SECTION BL

BODY, LOCK & SECURITY SYSTEM

CONTENTS

PRECAUTIONS

PFP:00001

Precautions for Supplemental Restraint System (SRS) “AIR BAG” and “SEAT BELT PRE-TENSIONER”

AIS00392

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

AIS005WS

NOTE:

- This Procedure is applied only to models with Intelligent Key system and NVIS/IVIS (NISSAN/INFINITI VEHICLE IMMOBILIZER SYSTEM - NATS).
- Remove and install all control units after disconnecting both battery cables with the ignition knob in the ″LOCK″ position.
- Always use CONSULT-II to perform self-diagnosis as a part of each function inspection after finishing work. If DTC is detected, perform trouble diagnosis according to self-diagnostic results.

For models equipped with the Intelligent Key system and NVIS/IVIS, an electrically controlled steering lock mechanism is adopted on the key cylinder.
For this reason, if the battery is disconnected or if the battery is discharged, the steering wheel will lock and steering wheel rotation will become impossible.
If steering wheel rotation is required when battery power is interrupted, follow the procedure below before starting the repair operation.

OPERATION PROCEDURE

1. Connect both battery cables.
   NOTE:
   Supply power using jumper cables if battery is discharged.
2. Use the Intelligent Key or mechanical key to turn the ignition switch to the ″ACC″ position. At this time, the steering lock will be released.
3. Disconnect both battery cables. The steering lock will remain released and the steering wheel can be rotated.
4. Perform the necessary repair operation.
5. When the repair work is completed, return the ignition switch to the ″LOCK″ position before connecting the battery cables. (At this time, the steering lock mechanism will engage.)
6. Perform a self-diagnosis check of all control units using CONSULT-II.

Precautions for Work

AIS00393

- After removing and installing the opening/closing parts, be sure to carry out fitting adjustments to check their operation.
- Check the lubrication level, damage, and wear of each part. If necessary, grease or replace it.

Wiring Diagrams and Trouble Diagnosis

AIS00394

When you read wiring diagrams, refer to the following:

- GI-15, "How to Read Wiring Diagrams"
- PG-3, "POWER SUPPLY ROUTING CIRCUIT"

When you perform trouble diagnosis, refer to the following:

- GI-11, "HOW TO FOLLOW TEST GROUPS IN TROUBLE DIAGNOSES"
- GI-27, "How to Perform Efficient Diagnosis for an Electrical Incident"
  Check for any Service bulletins before servicing the vehicle.

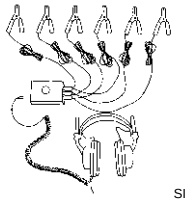
PREPARATION

PFP:00002

Special Service Tools

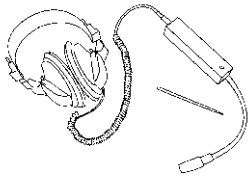
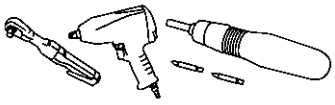
AIS00395

The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
(J-39570) Chassis ear  SIIA0993E	Locating the noise
(J-43980) NISSAN Squeak and Rattle Kit  SIIA0994E	Repairing the cause of the noise

Commercial Service Tools

AIS00396

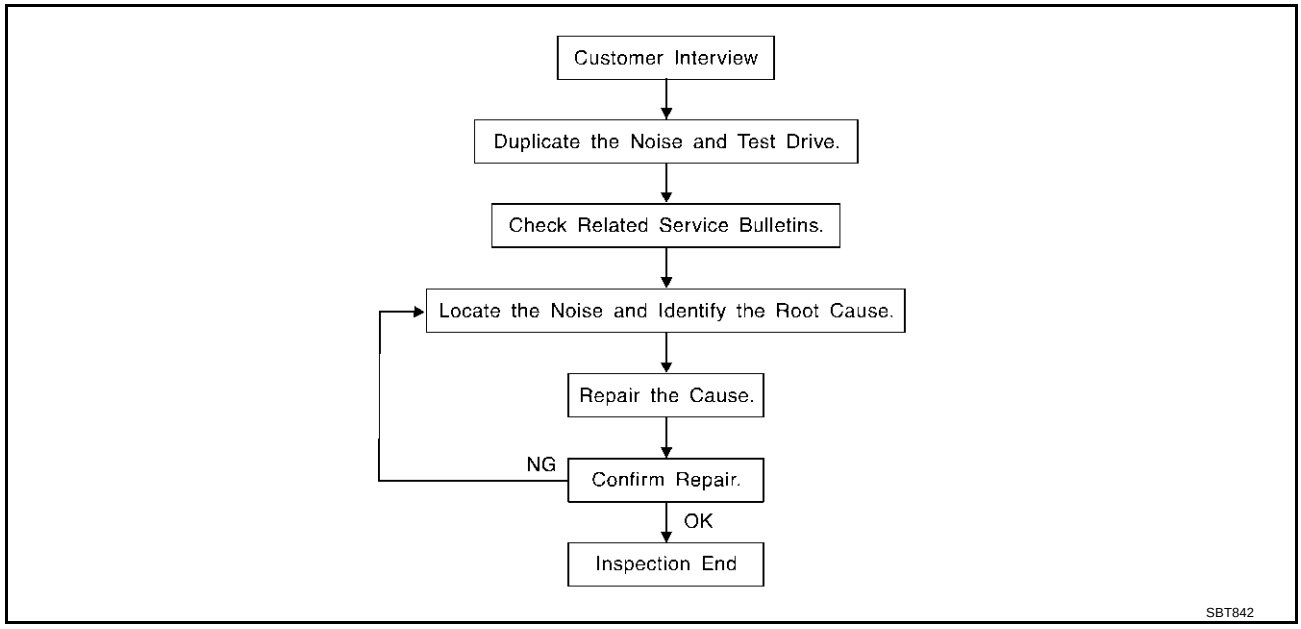
Tool name	Description
Engine ear  SIIA0995E	Locating the noise
Power tool  PIIB1407E	Loosening bolts and nuts

SQUEAK AND RATTLE TROUBLE DIAGNOSIS

PFP:00000

Work Flow

AIS00397



CUSTOMER INTERVIEW

Interview the customer if possible, to determine the conditions that exist when the noise occurs. Use the Diagnostic Worksheet during the interview to document the facts and conditions when the noise occurs and any customer's comments; refer to BL-12, "Diagnostic Worksheet" . This information is necessary to duplicate the conditions that exist when the noise occurs.

- The customer may not be able to provide a detailed description or the location of the noise. Attempt to obtain all the facts and conditions that exist when the noise occurs (or does not occur).
- If there is more than one noise in the vehicle, be sure to diagnose and repair the noise that the customer is concerned about. This can be accomplished by test driving the vehicle with the customer.
- After identifying the type of noise, isolate the noise in terms of its characteristics. The noise characteristics are provided so the customer, service adviser and technician are all speaking the same language when defining the noise.
- Squeak —(Like tennis shoes on a clean floor)
  Squeak characteristics include the light contact/fast movement/brought on by road conditions/hard surfaces=higher pitch noise/softer surfaces=lower pitch noises/edge to surface=chirping
- Creak—(Like walking on an old wooden floor)
  Creak characteristics include firm contact/slow movement/twisting with a rotational movement/pitch dependent on materials/often brought on by activity.
- Rattle—(Like shaking a baby rattle)
  Rattle characteristics include the fast repeated contact/vibration or similar movement/loose parts/missing clip or fastener/incorrect clearance.
- Knock —(Like a knock on a door)
  Knock characteristics include hollow sounding/sometimes repeating/often brought on by driver action.
- Tick—(Like a clock second hand)
  Tick characteristics include gentle contacting of light materials/loose components/can be caused by driver action or road conditions.
- Thump—(Heavy, muffled knock noise)
  Thump characteristics include softer knock/dead sound often brought on by activity.
- Buzz—(Like a bumble bee)
  Buzz characteristics include high frequency rattle/firm contact.
- Often the degree of acceptable noise level will vary depending upon the person. A noise that you may judge as acceptable may be very irritating to the customer.
- Weather conditions, especially humidity and temperature, may have a great effect on noise level.

DUPLICATE THE NOISE AND TEST DRIVE

If possible, drive the vehicle with the customer until the noise is duplicated. Note any additional information on the Diagnostic Worksheet regarding the conditions or location of the noise. This information can be used to duplicate the same conditions when you confirm the repair.
If the noise can be duplicated easily during the test drive, to help identify the source of the noise, try to duplicate the noise with the vehicle stopped by doing one or all of the following:

1) Close a door.
2) Tap or push/pull around the area where the noise appears to be coming from.
3) Rev the engine.
4) Use a floor jack to recreate vehicle "twist".
5) At idle, apply engine load (electrical load, half-clutch on M/T model, drive position on A/T model).
6) Raise the vehicle on a hoist and hit a tire with a rubber hammer.

- Drive the vehicle and attempt to duplicate the conditions the customer states exist when the noise occurs.
- If it is difficult to duplicate the noise, drive the vehicle slowly on an undulating or rough road to stress the vehicle body.

CHECK RELATED SERVICE BULLETINS

After verifying the customer concern or symptom, check ASIST for Technical Service Bulletins (TSBs) related to that concern or symptom.
If a TSB relates to the symptom, follow the procedure to repair the noise.

LOCATE THE NOISE AND IDENTIFY THE ROOT CAUSE

1. Narrow down the noise to a general area. To help pinpoint the source of the noise, use a listening tool (Chassis Ear: J-39570, Engine Ear and mechanics stethoscope).
2. Narrow down the noise to a more specific area and identify the cause of the noise by:

- removing the components in the area that you suspect the noise is coming from.
  Do not use too much force when removing clips and fasteners, otherwise clips and fastener can be broken or lost during the repair, resulting in the creation of new noise.
- tapping or pushing/pulling the component that you suspect is causing the noise.
  Do not tap or push/pull the component with excessive force, otherwise the noise will only be eliminated temporarily.
- feeling for a vibration with your hand by touching the component(s) that you suspect is (are) causing the noise.
- placing a piece of paper between components that you suspect are causing the noise.
- looking for loose components and contact marks.
  Refer to BL-10, "Generic Squeak and Rattle Troubleshooting" .

REPAIR THE CAUSE

- If the cause is a loose component, tighten the component securely.
- If the cause is insufficient clearance between components:
  - separate components by repositioning or loosening and retightening the component, if possible.
  - insulate components with a suitable insulator such as urethane pads, foam blocks, felt cloth tape or urethane tape. A Nissan Squeak and Rattle Kit (J-43980) is available through your authorized Nissan Parts Department.

CAUTION:
Do not use excessive force as many components are constructed of plastic and may be damaged.
Always check with the Parts Department for the latest parts information.
The following materials are contained in the Nissan Squeak and Rattle Kit (J-43980). Each item can be ordered separately as needed.
URETHANE PADS [1.5 mm (0.059 in) thick]
Insulates connectors, harness, etc.
76268-9E005: 100 × 135 mm (3.94 × 5.31 in)/76884-71L01: 60 × 85 mm (2.36 × 3.35 in)/76884-71L02: 15 × 25 mm(0.59 × 0.98 in)
INSULATOR (Foam blocks)
Insulates components from contact. Can be used to fill space behind a panel.
73982-9E000: 45 mm (1.77 in) thick, 50 × 50 mm (1.97 × 1.97 in)/73982-50Y00: 10 mm (0.39 in) thick, 50 × 50 mm (1.97 × 1.97 in)

INSULATOR (Light foam block)
80845-71L00: 30 mm (1.18 in) thick, 30 × 50 mm (1.18×1.97 in)
FELT CLOTHTAPE
Used to insulate where movement does not occur. Ideal for instrument panel applications.
68370-4B000: 15 × 25 mm (0.59 × 0.98 in) pad/68239-13E00: 5 mm (0.20 in) wide tape roll The following materials, not found in the kit, can also be used to repair squeaks and rattles.
UHMW(TEFLON) TAPE
Insulates where slight movement is present. Ideal for instrument panel applications.
SILICONE GREASE
Used in place of UHMW tape that will be visible or not fit.
Note: Will only last a few months.
SILICONE SPRAY
Use when grease cannot be applied.
DUCT TAPE
Use to eliminate movement.

CONFIRM THE REPAIR

Confirm that the cause of a noise is repaired by test driving the vehicle. Operate the vehicle under the same conditions as when the noise originally occurred. Refer to the notes on the Diagnostic Worksheet.

Generic Squeak and Rattle Troubleshooting

AIS00398

Refer to Table of Contents for specific component removal and installation information.

INSTRUMENT PANEL

Most incidents are caused by contact and movement between:

1. The cluster lid A and instrument panel
2. Acrylic lens and combination meter housing
3. Instrument panel to front pillar garnish
4. Instrument panel to windshield
5. Instrument panel mounting pins
6. Wiring harnesses behind the combination meter
7. A/C defroster duct and duct joint

These incidents can usually be located by tapping or moving the components to duplicate the noise or by pressing on the components while driving to stop the noise. Most of these incidents can be repaired by applying felt cloth tape or silicon spray (in hard to reach areas). Urethane pads can be used to insulate wiring harness.

CAUTION:
Do not use silicone spray to isolate a squeak or rattle. If you saturate the area with silicone, you will not be able to recheck the repair.

CENTER CONSOLE

Components to pay attention to include:

1. Shifter assembly cover to finisher
2. A/C control unit and cluster lid C
3. Wiring harnesses behind audio and A/C control unit

The instrument panel repair and isolation procedures also apply to the center console.

DOORS

Pay attention to the:

1. Finisher and inner panel making a slapping noise
2. Inside handle escutcheon to door finisher
3. Wiring harnesses tapping
4. Door striker out of alignment causing a popping noise on starts and stops

Tapping or moving the components or pressing on them while driving to duplicate the conditions can isolate many of these incidents. You can usually insulate the areas with felt cloth tape or insulator foam blocks from the Nissan Squeak and Rattle Kit (J-43980) to repair the noise.

TRUNK

Trunk noises are often caused by a loose jack or loose items put into the trunk by the owner.
In addition look for:

1. Trunk lid dumpers out of adjustment
2. Trunk lid striker out of adjustment
3. The trunk lid torsion bars knocking together
4. A loose license plate or bracket

Most of these incidents can be repaired by adjusting, securing or insulating the item(s) or component(s) causing the noise.

SUNROOF/HEADLINER

Noises in the sunroof/headliner area can often be traced to one of the following:

1. Sunroof lid, rail, linkage or seals making a rattle or light knocking noise
2. Sunvisor shaft shaking in the holder
3. Front or rear windshield touching headliner and squeaking

Again, pressing on the components to stop the noise while duplicating the conditions can isolate most of these incidents. Repairs usually consist of insulating with felt cloth tape.

SEATS

When isolating seat noise it's important to note the position the seat is in and the load placed on the seat when the noise is present. These conditions should be duplicated when verifying and isolating the cause of the noise.
Cause of seat noise include:

1. Headrest rods and holder
2. A squeak between the seat pad cushion and frame
3. The rear seatback lock and bracket

These noises can be isolated by moving or pressing on the suspected components while duplicating the conditions under which the noise occurs. Most of these incidents can be repaired by repositioning the component or applying urethane tape to the contact area.

UNDERHOOD

Some interior noise may be caused by components under the hood or on the engine wall. The noise is then transmitted into the passenger room.
Causes of transmitted underhood noise include:

1. Any component mounted to the engine wall
2. Components that pass through the engine wall
3. Engine wall mounts and connectors
4. Loose radiator mounting pins
5. Hood bumpers out of adjustment
6. Hood striker out of adjustment

These noises can be difficult to isolate since they cannot be reached from the interior of the vehicle. The best method is to secure, move or insulate one component at a time and test drive the vehicle. Also, engine RPM or load can be changed to isolate the noise. Repairs can usually be made by moving, adjusting securing, or insulating the component causing the noise.

Diagnostic Worksheet

AIS00399

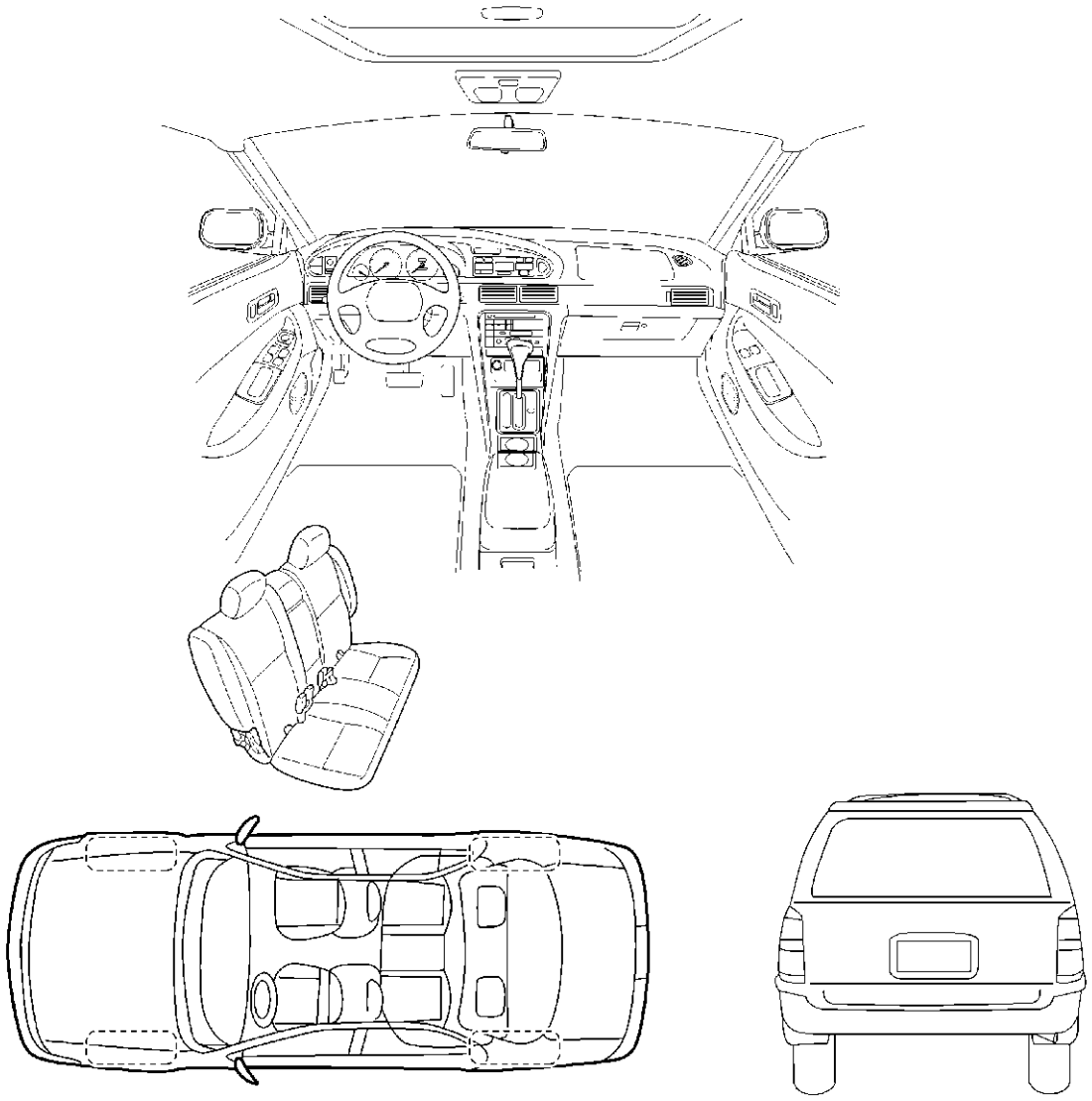
INFINITI

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET

Dear Infiniti Customer:
We are concerned about your satisfaction with your Infiniti vehicle. Repairing a squeak or rattle sometimes can be very difficult. To help us fix your Infiniti right the first time, please take a moment to note the area of the vehicle where the squeak or rattle occurs and under what conditions. You may be asked to take a test drive with a service advisor or technician to ensure we confirm the noise you are hearing.

I. WHERE DOES THE NOISE COME FROM? (circle the area of the vehicle)

The illustrations are for reference only, and may not reflect the actual configuration of your vehicle.



Continue to the back of the worksheet and briefly describe the location of the noise or rattle.
In addition, please indicate the conditions which are present when the noise occurs.

SBT860

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET- page 2

Briefly describe the location where the noise occurs:

_____

_____

II. WHEN DOES IT OCCUR? (check the boxes that apply)

❑ anytime
❑ 1st time in the morning
❑ only when it is cold outside
❑ only when it is hot outside
❑ after sitting out in the sun
❑ when it is raining or wet
❑ dry or dusty conditions
❑ other: _____

III. WHEN DRIVING:

❑ through driveways
❑ over rough roads
❑ over speed bumps
❑ only at about ____ mph
❑ on acceleration
❑ coming to a stop
❑ on turns : left, right or either (circle)
❑ with passengers or cargo
❑ other: _____
❑ after driving ____ miles or ____ minutes

IV. WHAT TYPE OF NOISE?

❑ squeak (like tennis shoes on a clean floor)
❑ creak (like walking on an old wooden floor)
❑ rattle (like shaking a baby rattle)
❑ knock (like a knock on a door)
❑ tick (like a clock second hand)
❑ thump (heavy, muffled knock noise)
❑ buzz (like a bumble bee)

TO BE COMPLETED BY DEALERSHIP PERSONNEL
Test Drive Notes:

_____

_____

	YES	NO	Initials of person performing
Vehicle test driven with customer	❑	❑	_____
- Noise verified on test drive	❑	❑	
- Noise source located and repaired	❑	❑	_____
- Follow up test drive performed to confirm repair	❑	❑	_____

VIN: _____ Customer Name: _____

W.O. #: _____ Date: _____

SBT844

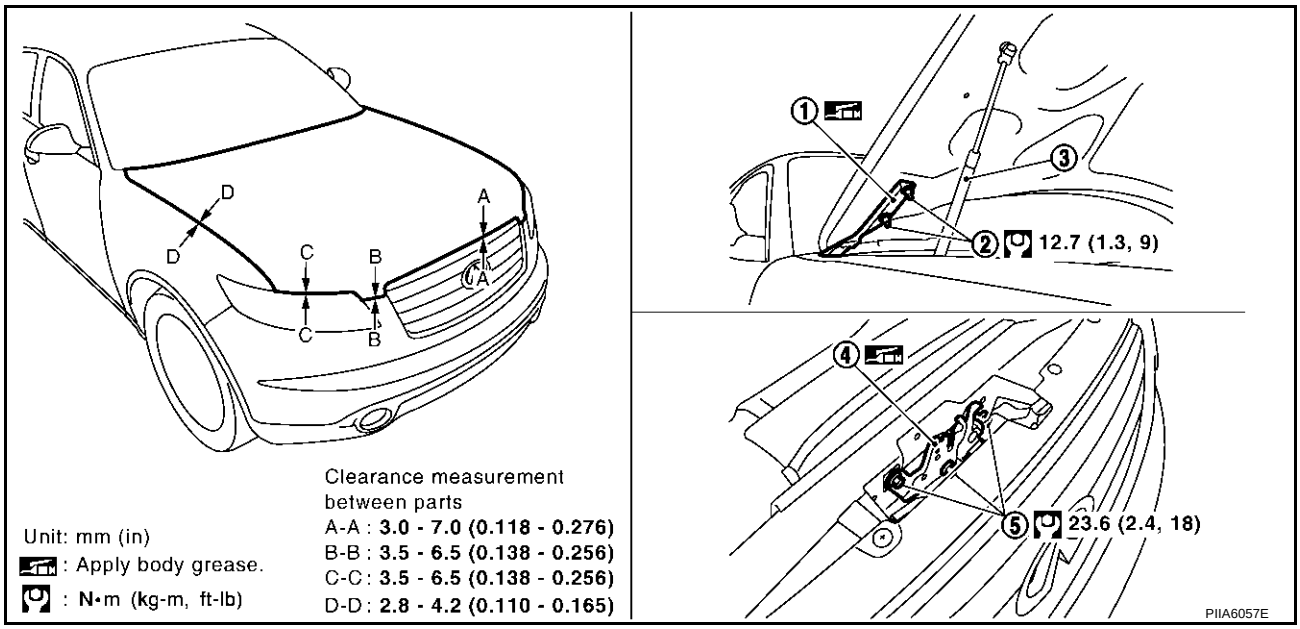
This form must be attached to Work Order

HOOD

PFP:F5100

Fitting Adjustment

AIS0039A



1. Hood hinge
2. Nut
3. Hood stay
4. Hood lock
5. Bolt

CLEARANCE AND SURFACE HEIGHT ADJUSTMENT

1. Remove the hood lock assembly and adjust the height by rotating the bumper rubber until the hood clearance of hood and fender becomes 1 mm (0.04 in) lower than fitting standard dimension.
2. Temporarily tighten the hood lock, and position it by engaging it with the hood striker. Check the lock and striker for looseness, and tighten the lock mounting bolt to the specified torque.
3. Adjust the clearance and surface height of hood and fender according to the fitting standard dimension by rotating right and left bumper rubbers.

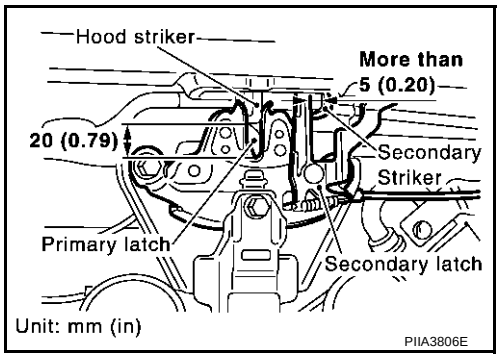
   CAUTION:
   Adjust right/left gap between hood and each part to the following specification.

   Hood and front fender (D–D) : Less than 2.0 mm (0.08 in)

HOOD LOCK ADJUSTMENT

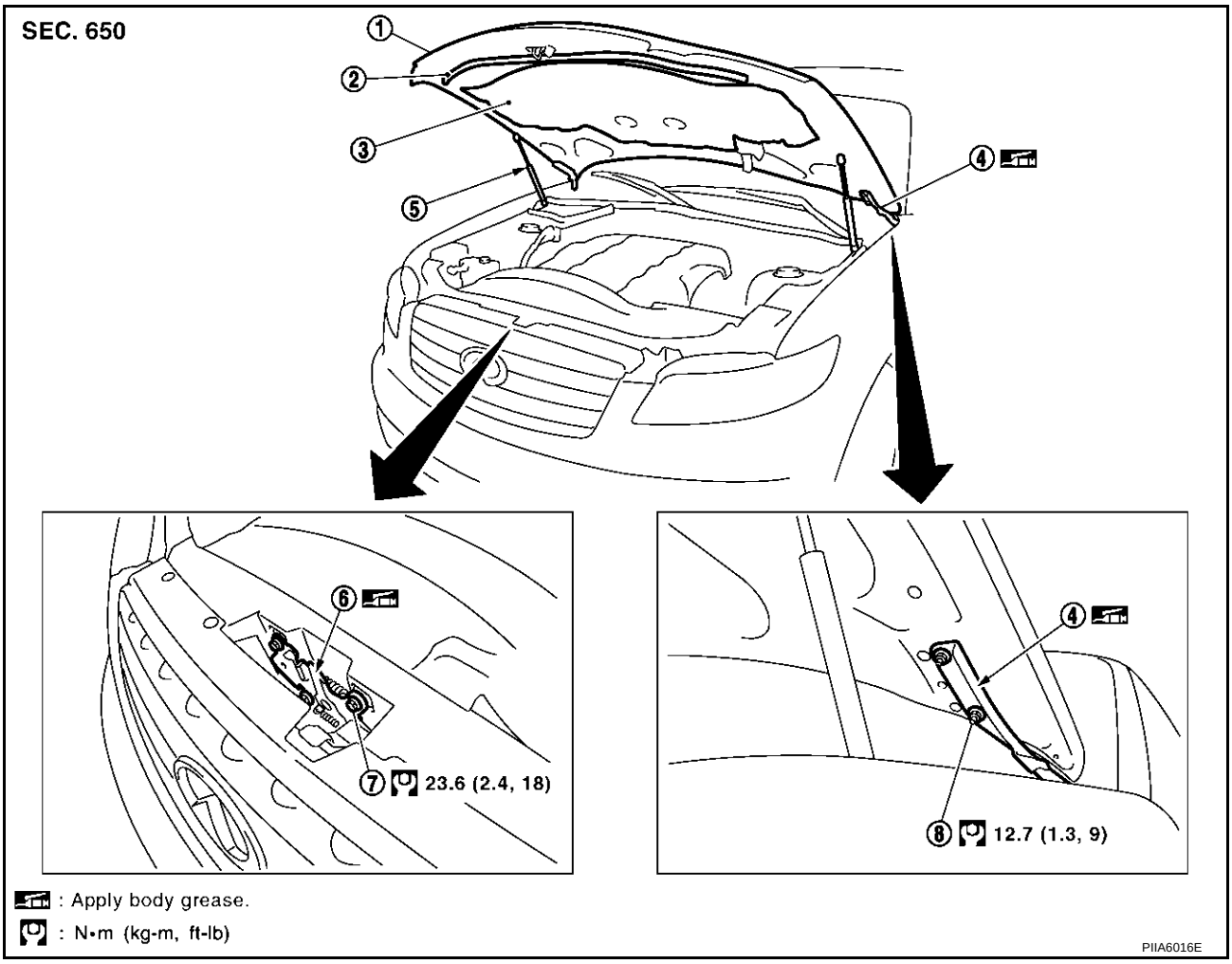
1. Move the hood lock to the left or right so that striker center is vertically aligned with hood lock center (when viewed from vehicle front).
2. Make sure the secondary latch is properly engaged with the secondary striker with hood's own weight by dropping it from approx. 200 mm (7.87 in) height or by pressing it lightly approx. 3 kg (29 N, 7lb).

   CAUTION:
   Do not drop the hood from 300 mm (11.81 in) height or higher.
3. After adjusting hood lock, tighten the lock mounting bolts to the specified torque.



Removal and Installation of Hood Assembly

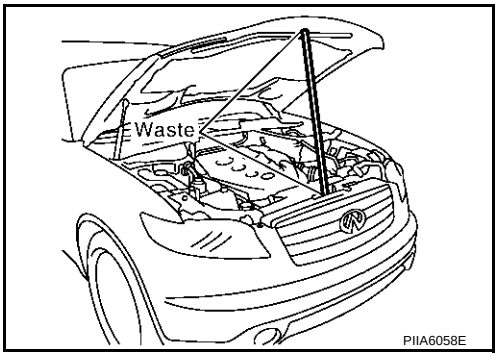
AIS0039B



1. Hood assembly
2. Hood front sealing rubber
3. Hood insulator
4. Hood hinge
5. Hood stay
6. Hood lock
7. Bolts
8. Nuts

1. Support the hood striker with a proper material to prevent it from falling.

   WARNING:
   Body injury may occur if no supporting rod is holding the hood open when removing the damper stay.



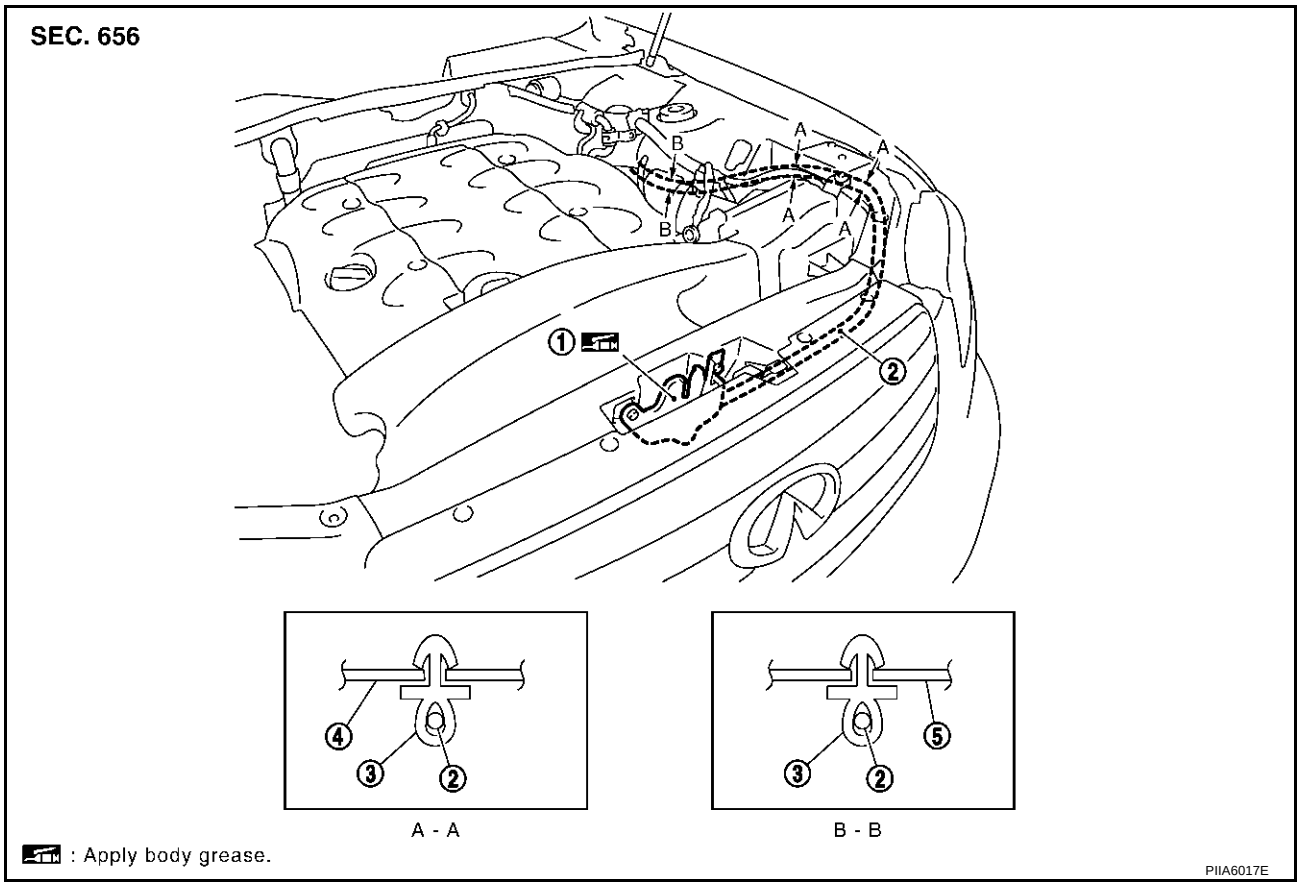
2. Remove the hood stays from the stud balls on the body side.
3. Remove the hinge mounting nuts on the hood to remove the hood assembly.

   CAUTION:
   Operate with two workers, because of its heavy weight.

Install in the reverse order of removal.

Removal and Installation of Hood Lock Control

AIS0039C



1. Hood lock
2. Hood lock cable
3. Clip
4. Hood ledge upper front LH
5. Dash lower cross member reinforce LH

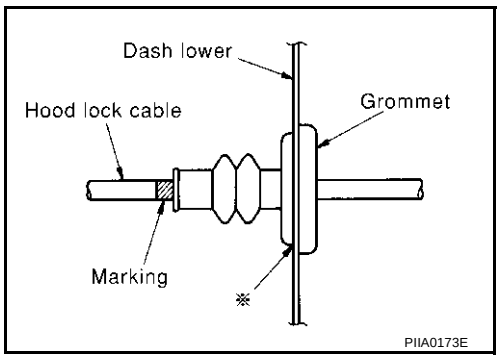
REMOVAL

1. Remove the front grill. Refer to EI-23, "Removal and Installation" .
2. Remove the front fender protector (LH). Refer to EI-25, "Removal and Installation" .
3. Disconnect the hood lock cable from the hood lock, and clip it from the radiator core support upper and hood ledge.
4. Remove instrument driver lower panel. Refer to IP-11, "Removal and Installation" .
5. After the bolt of the case with the air cleaner is disconnected, and it is moved, the cable is pulled.
6. Remove the grommet on the dashboard, and pull the hood lock cable toward the passenger room.

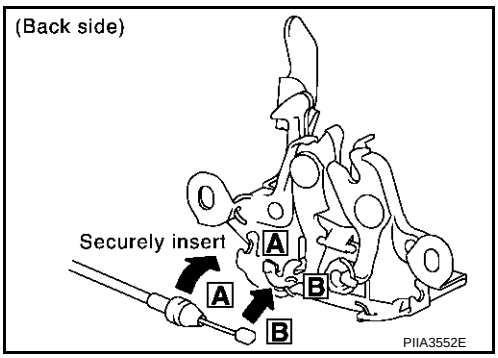
CAUTION:
While pulling, be careful not to damage (peeling) the outside of the hood lock cable.

INSTALLATION

1. Pull the hood lock cable through the panel hole to the engine room.
   Be careful not to bend the cable too much, keeping the radius 100mm (3.94 in) or more.
2. Mack sure the cable is not offset from the positioning grommet, and push the grommet into the panel hole securely.
3. Apply the sealant to the grommet (at * mark) properly.



4. Install the cable securely to the lock.
5. After installing, check the hood lock adjustment and hood opener operation.



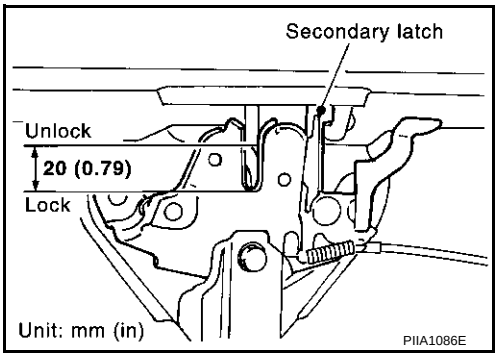
Hood Lock Control Inspection

AIS0039D

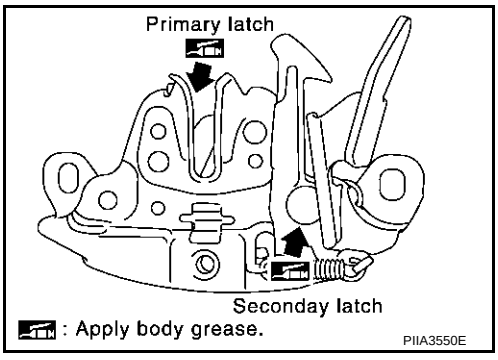
CAUTION:

If the hood lock cable is bent or deformed, replace it.

1. Mack sure the secondary latch is properly engaged with the secondary striker with hood's own weight by dropping it from approx. 200 mm (7.87 in) height.
2. While operating the hood opener, carefully mack sure the front end of the hood is raised by approx. 20 mm (0.79 in). Also mack sure the hood opener returns to the original position.



3. Check the hood lock lubrication condition. If necessary, apply “body grease” to the points shown in the figure.

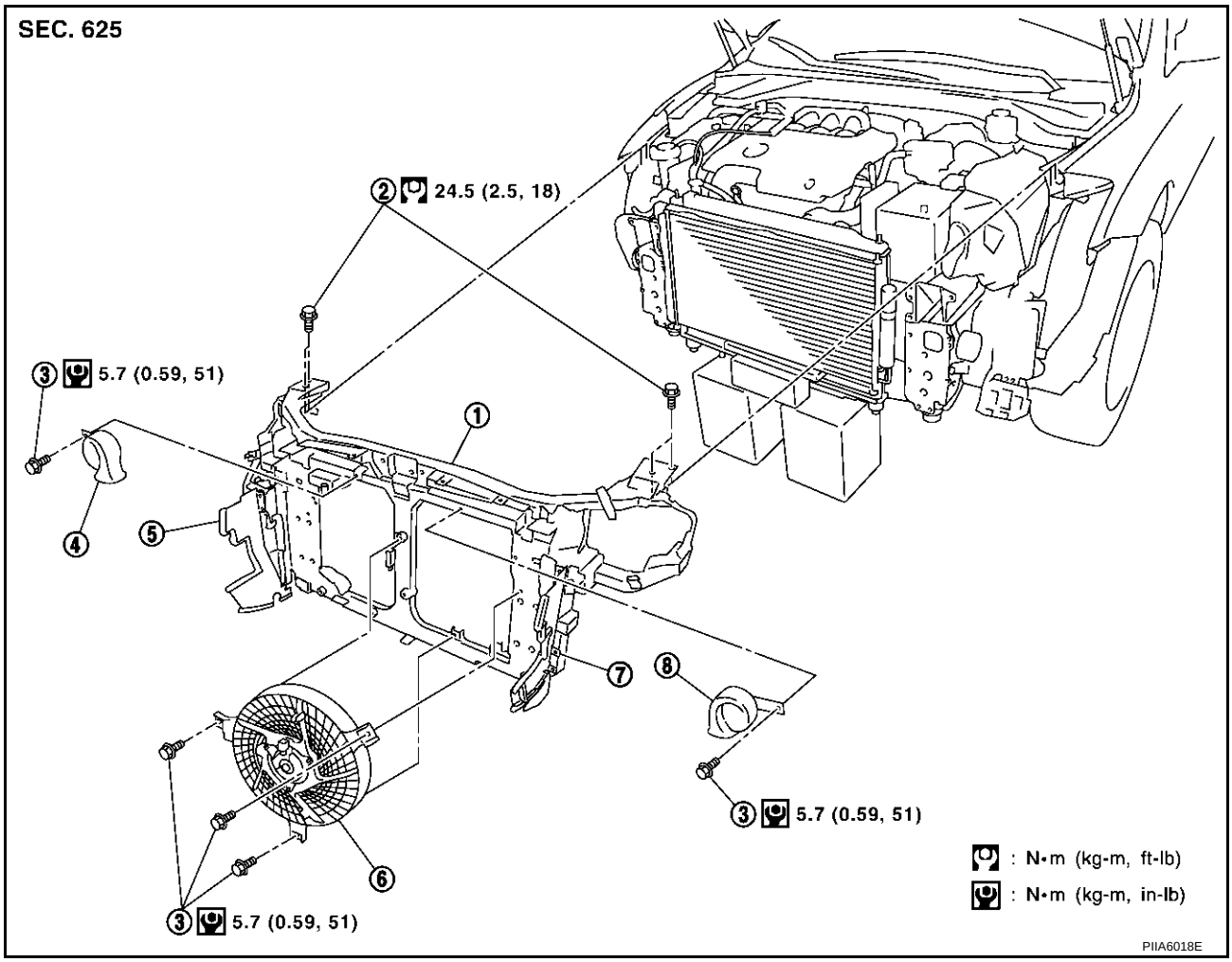


RADIATOR CORE SUPPORT

PFP:62500

Removal and Installation

AIS0039E



1. Radiator core support assembly
2. Bolt
3. Bolt
4. Horn (High)
5. Air guide (LH)
6. Cooling fan
7. Air guide (LH)
8. Horn (Low)

REMOVAL

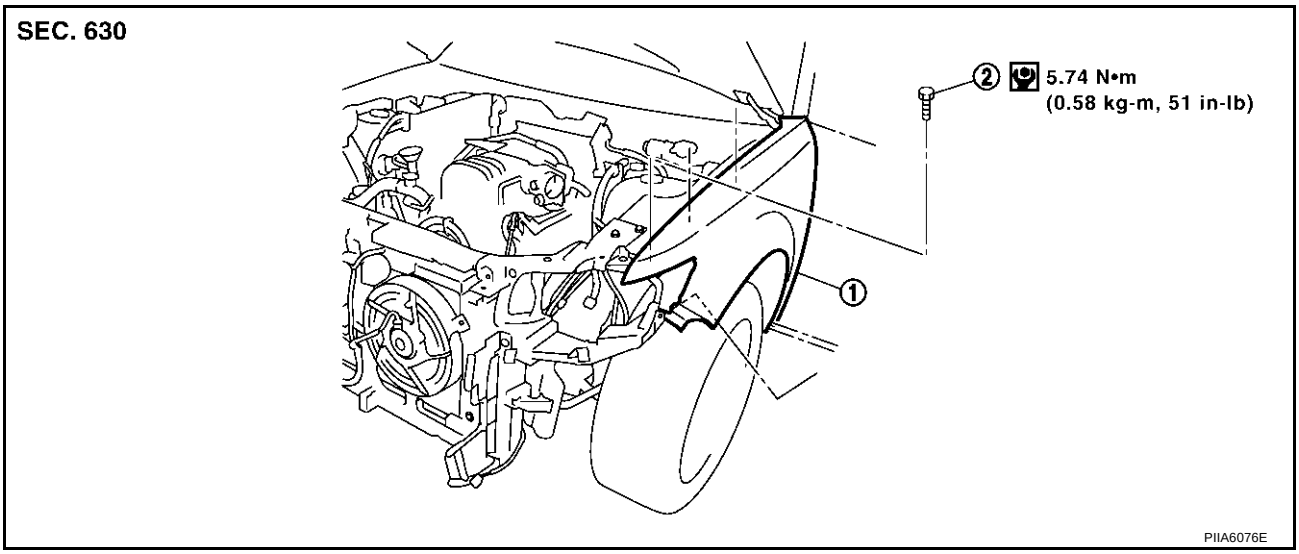
1. Remove the front fender protector. Refer to EI-25, "Removal and Installation" .
2. Remove the front bumper. Refer to EI-14, "Removal and Installation" .
3. Remove the ICC. Refer to ACS-74, "REMOVAL AND INSTALLATION" .
4. Remove the headlamp. Refer to LT-49, "Removal and Installation" .
5. Remove the washer tank. Refer to WW-48, "Removal and Installation of Washer Tank" .
6. Remove the resonator. Refer to EM-170, "AIR CLEANER AND AIR DUCT"
7. Remove the power steering oil cooler. Refer to PS-41, "HYDRAULIC LINE" .
8. Remove the ambient sensor. Refer to ATC-129, "Removal and Installation" .
9. Remove the crash zone sensor. Refer to SRS-46, "CRASH ZONE SENSOR" .
10. Remove the horn connector, blower fan connector and harness clip.
11. Remove the hood lock and disconnect hood lock control cable. Refer to BL-16, "Removal and Installation of Hood Lock Control" .
12. Remove the reservoir tank. Refer to EM-170, "AIR CLEANER AND AIR DUCT"
13. Remove mounting blots and remove the radiator core support. Remove mounting bolts with power tool.
14. After remove radiator core support, remove the horn, cooling fan.

FRONT FENDER

PFP:63100

Removal and Installation

AIS003C4



1. Front fender
2. Bolt (7)

REMOVAL

1. Remove the front bumper. Refer to EI-14, "Removal and Installation" .
2. Remove the headlamp. Refer to LT-49, "Removal and Installation" .
3. Remove the front fender protector. Refer to EI-25, "Removal and Installation" .
4. Remove the mounting bolt and remove the front fender.

CAUTION:

While removing use a shop cloth to protect body from damaging.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

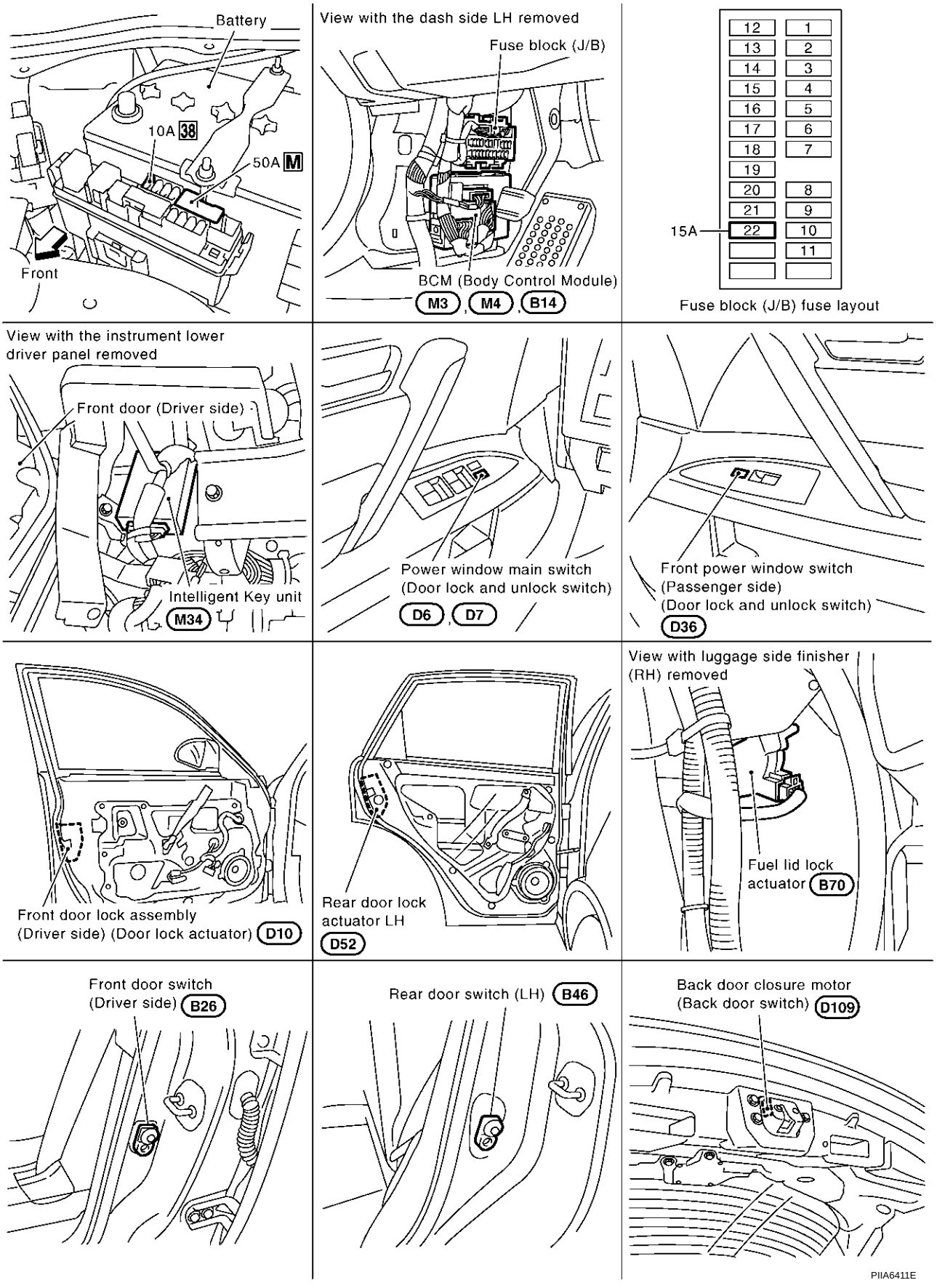
- **After installing, apply touch-up paint (the body color) onto the head of the front fender mounting bolts.**
- **After installing, check front fender adjustment. Refer to BL-14, "Fitting Adjustment" and BL-185, "Fitting Adjustment" .**

POWER DOOR LOCK SYSTEM

PFP:24814

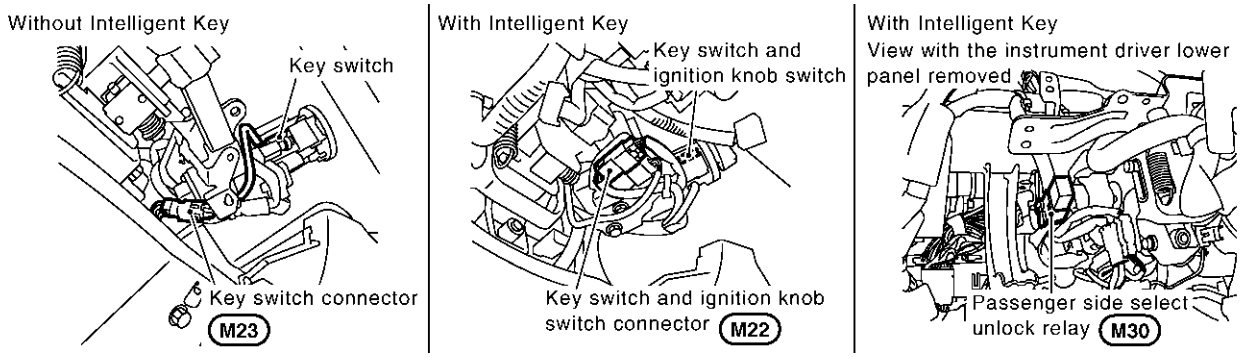
Component Parts and Harness Connector Location

AIS003L2



Component Parts and Harness Connector Location

AIS00355



PIIA6412E

System Description

AIS00356

Power is supplied at all times

- to BCM terminal 55
- through 50A fusible link (letter **M** , located in the fuse and fusible link box).
- to BCM terminal 42
- thought 15A fuse [No. 22, located in the fuse block (J/B)]
- to key switch terminal 2 (without intelligent key system)
- thought 15A fuse [No. 22, located in the fuse block (J/B)]
- to key switch terminal 3 (with intelligent key system)
- thought 15A fuse [No. 22, located in the fuse block (J/B)].

When key switch is ON (key is inserted in ignition key cylinder), power is supplied

- to BCM terminal 37
- through key switch terminal 1 (without intelligent key system) or 4 (with intelligent key system).

When the door is locked or unlocked with power window main switch (door lock and unlock switch), ground is supplied

- to CPU of power window main switch
- through power window main switch (door lock and unlock switch) terminal 17
- through grounds M35, M45 and M85.

Then power window main switch (door lock and unlock switch) operation signal is supplied.

- to BCM terminal 22
- through power window main switch terminal 14.

When the door is locked or unlocked with front power window switch (passenger side) (door lock and unlock switch), ground is supplied

- to CPU of front power window switch (passenger side)
- through front power window switch (passenger side) (door lock and unlock switch) terminal 11
- through grounds M35, M45 and M85.

Then front power window switch (passenger side) (door lock and unlock switch) operation signal is supplied

- to BCM terminal 22
- through front power window switch (passenger side) terminal 16.

When the door is locked with front door key cylinder switch, ground is supplied

- to power window main switch terminal 4
- through key cylinder switch terminals 1 and 5
- through grounds M35, M45 and M85.

Then key cylinder switch operation signal (lock) is supplied
- to BCM terminal 22
- through power window main switch terminal 14.

When the door is unlocked with key cylinder switch, ground is supplied
- to power window main switch terminal 6
- through key cylinder switch terminal 6 and 5
- through grounds M35, M45 and M85.

Then key cylinder switch operation signal (unlock) is supplied
- to BCM terminal 22
- through power window main switch terminal 14.

BCM is connected to power window main switch and front power window switch (passenger side) as serial link.
When the front door switch (driver side) is ON (door is OPEN), ground is supplied
- to BCM terminal 62
- through front door switch (driver side) terminal 1
- through front door switch (driver side) case ground.

When the front door switch (passenger side) is ON (door is OPEN), ground is supplied
- to BCM terminal 12
- through front door switch (passenger side) terminal 1
- through front door switch (passenger side) case ground.

When the rear door switch LH is ON (door is OPEN), ground is supplied
- to BCM terminal 63
- through front door switch LH terminal 1
- through rear door switch LH case ground.

When the rear door switch RH is ON (door is OPEN), ground is supplied
- to BCM terminal 13
- through front door switch RH terminal 1
- through rear door switch RH case ground.

When the back door switch are ON (door is OPEN), ground is supplied
- to BCM terminal 58
- through back door closure motor (door switch) terminal 7 and 8
- through grounds M15 and M45.

OUTLINE

Functions Available by Operating the Door Lock and Unlock Switches on Driver's Door and Passenger's Door

- Interlocked with the locking operation of door lock and unlock switch, door lock actuators of all doors and fuel lid lock actuator are locked.
- Interlocked with the unlocking operation of door lock and unlock switch, door lock actuators of all doors and fuel lid lock actuator are unlocked.

Functions Available by Operating the Key Cylinder Switch on Driver's

- Interlocked with the locking operation of door key cylinder, door lock actuators of all doors and fuel lid lock actuator are locked.

Select Unlock Operation

- When door key cylinder is unlocked, door lock actuator driver side and fuel lid lock actuator are unlocked.
- When door key cylinder is unlocked for the second time within 5 seconds after the first operation, door lock actuators on all doors are unlocked.
  Select unlock operation mode can be changed using “DOOR LOCK-UNLOCK SET” mode in “WORK SUPPORT”. Refer to BL-51, "Work Support" .
  Select unlock operation mode can be changed also on the display.
  Refer toAV-56, "SETTING SCREEN" . (without navigation system)

Refer to AV-107, "Vehicle Electronic Systems" . (with navigation system)

Key Reminder Door System

When door lock and unlock switch is operated to lock doors with ignition key put in key cylinder and any door open, all door lock actuators are locked and then unlocked.
Key reminder door mode can be changed using “WORK SUPPORT” mode in “ANTI-LOCK OUT SET”.
Refer to BL-51, "Work Support" .

CAN Communication System Description

AIS003MQ

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, 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.

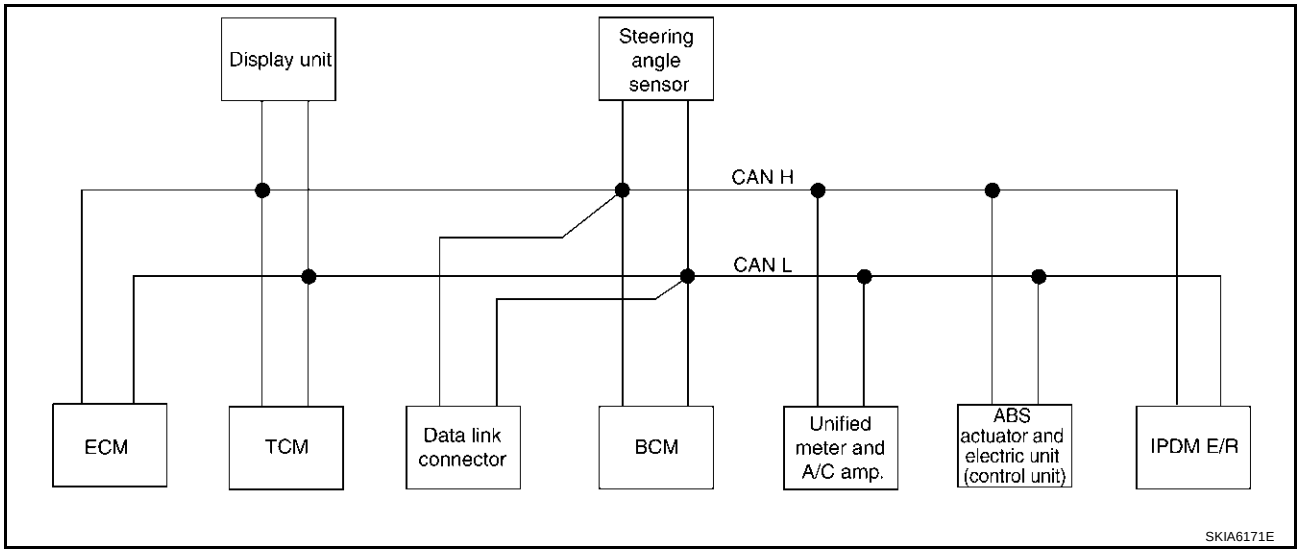
Body type	Wagon					
Axle	2WD			AWD		
Engine	VQ35DE			VQ35DE/VK45DE		
Transmission	A/T					
Brake control	VDC					
Navigation system			×			×
Low tire pressure warning system			×			×
ICC system			×			×
Intelligent Key system			×			×
Automatic drive positioner		×	×		×	×
CAN communication unit						
ECM	×	×	×	×	×	×
TCM	×	×	×	×	×	×
Display unit	×	×		×	×	
Display control unit			×			×
Low tire pressure warning control unit			×			×
AWD control unit				×	×	×
ICC unit			×			×
Intelligent Key unit			×			×
Data link connector	×	×	×	×	×	×
BCM	×	×	×	×	×	×
Steering angle sensor	×	×	×	×	×	×
Unified meter and A/C amp.	×	×	×	×	×	×
ICC sensor			×			×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×
Driver seat control unit		×	×		×	×
IPDM E/R	×	×	×	×	×	×
CAN communication type	BL-24, "TYPE 1/TYPE2"		BL-27, "TYPE 3"	BL-30, "TYPE 4/TYPE5"		BL-33, "TYPE 6"

×: Applicable

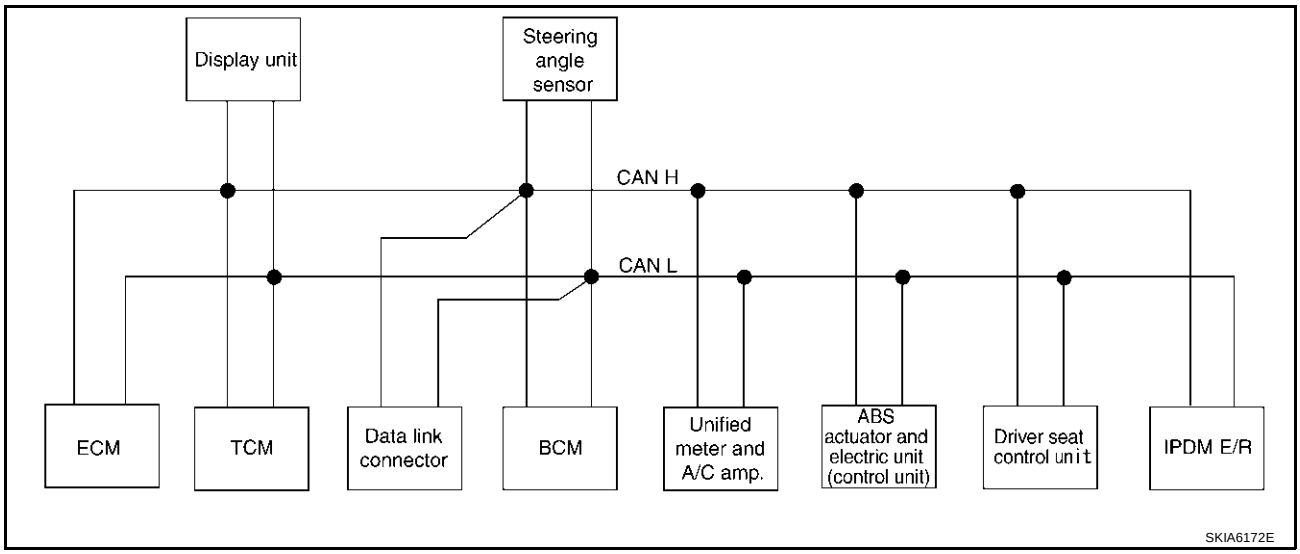
TYPE 1/TYPE2

System Diagram

- Type1



- Type2



Input/output Signal Chart

T: Transmit R: Receive

Signals	ECM	TCM	Display unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Engine speed signal	T	R	R			R	R		
Engine status signal	T			R					
Engine coolant temperature signal	T	R				R			
A/T self-diagnosis signal	R	T							
Accelerator pedal position signal	T	R					R		
Closed throttle position signal	T	R							
Wide open throttle position signal	T	R							

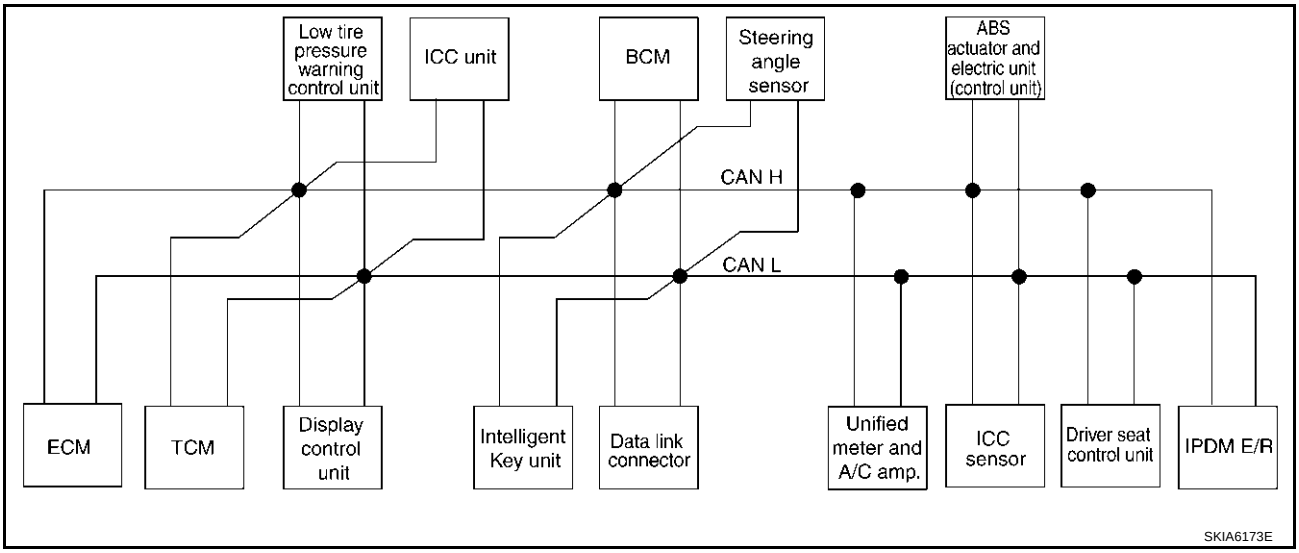
Signals	ECM	TCM	Display unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Battery voltage signal	T	R							
Key switch signal				T				R	
Ignition switch signal				T				R	R
P range signal		T					R	R	
Stop lamp switch signal		R				T			
ABS operation signal	R						T		
TCS operation signal	R						T		
VDC operation signal	R						T		
Fuel consumption monitor signal	T		R			R			
Input shaft revolution signal	R	T							
Output shaft revolution signal	R	T							
A/C switch signal	R			T					
A/C compressor request signal	T								R
A/C relay status signal	R								T
A/C compressor feedback signal	T					R			
Blower fan motor switch signal	R			T					
A/C control signal			T			R			
			R			T			
Cooling fan speed request signal	T								R
Cooling fan speed signal	R								T
Position light request signal			R	T		R			R
Low beam request signal				T					R
Low beam status signal	R								T
High beam request signal				T		R			R
High beam status signal	R								T
Front fog light request signal				T					R
Day time running light request signal				T		R			
Turn LED burnout status signal				R		T			
Vehicle speed signal						R	T		
	R	R	R	R		T		R	
Sleep wake up signal				T		R		R	R
Door switch signal			R	T		R		R	R
Turn indicator signal				T		R			
Key fob ID signal				T				R	
Key fob door unlock signal				T				R	
Oil pressure switch signal				R					T
				T		R			
Buzzer output signal				T		R			
Fuel level sensor signal	R					T			
Fuel level low warning signal			R			T			

Signals	ECM	TCM	Dis-play unit	BCM	Steer-ing angle sensor	Unified meter and A/C amp.	ABS actua-tor and electric unit (con-trol unit)	Driver seat control unit	IPDM E/R
ASCD operation signal	T	R							
ASCD OD cancel request	T	R							
Front wiper request signal				T					R
Front wiper stop position signal				R					T
Rear window defogger switch signal				T					R
Rear window defogger control signal	R		R	R					T
Hood switch signal				R					T
Theft warning horn request signal				T					R
Horn chirp signal				T					R
Steering angle sensor signal					T		R		
ABS warning lamp signal						R	T		
VDC OFF indicator lamp signal						R	T		
SLIP indicator lamp signal						R	T		
Brake warning lamp signal						R	T		
System setting signal			T	R				R	
A/T CHECK indicator lamp signal		T				R			
A/T position indicator lamp signal		T				R			
A/T shift schedule change demand signal		R					T		
Manual mode signal		R				T			
Not manual mode signal		R				T			
Manual mode shift up signal		R				T			
Manual mode shift down signal		R				T			
Manual mode indicator signal		T				R			
Distance to empty signal			R			T			
Hand brake switch				R		T			

TYPE 3

System Diagram

- Type3



Input/output Signal Chart

T: Transmit R: Receive

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Engine speed signal	T	R	R		R				R		R		
Engine status signal	T						R						
Engine coolant temperature signal	T	R			R				R				
A/T self-diagnosis signal	R	T											
Accelerator pedal position signal	T	R			R						R		
Closed throttle position signal	T	R			R								
Wide open throttle position signal	T	R											
Battery voltage signal	T	R											
Key switch signal							T					R	
Ignition switch signal							T					R	R
P range signal		T			R						R	R	
Stop lamp switch signal		R							T				
ABS operation signal	R				R						T		
TCS operation signal	R				R						T		
VDC operation signal	R				R						T		
Fuel consumption monitor signal	T		R						R				

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Input shaft revolution signal	R	T			R								
Output shaft revolution signal	R	T			R								
A/C switch signal	R						T						
A/C compressor request signal	T												R
A/C relay status signal	R												T
A/C compressor feedback signal	T								R				
Blower fan motor switch signal	R						T						
A/C control signal			T						R				
			R						T				
Cooling fan speed signal	R												T
Position light request signal	R						T		R				R
Low beam request signal							T						R
Low beam status signal	R												T
High beam request signal							T		R				R
High beam status signal	R												T
Front fog light request signal							T						R
Day time running light request signal							T		R				
Turn LED burnout status signal							R		T				
Vehicle speed signal					R				R		T		
	R	R	R	R		R	R		T	R		R	
Sleep wake up signal							T		R			R	R
						T	R						
Door switch signal			R			R	T		R			R	R
Turn indicator signal							T		R				
Key fob ID signal							T					R	
Key fob door unlock signal							T					R	
Oil pressure switch signal							R						T
							T		R				
Buzzer output signal							T		R				
						T			R				
					T				R				

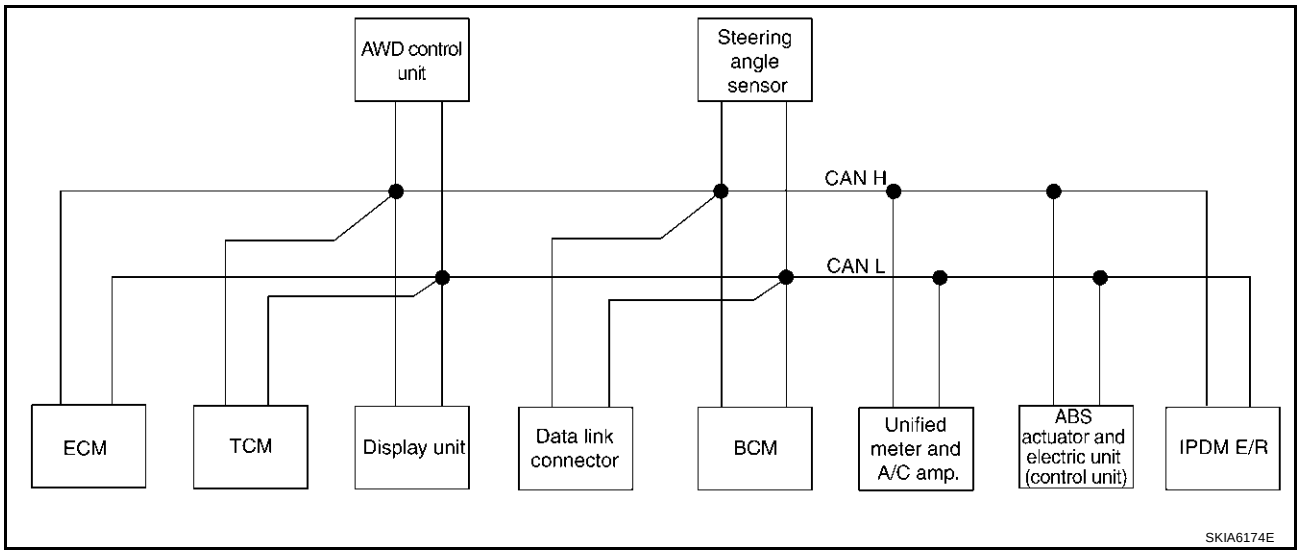
Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Fuel level sensor signal	R								T				
Fuel level low warning signal			R						T				
ICC operation signal	R				T								
Front wiper request signal					R		T						R
Front wiper stop position signal							R						T
Rear window defogger switch signal							T						R
Rear window defogger control signal	R		R				R						T
Hood switch signal							R						T
Theft warning horn request signal							T						R
Horn chirp signal							T						R
Steering angle sensor signal								T			R		
Tire pressure signal				T					R				
Tire pressure data signal			R	T									
ABS warning lamp signal					R				R		T		
VDC OFF indicator lamp signal					R				R		T		
SLIP indicator lamp signal									R		T		
Brake warning lamp signal									R		T		
System setting signal			T			R						R	
Distance to empty signal			R						T				
Hand brake switch signal							R		T				
Door lock/unlock request signal						T	R						
Door lock/unlock status signal						R	T						
Starter permission signal						T	R						
Back door open request signal						T	R						
Power window open request signal						T	R						
Alarm request signal						T	R						
Key warning signal						T			R				
ICC sensor signal					R					T			
ICC warning lamp signal					T				R				

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
ICC system display signal					T				R				
Current gear position signal		T			R						R		
Steering switch signal	T				R								
ASCD operation signal	T	R											
ASCD OD cancel request	T	R											
ICC OD cancel request	R	R			T								
A/T CHECK indicator lamp signal		T							R				
A/T position indicator lamp signal		T							R				
A/T shift schedule change demand signal		R									T		
Manual mode signal		R							T				
Not manual mode signal		R							T				
Manual mode shift up signal		R							T				
Manual mode shift down signal		R							T				
Manual mode indicator signal		T			R				R				
Ignition knob switch signal						T	R						

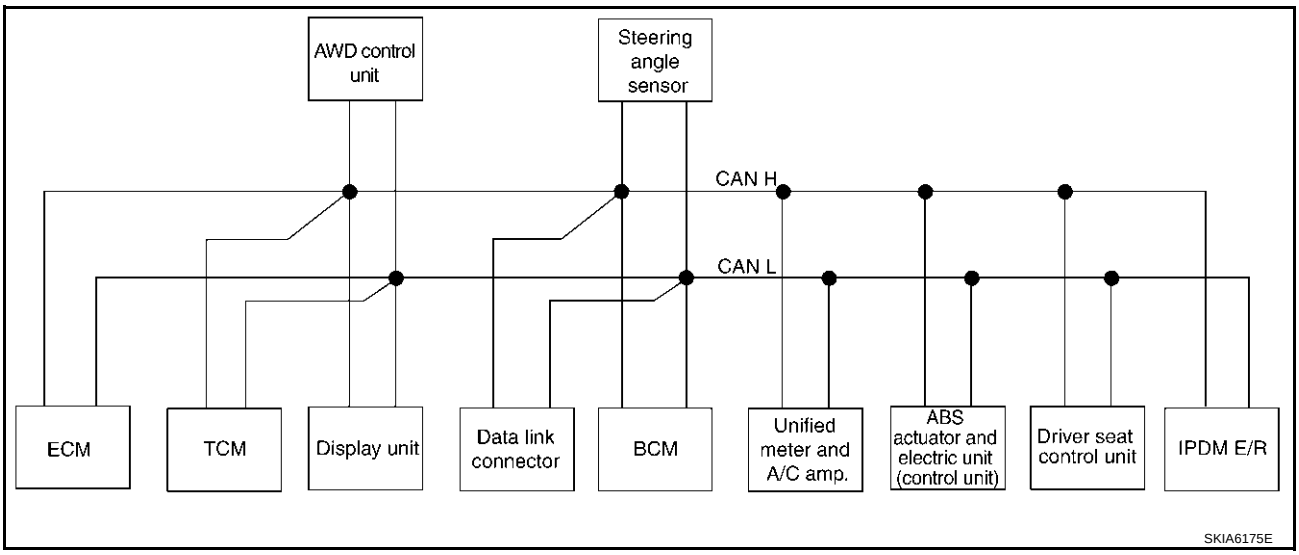
TYPE 4/TYPE5

System Diagram

- Type4



- Type5



Input/output Signal Chart

T: Transmit R: Receive

Signals	ECM	TCM	Display unit	AWD control unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
A/T self-diagnosis signal	R	T								
ABS operation signal	R			R				T		
TCS operation signal	R							T		
VDC operation signal	R			R				T		
Stop lamp switch signal		R		R			T			
Battery voltage signal	T	R								
Key switch signal					T				R	
Ignition switch signal					T				R	R
P range signal		T						R	R	
Closed throttle position signal	T	R								
Wide open throttle position signal	T	R								
Engine speed signal	T	R	R	R			R	R		
Engine status signal	T				R					
Engine coolant temperature signal	T	R					R			
Accelerator pedal position signal	T	R		R				R		
Fuel consumption monitor signal	T		R				R			
Input shaft revolution signal	R	T								
Output shaft revolution signal	R	T								
A/C switch signal	R				T					
A/C compressor request signal	T									R
A/C relay status signal	R									T
A/C compressor feedback signal	T						R			

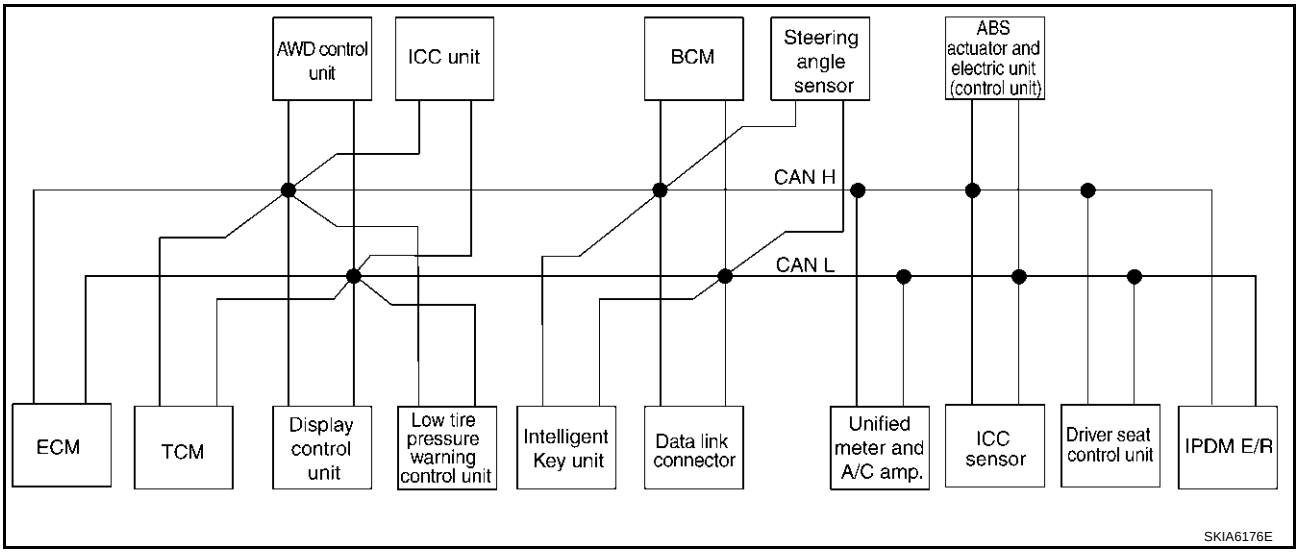
Signals	ECM	TCM	Display unit	AWD control unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Blower fan motor switch signal	R				T					
A/C control signal			T				R			
			R				T			
Cooling fan speed signal	R									T
Position light request signal			R		T		R			R
Low beam request signal					T					R
Low beam status signal	R									T
High beam request signal					T		R			R
High beam status signal	R									T
Front fog light request signal					T					R
Day time running light request signal					T		R			
Turn LED burnout status signal					R		T			
Vehicle speed signal							R	T		
	R	R	R		R		T		R	
Sleep wake up signal					T		R		R	R
Door switch signal			R		T		R		R	R
Turn indicator signal					T		R			
Key fob ID signal					T				R	
Key fob door unlock signal					T				R	
Oil pressure switch signal					R					T
					T		R			
Buzzer output signal					T		R			
Fuel level sensor signal	R						T			
Fuel level low warning signal			R				T			
Front wiper request signal					T					R
Front wiper stop position signal					R					T
Rear window defogger switch signal					T					R
Rear window defogger control signal	R		R		R					T
Hood switch signal					R					T
Theft warning horn request signal					T					R
Horn chirp signal					T					R
Steering angle sensor signal						T		R		
ABS warning lamp signal							R	T		
VDC OFF indicator lamp signal							R	T		
SLIP indicator lamp signal							R	T		
Brake warning lamp signal							R	T		
System setting signal			T		R				R	
AWD warning lamp signal				T			R			

Signals	ECM	TCM	Display unit	AWD control unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
AWD lock indicator lamp signal				T			R			
Distance to empty signal			R				T			
Hand brake switch signal				R	R		T			
ASCD operation signal	T	R								
ASCD OD cancel request	T	R								
A/T CHECK indicator lamp signal		T					R			
A/T position indicator lamp signal		T					R			
A/T shift schedule change demand signal		R						T		
Manual mode signal		R					T			
Not manual mode signal		R					T			
Manual mode shift up signal		R					T			
Manual mode shift down signal		R					T			
Manual mode indicator signal		T					R			

TYPE 6

System Diagram

- Type6



Input/output Signal Chart

T: Transmit R: Receive

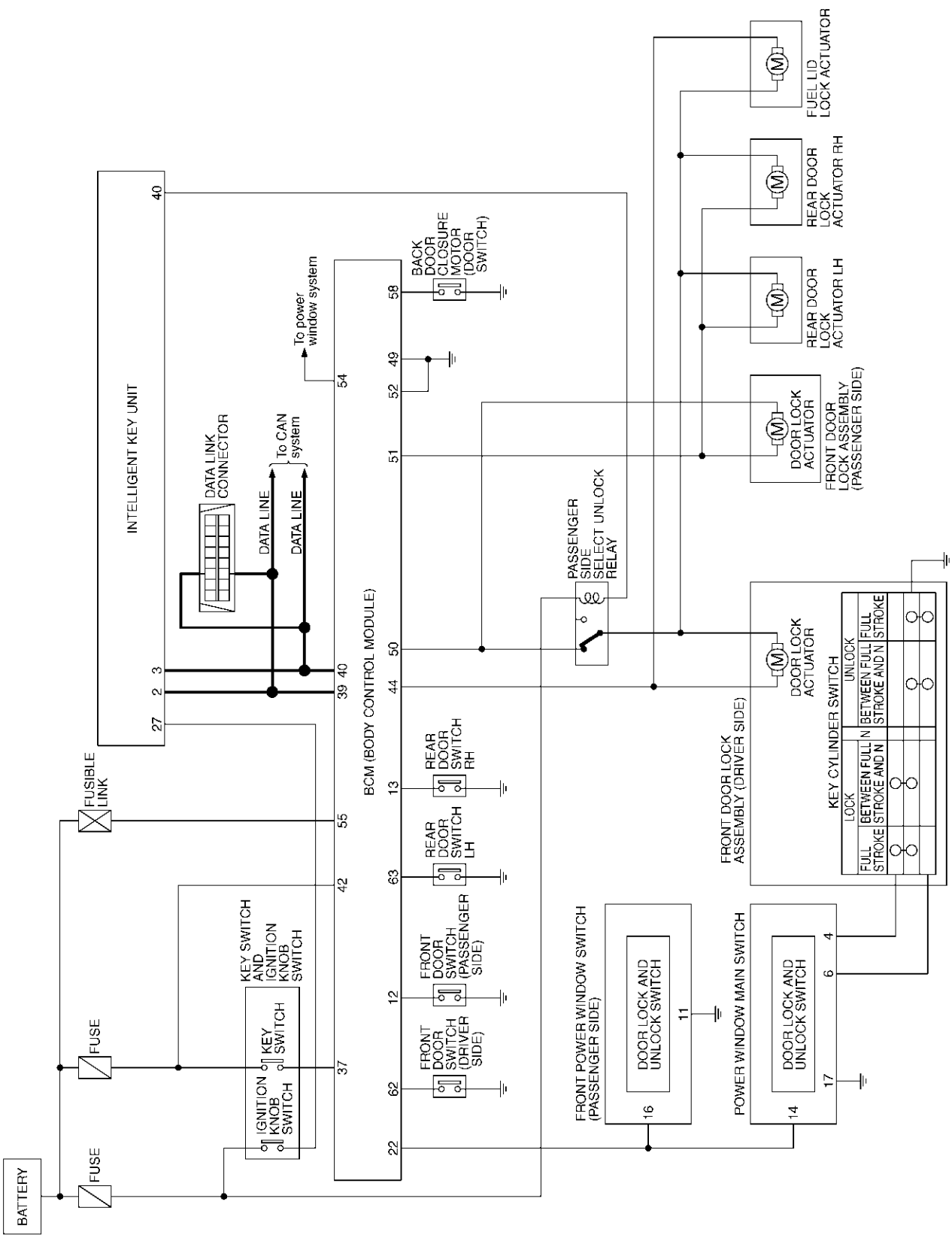
Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	AWD control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
A/T self-diagnosis signal	R	T												
ABS operation signal	R				R	R						T		
TCS operation signal	R					R						T		
VDC operation signal	R				R	R					R	T		
Stop lamp switch signal		R			R					T				
Battery voltage signal	T	R												
Key switch signal								T					R	
Ignition switch signal								T					R	R
P range signal		T				R						R	R	
Closed throttle position signal	T	R				R								
Wide open throttle position signal	T	R												
Engine speed signal	T	R	R		R	R				R		R		
Engine status signal	T							R						
Engine coolant temperature signal	T	R				R				R				
Accelerator pedal position signal	T	R			R	R						R		
Fuel consumption monitor signal	T		R							R				
A/T self-diagnosis signal	R	T												
Input shaft revolution signal	R	T				R								
Output shaft revolution signal	R	T				R								
A/C switch signal	R							T						
A/C compressor request signal	T													R
A/C relay status signal	R													T
A/C compressor feedback signal	T									R				
Blower fan motor switch signal	R							T						
A/C control signal			T							R				
			R							T				
Cooling fan speed signal	R													T
Position light request signal			R					T		R				R
Low beam request signal								T						R
Low beam status signal	R													T
High beam request signal								T		R				R

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	AWD control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
High beam status signal	R													T
Front fog light request signal								T						R
Day time running light request signal								T		R				
Turn LED burnout status signal								R		T				
Vehicle speed signal						R				R		T		
	R	R	R	R			R	R		T	R		R	
Sleep wake up signal								T		R			R	R
							T	R						
Door switch signal			R				R	T		R			R	R
Key fob ID signal								T					R	
Key fob door unlock signal								T					R	
Oil pressure switch signal								R						T
								T		R				
Buzzer output signal								T		R				
							T			R				
						T				R				
Fuel level sensor signal	R									T				
Fuel level low warning signal			R							T				
ICC operation signal	R					T								
Front wiper request signal						R		T						R
Front wiper stop position signal								R						T
Rear window defogger switch signal								T						R
Rear window defogger control signal	R		R					R						T
Hood switch signal								R						T
Theft warning horn request signal								T						R
Horn chirp signal								T						R
Steering angle sensor signal									T			R		
Tire pressure signal				T						R				
Tire pressure data signal			R	T										
ABS warning lamp signal						R				R		T		
VDC OFF indicator lamp signal						R				R		T		
SLIP indicator lamp signal										R		T		

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	AWD control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Brake warning lamp signal										R		T		
System setting signal			T				R						R	
AWD warning lamp signal					T					R				
AWD lock indicator lamp signal					T					R				
Distance to empty signal			R							T				
Hand brake switch signal					R			R		T				
Door lock/unlock request signal							T	R						
Door lock/unlock status signal							R	T						
Starter permission signal							T	R						
Back door open request signal							T	R						
Power window open request signal							T	R						
Alarm request signal							T	R						
Key warning signal							T			R				
ICC sensor signal						R					T			
ICC warning lamp signal						T				R				
ICC system display signal						T				R				
Current gear position signal		T				R						R		
Steering switch signal	T					R								
ASCD operation signal	T	R												
ASCD OD cancel request	T	R												
ICC OD cancel request	R	R				T								
A/T CHECK indicator lamp signal		T								R				
A/T position indicator lamp signal		T								R				
A/T shift schedule change demand signal		R										T		
Manual mode signal		R								T				
Not manual mode signal		R								T				
Manual mode shift up signal		R								T				
Manual mode shift down signal		R								T				
Manual mode indicator signal		T								R				
Ignition knob switch signal							T	R						

Schematic (With Intelligent Key)

AIS00358

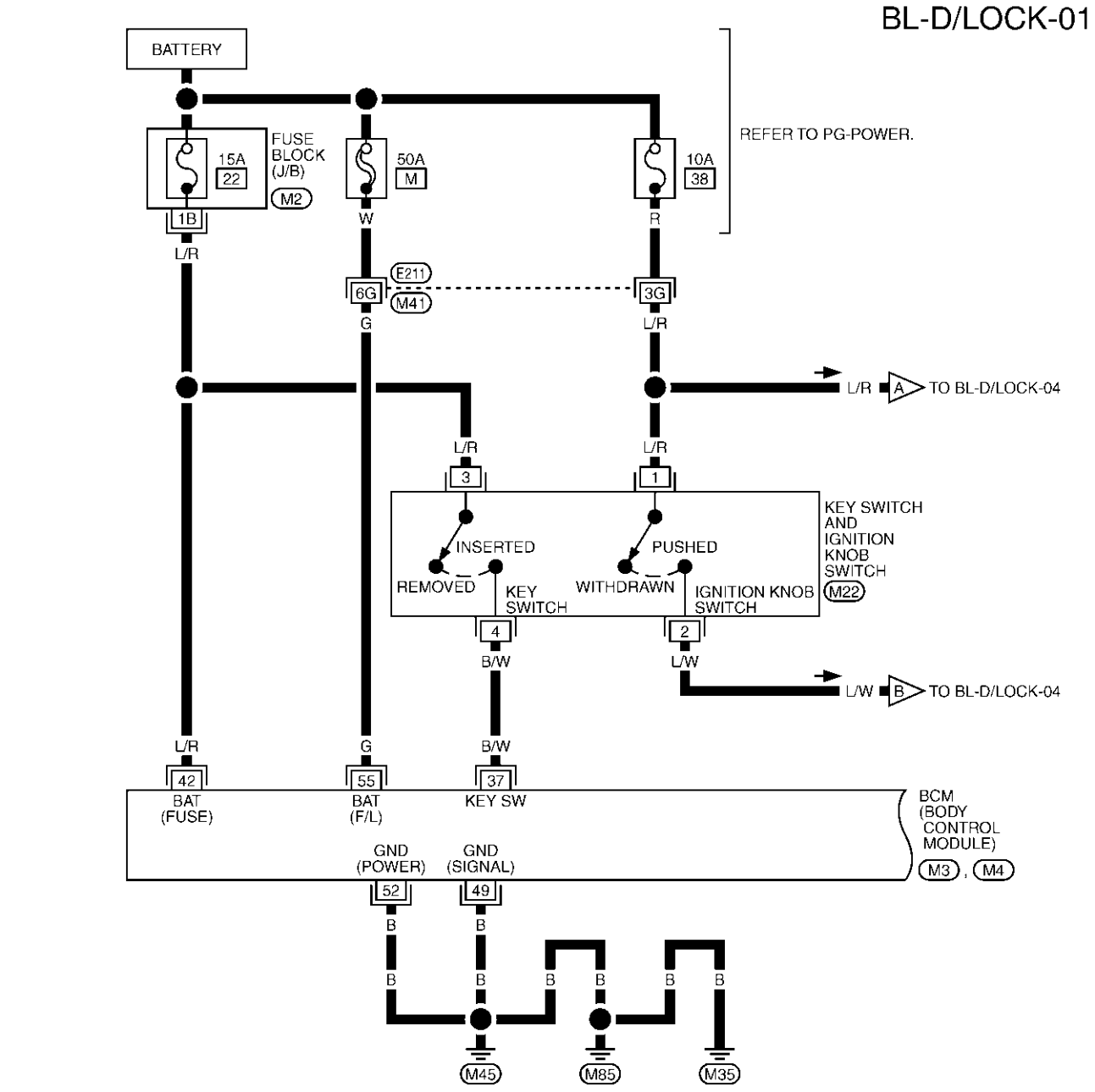


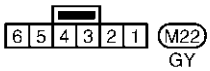
TIWM0420E

Wiring Diagram -D/LOCK- (With Intelligent Key)

AIS00359

FIG. 1





REFER TO THE FOLLOWING.

E211 -SUPER MULTIPLE JUNCTION (SMJ)

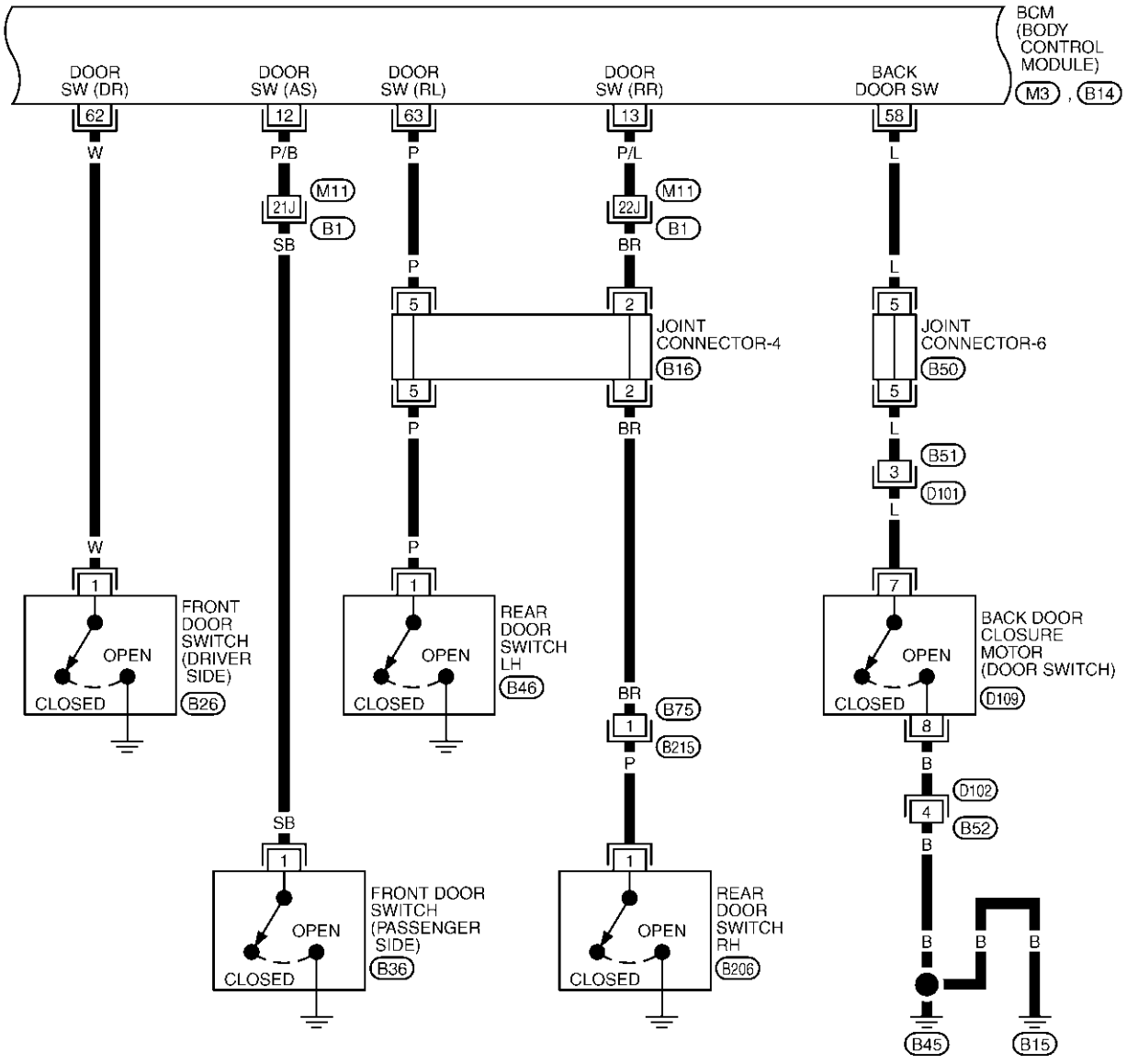
M2 -FUSE BLOCK-JUNCTION BOX (J/B)

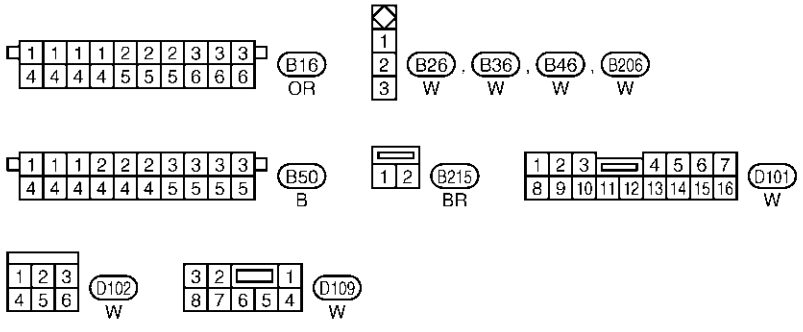
M3, M4 -ELECTRICAL UNITS

TIWM0421E

FIG. 2

BL-D/LOCK-02

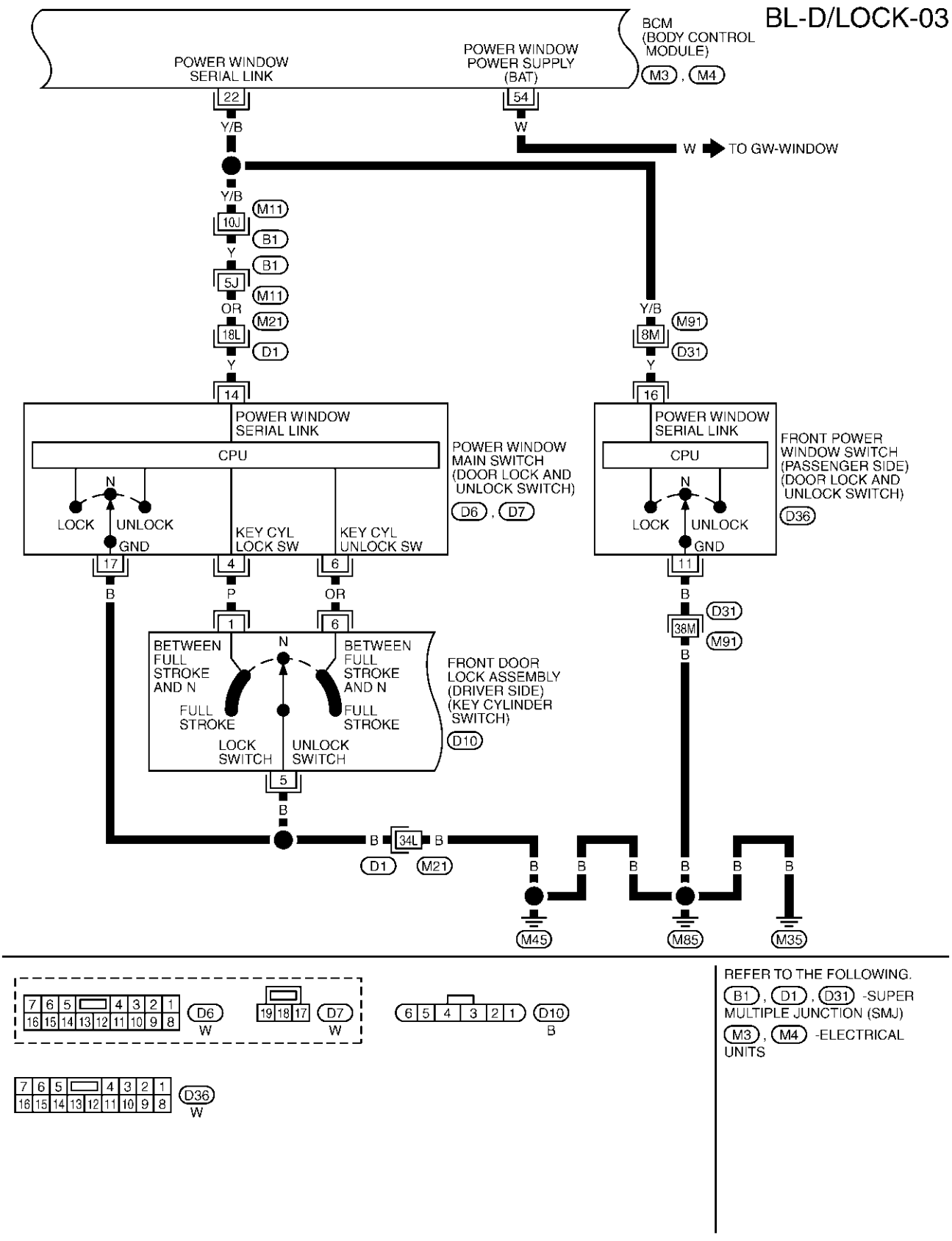




REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M3 , B14 -ELECTRICAL UNITS

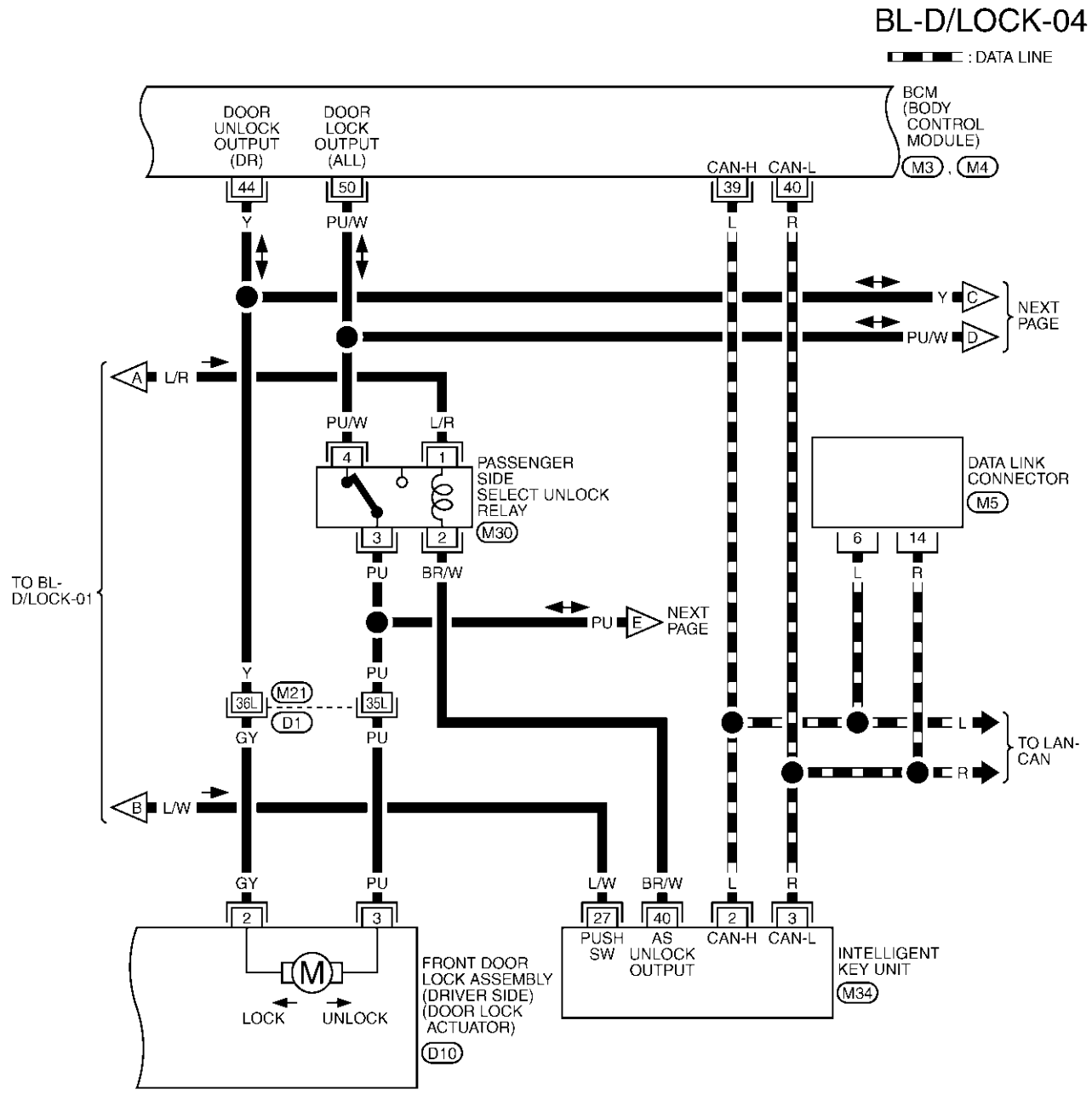
TIWM0367E

FIG. 3



TIWM0368E

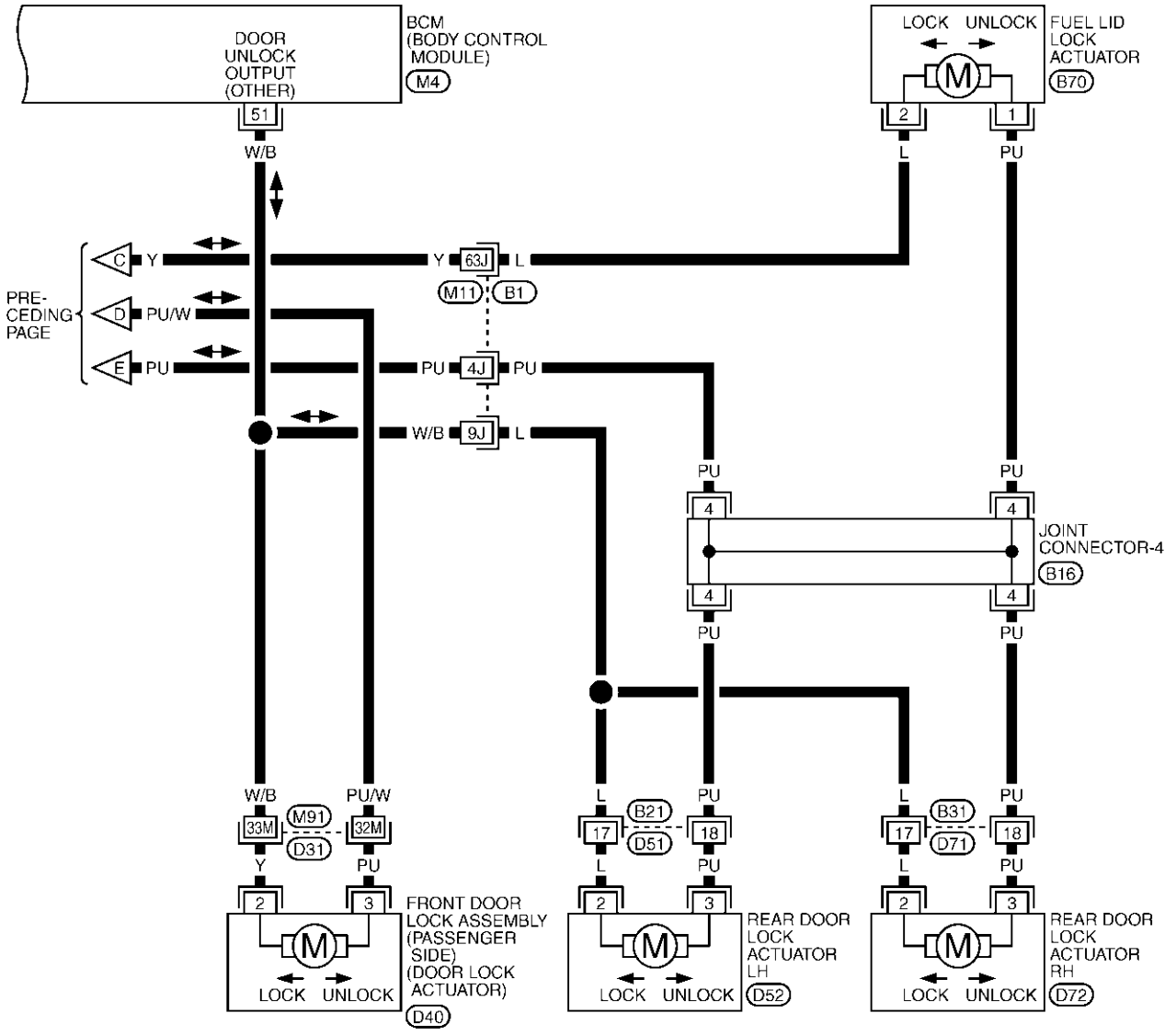
FIG. 4

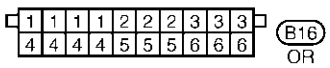


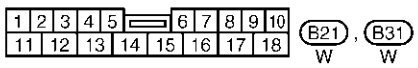
TIWM0369E

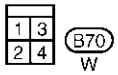
FIG. 5

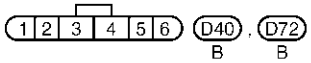
BL-D/LOCK-05

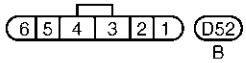










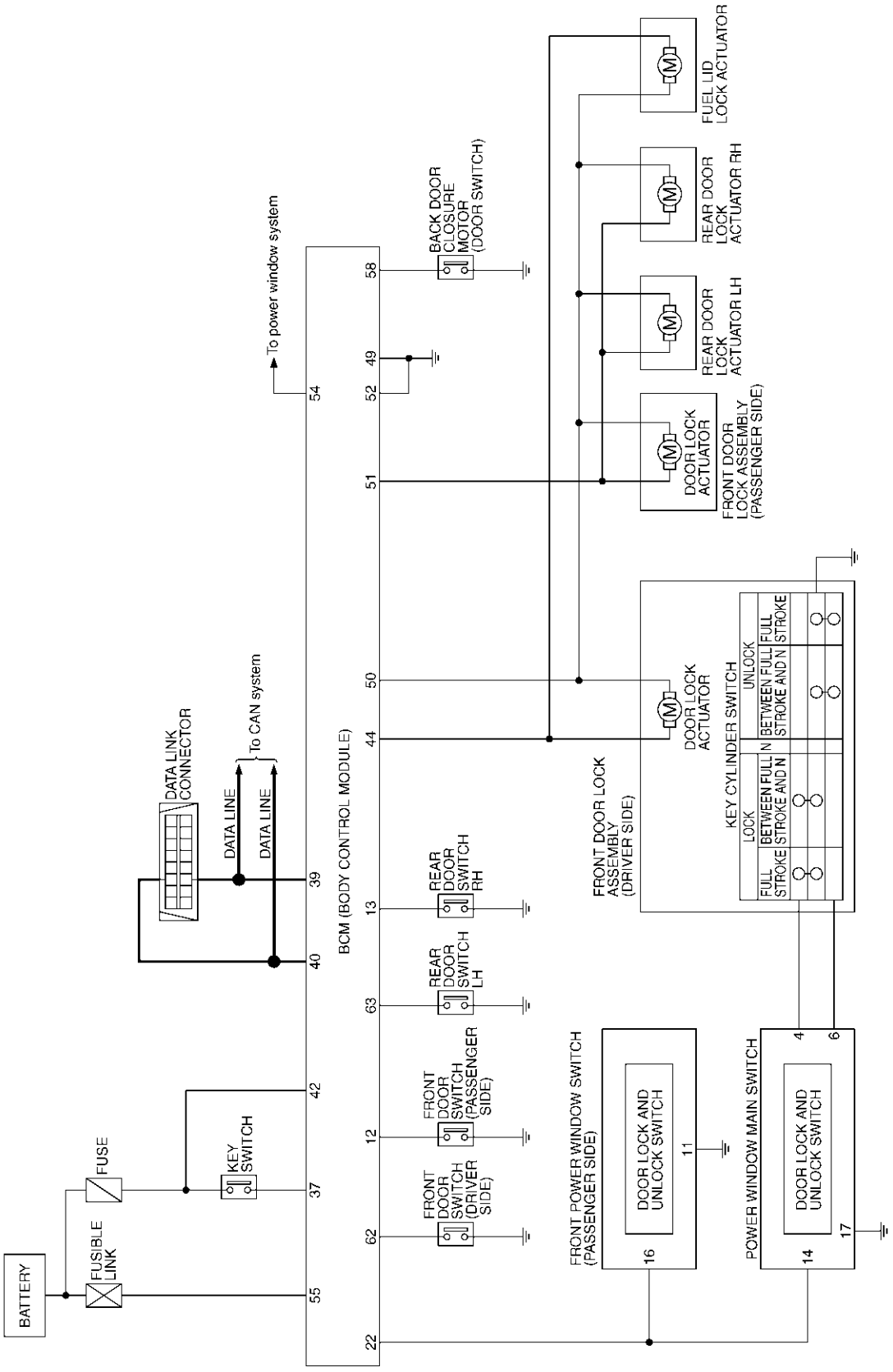


REFER TO THE FOLLOWING.
(B1), (D31) -SUPER MULTIPLE JUNCTION (SMJ)
(M4) -ELECTRICAL UNITS

TIWM0370E

Schematic (Without Intelligent Key)

AIS0040H



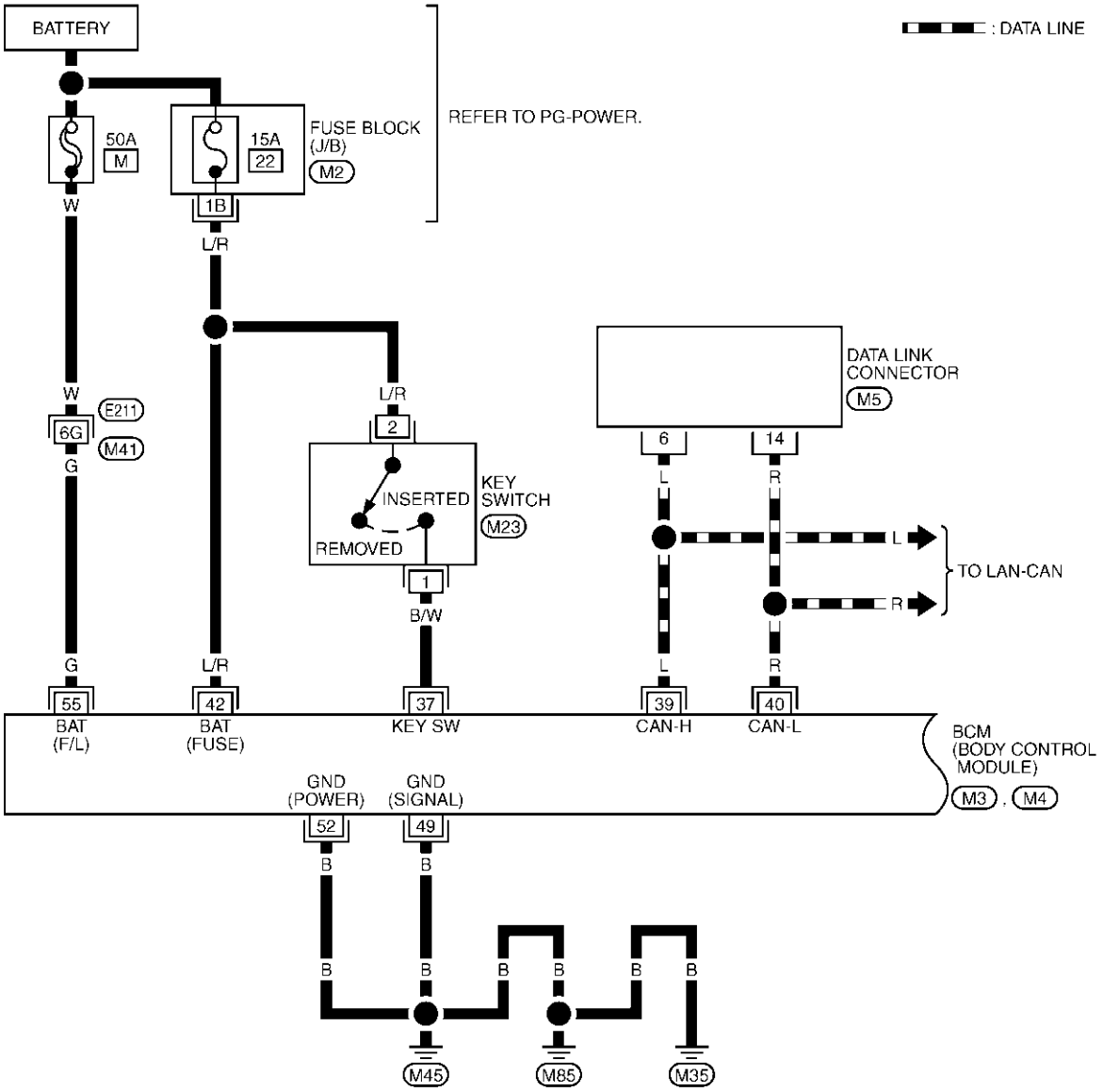
TIWM0321E

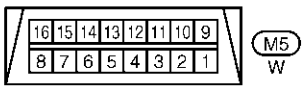
Wiring Diagram -D/LOCK- (Without Intelligent Key)

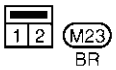
AIS00391

FIG. 6

BL-D/LOCK-06





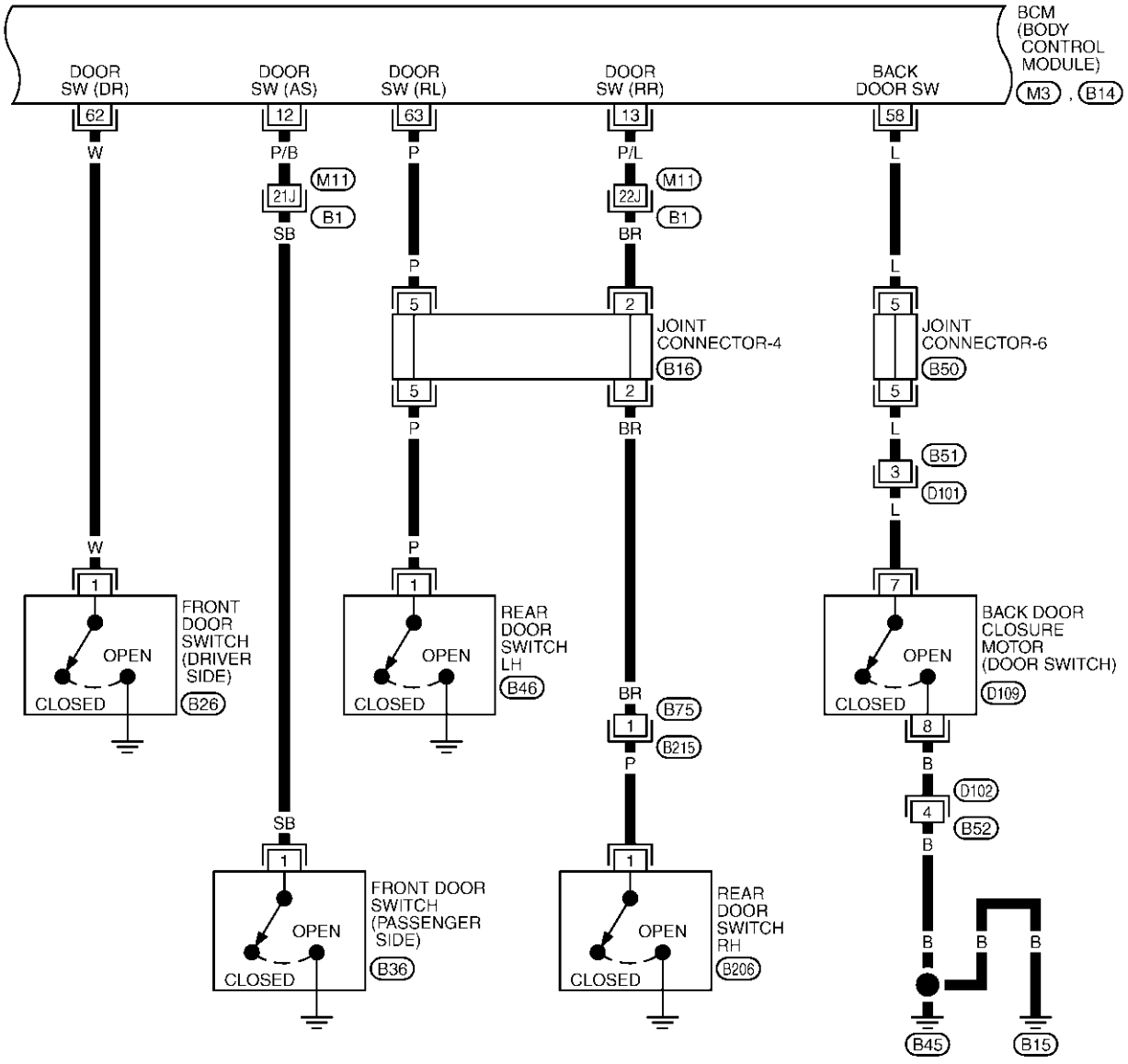


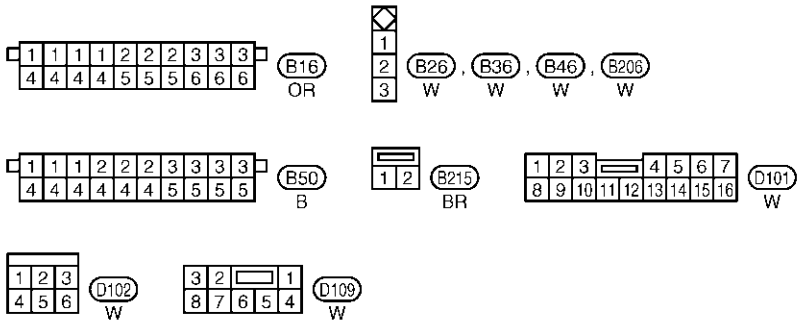
REFER TO THE FOLLOWING.
E211 -SUPER MULTIPLE JUNCTION (SMJ)
M2 -FUSE BLOCK-JUNCTION BOX (J/B)
M3, M4 -ELECTRICAL UNITS

TIWM0322E

FIG. 7

BL-D/LOCK-07

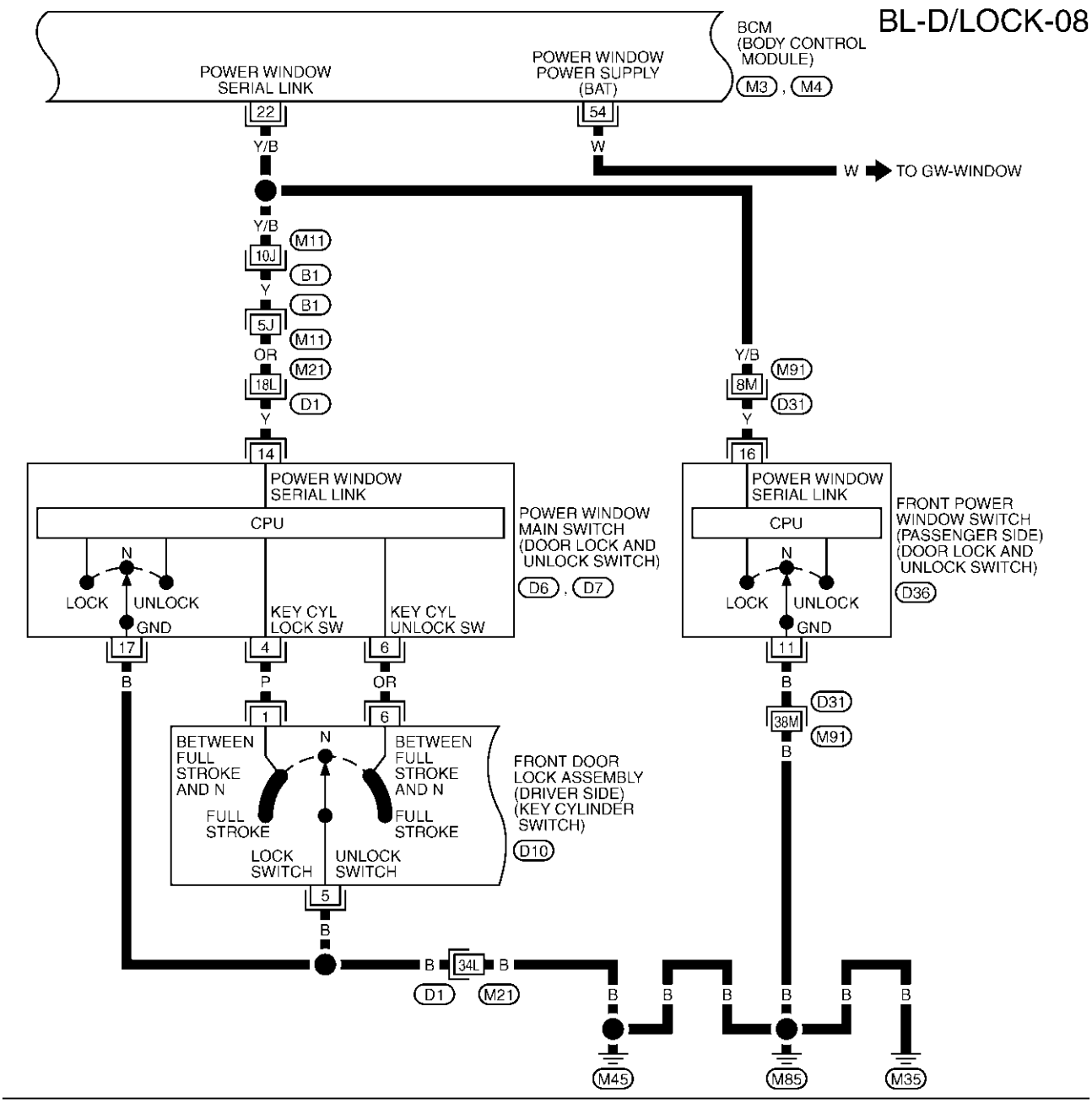




REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M3, B14 -ELECTRICAL UNITS

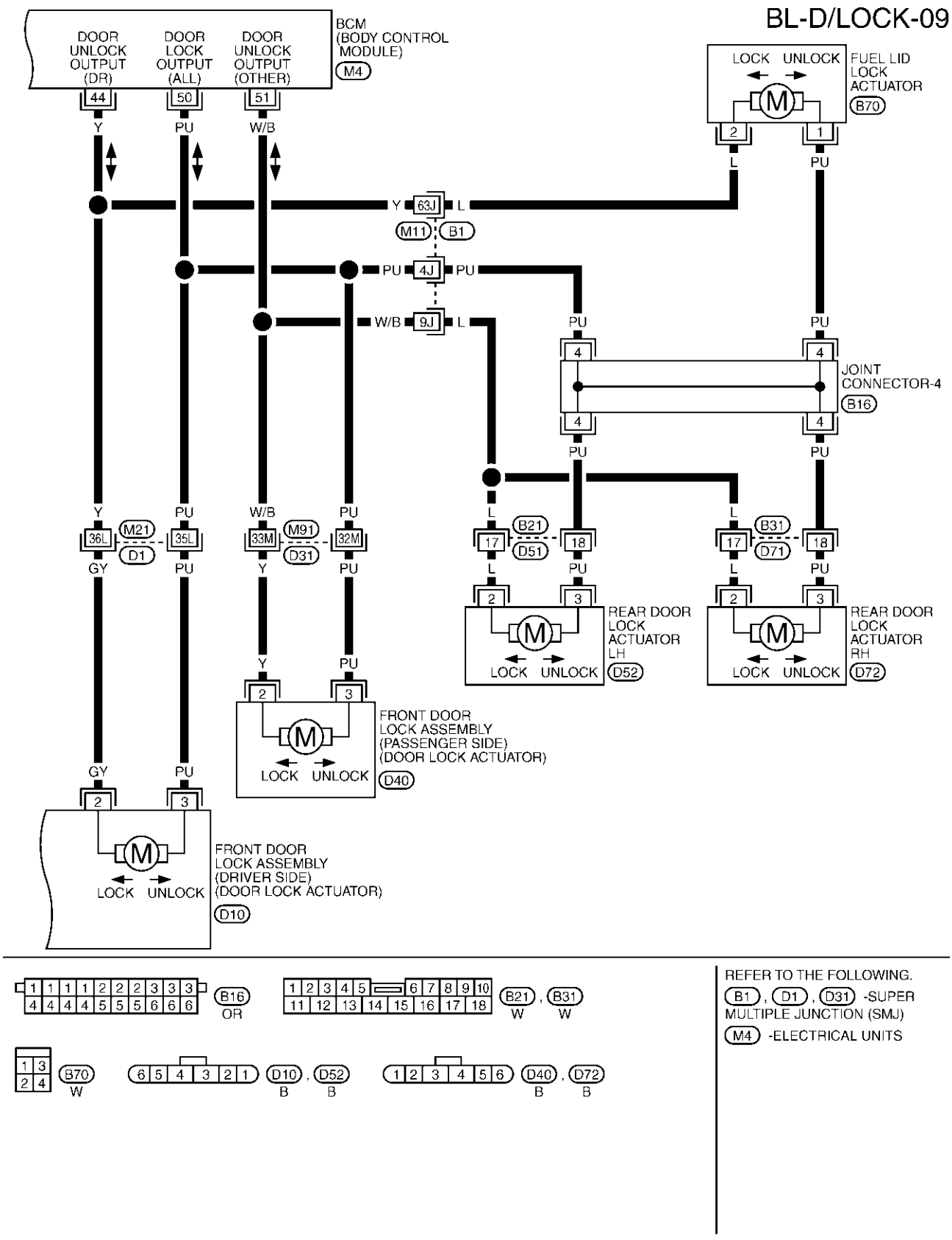
TIWM0323E

FIG. 8



TIWM0324E

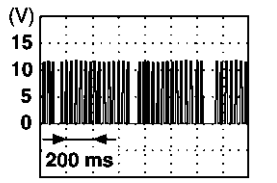
FIG. 9



TIWM0325E

Terminals and Reference Value for BCM

AIS0035A

TERMINAL	WIRE COLOR	ITEM	CONDITION	VOLTAGE (V) Approx.
12	P/B	Front door switch (Passenger side)	ON (door open) → OFF (door closed)	0 → Battery voltage
13	P/L	Rear door switch RH	ON (door open) → OFF (door closed)	0 → Battery voltage
22	Y/B	Power window switch (Serial link)	Ignition switch (OFF→ON)	 PIIA2344J
37	B/W	Key switch	ON (Key inserted) → OFF (Key removed from IGN key cylinder)	Battery voltage → 0
39	L	CAN H	—	—
40	R	CAN L	—	—
42	L/R	Battery power supply	—	Battery voltage
44	Y	Driver door lock actuator (unlock)	Door lock / unlock switch (Free → Unlock)	0 → Battery voltage
49, 52	B	Ground	—	0
50	PU/W (PU)	Door lock actuator (lock)	Door lock / unlock switch (Free → Lock)	0 → Battery voltage
51	W/B	Passenger and rear doors lock actuator	Door lock / unlock switch (Free → Unlock)	0 → Battery voltage
55	G	Power source (Fusible link)	—	Battery voltage
58	L	Back door switch	ON (Door open) → OFF (Door closed)	0 → 9V
62	W	Front door switch (Driver side)	ON (door open) → OFF (door closed)	0 → Battery voltage
63	P	Rear door switch LH	ON (Door open) → OFF (Door closed)	0 → Battery voltage

( ): Without Intelligent Key system

Terminals and Reference Value for Intelligent Key Unit (With Intelligent Key System)

AIS0035B

TERMINAL	WIRE COLOR	ITEM	CONDITION	VOLTAGE (V) Approx.
2	L	CAN H	–	–
3	R	CAN L	–	–
27	L/W	Push switch	Push switch (OFF → ON)	0 → Battery voltage
40	BR/W	AS unlock output signal	Door lock / unlock switch (Free → Unlock)	0 → Battery voltage

Work Flow

AIS0035C

1. Check the symptom and customer's requests.
2. Understand the outline of system. Refer to BL-21, "System Description" .
3. Perform the preliminary check. Refer to BL-49, "Preliminary Check" .
4. According to the trouble diagnosis chart by symptom, repair or replace the cause of the malfunction. Refer to BL-52, "Trouble Diagnosis Chart by Symptom" .
5. Does power door lock system operate normally?
   YES: GO TO 6.
   NO: GO TO 4.
6. INSPECTION END

Preliminary Check

AIS0035D

FUSE AND FUSIBLE LINK CHECK

1. FUSE INSPECTION

Check the following fuse and fusible link.

Unit	Signal name	No,	Location
BCM	Battery power supply	22 (15A)	Fuse block (J/B)
	Battery power supply	M (50A)	Fuse and fusible link box

NOTE:
Refer to BL-20, "Component Parts and Harness Connector Location" .

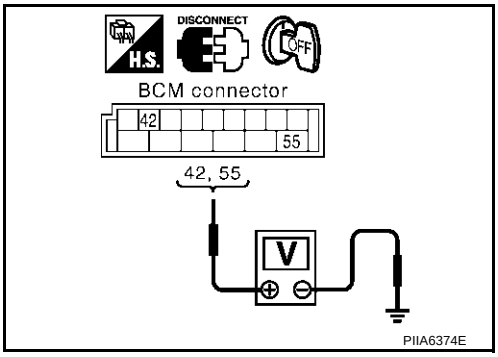
OK or NG

OK >> GO TO 2.
NG >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse, refer to PG-3, "POWER SUPPLY ROUTING CIRCUIT" .

2. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connectors.
3. Check voltage between BCM connectors M4 terminals 42, 55 and ground.

Connector	Terminals (Wire color)		Voltage (V) (Approx.)
	(+)	(–)	
M4	42 (L/R)	Ground	Battery voltage
	55 (G)		



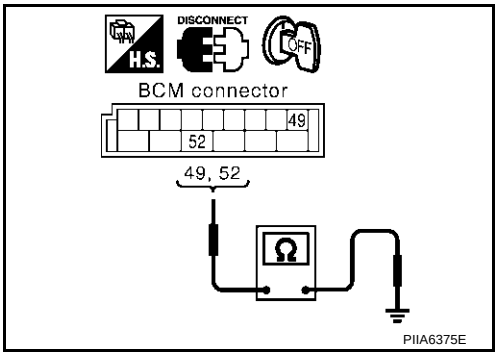
OK or NG

OK >> GO TO 3.
NG >> Repair or replace BCM power supply circuit.

3. CHECK GROUND CIRCUIT

Check continuity between BCM connectors M4 terminals 49, 52 and ground.

Connector	Terminals (Wire color)		Continuity
	(+)	(–)	
M4	49 (B)	Ground	Yes
	52 (B)		



OK or NG

OK >> Power supply and ground circuit are OK.
NG >> Repair or replace BCM ground circuit.

CONSULT-II Function

AIS0035E

Power door lock system check with data monitor and active test can be performed by combining data reception and command transmission via communication line from BCM.

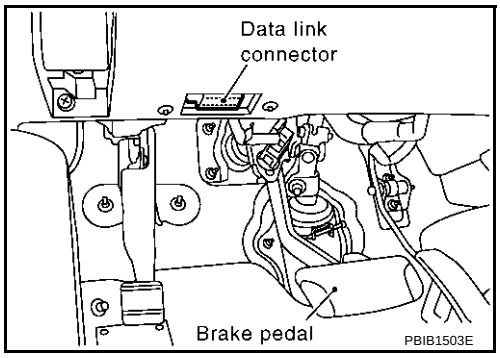
BCM diagnosis part	Inspection item, self-diagnosis mode	Content
Door lock	DATA MONITOR	Displays BCM input data on real-time basis.
	ACTIVE TEST	Sends drive signals to door lock actuator to perform operation check.

CONSULT-II INSPECTION PROCEDURE

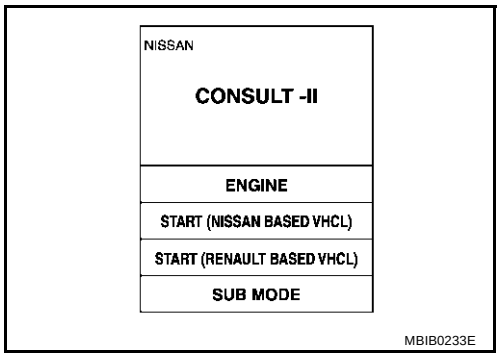
CAUTION:

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunction might be detected in self-diagnosis depending on control unit which carry out CAN communication.

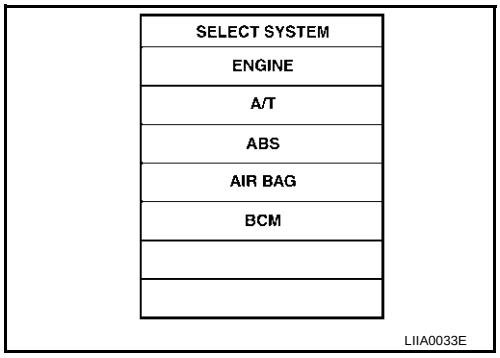
1. With ignition switch “OFF”.
2. Connect “CONSULT-II” and “CONSULT-II CONVERTER” to the data link connector.



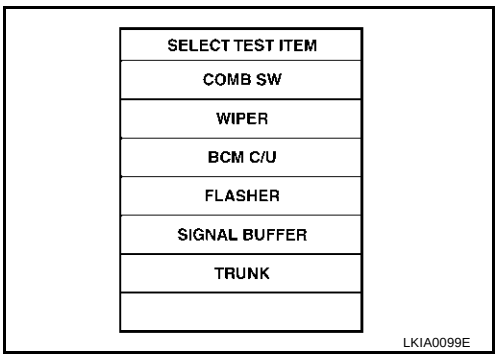
3. Turn ignition switch “ON”.
4. Touch “START”.



5. Touch “BCM” on “SELECT SYSTEM” screen.
   If “BCM” is not indicated, go to GI-40, "CONSULT-II Data Link Connector (DLC) Circuit" .



6. Select item to be diagnosed on “SELECT TEST ITEM” screen.



CONSULT-II APPLICATION ITEMS

Work Support

Work item	Description
DOOR LOCK-UNLOCK SET	Select unlock mode can be changed in this mode. Selects ON-OFF of select unlock mode.
ANTI-LOCK OUT SET	Key reminder door mode can be changed in this mode. Selects ON-OFF of key reminder door mode.

Data Monitor

Monitor item	Content
IGN ON SW	Indicates [ON/OFF] condition of ignition switch in ON position.
KEY ON SW	Indicates [ON/OFF] condition of key switch.
CDL LOCK SW	Indicates [ON/OFF] condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW	Indicates [ON/OFF] condition of unlock signal from door lock and unlock switch.
DOOR SW-DR	Indicates [ON/OFF] condition of front door switch driver side.
DOOR SW-AS	Indicates [ON/OFF] condition of front door switch passenger side.
DOOR SW-RR	Indicates [ON/OFF] condition of rear door switch RH.
DOOR SW-RL	Indicates [ON/OFF] condition of rear door switch LH.
BACK DOOR SW	Indicates [ON/OFF] condition of back door switch.
KEY CYL LK-SW	Indicates [ON/OFF] condition of lock signal from key cylinder.
KEY CYL UN-SW	Indicates [ON/OFF] condition of unlock signal from key cylinder.
KEYLESS LOCK	Indicates [ON/OFF] condition of lock signal from key fob.
KEYLESS UNLOCK	Indicates [ON/OFF] condition of unlock signal from key fob.
I-KEY LOCK*	Indicates [ON/OFF] condition of lock signal from door request switch.
I-KEY UNLOCK*	Indicates [ON/OFF] condition of unlock signal from door request switch.

*: With Intelligent Key system

Active Test

Test item in “DOOR LOCK”	Content
ALL LOCK	This test is able to check all door lock actuators lock operation. These actuators lock when “ALL LOCK” on CONSULT-II screen is touched.
ALL UNLOCK	This test is able to check all door lock actuators unlock operation. These actuators unlock when “ALL UNLOCK” on CONSULT-II screen is touched.
DR UNLOCK	This test is able to check door lock actuator (driver side) lock/unlock operation. This actuator unlock when “DR UNLOCK” on CONSULT-II screen is touched.
OTHER UNLOCK	This test is able to check all door lock actuators (except driver side) unlock operation. These actuators unlock when “OTHER UNLOCK” on CONSULT-II screen is touched.

Trouble Diagnosis Chart by Symptom

AIS0035F

Always check the “Work Flow” before troubleshooting. Refer to BL-48, "Work Flow" .

Symptom	Diagnoses service procedure	Reference page
Key reminder door system does not operate properly.	1.Check key reminder door mode.* *: Key reminder door mode can be changed. First check key reminder door mode.	BL-51
	2. Preliminary Check	BL-49
	3. Check key switch.	BL-57
	4. Check door switch.	BL-53
	5. Replace BCM.	BCS-28
Power door lock does not operate with door lock and unlock switch.	1. Preliminary check	BL-49
	2. Check door lock and unlock switch.	BL-59
	3. Replace BCM.	BCS-28
Power door lock does not operate with door key cylinder operation. (Power door lock operate properly with door lock and unlock switch.)	1. Check front door key cylinder switch.	BL-64 BL-65
	2. Replace power window main switch.	–
Specific door lock actuator does not operate.	1. Check door lock actuator.	BL-61 BL-62
	2. Replace BCM.	BCS-28
All door lock actuator (except passenger side) does not operate.* *: Only model with intelligent key system.	1. Check select unlock relay circuit.	BL-66
Select unlock does not operate. (All other power door lock system is “OK”.)	1. Check select unlock mode.* *: Select unlock mode can be changed. First check select unlock mode.	BL-51
	2. Replace BCM.	BCS-28
Fuel lid opener actuator does not operate. (All door lock actuators operates properly.)	1.Check fuel lid opener actuator.	BL-63

Check Door Switch

AIS003IG

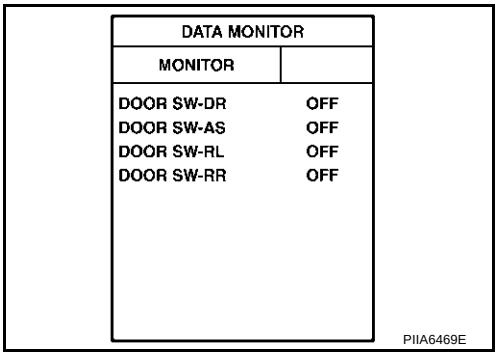
CHECK DOOR SWITCH (EXCEPT BACK DOOR SWITCH)

1. CHECK DOOR SWITCH INPUT SIGNAL

With CONSULT-II

Check door switches (“DOOR SW-DR”, “DOOR SW-AS”, “DOOR SW-RL” and “DOOR SW-RR”) in “DATA MONITOR” mode with CONSULT-II.

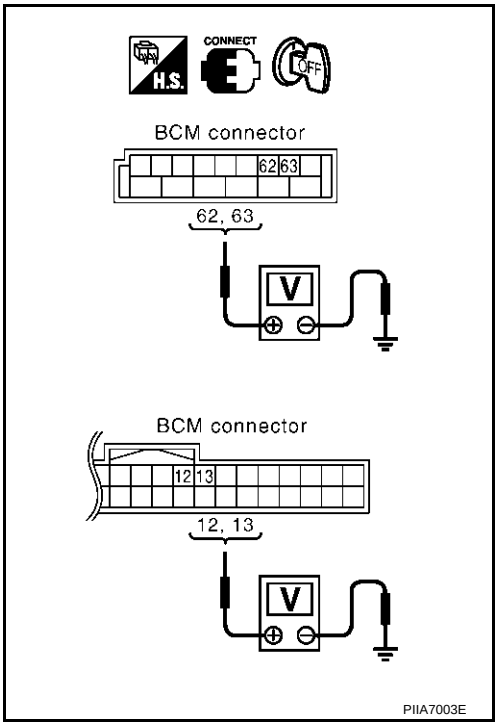
Monitor item	Condition
DOOR SW-DR	CLOSE → OPEN: OFF → ON
DOOR SW-AS	
DOOR SW-RL	
DOOR SW-RR	



Without CONSULT-II

Check voltage between BCM connector and ground.

Item	Connector	Terminals (Wire color) (+)	Terminals (Wire color) (-)	Door condition	Voltage (V) (Approx.)
Driver side	B14	62 (W)	Ground	CLOSE ↓ OPEN	Battery voltage ↓ 0
Rear LH		12 (P/B)			
Passenger side	M3	63 (P)			
Rear RH		13 (P/L)			



OK or NG

OK >> Door switch circuit is OK.
NG >> GO TO 2.

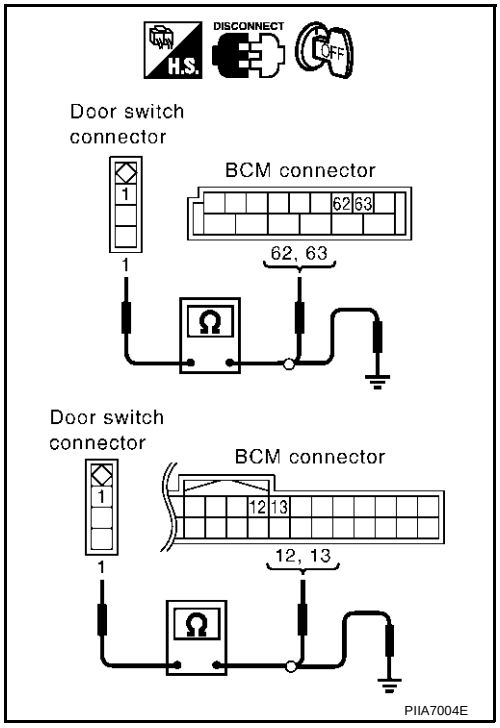
2. CHECK DOOR SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect door switch and BCM connector.
3. Check continuity between door switch connector B26, B36, B46, B206 terminals 1 and BCM connector M3, B14 terminals 62, 12, 63, 13.

Driver side door
1 (W) – 62 (W) : Continuity should exist.
Passenger side door
1 (SB) – 12 (P/B) : Continuity should exist.
Rear door LH
1 (P) – 63 (P) : Continuity should exist.
Rear door RH
1 (P) – 13 (P/L) : Continuity should exist.

4. Check continuity between door switch connector B26, B36, B46, B206 terminal 1 and ground.

1 (W, SB, P or P/L) – Ground : Continuity should not exist.



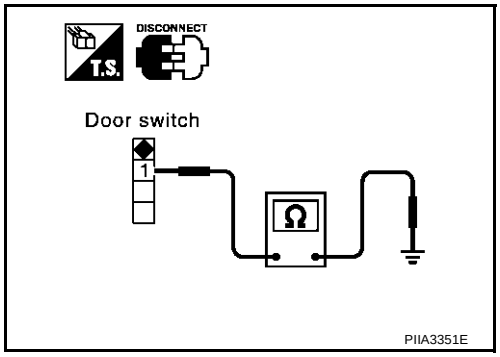
OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness.

3. CHECK DOOR SWITCH

Check continuity between door switch terminal 1 and ground part of door switch.

Terminal		Door switch condition	Continuity
1	Ground part of door switch	Pushed	No
		Released	Yes



OK or NG

OK >> Check door switch case ground condition.
NG >> Replace door switch.

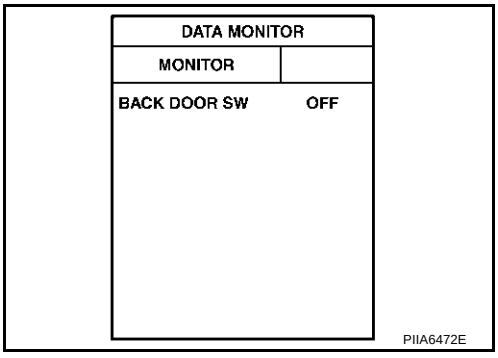
CHECK BACK DOOR SWITCH

1. CHECK BACK DOOR SWITCH INPUT SIGNAL

With CONSULT-II

Check door switches (“BACK DOOR SW”) in “DATA MONITOR” mode with CONSULT-II.

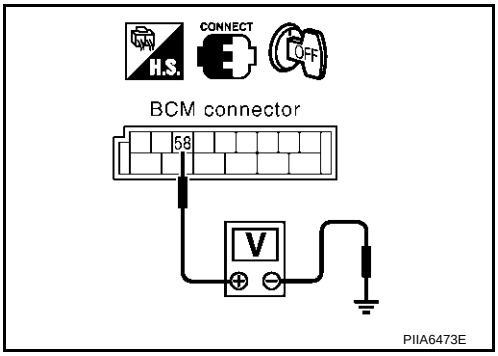
Monitor item	Condition
BACK DOOR SW	CLOSE → OPEN: OFF → ON



Without CONSULT-II

Check voltage between BCM connector and ground.

Item	Connector	Terminal (Wire color)		Back door condition	Voltage (V) (Approx.)
		(+)	(-)		
Back door switch	B14	58 (L)	Ground	CLOSE ↓ OPEN	Battery voltage ↓ 0



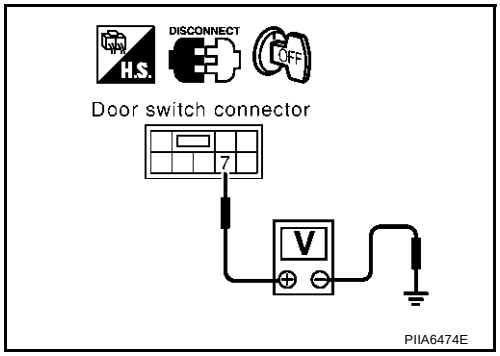
OK or NG

OK >> Door switch circuit is OK.
NG >> GO TO 2.

2. CHECK BACK DOOR SWITCH CIRCUIT

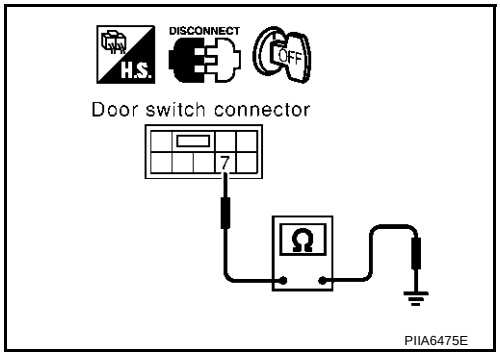
1. Turn ignition switch OFF.
2. Disconnect back door switch connector.
3. Check voltage between back door switch connector B14 terminal 7 and ground. (Check harness for open.)

7 (L) – Ground : Battery voltage



4. Check continuity between back door switch connector D109 terminals 7 and ground. (Check harness for short.)

7 (L) – Ground : Continuity should not exist.



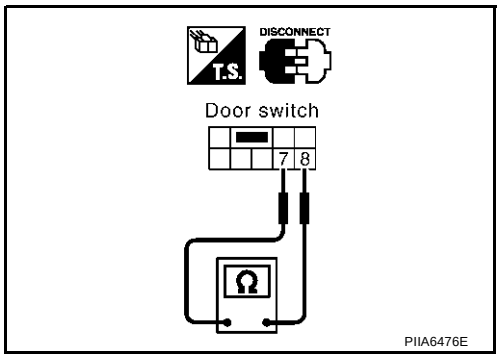
OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness.

3. CHECK BACK DOOR SWITCH

Check continuity between back door switch terminal 7 and 8.

Terminal	Back door condition	Continuity
7 – 8	Closed	No
	Opened	Yes



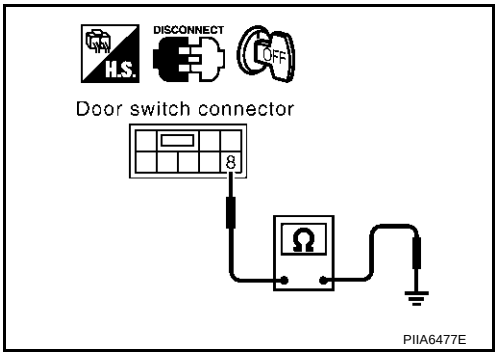
OK or NG

OK >> GO TO 4.
NG >> Replace back door closure motor (door switch).

4. CHECK BACK DOOR SWITCH GROUND HARNESS

Check continuity between back door switch connector D109 terminal 8 and ground.

8 (B) – Ground : Continuity should exist.



OK or NG

OK >> Check harness connection.
NG >> Repair or replace harness.

Check Key Switch

AIS0035I

1. CHECK KEY SWITCH INPUT SIGNAL

With CONSULT-II

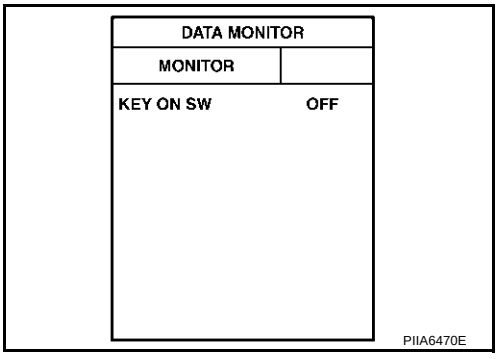
Check ignition key switch “KEY ON SW” in “DATA MONITOR” mode with CONSULT-II.

- When key is inserted in ignition key cylinder

  KEY ON SW : ON

- When key is removed from ignition key cylinder

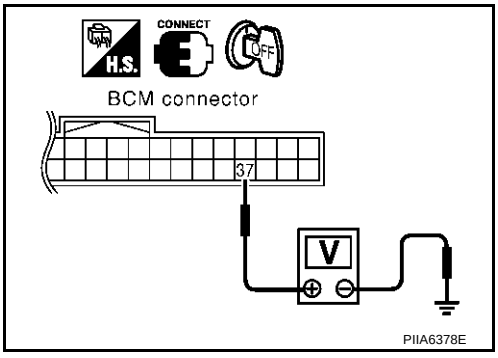
  KEY ON SW : OFF



Without CONSULT-II

Check voltage between BCM connector M3 terminal 37 (B/W) and ground.

Condition of key switch	Voltage (V) Approx.
Key switch is “ON”. (Key is inserted in IGN key cylinder.)	Battery voltage
Key switch is “OFF”. (Key is removed from IGN key cylinder.)	0



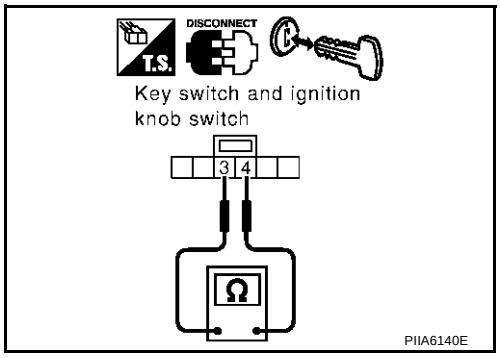
OK or NG

OK >> Key switch circuit is OK.
NG >> GO TO 2. (with intelligent key)
NG >> GO TO 3. (without intelligent key)

2. CHECK KEY SWITCH (WITH INTELLIGENT KEY)

1. Disconnect key switch and ignition knob switch connector.
2. Check continuity between key switch and ignition knob switch terminals 3 and 4.

Condition of key switch	Continuity
Key switch is “ON”. (Key is inserted in IGN key cylinder.)	Yes
Key switch is “OFF”. (Key is removed from IGN key cylinder.)	No



OK or NG

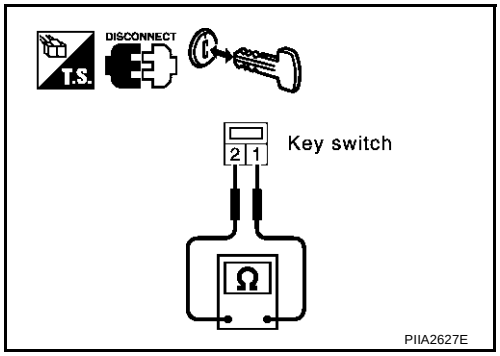
OK >> Check the following.
- 15A fuse (No. 22, located in fuse and fusible link block)
- Harness for open or short between key switch and fuse
- Harness for open or short between BCM and key switch

NG >> Replace key switch.

3. CHECK KEY SWITCH (WITHOUT INTELLIGENT KEY)

1. Disconnect key switch connector.
2. Check continuity between key switch terminal 1 and 2.

Condition of key switch	Continuity
Key switch is “ON”. (Key is inserted in IGN key cylinder.)	Yes
Key switch is “OFF”. (Key is removed from IGN key cylinder.)	No



OK or NG

OK >> Check the following.
- 15A fuse [No. 22, located in fuse block (J/B)]
- Harness for open or short between key switch and fuse
- Harness for open or short between BCM and key switch

NG >> Replace key switch.

Check Door Lock and Unlock Switch

AIS0035K

1. CHECK POWER WINDOW OPERATION

Does power window system operate normally?

OK or NG

OK >> GO TO 2.
NG >> Refer to GW-15, "POWER WINDOW SYSTEM" .

2. CHECK DOOR LOCK AND UNLOCK SWITCH INPUT SIGNAL

With CONSULT-II

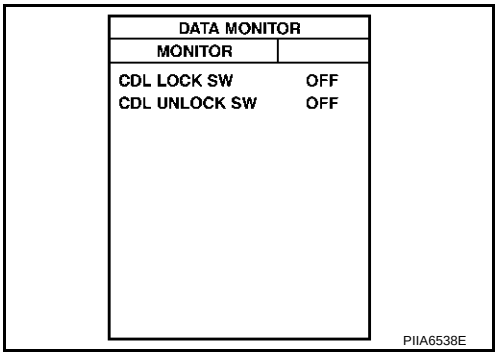
Check door lock and unlock switch (“CDL LOCK SW” and “CDL UNLOCK SW”) in DATA MONITOR mode with CONSULT-II.

- When door lock and unlock switch is turned to LOCK:

  CDL LOCK SW : ON

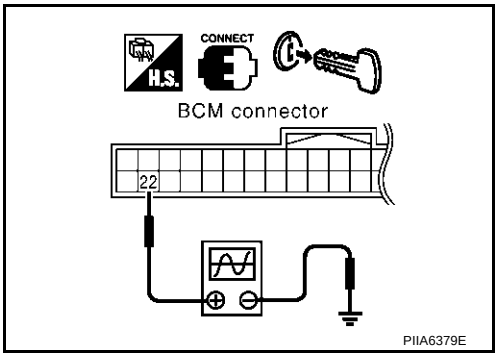
- When door lock and unlock switch is turned to UNLOCK:

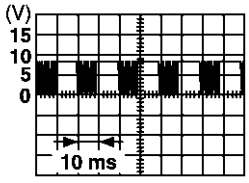
  CDL UNLOCK SW : ON



Without CONSULT-II

1. Remove key from ignition key cylinder.
2. Check the signal between BCM connector M3 terminal 22 and ground with oscilloscope when door lock and unlock switch is turned “LOCK” or “UNLOCK”.
3. Make sure signals which are shown in the figure below can be detected during 10 second just after door lock and unlock switch is turned “LOCK” or “UNLOCK”.



Connector	Terminal (Wire color)		Voltage (V)
	(+)	(–)	
M3	22(Y/B)	Ground	

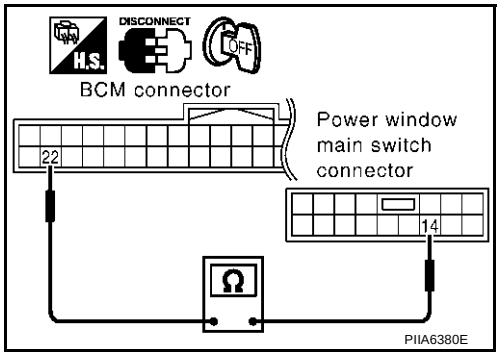
OK or NG

OK >> Door lock and unlock switch circuit is OK.
NG >> GO TO 3.

3. CHECK POWER WINDOW SERIAL LINK CIRCUIT

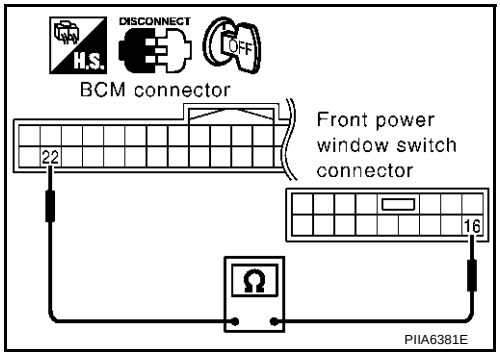
1. Turn ignition switch OFF.
2. Disconnect BCM, power window main switch and front power window switch connectors.
3. Check continuity between BCM connector M3 terminal 22 and power window main switch (door lock and unlock switch) connector D6 terminal 14.

   22 (Y/B) – 14 (Y) : Continuity should exist.



4. Check continuity between BCM connector M3 terminal 22 and front power window switch (door lock and unlock switch) connector D36 terminal 16.

   22 (Y/B) – 16 (Y) : Continuity should exist.



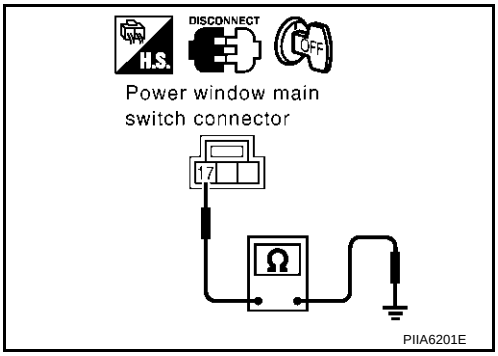
OK or NG

OK >> GO TO 4.
NG >> Repair or replace harness.

4. CHECK DOOR LOCK AND UNLOCK SWITCH GROUND HARNESS

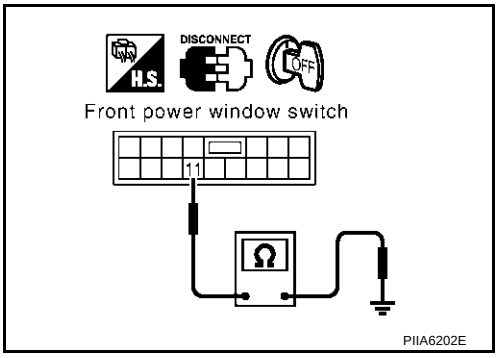
- Check continuity between power window main switch (door lock and unlock switch) connector D7 terminal 17 and ground.

  17 (B) – Ground : Continuity should exist.



- Check continuity between power window sub-switch (front passenger side) (door lock and unlock switch) connector D36 terminal 11 and ground.

  11 (B) – Ground : Continuity should exist.



OK or NG

OK >> Replace power window main switch or power window sub-switch.
NG >> Repair or replace harness.

Check Door Lock Actuator (Driver side)

AIS0035L

1. CHECK DOOR LOCK ACTUATOR HARNESS

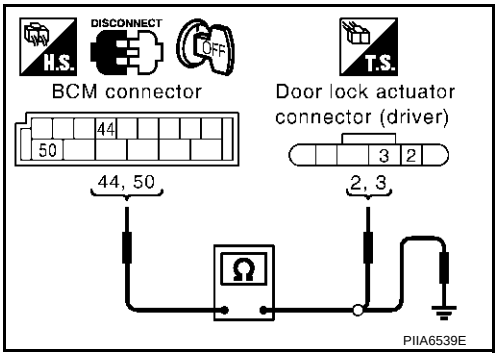
1. Turn ignition switch OFF.
2. Disconnect BCM and front door lock actuator (driver side) connector.
3. Check continuity between BCM connector M4 terminals 44, 50and front door lock actuator (driver side) connector D10 terminals 2, 3.

   44 (Y) – 2 (G/Y) : Continuity should exist.
   50 (PU/W, PU*) – 3 (PU) : Continuity should exist.

   *: Without Intelligent Key system
4. Check continuity between BCM connector M4 terminals 44, 50 and ground.

   44 (Y) – Ground : Continuity should not exist.
   50 (PU/W, PU*) – Ground : Continuity should not exist.

   *: Without Intelligent Key system

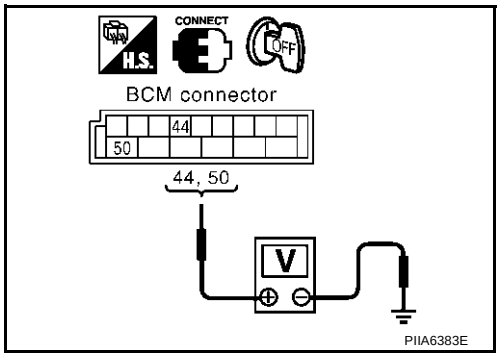


OK or NG

OK >> GO TO 2.
NG >> Repair or replace harness.

2. CHECK OUTPUT SIGNAL

1. Connect BCM and door lock actuator (driver side) connector.
2. Check voltage between BCM connector M4 terminals 44, 50 and ground.



Connector	Terminal (Wire color) (+)	Terminal (Wire color) (–)	Condition	Voltage (V) (Approx.)
M4	44 (Y)	Ground	Driver door lock/unlock switch is turned to UNLOCK.	0 → Battery voltage
	50 (PU)		Driver door lock/unlock switch is turned to LOCK.	0 → Battery voltage

OK or NG

OK >> Check harness connection.
NG >> Replace BCM.

Check Door Lock Actuator (Passenger Side and Rear LH/RH)

AIS0035M

1. CHECK DOOR LOCK ACTUATOR HARNESS

1. Disconnect BCM and each door lock actuator connectors.
2. Check continuity between BCM connector M4 terminals 50, 51 and front door lock actuator passenger side, rear door lock actuator LH/RH connectors D40, D52, D72 terminals 2, 3.

   50 (PU/W, PU*) – 3 (PU) : Continuity should exist.
   51 (W/B) – 2 (L or Y) : Continuity should exist.

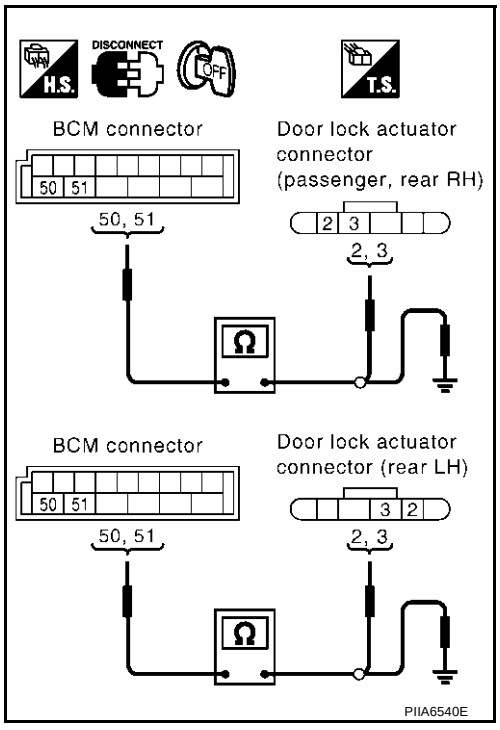
   *: Without Intelligent Key system
3. Check continuity between BCM connector M4 terminals 50, 51 and ground.

   50 (PU/W, PU*) – Ground : Continuity should not exist.
   51 (W/B) – Ground : Continuity should not exist.

   *: Without Intelligent Key system

OK or NG

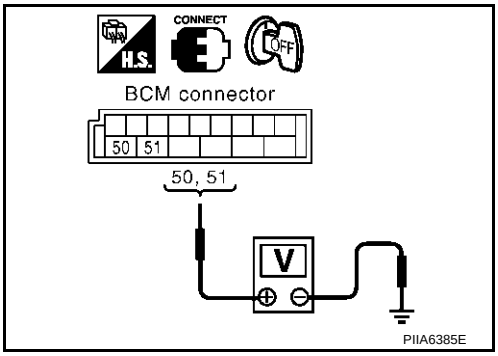
OK >> GO TO 2.
NG >> Repair or replace harness.



2. CHECK DOOR LOCK ACTUATOR SIGNAL

Check voltage between BCM connector M4 terminals 50, 51 and ground.

Connector	Terminal (Wire color) (+)	Terminal (Wire color) (–)	Condition	Voltage (V) (Approx.)
M4	50 (PU/W, PU*)	Ground	Door lock/unlock switch is turned to LOCK.	0 → Battery voltage
	51 (W/B)		Door lock/unlock switch is turned to UNLOCK.	0 → Battery voltage



*: Without Intelligent Key system

OK or NG

OK >> Replace front door lock actuator passenger side or rear door lock actuator LH/RH.
NG >> Replace BCM.

Check Fuel Lid Opener Actuator

AIS0035N

1. CHECK FUEL LID OPENER ACTUATOR HARNESS

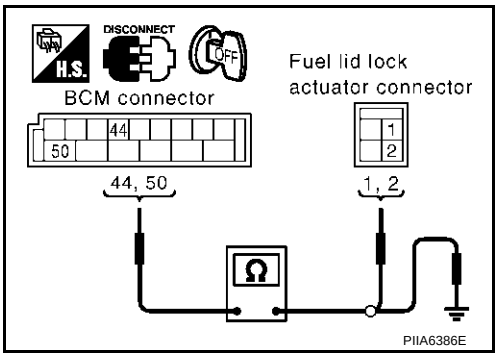
1. Turn ignition switch OFF.
2. Disconnect BCM and fuel lid lock actuator connector.
3. Check continuity between BCM connector M4 terminals 44, 50 and fuel lid lock actuator connector B70 terminals 1, 2.

   44 (Y) – 2 (L) : Continuity should exist.
   50 (PU/W, PU*) – 1 (PU) : Continuity should exist.

   *: Without Intelligent Key system
4. Check continuity between BCM connector M4 terminals 44, 50 and ground.

   44 (Y) – Ground : Continuity should not exist.
   50 (PU/W, PU*) – Ground : Continuity should not exist.

   *: Without Intelligent Key system



OK or NG

OK >> Replace fuel lid actuator.
NG >> Repair or replace harness.

Check Front Door Key Cylinder Switch (Lock)

AIS0035O

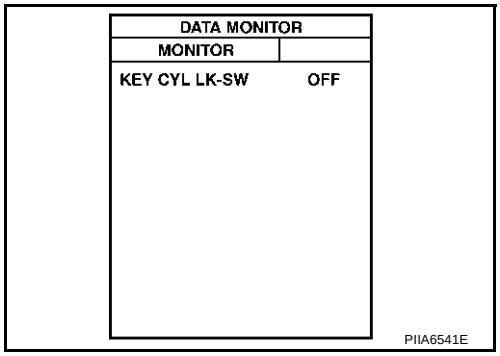
1. CHECK FRONT DOOR KEY CYLINDER SWITCH INPUT SIGNAL (LOCK SIGNAL)

With CONSULT-II

Check front door key cylinder switch LH (“KEY CYL LK SW”) in “DATA MONITOR” mode with CONSULT-II.

- When key cylinder switch is turned to “LOCK”.

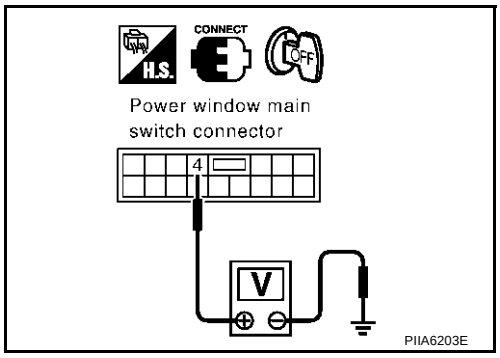
KEY CYL LK-SW : ON



Without CONSULT-II

Check voltage between power window main switch (door lock and unlock switch) connector D6 terminal 4 and ground.

Connector	Terminal (Wire color)		Front door key cylinder switch position	Voltage (V) (Approx.)
	(+)	(-)		
D6	4 (P)	Ground	Neutral / Unlock	5
			Lock	0



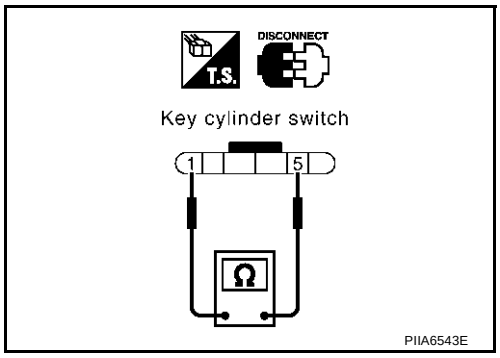
OK or NG

OK >> Front door key cylinder switch circuit driver side (lock) is OK.
NG >> GO TO 2.

2. CHECK FRONT DOOR KEY CYLINDER SWITCH

1. Disconnect front door key cylinder switch driver side connector.
2. Check continuity between front door key cylinder switch driver side terminals 1 and 5.

Front door key cylinder switch position	Continuity
Neutral / Unlock	No
Lock	Yes



OK or NG

OK >> Check the following.
- Front door key cylinder switch driver side ground circuit.
- Harness for open or short between power window main switch (door lock and unlock switch) and front door key cylinder switch driver side.

NG >> Replace front door key cylinder switch driver side.

Check Front Door Key Cylinder Switch (Unlock)

AIS0035P

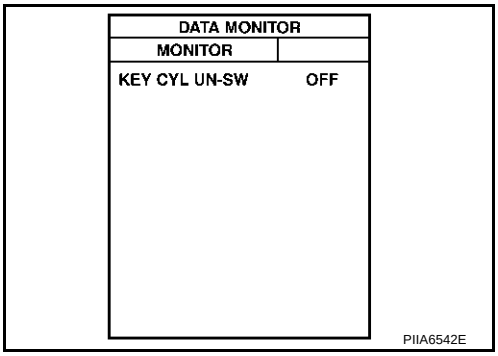
1. CHECK FRONT DOOR KEY CYLINDER SWITCH INPUT SIGNAL (UNLOCK SIGNAL)

With CONSULT-II

Check front door key cylinder switch driver side (“KEY CYL UN-SW”) in “DATA MONITOR” mode with CONSULT-II.

- When key cylinder switch is turned to “UNLOCK”.

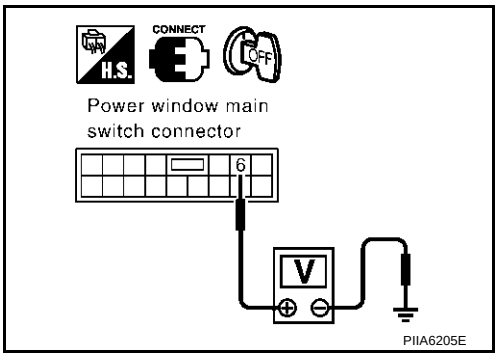
KEY CYL UN-SW : ON



Without CONSULT-II

Check voltage between main power window switch (door lock and unlock switch) connector D6 terminals 6 and ground.

Connector	Terminal (Wire color)		Front door key cylinder switch position	Voltage (V) (Approx.)
	(+)	(-)		
D6	6 (OR)	Ground	Neutral / Lock	5
			Unlock	0



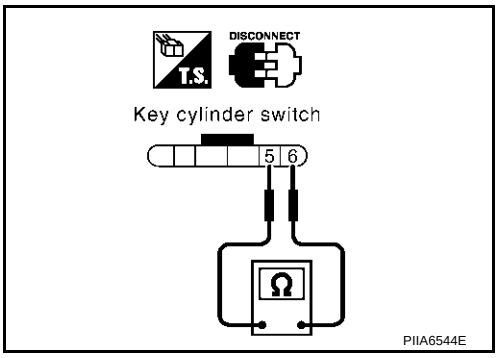
OK or NG

OK >> Front door key cylinder switch circuit driver side (unlock) is OK.
NG >> GO TO 2.

2. CHECK FRONT DOOR KEY CYLINDER SWITCH

1. Disconnect front door key cylinder switch driver side connector.
2. Check continuity between front door key cylinder switch driver side terminals 5 and 6.

Front door key cylinder switch position	Continuity
Neutral / Lock	No
Unlock	Yes



OK or NG

OK >> Check the following.
- Front door key cylinder switch driver side ground circuit
- Harness for open or short between power window main switch (door lock and unlock switch) and front door key cylinder switch driver side

NG >> Replace front door key cylinder switch driver side.

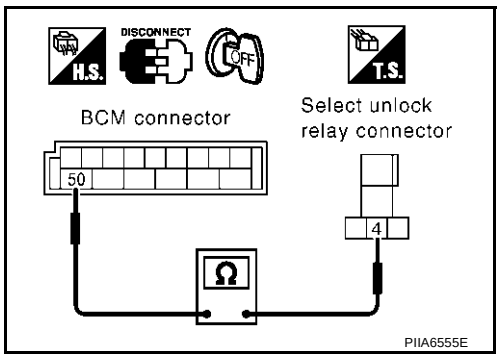
Check Select Unlock Relay Circuit

AIS003IJ

1. CHECK HARNESS

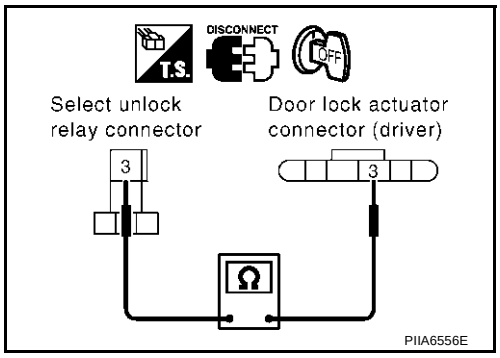
1. Turn ignition switch OFF.
2. Disconnect BCM, door lock actuator (driver side), and select unlock relay connector.
3. Check continuity between BCM connector M4 terminals 50 and select unlock relay actuator connector M30 terminals 3.

   50 (PU/W) – 4 (PU/W) : Continuity should exist.



4. Check continuity between select unlock relay connector M30 terminals 4 and door lock actuator connector D10 terminal 3.

   3 (PU) – 3 (PU) : Continuity should exist.



OK or NG

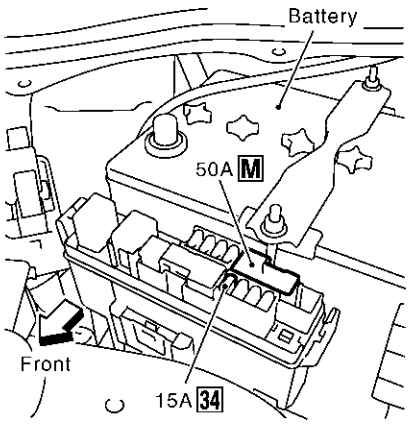
OK >> Check select unlock relay.
NG >> Repair or replace harness.

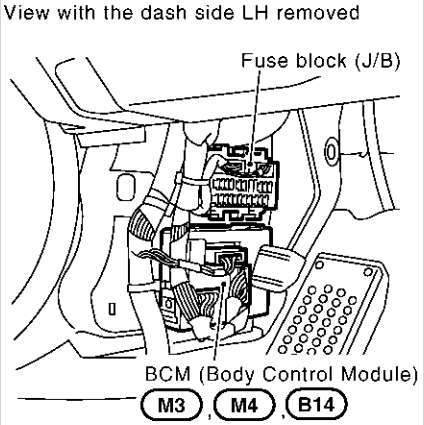
REMOTE KEYLESS ENTRY SYSTEM

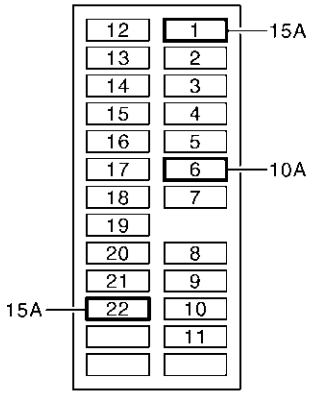
PFP:28596

Component Parts and Harness Connector Location

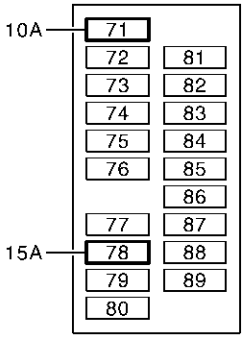
AIS0035Q



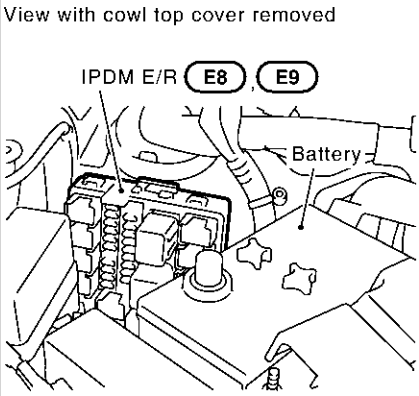


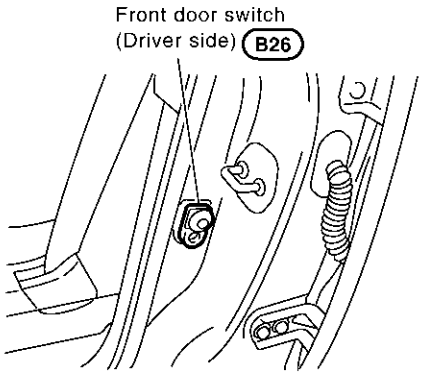


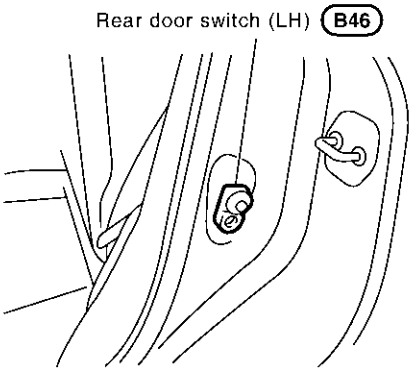
Fuse block (J/B) fuse layout

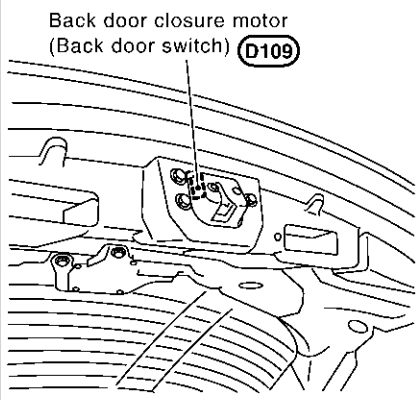


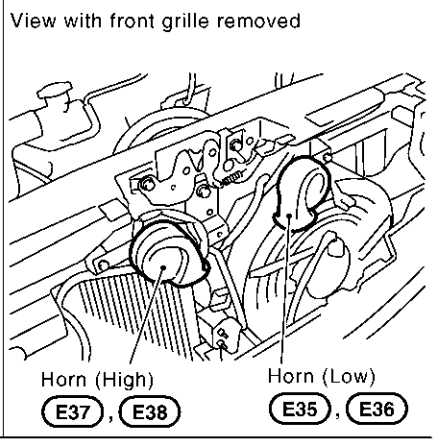
IPDM E/R fuse layout

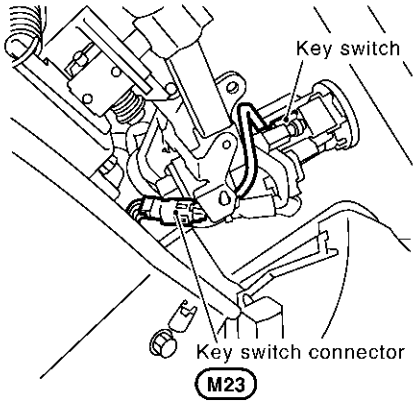












PIIA6413E

System Description

AIS0035R

INPUTS

Power is supplied at all times

- to BCM terminal 55
- through 50A fusible link (letter **M** , located in the fuse and fusible link box).
- to BCM terminal 42
- through 15A fuse (No. 22, located in the fuse and fusible link box).

When the key switch is ON (key is inserted in ignition key cylinder), power is supplied

- to BCM terminal 37
- through key switch terminal 1 and 2
- through 15A fuse (No. 22, located in the fuse and fusible link box).

When the ignition switch is ACC or ON, power is supplied

- to BCM terminal 11
- through 10A fuse [No. 6, located in the fuse block (J/B)].

When the ignition switch is ON or START, power is supplied

- to BCM terminal 38
- through 15A fuse [No. 1, located in the fuse block (J/B)].

When the front door switch (driver side) is ON (door is OPEN), ground is supplied

- to BCM terminal 62
- through front door switch (driver side) terminal 1
- through front door switch (driver side) case ground.

When the front door switch (passenger side) is ON (door is OPEN), ground is supplied

- to BCM terminal 12
- through front door switch (passenger side) terminal 1
- through front door switch (passenger side) case ground.

When the rear door switch LH is ON (door is OPEN), ground is supplied

- to BCM terminal 63
- through rear door switch LH terminal 1
- through rear door switch LH case ground.

When the rear door switch RH is ON (door is OPEN), ground is supplied

- to BCM meter terminal 13
- through rear door switch RH terminal 1
- through rear door switch RH case ground.

Key fob signal is inputted to BCM (the antenna of the system is combined with BCM).
The remote keyless entry system controls operation of the

- power door lock
- hazard and horn reminder
- auto door lock
- panic alarm
- keyless power window down (open)
- room lamp and key ring illumination

OPERATED PROCEDURE

Power Door Lock Operation

BCM receives a LOCK signal from key fob. BCM locks all doors with input of LOCK signal from key fob.
When an UNLOCK signal is sent from key fob once, driver's door will be unlocked.
Then, if an UNLOCK signal is sent from key fob again within 5 seconds, all other door will be unlocked.
Power door lock operation mode can be changed using “DOOR LOCK-UNLOCK SET” mode in “WORK SUPPORT” of “POWER DOOR LOCK SYSTEM”.
Refer to BL-91, "Work Support" .
Power door lock operation mode can be changed also on the display.
Refer to AV-56, "SETTING SCREEN" . (without navigation system)
Refer to AV-107, "Vehicle Electronic Systems" . (with navigation system)

Hazard and Horn Reminder

When the doors are locked or unlocked by key fob, supply power to hazard warning lamp flashes as follows

- LOCK operation: C mode (flash twice) or S mode (flash twice)
- UNLOCK operation: C mode (flash once) or S mode (does not flash)

BCM outputs to IPDM E/R for horn reminder signal as DATA LINE (CAN H line and CAN L line).
The hazard and horn reminder has C mode (horn chirp mode) and S mode (non-horn chirp mode).

Operating function of hazard and horn reminder

	C mode		S mode	
Remote controller operation	Lock	Unlock	Lock	Unlock
Hazard warning lamp flash	Twice	Once	Twice	—
Horn sound	Once	—	—	—

Hazard and horn reminder does not operate if any door switch is ON (any door is OPEN).

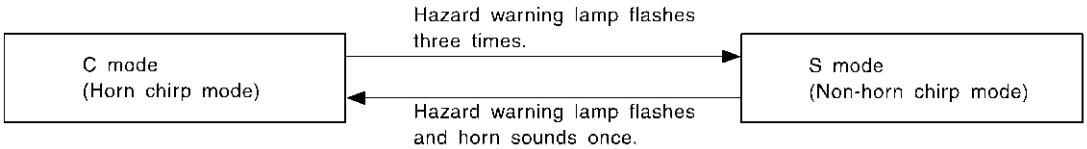
How to change hazard and horn reminder mode

With CONSULT-II

Hazard and horn reminder can be changed using “MULTI ANSWER BACK SET” mode in “WORK SUPPORT”.
Refer to BL-91, "Work Support" .

Without CONSULT-II

When LOCK and UNLOCK signals are sent from the key fob for more than 2 seconds at the same time, the hazard and horn reminder mode is changed and hazard warning lamp flashes and horn sounds as follows:



SEL153WA

Auto Door Lock Operation

Auto lock function signal is sent for operation when any of the following signals are not sent within 1 minute after the unlock signal is sent from the key fob:

- when door switch is turned ON for open.
- when the key switch is turned ON.
- when the lock signal is sent from the key fob.

Auto door lock mode can be changed using “AUTO LOCK SET” mode in “WORK SUPPORT”.
Refer to BL-91, "Work Support" .
Auto door lock mode can be changed also on the display.
Refer to AV-56, "SETTING SCREEN" . (without navigation system)

Refer to AV-107, "Vehicle Electronic Systems" . (with navigation system)

Panic Alarm Operation

When key switch is OFF (when ignition key is not inserted in key cylinder), BCM turns on and off horn and headlamp intermittently with input of PANIC ALARM signal from key fob.
The alarm automatically turns off after 25 seconds or when BCM receives any signal from key fob.
Panic alarm operation mode can be changed using “PANIC ALARM SET” mode in “WORK SUPPORT”.
Refer to BL-91, "Work Support" .
For detailed description, refer to BL-216, "VEHICLE SECURITY (THEFT WARNING) SYSTEM" .

Keyless Power Window Down (open) Operation

When key fob unlock switch is turned ON with ignition switch OFF, and key fob unlock switch is detected to be on continuously for 3 seconds, the driver's door and passenger's door power windows are simultaneously opened.
Power window is operated to open and the operation continues as long as the key fob unlock switch is pressed.
Keyless power window down operation mode can be changed using “PW DOWN SET” mode in “WORK SUPPORT”. Refer to BL-91, "Work Support"

Room Lamp and Ignition Key ring Illumination Operation

When the following conditions come:

- condition of interior lamp switch is DOOR position;
- door switch OFF (when all the doors are closed);

Remote keyless entry system turns on interior lamp (for 30 seconds) with input of UNLOCK signal from key fob. For detailed description, refer to LT-239, "INTERIOR ROOM LAMP" .

CAN Communication System Description

AIS003MR

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, 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.

Body type	Wagon					
Axle	2WD			AWD		
Engine	VQ35DE			VQ35DE/VK45DE		
Transmission	A/T					
Brake control	VDC					
Navigation system			×			×
Low tire pressure warning system			×			×
ICC system			×			×
Intelligent Key system			×			×
Automatic drive positioner		×	×		×	×
CAN communication unit						
ECM	×	×	×	×	×	×
TCM	×	×	×	×	×	×
Display unit	×	×		×	×	
Display control unit			×			×
Low tire pressure warning control unit			×			×
AWD control unit				×	×	×
ICC unit			×			×
Intelligent Key unit			×			×
Data link connector	×	×	×	×	×	×

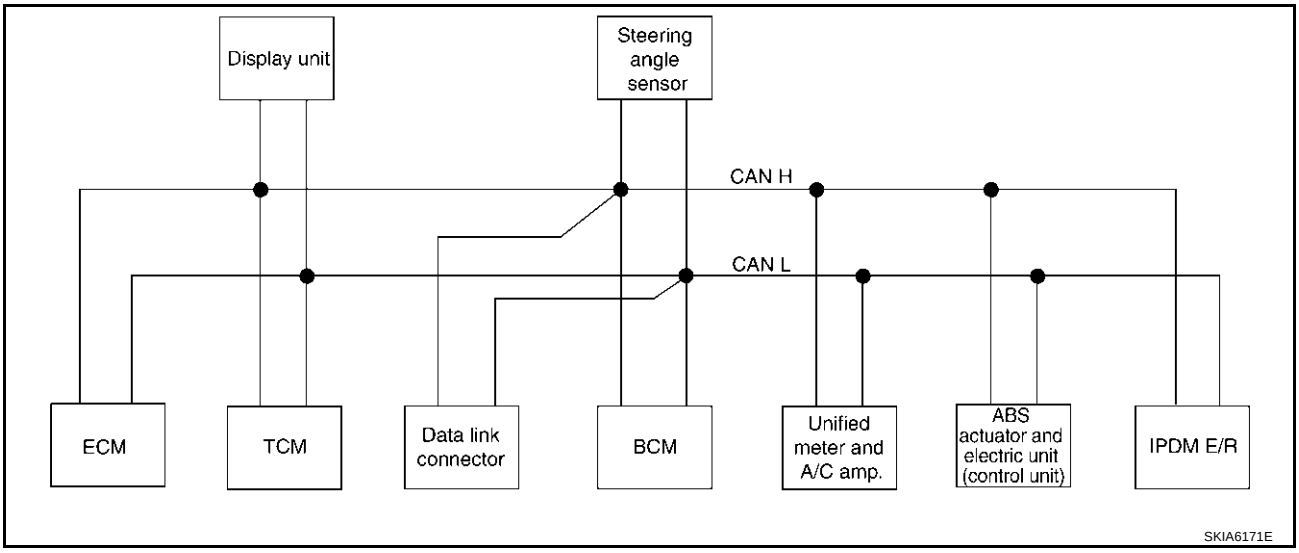
Body type	Wagon					
Axle	2WD			AWD		
Engine	VQ35DE			VQ35DE/VK45DE		
Transmission	A/T					
Brake control	VDC					
Navigation system			×			×
Low tire pressure warning system			×			×
ICC system			×			×
Intelligent Key system			×			×
Automatic drive positioner		×	×		×	×
CAN communication unit						
BCM	×	×	×	×	×	×
Steering angle sensor	×	×	×	×	×	×
Unified meter and A/C amp.	×	×	×	×	×	×
ICC sensor			×			×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×
Driver seat control unit		×	×		×	×
IPDM E/R	×	×	×	×	×	×
CAN communication type	BL-71, "TYPE 1/TYPE2"		BL-74, "TYPE 3"	BL-78, "TYPE 4/TYPE5"		BL-81, "TYPE 6"

×: Applicable

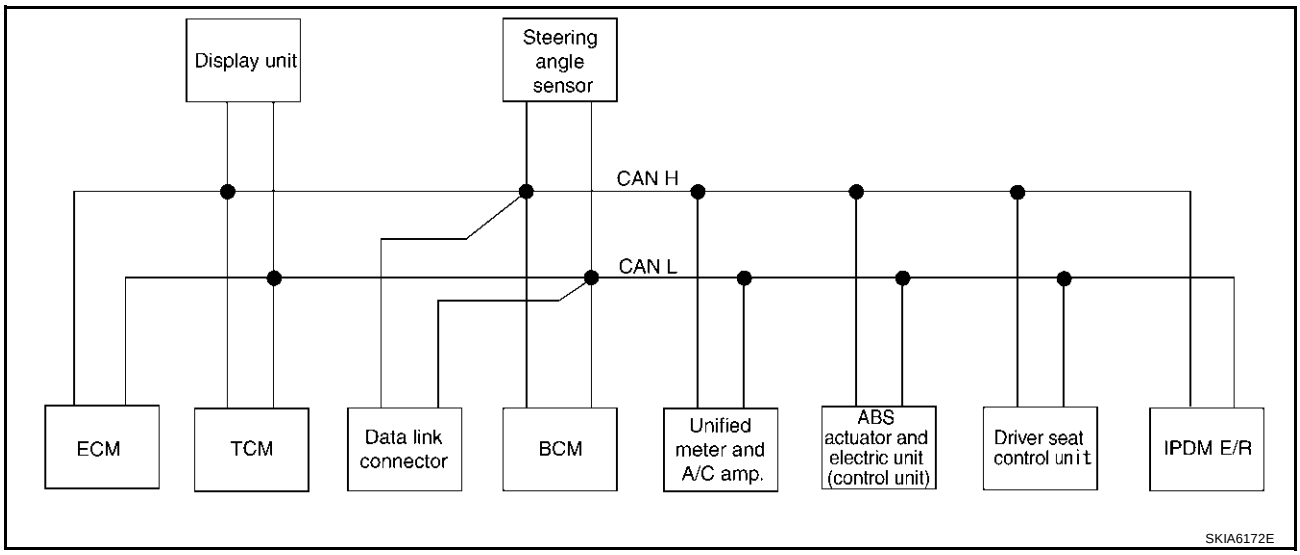
TYPE 1/TYPE2

System Diagram

- Type1



- Type2



Input/output Signal Chart

T: Transmit R: Receive

Signals	ECM	TCM	Display unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Engine speed signal	T	R	R			R	R		
Engine status signal	T			R					
Engine coolant temperature signal	T	R				R			
A/T self-diagnosis signal	R	T							
Accelerator pedal position signal	T	R					R		
Closed throttle position signal	T	R							
Wide open throttle position signal	T	R							
Battery voltage signal	T	R							
Key switch signal				T				R	
Ignition switch signal				T				R	R
P range signal		T					R	R	
Stop lamp switch signal		R				T			
ABS operation signal	R						T		
TCS operation signal	R						T		
VDC operation signal	R						T		
Fuel consumption monitor signal	T		R			R			
Input shaft revolution signal	R	T							
Output shaft revolution signal	R	T							
A/C switch signal	R			T					
A/C compressor request signal	T								R
A/C relay status signal	R								T
A/C compressor feedback signal	T					R			
Blower fan motor switch signal	R			T					

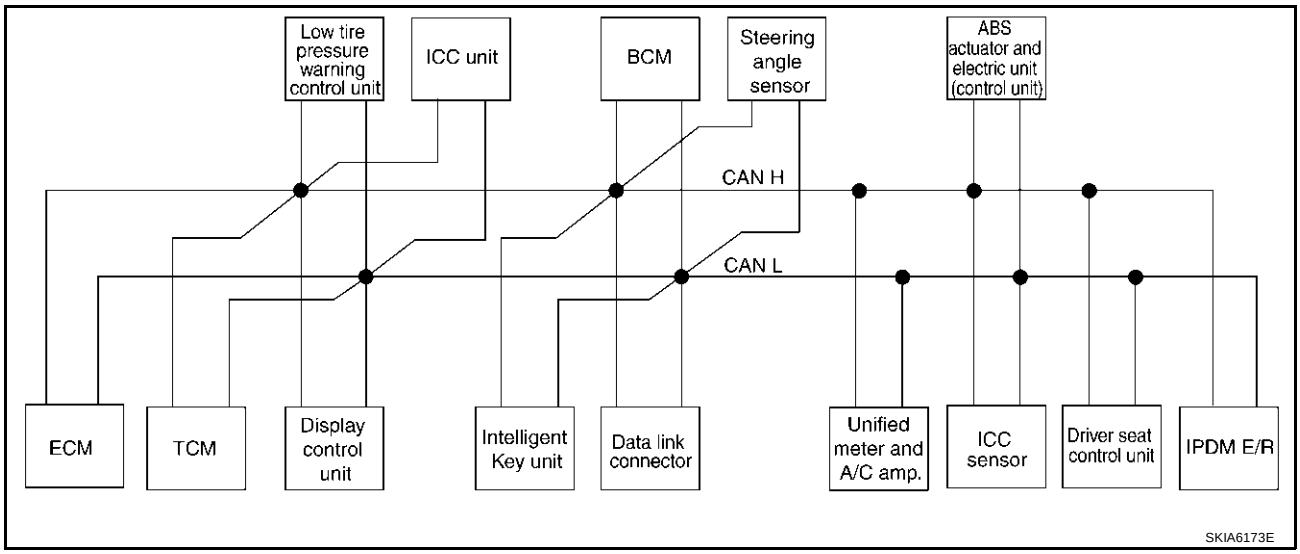
Signals	ECM	TCM	Dis-play unit	BCM	Steer-ing angle sensor	Unified meter and A/C amp.	ABS actua-tor and electric unit (con-trol unit)	Driver seat control unit	IPDM E/R
A/C control signal			T			R			
			R			T			
Cooling fan speed request signal	T								R
Cooling fan speed signal	R								T
Position light request signal			R	T		R			R
Low beam request signal				T					R
Low beam status signal	R								T
High beam request signal				T		R			R
High beam status signal	R								T
Front fog light request signal				T					R
Day time running light request signal				T		R			
Turn LED burnout status signal				R		T			
Vehicle speed signal						R	T		
	R	R	R	R		T		R	
Sleep wake up signal				T		R		R	R
Door switch signal			R	T		R		R	R
Turn indicator signal				T		R			
Key fob ID signal				T				R	
Key fob door unlock signal				T				R	
Oil pressure switch signal				R					T
				T		R			
Buzzer output signal				T		R			
Fuel level sensor signal	R					T			
Fuel level low warning signal			R			T			
ASCD operation signal	T	R							
ASCD OD cancel request	T	R							
Front wiper request signal				T					R
Front wiper stop position signal				R					T
Rear window defogger switch signal				T					R
Rear window defogger control signal	R		R	R					T
Hood switch signal				R					T
Theft warning horn request signal				T					R
Horn chirp signal				T					R
Steering angle sensor signal					T		R		
ABS warning lamp signal						R	T		
VDC OFF indicator lamp signal						R	T		
SLIP indicator lamp signal						R	T		
Brake warning lamp signal						R	T		
System setting signal			T	R				R	
A/T CHECK indicator lamp signal		T				R			

Signals	ECM	TCM	Display unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
A/T position indicator lamp signal		T				R			
A/T shift schedule change demand signal		R					T		
Manual mode signal		R				T			
Not manual mode signal		R				T			
Manual mode shift up signal		R				T			
Manual mode shift down signal		R				T			
Manual mode indicator signal		T				R			
Distance to empty signal			R			T			
Hand brake switch				R		T			

TYPE 3

System Diagram

- Type3



Input/output Signal Chart

T: Transmit R: Receive

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Engine speed signal	T	R	R		R				R		R		
Engine status signal	T						R						
Engine coolant temperature signal	T	R			R				R				
A/T self-diagnosis signal	R	T											

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Accelerator pedal position signal	T	R			R						R		
Closed throttle position signal	T	R			R								
Wide open throttle position signal	T	R											
Battery voltage signal	T	R											
Key switch signal							T					R	
Ignition switch signal							T					R	R
P range signal		T			R						R	R	
Stop lamp switch signal		R							T				
ABS operation signal	R				R						T		
TCS operation signal	R				R						T		
VDC operation signal	R				R						T		
Fuel consumption monitor signal	T		R						R				
Input shaft revolution signal	R	T			R								
Output shaft revolution signal	R	T			R								
A/C switch signal	R						T						
A/C compressor request signal	T												R
A/C relay status signal	R												T
A/C compressor feedback signal	T								R				
Blower fan motor switch signal	R						T						
A/C control signal			T						R				
			R						T				
Cooling fan speed signal	R												T
Position light request signal	R						T		R				R
Low beam request signal							T						R
Low beam status signal	R												T
High beam request signal							T		R				R
High beam status signal	R												T
Front fog light request signal							T						R
Day time running light request signal							T		R				

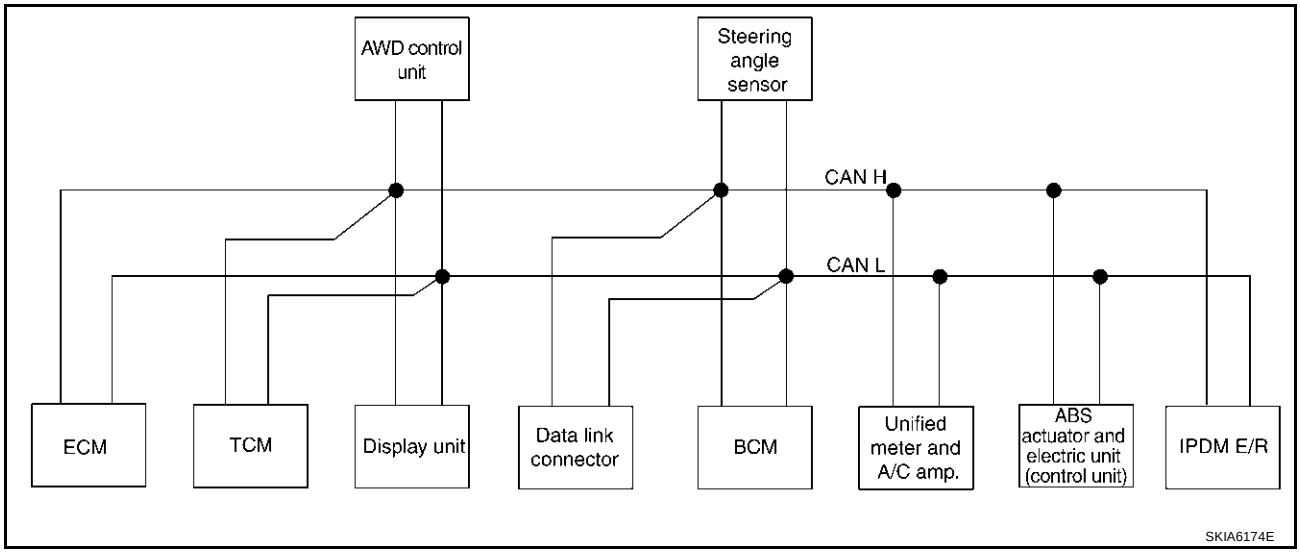
Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Turn LED burnout status signal							R		T				
Vehicle speed signal					R				R		T		
	R	R	R	R		R	R		T	R		R	
Sleep wake up signal							T		R			R	R
						T	R						
Door switch signal			R			R	T		R			R	R
Turn indicator signal							T		R				
Key fob ID signal							T					R	
Key fob door unlock signal							T					R	
Oil pressure switch signal							R						T
							T		R				
Buzzer output signal							T		R				
						T			R				
					T				R				
Fuel level sensor signal	R								T				
Fuel level low warning signal			R						T				
ICC operation signal	R				T								
Front wiper request signal					R		T						R
Front wiper stop position signal							R						T
Rear window defogger switch signal							T						R
Rear window defogger control signal	R		R				R						T
Hood switch signal							R						T
Theft warning horn request signal							T						R
Horn chirp signal							T						R
Steering angle sensor signal								T			R		
Tire pressure signal				T					R				
Tire pressure data signal			R	T									
ABS warning lamp signal					R				R		T		
VDC OFF indicator lamp signal					R				R		T		
SLIP indicator lamp signal									R		T		

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Brake warning lamp signal									R		T		
System setting signal			T			R						R	
Distance to empty signal			R						T				
Hand brake switch signal							R		T				
Door lock/unlock request signal						T	R						
Door lock/unlock status signal						R	T						
Starter permission signal						T	R						
Back door open request signal						T	R						
Power window open request signal						T	R						
Alarm request signal						T	R						
Key warning signal						T			R				
ICC sensor signal					R					T			
ICC warning lamp signal					T				R				
ICC system display signal					T				R				
Current gear position signal		T			R						R		
Steering switch signal	T				R								
ASCD operation signal	T	R											
ASCD OD cancel request	T	R											
ICC OD cancel request	R	R			T								
A/T CHECK indicator lamp signal		T							R				
A/T position indicator lamp signal		T							R				
A/T shift schedule change demand signal		R									T		
Manual mode signal		R							T				
Not manual mode signal		R							T				
Manual mode shift up signal		R							T				
Manual mode shift down signal		R							T				
Manual mode indicator signal		T			R				R				
Ignition knob switch signal						T	R						

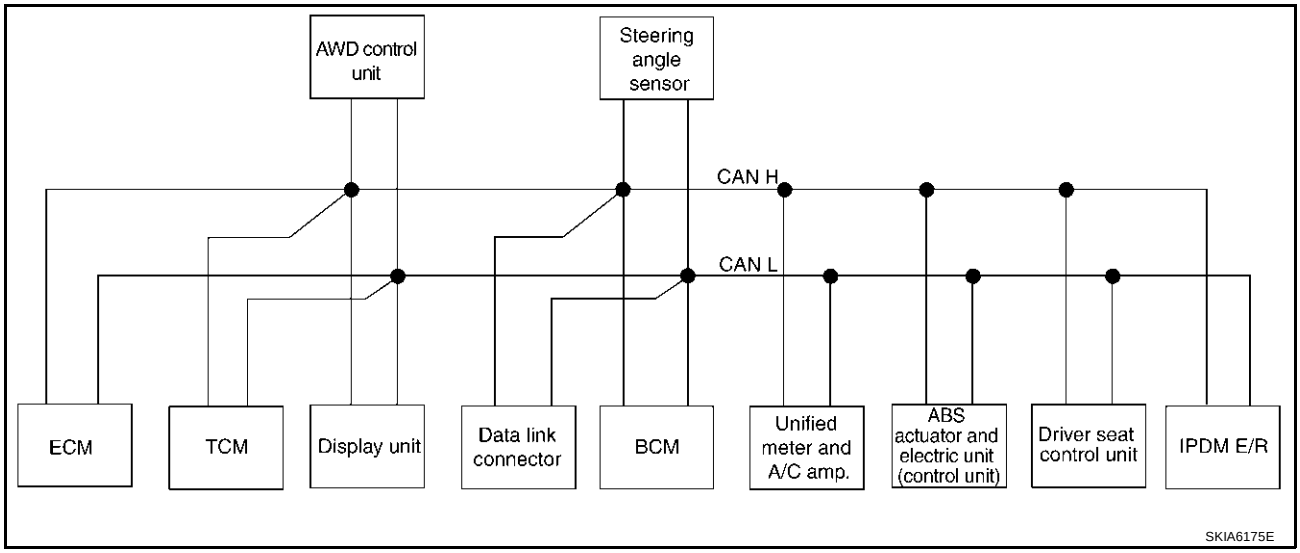
TYPE 4/TYPE5

System Diagram

- Type4



- Type5



Input/output Signal Chart

T: Transmit R: Receive

Signals	ECM	TCM	Display unit	AWD control unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
A/T self-diagnosis signal	R	T								
ABS operation signal	R			R				T		
TCS operation signal	R							T		
VDC operation signal	R			R				T		
Stop lamp switch signal		R		R			T			
Battery voltage signal	T	R								

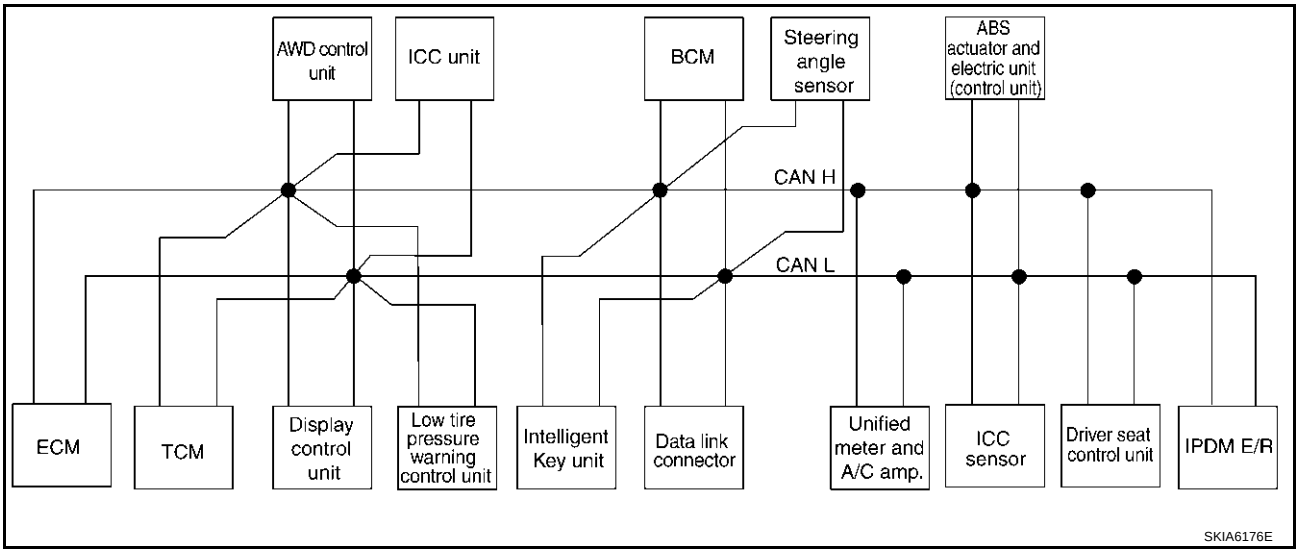
Signals	ECM	TCM	Display unit	AWD control unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Key switch signal					T				R	
Ignition switch signal					T				R	R
P range signal		T						R	R	
Closed throttle position signal	T	R								
Wide open throttle position signal	T	R								
Engine speed signal	T	R	R	R			R	R		
Engine status signal	T				R					
Engine coolant temperature signal	T	R					R			
Accelerator pedal position signal	T	R		R				R		
Fuel consumption monitor signal	T		R				R			
Input shaft revolution signal	R	T								
Output shaft revolution signal	R	T								
A/C switch signal	R				T					
A/C compressor request signal	T									R
A/C relay status signal	R									T
A/C compressor feedback signal	T						R			
Blower fan motor switch signal	R				T					
A/C control signal			T				R			
			R				T			
Cooling fan speed signal	R									T
Position light request signal			R		T		R			R
Low beam request signal					T					R
Low beam status signal	R									T
High beam request signal					T		R			R
High beam status signal	R									T
Front fog light request signal					T					R
Day time running light request signal					T		R			
Turn LED burnout status signal					R		T			
Vehicle speed signal							R	T		
	R	R	R		R		T		R	
Sleep wake up signal					T		R		R	R
Door switch signal			R		T		R		R	R
Turn indicator signal					T		R			
Key fob ID signal					T				R	
Key fob door unlock signal					T				R	
Oil pressure switch signal					R					T
					T		R			
Buzzer output signal					T		R			

Signals	ECM	TCM	Display unit	AWD control unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Fuel level sensor signal	R						T			
Fuel level low warning signal			R				T			
Front wiper request signal					T					R
Front wiper stop position signal					R					T
Rear window defogger switch signal					T					R
Rear window defogger control signal	R		R		R					T
Hood switch signal					R					T
Theft warning horn request signal					T					R
Horn chirp signal					T					R
Steering angle sensor signal						T		R		
ABS warning lamp signal							R	T		
VDC OFF indicator lamp signal							R	T		
SLIP indicator lamp signal							R	T		
Brake warning lamp signal							R	T		
System setting signal			T		R				R	
AWD warning lamp signal				T			R			
AWD lock indicator lamp signal				T			R			
Distance to empty signal			R				T			
Hand brake switch signal				R	R		T			
ASCD operation signal	T	R								
ASCD OD cancel request	T	R								
A/T CHECK indicator lamp signal		T					R			
A/T position indicator lamp signal		T					R			
A/T shift schedule change demand signal		R						T		
Manual mode signal		R					T			
Not manual mode signal		R					T			
Manual mode shift up signal		R					T			
Manual mode shift down signal		R					T			
Manual mode indicator signal		T					R			

TYPE 6

System Diagram

- Type6



Input/output Signal Chart

T: Transmit R: Receive

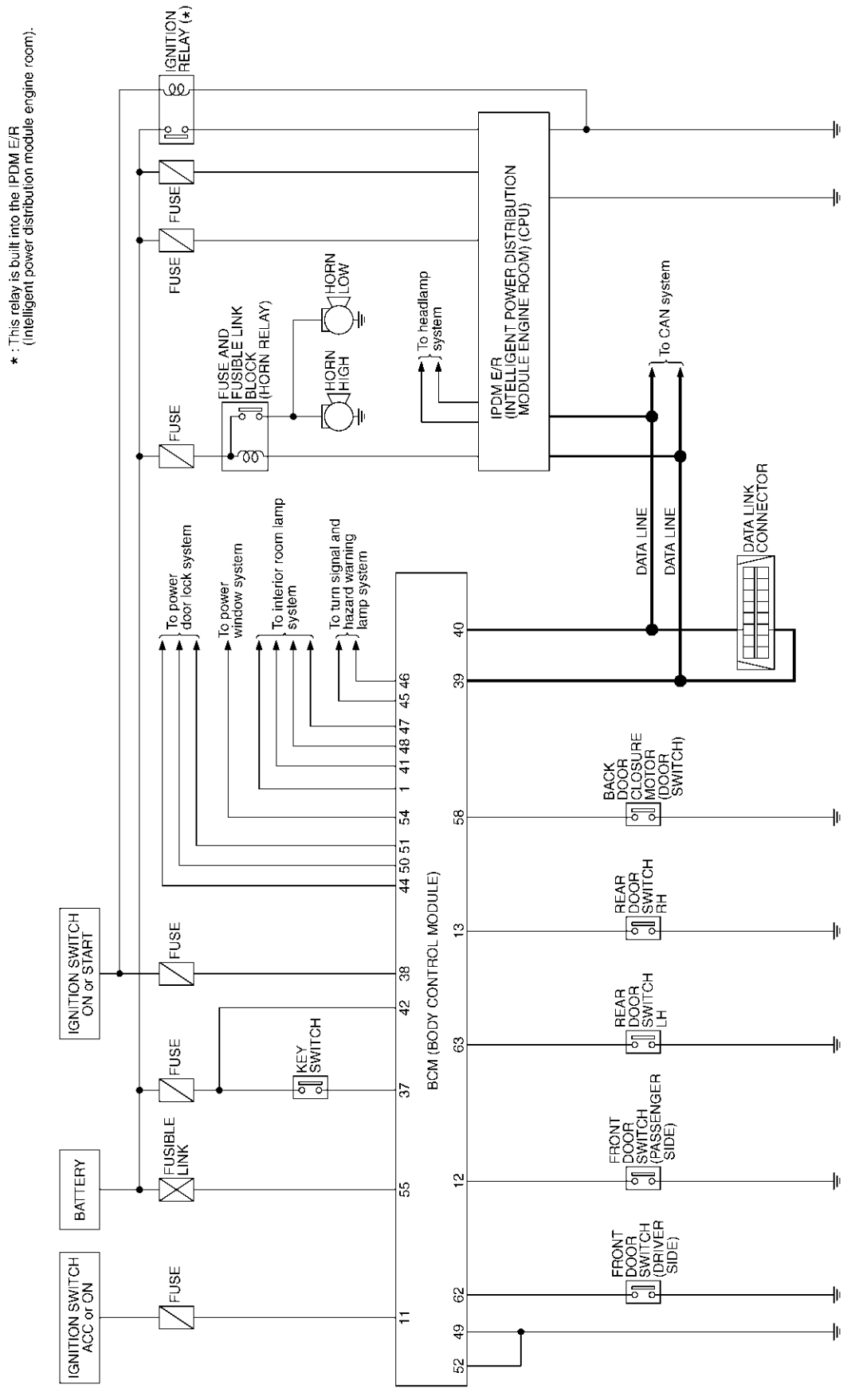
Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	AWD control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
A/T self-diagnosis signal	R	T												
ABS operation signal	R				R	R						T		
TCS operation signal	R					R						T		
VDC operation signal	R				R	R					R	T		
Stop lamp switch signal		R			R					T				
Battery voltage signal	T	R												
Key switch signal								T					R	
Ignition switch signal								T					R	R
P range signal		T				R						R	R	
Closed throttle position signal	T	R				R								
Wide open throttle position signal	T	R												
Engine speed signal	T	R	R		R	R				R		R		
Engine status signal	T							R						
Engine coolant temperature signal	T	R				R				R				
Accelerator pedal position signal	T	R			R	R						R		
Fuel consumption monitor signal	T		R							R				
A/T self-diagnosis signal	R	T												
Input shaft revolution signal	R	T				R								
Output shaft revolution signal	R	T				R								
A/C switch signal	R							T						
A/C compressor request signal	T													R
A/C relay status signal	R													T
A/C compressor feedback signal	T									R				
Blower fan motor switch signal	R							T						
A/C control signal			T							R				
			R							T				
Cooling fan speed signal	R													T
Position light request signal			R					T		R				R
Low beam request signal								T						R
Low beam status signal	R													T
High beam request signal								T		R				R

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	AWD control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
High beam status signal	R													T
Front fog light request signal								T						R
Day time running light request signal								T		R				
Turn LED burnout status signal								R		T				
Vehicle speed signal						R				R		T		
	R	R	R	R			R	R		T	R		R	
Sleep wake up signal								T		R			R	R
							T	R						
Door switch signal			R				R	T		R			R	R
Key fob ID signal								T					R	
Key fob door unlock signal								T					R	
Oil pressure switch signal								R						T
								T		R				
Buzzer output signal								T		R				
							T			R				
						T				R				
Fuel level sensor signal	R									T				
Fuel level low warning signal			R							T				
ICC operation signal	R					T								
Front wiper request signal						R		T						R
Front wiper stop position signal								R						T
Rear window defogger switch signal								T						R
Rear window defogger control signal	R		R					R						T
Hood switch signal								R						T
Theft warning horn request signal								T						R
Horn chirp signal								T						R
Steering angle sensor signal									T			R		
Tire pressure signal				T						R				
Tire pressure data signal			R	T										
ABS warning lamp signal						R				R		T		
VDC OFF indicator lamp signal						R				R		T		
SLIP indicator lamp signal										R		T		

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	AWD control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Brake warning lamp signal										R		T		
System setting signal			T				R						R	
AWD warning lamp signal					T					R				
AWD lock indicator lamp signal					T					R				
Distance to empty signal			R							T				
Hand brake switch signal					R			R		T				
Door lock/unlock request signal							T	R						
Door lock/unlock status signal							R	T						
Starter permission signal							T	R						
Back door open request signal							T	R						
Power window open request signal							T	R						
Alarm request signal							T	R						
Key warning signal							T			R				
ICC sensor signal						R					T			
ICC warning lamp signal						T				R				
ICC system display signal						T				R				
Current gear position signal		T				R						R		
Steering switch signal	T					R								
ASCD operation signal	T	R												
ASCD OD cancel request	T	R												
ICC OD cancel request	R	R				T								
A/T CHECK indicator lamp signal		T								R				
A/T position indicator lamp signal		T								R				
A/T shift schedule change demand signal		R										T		
Manual mode signal		R								T				
Not manual mode signal		R								T				
Manual mode shift up signal		R								T				
Manual mode shift down signal		R								T				
Manual mode indicator signal		T								R				
Ignition knob switch signal							T	R						

Schematic

AIS0035T

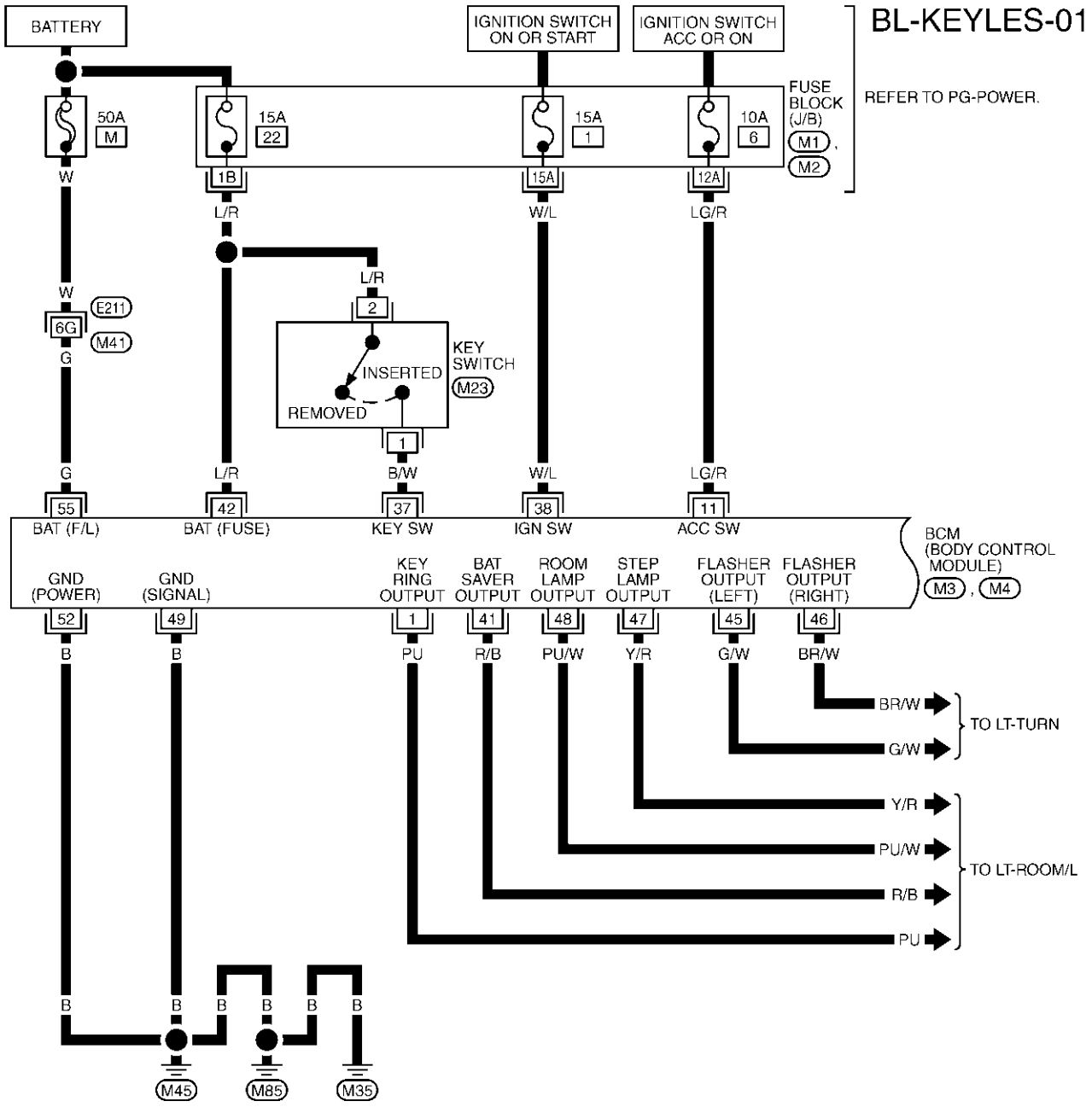


TIWM0327E

Wiring Diagram — KEYLES—

AIS0035U

FIG. 1



TIWM0328E

FIG. 2

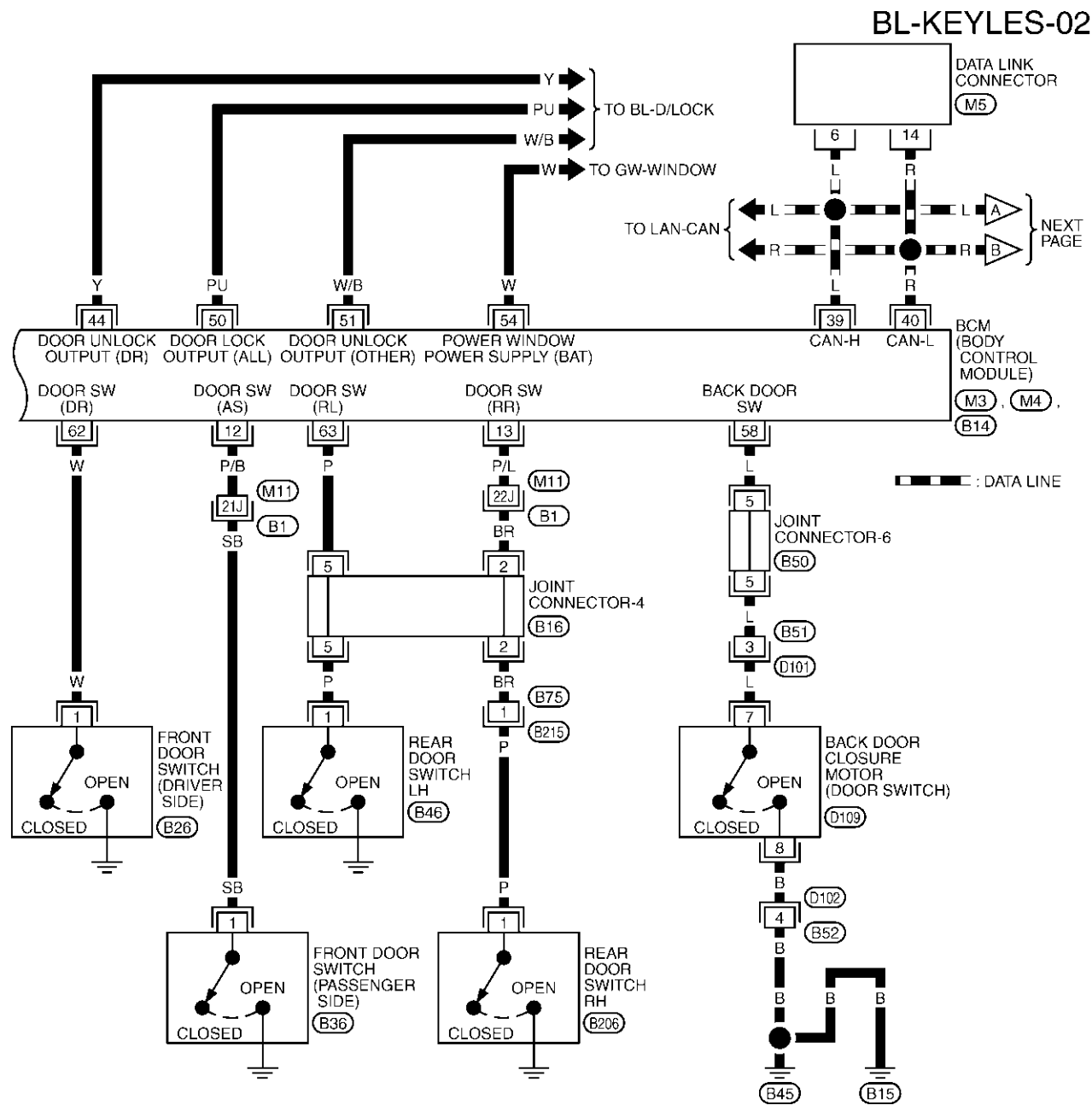


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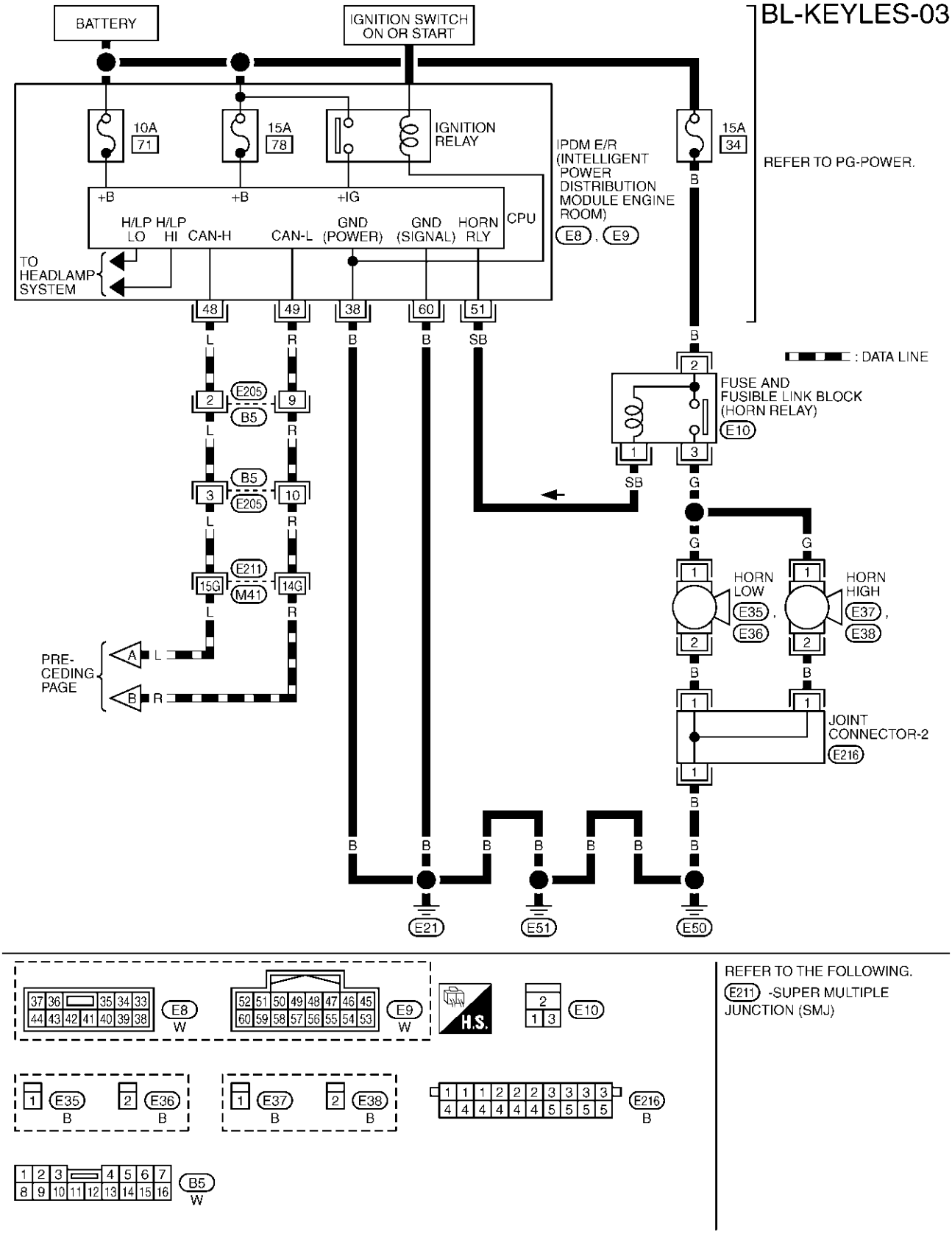
FIG. 3



TIWM0330E

Terminals and Reference Value for BCM

AIS003HJ

TERMINAL	WIRE COLOR	ITEM	CONDITION	VOLTAGE (V) Approx.
1	PU	Key ring illumination output signal	Key ring illumination is lighting.	Battery voltage
			Key ring illumination is being turned off.	0
11	LG/R	Ignition switch	Ignition switch is in ACC or ON position	Battery voltage
12	P/B	Front door switch (Passenger side)	ON (door open) → OFF (door closed)	0 → Battery voltage
13	P/L	Rear door switch RH	ON (door open) → OFF (door closed)	0 → Battery voltage
37	B/W	Key switch	ON (Key is inserted in IGN key cylinder) → OFF (Key is removed from IGN key cylinder)	Battery voltage → 0
38	W/L	Ignition switch	Ignition switch is in ON or START position	Battery voltage
39	L	CAN H	—	—
40	R	CAN L	—	—
41	R/B	Battery saver output signal	30 minutes after ignition switch is turned to OFF	0
			Ignition switch is in ON position	Battery voltage
42	L/R	Battery power supply (fuse)	—	Battery voltage
44	Y	Driver door lock actuator (Unlock)	Door lock / unlock switch (Free → Unlock)	0 → Battery voltage
45	G/W	Left turn signal lamp	When door lock or unlock is operated using key fob.*1 (ON → OFF)	Battery voltage → 0
46	BR/W	Right turn signal lamp	When door lock or unlock is operated using key fob.*1 (ON → OFF)	Battery voltage → 0
47	Y/R	Step lamp output signal	Step lamp is lighting.	0
			Step lamp is being turned off.	Battery voltage
48	PU/W	Room lamp output signal	Room lamp is lighting.*2	0
			Room lamp is being turned off.*2	Battery voltage
49, 52	B	Ground	—	0
50	PU	Door lock actuator (Lock)	Door lock / unlock switch (Free → Lock)	0 → Battery voltage
51	W/B	Passenger and rear doors lock actuator (Unlock)	Door lock / unlock switch (Free → Unlock)	0 → Battery voltage
54	W	Battery power supply (power window)	—	Battery voltage
55	G	Battery power supply (Fusible link)	—	Battery voltage
58	L	Back door switch	OFF (Door close) → ON (Door open)	9 → 0
62	W	Front door switch (Driver side)	OFF (Door close) → ON (Door open)	Battery voltage → 0
63	P	Rear door switch LH	OFF (Door close) → ON (Door open)	Battery voltage → 0

*1 : In the state that hazard reminder operates.

*2 : In the state that room lamp switch is in “DOOR” position.

Terminals and Reference Value for IPDM E/R

AIS0035W

TERMINAL	WIRE COLOR	ITEM	CONDITION	VOLTAGE (V) Approx.
38	B	Ground	—	0
48	L	CAN H	—	—
49	R	CAN L	—	—
51	SB	Horn relay	When door lock is operated using key fob* (OFF → ON)	Battery voltage → 0
60	B	Ground	—	0

* : In the state that horn reminder operates.

CONSULT-II Function

AIS003LH

The following functions are performed by combining data received and command transmitted via the communication line from the BCM.

BCM diagnosis position	Inspection items and diagnosis mode		Description
BCM C/U*	Self-diagnosis results		Carries out the self-diagnosis.
	Date monitor	Selection from menu	Displays the input data to BCM on real-time basis.
	CAN diagnostic support monitor		The results of transmit / receive diagnosis of CAN communication can be read.
MULTI REMOTE ENT	DATA MONITOR		Displays the input remote keyless entry system data to BCM on real–time basis.
	ACTIVE TEST		Gives a drive to a load to check the operation.
	WORK SUPPORT		Changes the setting for each function.

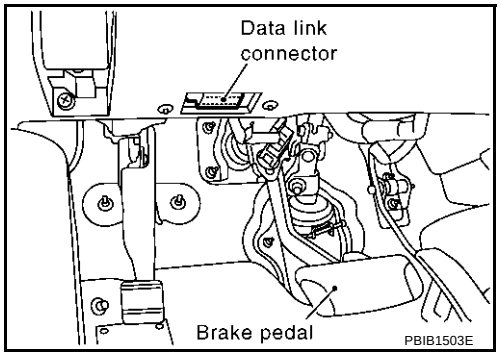
*:Refer to BCS-27, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .

CONSULT-II INSPECTION PROCEDURE

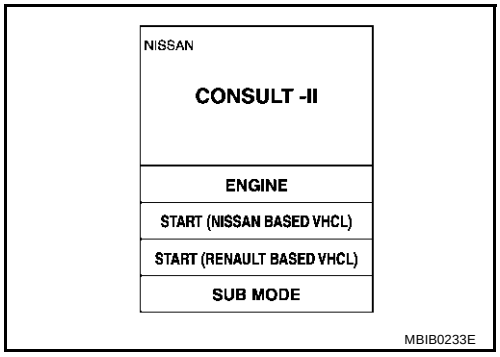
CAUTION:

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

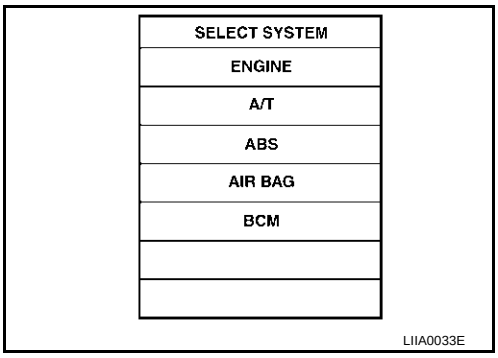
1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” and “CONSULT-II CONVERTER” to the data link connector.



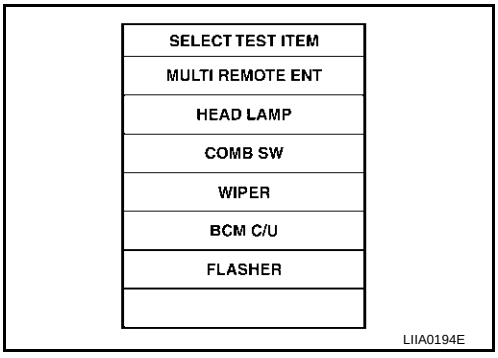
3. Turn ignition switch “ON”.
4. Touch “START (NISSAN BASED VHCL)”.



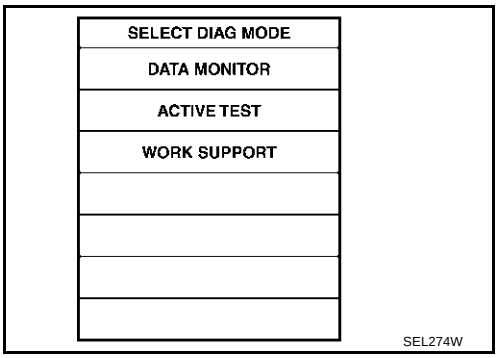
5. Touch “BCM”.
If “BCM” is not indicated, go to GI-40, "CONSULT-II Data Link Connector (DLC) Circuit" .



6. Touch “MULTI REMOTE ENT”.



7. Select diagnosis mode.
“DATA MONITOR”, “ACTIVE TEST” and “WORK SUPPORT” are available.



CONSULT-II APPLICATION ITEMS

Work Support

Test Item	Description
HORN CHIRP SET*	Horn reminder mode can be changed in this mode. The horn reminder mode will be changed when “CHANGE SETT” on CONSULT-II screen is touched.
HAZARD LAMP SET*	Hazard reminder mode can be changed in this mode. The hazard reminder mode will be changed when “CHANGE SETT” on CONSULT-II screen is touched.
MULTI ANSWER BACK SET	Hazard and horn reminder mode can be changed in this mode. The hazard and horn reminder mode will be changed when “CHANGE SETT” on CONSULT-II screen is touched.
AUTO LOCK SET	Auto locking function mode can be changed in this mode. The function mode will be changed when “CHANGE SETT” on CONSULT-II screen is touched.
PANIC ALRM SET	Panic alarm operation mode can be changed in this mode. The operation mode will be changed when “CHANGE SETT” on CONSULT-II screen is touched.
PW DOWN SET	Keyless power window down (open) operation mode can be changed in this mode. The operation mode will be changed when“CHANGE SETT” on CONSULT-II screen is touched.

*: Perform this mode always in the state of C mode. Refer to BL-69, "Hazard and Horn Reminder" .

HORN CHIRP SET*

Horn chirp function	ON	OFF

*: Perform this mode always in the state of C mode. Refer to BL-69, "Hazard and Horn Reminder" .
This mode can be changed also on the display.

Refer to AV-56, "SETTING SCREEN" . (without navigation system)
Refer to AV-107, "Vehicle Electronic Systems" . (with navigation system)

HAZARD LAMP BACK SET*

	MODE1	MODE2	MODE3	MODE4
Hazard lamp operation mode	Nothing	Unlock only	Lock only	Lock and Unlock

*: Perform this mode always in the state of C mode. Refer to BL-69, "Hazard and Horn Reminder" .
This mode can be changed also on the display.
Refer to AV-56, "SETTING SCREEN" . (without navigation system)
Refer to AV-107, "Vehicle Electronic Systems" . (with navigation system)

MULTI ANSWER BACK SET

	MODE 1 (C mode)		MODE 2 (S mode)	
Key fob operation	Lock	Unlock	Lock	Unlock
Hazard warning lamp flash	Twice	Once	Twice	—
Horn sound	Once	—	—	—

AUTO LOCK SET

	MODE 1	MODE 2	MODE 3
Auto locking function	1 minutes	Nothing	5 minutes

PANIC ALARM SET

	MODE 1	MODE 2	MODE 3
Key fob operation	0.5 seconds	Nothing	1.5 seconds

PW DOWN SET

	MODE 1	MODE 2	MODE 3
Key fob operation	3 seconds	Nothing	5 seconds

Data Monitor

Monitored Item	Description
IGN ON SW	Indicates [ON/OFF] condition of ignition switch in ON position.
KEY ON SW	Indicates [ON/OFF] condition of key switch.
ACC ON SW	Indicates [ON/OFF] condition of ignition switch in ACC position.
KEYLESS LOCK	Indicates [ON/OFF] condition of lock signal from key fob.
KEYLWSS UNLOCK	Indicates [ON/OFF] condition of unlock signal from key fob.
KEYLESS PANIC	Indicates [ON/OFF] condition of panic signal from key fob.
KEYLESS TRUNK	This is displayed even when it is not equipped.
DOOR SW-DR	Indicates [ON/OFF] condition of front door switch driver side.
DOOR SW-AS	Indicates [ON/OFF] condition of door switch passenger side.
DOOR SW-RR	Indicates [ON/OFF] condition of front door switch RH.
DOOR SW-RL	Indicates [ON/OFF] condition of door switch LH.
BACK DOOR SW	Indicates [ON/OFF] condition of back door switch.
TRUNK OPN MNTR	This is displayed even when it is not equipped.
CDL LOCK SW	Indicates [ON/OFF] condition of lock signal from door lock and unlock switch.
CDL UNLOCK SW	Indicates [ON/OFF] condition of unlock signal from door lock and unlock switch.
RKE LCK-UNLOCK	Indicates [ON/OFF] condition of simultaneous signal of lock and unlock from key fob.
RKE KEEP UNLK	Indicates [ON/OFF] condition of unlock continuousness signal from key fob.
KEY CYL LK-SW	Indicates [ON/OFF] condition of lock signal from door key cylinder switch.
KEY CYL UN-SW	Indicates [ON/OFF] condition of unlock signal from door key cylinder switch.

Active Test

Test Item	Description
FLASHER	This test is able to check right hazard reminder operation. The right hazard lamp turns on when “ON” on CONSULT-II screen is touched.
POWER WINDOW DOWN	This test is able to check power window open operation. The front power windows activate for 10 seconds after “ON” on CONSULT-II screen is touched.
HORN	This test is able to check panic alarm and horn reminder operations. The horn activate for 0.5 seconds after “ON” on CONSULT-II screen is touched.
DOOR LOCK	This test is able to check door lock actuator operation. ● The all door lock actuator are locked when “ALL LOCK” on CONSULT-II screen is touched. ● The all door lock actuator are unlocked when “ALL UNLOCK” on CONSULT-II screen is touched. ● The door lock actuator (driver side) is unlocked when “DR UNLOCK” on CONSULT-II screen is touched. ● The all door lock actuator (except driver side) are unlocked when “OTHER UNLOCK” on CONSULT-II screen is touched.
TRUNK/BACK DOOR	This is displayed even when it is not equipped.

Work Flow

AIS00361

1. Check the symptom and customer's requests.
2. Understand outline of system. Refer to BL-68, "System Description" .
3. Confirm that power door lock system operates normally.
   Refer to BL-20, "POWER DOOR LOCK SYSTEM" .
4. Repair or replace any malfunctioning parts.
   Refer to BL-94, "Trouble Diagnosis Chart by Symptom" .
5. INSPECTION END

Trouble Diagnosis Chart by Symptom

AIS00362

NOTE:

- Always check the “Work Flow” before troubleshooting. Refer to BL-93, "Work Flow" .
- Always check key fob battery before replacing key fob.

Symptom	Diagnoses/service procedure	Reference page
All function of remote keyless entry system do not operate.	1. Check key fob battery and function.	BL-96
	2. Replace key fob. Refer to ID Code Entry Procedure. **NOTE:** If the result of key fob function check with CONSULT-II is OK, key fob is not malfunctioning.	BL-106
	3. Replace BCM.	BCS-28
The new ID of key fob cannot be entered.	1. Check key fob battery and function.	BL-96
	2. Check key switch.	BL-102
	3. Check door switch.	BL-98
	4. Check ACC switch.	BL-97
	5. Replace key fob. Refer to ID Code Entry Procedure. **NOTE:** If the result of key fob function check with CONSULT-II is OK, key fob is not malfunctioning.	BL-106
	6. Replace BCM.	BCS-28
Door lock or unlock does not function with key fob. (Power door lock system is “OK”.)	1. Check key fob battery and function.	BL-96
	2. Replace key fob. Refer to ID Code Entry Procedure. **NOTE:** If the result of key fob function check with CONSULT-II is OK, key fob is not malfunctioning.	BL-106
	3. Replace BCM.	BCS-28
Hazard and horn reminder does not activate properly when pressing lock or unlock button of key fob.	1. Check hazard and horn reminder mode.* *: Hazard and horn reminder mode can be changed. First check the hazard and horn reminder setting.	BL-91
	2. Check door switch.	BL-98
	3. Replace BCM.	BCS-28
Hazard reminder does not activate properly when pressing lock or unlock button of key fob. (Horn reminder is “OK”.)	1. Check hazard reminder mode.* *: Hazard reminder mode can be changed. First check the hazard reminder setting.	BL-91
	2. Check hazard function with hazard switch.	BL-105
	3. Replace BCM.	BCS-28
Horn reminder does not activate properly when pressing lock button of key fob. (Hazard reminder is “OK”.)	1. Check horn reminder mode.* *: Horn reminder can be changed. First check the horn chirp setting.	BL-91
	2. Check horn function.	BL-105
	3. Check IPDM E/R operation.	BL-104
	4. Replace BCM.	BCS-28

Symptom	Diagnoses/service procedure	Reference page
Panic alarm (horn and headlamp) does not activate when panic alarm button is continuously pressed.	1. Check panic alarm mode.* *: Panic alarm mode can be changed. First check the panic alarm setting.	BL-91
	2. Check key fob battery and function.	BL-96
	3. Check headlamp function.	BL-105
	4. Check horn function.	BL-105
	5. Check IPDM E/R operation.	BL-104
	6. Check key switch.	BL-102
	7. Replace key fob. Refer to ID Code Entry Procedure. **NOTE:** If the result of key fob function check with CONSULT-II is OK, key fob is not malfunctioning.	BL-106
	8. Replace BCM.	BCS-28
Auto door lock operation does not activate properly. (All other remote keyless entry system function is OK.)	1. Check auto door lock operation mode.* *: Auto door lock operation mode can be changed. First check the auto door lock operation setting.	BL-91
	2. Replace BCM.	BCS-28
Keyless power window down (open) operation does not activate properly. (All other remote keyless entry system function is OK.)	1. Check power window down operation mode.* *: Power window down operation mode can be changed. First check the power window down setting.	BL-91
	2. Check power window function.	GW-15
	3. Replace BCM.	BCS-28
Map lamp and ignition keyhole illumination operation does not activate properly.	1. Check map lamp and ignition keyhole illumination operation.	BL-105
	2. Check door switch.	BL-98
	3. Replace BCM.	BCS-28

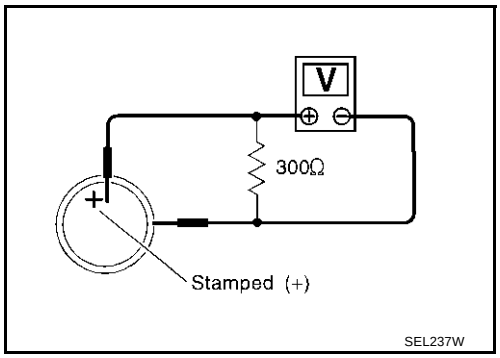
Check Key Fob Battery and Function

AIS00363

1. CHECK KEY FOB BATTERY

1. Remove key fob battery. Refer to BL-109, "Key Fob Battery Replacement" .
2. Measure voltage between battery positive and negative terminals, (+) and (–).

Voltage : 2.5 – 3.0V



NOTE:
Key fob does not function if battery is not set correctly.

OK or NG

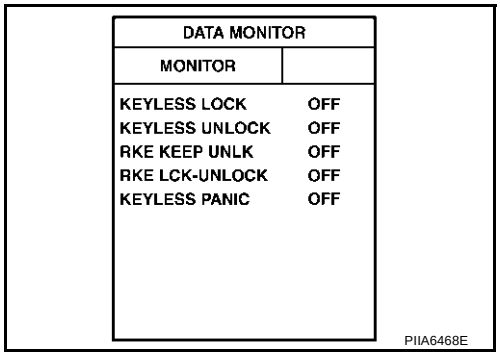
OK >> GO TO 2.
NG >> Replace battery.

2. CHECK KEY FOB FUNCTION

With CONSULT-II

Check key fob function in “DATA MONITOR” mode with CONSULT-II. When pushing each button of key fob, the corresponding monitor item should be turned as follows.

Condition	Monitor item	
Pushing LOCK	KEYLESS LOCK	: ON
Pushing UNLOCK	KEYLESS UNLOCK	: ON
Keep pushing UNLOCK	RKE KEEP UNLK	: ON
	*: UN BUTTON ON turns to ON three seconds after UNLOCK button keeps pushing.	
Pushing PANIC	KEYLESS PANIC	: ON
Pushing LOCK and UNLOCK at the same time	RKE LCK-UNLOCK	: ON



OK or NG

OK >> Key fob is OK.
NG >> Replace key fob.

Check ACC Switch

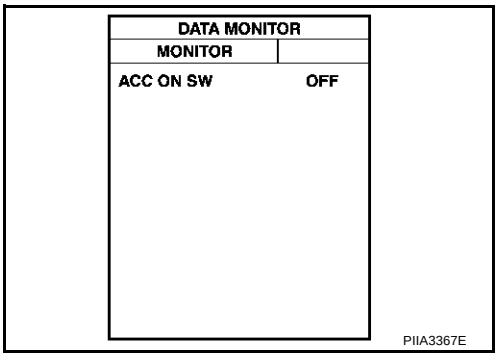
AIS00364

1. CHECK ACC SWITCH

With CONSULT-II

Check ACC switch (“ACC ON SW”) in “DATA MONITOR” mode with CONSULT-II.

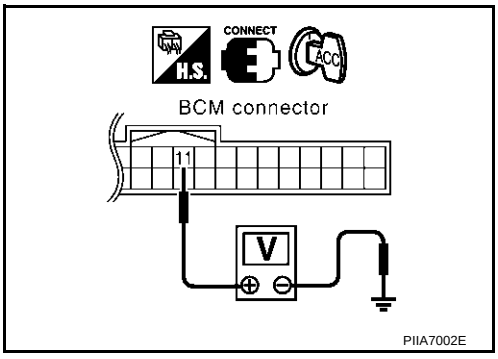
Monitor item	Condition	
ACC SW	Ignition switch position is ACC or ON	: ON
	Ignition switch position is OFF	: OFF



Without CONSULT-II

Check voltage between BCM connector and ground.

Item	(+)		(–)	Condition	Voltage (V) Approx.
	Con-nector	Terminal (Wire color)			
BCM	M3	11 (LG/R)	Ground	ACC or ON	Battery voltage
				OFF	0



OK or NG

OK >> ACC switch is OK.

NG >> Check the following.

- 10A fuse [No. 6, located in fuse block (J/B)]
- Harness for open or short between BCM and fuse.

Check Door Switch

AIS003HK

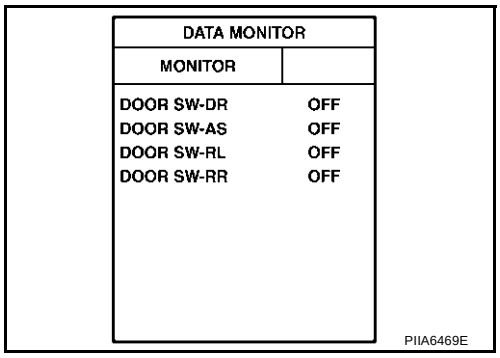
CHECK DOOR SWITCH (EXCEPT BACK DOOR SWITCH)

1. CHECK DOOR SWITCH INPUT SIGNAL

With CONSULT-II

Check door switches (“DOOR SW-DR”, “DOOR SW-AS”, “DOOR SW-RL” and “DOOR SW-RR”) in “DATA MONITOR” mode with CONSULT-II.

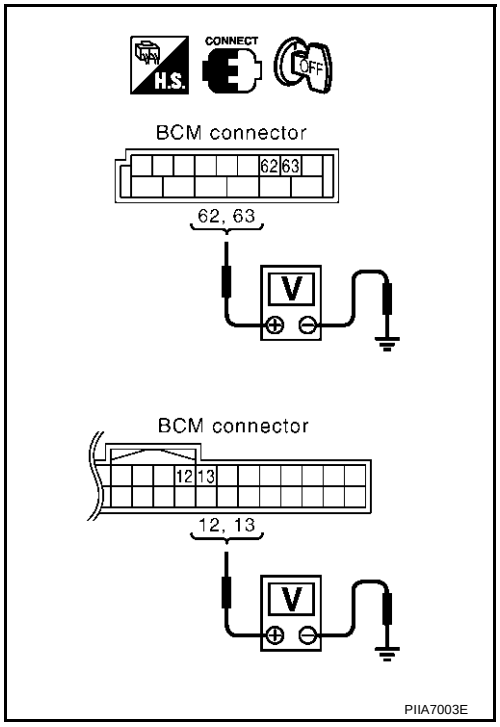
Monitor item	Condition
DOOR SW-DR	CLOSE → OPEN: OFF → ON
DOOR SW-AS	
DOOR SW-RL	
DOOR SW-RR	



Without CONSULT-II

Check voltage between BCM connector and ground.

Item	Connector	Terminals (Wire color) (+)	Terminals (Wire color) (-)	Door condition	Voltage (V) (Approx.)
Driver side	B14	62 (W)	Ground	CLOSE ↓ OPEN	Battery voltage ↓ 0
Rear LH		12 (P/B)			
Passenger side	M3	63 (P)			
Rear RH		13 (P/L)			



OK or NG

OK >> Door switch circuit is OK.
NG >> GO TO 2.

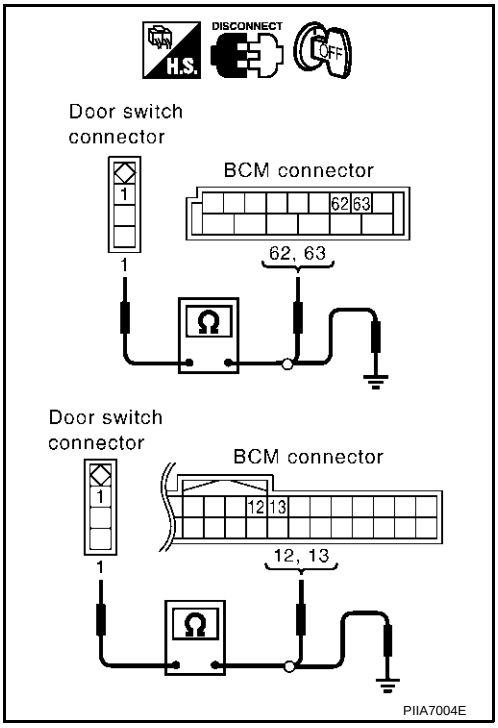
2. CHECK DOOR SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect door switch and BCM connector.
3. Check continuity between door switch connector B26, B36, B46, B206 terminals 1 and BCM connector M3, B14 terminals 62, 12, 63, 13.

Driver side door
1 (W) – 62 (W) : Continuity should exist.
Passenger side door
1 (SB) – 12 (P/B) : Continuity should exist.
Rear door LH
1 (P) – 63 (P) : Continuity should exist.
Rear door RH
1 (P) – 13 (P/L) : Continuity should exist.

4. Check continuity between door switch connector B26, B36, B46, B206 terminal 1 and ground.

1 (W, SB, P) – Ground : Continuity should not exist.



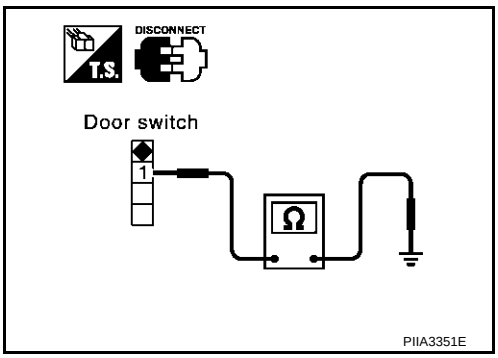
OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness.

3. CHECK DOOR SWITCH

Check continuity between door switch terminal 1 and ground part of door switch.

Terminal		Door switch condition	Continuity
1	Ground part of door switch	Pushed	No
		Released	Yes



OK or NG

OK >> Check door switch case ground condition.
NG >> Replace door switch.

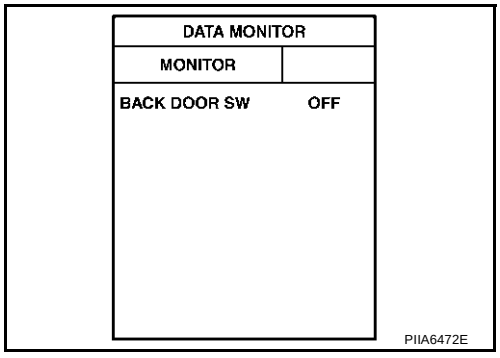
CHECK BACK DOOR SWITCH

1. CHECK BACK DOOR SWITCH INPUT SIGNAL

With CONSULT-II

Check door switches (“BACK DOOR SW”) in “DATA MONITOR” mode with CONSULT-II.

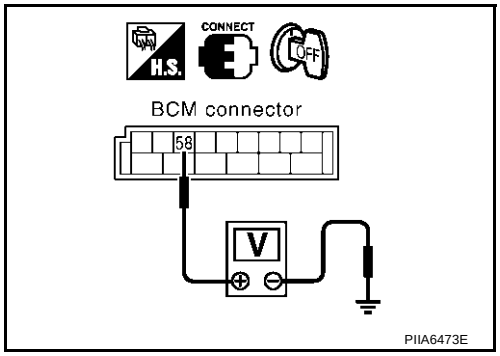
Monitor item	Condition
BACK DOOR SW	CLOSE → OPEN: OFF → ON



Without CONSULT-II

Check voltage between BCM connector and ground.

Item	Connector	Terminal (Wire color)		Back door condition	Voltage (V) (Approx.)
		(+)	(-)		
Back door switch	B14	58 (L)	Ground	CLOSE ↓ OPEN	9 ↓ 0



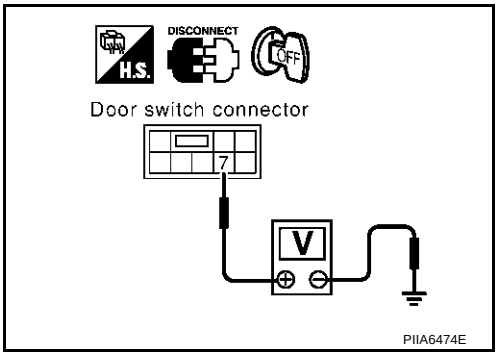
OK or NG

OK >> Door switch circuit is OK.
NG >> GO TO 2.

2. CHECK BACK DOOR SWITCH CIRCUIT

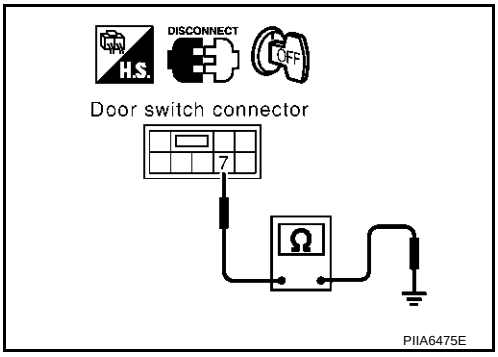
1. Turn ignition switch OFF.
2. Disconnect back door switch connector.
3. Check voltage between back door switch connector B14 terminal 7 and ground. (Check harness for open.)

7 (L) – Ground : Battery voltage



4. Check continuity between back door switch connector D109 terminals 7 and ground. (Check harness for short.)

7 (L) – Ground : Continuity should not exist.



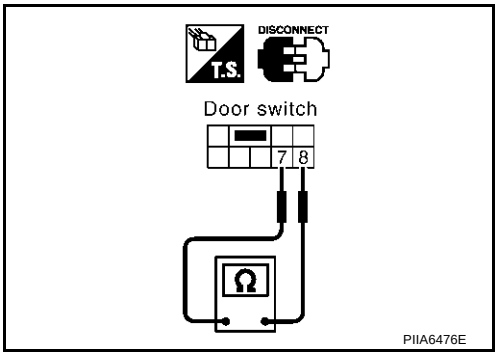
OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness.

3. CHECK BACK DOOR SWITCH

Check continuity between back door switch terminal 7 and 8.

Terminal	Back door condition	Continuity
7 – 8	Closed	No
	Opened	Yes



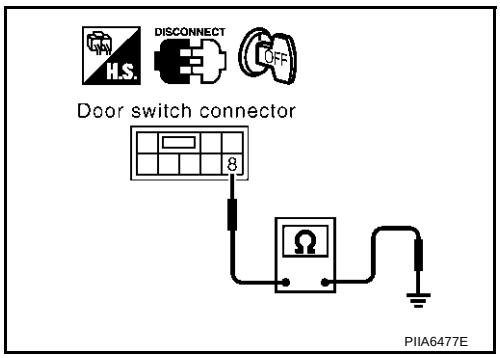
OK or NG

OK >> GO TO 4.
NG >> Replace back door closure motor (door switch).

4. CHECK BACK DOOR SWITCH GROUND HARNESS

Check continuity between back door switch connector D109 terminal 8 and ground.

8 (B) – Ground : Continuity should exist.



OK or NG

OK >> Check harness connection.
NG >> Repair or replace harness.

Check Key Switch

AIS003HL

1. CHECK KEY SWITCH INPUT SIGNAL

With CONSULT-II

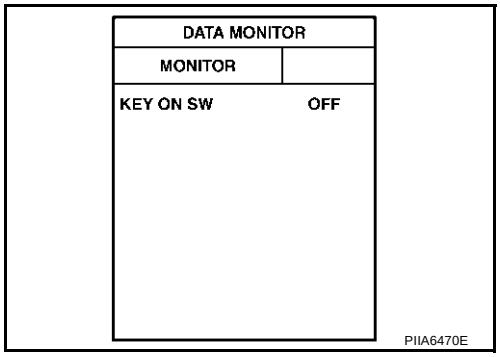
Check ignition key switch “KEY ON SW” in “DATA MONITOR” mode with CONSULT-II.

- When key is inserted in ignition key cylinder

  KEY ON SW : ON

- When key is removed from ignition key cylinder

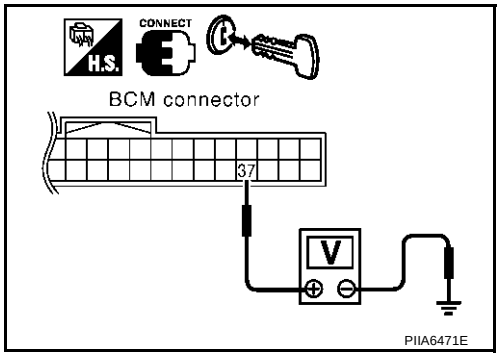
  KEY ON SW : OFF



Without CONSULT-II

Check voltage between BCM connector M3 terminal 37 (B/W) and ground.

Condition of key switch	Voltage (V) Approx.
Key is inserted in ignition key cylinder.	Battery voltage
Key is removed from ignition key cylinder.	0



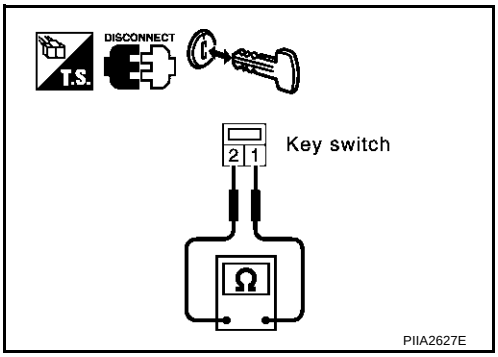
OK or NG

OK >> Key switch circuit is OK.
NG >> GO TO 2.

2. CHECK KEY SWITCH (WITHOUT INTELLIGENT KEY)

1. Disconnect key switch connector.
2. Check continuity between key switch terminals 1 and 2.

Key switch condition	Continuity
Key switch is “ON”. (Key is inserted in IGN key cylinder.)	Yes
Key switch is “OFF”. (Key is removed from IGN key cylinder.)	No



OK or NG

OK >> Check the following.
- 15A fuse [No. 22, located in fuse block (J/B)]
- Harness for open or short between key switch and fuse
- Harness for open or short between BCM and key switch

NG >> Replace key switch.

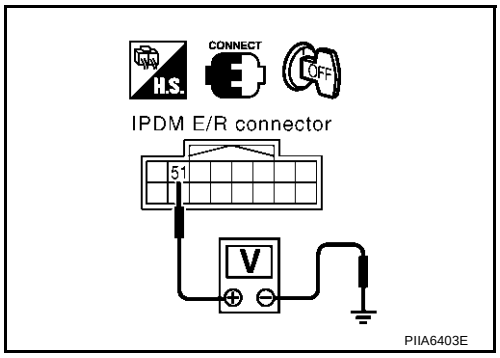
Check IPDM E/R Operation

AIS00368

1. CHECK IPDM E/R INPUT VOLTAGE

Check voltage between IPDM E/R connector E9 terminal 51 and ground.

51 (SB) – Ground : Battery voltage



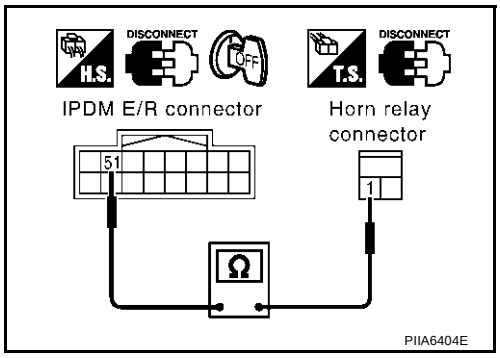
OK or NG

OK >> Replace IPDM E/R.
NG >> GO TO 2.

2. CHECK IPDM E/R HARNESS

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R and horn relay connector.
3. Check continuity between IPDM E/R connector E9 terminal 51 and horn relay connector E20 terminal 1.

51 (SB) – 1 (SB) : Continuity should exist.



OK or NG

OK >> Check harness connection.
NG >> Repair or replace harness.

Check Hazard Function

AIS0036A

1. CHECK HAZARD WARNING LAMP

Does hazard warning lamp flash with hazard switch?

YES or NO

YES >> Hazard warning lamp circuit is OK.
NO >> Check hazard circuit. Refer to LT-145, "TURN SIGNAL AND HAZARD WARNING LAMPS" .

Check Horn Function

AIS0036B

First perform the “SELF-DIAG RESULTS” in “BCM” with CONSULT-II, then perform the trouble diagnosis of malfunction system indicated “SELF-DIAG RESULTS” of “BCM”. Refer to BCS-27, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .

1. CHECK HORN FUNCTION

Does horn sound with horn switch?

YES or NO

YES >> Horn circuit is OK.
NO >> Check horn circuit. Refer to WW-71, "HORN" .

Check Headlamp Function

AIS0036C

First perform the “SELF-DIAG RESULTS” in “BCM” with CONSULT-II, then perform the trouble diagnosis of malfunction system indicated “SELF-DIAG RESULTS” of “BCM”. Refer to BCS-27, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .

1. CHECK HEADLAMP OPERATION

Does headlamp come on when turning lighting switch “ON”?

YES or NO

YES >> Headlamp operation circuit is OK.
NO >> Check headlamp system. Refer to LT-7, "HEADLAMP - XENON TYPE -" .

Check Map Lamp and Ignition Keyhole Illumination Function

AIS0036D

1. CHECK MAP LAMP AND IGNITION KEYHOLE ILLUMINATION FUNCTION

When map lamp switch is in “DOOR” position, open the front door (LH or RH).

Map lamp and ignition keyhole illumination should illuminate.

OK or NG

OK >> Replace BCM.
NG >> Check ignition illumination circuit. Refer to LT-239, "INTERIOR ROOM LAMP" .

ID Code Entry Procedure

AIS0036E

KEY FOB ID SET UP WITH CONSULT-II

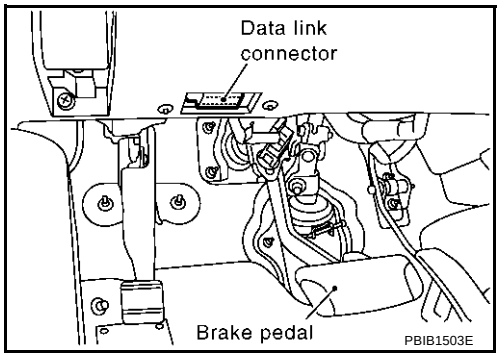
NOTE:

- **If a key fob is lost, the ID code of the lost key fob must be erased to prevent unauthorized use. A specific ID code can be erased with CONSULT-II. However, when the ID code of a lost key fob is not known, all controller ID codes should be erased. After all ID codes are erased, the ID codes of all remaining and/or new key fobs must be re-registered.**
- **When registering an additional key fob, the existing ID codes in memory may or may not be erased. If four ID codes are stored in memory, when an additional code is registered, only the oldest code is erased. If less than five ID codes are stored in memory, when an additional ID code is registered, the new ID code is added and no ID codes are erased.**
- **Entry of maximum five ID codes is allowed. When more than four ID codes are entered, the oldest ID code will be erased.**
- **Even if same ID code that is already in the memory is input, the same ID code can be entered. The code is counted as an additional code.**

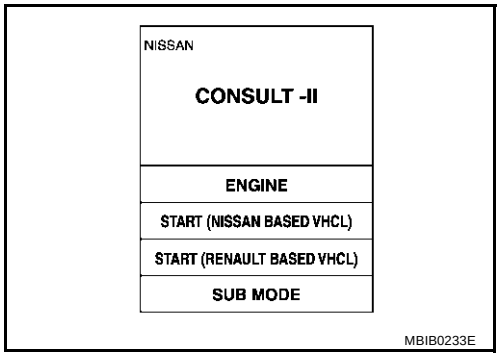
CAUTION:

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

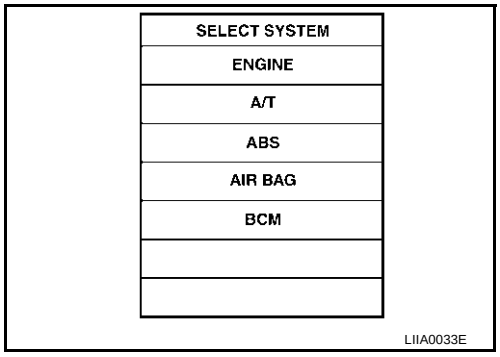
1. Turn ignition switch “OFF”.
2. Connect “CONSULT-II” and “CONSULT-II CONVERTER” to the data link connector.



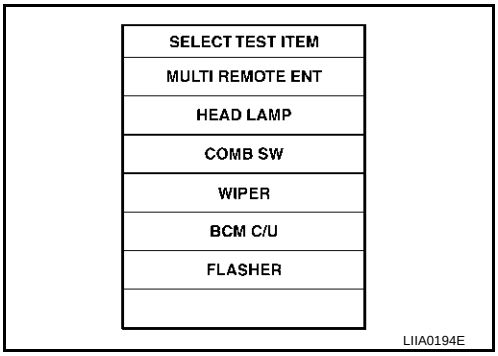
3. Turn ignition switch ON.
4. Touch “START (NISSAN BASED VHCL)”.



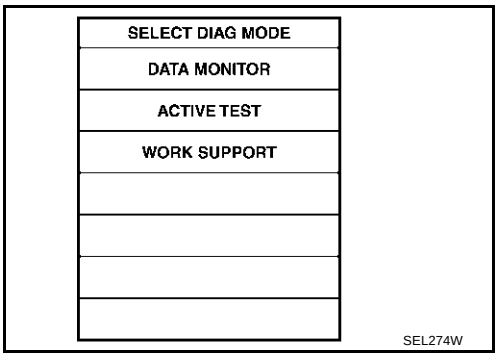
5. Touch “BCM”.
   If “BCM” is not indicated, go to GI-40, "CONSULT-II Data Link Connector (DLC) Circuit" .



6. Touch “MULTI REMOTE ENT”.

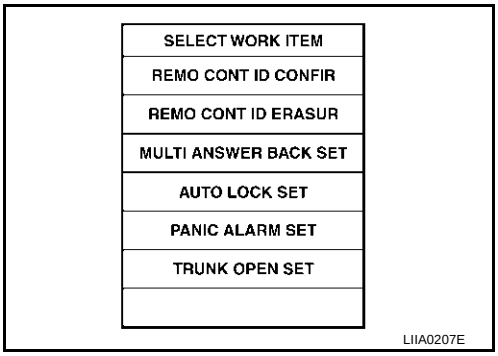


7. Touch “WORK SUPPORT”.

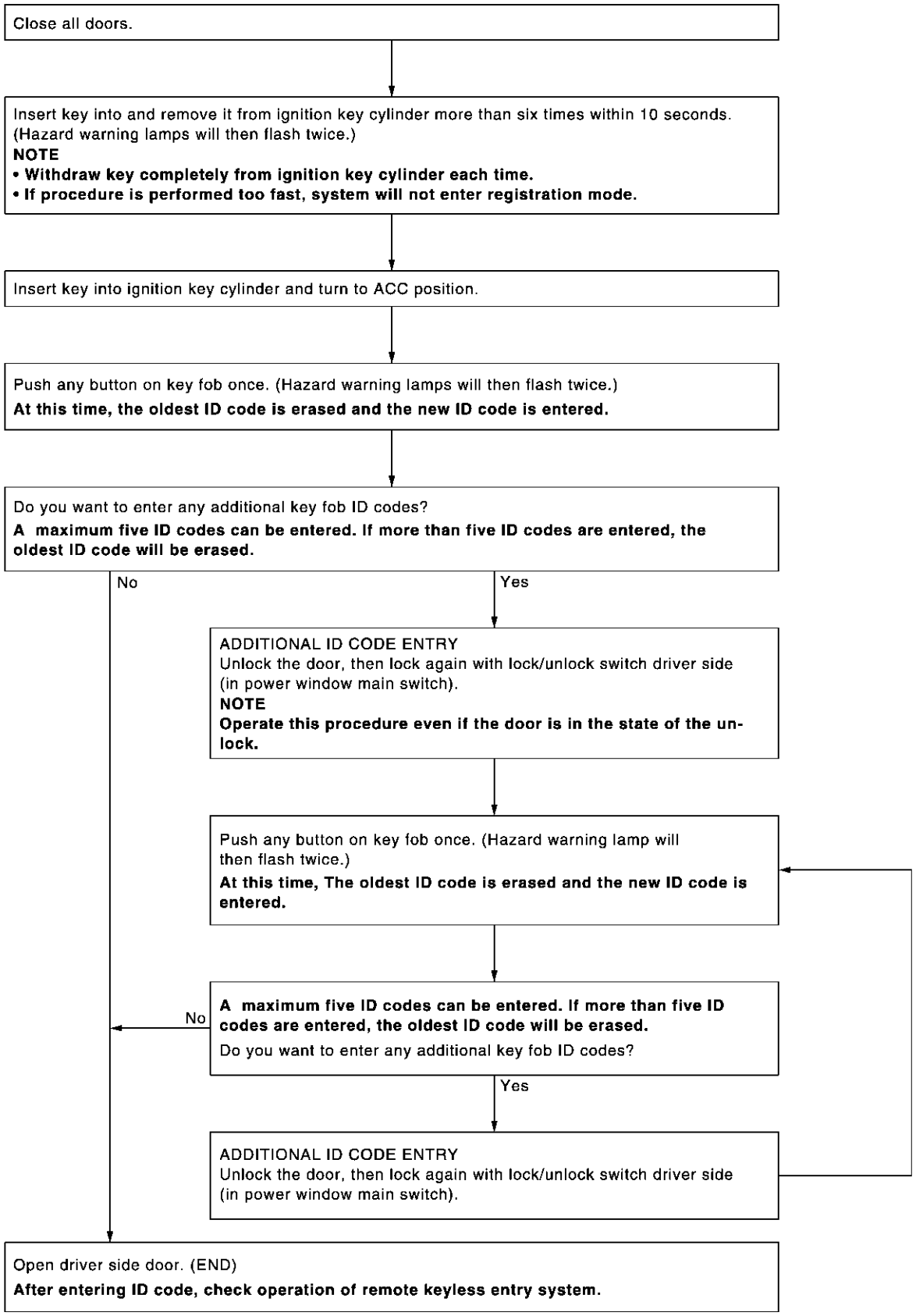


8. The items are shown on the figure can be set up.
   - “REMO CONT ID CONFIR”
     Use this mode to confirm if a key fob ID code is registered or not.
   - “REMO CONT ID REGIST”
     Use this mode to register a key fob ID code.

     NOTE:
     Register the ID code when key fob or BCM is replaced, or when additional key fob is required.
   - “REMO CONT ID ERASUR”
     Use this mode to erase a key fob ID code.



KEY FOB ID SET UP WITHOUT CONSULT-II



PIIA2839E

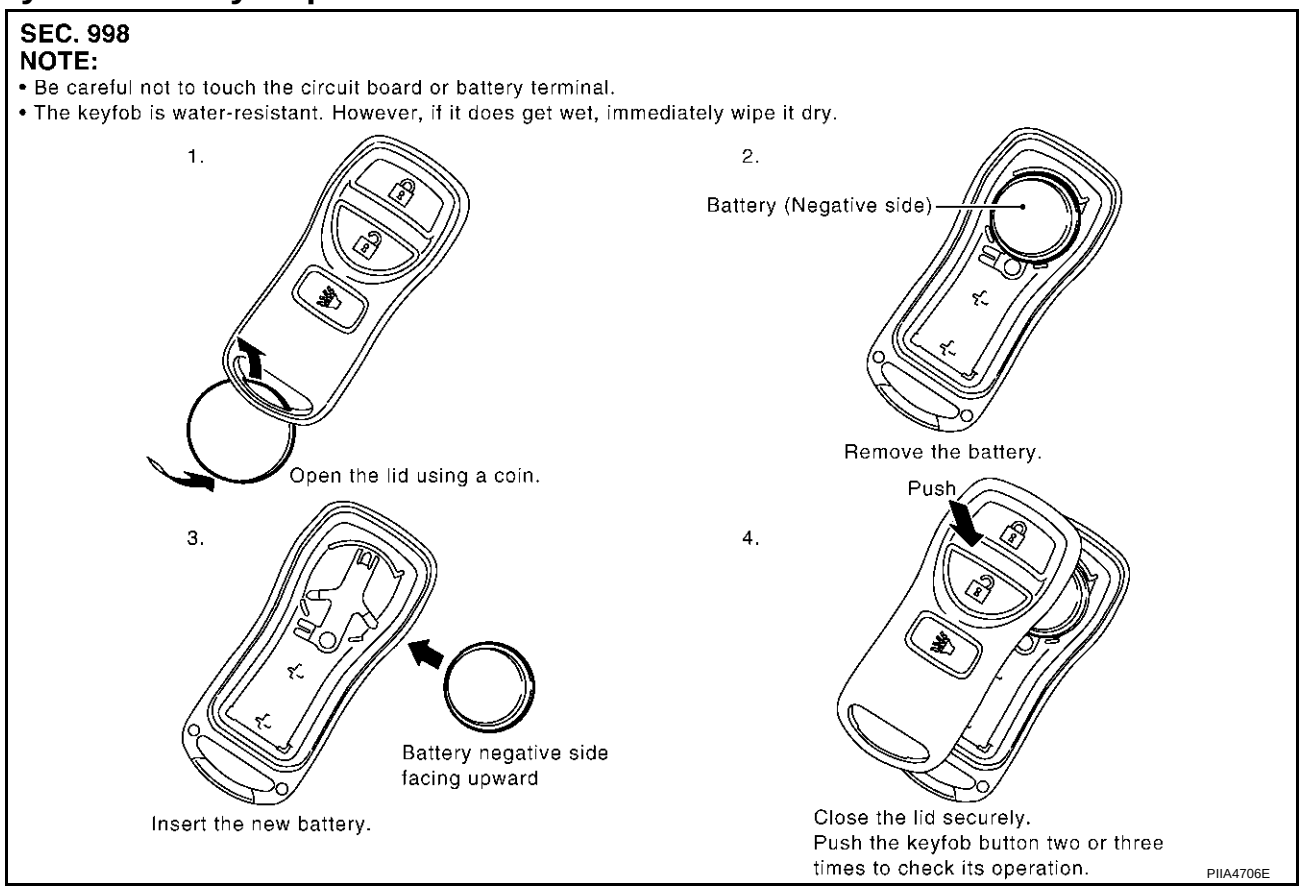
NOTE:

- If a key fob is lost, the ID code of the lost key fob must be erased to prevent unauthorized use. A specific ID code can be erased with CONSULT-II. However, when the ID code of a lost key fob is not known, all controller ID codes should be erased. After all ID codes are erased, the ID codes of all remaining and/or new key fobs must be re-registered.
  To erase all ID codes in memory, register one ID code (key fob) five times. After all ID codes are erased, the ID codes of all remaining and/or new key fobs must be re-registered.
- When registering an additional key fob, the existing ID codes in memory may or may not be erased. If five ID codes are stored in memory, when an additional code is registered, only the oldest code is erased. If less than five ID codes are stored in memory, when an additional ID code is registered, the new ID code is added and no ID codes are erased.
- If you need to activate more than two additional new key fobs, repeat the procedure “Additional ID code entry” for each new key fob.
- Entry of maximum five ID codes is allowed. When more than five ID codes are entered, the oldest ID code will be erased.
- Even if same ID code that is already in the memory is input, the same ID code can be entered. The code is counted as an additional code.

Key Fob Battery Replacement

AIS0036F

SEC. 998
NOTE:
• Be careful not to touch the circuit board or battery terminal.
• The keyfob is water-resistant. However, if it does get wet, immediately wipe it dry.

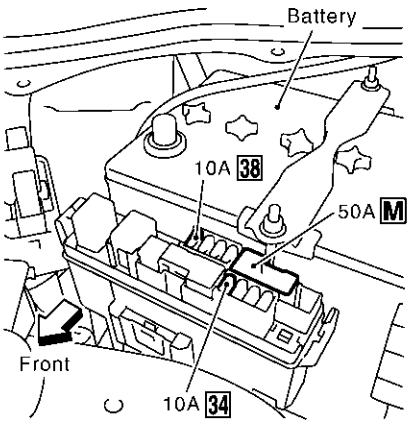


INTELLIGENT KEY SYSTEM

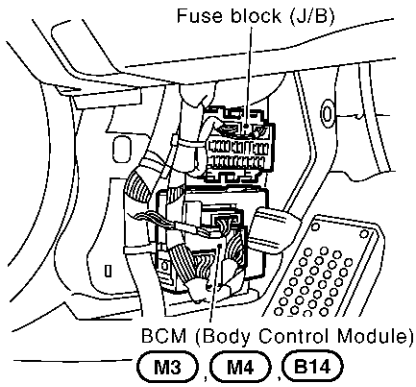
PFP:285e2

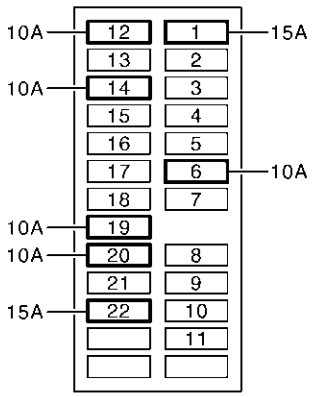
Component Parts and Harness Connector Location

AIS003J4

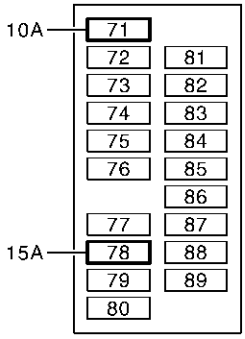


View with the dash side LH removed



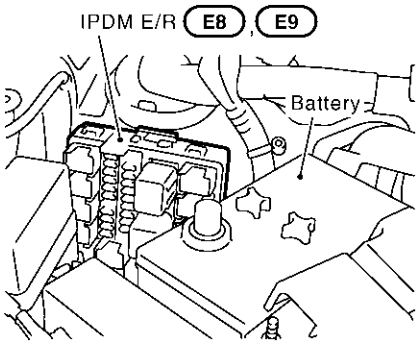


Fuse block (J/B) fuse layout

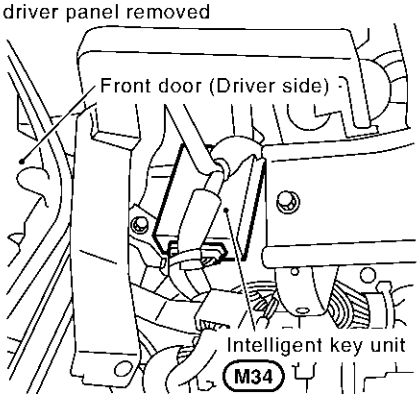


IPDM E/R fuse layout

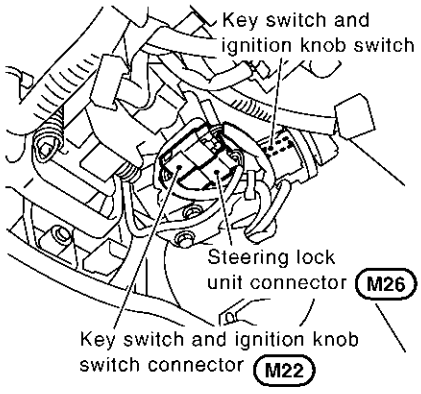
View with cowl top cover removed



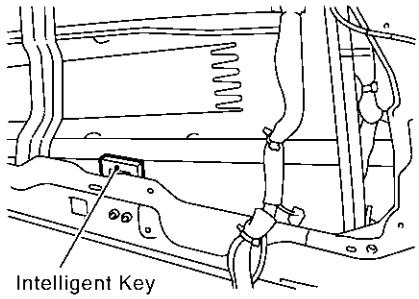
View with the instrument lower driver panel removed

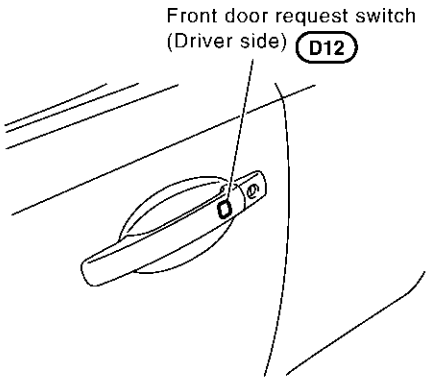


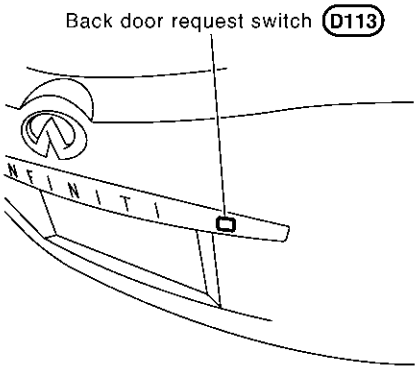
With Intelligent Key

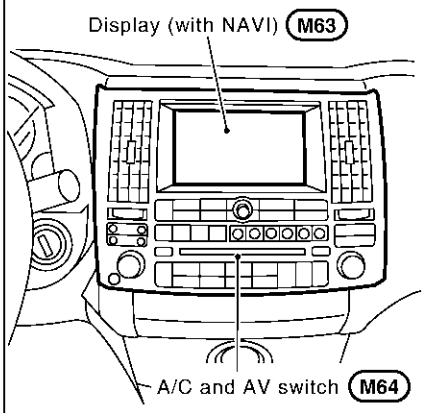


View with the front door module (Driver side) removed

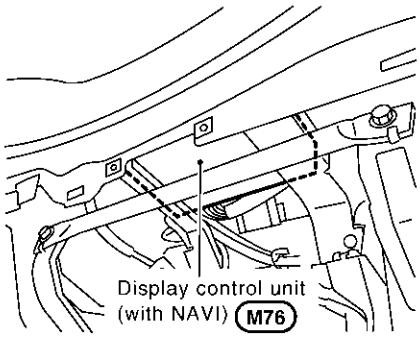








View with instrument panel passenger side removed



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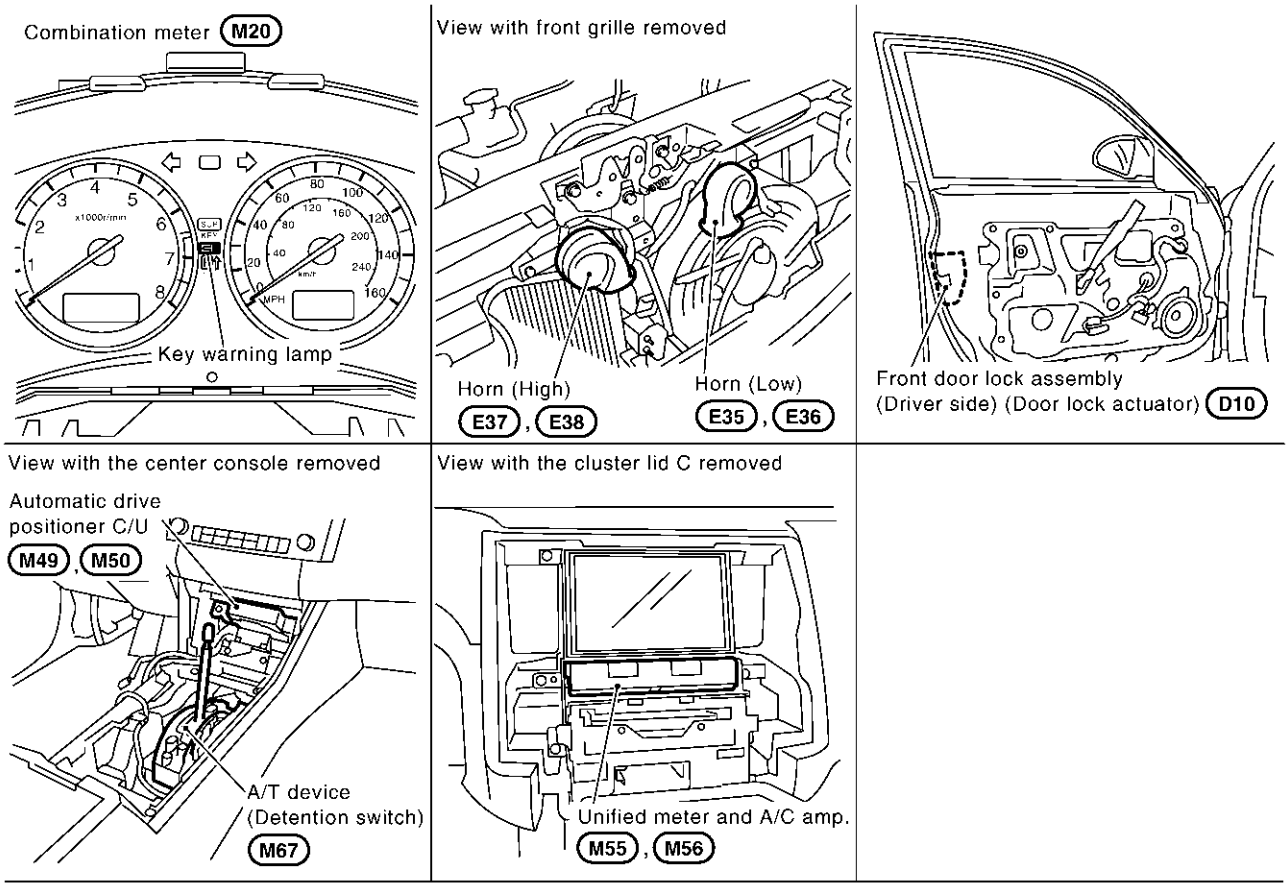
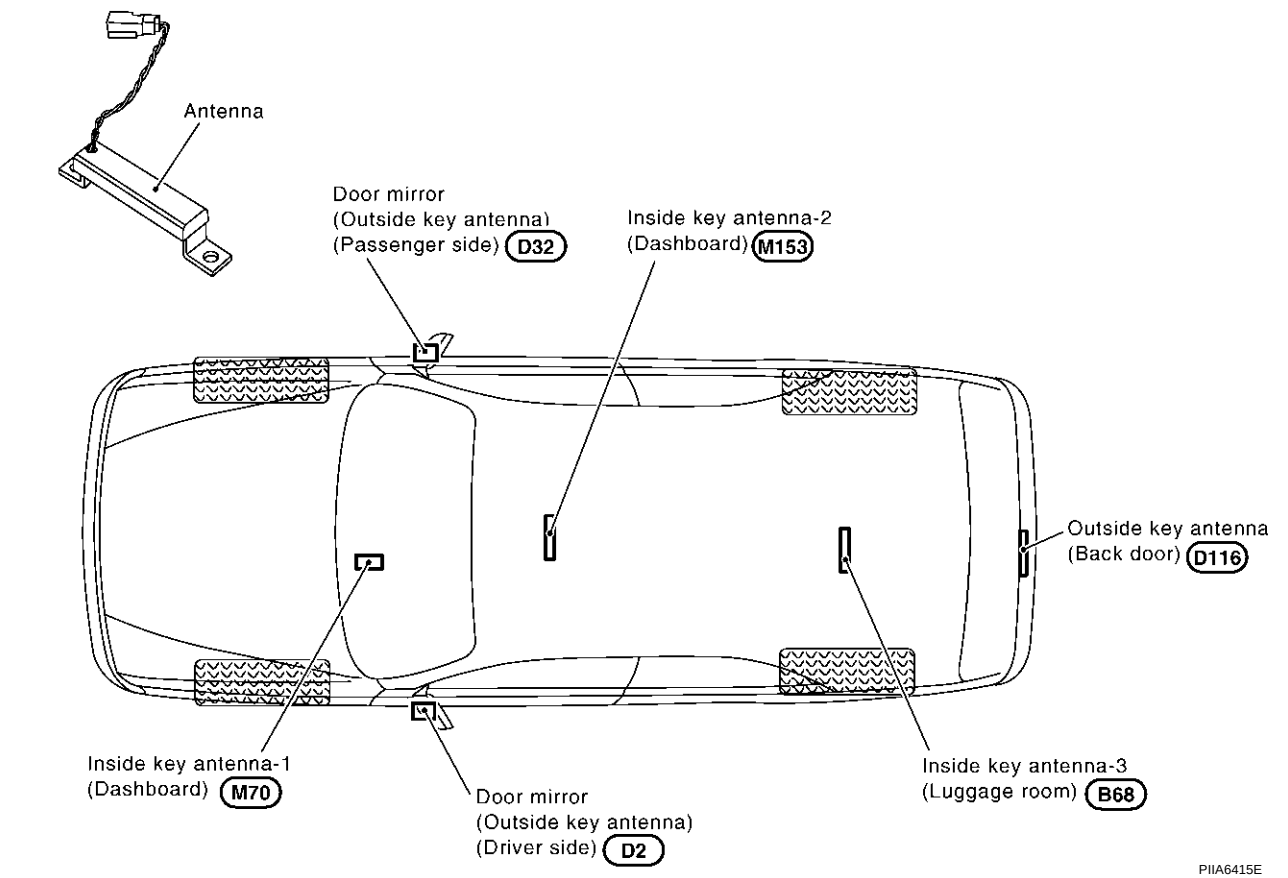
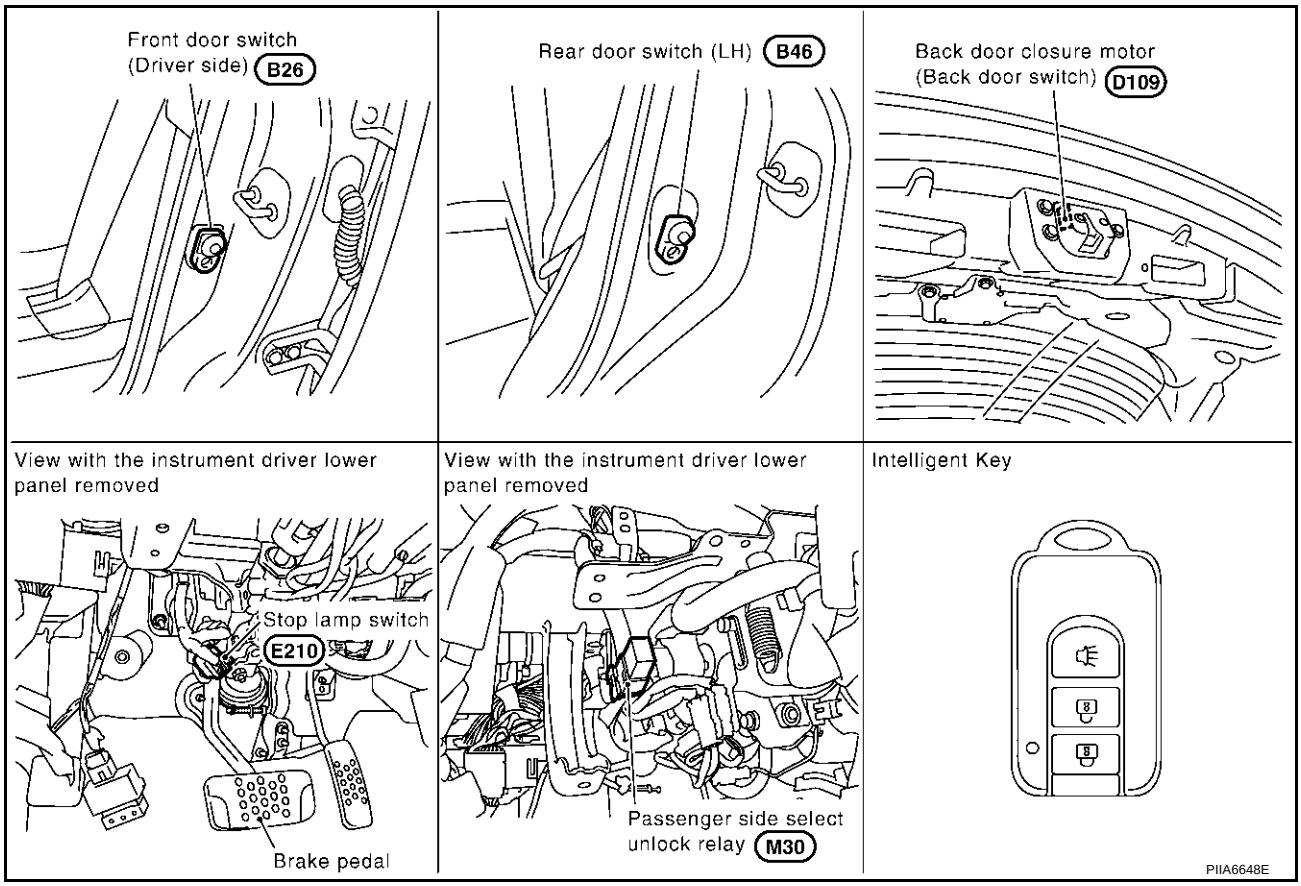

Combination meter M20
Key warning lamp
View with front grille removed
Horn (High) E37, E38
Horn (Low) E35, E36
Front door lock assembly (Driver side) (Door lock actuator) D10
View with the center console removed
Automatic drive positioner C/U M49, M50
A/T device (Detention switch) M67
View with the cluster lid C removed
Unified meter and A/C amp. M55, M56


Antenna
Door mirror (Outside key antenna) (Passenger side) D32
Inside key antenna-2 (Dashboard) M153
Outside key antenna (Back door) D116
Inside key antenna-1 (Dashboard) M70
Door mirror (Outside key antenna) (Driver side) D2
Inside key antenna-3 (Luggage room) B68
PIIA6415E



System Description

AIS003J5

- The Intelligent Key system is a system that makes it possible to lock and unlock the door locks (door lock function) and start the engine (engine start function) by carrying around the Intelligent Key, which operates based on the results of electrical key-ID verification using two-way communications between the Intelligent Key and the vehicle
- Operation of the remote control buttons on the Intelligent Key also provides the same functions as the remote control entry system. (Remote control entry functions)
- As an ignition key warning function, when a door lock is locked or unlocked with entry switch or remote controller button operation, the hazard lamps flash and the Intelligent Key warning buzzer sounds.
- Even if the vehicle or Intelligent Key battery runs down, the door locks can be locked and unlocked and the engine started with the mechanical key built into the Intelligent Key.
- If an Intelligent Key is lost, a new Intelligent Key can be registered. A maximum of 4 Intelligent Keys can be registered.
- It has been made possible to diagnose the system, change the function setting and register an Intelligent Key with the CONSULT-II.

DOOR LOCK FUNCTION

Operation Description

- When the driver door, passenger door, or back door request switch is pressed, Intelligent Key unit sends a request signal from the transmission antenna corresponding to the pressed door request switch, key-ID verification is performed using two-way communication with Intelligent Key, and if ID is successfully verified, a door lock/unlock request signal is sent to BCM (Body Control Module) using CAN communication to lock/unlock the door lock.
- When door is locking, door is unlocked, when door is unlocking, door is locked.
- When door lock is locked/unlocked by door request switch operation, hazard lamps flash and Intelligent Key warning buzzer sounds.
- With the locking operation of door request switch, door lock actuators of all door are locked.

Driver side door request switch operation

- When door request switch (driver side) is pushed (unlock), driver side door lock actuator is unlocked. (Selective door unlock function)
- When door request switch (driver side) is pushed (unlock) for the second time within 5 seconds after the first operation, door lock actuators on passenger's and other's doors are unlocked.
- Unlock mode can be changed using “WORK SUPPORT” mode in “SELECTIVE UNLOCK FUNCTION”. Refer to BL-155, "WORK SUPPORT" .

Passenger side door request switch operation

- When door request switch (passenger side) is pushed (unlock), passenger side door lock actuator is unlocked.
- When door request switch (passenger side) is pushed (unlock) for the second time with in 5 seconds after the first operation, door lock actuators on driver's and other's doors are unlocked.
- Unlock mode can be changed using “WORK SUPPORT” mode in “SELECTIVE UNLOCK FUNCTION”. Refer to BL-155, "WORK SUPPORT" .

Back door request switch operation

- When back door request switch is pushed (unlock), back door lock actuator is unlocked.
- When back door request switch is pushed (unlock) for the second time with in 5 seconds after the first operation, door lock actuators on driver's and passenger's doors are unlocked.
- Unlock mode can be changed using “WORK SUPPORT” mode in “SELECTIVE UNLOCK FUNCTION”. Refer to BL-155, "WORK SUPPORT" .

Operation Condition

Request switch operation	Operating conditions (When all the conditions below are met)
Door request switch (Driver side)	● Closing all doors (door switch: OFF) ● The Intelligent Key is in the antenna detection area for the door for which the door request switch (LOCK) was operated.
Door request switch (passenger side)	
Door request switch (back door)	

Auto Door Lock Function

After the door request switch in the driver or passenger or back door is operated and the vehicle door locks are unlocked, all the doors are automatically locked unless the mechanical key is inserted into the ignition knob, the ignition knob is pressed, any door request switch is pressed, any one of the doors is opened, or an Intelligent Key remote control button is operated within 30 seconds.

Key Reminder Function

Number of times the hazard lamps are flashed and the Intelligent Key warning buzzer sounds when the door lock is locked or unlocked by door request switch operation.
When ignition switch ON or any door is opened, key reminder function is not operate.

Vehicle operation	Hazard lamp	Intelligent Key warning buzzer
Door unlock operation	Once	Once
Door lock operation	Twice	Twice

Intelligent Key Lock-in Prevention Function

When Intelligent Key is in vehicle, a door is open, and doors are locked using door lock and unlock switch, driver door lock knob, Intelligent Key unit sends door unlock request signal to BCM via CAN communication to unlock all doors to prevent Intelligent Key from becoming locked in vehicle.

CAUTION:
The above function operates when the Intelligent Key is inside the vehicle. However, there may be times when Intelligent Key cannot be detected and this function will not operate when Intelligent Key is on the instrument panel, rear parcel shelf, or in the glove box. Also, this system some times does not operate if the Intelligent Key is in the door pocket for the open door.

REMOTE CONTROL ENTRY FUNCTIONS

Door Lock Function

- Operating a remote controller button on the Intelligent Key sends the Intelligent Key-ID to the Intelligent Key unit. Intelligent Key unit conducts a verification of the received key-ID, and if the verification is accepted, a door lock or door unlock request signal is sent to BCM via CAN communication to lock/unlock the door lock.

- When door lock/unlock is performed using Intelligent Key remote controller button operation, operation confirmation is conducted by making hazard lamps flash and Intelligent Key warning buzzer sound.

OPERATION CONDITION
Door lock/unlock operation is necessary for all doors closing.

Map Lamp And Keyhole Illumination Function

When the following conditions come:

- condition of map lamp switch is DOOR position;
- door switch OFF (when all the doors are closed);

Remote control button of Intelligent Key turns on interior lamp (for 30 seconds) with input of UNLOCK signal from Intelligent Key.

Panic Alarm Function

When key switch is OFF and ignition knob is not pushed (when mechanical key is not inserted in ignition knob), BCM turns ON and OFF horn and headlamp intermittently with input of PANIC ALARM signal from Intelligent Key. The alarm automatically turns off after 25 seconds or when Intelligent Key unit receives any signal from Intelligent Key.
Panic alarm operation mode can be changed using “WORK SUPPORT” mode in “PANIC ALARM DELAY”. Refer to BL-155, "WORK SUPPORT" .

Remote Control Power Window Down (open) Operation

When Intelligent Key unlock switch is turned ON with ignition switch OFF, and Intelligent Key unlock switch is detected to be on continuously for 3 seconds, the driver's door and passenger's door power windows are simultaneously opened.
Power window is operated to open and the operation continues as long as the Intelligent Key unlock switch is pressed.
Remote control power window down operation mode can be changed using “P/W DOWN DELAY” mode in “WORK SUPPORT”. Refer to BL-155, "WORK SUPPORT" .

Key Reminder Function

As an operation verification function, when door locks are locked or unlocked using Intelligent Key remote controller button operation, hazard lamps flash and horn sounds.

Vehicle operation	Hazard lamp	Horn
Door unlocking operation	Once	—
Door locking operation	Twice	Once

ENGINE STARTUP FUNCTION

Operation Description

- When ignition knob is pressed, Intelligent Key unit sends request signal from inside key antenna, key-ID verification is conducted with Intelligent Key using two-way communication, and if verification is successful, an ignition rotation prohibition latch release signal is sent to steering lock unit. Steering lock unit releases ignition knob rotation prohibition latch. (Ignition knob can now be turned.)
- When it becomes possible to rotate the ignition knob, “KEY” warning lamp in combination meter lights up green to notify driver that ignition knob can be turned.

  NOTE:
  When it becomes impossible to rotate the ignition knob, “KEY” warning lamp in combination meter lights up red.
- When key-ID verification is successful and ignition knob switch is in the ON state, Intelligent Key unit uses CAN communication to send engine start permission signal to BCM.
- When BCM receives engine start permission signal, it uses CAN communication to sent starter request signal to IPDM E/R so that the engine will start when ignition knob is rotated to START position.

Operation Range

Engine can be started when Intelligent Key is in the vehicle. However, sometimes engine might not start when Intelligent Key is on instrument panel, rear parcel shelf, or in glove box.

NOTE:
luggage room can enable detection of Intelligent Key by a CONSULT-II function. Refer to BL-155, "WORK SUPPORT" .

Active Check Function

Confirm whether or not ignition knob can be rotated by checking the color of warning lamp in combination meter.

Condition	Operation
Ignition knob rotation possible	“KEY” warning lamp in combination meter is lit up green.
Ignition rotation not possible	“KEY” warning lamp in combination meter is lit up red.

WARNING AND ALARM FUNCTION

Operation Description

The warnings and alarms are as follows and are given to the user as warning information and warnings using combinations of Intelligent Key warning buzzer (in driver door and passenger door), inside vehicle buzzer (in combination meter), and warning lamps “KEY” and “LOCK.”

- Ignition switch return forgotten warning
  With the ignition in OFF or ACC position, if the driver door is opened, this warning is issued.
- Selector lever return forgotten warning
  With the ignition in OFF position, if the selector lever is in except “P” position, this warning is issued.
- Key left in ignition warning (when mechanical key used)
  With the mechanical key in the ignition knob and the ignition switch is in the OFF, ACC, or LOCK position, if the driver door is opened, this warning is issued.
- Ignition switch OFF position warning (for inside car: when door closed)
  This warning is issued when the user forgets to return the ignition knob to the LOCK position.
- Ignition switch OFF position warning (for outside car: when door opened/closed)
  This warning is issued when the user leaves the car without returning the ignition knob to the LOCK position.
- Warning for removal of Intelligent Key to outside the car (when door open/closed)
  This warning is issued if the Intelligent Key is taken outside the car while the engine is running.
- Warning for removal of Intelligent Key to outside the car (from window)
  This warning is issued if the Intelligent Key is taken outside the car through a window while the engine is running.
- Door lock non-operation warning
  This warning is issued if the door lock (lock) operation by a door request switch is not effected.
- Intelligent Key low battery warning
  This warning is issued when it is detected that the battery in the Intelligent Key has been used up.

Operation Condition

Warning and alarm names	Operating conditions (when all the conditions below are met)
Ignition knob return forgotten warning	● The ignition switch is in the ACC, OFF, or LOCK position (knob pressed) ● The driver door is opened.
Selector lever return forgotten warning	● The ignition switch is in the OFF position. ● The selector lever is except “P” position.
Ignition key warning (When mechanical key used)	● The mechanical key is inserted in the ignition knob (key switch: ON) ● The ignition switch is in the ACC, OFF, or LOCK position. ● The driver door is opened
Ignition knob OFF position warning (for inside car: when door closed)	● The ignition switch is in the OFF or LOCK position (knob pressed) ● In the above state, when the ACC switch is changed from ON to OFF and 1 second passes. (However, this warning is not issued if the mechanical key is inserted in the ignition knob, ignition knob is turned except OFF position or ignition or ignition knob is not pushed.)
Ignition knob OFF position warning (for outside car: when door opened/closed)	● The ignition switch is in the OFF or LOCK position (knob pressed) ● In the above state, when the ACC switch is changed from ON to OFF and 1 second passes. (However, this warning is not issued if the mechanical key is inserted in the ignition knob, ignition knob is turned except OFF position or ignition or ignition knob is not pushed.) ● Driver door open → closed

Warning and alarm names	Operating conditions (when all the conditions below are met)
Warning for take out of Intelligent Key to outside the car (when door open/closed)	When Any of the Following Conditions Are Met ● When the ignition knob is pressed in so that it can be rotated (or has been rotated), if any of the doors has been opened, when all the doors are closed, the Intelligent Key unit compares the key-ID with that of the Intelligent Key using the inside key antenna, if the results of the comparison are NG (the Intelligent Key is not found) ● When the ignition knob is pressed in so that it can be rotated (or has been rotated), if any of the doors is open, the Intelligent Key unit compares the key-ID with that of the Intelligent Key every 5 seconds using the inside key antenna (center console), if the results of the comparison are NG (the Intelligent Key is not found) **NOTE:** However, this warning is not issued if the mechanical key is inserted in the ignition knob.
Warning for take out of Intelligent Key to outside the car (from window)	When the ignition knob is pressed in so that it can be rotated (or has been rotated), if the vehicle speed is no greater than 5 km per hour, the Intelligent Key unit compares the key-ID with that of the Intelligent Key every 30 seconds using the inside key antenna, if the results of the comparison are NG (the Intelligent Key is not found) Note: The factory setting for this function is OFF.
Door lock non-operation warning	When any of the following conditions are met Intelligent Key Lock-in Prevention Warning ● When the Intelligent Key is inside the car and the ignition knob is not pressed, when an attempt is made to lock a door lock with a door request switch **NOTE:** This warning is issued even if the Intelligent Key is not in the out side key antenna detection area corresponding to the door request switch was operated. Knob Return Forgotten Warning ● When the ignition knob is pressed, when an attempt is made to lock a door lock with a door request switch **NOTE:** This warning is only issued if the Intelligent Key is in the out side key antenna detection area corresponding to the door request switch was operated. Door Ajar Alarm ● When any of the doors is open, when an attempt is made to lock a door lock with a door request switch **NOTE:** This warning is only issued if the Intelligent Key is in the out side key antenna detection area corresponding to the door request switch was operated.
Intelligent Key low battery pre-warning	This warning is issued when it is detected that the battery in the Intelligent Key has been used up.

Warning Procedure

Warning and alarm names	Buzzer		Warning lamp	
	Inside car	Outside car	“KEY”	“P” shift
Ignition switch return forgotten warning	Buzzer: Continuous	—	—	—
Selector lever return for gotten warning	—	—	—	Illuminate
Ignition key warning (When mechanical key used)	Buzzer: Continuous	—	—	—
Ignition switch OFF position warning (for inside car: when door closed)	Buzzer: Continuous	—	—	—
Ignition switch OFF position warning (for outside car: when door opened/closed)	Buzzer: Continuous	Buzzer (10 seconds)	—	—

Warning and alarm names	Buzzer		Warning lamp	
	Inside car	Outside car	“KEY”	“P” shift
Warning for removal of Intelligent Key to outside the car (when door open/closed)	—	Buzzer (3 seconds)	Red illuminate	—
Warning for removal of Intelligent Key to outside the car (from window)	Buzzer (3 seconds)	—	Red illuminate	—
Door lock non-operation warning	—	Buzzer (2 seconds)	—	—
Intelligent Key low battery prewarning	—	—	Green illuminate (30 seconds after ignition switch comes ON)	—

CHANGE SETTINGS FUNCTION

The settings for each function can be changed with the CONSULT-II or Intelligent Key operation.

Changing Settings With the Intelligent Key

Intelligent Key remote controller button and door request switch operations change the engine startup function settings (startup enabled/disabled) for each Intelligent Key independently.

Settings Change Procedure

1. With the ignition switch is in the LOCK position (ignition knob not pressed), hold down both the LOCK and UNLOCK remote control buttons on the Intelligent Key at the same time for at least 10 seconds (The yard-stick is that the Intelligent Key LED flashes 20 times.)
2. Within 5 seconds of releasing the Intelligent Key remote controller buttons, press the driver door request switch.
3. The KEY warning lamp in combination meter lights up for 3 seconds (engine starting enabled → starting disabled: lights up red, engine starting disabled → flashes green). This completes the settings change.

Changing Settings Using CONSULT-II

The settings for the Intelligent Key system functions can be changed using CONSULT-II (WORK SUPPORT). Refer to BL-155, "WORK SUPPORT" .

NOTE:
Once a function setting is changed, it will remain effective even if the battery is disconnected.

Changing Settings Using Display Unit

The settings of the Intelligent Key system can be changed, using CONSULT-II, display unit, Intelligent Key and door request switch in the center of the instrument panel. Refer to AV-107, "Vehicle Electronic Systems" .

×: Applicable –: Not applicable

Setting item	Description
Intelligent Key Lock Response-Sound	The sound pattern of the Intelligent Key operation can be set as desired. (Setting value: OFF, Beeper or Horn chirp)
Intelligent Key Unlock Response-Beep Sound	The beep sound when unlocking door with the Intelligent Key operation can be turned ON or OFF.
Intelligent Key Engine Start Function	This function can be performed to ON or OFF.
Intelligent Key Lock/Unlock Function	The door handle request switch lock/unlock operation with the Intelligent Key can be canceled or activated.
Return All Settings to Default	The all settings made by VEHICLE ELECTRONICS will return to default.

NOTE:
Once a function setting is changed, it will remain effective even if the battery is disconnected.

INTELLIGENT KEY REGISTRATION

Intelligent Key-ID registration is executed using the CONSULT-II. Up to 4 can be registered.

CAUTION:

- **After a new Intelligent Key-ID is registered, be sure to check the function.**
- **When registering an additional Intelligent Key-ID, take any Intelligent Keys already registered and Intelligent Keys for any other vehicles out of the vehicle before starting.**

CONSULT-II can be used to check and delete Intelligent Key-IDs.
For future information, see the CONSULT-II Operation Manual NATS.

STEERING LOCK UNIT REGISTRATION

Steering Lock Unit ID Registration

CAUTION:

- **The method for registering a steering lock unit ID depends on the status of the steering lock unit and Intelligent Key unit (new or old unit).**
- **After registration is completed, press ignition knob with a portable unit in the vehicle so that it can be rotated, and confirm that it cannot be rotated even when ignition switch is pressed without a portable unit in the vehicle.**

For future information, see the CONSULT-II Operation Manual NATS.

CAN Communication System Description

AIS003MP

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, 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.

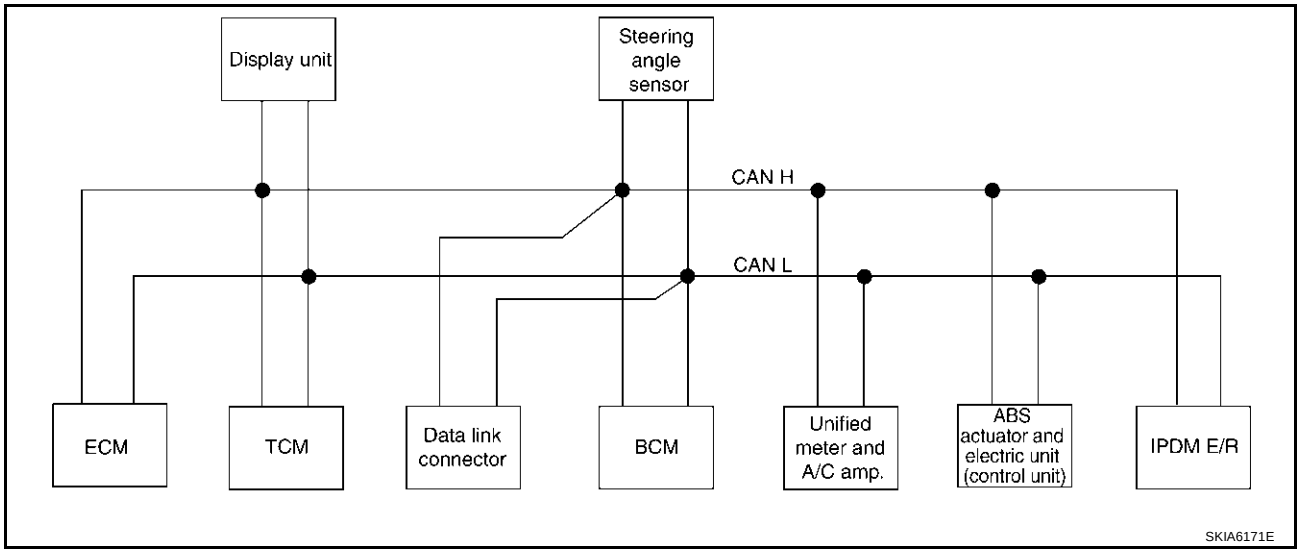
Body type	Wagon					
Axle	2WD			AWD		
Engine	VQ35DE			VQ35DE/VK45DE		
Transmission	A/T					
Brake control	VDC					
Navigation system			×			×
Low tire pressure warning system			×			×
ICC system			×			×
Intelligent Key system			×			×
Automatic drive positioner		×	×		×	×
CAN communication unit						
ECM	×	×	×	×	×	×
TCM	×	×	×	×	×	×
Display unit	×	×		×	×	
Display control unit			×			×
Low tire pressure warning control unit			×			×
AWD control unit				×	×	×
ICC unit			×			×
Intelligent Key unit			×			×
Data link connector	×	×	×	×	×	×
BCM	×	×	×	×	×	×
Steering angle sensor	×	×	×	×	×	×
Unified meter and A/C amp.	×	×	×	×	×	×
ICC sensor			×			×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×
Driver seat control unit		×	×		×	×
IPDM E/R	×	×	×	×	×	×
CAN communication type	BL-120, "TYPE 1/TYPE2"		BL-123, "TYPE 3"	BL-126, "TYPE 4/TYPE5"		BL-129, "TYPE 6"

×: Applicable

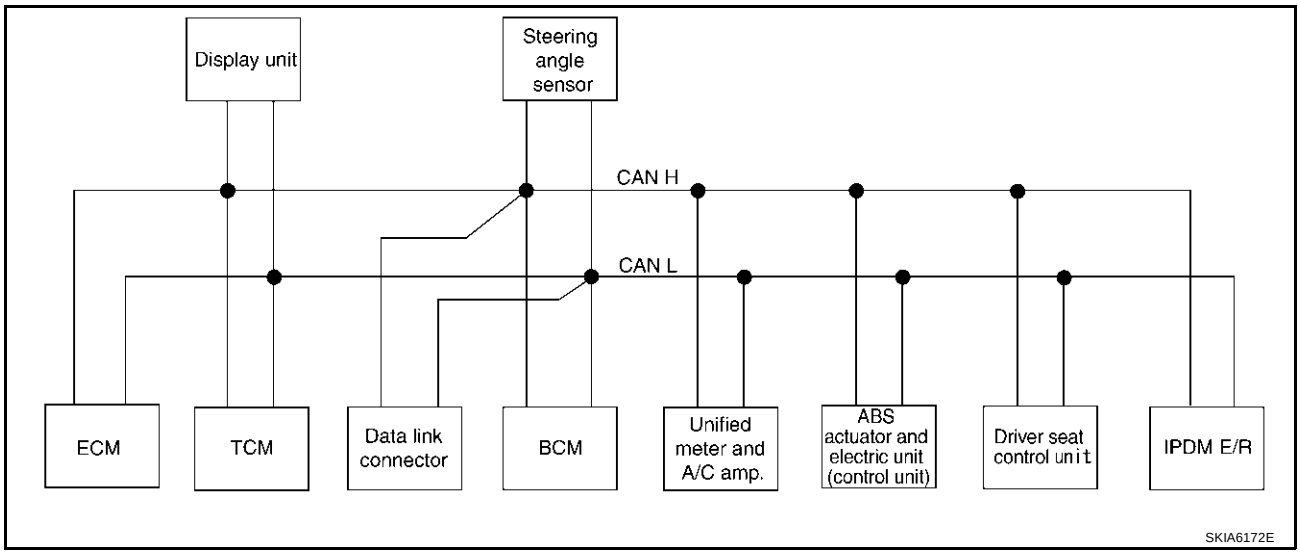
TYPE 1/TYPE2

System Diagram

- Type1



- Type2



Input/output Signal Chart

T: Transmit R: Receive

Signals	ECM	TCM	Display unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Engine speed signal	T	R	R			R	R		
Engine status signal	T			R					
Engine coolant temperature signal	T	R				R			
A/T self-diagnosis signal	R	T							
Accelerator pedal position signal	T	R					R		
Closed throttle position signal	T	R							
Wide open throttle position signal	T	R							

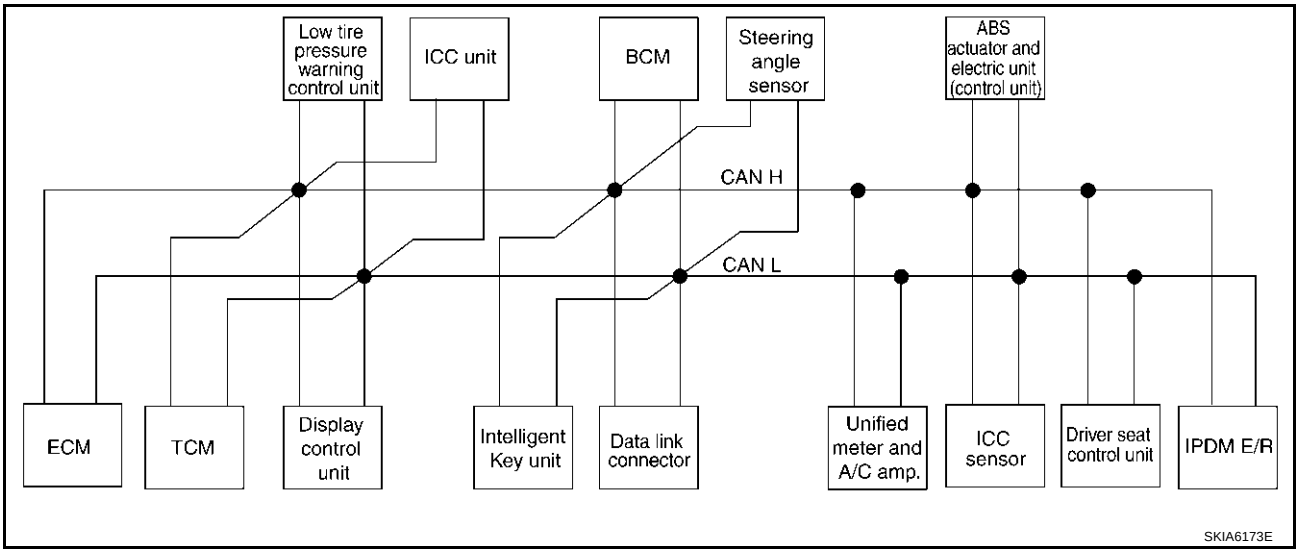
Signals	ECM	TCM	Display unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Battery voltage signal	T	R							
Key switch signal				T				R	
Ignition switch signal				T				R	R
P range signal		T					R	R	
Stop lamp switch signal		R				T			
ABS operation signal	R						T		
TCS operation signal	R						T		
VDC operation signal	R						T		
Fuel consumption monitor signal	T		R			R			
Input shaft revolution signal	R	T							
Output shaft revolution signal	R	T							
A/C switch signal	R			T					
A/C compressor request signal	T								R
A/C relay status signal	R								T
A/C compressor feedback signal	T					R			
Blower fan motor switch signal	R			T					
A/C control signal			T			R			
			R			T			
Cooling fan speed request signal	T								R
Cooling fan speed signal	R								T
Position light request signal			R	T		R			R
Low beam request signal				T					R
Low beam status signal	R								T
High beam request signal				T		R			R
High beam status signal	R								T
Front fog light request signal				T					R
Day time running light request signal				T		R			
Turn LED burnout status signal				R		T			
Vehicle speed signal						R	T		
	R	R	R	R		T		R	
Sleep wake up signal				T		R		R	R
Door switch signal			R	T		R		R	R
Turn indicator signal				T		R			
Key fob ID signal				T				R	
Key fob door unlock signal				T				R	
Oil pressure switch signal				R					T
				T		R			
Buzzer output signal				T		R			
Fuel level sensor signal	R					T			
Fuel level low warning signal			R			T			

Signals	ECM	TCM	Dis-play unit	BCM	Steer-ing angle sensor	Unified meter and A/C amp.	ABS actua-tor and electric unit (con-trol unit)	Driver seat control unit	IPDM E/R
ASCD operation signal	T	R							
ASCD OD cancel request	T	R							
Front wiper request signal				T					R
Front wiper stop position signal				R					T
Rear window defogger switch signal				T					R
Rear window defogger control signal	R		R	R					T
Hood switch signal				R					T
Theft warning horn request signal				T					R
Horn chirp signal				T					R
Steering angle sensor signal					T		R		
ABS warning lamp signal						R	T		
VDC OFF indicator lamp signal						R	T		
SLIP indicator lamp signal						R	T		
Brake warning lamp signal						R	T		
System setting signal			T	R				R	
A/T CHECK indicator lamp signal		T				R			
A/T position indicator lamp signal		T				R			
A/T shift schedule change demand signal		R					T		
Manual mode signal		R				T			
Not manual mode signal		R				T			
Manual mode shift up signal		R				T			
Manual mode shift down signal		R				T			
Manual mode indicator signal		T				R			
Distance to empty signal			R			T			
Hand brake switch				R		T			

TYPE 3

System Diagram

- Type3



Input/output Signal Chart

T: Transmit R: Receive

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Engine speed signal	T	R	R		R				R		R		
Engine status signal	T						R						
Engine coolant temperature signal	T	R			R				R				
A/T self-diagnosis signal	R	T											
Accelerator pedal position signal	T	R			R						R		
Closed throttle position signal	T	R			R								
Wide open throttle position signal	T	R											
Battery voltage signal	T	R											
Key switch signal							T					R	
Ignition switch signal							T					R	R
P range signal		T			R						R	R	
Stop lamp switch signal		R							T				
ABS operation signal	R				R						T		
TCS operation signal	R				R						T		
VDC operation signal	R				R						T		
Fuel consumption monitor signal	T		R						R				

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Input shaft revolution signal	R	T			R								
Output shaft revolution signal	R	T			R								
A/C switch signal	R						T						
A/C compressor request signal	T												R
A/C relay status signal	R												T
A/C compressor feedback signal	T								R				
Blower fan motor switch signal	R						T						
A/C control signal			T						R				
			R						T				
Cooling fan speed signal	R												T
Position light request signal	R						T		R				R
Low beam request signal							T						R
Low beam status signal	R												T
High beam request signal							T		R				R
High beam status signal	R												T
Front fog light request signal							T						R
Day time running light request signal							T		R				
Turn LED burnout status signal							R		T				
Vehicle speed signal					R				R		T		
	R	R	R	R		R	R		T	R		R	
Sleep wake up signal							T		R			R	R
						T	R						
Door switch signal			R			R	T		R			R	R
Turn indicator signal							T		R				
Key fob ID signal							T					R	
Key fob door unlock signal							T					R	
Oil pressure switch signal							R						T
							T		R				
Buzzer output signal							T		R				
						T			R				
					T				R				

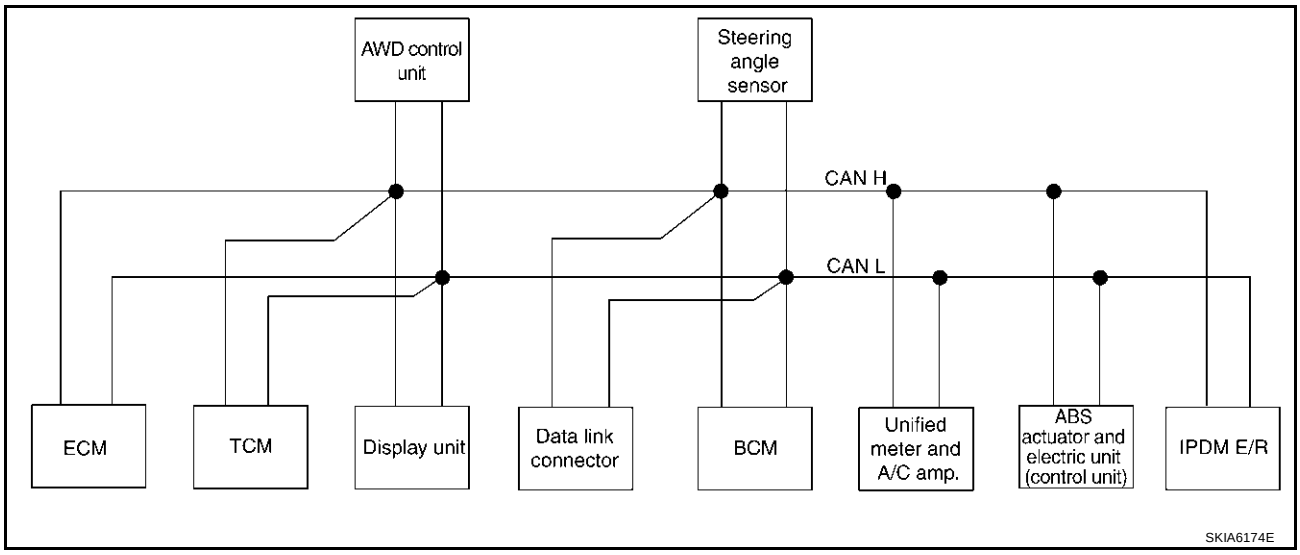
Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Fuel level sensor signal	R								T				
Fuel level low warning signal			R						T				
ICC operation signal	R				T								
Front wiper request signal					R		T						R
Front wiper stop position signal							R						T
Rear window defogger switch signal							T						R
Rear window defogger control signal	R		R				R						T
Hood switch signal							R						T
Theft warning horn request signal							T						R
Horn chirp signal							T						R
Steering angle sensor signal								T			R		
Tire pressure signal				T					R				
Tire pressure data signal			R	T									
ABS warning lamp signal					R				R		T		
VDC OFF indicator lamp signal					R				R		T		
SLIP indicator lamp signal									R		T		
Brake warning lamp signal									R		T		
System setting signal			T			R						R	
Distance to empty signal			R						T				
Hand brake switch signal							R		T				
Door lock/unlock request signal						T	R						
Door lock/unlock status signal						R	T						
Starter permission signal						T	R						
Back door open request signal						T	R						
Power window open request signal						T	R						
Alarm request signal						T	R						
Key warning signal						T			R				
ICC sensor signal					R					T			
ICC warning lamp signal					T				R				

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
ICC system display signal					T				R				
Current gear position signal		T			R						R		
Steering switch signal	T				R								
ASCD operation signal	T	R											
ASCD OD cancel request	T	R											
ICC OD cancel request	R	R			T								
A/T CHECK indicator lamp signal		T							R				
A/T position indicator lamp signal		T							R				
A/T shift schedule change demand signal		R									T		
Manual mode signal		R							T				
Not manual mode signal		R							T				
Manual mode shift up signal		R							T				
Manual mode shift down signal		R							T				
Manual mode indicator signal		T			R				R				
Ignition knob switch signal						T	R						

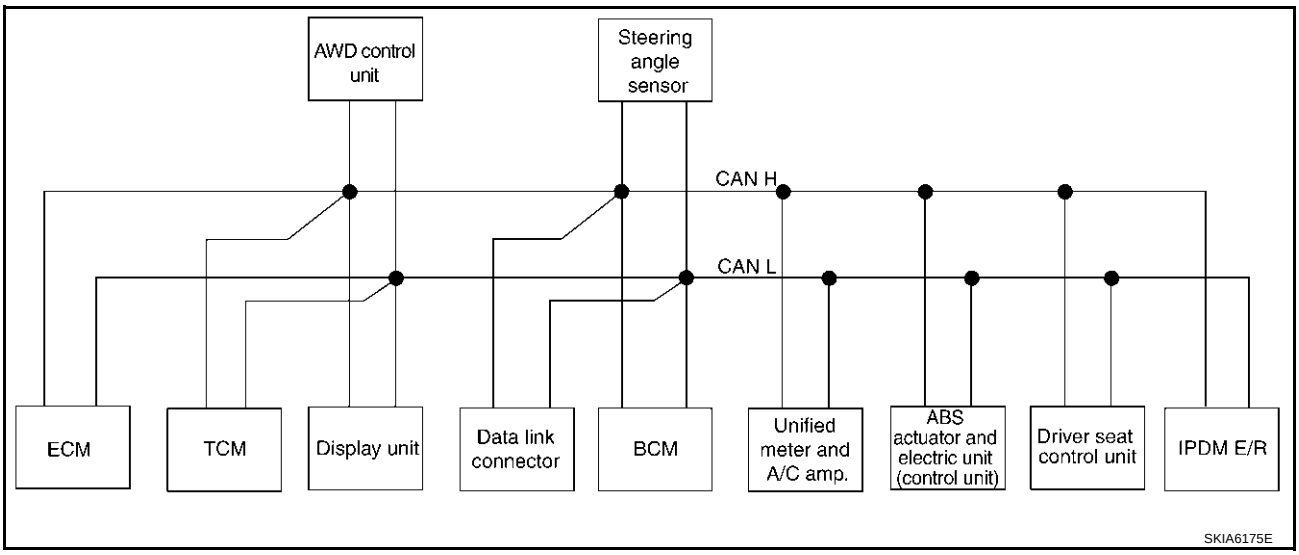
TYPE 4/TYPE5

System Diagram

- Type4



- Type5



Input/output Signal Chart

T: Transmit R: Receive

Signals	ECM	TCM	Display unit	AWD control unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
A/T self-diagnosis signal	R	T								
ABS operation signal	R			R				T		
TCS operation signal	R							T		
VDC operation signal	R			R				T		
Stop lamp switch signal		R		R			T			
Battery voltage signal	T	R								
Key switch signal					T				R	
Ignition switch signal					T				R	R
P range signal		T						R	R	
Closed throttle position signal	T	R								
Wide open throttle position signal	T	R								
Engine speed signal	T	R	R	R			R	R		
Engine status signal	T				R					
Engine coolant temperature signal	T	R					R			
Accelerator pedal position signal	T	R		R				R		
Fuel consumption monitor signal	T		R				R			
Input shaft revolution signal	R	T								
Output shaft revolution signal	R	T								
A/C switch signal	R				T					
A/C compressor request signal	T									R
A/C relay status signal	R									T
A/C compressor feedback signal	T						R			

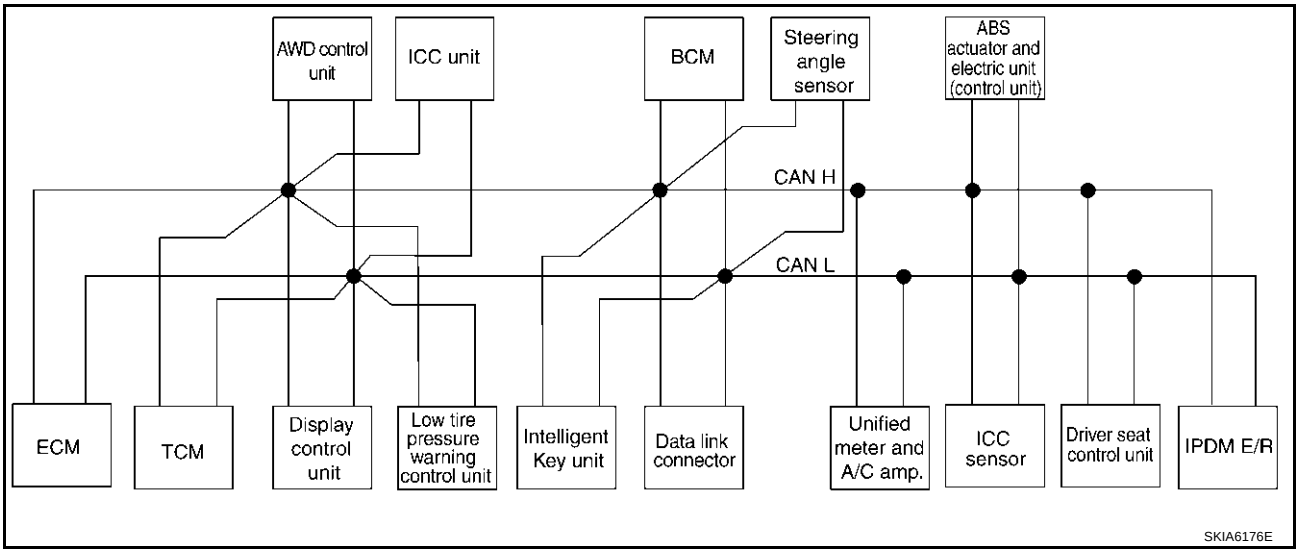
Signals	ECM	TCM	Display unit	AWD control unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Blower fan motor switch signal	R				T					
A/C control signal			T				R			
			R				T			
Cooling fan speed signal	R									T
Position light request signal			R		T		R			R
Low beam request signal					T					R
Low beam status signal	R									T
High beam request signal					T		R			R
High beam status signal	R									T
Front fog light request signal					T					R
Day time running light request signal					T		R			
Turn LED burnout status signal					R		T			
Vehicle speed signal							R	T		
	R	R	R		R		T		R	
Sleep wake up signal					T		R		R	R
Door switch signal			R		T		R		R	R
Turn indicator signal					T		R			
Key fob ID signal					T				R	
Key fob door unlock signal					T				R	
Oil pressure switch signal					R					T
					T		R			
Buzzer output signal					T		R			
Fuel level sensor signal	R						T			
Fuel level low warning signal			R				T			
Front wiper request signal					T					R
Front wiper stop position signal					R					T
Rear window defogger switch signal					T					R
Rear window defogger control signal	R		R		R					T
Hood switch signal					R					T
Theft warning horn request signal					T					R
Horn chirp signal					T					R
Steering angle sensor signal						T		R		
ABS warning lamp signal							R	T		
VDC OFF indicator lamp signal							R	T		
SLIP indicator lamp signal							R	T		
Brake warning lamp signal							R	T		
System setting signal			T		R				R	
AWD warning lamp signal				T			R			

Signals	ECM	TCM	Display unit	AWD control unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
AWD lock indicator lamp signal				T			R			
Distance to empty signal			R				T			
Hand brake switch signal				R	R		T			
ASCD operation signal	T	R								
ASCD OD cancel request	T	R								
A/T CHECK indicator lamp signal		T					R			
A/T position indicator lamp signal		T					R			
A/T shift schedule change demand signal		R						T		
Manual mode signal		R					T			
Not manual mode signal		R					T			
Manual mode shift up signal		R					T			
Manual mode shift down signal		R					T			
Manual mode indicator signal		T					R			

TYPE 6

System Diagram

- Type6



Input/output Signal Chart

T: Transmit R: Receive

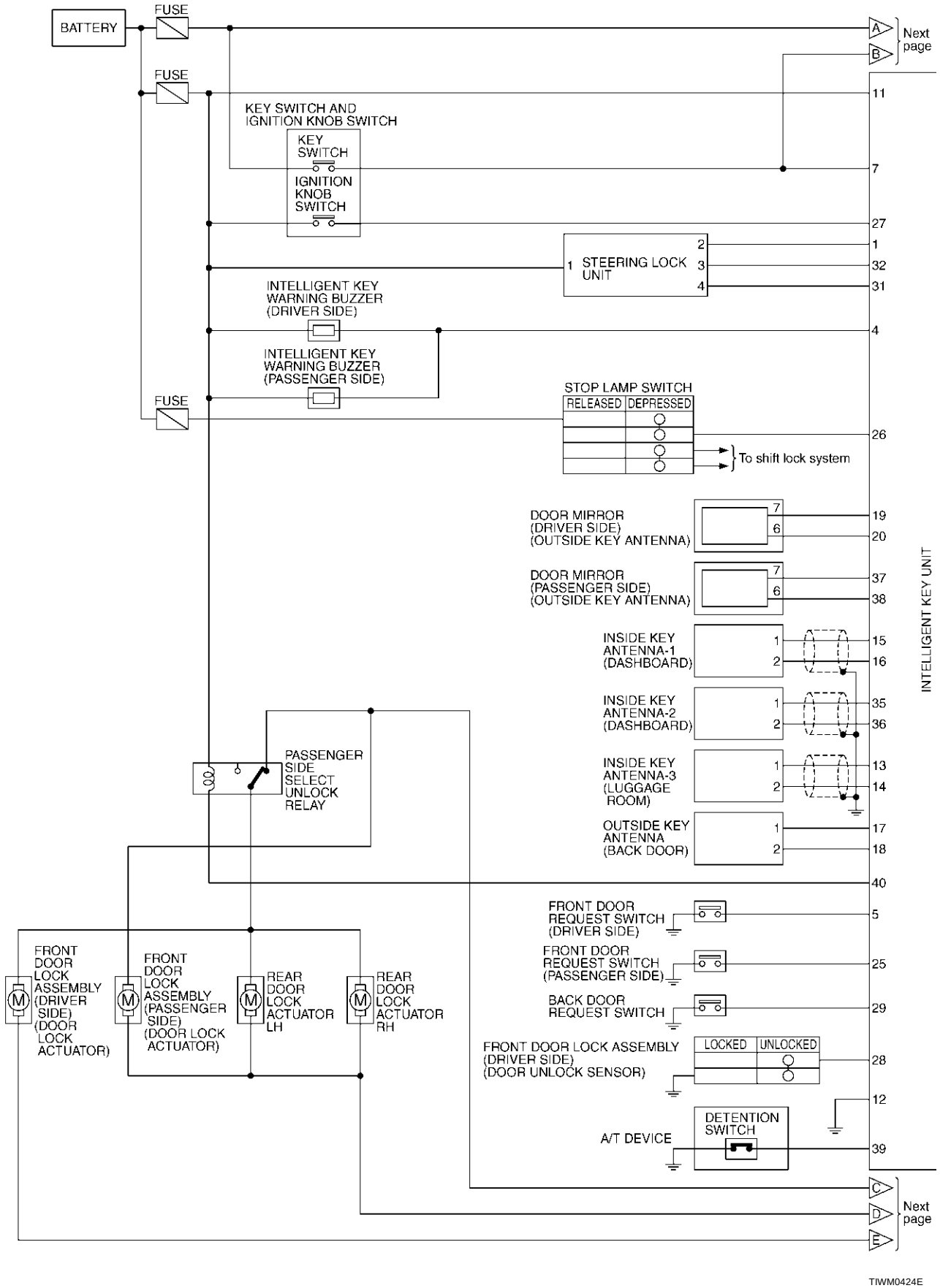
Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	AWD control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
A/T self-diagnosis signal	R	T												
ABS operation signal	R				R	R						T		
TCS operation signal	R					R						T		
VDC operation signal	R				R	R					R	T		
Stop lamp switch signal		R			R					T				
Battery voltage signal	T	R												
Key switch signal								T					R	
Ignition switch signal								T					R	R
P range signal		T				R						R	R	
Closed throttle position signal	T	R				R								
Wide open throttle position signal	T	R												
Engine speed signal	T	R	R		R	R				R		R		
Engine status signal	T							R						
Engine coolant temperature signal	T	R				R				R				
Accelerator pedal position signal	T	R			R	R						R		
Fuel consumption monitor signal	T		R							R				
A/T self-diagnosis signal	R	T												
Input shaft revolution signal	R	T				R								
Output shaft revolution signal	R	T				R								
A/C switch signal	R							T						
A/C compressor request signal	T													R
A/C relay status signal	R													T
A/C compressor feedback signal	T									R				
Blower fan motor switch signal	R							T						
A/C control signal			T							R				
			R							T				
Cooling fan speed signal	R													T
Position light request signal			R					T		R				R
Low beam request signal								T						R
Low beam status signal	R													T
High beam request signal								T		R				R

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	AWD control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
High beam status signal	R													T
Front fog light request signal								T						R
Day time running light request signal								T		R				
Turn LED burnout status signal								R		T				
Vehicle speed signal						R				R		T		
	R	R	R	R			R	R		T	R		R	
Sleep wake up signal								T		R			R	R
							T	R						
Door switch signal			R				R	T		R			R	R
Key fob ID signal								T					R	
Key fob door unlock signal								T					R	
Oil pressure switch signal								R						T
								T		R				
Buzzer output signal								T		R				
							T			R				
						T				R				
Fuel level sensor signal	R									T				
Fuel level low warning signal			R							T				
ICC operation signal	R					T								
Front wiper request signal						R		T						R
Front wiper stop position signal								R						T
Rear window defogger switch signal								T						R
Rear window defogger control signal	R		R					R						T
Hood switch signal								R						T
Theft warning horn request signal								T						R
Horn chirp signal								T						R
Steering angle sensor signal									T			R		
Tire pressure signal				T						R				
Tire pressure data signal			R	T										
ABS warning lamp signal						R				R		T		
VDC OFF indicator lamp signal						R				R		T		
SLIP indicator lamp signal										R		T		

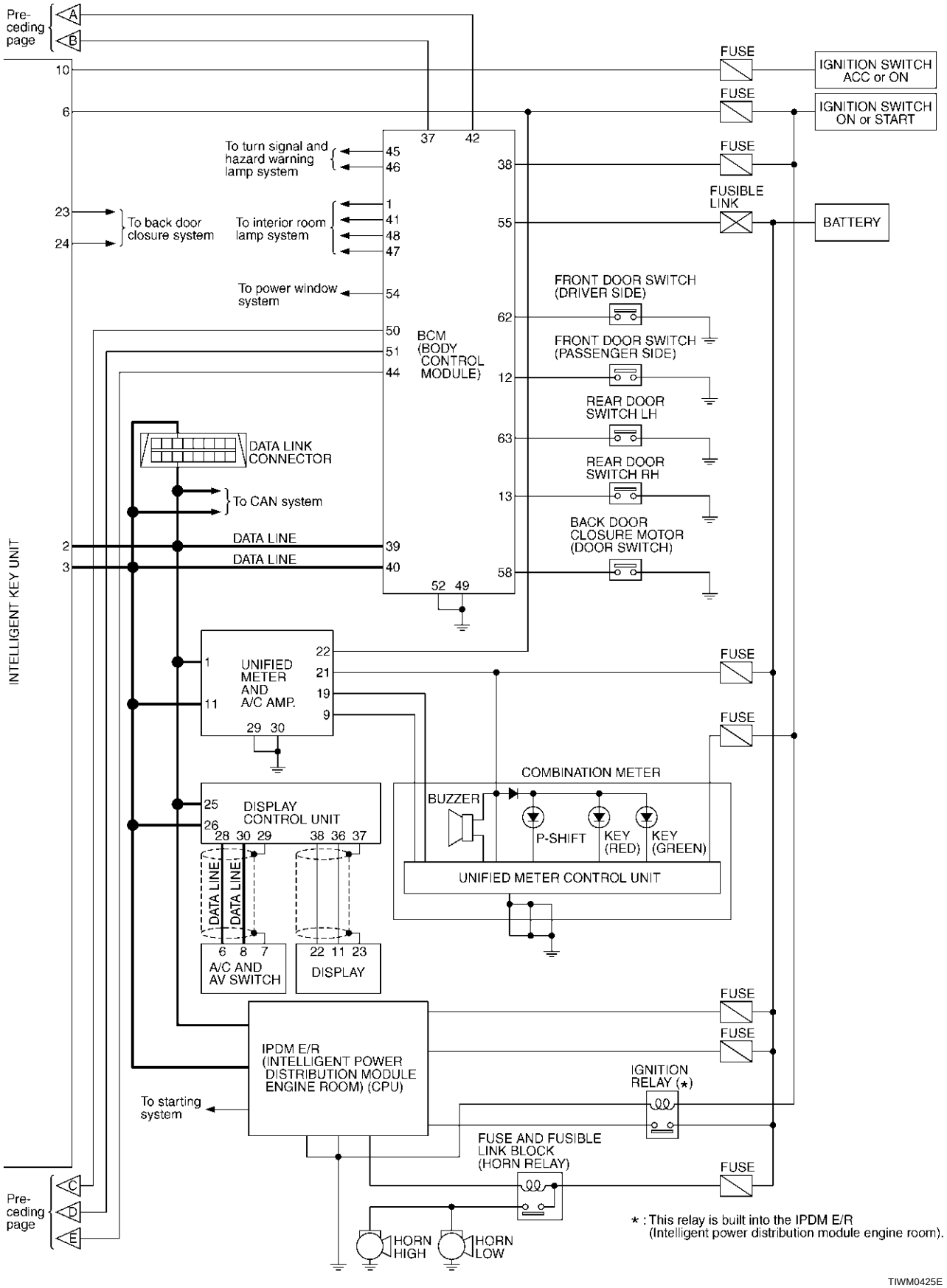
Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	AWD control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Brake warning lamp signal										R		T		
System setting signal			T				R						R	
AWD warning lamp signal					T					R				
AWD lock indicator lamp signal					T					R				
Distance to empty signal			R							T				
Hand brake switch signal					R			R		T				
Door lock/unlock request signal							T	R						
Door lock/unlock status signal							R	T						
Starter permission signal							T	R						
Back door open request signal							T	R						
Power window open request signal							T	R						
Alarm request signal							T	R						
Key warning signal							T			R				
ICC sensor signal						R					T			
ICC warning lamp signal						T				R				
ICC system display signal						T				R				
Current gear position signal		T				R						R		
Steering switch signal	T					R								
ASCD operation signal	T	R												
ASCD OD cancel request	T	R												
ICC OD cancel request	R	R				T								
A/T CHECK indicator lamp signal		T								R				
A/T position indicator lamp signal		T								R				
A/T shift schedule change demand signal		R										T		
Manual mode signal		R								T				
Not manual mode signal		R								T				
Manual mode shift up signal		R								T				
Manual mode shift down signal		R								T				
Manual mode indicator signal		T								R				
Ignition knob switch signal							T	R						

Schematic

AIS003J7

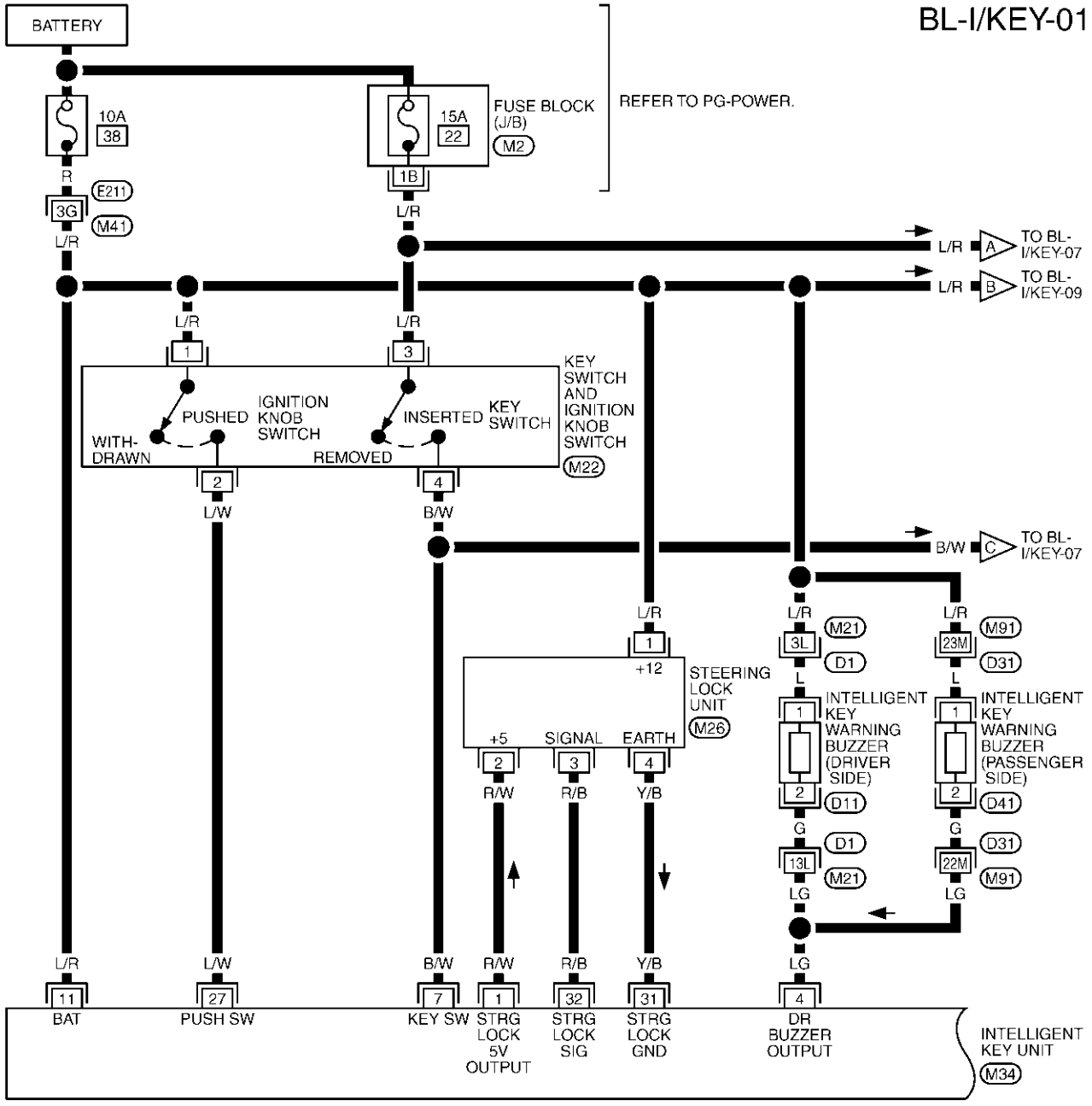


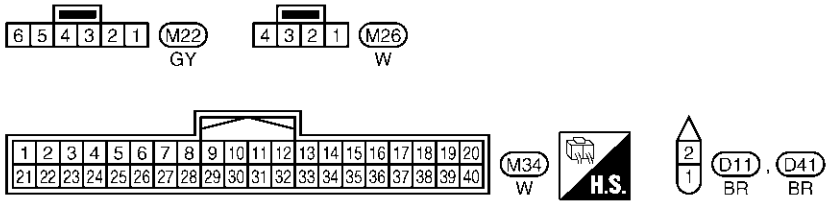
TIWM0424E


Pre-ceding page
A
B
10
6
37
42
FUSE
IGNITION SWITCH ACC or ON
FUSE
IGNITION SWITCH ON or START
FUSE
FUSIBLE LINK
BATTERY
To turn signal and hazard warning lamp system
45
46
38
55
23
24
To back door closure system
To interior room lamp system
1
41
48
47
To power window system
54
FRONT DOOR SWITCH (DRIVER SIDE)
62
50
51
44
BCM (BODY CONTROL MODULE)
FRONT DOOR SWITCH (PASSENGER SIDE)
12
REAR DOOR SWITCH LH
63
REAR DOOR SWITCH RH
13
BACK DOOR CLOSURE MOTOR (DOOR SWITCH)
58
52 49
DATA LINK CONNECTOR
To CAN system
2
3
DATA LINE
DATA LINE
39
40
INTELLIGENT KEY UNIT
1
11
UNIFIED METER AND A/C AMP.
22
21
19
9
29 30
FUSE
FUSE
COMBINATION METER
BUZZER
P-SHIFT
KEY (RED)
KEY (GREEN)
UNIFIED METER CONTROL UNIT
25
26
DISPLAY CONTROL UNIT
28 30 29
38 36 37
DATA LINE
DATA LINE
6 8 7
A/C AND AV SWITCH
22 11 23
DISPLAY
FUSE
FUSE
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) (CPU)
To starting system
IGNITION RELAY (*)
FUSE AND FUSIBLE LINK BLOCK (HORN RELAY)
FUSE
Pre-ceding page
C
D
E
HORN HIGH
HORN LOW
* : This relay is built into the IPDM E/R
(Intelligent power distribution module engine room).
TIWM0425E

Wiring Diagram — I/KEY—

AIS003J8

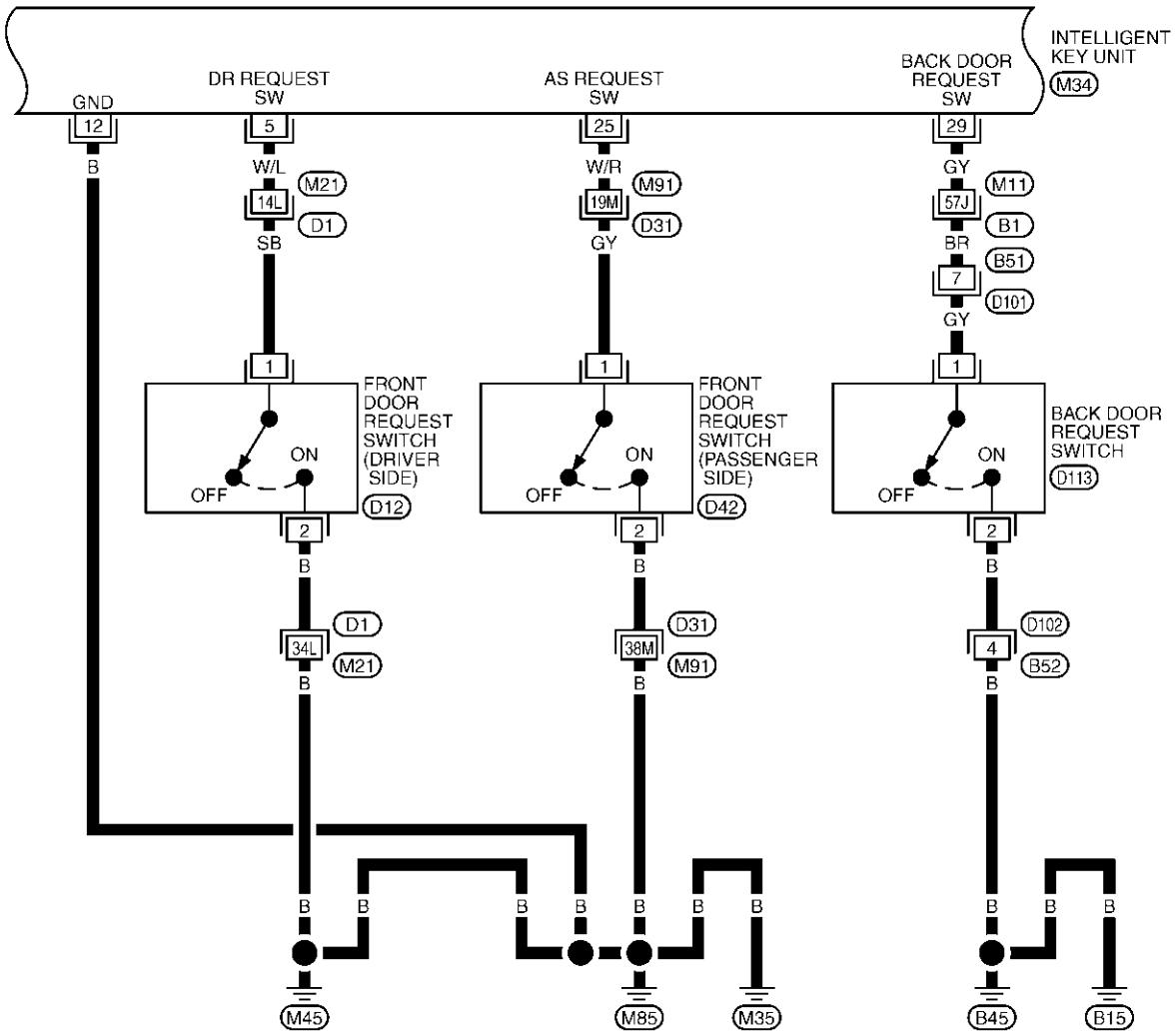


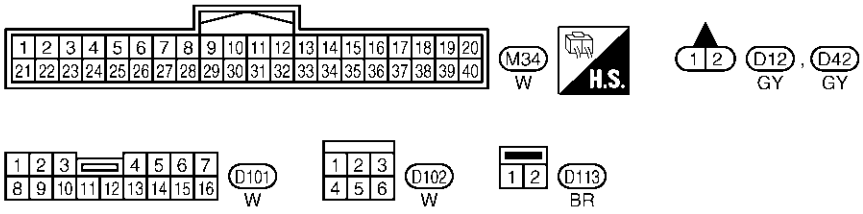


REFER TO THE FOLLOWING.
E211 , D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)
M2 -FUSE BLOCK-JUNCTION BOX (J/B)

TIWM0426E

BL-I/KEY-02

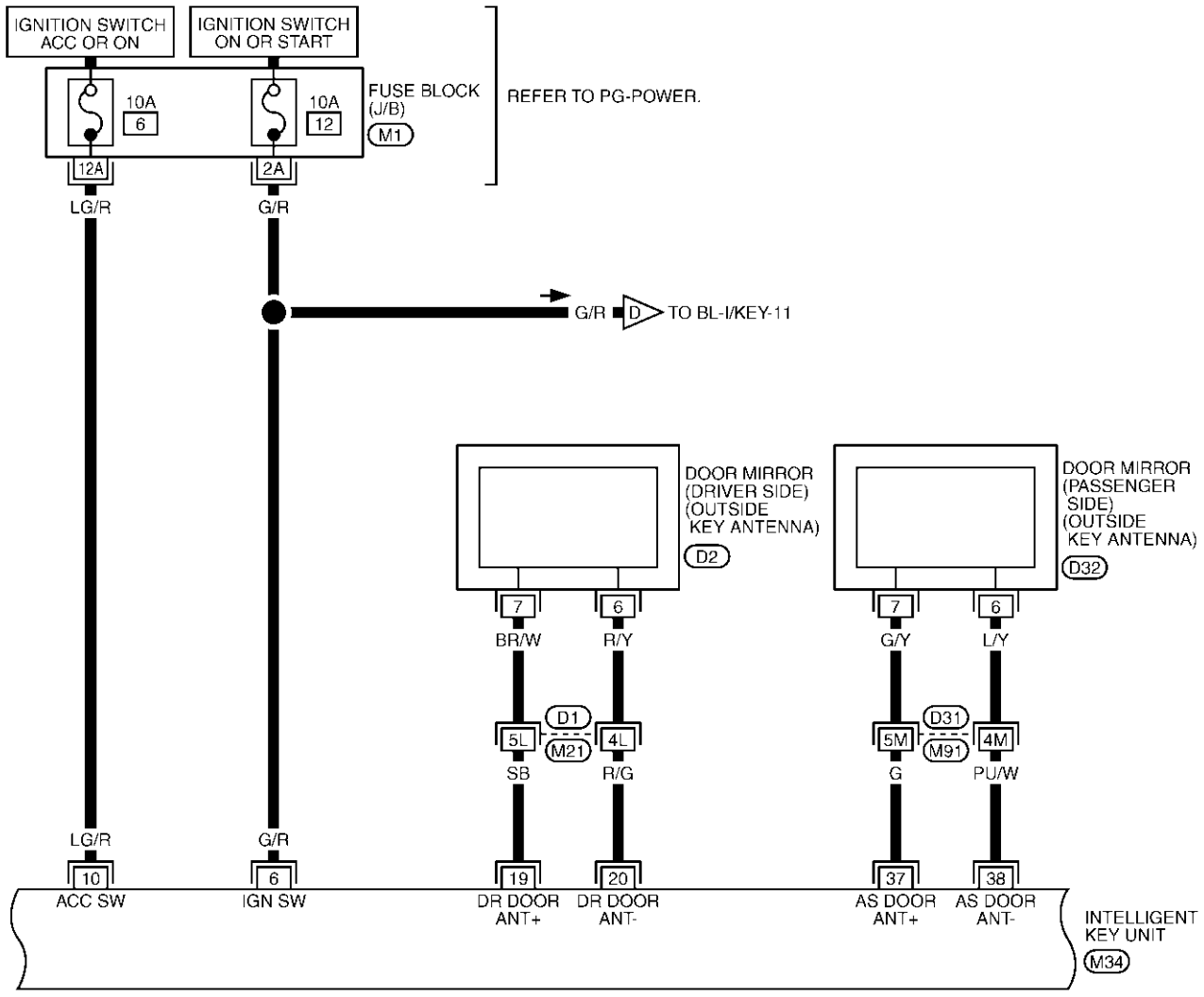


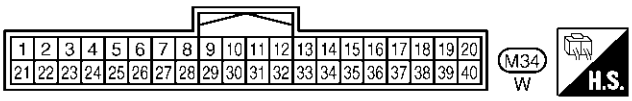


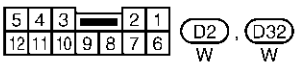
REFER TO THE FOLLOWING.
B1 , D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)

TIWM0375E

BL-I/KEY-03



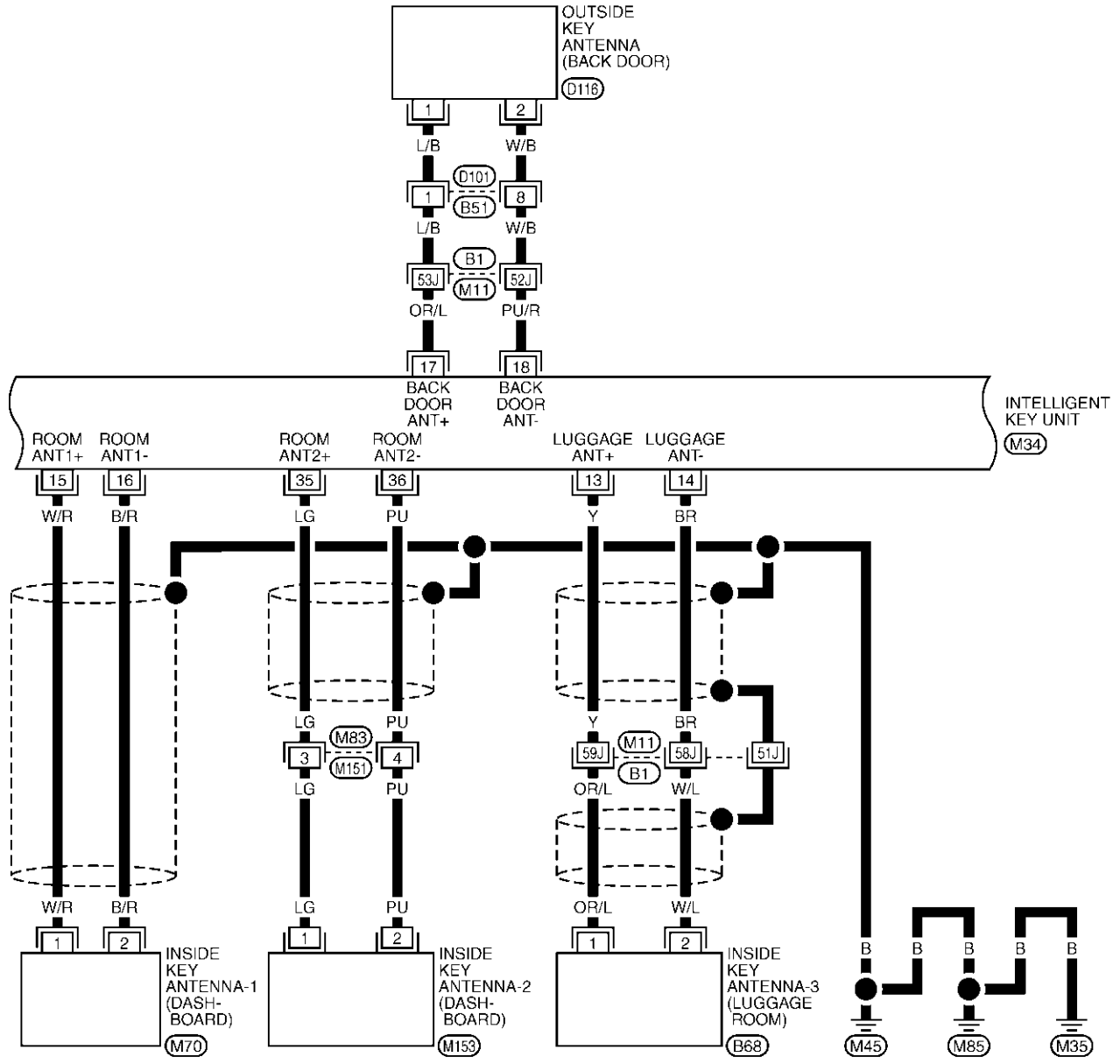


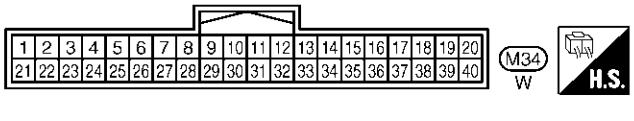


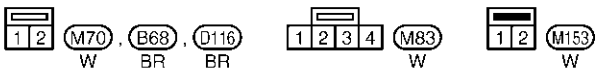
REFER TO THE FOLLOWING.
D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

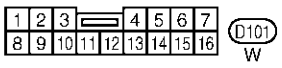
TIWM0427E

BL-I/KEY-04





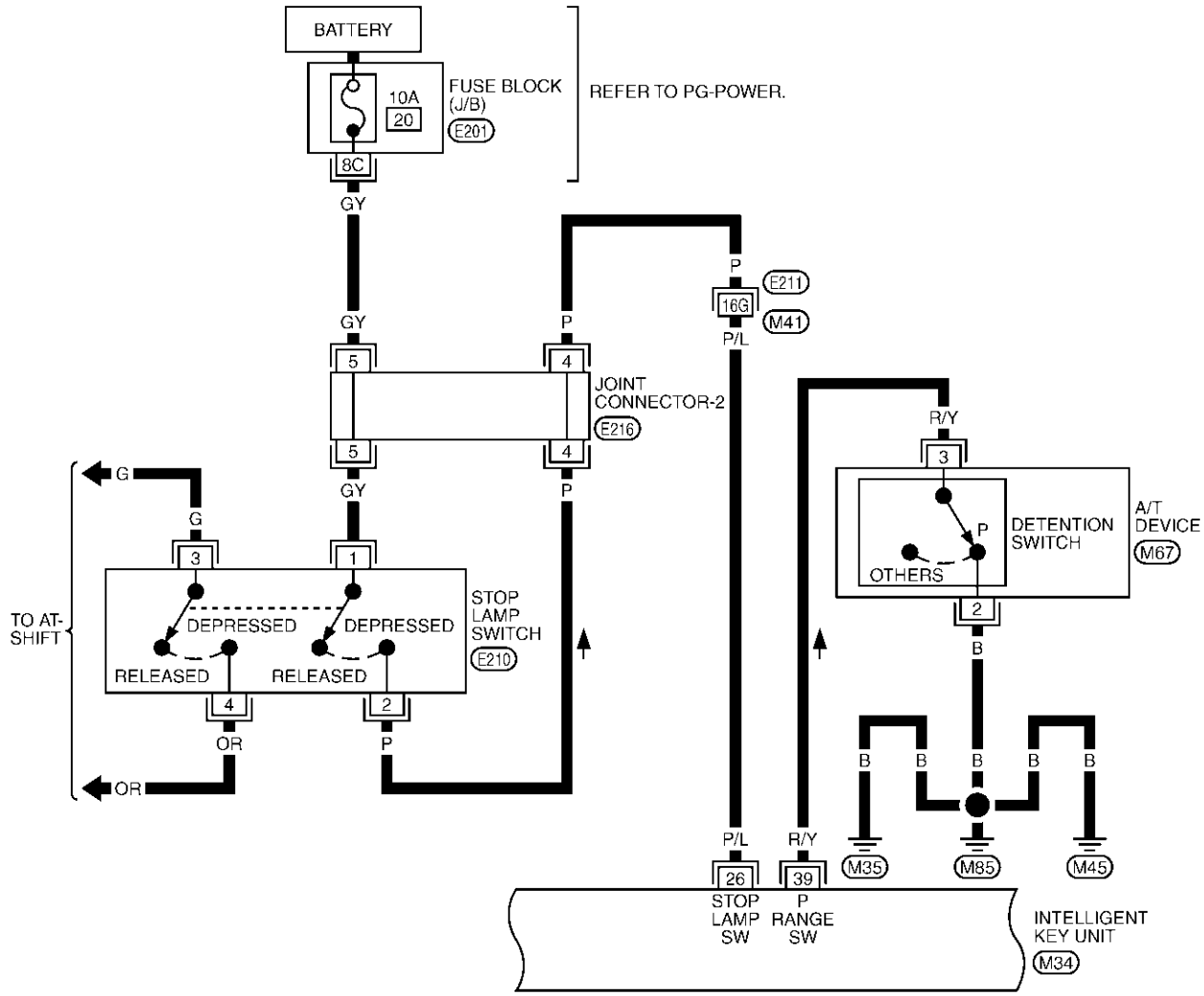


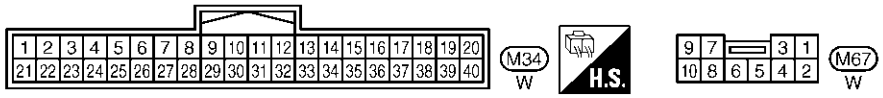


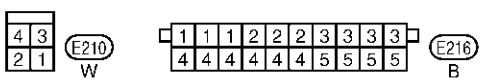
REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)

TIWM0376E

BL-I/KEY-05



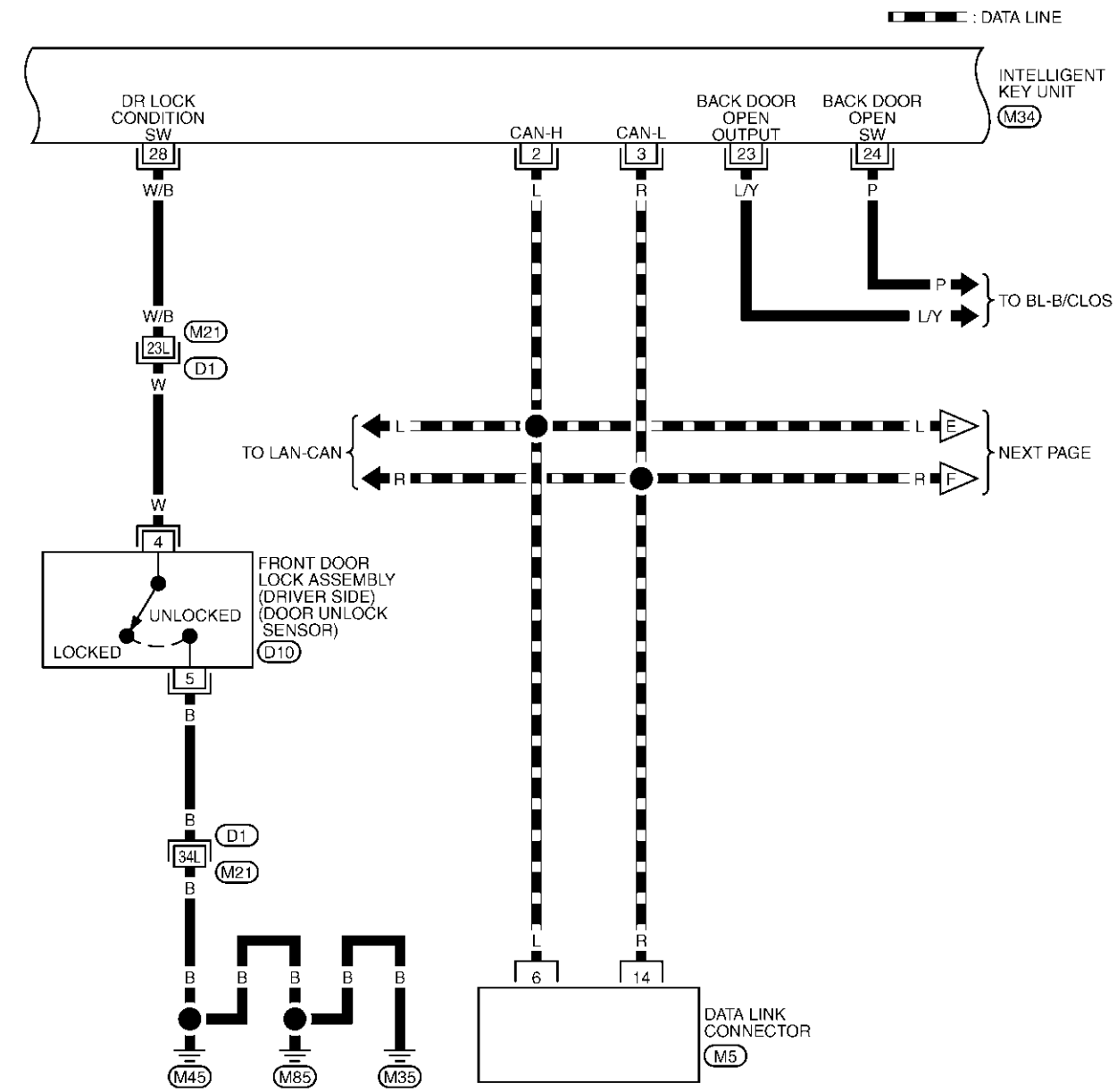


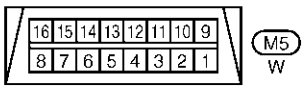


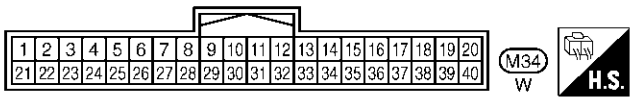
REFER TO THE FOLLOWING.
E211 -SUPER MULTIPLE JUNCTION (SMJ)
E201 -FUSE BLOCK-JUNCTION BOX (J/B)

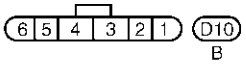
TIWM0377E

BL-I/KEY-06





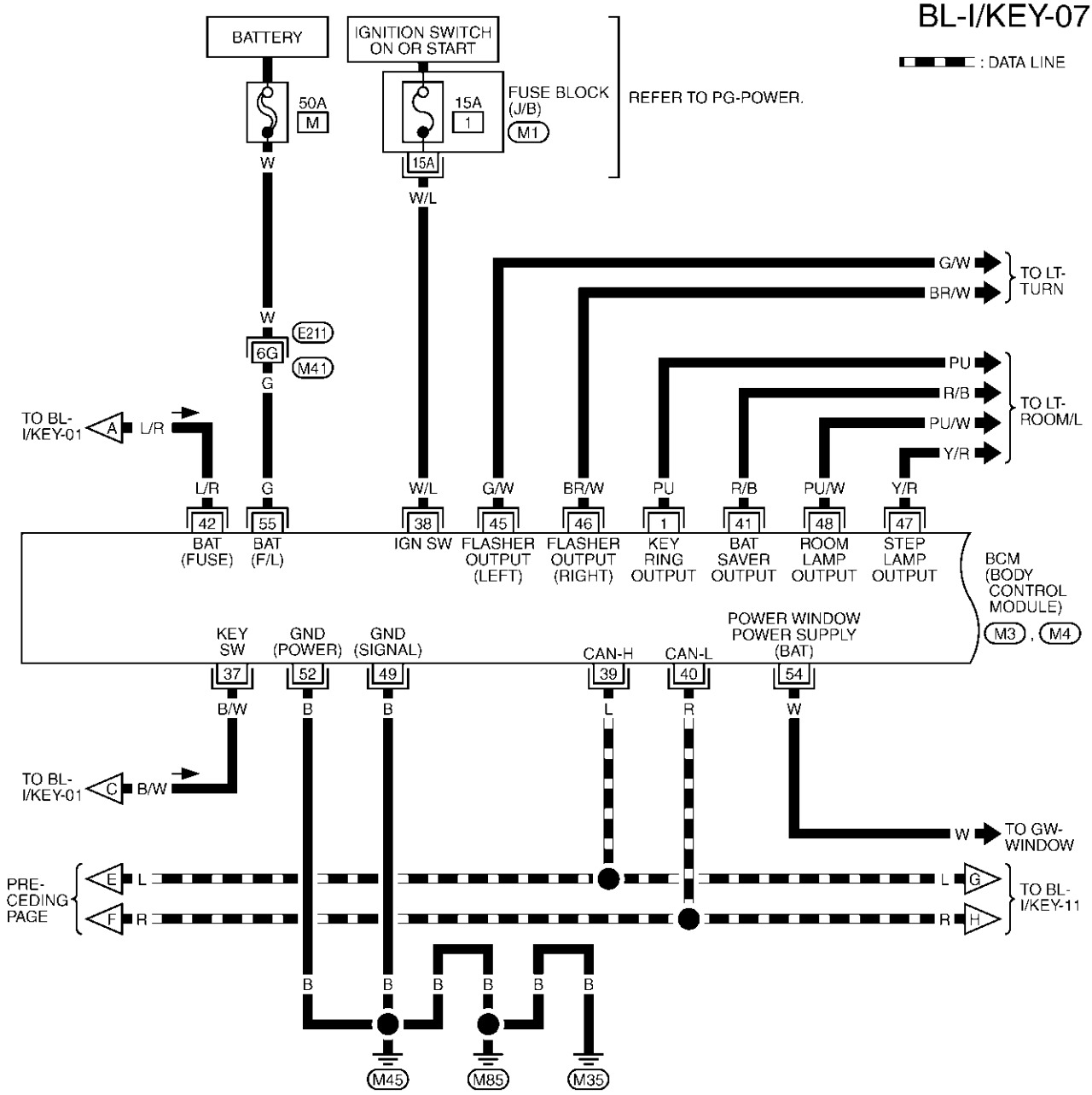




REFER TO THE FOLLOWING.
D1 -SUPER MULTIPLE JUNCTION (SMJ)

TIWM0428E

BL-I/KEY-07



REFER TO THE FOLLOWING.

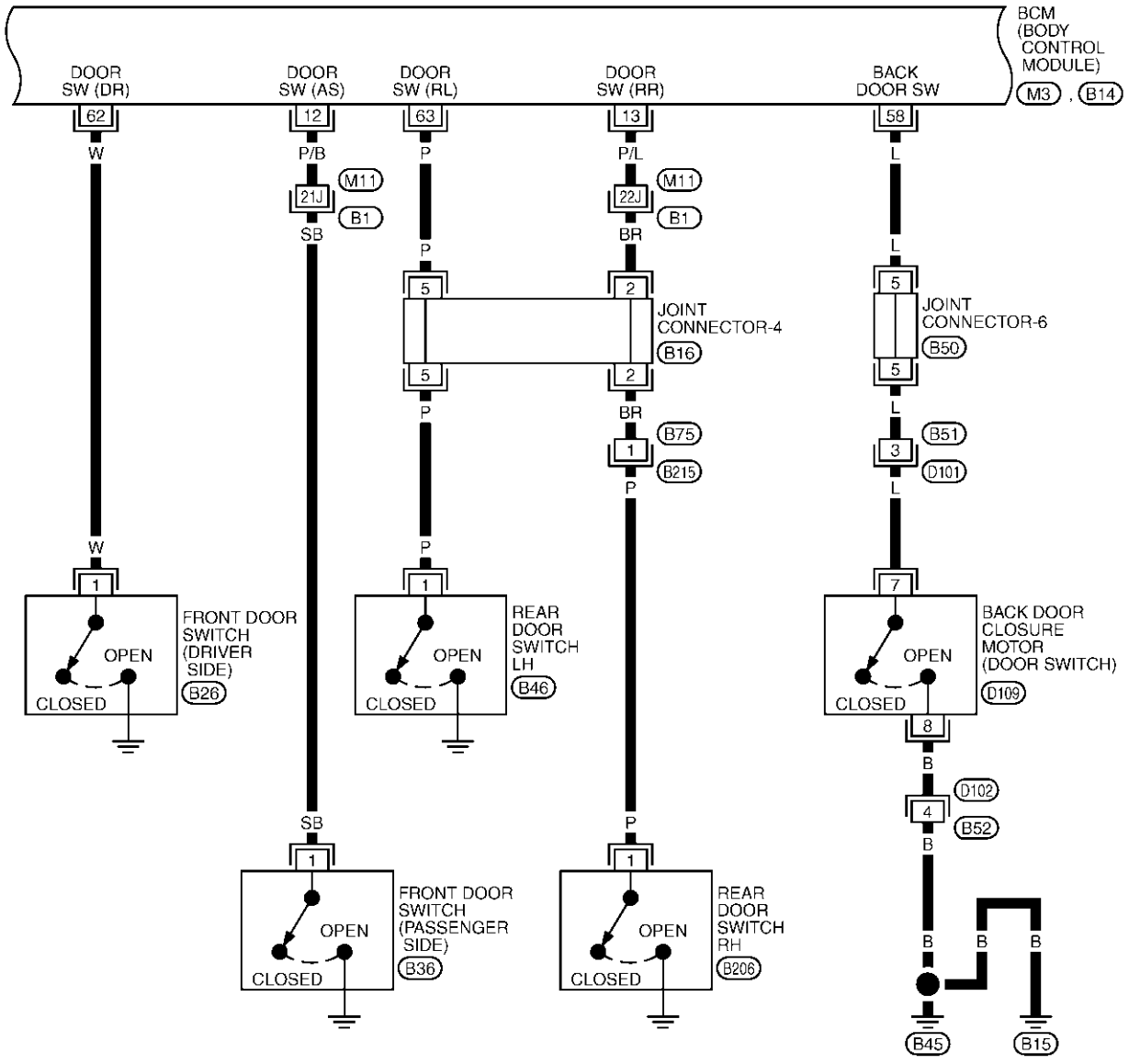
E211 -SUPER MULTIPLE JUNCTION (SMJ)

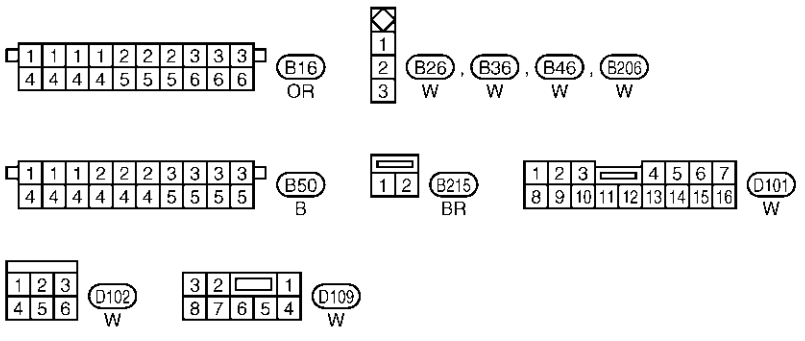
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

M3, M4 -ELECTRICAL UNITS

TIWM0429E

BL-I/KEY-08

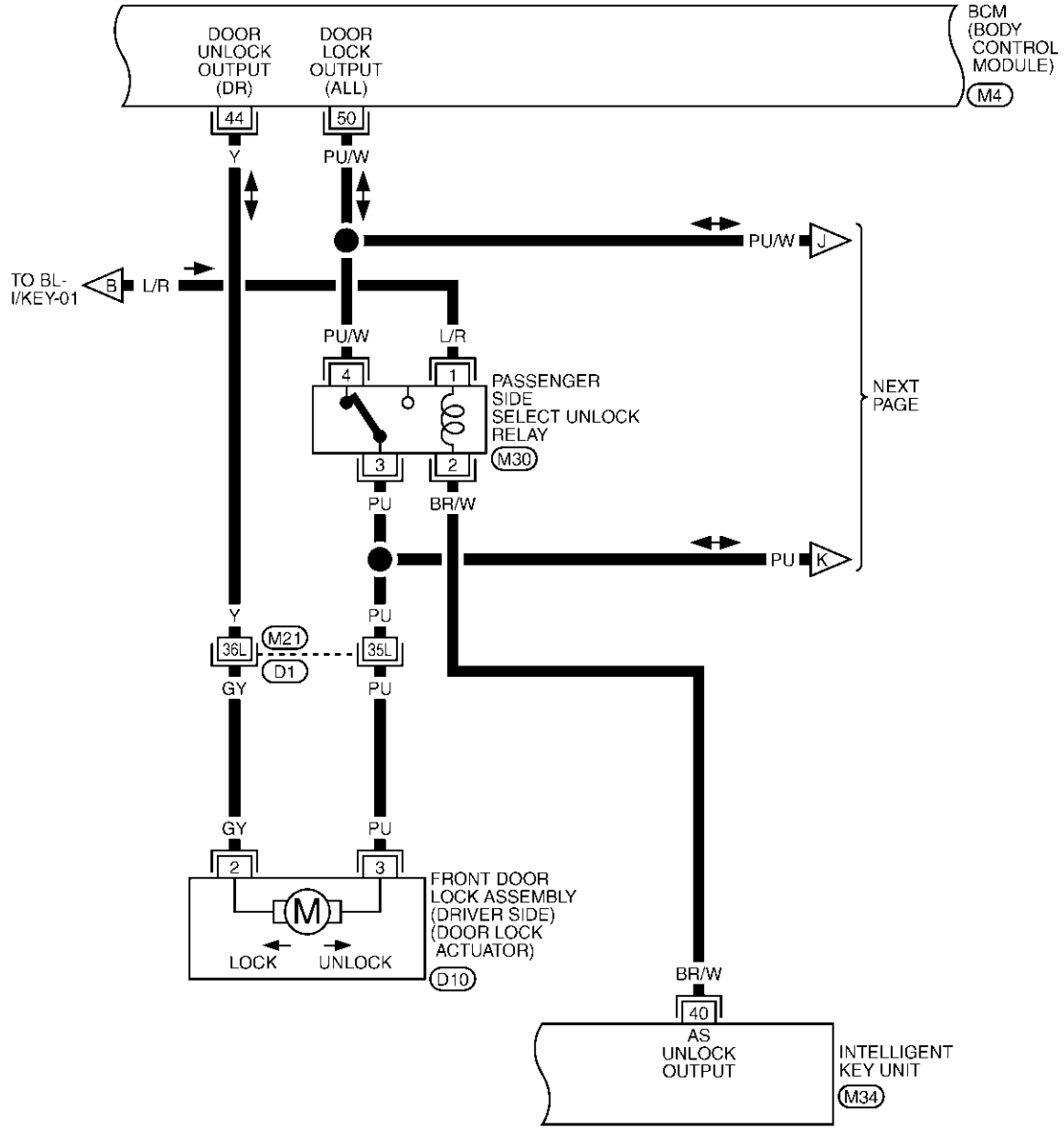


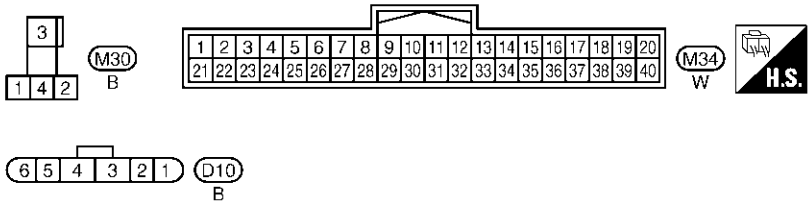


REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M3, B14 -ELECTRICAL UNITS

TIWM0416E

BL-I/KEY-09

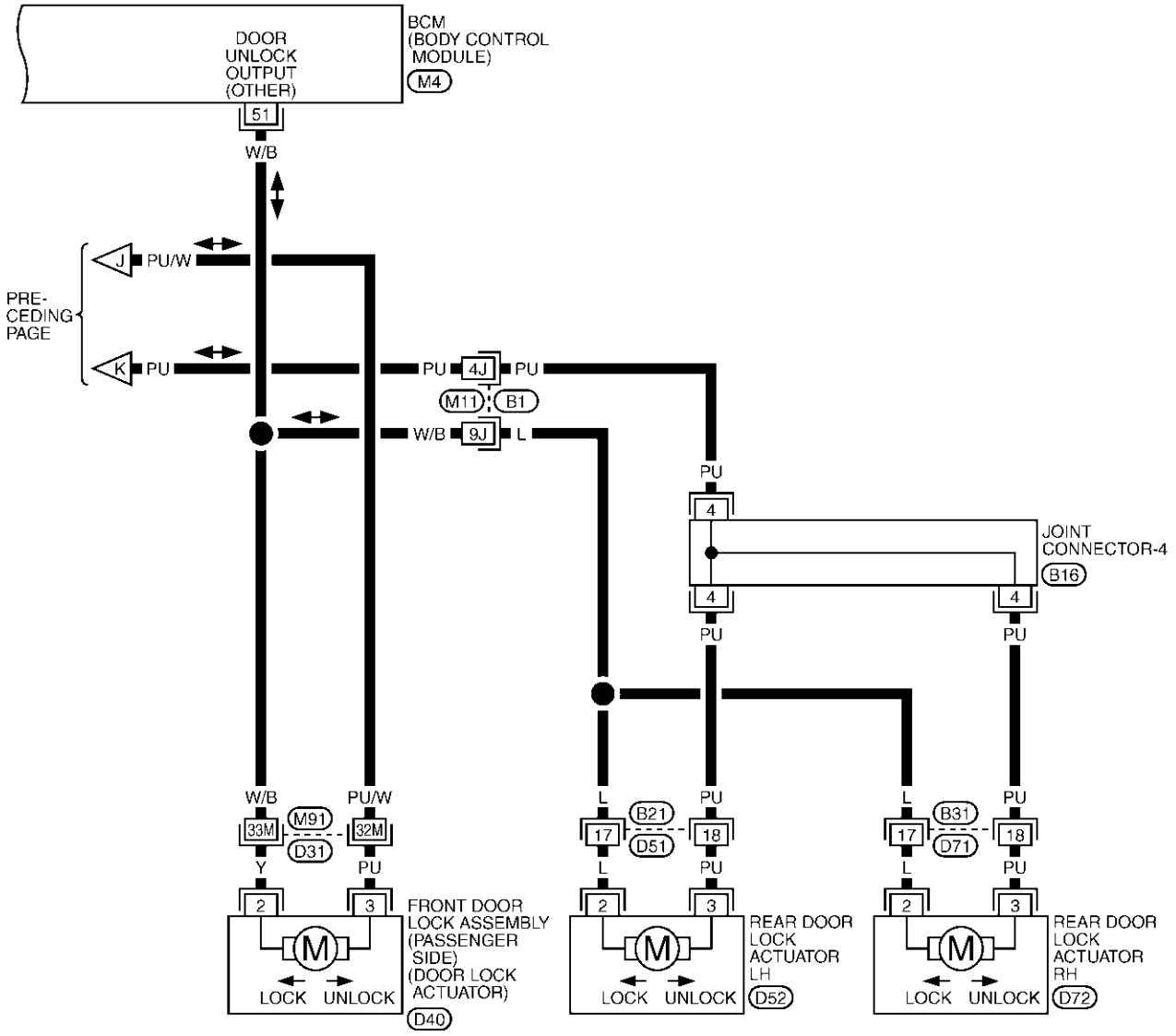


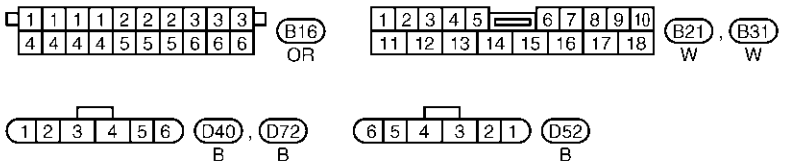


REFER TO THE FOLLOWING.
D1 -SUPER MULTIPLE JUNCTION (SMJ)
M4 -ELECTRICAL UNITS

TIWM0430E

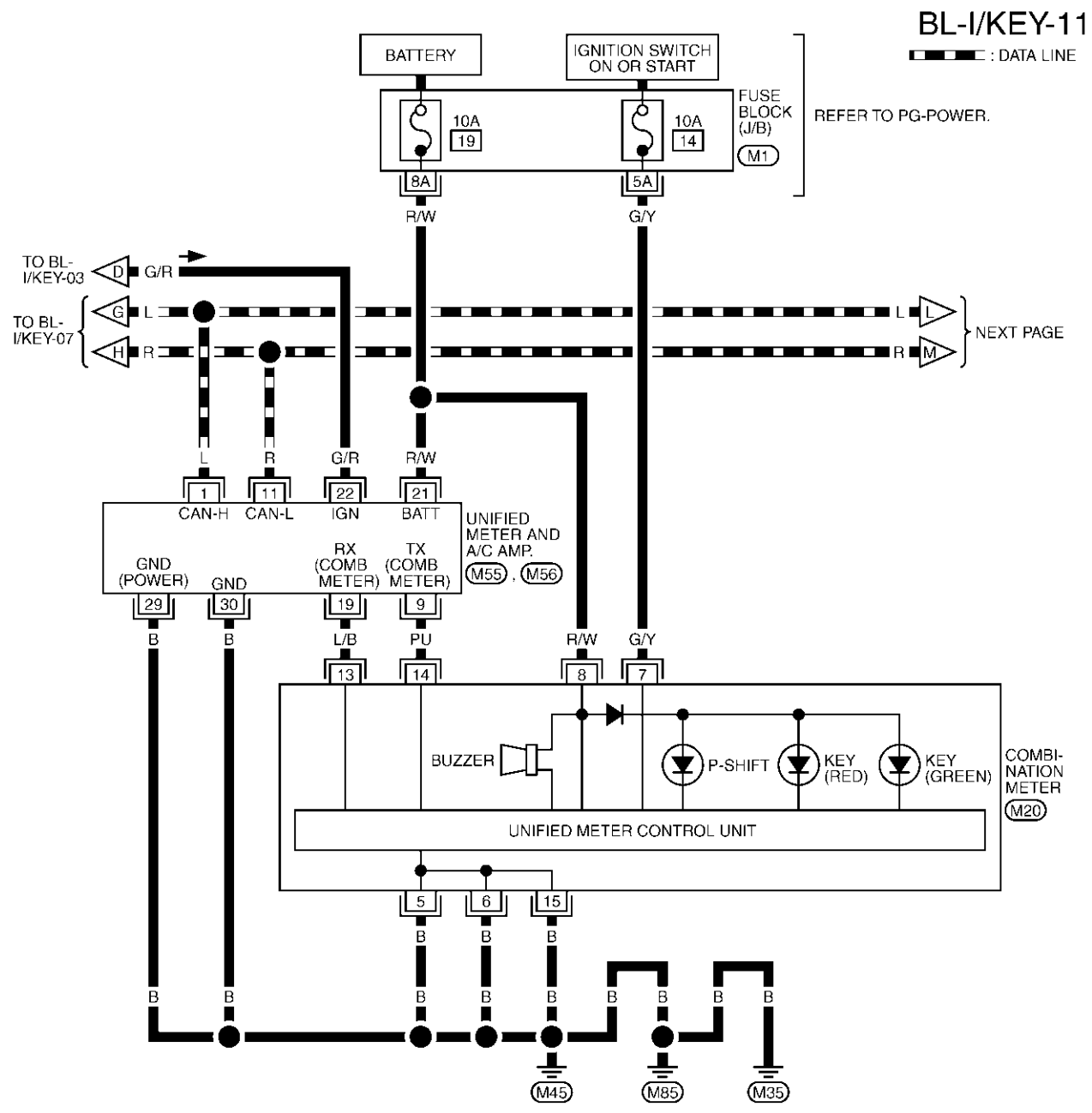
BL-I/KEY-10

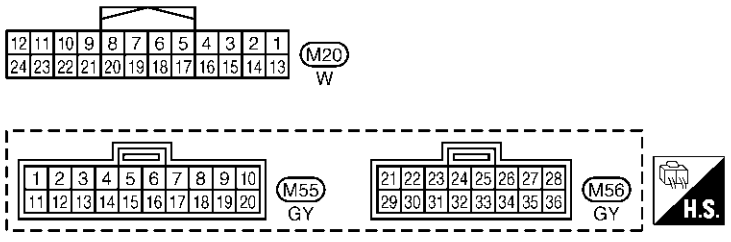




REFER TO THE FOLLOWING.
B1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)
M4 -ELECTRICAL UNITS

TIWM0431E

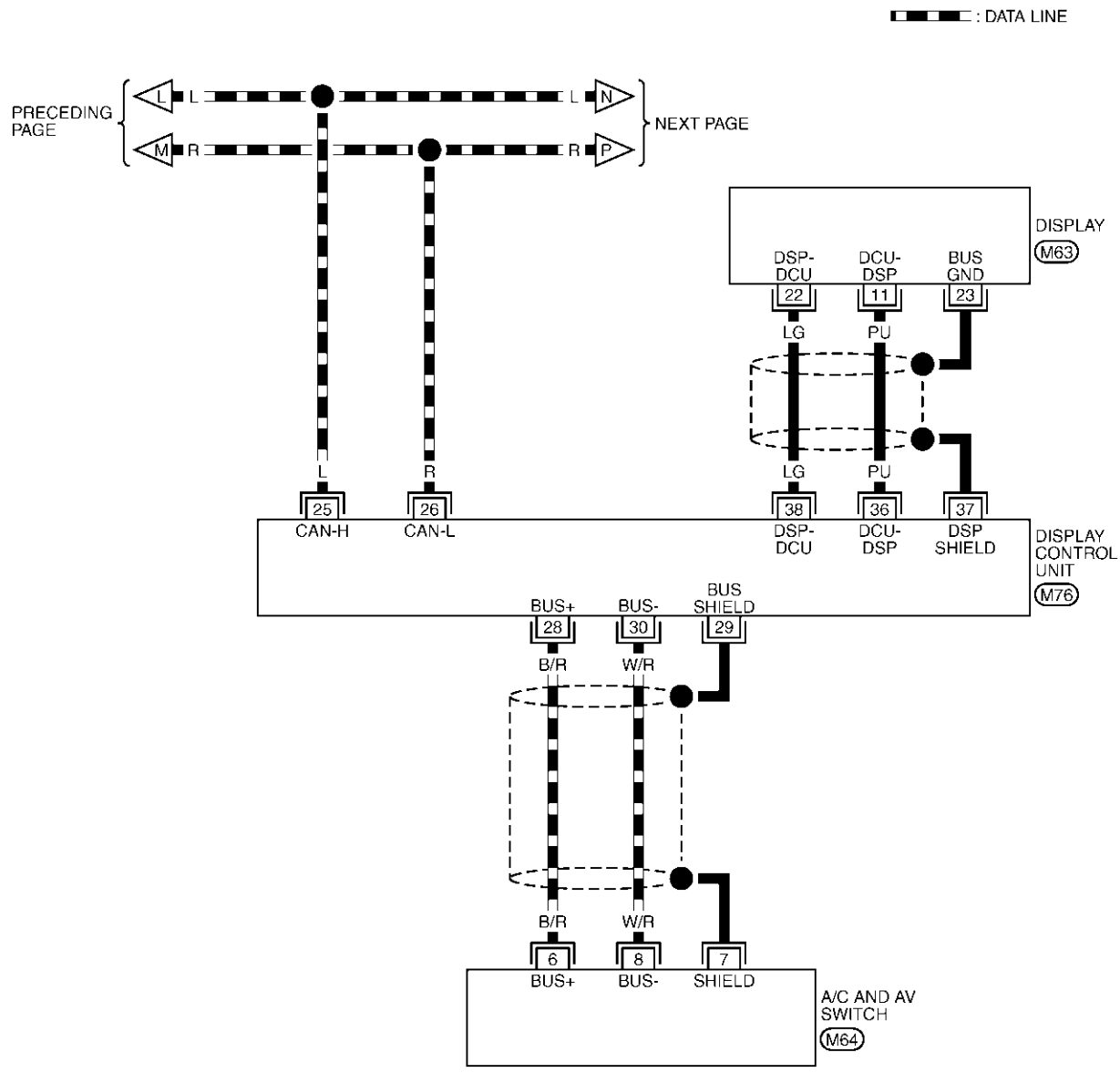


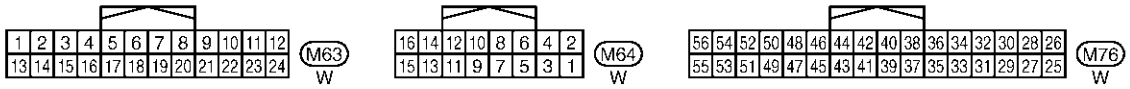


REFER TO THE FOLLOWING.
M1 -FUSE BLOCK-JUNCTION BOX (J/B)

TIWM0432E

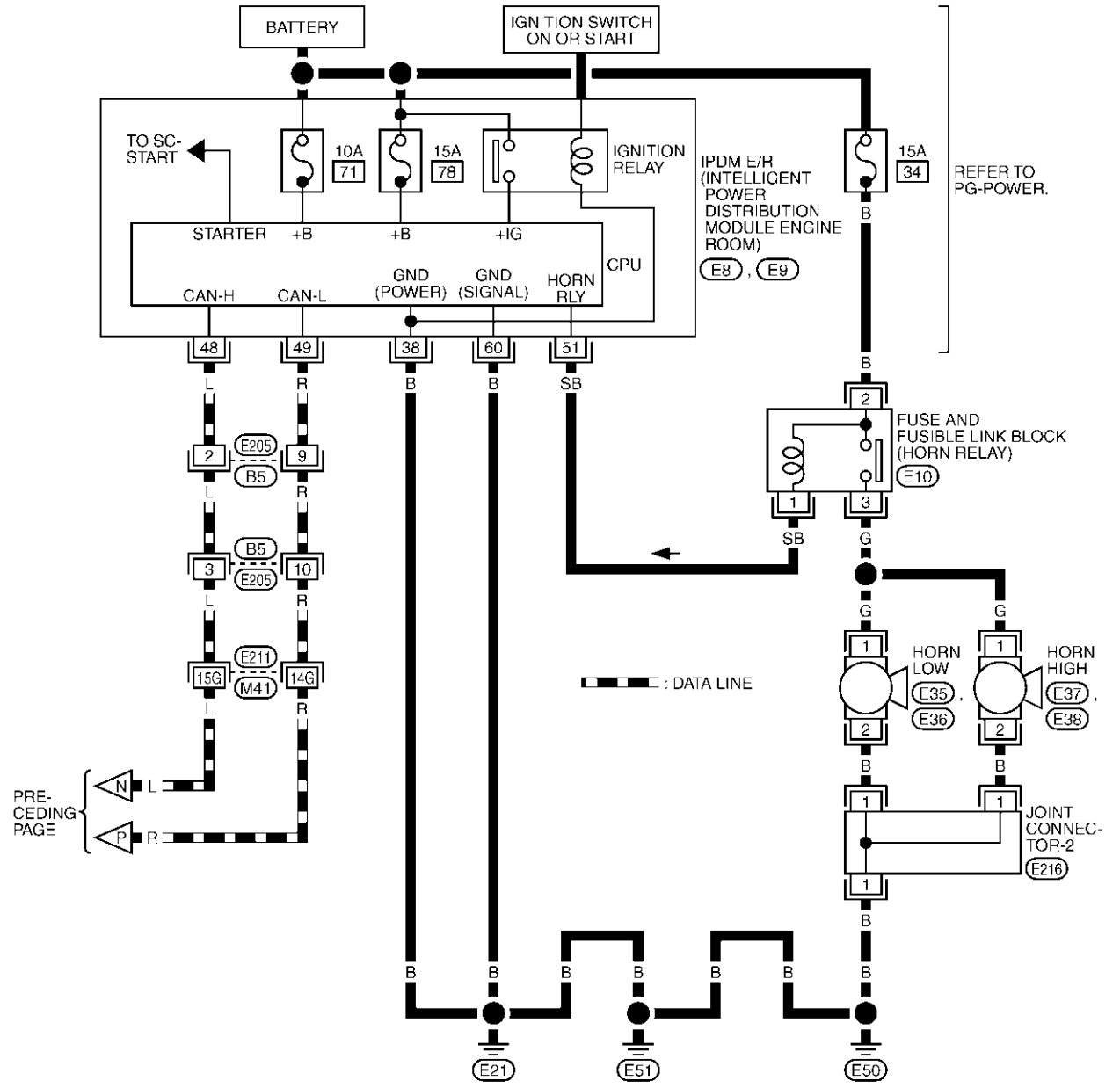
BL-I/KEY-12

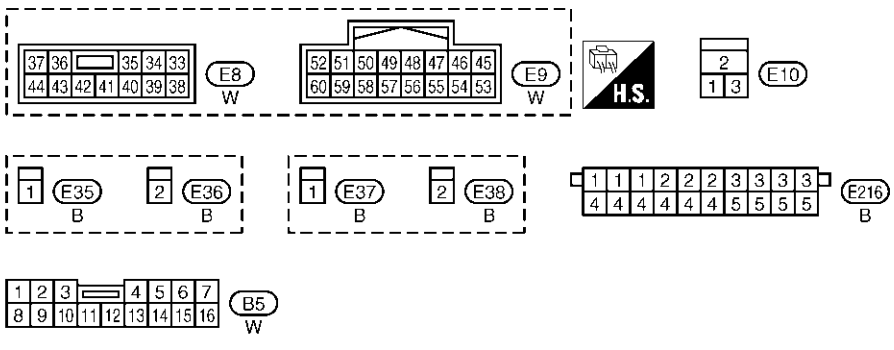




TIWM0433E

BL-I/KEY-13



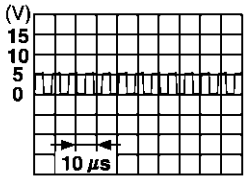
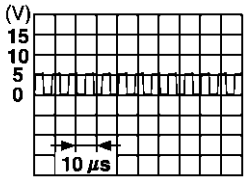
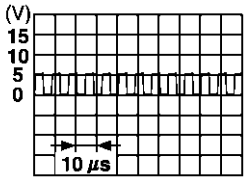
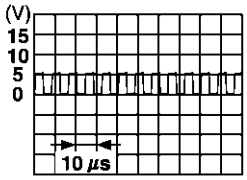


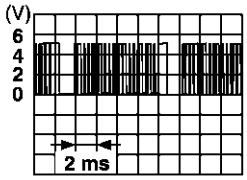
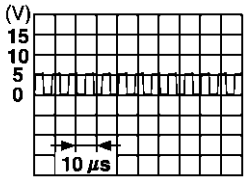
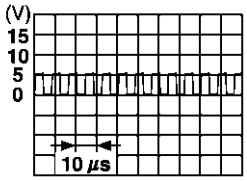
REFER TO THE FOLLOWING.
E211 -SUPER MULTIPLE JUNCTION (SMJ)

TIWM0434E

Terminals and Reference Value for INTELLIGENT KEY UNIT

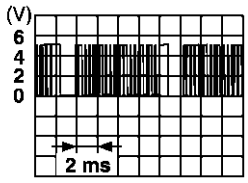
AIS003J9

Terminal No.	Wire color	Item	Measuring condition			Standard (V) Approx.
			Ignition knob position	Operation or conditions		
1	R/W	Steering lock unit power supply	LOCK	—		5
2	L	CAN-H	—	—		—
3	R	CAN-L	—	—		—
4	LG	Intelligent Key warning buzzer	LOCK	Operate remote controller button or door request switch.	Buzzer OFF	Battery voltage
					Sound buzzer	0
5	W/L	Door request switch (driver side)	—	Door request switch operation: Press (ON).		0
				Other than the above (OFF)		5
6	G/R	Ignition power supply	ON	—		Battery voltage
7	B/W	key switch	LOCK	Insert mechanical key into ignition key cylinder.		Battery voltage
				Remove mechanical key from ignition key cylinder.		0
10	LG/R	ACC power supply	ACC	—		Battery voltage
11	L/R	Battery power supply	—	—		Battery voltage
12	B	GND	—	—		0
13	Y	Inside key antenna (+) (Luggage room)	LOCK	Any door open → all doors shut (Door switch: ON → OFF)		 SIIA1910J
14	BR	Inside key antenna (-) (Luggage room)				
15	W/R	Inside key antenna (+) signal (Dashboard)	LOCK	Any door open → Close (Door switch: ON → OFF) Ignition knob switch: ON (press ignition knob.)		 SIIA1910J
16	B/R	Inside key antenna (-) signal (Dashboard)				
17	OR/L	Out side antenna (+)	LOCK	Back door request switch operation (Switch: ON)		 SIIA1910J
18	PU/R	Back door antenna (-)				
19	SB	Outside antenna (driver side) (+)	LOCK	Driver door request signal operation (Switch: ON)		 SIIA1910J
20	R/G	Outside antenna (driver side) (-)				
25	W/R	Door request switch (passenger side)	—	Door request switch operation: Press (ON)		0
				Other than the above (OFF)		5

Terminal No.	Wire color	Item	Measuring condition		Standard (V) Approx.
			Ignition knob position	Operation or conditions	
26	P/L	Stop lamp switch	—	Brake pedal depressed (ON)	5
				Brake pedal not depressed (OFF)	0
27	L/W	Ignition knob switch	—	Press ignition knob.	12
				Return ignition knob to LOCK position.	0
28	W/B	Door unlock sensor	—	Door is locking → unlock	5 → 0
29	GY	Door request switch (back door)	—	Back door request switch operation: Press (ON)	0
				Other than the above (OFF)	5
31	Y/B	Steering lock unit ground	—	—	0
32	R/B	Steering lock unit communication	LOCK	Press ignition knob with Intelligent Key inside vehicle.	 SIIA1911J
				Other than the above	5
35	LG	Inside key antenna (+) signal (Dashboard)	LOCK	Any door open → Close (Door switch: ON → OFF) Ignition knob switch: ON (press ignition knob.)	 SIIA1910J
36	PU	Inside key antenna (-) signal (Dashboard)			
37	G	Outside antenna (passenger side) (+)	LOCK	Passenger door request switch operation (Switch: ON)	 SIIA1910J
38	PU/W	Outside antenna (passenger side) (-)			
39	R/Y	Detention switch	LOCK	A/T selector lever in “P” position.	Battery voltage
				A/T selector lever in other position.	0
40	BR/W	Door lock relay	LOCK	Door request switch (passenger side) pressed	Battery voltage → 0 → Battery voltage

Terminals and Reference Value for Steering Lock unit

AIS003JA

Terminal number	Wire color	Signal Designation	Measuring condition		Standard (V)
			Ignition knob position	Operation or conditions	
1	L/R	Battery power supply	LOCK	—	Approx. 12
2	R/W	Steering lock unit power supply	LOCK	—	Approx. 5
3	R/B	Steering lock unit communication signal	LOCK	Press ignition knob with Intelligent Key inside vehicle.	 SIIA1911J
				Other than the above	Approx. 5
4	Y/B	Steering lock unit ground	—	—	Approx. 0

Terminals and Reference Value for BCM

AIS003JT

TERMINAL	WIRE COLOR	ITEM	CONDITION	VOLTAGE (V) Approx.
1	PU	Key ring illumination output signal	Key ring illumination is lighting.	Battery voltage
			Key ring illumination is being turned off.	0
12	P/B	Front door switch (Passenger side)	Door open (ON) → Close (OFF)	0 → Battery voltage
13	P/L	Rear door switch RH	Door open (ON) → Close (OFF)	0 → Battery voltage
37	B/W	Key switch	Insert mechanical key from ignition key sylinder.	Battery voltage
			Remove mechanical key from ignition key cylinder.	0
38	W/L	Ignition switch	Ignition switch is in ON or START position	Battery voltage
39	L	CAN-H	—	—
40	R	CAN-L	—	—
41	R/B	Battery saver output signal	30 minutes after ignition switch is turned to OFF	0
			Ignition switch is in ON position	Battery voltage
42	L/R	Battery power supply	—	Battery voltage
44	Y	Driver door lock actuator (Unlock)	Door lock / unlock switch (Free → Unlock)	0 → Battery voltage
45	G/W	Left turn signal lamp	When door lock or unlock is operated using Intelligent Key.*1 (ON → OFF)	Battery voltage → 0
46	BR/W	Right turn signal lamp	When door lock or unlock is operated using Intelligent Key.*1 (ON → OFF)	Battery voltage → 0
47	Y/R	Step lamp output signal	Step lamp is lighting.	0
			Step lamp is being turned off.	Battery voltage
48	PU/W	Room lamp output signal	Room lamp is lighting.*2	0
			Room lamp is being turned off.*2	Battery voltage
49	B	Ground	—	0

TERMINAL	WIRE COLOR	ITEM	CONDITION	VOLTAGE (V) Approx.
50	PU/W	Door lock actuator (Lock)	Door lock / unlock switch (Free → Lock)	0 → Battery voltage
51	W/B	Passenger and rear doors lock actuator (Unlock)	Door lock / unlock switch (Free → Unlock)	0 → Battery voltage
52	B	Ground	—	0
54	W	Battery power supply (power window)	—	Battery voltage
55	G	Battery power supply (Fusible link)	—	Battery voltage
58	L	Back door switch	Back door open (ON) → Close (OFF)	0 → 9
62	W	Front door switch (Driver side)	Door open (ON) → Close (OFF)	0 → Battery voltage
63	P	Rear door switch LH	Door open (ON) → Close (OFF)	0 → Battery voltage

*1: In the state that hazard reminder operates.
*2: In the state that room lamp switch is in “DOOR” position.

Terminals and Reference Value for IPDM E/R

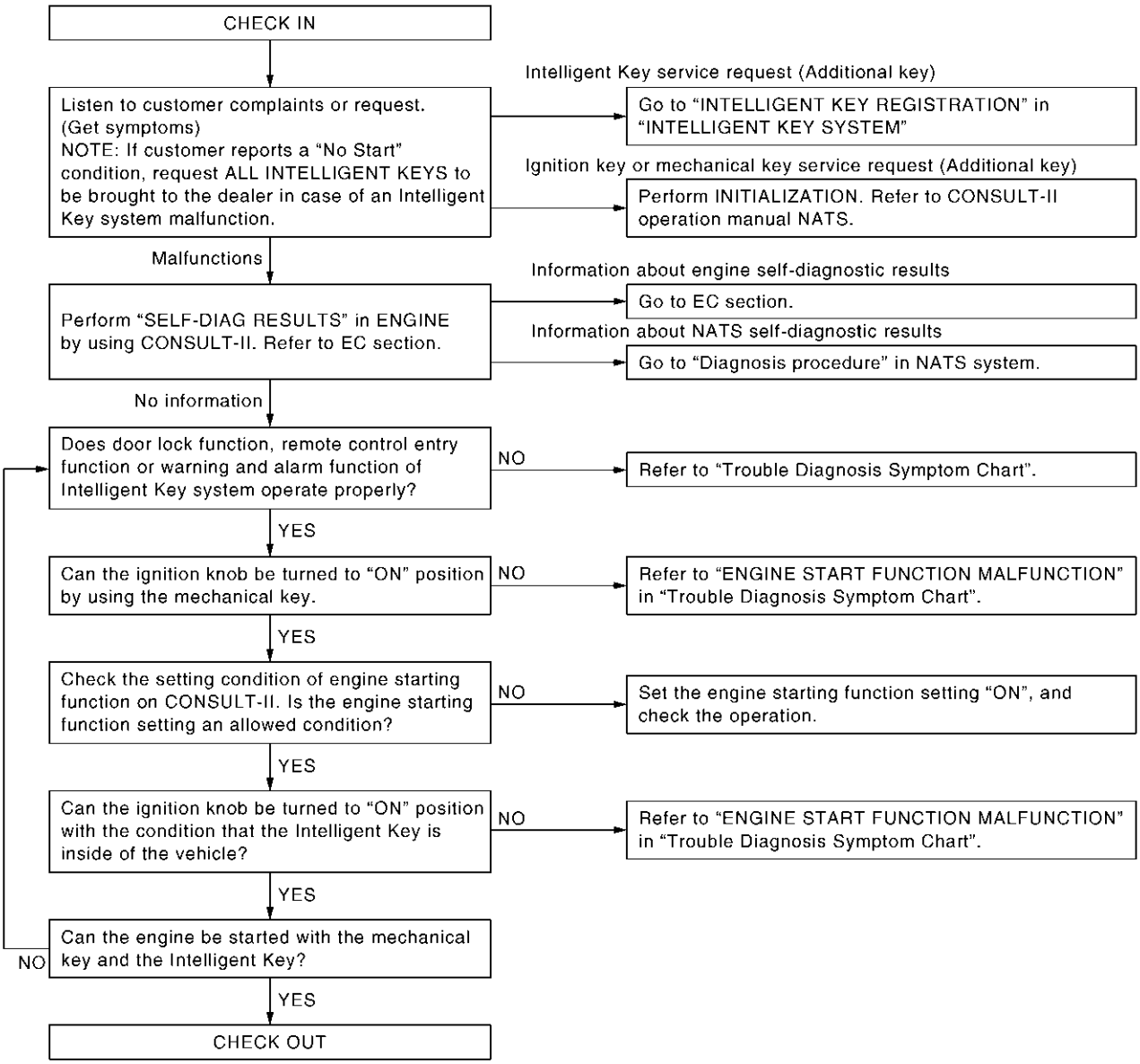
AIS003JU

TERMINAL	WIRE COLOR	ITEM	CONDITION	VOLTAGE (V) Approx.
38	B	Ground	—	0
48	L	CAN – H	—	—
49	R	CAN – L	—	—
51	SB	Horn relay	When panic alarm is operated using Intelligent Key (OFF → ON)	Battery voltage → 0
60	B	Ground	—	0

Diagnosis Procedure

AIS003JB

WORK FLOW



PIIA6736E

CONSULT-II Functions

AIS003JC

- CONSULT-II has display and inspection functions for work support, self-diagnosis, data monitor, and control unit part number by combining data reception and command transmission via communication lines from the Intelligent Key unit.

Part to be diagnosed	Inspection Item, Diagnosis Mode	Description
Intelligent Key	WORK SUPPORT	● Performs Intelligent Key-ID registration, check, and deletion. ● Performs steering lock unit ID registration. ● Changes settings for each function (ON/OFF).
	SELF-DIAG RESULTS	Carres out the self-diagnosis.
	DATA MONITOR	Displays Intelligent Key unit input data in real time.
	ACTIVE TEST	Sends drive signals door lock actuator, buzzer or combination meter to perform operation check.
	CAN DIAGNOSTIC SUPPORT MONITOR	The results of transmit / receive diagnosis of CAN commnunication can be read.
	ECU PART NUMBER	Displays Intelligent Key unit part No.

CONSULT-II Inspection Procedure

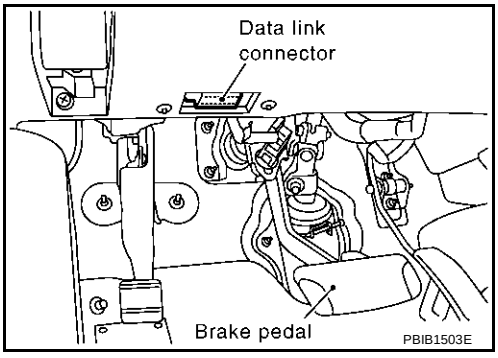
AIS003JD

CAUTION:

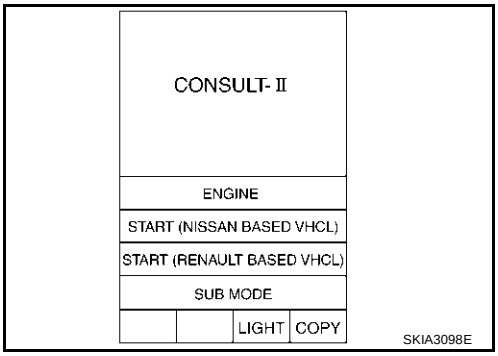
If CONSULT-II is used with no connection CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN Communication.

BASIC OPERATION

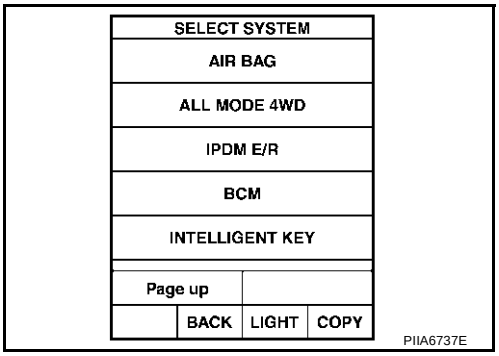
1. Turn ignition knob to LOCK position.
2. Connect CONSULT-II CONVERTER and CONSULT-II to data link connector.



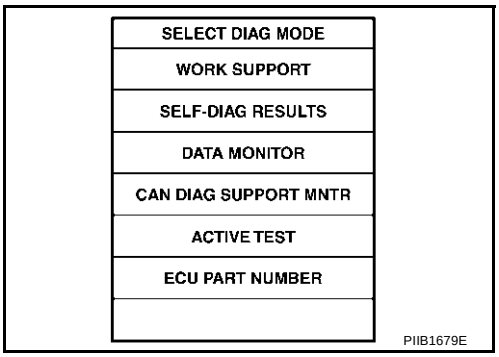
3. Use mechanical key to turn ignition switch to ON.
4. Touch “START (NISSAN BASED VHCL)”.



5. Touch “INTELLIGENT KEY” on “SELECT SYSTEM” screen.
   - If “INTELLIGENT KEY” is not indicated, go to GI-40, "CONSULT-II Data Link Connector (DLC) Circuit" .



6. Select diagnosis mode. “WORK SUPPORT”, “SELF-DIAG RESULTS”, “DATA MONITOR”, “ACTIVE TEST”, "CAN DIAG SUPPORT MNTR" and “ECU PART NUMBER” are available.



CONSULT-II Application Items

AIS003JE

SELF-DIAGNOSTIC RESULTS

In the Intelligent Key unit, the CONSULT-II self-diagnostic results can be used to check for malfunctions in CAN communications.

DATA MONITOR

MAIN SIGNALS Display Item

Monitor item [OPERATION]		Description
PUSH SWITCH	[ON/OFF]	Displays status (Ignition knob switch ON/ignition knob switch OFF) as judged from ignition knob switch signal.
KEY SW	[ON/OFF]	Displays status (Key inserted: ON/Key removed: OFF) as judged by key switch.
DR REQ SW	[ON/OFF]	Displays status (Operable: ON/Non-operable: OFF) as judged from door request switch (driver side) signal.
AS REQ SW	[ON/OFF]	Displays status (Operable: ON/Non-operable: OFF) as judged from door request switch (passenger side) signal.
BD/TR REQ SW	[ON/OFF]	Displays status (Operable: ON/Non-operable: OFF) as judged from door request switch (back door) signal.
IGN SW	[ON/OFF]	Displays status (Ignition knob ON position: ON/Ignition knob OFF position: OFF) as judged from ignition switch signal.
ACC SW	[ON/OFF]	Displays status (Ignition switch ACC position: ON/Ignition switch OFF position: OFF) as judged from ignition switch signal.
DOOR STAT SW	[ON/OFF]	Displays status from door unlock sensor ON/OFF condition.
STOP LAMP SW	[ON/OFF]	Displays status (Brake pedal depress: ON/brake pedal not depress: OFF) as judged from stop lamp switch signal.
P RANGE SW	[ON/OFF]	Displays status from park/neutral position switch ON/OFF condition.
BD OPEN SW	[ON/OFF]	Displays status (Back door open: ON/Back door closed: OFF) as judged from back door opener switch signal.
CAN COMM	[ON/OFF]	Display CAN communication system.
CAN CIRC 1	[ON/OFF]	Display CAN communication system.
CAN CIRC 2	[ON/OFF]	Display CAN communication system.

Monitor item [OPERATION]		Description
CAN CIRC 3	[ON/OFF]	Display CAN communication system.
CAN CIRC 4	[ON/OFF]	Display CAN communication system.

ACTIVE TEST

Monitor item	Description
DOOR LOCK/UNLOCK	This test is able to check all door lock actuators lock operation. These actuators lock when “ON” on CONSULT-II screen is touched.
OUTSIDE BUZZER	This test is able to check Intelligent Key warning buzzer operation. The buzzer will be activated on when “ON” on CONSULT-II screen is touched.
INSIDE BUZZER	This test is able to check buzzer (bultin combination meter) operation. The buzzer will be activated on when “ON” on CONSULT-II screen is touched.
INDICATOR	This test is able to check warning lamp operation. The lamp will be turned on when “ON” on CONSULT-II screen is touched.

WORK SUPPORT

Monitor item	Description
CONFIRM KEY FOB ID	The Intelligent Key ID can be confirmed.
TAKE OUT FROM WINDOW WARN	The condition of Intelligent Key warning function can be changed.
LOW BATT OF KEY FOB WARN	The condition of low battery warning function can be changed.
I-KEY FUNCTION	The condition of Intelligent Key's function can be changed.
ANSWER BACK FUNCTION	The condition of answer back function can be changed.
HORN WITH KEYLESS LOCK	The condition of key reminder function can be set.
SELECTIVE UNLOCK FUNCTION	The condition of selective unlock function can be changed.
HAZARD ANSWER BACK	The condition of key reminder function can be set.
ANSWER BACK WITH I-KEY LOCK	The condition of key reminder function (LOCK) can be changed.
ANSWER BACK WITH I-KEY UNLOCK	The condition of key reminder function (UNLOCK) can be changed.
AUTO RELOCK TIMER	This mode is able confirm and changed auto door lock function operation time setting.
PANIC ALARM DELAY	This mode is able to confirm and change panic alarm function operation delay time setting.
P/W DOWN DELAY	This mode is able to confirm and change remote window open function.
ENGINE START BY I-KEY	This mode is able to confirm and change start function ON - OFF setting.
LOCK/UNLOCK BY I-KEY	The condition of lock/unlock function can be set.
LUG ROOM ENGINE START	This mode is able to confirm and change operation range.

List of Operation Related Parts

AIS003JF

Parts marked with × are the parts related to operation.

Will not operate if there is a malfunction in the area where there is a ×.	Intelligent Key	Key switch	Ignition knob switch	ACC switch	Ignition switch	Door unlock sensor	Door switch	Door request switch	Inside key antenna	Out side key antenna	Intelligent Key warning buzzer	Intelligent Key unit	CAN communication system	BCM	Combination meter	Steering lock unit	Stop lamp switch	Detention switch	Passenger side select unlock relay
Door lock/unlock operation using Intelligent Key remote controller button operation	×					×	×				×	×	×	×					
Door lock/unlock operation using door request switch operation	×					×	×	×		×	×	×	×	×					
Selective door unlock function using door request switch operation	×					×	×	×				×	×	×					×
Selective door unlock function using Intelligent Key remote controller button operation	×					×	×					×	×	×					
Door lock/unlock operation using mechanical key														×					
Ignition knob rotation permission using Intelligent Key	×	×	×						×			×	×		×	×			
Ignition knob rotation permission using mechanical key		×	×									×	×	×	×	×			
Engine start using Intelligent Key	×				×				×			×	×	×		×	×	×	
Engine start using mechanical key					×	×							×	×		×	×	×	
Key reminder door lock operation	×					×	×		×		×	×	×	×					
Selector lever reminder operation		×			×							×	×		×			×	
Ignition switch return forgotten warning			×	×	×		×					×		×	×				
Ignition key warning (when using mechanical key)		×											×	×	×				
Ignition switch OFF position warning (for inside car: when door closed)		×	×	×	×							×	×		×				
Ignition switch OFF position warning (for outside car: when door opened/closed)		×	×	×	×		×				×	×	×	×	×				
Warning for removal of Intelligent Key to outside the car (when door open/closed)	×	×	×				×		×		×	×	×	×	×				
Warning for removal of Intelligent Key to outside the car (from window)	×	×	×				×		×			×	×		×				
Door lock non-operation warning	×					×	×	×		×	×	×	×	×					
Intelligent key low battery warning	×				×							×	×		×				

Trouble Diagnosis Symptom Chart

AIS003JG

ALL FUNCTIONS OF THE INTELLIGENT KEY ARE NOT OPERATING

Symptom	Diagnoses service procedure	Refer to page
"KEY" and "P shift" warning lamps in combination meter do not light up at all.	1. Check Intelligent Key unit power supply and ground circuit	BL-162
	2. Check CAN communication	BL-161
	3. Replace Intelligent Key unit	BL-183
"KEY" and "P shift" warning lamps in combination meter turn on, but doors cannot be locked/ unlocked or the engine starter using Intelligent Key.	1. Use CONSULT-II to check if the Intelligent Key has been registered	Refer to CONSULT-II Operation Manual
	2. Use CONSULT-II setting change function to check if Intelligent Key system has been cancelled	BL-155
	3. Intelligent Key inspection	BL-184
	4. Replace Intelligent Key unit	BL-183

REMOTE CONTROL ENTRY FUNCTION MALFUNCTION

Symptom	Diagnoses service procedure	Refer to page
Door lock/unlock does not operate (other functions normal) when Intelligent Key remote controller button is operated.	1. Check door lock/unlock setting	BL-155
	2. Intelligent Key inspection	BL-184
	3. Check door unlock sensor	BL-169
	4. Check door switch	BL-166
	5. Replace BCM	BCS-28
	6. Replace Intelligent Key unit	BL-183
Driver side selective door unlock function does not operate, when Intelligent Key remote controller button is operated. (All other remote control entry function is OK.)	1. Check selective door unlock setting	BL-155
	2. Replace BCM	BCS-28
	3. Replace Intelligent Key unit	BL-183
Panic alarm (horn and headlamp) does not activate, when panic alarm button is continuously pressed. (All other remote control entry function is OK.)	1. Check panic alarm mode	BL-155
	2. Check headlamp function	BL-182
	3. Check horn function	BL-182
	4. Check IPDM E/R operation	BL-182
	5. Check key switch (Intelligent Key unit input)	BL-162
	6. Check ignition knob switch	BL-165
	7. Replace Intelligent Key unit	BL-183
Hazard lamps do not flash during door lock operation using Intelligent Key remote controller button operated. (Turn signal lamp operation is OK.) (All other remote control entry function is OK.)	1. Check key reminder setting	BL-155
	2. Replace BCM	BCS-28
	3. Replace Intelligent Key unit	BL-183
Hazard lamps do not flash during door lock operation using Intelligent Key remote controller button operated. (Turn signal lamps do not operate.)	Check hazard function	BL-182
Intelligent Key warning buzzer does not sound during door lock/unlock operation using Intelligent Key remote controller button is operated. (All other remote control entry function is OK.)	1. Check if the operation confirmation Intelligent Key warning buzzer was cancelled by the CONSULT-II settings change function	BL-155
	2. Check Intelligent Key warning buzzer	BL-172
	3. Replace Intelligent Key unit	BL-183

DOOR LOCK FUNCTION MALFUNCTION

Before conducting the diagnosis in the following table, check all power door lock system function. Refer to BL-21, "System Description" .

Symptom	Diagnoses service procedure	Refer to page
Door lock/unlock does not operate when door request switch operation is used (power door lock system is normal).	1. Check door lock/unlock setting	BL-155
	2. Check outside key antenna	BL-173
	3. Intelligent Key inspection	BL-184
	4. Replace Intelligent Key unit	BL-183
Door lock/unlock do not operate using door request switch operated (power door lock system is normal).	1. Check door switch	BL-166
	2. Check key switch (Intelligent Key unit input)	BL-162
	3. Check ignition knob switch	BL-165
	4. Replace Intelligent Key unit	BL-183
Driver side selective door unlock function does not operate, when door request switch is operated. (All other door lock function is OK.)	1. Check selective door unlock setting	BL-155
	2. Replace BCM	BCS-28
Passenger side selective door unlock function does not operate, when door request switch is operated. (All other door lock function is OK.)	1. Check selective door unlock setting	BL-155
	2. Check passenger side select unlock relay	BL-181
	3. Replace Intelligent Key unit	BL-183
Hazard lamps do not flash during door lock operation using door request switch operated. (Turn signal lamp operation is normal.) (All other door lock function is OK.)	1. Check key reminder setting	BL-155
	2. Replace BCM	BCS-28
	3. Replace Intelligent Key unit	BL-183
Hazard lamps do not flash during door lock operation using door request switch operated. (Turn signal lamps do not operate.)	Check hazard function	BL-182
Intelligent Key warning buzzer does not sound during door lock/unlock operation using Intelligent Key (regardless of whether Intelligent Key remote controller button or request switch operation is used).	1. Check if the operation confirmation Intelligent Key warning buzzer was cancelled by the CONSULT-II settings change function	BL-155
	2. Check Intelligent Key warning buzzer	BL-172
	3. Replace Intelligent Key unit	BL-183
Door lock/unlock operation confirmation Intelligent Key warning buzzer sounds, but door lock actuator does not operate. (And hazard lamps do not flash.)	1. Check CAN communication	BL-161
	2. Replace Intelligent Key unit	BL-183

ENGINE START FUNCTION MALFUNCTION

Intelligent Key Operation Inspection

Symptom		Diagnoses service procedure	Refer to page
Ignition knob can not turn	This lights up KEY warning lamp on combination meter in red when ignition knob is pressed. (door lock functions normal)	1. Intelligent Key inspection	BL-184
		2. Check inside key antenna	BL-175
		3. Replace Intelligent Key unit	BL-183
	This lights up KEY warning lamp on combination meter in green when ignition knob is pressed.	1. Check ignition knob switch	BL-165
		2. Check steering lock unit	BL-176
		3. Check Intelligent Key unit power supply and ground circuit	BL-162
		4. Replace Intelligent Key unit	BL-183
	Ignition knob turns even without both Intelligent Key and mechanical key.	Replace steering lock unit	—
	Security indicator will still flash when ignition knob is pressed.	1. Check key switch (Intelligent Key unit input)	BL-162
		2. Replace Intelligent Key unit	BL-183
	Security indicator does not flash with ignition knob released at LOCK position. (push switch OFF)	1. CAN communication system	BL-161
		2. Ignition knob switch system	BL-165
		3. Intelligent Key unit power supply and ground circuit	BL-162
		4. Inspect combination meter (warning lamp)	DI-4
Starter motor does not cranking. (Ignition knob can turn)		1. Check detention switch	BL-179
		2. Check stop lamp switch	BL-178
		3. Replace Intelligent Key unit	BL-183

Mechanical Key Operation Inspection

Symptom		Diagnoses service procedure	Refer to page
Ignition knob can not turn	Security indicator remains flashing with mechanical key inserted.	1. Check key switch (BCM input)	BL-162
		2. Replace Intelligent Key unit	BL-183
	KEY indicator and security indicator does not flashing with mechanical key inserted.	1. Check stop lamp switch	BL-178
		2. Replace Intelligent Key unit	BL-183
Starter motor does not cranking. (Ignition knob can turn)		1. Check detention switch	BL-179
		2. Check stop lamp switch	BL-178
		3. Replace Intelligent Key unit	BL-183

WARNING CHIME FUNCTION MALFUNCTION

Before conducting the diagnosis in the following table, check “key reminder function” with power door lock system.

Symptom	Diagnoses service procedure	Refer to page
Ignition key warning chime is inoperative. (When mechanical key used)	1. Check CAN communication	BL-161
	2. Check key switch (Intelligent Key unit input)	BL-162
	3. Check door switch	BL-166
	4. Inspect combination meter (warning)	DI-4
	5. Replace Intelligent Key unit	BL-183
Ignition knob OFF position warning chime (for inside vehicle) does not sound. (Ignition key warning chime operates)	1. Check CAN communication	BL-161
	2. Check ignition knob switch	BL-165
	3. Check key switch (Intelligent Key unit input)	BL-162
	4. Replace Intelligent Key unit	BL-183

Symptom	Diagnoses service procedure	Refer to page
Ignition knob OFF position warning chime (for outside vehicle: after door open/closed) does not sound.	1. Check CAN communication	BL-161
	2. Check ignition knob switch	BL-165
	3. Check door switch	BL-166
	4. Check Intelligent Key warning buzzer	BL-172
	5. Replace Intelligent Key unit	BL-183
Intelligent Key take out warning chime (when door open/closed) does not sound.	1. Check CAN communication	BL-161
	2. Intelligent Key inspection	BL-184
	3. Check ignition knob switch	BL-165
	4. Check door switch	BL-166
	5. Check Intelligent Key warning buzzer	BL-172
	6. Replace Intelligent Key unit	BL-183
Intelligent Key take out warning chime (when door opened/closed) sounds even though Intelligent Key is in vehicle.	1. Check inside key antenna	BL-175
	2. Intelligent Key inspection	BL-184
	3. Replace Intelligent Key unit	BL-183
P position selecting warning lamp does not light up	1. Check detention switch	BL-179
	2. Check combination meter	DI-4
	3. Replace Intelligent Key unit	BL-183
Intelligent Key take out warning chime (when selector lever is except P position) does not sound.	1. Check CAN communication	BL-161
	2. Check detention switch	BL-179
	3. Replace Intelligent Key unit	BL-183
Intelligent Key take out warning chime (through window) does not sound	1. Check if Intelligent Key removal warning (take out from window) was canceled by CONSULT-II settings change function	BL-155
	2. Check CAN communication	BL-161
	3. Intelligent Key inspection	BL-184
	4. Check ignition knob switch	BL-165
	5. Replace Intelligent Key unit	BL-183
Intelligent Key take out warning chime (through window) sounds even though Intelligent Key is in vehicle.	1. Check inside key antenna	BL-175
	2. Intelligent Key inspection	BL-184
	3. Replace Intelligent Key unit	BL-183

Symptom	Diagnoses service procedure	Refer to page
Door lock non-operation warning does not sound.	**Intelligent Key warning chime does not sound**	
	1. Intelligent Key inspection	BL-184
	2. Check door request switch	BL-171
	3. Check inside key antenna	BL-175
	4. Check Intelligent Key warning buzzer	BL-172
	5. Replace Intelligent Key unit	BL-183
	Ignition knob OFF position warning chime does not sound	
	1. Intelligent Key inspection	BL-184
	2. Check door request switch	BL-171
	3. Check outside key antenna	BL-173
	4. Check Intelligent Key warning buzzer	BL-172
	5. Check ignition knob switch	BL-165
	6. Replace Intelligent Key unit	BL-183
	Door ajar alarm	
	1. Check CAN communications	BL-161
	2. Check door request switch	BL-171
	3. Check outside key antenna	BL-173
	4. Check Intelligent Key warning buzzer	BL-172
	5. Check door switch	BL-166
	6. Intelligent Key inspection	BL-184
	7. Replace Intelligent Key unit	BL-183

Check CAN Communication System Inspection

AIS003JH

1. SELF-DIAGNOSTIC RESULT CHECK

CAUTION:

If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication.

With CONSULT-II

1. Connect CONSULT-II, and turn ignition switch ON.
2. Touch “INTELLIGENT KEY” on “SELECT SYSTEM” screen.
3. Touch “SELF-DIAG RESULTS” on “SELECT DIAG MODE” screen.
4. Check display content in self-diagnostic results.

Displayed U1000?

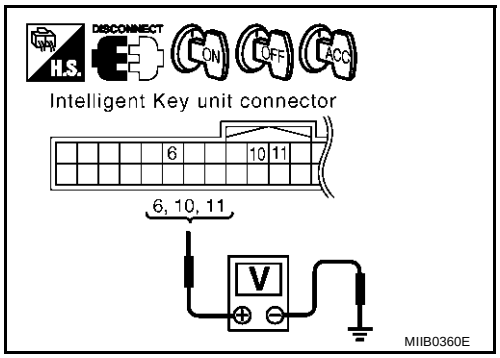
Yes >> Inspection END.
No >> GO TO LAN-4, "Precautions When Using CONSULT-II"

Check Intelligent Key Unit Power Supply and Ground Circuit

AIS003JI

1. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition knob OFF position.
2. Disconnect Intelligent Key unit connector M34 and measure the connector terminal (+) and ground (-) shown in the following table.



Terminal (wire color)	Signal Designation	Ignition switch	Standard voltage (V)
6 (G/R)	Ignition power supply	ON	Battery voltage
10 (LG/R)	ACC power supply	ACC	Battery voltage
11 (L/R)	Battery power supply	OFF	Battery voltage

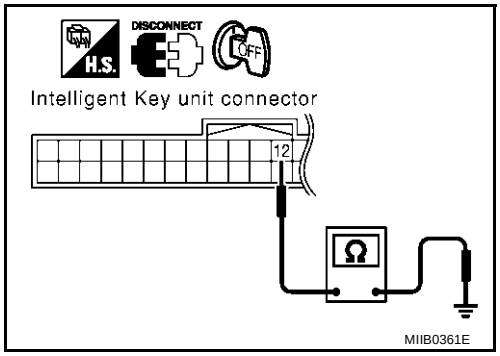
OK or NG

OK >> GO TO 2.
NG >> Repair or replace Intelligent Key power supply circuit.

2. CHECK GROUND CIRCUIT

Check continuity between Intelligent Key unit connector M34 terminal 12 (B) and ground.

12 (B) - Ground : Continuity should exist.



OK or NG

OK >> Power supply and ground circuits are normal.
NG >> Repair or replace the Intelligent Key unit ground circuit.

Check Key Switch (Intelligent Key Unit Input)

AIS003JJ

1. KEY SWITCH INSPECTION

With CONSULT-II

Display “KEY SW” on DATA MONITOR screen, and check if ON-OFF display is linked to insertion of mechanical key in ignition knob.

When key is inserted in ignition knob : ON
When key is removed in ignition knob : OFF

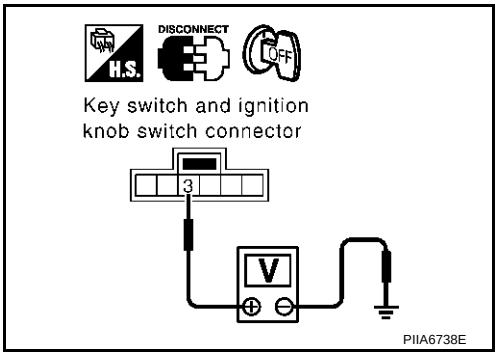
OK or NG

OK >> Key switch is OK.
NG >> GO TO 2.

2. KEY SWITCH POWER SUPPLY CIRCUIT INSPECTION

1. Remove mechanical key from ignition knob.
2. Disconnect key switch and ignition knob switch connector.
3. Check voltage between key switch and ignition knob switch connector M22 terminal 3 (L/R) and ground.

3 (L/R) - Ground : Battery voltage



OK or NG

OK >> GO TO 3.
NG >> Repair or replace key switch power supply circuit.

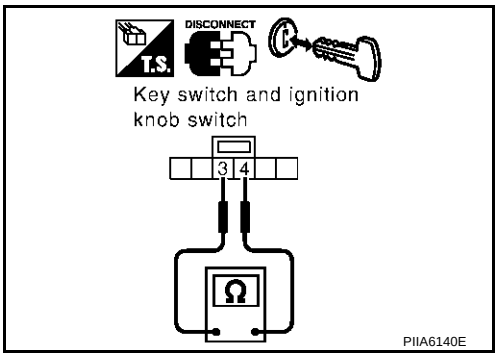
3. KEY SWITCH OPERATION INSPECTION

1. Insert mechanical key into ignition knob.
2. Check continuity between key switch and ignition knob switch connector M22 terminal 3 and 4.

3 - 4

Insert mechanical key into ignition knob. : Continuity should exist.

Remove mechanical key from ignition knob. : Continuity should not exist.



OK or NG

OK >> GO TO 4.
NG >> Replace key switch.

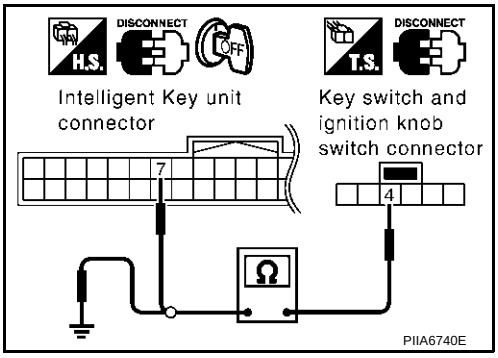
4. KEY SWITCH CIRCUIT INSPECTION

1. Disconnect Intelligent Key unit connector.
2. Check continuity between Intelligent Key unit connector M34 terminal 7 (B/W) and key switch and ignition knob switch connector M22 terminal 4 (B/W).

7 (B/W) - 4 (B/W) : Continuity should exist.

3. Check continuity between key switch and ignition knob switch connector M22 terminal 4 (B/W) and ground.

4 (B/W) - Ground : Continuity should not exist.



OK or NG

OK >> Key switch is OK.
NG >> Repair or replace harness between Intelligent Key unit and key switch and ignition knob switch.

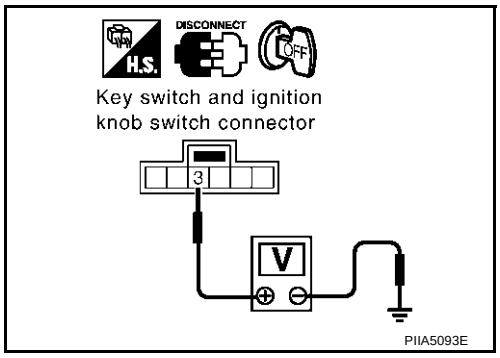
Check Key Switch (BCM Input)

AIS003LB

1. KEY SWITCH POWER SUPPLY CIRCUIT INSPECTION

1. Turn ignition knob OFF position.
2. Disconnect key switch connector and key lock solenoid connector.
3. Check voltage between key switch and key lock solenoid connector M22 terminal 3 (L/R) and ground.

3 (L/R) – Ground : Battery voltage.



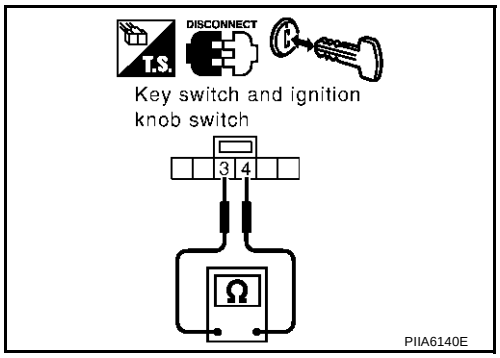
OK or NG

OK >> GO TO 2.
NG >> Check harness between key switch and key lock solenoid and fuse.

2. KEY SWITCH INSPECTION

Check continuity between key switch as follows.

Connector	Terminals	Condition	Continuity
M22	3 – 4	Key is inserted in ignition key cylinder.	Yes
		Key is removed from ignition key cylinder.	No



OK or NG

OK >> GO TO 3.
NG >> Replace detention switch.

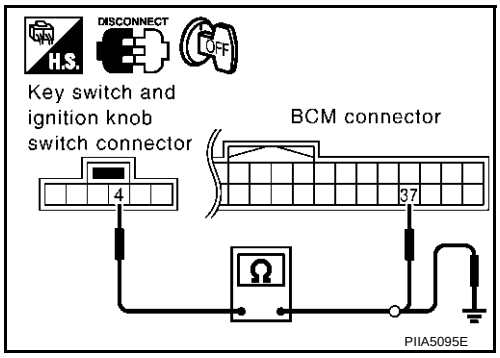
3. KEY SWITCH SIGNAL CIRCUIT INSPECTION

1. Disconnect key switch and ignition knob switch connector and BCM connector.
2. Check continuity between key switch and ignition knob switch connector M22 terminal 4 (B/W) and BCM connector M3 terminal 37 (B/W).

4 (B/W) – 37 (B/W) : Continuity should exist.

3. Check continuity between key switch and ignition knob switch connector M22 terminal 4 (B/W) and ground.

4 (B/W) – Ground : Continuity should not exist.



OK or NG

OK >> Key switch (BCM input) circuit is OK.
NG >> Repair or replace harness between key switch and ignition knob switch and BCM.

Check Ignition Knob Switch

AIS003JK

1. IGNITION KNOB SWITCH INSPECTION

With CONSULT-II

Display “PUSH SW” on DATA MONITOR screen, and check if ON/OFF display is linked to ignition knob operation.

Press ignition knob.	**: ON**
Return ignition knob (release hands from ignition knob)	**: OFF**

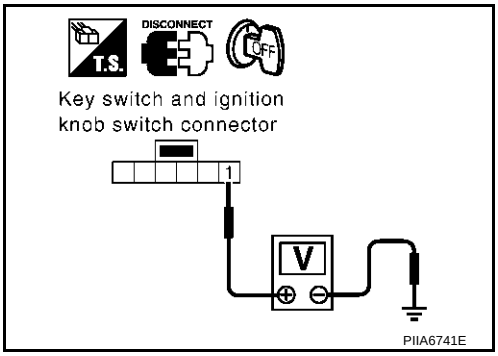
OK or NG

OK >> Ignition knob switch is OK.
NG >> GO TO 2.

2. IGNITION KNOB SWITCH POWER SUPPLY CIRCUIT INSPECTION

1. Turn ignition knob LOCK position.
2. Disconnect key switch and ignition knob switch connector.
3. Check voltage between key switch and ignition knob switch connector M22 terminal 1 (L/R) and ground.

1 (L/R) - Ground : Battery voltage



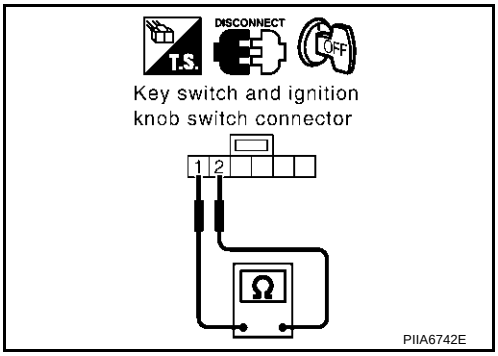
OK or NG

OK >> GO TO 3.
NG >> Repair or replace key switch and ignition knob switch power supply circuit.

3. IGNITION KNOB SWITCH OPERATION INSPECTION

Check continuity between key switch and ignition knob switch connector M22 terminal 1 and 2.

Press ignition knob.	**: Continuity should exist.**
Return ignition knob (release hands from ignition knob).	**: Continuity should not exist.**



OK or NG

OK >> GO TO 4.
NG >> Replace key switch and ignition knob switch.

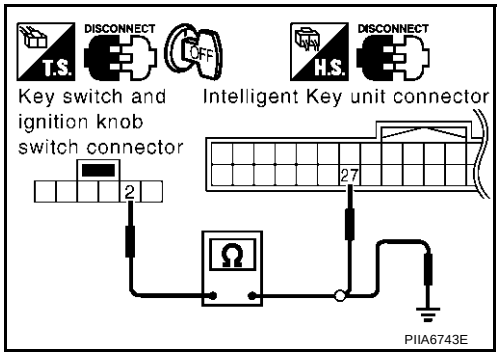
4. IGNITION KNOB SWITCH CIRCUIT INSPECTION

1. Disconnect Intelligent Key unit connector.
2. Check continuity between Intelligent Key unit connector M34 terminal 27 (L/W) and key switch and ignition knob switch connector M22 terminal 2 (L/W).

27 (L/W) - 2 (L/W) : Continuity should exist.

3. Check continuity between key switch and ignition knob switch connector terminal 2 (L/W) and ground.

2 (L/W) - Ground : Continuity should not exist.



OK or NG

OK >> Replace Intelligent Key unit.
NG >> Repair or replace harness between Intelligent Key unit and key switch and ignition knob switch.

AIS003KQ

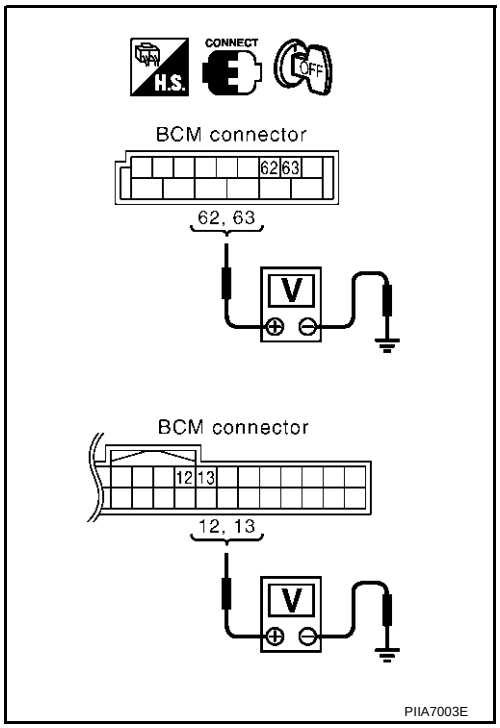
Check Door Switch

CHECK DOOR SWITCH (EXCEPT BACK DOOR SWITCH)

1. DOOR SWITCH INPUT SIGNAL INSPECTION

1. Turn ignition knob LOCK position.
2. Check voltage between BCM connector and ground.

Item	Connector	Terminals (Wire color)		Door condition	Voltage (V) (Approx.)
		(+)	(-)		
Driver side	B14	62 (W)	Ground	CLOSE ↓ OPEN	Battery voltage ↓ 0
Rear LH		63 (P)			
Passenger side	M3	12 (P/B)			
Rear RH		13 (P/L)			



OK or NG

OK >> Door switch circuit is OK.
NG >> GO TO 2.

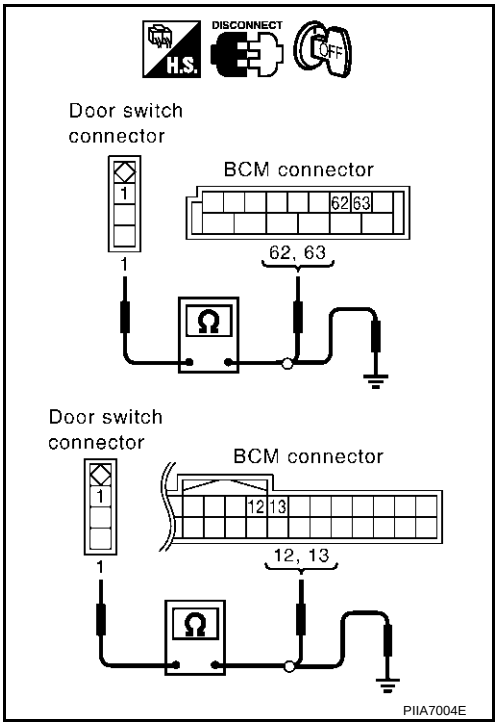
2. DOOR SWITCH CIRCUIT INSPECTION

1. Disconnect door switch and BCM connector.
2. Check continuity between door switch connector B26, B36, B46, B206 terminals 1 and BCM connector M3, B14 terminals 62, 12, 63, 13.

Driver side door
1 (W) –62 (W) : Continuity should exist.
Passenger side door
1 (SB) – 12 (P/B) : Continuity should exist.
Rear door LH
1 (P) – 63 (P) : Continuity should exist.
Rear door RH
1 (P) – 13 (P/L) : Continuity should exist.

3. Check continuity between door switch connector B26, B36, B46, B206 terminal 1 and ground.

1 (W, SB, P) – Ground : Continuity should not exist.



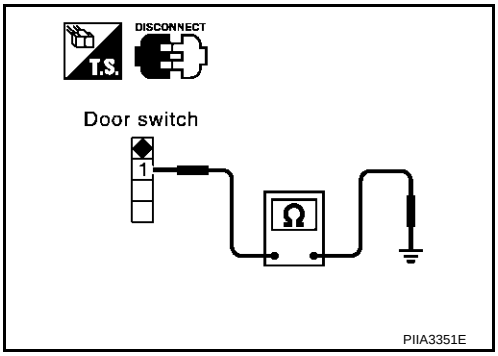
OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness.

3. DOOR SWITCH INSPECTION

Check continuity between door switch terminal 1 and ground part of door switch.

Terminal		Door switch condition	Continuity
1	Ground part of door switch	Pushed	No
		Released	Yes



OK or NG

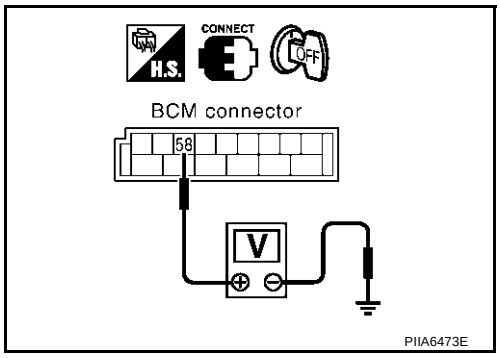
OK >> Check door switch case ground condition.
NG >> Replace door switch.

CHECK BACK DOOR SWITCH

1. BACK DOOR SWITCH INPUT SIGNAL INSPECTION

1. Turn ignition knob OFF position.
2. Check voltage between BCM connector and ground.

Item	Connector	Terminal (Wire color)		Back door condition	Voltage (V) (Approx.)
		(+)	(-)		
Back door switch	B14	58 (L)	Ground	CLOSE ↓ OPEN	Battery voltage ↓ 0



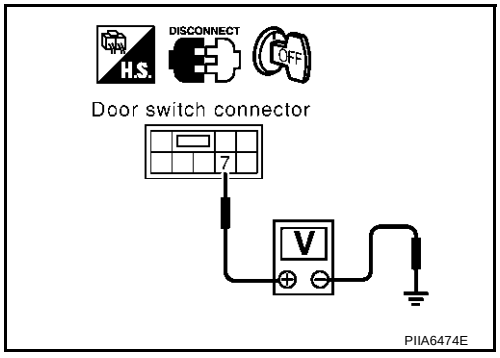
OK or NG

OK >> Door switch circuit is OK.
NG >> GO TO 2.

2. BACK DOOR SWITCH CIRCUIT INSPECTION

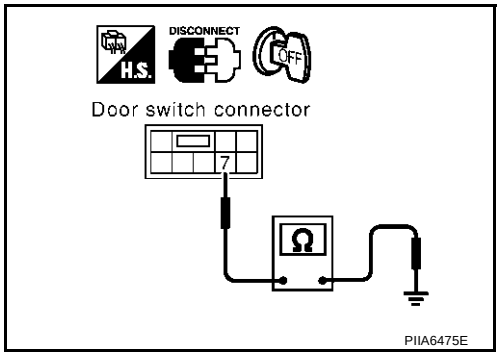
1. Disconnect back door switch connector.
2. Check voltage between back door switch connector D109 terminal 7 (L) and ground. (Check harness for open.)

7 (L) – Ground : Battery voltage



3. Check continuity between back door switch connector D109 terminals 7 (L) and ground. (Check harness for short.)

7 (L) – Ground : Continuity should not exist.



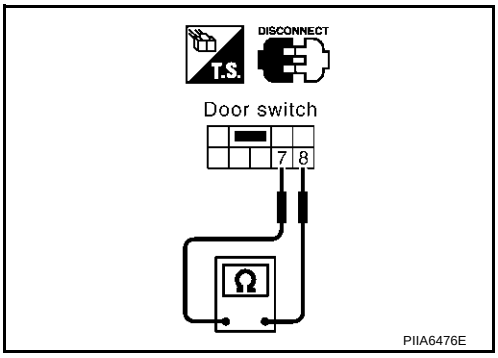
OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness.

3. BACK DOOR SWITCH INSPECTION

Check continuity between back door switch terminal 7 and 8.

Terminal	Back door condition	Continuity
7 – 8	Closed	No
	Open	Yes



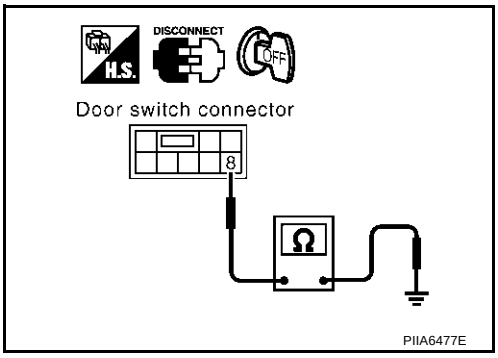
OK or NG

OK >> GO TO 4.
NG >> Replace back door closure motor (door switch).

4. BACK DOOR SWITCH GROUND CIRCUIT INSPECTION

Check continuity between back door switch connector D109 terminal 8 and ground.

8 (B) – Ground : Continuity should exist.



OK or NG

OK >> Check harness connection.
NG >> Repair or replace harness.

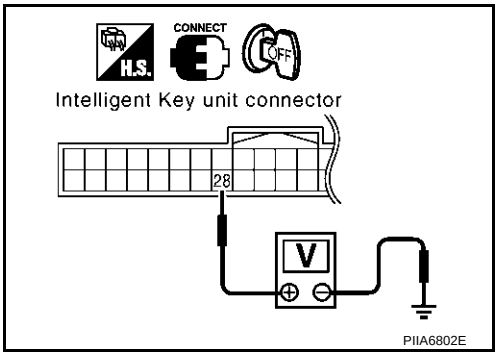
Check Unlock Sensor

AIS003KR

1. UNLOCK SENSOR POWER SUPPLY INSPECTION

Check voltage between Intelligent Key unit connector and ground.

Connector	Terminals (Wire color)		Condition	Voltage (V) (Approx.)
	(+)	(-)		
M34	28 (W/B)	Ground	Driver side door lock is locked	5
			Driver side door lock is unlocked	0



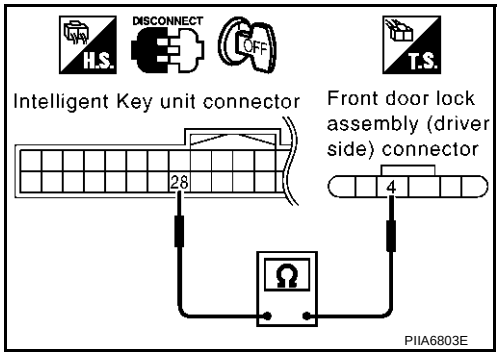
OK or NG

OK >> Unlock sensor is OK.
NG >> GO TO 2.

2. UNLOCK SENSOR CIRCUIT INSPECTION

1. Turn ignition knob LOCK position.
2. Disconnect Intelligent Key unit and front door lock assembly (driver side) connector.
3. Check continuity between Intelligent Key unit connector M34 terminal 28 (W/B) and front door lock assembly (driver side) connector D10 terminal 4 (W).

28 (W/B) – 4 (W) : Continuity should exist.



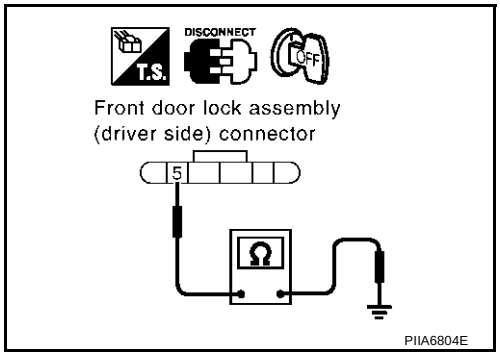
OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness between Intelligent Key unit and front door lock assembly (driver side).

3. UNLOCK SENSOR GROUND CIRCUIT INSPECTION

Check continuity between front door lock assembly (driver side) connector D10 terminal 5 (B) and ground.

5 (B) – Ground : Continuity should exist.



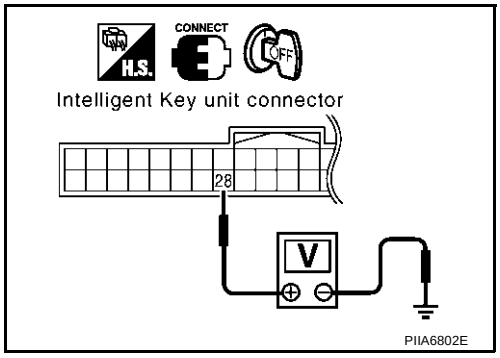
OK or NG

OK >> GO TO 4.
NG >> Repair or replace harness.

4. INTELLIGENT KEY UNIT OUTPUT SIGNAL INSPECTION

1. Connect Intelligent Key unit connector.
2. Driver side door lock is locked.
3. Check voltage between Intelligent Key unit connector M34 terminal 28 (W/B) and ground.

28 (W/B) – Ground : Approx. 5V



OK or NG

OK >> Check harness connection.
NG >> Replace Intelligent Key unit.

Check Door Request Switch

AIS003JL

1. DOOR REQUEST SWITCH INSPECTION

With CONSULT-II

Display “DR REQ SW” (driver door), “AS REQ SW” (passenger door) and “BD/TR REQ SW” (back door) on DATA MONITOR screen, and check if ON-OFF display is linked to door request switch operation.

Press door request switch. : ON

Release door request switch. : OFF

OK or NG

OK >> Door request switch is OK.
NG >> GO TO 2.

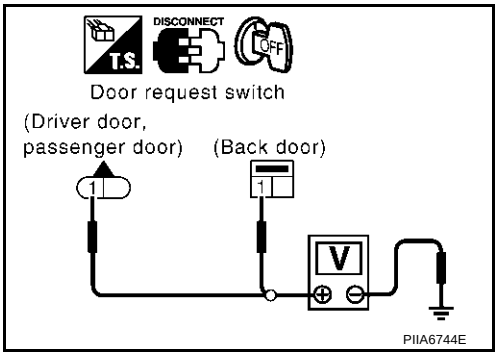
2. DOOR REQUEST SWITCH SIGNAL INSPECTION

1. Turn ignition knob LOCK position.
2. Disconnect door request switch connector.
3. Check voltage between door request switch connector D12 (driver door), D42 (passenger door), D113 (back door) terminal 1 and ground.

Driver 1 (SB) - Ground : Approx. 5V

Passenger 1 (GY) - Ground : Approx. 5V

Back door 1 (GY) - Ground : Approx. 5V



OK or NG

OK >> GO TO 3.
NG >> GO TO 5.

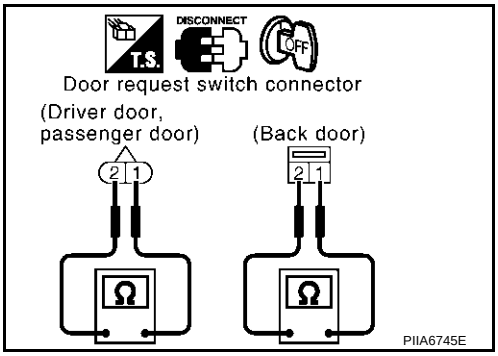
3. DOOR REQUEST SWITCH OPERATION INSPECTION

Check continuity between door request switch connector D12 (driver door), D42 (passenger door), D113 (back door) terminal 1 and 2.

1 - 2

Press door request switch. : Continuity should exist.

Return door request switch. : Continuity should not exist.



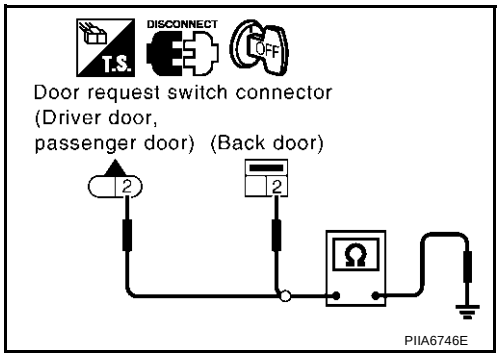
OK or NG

OK >> GO TO 4.
NG >> Replace door request switch.

4. DOOR REQUEST SWITCH GROUND CIRCUIT INSPECTION

Check continuity between door request switch connector 2 (B) and ground.

2 (B) - Ground : Continuity should exist.



OK or NG

OK >> Check harness connection.
NG >> Repair or replace door request switch ground circuit.

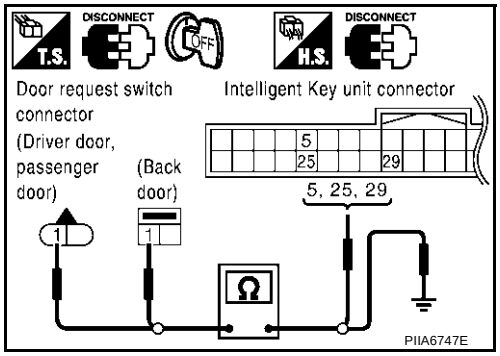
5. DOOR REQUEST SWITCH CIRCUIT INSPECTION

1. Disconnect Intelligent Key unit connector.
2. Check continuity between Intelligent Key unit connector E34 terminals 5 (driver door), 25 (passenger door), and 29 (back door) and door request switch connector D12 (driver door), D42 (passenger door), D113 (back door) terminal 1.

Driver 5 (W/L) - 1 (SB) : Continuity should exist.
Passenger 25 (W/R) - 1 (GY) : Continuity should exist.
Back door 29 (GY) - 1 (GY) : Continuity should exist.

3. Check continuity between door request switch connector D12 (driver door), D42 (passenger door), D113 (back door) terminal 1 and ground.

1 - Ground : Continuity should not exist.



OK or NG

OK >> Replace Intelligent Key unit.
NG >> Repair or replace harness between Intelligent Key unit and door request switch.

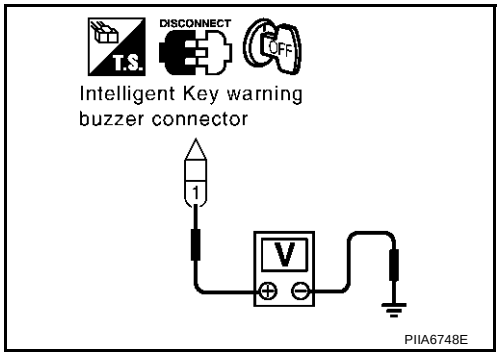
Check Intelligent Key Warning Buzzer

AIS003JM

1. INTELLIGENT KEY WARNING BUZZER POWER SUPPLY CIRCUIT INSPECTION

1. Turn ignition knob LOCK position.
2. Disconnect Intelligent Key warning buzzer connector.
3. Check voltage between Intelligent Key warning buzzer connector D11 (driver side), D41 (passenger side) terminal 1 (L) and ground.

1 (L) - Ground : Approx. 12V



OK or NG

OK >> GO TO 2.
NG >> Repair or replace Intelligent Key warning buzzer power supply circuit.

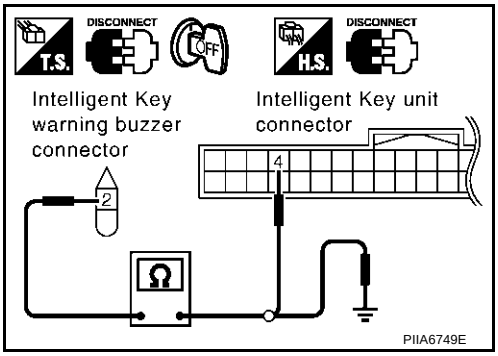
2. INTELLIGENT KEY WARNING BUZZER CIRCUIT INSPECTION

1. Disconnect Intelligent Key unit connector.
2. Check continuity between Intelligent Key unit connector M34 terminal 4 and Intelligent Key warning buzzer connector D11 (driver side), D41 (passenger side) terminal 2 (G).

4 (LG) - 2 (G) : Continuity should exist.

3. Check continuity between Intelligent Key warning buzzer connector D11 (driver side), D41 (passenger side) terminal 2 (G) and ground.

2 (G) - Ground : Continuity should not exist.



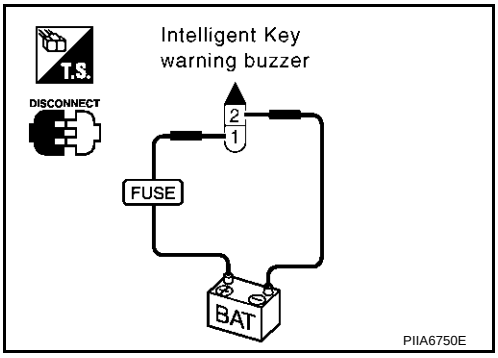
OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness between Intelligent Key warning buzzer and Intelligent Key unit.

3. INTELLIGENT KEY WARNING BUZZER OPERATION INSPECTION

Connect battery power supply to Intelligent Key warning buzzer connector D11 (driver side), D41 (passenger side) terminals 1 and 2, and check the operation.

1 (BAT+) - 2 (BAT-) : the buzzer sounds



OK or NG

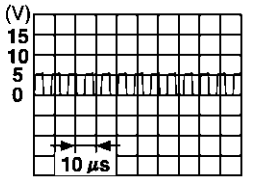
OK >> Intelligent Key warning buzzer is OK.
NG >> Replace Intelligent Key warning buzzer

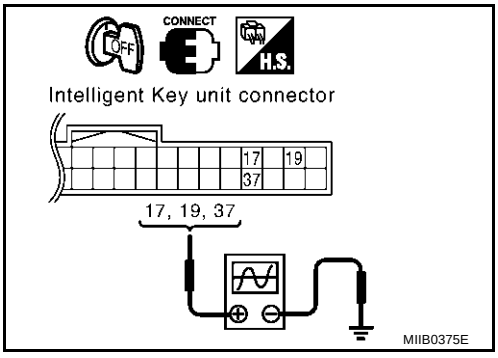
Check Outside Key Antenna

AIS003JN

1. OUTSIDE KEY ANTENNA POWER SUPPLY INSPECTION

Push each door request switch, and use an oscilloscope to check voltage waveform of harness between Intelligent Key unit connector M34 terminals 17 (back door), 19 (driver door), and 37 (passenger door) and ground.

Push each door request switch.	
Back door: 17 (OR/L) - Ground	 SIIA1910J
Driver: 19 (SB) - Ground	
Passenger: 37 (G) - Ground	



OK or NG

OK >> GO TO 2.
NG >> GO TO 3.

2. OUTSIDE KEY ANTENNA OPERATION INSPECTION

1. Disconnect each outside key antenna connector.
2. Check the following.

– Check continuity between door mirror (outside key antenna) connector D2 (driver side), D32 (passenger side) terminals 6 and 7

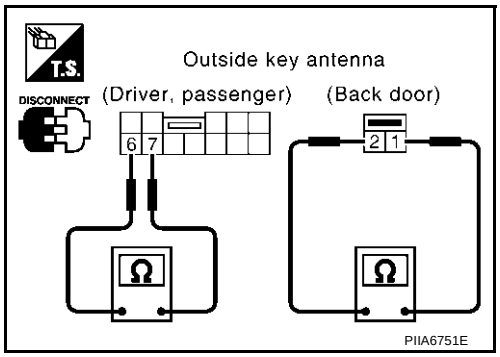
– Check continuity between outside key antenna D116 (back door) terminals

Driver side, Passenger side

6 - 7 : Continuity should exist.

Back door

1 - 2 : Continuity should exist.



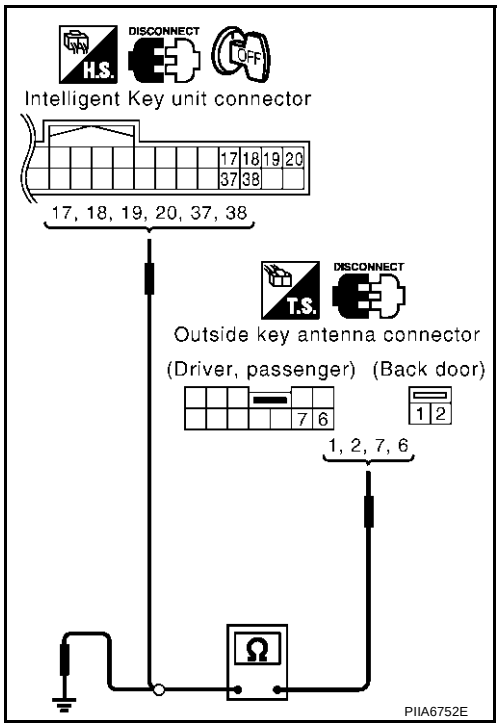
OK or NG

OK >> GO TO 3.
NG >> Replace outside key antenna.

3. OUTSIDE KEY ANTENNA CIRCUIT INSPECTION

1. Disconnect Intelligent Key unit connector.
2. Check continuity between each outside key antenna connector D2 (driver side), D32 (passenger side), D116 (back door) terminals 1, 2, 6, 7 and Intelligent Key unit connector M34 terminals 17, 18, 19, 20, 37, and 38.

Back door	**1 (L/B) - 17 (OR/L): Continuity should exist.**
	2 (W/B) - 18 (PU/R): Continuity should exist.
Driver side	**7 (BR/W) - 19 (SB): Continuity should exist.**
	6 (R/Y) - 20 (R/G): Continuity should exist.
Passenger side	**7 (G/Y) - 37 (G): Continuity should exist.**
	6 (L/Y) - 38 (PU/W): Continuity should exist.



3. Check continuity between each out side key antenna connector terminals 1, 2, 6, 7 and ground.

Back door	**1 (L/B) - Ground: Continuity should not exist.**
	2 (W/B) - Ground: Continuity should not exist.
Driver side	**7 (BR/W) - Ground: Continuity should not exist.**
	6 (R/Y) - Ground: Continuity should not exist.
Passenger side	**7 (G/Y) - Ground: Continuity should not exist.**
	6 (L/Y) - Ground: Continuity should not exist.

OK or NG

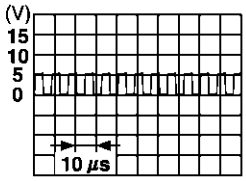
OK >> Replace Intelligent Key unit.
NG >> Replace harness between outside key antenna and Intelligent Key unit.

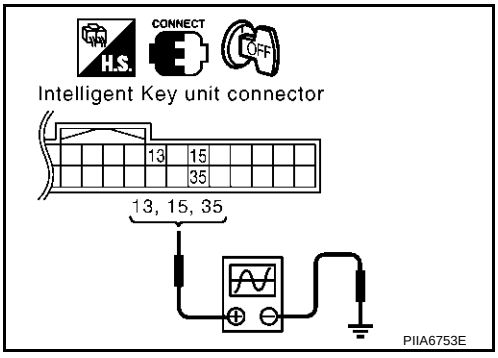
Check Inside Key Antenna

AIS003JO

1. INSIDE KEY ANTENNA POWER SUPPLY CIRCUIT INSPECTION

Push ignition knob and use an oscilloscope to check voltage waveform between Intelligent Key unit connector M34 terminals 13 (luggage room), 15 (dash board), 35 (dash board) and ground.

Press ignition knob.	
luggage room: 13 (Y) - Ground	 SIIA1910J
Dash board: 15 (W/R) - Ground 35 (LG) - Ground	



PIIA6753E

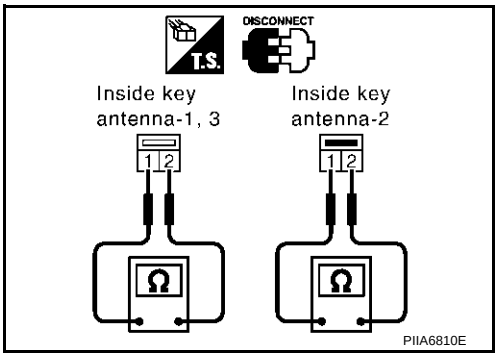
OK or NG

OK >> GO TO 2.
NG >> GO TO 3.

2. INSIDE KEY ANTENNA OPERATION INSPECTION

1. Disconnect inside key antenna connector.
2. Check continuity between inside key antenna connector M70, M153 (dash board), B68 (luggage room) terminals 1 and 2.

1 - 2 : Continuity should exist.



PIIA6810E

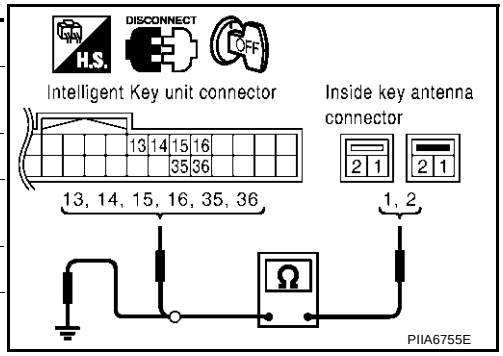
OK or NG

OK >> GO TO 3.
NG >> Replace malfunctioning inside key antenna.

3. INSIDE KEY ANTENNA INSPECTION

1. Disconnect Intelligent Key unit connector.
2. Check continuity between inside key antenna connector M70, M153 (dash board), B68 (luggage room) terminals 1, 2 and Intelligent Key unit connector terminals 13, 14, 15, 16, 35 and 36.

Inside key antenna-3 (Luggage room)	**1 (OR/L) - 13 (Y): Continuity should exist.**
	2 (W/L) - 14 (BR): Continuity should exist.
Inside key antenna-1 (Dash board)	**1 (W/R) - 15 (W/R): Continuity should exist.**
	2 (B/R) - 16 (B/R): Continuity should exist.
Inside key antenna-2 (Dash board)	**1 (LG) - 35 (LG): Continuity should exist.**
	2 (PU) - 36 (PU): Continuity should exist.



3. Check continuity between inside key antenna connector M70, M153 (dash board), B68 (luggage room) terminals 1 and 2 and ground.

Inside key antenna-3 (Luggage room)	**1 (OR/L) - Ground: Continuity should not exist.**
	2 (W/L) - Ground: Continuity should not exist.
Inside key antenna-1 (Dash board)	**1 (W/R) - Ground: Continuity should not exist.**
	2 (B/R) - Ground: Continuity should not exist.
Inside key antenna-2 (Dash board)	**1 (LG) - Ground: Continuity should not exist.**
	2 (PU) - Ground: Continuity should not exist.

OK or NG

OK >> Replace Intelligent Key unit.
NG >> Repair or replace harness between inside key antenna and Intelligent Key unit.

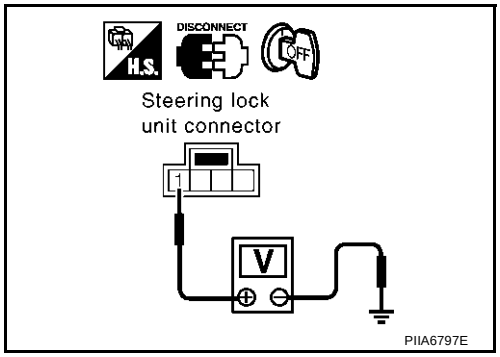
Check Steering Lock Unit

AIS003JP

1. STEERING LOCK UNIT POWER SUPPLY INSPECTION

1. Turn ignition knob LOCK position.
2. Disconnect steering lock unit connector.
3. Check voltage between steering lock unit connector M26 terminal 1 (L/R) and ground.

1 (L/R) - Ground : Approx. 12V



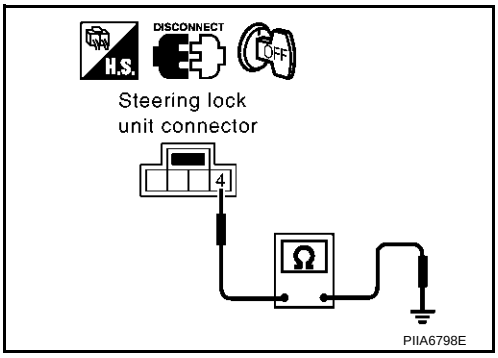
OK or NG

OK >> GO TO 2.
NG >> Repair or replace steering lock unit power supply circuit.

2. STEERING LOCK UNIT GROUND CIRCUIT INSPECTION

Check continuity between steering lock unit connector M26 terminal 4 (Y/B) and ground.

4 (Y/B) - Ground : Continuity should exist.



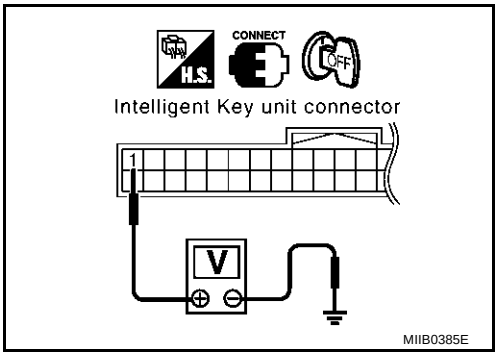
OK or NG

OK >> GO TO 3.
NG >> GO TO 4.

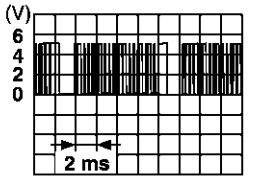
3. STEERING LOCK COMMUNICATION CIRCUIT INSPECTION

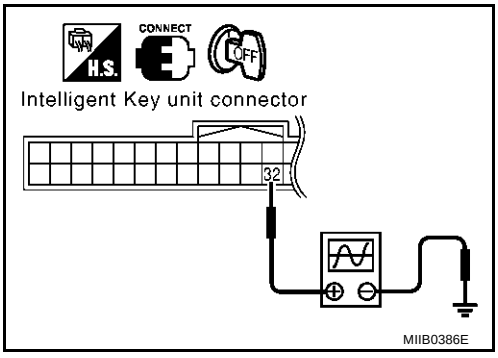
1. Connect steering lock unit connector.
2. Check voltage between Intelligent Key unit connector M34 terminal 1 (R/W) and ground.

1 (R/W) - Ground : Approx. 5V



3. Immediately after pushing ignition knob, use an oscilloscope to check voltage waveform between Intelligent Key unit connector M34 terminal 32 (R/B) and ground.

Immediately after ignition knob pushing.	
32 (R/B) - Ground	



OK or NG

OK >> GO TO 4.
NG >> Replace Intelligent Key unit.

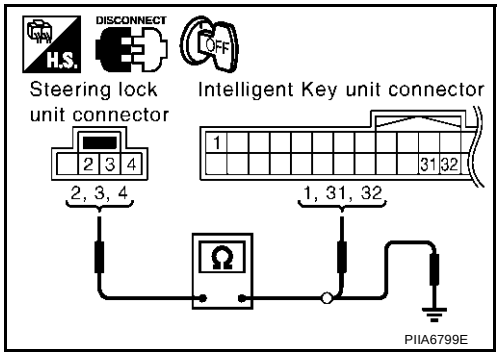
4. STEERING LOCK UNIT COMMUNICATION CIRCUIT INSPECTION

1. Disconnect Intelligent Key unit and steering lock unit connectors.
2. Check continuity between Intelligent Key unit connector M34 terminals 1, 31, 32 and steering lock unit connector M26 terminals 2, 3, 4.

1 (R/W) - 2 (R/W) : Continuity should exist.
31 (Y/B) - 4 (Y/B) : Continuity should exist.
32 (R/B) - 3 (R/B) : Continuity should exist.

3. Check continuity between steering lock unit connector M26 terminals 2, 3, 4 and ground.

2 (R/W) - Ground : Continuity should not exist.
3 (R/B) - Ground : Continuity should not exist.
4 (Y/B) - Ground : Continuity should not exist.



OK or NG

OK >> Replace steering lock unit.
- After replacing steering lock unit, perform registration procedure. Refer to “CONSULT-II Operation Manual NATS-IVIS/NVIS”.

NG >> Repair or replace harness between steering lock unit and Intelligent Key unit.

Check Stop Lamp Switch

AIS003JQ

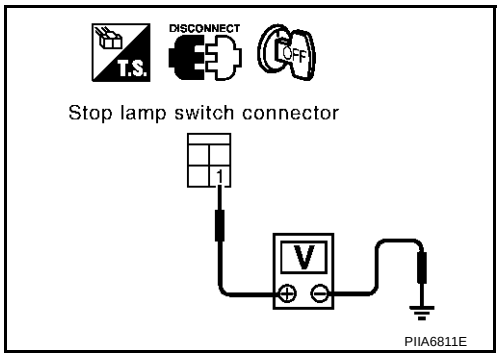
1. STOP LAMP SWITCH POWER SUPPLY CIRCUIT INSPECTION

1. Disconnect stop lamp switch connector.
2. Check voltage between stop lamp switch connector E210 terminal 1 (GY) and ground.

1 (GY) and ground : Battery voltage

OK or NG

OK >> GO TO 2.
NG >> Repair or replace harness between stop lamp switch and fuse.



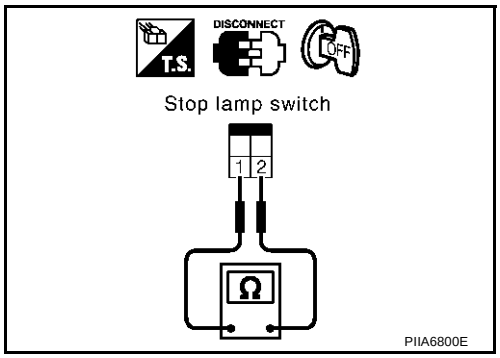
2. STOP LAMP SWITCH OPERATION INSPECTION

Check continuity between stop lamp switch connector E210 terminal 1 and 2.

1 - 2
Brake pedal depressed : Continuity should exist.
Brake pedal not depressed : Continuity should not exist.

OK or NG

OK >> GO TO 3.
NG >> Replace stop lamp switch.



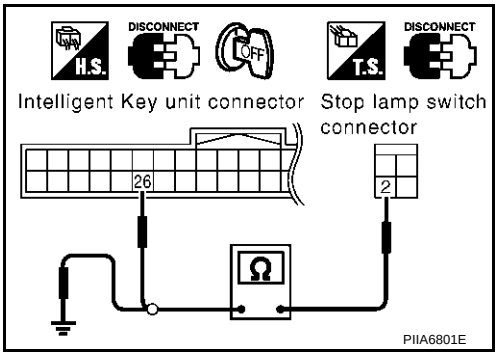
3. STOP LAMP SWITCH GROUND CIRCUIT INSPECTION

1. Check continuity between stop lamp switch connector E210 terminal 2 (P) and Intelligent Key unit connector M34 terminal 26 (P/L).

2 (P) - 26 (P/L) : Continuity should exist.

2. Check continuity between stop lamp switch connector E210 terminal 2 (P) and ground.

2 (P) - Ground : Continuity should not exist.



OK or NG

OK >> Stop lamp switch is OK.
NG >> Repair or replace harness.

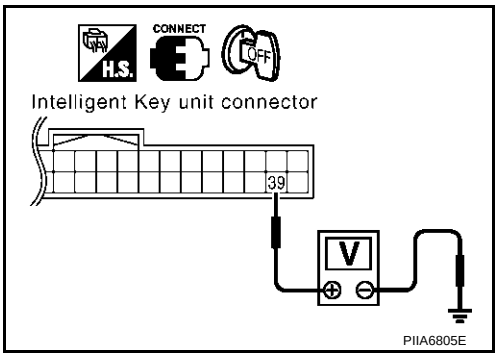
Check Detention Switch

AIS003KS

1. DETENTION SWITCH INPUT SIGNAL INSPECTION

1. Turn ignition knob LOCK position.
2. Check voltage between Intelligent Key unit connector and ground.

Item	Connector	Terminal (Wire color)		Condition	Voltage (V) (Approx.)
		(+)	(-)		
Detention switch	M34	39 (R/Y)	Ground	When selector lever is locked after “P” position	0
				When selector lever is not locked at the “P” position	Battery voltage



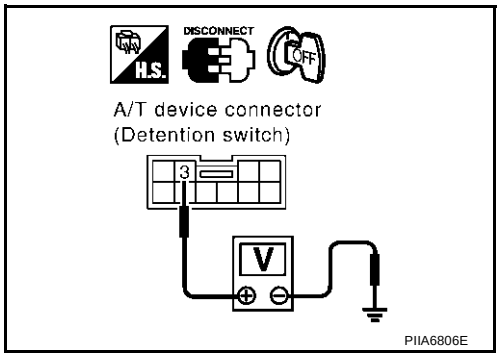
OK or NG

OK >> Door switch circuit is OK.
NG >> GO TO 2.

2. DETENTION SWITCH CIRCUIT INSPECTION

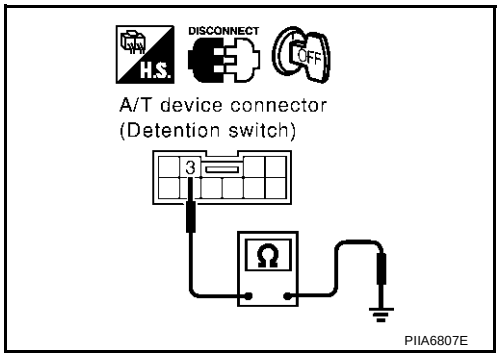
1. Disconnect A/T device (detention switch) connector.
2. Check voltage between A/T device (detention switch) connector M67 terminal 3 (R/Y) and ground. (Check harness for open.)

3 (R/Y) – Ground : Battery voltage



3. Check continuity between A/T device (detention switch) connector M67 terminals 3 (R/Y) and ground. (Check harness for short.)

3 (R/Y) – Ground : Continuity should not exist.



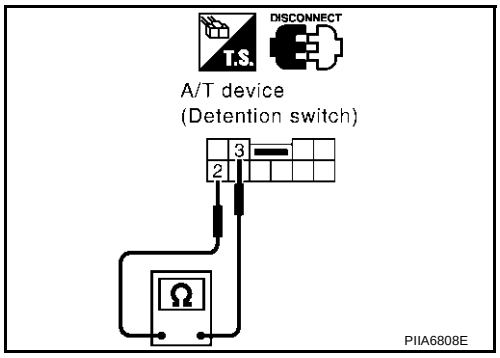
OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness.

3. DETENTION SWITCH INSPECTION

Check continuity between A/T device (detention switch) CONNECTOR M67 terminal 2 and 3.

Terminal	Condition	Continuity
2 – 3	When selector lever is not locked at the “P” position	No
	When selector lever is locked after “P” position	Yes



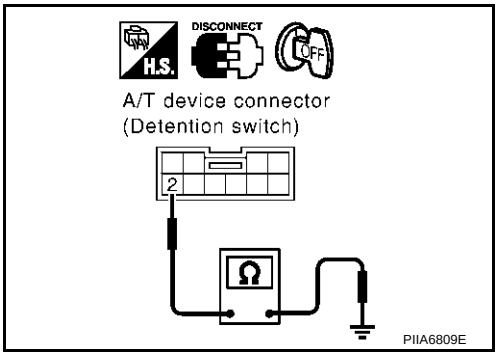
OK or NG

OK >> GO TO 4.
NG >> Replace back A/T device (detention switch).

4. DETENTION SWITCH GROUND CIRCUIT INSPECTION

Check continuity between A/T device (detention switch) connector M67 terminal 2 (B) and ground.

2 (B) – Ground : Continuity should exist.



OK or NG

OK >> Check harness connection.
NG >> Repair or replace harness.

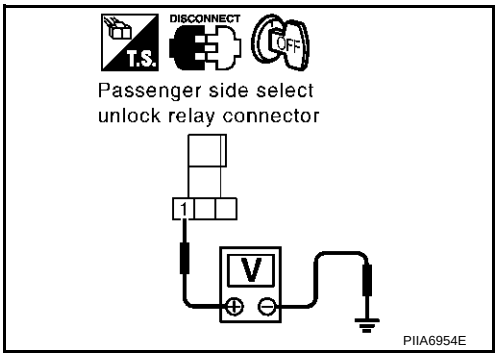
Check Select Unlock Relay

AIS003L6

1. CHECK SELECT UNLOCK RELAY POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect passenger side select unlock relay connector.
3. Check voltage between passenger side select unlock relay connector M30 terminal 1 and ground.

1 (L/R) – Ground : Approx. 12V



OK or NG

OK >> GO TO 2.
NG >> Repair or replace passenger side select unlock relay power supply circuit.

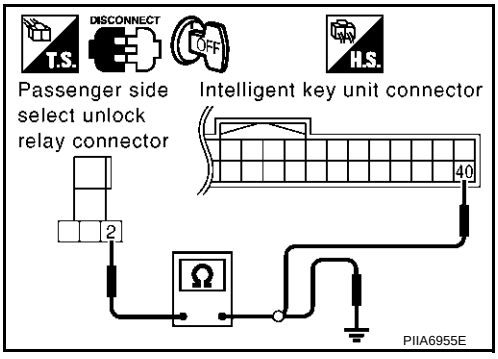
2. CHECK HARNESS

1. Disconnect Intelligent Key unit connector.
2. Check continuity between passenger side select unlock relay connector M30 terminal 2 and Intelligent Key unit connector M34 terminal 40.

2 (BR/W) – 40 (BR/W) : Continuity should exist.

3. Check continuity between passenger side select unlock relay connector M30 terminal 2 and ground.

2 (BR/W) – Ground : Continuity should not exist.



OK or NG

OK >> Replace passenger side select unlock relay.
NG >> Repair or replace harness between passenger side select unlock relay and Intelligent Key unit.

Check Hazard Function

AIS003L7

1. CHECK HAZARD WARNING LAMP

Does hazard warning lamp flash with hazard switch?

YES or NO

YES >> Hazard warning lamp circuit is OK.
NO >> Check hazard circuit. Refer to LT-145, "TURN SIGNAL AND HAZARD WARNING LAMPS" .

Check Horn Function

AIS003L8

First perform the “SELF-DIAG RESULTS” in “BCM” with CONSULT-II, then perform the trouble diagnosis of malfunction system indicated “SELF-DIAG RESULTS” of “BCM”. Refer to BCS-27, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .

1. CHECK HORN FUNCTION

Does horn sound with horn switch?

YES or NO

YES >> Horn circuit is OK.
NO >> Check horn circuit. Refer to WW-71, "HORN" .

Check Headlamp Function

AIS003L9

First perform the “SELF-DIAG RESULTS” in “BCM” with CONSULT-II, then perform the trouble diagnosis of malfunction system indicated “SELF-DIAG RESULTS” of “BCM”. Refer to BCS-27, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .

1. CHECK HEADLAMP OPERATION

Does headlamp come on when turning lighting switch “ON”?

YES or NO

YES >> Headlamp operation circuit is OK.
NO >> Check headlamp system. Refer to LT-7, "HEADLAMP - XENON TYPE -" .

Check IPDM E/R Operation

AIS003LA

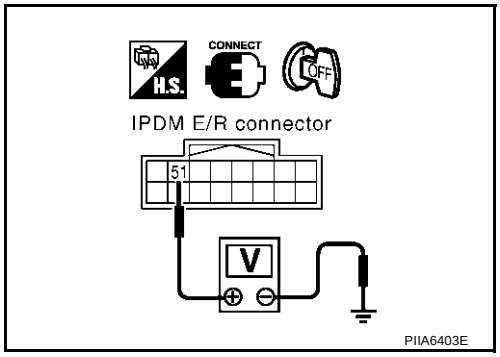
1. CHECK IPDM E/R INPUT VOLTAGE

Check voltage between IPDM E/R connector E9 terminal 51 (SB) and ground.

Connector	Terminal (Wire color)		Voltage (V) Approx.
	(+)	(–)	
E9	51 (SB)	Ground	Battery voltage

OK or NG

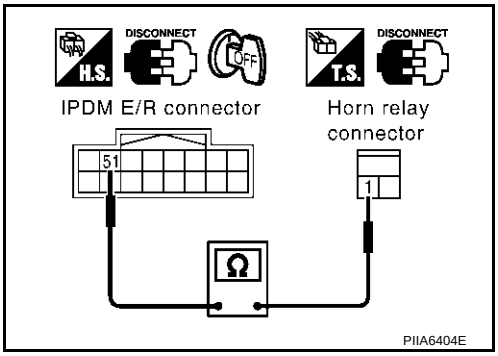
OK >> Replace IPDM E/R.
NG >> GO TO 2.



2. CHECK IPDM E/R HARNESS

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R and horn relay connector.
3. Check continuity between IPDM E/R connector E9 terminal 51 (SB) and horn relay connector E10 terminal 1 (SB).

51 (SB) – 1 (SB) : Continuity should exist.



OK or NG

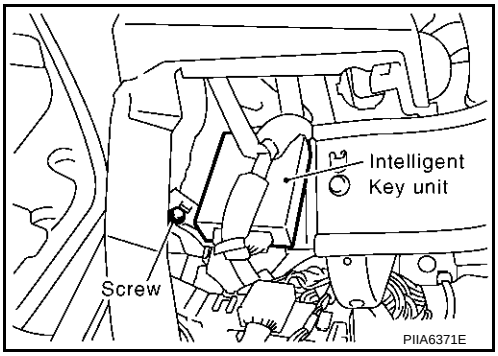
OK >> Check harness connection.
NG >> Repair or replace harness.

Removal and Installation of Intelligent Key Unit

AIS003JR

REMOVAL

1. Remove the instrument lower driver panel. Refer to IP-11, "Removal and Installation" .
2. Disconnect the Intelligent Key unit connector, remove the screw and Intelligent Key unit.



INSTALLATION

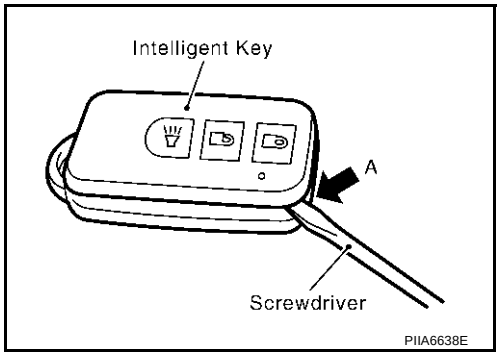
Install in the reverse order of removal.

Intelligent Key Inspection

AIS003JS

INTELLIGENT KEY DISASSEMBLY AND ASSEMBLY

1. Remove Intelligent Key cover.
2. Insert a thin screwdriver wrapped with tape into Area A and then separate lower and upper cases while twisting screwdriver.



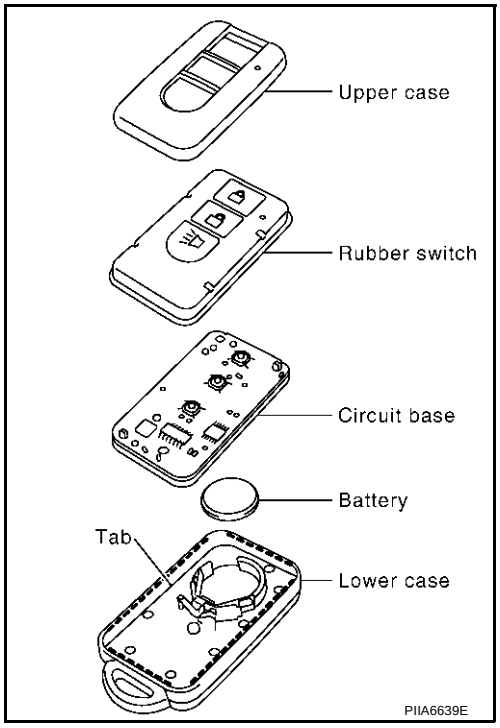
3. When replacing the circuit board or rubber
   - Remove the circuit board assembly from the upper case. (Substrate assembly: circuit board + rubber)
   - Gently press the rubber and remove the circuit board.

   CAUTION:
   Be careful not to touch the printed circuits directly.
4. When replacing the battery
   - Remove the battery from the lower case and replace it.

Battery replacement	: Coin-shaped lithium battery 3V (CR2032)

   CAUTION:
   When replacing battery, be sure to keep dirt, grease, and other foreign materials off the electrode contact area.
5. After replacement, assemble the upper and lower cases by engaging the hooks on their circumference while being careful not to pinch the rubber, etc.

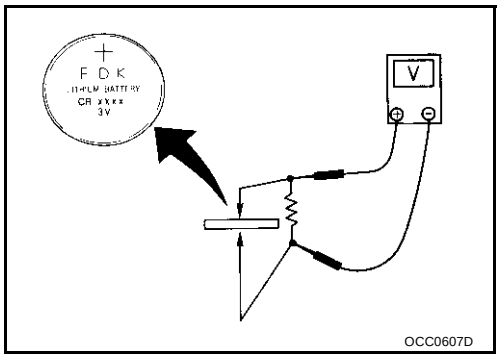
   CAUTION:
   After replacing the battery, check to make sure all Intelligent Key functions work normally.



REMOTE CONTROLLER BATTERY INSPECTION

Check by connecting a resistance (approximately 300Ω) so that the current value becomes about 10 mA.

Standard : Approx. 2.5V - 3.0V

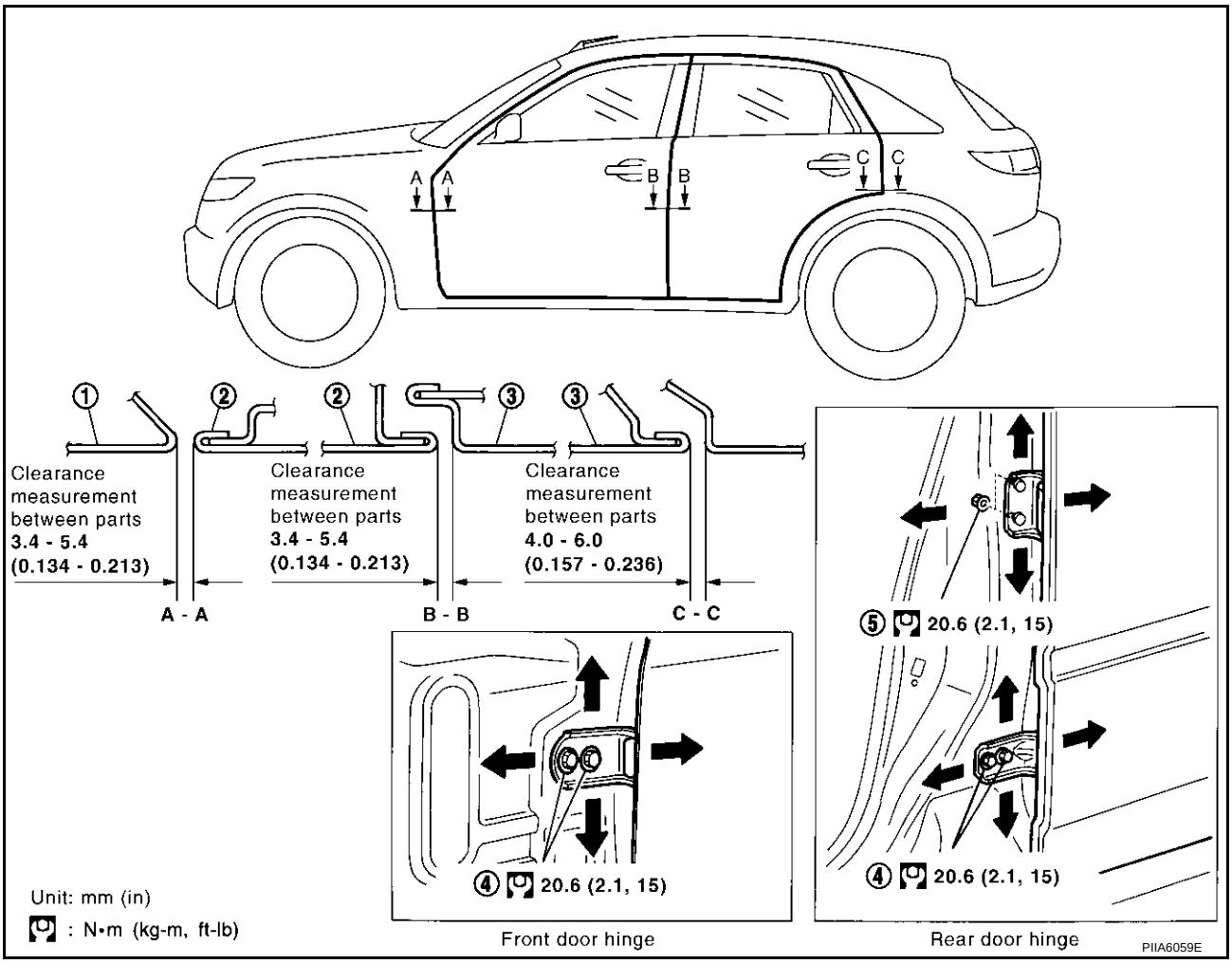


DOOR

PFP:80100

Fitting Adjustment

AIS0039F



1. Front fender
2. Front door outer
3. Rear door outer
4. Bolt
5. Nut

FRONT DOOR

Longitudinal Clearance and Surface Height Adjustment at Front End

1. Loosen the hinge mounting bolts. Raise the front door at rear end to adjust.

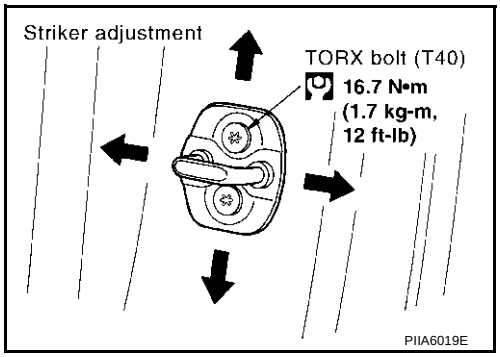
REAR DOOR

Longitudinal Clearance and Surface Height Adjustment at Front End

1. Remove the center pillar upper garnish and center pillar lower garnish. Refer to EI-37, "Removal and Installation" .
2. Accessing from inside the vehicle, loosen the mounting nuts. Open the rear door, and raise the rear door at rear end to adjust.

STRIKER ADJUSTMENT

1. Adjust the striker so that it becomes parallel with the lock insertion direction.



Removal and Installation of Front Door

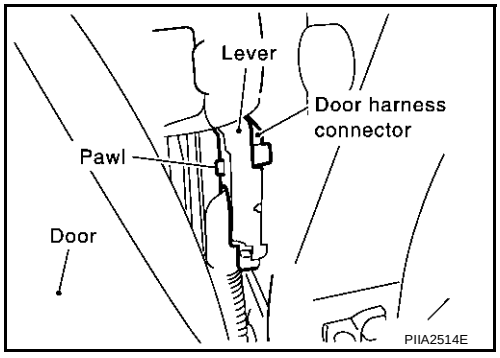
AIS0039G

CAUTION:

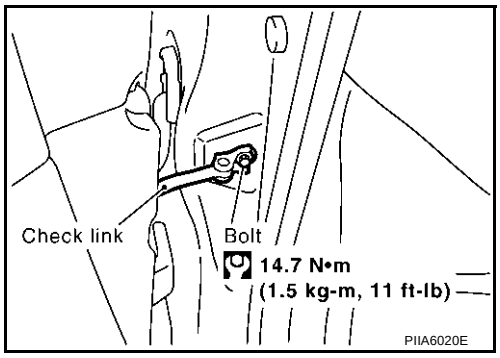
- **When removing and installing the front door assembly, support the door with a jack and cloth to protect the door and body.**
- **When removing and installing front door assembly, be sure to carry out the fitting adjustment Refer to BL-185, "Fitting Adjustment" .**
- **Check the hinge rotating part for poor lubrication. If necessary, apply “body grease”.**
- **After installing, apply touch-up paint (the body color) onto the head of the hinge mounting nuts.**
- **Operate with two workers, because of its heavy weight.**
- **After installing, check operation.**

REMOVAL

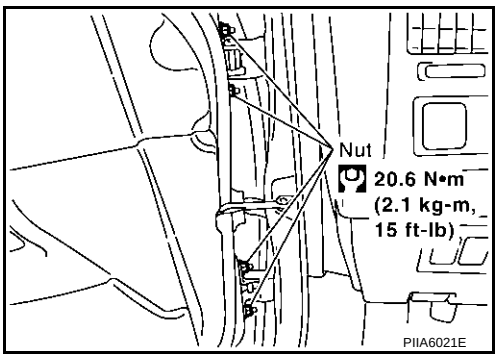
1. Pull the lever and remove the front door harness connector while removing tabs of door harness connector.



2. Remove the mounting bolts of the check link on the vehicle.



3. Remove the door-side hinge mounting nuts, and remove the door assembly.



INSTALLATION

Install in the reverse order of removal.

Removal and Installation of Rear Door

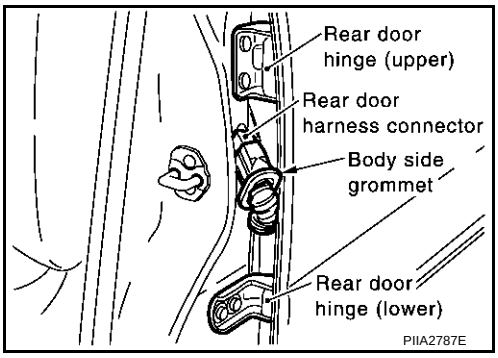
AIS0039H

CAUTION:

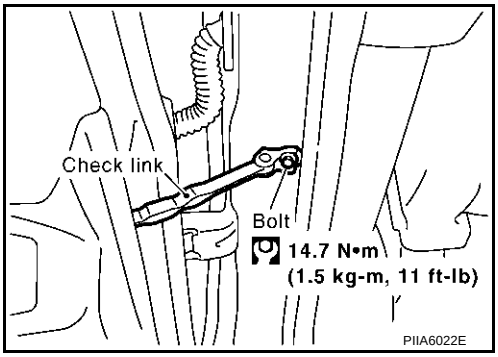
- **When removing and installing the rear door assembly, support the door with a jack and cloth to protect the door and body.**
- **When removing and installing rear door assembly, be sure to carry out the fitting adjustment Refer to BL-185, "Fitting Adjustment" .**
- **Check the hinge rotating part for poor lubrication. If necessary, apply “body grease”.**
- **After installing, apply touch-up paint (the body color) onto the head of the hinge mounting nuts.**
- **Operate with two workers, because of its heavy weight.**
- **After installing, check operation.**

REMOVAL

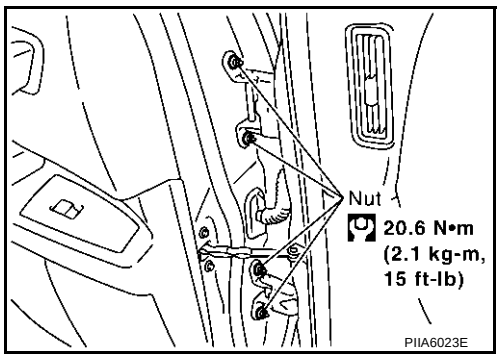
1. Grommet is pulled out, and the Rear door harness connector is detached.



2. Remove the mounting bolts of the check link on the vehicle.



3. Remove the door-side hinge mounting nuts, and remove the door assembly.

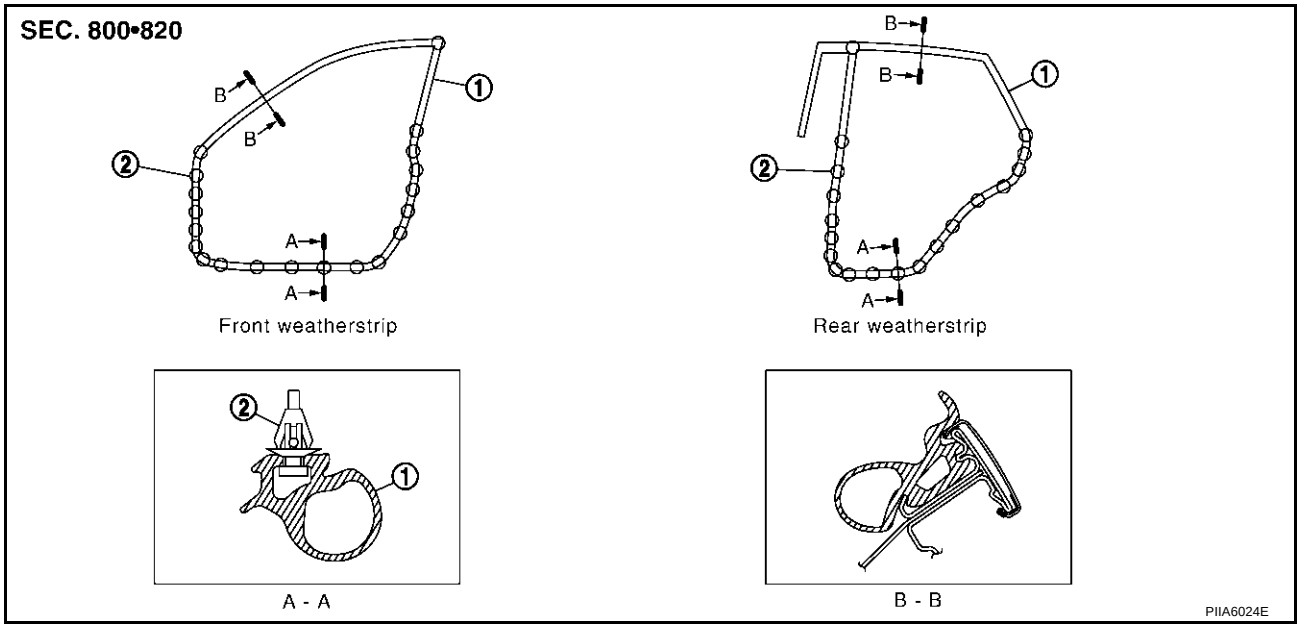


INSTALLATION

Install in the reverse order of removal.

Removal and Installation of Door Weathers Trip

AIS0039I



1. Weatherstrip
2. Clip

REMOVAL

1. Remove the mounting bolts of the check link on the vehicle. Refer to BL-186, "Removal and Installation of Front Door" or BL-187, "Removal and Installation of Rear Door" .
2. Remove the weatherstrip clips and remove weatherstrip.

INSTALLATION

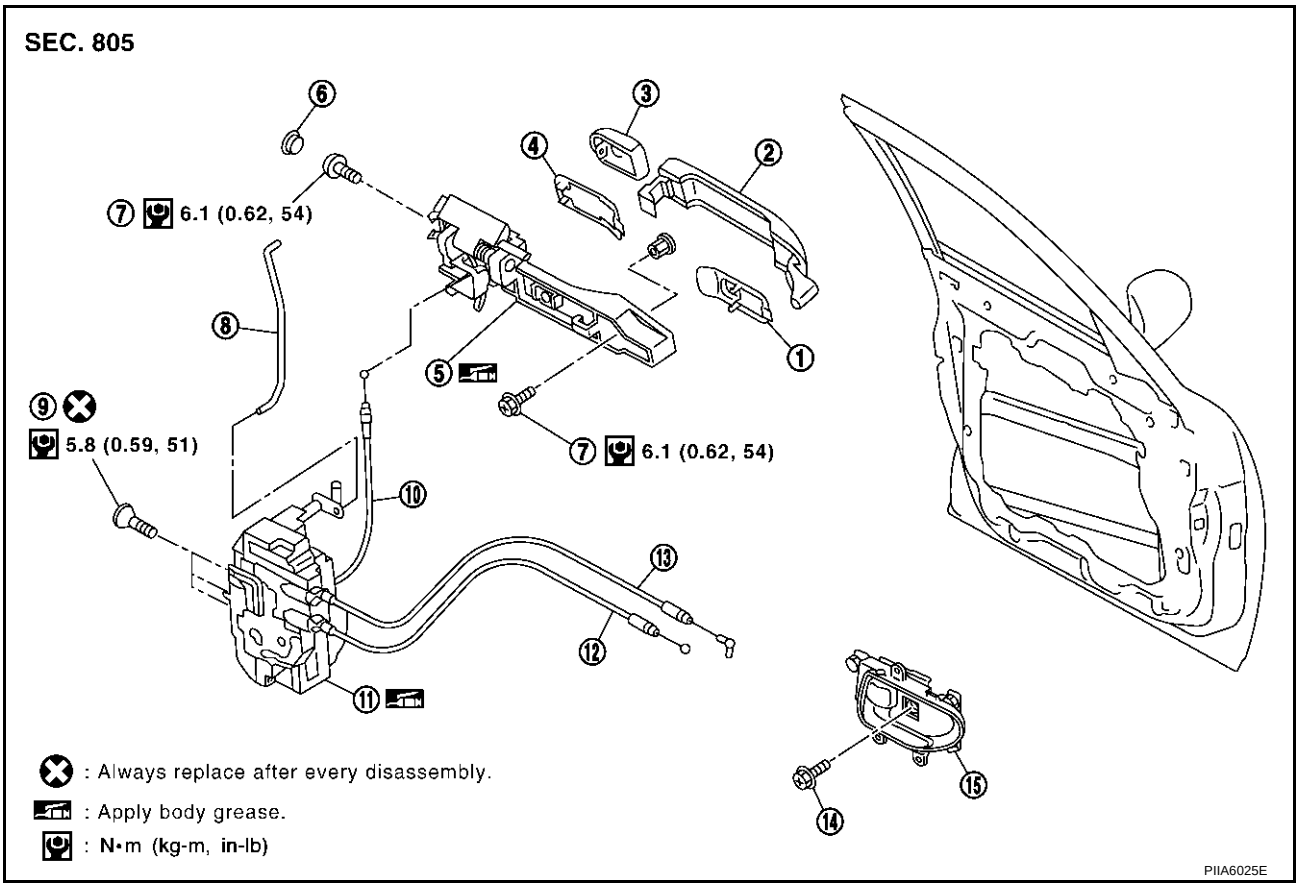
Install in the reverse order of removal.

FRONT DOOR LOCK

PFP:80502

Component Structure

AIS0039J



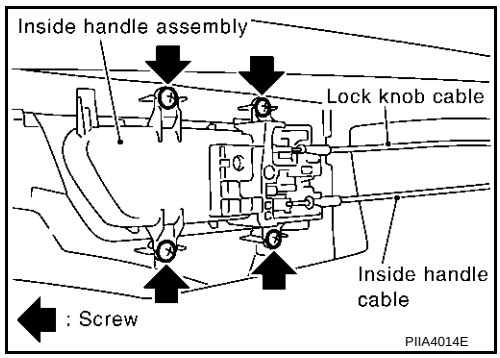
1. Front gasket	2. Outside handle	3. Door key cylinder assembly (Driver side) Outside handle escutcheon (Passenger side)
4. Rear gasket	5. Outside handle bracket	6. Grommet
7. TORX bolt (T30)	8. Key cylinder rod (Driver side only)	9. TORX bolt (T30)
10. Outside handle cable	11. Door lock assembly	12. Inside handle knob cable
13. Lock knob cable	14. Screw	15. Inside handle

Removal and Installation

AIS0039K

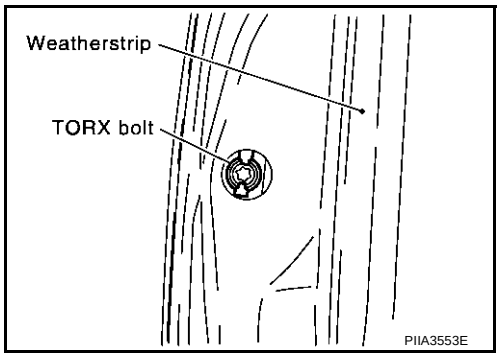
REMOVAL

1. Remove the front door finisher. Refer to EI-35, "Removal and Installation" .
2. Disconnect the inside handle knob cable and lock knob cable from the back side of the front door finisher.

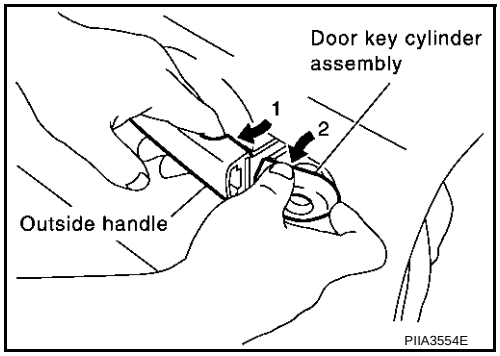


3. Remove the front door glass and front door module assembly. Refer to GW-90, "Removal and Installation" .
4. Remove door side grommet, and remove door key cylinder assembly (driver side) and outside handle escutcheon (passenger side) bolt (TORX T30) from grommet hole.

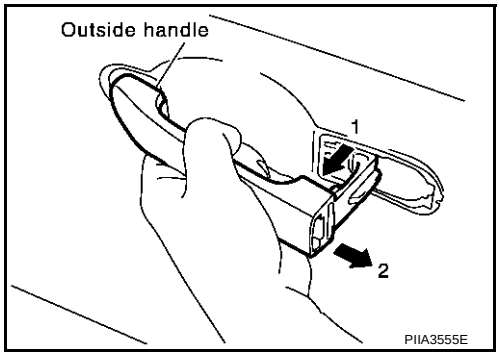
CAUTION:
Do not forcibly remove the TORX bolt (T30).



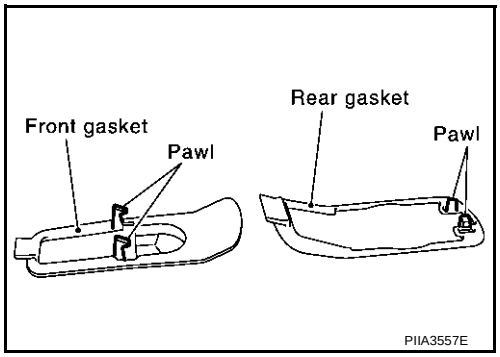
5. Reach to separate the key cylinder rod connection (on the handle).
6. While pulling the outside handle, remove door key cylinder assembly (driver side) and outside handle escutcheon (passenger side).



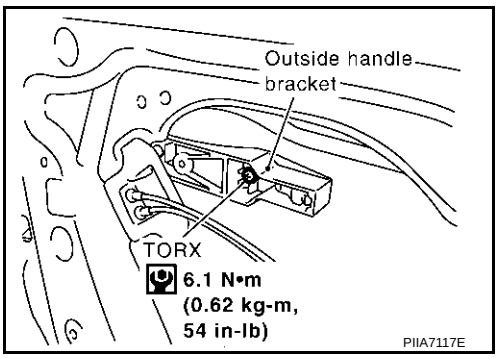
7. Disconnect the door request switch connector. (intelligent key only)
8. While pulling outside handle, slide toward rear of vehicle to remove outside handle.



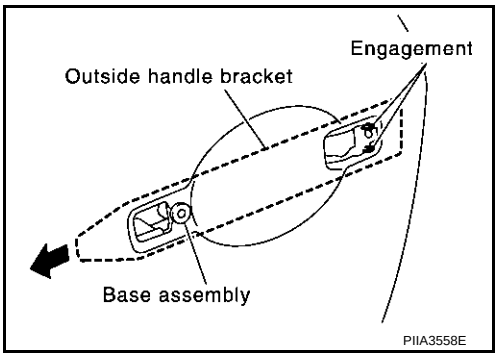
9. Remove the front gasket and rear gasket.



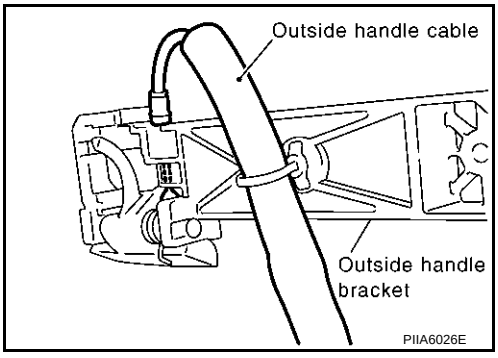
10. Remove the TORX bolt (T30) of the outside handle bracket.



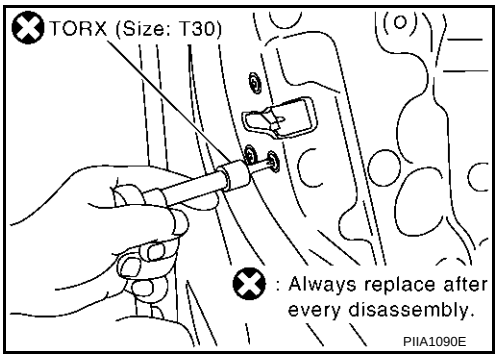
11. While pulling outside handle bracket, slide toward front of vehicle to remove outside handle bracket.



12. Reach to separate outside handle cable connection.



13. Remove the TORX bolts (T30) of door lock assembly.



14. Disconnect the door lock actuator connector and remove door lock assembly.

INSTALLATION

Install in the reverse order of removal.

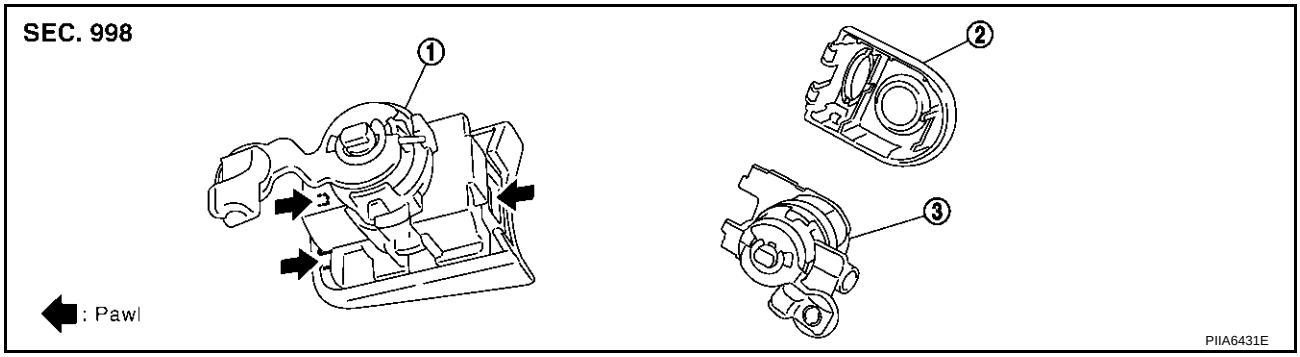
CAUTION:

To install each rod, be sure to rotate the rod holder until a click is felt.

Disassembly and Assembly

AIS0039L

DOOR KEY CYLINDER ASSEMBLY



1. Door key cylinder assembly
2. Key cylinder escutcheon
3. Door key cylinder

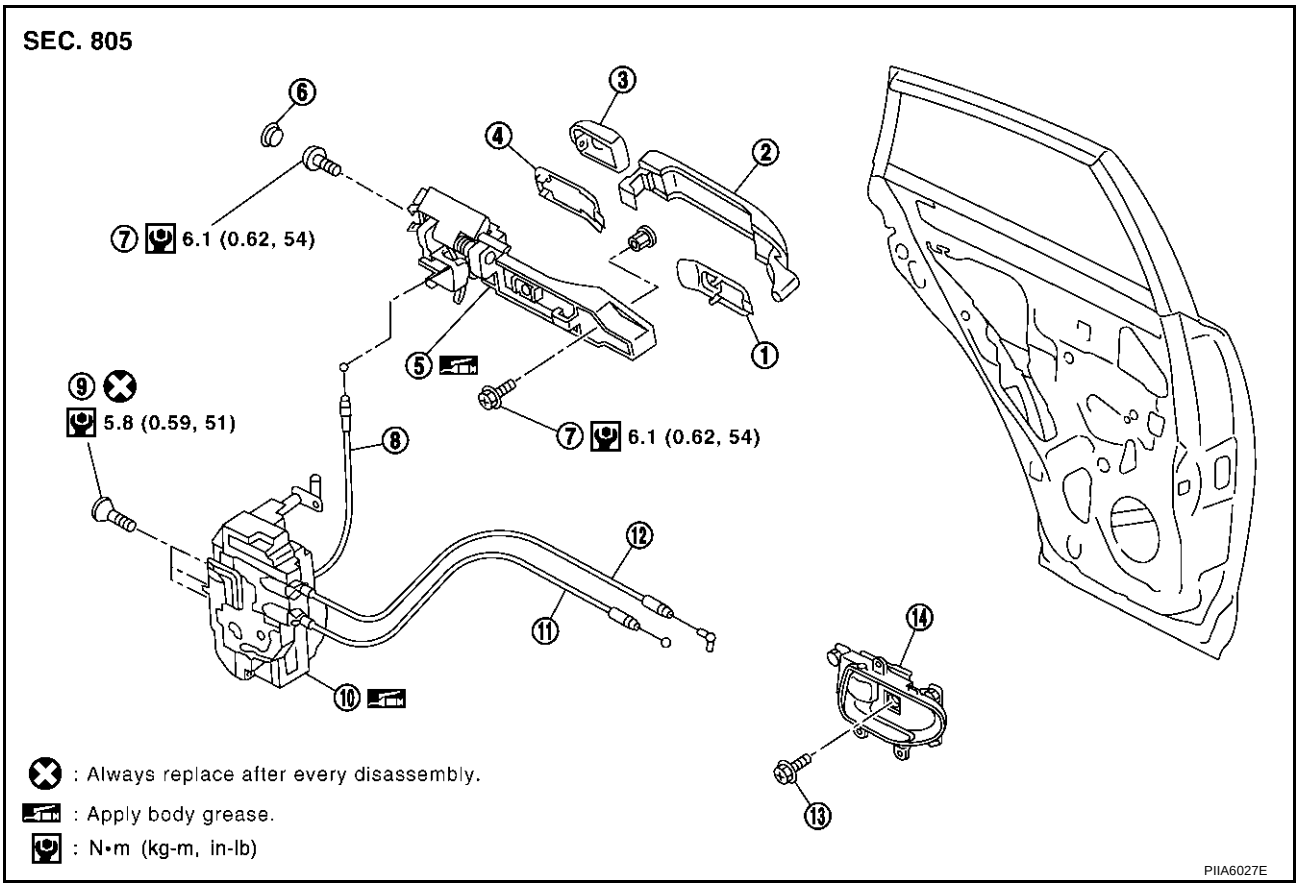
Remove the key cylinder escutcheon pawl and remove the door key cylinder.

REAR DOOR LOCK

PFP:82502

Component Structure

AIS0039M



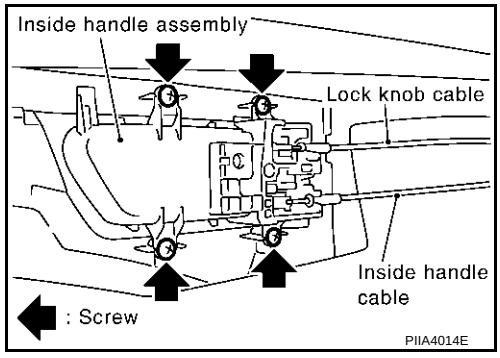
1. Front gasket	2. Outside handle	3. Outside handle escutcheon
4. Rear gasket	5. Outside handle bracket	6. Grommet
7. TORX bolt (T30)	8. Outside handle cable	9. TORX bolts (T30)
10. Door lock assembly	11. Inside handle knob cable	12. Lock knob cable
13. Screw	14. Inside handle	

Removal and Installation

AIS0039N

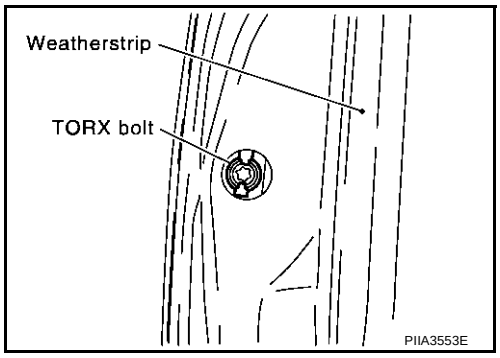
REMOVAL

1. Remove the rear door finisher. Refer to EI-35, "Removal and Installation" .
2. Disconnect the inside handle knob cable and lock knob cable from the back side of the front door finisher.

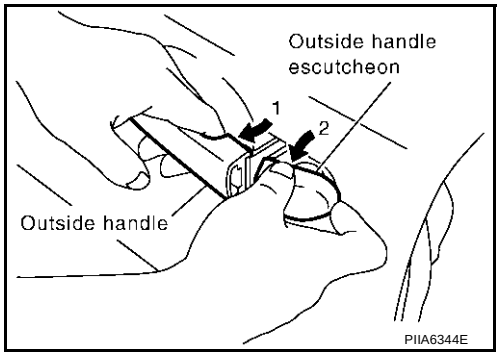


3. Remove the rear door sealing, glass and corner piece assembly. Refer to GW-93, "Removal and Installation" .
4. Remove door side grommet, and remove outside handle escutcheon bolt (TORX T30) from grommet hole.

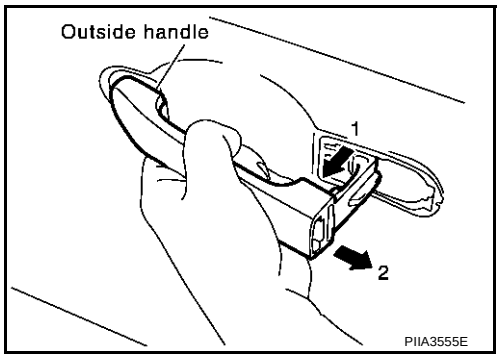
CAUTION:
Do not forcibly remove the TORX bolt (T30).



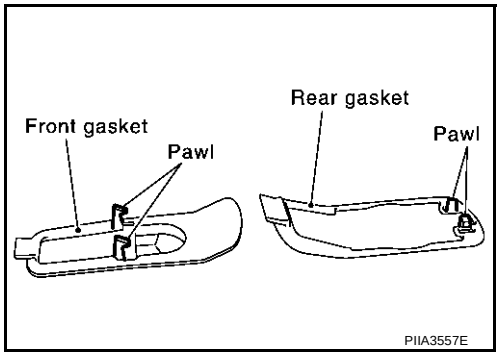
5. While pulling the outside handle, remove outside handle escutcheon.



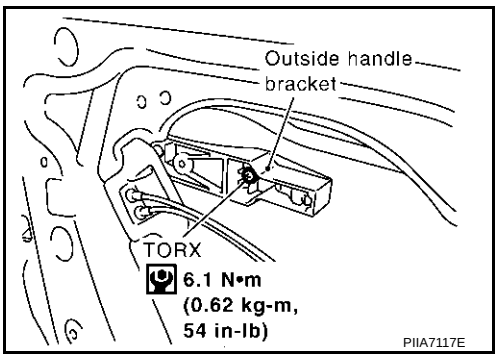
6. While pulling outside handle, slide toward rear of vehicle to remove outside handle.



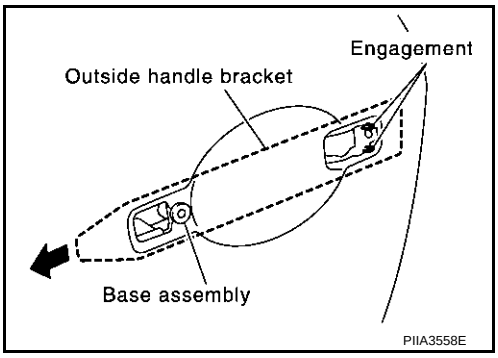
7. Remove the front gasket and rear gasket.



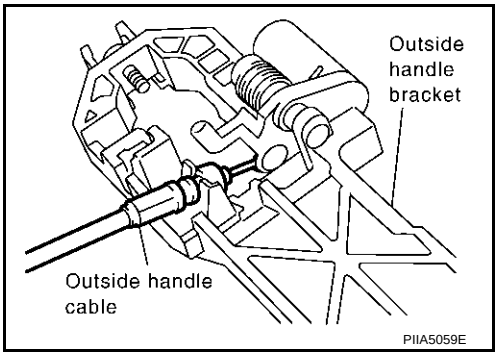
8. Remove the TORX bolt (T30), and remove the outside handle bracket.



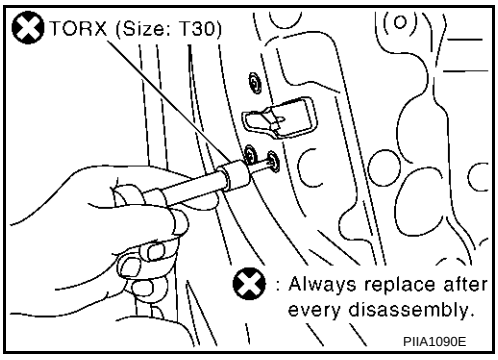
9. While pulling outside handle, slide toward front of vehicle to remove outside handle bracket.



10. Reach to separate outside handle cable connection.



11. Remove the TORX bolts (T30) of door lock assembly.



12. Disconnect the door lock actuator connector and remove door lock assembly.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

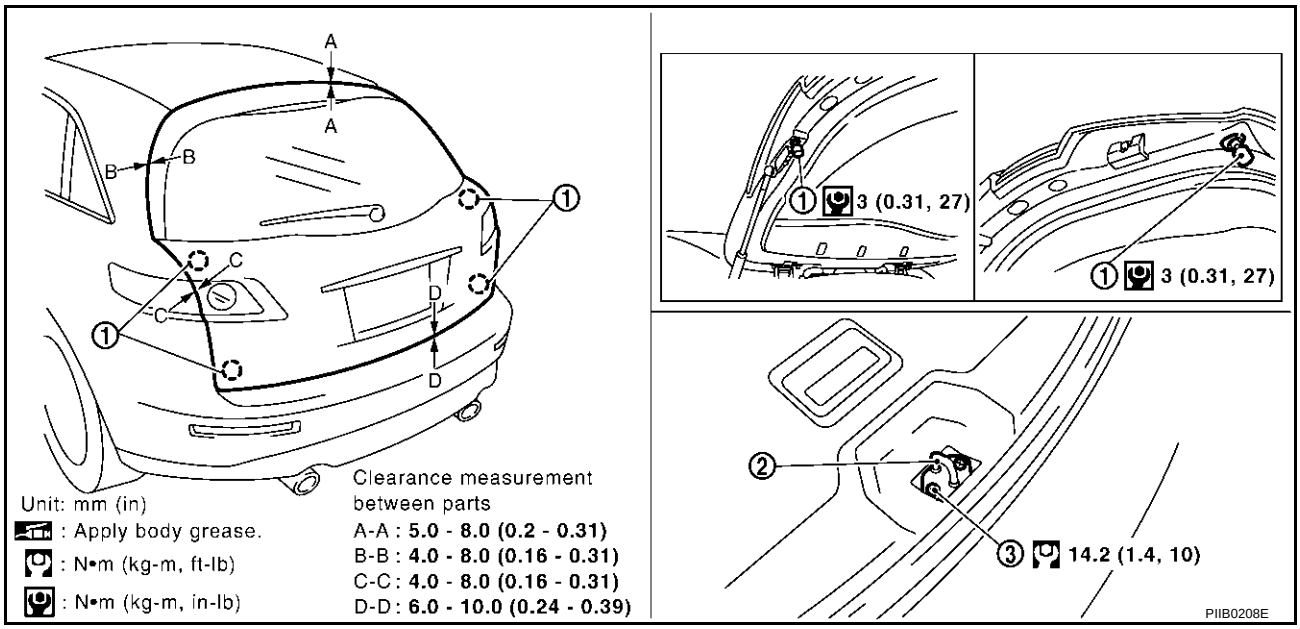
To install each rod, be sure to rotate the rod holder until a click is felt.

BACK DOOR

PFP:90100

Fitting Adjustment

AIS0039O



1. bumper rubber
2. Back door striker
3. Screw

VERTICAL/LATERAL CLEARANCE ADJUSTMENT

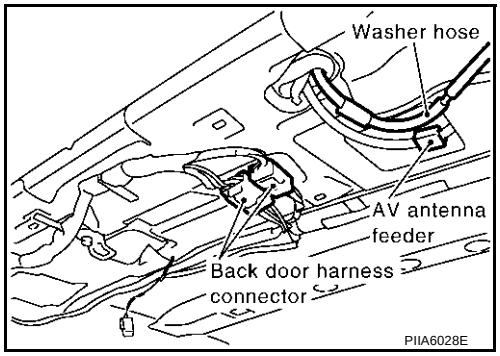
1. With the striker released, loosen the bumper rubber lock nuts.
2. Close the back door lightly and adjust the surface height by rotating the bumper rubber and, then open the back door to finally tighten the back door lock mounting bolts and bumper rubber lock nuts to the specifiedtorque.

Back Door Assembly

AIS0039P

REMOVAL

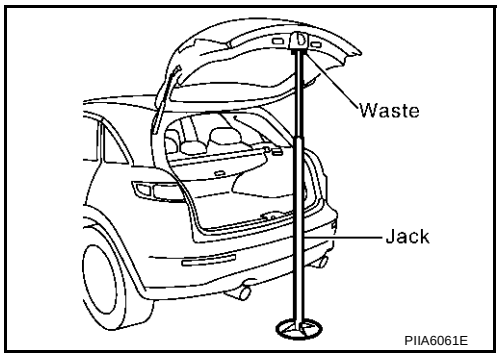
1. Remove roof rear garnish assembly. Refer to EI-44, "Removal and Installation" .
2. Disconnect the back door harness connector and AV antenna feeder.



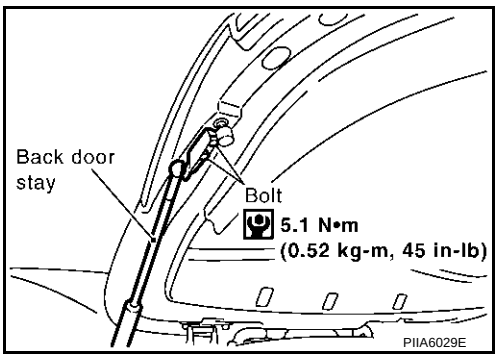
3. Washer hose is separated in the connection part.
4. Support the back door lock with a proper material to prevent it from falling.

WARNING:

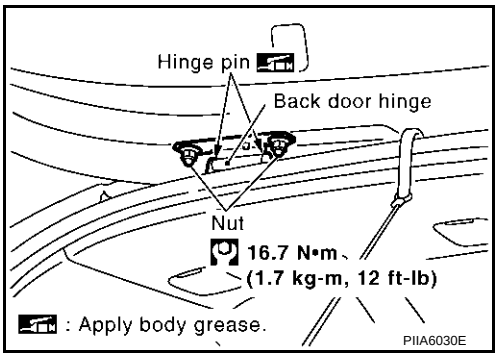
Body injury may occur if no supporting rod is holding the back door open when removing the damper stay.



5. Remove back door stay on back door.



6. Remove hinge mounting nuts on the back door and remove back door assembly.



INSTALLATION

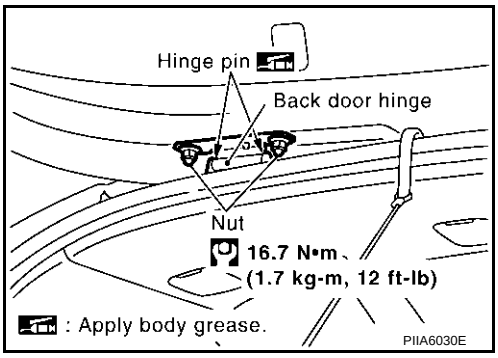
Install in the reverse order of removal.

CAUTION:

- **After installing, check operation.**
- **After installing, perform fitting adjustment. Refer to BL-196, "Fitting Adjustment" .**

INSPECTION

1. Check hinges for the following.
   - Malfunction noise or door closing and opening effort
   - Component wear or damage
2. Apply Grease to the rotating part of the hinge.

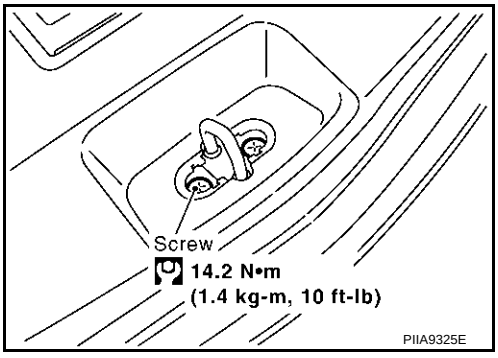


Removal and Installation of Back Door Striker

AIS0039Q

REMOVAL

1. Remove rear plate assembly. Refer to EI-44, "Removal and Installation" .
2. Remove mounting screws, and remove striker from the vehicle.



INSTALLATION

Install in the reverse order of removal.

CAUTION:
After installing, perform fitting adjustment. Refer to BL-196, "Fitting Adjustment" .

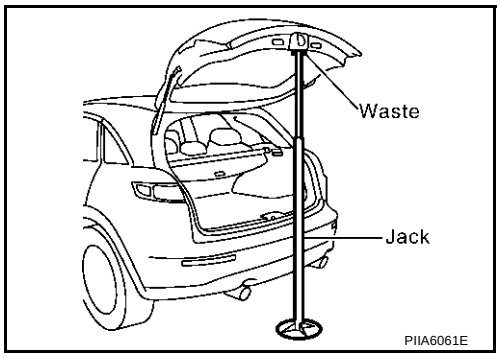
Removal and Installation of Back Door Stay

AIS0039R

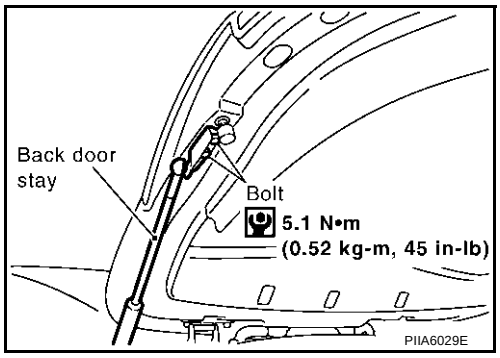
REMOVAL

1. Support the back door lock with a proper material to prevent it from falling.

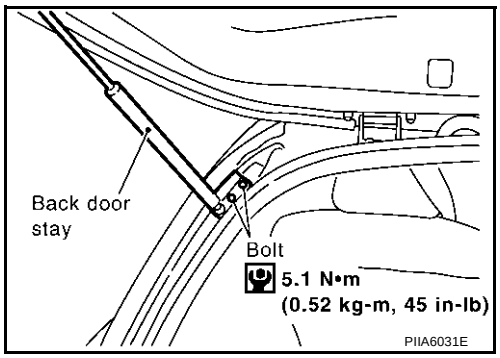
   WARNING:
   Body injury may occur if no supporting rod is holding the back door open when removing the damper stay.



2. Remove back door stay on back door.



3. Remove back door stay assembly on vehicle.



INSTALLATION

Install in the reverse order of removal.

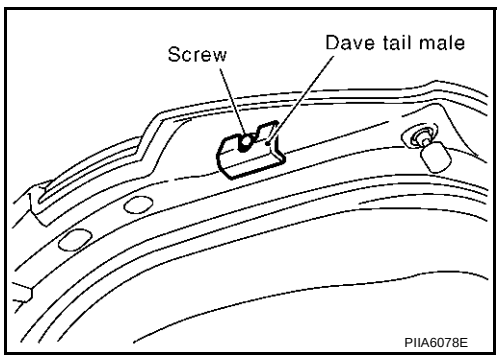
CAUTION:
After installing, check operation.

Removal and Installation of Dam Tail Male & Female

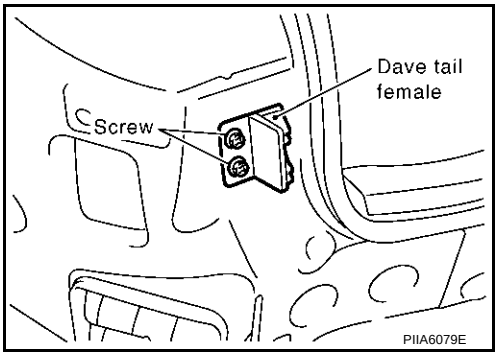
AIS003G2

REMOVE

1. Remove the dam tail male.

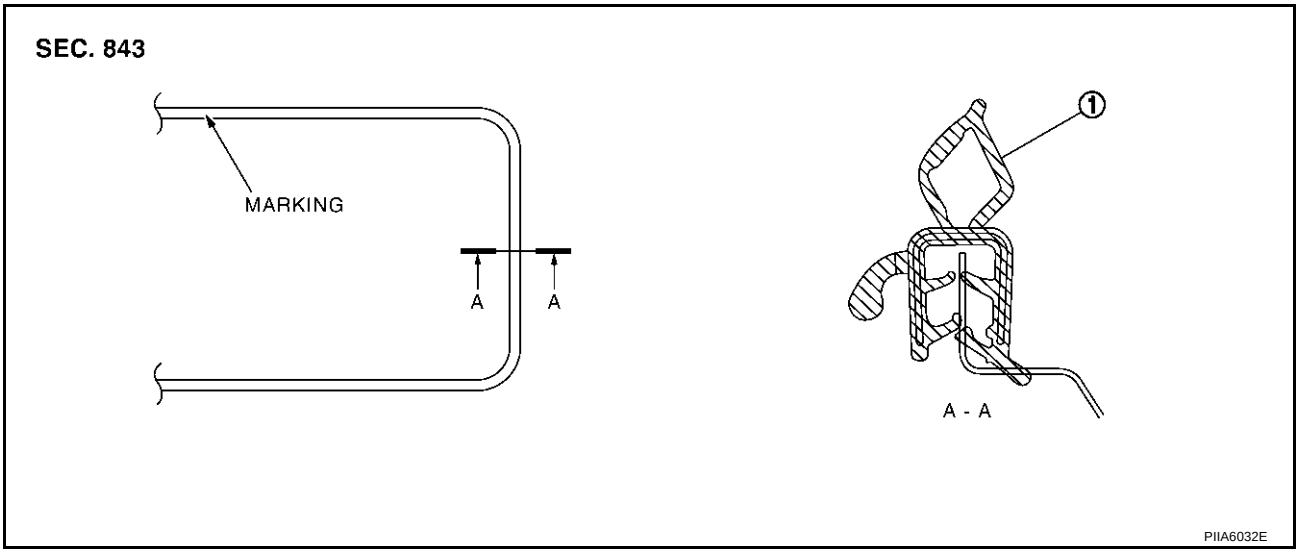


2. Remove the rear bumper. Refer to EI-18, "Removal and Installation" .
3. Remove the dam tail female.



Removal and Installation of Back Door Weatherstrip

AIS0039S



1. Weatherstrip

1. Working from the upper section, align weatherstrip mark with vehicle center position mark and install weatherstrip onto the vehicle.
2. For the lower section, align the weatherstrip seam with center of the striker.
3. After installation, pull the weatherstrip gently to ensure that there is no loose section.

NOTE:
Make sure the weatherstrip is fit tightly at each corner and back door rear plate.

BACK DOOR LOCK ASSEMBLY

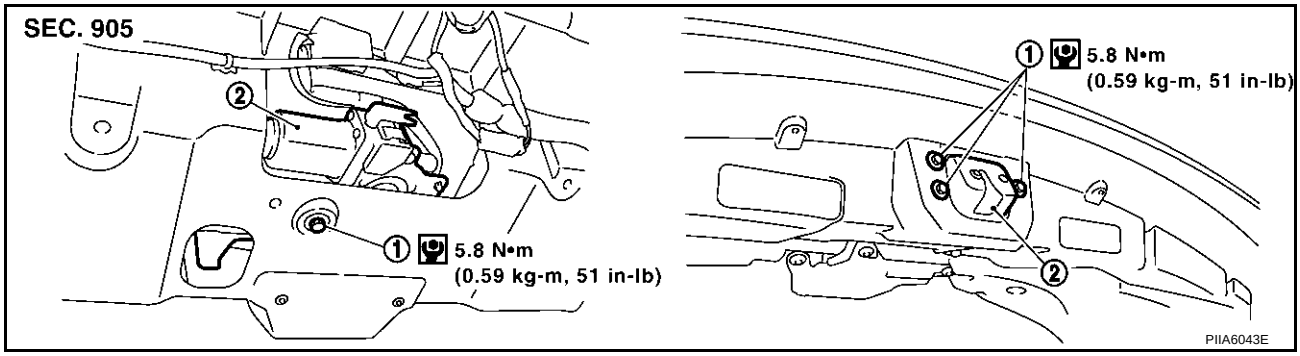
PFP:90504

Removal and Installation of Back Door Lock & Closure Assembly

AIS0039T

REMOVAL

1. Remove back door finisher. Refer to EI-46, "Removal and Installation" .
2. Disconnect the connector and the clip of the back door lock & closure assembly.
3. Remove the mounting bolts.



1. Bolt
2. Back door lock & closure assembly

4. Disconnect the connector of the back door opener actuator.
5. Remove the mounting bolts, remove back door lock & closure assembly.

INSTALLATION

Install in the reverse order of removal.

CAUTION:

- **After installing, check operation.**
- **After installing, perform fitting adjustment. Refer to BL-196, "Fitting Adjustment" .**

INSPECTION

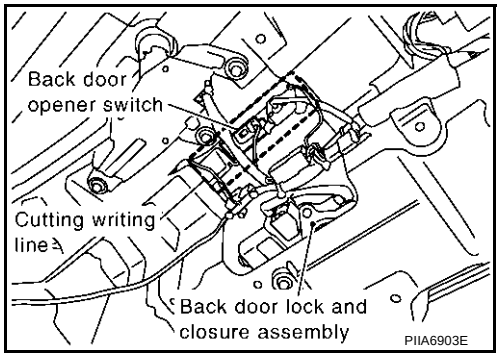
1. Check back door lock for the following.
   - Malfunction noise or door closing and opening effort
   - Component wear or damage
2. Apply body grease to the rotating part of the back door lock.

Removal and Installation of Back Door Opener Switch

AIS0039U

REMOVAL

1. Remove back door finisher. Refer to EI-46, "Removal and Installation" .
2. The back door module is cut along cutting writing line of the back door module.
3. Disconnect the back door opener switch connector.
4. Remove the mounting nuts, remove the back door opener switch.



INSTALLATION

Install in the reverse order of removal.

CAUTION:

- **After installing, check operation.**

Disassembly and Assembly

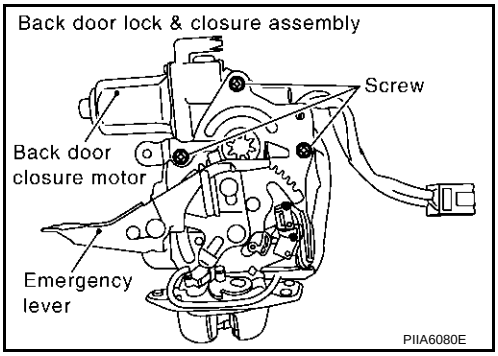
AIS003G3

BACK DOOR LOCK & CLOSURE ASSEMBLY

CAUTION:

Be sure to remove or install the back door opener actuator motor with the back door lock & closure assembly.

1. Remove the back door closure motor.

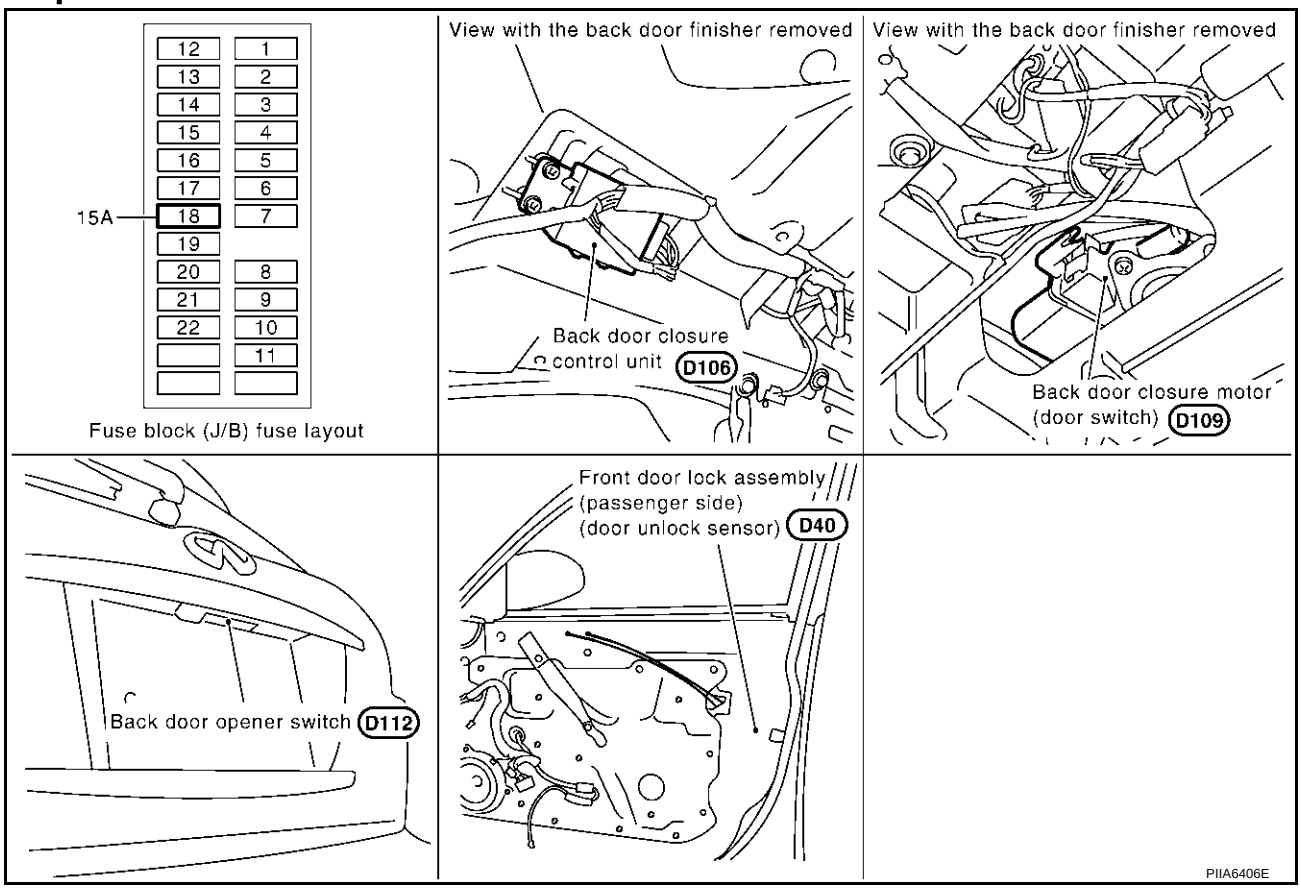


BACK DOOR AUTO CLOSURE SYSTEM

PFP:90542

Component Parts and Harness Connector Location

AIS003FP



System Description

AIS003FQ

When back door lock latch engaged with striker, striker is lowered by means of a motor the back door fully closed.

CLOSE OPERATION

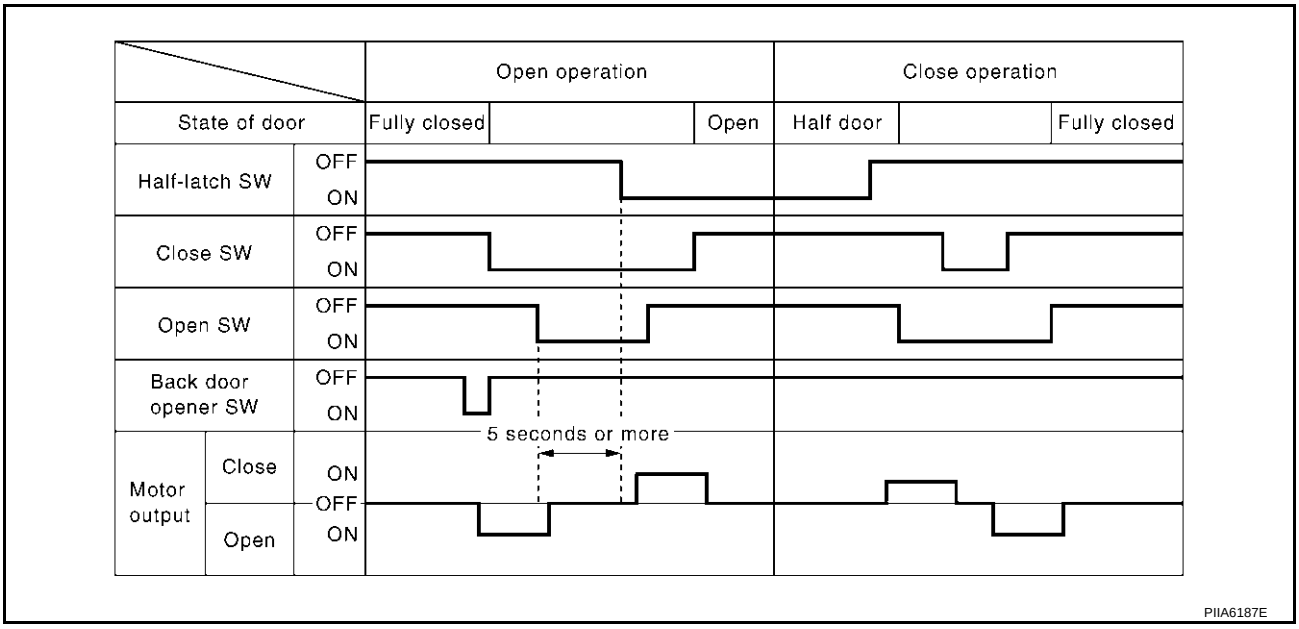
- Half-latch is turned off when back door enters the state of a half door and back door closure control unit recognizes it.
- Back door closure control unit by which the signal is recognized operates closure motor in the close direction, and open switch is turned on.
- Close switch is turned on when back door becomes a full latch position by operating closure motor and back door closure control unit operates closure motor in an open direction.
- The operation of closure motor is stopped, and back door enters all close states when back door moves in an open direction, and open switch is turned off.

NON-OPERATION CONDITION

- When you close back door while pushing back door opener switch.
- When closing at once (within about 0.5 seconds) after back door is opened.
- When you do not close back door after back door opener switch is pushed.

OPEN OPERATION

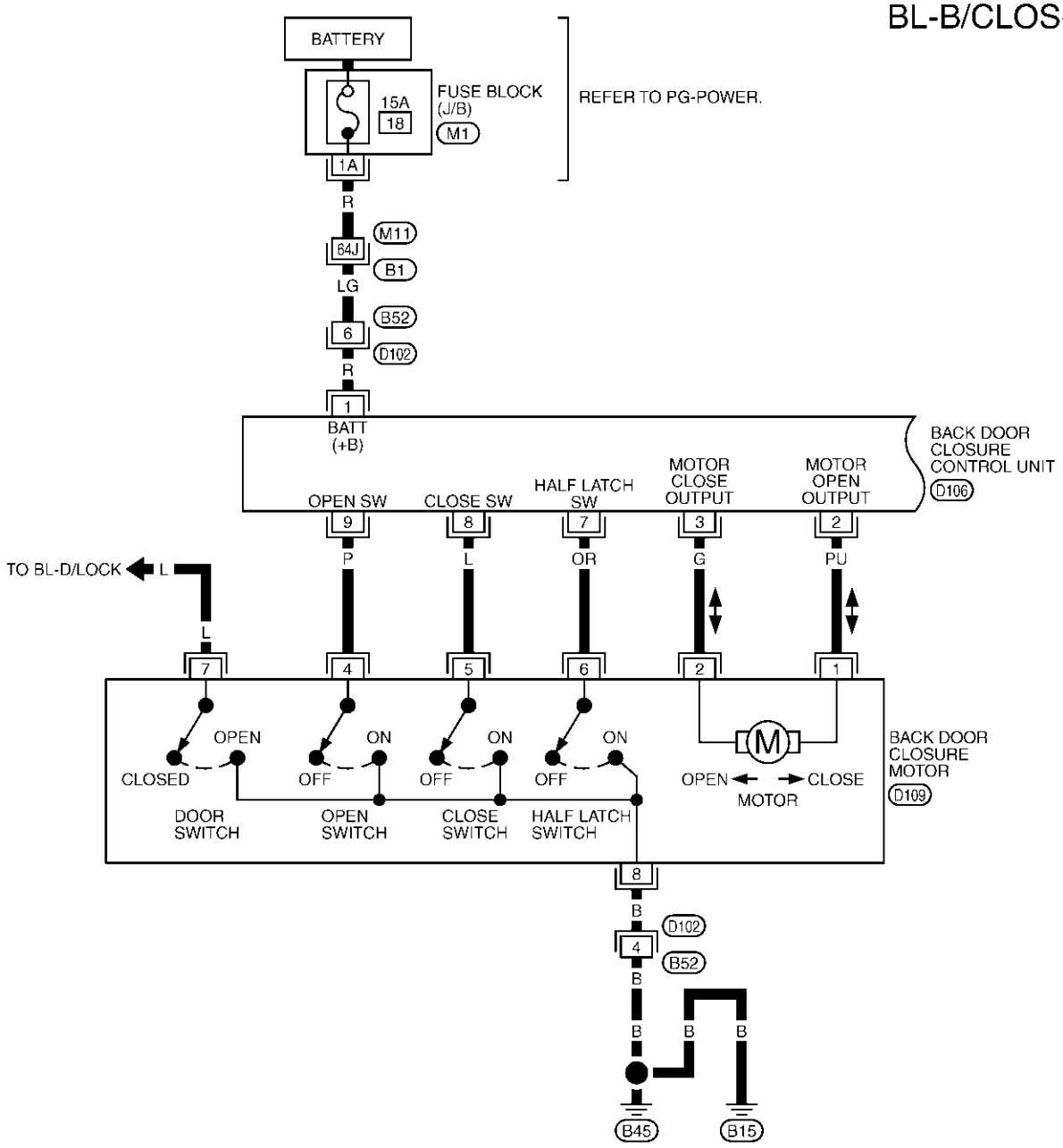
- When passenger side door unlock and back door shuts, back door opener switch is pushed.
- Back door closure control unit receives the signal, closure motor is operated in an open direction, and back door opens.
- Closure motor is operated in the close direction and stops at a neutral position when the following conditions consist after turning on open switch.
  - When you detect the thing that back door opens by half latch switch.
  - When 5 seconds past without opening back door.

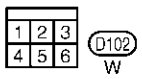


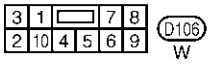
Wiring Diagram — B/CLOS —

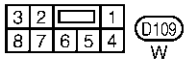
AIS003FR

BL-B/CLOS-01







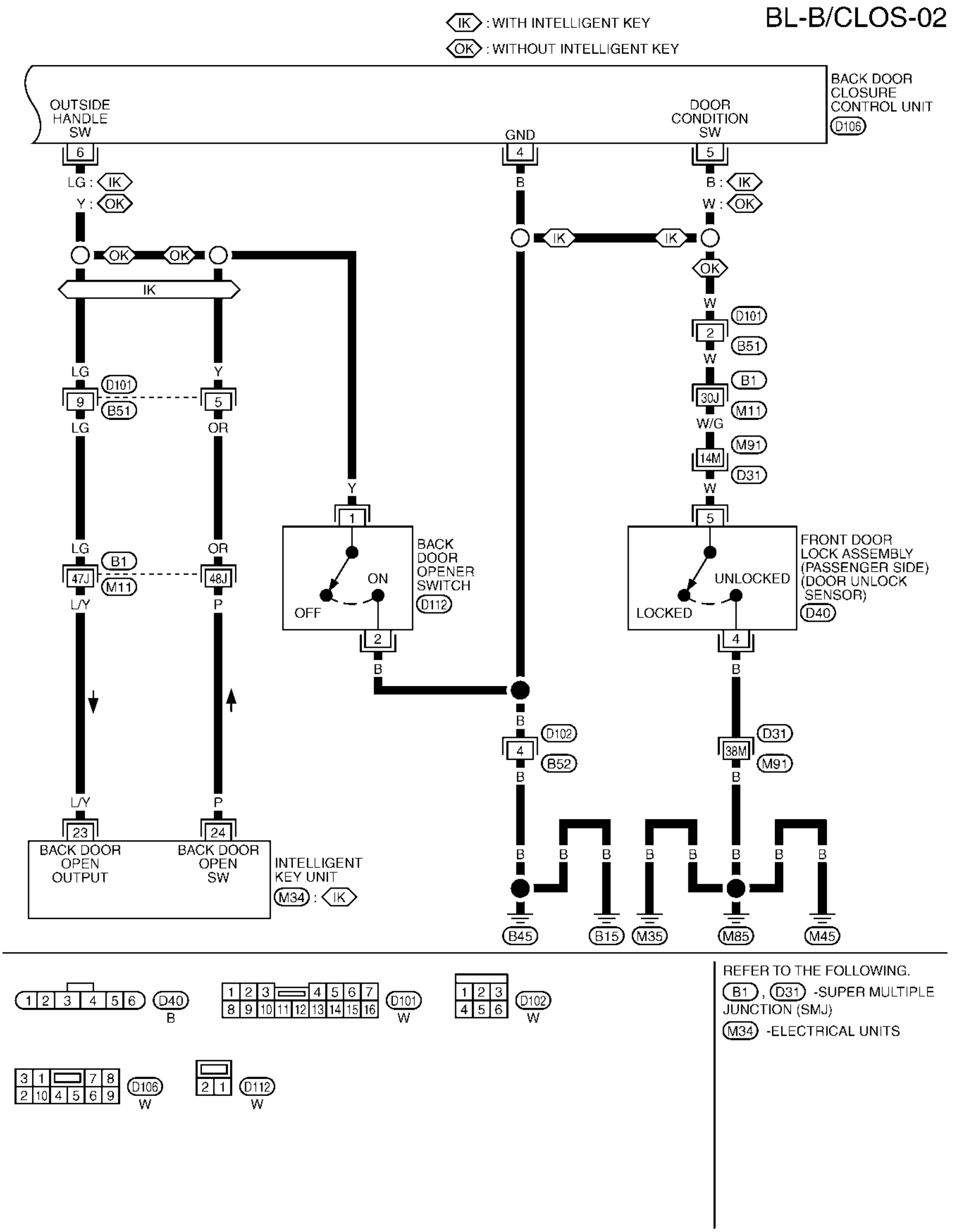


REFER TO THE FOLLOWING.

(B1) -SUPER MULTIPLE JUNCTION (SMJ)

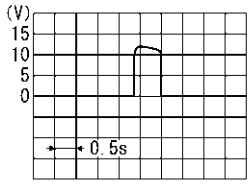
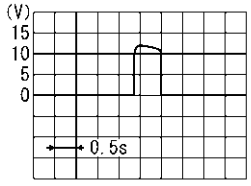
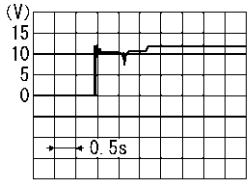
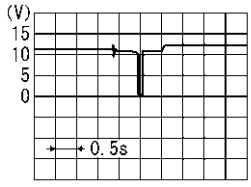
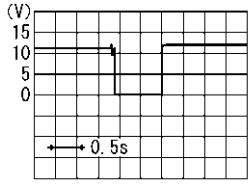
(M1) -FUSE BLOCK-JUNCTION BOX (J/B)

TIWM0331E


BL-B/CLOS-02
IK : WITH INTELLIGENT KEY
OK : WITHOUT INTELLIGENT KEY
BACK DOOR CLOSURE CONTROL UNIT D106
OUTSIDE HANDLE SW
GND
DOOR CONDITION SW
LG : IK
Y : OK
B : IK
W : OK
BACK DOOR OPENER SWITCH D112
ON
OFF
FRONT DOOR LOCK ASSEMBLY (PASSENGER SIDE) (DOOR UNLOCK SENSOR) D40
UNLOCKED
LOCKED
BACK DOOR OPEN OUTPUT
BACK DOOR OPEN SW
INTELLIGENT KEY UNIT M34 : IK
B45
B15
M35
M85
M45
D40 B
D101 W
D102 W
D106 W
D112 W
REFER TO THE FOLLOWING.
B1, D31 -SUPER MULTIPLE JUNCTION (SMJ)
M34 -ELECTRICAL UNITS
TIWM0332E

Terminals and Reference Value for Back Door Closure Control Unit

AIS003FT

Terminal	Wire color	Item	Condition	Voltage (V) (Approx.)
1	R	Battery power supply	—	Battery voltage
2	PU	Closure motor (open) signal	Fully open → fully close	 SIIA1480J
3	G	Closure motor (close) signal	Fully open → fully close	 SIIA1480J
4	B	Ground	—	0
5	W (B)	Unlock sensor signal (passenger side)	Passenger side door lock is locked	5
			Passenger side door lock is unlocked	0
6	Y (LG)	Back door opener switch signal	Back door opener switch is ON	0
			Other than above	5
7	OR	Half-latch switch signal	Fully open → fully close	 SIIA1479J
8	L	Close switch signal	Fully open → fully close	 SIIA1478J
9	P	Open switch signal	Fully open → fully close	 SIIA1481J

() : Models with Intelligent Key

Work Flow

AIS003FU

1. Check the symptom and customer's requests.
2. Understand the outline of system. Refer to BL-202, "System Description" .
3. Perform the preliminary check, Refer to BL-207, "Preliminary Check"
4. According to the trouble diagnosis chart, repair or replace the cause of the malfunction. Refer to BL-207, "Trouble Diagnosis Chart by Symptom" .
5. Does back door auto closure system operate normally? If Yes, GO TO 6, If No, GO TO 4.
6. INSPECTION END

Preliminary Check

AIS003G4

Remove the fuse No.18 for the back door closure with the back door closure inactive.
Check that the back door can be open / close normally.

CAUTION:
It is judged it is abnormal, discontinues closure operation, and drive lever returns to a neutral position if not becoming full-latch within about three seconds after half-latch.
When this operation is done continuously three times, both back door closure and back door opener switch are not operated because the function of back door closure is stopped.
Thing to reset power supply by pulling out and opening fuse in that case.

Trouble Diagnosis Chart by Symptom

AIS003FV

Symptom	Diagnostic procedure and repair order	Refer to page
Back door closure does not operate.	1.Back door closure motor power supply and ground circuit check	BL-208
	2. Half-latch switch check	BL-208
	3. Close switch check	BL-210
	4. Open switch check.	BL-211
	5. Closure motor check.	BL-214
	6. Replace back door closure control unit.	BL-202
Back door does not open (with Intelligent Key system).	1. Intelligent Key system check.	BL-157
Back door does not open	1. Back door opener switch check.	BL-212
	2. Unlock sensor check.	BL-213
	3. Replace back door closure control unit.	BL-202
Back door does not enter fully closed states through back door closure operates.	1.Back door fitting adjustment.	BL-196
	2. Replace back door lock assembly.	BL-200

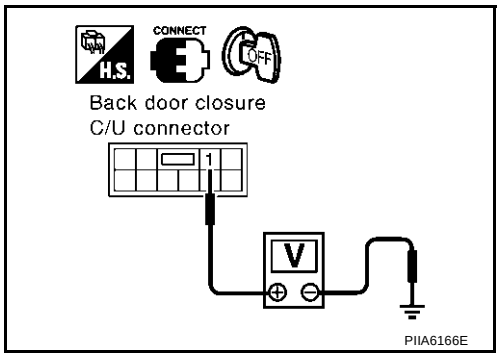
Back Door Closure Control Unit Power Supply and Ground Circuit Check

AIS003FW

1. CHECK POWER SUPPLY CIRCUIT

Check voltage between back door closure control unit connector D106 terminal 1 and ground.

1 (R) – Ground : Battery voltage



OK or NG

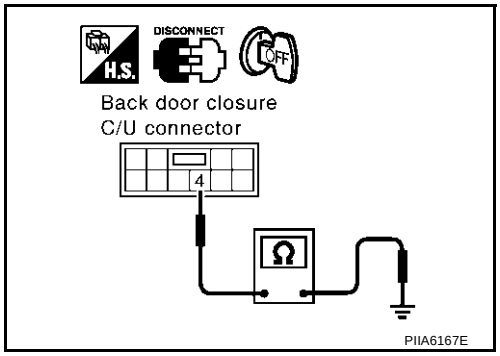
OK >> GO TO 2.
NG >> Check the following.

- 15A fuse [No.18, located in fuse block (J/B)]
- Harness for open or short between back door closure control unit and fuse.

2. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect back door closure control unit connector.
3. Check continuity between back door closure control unit connector D106 terminal 4 and ground.

4 (B) – Ground : Continuity should exist.



OK or NG

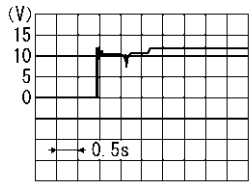
OK >> Power supply and ground circuit are OK.
NG >> Repair or replace harness.

Half-Latch Switch Check

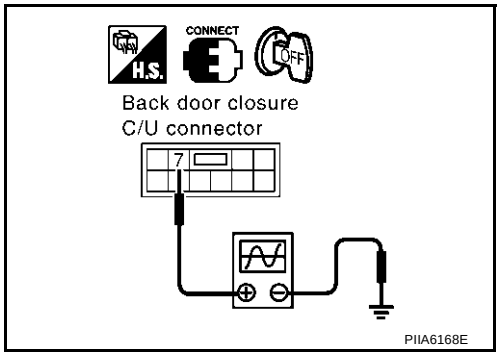
AIS003FX

1. CHECK HALF-LATCH SWITCH SIGNAL

Check the signal between back door closure control unit connector and ground with oscilloscope.

Connector	Terminals (Wire color) (+)	Terminals (Wire color) (-)	Back door condition	Signal (Reference value)
D106	7 (OR)	Ground	Fully open → fully closed	

SIIA1479J



OK or NG

OK >> Half-latch switch is OK.
NG >> GO TO 2.

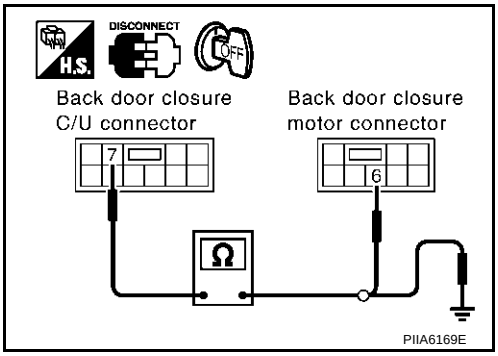
2. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect back door closure control unit and back door closure motor connector.
3. Check continuity between back door closure control unit connector D106 terminal 7 and back door closure motor connector D109 terminal 6.

7 (OR) – 6 (OR) : Continuity should exist.

4. Check continuity between back door closure control unit connector D106 terminal 7 and ground.

7 (OR) – Ground : Continuity should not exist.



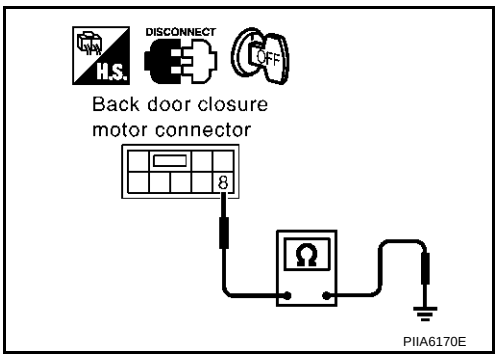
OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness.

3. CHECK GROUND CIRCUIT

Check continuity between back door closure motor connector D109 terminal 8 and ground.

8 (B) – Ground : Continuity should exist.



OK or NG

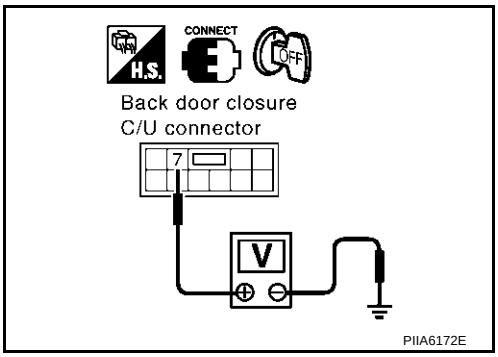
OK >> GO TO 4.
NG >> Repair or replace harness.

4. CHECK BACK DOOR CLOSURE CONTROL UNIT OUTPUT SIGNAL

1. Connect back door closure control unit connector.
2. Check voltage between back door closure control unit connector D106 terminal 7 and ground.

Back door is closed

7 (OR) – Ground : Battery voltage



OK or NG

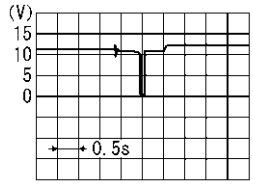
OK >> Replace back door lock assembly.
NG >> Replace back door closure control unit.

Close Switch Check

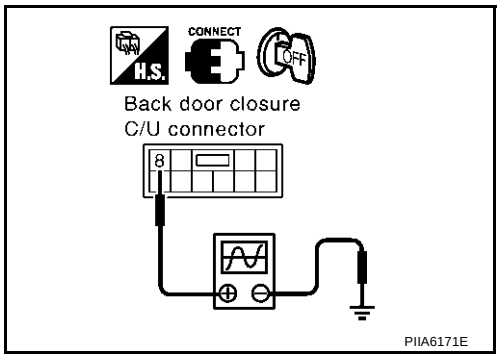
AIS003G5

1. CHECK CLOSE SWITCH SIGNAL

Check the signal between back door closure control unit connector and ground with oscilloscope.

Connector	Terminals (Wire color) (+)	Terminals (Wire color) (-)	Back door condition	Signal (Reference value)
D106	8 (L)	Ground	Fully open → fully closed	

SIIA1478J



PIIA6171E

OK or NG

OK >> Close switch is OK.
NG >> GO TO 2.

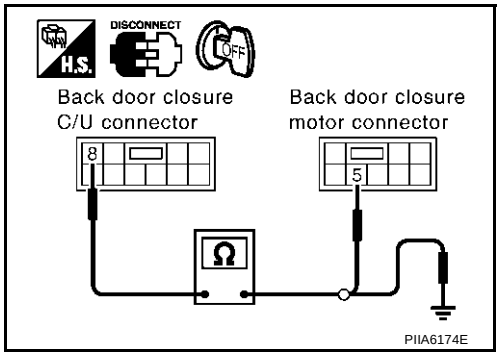
2. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect back door closure control unit and back door closure motor connector.
3. Check continuity between back door closure control unit connector D106 terminal 8 and back door closure motor connector D109 terminal 5.

   8 (L) – 5 (L) : Continuity should exist.

4. Check continuity between back door closure control unit connector D106 terminal 8 and ground.

   8 (L) – Ground : Continuity should not exist.



PIIA6174E

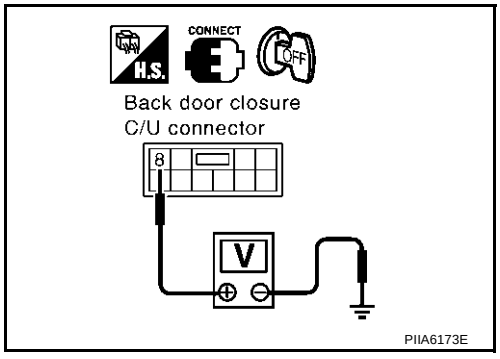
OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness.

3. CHECK BACK DOOR CLOSURE CONTROL UNIT OUTPUT SIGNAL

1. Connect back door closure control unit connector.
2. Check voltage between back door closure control unit connector D106 terminal 8 and ground.

   Back door is closed
   8 (L) – Ground : Battery voltage



PIIA6173E

OK or NG

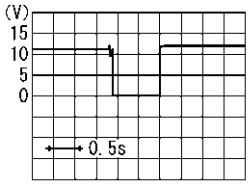
OK >> Replace back door lock assembly.
NG >> Replace back door closure control unit.

Open Switch Check

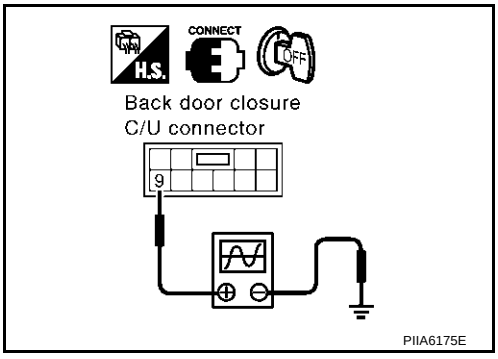
AIS003G6

1. CHECK OPEN SWITCH SIGNAL

Check the signal between back door closure control unit connector and ground with oscilloscope.

Connector	Terminals (Wire color) (+)	Terminals (Wire color) (-)	Back door condition	Signal (Reference value)
D106	9 (P)	Ground	Fully open → fully closed	

SIIA1481J



PIIA6175E

OK or NG

OK >> Open switch is OK.
NG >> GO TO 2.

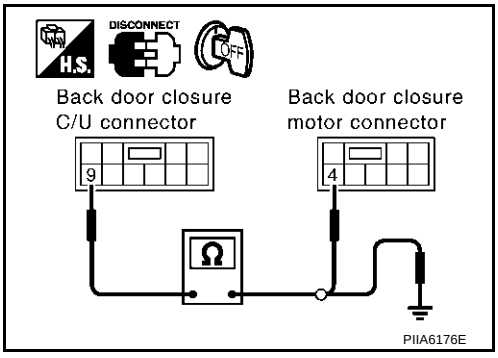
2. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect back door closure control unit and back door closure motor connector.
3. Check continuity between back door closure control unit connector D106 terminal 9 and back door closure motor connector D109 terminal 4.

9 (P) – 4 (P) : Continuity should exist.

4. Check continuity between back door closure control unit connector D106 terminal 9 and ground.

9 (P) – Ground : Continuity should not exist.



PIIA6176E

OK or NG

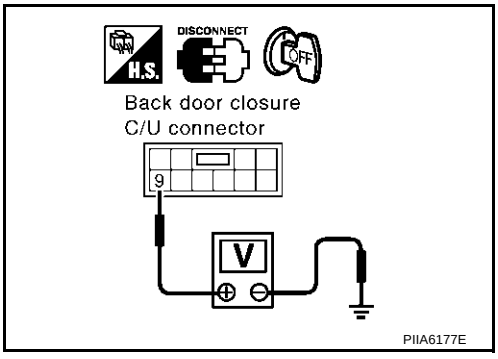
OK >> GO TO 3.
NG >> Repair or replace harness.

3. CHECK BACK DOOR CLOSURE CONTROL UNIT OUTPUT SIGNAL

1. Connect back door closure control unit connector.
2. Check voltage between back door closure control unit connector D106 terminal 9 and ground.

Back door is closed

9 (P) – Ground : Battery voltage



PIIA6177E

OK or NG

OK >> Replace back door lock assembly.
NG >> Replace back door closure control unit.

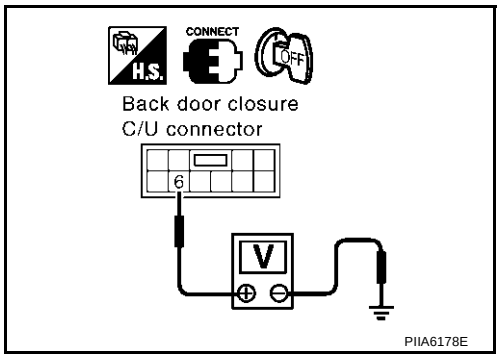
Back Door Opener Switch Check

AIS003G7

1. CHECK BACK DOOR OPENER SWITCH SIGNAL

Check voltage between back door closure control unit connector and ground.

Connector	Terminals (Wire color)		Condition	Voltage (V) (Approx.)
	(+)	(-)		
D106	6 (Y or LG)	Ground	Back door opener switch : ON	0
			Back door opener switch : OFF	5



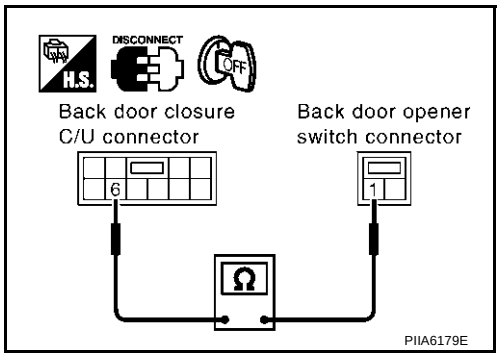
OK or NG

OK >> Back door opener switch is OK.
NG >> GO TO 2.

2. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect back door closure control unit and back door opener switch connector.
3. Check continuity between back door closure control unit connector D106 terminal 6 and back door opener switch connector D112 terminal 1.

6 (Y or LG) – 1 (Y) : Continuity should exist.



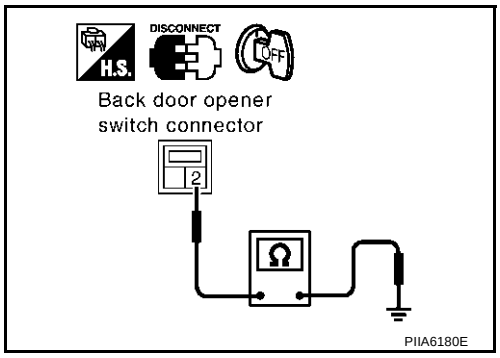
OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness between back door closure control unit and back door opener switch.

3. CHECK GROUND CIRCUIT

Check continuity between back door opener switch connector D112 terminal 2 and ground.

2 (B) – Ground : Continuity should exist.



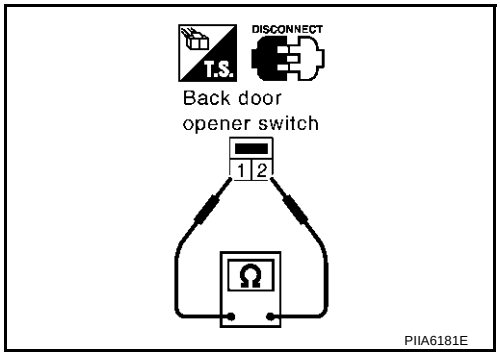
OK or NG

OK >> GO TO 4.
NG >> Repair or replace harness.

4. CHECK BACK DOOR OPENER SWITCH

Check continuity between back door opener switch terminal 1 and 2.

Terminals		Condition	Continuity
1	2	Back door opener switch : ON	Yes
		Back door opener switch : OFF	No



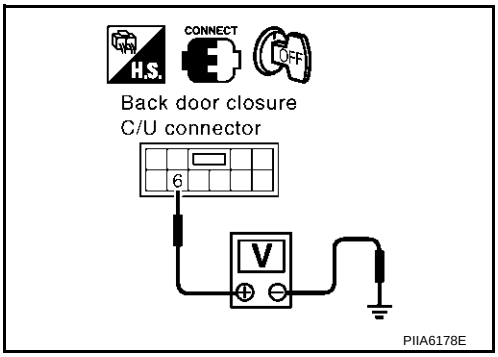
OK or NG

OK >> GO TO 5.
NG >> Replace back door opener switch.

5. CHECK BACK DOOR CLOSURE CONTROL UNIT OUTPUT SIGNAL

1. Connect back door closure control unit connector.
2. Check voltage between back door closure control unit connector D106 terminal 6 and ground.

6 (Y or LG) – Ground : Approx. 5V



OK or NG

OK >> Check condition of harness and connector.
NG >> Replace back door closure control unit.

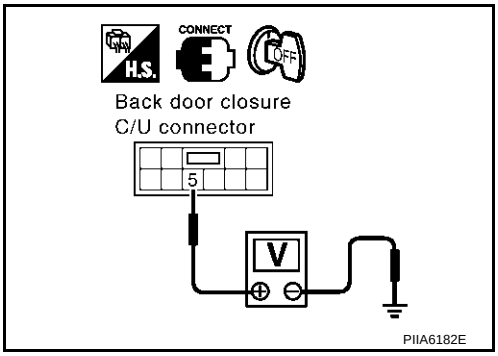
Unlock Sensor Check

AIS003G8

1. CHECK UNLOCK SENSOR SIGNAL

Check voltage between back door closure control unit connector and ground.

Connector	Terminals (Wire color)		Condition	Voltage (V) (Approx.)
	(+)	(-)		
D106	5 (W or B)	Ground	Passenger side door lock is locked	5
			Passenger side door lock is unlocked	0



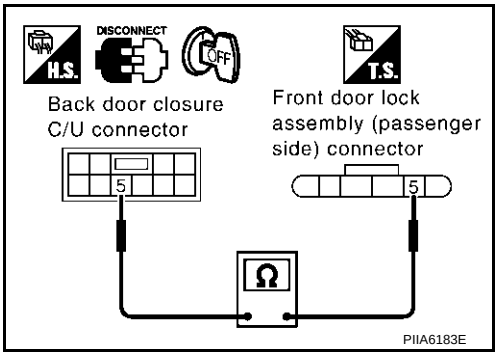
OK or NG

OK >> Unlock sensor is OK.
NG >> GO TO 2.

2. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect back door closure control unit and front door lock assembly (passenger side) connector.
3. Check continuity between back door closure control unit connector D106 terminal 5 and front door lock assembly (passenger side) connector D40 terminal 5.

5 (W or B) – 5 (W) : Continuity should exist.



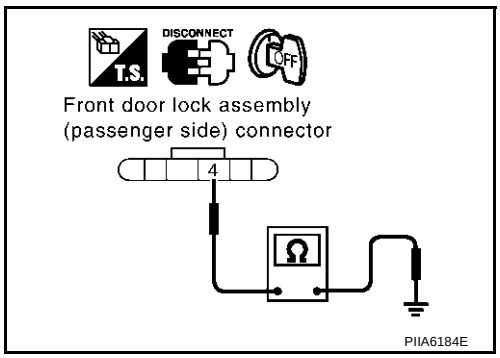
OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness between back door closure control unit and front door lock assembly (passenger side).

3. CHECK GROUND CIRCUIT

Check continuity between front door lock assembly (passenger side) connector D40 terminal 4 and ground.

4 (B) – Ground : Continuity should exist.



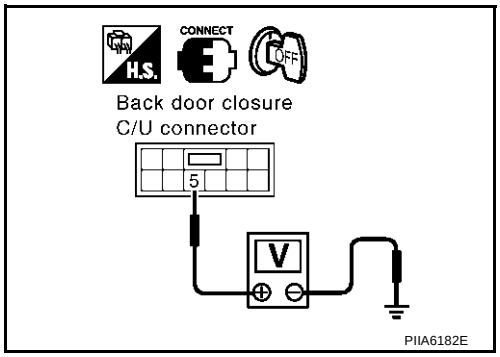
OK or NG

OK >> GO TO 4.
NG >> Repair or replace harness.

4. CHECK BACK DOOR CLOSURE CONTROL UNIT OUTPUT SIGNAL

1. Connect back door closure control unit connector.
2. Check voltage between back door closure control unit connector D106 terminal 5 and ground.

5 (W or B) – Ground : Approx. 5V



OK or NG

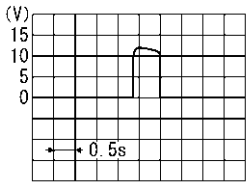
OK >> Check condition of harness and connector.
NG >> Replace back door closure control unit.

Closure Motor Check

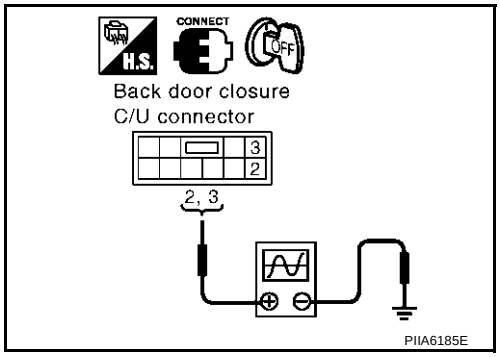
AIS003G9

1. CHECK BACK DOOR CLOSURE MOTOR

Check the signal between back door closure control unit connector and ground with oscilloscope.

Con-nector	Terminals (Wire color) (+)	Terminals (Wire color) (-)	Back door condition	Signal (Reference value)
D106	2 (PU) 3 (G)	Ground	Fully open → fully closed	

SIIA1480J



OK or NG

OK >> GO TO 2.
NG >> Replace back door closure control unit.

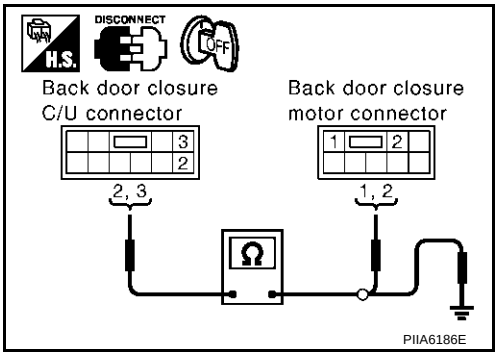
2. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect back door closure control unit and back door closure motor connector.
3. Check continuity between back door closure control unit connector D106 terminal 2, 3 and back door closure motor connector D109 terminal 1, 2.

2 (PU) – 1 (PU) : Continuity should exist.
3 (G) – 2 (G) : Continuity should exist.

4. Check continuity between back door closure control unit connector D106 terminal 2, 3 and ground.

2 (PU) – Ground : Continuity should not exist.
3 (G) – Ground : Continuity should not exist.



OK or NG

OK >> Replace back door closure motor.
NG >> Repair or replace harness.

Removal and Installation of Back Door Closer Control Unit

AIS003HI

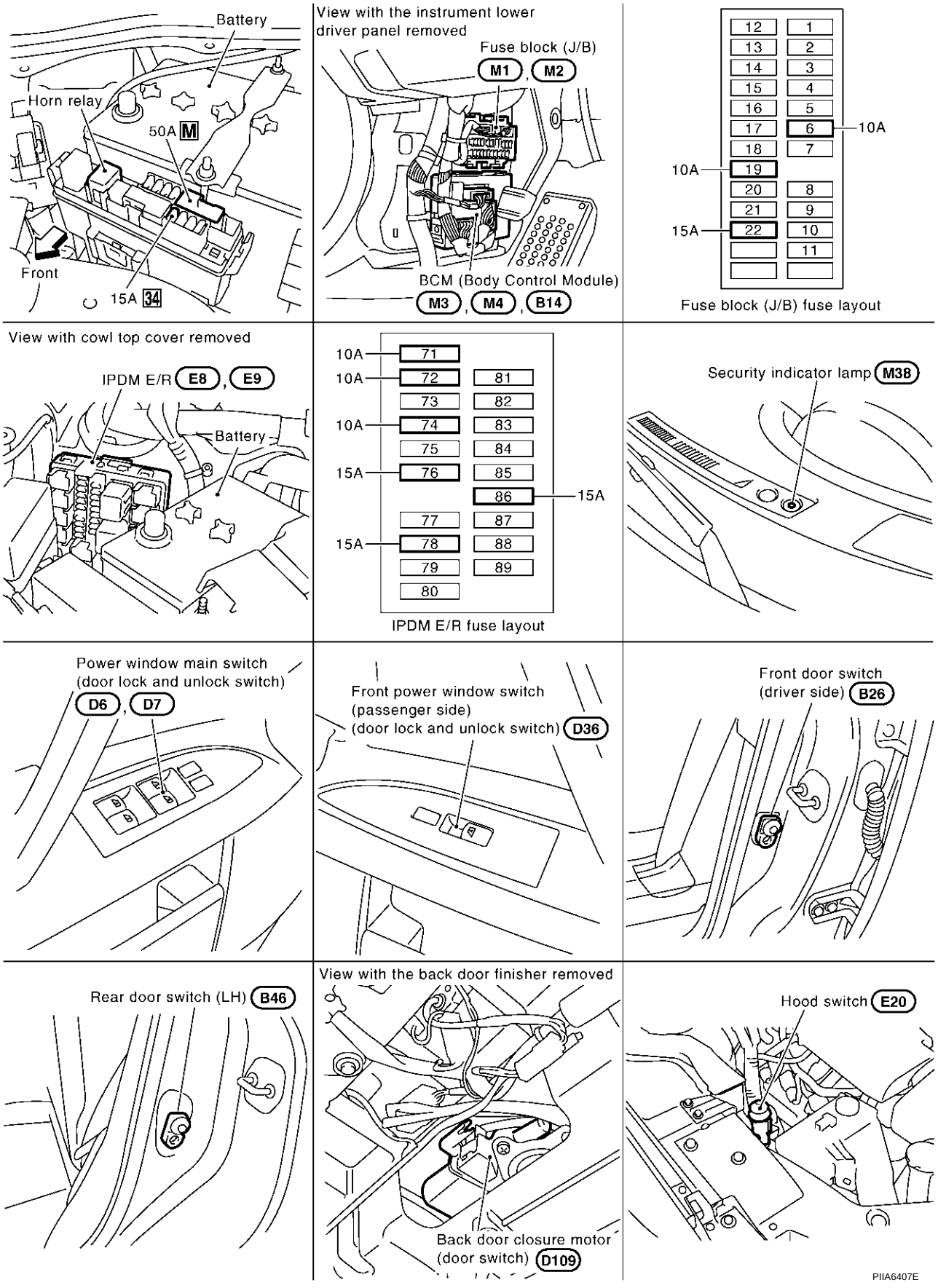
1. Remove the back door finisher. EI-46, "Removal and Installation" .
2. Disconnect the back door closer control unit harness, remove the screw and back door closer control unit.

VEHICLE SECURITY (THEFT WARNING) SYSTEM

PFP:28491

Component Parts and Harness Connector Location

AIS003F2

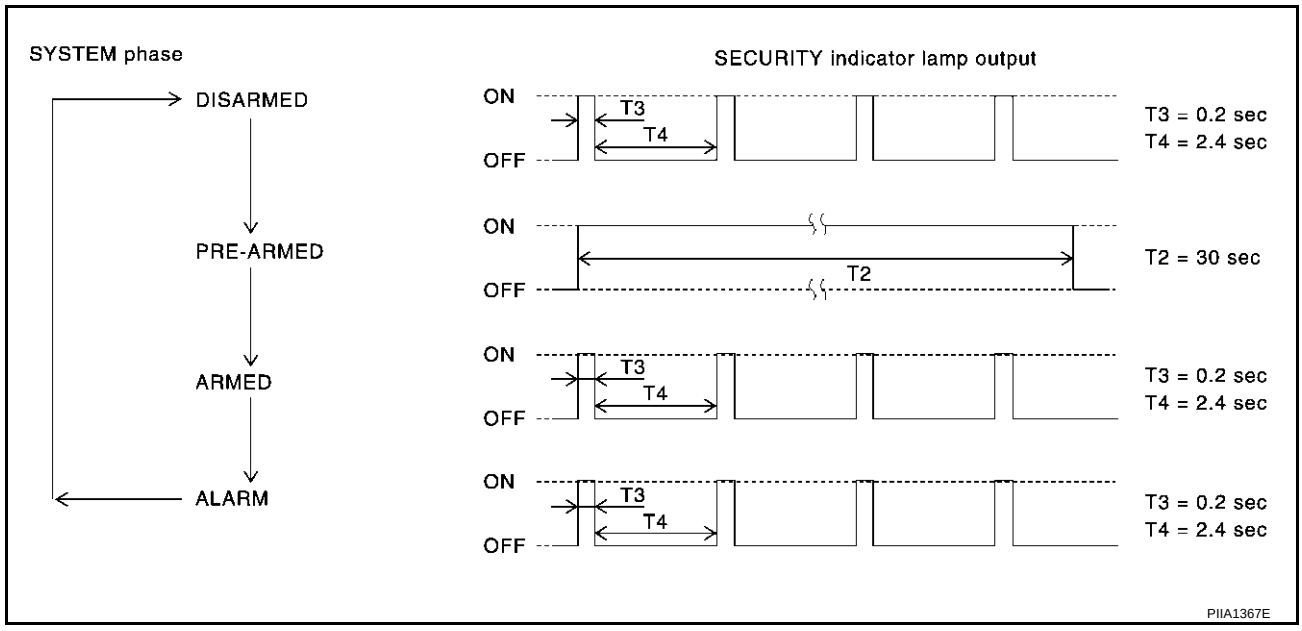


System Description

AIS003F3

DESCRIPTION

Operation Flow



Setting the Vehicle Security System

Initial condition

- Ignition switch is in OFF position.

Disarmed phase

- When hood, doors or back door is open, the vehicle security system is set in the disarmed phase on the assumption that the owner is inside or near the vehicle.
- When the vehicle security system is in the disarmed phase, the security indicator lamp blinks every 2.4 seconds.

Pre-armed phase and armed phase

When the following operation 1 or 2 is performed, the vehicle security system turns into the “pre-armed” phase. (The security indicator lamp illuminates.)

1. BCM receives LOCK signal from front door key cylinder switch, key fob or Intelligent Key after hood, back door and all doors are closed.
2. Hood, back door and all doors are closed after front doors are locked by key or door lock and unlock switch.
   The security indicator lamp illuminates for 30 seconds. then, the system automatically shifts into the “armed” phase.

Canceling the Set Vehicle Security System

When one of the following operations is performed, the armed phase is canceled.

1. Unlock the doors with the key, key fob or Intelligent Key.
2. Turn ignition switch “ON” or “ACC” position.

Canceling the Alarm Operation of the Vehicle Security System

When unlock the door with the key, key fob or Intelligent Key the alarm operation is canceled.

Activating the Alarm Operation of the Vehicle Security System

Make sure the system is in the armed phase. (The security indicator lamp brinks every 2.4 seconds.)
When the following operation 1 or 2 is performed, the system sounds the horns and flashes the headlamps for about 50 seconds.

1. Hood, back door or any door is opened during armed phase.
2. Disconnecting and connecting the battery connector before canceling armed phase.

POWER SUPPLY

Power is supplied at all times

- through 10A fuse [No.19, located in the fuse block (J/B)]
- to security indicator lamp terminal 1.
- through 50A fusible link (letter **M** , located in the fuse and fusible link box)
- to BCM terminal 55.
- through 15A fuse [No.22, located in the fuse block (J/B)]
- to BCM terminal 42.
- through 15A fuse [No.34, located in the fuse block (J/B)]
- to horn relay terminal 2.
- through 10A fuse [No.71, located in the IPDM E/R]
- to IPDM E/R internal CPU.
- through 15A fuse [No.78, located in the IPDM E/R]
- to IPDM E/R internal CPU.

With the ignition switch in the ACC or ON position, power is supplied

- through 10A fuse [No. 6, located in the fuse block (J/B)]
- to BCM terminal 11.

INITIAL CONDITION TO ACTIVATE THE SYSTEM

The operation of the vehicle security system is controlled by the doors, hood and back door.
To activate the vehicle security system, BCM must receive signals indicating the doors, hood and back door are closed and the doors are locked by key fob or Intelligent Key.
When a door is open, BCM terminal 12 (passenger side door), 13 (rear RH door), 62 (driver side door), 63 (rear LH door) receives a ground signal from each door switch.
When front door LH is unlocked by power window main switch (door lock and unlock switch),
BCM terminal 22 receives a signal from terminal 14 of power window main switch with power window serial link.
When front door RH is unlocked by front power window switch (passenger side) (door lock and unlock switch),
BCM terminal 22 receives a signal from terminal 16 of front power window switch (passenger side) with power window serial link.
When the hood is open, IPDM E/R receives a ground signal

- to IPDM E/R terminal 56
- through hood switch terminal 2
- through hood switch terminal 1
- through body grounds E21, E50 and E51.

The IPDM E/R then sends a signal to the BCM through the CAN SYSTEM.
When the back door is open,

- to BCM terminal 58
- through back door closure motor terminal 7

- through back door closure motor terminal 8
- through body grounds B15 and B45.

VEHICLE SECURITY SYSTEM ALARM OPERATION

The vehicle security system is triggered by

- opening a door
- opening the back door
- opening the hood
- detection of battery disconnect and connect.

The vehicle security system will be triggered once the system is in armed phase,
When BCM receives a ground signal at terminals 12 (passenger side door), 13 (rear RH door), 58 (back door), 62 (driver side door), 63 (rear LH door), or receives a signal from the IPDM E/R (hood switch).
When the vehicle security system is triggered,
ground is supplied intermittently from IPDM E/R terminals 38 and 60.
When headlamp high relay (with built-in IPDM E/R) and horn relay are energized and then power is supplied to headlamps (LH and RH) and horns (HIGH and LOW).
The headlamps flash and the horn sounds intermittently.
The alarm automatically turns off after 50 seconds, but will reactivate if the vehicle is tampered with again.

VEHICLE SECURITY SYSTEM DEACTIVATION

To deactivate the vehicle security system, a door or the back door must be unlocked with the key, key fob or Intelligent Key.
When the key is used to unlock a door, BCM terminal 22 receives signal

- from terminal 14 of the power window main switch (door lock and unlock switch).

When the BCM receives either one of these signals or unlock signal from key cylinder switch, key fob or Intelligent Key, the vehicle security system is deactivated. (Disarmed phase)

PANIC ALARM OPERATION

Remote keyless entry system may or may not operate vehicle security system (horn and headlamps) as required.
When the remote keyless entry system is triggered, ground is supplied intermittently from IPDM E/R terminals 38 and 60.
When headlamp relay (with built-in IPDM E/R) and horn relay are energized and then power is supplied to headlamps (LH and RH) and horns (HIGH and LOW).
The headlamp flashes and the horn sounds intermittently.
The alarm automatically turns off after 25 seconds or when BCM receives any signal from key fob or Intelligent Key.

CAN Communication System Description

AIS003LJ

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, 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 Unit

AIS003LI

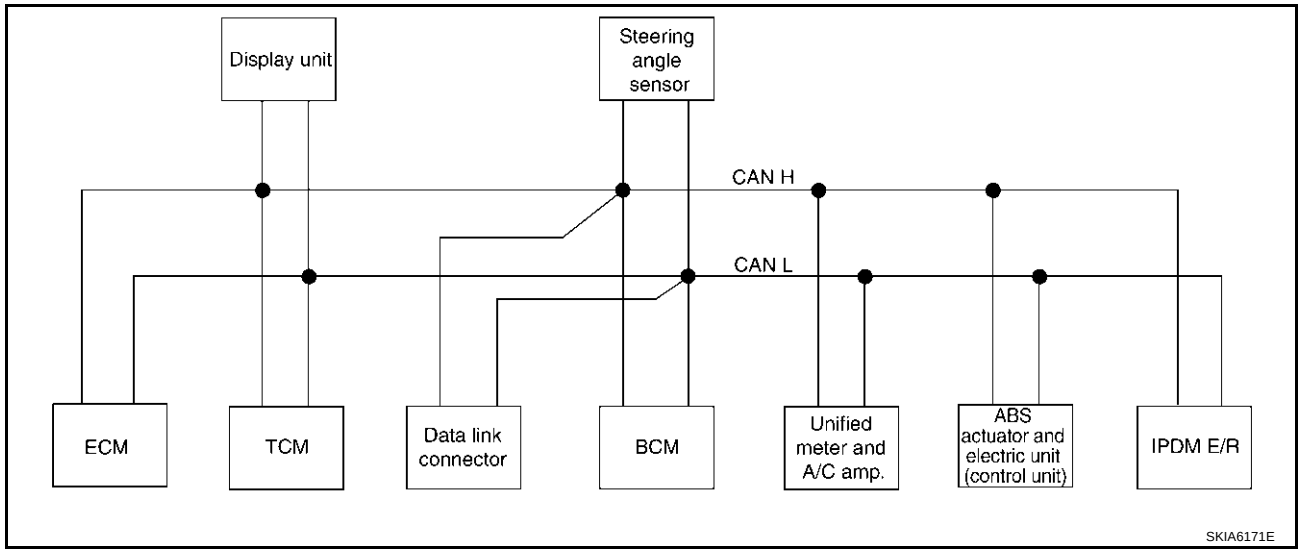
Body type	Wagon					
Axle	2WD			AWD		
Engine	VQ35DE			VQ35DE/VK45DE		
Transmission	A/T					
Brake control	VDC					
Navigation system			×			×
Low tire pressure warning system			×			×
ICC system			×			×
Intelligent Key system			×			×
Automatic drive positioner		×	×		×	×
CAN communication unit						
ECM	×	×	×	×	×	×
TCM	×	×	×	×	×	×
Display unit	×	×		×	×	
Display control unit			×			×
Low tire pressure warning control unit			×			×
AWD control unit				×	×	×
ICC unit			×			×
Intelligent Key unit			×			×
Data link connector	×	×	×	×	×	×
BCM	×	×	×	×	×	×
Steering angle sensor	×	×	×	×	×	×
Unified meter and A/C amp.	×	×	×	×	×	×
ICC sensor			×			×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×
Driver seat control unit		×	×		×	×
IPDM E/R	×	×	×	×	×	×
CAN communication type	BL-221, "TYPE 1/TYPE2"		BL-224, "TYPE 3"	BL-227, "TYPE 4/TYPE5"		BL-230, "TYPE 6"

×: Applicable

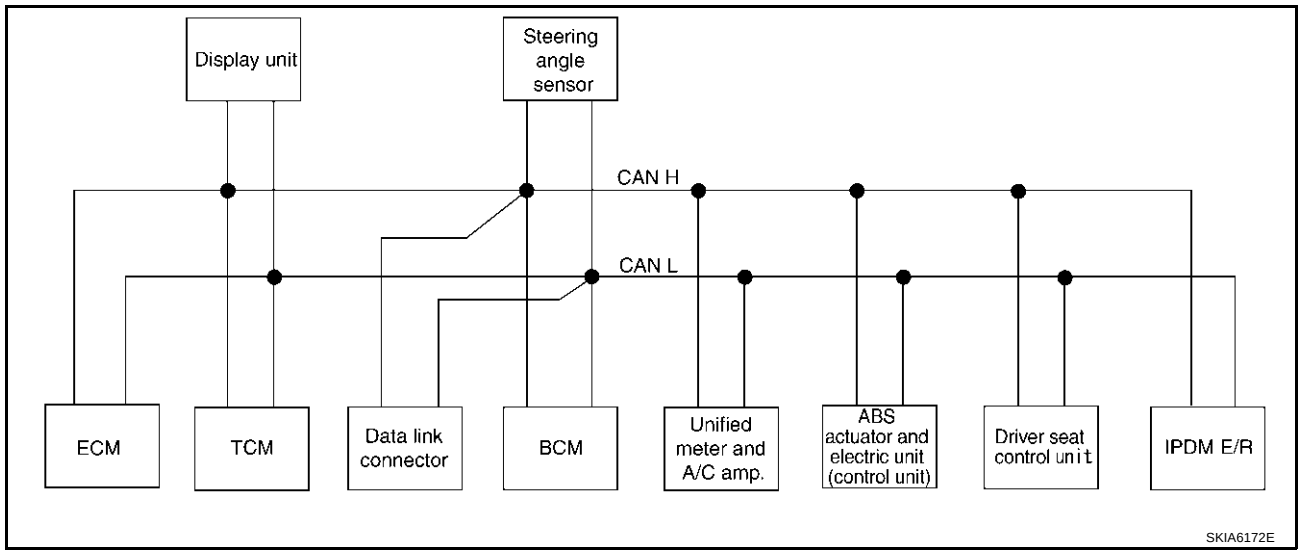
TYPE 1/TYPE2

System Diagram

- Type1



- Type2



Input/output Signal Chart

T: Transmit R: Receive

Signals	ECM	TCM	Display unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Engine speed signal	T	R	R			R	R		
Engine status signal	T			R					
Engine coolant temperature signal	T	R				R			
A/T self-diagnosis signal	R	T							
Accelerator pedal position signal	T	R					R		
Closed throttle position signal	T	R							
Wide open throttle position signal	T	R							

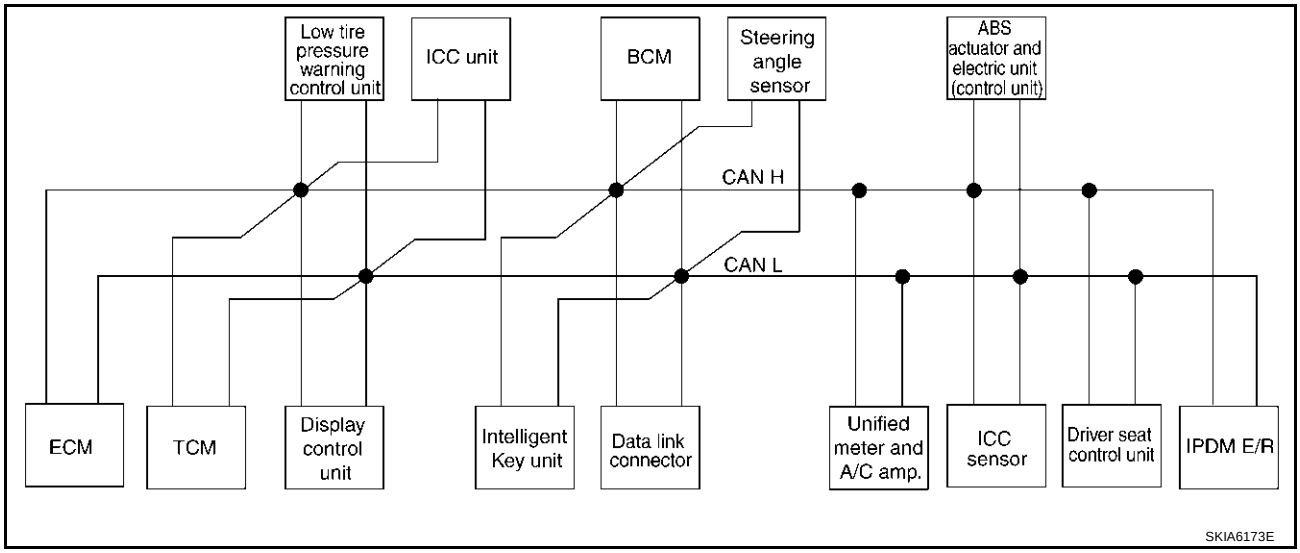
Signals	ECM	TCM	Display unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Battery voltage signal	T	R							
Key switch signal				T				R	
Ignition switch signal				T				R	R
P range signal		T					R	R	
Stop lamp switch signal		R				T			
ABS operation signal	R						T		
TCS operation signal	R						T		
VDC operation signal	R						T		
Fuel consumption monitor signal	T		R			R			
Input shaft revolution signal	R	T							
Output shaft revolution signal	R	T							
A/C switch signal	R			T					
A/C compressor request signal	T								R
A/C relay status signal	R								T
A/C compressor feedback signal	T					R			
Blower fan motor switch signal	R			T					
A/C control signal			T			R			
			R			T			
Cooling fan speed request signal	T								R
Cooling fan speed signal	R								T
Position light request signal			R	T		R			R
Low beam request signal				T					R
Low beam status signal	R								T
High beam request signal				T		R			R
High beam status signal	R								T
Front fog light request signal				T					R
Day time running light request signal				T		R			
Turn LED burnout status signal				R		T			
Vehicle speed signal						R	T		
	R	R	R	R		T		R	
Sleep wake up signal				T		R		R	R
Door switch signal			R	T		R		R	R
Turn indicator signal				T		R			
Key fob ID signal				T				R	
Key fob door unlock signal				T				R	
Oil pressure switch signal				R					T
				T		R			
Buzzer output signal				T		R			
Fuel level sensor signal	R					T			
Fuel level low warning signal			R			T			

Signals	ECM	TCM	Dis-play unit	BCM	Steer-ing angle sensor	Unified meter and A/C amp.	ABS actua-tor and electric unit (con-trol unit)	Driver seat control unit	IPDM E/R
ASCD operation signal	T	R							
ASCD OD cancel request	T	R							
Front wiper request signal				T					R
Front wiper stop position signal				R					T
Rear window defogger switch signal				T					R
Rear window defogger control signal	R		R	R					T
Hood switch signal				R					T
Theft warning horn request signal				T					R
Horn chirp signal				T					R
Steering angle sensor signal					T		R		
ABS warning lamp signal						R	T		
VDC OFF indicator lamp signal						R	T		
SLIP indicator lamp signal						R	T		
Brake warning lamp signal						R	T		
System setting signal			T	R				R	
A/T CHECK indicator lamp signal		T				R			
A/T position indicator lamp signal		T				R			
A/T shift schedule change demand signal		R					T		
Manual mode signal		R				T			
Not manual mode signal		R				T			
Manual mode shift up signal		R				T			
Manual mode shift down signal		R				T			
Manual mode indicator signal		T				R			
Distance to empty signal			R			T			
Hand brake switch				R		T			

TYPE 3

System Diagram

- Type3



Input/output Signal Chart

T: Transmit R: Receive

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Engine speed signal	T	R	R		R				R		R		
Engine status signal	T						R						
Engine coolant temperature signal	T	R			R				R				
A/T self-diagnosis signal	R	T											
Accelerator pedal position signal	T	R			R						R		
Closed throttle position signal	T	R			R								
Wide open throttle position signal	T	R											
Battery voltage signal	T	R											
Key switch signal							T					R	
Ignition switch signal							T					R	R
P range signal		T			R						R	R	
Stop lamp switch signal		R							T				
ABS operation signal	R				R						T		
TCS operation signal	R				R						T		
VDC operation signal	R				R						T		
Fuel consumption monitor signal	T		R						R				

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Input shaft revolution signal	R	T			R								
Output shaft revolution signal	R	T			R								
A/C switch signal	R						T						
A/C compressor request signal	T												R
A/C relay status signal	R												T
A/C compressor feedback signal	T								R				
Blower fan motor switch signal	R						T						
A/C control signal			T						R				
			R						T				
Cooling fan speed signal	R												T
Position light request signal	R						T		R				R
Low beam request signal							T						R
Low beam status signal	R												T
High beam request signal							T		R				R
High beam status signal	R												T
Front fog light request signal							T						R
Day time running light request signal							T		R				
Turn LED burnout status signal							R		T				
Vehicle speed signal					R				R		T		
	R	R	R	R		R	R		T	R		R	
Sleep wake up signal							T		R			R	R
						T	R						
Door switch signal			R			R	T		R			R	R
Turn indicator signal							T		R				
Key fob ID signal							T					R	
Key fob door unlock signal							T					R	
Oil pressure switch signal							R						T
							T		R				
Buzzer output signal							T		R				
						T			R				
					T				R				

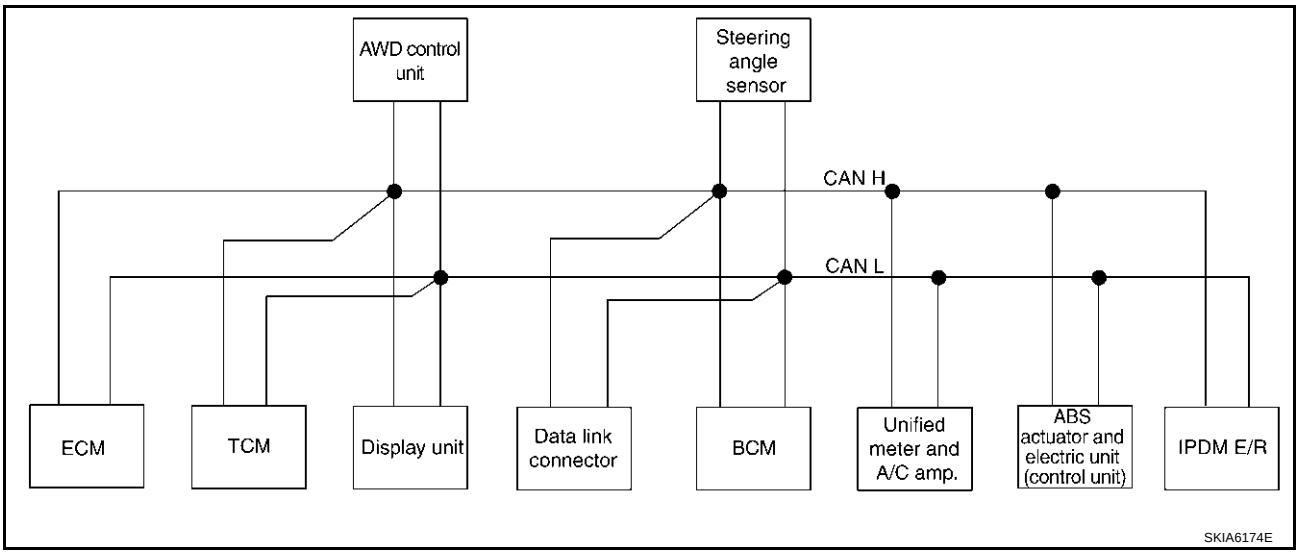
Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Fuel level sensor signal	R								T				
Fuel level low warning signal			R						T				
ICC operation signal	R				T								
Front wiper request signal					R		T						R
Front wiper stop position signal							R						T
Rear window defogger switch signal							T						R
Rear window defogger control signal	R		R				R						T
Hood switch signal							R						T
Theft warning horn request signal							T						R
Horn chirp signal							T						R
Steering angle sensor signal								T			R		
Tire pressure signal				T					R				
Tire pressure data signal			R	T									
ABS warning lamp signal					R				R		T		
VDC OFF indicator lamp signal					R				R		T		
SLIP indicator lamp signal									R		T		
Brake warning lamp signal									R		T		
System setting signal			T			R						R	
Distance to empty signal			R						T				
Hand brake switch signal							R		T				
Door lock/unlock request signal						T	R						
Door lock/unlock status signal						R	T						
Starter permission signal						T	R						
Back door open request signal						T	R						
Power window open request signal						T	R						
Alarm request signal						T	R						
Key warning signal						T			R				
ICC sensor signal					R					T			
ICC warning lamp signal					T				R				

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
ICC system display signal					T				R				
Current gear position signal		T			R						R		
Steering switch signal	T				R								
ASCD operation signal	T	R											
ASCD OD cancel request	T	R											
ICC OD cancel request	R	R			T								
A/T CHECK indicator lamp signal		T							R				
A/T position indicator lamp signal		T							R				
A/T shift schedule change demand signal		R									T		
Manual mode signal		R							T				
Not manual mode signal		R							T				
Manual mode shift up signal		R							T				
Manual mode shift down signal		R							T				
Manual mode indicator signal		T			R				R				
Ignition knob switch signal						T	R						

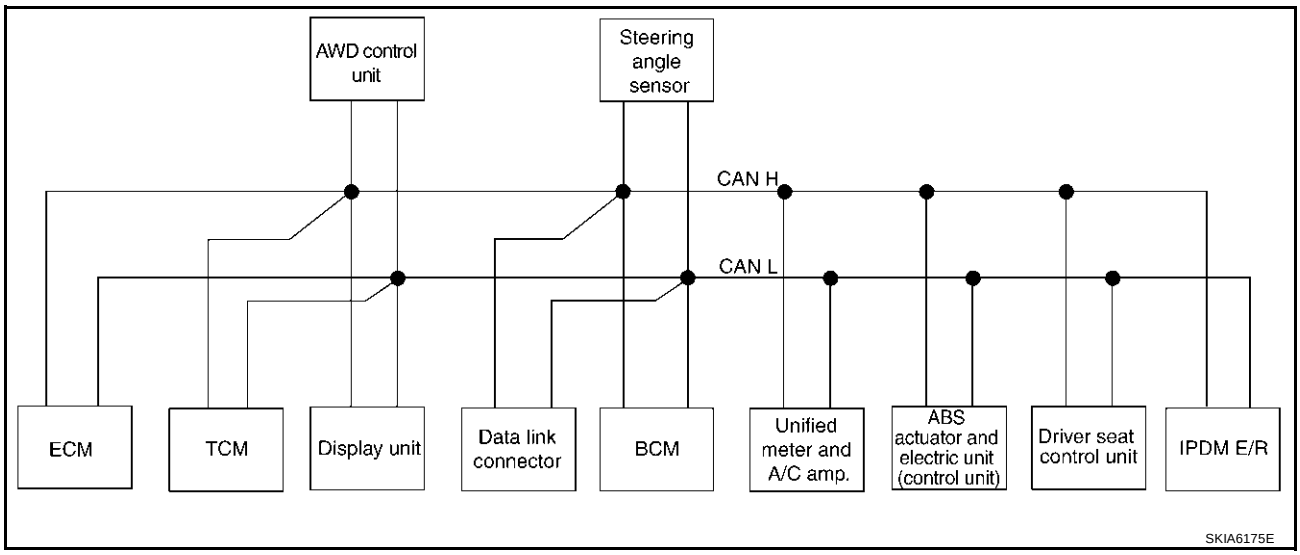
TYPE 4/TYPE5

System Diagram

- Type4



- Type5



Input/output Signal Chart

T: Transmit R: Receive

Signals	ECM	TCM	Display unit	AWD control unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
A/T self-diagnosis signal	R	T								
ABS operation signal	R			R				T		
TCS operation signal	R							T		
VDC operation signal	R			R				T		
Stop lamp switch signal		R		R			T			
Battery voltage signal	T	R								
Key switch signal					T				R	
Ignition switch signal					T				R	R
P range signal		T						R	R	
Closed throttle position signal	T	R								
Wide open throttle position signal	T	R								
Engine speed signal	T	R	R	R			R	R		
Engine status signal	T				R					
Engine coolant temperature signal	T	R					R			
Accelerator pedal position signal	T	R		R				R		
Fuel consumption monitor signal	T		R				R			
Input shaft revolution signal	R	T								
Output shaft revolution signal	R	T								
A/C switch signal	R				T					
A/C compressor request signal	T									R
A/C relay status signal	R									T
A/C compressor feedback signal	T						R			

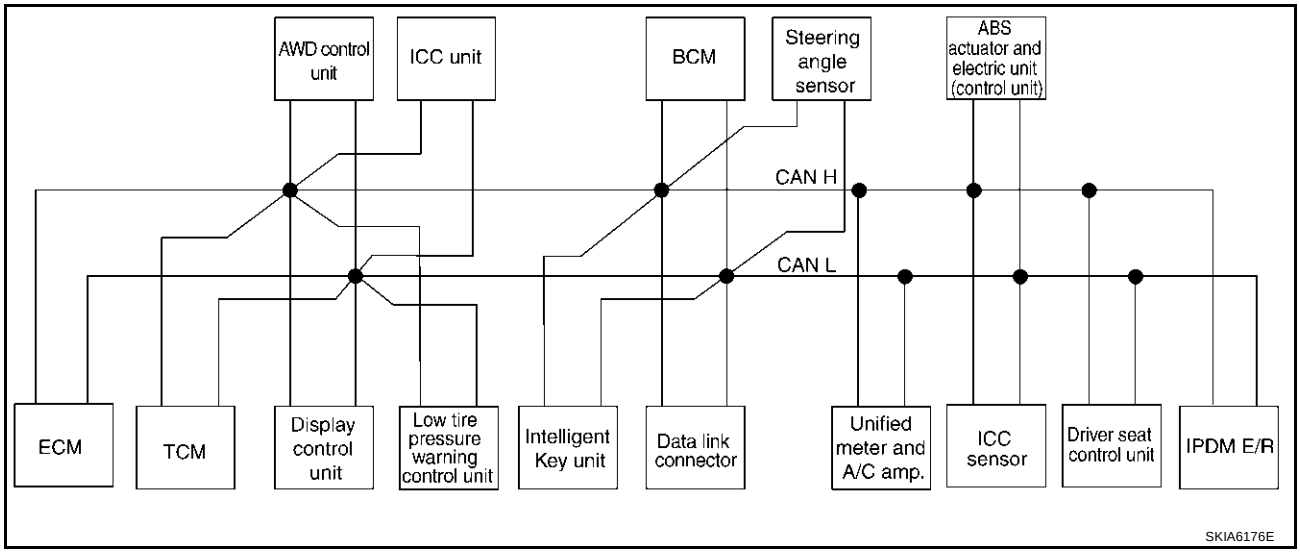
Signals	ECM	TCM	Display unit	AWD control unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Blower fan motor switch signal	R				T					
A/C control signal			T				R			
			R				T			
Cooling fan speed signal	R									T
Position light request signal			R		T		R			R
Low beam request signal					T					R
Low beam status signal	R									T
High beam request signal					T		R			R
High beam status signal	R									T
Front fog light request signal					T					R
Day time running light request signal					T		R			
Turn LED burnout status signal					R		T			
Vehicle speed signal							R	T		
	R	R	R		R		T		R	
Sleep wake up signal					T		R		R	R
Door switch signal			R		T		R		R	R
Turn indicator signal					T		R			
Key fob ID signal					T				R	
Key fob door unlock signal					T				R	
Oil pressure switch signal					R					T
					T		R			
Buzzer output signal					T		R			
Fuel level sensor signal	R						T			
Fuel level low warning signal			R				T			
Front wiper request signal					T					R
Front wiper stop position signal					R					T
Rear window defogger switch signal					T					R
Rear window defogger control signal	R		R		R					T
Hood switch signal					R					T
Theft warning horn request signal					T					R
Horn chirp signal					T					R
Steering angle sensor signal						T		R		
ABS warning lamp signal							R	T		
VDC OFF indicator lamp signal							R	T		
SLIP indicator lamp signal							R	T		
Brake warning lamp signal							R	T		
System setting signal			T		R				R	
AWD warning lamp signal				T			R			

Signals	ECM	TCM	Display unit	AWD control unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
AWD lock indicator lamp signal				T			R			
Distance to empty signal			R				T			
Hand brake switch signal				R	R		T			
ASCD operation signal	T	R								
ASCD OD cancel request	T	R								
A/T CHECK indicator lamp signal		T					R			
A/T position indicator lamp signal		T					R			
A/T shift schedule change demand signal		R						T		
Manual mode signal		R					T			
Not manual mode signal		R					T			
Manual mode shift up signal		R					T			
Manual mode shift down signal		R					T			
Manual mode indicator signal		T					R			

TYPE 6

System Diagram

- Type6



Input/output Signal Chart

T: Transmit R: Receive

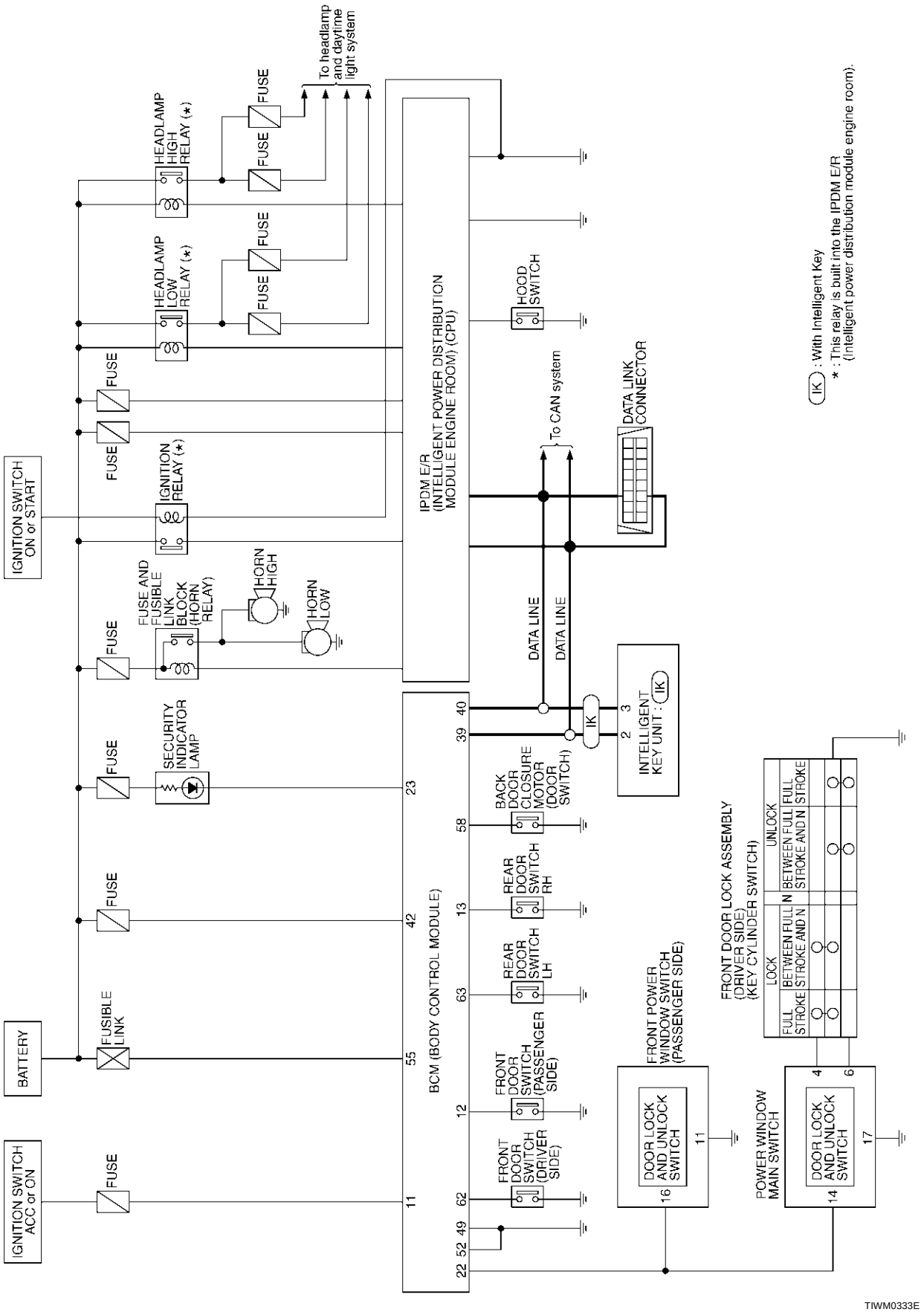
Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	AWD control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
A/T self-diagnosis signal	R	T												
ABS operation signal	R				R	R						T		
TCS operation signal	R					R						T		
VDC operation signal	R				R	R					R	T		
Stop lamp switch signal		R			R					T				
Battery voltage signal	T	R												
Key switch signal								T					R	
Ignition switch signal								T					R	R
P range signal		T				R						R	R	
Closed throttle position signal	T	R				R								
Wide open throttle position signal	T	R												
Engine speed signal	T	R	R		R	R				R		R		
Engine status signal	T							R						
Engine coolant temperature signal	T	R				R				R				
Accelerator pedal position signal	T	R			R	R						R		
Fuel consumption monitor signal	T		R							R				
A/T self-diagnosis signal	R	T												
Input shaft revolution signal	R	T				R								
Output shaft revolution signal	R	T				R								
A/C switch signal	R							T						
A/C compressor request signal	T													R
A/C relay status signal	R													T
A/C compressor feedback signal	T									R				
Blower fan motor switch signal	R							T						
A/C control signal			T							R				
			R							T				
Cooling fan speed signal	R													T
Position light request signal			R					T		R				R
Low beam request signal								T						R
Low beam status signal	R													T
High beam request signal								T		R				R

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	AWD control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
High beam status signal	R													T
Front fog light request signal								T						R
Day time running light request signal								T		R				
Turn LED burnout status signal								R		T				
Vehicle speed signal						R				R		T		
	R	R	R	R			R	R		T	R		R	
Sleep wake up signal								T		R			R	R
							T	R						
Door switch signal			R				R	T		R			R	R
Key fob ID signal								T					R	
Key fob door unlock signal								T					R	
Oil pressure switch signal								R						T
								T		R				
Buzzer output signal								T		R				
							T			R				
						T				R				
Fuel level sensor signal	R									T				
Fuel level low warning signal			R							T				
ICC operation signal	R					T								
Front wiper request signal						R		T						R
Front wiper stop position signal								R						T
Rear window defogger switch signal								T						R
Rear window defogger control signal	R		R					R						T
Hood switch signal								R						T
Theft warning horn request signal								T						R
Horn chirp signal								T						R
Steering angle sensor signal									T			R		
Tire pressure signal				T						R				
Tire pressure data signal			R	T										
ABS warning lamp signal						R				R		T		
VDC OFF indicator lamp signal						R				R		T		
SLIP indicator lamp signal										R		T		

Signals	ECM	TCM	Display control unit	Low tire pressure warning control unit	AWD control unit	ICC unit	Intelligent Key unit	BCM	Steering angle sensor	Unified meter and A/C amp.	ICC sensor	ABS actuator and electric unit (control unit)	Driver seat control unit	IPDM E/R
Brake warning lamp signal										R		T		
System setting signal			T				R						R	
AWD warning lamp signal					T					R				
AWD lock indicator lamp signal					T					R				
Distance to empty signal			R							T				
Hand brake switch signal					R			R		T				
Door lock/unlock request signal							T	R						
Door lock/unlock status signal							R	T						
Starter permission signal							T	R						
Back door open request signal							T	R						
Power window open request signal							T	R						
Alarm request signal							T	R						
Key warning signal							T			R				
ICC sensor signal						R					T			
ICC warning lamp signal						T				R				
ICC system display signal						T				R				
Current gear position signal		T				R						R		
Steering switch signal	T					R								
ASCD operation signal	T	R												
ASCD OD cancel request	T	R												
ICC OD cancel request	R	R				T								
A/T CHECK indicator lamp signal		T								R				
A/T position indicator lamp signal		T								R				
A/T shift schedule change demand signal		R										T		
Manual mode signal		R								T				
Not manual mode signal		R								T				
Manual mode shift up signal		R								T				
Manual mode shift down signal		R								T				
Manual mode indicator signal		T								R				
Ignition knob switch signal							T	R						

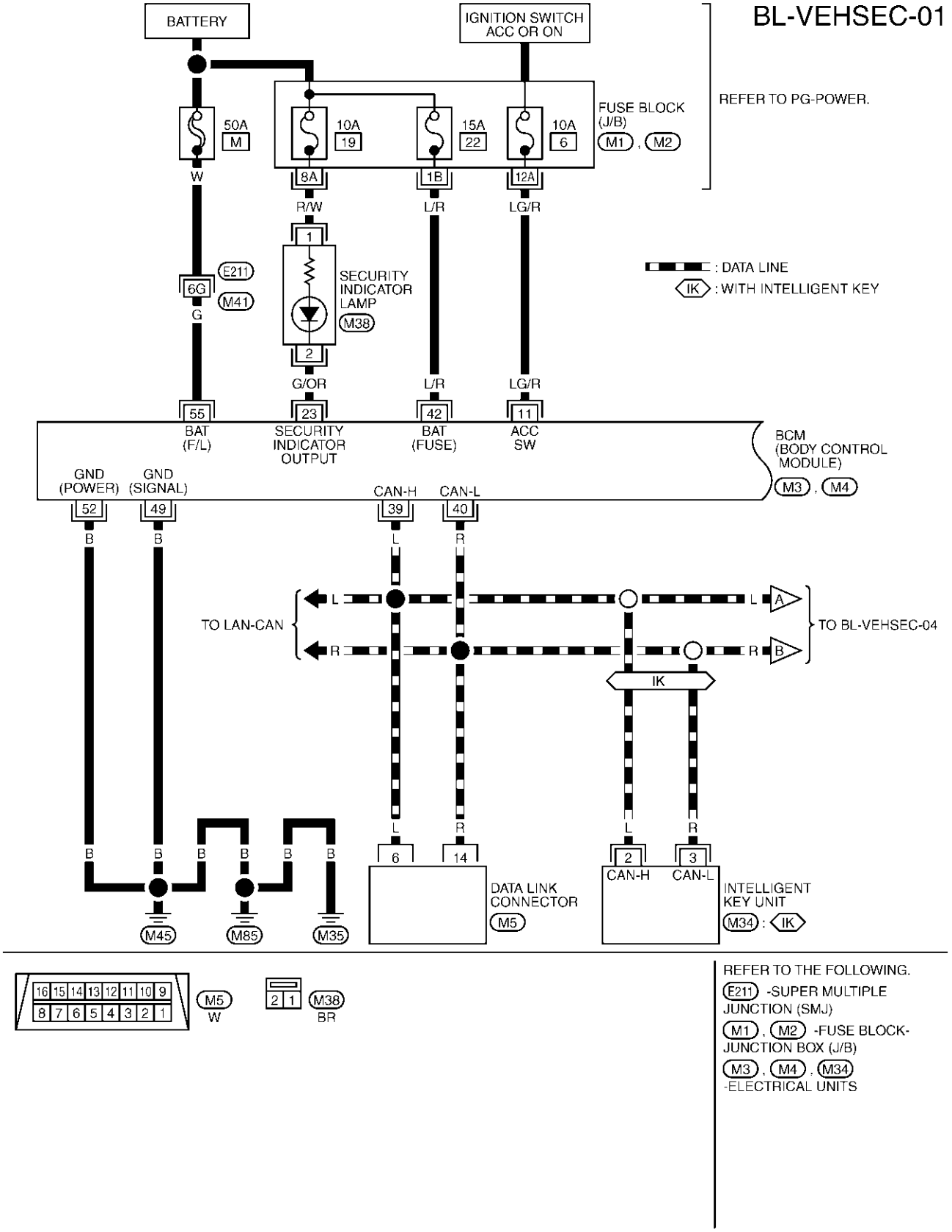
Schematic

AIS003F5



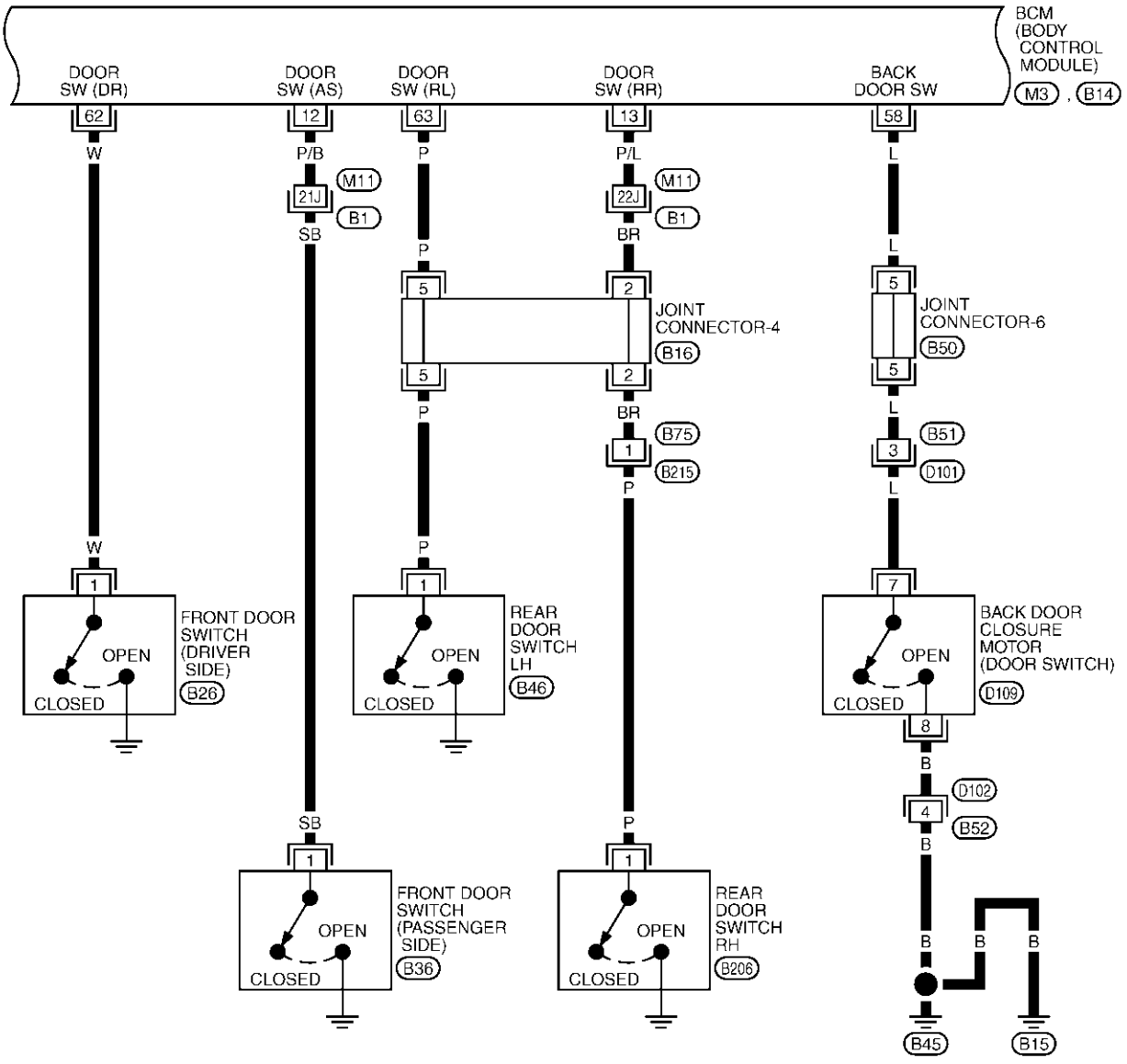
Wiring Diagram -VEHSEC-

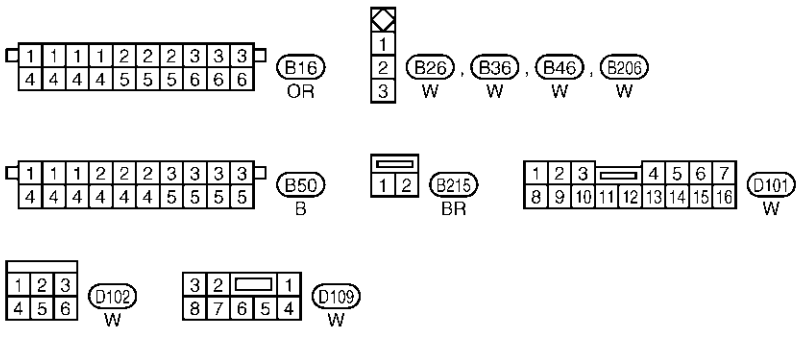
AIS003F6



TIWM0334E

BL-VEHSEC-02

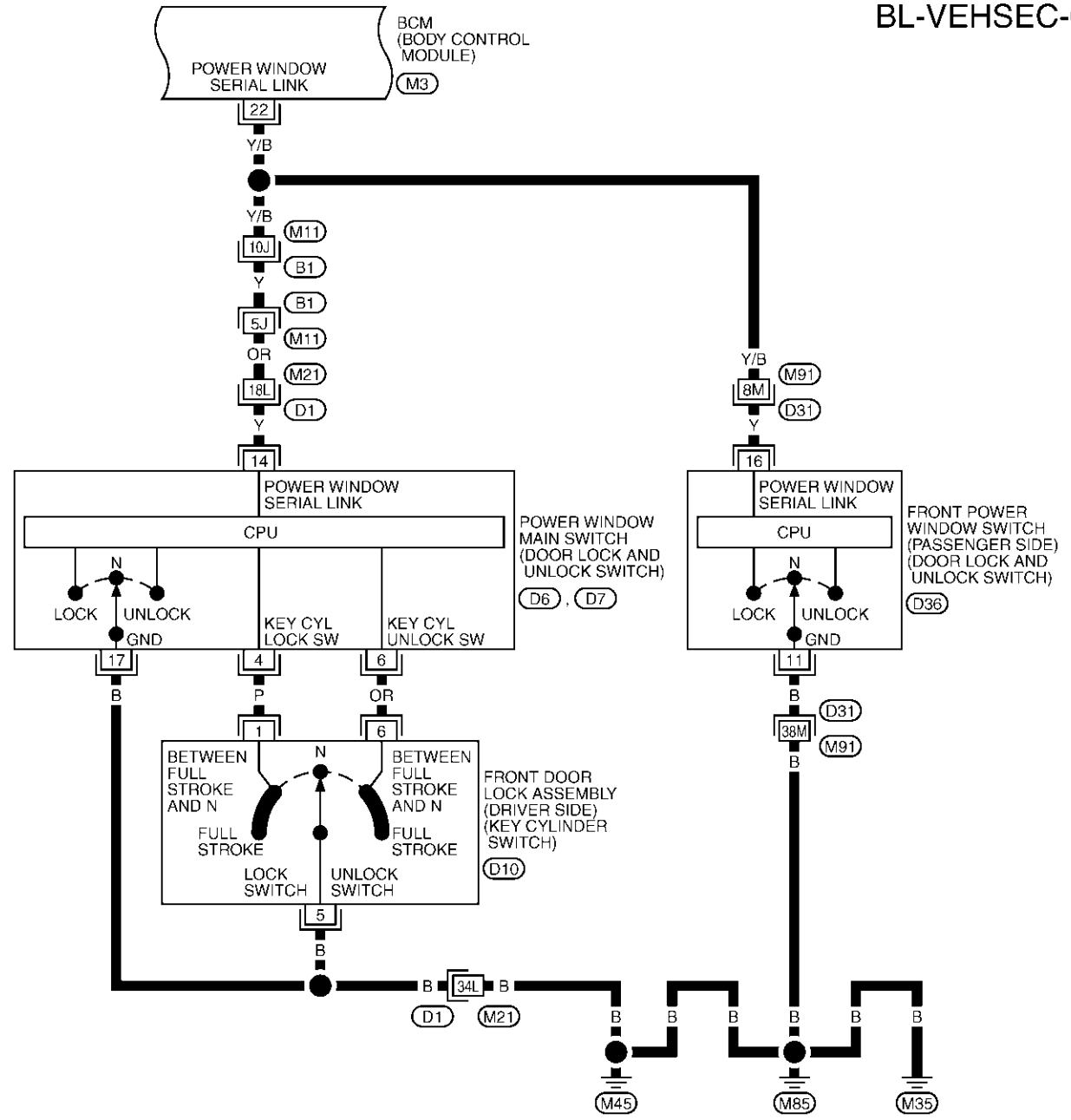


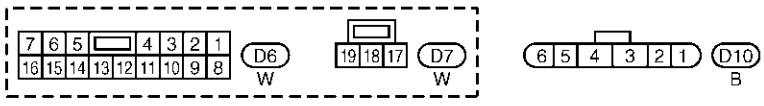


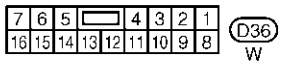
REFER TO THE FOLLOWING.
B1 -SUPER MULTIPLE JUNCTION (SMJ)
M3, B14 -ELECTRICAL UNITS

TIWM0335E

BL-VEHSEC-03



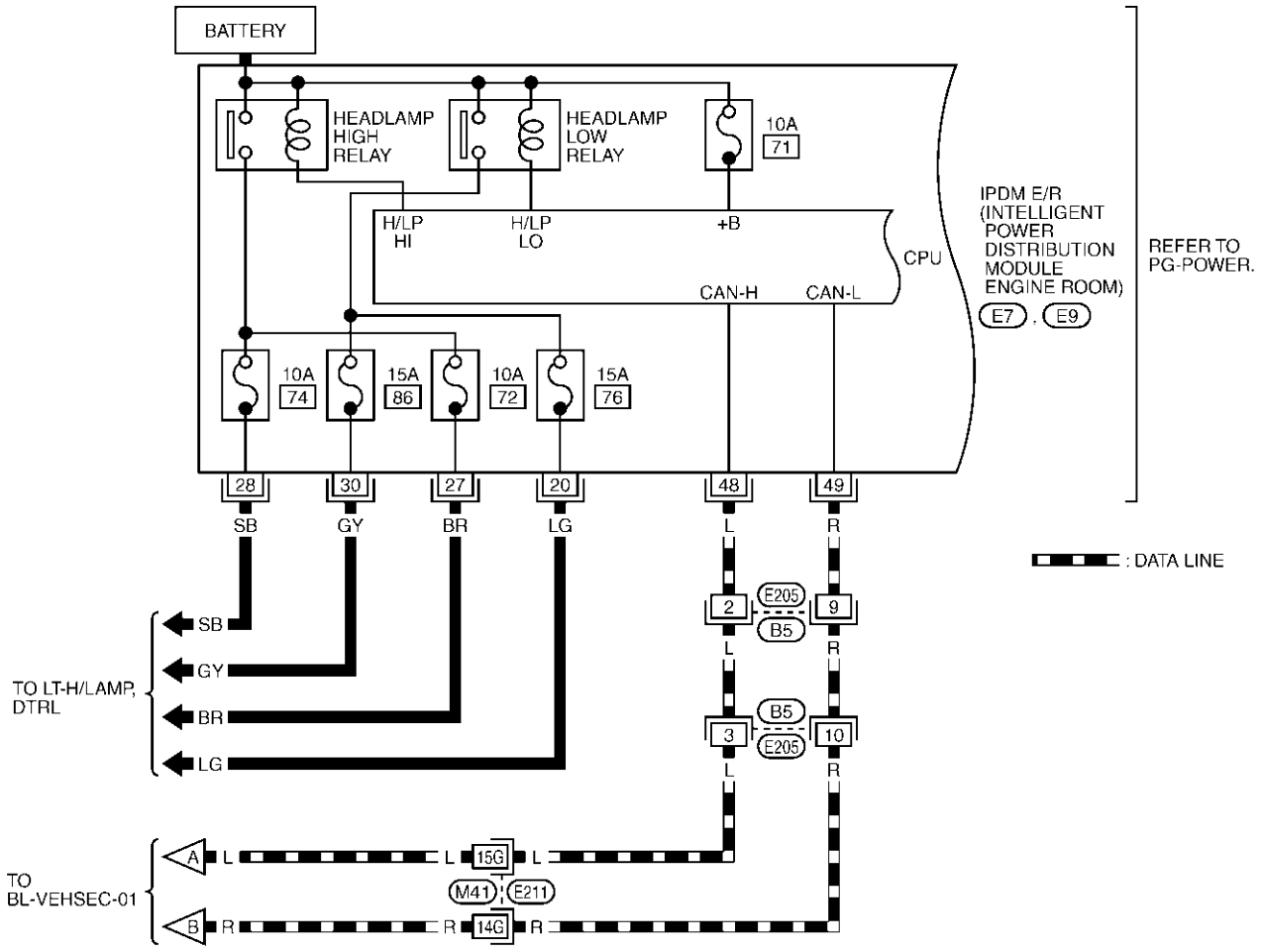


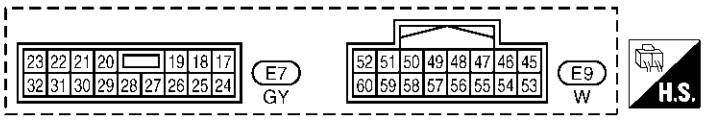


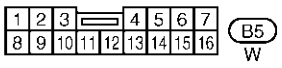
REFER TO THE FOLLOWING.
B1 , D1 , D31 -SUPER MULTIPLE JUNCTION (SMJ)
M3 -ELECTRICAL UNITS

TIWM0336E

BL-VEHSEC-04

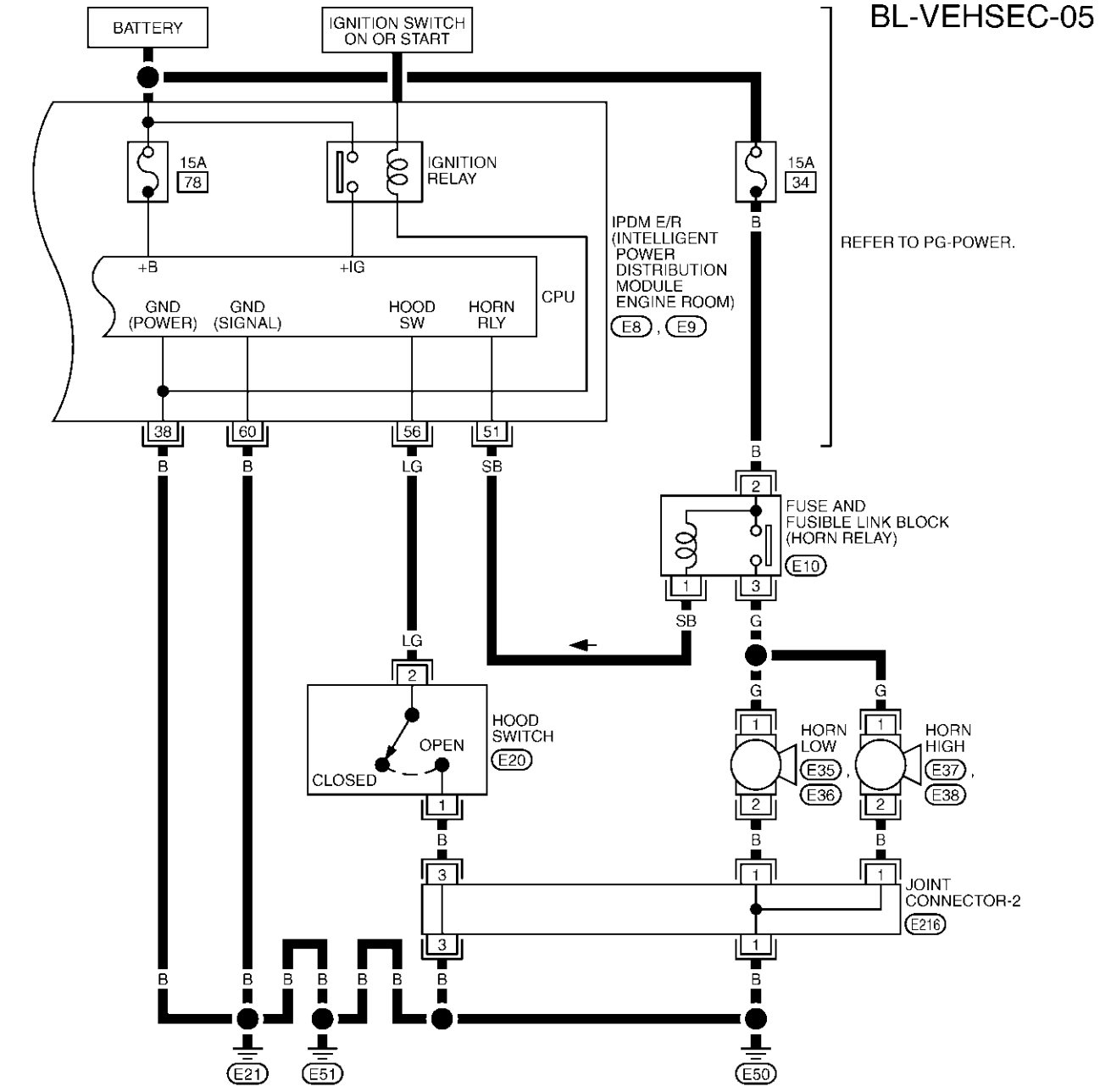


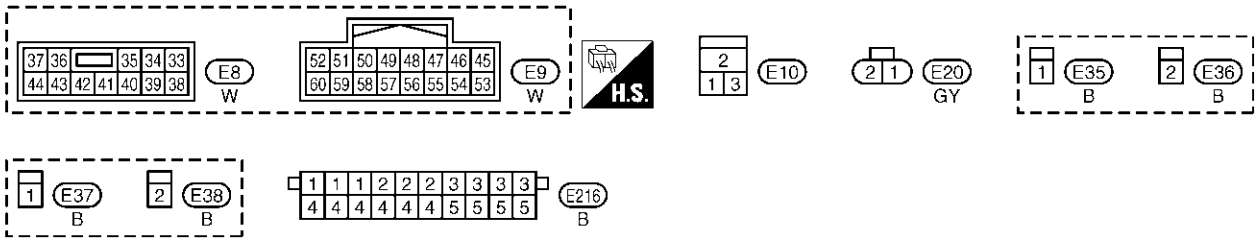




REFER TO THE FOLLOWING.
E211 -SUPER MULTIPLE JUNCTION (SMJ)

TIWM0337E

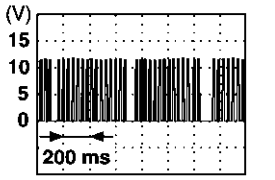

BL-VEHSEC-05
BATTERY
IGNITION SWITCH ON OR START
15A 78
IGNITION RELAY
15A 34
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) E8, E9
REFER TO PG-POWER.
+B
+IG
CPU
GND (POWER)
GND (SIGNAL)
HOOD SW
HORN RLY
38
60
56
51
B
B
LG
SB
FUSE AND FUSIBLE LINK BLOCK (HORN RELAY) E10
SB
G
HOOD SWITCH E20
OPEN
CLOSED
HORN LOW E35, E36
HORN HIGH E37, E38
JOINT CONNECTOR-2 E216
E21
E51
E50


E8 W
E9 W
H.S.
E10
E20 GY
E35 B
E36 B
E37 B
E38 B
E216 B

TIWM0338E

Terminals and Reference Value for BCM

AIS003FJ

Terminal	Wire color	Item	Condition	Voltage (V) (Approx.)
11	LG/R	ACC power supply (ACC or ON)	Ignition switch (ACC or ON position)	Battery voltage
12	P/B	Front door switch passenger side signal	ON (Open) → OFF (Closed)	0 → Battery voltage
13	P/L	Rear door (RH) switch signal	ON (Open) → OFF (Closed)	0 → Battery voltage
23	G/OR	Security indicator lamp	Goes off → Illuminates	Battery voltage → 0
22	Y/B	Power window serial link	IGN SW ON or power window timer operating	 PIIA2344J
39	L	CAN-H	—	—
40	R	CAN-L	—	—
42	L/R	Battery power supply	—	Battery voltage
49	B	Ground (signal)	—	0
52	B	Ground (power)	—	0
55	G	Battery power supply	—	Battery voltage
58	L	Back door switch signal	ON (Open) → OFF (Closed)	0 → 9
62	W	Front door switch driver side signal	ON (Open) → OFF (Closed)	0 → Battery voltage
63	P	Rear door (LH) switch signal	ON (Open) → OFF (Closed)	0 → Battery voltage

Terminals and Reference Value for IPDM E/R

AIS003FK

Terminal	Wire color	Item	Condition	Voltage (V) (Approx.)
20	LG	Headlamp low (RH)	Lighting switch 2ND position ON → OFF	Battery voltage → 0
27	BR	Headlamp high (RH)	Lighting switch HIGH or PASS position ON → OFF	Battery voltage → 0
28	SB	Headlamp high (LH)	Lighting switch HIGH or PASS position ON → OFF	Battery voltage → 0
30	GY	Headlamp low (LH)	Lighting switch 2ND position ON → OFF	Battery voltage → 0
38	B	Ground (power)	—	0
48	L	CAN-H	—	—
49	R	CAN-L	—	—
51	SB	Horn relay control signal	Panic alarm is operating	0
			Other than above	Battery voltage
56	LG	Hood switch signal	ON (Open) → OFF (closed)	0 → Battery voltage
60	B	Ground (signal)	—	0

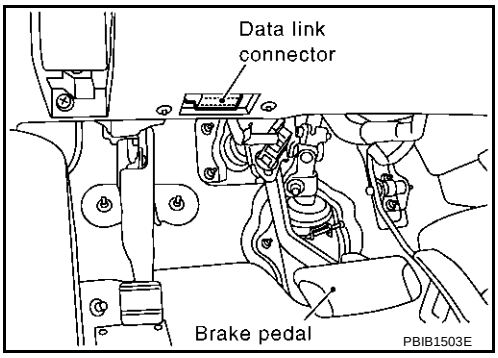
CONSULT-II Inspection Procedure

AIS003F9

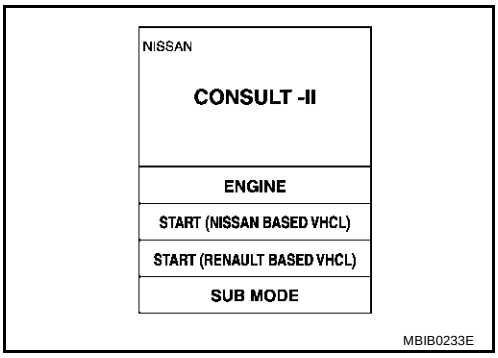
CAUTION:

CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunction might be detected in self-diagnosis depending on control unit with carry out CAN communication.

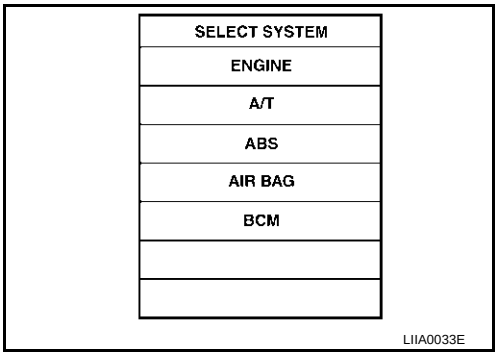
1. Turn ignition switch OFF.
2. Connect CONSULT-II and CONSULT-II CONVERTER to data link connector.



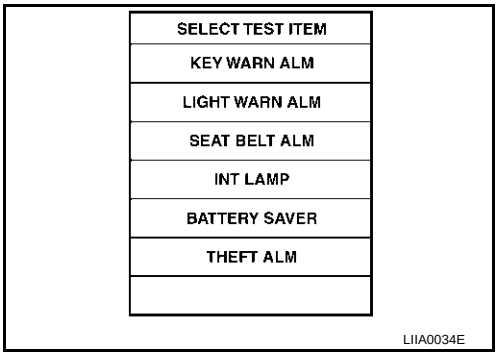
3. Turn ignition switch ON.
4. Touch “START” (NISSAN BASED VHCL).



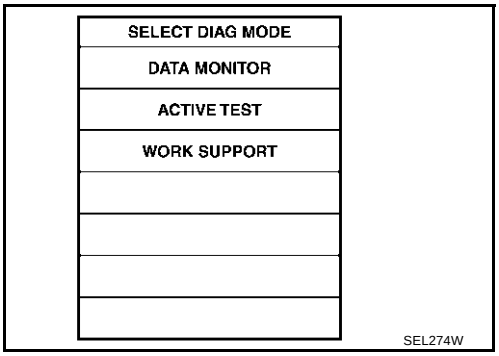
5. Touch “BCM”.
   If “BCM” is not indicated, go to, "CONSULT-II Data Link Connector (DLC) Circuit"



6. Touch “THEFT ALM”.



7. Select diagnosis mode.
   “DATA MONITOR”, “ACTIVE TEST” AND “WORK SUPPORT”



CONSULT-II APPLICATION ITEM

Data Monitor

Monitored Item	Description
IGN ON SW	Indicates [ON/OFF] condition of ignition switch.
ACC ON SW	Indicates [ON/OFF] condition of ignition switch in ACC position.
KEY ON SW	Indicates [ON/OFF] condition of key switch.
TRUNK OPNR SW	This is displayed even when it is not equipped.
TRUNK CYL SW	This is displayed even when it is not equipped.
TRUNK OPN MNTR	This is displayed even when it is not equipped.
KEYLESS LOCK	Indicates [ON/OFF] condition of lock signal from key fob.
KEYLESS UNLOCK	Indicates [ON/OFF] condition of unlock signal from key fob.
KEYLESS TRUNK	Indicates [ON/OFF] condition of trunk opener signal from key fob.
HOOD SW	Indicates [ON/OFF] condition of hood switch.
DOOR SW-DR	Indicates [ON/OFF] condition of front door switch LH.
DOOR SW-AS	Indicates [ON/OFF] condition of front door switch RH.
DOOR SW-RR	Indicates [ON/OFF] condition of rear door switch RH.
DOOR SW-RL	Indicates [ON/OFF] condition of rear door switch LH.
BACK DOOR SW	Indicates [ON/OFF] condition of back door switch.
KEY CYL LK SW	Indicates [ON/OFF] condition of lock signal from key cylinder switch.
KEY CYL UN SW	Indicates [ON/OFF] condition of unlock signal from key cylinder switch.
CDL LOCK SW	Indicates [ON/OFF] condition of lock signal from door lock/unlock switch LH and RH.
CDL UNLOCK SW	Indicates [ON/OFF] condition of unlock signal from door lock/unlock switch LH and RH.

Active Test

Test Item	Description
THEFT IND	This test is able to check security indicator lamp operation. The lamp will be turned on when “ON” on CONSULT-II screen is touched.
ANTI THEFT HORN	This test is able to check vehicle security horn operation. The horns will be activated for 0.5 seconds after “ON” on CONSULT-II screen is touched.
HEADLAMP(HI)	This test is able to check vehicle security lamp operation. The headlamps will be activated for 0.5 seconds after “ON” on CONSULT-II screen is touched.

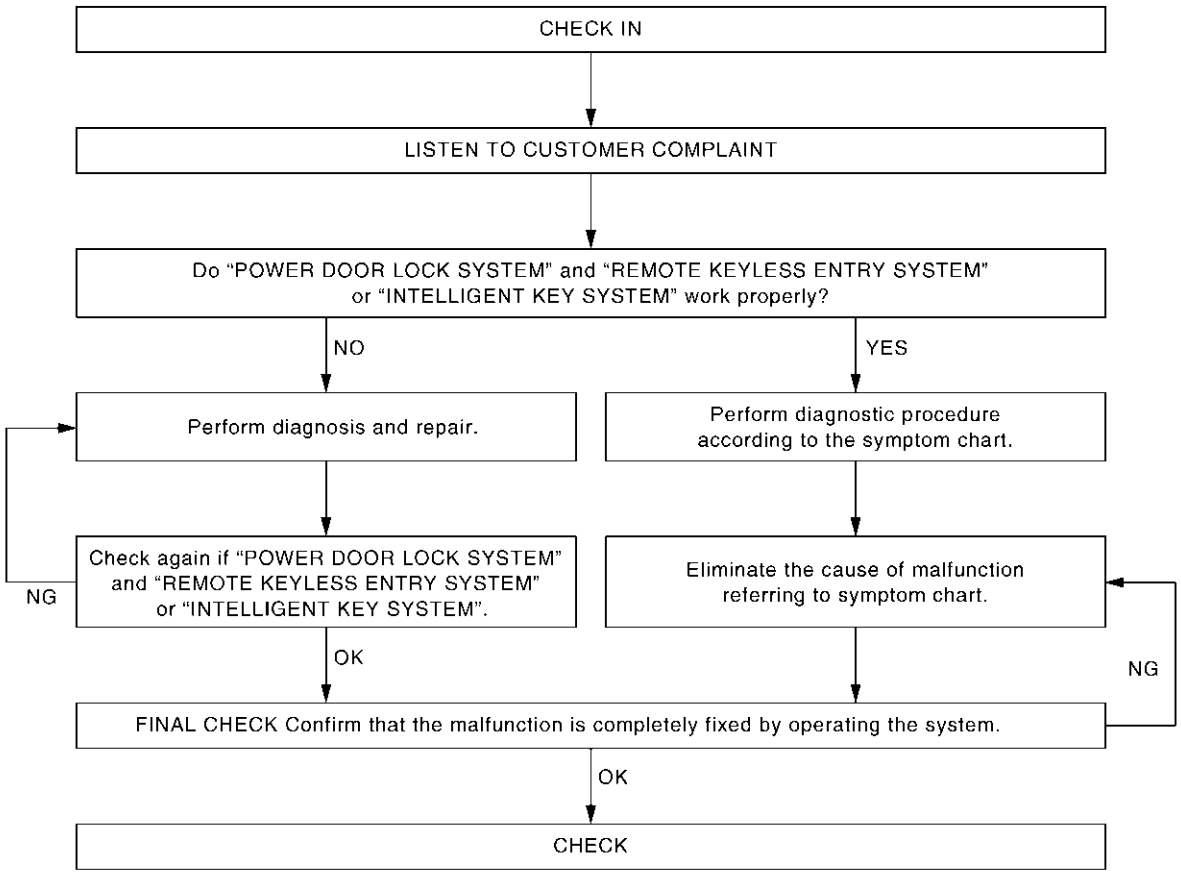
Work Support

Test Item	Description
SECURITY ALARM SET	This mode is able to confirm and change security alarm ON-OFF setting.
THEFT ALM TRG	The switch which triggered vehicle security alarm is recorded. This mode is able to confirm and erase the record of vehicle security alarm. The trigger data can be erased by touching “CLEAR” on CONSULT-II screen.

Trouble Diagnosis

AIS003FA

WORK FLOW



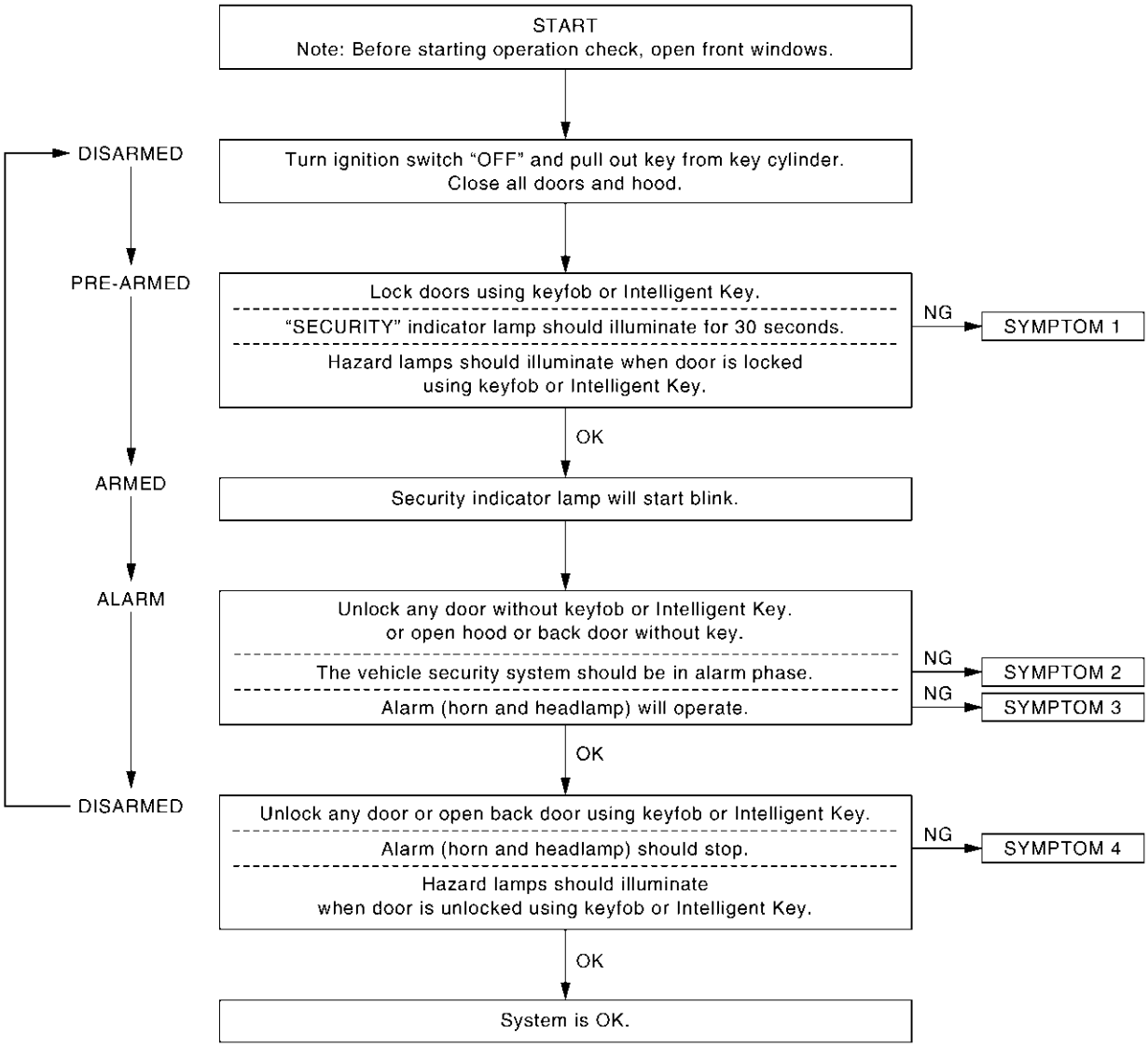
PIIA6909E

- “POWER DOOR LOCK SYSTEM” Diagnosis; refer to BL-48, "Work Flow" .
- “REMOTE CONTROL SYSTEM” Diagnosis; refer to BL-93, "Work Flow" .
- “INTELLIGENT KEY SYSTEM” Diagnosis; refer to BL-152, "WORK FLOW"

Preliminary Check

AIS003FB

The system operation is canceled by turning ignition switch to “ACC” at any step between START and ARMED in the following flow chart.



PIIA6910E

After performing preliminary check, go to symptom chart. Refer to BL-245, "Trouble Diagnosis Symptom Chart" .

Trouble Diagnosis Symptom Chart

AIS003FC

Procedure			Diagnostic procedure	Refer to page
Symptom				
1	Vehicle security system cannot be set by ····	Door switch	Diagnostic Procedure 1 (Check door, hood and back door switch)	BL-246
		Lock / unlock switch	Diagnostic Procedure 6 (Check door lock / unlock switch)	BL-252
		Door outside key	Diagnostic Procedure 3 (Check door key cylinder switch)	BL-252
		Key fob	Check remote keyless entry.	BL-94
		Intelligent Key	Check Intelligent Key.	BL-157
		—	If the above systems are “OK”, replace BCM.	BCS-28
	Security indicator does not turn “ON”.		Diagnostic Procedure 2 (Check security indicator lamp)	BL-251
			If the above systems are “OK”, replace BCM.	BCS-28
2	*1 Vehicle security system does not alarm when ····	Any door is opened.	Diagnostic Procedure 1 (Check door, hood and back door switch)	BL-246
			If the above systems are “OK”, replace BCM.	BCS-28
3	Vehicle security alarm does not activate.	Horn alarm	Diagnostic Procedure 4 (Check vehicle security horn alarm)	BL-252
			Check horn function.	BL-105
			If the above systems are “OK”, replace BCM.	BCS-28
		Head lamp alarm	Diagnostic Procedure 5 (Check head lamp alarm)	BL-252
			If the above systems are “OK”, replace BCM.	BCS-28
4	Vehicle security system cannot be canceled by ····	Door outside key	Diagnostic Procedure 3 (Check door key cylinder switch)	BL-252
			If the above systems are “OK”, check power window main switch.	EI-35
		Key fob	Check remote keyless entry function.	BL-68
			If the above systems are “OK”, replace BCM.	BCS-28
		Intelligent Key	Check Intelligent Key	BL-112
			If the above systems are “OK”, replace BCM.	BCS-28

*1: Make sure the system is in the armed phase.

Diagnostic Procedure 1

AIS003FL

1 – 1 DOOR SWITCH CHECK

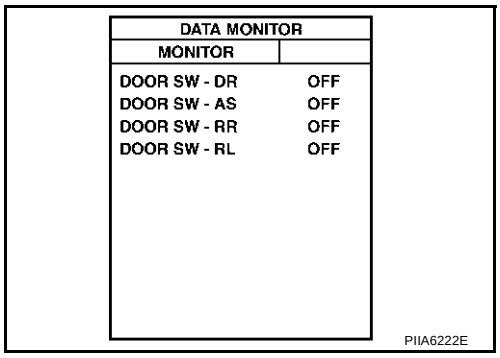
First perform the "SELF-DIAG RESULTS" in "BCM" with CONSULT-II, when perform the each trouble diagnosis. Refer to BCS-27, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .

1. CHECK DOOR SWITCH INPUT SIGNAL

With CONSULT-II

Check ("DOOR SW-DR", "DOOR SW-AS", "DOOR SW-RR" and "DOOR SW-RL") in "DATA MONITOR" mode with CONSULT-II.

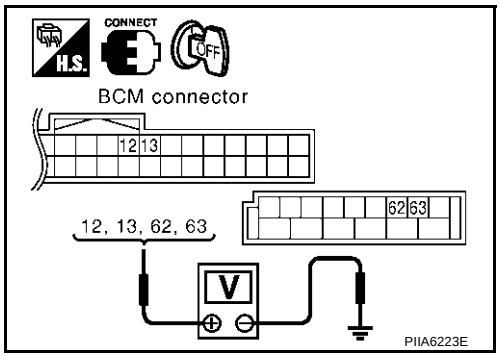
Monitor item	Condition	
DOOR SW-DR	OPEN	: ON
	CLOSE	: OFF
DOOR SW-AS	OPEN	: ON
	CLOSE	: OFF
DOOR SW-RR	OPEN	: ON
	CLOSE	: OFF
DOOR SW-RL	OPEN	: ON
	CLOSE	: OFF



Without CONSULT-II

Check voltage between BCM connector M3, B14 terminals and ground.

Item	Terminals (Wire color)		Condition	Voltage (V) (Approx.)
	(+)	(–)		
Front door switch driver side	62 (W)	Ground	OPEN	0
			CLOSE	Battery voltage
Front door switch passenger side	12 (P/B)		OPEN	0
			CLOSE	Battery voltage
Rear door switch LH	63 (P)		OPEN	0
			CLOSE	Battery voltage
Rear door switch RH	13 (P/L)		OPEN	0
			CLOSE	Battery voltage



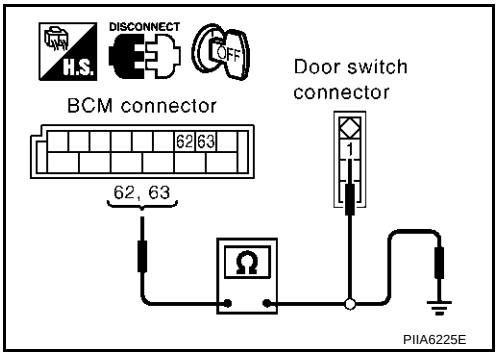
OK or NG

OK >> Door switch circuit is OK.
NG >> GO TO 2.

2. CHECK HARNESS CONTINUITY

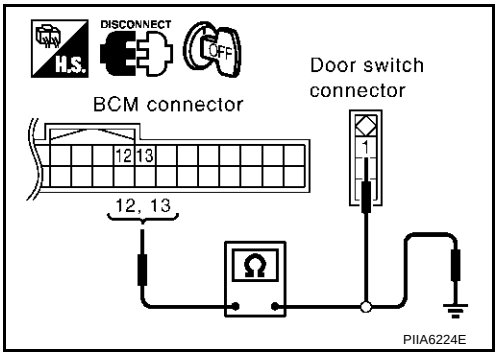
1. Turn ignition switch OFF.
2. Disconnect BCM and door switches connector.
3. Check continuity between BCM connector B14 terminal 62, 63 and door switch connector B26, B46 terminal 1, and ground.

BCM – Front door switch (driver side)
62 (W) – 1 (W) : Continuity should exist.
BCM – Rear door switch LH
63 (P) – 1 (P) : Continuity should exist.
BCM – Ground
62 (W) – Ground : Continuity should not exist.
63 (P) – Ground : Continuity should not exist.



4. Check continuity between BCM connector M3 terminals 12, 13 and door switch connector B36, B206 terminal 1, and ground.

BCM – Front door switch (passenger side)
12 (P/B) – 1 (SB) : Continuity should exist.
BCM – Rear door switch RH
13 (P/L) – 1 (P) : Continuity should exist.
BCM – Ground
12 (P/B) – Ground : Continuity should not exist.
13 (P/L) – Ground : Continuity should not exist.



OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness.

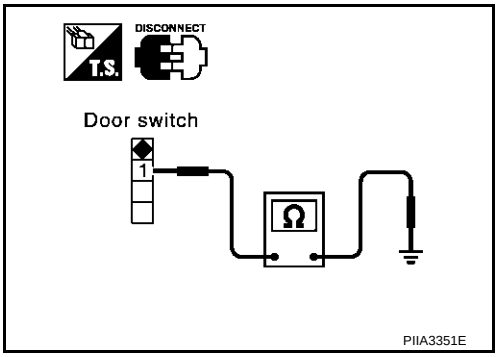
3. CHECK DOOR SWITCH

Check continuity between each door switches terminals 1 and ground part of door switch.

Terminal		Condition	Continuity
1	Ground part of door switch	Pushed	No
		Released	Yes

OK or NG

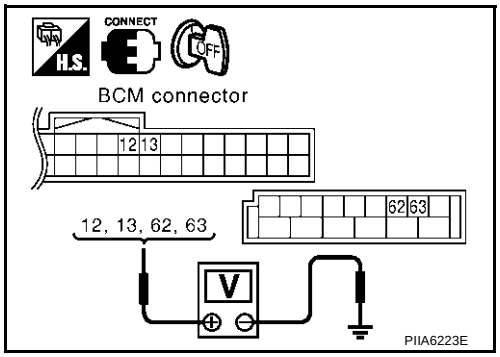
OK >> GO TO 4.
NG >> Replace malfunctioning door switch.



4. CHECK BCM OUTPUT SIGNAL

1. Connect BCM connector.
2. Check voltage between BCM connector M3, B14 terminals 12, 13, 62, 63 and ground.

12 (P/B) – Ground : Battery voltage
13 (P/L) – Ground : Battery voltage
62 (W) – Ground : Battery voltage
63 (P) – Ground : Battery voltage



OK or NG

OK >> Check condition of harness and connector.
NG >> Replace BCM.

1 – 2 HOOD SWITCH CHECK

1. CHECK HOOD SWITCH

Check hood switch and hood fitting condition.

OK or NG

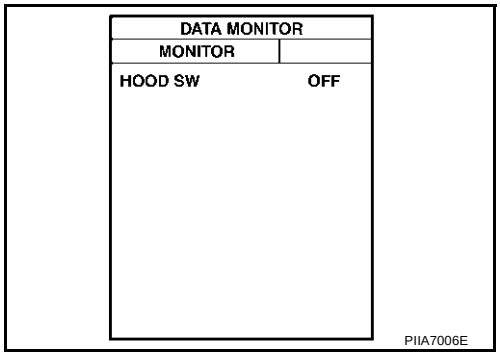
OK >> GO TO 2.
NG >> Adjust installation of hood switch.

2. CHECK HOOD SWITCH INPUT SIGNAL

With CONSULT-II

Check (“HOOD SW”) in “DATA MONITOR” mode with CONSULT-II.

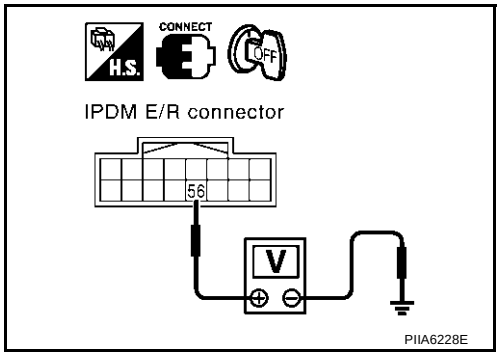
Monitor item	Condition	
HOOD SW	OPEN	: ON
	CLOSE	: OFF



Without CONSULT-II

Check voltage between IPDM E/R connector and ground.

Connector	Terminals (Wire color)		Condition	Voltage (V) (Approx.)
	(+)	(-)		
E9	56 (LG)	Ground	OPEN	0
			CLOSE	Battery voltage



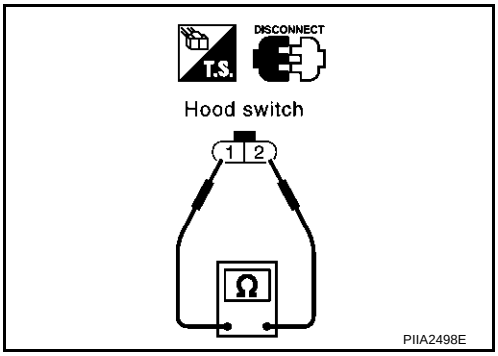
OK or NG

OK >> Hood switch is OK.
NG >> GO TO 3.

3. CHECK HOOD SWITCH

1. Turn ignition switch OFF.
2. Disconnect hood switch connector.
3. Check continuity between hood switch terminals 1 and 2.

Terminals		Condition	Continuity
1	2	Pressed	No
		Released	Yes



OK or NG

OK >> Check the following.
- Hood switch ground circuit.
- Harness for open or short between hood switch and IPDM E/R.

NG >> Replace hood switch.

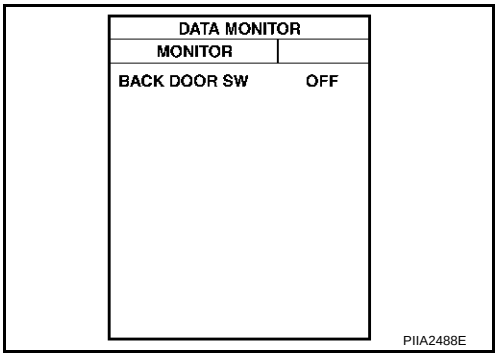
1 – 3 BACK DOOR SWITCH CHECK

1. CHECK BACK DOOR SWITCH INPUT SIGNAL

With CONSULT-II

Check (“BACK DOOR SW”) in “DATA MONITOR” mode with CONSULT-II.

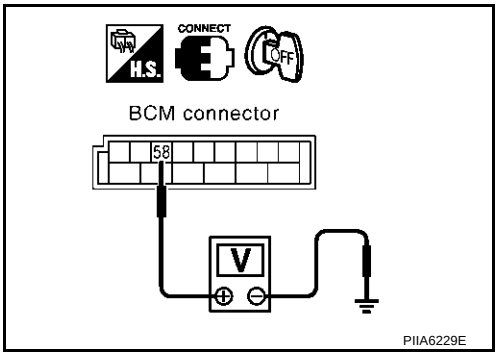
Monitor item	Condition	
BACK DOOR SW	OPEN	: ON
	CLOSE	: OFF



Without CONSULT-II

Check voltage between BCM connector and ground.

Connector	Terminals (Wire color)		Condition	Voltage (V) (Approx.)
	(+)	(–)		
B14	58 (L)	Ground	OPEN	0
			CLOSE	9



OK or NG

OK >> Back door switch circuit is OK.

NG >> GO TO 2.

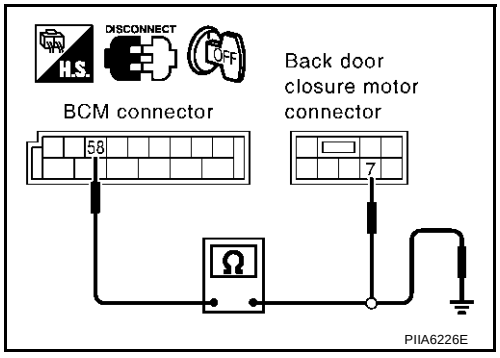
2. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect BCM and back door closure motor connector.
3. Check continuity between BCM connector B14 terminal 58 and back door closure motor connector D109 terminal 7.

58 (L) – 7 (L) : Continuity should exist.

4. Check continuity between BCM connector B14 terminal 58 and ground.

58 (L) – Ground : Continuity should not exist.



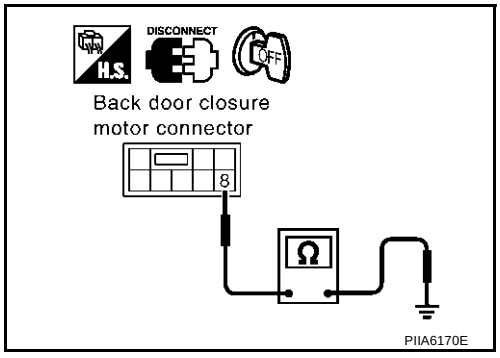
OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness.

3. CHECK GROUND CIRCUIT

Check continuity between back door closure motor connector D109 terminal 8 and ground.

8 (B) – Ground : Continuity should exist.



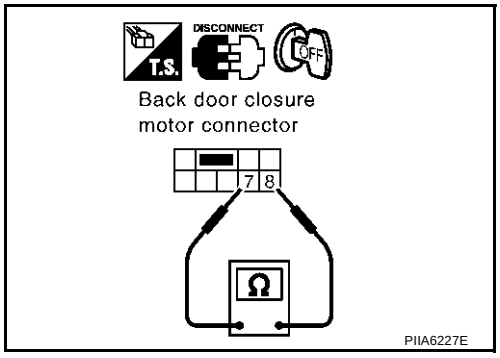
OK or NG

OK >> GO TO 4.
NG >> Repair or replace harness.

4. CHECK BACK DOOR SWITCH

Check continuity between back door closure motor connector D109 terminal 7 and 8.

Terminals		Back door condition	Continuity
7	8	Open	Yes
		Close	No



OK or NG

OK >> Check condition of harness and connector.
NG >> Replace back door closure motor.

Diagnostic Procedure 2
AIS003FE

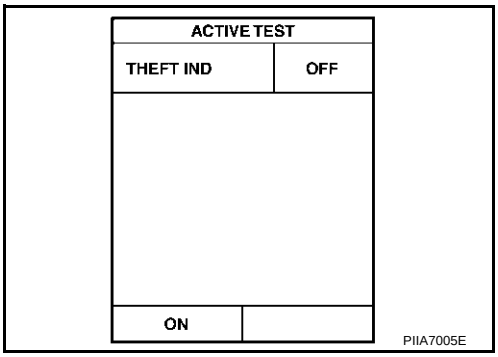
SECURITY INDICATOR LAMP CHECK

1. SECURITY INDICATOR LAMP ACTIVE TEST

With CONSULT-II

Check (“THEFT IND”) in “ACTIVE TEST” mode with CONSULT-II.

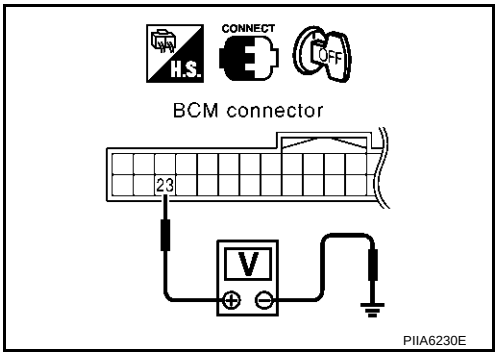
Perform operation shown on display indicator lamp should illuminate.



Without CONSULT-II

Check voltage between BCM connector and ground.

Connector	Terminals (Wire color)		Condition	Voltage (V) (Approx.)
	(+)	(-)		
M3	23 (G/OR)	Ground	Illuminates	0
			Goes off	Battery voltage



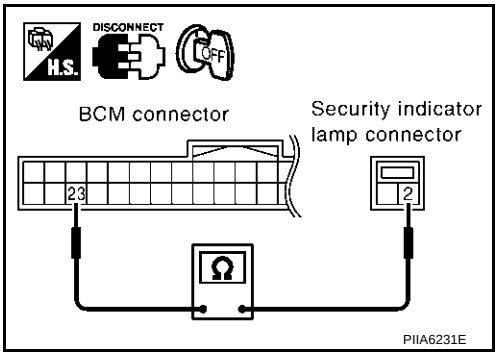
OK or NG

OK >> Security indicator lamp is OK.
NG >> GO TO 2.

2. CHECK HARNESS CONTINUITY

1. Turn ignition switch OFF.
2. Disconnect BCM and security indicator lamp connector.
3. Check continuity between BCM connector M3 terminal 23 and security indicator lamp connector M38 terminal 2.

23 (G/OR) – 2 (G/OR) : Continuity should exist.



OK or NG

OK >> Check the following.
- Harness for open or short between BCM and security indicator lamp.
- 10A fuse [No.19, located in fuse block (J/B)]

NG >> Repair or replace harness between BCM and security indicator lamp.

Diagnostic Procedure 3

AIS003FF

FRONT DOOR KEY CYLINDER SWITCH CHECK

1. CHECK KEY CYLINDER SWITCH OPERATION

Check if door key cylinder switch using key.

Do doors lock / unlock when using the key?

YES >> Front door key cylinder switch operation is OK.
NO >> Check door key cylinder switch circuit. Refer to GW-83, "Front Door Key Cylinder Switch Check" .

Diagnostic Procedure 4

AIS003FG

VEHICLE SECURITY HORN ALARM CHECK

1. CHECK HORN OPERATION

Check if horn sounds with horn switch.

Does horn operate?

YES >> Check harness for open or short between IPDM E/R and horn relay.
NO >> Check horn circuit. Refer to WW-71, "HORN" .

Diagnostic Procedure 5

AIS003FH

VEHICLE SECURITY HEADLAMP ALARM CHECK

1. CHECK HEADLAMP OPERATION

Check if headlamp operate by lighting switch.

Does headlamp come on when turning switch “ON”?

YES >> Headlamp alarm circuit is OK.
NO >> Check headlamp system. Refer to LT-7, "HEADLAMP - XENON TYPE -" .

Diagnostic Procedure 6

AIS003FI

DOOR LOCK AND UNLOCK SWITCH CHECK

1. CHECK DOOR LOCK AND UNLOCK SWITCH INPUT SIGNAL

Check if power door lock operated by door lock and unlock switch.

Do doors lock / unlock when using each door lock and unlock switches?

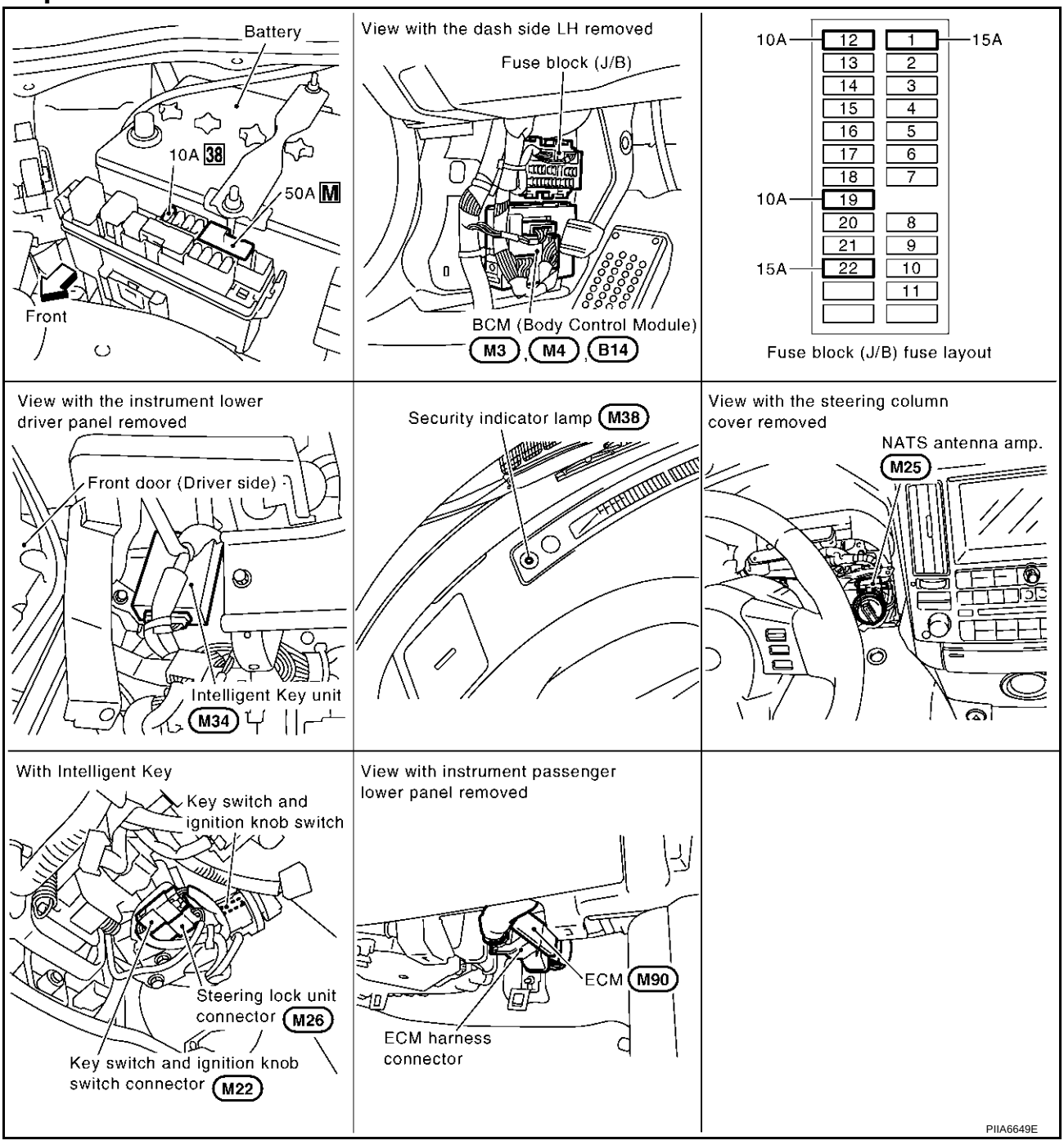
YES >> Door lock and unlock switch is OK.
NO >> Check door lock and unlock switch. Refer to BL-59, "Check Door Lock and Unlock Switch" .

IVIS (INFINITI VEHICLE IMMOBILIZER SYSTEM-NATS)

PFP:28591

Component Parts and Harness Connector Location

AIS003JV



NOTE:
If customer reports a “NO START” condition, request ALL ignition key (without intelligent key system) or mechanical key (with intelligent key system) to be brought to the dealer to check for a NATS malfunction.

System Description

AIS003JW

DESCRIPTION

IVIS (Infiniti Vehicle Immobilizer System – NATS) has the following immobilizer functions:

- Engine immobilizer shows high anti-theft performance to prevent engine start by other than the owner (registered key: ignition key, mechanical key and Intelligent Key).
- Only a key with key ID registered in BCM and ECM can start engine, and shows high anti-theft performance to prevent key from being copied or stolen.

- In the vehicle without Intelligent Key system, security indicator always flashes with other than ignition switch ON or START position.
- In the vehicle with Intelligent Key system, security indicator always flashes with mechanical key removed condition (key switch OFF) and ignition knob released condition on LOCK position (ignition knob switch OFF).
- Therefore, IVIS (NATS) warns outsiders that the vehicle is equipped with the anti-theft system.
- If system detects malfunction, it turns on security indicator in ignition switch ON position.
- If the owner requires, mechanical key ID can be registered for up to 5 keys.
- During trouble diagnosis or when the following parts have been replaced, and if ignition key or mechanical key is added, registration* is required.
  *: All keys kept by the owner of the vehicle should be registered with ignition key or mechanical key.
  - ECM
  - BCM
  - Ignition key (models without Intelligent Key system)
  - Mechanical key (models with Intelligent Key system)
- IVIS (NATS) trouble diagnoses, system initialization and additional registration of other IVIS (NATS) ignition key or mechanical key IDs must be carried out using CONSULT-II hardware and CONSULT-II IVIS (NATS) software. When IVIS (NATS) initialization has been completed, the ID of the inserted ignition key or mechanical key or mechanical key IDs can be carried out.
  Regarding the procedures of IVIS (NATS) initialization and ignition key or mechanical key ID registration, refer to CONSULT-II operation manual, NATS-IVIS/NVIS.

SECURITY INDICATOR

- Warns that the vehicle has IVIS (NATS).
- In the vehicle without Intelligent Key system, security indicator always flashes with other than ignition switch ON or START position. In the vehicle with Intelligent Key system, security indicator always flashes with mechanical key removed condition (key switch OFF) and ignition knob released condition on LOCK position (ignition knob switch OFF).

  NOTE:
  Because security indicator is highly efficient, the battery is barely affected.

Condition of Security Indicator

WITHOUT INTELLIGENT KEY SYSTEM

Security indicator condition	Ignition key	Operation or condition of ignition key			
		Ignition switch: ON position	Ignition switch: ACC position	Ignition switch: OFF position (Key is inserted.)	Ignition switch: OFF position (Remove key.)
	Register key	OFF	Flashing	Flashing	Flashing
	Ignition key not registered	ON	Flashing	Flashing	Flashing

WITH INTELLIGENT KEY SYSTEM

- In ignition knob operation with Intelligent Key, it always turns on with pushing ignition knob, and always flashes with ignition knob released (ignition knob switch OFF) condition on ignition knob “LOCK” position.
- In ignition knob operation with mechanical key, it turns off on the condition that mechanical key is inserted in key cylinder, and always flashes with ignition knob released (ignition knob switch OFF) condition on mechanical key removed condition.

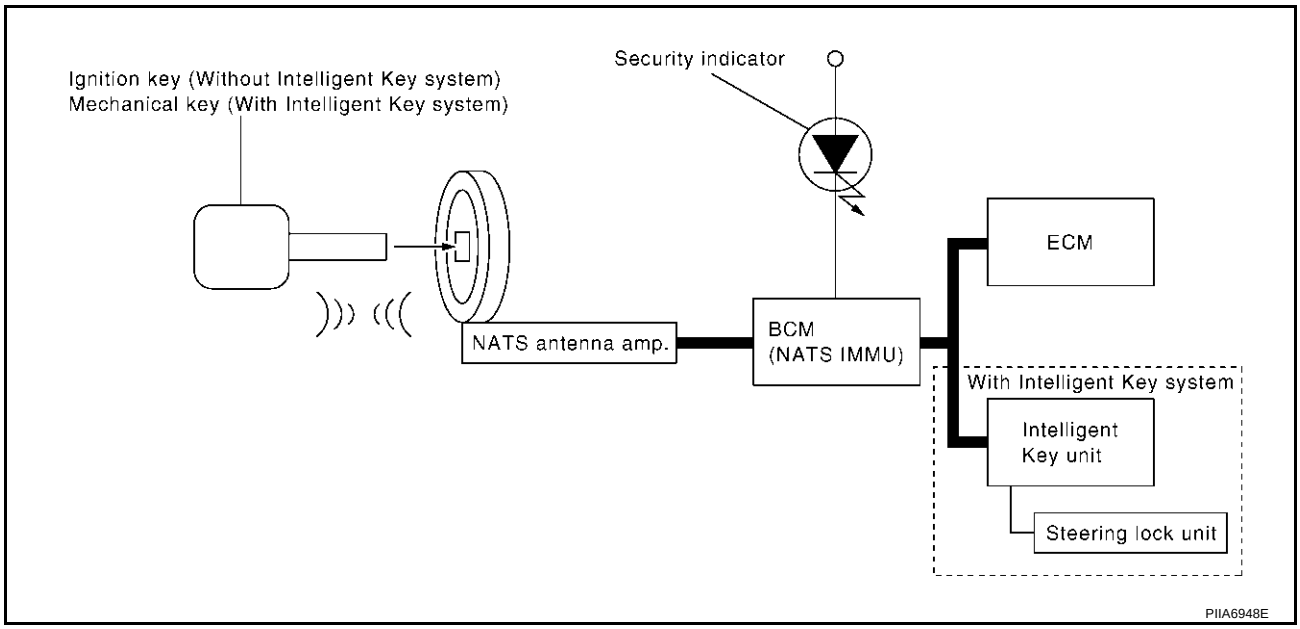
System Composition

AIS003JX

The immobilizer function of the IVIS (NATS) consists of the following:

- Ignition key (models without Intelligent Key system)
- Mechanical key (models with Intelligent Key system)
- NATS antenna amp.
- Steering lock unit. (models with Intelligent Key system)
- BCM
- Intelligent Key unit (models with Intelligent Key system)
- Engine control module (ECM)
- Security indicator (builtin combination meter)

NOTE:
The communication between ECM, BCM and/or Intelligent Key unit uses the CAN communication system.



ECM Re-communicating Function

AIS003JY

Performing following procedure can automatically perform re-communication of ECM and BCM or Intelligent Key unit, but only when the ECM has been replaced with a new one (*1).
*1: New one means a virgin ECM which has never been energized on-board.
(In this step, initialization procedure by CONSULT-II is not necessary)

NOTE:

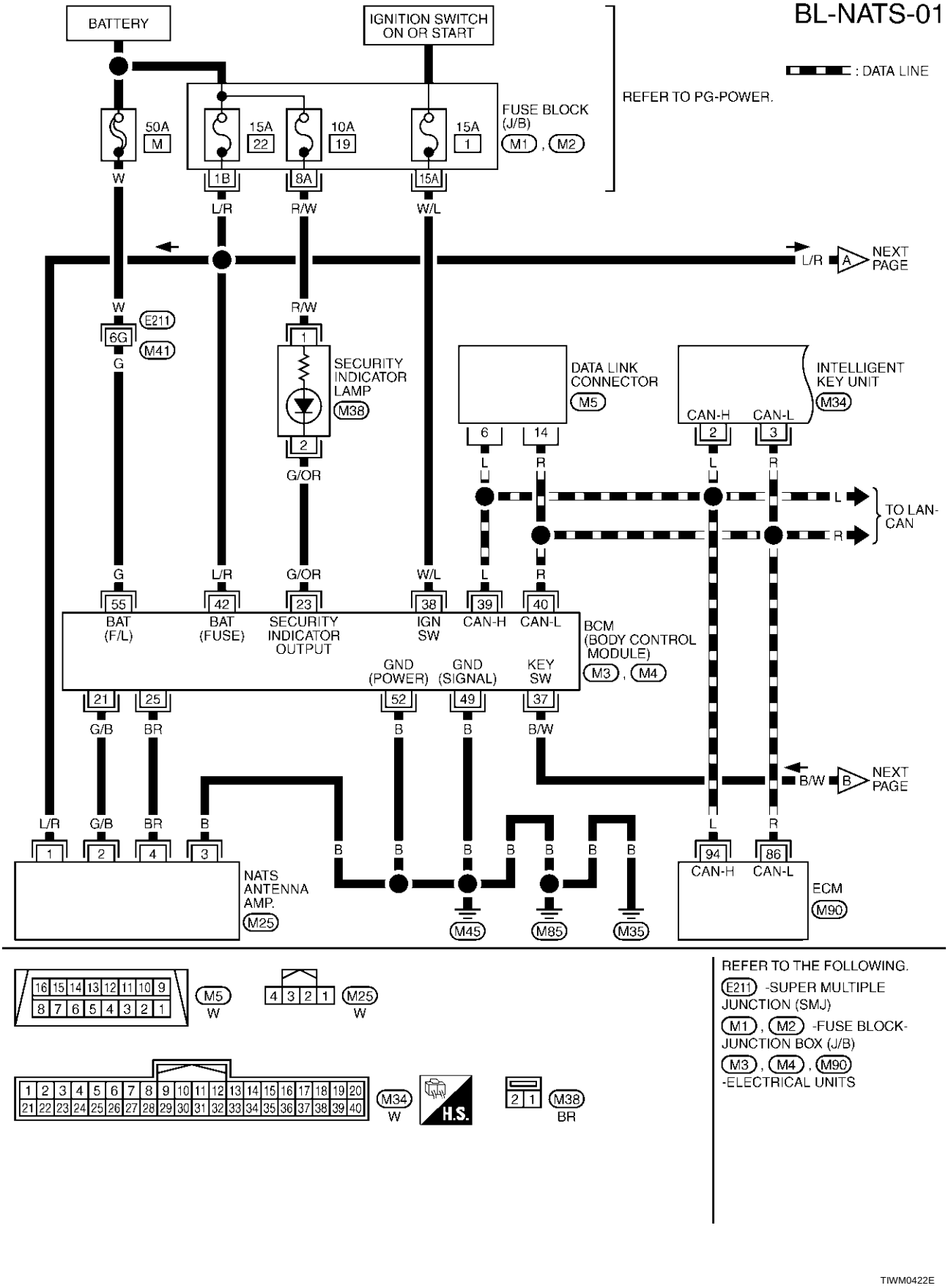
- **When registering new Key IDs or replacing the ECM other than brand new, refer to CONSULT-II Operation Manual NATS-IVIS/NVIS.**
- **If multiple keys are attached to the key holder, separate them before work.**
- **Distinguish keys with unregistered key ID from those with registered ID.**

1. Install ECM.
2. Using a registered key (*2), turn ignition switch to “ON”.
   *2: To perform this step, use the key that has been used before performing ECM replacement.
3. Maintain ignition switch in “ON” position for at least 5 seconds.
4. Turn ignition switch to “OFF”.
5. Start engine.
   If engine can be started, procedure is completed.
   If engine cannot be started, refer to CONSULT-II Operation Manual NATS-IVIS/NVIS and initialize control unit.

Wiring Diagram – NATS –

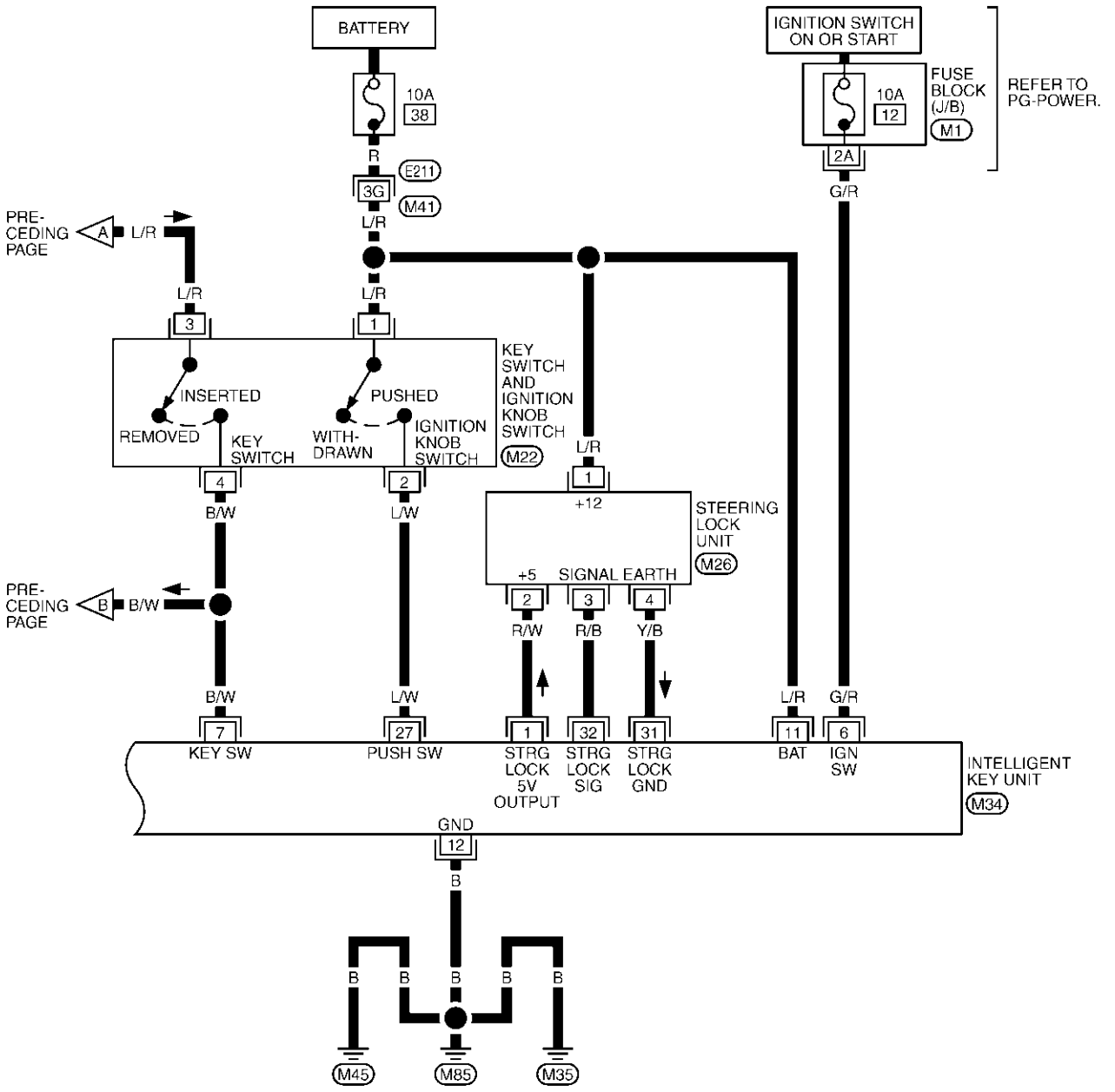
AIS003JZ

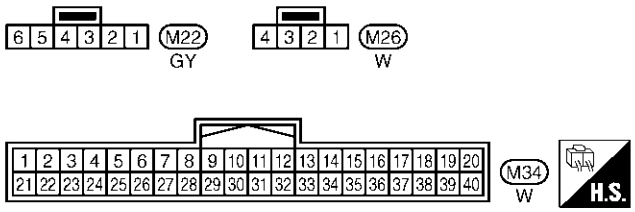
MODELS WITH INTELLIGENT KEY SYSTEM



TIWM0422E

BL-NATS-02





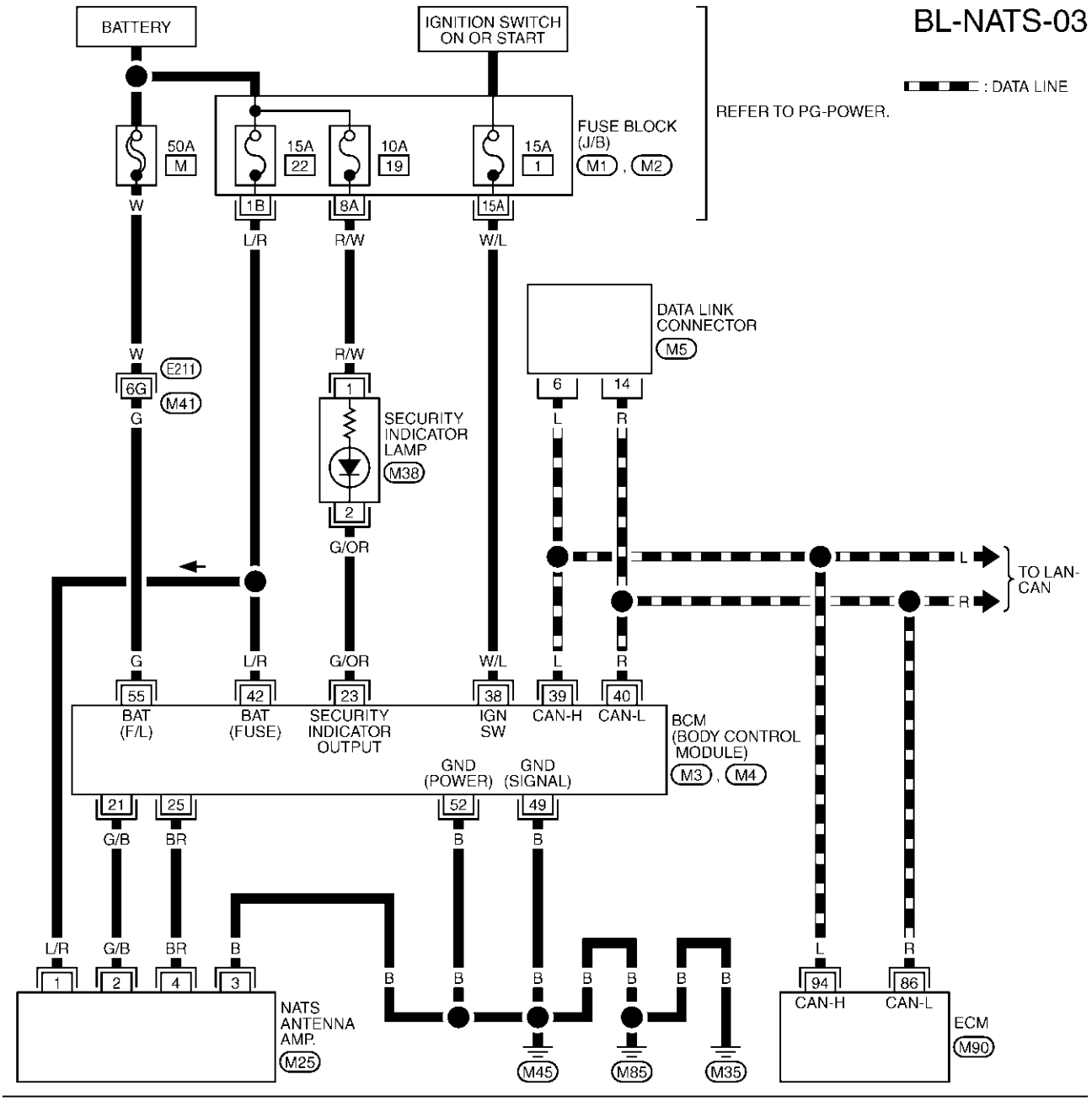
REFER TO THE FOLLOWING.

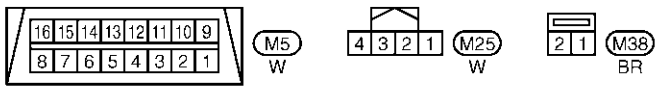
E211 -SUPER MULTIPLE JUNCTION (SMJ)

M1 -FUSE BLOCK-JUNCTION BOX (J/B)

TIWM0423E

MODELS WITHOUT INTELLIGENT KEY SYSTEM



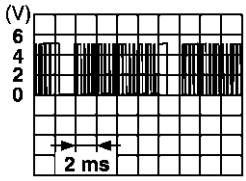


REFER TO THE FOLLOWING.
E211 -SUPER MULTIPLE JUNCTION (SMJ)
M1, M2 -FUSE BLOCK-JUNCTION BOX (J/B)
M3, M4, M90 -ELECTRICAL UNITS

TIWM0339E

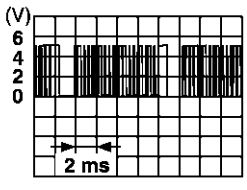
Terminals and Reference Value for Steering Lock Unit/with Intelligent Key System

AIS003K0

Terminal No.	Wire color	Signal Designation	Measuring condition		Voltage (V) Approx.
			Ignition knob position	Operation or conditions	
1	L/R	Battery power supply	LOCK	—	Battery voltage
2	R/W	Steering lock unit power supply	LOCK	—	5
3	R/B	Steering lock unit communication signal	LOCK	Press ignition knob with Intelligent Key inside vehicle.	 SIIA1911J
				Other than the above	5
4	Y/B	Steering lock unit ground	—	—	0

Terminals and Reference Value for Intelligent Key Unit/with Intelligent Key System

AIS003K1

Terminal No.	Wire color	Signal designation	Measuring condition		Voltage (V) Approx.
			Ignition knob position	Operation or conditions	
1	R/W	Steering lock unit power supply	LOCK	—	5
2	L	CAN communication H	—	—	—
3	R	CAN communication L	—	—	—
6	G/R	Ignition power supply	ON	—	Battery voltage
7	B/W	Key switch	LOCK	Insert mechanical key into ignition key cylinder.	Battery voltage
				Remove mechanical key from ignition key cylinder.	0
11	L/R	Battery power supply	—	—	Battery voltage
12	B	GND	—	—	0
27	L/W	Ignition knob switch	—	Press ignition knob.	Battery voltage
				Return ignition knob to LOCK position.	0
31	Y/B	Steering lock unit ground	—	—	0
32	R/B	Steering lock unit communication signal	LOCK	Press ignition knob with Intelligent Key inside vehicle.	 SIIA1911J
				Other than the above	5

Terminals and Reference Value for BCM

AIS003K2

Terminal No.	Wire color	Signal designation	Measuring condition		Voltage (V) Approx.
			Ignition knob position	Operation or conditions	
21	G/B	NATS antenna apm.	—	Ignition knob OFF → ON position	Should move just after turning ignition knob “ON” pointer tester
23	G/OR	Security indicator lamp	LOCK	Goes OFF → illuminates (Every 2.4 seconds)	Battery voltage → 0
25	BR	NATS antenna amp.	—	Ignition knob OFF → ON position	Should move just after turning ignition knob “ON” pointer tester
37*	B/W	Key switch	—	Insert mechanical key into ignition key cylinder	Battery voltage
				Remove mechanical key from ignition key cylinder	0
38	W/L	Ignition power supply	ON	Ignition knob ON or START position	Battery voltage
39	L	CAN-H	—	—	—
40	R	CAN-L	—	—	—
42	L/R	Battery power supply	—	—	Battery voltage
49	B	GND	—	—	0
52	B	GND	—	—	0
55	G	Battery power supply	—	—	Battery voltage

*: With Intelligent Key system

CONSULT-II

AIS003K8

CONSULT-II INSPECTION PROCEDURE

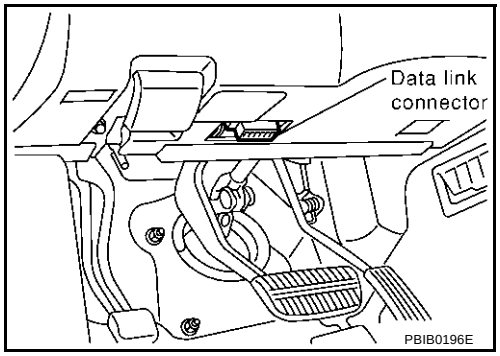
CAUTION:

If CONSULT-II is used with no connection CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN Communication.

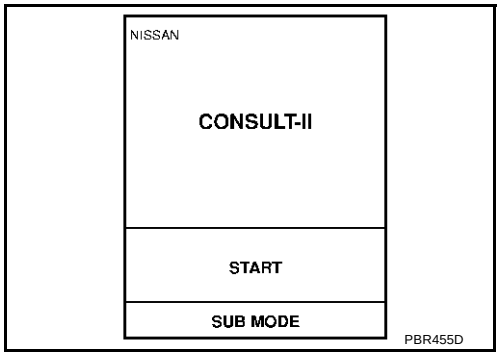
1. Turn ignition switch OFF.
2. Insert IVIS (NATS) program card into CONSULT-II.

   Program card : NATS (AEN02C)

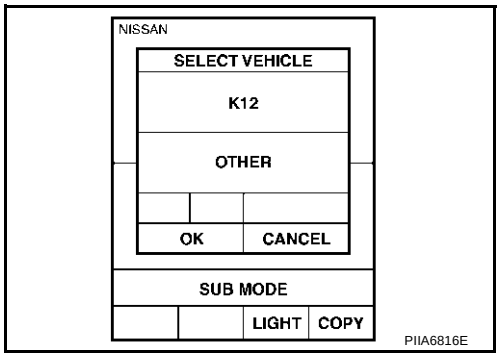
3. Connect CONSULT-II and “CONSULT-II CONVERTER” to data link connector.



4. Turn ignition switch ON.
5. Touch “START”.

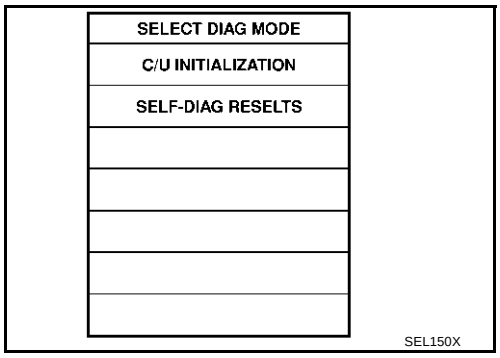


6. Touch “OTHER”.



7. Perform each diagnostic test mode according to each service procedure.

For further information, see the CONSULT-II Operation Manual, NATS-IVIS/NVIS.



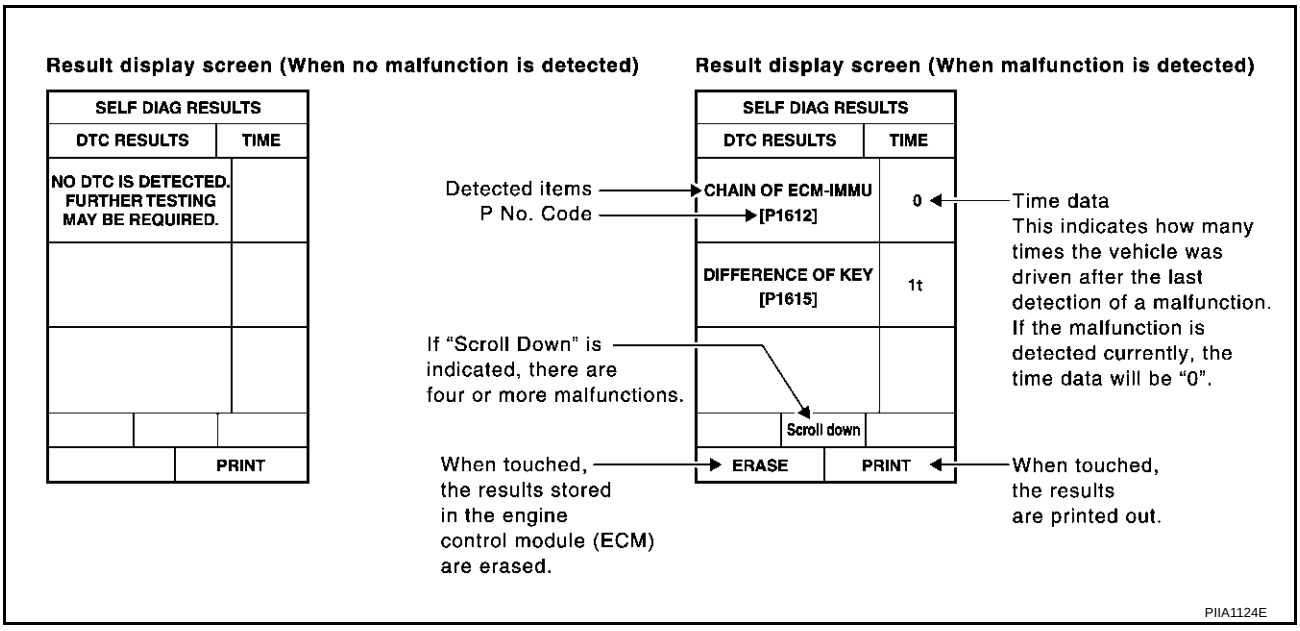
CONSULT-II DIAGNOSTIC TEST MODE FUNCTION

CONSULT- II DIAGNOSTIC TEST MODE	Description
C/U INITIALIZATION	When replacing any of the following three components, C/U initialization is necessary. [IVIS (NATS) ignition key/ BCM/ ECM]

CONSULT- II DIAGNOSTIC TEST MODE	Description
SELF- DIAGNOSTIC RESULTS	Detected items (screen terms) are as shown in the chart.
PIN READ	Individual control unit number can be read. For future information, refer to operation manual NATS-IVIS/NVIS

NOTE:
When any initialization is performed, all ID numbers previously registered will be erased and all ignition key or mechanical key must be registered again. The engine cannot be started with an unregistered key. The system will show “DIFFERENCE OF KEY” or “LOCK MODE” as a self-diagnostic result on the CONSULT-II screen.

HOW TO READ SELF-DIAGNOSTIC RESULTS



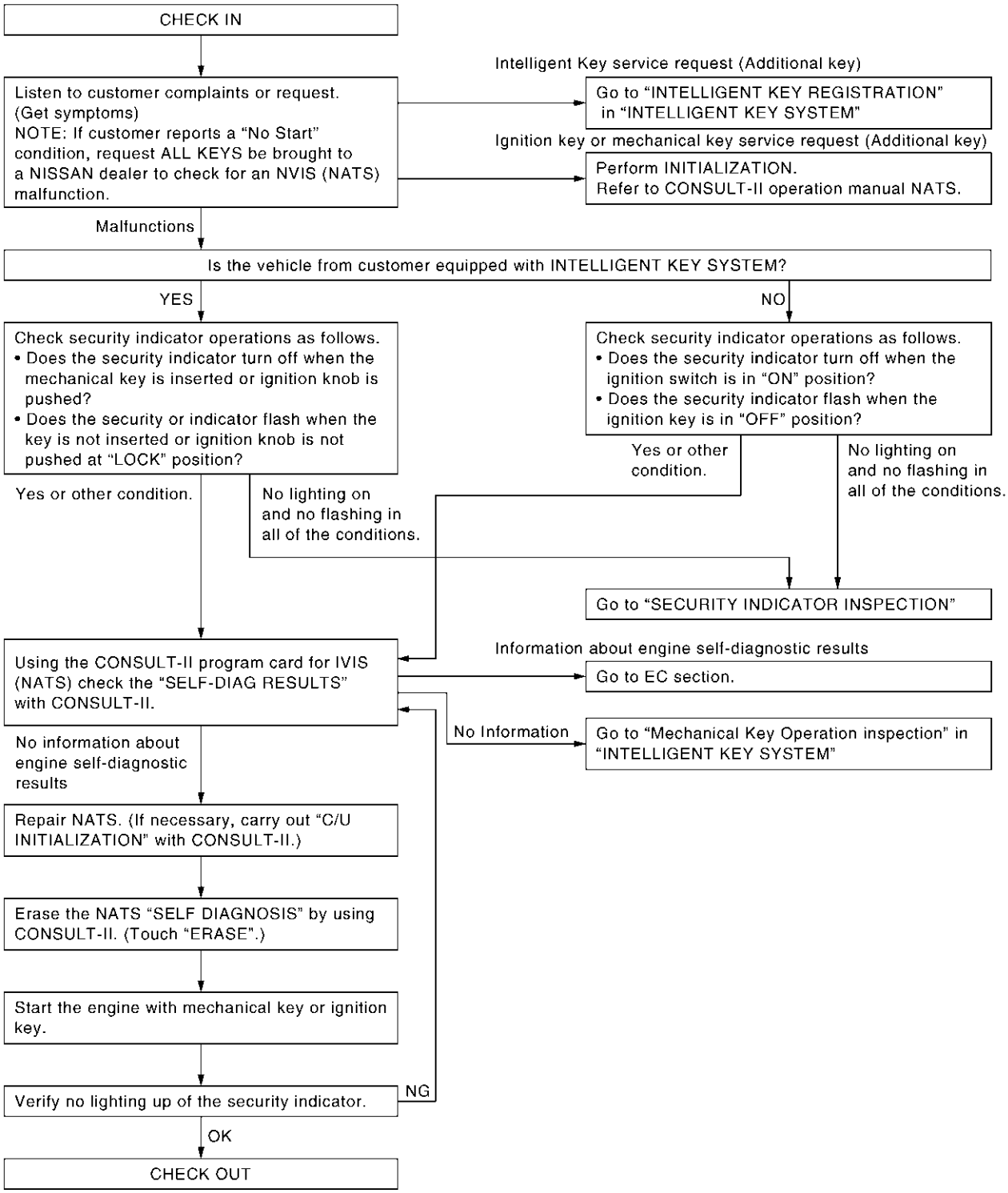
NATS SELF-DIAGNOSTIC RESULT ITEM CHART

Detected items (Screen terms)	P No.Code (Self-diagnostic result of “ENGINE”)	Description	Diagnostic procedure
ECM INT CIRC-IMMU	P1613	The malfunction of ECM internal circuit of BCM communication line is detected.	Refer to BL-266, "Diagnostic Procedure 1" .
CHAIN OF ECM-IMMU	P1612	Communication impossible between ECM and BCM.	Refer to BL-267, "Diagnostic Procedure 2" .
DIFFERENCE OF KEY	P1615	BCM can receive the key ID signal but the result of ID verification between key ID and BCM is NG.	Refer to BL-268, "Diagnostic Procedure 3" .
CHAIN OF IMMU-KEY	P1614	BCM cannot receive the key ID signal.	Refer to BL-271, "Diagnostic Procedure 6" .
ID DISCORD, IMM-ECM	P1611	The result of ID verification between BCM and ECM is NG. System initialization is required.	Refer to BL-269, "Diagnostic Procedure 4" .
LOCK MODE	P1610	When the starting operation is carried out 5 or more times consecutively under the following conditions, IVIS(NATS) will shift the mode to one which prevents the engine from being started. ● unregistered ignition key is used (without intelligent key system) ● BCM or ECM malfunctioning	Refer to BL-270, "Diagnostic Procedure 5" .
DON'T ERASE BEFORE CHECKING ENG DIAG	—	Engine trouble data and IVIS (NATS) trouble data have been detected in ECM.	Refer to BL-264, "WORK FLOW" .

Diagnosis Procedure

AIS003K4

WORK FLOW



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Trouble Diagnosis Symptom Chart

AIS003K5

SYMPTOM	Displayed “SELF-DIAG RESULTS” on CONSULT-II screen.	DIAGNOSTIC PROCEDURE	SYSTEM (Malfunctioning part or mode)
● Security indicator lighting up* ● Engine hard to start	ECM INT CIRC-IMMU [P1613]	Refer to BL-266, "Diagnostic Procedure 1" .	ECM
	CHAIN OF ECM-IMMU [P1612]	Refer to BL-267, "Diagnostic Procedure 2" .	Open circuit in battery voltage line of BCM (NATS IMMU) circuit
			Open circuit in ignition line of BCM (NATS IMMU) circuit
			Open circuit in ground line of BCM (NATS IMMU) circuit
			Open or short circuit between BCM (NATS IMMU) and ECM communication line.
			ECM
			BCM (NATS IMMU)
	DIFFERENCE OF KEY [P1615]	Refer to BL-268, "Diagnostic Procedure 3" .	Unregistered key
			NATS IMMU
	CHAIN OF IMMU-KEY [P1614]	Refer to BL-271, "Diagnostic Procedure 6" .	Open or short circuit between BCM (NATS IMMU) and NATS antenna amp.
			Malfunction of key ID chip
			BCM (NATS IMMU)
			Antenna amp.
	ID DISCORD, IMM-ECM [P1611]	Refer to BL-269, "Diagnostic Procedure 4"	System initialization has not yet been completed.
			ECM
	LOCK MODE [P1610]	Refer to BL-270, "Diagnostic Procedure 5" .	LOCK MODE
● MIL staying ON ● Security indicator lighting up*	DON'T ERASE BEFORE CHECKING ENG DIAG	Refer to BL-264, "WORK FLOW" .	Engine trouble data and IVIS (NATS) trouble data have been detected in ECM

*: When IVIS (NATS) detects trouble, the security indicator lights up while electronic key is in the “ON” position.

Security Indicator Inspection

AIS003K6

SYMPTOM	SYSTEM (Malfunctioning part or mode)	DIAGNOSTIC PROCEDURE
Security indicator does not operate*	Security indicator	Refer to BL-273, "Diagnostic Procedure 7" .
	Open circuit between Fuse and BCM (NATS IMMU)	
	Continuation of initialization mode	
	BCM (NATS IMMU)	

*: CONSULT-II self-diagnostic results display screen “no malfunction is detected”.

Diagnostic Procedure 1

AIS003IX

Self-diagnostic results:
“ECM INT CIRC-IMMU” displayed on CONSULT-II screen

1. CONFIRM SELF-DIAGNOSTIC RESULTS

Confirm SELF-DIAGNOSTIC RESULTS “ECM INT CIRC-IMMU” displayed on CONSULT-II screen.

Is CONSULT-II screen displayed as above?

YES >>
- ECM is malfunctioning.
- Replace ECM.
- Perform initialization or re-communicating function.
  - For initialization, refer to “CONSULT-II Operation Manual NATS-IVIS/NVIS”.
  - For re-communicating function, refer to BL-256, "ECM Re-communicating Function" .

NO >> GO TO BL-265, "Trouble Diagnosis Symptom Chart" .

SELF DIAGNOSIS	
DTC RESULTS	TIME
ECM INT CIRC-IMMU	0

SEL314W

Diagnostic Procedure 2

AIS003IY

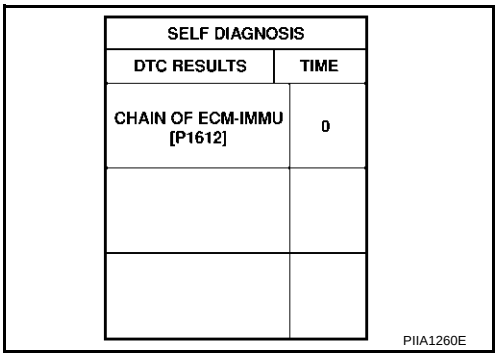
Self-diagnostic results:
“CHAIN OF ECM-IMMU” display on CONSULT-II screen
First perform the “SELF-DIAG RESULTS” in “BCM” with CONSULT-II, then perform the trouble diagnosis of malfunction system indicated “SELF-DIAG RESULTS” of “BCM”. Refer to BCS-27, "CAN Communication Inspection Using CONSULT-II (Self-Diagnosis)" .

1. CONFIRM SELF-DIAGNOSTIC RESULTS

Confirm SELF-DIAGNOSTIC RESULTS “CHAIN OF ECM-IMMU” displayed on the screen?

Is CONSULT-II screen displayed as above?

YES >> GO TO 2.
NO >> GO TO BL-265, "Trouble Diagnosis Symptom Chart" .



2. CHECK POWER SUPPLY CIRCUIT FOR BCM

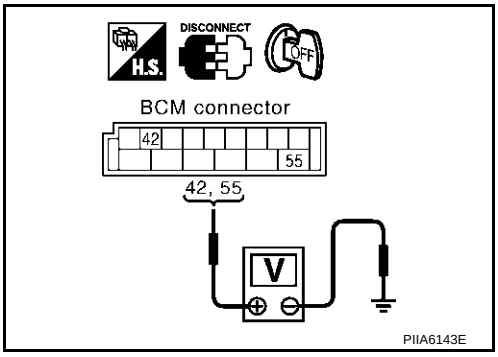
1. Turn ignition switch OFF.
2. Disconnect BCM connector M4.
3. Check voltage between BCM connector M4 terminal 42 (L/R), 55 (G) and ground.

Battery voltage should exist.

OK or NG

OK >> GO TO 3.
NG >> Check the following.

- 50A fusible link [Letter **M** , located in fuse block (J/B)]
- 15A fuse [No.22, located in fuse block (J/B)]
- Harness for open or short between fusible link or fuse and BCM.



3. CHECK IGNITION SWITCH ON SIGNAL

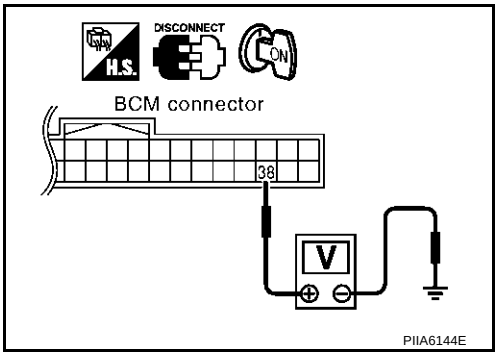
1. Turn ignition switch ON.
2. Check voltage between BCM connector M3 terminal 38 (W/L) and ground.

Battery voltage should exist.

OK or NG

OK >> GO TO 4.
NG >> Check the following.

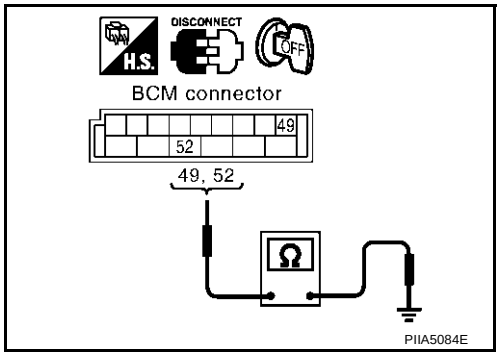
- 15A fuse [No.1, located in fuse block (J/B)]
- Harness for open or short between fuse and BCM.



4. CHECK GROUND CIRCUIT FOR BCM

1. Turn ignition switch OFF.
2. Check continuity between BCM connector M4 terminal 49 (B), 52 (B) and ground.

Continuity should exist.



OK or NG

OK >> GO TO 5.
NG >> Repair or replace harness between BCM and ground.

5. REPLACE BCM

1. Replace BCM.
2. Perform initialization with CONSULT-II.
   For initialization, refer to “CONSULT-II Operation Manual NATS-IVIS/NVIS”.

Does the engine start?

YES >> BCM is malfunctioning.
NO >>
- ECM is malfunctioning.
  - Replace ECM.
  - Perform initialization or re-communicating function.
    - For initialization, refer to “CONSULT-II Operation Manual NATS-IVIS/NVIS”.
    - For re-communicating function, refer to BL-256, "ECM Re-communicating Function" .

Diagnostic Procedure 3

AIS003IZ

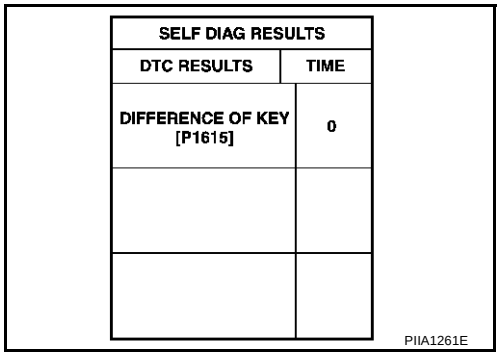
Self-diagnostic results:
“DIFFERENCE OF KEY” displayed on CONSULT-II screen

1. CONFIRM SELF-DIAGNOSTIC RESULTS

Confirm SELF-DIAGNOSTIC RESULTS “DIFFERENCE OF KEY” displayed on CONSULT-II screen.

Is CONSULT-II screen displayed as above?

YES >> GO TO 2.
NO >> GO TO BL-265, "Trouble Diagnosis Symptom Chart" .



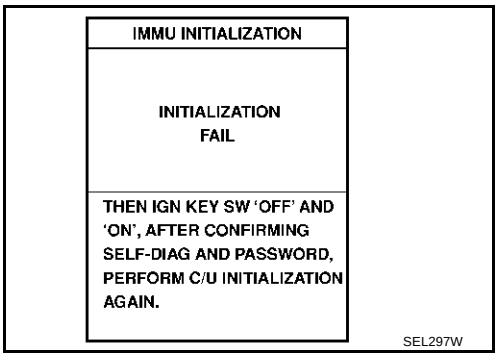
2. PERFORM INITIALIZATION WITH CONSULT-II

Perform initialization with CONSULT-II. Re-register all ignition key or mechanical key IDs.
For initialization and registration of ignition key or mechanical key IDs, refer to “CONSULT-II Operation Manual NATS-IVIS/NVIS”.

NOTE:
If the initialization is not completed or malfunctions, CONSULT-II shows message on the screen.

Can the system be initialized and can the engine be started with re-registered ignition key or mechanical key?

YES >> ● Ignition key ID was unregistered.
NO >> ● BCM is malfunctioning.
● Replace BCM.
● Perform initialization with CONSULT-II.
● For initialization, refer to “CONSULT-II Operation Manual NATS-IVIS/NVIS”.



Diagnostic Procedure 4

AIS003J0

Self-diagnostic results:
“ID DISCORD, IMM-ECM” displayed on CONSULT-II screen

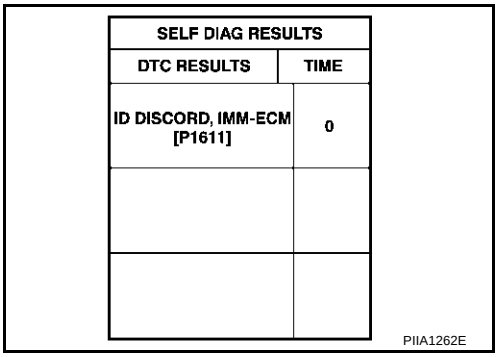
1. CONFIRM SELF-DIAGNOSTIC RESULTS

Confirm SELF-DIAGNOSTIC RESULTS “ID DISCORD, IMM-ECM” displayed on CONSULT-II screen.

NOTE:
“ID DISCORD IMM-ECM”:
Registered ID of BCM is in discord with that of ECM.

Is CONSULT-II screen displayed as above?

YES >> GO TO 2.
NO >> GO TO BL-265, "Trouble Diagnosis Symptom Chart" .



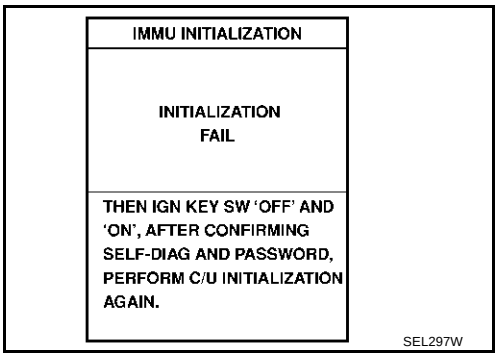
2. PERFORM INITIALIZATION WITH CONSULT-II

Perform initialization with CONSULT-II. Re-register all ignition key or mechanical key IDs.
For initialization, refer to “CONSULT-II Operation Manual NATS-IVIS/NVIS”.

NOTE:
If the initialization is not completed or malfunctions, CONSULT-II shows message on the screen.

Can the system be initialized?

YES >> ● Start engine. (END)
● System initialization had not been completed.
NO >> ● ECM is malfunctioning.
● Replace ECM.
● Perform initialization or re-communicating function.
– For initialization, refer to “CONSULT-II Operation Manual NATS-IVIS/NVIS”.
– For re-communicating function, refer to BL-256, "ECM Re-communicating Function" .



Diagnostic Procedure 5

AIS003J1

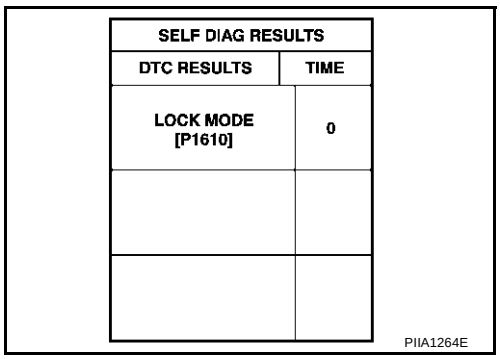
Self-diagnostic results:
“LOCK MODE” displayed on CONSULT-II screen

1. CONFIRM SELF-DIAGNOSTIC RESULTS

Confirm SELF-DIAGNOSTIC RESULTS “LOCK MODE” is displayed on CONSULT-II screen.

Is CONSULT-II screen displayed as above?

YES >> GO TO 2.
NO >> GO TO BL-265, "Trouble Diagnosis Symptom Chart" .



2. ESCAPE FROM LOCK MODE

1. Turn ignition switch OFF.
2. Turn ignition switch ON with registered key. (Do not start engine.) Wait 5 seconds.
3. Return the key to OFF position. Wait 5 seconds.
4. Repeat steps 2 and 3 twice (total of three cycles).
5. Start the engine.

Does engine start?

YES >> System is OK (Now system is escaped from “LOCK MODE”).
NO >> GO TO 3.

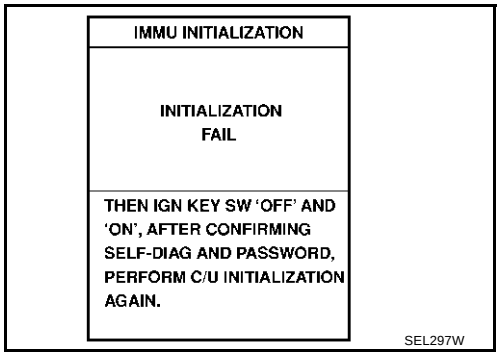
3. PERFORM INITIALIZATION WITH CONSULT-II

Perform initialization with CONSULT-II.
For initialization, refer to “CONSULT-II Operation Manual NATS-IVIS/NVIS”.

NOTE:
If the initialization is not completed or malfunctions, CONSULT-II shows the message on the screen.

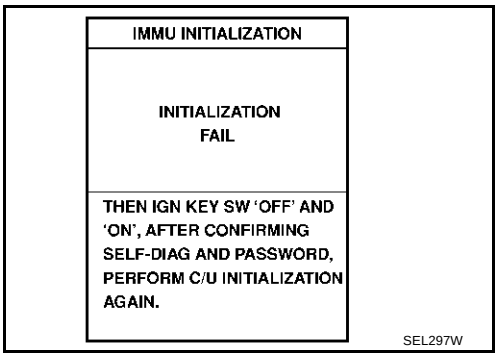
Can the system be initialized?

YES >> System is OK.
NO >> GO TO 4



4. PERFORM INITIALIZATION WITH CONSULT-II AGAIN

1. Replace BCM.
2. Perform initialization with CONSULT-II.
   For initialization, refer to “CONSULT-II Operation Manual NATS-IVIS/NVIS”.



NOTE:
If the initialization is not completed or malfunctions, CONSULT-II shows the message on the screen.

Can the system be initialized?

YES >> System is OK. BCM is malfunctioning.
NO >>
- ECM is malfunctioning.
  - Replace ECM.
  - Perform initialization or re-communicating function.
    - For initialization, refer to “CONSULT-II Operation Manual NATS-IVIS/NVIS”.
    - For re-communicating function, refer to BL-256, "ECM Re-communicating Function" .

Diagnostic Procedure 6

AIS003J2

Self-diagnostic results:
“CHAIN OF IMMU-KEY” displayed on CONSULT-II screen

1. CONFIRM SELF-DIAGNOSTIC RESULTS

Confirm self-diagnostic results “CHAIN OF IMMU-KEY” displayed on CONSULT-II screen.

Is CONSULT-II screen displayed as above?

YES >> GO TO 2.
NO >> GO TO BL-265, "Trouble Diagnosis Symptom Chart" .

2. CHECK NATS ANTENNA AMP. INSTALLATION

Check NATS antenna amp. installation. Refer to BL-274, "Removal and Installation NATS Antenna Amp." .

OK or NG

OK >> GO TO 3.
NG >> Reinstall NATS antenna amp. correctly.

3. CHECK KEY ID CHIP

Start engine with another registered ignition key or mechanical key.

Does the engine start?

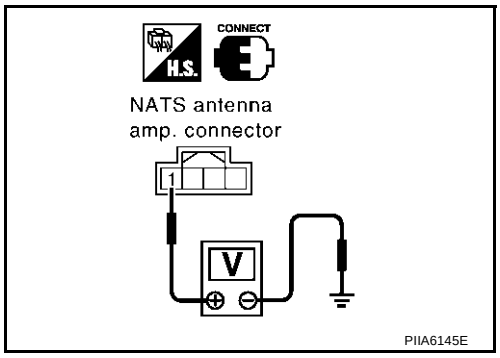
YES >>
- Ignition key or mechanical key ID chip is malfunctioning.
- Replace the ignition key or mechanical key.
- Perform initialization with CONSULT-II.
  For initialization, refer to “CONSULT-II Operation Manual NATS–IVIS/NVIS”.

NO >> GO TO 4.

4. CHECK POWER SUPPLY FOR NATS ANTENNA AMP.

Check voltage between NATS antenna amp. connector M25 terminal 1 (L/R) and ground with CONSULT-II or tester.

Battery voltage should exist.



OK or NG

OK >> GO TO 5.
NG >> Check harness for open or short between NATS antenna amp. and fuse.

5. CHECK NATS ANTENNA AMP. SIGNAL LINE- 1

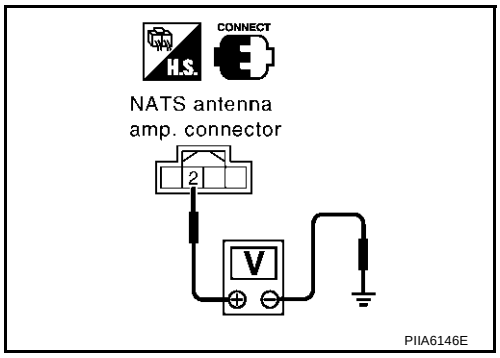
Check voltage between NATS antenna amp. connector M25 terminal 2 (G/B) and ground with analogue tester.

Before inserting mechanical key in ignition knob

Voltage: 0V

Just after inserting mechanical key in ignition knob

: Pointer of tester should move.



OK or NG

OK >> GO TO 6.
NG >> ● Check harness for open or short between NATS antenna amp. and BCM.

NOTE:
If harness is OK, replace BCM, perform initialization with CONSULT-II. For initialization, refer to “CONSULT-II Operation Manual NATS–IVIS/NVIS”.

6. CHECK NATS ANTENNA AMP. SIGNAL LINE- 2

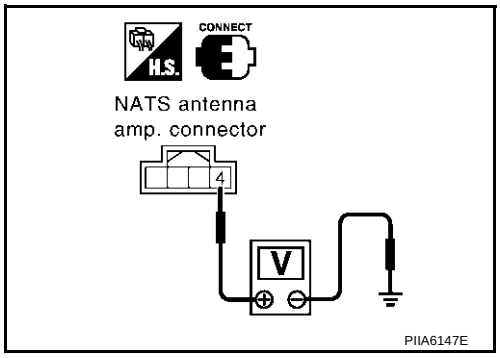
Check voltage between NATS antenna amp. connector M25 terminal 4 (BR) and ground with analogue tester.

Before inserting mechanical key in ignition knob

Voltage: 0V

Just after inserting mechanical key in ignition knob

: Pointer of tester should move.



OK or NG

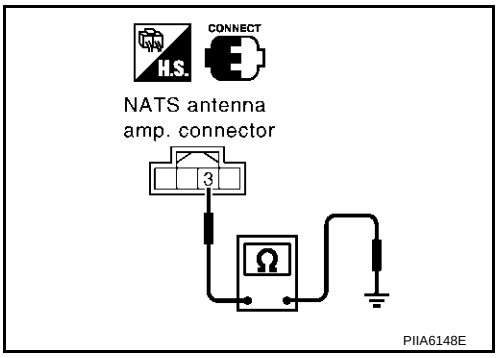
OK >> GO TO 7.
NG >> ● Check harness for open or short between NATS antenna amp. and BCM.

NOTE:
If harness is OK, replace BCM, perform initialization with CONSULT-II. For initialization, refer to “CONSULT-II Operation Manual NATS–IVIS/NVIS”.

7. CHECK NATS ANTENNA AMP. GROUND LINE CIRCUIT

1. Turn ignition switch “OFF”.
2. Check continuity between NATS antenna amp. connector M25 terminal 3 (B) and ground.

Continuity should exist.



OK or NG

OK >> NATS antenna amp. is malfunctioning.
NG >> ● Check harness for open or short between NATS antenna amp. and ground.

NOTE:
If harness is OK, replace BCM, perform initialization with CONSULT-II. For initialization, refer to “CONSULT-II Operation Manual NATS–IVIS/NVIS”.

Diagnostic Procedure 7

AIS003KU

“SECURITY INDICATOR LAMP DOES NOT LIGHT UP”

1. CHECK FUSE

Check 10A fuse [No.19, located in the fuse block (J/B)]

OK or NG

OK >> GO TO 2.
NG >> Replace fuse.

2. CHECK SECURITY INDICATOR LAMP

1. Install 10A fuse.
2. Start engine and turn ignition switch OFF.
3. Check the security indicator lamp lights up.

Security indicator lamp should light up.

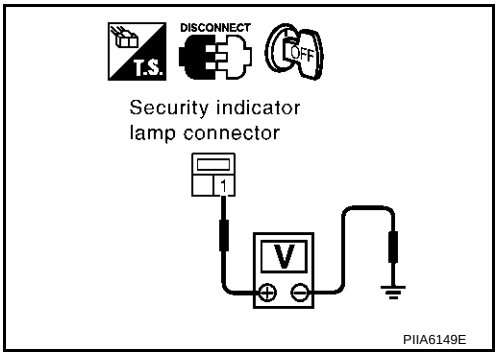
OK or NG

OK >> Inspection END.
NG >> GO TO 3.

3. CHECK SECURITY INDICATOR LAMP POWER SUPPLY CIRCUIT

1. Disconnect security indicator lamp connector.
2. Check voltage between security indicator lamp connector M38 terminal 1 (R/W) and ground.

Battery voltage should exist.

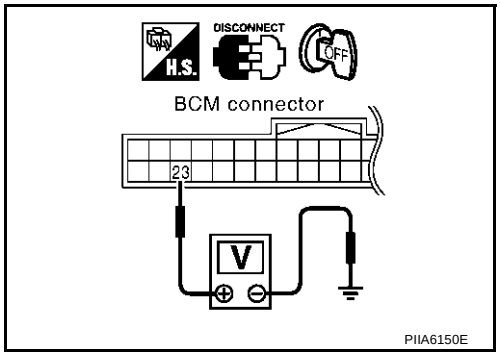


OK or NG

OK >> GO TO 4.
NG >> Check harness for open or short between fuse and security indicator lamp.

4. CHECK BCM FUNCTION

1. Connect security indicator lamp connector.
2. Disconnect BCM connector M3.
3. Check voltage between BCM connector M3 terminal 23 (G/OR) and ground.



Battery voltage should exist.

OK or NG

OK >> BCM is malfunctioning.

- Replace BCM.
- Perform initialization with CONSULT-II.
- For initialization, refer to “CONSULT-II Operation Manual NATS-IVIS/NVIS”.

NG >> Check the following.

- Harness for open or short between security indicator lamp and BCM.
- Indicator lamp condition

Removal and Installation NATS Antenna Amp.

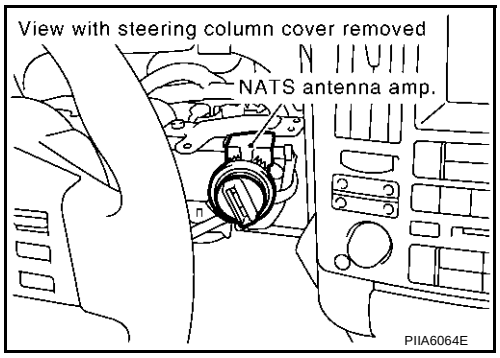
AIS003K7

REMOVAL

CAUTION:

Before servicing SRS, turn ignition switch OFF, disconnect both battery cables and wait at least 3 minutes.

1. Remove the steering column cover. Refer to IP-11, "Removal and Installation" .
2. Disconnect the NATS antenna amp. connect, remove the screw and NATS antenna amp.



INSTALLATION

Install in the reverse order of removal.

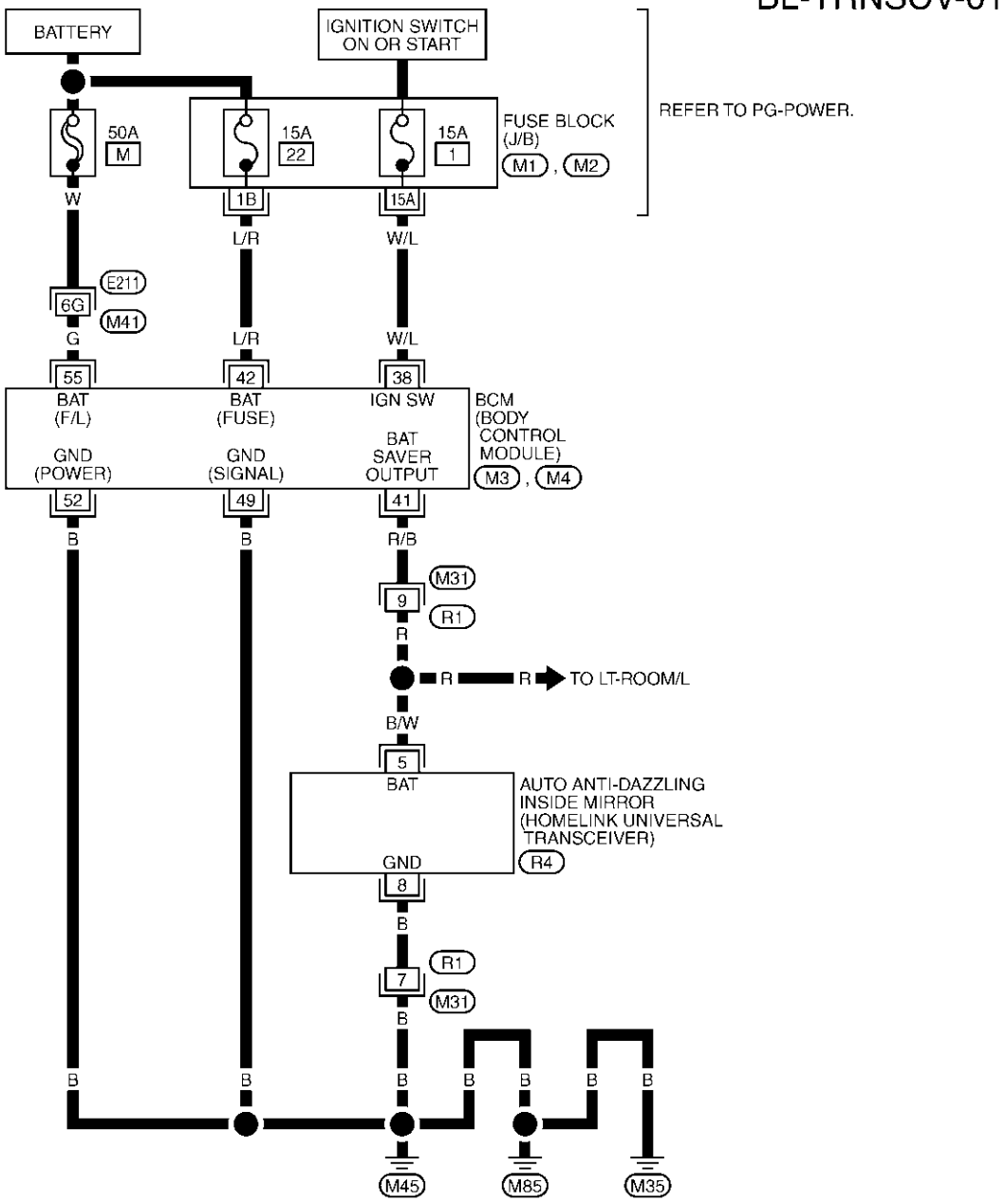
INTEGRATED HOMELINK TRANSMITTER

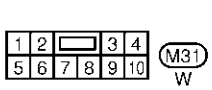
PFP:96401

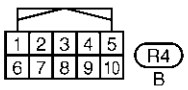
Wiring Diagram —TRNSCV—

AIS003K9

BL-TRNSCV-01







REFER TO THE FOLLOWING.
E211 -SUPER MULTIPLE JUNCTION (SMJ)
M1, M2 -FUSE BLOCK-JUNCTION BOX (J/B)
M3, M4 -ELECTRICAL UNITS

TIWM0340E

Trouble Diagnoses

AIS003KA

DIAGNOSTIC PROCEDURE

SYMPTOM: Transmitter Does Not Activate Receiver.

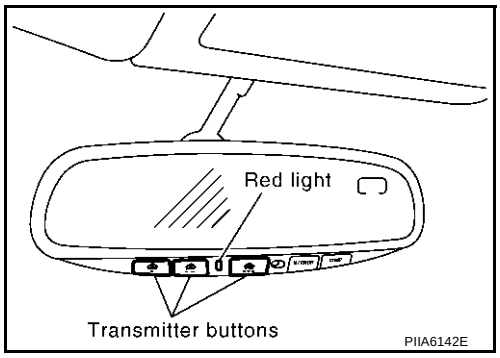
Before conducting the procedure given below, make sure that system receiver (garage door opener, etc.) operates with original, hand-held transmitter. If NG, receiver or hand-held transmitter is malfunctioning, not vehicle related.

1. CHECK ILLUMINATION

1. Turn ignition switch “OFF”.
2. Does red light (LED) of transmitter illuminate when any transmitter button is pressed?

YES or NO

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



2. CHECK TRANSMITTER

Check transmitter with Tool*.
*:For details, refer to Technical Service Bulletin.

OK or NG

OK >> Receiver or hand-held transmitter malfunction, not vehicle related.
NG >> Replace inside mirror assembly.

3. CHECK BCM OUTPUT POWER SUPPLY

Does room lamp come on when driver side door opened. Refer to LT-239 .

Does room lamp illumination?

YES >> GO TO 4.
NO >> Repair or replace the malfunction part.

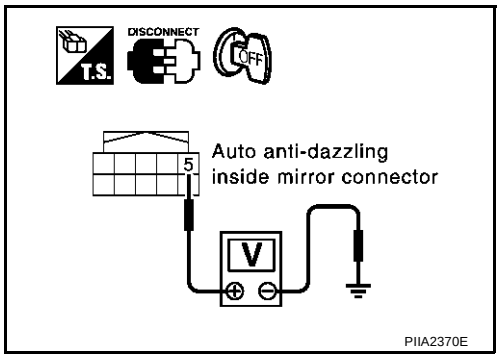
4. CHECK POWER SUPPLY

1. Disconnect transmitter connector.
2. Turn ignition switch “OFF”.
3. Check voltage between auto anti-dazzling inside mirror (integrated homelink transmitter) connector R4 terminal 5 (B/W) and ground.

5 (B/W) – Ground : Battery voltage

OK or NG

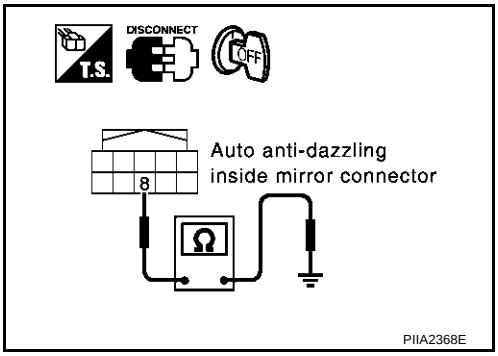
OK >> GO TO 5.
NG >> Repair or replace harness between BCM and anti-dazzling inside mirror (integrated homelink transmitter).



5. CHECK GROUND CIRCUIT

Check continuity between anti-dazzling inside mirror (integrated homelink transmitter) connector R4 terminal 8 (B) and ground.

8 (B) – Ground **:Continuity should exist.**



OK or NG

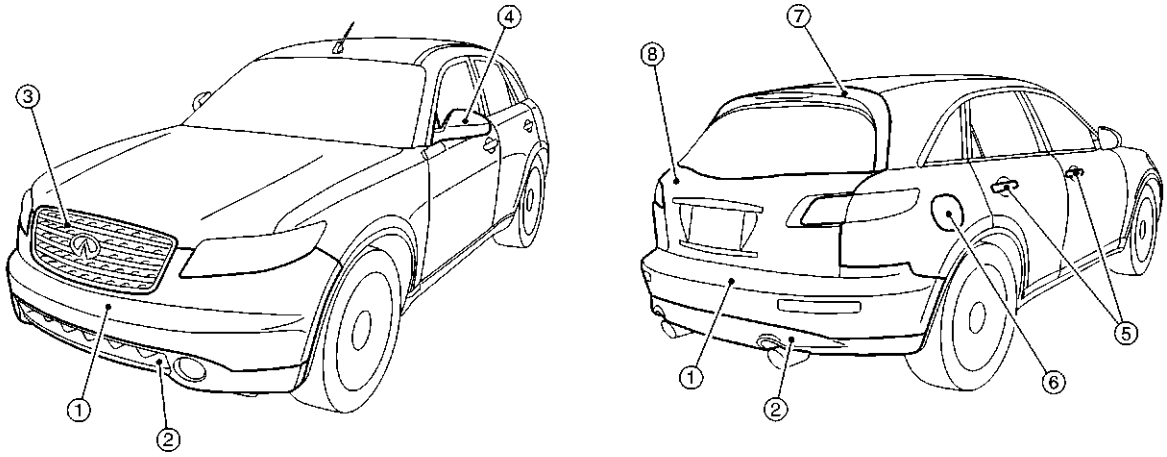
OK >> Replace inside mirror assembly.
NG >> Harness for open or short between anti-dazzling inside mirror (integrated homelink transmitter) ground.

BODY REPAIR

PFP:60100

Body Exterior Paint Color

AIS0061N



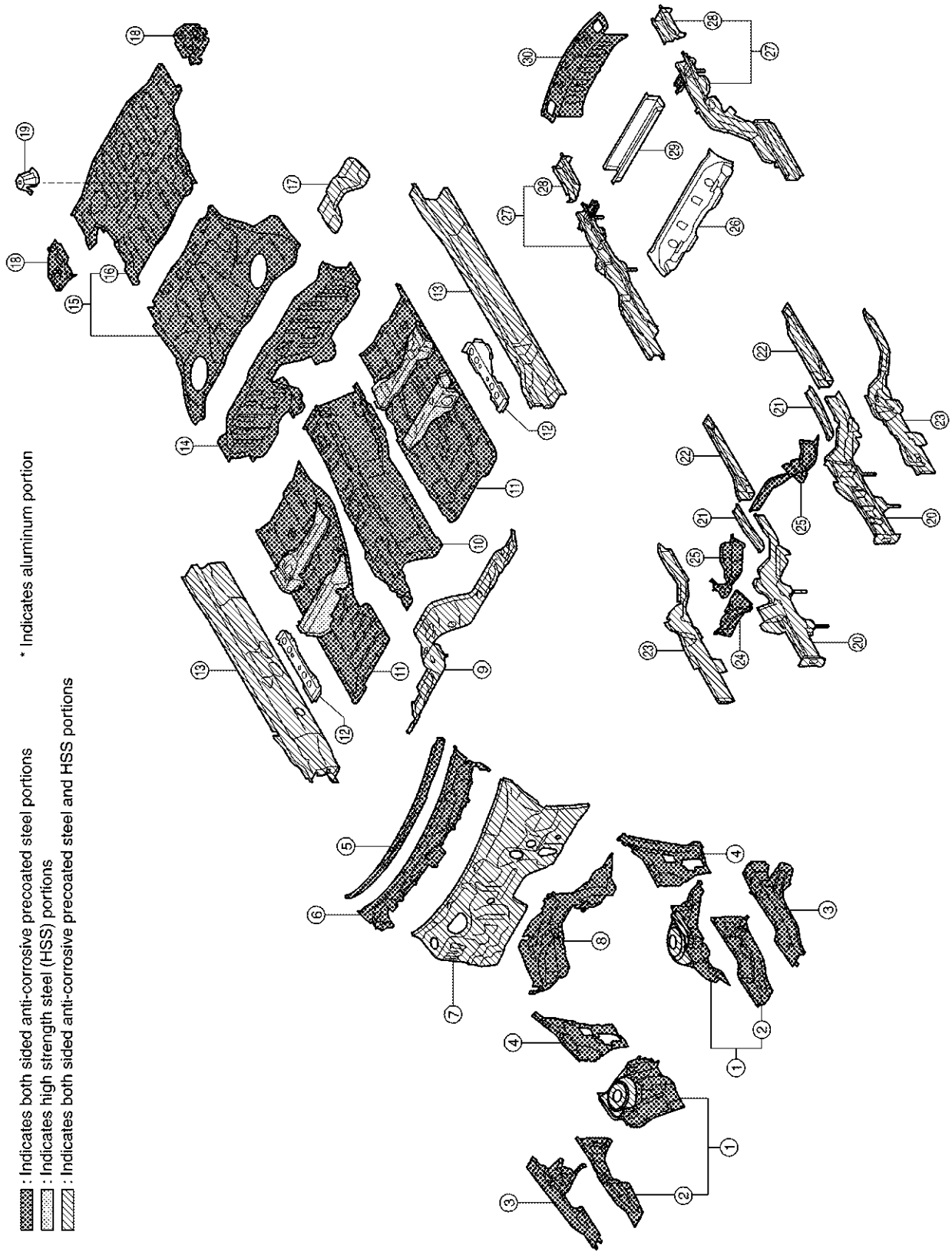
SIIA2248E

Component			Color code	BAX6	BC16	BEY0	BKH3	BKY0	BQX1	BR12	BWV2
			Description	Red	Grayish brown	Light Gold	Black	Silver	White	Brownish orange	Silver
			Paint type	2S	PM	RPM	2S	M	3P	M	M
			Hard clear coat	×	×	-	×	-	-	-	-
1	Bumper fascia		Body color	BAX6	BC16	BEY0	BKH3	BKY0	BQX1	BR12	BWV2
2	Bumper finisher		Black	G01-1	G01-1	G01-1	G01-1	G01-1	G01-1	G01-1	G01-1
3	Front grille		Chromium-plate + Color clear coat	Cr2p	Cr2p	Cr2p	Cr2p	Cr2p	Cr2p	Cr2p	Cr2p
4	Door outside mirror	Housing	Body color	BAX6	BC16	BEY0	BKH3	BKY0	BQX1	BR12	BWV2
		Base	Black	G01-2	G01-2	G01-2	G01-2	G01-2	G01-2	G01-2	G01-2
5	Door outside handle		Chromium-plate	Cr2p	Cr2p	Cr2p	Cr2p	Cr2p	Cr2p	Cr2p	Cr2p
6	Fuel filler lid		Body color	BAX6	BC16	BEY0	BKH3	BKY0	BQX1	BR12	BWV2
7	Rear spoiler		Body color	BKH3	BKH3	BKH3	BKH3	BKH3	BKH3	BKH3	BKH3
8	Back door		Body color	BAX6	BC16	BEY0	BKH3	BKY0	BQX1	BR12	BWV2

2S:Solid + Clear, PM:Pearl + Metallic, M:Metallic, 3P:3-Coat pearl, RPM:Multi flex color

Body Component Parts
UNDERBODY COMPONENT PARTS

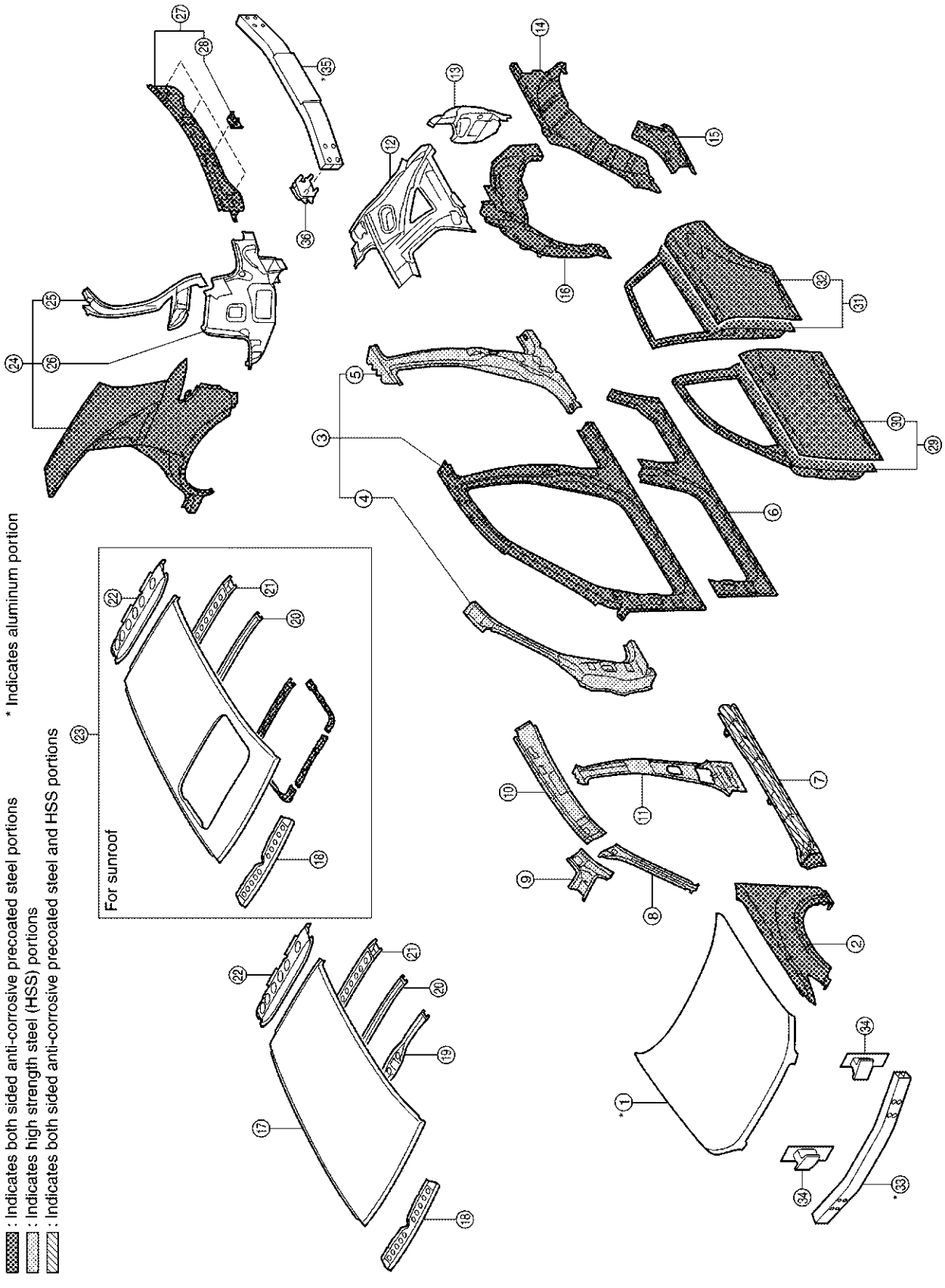
AIS0061O



SIIA2386E

1. Hoodledge assembly
2. Upper front hoodledge
3. Hoodledge reinforcement
4. Upper hoodledge
5. Upper dash extension
6. Upper dash crossmember assembly
7. Upper dash assembly
8. Front cowl top assembly
9. Lower dash
10. Front floor center
11. Front floor
12. Front floor reinforcement
13. Inner sill
14. Lower rear seat crossmember
15. Rear floor front
16. Rear floor rear
17. Rear floor seat belt anchor reinforcement
18. Rear floor side
19. Spare tire clamp bracket
20. Front side member
21. Front side member rear reinforcement
22. Front side member front extension
23. Front side member closing plate
24. Front side member outrigger assembly (RH&LH)
25. Front crossmember
26. 2ND rear crossmember
27. Rear side member assembly
28. Rear side member extension
29. Rear center crossmember assembly
30. Rear end crossmember assembly

BODY COMPONENT PARTS



1. Hood
2. Front fender (RH&LH)
3. Side body assembly (RH&LH)
4. Outer front pillar reinforcement (RH&LH)
5. Outer center pillar reinforcement (RH&LH)
6. Outer sill (RH&LH)
7. Outer sill reinforcement assembly (RH&LH)
8. Upper inner front pillar assembly (RH&LH)
9. Front roof rail brace (RH&LH)
10. Inner side roof rail (RH&LH)
11. Inner center pillar (RH&LH)
12. Inner rear pillar (RH&LH)
13. Lower inner rear pillar (RH&LH)
14. Outer rear wheelhouse (RH&LH)
15. Outer rear wheelhouse extension (RH&LH)
16. Inner rear wheelhouse (RH&LH)
17. Roof
18. Front roof rail assembly
19. Roof bow No.1
20. Roof bow No.2
21. Roof bow No.3
22. Rear roof rail assembly
23. Roof assembly (for sunroof)
24. Rear fender assembly (RH&LH)
25. Upper back pillar assembly (RH&LH)
26. Back pillar assembly (RH&LH)
27. Rear panel assembly
28. Upper rear bumper retainer
29. Front door assembly (RH&LH)
30. Outer front door panel (RH&LH)
31. Rear door assembly (RH&LH)
32. Outer rear door panel (RH&LH)
33. Front bumper reinforcement
34. Front bumper stay
35. Rear bumper reinforcement
36. Rear bumper stay (RH&LH)

Corrosion Protection

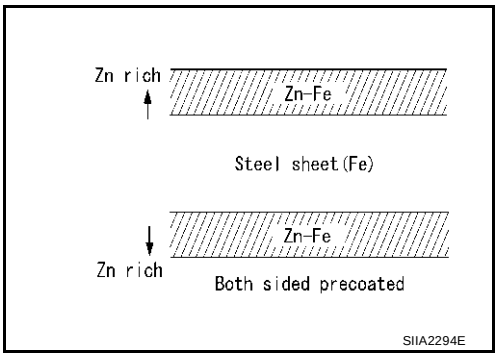
AIS0061P

DESCRIPTION

To provide improved corrosion prevention, the following anti-corrosive measures have been implemented in NISSAN production plants. When repairing or replacing body panels, it is necessary to use the same anti-corrosive measures.

Anti-corrosive precoated steel (Galvannealed steel)

To improve repairability and corrosion resistance, a new type of anti-corrosive precoated steel sheet has been adopted replacing conventional zinc-coated steel sheet.
Galvannealed steel is electroplated and heated to form Zinc-iron alloy, which provides excellent and long term corrosion resistance with cationic electrodeposition primer.

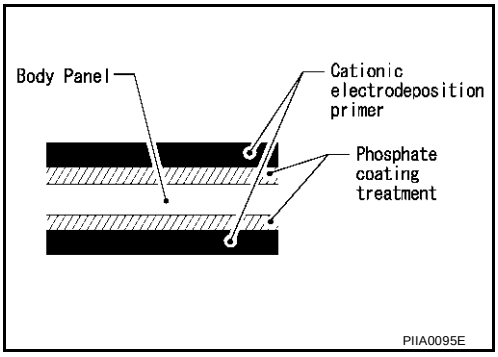


Nissan Genuine Service Parts are fabricated from galvannealed steel. Therefore, it is recommended that GENUINE NISSAN PARTS or equivalent be used for panel replacement to maintain the anti-corrosive performance built into the vehicle at the factory.

Phosphate coating treatment and cationic electrodeposition primer

A phosphate coating treatment and a cationic electrodeposition primer, which provide excellent corrosion protection, are employed on all body components.

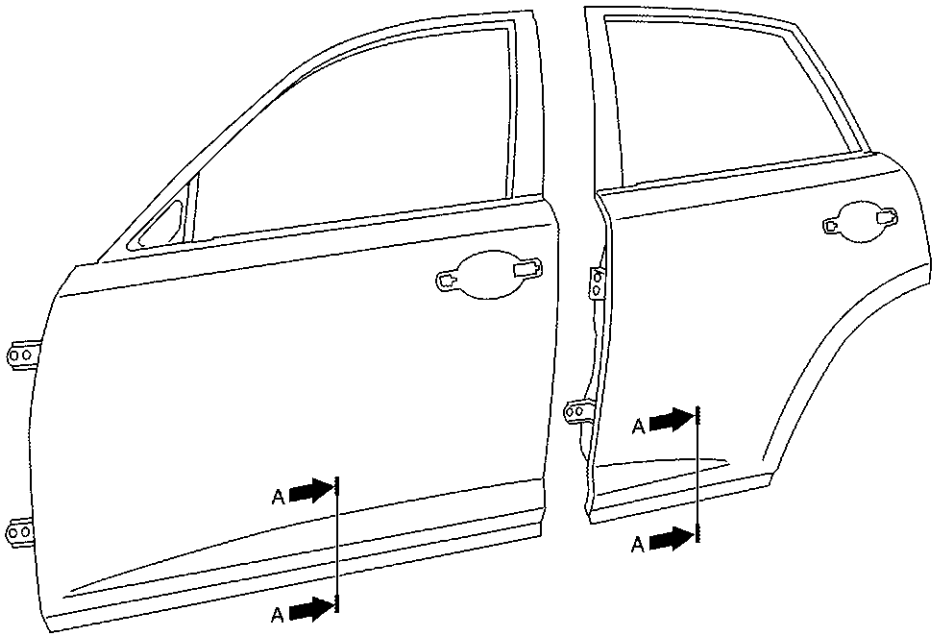
CAUTION:
Confine paint removal during welding operations to an absolute minimum.



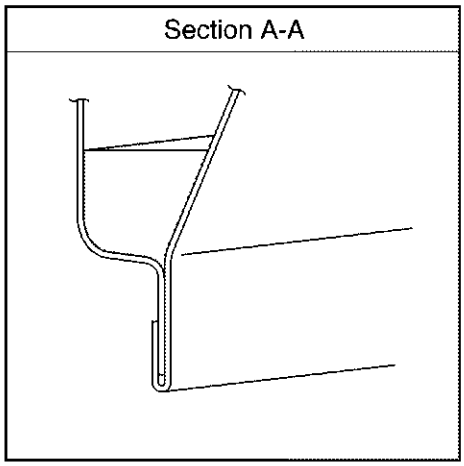
Nissan Genuine Service Parts are also treated in the same manner. Therefore, it is recommended that GENUINE NISSAN PARTS or equivalent be used for panel replacement to maintain anti-corrosive performance built into the vehicle at the factory.

ANTI-CORROSIVE WAX

To improve corrosion resistance, anti-corrosive wax is applied inside the body sill and inside other closed sections. Accordingly, when replacing these parts, be sure to apply anti-corrosive wax to the appropriate areas of the new parts. Select an excellent anti-corrosive wax which will penetrate after application and has a long shelf life.



: Indicates anti-corrosive wax coated portions.



SIIA2251E

UNDERCOATING

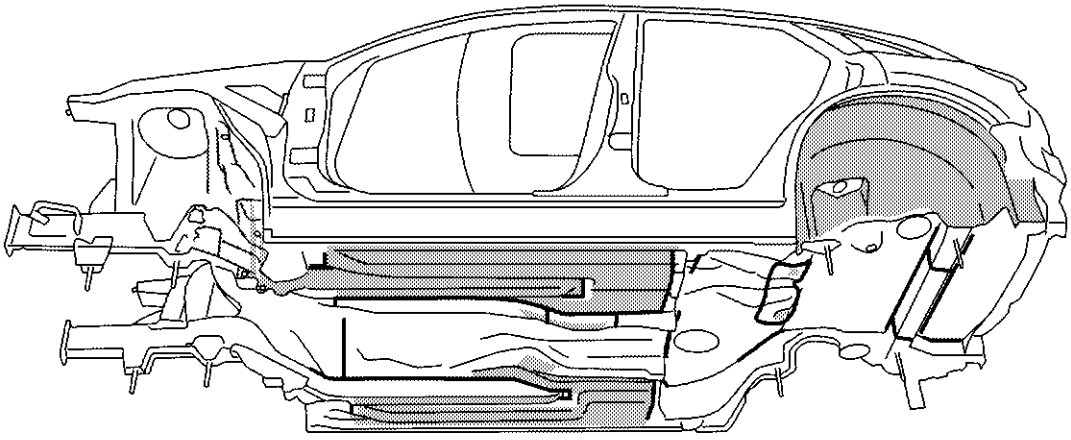
The underside of the floor and wheelhouse are undercoated to prevent rust, vibration, noise and stone chipping. Therefore, when such a panel is replaced or repaired, apply undercoating to that part. Use an undercoating which is rust preventive, soundproof, vibration-proof, shock-resistant, adhesive, and durable.

Precautions in undercoating

1. Do not apply undercoating to any place unless specified (such as the areas above the muffler and three way catalyst which are subjected to heat).
2. Do not undercoat the exhaust pipe or other parts which become hot.
3. Do not undercoat rotating parts.
4. Apply bitumen wax after applying undercoating.
5. After putting seal on the vehicle, put undercoating on it.

: Indicates undercoated portions.

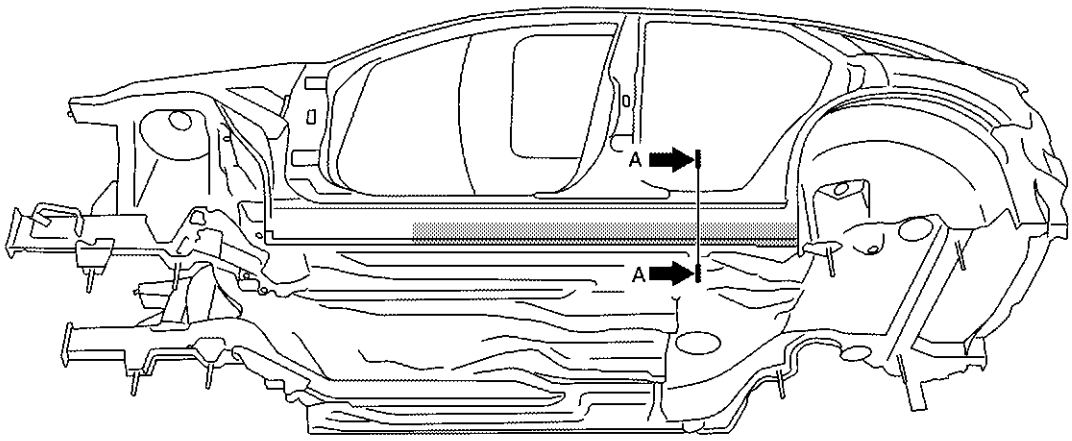
: Indicates sealed portions.



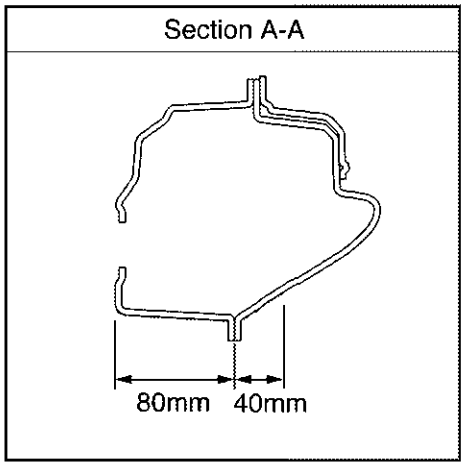
SIIA2252E

STONE GUARD COAT

To prevent damage caused by stones, the lower outer body panel (fender, door, etc.) have an additional layer of Stone Guard Coating over the ED primer coating. When replacing or repairing these panels, apply Stone Guard coating to the same portions as before. Use a coating which is rust preventive, durable, shock-resistant and has a long shelf life.



: Indicates stone guard coated portions.



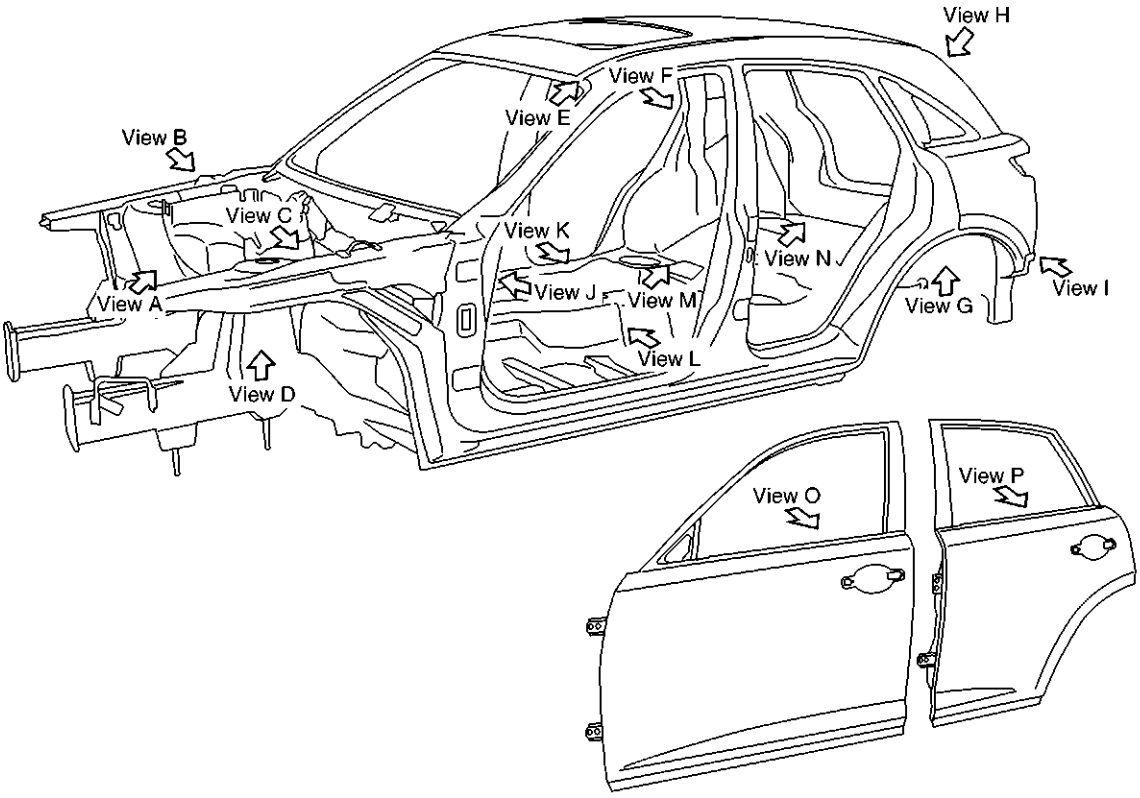
SIIA2253E

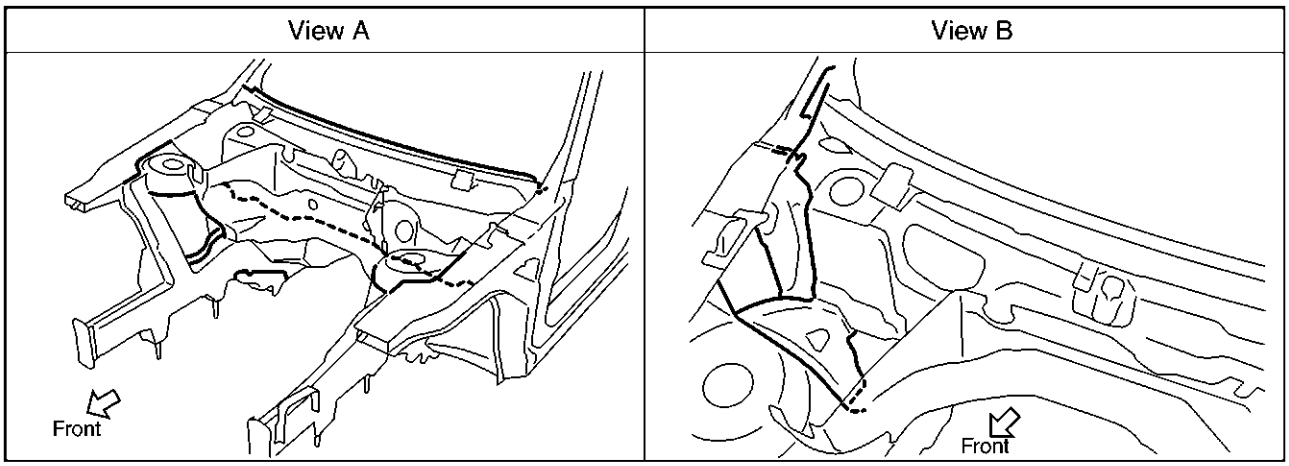
Body Sealing

AIS0061Q

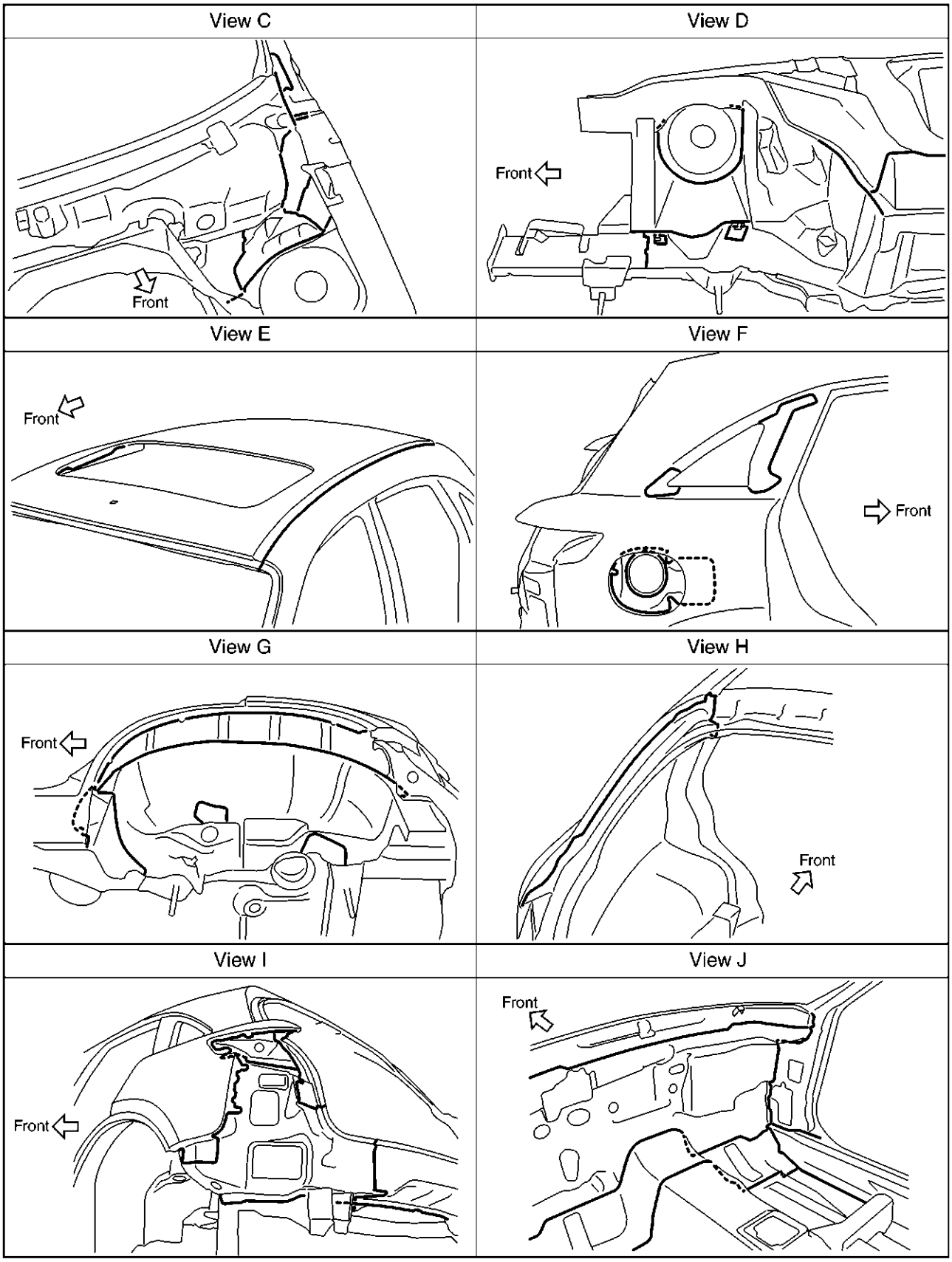
DESCRIPTION

The following figure shows the areas which are sealed at the factory. Sealant which has been applied to these areas should be smooth and free from cuts or gaps. Care should be taken not to apply an excess amount of sealant and not to allow other unaffected parts to come into contact with the sealant.

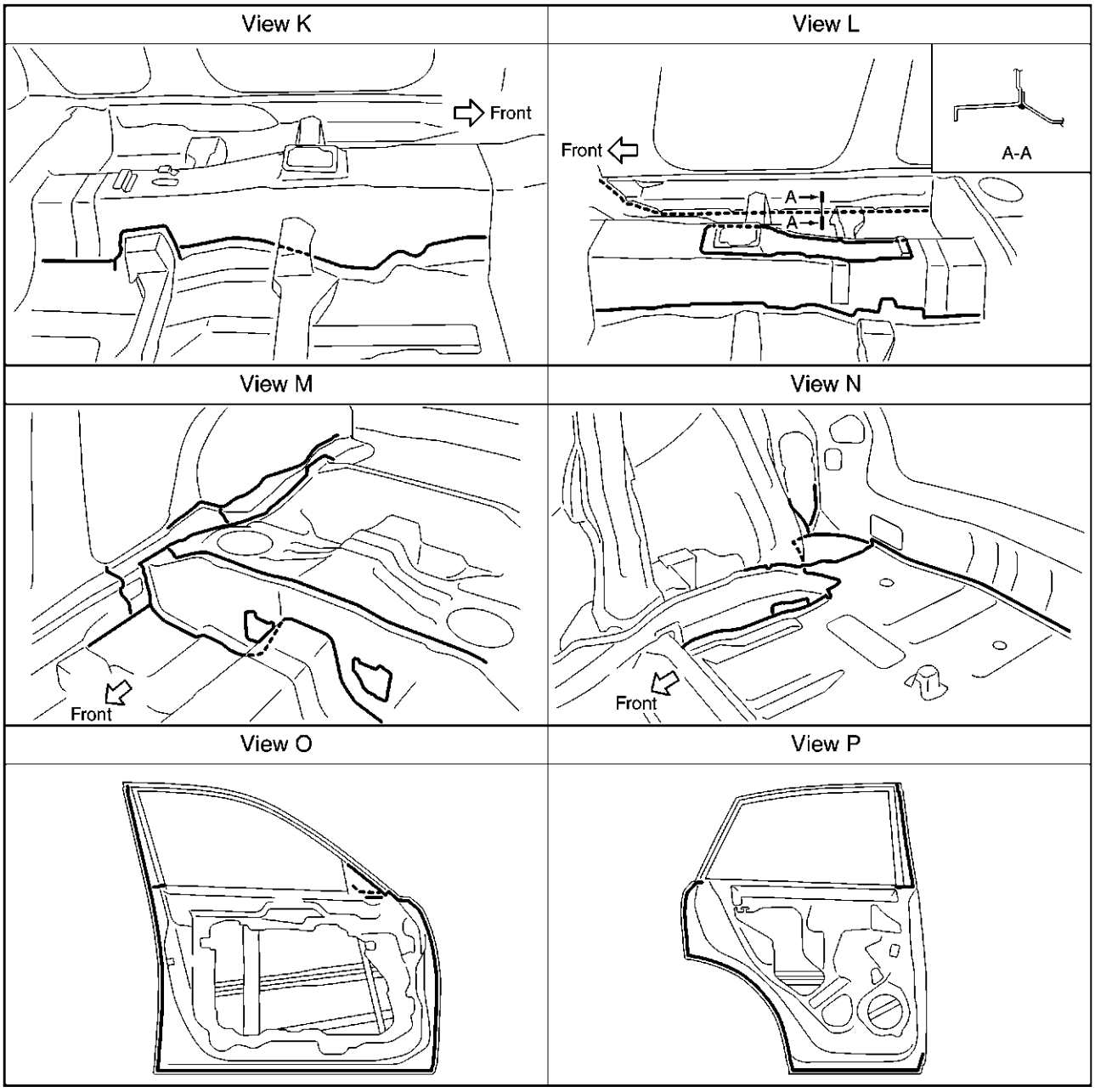




SIIA2254E


View C
Front
View D
Front
View E
Front
View F
Front
View G
Front
View H
Front
View I
Front
View J
Front

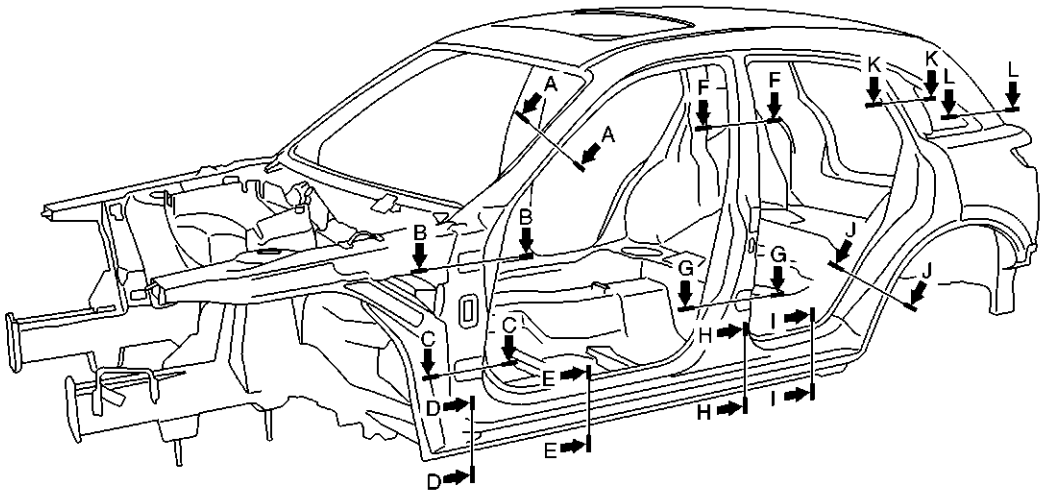
SIIA2255E

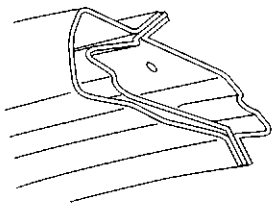
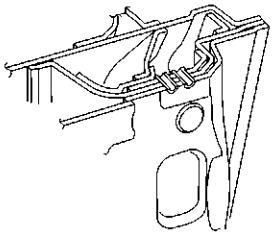
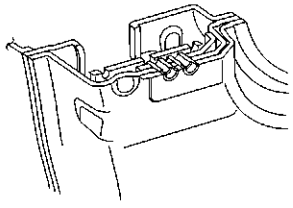
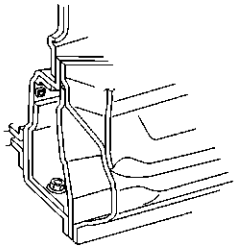
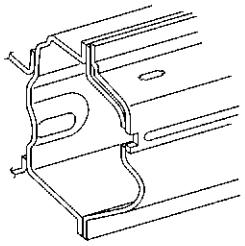
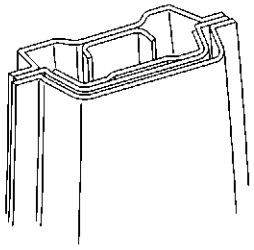
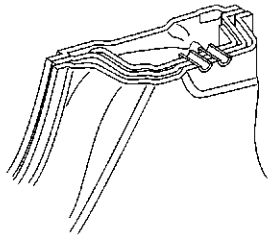
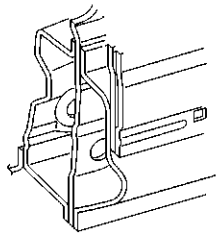
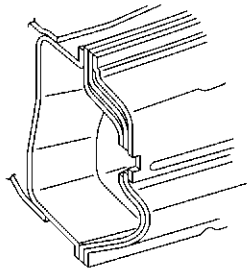
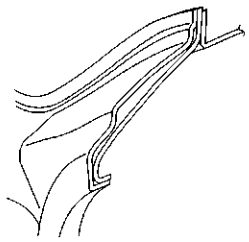
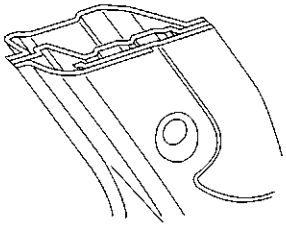
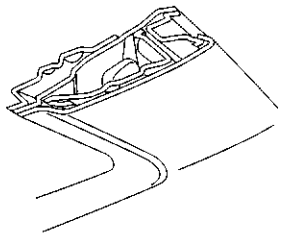

View K
Front
View L
Front
A-A
A
A
View M
Front
View N
Front
View O
View P

SIIA2256E

Body Construction
BODY CONSTRUCTION

AIS0061R



Section A-A	Section B-B	Section C-C	Section D-D
			
Section E-E	**Section F-F**	**Section G-G**	**Section H-H**
			
Section I-I	**Section J-J**	**Section K-K**	**Section L-L**
			

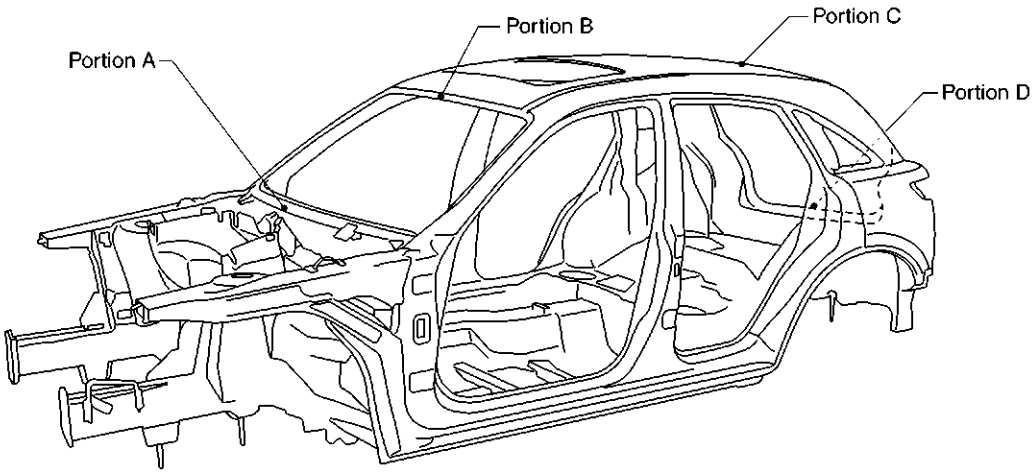
SIIA2257E

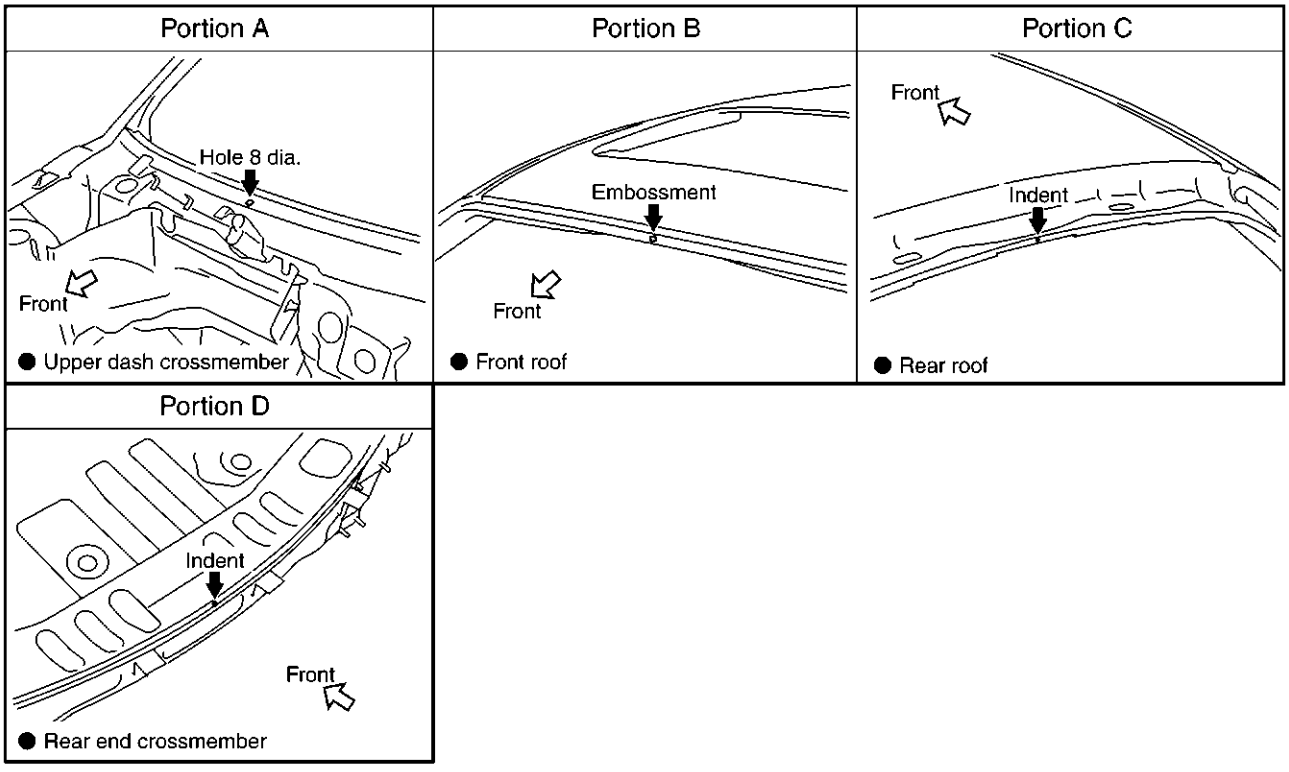
Body Alignment

AIS0061S

BODY CENTER MARKS

A mark has been placed on each part of the body to indicate the vehicle center. When repairing parts damaged by an accident which might affect the vehicle frame (members, pillars, etc.), more accurate and effective repair will be possible by using these marks together with body alignment specifications.

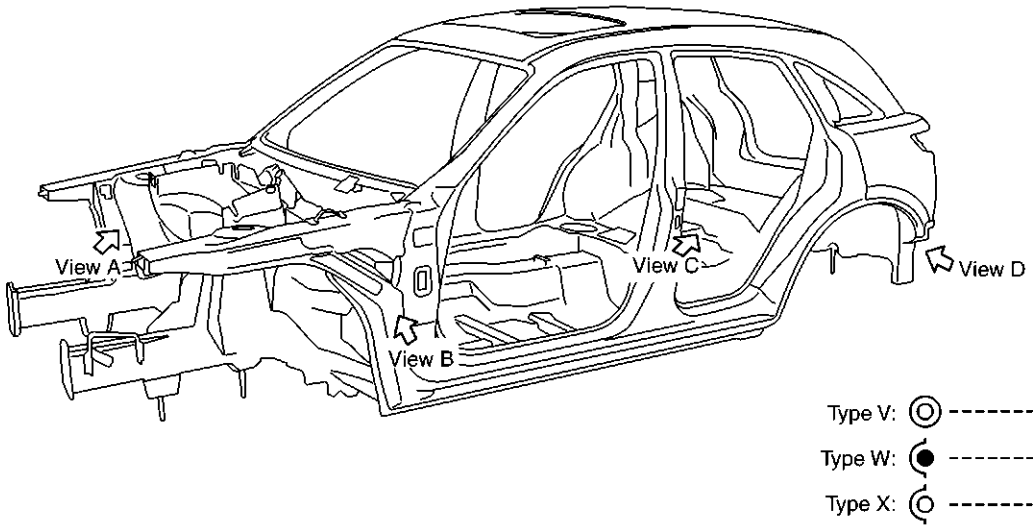


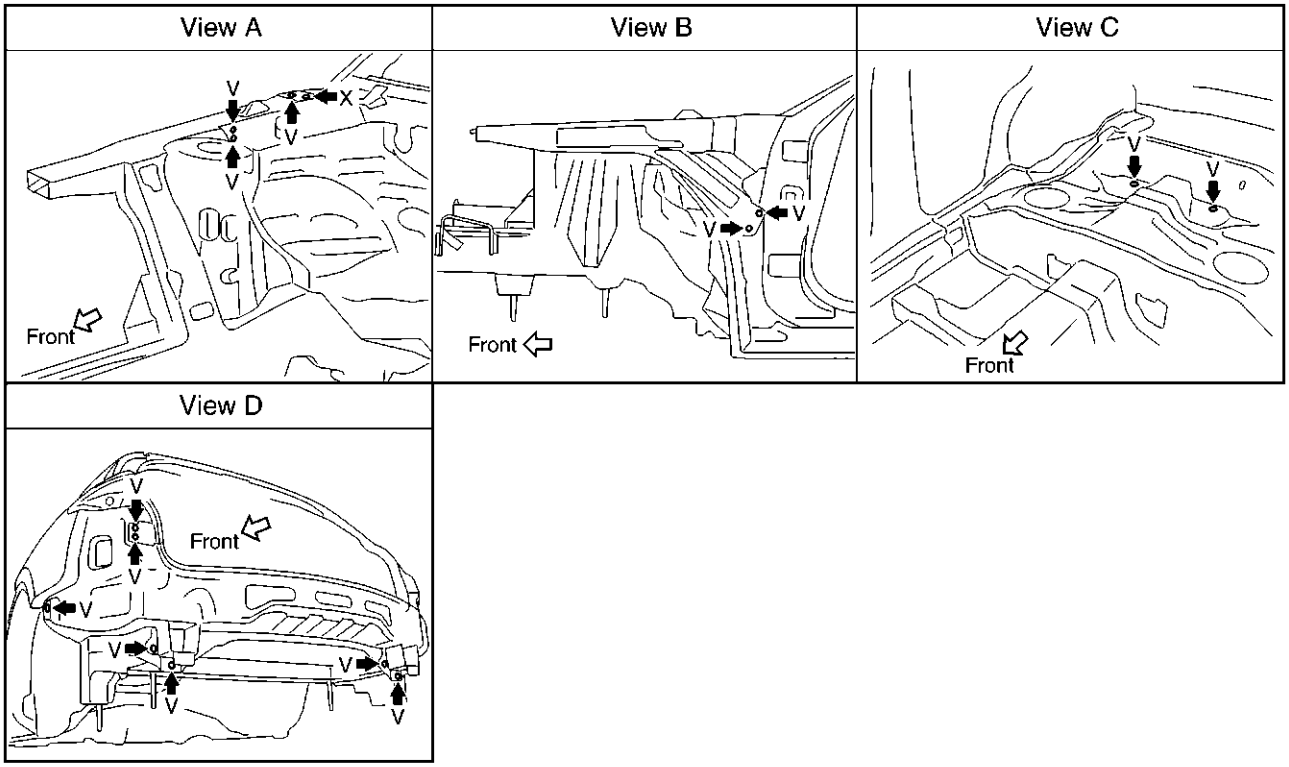


SIIA2258E

PANEL PARTS MATCHING MARKS

A mark has been placed on each body panel to indicate the parts matching positions. When repairing parts damaged by an accident which might affect the vehicle structure (members, pillars, etc.), more accurate and effective repair will be possible by using these marks together with body alignment specifications.

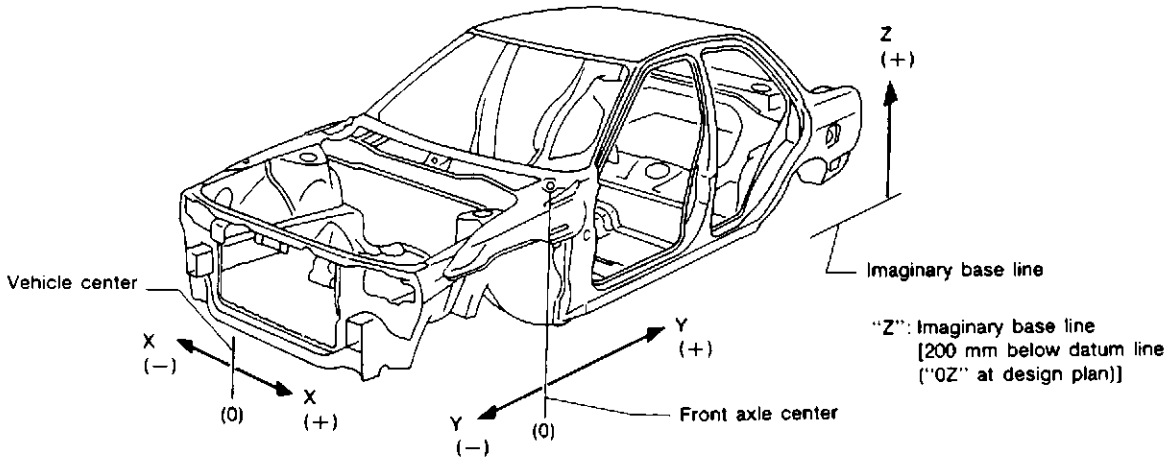




SIIA2259E

DESCRIPTION

- All dimensions indicated in the figures are actual.
- When using a tracking gauge, adjust both pointers to equal length. Then check the pointers and gauge itself to make sure there is no free play.
- When a measuring tape is used, check to be sure there is no elongation, twisting or bending.
- Measurements should be taken at the center of the mounting holes.
- An asterisk (*) following the value at the measuring point indicates that the measuring point on the other side is symmetrically the same value.
- The coordinates of the measurement points are the distances measured from the standard line of ″X″, ″Y″ and ″Z″.

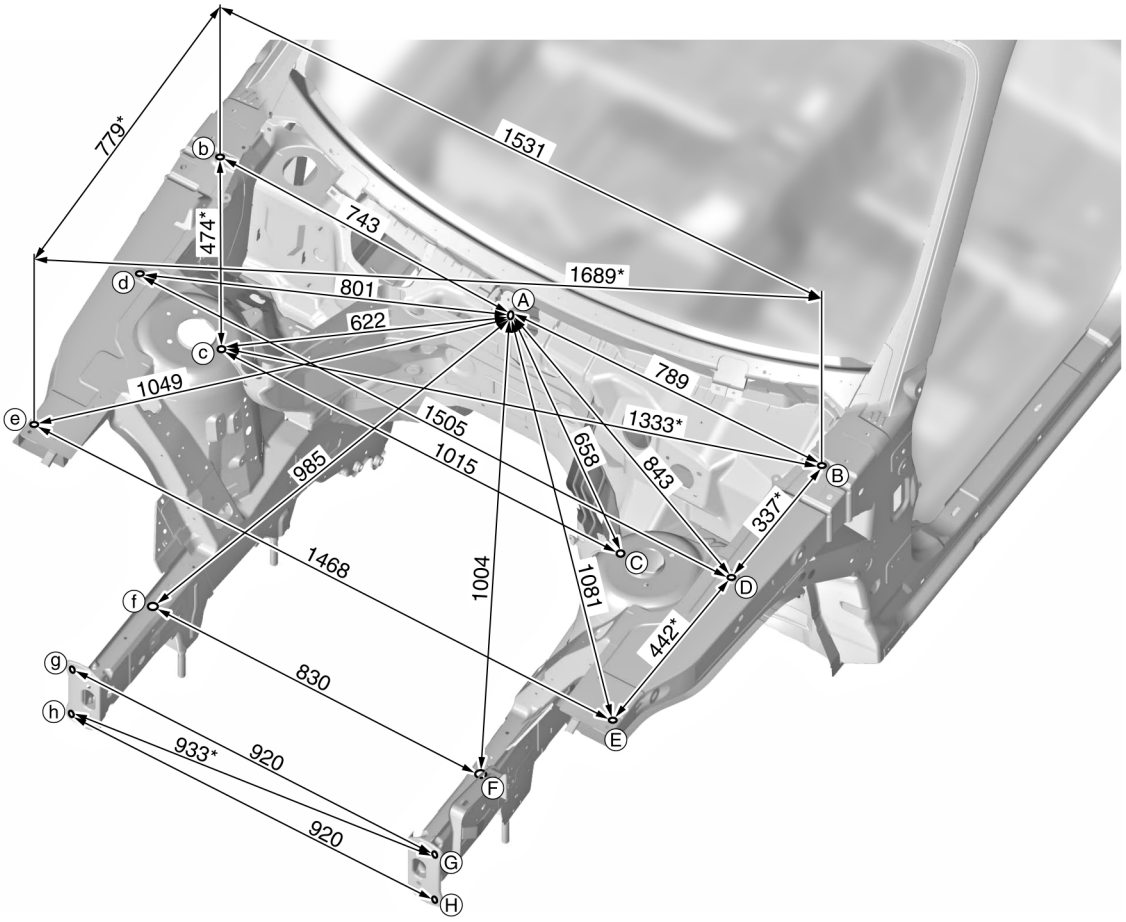


ENGINE COMPARTMENT

Measurement

Figures marked with a (*) indicate symmetrically identical dimensions on both right and left hand sides of the vehicle.

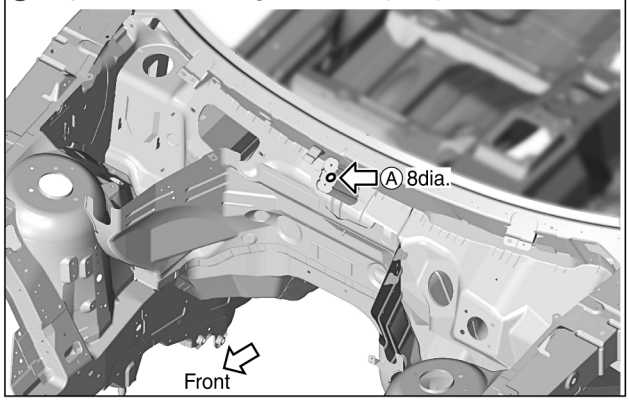
Unit : mm



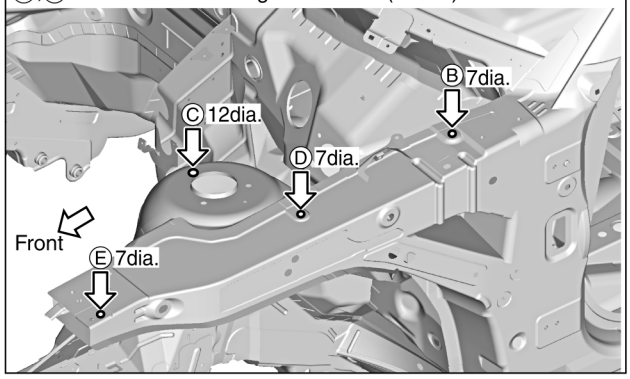
SIIA2260E

Measurement points

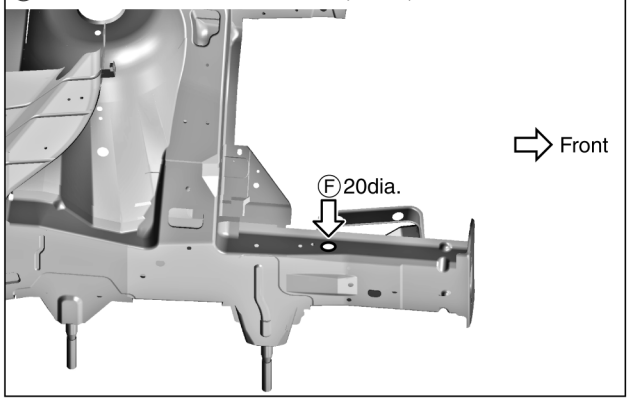
Ⓐ : Wiper bracket installing hole center (8dia.)



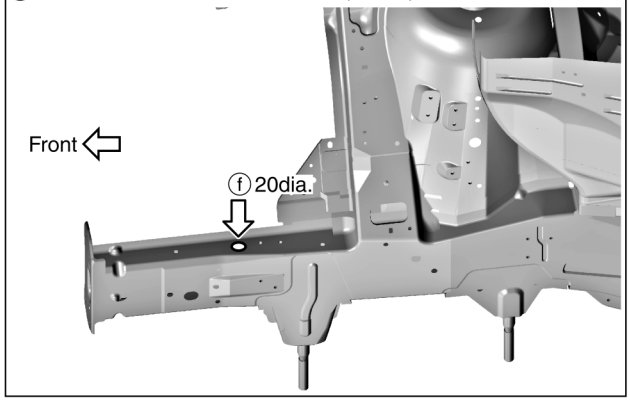
Ⓑ,ⓑ,Ⓓ,ⓓ,Ⓔ,ⓔ : Front fender installing hole center (7dia.)
Ⓒ,ⓒ : Front strut installing hole center (12dia.)



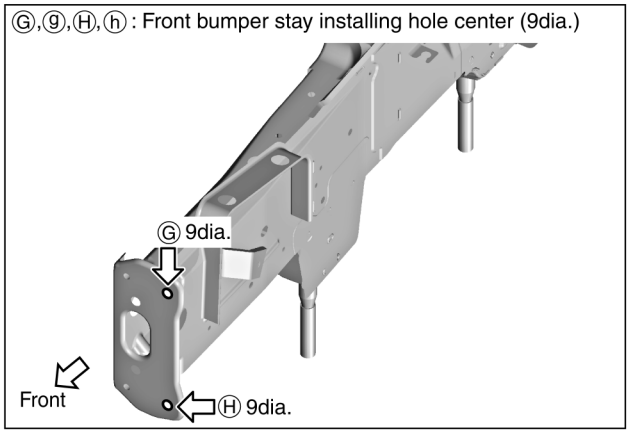
Ⓕ: Front side member hole center (20dia.)



ⓕ : Front side member hole center (20dia.)



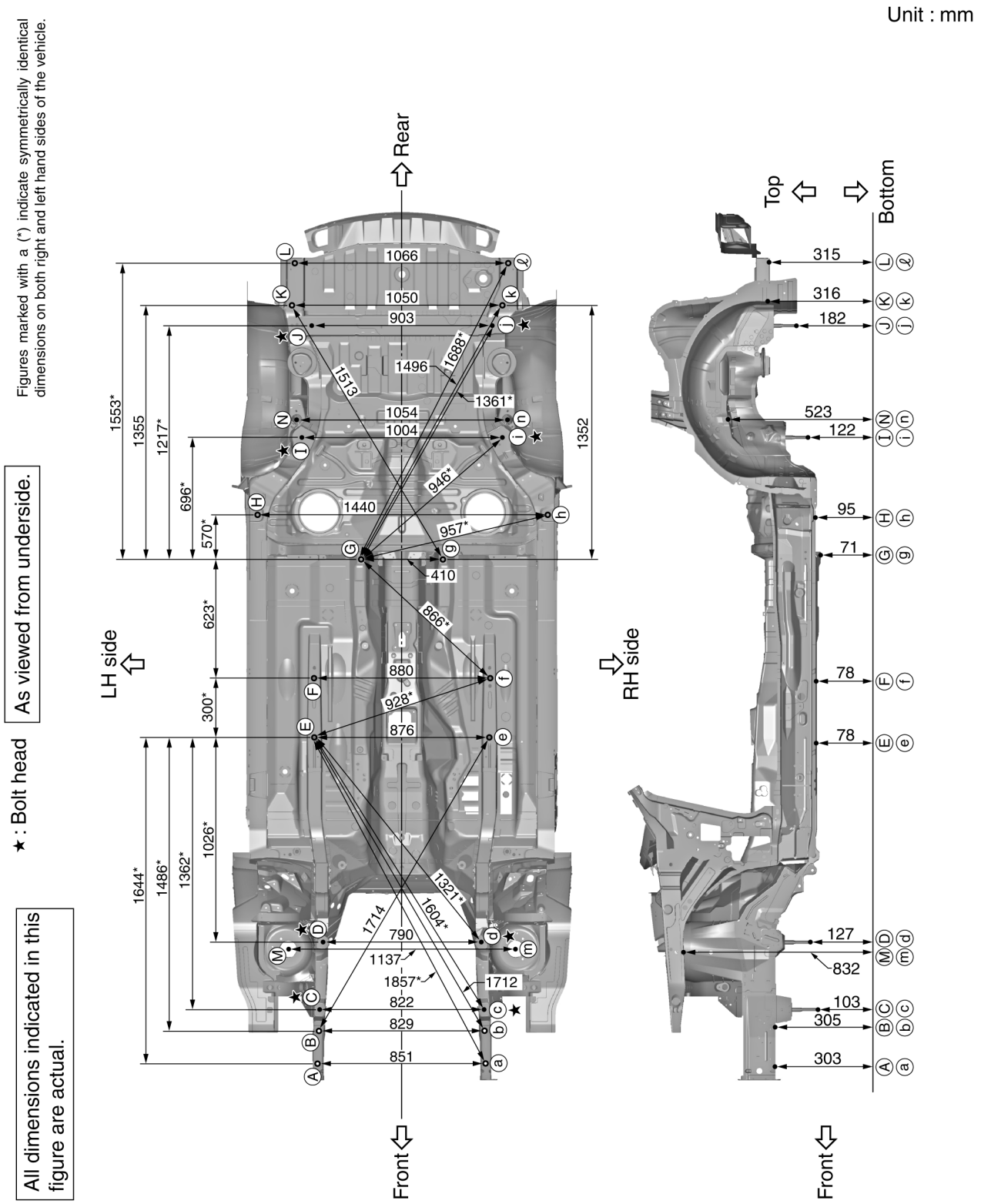
Ⓖ,ⓖ,Ⓗ,ⓗ : Front bumper stay installing hole center (9dia.)



SIIA2261E

UNDERBODY
Measurement

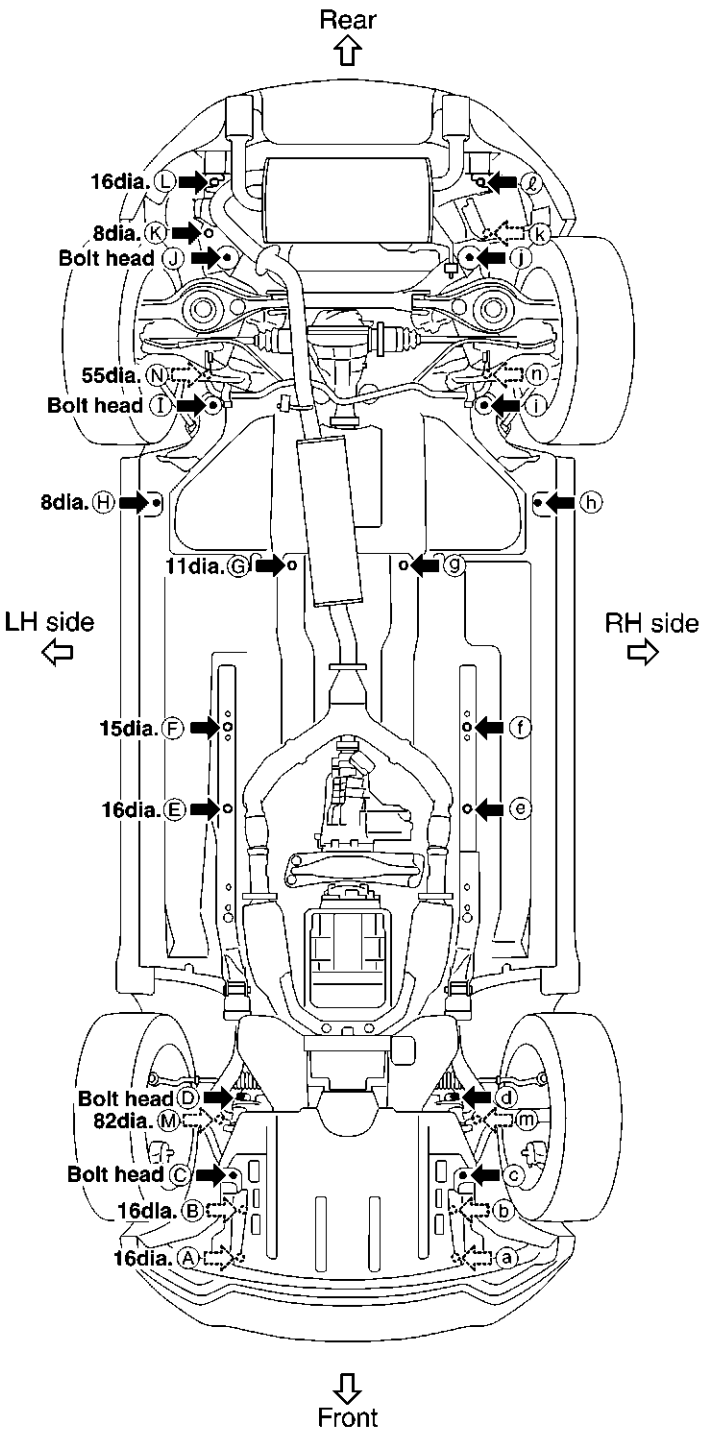
Unit : mm



Measurement points

Unit : mm

As viewed from underside.



Coordinates:

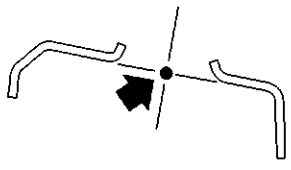
Ⓐ,ⓐ	Ⓗ,ⓗ
X:426	X:720
Y:-528	Y:2220
Z:303	Z:95
Ⓑ	Ⓘ,ⓘ
X:416	X:502
Y:-368	Y:2604
Z:305	Z:122
ⓑ	Ⓙ,ⓙ
X:-413	X:452
Y:-368	Y:3164
Z:305	Z:182
Ⓒ,ⓒ	Ⓚ
X:411	X:550
Y:-261	Y:3265
Z:103	Z:316
Ⓓ,ⓓ	ⓚ
X:395	X:-500
Y:76	Y:3273
Z:127	Z:316
Ⓔ,ⓔ	Ⓛ,ⓛ
X:438	X:533
Y:1100	Y:3475
Z:78	Z:315
Ⓕ,ⓕ	
X:440	
Y:1400	
Z:78	
Ⓖ,ⓖ	
X:205	
Y:1977	
Z:71	

Front and rear strut tower centers

Coordinates:

Ⓜ,ⓜ
X:568
Y:43
Z:832

Ⓝ,ⓝ
X:527
Y:2691
Z:523



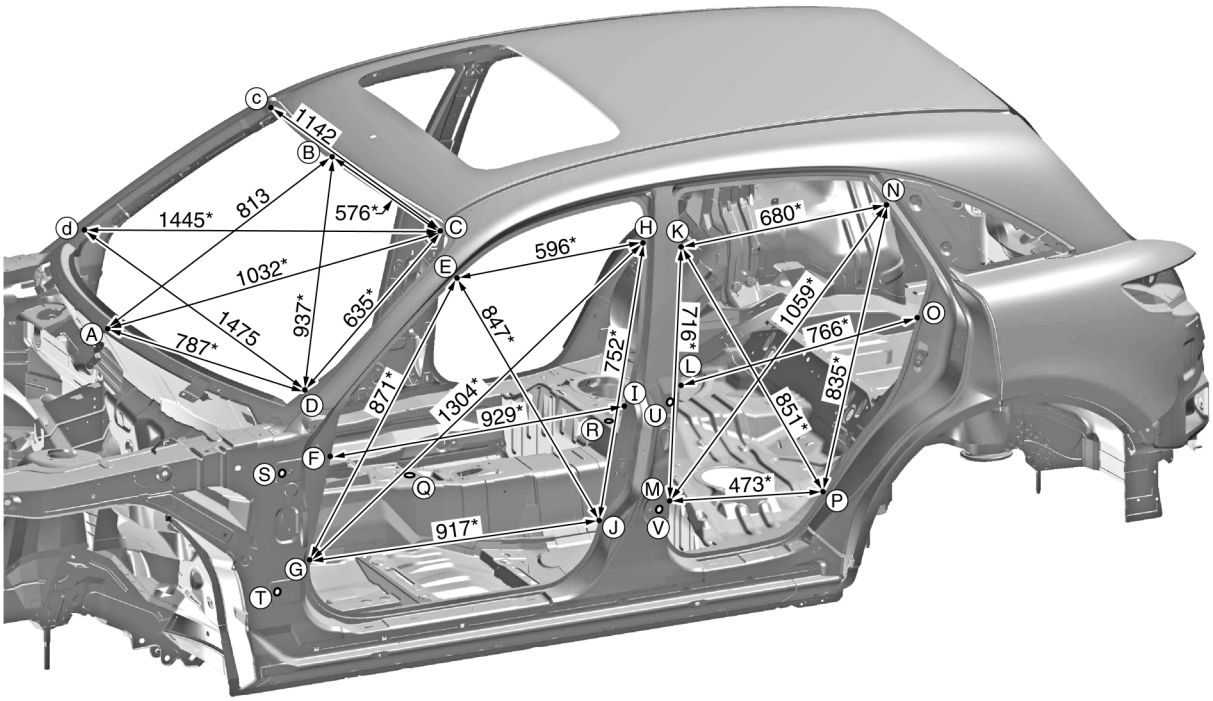
Front: Ⓜ,ⓜ **82dia.**
Front: Ⓝ,ⓝ **55dia.**

SIIA2263E

PASSENGER COMPARTMENT
Measurement

Unit : mm

Figures marked with a (*) indicate symmetrically identical dimensions on both right and left hand sides of the vehicle.

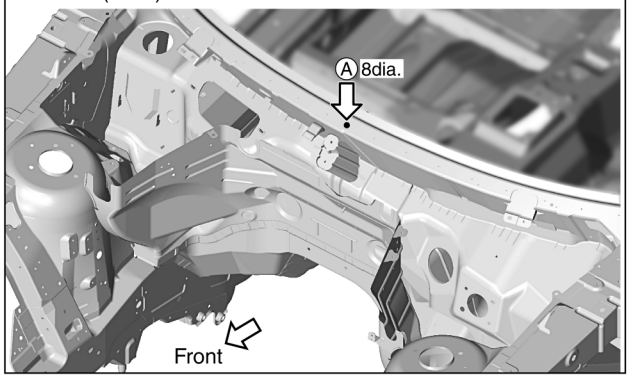


Point	Dimension	Point	Dimension	Point	Dimension
Ⓔ~ⓔ	1,352	Ⓚ~ⓝ	1,524*	Ⓠ~Ⓘ	950*
Ⓔ~ⓖ	1,692*	Ⓚ~ⓟ	1,719*	Ⓠ~Ⓙ	820*
Ⓔ~ⓗ	1,485*	Ⓛ~ⓛ	1,556	Ⓡ~Ⓚ	1,035*
Ⓔ~ⓙ	1,680*	Ⓜ~ⓜ	1,556	Ⓡ~Ⓛ	885*
Ⓕ~ⓕ	1,556	Ⓜ~ⓝ	1,788*	Ⓡ~Ⓜ	805*
Ⓖ~ⓖ	1,556	Ⓜ~ⓟ	1,647*	Ⓡ~Ⓝ	1,168*
Ⓖ~ⓗ	1,957*	Ⓝ~ⓝ	1,334	Ⓡ~Ⓞ	1,077*
Ⓖ~ⓙ	1,807*	Ⓝ~ⓟ	1,682*	Ⓡ~Ⓟ	845*
Ⓗ~ⓗ	1,369	Ⓞ~ⓞ	1,516	Ⓢ~Ⓤ	1,218*
Ⓗ~ⓙ	1,642*	Ⓟ~ⓟ	1,599	Ⓢ~Ⓥ	1,220*
Ⓘ~ⓘ	1,556	Ⓠ~Ⓔ	1,097*	Ⓣ~Ⓤ	1,294*
Ⓙ~ⓙ	1,556	Ⓠ~Ⓕ	1,081*	Ⓣ~Ⓥ	1,204*
Ⓚ~ⓚ	1,395	Ⓠ~Ⓖ	1,046*		
Ⓚ~ⓜ	1,638*	Ⓠ~Ⓗ	1,157*		

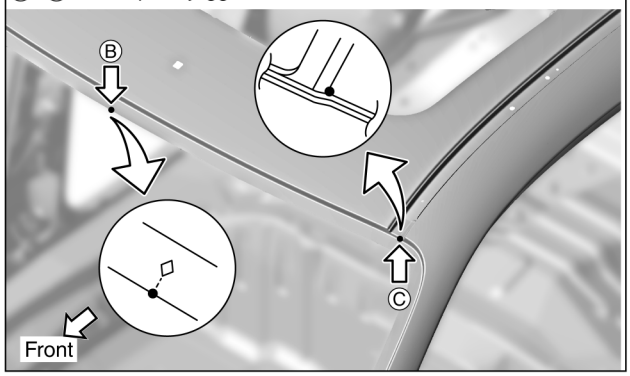
SIIA2264E

Measurement points

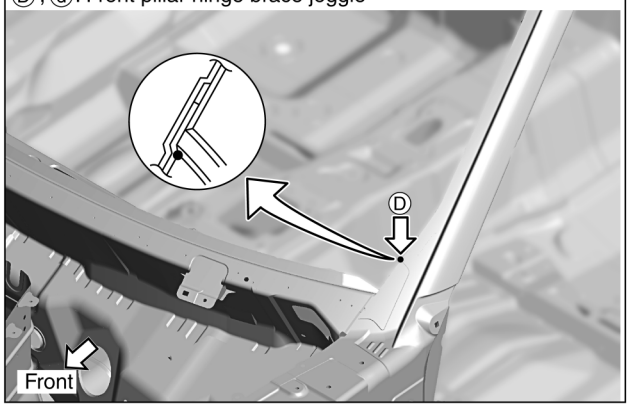
Ⓐ : Upper dash crossmember hole center of center positioning mark (8dia.)



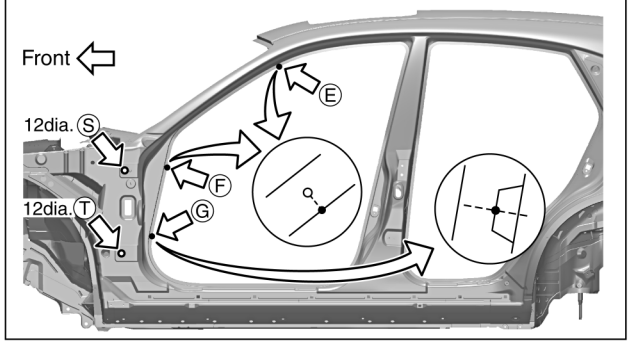
Ⓑ : Front roof flange end of center positioning mark
Ⓒ , ⓒ : Front pillar joggle



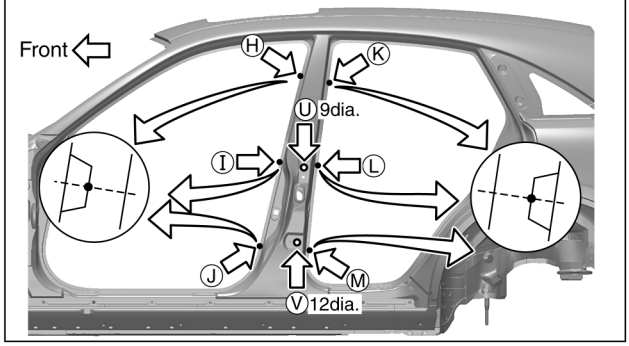
Ⓓ , ⓓ : Front pillar hinge brace joggle



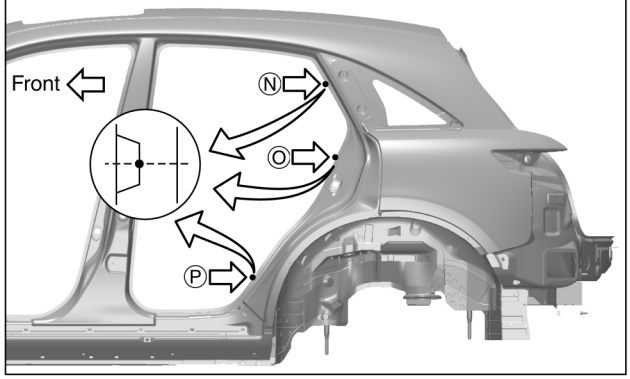
Ⓔ,ⓔ,Ⓕ,ⓕ: Front pillar flange end
Ⓖ,ⓖ: Front pillar indent
Ⓢ,ⓢ,Ⓣ,ⓣ: Door hinge installing nut center (12dia.)



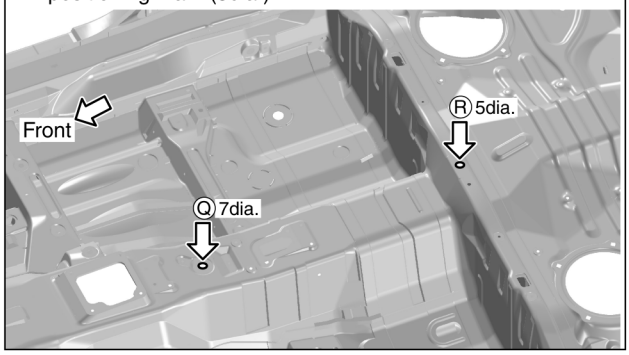
Ⓗ,ⓗ,Ⓘ,ⓘ,Ⓙ,ⓙ,Ⓚ,ⓚ,Ⓛ,ⓛ,Ⓜ,ⓜ : Center pillar indent
Ⓤ,ⓤ,Ⓥ,ⓥ : Door hinge installing nut center
(Ⓤ,ⓤ : 9dia. , Ⓥ,ⓥ : 12dia.)



Ⓝ,ⓝ,Ⓞ,ⓞ,Ⓟ,ⓟ : Rear fender indent



Ⓠ: Front floor center hole center of center positioning mark (7dia.)
Ⓡ: Lower rear seat crossmember hole center of center positioning mark (5dia.)

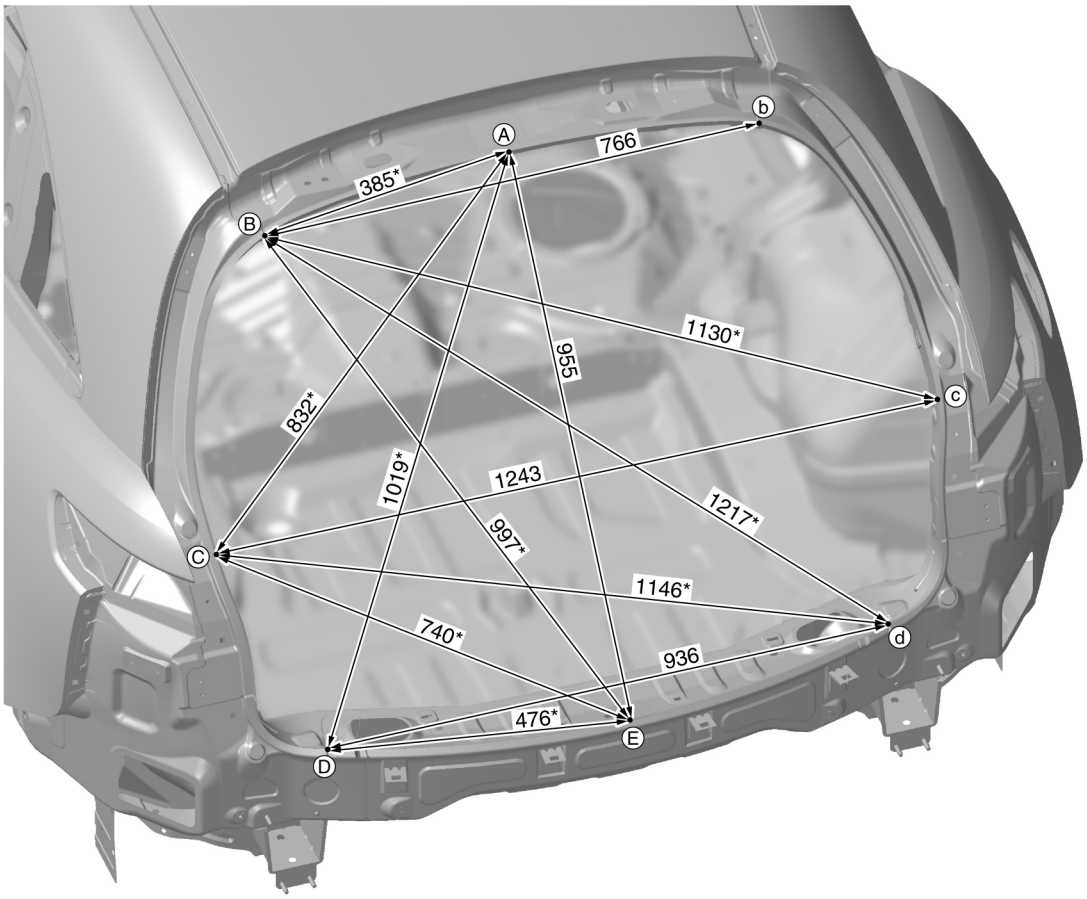


SIIA2265E

REAR BODY
Measurement

Figures marked with a (*) indicate symmetrically identical dimensions on both right and left hand sides of the vehicle.

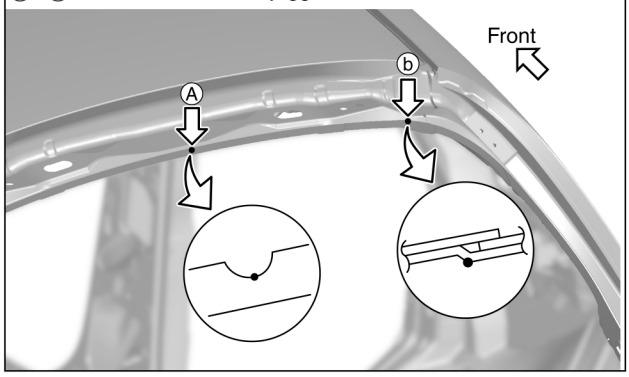
Unit : mm



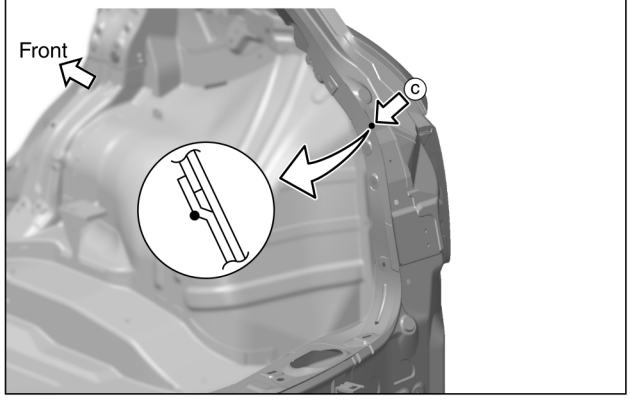
SIIA2266E

Measurement points

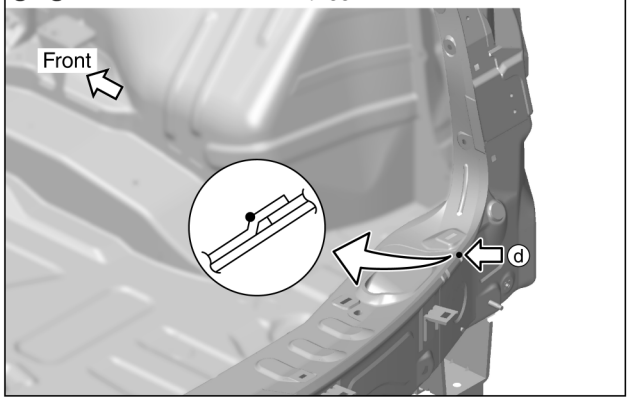
Ⓐ : Rear roof indent of center positioning mark
Ⓑ , ⓑ : Rear roof rail brace joggle



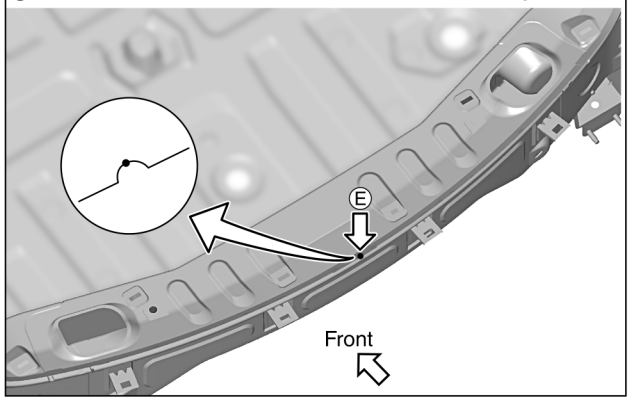
Ⓒ , ⓒ : Inner back pillar extension joggle



Ⓓ , ⓓ : Rear end crossmember joggle



Ⓔ : Rear end crossmember indent of center positioning mark



SIIA2390E

Handling Precautions For Plastics

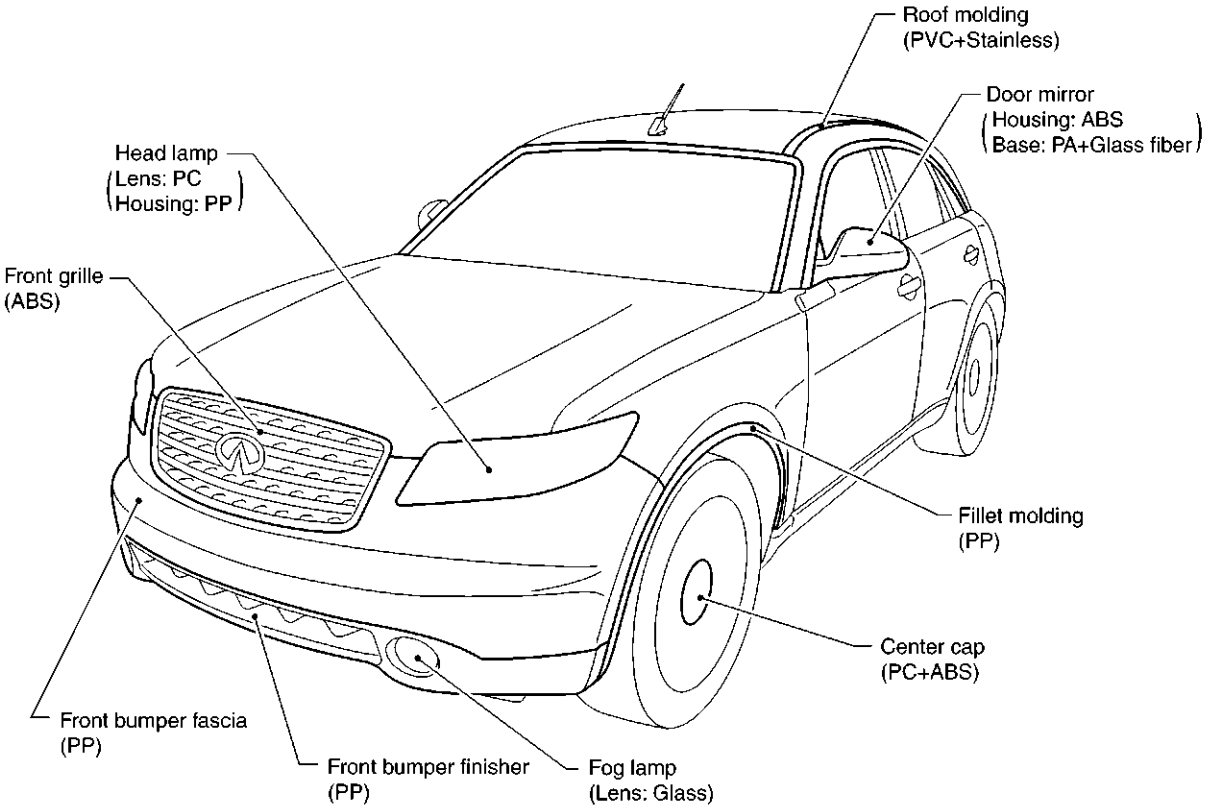
AIS0061T

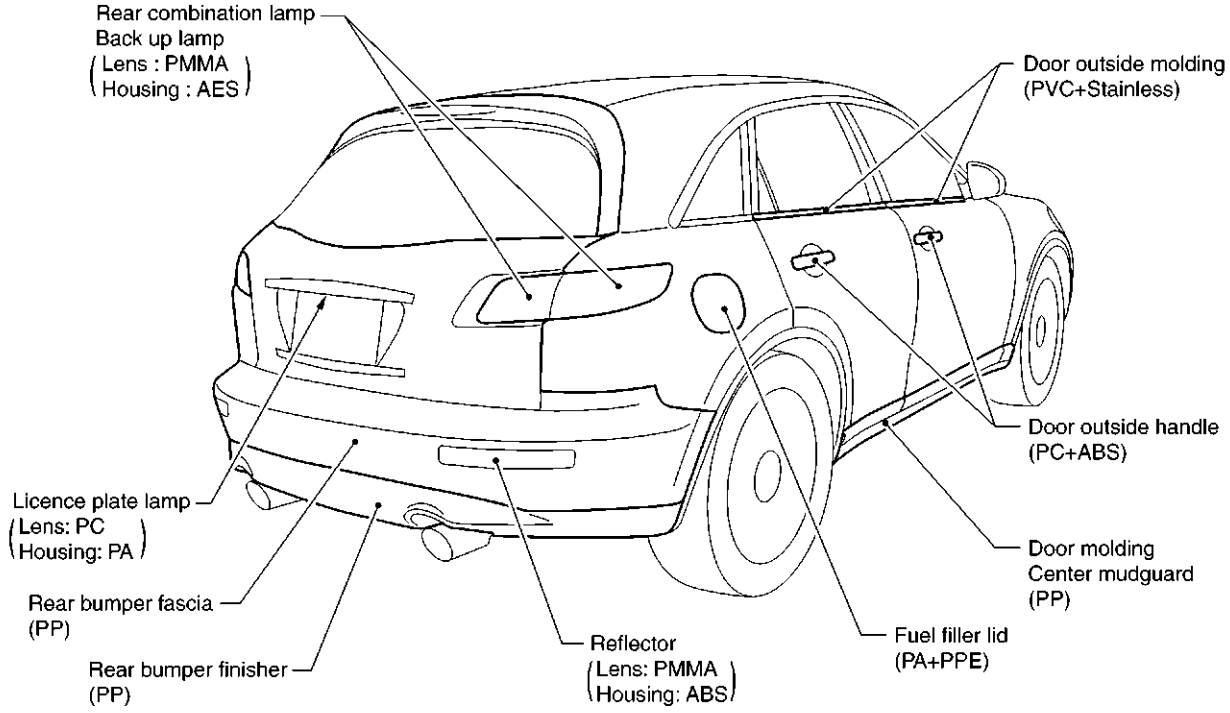
HANDLING PRECAUTIONS FOR PLASTICS

Abbre-viation	Material name	Heat resisting temperature °C(°F)	Resistance to gasoline and solvents	Other cautions
PE	Polyethylene	60(140)	Gasoline and most solvents are harmless if applied for a very short time (wipe up quickly).	Flammable
PVC	Poly Vinyl Chloride	80(176)	Same as above.	Poison gas is emitted when burned.
EPM/ EPDM	Ethylene Propylene (Diene) copolymer	80(176)	Same as above.	Flammable
PP	Polypropylene	90(194)	Same as above.	Flammable, avoid battery acid.
UP	Unsaturated Polyester	90(194)	Same as above.	Flammable
PS	Polystyrene	80(176)	Avoid solvents.	Flammable
ABS	Acrylonitrile Butadiene Styrene	80(176)	Avoid gasoline and solvents.	
AES	Acrylonitrile Ethylene Styrene	80(176)	Same as above.	
PMMA	Poly Methyl Methacrylate	85(185)	Same as above.	
EVAC	Ethylene Vinyl Acetate	90(194)	Same as above.	
ASA	Acrylonitrile Styrene Acrylate	100(222)	Same as above.	Flammable
PPE	Poly Phenylene Ether	110(230)	Same as above.	
PC	Polycarbonate	120(248)	Same as above.	
PAR	Polyarylate	180(356)	Same as above.	
PUR	Polyurethane	90(194)	Same as above.	
POM	Poly Oxymethylene	120(248)	Same as above.	Avoid battery acid.
PBT+ PC	Poly Butylene Terephthalate + Polycarbonate	120(248)	Same as above.	Flammable
PA	Polyamide	140(284)	Same as above.	Avoid immersing in water.
PBT	Poly Butylene Terephthalate	140(284)	Same as above.	
PET	Polyester	180(356)	Same as above.	
PEI	Polyetherimide	200(392)	Same as above.	

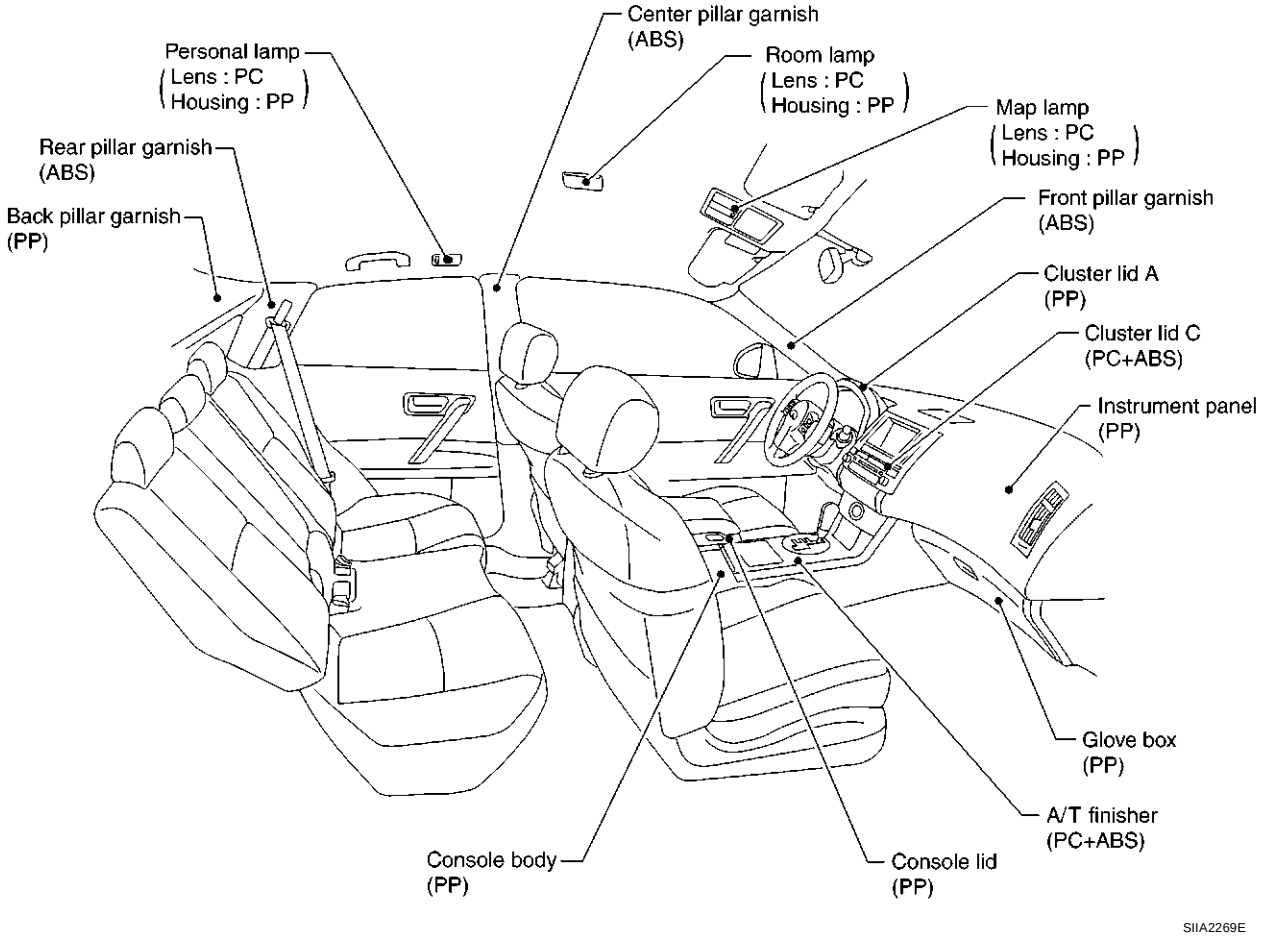
1. When repairing and painting a portion of the body adjacent to plastic parts, consider their characteristics (influence of heat and solvent) and remove them if necessary or take suitable measures to protect them.
2. Plastic parts should be repaired and painted using methods suiting the materials' characteristics.

LOCATION OF PLASTIC PARTS





SIIA2268E


Center pillar garnish
(ABS)
Personal lamp
(Lens : PC
Housing : PP)
Room lamp
(Lens : PC
Housing : PP)
Map lamp
(Lens : PC
Housing : PP)
Rear pillar garnish
(ABS)
Back pillar garnish
(PP)
Front pillar garnish
(ABS)
Cluster lid A
(PP)
Cluster lid C
(PC+ABS)
Instrument panel
(PP)
Glove box
(PP)
A/T finisher
(PC+ABS)
Console body
(PP)
Console lid
(PP)
SIIA2269E

Precautions In Repairing High Strength Steel

AIS0061U

High strength steel is used for body panels in order to reduce vehicle weight.
Accordingly, precautions in repairing automotive bodies made of high strength steel are described below:

HIGH STRENGTH STEEL (HSS) USED IN NISSAN VEHICLES

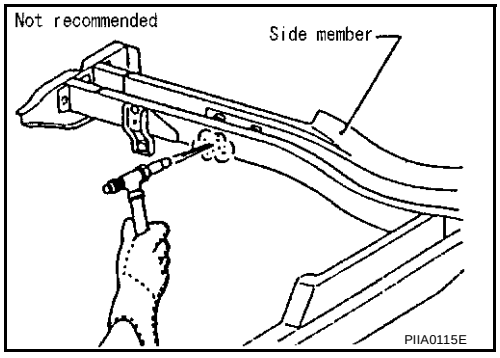
Tensile strength	Nissan/Infiniti designation	Major applicable parts
373 N/mm^2 (38kg/mm^2 ,54klb/sq in)	SP130	● Front & rear side member assembly ● Hoodledge assembly ● Lower dash ● Hood ● Other reinforcements

SP130 is the most commonly used HSS.
SP150 HSS is used only on parts that require much more strength.

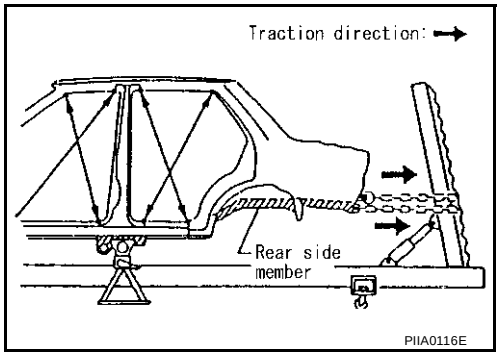
Read the following precautions when repairing HSS:

1. Additional points to consider

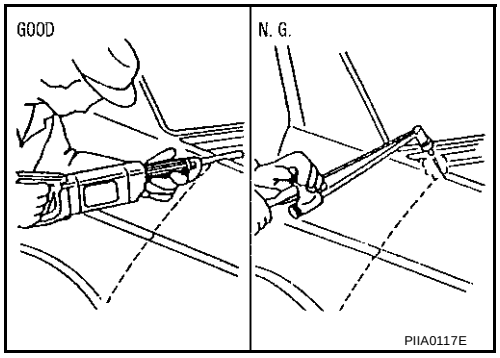
- The repair of reinforcements (such as side members) by heating is not recommended since it may weaken the component. When heating is unavoidable, do not heat HSS parts above 550°C (1,022°F).
  Verify heating temperature with a thermometer.
  (Crayon-type and other similar type thermometer are appropriate.)



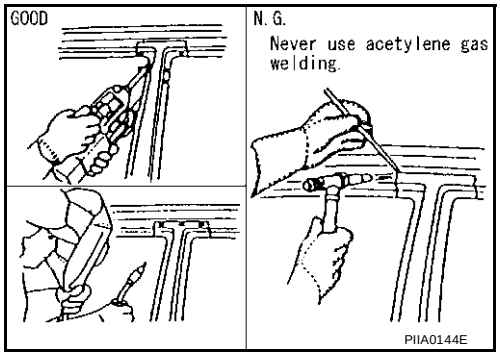
- When straightening body panels, use caution in pulling any HSS panel. Because HSS is very strong, pulling may cause deformation in adjacent portions of the body. In this case, increase the number of measuring points, and carefully pull the HSS panel.



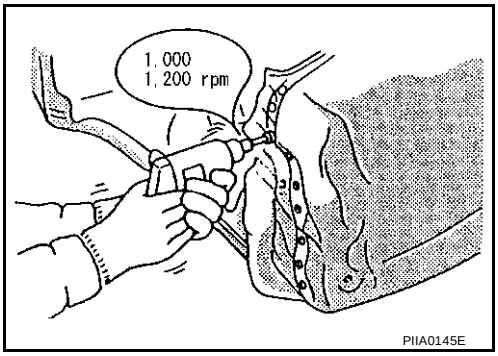
- When cutting HSS panels, avoid gas (torch) cutting if possible. Instead, use a saw to avoid weakening surrounding areas due to heat. If gas (torch) cutting is unavoidable, allow a minimum margin of 50 mm (1.97in).



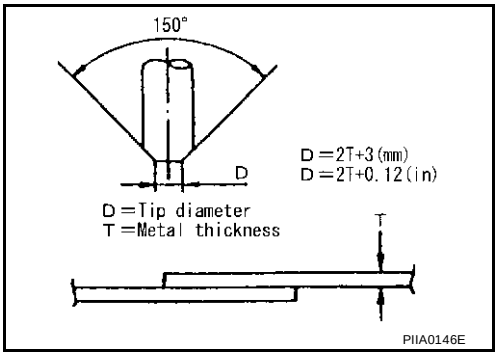
- When welding HSS panels, use spot welding whenever possible in order to minimize weakening surrounding areas due to heat.
  If spot welding is impossible, use M.I.G. welding. Do not use gas (torch) welding because it is inferior in welding strength.



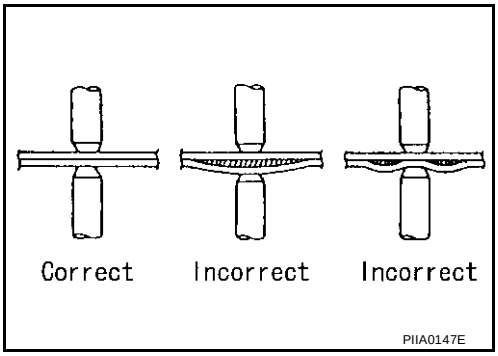
- The spot weld on HSS panels is harder than that of an ordinary steel panel.
  Therefore, when cutting spot welds on a HSS panel, use a low speed high torque drill (1,000 to 1,200 rpm) to increase drill bit durability and facilitate the operation.



2. Precautions in spot welding HSS
   This work should be performed under standard working conditions. Always note the following when spot welding HSS:
   - The electrode tip diameter must be sized properly according to the metal thickness.



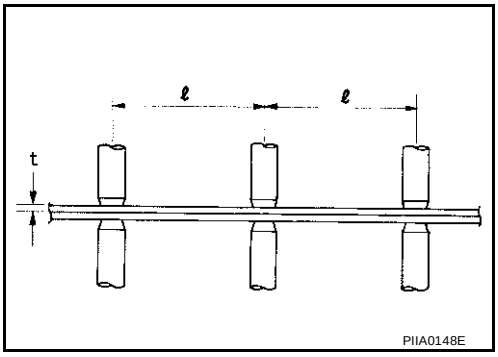
- The panel surfaces must fit flush to each other, leaving no gaps.



- Follow the specifications for the proper welding pitch.

Unit:mm

Thickness (t)	Minimum pitch (l)
0.6 (0.024)	10 (0.39) or over
0.8 (0.031)	12 (0.47) or over
1.0 (0.039)	18 (0.71) or over
1.2 (0.047)	20 (0.79) or over
1.6 (0.063)	27 (1.06) or over
1.8 (0.071)	31 (1.22) or over



Replacement Operations

AIS0061V

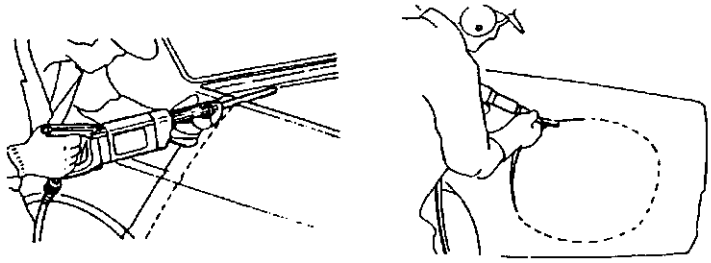
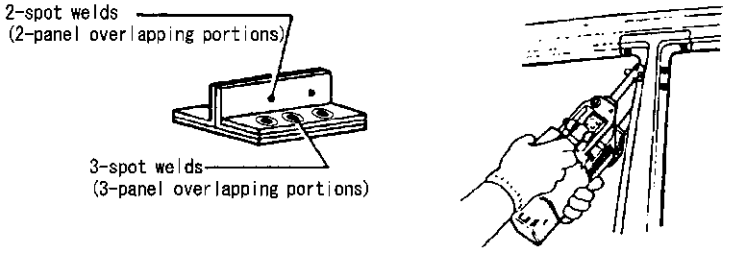
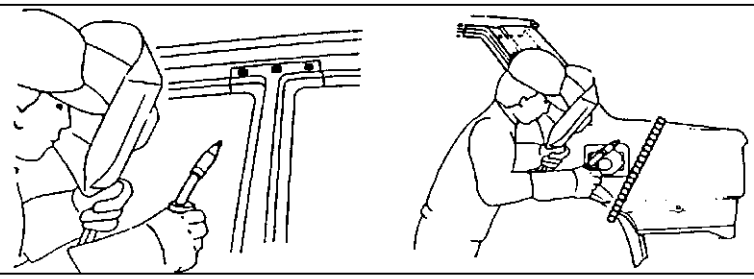
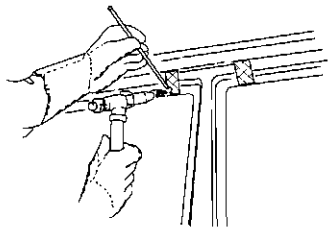
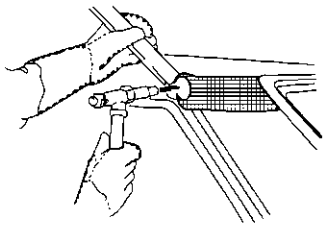
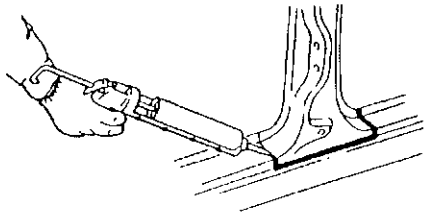
DESCRIPTION

This section is prepared for technicians who have attained a high level of skill and experience in repairing collision-damaged vehicles and also use modern service tools and equipment. Persons unfamiliar with body repair techniques should not attempt to repair collision-damaged vehicles by using this section.

Technicians are also encouraged to read Body Repair Manual (Fundamentals) in order to ensure that the original functions and quality of the vehicle can be maintained. The Body Repair Manual (Fundamentals) contains additional information, including cautions and warning, that are not including in this manual. Technicians should refer to both manuals to ensure proper repairs.

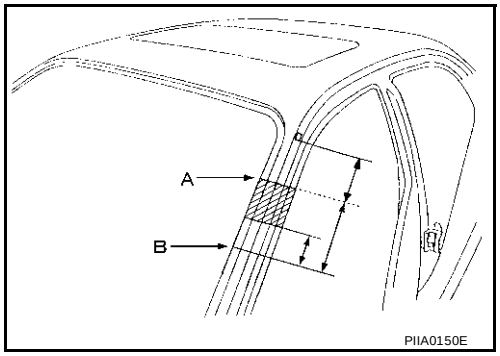
Please note that these information are prepared for worldwide usage, and as such, certain procedures might not apply in some regions or countries.

The symbols used in this section for cutting and welding / brazing operations are shown below.

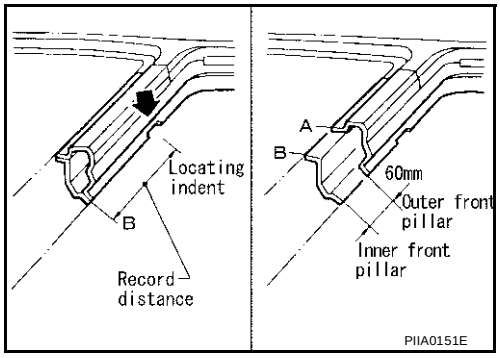
Saw cut or air chisel cut	
Spot weld 2-spot welds	
Spot weld 3-spot welds	
MIG plug weld	
MIG seam weld/ Point weld	
Brazing	
Soldering	
Sealing	

PIIA0149E

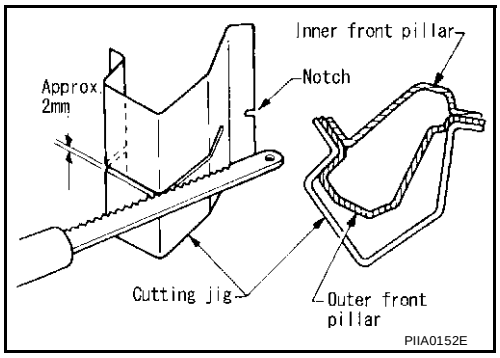
- Front pillar butt joint can be determined anywhere within shaded area as shown in the figure. The best location for the butt joint is at position A due to the construction of the vehicle. Refer to the front pillar section.



- Determine cutting position and record distance from the locating indent. Use this distance when cutting the service part. Cut outer front pillar over 60 mm above inner front pillar cut position.

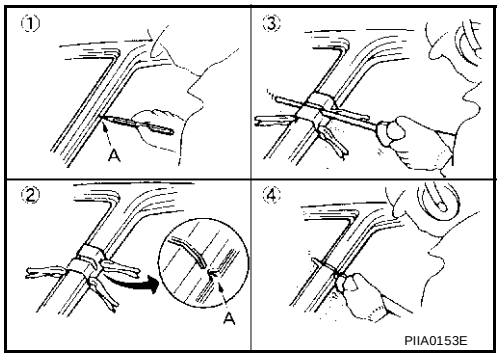


- Prepare a cutting jig to make outer pillar easier to cut. Also, this will permit service part to be accurately cut at joint position.

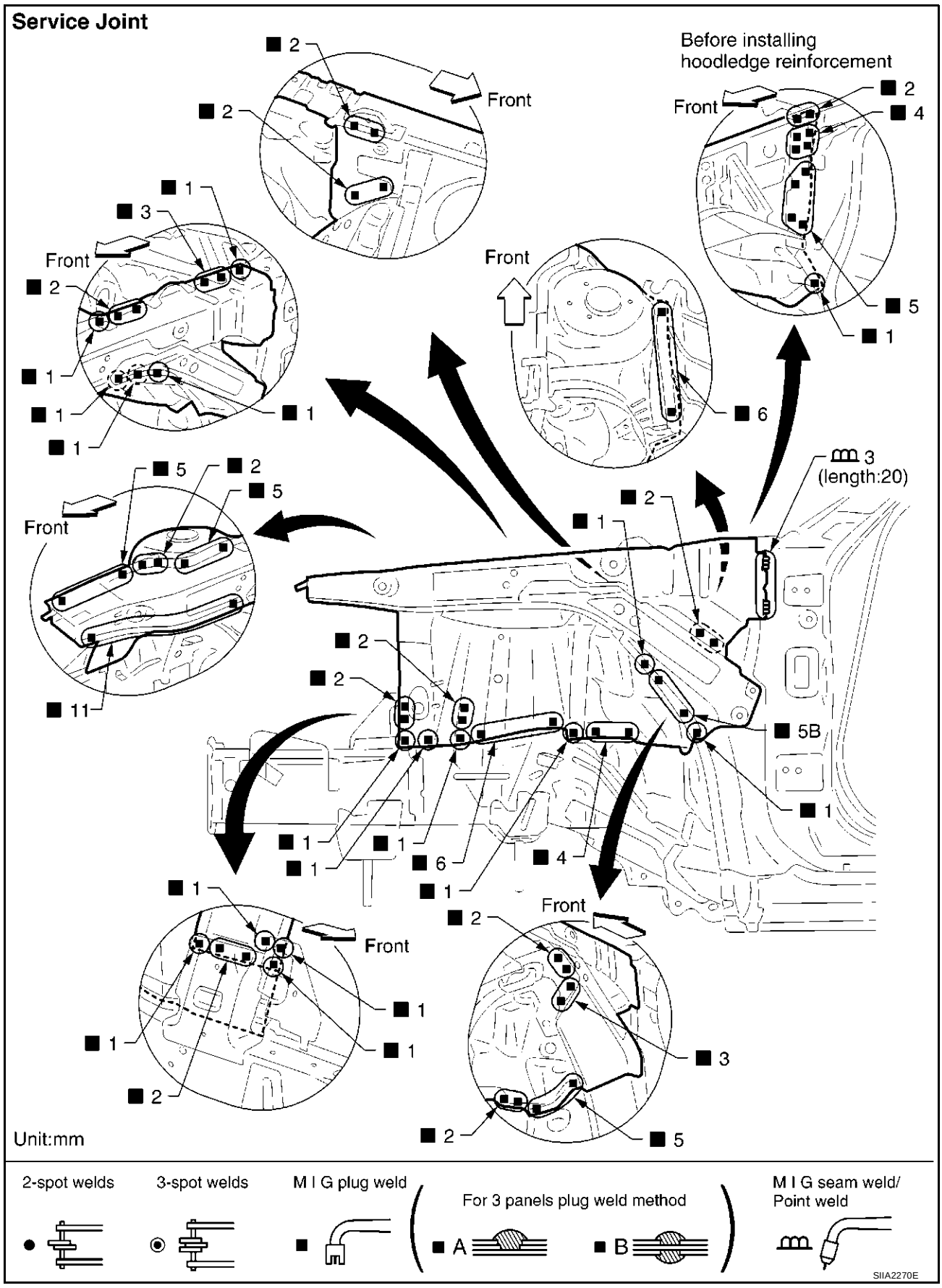


- An example of cutting operation using a cutting jig is as follows.

1. Mark cutting lines.
   A: Cut position of outer pillar
   B: Cut position of inner pillar
2. Align cutting line with notch on jig. Clamp jig to pillar.
3. Cut outer pillar along groove of jig. (At position A)
4. Remove jig and cut remaining portions.
5. Cut inner pillar at position B in same manner.



HOODLEDGE

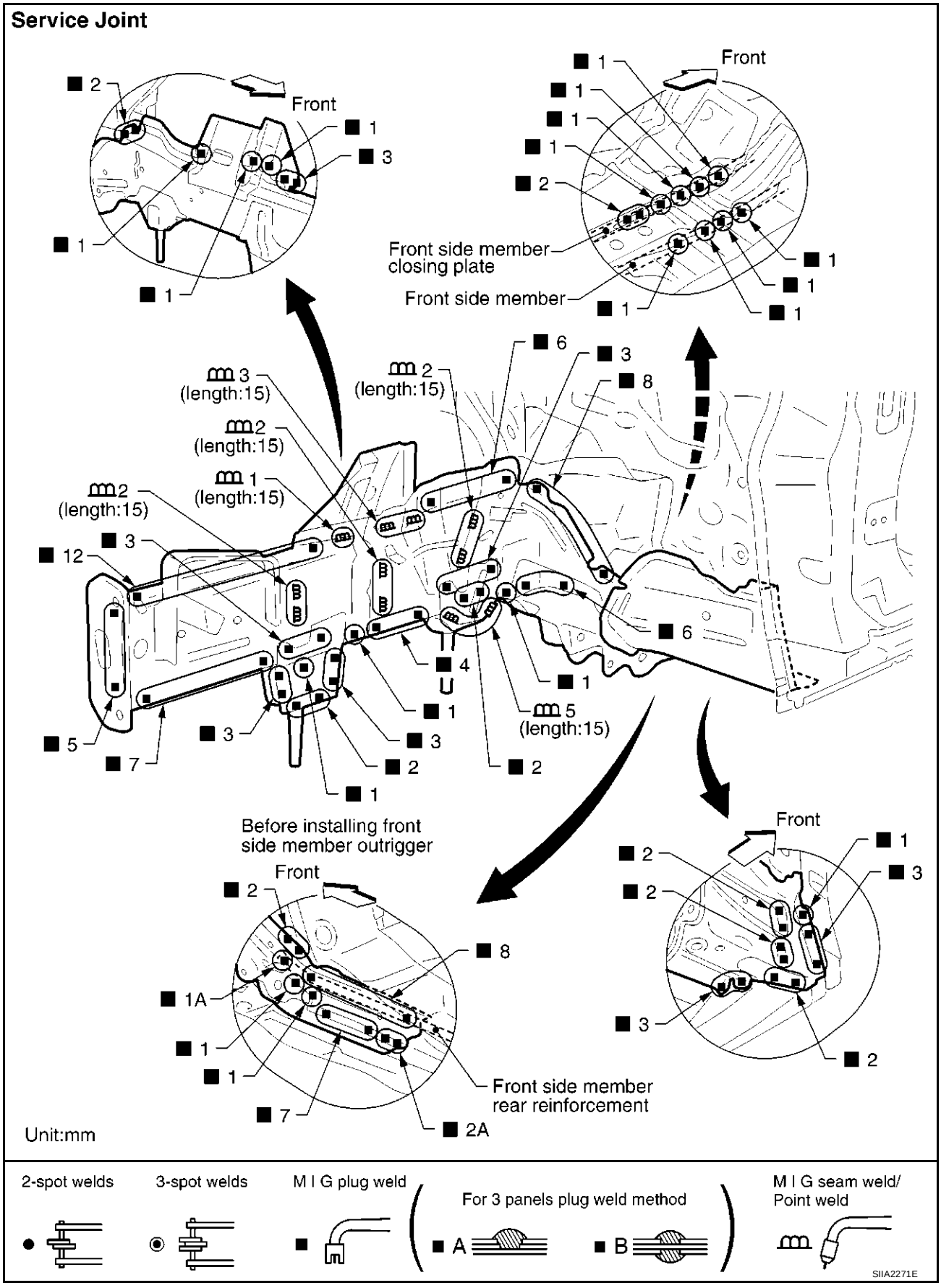

Service Joint
Before installing hoodledge reinforcement
Front
3 (length:20)
5B
11
Unit:mm
2-spot welds
3-spot welds
M I G plug weld
For 3 panels plug weld method
A
B
M I G seam weld/ Point weld
SIIA2270E

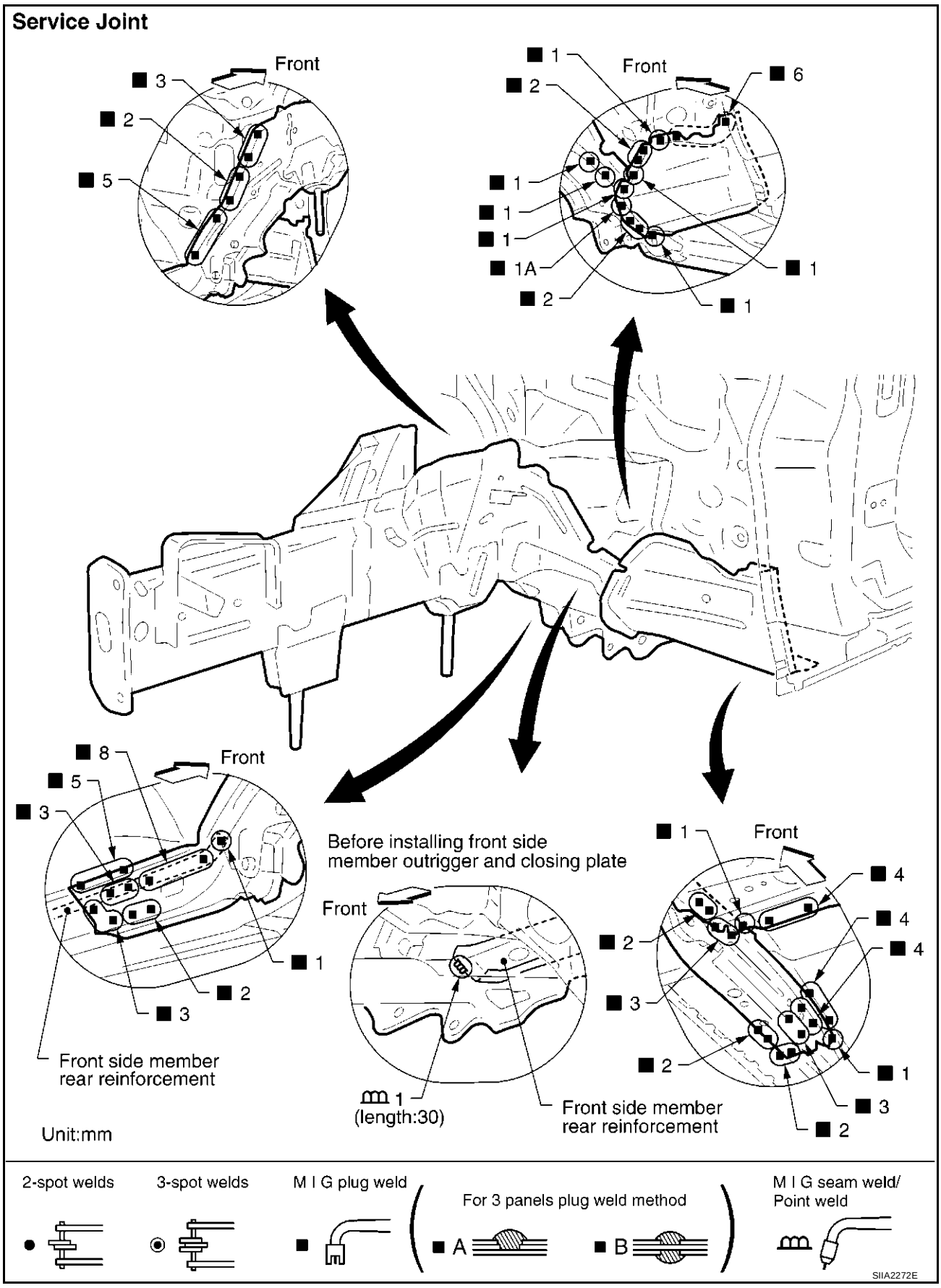
Change parts

- Hoodledge assembly (LH)
- Hoodledge reinforcement (LH)

FRONT SIDE MEMBER

- Work after hoodledge has been removed.





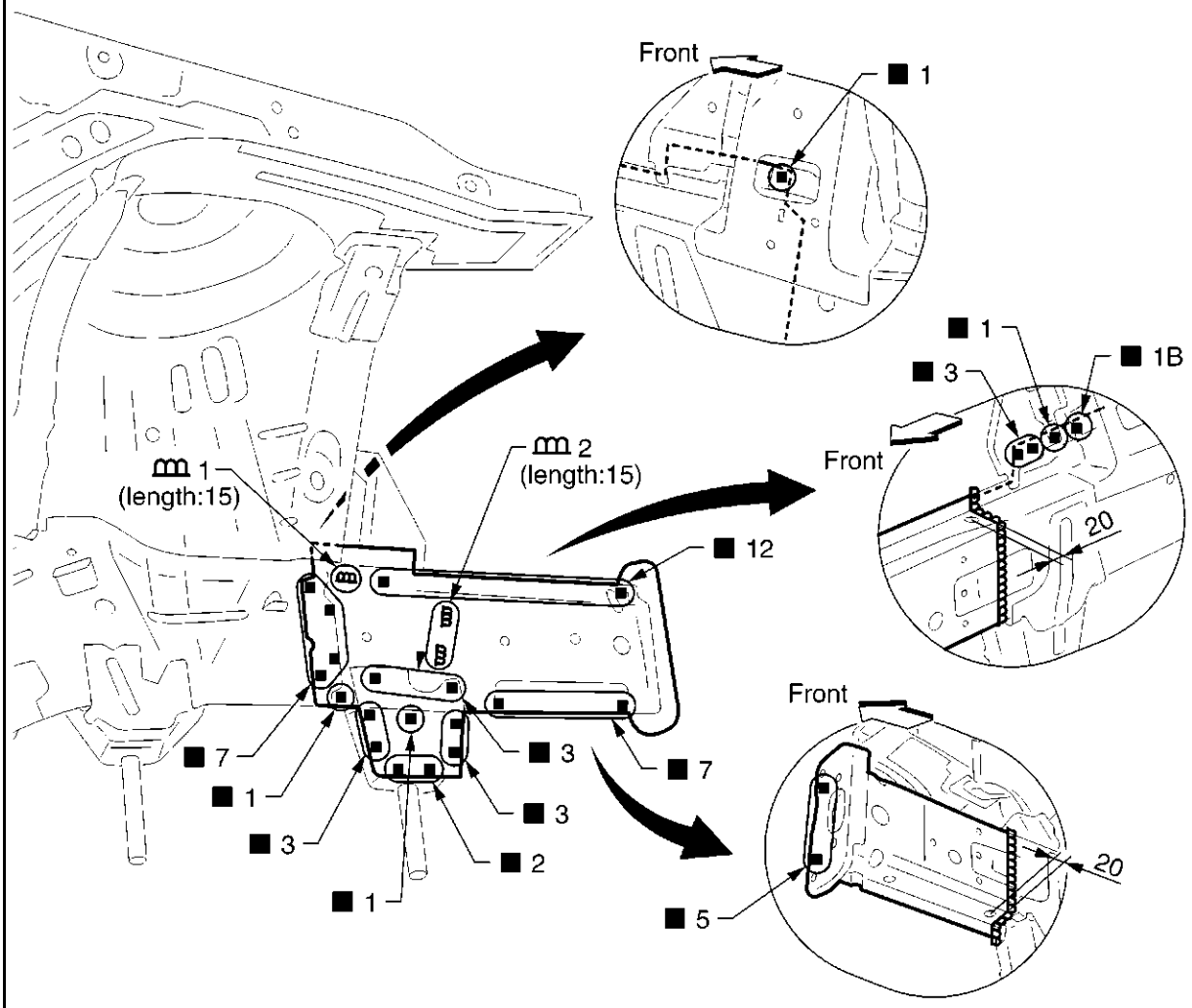
Change parts

- Front side member (LH)
- Front side member closing plate (LH)
- Front side member outrigger assembly (LH)

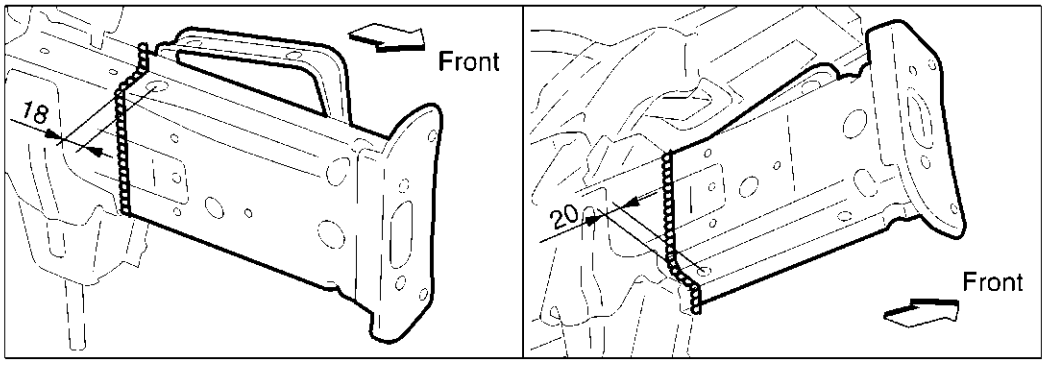
FRONT SIDE MEMBER (PARTIAL REPLACEMENT)

Service Joint

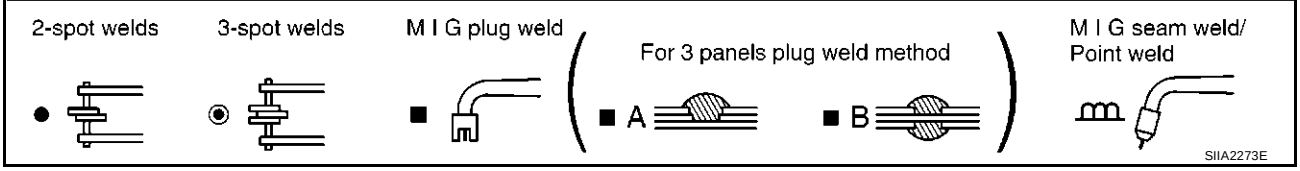
(This figure shows right front side member)



・Left front side member cut portion.



Unit:mm

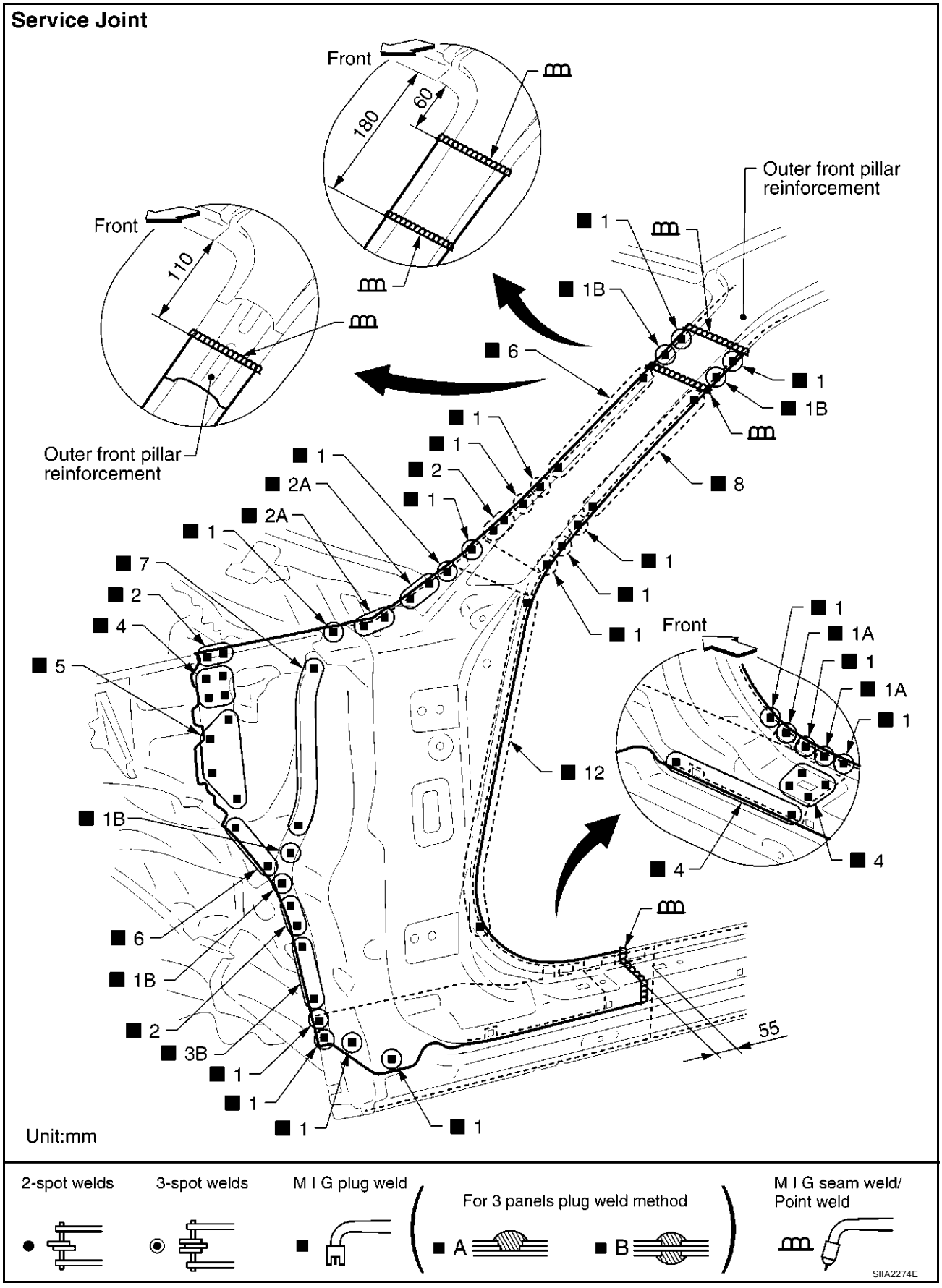


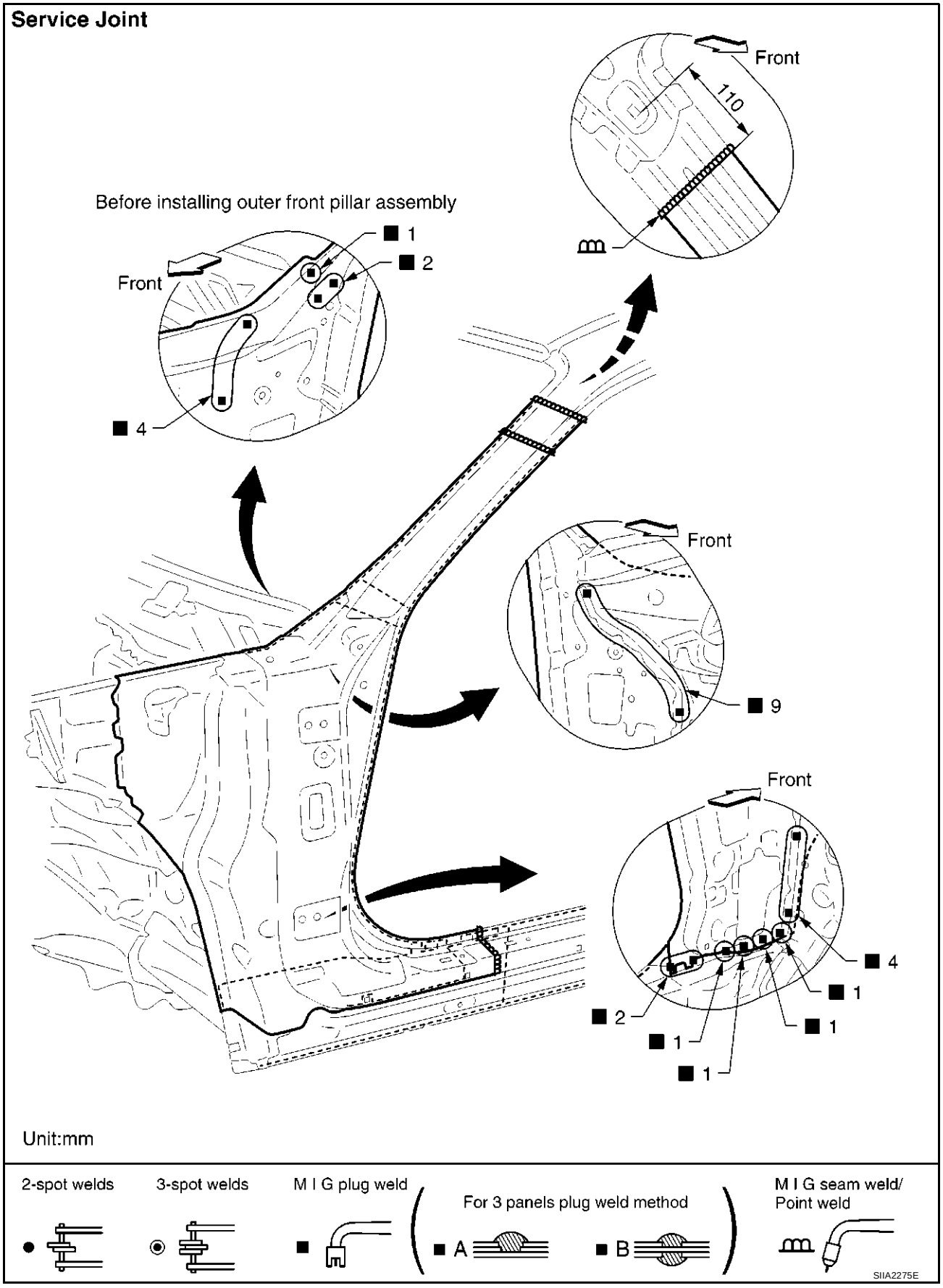
Change parts

- Front side member (LH)
- Front side member closing plate (LH)
- Front side member outrigger assembly (LH)

FRONT PILLAR

- Work after hoodledge reinforcement has been removed.



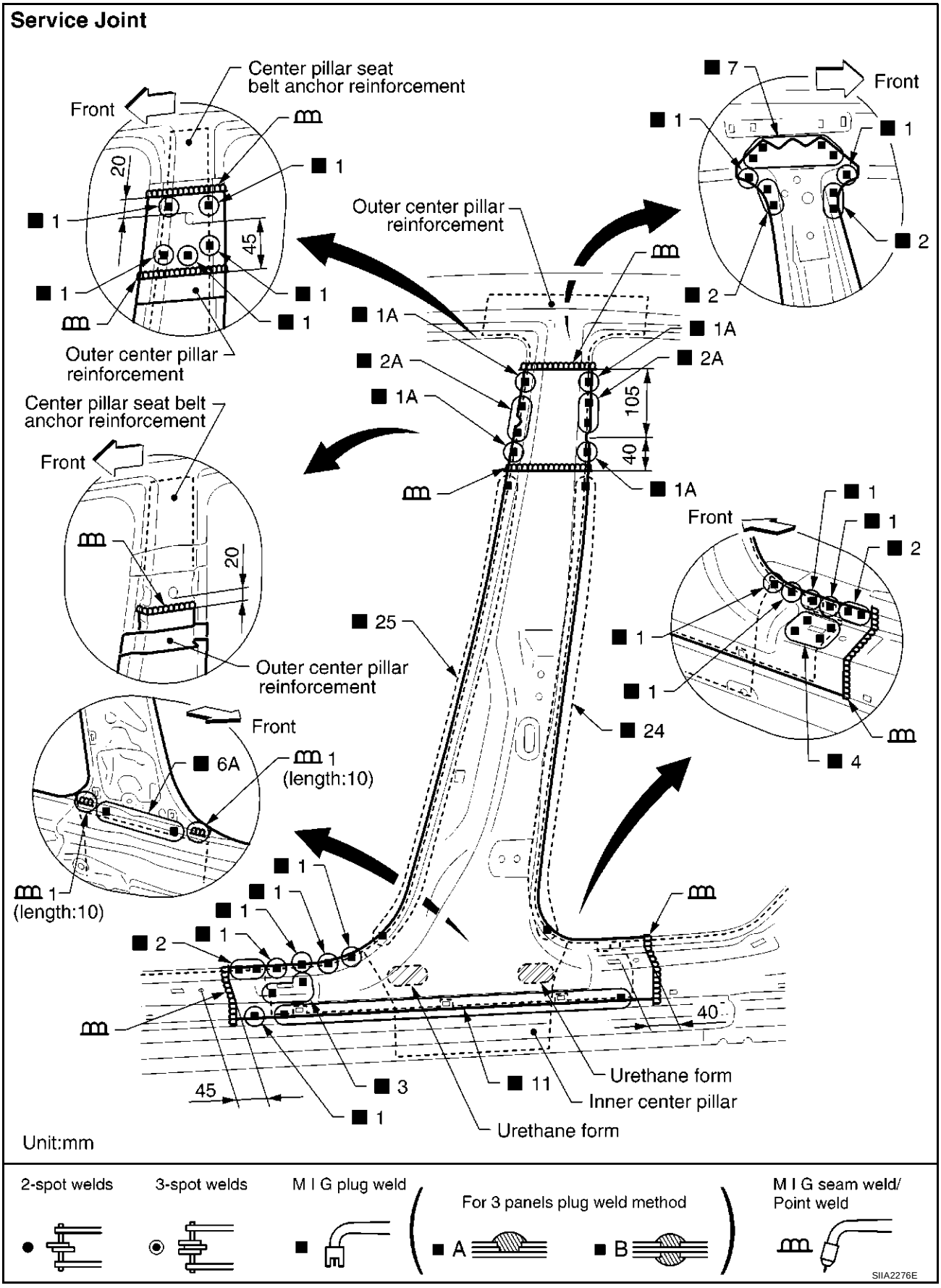


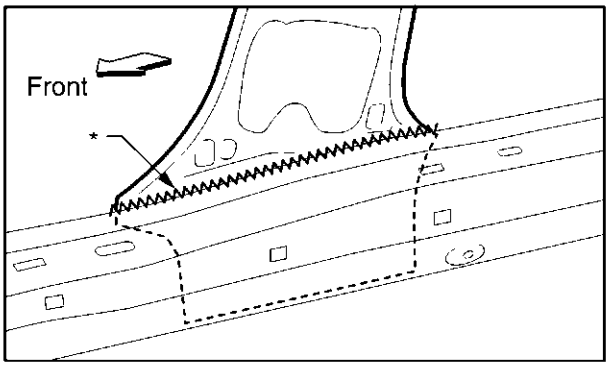
Change parts

- Side body assembly (LH)
- Upper inner front pillar assembly (LH)
- Upper hoodledge (LH)

CENTER PILLAR

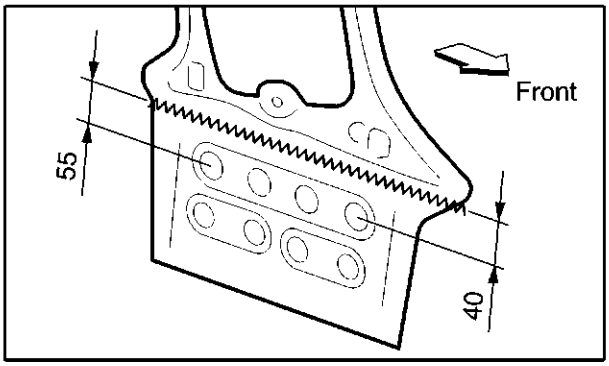
Service Joint





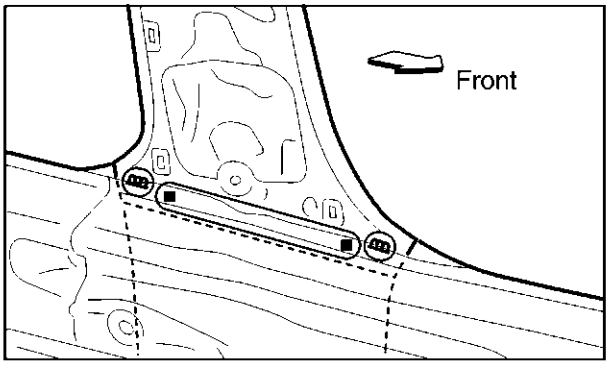
REMOVAL NOTES

- Cut off inner center pillar along with outer sill reinforcement frange end (Portion "*" as shown in the left figure.)



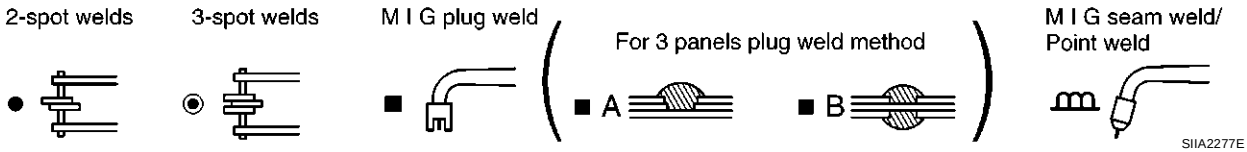
INSTALLATION NOTES

- Cut off inner center pillar service part as shown in the left figure.



- Position inner center pillar service part as overlapped old part, then M.I.G seam and plug weld.

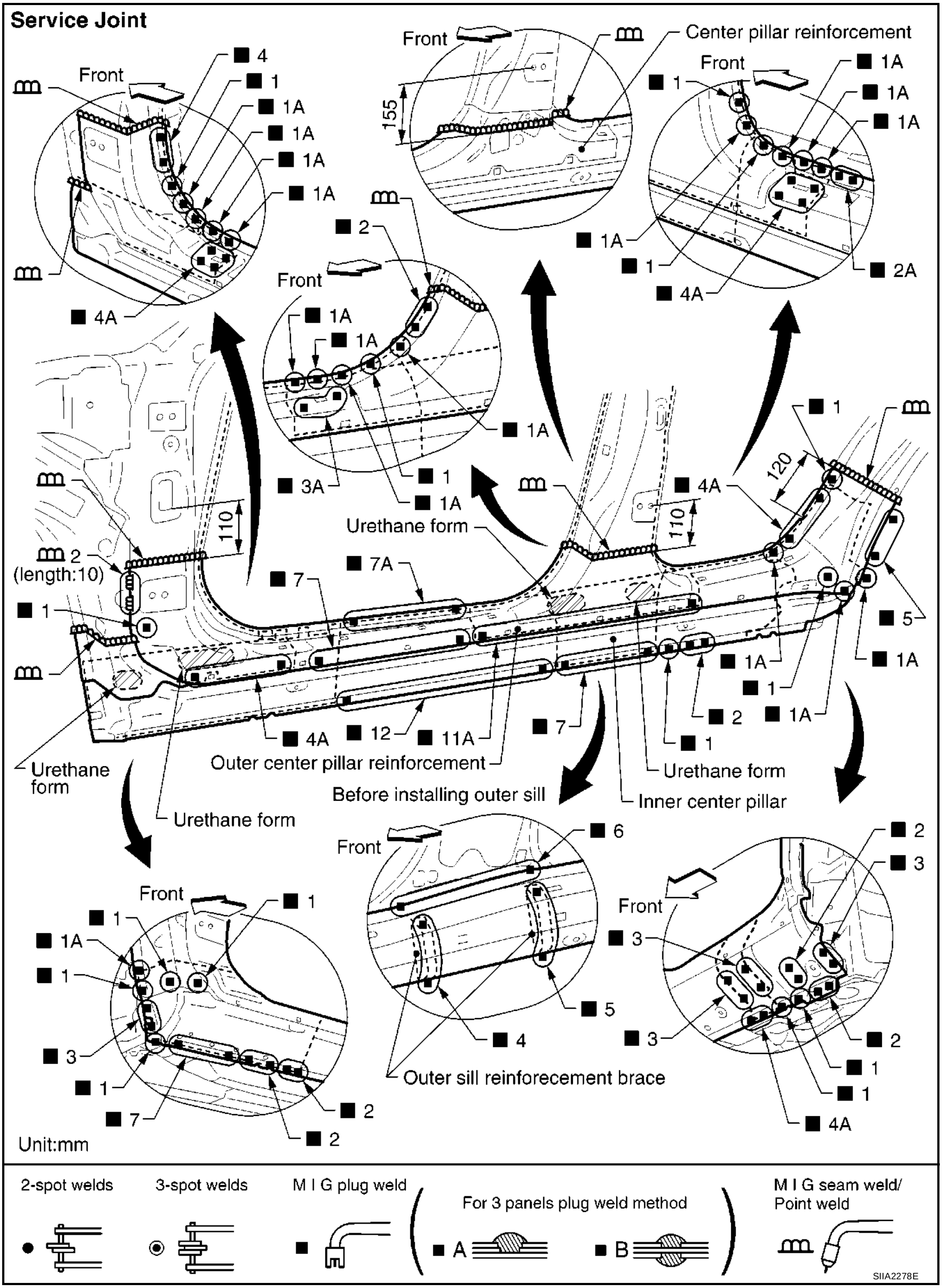
Unit:mm

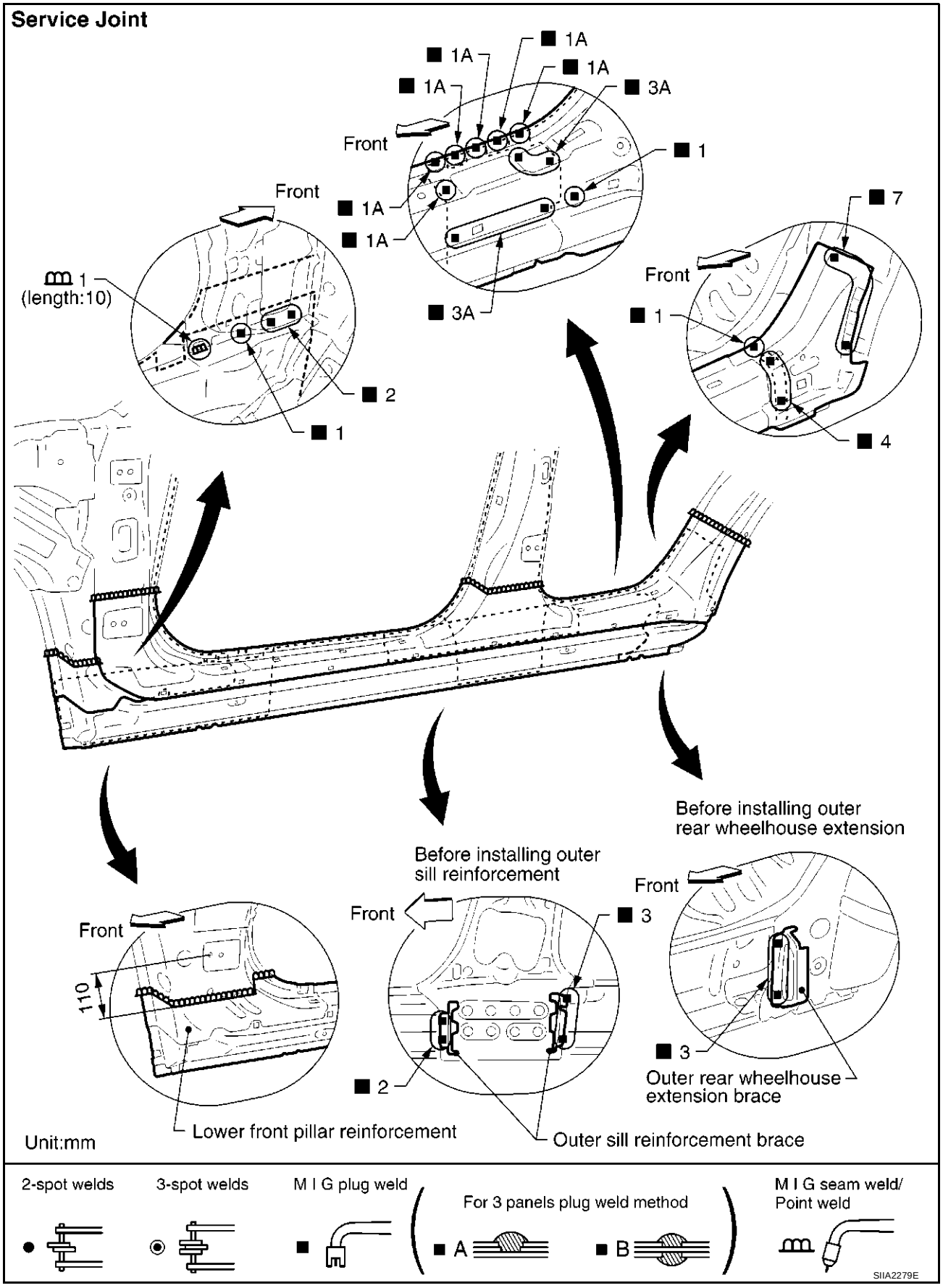


Change parts

- Side body assembly (LH)
- Inner center pillar (LH)

OUTER SILL

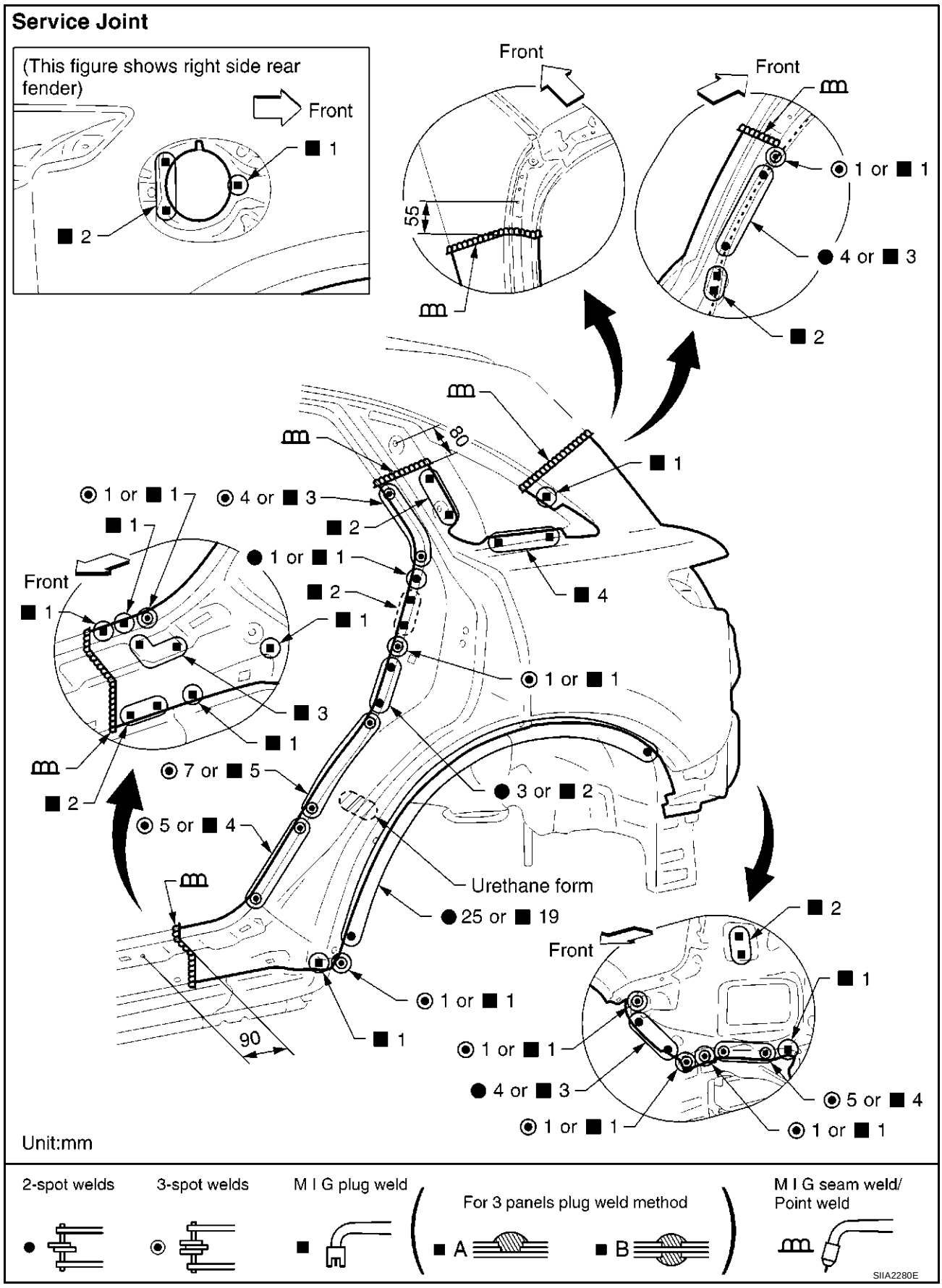

Service Joint
Front
Center pillar reinforcement
155
110
120
2 (length:10)
Urethane form
Outer center pillar reinforcement
Before installing outer sill
Inner center pillar
Outer sill reinforecement brace
Unit:mm
2-spot welds
3-spot welds
M I G plug weld
For 3 panels plug weld method
A
B
M I G seam weld/
Point weld
SIIA2278E

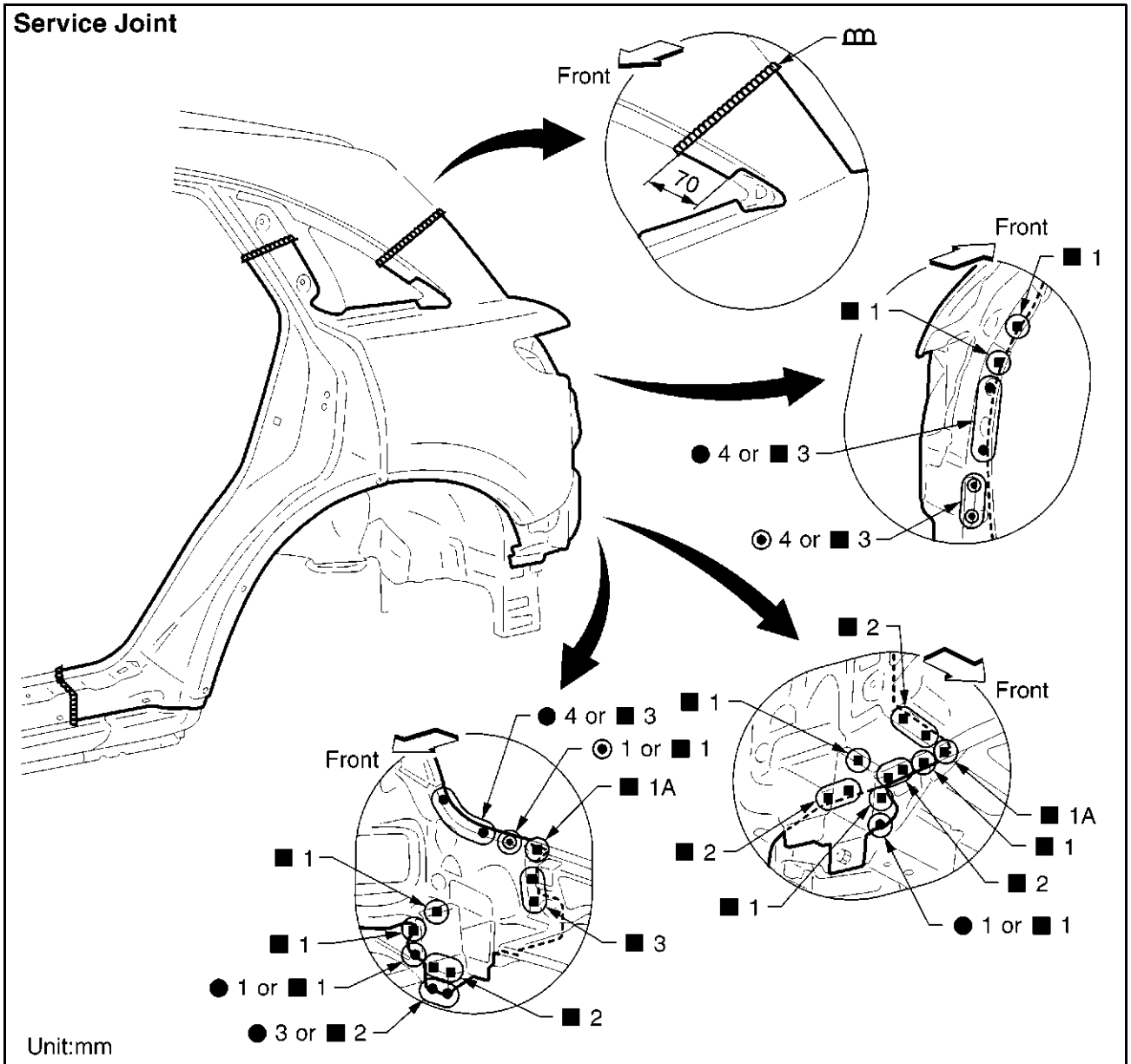


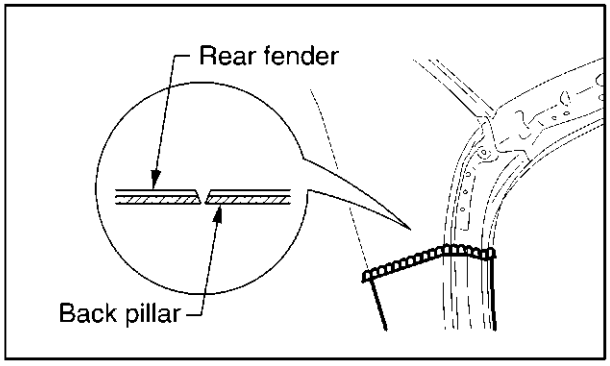
Change parts

- Outer sill (LH)
- Outer sill reinforcement assembly (LH)
- Outer front pillar reinforcement (LH)
- Outer center pillar reinforcement (LH)
- Outer rear wheelhouse extension (LH)

REAR FENDER

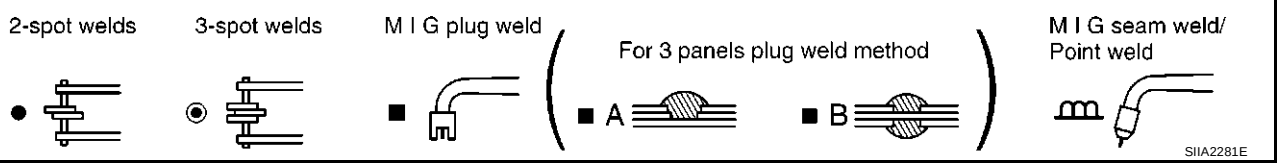

Service Joint
(This figure shows right side rear fender)
Front
1
2
Front
55
Front
1 or 1
4 or 3
2
80
1
4
1 or 1
4 or 3
2
1 or 1
2
1
1
3
1
7 or 5
2
5 or 4
1 or 1
3 or 2
Urethane form
25 or 19
1 or 1
1
90
Front
2
1
1 or 1
4 or 3
1 or 1
5 or 4
1 or 1
Unit:mm
2-spot welds
3-spot welds
M I G plug weld
For 3 panels plug weld method
A
B
M I G seam weld/
Point weld
SIIA2280E





INSTALLATION NOTES

- As shown in the left figure, make "V"shape with rear fender and back pillar by using an air grinder or air belt sander.
- Weld surface on rear fender assembly service parts in M.I.G seam welding.



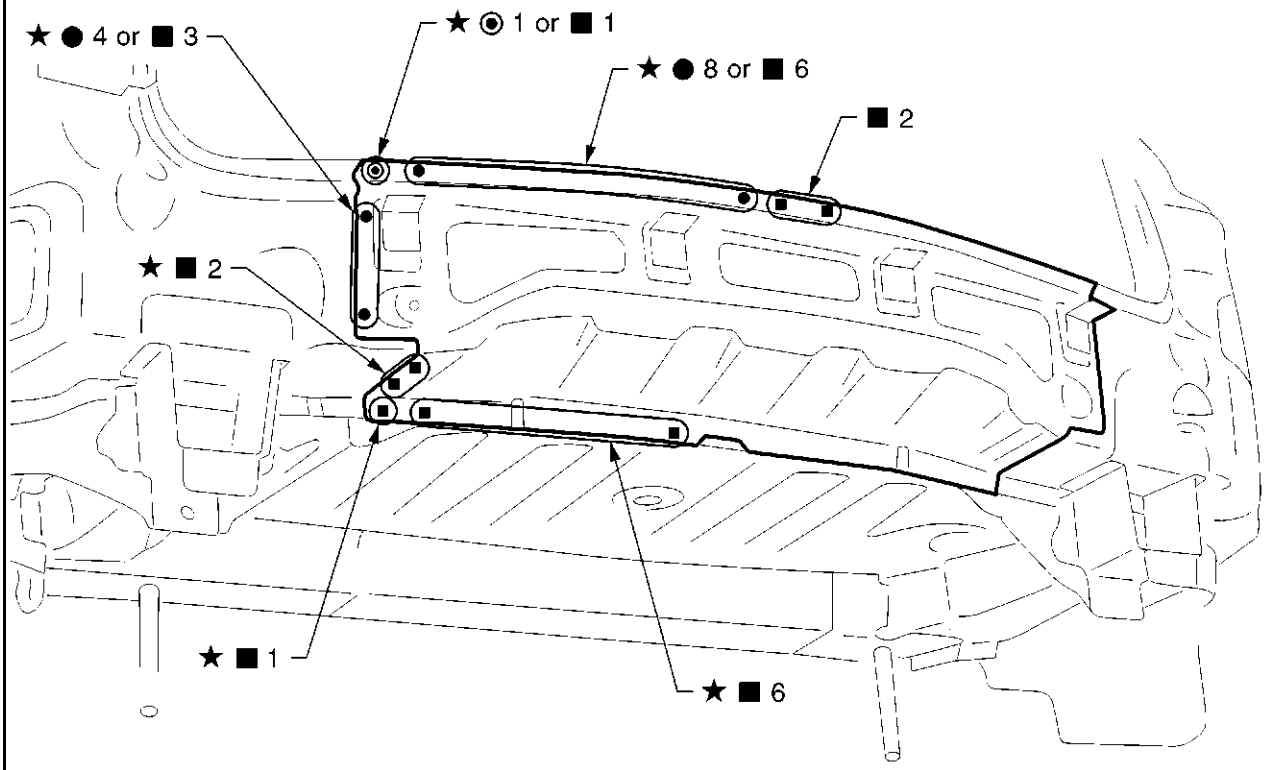
Change parts

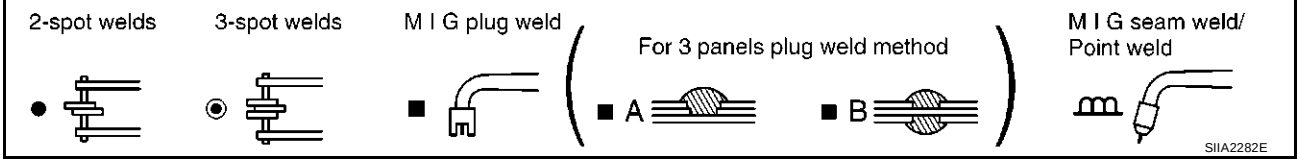
- Rear fender assembly (LH)

REAR PANEL

Service Joint

★ Indicates that there is an equivalent welding portion with the same dimensions on the opposite side.



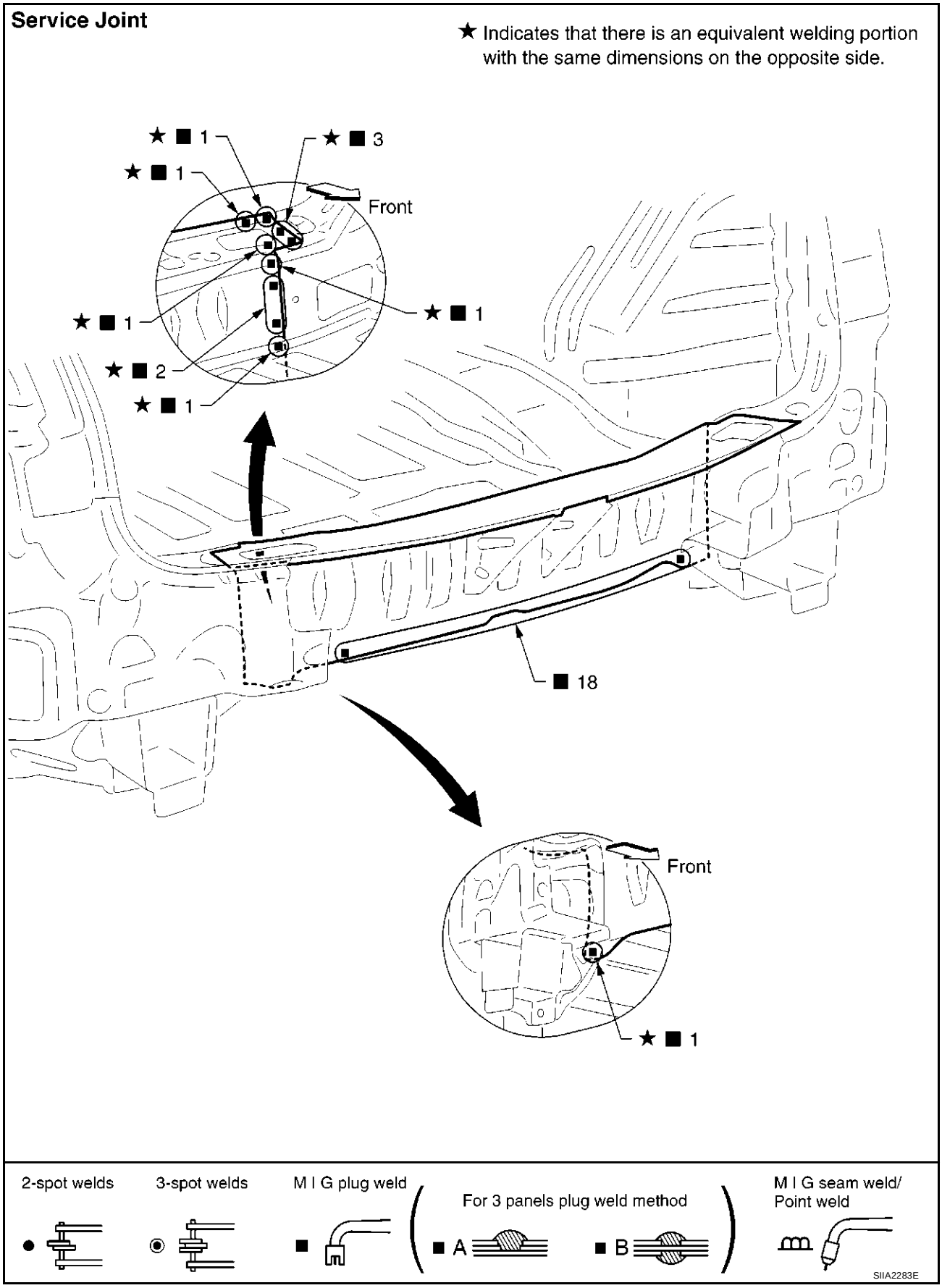


Change parts

- Rear panel assembly

REAR END CROSSMEMBER

- Work after rear panel assembly has been removed.

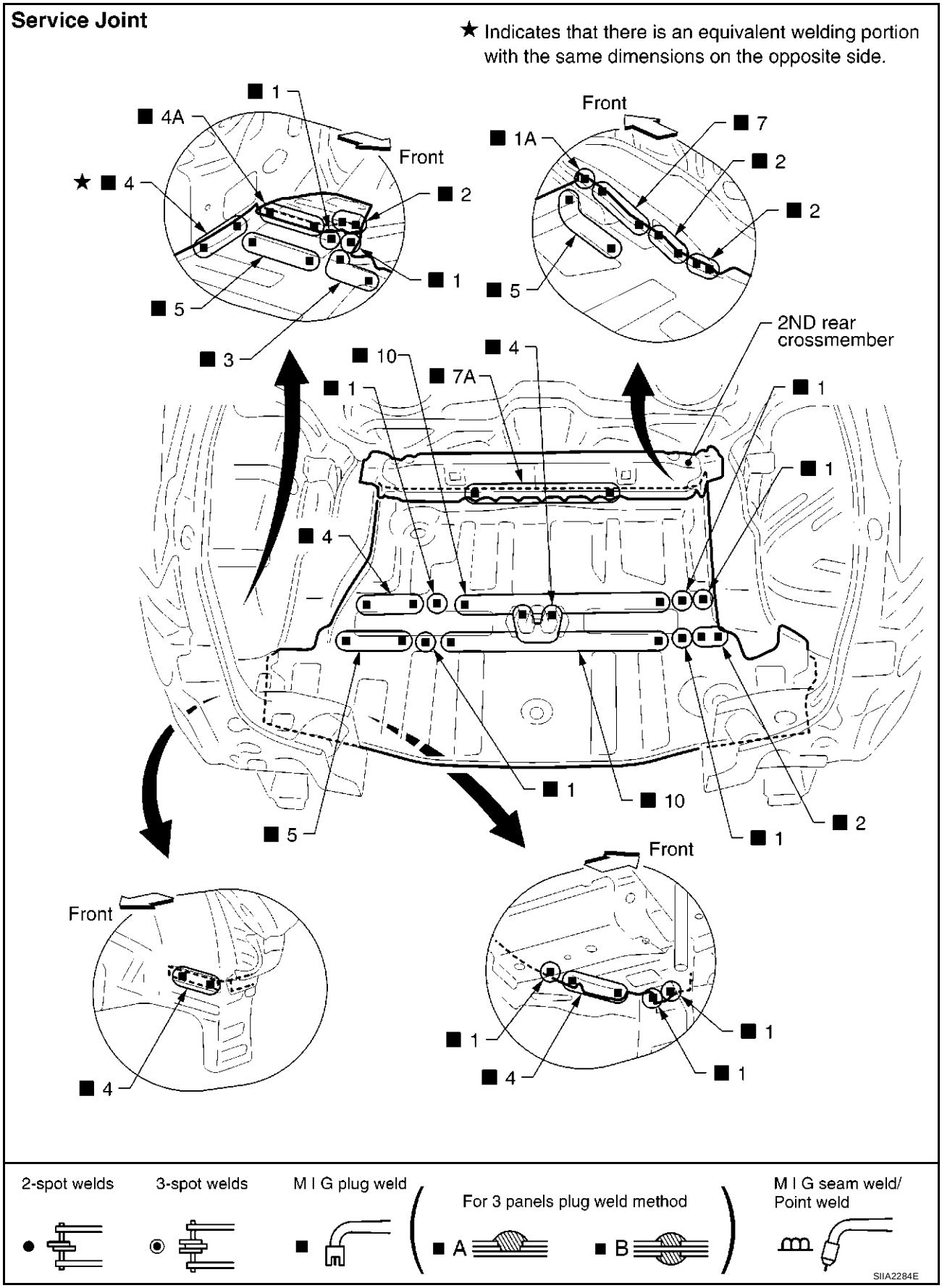


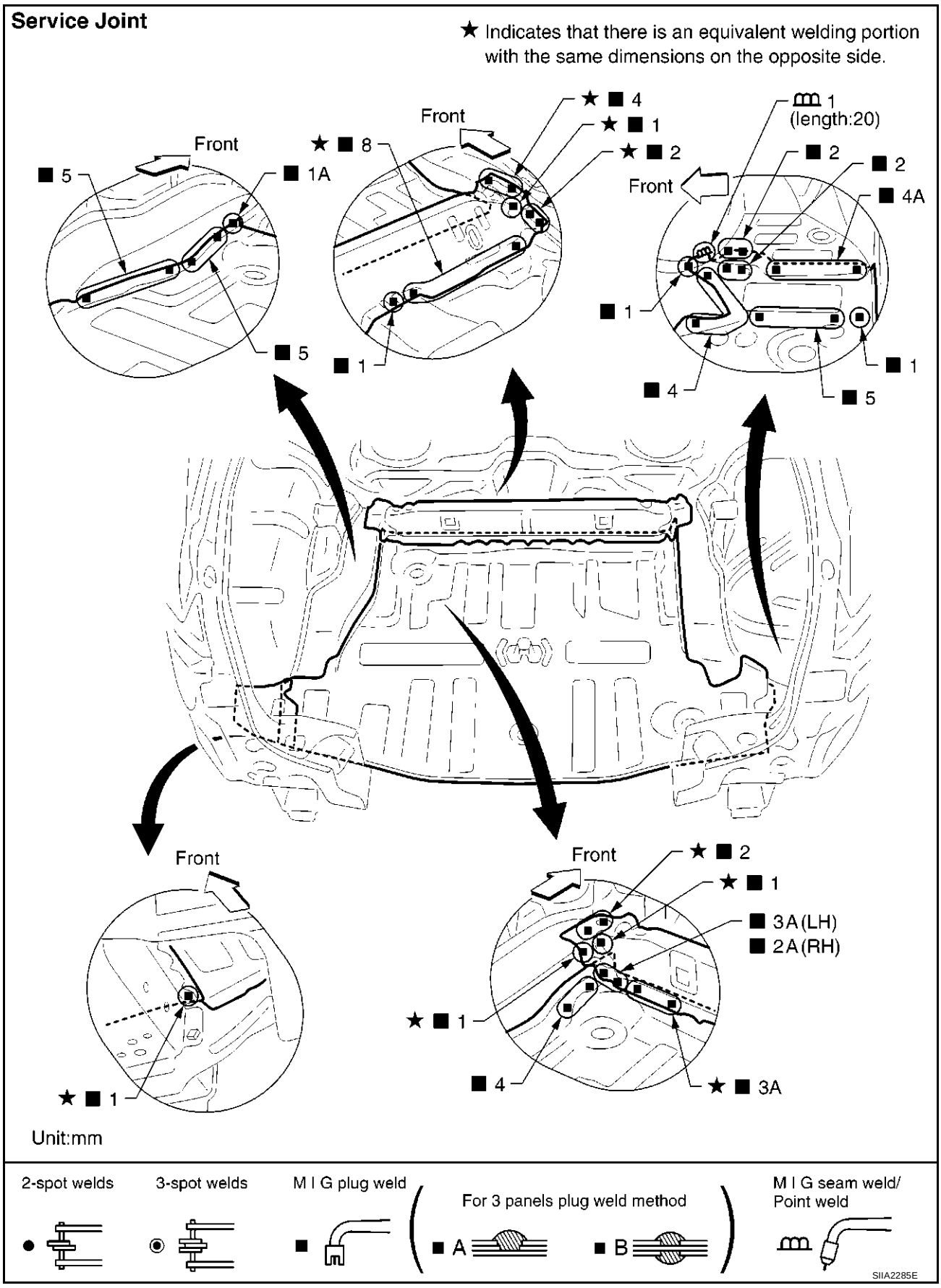
Change parts

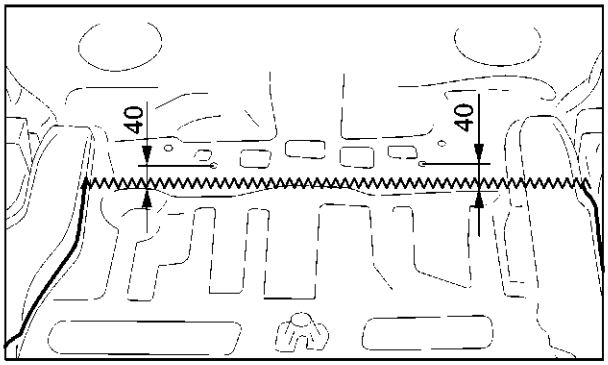
- Rear end crossmember assembly

REAR FLOOR REAR

- Work after rear panel assembly and rear end crossmember assembly have been removed.

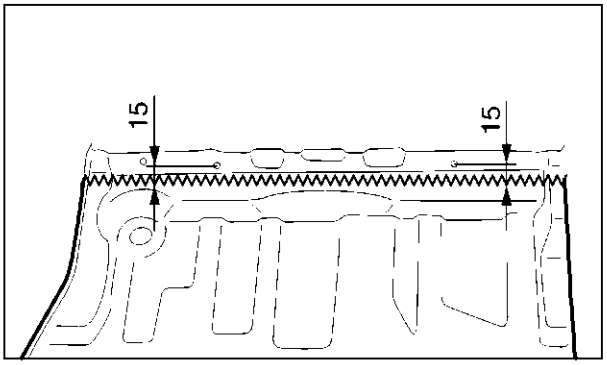



Service Joint
★ Indicates that there is an equivalent welding portion with the same dimensions on the opposite side.
Front
■ 5
■ 1A
■ 5
Front
★ ■ 8
■ 1
Front
★ ■ 4
★ ■ 1
★ ■ 2
1 (length:20)
■ 2
■ 2
Front
■ 4A
■ 1
■ 4
■ 5
■ 1
Front
★ ■ 1
Front
★ ■ 2
★ ■ 1
■ 3A(LH)
■ 2A(RH)
★ ■ 1
■ 4
★ ■ 3A
Unit:mm
2-spot welds
3-spot welds
M I G plug weld
For 3 panels plug weld method
■ A
■ B
M I G seam weld/ Point weld
SIIA2285E



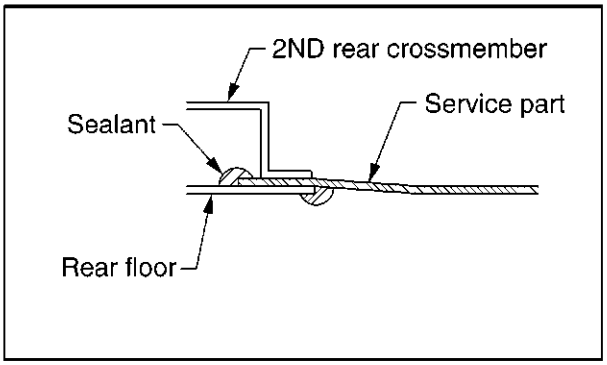
REMOVAL NOTES

- Remove 2ND rear crossmember for easier installation.
- Cut off rear floor at the portion as shown in the left figure.



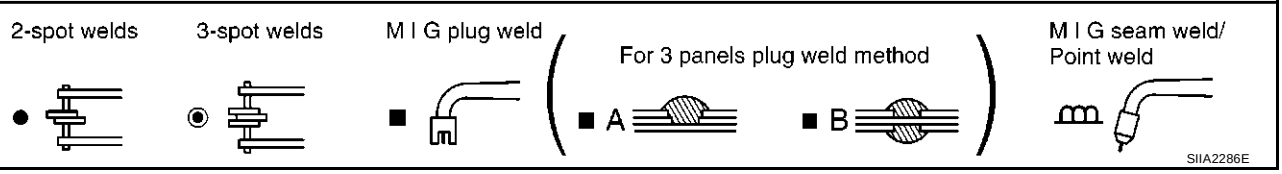
INSTALLATION NOTES

- Cut off rear floor rear (service part) at the portion as shown in the left figure.



- Position rear floor rear service part as overlapped old part, then weld them.
- Apply sealant as shown in the left figure.
- Then, re-weld 2ND rear crossmember.

Unit:mm

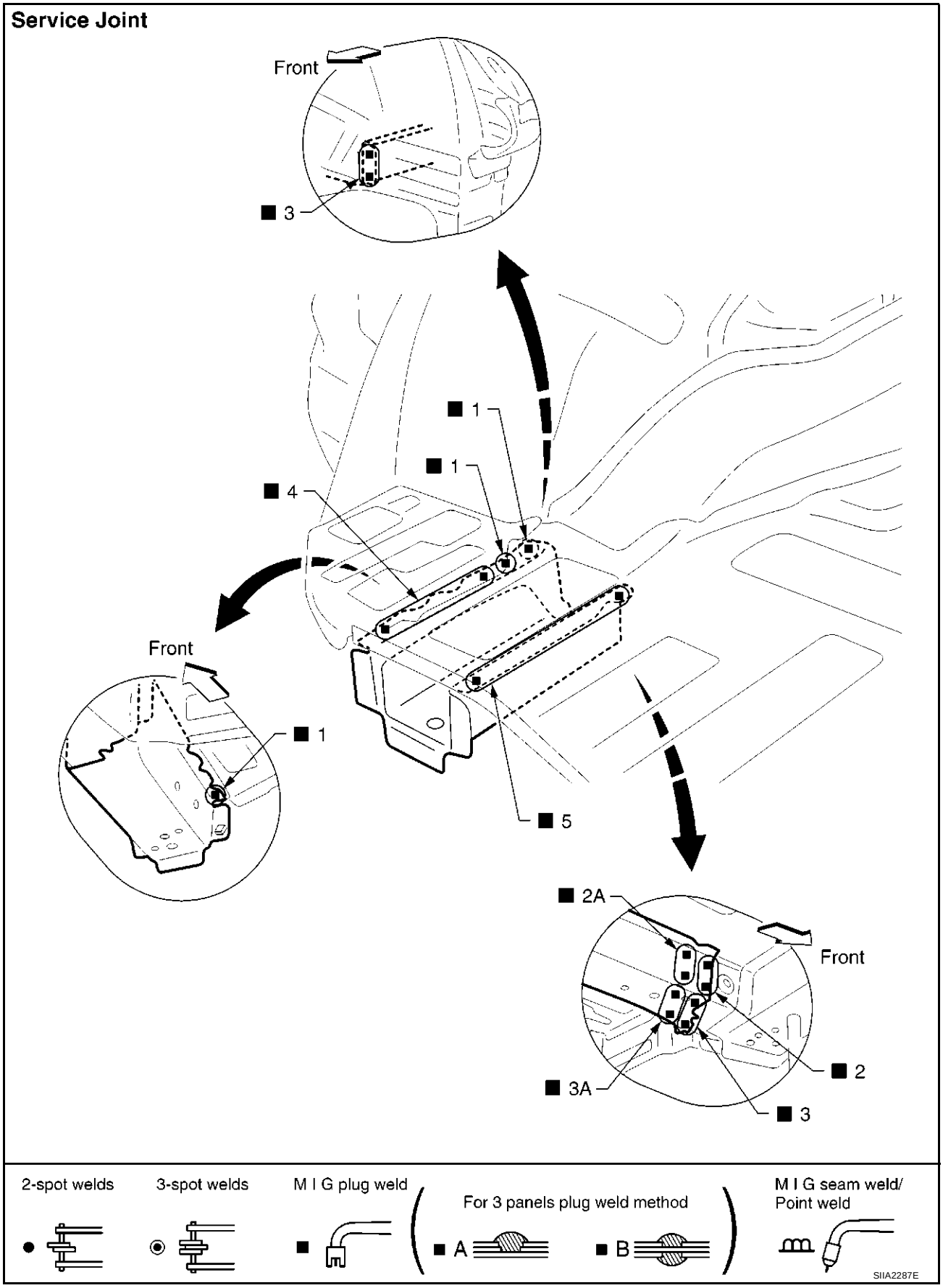


Change parts

- Rear floor rear
- Spare tire clamp bracket

REAR SIDE MEMBER EXTENSION

- Work after rear panel assembly and rear end crossmember assembly have been removed.



Change parts

- Rear side member extension (LH)