

SECTION **RF**
ROOF

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PRECAUTIONS

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SERVICE INFORMATION

PRECAUTIONS

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

INFOID:000000003533088

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.**

Precaution

INFOID:000000003533089

- 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

< SERVICE INFORMATION >

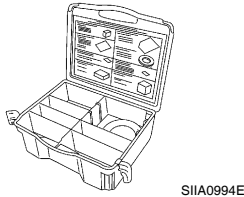
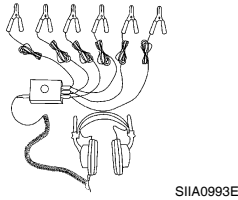
PREPARATION

Special Service Tool

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

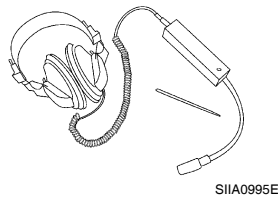
Tool number (Kent-Moore No.) Tool name	Description
— (J-39570) Chassis ear	Locating the noise
— (J-43980) NISSAN Squeak and Rattle Kit	Repairing the cause of noise



Commercial Service Tool

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Tool name (Kent-Moore No.)	Description
Engine ear (J-39565)	Locating the noise



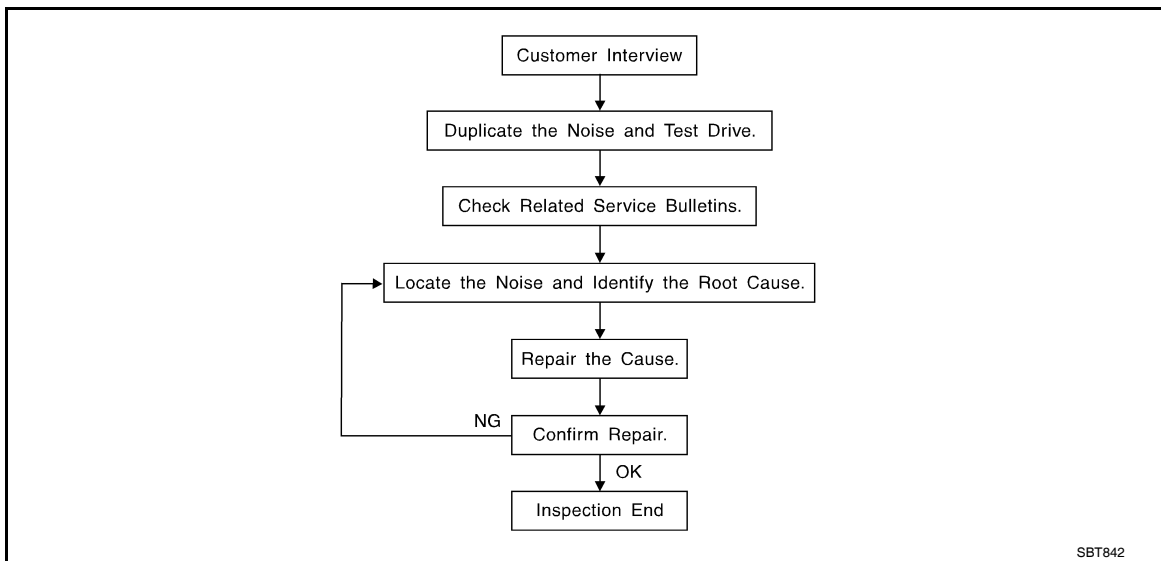
SQUEAK AND RATTLE TROUBLE DIAGNOSIS

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SQUEAK AND RATTLE TROUBLE DIAGNOSIS

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 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 irritating to the customer.
- Weather conditions, especially humidity and temperature, may have a great effect on noise level.

DUPLICATE THE NOISE AND TEST DRIVE

If possible, drive the vehicle with the customer until the noise is duplicated. Note any additional information on the Diagnostic Worksheet regarding the conditions or location of the noise. This information can be used to duplicate the same conditions when you confirm the repair.

SQUEAK AND RATTLE TROUBLE DIAGNOSIS

< SERVICE INFORMATION >

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 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 (J-43980) is available through your authorized NISSAN Parts Department.

CAUTION:

Do not use excessive force as many components are constructed of plastic and may be damaged.

Always check with the Parts Department for the latest parts information.

The following materials are contained in the NISSAN Squeak and Rattle Kit (J-43980). Each item can be ordered separately as needed.

URETHANE PADS [1.5 mm (0.059 in) thick]

Insulates connectors, harness, etc.

76268-9E005: 100×135 mm (3.94×5.31 in)

76884-71L01: 60×85 mm (2.36×3.35 in)

76884-71L02: 15×25 mm (0.59×0.98 in)

INSULATOR (Foam blocks)

Insulates components from contact. Can be used to fill space behind a panel.

73982-9E000: 45 mm (1.77 in) thick, 50×50 mm (1.97×1.97 in)

73982-50Y00: 10 mm (0.39 in) thick, 50×50 mm (1.97×1.97 in)

INSULATOR (Light foam block)

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

FELT 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

SQUEAK AND RATTLE TROUBLE DIAGNOSIS

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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

INFOID:000000003533093

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 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.

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

SQUEAK AND RATTLE TROUBLE DIAGNOSIS

< SERVICE INFORMATION >

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 lens 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 installed to the engine wall
2. Components that pass through the engine wall
3. Engine wall mounts and connectors
4. Loose radiator installation 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 DIAGNOSIS

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Diagnostic Worksheet

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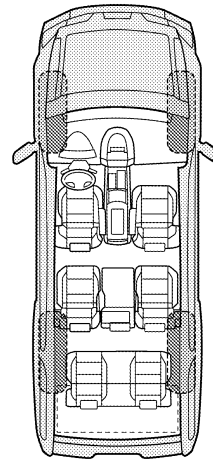
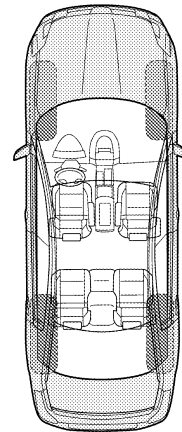
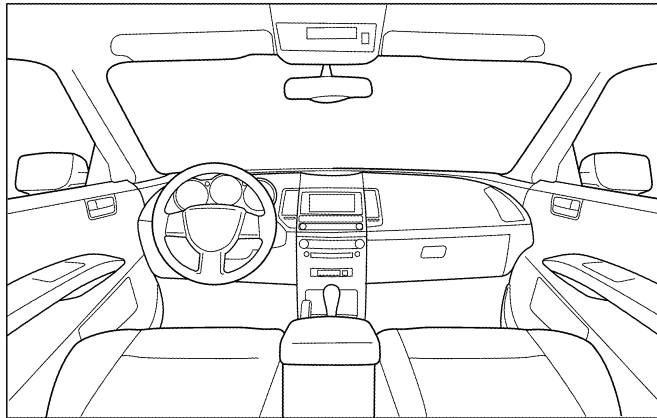
Dear Customer:

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

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET

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 page 2 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.

SQUEAK AND RATTLE TROUBLE DIAGNOSIS

< SERVICE INFORMATION >

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET - page 2

Briefly describe the location where the noise occurs:

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

- | | |
|---|--|
| <input type="checkbox"/> Anytime | <input type="checkbox"/> After sitting out in the rain |
| <input type="checkbox"/> 1st 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 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 at the door)
- Tick (like a clock second hand)
- Thump (heavy muffled knock noise)
- Buzz (like a bumble bee)

TO BE COMPLETED BY DEALERSHIP PERSONNEL

Test Drive Notes:

	YES	NO	Initials of person performing
Vehicle test driven with customer	<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

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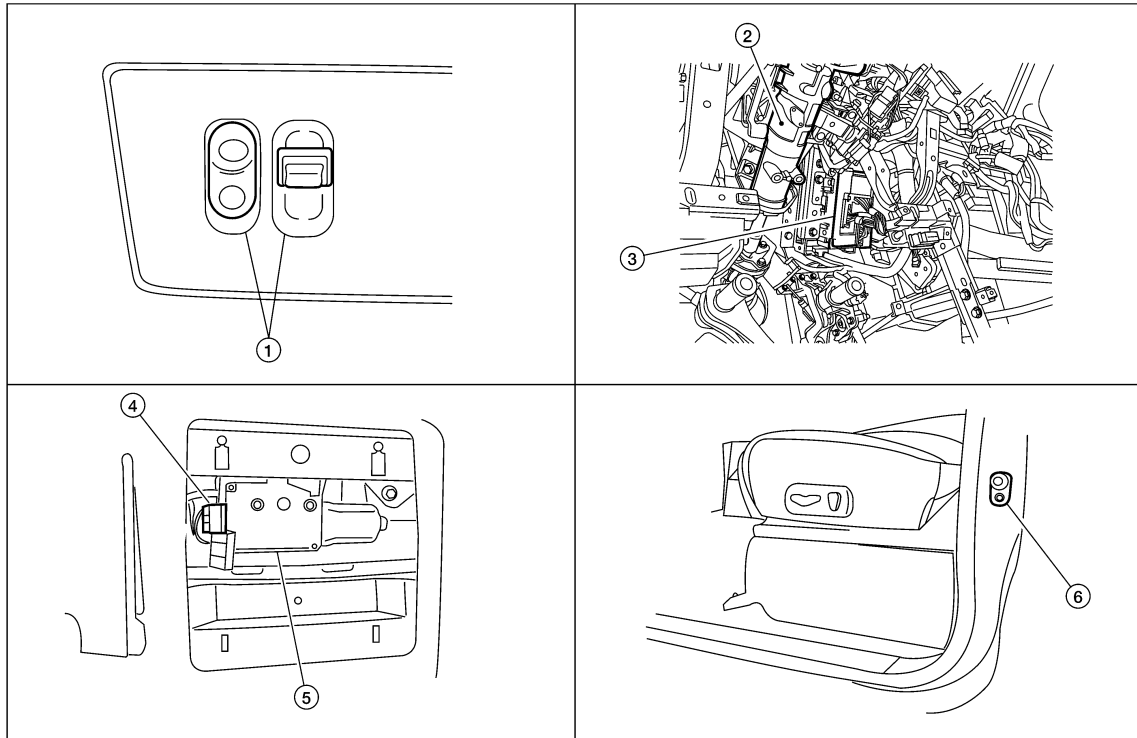
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SUNROOF

Component Parts and Harness Connector Location

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- | | | |
|---------------------------------------|---------------------------|---|
| 1. Sunroof switch R104 | 2. Steering column | 3. BCM M18, M19, M20 |
| 4. Sunroof motor harness connector R4 | 5. Sunroof motor assembly | 6. Front door switch
LH B8
RH 108 |

System Description

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OUTLINE

Electric sunroof system consists of

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

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

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.

TILT UP OPERATION

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

- to sunroof motor assembly terminal 4

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- 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.

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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.

C
D

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.

E
F

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.

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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-14, "CONSULT-II Function \(BCM\)"](#).

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MEMORY RESET PROCEDURE

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 now operate normally.

L
M

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.

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CAN Communication System Description

INFOID:000000003533097

Refer to [LAN-4](#).

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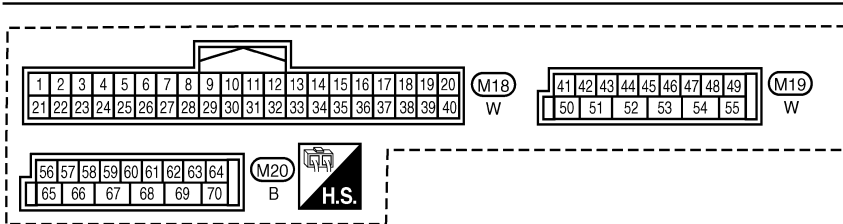
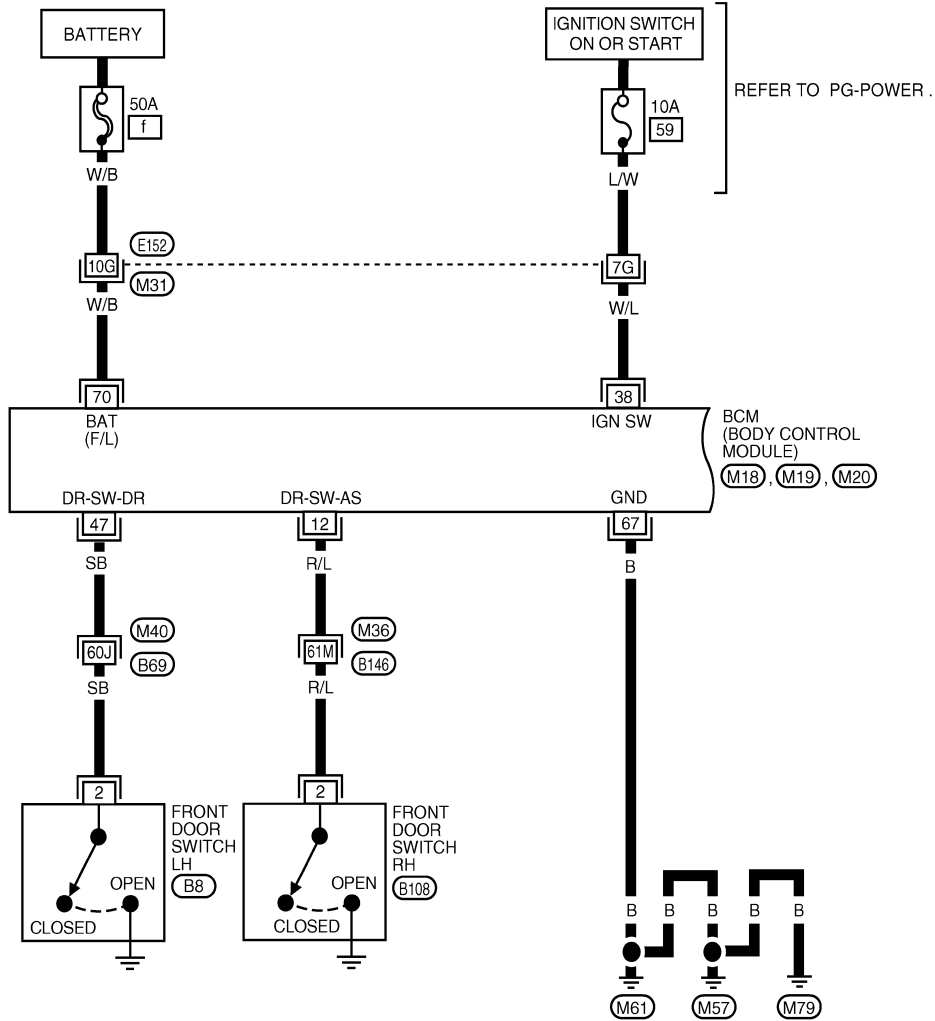
SUNROOF

< SERVICE INFORMATION >

Wiring Diagram - SROOF -

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RF-SROOF-01



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2	B8	B108
3	W	W

REFER TO THE FOLLOWING.

M31, M36, M40

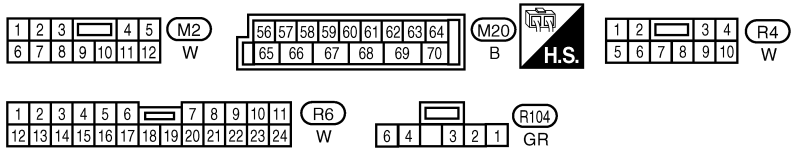
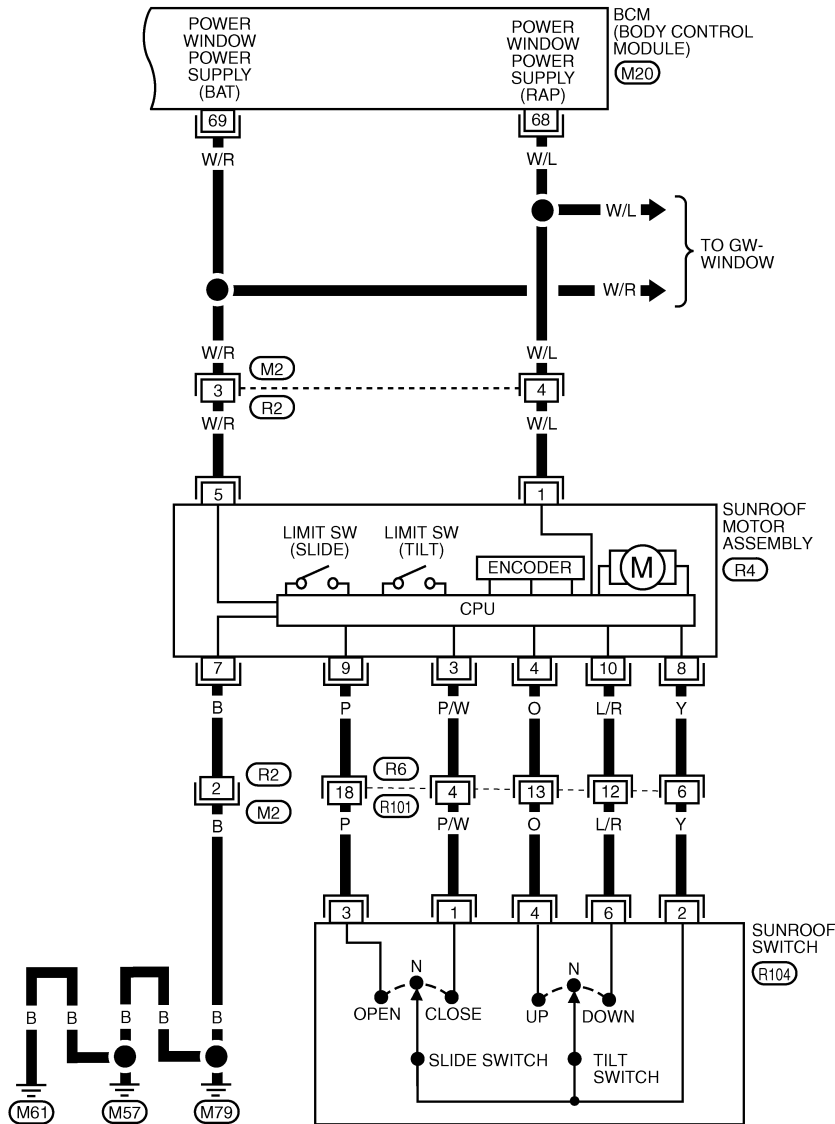
- SUPER MULTIPLE JUNCTION (SMJ)

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SUNROOF

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RF-SROOF-02



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Terminal and Reference Value for BCM

Refer to [BCS-11. "Terminal and Reference Value for BCM"](#).

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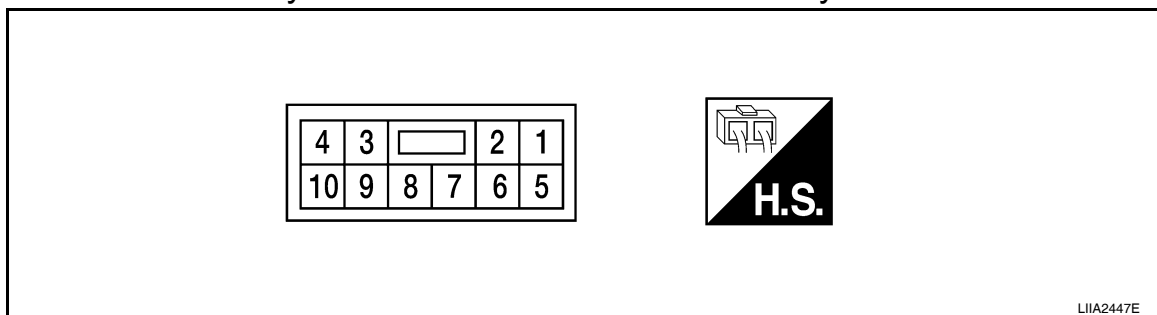
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SUNROOF

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Sunroof Motor Assembly Harness Connector Terminal Layout

INFOID:000000003533100



Terminal and Reference Value for Sunroof Motor Assembly

INFOID:000000003533101

Terminal	Wire Color	Item	Condition	Voltage (Approx.)
1	W/L	RAP signal	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
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

*: When MODE1 is selected. For more details, refer to [RF-15. "Work Support"](#).

Work Flow

INFOID:000000003533102

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-15. "Trouble Diagnosis Chart by Symptom"](#).
4. Does sunroof system operate normally? If Yes, GO TO 5, If No, GO TO 3.
5. Inspection End.

CONSULT-II Function (BCM)

INFOID:000000003533103

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

SUNROOF

< SERVICE INFORMATION >

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 START PROCEDURE

Refer to [GI-36, "CONSULT-II Start Procedure"](#).

Work Support

INFOID:000000003533104

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 the following three steps: <ul style="list-style-type: none"> • MODE 1 (45 sec.) / MODE 2 (OFF) / MODE 3 (2 min.)

Active Test

INFOID:000000003533105

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. NOTE: 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.

Data Monitor

INFOID:000000003533106

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

INFOID:000000003533107

Symptom	Diagnostic procedure and repair order	Refer to page
Sunroof does not operate.	1. Sunroof motor assembly power supply and ground circuit check	RF-16
	2. Sunroof switch system check	RF-16
	3. BCM power supply and ground circuit check	BCS-15
	4. Replace sunroof motor assembly	RF-20

SUNROOF

< SERVICE INFORMATION >

Symptom	Diagnostic procedure and repair order	Refer to page
Retained power operation does not operate properly.	1. Check the retained power operation mode setting	RF-10
	2. BCM power supply and ground circuit check	BCS-15
	3. Door switch check	RF-18
	4. Replace sunroof motor assembly	RF-20
Motor does not stop at the sunroof fully-open or fully-closed position.	1. Initialization procedure check	RF-10
	2. Replace sunroof motor assembly	RF-20
Sunroof does not do the interruption detection.	1. Replace sunroof motor assembly	RF-20

BCM Power Supply and Ground Circuit Inspection

INFOID:000000003533108

Refer to [BCS-15, "BCM Power Supply and Ground Circuit Inspection"](#).

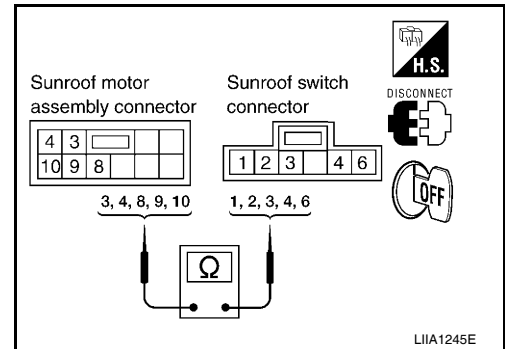
Sunroof Switch System Inspection

INFOID:000000003533109

1. CHECK HARNESS CONTINUITY

- Turn ignition switch OFF.
- Disconnect sunroof motor assembly and sunroof switch.
- Check continuity between sunroof motor assembly connector R4 terminals 3, 4, 8, 9 and 10 and sunroof switch connector R104 terminals 1, 2, 3, 4 and 6.

- 3 - 1 : Continuity should exist.**
4 - 4 : Continuity should exist.
8 - 2 : Continuity should exist.
9 - 3 : Continuity should exist.
10 - 6 : Continuity should exist.



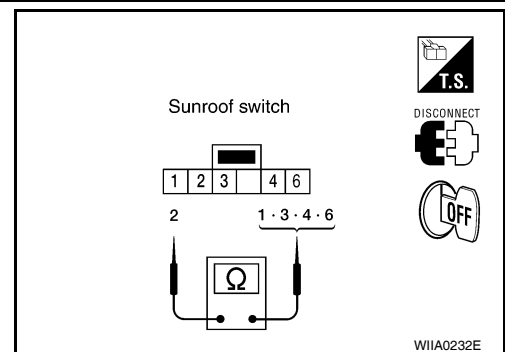
OK or NG

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

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-15, "Trouble Diagnosis Chart by Symptom"](#).
 NG >> Replace sunroof switch.

Sunroof Motor Assembly Power Supply and Ground Circuit Inspection

INFOID:000000003533110

1. CHECK POWER SUPPLY CIRCUIT

SUNROOF

< SERVICE INFORMATION >

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

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

7 - 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-15, "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.

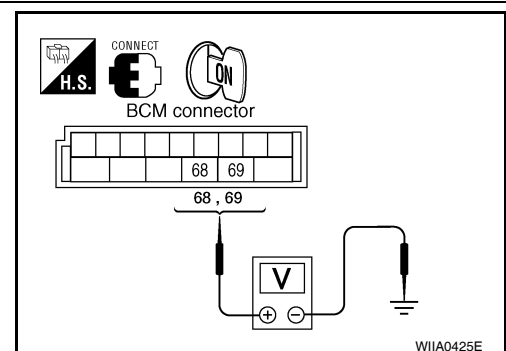
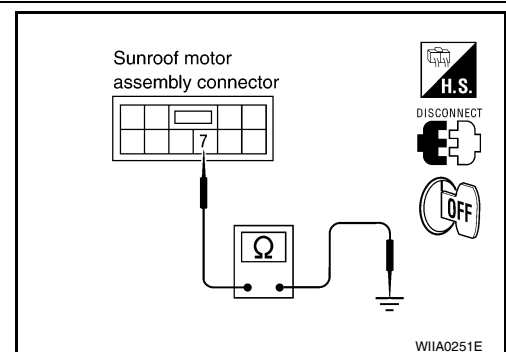
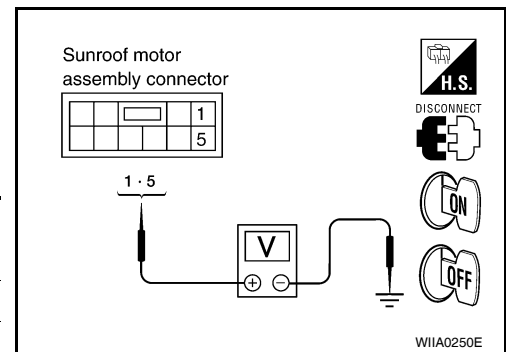
68 - Ground : Battery voltage

69 - Ground : Battery voltage

OK or NG

- OK >> GO TO 4.
 NG >> Replace BCM. Refer to [BCS-24, "BCM"](#).

4. CHECK SUNROOF MOTOR CIRCUIT HARNESS



SUNROOF

< SERVICE INFORMATION >

1. Turn ignition switch OFF.
2. Disconnect BCM.
3. Check continuity between BCM connector M20 terminal 68, 69 and sunroof motor assembly connector R4 terminals 1, 5.

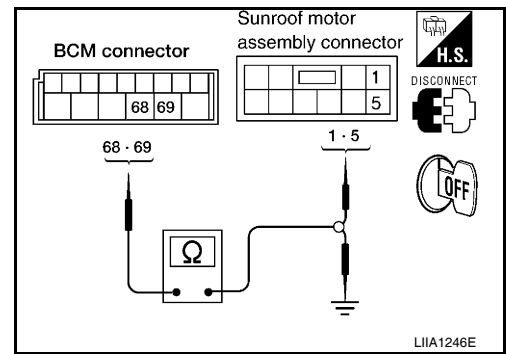
68 - 1 : Continuity should exist.

69 - 5 : Continuity should exist.

4. Check continuity between BCM connector M20 terminal 68, 69 and ground.

68 - Ground : Continuity should not exist.

69 - Ground : Continuity should not exist.



OK or NG

OK >> Sunroof motor assembly power supply circuits are OK. Further inspection is necessary. Refer to [RF-15, "Trouble Diagnosis Chart by Symptom"](#).

NG >> Repair or replace harness.

Door Switch Check

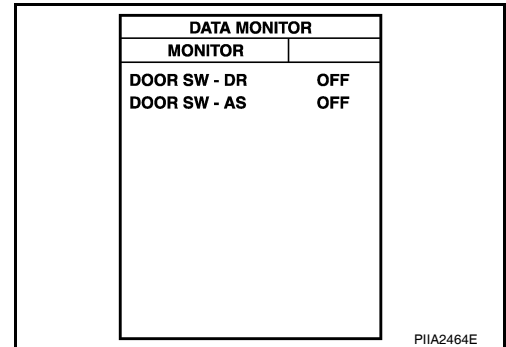
INFOID:000000003533111

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.

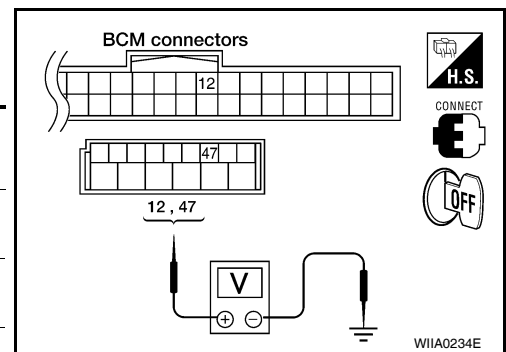
Monitor item	Condition
DOOR SW-DR	OPEN : ON
	CLOSE : OFF
DOOR SW-AS	OPEN : ON
	CLOSE : OFF



Without CONSULT-II

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

Item	Connector	Terminals		Condition	Voltage (Approx.)
		(+)	(-)		
RH	M18	12	Ground	Door open (switch closed)	0
				Door closed (switch open)	Battery voltage
LH	M19	47	Ground	Door open (switch closed)	0
				Door closed (switch open)	Battery voltage



OK or NG

OK >> Door switches are OK.

NG >> GO TO 2.

2. CHECK DOOR SWITCH CIRCUIT

SUNROOF

< SERVICE INFORMATION >

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

Front door switch LH

2 - 47 : Continuity should exist.

Front door switch RH

2 - 12 : Continuity should exist.

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

2 - Ground : Continuity should not exist.

OK or NG

OK >> GO TO 3.

NG >> Repair or replace harness.

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.
2. Check voltage between BCM connector M18 terminal 12, M19 terminal 47 and ground.

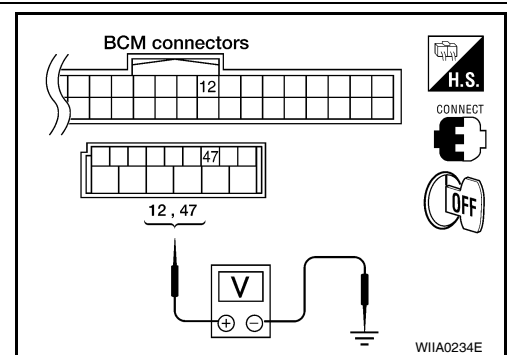
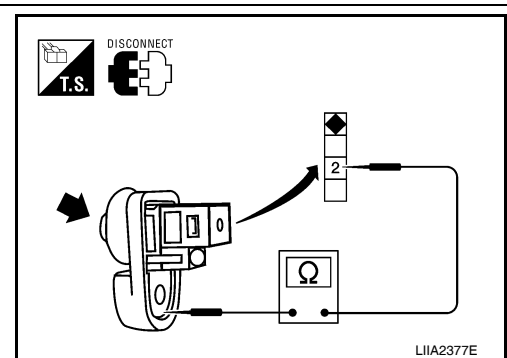
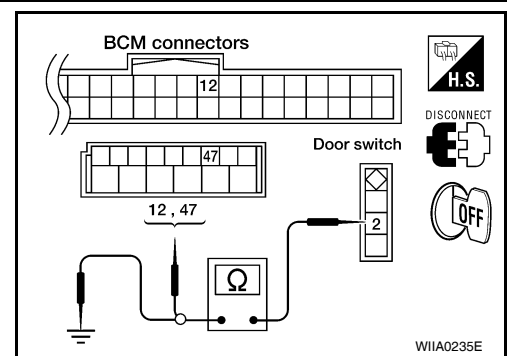
12 - Ground : Battery voltage

47 - Ground : Battery voltage

OK or NG

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

NG >> Replace BCM. Refer to [BCS-24, "BCM"](#).



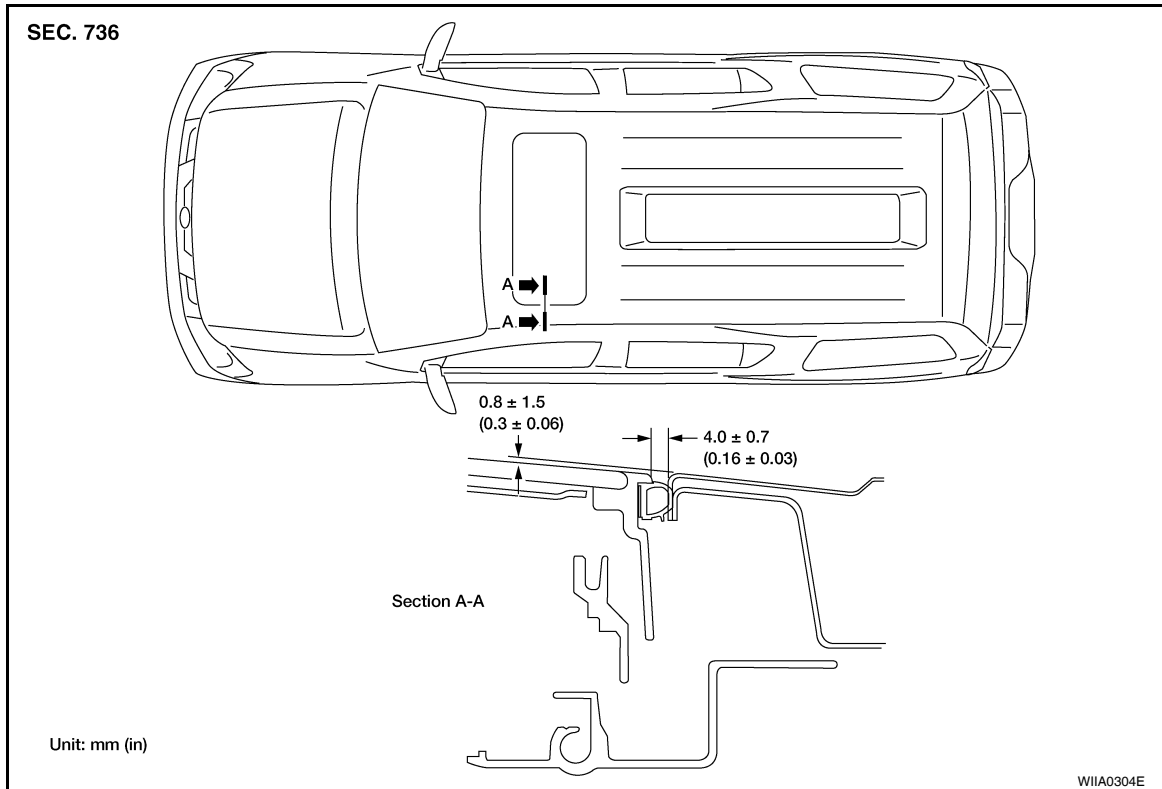
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Fitting Adjustment

INFOID:000000003533112



GAP ADJUSTMENT

NOTE:

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

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

NOTE:

First tighten left front screw then right rear to prevent movement while tightening the remaining screws.

5. Tilt glass lid assembly up and down several times to check that it moves smoothly.

HEIGHT DIFFERENCE ADJUSTMENT

If an excessive height difference between glass lid assembly and roof panel is found, adjust in the following manner:

1. Remove headlining. Refer to [EI-37](#).
2. Loosen sunroof frame assembly nuts and sunroof bracket bolts.
3. Add shims until gap is within specification "A-A".

NOTE:

Temporarily snug nuts and bolts to prevent movement between each adjustment.

4. Tilt glass lid assembly up and down several times to check that it moves and seals properly.
5. Tighten sunroof frame assembly nuts and sunroof bracket bolts.

NOTE:

First tighten left front then right rear sunroof frame assembly to prevent uneven torque while tightening remaining sunroof bracket bolts.

6. Install headlining. Refer to [EI-37](#).

Removal and Installation

INFOID:000000003533113

- After any adjustment, check sunroof operation and glass lid assembly alignment.

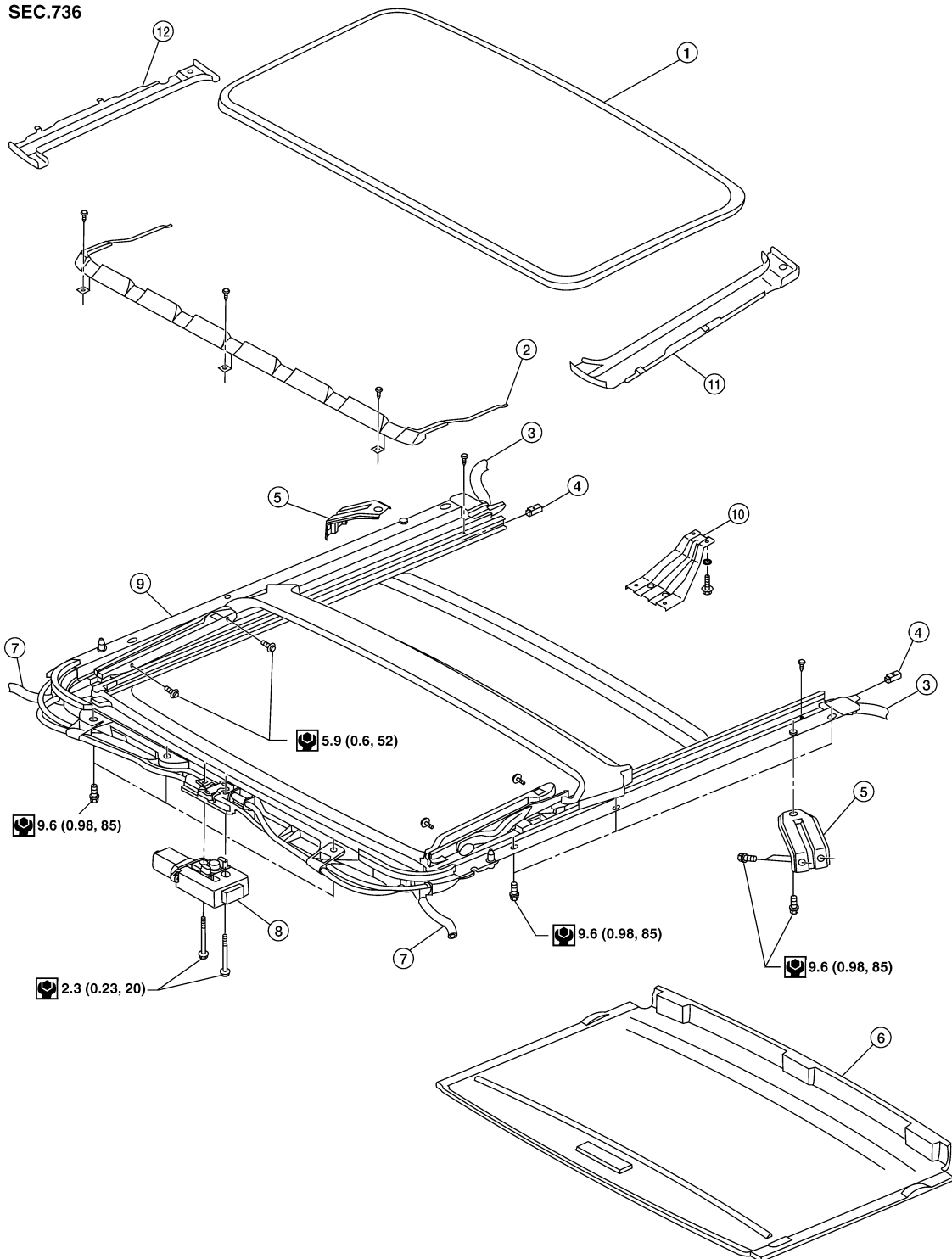
SUNROOF

< SERVICE INFORMATION >

- Handle glass lid assembly 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 sunroof motor assembly.
- After installing the sunroof unit and glass lid assembly, operate the mechanism several times to be sure there is no malfunction.



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|------------------------------|---------------------------|---------------------------|
| 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 |

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 assembly, check gap adjustment to make sure there is no malfunction.

1. Remove headlining. Refer to [EI-37](#).
2. Remove the sunroof glass lid assembly. Refer to "GLASS LID ASSEMBLY".
3. Remove overhead console bracket.
4. Disconnect front and rear drain hoses.
5. Remove front sunroof frame assembly bolts.
6. Remove rear sunroof bracket bolts.
7. Remove the sunroof frame assembly side bolts, then the sunroof unit.

Installation

1. Position the sunroof frame assembly and install the side bolts.
2. Install the sunroof brackets and bolts.
3. Install the front sunroof frame assembly bolts.
4. Connect front and rear drain hoses.
5. Install the overhead console bracket.
6. Install the sunroof glass lid assembly. Refer to "GLASS LID ASSEMBLY".

NOTE:

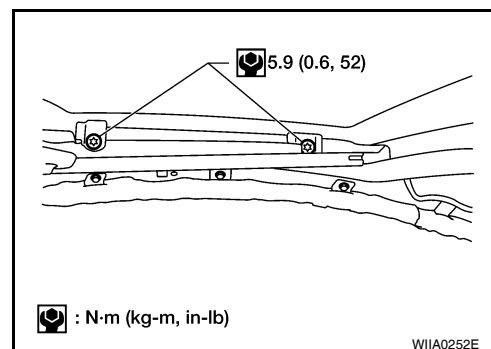
Adjust sunroof glass lid assembly gap and height, refer to [RF-20, "Fitting Adjustment"](#).

7. Install headlining. Refer to [EI-37](#).

GLASS LID ASSEMBLY

Removal

1. Open sunshade assembly.
NOTE:
Be sure glass lid assembly is fully closed.
2. Remove side cover LH and RH.
3. Remove the glass lid assembly screws at the sunroof frame assembly.
4. Remove the glass lid assembly.



Installation

1. Position glass lid assembly to sunroof frame assembly.
2. Install glass lid assembly screws.

NOTE:

First tighten left front screw, then right rear to prevent movement while tightening the remaining screws.

SUNROOF

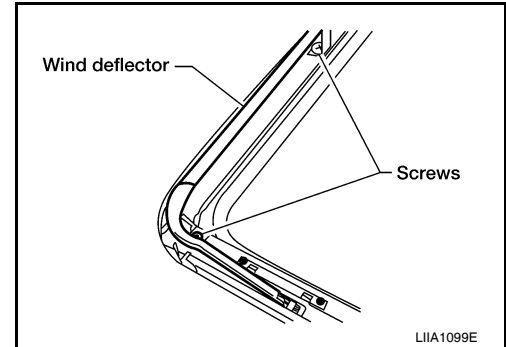
< SERVICE INFORMATION >

3. Adjust the glass lid assembly. Refer to [RF-20. "Fitting Adjustment"](#).
4. Install side cover LH and RH.

WIND DEFLECTOR

Removal

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



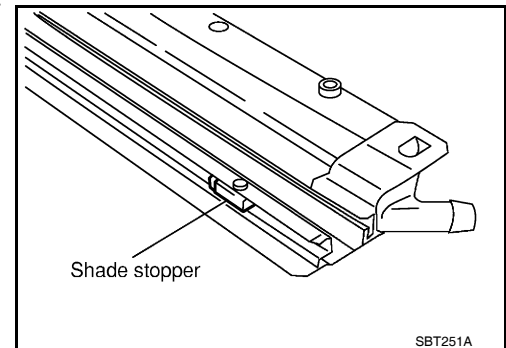
Installation

Installation is in the reverse order of removal.

SUNSHADE ASSEMBLY

Removal

1. Remove the sunroof frame assembly. Refer to "SUNROOF UNIT".
2. Remove the two (2) shade stoppers from the 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 ASSEMBLY

Removal

CAUTION:

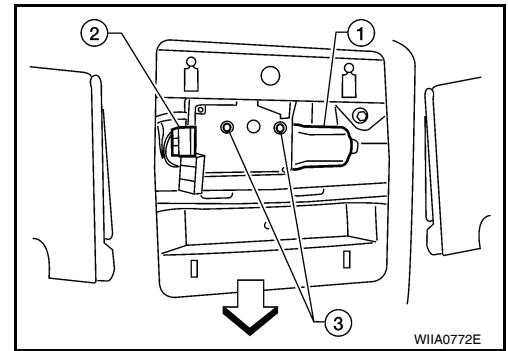
- **When removing the sunroof motor assembly, be sure the glass lid assembly is in the fully closed position.**
 - **Never run the removed sunroof motor assembly.**
1. Position the glass lid assembly in the fully closed position.
 2. Disconnect the negative and positive battery cables, then wait at least 3 minutes.
 3. Remove the overhead console assembly. Refer to [EI-37](#).

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4. Disconnect the harness connector (2) from the sunroof motor assembly.
 - ←: Vehicle front
5. Remove the screws (3) and the sunroof motor assembly (1).

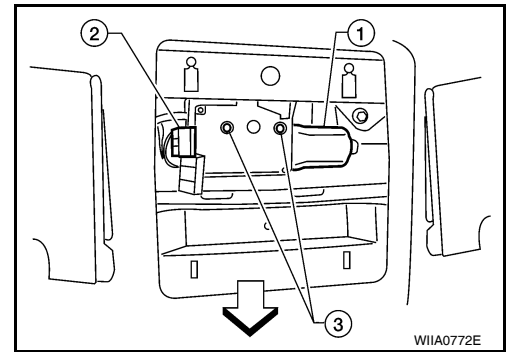


Installation

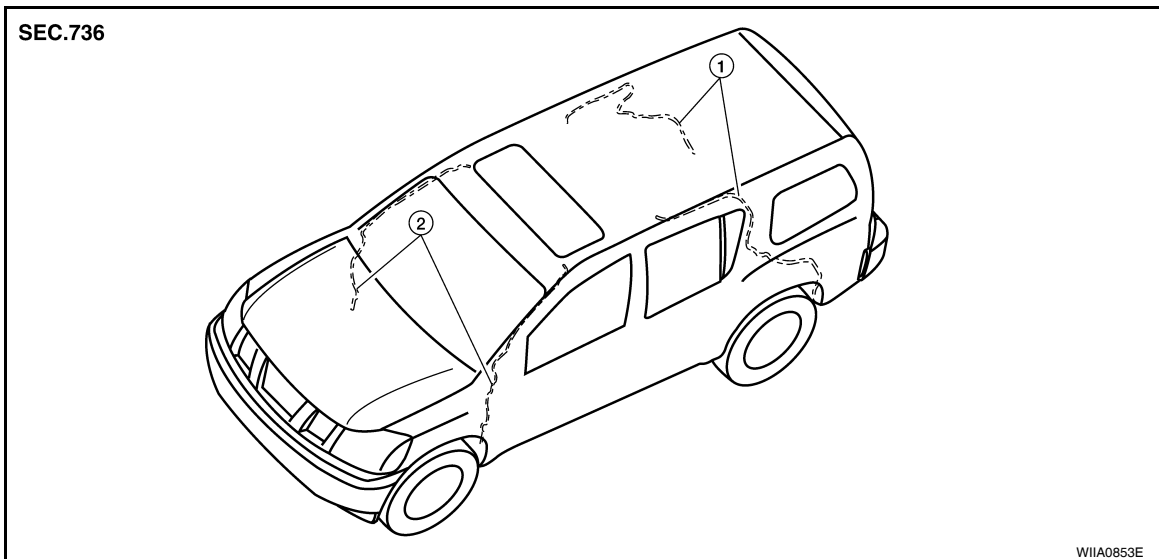
CAUTION:

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

1. Move the sunroof motor assembly (1) laterally little by little so that the gear is completely engaged into the wire on the sunroof unit until surfaces become parallel. Then secure the sunroof motor assembly with screws.
 - ←: Vehicle front
2. Secure the sunroof motor assembly (1) with screws (3).
3. Connect the harness connector (2) to the sunroof motor assembly.
4. Install the overhead console assembly. Refer to [EI-37](#).
5. Connect the battery positive and negative cables.
6. Reset the sunroof motor memory. Refer to [RF-10. "System Description"](#).



DRAIN HOSES



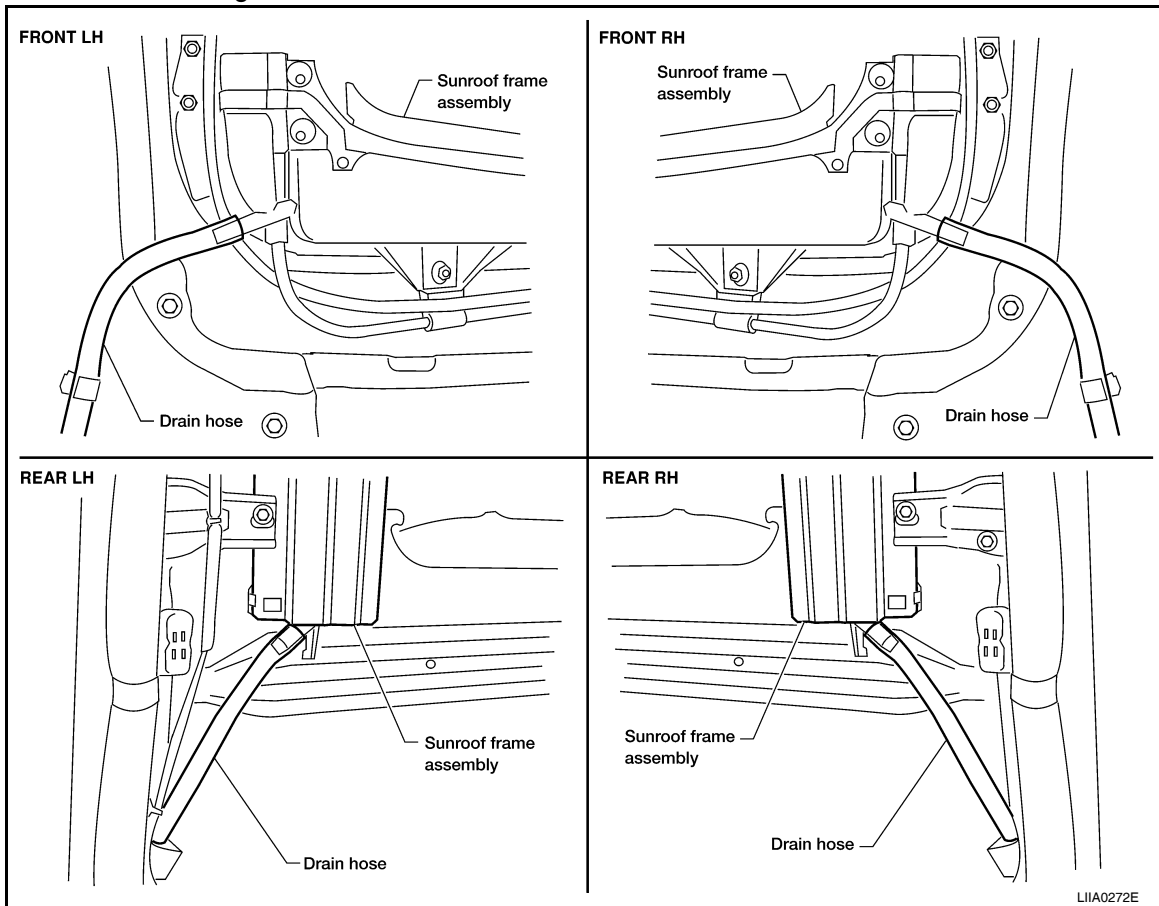
1. Rear drain hoses

2. Front drain hoses

SUNROOF

< SERVICE INFORMATION >

1. Remove the headlining. Refer to [EI-37](#).



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 assembly, close 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, be sure 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 and casing for any damage or deterioration. If any damage is found, replace sunroof frame assembly.

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