SECTION RF
ROOF

CONTENTS

PRECAUTIONS

PFP:00001

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

EIS003LN

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. 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

EIS003LO

- 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 unreusable 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.

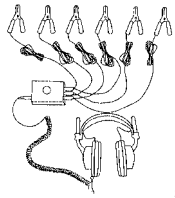
PREPARATION

PFP:00002

Special service tool

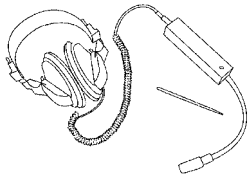
EIS003LP

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

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

Commercial Service Tool

EIS003LQ

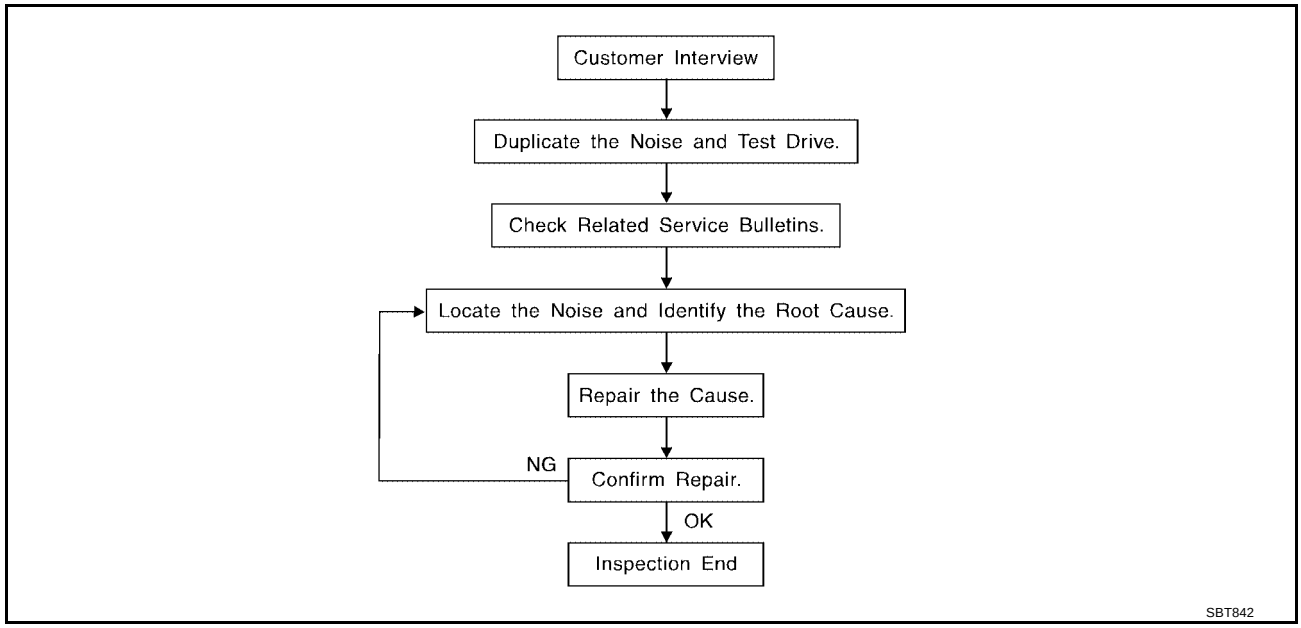
Tool name (Kent-Moore No.)	Description
Engine ear (J-39565)  SIIA0995E	Locating the noise

SQUEAK AND RATTLE TROUBLE DIAGNOSES

PFP:00000

Work Flow

EIS003LR



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.
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 are 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.
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
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

EIS0048D

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.

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

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

Diagnostic Worksheet

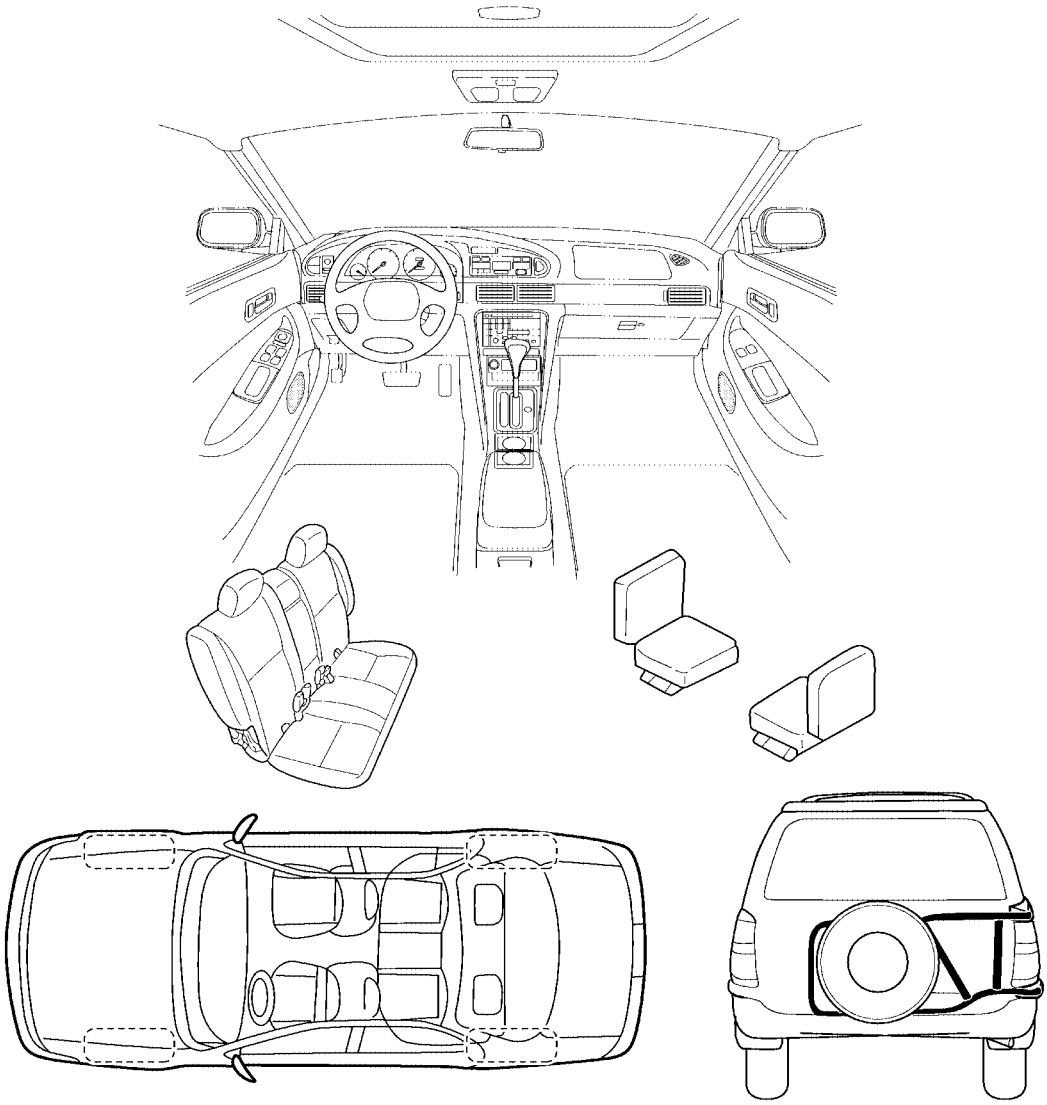
EIS003LT

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.

WIIA0288E

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET- page 2

Briefly describe the location where the noise occurs:

_____

_____

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

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

III. WHEN DRIVING:

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

IV. WHAT TYPE OF NOISE?

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

TO BE COMPLETED BY DEALERSHIP PERSONNEL
Test Drive Notes:

_____

_____

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

VIN: _____ Customer Name: _____

W.O. #: _____ Date: _____

SBT844

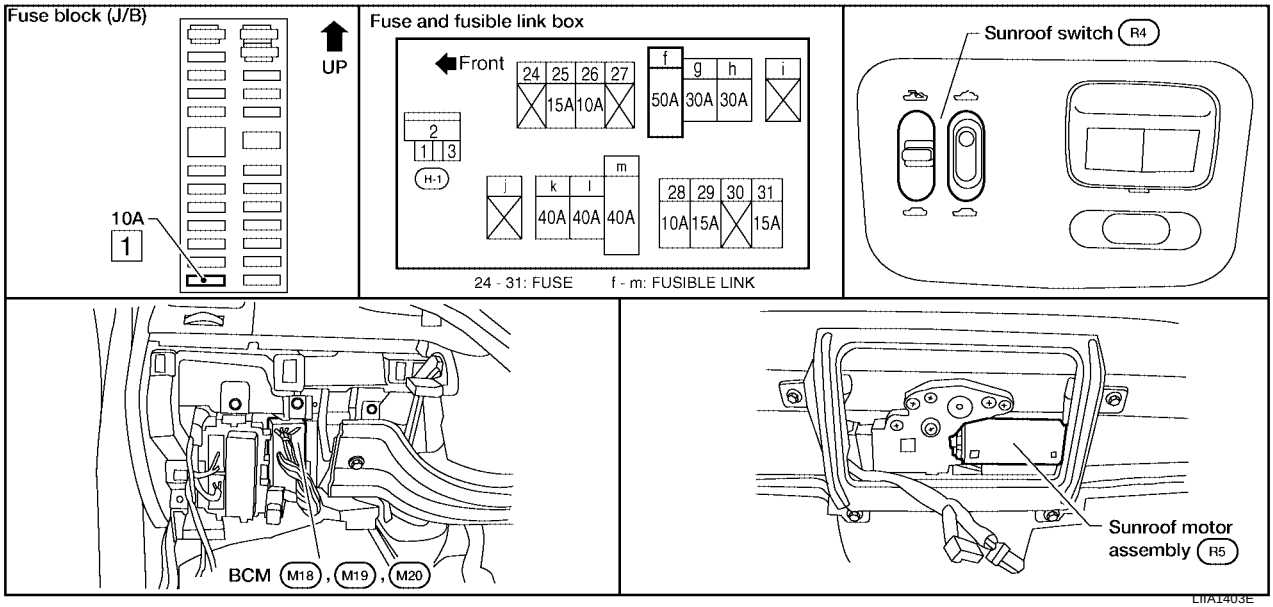
This form must be attached to Work Order

SUNROOF

PFP:91210

Component Parts and Harness Connector Location

EIS003LU



System Description

EIS003LV

OUTLINE

Electric sunroof system consists of

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

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

OPERATION

Power 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 11.

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

- through 10A fuse [No. 1, located in the fuse block (J/B)]
- to BCM terminal 38.

Ground is supplied

- to BCM terminal 67
- through grounds F14, M57 and M61.

TILT UP OPERATION

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

- to sunroof switch terminal 2
- through sunroof switch terminal 6
- through sunroof motor assembly terminal 1.

Ground is supplied

- to sunroof motor assembly terminal 6
- through grounds F14, M57 and M61.

Then, the sunroof will tilt up.

TILT DOWN OPERATION

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

- to sunroof switch terminal 2
- through sunroof switch terminal 4
- through sunroof motor assembly terminal 2.

Ground is supplied

- through sunroof motor assembly terminal 6
- through grounds F14, M57 and M61.

Then, the sunroof will tilt down.

SLIDE OPEN OPERATION

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

- to sunroof switch terminal 2
- through sunroof switch terminal 1
- through sunroof motor assembly terminal 10.

Ground is supplied

- to sunroof motor assembly terminal 6
- through grounds F14, M57 and M61.

Then, the sunroof will slide open.

SLIDE CLOSE OPERATION

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

- to sunroof switch terminal 2
- through sunroof switch terminal 3
- through sunroof motor assembly terminal 3.

Ground is supplied

- to sunroof motor assembly terminal 6
- through grounds F14, M57 and M61.

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-14, "CONSULT-II Function (BCM)" .

ONE TOUCH SLIDE/TILT OPERATION

To fully slide the sunroof open, press and release the sunroof slide switch to the slide open position. To fully tilt the sunroof up, press and release the sunroof tilt switch to the tilt up position.

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, push and hold the sunroof tilt switch in the forward (UP) position until the sunroof is in the fully vented (tilt up) position. The sunroof should now operate normally.

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.

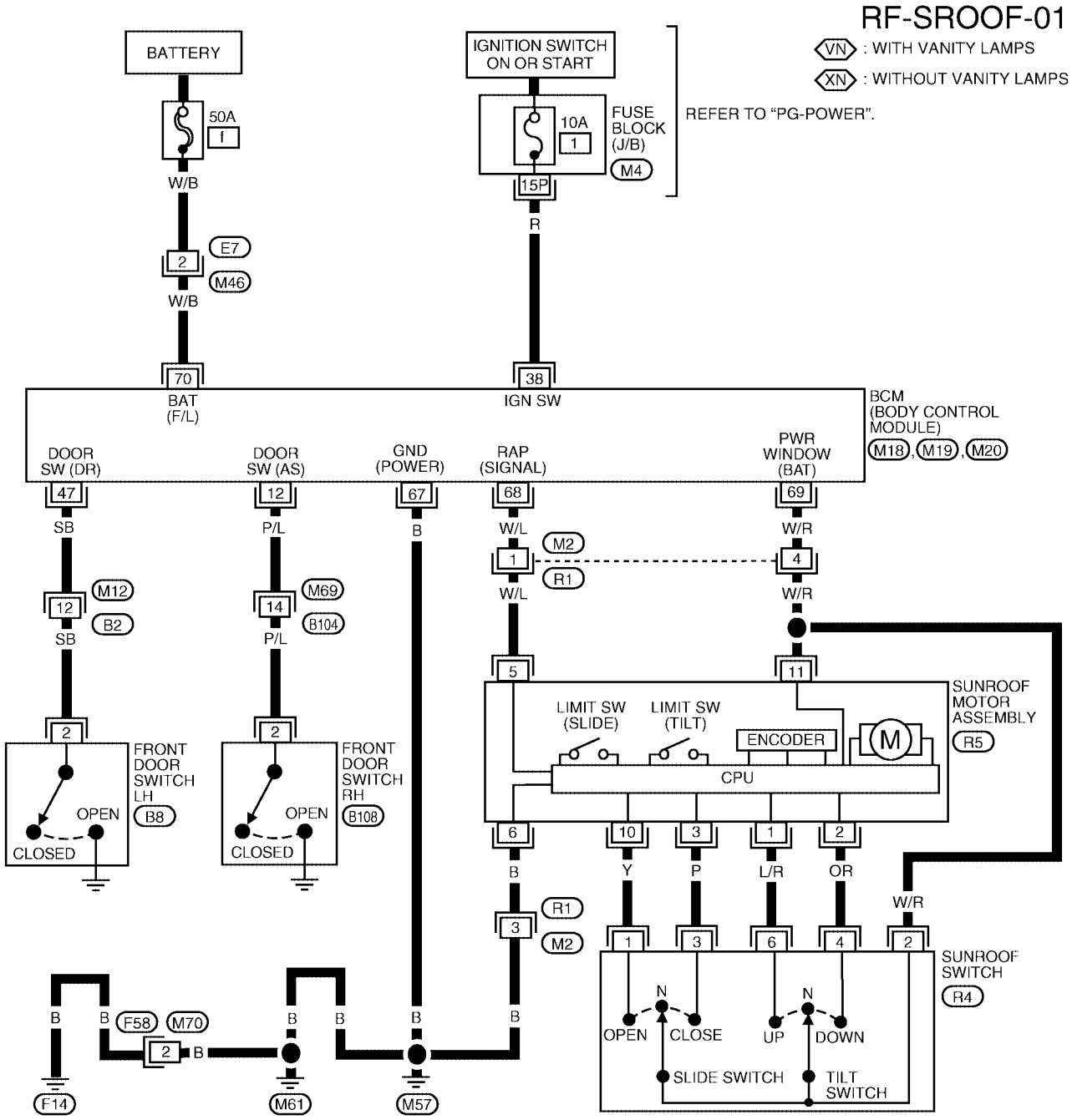
CAN Communication System Description

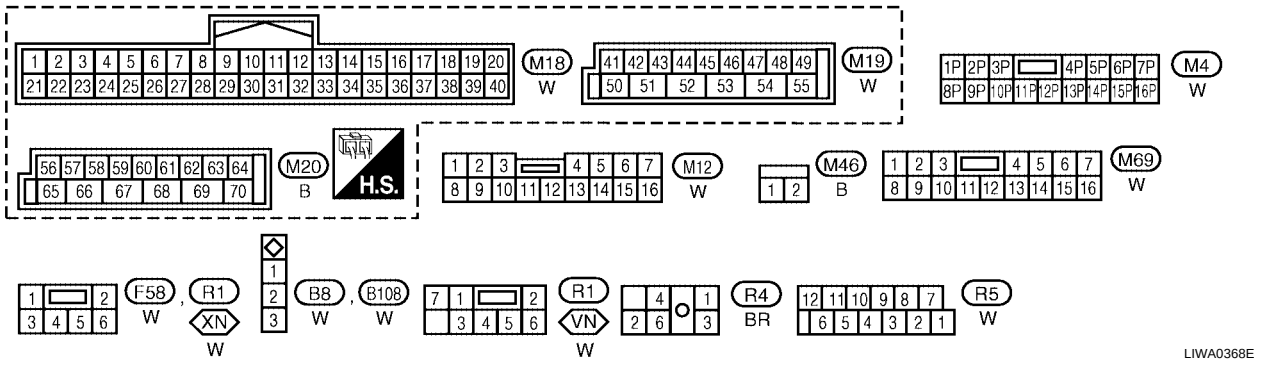
EIS003LW

Refer to LAN-21, "CAN COMMUNICATION" .

Wiring Diagram — SROOF —

EIS003LX





Terminals and Reference Values for BCM

EIS003LY

Terminal	Wire Color	Item	Condition	Voltage (V) (Approx.)
12	P/L	Front door switch RH signal	ON (Open)	0
			OFF (Closed)	Battery voltage
38	R	Ignition power supply	Ignition switch ON or START	Battery voltage
47	SB	Front door switch LH signal	ON (Open)	0
			OFF (Closed)	Battery voltage
67	B	Ground	—	0
68	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
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

EIS003LZ

Terminal	Wire Color	Item	Condition	Voltage (V) (Approx.)
1	L/R	Sunroof switch TILT UP signal	Ignition switch ON and sunroof switch in TILT UP position	Battery voltage
			Other than above	0
2	OR	Sunroof switch TILT DOWN signal	Ignition switch ON and sunroof switch in TILT DOWN position	Battery voltage
			Other than above	0
3	P	Sunroof switch CLOSE signal	Ignition switch ON and sunroof switch CLOSE position	Battery voltage
			Other than above	0
5	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
6	B	Ground	—	0
10	Y	Sunroof switch OPEN signal	Ignition switch ON and sunroof switch OPEN position	Battery voltage
			Other than above	0
11	W/R	BAT power supply	—	Battery voltage

Work Flow

EIS003M0

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)

EIS003M1

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

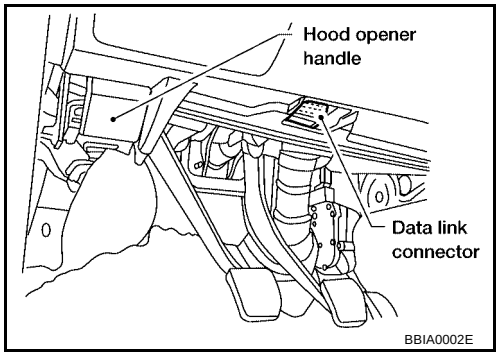
BCM diagnostic test item	Diagnostic mode	Description
Inspection by part	WORK SUPPORT	Supports inspections and adjustments. Commands are transmitted to the BCM for setting the status suitable for required operation, input/output signals are received from the BCM and received data is displayed.
	DATA MONITOR	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

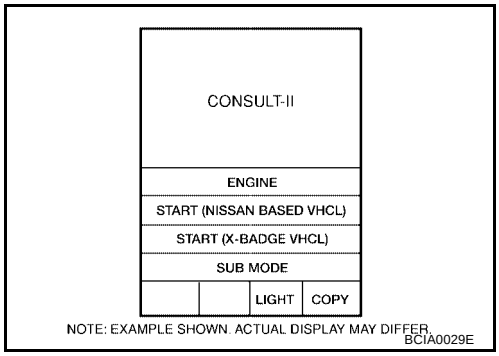
CAUTION:

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.

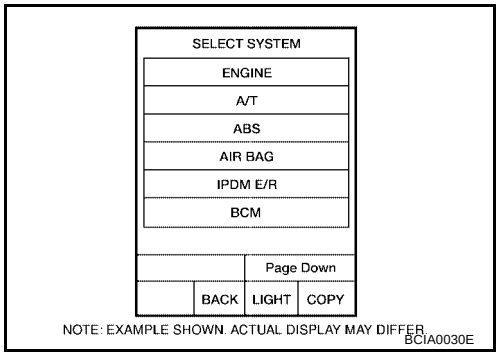
1. With the ignition switch OFF, connect CONSULT-II and CONSULT-II CONVERTER to the data link connector, then turn ignition switch ON.



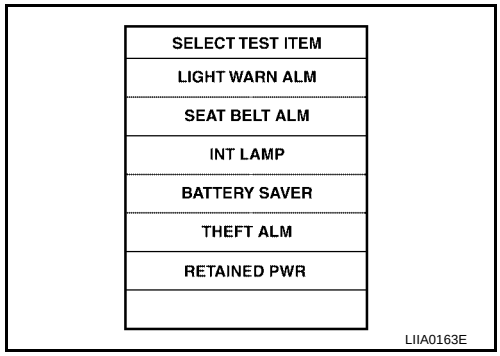
2. Touch "START (NISSAN BASED VHCL)".



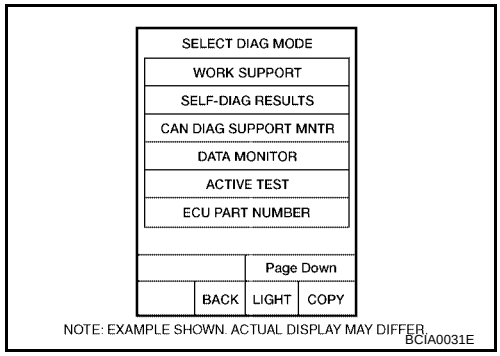
3. Touch "BCM".
   If "BCM" is not indicated, go to GI-39, "Consult-II Data Link Connector (DLC) Circuit" .



4. Touch "RETAINED PWR" on "SELECT TEST ITEM" screen.



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



WORK SUPPORT

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. ● MODE 1 (45 sec.) / MODE 2 (OFF) / MODE 3 (2 min.)

ACTIVE TEST

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

Monitored item	Description
IGN ON SW	Indicates [ON/OFF] condition of ignition switch.
DOOR SW-DR	Indicates [ON/OFF] condition of front door switch LH.
DOOR SW-AS	Indicates [ON/OFF] condition of front door switch RH.

Trouble Diagnosis Chart by Symptom

EIS003M2

Symptom	Diagnostic procedure and repair order	Refer to page
Sunroof does not operate.	1. Sunroof motor assembly power supply and ground circuit check	RF-19
	2. Sunroof switch system check	RF-17
	3. BCM power supply and ground circuit check	RF-16
	4. Replace sunroof motor assembly	RF-27

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-15
	2. BCM power supply and ground circuit check	RF-16
	3. Door switch check	RF-21
	4. Replace sunroof motor assembly	RF-27
Motor does not stop at the sunroof fully-open or fully-closed position.	1. Memory reset procedure	RF-11
	2. Replace sunroof motor assembly	RF-27
Sunroof does not do the interruption detection.	1. Replace sunroof motor assembly	RF-27

BCM Power Supply and Ground Circuit Check

EIS003M3

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	1	Fuse block (J/B)
	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

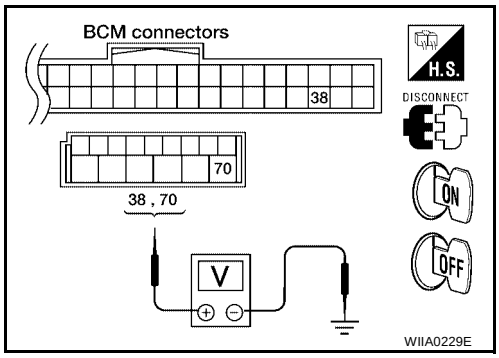
OK >> GO TO 2.

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

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

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



OK or NG

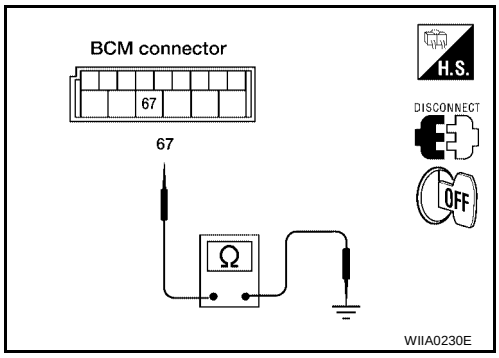
OK >> GO TO 3.

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.

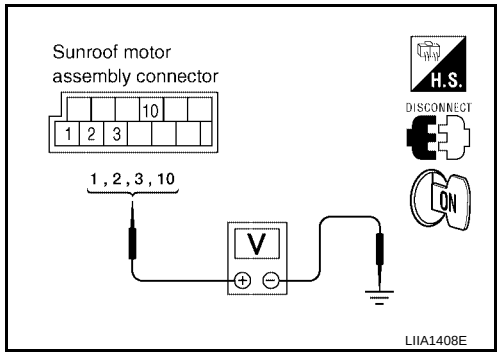
NG >> Repair or replace harness.

Sunroof Switch System Check

EIS003M4

1. CHECK SUNROOF MOTOR ASSEMBLY INPUT SIGNAL

1. Disconnect sunroof motor assembly connector.
2. Turn ignition switch ON.
3. Check voltage between sunroof motor assembly connector R5 terminals 1, 2, 3, 10 and ground.



Connector	Terminals (Wire color)		Condition	Voltage (V) (Approx.)
	(+)	(–)		
R5	1 (L/R)	Ground	Sunroof switch in TILT UP position	Battery voltage
			Other than above	0
	2 (O/R)		Sunroof switch in TILT DOWN position	Battery voltage
			Other than above	0
	3 (P)		Sunroof switch in CLOSE position	Battery voltage
			Other than above	0
	10 (Y)		Sunroof switch in OPEN position	Battery voltage
			Other than above	0

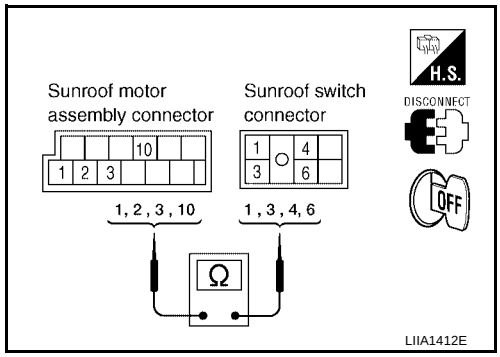
OK or NG

OK >> Replace sunroof motor. Refer to RF-27, "SUNROOF MOTOR" .
NG >> GO TO 2.

2. 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 R5 terminals 1, 2, 3, 10 and sunroof switch connector R4 terminals 1, 3, 4, 6.

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



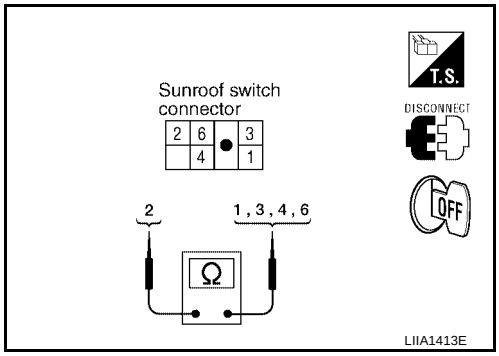
OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness between sunroof motor assembly and sunroof switch.

3. CHECK SUNROOF SWITCH

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

Connector	Terminals (Wire color)		Condition	Continuity
R4	1 (Y)	2 (W/R)	Sunroof switch in OPEN position	Yes
			Other than above	No
	3 (P)		Sunroof switch in CLOSE position	Yes
			Other than above	No
	4 (OR)		Sunroof switch in TILT DOWN position	Yes
			Other than above	No
	6 (L/R)		Sunroof switch in TILT UP position	Yes
			Other than above	No



OK or NG

OK >> Check the condition of the harness and connector.
NG >> Replace sunroof switch.

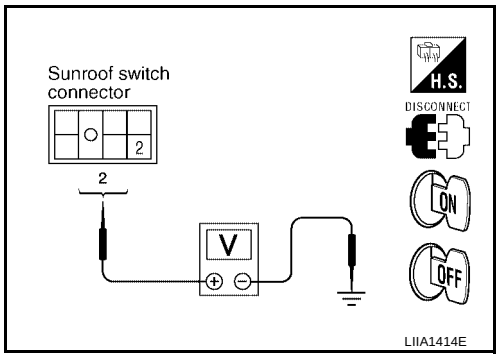
Sunroof Switch Power Supply Circuit Check

EIS003M5

1. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect the sunroof switch connector.
3. Check voltage between sunroof switch connector R4 terminal 2 and ground.

Connector	Terminals (Wire color)		Condition	Voltage (V) (Approx.)
	(+)	(–)		
R4	2 (W/R)	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



OK or NG

OK >> Sunroof switch power supply circuit is OK.
NG >> GO TO 2.

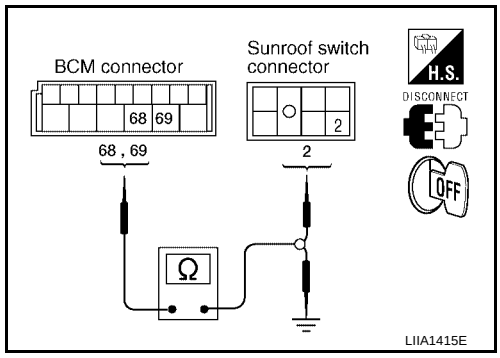
2. CHECK SUNROOF SWITCH CIRCUIT HARNESS

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check continuity between BCM connector M20 terminal 69 and sunroof switch connector R4 terminal 2.

69 (W/R) - 2 (W/R) : Continuity should exist.

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

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



OK or NG

OK >> Sunroof switch power supply circuit is OK. Further inspection is necessary. Refer to RF-15, "Trouble Diagnosis Chart by Symptom" .
NG >> Repair or replace harness between BCM and sunroof switch.

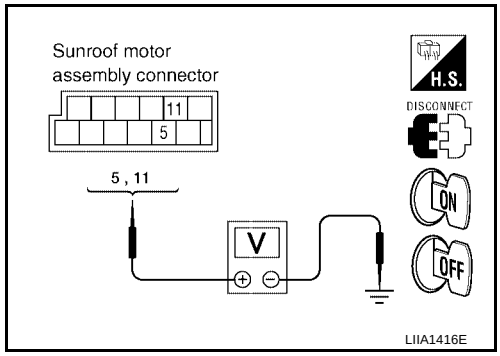
Sunroof Motor Assembly Power Supply and Ground Circuit Check

EIS003M6

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 R5 terminal 5 (W/L), 11 (W/R) and ground.

Connector	Terminals (Wire color)		Condition	Voltage (V) (Approx.)
	(+)	(–)		
R5	5 (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
	11 (W/R)		Ignition switch OFF	Battery voltage



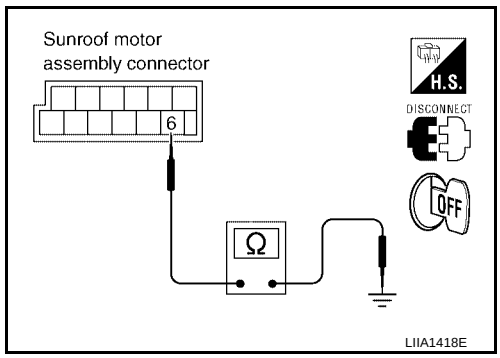
OK or NG

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

2. CHECK GROUND CIRCUIT

Check continuity between sunroof motor assembly connector R5 terminal 6 (B) and ground.

6 (B) - Ground : Continuity should exist.



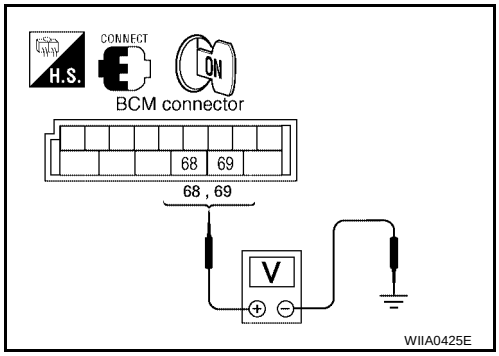
OK or NG

OK >> Sunroof motor assembly power supply and ground circuits are OK. Further inspection is necessary. Refer to RF-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 (W/L) - Ground : Battery voltage
69 (W/R) - Ground : Battery voltage



OK or NG

OK >> GO TO 4.
NG >> Replace BCM. Refer to BCS-20, "Removal and Installation of BCM" .

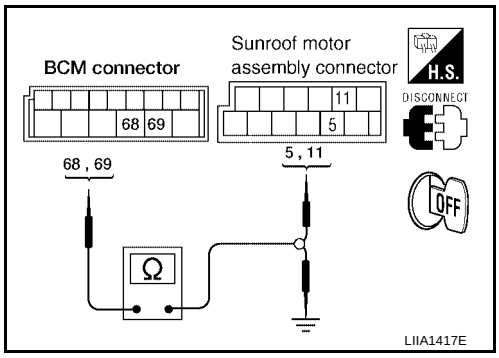
4. CHECK SUNROOF MOTOR CIRCUIT HARNESS

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 R5 terminal 5 (W/L), 11 (W/R).

68 (W/L) - 5 (W/L) : Continuity should exist.
69 (W/R) - 11 (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-15, "Trouble Diagnosis Chart by Symptom" .
NG >> Repair or replace harness between BCM and sunroof motor assembly.

Door Switch Check

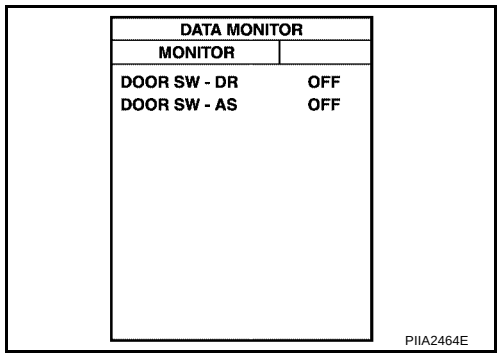
EIS003M7

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.

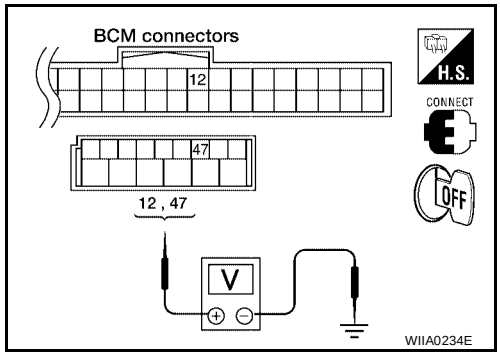
Monitor item	Condition	
DOOR SW-DR	Door open	: ON
	Door closed	: OFF
DOOR SW-AS	Door open	: ON
	Door closed	: OFF



Without CONSULT-II

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

Item	Connector	Terminals (Wire color) (+)	Terminals (Wire color) (–)	Condition	Voltage (V) (Approx.)
RH	M18	12 (P/L)	Ground	Door OPEN (switch closed)	0
				Door CLOSED (switch open)	Battery voltage
LH	M19	47 (SB)		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

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

Front door LH

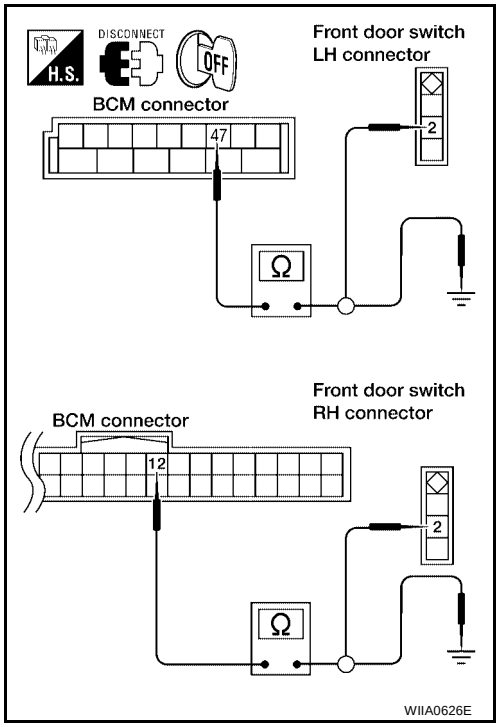
2 (SB) - 47 (SB) : Continuity should exist.

Front door RH

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

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

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



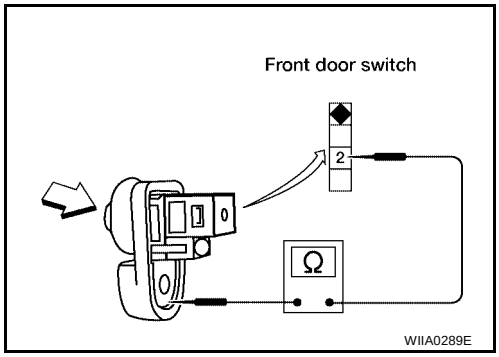
OK or NG

OK >> GO TO 3.
NG >> Repair or replace harness between BCM and sunroof motor assembly.

3. CHECK DOOR SWITCH

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

Terminal		Condition	Continuity
2	Body ground part of door switch	Door switch pushed	No
		Door switch released	Yes



OK or NG

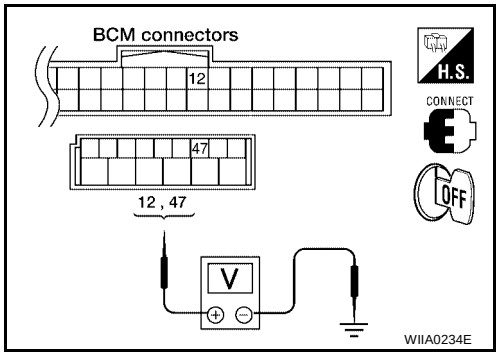
OK >> GO TO 4.
NG >> Replace malfunctioning door switch.

4. CHECK BCM OUTPUT SIGNAL

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

12 (P/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-20, "Removal and Installation of BCM" .

Link and Wire Assembly

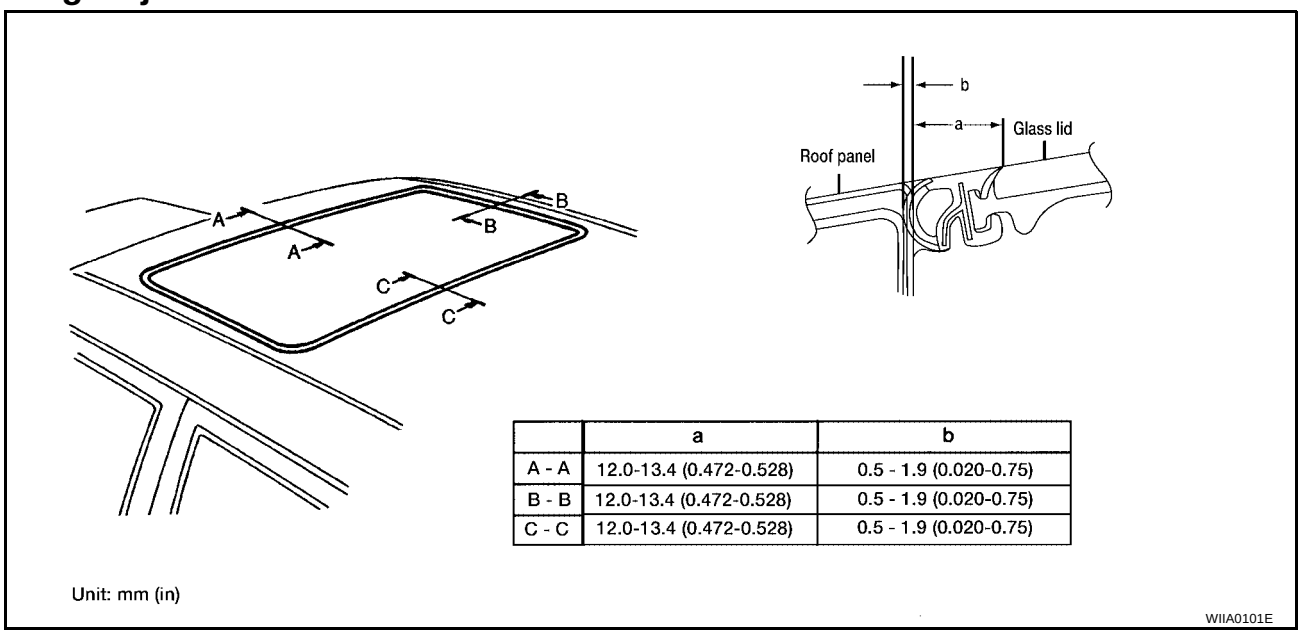
EIS003M8

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

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

Fitting Adjustment

EIS003M9



	a	b
A - A	12.0-13.4 (0.472-0.528)	0.5 - 1.9 (0.020-0.75)
B - B	12.0-13.4 (0.472-0.528)	0.5 - 1.9 (0.020-0.75)
C - C	12.0-13.4 (0.472-0.528)	0.5 - 1.9 (0.020-0.75)

Unit: mm (in)

WIIA0101E

GAP ADJUSTMENT (A-A, C-C)

1. Open sunshade assembly.
2. Tilt glass lid up then remove side trim.
3. Loosen glass lid securing bolts, then tilt glass lid down.
4. Manually adjust glass lid from outside of vehicle so gap is within specifications and snug securing bolts.
5. Tilt glass lid up and down several times using sunroof switch to ensure smooth operation.
6. Tilt glass lid up and tighten bolts.

NOTE:
First tighten left front bolt, then tighten right rear bolt on glass lid to prevent lid from moving while tightening other bolts.

Glass lid assembly mounting bolts : **3.0 - 5.0 N·m (0.3 - 0.5 kg-m, 26 - 43 in-lb)**

GAP ADJUSTMENT (B-B)

1. Remove headlining. Refer to EI-36, "Removal and Installation" .
2. Loosen sunroof assembly front end, side rail, and front and rear bracket attaching bolts.
3. Carefully slide sunroof assembly side to side until gap is within specifications and snug securing bolts.
4. Tilt glass lid up and down several times using sunroof switch to ensure smooth operation.
5. Tighten sunroof assembly front end, side rail, and front and rear bracket attaching bolts.

Sunroof assembly mounting bolts

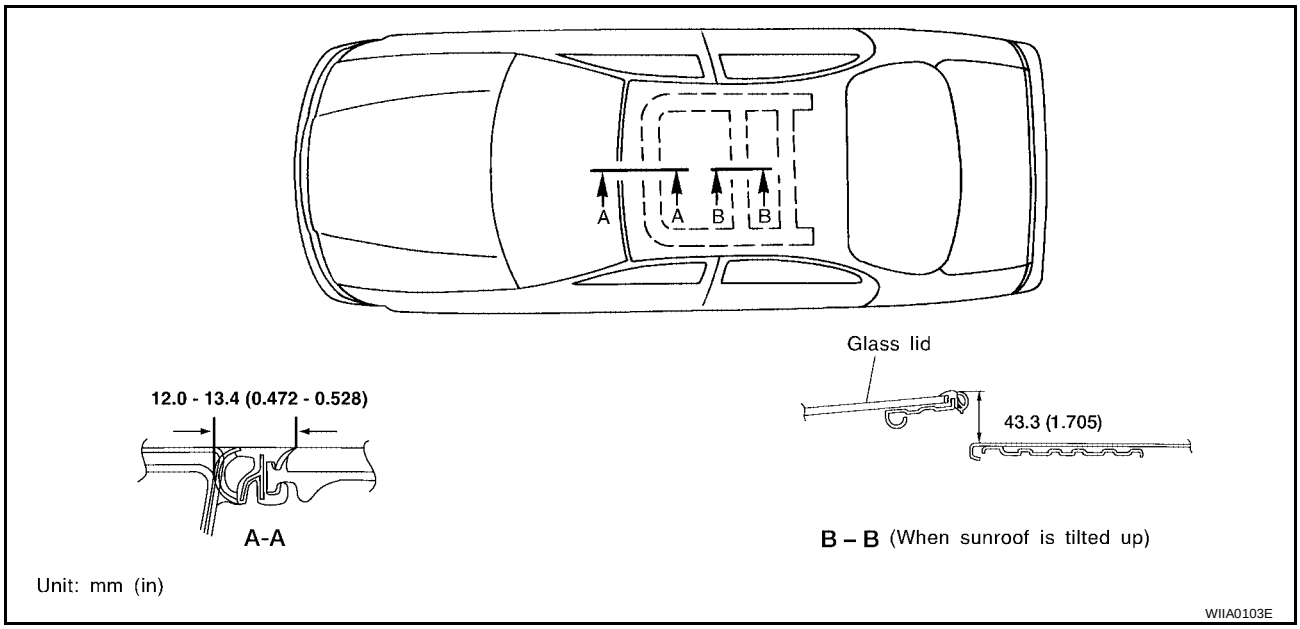
Sunroof assembly front end bolts : **5.1 - 6.47 N·m (0.52 - 0.66 kg-m, 46 - 57 in-lb)**

Sunroof assembly side rail bolts : **5.1 - 6.47 N·m (0.52 - 0.66 kg-m, 46 - 57 in-lb)**

Sunroof assembly front bracket bolts	**: 5.1 - 6.47 N·m (0.52 - 0.66 kg-m, 46 - 57 in-lb)**
Sunroof assembly rear bracket bolts	**: 5.1 - 6.47 N·m (0.52 - 0.66 kg-m, 46 - 57 in-lb)**

HEIGHT DIFFERENCE ADJUSTMENT

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



3. If necessary, adjust height difference by using the following procedure.

- Loosen glass lid securing bolts.
- Manually raise/lower glass lid until height difference is within specification.
- Tighten glass lid securing bolts.

Glass lid assembly mounting bolts	**: 3.0 - 5.0 N·m (0.3 - 0.5 kg-m, 26 - 43 in-lb)**

Removal and Installation

EIS003MA

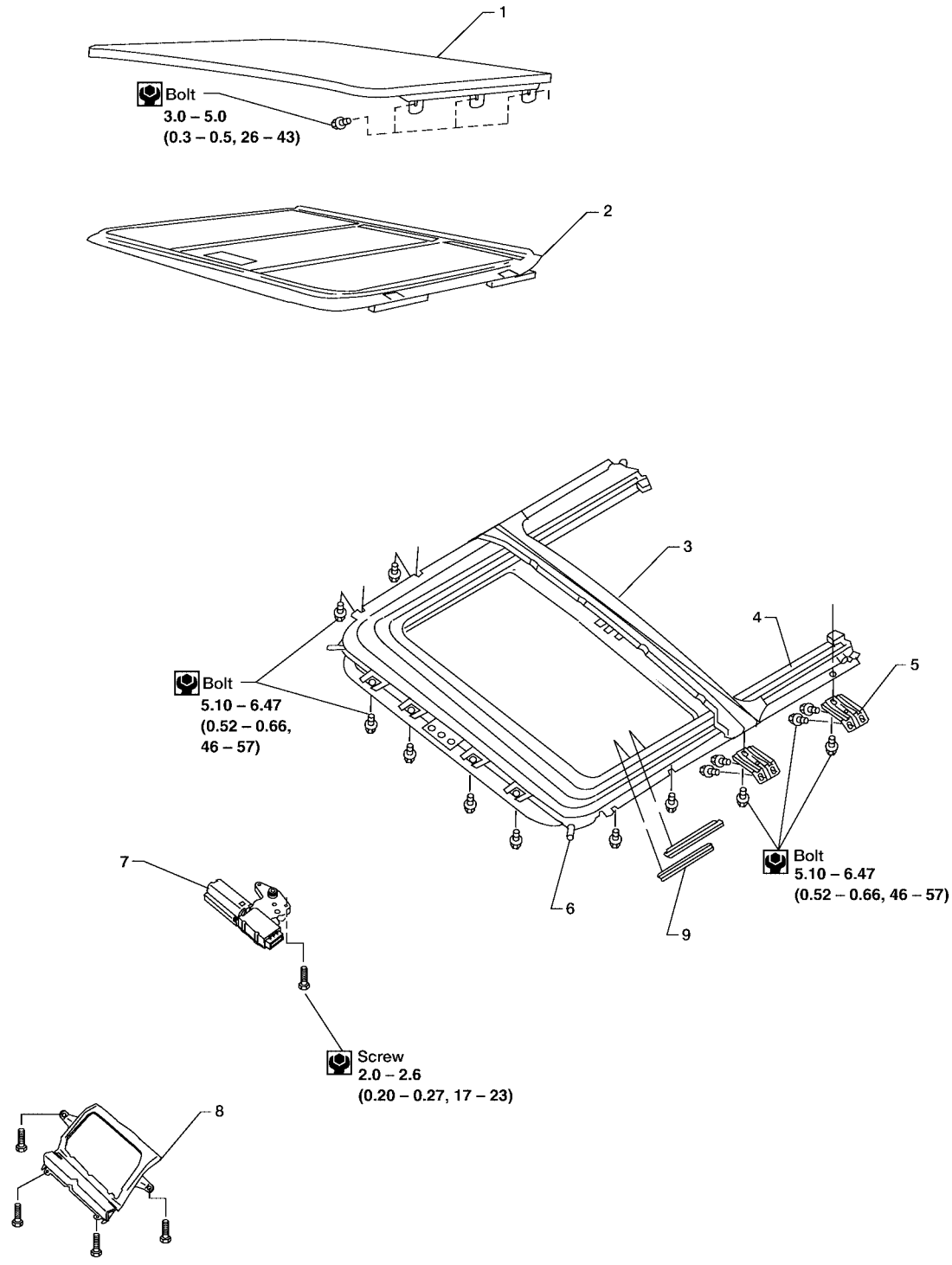
- After any adjustment, check sunroof operation and lid alignment.
- Handle glass lid with care so not to cause damage.
- For easier installation, mark each point before removal.

CAUTION:

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

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

SEC. 736



: N·m (kg-m, in-lb)

WIIA0037E

1. Glass lid assembly
2. Sunshade assembly
3. Drain channel assembly
4. Sunroof assembly
5. Sunroof bracket
6. Drain hose connecting area
7. Sunroof motor
8. Sunroof switch bracket
9. Side trim

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-36, "Removal and Installation" .
2. Disconnect drain hoses.
3. Close glass lid.
4. Remove sunroof switch bracket.
5. Disconnect sunroof motor harness electrical connector.

CAUTION:

- **Before removing sunroof motor, make sure that sunroof is fully closed.**
- **After removing sunroof motor, never attempt to rotate sunroof motor as a single unit.**

6. Remove bolts on the front end and side rails.
7. Remove front sunroof bracket bolts.
8. Remove rear sunroof bracket bolts and remove sunroof unit from roof panel.

- Remove sunroof unit through the passenger compartment while being careful not to damage the seats and trim.

Installation

1. Temporarily tighten the mounting bolts on the rear sunroof brackets.
2. Bring sunroof unit into passenger compartment and place the rear end of the rail onto the rear sunroof brackets.
3. Temporarily tighten the mounting bolts on the front end.
4. Tighten the installation point bolts diagonally excluding the installation point of the sunroof bracket around the roof opening.
5. Tighten the bolts on the front sunroof bracket at the vehicle side and then at the rail side.
6. Tighten the bolts on the rear sunroof bracket at the vehicle side and then at the rail side.

Sunroof assembly mounting bolts

Sunroof assembly front end bolts	**: 5.1 - 6.47 N·m (0.52 - 0.66 kg-m, 46 - 57 in-lb)**
Sunroof assembly side rail bolts	**: 5.1 - 6.47 N·m (0.52 - 0.66 kg-m, 46 - 57 in-lb)**
Sunroof assembly front bracket bolts	**: 5.1 - 6.47 N·m (0.52 - 0.66 kg-m, 46 - 57 in-lb)**
Sunroof assembly rear bracket bolts	**: 5.1 - 6.47 N·m (0.52 - 0.66 kg-m, 46 - 57 in-lb)**

7. Install sunroof motor switch bracket.
8. Connect drain hoses.
9. Install headlining. Refer to EI-36, "Removal and Installation" .

GLASS LID

Removal

1. Open sunroof shade.
2. Ensure glass lid is closed.
3. Carefully pry away trim to access glass lid securing bolts.
4. Remove bolts securing glass lid assembly to sunroof assembly.

Installation

1. Position glass lid to sunroof assembly.

2. Tighten glass lid assembly bolts to specification. (First tighten left front bolt, then tighten right rear bolt on glass lid to prevent lid from moving while tightening other bolts.)

Glass lid assembly mounting bolts	**: 3.0 - 5.0 N·m (0.3 - 0.5 kg-m, 26 - 43 in-lb)**

3. Position and push trim into place.
4. After installation, perform fitting adjustment.

SUNSHADE

Removal and Installation

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

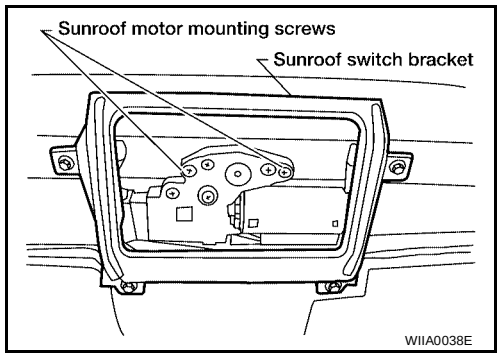
1. Remove glass lid. Refer to RF-26, "GLASS LID" .
2. Carefully pry sunshade from sunroof frame.

Installation is in the reverse order of removal.

SUNROOF MOTOR

Removal

1. Position sunroof assembly in full open position.
2. Remove map lamp for access to sunroof motor.
3. Remove sunroof motor mounting screws.
4. Disconnect harness connector to remove sunroof motor.



CAUTION:

- **When removing the sunroof motor, be sure that the sunroof is in the fully open position.**
- **Never run the removed motor as a single unit.**

Installation

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

Sunroof motor mounting screws	**: 2.0 - 2.6 N·m (0.20 - 0.27 kg-m, 17 - 23 in-lb)**

CAUTION:
Before installing the motor, be sure to place the link and wire assembly in the symmetrical and fully closed position.
Remainder of installation is in the reverse order of removal.