

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”

EIS004DI

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

EIS004DJ

- Disconnect both battery cables in advance.
- Never 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 benzine.

# PREPARATION

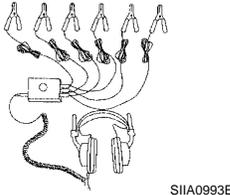
## PREPARATION

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### Special Service Tool

EIS004DK

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	 <p style="text-align: right;">SIIA0993E</p>
— (J-43980) NISSAN Squeak and Rattle Kit	 <p style="text-align: right;">SIIA0994E</p>

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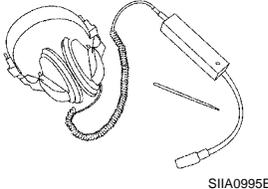
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### Commercial Service Tool

EIS004DL

(Kent-Moore No.) Tool name	Description
(J-39565) Engine ear	 <p style="text-align: right;">SIIA0995E</p>

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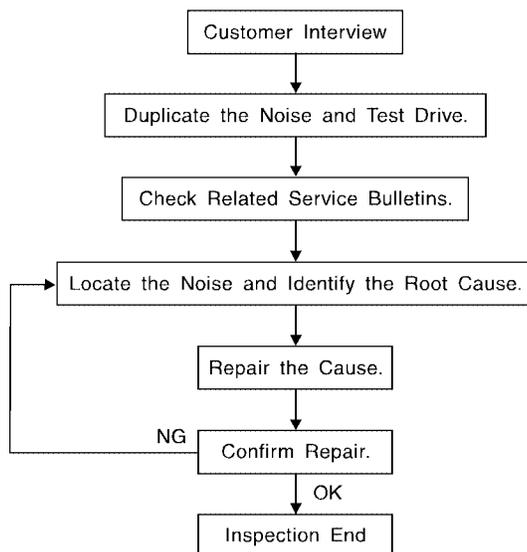
# SQUEAK AND RATTLE TROUBLE DIAGNOSES

## SQUEAK AND RATTLE TROUBLE DIAGNOSES

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### Work Flow

EIS004DM



SBT842

### 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 [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: J-39570, Engine Ear: J-39565 and mechanic's 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 fasteners 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 (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)**

# SQUEAK AND RATTLE TROUBLE DIAGNOSES

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**80845-71L00: 30 mm (1.18 in) thick, 30×50 mm (1.18×1.97 in)**

## **FELT CLOTH TAPE**

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 instead 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**

EIS004DN

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 silicone 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.

# 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 bumpers 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. Sun visor 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.

## OVERHEAD CONSOLE (FRONT AND REAR)

Overhead console noises are often caused by the console panel clips not being engaged correctly. Most of these incidents are repaired by pushing up on the console at the clip locations until the clips engage.

In addition, look for:

1. Loose harness or harness connectors.
2. Front console map/reading lamp lense loose.
3. Loose screws at console attachment points.

## 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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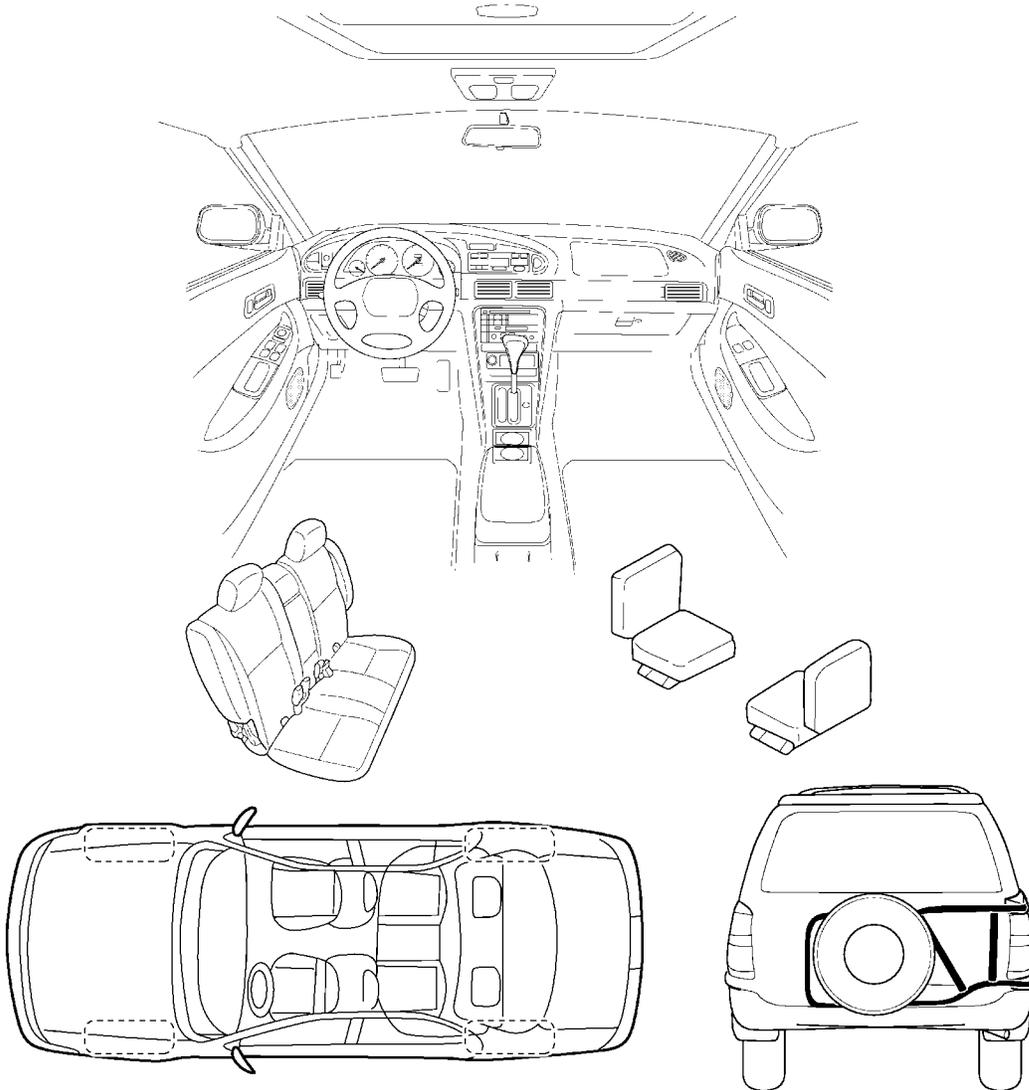
### SQUEAK & RATTLE DIAGNOSTIC WORKSHEET

Dear Nissan Customer:

We are concerned about your satisfaction with your Nissan vehicle. Repairing a squeak or rattle sometimes can be very difficult. To help us fix your Nissan 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.

LIWA0276E

# 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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	<u>YES</u>	<u>NO</u>	<u>Initials of person performing</u>
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: \_\_\_\_\_

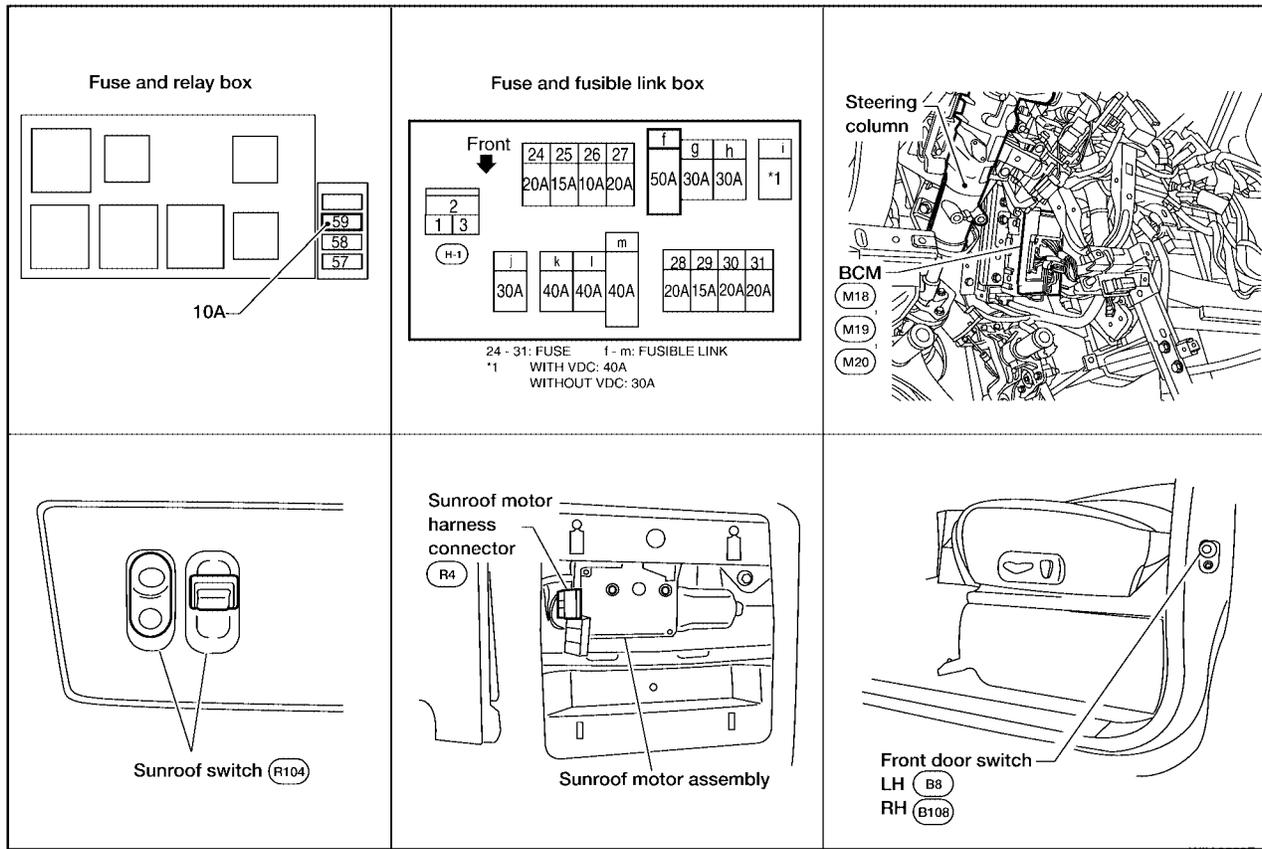
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**This form must be attached to Work Order**

SUNROOF

Component Parts and Harness Connector Location

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WI1A0556E

System Description  
OUTLINE

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Electric sunroof system consists of

- Sunroof switch
- Sunroof motor assembly
- Front door switches
- BCM (body control module)

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

OPERATION

Power is supplied at all times

- through 50A fusible link (letter f , located in the fuse and fusible link box)
- to BCM terminal 70, and
- through BCM terminal 69
- to sunroof motor assembly terminal 5.

With ignition switch in ON or START position, power is supplied

- through 10A fuse (No. 59, located in the fuse and relay box)
- to BCM terminal 38.

Ground is supplied

- to BCM terminal 67 and
- to sunroof motor assembly terminal 7
- through grounds M57, M61 and M79.

# SUNROOF

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## TILT UP OPERATION

When the tilt switch is operated for tilt up, ground is supplied

- to sunroof motor assembly terminal 4
- through sunroof switch terminal 4
- through sunroof switch terminal 2
- through sunroof motor assembly terminal 8
- through grounds M57, M61 and M79.

Then, the sunroof will tilt up.

## TILT DOWN OPERATION

When the tilt switch is operated for tilt down, ground is supplied

- to sunroof motor assembly terminal 10
- through sunroof switch terminal 6
- through sunroof switch terminal 2
- through sunroof motor assembly terminal 8
- through grounds M57, M61 and M79.

Then, the sunroof will tilt down.

## SLIDE OPEN OPERATION

When the switch is operated for slide open, ground is supplied

- to sunroof motor assembly terminal 9
- through sunroof switch terminal 3
- through sunroof switch terminal 2
- through sunroof motor assembly terminal 8
- through grounds M57, M61 and M79.

Then, the sunroof will slide open.

## SLIDE CLOSE OPERATION

When the switch is operated for slide close, ground is supplied

- to sunroof motor assembly terminal 3
- through sunroof switch terminal 1
- through sunroof switch terminal 2
- through sunroof motor assembly terminal 8
- through grounds M57, M61 and M79.

Then, the sunroof will slide closed.

## RETAINED POWER OPERATION

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

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 slide switch will become inoperable and 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 tilt switch in the forward (DOWN) position until the sunroof is fully closed. After it has closed all the way, push and hold the tilt switch forward (DOWN) for more than 2 seconds to re-establish the motor preset position. The sunroof should then operate normally.

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# SUNROOF

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## **INTERRUPTION DETECTION FUNCTION**

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

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

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

## **CAN Communication System Description**

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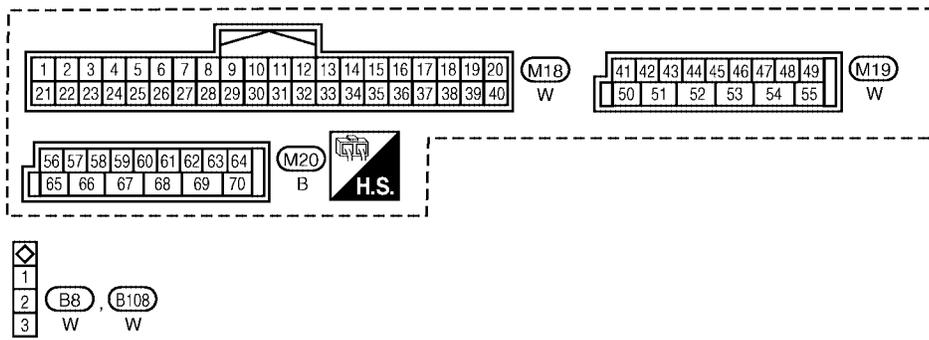
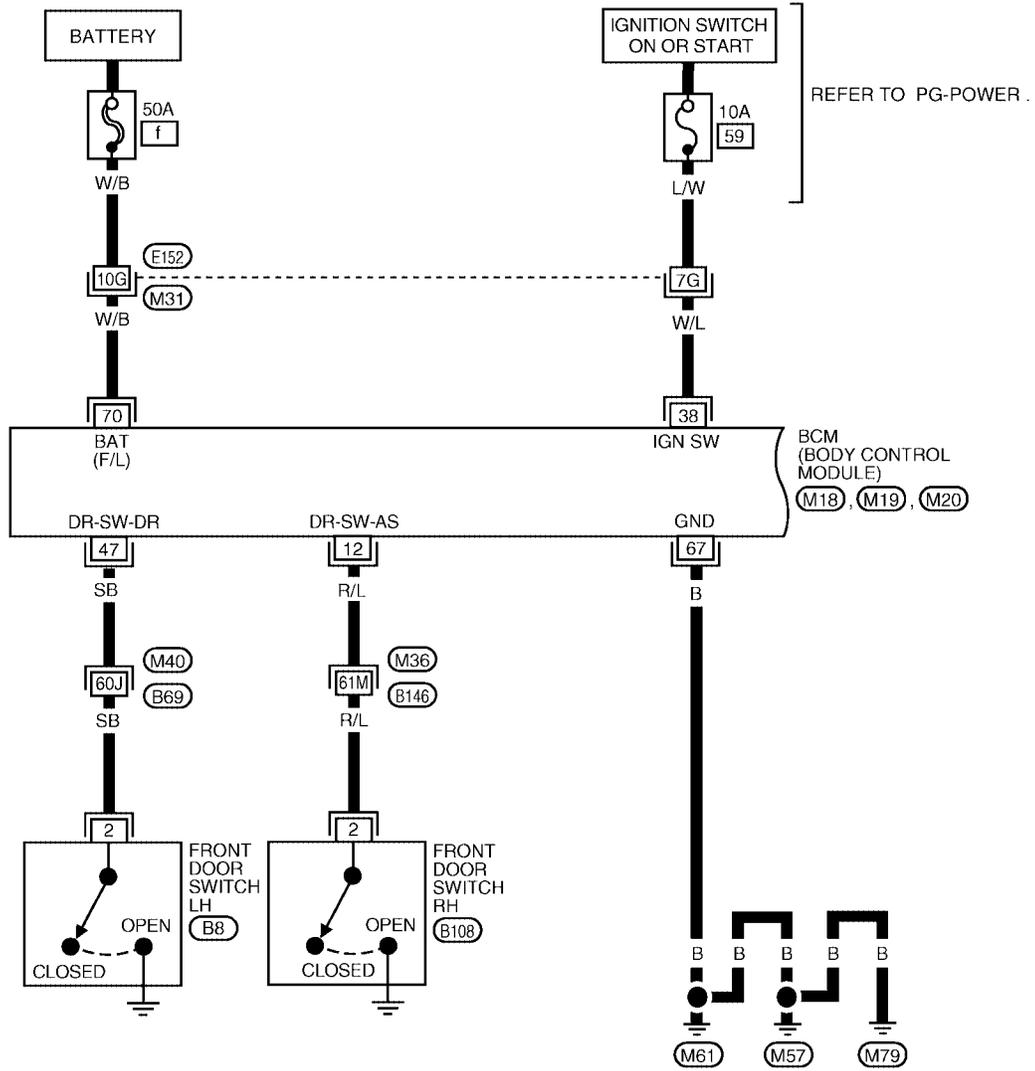
Refer to [LAN-7, "CAN COMMUNICATION"](#) .

# SUNROOF

## Wiring Diagram — SROOF —

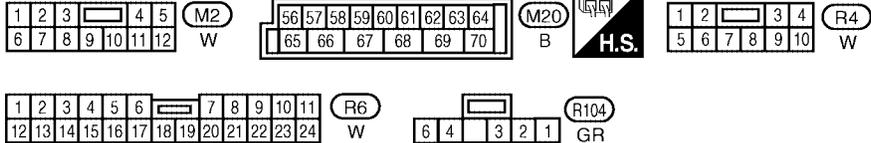
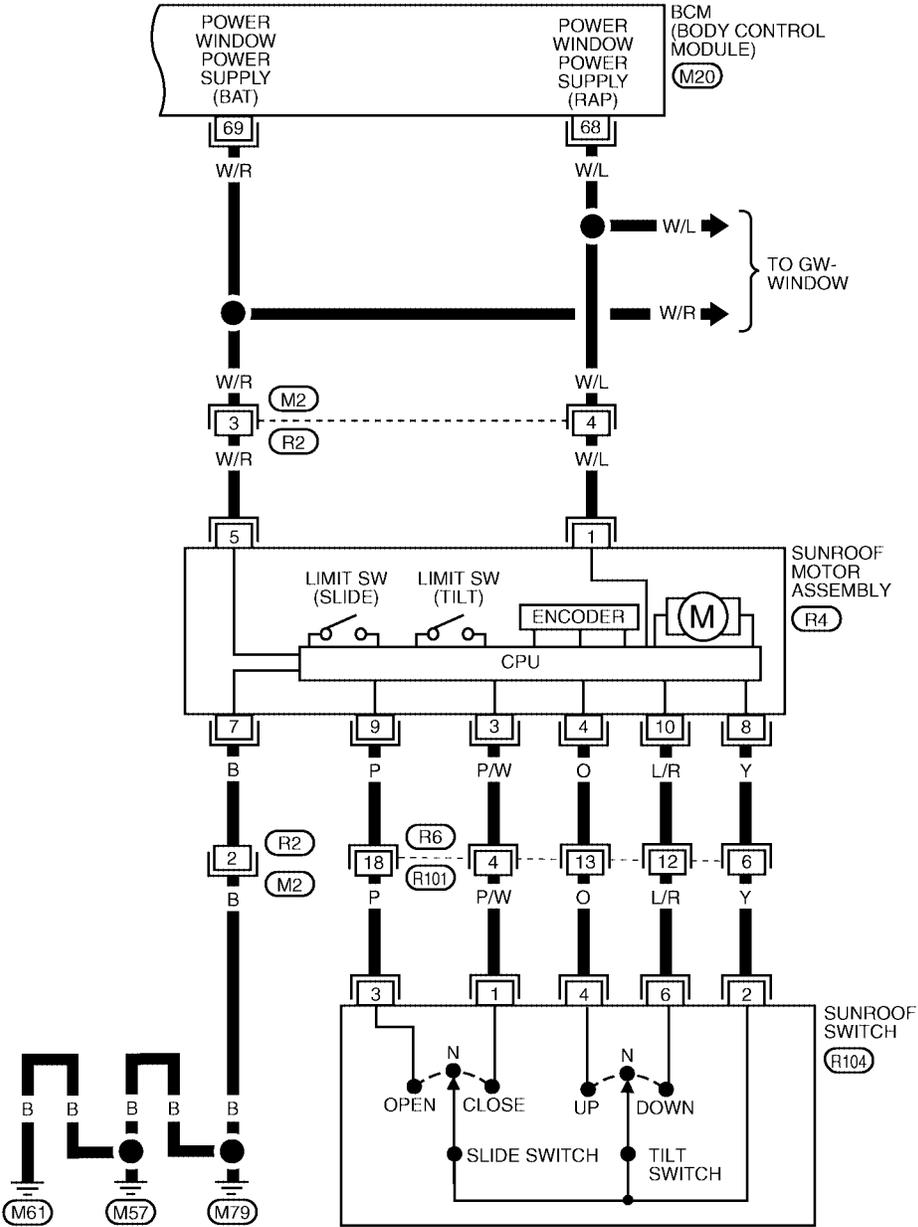
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### RF-SROOF-01



# SUNROOF

RF-SROOF-02



WIWA0318E

# SUNROOF

## Terminals and Reference Values for BCM

EIS004DT

Terminal	Wire Color	Item	Condition	Voltage (Approx.)
12	R/L	Front door switch RH signal	ON (Open)	0
			OFF (Close)	Battery voltage
38	W/L	Ignition power supply	Ignition switch ACC or ON	Battery voltage
47	SB	Front door switch LH signal	ON (Open)	0
			OFF (Close)	Battery voltage
67	B	Ground	—	—
68	W/L	RAP signal	Ignition switch ON	Battery voltage
			Within 45 second after ignition switch is turned OFF	Battery voltage
			When front door LH or RH is open while retained power is operating	0
69	W/R	Power window power supply	—	Battery voltage
70	W/B	BAT power supply	—	Battery voltage

## Terminals and Reference Values for Sunroof Motor Assembly

EIS004DU

Terminal	Wire Color	Item	Condition	Voltage (Approx.)
1	W/L	RAP signal	Ignition switch ON	Battery voltage
			Within 45 second after ignition switch is turned OFF	Battery voltage
			When front door LH or RH is open while retained power is operating	0
3	P/W	Sunroof switch CLOSE signal	Ignition switch ON and sunroof switch CLOSE position	0
			Other than above	Battery voltage
4	O	Sunroof switch TILT UP signal	Ignition switch ON and sunroof switch in TILT UP position	0
			Other than above	Battery voltage
5	W/R	BAT power supply	—	Battery voltage
7	B	Ground	—	—
8	Y	Ground signal	—	—
9	P	Sunroof switch OPEN signal	Ignition switch ON and sunroof switch OPEN position	0
			Other than above	Battery voltage
10	L/R	Sunroof switch TILT DOWN signal	Ignition switch ON and sunroof switch in TILT DOWN position	0
			Other than above	Battery voltage

## Work Flow

EIS004DV

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 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

EIS004DW

## CONSULT-II Function (BCM)

CONSULT-II can display each diagnostic item using the diagnostic test modes shown following.

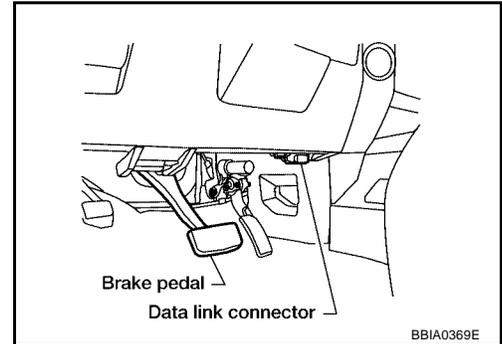
BCM diagnostic test item	Diagnostic mode	Description
Inspection by part	WORK SUPPORT	Supports inspections and adjustments. Commands are transmitted to the BCM for setting the status suitable for required operation, input/output signals are received from the BCM and received data is displayed.
	DATA MONITOR	Displays BCM input/output data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
	SELF-DIAG RESULTS	Displays BCM self-diagnosis results.
	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
	ECU PART NUMBER	BCM part number can be read.
	CONFIGURATION	Performs BCM configuration read/write functions.

## CONSULT-II OPERATION

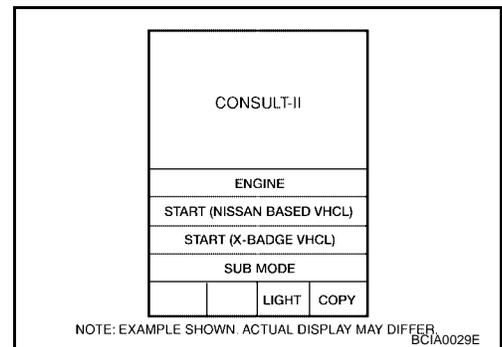
### CAUTION:

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

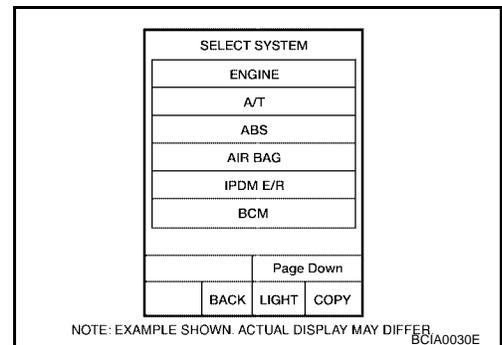
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn ignition switch ON.



2. Touch "START (NISSAN BASED VHCL)".

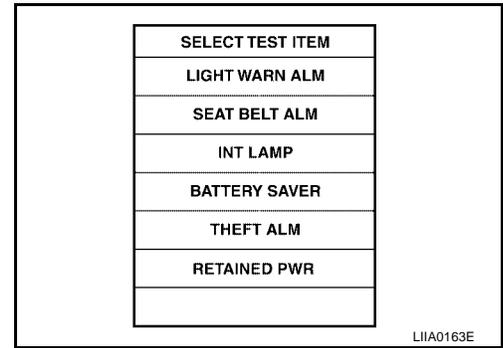


3. Touch "BCM".  
If "BCM" is not indicated, go to [GI-38, "CONSULT-II Data Link Connector \(DLC\) Circuit"](#).

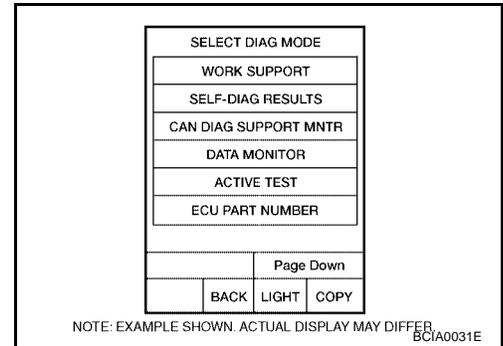


# SUNROOF

4. Touch "RETAINED PWR".



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



## Work Support

EIS004DZ

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

## Active Test

EIS004DY

Test item	Description
RETAINED PWR	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.  <b>NOTE:</b> <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 ON. Then turn ignition switch OFF for checking retained power operation. CONSULT-II might be stuck if "RETAINED PWR" is turned "ON" or "OFF" on CONSULT-II screen when ignition switch is OFF.</b>

## Data Monitor

EIS004DX

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.

## Trouble Diagnosis Chart by Symptom

EIS004EO

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-20</a>
	2. Sunroof switch system check	<a href="#">RF-19</a>
	3. BCM power supply and ground circuit check	<a href="#">RF-18</a>
	4. Replace sunroof motor assembly	<a href="#">RF-26</a>

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Symptom	Diagnostic procedure and repair order	Refer to page
Retained power operation does not operate properly.	1. Check the retained power operation mode setting	<a href="#">RF-17</a>
	2. BCM power supply and ground circuit check	<a href="#">RF-18</a>
	3. Door switch check	<a href="#">RF-21</a>
	4. Replace sunroof motor assembly	<a href="#">RF-26</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-26</a>
Sunroof interruption detection does not operate properly.	1. Replace sunroof motor assembly	<a href="#">RF-26</a>

## BCM Power Supply and Ground Circuit Check

EIS004E1

### 1. CHECK FUSE

Check the following BCM fuse and fusible link.

Component Parts	Terminal No. (SIGNAL)	Ampere	No.	Location
BCM	38 (IGN power supply)	10A	59	Fuse and relay box
	70 (BAT power supply)	50A	f	Fuse and fusible link box

#### NOTE:

Refer to [BL-16. "Component Parts and Harness Connector Location"](#) .

#### OK or NG

OK >> GO TO 2.

NG >> If fuse is blown, be sure to eliminate cause of problem before installing new fuse. Refer to [PG-4. "POWER SUPPLY ROUTING CIRCUIT"](#) .

### 2. CHECK POWER SUPPLY CIRCUIT

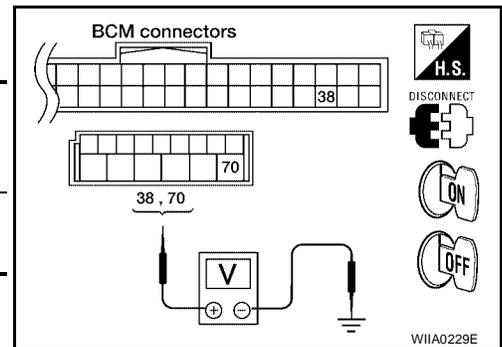
- Turn ignition switch OFF.
- Disconnect BCM connectors.
- Check voltage between BCM connectors M18 and M20 terminals 38, 70 and ground.

Connector	Terminals (Wire color)		Condition	Voltage (Approx.)
	(+)	(-)		
M18	38 (W/L)	Ground	Ignition switch ON	Battery voltage
M20	70 (W/B)		Igniting switch OFF	

#### OK or NG

OK >> GO TO 3.

NG >> Repair or replace harness.



### 3. CHECK GROUND CIRCUIT

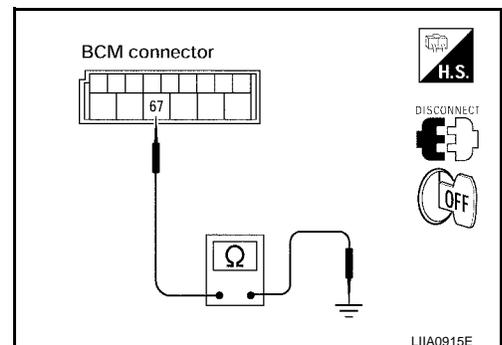
Check continuity between BCM connector M20 terminal 67 and ground.

Connector	Terminals (Wire color)	Continuity
M20	67 (B) Ground	Yes

#### OK or NG

OK >> Power supply and ground circuit is OK.

NG >> Repair or replace harness.



# SUNROOF

EIS004E2

## Sunroof Switch System Check

### 1. CHECK HARNESS CONTINUITY

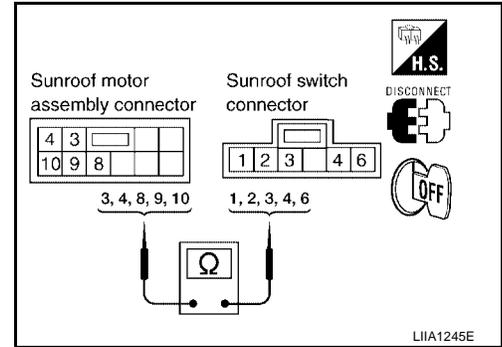
1. Turn ignition switch OFF.
2. Disconnect sunroof motor assembly connector and sunroof switch connector.
3. Check continuity between sunroof motor assembly connector R4 terminals 3 (P/W), 4 (O), 8 (Y), 9 (P), 10 (L/R) and sunroof switch connector R104 terminals 1 (P/W), 2 (Y), 3 (P), 4 (O), 6 (L/R).

- 3 (P/W) - 1 (P/W) : Continuity should exist.**  
**4 (O) - 4 (O) : Continuity should exist.**  
**8 (Y) - 2 (Y) : Continuity should exist.**  
**9 (P) - 3 (P) : Continuity should exist.**  
**10 (L/R) - 6 (L/R) : Continuity should exist.**

OK or NG

OK >> GO TO 3.

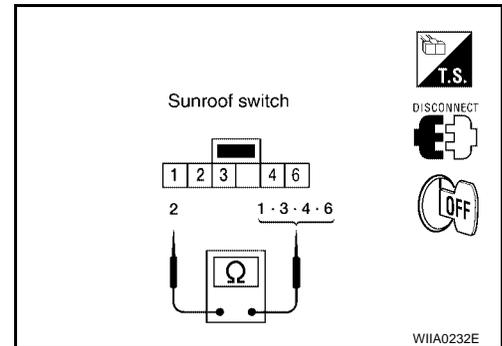
NG >> Repair or replace harness between sunroof motor assembly and sunroof switch.



### 2. CHECK SUNROOF SWITCH

Operate sunroof switch, and check continuity of the sunroof switch as follows.

Terminals	Condition	Continuity
1	Sunroof switch in CLOSE position	Yes
	Other than above	No
3	Sunroof switch in OPEN position	Yes
	Other than above	No
4	Sunroof switch in TILT UP position	Yes
	Other than above	No
6	Sunroof switch in TILT DOWN position	Yes
	Other than above	No



OK or NG

OK >> Sunroof switch and harness are OK. Refer to [RF-17, "Trouble Diagnosis Chart by Symptom"](#).

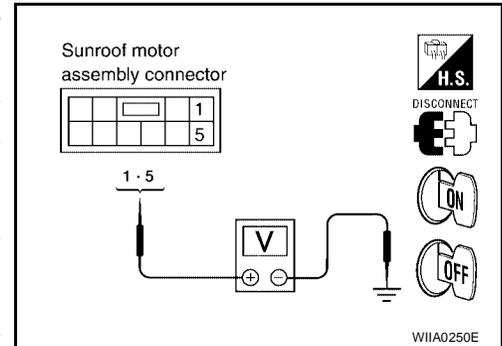
NG >> Replace sunroof switch.

## Sunroof Motor Assembly Power Supply and Ground Circuit Check

### 1. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the sunroof motor assembly connector.
3. Turn ignition switch ON.
4. Check voltage between sunroof motor assembly connector R4 terminals 1(W/L), 5 (W/R) and ground.

Connector	Terminals (Wire color)		Condition	Voltage (Approx.)
	(+)	(-)		
R4	1 (W/L)	Ground	Ignition switch ON	Battery voltage
			Within 45 seconds after ignition switch is turned OFF	Battery voltage
			When front door LH or RH is open while retained power is operating	0
	5 (W/R)		Ignition switch OFF	Battery voltage



OK or NG

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

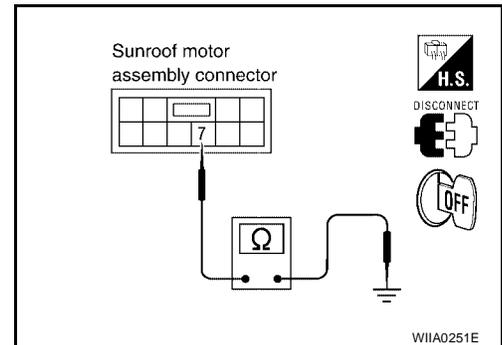
### 2. CHECK GROUND CIRCUIT

Check continuity between sunroof motor assembly connector R4 terminal 7 (B) and ground.

**7 (B) - Ground : Continuity should exist.**

OK or NG

- OK >> Sunroof motor assembly power supply and ground circuits are OK. Further inspection is necessary. Refer to [RF-17, "Trouble Diagnosis Chart by Symptom"](#).
- NG >> Repair or replace harness.



### 3. CHECK BCM OUTPUT SIGNAL

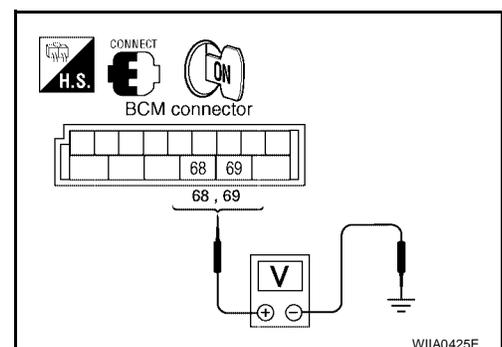
1. Turn ignition switch ON.
2. Check voltage between BCM connector M20 terminals 68, 69 and ground.

**68 (W/L) - Ground : Battery voltage**

**69 (W/R) - Ground : Battery voltage**

OK or NG

- OK >> GO TO 4.  
 NG >> Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#).



# SUNROOF

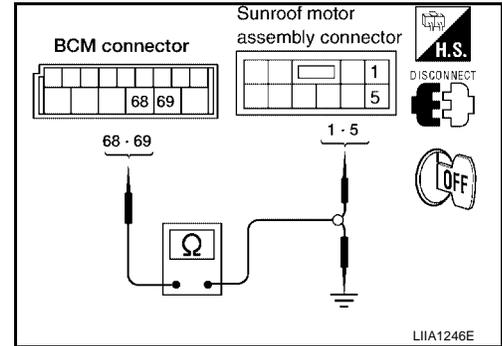
## 4. CHECK SUNROOF MOTOR CIRCUIT HARNESS

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check continuity between BCM connector M20 terminal 68 (W/L), 69 (W/R) and sunroof motor assembly connector R4 terminal 1 (W/L), 5 (W/R).

**68 (W/L) - 1 (W/L) : Continuity should exist.**  
**69 (W/R) - 5 (W/R) : Continuity should exist.**

4. Check continuity between BCM connector M20 terminal 68 (W/L), 69 (W/R) and ground.

**68 (W/L) - Ground : Continuity should not exist.**  
**69 (W/R) - Ground : Continuity should not exist.**



### OK or NG

- OK >> Sunroof motor assembly power supply circuits are OK. Further inspection is necessary. Refer to [RF-17, "Trouble Diagnosis Chart by Symptom"](#).
- NG >> Repair or replace harness between BCM and sunroof motor assembly.

## Door Switch Check

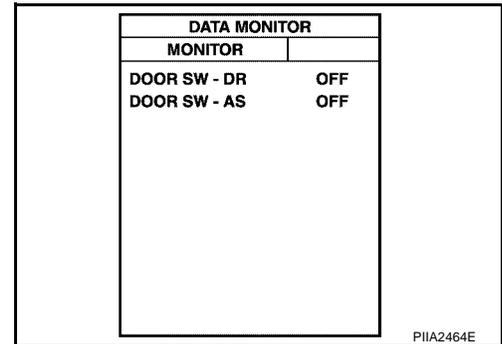
EIS004E4

### 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.

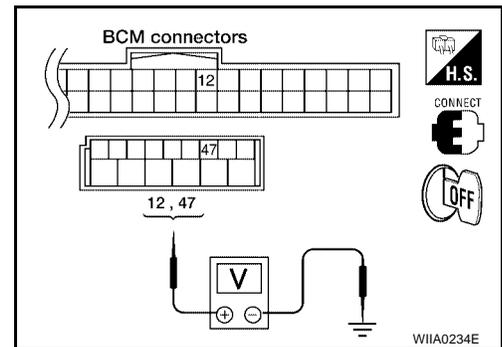
Monitor item	Condition
DOOR SW-DR	OPEN : ON
	CLOSE : OFF
DOOR SW-AS	OPEN : ON
	CLOSE : OFF



#### Without CONSULT-II

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

Item	Connector	Terminals (Wire color)		Condition	Voltage (Approx.)
		(+)	(-)		
RH	M18	12 (R/L)	Ground	Door switch OPEN	0
				Door switch CLOSE	Battery voltage
LH	M19	47 (SB)	Ground	Door switch OPEN	0
				Door switch CLOSE	Battery voltage



### OK or NG

- OK >> Door switches are OK.
- NG >> GO TO 2.

# SUNROOF

## 2. CHECK DOOR SWITCH CIRCUIT

1. Disconnect front door switches and BCM connectors.
2. Check continuity between front door switch connector B8 (LH) or B108 (RH) terminal 2 (SB or R/L) and BCM connectors M18, M19 terminals 12 (R/L), 47 (SB).

**Front door switch LH**

**2 (SB) - 47 (SB) : Continuity should exist.**

**Front door switch RH**

**2 (R/L) - 12 (R/L) : Continuity should exist.**

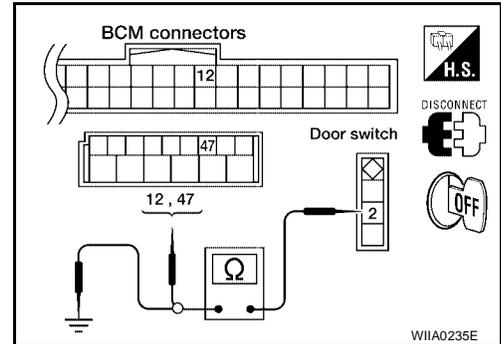
3. Check continuity between front door switch LH connector B8 or front door switch RH connector B108 terminal 2 (SB or R/L) and ground.

**2 (SB or R/L) - Ground : Continuity should not exist.**

OK or NG

OK >> GO TO 3.

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



## 3. CHECK DOOR SWITCHES

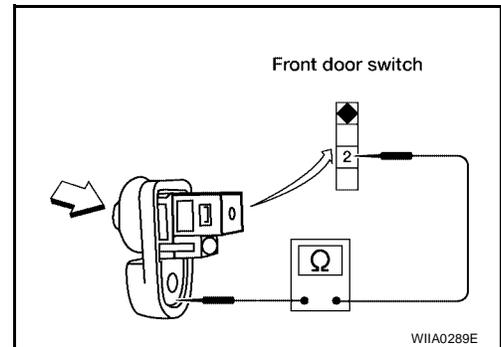
Check continuity between each door switch terminal 2 and body ground part of door switch.

Terminal	Condition	Continuity
2	Door switch pushed	No
	Door switch released	Yes

OK or NG

OK >> GO TO 4.

NG >> Replace malfunctioning door switch.



## 4. CHECK BCM OUTPUT SIGNAL

1. Connect BCM connectors.
2. Check voltage between BCM connector M18 terminal 12 (R/L), M19 terminal 47 (SB) and ground.

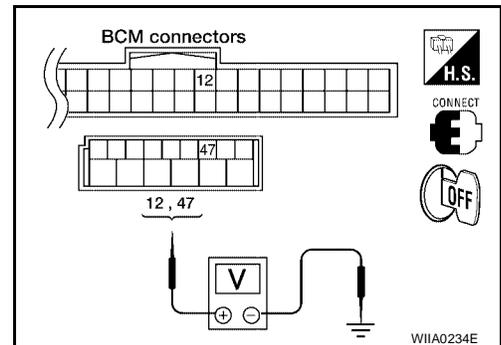
**12 (R/L) - Ground : Battery voltage**

**47 (SB) - Ground : Battery voltage**

OK or NG

OK >> Check the condition of the harness and the connector.

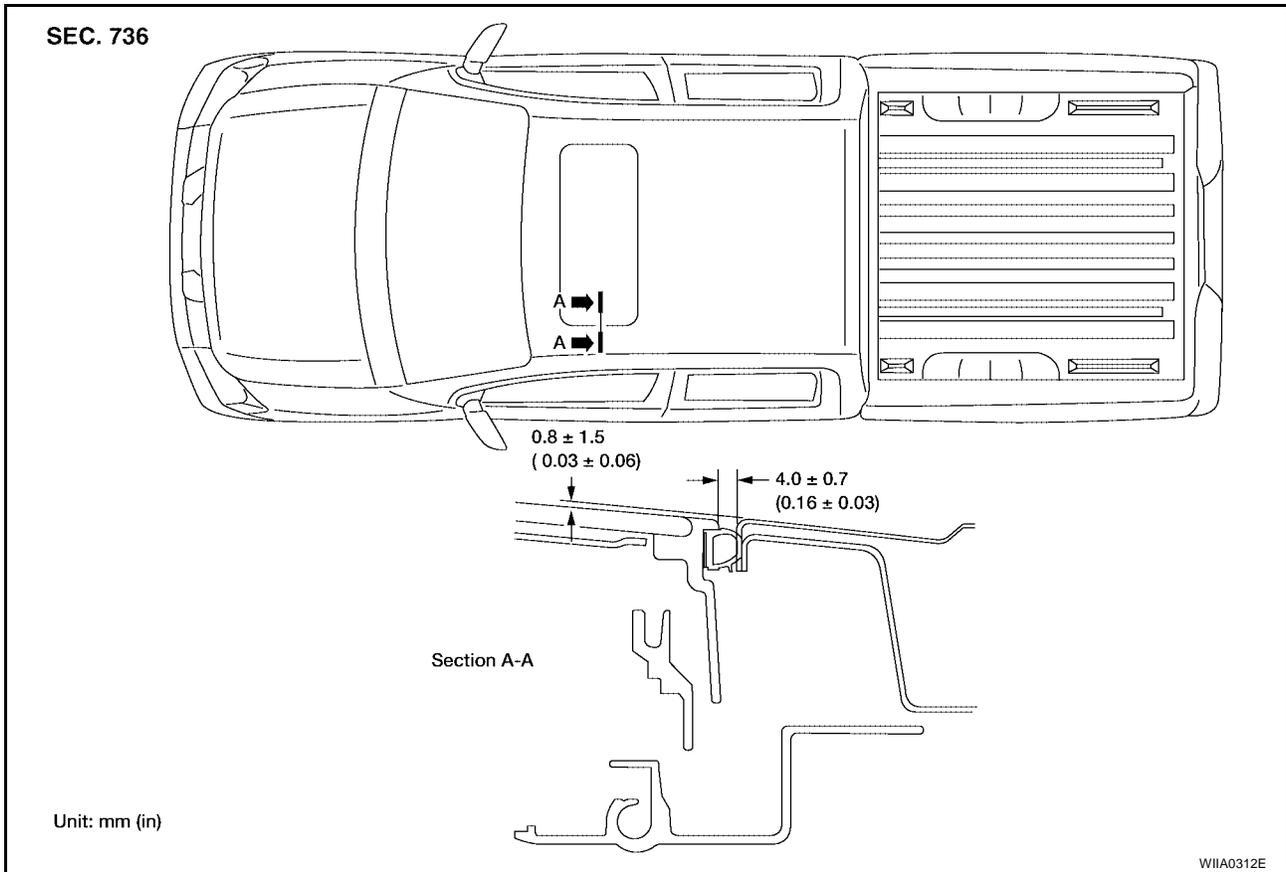
NG >> Replace BCM. Refer to [BCS-19, "Removal and Installation of BCM"](#).



# SUNROOF

## Fitting Adjustment

EIS004E5



### GAP ADJUSTMENT

#### NOTE:

If any gap or height difference between glass lid and roof panel is found, check glass lid fit and adjust as follows:

1. Open sunshade assembly.
2. Loosen glass lid securing screws (2 each on left and right sides), then tilt glass lid down.
3. Manually adjust glass lid from outside of vehicle so it resembles "A-A" as shown in the figure.
4. After adjusting glass lid tilt glass lid up and tighten screws.
5. Tilt glass lid up and down several times to check that it moves smoothly.

### 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".

### Removal and Installation

EIS004E6

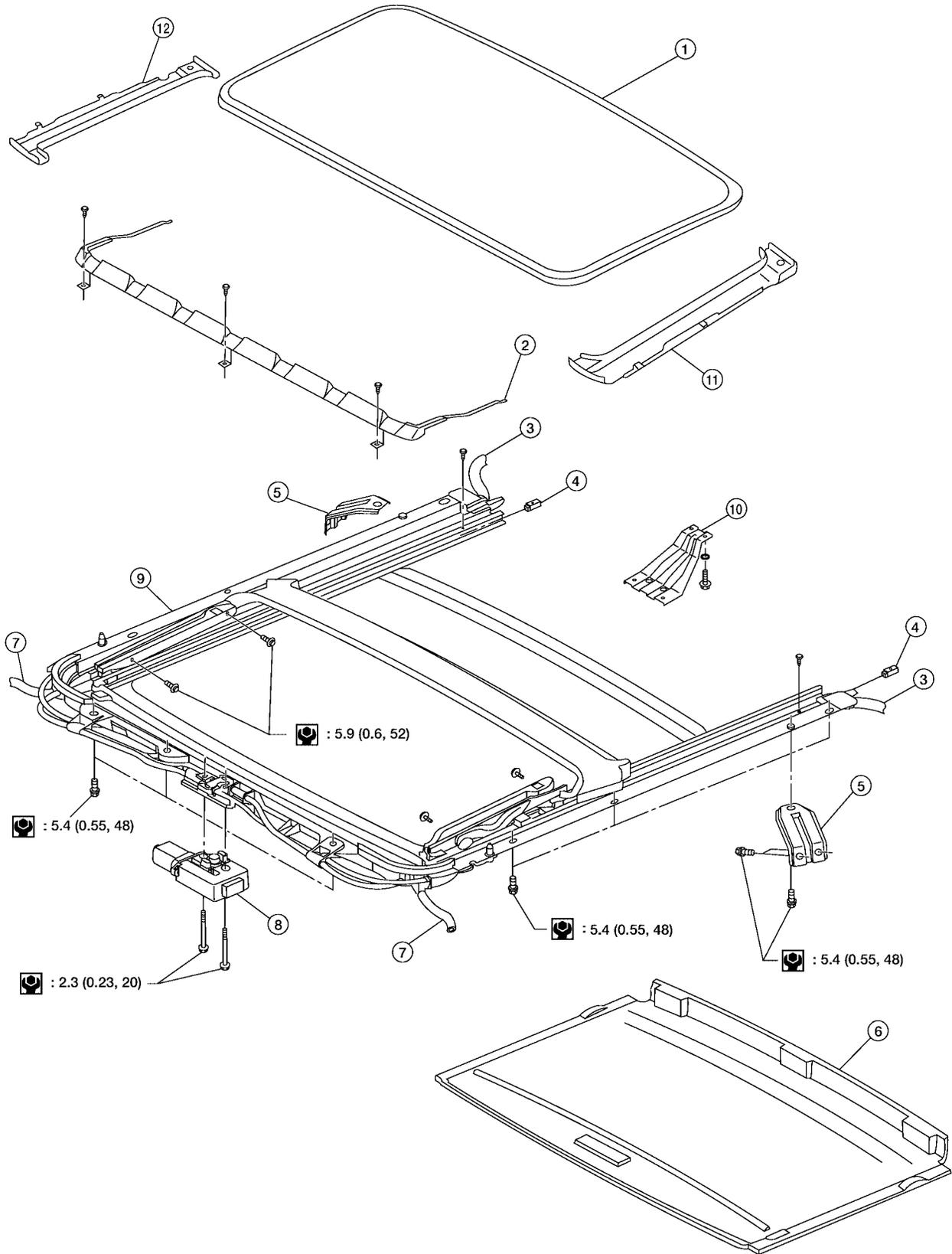
- After any adjustment, check sunroof operation and glass lid alignment.
- Handle glass lid with care so not to cause damage.
- For easier installation, mark each point before removal.

#### CAUTION:

- Always work with a helper.
- Before removal, fully close the glass lid assembly. Then, after removal, do not move the motor assembly.

# SUNROOF

- After installing the sunroof and glass lid, check gap adjustment to ensure there is no malfunction.



 : N-m (kg-m, in-lb)

WIIA0238E

# SUNROOF

- |                              |                           |                           |
|------------------------------|---------------------------|---------------------------|
| 1. Glass lid assembly        | 2. Wind deflector         | 3. Rear drain hoses       |
| 4. Shade stoppers            | 5. Sunroof bracket        | 6. Sunshade assembly      |
| 7. Front drain hoses         | 8. Sunroof motor assembly | 9. Sunroof frame assembly |
| 10. Overhead console bracket | 11. Side cover LH         | 12. Side cover RH         |

A  
B

## SUNROOF UNIT

### Removal

#### CAUTION:

- Always work with a helper.
- When taking sunroof unit out, use shop 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 there is no malfunction.

1. Remove headlining. Refer to [EI-43, "HEADLINING"](#) .
2. Remove the sunroof glass lid. Refer to [RF-25, "GLASS LID"](#) .
3. Remove overhead console bracket.
4. Disconnect the drain hoses.
5. Remove front sunroof bolts.
6. Remove rear sunroof bracket bolts.
7. Remove the side bolts and the sunroof unit.

C  
D  
E  
F  
G

### Installation

1. Position the sunroof frame assembly and install the side bolts.
2. Install the rear brackets.
3. Install the front mounting bolts.
4. Connect drain hoses.
5. Install the overhead console bracket.
6. Install the sunroof glass lid. Refer to [RF-25, "GLASS LID"](#) .
7. Install headlining. Refer to [EI-43, "HEADLINING"](#) .

H

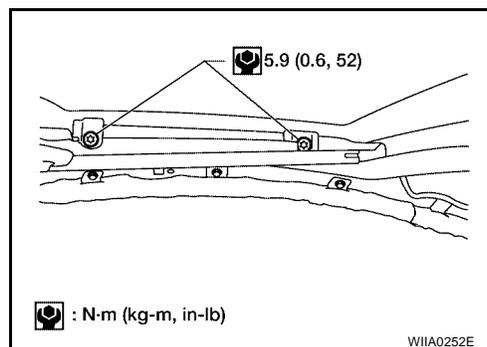
RF

## GLASS LID

### Removal

1. Open sunshade.
2. Ensure glass lid is closed.
3. Remove side cover LH and RH.
4. Remove the screws securing glass lid to the sunroof frame assembly.
5. Remove the glass lid assembly.

J  
K  
L  
M



### Installation

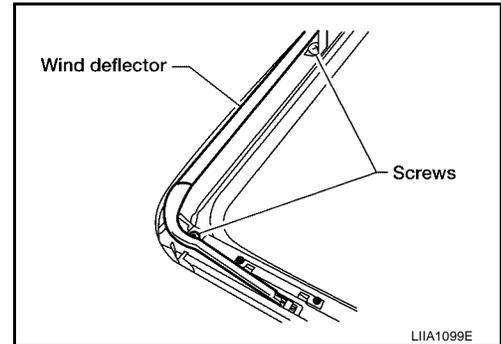
1. Position glass lid to sunroof assembly.
2. Install the glass lid assembly screws. (First tighten left front bolt, then tighten right rear bolt on glass lid to prevent lid from moving while tightening other bolts.)
3. Adjust the glass lid assembly. Refer to [RF-23, "Fitting Adjustment"](#) .
4. Install side cover LH and RH.

# SUNROOF

## WIND DEFLECTOR

### Removal

1. Open the sunroof.
2. Remove screws from the left, center, and right side wind deflector holders.
3. Remove the wind deflector from the sunroof frame assembly.



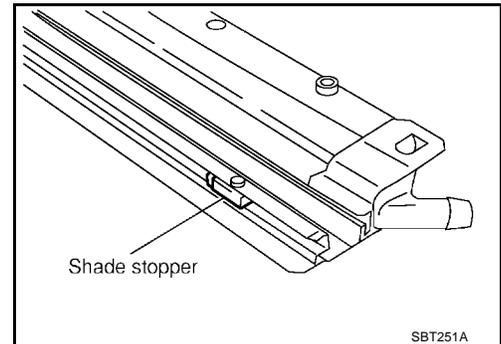
### Installation

Installation is in the reverse order of removal.

## SUNSHADE

### Removal

1. Remove the sunroof frame assembly. Refer to [RF-25, "SUNROOF UNIT"](#).
2. Remove the sunshade stoppers (2 points) from the rear end of the sunroof frame assembly.
3. Remove the sunshade assembly from the rear end of the sunroof frame assembly.



### Installation

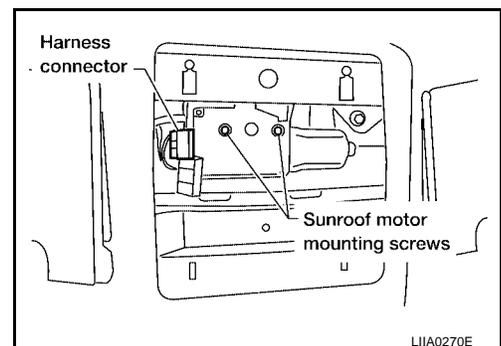
Installation is in the reverse order of removal.

## SUNROOF MOTOR

### Removal

#### CAUTION:

- When removing the sunroof motor, be sure that the sunroof is in the fully closed position.
  - Never run the removed motor as a single unit.
1. Position the sunroof assembly in the fully closed position.
  2. Remove the front roof console assembly. Refer to [EI-43, "HEADLINING"](#).
  3. Disconnect the harness connector from the sunroof motor assembly.
  4. Remove the mounting screws and then remove sunroof motor assembly.



# SUNROOF

## Installation

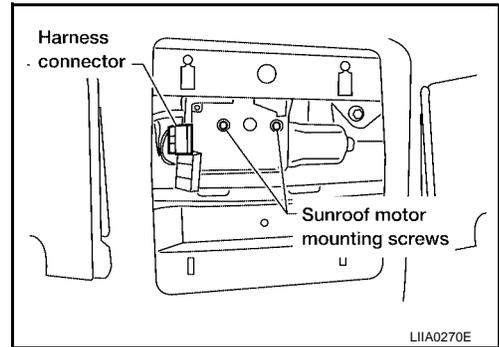
### CAUTION:

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

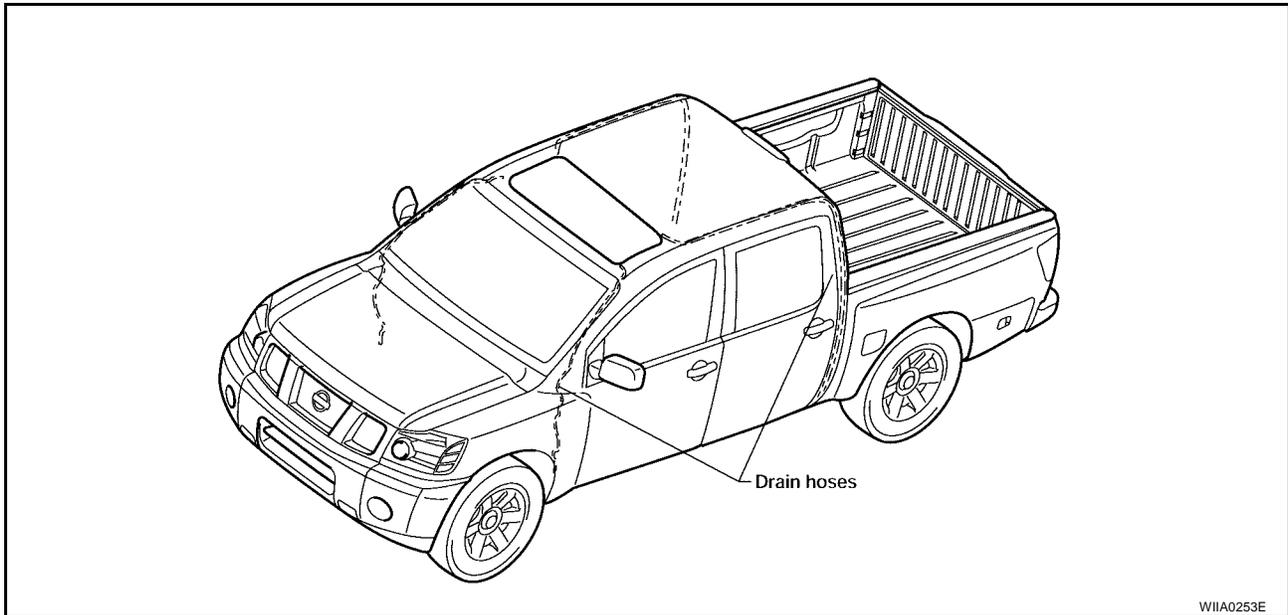
1. Move the sunroof motor assembly laterally little by little so that the gear is completely engaged into the wire on the sunroof unit and the mounting surface becomes parallel. Then, secure the motor with bolts.

**Sunroof motor bolts :2.3 N·m (0.23 kg·m, 20in·lb)**

2. Connect the wire harness connector to the sunroof motor assembly.
3. Install the roof console assembly. Refer to [EI-43, "HEADLINING"](#).
4. Reset the sunroof motor memory. Refer to [RF-11, "MEMORY RESET PROCEDURE"](#).



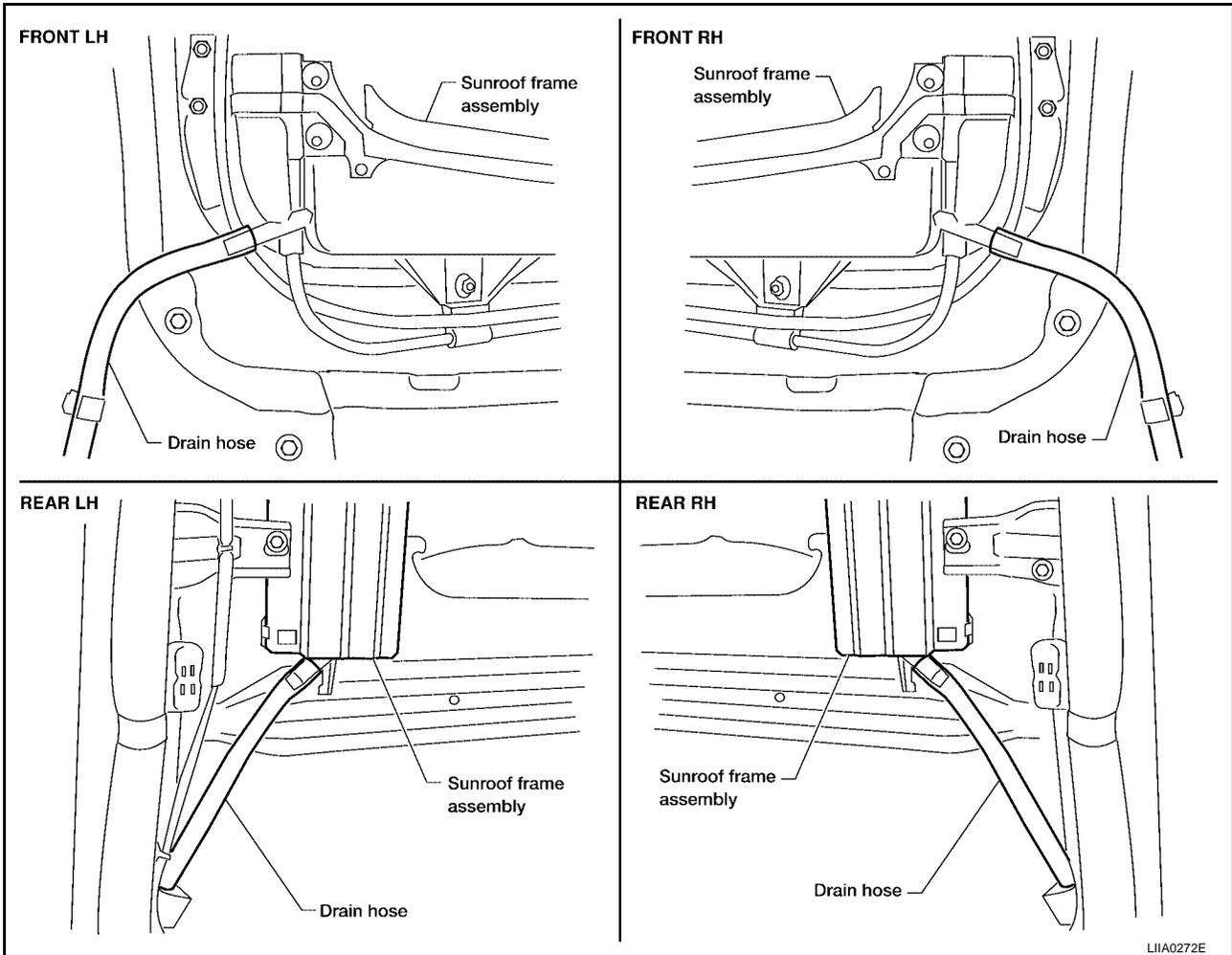
## DRAIN HOSES



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

# SUNROOF

1. Remove the headlining. Refer to [EI-43, "Removal and Installation"](#).



2. Visually check the drain hoses for proper connections, damage or deterioration.
  3. Remove each drain hose and check visually for damage, cracks or deterioration.
  4. Pour water through the drain hose to check for damage.
- If any damage is found, replace the drain hose.

## WEATHERSTRIP

Visually check weatherstrip for any damage, deterioration, or flattening.

- In the case of leakage around glass lid, close glass lid and pour water around it to find the damaged or gaped portion, remove glass lid assembly.
- If any damage is found, replace glass lid assembly.

## CAUTION:

Do not remove weatherstrip.

## LINK AND WIRE ASSEMBLY

### NOTE:

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

1. Visually check to determine if a sufficient amount of petroleum jelly has been applied to the wire or rail groove. If not, add petroleum jelly as required.
2. Check wire for any damage or deterioration. If any damage is found, remove rear guide, then replace wire.