

SECTION **RF**  
ROOF

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# PRECAUTIONS

## PRECAUTIONS

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

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The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. 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

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- Disconnect both battery cables in advance.
- Do not tamper with or force air bag lid open, as this may adversely affect air bag performance.
- Be careful not to scratch pad and other parts.
- When removing or disassembling any part, be careful not to damage or deform it. Protect parts, which may get in the way with cloth.
- When removing parts with a screwdriver or other tool, protect parts by wrapping them with vinyl or tape.
- Keep removed parts protected with cloth.
- If a clip is deformed or damaged, replace it.
- If an un reusable part is removed, replace it with a new one.
- Tighten bolts and nuts firmly to the specified torque.
- After re-assembly has been completed, make sure each part functions correctly.
- Remove stains in the following way.

#### Water-soluble stains:

Dip a soft cloth in warm water, and then squeeze it tightly. After wiping the stain, wipe with a soft dry cloth.

#### Oil stain:

Dissolve a synthetic detergent in warm water (density of 2 to 3% or less), dip the cloth, then clean off the stain with the cloth. Next, dip the cloth in fresh water and squeeze it tightly. Then clean off the detergent completely. Then wipe the area with a soft dry cloth.

- Do not use any organic solvent, such as thinner or benzene.

# PREPARATION

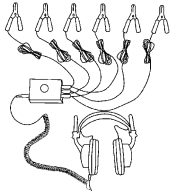
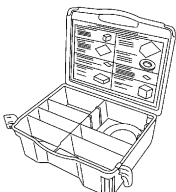
## PREPARATION

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### Special Service Tools

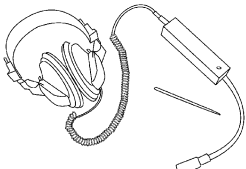
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The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
(J39570) Chassis ear   SIIA0993E	Locating the noise
(J43980) NISSAN Squeak and Rattle Kit   SIIA0994E	Repairing the cause of noise

### Commercial Service Tools

AIS002H0

Tool name	Description
(J39565) Engine ear   SIIA0995E	Locating the noise

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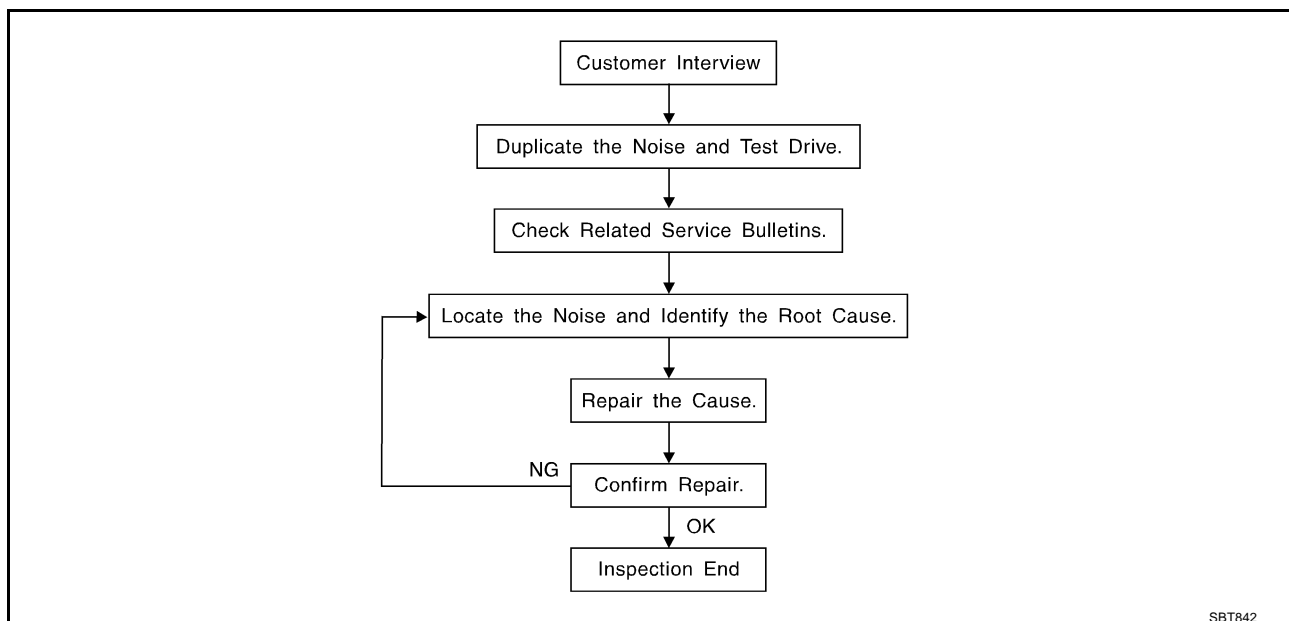
# SQUEAK AND RATTLE TROUBLE DIAGNOSES

## SQUEAK AND RATTLE TROUBLE DIAGNOSES

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### Work Flow

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### 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 [RF-8, "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.

# SQUEAK AND RATTLE TROUBLE DIAGNOSES

## 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: J39570, 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 be eliminated only 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 [RF-6, "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 (J43980) 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 (J43980). 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)**

# SQUEAK AND RATTLE TROUBLE DIAGNOSES

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## **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**

AIS000AC

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 (J43980) to repair the noise.

# SQUEAK AND RATTLE TROUBLE DIAGNOSES

## 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/HEADLINING

Noises in the sunroof/headlining 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 headlining 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 compartment.

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.

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# SQUEAK AND RATTLE TROUBLE DIAGNOSES

## Diagnostic Worksheet

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INFINITI®

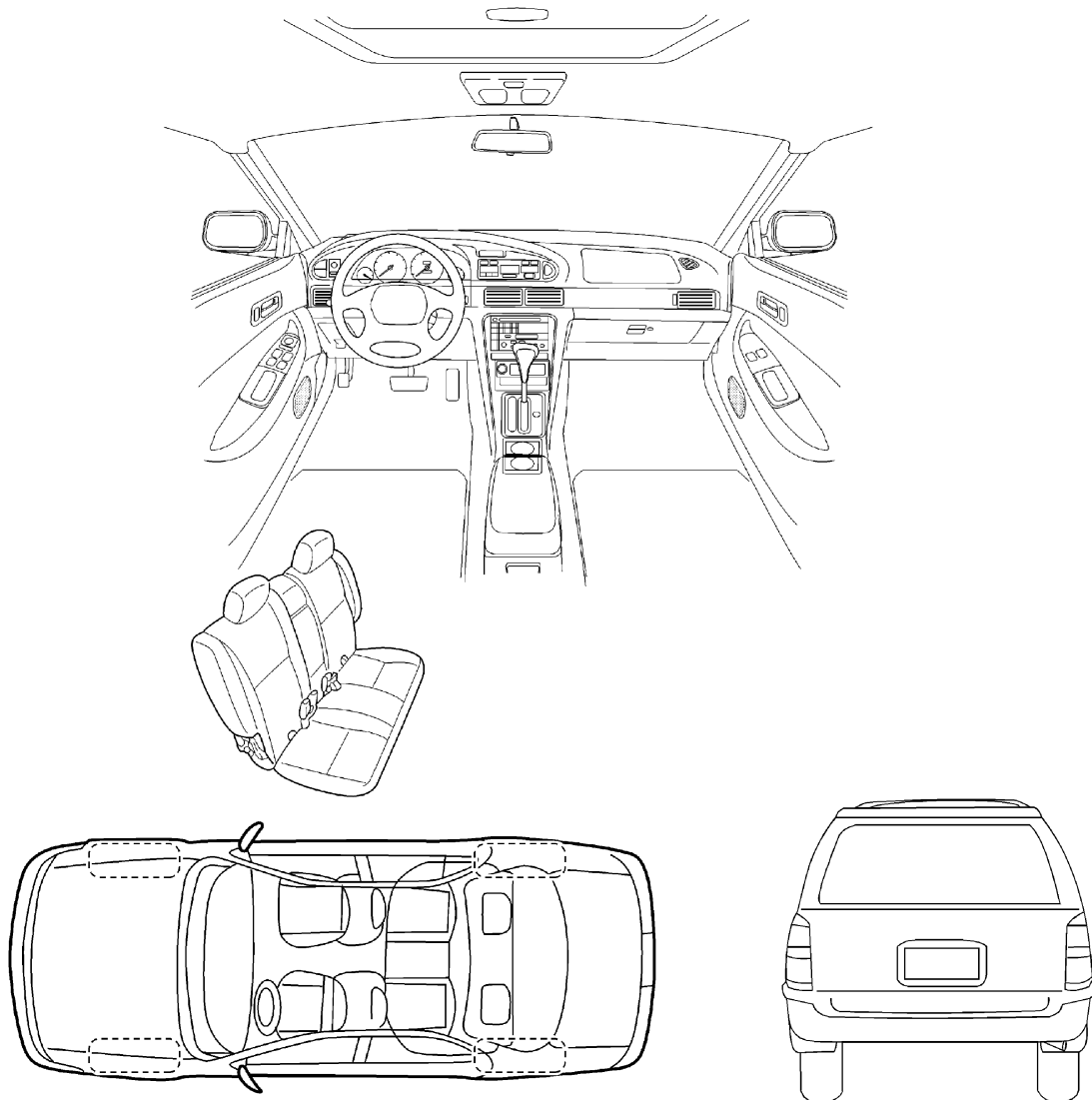
### SQUEAK & RATTLE DIAGNOSTIC WORKSHEET

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.

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# SQUEAK AND RATTLE TROUBLE DIAGNOSES

## SQUEAK & RATTLE DIAGNOSTIC WORKSHEET- page 2

Briefly describe the location where the noise occurs:

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

- |  |   |
|--|---|
| <input type="checkbox"/> anytime                             | <input type="checkbox"/> after sitting out in the sun |
| <input type="checkbox"/> 1 <sup>st</sup> time in the morning | <input type="checkbox"/> when it is raining or wet    |
| <input type="checkbox"/> only when it is cold outside        | <input type="checkbox"/> dry or dusty conditions      |
| <input type="checkbox"/> only when it is hot outside         | <input type="checkbox"/> 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:

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	YES	NO	Initials of person performing
Vehicle test driven with customer	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Noise verified on test drive	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Noise source located and repaired	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Follow up test drive performed to confirm repair	<input type="checkbox"/>	<input type="checkbox"/>	_____

VIN: \_\_\_\_\_ Customer Name: \_\_\_\_\_

W.O. #: \_\_\_\_\_ Date: \_\_\_\_\_

**This form must be attached to Work Order**

SBT844

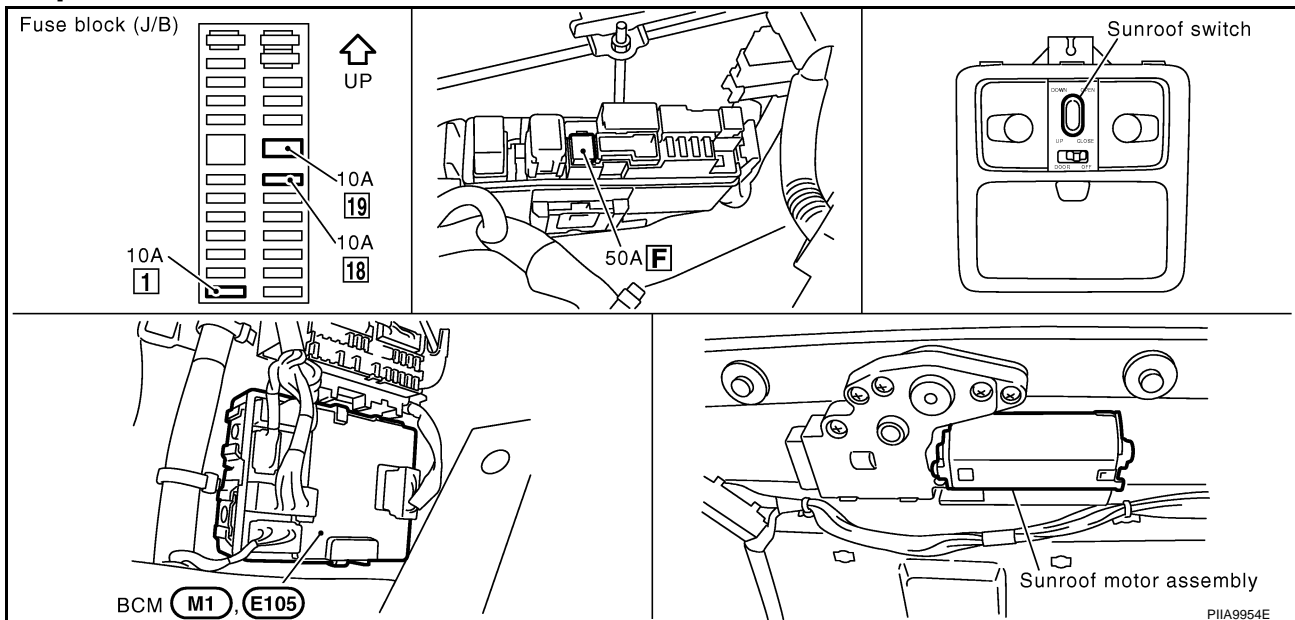
# SUNROOF

## SUNROOF

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### Component Parts and Harness Connector Location

AIS0004L



### System Description OUTLINE

AIS0004M

Electric sunroof system consists of

- Sunroof switch
- Sunroof motor assembly
- BCM (Body Control Module)

BCM supplies power to the sunroof motor. Sunroof operation depends on sunroof switch condition.

### OPERATION

Sunroof can be opened or closed and tilted up or down with sunroof switch.

### AUTO OPERATION

The power sunroof AUTO feature makes it possible to open and close the sunroof without holding the sunroof switch in the down or up position.

### RETAINED POWER OPERATION

When the ignition switch is turned to OFF position from ON or START position, power is supplied for 45 seconds

- to sunroof motor assembly terminal 5.
- from BCM terminal 53.

When power is supplied, the sunroof can be operated.

The retained power operation is canceled when the driver or passenger side door is opened.

RAP signal period can be changed by CONSULT-II. Refer to [RF-16, "CONSULT-II Function \(BCM\)"](#).

### MEMORY RESET PROCEDURE

If the battery is disconnected, or the sunroof motor harness connector is disconnected, the sunroof motor memory must be reset. To reset the sunroof motor memory from any sunroof position (full open, partially open, closed, partially vented, and vented), push and hold the sunroof switch in the forward (CLOSE) position until the sunroof vent is in the full-up position. This resets the sunroof motor memory and now the sunroof will operate correctly.

# SUNROOF

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## INTERRUPTION DETECTION FUNCTION

The CPU of sunroof motor monitors the sunroof motor operation and the sunroof position (fully-closed or other) by the signals from sunroof motor.

When sunroof motor detects an interruption during the following sliding close operation, sunroof switch controls the motor for open and the sunroof will operate until full open position.

- automatic close operation when ignition switch is in the ON position.
- automatic close operation during retained power operation.

## INITIALIZATION PROCEDURE

If the sunroof does not close or open automatically, use the following procedure to return sunroof operation to normal.

1. Close the sunroof if it is not in the closed position. It may be necessary to repeatedly push the switch to close the sunroof.
2. Press and hold the TILT UP switch. Do not release the switch, keep pressure on it. After 10 seconds of depressing, the sunroof will tilt up, then tilt down. Release the button.
3. Press and hold the TILT UP switch again. Do not release the switch, keep pressure on it. While depressing the switch, the sunroof will "Slide open" "Slide close" "Tilt up" "Tilt down". Release the button after the sunroof "Tilts down" and stops.
4. Initializing procedure is complete. Confirm proper operation of the sunroof (slide open, slide close, tilt up, tilt down.)

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## CAN Communication System Description

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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

AIS004RX

Refer to [LAN-21, "CAN Communication Unit"](#) .

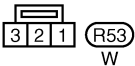
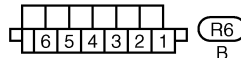
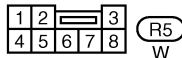
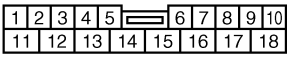
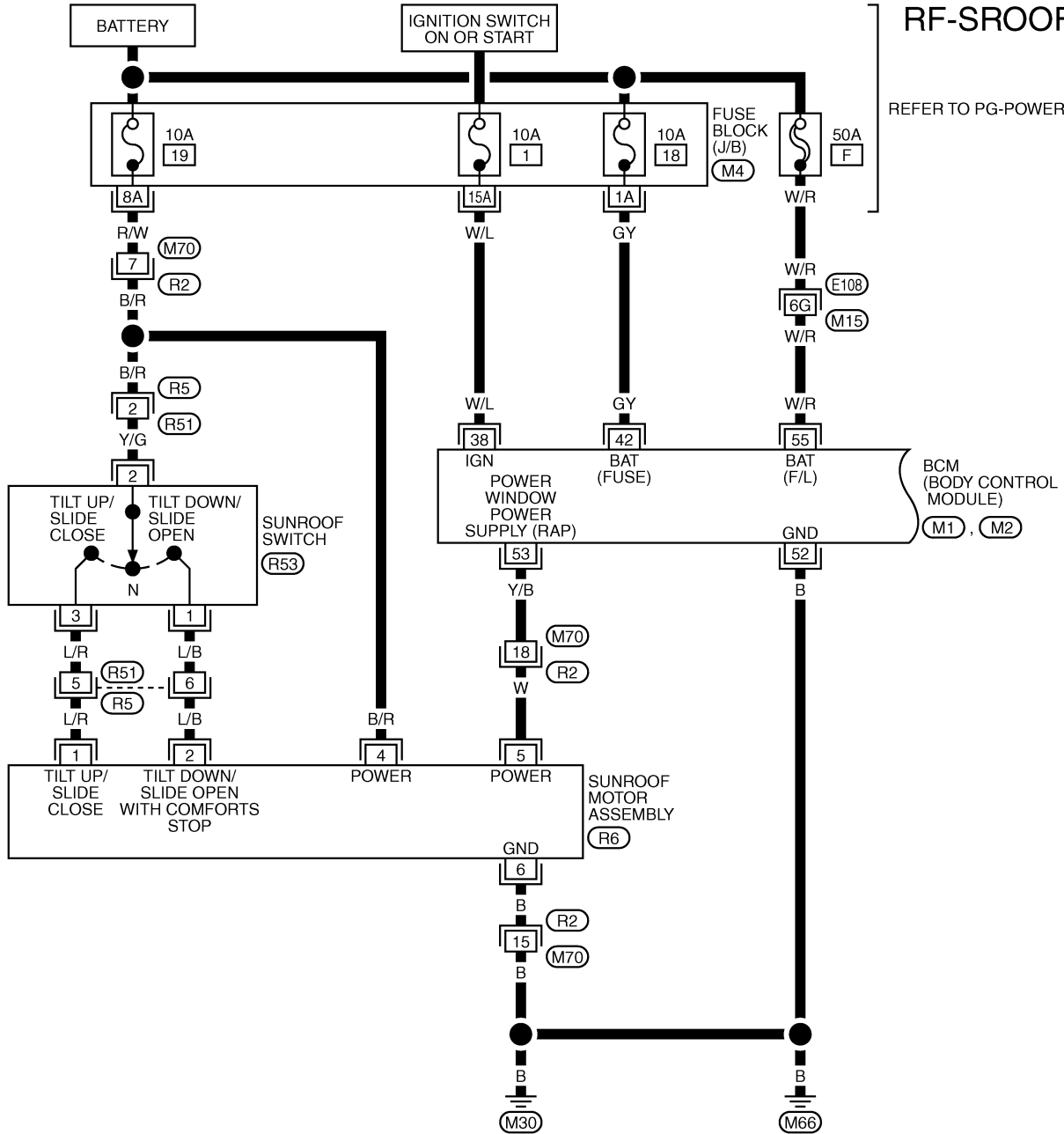
# SUNROOF

## Wiring Diagram — SROOF —

AIS0004N

RF-SROOF-01

REFER TO PG-POWER.



REFER TO THE FOLLOWING.

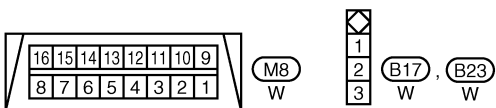
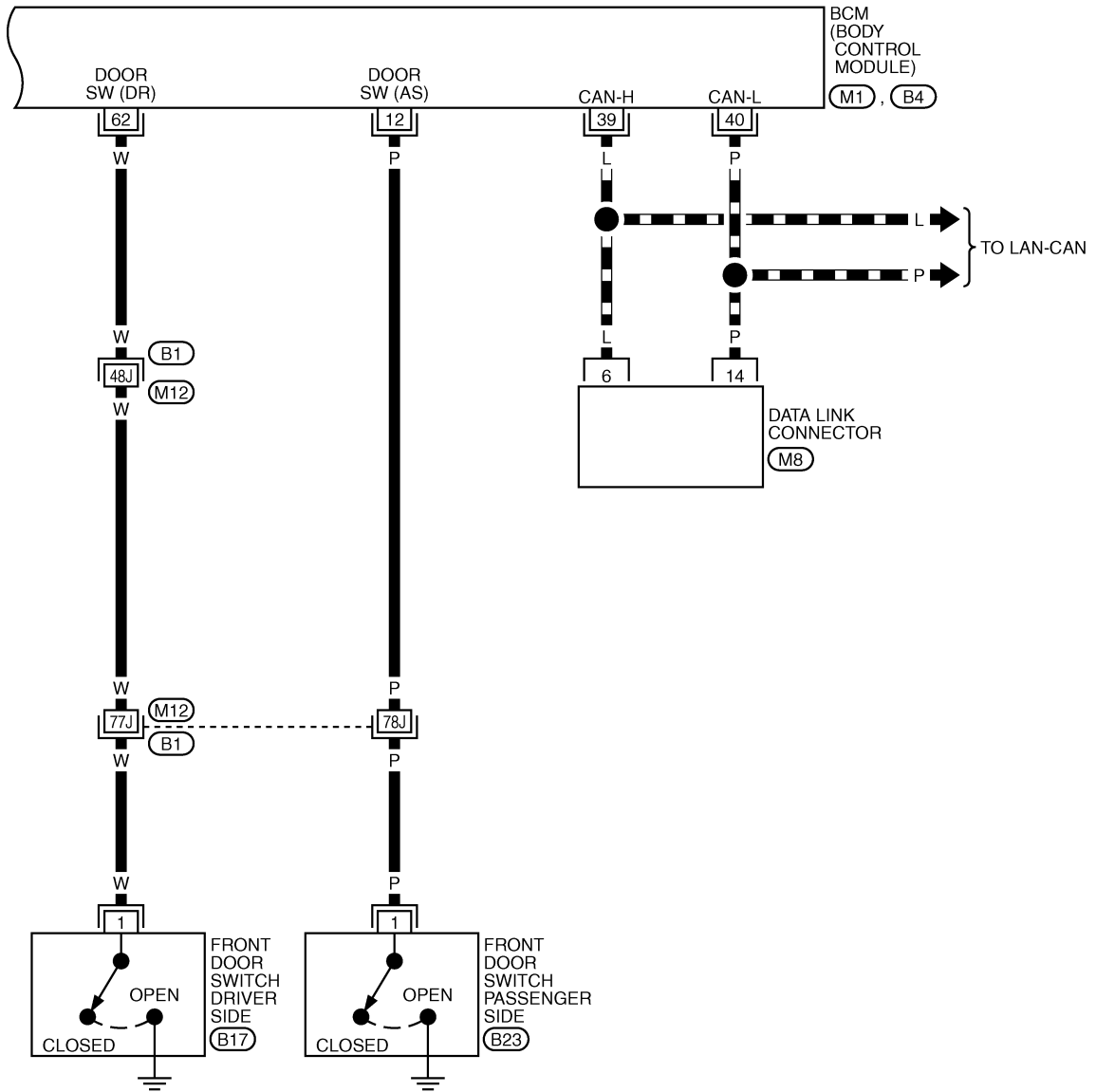
- (E108) -SUPER MULTIPLE JUNCTION (SMJ)
- (M4) -FUSE BLOCK-JUNCTION BOX (J/B)
- (M1), (M2) -ELECTRICAL UNITS

TIWM1090E

# SUNROOF

## RF-SROOF-02

▬ : DATA LINE



REFER TO THE FOLLOWING.

- (B1) -SUPER MULTIPLE JUNCTION (SMJ)
- (M1), (B4) -ELECTRICAL UNITS

TIWM1091E

# SUNROOF

## Terminals and Reference Value for BCM

AIS000A1

TERMINAL	WIRE COLOR	ITEM	CONDITION	VOLTAGE (V) (Approx.)
12	P	Front door switch passenger side signal	ON (Open)	Battery voltage
			OFF (Close)	0
38	W/L	Ignition switch (ON or START)	Ignition switch (ON or START position)	Battery voltage
39	L	CAN - H	—	—
40	P	CAN - L	—	—
42	GY	BAT power supply	—	Battery voltage
52	B	Ground	—	0
53	Y/B	RAP signal	Ignition switch ON	Battery voltage
			More than 45 second after ignition switch is turned to OFF	0
			When front door LH or RH is open in retained power is operates.	0
55	W/R	BAT power supply	—	Battery voltage
62	W	Front door switch driver side signal	ON (Open)	Battery voltage
			OFF (Close)	0

## Terminals and Reference Value for Sunroof Motor

AIS00040

TERMINAL	WIRE COLOR	ITEM	CONDITION	Voltage (V) (Approx.)
1	L/R	Sunroof switch TILT UP / SLIDE CLOSE signal	Ignition switch ON and sunroof switch in TILT UP / SLIDE CLOSE position	Battery voltage → 0
2	L/B	Sunroof switch TILT DOWN / SLIDE OPEN signal	Ignition switch ON and sunroof switch in TILT DOWN / SLIDE OPEN position	Battery voltage → 0
4	B/R	BAT power supply	—	Battery voltage
5	W	RAP signal	Ignition switch ON	Battery voltage
			More than 45 seconds after ignition switch is turned to OFF	0
			When front door LH or RH is open in retained power is operates	0
6	B	Ground	—	—

## Work Flow

AIS002H5

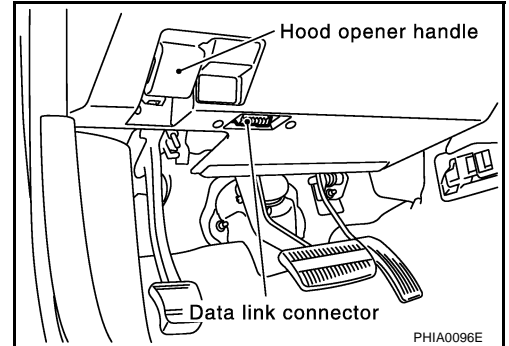
1. Check the symptom and customer's requests.
2. Understand the outline of system. Refer to [RF-10, "System Description"](#) .
3. According to the trouble diagnosis chart, repair or replace the cause or replace of the malfunction. Refer to [RF-17, "Trouble Diagnosis Chart by Symptom"](#) .
4. Does sunroof system operate normally? If Yes, GO TO 5. If No, GO TO 3.
5. INSPECTION END.

# SUNROOF

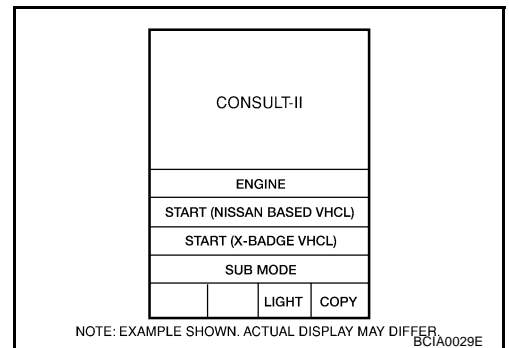
AIS0008J

## CONSULT-II Function (BCM) CONSULT-II BASIC OPERATION PROCEDURE

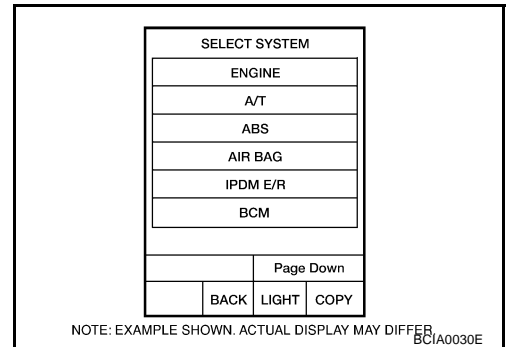
1. Turn ignition switch OFF.
2. Connect "CONSULT-II" and "CONSULT-II CONVERTER" to the data link connector.



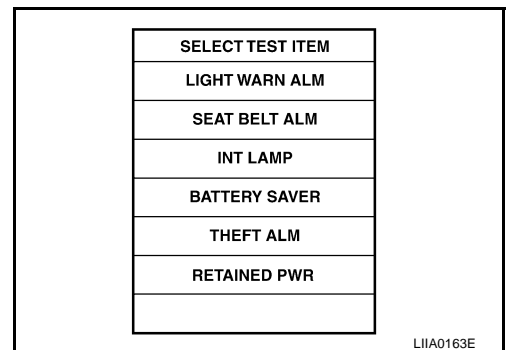
3. Turn ignition switch ON.
4. Touch "START (NISSAN BASED VHCL)".



5. Touch "BCM".  
If "BCM" is not indicated, go to [GI-38, "CONSULT-II Data Link Connector \(DLC\) Circuit"](#).



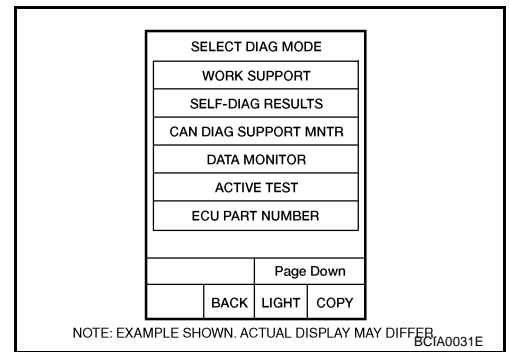
6. Touch "RETAINED PWR".





# SUNROOF

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



## Data Monitor

AIS000A5

Monitored item	Description
IGN ON SW	Indicates [ON/OFF] condition of ignition 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.

## Active Test

AIS000A6

Test item	Description
RETAINED PWR	<p>This test is able to supply RAP signal (power) from BCM to power window system, power sunroof system. Those systems can be operated when turning on "RETAINED PWR" on CONSULT-II screen even if the ignition switch is turned OFF.</p> <p><b>NOTE:</b> During this test, CONSULT-II can be operated with ignition switch in OFF position. "RETAINED PWR" should be turned ON or OFF on CONSULT-II screen when ignition switch is ON. Then turn ignition switch OFF to check retained power operation. CONSULT-II might be stuck if "RETAINED PWR" is turned to ON or OFF on CONSULT-II screen when ignition switch is OFF.</p>

## Work Support

AIS000A7

Work item	Description
RETAINED PWR SET	<p>RAP signal's power supply period can be changed by mode setting. Selects RAP signal's power supply period between two steps.</p> <ul style="list-style-type: none"> <li>● MODE 1 (45 sec.) / MODE 2 (OFF) / MODE 3 (2 min.)</li> </ul>

## Trouble Diagnosis Chart by Symptom

AIS0004P

Symptom	Diagnostic procedure and repair order	Refer to page
Sunroof does not operate.	1. Sunroof motor assembly power supply and ground circuit check	<a href="#">RF-19</a>
	2. Sunroof switch system check	<a href="#">RF-20</a>
	3. Replace sunroof motor assembly	<a href="#">RF-27</a>
Retained power operation does not operate properly.	1. BCM power supply and ground circuit check	<a href="#">RF-18</a>
	2. Check the retained power operation mode setting	<a href="#">RF-17</a>
	3. Door switch check	<a href="#">RF-21</a>
	4. Replace sunroof motor assembly	<a href="#">RF-27</a>
Motor does not stop at the sunroof fully -open or fully-closed position.	1. Initialization procedure check	<a href="#">RF-11</a>
	2. Replace sunroof motor assembly	<a href="#">RF-27</a>
Sunroof does not do the interruption detection.	1. Replace sunroof motor assembly	<a href="#">RF-27</a>

## BCM Power Supply and Ground Circuit Check

### 1. CHECK FUSE

Check 50A fusible link (letter **F** located in the fuse and fusible link box).  
 Check 10A fuse [No.1, located in fuse block (J/B)].  
 Check 10A fuse [No.18, located in fuse block (J/B)].

**NOTE:**

Refer to [RF-10, "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 [RF-10, "Component Parts and Harness Connector Location"](#) .

### 2. CHECK POWER SUPPLY CIRCUIT

- Turn ignition switch ON.
- Check voltage between BCM connectors M1, M2 terminals 38, 42, 55 and ground.

**38 (W/L) – Ground : Battery voltage**

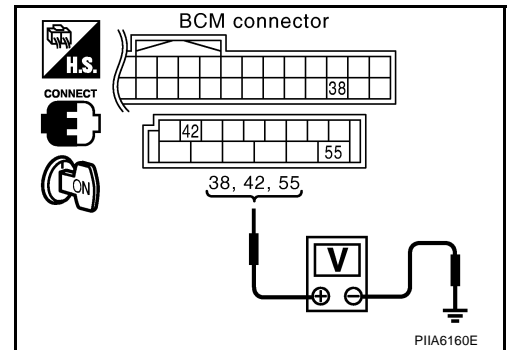
**42 (G/Y) – Ground : Battery voltage**

**55 (W/R) – Ground : Battery voltage**

OK or NG

OK >> GO TO 3.

NG >> Check BCM power supply circuit for open or short.



### 3. CHECK GROUND CIRCUIT

- Turn ignition switch OFF.
- Disconnect BCM connector.
- Check continuity between BCM connector M2 terminals 52, 53 and ground.

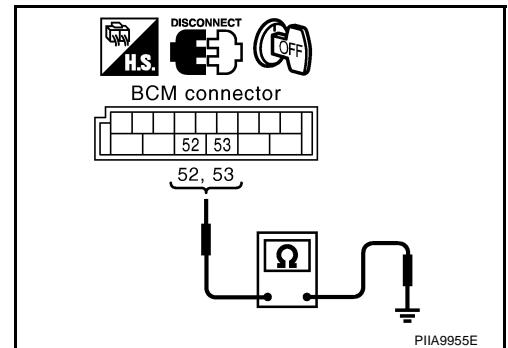
**52 (B) – Ground : Continuity should exist.**

**53 (Y/B) – Ground : Continuity should exist.**

OK or NG

OK >> Power supply and ground circuit is OK.

NG >> Check BCM ground circuit for open or short.



## Sunroof Motor Assembly Power Supply and Ground Circuit Check

AIS000A3

### 1. CHECK POWER SUPPLY CIRCUIT-I

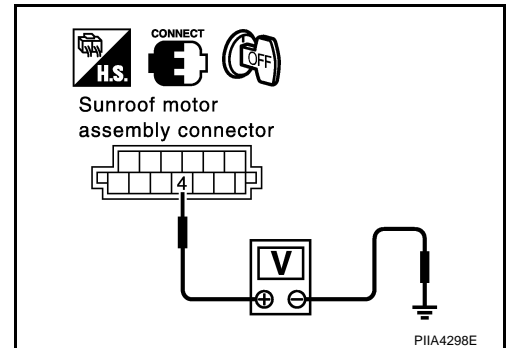
1. Turn ignition switch OFF.
2. Check voltage between sunroof motor assembly connector R6 terminal 4 and ground.

**4 (B/R) – Ground : Battery voltage**

OK or NG

OK >> GO TO 2.

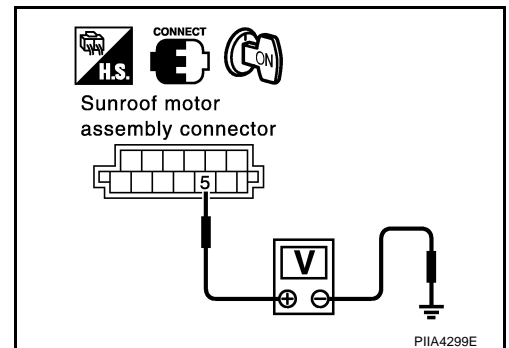
- NG >> ● Check 10A fuse [No.19 located in fuse block (J/B)].
- Check harness for open or short between sunroof motor assembly and fuse.



### 2. CHECK POWER SUPPLY CIRCUIT-II

1. Turn ignition switch ON.
2. Check voltage between sunroof motor assembly connector R6 terminal 5 and ground.

Connector	Terminals (Wire color)		Condition	Voltage (V) (Approx.)
	(+)	(-)		
R6	5 (W)	Ground	Ignition switch ON	Battery voltage
			More than 45 seconds after ignition switch is turned to OFF	0
			When front door LH or RH are open in retained is operates	0



OK or NG

OK >> GO TO 3.

- NG >> ● Check harness for open or short between sunroof motor assembly and BCM.
- Check driver or passenger side door switch. Refer to [RF-17, "Trouble Diagnosis Chart by Symptom"](#).
  - Check BCM. Refer to [RF-18, "BCM Power Supply and Ground Circuit Check"](#).

### 3. CHECK GROUND CIRCUIT

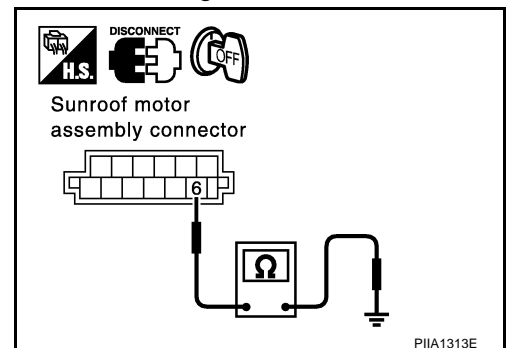
1. Turn ignition switch OFF.
2. Disconnect sunroof motor assembly connector.
3. Check continuity between sunroof motor assembly connector R6 terminal 6 and ground.

**6 (B) – Ground : Continuity should exist.**

OK or NG

OK >> Sunroof motor assembly power supply and ground circuit is OK.

NG >> Repair or replace harness.



## Sunroof Switch System Check

### 1. CHECK POWER SUPPLY CIRCUIT

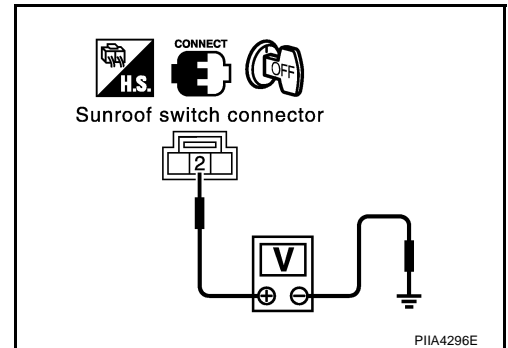
1. Turn ignition switch OFF.
2. Check voltage between sunroof switch connector R53 terminal 2 and ground.

**2 (Y/G) – Ground : Battery voltage**

OK or NG

OK >> GO TO 2.

- NG >> ● Check 10A fuse [No.19 located in fuse block (J/B)].
- Check harness for open or short between sunroof switch and fuse.



### 2. CHECK SUNROOF SWITCH

1. Disconnect sunroof switch connector.
2. Operate sunroof switch, and check continuity between terminals 1 and 3, and terminal 2 on the sunroof switch connector R53 in each of the switch positions.

**TILT UP switch operation**

**2 – 3 : Continuity should exist.**

**CLOSE switch operation**

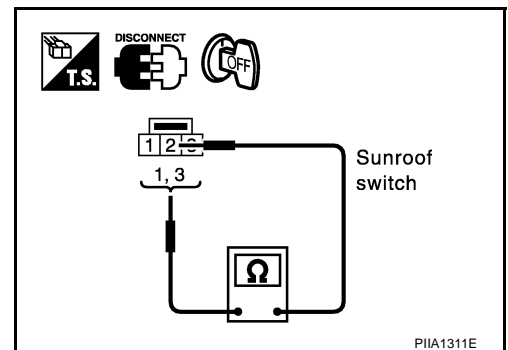
**2 – 3 : Continuity should exist.**

**TILT DOWN switch operation**

**1 – 2 : Continuity should exist.**

**OPEN switch operation**

**1 – 2 : Continuity should exist.**



OK or NG

OK >> GO TO 3.

NG >> Replace sunroof switch.

### 3. CHECK HARNESS CONTINUITY

1. Disconnect sunroof motor assembly connector.
2. Check continuity between sunroof motor assembly connector R6 terminals 1, 2 and sunroof switch connector R53 terminals 1, 3.

**1 (L/R) – 3 (L/R) : Continuity should exist.**

**2 (L/B) – 1 (L/B) : Continuity should exist.**

3. Check continuity between sunroof motor assembly connector R6 terminals 1, 2 and ground.

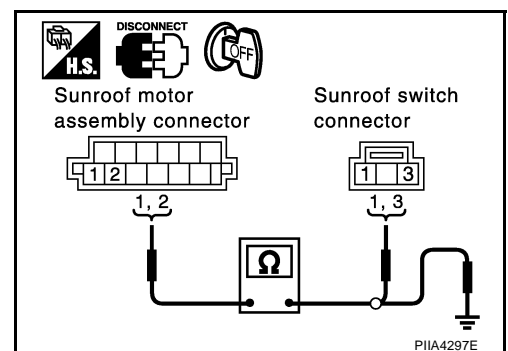
**1 (L/R) – Ground : Continuity should not exist.**

**2 (L/B) – Ground : Continuity should not exist.**

OK or NG

OK >> Sunroof switch system is OK.

NG >> Repair or replace harness between sunroof motor assembly and sunroof switch.



## Door Switch Check

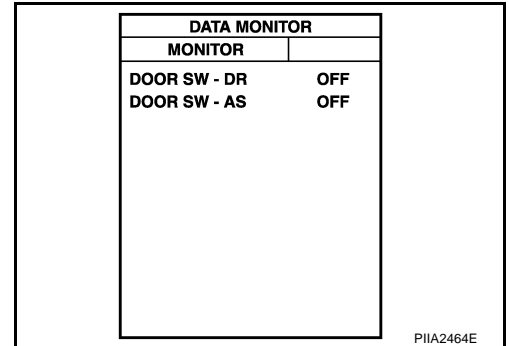
AIS002H7

### 1. CHECK DOOR SWITCH INPUT SIGNAL

**With CONSULT-II**

Check door switches ("DOOR SW-DR" and "DOOR SW-AS") in "DATA MONITOR" mode with CONSULT-II.

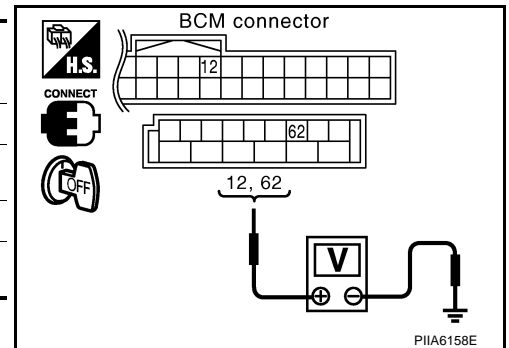
Monitor item	Condition	
DOOR SW-DR	OPEN	: ON
	CLOSE	: OFF
DOOR SW-AS	OPEN	: ON
	CLOSE	: OFF



**Without CONSULT-II**

1. Turn ignition switch OFF.
2. Check voltage between BCM connectors M1, M2 terminals 12, 62 and ground.

Item	Connector	Terminals (Wire color)		Condition	Voltage (V) (Approx.)
		(+)	(-)		
Passenger side door switch	M1	12 (P)	Ground	OPEN	0
				CLOSE	Battery voltage
Driver side door switch	M2	62 (W)	Ground	OPEN	0
				CLOSE	Battery voltage



**OK or NG**

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

A  
B  
C  
D  
E  
F  
G  
H  
RF  
J  
K  
L  
M

# SUNROOF

## 2. CHECK DOOR SWITCH CIRCUIT

1. Disconnect door switch and BCM connector.
2. Check continuity between door switch connectors B17, B23 terminal 1 and BCM connectors M1, M2 terminals 12, 62.

### Driver side door

**1 (W) – 62 (W) : Continuity should exist.**

### Passenger side door

**1 (P) – 12 (P) : Continuity should exist.**

3. Check continuity between BCM connectors M1, M2 terminal 12, 62 and ground.

### Driver side door

**62 (W) – Ground : Continuity should not exist.**

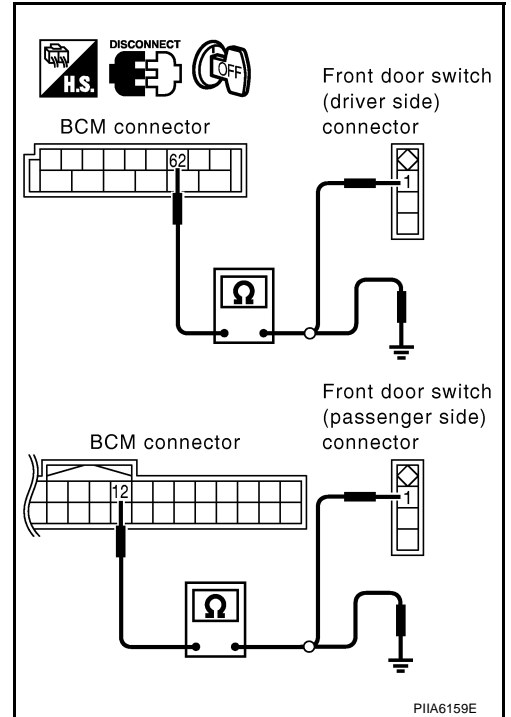
### Passenger side door

**12 (P) – Ground : Continuity should not exist.**

### OK or NG

OK >> GO TO 3.

NG >> Repair or replace harness.



## 3. CHECK DOOR SWITCH

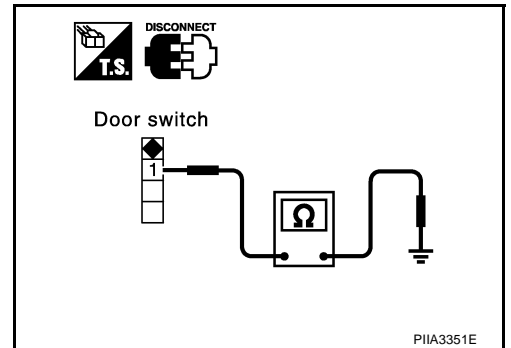
Check continuity between each door switch terminal 1 and ground part of door switch.

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

### OK or NG

OK >> Further inspection is necessary. Refer to [RF-17, "Trouble Diagnosis Chart by Symptom"](#).

NG >> Replace malfunction door switch.



## Link and Wire Assembly

AIS0004T

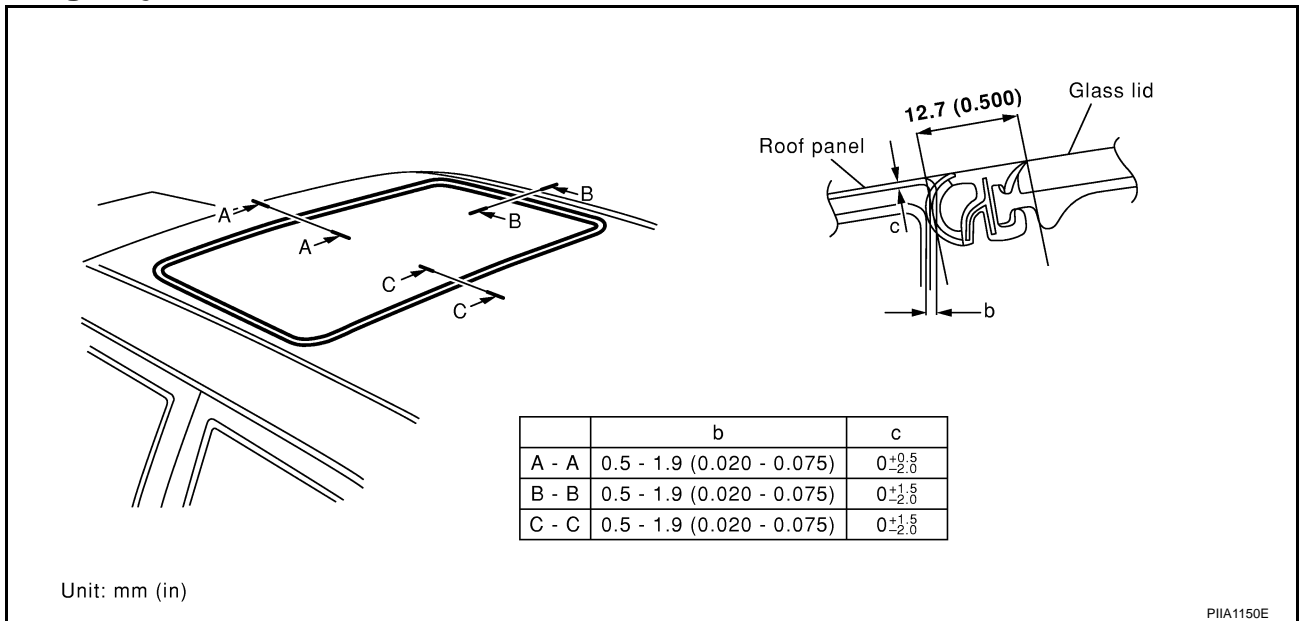
### NOTE:

Before replacing a suspect part, carefully ensure it is the source of noise being experienced.

1. Check link to determine if coated film has peeled off to such an extent that substrate is visible. Check also to determine if link is the source of noise. If it is, replace it.
2. Visually check to determine if a sufficient amount of grease has been applied to wire or rail groove. If not, add grease as required.
3. Check wire for any damage or deterioration. If any damage is found, replace wire.

## Fitting Adjustment

AIS0004U



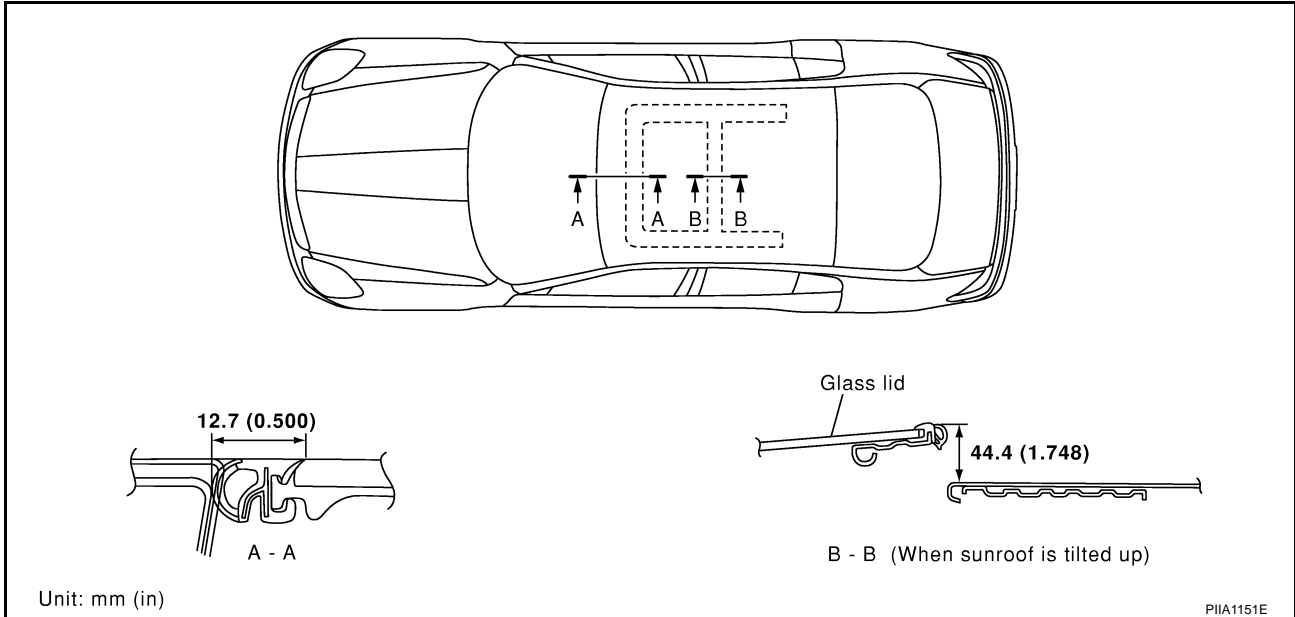
### GAP ADJUSTMENT (A-A, B-B, C-C)

1. Tilt up glass lid to remove upper and lower side trims.
2. Loosen glass lid installation bolts, and tilt down glass lid.
3. Adjust glass lid according to sections A - A, B - B, C - C, as shown in the figure.
4. After adjusting glass lid, tighten bolts to specified torque.
5. Tilt glass lid 4 to 5 times to confirm that it goes up and down smoothly.

# SUNROOF

## HEIGHT DIFFERENCE ADJUSTMENT

1. Tilt glass lid up and down.
2. Check height difference between roof panel and glass lid, and compare to "A – A" as shown.



3. If necessary, adjust height difference by using the following procedure.
  1. Tilt up glass lid to remove upper and lower side trims.
  2. Loosen glass lid installation bolts, and tilt down glass lid.
  3. Loosen glass lid installation bolts and move glass lid to adjust surface height of the glass lid and roof panel.
  4. After adjusting glass lid, tighten installation bolts to specified torque.
  5. Tilt glass lid 4 to 5 times to confirm that it goes up and down smoothly.
  6. After adjusting the fit, use a hose to flush entire roof with water and check for leaks.

## Removal and Installation

AIS0004V

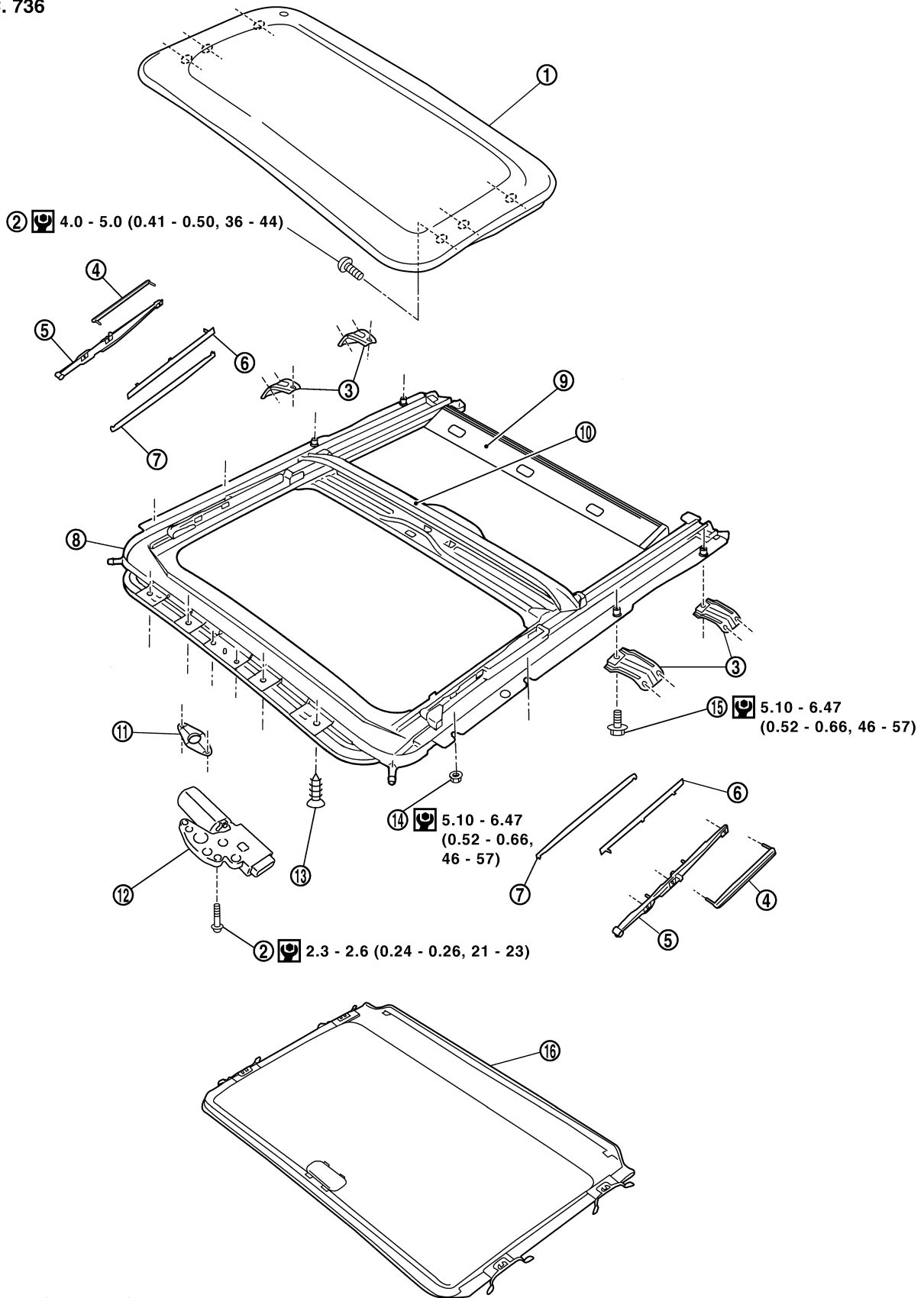
### CAUTION:

- Always work with a helper.
- Before removal, fully close the glass lid assembly. Then, after removal, do not move the motor assembly.
- After installing the sunroof and glass lid, check gap adjustment to ensure it is within the standard.



# SUNROOF

SEC. 736



: N•m (kg-m, in-lb)

- |                    |                     |                       |
|--------------------|---------------------|-----------------------|
| 1. Glass lid       | 2. TORX bolt (T25)  | 3. Sunroof bracket    |
| 4. Connecting arm  | 5. Sunroof guide    | 6. Side trim upper    |
| 7. Side trim lower | 8. Sunroof assembly | 9. Headlining bracket |

PIIB1326E

# SUNROOF

- |                            |                  |                            |
|----------------------------|------------------|----------------------------|
| 10. Drain channel assembly | 11. Spacer plate | 12. Sunroof motor assembly |
| 13. TORX bolt (T25)        | 14. Nut          | 15. Bolt                   |
| 16. Sunshade               |                  |                            |

## SUNROOF UNIT

### Removal

#### CAUTION:

- Always work with a helper.
  - When taking sunroof unit out, use cloths to protect the seats and trim from damage.
  - After installing the sunroof unit and glass lid, be sure to check gap adjustment to ensure it is within the standard.
1. Remove headlining. Refer to [EI-45, "Removal and Installation"](#) .
  2. Disconnect drain hoses.
  3. Remove glass lid. Refer to [RF-26, "GLASS LID"](#) .
  4. Disconnect connector from sunroof motor.
  5. Remove TORX bolts (T25) from the front end.
  6. Remove nuts from side rails.
  7. Remove bolts from front sunroof bracket.
  8. Remove bolts from rear sunroof bracket, and then remove sunroof unit from roof panel.
  9. Remove sunroof unit through the passenger compartment while being careful not to damage the seats and trim.

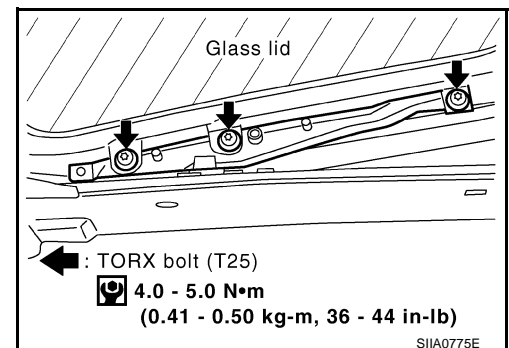
### Installation

1. Temporarily tighten the mounting bolts to the rear sunroof brackets.
2. Bring sunroof unit into passenger compartment and place the rear end of the rail onto the rear sunroof brackets.
3. Temporarily tighten the nuts to the side rail.
4. Temporarily tighten the TORX bolts (T25) to the front end.
5. Tighten the installation point bolts diagonally excluding the installation point of the sunroof bracket around the roof opening.
6. Tighten the vehicle side bolts of the front sunroof bracket.
7. Tighten the vehicle side bolts of the rear sunroof bracket.
8. Tighten the TORX bolts (T25) to the front end and nuts to the side rail.
9. Install glass lid. Refer to [RF-26, "GLASS LID"](#) .
10. Connect drain hoses.
11. Install headlining. Refer to [EI-45, "Removal and Installation"](#) .

## GLASS LID

### Removal

1. Open sunroof shade.
2. Carefully pry away trim to access glass lid securing TORX bolts (T25).
3. Remove TORX bolts (T25) securing glass lid assembly to sunroof assembly.



### Installation

1. Position glass lid to sunroof assembly.

# SUNROOF

2. Tighten glass lid TORX bolts (T25) to specification. (First tighten left front bolt, then tighten right rear bolt on glass lid to prevent lid from moving while tightening other bolts.)
3. Position and push trim into place.
4. After installation, perform fitting adjustment.

## SUNSHADE

### Removal

#### CAUTION:

Before removing or installing the sunshade, be sure to remove the sunroof unit from the vehicle.

1. Remove glass lid. Refer to [RF-26, "GLASS LID"](#).
2. Press sunroof OPEN switch, and move rear drain assembly toward rear of vehicle.
3. Move it to a position where it does not come in contact with sunshade.

#### NOTE:

Remove sunshade holders on one side of sunroof rail assembly using a screwdriver.

4. After removing sunshade holders (one side), lift sunshade slightly from rail and remove holders on the other side. Remove sunshade.

### Installation

Install in the reverse order of removal.

#### CAUTION:

Before installing glass lid, operate sunroof switch to tilt up glass lid. After installing, confirm sunshade opens and closes smoothly.

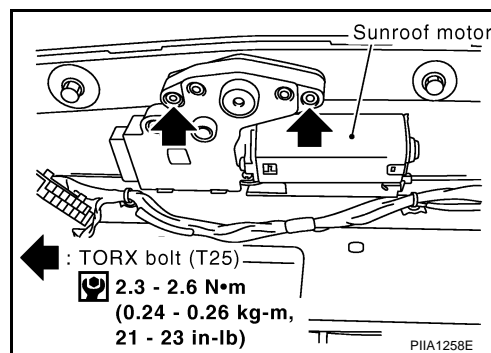
## SUNROOF MOTOR

### Removal

1. Position sunroof glass lid in fully-open position.
2. Remove headlining. Refer to [EI-45, "Removal and Installation"](#).
3. Disconnect connector from sunroof motor.
4. Remove motor TORX bolt (T25) and then detach sunroof motor.

#### CAUTION:

- When removing the sunroof motor, be sure that the sunroof is in the fully-closed position.
- Do not run the removed motor as a single unit.



### Installation

1. Move the motor laterally little by little so that the gear is completely engaged into the wire on the sunroof unit and the mounting surface becomes parallel. Then secure the motor with TORX bolts (T25).
2. Connect connector to sunroof motor, and then perform initialize.

#### CAUTION:

Initialization of it after installing the sunroof motor. Refer to [RF-11, "INITIALIZATION PROCEDURE"](#).

3. After installation, confirm sunroof operates correctly.

#### CAUTION:

Before installing the sunroof motor assembly, be sure to place the link and wire assembly in the symmetrical and fully closed position.

# SUNROOF

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