

PCS

SECTION

POWER CONTROL SYSTEM

CONTENTS

IPDM E/R		
PRECAUTION	3	
PRECAUTIONS	3	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	3	
Precaution for Battery Service	3	
SYSTEM DESCRIPTION	4	
COMPONENT PARTS	4	
Component Parts Location	4	
SYSTEM	5	
RELAY CONTROL SYSTEM	5	
RELAY CONTROL SYSTEM : System Diagram	5	
RELAY CONTROL SYSTEM : System Description	5	
RELAY CONTROL SYSTEM : Fail-safe	6	
POWER CONTROL SYSTEM	7	
POWER CONTROL SYSTEM : System Diagram	8	
POWER CONTROL SYSTEM : System Description	8	
SIGNAL BUFFER SYSTEM	8	
SIGNAL BUFFER SYSTEM : System Diagram	8	
SIGNAL BUFFER SYSTEM : System Description	8	
POWER CONSUMPTION CONTROL SYSTEM	8	
POWER CONSUMPTION CONTROL SYSTEM : System Diagram	9	
POWER CONSUMPTION CONTROL SYSTEM : System Description	9	
DIAGNOSIS SYSTEM (IPDM E/R)	10	
Diagnosis Description	10	
CONSULT Function (IPDM E/R)	12	
ECU DIAGNOSIS INFORMATION	15	
IPDM E/R	15	
Reference Value	15	
Fail-safe	21	
DTC Index	23	
WIRING DIAGRAM	24	
IPDM E/R	24	
Wiring Diagram	24	
DTC/CIRCUIT DIAGNOSIS	27	
U1000 CAN COMM CIRCUIT	27	
Description	27	
DTC Logic	27	
Diagnosis Procedure	27	
B2098 IGNITION RELAY ON STUCK	28	
Description	28	
DTC Logic	28	
Diagnosis Procedure	28	
B2099 IGNITION RELAY OFF STUCK	29	
Description	29	
DTC Logic	29	
Diagnosis Procedure	29	
POWER SUPPLY AND GROUND CIRCUIT	30	
Diagnosis Procedure	30	
REMOVAL AND INSTALLATION	31	
IPDM E/R	31	
Exploded View	31	
Removal and Installation	31	
POWER DISTRIBUTION SYSTEM		
PRECAUTION	32	
PRECAUTIONS	32	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	32	

A

B

C

D

E

F

G

H

I

J

K

L

PCS

N

O

P

SYSTEM DESCRIPTION	33	Diagnosis Procedure	52
COMPONENT PARTS	33	B2614 ACC RELAY	54
Component Parts Location	33	DTC Logic	54
Component Description	33	Diagnosis Procedure	54
BCM	33	Component Inspection	55
IPDM E/R	33	B2615 BLOWER RELAY CIRCUIT	57
Ignition Relay	34	DTC Logic	57
Accessory Relay	34	Diagnosis Procedure	57
Blower Relay	34	Component Inspection	58
Push-Button Ignition Switch	34	B2616 IGNITION RELAY CIRCUIT	60
Stop Lamp Switch	34	DTC Logic	60
TCM	34	Diagnosis Procedure	60
SYSTEM	35	Component Inspection	61
POWER DISTRIBUTION SYSTEM	35	B2618 BCM	63
POWER DISTRIBUTION SYSTEM : System De-		DTC Logic	63
scription	35	Diagnosis Procedure	63
Fail-safe	36	B261A PUSH-BUTTON IGNITION SWITCH	64
DIAGNOSIS SYSTEM (BCM)	38	DTC Logic	64
COMMON ITEM	38	Diagnosis Procedure	64
COMMON ITEM : CONSULT Function (BCM -		PUSH-BUTTON IGNITION SWITCH	65
COMMON ITEM)	38	Component Function Check	65
INTELLIGENT KEY	39	Diagnosis Procedure	65
INTELLIGENT KEY : CONSULT Function (BCM -		Component Inspection	66
INTELLIGENT KEY)	39	PUSH-BUTTON IGNITION SWITCH POSI-	
ECU DIAGNOSIS INFORMATION	44	TION INDICATOR	67
BCM, IPDM E/R	44	Description	67
List of ECU Reference	44	Component Function Check	67
WIRING DIAGRAM	45	Diagnosis Procedure	67
POWER DISTRIBUTION SYSTEM	45	SYMPTOM DIAGNOSIS	69
Wiring Diagram	45	PUSH-BUTTON IGNITION SWITCH DOES	
BASIC INSPECTION	47	NOT OPERATE	69
DIAGNOSIS AND REPAIR WORK FLOW	47	Description	69
Work Flow	47	Diagnosis Procedure	69
DTC/CIRCUIT DIAGNOSIS	50	PUSH-BUTTON IGNITION SWITCH POSI-	
B2553 IGNITION RELAY	50	TION INDICATOR DOES NOT ILLUMINATE ...	70
DTC Logic	50	Description	70
Diagnosis Procedure	50	Diagnosis Procedure	70
B260A IGNITION RELAY	52	REMOVAL AND INSTALLATION	71
DTC Logic	52	PUSH-BUTTON IGNITION SWITCH	71
		Exploded View	71
		Removal and Installation	71

PRECAUTION

PRECAUTIONS

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

INFOID:000000008463291

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

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

Always observe the following items for preventing accidental activation.

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

Precaution for Battery Service

INFOID:000000008463292

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

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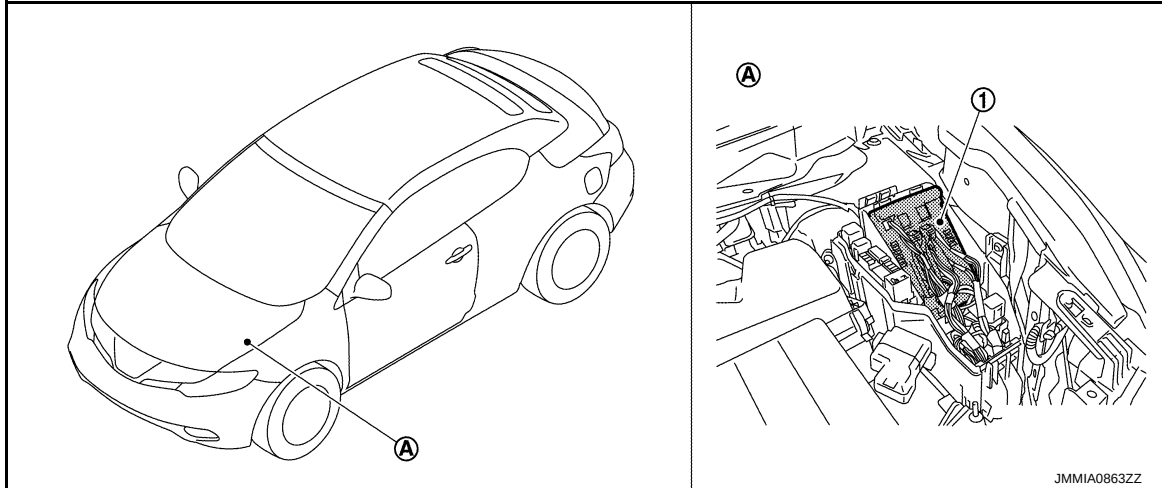
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SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

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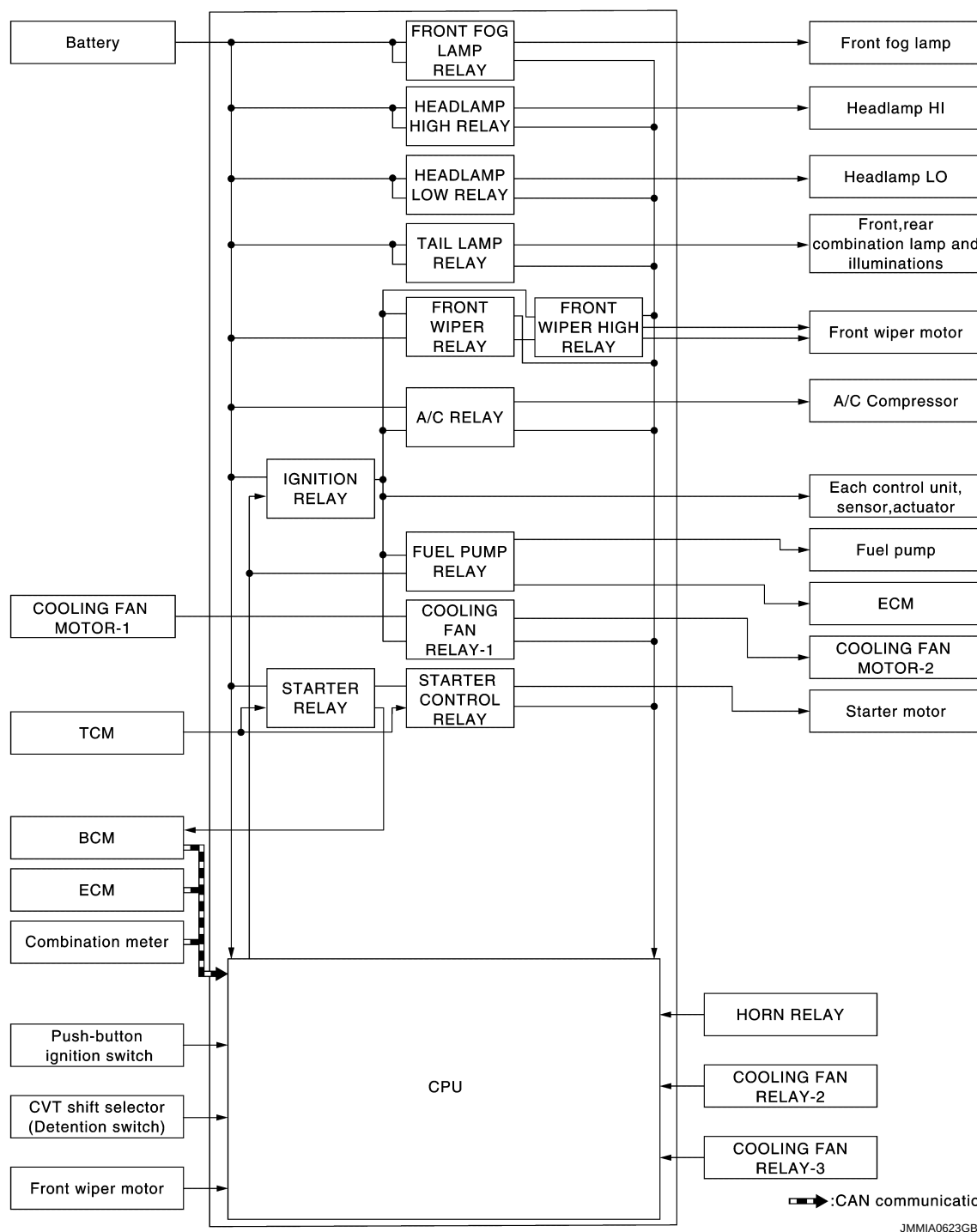
- 1. IPDM E/R
- A. Engine room (LH)

SYSTEM

RELAY CONTROL SYSTEM

RELAY CONTROL SYSTEM : System Diagram

INFOID:000000008463294



RELAY CONTROL SYSTEM : System Description

INFOID:000000008463295

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

NOTE:

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

SYSTEM

< SYSTEM DESCRIPTION >

[IPDM E/R]

Control relay	Input/output	Transmit unit	Control part	Reference page
- Headlamp low relay - Headlamp high relay	- Low beam request signal - High beam request signal	BCM (CAN)	- Headlamp low - Headlamp high	EXL-9
Front fog lamp relay	Front fog light request signal	BCM (CAN)	Front fog lamp	EXL-13
Tail lamp relay	Position light request signal	BCM (CAN)	- Parking lamp - Side marker lamp - License plate lamp - Tail lamp	EXL-12
			Illuminations	INL-9
- Front wiper relay - Front wiper high relay	Front wiper request signal	BCM (CAN)	Front wiper motor	WW-7
	Front wiper stop position signal	Front wiper motor		
Horn relay	- Theft warning horn request signal - Horn reminder signal	BCM (CAN)	- Horn (low) - Horn (high)	SEC-16
- Starter relay^{NOTE} - Starter control relay	Starter control relay signal	BCM (CAN)	Starter motor	SEC-9 SEC-9
	Starter relay control signal	TCM		
A/C relay	A/C compressor request signal	ECM (CAN)	A/C compressor (magnet clutch)	HAC-14
- Cooling fan relay-1 - Cooling fan relay-2 - Cooling fan relay-3	Cooling fan speed request signal	ECM (CAN)	- Cooling fan motor-1 - Cooling fan motor-2	EC-40
Ignition relay	Ignition switch ON signal	BCM (CAN)	Ignition relay	PCS-28
	Vehicle speed signal	Combination meter (CAN)		
	Push-button ignition switch signal	Push-button ignition switch		

NOTE:

BCM controls the starter relay.

RELAY CONTROL SYSTEM : Fail-safe

INFOID:000000008973102

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	- Turns ON the cooling fan relay-2 and the cooling fan relay-3 when ignition switch is turned ON (Cooling fan operates at HI) - Turns OFF the cooling fan relay-1, the cooling fan relay-2 and the cooling fan relay-3 when the ignition switch is turned OFF (Cooling fan does not operate)
A/C compressor	A/C relay OFF
Alternator	Outputs the power generation command signal (PWM signal) 0%

If No CAN Communication Is Available With BCM

SYSTEM

< SYSTEM DESCRIPTION >

[IPDM E/R]

Control part	Fail-safe operation
Headlamp	• 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 lamp • License plate lamp • Side maker lamp • Illumination • Tail 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/AUTO 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 than stop position.
Front fog lamp	Front fog lamp relay OFF
Horn	Horn relay OFF
Ignition relay	The status just before activation of fail-safe is maintained.
Starter motor	Starter control relay OFF

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

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

Voltage judgment		IPDM E/R judgment	Operation
Ignition relay contact side	Ignition relay excitation coil side		
ON	ON	Ignition relay ON normal	—
OFF	OFF	Ignition relay OFF normal	—
ON	OFF	Ignition relay ON stuck	• 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 auto stop signal.

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

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

NOTE:

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

STARTER MOTOR PROTECTION FUNCTION

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

POWER CONTROL SYSTEM

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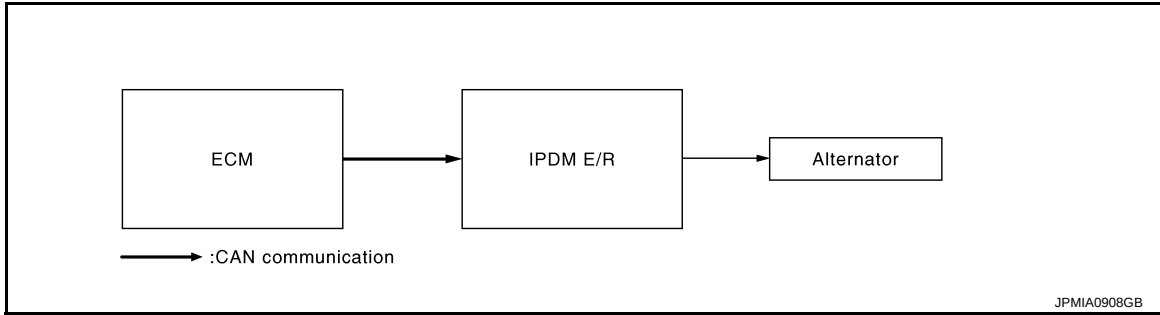
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POWER CONTROL SYSTEM : System Diagram

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POWER CONTROL SYSTEM : System Description

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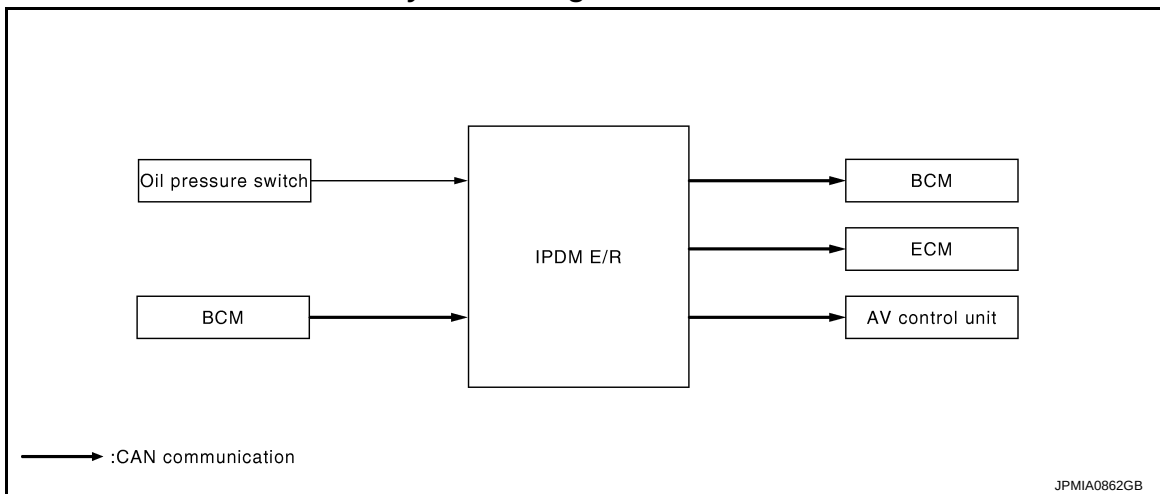
ALTERNATOR CONTROL

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

INFOID:000000008463299



SIGNAL BUFFER SYSTEM : System Description

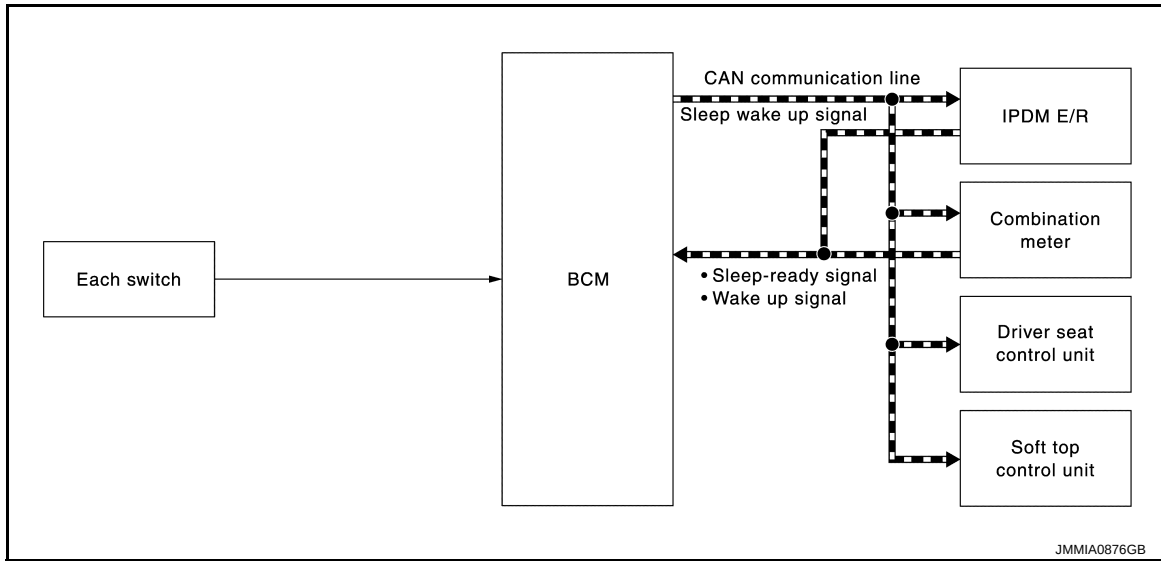
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- IPDM E/R reads the status of the oil pressure switch and transmits the oil pressure switch signal to BCM via CAN communication. Refer to [MWI-13, "WARNING LAMPS/INDICATOR LAMPS : System Diagram"](#).
- IPDM E/R receives the rear window defogger control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

POWER CONSUMPTION CONTROL SYSTEM

POWER CONSUMPTION CONTROL SYSTEM : System Diagram

INFOID:000000008463301



POWER CONSUMPTION CONTROL SYSTEM : System Description

INFOID:000000008463302

OUTLINE

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

Normal mode (wake-up)

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

Low power consumption mode (sleep)

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

SLEEP MODE ACTIVATION

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

WAKE-UP OPERATION

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

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DIAGNOSIS SYSTEM (IPDM E/R)

Diagnosis Description

INFOID:000000008463303

AUTO ACTIVE TEST

Description

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

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

Operation Procedure

NOTE:

Never perform auto active test in the following conditions.

- CONSULT is connected
- Passenger door is open

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

NOTE:

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

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

NOTE:

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

Inspection in Auto Active Test Mode

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

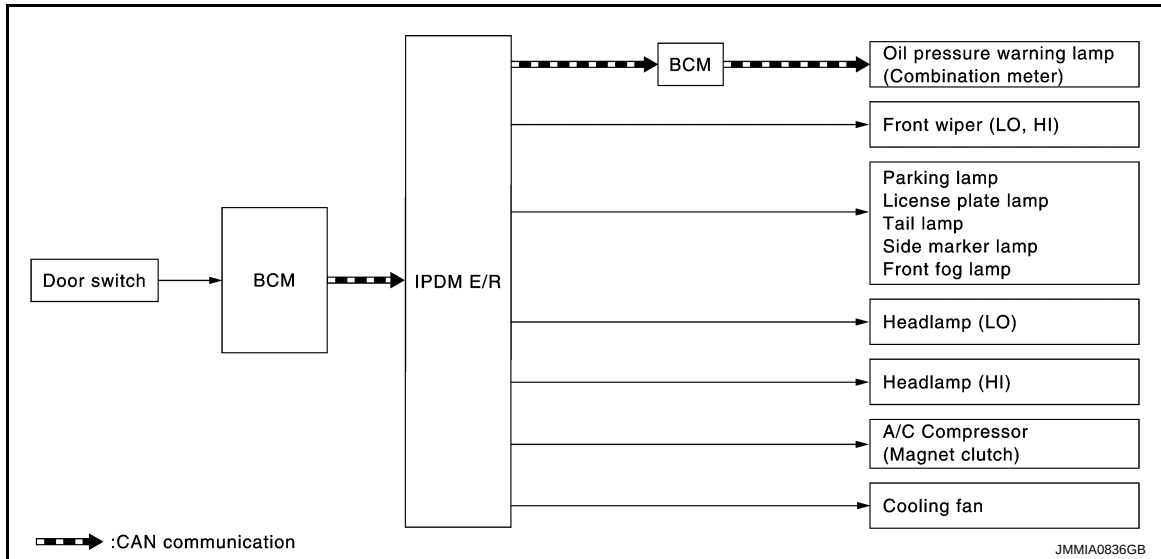
Operation sequence	Inspection location	Operation
1	Oil pressure warning lamp	Blinks continuously during operation of auto active test
2	Front wiper motor	LO for 5 seconds → HI for 5 seconds
3	• Parking lamp • License plate lamp • Side maker lamp • Tail lamp • Front fog lamp	10 seconds
4	Headlamp	LO ⇔ HI 5 times
5	A/C compressor (magnet clutch)	ON ⇔ OFF 5 times
6	Cooling fan	LO for 5 seconds → MID for 3 seconds → HI for 2 seconds

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R]

Concept of auto active test



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

Diagnosis chart in auto active test mode

Symptom	Inspection contents	Possible cause
Any of the following components do not operate • Parking lamp • License plate lamp • Side marker lamp • Tail lamp • Front fog lamp • Headlamp (HI, LO) • Front motor wiper	Perform auto active test. Does the applicable system operate?	YES BCM signal input circuit
		NO • Lamp or motor • Lamp or motor ground circuit • Harness or connector between IPDM E/R and applicable system • IPDM E/R
A/C compressor does not operate	Perform auto active test. Does the magnet clutch operate?	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
		NO • Magnet clutch • Harness or connector between IPDM E/R and magnet clutch • IPDM E/R
Oil pressure warning lamp does not operate	Perform auto active test. Does the oil pressure warning lamp blink?	YES • Harness or connector between IPDM E/R and oil pressure switch • Oil pressure switch • IPDM E/R
		NO • CAN communication signal between IPDM E/R and BCM • CAN communication signal between BCM and combination meter • Combination meter

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R]

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

CONSULT Function (IPDM E/R)

INFOID:000000008463304

APPLICATION ITEM

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

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

SELF DIAGNOSTIC RESULT

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

DATA MONITOR

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
MOTOR FAN REQ [1/2/3/4]	×	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.
IGN RLY [Off/On]	×	Displays the status of the ignition relay judged by IPDM E/R.

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R]

Monitor Item [Unit]	MAIN SIG- NALS	Description
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 shift position 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: The item is indicated, but not monitored.
S/L STATE [LOCK/UNLOCK/UNKWN]		NOTE: The item is indicated, but not monitored.
DTRL REQ [Off/On]		NOTE: The item is indicated, but not monitored.
OIL P SW [Open/Close]		Displays the status of the oil pressure switch judged by IPDM E/R.
HOOD SW [Off/On]		NOTE: The item is indicated, but not monitored.
HL WASHER REQ [Off/On]		NOTE: The item is indicated, but not monitored.
THFT HRN REQ [Off/On]		Displays the status of the theft warning horn request signal received from BCM via CAN communication.
HORN CHIRP [Off/On]		Displays the status of the horn reminder signal received from BCM via CAN communication.
CRNRNG LMP REQ [Off/On]		NOTE: The item is indicated, but not monitored.

ACTIVE TEST

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

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R]

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

ECU DIAGNOSIS INFORMATION

IPDM E/R

Reference Value

INFOID:0000000008463305

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

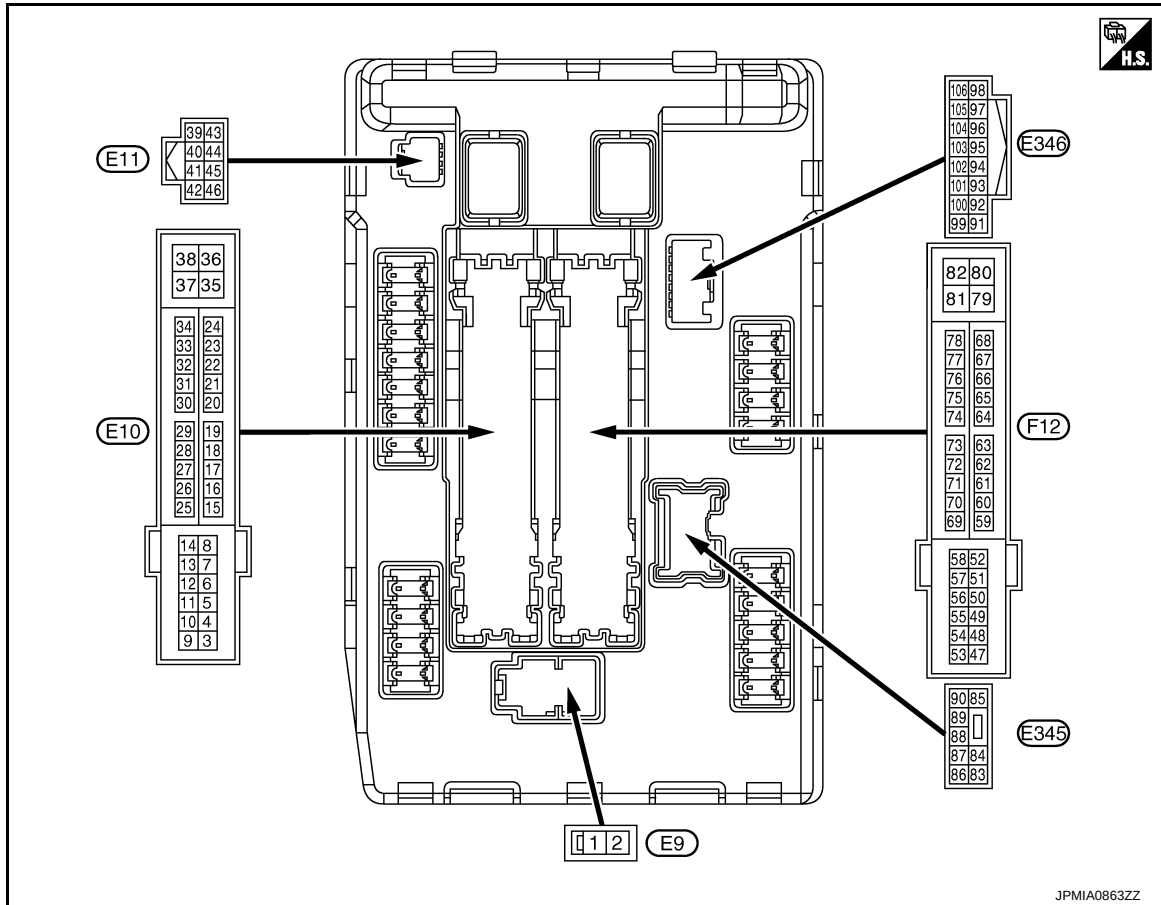
IPDM E/R

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

Monitor Item	Condition		Value/Status
IHBT RLY -REQ	Ignition switch ON		Off
	At engine cranking		On
ST/INHI RLY	Ignition switch ON		Off
	At engine cranking		INHI ON → ST ON
	The status of starter relay or starter control relay cannot be recognized by the battery voltage malfunction, etc. when the starter relay is ON and the starter control relay is OFF		UNKWN
DETENT SW	Ignition switch ON	- Press the selector button with selector lever in P position - Selector lever in any position other than P	Off
	Release the selector button with selector lever in P position		On
S/L RLY -REQ	NOTE: The item is indicated, but not monitored.		Off
S/L STATE	NOTE: The item is indicated, but not monitored.		UNLOCK
DTRL REQ	NOTE: The item is indicated, but not monitored.		Off
OIL P SW	Ignition switch OFF, ACC or engine running		Open
	Ignition switch ON		Close
HOOD SW	NOTE: The item is indicated, but not monitored.		Off
HL WASHER REQ	NOTE: The item is indicated, but not monitored.		Off
THFT HRN REQ	Not operating		Off
	- Panic alarm is activated - Theft warning alarm is activated		On
HORN CHIRP	Not operating		Off
	Door locking with Intelligent Key (horn chirp mode)		On
CRNRNG LMP REQ	NOTE: The item is indicated, but not monitored.		Off

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
1 (R)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
2 (L)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
4 (LG)	Ground	Front wiper LO	Output	Ignition switch ON	Front wiper switch OFF	0 V
					Front wiper switch LO	Battery voltage
5 (Y)	Ground	Front wiper HI	Output	Ignition switch ON	Front wiper switch OFF	0 V
					Front wiper switch HI	Battery voltage
7 (GR)	Ground	Tail, license plate, side marker lamp and illumina- tions	Output	Ignition switch ON	Lighting switch OFF	0 V
					Lighting switch 1ST	Battery voltage
10 (BR)	Ground	ECM relay power supply	Output	Ignition switch OFF (More than a few seconds after turning ignition switch OFF)		0 V
				• Ignition switch ON • Ignition switch OFF (For a few seconds after turning igni- tion switch OFF)		Battery voltage
12 (B)	Ground	Ground	—	Ignition switch ON		0 V

IPDM E/R

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
13 (SB)	Ground	Fuel pump power supply	Output	Approximately 1 second or more after turning the ignition switch ON		0 V
				- Approximately 1 second after turning the ignition switch ON - Engine running		Battery voltage
15 (W)	Ground	Ignition relay power supply	Output	Ignition switch OFF		0 V
				Ignition switch ON		Battery voltage
16 (R)	Ground	Front wiper stop position	Input	Ignition switch ON	Front wiper stop position	0 V
					Any position other than front wiper stop position	Battery voltage
19 (Y)	Ground	Ignition relay power supply	Output	Ignition switch OFF		0 V
				Ignition switch ON		Battery voltage
20 (L)	Ground	Ambient sensor ground	Output	Ignition switch ON		0 V
21 (O)	Ground	Ambient sensor	Input	Ignition switch ON		0 - 4.8 V NOTE: Changes depending to ambient temperature
22 (SB)	Ground	Refrigerant pressure sensor ground	Output	Engine running	- Warm-up condition - Idle speed	0 V
23 (GR)	Ground	Refrigerant pressure sensor	Output	Engine running	- Warm-up condition - Both A/C switch and blower fan motor switch ON (Compressor operates)	1.0 - 4.0 V
24 (G)	Ground	Refrigerant pressure sensor power supply	Input	Ignition switch OFF		0 V
				Ignition switch ON		5.0 V
25 (GR)	Ground	Ignition relay power supply	Output	Ignition switch OFF		0 V
				Ignition switch ON		Battery voltage
26 (Y)	Ground	Ignition relay power supply	Output	Ignition switch OFF		0 V
				Ignition switch ON		Battery voltage
27 (W)	Ground	Ignition relay monitor	Input	Ignition switch OFF or ACC		Battery voltage
				Ignition switch ON		0 V
28 (SB)	Ground	Push-button ignition switch	Input	Press the push-button ignition switch		0 V
				Release the push-button ignition switch		Battery voltage
30 (BR)	Ground	Starter relay control	Input	Ignition switch ON	Selector lever in any position other than P or N	0 V
					Selector lever P or N	Battery voltage
34 (O)	Ground	Cooling fan relay-3 control	Input	Cooling fan stopped		Battery voltage
				Cooling fan at HI operation		0 V
35 (Y)	Ground	Cooling fan relay-1 power supply	Input	Cooling fan stopped		Battery voltage
				Cooling fan at LO operation		6.0 V
36 (G)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
38 (W)	Ground	Cooling fan relay-1 power supply	Output	Cooling fan not operating		0 V
				Cooling fan at LO operation		6.0 V
39 (P)	—	CAN-L	Input/ Output	—		—

IPDM E/R

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)	
+	—	Signal name	Input/ Output				
40 (L)	—	CAN-H	Input/ Output	—		—	A
41 (B)	Ground	Ground	—	Ignition switch ON		0 V	B
42 (SB)	Ground	Cooling fan relay-2 control	Input	Cooling fan stopped		Battery voltage	C
				- Cooling fan MID operating - Cooling fan HI operating		0 V	D
43 (Y)	Ground	CVT shift selector (Detention switch)	Input	Ignition switch ON	Press the selector button (selector lever P)	Battery voltage	E
					- Selector lever in any position other than P - Release the selector button (selector lever P)	0 V	F
44 (W)	Ground	Horn relay control	Input	The horn is deactivated		Battery voltage	G
				The horn is activated		0 V	H
45 (O)	Ground	Horn switch	Input	The horn is deactivated		Battery voltage	I
				The horn is activated		0 V	J
46 (BR)	Ground	Starter relay control	Input	Ignition switch ON	Selector lever in any position other than P or N	0 V	K
					Selector lever P or N	Battery voltage	L
48 (W)	Ground	A/C relay power supply	Output	Engine running	A/C switch OFF	0 V	
					A/C switch ON (A/C compressor is operating)	Battery voltage	
49 (R/B)	Ground	ECM relay power supply	Output	Ignition switch OFF (More than a few seconds after turning ignition switch OFF)		0 V	
				- Ignition switch ON - Ignition switch OFF (For a few seconds after turning ignition switch OFF)		Battery voltage	
51 (LG)	Ground	Ignition relay power supply	Output	Ignition switch OFF		0 V	
				Ignition switch ON		Battery voltage	
52 (Y/G)	Ground	Ignition relay power supply	Output	Ignition switch OFF		0 V	
				Ignition switch ON		Battery voltage	
53 (R/W)	Ground	ECM relay power supply	Output	Ignition switch OFF (More than a few seconds after turning ignition switch OFF)		0 V	
				- Ignition switch ON - Ignition switch OFF (For a few seconds after turning ignition switch OFF)		Battery voltage	
54 (G/W)	Ground	Throttle control motor relay power supply	Output	Ignition switch OFF (More than a few seconds after turning ignition switch OFF)		0 V	
				- Ignition switch ON - Ignition switch OFF (For a few seconds after turning ignition switch OFF)		Battery voltage	
55 (W/L)	Ground	ECM power supply	Output	Ignition switch OFF		Battery voltage	

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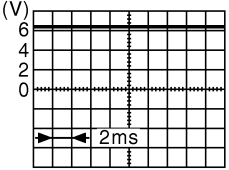
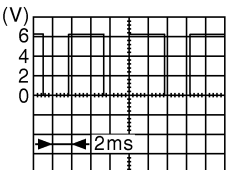
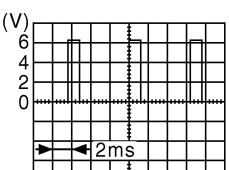
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Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
56 (R/Y)	Ground	Ignition relay power supply	Output	Ignition switch OFF		0 V
				Ignition switch ON		Battery voltage
57 (O)	Ground	Ignition relay power supply	Output	Ignition switch OFF		0 V
				Ignition switch ON		Battery voltage
58 (Y)	Ground	Ignition relay power supply	Output	Ignition switch OFF		0 V
				Ignition switch ON		Battery voltage
69 (W/B)	Ground	ECM relay control	Output	Ignition switch OFF (More than a few seconds after turning ignition switch OFF)		Battery voltage
				- Ignition switch ON - Ignition switch OFF (For a few seconds after turning igni- tion switch OFF)		0 - 1.5 V
70 (O)	Ground	Throttle control motor re- lay control	Output	Ignition switch ON → OFF		0 -1.0 V ↓ Battery voltage ↓ 0 V
				Ignition switch ON		0 - 1.0 V
72 (R/B)	Ground	Starter relay control	Input	Ignition switch ON	Selector lever in any posi- tion other than P or N	0 V
					Selector lever P or N	Battery voltage
75 (LG)	Ground	Oil pressure switch	Input	Ignition switch ON	Engine stopped	0 V
					Engine running	Battery voltage
76 (SB)	Ground	Power generation com- mand signal	Output	Ignition switch ON		 JPMIA0001GB 6.3 V
				40% is set on "ACTIVE TEST", "AL- TERNATOR DUTY" of "ENGINE"		 JPMIA0002GB 3.8 V
				80% is set on "ACTIVE TEST", "AL- TERNATOR DUTY" of "ENGINE"		 JPMIA0003GB 1.4 V

IPDM E/R

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

Terminal No. (Wire color)		Description		Condition		Value (Approx.)	
+	-	Signal name	Input/ Output				
77 (GR)	Ground	Fuel pump relay control	Output	- Approximately 1 second after turning the ignition switch ON - Engine running		0 - 1.5 V	A
				Approximately 1 second or more after turning the ignition switch ON		Battery voltage	B
80 (B)	Ground	Starter motor	Output	At engine cranking		Battery voltage	C
83 (Y)	Ground	Headlamp LO (RH)	Output	Lighting switch OFF		0 V	D
				Lighting switch 2ND		Battery voltage	E
84 (L)	Ground	Headlamp LO (LH)	Output	Lighting switch OFF		0 V	F
				Lighting switch 2ND		Battery voltage	G
86 (SB)	Ground	Front fog lamp (RH)	Output	Lighting switch 2ND	Front fog lamp switch OFF	0 V	H
					Front fog lamp switch ON	Battery voltage	I
87 (GR)	Ground	Front fog lamp (LH)	Output	Lighting switch 2ND	Front fog lamp switch OFF	0 V	J
					Front fog lamp switch ON	Battery voltage	K
88 (W)	Ground	Ignition relay power supply	Output	Ignition switch ON		Battery voltage	L
89 (L)	Ground	High beam solenoid (RH)	Output	Lighting switch 2ND or AUTO	Lighting switch OFF	0 V	
					Lighting switch HI or PASS	Battery voltage	
90 (G)	Ground	High beam solenoid (LH)	Output	Lighting switch 2ND or AUTO	Lighting switch OFF	0 V	
					Lighting switch HI or PASS	Battery voltage	
91 (R)	Ground	Parking lamp (RH)	Output	Lighting switch OFF		0 V	
				Lighting switch 1ST		Battery voltage	
92 (LG)	Ground	Parking lamp (LH)	Output	Lighting switch OFF		0 V	
				Lighting switch 1ST		Battery voltage	
99 (BR)	Ground	Ambient sensor ground	Input	Ignition switch ON		0 V	
100 (SB)	Ground	Ambient sensor	Output	Ignition switch ON		0 - 4.8 V NOTE: Changes depending to ambient temperature	PCS
101 (L)	Ground	Refrigerant pressure sensor ground	Input	Engine running	- Warm-up condition - Idle speed	0 V	N
102 (B)	Ground	Refrigerant pressure sensor	Input	Engine running	- Warm-up condition - Both A/C switch and blower fan motor switch ON (Compressor operates)	1.0 - 4.0 V	O
103 (P)	Ground	Refrigerant pressure sensor power supply	Output	Ignition switch OFF		0 V	P
				Ignition switch ON		5.0 V	

Fail-safe

INFOID:0000000008463306

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.

< ECU DIAGNOSIS INFORMATION >

If No CAN Communication Is Available With ECM

Control part	Fail-safe operation
Cooling fan	- Turns ON the cooling fan relay-2 and the cooling fan relay-3 when ignition switch is turned ON (Cooling fan operates at HI) - Turns OFF the cooling fan relay-1, the cooling fan relay-2 and the cooling fan relay-3 when the ignition switch is turned OFF (Cooling fan does not operate)
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 lamp - License plate lamp - Side marker lamp - Illumination - Tail 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/AUTO 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 than stop position.
Front fog lamp	Front fog lamp relay OFF
Horn	Horn relay OFF
Ignition relay	The status just before activation of fail-safe is maintained.
Starter motor	Starter control relay OFF

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

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

Voltage judgment		IPDM E/R judgment	Operation
Ignition relay contact side	Ignition relay excitation coil side		
ON	ON	Ignition relay ON normal	—
OFF	OFF	Ignition relay OFF normal	—
ON	OFF	Ignition relay ON stuck	- 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 auto stop signal.

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

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

NOTE:

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

STARTER MOTOR PROTECTION FUNCTION

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

DTC Index

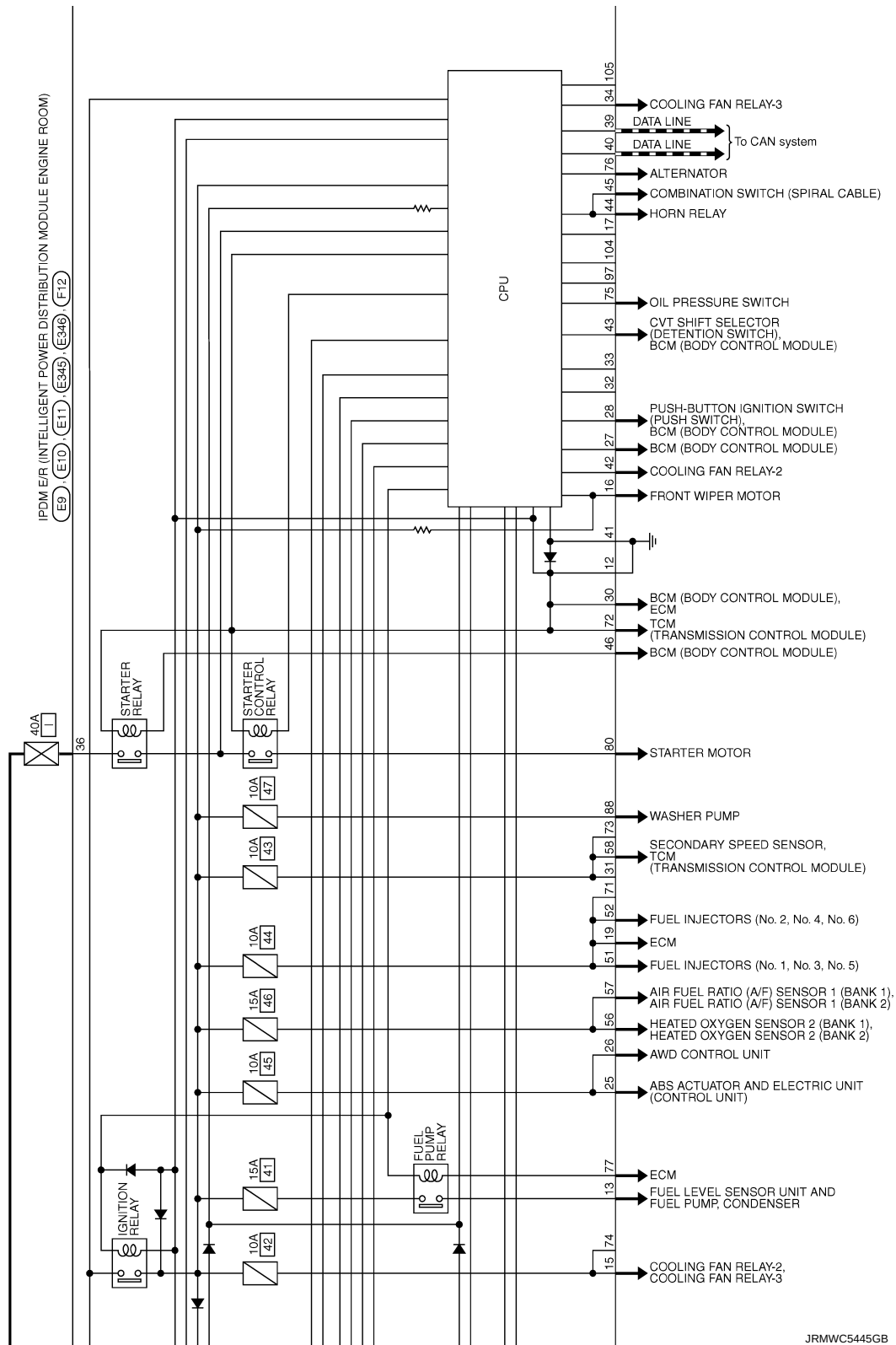
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NOTE:

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

x: Applicable

CONSULT display	Fail-safe	Refer to
No DTC is detected. further testing may be required.	—	—
U1000: CAN COMM CIRCUIT	×	PCS-27
B2098: IGN RELAY ON	×	PCS-28
B2099: IGN RELAY OFF	—	PCS-29
B210B: START CONT RLY ON	—	SEC-84
B210C: START CONT RLY OFF	—	SEC-85
B210D: STARTER RELAY ON	—	SEC-86
B210E: STARTER RELAY OFF	—	SEC-87
B210F: INTRLCK/PNP SW ON	—	SEC-89
B2110: INTRLCK/PNP SW OFF	—	SEC-91



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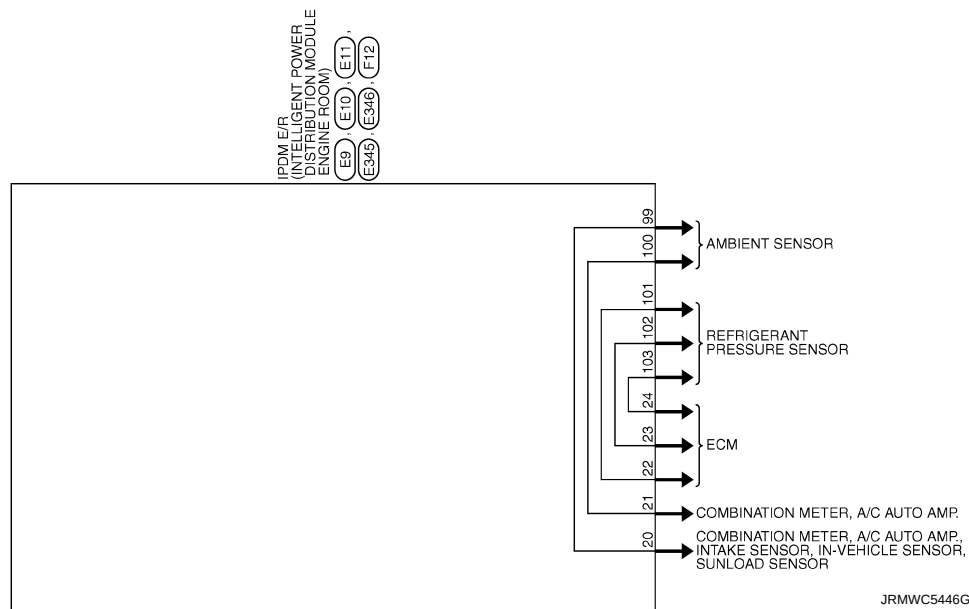
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DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000008463309

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

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

DTC Logic

INFOID:0000000008463310

DTC DETECTION LOGIC

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

Diagnosis Procedure

INFOID:0000000008463311

1.PERFORM SELF DIAGNOSTIC

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

Is DTC "U1000" displayed?

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

B2098 IGNITION RELAY ON STUCK

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

B2098 IGNITION RELAY ON STUCK

Description

INFOID:000000008463312

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

NOTE:

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

DTC Logic

INFOID:000000008463313

DTC DETECTION LOGIC

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

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

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

Diagnosis Procedure

INFOID:000000008463314

1.PERFORM SELF DIAGNOSIS

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

Is DTC "B2098" displayed?

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

B2099 IGNITION RELAY OFF STUCK

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

B2099 IGNITION RELAY OFF STUCK

Description

INFOID:000000008463315

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

NOTE:

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

DTC Logic

INFOID:000000008463316

DTC DETECTION LOGIC

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

NOTE:

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

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

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

Diagnosis Procedure

INFOID:000000008463317

1.PERFORM SELF DIAGNOSIS

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

Is DTC "B2099" displayed?

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

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PCS

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:000000008463318

1.CHECK FUSES AND FUSIBLE LINK

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

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

Is the fuse fusing?

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

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

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

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

Is the measurement value normal?

YES >> GO TO 3.

NO >> Repair the harness or connector.

3.CHECK GROUND CIRCUIT

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

IPDM E/R		Ground	Continuity
Connector	Terminal		Existed
E10	12		
E11	41		

Does continuity exist?

YES >> INSPECTION END

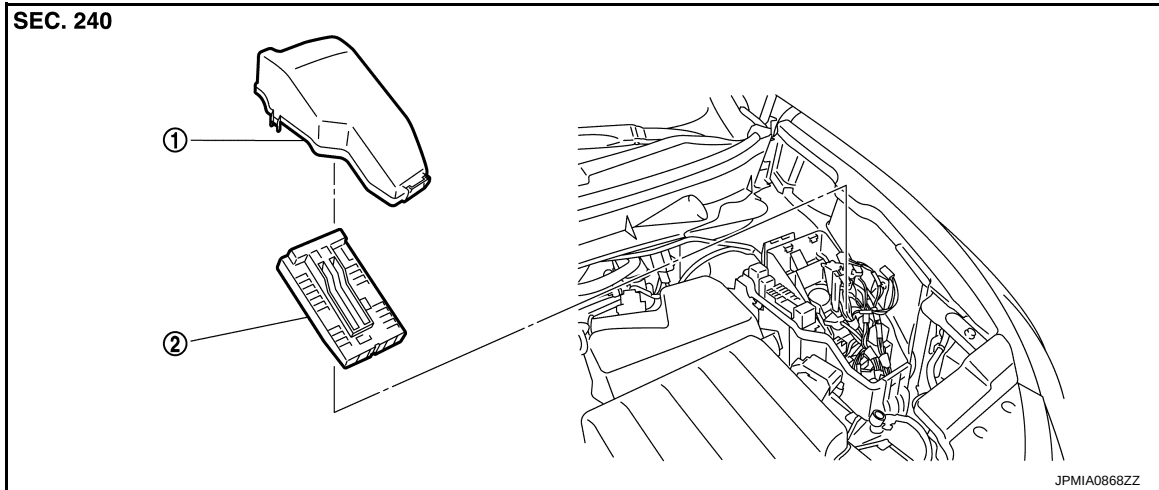
NO >> Repair the harness or connector.

REMOVAL AND INSTALLATION

IPDM E/R

Exploded View

INFOID:000000008463319



Removal and Installation

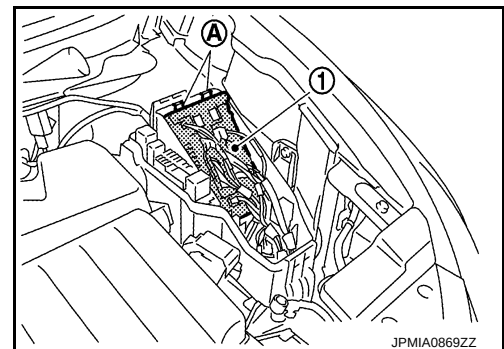
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NOTE:

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

REMOVAL

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



INSTALLATION

Install in the reverse order of removal.

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PRECAUTION

PRECAUTIONS

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

INFOID:000000008463321

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

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

Always observe the following items for preventing accidental activation.

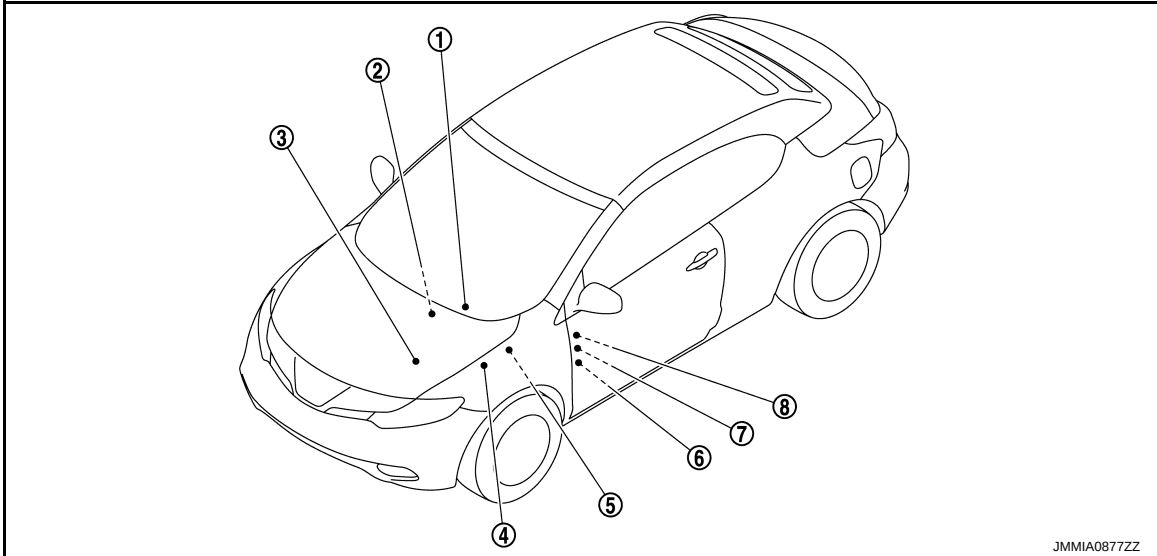
- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious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

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000008463322



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

Component Description

INFOID:0000000008463323

Component	Reference
BCM	PCS-33
IPDM E/R	PCS-33
Ignition relay (IPDM E/R, fuse block)	PCS-34
Accessory relay	PCS-34
Blower relay	PCS-34
Push-button ignition switch	PCS-34
Stop lamp switch	PCS-34
TCM	PCS-34

BCM

INFOID:0000000008463324

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

IPDM E/R

INFOID:0000000008463325

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

Ignition Relay

INFOID:000000008463326

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

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

BCM compares following status comparing.

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

Accessory Relay

INFOID:000000008463327

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:000000008463328

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

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

Push-Button Ignition Switch

INFOID:000000008463329

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:000000008463330

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

TCM

INFOID:000000008463331

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

SYSTEM

POWER DISTRIBUTION SYSTEM

POWER DISTRIBUTION SYSTEM : System Description

INFOID:000000008463332

SYSTEM DESCRIPTION

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

NOTE:

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

BATTERY SAVER SYSTEM

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

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

Reset Condition of Battery Saver System

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

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

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

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

NOTE:

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

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

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

SYSTEM

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

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

NOTE:

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

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

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

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

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

Emergency stop operation

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

Fail-safe

INFOID:000000008463333

FAIL-SAFE CONTROL BY DTC

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

Display contents of CONSULT	Fail-safe	Cancellation
B2190: NATS ANTENNA AMP	Inhibit engine cranking	Erase DTC
B2191: DIFFERENCE OF KEY	Inhibit engine cranking	Erase DTC
B2192: ID DISCORD BCM-ECM	Inhibit engine cranking	Erase DTC
B2193: CHAIN OF BCM-ECM	Inhibit engine cranking	Erase DTC
B2195: ANTI SCANNING	Inhibit engine cranking	Ignition switch ON → OFF
B2560: STARTER CONT RELAY	Inhibit engine cranking	500 ms after the following CAN signal communication status becomes consistent • Starter control relay signal • Starter relay status signal
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)
B260A: IGNITION RELAY	Inhibit engine cranking	500 ms after the following conditions are fulfilled • IGN relay (IPDM E/R) control signal: OFF (Battery voltage) • Ignition ON signal (CAN to IPDM E/R): OFF (Request signal) • Ignition ON signal (CAN from IPDM E/R): OFF (Condition signal)
B260F: ENG STATE SIG LOST	Maintains the power supply position attained at the time of DTC detection	When any of the following conditions are fulfilled • Power position changes to ACC • Receives engine status signal (CAN)

SYSTEM

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

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

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PCS

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:000000008973101

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.

×: Applicable item

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

NOTE:

*: This item is displayed, but is not used.

FREEZE FRAME DATA (FFD)

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

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

CONSULT screen item	Indication/Unit	Description	
Vehicle Speed	km/h	Vehicle speed of the moment a particular DTC is detected	
Odo/Trip Meter	km	Total mileage (Odometer value) of the moment a particular DTC is detected	
Vehicle Condition	SLEEP>LOCK	Power position status of the moment a particular DTC is detected	While turning BCM status from low power consumption mode to normal mode (Power supply position is "LOCK"*)
	SLEEP>OFF		While turning BCM status from low power consumption mode to normal mode (Power supply position is "OFF".)
	LOCK>ACC		While turning power supply position from "LOCK" to "ACC"
	ACC>ON		While turning power supply position from "ACC" to "IGN"
	RUN>ACC		While turning power supply position from "RUN" to "ACC" (Vehicle is stopping and selector lever is except P position.)
	CRANK>RUN		While turning power supply position from "CRANKING" to "RUN" (From cranking up the engine to run it)
	RUN>URGENT		While turning power supply position from "RUN" to "ACC" (Emergency stop operation)
	ACC>OFF		While turning power supply position from "ACC" to "OFF"
	OFF>LOCK		While turning power supply position from "OFF" to "LOCK"*
	OFF>ACC		While turning power supply position from "OFF" to "ACC"
	ON>CRANK		While turning power supply position from "IGN" to "CRANKING"
	OFF>SLEEP		While turning BCM status from normal mode (Power supply position is "OFF".) to low power consumption mode
	LOCK>SLEEP		While turning BCM status from normal mode (Power supply position is "LOCK"*) to low power consumption mode
	LOCK		Power supply position is "LOCK"*
	OFF		Power supply position is "OFF" (Ignition switch OFF)
	ACC		Power supply position is "ACC" (Ignition switch ACC)
	ON		Power supply position is "IGN" (Ignition switch ON with engine stopped)
	ENGINE RUN		Power supply position is "RUN" (Ignition switch ON with engine running)
	CRANKING		Power supply position is "CRANKING" (At engine cranking)
IGN Counter	0 - 39	The number of times that ignition switch is turned ON after DTC is detected • The number is 0 when a malfunction is detected now. • The number increases like 1 → 2 → 3...38 → 39 after returning to the normal condition whenever ignition switch OFF → ON. • The number is fixed to 39 until the self-diagnosis results are erased if it is over 39.	

NOTE:

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

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

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

INTELLIGENT KEY

INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)

INFOID:0000000008973100

WORK SUPPORT

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

Monitor item	Description
CONFIRM KEY FOB ID	It can be checked whether Intelligent Key ID code is registered or not in this mode
AUTO LOCK SET	Auto door lock time can be changed in this mode • MODE 1: 1 minute • MODE 2: 5 minutes • MODE 3: 30 seconds • MODE 4: 2 minutes
LOCK/UNLOCK BY I-KEY	Door lock/unlock function by door request switch mode can be changed to operate (ON) or not operate (OFF) in this mode
ENGINE START BY I-KEY	Engine start function mode can be changed to operate (ON) or not operate (OFF) with this mode
TRUNK/GLASS HATCH OPEN	Buzzer reminder function mode by trunk lid opener request switch can be changed to operate (ON) or not operate (OFF) with this mode
PANIC ALARM SET	Panic alarm button pressing time on Intelligent Key remote control button can be selected from the following with this mode • MODE 1: 0.5 sec. • MODE 2: Non-operation • MODE 3: 1.5 sec.
PW DOWN SET	Unlock button pressing time on Intelligent Key button can be selected from the following with this mode • MODE 1: 3 sec. • MODE 2: Non-operation • MODE 3: 5 sec.
TAKE OUT FROM WIN WARN	NOTE: This item is displayed, but cannot be used
TRUNK OPEN DELAY	Trunk button pressing on Intelligent Key can be selected as per the following in this mode • MODE 1: Press and hold • MODE 2: Press twice • MODE 3: Press and hold, or press twice
LO- BATT OF KEY FOB WARN	Intelligent Key low battery warning mode can be changed to operate (ON) or not operate (OFF) with this mode
ANTI KEY LOCK IN FUNCTI	Key reminder function mode can be changed to operate (ON) or not operate (OFF) with this mode.
HAZARD ANSWER BACK	Hazard reminder function mode can be selected from the following with this mode • LOCK ONLY: Door lock operation only • UNLOCK ONLY: Door unlock operation only • LOCK/UNLOCK: Lock/unlock operation • OFF: Non-operation
ANS BACK I-KEY LOCK	Buzzer reminder function (lock operation) mode by door request switch (driver side and passenger side) can be selected from the following with this mode • 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 operate (ON) or not operate (OFF) with this mode
SHORT CRANKING OUTPUT	Starter motor can operate during the times below • 70 msec • 100 msec • 200 msec
INSIDE ANT DIAGNOSIS	This function allows inside key antenna self-diagnosis
HORN WITH KEYLESS LOCK	Horn reminder function mode by Intelligent Key button can be changed to operate (ON) or not operate (OFF) with this mode

SELF-DIAG RESULT

Refer to [BCS-55, "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.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

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

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

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

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

ACTIVE TEST

Test item	Description
BATTERY SAVER	This test is able to check interior room lamp operation. The interior room lamp will be activated after "ON" on CONSULT screen is touched.
PW REMOTO DOWN SET	This test is able to check power window down operation. The power window down will be activated after "ON" on CONSULT screen is touched.
INSIDE BUZZER	This test is able to check warning chime in combination meter operation. - Take away warning chime sounds when "TAKE OUT" on CONSULT screen is touched. - Key warning chime sounds when "KEY WARN" on CONSULT screen is touched. - P position warning chime sounds when "P RNG WARN" on CONSULT screen is touched. - ACC warning chime sounds when "ACC WARN" on CONSULT screen is touched.
OUTSIDE BUZZER	This test is able to check Intelligent Key warning buzzer operation. The Intelligent Key warning buzzer will be activated after "ON" on CONSULT screen is touched.
INDICATOR	This test is able to check warning lamp operation. "KEY" Warning lamp illuminates when "KEY ON" on CONSULT screen is touched. "KEY" Warning lamp flashes when "KEY IND" on CONSULT screen is touched.
INT LAMP	This test is able to check interior room lamp operation. The interior room lamp will be activated after "ON" on CONSULT screen is touched.
LCD	This test is able to check meter display information - Engine start information displays when "BP N" on CONSULT screen is touched. - Engine start information displays when "BP I" on CONSULT screen is touched. - Key ID warning displays when "ID NG" on CONSULT screen is touched. - ROTAT: This item is displayed, but cannot be tested. - P position warning displays when SFT P on CONSULT screen is touched. - Intelligent Key insert information displays when "INSRT" on CONSULT screen is touched. - Intelligent Key low battery warning displays when "BATT" on CONSULT screen is touched. - Take away through window warning displays when "NO KY" on CONSULT screen is touched. - Take away warning display when "OUTKEY" on CONSULT screen is touched. - OFF position warning display when "LK WN" on CONSULT screen is touched.
TRUNK/GLASS HATCH	NOTE: This item is displayed, but cannot be tested.
FLASHER	This test is able to check hazard warning lamp operation. The hazard warning lamps will be activated after "ON" on CONSULT screen is touched.
HORN	This test is able to check horn operation. The horn will be activated after "ON" on CONSULT screen is touched.
P RANGE	This test is able to check CVT shift selector power supply CVT shift selector power is supplied when "ON" on CONSULT screen is touched.
ENGINE SW ILLUMI	This test is able to check push-ignition switch illumination operation. Push-ignition switch illumination illuminates when "ON" on CONSULT screen is touched.
LOCK INDICATOR	This test is able to check indicator in push-ignition switch operation. Indicator in push-button ignition switch illuminates when "ON" on CONSULT screen is touched.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

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

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ECU DIAGNOSIS INFORMATION

BCM, IPDM E/R

List of ECU Reference

INFOID:000000008463336

ECU	Reference
BCM	BCS-32, "Reference Value"
	BCS-54, "Fail-safe"
	BCS-54, "DTC Inspection Priority Chart"
	BCS-55, "DTC Index"
IPDM E/R	PCS-15, "Reference Value"
	PCS-21, "Fail-safe"
	PCS-23, "DTC Index"

[POWER DISTRIBUTION SYSTEM]

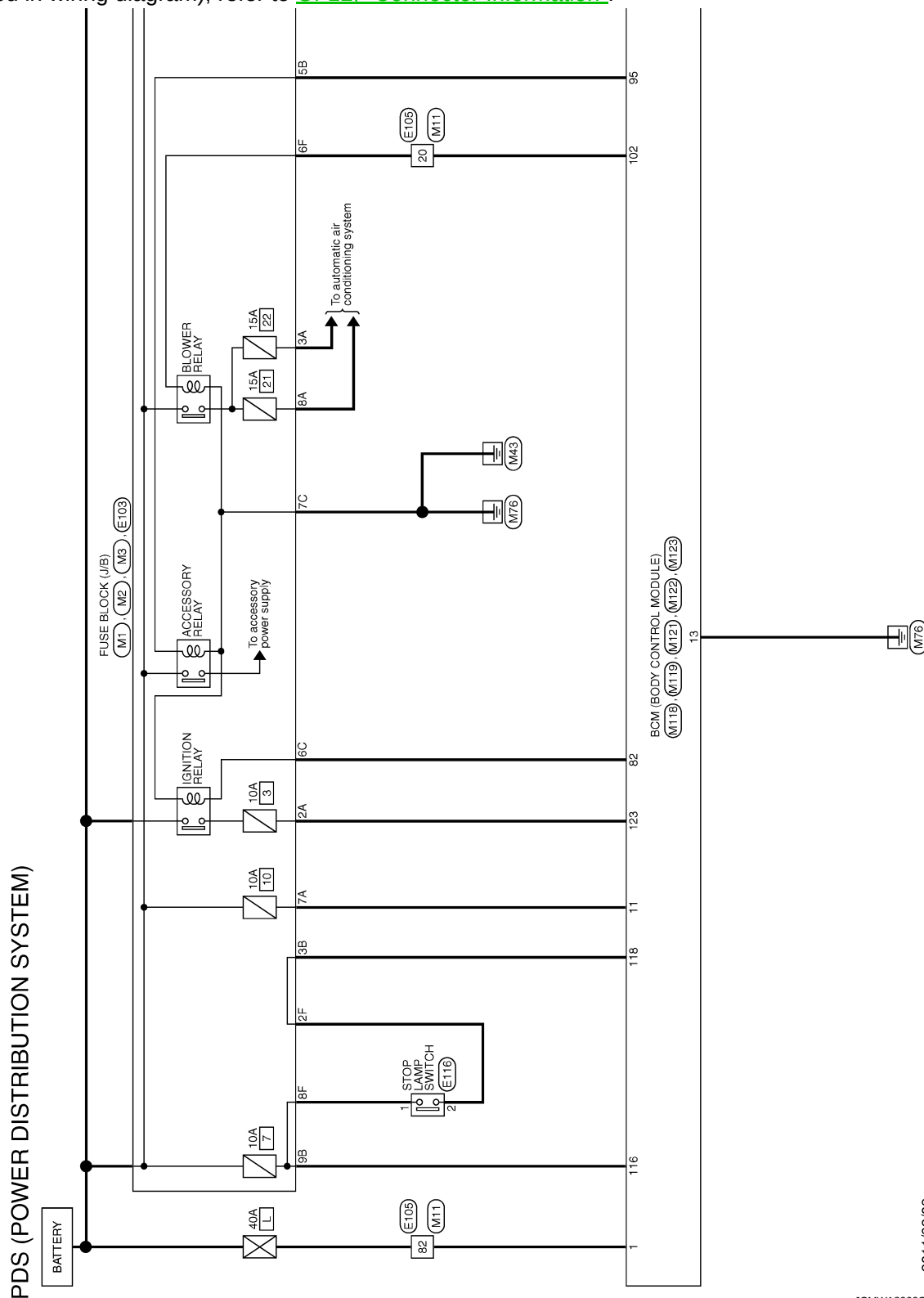
WIRING DIAGRAM

POWER DISTRIBUTION SYSTEM

Wiring Diagram

INFOID:0000000008463337

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

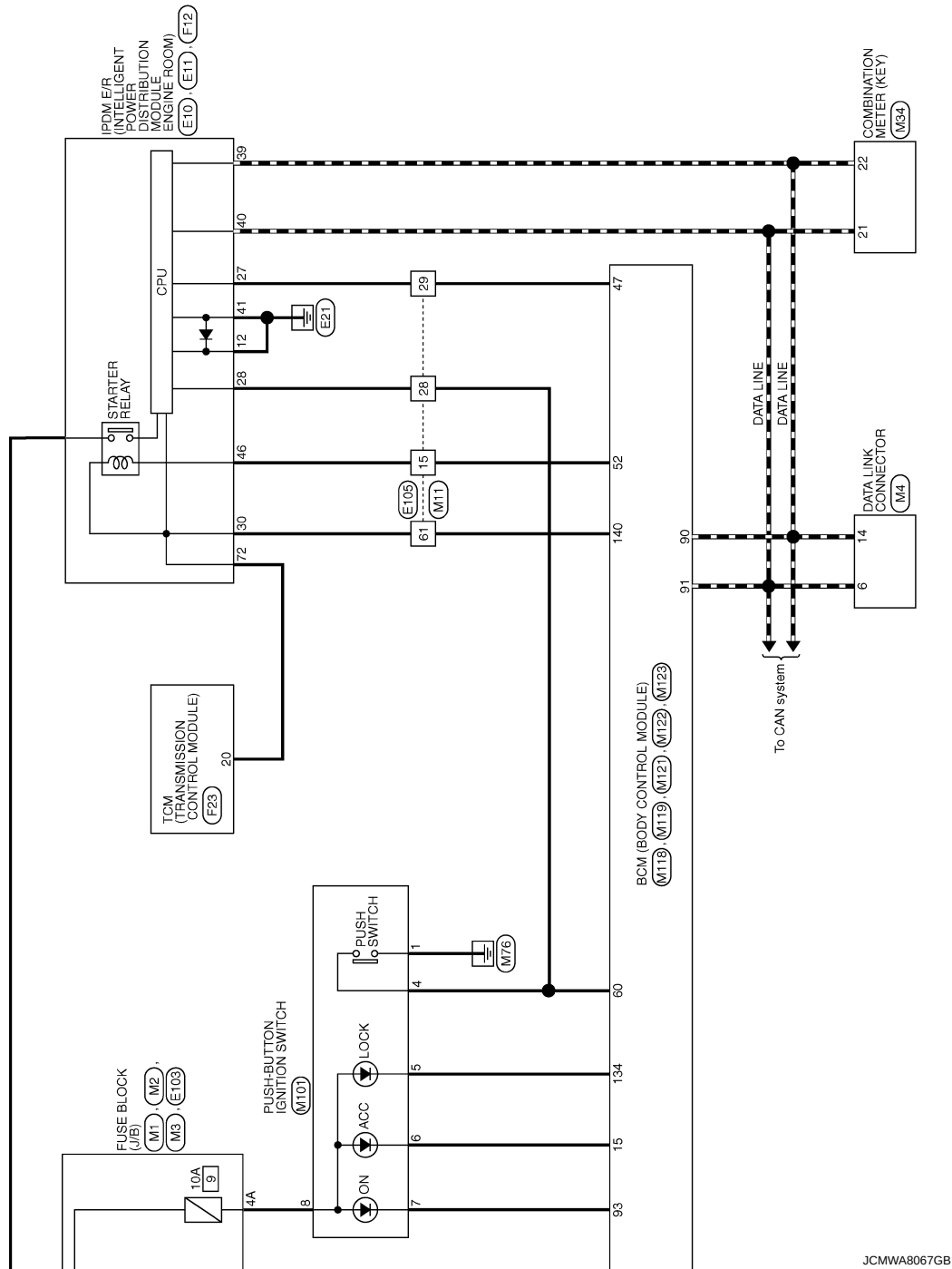


JCMWA8066GB

POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]



JCMWA8067GB

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

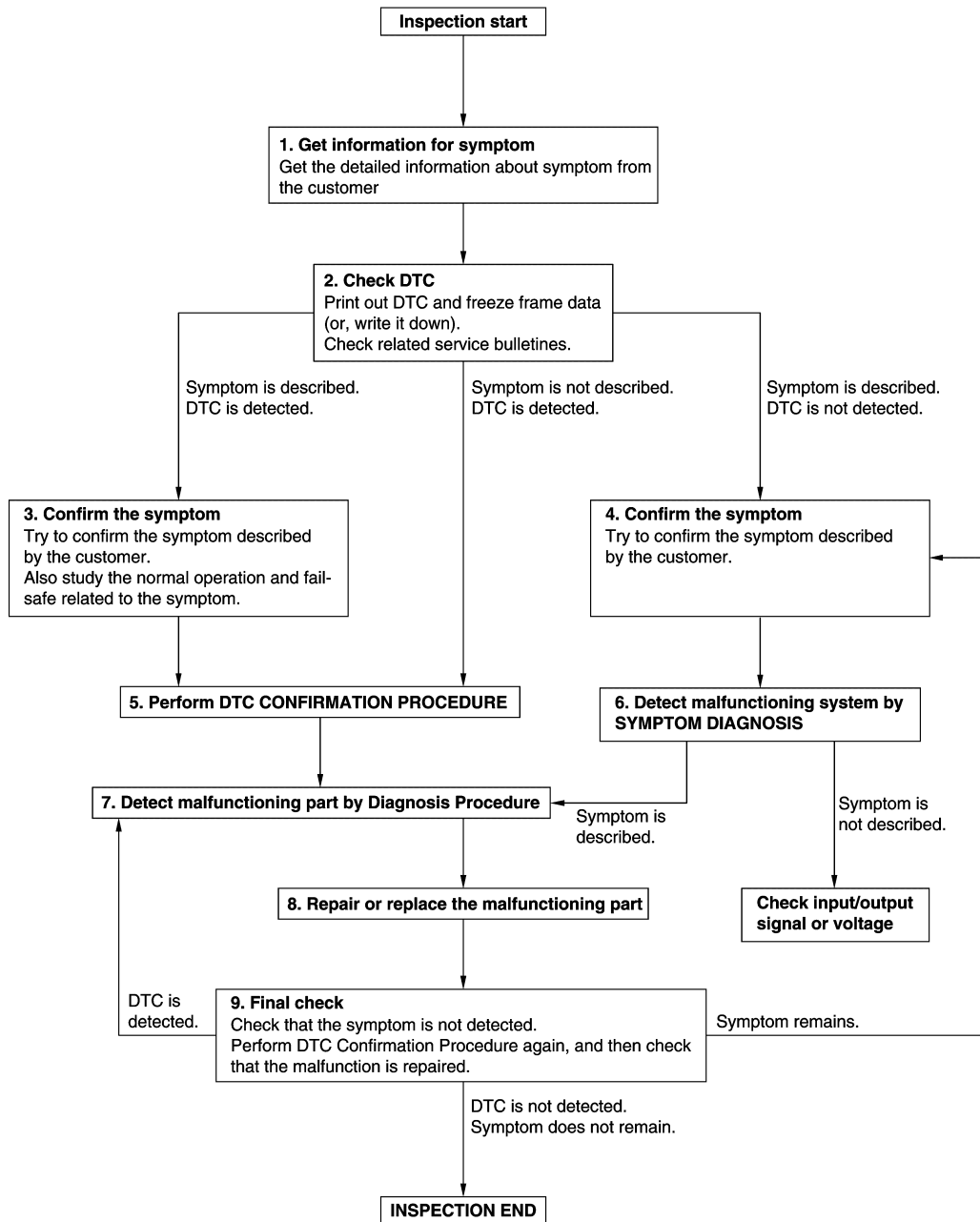
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000000846338

OVERALL SEQUENCE



DETAILED FLOW

JMKIA8652GB

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

1.GET INFORMATION FOR SYMPTOM

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

>> GO TO 2.

2.CHECK DTC

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

Are any symptoms described and any DTC detected?

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

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

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

3.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

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

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

>> GO TO 5.

4.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

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

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

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

If two or more DTCs are detected, refer to [BCS-54, "DTC Inspection Priority Chart"](#), and determine trouble diagnosis order.

NOTE:

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

Is DTC detected?

YES >> GO TO 7.

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

6.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

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

Is the symptom described?

YES >> GO TO 7.

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

7.DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

Inspect according to Diagnosis Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 8.

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

8. REPAIR OR REPLACE THE MALFUNCTIONING PART

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

>> GO TO 9.

9. FINAL CHECK

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

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

Is DTC detected and does symptom remain?

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

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

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

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PCS

B2553 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

DTC/CIRCUIT DIAGNOSIS

B2553 IGNITION RELAY

DTC Logic

INFOID:000000008463339

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2553	IGNITION RELAY	BCM detects a difference of signal for 2 seconds or more between the following information. - Ignition relay (fuse block) ON/OFF operation - Ignition relay (fuse block) feedback.	- Harness or connectors (Ignition relay feedback circuit is open or short) - BCM - IPDM E/R

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

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

Diagnosis Procedure

INFOID:000000008463340

1.CHECK DTC WITH IPDM E/R

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

Is the inspection result normal?

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

2.CHECK FUSE

Check that the following fuse are not fusing.

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

Is the fuse fusing?

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

3.CHECK IGNITION RELAY FEEDBACK INPUT SIGNAL

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

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

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-77, "Removal and Installation"](#).

B2553 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

NO >> GO TO 4.

4. CHECK IGNITION RELAY FEEDBACK CIRCUIT

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

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

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M123	123		Not existed

Is the inspection result normal?

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

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PCS

B260A IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B260A IGNITION RELAY

DTC Logic

INFOID:000000008463341

DTC DETECTION LOGIC

NOTE:

- If DTC B260A is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-66, "DTC Logic"](#).
- If DTC B260A is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-67, "DTC Logic"](#).
- If DTC B260A is displayed with DTC B261A, first perform the trouble diagnosis for DTC B261A. Refer to [PCS-64, "DTC Logic"](#).

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B260A	IGNITION RELAY	BCM detects a difference of signal for 2 second or more between the following information. • Ignition relay (IPDM E/R) operation request • Ignition relay feedback from IPDM E/R (CAN).	• Harness or connectors (Ignition relay operation circuit is open or shorted.) • BCM • IPDM E/R

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

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

Diagnosis Procedure

INFOID:000000008463342

1.CHECK DTC WITH IPDM E/R

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

Is DTC detected?

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

2.CHECK IGNITION RELAY INPUT SIGNAL

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

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

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-77, "Removal and Installation"](#).
NO >> GO TO 3.

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

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

B260A IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

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

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

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

Is the inspection result normal?

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

PCS

B2614 ACC RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B2614 ACC RELAY

DTC Logic

INFOID:000000008463343

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2614	BCM	An immediate operation of accessory relay is requested by BCM, but there is no response for more than 1 second.	• Harness or connectors (Accessory relay circuit is open or shorted) • Accessory relay

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

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

Diagnosis Procedure

INFOID:000000008463344

1.CHECK ACCESSORY RELAY POWER SUPPLY-1

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

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

Is the inspection result normal?

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

2.CHECK ACCESSORY RELAY POWER SUPPLY-2

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

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

Is the inspection result normal?

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

3.CHECK ACCESSORY RELAY POWER SUPPLY CIRCUIT-1

1. Disconnect BCM connector.

B2614 ACC RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

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

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

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

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

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-77, "Removal and Installation"](#).

NO >> Repair or replace harness.

4.CHECK ACCESSORY RELAY GROUND CIRCUIT

Check continuity between accessory relay harness connector and ground.

Accessory relay		Ground	Continuity
Terminal			
2			Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair accessory relay ground circuit.

5.CHECK ACCESSORY RELAY POWER SUPPLY CIRCUIT-2

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

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

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 6.

6.CHECK ACCESSORY RELAY

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

Is the inspection result normal?

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

NO >> Replace accessory relay.

7.CHECK INTERMITTENT INCIDENT

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

>> INSPECTION END

Component Inspection

INFOID:000000008463345

1.CHECK ACCESSORY RELAY

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

B2614 ACC RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

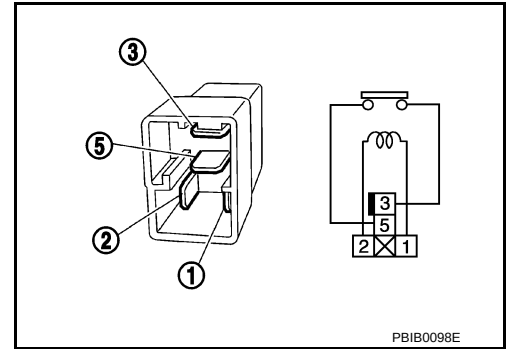
3. Check the continuity between accessory relay terminals.

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

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace accessory relay.



B2615 BLOWER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B2615 BLOWER RELAY CIRCUIT

DTC Logic

INFOID:000000008463346

DTC DETECTION LOGIC

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

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

Diagnosis Procedure

INFOID:000000008463347

1.CHECK BLOWER RELAY POWER SUPPLY-1

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

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

Is the inspection result normal?

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

2.CHECK BLOWER RELAY POWER SUPPLY-2

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

(+)Fuse block (J/B)		(-)	Condition		Voltage (V) (Approx.)
Connector	Terminal				
E103	6F				
				ON	Battery voltage

Is the inspection result normal?

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

3.CHECK BLOWER RELAY POWER SUPPLY CIRCUIT-1

- Disconnect BCM connector.

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B2615 BLOWER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

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

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

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

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

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-77, "Removal and Installation"](#).

NO >> Repair or replace harness.

4.CHECK BLOWER RELAY GROUND CIRCUIT

Check continuity between blower relay harness connector and ground.

Blower relay	Ground	Continuity
Terminal		
2		Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair blower relay ground circuit.

5.CHECK BLOWER RELAY POWER SUPPLY CIRCUIT-2

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

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

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 6.

6.CHECK BLOWER RELAY

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

Is the inspection result normal?

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

NO >> Replace blower relay.

7.CHECK INTERMITTENT INCIDENT

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

>> INSPECTION END

Component Inspection

INFOID:000000008463348

1.CHECK BLOWER RELAY

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

B2615 BLOWER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

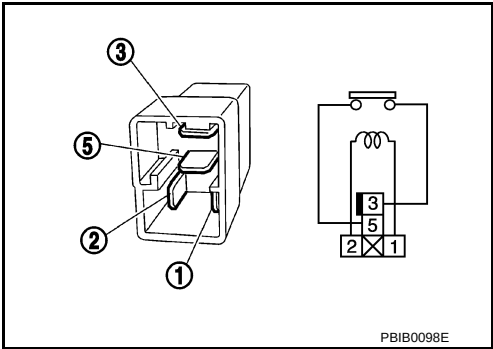
[POWER DISTRIBUTION SYSTEM]

3. Check the continuity between blower relay terminals.

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

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace blower relay.



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B2616 IGNITION RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B2616 IGNITION RELAY CIRCUIT

DTC Logic

INFOID:000000008463349

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B2616	BCM	An immediate operation of ignition relay (fuse block) is requested by BCM, but there is no response for more than 1 second	• Harness or connectors (Ignition relay circuit is open or shorted) • Ignition relay (fuse block)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

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

Diagnosis Procedure

INFOID:000000008463350

1.CHECK IGNITION RELAY POWER SUPPLY-1

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

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

Is the inspection result normal?

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

2.CHECK IGNITION RELAY POWER SUPPLY-2

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

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

Is the inspection result normal?

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

3.CHECK IGNITION RELAY POWER SUPPLY CIRCUIT-1

1. Disconnect BCM connector.

B2616 IGNITION RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

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

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

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

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

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-77, "Removal and Installation"](#).

NO >> Repair or replace harness.

4.CHECK IGNITION RELAY GROUND CIRCUIT

Check continuity between ignition relay harness connector and ground.

Ignition relay	Ground	Continuity
Terminal		
2		Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair ignition relay ground circuit.

5.CHECK IGNITION RELAY POWER SUPPLY CIRCUIT-2

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

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

Is the inspection result normal?

YES >> GO TO 7.

NO >> GO TO 6.

6.CHECK IGNITION RELAY

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

Is the inspection result normal?

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

NO >> Replace ignition relay.

7.CHECK INTERMITTENT INCIDENT

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

>> INSPECTION END

Component Inspection

INFOID:000000008463351

1.CHECK IGNITION RELAY

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

B2616 IGNITION RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

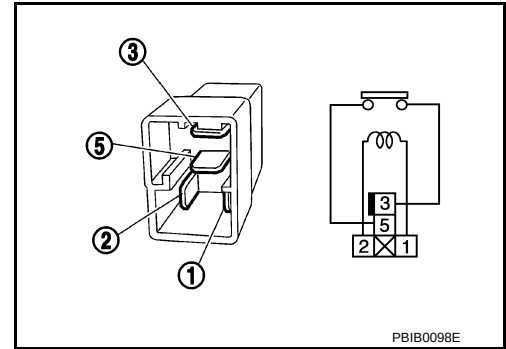
3. Check the continuity between ignition relay terminals.

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

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace Ignition relay.



B2618 BCM

DTC Logic

INFOID:0000000008463352

DTC DETECTION LOGIC

NOTE:

- If DTC B2618 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [BCS-66, "DTC Logic"](#).
- If DTC B2618 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [BCS-67, "DTC Logic"](#).

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

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

Diagnosis Procedure

INFOID:0000000008463353

1.INSPECTION START

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

Is the 1st trip DTC B2618 displayed again?

- YES >> Replace BCM. Refer to [BCS-77, "Removal and Installation"](#)
 NO >> INSPECTION END

PCS

B261A PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B261A PUSH-BUTTON IGNITION SWITCH

DTC Logic

INFOID:000000008463354

DTC DETECTION LOGIC

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B261A	PUSH-BUTTON IGNITION SWITCH	BCM detects a difference of signal for 1 second or more between the following information. - Power supply position by push-button ignition switch - Power supply position from IPDM E/R (CAN)	Harness or connectors (Push-button ignition switch circuit is open or shorted.)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

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

Is DTC detected?

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

Diagnosis Procedure

INFOID:000000008463355

1.CHECK IGNITION SWITCH OUTPUT SIGNAL

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

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

Is the inspection result normal?

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

2.CHECK PUSH-BUTTON IGNITION SWITCH CIRCUIT

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

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

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

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

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-77, "Removal and Installation"](#).
NO >> Repair or replace harness.

PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

PUSH-BUTTON IGNITION SWITCH

Component Function Check

INFOID:000000008463356

1.CHECK FUNCTION

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

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

Is the indication normal?

- YES >> INSPECTION END
NO >> Go to [PCS-65, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:000000008463357

1.CHECK PUSH-BUTTON IGNITION SWITCH OUTPUT SIGNAL

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

(+)		(-)	Voltage (V) (Approx.)
Push-button ignition switch			
Connector	Terminal		
M101	4	Ground	Battery voltage

Is the inspection result normal?

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

2.CHECK PUSH-BUTTON IGNITION SWITCH CIRCUIT

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

BCM		Push-button ignition switch		Continuity
Connector	Terminal	Connector	Terminal	
M121	60	M101	4	Existed

3. Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M121	60		Not existed

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-77, "Removal and Installation"](#).
NO >> Repair or replace harness.

3.CHECK PUSH-BUTTON IGNITION SWITCH GROUND CIRCUIT

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

Push-button ignition switch		Ground	Continuity
Connector	Terminal		
M101	1		Existed

PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK PUSH-BUTTON IGNITION SWITCH

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

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace push-button ignition switch.

5.CHECK INTERMITTENT INCIDENT

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

>> INSPECTION END

Component Inspection

INFOID:000000008463358

1.CHECK PUSH-BUTTON IGNITION SWITCH

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

Push-button ignition switch		Condition		Continuity
Terminal				
1	4	Push-button ignition switch	Pressed	Existed
			Not pressed	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace push-button ignition switch.

PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR

Description

INFOID:000000008463359

The switch that changes the power supply position.

BCM maintains the power supply position status.

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

Component Function Check

INFOID:000000008463360

1.CHECK FUNCTION

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

Test item		Description	
LOCK INDICATOR ACC INDICATOR IGNITION ON IND	ON	Position indicator	Illuminate
	OFF		Not illuminate

Is the inspection result normal?

YES >> INSPECTION END

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

Diagnosis Procedure

INFOID:000000008463361

1.CHECK PUSH-BUTTON IGNITION SWITCH INPUT SIGNAL

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

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

Is the inspection normal?

YES >> GO TO 2.

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

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

2.CHECK BCM INPUT

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

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

Is the inspection normal?

YES >> Replace BCM. Refer to [BCS-77, "Removal and Installation"](#).

NO >> GO TO 3.

3.CHECK PUSH-BUTTON IGNITION SWITCH CIRCUIT

1. Disconnect push-button ignition switch connector.

PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

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

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

3. Check continuity between BCM harness connector and ground.

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

Is the inspection normal?

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

PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

SYMPTOM DIAGNOSIS

PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE

Description

INFOID:000000008463362

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

NOTE:

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

Conditions of Vehicle (Operating Conditions)

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

Diagnosis Procedure

INFOID:000000008463363

1.PERFORM WORK SUPPORT

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

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

>> GO TO 2.

2.PERFORM SELF-DIAGNOSTIC RESULT

Perform Self-Diagnostic Result of “BCM”.

Is DTC detected?

YES >> Refer to [BCS-55. "DTC Index".](#)

NO >> GO TO 3.

3.CHECK PUSH-BUTTON IGNITION SWITCH

Check push-button ignition switch.

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

Is the operation normal?

YES >> GO TO 4.

NO >> Repair or replace malfunctioning parts.

4.CONFIRM THE OPERATION

Confirm the operation again.

Is the inspection normal?

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

NO >> GO TO 1.

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

PCS

PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR DOES NOT ILLUMINATE

< SYMPTOM DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

PUSH-BUTTON IGNITION SWITCH POSITION INDICATOR DOES NOT ILLUMINATE

Description

INFOID:000000008463364

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

Conditions of Vehicle (Operating Conditions)

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

Diagnosis Procedure

INFOID:000000008463365

1.CHECK PUSH-BUTTON IGNITION SWITCH INDICATOR

Check push-button ignition switch indicator.

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning parts.

2.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

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

NO >> GO TO 1.

PUSH-BUTTON IGNITION SWITCH

< REMOVAL AND INSTALLATION >

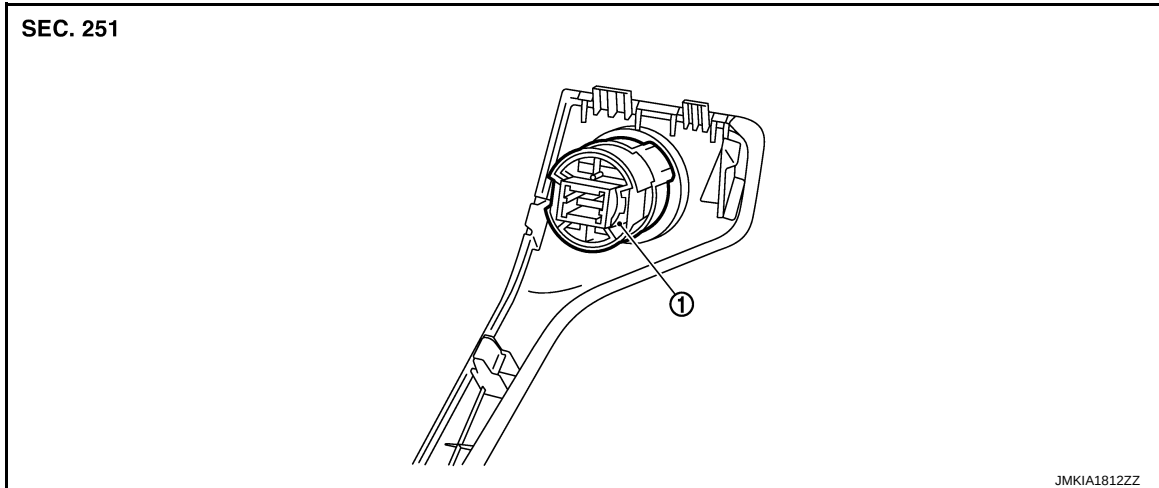
[POWER DISTRIBUTION SYSTEM]

REMOVAL AND INSTALLATION

PUSH-BUTTON IGNITION SWITCH

Exploded View

INFOID:0000000008463366



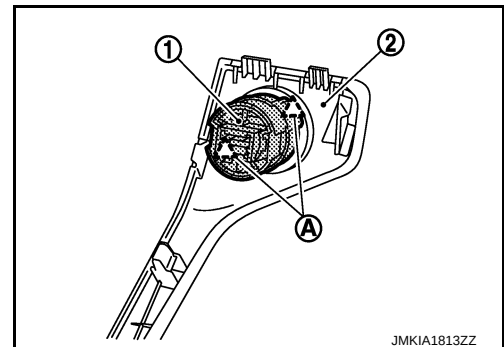
1. Push-button ignition switch

Removal and Installation

INFOID:0000000008463367

REMOVAL

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



INSTALLATION

Install in the reverse order of removal.