SECTION PCS
POWER CONTROL SYSTEM

CONTENTS

PRECAUTION

PRECAUTIONS

Precaution for Technicians Using Medical Electric

INFOID:0000000010120277

OPERATION PROHIBITION

WARNING:

- **Parts with strong magnet is used in this vehicle.**
- **Technicians using a medical electric device such as pacemaker must never perform operation on the vehicle, as magnetic field can affect the device function by approaching to such parts.**

NORMAL CHARGE PRECAUTION

WARNING:

- **If a technician uses a medical electric device such as an implantable cardiac pacemaker or an implantable cardioverter defibrillator, the possible effects on the devices must be checked with the device manufacturer before starting the charge operation.**
- **As radiated electromagnetic wave generated by PDM (Power Delivery Module) at normal charge operation may affect medical electric devices, a technician using a medical electric device such as implantable cardiac pacemaker or an implantable cardioverter defibrillator must not approach motor room [PDM (Power Delivery Module)] at the hood-opened condition during normal charge operation.**

PRECAUTION AT TELEMATICS SYSTEM OPERATION

WARNING:

- **If a technician uses implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), avoid the device implanted part from approaching within approximately 220 mm (8.66 in) from interior/exterior antenna.**
- **The electromagnetic wave of TCU might affect the function of the implantable cardiac pacemaker or the implantable cardioverter defibrillator (ICD), when using the service, etc.**
- **If a technician uses other medical electric devices than implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), the electromagnetic wave of TCU might affect the function of the device. The possible effects on the devices must be checked with the device manufacturer before TCU use.**

PRECAUTION AT INTELLIGENT KEY SYSTEM OPERATION

WARNING:

- **If a technician uses implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), avoid the device implanted part from approaching within approximately 220 mm (8.66 in) from interior/exterior antenna.**
- **The electromagnetic wave of Intelligent Key might affect the function of the implantable cardiac pacemaker or the implantable cardioverter defibrillator (ICD), at door operation, at each request switch operation, or at engine starting.**
- **If a technician uses other medical electric devices than implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), the electromagnetic wave of Intelligent Key might affect the function of the device. The possible effects on the devices must be checked with the device manufacturer before Intelligent Key use.**

Point to Be Checked Before Starting Maintenance Work

INFOID:0000000010120278

The high voltage system may starts automatically. It is required to check that the timer air conditioner and timer charge (during EVSE connection) are not set before starting maintenance work.
NOTE:
If the timer air conditioner or timer charge (during EVSE connection) is set, the high voltage system starts automatically even when the power switch is in OFF state.

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

INFOID:0000000010120279

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS

system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the 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.**

Precaution for Removing 12V Battery

INFOID:0000000010120280

1. Check that EVSE is not connected.
   NOTE:
   If EVSE is connected, the air conditioning system may be automatically activated by the timer A/C function.
2. Turn the power switch OFF → ON → OFF. Get out of the vehicle. Close all doors (including back door).
3. Check that the charge status indicator lamp does not blink and wait for 5 minutes or more.
   NOTE:
   If the battery is removed within 5 minutes after the power switch is turned OFF, plural DTCs may be detected.
4. Remove 12V battery within 1 hour after turning the power switch OFF → ON → OFF.
   NOTE:
   - The 12V battery automatic charge control may start automatically even when the power switch is in OFF state.
   - Once the power switch is turned ON → OFF, the 12V battery automatic charge control does not start for approximately 1 hour.

   CAUTION:

   - **After all doors (including back door) are closed, if a door (including back door) is opened before battery terminals are disconnected, start over from Step 1.**
   - **After turning the power switch OFF, if "Remote A/C" is activated by user operation, stop the air conditioner and start over from Step 1.**

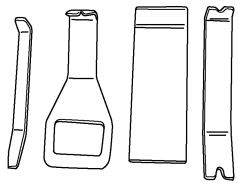
PREPARATION

PREPARATION

Special Service Tools

INFOID:0000000010120281

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
Trim Tool Set  AWJIA0483ZZ	Removing trim components

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

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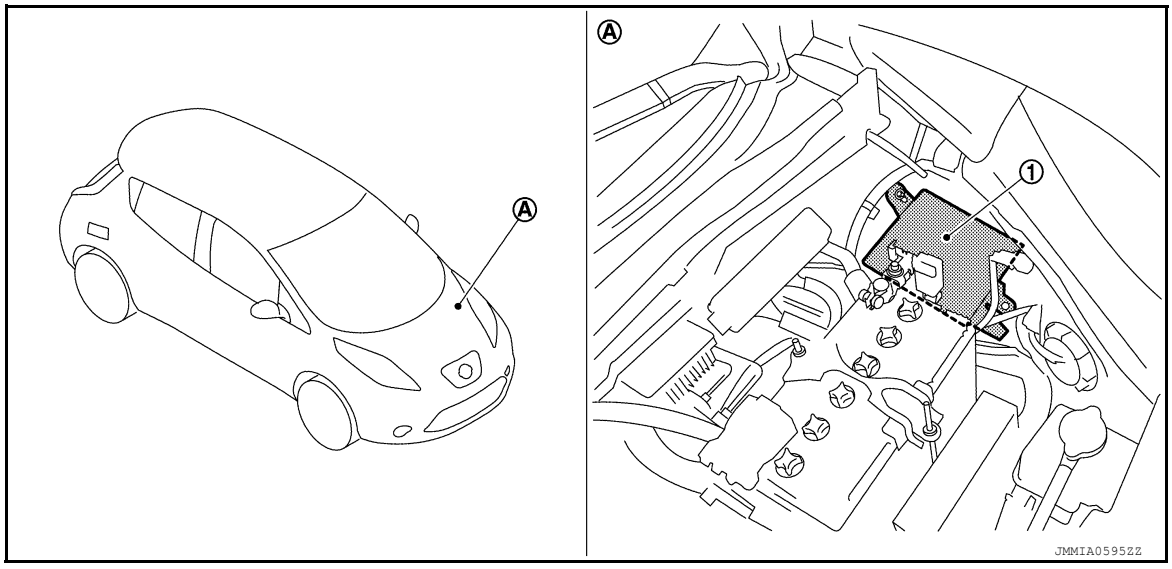


1. IPDM E/R
A. Motor room (LH)

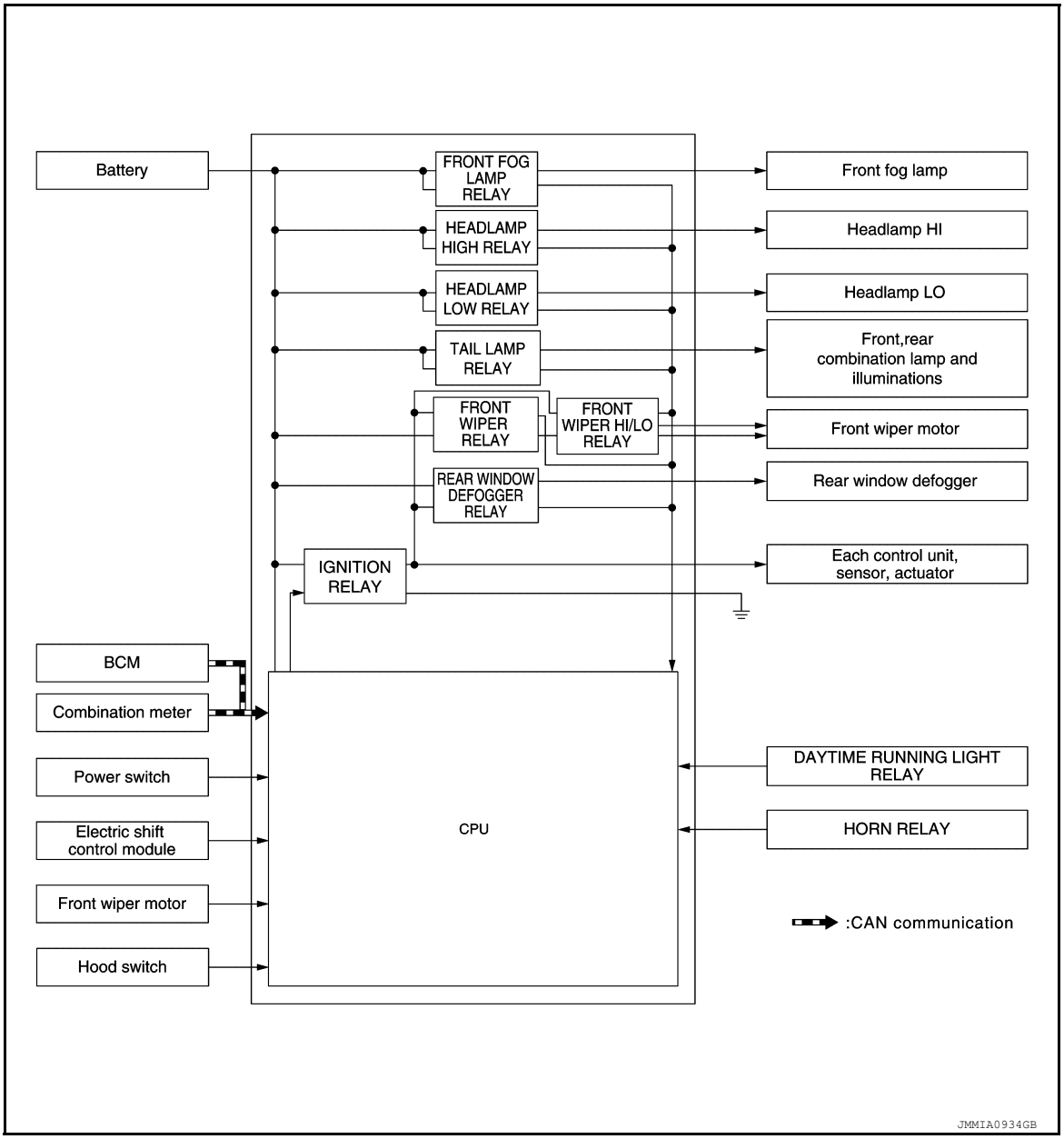
SYSTEM

RELAY CONTROL SYSTEM

RELAY CONTROL SYSTEM : System Description

INFOID:0000000010120283

SYSTEM DIAGRAM



DESCRIPTION

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

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
• Headlamp low relay • Headlamp high relay	• Low beam request signal • High beam request signal	BCM (CAN)	• Headlamp (LO) • Headlamp (HI)	EXL-14
Front fog lamp relay	Front fog light request signal	BCM (CAN)	Front fog lamp	EXL-21

Control relay	Input/output	Transmit unit	Control part	Reference page
Tail lamp relay	Position light request signal	BCM (CAN)	• Parking lamp • License plate lamp • Tail lamp • Side marker lamp	EXL-20
			Illumination	INL-8
• Front wiper relay • Front wiper HI/LO relay	Front wiper request signal	BCM (CAN)	Front wiper motor	WW-8
	Front wiper stop position signal	Front wiper motor		
Rear window defogger relay	Rear window defogger control signal	BCM (CAN)	Rear window defogger	DEF-7, "System Description"
Daytime running light relay*	Daytime running light request signal	BCM (CAN)	Daytime running light	EXL-18, "DAYTIME RUNNING LIGHT SYSTEM : System Description"
Horn relay	Theft warning horn request signal	BCM (CAN)	Vehicle security horn	SEC-18
Ignition relay	Power switch ON signal	BCM (CAN)	Each control unit, sensor, actuator and relay (Ignition power supply)	PCS-26
	Vehicle speed signal (Meter)	Combination meter (CAN)		
	Power switch signal	Power switch		

*: For Canada

RELAY CONTROL SYSTEM : Fail-Safe

INFOID:0000000010563574

CAN COMMUNICATION CONTROL

When CAN communication with 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 BCM

Control part	Fail-safe operation
Headlamp	• Turns ON the headlamp low relay when the power switch is turned ON • Turns OFF the headlamp low relay when the power switch is turned OFF • Headlamp high relay OFF
• Parking lamp • License plate lamp • Illumination • Tail lamp • Side marker lamp	• Turns ON the tail lamp relay when the power switch is turned ON • Turns OFF the tail lamp relay when the power switch is turned OFF
Front wiper motor	• The status just before activation of fail-safe control is maintained until the power switch is turned OFF while the front wiper is operating at LO or HI speed. • The wiper is operated at LO speed until the power 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. • Returns automatically wiper to stop position when power 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. • The status is held at service position if the fail-safe control is activated while the service position function is operating.
Front fog lamp	Front fog lamp relay OFF
Rear window defogger	Rear window defogger relay OFF
Horn	Horn relay OFF
Ignition relay	The status just before activation of fail-safe is maintained.

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

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

- If the ignition relay cannot turn OFF due to contact seizure, it activates the tail lamp relay for 10 minutes to alert the user to the ignition relay malfunction when the power switch is turned OFF.

Voltage judgment		IPDM E/R judgment	Operation
Ignition relay contact side	Ignition relay excitation coil side		
ON	ON	Ignition relay ON normal	—
OFF	OFF	Ignition relay OFF normal	—
ON	OFF	Ignition relay ON stuck	• Detects DTC “B2098: IGN RELAY ON” • Turns ON the tail lamp relay for 10 minutes
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.

Power 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.

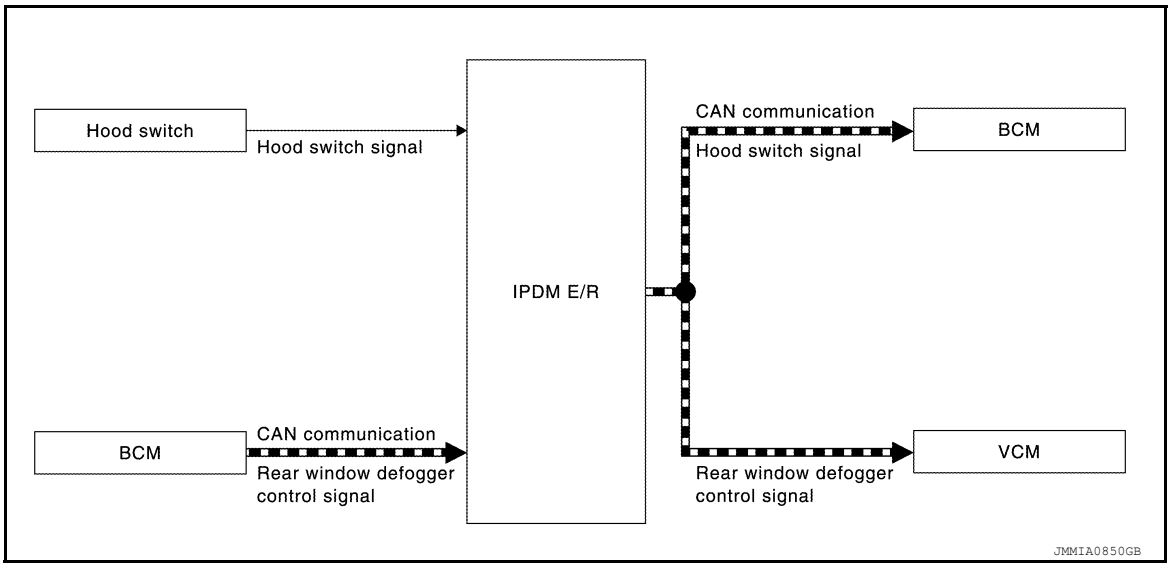
NOTE:
This operation status can be confirmed on the IPDM E/R “Data Monitor” that displays “BLOCK” for the item “WIP PROT” while the wiper is stopped.

SIGNAL BUFFER SYSTEM

SIGNAL BUFFER SYSTEM : System Description

INFOID:0000000010120285

SYSTEM DIAGRAM



DESCRIPTION

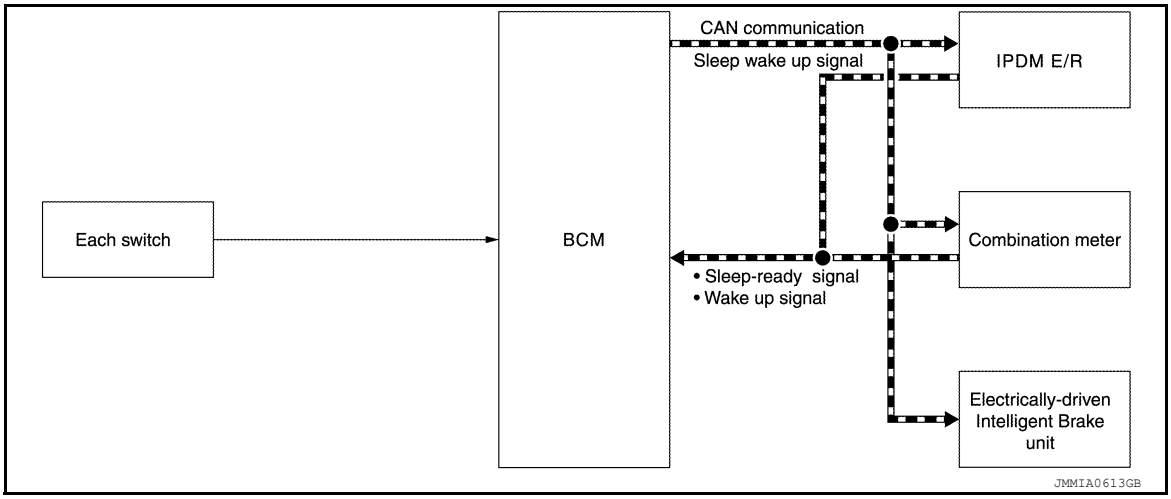
- IPDM E/R receives the rear window defogger control signal from BCM via CAN communication and transmits the rear window defogger status signal to VCM via CAN communication. Refer to DEF-7, "System Description".
- IPDM E/R reads the hood switch and transmits the hood switch signal to BCM via CAN communication. Refer to SEC-21, "VEHICLE SECURITY SYSTEM : System Description (For Canada)" (For Canada).

POWER CONSUMPTION CONTROL SYSTEM

POWER CONSUMPTION CONTROL SYSTEM : System Description

INFOID:0000000010120286

SYSTEM DIAGRAM



DESCRIPTION

Outline

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

Normal mode (wake-up)

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

Low power consumption mode (sleep)

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

Sleep Mode Activation

- IPDM E/R judges that the sleep-ready conditions are fulfilled when the power 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.
  - Power switch ON
  - An output request is received from a control unit via CAN communication.
  - Hood switch status changes. (For Canada)

DIAGNOSIS SYSTEM (IPDM E/R)

Diagnosis Description

INFOID:0000000010120287

AUTO ACTIVE TEST

Description

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

- Rear window defogger
- Front wiper motor
- Parking lamp
- License plate lamp
- Tail lamp
- Front fog lamp
- Side marker lamp
- Headlamp (LO, HI)

Operation Procedure

NOTE:

Never perform auto active test in the following conditions.

- CONSULT is connected.
- Passenger door is open.

1. Turn the power switch OFF.
2. Turn the power switch ON, and within 20 seconds, press the driver door switch 10 times. Then turn the power switch OFF.
3. Turn the power switch ON within 10 seconds. After that the horn sounds once and the auto active test starts.
   NOTE:
   Never depress brake pedal while operating power switch so that auto active test is not activated.
4. After a series of the following operations is repeated 3 times, auto active test is completed.

NOTE:

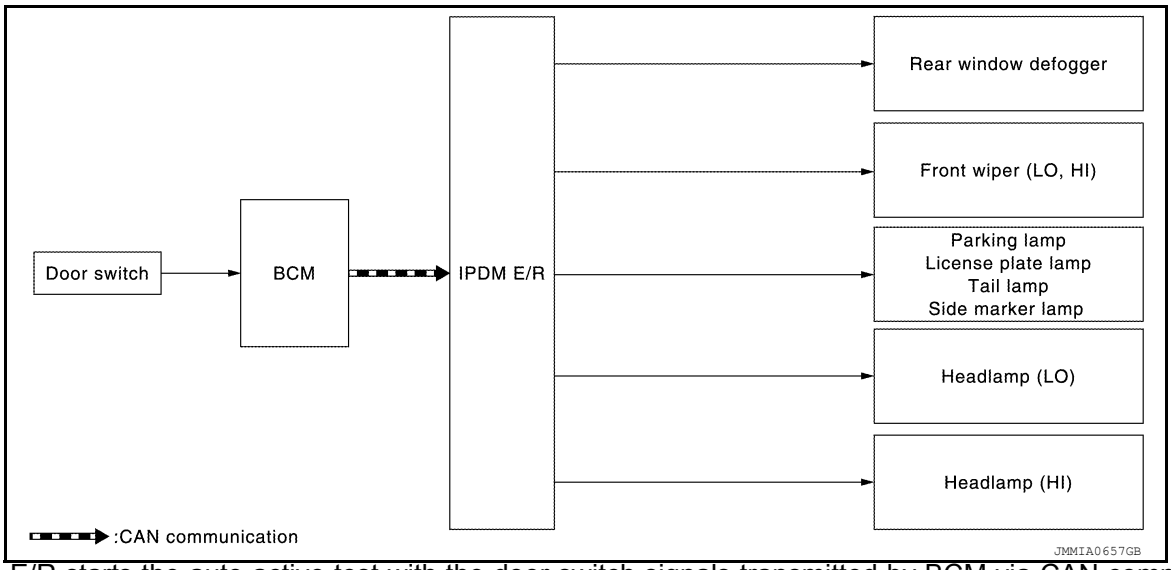
- When auto active test mode has to be cancelled halfway through test, turn the power switch OFF.
- When auto active test is not activated, door switch may be the cause. Check door switch. Refer to DLK-102, "Component Function Check".

Inspection in Auto Active Test Mode

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

Operation sequence	Inspection location	Operation
1	Rear window defogger	10 seconds
2	Front wiper motor	LO for 5 seconds → HI for 5 seconds
3	• Parking lamp • License plate lamp • Tail lamp • Front fog lamp • Side marker lamp	10 seconds
4	Headlamp	LO for 10 seconds →HI ON ⇔ OFF 5 times

Concept of auto active test



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

Diagnosis chart in auto active test mode

Symptom	Inspection contents		Possible cause
Rear window defogger does not operate	Perform auto active test. Does the rear window defogger operate?	YES	BCM signal input circuit
		NO	• Rear window defogger • Rear window defogger ground circuit • Harness or connector between IPDM E/R and rear window defogger • IPDM E/R
Any of the following components do not operate • Parking lamp • License plate lamp • Tail lamp • Front fog lamp • Headlamp (HI, LO) • Side marker lamp • Front wiper motor	Perform auto active test. Does the applicable system operate?	YES	BCM signal input circuit
		NO	• Lamp or motor • Lamp or motor ground circuit • Harness or connector between IPDM E/R and applicable system • IPDM E/R

CONSULT Function (IPDM E/R)

INFOID:0000000010120288

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.
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.

SELF DIAGNOSTIC RESULT

Refer to PCS-18, "DTC Index".

DATA MONITOR

Monitor Item [Unit]	Main Signals	Description
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 power switch ON signal received from BCM on CAN communication line
IGN RLY [On/Off]	×	Indicates condition of ignition relay-1
PUSH SW [On/Off]		Indicates condition of power switch
DETENT SW [On/Off]		Indicates condition of shift position (park position switch)
DTRL REQ [Off]		Indicates daytime light request signal received from BCM on CAN communication line
HOOD SW [On/Off]		Indicates condition of hood switch
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].
EXTERNAL LAMPS	This test is able to check external lamp operation [Fog/Hi/Lo/TAIL/Off].

CAN DIAG SUPPORT MNTR

Refer to LAN-14, "CAN Diagnostic Support Monitor".

ECU DIAGNOSIS INFORMATION

IPDM E/R

Reference Value

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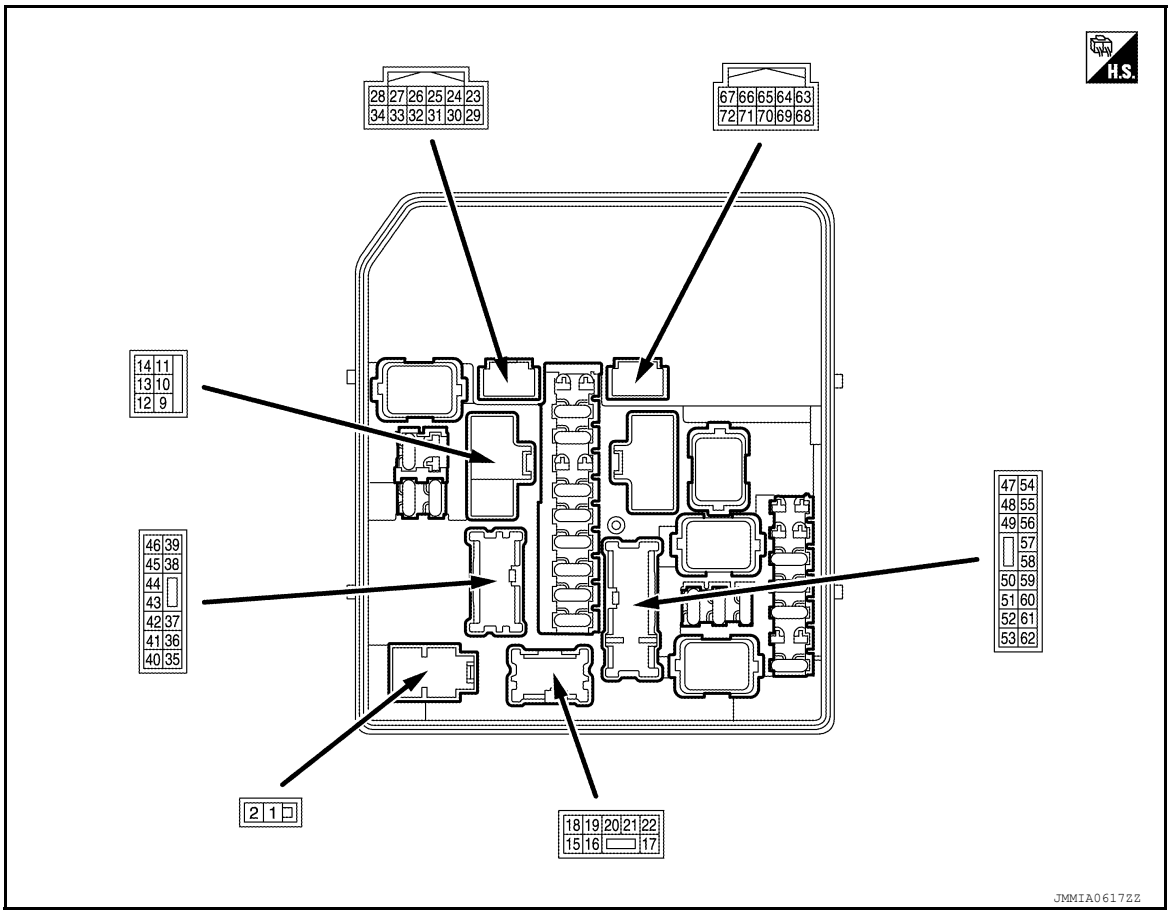
VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition		Value/Status
TAIL&CLR REQ	Lighting switch OFF		Off
	Lighting switch 1ST, 2ND, HI or AUTO (Light is illuminated)		On
HL LO REQ	Lighting switch OFF		Off
	Lighting switch 2ND HI or AUTO (Light is illuminated)		On
HL HI REQ	Lighting switch OFF		Off
	Lighting switch HI		On
FR FOG REQ	Lighting switch 2ND or AUTO (Light is illuminated)	Front fog lamp switch OFF	Off
		• Front fog lamp switch ON • Daytime running light activated (Only for Canada models)	On
FR WIP REQ	Power 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	Power switch ON	Front wiper stop position	STOP P
		Any position other than front wiper stop position	ACT P
WIP PROT	Power switch ON	Front wiper operates normally	Off
		Front wiper stops at fail-safe operation	BLOCK
IGN RLY1 -REQ	Power switch OFF or ACC		Off
	Power switch ON		On
IGN RLY	Power switch OFF or ACC		Off
	Power switch ON		On
PUSH SW	Release the power switch		Off
	Press the power switch		On
DETENT SW	Power switch ON	Shift position in any position other than P	Off
		Shift position in P position	On
DTRL REQ	DTRL OFF		Off
	DTRL ON		On
HOOD SW	Hood closed		Off
	Hood open		On
THFT HRN REQ	Not operated		Off
	• Panic alarm is activated • Theft warning alarm is activated		On
HORN CHIRP	Not operated		Off
	Door locking with Intelligent Key (horn chirp mode)		On

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal NO. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
1 (R)	Ground	Battery power supply	Input	Power switch OFF		Battery voltage
2 (G)	Ground	Battery power supply	Input	Power switch OFF		Battery voltage
9 (B)	Ground	Ground	—	Power switch ON		0 – 1 V
14 (R)	Ground	Rear window defogger	Output	Power switch ON	Rear window defogger switch OFF	0 – 1 V
					Rear window defogger switch ON	Battery voltage
18 (B/W)	Ground	Ground	—	Power switch ON		0 – 1 V
19 (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	Battery voltage
20 (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	Battery voltage

Terminal NO. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
25 (R)	Ground	Front wiper stop position	Input	Power switch ON	Front wiper stop position	0 – 1.5 V
					Any position other than front wiper stop position	Battery voltage
26 (P)	Ground	CAN-L	Input/ Output	—		—
27 (L)	Ground	CAN-H	Input/ Output	—		—
28[1] (G)	Ground	Daytime running light relay control	Output	Daytime running light deactivated		Battery voltage
				Daytime running light activated		0 – 1 V
32 (SB)	Ground	Hood switch	Input	Close the hood		Battery voltage
				Open the hood		0 – 1 V
34 (R)	Ground	Vehicle security horn relay control	Output	Vehicle security horn relay is deactivated		Battery voltage
				Vehicle security horn relay is activated		0 – 1 V
35 (R)	Ground	VCM relay power supply	Output	Power switch OFF (More than a few seconds after turning power switch OFF)		0 – 1 V
				• Power switch ON • Power switch OFF (For a few seconds after turning power switch OFF)		Battery voltage
38[2] (LG)	Ground	Rear combination lamp RH and illumination	Output	Lighting switch OFF		0 – 1 V
38[3] (R)				Lighting switch 1ST		Battery voltage
39 (L)	Ground	Front wiper HI	Output	Power switch ON	Front wiper switch OFF	0 – 1 V
					Front wiper switch HI	Battery voltage
41 (SB)	Ground	VCM relay control	Output	Power switch OFF (More than a few seconds after turning power switch OFF)		Battery voltage
				• Power switch ON • Power switch OFF (For a few seconds after turning power switch OFF)		0 – 1 V
42 (BR)	Ground	VCM power supply	Output	Power switch OFF		Battery voltage
43 (O)	Ground	Parking lamp LH	Output	Lighting switch OFF		0 – 1 V
				Lighting switch 1ST		Battery voltage
44 (B)	Ground	Rear combination lamp LH	Output	Lighting switch OFF		0 – 1 V
				Lighting switch 1ST		Battery voltage
45 (Y)	Ground	Front wiper LO	Output	Power switch ON	Front wiper switch OFF	0 – 1 V
					Front wiper switch LO	Battery voltage
49 (Y)	Ground	Headlamp HI (RH)	Output	Lighting switch 2ND or AUTO	Lighting switch OFF	0 – 1 V
					• Lighting switch HI • Lighting switch PASS	Battery voltage
50 (G)	Ground	Headlamp HI (LH)	Output	Lighting switch 2ND or AUTO	Lighting switch OFF	0 – 1 V
					• Lighting switch HI • Lighting switch PASS	Battery voltage

Terminal NO. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
51 (L)	Ground	Headlamp LO (LH)	Output	Lighting switch OFF		0 – 1 V
				Lighting switch 2ND and AUTO (light is illuminated)		Battery voltage
52 (P)	Ground	Headlamp LO (RH)	Output	Lighting switch OFF		0 – 1 V
				Lighting switch 2ND and AUTO (light is illuminated)		Battery voltage
55 (LG)	Ground	F/S relay power supply	Output	Power switch OFF (More than a few seconds after turning power switch OFF)		0 – 1 V
				• Power switch ON • Power switch OFF (For a few seconds after turning power switch OFF)		Battery voltage
57 (R)	Ground	Ignition relay power supply	Output	Power switch OFF or ACC		0 – 1 V
				Power switch ON		Battery voltage
58 (O)	Ground	Ignition relay power supply	Output	Power switch OFF or ACC		0 – 1 V
				Power switch ON		Battery voltage
59 (BR)	Ground	PDM relay power supply	Output	Power switch OFF or ACC		0 – 1 V
				Power switch ON		Battery voltage
60 (GR)	Ground	F/S relay control	Output	Power switch OFF or ACC		Battery voltage
				Power switch ON		0 – 1 V
62 (V)	Ground	Ignition relay power supply	Output	Power switch OFF or ACC		0 – 1 V
				Power switch ON		Battery voltage
64 (W)	Ground	Detent switch	Input	Power switch ON	Shift position in P position	0 – 1 V
					Shift position in any position other than P	Battery voltage
66 (W)	Ground	Power switch	Input	Press the power switch		0 – 1 V
				Release the power switch		Battery voltage
68 (O)	Ground	Ignition relay control	Input	Power switch OFF or ACC		Battery voltage
				Power switch ON		0 – 1 V

[1]: For Canada

[2]: Without solar cell

[3]: With solar cell

Fail-Safe

INFOID:0000000010120290

CAN COMMUNICATION CONTROL

When CAN communication with 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 BCM

Control part	Fail-safe operation
Headlamp	• Turns ON the headlamp low relay when the power switch is turned ON • Turns OFF the headlamp low relay when the power switch is turned OFF • Headlamp high relay OFF
• Parking lamp • License plate lamp • Illumination • Tail lamp • Side marker lamp	• Turns ON the tail lamp relay when the power switch is turned ON • Turns OFF the tail lamp relay when the power switch is turned OFF
Front wiper motor	• The status just before activation of fail-safe control is maintained until the power switch is turned OFF while the front wiper is operating at LO or HI speed. • The wiper is operated at LO speed until the power 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. • Returns automatically wiper to stop position when power 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. • The status is held at service position if the fail-safe control is activated while the service position function is operating.
Front fog lamp	Front fog lamp relay OFF
Rear window defogger	Rear window defogger relay OFF
Horn	Horn relay OFF
Ignition relay	The status just before activation of fail-safe is maintained.

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

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

Voltage judgment		IPDM E/R judgment	Operation
Ignition relay contact side	Ignition relay excitation coil side		
ON	ON	Ignition relay ON normal	—
OFF	OFF	Ignition relay OFF normal	—
ON	OFF	Ignition relay ON stuck	• Detects DTC “B2098: IGN RELAY ON” • Turns ON the tail lamp relay for 10 minutes
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.

Power 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:0000000010120291

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 power switch OFF → ON.
- The number is fixed to 39 until the self-diagnosis results are erased if it is over 39.

×: Applicable

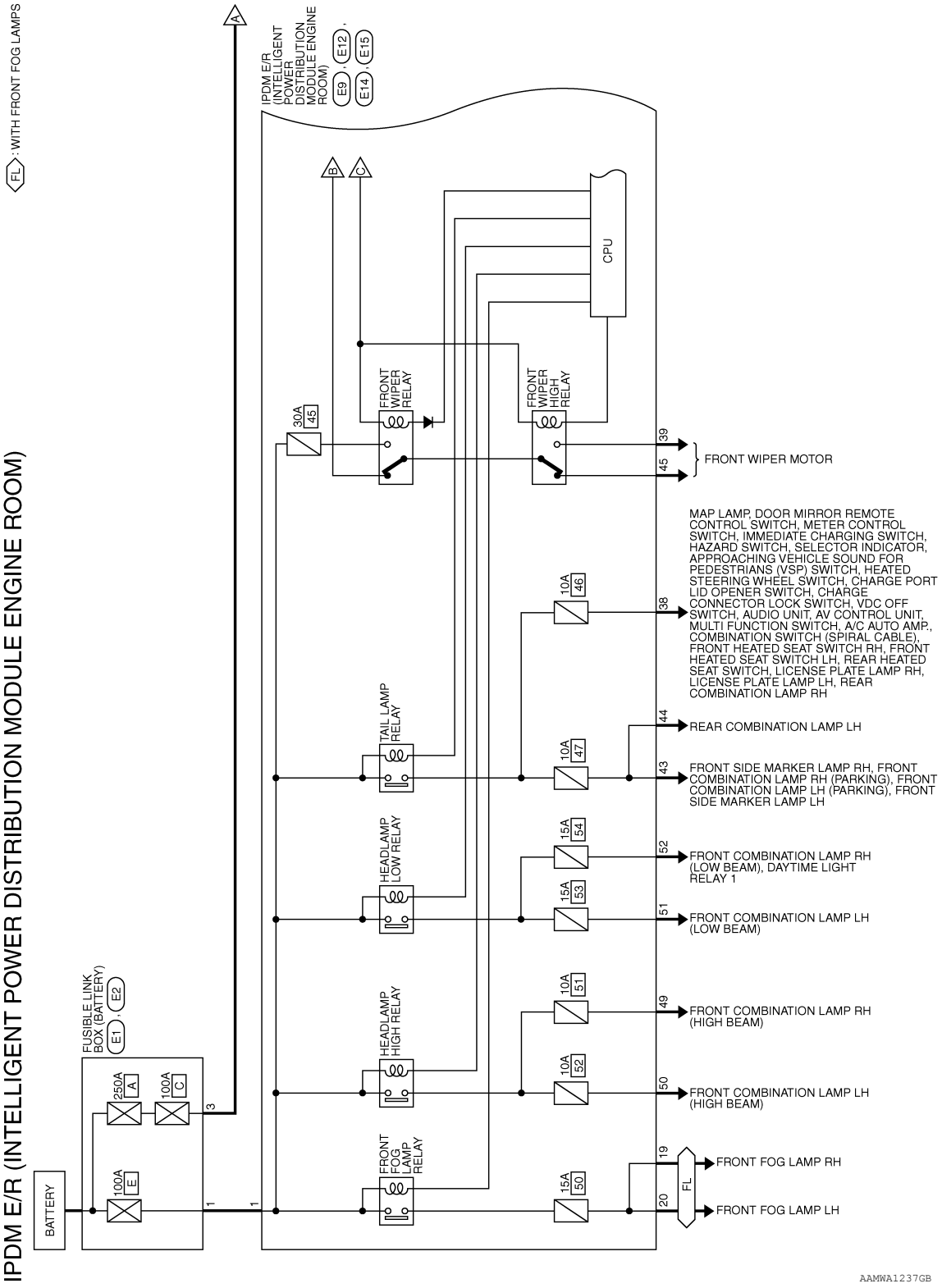
CONSULT display	Fail-safe	Refer to
No DTC is detected. further testing may be required.	—	—
U1000: CAN COMM CIRCUIT	×	PCS-25
B2098: IGN RELAY ON	×	PCS-26
B2099: IGN RELAY OFF	—	PCS-27

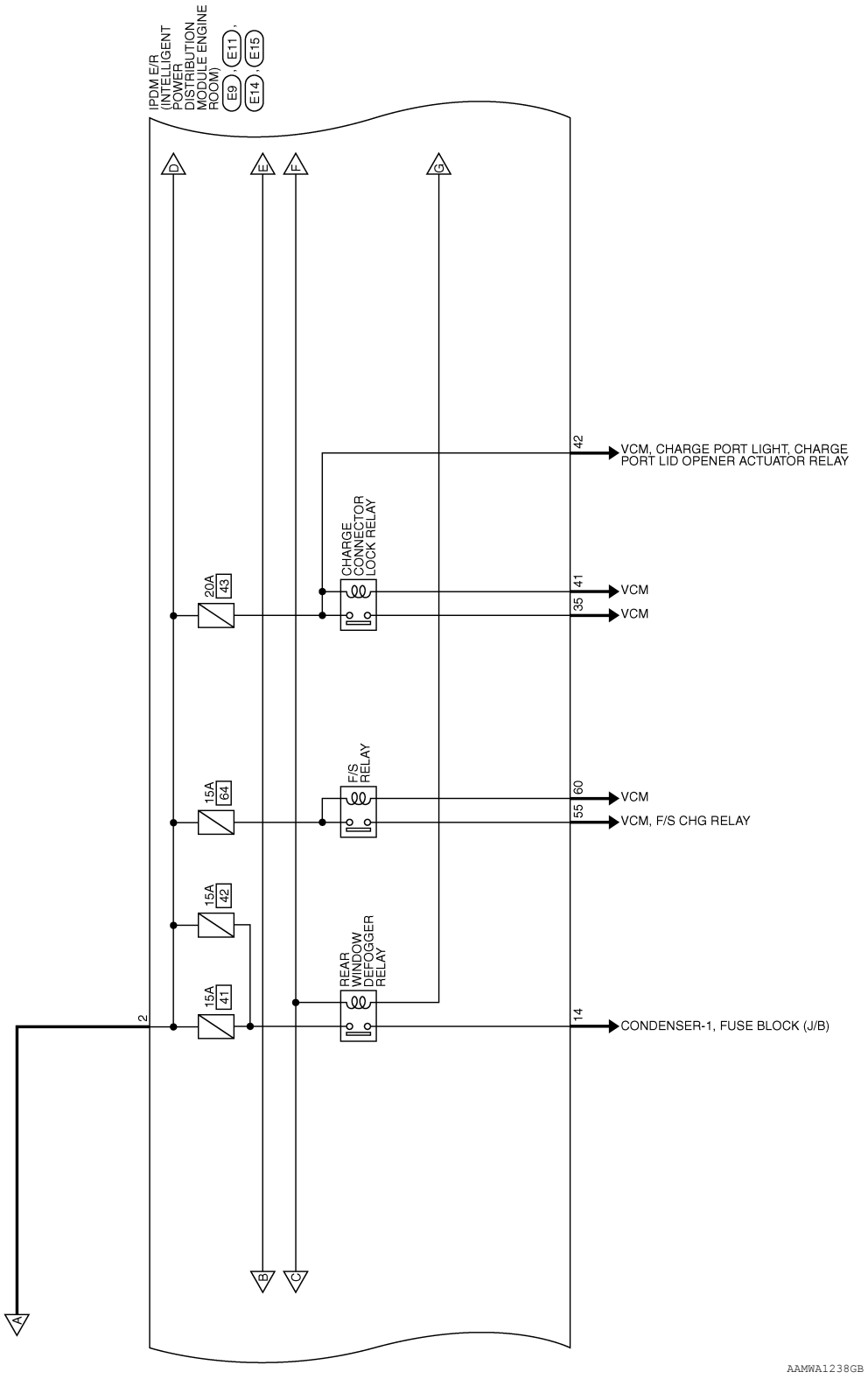
WIRING DIAGRAM

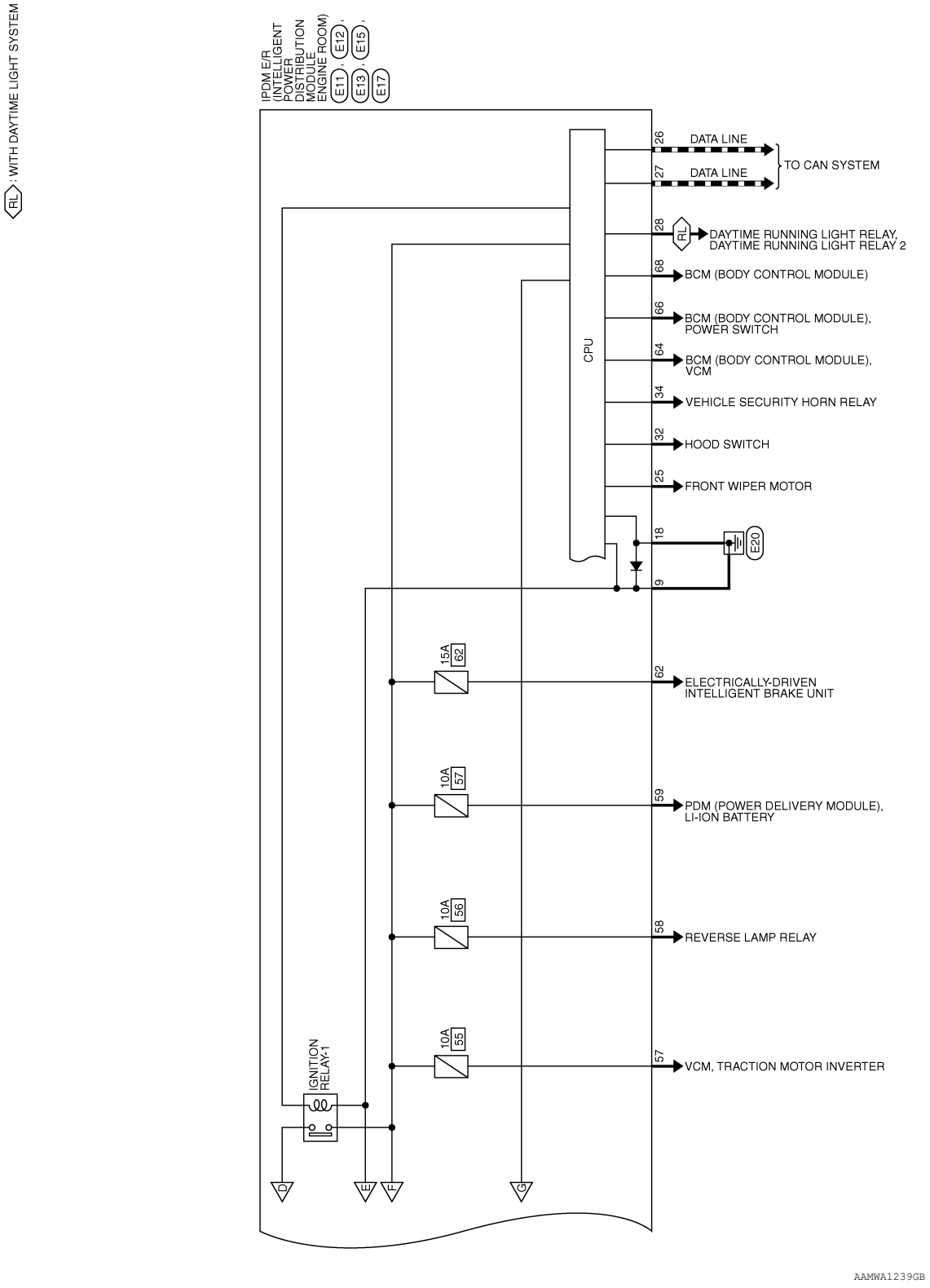
IPDM E/R

Wiring Diagram

INFOID:0000000010120292




IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E9, E11, E14, E15
D
E
F
G
20A 43
15A 64
15A 42
15A 41
CHARGE CONNECTOR LOCK RELAY
F/S RELAY
REAR WINDOW DEFOGGER RELAY
2
42
VCM, CHARGE PORT LIGHT, CHARGE PORT LID OPENER ACTUATOR RELAY
41
VCM
35
VCM
60
VCM
55
VCM, F/S CHG RELAY
14
CONDENSER-1, FUSE BLOCK (J/B)
A
B
C
AAMWA1238GB


RL : WITH DAYTIME LIGHT SYSTEM
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E11, E12, E13, E15, E17
CPU
26 DATA LINE
27 DATA LINE
TO CAN SYSTEM
28 RL DAYTIME RUNNING LIGHT RELAY, DAYTIME RUNNING LIGHT RELAY 2
68 BCM (BODY CONTROL MODULE)
66 BCM (BODY CONTROL MODULE), POWER SWITCH
64 BCM (BODY CONTROL MODULE), VCM
34 VEHICLE SECURITY HORN RELAY
32 HOOD SWITCH
25 FRONT WIPER MOTOR
18 E20
9
15A 62
62 ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT
10A 57
59 PDM (POWER DELIVERY MODULE), LI-ION BATTERY
10A 56
58 REVERSE LAMP RELAY
10A 55
57 VCM, TRACTION MOTOR INVERTER
IGNITION RELAY-1
D
E
F
G
AAMWA1239GB

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

Connector No.	E1
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	GRAY

Terminal No.	Color of Wire	Signal Name
3	G	–

Connector No.	E2
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	BLACK

Terminal No.	Color of Wire	Signal Name
1	R	–

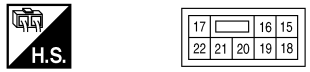
Connector No.	E9
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

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

Connector No.	E11
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

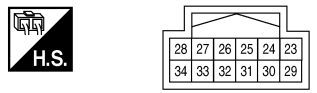
Terminal No.	Color of Wire	Signal Name
9	B	GND (POWER)
10	–	–
11	–	–
12	–	–
13	–	–
14	R	RR DEF

Connector No.	E12
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
15	–	–
16	–	–
17	–	–
18	B/W	GND (SIGNAL)
19	W	FR FOG/L RH
20	V	FR FOG/L LH
21	–	–
22	–	–

Connector No.	E13
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
23	–	–
24	–	–
25	R	AUTO STOP SW
26	P	CAN-L
27	L	CAN-H
28	G	DTRL RLY
29	–	–
30	–	–
31	–	–
32	SB	HOOD SW
33	–	–
34	R	HORN RLY CONT

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Connector No.	E14
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

H.S.

39	38		37	36	35
46	45	44	43	42	41	40

Terminal No.	Color of Wire	Signal Name
35	R	VCM VB
36	–	–
37	–	–
38	LG	TAIL 1 (WITHOUT SOLAR CELL)
38	R	TAIL 1 (WITH SOLAR CELL)
39	L	FR WIPER HI
40	–	–
41	SB	VCM RLY CONT
42	BR	VCM BAT
43	O	CLEARANCE/L LH
44	B	TAIL 2
45	Y	FR WIPER LO
46	–	–

Connector No.	E15
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

H.S.

53	52	51	50		49	48	47
62	61	60	59	58	57	56	55	54

Terminal No.	Color of Wire	Signal Name
47	–	–
48	–	–
49	Y	H/LAMP HI RH
50	G	H/LAMP HI LH
51	L	H/LAMP LO LH
52	P	H/LAMP LO RH
53	–	–
54	–	–
55	LG	FAST CHARGE
56	–	–
57	R	VCM IGN
58	O	REVERSE LAMP IGN
59	BR	ABS ECU IGN
60	GR	F/S RLY CONT
61	–	–
62	V	E-ACT/HAS IGN

Connector No.	E17
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

H.S.

67	66	65	64	63
72	71	70	69	68

Terminal No.	Color of Wire	Signal Name
63	–	–
64	W	DETENT SW
65	–	–
66	W	PUSH START SW
67	–	–
68	O	IGN SIGNAL
69	–	–
70	–	–
71	–	–
72	–	–

AAMIA2436GB

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000010120293

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control unit, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.
CAN Communication Signal Chart. Refer to LAN-37, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

DTC Logic

INFOID:0000000010120294

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1000]	IPDM E/R cannot communicate with CAN communication signal for 2 seconds or more	CAN communication system

Diagnosis Procedure

INFOID:0000000010120295

1.PERFORM SELF DIAGNOSTIC

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

Is DTC U1000 displayed?

YES >> Refer to LAN-17, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-53, "Intermittent Incident".

B2098 IGNITION RELAY ON STUCK

DTC Logic

INFOID:0000000010120297

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

1. Turn ignition switch ON.
2. Turn ignition switch OFF and wait 1 second or more.
3. Turn ignition switch ON.
4. Perform “Self Diagnostic Result” of “IPDM E/R” using CONSULT.

Is DTC B2098 displayed?

YES >> Refer to PCS-26, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010120298

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-29, "Removal and Installation".
NO >> Refer to GI-53, "Intermittent Incident".

B2099 IGNITION RELAY OFF STUCK

DTC Logic

INFOID:0000000010120300

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

1. Turn ignition switch ON.
2. Turn ignition switch OFF and wait 1 second or more.
3. Turn ignition switch ON.
4. Perform “Self Diagnostic Result” of “IPDM E/R” using CONSULT.

Is DTC B2099 displayed?

YES >> Refer to PCS-27, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010120301

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-29, "Removal and Installation".
NO >> Refer to GI-53, "Intermittent Incident".

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:0000000010120302

Regarding Wiring Diagram information, refer to PCS-20, "Wiring Diagram".

1.CHECK FUSIBLE LINKS

Check that the following fusible links are not blown.

Terminal No.	Signal name	Fuses and fusible link No.
1	Battery power supply	E (100 A)
2		A (250 A), C (100 A)

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. Turn power switch OFF.
2. Disconnect IPDM E/R connector E9.
3. Check voltage between IPDM E/R connector E9 and the ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E9	1	—	Battery voltage
	2		

Is the inspection result normal?

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

3.CHECK GROUND CIRCUIT

1. Disconnect IPDM E/R connectors E11 and E12.
2. Check continuity between IPDM E/R connectors and the ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E11	9		Yes
E12	18		

Is the inspection result normal?

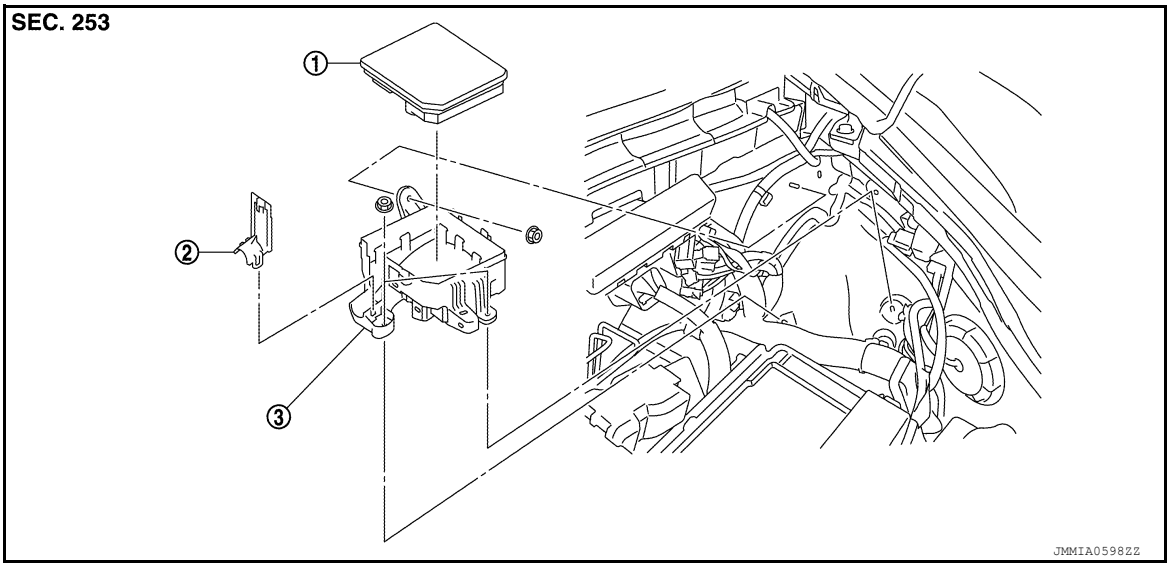
YES >> Inspection End.
NO >> Repair or replace the harness or connectors.

REMOVAL AND INSTALLATION

IPDM E/R

Exploded View

INFOID:0000000010120303



1. IPDM E/R
2. IPDM E/R cover A
3. IPDM E/R cover B

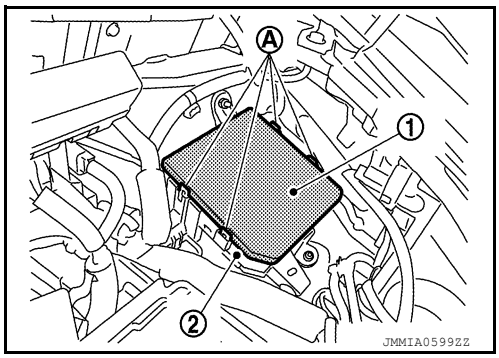
Removal and Installation

INFOID:0000000010120304

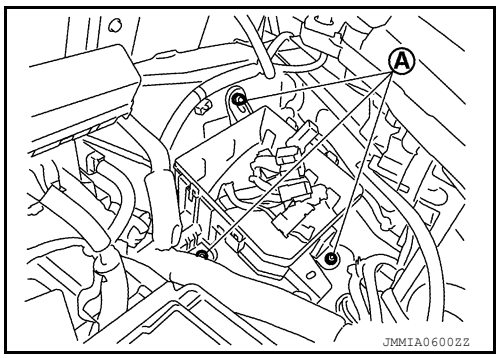
CAUTION:
To prevent damage to the parts, IPDM E/R integrated relays cannot be removed.

REMOVAL

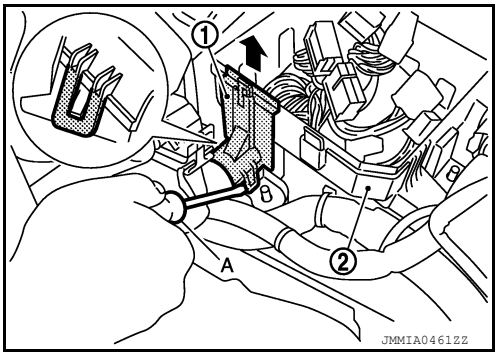
1. Remove 12V battery. Refer to PCS-4, "Precaution for Removing 12V Battery".
2. Press and expand pawls (A) on lateral side of IPDM E/R cover and remove IPDM E/R (1) from IPDM E/R cover B (2).



3. Disconnect the harness connector and then remove the IPDM E/R.
4. Remove IPDM E/R cover B mounting nuts (A).



5. Insert a remover 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.



6. Remove IPDM E/R cover B.

INSTALLATION

Install in the reverse order of removal.

PRECAUTION

PRECAUTIONS

Precaution for Technicians Using Medical Electric

INFOID:0000000010120305

OPERATION PROHIBITION

WARNING:

- **Parts with strong magnet is used in this vehicle.**
- **Technicians using a medical electric device such as pacemaker must never perform operation on the vehicle, as magnetic field can affect the device function by approaching to such parts.**

NORMAL CHARGE PRECAUTION

WARNING:

- **If a technician uses a medical electric device such as an implantable cardiac pacemaker or an implantable cardioverter defibrillator, the possible effects on the devices must be checked with the device manufacturer before starting the charge operation.**
- **As radiated electromagnetic wave generated by PDM (Power Delivery Module) at normal charge operation may affect medical electric devices, a technician using a medical electric device such as implantable cardiac pacemaker or an implantable cardioverter defibrillator must not approach motor room [PDM (Power Delivery Module)] at the hood-opened condition during normal charge operation.**

PRECAUTION AT TELEMATICS SYSTEM OPERATION

WARNING:

- **If a technician uses implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), avoid the device implanted part from approaching within approximately 220 mm (8.66 in) from interior/exterior antenna.**
- **The electromagnetic wave of TCU might affect the function of the implantable cardiac pacemaker or the implantable cardioverter defibrillator (ICD), when using the service, etc.**
- **If a technician uses other medical electric devices than implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), the electromagnetic wave of TCU might affect the function of the device. The possible effects on the devices must be checked with the device manufacturer before TCU use.**

PRECAUTION AT INTELLIGENT KEY SYSTEM OPERATION

WARNING:

- **If a technician uses implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), avoid the device implanted part from approaching within approximately 220 mm (8.66 in) from interior/exterior antenna.**
- **The electromagnetic wave of Intelligent Key might affect the function of the implantable cardiac pacemaker or the implantable cardioverter defibrillator (ICD), at door operation, at each request switch operation, or at engine starting.**
- **If a technician uses other medical electric devices than implantable cardiac pacemaker or implantable cardioverter defibrillator (ICD), the electromagnetic wave of Intelligent Key might affect the function of the device. The possible effects on the devices must be checked with the device manufacturer before Intelligent Key use.**

Point to Be Checked Before Starting Maintenance Work

INFOID:0000000010120306

The high voltage system may starts automatically. It is required to check that the timer air conditioner and timer charge (during EVSE connection) are not set before starting maintenance work.
NOTE:
If the timer air conditioner or timer charge (during EVSE connection) is set, the high voltage system starts automatically even when the power switch is in OFF state.

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

INFOID:0000000010120307

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS

system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted.
Information necessary to service the system safely is included in the 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:

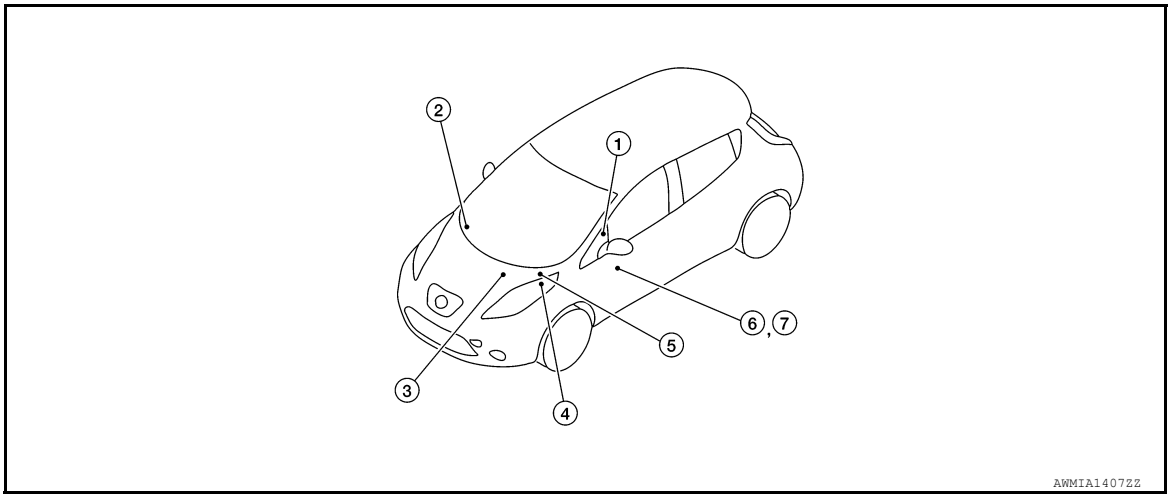
- **When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious 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:0000000010120308

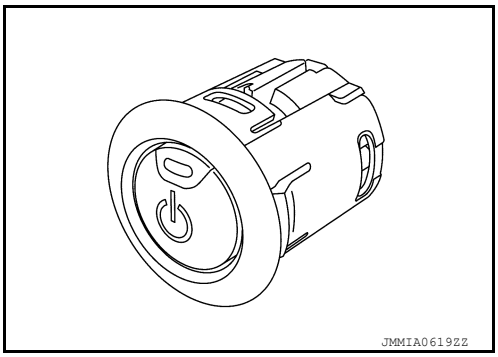


No.	Component	Description
1.	Electric shift sensor	Electric shift sensor transmits shift signals to VCM. VCM then transmits P position signal and P/N position signal to BCM. Refer to TM-32, "Component Parts Location" for detailed installation location.
2.	BCM	• BCM controls power distribution system. • BCM judges power supply position by power switch (push switch) and vehicle condition • BCM checks the power supply position internally. Refer to BCS-5, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location.
3.	Power switch	Refer to PCS-34, "Power Switch".
4.	IPDM E/R	• IPDM E/R detects power switch (push switch) status, and transmits power switch (push switch) status signal (CAN) to BCM. • IPDM E/R receives ignition relay-1 control signal and power switch ON signal (CAN) from BCM, and controls ignition relay-1. Refer to PCS-6, "Component Parts Location" for detailed installation location.
5.	Stop lamp switch	Stop lamp switch detects that brake pedal is depressed, and transmits the signal to BCM. Refer to BRC-10, "Component Parts Location" for detailed installation location.
6.	Accessory relay	• Accessory relay is controlled by BCM. • Accessory relay supplies the accessory power supply or the power switch ACC signal to each ECU when power switch is turned to ACC or ON. • BCM compares status of accessory relay control signal, and power supply position judged by BCM.
7.	Ignition relay-2	• Ignition relay-2 is controlled by BCM. • Ignition relay-2 supplies the power switch ON power supply or the power switch ON signal to each ECU when power switch is turned ON. • BCM compares status of ignition relay-2 control signal and power supply position judged by BCM.

Power Switch

INFOID:0000000010120309

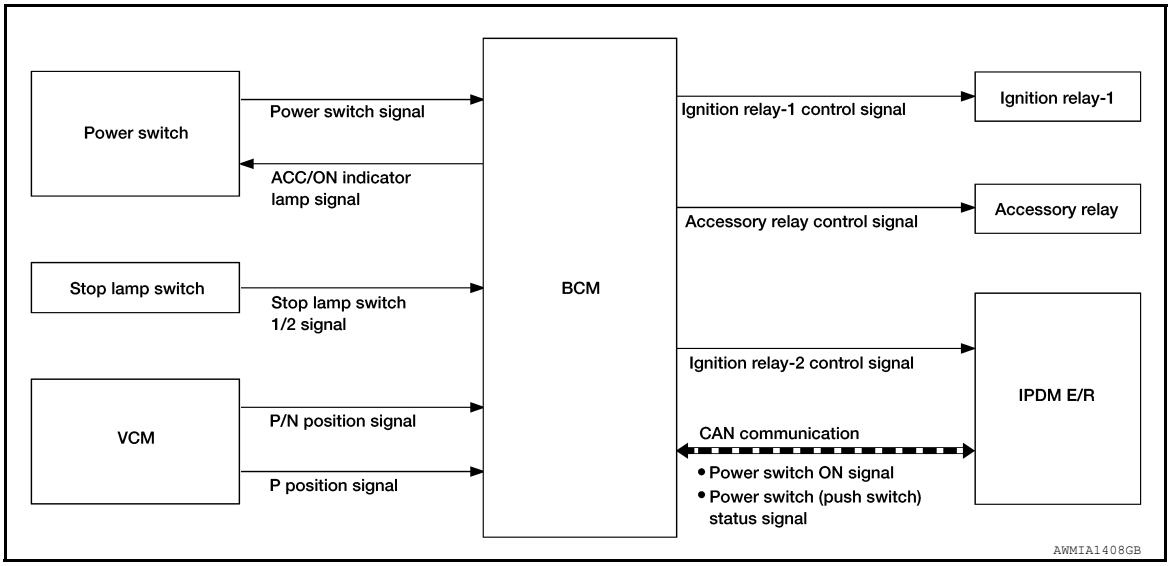
Power switch (push switch) is pressed, and transmits the status signal to BCM and IPDM E/R.



SYSTEM
POWER DISTRIBUTION SYSTEM
POWER DISTRIBUTION SYSTEM : System Description

INFOID:0000000010120310

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

- PDS (POWER DISTRIBUTION SYSTEM) is the system that BCM controls with the operation of power 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.
- Power switch (push switch) can be operated when Intelligent Key is in the following condition.
  - Intelligent Key is in the detection area of the interior antenna.
  - Intelligent Key backside is contacted to power switch.
- Power switch (push switch) operation is input to BCM as a signal. BCM changes the power switch position according to the status and operates the following relays to supply power to each power circuit.
  - Ignition relay-1
  - Ignition relay-2
  - ACC relay
- The power switch position can be confirmed with the lighting of ACC/ON indicator in power switch (push 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 12V battery discharge.

- Power switch is in the ACC position
- All doors are closed
- Shift position is in the P position

Reset Condition of Battery Saver System

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

- Opening any door
- Operating with request switch on door lock
- Operating with Intelligent Key on door lock
- Press power switch (push switch), and power switch will change to ACC position from OFF position.

READY SET CONDITION TABLE BY POWER SWITCH OPERATION

Refer to SEC-12, "INTELLIGENT KEY SYSTEM/READY SET FUNCTION : System Description".

Fail-safe

INFOID:0000000010563595

FAIL-SAFE CONTROL BY DTC

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

Display contents of CONSULT	Fail-safe	Cancellation
B2192: ID DISCORD BCM-ECM*	Inhibit setting the vehicle to READY	Erase DTC
B2193: CHAIN OF BCM-ECM*	Inhibit setting the vehicle to READY	Erase DTC
B2195: ANTI-SCANNING	Inhibit setting the vehicle to READY	Power switch ON → OFF
B2196: DONGLE NG	Inhibit setting the vehicle to READY	Erase DTC
B2198: IMMOBI ANT NG	Inhibit setting the vehicle to READY	Erase DTC
B261E: FUEL MIS CONFIG	Inhibit setting the vehicle to READY	When the VCM status signal is normally received from VCM.
B26F1: IGN RELAY OFF STUCK	Inhibit setting the vehicle to READY	When the following conditions are fulfilled • Power switch ON signal (CAN: Transmitted from BCM): ON • Power switch ON signal (CAN: Transmitted from IPDM E/R): ON
B26F2: IGN RELAY ON STUCK	Inhibit setting the vehicle to READY	When the following conditions are fulfilled • Power switch ON signal (CAN: Transmitted from BCM): OFF • Power switch ON signal (CAN: Transmitted from IPDM E/R): OFF
B26F7: LF DRIVER COMMUNICATION	Inhibit setting the vehicle to READY	When inside key antennas function normally
U0415: VDC CAN CIRC2	Inhibit setting the vehicle to READY	When vehicle speed signal (Meter) (CAN) is received normally

*: “ECM” is indicated on CONSULT display, however this means VCM on this vehicle.

REAR WIPER MOTOR PROTECTION

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

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

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

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

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

DIAGNOSIS SYSTEM (BCM)
COMMON ITEM
COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000010563598

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	• The vehicle specification can be read and saved. • The vehicle specification can be written when replacing BCM.
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	HEADLAMP			×	×	×		
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		×	×	×	×		

INTELLIGENT KEY

INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)

INFOID:0000000010563599

SELF DIAGNOSTIC RESULT

Refer to BCS-48, "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 back door request switch.
PUSH SW [On/Off]		Indicates condition of power 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 door unlock sensor.
PUSH SW -IPDM [On/Off]		Indicates condition of power 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 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.
RKE OPE COUN1 [0-19]	×	When remote keyless entry receiver receives the signal transmitted while operating the Intelligent Key, the numerical value starts changing.
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-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 [Off/Take Out/Knob/Key].

Test Item	Description	
LCD	B&P N	This test is able to check combination meter traction motor start information.
	B&P I	
	ID NG	This test is able to check combination meter key ID warning information.
	ROTAT	This item is displayed, but is not used.
	SFT P	
	INSRT	
	BATT	This test is able to check combination meter Intelligent Key low battery warning information.
	NO KY	This item is displayed, but is not used.
	OUTKEY	This test is able to check combination meter take away warning information.
	LK WN	This test is able to check combination meter OFF position warning information.
	Off	—
BATTERY SAVER	This test is able to check interior room lamp battery saver operation [Off/On].	
ENGINE SW ILLUMI	This test is able to check power switch illumination operation [Off/On].	
PUSH SWITCH INDICATOR	This test is able to check power switch ACC/ON indicator operation [Off/On].	
TRUNK/BACK DOOR	This test is able to check back door opener actuator operation [Open].	
INT LAMP	This test is able to check interior room lamp operation [Off/On].	
INDICATOR	This test is able to check combination meter warning lamp operation [Off/KEY ON/KEY IND].	
FLASHER	This test is able to check security hazard lamp operation [RH/LH/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].	

WORK SUPPORT

Support Item	Setting	Description
LOCK/UNLOCK BY I-KEY	On*	Door lock/unlock function from request switch ON.
	Off	Door lock/unlock function from request switch OFF.
ANTI KEY LOCK IN-FUNCTI	On*	Key reminder function ON.
	Off	Key reminder function OFF.
ANS BACK I-KEY UNLOCK	On*	Buzzer reminder function when doors are unlocked with request switch ON.
	Off	Buzzer reminder function when doors are unlocked with request switch OFF.
ANS BACK I-KEY LOCK	Horn Chirp	Horn chirp reminder function when doors are locked with request switch.
	Buzzer*	Buzzer reminder function when doors are locked with request switch.
	Off	No reminder function when doors are locked with request switch.
HORN WITH KEYLESS LOCK	On*	Horn reminder function when doors are locked with Intelligent Key ON.
	Off	Horn reminder function when doors are locked with Intelligent Key OFF.
HAZARD ANSWER BACK	Lock/Unlock*	Horn reminder function when doors are locked or unlocked with request switch or Intelligent Key.
	Unlock Only	Horn reminder function when doors are unlocked with request switch or Intelligent Key.
	Lock Only	Horn reminder function when doors are locked with request switch or Intelligent Key.
	Off	Horn reminder function when doors are locked or unlocked with request switch or Intelligent Key OFF.

Support Item	Setting		Description
INSIDE ANT DIAGNOSIS	—		This function allows inside key antenna self-diagnosis.
CONFIRM KEY FOB ID	MEMORY 1		Intelligent Key ID code can be checked.
	MEMORY 2		
	MEMORY 3		
	MEMORY 4		
	NON REGIST		
PANIC ALARM SET	MODE 3	1.5 sec.	Panic alarm button set time on Intelligent Key can be set.
	MODE 2	OFF	
	MODE 1*	0.5 sec.	
AUTO LOCK SET	MODE7	5 min.	Auto door lock time can be set.
	MODE6	4 min.	
	MODE5	3 min.	
	MODE4	2 min.	
	MODE3*	1 min.	
	MODE2	30 sec.	
	MODE1	OFF	

*: Initial Setting

ECU DIAGNOSIS INFORMATION

BCM, IPDM E/R

List of ECU Reference

INFOID:0000000010120314

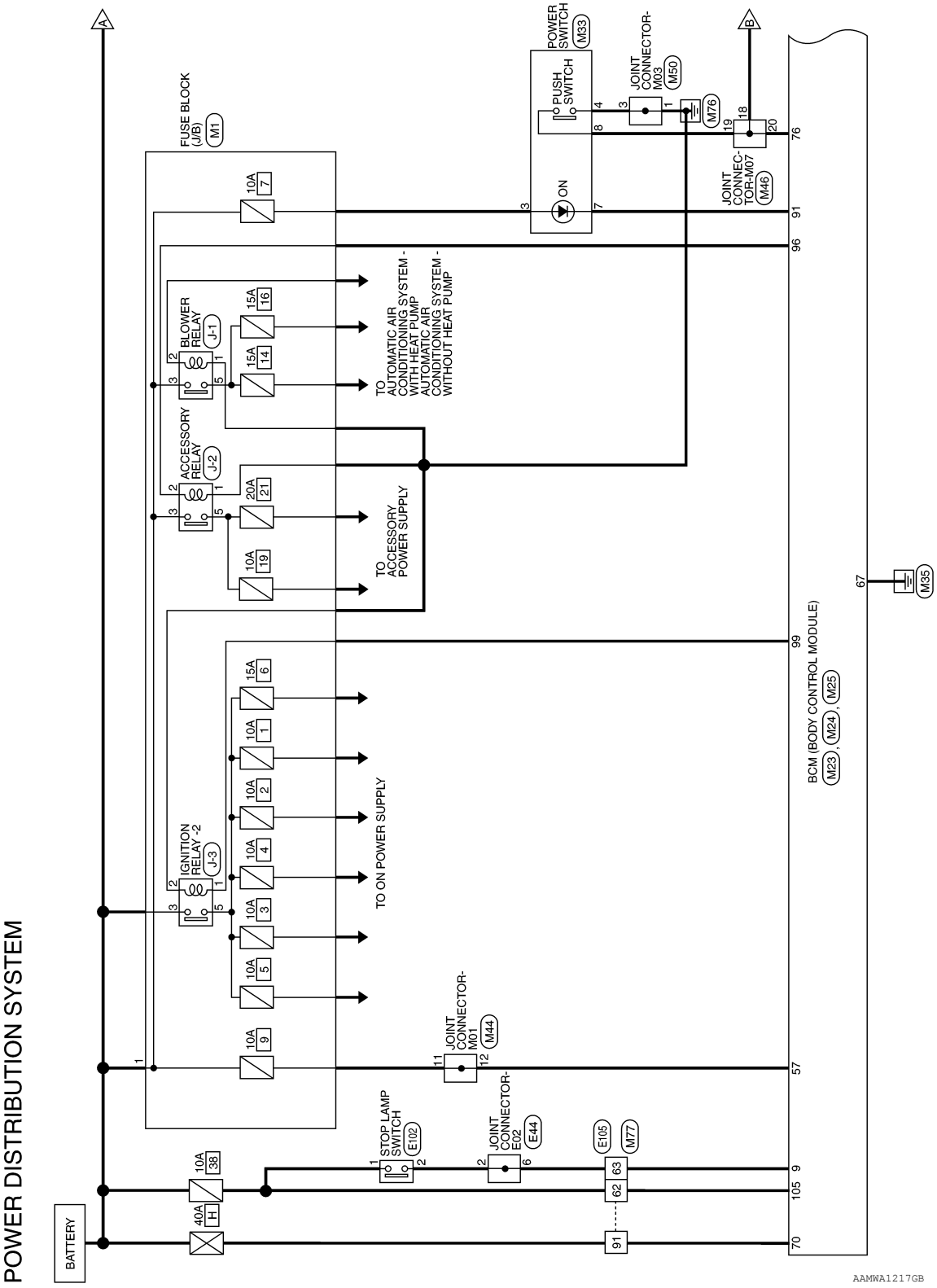
ECU	Reference
BCM	BCS-28, "Reference Value"
	BCS-46, "Fail-safe"
	BCS-47, "DTC Inspection Priority Chart"
	BCS-48, "DTC Index"
IPDM E/R	PCS-14, "Reference Value"
	PCS-17, "Fail-Safe"
	PCS-18, "DTC Index"

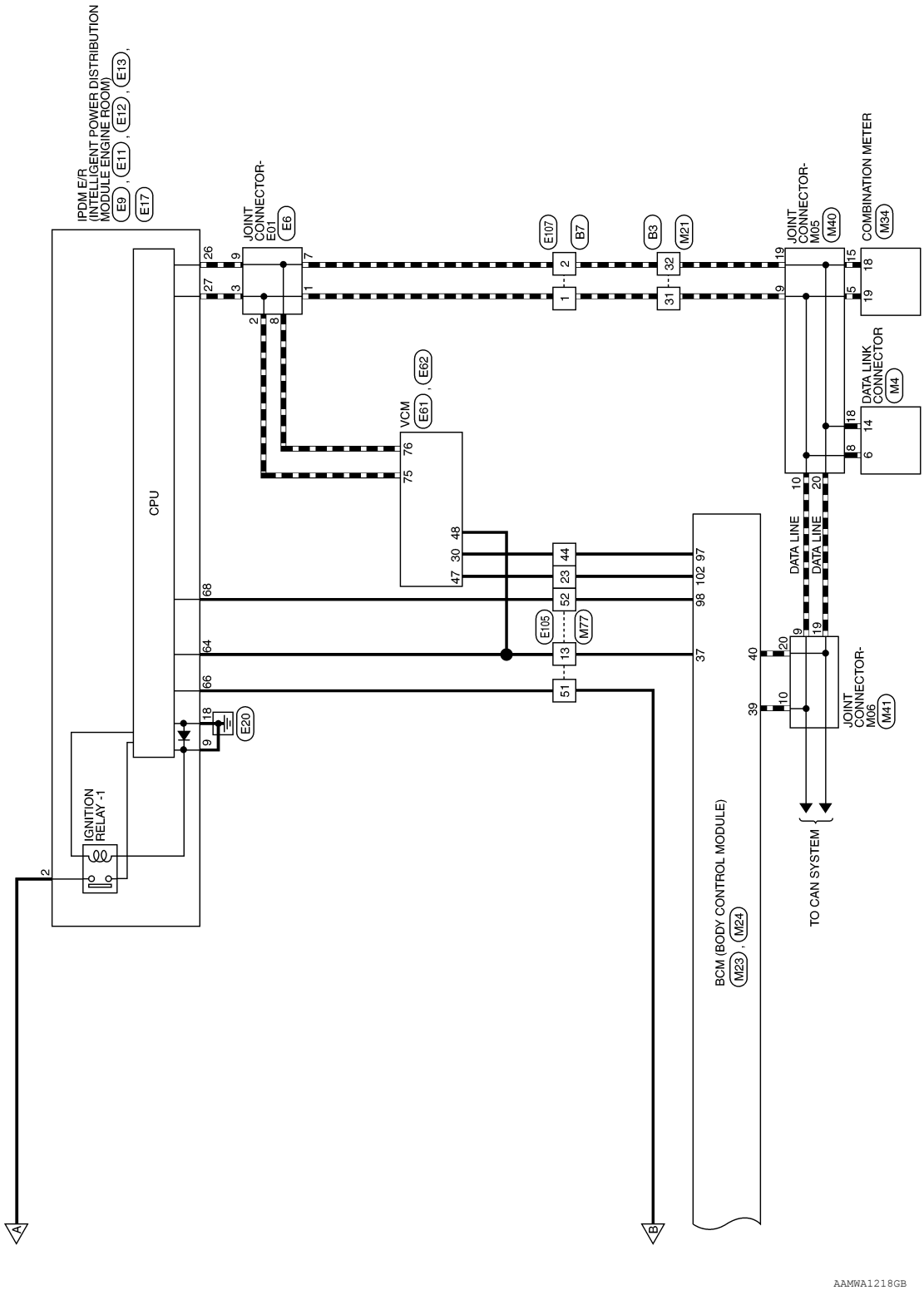
WIRING DIAGRAM

POWER DISTRIBUTION SYSTEM

Wiring Diagram

INFOID:0000000010120315



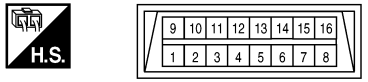

IPDM E/R
(INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E9, E11, E12, E13, E17
CPU
IGNITION RELAY -1
JOINT CONNECTOR-E01
E6
E107
B7
B3
M21
JOINT CONNECTOR-M05
M40
COMBINATION METER
M34
DATA LINK CONNECTOR
M4
VCM
E61, E62
DATA LINE
E105
M77
JOINT CONNECTOR-M06
M41
E20
BCM (BODY CONTROL MODULE)
M23, M24
TO CAN SYSTEM
AAMWA1218GB

POWER DISTRIBUTION SYSTEM CONNECTORS

Connector No.	M1
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

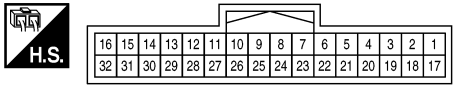
Terminal No.	Color of Wire	Signal Name
1	W	–

Connector No.	M4
Connector Name	DATA LINK CONNECTOR
Connector Color	WHITE



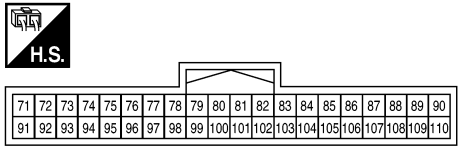
Terminal No.	Color of Wire	Signal Name
6	L	–
14	P	–

Connector No.	M21
Connector Name	WIRE TO WIRE
Connector Color	WHITE



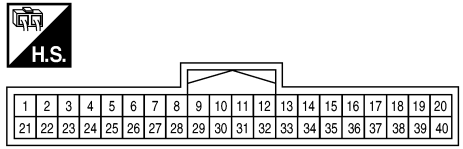
Terminal No.	Color of Wire	Signal Name
31	L	–
32	P	–

Connector No.	M23
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



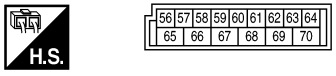
Terminal No.	Color of Wire	Signal Name
76	SB	ENGINE START SW
91	V	POWER POSITION LED (LOCK POSITION LED)
96	BR	ACC RELAY OUTPUT
97	LG	STARTER RELAY OUTPUT
98	L	IGN RELAY OUTPUT1 (USM)
99	GR	IGN RELAY OUTPUT2 (ELEC)
102	BG	SHIFT N, P
105	W	BRAKE SW2

Connector No.	M24
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
9	BR	BRAKE SW1
37	V	SHIFT P POSITION, PARKING POSITION SW
39	L	CAN–H
40	P	CAN–L

Connector No.	M25
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
57	P	BATTERY (FUSE)
67	B	GND
70	Y	BATTERY (F/L)

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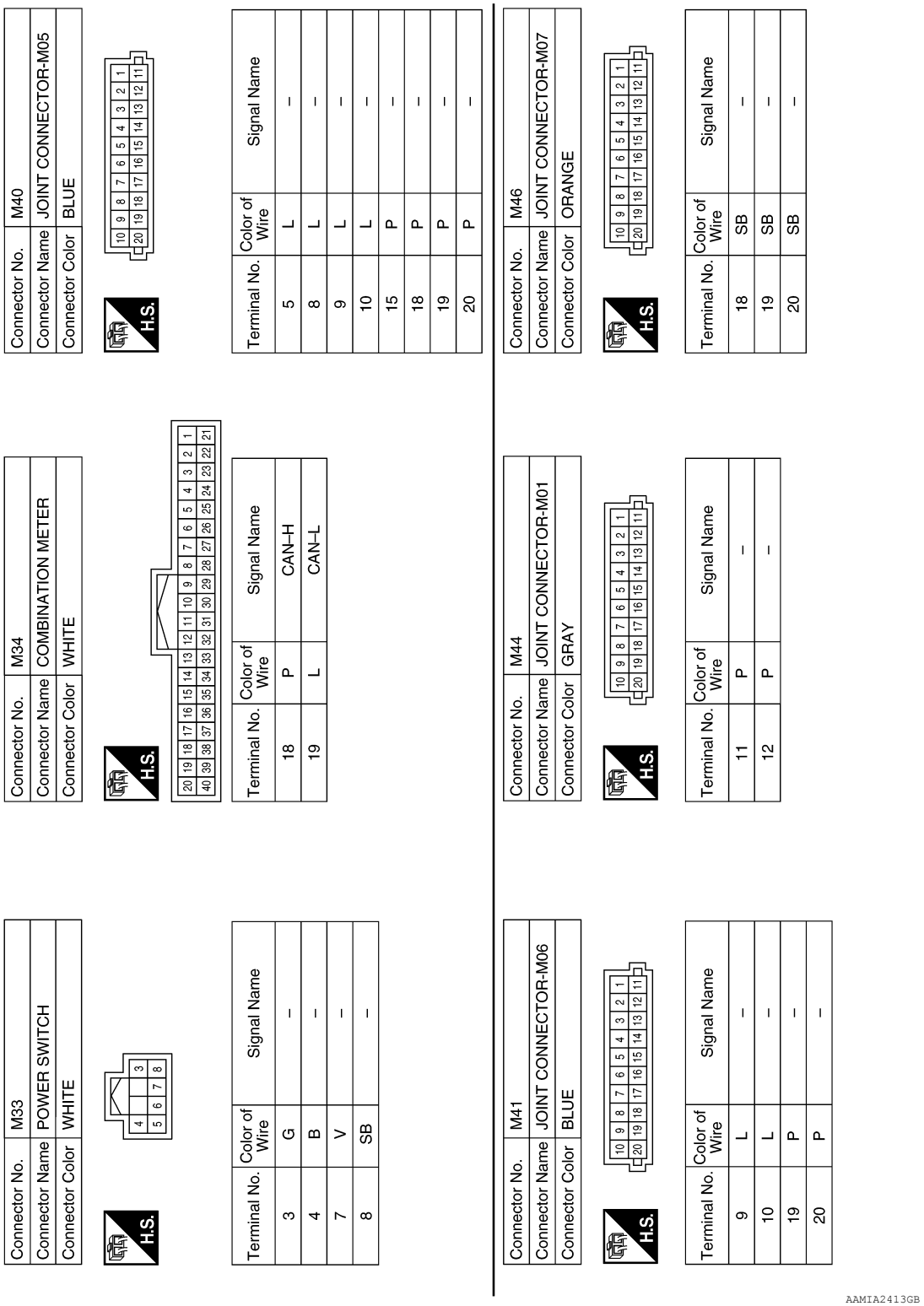

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Connector No.	M50
Connector Name	JOINT CONNECTOR-M03
Connector Color	PINK

H.S.

Terminal No.	Color of Wire	Signal Name
1	B	–
3	B	–

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
13	V	–
23	BG	–
44	LG	–
51	SB	–
52	L	–
62	W	–
63	BR	–
91	Y	–

Connector No.	E6
Connector Name	JOINT CONNECTOR-E01
Connector Color	BLUE

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	–
2	L	–
3	L	–
7	P	–
8	P	–
9	P	–

Connector No.	E9
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

H.S.

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

Connector No.	E11
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
9	B	POWER GROUND

AAMIA2414GB

Connector No.	E17
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK

H.S.

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

Connector No.	E13
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
26	P	CAN–L
27	L	CAN–H

Connector No.	E12
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

H.S.

Terminal No.	Color of Wire	Signal Name
18	B/W	SGND

Connector No.	E62
Connector Name	VCM
Connector Color	BROWN

H.S.

Terminal No.	Color of Wire	Signal Name
75	L	CAN-H
76	P	CAN-L

Connector No.	E61
Connector Name	VCM
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
30	W	READY SIGNAL
47	LG	P/N POSITION SIGNAL
48	W	P POSITION SIGNAL

Connector No.	E44
Connector Name	JOINT CONNECTOR-E02
Connector Color	BLUE

H.S.

Terminal No.	Color of Wire	Signal Name
2	SB	–
6	SB	–

AAMIA2415GB

Connector No.	E102
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE

H.S.

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

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
13	W	–
23	LG	–
44	W	–
51	W	–
52	O	–
62	W	–
63	SB	–
91	Y	–

Connector No.	E107
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	–
2	P	–

Connector No.	B3
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
31	L	–
32	P	–

Connector No.	B7
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	–
2	P	–

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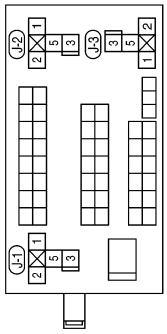
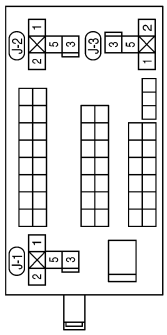
Connector No.	J-3
Connector Name	IGNITION RELAY-2
Connector Color	–

T.S.



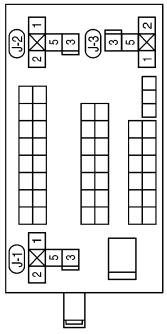
Connector No.	J-2
Connector Name	ACCESSORY RELAY
Connector Color	–

T.S.



Connector No.	J-1
Connector Name	BLOWER RELAY
Connector Color	–

T.S.



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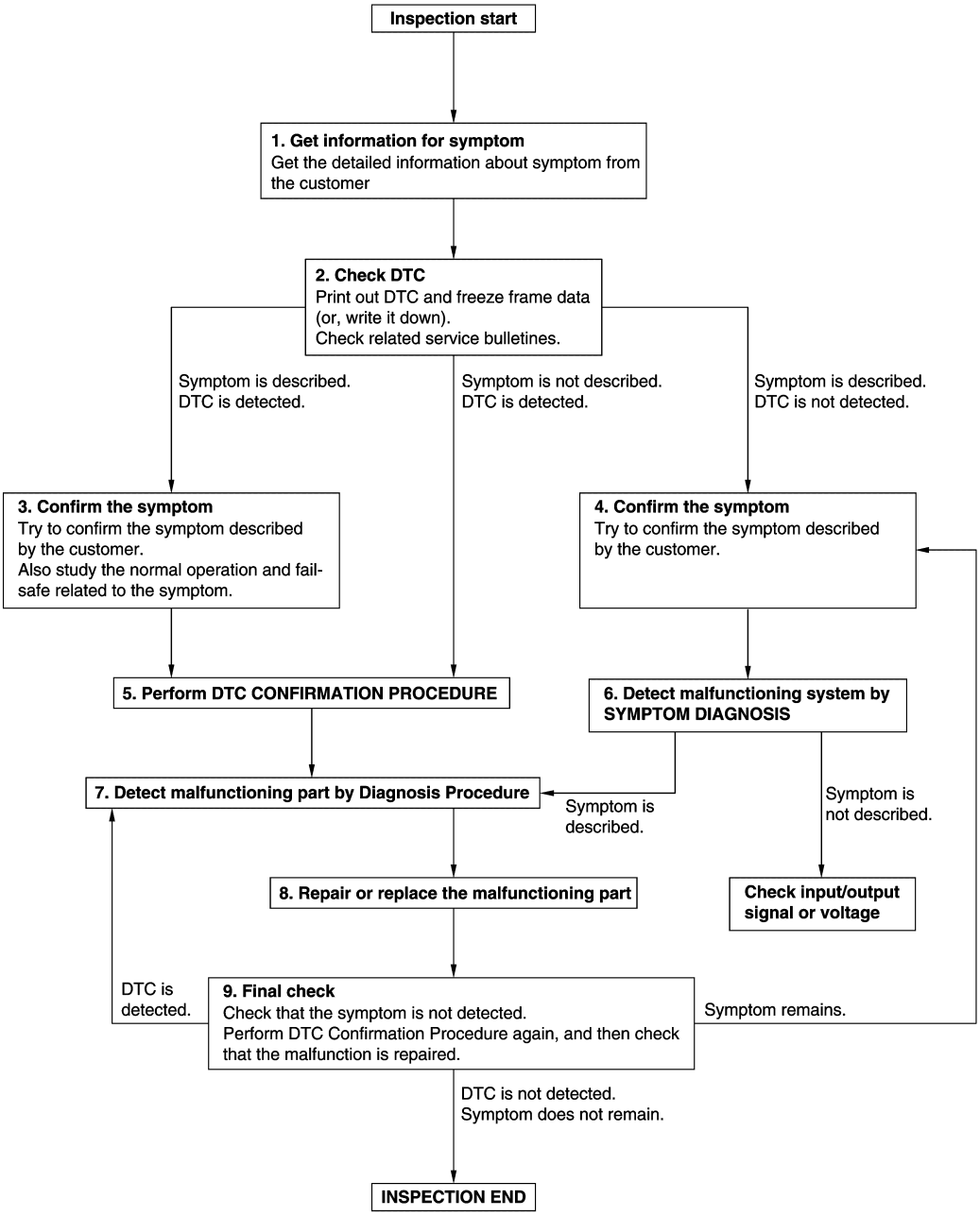
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000010120316

OVERALL SEQUENCE



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DETAILED FLOW

1.GET INFORMATION FOR SYMPTOM

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

>> GO TO 2.

2.CHECK DTC

1. Check DTC.
2. Perform the following procedure if DTC is detected.

- Record DTC and freeze frame data (Print them out using CONSULT.)
- Erase DTC.
- Study the relationship between the cause detected by DTC and the symptom described by the customer.

3. Check related service bulletins for information.

Are any symptoms described and any DTC detected?

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

3.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.
Also study the normal operation and fail-safe related to the symptom.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC CONFIRMATION PROCEDURE for the detected DTC, and then check that DTC is detected again. At this time, always connect CONSULT to the vehicle, and check self diagnostic results in real time.
If two or more DTCs are detected, refer to BCS-47, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

NOTE:

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC CONFIRMATION PROCEDURE is not included in Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during this check.
  If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC CONFIRMATION PROCEDURE.

Is DTC detected?

YES >> GO TO 7.
NO >> Check according to GI-53, "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 DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 8.
NO >> Check according to GI-53, "Intermittent Incident".

8. REPAIR OR REPLACE THE MALFUNCTIONING PART

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

>> GO TO 9.

9. FINAL CHECK

When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.
When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Is DTC detected and does symptom remain?

YES-1 >> DTC is detected: GO TO 7.
YES-2 >> Symptom remains: GO TO 4.
NO >> Before returning the vehicle to the customer, always erase DTC.

DTC/CIRCUIT DIAGNOSIS

B2614 ACC RELAY CIRCUIT

DTC Logic

INFOID:0000000010120317

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
ACC RELAY REQ F/B [B2614]	The following status is compared, and does not agree for 1 second or more. • State of accessory relay control judgment in BCM • State of accessory relay control signal	• Harness or connectors (Accessory relay control signal circuit) • BCM • Accessory relay

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn power switch to ACC, and wait for 1 second or more.
2. Perform Self Diagnostic Result of BCM with CONSULT.

Is DTC B2614 detected?

YES >> Go to PCS-53, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010120318

Regarding Wiring Diagram information, refer to PCS-42, "Wiring Diagram".

1.CHECK ACCESSORY RELAY CONTROL SIGNAL

Check voltage between BCM connector M23 and ground.

BCM		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M23	96	—	Power switch OFF	0 - 0.5
			Power switch ACC or ON	Battery voltage

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-72, "Removal and Installation".
NO >> GO TO 2.

2.CHECK ACCESSORY RELAY CONTROL SIGNAL CIRCUIT

1. Turn power switch OFF.
2. Disconnect BCM connector M23.
3. Remove accessory relay.
4. Check continuity between BCM connector M23 and accessory relay.

BCM		Accessory relay	Continuity
Connector	Terminal	Terminal	
M23	96	Coil upstream side	Yes

5. Check continuity between BCM connector M23 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M23	96	—	No

Is the inspection result normal?

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

3.CHECK ACCESSORY RELAY

Perform the accessory relay component inspection. Refer to PCS-54, "Component Inspection".

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-72, "Removal and Installation".
NO >> Replace accessory relay.

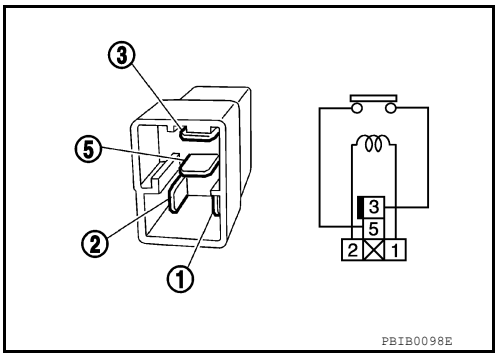
Component Inspection

INFOID:0000000010120319

1.CHECK ACCESSORY RELAY

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

Accessory relay terminals	Condition	Continuity
3 and 5	Battery voltage applied to terminal 1 and ground to terminal 2	Yes
	Voltage and ground removed	No



Is the inspection result normal?

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

B2616 IGNITION RELAY CIRCUIT

DTC Logic

INFOID:0000000010120320

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGN RELAY2 REQ F/B [B2616]	The following status is compared, and does not agree for 1 second or more. • State of ignition relay-2 (fuse block) control judgment in BCM • State of ignition relay-2 (fuse block) control signal	• Harness or connectors [Ignition relay-2 (fuse block) control signal circuit] • BCM • Ignition relay-2 (fuse block)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn power switch ON, and wait for 1 second or more.
2. Perform Self Diagnostic Result of BCM with CONSULT.

Is DTC B2616 detected?

YES >> Go to PCS-55, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010120321

Regarding Wiring Diagram information, refer to PCS-42, "Wiring Diagram".

1.CHECK IGNITION RELAY-2 CONTROL SIGNAL

Check voltage between BCM connector M23 and ground.

BCM		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M23	99	—	Power switch OFF	0 - 0.5
			Power switch ACC or ON	Battery voltage

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-72, "Removal and Installation".
NO >> GO TO 2.

2.CHECK IGNITION RELAY-2 CONTROL SIGNAL CIRCUIT

1. Turn power switch OFF.
2. Disconnect BCM connector M23.
3. Remove ignition relay-2.
4. Check continuity between BCM connector M23 and ignition relay-2.

BCM		Ignition relay-2	Continuity
Connector	Terminal	Terminal	
M23	99	Coil upstream side	Yes

5. Check continuity between BCM connector M23 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M23	99	—	No

Is the inspection result normal?

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

3.CHECK IGNITION RELAY-2

Perform the ignition relay-2 component inspection. Refer to PCS-56, "Component Inspection".

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-72, "Removal and Installation".
NO >> Replace ignition relay-2.

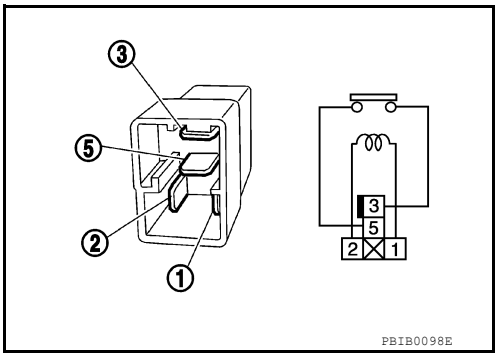
Component Inspection

INFOID:0000000010120322

1.CHECK IGNITION RELAY-2

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

Ignition relay-2 terminals	Condition	Continuity
3 and 5	Battery voltage applied to terminal 1 and ground to terminal 2	Yes
	Voltage and ground removed	No



Is the inspection result normal?

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

B2618 BCM

DTC Logic

INFOID:0000000010120323

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGN RELAY1 REQ F/B [B2618]	The following status is compared, and does not agree for 1 second or more. • State of ignition relay-1 (IPDM E/R) control judgment in BCM • State of ignition relay-1 (IPDM E/R) control signal	• Harness or connectors [Ignition relay-1 (IPDM E/R) control signal circuit] • BCM • IPDM E/R

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn power switch ON, and wait for 1 second or more.
2. Perform Self Diagnostic Result of BCM with CONSULT.

Is DTC B2618 detected?

YES >> Go to PCS-57, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010120324

Regarding Wiring Diagram information, refer to PCS-42, "Wiring Diagram".

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

Check voltage between BCM connector M23 and ground.

BCM		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M23	98	—	Power switch OFF	0 - 0.5
			Power switch ACC or ON	Battery voltage

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-72, "Removal and Installation".
NO >> GO TO 2.

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

1. Turn power switch OFF.
2. Disconnect BCM connector M23 and IPDM E/R connector E17.
3. Check continuity between BCM connector M23 and IPDM E/R connector E17.

BCM		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
M23	98	E17	68	Yes

4. Check continuity between BCM connector M23 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M23	98	—	No

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connectors.

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

1. Connect IPDM E/R connector E17.
2. Check voltage between IPDM E/R connector E17 and ground.

IPDM E/R		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
E17	68	—	Power switch OFF	Battery voltage

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-72, "Removal and Installation".
NO >> Replace IPDM E/R. Refer to PCS-29, "Removal and Installation".

B261A POWER SWITCH

DTC Logic

INFOID:0000000010120325

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
ENGINE SW [B261A]	The following status is compared, and does not agree for 1 second or more. • Power switch signal • Power switch status signal (CAN)	• Harness or connectors (Power switch circuit) • BCM • IPDM E/R

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Press power switch under the following conditions, and wait for 1 second or more.
- Shift position is in the P position
- Do not depress brake pedal
2. Perform Self Diagnostic Result of BCM with CONSULT.

Is DTC B261A detected?

YES >> Go to PCS-59, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010120326

Regarding Wiring Diagram information, refer to PCS-42, "Wiring Diagram".

1.CHECK POWER SWITCH (PUSH SWITCH) OUTPUT SIGNAL

1. Disconnect power switch connector and IPDM E/R connector E17.
2. Check voltage between power switch connector M33 and ground.

Power switch		Ground	Voltage (Approx.)
Connector	Terminal		
M33	8	—	Battery voltage

Is the inspection result normal?

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

2.CHECK POWER SWITCH CIRCUIT (BCM)

1. Disconnect BCM connector M23.
2. Check continuity between BCM connector M23 and power switch connector M33.

BCM		Power switch		Continuity
Connector	Terminal	Connector	Terminal	
M23	76	M33	8	Yes

3. Check continuity between power switch connector M33 and ground.

Power switch		Ground	Continuity
Connector	Terminal		
M33	8	—	No

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-72, "Removal and Installation".
NO >> Repair or replace harness or connectors.

3. CHECK POWER SWITCH (PUSH SWITCH) OUTPUT SIGNAL (IPDM E/R)

Check voltage between IPDM E/R connector E17 and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E17	66	—	Battery voltage

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-29, "Removal and Installation".
NO >> GO TO 4.

4. CHECK POWER SWITCH (PUSH SWITCH) CIRCUIT (IPDM E/R)

1. Disconnect BCM connector M23.
2. Check continuity between IPDM E/R connector E17 and power switch connector M33.

IPDM E/R		Power switch		Continuity
Connector	Terminal	Connector	Terminal	
E17	66	M33	8	Yes

3. Check continuity between power switch connector M33 and ground.

Power switch		Ground	Continuity
Connector	Terminal		
M33	8	—	No

Is the inspection result normal?

YES >> Refer to GI-53, "Intermittent Incident".
NO >> Repair or replace harness or connectors.

B26F1 IGNITION RELAY

DTC Logic

INFOID:0000000010120327

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGN RELAY OFF STUCK [B26F1]	BCM transmits ignition relay-1 control signal (ON: 0 V) or power switch ON signal (ON) (CAN), but does not receives power switch ON signal (ON) (CAN) from IPDM E/R.	• Harness or connectors (ignition relay-1 circuit is open) • BCM • IPDM E/R

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn power switch ON, and wait for 2 seconds or more.
2. Perform Self Diagnostic Result of BCM with CONSULT.

Is DTC B26F1 detected?

YES >> Go to PCS-61, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010120328

Regarding Wiring Diagram information, refer to PCS-42, "Wiring Diagram".

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

Check voltage between BCM connector M23 and ground.

BCM		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M23	98	—	Power switch ON	0 - 0.5

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace BCM. Refer to BCS-72, "Removal and Installation".

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

1. Turn power switch OFF.
2. Disconnect BCM connector M23 and IPDM E/R connector E17.
3. Check continuity between BCM connector M23 and IPDM E/R connector E17.

BCM		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
M23	98	E17	68	Yes

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-29, "Removal and Installation".
NO >> Repair or replace harness or connectors.

B26F2 IGNITION RELAY

DTC Logic

INFOID:0000000010120329

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGN RELAY ON STUCK [B26F2]	BCM transmits ignition relay-1 control signal (OFF: 12 V) or power switch ON signal (OFF) (CAN), but does not receives power switch ON signal (OFF) (CAN) from IPDM E/R.	• Harness or connectors (ignition relay-1 circuit is short) • BCM • IPDM E/R

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn power switch ON, and wait for 2 seconds or more.
2. Perform Self Diagnostic Result of BCM with CONSULT.

Is DTC B26F2 detected?

YES >> Go to PCS-62, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010120330

Regarding Wiring Diagram information, refer to PCS-42, "Wiring Diagram".

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

1. Turn power switch OFF.
2. Check voltage between IPDM E/R connector E17 and ground.

IPDM E/R		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
E17	68	—	Power switch OFF or ACC	Battery voltage

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-29, "Removal and Installation".
NO >> GO TO 3.

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

1. Turn power switch OFF.
2. Disconnect BCM connector M23 and IPDM E/R connector E17.
3. Check continuity between IPDM E/R connector E17 and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E17	68	—	No

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-72, "Removal and Installation".
NO >> Repair or replace harness or connectors.

B26F6 BCM

DTC Logic

INFOID:0000000010120331

DTC DETECTION LOGIC

NOTE:

- If DTC B26F6 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to BCS-61, "DTC Logic".
- If DTC B26F6 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to BCS-62, "DTC Logic".

CONSULT Display	DTC Detection Condition	Possible Cause
IGN USM CONT [B26F6]	Power switch ON signal (CAN) (ON) is not transmitted from IPDM E/R, when BCM turns ignition relay-1 ON [Transmit power switch ON signal (CAN) (ON)].	BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn power switch ON, and wait for 0.5 seconds or more.
2. Perform Self Diagnostic Result of BCM with CONSULT.

Is DTC B26F6 detected?

YES >> Go to PCS-63, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000010120332

1.INSPECTION START

1. Turn power switch ON.
2. Select Self-diagnosis result of BCM with CONSULT.
3. Touch ERASE.
4. Perform Self-diagnosis result of BCM with CONSULT.

Is DTC B26F6 detected?

YES >> Replace BCM. Refer to BCS-72, "Removal and Installation".
NO >> Inspection End.

POWER SWITCH

Component Function Check

INFOID:0000000010120333

1.CHECK FUNCTION

1. Select PUSH SW in Data Monitor mode with CONSULT.
2. Check power switch (push switch) signal under the following conditions.

Test item	Condition	Status
PUSH SW	Power switch pressed	ON
	Power switch released	OFF

Is the inspection result normal?

YES >> Inspection End.
NO >> Go to PCS-64, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000010120334

Regarding Wiring Diagram information, refer to PCS-42, "Wiring Diagram".

1.CHECK POWER SWITCH (PUSH SWITCH) OUTPUT SIGNAL 1

1. Turn power switch OFF.
2. Disconnect power switch connector and IPDM E/R connector E17.
3. Check voltage between power switch connector M33 and ground.

Power switch		Ground	Voltage (Approx.)
Connector	Terminal		
M33	8	—	Battery voltage

Is the inspection result normal?

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

2.CHECK POWER SWITCH (PUSH SWITCH) CIRCUIT 1

1. Disconnect BCM connector M23.
2. Check continuity between BCM connector M23 and power switch connector M33.

BCM		Power switch		Continuity
Connector	Terminal	Connector	Terminal	
M23	76	M33	8	Yes

3. Check continuity between BCM connector M23 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M23	76	—	No

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-72, "Removal and Installation".
NO >> Repair or replace harness or connectors.

3.CHECK POWER SWITCH (PUSH SWITCH) OUTPUT SIGNAL 2

Check voltage between IPDM E/R connector E17 and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E17	66	—	Battery voltage

Is the inspection result normal?

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

4. CHECK POWER SWITCH (PUSH SWITCH) CIRCUIT 2

1. Disconnect BCM connector M23.
2. Check continuity between IPDM E/R connector E17 and power switch connector M33.

IPDM E/R		Power switch		Continuity
Connector	Terminal	Connector	Terminal	
E17	66	M33	8	Yes

3. Check continuity between IPDM E/R connector E17 and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E17	66	—	No

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-29, "Removal and Installation".
NO >> Repair or replace harness or connectors.

5. CHECK POWER SWITCH (PUSH SWITCH) GROUND CIRCUIT

Check continuity between power switch connector M33 and ground.

Power switch		Ground	Continuity
Connector	Terminal		
M33	4	—	Yes

Is the inspection result normal?

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

6. CHECK POWER SWITCH (PUSH SWITCH)

Perform the power switch component inspection. Refer to PCS-65, "Component Inspection".

Is the inspection result normal?

YES >> Refer to GI-53, "Intermittent Incident".
NO >> Replace power switch. Refer to PCS-71, "Removal and Installation".

Component Inspection

INFOID:0000000010120335

1. CHECK POWER SWITCH (PUSH SWITCH)

1. Turn power switch OFF.
2. Disconnect power switch connector M33.
3. Check continuity between power switch terminals.

Power switch terminals		Condition	Continuity
8	4	Pressed	Yes
		Released	No

Is the inspection result normal?

YES >> Inspection End.
NO >> Replace power switch. Refer to PCS-71, "Removal and Installation".

POWER SWITCH POSITION INDICATOR

Description

INFOID:0000000010120336

Power switch position indicator is controlled by BCM, and illuminates when power switch is in ACC or ON position.

Component Function Check

INFOID:0000000010120337

1.CHECK FUNCTION

1. Use CONSULT to perform PUSH SWITCH INDICATOR Active Test.
2. Touch On and verify that push switch indicator illuminates.

Is the inspection result normal?

YES >> Inspection End.
NO >> Refer to PCS-66, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000010120338

Regarding Wiring Diagram information, refer to PCS-42, "Wiring Diagram".

1.CHECK POWER SWITCH CIRCUIT - 1

1. Turn power switch OFF.
2. Disconnect power switch connector.
3. Check voltage between power switch connector M33 and ground.

Power switch		Ground	Voltage (Approx.)
Connector	Terminal		
M33	3	—	Battery voltage

Is the inspection normal?

YES >> GO TO 2.
NO-1 >> Check 10 A fuse [No.7, located in fuse block (J/B)].
NO-2 >> Check harness for open or short between power switch and fuse.

2.CHECK POWER SWITCH CIRCUIT - 2

1. Disconnect BCM connector M23.
2. Check continuity between BCM connector M23 and power switch connector M33.

BCM		Power switch		Continuity
Connector	Terminal	Connector	Terminal	
M23	91	M33	7	Yes

3. Check continuity between BCM connector M23 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M23	91	—	No

Is the inspection normal?

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

3.CHECK POWER SWITCH INTERNAL CIRCUIT

1. Connect power switch connector.
2. Check voltage between power switch connector M33 and ground.

Power switch		Ground	Voltage (Approx.)
Connector	Terminal		
M33	7	—	Battery voltage

Is the inspection normal?

YES >> Replace BCM. Refer to BCS-72, "Removal and Installation".
NO >> Replace power switch. Refer to PCS-71, "Removal and Installation".

SYMPTOM DIAGNOSIS

POWER SWITCH DOES NOT OPERATE

Description

INFOID:0000000010120339

The power switch position does not change even if the power switch (push switch) is operated.
Check that vehicle is under the condition shown in “Conditions of vehicle” before starting diagnosis, and check each symptom.
NOTE:
The READY set 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 set to On in CONSULT.
- One or more Intelligent Key with registered ID is in the vehicle.

Diagnosis Procedure

INFOID:0000000010120340

1.PERFORM WORK SUPPORT

Perform INSIDE ANT DIAGNOSIS in Work Support of INTELLIGENT KEY.
Refer to PCS-38, "INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)".

>> GO TO 2.

2.PERFORM SELF-DIAGNOSIS RESULT

Perform Self Diagnostic Result of BCM.

Is DTC detected?

YES >> Refer to BCS-48, "DTC Index".
NO >> GO TO 3.

3.CHECK POWER SWITCH (PUSH SWITCH)

Check power switch (push switch).
Refer to PCS-64, "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 >> Refer to GI-53, "Intermittent Incident".
NO >> GO TO 1.

POWER SWITCH POSITION INDICATOR DOES NOT ILLUMINATE

Description

INFOID:0000000010120341

- Before performing the diagnosis in the following table, check Work Flow. Refer to PCS-50, "Work Flow".
- Check that vehicle is under the condition shown in Conditions of vehicle before starting diagnosis, and check each symptom.

Conditions of Vehicle (Operating Conditions)

- ENGINE START BY I-KEY in WORK SUPPORT is On in CONSULT.
- One or more Intelligent Key with registered ID is in the vehicle.

Diagnosis Procedure

INFOID:0000000010120342

1.CHECK POWER SWITCH POSITION INDICATOR

Check power switch position indicator.
Refer to PCS-66, "Component Function Check".

Is the inspection result normal?

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

2.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Refer to GI-53, "Intermittent Incident".
NO >> GO TO 1.

REMOVAL AND INSTALLATION

NATS ANTENNA AMP.

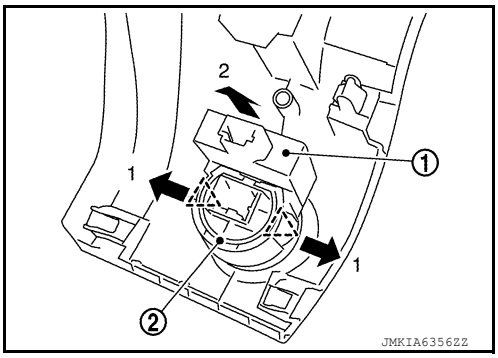
Removal and Installation

INFOID:0000000010120343

REMOVAL

1. Remove instrument lower panel LH. Refer to IP-16, "Exploded View".
2. Remove the NATS antenna amp.
   1. Disengage the NATS antenna amp. (1) fixing pawls using remover tool etc.
   2. Pull NATS antenna amp. to remove it from power switch (2).

: Pawl



INSTALLATION

Install in the reverse order of removal.

POWER SWITCH

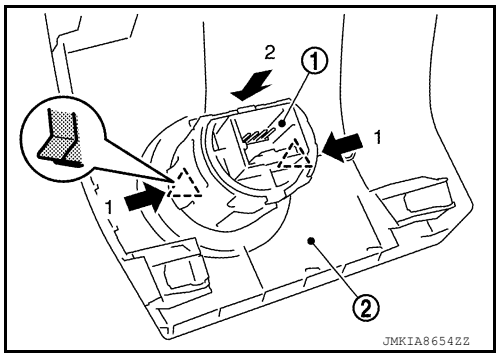
Removal and Installation

INFOID:0000000010120344

REMOVAL

1. Remove the NATS antenna amp. Refer to PCS-70, "Removal and Installation".
2. Remove the power switch (1).
   1. Disengage the power switch fixing pawls.
   2. Press the power switch to remove it from instrument lower panel (LH) (2).

: Pawl



INSTALLATION

Install in the reverse order of removal.