SECTION PCS POWER CONTROL SYSTEM

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PRECAUTION

PRECAUTIONS

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

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

Always observe the following items for preventing accidental activation.

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

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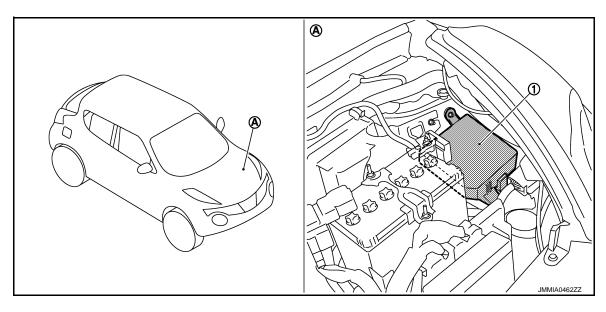
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SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location



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

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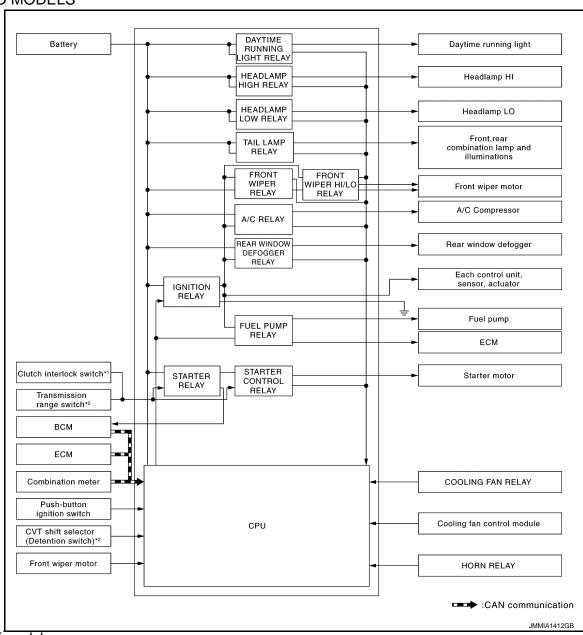
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RELAY CONTROL SYSTEM

RELAY CONTROL SYSTEM: System Diagram

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NISMO MODELS



*1: M/T models

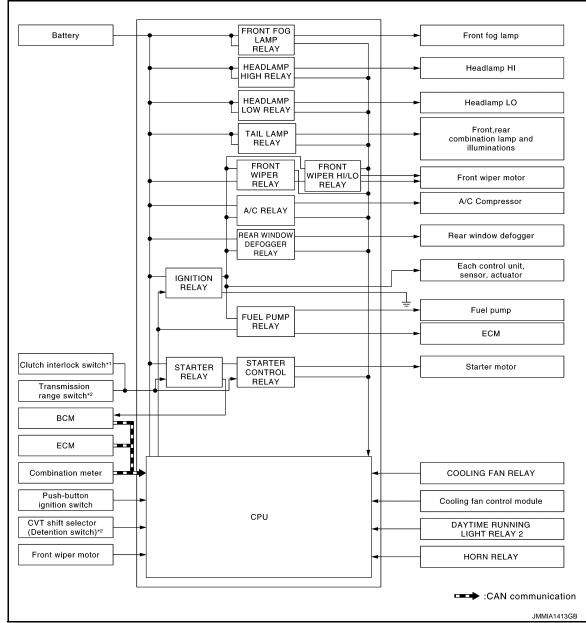
*2: CVT models

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EXCEPT NISMO MODELS



*1: M/T models

*2: CVT models

RELAY CONTROL SYSTEM: System Description

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

CAUTION:

IPDM E/R integrated relays cannot be removed.

Control relay	Input/output	Transmit unit	Control part	Reference page
Headlamp low relay Headlamp high relay	Low beam request signal High beam request signal	BCM (CAN)	Headlamp (LO) Headlamp (HI)	EXL-7
Front fog lamp relay (Except for NISMO models)	- Front fog light request signal	BCM (CAN)	Front fog lamp	EXL-11
Daytime running light re- lay (For NISMO models)	- I Toric rog light request signal	DOW (OAIY)	Daytime running light	EXL-10

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

Control relay	Input/output	Transmit unit	Control part	Reference page
Tail lamp relay	Position light request signal	BCM (CAN)	Parking lamp License plate lamp Tail lamp Side marker lamp	EXL-13
			Illumination	INL-6
Front wiper relay	Front wiper request signal	BCM (CAN)		
• Front wiper HI/LO relay	Front wiper stop position signal	Front wiper motor	Front wiper motor	<u>WW-7</u>
Rear window defogger	Rear window defogger switch signal	BCM (CAN)	Rear window defogger	DEF-7
Horn relay	Theft warning horn request signal	BCM (CAN)	Horn	SEC-18
	Starter control relay signal	BCM (CAN)	Starter motor	SEC-10, SEC-10
 Starter relay^{NOTE} Starter control relay 	Starter relay control signal	Transmission range switch (CVT models)		
Starter control relay		Clutch interlock switch (M/T models)		
Cooling fan relay	Cooling fan speed request	ECM (CAN)	Cooling fan control module	EC-51
A/C relay	A/C compressor request signal	ECM (CAN)	A/C compressor (Magnet clutch)	<u>HAC-14</u>
Daytime running light relay 2 (Except for NISMO models)	Daytime running light request signal Low beam request signal	BCM (CAN)	Headlamp (LO) Parking lamp License plate lamp Tail lamp	EXL-10
Ignition relay	Ignition switch ON signal	BCM (CAN)		
	Vehicle speed signal (Meter)	Combination meter (CAN)	Each control unit, sensor, actuator and relay	PCS-31
	Push-button ignition switch signal	Push-button ignition switch	(Ignition power supply)	

NOTE:

BCM controls the starter relay.

RELAY CONTROL SYSTEM: Fail-safe

INFOID:0000000009751910

CAN COMMUNICATION CONTROL

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

If No CAN Communication Is Available With ECM

Control part	Fail-safe operation		
Cooling fan	 Transmits the pulse duty signal (PWM signal) 100% when the ignition switch is turned ON. Transmits the pulse duty signal (PWM signal) 0% when the ignition switch is turned OFF. 		
A/C compressor	A/C relay OFF		
Alternator	Outputs the power generation command signal (PWM signal) 0%		

If No CAN Communication Is Available With BCM

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Control part	Fail-safe operation		
Headlamp	Turns ON the headlamp low relay when the ignition switch is turned ON Turns OFF the headlamp low relay when the ignition switch is turned OFF Headlamp high relay OFF		
Parking lampLicense plate lampIlluminationTail lampSide marker lamp	 Turns ON the tail lamp relay when the ignition switch is turned ON Turns OFF the tail lamp relay when the ignition switch is turned OFF 		
Front wiper motor	 The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF with the front wiper is operating at LO or HI speed. The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating. Returns automatically wiper to stop position when ignition switch is turned ON if fail-safe control is activated while front wiper motor is operated and wiper stop in the other position than stop position. The status is held at service position if the fail-safe control is activated while the service position function operating. 		
Front fog lamp	Front fog lamp relay OFF		
Daytime running light	Daytime running light relay OFF		
Rear window defogger	Rear window defogger relay OFF		
Horn	Horn OFF		
Ignition relay	The status just before activation of fail-safe is maintained.		
Starter motor	Starter control relay OFF		

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

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

Voltage	judgment			
Ignition relay contact side	Ignition relay excitation coil side	IPDM E/R judgment	Operation	
ON	ON	Ignition relay ON normal	_	
OFF	OFF	Ignition relay OFF normal	-	
ON	OFF	Ignition relay ON stuck	Detects DTC "B2098: IGN RELAY ON" Turns ON the tail lamp relay for 10 minutes	
OFF	ON	Ignition relay OFF stuck	Detects DTC "B2099: IGN RELAY OFF"	

FRONT WIPER PROTECTION FUNCTION

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

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

Ignition switch	Front wiper switch	Front wiper stop position signal
ON OFF	The front wiper stop position signal (stop position) cannot be input for 10 seconds.	
ON	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.

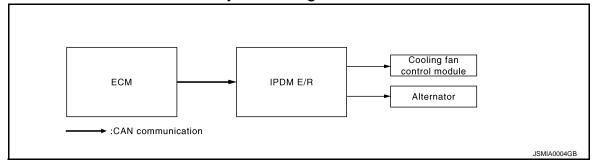
STARTER MOTOR PROTECTION FUNCTION

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

POWER CONTROL SYSTEM

POWER CONTROL SYSTEM: System Diagram

INFOID:0000000009751911



POWER CONTROL SYSTEM: System Description

INFOID:0000000009751912

COOLING FAN CONTROL

IPDM E/R outputs pulse duty signal (PWM signal) to the cooling fan control module according to the status of the cooling fan speed request signal received from ECM via CAN communication. Refer to EC-51, "COOLING FAN CONTROL: System Diagram".

CAUTION:

After ignition switch OFF, IPDM E/R turn the cooling fan relay ON and outputs pulse duty signal (PWM signal) to the cooling fan control module according to the request signal from ECM for cooling the engine according to the situation.

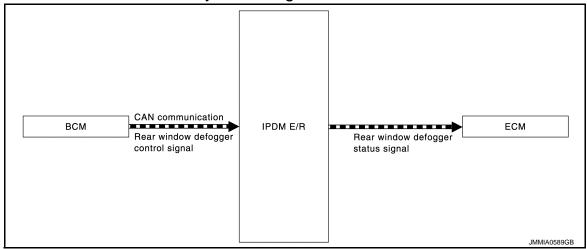
ALTERNATOR CONTROL

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

SIGNAL BUFFER SYSTEM

SIGNAL BUFFER SYSTEM : System Diagram

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SIGNAL BUFFER SYSTEM: System Description

INFOID:0000000009751914

IPDM E/R receives the rear window defogger control signal from BCM via CAN communication and transmits the rear window defogger status signal to ECM via CAN communication. Refer to DEF-7, "WITH AUTO A/C: System Diagram".

POWER CONSUMPTION CONTROL SYSTEM

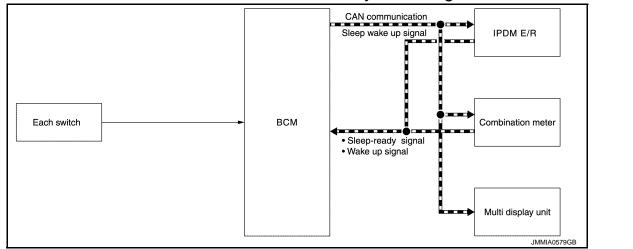
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POWER CONSUMPTION CONTROL SYSTEM : System Diagram



POWER CONSUMPTION CONTROL SYSTEM: System Description

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OUTLINE

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

Normal mode (wake-up)

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

Low power consumption mode (sleep)

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

SLEEP MODE ACTIVATION

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

WAKE-UP OPERATION

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

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< SYSTEM DESCRIPTION >

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

DIAGNOSIS SYSTEM (IPDM E/R)

Diagnosis Description

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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
- Side marker lamp
- Front fog lamp
- Headlamp (LO, HI)
- A/C compressor (magnet clutch)
- Cooling fan

Operation Procedure

CAUTION:

Wiper arm interferes with hood when wiper is operated while wiper arm is in the raised position. Always perform auto active test without setting wiper arm in the raised position. Always pour water on front windshield glass in advance to auto active test so that damage on front windshield glass surface is prevented.

- 1. Turn the ignition switch OFF.
- Turn the ignition switch ON, and within 20 seconds, press the driver door switch 10 times. Then turn the ignition switch OFF.

CAUTION:

Close passenger door.

3. Turn the ignition switch ON within 10 seconds. After that the horn sounds once and the auto active test starts.

CAUTION:

Engine starts when ignition switch is turned ON while brake pedal is depressed.

4. After a series of the following operations is repeated 3 times, auto active test is completed.

NOTF:

- When auto active test mode has to be cancelled halfway through test, turn the ignition switch OFF.
- When auto active test is not activated, door switch may be the cause. Check door switch. Refer to <u>DLK-81</u>, "<u>Component Function Check</u>".

Inspection in Auto Active Test Mode

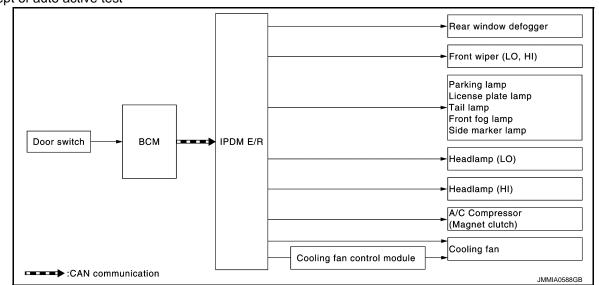
When auto active test mode is actuated, the following operation sequence is repeated 3 times.

Operation sequence	Inspection location	Operation
1	Rear window defogger	10 seconds
2	Front wiper motor	LO for 5 seconds → HI for 5 seconds
3	 Parking lamp License plate lamp Tail lamp Side marker lamp Front fog lamp 	10 seconds
4	Headlamp	LO for 10 seconds →HI ON ⇔ OFF 5 times
5	A/C compressor (magnet clutch)	ON ⇔ OFF 5 times
6	Cooling fan	50% duty for 5 seconds \rightarrow 100% duty for 5 seconds

< SYSTEM DESCRIPTION >

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

Concept of auto active test



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

Diagnosis chart in auto active test mode

Symptom	Inspection contents		Possible cause
		YES	BCM signal input circuit
Rear window defogger does not operate	Perform auto active test. Does the rear window defogger operate?		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		YES	BCM signal input circuit
operate Parking lamp License plate lamp Tail lamp Side marker lamp Front fog lamp Headlamp (HI, LO) Front wiper motor	Perform auto active test. Does the applicable system operate? NO		Lamp or motor Lamp or motor ground circuit Harness or connector between IPDM E/R and applicable system IPDM E/R
A/C compressor does not operate	Perform auto active test. Does the magnet clutch oper-	YES	A/C amp. signal input circuit CAN communication signal between A/C amp. and ECM CAN communication signal between ECM and IPDM E/R
	ate?	NO	Magnet clutch Harness or connector between IPDM E/R and magnet clutch IPDM E/R

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

Symptom	Inspection contents		Possible cause	
		ECM signal input circuit CAN communication signal and IPDM E/R		
Cooling fan does not operate	Perform auto active test. Does the cooling fan operate?	NO	Harness or connector between IPDM E/R and cooling fan relay Harness or connector between IPDM E/R and cooling fan control module. Harness or connector between cooling fan control module and cooling fan motor Cooling fan motor Cooling fan relay Cooling fan control module IPDM E/R	

CONSULT Function (IPDM E/R)

INFOID:0000000009751918

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-24, "DTC Index".

DATA MONITOR

NOTE:

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

Monitor Item [Unit]	MAIN SIGNALS	Description
RAD FAN REQ [%]	×	Displays the value of the cooling fan speed request signal received from ECM via CAN communication.
AC COMP REQ [Off/On]	×	Displays the status of the A/C compressor request signal received from ECM via CAN communication.
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 ignition switch ON signal received from BCM via CAN communication.

< SYSTEM DESCRIPTION >

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

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Monitor Item [Unit]	MAIN SIGNALS	Description
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 push-button ignition switch judged by IPDM E/R.
INTER/NP SW [Off/On]		Displays the status of the ignition power supply (M/T models) or shift position (CVT models) judged by IPDM E/R.
ST RLY CONT [Off/On]		Displays the status of the starter relay status signal received from BCM via CAN communication.
IHBT RLY -REQ [Off/On]		Displays the status of the starter control relay signal received from BCM via CAN communication.
ST/INHI RLY [Off/ ST ON/INHI ON/UNKWN]		Displays the status of the starter relay and starter control relay judged by IPDM E/R.
DETENT SW [Off/On]		Displays the status of the CVT shift selector (detention switch) judged by IPDM E/R.
S/L RLY -REQ [Off/On]		NOTE: This item is indicated, but not monitored.
S/L STATE [LOCK/UNLK/UNKWN]		NOTE: This item is indicated, but not monitored.
DTRL REQ [Off/On]		Displays the status of the daytime running light request signal received from BCM via CAN communication. NOTE: This item is monitored only for the except for NISMO models.
OIL P SW [Open/Close]		NOTE: This item is indicated, but not monitored.
HOOD SW [Off/On]		NOTE: This item is indicated, but not monitored.
HL WASHER REQ [Off/On]		NOTE: This 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 request signal received from BCM via CAN communication.

ACTIVE TEST

Test item

Test item	Operation	Description
HORN	On	Operates horn relay for 20 ms.
REAR DEFOGGER	Off	OFF
REAR DEFOGGER	On	Operates the rear window defogger relay.
	Off	OFF
FRONT WIPER	Lo	Operates the front wiper relay.
	Hi	Operates the front wiper relay and front wiper high relay.
	1	OFF
MOTOR FAN	2	Transmits 50% pulse duty signal (PWM signal) to the cooling fan control module.
MOTOR FAIN	3	Transmits 75% pulse duty signal (PWM signal) to the cooling fan control module.
	4	Transmits 100% pulse duty signal (PWM signal) to the cooling fan control module.
HEAD LAMP WASHER	On	NOTE: This item is indicated, but cannot be tested.

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< SYSTEM DESCRIPTION >

Test item	Operation	Description
	Off	OFF
	TAIL	Operates the tail lamp relay.
EXTERNAL LAMPS	Lo	Operates the headlamp low relay.
EXTERNAL EXIMITS	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

VALUES ON THE DIAGNOSIS TOOL

NOTE:

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

Monitor Item	Con	dition	Value/Status			
RAD FAN REQ	Engine idle speed	Changes depending on engine coolant temperature, air conditioner operation status, vehicle speed, etc.	0 – 100%			
		A/C switch OFF	Off			
AC COMP REQ	Engine running	A/C switch ON (Compressor is operating)	On			
	Lighting switch OFF		Off			
TAIL&CLR REQ	Lighting switch 1ST, 2ND or AUTODaytime running light system ope		On			
HL LO REQ	Lighting switch OFF		Off			
HL LO KEQ	Lighting switch 2ND or AUTO (Light	t is illuminated)	On			
HL HI REQ	Lighting switch 2ND or AUTO (light is illuminated)	Lighting switch other than HI and PASS	Off			
	is iliuminateu)	Lighting switch HI or PASS	On			
FR FOG REQ	Lighting switch 1ST, 2ND or	Front fog lamp switch OFF	Off			
	AUTO (Light is illuminated)	Front fog lamp switch ON	On			
		Front wiper switch OFF	Stop			
FR WIP REQ	Ignition switch ON	Front wiper switch INT	1LOW			
TR WIF IXEQ		Front wiper switch LO	Low			
		Front wiper switch HI	Hi			
		Front wiper stop position	STOP P			
WIP AUTO STOP	Ignition switch ON	Any position other than front wiper stop position	ACT P			
		Front wiper operates normally.	Off			
WIP PROT	Ignition switch ON	Front wiper stops at fail-safe operation.	BLOCK			
IGN RLY1 -REQ	Ignition switch OFF or ACC		Off			
ION KLI I "KEQ	Ignition switch ON		On			
IGN RLY	Ignition switch OFF or ACC		Off			
IGN KLI	Ignition switch ON		On			
PUSH SW	Release the push-button ignition sw	ritch	Off			
T COIT OVV	Press the push-button ignition switch	h	On			
	Ignition switch ON (CVT models)	Selector lever in any position other than P or N	Off			
INTER/NP SW		Selector lever in P or N position	On			
	Ignition switch OFF or ACC (M/T me	odels)	Off			
	Ignition switch ON (M/T models)	Ignition switch ON (M/T models)				

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Monitor Item	Cor	ndition	Value/Status
ST RLY CONT	Ignition switch ON		Off
31 KLI CONT	At engine cranking		On
IHBT RLY -REQ	Ignition switch ON		Off
INDI KLT -KEQ	At engine cranking	On	
	Ignition switch ON		Off
6	At engine cranking		INHI ON \rightarrow ST ON
ST/INHI RLY		control relay cannot be recognized by when the starter relay is ON and the	UNKWN
DETENT SW	Ignition switch ON	 Press the selector button with selector lever in P position. Selector lever in any position other than P. 	Off
	Release the selector button with se NOTE: Status fixed to On for M/T models	On	
S/L RLY -REQ	NOTE: This item is indicated, but not monit	tored.	Off
S/L STATE	NOTE: This item is indicated, but not monit	tored.	UNLOCK
DTRL REQ	Daytime running light system is not	operated with ignition switch OFF	Off
NOTE: This item is monitored only for the except for NISMO models.	Any of the condition below Daytime running light system is c Light switch 2ND or AUTO (light in	On	
OIL P SW	NOTE: This item is indicated, but not monitored.		Open
HOOD SW	NOTE: This item is indicated, but not monitored.		Off
HL WASHER REQ	NOTE: This item is indicated, but not monitored.		Off
THFT HRN REQ	Not operation	Off	
IIII I FINN NEQ	Theft warning alarm is activated	On	
HORN CHIRP	Not operation		Off
	Horn reminder is activated		On

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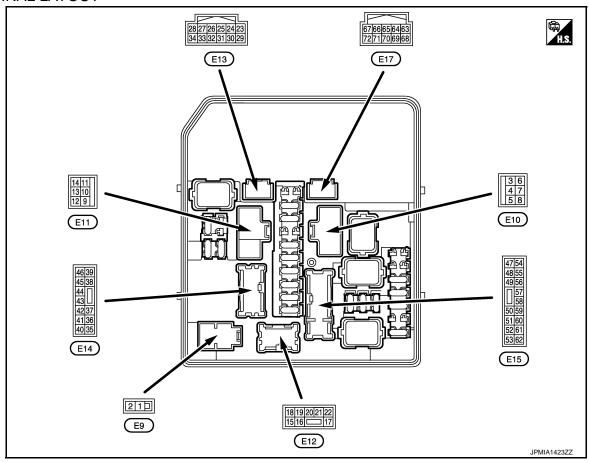
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TERMINAL LAYOUT



PHYSICAL VALUES

							J
	nal NO.	Description				Value	_
(Wire	e color)	<u> </u>	Input/		Condition	(Approx.)	
+	_	Signal name	Output			(Арргох.)	K
1 (R)	Ground	Battery power supply	Input	Ignition sw	vitch OFF	6 – 16 V	
2 (G)	Ground	Battery power supply	Input	Ignition sw	ritch OFF	6 – 16 V	L
3	Ground	Starter motor	Output	Other than	n engine cranking	0 – 1 V	500
(R)	R) Ground Starter motor	Output	At engine	cranking	6 – 16 V	PCS	
4 (P)	Ground	Battery power supply	Input	It Ignition switch OFF		9 – 16 V	- N
9 (B/Y)	Ground	Ground	_	Ignition sw	vitch ON	0 – 1 V	- IN
14	Ground	Rear window defogger	Output	Ignition switch	Rear window defogger switch OFF	0 – 1 V	0
(R)	Giouna	ixeai wiildow delogger	Output	ON	Rear window defogger switch ON	9 – 16 V	-
18 (B/Y)	Ground	Ground		Ignition sw	vitch ON	0 – 1 V	- P

< ECU DIAGNOSIS INFORMATION >

	inal NO.	Description			_	Value	
+	e color)	Signal name	Input/ Output		Condition	(Approx.)	
		Front fog lamp (RH)* ³		Lighting	Front fog lamp switch OFF	0 – 1 V	
19 (W)	19 (W) Ground		Output	switch 1ST, 2ND Output or AUTO	Front fog lamp switch ON	9 – 16 V	
()		Daytime running light		Daytime ru	nning light deactivated	0 – 1 V	
		(RH)* ⁴		Daytime ru	nning light activated	9 – 16 V	
				Lighting	Front fog lamp switch OFF	0 – 1 V	
20 (V)	Ground	Front fog lamp (LH)*3	Output	switch 1ST, 2ND or AUTO	Front fog lamp switch ON	9 – 16 V	
()		Daytime running light		Daytime ru	nning light deactivated	0 – 1 V	
		(LH)* ⁴		Daytime ru	nning light activated	9 – 16 V	
				Lighting	Front fog lamp switch OFF	0 – 1 V	
20 (V)	Ground	Front fog lamp (LH)	Output	Switch 1ST, 2ND or AUTO	Front fog lamp switch ON	9 – 16 V	
-		Cranking request		Ignition switch OFF		0 – 1 V	
23			Output	Ignition switch ON	Select lever P or N	0 – 1 V	
(SB)	Ground				Select lever in any position other than P or N	9 – 16 V	
				Engine running			
25		Front wiper stop posi-		Ignition	Front wiper stop position	0 – 1.5 V	
(BR)	Ground	tion	Input	switch ON	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		_		
28	Ground	Daytime running light	Output	Daytime ru	nning light deactivated	9 – 16 V	
(Y)	Ground	relay 2 control	Output	Daytime ru	nning light activated	0 – 1 V	
30			_	Ignition	Select lever P or N	6 – 16 V	
(V)	Ground	Starter relay control	Output	switch ON	Select lever in any position other than P or N	0 – 1 V	
31 (Y)	Ground	Fuel pump relay con-	Output		nately 1 second after turning the switch ON unning	0 – 1 V	
(1)	(1)	401		Approximately 1 second or more after turning the ignition switch ON		6 – 16 V	

	inal NO.	Description				Value		
(Wir	e color)	Signal name	Input/ Output		Condition	(Approx.)		
				Ignition sw	itch ON	(V) 6 4 2 0 ► 2 ms JPMIA0001GB 6.3 V		
33 (G) Groun	Ground	ound Power generation command signal	Output		on "ACTIVE TEST", "ALTERNA- Y" of "ENGINE"	(V) 6 4 2 0 → 4 2ms		
				80% is set on "ACTIVE TEST", "ALTERNATOR DUTY" of "ENGINE"		3.8 V (V) 6 4 2 0		
34 (L)	Ground	Horn relay control	Output	The horn is	s deactivated	9 – 16 V 0 – 1 V		
0.5		FOM		Ignition sw (More than tion switch	a few seconds after turning igni-	0 – 1 V		
35 (G)	Ground	ECM relay power sup- ply	Output	• Ignition	switch OFF w seconds after turning ignition	6 – 16 V		
00		FOM selections		Ignition sw (More than tion switch	a few seconds after turning igni-	0 – 1 V	F	
36 (P)	Ground	ECM relay power supply	Output	Output	• Ignition	switch OFF w seconds after turning ignition	6 – 16 V	
39 (L)	Ground	Front wiper HI	Output	Ignition switch ON	Front wiper switch OFF Front wiper switch HI	0 – 1 V 9 – 16 V		
				Ignition sw	a few seconds after turning igni-	6 – 16 V		
41 (BR)	Ground	ECM relay control	Output	 Ignition switch ON Ignition switch OFF (For a few seconds after turning ignition switch OFF) 		0 – 1 V		
42 (Y)	Ground	ECM power supply	Output	Ignition sw	itch OFF	6 – 16 V		

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	inal NO.	Description				Value
+	e color)	Signal name	Input/ Output	Condition		(Approx.)
43	Ground	Parking lamp and side	Output	Lighting sv	vitch OFF	0 – 1 V
(L)	Cround	marker lamp	Output	Lighting switch 1ST		9 – 16 V
44	Ground	Rear combination	Output	Lighting sv		0 – 1 V
(R)		lamp and illumination		Lighting sv		9 – 16 V
45 (W)	Ground	Front wiper LO	Output	Ignition switch ON Front wiper switch ON Front wiper switch LO		0 – 1 V 9 – 16 V
		Transmission range		Select leve	er in any position other than P or switch ON)	0 – 1 V
48	Ground	switch*1	Input	Select leve	er P or N (Ignition switch ON)	9 – 16 V
(BR)	0.00	Clutch interlock		Release th	e clutch pedal	0 – 1 V
		switch*2		Depress th	ne clutch pedal	6 – 16 V
				Ignition	Lighting switch OFF	0 – 1 V
49 (Y)	Ground	Headlamp HI (RH)	Output	switch 2ND or AUTO	Lighting switch HI Lighting switch PASS	9 – 16 V
				Ignition	Lighting switch OFF	0 – 1 V
50 (G)	Ground	Headlamp HI (LH)	Output 2	switch 2ND or AUTO	Lighting switch HI Lighting switch PASS	9 – 16 V
51	0	11	0 1 1	Lighting sv	vitch OFF	0 – 1 V
(L)	Ground	Headlamp LO (LH)	Output	Lighting sv	vitch 2ND	9 – 16 V
52	Headlamp LO (RF			Lighting switch OFF		0 – 1 V
(P)	Ground	and daytime running light relay 1	Output	Lighting sv	vitch 2ND	9 – 16 V
5 4				Approximately 1 second or more than after turning the ignition switch ON		0 – 1 V
54 (P)	Ground	Fuel pump power sup- ply	Output	 Approximately 1 second after turning the ignition switch ON Engine running 		6 – 16 V
55		Throttle control motor		Ignition sw (More than tion switch	a few seconds after turning igni-	0 – 1 V
(G)	Ground	relay power supply	Output	• Ignition :	switch OFF w seconds after turning ignition	6 – 16 V
56				Engine	A/C switch OFF	0 – 1 V
(SB)	Ground	A/C relay power supply	Output	running	A/C switch ON (A/C compressor is operating)	9 – 16 V
57	Ground	Ignition relay power	Output	Ignition sw	itch OFF or ACC	0 – 1 V
(O)	Ciodila	supply	Carput	Ignition sw	itch ON	6 – 16 V
58	Ground	Ignition relay power	Output	Ignition sw	itch OFF	0 – 1 V
(LG)	2.30	supply		Ignition sw		6 – 16 V
59	Ground	Ignition relay power	Output	Ignition sw		0 – 1 V
(V)		supply	: 11: 4:4	Ignition sw		6 – 16 V
60 (CD)	Ground	Ground Throttle control motor Output Ignition switch OFF or ACC			6 – 16 V	
(SB)		relay control	<u> </u>	Ignition sw	ritch ON	0 – 1 V

< ECU DIAGNOSIS INFORMATION >

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

Terminal NO.		Description					Value	-
+	e color)	Signal name	Input/ Output	Condition			(Approx.)	
61	Cround	Ignition relay power	Outnut	Ignition sw	Ignition switch OFF		0 – 1 V	_ _
(LG)	Ground	supply	Output	Ignition switch ON		6 – 16 V	_	
62	Ground	Ignition relay power	Output	Ignition sw	itch OFF		0 – 1 V	_
(O)	Ground	supply	Output	Ignition sw	itch ON		6 – 16 V	- (
_		CVT shift selector (Detention switch)		Ignition switch Select lever P -	Release select button	0 – 1 V	_	
64* ¹ (Y)	Ground		Input			Press select button	9 – 16 V	
				Select lever in any position other than P				
66	Ground	Push-button ignition	Innut	Press the push-button ignition switch		0 – 1 V		
(L)	Ground	switch	Input	Release th	e push-button ig	nition switch	6 – 16 V	_
		Cooling fan relay control		Ignition sw	itch OFF or ACC	;	9 – 16 V	_
67 (L)	Ground		· -	Ignition switch ON		0 – 1 V	- '	
(-/				Cooling far	n operated		0 – 1 V	_
68	Ground	d Inviting relations	Input	Ignition sw	itch OFF or ACC	;	6 – 16 V	(
(O)	Ground Ignition relay control	relay control input	Ignition sw	itch ON		0 – 1 V	_	
69	Ignition power supply		Output	Ignition switch OFF or ACC		;	0 – 1 V	_
(BR)	Ground	No. 2	Output	Ignition sw	itch ON		6 – 16 V	-
72 (W)	Ground	Cooling fan control	Output	Engine idli	ng		0 – 5 V	_

^{*1:} CVT models

Fail-safe

CAN COMMUNICATION CONTROL

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

If No CAN Communication Is Available With ECM

Control part	Fail-safe operation	
Cooling fan	 Transmits the pulse duty signal (PWM signal) 100% when the ignition switch is turned ON. Transmits the pulse duty signal (PWM signal) 0% when the ignition switch is turned OFF. 	
A/C compressor	A/C relay OFF	
Alternator	Outputs the power generation command signal (PWM signal) 0%	

If No CAN Communication Is Available With BCM

Control part	Fail-safe operation
Headlamp	 Turns ON the headlamp low relay when the ignition switch is turned ON Turns OFF the headlamp low relay when the ignition switch is turned OFF Headlamp high relay OFF
Parking lampLicense plate lampIlluminationTail lampSide marker lamp	 Turns ON the tail lamp relay when the ignition switch is turned ON Turns OFF the tail lamp relay when the ignition switch is turned OFF

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^{*2:} M/T models

^{*3:} Except for NISMO models

^{*4:} For NISMO models

Control part	Fail-safe operation
Front wiper motor	 The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed. The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating. Returns automatically wiper to stop position when ignition switch is turned ON if fail-safe control is activated while front wiper motor is operated and wiper stop in the other position than stop position. 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
Daytime running light	Daytime running light relay OFF
Rear window defogger	Rear window defogger relay OFF
Horn	Horn OFF
Ignition relay	The status just before activation of fail-safe is maintained.
Starter motor	Starter control relay OFF

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

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

Voltage	judgment		Operation	
Ignition relay contact side	Ignition relay excitation coil side	IPDM E/R judgment		
ON	ON	Ignition relay ON normal	_	
OFF	OFF	Ignition relay OFF normal	_	
ON	OFF	Ignition relay ON stuck	Detects DTC "B2098: IGN RELAY ON" Turns ON the tail lamp relay for 10 minutes	
OFF	ON	Ignition relay OFF stuck	Detects DTC "B2099: IGN RELAY OFF"	

FRONT WIPER PROTECTION FUNCTION

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

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

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

NOTE:

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

STARTER MOTOR PROTECTION FUNCTION

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

DTC Index

NOTE:

- The details of time display are as follows.
- CRNT: A malfunction is detected now.
- PAST: A malfunction was detected in the past.
- IGN counter is displayed on FFD (Freeze Frame Data).
- The number is 0 when is detected now.

< ECU DIAGNOSIS INFORMATION >

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

- The number increases like 1 \rightarrow 2 \cdots 38 \rightarrow 39 after returning to the normal condition whenever IGN OFF \rightarrow ON.

- The number is fixed to 39 until the self-diagnosis results are erased if it is over 39.

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CONSULT display	Fail-safe	Refer to
No DTC is detected. further testing may be required.	_	_
U1000: CAN COMM CIRCUIT	×	PCS-30
B2098: IGN RELAY ON	×	PCS-31
B2099: IGN RELAY OFF	_	PCS-32
B209F: STR CUT OFF OPEN	_	<u>SEC-101</u>
B20A0: STR CUT OFF SHORT	_	<u>SEC-103</u>
B210B: START CONT RLY ON	_	<u>SEC-105</u>
B210C: START CONT RLY OFF	_	<u>SEC-107</u>
B210D: STARTER RELAY ON	_	<u>SEC-109</u>
B210E: STARTER RELAY OFF	_	<u>SEC-111</u>
B210F: INTRLCK/PNP SW ON	_	<u>SEC-114</u>
B2110: INTRLCK/PNP SW OFF	_	SEC-116

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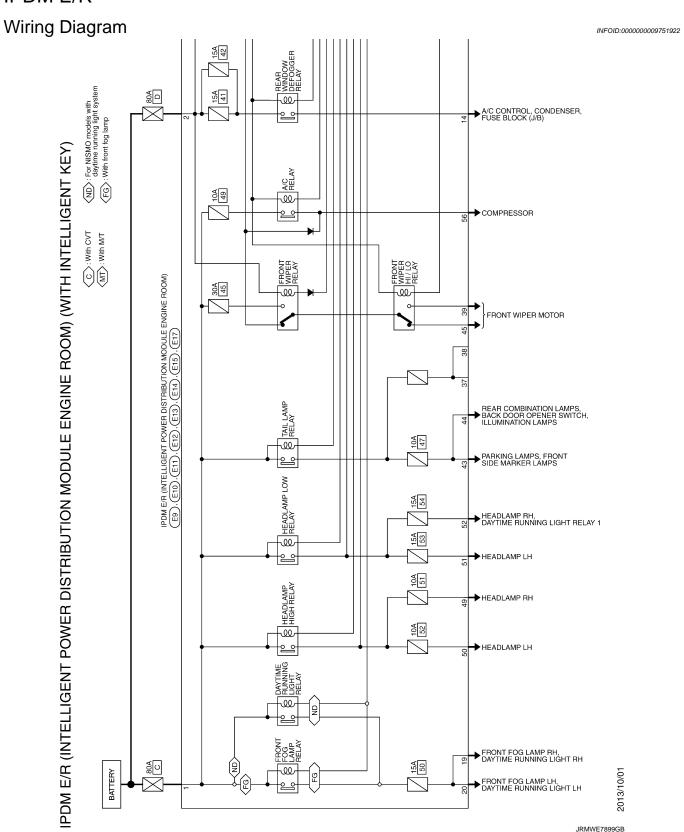
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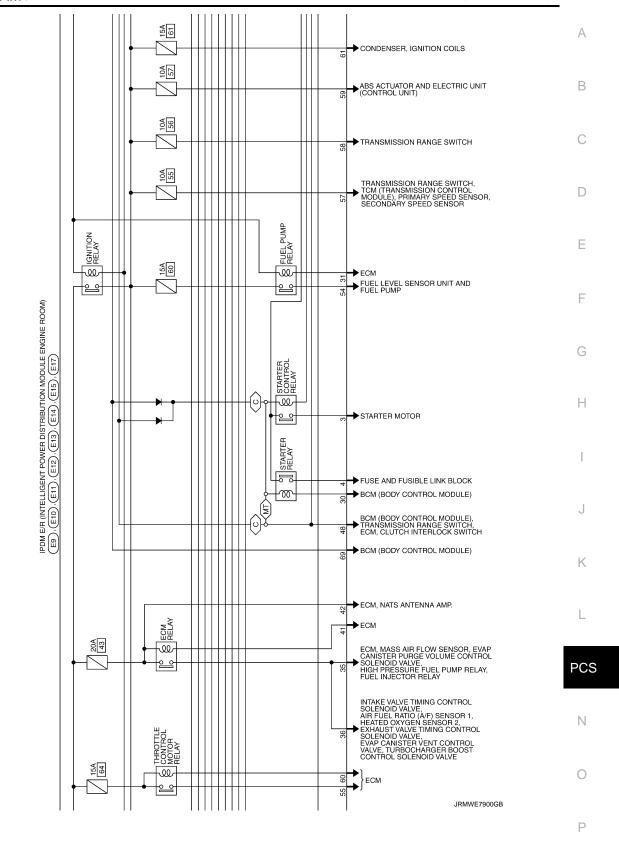
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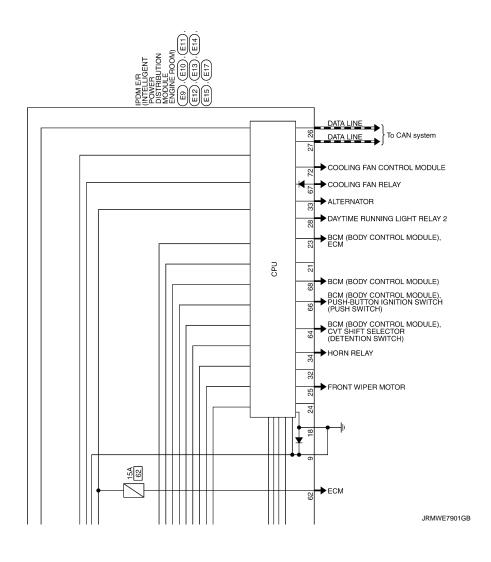
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WIRING DIAGRAM

IPDM E/R







Commector No. E15 Commector Nume Prout 5: nort.Luzer route sormauma woods incure money commerciar Types NS16FW-C5 NS16FW-C5 LS2 61 60 □ 09 48 E2 61 60 □ 09 8 51 59 55 54	Terminal Color Of Signal Name [Specification] Were
WITH INTELLIGENT KEY) Commercian No. E13 Commercian No. E13 Commercian No. E13 Commercian Type THIZPW-NH	Terminal Color Of Signal Name Specification Specification Signal Name Specification Spec
POWER DISTRIBUTION MODULE ENGINE ROOM) (WITH INTELLIGENT KEY) Gomedon No. Eit Commedon No.	A Wire Signal Name Specification Wire B/V
IPDM E/R (INTELLIGENT POWER DIST Connector No. E8 Connector No. E9 Connector No. E0 Connector No.	Terminal Color Of Signal Name Specification] 1

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DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description INFOID:0000000009751923

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control unit, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only. CAN Communication Signal Chart. Refer to LAN-28, "CAN COMMUNICATION SYSTEM: CAN Communication control units are control units."

tion Signal Chart".

DTC Logic

DTC DETECTION LOGIC

DTC	CONSULT display de- scription	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:0000000009751925

1.PERFORM SELF DIAGNOSTIC

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

Is DTC "U1000" displayed?

YES >> Refer to LAN-15, "Trouble Diagnosis Flow Chart".

NO >> Refer to GI-46, "Intermittent Incident".

B2098 IGNITION RELAY ON STUCK

< DTC/CIRCUIT DIAGNOSIS >

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

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B2098 IGNITION RELAY ON STUCK

Description INFOID:0000000009751926

IPDM E/R operates the ignition relay when it receives an ignition switch ON signal from BCM via CAN communication

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

NOTE:

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

DTC Logic

DTC DETECTION LOGIC

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

1. PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

YES >> Refer to PCS-31, "Diagnosis Procedure".

NO >> INSPECTION END.

Diagnosis Procedure

1.PERFORM SELF DIAGNOSIS

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

Is DTC "B2098" displayed?

YES >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation".

NO >> Refer to GI-46, "Intermittent Incident".

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INFOID:0000000009751928

B2099 IGNITION RELAY OFF STUCK

< DTC/CIRCUIT DIAGNOSIS >

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

B2099 IGNITION RELAY OFF STUCK

Description INFOID:0000000009751929

 IPDM E/R operates the ignition relay when it receives an ignition switch ON signal from BCM via CAN communication

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

NOTE:

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

DTC Logic

DTC DETECTION LOGIC

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

NOTE:

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

${f 1}$. PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

YES >> Refer to PCS-32, "Diagnosis Procedure".

NO >> INSPECTION END.

Diagnosis Procedure

INFOID:0000000009751931

1.PERFORM SELF DIAGNOSIS

- Turn the ignition switch ON.
- Erase "Self Diagnostic Result".
- Turn the ignition switch OFF.
- 4. Turn the ignition switch ON. Check "Self Diagnostic Result" again.

Is DTC "B2099" displayed?

YES >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation".

NO >> Refer to GI-46, "Intermittent Incident".

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

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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.	
Pottony nower cumply	С	
Battery power supply	D	

Is the fuse fusing?

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

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

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

·	+) M E/R	(-)	Voltage (Approx.)
Connector	Terminal		
E9	1	- Ground	6 – 16 V
L9	2		0 – 10 V

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		Existed

Does continuity exist?

YES >> INSPECTION END

NO >> Repair the harness or connector.

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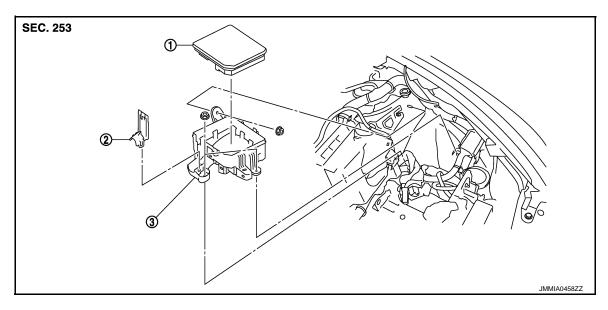
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Revision: 2013 October PCS-33 2014 JUKE

REMOVAL AND INSTALLATION

IPDM E/R

Exploded View



1. IPDM E/R cover A

2. IPDM E/R

3. IPDM E/R cover B

Removal and Installation

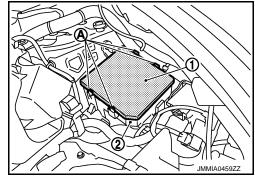
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CAUTION:

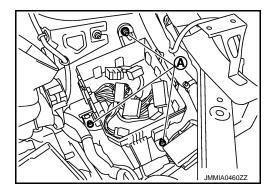
IPDM E/R integrated relays are not serviceable parts, and must not be removed from the unit.

REMOVAL

- 1. Remove battery.
- 2. Press and expand pawls (A) on lateral side of IPDM E/R cover and remove IPDM E/R (1) from IPDM E/R cover B (2).
- 3. Disconnect the harness connector and then remove the IPDM $\mbox{E/R}.$



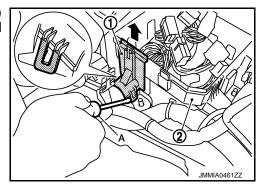
4. Remove IPDM E/R cover B mounting nuts (A).



< REMOVAL AND INSTALLATION >

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

 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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PRECAUTION

PRECAUTIONS

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

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

Always observe the following items for preventing accidental activation.

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

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

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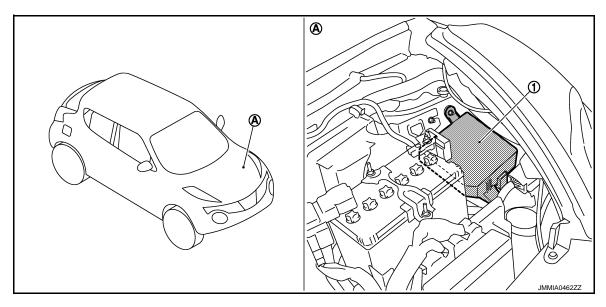
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SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location



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

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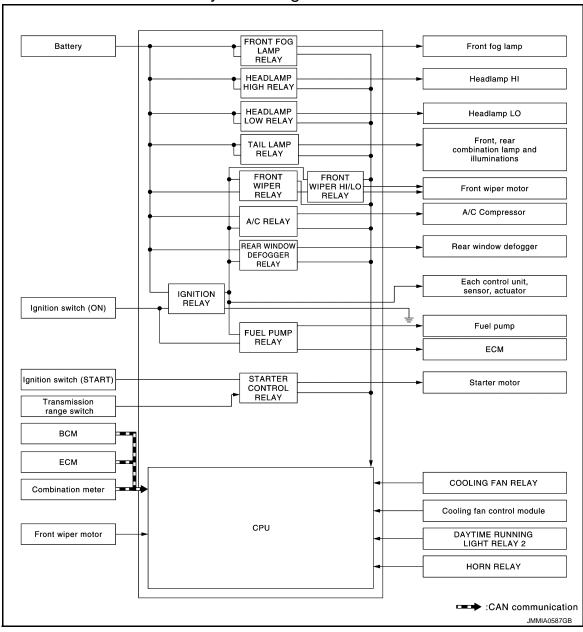
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SYSTEM RELAY CONTROL SYSTEM

RELAY CONTROL SYSTEM: System Diagram

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RELAY CONTROL SYSTEM: System Description

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

CAUTION:

IPDM E/R integrated relays cannot be removed.

Control relay	Input/output	Transmit unit	Control part	Reference page
Headlamp low relayHeadlamp high relay	Low beam request signalHigh beam request signal	BCM (CAN)	Headlamp (LO) Headlamp (HI)	EXL-7
Front fog lamp relay	Front fog light request signal	BCM (CAN)	Front fog lamp	EXL-11

SYSTEM

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

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Control relay	Input/output	Transmit unit	Control part	Reference page
Tail lamp relay	Position light request signal	BCM (CAN)	Parking lamp License plate lamp Tail lamp Side marker lamp	EXL-13
			Illumination	INL-6
Front wiper relay	Front wiper request signal	BCM (CAN)		
Front wiper HI/LO relay	Front wiper stop position signal	Front wiper motor		<u>WW-7</u>
Rear window defogger relay	Rear window defogger control signal	BCM (CAN)	Rear window defogger	DEF-7
Starter control relay	Starter control relay signal	BCM (CAN)	Starter motor	_
Cooling fan relay	Cooling fan speed request	ECM (CAN)	Cooling fan control mod- ule	EC-51
A/C relay	A/C compressor request signal	ECM (CAN)	A/C compressor (Magnet clutch)	HAC-104
Daytime running light relay 2	Daytime running light request signal Low beam request signal	BCM (CAN)	Headlamp (LO) Parking lamp License plate lamp Tail lamp	EXL-10
Ignition relay	lgnition switch ON signal		Each control unit, sensor, actuator and relay (Ignition power supply)	PCS-59

RELAY CONTROL SYSTEM: Fail-safe

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CAN COMMUNICATION CONTROL

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

If No CAN Communication Is Available With ECM

Control part	Fail-safe operation
Cooling fan	 Transmits the pulse duty signal (PWM signal) 100% when the ignition switch is turned ON. Transmits the pulse duty signal (PWM signal) 0% when the ignition switch is turned OFF.
A/C compressor	A/C relay OFF
Alternator	Outputs the power generation command signal (PWM signal) 0%

If No CAN Communication Is Available With BCM

		гС
Control part	Fail-safe operation	
Headlamp	 Turns ON the headlamp low relay when the ignition switch is turned ON Turns OFF the headlamp low relay when the ignition switch is turned OFF Headlamp high relay OFF 	N
Parking lampLicense plate lampIlluminationTail lampSide marker lamp	 Turns ON the tail lamp relay when the ignition switch is turned ON Turns OFF the tail lamp relay when the ignition switch is turned OFF 	0
Front wiper motor	 The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed. The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating. Returns automatically wiper to stop position when ignition switch is turned ON if fail-safe control is activated while front wiper motor is operated and wiper stop in the other position than stop position. The status is held at service position if the fail-safe control is activated while the service position function is operating. 	P

Control part	Fail-safe operation	
Front fog lamp	Front fog lamp relay OFF	
Rear window defogger	Rear window defogger relay OFF	
Horn	Horn OFF	
Starter motor	Starter control relay OFF	

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

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

Voltage judgment			
Ignition relay contact side	Ignition relay excitation coil side	IPDM E/R judgment	Operation
ON	ON	Ignition relay ON normal	_
OFF	OFF	Ignition relay OFF normal	_
ON	OFF	Ignition relay ON stuck	Detects DTC "B2098: IGN RELAY ON" Turns ON the tail lamp relay for 10 minutes
OFF	ON	Ignition relay OFF stuck	Detects DTC "B2099: IGN RELAY OFF"

FRONT WIPER PROTECTION FUNCTION

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

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

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

NOTE:

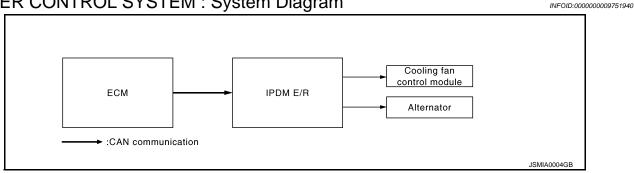
This operation status can be confirmed on the IPDM E/R "Data Monitor" that displays "BLOCK" for the item "WIP PROT" while the wiper is stopped.

STARTER MOTOR PROTECTION FUNCTION

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

POWER CONTROL SYSTEM

POWER CONTROL SYSTEM: System Diagram



POWER CONTROL SYSTEM: System Description

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COOLING FAN CONTROL

IPDM E/R outputs pulse duty signal (PWM signal) to the cooling fan control module according to the status of the cooling fan speed request signal received from ECM via CAN communication. Refer to EC-51, "COOLING FAN CONTROL: System Diagram".

CAUTION:

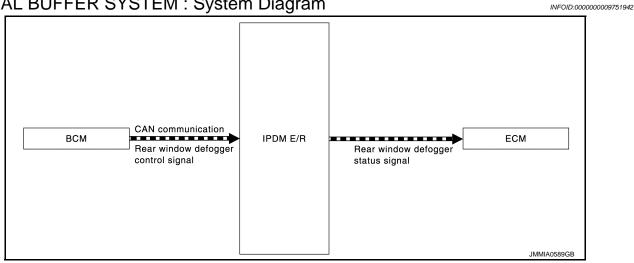
After ignition switch OFF, IPDM E/R turn the cooling fan relay ON and outputs pulse duty signal (PWM signal) to the cooling fan control module according to the request signal from ECM for cooling the engine according to the situation.

ALTERNATOR CONTROL

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

SIGNAL BUFFER SYSTEM

SIGNAL BUFFER SYSTEM : System Diagram

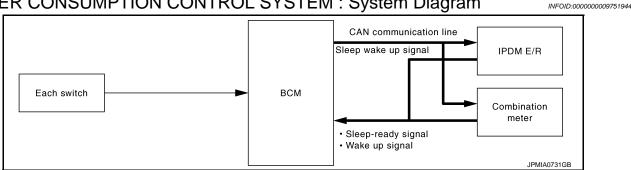


SIGNAL BUFFER SYSTEM: System Description

IPDM E/R receives the rear window defogger control signal from BCM via CAN communication and transmits the rear window defogger status signal to ECM via CAN communication. Refer to DEF-7, "WITHOUT AUTO A/ C: System Diagram".

POWER CONSUMPTION CONTROL SYSTEM

POWER CONSUMPTION CONTROL SYSTEM: System Diagram



POWER CONSUMPTION CONTROL SYSTEM: System 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)

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SYSTEM

< SYSTEM DESCRIPTION >

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

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

Low power consumption mode (sleep)

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

SLEEP MODE ACTIVATION

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

WAKE-UP OPERATION

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

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

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

DIAGNOSIS SYSTEM (IPDM E/R)

Diagnosis Description

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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
- Side marker lamp
- Front fog lamp
- Headlamp (LO, HI)
- A/C compressor (magnet clutch)
- Cooling fan

Operation Procedure

CAUTION:

Wiper arm interferes with hood when wiper is operated while wiper arm is in the raised position. Always perform auto active test without setting wiper arm in the raised position. Always pour water on front windshield glass in advance to auto active test so that damage on front windshield glass surface is prevented.

- 1. Turn the ignition switch OFF.
- 2. Turn the ignition switch ON, and within 20 seconds, press the driver door switch 10 times. Then turn the ignition switch OFF.

CAUTION:

Close passenger door.

3. Turn the ignition switch ON within 10 seconds. After that the horn sounds once and the auto active test starts.

CAUTION:

Engine starts when ignition switch is turned ON while brake pedal is depressed.

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 ignition switch OFF.
- When auto active test is not activated, door switch may be the cause. Check door switch. Refer to <u>DLK-220</u>, <u>"Component Function Check"</u>.

Inspection in Auto Active Test Mode

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

Operation sequence	Inspection location	Operation
1	Rear window defogger	10 seconds
2	Front wiper motor	LO for 5 seconds → HI for 5 seconds
3	 Parking lamp License plate lamp Tail lamp Side marker lamp Front fog lamp 	10 seconds
4	Headlamp	LO for 10 seconds →HI ON ⇔ OFF 5 times
5	A/C compressor (magnet clutch)	ON ⇔ OFF 5 times
6	Cooling fan	50% duty for 5 seconds → 100% duty for 5 seconds

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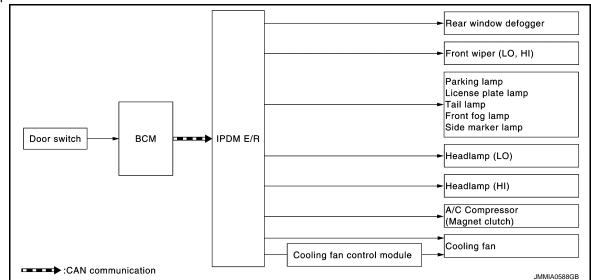
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Concept of auto active test



- 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	
		YES	BCM signal input circuit	
Rear window defogger does not operate	Perform auto active test. Does the rear window defogger operate?	NO	Rear window defogger Rear window defogger ground circuit Harness or connector between IPDM E/R and rear window defogger IPDM E/R	
Any of the following components do not		YES	BCM signal input circuit	
operate Parking lamp License plate lamp Tail lamp Side marker lamp Front fog lamp Headlamp (HI, LO) Front wiper motor	Perform auto active test. Does the applicable system operate?	NO	Lamp or motor Lamp or motor ground circuit Harness or connector between IPDM E/R and applicable system IPDM E/R	
A/C compressor does not operate	Perform auto active test. Does the magnet clutch oper-	A/C amp. signal input circuit CAN communication signal bet amp. and ECM CAN communication signal bet and IPDM E/R		
	ate?	NO	Magnet clutch Harness or connector between IPDM E/R and magnet clutch IPDM E/R	

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

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

Symptom	Inspection contents		Possible cause	
		YES	ECM signal input circuit CAN communication signal between ECM and IPDM E/R	
Cooling fan does not operate	Perform auto active test. Does the cooling fan operate?	NO	Harness or connector between IPDM E/R and cooling fan relay Harness or connector between IPDM E/R and cooling fan control module. Harness or connector between cooling fan control module and cooling fan motor Cooling fan motor Cooling fan relay Cooling fan control module IPDM E/R	

CONSULT Function (IPDM E/R)

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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-53, "DTC Index".

DATA MONITOR

NOTE:

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

Monitor Item [Unit]	MAIN SIG- NALS	Description
RAD FAN REQ [%]	×	Displays the value of the cooling fan speed request signal received from ECM via CAN communication.
AC COMP REQ [Off/On]	×	Displays the status of the A/C compressor request signal received from ECM via CAN communication.
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 RLY [Off/On]	×	Displays the status of the ignition relay judged by IPDM E/R.

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DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

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

Monitor Item [Unit]	MAIN SIG- NALS	Description	
INTER/NP SW [Off/On]		Displays the status of the shift position (CVT models) judged by IPDM E/R.	
ST RLY REQ [Off/On]		Displays the status of the starter relay status signal received from BCM via CAN communication.	
DTRL REQ [Off/On]		Displays the status of the daytime running light request signal received from BCM via CAN communication.	
OIL P SW [Open/Close]		NOTE: This item is indicated, but not monitored.	
HOOD SW [Off/On]		NOTE: This item is indicated, but not monitored.	
HL WASHER REQ [Off/On]		NOTE: This 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 request signal received from BCM via CAN communication.	

ACTIVE TEST

Test item

Test item	Operation	Description
HORN	On	Operates horn relay for 20 ms.
REAR DEFOGGER	Off	OFF
REAR DEFOGGER	On	Operates the rear window defogger relay.
	Off	OFF
FRONT WIPER	Lo	Operates the front wiper relay.
	Hi	Operates the front wiper relay and front wiper high relay.
	1	OFF
MOTOR FAN	2	Transmits 50% pulse duty signal (PWM signal) to the cooling fan control module.
WOTOK FAIN	3	Transmits 75% pulse duty signal (PWM signal) to the cooling fan control module.
	4	Transmits 100% pulse duty signal (PWM signal) to the cooling fan control module.
HEAD LAMP WASHER	On	NOTE: This item is indicated, but cannot be tested.
	Off	OFF
	TAIL	Operates the tail lamp relay.
EXTERNAL LAMPS	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

VALUES ON THE DIAGNOSIS TOOL

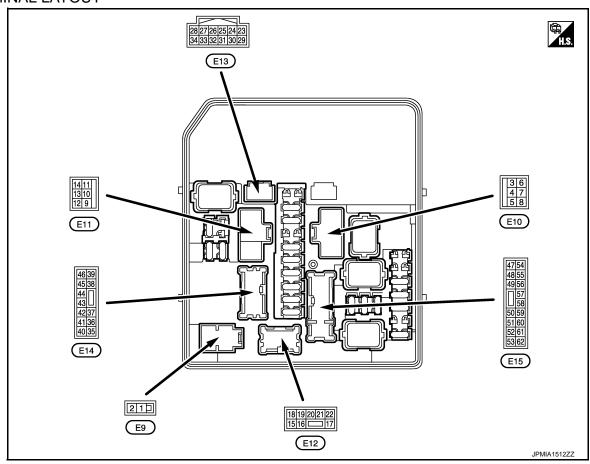
NOTE:

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

Monitor Item	Con	dition	Value/Status
RAD FAN REQ	Engine idle speed	Changes depending on engine coolant temperature, air conditioner operation status, vehicle speed, etc.	0 – 100%
		A/C switch OFF	Off
AC COMP REQ	Engine running	A/C switch ON (Compressor is operating)	On
	Lighting switch OFF		Off
TAIL&CLR REQ	Lighting switch 1ST or 2ND (LighDaytime running light system ope		On
HI LO DEO	Lighting switch OFF		Off
HL LO REQ	Lighting switch 2ND (Light is illumin	ated)	On
HL HI REQ	Lighting switch 2ND (light is illuminated)	Lighting switch other than HI and PASS	Off
	nated)	Lighting switch HI or PASS	On
FR FOG REQ	Lighting switch 1ST or 2ND	Front fog lamp switch OFF	Off
FR FOG REQ	(Light is illuminated)	Front fog lamp switch ON	On
		Front wiper switch OFF	Stop
FR WIP REQ	Ignition switch ON	Front wiper switch INT	1LOW
FR WIP REQ		Front wiper switch LO	Low
		Front wiper switch HI	Hi
		Front wiper stop position	STOP P
WIP AUTO STOP	Ignition switch ON	Any position other than front wiper stop position	ACT P
		Front wiper operates normally.	Off
WIP PROT	Ignition switch ON	Front wiper stops at fail-safe operation.	BLOCK
IGN RLY	Ignition switch OFF or ACC		Off
IGN KLI	Ignition switch ON		On
	Ignition switch ON (CVT models)	Selector lever in any position other than P or N	Off
INTER/NP SW		Selector lever in P or N position	On
	Ignition switch OFF or ACC (M/T me	odels)	Off
	Ignition switch ON (M/T models)		On
CT DI V DEO	Ignition switch OFF or ACC		Off
ST RLY REQ	Ignition switch ON		On

Monitor Item	Condition	Value/Status		
	Daytime running light system is not operated with ignition switch OFF	Off		
DTRL REQ	Any of the condition below Daytime running light system is operated Light switch 2ND (light is illuminated)	On		
OIL P SW	NOTE: This item is indicated, but not monitored	Open		
HOOD SW	NOTE: This item is indicated, but not monitored	Off		
HL WASHER REQ	L WASHER REQ NOTE: This item is indicated, but not monitored			
THFT HRN REQ	Not operation	Off		
INFI NKN KEQ	Theft warning alarm is activated	On		
HORN CHIRP	Not operation	Off		
HORN CHIRP	Horn reminder is activated	On		

TERMINAL LAYOUT



PHYSICAL VALUES

	inal NO.	Description			Value
+ (Wire	e color)	Signal name	Input/ Output	Condition	(Approx.)
1 (R)	Ground	Battery power supply	Input	Ignition switch OFF	6 – 16 V
2 (G)	Ground	Battery power supply	Input	Ignition switch OFF	6 – 16 V

IPDM E/R

< ECU DIAGNOSIS INFORMATION >

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

	inal NO. e color)	Description			0 1111	Value	
+	- COIOI)	Signal name	Input/ Output	Condition		(Approx.)	
3	Ground	Starter motor	Output	Other than engine cranking		0 – 1 V	
(R)	Orouna	otario motor	Output	At engine of	cranking	6 – 16 V	
4 (P)	Ground	Battery power supply	Input	Ignition sw	itch OFF	9 – 16 V	
6	Ground	Ignition switch START	Output	Any position	on other ignition switch START	0 – 1 V	
(GR)	Oround	ignition ownor on act	Output	Ignition sw	itch START	6 – 16 V	
9 (B/Y)	Ground	Ground	_	Ignition sw	itch ON	0 – 1 V	
14	Ground	Rear window defogger	Output	Ignition switch	Rear window defogger switch OFF	0 – 1 V	
(R)	Ground	rtoar milaon acroggor	Output	ON	Rear window defogger switch ON	9 – 16 V	
18 (B/Y)	Ground	Ground	_	Ignition sw	itch ON	0 – 1 V	
(0/1)				Lighting	Front fog lamp switch OFF	0 – 1 V	
19 (W)	Ground	Front fog lamp (RH)	Output	switch 1ST or 2ND	Front fog lamp switch ON	9 – 16 V	
				Lighting	Front fog lamp switch OFF	0 – 1 V	
20 (V)	Ground	Front fog lamp (LH)	Output	switch 1ST or 2ND	Front fog lamp switch ON	9 – 16 V	
22			_	Ignition switch OFF or ACC		0 – 1 V	
(G)	Ground	Ignition switch	Output	Ignition sw	itch ON	6 – 16 V	
				Ignition sw	itch OFF	0 411	
22				Ignition	Select lever P or N	0 – 1 V	
23 (SB)	Ground	Cranking request	Output	switch ON	Select lever in any position other than P or N	9 – 16 V	
				Engine run	ning		
25		Front wiper stop posi-		Ignition	Front wiper stop position	0 – 1.5 V	
(BR)	Ground	tion	Input	switch ON	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		_	_	
28	Ground	Daytime running light	Output	Daytime ru	nning light deactivated	0 – 1 V	
(Y)		relay control		Daytime running light activated		9 – 16 V	
30	Ground	Starter relay control	Output	At engine of	J .	0 – 1 V	
(V)			7		engine cranking	6 – 16 V	
31 (Y)	Ground	Fuel pump relay control	Output		nately 1 second after turning the switch ON unning	0 – 1 V	
(Y) Glound tr		uoi '		Approximately 1 second or more after turning the ignition switch ON		6 – 16 V	_

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

	inal NO. e color)	Description		O Iti		Value
+	– COIOT)	Signal name	Input/ Output		Condition	(Approx.)
				Ignition sw	ritch ON	(V) 6 4 2 0 3 JPMIA0001GB
33 (G)			Output	40% is set on "ACTIVE TEST", "ALTERNATOR DUTY" of "ENGINE"		(V) 6 4 2 0 → 4 2ms JPMIA0002GB 3.8 V
				80% is set on "ACTIVE TEST", "ALTERNATOR DUTY" of "ENGINE"		(V) 6 4 2 0 → 22ms JPMIA0003GB 1.4 V
34 (L)	Ground	Horn relay control	Output		s deactivated	9 – 16 V
				The horn is Ignition sw (More than tion switch	itch OFF a a few seconds after turning igni-	0 – 1 V 0 – 1 V
35 (G)	Ground	ECM relay power sup- ply	Output	• Ignition	switch OFF w seconds after turning ignition	6 – 16 V
				Ignition sw (More than tion switch	a few seconds after turning igni-	0 – 1 V
36 (P)	Ground	ECM relay power sup- ply	Output	• Ignition	switch OFF w seconds after turning ignition	6 – 16 V
39 (L)	Ground	Front wiper HI	Output		Front wiper switch OFF Front wiper switch HI	0 – 1 V 9 – 16 V
				Ignition switch OFF (More than a few seconds after turning ignition switch OFF)		6 – 16 V
41 (BR)	Ground	ECM relay control	Output			0 – 1 V
42 (Y)	Ground	ECM power supply	Output	Ignition sw	itch OFF	6 – 16 V

IPDM E/R

< ECU DIAGNOSIS INFORMATION >

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

	inal NO.	Description				Value	
+ (VVire	e color)	Signal name	Input/ Output		Condition	(Approx.)	
43		Parking lamp and side	0	Lighting sv	vitch OFF	0 – 1 V	
(L)	Ground	marker lamp	Output	Lighting sv	vitch 1ST	9 – 16 V	
44	0	Rear combination	0 1 1	Lighting sv	vitch OFF	0 – 1 V	
(R)	Ground	lamp and illumination	Output	Lighting sv	vitch 1ST	9 – 16 V	
45				Ignition	Front wiper switch OFF	0 – 1 V	
(W)	Ground	Front wiper LO	Output	switch ON	Front wiper switch LO	9 – 16 V	
		Transmission range switch*1			er in any position other than P or switch ON)	0 – 1 V	
48 DD\	Ground	SWITCH	Input	Select leve	er P or N (Ignition switch ON)	9 – 16 V	
BR)		Clutch interlock	·	Release th	e clutch pedal	0 – 1 V	
		switch*2		Depress th	e clutch pedal	9 – 16 V	
40				Ignition	Lighting switch OFF	0 – 1 V	
49 (Y)	Ground	Headlamp HI (RH)	Output	switch 2ND	Lighting switch HI Lighting switch PASS	9 – 16 V	
				Ignition	Lighting switch OFF	0 – 1 V	
50 (G)	Ground	Headlamp HI (LH)	Output	switch 2ND	Lighting switch HI Lighting switch PASS	9 – 16 V	
51			_	Lighting sv	vitch OFF	0 – 1 V	
(L)	Ground	Headlamp LO (LH)	Output	Lighting sv		9 – 16 V	
50		Headlamp LO (RH)		Lighting sv		0 – 1 V	
52 (P)	Ground	and daytime running light relay 1	Output	Lighting sv	vitch 2ND	9 – 16 V	
- 4		-			tely 1 second or more than after ignition switch ON	0 – 1 V	
54 (P)	Ground	Fuel pump power sup- ply	Output		nately 1 second after turning the switch ON unning	6 – 16 V	
55		Throttle control motor		Ignition sw (More than tion switch	a few seconds after turning igni-	0 – 1 V	
(G)	Ground	relay power supply	Output	 Ignition s Ignition s (For a fe switch C 	switch OFF w seconds after turning ignition	6 – 16 V	F
56				Engine	A/C switch OFF	0 – 1 V	
SB)	Ground	A/C relay power supply	Output	running	A/C switch ON (A/C compressor is operating)	9 – 16 V	
57		Ignition relay power	•	Ignition sw	itch OFF or ACC	0 – 1 V	
(O)	Ground	supply	Output	Ignition sw	itch ON	6 – 16 V	
58		Ignition relay power	0.	Ignition sw	itch OFF	0 – 1 V	
LG)	Ground	supply	Output	Ignition sw	itch ON	6 – 16 V	
59		Ignition relay power		Ignition sw	itch OFF	0 – 1 V	
(V)	Ground	supply	Output	Ignition sw		6 – 16 V	
60		Throttle control motor		Ignition sw	itch OFF or ACC	6 – 16 V	
SB)	Ground	relay control	Output	Ignition sw		0 – 1 V	
61		Ignition relay power		Ignition sw		0 – 1 V	
LG)	Ground	Ignition relay power supply	Output	Ignition sw		6 – 16 V	

< ECU DIAGNOSIS INFORMATION >

	inal NO.	Description			Value		
+ (Wire	(Wire color) + - Signal name		Input/ Output	Condition	(Approx.)		
62	62 (O) Ground Ignition relay power supply		Output	Ignition switch OFF	0 – 1 V		
(O)			Output	Ignition switch ON	6 – 16 V		
67	Ground	Cooling fan relay con-	Output	Ignition switch OFF or ACC	9 – 16 V		
(L)	(L) Ground trol		Output	Ignition switch ON	0 – 1 V		
69	69 Ground Ignition power supply	Ignition power supply	Ignition power supply	Ignition power supply	Output	Ignition switch OFF or ACC	0 – 1 V
(BR)	Ground	No. 2	Output	Ignition switch ON	6 – 16 V		
72 (W)	Ground	Cooling fan control	Output	Engine idling	0 – 5 V		

^{*1:} CVT models

Fail-safe

CAN COMMUNICATION CONTROL

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

If No CAN Communication Is Available With ECM

Control part	Fail-safe operation				
Cooling fan	 Transmits the pulse duty signal (PWM signal) 100% when the ignition switch is turned ON. Transmits the pulse duty signal (PWM signal) 0% when the ignition switch is turned OFF. 				
A/C compressor	A/C relay OFF				
Alternator	Outputs the power generation command signal (PWM signal) 0%				

If No CAN Communication Is Available With BCM

Control part	Fail-safe operation
Headlamp	 Turns ON the headlamp low relay when the ignition switch is turned ON Turns OFF the headlamp low relay when the ignition switch is turned OFF Headlamp high relay OFF
Parking lampLicense plate lampIlluminationTail lampSide marker lamp	 Turns ON the tail lamp relay when the ignition switch is turned ON Turns OFF the tail lamp relay when the ignition switch is turned OFF
Front wiper motor	 The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed. The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating. Returns automatically wiper to stop position when ignition switch is turned ON if fail-safe control is activated while front wiper motor is operated and wiper stop in the other position than stop position. 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 OFF
Starter motor	Starter control relay OFF

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

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

^{*2:} M/T models

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

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

Voltage	Voltage judgment			
Ignition relay contact side	Ignition relay excitation coil side	IPDM E/R judgment	Operation	
ON	ON	Ignition relay ON normal	_	
OFF	OFF	Ignition relay OFF normal	_	
ON	OFF	Ignition relay ON stuck	Detects DTC "B2098: IGN RELAY ON" Turns ON the tail lamp relay for 10 minutes	
OFF	ON	Ignition relay OFF stuck	Detects DTC "B2099: IGN RELAY OFF"	

FRONT WIPER PROTECTION FUNCTION

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

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

Ignition switch	Front wiper switch	Front wiper stop position signal	
ON	OFF	The front wiper stop position signal (stop position) cannot be input for 10 seconds.	
ON	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.

STARTER MOTOR PROTECTION FUNCTION

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

DTC Index

NOTE:

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

		۸. Applicable
CONSULT display	Fail-safe	Refer to
No DTC is detected. further testing may be required.	_	_
U1000: CAN COMM CIRCUIT	×	PCS-58
B2098: IGN RELAY ON	×	PCS-59
B2099: IGN RELAY OFF	_	PCS-60
B209F: STR CUT OFF OPEN	_	<u>SEC-175</u>
B20A0: STR CUT OFF SHORT	_	<u>SEC-177</u>
B210B: START CONT RLY ON	_	SEC-179
B210C: START CONT RLY OFF	_	<u>SEC-181</u>
B210D: STARTER RELAY ON	_	SEC-184
B210E: STARTER RELAY OFF	_	SEC-186

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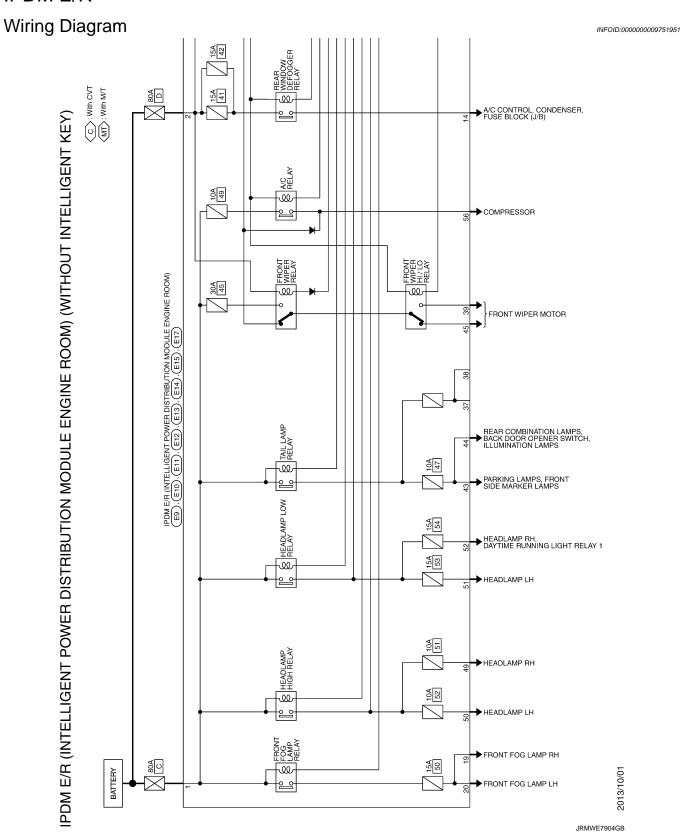
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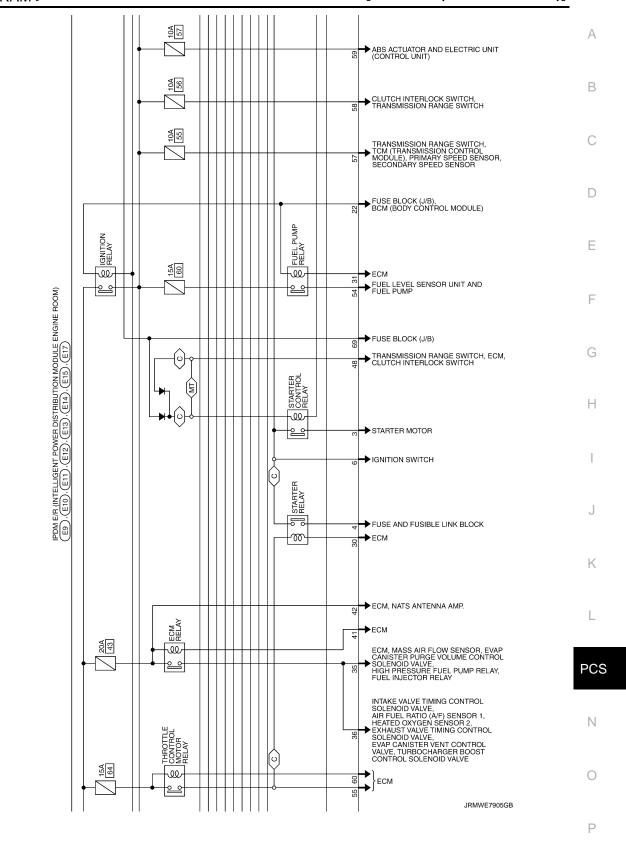
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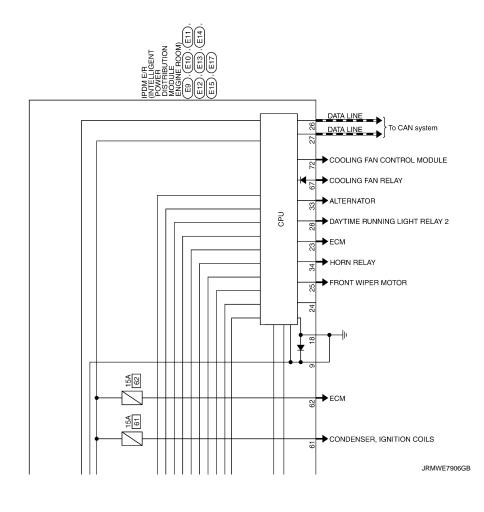
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WIRING DIAGRAM

IPDM E/R







No. E15 Power is instruction power continuation worker frames NOS 16FW-CS Type NOS 16FW-CS Type RES 15 50 0 0 49 48 48 48 48 48 48 48 48 48 48 48 48 48	Solar Of Signal Name [Specification] When Y Y C D D D	- 1 SB SB C C C C C C C C C C C C C C C C C	213 vg		Signal Name [Specification] Wire L L BR
Connector No. Connector Type Connector Type H.S.	Terminal Color Of No. Wire 48 BR 49 Y 50 G 51 L 52 P	55 55	58 L 59 V 60 S 61 L 62 C	Connector Name Connector Type	Color Of
increase science (science science)	Terminal Color Of Supral Name (Specification) No. Wive Supral Name (Specification) No. Supral Name	30 V =	ctor Name E14 E14 E14 E14 E14 E14 E15	30 30 30 30 30 30 30	39
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) (WITHOUT INTELLIGENT KEY) Connector Name Figure Fig	Terminal Color Of Signal Name [Specification] No. Wire B. Wire B. No.	2 0	H.S.	Terminal Octor Of Signal Name [Specification] No. No.	
IPDM E/R (INTELLIGENT POWER DISTORMENT OF COMMENCE OF THE ACT OF T	Terminal Color Of Signal Name [Specification]	2 0	H.S.	Terminal Color Of Signal Name [Specification]	

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U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description INFOID:000000009751952

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control unit, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only. CAN Communication Signal Chart. Refer to LAN-28, "CAN COMMUNICATION SYSTEM: CAN Communication control units are control units."

tion Signal Chart".

DTC Logic

DTC DETECTION LOGIC

DTC	CONSULT display de- scription	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:0000000009751954

1.PERFORM SELF DIAGNOSTIC

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

Is DTC "U1000" displayed?

YES >> Refer to LAN-15, "Trouble Diagnosis Flow Chart".

NO >> Refer to GI-46, "Intermittent Incident".

B2098 IGNITION RELAY ON STUCK

< DTC/CIRCUIT DIAGNOSIS >

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

B2098 IGNITION RELAY ON STUCK

Description

The ignition relay integrated in IPDM E/R is operated with ignition switch ON signal from the ignition switch.

DTC Logic

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC Detection Condition	Possible causes
B2098	IGN RELAY ON	The ignition relay ON is detected for 1 second at ignition switch OFF (CPU monitors the status at the contact circuits of the ignition relay inside and ignition switch status from BCM via CAN communication)	IPDM E/R BCM Harness or connector (Ignition relay circuit)

${f 1}$.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

YES >> Refer to PCS-59, "Diagnosis Procedure".

NO >> INSPECTION END.

Diagnosis Procedure

1. CHECK IGNITION SWITCH ON SIGNAL

Check voltage between BCM harness connectors and the ground.

(+) BCM		(–) Con		andition	Voltage (Approx.)
Connector	Terminal	(-)	Condition		(Approx.)
M65	38	Ground Ignition switch		ON	Battery voltage
COIVI	36	Giound	Ground Ignition switch		0 V

Is the measurement value normal?

YES >> Replace BCM. Refer to BCS-157, "Removal and Installation".

NO >> GO TO 2.

2.check ignition switch on signal circuit

- Turn the ignition switch OFF.
- 2. Disconnect IPDM E/R harness connectors.
- 3. Check continuity between IPDM E/R harness connectors and BCM harness connectors.

IPDI	IPDM E/R		BCM	
Connector	Terminal	Connector	Terminal	Continuity
E12	22	M65	38	Existed

Does continuity exist?

YES >> Replace IPDM E/R. Refer to PCS-62, "Removal and Installation".

NO >> Repair the harness or connector.

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B2099 IGNITION RELAY OFF STUCK

< DTC/CIRCUIT DIAGNOSIS >

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

B2099 IGNITION RELAY OFF STUCK

Description

The ignition relay integrated in IPDM E/R is operated with ignition switch ON signal from the ignition switch.

DTC Logic

DTC DETECTION LOGIC

DTC	CONSULT display description	DTC Detection Condition	Possible causes
B2099	IGN RELAY OFF	The ignition relay OFF is detected for 1 second at ignition switch ON (CPU monitors the status at the contact circuits of the ignition relay inside and ignition switch status from BCM via CAN communication)	IPDM E/R Harness or connector (Ignition relay circuit)

NOTE:

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

1. PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

YES >> Refer to PCS-60, "Diagnosis Procedure".

NO >> INSPECTION END.

Diagnosis Procedure

INFOID:0000000009751960

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1.check ignition switch on signal circuit

- Turn the ignition switch OFF.
- Disconnect IPDM E/R harness connector and BCM harness connector.
- 3. Check continuity between IPDM E/R harness connectors and BCM harness connectors.

IPDI	IPDM E/R		BCM	
Connector	Terminal	Connector	Terminal	Continuity
E12	22	M65	38	Existed

Does continuity exist?

YES >> Replace IPDM E/R. Refer to PCS-62, "Removal and Installation".

NO >> Repair the harness or connector.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

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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.
Pottony nower cumply	С
Battery power supply	D

Is the fuse fusing?

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

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

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

(+) IPDM E/R		(-)	Voltage (Approx.)
Connector	Terminal		, ,
E9	1	Ground	6 – 16 V
E9	2		0 - 10 V

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			Continuity	
Connector	Terminal	Ground	Continuity	
E11	9	Ground	Existed	
E12	18		LAISIEU	

Does continuity exist?

YES >> INSPECTION END

NO >> Repair the harness or connector.

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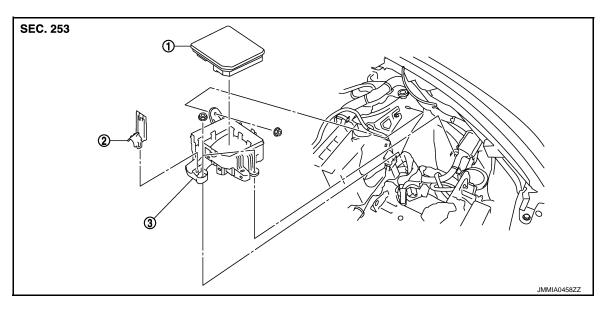
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REMOVAL AND INSTALLATION

IPDM E/R

Exploded View



1. IPDM E/R cover A

2. IPDM E/R

3. IPDM E/R cover B

Removal and Installation

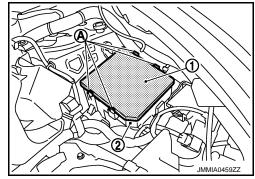
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CAUTION:

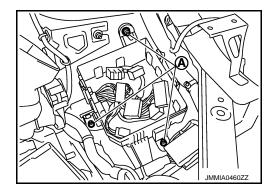
IPDM E/R integrated relays are not serviceable parts, and must not be removed from the unit.

REMOVAL

- 1. Remove battery.
- 2. Press and expand pawls (A) on lateral side of IPDM E/R cover and remove IPDM E/R (1) from IPDM E/R cover B (2).
- 3. Disconnect the harness connector and then remove the IPDM $\mbox{E/R}.$



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

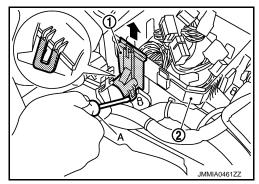


IPDM E/R

< REMOVAL AND INSTALLATION >

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

 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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PRECAUTION

PRECAUTIONS

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

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

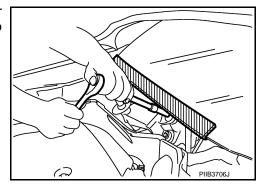
Always observe the following items for preventing accidental activation.

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

Precaution for Procedure without Cowl Top Cover

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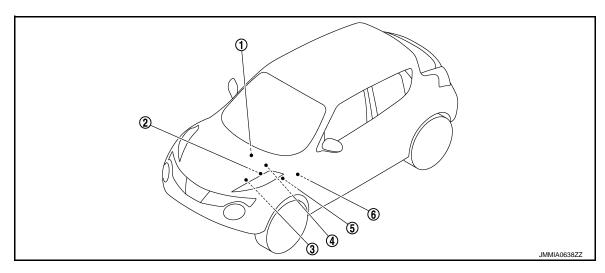
When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location



- Push-button ignition switch
 - Stop lamp switch Refer to BRC-9, "Component Parts Location"
- IPDM E/R Refer to PCS-5, "Component Parts Location"
 - Clutch interlock switch Refer to STR-5, "STARTING SYS-TEM (WITH INTELLIGENT KEY): Component Parts Location"
- Transmission range switch Refer to TM-150, "CVT CONTROL SYSTEM: Component Parts Location"
- 6. **BCM** Refer to BCS-6, "BODY CONTROL **SYSTEM: Component Parts Loca**tion"

Component Description

INFOID:0000000009751967

INFOID:0000000009751969

ВСМ	Reference	
BCM	PCS-65	
Ignition relay	PCS-65	
Accessory relay	PCS-66	
Blower relay	PCS-66	
Push-button ignition switch	PCS-66	
Stop lamp switch	PCS-66	
Transmission range switch	PCS-66	
Clutch interlock switch	PCS-66	

BCM INFOID:0000000009751968

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

BCM checks the power supply position internally.

Ignition Relay

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

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

PCS-65 Revision: 2013 October 2014 JUKE

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COMPONENT PARTS

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

BCM compares following status comparing.

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

Accessory Relay

INFOID:0000000009751970

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

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

Blower Relay

INFOID:0000000009751971

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

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

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

Push-Button Ignition Switch

INFOID:0000000009751972

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

Stop Lamp Switch

INFOID:0000000009751973

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

Transmission Range Switch

INFOID:0000000009751974

Transmission range switch is integrated in CVT assembly, and detects the CVT shift selector position. Transmission range switch detects selector lever position (P/N position), and transmits the P/N position signal to BCM.

Clutch Interlock Switch

INFOID:0000000009751975

Clutch interlock switch detects that clutch pedal is depressed, and transmits ON/OFF signal to BCM.

SYSTEM

POWER DISTRIBUTION SYSTEM

POWER DISTRIBUTION SYSTEM: System Diagram

INFOID:0000000009751976 Ignition relay Ignition relay control signal Push-button ignition Push-button ignition switch signal switch ACC/ON indicator Accessory relay Accessory relay control signal lamp signal Stop lamp switch Stop lamp switch Blower relay Blower relay control signal 1/2 signal **BCM** Transmission range switch (CVT) P/N position signal Ignition relay control signal CVT shift selector Ignition power supply No.2 signal IPDM E/R (Detention switch) Detention switch signal (CVT) CAN communication • Ignition switch ON signal Clutch interlock • Push-button ignition switch switch (M/T) status signal

POWER DISTRIBUTION SYSTEM: System Description

SYSTEM DESCRIPTION

- PDS (POWER DISTRIBUTION SYSTEM) is the system that BCM controls with the operation of the pushbutton ignition switch and performs the power distribution to each power circuit. This system is used instead of the mechanical power supply changing mechanism with the operation of the conventional key cylinder.
- The push-button ignition switch can be operated when Intelligent Key is in the following condition. Refer to Engine Start Function for details.
- Intelligent Key is in the detection area of the inside key antenna.
- Intelligent Key backside is contacted to push-button ignition switch.
- The push-button ignition switch operation is input to BCM as a signal. BCM changes the power supply position according to the status and operates the following relays to supply power to each power circuit.
- Ignition relay (IPDM E/R)
- Ignition relay (fuse block)
- ACC relay
- Blower relav

NOTE:

The push-button ignition switch operation changes due to the conditions of brake pedal, selector lever and vehicle speed.

 The power supply position can be confirmed with the lighting of ACC/ON indicator in the push-button ignition switch.

BATTERY SAVER SYSTEM

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

- The ignition switch is in the ACC position
- All doors are closed
- Selector lever is in the P position (except M/T models)

Reset Condition of Battery Saver System

CVT models

In order to prevent the battery from discharging, the battery saver system will cut off the power supply when all doors are closed, the selector lever is on P position (except M/T models) and the ignition 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

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< SYSTEM DESCRIPTION >

Operating with Intelligent Key on door lock

Press push-button ignition switch and ignition switch will change to ACC position from OFF position.

M/T models

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

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

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

NOTE:

- When an Intelligent Key is within the detection area of inside key antenna and when Intelligent Key backside is contacted to push-button ignition switch, it is equivalent to the operations below.
- When starting the engine, the BCM monitors under the engine start conditions,

CVT models

- Brake pedal operating condition
- Selector lever position
- Vehicle speed

M/T models

- Clutch pedal operating condition
- Vehicle speed

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

	I				
Power supply position	CVT models		M/T models	Push-button ignition switch	
	Selector lever position	Brake pedal operation condition	Clutch pedal operation condition	operation frequency	
$OFF \to ACC$	_	Not depressed	Not depressed	1	
$OFF \to ACC \to ON$	_	Not depressed	Not depressed	2	
$OFF \to ACC \to ON \to OFF$	_	Not depressed	Not depressed	3	
OFF → START ACC → START ON → START	P or N position	Depressed	Depressed	1	
Engine is running → OFF	_	_	_	1	

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

Power supply position	E			
	CVT models		CVT models M/T models	
	Selector lever position	Brake pedal operation condition	Clutch pedal opera- tion condition	operation frequency
Engine is running → ACC	_	_	_	Emergency stop operation
Engine stall return operation while driving	N position	Not depressed	Depressed	1

Emergency stop operation

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

Fail-safe

FAIL-SAFE CONTROL BY DTC

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

Display contents of CONSULT	Fail-safe	Cancellation
B2013: ID DISCORD BCM-S/L	Inhibit engine cranking	When communication between BCM and steering lock unit are communicated normally.
B2014: CHAIN OF S/L-BCM	Inhibit engine cranking	When communication between BCM and steering lock unit are communicated normally.

[POWER DISTRIBUTION SYSTEM]

Display contents of CONSULT	Fail-safe	Cancellation
B2192: ID DISCORD BCM-ECM	Inhibit engine cranking	Erase DTC
B2193: CHAIN OF BCM-ECM	Inhibit engine cranking	Erase DTC
B2195: ANTI-SCANNING	Inhibit engine cranking	Ignition switch $ON \rightarrow OFF$
B2196: DONGLE NG	Inhibit engine cranking	Erase DTC
B2198: NATS ANTENNA AMP	Inhibit engine cranking	Erase DTC
B2608: STARTER RELAY	Inhibit engine cranking	500 ms after the following signal communication status becomes consistent • Starter motor relay control signal • Starter relay status signal (CAN)
B260F: ENG STATE SIG LOST	Inhibit engine cranking	When any of the following conditions are fulfilled • Power position changes to ACC • Receives engine status signal (CAN)
B2619: BCM	Inhibit engine cranking	1 second after the steering lock unit power supply output control inside BCM becomes normal
B26F1: IGN RELAY OFF	Inhibit engine cranking	When the following conditions are fulfilled Ignition switch ON signal (CAN: Transmitted from BCM): ON Ignition switch ON signal (CAN: Transmitted from IPDM E/R): ON
B26F2: IGN RELAY ON	Inhibit engine cranking	When the following conditions are fulfilled Ignition switch ON signal (CAN: Transmitted from BCM): OFF Ignition switch ON signal (CAN: Transmitted from IPDM E/R): OFF
B26F3: START CONT RLY ON	Inhibit engine cranking	When the following conditions are fulfilled • Starter control relay signal (CAN: Transmitted from BCM): OFF • Starter control relay signal (CAN: Transmitted from IPDM E/R): OFF
B26F4: START CONT RLY OFF	Inhibit engine cranking	When the following conditions are fulfilled • Starter control relay signal (CAN: Transmitted from BCM): ON • Starter control relay signal (CAN: Transmitted from IPDM E/R): ON
B26F7: BCM	Inhibit engine cranking by Intelligent Key sys- tem	When room antenna and luggage room antenna functions normally

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

- More than 1 minute is passed after the rear wiper stop.
- 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.

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[POWER DISTRIBUTION SYSTEM]

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM: CONSULT Function (BCM - COMMON ITEM)

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APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

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

x: Applicable item

System	Sub system selection item		Diagnosis mode		
	Sub system selection item	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 conditioning system	AIR CONDITONER		×	×*	
Intelligent Key system Engine start system	INTELLIGENT KEY	×	×	×	
Combination switch	COMB SW		×		
Body control system	ВСМ	×			
NVIS - NATS	IMMU	×	×	×	
Interior room lamp battery saver	BATTERY SAVER	×	×	×	
Back door open	TRUNK		×		
Theft warning alarm	THEFT ALM	×	×	×	
RAP	RETAINED PWR		×		
Signal buffer system	SIGNAL BUFFER		×	×	
TPMS	AIR PRESSURE MONITOR	×	×	×	

NOTE

FREEZE FRAME DATA (FFD)

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

^{*:} For models with automatic A/C, this diagnosis mode is not used.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

CONSULT screen item	Indication/Unit	Description		
Vehicle Speed	km/h	Vehicle speed of the moment a particular DTC is detected		
Odo/Trip Meter	km	Total mileage (Odometer value) of the moment a particular DTC is detected		
	SLEEP>LOCK		While turning BCM status from low power consumption mode to normal mode (Power position is "LOCK"*.)	
	SLEEP>OFF		While turning BCM status from low power consumption mode to normal mode (Power position is "OFF".)	
	LOCK>ACC		While turning power position from "LOCK"* *to "ACC"	
	ACC>ON		While turning power position from "ACC" to "IGN"	
	RUN>ACC		While turning power position from "RUN" to "ACC" (Vehicle is stopping and selector lever is except P position.)	
	CRANK>RUN		While turning power position from "CRANKING" to "RUN" (From cranking up the engine to run it)	
	RUN>URGENT	Power position status of the moment a particular DTC is detected	While turning power position from "RUN" to "ACC" (Emergency stop operation)	
	ACC>OFF		While turning power position from "ACC" to "OFF"	
Vehicle Condition	OFF>LOCK		While turning power position from "OFF" to "LOCK"*	
	OFF>ACC		While turning power position from "OFF" to "ACC"	
	ON>CRANK		While turning power position from "IGN" to "CRANKING"	
	OFF>SLEEP		While turning BCM status from normal mode (Power position is "OFF".) to low power consumption mode	
	LOCK>SLEEP		While turning BCM status from normal mode (Power position is "LOCK"*.) to low power consumption mode	
	LOCK		Power position is "LOCK"*	
	OFF		Power position is "OFF" (Ignition switch OFF)	
	ACC		Power position is "ACC" (Ignition switch ACC)	
	ON		Power position is "IGN" (Ignition switch ON with engine stopped)	
	ENGINE RUN		Power position is "RUN" (Ignition switch ON with engine running)	
	CRANKING		Power position is "CRANKING" (At engine cranking)	
IGN Counter	0 - 39	 The number of times that ignition switch is turned ON after DTC is detected The number is 0 when a malfunction is detected now. The number increases like 1 → 2 → 338 → 39 after returning to the normal condition whenever ignition switch OFF → ON. The number is fixed to 39 until the self-diagnosis results are erased if it is over 39. 		

NOTE:

*: Power position shifts to "LOCK" from "OFF", when ignition switch is in the OFF position, selector lever is in the P position (A/T models and CVT models), and any of the following conditions are met.

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

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

INTELLIGENT KEY

INTELLIGENT KEY: CONSULT Function (BCM - INTELLIGENT KEY)

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[POWER DISTRIBUTION SYSTEM]

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 On: Operate Off: Non-operation
ENGINE START BY I-KEY	Engine start function mode can be changed to operation with this modeOn: OperateOff: Non-operation
TRUNK/GLASS HATCH OPEN	NOTE: This item is displayed, but cannot be monitored
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 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 • 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 monitored
LO- BATT OF KEY FOB WARN	Intelligent Key low battery warning mode can be changed to operation with this mode On: Operate Off: Non-operation
ANTI KEY LOCK IN FUNCTI	Key reminder function mode can be changed to operation with this modeOn: OperateOff: 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 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 • 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 On: Operate Off: Non-operation
SHORT CRANKING OUTPUT	Starter motor can operate during the times below
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 • 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

SELF-DIAG RESULT Refer to BCS-59, "DTC Index".

DIAGNOSIS SYSTEM (BCM)

` [POWER DISTRIBUTION SYSTEM]

< SYSTEM DESCRIPTION >

DATA MONITOR

NOTE:

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

Monitor Item	Condition
REQ SW -DR	Indicates [On/Off] condition of door request switch (driver side)
REQ SW -AS	Indicates [On/Off] condition of door request switch (passenger side)
REQ SW -BD/TR	Indicates [On/Off] condition of back door request switch
PUSH SW	Indicates [On/Off] condition of push-button ignition switch
CLUTCH SW*1	Indicates [On/Off] condition of clutch interlock switch
BRAKE SW 1	Indicates [On/Off]*2 condition of stop lamp switch power supply
BRAKE SW 2	Indicates [On/Off] condition of stop lamp switch
DETE/CANCL SW	Indicates [On/Off] condition of P position
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 push-button ignition 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	Indicates [On/Off] condition of P or N position
SFT P -MET	Indicates [On/Off] condition of P position
SFT N -MET	Indicates [On/Off] condition of N position
ENGINE STATE	Indicates [Stop/Stall/Crank/Run] condition of engine states
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 or VDC or TCM 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 possibility
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
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

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ACTIVE TEST

Test item	Description
OUTSIDE BUZZER	This test is able to check Intelligent Key warning buzzer operation On: Operate Off: Non-operation
INSIDE BUZZER	This test is able to check warning chime in combination meter operation 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 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 On: Operate Off: Non-operation
LCD	This test is able to check meter display information BP N: Engine start operation indicator lamp indicate when CONSULT screen is touched BP I: Engine start operation indicator lamp indicate when CONSULT screen is touched ID NG: This item is displayed, but cannot be monitored ROTAT: This item is displayed, but cannot be monitored SFT P: Shift P warning lamp indicate when CONSULT screen is touched INSRT: This item is displayed, but cannot be monitored BATT: Key warning lamp indicator when CONSULT screen is touched NO KY: Key warning lamp indicator when CONSULT screen is touched OUTKEY: Engine start operation indicator lamp indicate when CONSULT screen is touched LK WN: Engine start operation indicator lamp indicate when 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 The horn is activated after "ON" on CONSULT screen is touched
P RANGE	This test is able to check CVT shift selector power supply On: Operate Off: Non-operation
ENGINE SW ILLUMI	This test is able to check push-ignition switch illumination operation Push-ignition switch illumination illuminates when "ON" on CONSULT screen is touched
PUSH SWITCH INDICATOR	This test is able to check LOCK indicator in push-ignition switch operation LOCK indicator in push-ignition 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.

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

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

[POWER DISTRIBUTION SYSTEM]

ECU DIAGNOSIS INFORMATION

BCM

List of ECU Reference

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	ECU	Reference
		BCS-36, "Reference Value"
ВСМ		BCS-57, "Fail-safe"
BCIVI		BCS-58, "DTC Inspection Priority Chart"
		BCS-59, "DTC Index"

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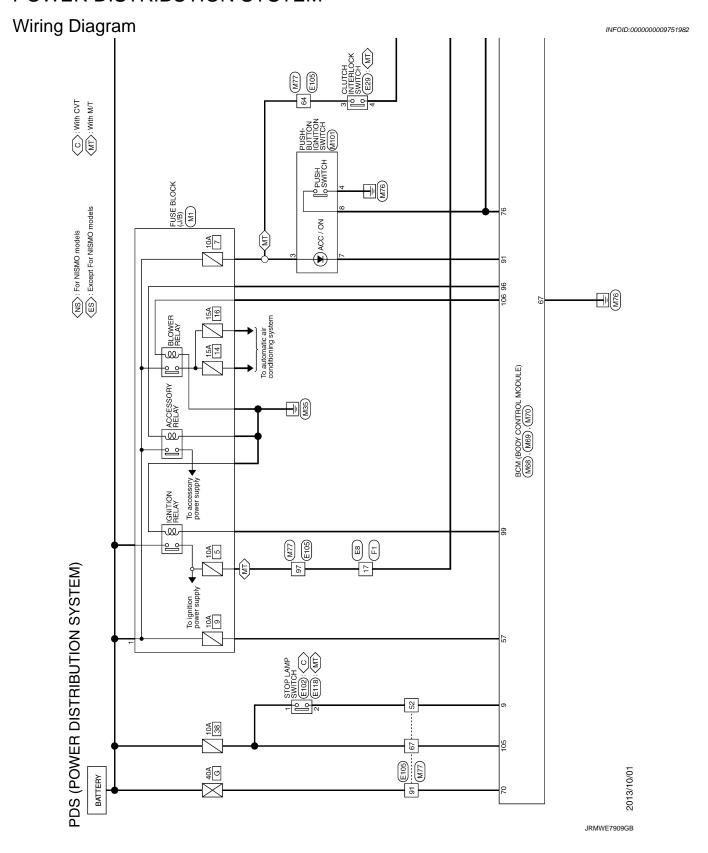
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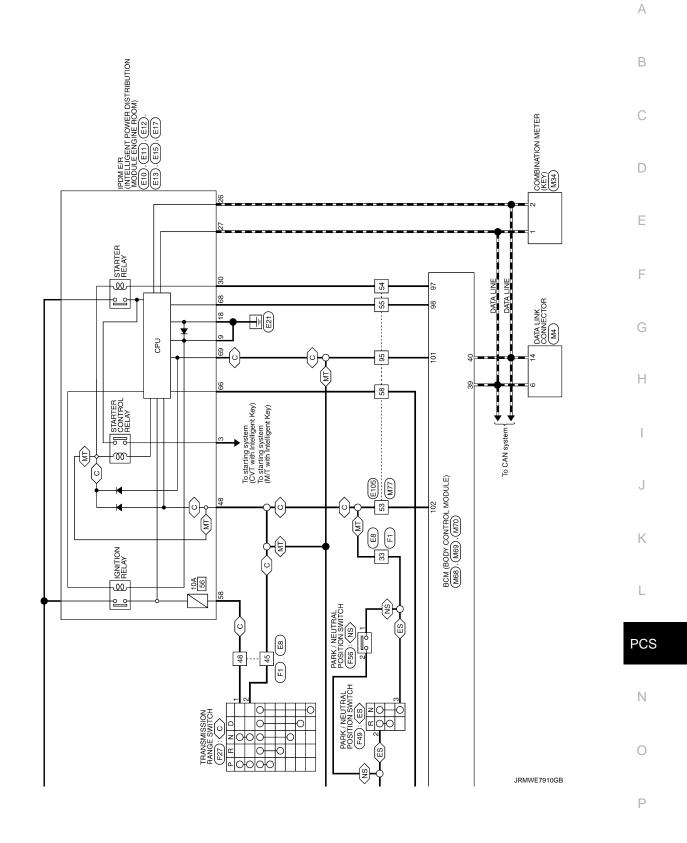
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WIRING DIAGRAM

POWER DISTRIBUTION SYSTEM





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Connector No.	or No.	E8	Ш	۵	-	Connector No.	E12	Connector No.	E15
Connecto	or Name	Connector Name WIRE TO WIRE	41	> -		Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)	Connector Name	IPOM E/R (INTELLIGENT POWER DISTRIBUTION MODILLE ENGINE ROOM)
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4	ÐΠ	-				20 G	- [Without front fog lamp]	51 L	-
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POWER DISTRIBUTION SYSTEM

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0 4		Connector Type	M02FB-LC	23	SHIELD	-
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GR -	72	>				
- 51	73	L Terminal Color Of	3			
	76	R No. Wire	Signal Name [Specification]			
	78	-				
	79	-	1			
	08	1 >	1			
	8					
	3 5	+ 4				
	ŧ,					
	82	9	-			
	98		-			
	90	- B	1			
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Connector No. F27	Connector No. F56	ᇛ	+	AMBIENT SENSOR GROUND [Without front fog lamp]
Connector Name TRANSMISSION RANGE SWITCH	Connector Name PARK / NEUTRAL POSITION SWITCH	4	+	GROUND
		4 B -	22 B	GROUND
Connector Type RK08FG	Connector Type RK02FB	- B	23 B	GROUND
		- 7 9	24 L	FUEL LEVEL SENSOR GROUND
	₹	W _ L	25 B	VDC GROUND
		- FG 8	26 V	PADDLE SHIFTER DOWN SWITCH SIGNAL
(S) S S S S S S S S S	S	14 P	27 LG	BATTERY POWER SUPPLY
		16 Y –	28 GR	IGNITION SIGNAL
((5) 1) 2) 3			29 LG	PASSENGER SEAT BELT WARNING SIGNAL [With front for lamp]
1			7 ^	PASSENCER SEAT BELT WARRING SKRIAL [Without from fog lamp]
		Connector No. M34	31 P	A/C AUTO AMP. CONNECTION RECOGNITION SIGNAL
Terminal Color Of Simulation Co:66	Terminal Color Of Simul Name [Seed to 1	CONDUMNITATION MOTERAL	36 LG	MANUAL MODE SIGNAL [With front fog lamp]
	No. Wire Signal Name [Specification]	Connector Name COMBINALION METER	36 √	MANUAL MODE SIGNAL [Without front fog lamp]
1 GR -	1 BR -	Connector Type TH40FW-NH	37 G	NON-MANUAL MODE SIGNAL [Without front fog lamp]
2 BR -	2 SB -		37 Y	NON-MANUAL MODE SIGNAL [With front fog lamp]
3 FG			38 P	ALTERNATOR SIGNAL
4 \ \				
5 G	Connector No. M1	5. 5. 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		
- > 9	Connector Name FLISE BLOCK (1/B)	2	Connector No.	M68
7 W -	П		Connector Name	BCM (BODY CONTROL MODILLE)
> 8	Connector Type L01FW-MC		2000	П
	ſ		Connector Type	TH40FB-NH
		E S	á	
Connector No. F49	[No. Wire	ほ	
Connector Name PARK / NEUTRAL POSITION SWITCH	2.2		¥	
		2 P CAN-L	5.5	
Connector Type FEA03FG-LC]	4 V VEHICLE SPEED SIGNAL (8-PULSE) [With front fog lamp]		2 3 4 5 5 7 7 8 8 10 12 13 14 15 17 18 18 17 18 18 18 18 18 18 18 18 18 18 18 18 18
4		VE		
		PAC		
	E E	6 BR FUEL LEVEL SENSOR SIGNAL		
	No. Wire	7 R AIR BAG SIGNAL	Terminal Color Of	Of Simul Nama [Sasaification]
((1213))	1 W -	8 P - [Without front fog lamp]	No. Wire	
		8 Y - [With front fog lamp]	2 L	COMBI SW INPUT 5
		9 SEAT BELT BUCKLE SMTCH STONAL CHRYCH STDEI (With front fag lamp)	3 GR	
	Connector No. M4	9 W SEAT BELT BUCKLE SMTCH SKRWL (DRIVER SIDE) Imithout from fog lamp]	4 BR	COMBI SW INPUT 3
<u>е</u>	Connector Name DATA LINK CONNECTOR	10 SB PARKING BRAKE SWITCH SIGNAL	5 G	COMBI SW INPUT 2
No. Wire		11 G BRAKE FLUID LEVEL SWITCH SIGNAL	W 9	COMBI SW INPUT 1
1 6	Connector Type BD16FW	13 B ILLUMINATION CONTROL SIGNAL [With front fog lamp]	7 L	KEY CYL UNLOCK SW
2 SB -		13 GR ILLUMINATION CONTROL SIGNAL [Without front fog lamp]	8	KEY CYL LOCK SW
3 BR -		14 R MANUAL MODE SHIFT UP SIGNAL [Without front fog lamp]	9 R	STOP LAMP SW 1
		14 V MANUAL MODE SHIFT UP SIGNAL [With front fog lamp]	10 W	-
	1.S.	15 L ACC POWER SUPPLY	12 GR	DOOR LK & UNLK SW LOCK [Without front fog lamp]
		16 O MANUAL MODE SHIFT DOWN SIGNAL [With front fog lamp]	12 Y	DOOR LK & UNLK SW LOCK [With front fog lamp]
	4 5 6 7 8	16 W MANUAL MODE SHIFT DOWN SIGNAL [Without front fog lamp]	13 BR	DOOR LK & UNLK SW UNLOCK
		17 G WASHER LEVEL SWITCH SIGNAL [Without front fog lamp]	14 P	OPTICAL SENS
		17 W WASHER LEVEL SWITCH SIGNAL [With front fog lamp]	15 W	RR_DEFOGGER_SW
		18 R SECURITY SIGNAL	17 R	OPTICAL SENS PWR SPLY
		19 GR AMBIENT SENSOR SIGNAL	> 81	RECEIVER GND
		20 I G AMBIENT SENSOR GROUND [With front for lamp]	2	NATS ANT AMP

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POWER DISTRIBUTION SYSTEM

	7	T	7	7	1		7]									7	7																								
	- [Without Intelligent Key]	- [With Intelligent Key]	1	T						M101		PUSH-BUTTON IGNITION SWITCH	TKORFBR				3	 	4 2 6 / 8			Company Name Consideration	Consequence Consequence	-			-	-																				
Ī	~	> .	-	GR	5	>	Ρ			l	Г		Ť	1								Color Of	Wire	9	В	W	۳	۸	PT																			
[92	92	96	97	98	66	100			Connector No.		Connector Name	Connector Type		₫E	主	H.S.					Terminal	No.	3	4	2	9	7	80																			
	M77	WIRE TO WIRE		TH80FW-CS16-TM4		[2 2	2 2 2	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2					Signal Name [Specification]	-	1	1	-	-		-	-	-	-		-	-	-	-		-				1			-	-	-	1				-	-	-	
	r No.	r Name		r Type									Color Of	Wire	_	>	W	а	œ	œ	97	SB	œ	۵	œ	٦	SB	Ь	PC	g	9	35 E	> >		2		GR	9	Μ	57	>	PP	۵	g	BR	ΓG	SHIELD	>
	Connector No.	Connector Name		Connector Type	þ		ŧ	3:15					Terminal	Š	-	4	2	9	6	10	34	32	36	37	52	53	54	22	28	29	64	99	99	9	9 6	17	72	73	9/	78	79	80	83	84	82	98	90	91
V (0) (0)	Y BAT (F/L)			Vo. M70	Name BCM (BODY CONTROL MODULE)	П	Type TH40FW-NH					75 76 78	91 @ 86 97 98 99 hobitoritic tourosine			Color Of	Wire Signal Name [Specification]	LG DR DOOR REQ SW	LG PASS DOOR REQ SW	P DRIVER DOOR ANT+	V DRIVER DOOR ANT-	LG PASS DOOR ANT+	Y PASS DOOR ANT-	W REAR BMPR ANT+	R	BR ROOM ANT 1+	GR ROOM ANT 1-	G ROOM ANT 2+	R ROOM ANT 2-			W PUSH-BINIGN SWILL PWR	V ACC / ON IND	-		S	IG	R IGN RELAY (F/B) CONT	P PUSH SW	Y CLUTCH INTERLOCK SW	L NEUTRAL SW	SB CVT SHIFT SELECT PWR SPLY	V STOP LAMP SW 2	Y BLWR RELAY CONT				
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PDS (POWER DISTRIBUTION SYSTEM)	SECURITY IND LAMP CONT			THERMO_AMP	A/C SW [With front fog lamp]	A/C SW [With	В	BLOWER FAN SW [With front fog lamp]	HAZARD SW [With front fog lamp]	HAZARD SW [Without front fog lamp]	H			COMBI	COMBI SW OUTPUT 3	COMBI SW OUTPUT 2	COMBI SW OUTPUT 1	DE	RECEIVER COMM	CAN-H	CAN-L			M69	BCM (BODY CONTROL MODILIE)		FEA09FW-FHA6-SA				7 56 57 59 60 61 63 64	65 66 67 68 69 70			L	Signal Name [Specification]	F	INT ROOM LAMP PWR SPLY [Without front fog lamp]	BAT (FUSE)	PASS DOOR UNLK OUTPUT	TURN SIG LH OUTPUT	TURN SIG RH OUTPUT		REVERSE SW	ALL DOOR LOCK OUTPUT	DR DOOR UNLK OUTPUT	GND	PW PWR SPLY (IGN)
S (PO)	+	+	+	+	*	+	P.	0	-	SS.	H	æ	+	╀	>	œ	۵	H	SB	_	Ь			Connector No.	Connector Name	alliani idania	Connector Type		_	ļ	2				Terminal Color Of	Wire	97	۵	_	SB	>	*	BR	~	>	Μ	В	_
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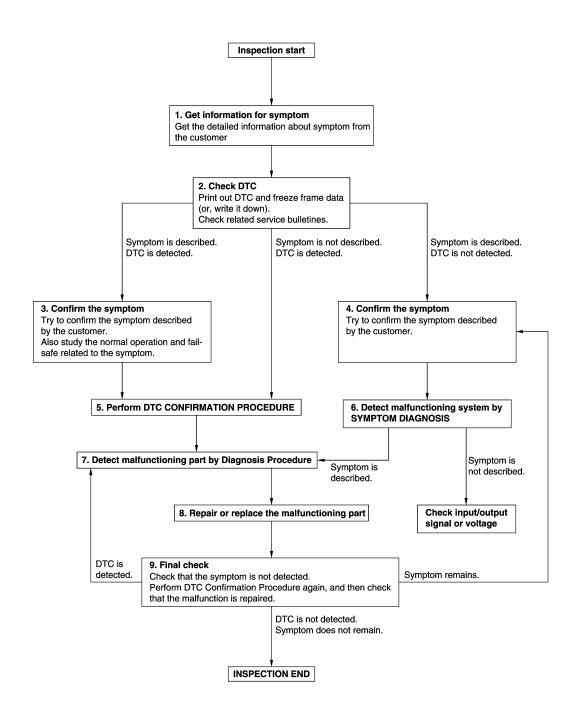
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BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

OVERALL SEQUENCE



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DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

1.GET INFORMATION FOR SYMPTOM

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

>> GO TO 2.

2. CHECK DTC

- 1. Check DTC.
- 2. Perform the following procedure if DTC is detected.
- Record DTC and freeze frame data (Print them out using CONSULT.)
- Study the relationship between the cause detected by DTC and the symptom described by the customer.
- Check related service bulletins for information.

Are any symptoms described and any DTC detected?

Symptom is described, DTC is detected>>GO TO 3.

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

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

${f 3.}$ CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

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

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

>> GO TO 5.

f 4.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

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

>> GO TO 6.

5. PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC CONFIRMATION PROCEDURE for the detected DTC, and then check that DTC is detected again. At this time, always connect CONSULT to the vehicle, and check self diagnostic results in real time. If two or more DTCs are detected, refer to BCS-58, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

NOTE:

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC CONFIRMATION PROCEDURE is not included on Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during

If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC CONFIR-MATION PROCEDURE.

Is DTC detected?

YES >> GO TO 7.

NO >> Check according to GI-46, "Intermittent Incident".

$\mathsf{6}.$ DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

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

Is the symptom described?

YES >> GO TO 7.

NO >> Monitor input data from related sensors or check voltage of related module terminals using CON-

.DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

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Revision: 2013 October

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

Inspect according to Diagnostic Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 8.

NO >> Check according to GI-46, "Intermittent Incident".

8.repair or replace the malfunctioning part

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

>> GO TO 9.

9. FINAL CHECK

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

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

Is DTC detected and does symptom remain?

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

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

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

B2614 ACC RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

DTC/CIRCUIT DIAGNOSIS

B2614 ACC RELAY CIRCUIT

DTC Logic INFOID:0000000009751984

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2614	всм	An immediate operation of accessory relay is requested by BCM, but there is no response for more than 2 second.	Harness or connectors (Accessory relay circuit is open or shorted) BCM Accessory relay

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

- Turn the power supply position to ACC under the following conditions, and wait for 2 second or more.
- Selector lever is in the P position
- Do not depress brake pedal
- 2. Check "Self-diagnosis result" of BCM with CONSULT.

Is DTC detected?

YES >> Go to PCS-85, "Diagnosis Procedure".

>> INSPECTION END NO

Diagnosis Procedure

1. CHECK ACCESSORY RELAY POWER SUPPLY-1

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

(+) Accessory relay Terminal	(–)	Con	dition	Voltage (V) (Approx.)
1	Ground	Ignition quitab	OFF	0
ı	Giouria	Ignition switch	ACC or ON	12

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.CHECK ACCESSORY RELAY POWER SUPPLY CIRCUIT

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

Accessory relay	В	CM	Continuity
Terminal	Connector	Terminal	Continuity
1	M70	96	Existed

Check continuity between accessory relay harness connector and ground.

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PCS-85

B2614 ACC RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

Accessory relay	Ground	Continuity
Terminal		Continuity
1		Not existed

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-90, "Removal and Installation".

NO >> Repair or replace harness.

3.check accessory relay ground circuit

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

Accessory relay	Ground	Continuity
Terminal		Continuity
2		Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair accessory relay ground circuit.

4. CHECK ACCESSORY RELAY POWER SUPPLY CIRCUIT-2

- 1. Turn ignition switch ACC.
- Check voltage between accessory relay harness connector and ground.

(+) Accessory relay Terminal	(-)	Voltage (V) (Approx.)
5	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check continuity open or short between accessory relay and battery.

5. CHECK ACCESSORY RELAY

Refer to PCS-86, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace accessory relay.

6. CHECK INTERMITTENT INCIDENT

Refer to GI-46, "Intermittent Incident".

>> INSPECTION END

Component Inspection

INFOID:0000000009751986

1. CHECK ACCESSORY RELAY

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

B2614 ACC RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

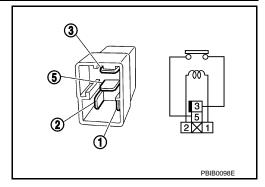
3. Check the continuity between accessory relay terminals.

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

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace accessory relay



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B2615 BLOWER RELAY CIRCUIT

DTC Logic

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2615	ВСМ	BCM detects a difference of signal for 1 second or more between the following items. • Blower relay ON/OFF request • Blower relay feedback	Harness or connectors (Blower relay circuit is open or shorted) BCM Blower relay

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

YES >> Go to PCS-88, "Diagnosis Procedure".

NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000009751988

1. CHECK BLOWER RELAY POWER SUPPLY

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

(+)		Condition		Voltage (V) (Approx.)
Blower relay	(–)			
Terminal				(, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
1	Ground	Ignition switch	OFF or ACC	0
'	Ground	ignition switch	ON	Battery voltage

Is the inspection result normal?

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

2.CHECK BLOWER RELAY POWER SUPPLY CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect BCM connector.
- 3. Check continuity between blower relay harness connector and BCM harness connector.

Blower relay	BCM		Continuity
Terminal	Connector Terminal		Continuity
1	M70	106	Existed

4. Check continuity between blower relay harness connector and ground.

Blower relay	Ground	Continuity
Terminal		Continuity
1		Not existed

Is the inspection result normal?

B2615 BLOWER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

YES >> GO TO 6.

NO >> Repair or replace harness.

3.check blower relay ground circuit

- Turn ignition switch OFF.
- 2. Check continuity between blower relay harness connector and ground.

Blower relay	Ground	Continuity
Terminal		Continuity
2		Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair blower relay ground circuit.

f 4.CHECK BLOWER RELAY POWER SUPPLY CIRCUIT-2

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

(+) Blower relay	(–)	Voltage (V) (Approx.)
Terminal		
5	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check continuity open or short between blower relay and battery.

5. CHECK BLOWER RELAY

Refer to PCS-89, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace blower relay.

6.CHECK INTERMITTENT INCIDENT

Refer to GI-46, "Intermittent Incident".

>> INSPECTION END

Component Inspection

1. CHECK BLOWER RELAY

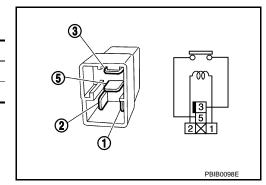
- 1. Turn ignition switch OFF.
- 2. Remove blower relay.
- 3. Check the continuity between blower relay terminals.

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

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace blower relay



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[POWER DISTRIBUTION SYSTEM]

B2616 IGNITION RELAY CIRCUIT

DTC Logic

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2616	ВСМ	An immediate operation of ignition relay is requested by BCM, but there is no response for more than 1 second	, ,

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

YES >> Go to PCS-90, "Diagnosis Procedure".

NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000009751991

1. CHECK IGNITION RELAY POWER SUPPLY

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

(+)				V 16 0.0
Ignition relay	(–)	Condition		Voltage (V) (Approx.)
Terminal				
2	Ground	Ignition switch	OFF or ACC	0
	Ground	ignition switch	ON	Battery voltage

Is the inspection result normal?

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

2.CHECK IGNITION RELAY POWER SUPPLY CIRCUIT

- Turn ignition switch OFF.
- 2. Disconnect BCM connector.
- Check continuity between ignition relay harness connector and BCM harness connector.

Ignition relay	BCM		Continuity
Terminal	Connector Terminal		Continuity
2	M70	99	Existed

4. Check continuity between ignition relay harness connector and ground.

Ignition relay	Ground	Continuity	
Terminal		Continuity	
2		Not existed	

Is the inspection result normal?

B2616 IGNITION RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

YES >> Replace BCM. Refer to BCS-90, "Removal and Installation".

NO >> Repair or replace harness.

3.check ignition relay ground circuit

1. Turn ignition switch OFF.

2. Check continuity between ignition relay harness connector and ground.

Ignition relay		Continuity
Terminal	Ground	Continuity
1		Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair ignition relay ground circuit.

4. CHECK IGNITION RELAY POWER SUPPLY CIRCUIT-2

1. Turn ignition switch ON.

Check voltage between ignition relay harness connector and ground.

(+) Ignition relay	(-)	Voltage (V) (Approx.)	
Terminal		, , , , , , , , , , , , , , , , , , ,	
5	Ground	Battery voltage	

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check continuity open or short between ignition relay and battery.

5. CHECK IGNITION RELAY

Refer to PCS-91, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 6.

NO >> Replace ignition relay.

6.CHECK INTERMITTENT INCIDENT

Refer to GI-46, "Intermittent Incident".

>> INSPECTION END

Component Inspection

1. CHECK IGNITION RELAY

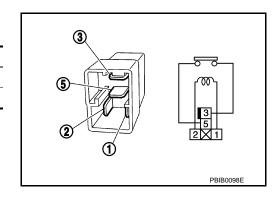
- 1. Turn ignition switch OFF.
- Remove ignition relay.
- 3. Check the continuity between ignition relay terminals.

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

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace Ignition relay



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B2618 BCM

DTC Logic

DTC DETECTION LOGIC

NOTE:

- If DTC B2618 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to BCS-79, "DTC Logic".
- If DTC B2618 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to BCS-80, "DTC Logic".

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

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON under the following conditions, and wait for 1 second or more.

CVT models

- Selector lever is in the P or N position
- Do not depress brake pedal

M/T models

- Do not depress clutch pedal
- Check "Self-diagnosis result" of BCM with CONSULT.

Is DTC detected?

YES >> Go to PCS-92, "Diagnosis Procedure".

NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000009751994

1.INSPECTION START

- Turn ignition switch ON.
- 2. Select "Self-diagnosis result" of BCM with CONSULT.
- 3. Touch "ERASE".
- 4. Perform DTC Confirmation Procedure.

See PCS-92, "DTC Logic".

Is the 1st trip DTC B2618 displayed again?

YES >> Replace BCM. Refer to BCS-90, "Removal and Installation"

NO >> INSPECTION END

B261A PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B261A PUSH-BUTTON IGNITION SWITCH

DTC Logic

DTC DETECTION LOGIC

NOTE:

- If DTC B261A is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to BCS-79, "DTC Logic".
- If DTC B261A is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to BCS-80, "DTC Logic".

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B261A	PUSH-BTN IGN SW	BCM detects a difference of signal for 1 second or more between the following items. Push-button ignition switch signal Push-button ignition switch status signal (CAN)	Harness or connectors (Push-button ignition switch circuit is open or shorted.) BCM IPDM E/R

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

Press the push-button ignition switch under the following conditions, and wait for 1 second or more.

CVT models

- Selector lever is in the P or N position
- Do not depress brake pedal

M/T models

- Do not depress clutch pedal
- 2. Check "Self-diagnosis result" of BCM with CONSULT.

Is DTC detected?

YES >> Go to PCS-93, "Diagnosis Procedure".

NO >> INSPECTION END

Diagnosis Procedure

${\bf 1.} {\tt check\ ignition\ switch\ output\ signal\ (push-button\ ignition\ switch)}$

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

(+) Push-button ignition switch		(–)	Voltage (V) (Approx.)
Connector	Terminal		(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
M101	8	Ground	12

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2.check push-button ignition switch circuit (BCM)

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

В	CM	Push-button ignition switch		Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
M70	76	M101	8	Existed	

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

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B261A PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

Push-button ignition switch			Continuity
Connector	Terminal	Ground	Continuity
M101	8		Not existed

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-90, "Removal and Installation".

NO >> Repair or replace harness.

$3. {\tt CHECK\ IGNITION\ SWITCH\ OUTPUT\ SIGNAL\ (IPDM\ E/R)}$

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

(+) IPDM E/R		(-)	Voltage (V) (Approx.)
Connector	Terminal		(11 - 7
E17	66	Ground	12

Is the inspection result normal?

YES >> Replace IPDM E/R.

NO >> GO TO 4.

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

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

IPDI	IPDM E/R		Push-button ignition switch	
Connector	Terminal	Connector Terminal		Continuity
E17	66	M101	8	Existed

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

Push-button ignition switch			Continuity
Connector	Connector Terminal		Continuity
M101	8		Not existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair or replace harness.

CHECK INTERMITTENT INCIDENT

Refer to GI-46, "Intermittent Incident".

>> INSPECTION END

B26F1 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

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B26F1 IGNITION RELAY

DTC Logic

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 ignition switch ON signal (ON) (CAN), but does not receives ignition switch ON signal (ON) (CAN) from IPDM E/R.	Harness or connectors (Ignition relay circuit is open) BCM IPDM E/R

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON under the following conditions, and wait for 2 seconds or more.

CVT models

- Selector lever is in the P or N position
- Do not depress brake pedal

M/T models

- Do not depress clutch pedal
- Check "Self-diagnosis result" with CONSULT.

Is DTC detected?

YES >> Go to PCS-95. "Diagnosis Procedure".

NO >> INSPECTION END

Diagnosis Procedure

1. CHECK IPDM E/R SELF-DIAGNOSTIC RESULT

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

Is DTC detected?

YES >> Repair or replace the malfunctioning part. Refer to <u>PCS-24</u>, "DTC Index".

NO >> GO TO 2.

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

Check voltage between BCM harness connector and ground.

((+) BCM		Condition		Voltage (V) (Approx.)
Connector	Terminal				(11 -)
M70	98	Ground	Ignition switch	ON	0

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to BCS-90, "Removal and Installation".

3.check ignition relay (IPDM E/R) control signal circuit

- Turn ignition switch OFF.
- Disconnect BCM and IPDM connectors.
- Check continuity between BCM harness connector and IPDM E/R harness connector.

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B26F1 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

ВСМ		IPDM E/R		Continuity
Connector	Terminal	Connector Terminal		Continuity
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

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 ignition switch ON signal (OFF) (CAN), but does not receives ignition switch ON signal (OFF) (CAN) from IPDM E/R.	Harness or connectors (Ignition relay circuit is short) BCM IPDM E/R

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON under the following conditions, and wait for 2 seconds or more.

CVT models

- Selector lever is in the P or N position
- Do not depress brake pedal

M/T models

- Do not depress clutch pedal
- Check "Self-diagnosis result" with CONSULT.

Is DTC detected?

YES >> Go to PCS-97, "Diagnosis Procedure".

NO >> INSPECTION END

Diagnosis Procedure

1. CHECK IPDM E/R SELF-DIAGNOSTIC RESULT

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

Is DTC detected?

YES >> Repair or replace the malfunctioning part. Refer to PCS-24, "DTC Index".

NO >> GO TO 2.

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

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

	(+) M E/R	(–)	Condition		Voltage (V) (Approx.)
Connector	Terminal				, , ,
E17	68	Ground	Ignition switch	OFF or ACC	12

Is the inspection result normal?

YES >> Replace IPDM E/R.

NO >> GO TO 3.

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

- Turn ignition switch OFF.
- Disconnect BCM and IPDM E/R connectors.
- 3. Check continuity between IPDM E/R harness connector and ground.

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B26F2 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

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

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

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.

	+) M E/R	(–)	Condition		Voltage (V) (Approx.)
Connector	Terminal				(11 -)
E17	68	Ground	Ignition switch	OFF or ACC	12

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-90, "Removal and Installation".

NO >> Replace IPDM E/R.

[POWER DISTRIBUTION SYSTEM]

B26F6 BCM

DTC Logic INFOID:0000000009752001

DTC DETECTION LOGIC

NOTE:

- If DTC B26F6 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to BCS-79, "DTC Logic".
- If DTC B26F6 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to BCS-80, "DTC Logic".

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B26F6	всм	Ignition relay ON signal is not transmitted from IPDM E/R when BCM turns ignition relay ON.	ВСМ

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

Turn ignition switch ON under the following conditions, and wait for 1 second or more.

CVT models

- Selector lever is in the P or N position
- Do not depress brake pedal

M/T models

- Do not depress clutch pedal
- Check "Self-diagnosis result" of BCM with CONSULT.

Is DTC detected?

YES >> Go to PCS-99, "Diagnosis Procedure".

>> INSPECTION END NO

Diagnosis Procedure

1. INSPECTION START

- Turn ignition switch ON.
- Select "Self-diagnosis result" of BCM with CONSULT. 2.
- Touch "ERASE".
- Perform DTC Confirmation Procedure.

See BCS-59, "DTC Index".

Is DTC detected?

YES >> Replace BCM. Refer to BCS-90, "Removal and Installation"

NO >> INSPECTION END **PCS**

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PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

PUSH-BUTTON IGNITION SWITCH

Component Function Check

1. CHECK FUNCTION

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

Test item	Condition	Status
PUSH SW	Push-button ignition switch is pressed	ON
1 0311 300	Push-button ignition switch is not pressed	OFF

Is the indication normal?

YES >> INSPECTION END.

NO >> Go to PCS-100, "Diagnosis Procedure".

Diagnosis Procedure

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INFOID:0000000009752003

1. CHECK PUSH-BUTTON IGNITION SWITCH OUTPUT SIGNAL 1

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

(+) Push-button ignition switch		(-)	Voltage (V) (Approx.)
Connector	Connector Terminal		(, 44, 2, 11)
M101	8	Ground	12

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

2. CHECK PUSH-BUTTON IGNITION SWITCH CIRCUIT 1

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

В	BCM Push-buttor		ignition switch	Continuity
Connector	Terminal	Connector Terminal		Continuity
M70	76	M101	8	Existed

Check continuity between BCM harness connector and ground.

В	CM		Continuity	
Connector	Connector Terminal		Continuity	
M70	76		Not existed	

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-90, "Removal and Installation".

NO >> Repair or replace harness.

3.CHECK PUSH-BUTTON IGNITION SWITCH OUTPUT SIGNAL 2

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

PUSH-BUTTON IGNITION SWITCH

DTC/CIRCUIT DIAG	NO919 >			Į. OWEK	DISTRIBUTION SYS
(+)				Voltage (V)	
0	IPDM E/R		(-)		(Approx.)
Connector E17	iermii 66	Terminal		ound	12
the inspection result r			GIC	Junu	12
/ES >> GO TO 5. NO >> GO TO 4. .CHECK PUSH-BUTT		TCH CIRCU	JIT 2		
Disconnect BCM co	onnector.			sh-button igni	ition switch harness c
IPDM	I E/R	F	Push-button igni	tion switch	Continuity
Connector	Terminal	Conn	nector Terminal		Continuity
E17	66	M1	01	8	Existed
Connector E17	Termii 66	nal	Ground		Continuity Not existed
.CHECK PUSH-BUTT	DM E/R. eplace harness. FON IGNITION SWI				
neck continuity between	n push-button ignit	ion switch h	arness conne	ector and grou	und.
	utton ignition switch				Continuity
Connector	Termi	nal	Ground		
M101	4				Existed
.CHECK PUSH-BUTT	eplace harness. FON IGNITION SWI				
efer to PCS-101, "Con	•				
sthe inspection result r YES >> GO TO 7.	<u>iormar?</u>				
NO >> Replace ou	sh-button ignition sv	witch			

7. CHECK INTERMITTENT INCIDENT

Refer to GI-46, "Intermittent Incident".

>> INSPECTION END

- 1. CHECK PUSH-BUTTON IGNITION SWITCH

Component Inspection

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

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PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

Push-button ignition switch Terminal		Condition	Continuity
		Condition	Continuity
4	4 0	Pressed	Existed
4	0	Not pressed	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace push-button ignition switch.

PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR

Description INFOID:000000009752006

Push-button ignition switch changes the power supply position.

BCM maintains the power supply position status.

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

Component Function Check

1. CHECK FUNCTION

Check push-button ignition switch ("PUSH SWITCH INDICATOR") in Active Test Mode with CONSULT.

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

Is the inspection result normal?

YES >> INSPECTION END

NO >> Refer to PCS-103, "Diagnosis Procedure".

Diagnosis Procedure

1. CHECK PUSH-BUTTON IGNITION SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.

Disconnect push-button ignition switch connector.

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

(+) Push-button ignition switch		(-)	Voltage (V) (Approx.)	
Connector Terminal				
M101	3	Ground	Battery voltage	

Is the inspection normal?

YES >> GO TO 2.

NO-1 >> Check 10 A fuse [No.13, located in fuse block (J/B)].

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

2.CHECK BCM INPUT

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

(+) BCM		(–)	Voltage (V) (Approx.)	
Connector	Terminal		(, 41, 2,)	
M70	91	Ground	Battery voltage	

Is the inspection normal?

YES >> Replace BCM. Refer to BCS-90, "Removal and Installation".

NO >> GO TO 3.

${f 3.}$ check push-button ignition switch circuit

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

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PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

В	СМ	Push-button ignition switch		Continuity
Connector	Terminal	Connector Terminal		Continuity
M70	91	M101	7	Existed

3. Check continuity between BCM harness connector and ground.

BCM			Continuity	
Connector	Terminal	Ground	Continuity	
M70	91		Not existed	

Is the inspection normal?

YES >> Replace push-button ignition switch.

NO >> Repair or replace harness.

PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

SYMPTOM DIAGNOSIS

PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE

Description NPFOID:0000000009752009

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

NOTE:

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

Conditions of Vehicle (Operating Conditions)

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

Diagnosis Procedure

1.PERFORM WORK SUPPORT

Perform "INSIDE ANT DIAGNOSIS" on Work Support of "INTELLIGENT KEY". Refer to DLK-29, "DOOR LOCK: CONSULT Function (BCM - DOOR LOCK)".

>> GO TO 2.

2.PERFORM SELF-DIAGNOSIS RESULT

Perform Self-Diagnosis Result of "BCM".

Is DTC detected?

YES >> Refer to BCS-59, "DTC Index".

NO >> GO TO 3.

3.CHECK PUSH-BUTTON IGNITION SWITCH

Check push-button ignition switch.

Refer to PCS-100, "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-46, "Intermittent Incident".

NO >> GO TO 1.

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PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR DOES NOT ILLUMINATE

< SYMPTOM DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR DOES NOT IL-LUMINATE

Description INFOID:0000000009752011

- Before performing the diagnosis in the following table, check "Work Flow". Refer to PCS-82, "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:0000000009752012

1. CHECK PUSH-BUTTON IGNITION SWITCH INDICATOR

Check push-button ignition switch indicator.

Refer to PCS-103, "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-46, "Intermittent Incident".

NO >> GO TO 1.