

SECTION

RF

ROOF

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PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

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

INFOID:000000001731063

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 AIRBAG" and "SEAT BELT" 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 AIRBAG".
- 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.

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PREPARATION

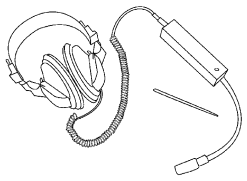
< PREPARATION >

PREPARATION

PREPARATION

Commercial Service Tool

INFOID:000000001724409

Tool name	Description
Engine ear  SIA0995E	Locating the noise

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

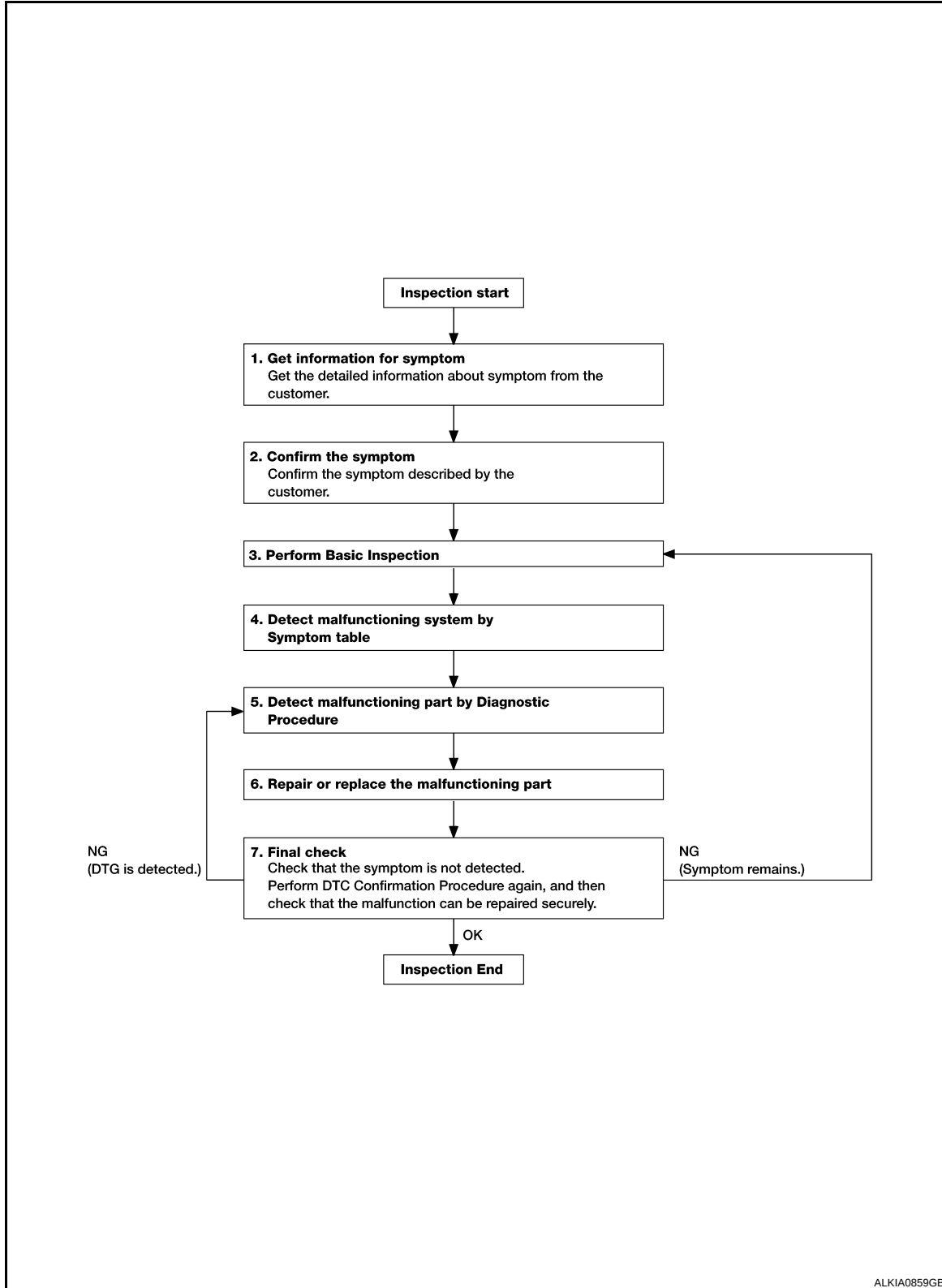
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000001724555

OVERALL SEQUENCE



ALKIA0859GB

DETAILED FLOW

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

1. GET INFORMATION FOR SYMPTOM

Get the detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurred).

>> GO TO 2

2. CONFIRM THE SYMPTOM

Confirm the symptom described by the customer.

Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 3

3. PERFORM BASIC INSPECTION

Perform XX-XX, "*****".

Inspection End>>GO TO 4

4. DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

Detect malfunctioning system according to symptom diagnosis based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

>> GO TO 5

5. DETECT MALFUNCTIONING PART BY DIAGNOSTIC PROCEDURE

Inspect according to Diagnostic Procedure of the system.

NOTE:

The Diagnostic Procedure described based on open circuit inspection. A short circuit inspection is also required for the circuit check in the Diagnostic Procedure.

Is malfunctioning part detected?

YES >> GO TO 6

NO >> Check voltage of related BCM terminals using CONSULT-III.

6. REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnostic Procedure.

>> GO TO 7

7. FINAL CHECK

When symptom was described from the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Does the symptom reappear?

YES >> GO TO 5

NO >> Inspection End.

INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Description

INFOID:000000001724556

MEMORY RESET PROCEDURE

1. Please observe the following instructions while confirming the sunroof operation.

NOTE:

Do not disconnect the battery power while the sunroof is operating or within 5 seconds after the sunroof stops (to wipe-out the memory of lid position and operating friction).

2. Initialization of system should be conducted after the following conditions.
 - When the battery has been disconnected or discharged.
 - When the sunroof motor has been disconnected from power.
 - When the sunroof motor is changed.
 - When the sunroof does not operate normally (Incomplete initialization conditions).

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement

INFOID:000000001724557

INITIALIZATION PROCEDURE

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

1. Turn ignition switch ON.
2. Push and release the tilt up switch to start the tilt up operation.
3. Push and hold the tilt up switch until the sunroof pops up.

NOTE:

The sunroof will move toward the tilt up direction and will be stopped mechanically, at which time it will be automatically fully closed. Keep pushing the switch during this operation. Release the switch when the operation is complete.

4. Push and hold the tilt up switch within 10 seconds of step 3.
5. After 4 seconds, the sunroof will be automatically cycled in sequence of slide open-tilt up-tilt down.

NOTE:

Keep pushing the switch during this operation.

6. When the sunroof stops, release the switch 0.5 second later.
7. If the slide switch operates normally, the initialization is complete.

SUNROOF SYSTEM

< FUNCTION DIAGNOSIS >

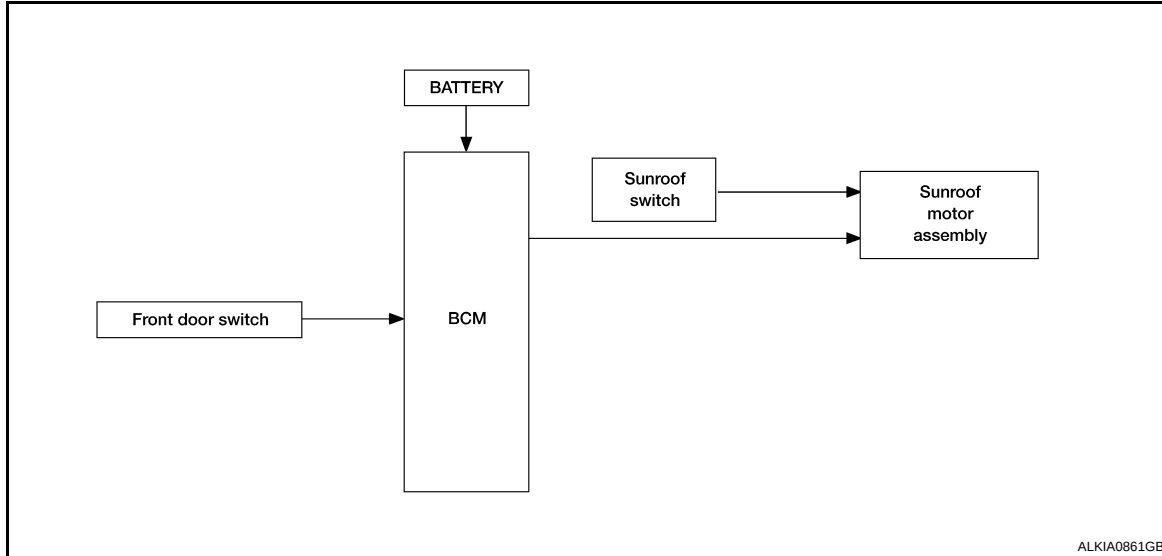
FUNCTION DIAGNOSIS

SUNROOF SYSTEM

System Diagram

INFOID:000000001724558

SUNROOF



System Description

INFOID:000000001724559

SUNROOF SYSTEM

INPUT/OUTPUT SIGNAL CHART

Item	Input signal to sunroof motor assembly	Sunroof motor function	Actuator
Sunroof switch	Sunroof switch signal (open)	Sunroof control	Sunroof motor
	Sunroof switch signal (close)		
BCM	RAP signal		

SUNROOF OPERATION

- The sunroof motor assembly is supplied with constant battery power. The BCM supplies power while the ignition switch is ON or retained power is operating.
- The open & close signals from the sunroof switch enable the sunroof motor to move arbitrarily.

AUTO OPERATION

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

RETAINED POWER OPERATION

Retained power operation is an additional power supply function that enables the sunroof system to operate up to 45 seconds after the ignition switch is turned OFF.

Retained power function cancel conditions

- When a front door is opened (door switch ON)
- When ignition switch is turned ON again.
- When 45 seconds elapse on the timer.

ANTI-PINCH FUNCTION

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

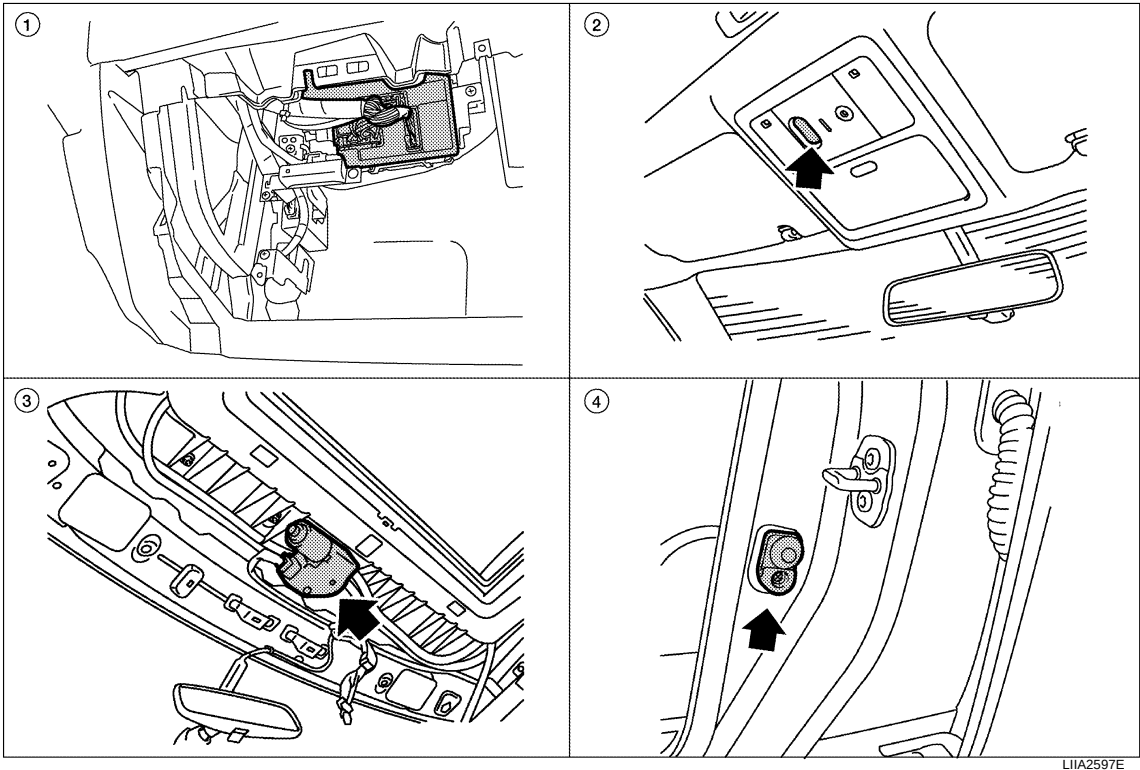
When the sunroof motor detects an interruption during the slide close or tilt down operation, the sunroof motor assembly will reverse to slide open or tilt up.

SUNROOF SYSTEM

< FUNCTION DIAGNOSIS >

Component Parts Location

INFOID:000000001724560



- 1. BCM M18, M20
(View with glove box removed)
- 2. Sunroof switch R6
- 3. Sunroof motor assembly R4
- 4. LH B34
RH B27

Component Description

INFOID:000000001724561

Component	Function
BCM	Supplies power to the sunroof motor assembly.
Sunroof switch	Transmits open & close operation signal to sunroof motor assembly.
Sunroof motor assembly	The sunroof motor and integrated CPU enables tilt up/down & slide open/close as requested by the sunroof switch.
Front door switch	Detects door open/close condition and transmits to BCM.

DIAGNOSIS SYSTEM (BCM)

< FUNCTION DIAGNOSIS >

DIAGNOSIS SYSTEM (BCM)

COMMON ITEM

COMMON ITEM : CONSULT-III Function (BCM - COMMON ITEM)

INFOID:0000000001724562

APPLICATION ITEM

CONSULT-III performs the following functions via CAN communication with BCM.

Diagnosis mode	Function Description
WORK SUPPORT	Changes the setting for each system function.
SELF-DIAG RESULTS	Displays the diagnosis results judged by BCM. Refer to <u>XX-XX, "*****"</u> .
CAN DIAG SUPPORT MNTR	Monitors the reception status of CAN communication viewed from BCM.
DATA MONITOR	The BCM input/output signals are displayed.
ACTIVE TEST	The signals used to activate each device are forcibly supplied from BCM.
ECU IDENTIFICATION	The BCM part number is displayed.
CONFIGURATION	This function is not used even though it is displayed.

RETAINED PWR

RETAINED PWR : CONSULT-III Function (BCM - RETAINED PWR)

INFOID:0000000001724563

WORK SUPPORT

Work Support Item	Description
RETAINED PWR SET	MODE 1 MODE 2 MODE 3

DATA MONITOR

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

ACTIVE TEST

Active Test Item	Description
RETAINED PWR	Turns retained power function [ON/OFF].

POWER SUPPLY AND GROUND CIRCUIT

< COMPONENT DIAGNOSIS >

COMPONENT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT

SUNROOF MOTOR ASSEMBLY

SUNROOF MOTOR ASSEMBLY : Diagnosis Procedure

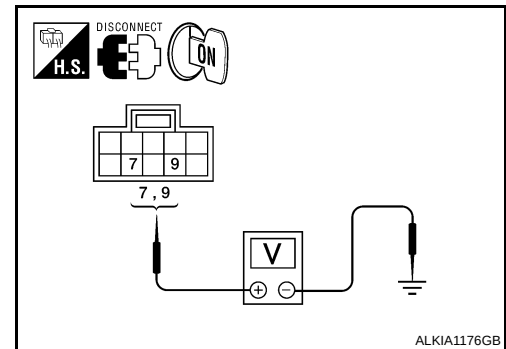
INFOID:000000001724564

SUNROOF MOTOR ASSEMBLY

1. CHECK SUNROOF MOTOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect sunroof motor assembly connector R4.
3. Turn ignition switch ON.
4. Check voltage between sunroof motor assembly connector R4 terminals 7 and 9 and ground.

(+)		(-)	Voltage
Connector	Terminal		
R4	7	Ground	Battery voltage
	9		



Is the voltage as specified?

YES >> GO TO 4

NO, TERMINAL 7>>Check sunroof motor circuit breaker, connector and harness. Refer to PG section, main wire harness layout.

NO, TERMINAL 9>>GO TO 2

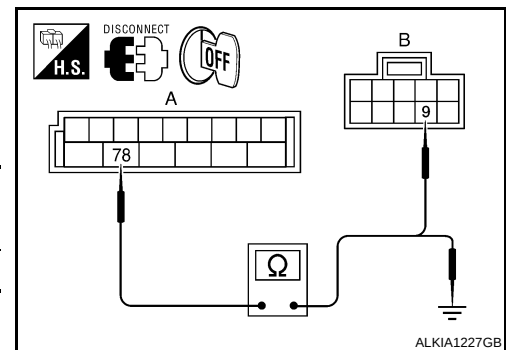
2. CHECK SUNROOF MOTOR RETAINED POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector M20.
3. Check continuity between BCM connector M20 (A) and sunroof motor assembly connector R4 (B).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
M20	78	R4	9	Yes

4. Check continuity between BCM connector M20 (A) and ground.

A		—	Continuity
Connector	Terminal		
M20	78	Ground	No



Are the continuity test results as specified?

YES >> GO TO 3

NO >> Repair or replace harness.

3. CHECK GROUND CIRCUIT

POWER SUPPLY AND GROUND CIRCUIT

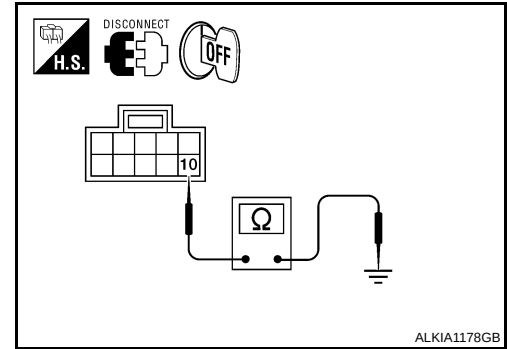
< COMPONENT DIAGNOSIS >

1. Turn ignition switch OFF.
2. Check continuity between sunroof motor assembly connector R4 terminal 10 and ground.

Connector	Terminal	—	Continuity
R4	10	Ground	Yes

Is the continuity test result as specified?

- YES >> Power supply and ground circuits are OK.
NO >> Repair or replace harness.



SUNROOF MOTOR ASSEMBLY : Special Repair Requirement

INFOID:000000001724565

1. PERFORM INITIALIZATION PROCEDURE

Perform initialization procedure.

Refer to [RF-7, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#).

Does the sunroof motor assembly operate properly?

- YES >> Repair is complete.
NO >> Check fitting adjustment.

SUNROOF SWITCH CIRCUIT

< COMPONENT DIAGNOSIS >

SUNROOF SWITCH CIRCUIT

Description

INFOID:000000001724566

A circuit breaker supplies constant battery power to the sunroof motor assembly. The BCM supplies retained power to the sunroof motor assembly when the key is ON or during retained power operation. The open and close functions of the sunroof motor assembly are controlled by the sunroof switch.

Component Function Check

INFOID:000000001724567

1. CHECK SUNROOF MOTOR FUNCTION

Do open and close functions operate normally with the sunroof switch?

Is the inspection result normal?

YES >> Sunroof motor assembly is OK.

NO >> Refer to [RF-11, "SUNROOF MOTOR ASSEMBLY : Diagnosis Procedure"](#).

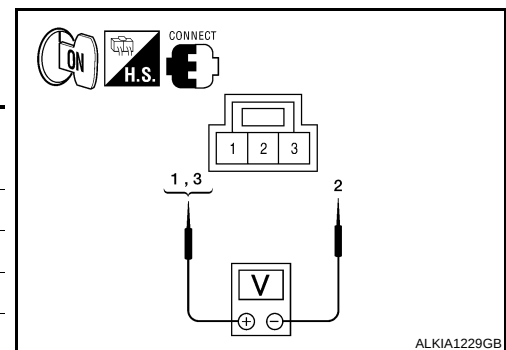
Diagnosis Procedure

INFOID:000000001724568

1. CHECK SUNROOF SWITCH INPUT SIGNAL

1. Turn ignition switch ON.
2. Check voltage between sunroof switch connector and ground.

Connector	Terminals		Sunroof switch position	Voltage (V) (Approx.)
	(+)	(-)		
R6	1	2	CLOSE	0V
			Other than above	Battery voltage
	3		OPEN	0V
			Other than above	Battery voltage



Are the voltage measurements as specified?

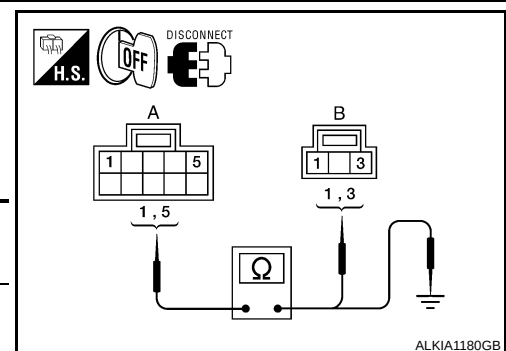
YES >> Sunroof switch is operating normally.

NO >> GO TO 2

2. CHECK SUNROOF SWITCH CIRCUITS

1. Turn ignition switch OFF.
2. Disconnect sunroof motor assembly connector R4 and sunroof switch connector R6.
3. Check continuity between sunroof motor assembly connector R4 (A) and sunroof switch connector R6 (B) and.

A		B		Continuity
Connector	Terminal	Connector	Terminal	
R4	5	R6	1	Yes
	1		3	



4. Check continuity between sunroof motor assembly connector R4 (A) and ground.

A		—	Continuity
Connector	Terminal		
R4	5	Ground	No
	1		

Are the continuity test results as specified?

YES >> GO TO 3

NO >> Repair harness or connector.

SUNROOF SWITCH CIRCUIT

< COMPONENT DIAGNOSIS >

3. CHECK SUNROOF SWITCH

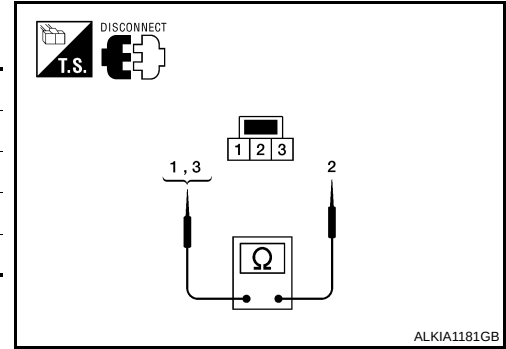
1. Check continuity between sunroof switch terminals.

Terminals		Sunroof switch position	Continuity
1	2	CLOSE	Yes
		Other than above	No
3		OPEN	Yes
		Other than above	No

Are the continuity test results as specified?

YES >> Sunroof switch is operating normally.

NO >> Replace sunroof switch (map lamp assembly). Refer to
XX-XX. "*****".



DOOR SWITCH

< COMPONENT DIAGNOSIS >

DOOR SWITCH

Description

INFOID:0000000001724569

Detects door open/close condition and transmits the signal to BCM.

Component Function Check

INFOID:0000000001724570

1. CHECK DOOR SWITCH INPUT SIGNAL

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

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

Is the inspection result normal?

YES >> Door switch circuit is OK.

NO >> Refer to [RF-15, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000001724571

1. CHECK FRONT DOOR SWITCH

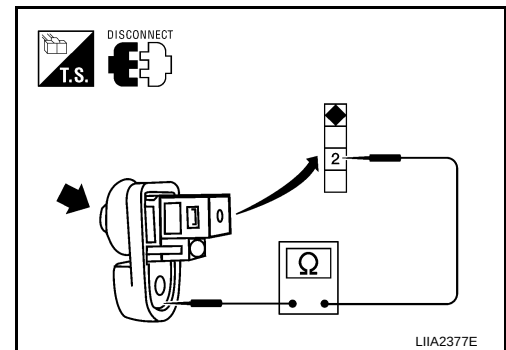
Check front door switches.

Terminal	Switch condition	Continuity
2	Pressed	No
	Released	Yes

Are the continuity test results as specified?

YES >> GO TO 2

NO >> Replace front door switch.



2. CHECK FRONT DOOR SWITCH INPUT SIGNAL

Check voltage between BCM connectors M18 and ground.

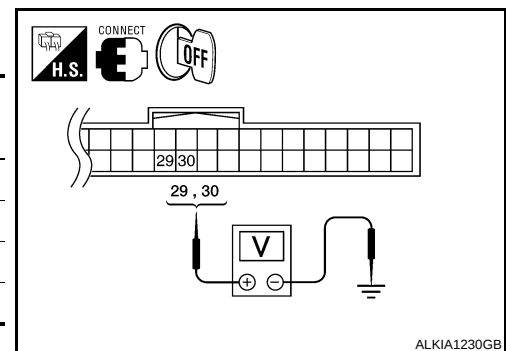
(+)		(-)	Front door condition		Voltage
Connector	Terminal				
M18	29	Ground	LH	OPEN	0V
				CLOSE	Battery voltage
	30		RH	OPEN	0V
				CLOSE	Battery voltage

Are the voltage readings as specified?

YES >> Replace BCM. Refer to [XX-XX, "*****"](#).

NO >> GO TO 3

3. CHECK HARNESS CONTINUITY



DOOR SWITCH

< COMPONENT DIAGNOSIS >

1. Turn ignition switch OFF.
2. Disconnect BCM connectors M18 and front door switch connectors B27 and B34.
3. Check continuity between BCM connectors M18 (A) and front door switch connectors B27 and B34 (B).

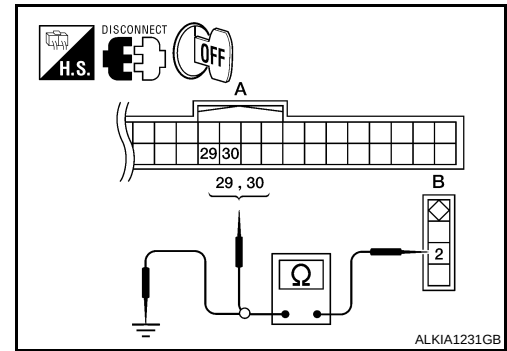
A		B		Continuity
Connector	Terminal	Connector	Terminal	
M18	29	LH	B34	Yes
	30	RH	B27	

4. Check continuity between BCM connectors M20 (A) and ground.

A		—	Continuity
Connector	Terminal		
M18	29	Ground	No
	30		

Are the continuity test results as specified?

- YES >> Replace BCM. Refer to XX-XX, "*****".
- NO >> Repair or replace harness.



BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

ECU DIAGNOSIS

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:000000001724572

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
DOOR SW-DR	Front door LH closed	OFF
	Front door LH opened	ON
DOOR SW-AS	Front door RH closed	OFF
	Front door LH opened	ON

TERMINAL LAYOUT

Refer to XX-XX, "*****".

PHYSICAL VALUES

Refer to XX-XX, "*****".

WIRING DIAGRAM

Refer to XX-XX, "*****".

DTC INSPECTION

Refer to XX-XX, "*****".

DTC INDEX

Refer to XX-XX, "*****".

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SUNROOF SYSTEM

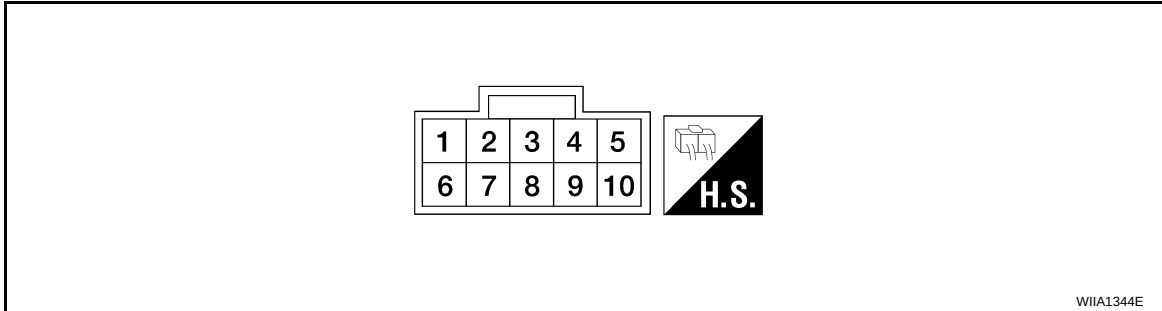
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SUNROOF SYSTEM

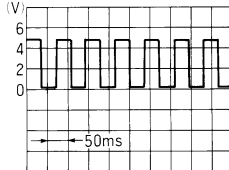
Reference Value

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TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Voltage (V) (Approx.)
+	-	Signal name	Input/ Output		
1 (SB)	Ground	Sunroof switch (OPEN) signal	Input	Ignition switch ON and sun- roof switch in OPEN position	0V
				Ignition switch ON and sun- roof switch in OFF position	Battery voltage
5 (R)	Ground	Sunroof switch (CLOSE) signal	Input	Ignition switch ON and sun- roof switch in CLOSE position	0V
				Ignition switch ON and sun- roof switch in OFF position	Battery voltage
7 (P)	Ground	BAT power supply	Input	—	Battery voltage
8 (W)	Ground	Vehicle speed signal	Input	Speedometer operated [when vehicle speed is approx. 40 km/h (25 MPH)]	 ELF1080D
9 (SB)	Ground	RAP signal	Input	Ignition switch ON	Battery voltage
				Within 45 seconds after igni- tion switch turned OFF	Battery voltage
				When front door LH or RH is opened while retained power is operating	0V
10 (B)	Ground	Ground	Input	—	0V

SUNROOF SYSTEM

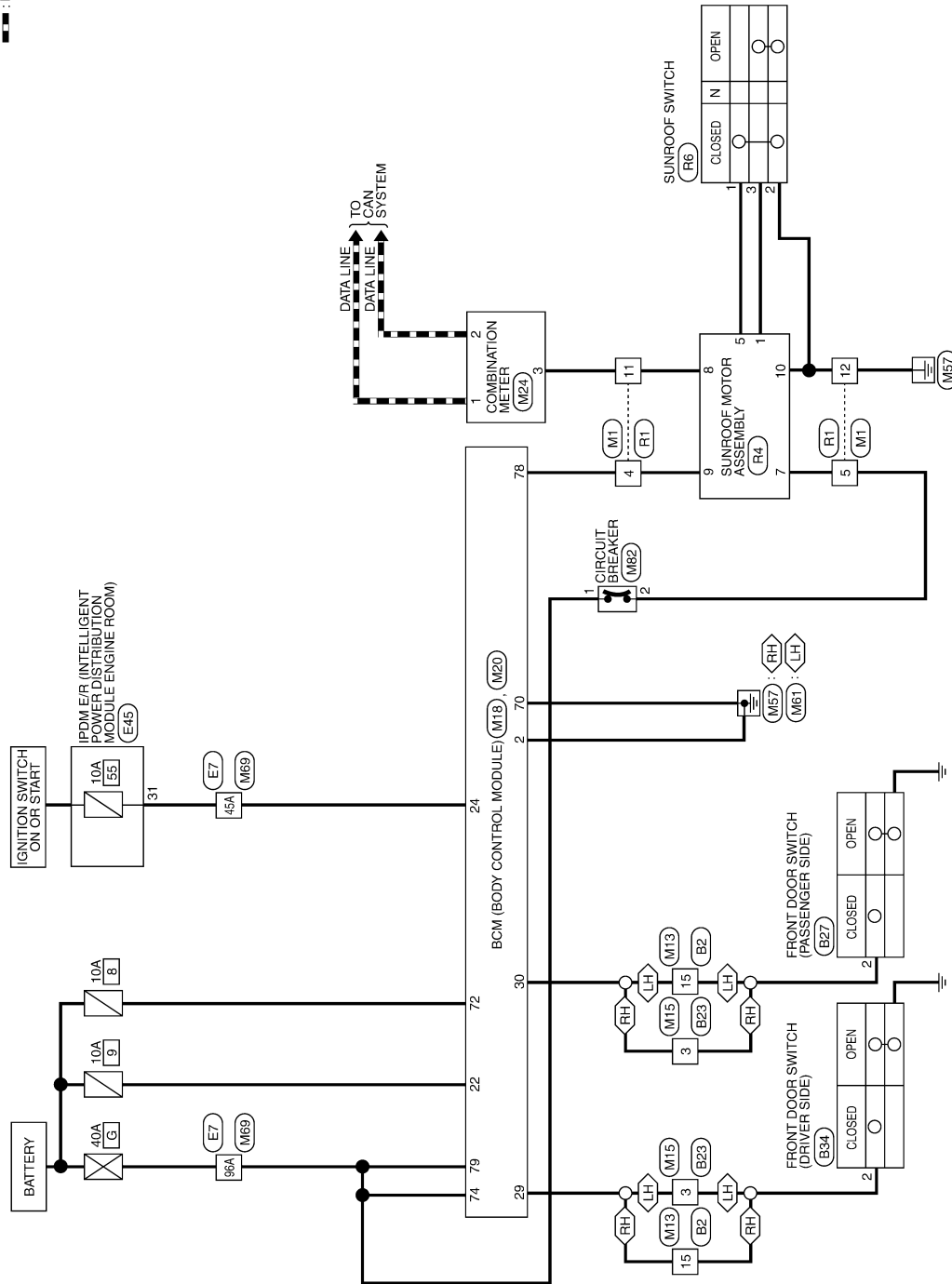
< ECU DIAGNOSIS >

Wiring Diagram

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LH : LHD MODELS
 RH : RHD MODELS
 — : DATA LINE

SUNROOF



ALKWA0176GE

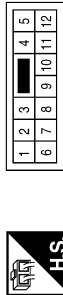
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SUNROOF SYSTEM

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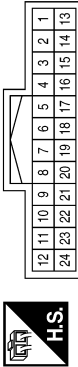
SUNROOF CONNECTORS

Connector No.	M1
Connector Name	WIRE TO WIRE
Connector Color	WHITE



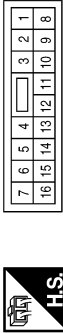
Terminal No.	Color of Wire	Signal Name
4	L	—
5	P	—
11	G	—
12	B	—

Connector No.	M13
Connector Name	WIRE TO WIRE
Connector Color	WHITE



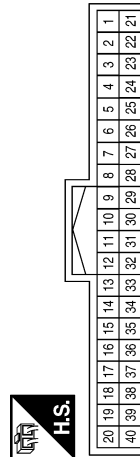
Terminal No.	Color of Wire	Signal Name
15	SB	—

Connector No.	M15
Connector Name	WIRE TO WIRE
Connector Color	WHITE



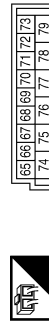
Terminal No.	Color of Wire	Signal Name
3	BR	—

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



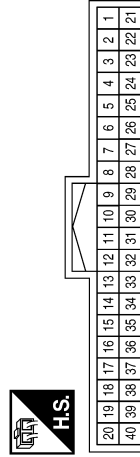
Terminal No.	Color of Wire	Signal Name
2	B	GND
22	P	BATT SAFETY LINE
24	O	IGN SW
29	BR	DOOR SW DR
30	SB	DOOR SW AS

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
70	B	POWER GND
72	LG	BATT RL
74	Y	BATT BCM
78	L	POWER WINDOW SUPPLY
79	Y	BATT PW

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE



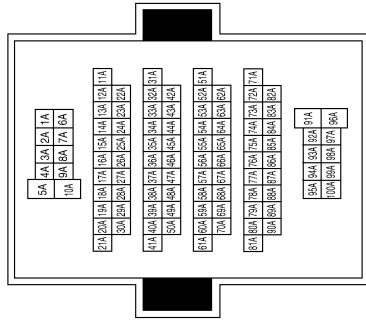
Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	P	CAN-L
3	V	2P/R

ALKIA1220GB

SUNROOF SYSTEM

< ECU DIAGNOSIS >

Connector No.	E7
Connector Name	WIRE TO WIRE
Connector Color	WHITE



SUNROOF SYSTEM

< ECU DIAGNOSIS >

Connector No.	B23
Connector Name	CIRCUIT BREAKER-1
Connector Color	WHITE



1	2	3	4	5	6	7		
8	9	10	11	12	13	14	15	16

Connector No.	B27
Connector Name	FRONT DOOR SWITCH (PASSENGER SIDE) (LHD)
Connector Color	WHITE



1	2	3
---	---	---

Connector No.	B27
Connector Name	FRONT DOOR SWITCH (PASSENGER SIDE) (RHD)
Connector Color	WHITE



1	2	3
---	---	---

Terminal No.	Color of Wire	Signal Name
3	LG	—

Terminal No.	Color of Wire	Signal Name
1	QQ	—

Terminal No.	Color of Wire	Signal Name
1	QQ	—

Connector No.	B34
Connector Name	FRONT DOOR SWITCH (DRIVER SIDE) (LHD)
Connector Color	WHITE



1	2	3
---	---	---

Connector No.	B34
Connector Name	FRONT DOOR SWITCH (DRIVER SIDE) (RHD)
Connector Color	WHITE



1	2	3
---	---	---

Connector No.	R1
Connector Name	WIRE TO WIRE
Connector Color	WHITE



5	4			3	2	1
12	11	10	9	8	7	6

Terminal No.	Color of Wire	Signal Name
2	LG	—

Terminal No.	Color of Wire	Signal Name
2	SB	—

Terminal No.	Color of Wire	Signal Name
4	W	—
5	P	—
11	O	—
12	B	—

ALKIA1223GB

SUNROOF SYSTEM

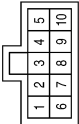
< ECU DIAGNOSIS >

Connector No.	R6
Connector Name	SUNROOF SWITCH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	G	BIT0
2	B	GRD
3	R	BIT1

Connector No.	R4
Connector Name	SUNROOF MOTOR ASSEMBLY
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	R	BIT1
5	G	BIT0
7	P	B+
8	O	SPEED(2p/r)
9	W	IGN
10	B	GRD

ALKIA1224GB

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SQUEAK AND RATTLE TROUBLE DIAGNOSES

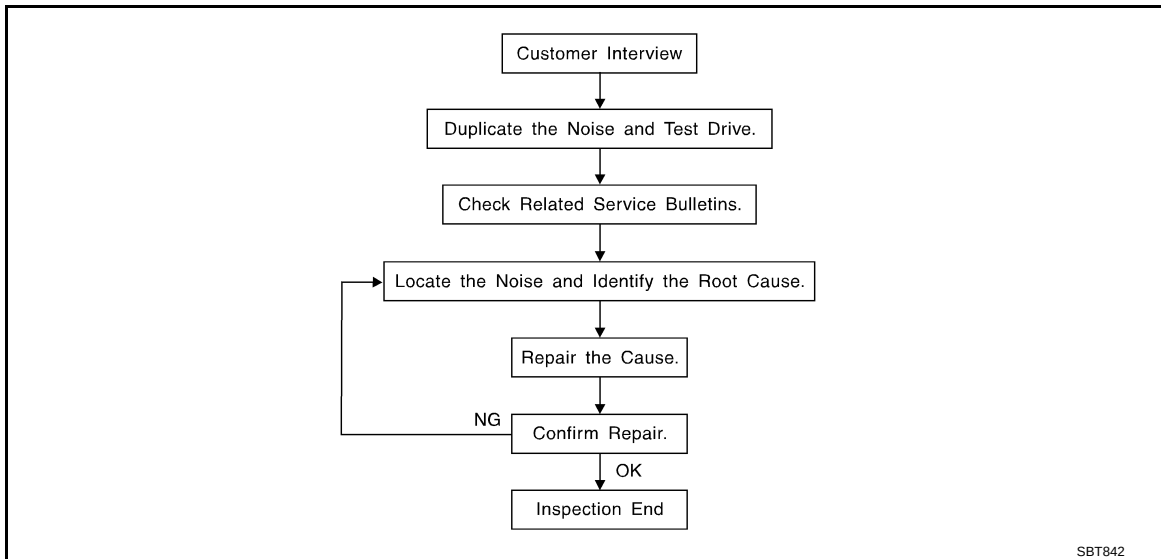
< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

SQUEAK AND RATTLE TROUBLE DIAGNOSES

Work Flow

INFOID:000000001724410



CUSTOMER INTERVIEW

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

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

DUPLICATE THE NOISE AND TEST DRIVE

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

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 (Engine Ear or mechanics stethoscope).
 2. Narrow down the noise to a more specific area and identify the cause of the noise by:
 - removing the components in the area that you suspect the noise is coming from.
Do not use too much force when removing clips and fasteners, otherwise clips and fastener can be broken or lost during the repair, resulting in the creation of new noise.
 - tapping or pushing/pulling the component that you suspect is causing the noise.
Do not tap or push/pull the component with excessive force, otherwise the noise will be eliminated only temporarily.
 - feeling for a vibration with your hand by touching the component(s) that you suspect is (are) causing the noise.
 - placing a piece of paper between components that you suspect are causing the noise.
 - looking for loose components and contact marks.
- Refer to [RF-26, "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.

NOTE:

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

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

The following materials, not available through NISSAN Parts Department, 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

INFOID:000000001724411

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

SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

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

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

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SQUEAK AND RATTLE TROUBLE DIAGNOSES

< SYMPTOM DIAGNOSIS >

Diagnostic Worksheet

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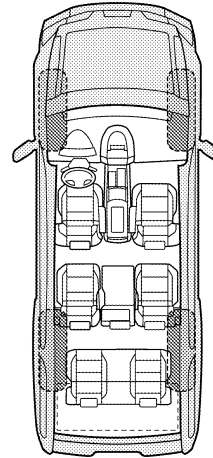
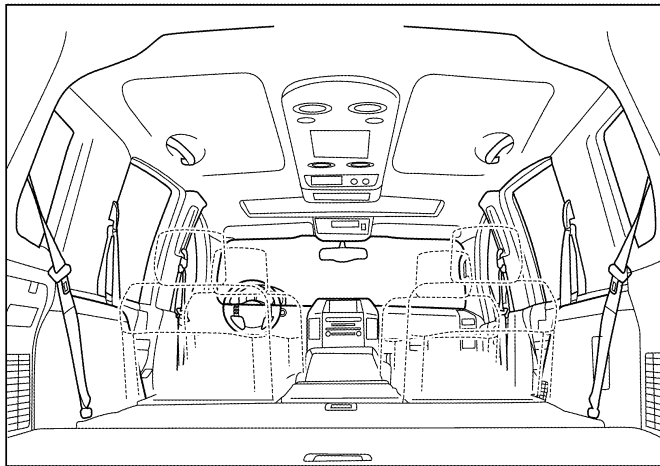
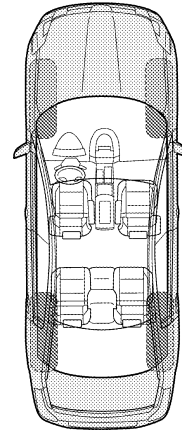
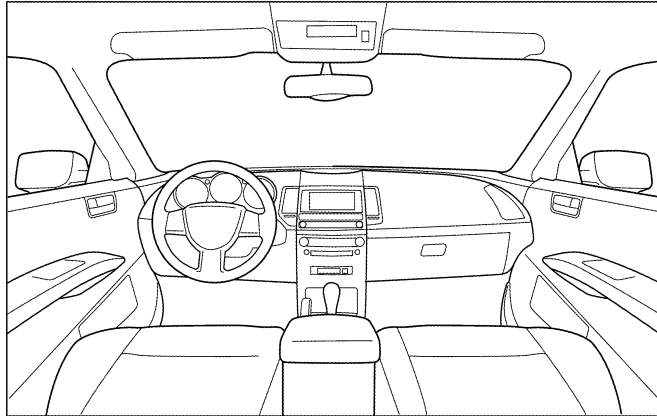
Dear Customer:

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 DIAGNOSES

< SYMPTOM DIAGNOSIS >

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)

- | | |
|---|--|
| ☐ Anytime | ☐ After sitting out in the rain |
| ☐ 1st time in the morning | ☐ When it is raining or wet |
| ☐ Only when it is cold outside | ☐ Dry or dusty conditions |
| ☐ Only when it is hot outside | ☐ 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	☐	☐	_____
- Noise verified on test drive	☐	☐	_____
- Noise source located and repaired	☐	☐	_____
- Follow up test drive performed to confirm repair	☐	☐	_____

VIN: _____ Customer Name _____
W.O.# _____ Date: _____

This form must be attached to Work Order

LAIA0071E

SUNROOF SYSTEM

< ON-VEHICLE REPAIR >

ON-VEHICLE REPAIR

SUNROOF SYSTEM

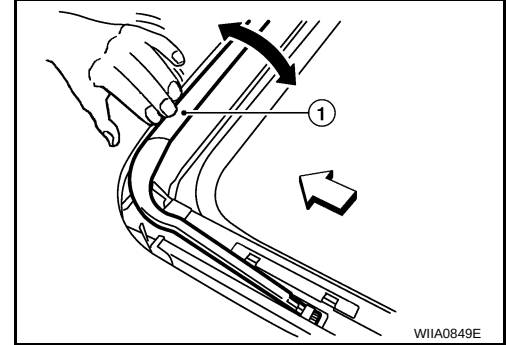
Inspection

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WIND DEFLECTOR

Check that the wind deflector (1) moves freely within the sunroof unit assembly while manually pressing down and releasing. If a malfunction is detected, remove and visually check the deflector for damage, deteriorated components, or foreign objects within mechanism. Check to determine if a sufficient amount of grease has been applied to the pivot areas for non-binding operation, if not add grease as required. If it is damaged, replace it with a new one. If no damage is found, reinstall it properly.

⇐: Vehicle front



LINK ASSEMBLY AND WIRE

NOTE:

Before replacing a suspect part, make sure it is the source of noise being experienced.

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

WEATHERSTRIP

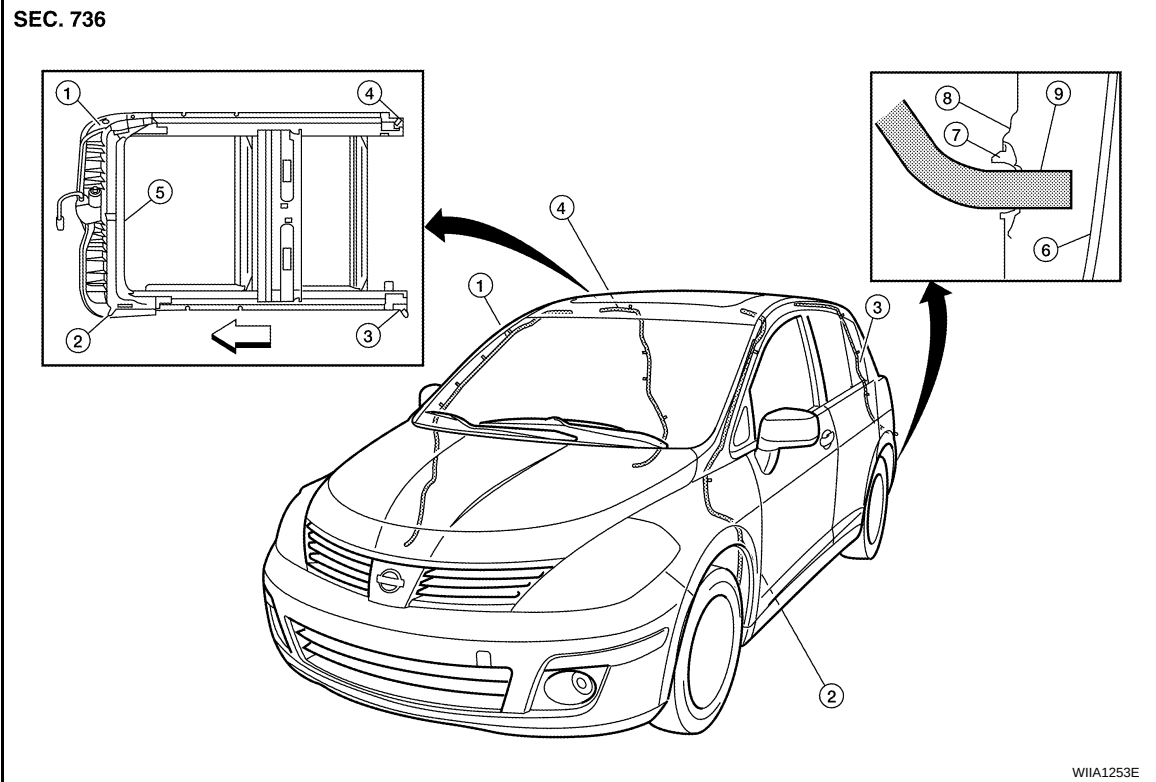
1. Visually check weatherstrip for damage, deterioration, or deformation.
 - Open glass lid assembly enough to inspect front edge of weatherstrip.
 - Tilt up glass lid assembly fully to inspect sides and rear edge of weatherstrip.If any area of the weatherstrip is found to be damaged, replace the glass lid assembly. Refer to [RF-35, "Removal and Installation"](#).
2. Check for leakage around glass lid.
 - Close glass lid fully.
 - Pour water around surface to determine area of concern.
 - For gaps or misalignment, adjust glass lid to specifications. Refer to [RF-32, "Fitting Adjustment"](#).
 - For damaged sealing surfaces, either replace glass lid [RF-35, "Removal and Installation"](#), or repair the panel.

DRAIN HOSES

SUNROOF SYSTEM

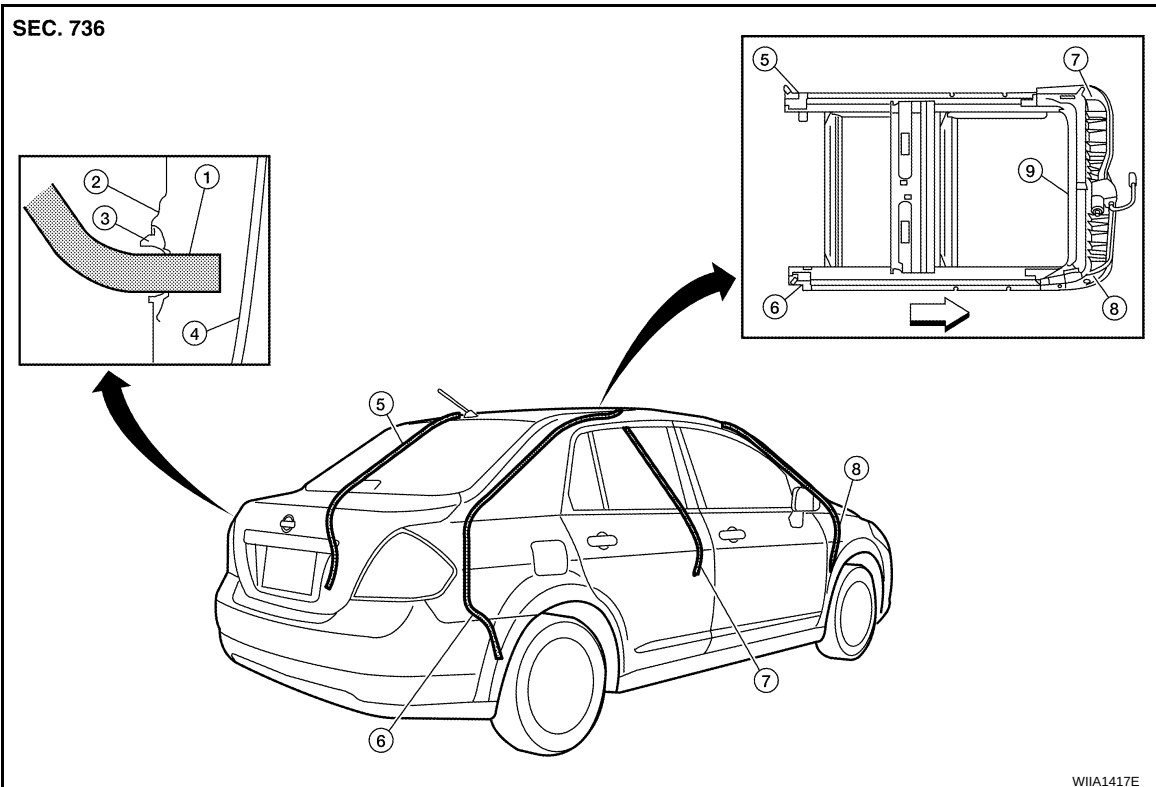
< ON-VEHICLE REPAIR >

Hatchback Models



- | | | |
|------------------------|--------------------------|-----------------------|
| 1. Drain hose front RH | 2. Drain hose front LH | 3. Drain hose rear LH |
| 4. Drain hose rear RH | 5. Sunroof unit assembly | 6. Fascia |
| 7. Seal | 8. Fender | 9. Drain hose |
| ← Vehicle front | | |

Sedan Models



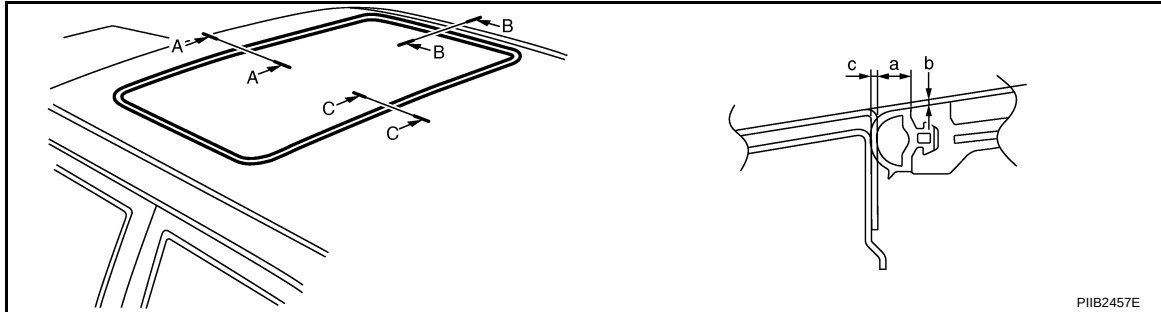
SUNROOF SYSTEM

< ON-VEHICLE REPAIR >

- | | | |
|------------------------|------------------------|--------------------------|
| 1. Drain hose | 2. Fender | 3. Seal |
| 4. Fascia | 5. Drain hose rear LH | 6. Drain hose rear RH |
| 7. Drain hose front LH | 8. Drain hose front RH | 9. Sunroof unit assembly |
| ⇐ Vehicle front | | |

1. Remove headlining. Refer to [INT-29. "Component"](#).
 2. Visually check drain hoses for:
 - Proper connection at sunroof unit assembly.
 - Damage, pinch, cracks, deterioration.
 - Proper fastening and routing on body panels.
 3. Pour water through drain hoses to determine watertight performance.
- If a damaged or leaking portion in any drain hose is found, replace entire drain hose as an assembly.

Fitting Adjustment



	a	b	c
A-A	5.8 mm (0.228 in)	0.75 ± 1.5 mm (0.03 ± 0.059 in)	1.4 ± 0.8 mm (0.055 ± 0.031 in)
B-B	5.8mm (0.228 in)	0.75 ± 1.5 mm (0.03 ± 0.059 in)	1.4 ± 0.8 mm (0.055 ± 0.031 in)
C-C	5.8mm (0.228 in)	0.75 ± 1.5 mm (0.03 ± 0.059 in)	1.4 ± 0.8 mm (0.055 ± 0.031 in)

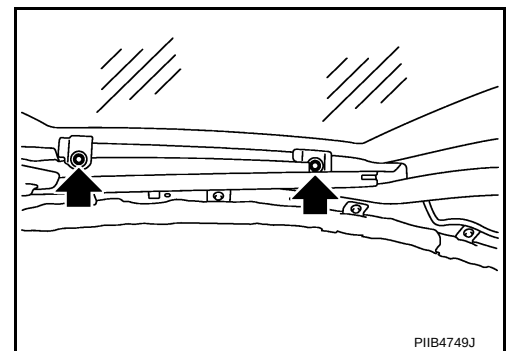
GAP ADJUSTMENT

1. Tilt up glass lid.
2. Loosen glass lid bolts, then tilt down glass lid.
3. Adjust glass lid from outside of vehicle so it resembles "A-A" "B-B" "C-C" as shown in the figure.
 - For gap adjustment "A-A" "C-C", carefully slide glass lid forward and rearward in vehicle.
 - For gap adjustment "B-B", loosen sunroof unit assembly and shift side to side.

NOTE:

To prevent glass lid from moving after adjustment, lightly tighten the bolts.

4. Tighten left front bolt, then right rear bolt to prevent uneven torque. Tighten remaining bolts, being careful to prevent glass lid from moving.
5. Tilt glass lid up and down several times to check that it moves smoothly, and retains the adjustment.



HEIGHT ADJUSTMENT

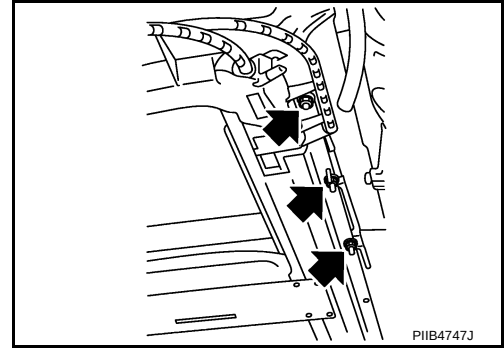
1. Tilt up glass lid.
2. Loosen glass lid bolts, then tilt down glass lid.
3. Adjust glass lid from outside of vehicle so it resembles "A-A" "B-B" "C-C" as shown in the figure.
 - For height adjustment, manually raise/lower glass lid assembly until height difference is within specifications.

NOTE:

SUNROOF SYSTEM

< ON-VEHICLE REPAIR >

- If necessary, shims may be added between sunroof unit assembly and roof panel to increase glass lid height adjustment range.
 - To prevent glass lid from moving after adjustment, lightly tighten the bolts.
4. Tighten left front bolt, then right rear bolt to prevent uneven torque. Tighten remaining bolts, being careful to prevent glass lid from moving.
 5. Tilt glass lid up and down several times to check that it moves smoothly, and retains the adjustment.



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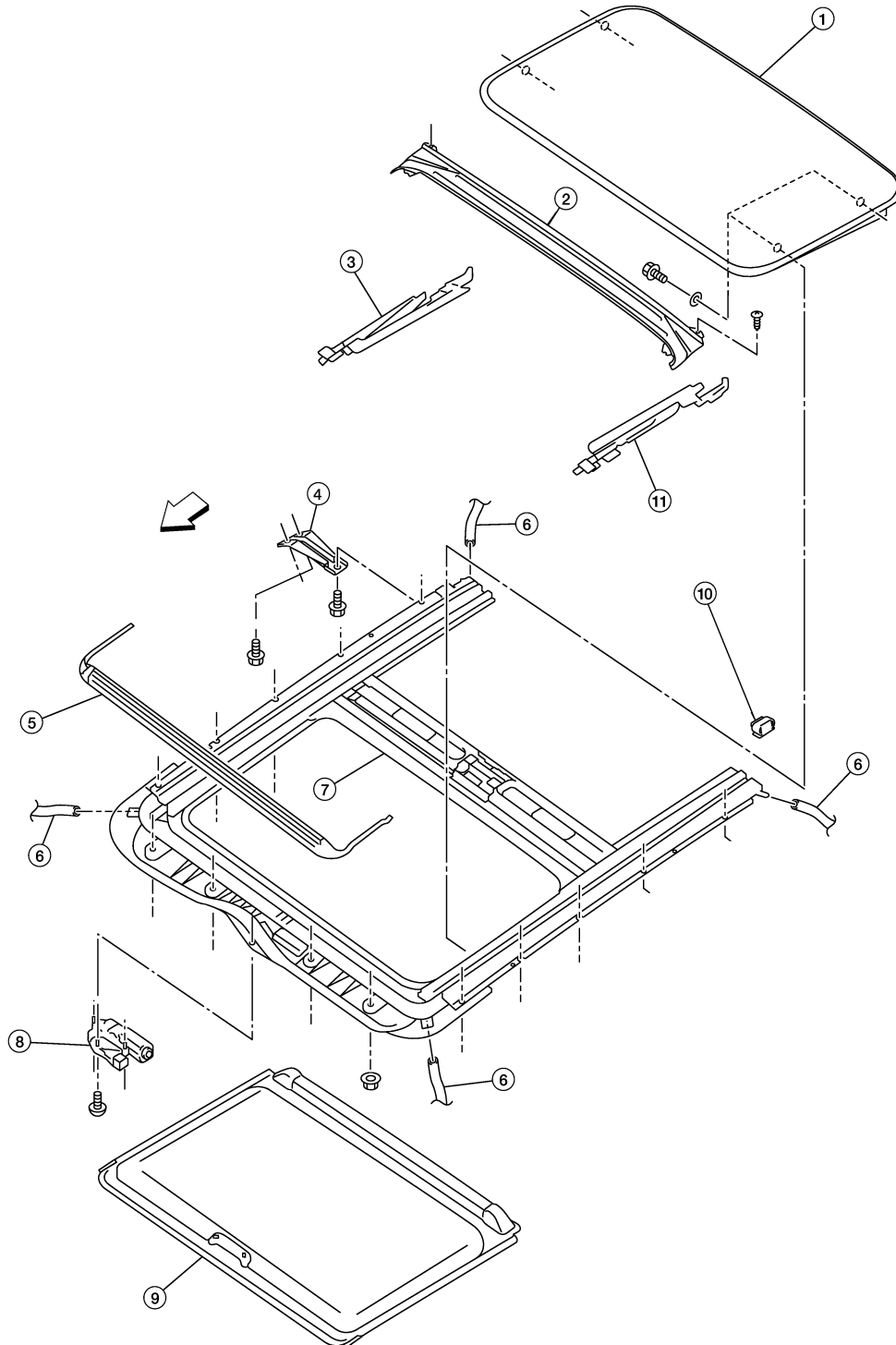
SUNROOF SYSTEM

< ON-VEHICLE REPAIR >

Exploded View

INFOID:000000001724662

SEC. 736



WIIA1243E

- | | | |
|--------------------------|---------------------------|-----------------------|
| 1. Glass lid | 2. Rear drain assembly | 3. Link assembly (RH) |
| 4. Sunroof bracket | 5. Wind deflector | 6. Drain hose |
| 7. Sunroof unit assembly | 8. Sunroof motor assembly | 9. Sunshade |
| 10. Sunshade stopper | 11. Link assembly (LH) | 12. Vehicle front |

SUNROOF SYSTEM

< ON-VEHICLE REPAIR >

Removal and Installation

INFOID:000000001724429

CAUTION:

- After installation or any adjustment, check clearances for sunroof operation and glass lid alignment.
- Handle glass lid with care to prevent damage.
- Fully close the glass lid before removal, then do not operate sunroof motor assembly after removal.
- When removing sunroof unit assembly, use shop cloths to protect the seats and trim from damage.
- Always work with a helper.

NOTE:

For easy installation, mark each point before removal.

SUNROOF UNIT ASSEMBLY

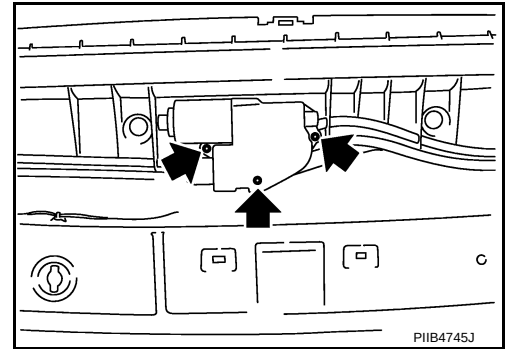
Removal

1. Tilt glass lid up, then remove. Refer to [RF-35, "Removal and Installation"](#).
2. Position sunroof unit assembly to the fully closed position.
3. Remove the headlining. Refer to [INT-29, "Component"](#).
4. Disconnect drain hoses.

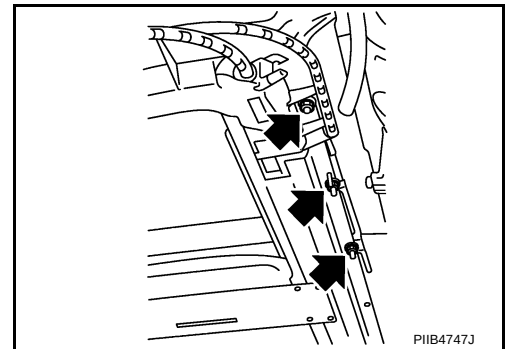
5. Remove the screws, then disconnect the sunroof motor assembly.

NOTE:

- Before removing sunroof motor assembly, make sure that sunroof is fully closed.
- After removing sunroof motor assembly, do not attempt to rotate sunroof motor as a single unit.



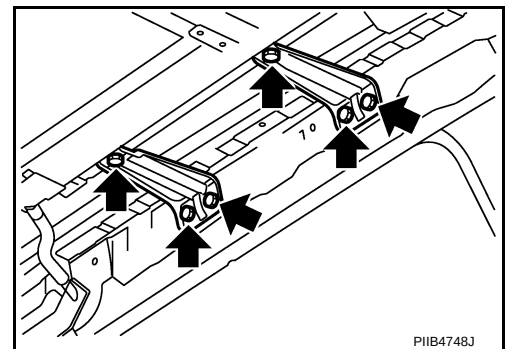
6. Remove the side and front sunroof unit assembly nuts.



7. Remove sunroof bracket bolts, then remove sunroof unit assembly from roof panel.
 - Remove sunroof unit assembly through the passenger compartment.

CAUTION:

Use care during assembly removal and installation to avoid damage to seats and trim.

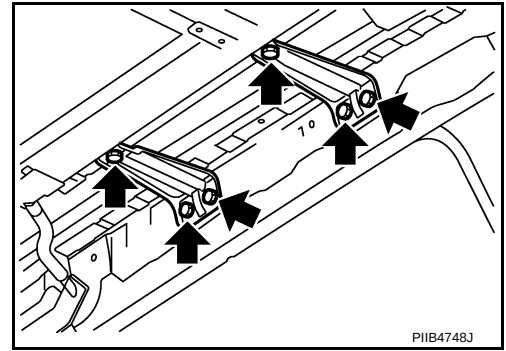


Installation

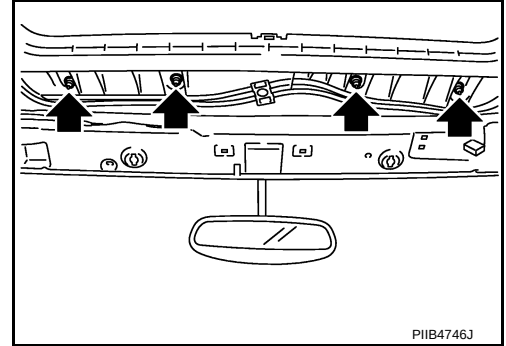
SUNROOF SYSTEM

< ON-VEHICLE REPAIR >

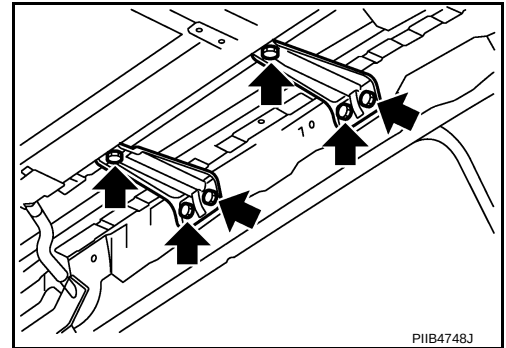
1. Install sunroof brackets and bolts to the roof panel side only, but do not tighten.
2. Bring sunroof unit assembly into passenger compartment and position it so the rear rests on the sunroof brackets.
3. Install sunroof bracket bolts to the sunroof unit assembly side, but do not tighten.



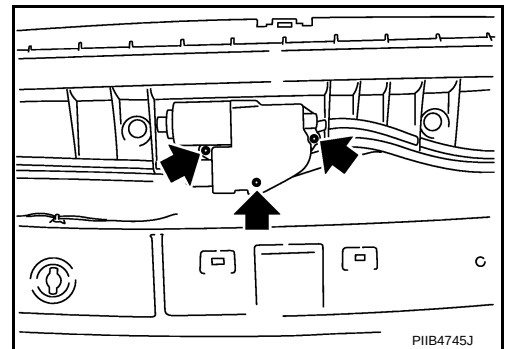
4. Install the front and side sunroof unit assembly nuts, but do not tighten.



5. Tighten the sunroof unit assembly.
 - a. First, tighten the sunroof bracket bolts at the vehicle side, then tighten the bolt on the rail side.
 - b. Next, tighten the front and side sunroof unit assembly nuts diagonally.



7. Connect the sunroof motor assembly connector and install the screws.



8. Install the glass lid. Refer to [RF-35, "Removal and Installation"](#).
9. Connect drain hoses.
10. Install headlining. Refer to [INT-29, "Component"](#).
11. Perform fitting adjustment and test for leaks, refer to [RF-32, "Fitting Adjustment"](#).

GLASS LID

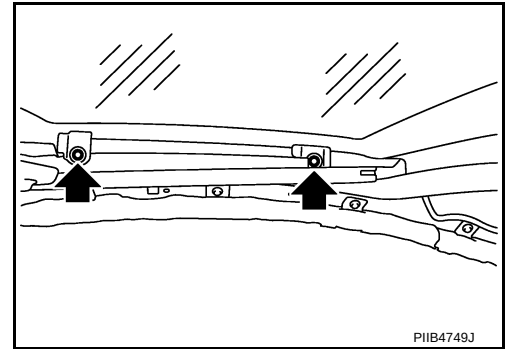
Removal

1. Open the sunshade fully and close the glass lid.

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2. Remove glass lid bolts, then remove glass lid.



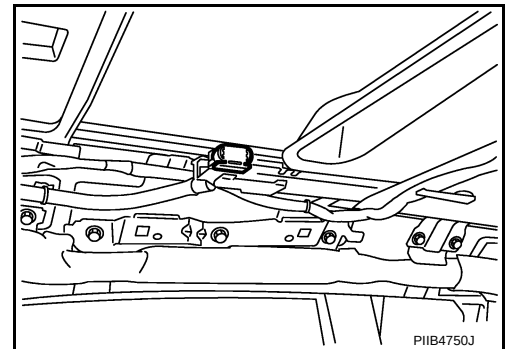
Installation

1. Position the glass lid on sunroof unit assembly.
2. Partially install glass lid bolts. Tighten left front bolt first, then right rear to prevent uneven torque while tightening remaining bolts.
3. After installation, check sunroof operation and glass lid assembly alignment. Refer to [RF-32, "Fitting Adjustment"](#).

SUNSHADE

Removal

1. Remove the headlining. Refer to [INT-29, "Component"](#).
2. Remove sunshade stopper RH/LH.
3. Pull sunshade out rear of sunroof frame to remove it from sunroof unit assembly frame.



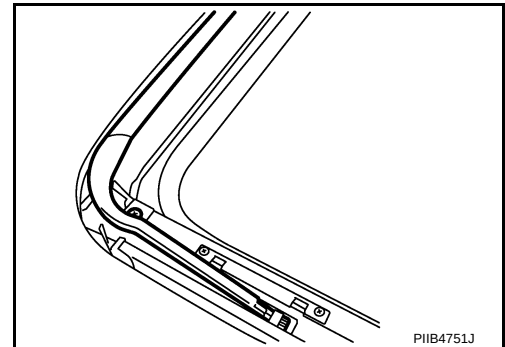
Installation

Installation is in the reverse order of removal.

WIND DEFLECTOR

Removal

1. Open the glass lid.
2. Remove spring retainer screws RH/LH, then slide retainer forward in vehicle out of sunroof unit assembly channel.
3. Lift wind deflector and rotate arms upward to release from sunroof unit assembly.



Installation

Installation is in the reverse order of removal.

SUNROOF MOTOR ASSEMBLY

Removal

1. Close the glass lid.

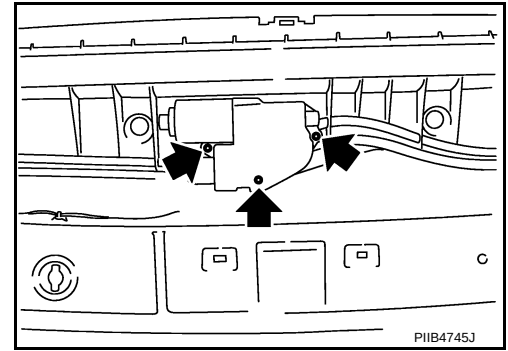
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2. Remove headlining. Refer to [INT-29, "Component"](#).
3. Remove sunroof motor assembly screws.
4. Disconnect harness connector from sunroof motor assembly, then remove sunroof motor assembly.

CAUTION:

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



Installation

CAUTION:

- Before installing the sunroof motor assembly, be sure the link assembly is in the symmetrical and fully closed position.
 - Align the link notch with the hole of the guide track (fully closed: RH and LH).
1. Place the sunroof motor assembly flat onto the sunroof unit assembly surface.
 2. Laterally move the assembly little by little so that the gear is completely engaged into the wire and there is no gap between the sunroof unit assembly and sunroof motor assembly.
 3. Install the sunroof motor assembly screws, then connect the harness connector.
 4. After installing, perform the initialization procedure. Refer to [RF-7, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#).

LINK ASSEMBLY

Removal

1. Remove sunroof unit assembly. Refer to [RF-35, "Removal and Installation"](#).
2. Remove screws, then remove rear drain assembly.
3. Remove sunroof motor assembly. Refer to [RF-35, "Removal and Installation"](#).
4. Remove link assembly from the rear end of the sunroof frame.

Installation

Installation is in the reverse order of removal.