# SECTION BCS
# BODY CONTROL SYSTEM

## CONTENTS

### BCM

# PRECAUTION

## PRECAUTIONS

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

INFOID:0000000006737481

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

**WARNING:**

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

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

**WARNING:**

- **When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.**

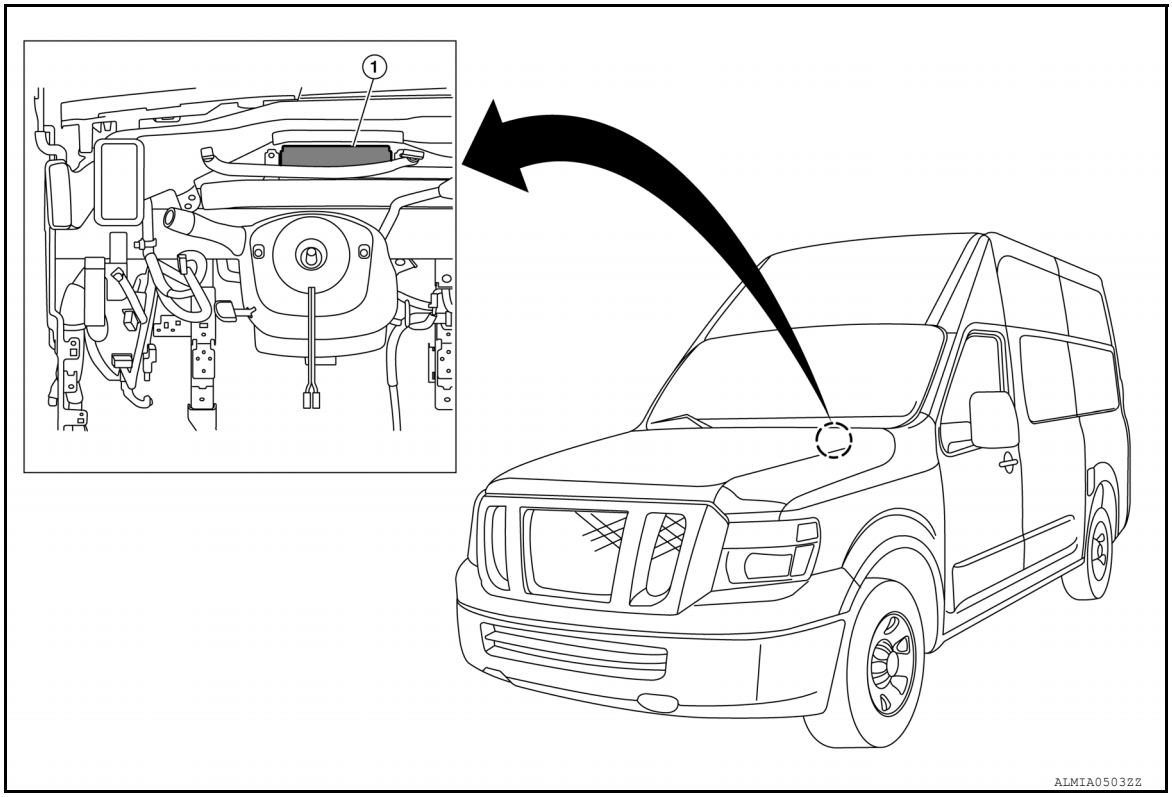
# SYSTEM DESCRIPTION

## COMPONENT PARTS

## BODY CONTROL SYSTEM

### BODY CONTROL SYSTEM : Component Parts Location

INFOID:0000000006889163

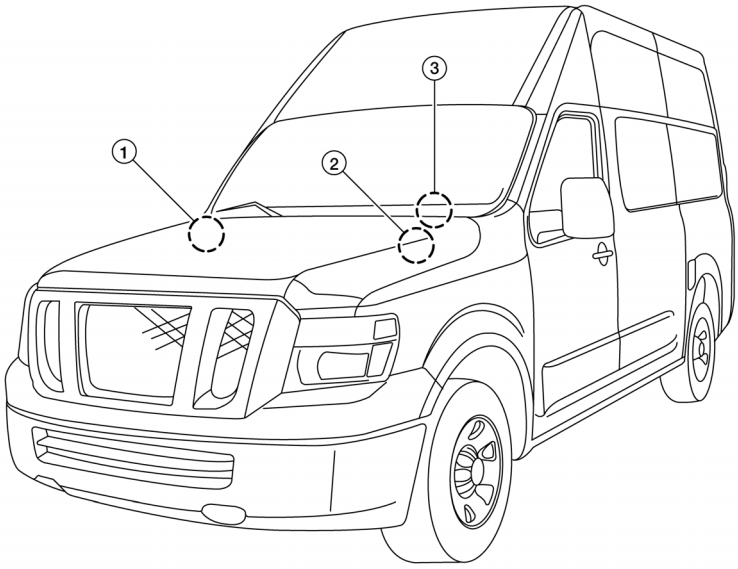


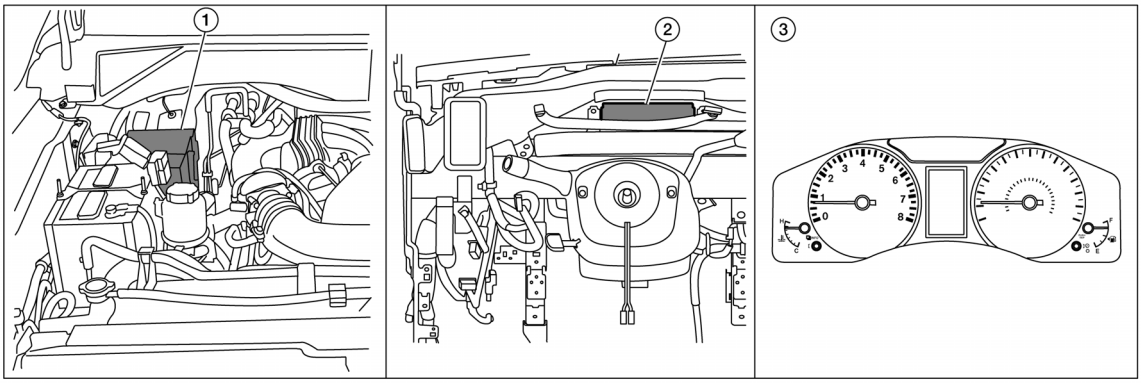

1. BCM

## POWER CONSUMPTION CONTROL SYSTEM

# POWER CONSUMPTION CONTROL SYSTEM : Component Parts Location

INFOID:0000000006889170




ALMIA0504ZZ

1. IPDM E/R
2. BCM (view with instrument panel and steering wheel removed)
3. Combination meter

# SYSTEM
## BODY CONTROL SYSTEM
### BODY CONTROL SYSTEM : System Description

INFOID:0000000006889162

OUTLINE

- BCM (Body Control Module) controls various electrical components. It receives the information required from CAN communication and the signals received from each switch and sensor.
- BCM has a combination and lighting switch reading function for reading the status of combination and lighting switches (light, turn signal, wiper and washer) in addition to functions for controlling the operation of various electrical components. It also has a signal transmission function, for other systems, and a power consumption control function that reduces the power consumption with the ignition switch OFF.
- BCM is equipped with a diagnosis function that operates with CONSULT and allows for various settings to be changed.

BCM FUNCTION LIST

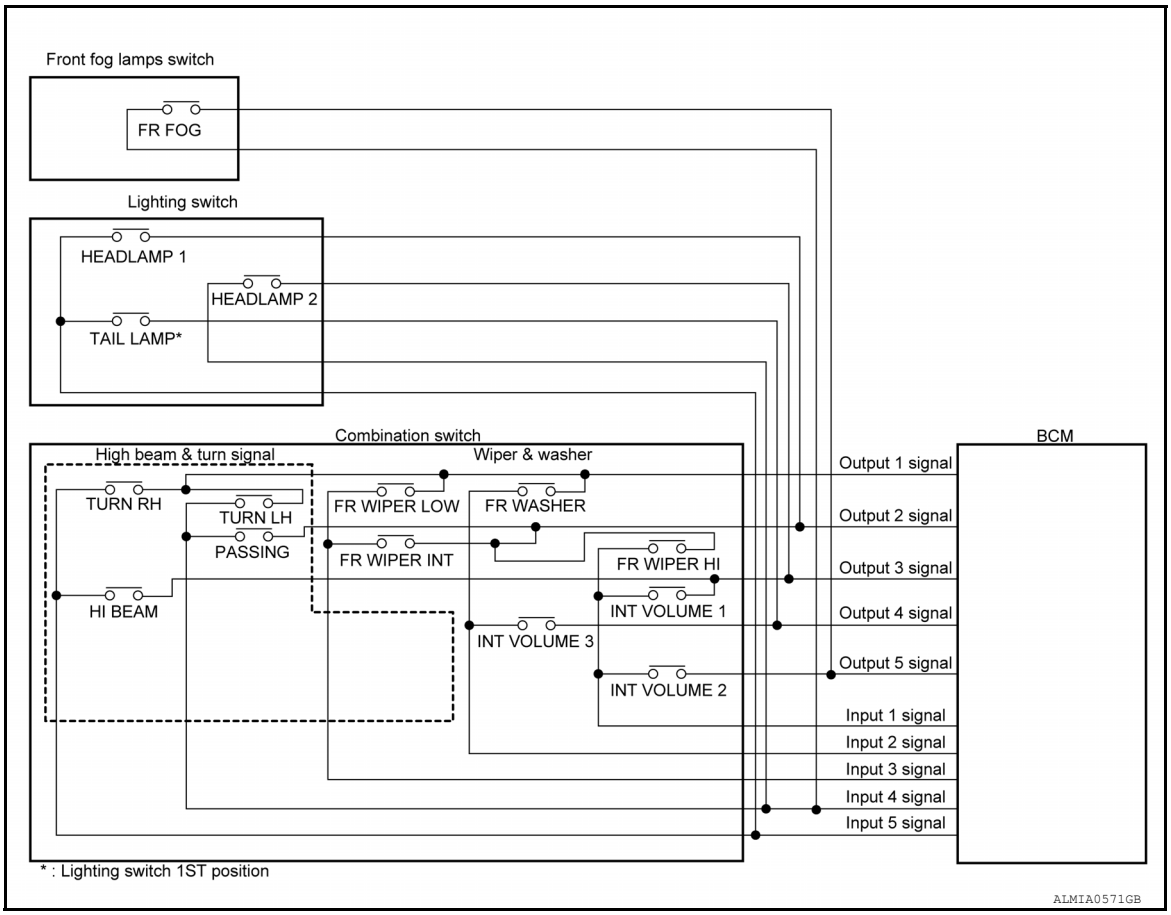
| System | Reference page |
|---|---|
| Combination and lighting switch reading system | BCS-7, "COMBINATION AND LIGHTING SWITCH READING SYSTEM : System Diagram" |
| Signal buffer system | BCS-12, "SIGNAL BUFFER : System Diagram" |
| Power consumption control system | BCS-12, "POWER CONSUMPTION CONTROL SYSTEM : System Diagram" |
| Headlamp system | EXL-8, "HEADLAMP SYSTEM : System Diagram - For USA"<br>EXL-8, "HEADLAMP SYSTEM : System Diagram - For Canada" |
| Front fog lamp system | EXL-10, "FRONT FOG LAMP SYSTEM : System Diagram" |
| Daytime running light system | EXL-9, "DAYTIME RUNNING LIGHT SYSTEM : System Diagram - For USA"<br>EXL-10, "DAYTIME RUNNING LIGHT SYSTEM : System Diagram - For Canada" |
| Turn signal and hazard warning lamp system | EXL-11, "TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM : System Diagram" |
| Parking, license plate, side maker and tail lamps system | EXL-12, "PARKING, LICENSE PLATE AND TAIL LAMP SYSTEM : System Diagram" |
| Trailer tow system | EXL-12, "TAIL LAMPS : (TRAILER TOW SYSTEM) System Diagram" |
| Exterior lamp battery saver system | EXL-13, "EXTERIOR LAMP BATTERY SAVER SYSTEM : System Description" |
| Interior room lamp control system | INL-7, "INTERIOR ROOM LAMP CONTROL SYSTEM : System Diagram" |
| Interior room lamp battery saver system | INL-9, "ILLUMINATION CONTROL SYSTEM : System Diagram" |
| Front wiper and washer system | WW-5, "System Diagram" |
| Manual air conditioner system | HAC-128, "FRONT MANUAL AIR CONDITIONING SYSTEM : System Diagram" |
| Warning chime system | WCS-6, "WARNING CHIME SYSTEM : System Diagram" |
| Power door lock system | DLK-10, "POWER DOOR LOCK SYSTEM : System Diagram" |
| Nissan vehicle immobilizer system-NATS (NVIS) | SEC-8, "NISSAN VEHICLE IMMOBILIZER SYSTEM-NATS : System Diagram" |
| Vehicle security system | SEC-7, "VEHICLE SECURITY SYSTEM : System Diagram" |
| Panic alarm | SEC-7, "VEHICLE SECURITY SYSTEM : System Diagram" |
| Rear window defogger system | DEF-8, "System Diagram" |
| Remote keyless entry system | DLK-12, "REMOTE KEYLESS ENTRY SYSTEM : System Diagram" |

| System | Reference page |
|---|---|
| Power window system | PWC-7, "System Diagram" |
| Retained accessory power (RAP) system | PWC-7, "System Diagram" |

# COMBINATION AND LIGHTING SWITCH READING SYSTEM

## COMBINATION AND LIGHTING SWITCH READING SYSTEM : System Diagram

INFOID:0000000006889164




## COMBINATION AND LIGHTING SWITCH READING SYSTEM : System Description

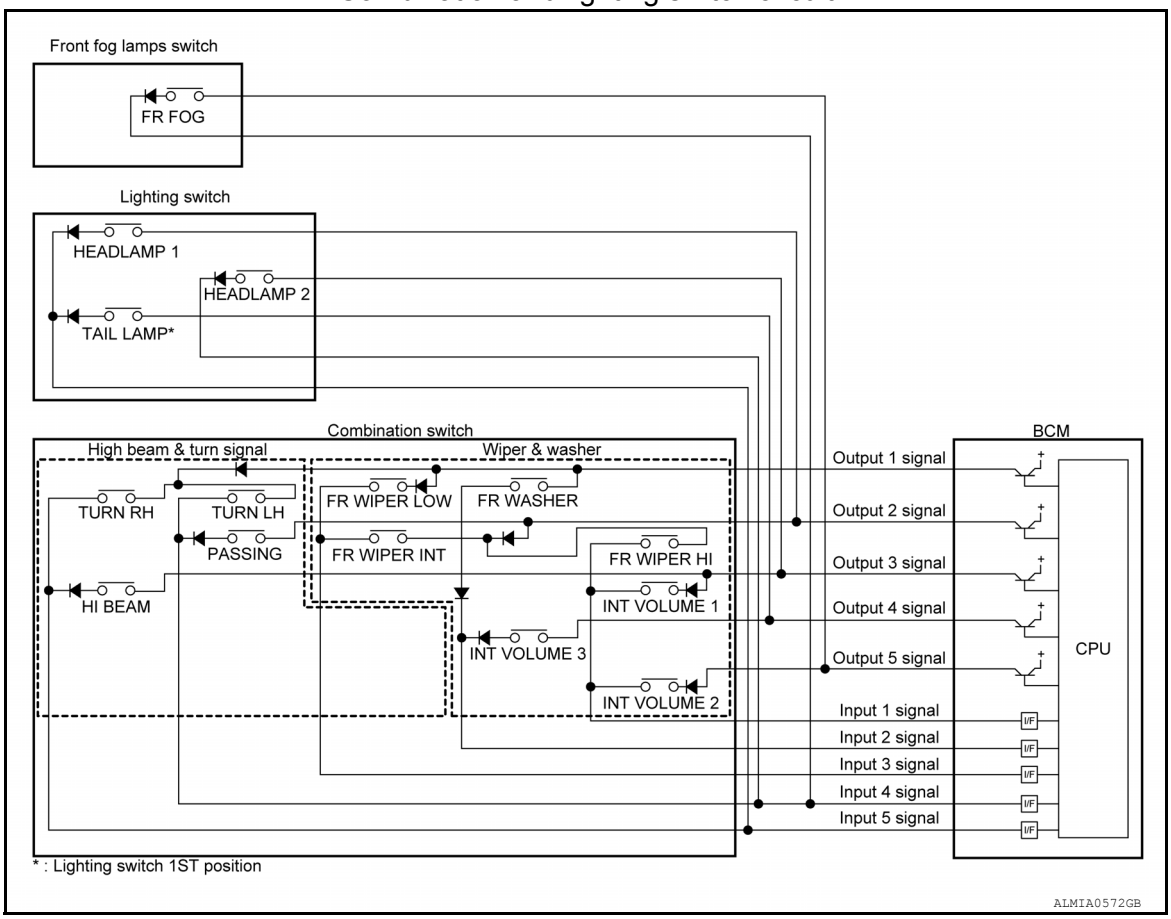
INFOID:0000000006889165

OUTLINE

- BCM reads the status of the combination and lighting switches (light, turn signal, wiper and washer) and recognizes the status of each switch.
- BCM has a combination of 5 output terminals (OUTPUT 1 - 5) and 5 input terminals (INPUT 1 - 5). It reads a maximum of 20 switch states.

COMBINATION AND LIGHTING SWITCH MATRIX

Combination and lighting switch circuit



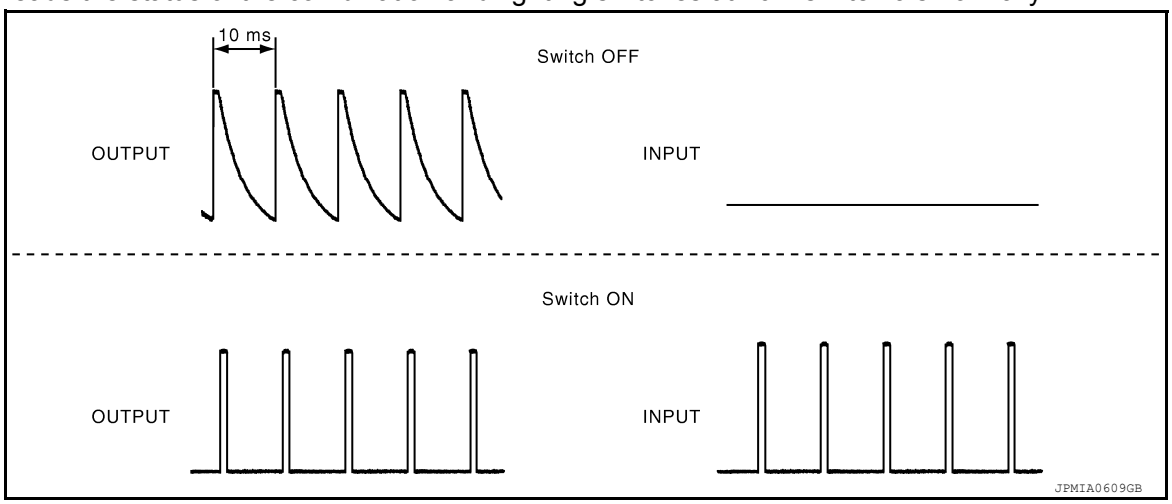

Combination and lighting switch INPUT-OUTPUT system list

| System | INPUT 1 | INPUT 2 | INPUT 3 | INPUT 4 | INPUT 5 |
|---|---|---|---|---|---|
| OUTPUT 1 | — | FR WASHER | FR WIPER LOW | TURN LH | TURN RH |
| OUTPUT 2 | FR WIPER HI | — | FR WIPER INT | PASSING | HEADLAMP 1 |
| OUTPUT 3 | INT VOLUME 1 | — | — | HEADLAMP 2 | HI BEAM |
| OUTPUT 4 | — | INT VOLUME 3 | — | — | TAIL LAMP |
| OUTPUT 5 | INT VOLUME 2 | — | — | FR FOG | — |

## COMBINATION AND LIGHTING SWITCH READING FUNCTION

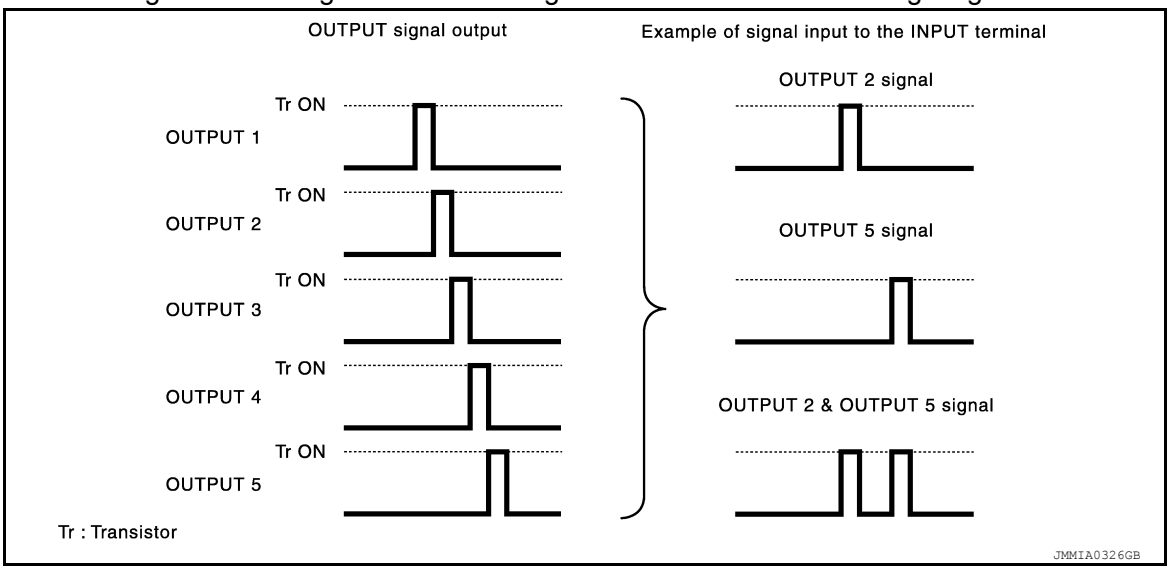
Description

- BCM reads the status of the combination and lighting switches at 10 ms intervals normally.



**NOTE:**
BCM reads the status of the combination and lighting switches at 60 ms intervals when BCM is controlled at low power consumption control mode.

- BCM operates as follows and judges the status of the combination and lighting switches.
- It operates the transistor on OUTPUT side in the following order: OUTPUT 1 → 2 → 3 → 4 → 5, and outputs voltage waveform.
- The voltage waveform of OUTPUT corresponding to the formed circuit is input into the interface on INPUT side if any (1 or more) switches are ON.
- It reads this change of the voltage as the status signal of the combination and lighting switches.

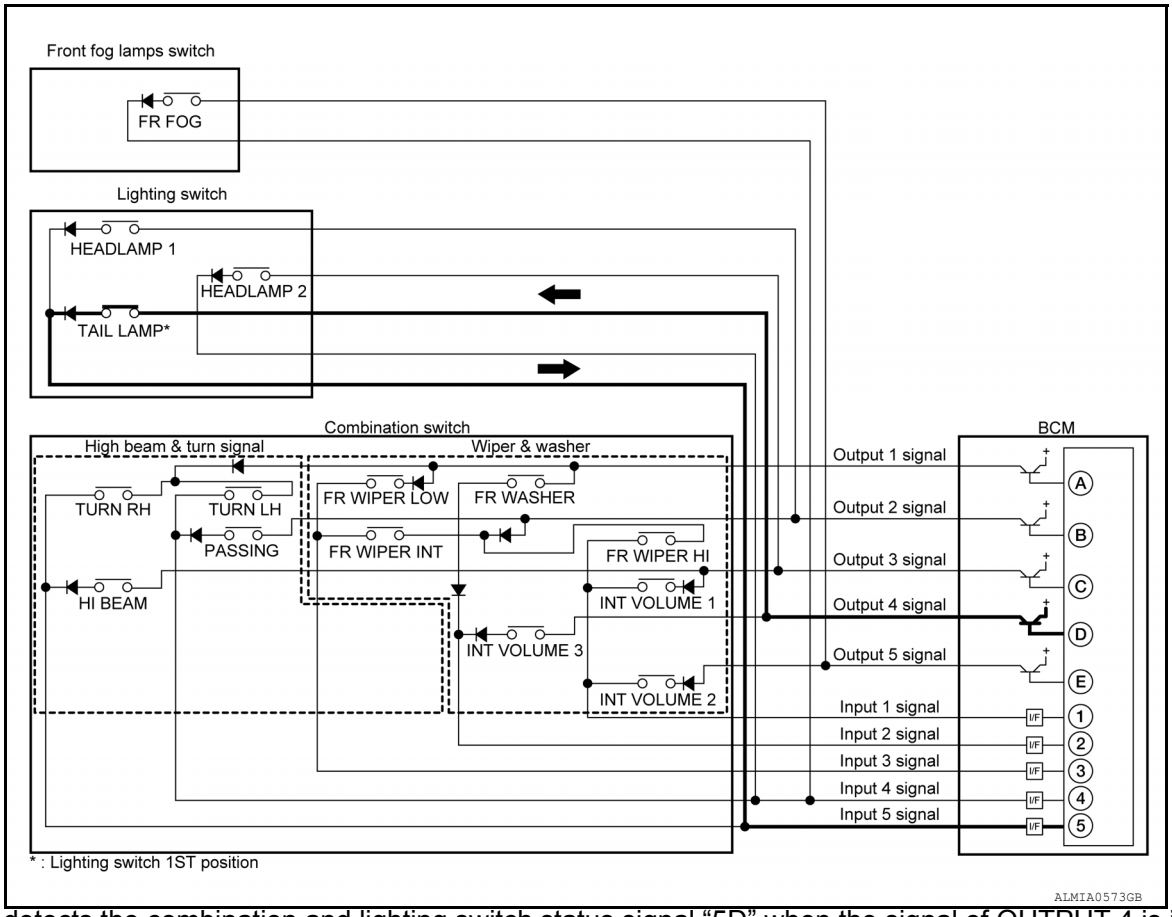



Operation Example

In the following operation example, the combination of the status signals of the combination and lighting switches is replaced as follows: INPUT 1 - 5 to “1 - 5” and OUTPUT 1 - 5 to “A - E”.

Example 1: When a switch (TAIL LAMP) is turned ON

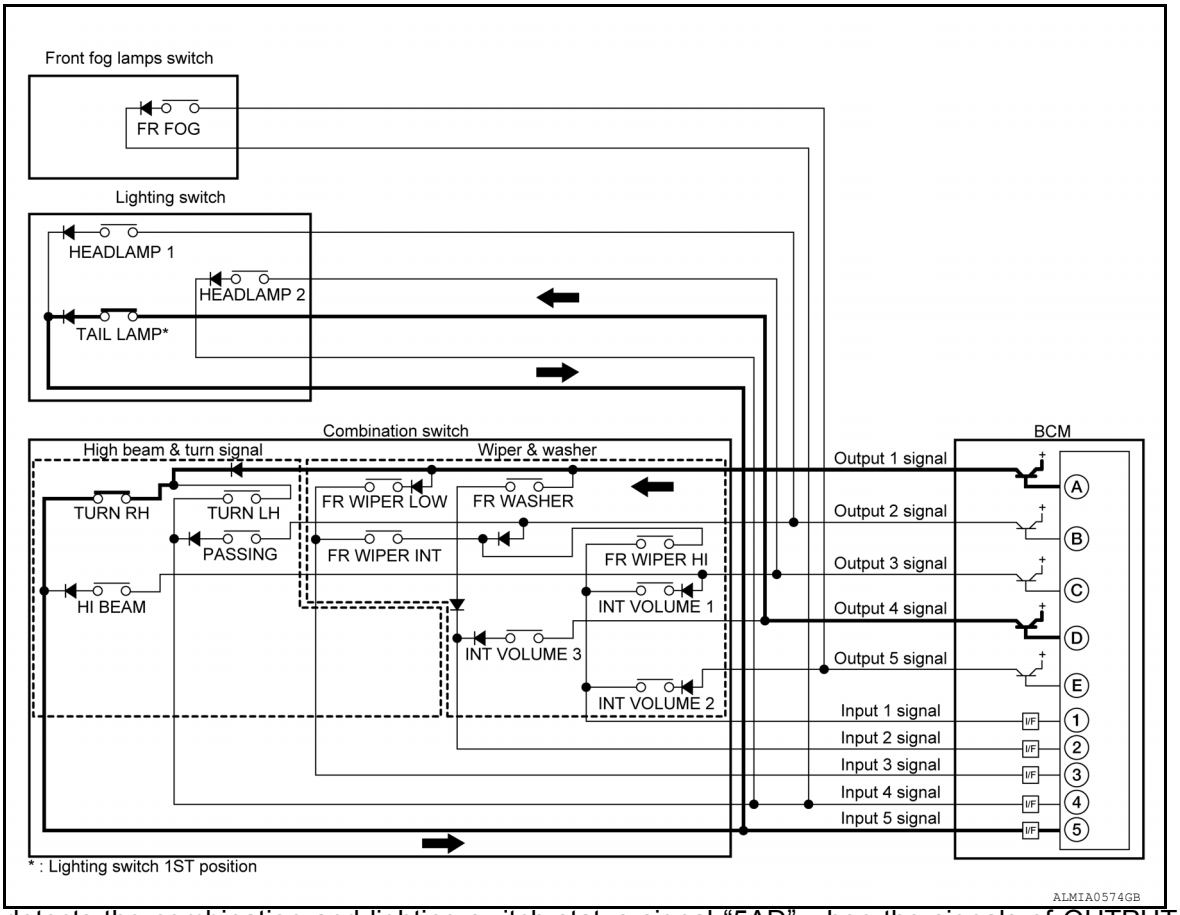
- The circuit between OUTPUT 4 and INPUT 5 is formed when the TAIL LAMP switch is turned ON.




- BCM detects the combination and lighting switch status signal “5D” when the signal of OUTPUT 4 is input to INPUT 5.
- BCM judges that the TAIL LAMP switch is ON when the signal “5D” is detected.

Example 2: When some switches (TURN RH, TAIL LAMP) are turned ON

- The circuits between OUTPUT 1 and INPUT 5 and between OUTPUT 4 and INPUT 5 are formed when the TURN RH switch and TAIL LAMP switch are turned ON.




- BCM detects the combination and lighting switch status signal “5AD” when the signals of OUTPUT 1 and OUTPUT 4 are input to INPUT 5.
- BCM judges that the TURN RH switch and TAIL LAMP switch are ON when the signal “5AD” is detected.

### WIPER INTERMITTENT DIAL POSITION

BCM judges the wiper intermittent dial 1 - 5 by the status of INT VOLUME 1, 2 and 3 switches.

| Wiper intermittent dial position | Switch status | | |
|---|---|---|---|
| | INT VOLUME 1 | INT VOLUME 2 | INT VOLUME 3 |
| 1 | OFF | ON | OFF |
| 2 | OFF | ON | ON |
| 3 | OFF | OFF | ON |
| 4 | OFF | OFF | OFF |
| 5 | ON | ON | OFF |

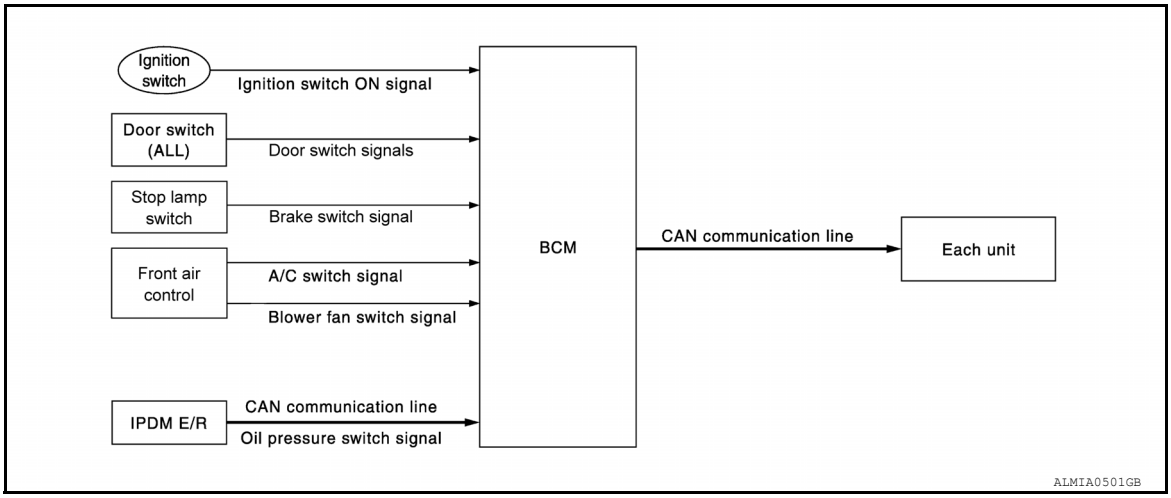
**NOTE:**

For details of wiper intermittent dial position, refer to WW-5, "System Description".

## SIGNAL BUFFER

## SIGNAL BUFFER : System Diagram

INFOID:0000000006889166




## SIGNAL BUFFER : System Description

INFOID:0000000006889167

OUTLINE

BCM has the signal transmission function that outputs/transmits each input/received signal to each unit.

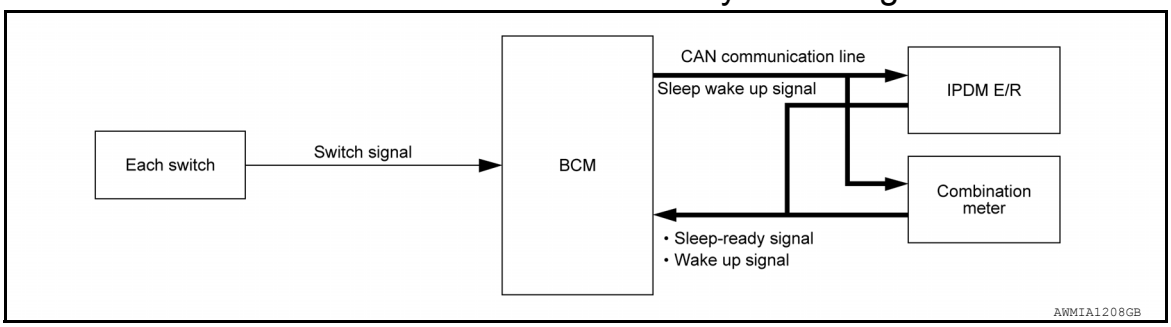
SIGNAL TRANSMISSION FUNCTION LIST

| Signal name | Input | Output | Description |
|---|---|---|---|
| Ignition switch ON signal | Ignition switch | IPDM E/R (CAN) | Inputs the ignition switch signal and transmits it with CAN communication. |
| Brake switch signal | Stop lamp switch | IPDM E/R (CAN) | Inputs the brake switch signal and transmits it with CAN communication. |
| Door switch signal | Any door switch | • Combination meter (CAN)<br>• IPDM E/R (CAN) | Inputs the door switch signal and transmits it with CAN communication. |
| Blower fan ON signal | Front air control | ECM (CAN) | Inputs each signals, and transmits the blower fan ON signal and A/C ON signal via CAN communication. |
| A/C ON signal | | | |
| Oil pressure switch signal | IPDM E/R (CAN) | Combination meter (CAN) | Transmits the received oil pressure switch signal with CAN communication. |

# POWER CONSUMPTION CONTROL SYSTEM

## POWER CONSUMPTION CONTROL SYSTEM : System Diagram

INFOID:0000000006889168



# POWER CONSUMPTION CONTROL SYSTEM : System Description

INFOID:0000000006889169

## OUTLINE

- BCM incorporates a power saving control function that reduces the power consumption according to the vehicle status.
- BCM switches the status (control mode) by itself with the power saving control function. It performs the sleep request to each unit (IPDM E/R and combination meter) that operates with the ignition switch OFF.

Normal mode (wake-up)
- CAN communication is normally performed with other units
- Each control with BCM is operating properly

CAN communication sleep mode (CAN sleep)
- CAN transmission is stopped
- Control with BCM only is operating

Low power consumption mode (BCM sleep)
- Low power consumption control is active
- CAN transmission is stopped

## LOW POWER CONSUMPTION CONTROL WITH BCM

BCM reduces the power consumption with the following operation in the low power consumption mode.
- The reading interval of the switches changes from 10 ms interval to 60 ms interval.

### Sleep mode activation

- BCM receives the sleep-ready signal (ready) from IPDM E/R and combination meter via CAN communication.
- BCM transmits the sleep wake up signal (sleep) to each unit when all of the CAN sleep conditions are fulfilled.
- Each unit stops the transmission of CAN communication with the sleep wake up signal. BCM is in CAN communication sleep mode.
- BCM is in the low power consumption mode and performs the low power consumption control when all of the BCM sleep conditions are fulfilled with CAN sleep condition.

Sleep condition

| CAN sleep condition | BCM sleep condition |
|---|---|
| • Receiving the sleep-ready signal (ready) from all units<br>• Ignition switch: OFF<br>• Vehicle security system and panic alarm: No operation<br>• Warning chime: No operation<br>• Stop lamp switch: OFF<br>• Turn signal indicator lamp: No operation<br>• Exterior lamp: OFF<br>• Door lock status: No change<br>• CONSULT communication status: No communication<br>• Door switch status: No change<br>• Rear window defogger: OFF<br>• Driver door lock status: No change<br>• Key switch status: No change | • Interior room lamp battery saver: Time out<br>• RAP system: OFF<br>• Nissan Vehicle Immobilizer System (NVIS) - NATS: No operation<br>• Remote keyless entry receiver communication status: No communication |

### Wake-up operation

- BCM transmits sleep wake up signal (wake up) to each unit when any condition listed below is established, and then goes into normal mode from low power consumption mode.
- Each unit starts transmissions with CAN communication by receiving sleep wake up signals. Each unit transmits wake up signals to BCM with CAN communication to convey the start of CAN communication.

Wake-up condition

| Wake-up condition |
|---|
| • Receiving the sleep-ready signal (Not-ready) from any units<br>• Hazard switch: ON<br>• HI BEAM switch: OFF → ON, ON → OFF<br>• PASSING switch: OFF → ON, ON → OFF<br>• HEADLAMP 1 switch: OFF → ON, ON → OFF<br>• HEADLAMP 2 switch: OFF → ON, ON → OFF<br>• TAIL LAMP switch: OFF → ON<br>• TURN RH: OFF → ON, ON → OFF<br>• TURN LH: OFF → ON, ON → OFF<br>• Driver door switch: OFF → ON, ON → OFF<br>• Passenger door switch: OFF → ON, ON → OFF<br>• Back door switch RH: OFF → ON, ON → OFF<br>• Back door switch LH: OFF → ON, ON → OFF<br>• Stop lamp switch: ON<br>• Door lock and unlock switch:<br>NEUTRAL → LOCK, NEUTRAL → UNLOCK<br>• Front door lock assembly (driver side) (door key cylinder switch):<br>NEUTRAL → LOCK, NEUTRAL → UNLOCK<br>• Remote keyless entry receiver communication: Receiving |

# DIAGNOSIS SYSTEM (BCM)
## COMMON ITEM
### COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000006889171

#### 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.<br>• 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 | | | × | × | × | | |
| Remote keyless entry system | MULTI REMOTE ENT | | | × | × | × | | |
| Exterior lamp | HEAD LAMP | | | × | × | × | | |
| Wiper and washer | WIPER | | | × | × | | | |
| Turn signal and hazard warning lamps | FLASHER | | | × | × | | | |
| Air conditioner | AIR CONDITIONER | | | × | | | | |
| Combination switch | COMB SW | | | × | | | | |
| BCM | BCM | × | × | | | × | × | × |
| Immobilizer | IMMU | | × | | × | | | |
| Interior room lamp battery saver | BATTERY SAVER | | | × | × | × | | |
| Vehicle security system | THEFT ALM | | | × | × | × | | |
| RAP system | RETAINED PWR | | | × | | × | | |
| Signal buffer system | SIGNAL BUFFER | | | × | × | | | |
| Panic alarm system | PANIC ALARM | | | | × | | | |

## DOOR LOCK

## DOOR LOCK : CONSULT Function (BCM - DOOR LOCK)

INFOID:0000000006889172

### DATA MONITOR

| Monitor Item [Unit] | Description |
|---|---|
| IGN ON SW [On/Off] | Indicates condition of ignition switch ON position. |
| KEY ON SW [On/Off] | Indicates condition of key switch. |
| CDL LOCK SW [On/Off] | Indicates condition of lock signal from door lock and unlock switch. |
| CDL UNLOCK SW [On/Off] | Indicates condition of unlock signal from door lock and unlock switch. |
| DOOR SW-DR [On/Off] | Indicates condition of front door switch LH. |
| DOOR SW-AS [On/Off] | Indicates condition of front door switch RH. |
| DOOR SW-RR [On/Off] | Indicates condition of back door switch RH. |
| DOOR SW-RL [On/Off] | Indicates condition of sliding door or back door switch. |
| ACC ON SW [On/Off] | Indicates condition of ignition switch ACC position. |
| KEYLESS LOCK [On/Off] | Indicates condition of lock signal from keyfob. |
| KEYLESS UNLOCK [On/Off] | Indicates condition of unlock signal from keyfob. |
| KEY CYL LK-SW [On/Off] | Indicates condition of lock signal from door key cylinder switch. |
| KEY CYL UN-SW [On/Off] | Indicates condition of unlock signal from door key cylinder switch. |
| VEHICLE SPEED [km/h/mph] | Indicates vehicle speed signal received from combination meter on CAN communication line. |

### ACTIVE TEST

| Test Item | Description |
|---|---|
| DOOR LOCK | This test is able to check door lock operation [OTR ULK/DR UNLK/ALL ULK/ALL LCK]. |

### WORK SUPPORT

| Support Item | Setting | Description |
|---|---|---|
| DOOR LOCK-UNLOCK SET | On* | Automatic door locks function ON. |
| | Off | Automatic door locks function OFF. |
| AUTOMATIC DOOR LOCK SELECT | P RANGE | Doors lock automatically when shifted out of P (Park). |
| | VH SPD* | Doors lock automatically when vehicle speed reaches 24 km/h (15 mph). |
| AUTOMATIC DOOR UNLOCK SELECT | MODE6 | Doors unlock automatically when key is removed. |
| | MODE5 | Driver’s door unlocks automatically when key is removed. |
| | MODE4 | Driver’s door unlocks automatically when shifted into P (Park). |
| | MODE3 | Driver’s door unlocks automatically when ignition is switched from ON to OFF. |
| | MODE2* | Doors unlock automatically when shifted into P (Park). |
| | MODE1 | Doors unlock automatically when ignition is switched from ON to OFF. |
| AUTOMATIC LOCK/UNLOCK SELECT | Lock/Unlock* | Automatic lock and unlock functions ON. |
| | Lock Only | Automatic lock function only ON. |
| | Unlock Only | Automatic unlock function only ON. |
| | Off | Automatic lock/unlock function OFF. |

* : Initial setting

## REAR DEFOGGER

## REAR DEFOGGER : CONSULT Function (BCM - REAR DEFOGGER)

INFOID:0000000006889173

### DATA MONITOR

| Monitor Item [Unit] | Description |
|---|---|
| IGN ON SW [On/Off] | Indicates condition of ignition switch ON position. |
| ACC ON SW [On/Off] | Indicates condition of ignition switch ACC position. |
| REAR DEF SW [On/Off] | Indicates condition of rear window defogger switch. |

### ACTIVE TEST

| Test Item | Description |
|---|---|
| REAR DEFOGGER | This test is able to check rear window defogger operation [Off/On]. |

## BUZZER

### BUZZER : CONSULT Function (BCM - BUZZER)

INFOID:0000000006889174

### DATA MONITOR

| Monitor Item [Unit] | Description |
|---|---|
| IGN ON SW [On/Off] | Indicates condition of ignition switch ON position. |
| KEY ON SW [On/Off] | Indicates condition of key switch. |
| DOOR SW-DR [On/Off] | Indicates condition of front door switch LH. |
| TAIL LAMP SW [On/Off] | Indicates condition of lighting switch. |
| BUCKLE SW [On/Off] | Indicates condition of seat belt buckle switch. |
| VEHICLE SPEED [km/h/mph] | Indicates vehicle speed signal received from combination meter on CAN communication line. |

### ACTIVE TEST

| Test Item | Description |
|---|---|
| IGN KEY WARN ALM | This test is able to check key warning chime operation [Off/On]. |
| SEAT BELT WARN TEST | This test is able to check seat belt warning operation [Off/On]. |
| LIGHT WARN ALM | This test is able to check light reminder warning operation [Off/On]. |

## INT LAMP

### INT LAMP : CONSULT Function (BCM - INT LAMP)

INFOID:0000000006889175

### DATA MONITOR

| Monitor Item [Unit] | Description |
|---|---|
| IGN ON SW [On/Off] | Indicates condition of ignition switch ON position. |
| KEY ON SW [On/Off] | Indicates condition of key switch. |
| DOOR SW-DR [On/Off] | Indicates condition of front door switch LH. |
| DOOR SW-AS [On/Off] | Indicates condition of front door switch RH. |
| DOOR SW-RR [On/Off] | Indicates condition of back door switch. |
| DOOR SW-RL [On/Off] | Indicates condition of sliding door switch. |
| CDL LOCK SW [On/Off] | Indicates condition of lock signal from door lock and unlock switch. |
| CDL UNLOCK SW [On/Off] | Indicates condition of unlock signal from door lock and unlock switch. |
| KEYLESS LOCK [On/Off] | Indicates condition of lock signal from keyfob. |
| KEYLESS UNLOCK [On/Off] | Indicates condition of unlock signal from keyfob. |
| KEY CYL LK-SW [On/Off] | Indicates condition of lock signal from door key cylinder switch. |
| KEY CYL UN-SW [On/Off] | Indicates condition of unlock signal from door key cylinder switch. |
| ACC ON SW [On/Off] | Indicates condition of ignition switch ACC position. |

## ACTIVE TEST

| Test Item | Description |
|---|---|
| INT LAMP | This test is able to check interior room lamp operation [Off/On]. |

## WORK SUPPORT

| Support Item | Setting | | Description |
|---|---|---|---|
| SET I/L D-UNLCK INTCON | Off | | Interior room lamp timer function OFF. |
| | On* | | Interior room lamp timer function ON. |
| ROOM LAMP TIMER SET | MODE4* | 30 sec. | Sets the interior room lamp ON time (timer operation). |
| | MODE3 | 15 sec. | |
| | MODE2 | 7.5 sec. | |
| | MODE1 | 0 sec. | |
| ROOM LAMP ON TIME SET | MODE7 | 0 sec. | Sets the interior room lamp gradual brightening time. |
| | MODE6 | 5 sec. | |
| | MODE5 | 4 sec. | |
| | MODE4 | 3 sec. | |
| | MODE3 | 2 sec. | |
| | MODE2* | 1 sec. | |
| | MODE1 | 0.5 sec. | |
| ROOM LAMP OFF TIME SET | MODE7 | 0 sec. | Sets the interior room lamp gradual dimming time. |
| | MODE6 | 5 sec. | |
| | MODE5 | 4 sec. | |
| | MODE4 | 3 sec. | |
| | MODE3 | 2 sec. | |
| | MODE2* | 1 sec. | |
| | MODE1 | 0.5 sec. | |
| R LAMP TIMER LOGIC SET | MODE2 | | Interior room lamp timer activation synchronizing all doors. |
| | MODE1* | | Interior room lamp timer activation synchronizing driver door only. |

* : Initial setting

# MULTI REMOTE ENT

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

*INFOID:0000000006889176*

## DATA MONITOR

| Monitor Item [Unit] | Description |
|---|---|
| IGN ON SW [On/Off] | Indicates condition of ignition switch ON position. |
| KEY ON SW [On/Off] | Indicates condition of key switch. |
| ACC ON SW [On/Off] | Indicates condition of ignition switch ACC position. |
| KEYLESS LOCK [On/Off] | Indicates condition of lock signal from keyfob. |
| KEYLESS UNLOCK [On/Off] | Indicates condition of unlock signal from keyfob. |
| DOOR SW-DR [On/Off] | Indicates condition of front door switch LH. |
| DOOR SW-AS [On/Off] | Indicates condition of front door switch RH. |
| DOOR SW-RR [On/Off] | Indicates condition of back door switch. |
| DOOR SW-RL [On/Off] | Indicates condition of sliding door switch. |

| Monitor Item [Unit] | Description |
|---|---|
| CDL LOCK SW [On/Off] | Indicates condition of lock signal from door lock and unlock switch. |
| CDL UNLOCK SW [On/Off] | Indicates condition of unlock signal from door lock and unlock switch. |
| KEYLESS PANIC [On/Off] | Indicates condition of panic signal from keyfob. |

## ACTIVE TEST

| Test Item | Description |
|---|---|
| INT LAMP | This test is able to check interior room lamp operation [Off/On]. |
| FLASHER | This test is able to check hazard reminder operation [Off/RH/LH]. |
| HORN | This test is able to check horn operation [On]. |

## WORK SUPPORT

| Support Item | Setting | | Description |
|---|---|---|---|
| REMO CONT ID REGIST | — | | Keyfob ID code can be registered. |
| REMO CONT ID ERASUR | — | | Keyfob ID code can be erased. |
| REMO CONT ID CONFIR | — | | Keyfob ID code registration is displayed. |
| HORN CHIRP SET | Off | | Horn chirp function can be changed in this mode. |
| | On* | | |
| HAZARD LAMP SET | MODE4* | Lock and Unlock | Hazard warning lamp function can be changed in this mode. |
| | MODE3 | Lock Only | |
| | MODE2 | Unlock Only | |
| | MODE1 | OFF | |
| PANIC ALARM SET | MODE3 | 1.5 sec | Panic alarm operation can be changed in this mode. |
| | MODE2 | OFF | |
| | MODE1* | 0.5 sec | |
| AUTO LOCK SET | MODE7 | 5 min | Auto locking function can be changed in this mode. |
| | MODE6 | 4 min | |
| | MODE5 | 3 min | |
| | MODE4 | 2 min | |
| | MODE3* | 1 min | |
| | MODE2 | 30 sec | |
| | MODE1 | OFF | |

*: Initial setting

# HEADLAMP

## HEADLAMP : CONSULT Function (BCM - HEADLAMP)

INFOID:0000000006889177

### DATA MONITOR

| Monitor Item [Unit] | Description |
|---|---|
| IGN ON SW [On/Off] | Indicates condition of ignition switch ON position. |
| ACC ON SW [On/Off] | Indicates condition of ignition switch ACC position. |
| HI BEAM SW [On/Off] | Indicates condition of combination switch. |
| HEAD LAMP SW 1 [On/Off] | Indicates condition of lighting switch. |
| HEAD LAMP SW 2 [On/Off] | |
| TAIL LAMP SW [On/Off] | |
| PASSING SW [On/Off] | Indicates condition of combination switch. |

| Monitor Item [Unit] | Description |
|---|---|
| FR FOG SW [On/Off] | Indicates condition of front fog lamp switch. |
| DOOR SW-DR [On/Off] | Indicates condition of front door switch LH. |
| DOOR SW-AS [On/Off] | Indicates condition of front door switch RH. |
| DOOR SW-RR [On/Off] | Indicates condition of back door switch. |
| DOOR SW-RL [On/Off] | Indicates condition of sliding door switch. |
| TURN SIGNAL R [On/Off] | Indicates condition of combination switch. |
| TURN SIGNAL L [On/Off] | |
| KEY ON SW [On/Off] | Indicates condition of key switch. |
| KEYLESS LOCK [On/Off] | Indicates condition of lock signal from keyfob. |
| PKB SW [On/Off] | Indicates parking brake switch signal received from combination meter on CAN communication line. |
| ENGINE RUN [On/Off] | Indicates run condition of engine. |
| VEHICLE SPEED [km/h/mph] | Indicates vehicle speed signal received from combination meter on CAN communication line. |

## ACTIVE TEST

| Test Item | Description |
|---|---|
| TAIL LAMP | This test is able to check tail lamp operation [Off/On]. |
| HEAD LAMP | This test is able to check head lamp operation [Off/Lo/Hi]. |
| FR FOG LAMP | This test is able to check front fog lamp operation [Off/On]. |
| DAYTIME RUNNING LIGHT | This test is able to check daytime running light operation [Off/On]. |
| ILL DIM SIGNAL | This test is able to check illumination dimming operation [Off/On]. |

## WORK SUPPORT

| Support Item | Setting | | Description |
|---|---|---|---|
| BATTERY SAVER SET | Off | | Exterior lamp battery saver function OFF. |
| | On* | | Exterior lamp battery saver function ON. |
| ILL DELAY SET | MODE8 | 180 sec | Sets delay timer function operation time (all doors closed). |
| | MODE7 | 150 sec | |
| | MODE6 | 120 sec | |
| | MODE5 | 90 sec | |
| | MODE4 | 60 sec | |
| | MODE3 | 30 sec | |
| | MODE2 | OFF | |
| | MODE1* | 45 sec | |

*: Initial setting

# WIPER

## WIPER : CONSULT Function (BCM - WIPER)

INFOID:0000000006889178

### DATA MONITOR

| Monitor Item [Unit] | Description |
|---|---|
| IGN ON SW [On/Off] | Indicates condition of ignition switch ON position. |
| IGN SW CAN [On/Off] | Indicates ignition switch ON signal received from IPDM E/R on CAN communication line. |

| Monitor Item [Unit] | Description |
|---|---|
| FR WIPER HI [On/Off] | Indicates condition of front wiper operation of combination switch. |
| FR WIPER LOW [On/Off] | |
| FR WIPER INT [On/Off] | |
| FR WASHER SW [On/Off] | |
| INT VOLUME [1 - 5] | |
| FR WIPER STOP [On/Off] | Indicates front wiper motor auto stop signal received from IPDM E/R on CAN communication line. |

### ACTIVE TEST

| Test Item | Description |
|---|---|
| FR WIPER | This test is able to check front wiper operation [Off/INT/Lo/Hi]. |

## FLASHER

### FLASHER : CONSULT Function (BCM - FLASHER)

INFOID:0000000006889179

### DATA MONITOR

| Monitor Item [Unit] | Description |
|---|---|
| HAZARD SW [On/Off] | Indicates condition of hazard switch. |
| TURN SIGNAL R [On/Off] | Indicates condition of turn signal function of combination switch. |
| TURN SIGNAL L [On/Off] | |

### ACTIVE TEST

| Test Item | Description |
|---|---|
| FLASHER | This test is able to check turn signal lamp operation [Off/RH/LH]. |

## AIR CONDITIONER

### AIR CONDITIONER : CONSULT Function (BCM - AIR CONDITIONER)

INFOID:0000000006889180

### DATA MONITOR

| Monitor Item [Unit] | Description |
|---|---|
| IGN ON SW [On/Off] | Indicates condition of ignition switch ON position. |
| FAN ON SIG [On/Off] | Indicates condition of fan switch. |
| AIR COND SW [On/Off] | Indicates condition of A/C switch. |
| FR DEF SW [On/Off] | Indicates condition of front defroster switch. |

## COMB SW

### COMB SW : CONSULT Function (BCM - COMB SW)

INFOID:0000000006889182

### DATA MONITOR

| Monitor Item [Unit] | Description |
|---|---|
| TURN SIGNAL R [On/Off] | Indicates condition of turn signal operation of combination switch. |
| TURN SIGNAL L [On/Off] | |
| HI BEAM SW [On/Off] | Indicates condition of HI beam operation of combination switch. |

| Monitor Item [Unit] | Description |
|---|---|
| HEAD LAMP SW 1 [On/Off] | Indicates condition of lighting switch. |
| HEAD LAMP SW 2 [On/Off] | |
| TAIL LAMP SW [On/Off] | |
| PASSING SW [On/Off] | Indicates condition of passing switch operation of combination switch. |
| FR FOG SW [On/Off] | Indicates condition of front fog lamp switch. |
| FR WIPER HI [On/Off] | Indicates condition of front wiper operation of combination switch. |
| FR WIPER LOW [On/Off] | |
| FR WIPER INT [On/Off] | |
| FR WASHER SW [On/Off] | Indicates condition of front washer operation of combination switch. |
| INT VOLUME [1 - 5] | Indicates condition of intermittent wiper operation of combination switch. |

# BCM

## BCM : CONSULT Function (BCM - BCM)

INFOID:0000000006889183

### ECU IDENTIFICATION
The BCM part number is displayed.

### SELF DIAGNOSTIC RESULT
Refer to BCS-35, "DTC Index".

### WORK SUPPORT

| Support Item | Setting | Description |
|---|---|---|
| RESET SETTING VALUE | Reset | Returns BCM to initial value in factory shipment. |
| | Cancel | Cancels the reset function. |

### CONFIGURATION
Refer to BCS-44, "CONFIGURATION (BCM) : Description".

### CAN DIAG SUPPORT MNTR
Refer to LAN-12, "CAN Diagnostic Support Monitor".

# IMMU

## IMMU : CONSULT Function (BCM - IMMU)

INFOID:0000000006889184

### SELF DIAGNOSTIC RESULT
Refer to BCS-35, "DTC Index".

### ACTIVE TEST

| Test Item | Description |
|---|---|
| THEFT IND | This test is able to check security indicator operation [Off/On]. |

# BATTERY SAVER

## BATTERY SAVER : CONSULT Function (BCM - BATTERY SAVER)

INFOID:0000000006889185

### DATA MONITOR

| Monitor Item [Unit] | Description |
|---|---|
| IGN ON SW [On/Off] | Indicates condition of ignition switch ON position. |
| KEY ON SW [On/Off] | Indicates condition of key switch. |
| DOOR SW-DR [On/Off] | Indicates condition of front door switch LH. |

| Monitor Item [Unit] | Description |
|---|---|
| DOOR SW-AS [On/Off] | Indicates condition of front door switch RH. |
| DOOR SW-RR [On/Off] | Indicates condition of back door switch. |
| DOOR SW-RL [On/Off] | Indicates condition of sliding door switch. |
| CDL LOCK SW [On/Off] | Indicates condition of lock signal from door lock and unlock switch. |
| CDL UNLOCK SW [On/Off] | Indicates condition of unlock signal from door lock and unlock switch. |
| KEYLESS LOCK [On/Off] | Indicates condition of lock signal from keyfob. |
| KEYLESS UNLOCK [On/Off] | Indicates condition of unlock signal from keyfob. |
| KEY CYL LK-SW [On/Off] | Indicates condition of lock signal from door key cylinder switch. |
| KEY CYL UN-SW [On/Off] | Indicates condition of unlock signal from door key cylinder switch. |
| ACC SW [On/Off] | Indicates condition of ignition switch ACC position. |

## WORK SUPPORT

| Support Item | Setting | | Description |
|---|---|---|---|
| ROOM LAMP TIMER SET | MODE3 | 10 min | Sets the interior room lamp battery saver timer operating time. |
| | MODE2 | 60 min | |
| | MODE1* | 15 min | |

*: Initial setting

# THEFT ALM

## THEFT ALM : CONSULT Function (BCM - THEFT ALM)

INFOID:0000000006889187

### DATA MONITOR

| Monitor Item [Unit] | Description |
|---|---|
| IGN ON SW [On/Off] | Indicates condition of ignition switch ON position. |
| ACC ON SW [On/Off] | Indicates condition of ignition switch ACC position. |
| KEY ON SW [On/Off] | Indicates condition of key switch. |
| KEYLESS LOCK [On/Off] | Indicates condition of lock signal from keyfob. |
| KEYLESS UNLOCK [On/Off] | Indicates condition of unlock signal from keyfob. |
| DOOR SW-DR [On/Off] | Indicates condition of front door switch LH. |
| DOOR SW-AS [On/Off] | Indicates condition of front door switch RH. |
| DOOR SW-RR [On/Off] | Indicates condition of back door switch. |
| DOOR SW-RL [On/Off] | Indicates condition of sliding door switch. |
| KEY CYL LK-SW [On/Off] | Indicates condition of lock signal from door key cylinder switch. |
| KEY CYL UN-SW [On/Off] | Indicates condition of unlock signal from door key cylinder switch. |
| CDL LOCK SW [On/Off] | Indicates condition of lock signal from door lock and unlock switch. |
| CDL UNLOCK SW [On/Off] | Indicates condition of unlock signal from door lock and unlock switch. |
| TRANSPONDER [On/Off] | Indicates condition of key ID verification results. |
| AUTO RELOCK [On/Off] | Indicates condition of auto relock. |

### ACTIVE TEST

| Test Item | Description |
|---|---|
| THEFT IND | This test is able to check security indicator lamp operation [Off/On]. |
| VEHICLE SECURITY HORN | This test is able to check vehicle security horn operation [On]. |
| HEADLAMP(HI) | This test is able to check vehicle security lamp operation [On]. |
| FLASHER | This test is able to check hazard reminder operation [Off/RH/LH]. |

WORK SUPPORT

| Support Item | Setting | Description |
|---|---|---|
| SECURITY ALARM SET | Off | Security alarm OFF. |
| | On* | Security alarm ON. |
| THEFT ALM TRG | Off/On | The switch which triggered vehicle security alarm is recorded [On]. This mode is able to confirm and erase the record of vehicle security alarm. The trigger data can be erased by touching [CLEAR]. |
| | CLEAR | |

*: Initial setting

# RETAINED POWER

## RETAINED POWER : CONSULT Function (BCM - RETAINED PWR)

INFOID:0000000006889188

### DATA MONITOR

| Monitor Item [Unit] | Description |
|---|---|
| IGN ON SW [On/Off] | Indicates condition of ignition switch ON position. |
| DOOR SW-DR [On/Off] | Indicates condition of front door switch LH. |
| DOOR SW-AS [On/Off] | Indicates condition of front door switch RH. |

### WORK SUPPORT

| Support Item | Setting | | Description |
|---|---|---|---|
| RETAINED PWR SET | MODE3 | 2 min | Sets the retained accessory power operating time. |
| | MODE2 | OFF | |
| | MODE1* | 45 sec | |

*: Initial setting

# SIGNAL BUFFER

## SIGNAL BUFFER : CONSULT Function (BCM - SIGNAL BUFFER)

INFOID:0000000006889189

### DATA MONITOR

| Monitor Item [Unit] | Description |
|---|---|
| OIL PRESS SW [On/Off] | Indicates condition of oil pressure switch signal received from IPDM E/R on CAN communication line. |
| BRAKE SW [On/Off] | Indicates condition of stop lamp switch. |

### ACTIVE TEST

| Test Item | Description |
|---|---|
| OIL PRESSURE SW | This test is able to check the oil pressure gauge operation [Off/On]. |

# PANIC ALARM

## PANIC ALARM : CONSULT Function (BCM - PANIC ALARM)

INFOID:0000000006889192

### ACTIVE TEST

| Test Item | Description |
|---|---|
| HEAD LAMP (HI) | This test is able to check head lamp HI operation [On]. |
| VEHICLE SECURITY HORN | This test is able to check vehicle security horn operation [On]. |

# ECU DIAGNOSIS INFORMATION

## BCM (BODY CONTROL MODULE)

### Reference Value

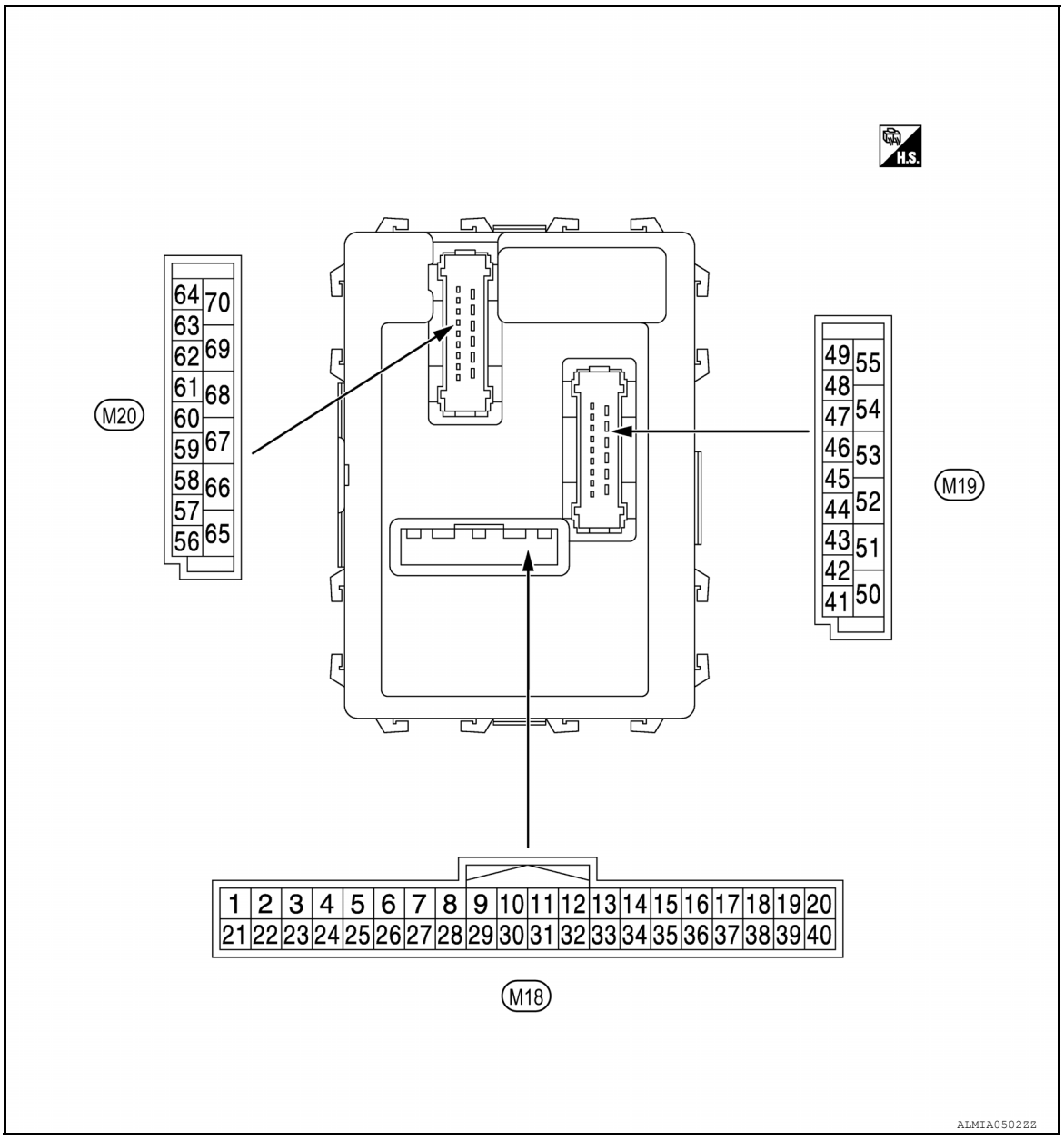
INFOID:0000000006889193

VALUES ON THE DIAGNOSIS TOOL

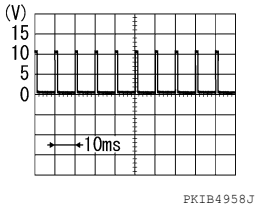
| Monitor Item | Condition | Value/Status |
|---|---|---|
| ACC SW | Ignition switch OFF or ON | Off |
| | Ignition switch ACC | On |
| ACC ON SW | Ignition switch OFF or ON | Off |
| | Ignition switch ACC | On |
| AIR COND SW | A/C switch OFF | Off |
| | A/C switch ON | On |
| BRAKE SW | Brake pedal released | Off |
| | Brake pedal applied | On |
| BUCKLE SW | Seat belt buckle unfastened | Off |
| | Seat belt buckle fastened | On |
| CDL LOCK SW | Door lock/unlock switch does not operate | Off |
| | Press door lock/unlock switch to the LOCK side | On |
| CDL UNLOCK SW | Door lock/unlock switch does not operate | Off |
| | Press door lock/unlock switch to the UNLOCK side | On |
| DOOR SW-AS | Front door RH closed | Off |
| | Front door RH opened | On |
| DOOR SW-DR | Front door LH closed | Off |
| | Front door LH opened | On |
| DOOR SW-RL | Sliding door or back doors closed | Off |
| | Sliding door or back doors opened | On |
| DOOR SW-RR | Back door RH closed | Off |
| | Back door RH opened | On |
| FAN ON SIG | Blower motor fan switch OFF | Off |
| | Blower motor fan switch ON | On |
| FR FOG SW | Front fog lamp switch OFF | Off |
| | Front fog lamp switch ON | On |
| FR WASHER SW | Front washer switch OFF | Off |
| | Front washer switch ON | On |
| FR WIPER LOW | Front wiper switch OFF | Off |
| | Front wiper switch LO | On |
| FR WIPER HI | Front wiper switch OFF | Off |
| | Front wiper switch HI | On |
| FR WIPER INT | Front wiper switch OFF | Off |
| | Front wiper switch INT | On |
| FR WIPER STOP | Any position other than front wiper stop position | Off |
| | Front wiper stop position | On |
| HAZARD SW | When hazard switch is not pressed | Off |
| | When hazard switch is pressed | On |

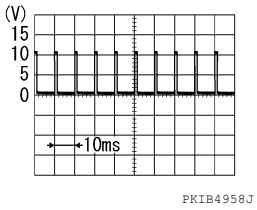
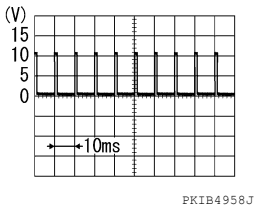
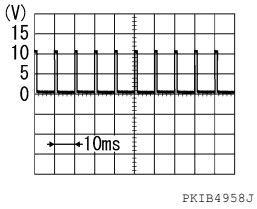
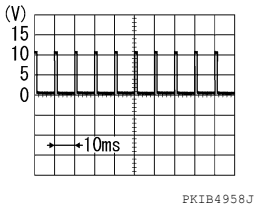
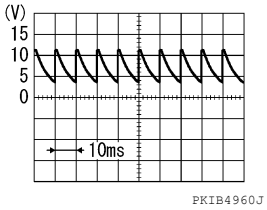
| Monitor Item | Condition | Value/Status |
|---|---|---|
| HEAD LAMP SW 1 | Headlamp switch OFF | Off |
| | Headlamp switch 1st | On |
| HEAD LAMP SW 2 | Headlamp switch OFF | Off |
| | Headlamp switch 1st | On |
| HI BEAM SW | High beam switch OFF | Off |
| | High beam switch HI | On |
| IGN ON SW | Ignition switch OFF or ACC | Off |
| | Ignition switch ON | On |
| IGN SW CAN | Ignition switch OFF or ACC | Off |
| | Ignition switch ON | On |
| INT VOLUME | Wiper intermittent dial is in a dial position of 1 - 5 | 1 - 5 |
| KEY CYL LK-SW | Door key cylinder LOCK position | Off |
| | Door key cylinder other than LOCK position | On |
| KEY CYL UN-SW | Door key cylinder UNLOCK position | Off |
| | Door key cylinder other than UNLOCK position | On |
| KEY ON SW | Mechanical key is removed from key cylinder | Off |
| | Mechanical key is inserted into key cylinder | On |
| KEYLESS LOCK | LOCK button of keyfob is not pressed | Off |
| | LOCK button of keyfob is pressed | On |
| KEYLESS PANIC | PANIC button of keyfob is not pressed | Off |
| | PANIC button of keyfob is pressed | On |
| KEYLESS UNLOCK | UNLOCK button of keyfob is not pressed | Off |
| | UNLOCK button of keyfob is pressed | On |
| OIL PRESS SW | • Ignition switch OFF or ACC<br>• Engine running | Off |
| | Ignition switch ON | On |
| PASSING SW | Other than lighting switch PASS | Off |
| | Lighting switch PASS | On |
| PKB SW | Parking brake switch disengaged | Off |
| | Parking brake switch engaged | On |
| REAR DEF SW | Rear window defogger switch OFF | Off |
| | Rear window defogger switch ON | On |
| TAIL LAMP SW | Lighting switch OFF | Off |
| | Lighting switch 1st position | On |
| TRANSPONDER | Key ID not verified | Off |
| | Key ID verified | On |
| TURN SIGNAL L | Turn signal switch OFF | Off |
| | Turn signal switch LH | On |
| TURN SIGNAL R | Turn signal switch OFF | Off |
| | Turn signal switch RH | On |
| VEHICLE SPEED | While driving | Equivalent to speedometer reading |

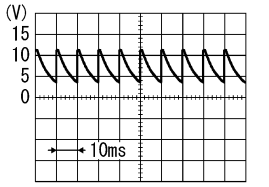
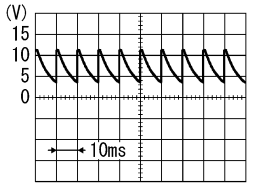
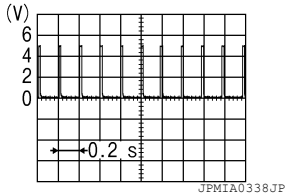
TERMINAL LAYOUT

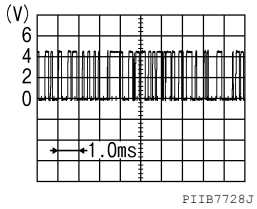
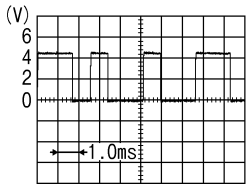
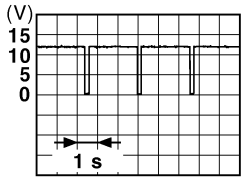
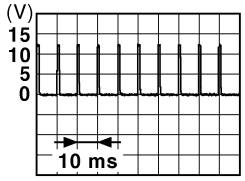
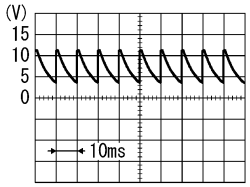


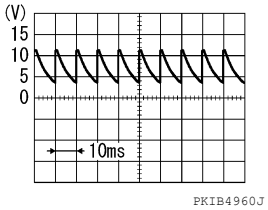
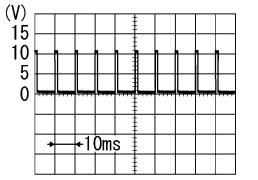
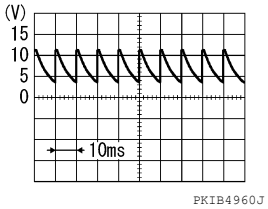
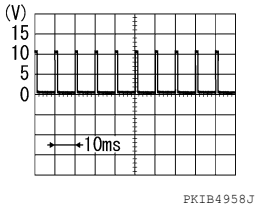

PHYSICAL VALUES

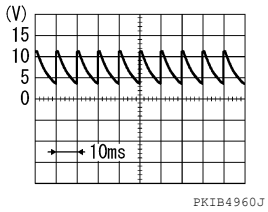
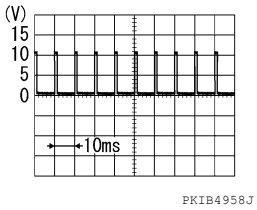
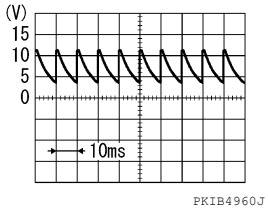
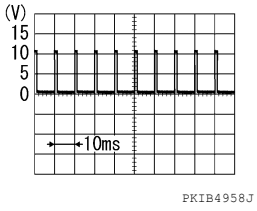
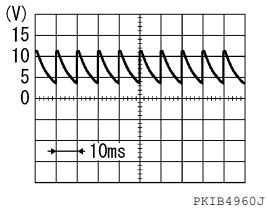
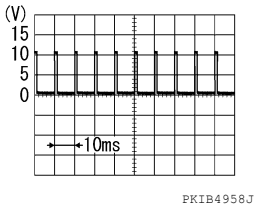
| Terminal No. (Wire color) | | Description | | Condition | | Value (Approx.) |
|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | |
| 2 (L) | Ground | Input 5 signal | Input | Combination and lighting switches | OFF | 0 V |
| | | | | Combination switch | TURN RH |  1.0 V |
| | | | | | HI BEAM | |
| | | | | Lighting switch | HEADLAMP 1 | |
| | | | | | TAIL LAMP | |

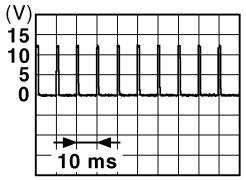
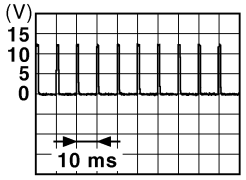
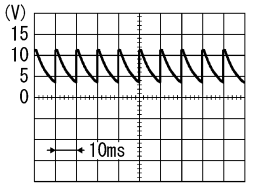
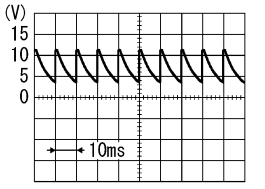
| Terminal No. (Wire color) | | Description | | Condition | | Value (Approx.) |
|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | |
| 3 (P) | Ground | Input 4 signal | Input | Combination, front fog lamps and lighting switches | OFF | 0 V |
| | | | | Front fog lamps switch | ON |  PKIB4958J 1.0 V |
| | | | | Combination switch | TURN LH | |
| | | | | | PASSING | |
| | | | | Lighting switch | HEADLAMP 2 | |
| 4 (LG) | Ground | Input 3 signal | Input | Combination switch | OFF | 0 V |
| | | | | | FR WIPER LOW |  PKIB4958J 1.0 V |
| | | | | | FR WIPER INT (any intermittent position) | |
| 5 (O) | Ground | Input 2 signal | Input | Combination switch | OFF | 0 V |
| | | | | | FR WASHER |  PKIB4958J 1.0 V |
| | | | | | Wiper intermittent dial 2 | |
| | | | | | Wiper intermittent dial 3 | |
| 6 (R) | Ground | Input 1 signal | Input | Combination switch | OFF | 0 V |
| | | | | | FR WIPER HI |  PKIB4958J 1.0 V |
| | | | | | Wiper intermittent dial 1 | |
| | | | | | Wiper intermittent dial 2 | |
| | | | | | Wiper intermittent dial 5 | |
| 7 (Y) | Ground | Key cylinder unlock sw signal | Input | Key cylinder switch | NEUTRAL position |  PKIB4960J 7.0 - 8.0 V |
| | | | | | UNLOCK position | 0 V |

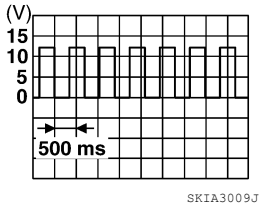
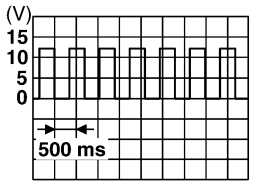
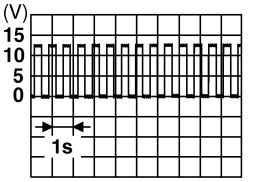
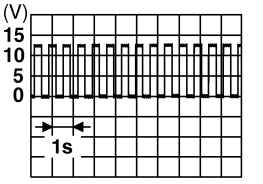
| Terminal No. (Wire color) | | Description | | Condition | | Value (Approx.) |
|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | |
| 8 (SB) | Ground | Key cylinder lock sw signal | Input | Key cylinder switch | NEUTRAL position | 12 V |
| | | | | | LOCK position | 0 V |
| 9 (LG) | Ground | Brake sw 1 signal | Input | Stop lamp switch | OFF (Brake pedal released) | 0 V |
| | | | | | ON (Brake pedal depressed) | Battery voltage |
| 10 (BR) | Ground | Rear defogger sw signal | Input | Rear window defogger switch | OFF (Released) | 12 V |
| | | | | | ON (Pressed) | 0 V |
| 11 (O) | Ground | ACC sw signal | Input | Ignition switch OFF | | 0 V |
| | | | | Ignition switch ACC or ON | | Battery voltage |
| 12 (O) | Ground | Door switch (AS) signal | Input | Front door switch RH | OFF (Front door RH closed) |  PKIB4960J 7.0 - 8.0 V |
| | | | | | ON (Front door RH open) | 0 V |
| 13 (GR) | Ground | Door switch (RR) signal | Input | Back door switch upper RH | OFF (Back door RH closed) | 0 V |
| | | | | | ON (Back door RH open) |  PKIB4960J 7.0 - 8.0 V |
| 18 (P) | Ground | Keyless gnd signal | Input | Ignition switch ON | | 0 V |
| 19 (V) | Ground | Keyless tuner power supply signal | Input | Ignition switch OFF | Key inserted into ignition key cylinder | 0 V |
| | | | | | Key removed from ignition key cylinder (Any door open) | 5 V |
| | | | | | Key removed from ignition key cylinder (Any door closed) |  JPMIA0338JP |

| Terminal No. (Wire color) | | Description | | Condition | | Value (Approx.) |
|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | |
| 20 (W) | Ground | Keyless tuner signal | Input | Ignition switch OFF | Key inserted into ignition key cylinder | 0 V |
| | | | | | Waiting |  PIIB7728J |
| | | | | | Signal receiving |  PIIB7729J |
| 21 (G) | Ground | Immobilizer one way communication (Clock) signal | Input/ Output | While waiting | Turn ignition switch ON. | Turn ignition switch ON: Pointer of tester should move. |
| 23 (G) | Ground | Security indicator output signal | Input | Security indicator | ON | 0 V |
| | | | | | Blinking (Ignition switch OFF) |  JPMIA0014GB<br>11.3 V |
| | | | | | OFF | 12 V |
| 25 (BR) | Ground | Immobilizer two way communication signal | Input/ Output | While waiting | Turn ignition switch ON. | Turn ignition switch ON: Pointer of tester should move. |
| 27 (GR) | Ground | Air con sw signal | Input | A/C switch | OFF |  JPMIA0012GB<br>1.0 - 1.5 V |
| | | | | | ON | 0 V |
| 28 (Y) | Ground | Blower fan sw signal | Input | Fan switch | Blower fan switch OFF |  PKIB4960J<br>7.0 - 8.0 V |
| | | | | | Blower fan switch ON | 0 V |

| Terminal No. (Wire color) | | Description | | Condition | | Value (Approx.) |
|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | |
| 29 (O) | Ground | Hazard sw signal | Input | Hazard switch | OFF | Battery voltage |
| | | | | | ON | 0 V |
| 32 (SB) | Ground | Output 5 signal | Output | Combination switch | OFF |  PKIB4960J 7.0 - 8.0 V |
| | | | | Front fog lamps switch | ON |  PKIB4958J 1.2 V |
| | | | | Combination switch | Wiper intermittent dial 1 | |
| | | | | | Wiper intermittent dial 2 | |
| | | | | | Wiper intermittent dial 5 | |
| 33 (G) | Ground | Output 4 signal | Output | Combination and lighting switches | OFF |  PKIB4960J 7.0 - 8.0 V |
| | | | | Lighting switch | TAIL LAMP |  PKIB4958J 1.2 V |
| | | | | Combination switch | Wiper intermittent dial 2 | |
| | | | | | Wiper intermittent dial 3 | |

| Terminal No. (Wire color) | | Description | | Condition | | Value (Approx.) |
|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | |
| 34 (Y) | Ground | Output 3 signal | Output | Combination and lighting switches | OFF |  PKIB4960J 7.0 - 8.0 V |
| | | | | Lighting switch | HEADLAMP 2 |  PKIB4958J 1.2 V |
| | | | | Combination switch | HI BEAM | |
| | | | | | Wiper intermittent dial 5 | |
| 35 (BR) | Ground | Output 2 signal | Output | Combination and lighting switches | OFF |  PKIB4960J 7.0 - 8.0 V |
| | | | | Lighting switch | HEADLAMP 1 |  PKIB4958J 1.2 V |
| | | | | Combination switch | PASSING | |
| | | | | | FR WIPER HI | |
| | | | | | FR WIPER INT (any intermittent position) | |
| 36 (Y) | Ground | Output 1 signal | Output | Combination switch | OFF |  PKIB4960J 7.0 - 8.0 V |
| | | | | | TURN RH |  PKIB4958J 1.2 V |
| | | | | | TURN LH | |
| | | | | | FR WIPER LOW | |
| | | | | | FR WASHER | |
| 37 (BR) | Ground | Key sw signal | Input | Key inserted into ignition key cylinder | | Battery voltage |
| | | | | Key removed from ignition key cylinder | | 0 V |

| Terminal No. (Wire color) | | Description | | Condition | | Value (Approx.) |
|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | |
| 38 (R) | Ground | Ign sw signal | Input | Ignition switch OFF or ACC | | 0 V |
| | | | | Ignition switch ON | | Battery voltage |
| 39 (L) | Ground | CAN-H signal | Input/ Output | — | | — |
| 40 (P) | Ground | CAN-L signal | Input/ Output | — | | — |
| 45 (GR) | Ground | Central door lock sw signal | Input | Door lock/unlock switch | NEUTRAL position |  JPMIA0012GB 1.0 - 1.5 V |
| | | | | | LOCK position | 0 V |
| 46 (R) | Ground | Central door unlock sw signal | Input | Door lock/unlock switch | NEUTRAL position |  JPMIA0012GB 1.0 - 1.5 V |
| | | | | | UNLOCK position | 0 V |
| 47 (SB) | Ground | Door switch (DR) signal | Input | Front door switch LH | OFF (Front door LH closed) |  PKIB4960J 7.0 - 8.0 V |
| | | | | | ON (Front door LH open) | 0 V |
| 48 (O) | Ground | Door switch (RL) signal | Input | Back door switch lower LH, back door lower RH, secondary sliding door switch (with high roof) or sliding door switch | OFF (Back door LH, back door RH or sliding door closed) |  PKIB4960J 7.0 - 8.0 V |
| | | | | | ON (Back door LH, back door RH or sliding door open) | 0 V |

| Terminal No. (Wire color) | | Description | | Condition | | Value (Approx.) |
|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | |
| 51 (V) | Ground | Trailer flasher output (right) signal | Output | Turn signal switch RH ON | |  SKIA3009J |
| 52 (G) | Ground | Trailer flasher output (left) signal | Output | Turn signal switch LH ON | |  SKIA3009J |
| 56 (SB) | Ground | Battery saver output signal | Output | Interior room lamp battery saver activated | | 0 V |
| | | | | Interior room lamp battery saver not activated | | 12 V |
| 57 (LG) | Ground | Battery power supply | Input | Ignition switch OFF | | Battery voltage |
| 59 (W) | Ground | Door unlock output (DR) signal | Output | Front door LH actuator | Actuated to UNLOCK position | 12 V |
| | | | | | Other than actuated to UNLOCK position | 0 V |
| 60 (Y) | Ground | Flasher output (left) signal | Output | Ignition switch ON | Turn signal switch OFF | 0 V |
| | | | | | Turn signal switch LH ON |  PKIC6370E<br>6.0 V |
| 61 (G) | Ground | Flasher output (right) signal | Output | Ignition switch ON | Turn signal switch OFF | 0 V |
| | | | | | Turn signal switch RH ON |  PKIC6370E<br>6.0 V |
| 63 (L) | Ground | Room lamp output signal | Output | Interior room lamp | OFF | 12 V |
| | | | | | ON | 0 V |
| 65 (G) | Ground | Door lock output signal | Output | All door actuators | Actuated to LOCK position | 12 V |
| | | | | | Other than actuated to LOCK position | 0 V |

| Terminal No. (Wire color) | | Description | | Condition | | Value (Approx.) |
|---|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | | |
| 66 (Y) | Ground | Door unlock output (AS, SD, BD) signal | Output | Back door lock, front door lock RH and sliding door lock actuators | Actuated to UNLOCK position | 12 V |
| | | | | | Other than actuated to UNLOCK position | 0 V |
| 67 (B) | Ground | Ground | Output | Ignition switch ON | | 0 V |
| 68 (W) | Ground | Power window power supply (RAP) signal | Output | Ignition switch ON | | 12 V |
| 69 (L) | Ground | Power window power supply (battery) signal | Output | Ignition switch OFF | | 12 V |
| 70 (R) | Ground | Battery power supply (F/L) | Input | Ignition switch OFF | | Battery voltage |

## Fail-safe

INFOID:0000000006889195

### FAIL-SAFE CONTROL BY DTC

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

| CONSULT display | Fail-safe | Cancellation |
|---|---|---|
| B2190: NATS ANTENNA AMP | Inhibit engine cranking | Erase DTC |
| B2191: DIFFERENCE OF KEY | Inhibit engine cranking | Erase DTC |
| B2192: ID DISCORD BCM-ECM | Inhibit engine cranking | Erase DTC |
| B2193: CHAIN OF BCM-ECM | Inhibit engine cranking | Erase DTC |
| B2195: ANTI SCANNING | Inhibit engine cranking | Ignition switch ON → OFF |

### HIGH FLASHER OPERATION

BCM detects the turn signal lamp circuit status by the current value.
BCM increases the turn signal lamp blinking speed if a bulb or harness open is detected with the turn signal lamp operating.

**NOTE:**
The blinking speed is normal while activating the hazard warning lamp.

## DTC Inspection Priority Chart

INFOID:0000000006889196

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

| Priority | DTC |
|---|---|
| 1 | • U1000: CAN COMM<br>• U1010: CONTROL UNIT (CAN) |
| 2 | • B2190: NATS ANTENNA AMP<br>• B2191: DIFFERENCE OF KEY<br>• B2192: ID DISCORD BCM-ECM<br>• B2193: CHAIN OF BCM-ECM<br>• B2195: ANTI SCANNING |
| 3 | C1735: IGN CIRCUIT OPEN |

## DTC Index

INFOID:0000000006889197

**NOTE:**
Details of time display

- CRNT: Displays when there is a malfunction now or after returning to the normal condition until turning ignition switch OFF → ON again.
- 1 - 39: Displayed if any previous malfunction is present when current condition is normal. It increases like 1 → 2 → 3...38 → 39 after returning to the normal condition whenever ignition switch OFF → ON. The counter remains at 39 even if the number of cycles exceeds it. It is counted from 1 again when turning ignition switch OFF → ON after returning to the normal condition if the malfunction is detected again.

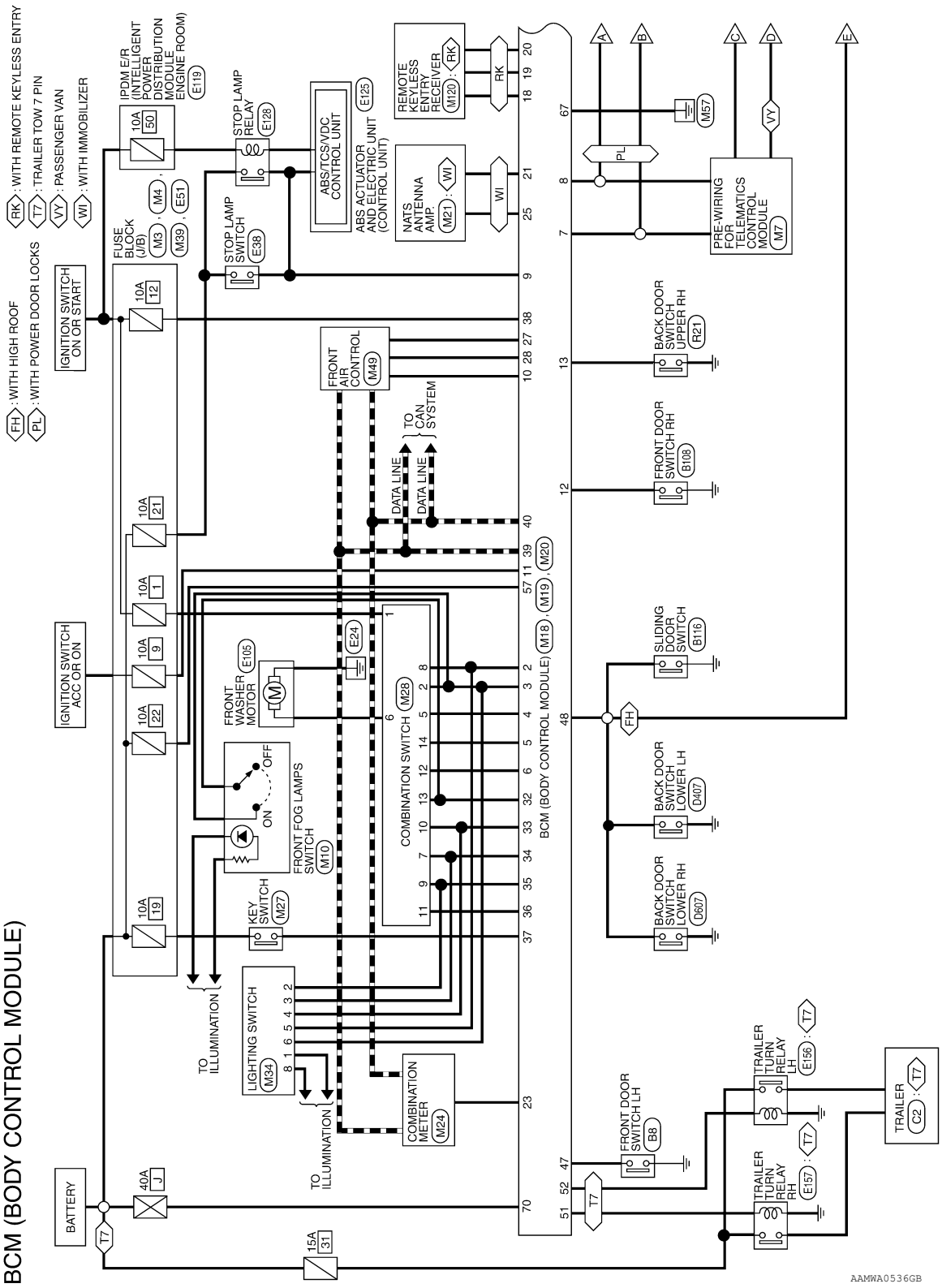
| CONSULT display | Fail-safe | Reference |
|---|---|---|
| U1000: CAN COMM | — | SEC-38 |
| U1010: CONTROL UNIT (CAN) | — | BCS-47 |
| B2190: NATS ANTENNA AMP | × | SEC-40 |
| B2191: DIFFERENCE OF KEY | × | SEC-42 |
| B2192: ID DISCORD BCM-ECM | × | SEC-43 |
| B2193: CHAIN OF BCM-ECM | × | SEC-45 |
| B2195: ANTI SCANNING | × | SEC-46 |
| C1735: IGN CIRCUIT OPEN | — | BCS-48 |

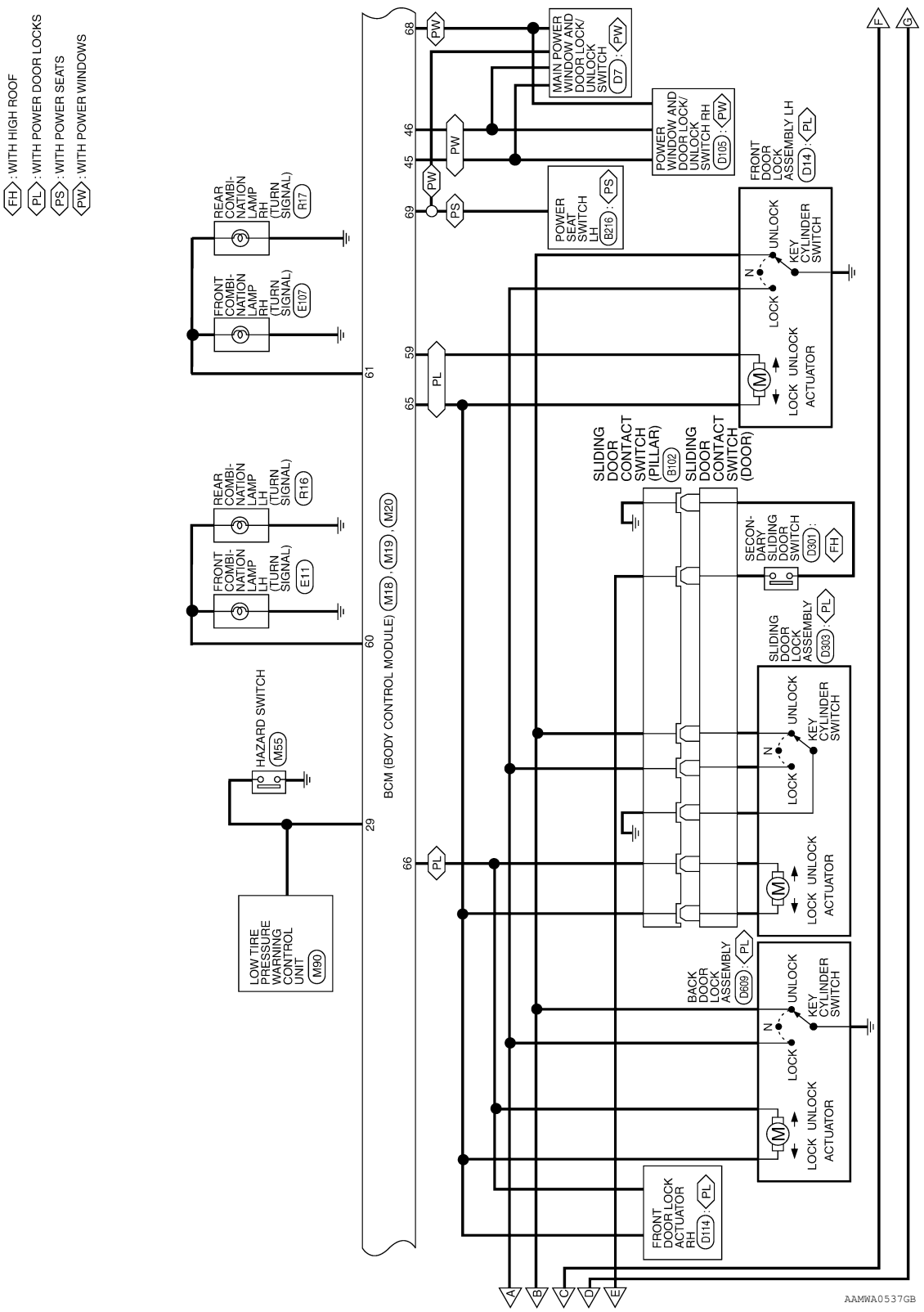
# WIRING DIAGRAM

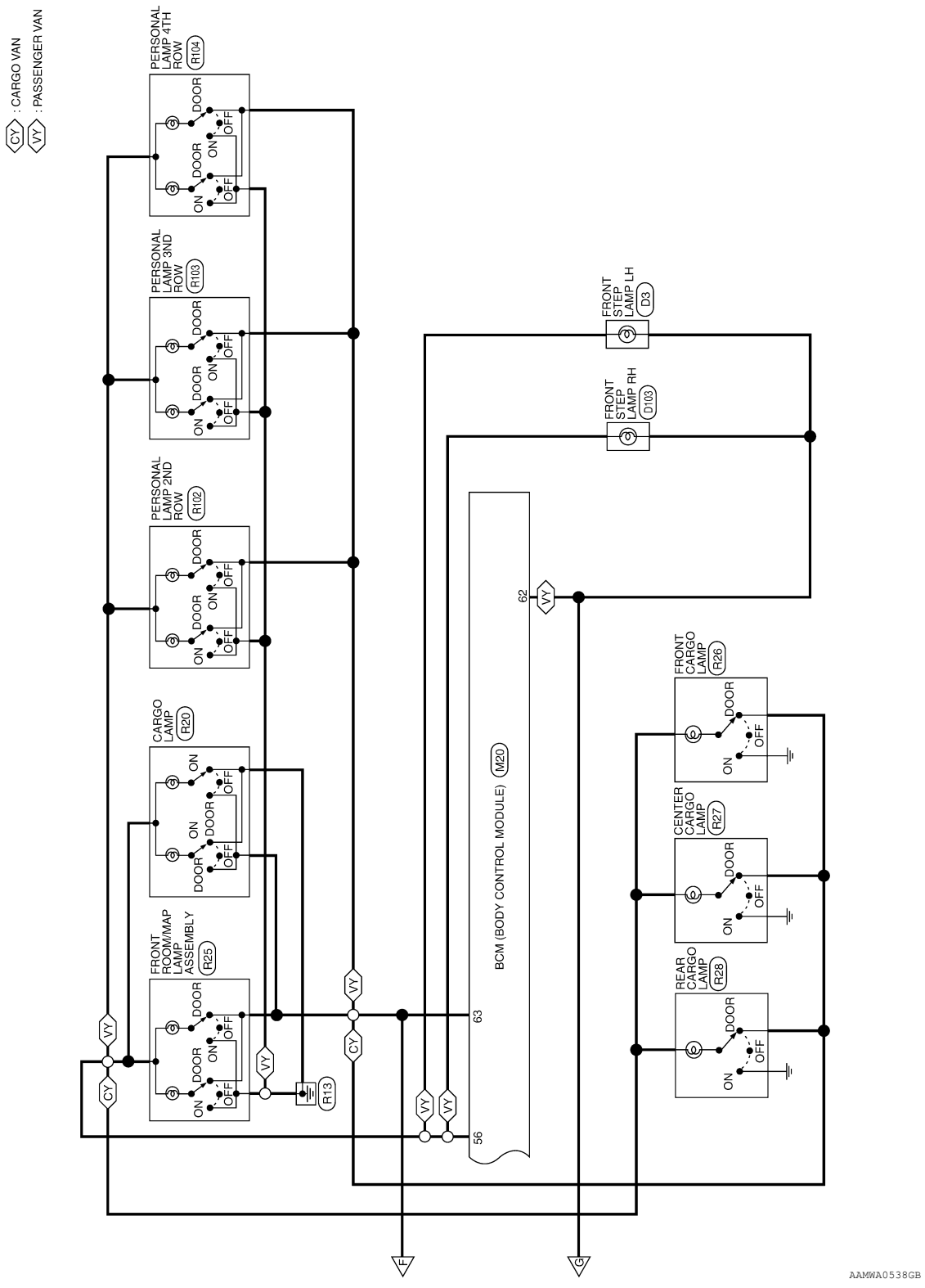
## BCM (BODY CONTROL MODULE)

### Wiring Diagram

INFOID:0000000006737479




FH : WITH HIGH ROOF
PL : WITH POWER DOOR LOCKS
PS : WITH POWER SEATS
PW : WITH POWER WINDOWS
BCM (BODY CONTROL MODULE) (M18), (M19), (M20)
MAIN POWER WINDOW AND DOOR LOCK/ UNLOCK SWITCH (D7) : PW
POWER WINDOW AND DOOR LOCK/ UNLOCK SWITCH RH (D105) : PW
POWER SEAT SWITCH LH (B216) : PS
FRONT DOOR LOCK ASSEMBLY LH (D14) : PL
REAR COMBI-NATION LAMP RH (TURN SIGNAL) (R17)
FRONT COMBI-NATION LAMP RH (TURN SIGNAL) (E107)
REAR COMBI-NATION LAMP LH (TURN SIGNAL) (R16)
FRONT COMBI-NATION LAMP LH (TURN SIGNAL) (E11)
HAZARD SWITCH (M55)
LOW TIRE PRESSURE WARNING CONTROL UNIT (M90)
SLIDING DOOR CONTACT SWITCH (PILLAR) (B102)
SLIDING DOOR CONTACT SWITCH (DOOR)
SECON-DARY SLIDING DOOR SWITCH (D301) : FH
SLIDING DOOR LOCK ASSEMBLY (D303) : PL
BACK DOOR LOCK ASSEMBLY (D609) : PL
FRONT DOOR LOCK ACTUATOR RH (D114) : PL
KEY CYLINDER SWITCH
UNLOCK
LOCK
N
LOCK UNLOCK ACTUATOR
AAMWA0537GB

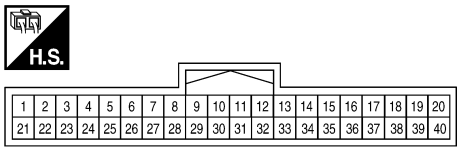

CY : CARGO VAN
VY : PASSENGER VAN
PERSONAL LAMP 4TH ROW R104
PERSONAL LAMP 3ND ROW R103
PERSONAL LAMP 2ND ROW R102
CARGO LAMP R20
FRONT ROOM/MAP LAMP ASSEMBLY R25
R13
FRONT STEP LAMP LH D3
FRONT STEP LAMP RH D103
BCM (BODY CONTROL MODULE) M20
62
63
56
FRONT CARGO LAMP R26
CENTER CARGO LAMP R27
REAR CARGO LAMP R28
DOOR
ON
OFF
F
G
AAMWA0538GB

## BCM (BODY CONTROL MODULE) CONNECTORS

| Connector No. | M10 |
|---|---|
| Connector Name | FRONT FOG LAMP SWITCH |
| Connector Color | WHITE |


| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 1 | SB | – |
| 2 | P | – |
| 3 | – | – |
| 4 | V | – |
| 5 | BR | – |
| 6 | – | – |

| Connector No. | M18 |
|---|---|
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Color | WHITE |




| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 1 | – | – |
| 2 | L | INPUT 5 |
| 3 | P | INPUT 4 |
| 4 | LG | INPUT 3 |
| 5 | O | INPUT 2 |
| 6 | R | INPUT 1 |
| 7 | Y | KEY CYLINDER UNLOCK SW |
| 8 | SB | KEY CYLINDER LOCK SW |
| 9 | LG | BRAKE SW 1 |
| 10 | BR | REAR DEFOGGER SW |
| 11 | O | ACC SW |
| 12 | O | DOOR SW (AS) |
| 13 | GR | DOOR SW (RR) |
| 14 | – | – |
| 15 | – | – |
| 16 | – | – |
| 17 | – | – |
| 18 | P | KEYLESS AND AUTO LIGHT SENSOR GND |
| 19 | V | KEYLESS TUNER POWER SUPPLY |
| 20 | W | KEYLESS TUNER SIGNAL |
| 21 | G | IMMOBILIZER ONE WAY COMMUNICATION (CLOCK) |
| 22 | – | – |
| 23 | G | SECURITY INDICATOR OUTPUT |
| 24 | – | – |
| 25 | BR | IMMOBILIZER TWO WAY COMMUNICATION |
| 26 | – | – |
| 27 | GR | AIR CON SW |
| 28 | Y | BLOWER FAN SW |
| 29 | O | HAZARD SW |
| 30 | – | – |
| 31 | – | – |
| 32 | SB | OUTPUT 5 |
| 33 | G | OUTPUT 4 |
| 34 | Y | OUTPUT 3 |
| 35 | BR | OUTPUT 2 |
| 36 | Y | OUTPUT 1 |
| 37 | BR | KEY SW |
| 38 | R | IGN SW |
| 39 | L | CAN-H |
| 40 | P | CAN-L |

AAMIA1033GB

| Connector No. | M19 |
|---|---|
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Color | WHITE |

H.S.

| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 |
|---|---|---|---|---|---|---|---|---|
| 50 | 51 | 52 | 53 | 54 | 55 | | | |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 41 | – | – |
| 42 | – | – |
| 43 | – | – |
| 44 | – | – |
| 45 | GR | CENTRAL DOOR LOCK SW |
| 46 | R | CENTRAL DOOR UNLOCK SW |
| 47 | SB | DOOR SW (DR) |
| 48 | O | DOOR SW (SLIDE, BK LWR) |
| 49 | – | – |
| 50 | – | – |
| 51 | V | TRAILER FLASHER OUTPUT (RIGHT) |
| 52 | G | TRAILER FLASHER OUTPUT (LEFT) |
| 53 | – | – |
| 54 | – | – |
| 55 | – | – |

| Connector No. | M20 |
|---|---|
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Color | BLACK |

H.S.

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

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 56 | SB | BATTERY SAVER OUTPUT |
| 57 | LG | BATTERY (FUSE) |
| 58 | – | – |
| 59 | W | DOOR UNLOCK OUTPUT (DR) |
| 60 | Y | FLASHER OUTPUT (LEFT) |
| 61 | G | FLASHER OUTPUT (RIGHT) |
| 62 | – | – |
| 63 | L | ROOM LAMP OUTPUT |
| 64 | – | – |
| 65 | G | DOOR LOCK OUTPUT |
| 66 | Y | DOOR UNLOCK OUTPUT (AS,RR,RL,BD) |
| 67 | B | GND |
| 68 | W | POWER WINDOW POWER SUPPLY (RAP) |
| 69 | L | POWER WINDOW POWER SUPPLY (BATTERY) |
| 70 | R | BATTERY (F/L) |

| Connector No. | M28 |
|---|---|
| Connector Name | COMBINATION SWITCH |
| Connector Color | WHITE |

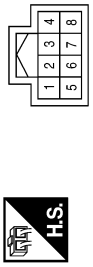
H.S.

| 1 | 2 | | | | 5 | 6 |
|---|---|---|---|---|---|---|
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 1 | R | – |
| 2 | P | OUTPUT 4 |
| 5 | LG | OUTPUT 3 |
| 6 | V | – |
| 7 | Y | INPUT 3 |
| 8 | L | OUPUT 5 |
| 9 | BR | INPUT 2 |
| 10 | G | INPUT 4 |
| 11 | Y | INPUT 1 |
| 12 | R | OUTPUT 1 |
| 13 | SB | INPUT 5 |
| 14 | O | OUTPUT 2 |

AAMIA1034GB

| Connector No. | M34 |
|---|---|
| Connector Name | LIGHTING SWITCH |
| Connector Color | WHITE |




| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 1 | V | ILL (+) |
| 2 | BR | INPUT 2 |
| 3 | Y | INPUT 3 |
| 4 | G | INPUT 4 |
| 5 | L | OUTPUT 5 |
| 6 | P | OUTPUT 4 |
| 7 | – | – |
| 8 | BR | ILL (-) |

ABMIA3751GB

# BASIC INSPECTION

## INSPECTION AND ADJUSTMENT

## ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (BCM)

### ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (BCM) : Description

INFOID:0000000006889198

BEFORE REPLACEMENT

When replacing BCM, save or print current vehicle specification with CONSULT configuration before replacement.

**NOTE:**

If “Before Replace ECU” cannot be used, use the “After Replace ECU” or “Manual Configuration” after replacing BCM.

AFTER REPLACEMENT

**CAUTION:**

- **When replacing BCM, you must perform “After Replace ECU” with CONSULT.**
- **Complete the procedure of “After Replace ECU” in order.**
- **If you set incorrect “After Replace ECU”, incidents might occur.**
- **Configuration is different for each vehicle model. Confirm configuration of each vehicle model.**
- **When replacing BCM, perform the system initialization (NATS).**

### ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT (BCM) : Work Procedure

INFOID:0000000006889199

**1.** SAVING VEHICLE SPECIFICATION

CONSULT

Enter "Re/Programming, Configuration" and perform “Before Replace ECU” to save or print current vehicle specification.

**NOTE:**

If “Before Replace ECU” cannot be used, use the "After Replace ECU" or "Manual Configuration" after replacing BCM.

>> GO TO 2.

**2.** REPLACE BCM

Replace BCM. Refer to BCS-55, "Removal and Installation".

>> GO TO 3.

**3.** WRITING VEHICLE SPECIFICATION

CONSULT

1. Enter "Re/Programming, Configuration".
2. If “Before Replace ECU” operation was performed, automatically an "Operation Log Selection" screen will be displayed. Select the applicable file from the "Saved Data List" and press “Confirm” to write vehicle specification. Refer to BCS-44, "CONFIGURATION (BCM) : Work Procedure".
3. If “Before Replace ECU” operation was not performed, select "After Replace ECU" or "Manual Configuration" to write vehicle specification. Refer to BCS-44, "CONFIGURATION (BCM) : Work Procedure".

>> GO TO 4.

**4.** INITIALIZE BCM (NATS)

Perform BCM initialization. (NATS)

>> Work End.

## CONFIGURATION (BCM)

## CONFIGURATION (BCM) : Description

INFOID:0000000006889200

Vehicle specification needs to be written with CONSULT because it is not written after replacing BCM.
Configuration has three functions as follows:

| Function | Description |
|---|---|
| "Before Replace ECU" | • Reads the vehicle configuration of current BCM.<br>• Saves the read vehicle configuration. |
| "After Replace ECU" | Writes the vehicle configuration with manual selection. |
| "Select Saved Data List" | Writes the vehicle configuration with saved data. |

**CAUTION:**
- **When replacing BCM, you must perform “Select Saved Data List” or "After Replace ECU" with CONSULT.**
- **Complete the procedure of “Select Saved Data List” or "After Replace ECU" in order.**
- **If you set incorrect “Select Saved Data List” or "After Replace ECU", incidents might occur.**
- **Configuration is different for each vehicle model. Confirm configuration of each vehicle model.**
- **Never perform “Select Saved Data List” or "After Replace ECU" except for new BCM.**

## CONFIGURATION (BCM) : Work Procedure

INFOID:0000000006889201

### 1.WRITING MODE SELECTION

CONSULT
Select “Reprogramming, Configuration” of BCM.

When writing saved data>>GO TO 2.
When writing manually>>GO TO 3.

### 2.PERFORM “SAVED DATA LIST”

CONSULT
Automatically “Operation Log Selection” window will display if “Before Replace ECU” was performed. Select applicable file from the “Save Data List” and press “Confirm”.

>> Work End.

### 3.PERFORM “AFTER REPLACE ECU” OR “MANUAL CONFIGURATION”

CONSULT
1. Select “After Replace ECU” or “Manual Configuration”.
2. Identify the correct model and configuration list. Refer to BCS-45, "CONFIGURATION (BCM) : Configuration List".
3. Confirm and/or change setting value for each item.
   **CAUTION:**
   **Thoroughly read and understand the vehicle specification. ECU control may not operate normally if the setting is not correct.**
4. Select “Next”.
   **CAUTION:**
   **Make sure to select “Next”, confirm each setting value and press “OK” even if the indicated configuration of brand new BCM is same as the desirable configuration. If not, configuration which is set automatically by selecting vehicle model can not be memorized.**
5. When "Completed", select "End".

>> GO TO 4.

### 4.OPERATION CHECK

Confirm that each function controlled by BCM operates normally.

>> Work End.

# CONFIGURATION (BCM) : Configuration List

INFOID:0000000006889202

**CAUTION:**
**Thoroughly read and understand the vehicle specification. Incorrect settings may result in abnormal control of ECU.**

| MANUAL SETTING ITEM | |
|---|---|
| Items | Setting value |
| THEFT ALARM | WITH ⇔ WITHOUT |
| KEYLESS ENTRY | WITH ⇔ WITHOUT |
| AUTO LOCK&UNLOCK FUNC | WITH ⇔ WITHOUT |

⇔: Items which confirm vehicle specifications

# DTC/CIRCUIT DIAGNOSIS

## U1000 CAN COMM

### Description

INFOID:0000000006889203

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. Refer to LAN-28, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

### DTC Logic

INFOID:0000000006889204

#### DTC DETECTION LOGIC

| DTC | DTC Detection Condition | Possible cause |
|---|---|---|
| U1000: CAN COMM | When BCM cannot communicate CAN communication signal continuously for 2 seconds or more. | CAN communication system |

### Diagnosis Procedure

INFOID:0000000006889205

#### 1.PERFORM SELF DIAGNOSTIC

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

Is “CAN COMM CIRCUIT” displayed?

YES >> Refer to LAN-15, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-39, "Intermittent Incident".

# U1010 CONTROL UNIT (CAN)

## DTC Logic

INFOID:0000000006889206

### DTC DETECTION LOGIC

| DTC | CONSULT display description | DTC Detection Condition | Possible cause |
|---|---|---|---|
| U1010 | CONTROL UNIT (CAN) | BCM detected internal CAN communication circuit malfunction. | BCM |

## Diagnosis Procedure

INFOID:0000000006889207

### 1.REPLACE BCM

When DTC “U1010” is detected, replace BCM.

>> Replace BCM. Refer to BCS-55, "Removal and Installation".

# C1735 IGN CIRCUIT OPEN

## DTC Logic

INFOID:0000000006889208

### DTC DETECTION LOGIC

| DTC | CONSULT display description | DTC Detection Condition | Possible cause |
|---|---|---|---|
| C1735 | IGN CIRCUIT OPEN | Detected following signals are different for 2 seconds;<br>• Ignition switch ON signal inputted from ignition switch<br>• Ignition relay status signal received from IPDM E/R with CAN communication | • Harness or connector (Ignition power supply circuit)<br>• BCM<br>• IPDM E/R |

**NOTE:**

BCM may detect that ignition switch is OFF when IGN power supply voltage is low.

### DTC CONFIRMATION PROCEDURE

#### 1.DTC CONFIRMATION

1. Erase DTC.
2. Turn the ignition switch OFF.
3. Perform “Self Diagnostic Result”.

Is any DTC detected?

YES >> Refer to BCS-48, "Diagnosis Procedure".
NO >> Inspection End.

## Diagnosis Procedure

INFOID:0000000006889209

#### 1.CHECK BCM IGNITION POWER SUPPLY CIRCUIT

Check BCM ignition power supply circuit. Refer to BCS-49, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the malfunctioning part.

#### 2.CHECK IPDM E/R POWER SUPPLY CIRCUIT

Check IPDM E/R power supply circuit. Refer to PCS-23, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the malfunctioning part.

#### 3.CHECK IPDM E/R IGNITION RELAY STATUS

CONSULT
1. Select “IGN RLY” of IPDM E/R data monitor item.
2. While operating the ignition switch, check the monitor status.

| Monitor item | Condition | | Monitor status |
|---|---|---|---|
| IGN RLY | Ignition switch | OFF | Off |
| | | ON | On |

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-55, "Removal and Installation".
NO >> Replace IPDM E/R. Refer to PCS-24, "Removal and Installation".

# POWER SUPPLY AND GROUND CIRCUIT

## Diagnosis Procedure

INFOID:0000000006889210

Regarding Wiring Diagram information, refer to BCS-37, "Wiring Diagram".

### 1.CHECK FUSES AND FUSIBLE LINK

Check that the following fuses and fusible link are not blown.

| Terminal No. | Signal name | Fuses and fusible link No. |
|---|---|---|
| 57 | Battery power supply | 22 (10A) |
| 70 | | J (40A) |
| 11 | Ignition ACC or ON | 9 (10A) |
| 38 | Ignition ON or START | 12 (10A) |

Is the fuse blown?

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

### 2.CHECK POWER SUPPLY CIRCUIT

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

| Terminals | | | Ignition switch position | | |
|---|---|---|---|---|---|
| (+) | | (–) | | | |
| BCM | | | OFF | ACC | ON |
| Connector | Terminal | | | | |
| M20 | 70 | Ground | Battery voltage | Battery voltage | Battery voltage |
| | 57 | | | | |
| M18 | 11 | | Approx. 0 V | Battery voltage | Battery voltage |
| | 38 | | Approx. 0 V | Approx. 0 V | Battery voltage |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair harness or connector.

### 3.CHECK GROUND CIRCUIT

Check continuity between BCM connector and ground.

| BCM | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M20 | 67 | | Yes |

Is the inspection result normal?

YES >> Inspection End.
NO >> Repair harness or connector.

# COMBINATION AND LIGHTING SWITCH OUTPUT CIRCUIT

## Diagnosis Procedure

INFOID:0000000006889211

Regarding Wiring Diagram information, refer to BCS-37, "Wiring Diagram".

### 1.CHECK OUTPUT 1 - 5 CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect BCM, combination switch, lighting switch and front fog lamps switch connectors.
3. Check continuity between BCM connector and combination switch connector.

| Signal | BCM | | Combination switch | | Continuity |
|---|---|---|---|---|---|
| | Connector | Terminal | Connector | Terminal | |
| Output 1 | M18 | 36 | M28 | 11 | Yes |
| Output 2 | | 35 | | 9 | |
| Output 3 | | 34 | | 7 | |
| Output 4 | | 33 | | 10 | |
| Output 5 | | 32 | | 13 | |

4. Check continuity between BCM connector and lighting switch connector.

| Signal | BCM | | Lighting switch | | Continuity |
|---|---|---|---|---|---|
| | Connector | Terminal | Connector | Terminal | |
| Output 2 | M18 | 35 | M34 | 2 | Yes |
| Output 3 | | 34 | | 3 | |
| Output 4 | | 33 | | 4 | |

5. Check continuity between BCM connector and front fog lamps switch connector.

| Signal | BCM | | Front fog lamps switch | | Continuity |
|---|---|---|---|---|---|
| | Connector | Terminal | Connector | Terminal | |
| Output 5 | M18 | 32 | M10 | 1 | Yes |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harnesses or connectors.

### 2.CHECK OUTPUT 1 - 5 CIRCUIT FOR SHORT

Check for continuity between BCM connector and ground.

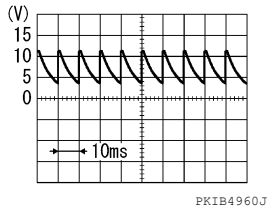
| Signal | BCM | | | Continuity |
|---|---|---|---|---|
| | Connector | Terminal | | |
| Output 1 | M18 | 36 | Ground | No |
| Output 2 | | 35 | | |
| Output 3 | | 34 | | |
| Output 4 | | 33 | | |
| Output 5 | | 32 | | |

Is the inspection result normal?

YES >> Repair harnesses or connectors.
NO >> GO TO 3.

## 3.CHECK BCM OUTPUT VOLTAGE

1. Connect BCM connector.
2. Check voltage between BCM connector and ground.

| Signal | Terminals | | | Voltage (Approx.) |
|---|---|---|---|---|
| | (+) | | (−) | |
| | BCM | | | |
| | Connector | Terminal | | |
| Output 1 | M18 | 36 | Ground |  PKIB4960J 7.0 - 8.0 V |
| Output 2 | | 35 | | |
| Output 3 | | 34 | | |
| Output 4 | | 33 | | |
| Output 5 | | 32 | | |



Is the inspection result normal?

YES >> Replace malfunctioning switch.
NO >> Replace BCM. Refer to BCS-55, "Removal and Installation".

# COMBINATION AND LIGHTING SWITCH INPUT CIRCUIT

## Diagnosis Procedure

INFOID:0000000006889212

Regarding Wiring Diagram information, refer to BCS-37, "Wiring Diagram".

### 1.CHECK INPUT 1 - 5 CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Disconnect BCM, combination switch, lighting switch and front fog lamps switch connectors.
3. Check continuity between BCM connector and combination switch connector.

| Signal | BCM | | Combination switch | | Continuity |
|---|---|---|---|---|---|
| | Connector | Terminal | Connector | Terminal | |
| Input 1 | M18 | 6 | M28 | 12 | Yes |
| Input 2 | | 5 | | 14 | |
| Input 3 | | 4 | | 5 | |
| Input 4 | | 3 | | 2 | |
| Input 5 | | 2 | | 8 | |

4. Check continuity between BCM connector and lighting switch connector.

| Signal | BCM | | Lighting switch | | Continuity |
|---|---|---|---|---|---|
| | Connector | Terminal | Connector | Terminal | |
| Input 4 | M18 | 3 | M34 | 6 | Yes |
| Input 5 | | 2 | | 5 | |

5. Check continuity between BCM connector and front fog lamps switch connector.

| Signal | BCM | | Front fog lamps switch | | Continuity |
|---|---|---|---|---|---|
| | Connector | Terminal | Connector | Terminal | |
| Input 4 | M18 | 3 | M10 | 2 | Yes |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harnesses or connectors.

### 2.CHECK INPUT 1 - 5 CIRCUIT FOR SHORT

Check for continuity between BCM connector and ground.

| Signal | BCM | | | Continuity |
|---|---|---|---|---|
| | Connector | Terminal | | |
| Input 1 | M18 | 6 | Ground | No |
| Input 2 | | 5 | | |
| Input 3 | | 4 | | |
| Input 4 | | 3 | | |
| Input 5 | | 2 | | |

Is the inspection result normal?

YES >> Repair harnesses or connectors.
NO >> GO TO 3.

### 3.CHECK BCM INPUT SIGNAL

1. Connect BCM, combination switch and lighting switch connectors.
2. Turn ON any switch in the system that is malfunctioning.
3. Check voltage between BCM connector and ground.

| Signal | Terminals | | | Voltage (Approx.) |
|---|---|---|---|---|
| | (+) | | (−) | |
| | BCM | | | |
| | Connector | Terminal | | |
| Input 1 | M18 | 6 | Ground | Refer to BCS-25, "Reference Value". |
| Input 2 | | 5 | | |
| Input 3 | | 4 | | |
| Input 4 | | 3 | | |
| Input 5 | | 2 | | |

Is the inspection result normal?

Yes >> Replace BCM. Refer to BCS-55, "Removal and Installation".
No >> Replace malfunctioning switch.

# SYMPTOM DIAGNOSIS

## COMBINATION AND LIGHTING SWITCH SYSTEM SYMPTOMS

### Symptom Table

INFOID:0000000006889214

1. Perform “Data Monitor” of CONSULT to check for any malfunctioning item.
2. Check the malfunction combinations.

Malfunctioning item: ×

| Data monitor item | | | | | | | | | | | | | Malfunction combination |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FR FOG SW | FR WIPER HI | FR WIPER LOW | FR WASHER SW | FR WIPER INT | INT VOLUME | TURN SIGNAL R | TURN SIGNAL L | TAIL LAMP SW | HI BEAM SW | HEAD LAMP SW 1 | HEAD LAMP SW 2 | PASSING SW | |
| | | × | × | | | × | × | | | | | | A |
| | × | | | × | | | | | | × | | × | B |
| | | | | | × | | | | × | | × | | C |
| | | | | | × | | | × | | | | | D |
| × | | | | | × | | | | | | | | E |
| | × | | | | × | | | | | | | | F |
| | | | × | | × | | | | | | | | G |
| | | × | | × | | | | | | | | | H |
| × | | | | | | | × | | | | × | × | I |
| | | | | | | × | | × | × | × | | | J |
| All Items | | | | | | | | | | | | | K |
| If only one item is detected or the item is not applicable to the combinations A to K | | | | | | | | | | | | | L |

3. Identify the malfunctioning part from the agreed combination and repair or replace the part.

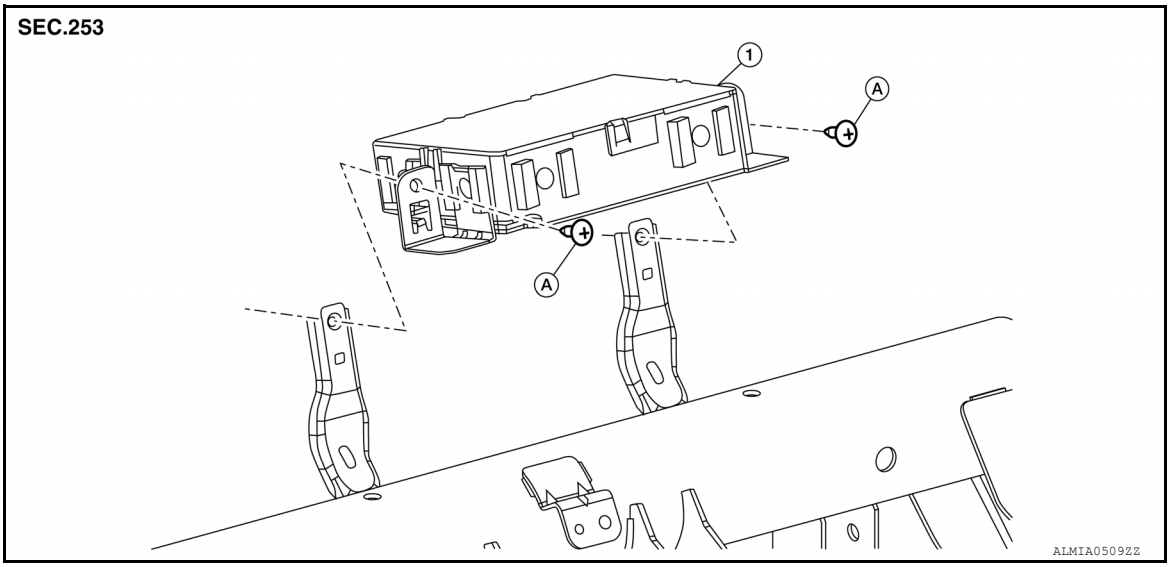
| Malfunction combination | Malfunctioning part | Repair or replace |
|---|---|---|
| A | Output 1 signal circuit | Inspect the output signal circuit applicable to the malfunctioning part. Refer to BCS-50, "Diagnosis Procedure". |
| B | Output 2 signal circuit | |
| C | Output 3 signal circuit | |
| D | Output 4 signal circuit | |
| E | Output 5 signal circuit | |
| F | Input 1 signal circuit | Inspect the input signal circuit applicable to the malfunctioning part. Refer to BCS-52, "Diagnosis Procedure". |
| G | Input 2 signal circuit | |
| H | Input 3 signal circuit | |
| I | Input 4 signal circuit | |
| J | Input 5 signal circuit | |
| K | BCM | Replace BCM. Refer to BCS-55, "Removal and Installation". |
| L | Combination or lighting switch | Replace malfunctioning switch. |

# REMOVAL AND INSTALLATION

## BCM (BODY CONTROL MODULE)

### Exploded View

INFOID:0000000007079156




1. Body control module (BCM) A. Screws

### Removal and Installation

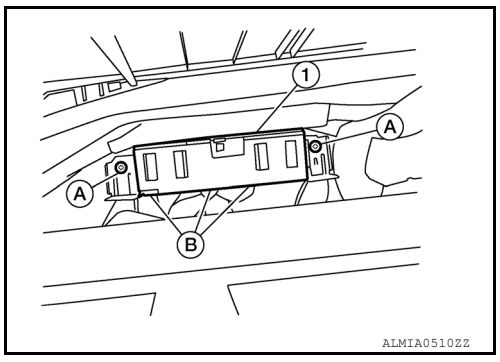
INFOID:0000000006737483

REMOVAL

**CAUTION:**

**Before removing BCM, retrieve current BCM configuration to use for reference when configuring brand-new BCM after installation. Refer to BCS-44, "CONFIGURATION (BCM) : Description".**

1. Disconnect the negative battery terminal.
2. Remove the combination meter. Refer to MWI-64, "Removal and Installation".
3. Remove the BCM screws (A).
4. Pull out the BCM (1).
5. Disconnect the harness connectors (B) from the BCM (1) and remove.




INSTALLATION

Installation is in the reverse order of removal.

- When replacing BCM, it must be configured. Refer to BCS-45, "CONFIGURATION (BCM) : Configuration List".
- When replacing BCM, perform initialization of NATS system and registration of all NATS ignition key IDs. Refer to the CONSULT Immobilizer mode and follow the on-screen instructions.