

SECTION PCS

POWER CONTROL SYSTEM

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PRECAUTION

PRECAUTIONS

Precaution for Technicians Using Medical Electric

INFOID:000000007071879

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 on board charger at normal charge operation may effect medical electric devices, a technician using a medical electric device such as implantable cardiac pacemaker or an implantable cardioverter defibrillator must not enter the vehicle compartment (including luggage room) 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:000000007079472

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:000000006953090

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

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[IPDM E/R]

< PRECAUTION >

system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the power switch ON, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the power switch OFF, disconnect the 12V battery, and wait at least 3 minutes before performing any service.

Precaution for Removing 12V Battery

INFOID:000000007034991

When removing the 12V battery, turn ON/OFF the power switch and check that the charging status indicator does not blink. The 12V battery must be removed within one hour after checking the indicator lamp.

NOTE:

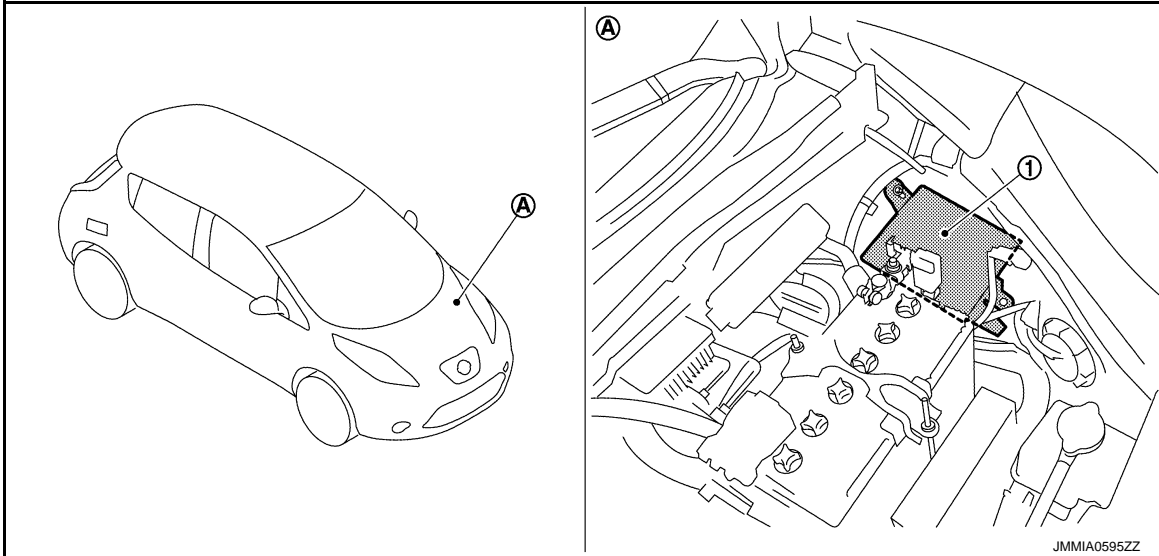
- The automatic 12V battery charge control may start even when the power switch is in OFF state.
- The automatic 12V battery charge control does not start within approximately one hour when the power switch is turned ON/OFF.

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000006923043



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

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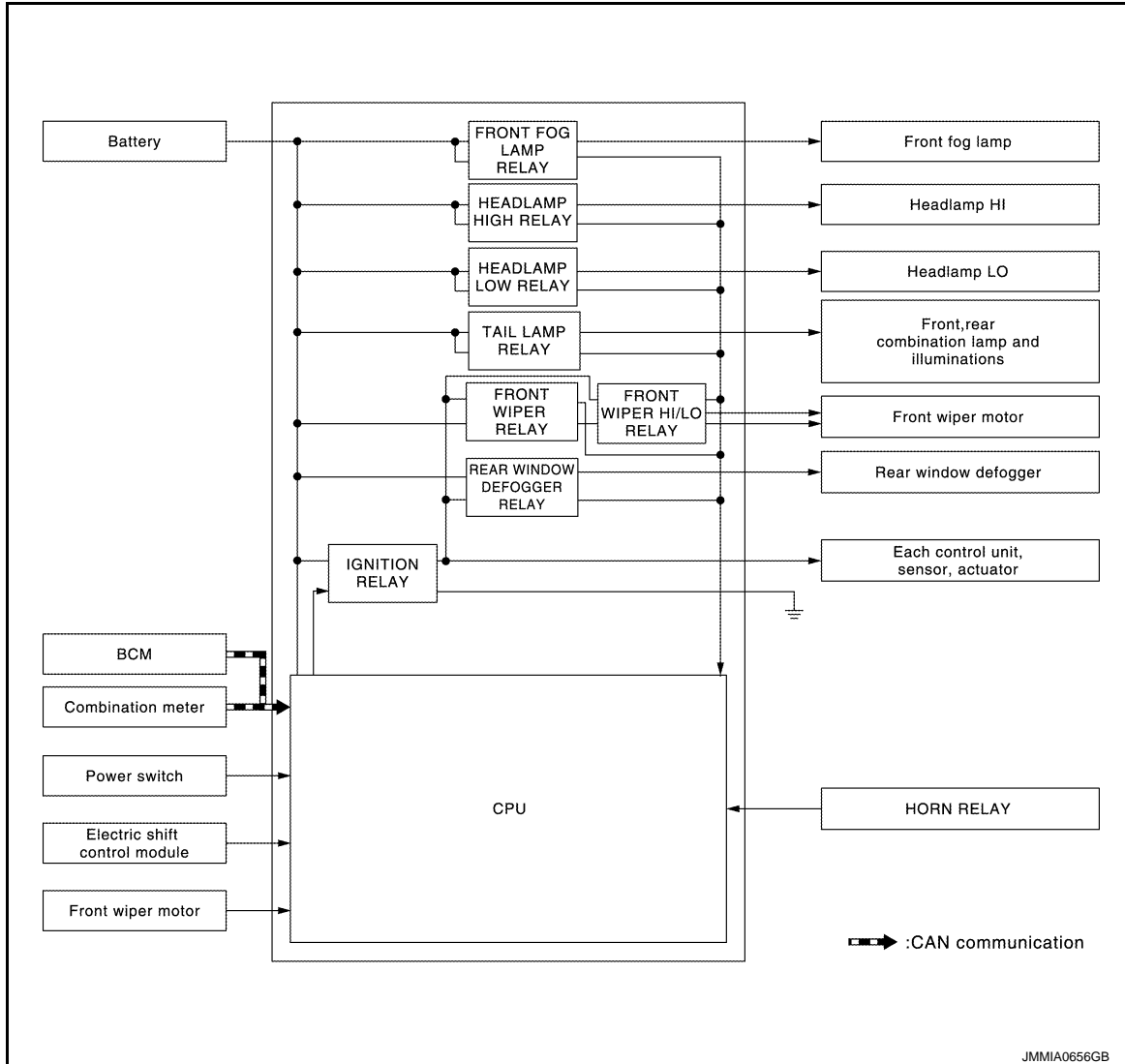
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SYSTEM RELAY CONTROL SYSTEM RELAY CONTROL SYSTEM : System Description

INFOID:000000006923044

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
<ul style="list-style-type: none"> Headlamp low relay Headlamp high relay 	<ul style="list-style-type: none"> Low beam request signal High beam request signal 	BCM (CAN)	<ul style="list-style-type: none"> Headlamp (LO) Headlamp (HI) 	EXL-10
Front fog lamp relay	Front fog light request signal	BCM (CAN)	Front fog lamp	EXL-19
Tail lamp relay	Position light request signal	BCM (CAN)	<ul style="list-style-type: none"> Parking lamp License plate lamp Tail lamp Side marker lamp 	EXL-16
			Illumination	INL-7

SYSTEM

< SYSTEM DESCRIPTION >

[IPDM E/R]

Control relay	Input/output	Transmit unit	Control part	Reference page
<ul style="list-style-type: none"> Front wiper relay Front wiper HI/LO relay 	Front wiper request signal	BCM (CAN)	Front wiper motor	WW-7
	Front wiper stop position signal	Front wiper motor		
Rear window defogger relay	Rear window defogger control signal	BCM (CAN)	Rear window defogger	DEF-5
Horn relay	Theft warning horn request signal	BCM (CAN)	Vehicle security horn	SEC-19
Ignition relay	Power switch ON signal	BCM (CAN)	Each control unit, sensor, actuator and relay (Ignition power supply)	PCS-25
	Vehicle speed signal (Meter)	Combination meter (CAN)		
	Power switch signal	Power switch		

RELAY CONTROL SYSTEM : Fail-Safe

INFOID:000000006953093

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	<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> Parking lamp License plate lamp Illumination Tail lamp Side marker lamp 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	—

SYSTEM

< SYSTEM DESCRIPTION >

[IPDM E/R]

Voltage judgment		IPDM E/R judgment	Operation
Ignition relay contact side	Ignition relay excitation coil side		
ON	OFF	Ignition relay ON stuck	<ul style="list-style-type: none"> • 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:

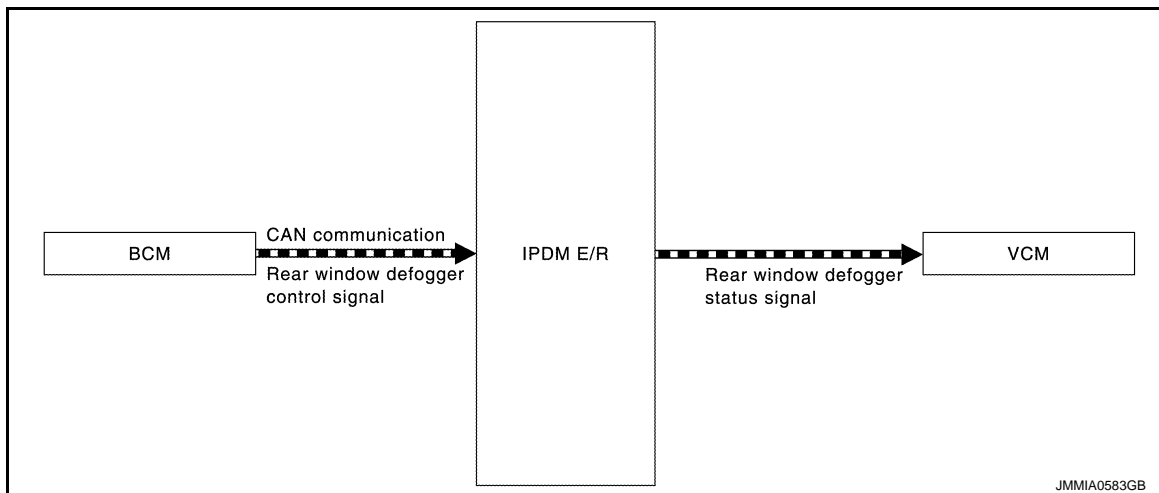
This operation status can be confirmed on the IPDM E/R "Data Monitor" that displays "BLOCK" for the item "WIP PROT" while the wiper is stopped.

SIGNAL BUFFER SYSTEM

SIGNAL BUFFER SYSTEM : System Description

INFOID:000000006923046

SYSTEM DIAGRAM



DESCRIPTION

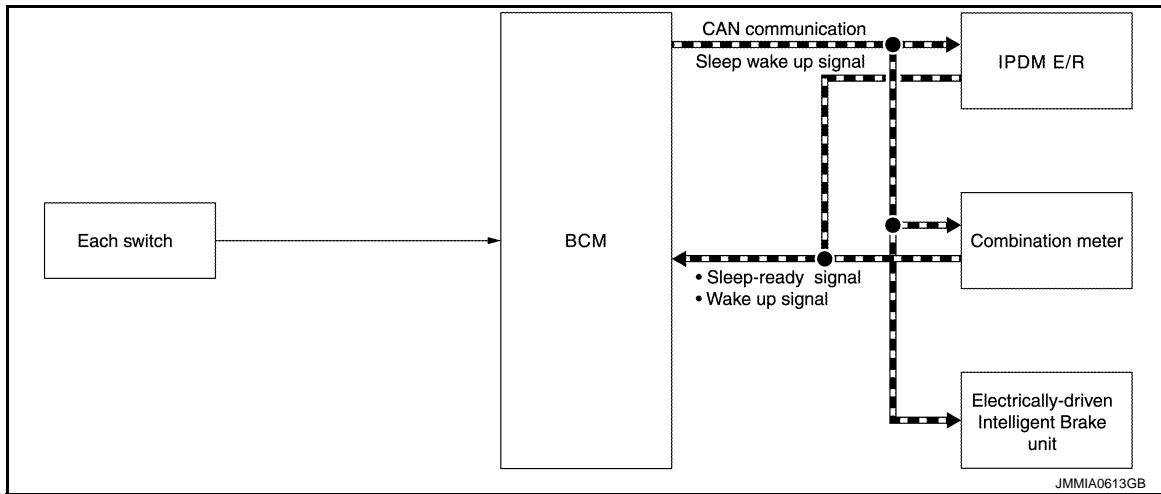
IPDM E/R receives the rear window defogger control signal from BCM via CAN communication and transmits the rear window defogger status signal to VCM via CAN communication. Refer to [DEF-5. "System Description"](#).

POWER CONSUMPTION CONTROL SYSTEM

POWER CONSUMPTION CONTROL SYSTEM : System Description

INFOID:000000006998466

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.

DIAGNOSIS SYSTEM (IPDM E/R)

Diagnosis Description

INFOID:000000006923048

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
- 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-92, "Component Function Check"](#).

Inspection in Auto Active Test Mode

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

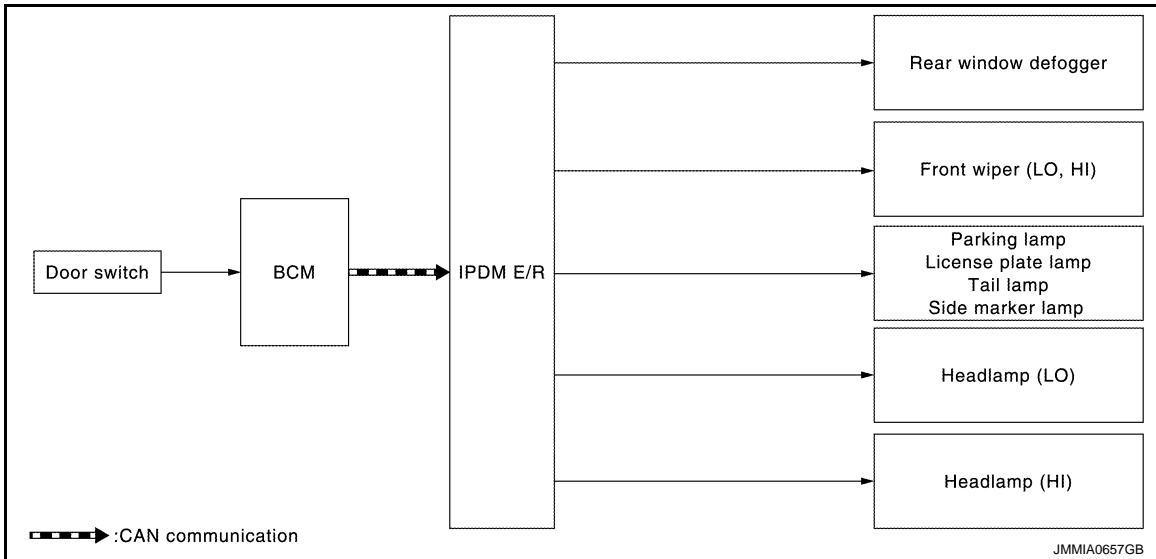
Operation sequence	Inspection location	Operation
1	Rear window defogger	10 seconds
2	Front wiper motor	LO for 5 seconds → HI for 5 seconds
3	<ul style="list-style-type: none"> • Parking lamp • License plate lamp • Tail lamp • Front fog lamp • Side marker lamp 	10 seconds
4	Headlamp	LO for 10 seconds → HI ON ⇔ OFF 5 times

DIAGNOSIS SYSTEM (IPDM E/R)

[IPDM E/R]

< SYSTEM DESCRIPTION >

Concept of auto active test



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

Diagnosis chart in auto active test 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 <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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:000000006923049

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APPLICATION ITEM

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

Diagnosis mode	Description
Ecu Identification	Allows confirmation of IPDM E/R part number.
Self Diagnostic Result	Displays the diagnosis results judged by IPDM E/R.
Data Monitor	Displays the real-time input/output data from IPDM E/R input/output data.
Active Test	IPDM E/R can provide a drive signal to electronic components to check their operations.
CAN Diag Support Monitor	The results of transmit/receive diagnosis of CAN communication can be read.

SELF DIAGNOSTIC RESULT

Refer to [PCS-18, "DTC Index"](#).

DATA MONITOR

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R]

Monitor item

Monitor Item [Unit]	MAIN SIGNALS	Description
AC COMP REQ [Off/On]	×	NOTE: The item is indicated, but not monitored.
TAIL&CLR REQ [Off/On]	×	Displays the status of the position light request signal received from BCM via CAN communication.
HL LO REQ [Off/On]	×	Displays the status of the low beam request signal received from BCM via CAN communication.
HL HI REQ [Off/On]	×	Displays the status of the high beam request signal received from BCM via CAN communication.
FR FOG REQ [Off/On]	×	Displays the status of the front fog light request signal received from BCM via CAN communication.
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Displays the status of the front wiper request signal received from BCM via CAN communication.
WIP AUTO STOP [STOP P/ACT P]	×	Displays the status of the front wiper auto stop signal judged by IPDM E/R.
WIP PROT [Off/BLOCK]	×	Displays the status of the front wiper fail-safe operation judged by IPDM E/R.
IGN RLY1 -REQ [Off/On]		Displays the status of the power switch ON signal received from BCM via CAN communication.
IGN RLY [Off/On]	×	Displays the status of the ignition relay judged by IPDM E/R.
PUSH SW [Off/On]		Displays the status of the power switch judged by IPDM E/R.
INTER/NP SW [Off/On]		NOTE: The item is indicated, but not monitored.
ST RLY CONT [Off/On]		NOTE: The item is indicated, but not monitored.
IHBT RLY -REQ [Off/On]		NOTE: The item is indicated, but not monitored.
ST/INHI RLY [Off/ ST ON/INHI ON/UNKWN]		NOTE: The item is indicated, but not monitored.
DETENT SW [Off/On]		Displays the status of the P position signal judged by IPDM E/R.
S/L RLY -REQ [Off/On]		NOTE: The item is indicated, but not monitored.
S/L STATE [LOCK/UNLK/UNKWN]		NOTE: The item is indicated, but not monitored.
DTRL REQ [Off/On]		NOTE: The item is indicated, but not monitored.
OIL P SW [Open/Close]		NOTE: The item is indicated, but not monitored.
HOOD SW [Off/On]		Displays the status of the hood switch judged by IPDM E/R.
HL WASHER REQ [Off/On]		NOTE: The item is indicated, but not monitored.
THFT HRN REQ [Off/On]		Displays the status of the theft warning horn request signal received from BCM via CAN communication.
HORN CHIRP [Off/On]		Displays the status of the horn reminder signal received from BCM via CAN communication.

ACTIVE TEST

Test item

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R]

Test item	Operation	Description
HORN	On	Operates horn relay for 20 ms.
REAR DEFOGGER	Off	OFF
	On	Operates the rear window defogger relay.
FRONT WIPER	Off	OFF
	Lo	Operates the front wiper relay.
	Hi	Operates the front wiper relay and front wiper high relay.
MOTOR FAN	1	NOTE: This item is indicated, but cannot be tested.
	2	
	3	
	4	
HEAD LAMP WASHER	On	NOTE: This item is indicated, but cannot be tested.
EXTERNAL LAMPS	Off	OFF
	TAIL	Operates the tail lamp relay.
	Lo	Operates the headlamp low relay.
	Hi	Operates the headlamp low relay and ON/OFF the headlamp high relay at 1 second intervals.
	Fog	Operates the front fog lamp relay.

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ECU DIAGNOSIS INFORMATION

IPDM E/R

Reference Value

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VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition		Value/Status
AC COMP REQ	NOTE: The item is indicated, but not monitored.		Off
TAIL&CLR REQ	Lighting switch OFF		Off
	<ul style="list-style-type: none"> • Lighting switch 1ST, 2ND or AUTO (Light is illuminated) • Daytime running light system operated 		On
HL LO REQ	Lighting switch OFF		Off
	Lighting switch 2ND or AUTO (Light is illuminated)		On
HL HI REQ	Lighting switch 2ND or AUTO (light is illuminated)	Lighting switch other than HI and PASS	Off
		Lighting switch HI or PASS	On
FR FOG REQ	Lighting switch 1ST, 2ND or AUTO (Light is illuminated)	Front fog lamp switch OFF	Off
		Front fog lamp switch ON	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
INTER/NP SW	NOTE: The item is indicated, but not monitored.		Off
ST RLY CONT	NOTE: The item is indicated, but not monitored.		Off
IHBT RLY -REQ	NOTE: The item is indicated, but not monitored.		Off
ST/INHI RLY	NOTE: The item is indicated, but not monitored.		Off
DETENT SW	Power switch ON	Shift position in any position other than P	Off
		Shift position in P position	On
S/L RLY -REQ	NOTE: The item is indicated, but not monitored.		Off

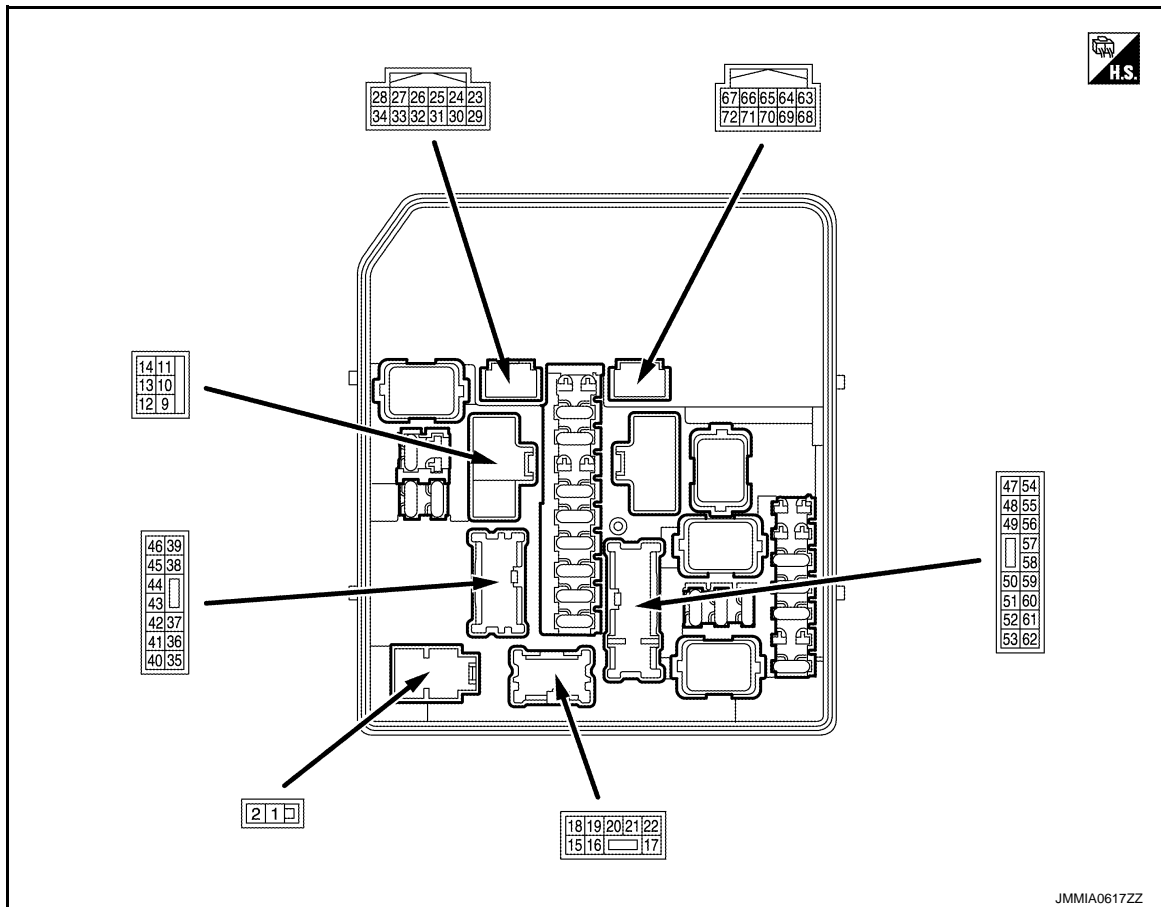
IPDM E/R

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

Monitor Item	Condition	Value/Status
S/L STATE	NOTE: The item is indicated, but not monitored.	UNLK
DTRL REQ	NOTE: The item is indicated, but not monitored.	Off
OIL P SW	NOTE: The item is indicated, but not monitored.	Open
HOOD SW	NOTE: The item is indicated, but not monitored.	Off
HL WASHER REQ	NOTE: The item is indicated, but not monitored.	Off
THFT HRN REQ	Not operation.	Off
	<ul style="list-style-type: none"> Panic alarm is activated Theft warning alarm is activated 	On
HORN CHIRP	Not operation.	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	6 – 16 V
2 (G)	Ground	Battery power supply	Input	Power switch OFF	6 – 16 V

IPDM E/R

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

Terminal NO. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
9 (B)	Ground	Ground	—	Power switch ON		0 – 1 V
14 (R)	Ground	Rear window defogger	Output	Power switch OFF	Rear window defogger switch OFF	0 – 1 V
				Power switch ON	Rear window defogger switch ON	9 – 16 V
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	9 – 16 V
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	9 – 16 V
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	9 – 16 V
26 (P)	Ground	CAN-L	Input/ Output	—		—
27 (L)	Ground	CAN-H	Input/ Output	—		—
34 (W)	Ground	Vehicle security horn relay control	Output	Vehicle security horn relay is deactivated		9 – 16 V
				Vehicle security horn relay is activated		0 – 1 V
35 (G)	Ground	SSOFF relay power supply	Output	Power switch OFF (More than a few seconds after turning power switch OFF)		0 – 1 V
				<ul style="list-style-type: none"> • Power switch ON • Power switch OFF (For a few seconds after turning power switch OFF) 		6 – 16 V
36 (GR)	Ground	SSOFF relay power supply	Output	Power switch OFF (More than a few seconds after turning power switch OFF)		0 – 1 V
				<ul style="list-style-type: none"> • Power switch ON • Power switch OFF (For a few seconds after turning power switch OFF) 		6 – 16 V
38 (V)	Ground	Rear combination lamp LH	Output	Lighting switch OFF		0 – 1 V
				Lighting switch 1ST		9 – 16 V
39 (L)	Ground	Front wiper HI	Output	Power switch ON	Front wiper switch OFF	0 – 1 V
					Front wiper switch HI	9 – 16 V
41 (W)	Ground	SSOFF relay control	Output	Power switch OFF (More than a few seconds after turning power switch OFF)		6 – 16 V
				<ul style="list-style-type: none"> • Power switch ON • Power switch OFF (For a few seconds after turning power switch OFF) 		0 – 1 V
42 (R)	Ground	VCM power supply	Output	Power switch OFF		6 – 16 V

IPDM E/R

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

Terminal NO. (Wire color)		Description		Condition	Value (Approx.)	
		Signal name	Input/ Output			
+	-					
43 (O)	Ground	Parking lamp LH	Output	Lighting switch OFF	0 – 1 V	A
				Lighting switch 1ST	9 – 16 V	B
44 (LG)	Ground	Rear combination lamp RH and illuminations	Output	Lighting switch OFF	0 – 1 V	C
				Lighting switch 1ST	9 – 16 V	
45 (Y)	Ground	Front wiper LO	Output	Power switch OFF	0 – 1 V	D
				Power switch ON	9 – 16 V	
49 (Y)	Ground	Headlamp HI (RH)	Output	Lighting switch OFF	0 – 1 V	E
				Lighting switch 2ND or AUTO	9 – 16 V	
50 (G)	Ground	Headlamp HI (LH)	Output	Lighting switch OFF	0 – 1 V	F
				Lighting switch 2ND or AUTO	9 – 16 V	
51 (L)	Ground	Headlamp LO (LH)	Output	Lighting switch OFF	0 – 1 V	G
				Lighting switch 2ND and AUTO (light is illuminated)	9 – 16 V	
52 (P)	Ground	Headlamp LO (RH)	Output	Lighting switch OFF	0 – 1 V	H
				Lighting switch 2ND and AUTO (light is illuminated)	9 – 16 V	
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	I
				Power switch ON Power switch OFF (For a few seconds after turning power switch OFF)	6 – 16 V	J
57 (R)	Ground	Ignition relay power supply	Output	Power switch OFF or ACC	0 – 1 V	K
				Power switch ON	6 – 16 V	
58 (O)	Ground	Ignition relay power supply	Output	Power switch OFF or ACC	0 – 1 V	L
				Power switch ON	6 – 16 V	
60 (GR)	Ground	F/S relay control	Output	Power switch OFF or ACC	6 – 16 V	PCS
				Power switch ON	0 – 1 V	
61 (Y)	Ground	Ignition relay power supply	Output	Power switch OFF or ACC	0 – 1 V	N
				Power switch ON	6 – 16 V	
62 (V)	Ground	Ignition relay power supply	Output	Power switch OFF or ACC	0 – 1 V	O
				Power switch ON	6 – 16 V	
64 (P)	Ground	Electric shift control module	Input	Power switch OFF	0 – 1 V	P
				Power switch ON	9 – 16 V	
66 (W)	Ground	Power switch	Input	Press the power switch	0 – 1 V	
				Release the power switch	6 – 16 V	
68 (O)	Ground	Ignition relay control	Input	Power switch OFF or ACC	6 – 16 V	
				Power switch ON	0 – 1 V	

Fail-Safe

INFOID:000000006923051

CAN COMMUNICATION CONTROL

< ECU DIAGNOSIS INFORMATION >

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	<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • Parking lamp • License plate lamp • Illumination • Tail lamp • Side marker lamp 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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:000000006923052

NOTE:

< ECU DIAGNOSIS INFORMATION >

- 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.

x: Applicable

CONSULT display	Fail-safe	Refer to
No DTC is detected. further testing may be required.	—	—
U1000: CAN COMM CIRCUIT	×	PCS-24
B2098: IGN RELAY ON	×	PCS-25
B2099: IGN RELAY OFF	—	PCS-26

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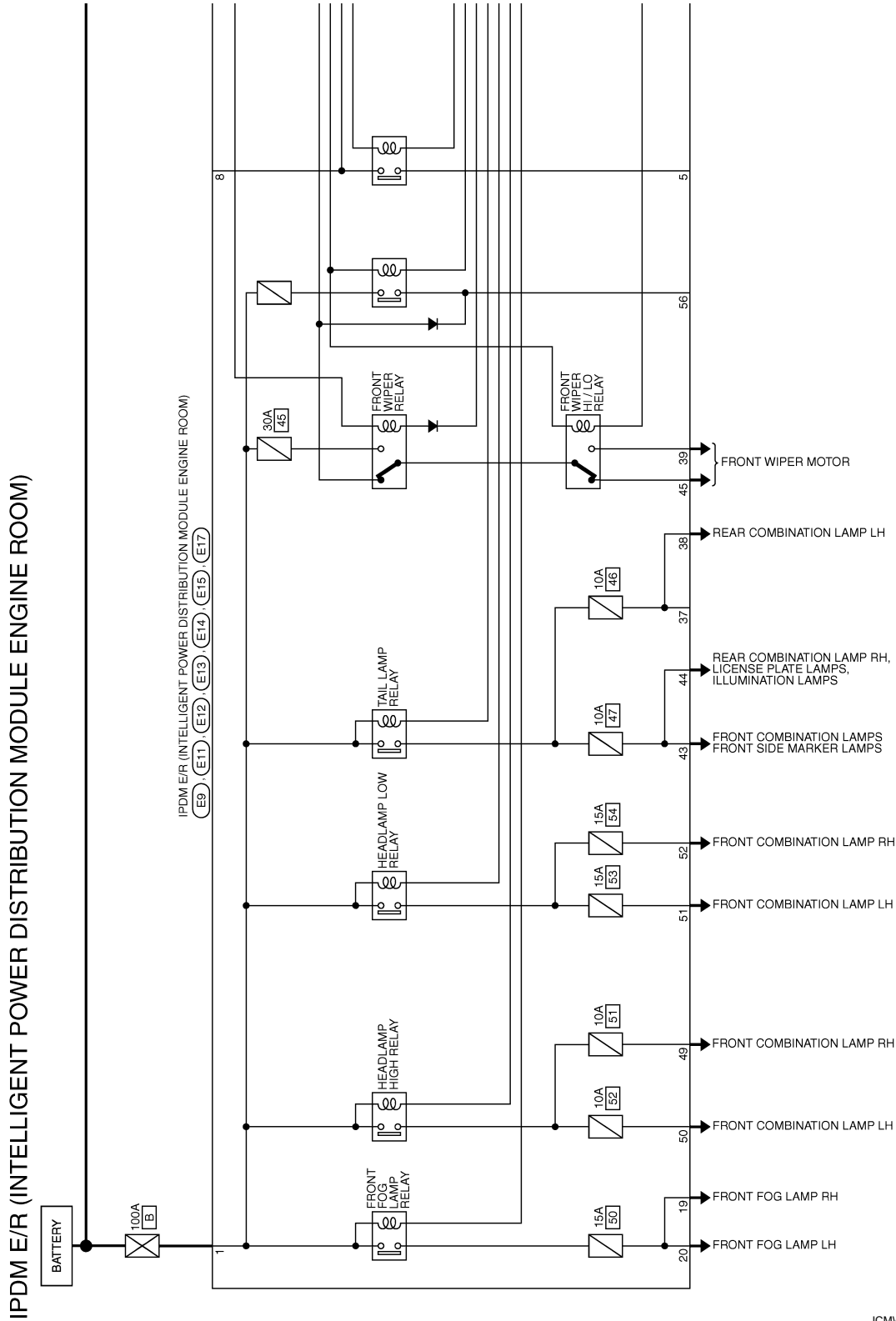
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WIRING DIAGRAM

IPDM E/R

Wiring Diagram

INFOID:000000006923053



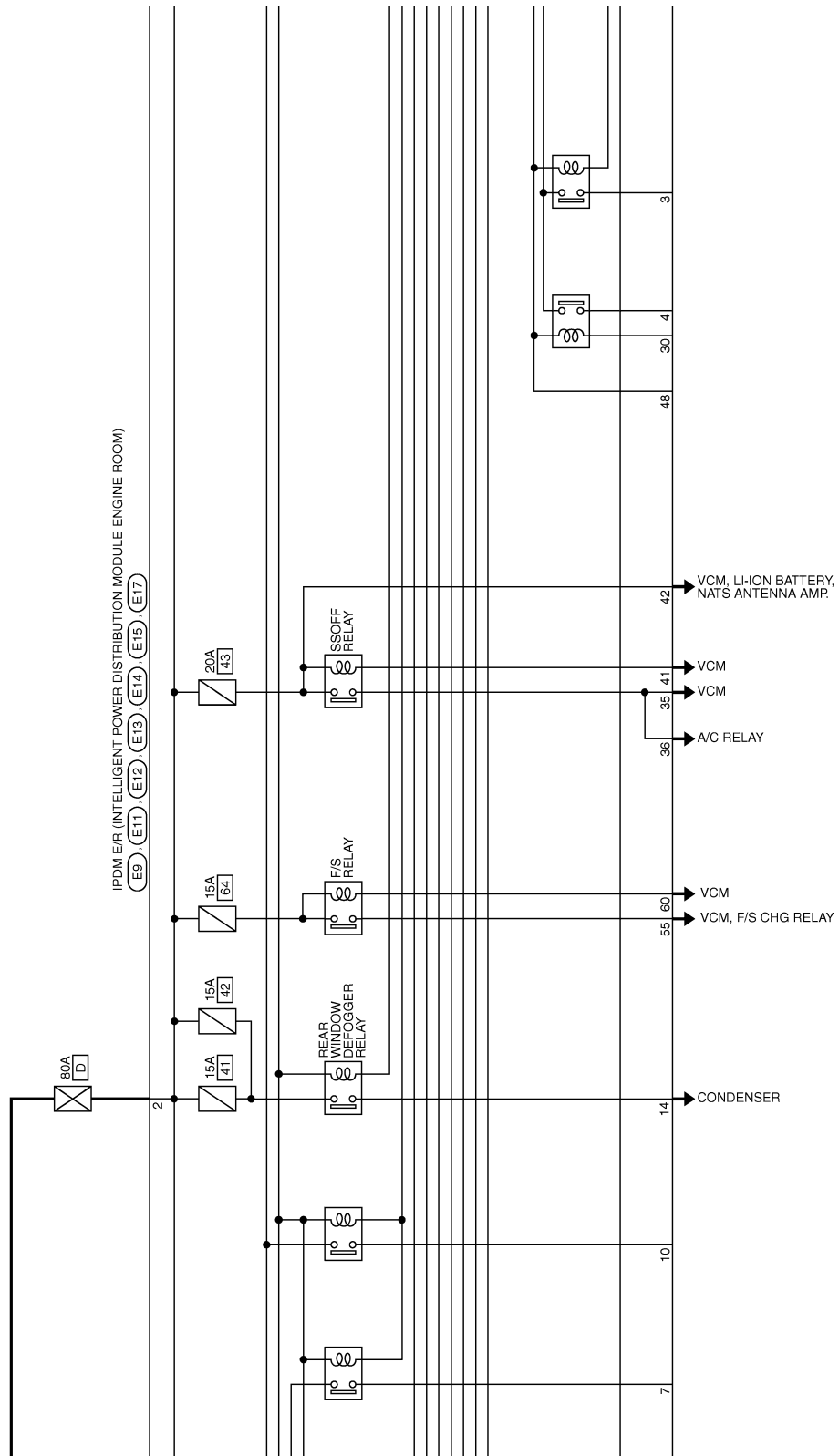
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IPDM E/R

< WIRING DIAGRAM >

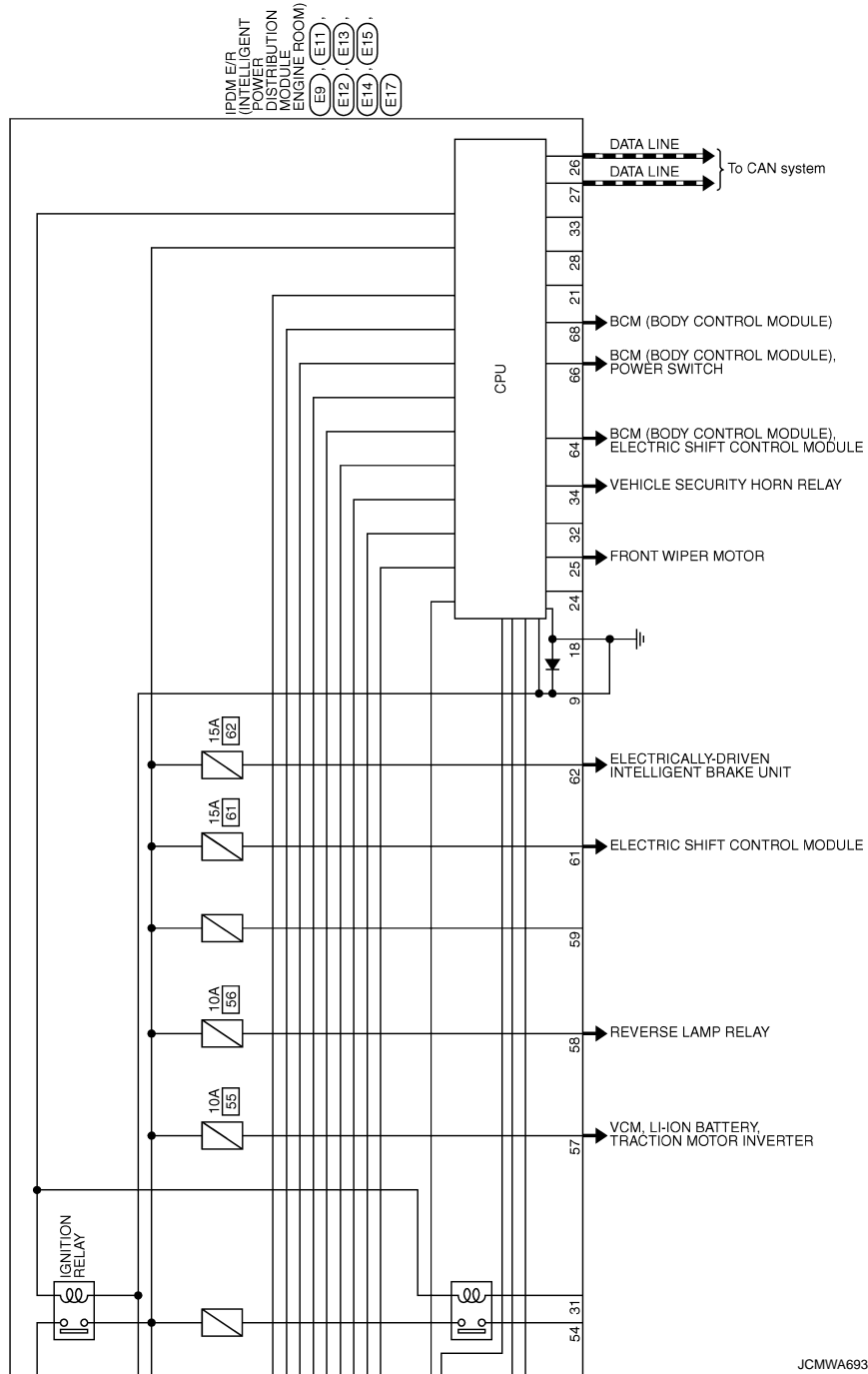
[IPDM E/R]



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PCS



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

Connector No.	E9
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	LC2FB-MC



1	2
---	---

Terminal No.	Color of Wire	Signal Name [Specification]
1	R	-
2	G	-

Connector No.	E11
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	MS2FB-LC



11	10	9
14	13	12

Terminal No.	Color of Wire	Signal Name [Specification]
9	B	-
14	R	-

Connector No.	E12
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS28FB-CS



17	16	15
22	21	20
19	18	18

Terminal No.	Color of Wire	Signal Name [Specification]
18	B/W	-
18	W	-

Connector No.	E13
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH12FB-NH



23	27	26	25	24	23
34	33	32	31	30	29

Terminal No.	Color of Wire	Signal Name [Specification]
25	R	-
26	P	-
27	L	-
34	W	-

Connector No.	E14
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS12FB-CS



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

Terminal No.	Color of Wire	Signal Name [Specification]
35	G	-
36	GR	-
38	V	-
39	L	-
41	W	-
42	R	-
43	O	-
44	LG	-
45	Y	-

Connector No.	E15
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS18FB-CS



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

Terminal No.	Color of Wire	Signal Name [Specification]
49	Y	-
50	G	-
51	L	-
52	P	-
55	LG	-
57	R	-
58	O	-
60	GR	-
61	Y	-
62	V	-

Connector No.	E17
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH10FB-NH



67	66	65	64	63
72	71	70	69	68

Terminal No.	Color of Wire	Signal Name [Specification]
64	P	-
66	W	-
68	O	-

JCMWA6934GB

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:000000006923054

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-33, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

DTC Logic

INFOID:000000006923055

DTC DETECTION LOGIC

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

Diagnosis Procedure

INFOID:000000006923056

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-15, "Trouble Diagnosis Flow Chart"](#).
 NO >> Refer to [GI-51, "Intermittent Incident"](#).

B2098 IGNITION RELAY ON STUCK

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

B2098 IGNITION RELAY ON STUCK

Description

INFOID:000000006923057

- IPDM E/R operates the ignition relay when it receives an power switch ON signal from BCM via CAN communication.
- Turn the ignition relay OFF by pressing the power switch once when the vehicle speed is 4 km/h (2.5 MPH) or less.
- Turn the ignition relay OFF with the following operation when the vehicle speed is more than 4 km/h (2.5 MPH) or when an abnormal condition occurs in CAN communication from the combination meter (Emergency OFF)
 - Press and hold the power switch for 2 seconds or more.
 - Press the power switch 3 times within 1.5 seconds.

NOTE:

The ignition relay does not turn ON for 3 seconds after emergency OFF even if the power switch is pressed.

DTC Logic

INFOID:000000006923058

DTC DETECTION LOGIC

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

- YES >> Refer to [PCS-25, "Diagnosis Procedure"](#).
- NO >> INSPECTION END.

Diagnosis Procedure

INFOID:000000006923059

1.PERFORM SELF DIAGNOSIS

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

Is DTC "B2098" displayed?

- YES >> Replace IPDM E/R. Refer to [PCS-28, "Removal and Installation"](#).
- NO >> Refer to [GI-51, "Intermittent Incident"](#).

B2099 IGNITION RELAY OFF STUCK

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

B2099 IGNITION RELAY OFF STUCK

Description

INFOID:000000006923060

- IPDM E/R operates the ignition relay when it receives an power switch ON signal from BCM via CAN communication.
- Turn the ignition relay OFF by pressing the push-button power switch once when the vehicle speed is 4 km/h (2.5 MPH) or less.
- Turn the ignition relay OFF with the following operation when the vehicle speed is more than 4 km/h (2.5 MPH) or when an abnormal condition occurs in CAN communication from the combination meter (Emergency OFF)
 - Press and hold the power switch for 2 seconds or more.
 - Press the power switch 3 times within 1.5 seconds.

NOTE:

The ignition relay does not turn ON for 3 seconds after emergency OFF even if the power switch is pressed.

DTC Logic

INFOID:000000006923061

DTC DETECTION LOGIC

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

NOTE:

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

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

- YES >> Refer to [PCS-26, "Diagnosis Procedure"](#).
NO >> INSPECTION END.

Diagnosis Procedure

INFOID:000000006923062

1. PERFORM SELF DIAGNOSIS

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

Is DTC "B2099" displayed?

- YES >> Replace IPDM E/R. Refer to [PCS-28, "Removal and Installation"](#).
NO >> Refer to [GI-51, "Intermittent Incident"](#).

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:000000006923063

1. CHECK FUSES AND FUSIBLE LINK

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

Signal name	Fuses and fusible link No.
Battery power supply	B (100 A)
	D (80 A)

Is the fuse fusing?

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

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

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

(+)		(-)	Voltage (Approx.)
IPDM E/R			
Connector	Terminal	Ground	6 – 16 V
E9	1		
	2		

Is the measurement value normal?

YES >> GO TO 3.

NO >> Repair the harness or connector.

3. CHECK GROUND CIRCUIT

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

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

Does continuity exist?

YES >> INSPECTION END

NO >> Repair the harness or connector.

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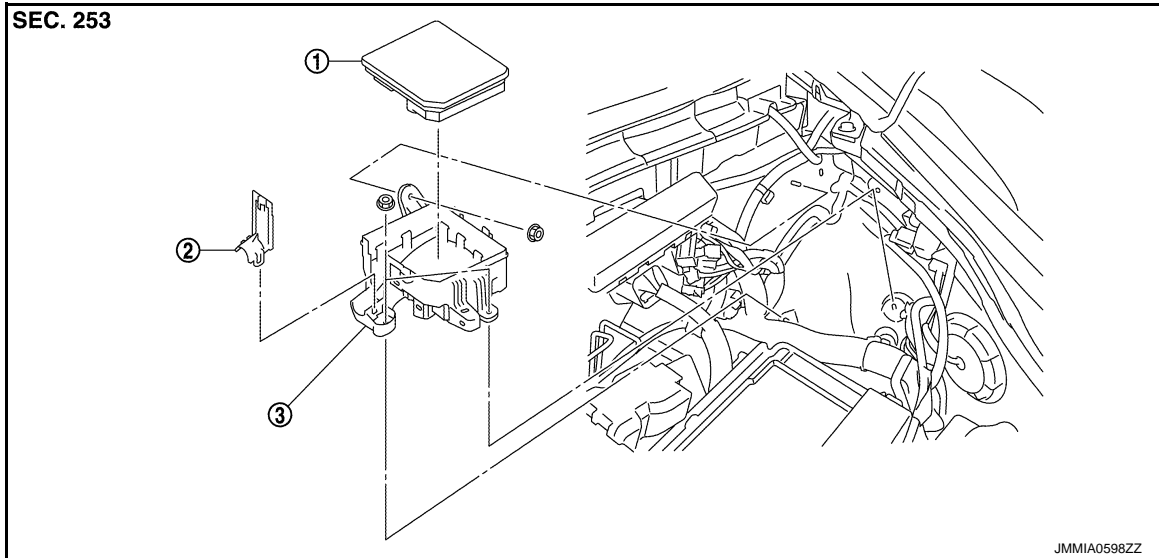
PCS

REMOVAL AND INSTALLATION

IPDM E/R

Exploded View

INFOID:000000006923064



1. IPDM E/R

2. IPDM E/R cover A

3. IPDM E/R cover B

Removal and Installation

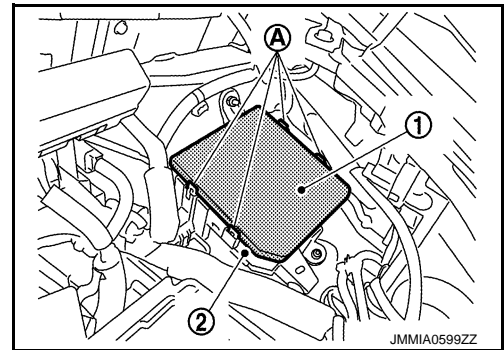
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CAUTION:

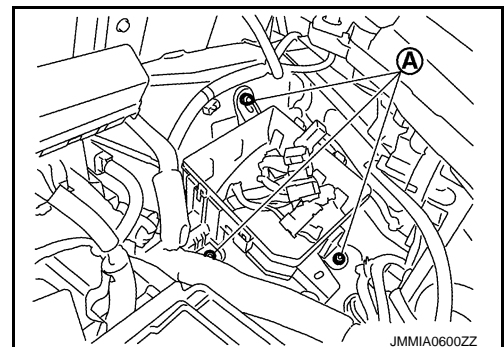
To prevent damage to the parts, IPDM E/R integrated relays cannot be removed.

REMOVAL

1. Remove 12V battery. Refer to [PG-104. "Removal and Installation"](#).
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).

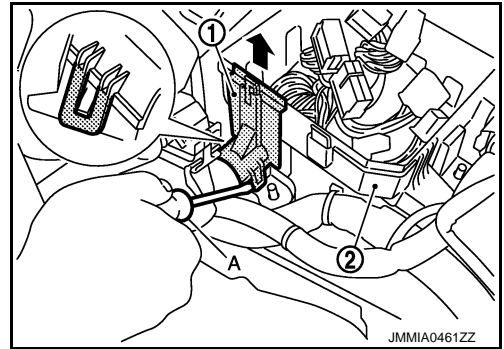


IPDM E/R

< REMOVAL AND INSTALLATION >

[IPDM E/R]

5. Insert a flat-bladed screwdriver 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.

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PCS

PRECAUTION

PRECAUTIONS

Precaution for Technicians Using Medical Electric

INFOID:000000007071880

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 on board charger at normal charge operation may effect medical electric devices, a technician using a medical electric device such as implantable cardiac pacemaker or an implantable cardioverter defibrillator must not enter the vehicle compartment (including luggage room) 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:000000007079491

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:000000007003269

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

PRECAUTIONS

[POWER DISTRIBUTION SYSTEM]

< PRECAUTION >

system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see "SRS AIR BAG".
- Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

Always observe the following items for preventing accidental activation.

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the power switch ON, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the power switch OFF, disconnect the 12V battery, and wait at least 3 minutes before performing any service.

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COMPONENT PARTS

< SYSTEM DESCRIPTION >

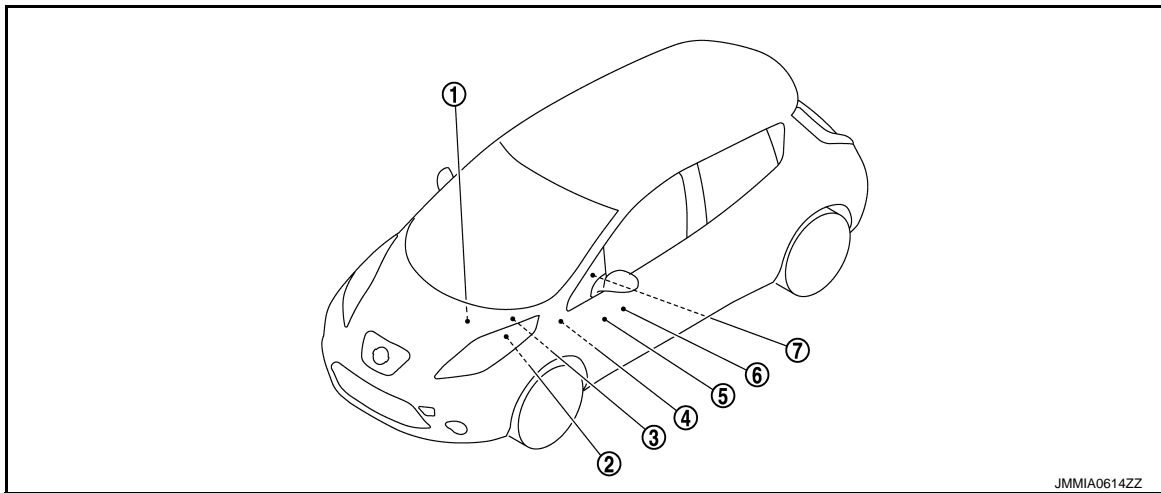
[POWER DISTRIBUTION SYSTEM]

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000006923069



JMMIA0614ZZ

No.	Component	Description
1.	Power switch	Refer to PCS-33, "Power Switch" .
2.	IPDM E/R	<ul style="list-style-type: none"> 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 (IPDM E/R) control signal and power switch ON signal (CAN) from BCM, and controls ignition relay (built in IPDM E/R) Refer to PCS-5, "Component Parts Location" for detailed installation location.
3.	Stop lamp switch	Stop lamp switch detects that brake pedal is depressed, and transmits the signal to BCM. Refer to BRC-9, "Component Parts Location" for detailed installation location.
4.	BCM	<ul style="list-style-type: none"> 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.
5.	Accessory relay	<ul style="list-style-type: none"> 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 ACC or ON. BCM compares status of accessory relay control signal, and power supply position judged by BCM.
6.	Ignition relay	<ul style="list-style-type: none"> Ignition relay (built in fuse block) is controlled by BCM. Ignition relay (built in fuse block) 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 (built in fuse block) control signal and power supply position judged by BCM.
7.	Electric shift control module	Electric shift control module transmits P position signal and P/N position signal to BCM. Refer to TM-26, "Component Parts Location" for detailed installation location.

COMPONENT PARTS

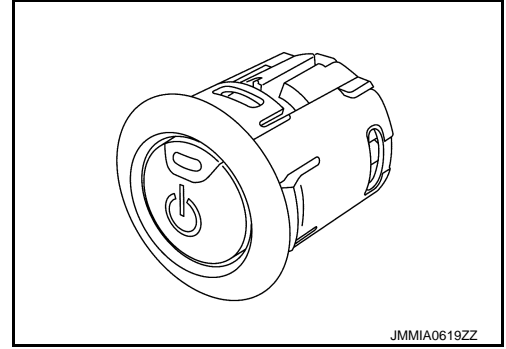
< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

Power Switch

INFOID:000000006923070

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



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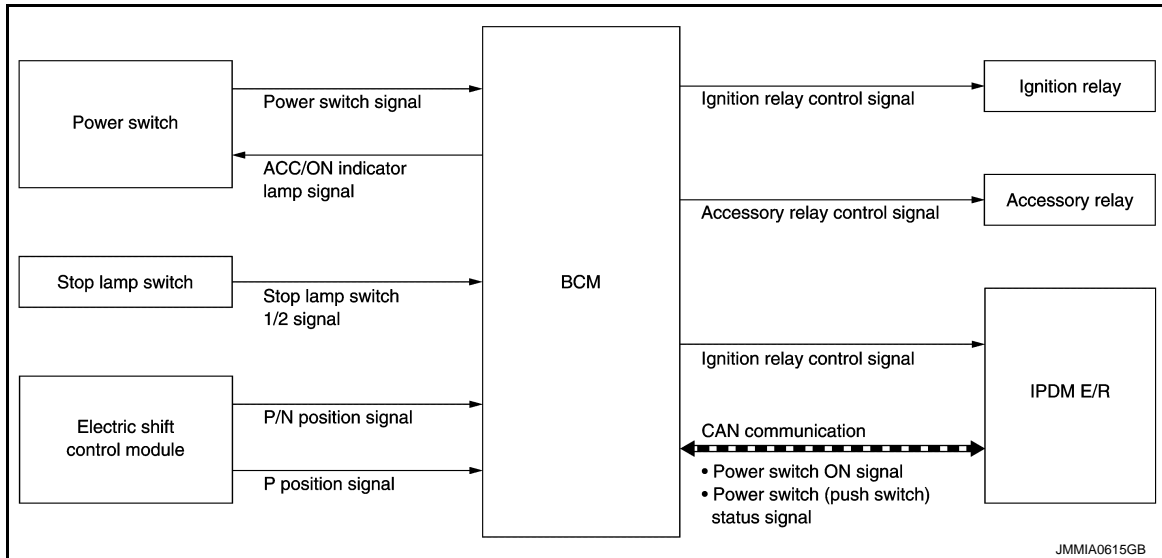
SYSTEM

POWER DISTRIBUTION SYSTEM

POWER DISTRIBUTION SYSTEM : System Description

INFOID:000000006923071

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 (IPDM E/R)
 - Ignition relay (fuse block)
 - 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 60 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

In order to prevent the 12V battery from discharging, the battery saver system will cut off the power supply when all doors are closed, the shift position is on P position and power switch is left on ACC position for 60 minutes. If any of the following conditions are met the battery saver system is released and the steering will change automatically to lock position from OFF position.

- Opening any door
- Operating 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-9. "INTELLIGENT KEY SYSTEM/READY SET FUNCTION : System Description"](#).

Fail-safe

INFOID:000000007001212

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
B2198: NATS ANTENNA AMP	Inhibit setting the vehicle to READY	Erase DTC
B261E: VEHICLE TYPE	Inhibit setting the vehicle to READY	When the VCM status signal is normally received from VCM.
B26F1: IGN RELAY OFF	Inhibit setting the vehicle to READY	When the following conditions are fulfilled <ul style="list-style-type: none"> • Power switch ON signal (CAN: Transmitted from BCM): ON • Power switch ON signal (CAN: Transmitted from IPDM E/R): ON
B26F2: IGN RELAY ON	Inhibit setting the vehicle to READY	When the following conditions are fulfilled <ul style="list-style-type: none"> • Power switch ON signal (CAN: Transmitted from BCM): OFF • Power switch ON signal (CAN: Transmitted from IPDM E/R): OFF
B26F7: BCM	Inhibit setting the vehicle to READY by Intelligent Key system	When room antenna and luggage room antenna functions normally
U0415: VEHICLE SPEED	Inhibit steering lock	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)

[POWER DISTRIBUTION SYSTEM]

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:000000007001211

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Diagnosis mode	Function Description
Work Support	Changes the setting for each system function.
Self Diagnostic Result	Displays the diagnosis results judged by BCM.
CAN Diag Support Monitor	Monitors the reception status of CAN communication viewed from BCM.
Data Monitor	The BCM input/output signals are displayed.
Active Test	The signals used to activate each device are forcibly supplied from BCM.
Ecu Identification	The BCM part number is displayed.
Configuration	<ul style="list-style-type: none"> Read and save the vehicle specification. Write the vehicle specification when replacing BCM.

SYSTEM APPLICATION

BCM can perform the following functions for each system.

NOTE:

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

×: Applicable item

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

*: This item is displayed, but not used.

FREEZE FRAME DATA (FFD)

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

DIAGNOSIS SYSTEM (BCM)

[POWER DISTRIBUTION SYSTEM]

< SYSTEM DESCRIPTION >

CONSULT screen item	Indication/Unit	Description		
Vehicle Speed	km/h	Vehicle speed of the moment a particular DTC is detected		A
Odo/Trip Meter	km	Total mileage (Odometer value) of the moment a particular DTC is detected		
Vehicle Condition	SLEEP>LOCK	Power supply position status of the moment a particular DTC is detected*	While turning BCM status from low power consumption mode to normal mode [Power supply position is OFF (LOCK)]	B
	SLEEP>OFF		While turning BCM status from low power consumption mode to normal mode [Power supply position is OFF (OFF)]	C
	LOCK>ACC		While turning power supply position from OFF (LOCK) to ACC	
	ACC>ON		While turning power supply position from ACC to ON	D
	RUN>ACC		While turning power supply position from READY (RUN) to ACC (Except emergency stop operation)	
	CRANK>RUN		While turning power supply position from READY (CRANK) to READY (RUN)	E
	RUN>URGENT		While turning power supply position from READY (RUN) to ACC (Emergency stop operation)	
	ACC>OFF		While turning power supply position from ACC to OFF (OFF)	F
	OFF>LOCK		While turning power supply position from OFF (OFF) to OFF (LOCK)	
	OFF>ACC		While turning power supply position from OFF (OFF) to ACC	G
	ON>CRANK		While turning power supply position from ON to READY (CRANK)	
	OFF>SLEEP		While turning BCM status from normal mode [Power supply position is OFF (OFF)] to low power consumption mode	H
	LOCK>SLEEP		While turning BCM status from normal mode [Power supply position is OFF (LOCK)] to low power consumption mode	I
	LOCK		Power supply position is OFF (LOCK)	
	OFF		Power supply position is OFF (OFF)	J
	ACC		Power supply position is ACC	
	ON		Power supply position is ON	K
	ENGINE RUN		Power supply position is READY (RUN)	
CRANKING	Power supply position is READY (CRANK)			
IGN Counter	0 - 39	The number of times that power switch is turned ON after DTC is detected <ul style="list-style-type: none"> • The number is 0 when a malfunction is detected now. • The number increases like 1 → 2 → 3...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. 		L

NOTE:

*: Refer to the following for details of the power supply position.

- OFF (OFF, LOCK): Power switch OFF
- ACC: Power switch ACC
- ON: Power switch ON
- READY (CRANK): Shifting to vehicle condition READY (Transmitting the READY signal from BCM to VCM)
- READY (RUN): Vehicle condition READY

Power supply position shifts to "OFF (LOCK)" from "OFF (OFF)", when power switch is in the OFF position, shift position is in the P position, and any of the following conditions are met.

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

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

INTELLIGENT KEY

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DIAGNOSIS SYSTEM (BCM)

[POWER DISTRIBUTION SYSTEM]

< SYSTEM DESCRIPTION >

INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)

INFOID:000000007001213

WORK SUPPORT

Monitor item	Description
INSIDE ANT DIAGNOSIS	This function allows inside key antenna self-diagnosis
LOCK/UNLOCK BY I-KEY	Door lock/unlock function by door request switch mode can be changed to operation in this mode <ul style="list-style-type: none"> • On: Operate • Off: Non-operation
ENGINE START BY I-KEY	READY set function mode can be changed to operation with this mode <ul style="list-style-type: none"> • On: Operate • Off: Non-operation
TRUNK/GLASS HATCH OPEN	NOTE: This item is displayed, but cannot be used
HORN WITH KEYLESS LOCK	Horn reminder function mode by Intelligent Key button can be changed to operate (ON) or not operate (OFF) with this mode <ul style="list-style-type: none"> • On: Operate • Off: Non-operation
PANIC ALARM SET	Panic alarm button pressing time on Intelligent Key remote control button can be selected from the following with this mode <ul style="list-style-type: none"> • MODE 1: 0.5 sec. • MODE 2: Non-operation • MODE 3: 1.5 sec.
TRUNK OPEN DELAY	NOTE: This item is displayed, but cannot be used
LO- BATT OF KEY FOB WARN	Intelligent Key low battery warning mode can be changed to operation with this mode <ul style="list-style-type: none"> • On: Operate • Off: Non-operation
ANTI KEY LOCK IN FUNCTI	Key reminder function mode can be changed to operation with this mode <ul style="list-style-type: none"> • On: Operate • Off: Non-operation
HAZARD ANSWER BACK	Hazard reminder function mode by door request switch and Intelligent Key button can be selected from the following with this mode <ul style="list-style-type: none"> • Lock Only: Door lock operation only • Unlock Only: Door unlock operation only • Lock/Unlock: Lock and unlock operation • Off: Non-operation
ANS BACK I-KEY LOCK	Buzzer reminder function (lock operation) mode by door request switch can be selected from the following with this mode <ul style="list-style-type: none"> • Horn Chirp: Sound horn • Buzzer: Sound Intelligent Key warning buzzer • Off: Non-operation
ANS BACK I-KEY UNLOCK	Buzzer reminder function (unlock operation) mode by door request switch can be changed to operation with this mode <ul style="list-style-type: none"> • On: Operate • Off: Non-operation
SHORT CRANKING OUTPUT	NOTE: This item is displayed, but cannot be used
CONFIRM KEY FOB ID	It can be checked whether Intelligent Key ID code is registered or not in this mode
AUTO LOCK SET	Auto door lock operation time can be changed in this mode <ul style="list-style-type: none"> • MODE 1: OFF • MODE 2: 30 sec. • MODE 3: 1 minute • MODE 4: 2 minutes • MODE 5: 3 minutes • MODE 6: 4 minutes • MODE 7: 5 minutes

DIAGNOSIS SYSTEM (BCM)

[POWER DISTRIBUTION SYSTEM]

< SYSTEM DESCRIPTION >

SELF-DIAG RESULT

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

DATA MONITOR

Monitor Item	Condition
REQ SW -DR	Indicates [On/Off] condition of door request switch (driver side)
REQ SW -AS	Indicates [On/Off] condition of door request switch (passenger side)
REQ SW -BD/TR	Indicates [On/Off] condition of back door request switch
PUSH SW	Indicates [On/Off] condition of power switch
CLUTCH SW	NOTE: This item is displayed, but cannot be monitored
BRAKE SW 1	Indicates [On/Off]* condition of stop lamp switch power supply
BRAKE SW 2	Indicates [On/Off] condition of stop lamp switch
DETE/CANCL SW	Indicates [On/Off] condition of P position
SFT PN/N SW	Indicates [On/Off] condition of P or N position
UNLK SEN -DR	Indicates [On/Off] condition of driver door UNLOCK status
PUSH SW -IPDM	Indicates [On/Off] condition of power switch
IGN RLY1 -F/B	Indicates [On/Off] condition of ignition relay 1
DETE SW -IPDM	Indicates [On/Off] condition of P position
SFT PN -IPDM	NOTE: This item is displayed, but cannot be monitored
SFT P -MET	Indicates [On/Off] condition of P position
SFT N -MET	Indicates [On/Off] condition of N position
ENGINE STATE	NOTE: This item is displayed, but cannot be monitored
S/L LOCK-IPDM	NOTE: This item is displayed, but cannot be monitored
S/L UNLK-IPDM	NOTE: This item is displayed, but cannot be monitored
S/L RELAY-REQ	NOTE: This item is displayed, but cannot be monitored
VEH SPEED 1	Display the vehicle speed signal received from combination meter by numerical value [km/h]
VEH SPEED 2	Display the vehicle speed signal received from ABS actuator and electric unit (control unit) by numerical value [km/h]
DOOR STAT-DR	Indicates [LOCK/READY/UNLK] condition of driver side door status
DOOR STAT-AS	Indicates [LOCK/READY/UNLK] condition of passenger side door status
ID OK FLAG	Indicates [Set/Reset] condition of key ID
PRMT ENG STRT	Indicates [Set/Reset] condition of ENGINE START BY I-KEY setting in WORK SUPPORT mode
PRMT RKE STRT	NOTE: This item is displayed, but cannot be monitored
TRNK/HAT MNTR	NOTE: This item is displayed, but cannot be monitored
RKE-LOCK	Indicates [On/Off] condition of LOCK signal from Intelligent Key
RKE-UNLOCK	Indicates [On/Off] condition of UNLOCK signal from Intelligent Key
RKE-TR/BD	NOTE: This item is displayed, but cannot be monitored
RKE-PANIC	Indicates [On/Off] condition of PANIC button of Intelligent Key
RKE-MODE CHG	Indicates [On/Off] condition of MODE CHANGE signal from Intelligent Key

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DIAGNOSIS SYSTEM (BCM)

[POWER DISTRIBUTION SYSTEM]

< SYSTEM DESCRIPTION >

Monitor Item	Condition
RKE OPE COUN1	When remote keyless entry receiver receives the signal transmitted while operating on Intelligent Key, the numerical value start changing
RKE OPE COUN2	NOTE: This item is displayed, but cannot be monitored

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

ACTIVE TEST

Test item	Description
OUTSIDE BUZZER	This test is able to check Intelligent Key warning buzzer operation <ul style="list-style-type: none"> • On: Operate • Off: Non-operation
INSIDE BUZZER	This test is able to check warning chime in combination meter operation <ul style="list-style-type: none"> • Take Out: Take away warning chime sounds when CONSULT screen is touched • Key: Key warning chime sounds when CONSULT screen is touched • Knob: OFF position warning chime sounds when CONSULT screen is touched • Off: Non-operation
INDICATOR	This test is able to check warning lamp operation <ul style="list-style-type: none"> • KEY ON: "KEY" Warning lamp illuminates when CONSULT screen is touched • KEY IND: "KEY" Warning lamp blinks when CONSULT screen is touched • Off: Non-operation
INT LAMP	This test is able to check interior room lamp operation <ul style="list-style-type: none"> • On: Operate • Off: Non-operation
LCD	This test is able to check meter display information <ul style="list-style-type: none"> • Traction motor start information displays when "BP N" on CONSULT screen is touched • Traction motor start information displays when "BP I" on CONSULT screen is touched • Key ID warning displays when "ID NG" on CONSULT screen is touched • ROTAT: This item is displayed, but cannot be used • INSRT: This item is displayed, but cannot be used • Intelligent Key low battery warning displays when "BATT" on CONSULT screen is touched • Take away warning displays when "OUTKEY" on CONSULT screen is touched • OFF position warning displays when "LK WN" on CONSULT screen is touched
FLASHER	This test is able to check security hazard lamp operation The hazard lamps are activated after "LH/RH/Off" on CONSULT screen is touched
HORN	This test is able to check horn operation <ul style="list-style-type: none"> • On: Operate • Off: Non-operation
P RANGE	This test is able to check P position signal from electric shift control unit <ul style="list-style-type: none"> • On: Operate • Off: Non-operation
ENGINE SW ILLUMI	This test is able to check power switch illumination operation Power switch illumination illuminates when "ON" on CONSULT screen is touched
PUSH SWITCH INDICATOR	This test is able to check LOCK indicator in power switch operation LOCK indicator in power switch illuminates when "ON" on CONSULT screen is touched
BATTERY SAVER	This test is able to check interior room lamp operation. The interior room lamp will be activated after "ON" on CONSULT screen is touched.
TRUNK/BACK DOOR	This test is able to check back door opener actuator open operation. This actuator opens when "Open" on CONSULT screen is touched.

ECU DIAGNOSIS INFORMATION

BCM, IPDM E/R

List of ECU Reference

INFOID:000000006923075

ECU	Reference
BCM	BCS-32, "Reference Value"
	BCS-52, "Fail-safe"
	BCS-53, "DTC Inspection Priority Chart"
	BCS-54, "DTC Index"
IPDM E/R	PCS-14, "Reference Value"
	PCS-17, "Fail-Safe"
	PCS-18, "DTC Index"

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POWER DISTRIBUTION SYSTEM

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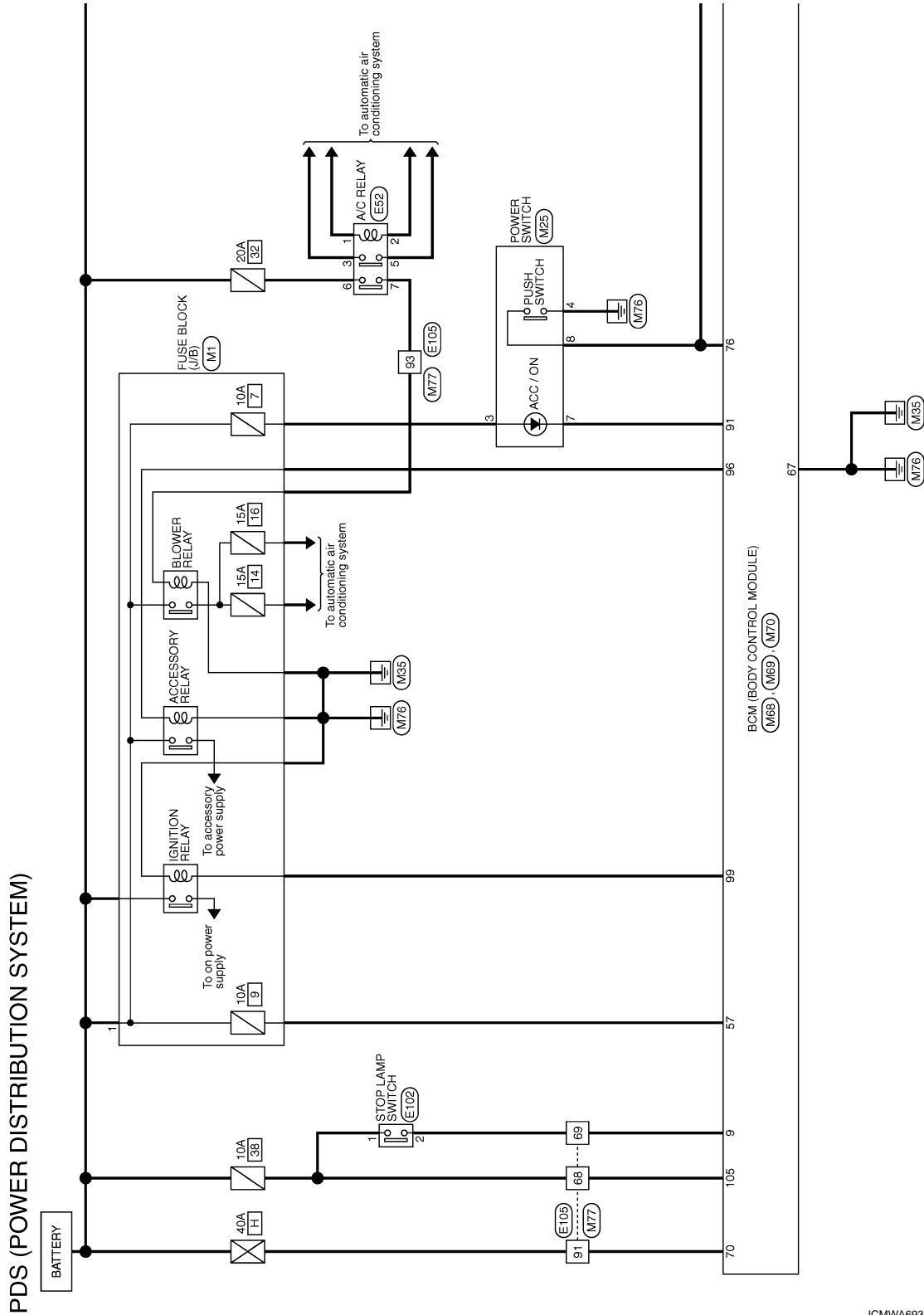
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WIRING DIAGRAM

POWER DISTRIBUTION SYSTEM

Wiring Diagram

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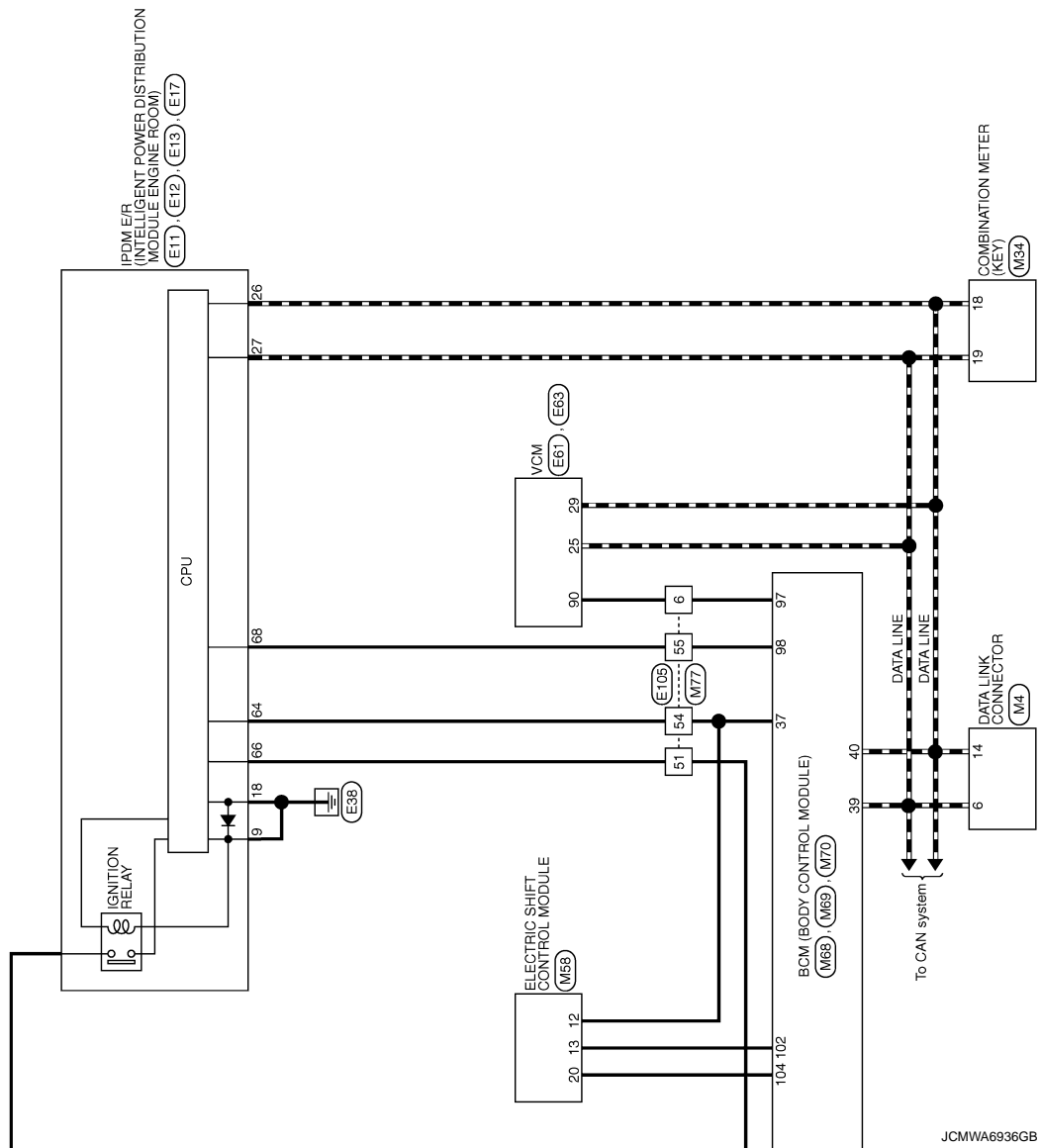
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POWER DISTRIBUTION SYSTEM

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[POWER DISTRIBUTION SYSTEM]



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POWER DISTRIBUTION SYSTEM

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[POWER DISTRIBUTION SYSTEM]

PDS (POWER DISTRIBUTION SYSTEM)

Connector No.	E11		
Connector Name	SMILE R INTELLIGENT POWER DISTRIBUTION MODULE (POWER ROOM)		
Connector Type	MD0FB-LC		

Terminal No.	9	B	R
Signal Name [Specification]			

Terminal No.	14	R
Signal Name [Specification]		

Connector No.	E12		
Connector Name	SMILE R INTELLIGENT POWER DISTRIBUTION MODULE (POWER ROOM)		
Connector Type	NS0FB-R-CS		

Terminal No.	17	16	15
Signal Name [Specification]			

Terminal No.	18	B/W	
Color of Wire			
Terminal No.	19	W	
Color of Wire			
Terminal No.	20	V	
Color of Wire			

Connector No.	E13		
Connector Name	SMILE R INTELLIGENT POWER DISTRIBUTION MODULE (POWER ROOM)		
Connector Type	TH12FW-NH		

Terminal No.	28	27	26	25	24	23
Signal Name [Specification]						

Terminal No.	25	R
Signal Name [Specification]		

Connector No.	E17		
Connector Name	SMILE R INTELLIGENT POWER DISTRIBUTION MODULE (POWER ROOM)		
Connector Type	TH10FB-NH		

Terminal No.	67	66	65	64	63
Signal Name [Specification]					

Terminal No.	72	71	70	69	68
Signal Name [Specification]					

Terminal No.	64	P
Color of Wire		
Terminal No.	66	W
Color of Wire		
Terminal No.	68	O
Color of Wire		

Connector No.	E82		
Connector Name	A/C RELAY		
Connector Type	MD0FB-R-LC		

Terminal No.	2	1
Signal Name [Specification]		

Terminal No.	1	GR	
Color of Wire			
Terminal No.	2	SB	
Color of Wire			
Terminal No.	3	R	
Color of Wire			
Terminal No.	5	V	
Color of Wire			
Terminal No.	6	R	
Color of Wire			
Terminal No.	7	W	
Color of Wire			

Connector No.	E61		
Connector Name	VCM		
Connector Type	RH24FY-R28-R-RH		

Terminal No.	1	5	19	13	17	21	25	29
Signal Name [Specification]								

Terminal No.	1	G
Color of Wire		
Terminal No.	4	B/R
Color of Wire		
Terminal No.	5	SB
Color of Wire		
Terminal No.	6	R
Color of Wire		
Terminal No.	7	W
Color of Wire		
Terminal No.	8	B/R
Color of Wire		
Terminal No.	9	L
Color of Wire		
Terminal No.	13	G
Color of Wire		
Terminal No.	15	O
Color of Wire		
Terminal No.	18	SB
Color of Wire		
Terminal No.	21	R
Color of Wire		
Terminal No.	23	P
Color of Wire		
Terminal No.	25	L
Color of Wire		
Terminal No.	26	Y
Color of Wire		
Terminal No.	28	W
Color of Wire		
Terminal No.	29	P
Color of Wire		

Connector No.	E63		
Connector Name	VCM		
Connector Type	RH24FB-R28-L-RH		

Terminal No.	81	85	89	105
Signal Name [Specification]				

Terminal No.	81	GR
Color of Wire		
Terminal No.	85	P
Color of Wire		
Terminal No.	86	V
Color of Wire		
Terminal No.	87	L
Color of Wire		
Terminal No.	88	Y
Color of Wire		

Terminal No.	89	V
Color of Wire		
Terminal No.	90	W
Color of Wire		
Terminal No.	91	O
Color of Wire		
Terminal No.	92	C
Color of Wire		
Terminal No.	96	GR
Color of Wire		
Terminal No.	104	SB
Color of Wire		
Terminal No.	105	L/O
Color of Wire		
Terminal No.	107	W/L
Color of Wire		
Terminal No.	108	BR
Color of Wire		
Terminal No.	110	L/Y
Color of Wire		
Terminal No.	111	B/R
Color of Wire		
Terminal No.	112	B/R
Color of Wire		

Connector No.	E102		
Connector Name	STOP LAMP SWITCH		
Connector Type	IM04FW-LC		

Terminal No.	3	4
Signal Name [Specification]		

Terminal No.	1	W
Color of Wire		
Terminal No.	2	SB
Color of Wire		
Terminal No.	3	LG
Color of Wire		
Terminal No.	4	P
Color of Wire		

POWER DISTRIBUTION SYSTEM

[POWER DISTRIBUTION SYSTEM]

< WIRING DIAGRAM >

PDS (POWER DISTRIBUTION SYSTEM)

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS (E-TM4)



Terminal No.	Color of Wire	Signal Name [Specification]
1	BR	-
2	R	-
3	GR	-
4	LG	-
6	W	-
7	V	-
8	P	-
9	G	-
10	R	-
11	O	-
12	W	-
13	B	-
14	Y	-
15	BR	-
16	LG	-
17	L	-
19	G	-
20	V	-
21	P	-
22	LG	-
23	GR	-
24	L	-
25	R	-
26	SB	-
27	B	-
28	BR	-
30	W	-
31	V	-
32	LG	-
33	O	-
34	L	-
35	BR	-
38	SB	-
39	GR	-
40	Y	-
41	R	-
42	W	-
43	SB	-

44	GR	-
45	G	-
46	P	-
47	LG	-
48	V	-
49	G	-
50	L	-
51	W	-
54	P	-
55	O	-
56	Y	-
57	P	-
58	LG	-
60	LG	-
61	GR	-
62	BR	-
64	R	-
65	Y	-
66	G	-
67	V	-
68	W	-
69	SB	-
71	Y	-
72	L	-
73	R	-
74	L	-
75	V	-
76	P	-
80	O	-
81	L	-
82	SB	-
83	G	-
84	BR	-
85	LG	-
86	GR	-
88	B	-
89	W	-
90	SHIELD	-
91	Y	-
92	BR	-
93	W	-
94	R	-
95	V	-
96	P	-
97	G	-
98	SB	-
99	O	-

Connector No.	M1
Connector Name	FUSE BLOCK (U/B)
Connector Type	L01FH-MC



Terminal No.	Color of Wire	Signal Name [Specification]
1	W	-

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



Terminal No.	Color of Wire	Signal Name [Specification]
3	LG	-
4	B	-
5	B	-
6	L	-
7	GR	-
8	G	-
11	SB	-
12	G	-
13	L	-
14	P	-
16	Y	-

Connector No.	ME5
Connector Name	POWER SWITCH
Connector Type	TK03FER



Terminal No.	Color of Wire	Signal Name [Specification]
3	G	-
4	B	-
5	W	-
6	B	-
7	V	-
8	SB	-

JCMWA6938GB

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POWER DISTRIBUTION SYSTEM

PDS (POWER DISTRIBUTION SYSTEM)

Connector No.	M34
Connector Name	COMBINATION METER
Connector Type	TH4DFV-NH



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
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Terminal No.	Color of Wire	Signal Name [Specification]
1	LG	BATTERY POWER SUPPLY
2	R	BATTERY POWER SUPPLY (FOR UPPER METER)
3	GR	POWER SWITCH SUPPLY
4	BR	POWER SWITCH SUPPLY (FOR UPPER METER)
5	B	GROUND
6	B	GROUND
7	V	ELECTRIC SHIFT WARNING SIGNAL
8	G	PLUG IN SIGNAL
9	L	COMMUNICATION SIGNAL (METER → VSP)
10	L	COMMUNICATION SIGNAL (VSP → METER)
11	P	METER CONTROLSWITCH GROUND
12	V	METER SWITCH SIGNAL
13	LG	ENTER SWITCH SIGNAL
14	W	SELECT SWITCH SIGNAL
15	BR	TRIP RESET SWITCH SIGNAL
16	BR	ILLUMINATION CONTROL SWITCH SIGNAL
17	V	ILLUMINATION CONTROL SIGNAL (FOR UPPER METER)
18	P	CAN-H
19	L	SEAT BELT BUCKLE SWITCH SIGNAL (PASSENGER SIDE)
20	V	GROUND (FOR UPPER METER)
21	GR	ELECTRIC PARKING BRAKE CONTROL MODULE WAKEUP SIGNAL
22	BR	BRAKE FLUID LEVEL SWITCH SIGNAL
23	SB	ILLUMINATION CONTROL SIGNAL
24	B	AIR BAG SIGNAL
25	R	SECURITY SIGNAL
26	R	VEHICLE SPEED SIGNAL (3-PULSE)
27	W	COMMUNICATION SIGNAL (METER → UPPER)
28	W	COMMUNICATION SIGNAL (UPPER → METER)
29	LG	PLUG IN INDICATOR LAMP SIGNAL
30	L	LED HEADLAMP (RH) WARNING SIGNAL
31	V	LED HEADLAMP (LH) WARNING SIGNAL
32	V	SEAT BELT BUCKLE SWITCH SIGNAL (DRIVER SIDE)

Connector No.	M69
Connector Name	ELECTRIC SHIFT CONTROL MODULE
Connector Type	TH2DFW-TE4-IV



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
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Terminal No.	Color of Wire	Signal Name [Specification]
1	L	MOTOR COIL A U-PHASE
2	W	MOTOR COIL A V-PHASE
3	B	GROUND
4	B	GROUND
5	V	MOTOR COIL A W-PHASE
6	B	GROUND (MOTOR)
7	W	MAIN POWER SUPPLY I
8	R	BACK UP POWER SUPPLY
9	BR	POWER SW 1
10	Y	ANGLE SENSOR 1 POWER SUPPLY
11	L	ANGLE SENSOR 1 SIGNAL
12	W	P POSITION SIGNAL
13	R	P/N POSITION SIGNAL
14	P	STOP LAMP SWITCH
15	L	ENCODER SIGNAL B
16	R	ENCODER POWER SUPPLY
17	V	ELECTRIC SHIFT POWER SUPPLY RELAY
18	SB	PARKING ACTUATOR RELAY A
19	P	ELECTRIC SHIFT SENSOR POWER SUPPLY I
20	LG	WAKE UP SIGNAL
21	GR	ANGLE SENSOR I GND
22	L	N POSITION OUTPUT
23	G	ENCODER CUD
24	W	ENCODER SIGNAL A



Connector No.	M68
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH4DFB-NH

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
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Terminal No.	Color of Wire	Signal Name [Specification]
2	L	COMBI SW INPUT 5
3	GR	COMBI SW INPUT 4
4	BR	COMBI SW INPUT 3
5	G	COMBI SW INPUT 2
6	V	COMBI SW INPUT 1
7	GR	KEY CYL UNLK SW
8	R	KEY CYL UNLK SW
9	BR	STOP LAMP SW 1
12	Y	DOOR LK & UNLK SW LOCK
13	G	DOOR LK & UNLK SW UNLOCK
14	G	OPTICAL SENS
15	W	REAR WINDOW DEF SW
16	R	DIMMER
17	Y	OPTICAL SENS PWR SPLY
18	V	SENS/RECEIV GND
21	P	NATS ANTENNA AMP
23	R	SECURITY IND LAMP CONT
25	LG	NATS ANTENNA AMP
28	P	HAZARD SW
30	L	BK DOOR OPERER SW
31	W	DR DOOR UNLK SENS
32	LG	COMBI SW OUTPUT 5
33	Y	COMBI SW OUTPUT 4
34	W	COMBI SW OUTPUT 3
35	R	COMBI SW OUTPUT 2
36	P	COMBI SW OUTPUT 1
37	W	P POSITION
38	SB	RECEIVER COMM
39	L	CAN-H
40	P	CAN-L



Connector No.	M69
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	FEA09FW-FHA0-5A

56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
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Terminal No.	Color of Wire	Signal Name [Specification]
56	P	INT ROOM LAMP PWR SPLY
57	P	BAT (FUSE)
58	LG	PASS DOOR UNLK OUTPUT
60	V	TURN SIG LH OUTPUT

61	W	TURN SIG RH OUTPUT
63	BR	INT ROOM LAMP CONT
65	V	ALL DOOR LOCK OUTPUT
66	G	DR DOOR UNLK OUTPUT
67	B	GND
68	L	PW PWR SPLY (ON)
69	P	PW PWR SPLY (BAT)
70	Y	BAT (F/L)

Connector No.	M70
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH4DFW-NH



11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
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Terminal No.	Color of Wire	Signal Name [Specification]
75	LG	DR DOOR REQ SW
76	SB	POWER SW (PUSH SW)
78	P	DRIVER DOOR ANT+
79	V	DRIVER DOOR ANT-
80	LG	PASS DOOR ANT+
81	Y	PASS DOOR ANT-
82	W	REAR BMRP ANT+
83	B	REAR BMRP ANT-
84	BR	ROOM ANT 1+
85	Y	ROOM ANT 1-
86	G	ROOM ANT 2+
87	R	ROOM ANT 2-
88	LG	LUGGAGE ROOM ANT+
89	LG	LUGGAGE ROOM ANT-
90	W	POWER SW ILL PWR
91	V	ACC / ON IND
92	B	POWER SW ILL GND CONT
93	GR	I-KEY WARN BUZZER
96	BR	ACC RELAY CONT
97	W	READY
98	G	IGN RELAY (IPDM E/R) CONT
99	R	IGN RELAY (F/B) CONT
100	P	PASS DOOR REQ SW
102	R	P/N POSITION
104	LG	WAKE-UP
105	P	STOP LAMP SW 2

POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

PDS (POWER DISTRIBUTION SYSTEM)

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH80PV-CS1.6-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
1	GR	-
2	V	-
3	GR	-
4	LG	-
6	W	-
7	V	-
8	P	-
9	SB	-
10	L	-
11	LG	-
12	W	-
13	R	-
14	Y	-
15	R	-
16	GR	-
17	BR	-
19	G	-
20	G	-
21	P	-
22	LG	-
23	GR	-
24	L	-
25	V	-
26	W	-
27	L	-
28	V	-
30	W	-
31	SB	-
32	LG	-
33	V	-
34	L	-
35	SB	-
38	LG	-
39	GR	-
40	Y	-
41	R	-
42	W	-
43	SB	-

44	GR	-
45	P	-
46	R	-
47	W	-
48	L	-
49	G	-
50	L	-
51	L	-
54	W	-
55	G	-
56	BR	-
57	P	-
58	R	-
60	Y	-
61	GR	-
62	SB	-
64	G	-
65	V	-
66	P	-
67	Y	-
68	P	-
69	BR	-
71	Y	-
72	L	-
73	G	-
74	L	-
75	V	-
76	R	-
80	W	-
81	L	-
82	SB	-
83	R	-
84	BR	-
85	R	-
86	GR	-
88	R	-
89	W	-
90	SHIELD	-
91	Y	-
92	BR	-
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95	V	-
96	P	-
97	G	-
98	R	-
99	LG	-

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PCS

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

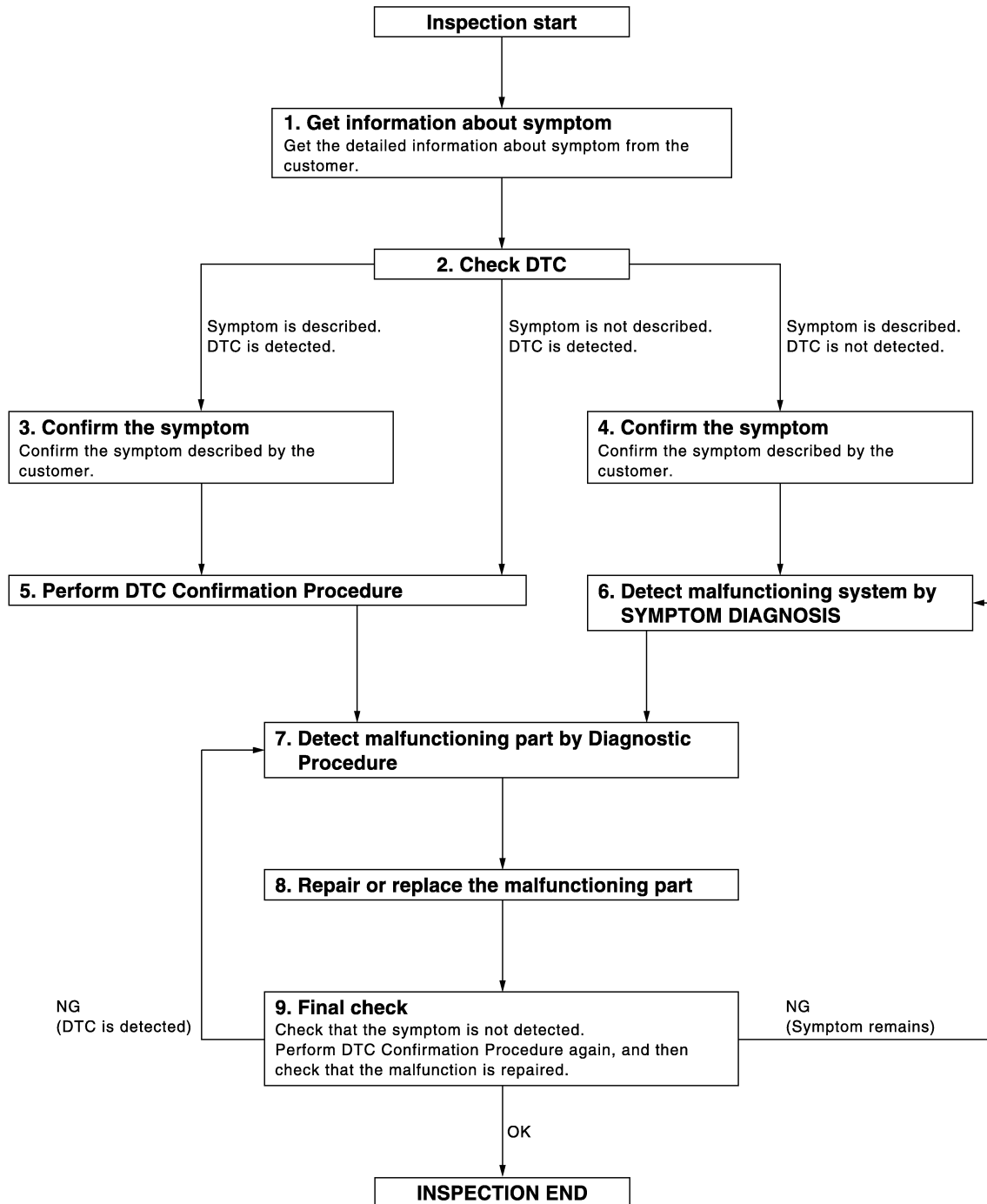
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000006923077

OVERALL SEQUENCE



DETAILED FLOW

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DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

1.GET INFORMATION ABOUT SYMPTOM

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

>> GO TO 2.

2.CHECK DTC

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

Are any symptoms described and any DTC detected?

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

3.CONFIRM THE SYMPTOM

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

>> GO TO 5.

4.CONFIRM THE SYMPTOM

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

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC Confirmation Procedure for the displayed DTC, and then check that DTC is detected again.
At this time, always connect CONSULT to the vehicle, and check diagnostic results in real time.
If two or more DTCs are detected, refer to [BCS-53. "DTC Inspection Priority Chart"](#), and determine trouble diagnosis order.

NOTE:

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

Is DTC detected?

- YES >> GO TO 7.
- NO >> Refer to [GI-51. "Intermittent Incident"](#).

6.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

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

>> GO TO 7.

7.DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

NOTE:

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

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DIAGNOSIS AND REPAIR WORK FLOW

[POWER DISTRIBUTION SYSTEM]

< BASIC INSPECTION >

Is malfunctioning part detected?

YES >> GO TO 8.

NO >> Check voltage of related BCM terminals using CONSULT.

8. REPAIR OR REPLACE THE MALFUNCTIONING PART

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

>> GO TO 9.

9. FINAL CHECK

When DTC was detected in step 2, perform DTC Confirmation Procedure or Component Function Check again, and then check that the malfunction is repaired securely.

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

Does the symptom reappear?

YES (DTC is detected)>>GO TO 7.

YES (Symptom remains)>>GO TO 6.

NO >> INSPECTION END

B2614 ACC RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

DTC/CIRCUIT DIAGNOSIS

B2614 ACC RELAY CIRCUIT

DTC Logic

INFOID:000000006923078

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2614	BCM	The following status are compared, and it does not agree for 1 second or more. <ul style="list-style-type: none"> State of accessory relay control judgment in BCM State of accessory relay control signal 	<ul style="list-style-type: none"> Harness or connectors (Accessory relay control signal circuit) BCM Accessory relay

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

- YES >> Go to [PCS-51. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006923079

1.CHECK ACCESSORY RELAY CONTROL SIGNAL

Check voltage between BCM harness connector and ground.

(+)		(-)	Condition	Voltage (V) (Approx.)	
BCM					
Connector	Terminal				
M70	96	Ground	Power switch	OFF	0 - 0.5
				ACC or ON	9 - 16

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-76. "Removal and Installation"](#).
NO >> GO TO 2.

2.CHECK ACCESSORY RELAY CONTROL SIGNAL CIRCUIT

- Turn power switch OFF.
- Disconnect BCM connector and accessory relay.
- Check continuity between BCM harness connector and accessory relay harness connector.

BCM		Accessory relay	Continuity
Connector	Terminal	Terminal	
M70	96	Coil upstream side	Existed

- Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M70	96		Not existed

Is the inspection result normal?

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

B2614 ACC RELAY CIRCUIT

[POWER DISTRIBUTION SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

3. CHECK ACCESSORY RELAY

Refer to [PCS-52. "Component Inspection"](#).

Is the inspection result normal?

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

Component Inspection

INFOID:000000006923080

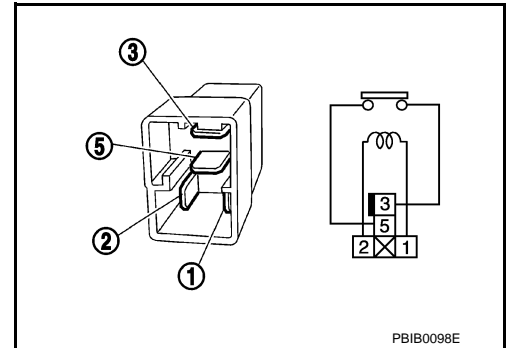
1. CHECK ACCESSORY RELAY

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

Terminals	Condition	Continuity
3 and 5	12 V direct current supply between terminals 1 and 2	Existed
	No current supply	Not existed

Is the inspection result normal?

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



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B2616 IGNITION RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B2616 IGNITION RELAY CIRCUIT

DTC Logic

INFOID:000000006923081

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2616	BCM	The following status are compared, and it does not agree for 1 second or more. <ul style="list-style-type: none">State of ignition relay (fuse block) control judgment in BCMState of ignition relay (fuse block) control signal	<ul style="list-style-type: none">Harness or connectors [Ignition relay (fuse block) control signal circuit]BCMIgnition relay (fuse block)

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

- YES >> Go to [PCS-53. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006923082

1. CHECK IGNITION RELAY (FUSE BLOCK) CONTROL SIGNAL

Check voltage between BCM harness connector and ground.

(+)		(-)	Condition	Voltage (V) (Approx.)
Connector	Terminal			
M70	99	Ground	Power switch	OFF or ACC 0 - 0.5
				ON 9 - 16

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-76. "Removal and Installation"](#).
NO >> GO TO 2.

2. CHECK IGNITION RELAY (FUSE BLOCK) CONTROL SIGNAL CIRCUIT

- Turn power switch OFF.
- Disconnect BCM connector and ignition relay (fuse block).
- Check continuity between BCM harness connector and ignition relay (fuse block) harness connector.

BCM		Ignition relay (fuse block)	Continuity
Connector	Terminal	Terminal	
M70	99	Coil upstream side	Existed

- Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M70	99		Not existed

Is the inspection result normal?

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

3. CHECK IGNITION RELAY (FUSE BLOCK)

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B2616 IGNITION RELAY CIRCUIT

[POWER DISTRIBUTION SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

Refer to [PCS-52. "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-76. "Removal and Installation"](#).
- NO >> Replace ignition relay (fuse block).

Component Inspection

INFOID:000000006923083

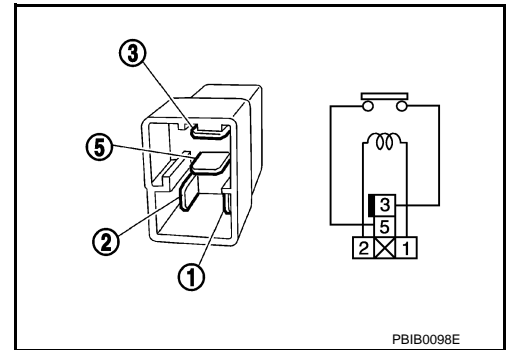
1. CHECK IGNITION RELAY

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

Terminals	Condition	Continuity
3 and 5	12 V direct current supply between terminals 1 and 2	Existed
	No current supply	Not existed

Is the inspection result normal?

- YES >> INSPECTION END
- NO >> Replace Ignition relay



B2618 BCM

DTC Logic

INFOID:000000006923084

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2618	BCM	The following status are compared, and it does not agree for 1 second or more. • State of ignition relay (IPDM E/R) control judgment in BCM • State of ignition relay (IPDM E/R) control signal	• Harness or connectors [Ignition relay (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. Check "Self-diagnosis result" of BCM with CONSULT.

Is DTC detected?

- YES >> Go to [PCS-55. "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006923085

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

Check voltage between BCM harness connector and ground.

(+)		(-)	Condition	Voltage (V) (Approx.)	
BCM					
Connector	Terminal				
M70	98	Ground	Power switch	OFF or ACC	9 - 16
				ON	0 - 0.5

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-76. "Removal and Installation"](#).
 NO >> GO TO 2.

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

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

PCS

BCM		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
M70	98	E17	68	Existed

4. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M70	98		Not existed

Is the inspection result normal?

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

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

B2618 BCM

[POWER DISTRIBUTION SYSTEM]

< DTC/CIRCUIT DIAGNOSIS >

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

(+)		(-)	Condition		Voltage (V) (Approx.)
IPDM E/R					
Connector	Terminal				
E17	68	Ground	Power switch	OFF	9 - 16

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-76. "Removal and Installation"](#).
- NO >> Replace IPDM E/R.

B261A POWER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B261A POWER SWITCH

DTC Logic

INFOID:000000006923086

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B261A	PUSH-BTN IGN SW	The following signal status that BCM receives are compared, and it does not agree for 1 second or more. <ul style="list-style-type: none"> Power switch (push switch) signal Power switch (push switch) status signal (CAN) 	<ul style="list-style-type: none"> Harness or connectors [Power switch (push switch) circuit] BCM IPDM E/R

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

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

Diagnosis Procedure

INFOID:000000006923087

1. CHECK POWER SWITCH (PUSH SWITCH) OUTPUT SIGNAL

- Disconnect power switch connector and IPDM E/R connector.
- Check voltage between power switch harness connector and ground.

(+)		(-)	Voltage (V) (Approx.)
Power switch			
Connector	Terminal		
M25	8	Ground	12

Is the inspection result normal?

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

2. CHECK POWER SWITCH CIRCUIT (BCM)

- Disconnect BCM connector.
- Check continuity between BCM harness connector and power switch harness connector.

BCM		Power switch		Continuity
Connector	Terminal	Connector	Terminal	
M70	76	M25	8	Existed

- Check continuity between power switch harness connector and ground.

Power switch		Ground	Continuity
Connector	Terminal		
M25	8		Not existed

Is the inspection result normal?

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

B261A POWER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

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

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

(+)		(-)	Voltage (V) (Approx.)
IPDM E/R			
Connector	Terminal	Ground	12
E17	66		

Is the inspection result normal?

YES >> Replace IPDM E/R.

NO >> GO TO 4.

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

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

IPDM E/R		Power switch		Continuity
Connector	Terminal	Connector	Terminal	
E17	66	M25	8	Existed

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

Power switch		Ground	Continuity
Connector	Terminal		
M25	8		Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

5. CHECK INTERMITTENT INCIDENT

Refer to [GI-51. "Intermittent Incident"](#).

>> INSPECTION END

B26F1 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B26F1 IGNITION RELAY

DTC Logic

INFOID:000000006923088

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B26F1	IGN RELAY OFF	BCM transmits the ignition relay 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.	<ul style="list-style-type: none">• Harness or connectors (ignition relay 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. Check "Self-diagnosis result" with CONSULT.

Is DTC detected?

- YES >> Go to [PCS-59. "Diagnosis Procedure"](#).
NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006923089

1. CHECK IPDM E/R SELF-DIAGNOSTIC RESULT

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

Is DTC detected?

- YES >> Repair or replace the malfunctioning part. Refer to [PCS-18. "DTC Index"](#).
NO >> GO TO 2.

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

Check voltage between BCM harness connector and ground.

(+)		(-)	Condition		Voltage (V) (Approx.)
BCM					
Connector	Terminal	Ground	Power switch	ON	0 - 0.5
M70	98				

Is the inspection result normal?

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

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

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

BCM		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
M70	98	E17	68	Existed

Is the inspection result normal?

- YES >> Replace IPDM E/R.
NO >> Repair or replace harness.

B26F2 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B26F2 IGNITION RELAY

DTC Logic

INFOID:000000006923090

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B26F2	IGN RELAY ON	BCM transmits the ignition relay 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.	<ul style="list-style-type: none">• Harness or connectors (ignition relay 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. Check "Self-diagnosis result" with CONSULT.

Is DTC detected?

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

Diagnosis Procedure

INFOID:000000006923091

1. CHECK IPDM E/R SELF-DIAGNOSTIC RESULT

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

Is DTC detected?

- YES >> Repair or replace the malfunctioning part. Refer to [PCS-18. "DTC Index"](#).
NO >> GO TO 2.

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

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

(+)		(-)	Condition		Voltage (V) (Approx.)
IPDM E/R					
Connector	Terminal	Ground	Power switch	OFF or ACC	9 - 16
E17	68				

Is the inspection result normal?

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

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

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

IPDM E/R		Ground	Continuity
Connector	Terminal		
E17	68		Not existed

Is the inspection result normal?

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

B26F2 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

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

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

(+)		(-)	Condition		Voltage (V) (Approx.)
IPDM E/R					
Connector	Terminal	Ground	Power switch	OFF or ACC	9 - 16
E17	68				

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-76, "Removal and Installation"](#).
NO >> Replace IPDM E/R.

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B26F6 BCM**DTC Logic**

INFOID:000000006923092

DTC DETECTION LOGIC**NOTE:**

- If DTC B26F6 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-65, "DTC Logic"](#).
- If DTC B26F6 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-66, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B26F6	BCM	Power switch ON signal (CAN) (ON) is not transmitted from IPDM E/R, when BCM turns ignition relay 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. Check "Self-diagnosis result" of BCM with CONSULT.

Is DTC detected?

- YES >> Go to [PCS-62, "Diagnosis Procedure"](#).
 NO >> INSPECTION END

Diagnosis Procedure

INFOID:000000006923093

1.INSPECTION START

1. Turn power switch ON.
2. Select "Self-diagnosis result" of BCM with CONSULT.
3. Touch "ERASE".
4. Perform DTC Confirmation Procedure.
See [PCS-62, "DTC Logic"](#).

Is DTC detected?

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

POWER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

POWER SWITCH

Component Function Check

INFOID:000000006923094

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 (push switch) is pressed	ON
	Power switch (push switch) is not pressed	OFF

Is the indication normal?

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

Diagnosis Procedure

INFOID:000000006923095

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

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

(+)		(-)	Voltage (V) (Approx.)
Power switch			
Connector	Terminal	Ground	9 - 16
M25	8		

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.
2. Check continuity between BCM harness connector and power switch harness connector.

BCM		Power switch		Continuity
Connector	Terminal	Connector	Terminal	
M70	76	M25	8	Existed

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M70	76		Not existed

Is the inspection result normal?

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

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

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

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POWER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

(+)		(-)	Voltage (V) (Approx.)
IPDM E/R			
Connector	Terminal	Ground	9 - 16
E17	66		

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

IPDM E/R		Power switch		Continuity
Connector	Terminal	Connector	Terminal	
E17	66	M25	8	Existed

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

IPDM E/R		Ground	Continuity
Connector	Terminal		
E17	66		Not existed

Is the inspection result normal?

YES >> Replace IPDM E/R.

NO >> Repair or replace harness.

5.CHECK POWER SWITCH (PUSH SWITCH) GROUND CIRCUIT

Check continuity between power switch harness connector and ground.

Power switch		Ground	Continuity
Connector	Terminal		
M25	4		Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace harness.

6.CHECK POWER SWITCH (PUSH SWITCH)

Refer to [PCS-64, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 7.

NO >> Replace power switch.

7.CHECK INTERMITTENT INCIDENT

Refer to [GI-51, "Intermittent Incident"](#).

>> INSPECTION END

Component Inspection

INFOID:000000006923096

1.CHECK POWER SWITCH (PUSH SWITCH)

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

POWER SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

Power switch		Condition	Continuity
Terminal			
8	4	Pressed	Existed
		Not pressed	Not existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace power switch.

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POWER SWITCH POSITION INDICATOR

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

POWER SWITCH POSITION INDICATOR

Description

INFOID:000000006923097

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

Component Function Check

INFOID:000000006923098

1.CHECK FUNCTION

Check power switch ("PUSH SWITCH INDICATOR") in Active Test Mode with CONSULT.

Test item		Description	
PUSH SWITCH INDICATOR	ON	Position indicator	Illuminates
	OFF		Does not illuminate

Is the inspection result normal?

YES >> INSPECTION END

NO >> Refer to [PCS-66, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000006923099

1.CHECK POWER SWITCH CIRCUIT - 1

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

(+)		(-)	Voltage (V) (Approx.)
Power switch			
Connector	Terminal	Ground	Battery voltage
M25	3		

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.
2. Check continuity between BCM harness connector and power switch harness connector.

BCM		Power switch		Continuity
Connector	Terminal	Connector	Terminal	
M70	91	M25	7	Existed

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M70	91		Not existed

Is the inspection normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK POWER SWITCH INTERNAL CIRCUIT

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

POWER SWITCH POSITION INDICATOR

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

(+)		(-)	Voltage (V) (Approx.)
Power switch			
Connector	Terminal		
M25	7	Ground	Battery voltage

Is the inspection normal?

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

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POWER SWITCH DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

SYMPTOM DIAGNOSIS

POWER SWITCH DOES NOT OPERATE

Description

INFOID:000000006923100

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 ON when setting on CONSULT.
- One or more of Intelligent Keys with registered Intelligent Key ID is in the vehicle.

Diagnosis Procedure

INFOID:000000006923101

1.PERFORM WORK SUPPORT

Perform "INSIDE ANT DIAGNOSIS" on Work Support of "INTELLIGENT KEY".

Refer to [DLK-37. "INTELLIGENT KEY : CONSULT Function \(BCM - INTELLIGENT KEY\)".](#)

>> GO TO 2.

2.PERFORM SELF-DIAGNOSIS RESULT

Perform Self-Diagnosis Result of "BCM".

Is DTC detected?

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

NO >> GO TO 3.

3.CHECK POWER SWITCH (PUSH SWITCH)

Check power switch (push switch).

Refer to [PCS-63. "Component Function Check".](#)

Is the operation normal?

YES >> GO TO 4.

NO >> Repair or replace malfunctioning parts.

4.CONFIRM THE OPERATION

Confirm the operation again.

Is the inspection normal?

YES >> Check intermittent incident. Refer to [GI-51. "Intermittent Incident".](#)

NO >> GO TO 1.

POWER SWITCH POSITION INDICATOR DOES NOT ILLUMINATE

< SYMPTOM DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

POWER SWITCH POSITION INDICATOR DOES NOT ILLUMINATE

Description

INFOID:000000006923102

- Before performing the diagnosis in the following table, check “Work Flow”. Refer to [PCS-48, "Work Flow"](#).
- Check that vehicle is under the condition shown in “Conditions of vehicle” before starting diagnosis, and check each symptom.

Conditions of Vehicle (Operating Conditions)

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

Diagnosis Procedure

INFOID:000000006923103

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 >> Check intermittent incident. Refer to [GI-51, "Intermittent Incident"](#).

NO >> GO TO 1.

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