

PCS

SECTION

POWER CONTROL SYSTEM

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PRECAUTION

PRECAUTIONS

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

INFOID:000000009579037

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

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

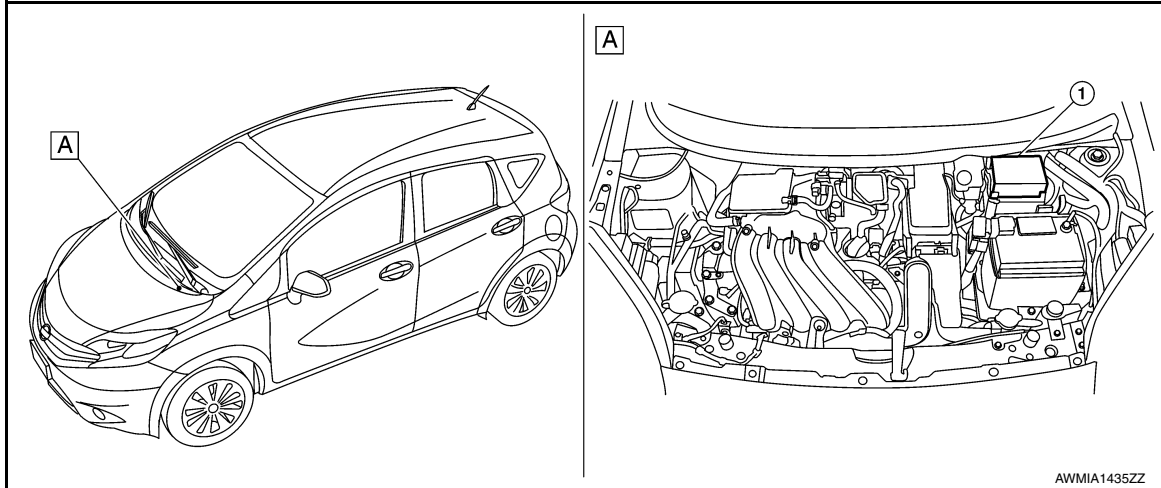
- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious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

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

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1. IPDM E/R

A. Engine compartment (LH)

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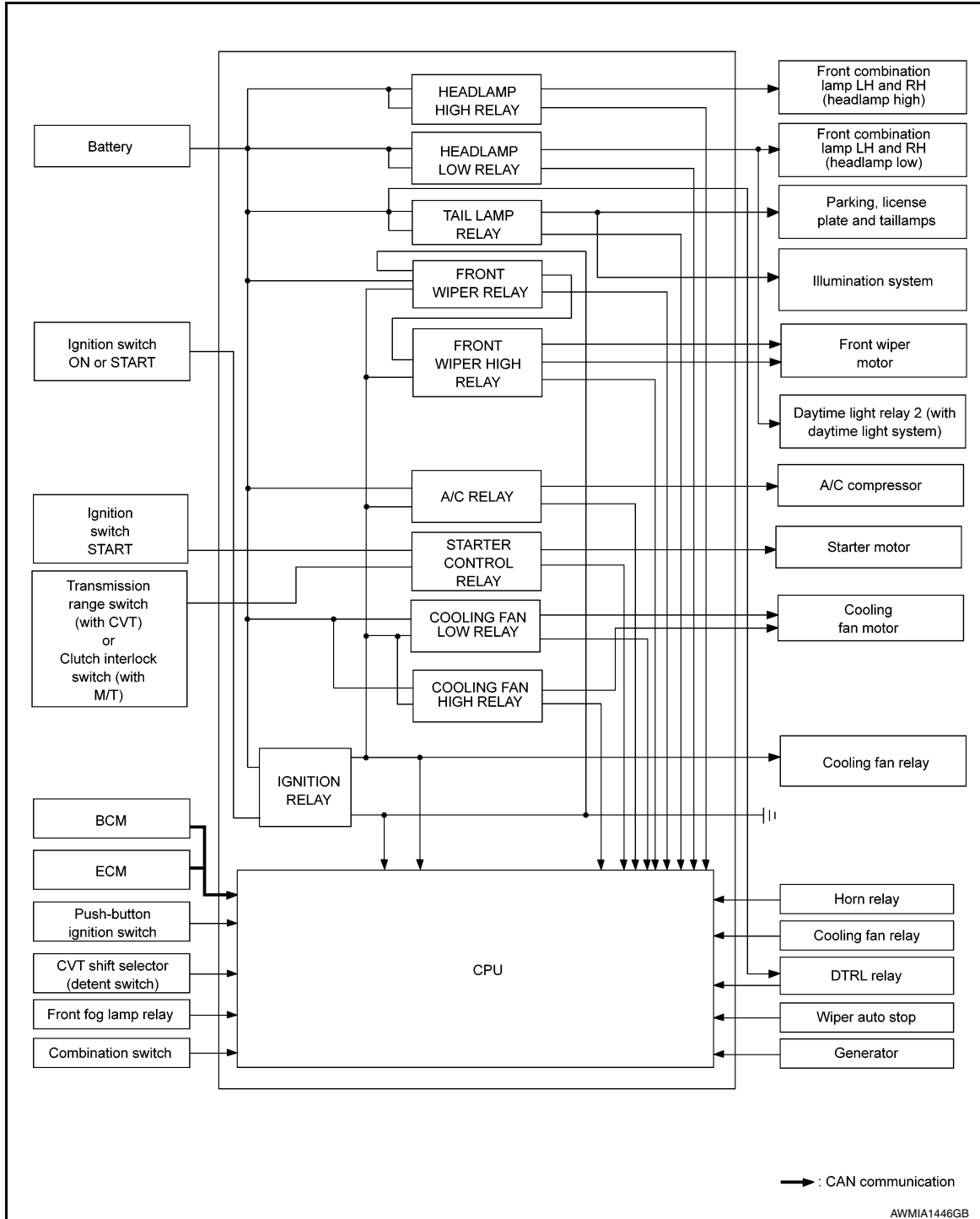
SYSTEM

RELAY CONTROL SYSTEM

RELAY CONTROL SYSTEM : System Description

INFOID:000000009578951

SYSTEM DIAGRAM



DESCRIPTION

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

CAUTION:

IPDM E/R integrated relays cannot be removed.

SYSTEM

< SYSTEM DESCRIPTION >

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

Control relay	Input/output	Transmit unit	Control part	Reference page
- Headlamp low relay - Headlamp high relay	- Low beam request signal - High beam request signal	BCM (CAN)	- Headlamp LO - Headlamp HI	EXL-8
Tail lamp relay	Position light request signal	BCM (CAN)	- Parking lamp - License plate lamp - Tail lamp	EXL-11
			Illuminations	INL-9
- Front wiper relay - Front wiper high relay	Front wiper request signal	BCM (CAN)	Front wiper motor	WW-8
	Front wiper stop position signal	Front wiper motor		
Starter control relay	Starter control relay signal	BCM (CAN)	Starter motor	STR-9
	Transmission range switch signal (CVT models)	Transmission range switch		
	Clutch interlock switch signal (M/T models)	Clutch interlock switch		
- Cooling fan relay-1 - Cooling fan relay-2	Cooling fan speed request signal	ECM (CAN)	Cooling fan	EC-38
A/C relay	A/C compressor request signal	ECM (CAN)	A/C compressor (Magnet clutch)	HAC-13
Ignition relay	Ignition switch ON signal	BCM (CAN)	Each control unit, sensor, actuator and relay (Ignition power supply)	EC-35
	Vehicle speed signal (Meter)	Combination meter (CAN)		
	Push-button ignition switch signal	Push-button ignition switch		

RELAY CONTROL SYSTEM : Fail-safe

INFOID:000000009725675

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	- The cooling fan relay turn ON when the ignition switch is turned ON (Cooling fan HI operation) - The cooling fan relay turn OFF when the ignition switch is turned OFF
A/C compressor	A/C relay OFF
Generator	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 - 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

SYSTEM

< SYSTEM DESCRIPTION >

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

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

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

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

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

NOTE:

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

FRONT WIPER CONTROL

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

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

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

NOTE:

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

STARTER MOTOR PROTECTION FUNCTION

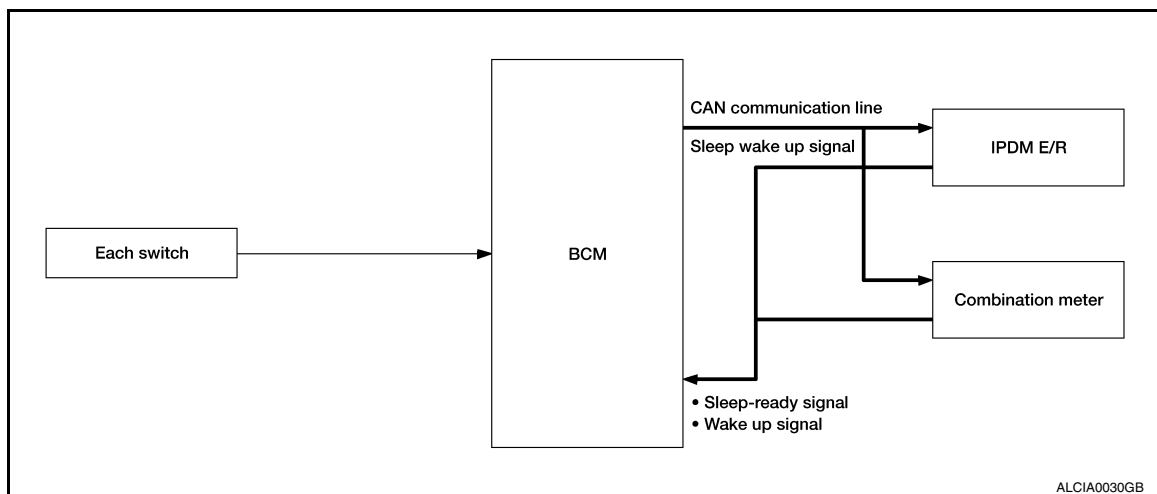
IPDM E/R turns OFF the starter control relay to protect the starter motor when the starter control relay remains active for 90 seconds.

POWER CONSUMPTION CONTROL SYSTEM

POWER CONSUMPTION CONTROL SYSTEM : System Description

INFOID:000000009578953

SYSTEM DIAGRAM



DESCRIPTION

Outline

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

Normal mode (wake-up)

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

Low power consumption mode (sleep)

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

Sleep Mode Activation

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

Wake-up Operation

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

DIAGNOSIS SYSTEM (IPDM E/R)

Diagnosis Description

INFOID:000000009578954

AUTO ACTIVE TEST

Description

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

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

Operation Procedure

NOTE:

Never perform auto active test in the following conditions.

- Passenger door is open
- CONSULT is connected

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

NOTE:

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

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

NOTE:

- When auto active test has to be cancelled halfway through test, turn the ignition switch OFF.
- When auto active test is not activated, door switch may be the cause. Check door switch. Refer to [DLK-95, "Component Function Check"](#).

Inspection in Auto Active Test

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

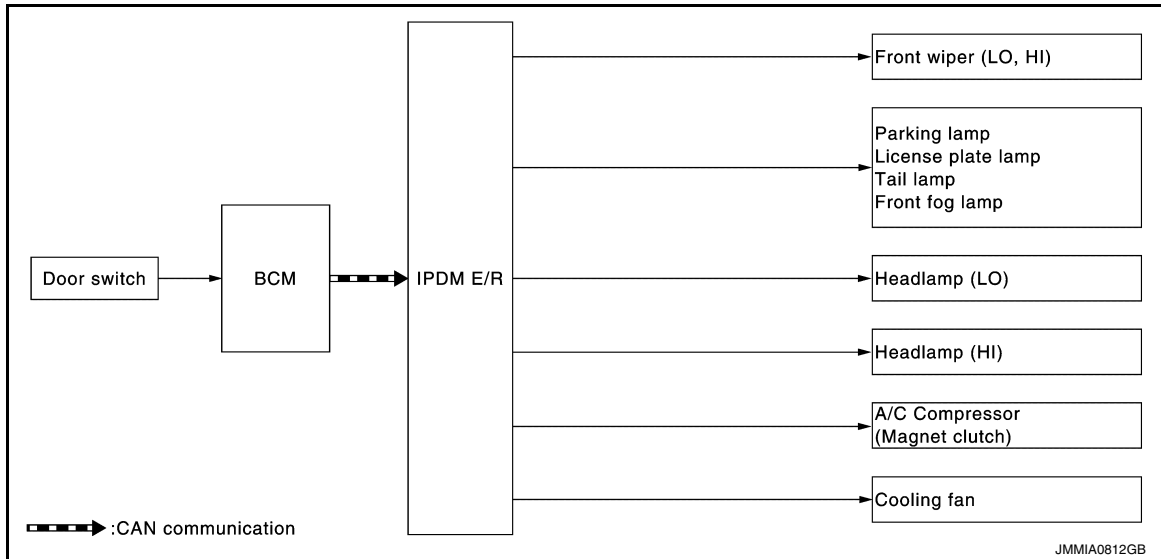
Operation sequence	Inspection location	Operation
1	Front wiper	LO for 5 seconds → HI for 5 seconds
2	• Parking lamp • License plate lamp • Tail lamp • Front fog lamp	10 seconds
3	Headlamp	LO for 10 seconds → HI ON ⇔ OFF 5 times
4	A/C compressor (magnet clutch)	ON ⇔ OFF 5 times
5	Cooling fan	LO for 5 seconds → MID for 3 seconds → HI for 2 seconds

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

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

Concept of Auto Active Test



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

Diagnosis Chart in Auto Active Test

Symptom	Inspection contents	Possible cause
Any of the following components do not operate • Parking lamp • License plate lamp • Tail lamp • Front fog lamp • Headlamp (HI, LO) • Front wiper (HI, LO)	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 • BCM signal input circuit • CAN communication signal between BCM 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
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 • Cooling fan motor • Harness or connector between IPDM E/R and cooling fan motor • IPDM E/R

CONSULT Function (IPDM E/R)

INFOID:000000009578955

APPLICATION ITEM

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

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

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

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

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

ECU IDENTIFICATION

The IPDM E/R part number is displayed.

SELF DIAGNOSTIC RESULT

Refer to [PCS-21, "DTC Index"](#).

DATA MONITOR

Monitor Item [Unit]	Main Signals	Description
MOTOR FAN REQ [1/2/3/4]	×	Indicates cooling fan speed signal received from ECM on CAN communication line
AC COMP REQ [On/Off]	×	Indicates A/C compressor request signal received from ECM on CAN communication line
TAIL&CLR REQ [On/Off]	×	Indicates position light request signal received from BCM on CAN communication line
HL LO REQ [On/Off]	×	Indicates low beam request signal received from BCM on CAN communication line
HL HI REQ [On/Off]	×	Indicates high beam request signal received from BCM on CAN communication line
FR FOG REQ [On/Off]	×	Indicates front fog light request signal received from BCM on CAN communication line
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Indicates front wiper request signal received from BCM on CAN communication line
WIP AUTO STOP [STOP P/ACT P]	×	Indicates condition of front wiper auto stop signal
WIP PROT [Off/BLOCK]	×	Indicates condition of front wiper fail-safe operation
IGN RLY1 -REQ [On/Off]		Indicates ignition switch ON signal received from BCM on CAN communication line
IGN RLY [On/Off]	×	Indicates condition of ignition relay
PUSH SW [On/Off]		Indicates condition of push-button ignition switch
INTER/NP SW [On/Off]		Indicates condition of CVT shift position
ST RLY CONT [On/Off]		Indicates starter relay status signal received from BCM on CAN communication line
IHBT RLY -REQ [On/Off]		Indicates starter control relay signal received from BCM on CAN communication line
ST/INH RLY [Off/ ST /INH]		Indicates condition of starter relay and starter control relay
DETENT SW [On/Off]		Indicates condition of CVT shift selector (park position switch)
DTRL REQ [Off]		Indicates daytime light request signal received from BCM on CAN communication line
THFT HRN REQ [On/Off]		Indicates theft warning horn request signal received from BCM on CAN communication line
HORN CHIRP [On/Off]		Indicates horn reminder signal received from BCM on CAN communication line

ACTIVE TEST

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

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

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

CAN DIAG SUPPORT MNTR

Refer to [LAN-12. "CAN Diagnostic Support Monitor"](#).

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ECU DIAGNOSIS INFORMATION

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

Reference Value

INFOID:000000009578956

VALUES ON THE DIAGNOSIS TOOL

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

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

< ECU DIAGNOSIS INFORMATION >

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

Monitor Item	Condition		Value/Status
IHBT RLY -REQ	Ignition switch ON		Off
	At engine cranking		On
ST/INHI RLY	Ignition switch ON		Off
	At engine cranking		INHI ON → ST ON
	The status of starter relay or starter control relay cannot be recognized by the battery voltage malfunction, etc. when the starter relay is ON and the starter control relay is OFF.		UNKWN
DETENT SW	Ignition switch ON	- 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
DTRL REQ	Daytime running lamps OFF		Off
	Daytime running lamps ON		On
THFT HRN REQ	Not operation		Off
	- Panic alarm is activated - Theft warning alarm is activated		On
HORN CHIRP	Not operated		Off
	Door locking with key fob (horn chirp mode)		On

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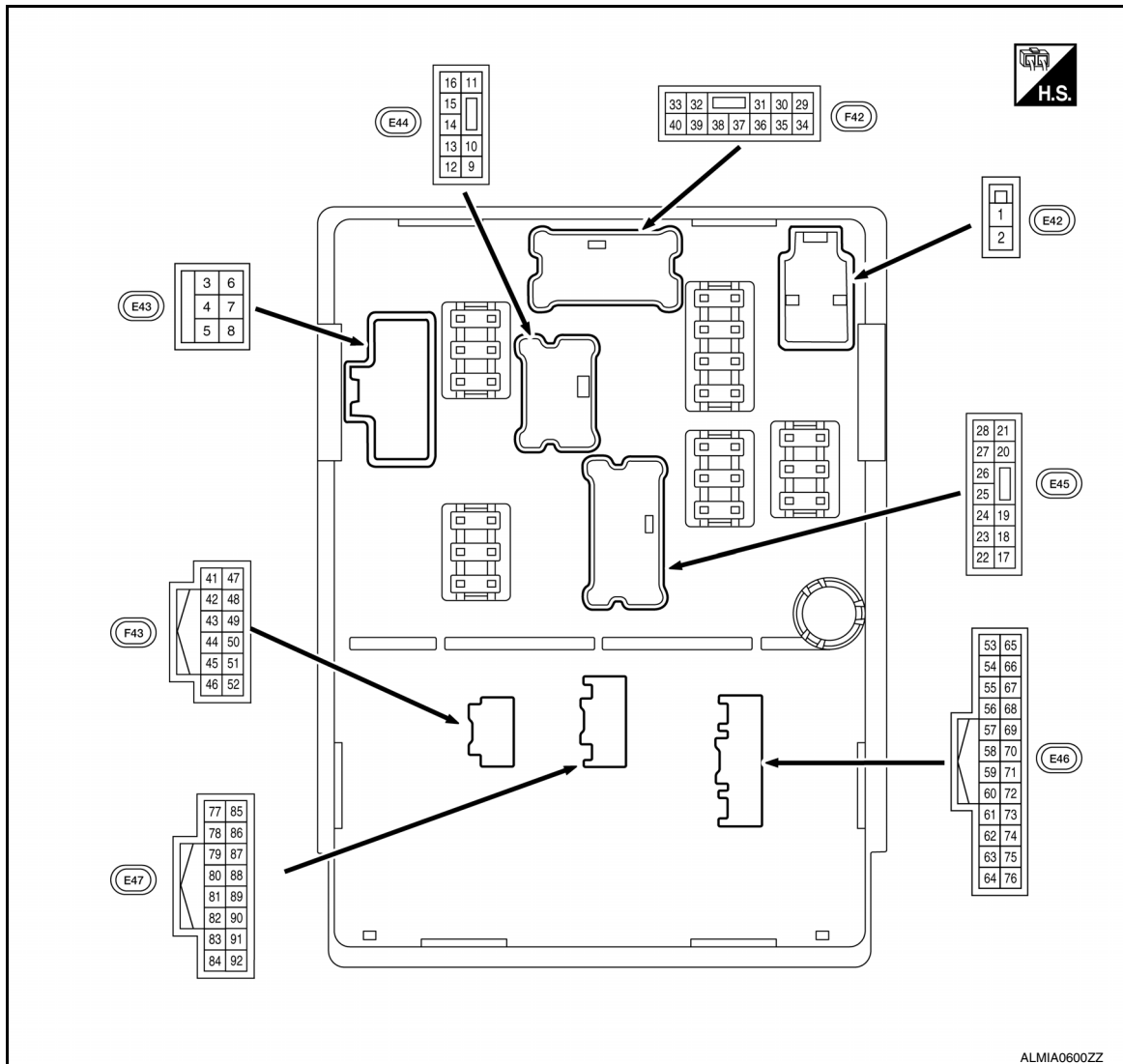
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IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

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

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal	Wire color	Circuit	Input/Output	Ignition switch	Condition	Value
1	R	Battery power supply	Input	OFF	—	Battery voltage
2	Y	Battery power supply	Input	OFF	—	Battery voltage
3	SB	Ignition switch power supply (START)	Input	OFF ACC ON	—	0V
				START	—	Battery voltage
5	Y	Cooling fan power supply (HIGH)	Output	ON or START	Cooling fan OFF	0V
					Cooling fan LO	4 – 8 V
					Cooling fan MID or HI	Battery voltage
6	R	Starter motor power supply	Output	OFF ACC ON	—	0V
				START	—	6 – 16 V

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

< ECU DIAGNOSIS INFORMATION >

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

Terminal	Wire color	Circuit	Input/ Output	Ignition switch	Condition	Value
7	P	Cooling fan power supply (LOW)	Output	ON or START	Cooling fan OFF	0V
					Cooling fan LO	Battery voltage
					Cooling fan MID	4 – 8 V
					Cooling fan HI	Battery voltage
8	G	Battery power supply	Input	OFF	—	Battery voltage
9	BR	Fuel pump power supply	Output	ON RUN	Approximately 1 second after turning the ignition switch ON	Battery voltage
				ON	Approximately 1 second after turning the ignition switch ON	0 - 1 V
11	G	ECM relay power supply	Output	OFF	More than a few seconds after turning ignition switch OFF	0 – 1 V
				ON OFF	For a few seconds after turning ignition switch OFF	6 – 16 V
13 ¹	R	Starter relay coil power supply	Input	ON	Clutch pedal depressed	0 – 1 V
					Clutch pedal released	Battery voltage
14	L	Headlamp LOW (LH) power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 2ND	Battery voltage
15	LG	Starter relay coil power supply	Input			0 – 1 V
						Battery voltage
16	P	Headlamp LOW (RH) power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 2ND	Battery voltage
17	LG	Front wiper motor LOW power supply	Output	ON	Front wiper switch OFF	0 – 1 V
					Front wiper switch LO	Battery voltage
18	GR	Front wiper motor HIGH power supply	Output	ON	Front wiper switch OFF	0 – 1 V
					Front wiper switch HI	Battery voltage
19	B	Ground	—	—	—	—
20	BR	ABS actuator and electric unit (control unit) power supply	Output	OFF	—	0V
				ON or START	—	Battery voltage
21	R	Transmission range switch power supply	Output	OFF or ACC		0 – 1 V
				ON		Battery voltage
22	P	Illumination power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 1ST	Battery voltage
23	R	Combination lamp power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 1ST	Battery voltage
24	W	Daytime light relay 1 power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 1ST	Battery voltage
25	G	Headlamp HIGH (LH) power supply	Output		Lighting switch other than HI and PASS	0 – 1 V
					Lighting switch HI Lighting switch PASS	Battery voltage

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

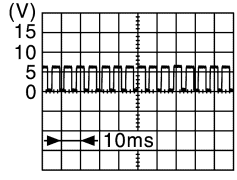
< ECU DIAGNOSIS INFORMATION >

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

Terminal	Wire color	Circuit	Input/Output	Ignition switch	Condition	Value
27	Y	Headlamp HIGH (RH) power supply	Output		Lighting switch other than HI and PASS	0 – 1 V
					Lighting switch HI Lighting switch PASS	Battery voltage
28	V	A/C compressor power supply	Output	RUN	A/C switch OFF	0 – 1 V
					A/C switch ON (A/C compressor is operating)	Battery voltage
29	L/W	Throttle control motor relay power supply	Output	OFF	More than a few seconds after turning ignition switch OFF	0 – 1 V
				ON OFF	For a few seconds after turning ignition switch OFF	Battery voltage
32	G/W	Throttle control motor relay control	Output	ON → OFF		0 – 1 V ↓ Battery voltage ↓ 0 – 1 V
				ON		0 – 1 V
34	Y	Ignition coil power supply	Output	OFF or ACC		0 – 1 V
				ON		Battery voltage
35	BR	NATS antenna amp power supply	Output	OFF		Battery voltage
36	SB	Fuel injector power supply	Output	OFF or ACC		0 – 1 V
				ON		Battery voltage
39	L	Timing control solenoid valve power supply	Output	OFF	More than a few seconds after turning ignition switch OFF	0 – 1 V
				ON OFF	For a few seconds after turning ignition switch OFF	Battery voltage
40 ²	BR	Starter relay coil power supply	Input	ON	Select lever in any position other than P or N	0 – 1 V
					Select lever P or N	Battery voltage
43	GR	Fuel pump relay control	Output	ON RUN	Approximately 1 second after turning the ignition switch ON	0 – 1 V
				ON	Approximately 1 second or more after turning the ignition switch	Battery voltage
47	R/W	ECM power supply	Output	OFF	More than a few seconds after turning ignition switch OFF	0 – 1 V
				ON OFF	For a few seconds after turning ignition switch OFF	Battery voltage

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

< ECU DIAGNOSIS INFORMATION > [IPDM E/R (WITH I-KEY)]

Terminal	Wire color	Circuit	Input/Output	Ignition switch	Condition	Value
48	O	Generator C	Output	OFF or ACC		0 – 1 V
				ON		 JMMIA0842GB
50	P	ECM relay control	Output	OFF	More than a few seconds after turning ignition switch OFF	0 – 1 V
				ON OFF	For a few seconds after turning ignition switch OFF	Battery voltage
59	Y	Cooling fan relay control	Output		Cooling fan OFF or LO operated	Battery voltage
					Cooling fan MID or HI operated	0 – 1 V
60	B	Ground	—	—	—	—
61	P	CAN-L	Input/Output	—	—	—
62	L	CAN-H	Input/Output	—	—	—
65	BR	Cooling fan relay power supply	Output	OFF or ACC		0 – 1 V
				ON		Battery voltage
69	GR	Daytime light relay 1 control	Output			Battery voltage
						0 – 1 V
71	W	Front fog lamp relay control	Output		Front fog lamp switch OFF	Battery voltage
					Front fog lamp switch ON	0 – 1 V
73	SB	Horn relay control	Output		Horn is not activated	Battery voltage
					Horn is activated	0 – 1 V
74	V	Front wiper motor stop position	Input	ON	Front wiper stop position	0 – 1 V
					Any position other than front wiper stop position	Battery voltage
80	R	PNP switch	Input	ON	Selector Lever in P	0 – 1 V
					Selector lever in any position other than P	Battery voltage
81	SB	Push-button ignition switch	Input	ON	Press the push-button ignition switch	0 – 1 V
					Release the push button ignition switch	Battery voltage
89	B	Ground	—	—	—	—
90	L	Ignition relay power supply	Input	ON	Ignition switch OFF or ACC	0 – 1 V
					Ignition switch ON	Battery voltage

1: With M/T

2: With CVT

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

< ECU DIAGNOSIS INFORMATION >

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

Fail-safe

INFOID:000000009578957

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	• The cooling fan relay turn ON when the ignition switch is turned ON (Cooling fan HI operation) • The cooling fan relay turn OFF when the ignition switch is turned OFF
A/C compressor	A/C relay OFF
Generator	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 • 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 mode and the front wiper motor is operating. • Returns automatically wiper to stop position when ignition switch is turned ON if fail-safe control is activated while front wiper motor is operated and wiper stop in the other position than stop position.
Front fog lamp	Front fog lamp relay OFF
Horn	Horn OFF
Ignition relay	The status just before activation of fail-safe is maintained.
Starter motor	Starter control relay OFF

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

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

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

NOTE:

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

FRONT WIPER CONTROL

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

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

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

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

STARTER MOTOR PROTECTION FUNCTION

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

DTC Index

INFOID:000000009578958

CONSULT display	Fail-safe	TIME ^{NOTE}		Refer to
No DTC is detected. Further testing may be required.	—	—	—	—
U1000: CAN COMM CIRCUIT	×	CRNT	1 – 39	PCS-27
B2098: IGN RELAY ON	×	CRNT	1 – 39	PCS-28
B2099: IGN RELAY OFF	—	CRNT	1 – 39	PCS-29
B210B: PNP RELAY ON stuck failure	—	CRNT	1 – 39	SEC-113
B210C: PNP RELAY OFF stuck failure	—	CRNT	1 – 39	SEC-114
B210D: STARTER relay ON stuck failure	—	CRNT	1 – 39	SEC-116
B210E: STARTER relay OFF stuck failure	—	CRNT	1 – 39	SEC-118
B210F: Interlock/NP switch ON stuck failure	—	CRNT	1 – 39	SEC-120
B2110: Interlock/NP switch OFF stuck failure	—	CRNT	1 – 39	SEC-122

NOTE:
 The details of TIME display are as follows.

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

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

< WIRING DIAGRAM >

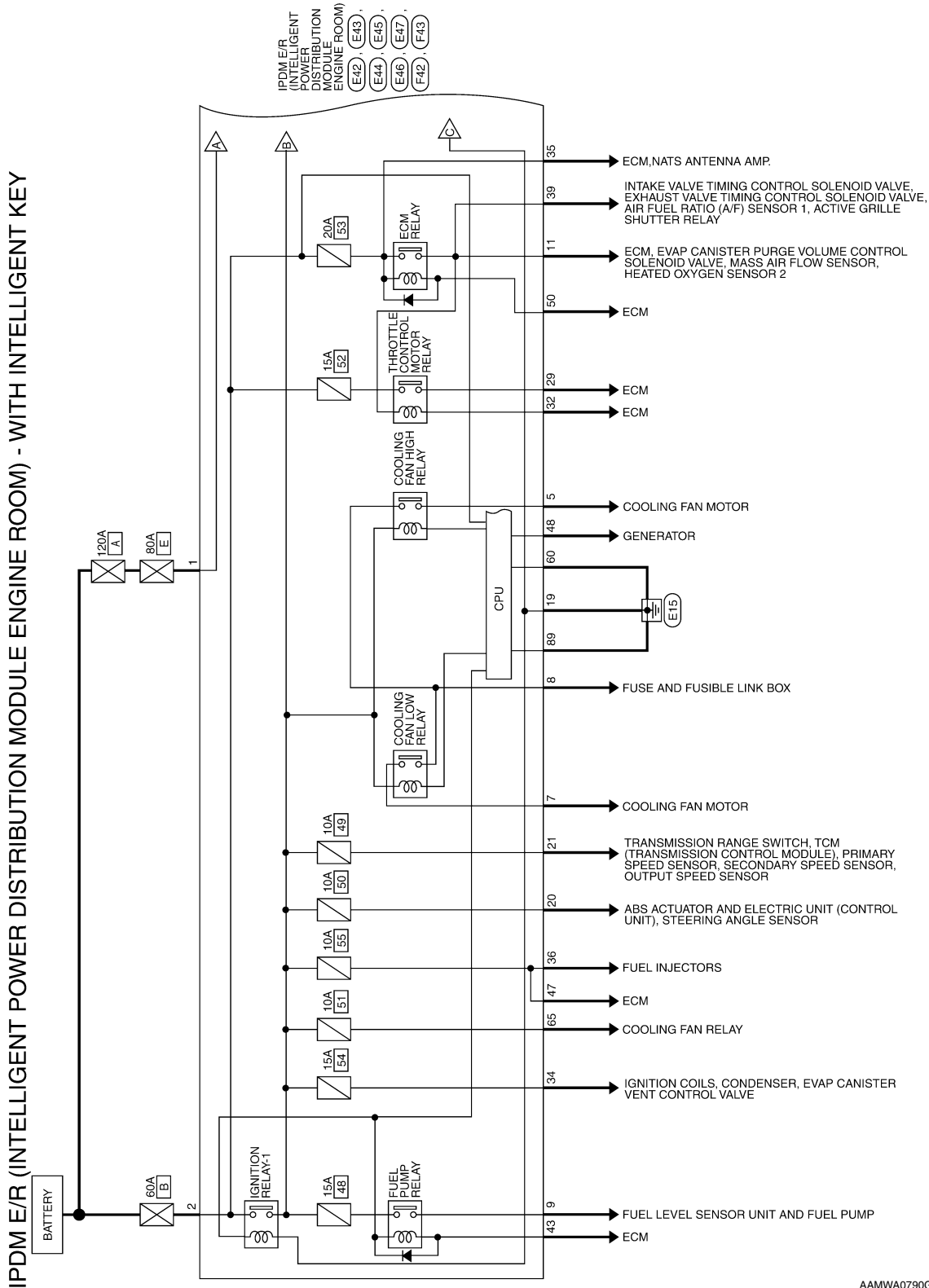
[IPDM E/R (WITH I-KEY)]

WIRING DIAGRAM

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

Wiring Diagram

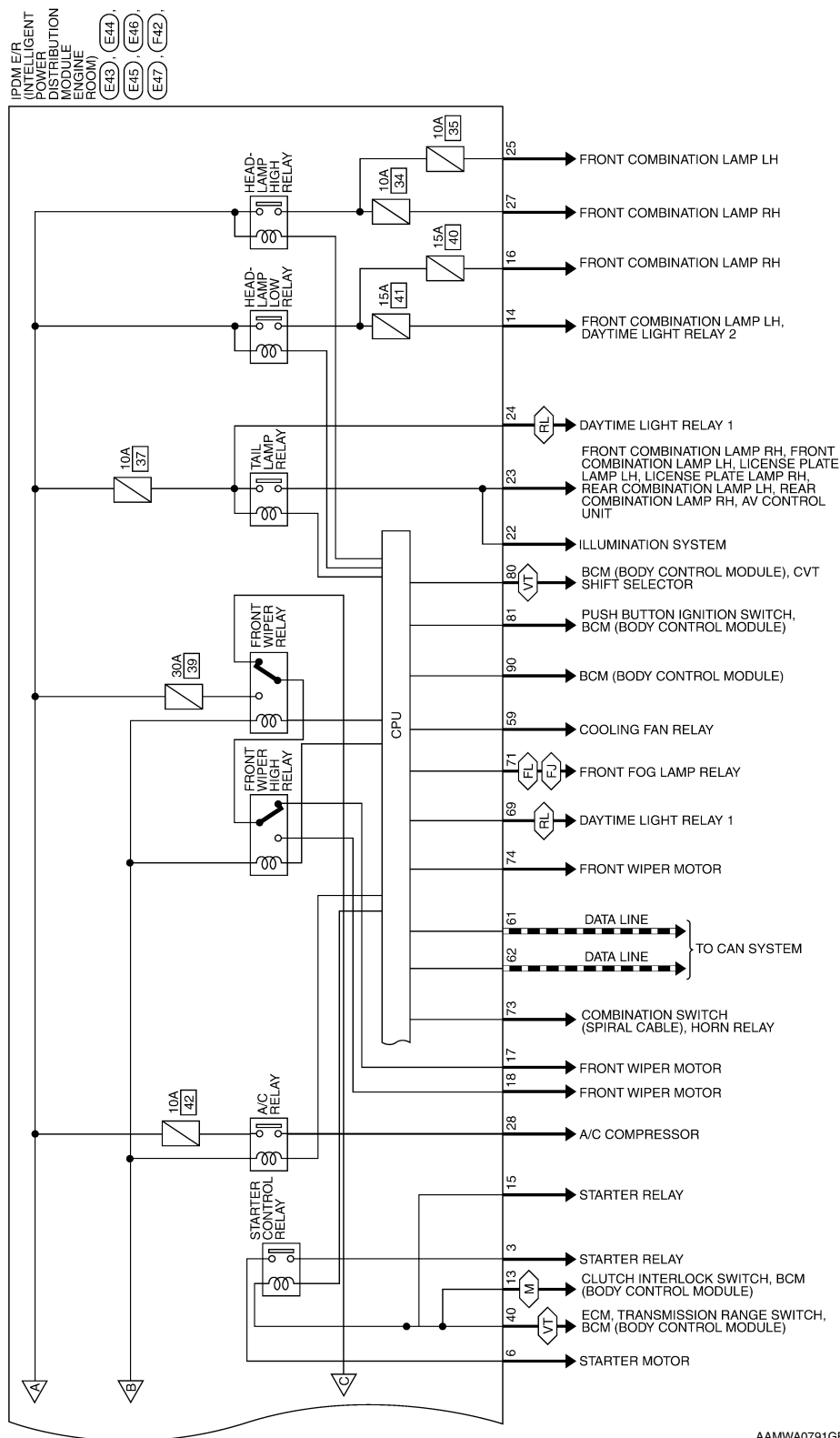
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IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) < WIRING DIAGRAM > [IPDM E/R (WITH I-KEY)]

FJ : WITH PRE-WIRING FOR FRONT FOG LAMP
 FL : WITH FRONT FOG LAMP
 M : WITH M/T
 RL : WITH DAYTIME LIGHT SYSTEM
 VT : WITH CVT



AAMWA0791GB

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

< WIRING DIAGRAM >

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

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

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



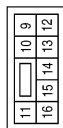
Terminal No.	Color of Wire	Signal Name
1	R	F/L USM (+B1)
2	Y	F/L MAIN (+B2)

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



Terminal No.	Color of Wire	Signal Name
3	SB	F/L IGNSW
4	—	—
5	Y	MOTOR FAN HI
6	R	STARTER MOTOR
7	P	MOTOR FAN LO
8	G	F/L MOTOR FAN

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



Terminal No.	Color of Wire	Signal Name
9	BR	FUEL PUMP
10	—	—
11	G	ECM VB
12	—	—
13	R	CLUTCH I/L SW
14	L	HEADLAMP LO LH
15	LG	ST RLY COIL
16	P	HEADLAMP LO RH

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

< WIRING DIAGRAM >

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

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



84	83	82	81	80	79	78	77
92	91	90	89	88	87	86	85

Terminal No.	Color of Wire	Signal Name
77	-	-
78	-	-
79	-	-
80	R	DETENT SW
81	SB	PUSH START SW
82	-	-
83	-	-
84	-	-
85	-	-
86	-	-
87	-	-
88	-	-
89	B	SL CONDITION 2
90	L	IGN SIGNAL
91	-	-
92	-	-

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



64	63	62	61	60	59	58	57	56	55	54	53
76	75	74	73	72	71	70	69	68	67	66	65

Terminal No.	Color of Wire	Signal Name
53	-	-
54	-	-
55	-	-
56	-	-
57	-	-
58	-	-
59	Y	MOTOR FAN RLY GND
60	B	GND (SIGNAL)
61	P	CAN-L
62	L	CAN-H
63	-	-
64	-	-
65	BR	RELAY IG
66	-	-
67	-	-
68	-	-
69	GR	DTRL RLY
70	-	-
71	W	FR FOG RLY
72	-	-
73	SB	HORN RLY
74	V	WIPER AUTOSTOP
75	-	-
76	-	-

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

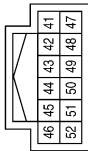


21	20		19	18	17	
28	27	26	25	24	23	22

Terminal No.	Color of Wire	Signal Name
17	LG	FR WIPER LO
18	GR	FR WIPER HI
19	B	GND (POWER)
20	BR	ABS ECU
21	R	AT ECU (WITH CVT)
22	P	TAIL/ILLUMI
23	R	CLEARANCE
24	W	DTRL
25	G	HEADLAMP HI LH
26	-	-
27	Y	HEADLAMP HI RH
28	V	AC-COMP

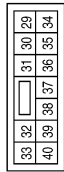
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Connector No.	F43
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
41	-	-
42	-	-
43	GR	FPR
44	-	-
45	-	-
46	-	-
47	RW	ECM IGNSW
48	O	ALT C
49	-	-
50	P	SSOFF
51	-	-
52	-	-

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
29	LW	ETC
30	-	-
31	-	-
32	G/W	MOTRLY
33	-	-
34	Y	IGN COIL
35	BR	ECM BAT
36	SB	INJECTOR
37	-	-
38	-	-
39	L	ENG SOL
40	BR	NPSW

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U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000009578960

Refer to [LAN-6, "CAN COMMUNICATION SYSTEM : System Description"](#).

DTC Logic

INFOID:0000000009578961

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1000]	When IPDM E/R cannot communicate with CAN communication signal continuously for 2 seconds or more	In CAN communication system, any item (or items) of the following listed below is malfunctioning. • Transmission • Receiving (ECM) • Receiving (BCM) • Receiving (Combination meter)

Diagnosis Procedure

INFOID:0000000009578962

1. PERFORM SELF DIAGNOSTIC RESULT

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

Is "CAN COMM CIRCUIT" displayed?

- YES >> Refer to [LAN-15, "Trouble Diagnosis Flow Chart"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

PCS

B2098 IGNITION RELAY ON STUCK

< DTC/CIRCUIT DIAGNOSIS >

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

B2098 IGNITION RELAY ON STUCK

DTC Logic

INFOID:000000009578964

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGN RELAY ON [B2098]	The ignition relay ON is detected for 1 second at ignition switch OFF (CPU monitors the status at the contact and excitation coil circuits of the ignition relay inside it)	IPDM E/R

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

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

Is DTC B2098 displayed?

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

Diagnosis Procedure

INFOID:000000009578965

1. PERFORM SELF DIAGNOSTIC RESULT

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

Is display history of DTC B2098 CRNT?

- YES >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

B2099 IGNITION RELAY OFF STUCK

< DTC/CIRCUIT DIAGNOSIS >

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

B2099 IGNITION RELAY OFF STUCK

DTC Logic

INFOID:000000009578967

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGN RELAY OFF [B2099]	The ignition relay OFF is detected for 1 second at ignition switch ON (CPU monitors the status at the contact and excitation coil circuits of the ignition relay inside it)	IPDM E/R

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

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

Is DTC B2099 displayed?

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

Diagnosis Procedure

INFOID:000000009578968

1. PERFORM SELF DIAGNOSTIC RESULT

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

Is display history of DTC B2099 CRNT?

- YES >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

PCS

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:000000009578969

Regarding Wiring Diagram information, refer to [PCS-22. "Wiring Diagram"](#).

1. CHECK FUSE AND FUSIBLE LINKS

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

Terminal No.	Signal name	Fuse and fusible link Nos.
1	Battery power supply	A (120A), E (80A)
2		B (60A)

Is the fuse blown?

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

2. CHECK BATTERY POWER SUPPLY CIRCUIT

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

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E42	1	—	Battery voltage
	2		

Is the inspection result normal?

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

3. CHECK GROUND CIRCUIT

1. Disconnect IPDM E/R connectors E45 and E46.
2. Check continuity between IPDM E/R connectors and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E45	19	Ground	Yes
E46	60		
	89		

Is the inspection result normal?

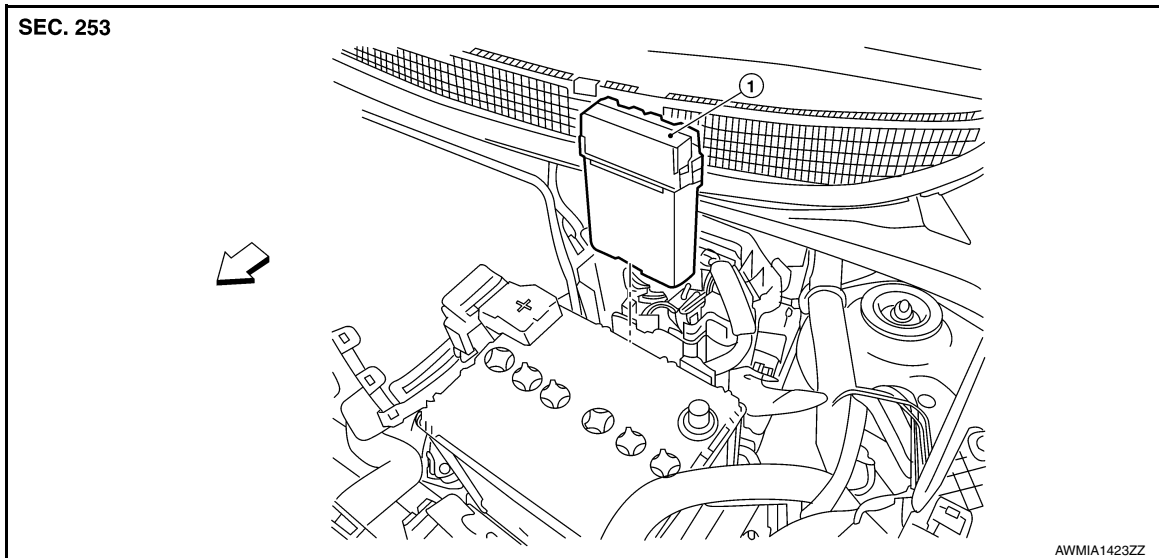
- YES >> Inspection End.
NO >> Repair or replace harness or connectors.

REMOVAL AND INSTALLATION

IPDM E/R

Exploded View

INFOID:000000009592944



1. IPDM E/R

⇐ Front

Removal and Installation

INFOID:000000009606305

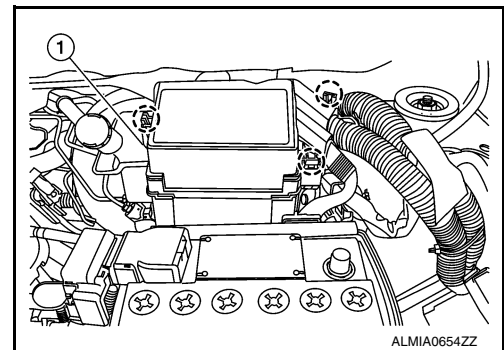
CAUTION:

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

REMOVAL

1. Disconnect the negative battery terminal. Refer to [PG-67. "Removal and Installation \(Battery\)"](#).
2. Release pawls on IPDM E/R cover (1) and remove.

⊖:Pawl

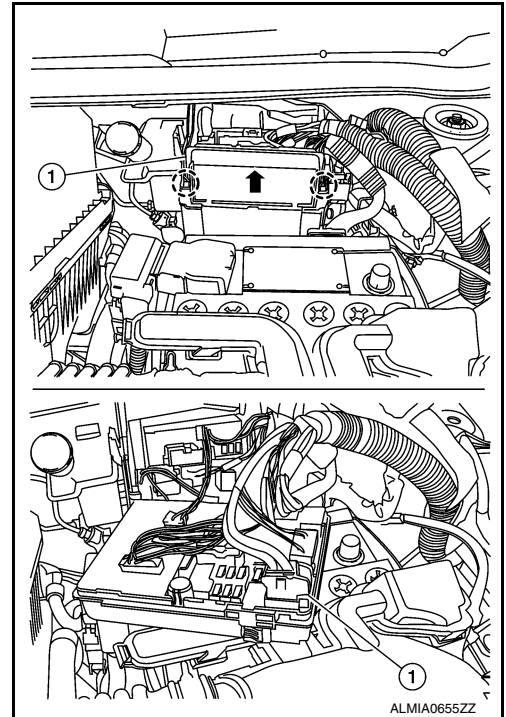


IPDM E/R

< REMOVAL AND INSTALLATION >

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

3. Release pawls, then lift IPDM E/R (1) as shown and position aside.
ⓘ:Pawl
4. Disconnect the harness connectors from the IPDM E/R (1) and remove.



INSTALLATION

Installation is in the reverse order of removal.

PRECAUTION

PRECAUTIONS

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

INFOID:000000009592937

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

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

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

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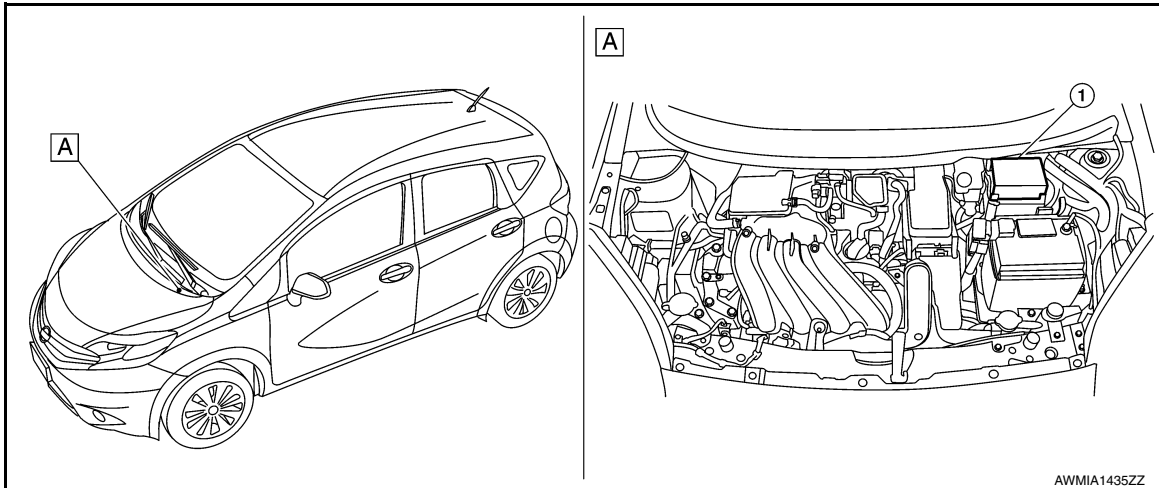
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SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000009578972



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

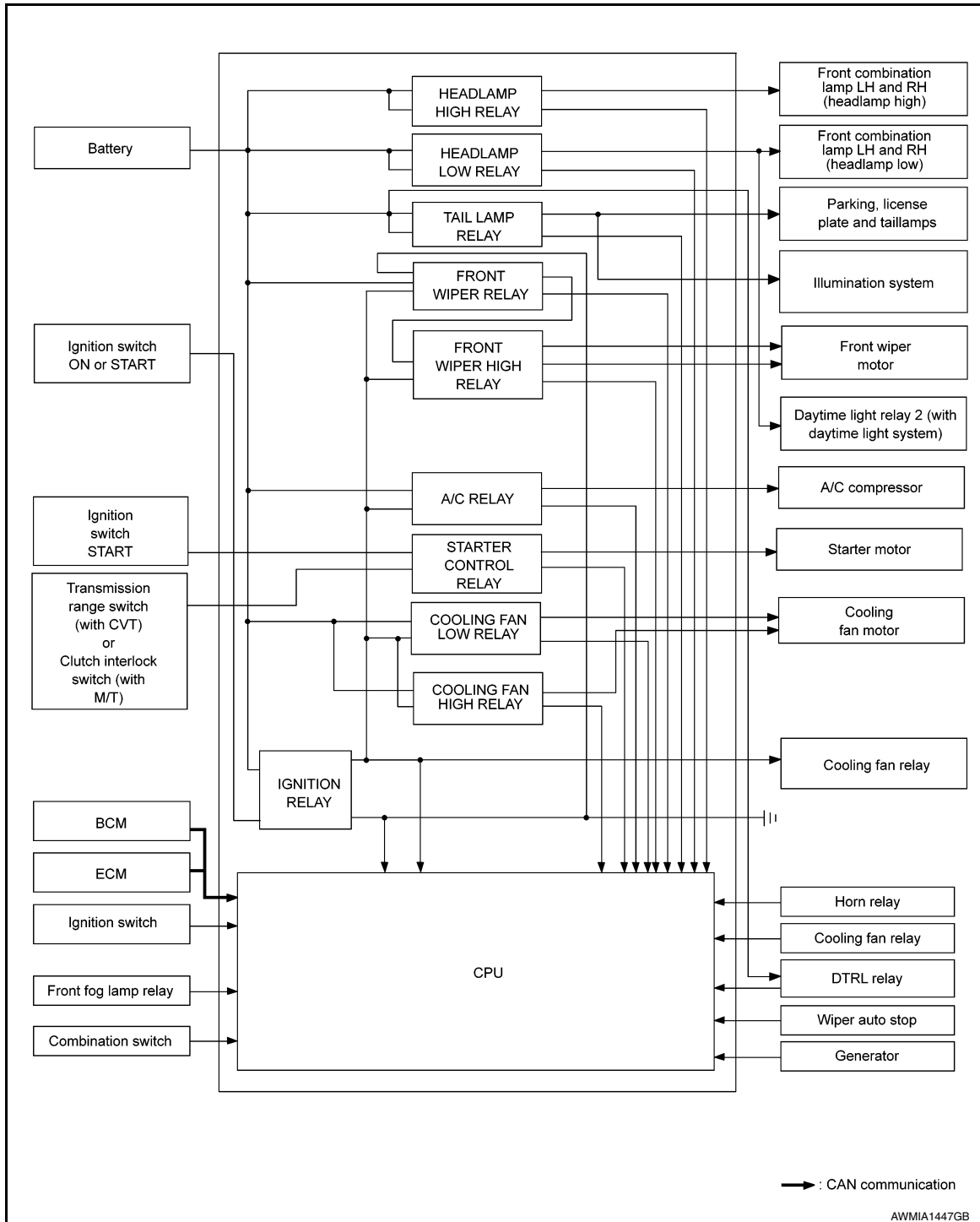
SYSTEM

RELAY CONTROL SYSTEM

RELAY CONTROL SYSTEM : System Description

INFOID:000000009578974

SYSTEM DIAGRAM



DESCRIPTION

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

CAUTION:

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

SYSTEM

< SYSTEM DESCRIPTION >

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

Control relay	Input/output	Transmit unit	Control part	Reference page
- Headlamp high relay - Headlamp low relay	- High beam request signal - Low beam request signal	BCM (CAN)	- Headlamp high - Headlamp low - Daytime light relay 2	EXL-8
Tail lamp relay	Position light request signal	BCM (CAN)	- Parking lamp - License plate lamp - Tail lamp	EXL-11
			Illuminations	INL-9
- Front wiper relay - Front wiper high relay	Front wiper request signal	BCM (CAN)	Front wiper motor	WW-8
Starter relay	Ignition switch START signal	- Transmission range switch (with CVT) - Clutch interlock switch (with M/T)	Starter motor	STR-8
- Cooling fan low relay - Cooling fan high relay	Cooling fan request signal	ECM (CAN)	Cooling fan motor (low) Cooling fan motor (high)	EC-38
A/C relay	A/C request signal	- BCM (CAN) - ECM (CAN)	A/C compressor (Magnet clutch)	HAC-13
Ignition relay	Ignition switch ON or START signal	Ignition switch	Ignition switch ON or START power	EC-35

RELAY CONTROL SYSTEM : Fail-Safe

INFOID:000000009725688

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	- The cooling fan relay turn ON when the ignition switch is turned ON (Cooling fan HI operation) - The cooling fan relay turn OFF when the ignition switch is turned OFF
A/C compressor	A/C relay OFF
Generator	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 - 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 mode and the front wiper motor is operating. - Returns automatically wiper to stop position when ignition switch is turned ON if fail-safe control is activated while front wiper motor is operated and wiper stop in the other position than stop position.
Front fog lamp	Front fog lamp relay OFF
Horn	Horn OFF

SYSTEM

< SYSTEM DESCRIPTION >

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

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

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

Voltage judgment		IPDM E/R judgment	Operation
Ignition relay contact side	Ignition switch status from BCM		
ON	ON	Ignition relay ON normal	—
OFF	OFF	Ignition relay OFF normal	—
ON	OFF	Ignition relay ON stuck	• Detects DTC “B2098: IGN RELAY ON” • Turns ON the tail lamp relay for 10 minutes
OFF	ON	Ignition relay OFF stuck	Detects DTC “B2099: IGN RELAY OFF”

FRONT WIPER PROTECTION FUNCTION

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

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

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

NOTE:

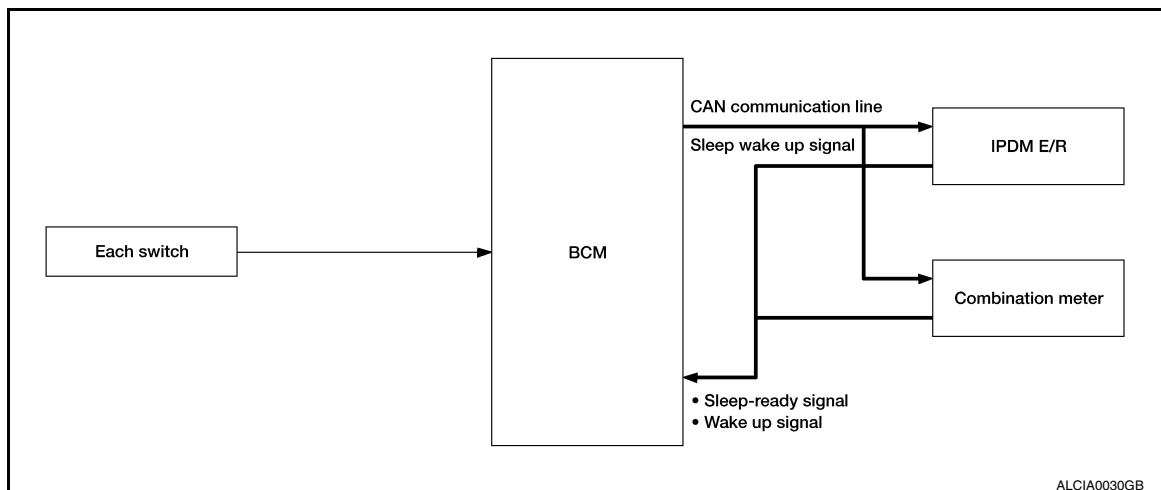
This operation status can be confirmed on the IPDM E/R “Data Monitor” that displays “BLOCK” for the item “WIP PROT” while the wiper is stopped.

POWER CONSUMPTION CONTROL SYSTEM

POWER CONSUMPTION CONTROL SYSTEM : System Description

INFOID:000000009578976

SYSTEM DIAGRAM



OUTLINE

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

Normal mode (wake-up)

- CAN communication is normally performed with other control units.

- Individual unit control by IPDM E/R is normally performed.

Low power consumption mode (sleep)

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

SLEEP MODE ACTIVATION

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

WAKE-UP OPERATION

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

DIAGNOSIS SYSTEM (IPDM E/R)

Diagnosis Description

INFOID:000000009578977

AUTO ACTIVE TEST

Description

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

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

Operation Procedure

NOTE:

Never perform auto active test in the following conditions.

- Passenger door is open
- CONSULT is connected

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

NOTE:

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

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

NOTE:

- When auto active test has to be cancelled halfway through test, turn the ignition switch OFF.
- When auto active test is not activated, door switch may be the cause. Check door switch. Refer to [DLK-225, "Component Function Check"](#).

Inspection in Auto Active Test

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

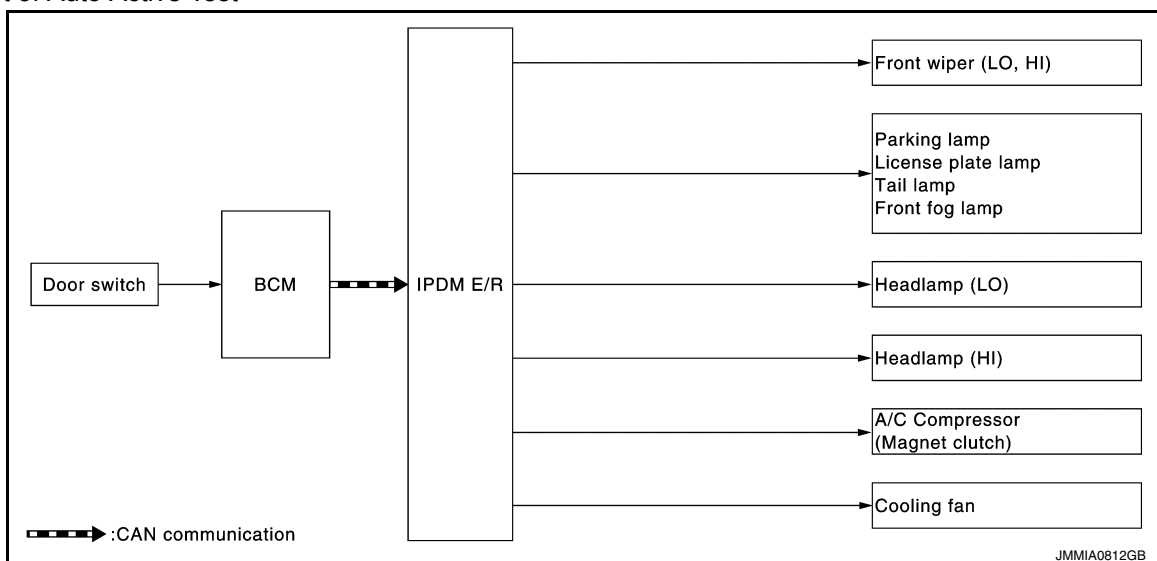
Operation sequence	Inspection location	Operation
1	Front wiper	LO for 5 seconds → HI for 5 seconds
2	• Parking lamp • License plate lamp • Tail lamp • Front fog lamp	10 seconds
3	Headlamp	LO for 10 seconds → HI ON ⇔ OFF 5 times
4	A/C compressor (magnet clutch)	ON ⇔ OFF 5 times
5	Cooling fan	LO for 5 seconds → MID for 3 seconds → HI for 2 seconds

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

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

Concept of Auto Active Test



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

Diagnosis Chart in Auto Active Test

Symptom	Inspection contents	Possible cause
Any of the following components do not operate • Parking lamp • License plate lamp • Tail lamp • Front fog lamp • Headlamp (HI, LO) • Front wiper (HI, LO)	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 • BCM signal input circuit • CAN communication signal between BCM 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
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 • Cooling fan motor • Harness or connector between IPDM E/R and cooling fan motor • IPDM E/R

CONSULT Function (IPDM E/R)

INFOID:000000009578978

APPLICATION ITEM

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

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

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

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

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

ECU IDENTIFICATION

The IPDM E/R part number is displayed.

SELF DIAGNOSTIC RESULT

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

DATA MONITOR

Monitor Item [Unit]	Main Signals	Description
MOTOR FAN REQ [1/2/3/4]	×	Indicates cooling fan speed signal received from ECM on CAN communication line
AC COMP REQ [On/Off]	×	Indicates A/C compressor request signal received from ECM on CAN communication line
TAIL&CLR REQ [On/Off]	×	Indicates position light request signal received from BCM on CAN communication line
HL LO REQ [On/Off]	×	Indicates low beam request signal received from BCM on CAN communication line
HL HI REQ [On/Off]	×	Indicates high beam request signal received from BCM on CAN communication line
FR FOG REQ [On/Off]	×	Indicates front fog light request signal received from BCM on CAN communication line
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Indicates front wiper request signal received from BCM on CAN communication line
WIP AUTO STOP [STOP P/ACT P]	×	Indicates condition of front wiper auto stop signal
WIP PROT [Off/BLOCK]	×	Indicates condition of front wiper fail-safe operation
IGN RLY1 -REQ [On/Off]		Indicates ignition switch ON signal received from BCM on CAN communication line
IGN RLY [On/Off]	×	Indicates condition of ignition relay
PUSH SW [On/Off]		Indicates condition of push-button ignition switch
INTER/NP SW [On/Off]		Indicates condition of CVT shift position
ST RLY CONT [On/Off]		Indicates starter relay status signal received from BCM on CAN communication line
IHBT RLY -REQ [On/Off]		Indicates starter control relay signal received from BCM on CAN communication line
ST/INH RLY [Off/ ST /INH]		Indicates condition of starter relay and starter control relay
DETENT SW [On/Off]		Indicates condition of CVT shift selector (park position switch)
DTRL REQ [Off]		Indicates daytime light request signal received from BCM on CAN communication line
THFT HRN REQ [On/Off]		Indicates theft warning horn request signal received from BCM on CAN communication line
HORN CHIRP [On/Off]		Indicates horn reminder signal received from BCM on CAN communication line

ACTIVE TEST

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

DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

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

CAN DIAG SUPPORT MNTR

Refer to [LAN-12. "CAN Diagnostic Support Monitor"](#).

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

< ECU DIAGNOSIS INFORMATION >

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

ECU DIAGNOSIS INFORMATION

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

Reference Value

INFOID:000000009578979

VALUES ON THE DIAGNOSIS TOOL

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

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

< ECU DIAGNOSIS INFORMATION >

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

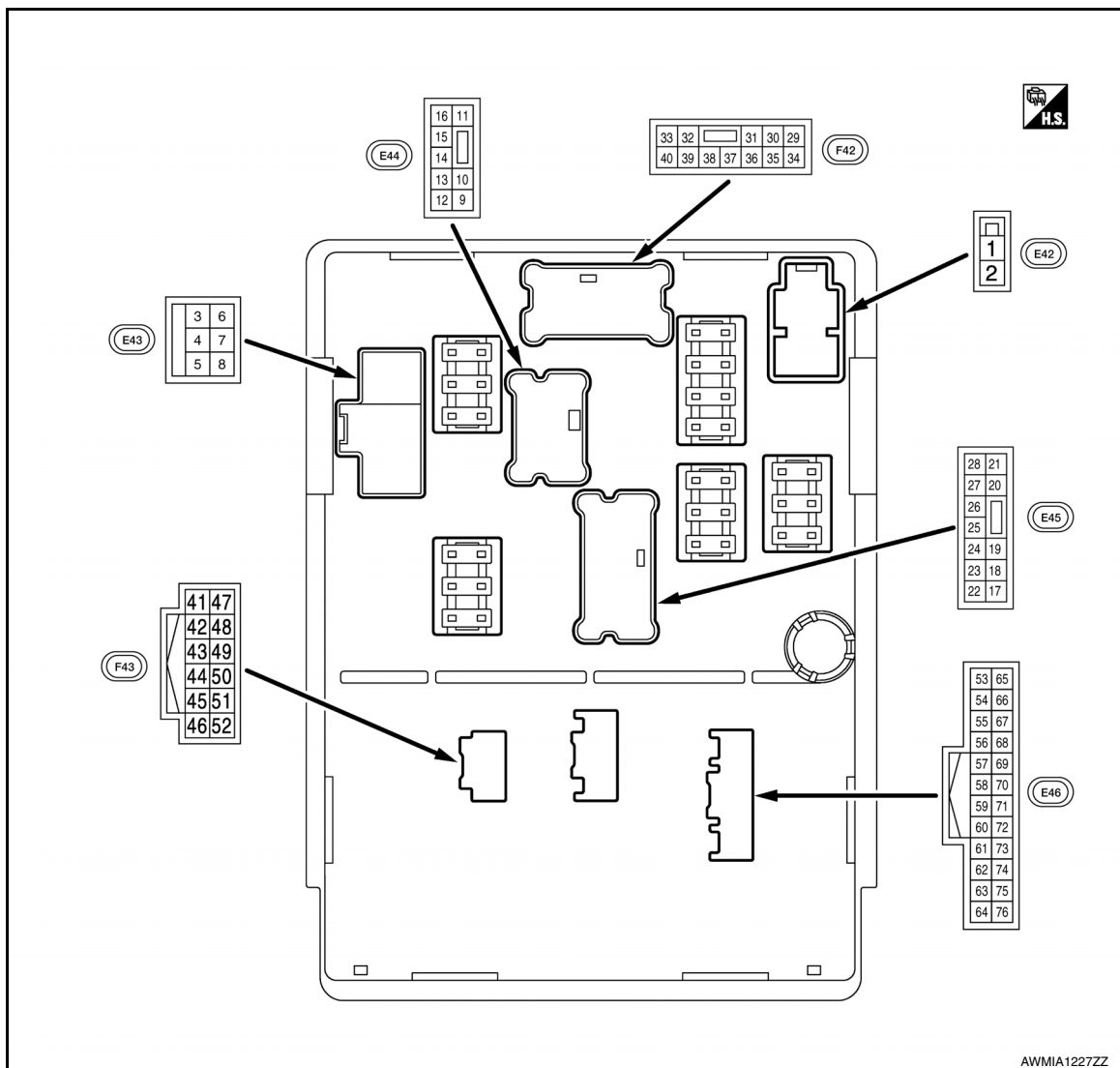
Monitor Item	Condition		Value/Status
IHBT RLY -REQ	Ignition switch ON		Off
	At engine cranking		On
ST/INHI RLY	Ignition switch ON		Off
	At engine cranking		INHI ON → ST ON
	The status of starter relay or starter control relay cannot be recognized by the battery voltage malfunction, etc. when the starter relay is ON and the starter control relay is OFF.		UNKWN
DETENT SW	Ignition switch ON	- 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
DTRL REQ	Daytime running lamps OFF		Off
	Daytime running lamps ON		On
THFT HRN REQ	Not operation		Off
	- Panic alarm is activated - Theft warning alarm is activated		On
HORN CHIRP	Not operated		Off
	Door locking with key fob (horn chirp mode)		On

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

< ECU DIAGNOSIS INFORMATION >

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

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal	Wire color	Circuit	Input/Output	Ignition switch	Condition	Value
1	R	Battery power supply	Input	OFF	—	Battery voltage
2	Y	Battery power supply	Input	OFF	—	Battery voltage
3	W	Ignition switch power supply (START)	Input	OFF ACC ON	—	0V
				START	—	6 – 16 V
5	Y	Cooling fan power supply (HIGH)	Output	ON or START	Cooling fan OFF	0V
					Cooling fan LO	4 – 8 V
					Cooling fan MID or HI	Battery voltage
6	R	Starter motor power supply	Output	OFF ACC ON	—	0V
				START	—	6 – 16 V

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

< ECU DIAGNOSIS INFORMATION >

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

Terminal	Wire color	Circuit	Input/ Output	Ignition switch	Condition	Value
7	P	Cooling fan power supply (LOW)	Output	ON or START	Cooling fan OFF	0V
					Cooling fan LO	Battery voltage
					Cooling fan MID	4 – 8 V
					Cooling fan HI	Battery voltage
8	G	Battery power supply	Input	OFF	—	Battery voltage
9	BR	Fuel pump power supply	Output	ON RUN	Approximately 1 second after turning the ignition switch ON	6 – 16 V
				ON	Approximately 1 second after turning the ignition switch ON	0 - 1 V
10	L	Ignition switch power supply (ON or START)	Input	OFF		0V
				ON or START		Battery voltage
11	G	ECM relay power supply	Output	OFF	More than a few seconds after turning ignition switch OFF	0 – 1 V
				ON OFF	For a few seconds after turning ignition switch OFF	6 – 16 V
13 ¹	LG	Starter relay coil power supply	Input	ON	Clutch released	0 – 1 V
					Clutch depressed	Battery voltage
14	L	Headlamp LOW (LH) power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 2ND	Battery voltage
16	P	Headlamp LOW (RH) power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 2ND	Battery voltage
17	LG	Front wiper motor LOW power supply	Output	ON	Front wiper switch OFF	0 – 1 V
					Front wiper switch LO	Battery voltage
18	GR	Front wiper motor HIGH power supply	Output	ON	Front wiper switch OFF	0 – 1 V
					Front wiper switch HI	Battery voltage
19	B	Ground	—	—	—	—
20	BR	ABS actuator and electric unit (control unit) power supply	Output	OFF	—	0V
				ON or START	—	Battery voltage
21 ¹	G	Clutch interlock switch power supply	Output	OFF or ACC		0 – 1 V
				ON		6 – 16 V
21 ²	R	Transmission range switch power supply	Output	OFF or ACC		0 – 1 V
				ON		6 – 16 V
22	P	Illumination power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 1ST	Battery voltage
23	R	Combination lamp power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 1ST	Battery voltage
24	W	Daytime light relay 1 power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 1ST	Battery voltage

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

< ECU DIAGNOSIS INFORMATION >

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

Terminal	Wire color	Circuit	Input/ Output	Ignition switch	Condition	Value
25	G	Headlamp HIGH (LH) power supply	Output		Lighting switch other than HI and PASS	0 – 1 V
					Lighting switch HI Lighting switch PASS	Battery voltage
27	Y	Headlamp HIGH (RH) power supply	Output		Lighting switch other than HI and PASS	0 – 1 V
					Lighting switch HI Lighting switch PASS	Battery voltage
28	V	A/C compressor power supply	Output	RUN	A/C switch OFF	0 – 1 V
					A/C switch ON (A/C compressor is operating)	Battery voltage
29	L/W	Throttle control motor re- lay power supply	Output	OFF	More than a few seconds after turning ignition switch OFF	0 – 1 V
				ON OFF	For a few seconds after turning ignition switch OFF	6 – 16 V
32	G/W	Throttle control motor re- lay control	Output	ON → OFF		0 – 1 V ↓ Battery voltage ↓ 0 – 1 V
				ON		0 – 1 V
34	Y	Ignition coil power supply	Output	OFF or ACC		0 – 1 V
				ON		6 – 16 V
35	BR	NATS antenna amp power supply	Output	OFF		6 – 16 V
36	SB	Fuel injector power supply	Output	OFF or ACC		0 – 1 V
				ON		6 – 16 V
39	L	Timing control solenoid valve power supply	Output	OFF	More than a few seconds after turning ignition switch OFF	0 – 1 V
				ON OFF	For a few seconds after turning ignition switch OFF	6 – 16 V
40 ²	BR	Starter relay coil power supply	Input	ON	Select lever in any position other than P or N	0 – 1 V
					Select lever P or N	Battery voltage
43	GR	Fuel pump relay control	Output	ON RUN	Approximately 1 second after turning the ignition switch ON	0 – 1 V
				ON	Approximately 1 second or more after turning the ignition switch	6 – 16 V
47	R/W	ECM power supply	Output	OFF	More than a few seconds after turning ignition switch OFF	0 – 1 V
				ON OFF	For a few seconds after turning ignition switch OFF	6 – 16 V

A

B

C

D

E

F

G

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I

J

K

L

PCS

N

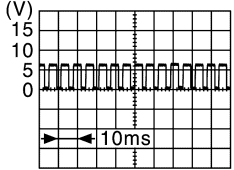
O

P

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

< ECU DIAGNOSIS INFORMATION >

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

Terminal	Wire color	Circuit	Input/ Output	Ignition switch	Condition	Value
48	O	Generator C	Output	OFF or ACC		0 – 1 V
				ON		
50	P	ECM relay control	Output	OFF	More than a few seconds after turning ignition switch OFF	0 – 1 V
				ON	For a few seconds after turning ignition switch OFF	6 – 16 V
59	Y	Cooling fan relay control	Output		Cooling fan OFF or LO operated	Battery voltage
					Cooling fan MID or HI operated	0 – 1 V
60	B	Ground	—	—	—	—
61	P	CAN-L	Input/ Output	—	—	—
62	L	CAN-H	Input/ Output	—	—	—
65	BR	Cooling fan relay power supply	Output	OFF or ACC		0 – 1 V
				ON		Battery voltage
69	GR	Daytime light relay 1 control	Output			Battery voltage
						0 – 1 V
71	W	Front fog lamp relay control	Output		Front fog lamp switch OFF	Battery voltage
					Front fog lamp switch ON	0 – 1 V
73	SB	Horn relay control	Output		Horn is not activated	Battery voltage
					Horn is activated	0 – 1 V
74	V	Front wiper motor stop position	Input	ON	Front wiper stop position	0 – 1 V
					Any position other than front wiper stop position	Battery voltage

¹: With M/T

²: With CVT

Fail-Safe

INFOID:000000009578980

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	- The cooling fan relay turn ON when the ignition switch is turned ON (Cooling fan HI operation) - The cooling fan relay turn OFF when the ignition switch is turned OFF
A/C compressor	A/C relay OFF
Generator	Outputs the power generation command signal (PWM signal) 0%

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

< ECU DIAGNOSIS INFORMATION >

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

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 • 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 mode and the front wiper motor is operating. • Returns automatically wiper to stop position when ignition switch is turned ON if fail-safe control is activated while front wiper motor is operated and wiper stop in the other position than stop position.
Front fog lamp	Front fog lamp relay OFF
Horn	Horn OFF

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

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

Voltage judgment		IPDM E/R judgment	Operation
Ignition relay contact side	Ignition switch status from BCM		
ON	ON	Ignition relay ON normal	—
OFF	OFF	Ignition relay OFF normal	—
ON	OFF	Ignition relay ON stuck	• Detects DTC “B2098: IGN RELAY ON” • Turns ON the tail lamp relay for 10 minutes
OFF	ON	Ignition relay OFF stuck	Detects DTC “B2099: IGN RELAY OFF”

FRONT WIPER PROTECTION FUNCTION

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

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

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

NOTE:

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

DTC Index

INFOID:000000009578981

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.

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

< ECU DIAGNOSIS INFORMATION >

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

- The number increases like 1 → 2 ... 38 → 39 after returning to the normal condition whenever IGN OFF → ON.
- The number is fixed to 39 until the self-diagnosis results are erased if it is over 39.

×: Applicable

CONSULT display	Fail-safe	Refer to
No DTC is detected. further testing may be required.	—	—
U1000: CAN COMM CIRCUIT	×	PCS-56
B2098: IGN RELAY ON	×	PCS-57
B2099: IGN RELAY OFF	—	PCS-58

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

< WIRING DIAGRAM >

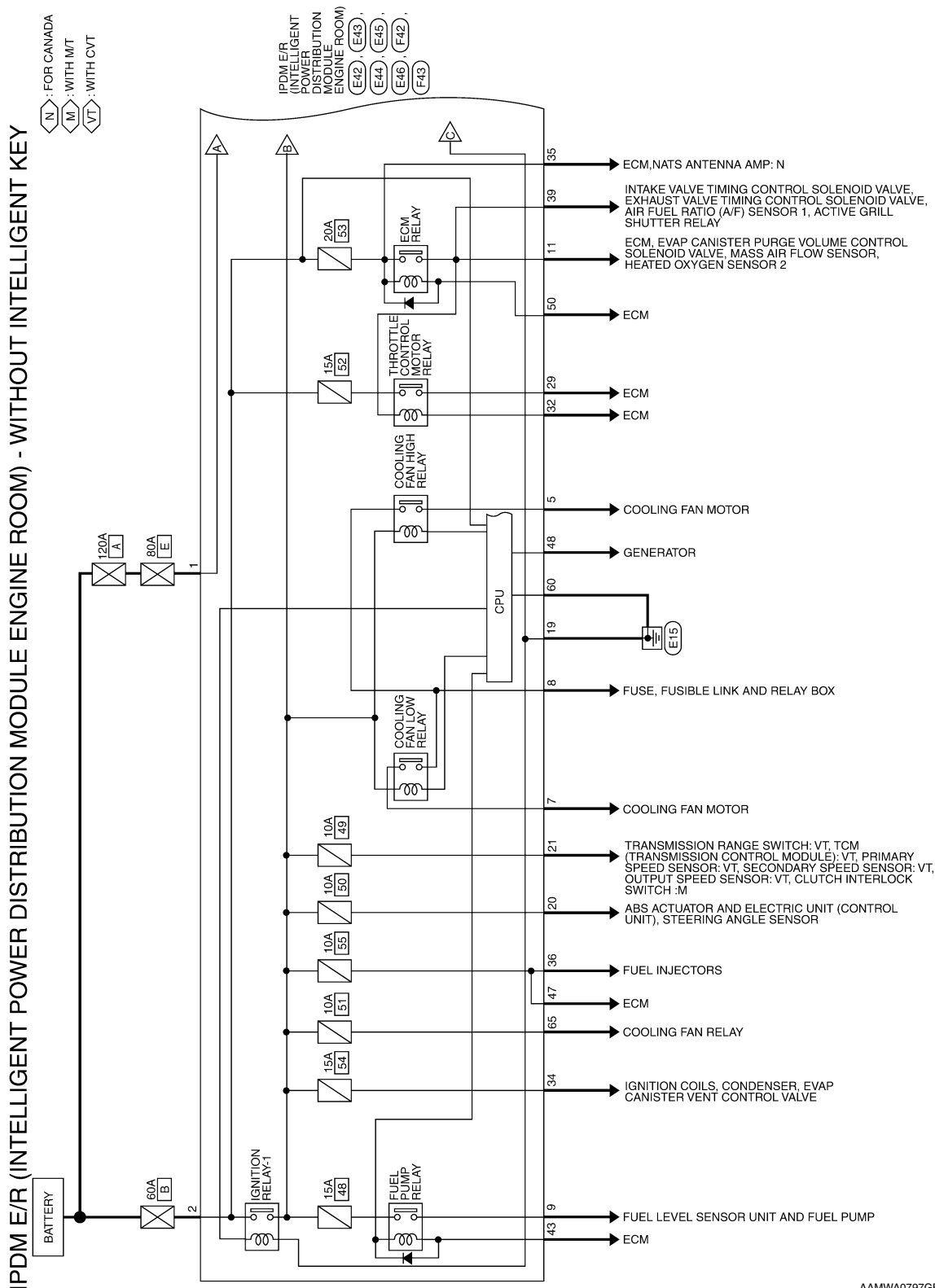
[IPDM E/R (WITHOUT I-KEY)]

WIRING DIAGRAM

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

Wiring Diagram

INFOID:000000009578982



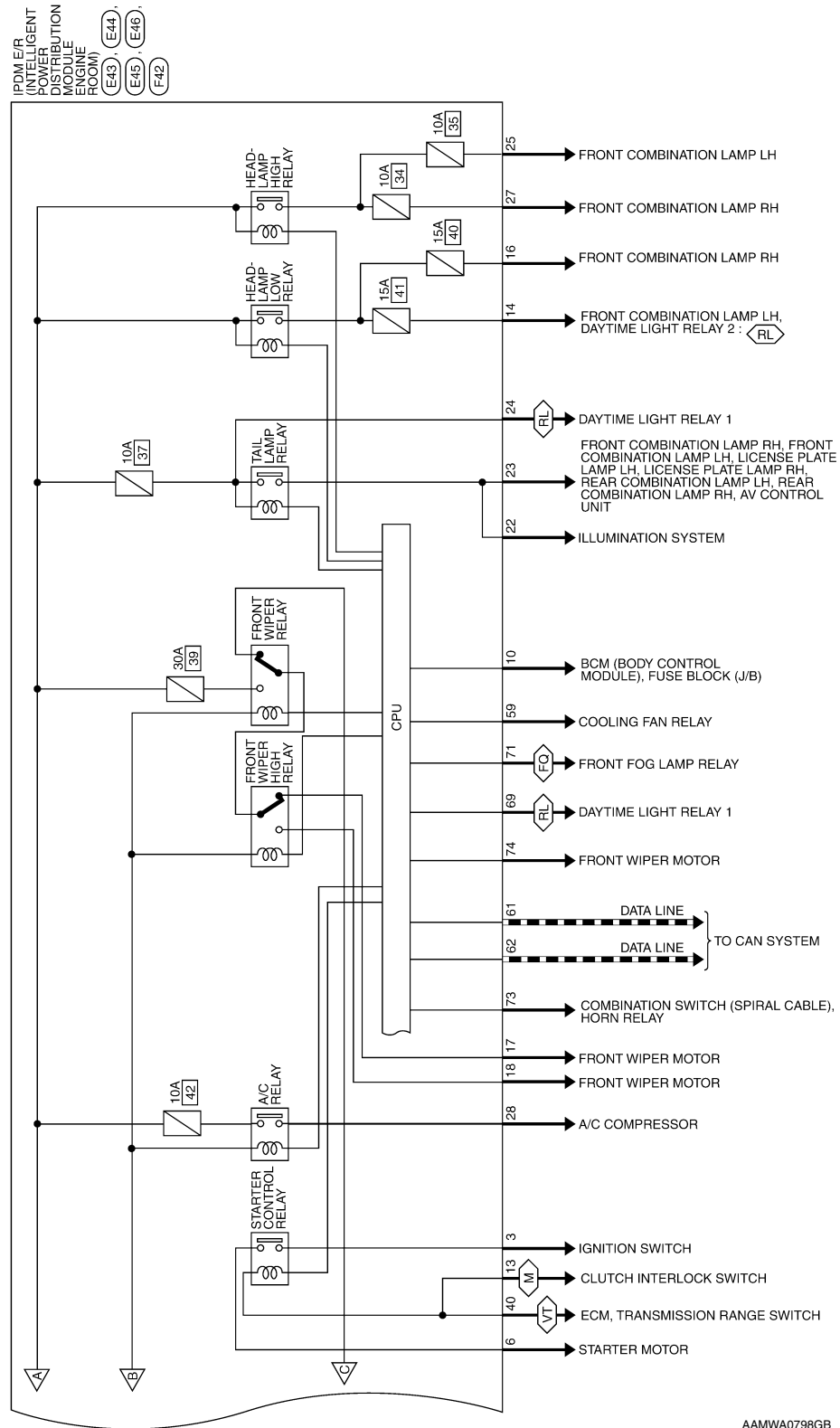
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IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< WIRING DIAGRAM >

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

<EQ> : WITH FRONT FOG LAMPS OR PRE-WIRING
 FOR FRONT FOG LAMPS
 <M> : WITH MT
 <RL> : WITH DAYTIME LIGHT SYSTEM
 <VT> : WITH CVT



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

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



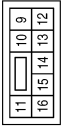
Terminal No.	Color of Wire	Signal Name
1	R	F/L USM (+B1)
2	Y	F/L MAIN (+B2)

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



Terminal No.	Color of Wire	Signal Name
3	W	F/L IGNSW
4	-	-
5	Y	MOTOR FAN HI
6	R	STARTER MOTOR
7	P	MOTOR FAN LO
8	G	F/L MOTOR FAN

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



Terminal No.	Color of Wire	Signal Name
9	BR	FUEL PUMP
10	L	IGNSW
11	G	ECM VB
12	-	-
13	LG	CLUTCH I/L SW
14	L	HEADLAMP LO LH
15	-	-
16	P	HEADLAMP LO RH

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

< WIRING DIAGRAM > [IPDM E/R (WITHOUT I-KEY)]

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

33	32	31	30	29
40	39	38	37	36
35	34			



Terminal No.	Color of Wire	Signal Name
29	L/W	ETC
30	-	-
31	-	-
32	G/W	MOTRLY
33	-	-
34	Y	IGN COIL
35	BR	ECM BAT
36	SB	INJECTOR
37	-	-
38	-	-
39	L	ENG SOL
40	BR	NPSW

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

64	63	62	61	60	59	58	57	56	55	54	53
76	75	74	73	72	71	70	69	68	67	66	65



Terminal No.	Color of Wire	Signal Name
53	-	-
54	-	-
55	-	-
56	-	-
57	-	-
58	-	-
59	Y	MOTOR FAN RLY GND
60	B	GND (SIGNAL)
61	P	CAN-L
62	L	CAN-H
63	-	-
64	-	-
65	BR	RELAY IG
66	-	-
67	-	-
68	-	-
69	GR	DTRL RLY
70	-	-
71	W	FR FOG RLY
72	-	-
73	SB	HORN RLY
74	V	WIPER AUTOSTOP
75	-	-
76	-	-

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

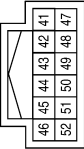
21	20	19	18	17
28	27	26	25	24
23	22			



Terminal No.	Color of Wire	Signal Name
17	LG	FR WIPER LO
18	GR	FR WIPER HI
19	B	GND (POWER)
20	BR	ABS ECU
21	R	AT ECU (WITH CVT)
21	G	AT ECU (WITH M/T)
22	P	TAIL/ILLUMI
23	R	CLEARANCE
24	W	DTRL
25	G	HEADLAMP HI LH
26	-	-
27	Y	HEADLAMP HI RH
28	V	AC-COMP

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Connector No.	F43
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
41	-	-
42	-	-
43	GR	FPR
44	-	-
45	-	-
46	-	-
47	R/W	ECM IGNSW
48	O	ALT C
49	-	-
50	P	SSOFF
51	-	-
52	-	-

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PCS

U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:000000009578983

Refer to [LAN-6, "CAN COMMUNICATION SYSTEM : System Description"](#).

DTC Logic

INFOID:000000009578984

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1000]	When IPDM E/R cannot communicate with CAN communication signal continuously for 2 seconds or more	In CAN communication system, any item (or items) of the following listed below is malfunctioning. • Transmission • Receiving (ECM) • Receiving (BCM) • Receiving (Combination meter)

Diagnosis Procedure

INFOID:000000009578985

1. PERFORM SELF DIAGNOSTIC RESULT

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

Is "CAN COMM CIRCUIT" displayed?

- YES >> Refer to [LAN-15, "Trouble Diagnosis Flow Chart"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

B2098 IGNITION RELAY ON STUCK

< DTC/CIRCUIT DIAGNOSIS >

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

B2098 IGNITION RELAY ON STUCK

DTC Logic

INFOID:0000000009578987

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGN RELAY ON [B2098]	The ignition relay ON is detected for 1 second at ignition switch OFF (CPU monitors the status at the contact and excitation coil circuits of the ignition relay inside it)	IPDM E/R

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

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

Is DTC B2098 displayed?

- YES >> Refer to [PCS-57, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000009578988

1. PERFORM SELF DIAGNOSTIC RESULT

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

Is display history of DTC B2098 CRNT?

- YES >> Replace IPDM E/R. Refer to [PCS-60, "Removal and Installation"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

PCS

B2099 IGNITION RELAY OFF STUCK

< DTC/CIRCUIT DIAGNOSIS >

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

B2099 IGNITION RELAY OFF STUCK

DTC Logic

INFOID:000000009578990

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGN RELAY OFF [B2099]	The ignition relay OFF is detected for 1 second at ignition switch ON (CPU monitors the status at the contact and excitation coil circuits of the ignition relay inside it)	IPDM E/R

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION

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

Is DTC B2099 displayed?

- YES >> Refer to [PCS-58, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009578991

1. PERFORM SELF DIAGNOSTIC RESULT

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

Is display history of DTC B2099 CRNT?

- YES >> Replace IPDM E/R. Refer to [PCS-60, "Removal and Installation"](#).
NO >> Refer to [GI-41, "Intermittent Incident"](#).

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:000000009578992

Regarding Wiring Diagram information, refer to [PCS-51, "Wiring Diagram"](#).

1. CHECK FUSE AND FUSIBLE LINKS

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

Terminal No.	Signal name	Fuse and fusible link Nos.
1	Battery power supply	A (120A), E (80A)
2		B (60A)
10	Ignition switch ON or START	2 (10A)

Is the fuse blown?

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

2. CHECK BATTERY POWER SUPPLY CIRCUIT

- Turn ignition switch OFF.
- Disconnect IPDM E/R connectors E42 and E44.
- Check voltage between IPDM E/R connectors and ground.

IPDM E/R		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
E42	1	—	Ignition switch: OFF	Battery voltage
	2			
E44	10		Ignition switch: ON	

Is the inspection result normal?

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

3. CHECK GROUND CIRCUIT

- Turn ignition switch OFF.
- Check continuity between IPDM E/R connectors and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E45	19		Yes
E46	60		

Is the inspection result normal?

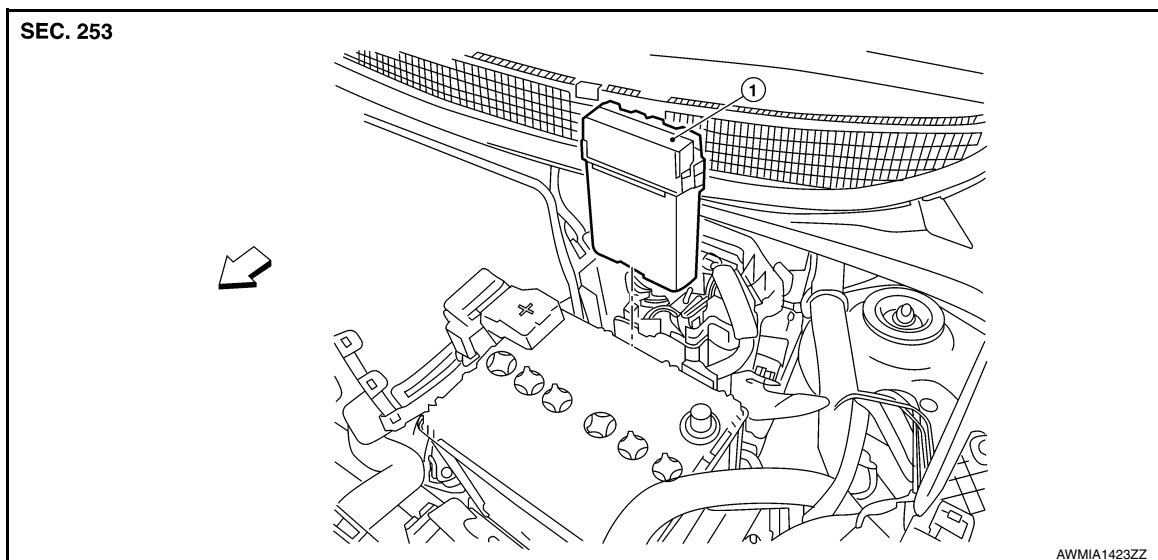
- YES >> Inspection End.
NO >> Repair or replace harness or connectors.

REMOVAL AND INSTALLATION

IPDM E/R

Exploded View

INFOID:000000009606338



1. IPDM E/R

↩ Front

Removal and Installation

INFOID:000000009606339

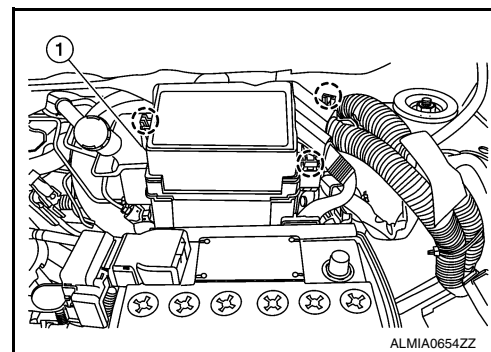
CAUTION:

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

REMOVAL

1. Disconnect the negative battery terminal. Refer to [PG-67, "Removal and Installation \(Battery\)"](#).
2. Release pawls on IPDM E/R cover (1) and remove.

○:Pawl

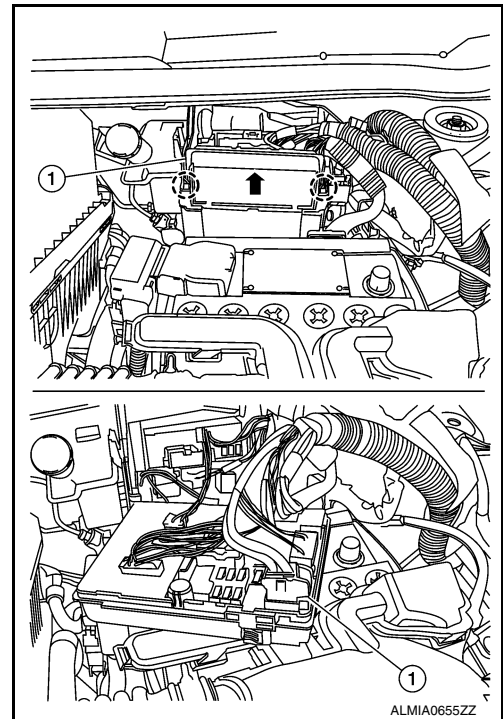


IPDM E/R

< REMOVAL AND INSTALLATION >

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

3. Release pawls, then lift IPDM E/R (1) as shown and position aside.
○:Pawl
4. Disconnect the harness connectors from the IPDM E/R (1) and remove.



INSTALLATION

Installation is in the reverse order of removal.

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PCS

PRECAUTION

PRECAUTIONS

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

INFOID:000000009579059

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

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

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

COMPONENT PARTS

< SYSTEM DESCRIPTION >

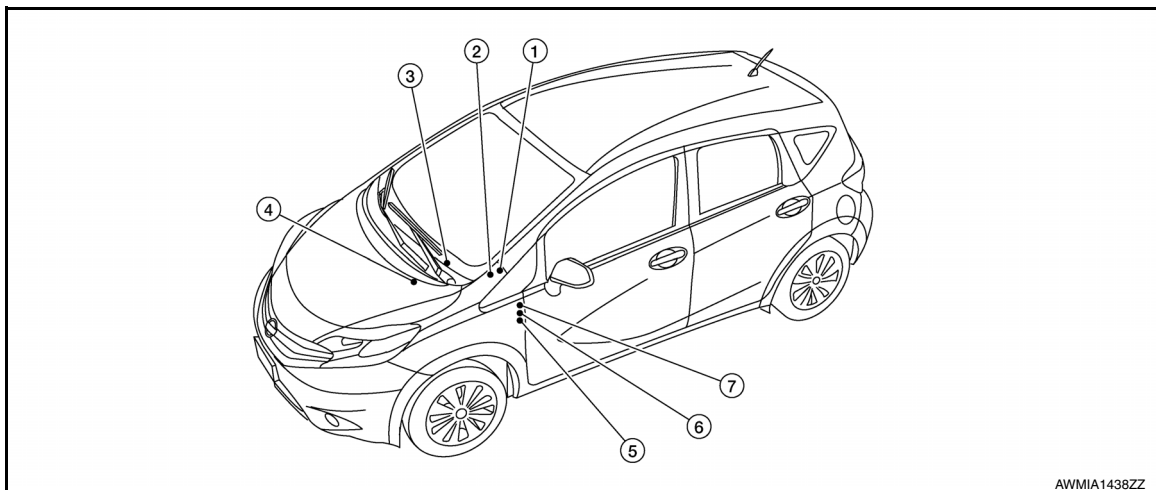
[POWER DISTRIBUTION SYSTEM]

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:000000009578997



AWMIA1438ZZ

No.	Component	Description
1.	Accessory relay-2	- Accessory relay-2 is controlled by BCM. - Accessory relay-2 supplies accessory power supply or ignition switch ACC signal to each ECU when ignition switch is turned to ACC or ON. - BCM compares status of accessory relay-2 control signal, and ignition switch position judged by BCM.
2.	BCM	- BCM controls power distribution system. - BCM judges ignition switch position by push-button ignition switch (push switch) and vehicle condition. - BCM checks ignition switch position internally.
3.	Push-button ignition switch	Push-button ignition switch (push switch) is pressed, and transmits status signal to BCM and IPDM E/R.
4.	IPDM E/R	- 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-1 (IPDM E/R) control signal and ignition switch ON signal (CAN) from BCM, and controls ignition relay-1 (built into IPDM E/R)
5.	Blower relay (in fuse block)	- Blower relay is controlled by BCM. - Blower relay supplies ignition switch ON power supply or ignition switch ON signal to air conditioning system when ignition switch is turned ON. - BCM compares status of blower relay control signal and ignition switch position judged by BCM.
6.	Accessory relay-1 (in fuse block)	- Accessory relay-1 is controlled by BCM. - Accessory relay-1 supplies accessory power supply or ignition switch ACC signal to each ECU when ignition switch is turned ACC or ON. - BCM compares status of accessory relay-1 control signal, and ignition switch position judged by BCM.
7.	Ignition relay-2 (in fuse block)	- Ignition relay-2 is controlled by BCM. - Ignition relay-2 supplies ignition switch ON power supply or ignition switch ON signal to each ECU and system when ignition switch is turned ON. - BCM compares status of ignition relay-2 control signal and ignition switch position judged by BCM. - BCM monitors ignition relay-2 operating status by ignition relay feedback signal.

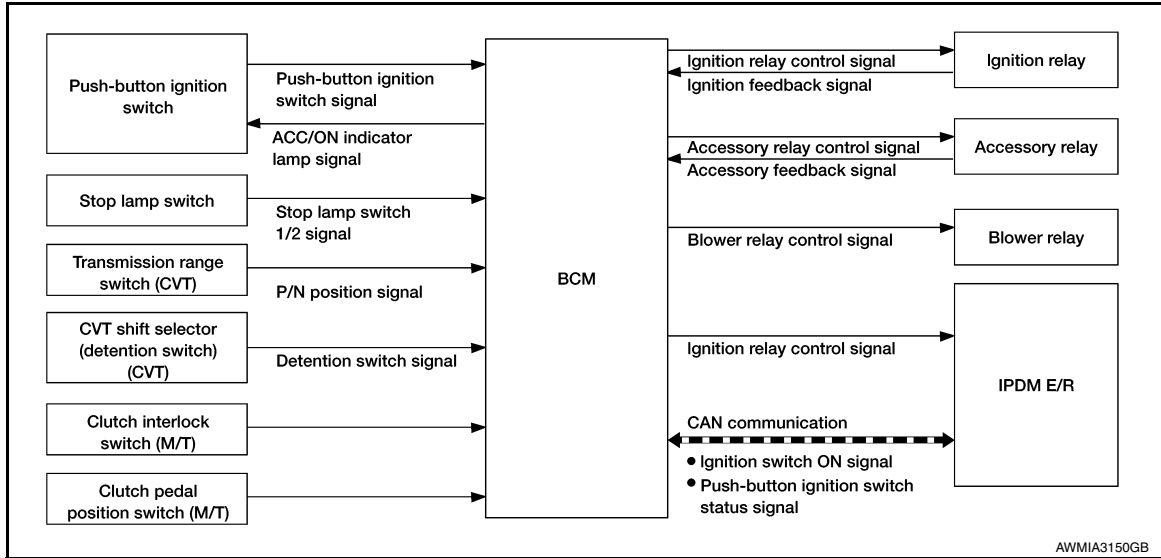
SYSTEM

POWER DISTRIBUTION SYSTEM

POWER DISTRIBUTION SYSTEM : System Description

INFOID:000000009579000

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

- PDS (POWER DISTRIBUTION SYSTEM) is the system that BCM controls with the operation of the push-button ignition switch and performs the power distribution to each power circuit. This system is used instead of the mechanical power supply changing mechanism with the operation of the conventional key cylinder.
- The push-button ignition switch can be operated when Intelligent Key is in the following condition.
 - Intelligent Key is in the detection area of the inside key antenna.
 - Intelligent Key backside is contacted to push-button ignition switch.
- The push-button ignition switch operation is input to BCM as a signal. BCM changes the power supply position according to the status and operates the following relays to supply power to each power circuit.
 - Ignition relay-1
 - Ignition relay-2
 - Accessory relay-1
 - Accessory relay-2
 - Blower motor relay

NOTE:

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

IGNITION BATTERY SAVER SYSTEM

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

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

Reset Condition of Ignition Battery Saver System

In order to prevent the battery from discharging, the ignition battery saver system will cut off the power supply when all doors are closed, the selector lever is in P (park) position and the ignition switch is left in the ACC or ON position for 30 minutes.

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

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

SYSTEM

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

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

NOTE:

- When an Intelligent Key is within the detection area of inside key antenna and when Intelligent Key backside is contacted to push-button ignition switch, it is equivalent to the operations below.
- When starting the engine, the BCM monitors under the engine start conditions:
 - Brake pedal operating condition
 - Selector lever position
 - Vehicle speed

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

Power supply position	Engine start/stop condition			Push-button ignition switch operation frequency
	With CVT		With M/T	
	Selector lever position	Brake pedal condition	Clutch pedal condition	
OFF → ACC	—	Released	Released	1
OFF → ACC → ON	—	Released	Released	2
OFF → ACC → ON → OFF	—	Released	Released	3
OFF → START ACC → START ON → START	P (Park) or N (Neutral)	Depressed	Depressed	1
Engine is running → OFF	—	—	—	1

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

Power supply position	Engine start/stop condition			Push-button ignition switch operation frequency
	With CVT		With M/T	
	Selector lever position	Brake pedal condition	Clutch pedal condition	
Engine is running → ACC	—	—	—	Emergency stop operation
Engine stall return operation while driving	N (Neutral)	Released	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:000000009726133

BCM performs fail-safe control when the following DTCs are detected.

CONSULT Display	Fail-safe	Cancellation
B2192: ID DISCORD BCM-ECM	Inhibit engine cranking	Erase DTC
B2193: CHAIN OF BCM-ECM	Inhibit engine cranking	Erase DTC
B2195: ANTI SCANNING	Inhibit engine cranking	Ignition switch ON → OFF
B2196: DONGLE NG	Inhibit engine cranking	Erase DTC
B2198: NATS ANTENNA AMP	Inhibit engine cranking	Erase DTC
B2557: VEHICLE SPEED	—	When the following CAN signal status (vehicle speed signal) becomes consistent • Vehicle speed signal (ABS) • Vehicle speed signal (Meter)
B2601: SHIFT P SIGNAL	—	500 ms after the following signal reception status becomes consistent • Park position switch signal • P range signal (CAN)

SYSTEM

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

CONSULT Display	Fail-safe	Cancellation
B2602: SHIFT P DIAG	—	5 seconds after the following BCM recognition conditions are fulfilled • Ignition switch is in the ON position • Park position switch signal: P position (push selector button) or except P position (9 – 16 V) • Vehicle speed: 4 km/h (2.5 MPH) or more
B2603: SHIFT POSITION	—	500 ms after any of the following BCM recognition conditions are fulfilled • Status 1 - Ignition switch is in the ON position - Park position switch signal: P position (push selector button) or except P position (9 – 16 V) - P/N position signal: Except P and N positions (0 – 1.5 V) • Status 2 - Ignition switch is in the ON position - Park position switch signal: P position (release selector button) (0 – 1.5 V) - P/N position signal: P or N positions (9 – 16 V)
B2604: SHIFT PN DIAG CAN	—	500 ms after any of the following BCM recognition conditions are fulfilled • Status 1 - Ignition switch is in the ON position - P/N position signal: P or N position (9 – 16 V) - Shift position signal (CAN): P or N position • Status 2 - Ignition switch is in the ON position - P/N position signal: Except P and N positions (0 – 1.5 V) - Shift position signal (CAN): Except P and N position
B2605: SHIFT PN DIAG IPDM	—	500 ms after any of the following BCM recognition conditions are fulfilled • Status 1 - Ignition switch is in the ON position - P/N position signal: Except P and N positions (0 – 1.5 V) • Status 2 - Ignition switch is in the ON position - P/N position signal: P or N position (9 – 16 V)
B2608: STARTER RELAY	Inhibit engine cranking	500 ms after the following signal communication status becomes consistent • Starter motor relay control signal • Starter relay status signal (CAN)
B260F: ECM CAN COMM	Inhibit engine cranking	When any of the following conditions are fulfilled • Ignition switch changes to ACC • Receives engine status signal (CAN)
B26F1: IGN RELAY OFF	Inhibit engine cranking	When the following conditions are fulfilled • Ignition switch ON signal (CAN: Transmitted from BCM): ON • Ignition switch ON signal (CAN: Transmitted from IPDM E/R): ON
B26F2: IGN RELAY ON	Inhibit engine cranking	When the following conditions are fulfilled • Ignition switch ON signal (CAN: Transmitted from BCM): OFF • Ignition switch ON signal (CAN: Transmitted from IPDM E/R): OFF
B26F3: START CONT RLY ON	Inhibit engine cranking	When the following conditions are fulfilled • Starter control relay signal (CAN: Transmitted from BCM): OFF • Starter control relay signal (CAN: Transmitted from IPDM E/R): OFF
B26F4: START CONT RLY OFF	Inhibit engine cranking	When the following conditions are fulfilled • Starter control relay signal (CAN: Transmitted from BCM): ON • Starter control relay signal (CAN: Transmitted from IPDM E/R): ON
B26F7: BCM	Inhibit engine cranking by Intelligent Key system	When room antenna and luggage room antenna functions normally
U0415: VDC CAN CIR2	—	When vehicle speed signal (Meter) (CAN) is received normally

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:000000009726128

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
ECU identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication is displayed.

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		ECU identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN DIAG SUPPORT MNTR
Door lock	DOOR LOCK		×	×	×	×		
Rear window defogger	REAR DEFOGGER			×	×			
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Exterior lamp	HEAD LAMP			×	×	×		
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×			
Air conditioner	AIR CONDITIONER			×				
Intelligent Key system	INTELLIGENT KEY		×	×	×	×		
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×		×	×		
Interior room lamp battery saver	BATTERY SAVER			×	×	×		
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×		×		
Signal buffer system	SIGNAL BUFFER			×				
TPMS	AIR PRESSURE MONITOR		×	×	×	×		
Panic alarm system	PANIC ALARM				×			

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

INTELLIGENT KEY

INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)

INFOID:000000009726129

SELF DIAGNOSTIC RESULT

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

DATA MONITOR

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

ACTIVE TEST

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

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

WORK SUPPORT

Support Item	Setting	Description
LOCK/UNLOCK BY I-KEY	On*	Door lock/unlock function from Intelligent Key ON.
	Off	Door lock/unlock function from Intelligent Key OFF.
ANTI KEY LOCK IN FUNCTI	On*	Anti lock out setting ON.
	Off	Anti lock out setting OFF.
ANS BACK I-KEY UNLOCK	Off	No buzzer reminder when doors are unlocked with request switch.
	On*	Buzzer reminder when doors are unlocked with request switch.
ANS BACK I-KEY LOCK	Horn Chirp	Horn chirp reminder when doors are locked with request switch.
	Buzzer*	Buzzer reminder when doors are locked with request switch.
	Off	No reminder when doors are locked with request switch.
HORN WITH KEYLESS LOCK	Off	Horn chirp reminder when doors are locked with Intelligent Key.
	On*	No horn chirp reminder when doors are locked with Intelligent Key.
HAZARD ANSWER BACK	Lock/Unlock*	Hazard warning lamp activation when doors are locked/unlocked with Intelligent Key or request switch.
	Unlock Only	Hazard warning lamp activation when doors are unlocked with Intelligent Key or request switch.
	Lock Only	Hazard warning lamp activation when doors are locked with Intelligent Key or request switch.
	Off	No hazard warning lamp activation when doors are locked/unlocked with Intelligent Key or request switch.
INSIDE ANT DIAGNOSIS	—	This function allows inside key antenna self-diagnosis.
CONFIRM KEY FOB ID	—	Intelligent Key ID code can be checked.
SHORT CRANKING OUTPUT	Start	70 msec
		100 msec
		200 msec
	End	—
PANIC ALARM SET	MODE 3	1.5 sec
	MODE 2	OFF
	MODE 1*	0.5 sec
LO- BATT OF KEY FOB WARN	On*	Intelligent Key low battery warning ON.
	Off	Intelligent Key low battery warning OFF.

DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

Support Item	Setting		Description
AUTO LOCK SET	MODE7	5 min	Auto door lock time setting.
	MODE6	4 min	
	MODE5	3 min	
	MODE4	2 min	
	MODE3*	1 min	
	MODE2	30 sec	
	MODE1	Off	

*: Initial Setting

ECU DIAGNOSIS INFORMATION

BCM

List of ECU Reference

INFOID:0000000009579003

ECU	Reference
BCM	BCS-28, "Reference Value"
	BCS-46, "Fail-safe"
	BCS-47, "DTC Inspection Priority Chart"
	BCS-48, "DTC Index"

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PCS

POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

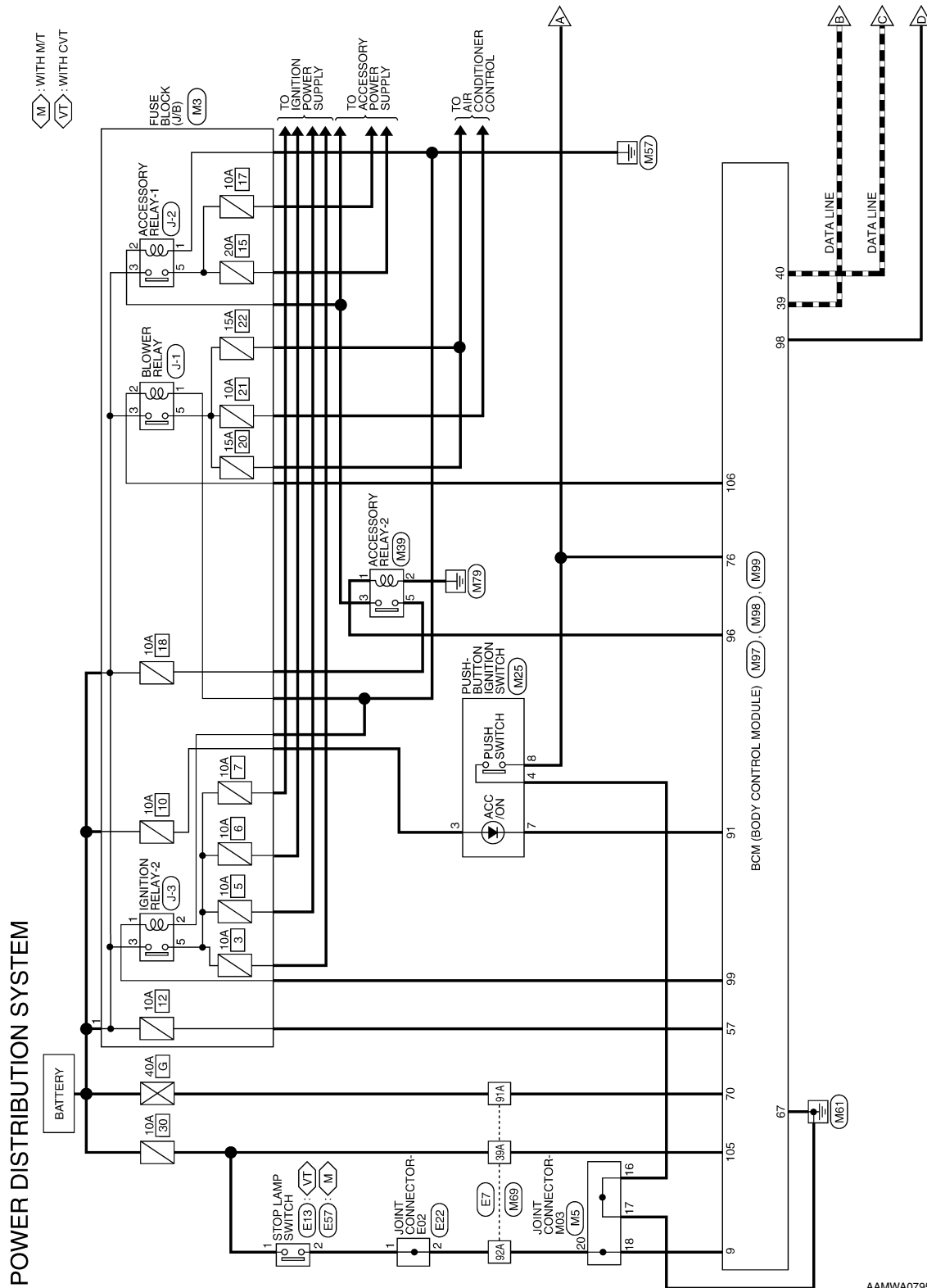
[POWER DISTRIBUTION SYSTEM]

WIRING DIAGRAM

POWER DISTRIBUTION SYSTEM

Wiring Diagram

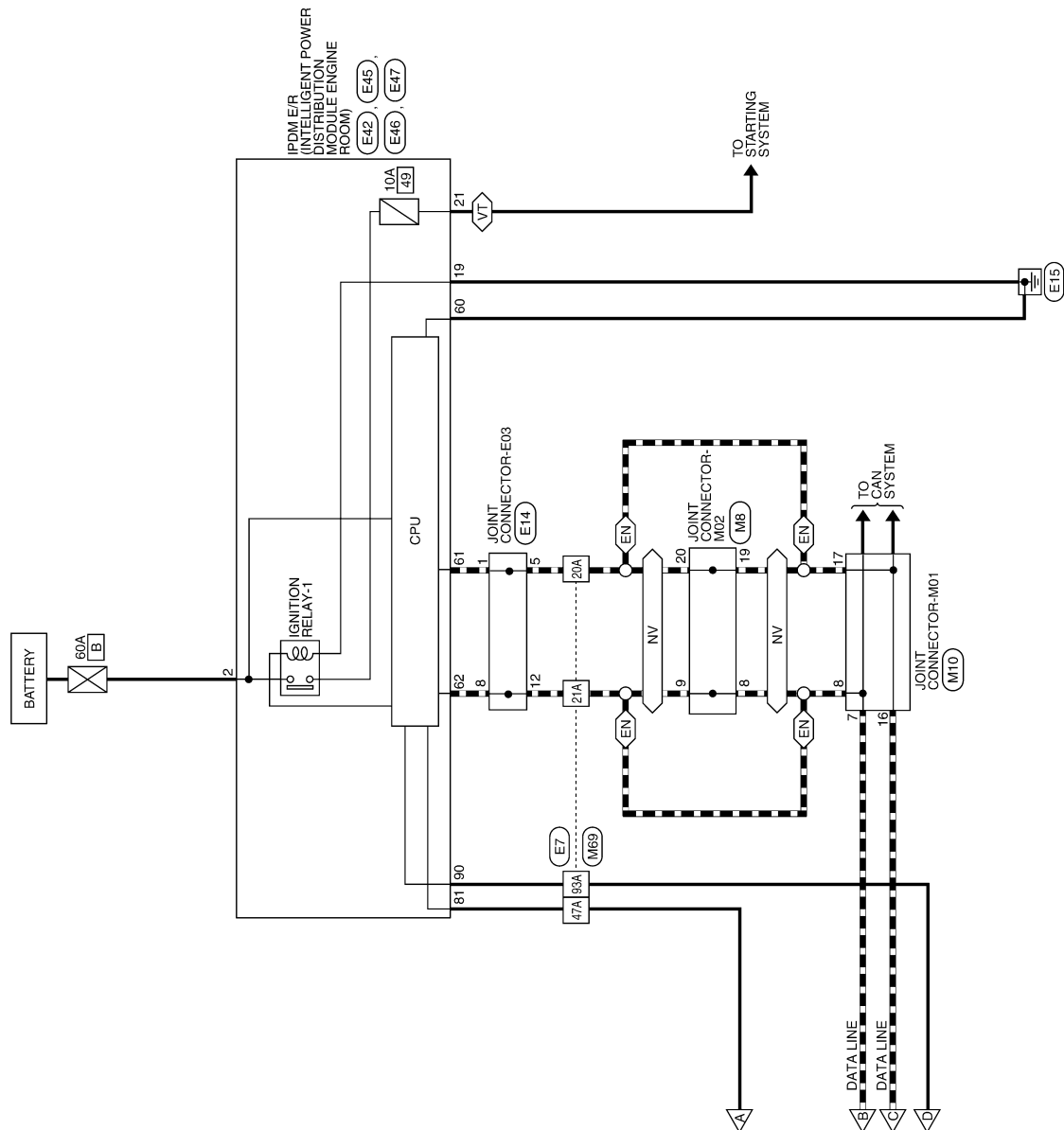
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[POWER DISTRIBUTION SYSTEM]

EN : WITHOUT NAVI
NV : WITH NAVI
VT : WITH CVT



PCS

POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

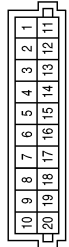
POWER DISTRIBUTION SYSTEM CONNECTORS

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



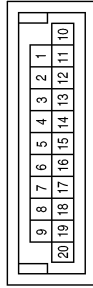
Terminal No.	Color of Wire	Signal Name
1	W	-

Connector No.	M5
Connector Name	JOINT CONNECTOR-M03
Connector Color	BROWN



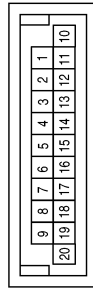
Terminal No.	Color of Wire	Signal Name
16	B	-
17	B	-
18	LG	-
20	R	-

Connector No.	M8
Connector Name	JOINT CONNECTOR-M02
Connector Color	GREEN



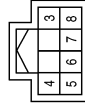
Terminal No.	Color of Wire	Signal Name
8	L	-
9	L	-
19	P	-
20	P	-

Connector No.	M10
Connector Name	JOINT CONNECTOR-M01
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
7	L	-
8	L	-
16	P	-
17	P	-

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



Terminal No.	Color of Wire	Signal Name
3	G	-
4	B	-
7	V	-
8	L	-

Connector No.	M39
Connector Name	ACCESSORY RELAY-2
Connector Color	BLUE



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

POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

Connector No.	M97
Connector Name	BCM (BODY CONTROL MODULE)(WITH INTELLIGENT KEY SYSTEM)
Connector Color	BLACK

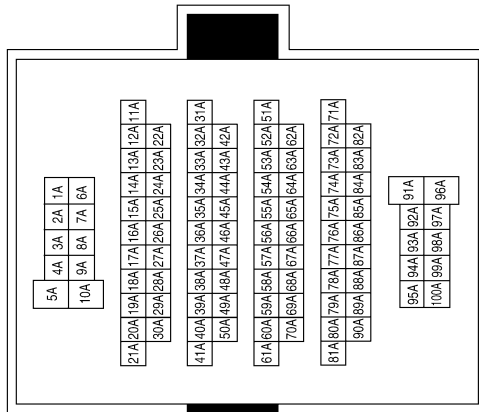


1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
9	LG	BRAKE SW 1
39	L	CAN-H
40	P	CAN-L

Terminal No.	Color of Wire	Signal Name
20A	P	-
21A	L	-
39A	SB	-
47A	L	-
91A	G	-
92A	R	-
93A	O	-

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	M99
Connector Name	BCM (BODY CONTROL MODULE)(WITH INTELLIGENT KEY SYSTEM)
Connector Color	WHITE



56	57	58	59	60	61	62	63	64
65	66	67	68	69	70			

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

Terminal No.	Color of Wire	Signal Name
91	V	POWER POSITION LED (LOCK POSITION LED)
96	SB	ACC RELAY OUTPUT
98	O	IGN RELAY OUTPUT1 (USM)
99	GR	IGN RELAY OUTPUT2 (ELEC)
105	SB	BRAKE SW2
106	Y	BLOWER FAN MOTOR RELAY OUTPUT

Connector No.	M98
Connector Name	BCM (BODY CONTROL MODULE)(WITH INTELLIGENT KEY SYSTEM)
Connector Color	WHITE



71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110

Terminal No.	Color of Wire	Signal Name
76	L	ENGINE START SW

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POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

Connector No.	E13
Connector Name	STOP LAMP SWITCH (WITH CVT)
Connector Color	WHITE

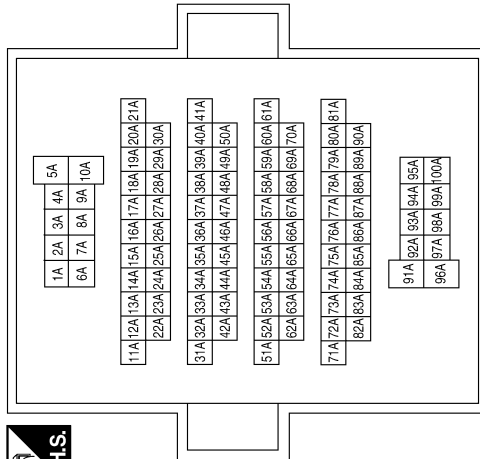


3	4
1	2

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

Terminal No.	Color of Wire	Signal Name
20A	P	-
21A	L	-
39A	SB	-
47A	SB	-
91A	Y	-
92A	LG	-
93A	L	-

Connector No.	E7
Connector Name	WIRE TO WIRE
Connector Color	WHITE



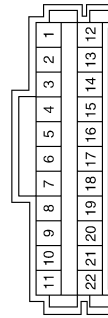
Connector No.	E42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



1	2
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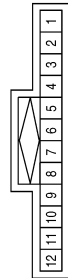
Terminal No.	Color of Wire	Signal Name
2	Y	F/L MAIN (+B2)

Connector No.	E22
Connector Name	JOINT CONNECTOR-E02
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	LG	-
2	LG	-

Connector No.	E14
Connector Name	JOINT CONNECTOR-E03
Connector Color	BLUE



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

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POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

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



84	83	82	81	80	79	78	77
92	91	90	89	88	87	86	85

Terminal No.	Color of Wire	Signal Name
81	SB	PUSH START SW
90	L	IGN SIGNAL

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



64	63	62	61	60	59	58	57	56	55	54	53
76	75	74	73	72	71	70	69	68	67	66	65

Terminal No.	Color of Wire	Signal Name
60	B	GND (SIGNAL)
61	P	CAN-L
62	L	CAN-H

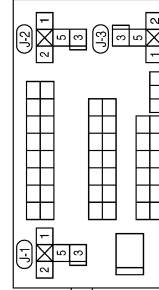
Connector No.	E45
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



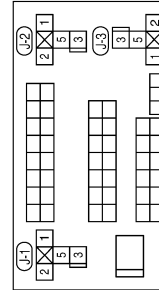
21	20		19	18	17	
28	27	26	25	24	23	22

Terminal No.	Color of Wire	Signal Name
19	B	GND (POWER)
21	R	AT ECU (WITH CVT)
21	G	AT ECU (WITH M/T)

Connector No.	J-2
Connector Name	FUSE BLOCK (J/B) (ACCESSORY RELAY-1)
Connector Color	-



Connector No.	J-1
Connector Name	FUSE BLOCK (J/B) (BLOWER RELAY)
Connector Color	-



Connector No.	E57
Connector Name	STOP LAMP SWITCH (WITH M/T)
Connector Color	BLACK



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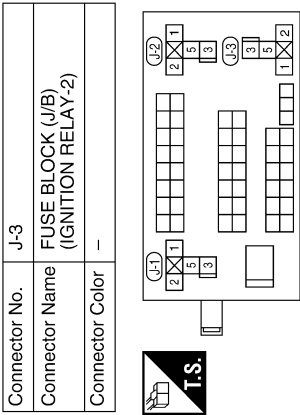
Terminal No.	Color of Wire	Signal Name
1	SB	-
2	LG	-

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POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]



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DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

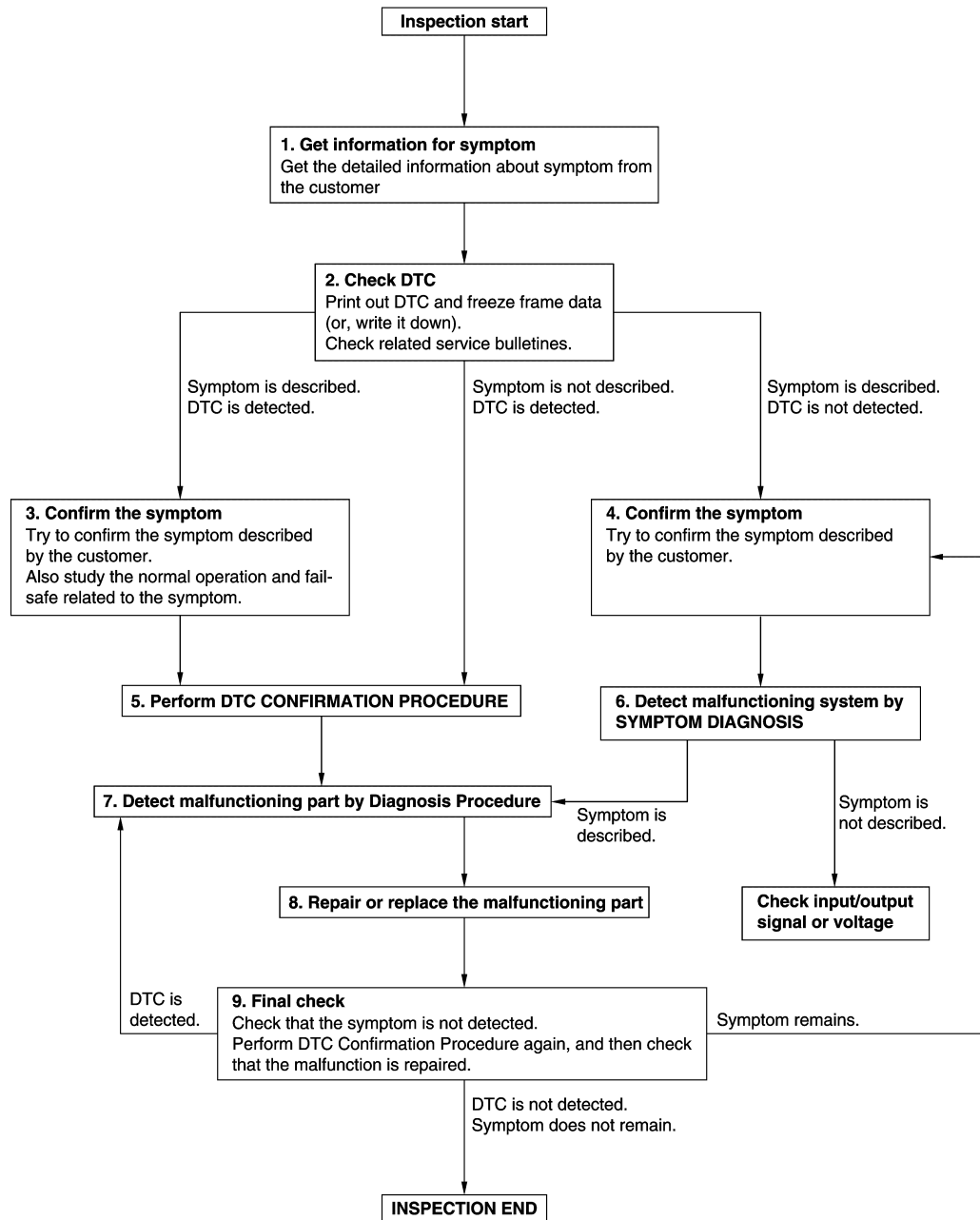
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000009579005

OVERALL SEQUENCE



DETAILED FLOW

Revision: May 2013

PCS-79

JMKIA8652GB

2014 Versa Note

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

1.GET INFORMATION FOR SYMPTOM

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

>> GO TO 2.

2.CHECK DTC

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

Are any symptoms described and any DTC detected?

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

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

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

3.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

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

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

>> GO TO 5.

4.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.

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

NOTE:

Freeze frame data is useful if the DTC is not detected.

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

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

If two or more DTCs are detected, refer to [BCS-47. "DTC Inspection Priority Chart"](#), and determine trouble diagnosis order.

Is DTC detected?

YES >> GO TO 7.

NO >> Refer to [GI-41. "Intermittent Incident"](#).

6.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

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

Is the symptom described?

YES >> GO TO 7.

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

7.DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

Inspect according to Diagnosis Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 8.

NO >> Refer to [GI-41. "Intermittent Incident"](#).

DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

8. REPAIR OR REPLACE THE MALFUNCTIONING PART

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

>> GO TO 9.

9. FINAL CHECK

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

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

Is DTC detected and does symptom remain?

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

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

NO >> Inspection End.

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U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:000000009726134

Refer to [LAN-24, "CAN COMMUNICATION SYSTEM : System Description"](#).

DTC Logic

INFOID:000000009726135

DTC DETECTION LOGIC

NOTE:

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

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1000]	When any listed module cannot communicate with CAN communication signal continuously for 2 seconds or more with ignition switch ON	In CAN communication system, any item (or items) of the following listed below is malfunctioning. • Transmission • Receiving (ECM) • Receiving (VDC/TCS/ABS) • Receiving (METER/M&A) • Receiving (TCM) • Receiving (IPDM E/R)

Diagnosis Procedure

INFOID:000000009726136

1. PERFORM SELF DIAGNOSTIC RESULT

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

Is "CAN COMM CIRCUIT" displayed?

- YES >> Perform CAN Diagnosis as described in DIAGNOSIS section of CONSULT Operation manual.
NO >> Refer to [GI-41, "Intermittent Incident"](#).

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

U1010 CONTROL UNIT (CAN)

DTC Logic

INFOID:0000000009726137

DTC DETECTION LOGIC

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

Diagnosis Procedure

INFOID:0000000009726138

1.REPLACE BCM

When DTC "U1010" is detected, replace BCM.

>> Replace BCM. Refer to [BCS-70. "Removal and Installation"](#).

PCS

B2614 ACC RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B2614 ACC RELAY CIRCUIT

DTC Logic

INFOID:000000009579011

DTC DETECTION LOGIC

CONSULT Display	DTC detecting condition	Possible cause
ACC RELAY CIRCUIT [B2614]	An immediate operation of accessory relay-2 is requested by BCM, but there is no response for more than 1 second.	• Harness or connectors. • Accessory relay-2. • BCM.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch to ACC, and wait for 1 second or more.
2. Check Self Diagnosis Result of BCM with CONSULT.

Is DTC B2614 detected?

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

Diagnosis Procedure

INFOID:000000009579012

Regarding Wiring Diagram information, refer to [PCS-72, "Wiring Diagram"](#).

1.CHECK ACCESSORY RELAY-2 CONTROL SIGNAL VOLTAGE

1. Disconnect accessory relay-2 connector.
2. Check voltage between accessory relay-2 connector M39 and ground.

Accessory relay-2		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M39	1	—	Ignition: OFF	0 V
			Ignition: ACC or ON	Battery voltage

Is the inspection result normal?

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

2.CHECK ACCESSORY RELAY-2 CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector M98.
3. Check continuity between BCM connector M98 and accessory relay-2 connector M39.

BCM		Accessory relay-2		Continuity
Connector	Terminal	Connector	Terminal	
M98	96	M39	1	Yes

4. Check continuity between BCM connector M98 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M98	96		No

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-70, "Removal and Installation"](#).
NO >> Repair or replace harness or connectors.

B2614 ACC RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

3.CHECK ACCESSORY RELAY-2 GROUND CIRCUIT

Check continuity between accessory relay-2 connector M39 and ground.

Accessory relay-2		Ground	Continuity
Connector	Terminal		
M39	2		Yes

Is the inspection result normal?

- YES >> Replace accessory relay-2.
- NO >> Repair or replace harness or connectors.

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B2615 BLOWER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B2615 BLOWER RELAY CIRCUIT

DTC Logic

INFOID:000000009579014

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
BLOWER RELAY CIRCUIT [B2615]	An immediate operation of blower relay is requested by BCM, but there is no response for more than 1 second.	• Harness or connectors. • Blower relay. • Fuse block J/B. • BCM.

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch to ON, and wait for 1 second or more.
2. Check Self Diagnosis Result of BCM with CONSULT.

Is DTC B2615 detected?

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

Diagnosis Procedure

INFOID:000000009579015

Regarding Wiring Diagram information, refer to [PCS-72, "Wiring Diagram"](#).

1.CHECK BLOWER RELAY CONTROL SIGNAL VOLTAGE

1. Remove blower relay.
2. Check voltage between blower relay connector J-1 and ground.

Blower relay		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
J-1	2	—	Ignition: OFF	0 V
			Ignition: ACC or ON	Battery voltage

Is the inspection result normal?

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

2.CHECK BLOWER RELAY CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector M98.
3. Check continuity between BCM connector M98 and blower relay connector J-1.

BCM		Blower relay		Continuity
Connector	Terminal	Connector	Terminal	
M98	106	J-1	2	Yes

4. Check continuity between BCM connector M98 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M98	106		No

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-70, "Removal and Installation"](#).
NO >> Repair or replace harness or connectors.

B2615 BLOWER RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

3.CHECK BLOWER RELAY GROUND CIRCUIT

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

Blower relay		Ground	Continuity
Connector	Terminal		
J-1	1		Yes

Is the inspection result normal?

YES >> Replace blower relay.

NO >> Repair or replace harness or connectors.

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B2616 IGNITION RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B2616 IGNITION RELAY CIRCUIT

DTC Logic

INFOID:000000009579017

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGNITION RELAY CIRCUIT [B2616]	An immediate operation of ignition relay-2 is requested by BCM, but there is no response for more than 1 second.	• Harness or connectors. • Ignition relay-2. • Fuse block J/B. • BCM.

DTC CONFIRMATION PROCEDURE

1. PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch to ON, and wait for 1 second or more.
2. Check Self Diagnosis Result of BCM with CONSULT.

Is DTC B2616 detected?

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

Diagnosis Procedure

INFOID:000000009579018

Regarding Wiring Diagram information, refer to [PCS-72, "Wiring Diagram"](#).

1. CHECK IGNITION RELAY-2 CONTROL SIGNAL VOLTAGE

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

Ignition relay-2		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
J-3	1	—	Ignition: OFF	0 V
			Ignition: ON	Battery voltage

Is the inspection result normal?

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

2. CHECK IGNITION RELAY-2 CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector M98.
3. Check continuity between BCM connector M98 and ignition relay-2 connector J-3.

BCM		Ignition relay-2		Continuity
Connector	Terminal	Connector	Terminal	
M98	99	J-3	1	Yes

4. Check continuity between BCM connector M98 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M98	99		No

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-70, "Removal and Installation"](#).
NO >> Repair or replace harness or connectors.

B2616 IGNITION RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

3.CHECK IGNITION RELAY-2 GROUND CIRCUIT

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

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

Is the inspection result normal?

YES >> Replace ignition relay-2.

NO >> Repair or replace harness or connectors.

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B2618 BCM

DTC Logic

INFOID:000000009579020

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
BCM [B2618]	An immediate operation of ignition relay-1 is requested by BCM, but there is no response for more than 1 second	• Harness or connectors • BCM • IPDM E/R

DTC CONFIRMATION PROCEDURE

1. PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch to ON, and wait for 1 second or more.
2. Check Self Diagnosis Result of BCM with CONSULT.

Is DTC B2618 detected?

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

Diagnosis Procedure

INFOID:000000009579021

Regarding Wiring Diagram information, refer to [PCS-72, "Wiring Diagram"](#).

1. CHECK IGNITION RELAY-1 CONTROL SIGNAL VOLTAGE

Check voltage between IPDM E/R connector E47 and ground.

IPDM E/R		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
E47	90	—	Ignition: ON	Battery voltage

Is the inspection result normal?

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

2. CHECK IGNITION RELAY-1 CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector M98 and IPDM E/R connector E47.
3. Check continuity between BCM connector M98 and IPDM E/R connector E47.

BCM		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
M98	98	E47	90	Yes

4. Check continuity between BCM connector M98 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M98	98		No

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-70, "Removal and Installation"](#).
 NO >> Repair or replace harness or connectors.

B261A PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B261A PUSH-BUTTON IGNITION SWITCH

DTC Logic

INFOID:000000009579022

DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
PUSH-BUTTONIGNITION SWITCH [B261A]	BCM detects a difference of signal for 1 second or more between the following information: • Power supply position by push-button ignition switch. • Power supply position from IPDM E/R (CAN).	• Harness or connectors • Push-button ignition switch • BCM

DTC CONFIRMATION PROCEDURE

1. PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch to ON, and wait for 1 second or more.
2. Check Self Diagnosis Result of BCM with CONSULT.

Is DTC B261A detected?

- YES >> Refer to [PCS-91, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009579023

Regarding Wiring Diagram information, refer to [PCS-72, "Wiring Diagram"](#).

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

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

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

Is the inspection result normal?

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

2. CHECK PUSH-BUTTON IGNITION SWITCH OUTPUT SIGNAL (IPDM E/R)

Check voltage between IPDM E/R connector E47 and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E47	81	—	Battery voltage

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#).

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

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector E47 and BCM connector M98.
3. Check continuity between IPDM E/R connector E47 and push-button ignition switch connector M25.

B261A PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

IPDM E/R		Push-button ignition switch		Continuity
Connector	Terminal	Connector	Terminal	
E47	81	M25	8	Yes

4. Check continuity between IPDM E/R connector E47 and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E47	81	—	No

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace harness or connectors.

4. CHECK IGNITION SWITCH OUTPUT SIGNAL (BCM)

Check voltage between BCM connector M98 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M98	76	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace BCM. Refer to [BCS-70, "Removal and Installation"](#).

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

1. Turn ignition switch OFF.
2. Disconnect BCM connector M98 and IPDM E/R connector E47.
3. Check continuity between BCM connector M98 and push-button ignition switch connector M25.

BCM		Push-button ignition switch		Continuity
Connector	Terminal	Connector	Terminal	
M98	76	M25	8	Yes

4. Check continuity between BCM connector M98 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M98	76	—	No

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Repair or replace harness or connectors.

B26F1 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B26F1 IGNITION RELAY

DTC Logic

INFOID:000000009579024

DTC DETECTION LOGIC

CONSULT Display	DTC detecting condition	Possible cause
IGN RELAY OFF [B26F1]	BCM transmits the ignition relay control signal, but does not receive ignition switch ON signal (CAN) from IPDM E/R.	• Harness or connectors • BCM • IPDM E/R

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch to ON, and wait for 2 seconds or more.
2. Check Self Diagnosis Result of BCM with CONSULT.

Is DTC B26F1 detected?

- YES >> Go to [PCS-93, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:000000009579025

Regarding Wiring Diagram information, refer to [PCS-72, "Wiring Diagram"](#).

1.CHECK IPDM E/R SELF-DIAGNOSTIC RESULT

1. Erase IPDM E/R DTCs.
2. Turn ignition switch OFF.
3. Turn ignition switch ON.
4. Perform Self Diagnostic Result of IPDM E/R with CONSULT.

Are any DTCs detected?

- YES >> Refer to [PCS-21, "DTC Index"](#).
NO >> GO TO 2.

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

Check voltage between BCM connector M98 and ground.

BCM		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M98	98	—	Ignition: ON	0 V

Is the inspection result normal?

- YES >> GO TO 3.
NO >> Replace BCM. Refer to [BCS-70, "Removal and Installation"](#).

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

1. Turn ignition switch OFF.
2. Disconnect BCM connector M98 and IPDM E/R connector E47.
3. Check continuity between BCM connector M98 and IPDM E/R connector E47.

BCM		IPDM E/R		Continuity
Connector	Terminal	Connector	Terminal	
M98	98	E47	90	Yes

Is the inspection result normal?

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

B26F2 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

B26F2 IGNITION RELAY

DTC Logic

INFOID:000000009579026

DTC DETECTION LOGIC

CONSULT Display	DTC detecting condition	Possible cause
IGN RELAY ON [B26F2]	BCM transmits the ignition relay control signal, but does not receive ignition switch ON signal (CAN) from IPDM E/R.	• Harness or connectors • BCM • IPDM E/R

DTC CONFIRMATION PROCEDURE

1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch to ON, and wait for 2 seconds or more.
2. Check Self Diagnosis Result of BCM with CONSULT.

Is DTC B26F2 detected?

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

Diagnosis Procedure

INFOID:000000009579027

Regarding Wiring Diagram information, refer to [PCS-72, "Wiring Diagram"](#).

1.CHECK IPDM E/R SELF-DIAGNOSTIC RESULT

1. Erase IPDM E/R DTCs.
2. Turn ignition switch OFF.
3. Turn ignition switch ON.
4. Perform Self Diagnostic Result of IPDM E/R with CONSULT.

Are any DTCs detected?

- YES >> Refer to [PCS-21, "DTC Index"](#).
NO >> GO TO 2.

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

1. Turn ignition switch OFF.
2. Check voltage between IPDM E/R connector E47 and ground.

IPDM E/R		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
E47	90	—	Ignition: OFF	Battery voltage

Is the inspection result normal?

- YES >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#).
NO >> GO TO 3.

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

1. Turn ignition switch OFF.
2. Disconnect BCM connector M98 and IPDM E/R connector E47.
3. Check continuity between IPDM E/R connector E47 and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E47	90		No

Is the inspection result normal?

- YES >> GO TO 4.

B26F2 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

NO >> Repair or replace harness or connectors.

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

1. Connect IPDM E/R connector E47.
2. Check voltage between IPDM E/R connector E47 and ground.

IPDM E/R		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
E47	90	—	Ignition: OFF	Battery voltage

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-70, "Removal and Installation"](#).

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

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B26F6 BCM

DTC Logic

INFOID:000000009579028

DTC DETECTION LOGIC

NOTE:

- If DTC B26F6 is displayed with DTC U1000, first perform the trouble diagnosis for DTC U1000. Refer to [PCS-82, "DTC Logic"](#).
- If DTC B26F6 is displayed with DTC U1010, first perform the trouble diagnosis for DTC U1010. Refer to [PCS-83, "DTC Logic"](#).

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

DTC CONFIRMATION PROCEDURE

1. PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch to ON, and wait for 0.5 second or more.
2. Check Self Diagnosis Result of BCM with CONSULT.

Is DTC B26F6 detected?

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

Diagnosis Procedure

INFOID:000000009579029

Regarding Wiring Diagram information, refer to [PCS-72, "Wiring Diagram"](#).

1. CHECK SELF DIAGNOSTIC RESULT FOR IPDM E/R

1. Erase IPDM E/R DTCs.
2. Turn ignition switch OFF.
3. Turn ignition switch ON.
4. Perform Self Diagnostic Result of IPDM E/R with CONSULT.

Are any DTCs detected?

- YES >> Refer to [PCS-21, "DTC Index"](#).
 NO >> GO TO 2

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

Check voltage between IPDM E/R connector E47 and ground.

IPDM E/R		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
E47	90	—	Ignition: OFF	0 V
			Ignition: ON	Battery voltage

Is the inspection result normal?

- YES >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#).
 NO >> GO TO 3.

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

Check voltage between BCM connector M98 and ground.

BCM		Ground	Condition	Voltage (Approx.)
Connector	Terminal			

B26F6 BCM

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

M98	98	—	Ignition: OFF	0V
			Ignition: ON	Battery voltage

Is the inspection result normal?

- YES >> Refer to [GI-41, "Intermittent Incident"](#).
- NO >> Replace BCM. Refer to [BCS-70, "Removal and Installation"](#).

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PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

PUSH-BUTTON IGNITION SWITCH

Component Function Check

INFOID:000000009579030

1. CHECK FUNCTION

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

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

Is the indication normal?

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

Diagnosis Procedure

INFOID:000000009579031

Regarding Wiring Diagram information, refer to [PCS-72, "Wiring Diagram"](#).

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

1. Turn ignition switch OFF.
2. Disconnect push-button ignition switch connector and IPDM E/R connector E47.
3. Check voltage between push-button ignition switch connector M25 and ground.

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

Is the inspection result normal?

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

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

1. Disconnect BCM connector M98.
2. Check continuity between BCM connector M98 and push-button ignition switch connector M25.

BCM		Push-button ignition switch		Continuity
Connector	Terminal	Connector	Terminal	
M98	76	M25	8	Yes

3. Check continuity between BCM connector M98 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M98	76	—	No

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-70, "Removal and Installation"](#).
NO >> Repair or replace harness or connectors.

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

Check voltage between IPDM E/R connector E47 and ground.

PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E47	81	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

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

1. Disconnect BCM connector M98.
2. Check continuity between IPDM E/R connector E47 and push-button ignition switch connector M25.

IPDM E/R		Push-button ignition switch		Continuity
Connector	Terminal	Connector	Terminal	
E47	81	M25	8	Yes

3. Check continuity between IPDM E/R connector E47 and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E47	81	—	No

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#).

NO >> Repair or replace harness or connectors.

5. CHECK PUSH-BUTTON IGNITION SWITCH GROUND CIRCUIT

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

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

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair or replace harness or connectors.

6. CHECK PUSH-BUTTON IGNITION SWITCH

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

Is the inspection result normal?

YES >> Refer to [GI-41, "Intermittent Incident"](#).

NO >> Replace push-button ignition switch. Refer to [PCS-103, "Removal and Installation"](#).

Component Inspection

INFOID:000000009579032

1. CHECK PUSH-BUTTON IGNITION SWITCH

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

Push-button ignition switch terminals	Condition	Continuity
4 – 8	Pressed	Yes
	Not pressed	No

Is the inspection result normal?

YES >> Inspection End.

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PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

NO >> Replace push-button ignition switch.

PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

SYMPTOM DIAGNOSIS

PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE

Description

INFOID:000000009579033

Check that vehicle Operating Conditions are as listed in "Conditions of Vehicle" below before starting Diagnosis Procedure. Make sure to check each symptom in Diagnosis Procedure.

NOTE:

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

Conditions of Vehicle (Operating Conditions)

- ENGINE START BY I-KEY in WORK SUPPORT is set to On. Refer to [PCS-68, "INTELLIGENT KEY : CONSULT Function \(BCM - INTELLIGENT KEY\)"](#).
- One or more of Intelligent Keys with registered Intelligent Key ID is in the vehicle.

Diagnosis Procedure

INFOID:000000009579034

1.PERFORM WORK SUPPORT

Perform INSIDE ANT DIAGNOSIS in Work Support of INTELLIGENT KEY with CONSULT. Refer to [PCS-68, "INTELLIGENT KEY : CONSULT Function \(BCM - INTELLIGENT KEY\)"](#).

>> GO TO 2.

2.PERFORM SELF DIAGNOSTIC RESULT

Perform Self Diagnostic Result of BCM with CONSULT.

Are any DTCs detected?

- YES >> Refer to [BCS-48, "DTC Index"](#).
- NO >> GO TO 3.

3.CHECK PUSH-BUTTON IGNITION SWITCH

Check push-button ignition switch. Refer to [PCS-99, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Refer to [GI-41, "Intermittent Incident"](#).
- NO >> Repair or replace malfunctioning parts.

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REMOVAL AND INSTALLATION

BCM (BODY CONTROL MODULE)

Removal and Installation

INFOID:000000009579035

For removal and installation of the BCM (Body Control Module), refer to [BCS-70, "Removal and Installation"](#).

PUSH-BUTTON IGNITION SWITCH

< REMOVAL AND INSTALLATION >

[POWER DISTRIBUTION SYSTEM]

PUSH-BUTTON IGNITION SWITCH

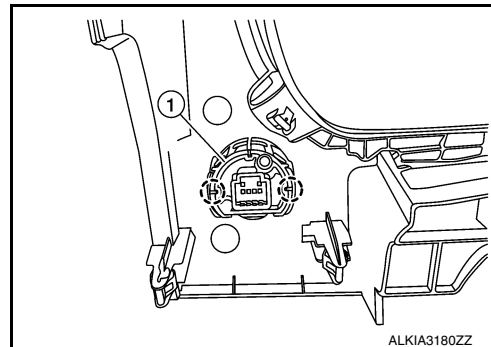
Removal and Installation

INFOID:000000009579036

REMOVAL

1. Remove NATS antenna amp. Refer to [SEC-181. "Removal and Installation"](#).
2. Release pawls and remove the push-button ignition switch (1).

(○): Pawl



INSTALLATION

Installation is in the reverse order of removal.

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