp and illumina-<br>tions | Output           | Ignition<br>switch ON                                                                                                                                                 | Lighting switch OFF    | 0 V                |
|                              |        |                                                                 |                  |                                                                                                                                                                       | Lighting switch 1ST    | Battery voltage    |
| 10<br>(BR)                   | Ground | ECM relay power supply                                          | Output           | Ignition switch OFF<br>(More than a few seconds after turning<br>ignition switch OFF)                                                                                 |                        | 0 V                |
|                              |        |                                                                 |                  | <ul style="list-style-type: none"> <li>• Ignition switch ON</li> <li>• Ignition switch OFF<br/>(For a few seconds after turning igni-<br/>tion switch OFF)</li> </ul> |                        | Battery voltage    |
| 12<br>(B)                    | Ground | Ground                                                          | —                | Ignition switch ON                                                                                                                                                    |                        | 0 V                |

# IPDM E/R

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

| Terminal No.<br>(Wire color) |        | Description                              |                  | Condition                                                                                                                             |                                                                                                                                                   | Value<br>(Approx.)                                                    |
|------------------------------|--------|------------------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| +                            | -      | Signal name                              | Input/<br>Output |                                                                                                                                       |                                                                                                                                                   |                                                                       |
| 13<br>(SB)                   | Ground | Fuel pump power supply                   | Output           | Approximately 1 second or more after turning the ignition switch ON                                                                   |                                                                                                                                                   | 0 V                                                                   |
|                              |        |                                          |                  | <ul style="list-style-type: none"> <li>Approximately 1 second after turning the ignition switch ON</li> <li>Engine running</li> </ul> |                                                                                                                                                   | Battery voltage                                                       |
| 15<br>(W)                    | Ground | Ignition relay power supply              | Output           | Ignition switch OFF                                                                                                                   |                                                                                                                                                   | 0 V                                                                   |
|                              |        |                                          |                  | Ignition switch ON                                                                                                                    |                                                                                                                                                   | Battery voltage                                                       |
| 16<br>(R)                    | Ground | Front wiper stop position                | Input            | Ignition switch ON                                                                                                                    | Front wiper stop position                                                                                                                         | 0 V                                                                   |
|                              |        |                                          |                  |                                                                                                                                       | Any position other than front wiper stop position                                                                                                 | Battery voltage                                                       |
| 19<br>(Y)                    | Ground | Ignition relay power supply              | Output           | Ignition switch OFF                                                                                                                   |                                                                                                                                                   | 0 V                                                                   |
|                              |        |                                          |                  | Ignition switch ON                                                                                                                    |                                                                                                                                                   | Battery voltage                                                       |
| 20<br>(L)                    | Ground | Ambient sensor ground                    | Output           | Ignition switch ON                                                                                                                    |                                                                                                                                                   | 0 V                                                                   |
| 21<br>(O)                    | Ground | Ambient sensor                           | Input            | Ignition switch ON                                                                                                                    |                                                                                                                                                   | 0 - 4.8 V<br><b>NOTE:</b><br>Changes depending to ambient temperature |
| 22<br>(SB)                   | Ground | Refrigerant pressure sensor ground       | Output           | Engine running                                                                                                                        | <ul style="list-style-type: none"> <li>Warm-up condition</li> <li>Idle speed</li> </ul>                                                           | 0 V                                                                   |
| 23<br>(GR)                   | Ground | Refrigerant pressure sensor              | Output           | Engine running                                                                                                                        | <ul style="list-style-type: none"> <li>Warm-up condition</li> <li>Both A/C switch and blower fan motor switch ON (Compressor operates)</li> </ul> | 1.0 - 4.0 V                                                           |
| 24<br>(G)                    | Ground | Refrigerant pressure sensor power supply | Input            | Ignition switch OFF                                                                                                                   |                                                                                                                                                   | 0 V                                                                   |
|                              |        |                                          |                  | Ignition switch ON                                                                                                                    |                                                                                                                                                   | 5.0 V                                                                 |
| 25<br>(GR)                   | Ground | Ignition relay power supply              | Output           | Ignition switch OFF                                                                                                                   |                                                                                                                                                   | 0 V                                                                   |
|                              |        |                                          |                  | Ignition switch ON                                                                                                                    |                                                                                                                                                   | Battery voltage                                                       |
| 26<br>(Y)                    | Ground | Ignition relay power supply              | Output           | Ignition switch OFF                                                                                                                   |                                                                                                                                                   | 0 V                                                                   |
|                              |        |                                          |                  | Ignition switch ON                                                                                                                    |                                                                                                                                                   | Battery voltage                                                       |
| 27<br>(W)                    | Ground | Ignition relay monitor                   | Input            | Ignition switch OFF or ACC                                                                                                            |                                                                                                                                                   | Battery voltage                                                       |
|                              |        |                                          |                  | Ignition switch ON                                                                                                                    |                                                                                                                                                   | 0 V                                                                   |
| 28<br>(SB)                   | Ground | Push-button ignition switch              | Input            | Press the push-button ignition switch                                                                                                 |                                                                                                                                                   | 0 V                                                                   |
|                              |        |                                          |                  | Release the push-button ignition switch                                                                                               |                                                                                                                                                   | Battery voltage                                                       |
| 30<br>(BR)                   | Ground | Starter relay control                    | Input            | Ignition switch ON                                                                                                                    | Selector lever in any position other than P or N                                                                                                  | 0 V                                                                   |
|                              |        |                                          |                  |                                                                                                                                       | Selector lever P or N                                                                                                                             | Battery voltage                                                       |
| 34<br>(O)                    | Ground | Cooling fan relay-3 control              | Input            | Cooling fan stopped                                                                                                                   |                                                                                                                                                   | Battery voltage                                                       |
|                              |        |                                          |                  | Cooling fan at HI operation                                                                                                           |                                                                                                                                                   | 0 V                                                                   |
| 35<br>(Y)                    | Ground | Cooling fan relay-1 power supply         | Input            | Cooling fan stopped                                                                                                                   |                                                                                                                                                   | Battery voltage                                                       |
|                              |        |                                          |                  | Cooling fan at LO operation                                                                                                           |                                                                                                                                                   | 6.0 V                                                                 |
| 36<br>(G)                    | Ground | Battery power supply                     | Input            | Ignition switch OFF                                                                                                                   |                                                                                                                                                   | Battery voltage                                                       |
| 38<br>(W)                    | Ground | Cooling fan relay-1 power supply         | Output           | Cooling fan not operating                                                                                                             |                                                                                                                                                   | 0 V                                                                   |
|                              |        |                                          |                  | Cooling fan at LO operation                                                                                                           |                                                                                                                                                   | 6.0 V                                                                 |
| 39<br>(P)                    | —      | CAN-L                                    | Input/<br>Output | —                                                                                                                                     |                                                                                                                                                   | —                                                                     |

# IPDM E/R

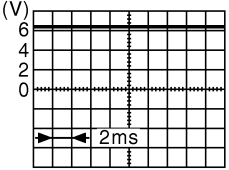
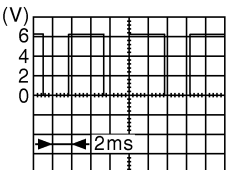
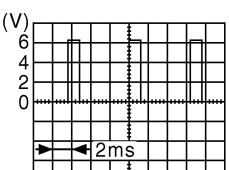
< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

| Terminal No.<br>(Wire color) |        | Description                                    |                  | Condition                                                                                                                                                         |                                                                                                                                                                 | Value<br>(Approx.) |   |
|------------------------------|--------|------------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---|
| +                            | -      | Signal name                                    | Input/<br>Output |                                                                                                                                                                   |                                                                                                                                                                 |                    |   |
| 40<br>(L)                    | —      | CAN-H                                          | Input/<br>Output | —                                                                                                                                                                 |                                                                                                                                                                 | —                  | A |
| 41<br>(B)                    | Ground | Ground                                         | —                | Ignition switch ON                                                                                                                                                |                                                                                                                                                                 | 0 V                | B |
| 42<br>(SB)                   | Ground | Cooling fan relay-2 control                    | Input            | Cooling fan stopped                                                                                                                                               |                                                                                                                                                                 | Battery voltage    | C |
|                              |        |                                                |                  | <ul style="list-style-type: none"> <li>Cooling fan MID operating</li> <li>Cooling fan HI operating</li> </ul>                                                     |                                                                                                                                                                 | 0 V                | D |
| 43<br>(Y)                    | Ground | CVT shift selector<br>(Detention switch)       | Input            | Ignition<br>switch ON                                                                                                                                             | <ul style="list-style-type: none"> <li>Press the selector but-<br/>ton (selector lever P)</li> <li>Selector lever in any po-<br/>sition other than P</li> </ul> | Battery voltage    | E |
|                              |        |                                                |                  |                                                                                                                                                                   | Release the selector but-<br>ton (selector lever P)                                                                                                             | 0 V                | F |
| 44<br>(W)                    | Ground | Horn relay control                             | Input            | The horn is deactivated                                                                                                                                           |                                                                                                                                                                 | Battery voltage    | F |
|                              |        |                                                |                  | The horn is activated                                                                                                                                             |                                                                                                                                                                 | 0 V                | G |
| 45<br>(O)                    | Ground | Horn switch                                    | Input            | The horn is deactivated                                                                                                                                           |                                                                                                                                                                 | Battery voltage    | G |
|                              |        |                                                |                  | The horn is activated                                                                                                                                             |                                                                                                                                                                 | 0 V                | H |
| 46<br>(BR)                   | Ground | Starter relay control                          | Input            | Ignition<br>switch ON                                                                                                                                             | Selector lever in any posi-<br>tion other than P or N                                                                                                           | 0 V                | I |
|                              |        |                                                |                  |                                                                                                                                                                   | Selector lever P or N                                                                                                                                           | Battery voltage    | J |
| 48<br>(W)                    | Ground | A/C relay power supply                         | Output           | Engine<br>running                                                                                                                                                 | A/C switch OFF                                                                                                                                                  | 0 V                | K |
|                              |        |                                                |                  |                                                                                                                                                                   | A/C switch ON<br>(A/C compressor is oper-<br>ating)                                                                                                             | Battery voltage    | L |
| 49<br>(R/B)                  | Ground | ECM relay power supply                         | Output           | Ignition switch OFF<br>(More than a few seconds after turning<br>ignition switch OFF)                                                                             |                                                                                                                                                                 | 0 V                | M |
|                              |        |                                                |                  | <ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Ignition switch OFF<br/>(For a few seconds after turning igni-<br/>tion switch OFF)</li> </ul> |                                                                                                                                                                 | Battery voltage    | N |
| 51<br>(LG)                   | Ground | Ignition relay power supply                    | Output           | Ignition switch OFF                                                                                                                                               |                                                                                                                                                                 | 0 V                | O |
|                              |        |                                                |                  | Ignition switch ON                                                                                                                                                |                                                                                                                                                                 | Battery voltage    | P |
| 52<br>(Y/G)                  | Ground | Ignition relay power supply                    | Output           | Ignition switch OFF                                                                                                                                               |                                                                                                                                                                 | 0 V                | Q |
|                              |        |                                                |                  | Ignition switch ON                                                                                                                                                |                                                                                                                                                                 | Battery voltage    | R |
| 53<br>(R/W)                  | Ground | ECM relay power supply                         | Output           | Ignition switch OFF<br>(More than a few seconds after turning<br>ignition switch OFF)                                                                             |                                                                                                                                                                 | 0 V                | S |
|                              |        |                                                |                  | <ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Ignition switch OFF<br/>(For a few seconds after turning igni-<br/>tion switch OFF)</li> </ul> |                                                                                                                                                                 | Battery voltage    | T |
| 54<br>(G/W)                  | Ground | Throttle control motor re-<br>lay power supply | Output           | Ignition switch OFF<br>(More than a few seconds after turning<br>ignition switch OFF)                                                                             |                                                                                                                                                                 | 0 V                | U |
|                              |        |                                                |                  | <ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Ignition switch OFF<br/>(For a few seconds after turning igni-<br/>tion switch OFF)</li> </ul> |                                                                                                                                                                 | Battery voltage    | V |
| 55<br>(W/L)                  | Ground | ECM power supply                               | Output           | Ignition switch OFF                                                                                                                                               |                                                                                                                                                                 | Battery voltage    | W |

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PCS

| Terminal No.<br>(Wire color) |        | Description                               |                  | Condition                                                                                                                                                         |                                                       | Value<br>(Approx.)                                                                                                    |
|------------------------------|--------|-------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| +                            | -      | Signal name                               | Input/<br>Output |                                                                                                                                                                   |                                                       |                                                                                                                       |
| 56<br>(R/Y)                  | Ground | Ignition relay power supply               | Output           | Ignition switch OFF                                                                                                                                               |                                                       | 0 V                                                                                                                   |
|                              |        |                                           |                  | Ignition switch ON                                                                                                                                                |                                                       | Battery voltage                                                                                                       |
| 57<br>(O)                    | Ground | Ignition relay power supply               | Output           | Ignition switch OFF                                                                                                                                               |                                                       | 0 V                                                                                                                   |
|                              |        |                                           |                  | Ignition switch ON                                                                                                                                                |                                                       | Battery voltage                                                                                                       |
| 58<br>(Y)                    | Ground | Ignition relay power supply               | Output           | Ignition switch OFF                                                                                                                                               |                                                       | 0 V                                                                                                                   |
|                              |        |                                           |                  | Ignition switch ON                                                                                                                                                |                                                       | Battery voltage                                                                                                       |
| 69<br>(W/B)                  | Ground | ECM relay control                         | Output           | Ignition switch OFF<br>(More than a few seconds after turning<br>ignition switch OFF)                                                                             |                                                       | Battery voltage                                                                                                       |
|                              |        |                                           |                  | <ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Ignition switch OFF<br/>(For a few seconds after turning igni-<br/>tion switch OFF)</li> </ul> |                                                       | 0 - 1.5 V                                                                                                             |
| 70<br>(O)                    | Ground | Throttle control motor re-<br>lay control | Output           | Ignition switch ON → OFF                                                                                                                                          |                                                       | 0 -1.0 V<br>↓<br>Battery voltage<br>↓<br>0 V                                                                          |
|                              |        |                                           |                  | Ignition switch ON                                                                                                                                                |                                                       | 0 - 1.0 V                                                                                                             |
| 72<br>(R/B)                  | Ground | Starter relay control                     | Input            | Ignition switch ON                                                                                                                                                | Selector lever in any posi-<br>tion other than P or N | 0 V                                                                                                                   |
|                              |        |                                           |                  |                                                                                                                                                                   | Selector lever P or N                                 | Battery voltage                                                                                                       |
| 75<br>(LG)                   | Ground | Oil pressure switch                       | Input            | Ignition switch ON                                                                                                                                                | Engine stopped                                        | 0 V                                                                                                                   |
|                              |        |                                           |                  |                                                                                                                                                                   | Engine running                                        | Battery voltage                                                                                                       |
| 76<br>(SB)                   | Ground | Power generation com-<br>mand signal      | Output           | Ignition switch ON                                                                                                                                                |                                                       |  <p>JPMIA0001GB</p> <p>6.3 V</p> |
|                              |        |                                           |                  | 40% is set on "ACTIVE TEST", "AL-<br>TERNATOR DUTY" of "ENGINE"                                                                                                   |                                                       |  <p>JPMIA0002GB</p> <p>3.8 V</p> |
|                              |        |                                           |                  | 80% is set on "ACTIVE TEST", "AL-<br>TERNATOR DUTY" of "ENGINE"                                                                                                   |                                                       |  <p>JPMIA0003GB</p> <p>1.4 V</p> |

# IPDM E/R

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

| Terminal No.<br>(Wire color) |        | Description                              |                  | Condition                                                                                                                             |                                                                                                                                                   | Value<br>(Approx.)                                                    |     |
|------------------------------|--------|------------------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-----|
| +                            | -      | Signal name                              | Input/<br>Output |                                                                                                                                       |                                                                                                                                                   |                                                                       |     |
| 77<br>(GR)                   | Ground | Fuel pump relay control                  | Output           | <ul style="list-style-type: none"> <li>Approximately 1 second after turning the ignition switch ON</li> <li>Engine running</li> </ul> |                                                                                                                                                   | 0 - 1.5 V                                                             | A   |
|                              |        |                                          |                  | Approximately 1 second or more after turning the ignition switch ON                                                                   |                                                                                                                                                   | Battery voltage                                                       | B   |
| 80<br>(B)                    | Ground | Starter motor                            | Output           | At engine cranking                                                                                                                    |                                                                                                                                                   | Battery voltage                                                       | C   |
| 83<br>(Y)                    | Ground | Headlamp LO (RH)                         | Output           | Lighting switch OFF                                                                                                                   |                                                                                                                                                   | 0 V                                                                   | D   |
|                              |        |                                          |                  | Lighting switch 2ND                                                                                                                   |                                                                                                                                                   | Battery voltage                                                       | E   |
| 84<br>(L)                    | Ground | Headlamp LO (LH)                         | Output           | Lighting switch OFF                                                                                                                   |                                                                                                                                                   | 0 V                                                                   | F   |
|                              |        |                                          |                  | Lighting switch 2ND                                                                                                                   |                                                                                                                                                   | Battery voltage                                                       | G   |
| 86<br>(SB)                   | Ground | Front fog lamp (RH)                      | Output           | Lighting switch 2ND                                                                                                                   | Front fog lamp switch OFF                                                                                                                         | 0 V                                                                   | H   |
|                              |        |                                          |                  |                                                                                                                                       | Front fog lamp switch ON                                                                                                                          | Battery voltage                                                       | I   |
| 87<br>(GR)                   | Ground | Front fog lamp (LH)                      | Output           | Lighting switch 2ND                                                                                                                   | Front fog lamp switch OFF                                                                                                                         | 0 V                                                                   | J   |
|                              |        |                                          |                  |                                                                                                                                       | Front fog lamp switch ON                                                                                                                          | Battery voltage                                                       | K   |
| 88<br>(W)                    | Ground | Ignition relay power supply              | Output           | Ignition switch ON                                                                                                                    |                                                                                                                                                   | Battery voltage                                                       | L   |
| 89<br>(L)                    | Ground | High beam solenoid (RH)                  | Output           | Lighting switch 2ND or AUTO                                                                                                           | Lighting switch OFF                                                                                                                               | 0 V                                                                   |     |
|                              |        |                                          |                  |                                                                                                                                       | Lighting switch HI or PASS                                                                                                                        | Battery voltage                                                       |     |
| 90<br>(G)                    | Ground | High beam solenoid (LH)                  | Output           | Lighting switch 2ND or AUTO                                                                                                           | Lighting switch OFF                                                                                                                               | 0 V                                                                   |     |
|                              |        |                                          |                  |                                                                                                                                       | Lighting switch HI or PASS                                                                                                                        | Battery voltage                                                       |     |
| 91<br>(R)                    | Ground | Parking lamp (RH)                        | Output           | Lighting switch OFF                                                                                                                   |                                                                                                                                                   | 0 V                                                                   |     |
|                              |        |                                          |                  | Lighting switch 1ST                                                                                                                   |                                                                                                                                                   | Battery voltage                                                       |     |
| 92<br>(LG)                   | Ground | Parking lamp (LH)                        | Output           | Lighting switch OFF                                                                                                                   |                                                                                                                                                   | 0 V                                                                   |     |
|                              |        |                                          |                  | Lighting switch 1ST                                                                                                                   |                                                                                                                                                   | Battery voltage                                                       |     |
| 99<br>(BR)                   | Ground | Ambient sensor ground                    | Input            | Ignition switch ON                                                                                                                    |                                                                                                                                                   | 0 V                                                                   |     |
| 100<br>(SB)                  | Ground | Ambient sensor                           | Output           | Ignition switch ON                                                                                                                    |                                                                                                                                                   | 0 - 4.8 V<br><b>NOTE:</b><br>Changes depending to ambient temperature | PCS |
| 101<br>(L)                   | Ground | Refrigerant pressure sensor ground       | Input            | Engine running                                                                                                                        | <ul style="list-style-type: none"> <li>Warm-up condition</li> <li>Idle speed</li> </ul>                                                           | 0 V                                                                   | N   |
| 102<br>(B)                   | Ground | Refrigerant pressure sensor              | Input            | Engine running                                                                                                                        | <ul style="list-style-type: none"> <li>Warm-up condition</li> <li>Both A/C switch and blower fan motor switch ON (Compressor operates)</li> </ul> | 1.0 - 4.0 V                                                           | O   |
| 103<br>(P)                   | Ground | Refrigerant pressure sensor power supply | Output           | Ignition switch OFF                                                                                                                   |                                                                                                                                                   | 0 V                                                                   | P   |
|                              |        |                                          |                  | Ignition switch ON                                                                                                                    |                                                                                                                                                   | 5.0 V                                                                 |     |

## Fail-safe

INFOID:000000007563491

## 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.

## &lt; ECU DIAGNOSIS INFORMATION &gt;

## If No CAN Communication Is Available With ECM

| Control part   | Fail-safe operation                                                                                                                                                                                                                                                                                                                                 |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cooling fan    | <ul style="list-style-type: none"> <li>Turns ON the cooling fan relay-2 and the cooling fan relay-3 when ignition switch is turned ON (Cooling fan operates at HI)</li> <li>Turns OFF the cooling fan relay-1, the cooling fan relay-2 and the cooling fan relay-3 when the ignition switch is turned OFF (Cooling fan does not operate)</li> </ul> |
| A/C compressor | A/C relay OFF                                                                                                                                                                                                                                                                                                                                       |
| Alternator     | Outputs the power generation command signal (PWM signal) 0%                                                                                                                                                                                                                                                                                         |

## If No CAN Communication Is Available With BCM

| Control part                                                                                                                                                  | Fail-safe operation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Headlamp                                                                                                                                                      | <ul style="list-style-type: none"> <li>Turns ON the headlamp low relay when the ignition switch is turned ON</li> <li>Turns OFF the headlamp low relay when the ignition switch is turned OFF</li> <li>Headlamp high relay OFF</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                             |
| <ul style="list-style-type: none"> <li>Parking lamp</li> <li>License plate lamp</li> <li>Side marker lamp</li> <li>Illumination</li> <li>Tail lamp</li> </ul> | <ul style="list-style-type: none"> <li>Turns ON the tail lamp relay when the ignition switch is turned ON</li> <li>Turns OFF the tail lamp relay when the ignition switch is turned OFF</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Front wiper motor                                                                                                                                             | <ul style="list-style-type: none"> <li>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.</li> <li>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/AUTO mode and the front wiper motor is operating.</li> <li>Returns automatically wiper to stop position when ignition switch is turned ON if fail-safe control is activated while front wiper motor is operated and wiper stop in the other than stop position.</li> </ul> |
| Front fog lamp                                                                                                                                                | Front fog lamp relay OFF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Horn                                                                                                                                                          | Horn relay OFF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Ignition relay                                                                                                                                                | The status just before activation of fail-safe is maintained.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Starter motor                                                                                                                                                 | Starter control relay OFF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## IGNITION RELAY MALFUNCTION DETECTION FUNCTION

- IPDM E/R monitors the voltage at the contact circuit and excitation coil circuit of the ignition relay inside it.
- IPDM E/R judges the ignition relay error if the voltage differs between the contact circuit and the excitation coil circuit.
- If the ignition relay cannot turn OFF due to contact seizure, it activates the tail lamp relay for 10 minutes to alert the user to the ignition relay malfunction when the ignition switch is turned OFF.

| Voltage judgment            |                                     | IPDM E/R judgment         | Operation                                                                                                                                |
|-----------------------------|-------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Ignition relay contact side | Ignition relay excitation coil side |                           |                                                                                                                                          |
| ON                          | ON                                  | Ignition relay ON normal  | —                                                                                                                                        |
| OFF                         | OFF                                 | Ignition relay OFF normal | —                                                                                                                                        |
| ON                          | OFF                                 | Ignition relay ON stuck   | <ul style="list-style-type: none"> <li>Detects DTC "B2098: IGN RELAY ON"</li> <li>Turns ON the tail lamp relay for 10 minutes</li> </ul> |
| OFF                         | ON                                  | Ignition relay OFF stuck  | Detects DTC "B2099: IGN RELAY OFF"                                                                                                       |

## FRONT WIPER PROTECTION FUNCTION

IPDM E/R detects front wiper stop position by a front wiper auto stop signal.

When a front wiper stop position signal is in the conditions listed below, IPDM E/R stops power supply to wiper after repeating a front wiper 10 seconds activation and 20 seconds stop five times.

| Ignition switch | Front wiper switch | Front wiper stop position signal                                                     |
|-----------------|--------------------|--------------------------------------------------------------------------------------|
| ON              | OFF                | The front wiper stop position signal (stop position) cannot be input for 10 seconds. |
|                 | ON                 | The front wiper auto stop signal does not change for 10 seconds.                     |

**NOTE:**

This operation status can be confirmed on the IPDM E/R “Data Monitor” that displays “BLOCK” for the item “WIP PROT” while the wiper is stopped.

**STARTER MOTOR PROTECTION FUNCTION**

IPDM E/R turns OFF the starter control relay to protect the starter motor when the starter control relay remains active for 90 seconds.

**DTC Index**

INFOID:000000007563492

**NOTE:**

- The details of time display are as follows.
  - CRNT: A malfunction is detected now.
  - PAST: A malfunction was detected in the past.
- IGN counter is displayed on FFD (Freeze Frame data).
  - The number is 0 when is detected now.
  - The number increases like 1 → 2 ... 38 → 39 after returning to the normal condition whenever IGN OFF → ON.
  - The number is fixed to 39 until the self-diagnosis results are erased if it is over 39.

x: Applicable

| CONSULT display                                            | Fail-safe | Refer to               |
|------------------------------------------------------------|-----------|------------------------|
| No DTC is detected.<br>further testing<br>may be required. | —         | —                      |
| U1000: CAN COMM CIRCUIT                                    | ×         | <a href="#">PCS-27</a> |
| B2098: IGN RELAY ON                                        | ×         | <a href="#">PCS-28</a> |
| B2099: IGN RELAY OFF                                       | —         | <a href="#">PCS-29</a> |
| B210B: START CONT RLY ON                                   | —         | <a href="#">SEC-83</a> |
| B210C: START CONT RLY OFF                                  | —         | <a href="#">SEC-84</a> |
| B210D: STARTER RELAY ON                                    | —         | <a href="#">SEC-85</a> |
| B210E: STARTER RELAY OFF                                   | —         | <a href="#">SEC-86</a> |
| B210F: INTRLCK/PNP SW ON                                   | —         | <a href="#">SEC-88</a> |
| B2110: INTRLCK/PNP SW OFF                                  | —         | <a href="#">SEC-90</a> |

&lt; WIRING DIAGRAM &gt;

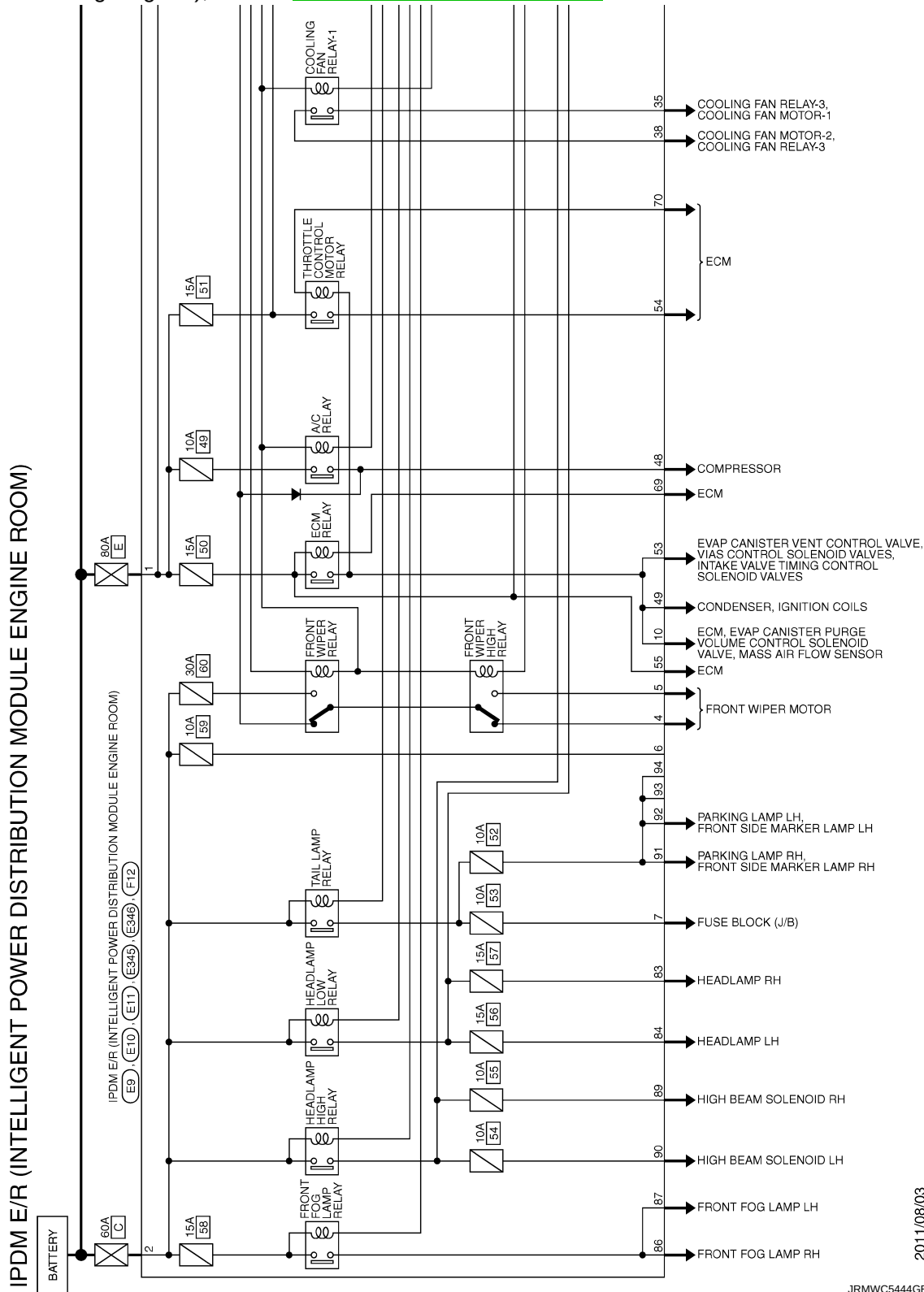
# WIRING DIAGRAM

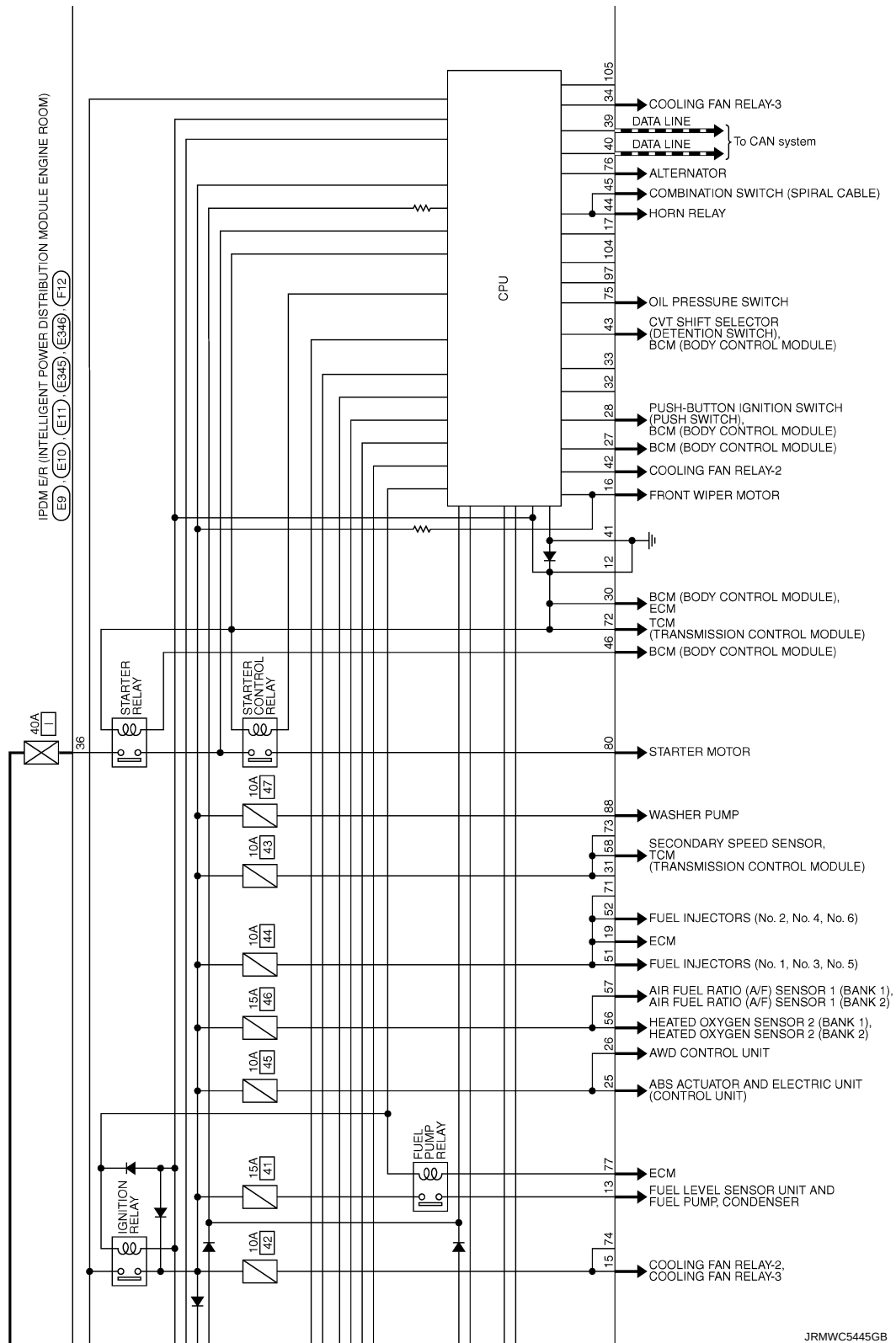
## IPDM E/R

### Wiring Diagram

INFOID:000000007563493

For connector terminal arrangements, harness layouts, and alphabets in a  (option abbreviation; if not described in wiring diagram), refer to [GI-12, "Connector Information"](#).





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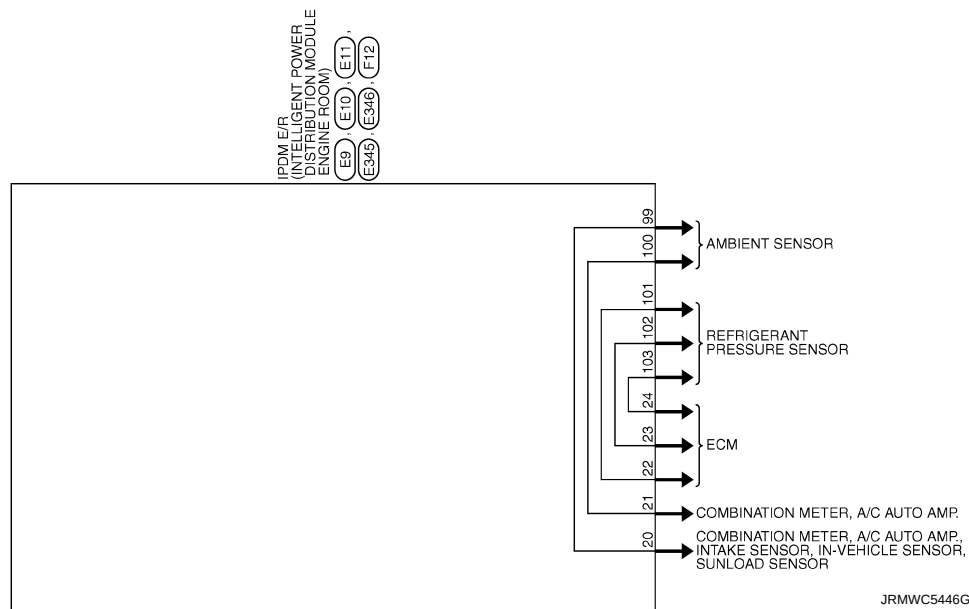
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## DTC/CIRCUIT DIAGNOSIS

### U1000 CAN COMM CIRCUIT

#### Description

INFOID:0000000007563494

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.

CAN Communication Signal Chart. Refer to [LAN-28, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

#### DTC Logic

INFOID:0000000007563495

#### DTC DETECTION LOGIC

| DTC   | CONSULT display description | DTC Detection Condition                                                                      | Possible cause           |
|-------|-----------------------------|----------------------------------------------------------------------------------------------|--------------------------|
| U1000 | CAN COMM CIRCUIT            | When IPDM E/R cannot communicate CAN communication signal continuously for 2 seconds or more | CAN communication system |

#### Diagnosis Procedure

INFOID:0000000007563496

#### 1.PERFORM SELF DIAGNOSTIC

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

#### Is DTC "U1000" displayed?

- YES >> Refer to [LAN-15, "Trouble Diagnosis Flow Chart"](#).  
 NO >> Refer to [GI-40, "Intermittent Incident"](#).

# B2098 IGNITION RELAY ON STUCK

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

## B2098 IGNITION RELAY ON STUCK

### Description

INFOID:000000007563497

- 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 Logic

INFOID:000000007563498

### DTC DETECTION LOGIC

| DTC   | CONSULT display description | DTC Detection Condition                                                                                                                                                     | Possible causes            |
|-------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| B2098 | IGN RELAY ON                | The ignition relay ON is detected for 1 second at ignition switch OFF (CPU monitors the status at the contact and excitation coil circuits of the ignition relay inside it) | Ignition relay malfunction |

### 1.PERFORM DTC CONFIRMATION PROCEDURE

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

#### Is DTC detected?

- YES >> Refer to [PCS-28, "Diagnosis Procedure"](#).  
NO >> INSPECTION END.

### Diagnosis Procedure

INFOID:000000007563499

### 1.PERFORM SELF DIAGNOSIS

1. Erase "Self Diagnostic Result" of IPDM E/R.
2. Turn the ignition switch OFF, and wait for 1 second or more.
3. Turn the ignition switch ON. Check "Self Diagnostic Result" again.

#### Is DTC "B2098" displayed?

- YES >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#).  
NO >> Refer to [GI-40, "Intermittent Incident"](#).

# B2099 IGNITION RELAY OFF STUCK

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

## B2099 IGNITION RELAY OFF STUCK

### Description

INFOID:000000007563500

- 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 Logic

INFOID:000000007563501

### DTC DETECTION LOGIC

| DTC   | CONSULT display description | DTC Detection Condition                                                                                                                                                     | Possible causes            |
|-------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| B2099 | IGN RELAY OFF               | The ignition relay OFF is detected for 1 second at ignition switch ON (CPU monitors the status at the contact and excitation coil circuits of the ignition relay inside it) | Ignition relay malfunction |

#### NOTE:

When IPDM E/R power supply voltage is low (Approx. 7 - 8 V for about 1 second), the "DTC: B2099" may be detected.

### 1.PERFORM DTC CONFIRMATION PROCEDURE

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

#### Is DTC detected?

- YES >> Refer to [PCS-29, "Diagnosis Procedure"](#).  
NO >> INSPECTION END.

### Diagnosis Procedure

INFOID:000000007563502

### 1.PERFORM SELF DIAGNOSIS

1. Erase "Self Diagnostic Result".
2. Turn the ignition switch OFF.
3. Turn the ignition switch ON. Check "Self Diagnostic Result" again.

#### Is DTC "B2099" displayed?

- YES >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#).  
NO >> Refer to [GI-40, "Intermittent Incident"](#).

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PCS

# POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

## POWER SUPPLY AND GROUND CIRCUIT

### Diagnosis Procedure

INFOID:000000007563503

#### 1.CHECK FUSES AND FUSIBLE LINK

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

| Signal name          | Fuses and fusible link No. |
|----------------------|----------------------------|
| Battery power supply | E (80 A)                   |
|                      | C (60 A)                   |
|                      | I (40 A)                   |
|                      | 50 (15 A)                  |
|                      | 51 (15 A)                  |

Is the fuse fusing?

YES >> Replace the blown fuse or fusible link after repairing the affected circuit if a fuse or 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.

| (+) IPDM E/R |          | (-)    | Voltage (Approx.) |
|--------------|----------|--------|-------------------|
| Connector    | Terminal | Ground | Battery voltage   |
| E9           | 1        |        |                   |
|              | 2        |        |                   |
| E10          | 36       |        |                   |

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 |        | Existed    |
| E10       | 12       |        |            |
| E11       | 41       |        |            |

Does continuity exist?

YES >> INSPECTION END

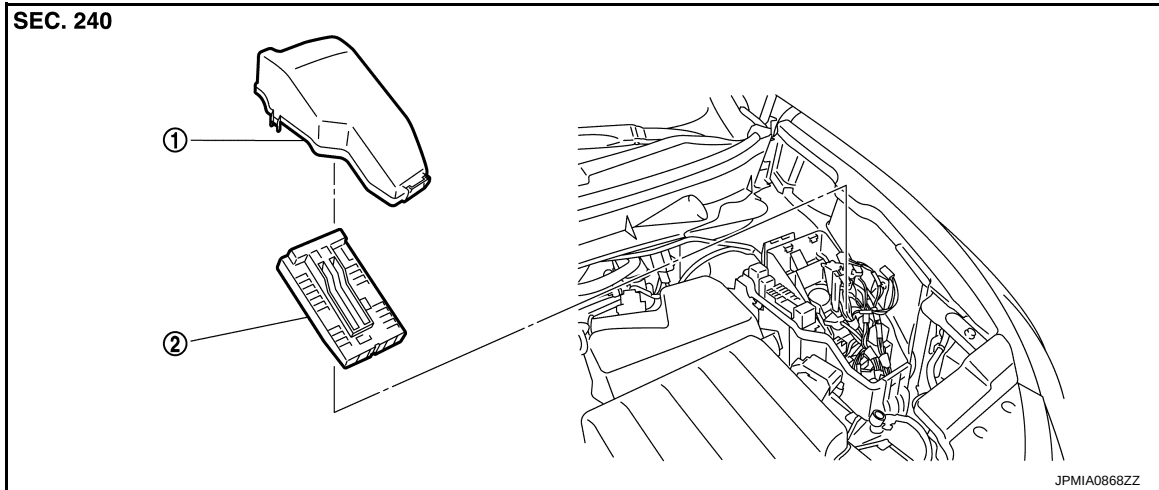
NO >> Repair the harness or connector.

# REMOVAL AND INSTALLATION

## IPDM E/R

### Exploded View

INFOID:000000007563504



1. Relay box cover

2. IPDM E/R

## Removal and Installation

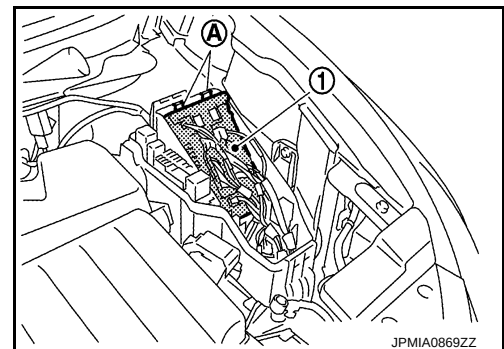
INFOID:000000007563505

### NOTE:

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

### REMOVAL

1. Disconnect the battery cable from the negative terminal.
2. Remove the relay box cover.
3. Disconnect the harness connector from the IPDM E/R (1).
4. Press the pawl (A) and remove the IPDM E/R from relay box.



### INSTALLATION

Install in the reverse order of removal.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
PCS  
N  
O  
P

## PRECAUTION

### PRECAUTIONS

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

INFOID:000000007563506

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. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. 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.

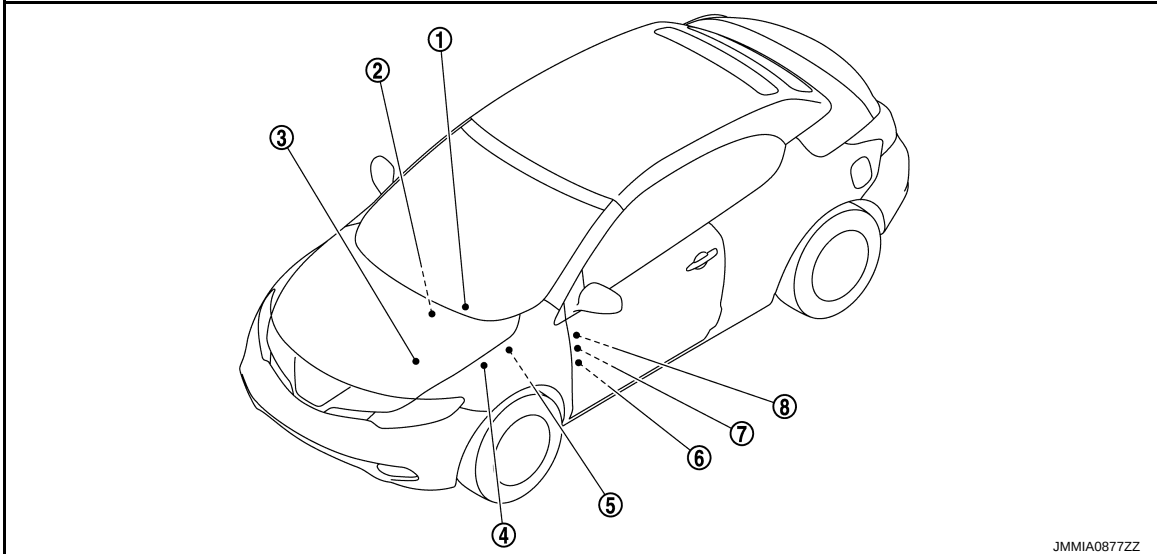
- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious 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.

## SYSTEM DESCRIPTION

### COMPONENT PARTS

#### Component Parts Location

INFOID:000000007563507



- |                    |                                |                                |
|--------------------|--------------------------------|--------------------------------|
| 1. BCM             | 2. Push-button ignition switch | 3. TCM                         |
| 4. IPDM E/R        | 5. Stop lamp switch            | 6. Ignition relay (fuse block) |
| 7. Accessory relay | 8. Blower relay                |                                |

#### Component Description

INFOID:000000007563508

| Component                             | Reference              |
|---------------------------------------|------------------------|
| BCM                                   | <a href="#">PCS-33</a> |
| IPDM E/R                              | <a href="#">PCS-33</a> |
| Ignition relay (IPDM E/R, fuse block) | <a href="#">PCS-34</a> |
| Accessory relay                       | <a href="#">PCS-34</a> |
| Blower relay                          | <a href="#">PCS-34</a> |
| Push-button ignition switch           | <a href="#">PCS-34</a> |
| Stop lamp switch                      | <a href="#">PCS-34</a> |
| TCM                                   | <a href="#">PCS-34</a> |

#### BCM

INFOID:000000007563509

BCM controls the various electrical components and simultaneously supplies power according to the power supply position.  
BCM checks the power supply position internally.

#### IPDM E/R

INFOID:000000007563510

IPDM E/R detects push-button ignition switch (push switch) status, and transmits push-button ignition switch status signal (CAN) to BCM.  
IPDM E/R receives ignition relay (IPDM E/R) control signal and ignition switch ON signal (CAN) from BCM, and controls ignition relay (built in IPDM E/R).

## Ignition Relay

INFOID:000000007563511

BCM turns ON the following relays to supply ignition power supply or ignition switch ON signal to each ECU when the ignition switch is turned ON.

- Ignition relay (fuse block)
- Ignition relay (IPDM E/R)

BCM compares following status comparing.

- Ignition relay (fuse block) control signal, and power supply position judged by BCM
- Ignition relay (IPDM E/R) control request, and Ignition relay (IPDM E/R) status

## Accessory Relay

INFOID:000000007563512

BCM turns ON the accessory relays to supply accessory power supply or ignition switch ACC signal to each ECU when the ignition switch is turned ACC or ON.

BCM compares status of accessory relay control signal, and power supply position judged by BCM.

## Blower Relay

INFOID:000000007563513

BCM turns ON the blower relay to supply ignition power supply or ignition switch ON signal to each ECU when the ignition switch is turned ON.

BCM compares status of blower relay control signal, and power supply position judged by BCM.

## Push-Button Ignition Switch

INFOID:000000007563514

BCM transmits the change in the power supply position with the push-button ignition switch to IPDM E/R via CAN communication line. IPDM E/R transmits the power supply position status via CAN communication line to BCM.

## Stop Lamp Switch

INFOID:000000007563515

Stop lamp switch detects that brake pedal is depressed, and then transmits the signal to BCM.

## TCM

INFOID:000000007563516

TCM detects shift position P or N, transmits P/N position signal to BCM.

## SYSTEM

## POWER DISTRIBUTION SYSTEM

## POWER DISTRIBUTION SYSTEM : System Description

INFOID:000000007563517

## SYSTEM DESCRIPTION

- PDS (POWER DISTRIBUTION SYSTEM) is the system that BCM controls with the operation of the 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.
- The 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
  - Insert Intelligent Key into the key slot
- The push-button ignition switch operation is input to BCM as a signal. BCM changes the power supply position according to the status and operates the following relays to supply power to each power circuit.
  - Ignition relay (inside IPDM E/R)
  - Ignition relay (inside fuse block)
  - Accessory relay
  - Blower relay

**NOTE:**

- The push-button ignition switch operation changes due to the conditions of brake pedal, selector lever and vehicle speed.
- The power supply position can be confirmed with the lighting of the indicators around the push-button ignition switch.

## BATTERY SAVER SYSTEM

When all the following conditions are met for 60 minutes, the battery saver system will cut off the power supply to prevent battery discharge.

- The ignition switch is in the ACC position
- All doors are closed
- Selector lever is in the P position

## Reset Condition of Battery Saver System

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

- Opening any door
- Operating with door key cylinder on door lock
- Operating with door request switch on door lock
- Operating with Intelligent Key on door lock
- Press push-button ignition switch and ignition switch will change to ACC position from OFF position.

## POWER SUPPLY POSITION CHANGE TABLE BY PUSH-BUTTON IGNITION SWITCH OPERATION

The power supply position changing operation can be performed with the following operations.

**NOTE:**

- When an Intelligent Key is within the detection area of inside key antenna and when it is inserted to the key slot, it is equivalent to the operations below.
- When starting the engine, the BCM checks the following conditions and then changes the power supply position.
  - Brake pedal operating condition
  - Selector lever position
  - Vehicle speed

Vehicle speed: less than 4 km/h (2.5 MPH)

| Power supply position  | Engine start/stop condition |                                 | Push-button ignition switch operation frequency |
|------------------------|-----------------------------|---------------------------------|-------------------------------------------------|
|                        | Selector lever              | Brake pedal operation condition |                                                 |
| LOCK* → ACC            | —                           | Not depressed                   | 1                                               |
| LOCK* → ACC → ON       | —                           | Not depressed                   | 2                                               |
| LOCK* → ACC → ON → OFF | —                           | Not depressed                   | 3                                               |

# SYSTEM

## < SYSTEM DESCRIPTION >

## [POWER DISTRIBUTION SYSTEM]

| Power supply position                      | Engine start/stop condition |                                 | Push-button ignition switch operation frequency |
|--------------------------------------------|-----------------------------|---------------------------------|-------------------------------------------------|
|                                            | Selector lever              | Brake pedal operation condition |                                                 |
| LOCK* → START<br>ACC → START<br>ON → START | P or N position             | Depressed                       | 1                                               |
| Engine is running → OFF                    | —                           | —                               | 1                                               |

### NOTE:

\*: Power supply position shifts to "LOCK" from "OFF", when ignition switch is in the OFF position, selector lever is in the P position, and any of the following conditions are met.

- Closing door
- Opening door
- Door is locked using door request switch
- Door is locked using Intelligent Key

The power supply position shifts to "ACC" when the push-button ignition switch (push switch) is pushed at "LOCK".

Vehicle speed: 4 km/h (2.5 MPH) or more

| Power supply position                       | Engine start/stop condition |                                 | Push-button ignition switch operation frequency |
|---------------------------------------------|-----------------------------|---------------------------------|-------------------------------------------------|
|                                             | Selector lever              | Brake pedal operation condition |                                                 |
| Engine is running → ACC                     | —                           | —                               | Emergency stop operation                        |
| Engine stall return operation while driving | N position                  | Not depressed                   | 1                                               |

Emergency stop operation

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

## Fail-safe

INFOID:000000007563518

### FAIL-SAFE CONTROL BY DTC

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

| Display contents of CONSULT | Fail-safe                                                                 | Cancellation                                                                                                                                                                                                                                                                                                       |
|-----------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B2190: NATS ANTENNA AMP     | Inhibit engine cranking                                                   | Erase DTC                                                                                                                                                                                                                                                                                                          |
| B2191: DIFFERENCE OF KEY    | Inhibit engine cranking                                                   | Erase DTC                                                                                                                                                                                                                                                                                                          |
| B2192: ID DISCORD BCM-ECM   | Inhibit engine cranking                                                   | Erase DTC                                                                                                                                                                                                                                                                                                          |
| B2193: CHAIN OF BCM-ECM     | Inhibit engine cranking                                                   | Erase DTC                                                                                                                                                                                                                                                                                                          |
| B2195: ANTI SCANNING        | Inhibit engine cranking                                                   | Ignition switch ON → OFF                                                                                                                                                                                                                                                                                           |
| B2560: STARTER CONT RELAY   | Inhibit engine cranking                                                   | 500 ms after the following CAN signal communication status becomes consistent <ul style="list-style-type: none"> <li>• Starter control relay signal</li> <li>• Starter relay status signal</li> </ul>                                                                                                              |
| B2608: STARTER RELAY        | Inhibit engine cranking                                                   | 500 ms after the following signal communication status becomes consistent <ul style="list-style-type: none"> <li>• Starter motor relay control signal</li> <li>• Starter relay status signal (CAN)</li> </ul>                                                                                                      |
| B260A: IGNITION RELAY       | Inhibit engine cranking                                                   | 500 ms after the following conditions are fulfilled <ul style="list-style-type: none"> <li>• IGN relay (IPDM E/R) control signal: OFF (Battery voltage)</li> <li>• Ignition ON signal (CAN to IPDM E/R): OFF (Request signal)</li> <li>• Ignition ON signal (CAN from IPDM E/R): OFF (Condition signal)</li> </ul> |
| B260F: ENG STATE SIG LOST   | Maintains the power supply position attained at the time of DTC detection | When any of the following conditions are fulfilled <ul style="list-style-type: none"> <li>• Power position changes to ACC</li> <li>• Receives engine status signal (CAN)</li> </ul>                                                                                                                                |

SYSTEM

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

| Display contents of CONSULT | Fail-safe               | Cancellation                                                                   |
|-----------------------------|-------------------------|--------------------------------------------------------------------------------|
| B2617: STARTER RELAY CIRC   | Inhibit engine cranking | 1 second after the starter motor relay control inside BCM becomes normal       |
| B2618: BCM                  | Inhibit engine cranking | 1 second after the ignition relay (IPDM E/R) control inside BCM becomes normal |
| B261E: VEHICLE TYPE         | Inhibit engine cranking | BCM initialization                                                             |

A

B

C

D

E

F

G

H

I

J

K

L

N

O

P

PCS

## DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

### DIAGNOSIS SYSTEM (BCM)

#### COMMON ITEM

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

INFOID:000000007615056

#### 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            | <ul style="list-style-type: none"><li>Read and save the vehicle specification.</li><li>Write the vehicle specification when replacing BCM.</li></ul> |

#### 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                    |                | ×            | ×           |
| Interior room lamp timer                                                                           | INT LAMP                  | ×              | ×            | ×           |
| Exterior lamp                                                                                      | HEAD LAMP                 | ×              | ×            | ×           |
| Wiper and washer                                                                                   | WIPER                     | ×              | ×            | ×           |
| Turn signal and hazard warning lamps                                                               | FLASHER                   | ×              | ×            | ×           |
| —                                                                                                  | AIR CONDITONER*           |                |              |             |
| <ul style="list-style-type: none"><li>Intelligent Key system</li><li>Engine start system</li></ul> | INTELLIGENT KEY           | ×              | ×            | ×           |
| Combination switch                                                                                 | COMB SW                   |                | ×            |             |
| Body control system                                                                                | BCM                       | ×              |              |             |
| NVIS - NATS                                                                                        | IMMU                      |                | ×            | ×           |
| Interior room lamp battery saver                                                                   | BATTERY SAVER             | ×              | ×            | ×           |
| Trunk lid opener system                                                                            | TRUNK                     |                | ×            | ×           |
| Vehicle security system                                                                            | THEFT ALM                 | ×              | ×            | ×           |
| RAP system                                                                                         | RETAINED PWR              |                | ×            |             |
| Signal buffer system                                                                               | SIGNAL BUFFER             |                | ×            | ×           |
| TPMS                                                                                               | AIR PRESSURE MONITOR      | ×              | ×            | ×           |

##### NOTE:

\*: This item is displayed, but is 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.

# DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

| CONSULT screen item | Indication/Unit | Description                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                        |
|---------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Vehicle Speed       | km/h            | Vehicle speed of the moment a particular DTC is detected                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                        |
| Odo/Trip Meter      | km              | Total mileage (Odometer value) of the moment a particular DTC is detected                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                        |
| Vehicle Condition   | SLEEP>LOCK      | Power position status of the moment a particular DTC is detected                                                                                                                                                                                                                                                                                                                                                           | While turning BCM status from low power consumption mode to normal mode (Power supply position is "LOCK"*)             |
|                     | SLEEP>OFF       |                                                                                                                                                                                                                                                                                                                                                                                                                            | While turning BCM status from low power consumption mode to normal mode (Power supply position is "OFF".)              |
|                     | LOCK>ACC        |                                                                                                                                                                                                                                                                                                                                                                                                                            | While turning power supply position from "LOCK" to "ACC"                                                               |
|                     | ACC>ON          |                                                                                                                                                                                                                                                                                                                                                                                                                            | While turning power supply position from "ACC" to "IGN"                                                                |
|                     | RUN>ACC         |                                                                                                                                                                                                                                                                                                                                                                                                                            | While turning power supply position from "RUN" to "ACC" (Vehicle is stopping and selector lever is except P position.) |
|                     | CRANK>RUN       |                                                                                                                                                                                                                                                                                                                                                                                                                            | While turning power supply position from "CRANKING" to "RUN" (From cranking up the engine to run it)                   |
|                     | RUN>URGENT      |                                                                                                                                                                                                                                                                                                                                                                                                                            | While turning power supply position from "RUN" to "ACC" (Emergency stop operation)                                     |
|                     | ACC>OFF         |                                                                                                                                                                                                                                                                                                                                                                                                                            | While turning power supply position from "ACC" to "OFF"                                                                |
|                     | OFF>LOCK        |                                                                                                                                                                                                                                                                                                                                                                                                                            | While turning power supply position from "OFF" to "LOCK"*                                                              |
|                     | OFF>ACC         |                                                                                                                                                                                                                                                                                                                                                                                                                            | While turning power supply position from "OFF" to "ACC"                                                                |
|                     | ON>CRANK        |                                                                                                                                                                                                                                                                                                                                                                                                                            | While turning power supply position from "IGN" to "CRANKING"                                                           |
|                     | OFF>SLEEP       |                                                                                                                                                                                                                                                                                                                                                                                                                            | While turning BCM status from normal mode (Power supply position is "OFF".) to low power consumption mode              |
|                     | LOCK>SLEEP      |                                                                                                                                                                                                                                                                                                                                                                                                                            | While turning BCM status from normal mode (Power supply position is "LOCK"*) to low power consumption mode             |
|                     | LOCK            |                                                                                                                                                                                                                                                                                                                                                                                                                            | Power supply position is "LOCK"*                                                                                       |
|                     | OFF             |                                                                                                                                                                                                                                                                                                                                                                                                                            | Power supply position is "OFF" (Ignition switch OFF)                                                                   |
|                     | ACC             |                                                                                                                                                                                                                                                                                                                                                                                                                            | Power supply position is "ACC" (Ignition switch ACC)                                                                   |
|                     | ON              |                                                                                                                                                                                                                                                                                                                                                                                                                            | Power supply position is "IGN" (Ignition switch ON with engine stopped)                                                |
|                     | ENGINE RUN      |                                                                                                                                                                                                                                                                                                                                                                                                                            | Power supply position is "RUN" (Ignition switch ON with engine running)                                                |
|                     | CRANKING        |                                                                                                                                                                                                                                                                                                                                                                                                                            | Power supply position is "CRANKING" (At engine cranking)                                                               |
| IGN Counter         | 0 - 39          | The number of times that ignition switch is turned ON after DTC is detected <ul style="list-style-type: none"> <li>• The number is 0 when a malfunction is detected now.</li> <li>• The number increases like 1 → 2 → 3...38 → 39 after returning to the normal condition whenever ignition switch OFF → ON.</li> <li>• The number is fixed to 39 until the self-diagnosis results are erased if it is over 39.</li> </ul> |                                                                                                                        |

## NOTE:

\*: Power supply position shifts to "LOCK" from "OFF", when ignition switch is in the OFF position, selector lever is in the P position, and any of the following conditions are met.

- Closing door
- Opening door
- Door is locked using door request switch
- Door is locked using Intelligent Key

The power supply position shifts to "ACC" when the push-button ignition switch (push switch) is pushed at "LOCK".

## INTELLIGENT KEY

### INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)

INFOID:000000007615052

## WORK SUPPORT

# DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

| Monitor item             | Description                                                                                                                                                                                                                                                                                                               |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CONFIRM KEY FOB ID       | It can be checked whether Intelligent Key ID code is registered or not in this mode                                                                                                                                                                                                                                       |
| AUTO LOCK SET            | Auto door lock time can be changed in this mode <ul style="list-style-type: none"> <li>• MODE 1: 1 minute</li> <li>• MODE 2: 5 minutes</li> <li>• MODE 3: 30 seconds</li> <li>• MODE 4: 2 minutes</li> </ul>                                                                                                              |
| LOCK/UNLOCK BY I-KEY     | Door lock/unlock function by door request switch mode can be changed to operate (ON) or not operate (OFF) in this mode                                                                                                                                                                                                    |
| ENGINE START BY I-KEY    | Engine start function mode can be changed to operate (ON) or not operate (OFF) with this mode                                                                                                                                                                                                                             |
| TRUNK/GLASS HATCH OPEN   | Buzzer reminder function mode by trunk lid opener request switch can be changed to operate (ON) or not operate (OFF) with this mode                                                                                                                                                                                       |
| PANIC ALARM SET          | Panic alarm button pressing time on Intelligent Key remote control button can be selected from the following with this mode <ul style="list-style-type: none"> <li>• MODE 1: 0.5 sec.</li> <li>• MODE 2: Non-operation</li> <li>• MODE 3: 1.5 sec.</li> </ul>                                                             |
| PW DOWN SET              | Unlock button pressing time on Intelligent Key button can be selected from the following with this mode <ul style="list-style-type: none"> <li>• MODE 1: 3 sec.</li> <li>• MODE 2: Non-operation</li> <li>• MODE 3: 5 sec.</li> </ul>                                                                                     |
| TAKE OUT FROM WIN WARN   | <b>NOTE:</b><br>This item is displayed, but cannot be used                                                                                                                                                                                                                                                                |
| TRUNK OPEN DELAY         | Trunk button pressing on Intelligent Key can be selected as per the following in this mode <ul style="list-style-type: none"> <li>• MODE 1: Press and hold</li> <li>• MODE 2: Press twice</li> <li>• MODE 3: Press and hold, or press twice</li> </ul>                                                                    |
| LO- BATT OF KEY FOB WARN | Intelligent Key low battery warning mode can be changed to operate (ON) or not operate (OFF) with this mode                                                                                                                                                                                                               |
| ANTI KEY LOCK IN FUNCTI  | Key reminder function mode can be changed to operate (ON) or not operate (OFF) with this mode.                                                                                                                                                                                                                            |
| HAZARD ANSWER BACK       | Hazard reminder function mode can be selected from the following with this mode <ul style="list-style-type: none"> <li>• LOCK ONLY: Door lock operation only</li> <li>• UNLOCK ONLY: Door unlock operation only</li> <li>• LOCK/UNLOCK: Lock/unlock operation</li> <li>• OFF: Non-operation</li> </ul>                    |
| ANS BACK I-KEY LOCK      | Buzzer reminder function (lock operation) mode by door request switch (driver side and passenger side) can be selected from the following with this mode <ul style="list-style-type: none"> <li>• Horn chirp: Sound horn</li> <li>• Buzzer: Sound Intelligent Key warning buzzer</li> <li>• OFF: Non-operation</li> </ul> |
| ANS BACK I-KEY UNLOCK    | Buzzer reminder function (unlock operation) mode by door request switch can be changed to operate (ON) or not operate (OFF) with this mode                                                                                                                                                                                |
| SHORT CRANKING OUTPUT    | Starter motor can operate during the times below <ul style="list-style-type: none"> <li>• 70 msec</li> <li>• 100 msec</li> <li>• 200 msec</li> </ul>                                                                                                                                                                      |
| INSIDE ANT DIAGNOSIS     | This function allows inside key antenna self-diagnosis                                                                                                                                                                                                                                                                    |
| HORN WITH KEYLESS LOCK   | Horn reminder function mode by Intelligent Key button can be changed to operate (ON) or not operate (OFF) with this mode                                                                                                                                                                                                  |

## SELF-DIAG RESULT

Refer to [BCS-54, "DTC Index"](#).

## DATA MONITOR

# DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

| Monitor Item   | Condition                                                                                  |     |
|----------------|--------------------------------------------------------------------------------------------|-----|
| REQ SW -DR     | Indicates [ON/OFF] condition of door request switch (driver side)                          | A   |
| REQ SW -AS     | Indicates [ON/OFF] condition of door request switch (passenger side)                       |     |
| REQ SW -RR     | <b>NOTE:</b><br>This item is displayed, but cannot be monitored                            | B   |
| REQ SW -RL     | <b>NOTE:</b><br>This item is displayed, but cannot be monitored                            | C   |
| REQ SW -BD/TR  | Indicates [ON/OFF] condition of trunk lid opener request switch                            |     |
| PUSH SW        | Indicates [ON/OFF] condition of push-button ignition switch                                | D   |
| IGN RLY2 -F/B  | Indicates [ON/OFF] condition of ignition relay 2                                           |     |
| ACC RLY-FB     | <b>NOTE:</b><br>This item is displayed, but cannot be monitored.                           | E   |
| CLUCH SW       | <b>NOTE:</b><br>This item is displayed, but cannot be monitored                            |     |
| BRAKE SW 1     | Indicates [ON/OFF]* condition of brake switch power supply                                 | F   |
| BRAKE SW 2     | Indicates [ON/OFF] condition of brake switch                                               |     |
| DETE/CANCL SW  | Indicates [ON/OFF] condition of P position                                                 | G   |
| SFT PN/N SW    | Indicates [ON/OFF] condition of P or N position                                            |     |
| S/L -LOCK      | <b>NOTE:</b><br>This item is displayed, but cannot be monitored                            | H   |
| S/L -UNLOCK    | <b>NOTE:</b><br>This item is displayed, but cannot be monitored                            |     |
| S/L RELAY -F/B | <b>NOTE:</b><br>This item is displayed, but cannot be monitored                            | I   |
| UNLK SEN -DR   | Indicates [ON/OFF] condition of driver door unlock status                                  |     |
| PUSH SW -IPDM  | Indicates [ON/OFF] condition of push-button ignition switch                                | J   |
| IGN RLY1 -F/B  | Indicates [ON/OFF] condition of ignition relay 1                                           |     |
| DETE SW -IPDM  | Indicates [ON/OFF] condition of P position                                                 | K   |
| SFT PN -IPDM   | Indicates [ON/OFF] condition of P or N position                                            |     |
| SFT P -MET     | Indicates [ON/OFF] condition of P position                                                 |     |
| SFT N -MET     | Indicates [ON/OFF] condition of N position                                                 | L   |
| ENGINE STATE   | Indicates [STOP/START/CRANK/RUN] condition of engine states                                |     |
| S/L LOCK-IPDM  | <b>NOTE:</b><br>This item is displayed, but cannot be monitored                            | PCS |
| S/L UNLK-IPDM  | <b>NOTE:</b><br>This item is displayed, but cannot be monitored                            |     |
| S/L RELAY-REQ  | <b>NOTE:</b><br>This item is displayed, but cannot be monitored                            | N   |
| 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 or VDC or CVT by numerical value [Km/h] | O   |
| DOOR STAT-DR   | Indicates [LOCK/READY/UNLOCK] condition of driver side door status                         |     |
| DOOR STAT-AS   | Indicates [LOCK/READY/UNLOCK] condition of passenger side door status                      |     |
| ID OK FLAG     | Indicates [SET/RESET] condition of key ID                                                  | P   |
| PRMT ENG STRT  | Indicates [SET/RESET] condition of engine start possibility                                |     |
| PRMT RKE STRT  | <b>NOTE:</b><br>This item is displayed, but cannot be monitored                            |     |
| KEY SW -SLOT   | Indicates [ON/OFF] condition of key slot                                                   |     |
| TRNK/HAT MNTR  | Indicates [ON/OFF] condition of trunk room lamp switch                                     |     |

# DIAGNOSIS SYSTEM (BCM)

## < SYSTEM DESCRIPTION >

## [POWER DISTRIBUTION SYSTEM]

| Monitor Item  | Condition                                                                                                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| RKE-LOCK      | Indicates [ON/OFF] condition of door lock signal from Intelligent Key                                                                                   |
| RKE-UNLOCK    | Indicates [ON/OFF] condition of door unlock signal from Intelligent Key                                                                                 |
| RKE-TR/BD     | Indicates [ON/OFF] condition of trunk open signal from Intelligent Key                                                                                  |
| RKE-PANIC     | Indicates [ON/OFF] condition of panic alarm button of Intelligent Key                                                                                   |
| RKE-P/W OPEN  | Indicates [ON/OFF] condition of P/W DOWN signal from Intelligent Key                                                                                    |
| RKE-MODE CHG  | Indicates [ON/OFF] condition of MODE CHANGE signal from Intelligent Key                                                                                 |
| RKE OPE COUN1 | When remote keyless entry receiver (front side) receives the signal transmitted while operating on Intelligent Key, the numerical value start changing. |
| RKE OPE COUN2 | When remote keyless entry receiver (rear side) receives the signal transmitted while operating on Intelligent Key, the numerical value start changing.  |

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

## ACTIVE TEST

| Test item          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BATTERY SAVER      | This test is able to check interior room lamp operation.<br>The interior room lamp will be activated after "ON" on CONSULT screen is touched.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| PW REMOTO DOWN SET | This test is able to check power window down operation.<br>The power window down will be activated after "ON" on CONSULT screen is touched.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| INSIDE BUZZER      | This test is able to check warning chime in combination meter operation. <ul style="list-style-type: none"> <li>Take away warning chime sounds when "TAKE OUT" on CONSULT screen is touched.</li> <li>Key warning chime sounds when "KEY WARN" on CONSULT screen is touched.</li> <li>P position warning chime sounds when "P RNG WARN" on CONSULT screen is touched.</li> <li>ACC warning chime sounds when "ACC WARN" on CONSULT screen is touched.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| OUTSIDE BUZZER     | This test is able to check Intelligent Key warning buzzer operation.<br>The Intelligent Key warning buzzer will be activated after "ON" on CONSULT screen is touched.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| INDICATOR          | This test is able to check warning lamp operation. <ul style="list-style-type: none"> <li>"KEY" Warning lamp illuminates when "KEY ON" on CONSULT screen is touched.</li> <li>"KEY" Warning lamp flashes when "KEY IND" on CONSULT screen is touched.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| INT LAMP           | This test is able to check interior room lamp operation.<br>The interior room lamp will be activated after "ON" on CONSULT screen is touched.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| LCD                | This test is able to check meter display information <ul style="list-style-type: none"> <li>Engine start information displays when "BP N" on CONSULT screen is touched.</li> <li>Engine start information displays when "BP I" on CONSULT screen is touched.</li> <li>Key ID warning displays when "ID NG" on CONSULT screen is touched.</li> <li>ROTAT: This item is displayed, but cannot be tested.</li> <li>P position warning displays when SFT P on CONSULT screen is touched.</li> <li>Intelligent Key insert information displays when "INSRT" on CONSULT screen is touched.</li> <li>Intelligent Key low battery warning displays when "BATT" on CONSULT screen is touched.</li> <li>Take away through window warning displays when "NO KY" on CONSULT screen is touched.</li> <li>Take away warning display when "OUTKEY" on CONSULT screen is touched.</li> <li>OFF position warning display when "LK WN" on CONSULT screen is touched.</li> </ul> |
| TRUNK/GLASS HATCH  | <b>NOTE:</b><br>This item is displayed, but cannot be tested.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| FLASHER            | This test is able to check hazard warning lamp operation.<br>The hazard warning lamps will be activated after "ON" on CONSULT screen is touched.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| HORN               | This test is able to check horn operation.<br>The horn will be activated after "ON" on CONSULT screen is touched.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| P RANGE            | This test is able to check CVT shift selector power supply<br>CVT shift selector power is supplied when "ON" on CONSULT screen is touched.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| LOCK INDICATOR     | This test is able to check indicator in push-ignition switch operation.<br>Indicator in push-button ignition switch illuminates when "ON" on CONSULT screen is touched.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

# DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

| Test item       | Description                                                                                                                                                             |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ACC INDICATOR   | This test is able to check indicator in push-ignition switch operation.<br>Indicator in push-button ignition switch illuminates when "ON" on CONSULT screen is touched. |
| IGNITION ON IND | This test is able to check indicator in push-ignition switch operation.<br>Indicator in push-button ignition switch illuminates when "ON" on CONSULT screen is touched. |
| KEY SLOT ILLUMI | This test is able to check key slot illumination operation.<br>Key slot illumination flash when "ON" on CONSULT screen is touched.                                      |
| TRUNK/BACK DOOR | <b>NOTE:</b><br>This item is displayed, but cannot be tested.                                                                                                           |

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## ECU DIAGNOSIS INFORMATION

### BCM, IPDM E/R

#### List of ECU Reference

INFOID:000000007563521

| ECU      | Reference                                               |
|----------|---------------------------------------------------------|
| BCM      | <a href="#">BCS-31, "Reference Value"</a>               |
|          | <a href="#">BCS-53, "Fail-safe"</a>                     |
|          | <a href="#">BCS-53, "DTC Inspection Priority Chart"</a> |
|          | <a href="#">BCS-54, "DTC Index"</a>                     |
| IPDM E/R | <a href="#">PCS-15, "Reference Value"</a>               |
|          | <a href="#">PCS-21, "Fail-safe"</a>                     |
|          | <a href="#">PCS-23, "DTC Index"</a>                     |

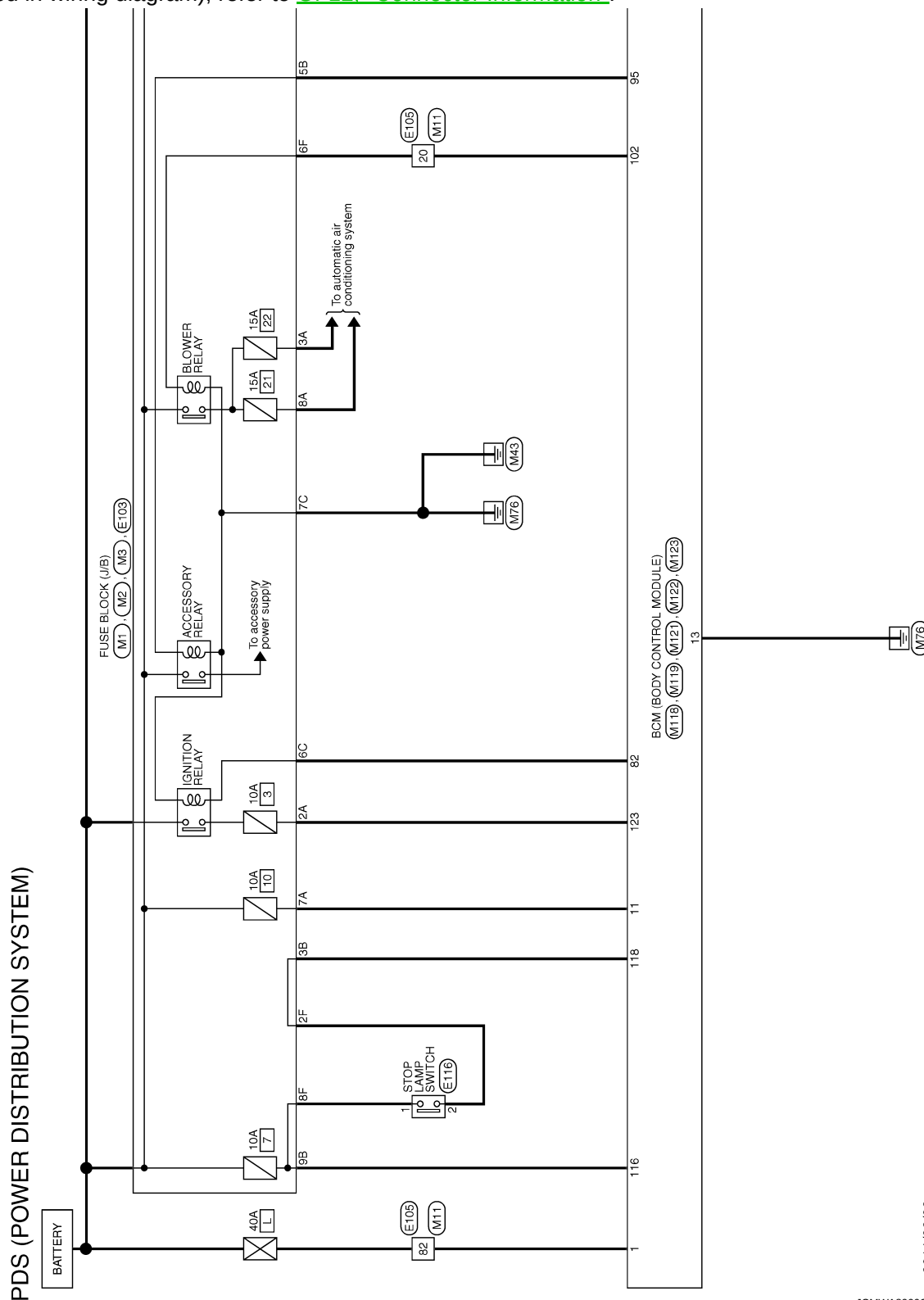
**[POWER DISTRIBUTION SYSTEM]**

## WIRING DIAGRAM

## Wiring Diagram - PDS (POWER DISTRIBUTION SYSTEM) -

INFOID:0000000007563522

For connector terminal arrangements, harness layouts, and alphabets in a  (option abbreviation; if not described in wiring diagram), refer to [GI-12, "Connector Information"](#).

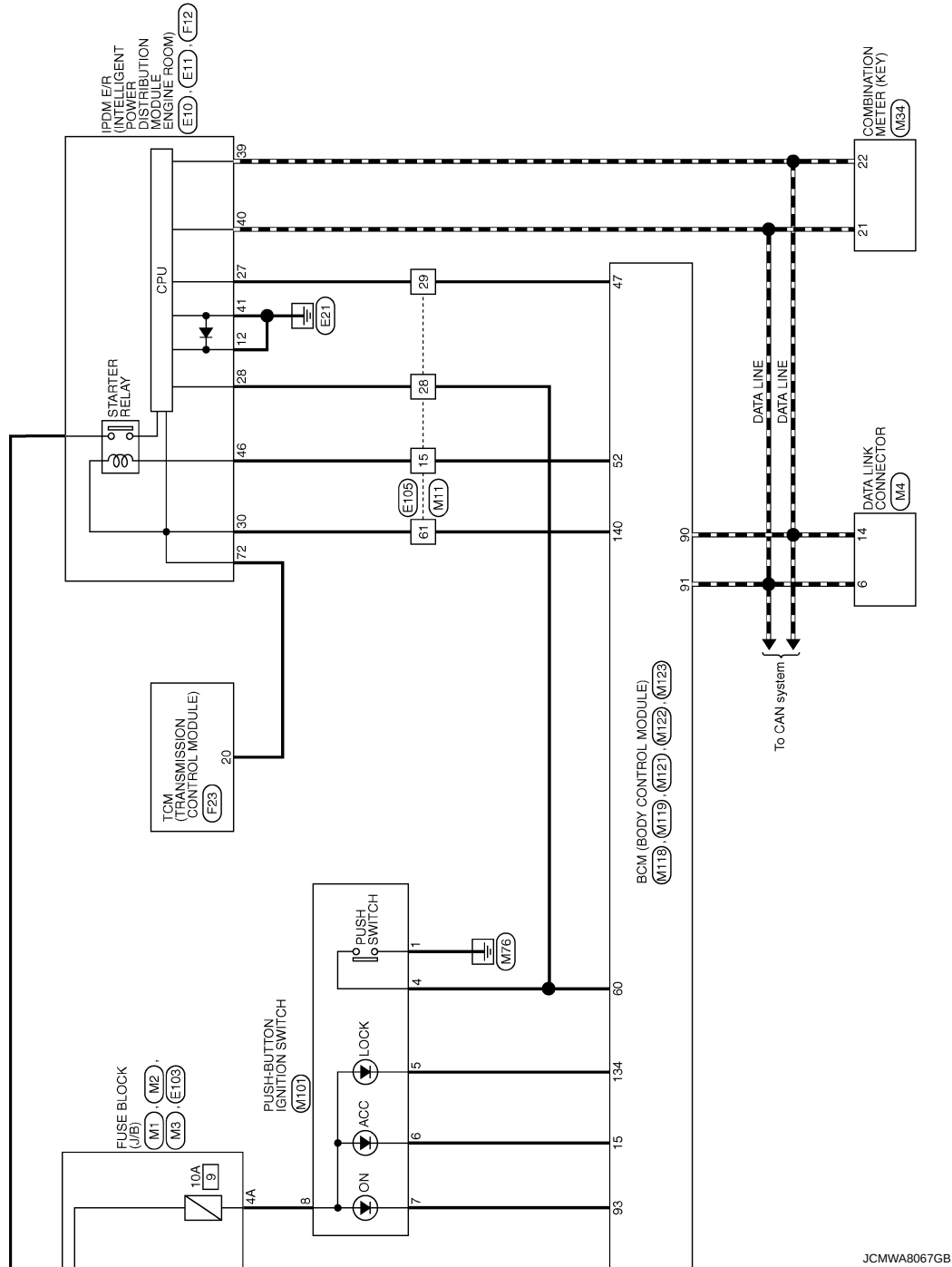


JCMWA8066GB

# POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]



JCMWA8067GB

# DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

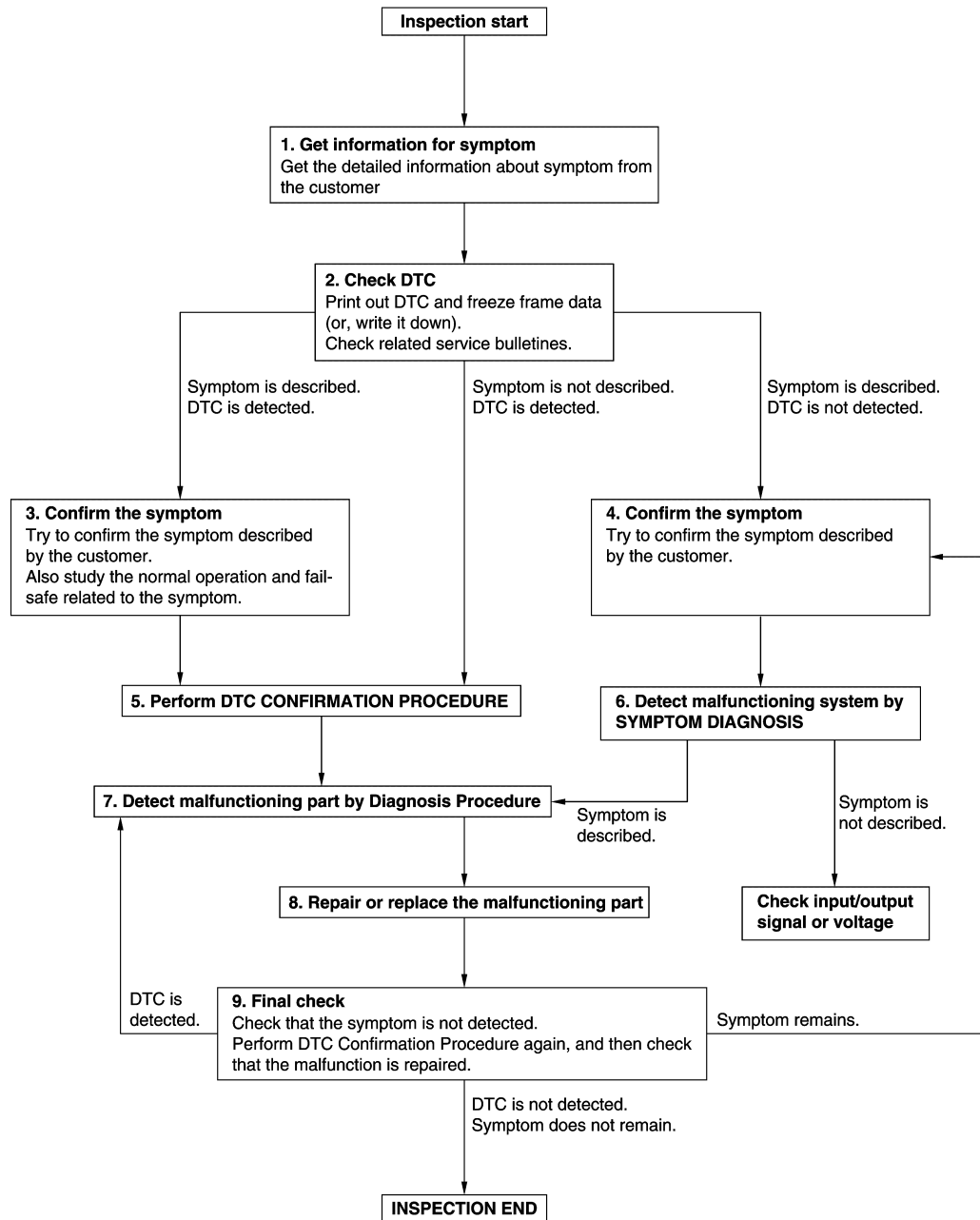
## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000007615060

#### OVERALL SEQUENCE



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DETAILED FLOW

JMKIA8652GB

# DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

---

## 1.GET INFORMATION FOR SYMPTOM

---

1. Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurs).
2. Check operation condition of the function that is malfunctioning.

>> GO TO 2.

## 2.CHECK DTC

---

1. Check DTC.
2. Perform the following procedure if DTC is detected.
  - Record DTC and freeze frame data (Print them out using 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 detected>>GO TO 3.

Symptom is described, DTC is not detected>>GO TO 4.

Symptom is not described, DTC is detected>>GO TO 5.

## 3.CONFIRM THE SYMPTOM

---

Try to confirm the symptom described by the customer.

Also study the normal operation and fail-safe related to the symptom.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

## 4.CONFIRM THE SYMPTOM

---

Try to confirm the symptom described by the customer.

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 detected DTC, and then check that DTC is detected again. At this time, always connect CONSULT to the vehicle, and check self diagnostic results in real time.

If two or more DTCs are detected, refer to [BCS-53, "DTC Inspection Priority Chart"](#), and determine trouble diagnosis order.

### NOTE:

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC CONFIRMATION PROCEDURE is not included on Service Manual. This simplified check procedure is an effective alternative though 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 >> Check according to [GI-40, "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.

Is the symptom described?

YES >> GO TO 7.

NO >> Monitor input data from related sensors or check voltage of related module terminals using CONSULT.

## 7.DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

---

## DIAGNOSIS AND REPAIR WORK FLOW

### < BASIC INSPECTION >

### [POWER DISTRIBUTION SYSTEM]

Inspect according to Diagnosis Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 8.

NO >> Check according to [GI-40. "Intermittent Incident"](#).

### 8. REPAIR OR REPLACE THE MALFUNCTIONING PART

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

>> GO TO 9.

### 9. FINAL CHECK

When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.

When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Is DTC detected and does symptom remain?

YES-1 >> DTC is detected: GO TO 7.

YES-2 >> Symptom remains: GO TO 4.

NO >> Before returning the vehicle to the customer, always erase DTC.

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PCS

## B2553 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

### DTC/CIRCUIT DIAGNOSIS

#### B2553 IGNITION RELAY

##### DTC Logic

INFOID:000000007563524

##### DTC DETECTION LOGIC

| DTC No. | Trouble diagnosis name | DTC detecting condition                                                                                                                                                                                                                | Possible cause                                                                                                                                        |
|---------|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| B2553   | IGNITION RELAY         | BCM detects a difference of signal for 2 seconds or more between the following information. <ul style="list-style-type: none"><li>Ignition relay (fuse block) ON/OFF operation</li><li>Ignition relay (fuse block) feedback.</li></ul> | <ul style="list-style-type: none"><li>Harness or connectors (Ignition relay feedback circuit is open or short)</li><li>BCM</li><li>IPDM E/R</li></ul> |

##### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

- Turn ignition switch ON under the following conditions (start the engine), and wait for at least 2 seconds.
  - Selector lever is in the P or N position.
  - Do not depress brake pedal.
- Check "Self diagnostic result" with CONSULT.

##### Is DTC detected?

YES >> Go to [PCS-50, "Diagnosis Procedure"](#).  
NO >> INSPECTION END

##### Diagnosis Procedure

INFOID:000000007563525

#### 1.CHECK DTC WITH IPDM E/R

Check "Self diagnostic result" with CONSULT. Refer to [PCS-23, "DTC Index"](#).

##### Is the inspection result normal?

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

#### 2.CHECK FUSE

Check that the following fuse are not fusing.

| Signal name           | Connection position | Fuse No. | Capacity |
|-----------------------|---------------------|----------|----------|
| Ignition power supply | FUSE BLOCK (J/B)    | 3        | 10A      |

##### Is the fuse fusing?

YES >> Repair the applicable circuit. And then replace the fuse.  
NO >> GO TO 3.

#### 3.CHECK IGNITION RELAY FEEDBACK INPUT SIGNAL

- Turn ignition switch OFF.
- Disconnect BCM connector.
- Check voltage between BCM harness connector and ground.

| (+)       |          | (-)    | Condition       |     | Voltage (V)<br>(Approx.) |
|-----------|----------|--------|-----------------|-----|--------------------------|
| BCM       |          |        |                 |     |                          |
| Connector | Terminal |        |                 |     |                          |
| M123      | 123      | Ground | Ignition switch | OFF | 0                        |
|           |          |        |                 | ON  | Battery voltage          |

##### Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-76, "Removal and Installation"](#).

## B2553 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

NO >> GO TO 4.

### 4. CHECK IGNITION RELAY FEEDBACK CIRCUIT

1. Disconnect fuse block (J/B) connector.
2. Check continuity between BCM harness connector and fuse block (J/B) harness connector.

| BCM       |          | FUSE BLOCK (J/B) |          | Continuity |
|-----------|----------|------------------|----------|------------|
| Connector | Terminal | Connector        | Terminal |            |
| M123      | 123      | M1               | 2A       | Existed    |

3. Check continuity between BCM harness connector and ground.

| BCM       |          | Ground | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| M123      | 123      |        | Not existed |

Is the inspection result normal?

- YES >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#).  
NO >> Repair or replace harness.

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## B260A IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

### B260A IGNITION RELAY

#### DTC Logic

INFOID:000000007563526

#### DTC DETECTION LOGIC

##### NOTE:

- If DTC B260A is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-65, "DTC Logic"](#).
- If DTC B260A is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-66, "DTC Logic"](#).
- If DTC B260A is displayed with DTC B261A, first perform the trouble diagnosis for DTC B261A. Refer to [PCS-64, "DTC Logic"](#).

| DTC No. | Trouble diagnosis name | DTC detecting condition                                                                                                                                                                                                                         | Possible cause                                                                                                                                                  |
|---------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B260A   | IGNITION RELAY         | BCM detects a difference of signal for 2 second or more between the following information. <ul style="list-style-type: none"><li>• Ignition relay (IPDM E/R) operation request</li><li>• Ignition relay feedback from IPDM E/R (CAN).</li></ul> | <ul style="list-style-type: none"><li>• Harness or connectors (Ignition relay operation circuit is open or shorted.)</li><li>• BCM</li><li>• IPDM E/R</li></ul> |

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON under the following conditions, and wait for at least 2 seconds.
  - Selector lever is in the P or N position.
  - Do not depress brake pedal.
2. Check "Self diagnostic result" with CONSULT.

##### Is DTC detected?

- YES >> Go to [PCS-52, "Diagnosis Procedure"](#).  
NO >> INSPECTION END

#### Diagnosis Procedure

INFOID:000000007563527

##### 1.CHECK DTC WITH IPDM E/R

Check "Self diagnostic result" with CONSULT. Refer to [PCS-23, "DTC Index"](#).

##### Is DTC detected?

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

##### 2.CHECK IGNITION RELAY INPUT SIGNAL

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

| (+)       |          | (-)    | Voltage (V)<br>(Approx.) |
|-----------|----------|--------|--------------------------|
| BCM       |          |        |                          |
| Connector | Terminal |        |                          |
| M121      | 47       | Ground | Battery voltage          |

##### Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-76, "Removal and Installation"](#).  
NO >> GO TO 3.

##### 3.CHECK IGNITION RELAY (IPDM E/R) CIRCUIT

1. Disconnect IPDM E/R connector.
2. Check continuity between IPDM E/R harness connector and BCM harness connector.

## B260A IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

| IPDM E/R  |          | BCM       |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| E10       | 27       | M121      | 47       | Existed    |

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

| IPDM E/R  |          | Ground | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| E10       | 27       |        | Not existed |

Is the inspection result normal?

- YES >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#).  
NO >> Repair or replace harness.

PCS

# B2614 ACC RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## B2614 ACC RELAY

### DTC Logic

INFOID:000000007563528

### DTC DETECTION LOGIC

| DTC No. | Trouble diagnosis name | DTC detecting condition                                                                                         | Possible cause                                                                                                                                 |
|---------|------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| B2614   | BCM                    | An immediate operation of accessory relay is requested by BCM, but there is no response for more than 1 second. | <ul style="list-style-type: none"><li>• Harness or connectors (Accessory relay circuit is open or shorted)</li><li>• Accessory relay</li></ul> |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the power supply position to ACC under the following conditions, and wait for at least 1 second.
  - Selector lever is in the P or N position.
  - Do not depress brake pedal.
2. Check "Self diagnostic result" with CONSULT.

#### Is DTC detected?

YES >> Go to [PCS-54, "Diagnosis Procedure"](#).  
NO >> INSPECTION END

### Diagnosis Procedure

INFOID:000000007563529

#### 1.CHECK ACCESSORY RELAY POWER SUPPLY-1

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

| (+)             | (-)    | Condition       |     | Voltage (V)<br>(Approx.) |
|-----------------|--------|-----------------|-----|--------------------------|
| Accessory relay |        |                 |     |                          |
| Terminal        |        |                 |     |                          |
| 1               | Ground | Ignition switch | OFF | 0                        |
|                 |        |                 | ACC | Battery voltage          |

#### Is the inspection result normal?

YES >> GO TO 4.  
NO >> GO TO 2.

#### 2.CHECK ACCESSORY RELAY POWER SUPPLY-2

1. Disconnect fuse block (J/B) connector.
2. Check voltage between fuse block (J/B) harness connector and ground.

| (+)Fuse block (J/B) |          | (-)    | Condition       |     | Voltage (V)<br>(Approx.) |
|---------------------|----------|--------|-----------------|-----|--------------------------|
| Connector           | Terminal |        |                 |     |                          |
| M2                  | 5B       | Ground | Ignition switch | OFF | 0                        |
|                     |          |        |                 | ACC | Battery voltage          |

#### Is the inspection result normal?

YES >> Replace fuse block (J/B).  
NO >> GO TO 3.

#### 3.CHECK ACCESSORY RELAY POWER SUPPLY CIRCUIT-1

1. Disconnect BCM connector.

## B2614 ACC RELAY

### < DTC/CIRCUIT DIAGNOSIS >

### [POWER DISTRIBUTION SYSTEM]

2. Check continuity between fuse block (J/B) harness connector and BCM harness connector.

| Fuse block (J/B) |          | BCM       |          | Continuity |
|------------------|----------|-----------|----------|------------|
| Connector        | Terminal | Connector | Terminal |            |
| M2               | 5B       | M122      | 95       | Existed    |

3. Check continuity between fuse block (J/B) harness connector and ground.

| Fuse block (J/B) |          | Ground | Continuity  |
|------------------|----------|--------|-------------|
| Connector        | Terminal |        |             |
| M2               | 5B       |        | Not existed |

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-76, "Removal and Installation"](#).

NO >> Repair or replace harness.

### 4.CHECK ACCESSORY RELAY GROUND CIRCUIT

Check continuity between accessory relay harness connector and ground.

| Accessory relay |  | Ground | Continuity |
|-----------------|--|--------|------------|
| Terminal        |  |        |            |
| 2               |  |        | Existed    |

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair accessory relay ground circuit.

### 5.CHECK ACCESSORY RELAY POWER SUPPLY CIRCUIT-2

1. Install accessory relay.
2. Turn ignition switch ACC.
3. Check voltage between accessory relay harness connector and ground.

| (+)                         | (-)    | Voltage (V)<br>(Approx.) |
|-----------------------------|--------|--------------------------|
| Accessory relay<br>Terminal |        |                          |
| 5                           | Ground | Battery voltage          |

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 6.

### 6.CHECK ACCESSORY RELAY

Refer to [PCS-55, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace fuse block (J/B).

NO >> Replace accessory relay.

### 7.CHECK INTERMITTENT INCIDENT

Refer to [GI-40, "Intermittent Incident"](#).

>> INSPECTION END

## Component Inspection

INFOID:000000007563530

### 1.CHECK ACCESSORY RELAY

1. Turn ignition switch OFF.
2. Remove accessory relay.

## B2614 ACC RELAY

### < DTC/CIRCUIT DIAGNOSIS >

### [POWER DISTRIBUTION SYSTEM]

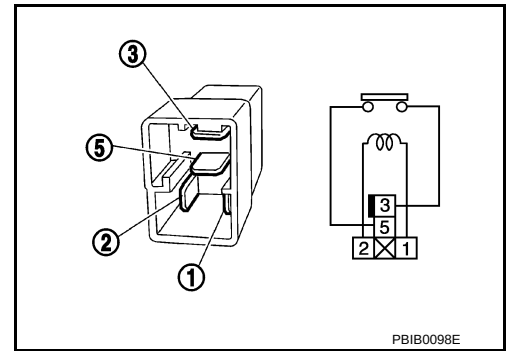
3. Check the continuity between accessory relay terminals.

| Terminals | Condition                                            | Continuity  |
|-----------|------------------------------------------------------|-------------|
| 3 and 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.



# B2615 BLOWER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## B2615 BLOWER RELAY CIRCUIT

### DTC Logic

INFOID:000000007563531

### DTC DETECTION LOGIC

| DTC No. | Trouble diagnosis name | DTC detecting condition                                                                                                                                                                              | Possible cause                                                                                                                       |
|---------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| B2615   | BCM                    | BCM detects a difference of signal for 1 second or more between the following information. <ul style="list-style-type: none"><li>Blower relay ON/OFF request</li><li>Blower relay feedback</li></ul> | <ul style="list-style-type: none"><li>Harness or connectors (Blower relay circuit is open or shorted)</li><li>Blower relay</li></ul> |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

- Turn ignition switch ON under the following conditions, and wait for at least 1 second.
  - Selector lever is in the P or N position
  - Do not depress brake pedal
- Check "Self diagnostic result" with CONSULT.

#### Is DTC detected?

- YES >> Go to [PCS-57. "Diagnosis Procedure"](#).  
NO >> INSPECTION END

### Diagnosis Procedure

INFOID:000000007563532

#### 1.CHECK BLOWER RELAY POWER SUPPLY-1

- Turn ignition switch OFF.
- Remove blower relay.
- Check voltage between blower relay harness connector and ground.

| (+)          | (-)    | Condition       |            | Voltage (V)<br>(Approx.) |
|--------------|--------|-----------------|------------|--------------------------|
| Blower relay |        |                 |            |                          |
| Terminal     |        |                 |            |                          |
| 1            | Ground | Ignition switch | OFF or ACC | 0                        |
|              |        |                 | ON         | Battery voltage          |

#### Is the inspection result normal?

- YES >> GO TO 4.  
NO >> GO TO 2.

#### 2.CHECK BLOWER RELAY POWER SUPPLY-2

- Disconnect fuse block (J/B) connector.
- Check voltage between fuse block (J/B) harness connector and ground.

| (+)              |          | (–)    | Condition       |            | Voltage (V)<br>(Approx.) |
|------------------|----------|--------|-----------------|------------|--------------------------|
| Fuse block (J/B) |          |        |                 |            |                          |
| Connector        | Terminal |        |                 |            |                          |
| E103             | 6F       | Ground | Ignition switch | OFF or ACC | 0                        |
|                  |          |        |                 | ON         | Battery voltage          |

#### Is the inspection result normal?

- YES >> Replace fuse block (J/B).  
NO >> GO TO 3.

#### 3.CHECK BLOWER RELAY POWER SUPPLY CIRCUIT-1

- Disconnect BCM connector.

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## B2615 BLOWER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

2. Check continuity between fuse block (J/B) harness connector and BCM harness connector.

| Fuse block (J/B) |          | BCM       |          | Continuity |
|------------------|----------|-----------|----------|------------|
| Connector        | Terminal | Connector | Terminal |            |
| E103             | 6F       | M122      | 102      | Existed    |

3. Check continuity between fuse block (J/B) harness connector and ground.

| Fuse block (J/B) |          | Ground | Continuity  |
|------------------|----------|--------|-------------|
| Connector        | Terminal |        |             |
| E103             | 6F       |        | Not existed |

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-76, "Removal and Installation"](#).

NO >> Repair or replace harness.

### 4.CHECK BLOWER RELAY GROUND CIRCUIT

Check continuity between blower relay harness connector and ground.

| Blower relay |  | Ground | Continuity |
|--------------|--|--------|------------|
| Terminal     |  |        |            |
| 2            |  |        | Existed    |

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair blower relay ground circuit.

### 5.CHECK BLOWER RELAY POWER SUPPLY CIRCUIT-2

1. Install blower relay.
2. Turn ignition switch ON.
3. Check voltage between blower relay harness connector and ground.

| (+)                      | (-)    | Voltage (V)<br>(Approx.) |
|--------------------------|--------|--------------------------|
| Blower relay<br>Terminal |        |                          |
| 5                        | Ground | Battery voltage          |

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 6.

### 6.CHECK BLOWER RELAY

Refer to [PCS-58, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace fuse block (J/B).

NO >> Replace blower relay.

### 7.CHECK INTERMITTENT INCIDENT

Refer to [GI-40, "Intermittent Incident"](#).

>> INSPECTION END

## Component Inspection

INFOID:000000007563533

### 1.CHECK BLOWER RELAY

1. Turn ignition switch OFF.
2. Remove blower relay.

B2615 BLOWER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

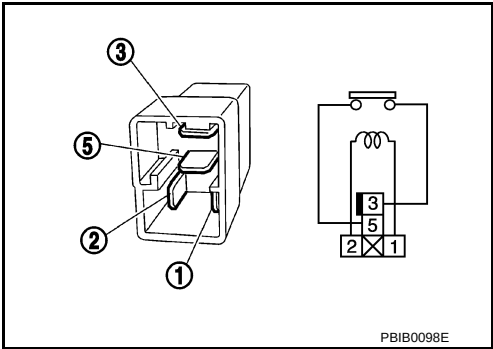
[POWER DISTRIBUTION SYSTEM]

3. Check the continuity between blower relay terminals.

| Terminals | Condition                                            | Continuity  |
|-----------|------------------------------------------------------|-------------|
| 3 and 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 blower relay.



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PCS

# B2616 IGNITION RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## B2616 IGNITION RELAY CIRCUIT

### DTC Logic

INFOID:000000007563534

### DTC DETECTION LOGIC

| DTC No. | Trouble diagnosis name | DTC detecting condition                                                                                                    | Possible cause                                                                                                                                            |
|---------|------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| B2616   | BCM                    | An immediate operation of ignition relay (fuse block) is requested by BCM, but there is no response for more than 1 second | <ul style="list-style-type: none"><li>• Harness or connectors (Ignition relay circuit is open or shorted)</li><li>• Ignition relay (fuse block)</li></ul> |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON under the following conditions, and wait for at least 1 second.
  - Selector lever is in the P or N position.
  - Do not depress brake pedal.
2. Check "Self diagnostic result" with CONSULT.

#### Is DTC detected?

YES >> Go to [PCS-60, "Diagnosis Procedure"](#).  
NO >> INSPECTION END

### Diagnosis Procedure

INFOID:000000007563535

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

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

| (+)            | (-)    | Condition       |            | Voltage (V)<br>(Approx.) |
|----------------|--------|-----------------|------------|--------------------------|
| Ignition relay |        |                 |            |                          |
| Terminal       |        |                 |            |                          |
| 1              | Ground | Ignition switch | OFF or ACC | 0                        |
|                |        |                 | ON         | Battery voltage          |

#### Is the inspection result normal?

YES >> GO TO 4.  
NO >> GO TO 2.

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

1. Disconnect fuse block (J/B) connector.
2. Check voltage between fuse block (J/B) harness connector and ground.

| (+)              | (-) | Condition |                 | Voltage (V)<br>(Approx.) |
|------------------|-----|-----------|-----------------|--------------------------|
| Fuse block (J/B) |     |           |                 |                          |
| Connector        |     |           |                 |                          |
| M3               | 6C  | Ground    | Ignition switch | OFF or ACC               |
|                  |     |           | ON              | Battery voltage          |

#### Is the inspection result normal?

YES >> Replace fuse block (J/B).  
NO >> GO TO 3.

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

1. Disconnect BCM connector.

## B2616 IGNITION RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

2. Check continuity between fuse block (J/B) harness connector and BCM harness connector.

| Fuse block (J/B) |          | BCM       |          | Continuity |
|------------------|----------|-----------|----------|------------|
| Connector        | Terminal | Connector | Terminal |            |
| M3               | 6C       | M122      | 82       | Existed    |

3. Check continuity between fuse block (J/B) harness connector and ground.

| Fuse block (J/B) |          | Ground | Continuity  |
|------------------|----------|--------|-------------|
| Connector        | Terminal |        |             |
| M3               | 6C       |        | Not existed |

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-76, "Removal and Installation"](#).

NO >> Repair or replace harness.

### 4.CHECK IGNITION RELAY GROUND CIRCUIT

Check continuity between ignition relay harness connector and ground.

| Ignition relay | Ground | Continuity |
|----------------|--------|------------|
| Terminal       |        |            |
| 2              |        | Existed    |

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair ignition relay ground circuit.

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

1. Install ignition relay.
2. Turn ignition switch ON.
3. Check voltage between ignition relay harness connector and ground.

| (+)            | (-)    | Voltage (V)<br>(Approx.) |
|----------------|--------|--------------------------|
| Ignition relay |        |                          |
| Terminal       |        |                          |
| 5              | Ground | Battery voltage          |

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 6.

### 6.CHECK IGNITION RELAY

Refer to [PCS-61, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace fuse block (J/B).

NO >> Replace ignition relay.

### 7.CHECK INTERMITTENT INCIDENT

Refer to [GI-40, "Intermittent Incident"](#).

>> INSPECTION END

## Component Inspection

INFOID:000000007563536

### 1.CHECK IGNITION RELAY

1. Turn ignition switch OFF.
2. Remove ignition relay.

## B2616 IGNITION RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

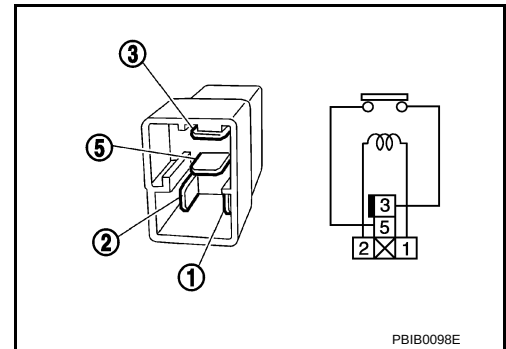
3. Check the continuity between ignition relay terminals.

| Terminals | Condition                                            | Continuity  |
|-----------|------------------------------------------------------|-------------|
| 3 and 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.



## B2618 BCM

### DTC Logic

INFOID:000000007563537

#### DTC DETECTION LOGIC

##### NOTE:

- If DTC B2618 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-65, "DTC Logic"](#).
- If DTC B2618 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-66, "DTC Logic"](#).

| DTC No. | Trouble diagnosis name | DTC detecting condition                                                                                                  | Possible cause |
|---------|------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------|
| B2618   | BCM                    | An immediate operation of ignition relay (IPDM E/R) is requested by BCM, but there is no response for more than 1 second | BCM            |

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON under the following conditions, and wait for at least 1 second.
  - Selector lever is in the P or N position.
  - Do not depress brake pedal.
2. Check "Self diagnostic result" with CONSULT.

##### Is DTC detected?

- YES >> Go to [PCS-63, "Diagnosis Procedure"](#).  
 NO >> INSPECTION END

### Diagnosis Procedure

INFOID:000000007563538

##### 1.INSPECTION START

1. Turn ignition switch ON.
2. Select "Self diagnostic result" mode with CONSULT.
3. Touch "ERASE".
4. **Perform DTC Confirmation Procedure.**  
See [PCS-63, "DTC Logic"](#).

##### Is the 1st trip DTC B2618 displayed again?

- YES >> Replace BCM. Refer to [BCS-76, "Removal and Installation"](#)  
 NO >> INSPECTION END

PCS

# B261A PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## B261A PUSH-BUTTON IGNITION SWITCH

### DTC Logic

INFOID:000000007563539

### DTC DETECTION LOGIC

| DTC No. | Trouble diagnosis name      | DTC detecting condition                                                                                                                                                                                                                           | Possible cause                                                                     |
|---------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| B261A   | PUSH-BUTTON IGNITION SWITCH | BCM detects a difference of signal for 1 second or more between the following information. <ul style="list-style-type: none"><li>Power supply position by push-button ignition switch</li><li>Power supply position from IPDM E/R (CAN)</li></ul> | Harness or connectors<br>(Push-button ignition switch circuit is open or shorted.) |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

- Press the push-button ignition switch under the following conditions, and wait for at least 1 second.
  - Selector lever is in the P or N position.
  - Do not depress brake pedal.
- Check "Self diagnostic result" with CONSULT.

#### Is DTC detected?

- YES >> Go to [PCS-64, "Diagnosis Procedure"](#).  
NO >> INSPECTION END

### Diagnosis Procedure

INFOID:000000007563540

#### 1.CHECK IGNITION SWITCH OUTPUT SIGNAL

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

| (+)       |          | (-)    | Voltage (V)<br>(Approx.) |
|-----------|----------|--------|--------------------------|
| IPDM E/R  |          |        |                          |
| Connector | Terminal |        |                          |
| E10       | 28       | Ground | Battery voltage          |

#### Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#).

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

- Disconnect BCM connector.
- Check continuity between IPDM E/R harness connector and BCM harness connector.

| IPDM E/R  |          | BCM       |          | Continuity |
|-----------|----------|-----------|----------|------------|
| Connector | Terminal | Connector | Terminal |            |
| E10       | 28       | M121      | 60       | Existed    |

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

| IPDM E/R  |          | Ground | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| E10       | 28       |        | Not existed |

#### Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-76, "Removal and Installation"](#).  
NO >> Repair or replace harness.

# PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## PUSH-BUTTON IGNITION SWITCH

### Component Function Check

INFOID:000000007563541

#### 1.CHECK FUNCTION

1. Select "PUSH SW" in "Data Monitor" mode with CONSULT.
2. Check the push-button ignition switch signal under the following condition.

| 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 >> Go to [PCS-65, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000007563542

#### 1.CHECK PUSH-BUTTON IGNITION 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 (V)<br>(Approx.) |
|-----------------------------|----------|--------|--------------------------|
| Push-button ignition switch |          |        |                          |
| Connector                   | Terminal |        |                          |
| M101                        | 4        | Ground | Battery voltage          |

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

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

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 |            |
| M121      | 60       | M101                        | 4        | Existed    |

3. Check continuity between BCM harness connector and ground.

| BCM       |          | Ground | Continuity  |
|-----------|----------|--------|-------------|
| Connector | Terminal |        |             |
| M121      | 60       |        | Not existed |

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-76, "Removal and Installation"](#).

NO >> Repair or replace harness.

#### 3.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 |        |            |
| M101                        | 1        |        | Existed    |

## PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

### 4.CHECK PUSH-BUTTON IGNITION SWITCH

Refer to [PCS-66, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace push-button ignition switch.

### 5.CHECK INTERMITTENT INCIDENT

Refer to [GI-40, "Intermittent Incident"](#).

>> INSPECTION END

## Component Inspection

INFOID:000000007563543

### 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                    |   |                             |             |             |
| 1                           | 4 | Push-button ignition switch | Pressed     | Existed     |
|                             |   |                             | Not pressed | Not existed |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace push-button ignition switch.

# PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR

### Description

INFOID:0000000007563544

The switch that changes the power supply position.

BCM maintains the power supply position status.

BCM changes the power supply position with the operation of the push-button ignition switch.

### Component Function Check

INFOID:0000000007563545

#### 1.CHECK FUNCTION

Check push-button ignition switch ("LOCK INDICATOR", "ACC INDICATOR" and "IGNITION ON IND") in Active Test Mode with CONSULT.

| Test item                                          |     | Description        |                |
|----------------------------------------------------|-----|--------------------|----------------|
| LOCK INDICATOR<br>ACC INDICATOR<br>IGNITION ON IND | ON  | Position indicator | Illuminate     |
|                                                    | OFF |                    | Not illuminate |

Is the inspection result normal?

YES >> INSPECTION END

NO >> Refer to [PCS-67, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:0000000007563546

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

- Turn ignition switch OFF.
- Disconnect push-button ignition switch connector.
- Check voltage between push-button ignition switch harness connector and ground.

| (+)                         |          | (-)    | Voltage (V)<br>(Approx.) |
|-----------------------------|----------|--------|--------------------------|
| Push-button ignition switch |          |        |                          |
| Connector                   | Terminal |        |                          |
| M101                        | 9        | Ground | Battery voltage          |

Is the inspection normal?

YES >> GO TO 2.

NO-1 >> Check 10 A fuse [No.9, located in fuse block (J/B)].

NO-2 >> Check harness for open or short between push-button ignition switch and fuse.

#### 2.CHECK BCM INPUT

- Connect push-button ignition switch connector.
- Disconnect BCM connector.
- Check voltage between BCM connector and ground.

| (+)       |          | (-)    | Voltage (V)<br>(Approx.) |
|-----------|----------|--------|--------------------------|
| BCM       |          |        |                          |
| Connector | Terminal |        |                          |
| M119      | 15       | Ground | Battery voltage          |
| M122      | 93       |        |                          |
| M123      | 134      |        |                          |

Is the inspection normal?

YES >> Replace BCM. Refer to [BCS-76, "Removal and Installation"](#).

NO >> GO TO 3.

#### 3.CHECK PUSH-BUTTON IGNITION SWITCH CIRCUIT

- Disconnect push-button ignition switch connector.

## PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

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

| Indicator | BCM       |          | Push-button ignition switch |          | Continuity |
|-----------|-----------|----------|-----------------------------|----------|------------|
|           | Connector | Terminal | Connector                   | Terminal |            |
| LOCK      | M123      | 134      | M101                        | 5        | Existed    |
| ACC       | M119      | 15       |                             | 6        |            |
| ON        | M122      | 93       |                             | 7        |            |

3. Check continuity between BCM harness connector and ground.

| Indicator | BCM       |          | Ground | Continuity  |
|-----------|-----------|----------|--------|-------------|
|           | Connector | Terminal |        |             |
| LOCK      | M123      | 134      |        | Not existed |
| ACC       | M119      | 15       |        |             |
| ON        | M122      | 93       |        |             |

Is the inspection normal?

- YES >> Replace push-button ignition switch.  
NO >> Repair or replace harness.

# PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## SYMPTOM DIAGNOSIS

### PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE

#### Description

INFOID:000000007563547

Check that vehicle is under the condition shown in “Conditions of vehicle” before starting diagnosis, and check each symptom.

#### NOTE:

The engine start function, door lock function, power distribution system, and NATS-IVIS/NVIS in the Intelligent Key system are closely related to each other regarding control. The vehicle security function can operate only when the door lock and power distribution system are operating normally.

#### Conditions of Vehicle (Operating Conditions)

- “ENGINE START BY I-KEY” in “WORK SUPPORT” is ON when setting on CONSULT.
- Intelligent Key is not inserted in key slot.
- One or more of Intelligent Keys with registered Intelligent Key ID is in the vehicle.

#### Diagnosis Procedure

INFOID:000000007563548

#### 1.PERFORM WORK SUPPORT

Perform “INSIDE ANT DIAGNOSIS” on Work Support of “INTELLIGENT KEY”.

Refer to [DLK-35. "INTELLIGENT KEY : CONSULT Function \(BCM - INTELLIGENT KEY\)".](#)

>> GO TO 2.

#### 2.PERFORM SELF-DIAGNOSTIC RESULT

Perform Self-Diagnostic Result of “BCM”.

Is DTC detected?

YES >> Refer to [BCS-54. "DTC Index".](#)

NO >> GO TO 3.

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

Check push-button ignition switch.

Refer to [PCS-65. "Component Function Check".](#)

Is the operation normal?

YES >> GO TO 4.

NO >> Repair or replace malfunctioning parts.

#### 4.CONFIRM THE OPERATION

Confirm the operation again.

Is the inspection normal?

YES >> Check intermittent incident. Refer to [GI-40. "Intermittent Incident".](#)

NO >> GO TO 1.

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PCS

# PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR DOES NOT ILLUMINATE

< SYMPTOM DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR DOES NOT ILLUMINATE

### Description

INFOID:000000007563549

- Before performing the diagnosis in the following table, check "Work Flow". Refer to [PCS-47, "Work Flow"](#).
- Check that vehicle is under the condition shown in "Conditions of vehicle" before starting diagnosis, and check each symptom.

### Conditions of Vehicle (Operating Conditions)

- "ENGINE START BY I-KEY" in "WORK SUPPORT" is ON when setting on CONSULT.
- One or more of Intelligent Keys with registered Intelligent Key ID is in the vehicle.

### Diagnosis Procedure

INFOID:000000007563550

#### 1.CHECK PUSH-BUTTON IGNITION SWITCH INDICATOR

Check push-button ignition switch indicator.

Refer to [PCS-67, "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

#### 2.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to [GI-40, "Intermittent Incident"](#).

NO >> GO TO 1.

# PUSH BUTTON IGNITION SWITCH

< REMOVAL AND INSTALLATION >

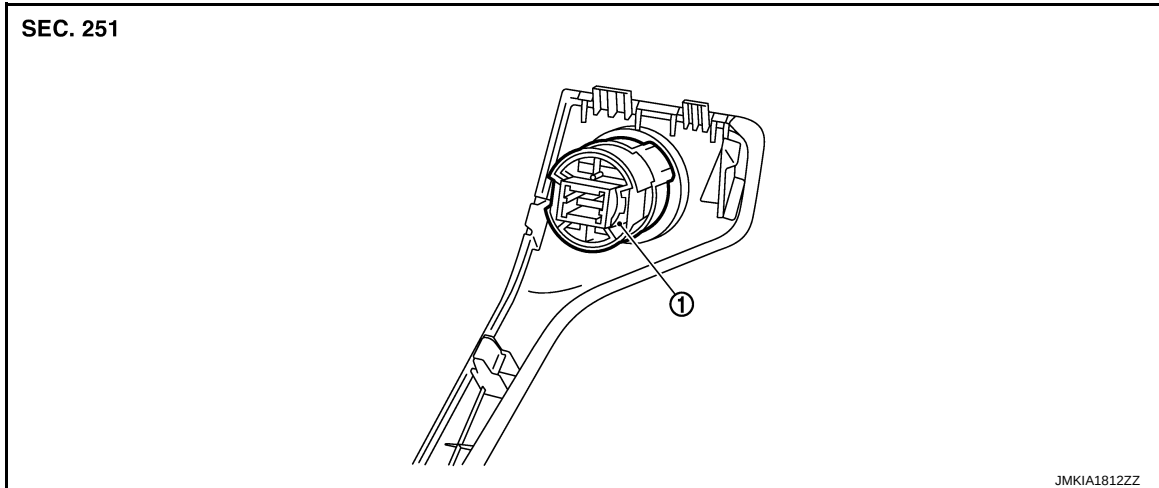
[POWER DISTRIBUTION SYSTEM]

## REMOVAL AND INSTALLATION

### PUSH BUTTON IGNITION SWITCH

Exploded View

INFOID:000000007563551



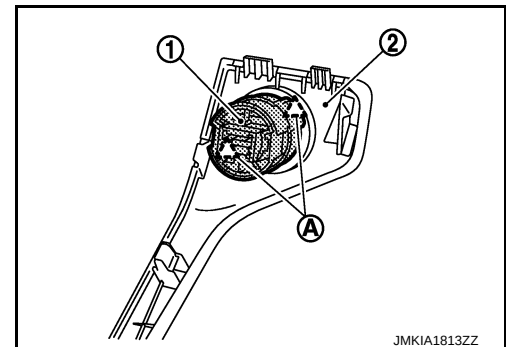
1. Push-button ignition switch

### Removal and Installation

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#### REMOVAL

1. Remove the instrument stay cover LH. Refer to [IP-13, "Removal and Installation"](#).
2. Remove the push-button ignition switch (1) from instrument stay cover LH, after removing pawl (A). Press push-button ignition switch (1) back to disengage from instrument stay cover LH (2).



#### INSTALLATION

Install in the reverse order of removal.