SECTION PCS
POWER CONTROL SYSTEM

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PRECAUTION

PRECAUTIONS

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

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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, it is recommended that all maintenance and repair be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper repair, 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 Air Bag Diagnosis Sensor Unit or other Air Bag 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 or batteries, and wait at least three minutes before performing any service.**

Precaution for Work

INFOID:0000000014622625

- 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.

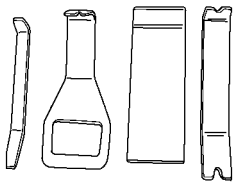
PREPARATION

PREPARATION

Special Service Tool

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

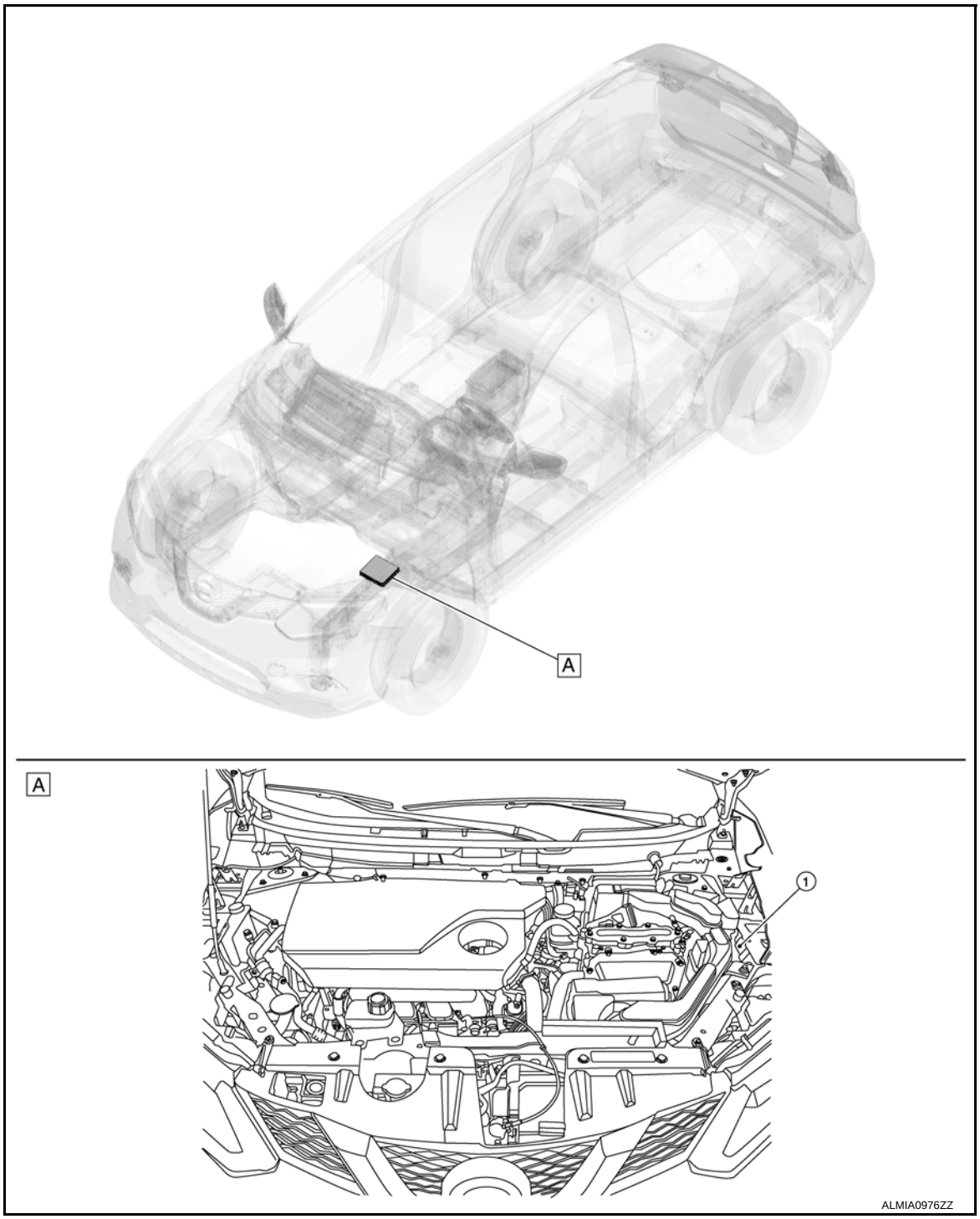
Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set  AWJIA0483ZZ	Removing trim components

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000014622627



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

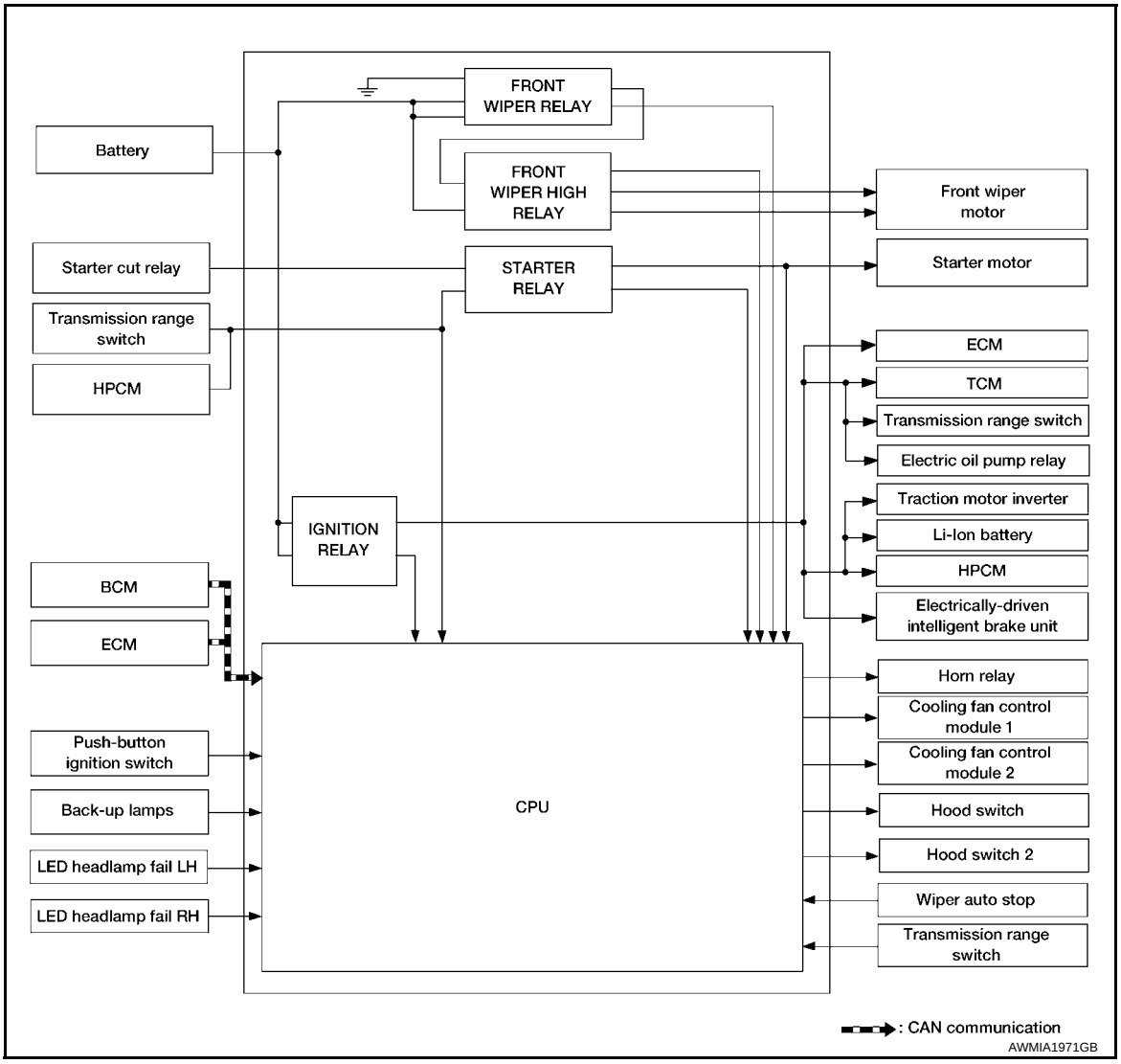
SYSTEM

RELAY CONTROL SYSTEM

RELAY CONTROL SYSTEM : System Description

INFOID:0000000014622628

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
• Front wiper relay • Front wiper high relay	Front wiper request signal	BCM (CAN)	Front wiper motor	WW-8
	Front wiper stop position signal	Front wiper motor		
Starter relay	Starter relay signal	BCM (CAN)	Starter motor	STR-8
	Transmission range switch signal	Transmission range switch		

Control relay	Input/output	Transmit unit	Control part	Reference page
Ignition relay-1	Ignition switch ON signal	BCM (CAN)	Each control unit, sensor, actuator and relay (Ignition power supply)	PCS-42
	Vehicle speed signal	Combination meter (CAN)		
	Push-button ignition switch signal	Push-button ignition switch		

RELAY CONTROL SYSTEM : Fail-safe

INFOID:0000000015244239

FAIL-SAFE CONTROL BY DTC

IPDM E/R performs fail-safe control when any DTC is detected.

DTC	CONSULT display description		Fail-safe
U1000	CAN COMM CIRCUIT		Refer to “CAN COMMUNICATION CONTROL”
B121A	FR FOG LAMP LH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the front fog lamp LH power supply circuit until the fault has been corrected.
B1231	DTRL RH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the daytime running light RH power supply circuit until the fault has been corrected.
B1256	FR FOG LAMP RH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the front fog lamp RH power supply circuit until the fault has been corrected.
B20CB	DTRL LH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the daytime running light LH power supply circuit until the fault has been corrected.
B20CE	HL (HI) LH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the headlamp (HI) LH power supply circuit until the fault has been corrected.
B20CF	HL (HI) RH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the headlamp (HI) RH power supply circuit until the fault has been corrected.
B20D0	HL (LO) LH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the headlamp (LO) LH power supply circuit until the fault has been corrected.
B20D1	HL (LO) RH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the headlamp (LO) RH power supply circuit until the fault has been corrected.
B20D2	PARKING LAMP PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the parking lamp (LH/RH) power supply circuits until the fault has been corrected.
B20D4	TAIL LAMP LH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the tail lamp LH power supply circuit until the fault has been corrected.
B20D5	TAIL LAMP RH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the tail lamp RH power supply circuit until the fault has been corrected.

CAN COMMUNICATION CONTROL

When CAN communication with ECM and BCM is impossible, IPDM E/R performs fail-safe control.

If No CAN Communication Is Available With ECM

Control part	Fail-safe operation
Cooling fan	The cooling fan is operated at HI operation when the ignition switch is turned ON.

If No CAN Communication Is Available With BCM

Control part	Fail-safe operation
Headlamp	Turns ON the headlamp (LO) when the ignition switch is turned ON.
• Parking lamp • License plate lamp • Illumination • Tail lamp	Turns ON the tail lamp, parking lamp, license plate lamp and each illumination when the ignition switch is turned ON.
Front wiper	• The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed. • The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode.
Daytime running light	Daytime running light: OFF.
Front fog lamp	Front fog lamp: OFF.
Ignition relay	The status just before activation of fail-safe is maintained.
Starter motor	Starter relay: OFF

IGNITION RELAY CONTROL

- IPDM E/R monitors the voltage at the contact circuit of ignition relay-1.
- IPDM E/R judges the ignition relay-1 error if the voltage differs between the contact circuit and control condition.

Voltage judgment		IPDM E/R judgment	Operation
Ignition relay contact side	Ignition relay control condition		
ON	ON	Ignition relay ON normal	—
OFF	OFF	Ignition relay OFF normal	—
ON	OFF	Ignition relay ON stuck	Detects DTC [B20DD: IGN RELAY ON CIRC]
OFF	ON	Ignition relay OFF stuck	Detects DTC [B20DF: IGN RELAY OFF CIRC]

FRONT WIPER CONTROL

IPDM E/R detects front wiper stop position from the front wiper stop position signal.
When front wiper stop position signal is in the condition listed below, IPDM E/R activates fail-safe.

Ignition switch	Front wiper switch	Front wiper stop position signal	Fail-safe
ON	OFF	The signal does not change from battery voltage for 10 seconds.	Stops front wiper power supply for 20 seconds
	Except OFF	The signal does not change for 10 seconds.	

SMART FIELD-EFFECT TRANSISTOR (FET)

SMART FIELD-EFFECT TRANSISTOR (FET) : System Description

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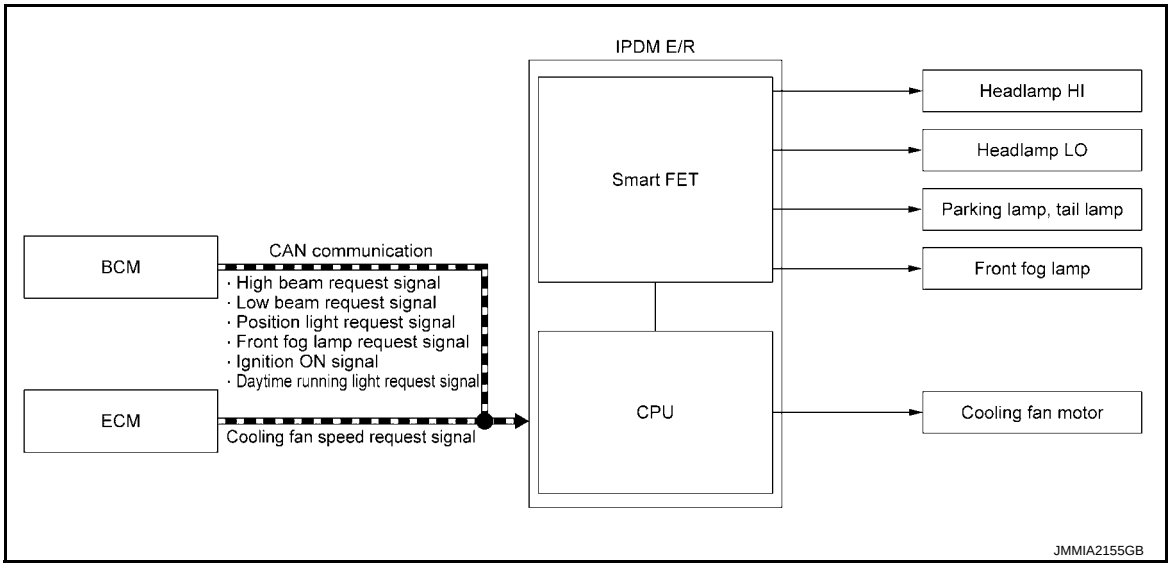
A smart Field-Effect Transistor (FET) is a transistor used to monitor and control current flow on module outputs. The IPDM E/R uses a smart FET protection strategy to prevent module damage in the event of excessive current flow. The smart FET protection strategy monitors its outputs for excessive current,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

POWER CONTROL SYSTEM

POWER CONTROL SYSTEM : System Description

INFOID:0000000015244236

SYSTEM DIAGRAM



EACH LAMP CONTROL

IPDM E/R controls the smart FET to control each lamp according to the control signal status of each lamp received via CAN communication. Refer to EXL-12, "HEADLAMP SYSTEM : System Description" (Halogen headlamp) or EXL-139, "HEADLAMP SYSTEM : System Description" (LED headlamp).

COOLING FAN CONTROL

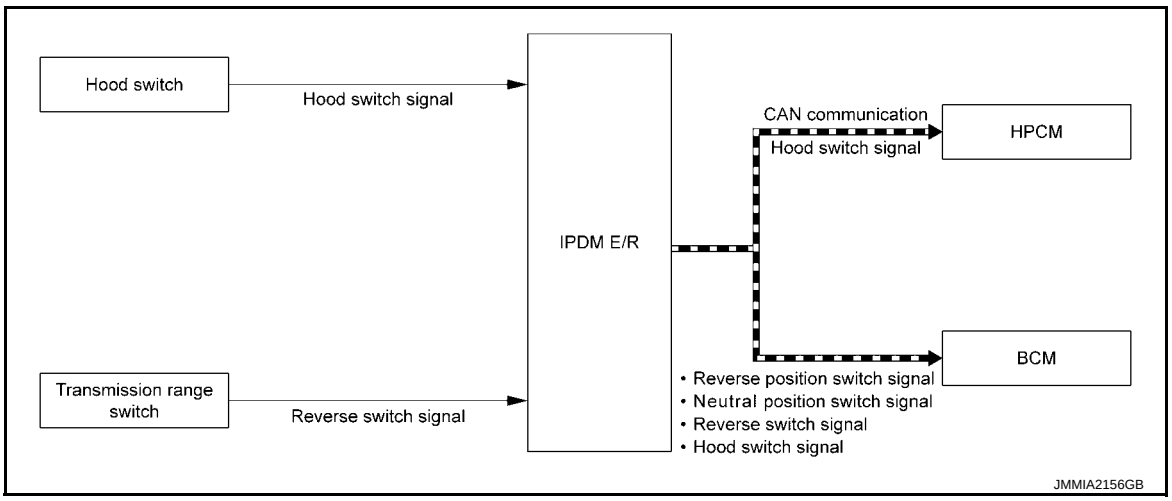
IPDM E/R controls the cooling fan according to the cooling fan speed request signal received from ECM via CAN communication. Refer to EC-53, "COOLING FAN CONTROL : System Description".

SIGNAL BUFFER SYSTEM

SIGNAL BUFFER SYSTEM : System Description

INFOID:0000000015244237

SYSTEM DIAGRAM



NOTE:
Neutral position switch signal is not applicable.

DESCRIPTION

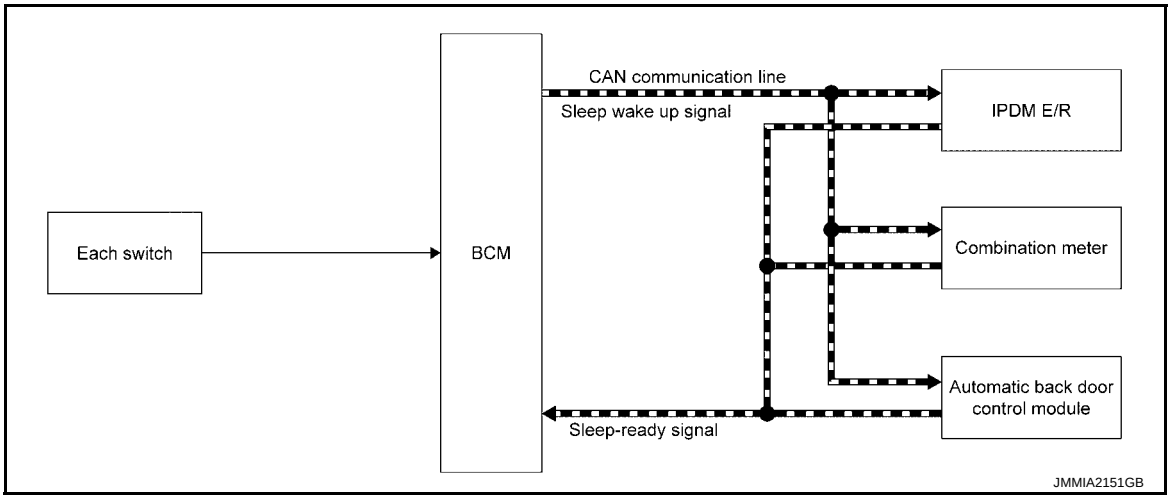
- IPDM E/R reads the status of the hood switch and transmits the hood switch signal to HPCM and BCM via CAN communication.
- IPDM E/R receives the reverse switch signal from transmission range switch and transmits the reverse switch signal to BCM via CAN communication.

POWER CONSUMPTION CONTROL SYSTEM

POWER CONSUMPTION CONTROL SYSTEM : System Description

INFOID:0000000015244238

SYSTEM DIAGRAM



DESCRIPTION

Outline

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

Normal mode (wake-up)

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

Low power consumption mode (sleep)

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

Sleep Mode Activation

- IPDM E/R judges that the sleep-ready conditions are fulfilled when the ignition switch is OFF and none of the conditions below are present. Then it transmits a sleep-ready signal (ready) to BCM via CAN communication.
  - Outputting signals to actuators
  - 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
  - Hood switch status changes.
  - An output request is received from a control unit via CAN communication.

DIAGNOSIS SYSTEM (IPDM E/R)

CONSULT Function (IPDM E/R)

INFOID:0000000014622632

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.
Configuration	• The vehicle specification can be read and saved. • The vehicle specification can be written when replacing IPDM E/R.
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-28, "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.
LED H/L RH STATUS [Open/Close]	Indicates condition of LED headlamp RH ON/OFF status judged by IPDM E/R.
LED H/L LH STATUS [Open/Close]	Indicates condition of LED headlamp LH ON/OFF status judged by IPDM E/R.
HOOD SW [Open/Close]	Indicates condition of hood switch.
HORN RELAY [OFF/ ON]	Indicates condition of horn relay.
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.
STARTER RELAY [OFF/ON]	Indicates condition of starter relay.
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.

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.
FRONT FOG LAMP [Off/On]	Indicates condition of front fog lamps.
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.
DTRL REQ [Off/On]	Indicates condition of daytime running light request.
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.
TURN SIGNAL REQ [Off/LH/RH]	Indicates condition of turn signal request.
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.
LOW BEAM REQ [Off/On]	Indicates condition of headlamp low beam request.
POSITION LIGHT REQ [Off/On]	Indicates condition of parking lamp request.
IGNITION SW [Off/On]	Indicates condition of ignition switch.
VEHICLE SPEED (METER) [mph/km/h]	Indicates vehicle speed.
STARTER OPERATION COUNT [Numerical]	Displays number of times starter motor is energized.
H/P F/PUMP OPERATN COUNT [Numerical]	Displays number of times high pressure fuel pump is energized.
P LAMP CIRC MALFUNCTN [0 – 1]	Monitors number of times smart FET reaches retry upper limit for the parking lamp circuit. **NOTE:** When number of retry counts is 20, count is 1.

Monitor Item [Unit]	Description
NMB P LAMP CIRC RETRY [0 – 20]	Monitors number of times smart FET permits retry of parking lamp circuit. **NOTE:** When number of short circuit counts is 5 and the ignition switch OFF to ON operation is detected, count is 1.
NMB P LAMP CIRC SHORT [0 – 5]	Monitors number of times smart FET detects over current of parking lamp circuit.
DTRL LH CIRC MALFUNCTN [0 – 1]	Monitors number of times smart FET reaches retry upper limit for daytime running light (left) circuit. **NOTE:** When number of retry counts is 20, count is 1.
NMB DTRL LH CIRC RETRY [0 – 20]	Monitors number of times smart FET permits retry of daytime running light (left) circuit. **NOTE:** When number of short circuit counts is 5 and the ignition switch OFF to ON operation is detected, count is 1.
NMB DTRL LH CIRC SHORT [0 – 5]	Monitors number of times smart FET detects over current of daytime running light (left) circuit.
DTRL RH CIRC MALFUNCTN [0 – 1]	Monitors number of times smart FET reaches retry upper limit for daytime running light (right) circuit. **NOTE:** When number of retry counts is 20, count is 1.
NMB DTRL RH CIRC RETRY [0 – 20]	Monitors number of times smart FET permits retry of daytime running light (right) circuit. **NOTE:** When number of short circuit counts is 5 and the ignition switch OFF to ON operation is detected, count is 1.
NMB DTRL RH CIRC SHORT [0 – 5]	Monitors number of times smart FET detects over current of daytime running light (right) circuit.
F FOG LH CIRC MALFUNCTN [0 – 1]	Monitors number of times smart FET reaches retry upper limit for front fog lamp (left) circuit. **NOTE:** When number of retry counts is 20, count is 1.
NMB F FOG LH CIRC RETRY [0 – 20]	Monitors number of times smart FET permits retry of front fog lamp (left) circuit. **NOTE:** When number of short circuit counts is 5 and the ignition switch OFF to ON operation is detected, count is 1.
NMB F FOG LH CIRC SHORT [0 – 5]	Monitors number of times smart FET detects over current of front fog lamp (left) circuit.
F FOG RH CIRC MALFUNCTN [0 – 1]	Monitors number of times smart FET reaches retry upper limit for front fog lamp (right) circuit. **NOTE:** When number of retry counts is 20, count is 1.
NMB F FOG RH CIRC RETRY [0 – 20]	Monitors number of times smart FET permits retry of front fog lamp (right) circuit. **NOTE:** When number of short circuit counts is 5 and the ignition switch OFF to ON operation is detected, count is 1.
NMB F FOG RH CIRC SHORT [0 – 5]	Monitors number of times smart FET detects over current of front fog lamp (right) circuit.
HL (HI) LH CIRC MALFUNCTN [0 – 1]	Monitors number of times smart FET reaches retry upper limit for headlamp (HI) (left) circuit. **NOTE:** When number of retry counts is 20, count is 1.

Monitor Item [Unit]	Description
NMB HL (HI) LH CIRC RETRY [0 – 20]	Monitors number of times smart FET permits retry of headlamp (HI) (left) circuit. **NOTE:** When number of short circuit counts is 5 and the ignition switch OFF to ON operation is detected, count is 1.
NMB HL (HI) LH CIRC SHORT [0 – 5]	Monitors number of times smart FET detects over current of headlamp (HI) (left) circuit.
HL (HI) RH CIRC MALFUNCTN [0 – 1]	Monitors number of times smart FET reaches retry upper limit for headlamp (HI) (right) circuit. **NOTE:** When number of retry counts is 20, count is 1.
NMB HL (HI) RH CIRC RETRY [0 – 20]	Monitors number of times smart FET permits retry of headlamp (HI) (right) circuit. **NOTE:** When number of short circuit counts is 5 and the ignition switch OFF to ON operation is detected, count is 1.
NMB HL (HI) RH CIRC SHORT [0 – 5]	Monitors number of times smart FET detects over current of headlamp (HI) (right) circuit.
HL (LO) LH CIRC MALFUNCTN [0 – 1]	Monitors number of times smart FET reaches retry upper limit for headlamp (LO) (left) circuit. **NOTE:** When number of retry counts is 20, count is 1.
NMB HL (LO) LH CIRC RETRY [0 – 20]	Monitors number of times smart FET permits retry of headlamp (LO) (left) circuit. **NOTE:** When number of short circuit counts is 5 and the ignition switch OFF to ON operation is detected, count is 1.
NMB HL (LO) LH CIRC SHORT [0 – 5]	Monitors number of times smart FET detects over current of headlamp (LO) (left) circuit.
HL (LO) RH CIRC MALFUNCTN [0 – 1]	Monitors number of times smart FET reaches retry upper limit for headlamp (LO) (right) circuit. **NOTE:** When number of retry counts is 20, count is 1.
NMB HL (LO) RH CIRC RETRY [0 – 20]	Monitors number of times smart FET permits retry of headlamp (LO) (right) circuit. **NOTE:** When number of short circuit counts is 5 and the ignition switch OFF to ON operation is detected, count is 1.
NMB HL (LO) RH CIRC SHORT [0 – 5]	Monitors number of times smart FET detects over current of headlamp (LO) (right) circuit.
T LAMP LH CIRC MALFUNCTN [0 – 1]	Monitors number of times smart FET reaches retry upper limit for tail lamp (left) circuit. **NOTE:** When number of retry counts is 20, count is 1.
NMB T LAMP LH CIRC RETRY [0 – 20]	Monitors number of times smart FET permits retry of tail lamp (left) circuit. **NOTE:** When number of short circuit counts is 5 and the ignition switch OFF to ON operation is detected, count is 1.
NMB T LAMP LH CIRC SHORT [0 – 5]	Monitors number of times smart FET detects over current of tail lamp (left) circuit.
T LAMP RH CIRC MALFUNCTN [0 – 1]	Monitors number of times smart FET reaches retry upper limit for tail lamp (right) circuit. **NOTE:** When number of retry counts is 20, count is 1.

Monitor Item [Unit]	Description
NMB T LAMP RH CIRC RETRY [0 – 20]	Monitors number of times smart FET permits retry of tail lamp (right) circuit. **NOTE:** When number of short circuit counts is 5 and the ignition switch OFF to ON operation is detected, count is 1.
NMB T LAMP RH CIRC SHORT [0 – 5]	Monitors number of times smart FET detects over current of tail lamp (right) circuit.

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].
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/On].
HEADLAMP (LO)	This test is able to check headlamp low beam operation [Off/On].
FRONT FOG LAMP	This test is able to check front fog lamp operation [Off/On].
DAYTIME RUNNING LAMP	This test is able to check daytime running lamp operation [Off/On].
PARKING LAMP	This test is able to check parking lamp operation [Off/On].
TAIL LAMP	This test is able to check tail lamp operation [Off/On].

CONFIGURATION

Refer to PCS-36, "Description".

CAN DIAG SUPPORT MNTR

Refer to LAN-23, "CAN Diagnostic Support Monitor".

ECU DIAGNOSIS INFORMATION

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

Reference Value

INFOID:0000000014622633

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
LED H/L RH STATUS	Lighting switch OFF	Close
	Lighting switch 2ND or AUTO (light is illuminated)	Open
LED H/L LH STATUS	Lighting switch OFF	Close
	Lighting switch 2ND or AUTO (light is illuminated)	Open
HOOD SW	Hood open.	Open
	Hood closed.	Close
HORN RELAY	Horn switch released.	OFF
	Horn switch pressed.	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
STARTER RELAY	Starter relay not energized.	OFF
	Starter relay energized.	ON
FR FOG LAMP LH	Front fog lamp switch OFF.	0%
	Front fog lamp switch ON.	100%

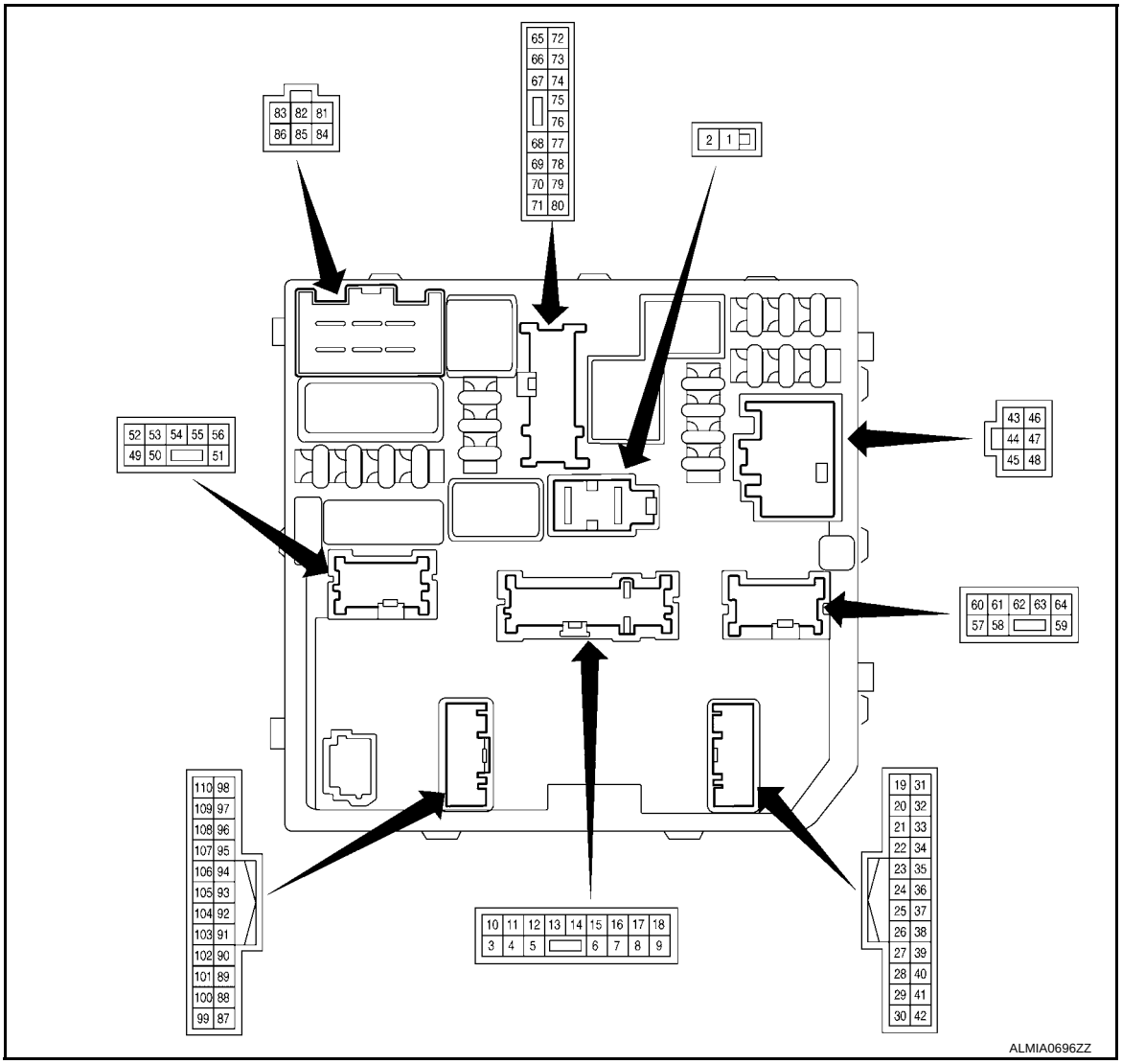
Monitor Item	Condition	Value/Status
FR FOG LAMP RH	Front fog lamp switch OFF.	0%
	Front fog lamp switch ON.	100%
PARKING LAMP	Parking lamp switch OFF.	0%
	Parking lamp switch ON.	100%
TAIL LAMP LH	Parking lamp switch OFF.	0%
	Parking lamp switch ON.	100%
TAIL LAMP RH	Parking lamp switch OFF.	0%
	Parking 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%
FRONT FOG LAMP	Front fog lamp switch OFF.	Off
	Front fog lamp switch ON.	On
BATTERY VOLTAGE	Battery voltage.	Voltage (V)
COOLING FAN DUTY	Cooling fans PWM signal.	0–100%
HOOD SW (CAN)	Hood open.	OPEN
	Hood closed.	CLOSE
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

Monitor Item	Condition	Value/Status
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
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
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

Monitor Item	Condition	Value/Status
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
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
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.
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
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

Monitor Item	Condition	Value/Status
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

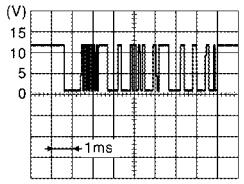
TERMINAL LAYOUT



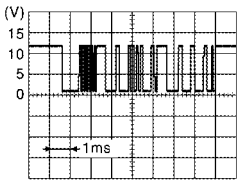
PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	–	Signal name	Input/ Output		
1 (R)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage
2 (W)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage
4 (Y)	Ground	Tail lamp LH	Output	Lighting switch OFF	0 – 1 V
				Lighting switch 1ST, 2ND or AUTO (light is illuminated)	Battery voltage

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
8 (BR)	Ground	ECM relay	Output	Ignition switch OFF (More than a few seconds after turning ignition switch OFF)		0 – 1 V
				• Ignition switch ON • Ignition switch OFF (For a few seconds after turning ignition switch OFF)		Battery voltage
9 (L)	Ground	Horn relay (control)	Output	Horn is deactivated		Battery voltage
				Horn is activated		0 – 1 V
11 (V)	Ground	Ignition power supply	Output	Ignition switch OFF		0 – 1 V
				Ignition switch ON		Battery voltage
12 (B)	Ground	Ground	—	Ignition switch ON		0 – 1 V
16 (G)	Ground	Back up lamp	Output	Ignition switch ON	Selector lever in R	Battery voltage
					Selector lever in any position other than R	0 – 1 V
17 (W)	Ground	Tail lamp RH	Output	Lighting switch OFF		0 – 1 V
				Lighting switch 1ST, 2ND or AUTO (light is illuminated)		Battery voltage
19 (LG)	Ground	Ignition power supply	Output	Ignition switch OFF		0 – 1 V
				Ignition switch ON		Battery voltage
22 (P)	Ground	CAN low	Input/ Output	—		—
24 (L)	Ground	CAN high	Input/ Output	—		—
27 (SB)	Ground	P/N signal	—	Ignition switch ON	Selector lever: P or N	More than 9.0 V
					Selector lever: Except above	Less than 1.0 V
28 (R)	Ground	High voltage coolant temperature sensor	—	Ignition switch ON		0 - 4.8 V Output voltage varies with high voltage coolant temperature.
29 (LG)	Ground	Sensor ground (High voltage coolant temperature sensor)	—	—		—
30 (Y)	Ground	IGN signal	—	Ignition switch OFF		Less than 1.0 V
				Ignition switch ON		More than 9.0 V
31 (B)	Ground	Ground	—	Ignition switch ON		0 – 1 V
32 (GR)	Ground	Push-button ignition switch	Input	Press the push-button ignition switch		0 – 1 V
				Release the push-button ignition switch		Battery voltage
33 (BR)	Ground	Front wiper stop position	Input	Ignition switch ON	Front wiper stop position	0 – 1 V
					Other than above	Battery voltage
39 (L)	—	CAN high (HEV)	Input/ Output	—		—
40 (G)	—	CAN low (HEV)	Input/ Output	—		—
41 (W)	Ground	Electric compressor power supply	Input	Vehicle to the READY state		Battery voltage

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
42 (R)	Ground	LIN (electric compressor)	Input/ Output	• Vehicle to the READY state • Electric compressor operate		 JSIIA1667ZZ
44 (R)	Ground	Ignition power supply	Output	Ignition switch OFF		0 – 1 V
				Ignition switch ON		Battery voltage
45 (V)	Ground	Front wiper HI	Output	Ignition switch ON	Front wiper switch OFF	0 – 1 V
					Front wiper switch HI	Battery voltage
46 (W)	Ground	Fuel pump relay	Output	• Ignition switch OFF • More than a few seconds after turning ignition switch ON		0 – 1 V
				• For a few seconds after turning ignition switch ON • Engine running		Battery voltage
47 (B)	Ground	Ground	—	Ignition switch ON		0 – 1 V
48 (Y)	Ground	Front wiper LO	Output	Ignition switch ON	Front wiper switch OFF	0 – 1 V
					Front wiper switch LO	Battery voltage
49 (R)	Ground	Daytime running light LH	Output	Engine running	Lighting switch 1ST	0 – 1 V
					Lighting switch OFF	Battery voltage
50 (L)	Ground	Headlamp (LO) LH	Output	Lighting switch OFF		0 – 1 V
				Lighting switch 2ND		Battery voltage
51 (V)	Ground	Front fog lamp LH	Output	Lighting switch 1ST, 2ND or AUTO	Front fog lamp switch OFF	0 – 1 V
					Front fog lamp switch ON	Battery voltage
52 (R)	Ground	Hood switch	Input	Close the hood		Battery voltage
				Open the hood		0 – 1 V
53 (GR)	Ground	LED headlamp warning LH	Output	Lighting switch OFF		Battery voltage
				Lighting switch 2ND		0 – 1 V
54 (LG)	Ground	Headlamp (HI) RH	Output	Lighting switch 2ND or AUTO (light is illuminated)	Lighting switch OFF	0 – 1 V
					• Lighting switch HI • Lighting switch PASS	Battery voltage
56 (BG)	Ground	Parking lamp LH	Output	Lighting switch OFF		0 – 1 V
				Lighting switch 1ST or 2ND		Battery voltage
57 (W)	Ground	Front fog lamp RH	Output	Lighting switch 1ST, 2ND or AUTO	Front fog lamp switch OFF	0 – 1 V
					Front fog lamp switch ON	Battery voltage
58 (R)	Ground	Daytime running light RH	Output	Engine running	Lighting switch 1ST	0 – 1 V
					Lighting switch OFF	Battery voltage

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
59 (G)	Ground	Headlamp (HI) LH	Output	Lighting switch 2ND or AUTO (light is illuminated)	Lighting switch OFF	0 – 1 V
					• Lighting switch HI • Lighting switch PASS	Battery voltage
60 (Y)	Ground	LED headlamp warning RH	Output	Lighting switch OFF		Battery voltage
				Lighting switch 2ND		0 – 1 V
61 (GR)	Ground	Parking lamp RH	Output	Lighting switch OFF		0 – 1 V
				Lighting switch 1ST or 2ND		Battery voltage
62 (SB)	Ground	Headlamp (LO) RH	Output	Lighting switch OFF		0 – 1 V
				Lighting switch 2ND		Battery voltage
66 (W)	Ground	ECM relay	Output	Ignition switch OFF		0 – 1 V
				• Ignition switch ON • Ignition switch OFF (For a few seconds after turning ignition switch OFF)		Battery voltage
67 (V)	Ground	Throttle control motor relay control	Output	Ignition switch ON		0 – 1 V
				• When ignition switch is turned from OFF to ON • For a few seconds after turning ignition switch OFF		Battery voltage
70 (R)	Ground	Ignition power supply	Output	Ignition switch OFF		0 – 1 V
				Ignition switch ON		Battery voltage
71 (Y)	Ground	Ignition power supply	Output	Ignition switch OFF		0 – 1 V
				Ignition switch ON		Battery voltage
72 (LG)	Ground	Throttle control motor relay	Output	Ignition switch OFF		0 – 1 V
				• Ignition switch ON • Ignition switch OFF (For a few seconds after turning ignition switch OFF)		Battery voltage
73 (G)	Ground	ECM relay	Output	Ignition switch OFF		0 – 1 V
				• Ignition switch ON • Ignition switch OFF (For a few seconds after turning ignition switch OFF)		Battery voltage
75 (R)	Ground	ECM relay	Output	Ignition switch OFF		0 – 1 V
				• Ignition switch ON • Ignition switch OFF (For a few seconds after turning ignition switch OFF)		Battery voltage
76 (P)	Ground	Fuel pump relay control	Output	• Ignition switch OFF • Approximately 1 second after turning the ignition switch ON		0 – 1 V
				Approximately 1 second or more turning the ignition switch ON		Battery voltage

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
78 (BR)	Ground	ECM relay	Output	Ignition switch OFF		0 – 1 V
				• Ignition switch ON • Ignition switch OFF (For a few seconds after turning ignition switch OFF)		Battery voltage
79 (G)	Ground	Reverse switch	Input	Ignition switch ON	Select lever in R	Battery voltage
					Select lever in any position other than R	0 – 1 V
81 (V)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
83 (G)	Ground	Starter motor	Output	Other than at engine cranking		0 – 1 V
				At engine cranking		Battery voltage
84	LG	Cooling fan relay-1 power supply	Input	—	—	Battery voltage
86 (GR)	Ground	Starter relay power supply	Input	Other than at engine cranking		0 – 1 V
				At engine cranking		Battery voltage
87 (L)	—	CAN - H (TCM)	Input/ Output	—		—
88 (G)	—	CAN - L (TCM)	Input/ Output	—		—
89 (W)	Ground	Electric compressor power supply	Output	Vehicle to the READY state		Battery voltage
90 (R)	Ground	LIN (electric compressor)	Input/ Output	• Vehicle to the READY state • Electric compressor operate		 JSIIA1667ZZ
92 (BG)	Ground	Transmission range switch	Input	Ignition switch ON	Selector lever in P or N	Battery voltage
					Selector lever in any position other than P or N	0 – 1 V
93 (P)	Ground	ECM relay control	Output	Ignition switch OFF (More than a few seconds after turning ignition switch OFF)		Battery voltage
				• Ignition switch ON • Ignition switch OFF (For a few seconds after turning ignition switch OFF)		0 – 1 V
99 (BG)	Ground	P/N signal	—	Ignition switch ON	Selector lever: P or N	More than 9.0 V
					Selector lever: Except above	Less than 1.0 V
100 (GR)	Ground	High voltage coolant temperature sensor	—	Ignition switch ON		0 - 4.8 V Output voltage varies with high voltage coolant temperature.
101 (LG)	Ground	Sensor ground (High voltage coolant temperature sensor)	—	—		—

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
		Signal name	Input/ Output		
+	–				
102 (Y)	Ground	IGN signal	—	Ignition switch OFF	Less than 1.0 V
				Ignition switch ON	More than 9.0 V
103 (W)	Ground	Hood switch	Input	Close the hood	0 – 1 V
				Open the hood	Battery voltage
106 (BR)	Ground	Cooling fan motor	Output	Ignition switch OFF	0 – 1 V
				Ignition switch ON	1.3 V

Fail-safe

INFOID:0000000015244234

FAIL-SAFE CONTROL BY DTC

IPDM E/R performs fail-safe control when any DTC is detected.

DTC	CONSULT display description		Fail-safe
U1000	CAN COMM CIRCUIT		Refer to “CAN COMMUNICATION CONTROL”
B121A	FR FOG LAMP LH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the front fog lamp LH power supply circuit until the fault has been corrected.
B1231	DTRL RH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the daytime running light RH power supply circuit until the fault has been corrected.
B1256	FR FOG LAMP RH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the front fog lamp RH power supply circuit until the fault has been corrected.
B20CB	DTRL LH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the daytime running light LH power supply circuit until the fault has been corrected.
B20CE	HL (HI) LH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the headlamp (HI) LH power supply circuit until the fault has been corrected.
B20CF	HL (HI) RH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the headlamp (HI) RH power supply circuit until the fault has been corrected.
B20D0	HL (LO) LH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the headlamp (LO) LH power supply circuit until the fault has been corrected.
B20D1	HL (LO) RH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the headlamp (LO) RH power supply circuit until the fault has been corrected.
B20D2	PARKING LAMP PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the parking lamp (LH/RH) power supply circuits until the fault has been corrected.
B20D4	TAIL LAMP LH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the tail lamp LH power supply circuit until the fault has been corrected.
B20D5	TAIL LAMP RH PWR SPLY CIRC	[CIRC SHORT TO GRND]	Shuts off the power supply to the tail lamp RH power supply circuit until the fault has been corrected.

CAN COMMUNICATION CONTROL

When CAN communication with ECM and BCM is impossible, IPDM E/R performs fail-safe control.

If No CAN Communication Is Available With ECM

Control part	Fail-safe operation
Cooling fan	The cooling fan is operated at HI operation when the ignition switch is turned ON.

If No CAN Communication Is Available With BCM

Control part	Fail-safe operation
Headlamp	Turns ON the headlamp (LO) when the ignition switch is turned ON.
• Parking lamp • License plate lamp • Illumination • Tail lamp	Turns ON the tail lamp, parking lamp, license plate lamp and each illumination when the ignition switch is turned ON.
Front wiper	• The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed. • The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode.
Daytime running light	Daytime running light: OFF.
Front fog lamp	Front fog lamp: OFF.
Ignition relay	The status just before activation of fail-safe is maintained.
Starter motor	Starter relay: OFF

IGNITION RELAY CONTROL

- IPDM E/R monitors the voltage at the contact circuit of ignition relay-1.
- IPDM E/R judges the ignition relay-1 error if the voltage differs between the contact circuit and control condition.

Voltage judgment		IPDM E/R judgment	Operation
Ignition relay contact side	Ignition relay control condition		
ON	ON	Ignition relay ON normal	—
OFF	OFF	Ignition relay OFF normal	—
ON	OFF	Ignition relay ON stuck	Detects DTC [B20DD: IGN RELAY ON CIRC]
OFF	ON	Ignition relay OFF stuck	Detects DTC [B20DF: IGN RELAY OFF CIRC]

FRONT WIPER CONTROL

IPDM E/R detects front wiper stop position from the front wiper stop position signal.
When front wiper stop position signal is in the condition listed below, IPDM E/R activates fail-safe.

Ignition switch	Front wiper switch	Front wiper stop position signal	Fail-safe
ON	OFF	The signal does not change from battery voltage for 10 seconds.	Stops front wiper power supply for 20 seconds
	Except OFF	The signal does not change for 10 seconds.	

DTC Inspection Priority Chart

INFOID:0000000015244235

Priority	DTC No.	CONSULT display	
1	U1000	CAN COMM CIRCUIT	
2	B120E	IPDM E/R	[SYSTEM INTERNAL FAILURES]
			[NOT CONFIURED]
3	B20DD	IGN RELAY ON CIRC	[CIRC SHORT TO BATTERY]
	B20DE	IGN RELAY OFF CIRC	[CIRC SHORT TO GROUND OR OPEN]
	B20DF	STARTER RELAY OFF CIRC	[CIRC SHORT TO GROUND OR OPEN]

Priority	DTC No.	CONSULT display	
4	B121A	FR FOG LAMP LH PWR SPLY CIRC	[CIRC SHORT TO GRND]
	B1231	DTRL RH PWR SPLY CIRC	[CIRC SHORT TO GRND]
	B1256	FR FOG LAMP RH PWR SPLY CIRC	[CIRC SHORT TO GRND]
	B20CB	DTRL LH PWR SPLY CIRC	[CIRC SHORT TO GRND]
	B20CE	HL (HI) LH PWR SPLY CIRC	[CIRC SHORT TO GRND]
	B20CF	HL (HI) RH PWR SPLY CIRC	[CIRC SHORT TO GRND]
	B20D0	HL (LO) LH PWR SPLY CIRC	[CIRC SHORT TO GRND]
	B20D1	HL (LO) RH PWR SPLY CIRC	[CIRC SHORT TO GRND]
	B20D2	PARKING LAMP PWR SPLY CIRC	[CIRC SHORT TO GRND]
	B20D4	TAIL LAMP LH PWR SPLY CIRC	[CIRC SHORT TO GRND]
	B20D5	TAIL LAMP RH PWR SPLY CIRC	[CIRC SHORT TO GRND]
5	B20E2	LED HEADLAMP RH	[CMPNENT INTERNAL MLFNCTN]
	B20E3	LED HEADLAMP LH	[CMPNENT INTERNAL MLFNCTN]

DTC Index

INFOID:0000000014622635

CONSULT display		Fail-safe	TIME[NOTE]		Refer to
No DTC is detected. Further testing may be required.		—	—	—	—
U1000	CAN COMM CIRCUIT	×	CRNT	1 – 39	PCS-38
B120E	IPDM E/R [SYSTEM INTERNAL FAILURE]	—	CRNT	1 – 39	PCS-40
	IPDM E/R [NOT CONFIGURED]				
B121A	FR FOG LAMP LH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-93 (halogen headlamp) EXL-222 (LED head-lamp)
B1231	DTRL RH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-94 (halogen headlamp) EXL-223 (LED head-lamp)
B1256	FR FOG LAMP RH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-95 (halogen headlamp) EXL-224 (LED head-lamp)
B20CB	DTRL LH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-96 (halogen headlamp) EXL-225 (LED head-lamp)
B20CE	HL (HI) LH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-97 (halogen headlamp) EXL-226 (LED head-lamp)

CONSULT display		Fail-safe	TIME[NOTE]		Refer to
B20CF	HL (HI) RH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-98 (halogen headlamp) EXL-227 (LED headlamp)
B20D0	HL (LO) LH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-99 (halogen headlamp) EXL-228 (LED headlamp)
B20D1	HL (LO) RH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-100 (halogen headlamp) EXL-229 (LED headlamp)
B20D2	PARKING LAMP PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-101 (halogen headlamp) EXL-230 (LED headlamp)
B20D4	TAIL LAMP LH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-103 (halogen headlamp) EXL-232 (LED headlamp)
B20D5	TAIL LAMP RH PWR SPLY CIRC [CIRC SHORT TO GRND]	—	CRNT	1 – 39	EXL-104 (halogen headlamp) EXL-233 (LED headlamp)
B20DD	IGN RELAY ON CIRC [CIRC SHORT TO BATTERY]	×	CRNT	1 – 39	PCS-42
B20DE	IGN RELAY OFF CIRC [CIRC SHORT TO GROUND OR OPEN]	—	CRNT	1 – 39	PCS-44
B20E2	LED HEADLAMP RH [CMPNENT INTERNAL MLFNCTN]	—	CRNT	1 – 39	EXL-234 (LED headlamp)
B20E3	LED HEADLAMP LH [CMPNENT INTERNAL MLFNCTN]	—	CRNT	1 – 39	EXL-235 (LED headlamp)

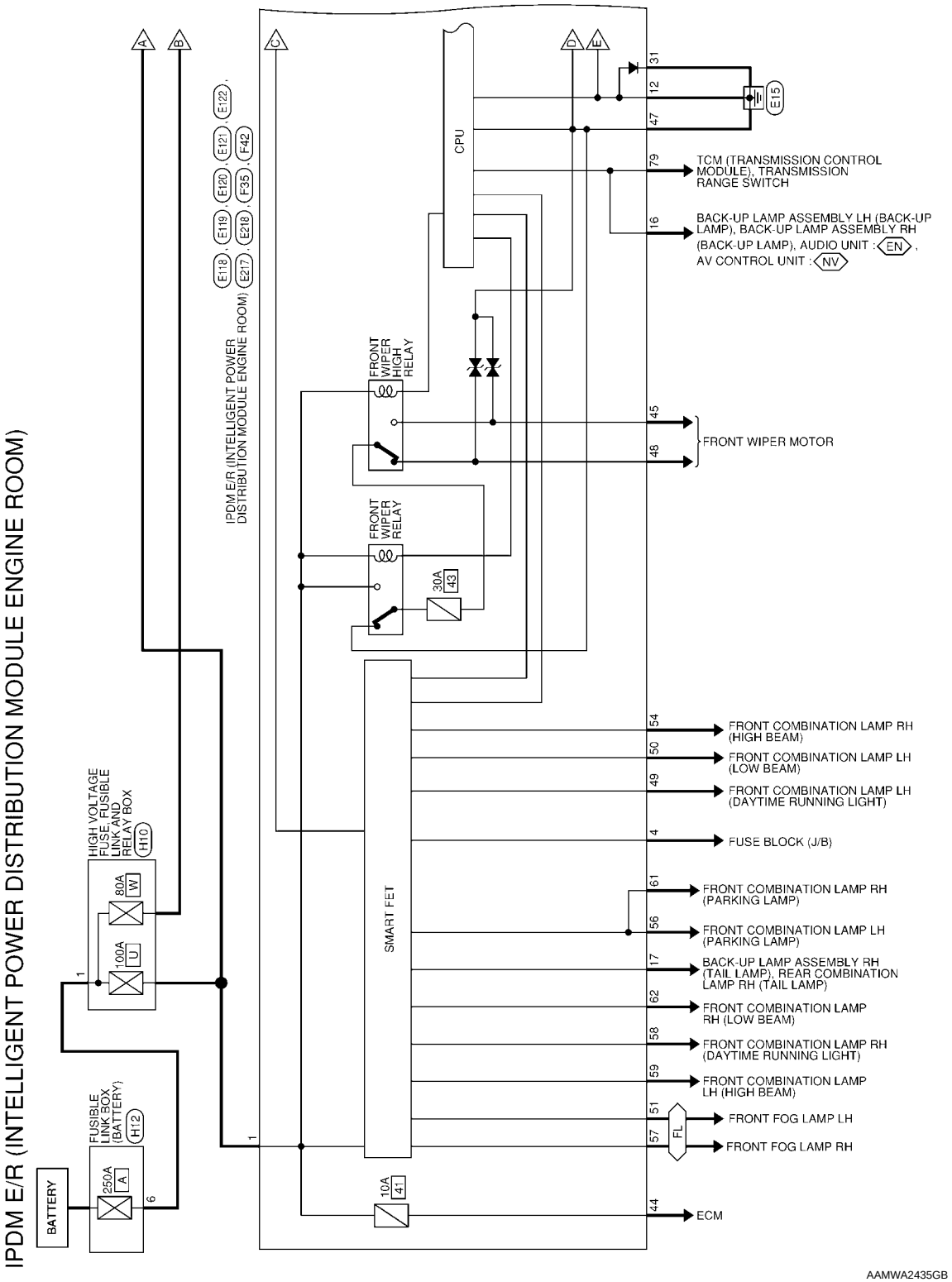
NOTE:
The details of TIME display are as follows:
- CRNT: The malfunctions that are detected now
- 1 - 39: The number is indicated when it is normal at present and a malfunction was detected in the past. It increases like 0 → 1 → 2 ··· 38 → 39 after returning to the normal condition whenever IGN OFF → 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.

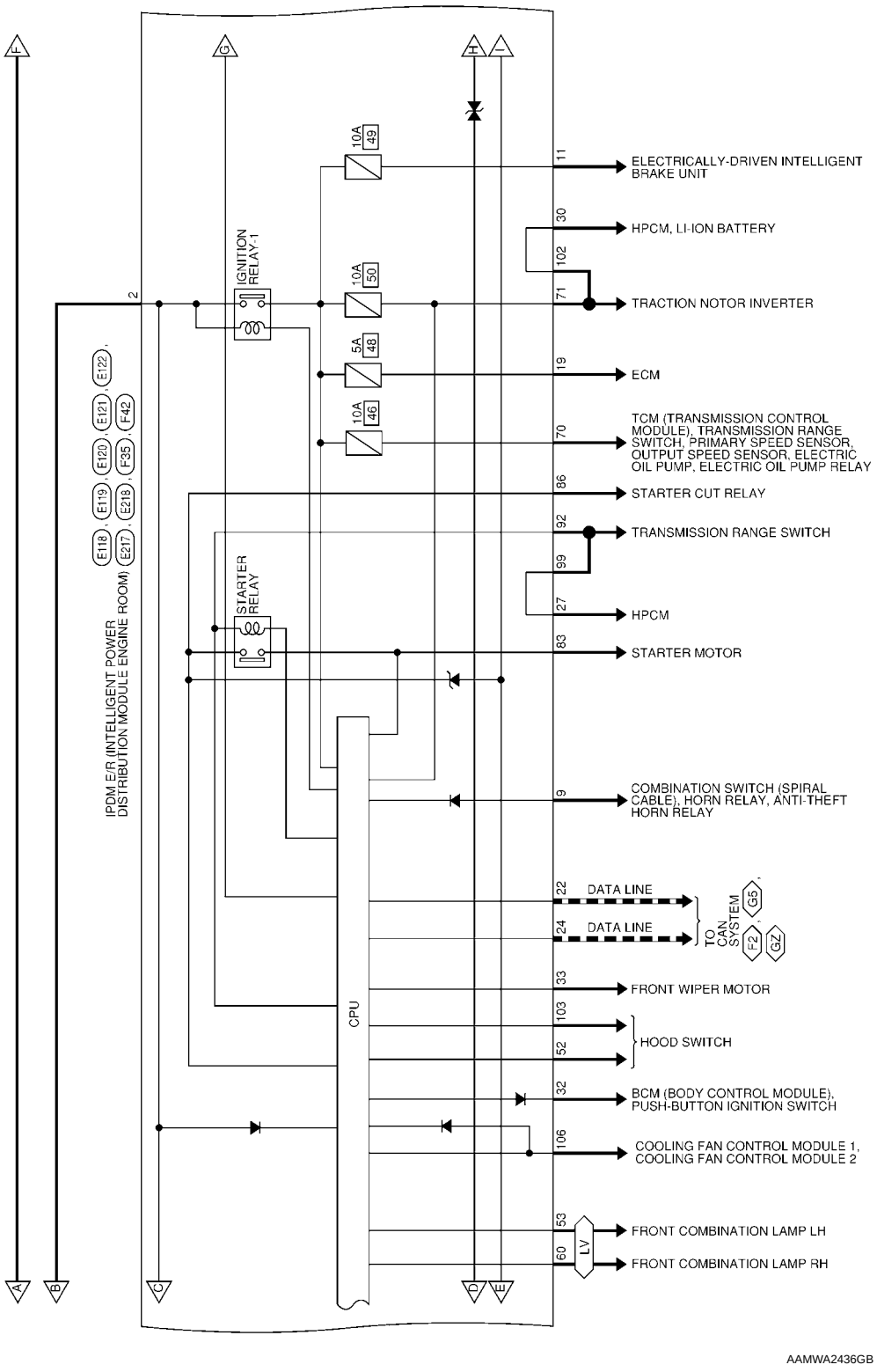
WIRING DIAGRAM

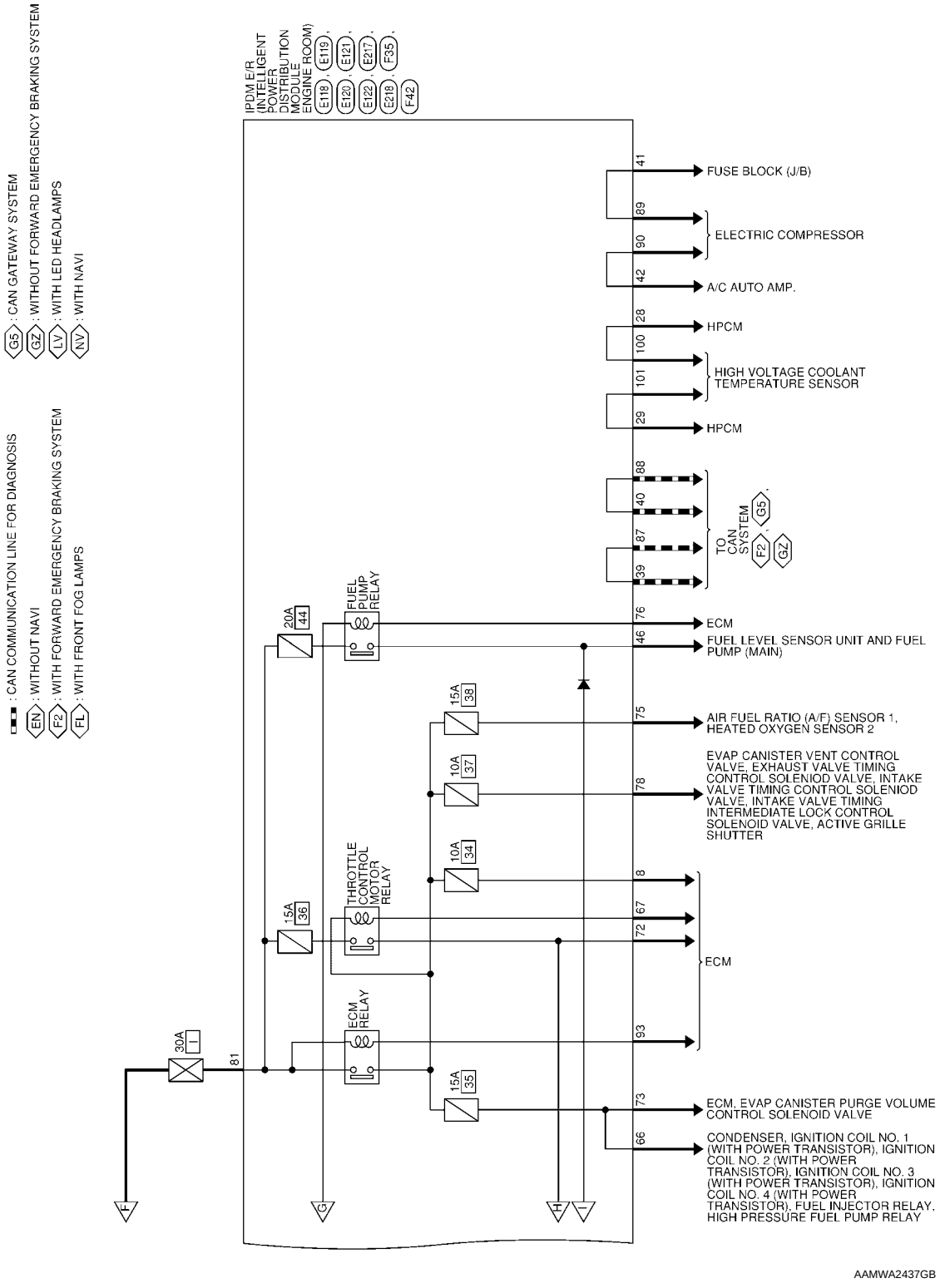
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

Wiring Diagram

INFOID:0000000014622636




IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E118, E119, E218, E217, E120, E121, F35, F42, E122
IGNITION RELAY-1
STARTER RELAY
CPU
10A 49
10A 50
5A 48
10A 46
ELECTRICALLY-DRIVEN INTELLIGENT BRAKE UNIT
HPCM, LI-ION BATTERY
TRACTION NOTOR INVERTER
ECM
TCM (TRANSMISSION CONTROL MODULE), TRANSMISSION RANGE SWITCH, PRIMARY SPEED SENSOR, OUTPUT SPEED SENSOR, ELECTRIC OIL PUMP, ELECTRIC OIL PUMP RELAY
STARTER CUT RELAY
TRANSMISSION RANGE SWITCH
HPCM
STARTER MOTOR
COMBINATION SWITCH (SPIRAL CABLE), HORN RELAY, ANTI-THEFT HORN RELAY
DATA LINE
DATA LINE
TO CAN SYSTEM
FRONT WIPER MOTOR
HOOD SWITCH
BCM (BODY CONTROL MODULE), PUSH-BUTTON IGNITION SWITCH
COOLING FAN CONTROL MODULE 1, COOLING FAN CONTROL MODULE 2
FRONT COMBINATION LAMP LH
FRONT COMBINATION LAMP RH
LV
AAMWA2436GB


: CAN COMMUNICATION LINE FOR DIAGNOSIS
EN : WITHOUT NAVI
F2 : WITH FORWARD EMERGENCY BRAKING SYSTEM
FL : WITH FRONT FOG LAMPS
G5 : CAN GATEWAY SYSTEM
GZ : WITHOUT FORWARD EMERGENCY BRAKING SYSTEM
LV : WITH LED HEADLAMPS
NV : WITH NAVI
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E118, E119, E120, E121, E122, E217, E218, F35, F42
FUSE BLOCK (J/B)
ELECTRIC COMPRESSOR
A/C AUTO AMP.
HPCM
HIGH VOLTAGE COOLANT TEMPERATURE SENSOR
HPCM
TO CAN SYSTEM
ECM
FUEL LEVEL SENSOR UNIT AND FUEL PUMP (MAIN)
AIR FUEL RATIO (A/F) SENSOR 1, HEATED OXYGEN SENSOR 2
EVAP CANISTER VENT CONTROL VALVE, EXHAUST VALVE TIMING CONTROL SOLENIOD VALVE, INTAKE VALVE TIMING CONTROL SOLENIOD VALVE, INTAKE VALVE TIMING INTERMEDIATE LOCK CONTROL SOLENOID VALVE, ACTIVE GRILLE SHUTTER
ECM
ECM, EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE
CONDENSER, IGNITION COIL NO. 1 (WITH POWER TRANSISTOR), IGNITION COIL NO. 2 (WITH POWER TRANSISTOR), IGNITION COIL NO. 3 (WITH POWER TRANSISTOR), IGNITION COIL NO. 4 (WITH POWER TRANSISTOR), FUEL INJECTOR RELAY, HIGH PRESSURE FUEL PUMP RELAY
FUEL PUMP RELAY
THROTTLE CONTROL MOTOR RELAY
ECM RELAY
20A 44
15A 38
10A 37
10A 34
15A 36
30A 1
15A 35
81
F
G
H
I
AAMWA2437GB

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

Connector No.	E118
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	L02FB-MC
Connector Color	BLACK

H.S.

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

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS16FGY-CS
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
3	–	–
4	Y	–
5	–	LIGHT POSITION REAR LH
6	–	–
7	–	–
8	BR	ACTUATOR4 CABIN (3FB4)
9	L	LO HORN RLY
10	–	–
11	V	IGN AIRBAG
12	B	SIGNAL GROUND
13	–	–
14	–	–
15	–	–
16	G	LIGHT REVERSE LAMP
17	W	LIGHT POSITION REAR RH
18	–	–

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH24FGY-NH
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
19	LG	IGN ECM
20	–	–
21	–	–
22	P	CAN-L
23	–	–
24	L	CAN-H
25	–	–
26	–	–
27	SB	CABIN MOTOR 5
28	R	CABIN MOTOR 6
29	LG	CABIN MOTOR 7
30	Y	CABIN MOTOR 8
31	B	2ND SIGNAL GROUND
32	GR	LI PUSH SW
33	BR	AUTO STOP WIPER
34	–	–
35	–	–
36	–	–
37	–	–
38	–	–
39	L	HEV CAN-H
40	G	HEV CAN-L
41	W	CABIN MOTOR 3
42	R	CABIN MOTOR 4

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	243405408R
Connector Color	RED

H.S.

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

Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	YLA06FGY
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
81	V	FL ECM IJSM SUPPLY
82	–	–
83	G	STARTER
84	LG	BATT MOTOR FAN LO
85	–	–
86	GR	FL STARTER

Connector No.	E217
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS08FBR-CS
Connector Color	BROWN

H.S.

Terminal No.	Color of Wire	Signal Name
49	R	LIGHT DTRL LH
50	L	LIGHT LBEAM LH
51	V	LIGHT FR FOG LAMPS LH
52	R	LI HOOD SW
53	GR	LI LED DETECTION 2
54	LG	LIGHT HBEAM RH
55	–	–
56	BG	LIGHT PARKING FR LH

Connector No.	E218
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS08FW-CS
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
57	W	LIGHT FR FOG LAMPS RH
58	R	LIGHT DTRL RH
59	G	LIGHT HBEAM LH
60	Y	LI LED DETECTION 1
61	GR	LIGHT PARKING FR RH
62	SB	LIGHT LBEAM RH
63	–	–
64	–	–

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

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS16FW-CS
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
65	-	-
66	W	ACTUATOR1 1 (3FBI)
67	V	LI ECM ACT5 DRIVER
68	-	-
69	-	-
70	R	IGN AT LPG
71	Y	IGN REVERSE SW AC VALVE
72	LG	ACTUATOR5 (3FBA)
73	G	ACTUATOR1 2 (3FB)
74	-	-
75	R	ACTUATOR3 (3FB3)
76	P	LI FUEL PUMP DRIVER
77	-	-
78	BR	ACTUATOR2 (3FB2)
79	G	LI LIGHT REVERSE SW
80	-	-

90	R	MOTOR CABIN 4
91	-	-
92	BG	LI NP SW
93	P	LI ECM DRIVER
94	-	-
95	-	-
96	-	-
97	-	-
98	-	-
99	BG	MOTOR CABIN 5
100	GR	MOTOR CABIN 6
101	LG	MOTOR CABIN 7
102	Y	MOTOR CABIN 8
103	W	HOOD SW2
104	-	-
105	-	-
106	BR	I.O FAN RELAY2(PWM)
107	-	-
108	-	-
109	-	-
110	-	-

Connector No.	H10
Connector Name	HIGH VOLTAGE FUSE, FUSIBLE LINK AND RELAY BOX
Connector Type	24340_JA04D
Connector Color	-

H.S.

1

Terminal No.	Color of Wire	Signal Name
1	B	BATTERY

Connector No.	H12
Connector Name	FUSIBLE LINK BOX (BATTERY)
Connector Type	24340_79906
Connector Color	-

H.S.

6

Terminal No.	Color of Wire	Signal Name
6	B	BATTERY

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH24FB-NH
Connector Color	BLACK

H.S.

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
87	L	HEV CAN-H
88	G	HEV CAN-L
89	W	MOTOR CABIN 3

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BASIC INSPECTION

ADDITIONAL SERVICE WHEN REPLACING IPDM E/R

Description

INFOID:0000000014622637

After replacing IPDM E/R, it is necessary to perform control unit configuration with CONSULT.

Work Procedure

INFOID:0000000014622638

1. REPLACE IPDM E/R

Replace IPDM E/R. Refer to PCS-46, "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-36, "Work Procedure".

>> Work End.

CONFIGURATION (IPDM E/R)

Description

INFOID:0000000014622639

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:0000000014622640

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-36, "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:0000000014622641

CAUTION:

Check vehicle specifications before servicing.

IPDM E/R

Type ID
284M1-7FR1E
284M1-7FR1D
284M1-7FR1C
284M1-7FR1B
284M1-7FR1A
284M1-5HK0B
284M1-5HK0A
284M1-6FL0E

Type ID
284M1-6FL0D
284M1-6FL0C
284M1-6FL0B
284M1-6FL0A

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

DTC Description

INFOID:0000000014622643

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

DTC DETECTION LOGIC

DTC No.	CONSULT screen items (Trouble diagnosis content)	DTC Detection Condition	
U1000	CAN COMM CIRCUIT (CAN communication circuit)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	CAN communication signal.
		Threshold	When IPDM E/R cannot communicate CAN communication signal.
		Diagnosis delay time	2 seconds or more.

POSSIBLE CAUSE

CAN communication system

FAIL-SAFE

When CAN communication with ECM and BCM is impossible, IPDM E/R performs fail-safe control.

If No CAN Communication Is Available With ECM

Control part	Fail-safe operation
Cooling fan	The cooling fan is operated at HI operation when the ignition switch is turned ON.

If No CAN Communication Is Available With BCM

Control part	Fail-safe operation
Headlamp	Turns ON the headlamp (LO) when the ignition switch is turned ON.
• Parking lamp • License plate lamp • Illumination • Tail lamp	Turns ON the tail lamp, parking lamp, license plate lamp and each illumination when the ignition switch is turned ON.
Front wiper	• The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed. • The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode.
Daytime running light	Daytime running light: OFF.
Front fog lamp	Front fog lamp: OFF.
Ignition relay	The status just before activation of fail-safe is maintained.
Starter motor	Starter relay: OFF

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Turn the ignition switch OFF.
2. Turn the ignition switch ON and wait for 2 seconds or more.
3. Check “Self Diagnostic Result” mode of “IPDM E/R”.

s DTC “U1000” displayed?

YES >> Refer to PCS-39, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-54, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000014622644

1. PERFORM SELF DIAGNOSTIC RESULT

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

Is “CAN COMM CIRCUIT” displayed?

YES >> Refer to LAN-26, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-54, "Intermittent Incident".

B120E IPDM E/R

DTC Description

INFOID:0000000014622645

DTC DETECTION LOGIC

DTC No.	CONSULT screen items (Trouble diagnosis content)		DTC Detection Condition	
B120E	IPDM E/R (Intelligent power distribution module engine room)	[SYSTEM INTERNAL FAILURES]	Diagnosis condition	When ignition switch is ON.
			Signal (terminal)	—
			Threshold	EEPROM in IPDM E/R is malfunctioning
			Diagnosis delay time	1 seconds or more.
		[NOT CONFIURED]	Diagnosis condition	When ignition switch is ON.
			Signal (terminal)	—
			Threshold	Control unit setting is not performed
			Diagnosis delay time	1 seconds or more.

POSSIBLE CAUSE

IPDM E/R

FAIL-SAFE

—

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

Ⓔ CONSULT
1. Turn ignition switch OFF.
2. Turn ignition switch ON.
3. Check DTC in “Self Diagnostic Result” mode of “IPDM E/R”.

Is DTC detected?

YES >> Refer to PCS-40, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-54, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000014622646

1.CHECK DTC

Perform each inspection according to the displayed DTC.

Which DTC is detected?

[NOT CONFIGURED]>>GO TO 2.
[SYSTEM INTERNAL FAILURES]>>GO TO 3.

2.PERFORM CONFIGURATION (IPDM E/R)

1. Perform Configuration (IPDM E/R). Refer to PCS-36, "Description".
2. Perform DTC confirmation procedure. Refer to PCS-40, "DTC Description"

Is DTC detected?

YES >> GO TO 3.
NO >> Inspection End.

3.REPLACE IPDM E/R

1. Replace IPDM E/R. Refer to PCS-46, "Removal and Installation".
2. Perform DTC confirmation procedure. Refer to PCS-40, "DTC Description"

Is DTC detected?

YES >> Refer to GI-54, "Intermittent Incident".
NO >> Inspection End.

B20DD IGNITION RELAY ON CIRCUIT

DTC Description

INFOID:0000000014622647

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

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

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

DTC DETECTION LOGIC

DTC No.	CONSULT screen items (Trouble diagnosis content)		DTC Detection Condition	
B20DD	IGN RELAY ON CIRC (Ignition relay on circuit)	[CIRC SHORT TO BATTERY]	Diagnosis condition	When ignition switch is OFF.
			Signal (terminal)	CPU monitors the status at the contact and excitation coil circuits of the ignition relay inside it.
			Threshold	The ignition relay ON is detected.
			Diagnosis delay time	1 second or more.

POSSIBLE CAUSE

IPDM E/R

FAIL-SAFE

—

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

CONSULT
1. Turn ignition switch OFF.
2. Turn ignition switch ON.
3. Check DTC in “Self Diagnostic Result” mode of “IPDM E/R”.

Is DTC detected?

YES >> Refer to PCS-42, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-54, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000014622648

Regarding Wiring Diagram information, refer to PCS-30, "Wiring Diagram".

1. CHECK IGNITION RELAY-1 POWER SUPPLY CIRCUIT 1

CONSULT
1. Turn ignition switch ON
2. Display “Self-diagnosis Result” mode of “IPDM E/R”.
3. Remove fuse No. 46 (10A) downstream of ignition relay-1 and check the change in “Self-diagnosis Result”.

Is it now a past malfunction?

YES >> Perform an inspection of the downstream circuit of fuse No. 46 (10A).
NO >> GO TO 2.

2. CHECK IGNITION RELAY-1 POWER SUPPLY CIRCUIT 2

1. Re-install fuse No. 46 (10A).
2. Remove fuse No. 48 (5A) downstream of ignition relay-1 and check the change in “Self-diagnosis Result”.

Is it now a past malfunction?

YES >> Perform an inspection of the downstream circuit of fuse No. 48 (5A).
NO >> GO TO 3.

3. CHECK IGNITION RELAY-1 POWER SUPPLY CIRCUIT 3

1. Re-install fuse No. 48 (5A).
2. Remove fuse No. 50 (10A) downstream of ignition relay-1 and check the change in “Self-diagnosis Result”.

Is it now a past malfunction?

YES >> Perform an inspection of the downstream circuit of fuse No. 50 (10A).
NO >> GO TO 4.

4. CHECK IGNITION RELAY-1 POWER SUPPLY CIRCUIT 4

1. Re-install fuse No. 50 (10A).
2. Remove fuse No. 49 (10A) downstream of ignition relay-1 and check the change in “Self-diagnosis Result”.

Is it now a past malfunction?

YES >> Perform an inspection of the downstream circuit of fuse No. 49 (10A).
NO >> GO TO 5.

5. REPLACE IPDM E/R

1. Re-install fuse No. 49 (10A).
2. Replace IPDM E/R. Refer to PCS-46, "Removal and Installation".
3. Perform DTC confirmation procedure. Refer to PCS-42, "DTC Description".

Is DTC detected?

YES >> Refer to GI-54, "Intermittent Incident".
NO >> Inspection End.

B20DE IGNITION RELAY OFF CIRCUIT

DTC Description

INFOID:0000000014622649

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

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

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

DTC DETECTION LOGIC

DTC No.	CONSULT screen items (Trouble diagnosis content)		DTC Detection Condition	
B20DE	IGN RELAY OFF CIRC (Ignition relay OFF circuit)	[CIRC SHORT TO GROUND OR OPEN]	Diagnosis condition	When ignition switch is ON.
			Signal (terminal)	CPU monitors the status at the contact and excitation coil circuits of the ignition relay inside it.
			Threshold	The ignition relay OFF is detected.
			Diagnosis delay time	1 second or more.

POSSIBLE CAUSE

IPDM E/R

FAIL-SAFE

—

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT
1. Turn ignition switch OFF.
2. Turn ignition switch ON.
3. Check DTC in “Self Diagnostic Result” mode of “IPDM E/R”.

Is DTC detected?

YES >> Refer to PCS-44, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-54, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000014622650

1.REPLACE IPDM E/R

1. Replace IPDM E/R. Refer to PCS-46, "Removal and Installation".
2. Perform DTC confirmation procedure. Refer to PCS-44, "DTC Description".

Is DTC detected?

YES >> Refer to GI-54, "Intermittent Incident".
NO >> Inspection End.

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:0000000014622651

Regarding Wiring Diagram information, refer to PCS-30, "Wiring Diagram".

1. CHECK FUSE AND FUSIBLE LINKS

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

Terminal No.	Signal name	Fuse and fusible link Nos.
1	Battery power supply	A (250A), U (100A)
2		A (250A), W (80A)
81		A (250A), U (100A), I (30A)

Is the fuse blown?

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

2. CHECK BATTERY POWER SUPPLY CIRCUIT

1. Disconnect IPDM E/R connector E118 and E122.
2. Check voltage between IPDM E/R connectors and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E118	1	—	Battery voltage
	2		
E122	81		

Is the inspection result normal?

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

3. CHECK GROUND CIRCUIT

1. Disconnect IPDM E/R connectors E119, E120 and E121.
2. 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?

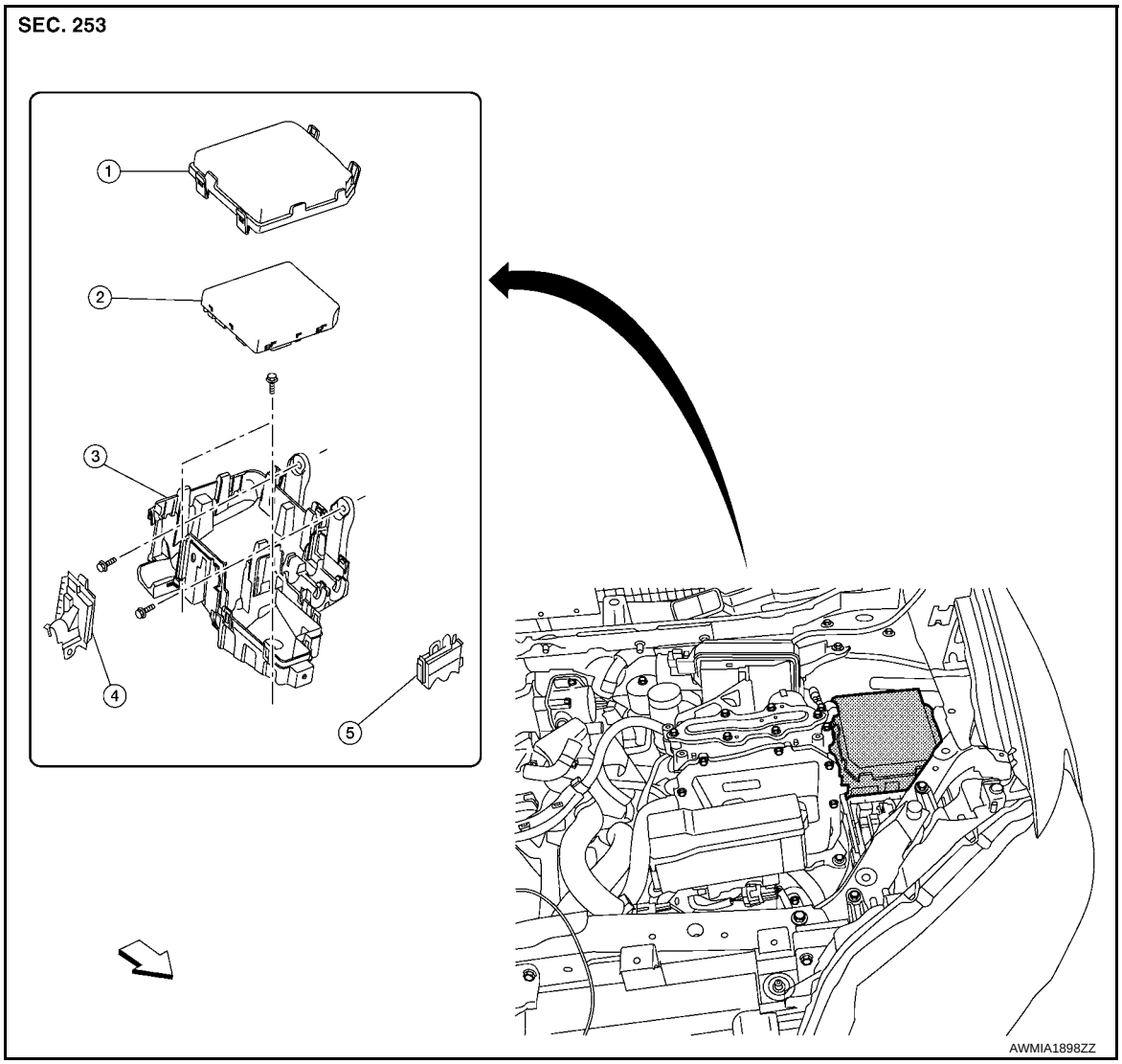
YES >> Inspection End.
NO >> Repair or replace harness or connectors.

REMOVAL AND INSTALLATION

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

Exploded View

INFOID:0000000014622652



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

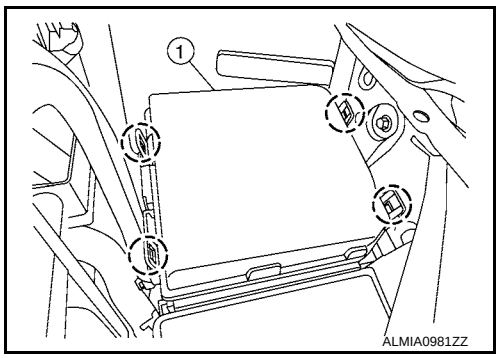
INFOID:0000000014622653

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

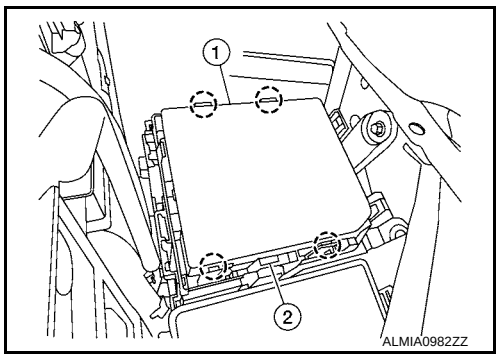
REMOVAL

1. Disconnect the negative battery terminal. Refer to PG-129, "Removal and Installation (Battery)".
2. Remove air inlet duct assembly and resonator assembly. Refer to EM-29, "Exploded View".

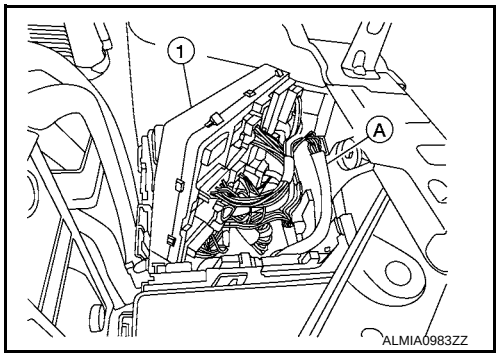
3. Release pawls on IPDM E/R cover (1) and remove.
   ( ): Pawls



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



5. Disconnect the harness connectors (A) from IPDM E/R (1) and remove.
   CAUTION:
   Replace the IPDM E/R if it has been dropped or sustained an impact.



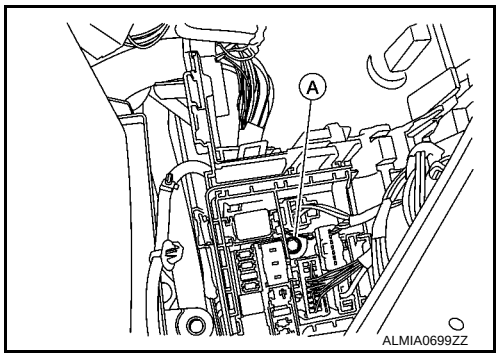
6. Perform the following steps to remove the IPDM E/R case (if necessary).

a. Release the negative battery cable and harness clips from the IPDM E/R case.

b. Release the pawls on the IPDM/ E/R harness covers A, B and remove from the IPDM E/R case.

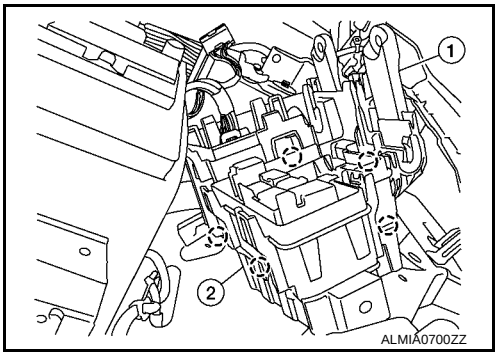
c. Remove the bolts from the IPDM E/R case.

d. Remove the bolt (A) from the fusible link box.



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

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 “ADDITIONAL SERVICE" when replacing IPDM E/R. Refer to PCS-35, "Description".

PRECAUTION

PRECAUTIONS

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

INFOID:0000000014868021

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, it is recommended that all maintenance and repair be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper repair, 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 Air Bag Diagnosis Sensor Unit or other Air Bag 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 or batteries, and wait at least three minutes before performing any service.**

Precaution for Work

INFOID:0000000014622655

- 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.

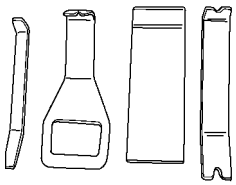
PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000014622656

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

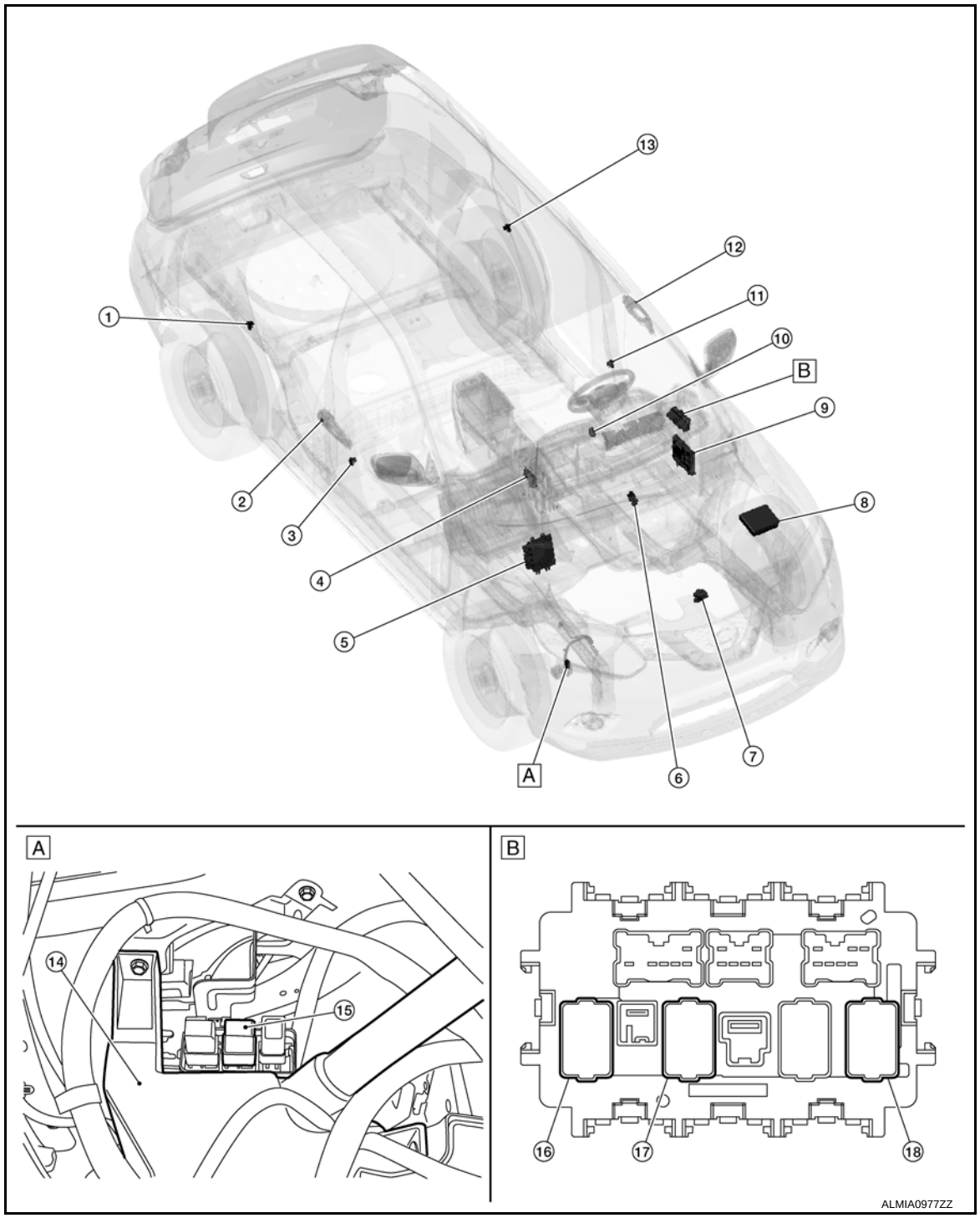
Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set  AWJIA0483ZZ	Removing trim components

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000014622657



A. View with front combination lamp RH removed.

B. View of rear side of fuse block (J/B).

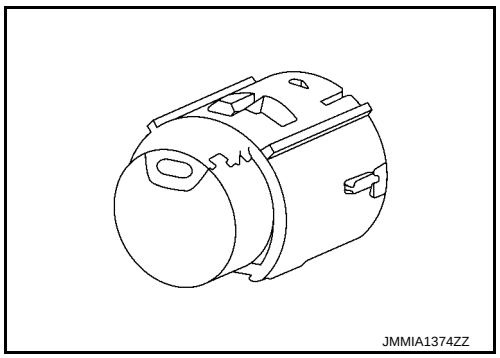
No.	Component	Description
1.	Rear door switch RH	Detects door open/close position and transmits ON/OFF signal to BCM.
2.	Front outside handle assembly RH (request switch)	Transmits door lock/unlock request signal to BCM.
3.	Front door switch RH	Detects door open/close position and transmits ON/OFF signal to BCM.
4.	CVT shift selector (park position switch)	Park position switch is integrated into CVT shift sector, and detects that selector lever is locked in the P position, then transmits ON/OFF signal to BCM. Refer to TM-15, "CVT CONTROL SYSTEM : Component Parts Location".
5.	HPCM	HPCM controls the vehicle. When ignition switch is turned ON, BCM starts communication with HPCM and performs the ID verification between BCM and HPCM. If the verification result is OK, the engine can start. If the verification result is NG, the vehicle is set to READY. Refer to HBC-12, "Component Parts Location".
6.	Stop lamp switch	Detects brake pedal depressed and transmits ON/OFF signal to BCM. Refer to BRC-10, "Component Parts Location".
7.	Transmission range switch	Transmission range switch detects the selector lever position, and then transmits the P/N position signal to IPDM E/R. BCM confirms the CVT shift selector position with the following 3 signals. • P position signal from CVT shift selector (detention switch) • Neutral position signal from IPDM E/R (CAN) • Shift position signal from TCM (CAN) IPDM E/R confirms the CVT shift selector position with the following 2 signals. • P/N position signal from transmission range switch • Shift position signal from TCM (CAN) Refer to TM-15, "CVT CONTROL SYSTEM : Component Parts Location".
8.	IPDM E/R	• IPDM E/R detects push-button ignition switch status, and transmits ignition switch status signal (CAN) to BCM. • IPDM E/R receives ignition relay-1 (IPDM E/R) control signal and ignition switch ON signal (CAN) from BCM, and controls ignition relay-1 (IPDM E/R) Refer to PCS-6, "Component Parts Location".
9.	BCM	• BCM controls power distribution system. • BCM judges ignition position and vehicle condition. • BCM checks ignition position internally. Refer to BCS-5, "BODY CONTROL SYSTEM : Component Parts Location".
10.	Push-button ignition switch	Push-button ignition switch (push switch) is pressed (ON), and transmits status signal to BCM and IPDM E/R.
11.	Front door switch LH	Detects door open/close position and transmits ON/OFF signal to BCM.
12.	Front outside handle assembly LH (request switch)	Transmits door lock/unlock request signal to BCM.
13.	Rear door switch LH	Detects door open/close position and transmits ON/OFF signal to BCM.
14.	Washer tank	—
15.	Starter cut relay (relay box)	BCM controls the starter cut relay according to starter cut relay request signal from HPCM.
16.	Ignition relay-2 [fuse block (J/B)]	• Ignition relay-2 is controlled by BCM. • Ignition relay-2 supplies ignition ON power supply or ignition ON signal to each ECU and system when ignition is turned ON. • BCM compares status of ignition relay-2 control signal and ignition position judged by BCM. • BCM monitors ignition relay-2 operating status by ignition relay-2 feedback signal.

No.	Component	Description
17.	Front blower motor relay [fuse block (J/B)]	• Front blower motor relay is controlled by BCM. • Front blower motor supplies ignition ON power supply or ignition ON signal to air conditioning system when ignition is turned ON. • BCM compares status of front blower motor relay control signal and ignition position judged by BCM.
18.	Accessory relay-1 [fuse block (J/B)]	• Accessory relay-1 is controlled by BCM. • Accessory relay-1 supplies accessory power supply or ignition ON signal to each ECU when ignition is turned ON. • BCM compares status of accessory relay-1 control signal, and ignition position judged by BCM.

Push-button Ignition Switch

INFOID:0000000015244267

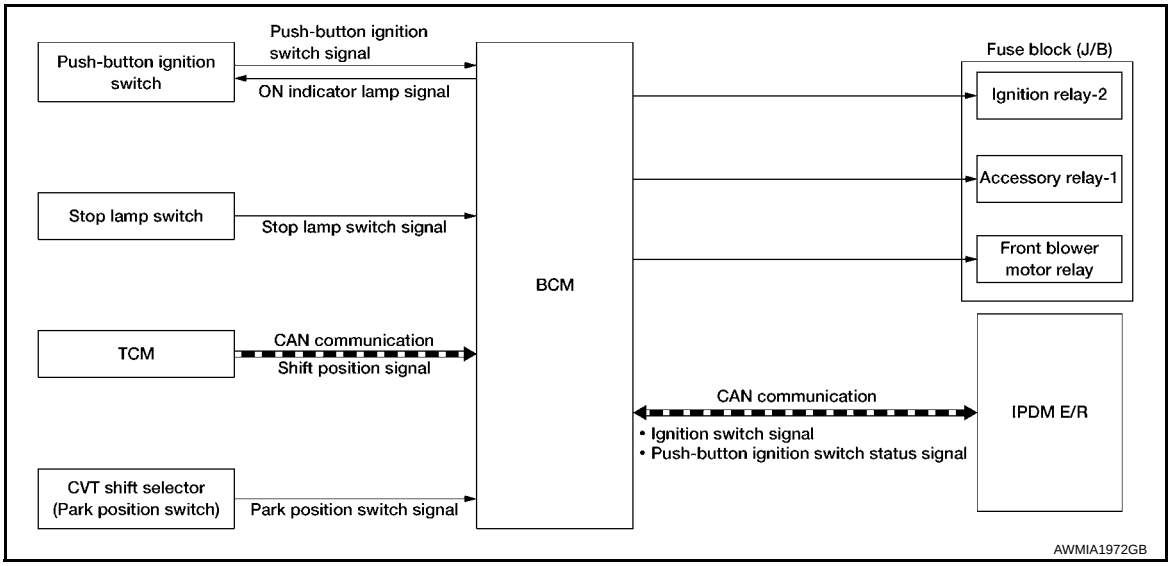
Push-button ignition switch is pressed, and transmits the status signal to BCM and IPDM E/R.



SYSTEM
POWER DISTRIBUTION SYSTEM
POWER DISTRIBUTION SYSTEM : System Description

INFOID:0000000015244263

SYSTEM DIADRAM



SYSTEM DESCRIPTION

- POWER DISTRIBUTION SYSTEM is the system that BCM controls with operation of the push-button ignition switch to perform power distribution for each power circuit.
- Push-button ignition switch can be operated when Intelligent Key is in the following condition.
  - Intelligent Key is in the detection area of the inside key antenna.
  - Intelligent Key backside is contacted to push-button ignition switch.
- Push-button ignition switch operation is input to BCM as a signal. BCM changes the ignition switch position according to the status and operates the following relays to supply power to each power circuit.
  - Ignition relay-1
  - Ignition relay-2
  - Accessory relay-1
  - Front blower motor relay
- The ignition switch position is confirmed by lighting of the ON indicator lamp.

IGNITION BATTERY SAVER SYSTEM

When all the following conditions are met for a period of time, the battery saver system will cut off the power supply (ignition switch ON → OFF) to prevent battery discharge.

- Ignition switch is in the ON position
- Turn signal lamp is not in operation
- Selector lever is in the P (park) position

Reset Condition of Ignition Battery Saver System

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

- Ignition switch is not in the ON position
- Turn signal lamp is in operation
- Selector lever is not in the P (park) position

NOTE:

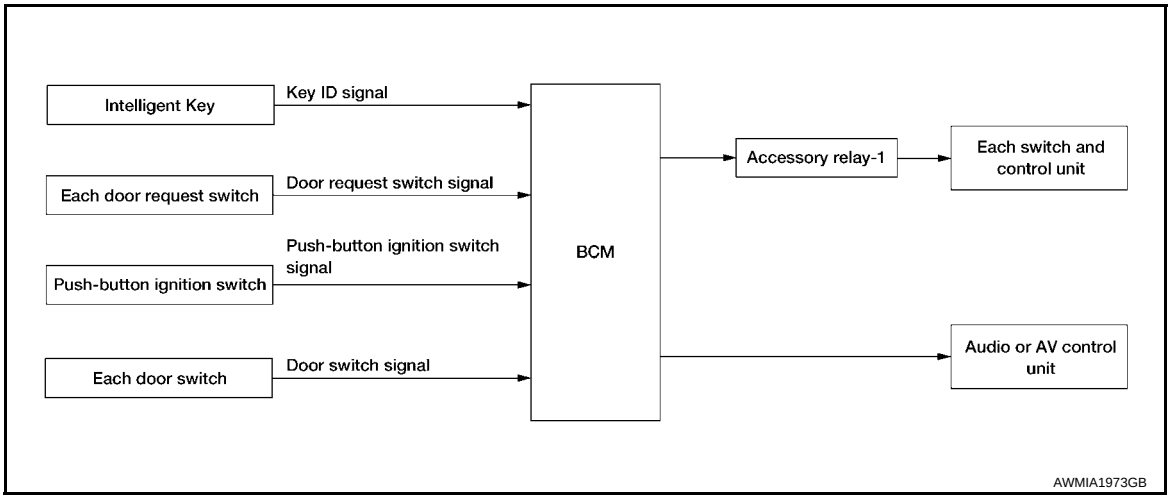
The ignition battery saver system can be temporarily disabled, without using CONSULT, to prevent it from functioning when performing trouble diagnosis. Refer to PCS-79, "Work Procedure".

AUTO ACC FUNCTION

AUTO ACC FUNCTION : System Description

INFOID:0000000015244264

SYSTEM DIAGRAM

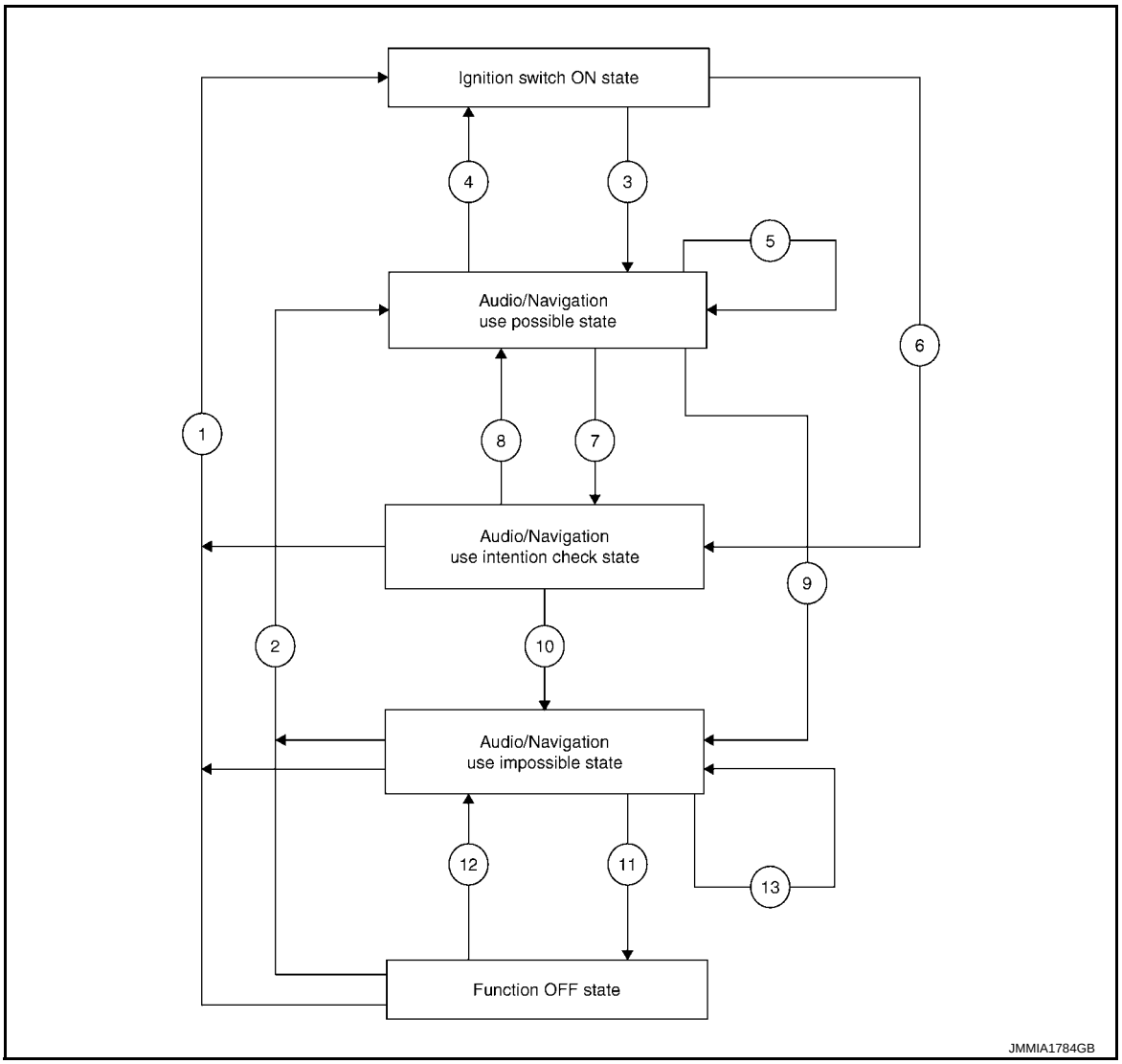


DESCRIPTION

In conventional vehicles, power is supplied to the accessories of the vehicle after the ignition switch is turned to the ACC position.

The AUTO ACC function is a function that automatically distributes the accessory power supply to each switch and unit by door unlock operation, etc. using the Intelligent Key.

OPERATION FLOW



Ignition Switch On Status

In this state the ignition switch is operated and turned ON.

Audio / Navigation Available Status

- In this state the audio, navigation, and each switch and unit that is activated by the accessory power source can be operated.
- When 10 minutes have passed after conditions are satisfied and audio or navigation have not been operated, audio or navigation turn OFF.
- When audio or navigation is operated within 10 minutes after conditions are satisfied, operation time is extended for 10 minutes. Audio or navigation can be operated for a maximum of 30 minutes after the status is satisfied.

Audio / Navigation use intention check status

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

Audio / Navigation unavailable status

In this state audio or navigation become unavailable, but the switches and units other than those for audio or navigation that can operate by using the accessory power source are 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.

No.	Function status	Shifting condition	Accessory power source
①	• Shifting from “OFF status” to “Ignition switch ON status” • Shifting from “Audio / navigation unavailable status” to “Ignition switch ON status” • Shifting from “Audio / navigation use intention confirmation status” to “Ignition switch ON status”	Turn the ignition switch ON.	OFF → ON
②	• Shifting from “OFF status” to “Audio / navigation available status” • Shifting from “Audio / navigation unavailable status” to “Audio / navigation available status”	Operate either the door request switch or the unlock button of the Intelligent Key to unlock the door.	OFF → ON
③	Shifting from “Ignition switch ON status” to “Audio / navigation available status”	Turn the ignition switch OFF while driver door is closed.	ON
④	Shifting from “Audio / navigation available status” to “Ignition switch ON status”	Turn the ignition switch ON.	ON
⑤	“Audio / navigation available status” Time extension (10 minutes)	Operate audio or navigation.	ON
⑥	Shifting from “Ignition switch ON status” to “Audio / navigation use intention confirmation status”	Turn the ignition switch OFF while driver door is closed.	ON
⑦	Shifting from “Audio / navigation available status” to “Audio / navigation use intention confirmation status”	When any of the following conditions are satisfied: • Close all doors, and lock all doors with the Intelligent Key or door request switch. • Ten minutes pass from “Audio / navigation available status.” • Open driver door.	ON
⑧	Shifting from “Audio / navigation use intention confirmation status” to “Audio / navigation available status”	When any of the following conditions are satisfied: • Operate either the door request switch or the unlock button of the Intelligent Key to unlock the door. • Operate audio or navigation power switch	ON
⑨	Shifting from “Audio / navigation available status” to “Audio / navigation unavailable status”	Thirty minutes pass from “Audio / navigation available status.”	ON
⑩	Shifting from “Audio / navigation use intention confirmation status” to “Audio / navigation unavailable status”	When any of the following conditions are satisfied: • Two minutes pass from “Audio / navigation use intention confirmation status.” • In “Audio / navigation use intention confirmation status,” 30 minutes pass after “Audio / navigation available status” is satisfied.	ON
⑪	Shifting from “Audio / navigation unavailable status” to “OFF status”	One minute passes from “Audio / navigation unavailable status.”	ON → OFF
⑫	Shifting from “OFF status” to “Audio / navigation unavailable status”	Driver door opened or closed condition is satisfied.	OFF → ON
⑬	“Audio / navigation unavailable status” time extension (1 minute)	Driver door opened or closed condition is satisfied.	ON

Fail-safe

INFOID:0000000015244266

FAIL-SAFE CONTROL BY DTC

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

Display contents of CONSULT	Fail-safe
B2192: ID DISCORD BCM-ECM*	Inhibit setting the vehicle to READY
B2193: CHAIN OF BCM-ECM*	Inhibit setting the vehicle to READY
B2195: ANTI-SCANNING	Inhibit setting the vehicle to READY
B2198: NATS ANTENNA AMP	Inhibit setting the vehicle to READY

Display contents of CONSULT	Fail-safe
B261E: VEHICLE TYPE	Inhibit setting the vehicle to READY
B26F1: IGN RELAY OFF	Inhibit setting the vehicle to READY
B26F2: IGN RELAY ON	Inhibit setting the vehicle to READY

NOTE:
*: “ECM” is indicated on CONSULT display, however this means HPCM.

REAR WIPER MOTOR PROTECTION

Enable Condition
BCM detects the rear wiper stop position according to the rear wiper autostop switch signal. When the rear wiper autostop switch signal does not change for more than 5 seconds while the rear wiper is ON, the BCM disables the rear wiper battery power supply to protect the rear wiper motor.

Cancellation Condition
1. More than 1 minute has passed since receiving the rear wiper autostop switch signal.
2. Rear wiper switch is turned OFF.
3. Rear wiper switch or rear washer switch is turned ON.

FAIL-SAFE CONTROL OF COMBINATION SWITCH READING FUNCTION CAUSED BY LOW POWER SUPPLY VOLTAGE

If the BCM power supply voltage drops below 9.0 volts, the BCM maintains combination switch reading status at the level it was before the BCM power supply voltage dropped below 9.0 volts. When the BCM power supply voltage returns to a level above 9.0 volts, the combination switch reading function returns to normal operation.

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000015244240

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

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

SYSTEM APPLICATION

BCM can perform the following functions.

System	Sub System	Direct Diagnostic Mode						
		Ecu Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK		×	×	×	×		
Rear window defogger	REAR DEFOGGER			×	×	×		
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Exterior lamp	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			×	×			

INTELLIGENT KEY

INTELLIGENT KEY : CONSULT Function (BCM - INTELLIGENT KEY)

INFOID:0000000015244241

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.
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.
ID OK FLAG [Set/Reset]		Indicates condition of Intelligent Key ID.
PRMT ENG STRT [Set/Reset]		Indicates condition of engine start possibility.
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.
CRNK PRBT TMR [On/Off]		Indicates condition of crank prohibit timer.
AUT CRANK TMR [On/Off]		Indicates condition of automatic engine crank timer from Intelligent Key.
CRNK PRBT TME [sec]		Indicates condition of engine crank prohibit time.

Monitor Item [Unit]	Main	Description
AUT CRANK TMR [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-LOCK [On/Off]		Indicates condition of lock signal from Intelligent Key.
RKE-UNLOCK [On/Off]		Indicates condition of unlock signal from Intelligent Key.
RKE-PANIC [On/Off]		Indicates condition of panic signal from Intelligent Key.
RKE-MODE CHG [On/Off]		Indicates condition of mode change signal from Intelligent Key.

ACTIVE TEST

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 [Buzzer 1/Buzzer 2/Buzzer 3/Off].
INDICATOR	This test is able to check combination meter warning lamp operation [KEY ON/KEY IND/Off].
ENGINE SW ILLUMI	This test is able to check push-button ignition switch START indicator operation [On/Off].
FLASHER	This test is able to check flasher operation [LH/RH/Off].
HORN	This test is able to check horn operation [On].
ENGINE START REQUEST	This test is able to check that BCM is sending starter request signal to IPDM E/R via CAN communication [MODE 1/MODE 2/MODE 3/Off].
STARTER CUT RELAY	This test is able to check starter control relay operation [On/Off].
AUTO ACC 2	This test is able to check that BCM is sending ACC power to audio unit or AV control unit [On/Off].
AUTO ACC 1	This test is able to check that BCM is controlling accessory relay-1 [Off/MODE 1/MODE 2/MODE 3].
TRUNK LUGGAGE LAMP TEST	This test is able to check luggage room lamp test operation [On/Off].

WORK SUPPORT

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.
ENGINE START BY I-KEY	On*		Engine start with I-Key enabled.
	Off		Engine start with I-Key disabled.
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.
ANSWER BACK	On*		Buzzer or horn reminder for door request switch and I-Key ON.
	Off		Buzzer or horn reminder for door request switch and I-Key OFF.

Support Item	Setting	Description
ANSWER BACK I-KEY LOCK UNLOCK	BUZZER	I-Key buzzer reminder for door request switch.
	HORN	Horn sound for door request switch.
	Off	Reminder for door request switch OFF.
	INVALID	Not used.
ANSWER BACK KEYLESS LOCK UNLOCK	On*	Horn and hazard lamp reminder for I-Key ON.
	Off	Hazard lamp reminder for I-Key ON.

ECU DIAGNOSIS INFORMATION

BCM

List of ECU Reference

INFOID:0000000014622666

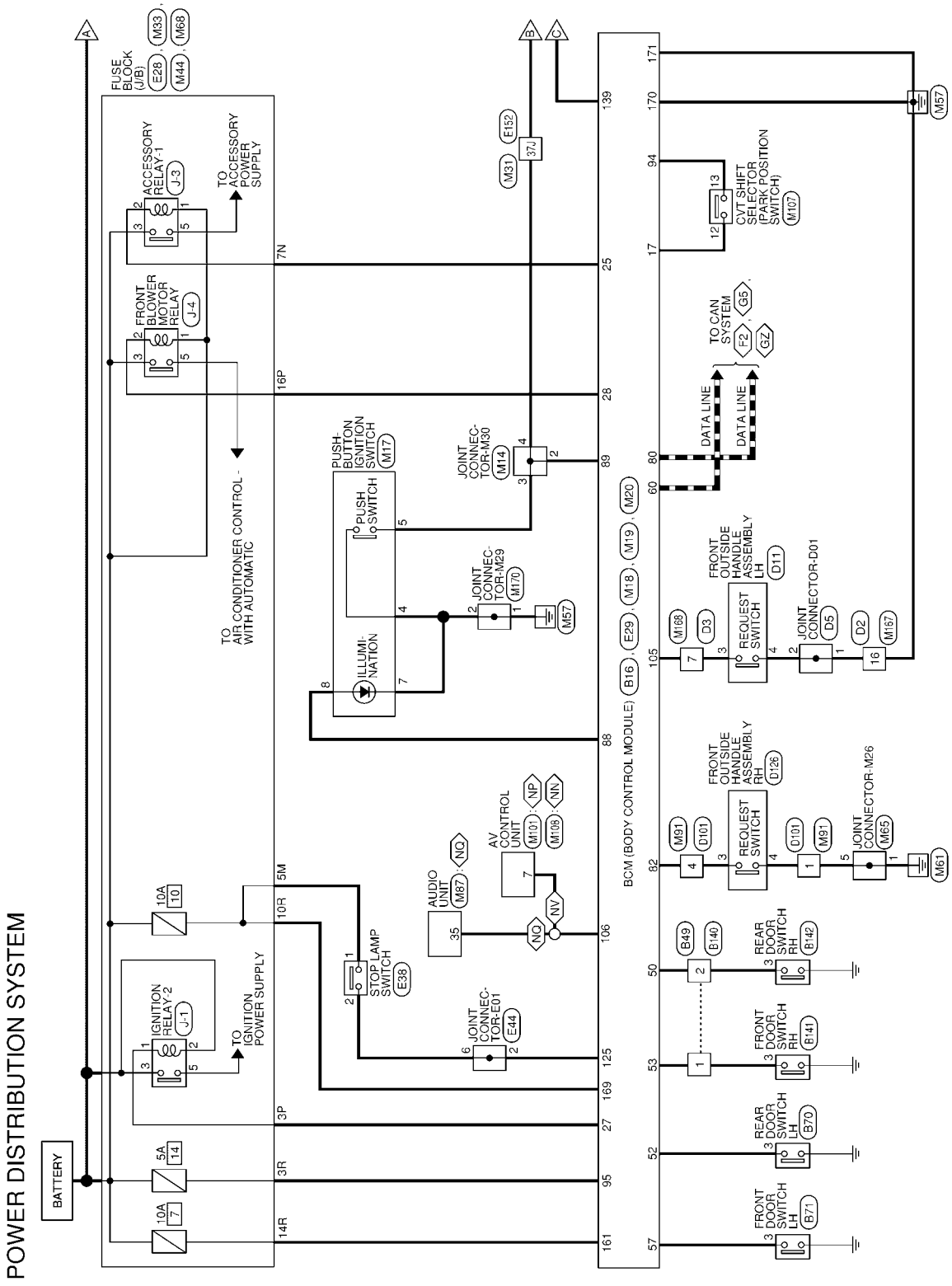
ECU	Reference
BCM	BCS-28, "Reference Value"
	BCS-46, "Fail-safe"
	BCS-47, "DTC Inspection Priority Chart"
	BCS-48, "DTC Index"

WIRING DIAGRAM

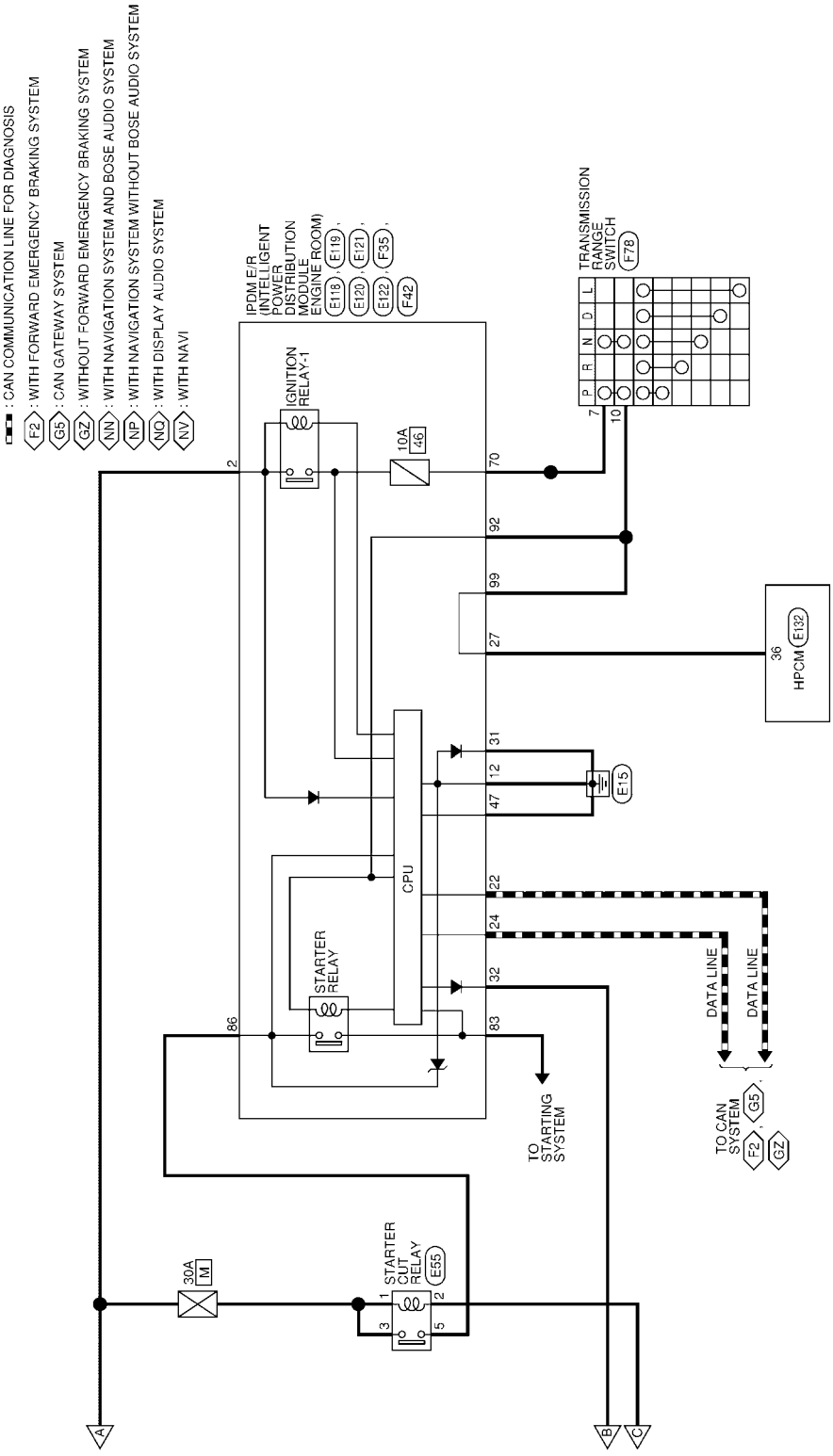
POWER DISTRIBUTION SYSTEM

Wiring Diagram

INFOID:0000000014622667



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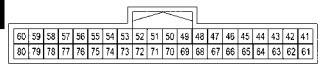


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POWER DISTRIBUTION SYSTEM CONNECTORS

Connector No.	B16
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FG-NH
Connector Color	GREEN

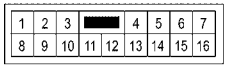
H.S.



Terminal No.	Color of Wire	Signal Name
41	–	–
42	–	–
43	–	–
44	–	–
45	–	–
46	R	SES BACKDOOR BUTTON SW
47	–	–
48	–	–
49	G	NO TOUCH TGATE SENSOR
50	W	RR DOOR SW
51	LG	TGATE SW
52	R	RL DOOR SW
53	SB	AS DOOR2 SW
54	–	–
55	LA/G	RR AUTOSTOP SW
56	Y	TGATE OPENER SW
57	SB	DR DOOR2 SW
58	–	–
59	–	–
60	L	CAN-H
61	V	SES EXT REAR ANTENNA B
62	Y	SES INT MIDDLE ANTENNA B
63	L	SES INT MIDDLE ANTENNA A
64	LG	SES EXT REAR ANTENNA A
65	–	–
66	–	–
67	–	–
68	–	–
69	–	–
70	–	–
71	–	–
72	–	–
73	–	–
74	–	–
75	–	–
76	–	–
77	V	SHIFT LOCK RLY
78	–	–
79	LA/W	STOP LAMP3
80	P	CAN-L

Connector No.	B49
Connector Name	WIRE TO WIRE
Connector Type	NS16MW-CS
Connector Color	WHITE

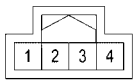
H.S.



Terminal No.	Color of Wire	Signal Name
1	SB	TO BODY NO. 2 HARNESS
2	W	TO BODY NO. 2 HARNESS
3	LA/W	TO BODY NO. 2 HARNESS
4	V	TO BODY NO. 2 HARNESS
5	SB	TO BODY NO. 2 HARNESS
6	LA/BR	TO BODY NO. 2 HARNESS
7	P	TO BODY NO. 2 HARNESS
8	LA/W	TO BODY NO. 2 HARNESS
9	LA/BR	TO BODY NO. 2 HARNESS
10	R	TO BODY NO. 2 HARNESS
11	LA/G	TO BODY NO. 2 HARNESS
12	LA/P	TO BODY NO. 2 HARNESS
13	–	TO BODY NO. 2 HARNESS
14	–	TO BODY NO. 2 HARNESS
15	G	TO BODY NO. 2 HARNESS
16	V	TO BODY NO. 2 HARNESS

Connector No.	B70
Connector Name	REAR DOOR SWITCH LH
Connector Type	TH04FW-NH
Connector Color	WHITE

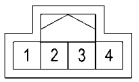
H.S.



Terminal No.	Color of Wire	Signal Name
1	–	–
2	–	–
3	R	I RL DOOR SW
4	–	–

Connector No.	B71
Connector Name	FRONT DOOR SWITCH LH
Connector Type	TH04FW-NH
Connector Color	WHITE

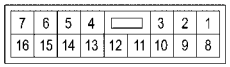
H.S.



Terminal No.	Color of Wire	Signal Name
1	–	–
2	–	–
3	SB	I DR DOOR2 SW
4	–	–

Connector No.	B140
Connector Name	WIRE TO WIRE
Connector Type	NS16FW-CS
Connector Color	WHITE

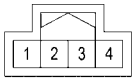
H.S.



Terminal No.	Color of Wire	Signal Name
1	GR	TO BODY HARNESS
2	W	TO BODY HARNESS
3	LA/Y	TO BODY HARNESS
4	V	TO BODY HARNESS
5	SB	TO BODY HARNESS
6	LA/BR	TO BODY HARNESS
7	LA/V	TO BODY HARNESS
8	L	TO BODY HARNESS
9	Y	TO BODY HARNESS
10	R	TO BODY HARNESS
11	V	TO BODY HARNESS
12	LG	TO BODY HARNESS
13	L	TO BODY HARNESS
14	Y	TO BODY HARNESS
15	LA/GR	TO BODY HARNESS
16	LA/LG	TO BODY HARNESS

Connector No.	B141
Connector Name	FRONT DOOR SWITCH RH
Connector Type	TH04FW-NH
Connector Color	WHITE

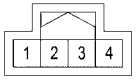
H.S.



Terminal No.	Color of Wire	Signal Name
1	–	–
2	–	–
3	GR	I AS DOOR2 SW
4	–	–

Connector No.	B142
Connector Name	REAR DOOR SWITCH RH
Connector Type	TH04FW-NH
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
1	–	–
2	–	–
3	W	I RR DOOR SW
4	–	–

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POWER DISTRIBUTION SYSTEM CONNECTORS

Connector No.	D2
Connector Name	WIRE TO WIRE
Connector Type	NS16FW-CS
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
1	V	TO MAIN HARNESS
2	R	TO MAIN HARNESS
3	G	TO MAIN HARNESS
4	BR	TO MAIN HARNESS
5	P	TO MAIN HARNESS
6	L	TO MAIN HARNESS
7	LA/BR	TO MAIN HARNESS
8	SB	TO MAIN HARNESS
9	GR	TO MAIN HARNESS
10	L	TO MAIN HARNESS
11	P	TO MAIN HARNESS
12	LG	TO MAIN HARNESS
13	Y	TO MAIN HARNESS
14	V	TO MAIN HARNESS
15	R	TO MAIN HARNESS
16	B	TO MAIN HARNESS

Connector No.	D3
Connector Name	WIRE TO WIRE
Connector Type	TH32FW-NH
Connector Color	WHITE

H.S.

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	Y	TO MAIN HARNESS
2	GR	TO MAIN HARNESS
3	LA/SB	TO MAIN HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
3	W	TO MAIN HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
4	LA/BG	TO MAIN HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
4	V	TO MAIN HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
5	LA/Y	TO MAIN HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
5	SB	TO MAIN HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
6	LA/V	TO MAIN HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
6	LG	TO MAIN HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
7	W	TO MAIN HARNESS
8	V	TO MAIN HARNESS
9	SB	TO MAIN HARNESS
10	LG	TO MAIN HARNESS
11	GR	TO MAIN HARNESS
12	G	TO MAIN HARNESS
13	Y	TO MAIN HARNESS
14	B	TO MAIN HARNESS
15	BG	TO MAIN HARNESS
16	L	TO MAIN HARNESS
17	LA/W	TO MAIN HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
17	LA/SB	TO MAIN HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
18	LA/W	TO MAIN HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
18	LA/Y	TO MAIN HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
19	LA/BR	TO MAIN HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
19	LA/LG	TO MAIN HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
20	LA/GR	TO MAIN HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
20	LA/V	TO MAIN HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
21	BR	TO MAIN HARNESS
22	W	TO MAIN HARNESS
23	LA/R	TO MAIN HARNESS
24	GR	TO MAIN HARNESS
25	R	TO MAIN HARNESS
26	LA/G	TO MAIN HARNESS
27	LA/LG	TO MAIN HARNESS
28	LA/L	TO MAIN HARNESS
29	LA/Y	TO MAIN HARNESS
30	LA/V	TO MAIN HARNESS
31	LA/BR	TO MAIN HARNESS
32	P	TO MAIN HARNESS

Connector No.	D5
Connector Name	JOINT CONNECTOR-D01
Connector Type	SAC08JW
Connector Color	WHITE

H.S.

8	7	6	5	4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	B	GROUND
2	B	GROUND
3	B	GROUND
4	B	GROUND
5	LA/B	GROUND
6	B	GROUND (WITHOUT AUTOMATIC DRIVE POSITIONER)
6	LA/B	GROUND (WITH AUTOMATIC DRIVE POSITIONER)
7	B	GROUND
8	LA/B	GROUND

Connector No.	D11
Connector Name	FRONT OUTSIDE HANDLE ASSEMBLY LH
Connector Type	RH04FB
Connector Color	BLACK

H.S.

1	2	3	4

Terminal No.	Color of Wire	Signal Name
1	V	SES EXT DR ANTENNA A
2	SB	SES EXT DR ANTENNA B
3	W	I SES DR HANDLE BUTTON SW
4	B	GROUND

Connector No.	D101
Connector Name	WIRE TO WIRE
Connector Type	TH24FW-NH
Connector Color	WHITE

H.S.

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

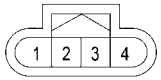
Terminal No.	Color of Wire	Signal Name
1	B	TO MAIN HARNESS
2	B	TO MAIN HARNESS
3	B	TO MAIN HARNESS
4	P	TO MAIN HARNESS
5	R	TO MAIN HARNESS
6	SB	TO MAIN HARNESS
7	L	TO MAIN HARNESS
8	V	TO MAIN HARNESS
9	Y	TO MAIN HARNESS
10	B	TO MAIN HARNESS
11	G	TO MAIN HARNESS
12	LA/V	TO MAIN HARNESS
13	LA/Y	TO MAIN HARNESS
14	LA/R	TO MAIN HARNESS
15	LA/V	TO MAIN HARNESS
16	LA/L	TO MAIN HARNESS
17	LA/BG	TO MAIN HARNESS
18	GR	TO MAIN HARNESS
19	LG	TO MAIN HARNESS
20	BR	TO MAIN HARNESS
21	LA/G	TO MAIN HARNESS
22	LA/SB	TO MAIN HARNESS
23	LA/BG	TO MAIN HARNESS
24	LA/Y	TO MAIN HARNESS

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POWER DISTRIBUTION SYSTEM CONNECTORS

Connector No.	D126
Connector Name	FRONT OUTSIDE HANDLE ASSEMBLY RH
Connector Type	RH04FB
Connector Color	BLACK

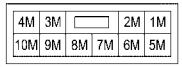
H.S.



Terminal No.	Color of Wire	Signal Name
1	R	SES EXT AS ANTENNA A
2	SB	SES EXT AS ANTENNA B
3	P	I SES FR HANDLE BUTTON SW
4	B	GROUND

Connector No.	E28
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS10FW-CS
Connector Color	WHITE

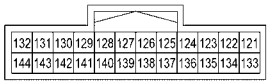
H.S.



Terminal No.	Color of Wire	Signal Name
1M	–	–
2M	–	–
3M	–	–
4M	–	–
5M	V	BATTERY
6M	Y	O LIGHT POSITION REAR LH
7M	–	–
8M	–	–
9M	–	–
10M	–	–

Connector No.	E29
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH24FB-NH
Connector Color	BLACK

H.S.



Terminal No.	Color of Wire	Signal Name
121	–	–
122	–	–
123	–	–
124	–	–
125	LG	BRAKE SW2
126	W	BRAKE SW1
127	–	–
128	–	–
129	–	–
130	–	–
131	–	–
132	Y	BUZZER (WITH I-KEY)
133	–	–
134	–	–
135	BR	DI FR LEFT E
136	GR	DI FR RIGHT E
137	–	–
138	–	–
139	G	STCUT RL
140	–	–
141	–	–
142	–	–
143	–	–
144	–	–

Connector No.	E38
Connector Name	STOP LAMP SWITCH
Connector Type	M04FW-LC
Connector Color	WHITE

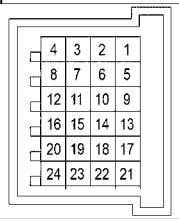
H.S.



Terminal No.	Color of Wire	Signal Name
1	V	BATTERY
2	LG	I BRAKE SW2
3	L	IGNITION
4	W	STOP LAMP SWITCH OUTPUT

Connector No.	E44
Connector Name	JOINT CONNECTOR-E01
Connector Type	NH24FG-J
Connector Color	GREEN

H.S.



Terminal No.	Color of Wire	Signal Name
1	V	SENSOR GROUND
2	LG	I BRAKE SW2
3	P	CAN-L
4	L	CAN-H
5	B	SENSOR GROUND
6	LG	I BRAKE SW2
7	P	CAN-L
8	L	CAN-H
9	W	SENSOR GROUND
10	Y	STOP LAMP SWITCH
11	P	CAN-L
12	L	CAN-H
13	–	–
14	R	STOP LAMP SWITCH
15	P	CAN-L
16	L	CAN-H
17	BR	EVAP CONTROL SYSTEM PRESSURE SENSOR
18	–	–
19	P	CAN-L
20	L	CAN-H
21	L	EVAP CONTROL SYSTEM PRESSURE SENSOR
22	–	–
23	–	–
24	–	–

Connector No.	E55
Connector Name	STARTER CUT RELAY
Connector Type	MS02FL-M2-LC
Connector Color	BLUE

H.S.



Terminal No.	Color of Wire	Signal Name
1	SB	BATTERY
2	G	RELAY CONTROL
3	L	BATTERY
5	GR	RELAY OUTPUT

Connector No.	E118
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	L02FB-MC
Connector Color	BLACK

H.S.



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

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POWER DISTRIBUTION SYSTEM CONNECTORS

Connector No.	E119
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS16FGY-CS
Connector Color	GRAY

H.S.

9	8	7	6		5	4	3
18	17	16	15	14	13	12	11	10

Terminal No.	Color of Wire	Signal Name
3	–	–
4	Y	LIGHT POSITION REAR LH
5	–	–
6	–	–
7	–	–
8	BR	ACTUATOR4 CABIN (3FB4)
9	L	LO HORN RLY
10	–	–
11	V	IGN AIRBAG
12	B	SIGNAL GROUND
13	–	–
14	–	–
15	–	–
16	G	LIGHT REVERSE LAMP
17	W	LIGHT POSITION REAR RH
18	–	–

Connector No.	E120
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH24FGY-NH
Connector Color	GRAY

H.S.

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	IGN ECM
20	–	–
21	–	–

22	P	CAN-L
23	–	–
24	L	CAN-H
25	–	–
26	–	–
27	SB	CABIN MOTOR 5
28	R	CABIN MOTOR 6
29	LG	CABIN MOTOR 7
30	Y	CABIN MOTOR 8
31	B	2ND SIGNAL GROUND
32	GR	LI PUSH SW
33	BR	AUTO STOP WIPER
34	–	–
35	–	–
36	–	–
37	–	–
38	–	–
39	L	HEV CAN-H
40	G	HEV CAN-L
41	W	CABIN MOTOR 3
42	R	CABIN MOTOR 4

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	243405408R
Connector Color	RED

H.S.

45	44	43
48	47	46

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

Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	YLA06FGY
Connector Color	GRAY

H.S.

83	82	81
86	85	84

Terminal No.	Color of Wire	Signal Name
81	V	FL ECM USM SUPPLY
82	–	–
83	G	STARTER
84	LG	BATT MOTOR FAN LO
85	–	–
86	GR	FL STARTER

Connector No.	E132
Connector Name	HPCM
Connector Type	RH40FBR-RZ8-L-RH
Connector Color	BROWN

H.S.

33	37	41	45	49	53	57	61	65	69	73	77
34	38	42	46	50	54	58	62	66	70	74	78
35	39	43	47	51	55	59	63	67	71	75	79
36	40	44	48	52	56	60	64	68	72	76	80

Terminal No.	Color of Wire	Signal Name
33	–	–
34	–	–
35	–	–
36	SB	P/N SIGNAL
37	–	–
38	–	–
39	–	–
40	–	–
41	–	–
42	–	–
43	–	–
44	–	–
45	–	–
46	–	–
47	–	–

48	–	–
49	–	–
50	B	HPCM GROUND
51	SHIELD	SHIELD
52	–	–
53	–	–
54	B	HPCM GROUND
55	–	–
56	–	–
57	B	HPCM GROUND
58	–	–
59	–	–
60	–	–
61	–	–
62	–	–
63	LG	12V BATTERY TEMPERATURE SENSOR
64	–	–
65	–	–
66	–	–
67	–	–
68	–	–
69	V	12V BATTERY CURRENT SENSOR
70	W	SENSOR GROUND
71	–	–
72	BR	SENSER POWER SUPPLY
73	–	–
74	–	–
75	–	–
76	–	–
77	L	POWER SUPPLY FOR HPCM
78	–	–
79	GR	SHIFT LOCK SOLENOID
80	–	–

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POWER DISTRIBUTION SYSTEM CONNECTORS

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1J	–	TO MAIN HARNESS
2J	Y	TO MAIN HARNESS
3J	–	TO MAIN HARNESS
4J	–	TO MAIN HARNESS
5J	–	TO MAIN HARNESS
6J	–	TO MAIN HARNESS
7J	–	TO MAIN HARNESS
8J	–	TO MAIN HARNESS
9J	BR	TO MAIN HARNESS
10J	–	TO MAIN HARNESS
11J	–	TO MAIN HARNESS
12J	–	TO MAIN HARNESS
13J	–	TO MAIN HARNESS
14J	–	TO MAIN HARNESS
15J	–	TO MAIN HARNESS
16J	–	TO MAIN HARNESS
17J	–	TO MAIN HARNESS
18J	–	TO MAIN HARNESS
19J	–	TO MAIN HARNESS
20J	–	TO MAIN HARNESS
21J	GR	TO MAIN HARNESS
22J	SHIELD	TO MAIN HARNESS
23J	LG	TO MAIN HARNESS
24J	V	TO MAIN HARNESS
25J	L	TO MAIN HARNESS
26J	BR	TO MAIN HARNESS
27J	G	TO MAIN HARNESS
28J	R	TO MAIN HARNESS
29J	L	TO MAIN HARNESS
30J	V	TO MAIN HARNESS
31J	–	TO MAIN HARNESS
32J	–	TO MAIN HARNESS
33J	R	TO MAIN HARNESS
34J	L	TO MAIN HARNESS
35J	BG	TO MAIN HARNESS
36J	LG	TO MAIN HARNESS
37J	GR	TO MAIN HARNESS
38J	BR	TO MAIN HARNESS
39J	–	TO MAIN HARNESS
40J	–	TO MAIN HARNESS
41J	G	TO MAIN HARNESS
42J	W	TO MAIN HARNESS
43J	L	TO MAIN HARNESS
44J	B	TO MAIN HARNESS
45J	SB	TO MAIN HARNESS
46J	BR	TO MAIN HARNESS
47J	W	TO MAIN HARNESS
48J	W	TO MAIN HARNESS
49J	L	TO MAIN HARNESS
50J	P	TO MAIN HARNESS
51J	W	TO MAIN HARNESS
52J	R	TO MAIN HARNESS
53J	SB	TO MAIN HARNESS
54J	LG	TO MAIN HARNESS
55J	W	TO MAIN HARNESS
56J	BG	TO MAIN HARNESS
57J	R	TO MAIN HARNESS
58J	V	TO MAIN HARNESS
59J	BR	TO MAIN HARNESS
60J	P	TO MAIN HARNESS
61J	L	TO MAIN HARNESS
62J	P	TO MAIN HARNESS
63J	L	TO MAIN HARNESS
64J	R	TO MAIN HARNESS
65J	L	TO MAIN HARNESS
66J	BG	TO MAIN HARNESS
67J	–	TO MAIN HARNESS
68J	–	TO MAIN HARNESS
69J	G	TO MAIN HARNESS
70J	L	TO MAIN HARNESS
71J	–	TO MAIN HARNESS
72J	–	TO MAIN HARNESS
73J	–	TO MAIN HARNESS
74J	–	TO MAIN HARNESS
75J	–	TO MAIN HARNESS
76J	–	TO MAIN HARNESS
77J	–	TO MAIN HARNESS
78J	–	TO MAIN HARNESS
79J	SHIELD	TO MAIN HARNESS
80J	B	TO MAIN HARNESS
81J	W	TO MAIN HARNESS
82J	–	TO MAIN HARNESS
83J	–	TO MAIN HARNESS
84J	–	TO MAIN HARNESS
85J	–	TO MAIN HARNESS
86J	–	TO MAIN HARNESS
87J	–	TO MAIN HARNESS
88J	–	TO MAIN HARNESS
89J	–	TO MAIN HARNESS
90J	–	TO MAIN HARNESS
91J	–	TO MAIN HARNESS
92J	LG	TO MAIN HARNESS
93J	L	TO MAIN HARNESS
94J	L	TO MAIN HARNESS
95J	BR	TO MAIN HARNESS
96J	–	TO MAIN HARNESS
97J	GR	TO MAIN HARNESS
98J	P	TO MAIN HARNESS
99J	W	TO MAIN HARNESS
100J	Y	TO MAIN HARNESS

Connector No.	F35
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS16FW-CS
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
65	–	–
66	W	ACTUATOR1 1 (3FBI)
67	V	LI ECM ACT5 DRIVER
68	–	–
69	–	–
70	R	IGN AT LPG
71	Y	IGN REVERSE SW AC VALVE
72	LG	ACTUATOR5 (3FBA)
73	G	ACTUATOR1 2 (3FB)
74	–	–
75	R	ACTUATOR3 (3FB3)
76	P	LI FUEL PUMP DRIVER
77	–	–
78	BR	ACTUATOR2 (3FB2)
79	G	LI LIGHT REVERSE SW
80	–	–

Connector No.	F42
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH24FB-NH
Connector Color	BLACK

H.S.

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
87	L	HEV CAN-H
88	G	HEV CAN-L
89	W	MOTOR CABIN 3
90	R	MOTOR CABIN 4
91	–	–
92	BG	LI NP SW
93	P	LI ECM DRIVER
94	–	–
95	–	–
96	–	–
97	–	–
98	–	–
99	BG	MOTOR CABIN 5
100	GR	MOTOR CABIN 6
101	LG	MOTOR CABIN 7
102	Y	MOTOR CABIN 8
103	W	HOOD SW2
104	–	–
105	–	–
106	BR	LO FAN RELAY2(PWM)
107	–	–
108	–	–
109	–	–
110	–	–

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POWER DISTRIBUTION SYSTEM CONNECTORS

Connector No.	F78
Connector Name	TRANSMISSION RANGE SWITCH
Connector Type	YDX06FB-HS4
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
1	–	–
2	Y	D RANGE SW
3	–	–
4	R	VIGN
5	V	P RANGE SW
6	SB	L RANGE SW
7	Y	IGN AT LPG
8	G	R RANGE SW
9	R	N RANGE SW
10	BG	LI NP SW

Connector No.	M14
Connector Name	JOINT CONNECTOR- M30
Connector Type	SAC04JW
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	Y	I IGN SW
2	Y	I START WO ESCL SW
3	Y	I START WO ESCL SW
4	Y	LI PUSH SW

Connector No.	M17
Connector Name	PUSH-BUTTON IGNITION SWITCH
Connector Type	TH08FW-NH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	–	–
2	–	–
3	–	–
4	B	GROUND
5	Y	I START WO ESCL SW
6	–	–
7	B	GROUND
8	W	O START SW BACKLIGHT LED

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FGY-NH
Connector Color	GRAY

H.S.

Terminal No.	Color of Wire	Signal Name
1	L	LIN 3 D
2	LA/G	DI FR LEFT D
3	LA/Y	DI FR RIGHT D
4	P	SPARE4 RL N
5	R	CAN-L
6	L	CAN-H
7	–	–
8	L	CAN-H
9	R	CAN-L
10	BG	DOORLOCK SW
11	Y	HAZARD SW D
12	W	PWR AUTOLIGHT SENSOR
13	–	–
14	–	–
15	–	–
16	–	–
17	L	PWR ATDVC
18	–	–
19	LG	AUTOLIGHT SENSOR
20	–	–
21	–	–
22	–	–
23	G	WL AUTHORIZATION RL
24	LA/R	DEFROSTER RL D
25	BR	BAT TEMP1 RL
26	–	–
27	Y	IGN1 RL
28	LA/W	IGN2 RL
29	–	–
30	V	GND AUTOLIGHT SENSOR
31	–	–
32	–	–
33	LG	CSW 5
34	Y	CSW 5
35	BG	SECURITY LED
36	G	CSW 3
37	GR	CSW 4
38	V	CSW 1
39	W	CSW 2
40	SB	DOORUNLOCK SW

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH
Connector Color	BLACK

H.S.

Terminal No.	Color of Wire	Signal Name
81	–	–
82	W	SES FR HANDLE BUTTON SW
83	–	–
84	BR	CSW 2
85	SB	CSW 1
86	P	CSW 3
87	BG	CSW 4
88	W	START SW BACKLIGHT LED
89	Y	START WO ESCL SW
90	–	–
91	–	–
92	BR	KEY CYLINDER LOCK SW
93	P	KEY CYLINDER UNLOCK SW
94	G	AT LOCKED IN PARK SW
95	V	SHORTING PIN
96	–	–
97	–	–
98	–	–
99	–	–
100	V	SES EXT DR ANTENNA A
101	–	–
102	–	–
103	–	–
104	R	DR KNOB SW
105	Y	SES DR HANDLE BUTTON SW
106	W	AUTO ACC2
107	–	–
108	–	–
109	–	–
110	BG	MR OUTPUT
111	–	–
112	–	–
113	–	–
114	Y	IMMOBILIZER KAZASHI B
115	W	IMMOBILIZER KAZASHI A
116	BG	SES INT FRONT ANTENNA B
117	GR	SES INT FRONT ANTENNA A
118	SB	SES EXT AS ANTENNA B
119	P	SES EXT AS ANTENNA A
120	BR	SES EXT DR ANTENNA B

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POWER DISTRIBUTION SYSTEM CONNECTORS

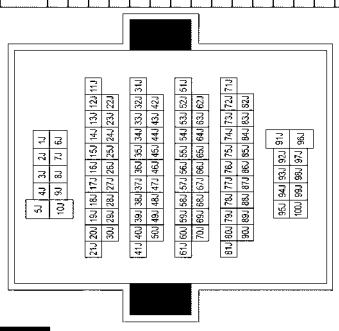
Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	NS16FBR-CS
Connector Color	BROWN

H.S.

Terminal No.	Color of Wire	Signal Name
161	W	PWR ECU
162	SB	PWM ROOMLAMP 1
163	L	AS LOCK OR UNLOCK D
164	–	–
165	V	DR OR FR LOCK D
166	–	–
167	LA/V	PWR DOORLOCK1
168	BG	PWR FLASHERS
169	GR	PWR STOP LAMP
170	B	GND1
171	B	GND2
172	G	FR OR DR UNLOCK D
173	–	–
174	–	–
175	R	PWR DOORLOCK2
176	LG	PWR WIPER

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4
Connector Color	WHITE

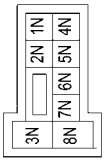
H.S.



Terminal No.	Color of Wire	Signal Name
1J	–	TO ENGINE ROOM HARNESS
2J	R	TO ENGINE ROOM HARNESS
3J	–	TO ENGINE ROOM HARNESS
4J	–	TO ENGINE ROOM HARNESS
5J	–	TO ENGINE ROOM HARNESS
6J	–	TO ENGINE ROOM HARNESS
7J	–	TO ENGINE ROOM HARNESS
8J	–	TO ENGINE ROOM HARNESS
9J	W	TO ENGINE ROOM HARNESS
10J	–	TO ENGINE ROOM HARNESS
11J	–	TO ENGINE ROOM HARNESS
12J	–	TO ENGINE ROOM HARNESS
13J	–	TO ENGINE ROOM HARNESS
14J	–	TO ENGINE ROOM HARNESS
15J	–	TO ENGINE ROOM HARNESS
16J	–	TO ENGINE ROOM HARNESS
17J	–	TO ENGINE ROOM HARNESS
18J	–	TO ENGINE ROOM HARNESS
19J	–	TO ENGINE ROOM HARNESS
20J	–	TO ENGINE ROOM HARNESS
21J	LA/L	TO ENGINE ROOM HARNESS
22J	SHIELD	TO ENGINE ROOM HARNESS
23J	LG	TO ENGINE ROOM HARNESS
24J	V	TO ENGINE ROOM HARNESS
25J	L	TO ENGINE ROOM HARNESS
26J	BR	TO ENGINE ROOM HARNESS
27J	G	TO ENGINE ROOM HARNESS
28J	Y	TO ENGINE ROOM HARNESS
29J	L	TO ENGINE ROOM HARNESS
30J	V	TO ENGINE ROOM HARNESS
31J	–	TO ENGINE ROOM HARNESS
32J	–	TO ENGINE ROOM HARNESS
33J	R	TO ENGINE ROOM HARNESS
33J	Y	TO ENGINE ROOM HARNESS - (WITH DRIVER ASSISTNACE SYSTEM)
34J	L	TO ENGINE ROOM HARNESS
35J	BG	TO ENGINE ROOM HARNESS
36J	GR	TO ENGINE ROOM HARNESS
37J	Y	TO ENGINE ROOM HARNESS
38J	LA/BR	TO ENGINE ROOM HARNESS
39J	–	TO ENGINE ROOM HARNESS
40J	–	TO ENGINE ROOM HARNESS
41J	LA/R	TO ENGINE ROOM HARNESS
42J	W	TO ENGINE ROOM HARNESS
43J	L	TO ENGINE ROOM HARNESS
44J	B	TO ENGINE ROOM HARNESS
45J	SB	TO ENGINE ROOM HARNESS
46J	BR	TO ENGINE ROOM HARNESS
47J	W	TO ENGINE ROOM HARNESS
48J	R	TO ENGINE ROOM HARNESS
49J	SB	TO ENGINE ROOM HARNESS
50J	GR	TO ENGINE ROOM HARNESS
51J	W	TO ENGINE ROOM HARNESS
52J	R	TO ENGINE ROOM HARNESS
53J	BR	TO ENGINE ROOM HARNESS
54J	LG	TO ENGINE ROOM HARNESS
55J	LA/Y	TO ENGINE ROOM HARNESS
56J	LA/V	TO ENGINE ROOM HARNESS
57J	LA/R	TO ENGINE ROOM HARNESS
58J	W	TO ENGINE ROOM HARNESS
59J	BR	TO ENGINE ROOM HARNESS
60J	P	TO ENGINE ROOM HARNESS
61J	L	TO ENGINE ROOM HARNESS
62J	R	TO ENGINE ROOM HARNESS
63J	L	TO ENGINE ROOM HARNESS
64J	R	TO ENGINE ROOM HARNESS
65J	L	TO ENGINE ROOM HARNESS
66J	BG	TO ENGINE ROOM HARNESS
67J	–	TO ENGINE ROOM HARNESS
68J	–	TO ENGINE ROOM HARNESS
69J	G	TO ENGINE ROOM HARNESS
70J	L	TO ENGINE ROOM HARNESS
71J	–	TO ENGINE ROOM HARNESS
72J	–	TO ENGINE ROOM HARNESS
73J	–	TO ENGINE ROOM HARNESS
74J	–	TO ENGINE ROOM HARNESS
75J	–	TO ENGINE ROOM HARNESS
76J	–	TO ENGINE ROOM HARNESS
77J	–	TO ENGINE ROOM HARNESS
78J	–	TO ENGINE ROOM HARNESS
79J	SHIELD	TO ENGINE ROOM HARNESS
80J	B	TO ENGINE ROOM HARNESS
81J	W	TO ENGINE ROOM HARNESS
82J	–	TO ENGINE ROOM HARNESS
83J	–	TO ENGINE ROOM HARNESS
84J	–	TO ENGINE ROOM HARNESS
85J	–	TO ENGINE ROOM HARNESS
86J	–	TO ENGINE ROOM HARNESS
87J	–	TO ENGINE ROOM HARNESS
88J	–	TO ENGINE ROOM HARNESS
89J	–	TO ENGINE ROOM HARNESS
90J	–	TO ENGINE ROOM HARNESS
91J	–	TO ENGINE ROOM HARNESS
92J	Y	TO ENGINE ROOM HARNESS
93J	G	TO ENGINE ROOM HARNESS
94J	L	TO ENGINE ROOM HARNESS
95J	P	TO ENGINE ROOM HARNESS
96J	–	TO ENGINE ROOM HARNESS
97J	SB	TO ENGINE ROOM HARNESS
98J	P	TO ENGINE ROOM HARNESS
99J	LA/R	TO ENGINE ROOM HARNESS
100J	R	TO ENGINE ROOM HARNESS

Connector No.	M33
Connector Name	FUSE BLOCK (J/B)
Connector Type	CS06FW-M2
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
1N	L	ACCESSORY RELAY 1 OUTPUT
2N	LG	BATTERY
3N	Y	FRONT BLOWER MOTOR RELAY OUTPUT
4N	LG	BATTERY
5N	R	BATTERY
6N	BG	BATTERY
7N	BR	ACCESSORY RELAY-1 CONTROL
8N	SB	FRONT BLOWER MOTOR RELAY OUTPUT

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POWER DISTRIBUTION SYSTEM CONNECTORS

Connector No.	M44
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS16FW-CS
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
1P	R	IGNITION
2P	G	IGNITION
3P	Y	IGNITION RELAY-2 CONTROL
4P	LG	REAR WINDOW DEFOGGER RELAY OUTPUT
5P	GR	REAR WINDOW DEFOGGER RELAY OUTPUT
6P	LA/R	REAR WINDOW DEFOGGER RELAY CONTROL
7P	Y	IGNITION
8P	V	IGNITION
9P	L	BATTERY
10P	LG	IGNITION
11P	–	–
12P	–	–
13P	G	BATTERY
14P	–	–
15P	L	BATTERY
16P	LA/W	FRONT BLOWER MOTOR RELAY CONTROL

Connector No.	M65
Connector Name	JOINT CONNECTOR-M26
Connector Type	SAC08JW
Connector Color	WHITE

H.S.

8	7	6	5	4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	B	GROUND
2	B	GROUND
3	B	GROUND
4	B	GROUND

5	B	GROUND
6	B	GROUND
7	B	GROUND
8	B	GROUND

Connector No.	M68
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS16FBR-CS
Connector Color	BROWN

H.S.

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

Terminal No.	Color of Wire	Signal Name
1R	V	ILLUMINATION +
2R	G	IGNITION
3R	V	BATTERY
4R	–	–
5R	–	–
6R	LA/L	ACCESSORY
7R	LA/V	BATTERY
8R	–	–
9R	–	–
10R	GR	BATTERY
11R	–	–
12R	–	–
13R	–	–
14R	W	BATTERY
15R	W	BATTERY
16R	GR	ACCESSORY

Connector No.	M87
Connector Name	AUDIO UNIT
Connector Type	TH32FW-NH
Connector Color	WHITE

H.S.

44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29
60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45

Terminal No.	Color of Wire	Signal Name
29	–	–
30	–	–

31	R	HF/VR MODE CHANGE
32	–	–
33	–	–
34	–	–
35	W	AUTO ACC
36	SB	MCAN2 H
37	LG	MCAN2 L
38	–	–
39	SB	MCAN1 H
40	LG	MCAN1 L
41	B	CAM GND
42	R	CAM 6.2V
43	W	COMPOSITE+ (CAM NTSC)
44	SHIELD	COMPOSITE- (CAM GND)
45	W	MIC +
46	B	MIC V+
47	SHIELD	MIC GND
48	–	–
49	–	–
50	–	–
51	–	–
52	B	CAM DET
53	–	–
54	–	–
55	–	–
56	–	–
57	–	–
58	BR	REV (FOR RR VIEW)
59	–	–
60	–	–

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Type	TH24MW-NH
Connector Color	WHITE

H.S.

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

Terminal No.	Color of Wire	Signal Name
1	B	TO FRONT DOOR RH HARNESS
2	GR	TO FRONT DOOR RH HARNESS
3	GR	TO FRONT DOOR RH HARNESS
4	W	TO FRONT DOOR RH HARNESS
5	P	TO FRONT DOOR RH HARNESS
6	SB	TO FRONT DOOR RH HARNESS
7	B	TO FRONT DOOR RH HARNESS

8	L	TO FRONT DOOR RH HARNESS
9	Y	TO FRONT DOOR RH HARNESS
10	SHIELD	TO FRONT DOOR RH HARNESS
11	G	TO FRONT DOOR RH HARNESS
12	V	TO FRONT DOOR RH HARNESS
13	Y	TO FRONT DOOR RH HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
13	LA/SB	TO FRONT DOOR RH HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
14	R	TO FRONT DOOR RH HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
14	LA/GR	TO FRONT DOOR RH HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
15	V	TO FRONT DOOR RH HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
15	LA/V	TO FRONT DOOR RH HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
16	LA/L	TO FRONT DOOR RH HARNESS
17	LA/BG	TO FRONT DOOR RH HARNESS
18	GR	TO FRONT DOOR RH HARNESS
19	LG	TO FRONT DOOR RH HARNESS
20	BR	TO FRONT DOOR RH HARNESS
21	LA/Y	TO FRONT DOOR RH HARNESS
22	SB	TO FRONT DOOR RH HARNESS
23	BG	TO FRONT DOOR RH HARNESS
24	Y	TO FRONT DOOR RH HARNESS

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POWER DISTRIBUTION SYSTEM CONNECTORS

Connector No.	M101
Connector Name	AV CONTROL UNIT (WITHOUT BOSE AUDIO SYSTEM)
Connector Type	NH18FW-CS2
Connector Color	WHITE

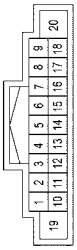
H.S.

Terminal No.	Color of Wire	Signal Name
1	–	–
2	W	FR SP LH (+)
3	P	FR SP LH (-)
4	GR	RR SP LH (+)
5	BR	RR SP LH (-)
6	–	–
7	W	ACC
8	L	CAN-H
9	V	ILL (+), LIGHT SW
10	–	–
11	G	FR SP RH (+)
12	V	FR SP RH (-)
13	LG	RR SP RH (+)
14	Y	RR SP RH (-)
15	–	–
16	–	–
17	R	CAN-L
18	G	SPEED SIGNAL
19	L	BAT
20	B	GND

2	B	GROUND
3	R	–
4	B	GROUND
5	G	ILL CONT OUT
6	B	GROUND
7	LG	M RANGE
8	BR	AT SHIFT DOWN
9	BG	AT SHIFT UP
10	B	GROUND
11	SB	NOT M RANGE
12	L	O PWR ATDVC
13	G	I AT LOCKED IN PARK SW
14	–	–
15	–	–
16	–	–

Connector No.	M108
Connector Name	AV CONTROL UNIT (WITH BOSE AUDIO SYSTEM)
Connector Type	NH18FW-CS2
Connector Color	WHITE

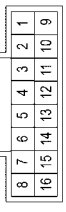
H.S.



Terminal No.	Color of Wire	Signal Name
1	BR	AMP ON
2	R	FR SP LH (+)
3	G	FR SP LH (-)
4	V	RR SP LH (+)
5	LG	RR SP LH (-)
6	–	–
7	W	ACC
8	L	CAN-H
9	V	ILL (+), LIGHT SW
10	B	PRE AMP SHIELD
11	R	FR SP RH (+)
12	W	FR SP RH (-)
13	L	RR SP RH (+)
14	Y	RR SP RH (-)
15	–	–
16	–	–
17	R	CAN-L
18	G	SPEED SIGNAL
19	L	BAT
20	B	GND

Connector No.	M107
Connector Name	CVT SHIFT SELECTOR
Connector Type	TH16FW-NH
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
1	P	O/D OFF SW

Connector No.	M167
Connector Name	WIRE TO WIRE
Connector Type	NS16MW-CS
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	V	TO FRONT DOOR LH HARNESS
2	R	TO FRONT DOOR LH HARNESS
3	G	TO FRONT DOOR LH HARNESS
4	BR	TO FRONT DOOR LH HARNESS
5	P	TO FRONT DOOR LH HARNESS
6	Y	TO FRONT DOOR LH HARNESS - (WITHOUT BOSE AUDIO SYSTEM)
6	LA/L	TO FRONT DOOR LH HARNESS - (WITH BOSE AUDIO SYSTEM)
7	R	TO FRONT DOOR LH HARNESS - (WITHOUT BOSE AUDIO SYSTEM)
7	LA/BR	TO FRONT DOOR LH HARNESS - (WITH BOSE AUDIO SYSTEM)
8	L	TO FRONT DOOR LH HARNESS
9	LA/BR	TO FRONT DOOR LH HARNESS
10	LA/GR	TO FRONT DOOR LH HARNESS
11	Y	TO FRONT DOOR LH HARNESS
12	BG	TO FRONT DOOR LH HARNESS
13	LA/G	TO FRONT DOOR LH HARNESS
14	LA/R	TO FRONT DOOR LH HARNESS
15	P	TO FRONT DOOR LH HARNESS
16	B	TO FRONT DOOR LH HARNESS

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POWER DISTRIBUTION SYSTEM CONNECTORS

Connector No.	M168
Connector Name	WIRE TO WIRE
Connector Type	TH32MW-NH
Connector Color	WHITE

H.S.

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
1	Y	TO FRONT DOOR LH HARNESS
2	GR	TO FRONT DOOR LH HARNESS
3	Y	TO FRONT DOOR LH HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
3	SB	TO FRONT DOOR LH HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
4	V	TO FRONT DOOR LH HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
4	BG	TO FRONT DOOR LH HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
5	BR	TO FRONT DOOR LH HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
5	Y	TO FRONT DOOR LH HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
6	LG	TO FRONT DOOR LH HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
6	V	TO FRONT DOOR LH HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
7	Y	TO FRONT DOOR LH HARNESS
8	V	TO FRONT DOOR LH HARNESS
9	BR	TO FRONT DOOR LH HARNESS
10	LG	TO FRONT DOOR LH HARNESS
11	L	TO FRONT DOOR LH HARNESS
12	Y	TO FRONT DOOR LH HARNESS
13	G	TO FRONT DOOR LH HARNESS
14	SHIELD	TO FRONT DOOR LH HARNESS
15	SB	TO FRONT DOOR LH HARNESS
16	BG	TO FRONT DOOR LH HARNESS
17	SB	TO FRONT DOOR LH HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
17	GR	TO FRONT DOOR LH HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
18	LA/SB	TO FRONT DOOR LH HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
18	W	TO FRONT DOOR LH HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
19	LA/GR	TO FRONT DOOR LH HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
19	BR	TO FRONT DOOR LH HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
20	LA/V	TO FRONT DOOR LH HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
20	GR	TO FRONT DOOR LH HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
21	BR	TO FRONT DOOR LH HARNESS
22	W	TO FRONT DOOR LH HARNESS
23	LA/R	TO FRONT DOOR LH HARNESS - (WITHOUT AUTOMATIC DRIVE POSITIONER)
23	R	TO FRONT DOOR LH HARNESS - (WITH AUTOMATIC DRIVE POSITIONER)
24	GR	TO FRONT DOOR LH HARNESS
25	R	TO FRONT DOOR LH HARNESS - LED INDICATOR L
26	LA/G	TO FRONT DOOR LH HARNESS
27	LG	TO FRONT DOOR LH HARNESS
28	L	TO FRONT DOOR LH HARNESS
29	Y	TO FRONT DOOR LH HARNESS
30	V	TO FRONT DOOR LH HARNESS
31	G	TO FRONT DOOR LH HARNESS
32	P	TO FRONT DOOR LH HARNESS

Connector No.	M170
Connector Name	JOINT CONNECTOR-M29
Connector Type	SAC08JW
Connector Color	WHITE

H.S.

8	7	6	5	4	3	2	1

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

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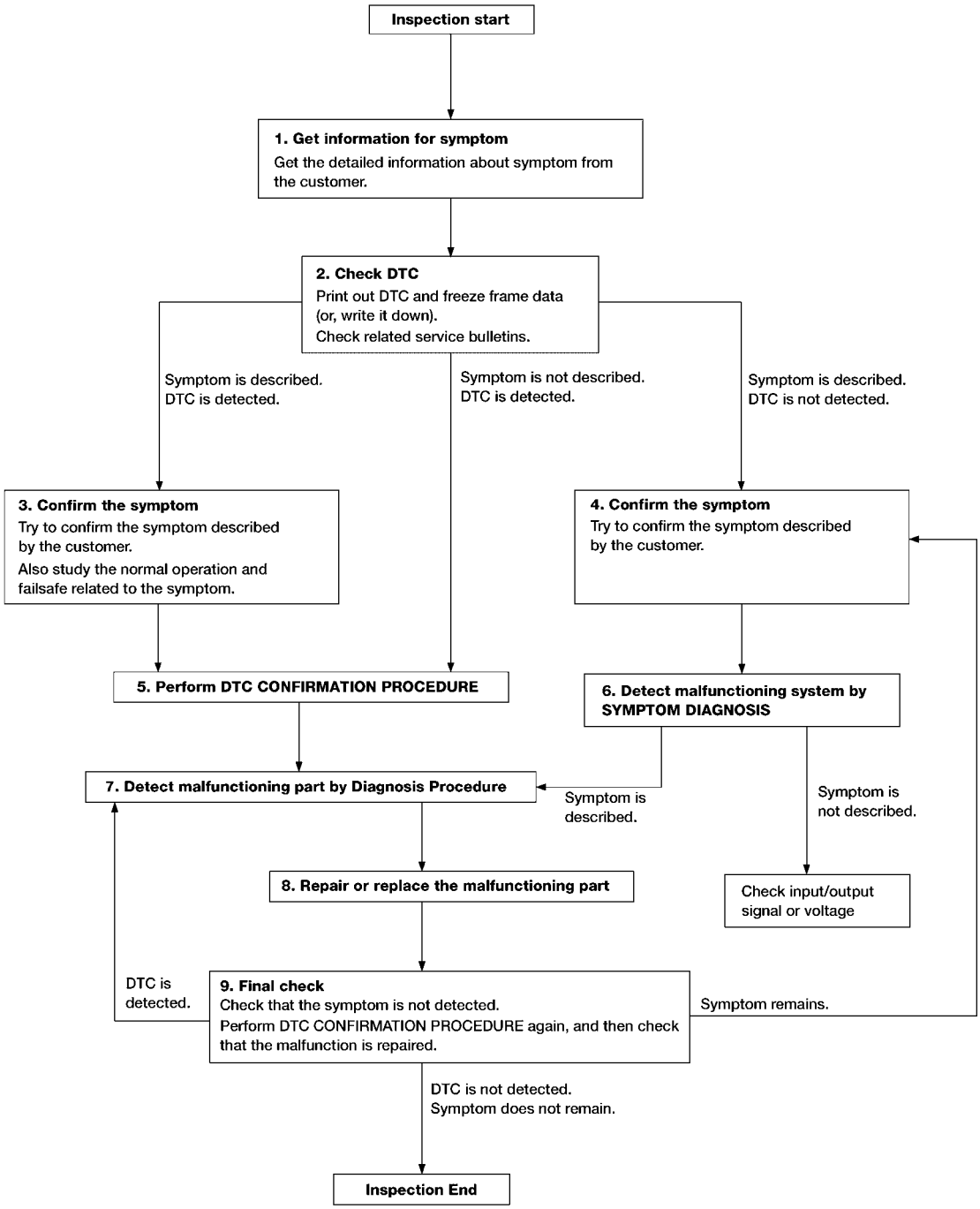
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:0000000015250685

OVERALL SEQUENCE



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DETAILED FLOW

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-54, "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-54, "Intermittent Incident".

8.REPAIR OR REPLACE THE MALFUNCTIONING PART

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

>> GO TO 9.

9.FINAL CHECK

When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.
When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Is DTC detected and does symptom remain?

YES-1 >> DTC is detected: GO TO 7.
YES-2 >> Symptom remains: GO TO 4.
NO >> Inspection End.

PROCEDURE FOR TEMPORARILY DISABLING THE IGNITION BATTERY SAVER SYSTEM

Description

INFOID:0000000015250686

The ignition battery saver system can be temporarily disabled, without using CONSULT, to prevent it from functioning when performing trouble diagnosis. Refer to PCS-79, "Work Procedure".

Work Procedure

INFOID:0000000015250687

1. Enter the vehicle carrying a registered Intelligent Key.
2. Place the ignition switch in the OFF position.
3. Without depressing the brake pedal, press and hold the push-button ignition switch continuously for ten seconds.
4. Check that the buzzer in the combination meter sounds for 2 seconds.
5. Operation is completed.
   NOTE:
   When the ignition switch is placed in any position other than ON, the ignition battery saver system is activated again.

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

DTC Description

INFOID:0000000015244242

Description

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicles are equipped with many electronic control units and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H-line, CAN L-line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only. CAN Communication Signal Chart. Refer to LAN-44, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC Detection Condition	
U1000	CAN COMM CIRCUIT (CAN communication circuit)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	—
		Diagnosis delay time	2 seconds or more

POSSIBLE CAUSE

CAN communication system

FAIL-SAFE

—

DTC CONFIRMATION PROCEDURE

1. DTC CONFIRMATION PROCEDURE

Ⓔ CONSULT

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Perform “Self Diagnostic Result” mode of “BCM”.

Is DTC U1000 detected?

YES >> Refer to PCS-80, "Diagnosis Procedure".
NO–1 >> To check malfunction symptom before repair: Refer to GI-54, "Intermittent Incident".
NO–2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000015244243

1. CHECK CAN COMMUNICATION

Check CAN communication. Refer to LAN-26, "Trouble Diagnosis Flow Chart".

Is DTC U1000 displayed?

YES >> Repair or replace the malfunctioning part.
NO >> Check intermittent incident. Refer to GI-54, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

DTC Description

INFOID:0000000015244244

DTC DETECTION LOGIC

DTC No.	CONSULT screen terms (Trouble diagnosis content)	DTC Detection Condition	
U1010	CONTROL UNIT(CAN) (Control unit)	Diagnosis condition	When ignition switch is ON.
		Signal (terminal)	—
		Threshold	—
		Diagnosis delay time	2 seconds or more

POSSIBLE CAUSE

- BCM

FAIL-SAFE

—

DTC CONFIRMATION PROCEDURE

1. DTC CONFIRMATION PROCEDURE

CONSULT

1. Turn ignition switch ON.
2. Perform “Self Diagnostic Result” mode of “BCM”.

Is DTC U1010 detected?

YES >> Refer to PCS-81, "Diagnosis Procedure".
NO–1 >> To check malfunction symptom before repair: Refer to GI-54, "Intermittent Incident".
NO–2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000015244245

1. REPLACE BCM

When DTC U1010 is detected, replace BCM.

>> Replace BCM. Refer to BCS-73, "Removal and Installation".

B261A PUSH-BUTTON IGNITION SWITCH

DTC Description

INFOID:0000000015244254

DTC DETECTION LOGIC

DTC No.	CONSULT screen items (Trouble diagnosis content)	DTC Detection Condition	
B261A	PUSH-BTN IGN SW (Push-button ignition switch)	Diagnosis condition	Always
		Signal (terminal)	Push-button ignition switch
		Threshold	The following signal status that BCM receives are compared, and it does not match for 1 second or more: • Push-button Ignition switch signal • Push-button Ignition switch status signal (CAN)
		Diagnosis delay time	1 second or more.

POSSIBLE CAUSE

- Harness or connectors [Push-button ignition switch (push switch) circuit is open or shorted].
- BCM
- IPDM E/R

FAIL-SAFE

—

DTC CONFIRMATION PROCEDURE

1.CHECK DTC PRIORITY

If DTC B261A is displayed with DTC U1000 or U1010, first perform the trouble diagnosis for DTC U1000 or U1010.

Is DTC detected?

YES >> Perform diagnosis of applicable. U1000: Refer to PCS-80, "DTC Description". U1010: Refer to PCS-81, "DTC Description".

NO >> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Press push-button ignition switch under the following conditions, and wait for 1 second or more.
- Shift position is in the P position
- Brake pedal released
2. Select “Self Diagnostic Result” mode of “BCM”.
3. Check DTC.

Is DTC detected?

YES >> Refer to PCS-82, "Diagnosis Procedure".

NO-1 >> To check malfunction symptom before repair: Refer to GI-54, "Intermittent Incident".

NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000015244255

Regarding Wiring Diagram information, refer to PCS-64, "Wiring Diagram".

1.CHECK PUSH-BUTTON IGNITION SWITCH INPUT SIGNAL

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 push-button ignition switch connector M17 and ground.

Push-button Ignition switch		Ground	Continuity
Connector	Terminal		
M17	5	—	No

Is the inspection result normal?

YES >> Replace BCM. Refer to PCS-101, "Removal and Installation".
NO >> Repair or replace harness or connectors.

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

1. Disconnect BCM connector M19
2. Connect IPDM E/R connector E120.
3. Ignition switch is ON.
4. 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 >> Replace IPDM E/R. Refer to PCS-46, "Removal and Installation".
NO >> GO TO 4.

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

1. 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

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

Push-button Ignition switch		Ground	Continuity
Connector	Terminal		
M17	5	—	No

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace harness or connectors.

5. CHECK INTERMITTENT INCIDENT

Refer to GI-54, "Intermittent Incident".

>> Inspection End.

B26F1 IGNITION RELAY

DTC Description

INFOID:0000000015244256

DTC DETECTION LOGIC

DTC No.	CONSULT screen items (Trouble diagnosis content)	DTC Detection Condition	
B26F1	IGN RELAY OFF (Ignition relay off)	Diagnosis condition	Always
		Signal (terminal)	• CAN communication line • Ignition relay (IPDM E/R) control
		Threshold	BCM transmits the ignition relay control signal (ON) and ignition switch ON signal (ON) (CAN), but does not receives ignition switch ON signal (ON) (CAN) from IPDM E/R.
		Diagnosis delay time	2 second or more.

POSSIBLE CAUSE

- Harness or connectors (Ignition relay circuit is open)
- BCM
- IPDM E/R

FAIL-SAFE

Inhibit engine cranking

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Turn ignition switch ON, and wait for 2 seconds or more.
2. Select “Self Diagnostic Result” mode.
3. Check DTC.

Is DTC detected?

YES >> Refer to PCS-85, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-54, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000015244257

Regarding Wiring Diagram information, refer to PCS-64, "Wiring Diagram".

1.CHECK IPDM E/R SELF-DIAGNOSTIC RESULT

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

Is DTC detected?

YES >> Refer to PCS-28, "DTC Index".
NO >> GO TO 2.

2.CHECK IGNITION RELAY-2 CONTROL SIGNAL

Check voltage between BCM connector M18 and ground.

BCM		Ground	Condition		Voltage
Connector	Terminal				
M18	27	—	Ignition switch	ON	0 – 0.5 V

Is the inspection result normal?

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

3.CHECK IGNITION RELAY-2 CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector M18 and fuse block (J/B) connector M44.
3. Check continuity between BCM connector M18 and fuse block (J/B) connector M44.

BCM		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
M18	27	M44	3P	Yes

4. Check continuity between BCM harness connector 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 PCS-86, "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-46, "Removal and Installation".
2. Turn ignition switch ON and check the DTC again.

Is DTC “B26F1” displayed?

YES >> Replace BCM. Refer to PCS-101, "Removal and Installation".
NO >> Inspection End.

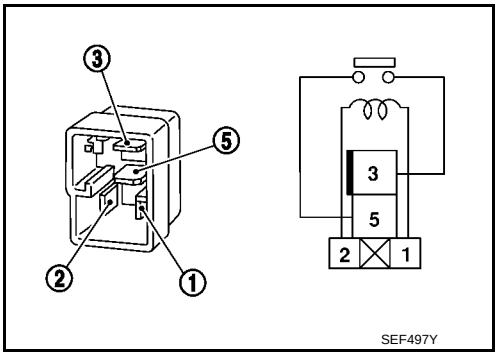
Component Inspection

INFOID:0000000015244258

1.CHECK IGNITION RELAY

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

Terminal		Condition	Continuity
Ignition relay-2			
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 Description

INFOID:0000000015244259

DTC DETECTION LOGIC

DTC No.	CONSULT screen items (Trouble diagnosis content)	DTC Detection Condition	
B26F2	IGN RELAY ON (Ignition relay on)	Diagnosis condition	Always
		Signal (terminal)	• CAN communication line • Ignition relay (IPDM E/R) control
		Threshold	BCM transmits the ignition relay control signal (OFF) and ignition switch ON signal (OFF) (CAN), but does not receives ignition switch ON signal (OFF) (CAN) from IPDM E/R.
		Diagnosis delay time	2 second or more.

POSSIBLE CAUSE

- Harness or connectors (Ignition relay circuit is short)
- BCM
- IPDM E/R

FAIL-SAFE

Inhibit engine cranking

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

CONSULT

1. Turn ignition switch ON, and wait for 2 seconds or more.
2. Select “Self Diagnostic Result” mode.
3. Check DTC.

Is DTC detected?

YES >> Refer to PCS-87, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-54, "Intermittent Incident".
NO-2 >> Confirmation after repair: Inspection End.

Diagnosis Procedure

INFOID:0000000015244260

Regarding Wiring Diagram information, refer to PCS-64, "Wiring Diagram".

1.CHECK IPDM E/R SELF-DIAGNOSTIC RESULT

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

Is DTC detected?

YES >> Refer to PCS-28, "DTC Index".
NO >> GO TO 2.

2.CHECK IGNITION RELAY-2 CONTROL SIGNAL

Check voltage between BCM connector M18 and ground.

BCM		Ground	Condition		Voltage (Approx.)
Connector	Terminal				
M18	27	—	Ignition switch	OFF	Battery voltage

Is the inspection result normal?

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

3.CHECK IGNITION RELAY-2 CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector M18 and fuse block (J/B) connector M44.
3. Check continuity between BCM connector M18 and fuse block (J/B) connector M44.

BCM		Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	
M18	27	M44	3P	Yes

4. Check continuity between BCM harness connector 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

Check ignition relay. Refer to PCS-88, "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-46, "Removal and Installation".
2. Turn ignition switch ON and check the DTC again.

Is DTC “B26F2” displayed?

YES >> Replace BCM. Refer to PCS-101, "Removal and Installation".
NO >> Inspection End.

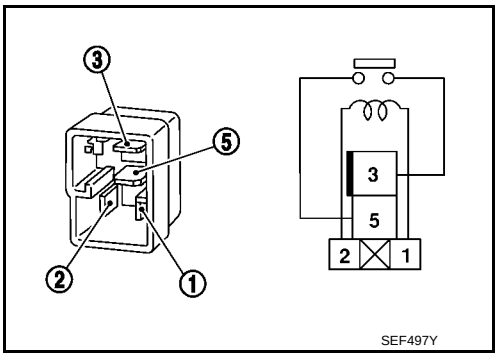
Component Inspection

INFOID:0000000015244261

1.CHECK IGNITION RELAY

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

Terminal		Condition	Continuity
Ignition relay-2			
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.

POWER SUPPLY AND GROUND CIRCUIT

BCM

BCM : Diagnosis Procedure

INFOID:0000000015244246

Regarding Wiring Diagram information, refer to BCS-51, "Wiring Diagram".

1. CHECK FUSE

Check that the following fuses are not blown.

Terminal No.	Signal name	Fuse No.
161	BCM power supply	7 (10A)
167	Power door lock battery power supply	5 (20A)
168	Turn signal/hazard battery power supply	1 (15A)
169	Stop lamp battery power supply	10 (10A)
175	Power door lock2 battery power supply	3 (20A)
176	Rear wiper battery power supply	4 (15A)

Is the fuse blown?

YES >> Replace the blown fuse after repairing the affected circuit.
NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M20.
2. Check voltage between BCM connector M20 and ground.

BCM		Ground	Voltage (Approx.)
Connector	Terminal		
M20	161	—	Battery voltage
	167		
	168		
	169		
	175		
	176		

Is the inspection result normal?

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

3. CHECK GROUND CIRCUIT

Check continuity between BCM connector M20 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	170	—	Yes
	171		

Is the inspection result normal?

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

IPDM E/R

IPDM E/R : Diagnosis Procedure

INFOID:0000000015244247

Regarding Wiring Diagram information, refer to PCS-30, "Wiring Diagram".

1. CHECK FUSE AND FUSIBLE LINKS

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

Terminal No.	Signal name	Fuse and fusible link Nos.
1	Battery power supply	A (250A), U (100A)
2		A (250A), W (80A)
81		A (250A), U (100A), I (30A)

Is the fuse blown?

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

2. CHECK BATTERY POWER SUPPLY CIRCUIT

1. Disconnect IPDM E/R connector E118 and E122.
2. Check voltage between IPDM E/R connectors and ground.

IPDM E/R		Ground	Voltage (Approx.)
Connector	Terminal		
E118	1	—	Battery voltage
	2		
E122	81		

Is the inspection result normal?

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

3. CHECK GROUND CIRCUIT

1. Disconnect IPDM E/R connectors E119, E120 and E121.
2. 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.

ACCESSORY RELAY

Diagnosis Procedure

INFOID:0000000015251696

Regarding Wiring Diagram information, refer to PCS-64, "Wiring Diagram".

1.CHECK ACCESSORY RELAY-1 CIRCUIT

Check voltage between BCM connector M18 and ground.

BCM		Ground	Condition		Voltage (Approx.)
Connector	Terminal				
M18	25	(—)	Ignition switch	OFF	Battery voltage
				ON	0 – 0.5 V

Is the inspection result normal?

YES >> Accessory relay-1 circuit normal.
NO >> GO TO 2.

2.CHECK ACCESSORY RELAY-1 POWER SUPPLY

1. Turn ignition switch OFF and wait for 3 minutes with the driver's door opened.
2. Disconnect fuse block (J/B) connector M33.
3. Check voltage between fuse block (J/B) connector M33 and ground.

Fuse block (J/B)		Ground	Voltage (Approx.)
Connector	Terminal		
M33	7N	(—)	Battery voltage

Is the inspection normal?

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

3.CHECK ACCESSORY RELAY-1 CIRCUIT

1. Check continuity between fuse block (J/B) connector M33 and BCM connector M18.

Fuse block (J/B)		BCM		Continuity
Connector	Terminal	Connector	Terminal	
M33	7N	M18	25	Yes

2. Check continuity between fuse block (J/B) connector M33 and ground.

Fuse block (J/B)		Ground	Continuity
Connector	Terminal		
M33	7N		No

Is the inspection normal?

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

4.CHECK ACCESSORY RELAY-1

Check accessory relay-1. Refer to PCS-92, "Component Inspection".

Is the inspection normal?

YES >> GO TO 5.
NO >> Replace accessory relay-1.

5.CHECK INTERMITTENT INCIDENT

Check intermittent incident. Refer to GI-54, "Intermittent Incident".

Is the inspection normal?

YES >> Replace fuse block (J/B).
NO >> Repair or replace the malfunctioning parts.

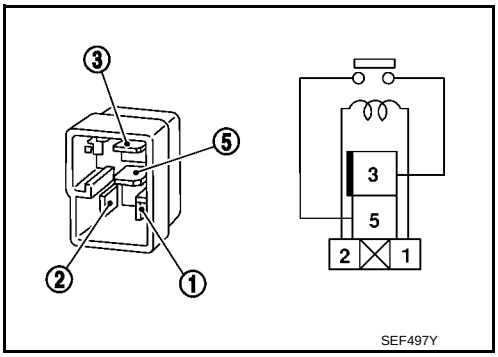
Component Inspection

INFOID:0000000015251697

1. CHECK ACCESSORY RELAY-1

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

Terminal		Condition	Continuity
Accessory relay-1			
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 accessory relay-1.

AUTO ACC OUTPUT CIRCUIT

Diagnosis Procedure

INFOID:0000000015244253

Regarding Wiring Diagram information, refer to PCS-64, "Wiring Diagram".

1.CHECK FUNCTION

CONSULT
1. Turn ignition switch ON.
2. Select “INTELLIGENT KEY” of “BCM” .
3. Select “AUTO ACC 2” in “Active Test” mode.
4. Check continuity between audio unit or AV control unit connector and ground.

Display Audio

Audio unit		Ground	Voltage (Approx.)
Connector	Terminal		
M87	35	(—)	3.15 V

Navigation Without Bose Audio System

AV control unit		Ground	Voltage (Approx.)
Connector	Terminal		
M101	7	(—)	3.15 V

Navigation With Bose Audio System

AV control unit		Ground	Voltage (Approx.)
Connector	Terminal		
M108	7	(—)	3.15 V

Is the inspection normal?

YES >> Refer to GI-54, "Intermittent Incident".
NO >> GO TO 2.

2.CHECK BCM OUTPUT CIRCUIT

1. Turn ignition switch OFF and wait for 3 minutes with the driver's door opened.
2. Disconnect BCM connector M19 and audio unit or AV control unit connector.
3. Check continuity between BCM connector M19 and audio unit or AV control unit connector.

Display Audio

BCM		Audio unit		Continuity
Connector	Terminal	Connector	Terminal	
M19	106	M87	35	Yes

Navigation Without Bose Audio System

BCM		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	
M19	106	M101	7	Yes

Navigation With Bose Audio System

BCM		AV control unit		Continuity
Connector	Terminal	Connector	Terminal	
M19	106	M108	7	Yes

4. Check continuity between BCM connector M19 and ground.

BCM		—	Continuity
Connector	Terminal		
M86	106	Ground	No

Is the inspection normal?

YES >> Replace BCM. Refer to PCS-101, "Removal and Installation".
NO >> Repair or replace harness or connectors.

PUSH-BUTTON IGNITION SWITCH

Component Function Check

INFOID:0000000014622688

1.CHECK FUNCTION

CONSULT
1. Select “PUSH SW” in “Data Monitor” mode of “BCM”.
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-95, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000014622689

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-101, "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.

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-46, "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-96, "Component Inspection".

Is the inspection result normal?

YES >> Refer to GI-54, "Intermittent Incident".
NO >> Replace push-button ignition switch. Refer to PCS-102, "Removal and Installation".

Component Inspection

INFOID:0000000014622690

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.

NO >> Replace push-button ignition switch.

SYMPTOM DIAGNOSIS

PUSH-BUTTON IGNITION SWITCH DOES NOT OPERATE

Description

INFOID:0000000014622691

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

INFOID:0000000014622692

1.PERFORM WORK SUPPORT

Perform “INSIDE ANT DIAGNOSIS” in “Work support” of “INTELLIGENT KEY” with CONSULT. Refer to PCS-59, "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-96, "Component Inspection".

Is the inspection result normal?

YES >> Refer to GI-54, "Intermittent Incident".
NO >> Repair or replace malfunctioning parts.

ACCESSORY POWER SUPPLY IS NOT SUPPLIED EVEN IF DOOR IS UNLOCKED BY KEY

ALL SWITCHES AND UNITS

ALL SWITCHES AND UNITS : Diagnosis Procedure

INFOID:0000000015244250

1. CHECK ACCESSORY RELAY-1

Check accessory relay-1.
Refer to PCS-91, "Diagnosis Procedure".

Is the inspection result normal?

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

2. CHECK AUTO ACC 2 POWER SUPPLY

Check auto ACC 2 power supply.
Refer to PCS-93, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace the malfunctioning parts.

3. REPLACE BCM

Replace BCM. Refer to PCS-101, "Removal and Installation"

Is the inspection result normal?

YES >> Inspection End.
NO >> Check intermittent incident. Refer to GI-54, "Intermittent Incident".

EXCEPT AUDIO/NAVIGATION

EXCEPT AUDIO/NAVIGATION : Diagnosis Procedure

INFOID:0000000015244251

1. CHECK ACCESSORY RELAY-1

Check accessory relay-1.
Refer to PCS-91, "Diagnosis Procedure".

Is the inspection result normal?

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

2. REPLACE BCM

Replace BCM. Refer to PCS-101, "Removal and Installation"

Is the inspection result normal?

YES >> Inspection End.
NO >> Check intermittent incident. Refer to GI-54, "Intermittent Incident".

AUDIO/NAVIGATION ONLY

AUDIO/NAVIGATION ONLY : Diagnosis Procedure

INFOID:0000000015244252

1. CHECK AUTO ACC 2 POWER SUPPLY

Check auto ACC 2 power supply.
Refer to PCS-93, "Diagnosis Procedure".

Is the inspection result normal?

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

2. REPLACE BCM

Replace BCM. Refer to PCS-101, "Removal and Installation"

Is the inspection result normal?

YES >> Inspection End.
NO >> Check intermittent incident. Refer to GI-54, "Intermittent Incident".

REMOVAL AND INSTALLATION

BCM (BODY CONTROL MODULE)

Removal and Installation

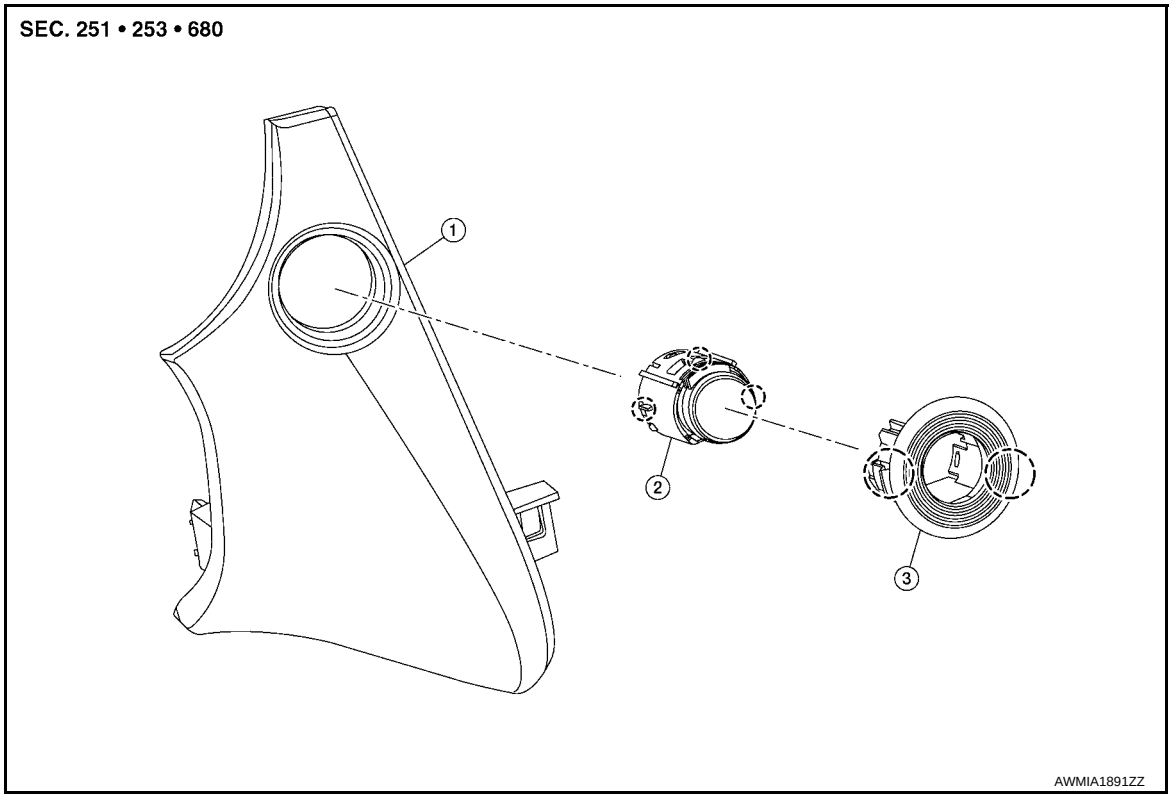
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For removal and installation of the BCM (Body Control Module), refer to BCS-73, "Removal and Installation".

PUSH-BUTTON IGNITION SWITCH

Exploded View

INFOID:0000000014622694



1. Instrument finisher B
2. Push button ignition switch
3. NATS antenna amp.

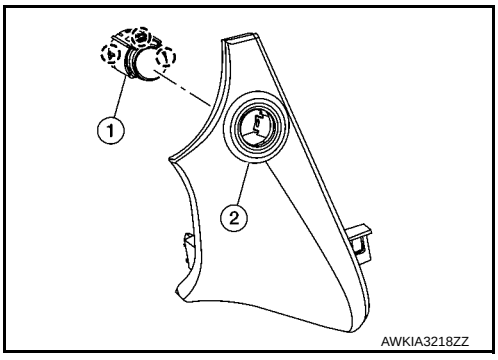
Pawl

Removal and Installation

INFOID:0000000014622695

REMOVAL

1. Disconnect the negative battery terminal. Refer to PG-128, "Exploded View" .
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 negative battery terminal. Refer to PG-122, "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement".