

# SECTION PCS

## POWER CONTROL SYSTEM

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PCS

## PRECAUTION

### PRECAUTIONS

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

INFOID:0000000012422786

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.

#### Precaution for Work

INFOID:0000000012422787

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
  - Water soluble dirt:
    - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
    - Then rub with a soft, dry cloth.
  - Oily dirt:
    - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
    - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
    - Then rub with a soft, dry cloth.
  - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
  - For genuine leather seats, use a genuine leather seat cleaner.

# PREPARATION

< PREPARATION >

[IPDM E/R]

## PREPARATION

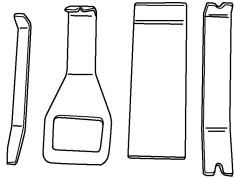
### PREPARATION

#### Special Service Tool

INFOID:0000000012422788

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

Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set	Removing trim components



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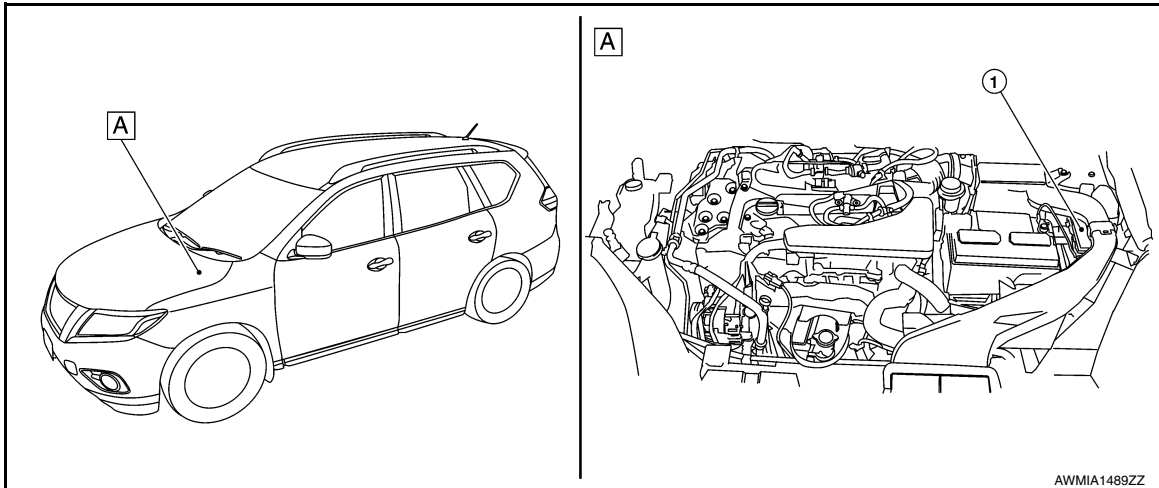
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## SYSTEM DESCRIPTION

### COMPONENT PARTS

#### Component Parts Location

INFOID:0000000012422789



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

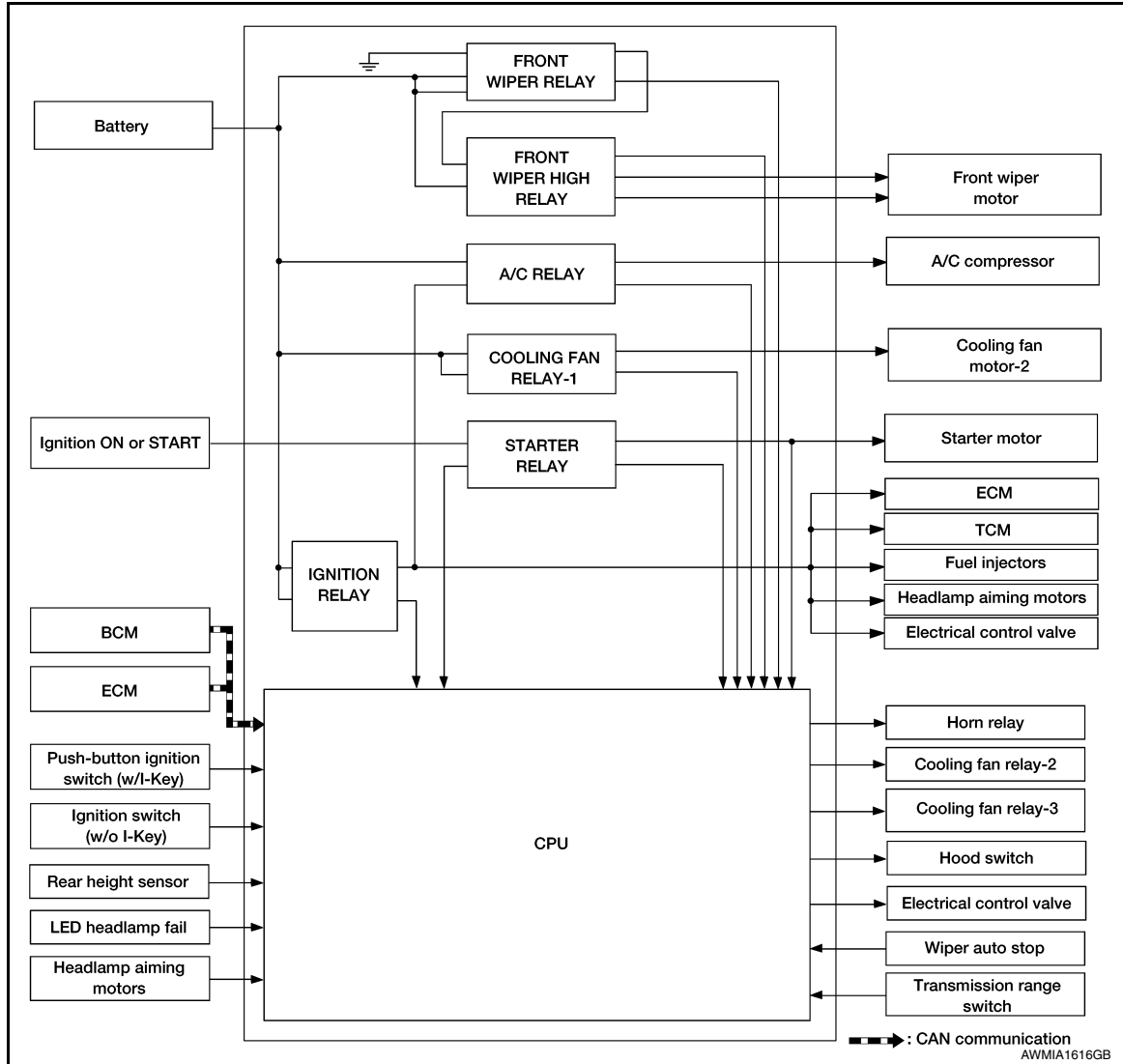
## SYSTEM

### RELAY CONTROL SYSTEM

#### RELAY CONTROL SYSTEM : System Description

INFOID:000000012422790

#### 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.**

Control relay	Input/output	Transmit unit	Control part	Reference page
<ul style="list-style-type: none"> <li>Front wiper relay</li> <li>Front wiper high relay</li> </ul>	Front wiper request signal	BCM (CAN)	Front wiper motor	<a href="#">WW-8</a>
	Front wiper stop position signal	Front wiper motor		
Starter relay	Starter relay signal	BCM (CAN)	Starter motor	<a href="#">STR-6</a>
	Transmission range switch signal	Transmission range switch		
Cooling fan relay-1	Cooling fan speed request signal	ECM (CAN)	Cooling fan	<a href="#">EC-48</a>

# SYSTEM

## < SYSTEM DESCRIPTION >

[IPDM E/R]

Control relay	Input/output	Transmit unit	Control part	Reference page
A/C relay	A/C compressor request signal	ECM (CAN)	A/C compressor (Magnet clutch)	<a href="#">HAC-10</a> (automatic air conditioning) <a href="#">HAC-122</a> (manual air conditioning)
Ignition relay-1	Ignition switch ON signal	BCM (CAN)	Each control unit, sensor, actuator and relay (Ignition power supply)	<a href="#">EC-41</a>
	Vehicle speed signal (Meter)	Combination meter (CAN)		
	Push-button ignition switch signal (with Intelligent Key system)	Push-button ignition switch (with Intelligent Key system)		
	Ignition switch signal (without Intelligent Key system)	Ignition switch (without Intelligent Key system)		

## RELAY CONTROL SYSTEM : Fail-safe

INFOID:0000000012422791

### 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	<ul style="list-style-type: none"> <li>The cooling fan relay-1 turn ON when the ignition switch is turned ON (Cooling fan HI operation)</li> <li>The cooling fan relay-1 turn OFF when the ignition switch is turned OFF</li> </ul>
A/C compressor	A/C relay OFF

If No CAN Communication Is Available With BCM

Control part	Fail-safe operation
Front wiper motor	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> </ul>
Horn	Horn OFF
Ignition relay-1	The status just before activation of fail-safe is maintained.
Starter motor	Starter 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-1 inside it.
- IPDM E/R judges the ignition relay-1 error if the voltage differs between the contact circuit and the excitation coil circuit.

DTC	Ignition switch	Ignition relay
B20DD: IGNITION RELAY ON CIRCUIT	OFF	ON
B20DE: IGNITION RELAY OFF CIRCUIT	ON	OFF

### 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.



# SYSTEM

< SYSTEM DESCRIPTION >

[IPDM E/R]

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 relay to protect the starter motor when the starter relay remains active for 90 seconds.

## SMART FIELD-EFFECT TRANSISTOR (FET)

## SMART FIELD-EFFECT TRANSISTOR (FET) : System Description

INFOID:000000012422792

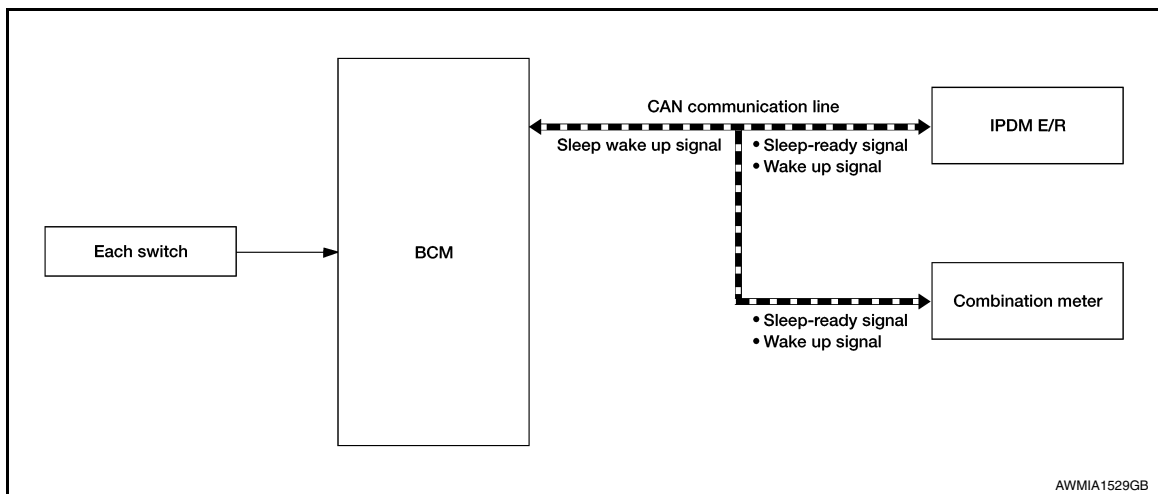
A smart Field-Effect Transistor (FET) is a transistor used to monitor and control current flow on module outputs. The IPDM E/R uses a smart FET protection strategy to prevent module damage in the event of excessive current flow. The smart FET protection strategy monitors its outputs for excessive current, and when a fault occurs, shuts down the output and records a DTC.

## POWER CONSUMPTION CONTROL SYSTEM

## POWER CONSUMPTION CONTROL SYSTEM : System Description

INFOID:000000012422793

## 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.

## < SYSTEM DESCRIPTION >

---

- Outputting signals to actuators
- Switches or relays operating
- Output requests are being received from control units via CAN communication.
- IPDM E/R stops CAN communication and enters the low power consumption mode when it receives a sleep wake up signal (sleep) from BCM and the sleep-ready conditions are fulfilled.

### Wake-up Operation:

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

# DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R]

## DIAGNOSIS SYSTEM (IPDM E/R)

### CONSULT Function (IPDM E/R)

INFOID:000000012422794

#### APPLICATION ITEM

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

Direct Diagnostic Mode	Description
ECU Identification	The IPDM E/R part number is displayed.
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.
Data Monitor	The IPDM E/R input/output data is displayed in real time.
Active Test	The IPDM E/R activates outputs to test components.
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

#### ECU IDENTIFICATION

The IPDM E/R part number is displayed.

#### SELF DIAGNOSTIC RESULT

Refer to [PCS-26, "DTC Index"](#).

#### DATA MONITOR

Monitor Item [Unit]	Description
REVERSE SIGNAL [Open/Close]	Indicates condition of transmission range switch R (Reverse) position.
IGN RELAY [Open/Close]	Indicates condition of ignition relay-1.
PUSH SW [Open/Close]	Indicates condition of push-button ignition switch.
INTERLOCK/PNP SW [Open/Close]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.
OIL PRESSURE SW [Open/Close]	Indicates condition of oil pressure switch.
HOOD SW [Open/Close]	Indicates condition of hood switch.
COMPRESSOR [OFF/ON]	Indicates condition of A/C compressor.
HORN RELAY [OFF/ ON]	Indicates condition of horn relay.
COOLING FAN [OFF/ON]	Indicates condition of cooling fan relay-1.
FRONT WIPER HI/LO RELAY [OFF/ON]	Indicates condition of front wiper high relay.
FRONT WIPER RELAY [OFF/ON]	Indicates condition of front wiper relay.
IGN RELAY OFF STATUS [OFF/ON]	Indicates condition of ignition relay-1 OFF status.
IGN RELAY ON STATUS [OFF/ON]	Indicates condition of ignition relay-1 ON status.
COOLING FAN RELAY 1 [OFF/ON]	Indicates condition of cooling fan relay-1.
STARTER RELAY [OFF/ON]	Indicates condition of starter relay.
COMP ECV DUTY [%]	Indicates condition of A/C compressor.
COOLING FAN RELAY 2 [%]	Indicates condition of cooling fan relay-2.
FR FOG LAMP LH [%]	Indicates condition of front fog lamp LH.
FR FOG LAMP RH [%]	Indicates condition of front fog lamp RH.
PARKING LAMP [%]	Indicates condition of parking lamp.
TAIL LAMP LH [%]	Indicates condition of tail lamp LH.
TAIL LAMP RH [%]	Indicates condition of tail lamp RH.
DAYTIME RUNNING LIGHT LH [%]	Indicates condition of daytime running light LH.
DAYTIME RUNNING LIGHT RH [%]	Indicates condition of daytime running light RH.
HEADLAMP (HI) LH [%]	Indicates condition of headlamp high beam LH.

# DIAGNOSIS SYSTEM (IPDM E/R)

## < SYSTEM DESCRIPTION >

[IPDM E/R]

Monitor Item [Unit]	Description
HEADLAMP (HI) RH [%]	Indicates condition of headlamp high beam RH.
HEADLAMP (LO) LH [%]	Indicates condition of headlamp low beam LH.
HEADLAMP (LO) RH [%]	Indicates condition of headlamp low beam RH.
A/C RELAY STUCK [NG/OK]	Indicates condition of A/C relay.
A/C RELAY [Off/On]	Indicates condition of A/C relay.
COMP ECV STATUS [NG/OK]	Indicates condition of A/C compressor.
VEHICLE SECURITY HORN [Off/On]	Indicates condition of horn relay.
BATTERY CURRENT SENSOR [NG/OK]	Indicates condition of battery current sensor.
FRONT FOG LAMP [Off/On]	Indicates condition of front fog lamps.
COMP ECV CURRENT [A]	Indicates condition of A/C compressor current.
BATTERY VOLTAGE [V]	Indicates condition of battery voltage.
COOLING FAN DUTY [%]	Indicates condition of cooling fans.
HOOD SW (CAN) [OPEN/CLOSE]	Indicates condition of hood switch.
FRONT WIPER [STOP/LOW/HIGH]	Indicates condition of front wiper motor.
FR WIPER STOP POSITION [STOP P/ACTIVE P]	Indicates condition of front wiper motor stop.
HEADLAMP (HI) [Off/On]	Indicates condition of headlamp high beams.
HEADLAMP (LO) [Off/On]	Indicates condition of headlamp low beams.
IGNITION RELAY STATUS [Off/On]	Indicates condition of ignition relay-1.
IGN RELAY MONITOR [Off/On]	Indicates condition of ignition relay-1 feedback.
IGNITION POWER SUPPLY [Off/On]	Indicates condition of ignition relay-1.
INTERLOCK/PNP SW (CAN) [Off/On]	Indicates condition of transmission range switch P (Park) and N (Neutral) positions.
PUSH-BUTTON IGN SW (CAN) [Off/On]	Indicates condition of push-button ignition switch.
TAIL LAMP [Off/On]	Indicates condition of tail lamps.
REVERSE SIGNAL (CAN) [Off/On]	Indicates condition of transmission range switch R (Reverse) position.
ST&ST CONT RELAY STATUS [Off/ST R On]	Indicates condition of starter cut and starter relays.
STARTER MOTOR STATUS [Off/On]	Indicates condition of starter motor.
STARTER RELAY (CAN) [LOW/HIGH]	Indicates condition of starter relay.
IPDM NOT SLEEP [NO RDY/RDY]	Indicates condition of IPDM E/R sleep status.
AFTER COOLING TIME [No request/Request]	Indicates condition of cooling fan request.
AFTER COOLING SPEED [%]	Indicates condition of cooling fans.
COOLING FAN TYPE [NISSAN/RENAULT]	Indicates cooling fan type.
COMPRESSOR REQ1 [Off/On]	Indicates condition of A/C compressor request.
VHCL SECURITY HORN REQ [Off/On]	Indicates condition of horn relay request.
DTRL REQ [Off/On]	Indicates condition of daytime running light request.
SLEEP/WAKE UP [WAKEUP/SLEEP]	Indicates condition of IPDM E/R sleep/wake.
CRANKING ENABLE-TCM [NG/OK]	Indicates condition of crank enable from TCM.
CRANKING ENABLE-ECM [NG/OK]	Indicates condition of crank enable from ECM.
CAN DIAGNOSIS [NG/OK]	Indicates condition of CAN diagnosis.
FRONT FOG LAMP REQ [Off/On]	Indicates condition of front fog lamp request.
HIGH BEAM REQ [Off/On]	Indicates condition of headlamp high beam request.
HORN CHIRP [Off/On]	Indicates condition of horn relay request.
COOLING FAN REQ [%]	Indicates condition of cooling fan request.
ENGINE STATUS [STOP/RUN/IDLING]	Indicates condition of engine status.

# DIAGNOSIS SYSTEM (IPDM E/R)

## < SYSTEM DESCRIPTION >

[IPDM E/R]

Monitor Item [Unit]	Description	
TURN SIGNAL REQ [Off/LH/RH]	Indicates condition of turn signal request.	A
FR WIPER REQ [RETURN/LOW/HIGH]	Indicates condition of front wiper motor request.	
SHIFT POSITION [P/R/N/D/L]	Indicates condition of transmission range switch positions.	B
LOW BEAM REQ [Off/On]	Indicates condition of headlamp low beam request.	
POSITION LIGHT REQ [Off/On]	Indicates condition of parking lamp request.	
COMPRESSOR REQ2 [Off/On]	Indicates condition of A/C compressor request.	C
IGNITION SW [Off/On]	Indicates condition of ignition switch.	
VEHICLE SPEED (METER) [mph/km/h]	Indicates vehicle speed.	D
STARTER OPERATION COUNT	Displays the number of times the starter motor is turned ON.	
H/P F/PUMP OPERATN COUNT	Displays the number of times the high pressure fuel pump is turned ON.	E
BAT DISCHARGE COUNT [—]	Monitor the cumulative discharge value of the battery. <b>NOTE:</b> When 65,000 or more is counted, replace the battery.	F
P LAMP CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the parking lamp circuit. <b>NOTE:</b> When the number of parking lamp circuit retries count is 20, this item counts 1.	G
NMB P LAMP CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the parking lamp circuit. <b>NOTE:</b> When the number of short circuits in the parking lamp circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.	H
NMB P LAMP CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the parking lamp circuit.	I
DTRL LH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the daytime running light (left) circuit. <b>NOTE:</b> When the number of daytime running light (left) circuit retries count is 20, this item counts 1.	J
NMB DTRL LH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the daytime running light (left) circuit. <b>NOTE:</b> When the number of short circuits in the daytime running light (left) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.	K
NMB DTRL LH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the daytime running light (left) circuit.	L
DTRL RH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the daytime running light (right) circuit. <b>NOTE:</b> When the number of daytime running light (right) circuit retries count is 20, this item counts 1.	PCS
NMB DTRL RH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the daytime running light (right) circuit. <b>NOTE:</b> When the number of short circuits in the daytime running light (right) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.	N
NMB DTRL RH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the daytime running light (right) circuit.	O
		P

# DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R]

Monitor Item [Unit]	Description
F FOG LH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the front fog lamp (left) circuit. <b>NOTE:</b> When the number of front fog lamp (left) circuit retries count is 20, this item counts 1.
NMB F FOG LH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the front fog lamp (left) circuit. <b>NOTE:</b> When the number of short circuits in the front fog lamp (left) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB F FOG LH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the front fog lamp (left) circuit.
F FOG RH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the front fog lamp (right) circuit. <b>NOTE:</b> When the number of front fog lamp (right) circuit retries count is 20, this item counts 1.
NMB F FOG RH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the front fog lamp (right) circuit. <b>NOTE:</b> When the number of short circuits in the front fog lamp (right) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB F FOG RH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the front fog lamp (right) circuit.
HL (HI) LH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the headlamp (HI) (left) circuit. <b>NOTE:</b> When the number of headlamp (HI) (left) circuit retries count is 20, this item counts 1.
NMB HL (HI) LH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the headlamp (HI) (left) circuit. <b>NOTE:</b> When the number of short circuits in the headlamp (HI) (left) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB HL (HI) LH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the headlamp (HI) (left) circuit.
HL (HI) RH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the headlamp (HI) (right) circuit. <b>NOTE:</b> When the number of headlamp (HI) (right) circuit retries count is 20, this item counts 1.
NMB HL (HI) RH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the headlamp (HI) (right) circuit. <b>NOTE:</b> When the number of short circuits in the headlamp (HI) (right) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB HL (HI) RH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the headlamp (HI) (right) circuit.
HL (LO) LH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the headlamp (LO) (left) circuit. <b>NOTE:</b> When the number of headlamp (LO) (left) circuit retries count is 20, this item counts 1.

# DIAGNOSIS SYSTEM (IPDM E/R)

< SYSTEM DESCRIPTION >

[IPDM E/R]

Monitor Item [Unit]	Description
NMB HL (LO) LH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the headlamp (LO) (left) circuit. <b>NOTE:</b> When the number of short circuits in the headlamp (LO) (left) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB HL (LO) LH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the headlamp (LO) (left) circuit.
HL (LO) RH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the headlamp (LO) (right) circuit. <b>NOTE:</b> When the number of headlamp (LO) (right) circuit retries count is 20, this item counts 1.
NMB HL (LO) RH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the headlamp (LO) (right) circuit. <b>NOTE:</b> When the number of short circuits in the headlamp (LO) (right) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB HL (LO) RH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the headlamp (LO) (right) circuit.
T LAMP LH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the tail lamp (left) circuit. <b>NOTE:</b> When the number of tail lamp (left) circuit retries count is 20, this item counts 1.
NMB T LAMP LH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the tail lamp (left) circuit. <b>NOTE:</b> When the number of short circuits in the tail lamp (left) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB T LAMP LH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the tail lamp (left) circuit.
T LAMP RH CIRC MALFUNCTN [0 – 1]	Monitor the number of times that the smart FET in IPDM E/R reaches the retry upper limit of the tail lamp (right) circuit. <b>NOTE:</b> When the number of tail lamp (right) circuit retries count is 20, this item counts 1.
NMB T LAMP RH CIRC RETRY [0 – 20]	Monitor the number of times that the smart FET in IPDM E/R permits the retry of the tail lamp (right) circuit. <b>NOTE:</b> When the number of short circuits in the tail lamp (right) circuit count is 5 and the ignition switch OFF to ON operation is detected, this item counts 1.
NMB T LAMP RH CIRC SHORT [0 – 5]	Monitor the number of times that the smart FET in IPDM E/R detects the over current of the tail lamp (right) circuit.
BATTERY STATUS [OK/NG]	Monitor the battery status from the battery output.
BAT DISCHARGE COUNT [0-100]	Indicates condition of battery discharge.
BATTERY STATUS [NG/OK]	Indicates battery status.

## ACTIVE TEST

Test item	Description
HORN	This test is able to check horn operation [Off/On].
FRONT WIPER	This test is able to check wiper motor operation [Off/Low/High].

## DIAGNOSIS SYSTEM (IPDM E/R)

### < SYSTEM DESCRIPTION >

[IPDM E/R]

Test item	Description
COMPRESSOR	This test is able to check A/C compressor operation [Off/On].
COOLING FAN (DUAL)	This test is able to check cooling fan operation [Off/LO/HI].
HEADLAMP (HI)	This test is able to check headlamp high beam operation [Off/3/5].
HEADLAMP (LO)	This test is able to check headlamp low beam operation [Off/3/5].
FRONT FOG LAMP	This test is able to check front fog lamp operation [Off/3/5].
DAYTIME RUNNING LAMP	This test is able to check daytime running lamp operation [Off/3/5].
PARKING LAMP	This test is able to check parking lamp operation [Off/3/5].
TAIL LAMP	This test is able to check tail lamp operation [Off/3/5].

### CAN DIAG SUPPORT MNTR

Refer to [LAN-17, "CAN Diagnostic Support Monitor"](#).

### WORK SUPPORT

Work item	Description
CML B/DCHRG CRNT CLEAR	In this mode, cumulative battery discharge current is cleared.



## ECU DIAGNOSIS INFORMATION

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

## Reference Value

INFOID:0000000012422795

## VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
REVERSE SIGNAL	Selector lever in any position except R (Reverse).	Open
	Selector lever in R (Reverse) position.	Close
IGN RELAY	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	Open
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	Close
PUSH SW	Push-button ignition switch OFF.	Open
	Push-button ignition switch ON.	Close
INTERLOCK/PNP SW	Selector lever in P (Park) or N (Neutral) position.	Open
	Selector lever in any position except P (Park) or N (Neutral).	Close
OIL PRESSURE SW	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	Open
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	Close
HOOD SW	Hood open.	Open
	Hood closed.	Close
COMPRESSOR	A/C OFF.	OFF
	A/C ON.	ON
HORN RELAY	Horn switch released.	OFF
	Horn switch pressed.	ON
COOLING FAN	Cooling fan relay-1 not energized.	OFF
	Cooling fan relay-1 energized.	ON
FRONT WIPER HI/LO RELAY	Wiper switch in any position except HIGH.	OFF
	Wiper switch in HIGH position.	ON
FRONT WIPER RELAY	Wiper switch in OFF position.	OFF
	Wiper switch in any position except OFF.	ON
IGN RELAY OFF STATUS	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	OFF
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	ON
IGN RELAY ON STATUS	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	OFF
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	ON
COOLING FAN RELAY 1	Cooling fan relay-1 not energized.	OFF
	Cooling fan relay-1 energized.	ON
STARTER RELAY	Starter relay not energized.	OFF
	Starter relay energized.	ON
COMP ECV DUTY	A/C compressor operation.	0–100%

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

Monitor Item	Condition	Value/Status
COOLING FAN RELAY 2	Cooling fan relay-2 operation.	0–100%
FR FOG LAMP LH	Front fog lamp switch OFF.	0%
	Front fog lamp switch ON.	100%
FR FOG LAMP RH	Front fog lamp switch OFF.	0%
	Front fog lamp switch ON.	100%
PARKING LAMP	Parking lamp switch OFF.	0%
	Parking lamp switch ON.	100%
TAIL LAMP LH	Parking lamp switch OFF.	0%
	Parking lamp switch ON.	100%
TAIL LAMP RH	Parking lamp switch OFF.	0%
	Parking lamp switch ON.	100%
DAYTIME RUNNING LIGHT LH	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	0%
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	100%
DAYTIME RUNNING LIGHT RH	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	0%
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	100%
HEADLAMP (HI) LH	HI BEAM switch OFF.	0%
	HI BEAM switch ON.	100%
HEADLAMP (HI) RH	HI BEAM switch OFF.	0%
	HI BEAM switch ON.	100%
HEADLAMP (LO) LH	Headlamp switch OFF.	0%
	Headlamp switch ON.	100%
HEADLAMP (LO) RH	Headlamp switch OFF.	0%
	Headlamp switch ON.	100%
A/C RELAY STUCK	A/C relay failure.	NG
	A/C relay operating normally.	OK
A/C RELAY	A/C relay not energized.	Off
	A/C relay energized.	On
COMP ECV STATUS	A/C switch OFF.	NG
	A/C switch ON.	OK
VEHICLE SECURITY HORN	Horn relay not energized.	Off
	Horn relay energized.	On
BATTERY CURRENT SENSOR	Battery current failure.	NG
	Battery current operating normally.	OK
FRONT FOG LAMP	Front fog lamp switch OFF.	Off
	Front fog lamp switch ON.	On
COMP ECV CURRENT	A/C compressor operating.	Amperage (A)
BATTERY VOLTAGE	Battery voltage.	Voltage (V)
COOLING FAN DUTY	Cooling fans PWM signal.	0–100%
HOOD SW (CAN)	Hood open.	OPEN
	Hood closed.	CLOSE

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

Monitor Item	Condition	Value/Status
FRONT WIPER	Wiper switch in OFF position.	STOP
	Wiper switch in LOW position.	LOW
	Wiper switch in HIGH position.	HIGH
FR WIPER STOP POSITION	Wiper switch in OFF position.	STOP P
	Wiper switch in any position except OFF.	ACTIVE P
HEADLAMP (HI)	HI BEAM switch OFF.	Off
	HI BEAM switch ON.	On
HEADLAMP (LO)	Headlamp switch OFF.	Off
	Headlamp switch ON.	On
IGNITION RELAY STATUS	Ignition relay-1 not energized.	Off
	Ignition relay-1 energized.	On
IGN RELAY MONITOR	Ignition relay-1 not energized.	Off
	Ignition relay-1 energized.	On
IGNITION POWER SUPPLY	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	Off
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	On
INTERLOCK/PNP SW (CAN)	Selector lever in any position except P (Park) or N (Neutral).	Off
	Selector lever in P (Park) or N (Neutral) position.	On
PUSH-BUTTON IGN SW (CAN)	Push-button ignition switch OFF.	Off
	Push-button ignition switch ON.	On
TAIL LAMP	Parking lamp switch OFF.	Off
	Parking lamp switch ON.	On
REVERSE SIGNAL (CAN)	Selector lever in any position except R (Reverse).	Off
	Selector lever in R (Reverse) position.	On
ST&ST CONT RELAY STATUS	Starter cut relay and starter relay not energized.	Off
	Starter cut relay and starter relay energized.	ST R On
STARTER MOTOR STATUS	Starter motor idle.	Off
	Starter motor energized.	On
STARTER RELAY (CAN)	Starter relay not energized.	LOW
	Starter relay energized.	HIGH
IPDM NOT SLEEP	Battery saver timer not expired.	NO RDY
	Battery saver timer expired.	RDY
AFTER COOLING TIME	Cooling fans not requested.	No request
	Cooling fans requested.	Request
AFTER COOLING SPEED	Cooling fans PWM signal.	0–100%
COOLING FAN TYPE	Nissan type cooling fan installed.	NISSAN
	Renault type cooling fan installed.	RENAULT
COMPRESSOR REQ1	A/C switch OFF.	Off
	A/C switch ON.	On
VHCL SECURITY HORN REQ	Horn relay not energized.	Off
	Horn relay energized.	On
DTRL REQ	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	Off
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	On

A

B

C

D

E

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K

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PCS

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O

P

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

Monitor Item	Condition	Value/Status
SLEEP/WAKE UP	Battery saver wake up signal received.	WAKEUP
	Battery saver timer expired.	SLEEP
CRANKING ENABLE-TCM	TCM sends CAN signal prohibiting engine start.	NG
	TCM sends CAN signal permitting engine start.	OK
CRANKING ENABLE-ECM	ECM sends CAN signal prohibiting engine start.	NG
	ECM sends CAN signal permitting engine start.	OK
CAN DIAGNOSIS	CAN system failure.	NG
	CAN system operating normally.	OK
FRONT FOG LAMP REQ	Front fog lamp switch OFF.	Off
	Front fog lamp switch ON.	On
HIGH BEAM REQ	HI BEAM switch OFF.	Off
	HI BEAM switch ON.	On
HORN CHIRP	No Intelligent Key (with Intelligent Key system) or keyfob (without Intelligent Key system) operation.	Off
	Door locking with Intelligent Key (with Intelligent Key system) or keyfob (without Intelligent Key system).	On
COOLING FAN REQ	Cooling fans PWM signal.	0–100%
ENGINE STATUS	Engine OFF.	STOP
	Engine immediately after start.	RUN
	Engine at idle.	IDLING
TURN SIGNAL REQ	Turn signal switch OFF.	Off
	Turn signal switch LH.	LH
	Turn signal switch RH.	RH
FR WIPER REQ	Wiper switch in OFF position.	RETURN
	Wiper switch in LOW position.	LOW
	Wiper switch in HIGH position.	HIGH
SHIFT POSITION	Selector lever position.	P, R, N, D, L
LOW BEAM REQ	Headlamp switch OFF.	Off
	Headlamp switch ON.	On
POSITION LIGHT REQ	Parking lamp switch OFF.	Off
	Parking lamp switch ON.	On
COMPRESSOR REQ2	A/C switch OFF.	Off
	A/C switch ON.	On
IGNITION SW	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) OFF.	Off
	Push-button ignition switch (with Intelligent Key system) or Ignition switch (without Intelligent Key system) ON.	On
VEHICLE SPEED (METER)	While driving, equivalent to speedometer reading.	mph, km/h
BAT DISCHARGE COUNT	Battery discharge value.	Numeric
BATTERY STATUS	Battery state of charge.	0–100%
P LAMP CIRC MALFUNCTN	Parking lamp circuit reaches the retry upper limit.	0 – 1
NMB P LAMP CIRC RETRY	Retry of parking lamp circuit is permitted.	0 – 20
NMB P LAMP CIRC SHORT	Parking lamp circuit detects over current.	0 – 5
DTRL LH CIRC MALFUNCTN	Daytime running light LH circuit reaches the retry upper limit.	0 – 1
NMB DTRL LH CIRC RETRY	Retry of daytime running light LH circuit is permitted.	0 – 20
NMB DTRL LH CIRC SHORT	Daytime running light LH circuit detects over current.	0 – 5

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

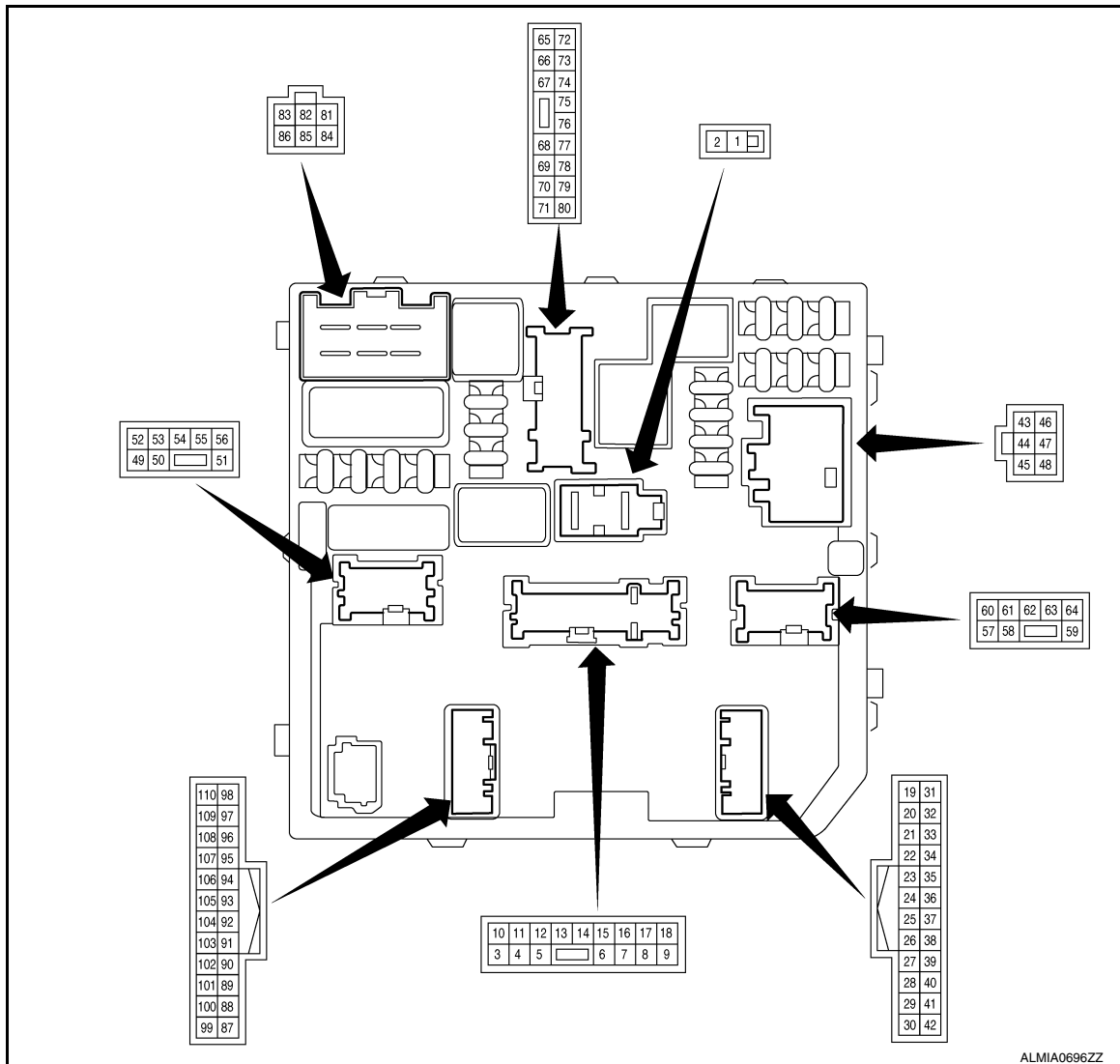
Monitor Item	Condition	Value/Status
DTRL RH CIRC MALFUNCTN	Daytime running light RH circuit reaches the retry upper limit.	0 – 1
NMB DTRL RH CIRC RETRY	Retry of daytime running light RH circuit is permitted.	0 – 20
NMB DTRL RH CIRC SHORT	Daytime running light RH circuit detects over current.	0 – 5
F FOG LH CIRC MALFUNCTN	Front fog lamp LH circuit reaches the retry upper limit.	0 – 1
NMB F FOG LH CIRC RETRY	Retry of front fog lamp LH circuit is permitted.	0 – 20
NMB F FOG LH CIRC SHORT	Front fog lamp LH circuit detects over current.	0 – 5
F FOG RH CIRC MALFUNCTN	Front fog lamp RH circuit reaches the retry upper limit.	0 – 1
NMB F FOG RH CIRC RETRY	Retry of front fog lamp RH circuit is permitted.	0 – 20
NMB F FOG RH CIRC SHORT	Front fog lamp RH circuit detects over current.	0 – 5
HL (HI) LH CIRC MALFUNCTN	Headlamp (HI) LH circuit reaches the retry upper limit.	0 – 1
NMB HL (HI) LH CIRC RETRY	Retry of headlamp (HI) LH circuit is permitted.	0 – 20
NMB HL (HI) LH CIRC SHORT	Headlamp (HI) LH circuit detects over current.	0 – 5
HL (HI) RH CIRC MALFUNCTN	Headlamp (HI) RH circuit reaches the retry upper limit.	0 – 1
NMB HL (HI) RH CIRC RETRY	Retry of headlamp (HI) RH circuit is permitted.	0 – 20
NMB HL (HI) RH CIRC SHORT	Headlamp (HI) RH circuit detects over current.	0 – 5
HL (LO) LH CIRC MALFUNCTN	Headlamp (LO) LH circuit reaches the retry upper limit.	0 – 1
NMB HL (LO) LH CIRC RETRY	Retry of headlamp (LO) LH circuit is permitted.	0 – 5
NMB HL (LO) LH CIRC SHORT	Headlamp (LO) LH circuit detects over current.	0 – 20
HL (LO) RH CIRC MALFUNCTN	Headlamp (LO) RH circuit reaches the retry upper limit.	0 – 1
NMB HL (LO) RH CIRC RETRY	Retry of headlamp (LO) RH circuit is permitted.	0 – 20
NMB HL (LO) RH CIRC SHORT	Headlamp (LO) RH circuit detects over current.	0 – 5
T LAMP LH CIRC MALFUNCTN	Tail lamp LH circuit reaches the retry upper limit.	0 – 1
NMB T LAMP LH CIRC RETRY	Retry of tail lamp LH circuit is permitted.	0 – 20
NMB T LAMP LH CIRC SHORT	Tail lamp LH circuit detects over current.	0 – 5
T LAMP RH CIRC MALFUNCTN	Tail lamp RH circuit reaches the retry upper limit.	0 – 1
NMB T LAMP RH CIRC RETRY	Retry of tail lamp RH circuit is permitted.	0 – 20
NMB T LAMP RH CIRC SHORT	Tail lamp RH circuit detects over current.	0 – 5
BATTERY STATUS	Engine: idling	Displays the battery status judgment results when starting with the ignition switch.
STARTER OPERATION COUNT	–	Displays the number of times the starter motor is turned ON.
H/P F/PUMP OPERATN COUNT	–	Displays the number of times the high pressure fuel pump is turned ON.

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

## TERMINAL LAYOUT



## PHYSICAL VALUES

Terminal	Wire color	Circuit	Input/ Output	Ignition switch	Condition	Value
1	R	Battery power supply	Supply	OFF	—	Battery voltage
2	L	Battery power supply	Supply	OFF	—	Battery voltage
4	Y	Illumination power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 1ST	Battery voltage
8	BG	VSCV power supply	Output	—	—	—
9	L	Horn relay control	Output		Horn is not activated	Battery voltage
					Horn is activated	0 – 1 V
12	B	Signal ground	Ground	—	—	—
16	G	Reverse lamp power supply	Output	ON	Selector lever in any position other than R	0 – 1 V
					Selector Lever in R	Battery voltage
17	W	Tail lamps 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]

Terminal	Wire color	Circuit	Input/ Output	Ignition switch	Condition	Value
19	LG	ECM ignition power supply	Output	OFF	—	0 – 1 V
				ON	—	Battery voltage
21	SB	Rear height sensor signal	Input	—	—	—
22	P	CAN low	Input/ Output	—	—	—
24	L	CAN high	Input/ Output	—	—	—
25	G	Height sensors power supply	Supply	ON	—	5 V
26	B	Height sensors ground	Ground	—	—	—
31	B	Signal ground 2	Ground	—	—	—
32 <sup>1</sup>	GR	Push-button ignition switch signal	Input	—	Push-button ignition switch pressed	0 – 1 V
					Push button ignition switch released	Battery voltage
32 <sup>2</sup>	GR	Ignition switch signal	Input	—	Ignition switch ON	0 – 1 V
					Ignition switch OFF	Battery voltage
33	BR	Front wiper motor stop position	Input	ON	Front wiper stop position	0 – 1 V
					Any position other than front wiper stop position	Battery voltage
39	L	CAN high	Input/ Output	—	—	—
40	P	CAN low	Input/ Output	—	—	—
43	LG	Fuel injectors power supply	Output	OFF		0 – 1 V
				ON		Battery voltage
44	R	ECM power supply	Supply	OFF	—	Battery voltage
45	V	Front wiper motor HI power supply	Output	ON	Front wiper switch OFF	0 – 1 V
					Front wiper switch HI	Battery voltage
46	W	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
47	B	Power ground	Ground	—	—	—
48	Y	Front wiper motor LO power supply	Output	ON	Front wiper switch OFF	0 – 1 V
					Front wiper switch LO	Battery voltage
49	R	Daytime running lamp LH power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 1ST	Battery voltage
50	L	Headlamp LO LH power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 2ND	Battery voltage
51	V	Front fog lamp LH power supply	Output		Front fog lamp switch OFF	Battery voltage
					Front fog lamp switch ON	0 – 1 V
52	W	Hood switch signal	Output		Hood closed	0 – 1 V
					Hood open	Battery voltage

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

Terminal	Wire color	Circuit	Input/Output	Ignition switch	Condition	Value
53	GR	LED headlamp fail signal LH	Input	—	—	—
54	LG	Headlamp HI RH power supply	Output		Lighting switch other than HI and PASS	0 – 1 V
					Lighting switch HI Lighting switch PASS	Battery voltage
55	SB	Headlamp aiming motors power supply	Output	OFF		0 – 1 V
				ON		Battery voltage
56	BG	Parking lamp LH power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 1ST	Battery voltage
57	W	Front fog lamp RH power supply	Output		Front fog lamp switch OFF	Battery voltage
					Front fog lamp switch ON	0 – 1 V
58	R	Daytime running lamp RH power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 1ST	Battery voltage
59	G	Headlamp HI LH power supply	Output		Lighting switch other than HI and PASS	0 – 1 V
					Lighting switch HI Lighting switch PASS	Battery voltage
60	Y	LED headlamp fail signal RH	Input	—	—	—
61	GR	Parking lamp RH power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 1ST	Battery voltage
62	SB	Headlamp LO RH power supply	Output		Lighting switch OFF	0 – 1 V
					Lighting switch 2ND	Battery voltage
63	B	Headlamp aiming motors ground	Ground	—	—	—
64	V	Headlamp aiming motors signal	Output	—	—	—
65	P	A/C compressor power supply	Output	RUN	A/C switch OFF	0 – 1 V
					A/C switch ON (A/C compressor operating)	Battery voltage
66	R	Ignition coils power supply	Output	—	—	—
67	V	Throttle control motor relay control	Input	ON → OFF		0 – 1 V ↓ Battery voltage ↓ 0 – 1 V
				ON		0 – 1 V
70	BG	TCM ignition power supply	Output	OFF	—	0 – 1 V
				ON	—	Battery voltage
71	SB	Electrical control valve power supply	Output	OFF		0 – 1 V
				ON		Battery voltage
72	GR	Throttle control motor relay power supply	Supply	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]

Terminal	Wire color	Circuit	Input/ Output	Ignition switch	Condition	Value
73	Y	VBR and ECPVCS power supply	Output	—	—	—
75	BR	HO2S 2 and A/F sensor 1 power supply	Output	—	—	—
76	P	Fuel pump relay control	Input	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
78	L	ILTCS, EVTCS, ECVCV and IVTCS power supply	Output	—	—	—
79	G	TCM R range sw signal	Input	—	—	—
81	L	ECM relay power supply	Supply	OFF	—	Battery voltage
83	G	Starter motor power supply	Output	OFF		0 – 1 V
				START		Battery voltage
84	LG	Cooling fan relay-1 power supply	Input	—	—	Battery voltage
85	P	Cooling fan relay-2 power supply	Output	ON or START	Cooling fan OFF	0V
					Cooling fan LO	Battery voltage
86	GR	Starter relay power supply	Input	ON or START	—	Battery voltage
87	L	CAN high	Input/ Output	—	—	—
88	P	CAN low	Input/ Output	—	—	—
92	GR	Starter relay control	Input	—	—	—
93	P	ECM relay control	Input	—	—	—
98	Y	Electrical control valve control	Output	OFF	—	—
106	BR	Cooling fan relay-3 control	Output	—	—	—
107	V	Cooling fan relay-2 control	Output	—	—	—

1: With Intelligent Key system

2: With remote keyless entry

## Fail-safe

INFOID:0000000012422796

## 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	<ul style="list-style-type: none"> <li>The cooling fan relay-1 turn ON when the ignition switch is turned ON (Cooling fan HI operation).</li> <li>The cooling fan relay-1 turn OFF when the ignition switch is turned OFF.</li> </ul>
A/C compressor	A/C relay OFF

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

If no CAN Communication Is Available With BCM

Control part	Fail-safe operation
Front wiper motor	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> </ul>
Horn	Horn OFF
Ignition relay-1	The status just before activation of fail-safe is maintained.
Starter motor	Starter 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-1 inside it.
- IPDM E/R judges the ignition relay-1 error if the voltage differs between the contact circuit and the excitation coil circuit.

DTC	Ignition switch	Ignition relay
B20DD: IGNITION RELAY ON CIRCUIT	OFF	ON
B20DE: IGNITION RELAY OFF CIRCUIT	ON	OFF

## 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 relay to protect the starter motor when the starter relay remains active for 90 seconds.

## DTC Index

INFOID:0000000012422797

CONSULT display		Fail-safe	TIME <sup>NOTE</sup>		Refer to
No DTC is detected. Further testing may be required.		—	—	—	—
U1000	CAN COMM CIRCUIT	×	CRNT	1 – 39	<a href="#">PCS-39</a>
B120E	IPDM E/R [SYSTEM INTERNAL FAILURE]	—	CRNT	1 – 39	<a href="#">PCS-40</a>
	IPDM E/R [NOT CONFIGURED]				
B121A	FR FOG LAMP LH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	<a href="#">EXL-97</a> (halogen headlamp) <a href="#">EXL-228</a> (LED headlamp)

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

CONSULT display		Fail-safe	TIME <sup>NOTE</sup>		Refer to
B1231	DTRL RH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	<a href="#">EXL-98</a> (halogen headlamp) <a href="#">EXL-229</a> (LED headlamp)
B1256	FR FOG LAMP RH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	<a href="#">EXL-99</a> (halogen headlamp) <a href="#">EXL-230</a> (LED headlamp)
B20CB	DTRL LH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	<a href="#">EXL-100</a> (halogen headlamp) <a href="#">EXL-231</a> (LED headlamp)
B20CE	HL (HI) LH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	<a href="#">EXL-101</a> (halogen headlamp) <a href="#">EXL-232</a> (LED headlamp)
B20CF	HL (HI) RH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	<a href="#">EXL-102</a> (halogen headlamp) <a href="#">EXL-233</a> (LED headlamp)
B20D0	HL (LO) LH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	<a href="#">EXL-103</a> (halogen headlamp) <a href="#">EXL-234</a> (LED headlamp)
B20D1	HL (LO) RH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	<a href="#">EXL-104</a> (halogen headlamp) <a href="#">EXL-235</a> (LED headlamp)
B20D2	PARKING LAMP PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	<a href="#">EXL-105</a> (halogen headlamp) <a href="#">EXL-236</a> (LED headlamp)
B20D4	TAIL LAMP LH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	<a href="#">EXL-106</a> (halogen headlamp) <a href="#">EXL-237</a> (LED headlamp)
B20D5	TAIL LAMP RH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	<a href="#">EXL-107</a> (halogen headlamp) <a href="#">EXL-238</a> (LED headlamp)

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

< ECU DIAGNOSIS INFORMATION >

[IPDM E/R]

CONSULT display		Fail-safe	TIME <sup>NOTE</sup>		Refer to
B20DD	IGN RELAY ON CIRC [CIRC SHORT TO BATTERY]	×	CRNT	1 – 39	<a href="#">PCS-41</a>
B20DE	IGN RELAY OFF CIRC [CIRC SHORT TO GROUND OR OPEN]	—	CRNT	1 – 39	<a href="#">PCS-42</a>
B20E2	LED HEADLAMP RH [CMPNENT INTERNAL MLFNCTN]	—	CRNT	1 – 39	<a href="#">EXL-239</a> (LED head-lamp)
B20E3	LED HEADLAMP LH [CMPNENT INTERNAL MLFNCTN]	—	CRNT	1 – 39	<a href="#">EXL-240</a> (LED head-lamp)

## NOTE:

The details of TIME display are as follows:

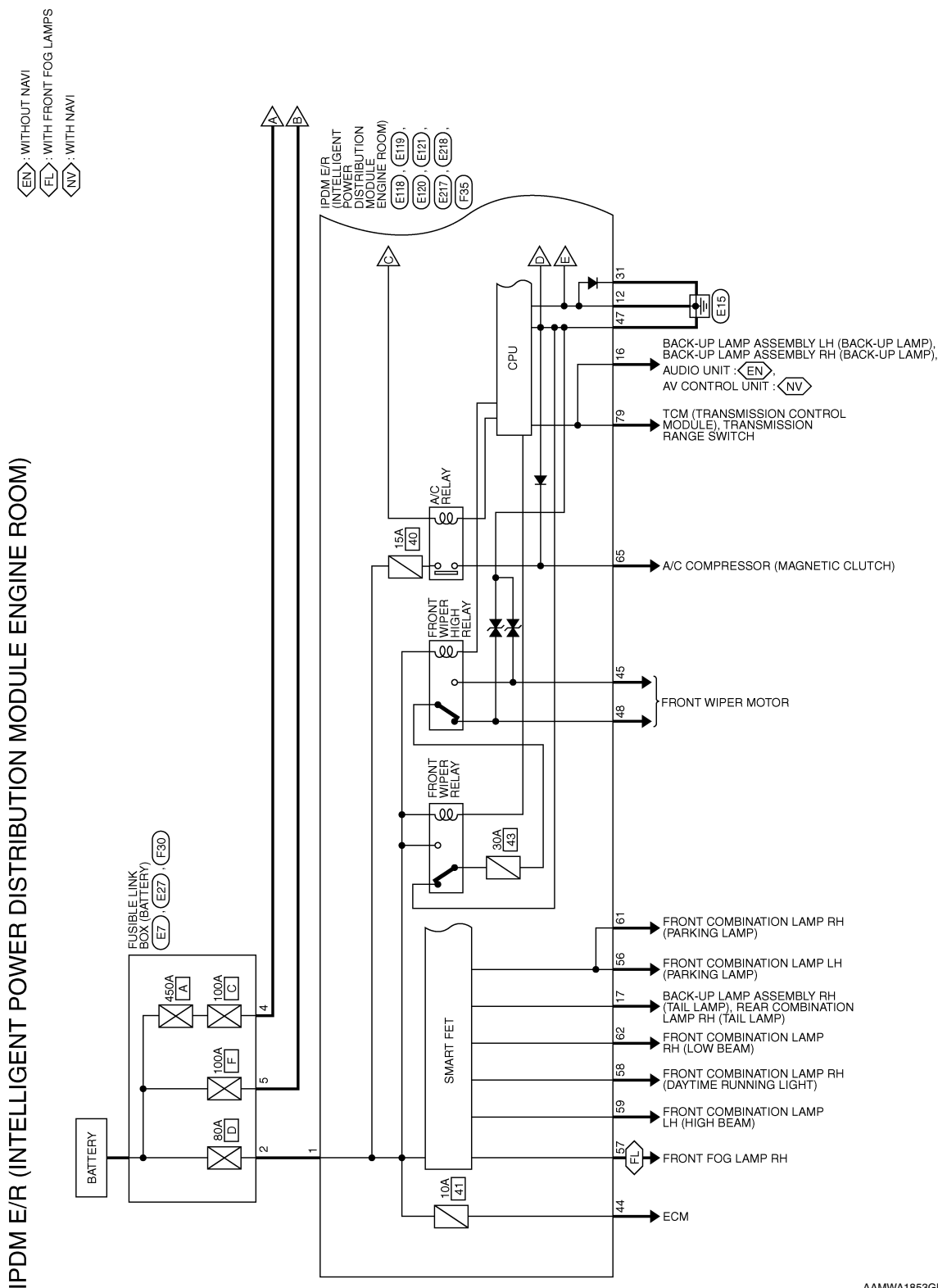
- CRNT: The malfunctions that are detected now
- 1 - 39: The number is indicated when it is normal at present and a malfunction was detected in the past. It increases like 0 → 1 → 2 ... 38 → 39 after returning to the normal condition whenever IGN OFF → ON. It is fixed to 39 until the self-diagnosis results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

## WIRING DIAGRAM

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

## Wiring Diagram

INFOID:000000012422798

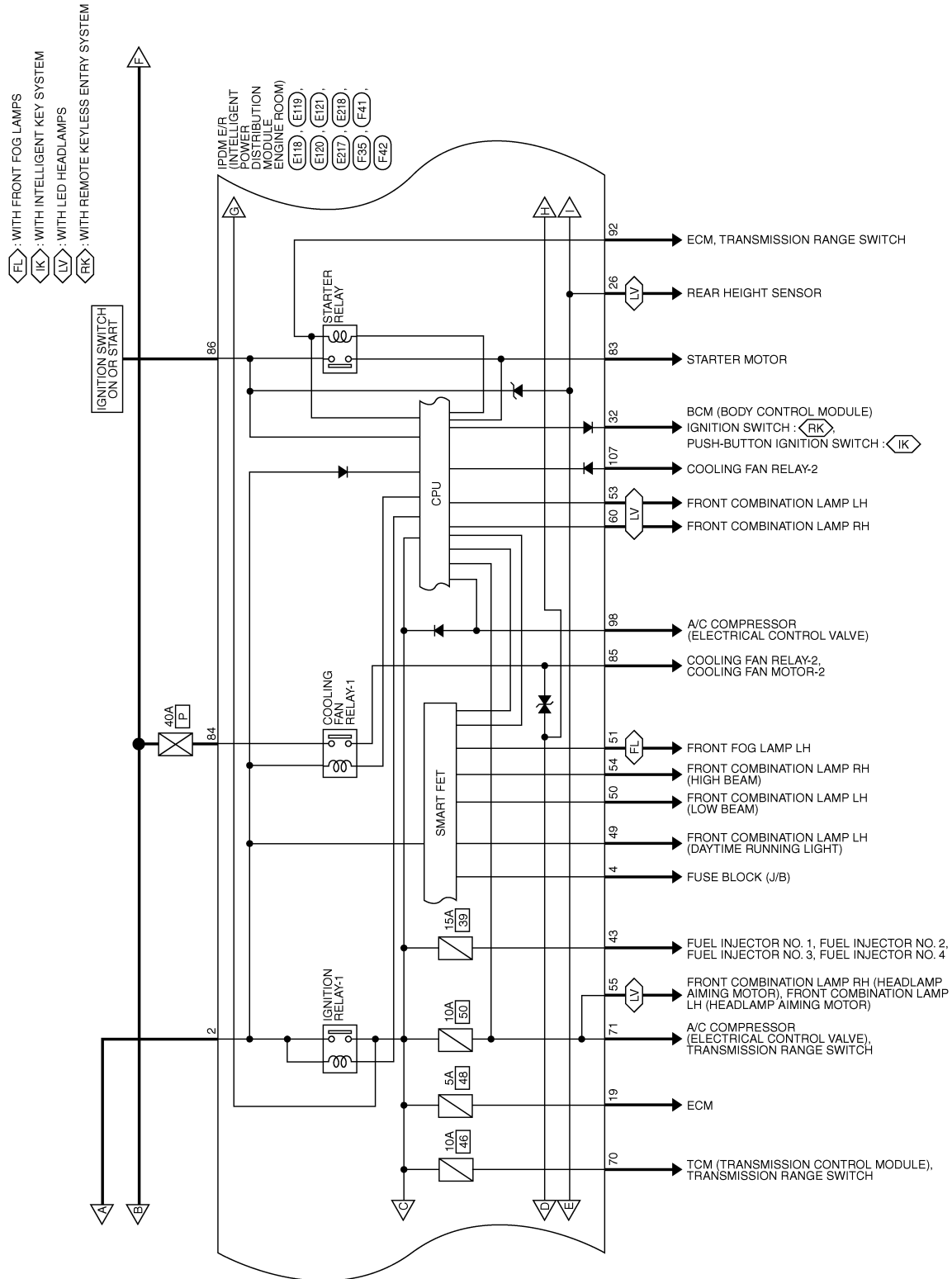


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# IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< WIRING DIAGRAM >

[IPDM E/R]



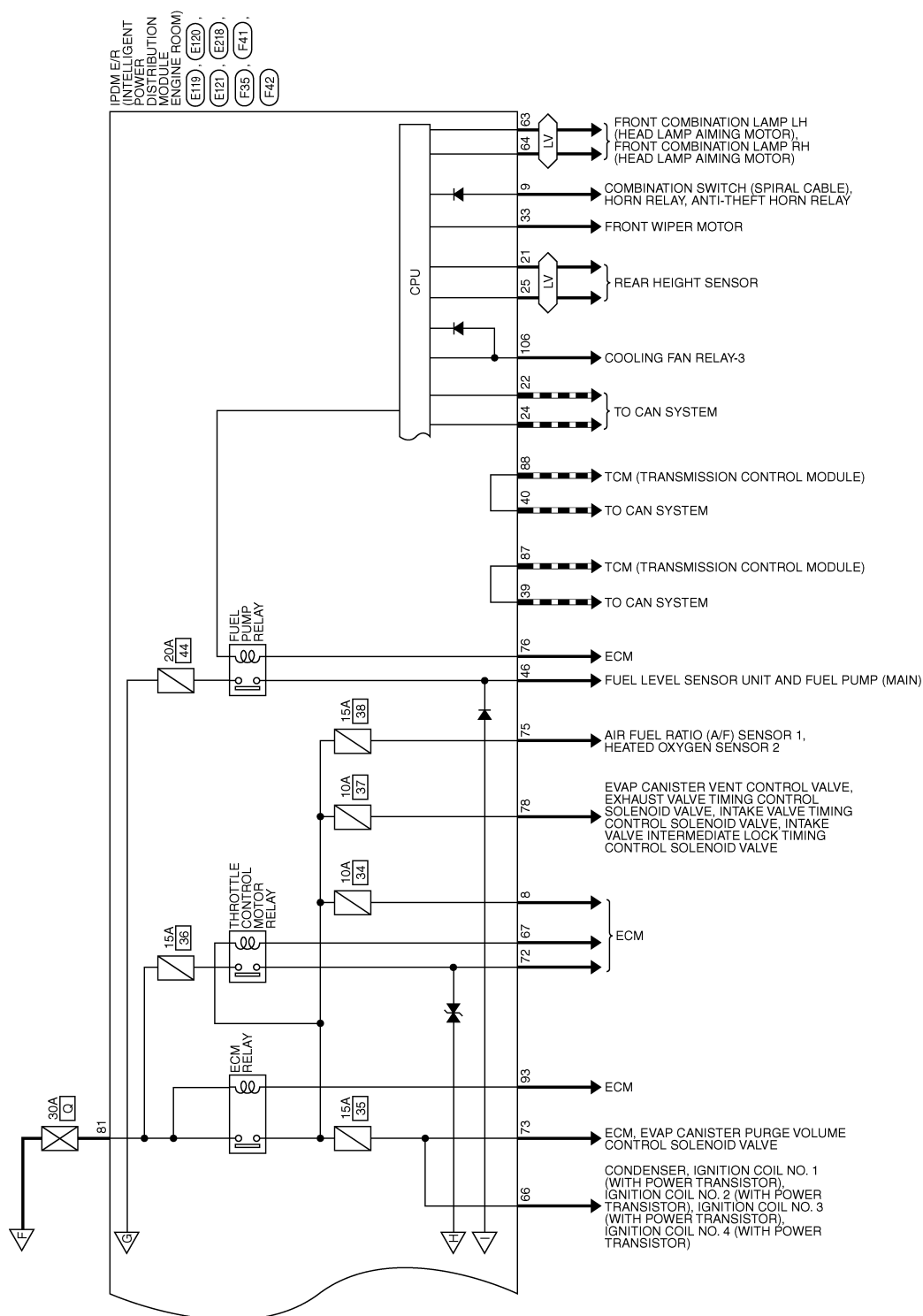
AAMWA1854GB

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

## < WIRING DIAGRAM >

[IPDM E/R]

LV : WITH LED HEADLAMPS



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

< WIRING DIAGRAM >

[IPDM E/R]

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

Connector No.	E7
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	GRAY



Terminal No.	4	Color of Wire	L	Signal Name	—
--------------	---	---------------	---	-------------	---

Connector No.	E27
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	BROWN



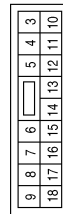
Terminal No.	2	Color of Wire	R	Signal Name	—
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Connector No.	E118
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	R	FL BAT 2
2	L	FL BAT 1

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
13	—	—
14	—	—
15	—	—
16	G	O LIGHT REVERSE LAMP
17	W	O LIGHT POSITION REAR RH
18	—	—

Terminal No.	Color of Wire	Signal Name
3	—	—
4	Y	O LIGHT POSITION REAR LH
5	—	—
6	—	—
7	—	—
8	BG	O ACTUATOR4 CABIN (3FB4)
9	L	LO HORN RLY
10	—	—
11	—	—
12	B	SIGNAL GROUND

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

< WIRING DIAGRAM > [IPDM E/R]

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



45	44	43
48	47	46

Terminal No.	Color of Wire	Signal Name
43	LG	O IGN LCS CABIN
44	R	O BAT ABS VALVE
45	V	O FR WIPER HI
46	W	O FUEL PUMP
47	B	POWER GROUND
48	Y	O FR WIPER LO

Terminal No.	Color of Wire	Signal Name
26	B	O HEIGHT SENSOR GROUND
27	-	-
28	-	-
29	-	-
30	-	-
31	B	2ND SIGNAL GROUND
32	GR	LI PUSH SW
33	BR	I AUTO STOP WIPER
34	-	-
35	-	-
36	-	-
37	-	-
38	-	-
39	L	CAN-H
40	P	CAN-L
41	-	-
42	-	-

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



30	29	28	27	26	25	24	23	22	21	20	19
42	41	40	39	38	37	36	35	34	33	32	31

Terminal No.	Color of Wire	Signal Name
19	LG	O IGN ECM
20	-	-
21	SB	I HEIGHT REAR
22	P	CAN-L
23	-	-
24	L	CAN-H
25	G	O HEIGHT SENSOR SUPPLY

Terminal No.	Color of Wire	Signal Name
53	GR	LI LED DETECTION 2
54	LG	O LIGHT HBEAM RH
55	SB	O IGN REVERSE SW AC VALVE 1
56	BG	O LIGHT CLEARANCE FR LH

Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



51	50	49
56	55	54
53	52	

Terminal No.	Color of Wire	Signal Name
49	R	O LIGHT DTRL LH
50	L	O LIGHT LBEAM LH
51	V	O LIGHT FR FOG LAMPS LH
52	-	-

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

< WIRING DIAGRAM >

[IPDM E/R]

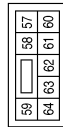
Connector No.	F30
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
5	W	-

Terminal No.	Color of Wire	Signal Name
61	GR	O LIGHT CLEARANCE FR RH
62	SB	O LIGHT LBEAM RH
63	B	I LEVELIZER DC MOTOR GROUND
64	V	O LEVELIZER DC MOTOR

Connector No.	E218
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
57	W	O LIGHT FR FOG LAMPS RH
58	R	O LIGHT DTRL RH
59	G	O LIGHT HBEAM LH
60	Y	LI LED DETECTION 1

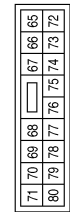
Connector No.	F41
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
81	L	FL ECM USM SUPPLY
82	-	-
83	G	O STARTER
84	LG	I BATT MOTOR FAN LO
85	P	O MOTOR FAN LO
86	GR	FL STARTER

Terminal No.	Color of Wire	Signal Name
71	SB	O IGN REVERSE SW AC VALVE
72	GR	O ACTUATOR5 (3FBA)
73	Y	O ACTUATOR1 2 (3FB)
74	-	-
75	BR	O ACTUATOR3 (3FB3)
76	P	LI FUEL PUMP DRIVER
77	-	-
78	L	O ACTUATOR2 (3FB2)
79	G	LI LIGHT REVERSE SW
80	-	-



Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
65	P	O AC CLUTCH
66	R	O ACTUATOR1 1 (3FBI)
67	V	LI ECM ACT5 DRIVER
68	-	-
69	-	-
70	BG	O IGN AT LPG

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



Terminal No.	Color of Wire	Signal Name
87	L	CAN-H
88	P	CAN-L
89	-	-
90	-	-
91	-	-
92	GR	LI NP SW
93	P	LI ECM DRIVER
94	-	-
95	-	-
96	-	-
97	-	-
98	Y	O AC VALVE
99	-	-
100	-	-
101	-	-
102	-	-
103	-	-
104	-	-
105	-	-
106	BR	LO FAN RELAY2(PWM)
107	V	LO FAN RELAY1
108	-	-
109	-	-
110	-	-

AAMIA3596GB

PCS

## BASIC INSPECTION

### ADDITIONAL SERVICE WHEN REPLACING IPDM E/R

#### Description

INFOID:0000000012422799

After replacing IPDM E/R, it is necessary to perform control unit configuration and height sensor initialize (For LED headlamp models) with CONSULT.

#### Work Procedure

INFOID:0000000012422800

#### 1. REPLACE IPDM E/R

Replace IPDM E/R. Refer to [PCS-44, "Removal and Installation"](#).

>> GO TO 2.

#### 2. WRITING VEHICLE SPECIFICATION (IPDM E/R)

##### CONSULT Configuration

Perform "After Replace ECU" of "Read/Write Configuration" or "Manual Configuration" to write vehicle specification. Refer to [PCS-37, "Work Procedure"](#).

>> WORK END.

## CONFIGURATION (IPDM E/R)

## Description

INFOID:0000000012422801

There is no vehicle specification in new IPDM E/R, so the vehicle specification needs to be written in IPDM E/R with CONSULT.

**CAUTION:**

- When replacing IPDM E/R, always perform “Manual Configuration” with CONSULT. Or not doing so, IPDM E/R control function does not operate normally.
- Never perform “Manual Configuration” except for new IPDM E/R or the control function may not operate normally.

## Work Procedure

INFOID:0000000012422802

## 1. WRITING MODE SELECTION

 CONSULT Configuration

Select “CONFIGURATION” of IPDM E/R.

>> GO TO 2.

## 2. PERFORM “MANUAL CONFIGURATION”

 CONSULT Configuration

1. Select “MANUAL CONFIGURATION”.
2. Identify the correct model and configuration list. Refer to [PCS-37, "Configuration list"](#).

**CAUTION:**

- Thoroughly read and understand the vehicle specification. ECU control may not operate normally if the setting is not correct.
- Make sure to select “SETTING” even if the indicated configuration of brand new IPDM E/R is same as the desirable configuration. If not, configuration which is set automatically by selecting vehicle model cannot be memorized

3. Sets the displayed item and then select “NEXT”.

**NOTE:**

If item is not displayed, select “NEXT”.

4. Check that the configuration has been successfully written and touch “End”.

>> GO TO 3.

## 3. OPERATION CHECK

Confirm that each function controlled by IPDM E/R operates normally.

>> Work End.

## Configuration list

INFOID:0000000012422803

**CAUTION:**

Check vehicle specifications before servicing.

IPDM E/R

Type ID	How to identify Type ID	
	Key type	HEAD LAMP type
284B7-4BA1A	non Intelligent Key	Halogen
284B7-4BA1B	Intelligent Key	Halogen
284B7-4BA1C	Intelligent Key	LED

## CONFIGURATION (IPDM E/R)

< BASIC INSPECTION >

[IPDM E/R]

HLL (HEAD LIGHT LEVELING) (IF EQUIPPED)

SETTING ITEM		NOTE
Items	Setting value	
SEAT	3-ROW SEAT ⇔ 2-ROW SEAT	<ul style="list-style-type: none"><li>• 3-ROW SEAT: With 3rd row seating</li><li>• 2-ROW SEAT: Without 3rd row seating</li></ul>

# U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

## DTC/CIRCUIT DIAGNOSIS

### U1000 CAN COMM CIRCUIT

#### Description

INFOID:0000000012422804

Refer to [LAN-11, "System Description"](#).

#### DTC Logic

INFOID:0000000012422805

#### 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: <ul style="list-style-type: none"><li>• Transmission</li><li>• Receiving (ECM)</li><li>• Receiving (BCM)</li><li>• Receiving (Combination meter)</li></ul>

#### Diagnosis Procedure

INFOID:0000000012422806

#### 1. PERFORM SELF DIAGNOSTIC RESULT

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

Is "CAN COMM CIRCUIT" displayed?

- YES >> Refer to [LAN-20, "Trouble Diagnosis Flow Chart"](#).  
NO >> Refer to [GI-45, "Intermittent Incident"](#).

PCS

## B120E IPDM E/R

## DTC Logic

INFOID:0000000012422807

## DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
USM ECU Not configured [B120E]	The IPDM E/R detects 0V for greater than 2 seconds. ECU internal failure.	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 B120E displayed?

- YES >> Refer to [PCS-41, "Diagnosis Procedure"](#).  
 NO >> Inspection End.

## Diagnosis Procedure

INFOID:0000000012422808

## 1. PERFORM SELF DIAGNOSTIC RESULT

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

Is display history of DTC B120E CRNT?

- YES >> Replace IPDM E/R. Refer to [PCS-44, "Removal and Installation"](#).  
 NO >> Refer to [GI-45, "Intermittent Incident"](#).



# B20DD IGNITION RELAY ON CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

## B20DD IGNITION RELAY ON CIRCUIT

### DTC Logic

INFOID:0000000012422809

### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGN RELAY ON [B20DD]	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 B20DD displayed?

- YES >> Refer to [PCS-41, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:0000000012422810

#### 1. PERFORM SELF DIAGNOSTIC RESULT

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

#### Is display history of DTC B20DD CRNT?

- YES >> Replace IPDM E/R. Refer to [PCS-44, "Removal and Installation"](#).  
NO >> Refer to [GI-45, "Intermittent Incident"](#).

PCS

## B20DE IGNITION RELAY OFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

### B20DE IGNITION RELAY OFF CIRCUIT

#### DTC Logic

INFOID:0000000012422811

#### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
IGN RELAY OFF [B20DE]	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 B20DE displayed?

- YES >> Refer to [PCS-42, "Diagnosis Procedure"](#).  
NO >> Inspection End.

#### Diagnosis Procedure

INFOID:0000000012422812

##### 1. PERFORM SELF DIAGNOSTIC RESULT

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

##### Is display history of DTC B20DE CRNT?

- YES >> Replace IPDM E/R. Refer to [PCS-44, "Removal and Installation"](#).  
NO >> Refer to [GI-45, "Intermittent Incident"](#).

# POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[IPDM E/R]

## POWER SUPPLY AND GROUND CIRCUIT

### Diagnosis Procedure

INFOID:0000000012422813

Regarding Wiring Diagram information, refer to [PCS-29, "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	D (80A)
2		C (100A)

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

- Disconnect IPDM E/R connector E118.
- Check voltage between IPDM E/R connector E118 and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E118	1	—	Battery voltage
	2		

Is the inspection result normal?

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

### 3. CHECK GROUND CIRCUIT

- Disconnect IPDM E/R connectors E119, E120 and E121.
- Check continuity between IPDM E/R connectors and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E119	12	Ground	Yes
E120	31		
E121	47		

Is the inspection result normal?

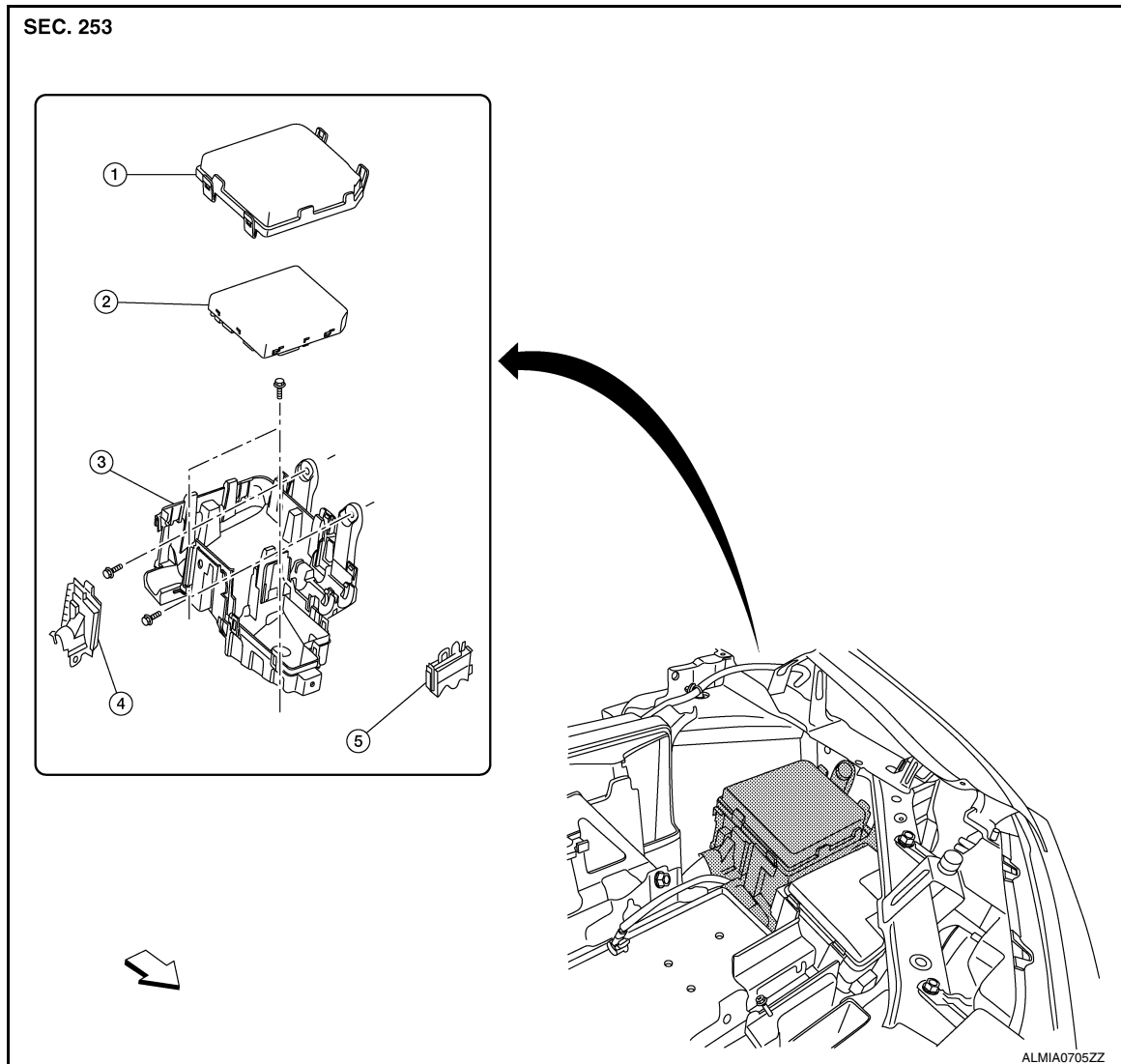
- YES >> Inspection End.  
NO >> Repair or replace harness or connectors.

## REMOVAL AND INSTALLATION

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

## Exploded View

INFOID:0000000012422814



1. IPDM E/R cover

2. IPDM E/R

3. IPDM E/R case

4. IPDM E/R harness cover A

5. IPDM E/R harness cover B

↔ Front

## Removal and Installation

INFOID:0000000012422815

**CAUTION:**

IPDM E/R integrated relays are not serviceable parts, do not remove from the IPDM E/R.

## REMOVAL

1. Disconnect the negative battery terminal. Refer to [PG-80. "Removal and Installation \(Battery\)"](#).
2. Remove air inlet duct assembly and resonator assembly. Refer to [EM-18. "Exploded View"](#).

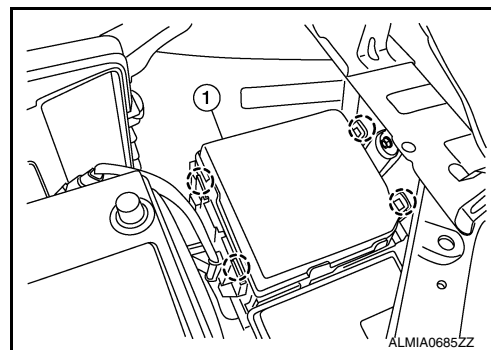
# IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

## < REMOVAL AND INSTALLATION >

[IPDM E/R]

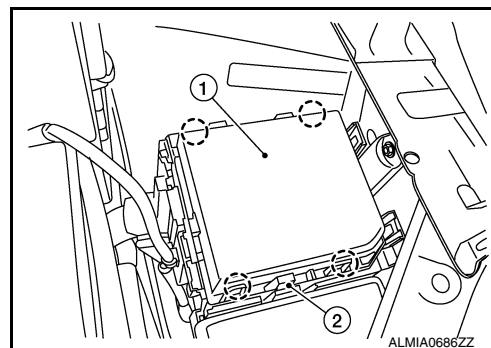
3. Release pawls on IPDM E/R cover (1) and remove.

○: Pawls



4. Release pawls and remove IPDM E/R (1) from the IPDM E/R case (2).

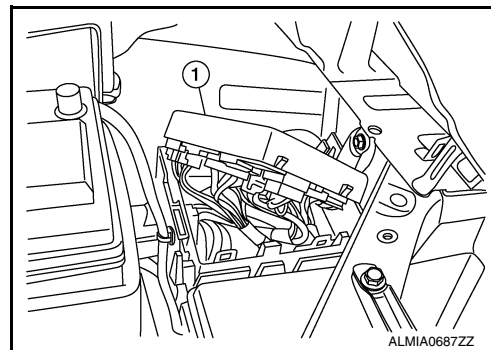
○: Pawls



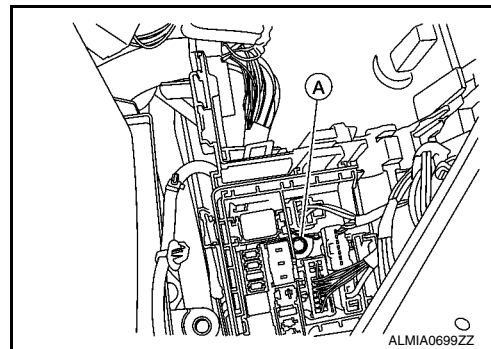
5. Disconnect the harness connectors from IPDM E/R (1) and remove.

**CAUTION:**

**Replace the IPDM E/R if it has been dropped or sustained an impact.**



6. Perform the following steps to remove the IPDM E/R case (if necessary).
- Release the negative battery cable and harness clips from the IPDM E/R case.
  - Release the pawls on the IPDM/ E/R harness covers A, B and remove from the IPDM E/R case.
  - Remove the bolts from the IPDM E/R case.
  - Remove the bolt (A) from the fusible link box.



- e. Disconnect the harness connectors from the fusible link box.

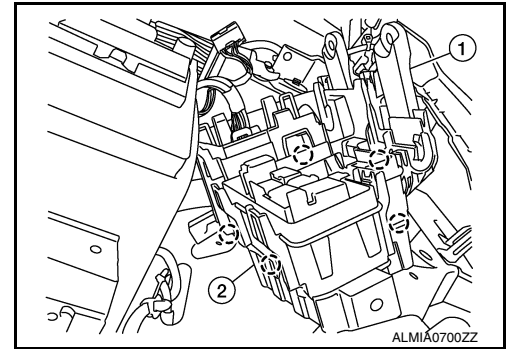
## IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

[IPDM E/R]

### < REMOVAL AND INSTALLATION >

- f. Release the pawls on the fusible link box case (2) and remove from the IPDM E/R case (1).

(○): Pawls



### INSTALLATION

Installation is in the reverse order of removal.

#### **CAUTION:**

Be sure to perform "MANUAL CONFIGURATION" when replacing IPDM E/R. Refer to [PCS-36, "Work Procedure"](#).

## PRECAUTION

### PRECAUTIONS

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

INFOID:0000000012422816

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.

#### Precaution for Work

INFOID:0000000012422817

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
  - Water soluble dirt:
    - Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
    - Then rub with a soft, dry cloth.
  - Oily dirt:
    - Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
    - Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
    - Then rub with a soft, dry cloth.
  - Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
  - For genuine leather seats, use a genuine leather seat cleaner.

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PCS

# PREPARATION

< PREPARATION >

[POWER DISTRIBUTION SYSTEM]

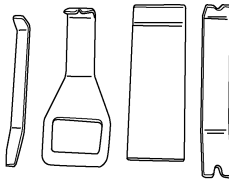
## PREPARATION

### PREPARATION

#### Special Service Tool

INFOID:0000000012422818

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

Tool number (TechMate No.) Tool name	Description
<p>— (J-46534) Trim Tool Set</p>  <p>AWJIA0483ZZ</p>	Removing trim components

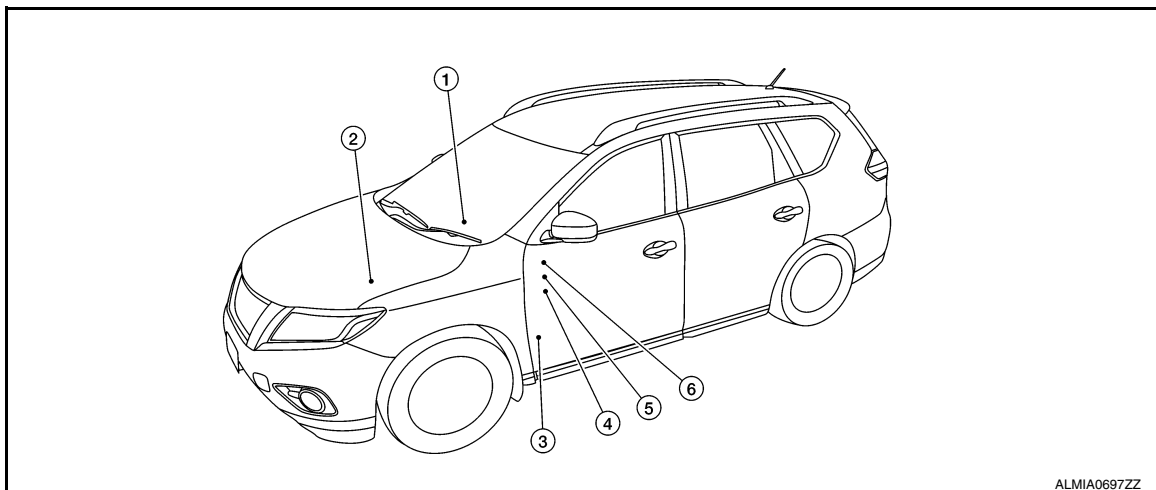


## SYSTEM DESCRIPTION

### COMPONENT PARTS

#### Component Parts Location

INFOID:0000000012422819



ALMIA0697ZZ

No.	Component	Description
1.	Push-button ignition switch <sup>1</sup>	Push-button ignition switch (push switch) is pressed (ON), and transmits status signal to BCM and IPDM E/R.
	Ignition switch <sup>2</sup>	Ignition switch is turned to ON, and transmits status signal to BCM and IPDM E/R.
2.	IPDM E/R	<ul style="list-style-type: none"> <li>IPDM E/R detects push-button ignition switch<sup>1</sup> or ignition switch<sup>2</sup> status, and transmits ignition switch status signal (CAN) to BCM.</li> <li>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)</li> </ul>
3.	BCM	<ul style="list-style-type: none"> <li>BCM controls power distribution system.</li> <li>BCM judges ignition position and vehicle condition.</li> <li>BCM checks ignition position internally.</li> </ul>
4.	Ignition relay-2 (in fuse block)	<ul style="list-style-type: none"> <li>Ignition relay-2 is controlled by BCM.</li> <li>Ignition relay-2 supplies ignition ON power supply or ignition ON signal to each ECU and system when ignition is turned ON.</li> <li>BCM compares status of ignition relay-2 control signal and ignition position judged by BCM.</li> <li>BCM monitors ignition relay-2 operating status by ignition relay-2 feedback signal.</li> </ul>
5.	Front blower motor relay (in fuse block)	<ul style="list-style-type: none"> <li>Front blower motor relay is controlled by BCM.</li> <li>Front blower motor supplies ignition ON power supply or ignition ON signal to air conditioning system when ignition is turned ON.</li> <li>BCM compares status of front blower motor relay control signal and ignition position judged by BCM.</li> </ul>
6.	Accessory relay-1 (in fuse block)	<ul style="list-style-type: none"> <li>Accessory relay-1 is controlled by BCM.</li> <li>Accessory relay-1 supplies accessory power supply or ignition ON signal to each ECU when ignition is turned ON.</li> <li>BCM compares status of accessory relay-1 control signal, and ignition position judged by BCM.</li> </ul>

<sup>1</sup>: With Intelligent Key system

<sup>2</sup>: With remote keyless entry system

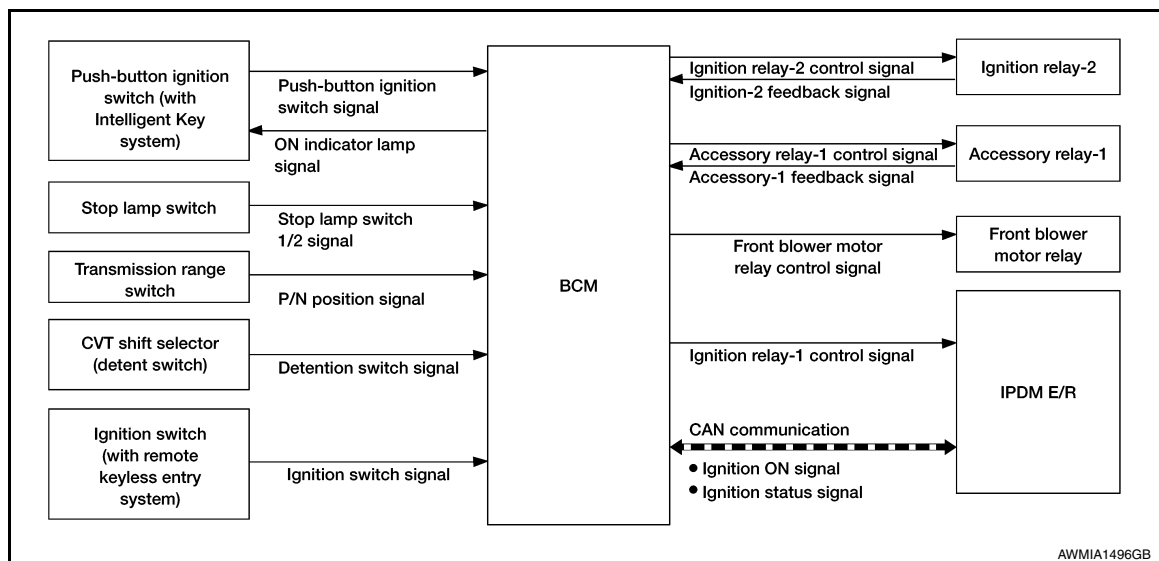
### SYSTEM

### POWER DISTRIBUTION SYSTEM

### POWER DISTRIBUTION SYSTEM : System Description

INFOID:0000000012422820

### SYSTEM DIAGRAM



### SYSTEM DESCRIPTION

#### With Intelligent Key System

- PDS (POWER DISTRIBUTION SYSTEM) is the system that the BCM controls with the operation of the push-button ignition switch to perform 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 conditions:
  - 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 (IPDM E/R)
  - Ignition relay-2 [fuse block (J/B)]
  - Accessory relay-1
  - Front 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 indicator in the push-button ignition switch.

#### With Remote Keyless Entry System

- PDS (POWER DISTRIBUTION SYSTEM) is the system that the BCM controls with the operation of the ignition switch to perform the power distribution to each power circuit.
- The ignition switch operation is input to the 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 (IPDM E/R)
  - Ignition relay-2 [fuse block (J/B)]
  - Accessory relay-1
  - Front blower motor relay

### IGNITION BATTERY SAVER SYSTEM

When all the following conditions are met for 10 minutes, the ignition battery saver system will cut off the power supply to prevent battery discharge.

- The ignition is in the ON position
- Turn signal lamp is not in operation

# SYSTEM

## < SYSTEM DESCRIPTION >

## [POWER DISTRIBUTION SYSTEM]

- 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 is left in the ON position for 10 minutes that can be extended for not more than 30 minutes:

- Opening any door
- Operating door request switch on door handle
- Operating Intelligent Key (with Intelligent Key system)
- Operating key fob (with remote keyless entry system)

### POWER SUPPLY POSITION CHANGE TABLE BY PUSH-BUTTON IGNITION SWITCH OPERATION (WITH INTELLIGENT KEY 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
	Selector lever position	Brake pedal condition	
OFF → ON	—	Released	1
OFF → ON → OFF	—	Released	2
OFF → START ON → START	P (Park) or N (Neutral)	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
	Selector lever position	Brake pedal condition	
Engine is running → OFF	—	—	Emergency stop operation
Engine stall return operation while driving	N (Neutral)	Released	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.

## AUTO ACC FUNCTION

### AUTO ACC FUNCTION : System Description

INFOID:0000000012422821

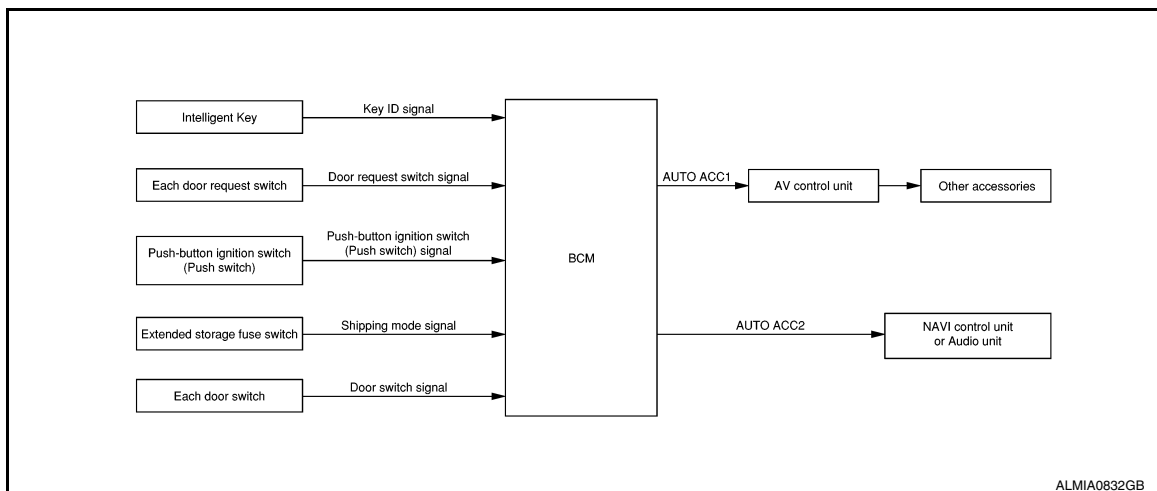
### SYSTEM DIAGRAM

# SYSTEM

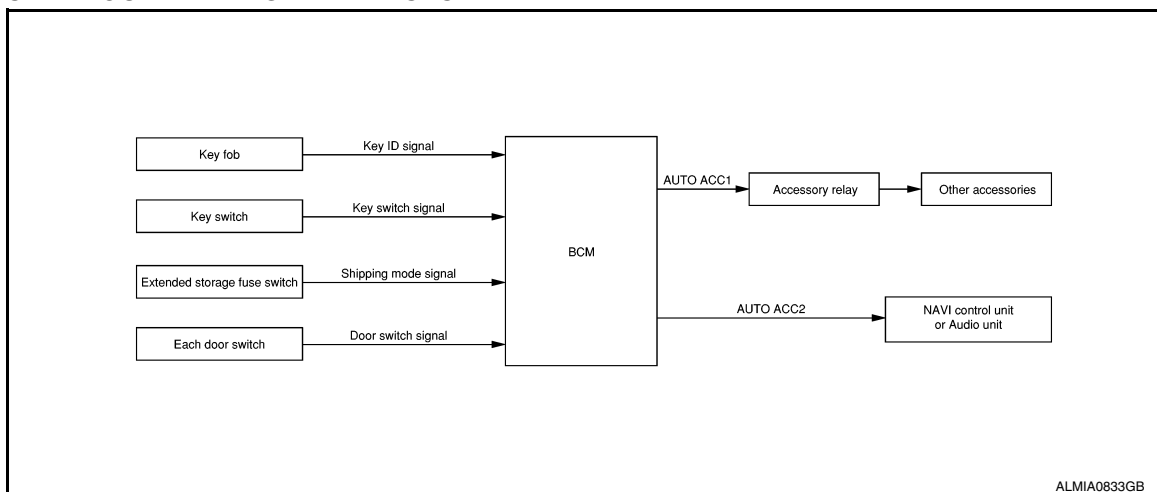
## < SYSTEM DESCRIPTION >

## [POWER DISTRIBUTION SYSTEM]

### MODELS WITH INTELLIGENT KEY SYSTEM



### MODELS WITHOUT INTELLIGENT KEY SYSTEM



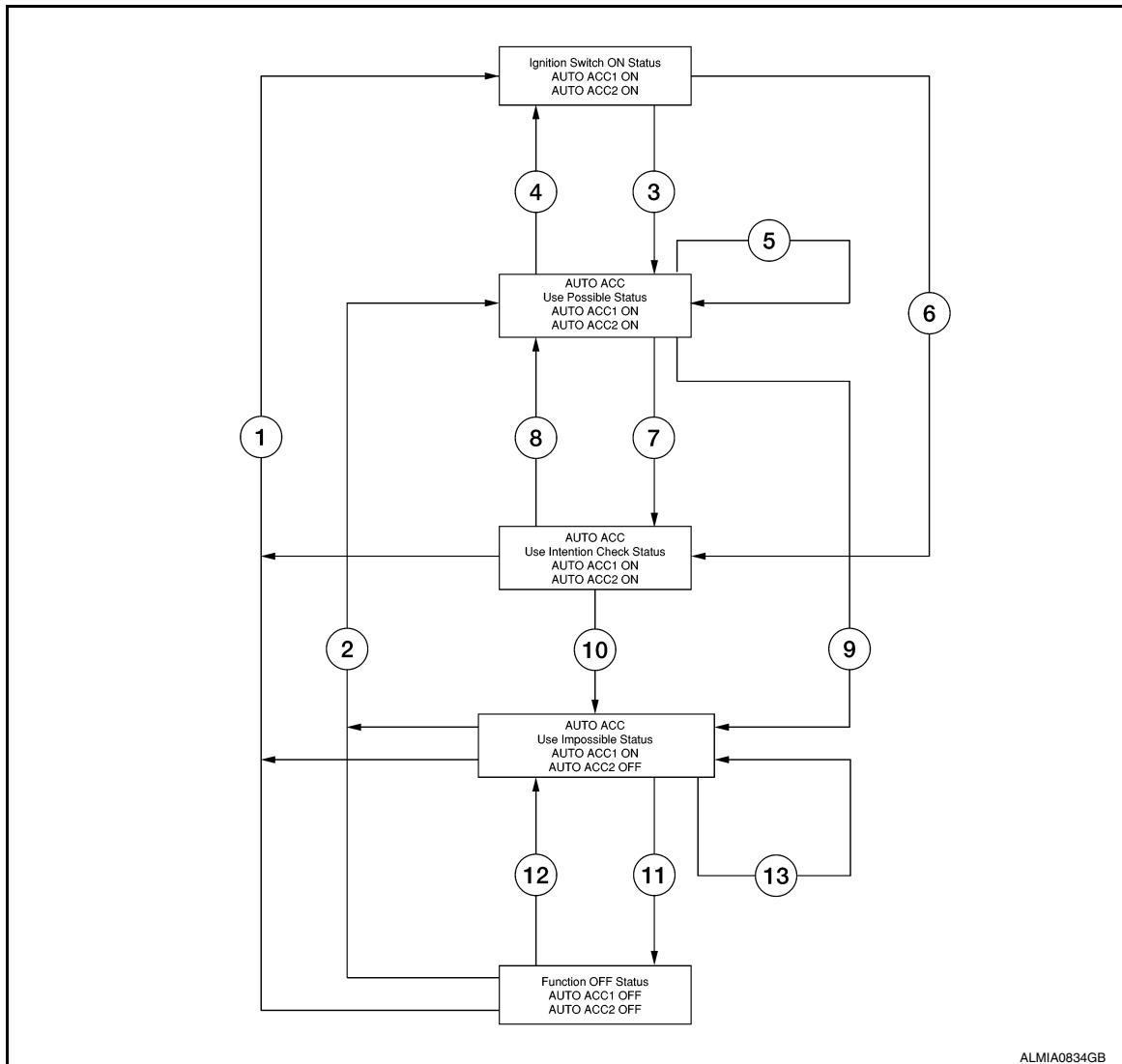
### DESCRIPTION

The AUTO ACC function is a function that bypasses the ignition switch ACC position and automatically distributes the accessory power supply to each accessory by door unlock operation, etc. using the Intelligent Key (models with Intelligent Key) or the remote controller key (models without Intelligent Key). There are two AUTO ACC circuits: AUTO ACC1 and AUTO ACC2. AUTO ACC1 includes the “Other accessories” such as, \*Power Sockets and Electric Door Mirrors (if equipped), while AUTO ACC2 includes the Audio, Navigation, and Bluetooth-enabled features (if equipped).

\* Not all Power Sockets are supported by AUTO ACC function

During cranking, AUTO ACC2 is turned OFF, but AUTO ACC1 is still ON. See the following flow chart and the tables below it for more details.

## OPERATION FLOW

**Ignition Switch On Status**

In this status the ignition switch is turned ON.

**AUTO ACC Use Possible Status**

- In this status the audio, navigation, and the other accessories that are activated by the accessory power source can be operated.
- When 10 minutes pass after conditions are satisfied while audio and navigation are not operated, audio and navigation turn OFF.
- When audio or navigation is operated within 10 minutes after conditions are satisfied, operation time is extended for 10 minutes. Audio and navigation can be operated for a maximum of 30 minutes after the status is satisfied.
- The other accessories are available all throughout this state.

**AUTO ACC Use Intention Check Status**

This is a status for checking the intention of using audio and navigation again after audio and navigation are stopped.

**AUTO ACC Use Impossible Status**

In this status audio and navigation become unavailable, but the accessories other than those for audio or navigation remain available until the accessory power source turns OFF.

**OFF status**

In this status the AUTO ACC function stops and power to the accessories is not supplied.

# SYSTEM

## < SYSTEM DESCRIPTION >

## [POWER DISTRIBUTION SYSTEM]

No.	Function status	Shifting condition	AUTO ACC power source
①	<ul style="list-style-type: none"> <li>Shifting from "OFF status" to "Ignition Switch ON Status"</li> <li>Shifting from "AUTO ACC Use Impossible Status" to "Ignition Switch ON Status"</li> <li>Shifting from "AUTO ACC Use Intention (Confirmation) Check Status" to "Ignition switch Ignition Switch ON Status"</li> </ul>	Turn the ignition switch from OFF to ON.	OFF → ON
②	<ul style="list-style-type: none"> <li>Shifting from "OFF status" to "AUTO ACC Use Possible (Available) Status"</li> <li>Shifting from "AUTO ACC Use Impossible Status" to "AUTO ACC Use Possible (Available) Status"</li> </ul>	<ul style="list-style-type: none"> <li>Models with Intelligent Key: Operate either the door request switch or the unlock button of the Intelligent Key to unlock the door.</li> <li>Models without Intelligent Key: Operate the unlock button of remote controller button to unlock the door.</li> </ul>	OFF → ON
③	Shifting from "Ignition Switch ON Status" to "AUTO ACC Use Possible (Available) Status"	Turn the ignition switch from ON to OFF while driver door is closed.	ON
④	Shifting from "AUTO ACC Use Possible (Available) Status" to "Ignition Switch ON Status"	Turn the ignition switch from OFF to ON.	ON
⑤	"AUTO ACC Use Possible (Available) Status" Time extension (10 minutes)	Operate audio or navigation.	ON
⑥	Shifting from "Ignition Switch ON Status" to "AUTO ACC Use Intention (Confirmation) Check Status"	<ul style="list-style-type: none"> <li>Turn the ignition switch from ON to OFF while driver door is open.</li> <li>BCM enters Shorting Pin Mode.</li> </ul>	ON
⑦	Shifting from "AUTO ACC Use Possible (Available) Status" to "AUTO ACC Use Intention (Confirmation) Check Status"	<ul style="list-style-type: none"> <li>For models with Intelligent Key, any of the following conditions is satisfied. <ul style="list-style-type: none"> <li>Close all doors, and lock all doors with the Intelligent Key or door request switch.</li> <li>Ten minutes pass from "AUTO ACC Use Possible (Available) Status."</li> <li>Open driver door.</li> <li>BCM enters Shorting Pin Mode.</li> </ul> </li> <li>For models without Intelligent Key, any of the following conditions is satisfied. <ul style="list-style-type: none"> <li>Close all doors, and lock all doors with the remote controller button.</li> <li>Remove the key from the ignition key cylinder.</li> <li>Ten minutes pass from "AUTO ACC Use Possible (Available) Status."</li> <li>Driver door is opened.</li> <li>BCM enters Shorting Pin Mode.</li> </ul> </li> </ul>	ON
⑧	Shifting from "AUTO ACC Use Intention (Confirmation) Check Status" to "AUTO ACC Use Possible (Available) Status"	<p>Any of the following conditions is satisfied.</p> <ul style="list-style-type: none"> <li>Models with Intelligent Key: Operate either the door request switch, door key cylinder or the unlock button of the Intelligent Key to unlock the door.</li> <li>Models without Intelligent Key: Operate the unlock button of remote controller or door key cylinder to unlock the door.</li> <li>Operate audio or navigation power switch</li> </ul>	ON
⑨	Shifting from "AUTO ACC Use Possible (Available) Status" to "AUTO ACC Use Impossible Status"	Thirty minutes pass from "AUTO ACC Use Possible (Available) Status."	ON
⑩	Shifting from "AUTO ACC Use Intention (Confirmation) Check Status" to "AUTO ACC Use Impossible Status"	<p>Any of the following conditions is satisfied.</p> <ul style="list-style-type: none"> <li>Two minutes pass from "AUTO ACC Use Intention (Confirmation) Check Status."</li> <li>In "AUTO ACC Use Intention (Confirmation) Check Status," 30 minutes pass after "AUTO ACC Use Possible (Available) Status" is satisfied.</li> </ul>	ON

# SYSTEM

## < SYSTEM DESCRIPTION >

## [POWER DISTRIBUTION SYSTEM]

No.	Function status	Shifting condition	AUTO ACC power source
⑪	Shifting from "AUTO ACC Use Impossible Status" to "OFF status"	One minute passes from "AUTO ACC Use Impossible Status."	ON → OFF
⑫	Shifting from "OFF status" to "AUTO ACC Use Impossible Status"	Any of the following conditions is satisfied. • Driver door is opened or closed. • The steering lock operates.	OFF → ON
⑬	"AUTO ACC Use Impossible Status" time extension (1 minute)	Any of the following conditions is satisfied. • Driver door is opened or closed. • The steering lock operates.	ON

### AUTO ACC Function Table

No.	AUTO ACC FUNCTION STATUS	AUTO ACC1	AUTO ACC2	ACTIVATION TIME
①	Ignition Switch ON	ON	ON	●
②	AUTO ACC Use Possible Status	ON	ON	10 minutes ■
③	AUTO ACC Use Intention Check Status	ON	ON	2 minutes ■
④	AUTO ACC Use Impossible Status	ON	OFF	1 minute ■
⑤	Function OFF Status	OFF	OFF	OFF
⑥	CRANKING	ON	OFF	For the duration of cranking

● As long as ignition is turned ON

■ Timing is resettable, if and only if the total AUTO ACC timer has not reached 30 minutes

### WITH INTELLIGENT KEY

### WITH INTELLIGENT KEY : Fail Safe

INFOID:0000000012422822

CONSULT Display	Fail-safe	Cancellation
B2190: NATS ANTENNA AMP	Inhibit engine cranking	Erase DTC
B2191: DIFFERENCE OF KEY	Inhibit engine cranking	Erase DTC
B2192: ID DISCORD BCM-ECM	Inhibit engine cranking	Erase DTC
B2193: CHAIN OF BCM-ECM	Inhibit engine cranking	Erase DTC
B2198: IMMOBI ANT NG	Inhibit engine cranking	Erase DTC
B2608: STARTER RELAY	Inhibit engine cranking	500 ms after the following signal communication status becomes consistent: • Starter motor relay control signal • Starter relay status signal (CAN)
B260F: ECM CAN COMM	Inhibit engine cranking	When any of the following conditions are fulfilled: • Ignition switch changes to ON • Receives engine status signal (CAN)
B26F1: IGNITION RELAY OFF STUCK FAIL	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: IGNITION RELAY ON STUCK FAIL	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
B261E: FUEL MIS CONFIG	Inhibit engine cranking	BCM initialization

### WITHOUT INTELLIGENT KEY

### WITHOUT INTELLIGENT KEY : Fail Safe

INFOID:0000000012422823

# SYSTEM

## < SYSTEM DESCRIPTION >

## [POWER DISTRIBUTION SYSTEM]

CONSULT Display	Fail-safe	Cancellation
B2190: NATS ANTENNA AMP	Inhibit engine cranking	Erase DTC
B2191: DIFFERENCE OF KEY	Inhibit engine cranking	Erase DTC
B2192: ID DISCORD BCM-ECM	Inhibit engine cranking	Erase DTC
B2193: CHAIN OF BCM-ECM	Inhibit engine cranking	Erase DTC
B2198: IMMOBI ANT NG	Inhibit engine cranking	Erase DTC
B2608: STARTER RELAY	Inhibit engine cranking	500 ms after the following signal communication status becomes consistent: <ul style="list-style-type: none"><li>• Starter motor relay control signal</li><li>• Starter relay status signal (CAN)</li></ul>
B260F: ECM CAN COMM	Inhibit engine cranking	When any of the following conditions are fulfilled: <ul style="list-style-type: none"><li>• Ignition switch changes to ON</li><li>• Receives engine status signal (CAN)</li></ul>
B261E: FUEL MIS CONFIG	Inhibit engine cranking	BCM initialization



# DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

## DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

### COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000012547329

### 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	<ul style="list-style-type: none"><li>The vehicle specification can be read and saved.</li><li>The vehicle specification can be written when replacing BCM.</li></ul>
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

### SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK		×	×	×	×		
Rear window defogger	REAR DEFOGGER			×	×	×		
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Exterior lamp	HEADLAMP			×	×	×		
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×			
Intelligent Key system	INTELLIGENT KEY		×	×	×	×		
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×	×	×			
Interior room lamp battery saver	BATTERY SAVER			×	×			
Back door open	TRUNK			×				
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×				
Signal buffer system	SIGNAL BUFFER			×				
Air conditioner	AIR CONDITIONER				×			

### INTELLIGENT KEY

# DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

## INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)

INFOID:000000012547330

### 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.
BRAKE SW 1 [On/Off]	×	Indicates condition of brake pedal position switch.
BRAKE SW 2 [On/Off]		Indicates condition of stop lamp switch.
DETE/CANCL SW [On/Off]	×	Indicates condition of park position switch.
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.
NEUTRAL SW -IPDM [On/Off]		Indicates condition of transmission range switch received from IPDM E/R on CAN communication line.
SFT PN -IPDM [On/Off]		Indicates condition of P (park) or N (neutral) position from TCM on CAN communication line.
STARTER RELAY -IPDM [On/Off]		Indicates condition of starter relay received 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.
ST/INH RELAY - IPDM [On/Off]		Indicates condition of starter relay and starter control relay status signal from IPDM E/R.
REVERSE SIGNAL -IPDM [On/Off]		Indicates condition of transmission range switch received from IPDM E/R on CAN communication line.
CRANKING PERMIT -ECM [PERMIT]		Indicates condition of engine start possibility from ECM on CAN communication line.
IS STATUS -ECM [On/Off]		Indicates IS status from ECM on CAN communication line.
STARTER CUT RELAY -ECM [On/Off]		Indicates condition of starter cut relay 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.
IGN REQ -IPDM [On/Off]		Indicates condition of ignition request from IPDM E/R on CAN communication line.
STARTER REQ -IPDM [On/Off]		Indicates condition of starter request received from IPDM E/R 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.
DOOR STAT -RR [LOCK/READY/UNLK]	×	Indicates condition of rear right side door status.
DOOR STAT -RL [LOCK/READY/UNLK]	×	Indicates condition of rear left side door status.
BK DOOR STATE [LOCK/READY/UNLK]	×	Indicates condition of back door status.
ID OK FLAG [Set/Reset]		Indicates condition of Intelligent Key ID.
PRMT ENG STRT [Set/Reset]		Indicates condition of engine start possibility.
PRMT RKE STRT [Set/Reset]		Indicates condition of engine start possibility from Intelligent Key.

# DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

## < SYSTEM DESCRIPTION >

## [POWER DISTRIBUTION SYSTEM]

Monitor Item [Unit]	Main	Description
I-KEY OK FLAG [Key ON/Key OFF]	×	Indicates condition of Intelligent Key OK flag.
PRBT ENG STRT [Set/Reset]		Indicates condition of engine start prohibit.
ID AUTHENT CANCEL TIMER [STOP]		Indicates condition of Intelligent Key ID authentication.
ACC BATTERY SAVER [STOP]		Indicates condition of battery saver.
CRNK PRBT TMR [On/Off]		Indicates condition of crank prohibit timer.
AUT CRNK TMR [On/Off]		Indicates condition of automatic engine crank timer from Intelligent Key.
CRNK PRBT TME [sec]		Indicates condition of engine crank prohibit time.
AUTO CRNK TME [sec]		Indicates condition of automatic engine crank time from Intelligent Key.
CRANKING TME [sec]		Indicates condition of engine cranking time from Intelligent Key.
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-TR/BD [On/Off]		Indicates condition of back door open 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.
RKE PBD [On/Off]		Indicates condition of automatic back door signal from Intelligent Key.

## ACTIVE TEST

Test Item	Description
OUTSIDE BUZZER	This test is able to check Intelligent Key warning buzzer operation [On/Off].
INSIDE BUZZER	This test is able to check combination meter warning chime operation [Take Out/Knob/Key/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 flasher operation [On/Off].
HORN	This test is able to check horn operation [On/Off].
IGN CONT2	This test is able to check ignition relay-2 control operation [On/Off].
ENGINE SW ILLUMI	This test is able to check push-button ignition switch START indicator operation [On/Off].
ENGINE START REQUEST	This test is able to check BCM starter request switch signal to IPDM E/R via CAN communication [MODE 1/MODE 2/MODE 3/OFF].
IGNITION RELAY	This test is able to check ignition relay operation [On/Off].
STARTER CUT RELAY	This test is able to check the starter control relay [On/Off].
AUTO ACC 2	This test is able to check BCM sends power supply to audio unit or NAVI control unit [On/Off].
AUTOMATIC BACK DOOR	This test is able to check automatic back door operation [On/Off].
AUTO ACC 1	This test is able to check BCM sends power supply to ACC relay [MODE 1/MODE 2/MODE 3/OFF].
TRUNK LUGGAGE LAMP TEST	This test is able to check luggage room lamp test operation [On/Off].

## WORK SUPPORT

Support Item	Setting	Description
SHORT CRANKING OUTPUT	Start	70 msec
		100 msec
		200 msec
	End	—

# DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

Support Item	Setting		Description
INSIDE ANT DIAGNOSIS	—		This function allows inside key antenna self-diagnosis.
LOCK/UNLOCK BY I-KEY	On*		Door lock/unlock by I-Key ON.
	Off		Door lock/unlock by I-Key OFF.
AUTO LOCK SET	Mode 1	OFF	Auto door lock operation time can be changed in this mode.
	Mode 2	30 sec.	
	Mode 3*	1 min.	
	Mode 4	2 min.	
	Mode 5	3 min.	
	Mode 6	4 min.	
	Mode 7	5 min.	
IGN/ACC BATTERY SAVER	On*		Battery saver system ON.
	Off		Battery saver system OFF.
ENGINE START BY I-KEY	On*		Engine start function from Intelligent Key ON.
	Off		Engine start function from Intelligent Key OFF.
TRUNK/GLASS HATCH OPEN	On*		Buzzer reminder function by back door request switch ON.
	Off		Buzzer reminder function by back door request switch OFF.
ANSWER BACK	On		Horn chirp reminder when doors are locked with Intelligent Key.
	Off*		No horn chirp reminder when doors are locked with Intelligent Key.
ANSWER BACK I-KEY LOCK UN-LOCK	BUZZER*		Buzzer reminder function by door lock/unlock request switch ON.
	HORN		Horn chirp reminder function by door lock request switch ON.
	Off		No reminder function by door lock/unlock request switch.
	INVALID		This mode is not used.
ANSWERBACK KEYLESS LOCK UN-LOCK	On*		Buzzer or horn chirp reminder when doors are locked/unlocked with Intelligent Key.
	Off		No buzzer or horn chirp reminder when doors are locked/unlocked with Intelligent Key.

# DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

## DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM) COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000012547332

### 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	<ul style="list-style-type: none"><li>The vehicle specification can be read and saved.</li><li>The vehicle specification can be written when replacing BCM.</li></ul>
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			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x	x		
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Remote keyless entry system	MULTI REMOTE ENT					x		
Exterior lamp	HEADLAMP			x	x			
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x		x			
Interior room lamp battery saver	BATTERY SAVER			x	x			
Back door open	TRUNK			x				
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x				
TPMS	AIR PRESSURE MONITOR		x	x	x	x		

### MULTI REMOTE ENT

## DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM)

< SYSTEM DESCRIPTION >

[POWER DISTRIBUTION SYSTEM]

MULTI REMOTE ENT : CONSULT Function (BCM - MULTI REMOTE ENT)

INFOID:0000000012547333

### WORK SUPPORT

Support Item	Setting	Description
REMO CONT ID CONFIR	—	Keyfob ID code registration is displayed.

## ECU DIAGNOSIS INFORMATION

## BCM

## List of ECU Reference

INFOID:0000000012422828

ECU	Reference
BCM (with Intelligent Key system)	<a href="#">BCS-29, "Reference Value"</a>
	<a href="#">BCS-47, "Fail Safe"</a>
	<a href="#">BCS-47, "DTC Inspection Priority Chart"</a>
	<a href="#">BCS-48, "DTC Index"</a>
BCM (without Intelligent Key system)	<a href="#">BCS-97, "Reference Value"</a>
	<a href="#">BCS-108, "Fail Safe"</a>
	<a href="#">BCS-109, "DTC Inspection Priority Chart"</a>
	<a href="#">BCS-109, "DTC Index"</a>

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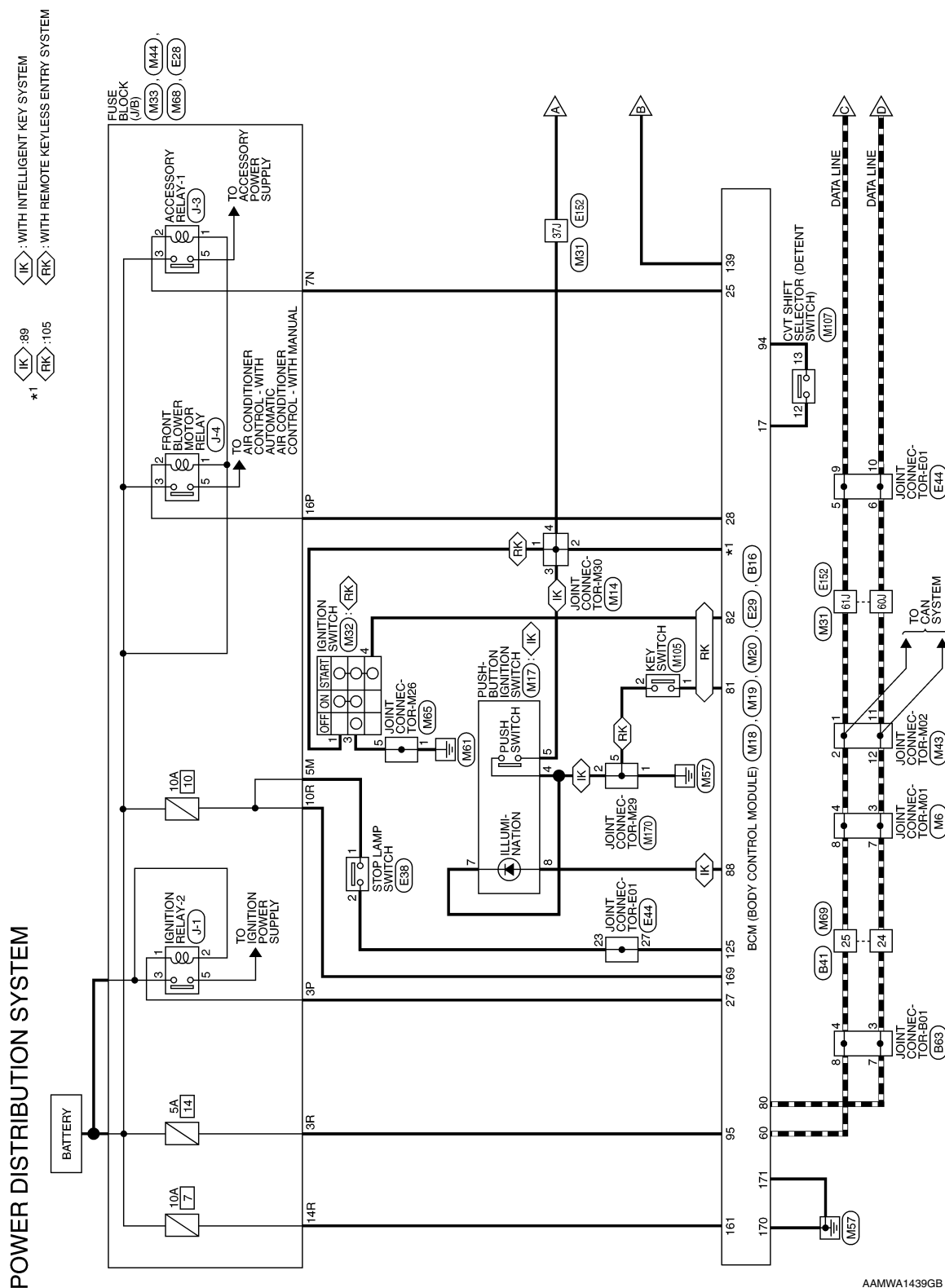
**[POWER DISTRIBUTION SYSTEM]**

## WIRING DIAGRAM

## POWER DISTRIBUTION SYSTEM

## Wiring Diagram

INFOID:0000000012422829



AAMWA1439GB



**[POWER DISTRIBUTION SYSTEM]**

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2016 Rogue NAM

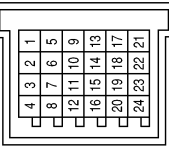
# POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

## POWER DISTRIBUTION SYSTEM CONNECTORS

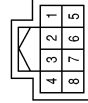
Connector No.	M6
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY



Connector No.	M14
Connector Name	JOINT CONNECTOR-M30
Connector Color	WHITE



Connector No.	M17
Connector Name	PUSH-BUTTON IGNITION SWITCH
Connector Color	WHITE

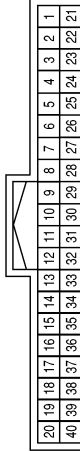


Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

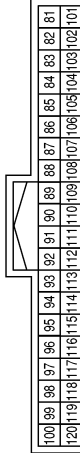
Terminal No.	Color of Wire	Signal Name
1	Y	-
2	Y	-
3	Y	-
4	Y	-

Terminal No.	Color of Wire	Signal Name
4	B	-
5	Y	-
7	B	-
8	W	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GRAY



Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK

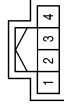


# POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

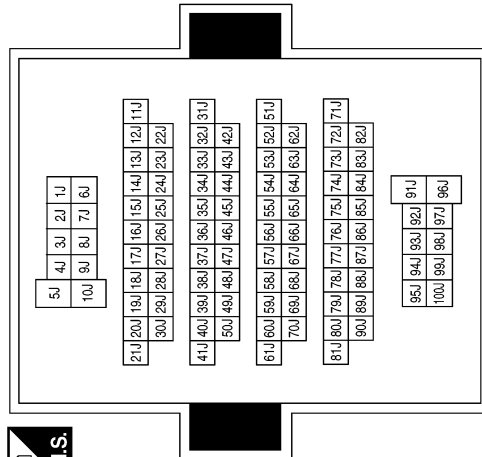
Connector No.	M32
Connector Name	IGNITION SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	Y	-
3	B	-
4	LA/R	-

Terminal No.	Color of Wire	Signal Name
37J	Y	-
60J	P	-
61J	L	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE

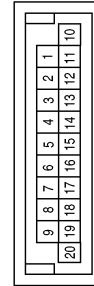


Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



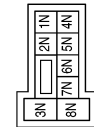
Terminal No.	Color of Wire	Signal Name
3P	Y	-
16P	LA/W	-

Connector No.	M43
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE



Terminal No.	Color of Wire	Signal Name
1	L	-
2	L	-
11	P	-
12	P	-

Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7N	BR	-

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PCS

# POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

Connector No.	M65
Connector Name	JOINT CONNECTOR-M26
Connector Color	WHITE

8	7	6	5	4	3	2	1
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Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN

7R	6R	5R	4R	<div></div>	3R	2R	1R	
16R	15R	14R	13R	12R	11R	10R	9R	8R



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

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



Terminal No.	Color of Wire	Signal Name
1	B	-
5	B	-

Terminal No.	Color of Wire	Signal Name
3R	V	-
10R	GR	-
14R	W	-

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	M105
Connector Name	KEY SWITCH
Connector Color	WHITE

1	2
---	---



Connector No.	M107
Connector Name	CVT SHIFT SELECTOR
Connector Color	WHITE

8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9



Connector No.	M170
Connector Name	JOINT CONNECTOR-M29
Connector Color	WHITE

8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---



Terminal No.	Color of Wire	Signal Name
1	L	-
2	B	-

Terminal No.	Color of Wire	Signal Name
12	L	-
13	G	-

Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-
5	B	-

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# POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

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



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

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Color	BROWN



7R	6R	5R	4R	3R	2R	1R
15R	14R	13R	12R	11R	10R	9R

Terminal No.	Color of Wire	Signal Name
3R	V	-
10R	GR	-
14R	W	-

Connector No.	M65
Connector Name	JOINT CONNECTOR-M26
Connector Color	WHITE



8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	B	-
5	B	-

Connector No.	M170
Connector Name	JOINT CONNECTOR-M29
Connector Color	WHITE



8	7	6	5	4	3	2	1
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Terminal No.	Color of Wire	Signal Name
1	B	-
2	B	-
5	B	-

Connector No.	M107
Connector Name	CVT SHIFT SELECTOR
Connector Color	WHITE



8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color of Wire	Signal Name
12	L	-
13	G	-

Connector No.	M105
Connector Name	KEY SWITCH
Connector Color	WHITE



1	2
---	---

Terminal No.	Color of Wire	Signal Name
1	L	-
2	B	-

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C  
D  
E  
F  
G  
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I  
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# POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

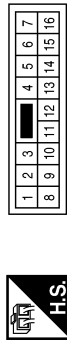
[POWER DISTRIBUTION SYSTEM]

Connector No.	E2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



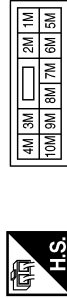
Terminal No.	1
Color of Wire	L
Signal Name	-

Connector No.	E19
Connector Name	WIRE TO WIRE
Connector Color	BROWN



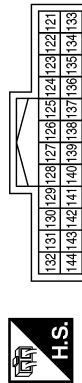
Terminal No.	7
Color of Wire	G
Signal Name	-

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

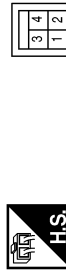


Terminal No.	5M
Color of Wire	V
Signal Name	-

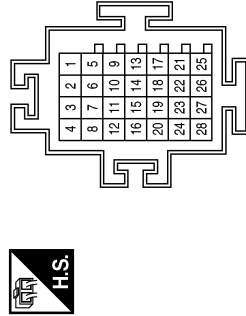
Connector No.	E29
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Color	WHITE



Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Color	WHITE



Terminal No.	125
Color of Wire	LG
Signal Name	I BRAKE SW 2
Terminal No.	139
Color of Wire	G
Signal Name	O STCUT RL

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

Terminal No.	5
Color of Wire	L
Signal Name	-
Terminal No.	6
Color of Wire	P
Signal Name	-
Terminal No.	9
Color of Wire	L
Signal Name	-
Terminal No.	10
Color of Wire	P
Signal Name	-
Terminal No.	23
Color of Wire	LG
Signal Name	-
Terminal No.	27
Color of Wire	LG
Signal Name	-

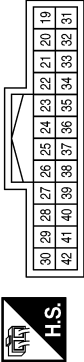
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POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

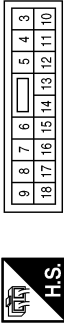
[POWER DISTRIBUTION SYSTEM]

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
22	P	CAN-L
24	L	CAN-H
31	B	2ND SIGNAL GROUND
32	GR	LI PUSH SW

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
12	B	SIGNAL GROUND

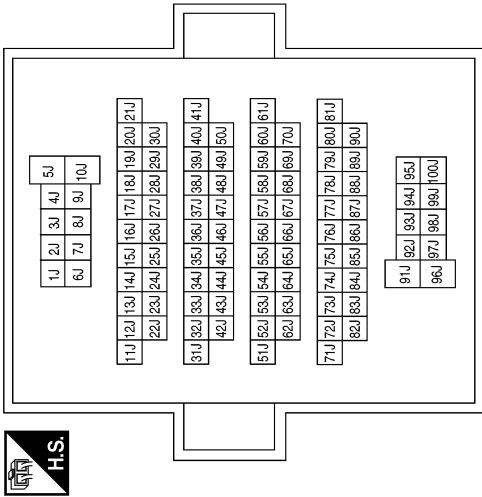
Connector No.	E118
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
2	L	FL BAT 1

Terminal No.	Color of Wire	Signal Name
37J	GR	-
60J	P	-
61J	L	-

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	RED



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

AAMIA2842GB

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

PCS

# POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

71	70	69	68	67	66	65
80	79	78	77	76	75	74
73	72					



Terminal No.	Color of Wire	Signal Name
70	BG	O IGN AT LPG

Connector No.	F33
Connector Name	WIRE TO WIRE
Connector Color	BROWN

7	6	5	4	3	2	1
16	15	14	13	12	11	10
9	8					



Terminal No.	Color of Wire	Signal Name
7	G	-

Connector No.	F32
Connector Name	WIRE TO WIRE
Connector Color	WHITE

1	2
---	---



Terminal No.	Color of Wire	Signal Name
1	L	-

Connector No.	F55
Connector Name	STARTER CUT RELAY
Connector Color	BLUE

3	5
2	1



Terminal No.	Color of Wire	Signal Name
1	SB	-
2	G	-
3	L	-
5	GR	-

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

98	97	96	95	94	93	92	91	90	89	88	87
110	109	108	107	106	105	104	103	102	101	100	99



Terminal No.	Color of Wire	Signal Name
92	GR	LI NP SW

Connector No.	F41
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	GRAY

83	82	81
86	85	84



Terminal No.	Color of Wire	Signal Name
83	G	O STARTER
86	GR	FL STARTER

AAMIA2843GB



# POWER DISTRIBUTION SYSTEM

< WIRING DIAGRAM >

[POWER DISTRIBUTION SYSTEM]

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Color	WHITE



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

Terminal No.	Color of Wire	Signal Name
24	P	-
25	L	-

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	GREEN



60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

Terminal No.	Color of Wire	Signal Name
60	L	CAN-H
80	P	CAN-L

Connector No.	F78
Connector Name	TRANSMISSION RANGE SWITCH
Connector Color	BLACK



6	5	4	3	2	1
10	9	8	7		

Terminal No.	Color of Wire	Signal Name
7	BG	-
10	GR	-

Connector No.	B63
Connector Name	JOINT CONNECTOR-B01
Connector Color	GRAY



4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13
20	19	18	17
24	23	22	21

Terminal No.	Color of Wire	Signal Name
3	P	-
4	L	-
7	P	-
8	L	-

AAMIA2844GB

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

PCS

# DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

[POWER DISTRIBUTION SYSTEM]

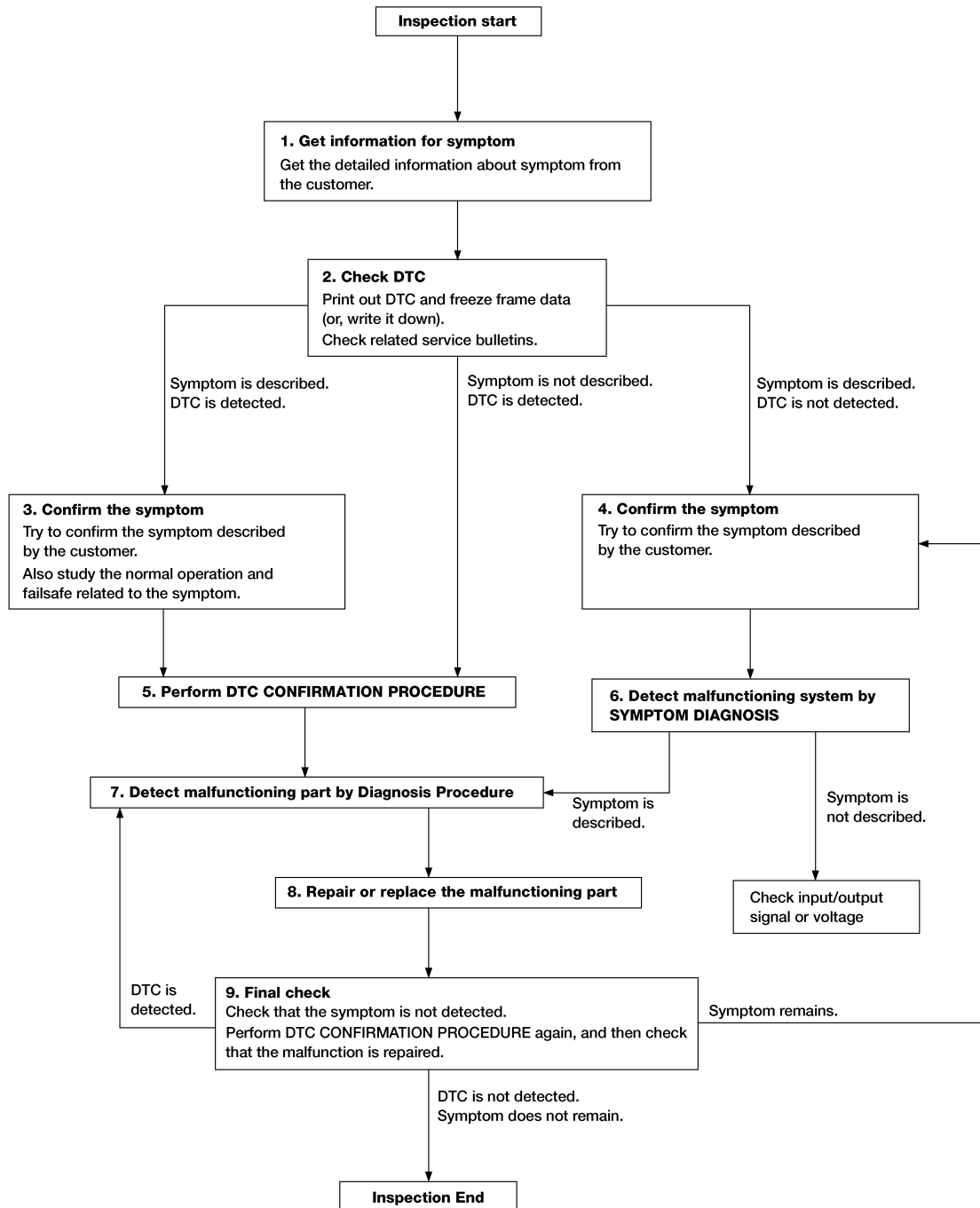
## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORK FLOW

#### Work Flow

INFOID:000000012422830

#### OVERALL SEQUENCE



ALAI/A0158GB

#### DETAILED FLOW

# 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-45, "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-45, "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.

# U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## DTC/CIRCUIT DIAGNOSIS

### U1000 CAN COMM CIRCUIT WITH INTELLIGENT KEY

#### WITH INTELLIGENT KEY : Description

INFOID:0000000012422831

Refer to [LAN-11. "System Description"](#).

#### WITH INTELLIGENT KEY : DTC Logic

INFOID:0000000012422832

#### 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: <ul style="list-style-type: none"><li>• Transmission</li><li>• Receiving (ECM)</li><li>• Receiving (VDC/TCS/ABS)</li><li>• Receiving (METER/M&amp;A)</li><li>• Receiving (TCM)</li><li>• Receiving (IPDM E/R)</li></ul>

#### WITH INTELLIGENT KEY : Diagnosis Procedure

INFOID:0000000012422833

##### 1. PERFORM SELF DIAGNOSTIC

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-45. "Intermittent Incident"](#).

#### WITHOUT INTELLIGENT KEY

#### WITHOUT INTELLIGENT KEY : Description

INFOID:0000000012422834

Refer to [LAN-11. "System Description"](#).

#### WITHOUT INTELLIGENT KEY : DTC Logic

INFOID:0000000012422835

#### 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: <ul style="list-style-type: none"><li>• Transmission</li><li>• Receiving (ECM)</li><li>• Receiving (VDC/TCS/ABS)</li><li>• Receiving (METER/M&amp;A)</li><li>• Receiving (TCM)</li><li>• Receiving (IPDM E/R)</li></ul>

## U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

### WITHOUT INTELLIGENT KEY : Diagnosis Procedure

INFOID:0000000012422836

#### 1. PERFORM SELF DIAGNOSTIC

---

1. Turn ignition switch ON and wait for 2 second or more.
2. Check "Self Diagnostic Result".

Is "CAN COMM CIRCUIT" displayed?

- YES >> Perform CAN Diagnosis as described in DIAGNOSIS section of CONSULT Operation Manual.  
NO >> Refer to [GI-45, "Intermittent Incident"](#).

## U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

### U1010 CONTROL UNIT (CAN)

#### WITH INTELLIGENT KEY

#### WITH INTELLIGENT KEY : DTC Logic

INFOID:0000000012422837

#### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1010]	BCM detected internal CAN communication circuit mal-function.	BCM

#### WITH INTELLIGENT KEY : Diagnosis Procedure

INFOID:0000000012422838

#### 1. REPLACE BCM

When DTC U1010 is detected, replace BCM.

>> Replace BCM. Refer to [BCS-76. "Removal and Installation"](#).

#### WITHOUT INTELLIGENT KEY

#### WITHOUT INTELLIGENT KEY : DTC Logic

INFOID:0000000012422839

#### DTC DETECTION LOGIC

CONSULT Display	DTC Detection Condition	Possible Cause
CAN COMM CIRCUIT [U1010]	BCM detected internal CAN communication circuit mal-function.	BCM

#### WITHOUT INTELLIGENT KEY : Diagnosis Procedure

INFOID:0000000012422840

#### 1. REPLACE BCM

When DTC U1010 is detected, replace BCM.

>> Replace BCM. Refer to [BCS-137. "Removal and Installation"](#).

PCS

# B261A PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## B261A PUSH-BUTTON IGNITION SWITCH

### DTC Logic

INFOID:0000000012422841

### 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: <ul style="list-style-type: none"><li>• Power supply position by push-button ignition switch.</li><li>• Power supply position from IPDM E/R (CAN).</li></ul>	<ul style="list-style-type: none"><li>• Harness or connectors</li><li>• Push-button ignition switch</li><li>• BCM</li></ul>

### 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-80, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:0000000012422842

Regarding Wiring Diagram information, refer to [PCS-64, "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 M17 and ground.

Push-button ignition switch		Ground	Voltage (Approx.)
Connector	Terminal		
M17	5	—	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 E120 and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E120	32	—	Battery voltage

#### Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Replace IPDM E/R. Refer to [PCS-44, "Removal and Installation"](#).

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

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector E120 and BCM connector M19.
3. Check continuity between IPDM E/R connector E120 and push-button ignition switch connector M17.



## B261A PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

IPDM E/R		Push-button ignition switch		Continuity
Connector	Terminal	Connector	Terminal	
E120	32	M17	5	Yes

4. Check continuity between IPDM E/R connector E120 and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E120	32	—	No

Is the inspection result normal?

YES >> Refer to [GI-45, "Intermittent Incident"](#).

NO >> Repair or replace harness or connectors.

### 4. CHECK IGNITION SWITCH OUTPUT SIGNAL (BCM)

Check voltage between BCM connector M19 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M19	89	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace BCM. Refer to [PCS-91, "Removal and Installation"](#).

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

1. Turn ignition switch OFF.
2. Disconnect BCM connector M19 and IPDM E/R connector E120.
3. Check continuity between BCM connector M19 and push-button ignition switch connector M17.

BCM		Push-button ignition switch		Continuity
Connector	Terminal	Connector	Terminal	
M19	89	M17	5	Yes

4. Check continuity between BCM connector M19 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M19	89	—	No

Is the inspection result normal?

YES >> Refer to [GI-45, "Intermittent Incident"](#).

NO >> Repair or replace harness or connectors.

## B26F1 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

### B26F1 IGNITION RELAY

#### DTC Logic

INFOID:0000000012422843

#### 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.	<ul style="list-style-type: none"><li>• Harness or connectors.</li><li>• BCM.</li><li>• IPDM E/R.</li></ul>

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON.
2. Perform "Self Diagnostic Result" of "BCM" using CONSULT.

Is DTC B26F1detected?

- YES >> Go to [PCS-82, "Diagnosis Procedure"](#).  
NO >> Inspection End.

#### Diagnosis Procedure

INFOID:0000000012422844

Regarding Wiring Diagram information, refer to [PCS-64, "Wiring Diagram"](#).

##### 1. CHECK SELF DIAGNOSTIC RESULT FOR IPDM E/R

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

Are any DTCs detected?

- YES >> Refer to [PCS-26, "DTC Index"](#).  
NO >> GO TO 2.

##### 2.CHECK IGNITION RELAY-2 SIGNAL

Check voltage between BCM connector M18 terminal 27 and ground.

BCM		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M18	27	—	Ignition: ON	0 – 0.5 V

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> GO TO 3.

##### 3.CHECK IGNITION RELAY-2 SIGNAL CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Remove ignition relay-2.
3. Disconnect BCM connector M18.
4. Check continuity between BCM connector M18 and ignition relay-2 connector J-1.

BCM		Ignition relay-2		Continuity
Connector	Terminal	Connector	Terminal	
M18	27	J-1	1	Yes

## B26F1 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

5. Check continuity between BCM connector M18 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M18	27	—	No

Is the inspection result normal?

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

### 4. CHECK IGNITION RELAY-2

Check ignition relay-2. Refer to Refer to [PCS-83, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Replace ignition relay-2.

### 5. REPLACE IPDM E/R

1. Replace IPDM E/R. Refer to [PCS-44, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Perform "Self Diagnostic Result" of "IPDM E/R" using CONSULT.

Is DTC B26F1 detected?

- YES >> Replace BCM. Refer to [PCS-91, "Removal and Installation"](#).  
NO >> Inspection End.

## Component Inspection

INFOID:0000000012422845

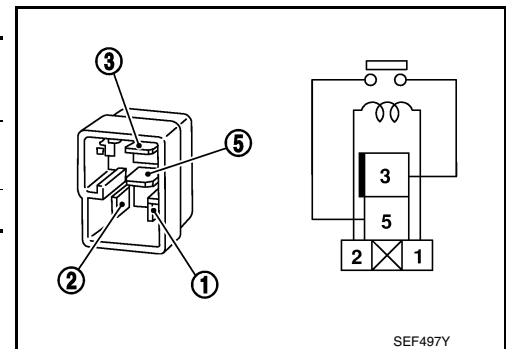
### 1. CHECK IGNITION RELAY

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

Terminal		Condition	Continuity
Ignition relay			
3	5	12 V direct current supply between terminals 1 and 2.	Yes
		No current supply	No

Is the inspection result normal?

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



## B26F2 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

### B26F2 IGNITION RELAY

#### DTC Logic

INFOID:0000000012422846

#### 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.	<ul style="list-style-type: none"><li>• Harness or connectors.</li><li>• BCM.</li><li>• IPDM E/R.</li></ul>

#### DTC CONFIRMATION PROCEDURE

##### 1.PERFORM SELF DIAGNOSTIC RESULT

1. Turn ignition switch ON.
2. Perform "Self Diagnostic Result" of "BCM" using CONSULT.

Is DTC B26F2 detected?

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

#### Diagnosis Procedure

INFOID:0000000012422847

Regarding Wiring Diagram information, refer to [PCS-64, "Wiring Diagram"](#).

##### 1. CHECK SELF DIAGNOSTIC RESULT FOR IPDM E/R

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

Are any DTCs detected?

- YES >> Refer to [PCS-26, "DTC Index"](#).  
NO >> GO TO 2.

##### 2.CHECK IGNITION RELAY-2 SIGNAL

Check voltage between BCM connector M18 terminal 27 and ground.

BCM		Ground	Condition	Voltage (Approx.)
Connector	Terminal			
M18	27	—	Ignition: ON	0 – 0.5 V

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> GO TO 3.

##### 3.CHECK IGNITION RELAY-2 SIGNAL CIRCUIT CONTINUITY

1. Turn ignition switch OFF.
2. Remove ignition relay-2.
3. Disconnect BCM connector M18.
4. Check continuity between BCM connector M18 and ignition relay-2 connector J-1.

BCM		Ignition relay-2		Continuity
Connector	Terminal	Connector	Terminal	
M18	27	J-1	1	Yes

## B26F2 IGNITION RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

5. Check continuity between BCM connector M18 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M18	27	—	No

Is the inspection result normal?

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

### 4. CHECK IGNITION RELAY-2

Check ignition relay-2. Refer to Refer to [PCS-85, "Component Inspection"](#).

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Replace ignition relay-2.

### 5. REPLACE IPDM E/R

1. Replace IPDM E/R. Refer to [PCS-44, "Removal and Installation"](#).
2. Turn ignition switch ON.
3. Perform "Self Diagnostic Result" of "IPDM E/R" using CONSULT.

Is DTC B26F2 detected?

- YES >> Replace BCM. Refer to [PCS-91, "Removal and Installation"](#).  
NO >> Inspection End.

## Component Inspection

INFOID:0000000012422848

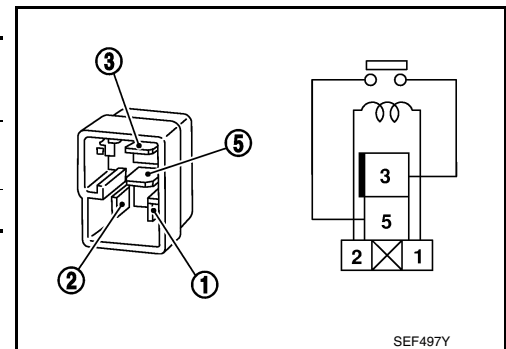
### 1. CHECK IGNITION RELAY

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

Terminal		Condition	Continuity
Ignition relay			
3	5	12 V direct current supply between terminals 1 and 2.	Yes
		No current supply	No

Is the inspection result normal?

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



# ACCESSORY RELAY

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## ACCESSORY RELAY

### Diagnosis Procedure

INFOID:0000000012422849

Regarding Wiring Diagram information, refer to [PCS-64, "Wiring Diagram"](#).

### 1. CHECK ACCESSORY RELAY-1 CONTROL SIGNAL VOLTAGE

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

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

Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 2.

### 2. CHECK ACCESSORY RELAY-1 CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector M18.
3. Check continuity between BCM connector M18 and accessory relay-1 connector J-3.

BCM		Accessory relay-1		Continuity
Connector	Terminal	Connector	Terminal	
M18	25	J-3	2	Yes

4. Check continuity between BCM connector M18 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M18	25		No

Is the inspection result normal?

YES >> Replace BCM. Refer to [PCS-91, "Removal and Installation"](#).

NO >> Repair or replace harness or connectors.

### 3. CHECK ACCESSORY RELAY-1 GROUND CIRCUIT

Check continuity between accessory relay-1 connector J-3 and ground.

Accessory relay-1		Ground	Continuity
Connector	Terminal		
J-3	1		Yes

Is the inspection result normal?

YES >> Replace accessory relay-1.

NO >> Repair or replace harness or connectors.

# PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## PUSH-BUTTON IGNITION SWITCH

### Component Function Check

INFOID:0000000012422850

#### 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-87, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:0000000012422851

Regarding Wiring Diagram information, refer to [PCS-64, "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 E120.
3. Check voltage between push-button ignition switch connector M17 and ground.

Push-button ignition switch		Ground	Voltage (Approx.)
Connector	Terminal		
M17	5	—	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 M19.
2. Check continuity between BCM connector M19 and push-button ignition switch connector M17.

BCM		Push-button ignition switch		Continuity
Connector	Terminal	Connector	Terminal	
M19	89	M17	5	Yes

3. Check continuity between BCM connector M19 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M19	89	—	No

Is the inspection result normal?

- YES >> Replace BCM. Refer to [PCS-91, "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 E120 and ground.

# PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E120	32	—	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 M19.
2. Check continuity between IPDM E/R connector E120 and push-button ignition switch connector M17.

IPDM E/R		Push-button ignition switch		Continuity
Connector	Terminal	Connector	Terminal	
E120	32	M17	5	Yes

3. Check continuity between IPDM E/R connector E120 and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E120	32	—	No

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-44, "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 M17 and ground.

Push-button ignition switch		Ground	Continuity
Connector	Terminal		
M17	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-88, "Component Inspection"](#).

Is the inspection result normal?

YES >> Refer to [GI-45, "Intermittent Incident"](#).

NO >> Replace push-button ignition switch. Refer to [PCS-92, "Removal and Installation"](#).

## Component Inspection

INFOID:0000000012422852

### 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 – 5	Pressed	Yes
	Not pressed	No

Is the inspection result normal?

YES >> Inspection End.



PUSH-BUTTON IGNITION SWITCH

< DTC/CIRCUIT DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

NO     >> Replace push-button ignition switch.

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

PCS

# PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

[POWER DISTRIBUTION SYSTEM]

## SYMPTOM DIAGNOSIS

### PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE

#### Description

INFOID:0000000012422853

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)

One or more of Intelligent Keys with registered Intelligent Key ID is in the vehicle.

#### Diagnosis Procedure

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#### 1.PERFORM WORK SUPPORT

Perform “INSIDE ANT DIAGNOSIS” in “Work support” of “INTELLIGENT KEY” with CONSULT. Refer to [BCS-22, “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-88, “Component Inspection”](#).

##### Is the inspection result normal?

YES >> Refer to [GI-45, “Intermittent Incident”](#).

NO >> Repair or replace malfunctioning parts.

REMOVAL AND INSTALLATION

BCM (BODY CONTROL MODULE)

Removal and Installation

INFOID:0000000012422855

For removal and installation of the BCM (Body Control Module), refer to [BCS-76. "Removal and Installation" \(WITH INTELLIGENT KEY SYSTEM\)](#) or [BCS-137. "Removal and Installation" \(WITHOUT INTELLIGENT KEY SYSTEM\)](#).

A  
B  
C  
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K  
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P

# PUSH-BUTTON IGNITION SWITCH

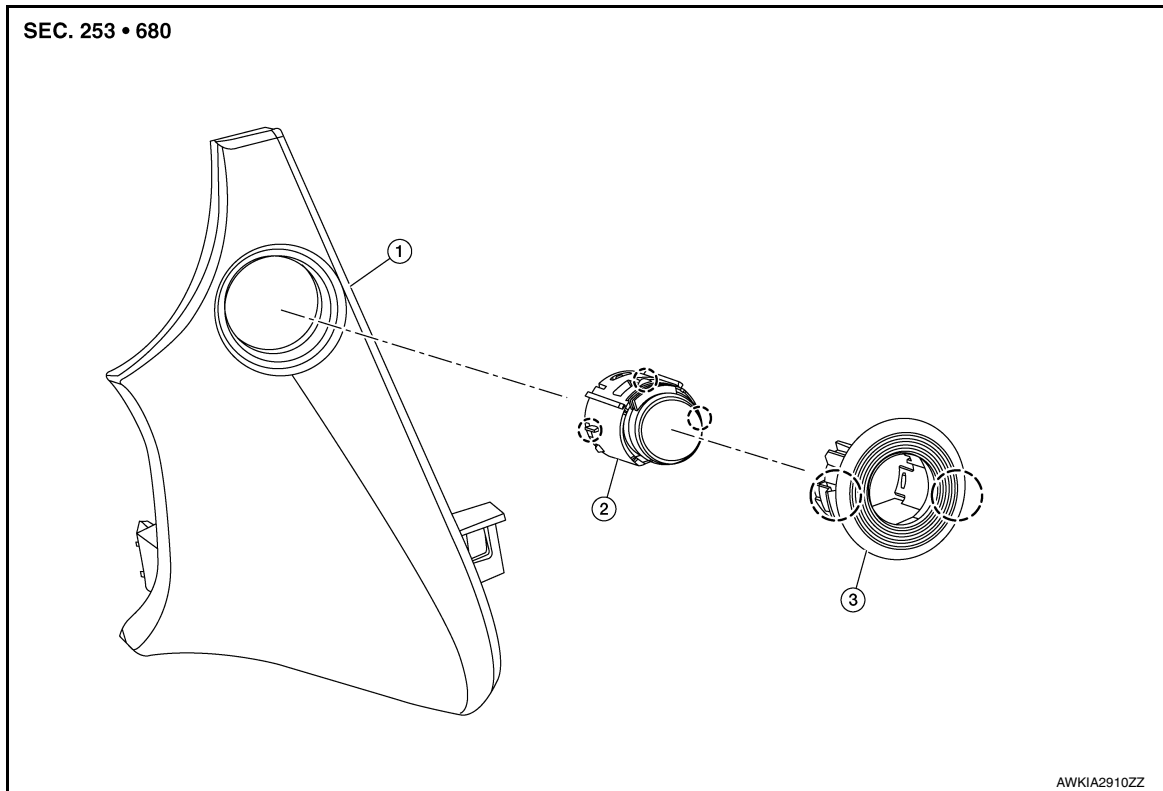
< REMOVAL AND INSTALLATION >

[POWER DISTRIBUTION SYSTEM]

## PUSH-BUTTON IGNITION SWITCH

Exploded View

INFOID:0000000012422856



1. Instrument finisher B

2. Push button ignition switch

3. NATS antenna amp.

○: Pawl

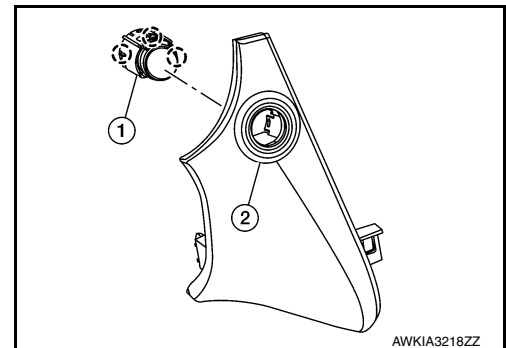
## Removal and Installation

INFOID:0000000012422857

### REMOVAL

1. Disconnect the negative battery terminal. Refer to [PG-80, "Removal and Installation \(Battery\)"](#).
2. Remove the instrument finisher B. Refer to [IP-16, "INSTRUMENT FINISHER B : Removal and Installation"](#).
3. Release pawls using suitable tool and remove push button ignition switch (1) from NATS antenna amp (2).

○: Pawl



### INSTALLATION

Installation is in the reverse order of removal.

#### NOTE:

Refer to Additional service when removing the battery negative terminal. Refer to [PG-74, "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement"](#).