

# 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:000000009755805

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

**WARNING:**

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which 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 the SR section.
- Do not 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:**

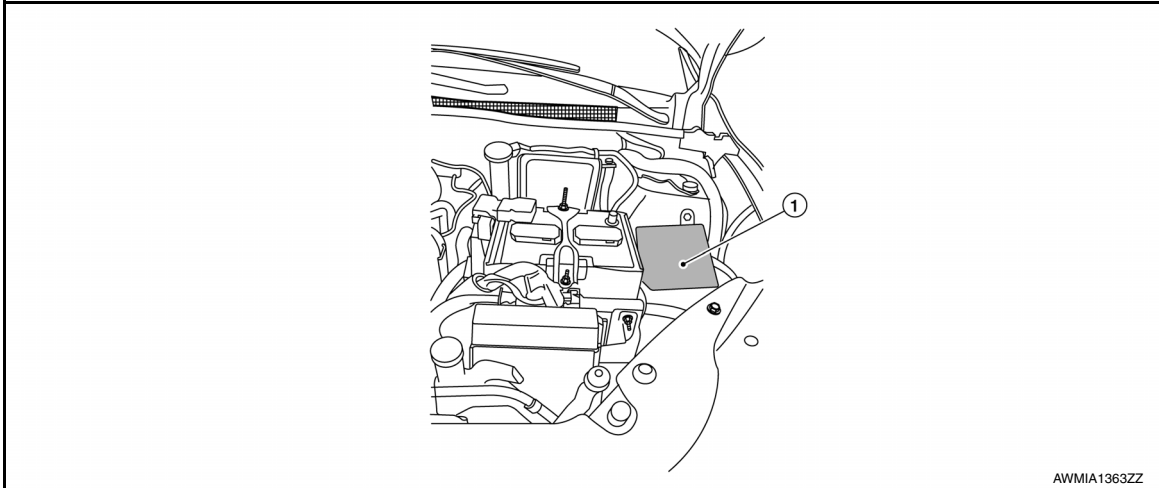
- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

# SYSTEM DESCRIPTION

## COMPONENT PARTS

### Component Parts Location

INFOID:000000009755806



- 1. IPDM E/R

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# SYSTEM

< SYSTEM DESCRIPTION >

[IPDM E/R (WITH I-KEY)]

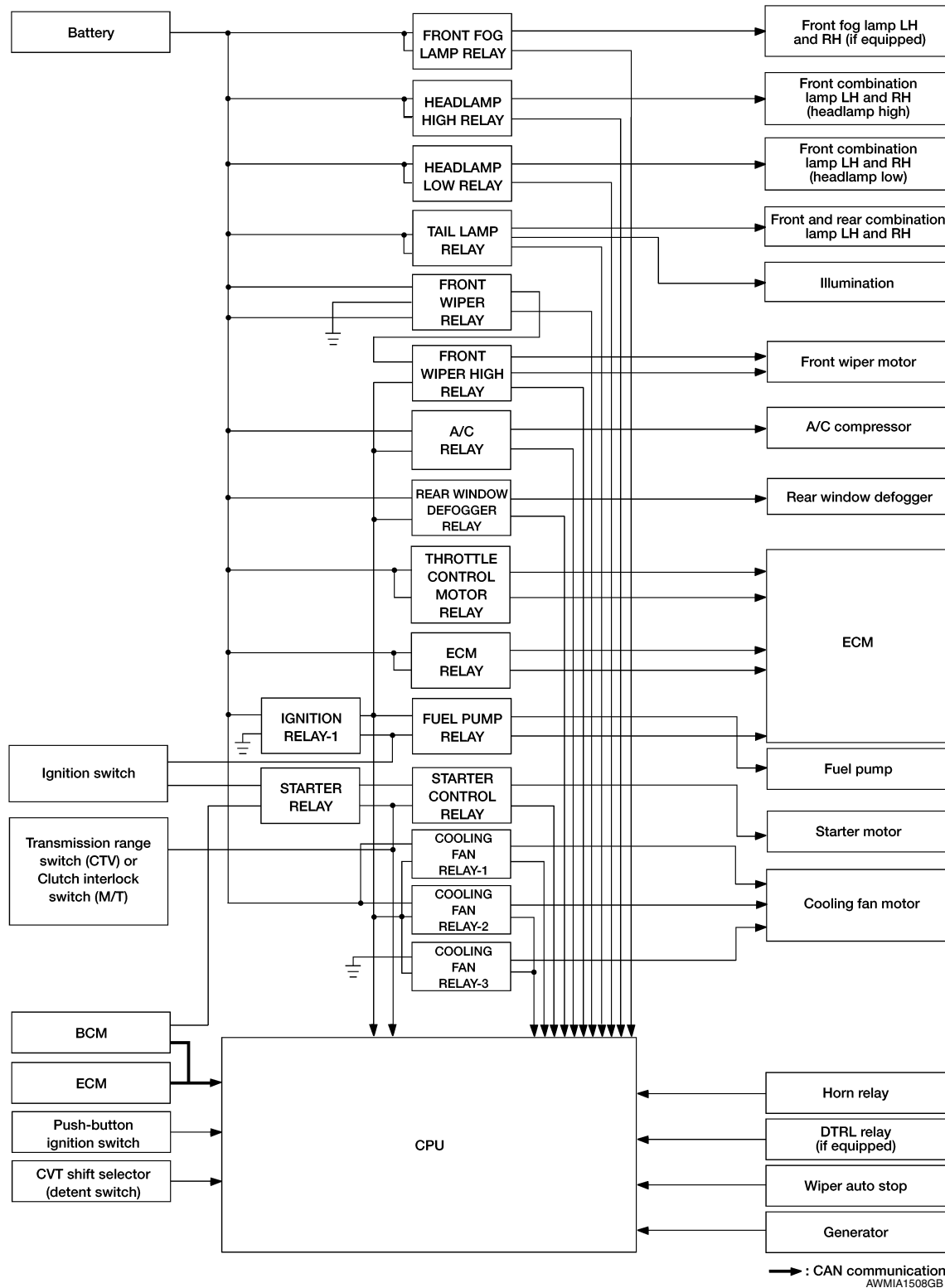
## SYSTEM

### RELAY CONTROL SYSTEM

### RELAY CONTROL SYSTEM : System Diagram

INFOID:000000009755807

### SYSTEM DIAGRAM



# SYSTEM

< SYSTEM DESCRIPTION >

[IPDM E/R (WITH I-KEY)]

## RELAY CONTROL SYSTEM : System Description

INFOID:000000009755808

### DESCRIPTION

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

#### CAUTION:

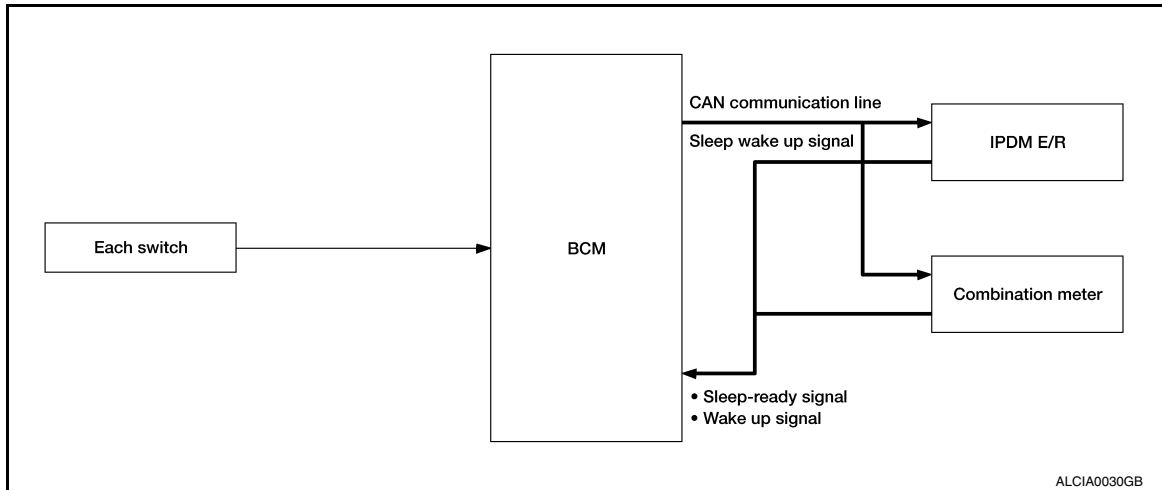
**IPDM E/R integrated relays cannot be removed.**

Control relay	Input/output	Transmit unit	Control part	Reference page
Fog lamp relay	Fog lamp request signal	BCM (CAN)	Fog lamp (if equipped)	<a href="#">EXL-10</a>
<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 LO</li> <li>• Headlamp HI</li> </ul>	<a href="#">EXL-8</a>
Tail lamp relay	Position light request signal	BCM (CAN)	<ul style="list-style-type: none"> <li>• Parking lamp</li> <li>• License plate lamp</li> <li>• Tail lamp</li> <li>• Accent lamp</li> <li>• Illumination system</li> </ul>	<a href="#">EXL-11</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-8</a>
	Front wiper stop position signal	Front wiper motor		
Rear window defogger relay	Rear window defogger relay control signal	BCM (CAN)	Rear window defogger	<a href="#">DEF-6</a>
Starter control relay	Starter control relay signal	BCM (CAN)	Starter motor	<a href="#">STR-8</a>
	Transmission range switch signal (CVT models)	Transmission range switch		
	Clutch interlock switch signal (M/T models)	Clutch interlock switch		
<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)	Cooling fan	<a href="#">EC-47</a>
A/C relay	A/C compressor request signal	ECM (CAN)	A/C compressor (Magnet clutch)	<a href="#">HAC-15</a> (automatic air conditioner) <a href="#">HAC-122</a> (manual air conditioner)
ECM relay	ECM relay control signal	ECM (CAN)	ECM	<a href="#">EC-32</a>
Throttle control motor relay	Throttle control motor control signal	ECM (CAN)	ECM	<a href="#">EC-430</a>
Fuel pump relay	Fuel pump request signal	ECM (CAN)	Fuel pump	<a href="#">EC-453</a>
Ignition relay-1	Ignition switch ON signal	BCM (CAN)	Each control unit, sensor, actuator and relay (Ignition power supply)	<a href="#">PCS-63</a>
	Vehicle speed signal (Meter)	Combination meter (CAN)		
	Push-button ignition switch signal	Push-button ignition switch		

## POWER CONSUMPTION CONTROL SYSTEM

## POWER CONSUMPTION CONTROL SYSTEM : System Diagram

INFOID:000000009755809



## POWER CONSUMPTION CONTROL SYSTEM : System Description

INFOID:000000009755810

### DESCRIPTION

#### Outline

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

#### Normal mode (wake-up)

- CAN communication is normally performed with other control units.
- Individual unit control by IPDM E/R is normally performed.

#### Low power consumption mode (sleep)

- Low power consumption control is active.
- CAN transmission is stopped.

#### Sleep Mode Activation

- IPDM E/R judges that the sleep-ready conditions are fulfilled when the ignition switch is OFF and none of the conditions below are present. Then it transmits a sleep-ready signal (ready) to BCM via CAN communication.
  - Outputting signals to actuators
  - 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.



**DIAGNOSIS SYSTEM (IPDM E/R)**

**Diagnosis Description**

INFOID:000000009755811

**AUTO ACTIVE TEST**

**Description**

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

- Front wiper (LO, HI)
- Parking lamp
- License plate lamp
- Tail lamp
- Front fog lamp (if equipped)
- Headlamp (LO, HI)
- A/C compressor (magnet clutch)
- Cooling fan

**Operation Procedure**

**NOTE:**

Never perform auto active test in the following conditions.

- Passenger door is open
- CONSULT is connected

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 driver door switch 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-103, "Component Inspection"](#).

**Inspection in Auto Active Test**

When auto active test is actuated, the following operation sequence is repeated 3 times.

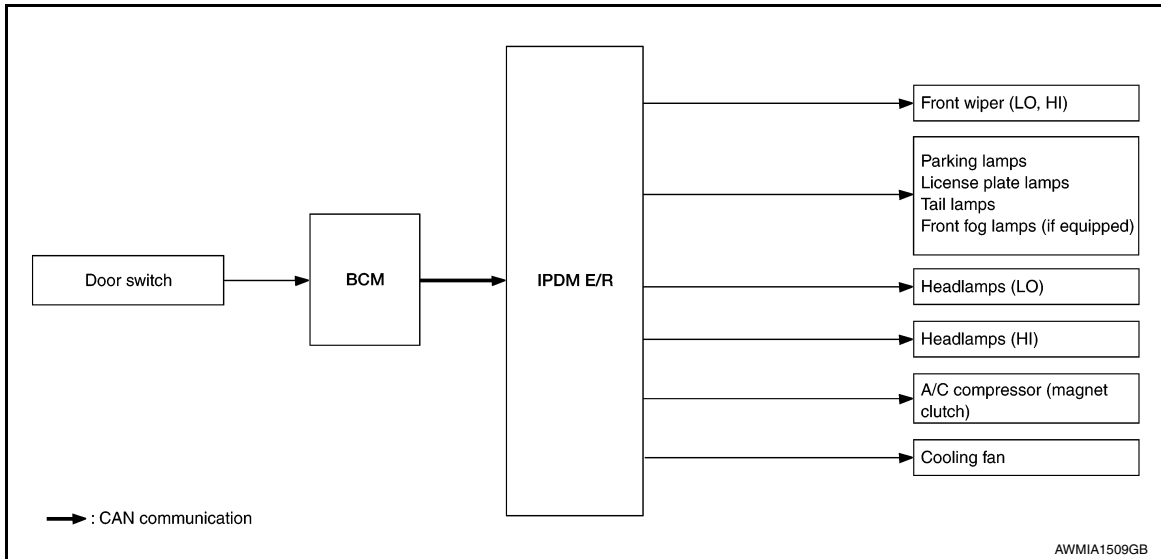
Operation sequence	Inspection location	Operation
1	Front wiper	LO for 5 seconds → HI for 5 seconds
2	<ul style="list-style-type: none"> <li>• Parking lamp</li> <li>• License plate lamp</li> <li>• Tail lamp</li> <li>• Front fog lamp (if equipped)</li> </ul>	10 seconds
3	Headlamp	LO for 10 seconds → HI ON ↔ OFF 5 times
4	A/C compressor (magnet clutch)	ON ↔ OFF 5 times
5	Cooling fan	LO for 5 seconds → MID for 3 seconds → HI for 2 seconds

# DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R (WITH I-KEY)]

## 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

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>• Tail lamp</li> <li>• Front fog lamp (if equipped)</li> <li>• Headlamp (HI, LO)</li> <li>• Front wiper (HI, LO)</li> </ul>	Perform auto active test. 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. Does the magnet clutch operate?	YES <ul style="list-style-type: none"> <li>• BCM signal input circuit</li> <li>• CAN communication signal between BCM 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>
Cooling fan does not operate	Perform auto active test. 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>• Cooling fan motor</li> <li>• Harness or connector between IPDM E/R and cooling fan motor</li> <li>• IPDM E/R</li> </ul>

## CONSULT Function (IPDM E/R)

INFOID:000000009755812

### APPLICATION ITEM

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

Direct Diagnostic Mode	Description
Ecu Identification	The IPDM E/R part number is displayed.
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.
Data Monitor	The IPDM E/R input/output data is displayed in real time.

# DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R (WITH I-KEY)]

Direct Diagnostic Mode	Description
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

## ECU IDENTIFICATION

The IPDM E/R part number is displayed.

## SELF DIAGNOSTIC RESULT

Refer to [PCS-20, "DTC Index"](#).

## DATA MONITOR

Monitor Item [Unit]	Main Signals	Description
MOTOR FAN REQ [%]	×	Indicates cooling fan speed signal received from ECM on CAN communication line
AC COMP REQ [On/Off]	×	Indicates A/C compressor request signal received from ECM on CAN communication line
TAIL&CLR REQ [On/Off]	×	Indicates position light request signal received from BCM on CAN communication line
HL LO REQ [On/Off]	×	Indicates low beam request signal received from BCM on CAN communication line
HL HI REQ [On/Off]	×	Indicates high beam request signal received from BCM on CAN communication line
FR FOG REQ [On/Off]	×	Indicates front fog light request signal received from BCM on CAN communication line
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Indicates front wiper request signal received from BCM on CAN communication line
WIP AUTO STOP [STOP P/ACT P]	×	Indicates condition of front wiper auto stop signal
WIP PROT [Off/BLOCK]	×	Indicates condition of front wiper fail-safe operation
IGN RLY1 -REQ [On/Off]		Indicates ignition switch ON signal received from BCM on CAN communication line
IGN RLY [On/Off]	×	Indicates condition of ignition relay
PUSH SW [On/Off]		Indicates condition of push-button ignition switch
INTER/NP SW [On/Off]		Indicates condition of CVT shift position
ST RLY CONT [On/Off]		Indicates starter relay status signal received from BCM on CAN communication line
IHBT RLY -REQ [On/Off]		Indicates starter control relay signal received from BCM on CAN communication line
ST/INH RLY [Off/ ST /INH]		Indicates condition of starter relay and starter control relay
DETENT SW [On/Off]		Indicates condition of CVT shift selector (park position switch)
DTRL REQ [Off]		Indicates daytime light request signal received from BCM on CAN communication line
THFT HRN REQ [On/Off]		Indicates theft warning horn request signal received from BCM on CAN communication line
HORN CHIRP [On/Off]		Indicates horn reminder signal received from BCM on CAN communication line

## ACTIVE TEST

Test item	Description
HORN	This test is able to check horn operation [On].
REAR DEFOGGER	This test is able to check rear window defogger operation [On/Off].
FRONT WIPER	This test is able to check wiper motor operation [Hi/Lo/Off].

## DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R (WITH I-KEY)]

Test item	Description
MOTOR FAN	This test is able to check cooling fan operation [4/3/2/1].
EXTERNAL LAMPS	This test is able to check external lamp operation [Fog/Hi/Lo/TAIL/Off].

### CAN DIAG SUPPORT MNTR

Refer to [LAN-13. "CAN Diagnostic Support Monitor"](#).

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R (WITH I-KEY)]

## ECU DIAGNOSIS INFORMATION

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

Reference Value

INFOID:000000009755813

#### 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 (Compressor is operating)	On
TAIL&CLR REQ	Lighting switch OFF		Off
	Lighting switch 1ST or 2ND		On
HL LO REQ	Lighting switch OFF		Off
	Lighting switch 2ND		On
HL HI REQ	Lighting switch 2ND	Lighting switch other than HI and PASS	Off
		Lighting switch HI or PASS	On
FR FOG REQ	Lighting switch 2ND	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 (CVT models)	Off
		Release clutch pedal (M/T models)	
		Selector lever in P or N position (CVT models)	On
		Depress clutch pedal (M/T models)	
ST RLY CONT	Ignition switch ON		Off
	At engine cranking		On

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R (WITH I-KEY)]

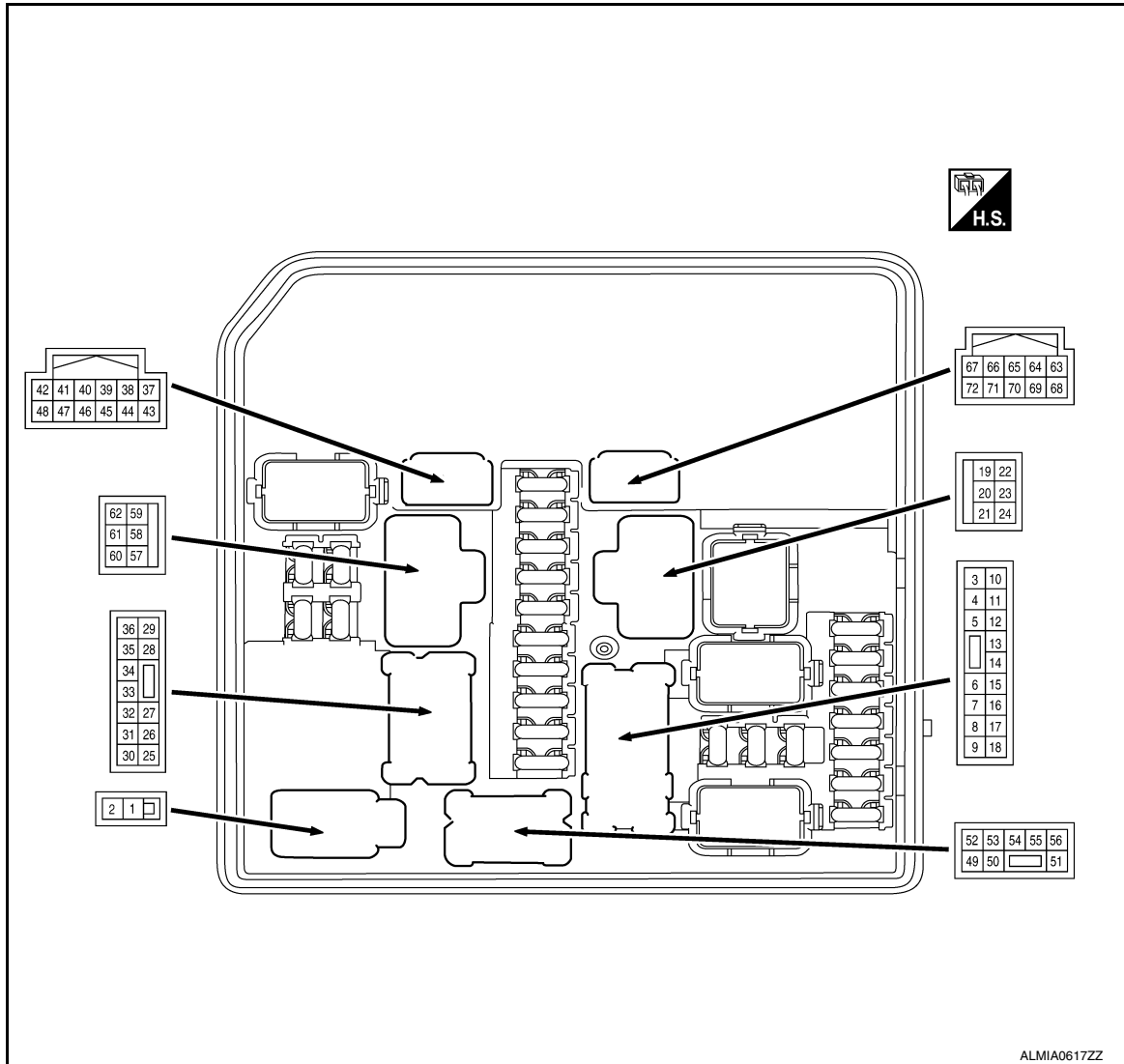
Monitor Item	Condition	Value/Status
IHBT RLY -REQ	Ignition switch ON	Off
	At engine cranking	On
ST/INHI RLY	Ignition switch ON	Off
	At engine cranking	INHI ON → ST ON
	The status of starter relay or starter control relay cannot be recognized by the battery voltage malfunction, etc. when the starter relay is ON and the starter control relay is OFF.	UNKWN
DETENT SW	Ignition switch ON	Off
	Release the selector button with selector lever in P position.	On
DTRL REQ	Daytime running lamps OFF	Off
	Daytime running lamps ON	On
THFT HRN REQ	Not operation	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 operated	Off
	Door locking with keyfob (horn chirp mode)	On

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R (WITH I-KEY)]

## TERMINAL LAYOUT



## PHYSICAL VALUES

Terminal NO. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
1 (R)	Ground	Battery power supply	Input	Ignition switch OFF	6 – 16 V
2 (G)	Ground	Battery power supply	Input	Ignition switch OFF	6 – 16 V
4 (BR)	Ground	Transmission range switch	Input	Select lever in any position other than P or N (Ignition switch ON)	0 – 1 V
				Select lever P or N (Ignition switch ON)	9 – 16 V
5 (Y)	Ground	Headlamp HI (RH)	Output	Ignition switch 2ND or AUTO	Lighting switch OFF
				• Lighting switch HI • Lighting switch PASS	9 – 16 V
6 (G)	Ground	Headlamp HI (LH)	Output	Ignition switch 2ND or AUTO	Lighting switch OFF
				• Lighting switch HI • Lighting switch PASS	9 – 16 V

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R (WITH I-KEY)]

Terminal NO. (Wire color)		Description		Condition	Value (Approx.)	
+	-	Signal name	Input/ Output			
7 (L)	Ground	Headlamp LO (LH)	Output	Lighting switch OFF	0 – 1 V	
				Lighting switch 2ND	9 – 16 V	
8 (P)	Ground	Headlamp LO (RH)	Output	Lighting switch OFF	0 – 1 V	
				Lighting switch 2ND	9 – 16 V	
10 (P)	Ground	Fuel pump relay power supply	Output	Approximately 1 second or more than after turning the ignition switch ON	0 – 1 V	
				<ul style="list-style-type: none"> <li>• Approximately 1 second after turning the ignition switch ON</li> <li>• Engine running</li> </ul>	6 – 16 V	
11 (GR)	Ground	Throttle control motor relay power supply	Output	Ignition switch OFF (More than a few seconds after turning ignition switch OFF)	0 – 1 V	
				<ul style="list-style-type: none"> <li>• Ignition switch ON</li> <li>• Ignition switch OFF (For a few seconds after turning ignition switch OFF)</li> </ul>	6 – 16 V	
12 (SB)	Ground	A/C relay power supply	Output	Engine running	A/C switch OFF	0 – 1 V
					A/C switch ON (A/C compressor is operating)	9 – 16 V
13 (O)	Ground	Ignition relay power supply	Output	Ignition switch OFF or ACC	0 – 1 V	
				Ignition switch ON	6 – 16 V	
14 (LG)	Ground	Ignition relay power supply	Output	Ignition switch OFF	0 – 1 V	
				Ignition switch ON	6 – 16 V	
15 (V)	Ground	Ignition relay power supply	Output	Ignition switch OFF	0 – 1 V	
				Ignition switch ON	6 – 16 V	
16 (SB)	Ground	Throttle control motor relay control	Output	Ignition switch OFF or ACC	6 – 16 V	
				Ignition switch ON	0 – 1 V	
17 (LG)	Ground	Ignition relay power supply	Output	Ignition switch OFF	0 – 1 V	
				Ignition switch ON	6 – 16 V	
18 (O)	Ground	Ignition relay power supply	Output	Ignition switch OFF	0 – 1 V	
				Ignition switch ON	6 – 16 V	
19 (R)	Ground	Starter motor	Output	Other than engine cranking	0 – 1 V	
				At engine cranking	6 – 16 V	
20 (P)	Ground	Battery power supply	Input	Ignition switch OFF	9 – 16 V	
21 (LG)	Ground	Cooling fan relay-1 power supply	Output	Cooling fan OFF	0 – 1 V	
				Cooling fan operated	9 – 16 V	
23 (Y)	Ground	Cooling fan relay-2 power supply	Output	Cooling fan OFF	0 – 1 V	
				Cooling fan LO operated	4 – 8 V	
				Cooling fan HI operated	9 – 16 V	
24 (V)	Ground	Battery power supply	Input	Ignition switch OFF	6 – 16 V	



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

< ECU DIAGNOSIS INFORMATION >

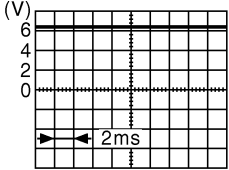
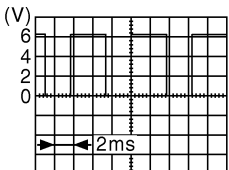
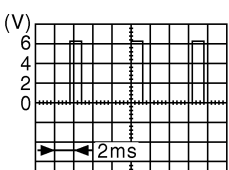
[IPDM E/R (WITH I-KEY)]

Terminal NO. (Wire color)		Description		Condition	Value (Approx.)	
		Signal name	Input/ Output			
+	-					
25 (G)	Ground	ECM relay power supply	Output	Ignition switch OFF (More than a few seconds after turning ignition switch OFF)	0 – 1 V	A
				<ul style="list-style-type: none"> <li>• Ignition switch ON</li> <li>• Ignition switch OFF (For a few seconds after turning ignition switch OFF)</li> </ul>	6 – 16 V	B C
26 (P)	Ground	ECM relay power supply	Output	Ignition switch OFF (More than a few seconds after turning ignition switch OFF)	0 – 1 V	D
				<ul style="list-style-type: none"> <li>• Ignition switch ON</li> <li>• Ignition switch OFF (For a few seconds after turning ignition switch OFF)</li> </ul>	6 – 16 V	E
27 (L)	Ground	Front combination lamp LH/RH	Output	Lighting switch OFF	0 – 1 V	F
				Lighting switch 1ST	9 – 16 V	
28 (R)	Ground	Rear combination lamp, license plate lamp and illuminations	Output	Lighting switch OFF	0 – 1 V	G
				Lighting switch 1ST	9 – 16 V	
29 (L)	Ground	Front wiper HI	Output	Ignition switch OFF	0 – 1 V	H
				Ignition switch ON	9 – 16 V	
31 (O)	Ground	ECM relay control	Output	Ignition switch OFF (More than a few seconds after turning ignition switch OFF)	6 – 16 V	I
				<ul style="list-style-type: none"> <li>• Ignition switch ON</li> <li>• Ignition switch OFF (For a few seconds after turning ignition switch OFF)</li> </ul>	0 – 1 V	J
32 (Y)	Ground	ECM power supply	Output	Ignition switch OFF	6 – 16 V	K
33 (V)	Ground	Illumination	Output	Lighting switch OFF	0 – 1 V	
				Lighting switch 1ST	9 – 16 V	L
35 (W)	Ground	Front wiper LO	Output	Ignition switch OFF	0 – 1 V	
				Ignition switch ON	9 – 16 V	
37 (SB)	Ground	Cranking request	Output	Ignition switch OFF	0 – 1 V	PCS
				Ignition switch ON	9 – 16 V	N
				Engine running		
39 (BR)	Ground	Front wiper stop position	Input	Ignition switch OFF	0 – 1.5 V	O
				Ignition switch ON	9 – 16 V	
40 (P)	Ground	CAN-L	Input/ Output	—	—	P
41 (L)	Ground	CAN-H	Input/ Output	—	—	
42 (Y)	Ground	DTRL relay	Output	Lighting switch OFF	0 – 1 V	
				Lighting switch 1ST	9 – 16 V	

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R (WITH I-KEY)]

Terminal NO. (Wire color)		Description		Condition		Value (Approx.)
		Signal name	Input/ Output			
+	-					
44 (V)	Ground	Starter relay control	Input	Ignition switch ON	Select lever P or N	6 – 16 V
					Select lever in any position other than P or N	0 – 1 V
45 (Y)	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 V
					Approximately 1 second or more after turning the ignition switch ON	6 – 16 V
47 (G)	Ground	Power generation command signal	Output		Ignition switch ON	 <p style="text-align: center;">6.3 V</p>
					40% is set on "ACTIVE TEST", "ALTERNATOR DUTY" of "ENGINE"	 <p style="text-align: center;">3.8 V</p>
					80% is set on "ACTIVE TEST", "ALTERNATOR DUTY" of "ENGINE"	 <p style="text-align: center;">1.4 V</p>
48 (L)	Ground	Horn relay control	Output		The horn is deactivated	9 – 16 V
					The horn is activated	0 – 1 V
52 (B/Y)	Ground	Ground	—	Ignition switch ON	0 – 1 V	
53 (W)	Ground	Front fog lamp (RH)	Output	Lighting switch 1ST, 2ND or AUTO	Front fog lamp switch OFF	0 – 1 V
					Front fog lamp switch ON	9 – 16 V
54 (V)	Ground	Front fog lamp (LH)	Output	Lighting switch 1ST, 2ND or AUTO	Front fog lamp switch OFF	0 – 1 V
					Front fog lamp switch ON	9 – 16 V
57 (B/Y)	Ground	Ground	—	Ignition switch ON	0 – 1 V	
58 (L)	Ground	Cooling fan relay-3 power supply	Output		Cooling fan OFF	0 – 1 V
					Cooling fan LO operated	4 – 8 V
					Cooling fan HI operated	9 – 16 V

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R (WITH I-KEY)]

Terminal NO. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
62 (R)	Ground	Rear window defogger relay power supply	Output	Ignition switch OFF	Rear window defogger switch OFF	0 – 1 V
				Ignition switch ON	Rear window defogger switch ON	9 – 16 V
64 (Y)	Ground	CVT shift selector (Detention switch)	Input	Ignition switch ON	Release select button	0 – 1 V
					Press select button	9 – 16 V
					Select lever in any position other than P	
66 (L)	Ground	Push-button ignition switch	Input	Press the push-button ignition switch		0 – 1 V
				Release the push-button ignition switch		6 – 16 V
68 (O)	Ground	Ignition relay control	Input	Ignition switch OFF or ACC		6 – 16 V
				Ignition switch ON		0 – 1 V
69 (BR)	Ground	Ignition power supply No. 2	Output	Ignition switch OFF or ACC		0 – 1 V
				Ignition switch ON		6 – 16 V

## Fail-safe

INFOID:000000009755814

## 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>The cooling fan relay turn ON when the ignition switch is turned ON (Cooling fan HI operation)</li> <li>The cooling fan relay turn OFF when the ignition switch is turned OFF</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>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 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 position than stop position.</li> </ul>
Front fog lamp	Front fog lamp relay OFF
Horn	Horn 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 (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R (WITH I-KEY)]

- 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.

DTC	Ignition switch	Ignition relay	Tail lamp relay
—	ON	ON	—
—	OFF	OFF	—
B2098: IGN RELAY ON	OFF	ON	ON (10 minutes)
B2099: IGN RELAY OFF	ON	OFF	—

**NOTE:**

The tail lamp turns OFF when the ignition switch is turned ON.

## FRONT WIPER CONTROL

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

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

Ignition switch	Front wiper switch	Auto stop signal
ON	OFF	Front wiper stop position signal cannot be input 10 seconds.
	ON	The 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:000000009755815

CONSULT display	Fail-safe	TIME <sup>NOTE</sup>		Refer to
No DTC is detected. Further testing may be required.	—	—	—	—
U1000: CAN COMM CIRCUIT	×	CRNT	1 – 39	<a href="#">PCS-26</a>
B2098: IGN RELAY ON	×	CRNT	1 – 39	<a href="#">PCS-27</a>
B2099: IGN RELAY OFF	—	CRNT	1 – 39	<a href="#">PCS-28</a>
B209F: STR CUT OFF OPEN	—	CRNT	1 – 39	<a href="#">SEC-118</a>
B20A0: STR CUT OFF SHORT	—	CRNT	1 – 39	<a href="#">SEC-120</a>
B210B: PNP RELAY ON	—	CRNT	1 – 39	<a href="#">SEC-122</a>
B210C: PNP RELAY OFF	—	CRNT	1 – 39	<a href="#">SEC-123</a>
B210D: STARTER RELAY ON	—	CRNT	1 – 39	<a href="#">SEC-125</a>
B210E: STARTER RELAY OFF	—	CRNT	1 – 39	<a href="#">SEC-127</a>
B210F: INTRLCK/PNP SW ON	—	CRNT	1 – 39	<a href="#">SEC-129</a>
B2110: INTRLCK/PNP SW OFF	—	CRNT	1 – 39	<a href="#">SEC-131</a>

**NOTE:**

The details of TIME display are as follows.

- CRNT: The malfunctions that are detected now
- 1 - 39: The number is indicated when it is normal at present and a malfunction was detected in the past. It increases like 0 → 1 → 2 … 38 → 39 after returning to the normal condition whenever IGN OFF → ON. It is fixed to 39 until the self-diagnosis results are erased if it is over 39. It returns to 0 when a malfunction is detected again in the process.

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

< WIRING DIAGRAM >

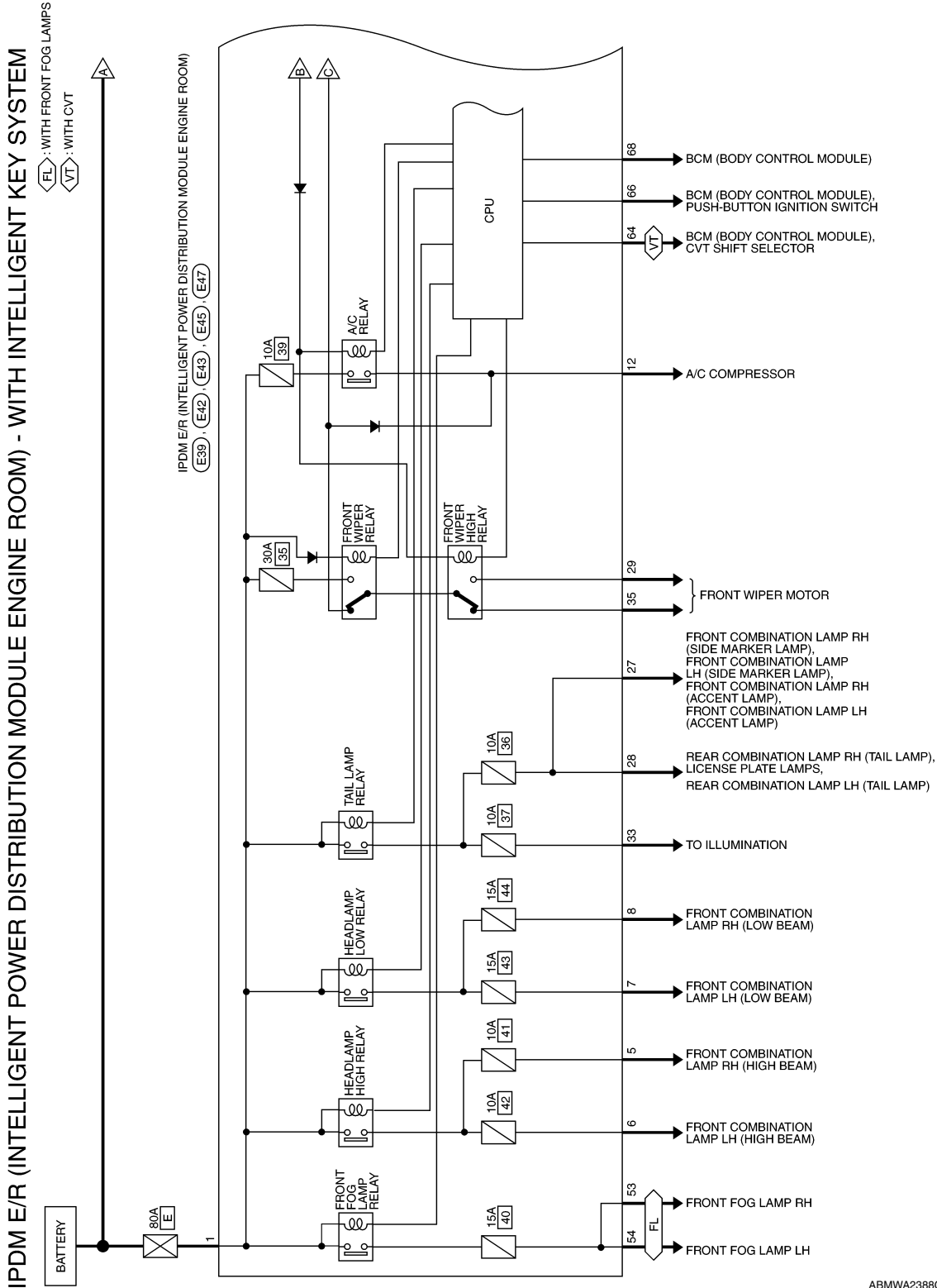
[IPDM E/R (WITH I-KEY)]

## WIRING DIAGRAM

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

#### Wiring Diagram

INFOID:000000009755816



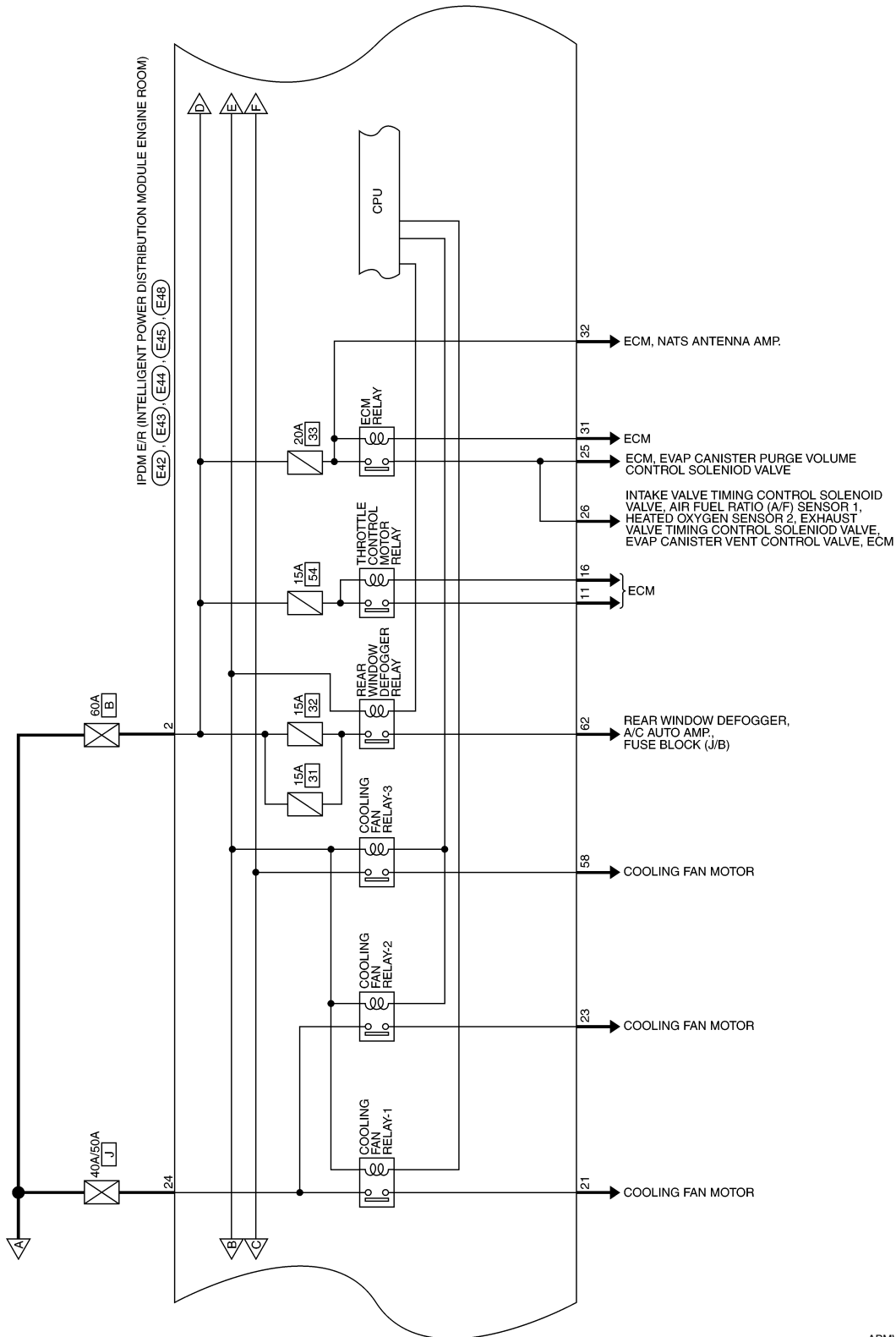
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PCS

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

< WIRING DIAGRAM >

[IPDM E/R (WITH I-KEY)]

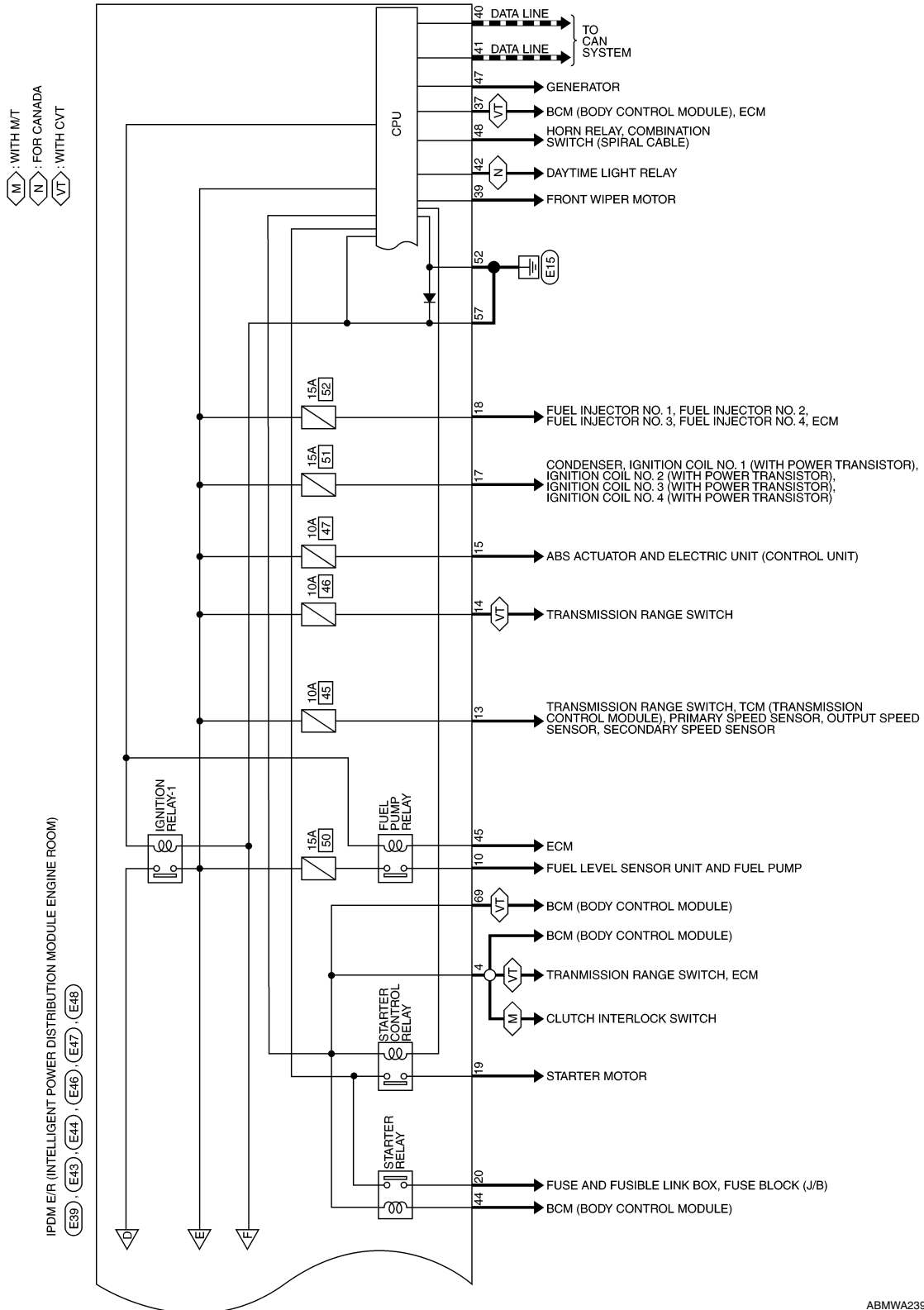


ABMWA2389GB

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

< WIRING DIAGRAM >

[IPDM E/R (WITH I-KEY)]



ABMWA2390GB

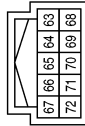
# IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< WIRING DIAGRAM >

[IPDM E/R (WITH I-KEY)]

## IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) CONNECTORS - WITH INTELLIGENT KEY SYSTEM

Connector No.	E39
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
63	-	-
64	Y	DETENT SW

Terminal No.	Color of Wire	Signal Name
65	-	-
66	L	PUSH START SW
67	-	-
68	O	IGN SIGNAL
69	BR	IGN SW IG2
70	-	-
71	-	-
72	-	-

Connector No.	E42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	R	F/L USM
2	G	F/L MAIN

Connector No.	E43
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	-	-
4	BR	NP SW
5	Y	H/LAMP HI RH
6	G	H/LAMP HI LH

Terminal No.	Color of Wire	Signal Name
7	L	H/LAMP LO LH
8	P	H/LAMP LO RH
9	-	-
10	P	FUEL PUMP MOTOR
11	GR	ETC VB
12	SB	A/C CLUTCH
13	O	A/T ECU IGN
14	LG	REVERSE LAMP IGN
15	V	ABS ECU IGN
16	SB	ETC RLY CONT
17	LG	IGN COIL
18	O	INJECTOR

Connector No.	E44
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
19	R	STARTER MOTOR
20	P	F/L IGN SW
21	LG	MOTOR FAN 1
22	-	-
23	Y	MOTOR FAN 2
24	V	F/L MOTOR FAN

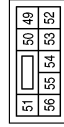


# IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< WIRING DIAGRAM >

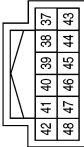
[IPDM E/R (WITH I-KEY)]

Connector No.	E47
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



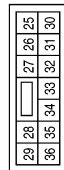
Terminal No.	Color of Wire	Signal Name
49	-	-
50	-	-
51	-	-
52	B/Y	GND (SIGNAL)
53	W	FR FOG/L RH
54	V	FR FOG/L LH
55	-	-
56	-	-

Connector No.	E46
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
37	SB	INHIBIT CUT
38	-	-
39	BR	AUTO STOP SW
40	P	CAN-L
41	L	CAN-H
42	Y	DTRL RLY
43	-	-
44	V	START CONT
45	Y	FUEL RLY CONT
46	-	-
47	G	ALT C
48	L	HORN RLY CONT

Connector No.	E45
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
25	G	ECM VB
26	P	O2 SENS
27	L	CLEARANCE/L RH
28	R	TAIL 1
29	L	FR WIPER HI
30	-	-
31	O	ECM RLY CONT
32	Y	ECM BAT
33	V	CLEARANCE/L LH
34	-	-
35	W	FR WIPER LO
36	-	-

Terminal No.	Color of Wire	Signal Name
58	L	MOTOR FAN 3
59	-	-
60	-	-
61	-	-
62	R	RR DEF

Connector No.	E48
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
57	B/Y	GND (POWER)

ABMIA5622GB

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PCS

# U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R (WITH I-KEY)]

## DTC/CIRCUIT DIAGNOSIS

### U1000 CAN COMM CIRCUIT

#### Description

INFOID:000000009755817

Refer to [LAN-7, "CAN COMMUNICATION SYSTEM : System Description"](#).

#### DTC Logic

INFOID:000000009755818

#### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1000]	When IPDM E/R cannot communicate with CAN communication signal continuously for 2 seconds or more	In CAN communication system, any item (or items) of the following listed below is malfunctioning. <ul style="list-style-type: none"><li>• Transmission</li><li>• Receiving (ECM)</li><li>• Receiving (BCM)</li><li>• Receiving (Combination meter)</li></ul>

#### Diagnosis Procedure

INFOID:000000009755819

#### 1. PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON and wait for 2 second or more.
2. Check "SELF-DIAG RESULTS" of IPDM E/R.

Is "CAN COMM CIRCUIT" displayed?

- YES >> Refer to [LAN-16, "Trouble Diagnosis Flow Chart"](#).  
NO >> Refer to [GI-39, "Intermittent Incident"](#).

# B2098 IGNITION RELAY ON STUCK

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R (WITH I-KEY)]

## B2098 IGNITION RELAY ON STUCK

### DTC Logic

INFOID:000000010287287

### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGN RELAY ON [B2098]	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)	IPDM E/R

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the power supply position to start under the following conditions and wait for at least 1 second.

CVT model

- CVT selector lever is in the P (Park) or N (Neutral) position.
- Depress the brake pedal

M/T model

- Selector lever is in the Neutral position.
- Depress the clutch pedal

2. Check "Self-diagnostic result" with CONSULT.

#### Is DTC detected?

- YES >> Refer to [PCS-27, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:000000010287288

#### 1. PERFORM SELF DIAGNOSTIC RESULT

Perform Self Diagnostic Result of IPDM E/R using CONSULT.

#### Is display history of DTC B2098 CRNT?

- YES >> Replace IPDM E/R. Refer to [PCS-30, "Removal and Installation"](#).  
NO >> Refer to [GI-39, "Intermittent Incident"](#).

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# B2099 IGNITION RELAY OFF STUCK

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R (WITH I-KEY)]

## B2099 IGNITION RELAY OFF STUCK

### DTC Logic

INFOID:000000010287289

### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGN RELAY OFF [B2099]	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)	IPDM E/R

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the power supply position to start under the following conditions and wait for at least 1 second.

CVT model

- CVT selector lever is in the P (Park) or N (Neutral) position.
- Depress the brake pedal

M/T model

- Selector lever is in the Neutral position.
  - Depress the clutch pedal
2. Check "Self-diagnostic result" with CONSULT.

#### Is DTC detected?

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

### Diagnosis Procedure

INFOID:000000010287290

#### 1. PERFORM SELF DIAGNOSTIC RESULT

Perform Self Diagnostic Result of IPDM E/R using CONSULT.

#### Is display history of DTC B2099 CRNT?

- YES >> Replace IPDM E/R. Refer to [PCS-30, "Removal and Installation"](#).  
NO >> Refer to [GI-39, "Intermittent Incident"](#).

# POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R (WITH I-KEY)]

## POWER SUPPLY AND GROUND CIRCUIT

### Diagnosis Procedure

INFOID:000000009755826

Regarding Wiring Diagram information, refer to [PCS-21, "Wiring Diagram"](#).

### 1. CHECK FUSE AND FUSIBLE LINKS

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

Terminal No.	Signal name	Fusible link Nos.
1	Battery	E (80A)
2		B (60A)
24		J (40A/50A)

Is the fusible link blown?

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

### 2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect IPDM E/R connector E42 and E44.
2. Check voltage between IPDM E/R connector E42 and E44 and ground.

IPDM E/R		Ground	Voltage
Connector	Terminal		
E42	1	—	Battery voltage
	2		
E44	24		

Is the inspection result normal?

- YES >> GO TO 3  
NO >> Repair harness or connectors.

### 3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector E47 and E48.
3. Check continuity between IPDM E/R connector E47 and E48 and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E47	52	—	Yes
E48	57		

Is the inspection result normal?

- YES >> Inspection End.  
NO >> Repair harness or connectors.

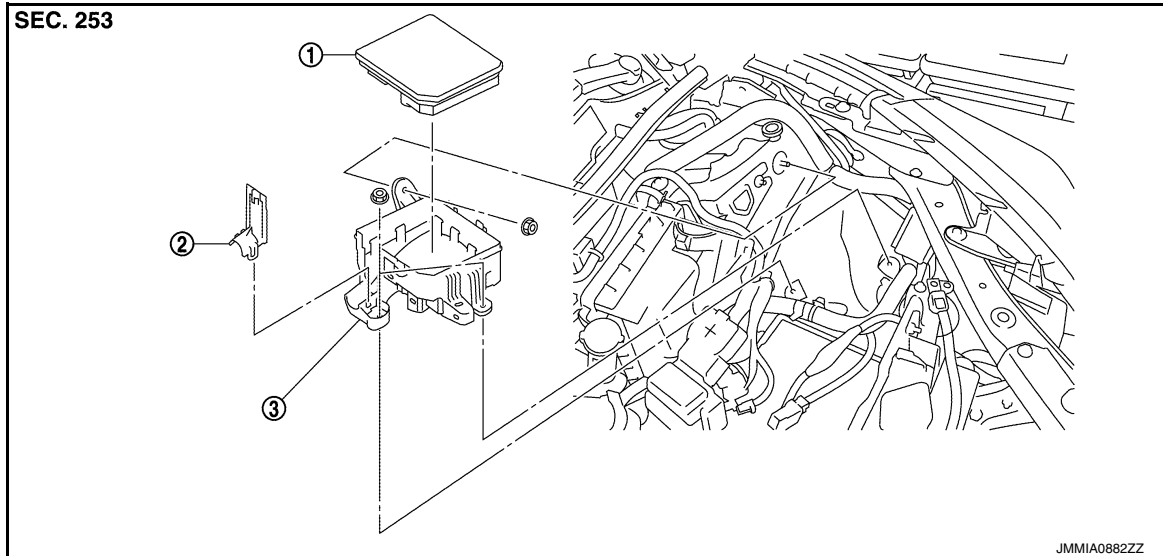
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# REMOVAL AND INSTALLATION

## IPDM E/R

### Exploded View

INFOID:000000009755827



1. IPDM E/R

2. IPDM E/R cover A

3. IPDM E/R cover B

### Removal and Installation

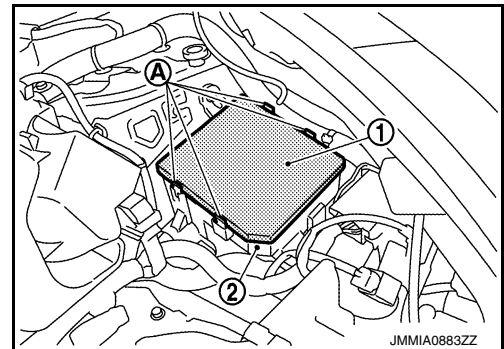
INFOID:000000009755828

#### CAUTION:

**IPDM E/R integrated relays are not serviceable and must not be removed from unit.**

#### REMOVAL

1. Remove inlet air duct (upper). Refer to [EM-25, "Removal and Installation"](#).
2. Remove battery. Refer to [PG-50, "Removal and Installation \(Battery\)"](#).
3. Release pawls (A) on IPDM E/R cover and remove IPDM E/R (1) from IPDM E/R cover B (2).



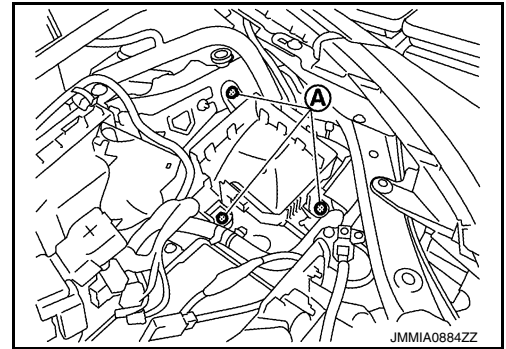
4. Disconnect harness connector and then remove IPDM E/R.
5. Remove engine room harness from IPDM E/R cover B.

# IPDM E/R

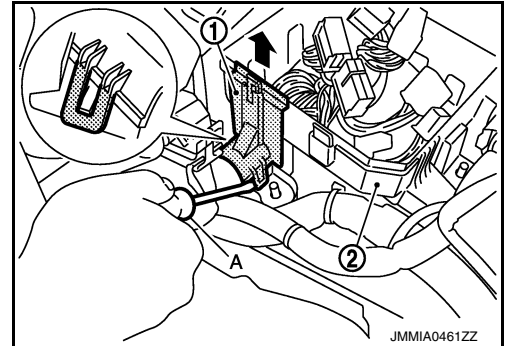
## < REMOVAL AND INSTALLATION >

[IPDM E/R (WITH I-KEY)]

6. Remove IPDM E/R cover B nuts (A).



7. Insert a suitable tool (A) between IPDM E/R cover A (1) and IPDM E/R cover B (2), disengage pawls, and remove IPDM E/R cover A.



8. Remove IPDM E/R cover B.

## INSTALLATION

Installation is in the reverse order of removal.

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## PRECAUTION

### PRECAUTIONS

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

INFOID:000000009755829

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

**WARNING:**

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which 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 the SR section.
- Do not 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:**

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT 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 three minutes before performing any service.

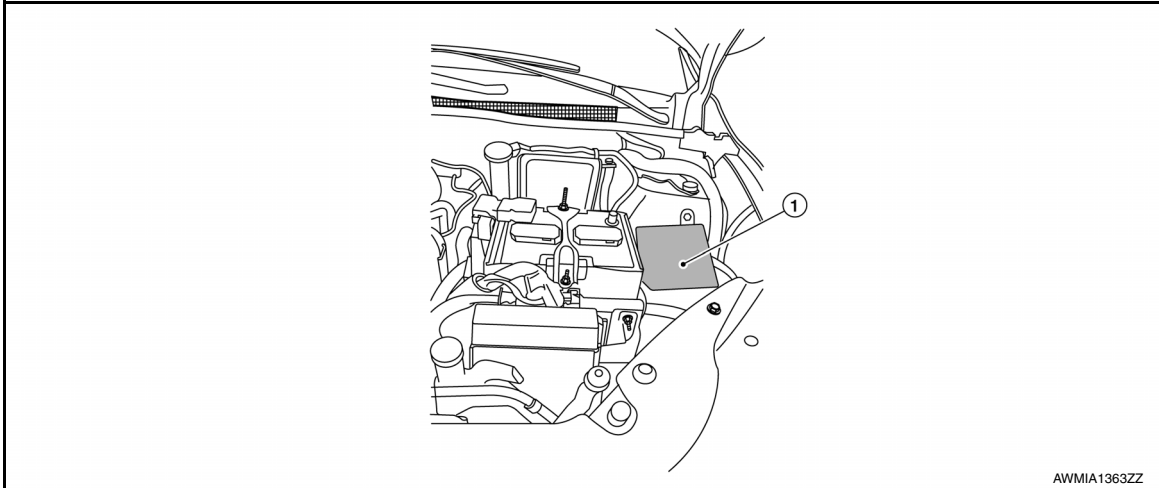


# SYSTEM DESCRIPTION

## COMPONENT PARTS

### Component Parts Location

INFOID:000000009755830



- 1. IPDM E/R

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# SYSTEM

< SYSTEM DESCRIPTION >

[IPDM E/R (WITHOUT I-KEY)]

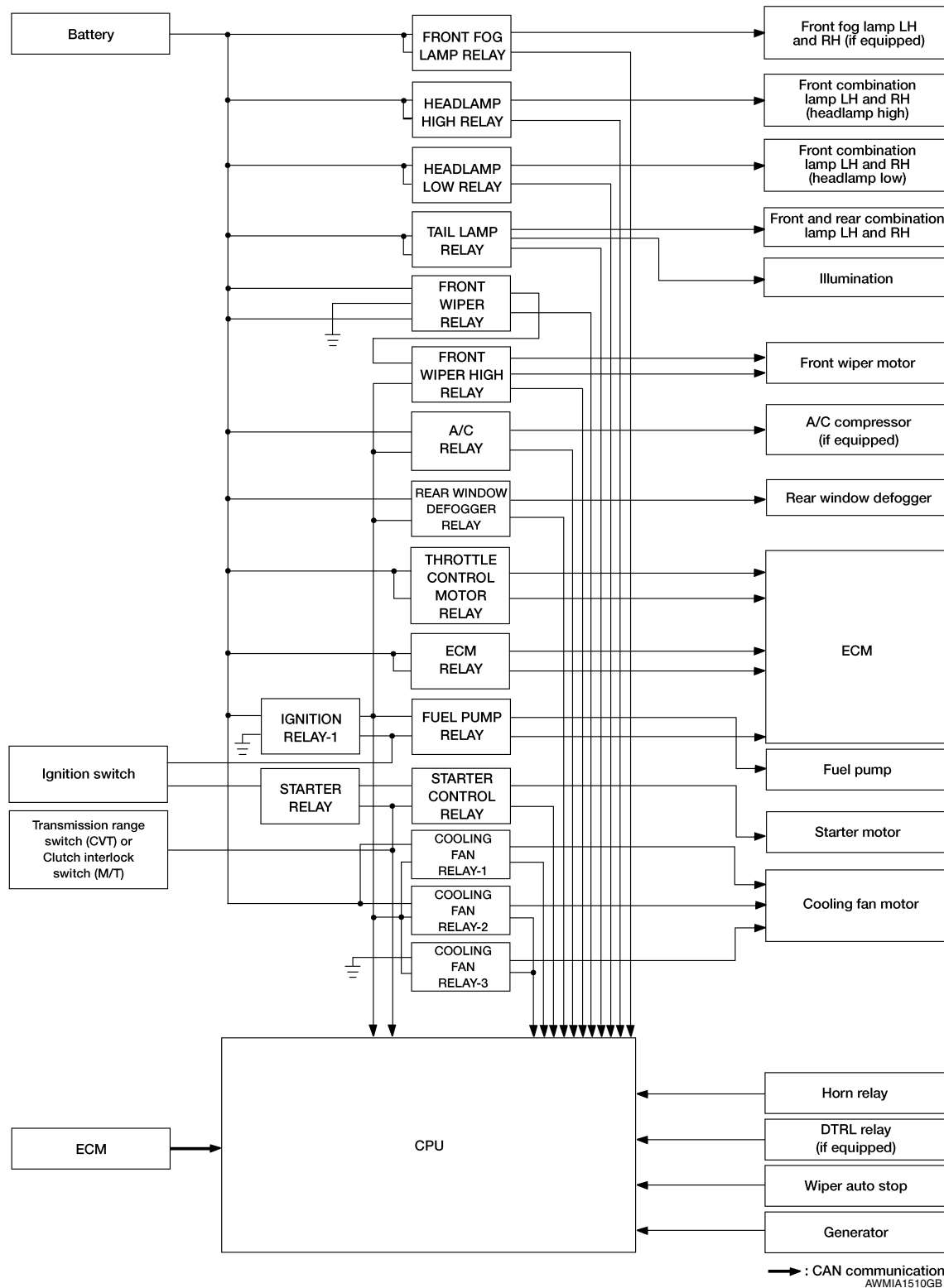
## SYSTEM

### RELAY CONTROL SYSTEM

### RELAY CONTROL SYSTEM : System Diagram

INFOID:000000009755831

### SYSTEM DIAGRAM



# SYSTEM

< SYSTEM DESCRIPTION >

[IPDM E/R (WITHOUT I-KEY)]

## RELAY CONTROL SYSTEM : System Description

INFOID:000000009755832

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.

**CAUTION:**

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

Control relay	Input/output	Transmit unit	Control part	Reference page
Fog lamp relay	Fog lamp request signal	BCM (CAN)	Fog lamp (if equipped)	<a href="#">EXL-10</a>
<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 LO</li> <li>• Headlamp HI</li> </ul>	<a href="#">EXL-8</a>
Tail lamp relay	Position light request signal	BCM (CAN)	<ul style="list-style-type: none"> <li>• Parking lamp</li> <li>• License plate lamp</li> <li>• Tail lamp</li> <li>• Accent lamp</li> <li>• Illumination system</li> </ul>	<a href="#">EXL-11</a>
<ul style="list-style-type: none"> <li>• Front wiper relay</li> <li>• Front wiper high relay</li> </ul>	Front wiper request signal Front wiper stop position signal	BCM (CAN) Front wiper motor	Front wiper motor	<a href="#">WW-8</a>
Rear window defogger relay	Rear window defogger relay control signal	BCM (CAN)	Rear window defogger	<a href="#">DEF-6</a>
Starter control relay	Starter control relay signal	BCM (CAN)	Starter motor	<a href="#">STR-8</a>
	Transmission range switch signal (CVT models)	Transmission range switch		
	Clutch interlock switch signal (M/T models)	Clutch interlock switch		
<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)	Cooling fan	<a href="#">EC-47</a>
A/C relay	A/C compressor request signal	ECM (CAN)	A/C compressor (Magnet clutch) (if equipped)	<a href="#">HAC-122</a> (manual air conditioner)
ECM relay	ECM relay control signal	ECM (CAN)	ECM	<a href="#">EC-32</a>
Throttle control motor relay	Throttle control motor control signal	ECM (CAN)	ECM	<a href="#">EC-430</a>
Fuel pump relay	Fuel pump request signal	ECM (CAN)	Fuel pump	<a href="#">EC-453</a>
Ignition relay-1	Ignition switch ON signal	BCM (CAN)	Each control unit, sensor, actuator and relay (Ignition power supply)	<a href="#">PCS-63</a>
	Vehicle speed signal (Meter)	Combination meter (CAN)		
	Push-button ignition switch signal	Push-button ignition switch		

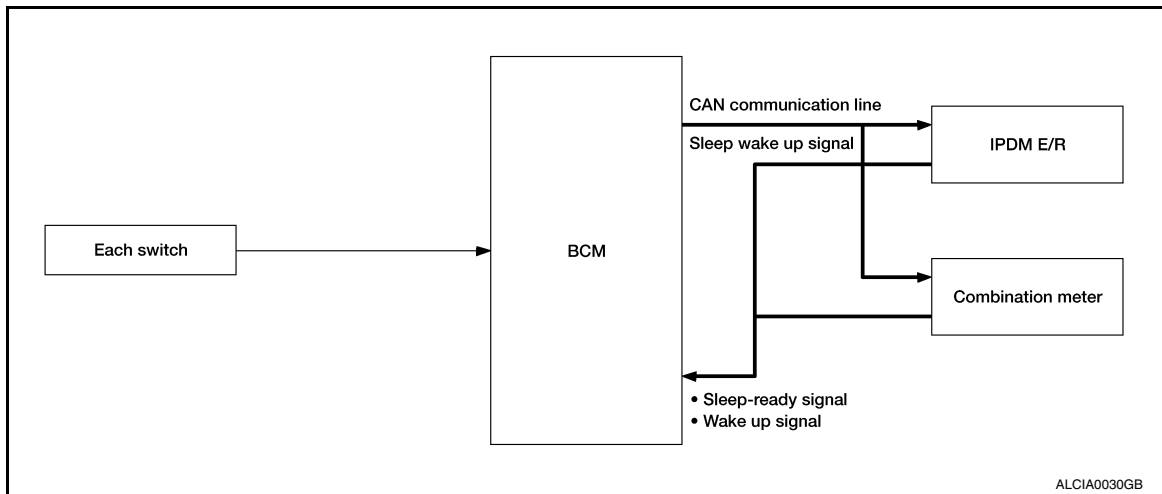
## POWER CONSUMPTION CONTROL SYSTEM

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## POWER CONSUMPTION CONTROL SYSTEM : System Diagram

INFOID:000000009755834



## POWER CONSUMPTION CONTROL SYSTEM : System Description

INFOID:000000009755834

### 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.

# DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R (WITHOUT I-KEY)]

## DIAGNOSIS SYSTEM (IPDM E/R)

### Diagnosis Description

INFOID:00000009755835

#### AUTO ACTIVE TEST

##### Description

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

- Front wiper (LO, HI)
- Parking lamp
- License plate lamp
- Tail lamp
- Front fog lamp (if equipped)
- Headlamp (LO, HI)
- A/C compressor (magnet clutch) (if equipped)
- Cooling fan

##### Operation Procedure

##### NOTE:

Never perform auto active test in the following conditions.

- Passenger door is open
- CONSULT is connected

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 driver door switch 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-255, "Component Inspection"](#).

##### Inspection in Auto Active Test

When auto active test is actuated, the following operation sequence is repeated 3 times.

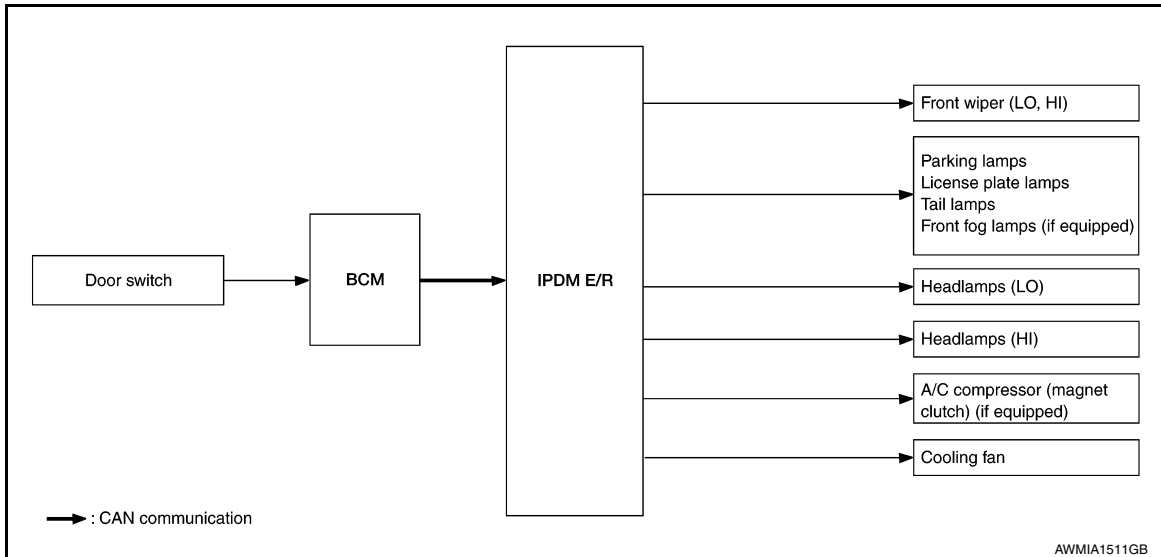
Operation sequence	Inspection location	Operation
1	Front wiper	LO for 5 seconds → HI for 5 seconds
2	<ul style="list-style-type: none"> <li>• Parking lamp</li> <li>• License plate lamp</li> <li>• Tail lamp</li> <li>• Front fog lamp (if equipped)</li> </ul>	10 seconds
3	Headlamp	LO for 10 seconds → HI ON ↔ OFF 5 times
4	A/C compressor (magnet clutch) (if equipped)	ON ↔ OFF 5 times
5	Cooling fan	LO for 5 seconds → MID for 3 seconds → HI for 2 seconds

# DIAGNOSIS SYSTEM (IPDM E/R)

[IPDM E/R (WITHOUT I-KEY)]

## < SYSTEM DESCRIPTION >

### 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

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>• Tail lamp</li> <li>• Front fog lamp (if equipped)</li> <li>• Headlamp (HI, LO)</li> <li>• Front wiper (HI, LO)</li> </ul>	Perform auto active test. 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. Does the magnet clutch operate?	YES <ul style="list-style-type: none"> <li>• BCM signal input circuit</li> <li>• CAN communication signal between BCM 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>
Cooling fan does not operate	Perform auto active test. 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>• Cooling fan motor</li> <li>• Harness or connector between IPDM E/R and cooling fan motor</li> <li>• IPDM E/R</li> </ul>

## CONSULT Function (IPDM E/R)

INFOID:000000009755836

### APPLICATION ITEM

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

Direct Diagnostic Mode	Description
Ecu Identification	The IPDM E/R part number is displayed.
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.
Data Monitor	The IPDM E/R input/output data is displayed in real time.

# DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R (WITHOUT I-KEY)]

Direct Diagnostic Mode	Description
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

## ECU IDENTIFICATION

The IPDM E/R part number is displayed.

## SELF DIAGNOSTIC RESULT

Refer to [PCS-48, "DTC Index"](#).

## DATA MONITOR

Monitor Item [Unit]	Main Signals	Description
MOTOR FAN REQ [%]	×	Indicates cooling fan speed signal received from ECM on CAN communication line
AC COMP REQ [On/Off]	×	Indicates A/C compressor request signal received from ECM on CAN communication line
TAIL&CLR REQ [On/Off]	×	Indicates position light request signal received from BCM on CAN communication line
HL LO REQ [On/Off]	×	Indicates low beam request signal received from BCM on CAN communication line
HL HI REQ [On/Off]	×	Indicates high beam request signal received from BCM on CAN communication line
FR FOG REQ [On/Off]	×	Indicates front fog light request signal received from BCM on CAN communication line
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Indicates front wiper request signal received from BCM on CAN communication line
WIP AUTO STOP [STOP P/ACT P]	×	Indicates condition of front wiper auto stop signal
WIP PROT [Off/BLOCK]	×	Indicates condition of front wiper fail-safe operation
IGN RLY1 -REQ [On/Off]		Indicates ignition switch ON signal received from BCM on CAN communication line
IGN RLY [On/Off]	×	Indicates condition of ignition relay
PUSH SW [On/Off]		Indicates condition of push-button ignition switch
INTER/NP SW [On/Off]		Indicates condition of CVT shift position
ST RLY CONT [On/Off]		Indicates starter relay status signal received from BCM on CAN communication line
IHBT RLY -REQ [On/Off]		Indicates starter control relay signal received from BCM on CAN communication line
ST/INH RLY [Off/ ST /INH]		Indicates condition of starter relay and starter control relay
DETENT SW [On/Off]		Indicates condition of CVT shift selector (park position switch)
DTRL REQ [Off]		Indicates daytime light request signal received from BCM on CAN communication line
THFT HRN REQ [On/Off]		Indicates theft warning horn request signal received from BCM on CAN communication line
HORN CHIRP [On/Off]		Indicates horn reminder signal received from BCM on CAN communication line

## ACTIVE TEST

Test item	Description
HORN	This test is able to check horn operation [On].
REAR DEFOGGER	This test is able to check rear window defogger operation [On/Off].
FRONT WIPER	This test is able to check wiper motor operation [Hi/Lo/Off].

## DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R (WITHOUT I-KEY)]

Test item	Description
MOTOR FAN	This test is able to check cooling fan operation [4/3/2/1].
EXTERNAL LAMPS	This test is able to check external lamp operation [Fog/Hi/Lo/TAIL/Off].

### CAN DIAG SUPPORT MNTR

Refer to [LAN-13. "CAN Diagnostic Support Monitor"](#).



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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R (WITHOUT I-KEY)]

## ECU DIAGNOSIS INFORMATION

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

Reference Value

INFOID:000000009755837

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 (Compressor is operating)	On
TAIL&CLR REQ	Lighting switch OFF		Off
	Lighting switch 1ST or 2ND		On
HL LO REQ	Lighting switch OFF		Off
	Lighting switch 2ND		On
HL HI REQ	Lighting switch 2ND	Lighting switch other than HI and PASS	Off
		Lighting switch HI or PASS	On
FR FOG REQ	Lighting switch 2ND	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 (CVT models)	Off
		Release clutch pedal (M/T models)	
		Selector lever in P or N position (CVT models)	On
		Depress clutch pedal (M/T models)	
ST RLY CONT	Ignition switch ON		Off
	At engine cranking		On

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

&lt; ECU DIAGNOSIS INFORMATION &gt;

**[IPDM E/R (WITHOUT I-KEY)]**

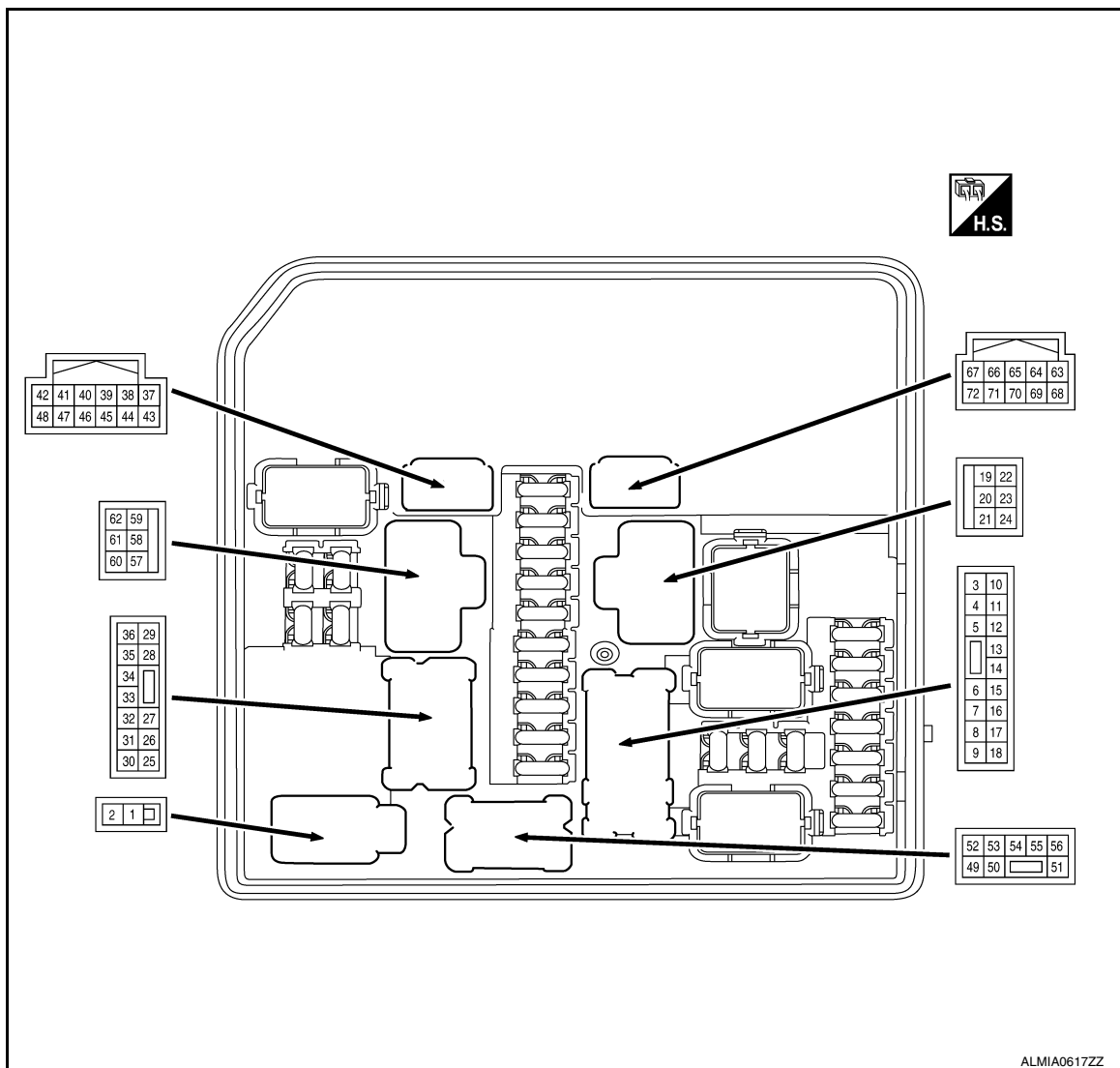
Monitor Item	Condition		Value/Status
IHBT RLY -REQ	Ignition switch ON		Off
	At engine cranking		On
ST/INHI RLY	Ignition switch ON		Off
	At engine cranking		INHI ON → ST ON
	The status of starter relay or starter control relay cannot be recognized by the battery voltage malfunction, etc. when the starter 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
DTRL REQ	Daytime running lamps OFF		Off
	Daytime running lamps ON		On
THFT HRN REQ	Not operation		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 operated		Off
	Door locking with keyfob (horn chirp mode)		On

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R (WITHOUT I-KEY)]

## TERMINAL LAYOUT



## PHYSICAL VALUES

Terminal NO. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
1 (R)	Ground	Battery power supply	Input	Ignition switch OFF	6 – 16 V
2 (G)	Ground	Battery power supply	Input	Ignition switch OFF	6 – 16 V
4 (BR)	Ground	Transmission range switch	Input	Select lever in any position other than P or N (Ignition switch ON)	0 – 1 V
				Select lever P or N (Ignition switch ON)	9 – 16 V
5 (Y)	Ground	Headlamp HI (RH)	Output	Ignition switch 2ND or AUTO	Lighting switch OFF
				• Lighting switch HI • Lighting switch PASS	9 – 16 V
6 (G)	Ground	Headlamp HI (LH)	Output	Ignition switch 2ND or AUTO	Lighting switch OFF
				• Lighting switch HI • Lighting switch PASS	9 – 16 V

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R (WITHOUT I-KEY)]

Terminal NO. (Wire color)		Description		Condition	Value (Approx.)	
+	-	Signal name	Input/ Output			
7 (L)	Ground	Headlamp LO (LH)	Output	Lighting switch OFF	0 – 1 V	
				Lighting switch 2ND	9 – 16 V	
8 (P)	Ground	Headlamp LO (RH)	Output	Lighting switch OFF	0 – 1 V	
				Lighting switch 2ND	9 – 16 V	
10 (P)	Ground	Fuel pump relay power supply	Output	Approximately 1 second or more than after turning the ignition switch ON	0 – 1 V	
				<ul style="list-style-type: none"> <li>• Approximately 1 second after turning the ignition switch ON</li> <li>• Engine running</li> </ul>	6 – 16 V	
11 (GR)	Ground	Throttle control motor relay power supply	Output	Ignition switch OFF (More than a few seconds after turning ignition switch OFF)	0 – 1 V	
				<ul style="list-style-type: none"> <li>• Ignition switch ON</li> <li>• Ignition switch OFF (For a few seconds after turning ignition switch OFF)</li> </ul>	6 – 16 V	
12 (SB)	Ground	A/C relay power supply	Output	Engine running	A/C switch OFF	0 – 1 V
					A/C switch ON (A/C compressor is operating)	9 – 16 V
13 (O)	Ground	Ignition relay power supply	Output	Ignition switch OFF or ACC	0 – 1 V	
				Ignition switch ON	6 – 16 V	
14 (LG)	Ground	Ignition relay power supply	Output	Ignition switch OFF	0 – 1 V	
				Ignition switch ON	6 – 16 V	
15 (V)	Ground	Ignition relay power supply	Output	Ignition switch OFF	0 – 1 V	
				Ignition switch ON	6 – 16 V	
16 (SB)	Ground	Throttle control motor relay control	Output	Ignition switch OFF or ACC	6 – 16 V	
				Ignition switch ON	0 – 1 V	
17 (LG)	Ground	Ignition relay power supply	Output	Ignition switch OFF	0 – 1 V	
				Ignition switch ON	6 – 16 V	
18 (O)	Ground	Ignition relay power supply	Output	Ignition switch OFF	0 – 1 V	
				Ignition switch ON	6 – 16 V	
19 (R)	Ground	Starter motor	Output	Other than engine cranking	0 – 1 V	
				At engine cranking	6 – 16 V	
20 (P)	Ground	Battery power supply	Input	Ignition switch OFF	9 – 16 V	
21 (LG)	Ground	Cooling fan relay-1 power supply	Output	Cooling fan OFF	0 – 1 V	
				Cooling fan operated	9 – 16 V	
22 (GR)	Ground	Ignition switch START	Output	Any position other ignition switch START	0 – 1 V	
				Ignition switch START	6 – 16 V	
23 (Y)	Ground	Cooling fan relay-2 power supply	Output	Cooling fan OFF	0 – 1 V	
				Cooling fan LO operated	4 – 8 V	
				Cooling fan HI operated	9 – 16 V	
24 (V)	Ground	Battery power supply	Input	Ignition switch OFF	6 – 16 V	

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

< ECU DIAGNOSIS INFORMATION >

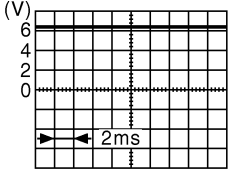
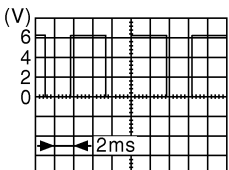
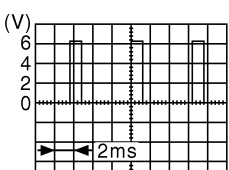
[IPDM E/R (WITHOUT I-KEY)]

Terminal NO. (Wire color)		Description		Condition	Value (Approx.)	
+	-	Signal name	Input/ Output			
25 (G)	Ground	ECM relay power supply	Output	Ignition switch OFF (More than a few seconds after turning ignition switch OFF)	0 – 1 V	A
				• Ignition switch ON • Ignition switch OFF (For a few seconds after turning ignition switch OFF)	6 – 16 V	B C
26 (P)	Ground	ECM relay power supply	Output	Ignition switch OFF (More than a few seconds after turning ignition switch OFF)	0 – 1 V	D
				• Ignition switch ON • Ignition switch OFF (For a few seconds after turning ignition switch OFF)	6 – 16 V	E
27 (L)	Ground	Front combination lamp LH/RH	Output	Lighting switch OFF	0 – 1 V	F
				Lighting switch 1ST	9 – 16 V	
28 (R)	Ground	Rear combination lamp, license plate lamp and illuminations	Output	Lighting switch OFF	0 – 1 V	G
				Lighting switch 1ST	9 – 16 V	
29 (L)	Ground	Front wiper HI	Output	Ignition switch OFF	0 – 1 V	H
				Ignition switch ON	Front wiper switch HI	9 – 16 V
31 (O)	Ground	ECM relay control	Output	Ignition switch OFF (More than a few seconds after turning ignition switch OFF)	6 – 16 V	I
				• Ignition switch ON • Ignition switch OFF (For a few seconds after turning ignition switch OFF)	0 – 1 V	J
32 (Y)	Ground	ECM power supply	Output	Ignition switch OFF	6 – 16 V	K
33 (V)	Ground	Illumination	Output	Lighting switch OFF	0 – 1 V	
				Lighting switch 1ST	9 – 16 V	L
35 (W)	Ground	Front wiper LO	Output	Ignition switch OFF	0 – 1 V	
				Ignition switch ON	Front wiper switch LO	9 – 16 V
37 (SB)	Ground	Cranking request	Output	Ignition switch OFF	0 – 1 V	PCS
				Ignition switch ON	Select lever P or N	
				Ignition switch ON	Select lever in any position other than P or N	9 – 16 V
39 (BR)	Ground	Front wiper stop position	Input	Ignition switch OFF	0 – 1.5 V	O
				Ignition switch ON	Any position other than front wiper stop position	9 – 16 V
40 (P)	Ground	CAN-L	Input/ Output	—	—	P
41 (L)	Ground	CAN-H	Input/ Output	—	—	
42 (Y)	Ground	DTRL relay	Output	Lighting switch OFF	0 – 1 V	
				Lighting switch 1ST	9 – 16 V	

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R (WITHOUT I-KEY)]

Terminal NO. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
44 (V)	Ground	Starter relay control	Input	Ignition switch ON	Select lever P or N	6 – 16 V
					Select lever in any position other than P or N	0 – 1 V
45 (Y)	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 V
				Approximately 1 second or more after turning the ignition switch ON		6 – 16 V
47 (G)	Ground	Power generation command signal	Output	Ignition switch ON		 <p style="text-align: right; font-size: small;">JPMIA0001GB</p> <p style="text-align: center;">6.3 V</p>
				40% is set on "ACTIVE TEST", "ALTERNATOR DUTY" of "ENGINE"		 <p style="text-align: right; font-size: small;">JPMIA0002GB</p> <p style="text-align: center;">3.8 V</p>
				80% is set on "ACTIVE TEST", "ALTERNATOR DUTY" of "ENGINE"		 <p style="text-align: right; font-size: small;">JPMIA0003GB</p> <p style="text-align: center;">1.4 V</p>
48 (L)	Ground	Horn relay control	Output	The horn is deactivated		9 – 16 V
				The horn is activated		0 – 1 V
52 (B/Y)	Ground	Ground	—	Ignition switch ON		0 – 1 V
53 (W)	Ground	Front fog lamp (RH)	Output	Lighting switch 1ST, 2ND or AUTO	Front fog lamp switch OFF	0 – 1 V
					Front fog lamp switch ON	9 – 16 V
54 (V)	Ground	Front fog lamp (LH)	Output	Lighting switch 1ST, 2ND or AUTO	Front fog lamp switch OFF	0 – 1 V
					Front fog lamp switch ON	9 – 16 V
56 (G)	Ground	Ignition switch	Output	Ignition switch OFF or ACC		0 – 1 V
				Ignition switch ON		6 – 16 V
57 (B/Y)	Ground	Ground	—	Ignition switch ON		0 – 1 V

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R (WITHOUT I-KEY)]

Terminal NO. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
58 (L)	Ground	Cooling fan relay-3 power supply	Output	Cooling fan OFF	0 – 1 V
				Cooling fan LO operated	4 – 8 V
				Cooling fan HI operated	9 – 16 V
62 (R)	Ground	Rear window defogger relay power supply	Output	Ignition switch OFF	0 – 1 V
				Ignition switch ON	9 – 16 V
69 (BR)	Ground	Ignition power supply No. 2	Output	Ignition switch OFF or ACC	0 – 1 V
				Ignition switch ON	6 – 16 V

## Fail-Safe

INFOID:000000009755838

### 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>The cooling fan relay turn ON when the ignition switch is turned ON (Cooling fan HI operation)</li> <li>The cooling fan relay turn OFF when the ignition switch is turned OFF</li> </ul>
A/C compressor	A/C relay OFF

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>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 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 position than stop position.</li> </ul>
Front fog lamp	Front fog lamp relay OFF
Horn	Horn OFF

### IGNITION RELAY MALFUNCTION DETECTION FUNCTION

- IPDM E/R monitors the voltage at the contact circuit of the ignition relay inside and ignition switch status from BCM via CAN communication.
- IPDM E/R judges the ignition relay error if the voltage differs between the contact circuit and the ignition switch status from BCM via CAN communication.
- 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.

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R (WITHOUT I-KEY)]

Voltage judgment		IPDM E/R judgment	Operation
Ignition relay contact side	Ignition switch status from BCM		
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 stop position 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.

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 stop position 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.

## DTC Index

INFOID:000000009755839

### 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.

×: Applicable

CONSULT display	Fail-safe	Refer to
No DTC is detected. further testing may be required.	—	—
U1000: CAN COMM CIRCUIT	×	<a href="#">PCS-54</a>
B2098: IGN RELAY ON	×	<a href="#">PCS-55</a>
B2099: IGN RELAY OFF	—	<a href="#">PCS-56</a>



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

< WIRING DIAGRAM >

[IPDM E/R (WITHOUT I-KEY)]

## WIRING DIAGRAM

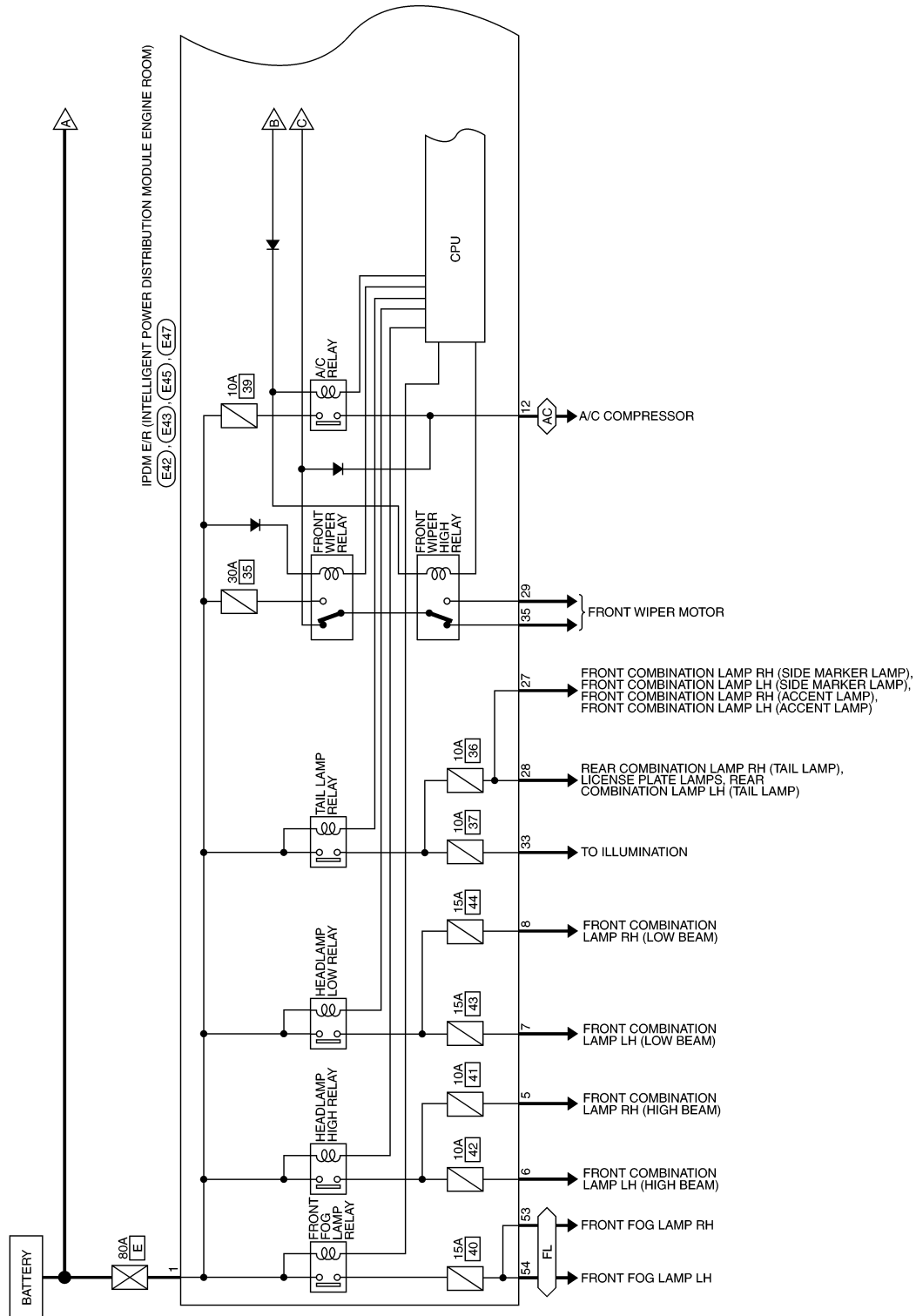
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

Wiring Diagram

INFOID:000000009755840

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) - WITHOUT INTELLIGENT KEY SYSTEM

AC : WITH AC  
FL : WITH FRONT FOG LAMPS



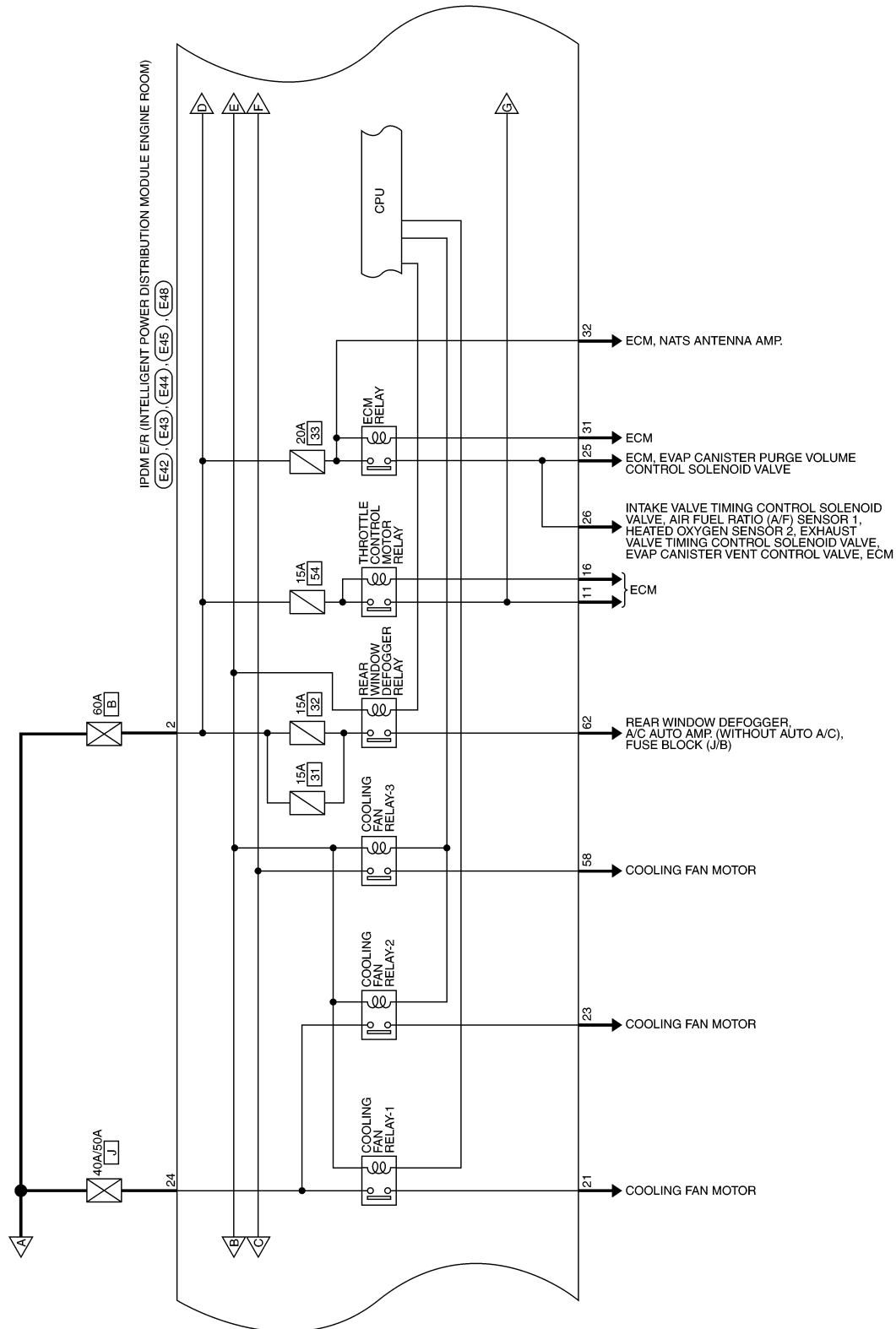
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# IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< WIRING DIAGRAM >

[IPDM E/R (WITHOUT I-KEY)]



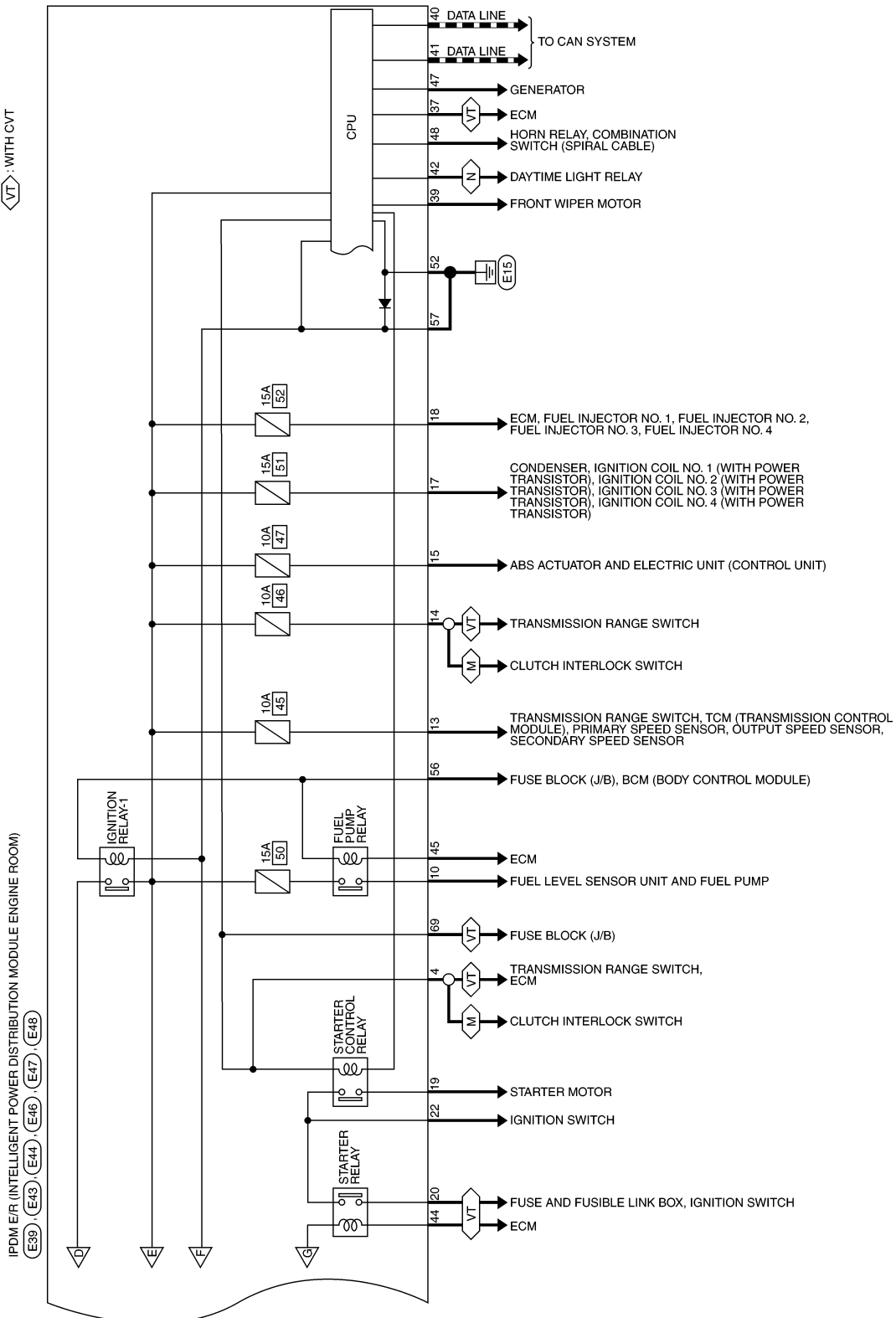
ABMWA2392GB

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

< WIRING DIAGRAM >

[IPDM E/R (WITHOUT I-KEY)]

(M) : WITH M/T  
 (N) : FOR CANADA  
 (VT) : WITH CVT



ABMWA2393GB

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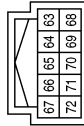
# IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< WIRING DIAGRAM >

[IPDM E/R (WITHOUT I-KEY)]

## IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) CONNECTORS - WITHOUT INTELLIGENT KEY SYSTEM

Connector No.	E39
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
63	-	-
64	-	-

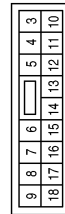
Terminal No.	Color of Wire	Signal Name
65	-	-
66	-	-
67	-	-
68	-	-
69	BR	IGN SW IG2
70	-	-
71	-	-
72	-	-

Connector No.	E42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	R	F/L USM
2	G	F/L MAIN

Connector No.	E43
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	-	-
4	BR	NP SW
5	Y	H/LAMP HI RH
6	G	H/LAMP HI LH

Terminal No.	Color of Wire	Signal Name
7	L	H/LAMP LO LH
8	P	H/LAMP LO RH
9	-	-
10	P	FUEL PUMP MOTOR
11	GR	ETC VB
12	SB	A/C CLUTCH
13	O	A/T ECU IGN
14	LG	REVERSE LAMP IGN
15	V	ABS ECU IGN
16	SB	ETC RLY CONT
17	LG	IGN COIL
18	O	INJECTOR

Connector No.	E44
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
19	R	STARTER MOTOR
20	P	F/L IGNSW
21	LG	MOTOR FAN 1
22	GR	IGN SW (ST)
23	Y	MOTOR FAN 2
24	V	F/L MOTOR FAN

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

< WIRING DIAGRAM >

[IPDM E/R (WITHOUT I-KEY)]

Connector No.	E47
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



51	50	49
56	55	54
53	52	

Terminal No.	Color of Wire	Signal Name
49	-	-
50	-	-
51	-	-
52	B/Y	GND (SIGNAL)
53	W	FR FOG/L RH
54	V	FR FOG/L LH
55	-	-
56	G	IGN SW (IG1)

Connector No.	E46
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



42	41	40	39	38	37
48	47	46	45	44	43

Terminal No.	Color of Wire	Signal Name
37	SB	INHIBIT CUT
38	-	-
39	BR	AUTO STOP SW
40	P	CAN-L
41	L	CAN-H
42	Y	DTRL RLY
43	-	-
44	V	START CONT
45	Y	FUEL RLY CONT
46	-	-
47	G	ALT C
48	L	HORN RLY CONT

Connector No.	E45
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



29	28	27	26	25
36	35	34	33	32
31	30			

Terminal No.	Color of Wire	Signal Name
25	G	ECM VB
26	P	O2 SENS
27	L	CLEARANCE/L RH
28	R	TAIL 1
29	L	FR WIPER HI
30	-	-
31	O	ECM RLY CONT
32	Y	ECM BAT
33	V	CLEARANCE/L LH
34	-	-
35	W	FR WIPER LO
36	-	-

Terminal No.	Color of Wire	Signal Name
58	L	MOTOR FAN 3
59	-	-
60	-	-
61	-	-
62	R	RR DEF

Connector No.	E48
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



59	58	57
62	61	60

Terminal No.	Color of Wire	Signal Name
57	B/Y	GND (POWER)

ABMIA5624GB

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PCS

# U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R (WITHOUT I-KEY)]

## DTC/CIRCUIT DIAGNOSIS

### U1000 CAN COMM CIRCUIT

#### Description

INFOID:000000009755841

Refer to [LAN-7, "CAN COMMUNICATION SYSTEM : System Description"](#).

#### DTC Logic

INFOID:000000009755842

#### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1000]	When IPDM E/R cannot communicate with CAN communication signal continuously for 2 seconds or more	In CAN communication system, any item (or items) of the following listed below is malfunctioning. <ul style="list-style-type: none"><li>• Transmission</li><li>• Receiving (ECM)</li><li>• Receiving (BCM)</li><li>• Receiving (Combination meter)</li></ul>

#### Diagnosis Procedure

INFOID:000000009755843

#### 1. PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON and wait for 2 second or more.
2. Check "SELF-DIAG RESULTS" of IPDM E/R.

Is "CAN COMM CIRCUIT" displayed?

- YES >> Refer to [LAN-16, "Trouble Diagnosis Flow Chart"](#).  
NO >> Refer to [GI-39, "Intermittent Incident"](#).

# B2098 IGNITION RELAY ON STUCK

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R (WITHOUT I-KEY)]

## B2098 IGNITION RELAY ON STUCK

### DTC Logic

INFOID:000000010287291

### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGN RELAY ON [B2098]	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)	IPDM E/R

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the power supply position to start under the following conditions and wait for at least 1 second.

CVT model

- CVT selector lever is in the P (Park) or N (Neutral) position.
- Depress the brake pedal

M/T model

- Selector lever is in the Neutral position.
- Depress the clutch pedal

2. Check "Self-diagnostic result" with CONSULT.

#### Is DTC detected?

- YES >> Refer to [PCS-55, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:000000010287292

#### 1. PERFORM SELF DIAGNOSTIC RESULT

Perform Self Diagnostic Result of IPDM E/R using CONSULT.

#### Is display history of DTC B2098 CRNT?

- YES >> Replace IPDM E/R. Refer to [PCS-58, "Removal and Installation"](#).  
NO >> Refer to [GI-39, "Intermittent Incident"](#).

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# B2099 IGNITION RELAY OFF STUCK

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R (WITHOUT I-KEY)]

## B2099 IGNITION RELAY OFF STUCK

### DTC Logic

INFOID:0000000010287293

### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGN RELAY OFF [B2099]	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)	IPDM E/R

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn the power supply position to start under the following conditions and wait for at least 1 second.

CVT model

- CVT selector lever is in the P (Park) or N (Neutral) position.
- Depress the brake pedal

M/T model

- Selector lever is in the Neutral position.
- Depress the clutch pedal

2. Check "Self-diagnostic result" with CONSULT.

#### Is DTC detected?

YES >> Refer to [PCS-56, "Diagnosis Procedure"](#).

NO >> Inspection End.

### Diagnosis Procedure

INFOID:0000000010287294

#### 1. PERFORM SELF DIAGNOSTIC RESULT

Perform Self Diagnostic Result of IPDM E/R using CONSULT.

#### Is display history of DTC B2099 CRNT?

YES >> Replace IPDM E/R. Refer to [PCS-58, "Removal and Installation"](#).

NO >> Refer to [GI-39, "Intermittent Incident"](#).



# POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R (WITHOUT I-KEY)]

## POWER SUPPLY AND GROUND CIRCUIT

### Diagnosis Procedure

INFOID:000000009755850

Regarding Wiring Diagram information, refer to [PCS-49, "Wiring Diagram"](#).

### 1. CHECK FUSE AND FUSIBLE LINKS

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

Terminal No.	Signal name	Fusible link Nos.
1	Battery	E (80A)
2		B (60A)
24		J (40A/50A)

Is the fusible link blown?

YES >> Replace the blown fusible link after repairing the affected circuit.

NO >> GO TO 2

### 2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect IPDM E/R connector E42 and E44.
2. Check voltage between IPDM E/R connector E42 and E44 and ground.

IPDM E/R		Ground	Voltage
Connector	Terminal		
E42	1	—	Battery voltage
	2		
E44	24		

Is the inspection result normal?

YES >> GO TO 3

NO >> Repair harness or connectors.

### 3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector E47 and E48.
3. Check continuity between IPDM E/R connector E47 and E48 and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E47	52	—	Yes
E48	57		

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair harness or connectors.

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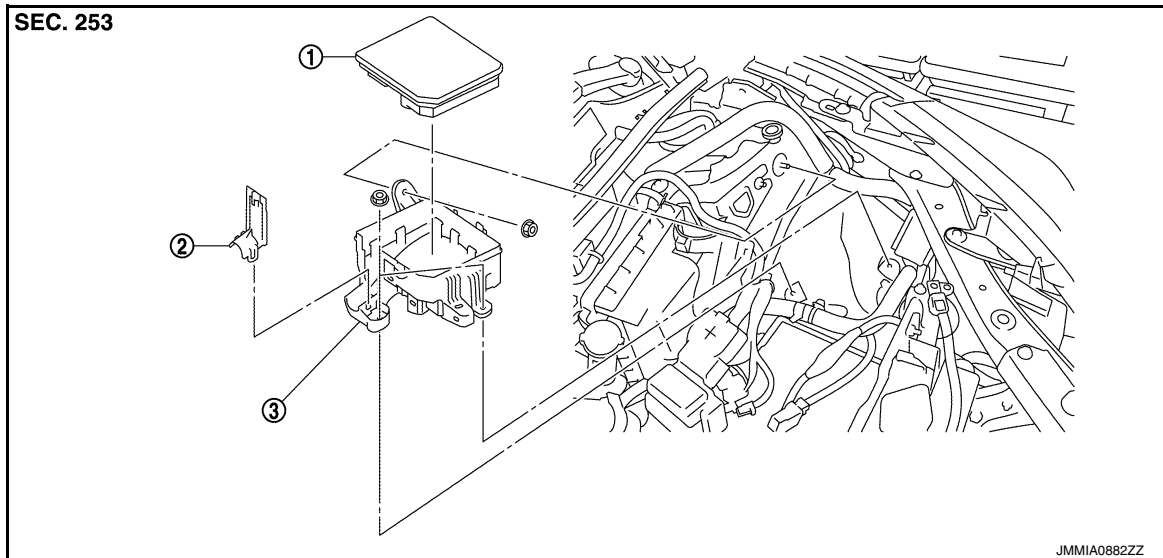
PCS

# REMOVAL AND INSTALLATION

## IPDM E/R

### Exploded View

INFOID:000000009755851



1. IPDM E/R

2. IPDM E/R cover A

3. IPDM E/R cover B

### Removal and Installation

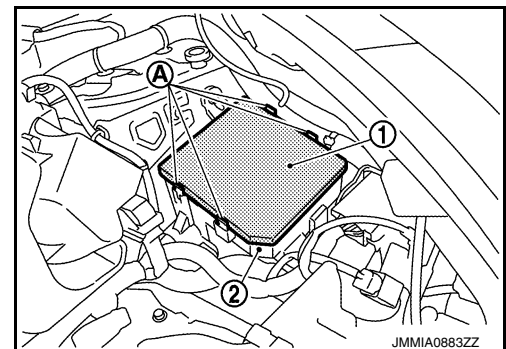
INFOID:000000009755852

#### CAUTION:

**IPDM E/R integrated relays are not serviceable and must not be removed from unit.**

#### REMOVAL

1. Remove inlet air duct (upper). Refer to [EM-25, "Removal and Installation"](#).
2. Remove battery. Refer to [PG-50, "Removal and Installation \(Battery\)"](#).
3. Release pawls (A) on IPDM E/R cover and remove IPDM E/R (1) from IPDM E/R cover B (2).



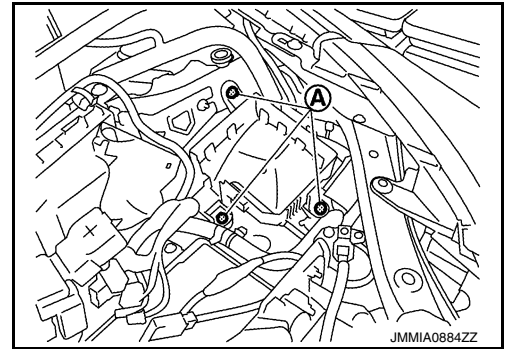
4. Disconnect harness connector and then remove IPDM E/R.
5. Remove engine room harness from IPDM E/R cover B.

# IPDM E/R

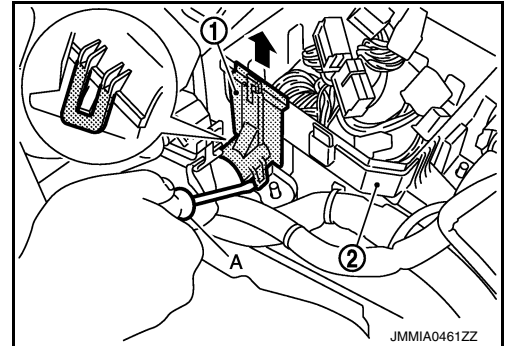
## < REMOVAL AND INSTALLATION >

[IPDM E/R (WITHOUT I-KEY)]

6. Remove IPDM E/R cover B nuts (A).



7. Insert a suitable tool (A) between IPDM E/R cover A (1) and IPDM E/R cover B (2), disengage pawls, and remove IPDM E/R cover A.



8. Remove IPDM E/R cover B.

## INSTALLATION

Installation is in the reverse order of removal.

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## PRECAUTION

### PRECAUTIONS

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

INFOID:000000009755853

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

**WARNING:**

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which 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 the SR section.
- Do not 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:**

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT 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 three minutes before performing any service.

# COMPONENT PARTS

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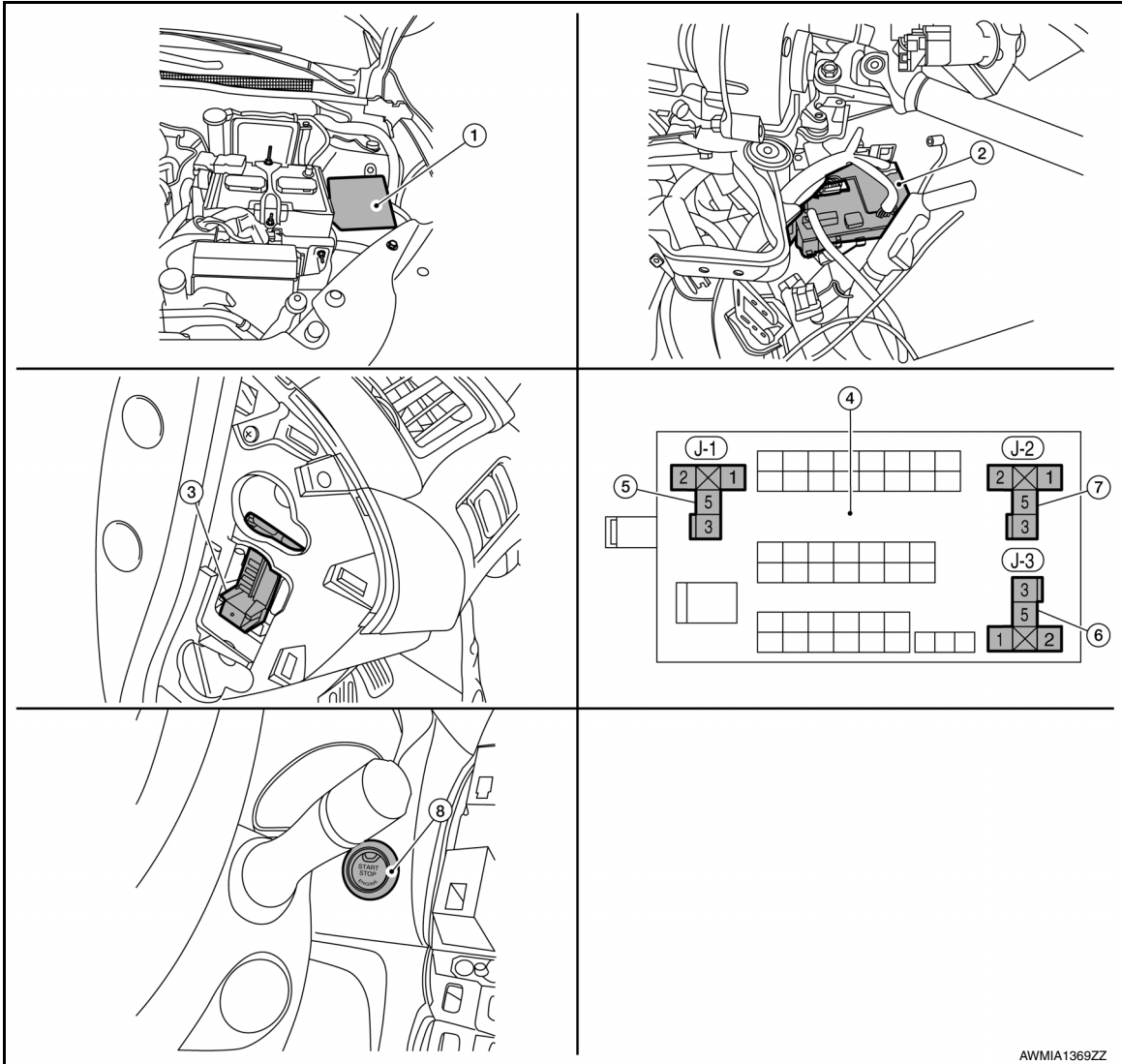
[POWER DISTRIBUTION SYSTEM]

## SYSTEM DESCRIPTION

### COMPONENT PARTS

#### Component Parts Location

INFOID:000000009755854



- |   |   |                             |
|---|---|-----------------------------|
| 1. IPDM E/R (contains Ignition relay-1) | 2. BCM (view with instrument panel removed) | 3. Fuse block (J/B) (front) |
| 4. Fuse block (J/B) (back)              | 5. Blower relay                             | 6. Ignition relay-2         |
| 7. Accessory relay-1                    | 8. Push-button ignition switch              |                             |

#### Component Description

INFOID:000000009755855

Component	Description
Push-button ignition switch	Push-button ignition switch (push switch) is pressed, and transmits the status signal to BCM and IPDM E/R.
IPDM E/R	<ul style="list-style-type: none"> <li>IPDM E/R detects push-button ignition switch (push switch) status, and transmits push-button ignition switch status signal (CAN) to BCM.</li> <li>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)</li> </ul>

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## COMPONENT PARTS

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

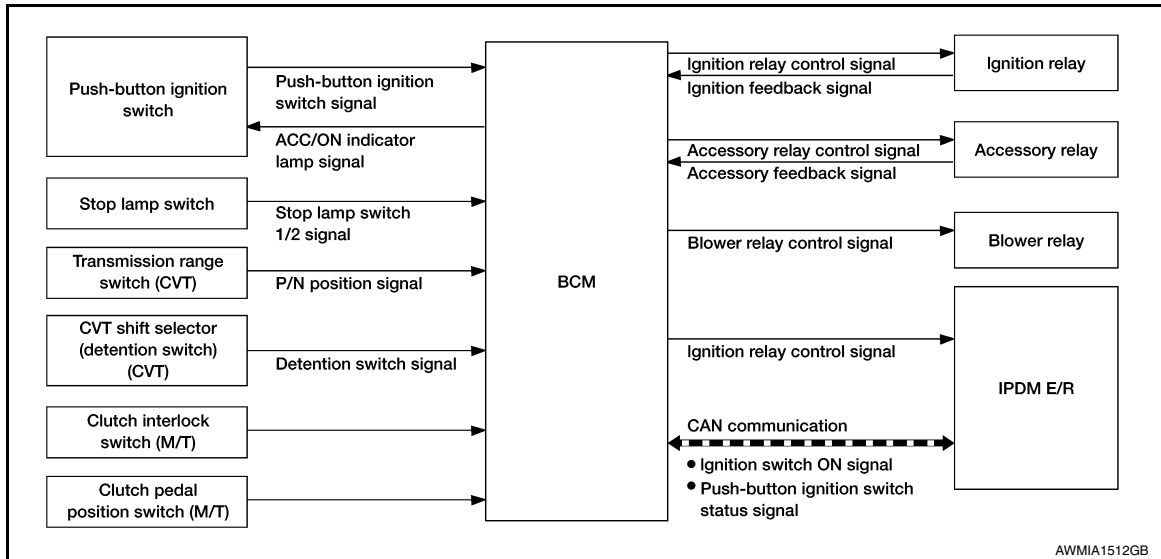
Component	Description
BCM	<ul style="list-style-type: none"><li>• BCM controls power distribution system.</li><li>• BCM judges ignition switch position by push-button ignition switch (push switch) and vehicle condition</li><li>• BCM checks the ignition switch position internally.</li></ul>
Blower relay (in fuse block)	<ul style="list-style-type: none"><li>• Blower relay is controlled by BCM.</li><li>• Blower relay supplies the ignition switch ON power supply or the ignition switch ON signal to air conditioning system when ignition switch is turned ON.</li><li>• BCM compares status of blower relay control signal and ignition switch position judged by BCM.</li></ul>
Accessory relay-1 (in fuse block)	<ul style="list-style-type: none"><li>• Accessory relay is controlled by BCM.</li><li>• Accessory relay supplies the accessory power supply or the ignition switch ACC signal to each ECU when ignition switch is turned ACC or ON.</li><li>• BCM compares status of accessory relay control signal, and ignition switch position judged by BCM.</li></ul>
Ignition relay-2 (in fuse block)	<ul style="list-style-type: none"><li>• Ignition relay is controlled by BCM.</li><li>• Ignition relay supplies the ignition switch ON power supply or the ignition switch ON signal to each ECU and system when ignition switch is turned ON.</li><li>• BCM compares status of ignition relay control signal and ignition switch position judged by BCM.</li><li>• BCM monitors the ignition relay operating status by the ignition relay feedback signal.</li></ul>

SYSTEM

POWER DISTRIBUTION SYSTEM

POWER DISTRIBUTION SYSTEM : System Diagram

INFOID:000000009755856



POWER DISTRIBUTION SYSTEM : System Description

INFOID:000000009755857

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.
  - Intelligent Key backside is contacted to push-button ignition switch.
- 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-1
  - Ignition relay-2
  - Accessory relay-1
  - Accessory relay-2
  - Blower relay

**NOTE:**

- The engine 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 in the push-button ignition switch.

BATTERY SAVER SYSTEM

When all the following conditions are met for 30 minutes, the battery saver system will cut off the power supply to prevent battery discharge.

- The ignition switch is in the ACC or ON position
- All doors are closed
- Selector lever is in the P (park) position

Reset Condition of Battery Saver System

In order to prevent the battery from discharging, the battery saver system will cut off the power supply when all doors are closed, the selector lever is in P (park) position and the ignition switch is left in the ACC or ON position for 30 minutes. If any of the following conditions are met the battery saver system is released and the steering will change automatically to lock position from OFF position.

- Opening any door
- Operating door request switch on door handle
- Operating Intelligent Key

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# SYSTEM

## [POWER DISTRIBUTION SYSTEM]

< SYSTEM DESCRIPTION >

### 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 Intelligent Key backside is contacted to push-button ignition switch, it is equivalent to the operations below.
- When starting the engine, the BCM monitors under the engine start conditions:
  - 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 position	Brake pedal operation condition	
OFF → ACC	—	Not depressed	1
OFF → ACC → ON	—	Not depressed	2
OFF → ACC → ON → OFF	—	Not depressed	3
OFF → START ACC → START ON → START	P or N position	Depressed	1
Engine is running → OFF	—	—	1

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 position	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.



# DIAGNOSIS SYSTEM (BCM)

[POWER DISTRIBUTION SYSTEM]

< SYSTEM DESCRIPTION >

## DIAGNOSIS SYSTEM (BCM)

### COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010287285

### APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
ECU identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	<ul style="list-style-type: none"> <li>The vehicle specification can be read and saved.</li> <li>The vehicle specification can be written when replacing BCM.</li> </ul>
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication is displayed.

### SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		ECU identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN DIAG SUPPORT MNTR
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 conditioner	AIR CONDITIONER			×				
Intelligent Key system	INTELLIGENT KEY		×	×	×	×		
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×	×	×	×		
Interior room lamp battery saver	BATTERY SAVER			×	×	×		
Trunk open	TRUNK			×				
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×				
Signal buffer system	SIGNAL BUFFER			×				
TPMS	AIR PRESSURE MONITOR		×	×	×	×		

# DIAGNOSIS SYSTEM (BCM)

[POWER DISTRIBUTION SYSTEM]

< SYSTEM DESCRIPTION >

## INTELLIGENT KEY

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

INFOID:000000010287286

#### SELF DIAGNOSTIC RESULT

Refer to [BCS-49. "DTC Index"](#).

#### DATA MONITOR

Monitor Item [Unit]	Main	Description
REQ SW -DR [On/Off]	×	Indicates condition of door request switch LH.
REQ SW -AS [On/Off]	×	Indicates condition of door request switch RH.
REQ SW -BD/TR [On/Off]	×	Indicates condition of trunk open switch.
PUSH SW [On/Off]		Indicates condition of push-button ignition switch.
CLUCH SW [On/Off]		Indicates condition of clutch switch.
BRAKE SW 1 [On/Off]	×	Indicates condition of brake switch.
BRAKE SW 2 [On/Off]		Indicates condition of brake switch.
DETE/CANCL SW [On/Off]	×	Indicates condition of P (park) position.
SFT PN/N SW [On/Off]	×	Indicates condition of P (park) or N (neutral) position.
UNLK SEN -DR [On/Off]	×	Indicates condition of driver door unlock sensor.
PUSH SW -IPDM [On/Off]		Indicates condition of push-button ignition switch received from IPDM E/R on CAN communication line.
IGN RLY1 -F/B [On/Off]		Indicates condition of ignition relay 1 received from IPDM E/R on CAN communication line.
DETE SW -IPDM [On/Off]		Indicates condition of detent switch received from TCM on CAN communication line.
SFT PN -IPDM [On/Off]		Indicates condition of P (park) or N (neutral) position from TCM on CAN communication line.
SFT P -MET [On/Off]		Indicates condition of P (park) position from TCM on CAN communication line.
SFT N -MET [On/Off]		Indicates condition of N (neutral) position from IPDM E/R on CAN communication line.
ENGINE STATE [Stop/Start/Crank/Run]	×	Indicates condition of engine state from ECM on CAN communication line.
VEH SPEED 1 [mph/km/h]	×	Indicates condition of vehicle speed signal received from ABS on CAN communication line.
VEH SPEED 2 [mph/km/h]	×	Indicates condition of vehicle speed signal received from combination meter on CAN communication line.
DOOR STAT -DR [LOCK/READY/UNLK]	×	Indicates condition of driver side door status.
DOOR STAT -AS [LOCK/READY/UNLK]	×	Indicates condition of passenger side door status.
ID OK FLAG [Set/Reset]		Indicates condition of Intelligent Key ID.
PRMT ENG STRT [Set/Reset]		Indicates condition of engine start possibility.
PRMT RKE STRT [Set/Reset]		Indicates condition of engine start possibility from Intelligent Key.
RKE OPE COUN1 [0-19]	×	When remote keyless entry receiver receives the signal transmitted while operating on Intelligent Key, the numerical value start changing.
RKE OPE COUN2 [0-19]	×	When remote keyless entry receiver receives the signal transmitted while operating on Intelligent Key, the numerical value start changing.
TRNK/HAT MNTR [On/Off]		Indicates condition of trunk room lamp switch.
RKE-LOCK [On/Off]		Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]		Indicates condition of unlock signal from Intelligent Key.
RKE-TR/BD [On/Off]		Indicates condition of trunk open signal from Intelligent Key.

# DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

Monitor Item [Unit]	Main	Description
RKE-PANIC [On/Off]		Indicates condition of panic signal from Intelligent Key.
RKE-MODE CHG [On/Off]		Indicates condition of mode change signal from Intelligent Key.

## ACTIVE TEST

Test Item	Description
INSIDE BUZZER	This test is able to check combination meter warning chime operation [Take Out/Knob/Key/Off].
LCD	This test is able to check combination meter display information [Off/LK WN/OUTKEY/NO KY/BATT/INSRT/SFT P/ROTAT/ID NG/B&P I/B&P N].
BATTERY SAVER	This test is able to check battery saver operation [On/Off].
ENGINE SW ILLUMI	This test is able to check push-button ignition switch START indicator operation [On/Off].
PUSH SWITCH INDICATOR	This test is able to check push-button ignition switch indicator operation [On/Off].
TRUNK/BACK DOOR	This test is able to check trunk actuator operation [Open].
INT LAMP INDICATOR	This test is able to check interior room lamp operation [On/Off].
FLASHER	This test is able to check hazard lamp operation [LH/RH/Off].
OUTSIDE BUZZER	This test is able to check Intelligent Key warning buzzer operation [On/Off].
HORN	This test is able to check horn operation [On].
P RANGE	This test is able to check CVT shift selector illumination operation [On/Off].

## WORK SUPPORT

Support Item	Setting	Description
LOCK/UNLOCK BY I-KEY	On*	Door lock/unlock function from Intelligent Key ON.
	Off	Door lock/unlock function from Intelligent Key OFF.
TRUNK/GLASS HATCH OPEN	On*	Buzzer reminder function from trunk opener switch.
	Off	No buzzer reminder function from trunk opener switch.
ANTI KEY LOCK IN FUNCTI	On*	Anti lock out setting ON.
	Off	Anti lock out setting OFF.
ANS BACK I-KEY UNLOCK	Off	No buzzer reminder when doors are unlocked with request switch.
	On*	Buzzer reminder when doors are unlocked with request switch.
ANS BACK I-KEY LOCK	Horn Chirp	Horn chirp reminder when doors are locked with request switch.
	Buzzer*	Buzzer reminder when doors are locked with request switch.
	Off	No reminder when doors are locked with request switch.
HORN WITH KEYLESS LOCK	Off	Horn chirp reminder when doors are locked with Intelligent Key.
	On*	No horn chirp reminder when doors are locked with Intelligent Key.
ENGINE START BY I-KEY	On*	Engine start function from Intelligent Key ON.
	Off	Engine start function from Intelligent Key OFF.
HAZARD ANSWER BACK	Lock/Unlock*	Hazard warning lamp activation when doors are locked/unlocked with Intelligent Key or request switch.
	Unlock Only	Hazard warning lamp activation when doors are unlocked with Intelligent Key or request switch.
	Lock Only	Hazard warning lamp activation when doors are locked with Intelligent Key or request switch.
	Off	No hazard warning lamp activation when doors are locked/unlocked with Intelligent Key or request switch.
INSIDE ANT DIAGNOSIS	—	This function allows inside key antenna self-diagnosis.

# DIAGNOSIS SYSTEM (BCM)

## [POWER DISTRIBUTION SYSTEM]

### < SYSTEM DESCRIPTION >

Support Item	Setting		Description
CONFIRM KEY FOB ID	—		Intelligent Key ID code can be checked.
SHORT CRANKING OUTPUT	Start	70 msec	Starter motor operation duration time setting.
		100 msec	
		200 msec	
	End	—	
PANIC ALARM SET	MODE 3	1.5 sec	Intelligent Key panic alarm button setting.
	MODE 2	OFF	
	MODE 1*	0.5 sec	
LO- BATT OF KEY FOB WARN	On*		Intelligent Key low battery warning ON.
	Off		Intelligent Key low battery warning OFF.
AUTO LOCK SET	MODE7	5 min	Auto door lock time setting.
	MODE6	4 min	
	MODE5	3 min	
	MODE4	2 min	
	MODE3*	1 min	
	MODE2	30 sec	
	MODE1	Off	
TRUNK OPEN DELAY	MODE 3	1.5 sec	Intelligent Key trunk open button setting.
	MODE 2	OFF	
	MODE 1*	0.5 sec	

\*: Initial Setting

# ECU DIAGNOSIS INFORMATION

BCM, IPDM E/R

List of ECU Reference

INFOID:000000009755860

ECU	Reference
BCM	<a href="#">BCS-29, "Reference Value"</a>
	<a href="#">BCS-46, "Fail-safe"</a>
	<a href="#">BCS-48, "DTC Inspection Priority Chart"</a>
	<a href="#">BCS-49, "DTC Index"</a>
IPDM E/R	<a href="#">PCS-13, "Reference Value"</a>
	<a href="#">PCS-19, "Fail-safe"</a>
	<a href="#">PCS-20, "DTC Index"</a>

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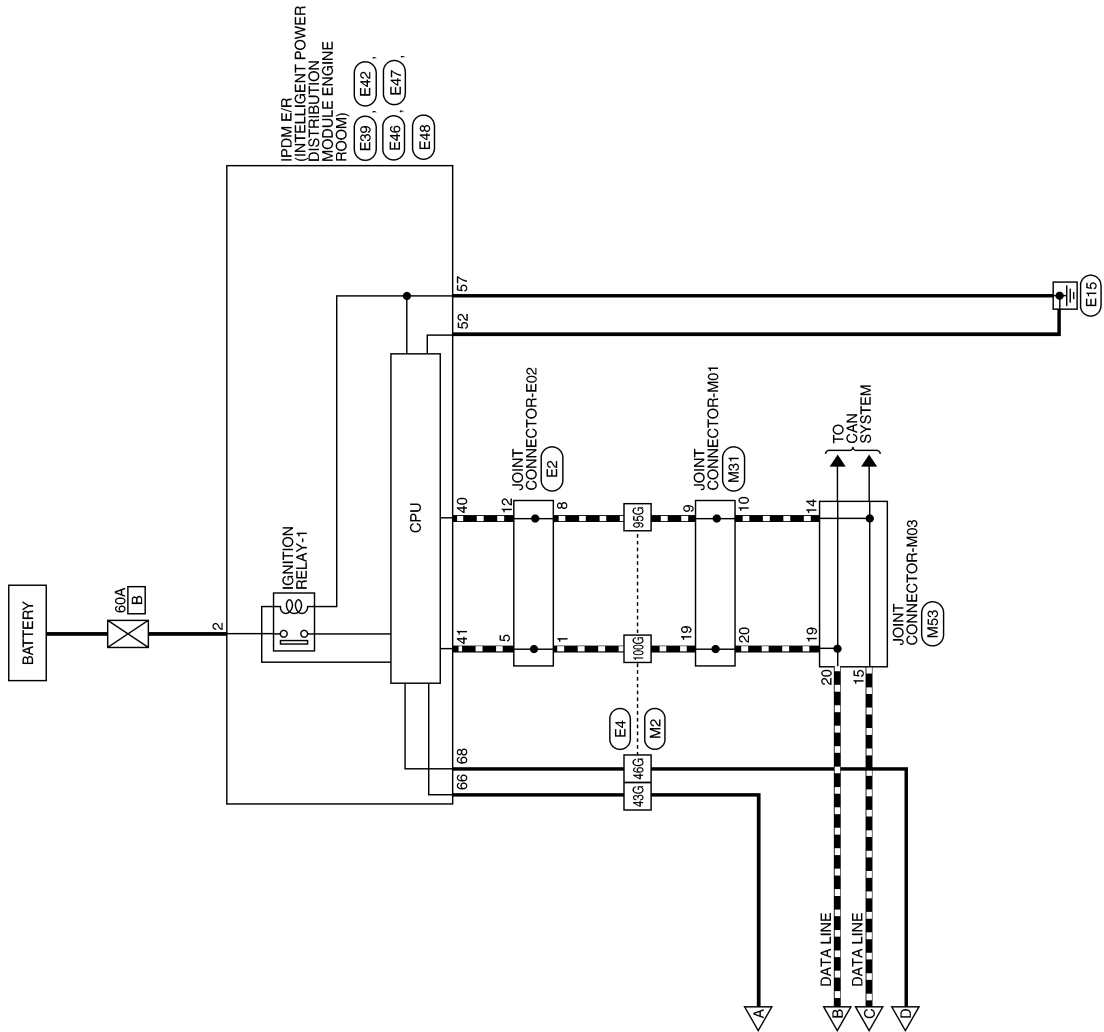
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# POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]



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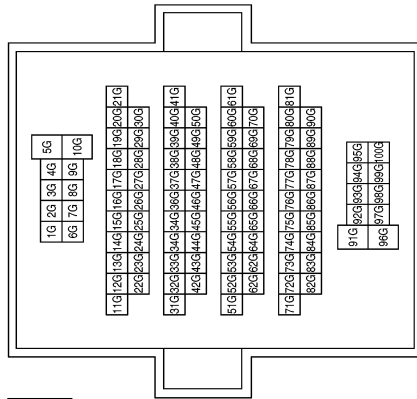
# POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

## POWER DISTRIBUTION SYSTEM CONNECTORS

Connector No.	M2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



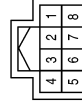
Terminal No.	Color of Wire	Signal Name
10G	Y	-
32G	R	-
34G	V	-
43G	LG	-
46G	V	-
95G	P	-
100G	L	-

Connector No.	M3
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	W	-

Connector No.	M25
Connector Name	PUSH-BUTTON IGNITION SWITCH
Connector Color	WHITE



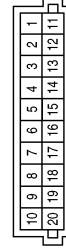
Terminal No.	Color of Wire	Signal Name
1	Y	-
4	B	-
7	V	-
8	LG	-

Connector No.	M31
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
9	P	-
10	P	-
19	L	-
20	L	-

Connector No.	M53
Connector Name	JOINT CONNECTOR-M03
Connector Color	PINK



Terminal No.	Color of Wire	Signal Name
14	P	-
15	P	-
19	L	-
20	L	-

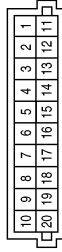


# POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

Connector No.	M78
Connector Name	JOINT CONNECTOR-M02
Connector Color	PINK



Terminal No.	Color of Wire	Signal Name
16	Y	-
17	SB	-

Connector No.	M71
Connector Name	JOINT CONNECTOR-M05
Connector Color	PINK



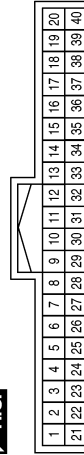
Terminal No.	Color of Wire	Signal Name
12	B	-
15	B	-

Connector No.	M65
Connector Name	ACCESSORY RELAY-2
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	B	-
2	W	-
3	L	-
5	SB	-

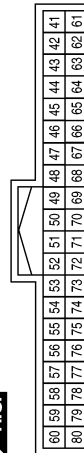
Connector No.	M84
Connector Name	BCM (BODY CONTROL MODULE) (WITH INTELLIGENT KEY SYSTEM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
9	R	BRAKE SW1
39	L	CAN-H
40	P	CAN-L

Terminal No.	Color of Wire	Signal Name
55	LG	ENGINE START SW
65	P	BLOWER FAN MOTOR RELAY OUTPUT
66	V	BRAKE SW2
72	R	IGN RELAY OUTPUT 2 (ELEC)
73	V	IGN RELAY OUTPUT 1 (USM)
75	W	ACC RELAY OUTPUT
80	V	POWER POSITION LED (LOCK POSITION LED)

Connector No.	M83
Connector Name	BCM (BODY CONTROL MODULE) (WITH INTELLIGENT KEY SYSTEM)
Connector Color	WHITE



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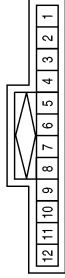
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# POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

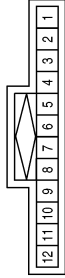
[POWER DISTRIBUTION SYSTEM]

Connector No.	E3
Connector Name	JOINT CONNECTOR-E01
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
8	SB	-
11	SB	-

Connector No.	E2
Connector Name	JOINT CONNECTOR-E02
Connector Color	BLUE



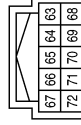
Terminal No.	Color of Wire	Signal Name
1	L	-
5	L	-
8	P	-
12	P	-

Connector No.	M85
Connector Name	BCM (BODY CONTROL MODULE) (WITH INTELLIGENT KEY SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
88	O	BATTERY (FUSE)
90	Y	BATTERY (F/L)
93	B	GND (POWER)

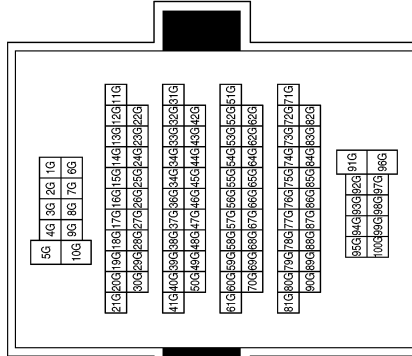
Connector No.	E39
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
66	L	PUSH START SW
68	O	IGN SIGNAL

Terminal No.	Color of Wire	Signal Name
10G	G	-
32G	SB	-
34G	W	-
43G	L	-
46G	O	-
95G	P	-
100G	L	-

Connector No.	E4
Connector Name	WIRE TO WIRE
Connector Color	WHITE



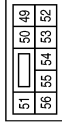
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# POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

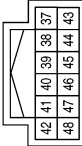
[POWER DISTRIBUTION SYSTEM]

Connector No.	E47
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
52	B/Y	GND (SIGNAL)

Connector No.	E46
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



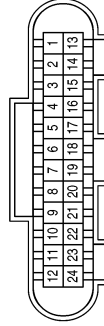
Terminal No.	Color of Wire	Signal Name
40	P	CAN-L
41	L	CAN-H

Connector No.	E42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
2	G	F/L MAIN

Connector No.	E62
Connector Name	JOINT CONNECTOR-E04
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
11	W	-
10	W	-
12	W	-

Connector No.	E60
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	W	-
2	SB	-

Connector No.	E48
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
57	B/Y	GND (POWER)

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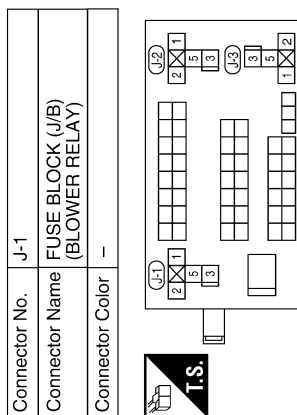
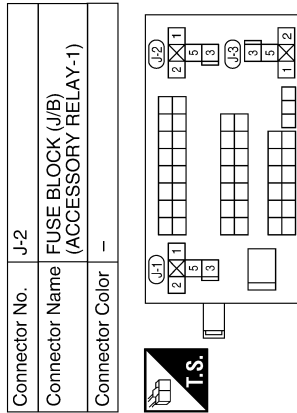
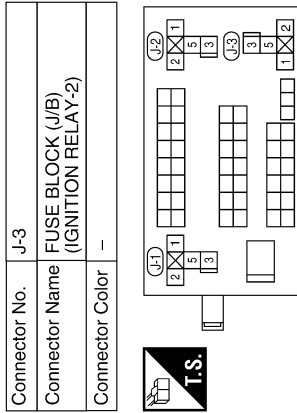
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# POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]



AAMIA1347GB

# DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

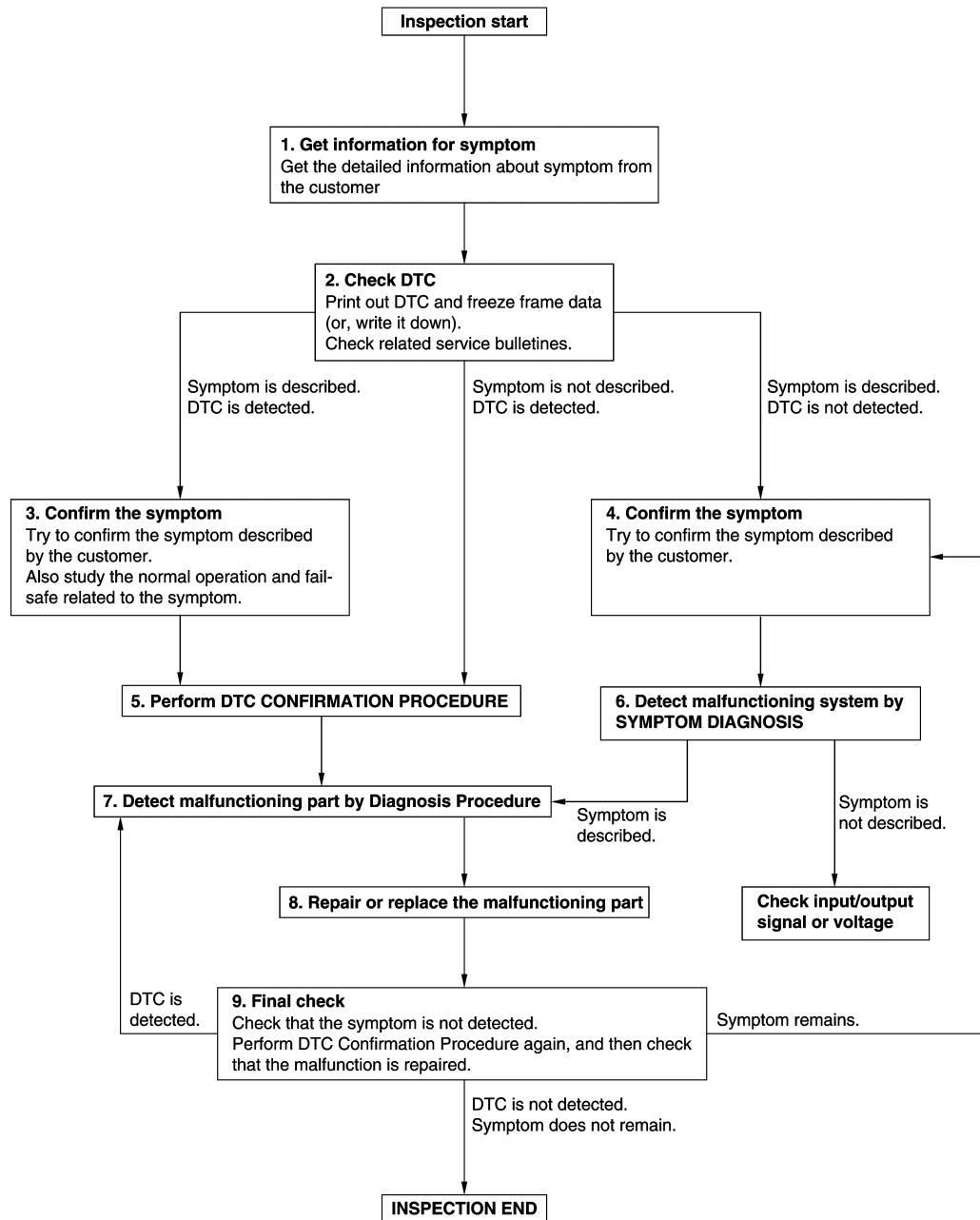
## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000009755862

OVERALL SEQUENCE



DETAILED FLOW

Revision: October 2013

PCS-77

JMKIA8652GB

2014 Sentra NAM

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# 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 component or system 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.

**NOTE:**

Freeze frame data is useful if the DTC is not 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-48, "DTC Inspection Priority Chart"](#), and determine trouble diagnosis order.

Is DTC detected?

YES >> GO TO 7.

NO >> Refer to [GI-39, "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

---

Inspect according to Diagnosis Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 8.

NO >> Refer to [GI-39, "Intermittent Incident"](#).

# DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

## 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 >> Inspection End.

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PCS

# U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## DTC/CIRCUIT DIAGNOSIS

### U1000 CAN COMM CIRCUIT

#### Description

INFOID:000000009755863

Refer to [LAN-7, "CAN COMMUNICATION SYSTEM : System Description"](#).

#### DTC Logic

INFOID:000000009755864

#### DTC DETECTION LOGIC

##### NOTE:

U1000 can be set if a module harness was disconnected and reconnected, perhaps during a repair. Confirm that there are actual CAN diagnostic symptoms and a present DTC by performing the Self Diagnostic Result procedure.

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1000]	When any listed module cannot communicate with CAN communication signal continuously for 2 seconds or more with ignition switch ON	In CAN communication system, any item (or items) of the following listed below is malfunctioning. <ul style="list-style-type: none"><li>• Transmission</li><li>• Receiving (ECM)</li><li>• Receiving (VDC/TCS/ABS)</li><li>• Receiving (METER/M&amp;A)</li><li>• Receiving (TCM)</li><li>• Receiving (IPDM E/R)</li></ul>

#### Diagnosis Procedure

INFOID:000000009755865

### 1. PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON and wait for 2 second or more.
2. Check "SELF- DIAG RESULTS".

Is "CAN COMM CIRCUIT" displayed?

- YES >> Perform CAN Diagnosis as described in DIAGNOSIS section of CONSULT operation manual.  
NO >> Refer to [GI-39, "Intermittent Incident"](#).



# U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## U1010 CONTROL UNIT (CAN)

### DTC Logic

INFOID:000000009755866

### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CONTROL UNIT (CAN) [U1010]	BCM detected internal CAN communication circuit malfunction.	BCM

### Diagnosis Procedure

INFOID:000000009755867

#### 1. REPLACE BCM

When DTC "U1010" is detected, replace BCM.

>> Replace BCM. Refer to [BCS-73. "Removal and Installation"](#).

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# B2614 ACC RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## B2614 ACC RELAY CIRCUIT

### DTC Logic

INFOID:000000009755868

### DTC DETECTION LOGIC

CONSULT Display	DTC detecting condition	Possible cause
ACC RELAY CIRCUIT [B2614]	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</li> <li>• Accessory relay-2</li> <li>• BCM</li> </ul>

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch to ACC, and wait for 1 second or more.
2. Check "Self-diagnosis result" of BCM with CONSULT.

#### Is DTC detected?

- YES >> Go to [PCS-82, "Diagnosis Procedure"](#).  
 NO >> Inspection End.

### Diagnosis Procedure

INFOID:000000009755869

Regarding Wiring Diagram information, refer to [PCS-70, "Wiring Diagram"](#).

#### 1. CHECK ACCESSORY RELAY-2 CONTROL SIGNAL

Check voltage between BCM connector M83 and ground.

(+)		(-)	Condition	Voltage (V) (Approx.)
BCM				
Connector	Terminal			
M83	75	Ground	Ignition switch	OFF
				ACC or ON

#### Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-73, "Removal and Installation"](#).  
 NO >> GO TO 2.

#### 2. CHECK ACCESSORY RELAY-2 CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector M83 and accessory relay-2.
3. Check continuity between BCM connector M83 and accessory relay-2 connector M65.

BCM		Accessory relay-2		Continuity
Connector	Terminal	Connector	Terminal	
M83	75	M65	2	Yes

4. Check continuity between BCM connector M83 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M83	75		No

#### Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Repair or replace harness.

# B2614 ACC RELAY CIRCUIT

[POWER DISTRIBUTION SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

## 3. CHECK ACCESSORY RELAY-2

Refer to [PCS-83. "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-73. "Removal and Installation"](#).
- NO >> Replace accessory relay-2.

## Component Inspection

INFOID:000000009755870

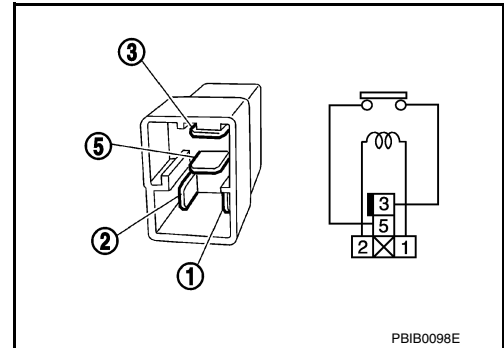
### 1. CHECK ACCESSORY RELAY-2

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

Terminals	Condition	Continuity
3 and 5	12 V direct current supply between terminals 1 and 2	Yes
	No current supply	No

Is the inspection result normal?

- YES >> Inspection End.
- NO >> Replace accessory relay-2.



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# B2615 BLOWER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## B2615 BLOWER RELAY CIRCUIT

### DTC Logic

INFOID:000000009755871

### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
BLOWER RELAY CIRCUIT [B2615]	An immediate operation of front blower motor 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.</li><li>• Front blower motor relay.</li><li>• Fuse block J/B.</li><li>• BCM.</li></ul>

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

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

#### Is DTC detected?

- YES >> Go to [PCS-84, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:000000009755872

Regarding Wiring Diagram information, refer to [PCS-70, "Wiring Diagram"](#).

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

1. Turn ignition switch OFF.
2. Disconnect blower relay.
3. Disconnect BCM connector M83.
4. Check continuity between blower relay connector J-1 and BCM connector M83.

Blower relay		BCM		Continuity
Connector	Terminal	Connector	Terminal	
J-1	2	M83	65	Yes

5. Check continuity between blower relay connector J-1 and ground.

Blower relay		Ground	Continuity
Connector	Terminal		
J-1	2	—	No

#### Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair or replace harness or connectors.

#### 2. CHECK BLOWER RELAY GROUND CIRCUIT

1. Check continuity between blower relay connector J-1 and ground.

Blower relay		Ground	Continuity
Connector	Terminal		
J-1	1	—	Yes

#### Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair or replace harness or connectors.

# B2615 BLOWER RELAY CIRCUIT

[POWER DISTRIBUTION SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

## 3. CHECK BLOWER MOTOR RELAY

Perform the relay component inspection. Refer to [PCS-85. "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Replace blower motor relay.

## 4. CHECK BLOWER RELAY POWER SUPPLY (BCM)

Check voltage between BCM connector M83 and ground.

BCM		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M83	65	—	Ignition: OFF	0V
			Ignition: ON	Battery voltage

Is the inspection result normal?

- YES >> Refer to [GI-39. "Intermittent Incident"](#).
- NO >> Replace BCM. Refer to [BCS-73. "Removal and Installation"](#).

## Component Inspection

INFOID:000000009755873

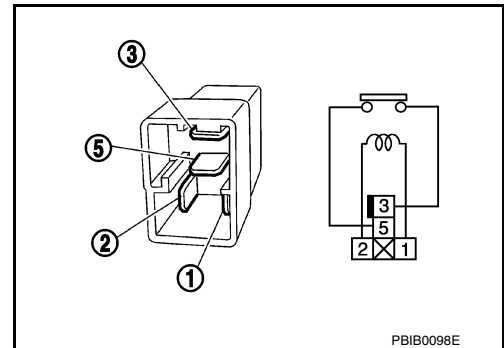
### 1. CHECK BLOWER RELAY

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

Terminals	Condition	Continuity
3 and 5	12 V direct current supply between terminals 1 and 2	Yes
	No current supply	No

Is the inspection result normal?

- YES >> Inspection End.
- NO >> Replace blower relay



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# B2616 IGNITION RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## B2616 IGNITION RELAY CIRCUIT

### DTC Logic

INFOID:000000009755874

### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGNITION RELAY CIRCUIT [B2616]	An immediate operation of ignition relay-2 is requested by BCM, but there is no response for more than 1 second.	<ul style="list-style-type: none"><li>• Harness or connectors.</li><li>• Ignition relay-2.</li><li>• Fuse block J/B.</li><li>• BCM.</li></ul>

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON under the following conditions, and wait for at least 1 second.
  - CVT selector lever is in the P (park) or N (neutral) position.
  - Release brake pedal
2. Perform self diagnostic result.

#### Is DTC B2616 detected?

- YES >> Refer to [PCS-86, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:000000009755875

Regarding Wiring Diagram information, refer to [PCS-70, "Wiring Diagram"](#).

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

1. Turn ignition switch OFF.
2. Disconnect BCM connector M83.
3. Check continuity between ignition relay-2 connector J-3 and BCM connector M83.

Ignition relay-2		BCM		Continuity
Connector	Terminal	Connector	Terminal	
J-3	1	M83	72	Yes

4. Check continuity between ignition relay-2 connector J-3 and ground.

Ignition relay-2		Ground	Continuity
Connector	Terminal		
J-3	1	—	No

#### Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair or replace harness or connectors.

#### 2. CHECK IGNITION RELAY-2 GROUND CIRCUIT

1. Check continuity between ignition relay-2 connector J-3 and ground.

Ignition relay-2		Ground	Continuity
Connector	Terminal		
J-3	2	—	Yes

#### Is the inspection result normal?

- YES >> GO TO 3.

# B2616 IGNITION RELAY CIRCUIT

[POWER DISTRIBUTION SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

NO >> Repair or replace harness or connectors.

## 3. CHECK IGNITION RELAY-2

Perform the relay component inspection. Refer to [PCS-87, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace ignition relay-2.

## 4. CHECK IGNITION RELAY-2 POWER SUPPLY (BCM)

Check voltage between BCM connector M83 and ground.

BCM		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M83	72	—	Ignition: OFF	0V
			Ignition: ON	Battery voltage

Is the inspection result normal?

YES >> Refer to [GI-39, "Intermittent Incident"](#).

NO >> Replace BCM. Refer to [BCS-73, "Removal and Installation"](#).

## Component Inspection

INFOID:000000009755876

### 1. CHECK IGNITION RELAY-2

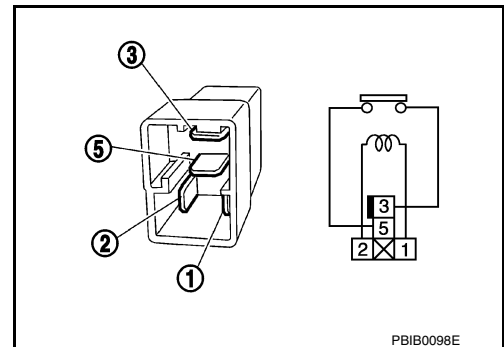
1. Turn ignition switch OFF.
2. Remove ignition relay-2.
3. Check the continuity between ignition relay-2 terminals.

Terminals	Condition	Continuity
3 and 5	12 V direct current supply between terminals 1 and 2	Yes
	No current supply	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace ignition relay-2.



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**B2618 BCM**

**DTC Logic**

INFOID:000000009755877

**DTC DETECTION LOGIC**

**NOTE:**

- If DTC B2618 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [PCS-80, "DTC Logic"](#).
- If DTC B2618 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [PCS-81, "DTC Logic"](#).

CONSULT Display	DTC Detection Condition	Possible Cause
BCM [B2618]	An immediate operation of ignition relay-1 is requested by BCM, but there is no response for more than 1 second	<ul style="list-style-type: none"> <li>• Harness or connectors</li> <li>• BCM</li> <li>• IPDM E/R</li> </ul>

**DTC CONFIRMATION PROCEDURE**

**1. PERFORM SELF DIAGNOSTIC RESULT**

1. Turn ignition switch ON under the following conditions, and wait for at least 1 second.
  - CVT selector lever is in the P (park) or N (neutral) position.
  - Release brake pedal
2. Perform self diagnostic result.

**Is DTC B2618 detected?**

- YES >> Refer to [PCS-88, "Diagnosis Procedure"](#).
- NO >> Inspection End.

**Diagnosis Procedure**

INFOID:000000009755878

Regarding Wiring Diagram information, refer to [PCS-70, "Wiring Diagram"](#).

**1. CHECK IGNITION RELAY-1 CONTROL SIGNAL**

Check voltage between BCM connector M83 and ground.

(+)		(-)	Condition	Voltage (V) (Approx.)	
BCM					
Connector	Terminal				
M83	73	Ground	Ignition switch	OFF or ACC	Battery voltage
				ON	0

**Is the inspection result normal?**

- YES >> Replace BCM. Refer to [BCS-73, "Removal and Installation"](#).
- NO >> GO TO 2.

**2. CHECK IGNITION RELAY-1 CONTROL SIGNAL CIRCUIT**

1. Turn ignition switch OFF.
2. Disconnect BCM connector M83 and IPDM E/R connector E39.
3. Check continuity between BCM connector M83 and IPDM E/R connector E39.

BCM		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
M83	73	E39	68	Yes

4. Check continuity between BCM connector M83 and ground.



# B2618 BCM

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

BCM		Ground	Continuity
Connector	Terminal		
M83	73		No

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair or replace harness.

### 3. CHECK VOLTAGE OF IGNITION RELAY-1 CONTROL SIGNAL CIRCUIT (IPDM E/R SIDE)

1. Connect IPDM E/R connector.
2. Check voltage between IPDM E/R connector E39 and ground.

(+)		(-)	Condition		Voltage (V) (Approx.)
IPDM E/R					
Connector	Terminal				
E39	68	Ground	Ignition switch	OFF	Battery voltage

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-73. "Removal and Installation"](#).
- NO >> Replace IPDM E/R.

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PCS

# B261A PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## B261A PUSH-BUTTON IGNITION SWITCH

### DTC Logic

INFOID:000000009755879

### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
PUSH-BUTTONIGNITION SWITCH [B261A]	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>	<ul style="list-style-type: none"><li>• Harness or connectors</li><li>• Push-button ignition switch</li><li>• BCM</li></ul>

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM SELF DIAGNOSTIC RESULT

1. Press the push-button ignition switch under the following conditions, and wait for at least 1 second.
  - CVT selector lever is in the P (park) or N (neutral) position.
  - Release the brake pedal.
2. Perform self diagnostic result.

#### Is DTC B261A detected?

- YES >> Refer to [PCS-90. "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:000000009755880

Regarding Wiring Diagram information, refer to [PCS-70. "Wiring Diagram"](#).

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

1. Disconnect push-button ignition switch connector.
2. Check voltage between push-button ignition switch connector M25 and ground.

Push-button ignition switch		Ground	Voltage (Approx.)
Connector	Terminal		
M25	8	—	Battery voltage

#### Is the inspection result normal?

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

#### 2. CHECK IGNITION SWITCH OUTPUT SIGNAL (IPDM E/R)

Check voltage between IPDM E/R connector E39 and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E39	66	—	Battery voltage

#### Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Replace IPDM E/R. Refer to [PCS-30. "Removal and Installation"](#).

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

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector E39 and BCM connector M83.
3. Check continuity between IPDM E/R connector E39 and push-button ignition switch connector M25.

# B261A PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

IPDM E/R		Push-button ignition switch		Continuity
Connector	Terminal	Connector	Terminal	
E39	66	M25	8	Yes

4. Check continuity between IPDM E/R connector E39 and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E39	66	—	No

Is the inspection result normal?

YES >> Refer to [GI-39. "Intermittent Incident"](#).

NO >> Repair or replace harness or connectors.

## 4. CHECK IGNITION SWITCH OUTPUT SIGNAL (BCM)

Check voltage between BCM connector M83 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M83	55	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace BCM. Refer to [BCS-73. "Removal and Installation"](#).

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

1. Turn ignition switch OFF.
2. Disconnect BCM connector M83 and IPDM E/R connector E39.
3. Check continuity between BCM connector M83 and push-button ignition switch connector M25.

BCM		Push-button ignition switch		Continuity
Connector	Terminal	Connector	Terminal	
M83	55	M25	8	Yes

4. Check continuity between BCM connector M83 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M83	55	—	No

Is the inspection result normal?

YES >> Refer to [GI-39. "Intermittent Incident"](#).

NO >> Repair or replace harness or connectors.

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# B26F1 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## B26F1 IGNITION RELAY

### DTC Logic

INFOID:000000009755881

### DTC DETECTION LOGIC

CONSULT Display	DTC detecting condition	Possible cause
IGN RELAY OFF [B26F1]	BCM transmits the ignition relay control signal, but does not receive ignition switch ON signal (CAN) from IPDM E/R.	<ul style="list-style-type: none"><li>• Harness or connectors</li><li>• BCM</li><li>• IPDM E/R</li></ul>

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

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

#### Is DTC detected?

- YES >> Go to [PCS-92, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:000000009755882

Regarding Wiring Diagram information, refer to [PCS-70, "Wiring Diagram"](#).

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

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

#### Is DTC detected?

- YES >> Repair or replace the malfunctioning part. Refer to [PCS-20, "DTC Index"](#).  
NO >> GO TO 2.

#### 2. CHECK IGNITION RELAY-1 CONTROL SIGNAL (IPDM E/R)

Check voltage between BCM connector M83 and ground.

(+)		(-)	Condition		Voltage (V) (Approx.)
BCM					
Connector	Terminal	Ground	Ignition switch	ON	0
M83	73				

#### Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Replace BCM. Refer to [BCS-73, "Removal and Installation"](#).

#### 3. CHECK IGNITION RELAY-1 CONTROL SIGNAL CIRCUIT (IPDM E/R)

1. Turn ignition switch OFF.
2. Disconnect BCM connector M83 and IPDM E/R connector M39.
3. Check continuity between BCM connector M83 and IPDM E/R connector E39.

BCM		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
M83	73	E39	68	Yes

#### Is the inspection result normal?

## B26F1 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

YES >> Replace IPDM E/R. Refer to [PCS-30, "Removal and Installation"](#).  
NO >> Repair or replace harness.

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# B26F2 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## B26F2 IGNITION RELAY

### DTC Logic

INFOID:000000009755883

### DTC DETECTION LOGIC

CONSULT Display	DTC detecting condition	Possible cause
IGN RELAY ON [B26F2]	BCM transmits the ignition relay control signal, but does not receive ignition switch ON signal (CAN) from IPDM E/R.	<ul style="list-style-type: none"> <li>• Harness or connectors</li> <li>• BCM</li> <li>• IPDM E/R</li> </ul>

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

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

#### Is DTC detected?

- YES >> Go to [PCS-94, "Diagnosis Procedure"](#).  
 NO >> Inspection End.

### Diagnosis Procedure

INFOID:000000009755884

Regarding Wiring Diagram information, refer to [PCS-70, "Wiring Diagram"](#).

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

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

#### Is DTC detected?

- YES >> Repair or replace the malfunctioning part. Refer to [PCS-20, "DTC Index"](#).  
 NO >> GO TO 2.

#### 2. CHECK IGNITION RELAY-1 CONTROL SIGNAL (IPDM E/R)

1. Turn ignition switch OFF.
2. Check voltage between IPDM E/R connector E39 and ground.

(+)		(-)	Condition		Voltage (V) (Approx.)
IPDM E/R					
Connector	Terminal	Ground	Ignition switch	OFF or ACC	Battery voltage
E39	68				

#### Is the inspection result normal?

- YES >> Replace IPDM E/R.  
 NO >> GO TO 3.

#### 3. CHECK IGNITION RELAY-1 CONTROL SIGNAL CIRCUIT - 1 (IPDM E/R)

1. Turn ignition switch OFF.
2. Disconnect BCM connector M83 and IPDM E/R connector E39.
3. Check continuity between IPDM E/R connector E39 and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E39	68		No

#### Is the inspection result normal?

# B26F2 IGNITION RELAY

[POWER DISTRIBUTION SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

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

## 4. CHECK IGNITION RELAY-1 CONTROL SIGNAL CIRCUIT - 2 (IPDM E/R)

1. Connect IPDM E/R connector E39.
2. Check voltage between IPDM E/R connector E39 and ground.

(+)		(-)	Condition		Voltage (V) (Approx.)
IPDM E/R					
Connector	Terminal				
E39	68	Ground	Ignition switch	OFF or ACC	Battery voltage

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-73, "Removal and Installation"](#).
- NO >> Replace IPDM E/R. Refer to [PCS-30, "Removal and Installation"](#).

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B26F6 BCM

DTC Logic

INFOID:000000009755885

DTC DETECTION LOGIC

**NOTE:**

- If DTC B26F6 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [PCS-80, "DTC Logic"](#).
- If DTC B26F6 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [PCS-81, "DTC Logic"](#).

CONSULT Display	DTC Detection Condition	Possible Cause
BCM [B26F6]	Ignition relay ON signal is not transmitted from IPDM E/R (CAN) when BCM turns ignition relay ON.	BCM

DTC CONFIRMATION PROCEDURE

**1. PERFORM DTC CONFIRMATION PROCEDURE**

1. Turn ignition switch ON, and wait for 0.5 seconds or more.
2. Check "Self-diagnosis result" of BCM with CONSULT.

Is DTC detected?

- YES >> Go to [PCS-96, "Diagnosis Procedure"](#).
- NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009755886

Regarding Wiring Diagram information, refer to [PCS-70, "Wiring Diagram"](#).

**1. CHECK SELF DIAGNOSTIC RESULT FOR IPDM E/R**

Perform self diagnostic result for IPDM E/R.

Are any DTCs detected?

- YES >> Refer to [PCS-20, "DTC Index"](#).
- NO >> GO TO 2

**2. CHECK IGNITION RELAY-1 POWER SUPPLY (IPDM E/R)**

Check voltage between IPDM E/R connector E39 and ground.

IPDM E/R		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
E39	68	—	Ignition: OFF	Battery voltage
			Ignition: ON	0V

Is the inspection result normal?

- YES >> Replace IPDM E/R. Refer to [PCS-30, "Removal and Installation"](#).
- NO >> GO TO 3.

**3. CHECK IGNITION RELAY-1 POWER SUPPLY (BCM)**

Check voltage between BCM connector M83 and ground.

BCM		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M83	73	—	Ignition: OFF	Battery voltage
			Ignition: ON	0V



# B26F6 BCM

## [POWER DISTRIBUTION SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

Is the inspection result normal?

YES >> Refer to [GI-39. "Intermittent Incident"](#).

NO >> Replace BCM. Refer to [BCS-73. "Removal and Installation"](#).

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# PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## PUSH-BUTTON IGNITION SWITCH

### Component Function Check

INFOID:000000009755887

#### 1. CHECK FUNCTION

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

Test item	Condition	Status
PUSH SW	Push-button ignition switch is pressed	On
	Push-button ignition switch is not pressed	Off

#### Is the indication normal?

- YES >> Inspection End.  
NO >> Go to [PCS-98, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:000000009755888

Regarding Wiring Diagram information, refer to [PCS-70, "Wiring Diagram"](#).

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

1. Turn ignition switch OFF.
2. Disconnect push-button ignition switch connector and IPDM E/R connector E39.
3. Check voltage between push-button ignition switch connector M25 and ground.

Push-button ignition switch		Ground	Voltage (Approx.)
Connector	Terminal		
M25	8	—	Battery voltage

#### Is the inspection result normal?

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

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

1. Disconnect BCM connector M83.
2. Check continuity between BCM connector M83 and push-button ignition switch connector M25.

BCM		Push-button ignition switch		Continuity
Connector	Terminal	Connector	Terminal	
M83	55	M25	8	Yes

3. Check continuity between BCM connector M83 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M83	55	—	No

#### Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-73, "Removal and Installation"](#).  
NO >> Repair or replace harness or connectors.

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

Check voltage between IPDM E/R connector E39 and ground.

# PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E39	66	—	Battery voltage

Is the inspection result normal?

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

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

1. Disconnect BCM connector M83.
2. Check continuity between IPDM E/R connector E39 and push-button ignition switch connector M25.

IPDM E/R		Push-button ignition switch		Continuity
Connector	Terminal	Connector	Terminal	
E39	66	M25	8	Yes

3. Check continuity between IPDM E/R connector E39 and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E39	66	—	No

Is the inspection result normal?

- YES >> Replace IPDM E/R. Refer to [PCS-30, "Removal and Installation"](#).
- NO >> Repair or replace harness or connectors.

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

Check continuity between push-button ignition switch connector M25 and ground.

Push-button ignition switch		Ground	Continuity
Connector	Terminal		
M25	4	—	Yes

Is the inspection result normal?

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

## 6. CHECK PUSH-BUTTON IGNITION SWITCH

Refer to [PCS-99, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Refer to [GI-39, "Intermittent Incident"](#).
- NO >> Replace push-button ignition switch. Refer to [PCS-102, "Removal and Installation"](#).

## Component Inspection

INFOID:000000009755889

### 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 terminals	Condition	Continuity
4 – 8	Pressed	Yes
	Not pressed	No

Is the inspection result normal?

- YES >> Inspection End.

## **PUSH-BUTTON IGNITION SWITCH**

< DTC/CIRCUIT DIAGNOSIS >

**[POWER DISTRIBUTION SYSTEM]**

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NO >> Replace push-button ignition switch.

# PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## SYMPTOM DIAGNOSIS

### PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE

#### Description

INFOID:000000009755890

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.
- One or more of Intelligent Keys with registered Intelligent Key ID is in the vehicle.

#### Diagnosis Procedure

INFOID:000000009755891

#### 1.PERFORM WORK SUPPORT

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

Refer to [PCS-66, "INTELLIGENT KEY : CONSULT Function \(BCM - INTELLIGENT KEY\)"](#).

>> GO TO 2.

#### 2.PERFORM SELF-DIAGNOSIS RESULT

Perform Self-Diagnosis Result of “BCM”.

##### Is DTC detected?

YES >> Refer to [BCS-49, "DTC Index"](#).

NO >> GO TO 3.

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

Check push-button ignition switch.

Refer to [PCS-98, "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-39, "Intermittent Incident"](#).

NO >> GO TO 1.

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PCS

## PUSH-BUTTON IGNITION SWITCH

< REMOVAL AND INSTALLATION >

[POWER DISTRIBUTION SYSTEM]

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# REMOVAL AND INSTALLATION

## PUSH-BUTTON IGNITION SWITCH

### Removal and Installation

INFOID:000000009755892

#### REMOVAL

1. Remove the NATS antenna amp. Refer to [SEC-135. "Removal and Installation"](#)
2. Remove the push-button ignition switch.

#### INSTALLATION

Installation is in the reverse order of removal.