SECTION RF
ROOF

CONTENTS

PRECAUTION

PRECAUTIONS

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

INFOID:0000000008158242

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that 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 “SRS AIR BAG”.**
- **Never 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 WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

Always observe the following items for preventing accidental activation.

- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.**

Service Procedure Precautions for Models with a Pop-up Roll Bar

INFOID:0000000008158243

WARNING:

Always observe the following items for preventing accidental activation.

- **Risk of passenger injury or death may increase if the pop-up roll bar does not deploy during a roll over collision. In order to reduce the chance of an incident where the pop-up roll bar is inoperative, all maintenance must be performed by a NISSAN or INFINITI dealer.**
- **Before removing and installing the pop-up roll bar component parts and harness, always turn the ignition switch OFF, disconnect the battery negative terminal, and wait for 3 minutes or more. (The purpose of this operation is to discharge electricity that is accumulated in the auxiliary power supply circuit in the air bag diagnosis sensor unit.)**
- **When repairing, removing, and installing a pop-up roll bar, always refer to SRS AIR BAG and SRS AIR BAG CONTROL warnings in the Service Manual.**

Precaution for Battery Service

INFOID:0000000008158244

Before disconnecting the battery, lower both the driver and passenger windows. This will prevent any interference between the window edge and the vehicle when the door is opened/closed. During normal operation, the window slightly raises and lowers automatically to prevent any window to vehicle interference. The automatic window function will not work with the battery disconnected.

Precaution for Hydraulic System

INFOID:0000000008158245

CAUTION:

- **Never bend or twist hydraulic hoses sharply, or strongly pull them.**

- **Serviceable parts for hydraulic circuit are not various. Before disassembly refer to RF-285, "Exploded View".**

WARNING:

- **The retractable hard top may fall suddenly. Avoid working on the vehicle with hydraulic circuit under pressure. Always depressurize the system before starting. To depressurize the system, disconnect both battery cables starting by negative terminal.**
- **Never allow hydraulic fluid to come in contact with skin, eyes, fabrics, or.**
- **After touching hydraulic fluid, never touch or rub your eyes until you have thoroughly washed your hands.**

- If hydraulic fluid contacts cloths, change them immediately.
- If hydraulic fluid contacts skin, wash skin with soap and water.
- If hydraulic fluid contacts eyes, immediately flush with water for 15 minutes and seek medical attention.

Precaution for Pop Up Engine Hood

INFOID:0000000008158246

WARNING:

Always observe the following items for preventing accidental activation.

- **Before removal or installation of the pop-up engine hood and harness, always turn OFF the key switch, disconnect the battery negative terminal, and wait for 3 minutes or more. (To discharge the accumulated electricity in the pop-up engine hood control unit auxiliary power supply circuit)**
- **Never use pneumatic or electric tools, etc., to remove or install components of the pop-up engine hood.**
- **Never repair the harness for the pop-up engine hood with a solder. Also, always avoid contact or interference between the harness and other parts.**
- **Never use an electric tester like a circuit tester, etc., when inspecting the pop-up engine hood circuit or other individual parts. (To prevent activation due to the low voltage of the tester)**
- **Never allow foreign materials like a screwdriver, etc., to enter the pop-up engine hood harness connector. (To prevent activation due to static electricity)**
- **The yellow harness connector is used with the pop-up engine hood for identification purposes compared to other harnesses.**

Service Notice

INFOID:0000000008158247

- When removing or installing various parts, place a cloth or padding onto the vehicle body to prevent scratches.
- Handle trim, molding, instruments, grille, etc. carefully during removing or installing. Be careful not to oil or damage them.
- Apply sealing compound where necessary when installing parts.
- When applying sealing compound, be careful that the sealing compound does not protrude from parts.
- When replacing any metal parts (for example body outer panel, members, etc.), be sure to take rust prevention measures.

Precaution for Work

INFOID:0000000008158248

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and keep them.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After re-installation is completed, be sure to check that each part works normally.
- Follow the steps below to clean components.

- Water soluble foul: Dip a soft cloth into lukewarm water, and wring the water out of the cloth to wipe the fouled area.
  Then rub with a soft and dry cloth.
- Oily foul: Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%), and wipe the fouled area.
  Then dip a cloth into fresh water, and wring the water out of the cloth to wipe the detergent off. Then rub with a soft and dry cloth.

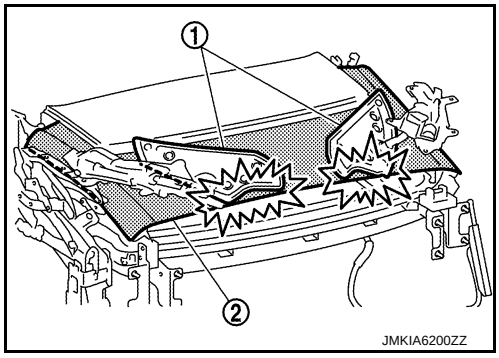
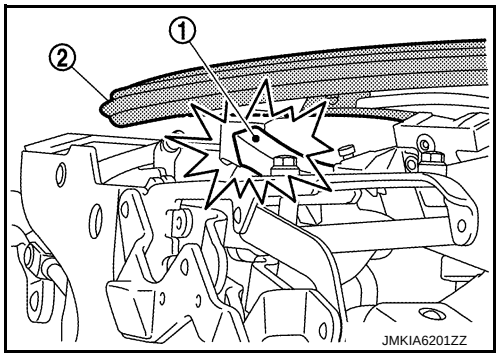
- Do not use organic solvent such as thinner, benzene, alcohol, and gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

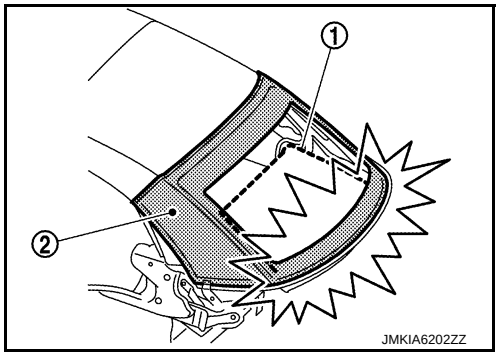
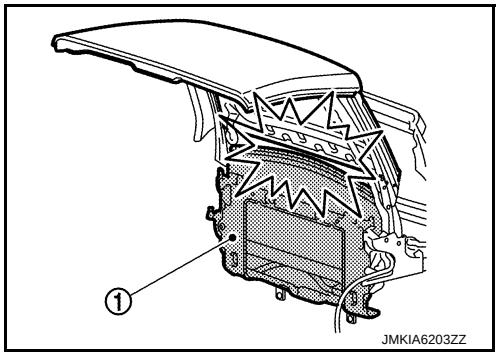
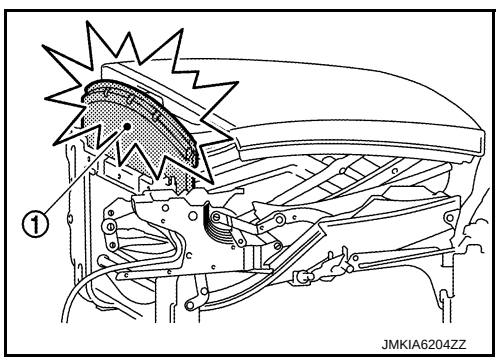
Precautions for Retractable Hard Top Service

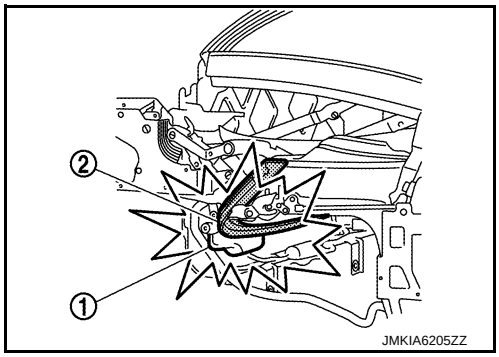
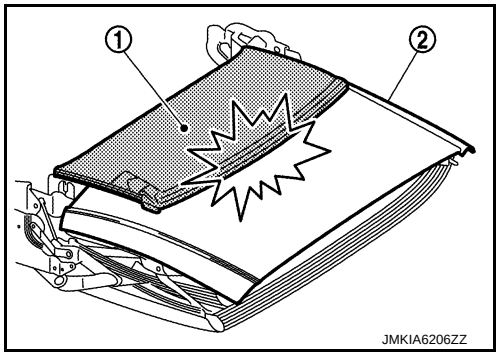
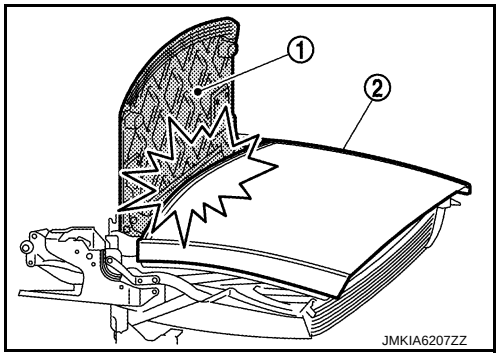
INFOID:0000000008158249

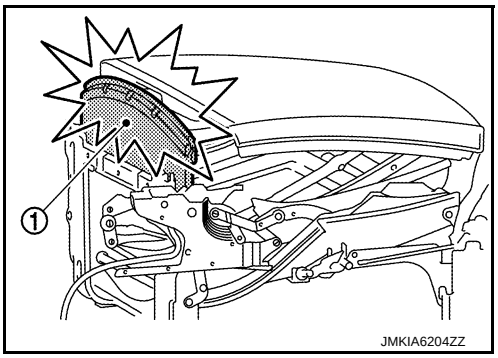
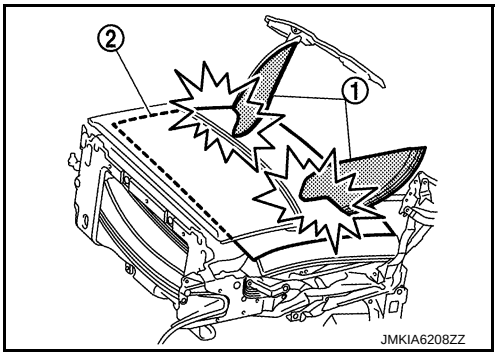
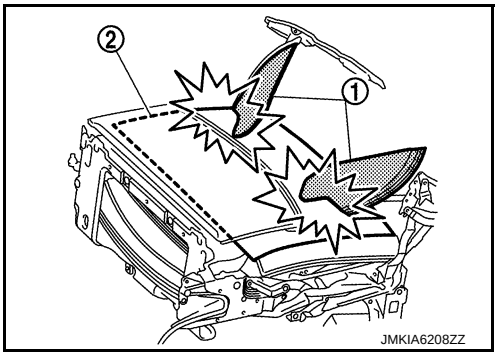
CAUTION:

Operate each part using CONSULT after understanding how roof normally operates. Otherwise, each part may interfere and may be damage.

CONSULT command			NO.	Special check items	Condition	Action to take	
Item	Button	Operation				Preparation	CONSULT
Roof/Trunk/Parcel shelf	Trunk CLOSE	Trunk closes	1	Check the roof and flap do not interfere.	When trunk is closed while roof is close and flap is expanded forward, flap interferes with roof.	Before closing trunk, always operate and retract flap.	FLIPPER DOOR → Down
			2	Check that roof and flap do not interfere.	When trunk is closed while flap (1) is retracted, flap interferes with retracted roof (2). 	Before opening roof, always operate flap and expand it forward.	FLIPPER DOOR → UP
			3	Check that retracted roof is locked.	When trunk is closed while roof is not locked, base of flap (1) may interfere with roof (2). 	Before closing trunk, always lock roof.	ROOF LATCH → Close
	Trunk OPEN	Trunk opens (Lock is not released).	4	Check that rear lock is released.	When trunk is operated while rear lock is locked, trunk does open and deforms.	Before opening trunk, always unlock trunk lock.	TRUNK OPENER → ON
	Roof OPEN	Roof opens (Roof lock is not released).	5	Check that roof lock is released.	When roof is operated while roof lock is locked, roof does not open and deforms.	Before opening roof, always unlock roof lock.	ROOF LATCH → Open

Roof/ Trunk/ Parcel shelf	Roof OPEN	Roof opens (Roof lock is not released).	6	Check that trunk is open.	When roof is operated while trunk is not open, roof interferes with trunk.	Open trunk.	Trunk open (Refer to above item.)
			7	Check that flap is expanded forward. (The vehicle is in convertible status.)	When flap is operated after roof is retracted, flap interferes with roof.	Operated flap and expand it forward.	FLIPPER DOOR → Down
			8	Check that parcel board is moved downward.	When roof is operated while parcel board is not moved downward, roof interferes with parcel board.	Move parcel board downward.	PS up down: Down
			9	Check that parcel board is set to the stand straight position.	If parcel board (1) is not set to the stand straight position, roof (2) interferes with parcel board. 	Rotate parcel board and set it to the stand straight position.	PS rotation: Vertical
			10	Check that parcel board and rear end of roof 2 do not interfere.	When roof is operated from closed status, check that the portion shown in the figure does not interfere and that parcel board (1) is not pressed backward. 	Set parcel board in the stand straight position at bottom dead center.	PS up down: Down → PS rotation: Vertical
			11	Check that front end of roof 1 and upper end of parcel board do not interfere.	When roof is operated from closed status, check that the portion shown in the figure does not interfere and that parcel board (1) is not pressed backward. 	Set parcel board in the stand straight position at bottom dead center.	PS up down: Down → PS rotation: Vertical

Roof/ Trunk/ Parcel shelf	Roof OPEN	Roof opens (Roof lock is not released).	12	Check that lower end of roof 3 and parcel unit do not interfere.	When roof passes parcel board in No.11 and roof is continuously operated, lower end of parcel (1) and roof (2) interfere.  	Check that roof passes in No.11, and then gradually move parcel board for approximately 100 mm in upward direction. Operate rear roof to the retracted position.	PS up down: UP
	Roof CLOSE	Roof closes (Roof lock is not released).	13	Check that roof lock is released.	When roof is operated while roof lock is locked, roof does not close and deforms.	Before closing roof, always unlock roof lock.	ROOF LARTCH → Open
			14	Check that trunk is open.	When roof is operated while trunk is not open, roof interferes with trunk.	Open trunk.	Trunk open (Refer to above item.)
			15	Check that parcel board is set to the stand straight position.	If parcel board (1) is not set to the stand straight position, roof (2) interferes with parcel board.  	Rotate parcel board and set it to the stand straight position.	PS rotation: Vertical
			16	Check that parcel board is moved downward. Check that parcel board is not excessively moved downward.	If parcel board (1) is not moved downward, front end of roof (2) interferes with parcel board. If parcel board is moved downward excessively, rear end of roof interferes with parcel board.  	Move parcel board downward to approximately 300 mm from upper dead center.	PS up down: Down

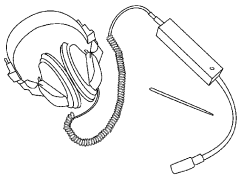
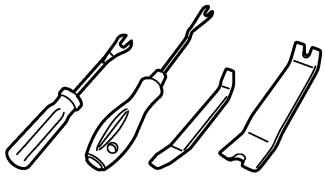
Roof/ Trunk/ Parcel shelf	Roof CLOSE	Roof closes (Roof lock is not released).	17	Check that front end of roof 1 and upper end of parcel board do not interfere.	When rear end of rear roof moves further rearward of parcel unit lower in No.11 and roof is continuously operated, front end of roof interferes with upper end of parcel board (1).  JMKIA6204ZZ	Move parcel board downward to bottom dead center.	PS up down: Down
	PS up down and rotation	Parcel board moves upward, downward, or rotates.	18	Check that roof and parcel do not interfere.	Interference between flap (1) and roof panel (2) occurs depending on the position of roof.  JMKIA6208ZZ	When operating parcel, always operate it while checking the position of roof. Operate roof in advance when interference may occur.	Roof OPEN or CLOSE
FLIPPER DOOR	UP, Down	Flap rotates.	19	Check that roof and flap do not interfere.	Interference between flap (1) and roof panel (2) occurs depending on the position of roof.  JMKIA6208ZZ	When operating flap, always operate it while checking the position of roof. Operate roof in advance when interference may occur.	Roof OPEN or CLOSE

PREPARATION

PREPARATION

Commercial Service Tool

INFOID:0000000008158250

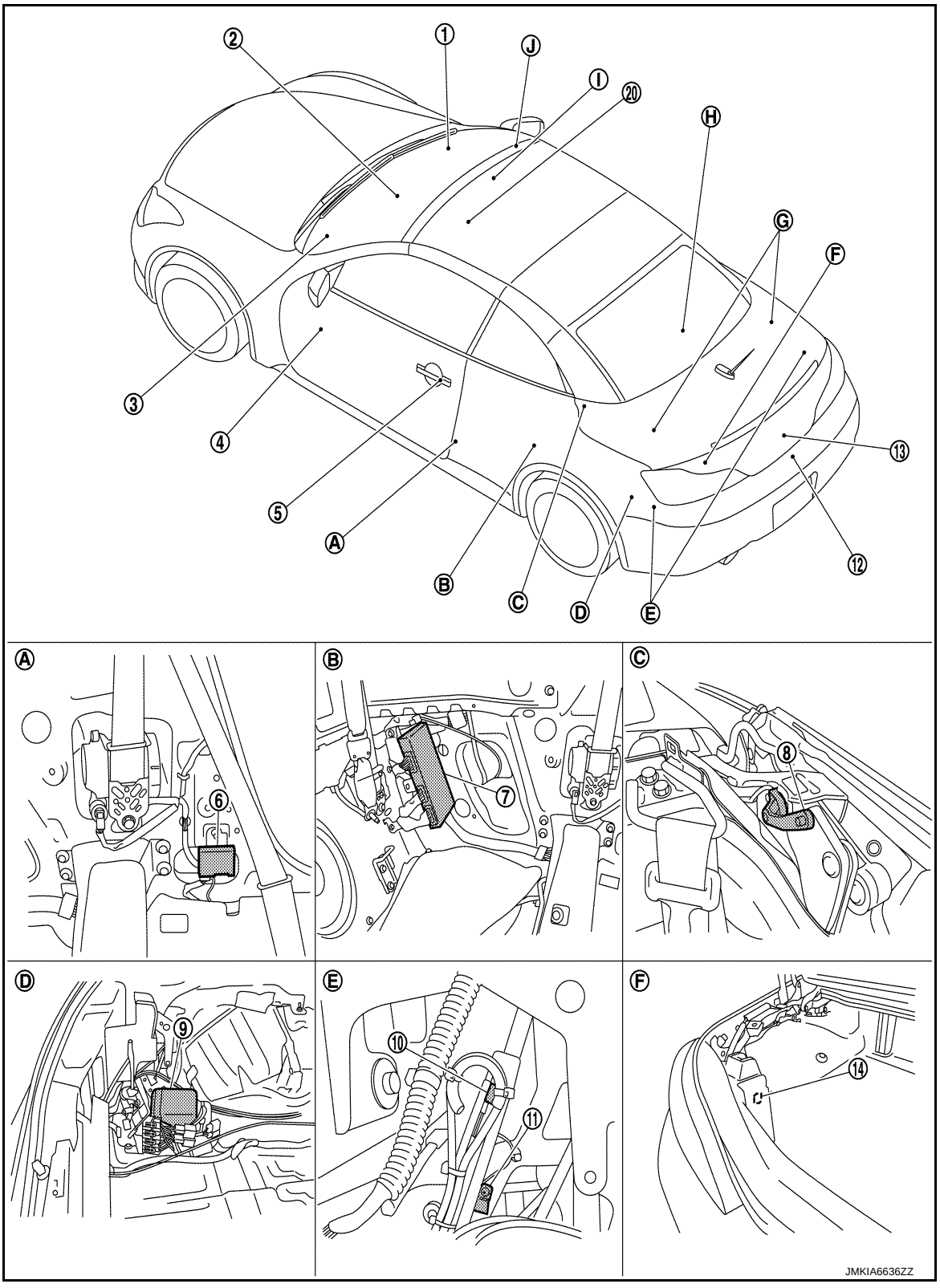
Tool name	Description
Engine ear  SIIA0995E	Locates the noise
Remover tool  JMKIA3050ZZ	Removes the clips, pawls and metal clips

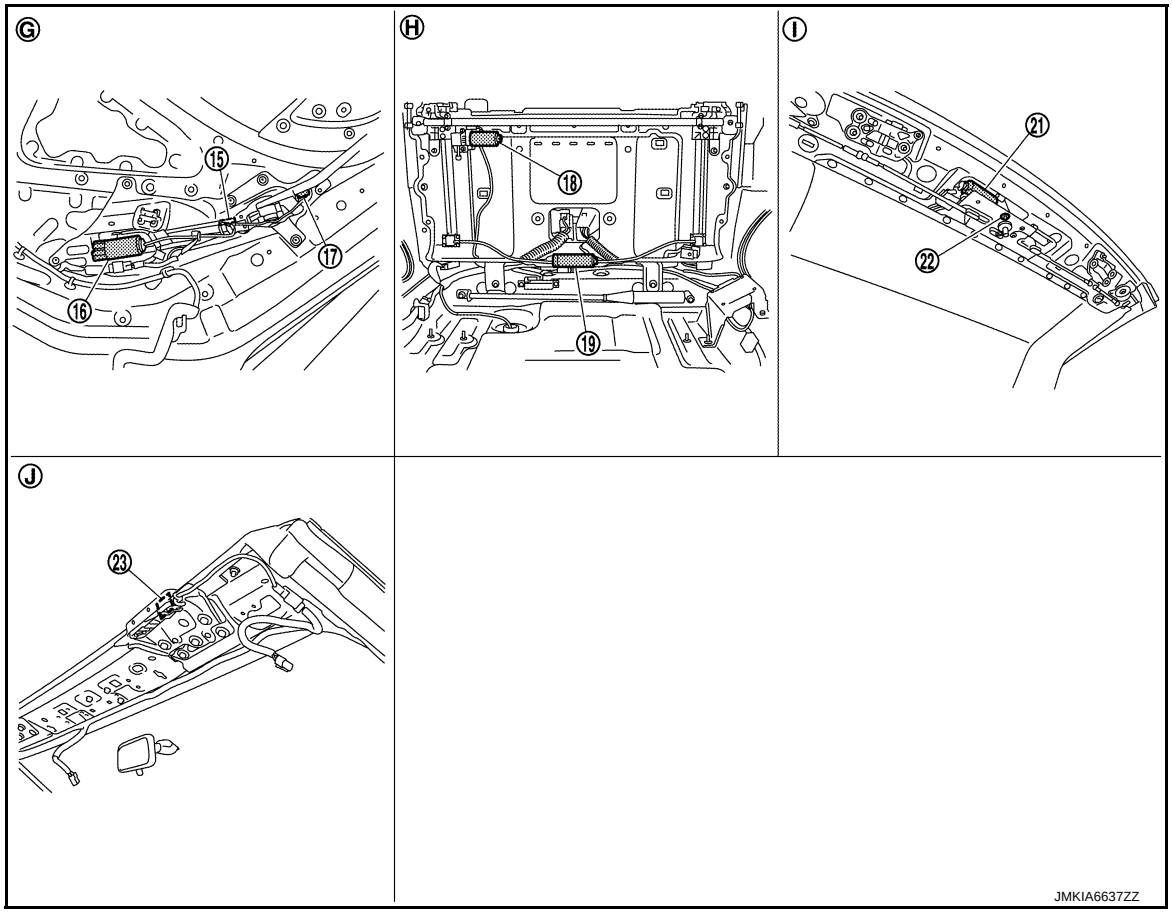
SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000008158251





1.	BCM Refer to BCS-6	2.	Unified meter and A/C amp. Refer to HAC-44	3.	Combination meter Refer to MWI-11
4.	Power window main switch Refer to PWC-9.	5.	• Outside handle LH (Request switch) • Outside handle RH (Request switch)	6.	Roof warning buzzer
7.	Retractable hard top control unit	8.	Roof status sensor	9.	Hydraulic unit
10.	Trunk status sensor	11.	• Trunk link sensor LH • Trunk link sensor RH	12.	Trunk closure control unit Refer to DLK-46
13.	Trunk room lamp switch	14.	Tonneau board switch	15.	• Flipper door limit switch LH (DOWN) • Flipper door limit switch RH (DOWN)
16.	• Flipper door motor LH • Flipper door motor RH	17.	• Flipper door limit switch LH (UP) • Flipper door limit switch RH (UP)	18.	Parcel shelf motor (rotation) [Parcel shelf status sensor (rotation)]
19.	Parcel shelf motor (draw) [Parcel shelf status sensor (draw)]	20.	Roof open/close switch	21.	Roof latch motor (roof latch status sensor)
22.	Roof latch lock sensor	23.	Roof latch limit switch		
A.	Behind rear side finisher LH	B.	Behind rear side finisher LH	C.	Behind rear side finisher LH
D.	Behind rear wheel finisher LH	E.	Behind rear wheel finisher LH	F.	Trunk room trim cap LH
G.	Behind trunk lid finisher inner	H.	Behind trunk lower finisher front	I.	Behind front roof garnish
J.	Behind roof front finisher				

Component Description

INFOID:0000000008158252

Component		Reference page
Control unit	Retractable hard top control unit	Retractable hard top control unit is a main unit that controls retractable hard top system. It is installed to rear side finisher back of left side rear seat.
	Unified meter and A/C amp.	Refer to HAC-44, "Diagnosis Description".
	Combination meter	Refer to MWI-6, "METER SYSTEM : System Description".
Input	Roof open/close switch	Retractable hard top can be opened and closed by roof open/close switch operation. Retractable hard top operates only while roof open/close switch is being operated.
	Flipper door limit switch LH/RH (UP/DOWN)	Flipper door (LH/RH) is installed on trunk lid back side. Each flipper door integrates flipper door motor and flipper door limit switch. Up and down operations are performed by flipper door motor. Up and down positions of flipper door are detected by flipper door limit switch.
	Parcel shelf status sensor (ROTATION/DRAW)	Parcel shelf is installed in trunk room and integrates parcel shelf motor (rotation) and parcel shelf motor (draw). During sequential operations of retractable hard top system, parcel shelf motor (rotation) rotates parcel shelf board, parcel shelf motor (draw) draws parcel shelf board.
	Roof status sensor	Roof status sensor is installed to roof link assembly LH. This sensor is a potentiometer that converts the roof position to a voltage signal and transmits it to retractable hard top control unit. Retractable hard top control unit recognizes the roof position using this signal.
	Trunk status sensor	Trunk status sensor is in trunk drive cylinder LH. This sensor is a hall sensor that generates a magnetic field. This changes sensor output voltage. Retractable hard top control unit detects trunk (front side) fully open position by this voltage change.
	Roof latch limit switch	Roof latch limit switch is installed to roof front finisher RH. it detects engaging state of roof lock assembly hook and front lock striker and transmits ON signal to retractable hard top control unit.
	Roof latch status sensor	Roof latch status sensor is in roof latch motor and detects roof lock state by movement of linkage from roof latch motor.
	Roof latch lock sensor	Roof latch lock sensor detects roof lock state by movement of linkage from roof latch motor.
	Tonneau board switch	Tonneau board switch detects tonneau board condition for the precondition.
	Trunk link sensor (LH/RH)	Trunk link sensor is installed to trunk arm. This sensor detects the magnet that is installed to the opponent arm and transmits trunk lid (front side) lock state signal to retractable hard top control unit.
	Trunk room lamp switch	Refer to DLK-81, "Description".
	Striker switch	Refer to DLK-97, "Description".
	Stop switch	Refer to DLK-79, "Description".

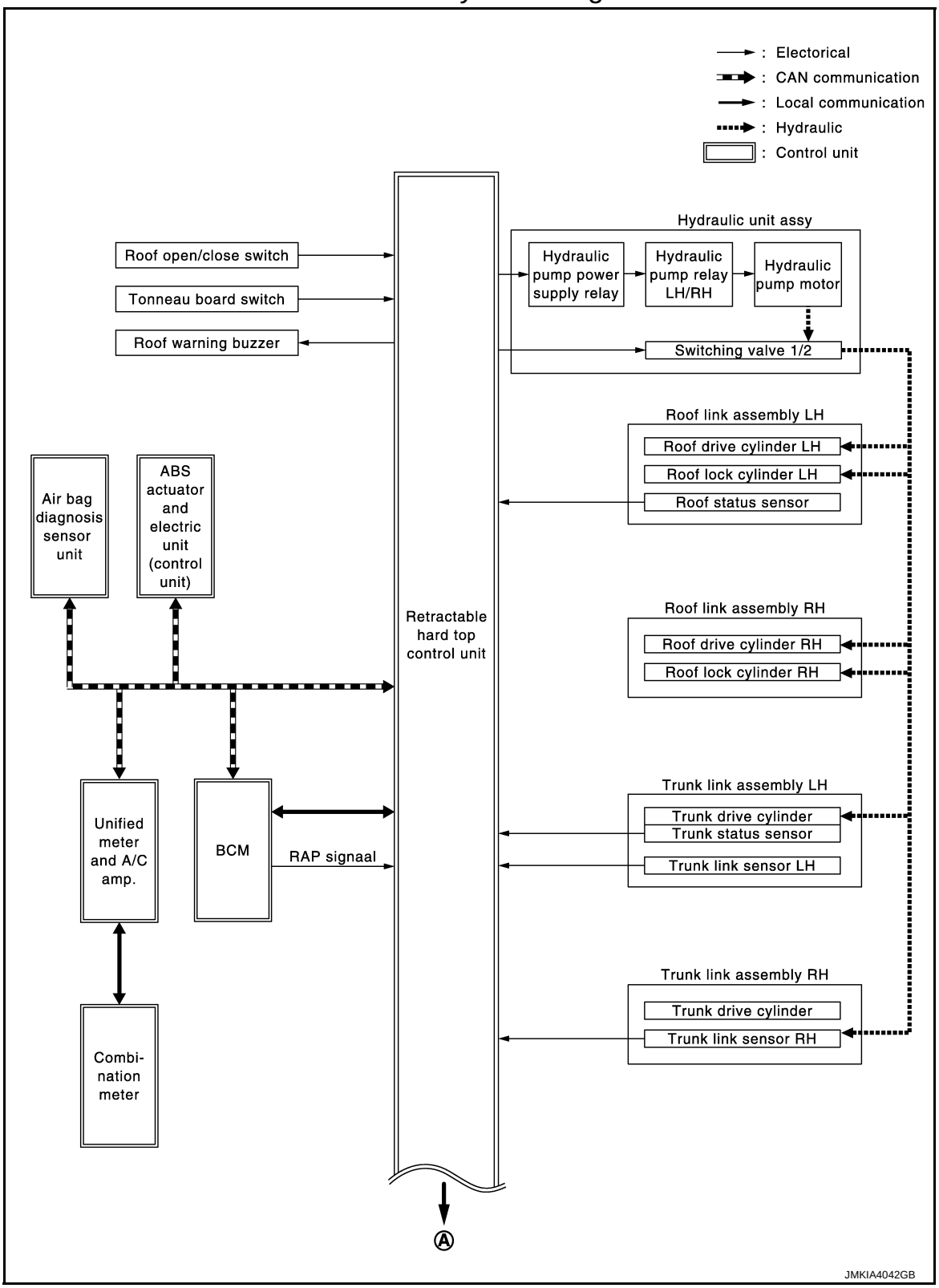
Component			Reference page
Output	Electrical	Flipper door motor (LH/RH)	Flipper door (LH/RH) is installed on trunk lid back side. Each flipper door integrates flipper door motor and flipper door limit switch. Up and down operations are performed by flipper door motor. Up and down positions of flipper door are detected by flipper door limit switch.
		Parcel shelf motor (ROTATION/DRAW)	Parcel shelf is installed in trunk room and integrates parcel shelf motor (rotation) and parcel shelf motor (draw). During sequential operations of retractable hard top system, parcel shelf motor (rotation) rotates parcel shelf board, parcel shelf motor (draw) draws parcel shelf board.
		Switching valve (1/2)	Hydraulic pump relay hydraulic pump motor and switching valve are in hydraulic unit. Retractable hard top control unit switches hydraulic pump rotation direction by hydraulic pump relay, hydraulic circuit by switching valve 1/2 ON or OFF, and extends or retracts each cylinder.
		Hydraulic pump motor	Hydraulic pump motor drives hydraulic pump and controls the rotation direction using hydraulic pump motor relay.
		Roof warning buzzer	Roof warning buzzer is installed to lower end of left center pillar, and indicates retractable hard top is in operation.
		Trunk opener actuator	Refer to DLK-43, "Component Description".
		Trunk closure motor	Refer to DLK-46, "Component Description".
		Roof latch motor	Roof latch assembly on the roof front end operates roof latch and roof link lock on the rod end, by roof latch motor operation through roof latch rod. When retractable hard top is fully closed, roof latch is engaged with roof latch striker on the front screen upper side and, when fully open, is engaged with roof support bumper (RF-283, "Exploded View") in trunk room.
	Hydraulic	Hydraulic pump	Hydraulic pump relay hydraulic pump motor and switching valve are in hydraulic unit. Retractable hard top control unit switches hydraulic pump rotation direction by hydraulic pump relay, hydraulic circuit by switching valve 1/2 ON or OFF, and extends or retracts each cylinder.
		Roof drive cylinder (LH/RH)	Refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".
		Roof lock cylinder (LH/RH)	Refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".
		Trunk drive cylinder	Refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

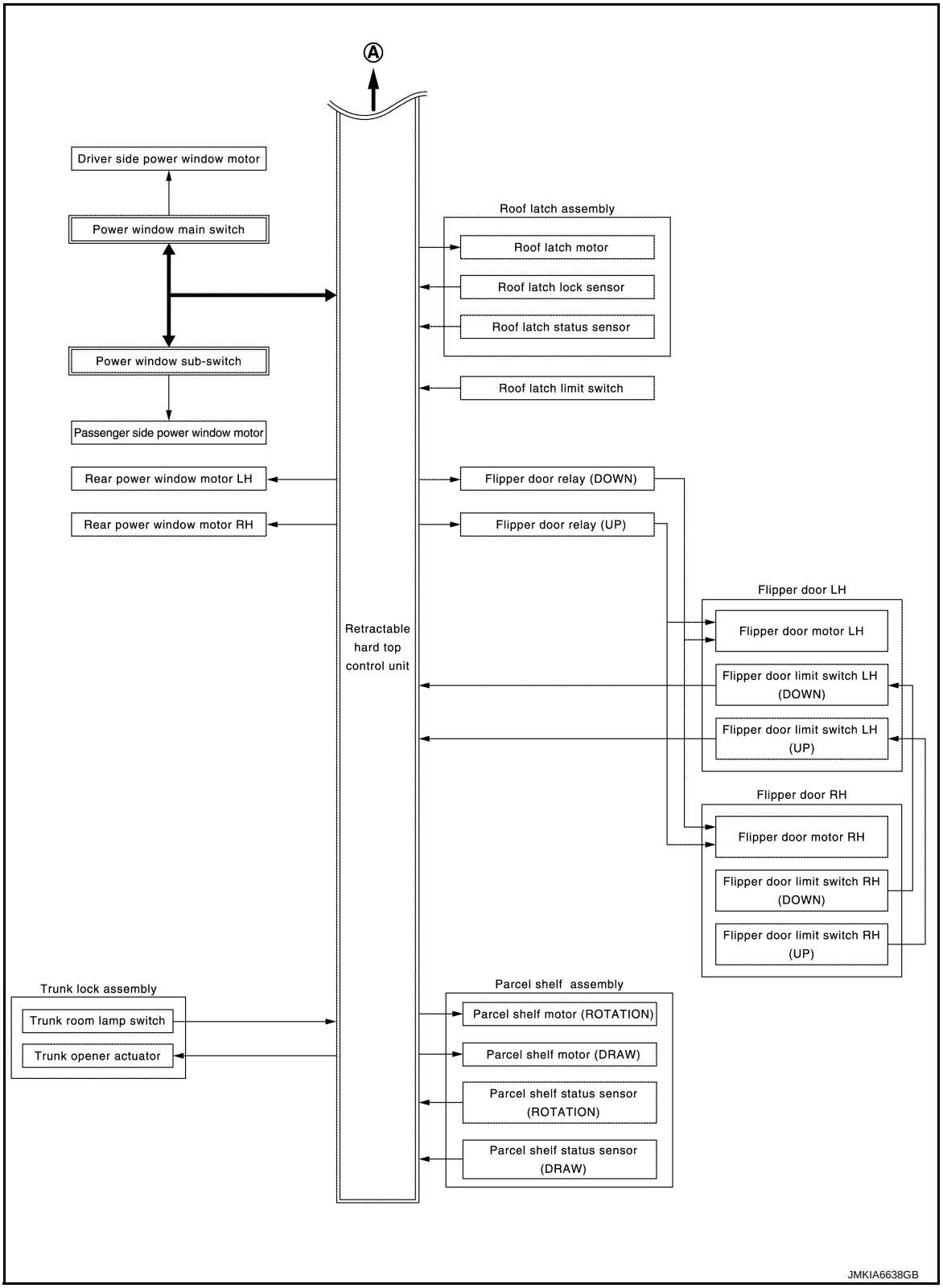
SYSTEM

RETRACTABLE HARD TOP SYSTEM

RETRACTABLE HARD TOP SYSTEM : System Diagram

INFOID:0000000008158253





RETRACTABLE HARD TOP SYSTEM : System Description

INFOID:0000000008158254

DESCRIPTION

Retractable hard top system is a system that opens or closes roof using hydraulic pressure generated by each electric system part and oil pump when operating roof open/close switch.
Retractable hard top control unit relates to the following functions.

Functions		Reference page
Retractable hard top system control	Hydraulic system control function	RF-31
	Roof latch function	RF-35
	Parcel shelf function	RF-37
	Flipper door function	RF-39
	Trunk lid control function (roof operation)	RF-41
	Warning function	RF-42
Trunk lid system control	Trunk lid open function	DLK-42
	Trunk lid auto closure system	DLK-44
Power window control		PWC-7
Rear window defogger control		DEF-4
Automatic air conditioning system		HAC-18
Audio system		AV-255

PRECONDITIONS FOR RETRACTABLE HARD TOP

Retractable hard top system opens or closes the roof when roof open/close switch is operated to OPEN or CLOSE, or door request switch (LH/RH) is pressed and held, while all of the following conditions are satisfied. (Operation by door request switch allows opening only.)

Item			Condition
For user	Power position		ON (not in START) *
	Vehicle speed		5 km/h or less
	Tonneau board		Hooked
	Shift position		Not in R position.
	Trunk lid		Closed
For system	Self diagnostic result		DTC is not detected.
	Thermo protection	Open operation	Thermo protection (STAGE 1) is not active.
		Close operation	Thermo protection (STAGE 2) is not active.
	Initialize		Roof latch and parcel shelf state are initialized.
	Pop-up roll bar		Air bag diagnosis sensor unit does not detect DTC relating to pop-up roll bar.

*: Except for operating with Intelligent Key (door request switch LH/RH).

OPERATION WITH DOOR REQUEST SWITCH

In addition to roof open/close switch, door request switch (LH/RH) can perform an open operation. When BCM detects that door request switch is operated, BCM requests an open operation of retractable hard top to retractable hard top control unit via local communication. After this, the operation is the same as that of an open operation by roof open/close switch.

POWER WINDOW INTERLOCK OPERATION

If power window is not fully open during when open and close operations of retractable hard top are performed, retractable hard top control unit opens front power window and rear power window. Front power window is operated via local communication between power window main switch/sub-switch.

NOTE:

For power window system operation by power window main/sub-switch, refer to PWC-7, "System Description".

SYSTEM PROTECT FUNCTION

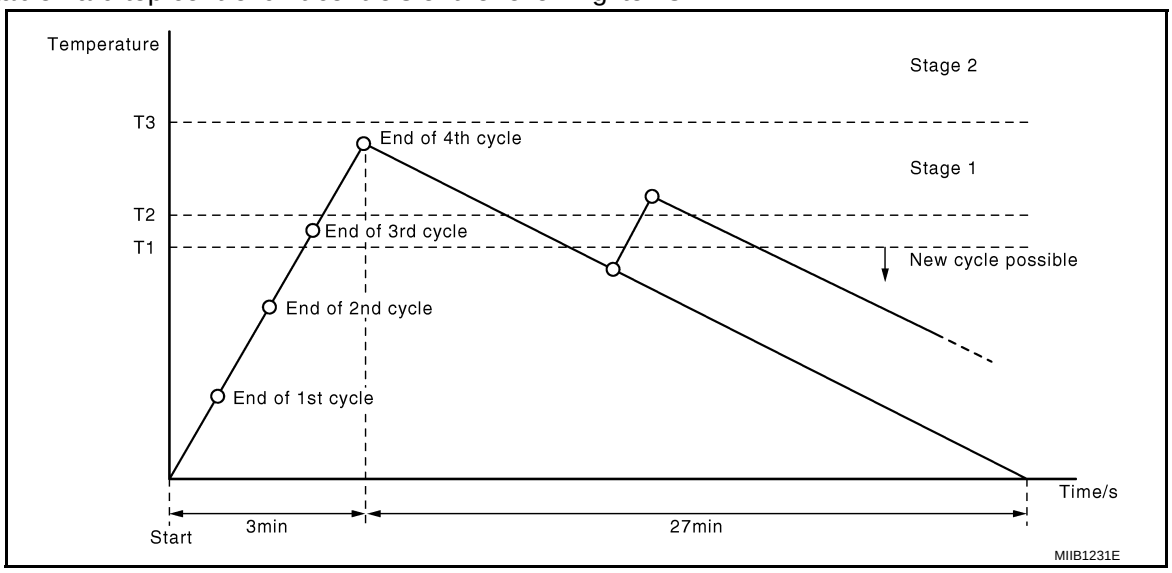
Retractable hard top control unit restricts or inhibits the operation due to safety and system protection reasons, when detecting an operation and activation that are not normal.

Functions	Description
Thermo protect function	When open and close operations of retractable hard top are performed for 3 to 4 times continuously, retractable hard top system restricts the operation judging that hydraulic pump temperature increased.
Pop-up bar malfunction roof protect	• When pop-up bar system (air bag diagnosis sensor unit: SRC-10, "System Description") detects deployment, retractable hard top control unit inhibits all of the retractable hard top system functions. • When pop-up bar system (air bag diagnosis sensor unit: SRC-10, "System Description") detects a malfunction, retractable hard top control unit inhibits the retractable hard top system open operation.

Thermo Protect Function

Retractable hard top system calculates hydraulic pump temperature according to system operating time, prevents hydraulic system temperature from increasing excessively, and protects the system.

Retractable hard top control unit controls of the following items.



Stage		Operation
Stage 1	Between T2 and T3	New retractable hard top cycle is not possible.
Stage 2	Above T3	All retractable hard top operation is not possible.
	Bellow T1(cooling down from T3)	After cooling down, all operations are possible.

SEQUENCE OF RETRACTABLE HARD TOP SYSTEM

There are 42 states in retractable hard top, regardless of open and close operations. Retractable hard top system performs open and close operations using a combination of these 42 states.

NOTE:

For changing order of roof state, refer to ORDER OF ROOF STATE CHANGING.

Parts state (CONSULT display) according to each roof state of retractable hard top system is shown in the following table.

NOTE:

For the operation details of hydraulic system, roof latch, parcel shelf, and flipper door, refer to the following table.

Function	Reference page
Hydraulic system control function	RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description"
Roof latch function	RF-35, "ROOF LATCH FUNCTION : System Description"

Function	Reference page
Parcel shelf function	RF-37, "PARCEL SHELF FUNCTION : System Description"
Flipper door function	RF-39, "FLIPPER DOOR FUNCTION : System Description"

Open Operation

When roof open/close switch is operated to OPEN, retractable hard top system checks that operation conditions are satisfied and performs an open operation. Parts state (CONSULT display) is shown in the following table.

—: It is not related to the operation

—	Parts state								
	Present state					Target state			
	Roof latch limit switch	Hydraulic state	Parcel shelf state (draw)	Parcel shelf (rotation)	Flipper door state	Hydraulic state	Parcel shelf state (draw)	Parcel shelf (rotation)	Flipper door state
	CONSULT data monitor item								
ROOF STATE	LATCH LIMIT SW	HYDRAU-LIC STATE	PS STATE (DRAW)	PS STATE (ROTA)	FLPD STATE	HYDRAU-LIC STATE	PS STATE (DRAW)	PS STATE (ROTA)	FLPD STATE
	Status on CONSULT								
1	LOCK	1	2	1	—	6	6	1	1
2	LOCK	1	—	1	—	6	6	1	1
3	LOCK	2	—	1	—	6	6	1	1
4	LOCK	3	—	1	—	6	6	1	1
5	LOCK	4	—	1	—	6	6	1	1
6	—	5	—	1	—	6	6	1	1
7	—	6	6	1	1	8	6	1	1
8	—	6	5	1	1	6	6	1	1
9	—	6	—	—	—	6	6	1	1
10	—	7	6	—	—	8	6	4	4
11	UNLOCK	8	6	4	4	9	6	4	4
12	UNLOCK	8	6	3	—	8	6	4	4
13	UNLOCK	8	—	—	—	8	6	4	4
14	UNLOCK	9	6	4	4	10	6	4	4
15	UNLOCK	9	—	4	4	9	6	4	4
16	UNLOCK	10	6	4	4	11	6	4	4
17	UNLOCK	10	—	4	4	11	6	4	4
18	UNLOCK	11	5	4	4	12	4	4	4
19	UNLOCK	11	—	4	4	12	4	4	4
20	UNLOCK	12	4	4	4	13	4	4	4
21	UNLOCK	12	5	4	4	12	4	4	4
22	UNLOCK	12	—	4	4	12	4	4	4
23	UNLOCK	13	4	4	4	14	1	4	4
24	UNLOCK	13	5	4	4	13	4	4	4
25	UNLOCK	13	6	4	4	13	4	4	4
26	UNLOCK	13	—	4	4	14	1	4	4
27	UNLOCK	14	1	4	4	15	1	4	4
28	UNLOCK	14	2	4	4	15	1	4	4

—	Parts state								
	Present state					Target state			
	Roof latch limit switch	Hydraulic state	Parcel shelf state (draw)	Parcel shelf (rotation)	Flipper door state	Hydraulic state	Parcel shelf state (draw)	Parcel shelf (rotation)	Flipper door state
	CONSULT data monitor item								
ROOF STATE	LATCH LIMIT SW	HYDRAU-LIC STATE	PS STATE (DRAW)	PS STATE (ROTA)	FLPD STATE	HYDRAU-LIC STATE	PS STATE (DRAW)	PS STATE (ROTA)	FLPD STATE
	Status on CONSULT								
29	UNLOCK	14	3	4	4	15	1	4	4
30	UNLOCK	14	—	4	4	14	1	4	4
31	UNLOCK	15	1	4	4	17	1	4	4
32	UNLOCK	15	—	4	4	17	1	4	4
33	UNLOCK	16	—	—	4	17	1	4	4
34	UNLOCK	17	1	2	4	22	1	2	4
35	UNLOCK	17	1	4	4	17	1	2	4
36	UNLOCK	17	—	4	4	17	1	4	4
37	UNLOCK	17	1	—	4	17	1	2	4
38	UNLOCK	18	1	2	4	22	1	2	4
39	UNLOCK	19	1	2	4	22	1	2	4
40	UNLOCK	20	1	2	4	22	1	2	4
41	UNLOCK	21	1	2	4	22	1	2	4
42	UNLOCK	22	1	2	4	22	1	2	4

Close Operation

When roof open/close switch is operated to CLOSE, retractable hard top system checks that operation conditions are satisfied and performs a close operation, as shown in the following table. Parts state (CONSULT display) is shown in the following table.

—: It is not related to the operation

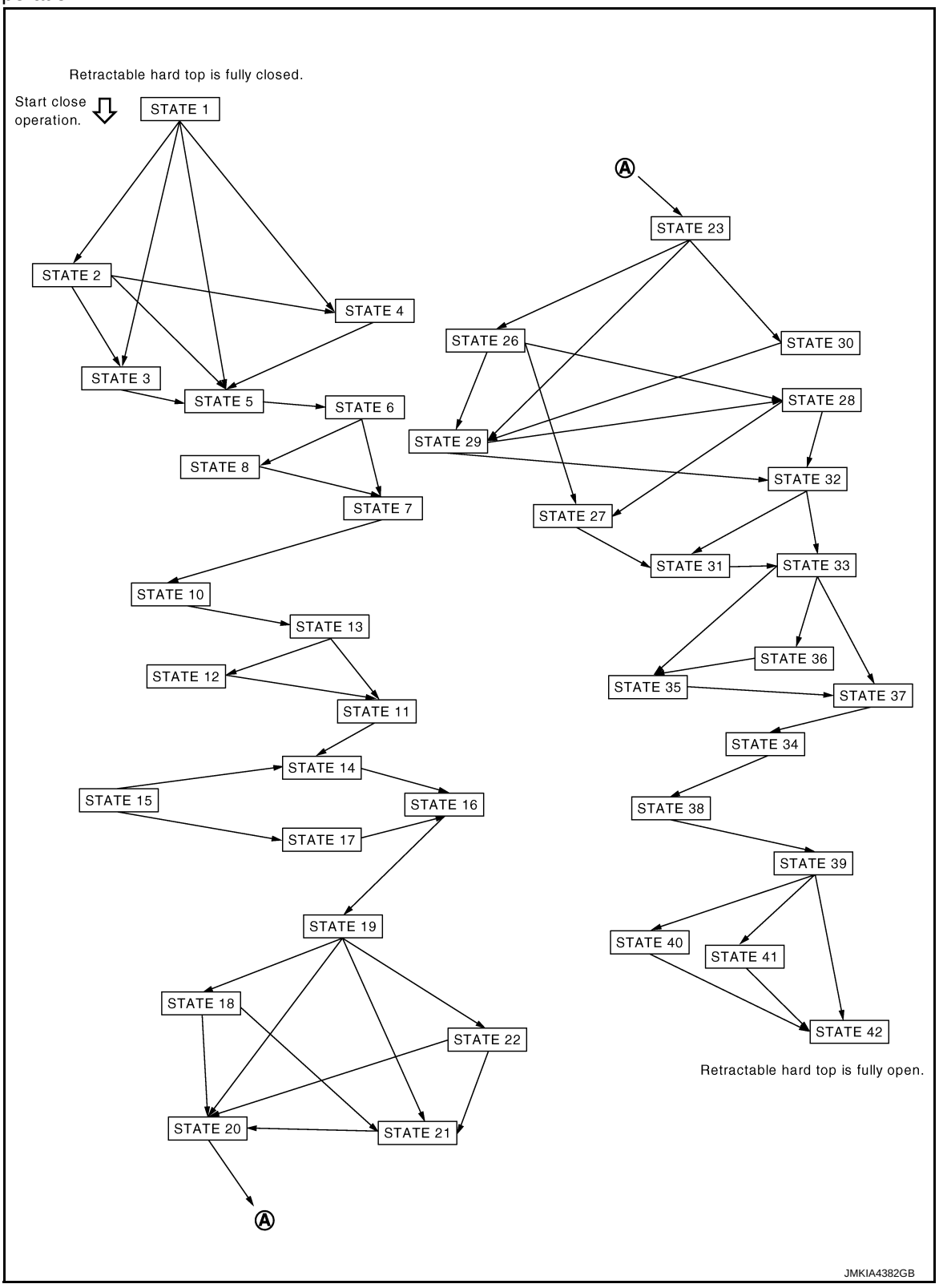
—	Parts state								
	Present state					Target state			
	Roof latch limit switch	Hydraulic state	Parcel shelf state (draw)	Parcel shelf (rotation)	Flipper door state	Hydraulic state	Parcel shelf state (draw)	Parcel shelf (rotation)	Flipper door state
	CONSULT data monitor item								
ROOF STATE	LATCH LIMIT SW	HYDRAU-LIC STATE	PS STATE (DRAW)	PS STATE (ROTA)	FLPD STATE	HYDRAU-LIC STATE	PS STATE (DRAW)	PS STATE (ROTA)	FLPD STATE
	Status on CONSULT								
42	UNLOCK	22	1	2	4	17	1	2	4
41	UNLOCK	21	1	2	4	17	1	2	4
40	UNLOCK	20	1	2	4	17	1	2	4
39	UNLOCK	19	1	2	4	17	1	2	4
38	UNLOCK	18	1	2	4	17	1	4	4
37	UNLOCK	17	1	—	4	17	1	4	4
36	UNLOCK	17	—	4	4	17	1	4	4
35	UNLOCK	17	1	4	4	15	1	4	4
34	UNLOCK	17	1	2	4	17	1	4	4
33	UNLOCK	16	—	—	4	15	1	4	4

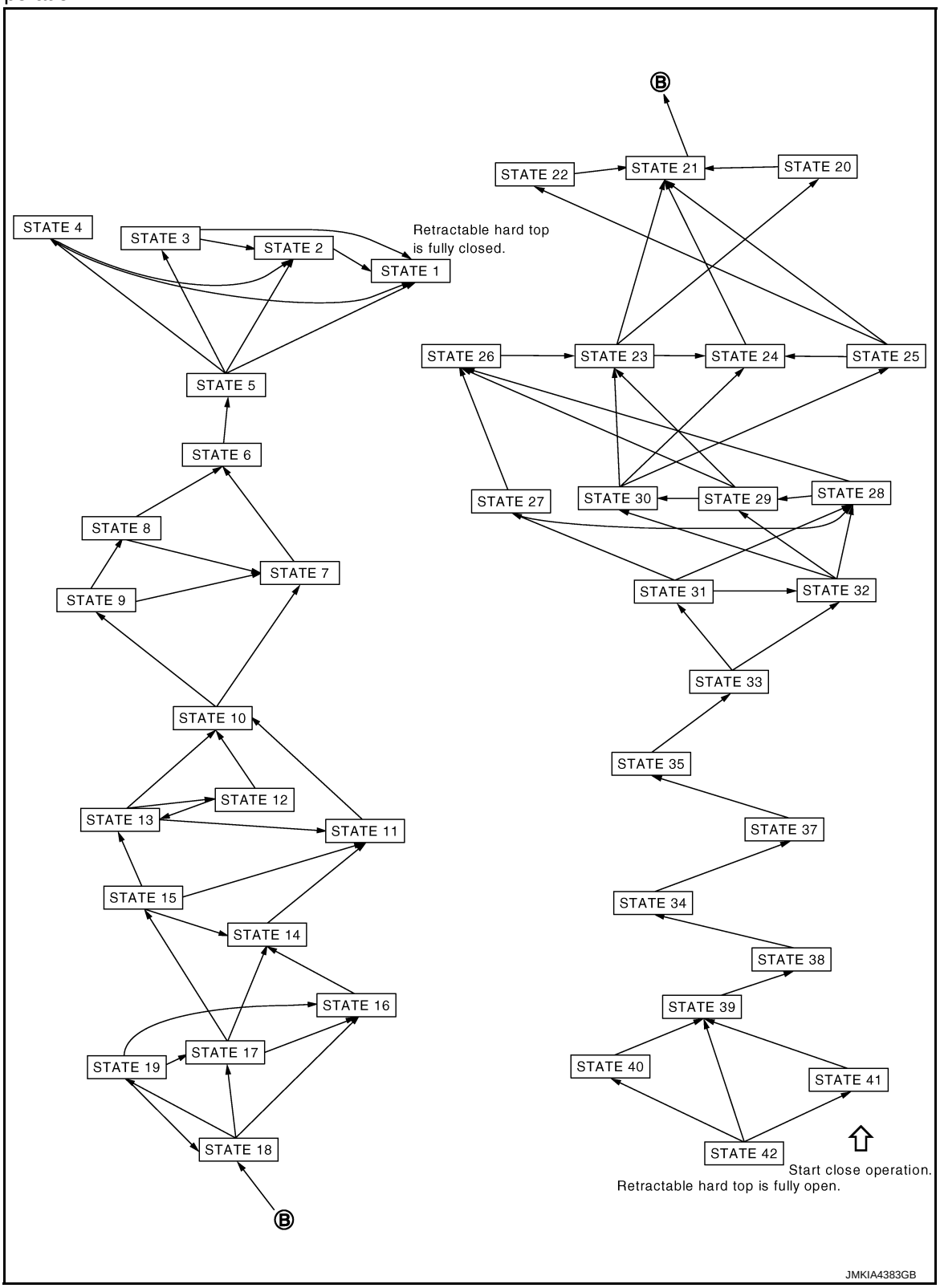
—	Parts state								
	Present state					Target state			
	Roof latch limit switch	Hydraulic state	Parcel shelf state (draw)	Parcel shelf (rotation)	Flipper door state	Hydraulic state	Parcel shelf state (draw)	Parcel shelf (rotation)	Flipper door state
	CONSULT data monitor item								
ROOF STATE	LATCH LIMIT SW	HYDRAU-LIC STATE	PS STATE (DRAW)	PS STATE (ROTA)	FLPD STATE	HYDRAU-LIC STATE	PS STATE (DRAW)	PS STATE (ROTA)	FLPD STATE
	Status on CONSULT								
32	UNLOCK	15	—	4	4	14	4	4	4
31	UNLOCK	15	1	4	4	14	4	4	4
30	UNLOCK	14	—	4	4	13	4	4	4
29	UNLOCK	14	3	4	4	13	4	4	4
28	UNLOCK	14	2	4	4	13	4	4	4
27	UNLOCK	14	1	4	4	13	4	4	4
26	UNLOCK	13	—	4	4	12	5	4	4
25	UNLOCK	13	6	4	4	12	5	4	4
24	UNLOCK	13	5	4	4	12	5	4	4
23	UNLOCK	13	4	4	4	12	5	4	4
22	UNLOCK	12	—	4	4	12	5	4	4
21	UNLOCK	12	5	4	4	11	5	4	4
20	UNLOCK	12	4	4	4	12	5	4	4
19	UNLOCK	11	—	4	4	10	6	4	4
18	UNLOCK	11	5	4	4	10	6	4	4
17	UNLOCK	10	—	4	4	9	6	4	4
16	UNLOCK	10	6	4	4	9	6	4	4
15	UNLOCK	9	—	4	4	8	6	4	4
14	UNLOCK	9	6	4	4	8	6	4	4
13	UNLOCK	8	—	—	—	6	6	4	4
12	UNLOCK	8	6	3	—	6	6	4	4
11	UNLOCK	8	6	4	4	6	6	4	4
10	—	7	6	—	—	6	6	1	1
9	—	6	—	—	—	6	6	1	1
8	—	6	5	1	1	1	6	1	1
7	—	6	6	1	1	1	6	1	1
6	—	5	—	1	—	1	2	1	1
5	LOCK	4	—	1	—	1	2	1	1
4	LOCK	3	—	1	—	1	2	1	1
3	LOCK	2	—	1	—	1	2	1	1
2	LOCK	1	—	1	—	1	2	1	1
1	LOCK	1	2	1	—	1	2	1	1

ORDER OF ROOF STATE CHANGING

Roof state change in normal operation is performed according to the patterns as shown in the following table.

Open Operation





RETRACTABLE HARD TOP SYSTEM : Fail-safe

INFOID:0000000008158255

FAIL-SAFE CONTROL BY DTC

Retractable hard top control unit performs fail-safe control when any DTC are detected.

Display contents of CONSULT		Fail-safe	Cancellation
U1000	CAN COMM CIRCUIT	Inhibit retractable hard top operation.	Communication is normal
U1010	CONTROL UNIT (CAN)	Inhibit retractable hard top operation.	Communication is normal
U0140	LOCAL COMM-1	Inhibit retractable hard top operation.	Communication is normal
U0215	LOCAL COMM-1	Inhibit retractable hard top operation.	Communication is normal
B1701	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Replace retractable hard top control unit.
B1702	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Replace retractable hard top control unit.
B1709	ROOF SWITCH(OPEN)	Inhibit retractable hard top operation.	Detects roof open/close switch (OPEN) is OFF
B170A	ROOF SWITCH(CLOSE)	Inhibit retractable hard top operation.	Detects roof open/close switch (CLOSE) is OFF
B170B	ROOF SWITCH	Inhibit retractable hard top operation.	Detects roof open/close switch (OPEN/CLOSE) is OFF
B170C	TRUNK LINK SENSOR(LH)	Inhibit retractable hard top operation.	Detects normal value
B170D	TRUNK LINK SENSOR(RH)	Inhibit retractable hard top operation.	Detects normal value
B170F	SENSOR POWER SUPPLY	Inhibit retractable hard top operation.	Detects normal value
B1710	LATCH STATUS SENSOR	Inhibit retractable hard top operation.	Detects normal value
B1711	LATCH LOCK SENSOR	Inhibit retractable hard top operation.	Detects normal value
B1712	TRUNK STATUS SENSOR	Inhibit retractable hard top operation.	Detects normal value
B1715	ROOF STATUS SEN PWR	Inhibit retractable hard top operation.	Detects normal value
B1716	PS STATUS SEN(DRAW)	Inhibit retractable hard top operation.	Detects normal value
B1718	PS STATUS SEN(ROTA)	Inhibit retractable hard top operation.	Detects normal value
B1719	ROOF STATUS SEN	Inhibit retractable hard top operation.	Detects normal value
B171A	HYDRAULIC PMP(LH)	Inhibit retractable hard top operation.	Detects normal value
B171B	HYDRAULIC PMP(RH)	Inhibit retractable hard top operation.	Detects normal value
B171C	SWITCHING VALVE 1	Inhibit retractable hard top operation.	Detects normal value
B171D	SWITCHING VALVE 2	Inhibit retractable hard top operation.	Detects normal value
B171E	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B171F	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1720	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1721	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1722	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1723	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1724	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1725	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1726	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1728	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1729	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B172A	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B172B	ROOF STATE SIG(AUDIO)	Inhibit retractable hard top operation.	Detects normal value
B172D	ROOF WARNING BUZZER	Inhibit retractable hard top operation.	Detects normal value
B172E	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B172F	REAR PWR WINDOW(LH)	Inhibit retractable hard top operation.	Detects normal value

Display contents of CONSULT		Fail-safe	Cancellation
B1730	REAR PWR WIN-DOW(RH)	Inhibit retractable hard top operation.	Detects normal value
B1731	HYDRAULIC STATE 1	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1732	HYDRAULIC STATE 2	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1733	HYDRAULIC STATE 3	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1734	HYDRAULIC STATE 4	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1735	HYDRAULIC STATE 5	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1736	HYDRAULIC STATE 6	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1737	HYDRAULIC STATE 7	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1738	HYDRAULIC STATE 8	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1739	HYDRAULIC STATE 9	Inhibit retractable hard top operation.	Turn ignition switch OFF
B173A	HYDRAULIC STATE 10	Inhibit retractable hard top operation.	Turn ignition switch OFF
B173B	HYDRAULIC STATE 11	Inhibit retractable hard top operation.	Turn ignition switch OFF
B173C	HYDRAULIC STATE 12	Inhibit retractable hard top operation.	Turn ignition switch OFF
B173D	HYDRAULIC STATE 13	Inhibit retractable hard top operation.	Turn ignition switch OFF
B173E	HYDRAULIC STATE 14	Inhibit retractable hard top operation.	Turn ignition switch OFF
B173F	HYDRAULIC STATE 15	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1740	HYDRAULIC STATE 16	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1741	HYDRAULIC STATE 17	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1742	HYDRAULIC STATE 18	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1743	HYDRAULIC STATE 19	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1744	HYDRAULIC STATE 20	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1745	HYDRAULIC STATE 21	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1746	HYDRAULIC STATE 22	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1747	P SHELF (DRAW) STATE 1	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1748	P SHELF (DRAW) STATE 2	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1749	P SHELF (DRAW) STATE 3	Inhibit retractable hard top operation.	Turn ignition switch OFF
B174A	P SHELF (DRAW) STATE 4	Inhibit retractable hard top operation.	Turn ignition switch OFF
B174B	P SHELF (DRAW) STATE 5	Inhibit retractable hard top operation.	Turn ignition switch OFF
B174C	P SHELF (DRAW) STATE 6	Inhibit retractable hard top operation.	Turn ignition switch OFF
B174D	P SHELF (ROT) STATE 1	Inhibit retractable hard top operation.	Turn ignition switch OFF
B174E	P SHELF (ROT) STATE 2	Inhibit retractable hard top operation.	Turn ignition switch OFF
B174F	P SHELF (ROT) STATE 3	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1750	P SHELF (ROT) STATE 4	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1751	ROOF LATCH STATE 1	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1752	ROOF LATCH STATE 2	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1753	ROOF LATCH STATE 3	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1754	FLIPPER DOOR STATE 1	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1755	FLIPPER DOOR STATE 2	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1756	FLIPPER DOOR STATE 3	Inhibit retractable hard top operation.	Turn ignition switch OFF

Display contents of CONSULT		Fail-safe	Cancellation
B1757	FLIPPER DOOR STATE 4	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1758	THERMO PROTECTION	Inhibit retractable hard top operation.	It is not in thermo protection area (Refer to RF-20, "RETRACTABLE HARD TOP SYSTEM : System Description")
B175C	PWR SOURCE(ROOF)	Inhibit retractable hard top operation.	Power source is 11.4 (V) or more for 0.5 second
B175D	PWR SOURCE(ROOF)	Inhibit retractable hard top operation.	Power source is14.5 (V) or more for 4 seconds
B175E	PWR SOURCE(WINDOW)	Inhibit retractable hard top operation and rear power window operation.	Power source (power window) is 9.5 (V) or less
B175F	PWR SOURCE(WINDOW)	Inhibit retractable hard top operation and rear power window operation.	Power source (power window) is 15.5 (V) or more
B1760	ROOF CONTROL UNIT	Inhibit rear window defogger operation.	Detects normal value
B1761	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1762	ROOF STATE	Inhibit retractable hard top operation.	Detects normal value
B1763	HYDRAULIC STATE	Inhibit retractable hard top operation.	Detects normal value
B1764	ROOF LATCH STATE	Inhibit retractable hard top operation.	Detects normal value
B1765	FLIPPER DOOR STATE	Inhibit retractable hard top operation.	Detects normal value

HYDRAULIC SYSTEM CONTROL FUNCTION

HYDRAULIC SYSTEM CONTROL FUNCTION : System Diagram

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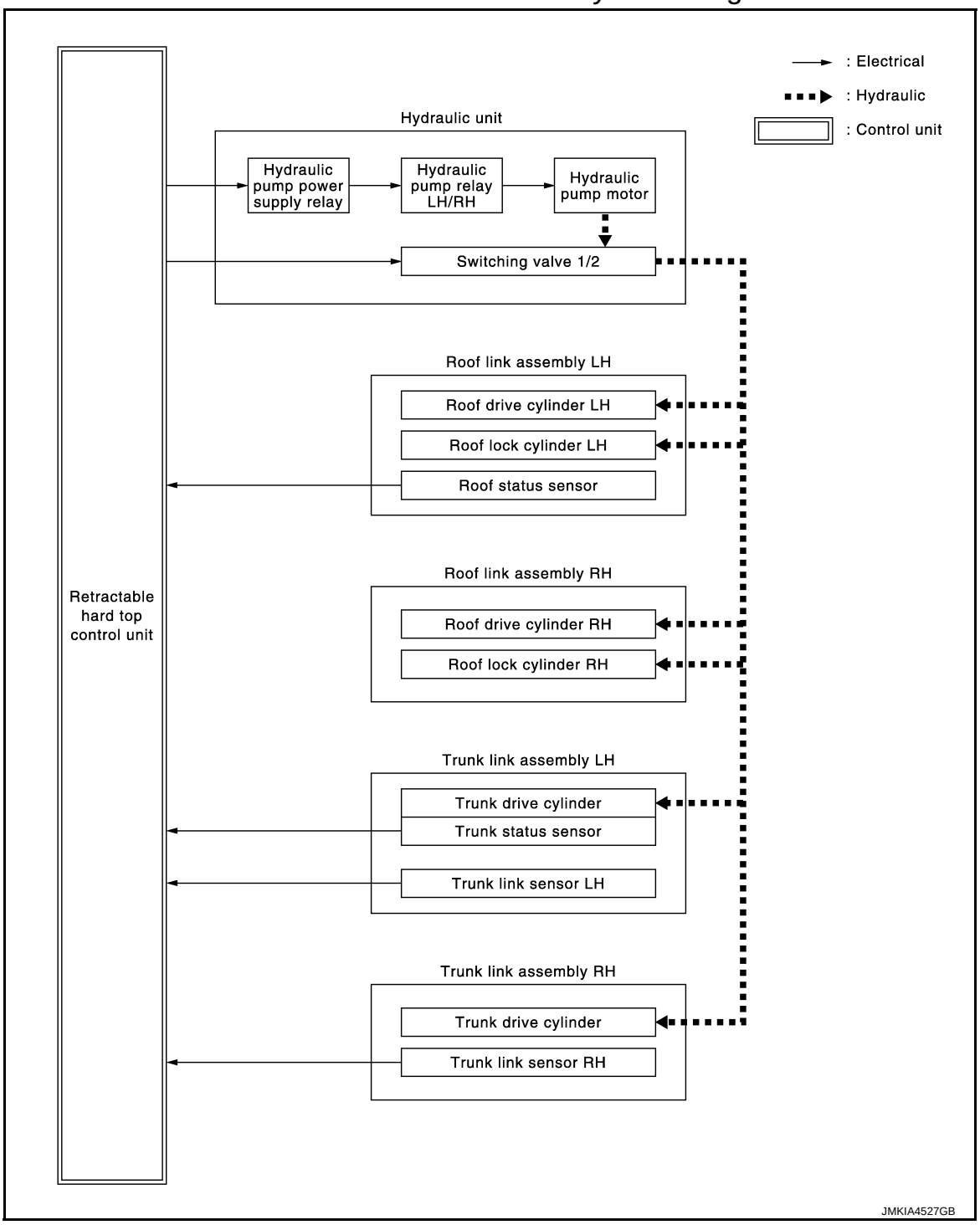


HYDRAULIC SYSTEM CONTROL FUNCTION : System Description

INFOID:0000000008158257

SYSTEM DESCRIPTION

Retractable hard top control unit controls hydraulic system using hydraulic motor and switching valve 1/2, extends or retracts each hydraulic cylinder, and operates retractable hard top.
Functions of each hydraulic cylinder are as shown in the following table.

Cylinder	Description
Roof drive cylinder	Roof open (Cylinder: Extend) operation and close (Cylinder: Retract) operation

Cylinder	Description
Roof lock cylinder	Roof link lock (Cylinder: Retract) operation and unlock (Cylinder: Extend) operation
Trunk drive cylinder	• Trunk lid (front side) open (Cylinder: Extend) operation and close (Cylinder: Retract) operation • Trunk link lock (Cylinder: Retract) operation and unlock (Cylinder: Extend) operation

Electrical Parts In Hydraulic System

Retractable hard top control unit switches hydraulic pump rotation direction, hydraulic circuit by switching valve 1/2 ON or OFF, and extends or retracts each cylinder. Operation according to each parts state is as shown in the following table.

NOTE:

For the details of operation, refer to SEQUENCE OF HYDRAULIC SYSTEM.

In Open Procedure

—	Output parts			
	Hydraulic pump motor (LH)	Hydraulic pump motor (RH)	Switching valve 1	Switching valve 2
Condition	CONSULT data monitor item			
	PUMP OUT (LH)	PUMP OUT (RH)	SWITCH VLV1 OUT	SWITCH VLV2 OUT
	Status on CONSULT			
Trunk lid: OPEN (Roof: CLOSE)	ON	OFF	ON	OFF
Roof: OPEN (Trunk lid: OPEN)	OFF	ON	ON	OFF
Trunk lid: CLOSE (Roof: OPEN)	OFF	ON	OFF	OFF

In Close Procedure

—	Output parts			
	Hydraulic pump motor (LH)	Hydraulic pump motor (RH)	Switching valve 1	Switching valve 2
Condition	CONSULT data monitor item			
	PUMP OUT (LH)	PUMP OUT (RH)	SWITCH VLV1 OUT	SWITCH VLV2 OUT
	Status on CONSULT			
Trunk lid: OPEN (Roof: OPEN)	OFF	ON	ON	OFF
Roof: CLOSE (Trunk lid: OPEN)	ON	OFF	ON	OFF
Roof: CLOSE (Roof: CLOSE)	ON	OFF	OFF	OFF

SEQUENCE OF HYDRAULIC SYSTEM

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. (For interlock with other components, refer to RF-20, "RETRACTABLE HARD TOP SYSTEM : System Description")

Parts state (CONSULT display) according to sequential hydraulic system operations is as shown in the following table.

Open Operation

—	Parts state											
	Input parts						Output parts					
	Roof link status	Trunk link sensor LH	Trunk link sensor RH	Trunk room lamp switch	Trunk status sensor	Roof latch status sensor	Hydraulic pump motor (LH)	Hydraulic pump motor (RH)	Switching valve 1	Switching valve 2	Trunk opener actuator	Roof latch motor
CONSULT data monitor item												
HYDRAULIC STATE	ROOF LINK STATE	TRUNK LINK SEN(LH)	TRUNK LINK SEN(RH)	TR ROOM LAMP SW	TRUNK STATUS SEN	ROOF LATCH STATE	PUMP OUT (LH)	PUMP OUT (RH)	SWITCHVLV1 OUT	SWITCHVLV2 OUT	TRUNK OPEN OUT	ROOF LATCH STATE (Target state)
Status on CONSULT												
1	1	ON	ON	ON	OFF	CLOSE	ON	OFF	ON	OFF	OFF	CLOSE
2	1	OFF	ON	ON	OFF	CLOSE	ON	OFF	ON	OFF	OFF	CLOSE
3	1	ON	OFF	ON	OFF	CLOSE	ON	OFF	ON	OFF	OFF	CLOSE
4	1	OFF	OFF	ON	OFF	CLOSE	ON	OFF	ON	OFF	ON	CLOSE
5	1	OFF	OFF	OFF	OFF	—	ON	OFF	ON	OFF	ON	CLOSE
6	1	OFF	OFF	OFF	ON	CLOSE	OFF	OFF	ON	OFF	OFF	OPEN
7	1	OFF	OFF	OFF	ON	MID	OFF	OFF	ON	OFF	OFF	OPEN
8	1	OFF	OFF	OFF	ON	OPEN	OFF	ON	ON	OFF	OFF	OPEN
9	2	OFF	OFF	OFF	ON	OPEN	OFF	ON	ON	OFF	OFF	OPEN
10	3	OFF	OFF	OFF	ON	OPEN	OFF	ON	ON	OFF	OFF	OPEN
11	4	OFF	OFF	OFF	ON	OPEN	OFF	ON	ON	OFF	OFF	OPEN
12	5	OFF	OFF	OFF	ON	OPEN	OFF	ON	ON	OFF	OFF	OPEN
13	6	OFF	OFF	OFF	ON	OPEN	OFF	ON	ON	OFF	OFF	OPEN
14	7	OFF	OFF	OFF	ON	OPEN	OFF	ON	ON	OFF	OFF	OPEN
15	8	OFF	OFF	OFF	ON	OPEN	OFF	ON	ON	OFF	OFF	CLOSE
16	8	OFF	OFF	OFF	ON	MID	OFF	ON	ON	OFF	OFF	CLOSE
17	8	OFF	OFF	OFF	ON	CLOSE	OFF	ON	OFF	OFF	OFF	CLOSE
18	8	OFF	OFF	OFF	OFF	CLOSE	OFF	ON	OFF	OFF	OFF	CLOSE
19	8	OFF	OFF	ON	OFF	CLOSE	OFF	ON	OFF	OFF	OFF	CLOSE
20	8	OFF	ON	ON	OFF	CLOSE	OFF	ON	OFF	OFF	OFF	CLOSE
21	8	ON	OFF	ON	OFF	CLOSE	OFF	ON	OFF	OFF	OFF	CLOSE
22	8	ON	ON	ON	OFF	CLOSE	OFF	OFF	OFF	OFF	OFF	CLOSE

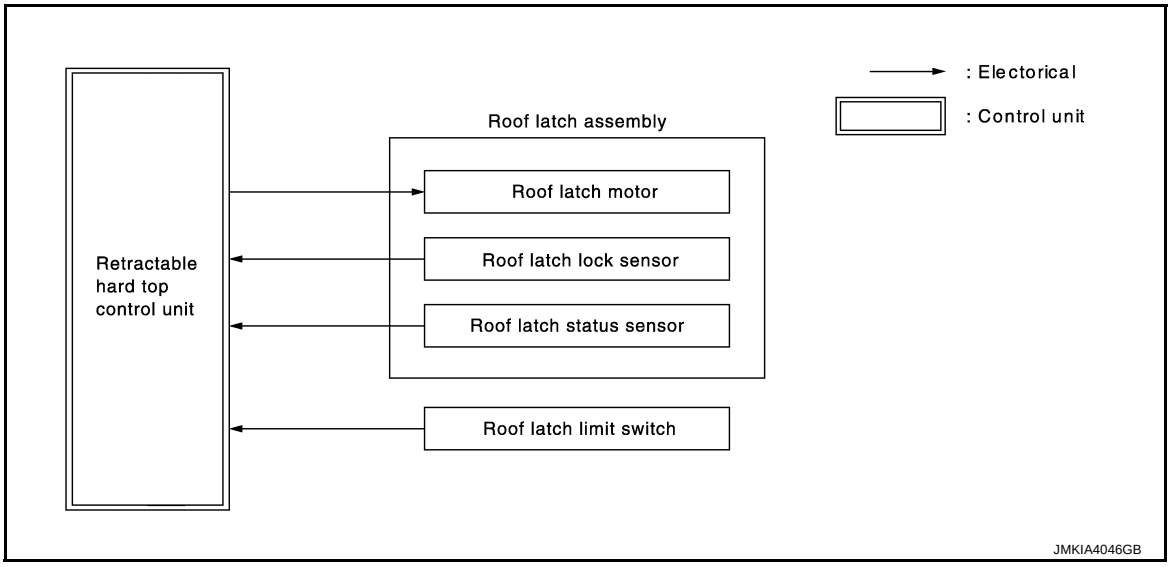
Close Operation

—	Parts state											
	Input parts						Output parts					
	Roof link status	Trunk link sensor LH	Trunk link sensor RH	Trunk room lamp switch	Trunk status sensor	Roof latch status sensor	Hydraulic pump motor (LH)	Hydraulic pump motor (RH)	Switching valve 1	Switching valve 2	Trunk opener actuator	Roof latch motor
CONSULT data monitor item												
HYDRAULIC STATE	ROOF LINK STATE	TRUNK LINK SEN(LH)	TRUNK LINK SEN(RH)	TR ROOM LAMP SW	TRUNK STATUS SEN	ROOF LATCH STATE	PUMP OUT (LH)	PUMP OUT (RH)	SWITCHVLV1 OUT	SWITCHVLV2 OUT	TRUNK OPEN OUT	ROOF LATCH STATE (Target state)
Status on CONSULT												
22	8	ON	ON	ON	OFF	CLOSE	OFF	ON	ON	OFF	OFF	CLOSE
21	8	ON	OFF	ON	OFF	CLOSE	OFF	ON	ON	OFF	OFF	CLOSE
20	8	OFF	ON	ON	OFF	CLOSE	OFF	ON	ON	OFF	OFF	CLOSE
19	8	OFF	OFF	ON	OFF	CLOSE	OFF	ON	ON	OFF	ON	CLOSE
18	8	OFF	OFF	OFF	OFF	CLOSE	OFF	ON	ON	OFF	ON	CLOSE
17	8	OFF	OFF	OFF	ON	CLOSE	OFF	OFF	ON	OFF	OFF	OPEN
16	8	OFF	OFF	OFF	ON	MID	OFF	OFF	ON	OFF	OFF	OPEN
15	8	OFF	OFF	OFF	ON	OPEN	ON	OFF	ON	OFF	OFF	OPEN
14	7	OFF	OFF	OFF	ON	OPEN	ON	OFF	ON	OFF	OFF	OPEN
13	6	OFF	OFF	OFF	ON	OPEN	ON	OFF	ON	OFF	OFF	OPEN
12	5	OFF	OFF	OFF	ON	OPEN	ON	OFF	ON	OFF	OFF	OPEN
11	4	OFF	OFF	OFF	ON	OPEN	ON	OFF	ON	OFF	OFF	OPEN
10	3	OFF	OFF	OFF	ON	OPEN	ON	OFF	ON	OFF	OFF	OPEN
9	2	OFF	OFF	OFF	ON	OPEN	ON	OFF	ON	ON	OFF	OPEN
8	1	OFF	OFF	OFF	ON	OPEN	ON	OFF	ON	ON	OFF	CLOSE
7	1	OFF	OFF	OFF	ON	MID	ON	OFF	ON	ON	OFF	CLOSE
6	1	OFF	OFF	OFF	ON	CLOSE	ON	OFF	OFF	OFF	OFF	CLOSE
5	1	OFF	OFF	OFF	OFF	—	ON	OFF	OFF	OFF	OFF	CLOSE
4	1	OFF	OFF	ON	OFF	CLOSE	ON	OFF	OFF	OFF	OFF	CLOSE
3	1	ON	OFF	ON	OFF	CLOSE	ON	OFF	OFF	OFF	OFF	CLOSE
2	1	OFF	ON	ON	OFF	CLOSE	ON	OFF	OFF	OFF	OFF	CLOSE
1	1	ON	ON	ON	OFF	CLOSE	OFF	OFF	OFF	OFF	OFF	CLOSE

ROOF LATCH FUNCTION

ROOF LATCH FUNCTION : System Diagram

INFOID:0000000008158258



ROOF LATCH FUNCTION : System Description

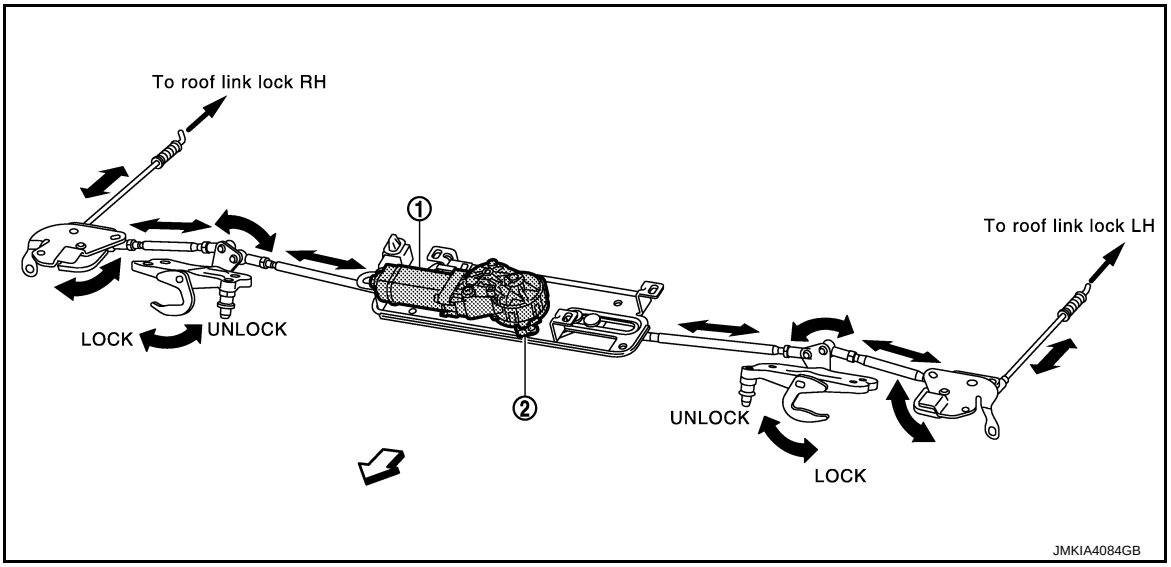
INFOID:0000000008158259

SYSTEM DESCRIPTION

Roof latch assembly on the roof front end operates roof latch and roof link lock on the rod end, by roof latch motor operation through roof latch rod. When retractable hard top is fully closed, roof latch is engaged with roof latch striker on the front screen upper side and roof link assembly, when fully open, is engaged with roof support bumper (RF-283, "Exploded View") and roof link assembly.

Retractable hard top control unit recognizes roof latch state by roof latch status sensor (in roof latch motor), roof latch lock sensor (in roof latch assembly), and roof latch limit switch (in front latch assembly, refer to RF-243, "Exploded View").

Roof Latch Structure



1. Roof latch motor (with integrated roof latch status sensor)
2. Roof latch lock sensor

SEQUENCE OF ROOF LATCH STATE

There are 3 states in roof latch. Open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. (For interlocking with other components, refer to RF-20, "RETRACTABLE HARD TOP SYSTEM : System Description".)

Parts state (CONSULT display) according to sequential roof latch operations is as shown in the following table.

Lock Operation

—	Parts state				
	Input parts			Output parts	
	Roof latch status sensor	Roof latch lock sensor	Roof latch limit switch	Roof latch motor (UNLOCK)	Roof latch motor (LOCK)
CONSULT data monitor item					
LATCH STATE	LATCH VALUE	LATCH LOCK SEN	LATCH LIMIT SW	LATCH OUT(ULK)	LATCH OUT(LCK)
Status on CONSULT					
OPEN	78 or more	OFF	OPEN	OFF	ON
MID	77-1	OFF	OPEN	OFF	ON
CLOSE	0	ON	CLOSE*1/OPEN*2	OFF	OFF

*1: when retractable hard top is fully closed

*2: when retractable hard top is fully open

Unlock Operation

—	Parts state				
	Input parts			Output parts	
	Roof latch status sensor	Roof latch status sensor	Roof latch limit switch	Roof latch motor (UNLOCK)	Roof latch motor (LOCK)
CONSULT data monitor item					
LATCH STATE	LATCH VALUE	LATCH STATE SEN	LATCH LIMIT SWITCH	LATCH OUT(ULK)	LATCH OUT(LCK)
Status on CONSULT					
CLOSE	0	ON	CLOSE*1/OPEN*2	ON	OFF
MID	77-1	OFF	OPEN	ON	OFF
OPEN	78 or more	OFF	OPEN	OFF	OFF

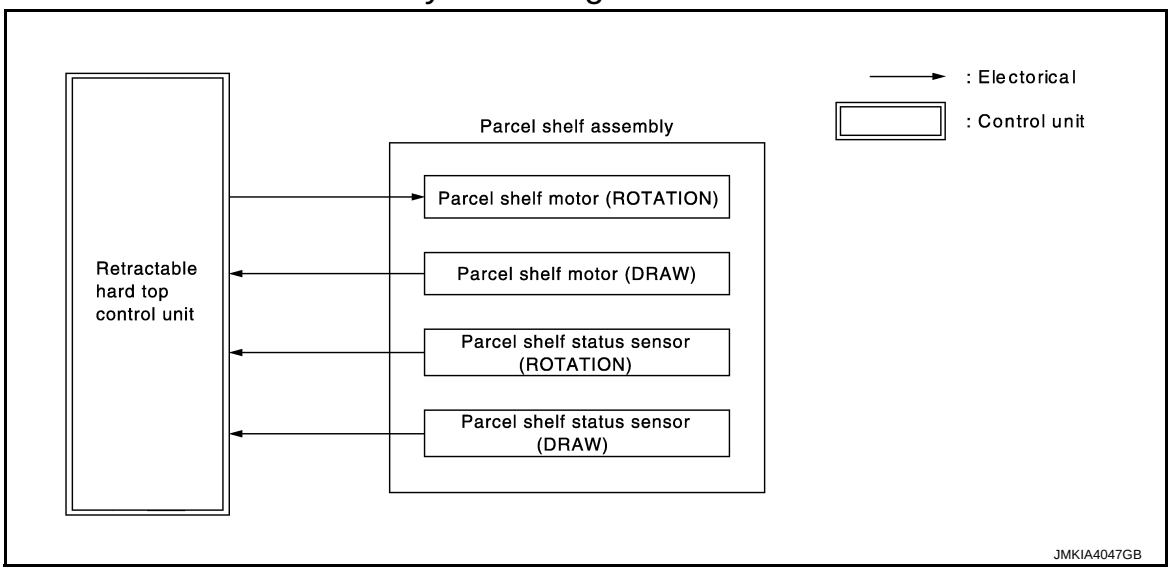
*1: when retractable hard top is fully closed

*2: when retractable hard top is fully open

PARCEL SHELF FUNCTION

PARCEL SHELF FUNCTION : System Diagram

INFOID:0000000008158260



PARCEL SHELF FUNCTION : System Description

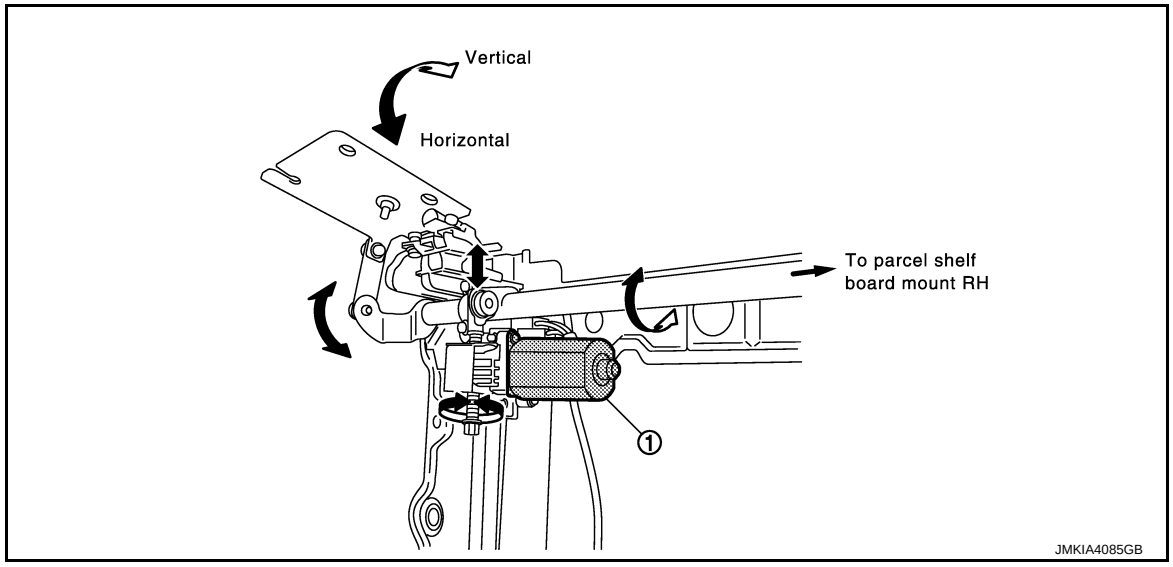
INFOID:0000000008158261

SYSTEM DESCRIPTION

Parcel shelf is installed in trunk room and integrates parcel shelf motor (rotation) and parcel shelf motor (draw). During sequential operations of retractable hard top system, parcel shelf motor (rotation) rotates parcel shelf board, parcel shelf motor (draw) draws parcel shelf board, and open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components than parcel self.

Retractable hard top control unit recognizes the rotation position of parcel shelf by parcel shelf status sensor (rotation) in parcel shelf motor (rotation), up and down positions of parcel shelf by parcel shelf status sensor (draw) in parcel shelf motor (draw).

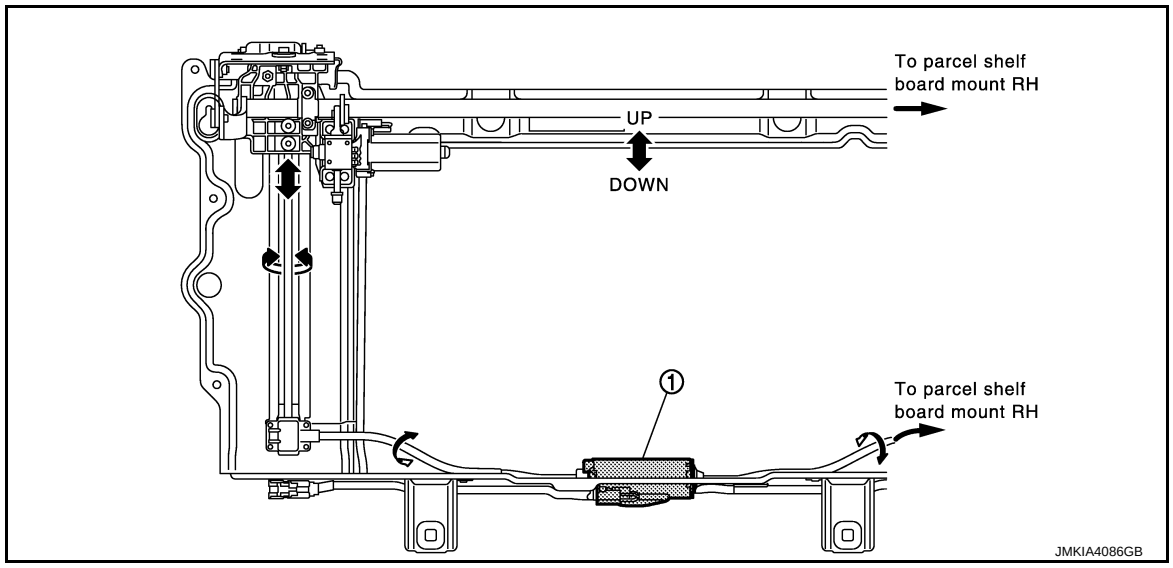
Parcel Shelf Structure/Rotation



View with parcel shelf board and parcel shelf motor (rotation) cover removed.

1. Parcel shelf motor (rotation) [with integrated parcel shelf status sensor (rotation)]

Parcel Shelf Structure/Draw



View with parcel shelf board and parcel shelf motor (rotation) cover removed.

1. Parcel shelf motor (draw) [with integrated parcel shelf status sensor (draw)]

SEQUENCE OF PARCEL SHELF

There are 4 rotation operation states and 6 draw operation states in parcel shelf. Open and close operations of retractable hard tops are performed interlocking with other retractable hard top system components. (For interlocking with other components, refer to RF-20, "RETRACTABLE HARD TOP SYSTEM : System Description".) Parts state (CONSULT display) according to sequential parcel shelf operations is as shown in the following table.

Rotation Operation/Vertical

—	Parts state	
	Output parts	
	Parcel shelf motor (rotation)	
CONSULT data monitor item		
PS STATE(ROTA)	PS OUT(HORI)	PS OUT(VERT)
Status on CONSULT		
1	OFF	ON
2	OFF	ON
3	OFF	ON
4	OFF	OFF

Rotation Operation/Horizontal

—	Parts state	
	Output parts	
	Parcel shelf motor (rotation)	
CONSULT data monitor item		
PS STATE(ROTA)	PS OUT(HORI)	PS OUT(VERT)
Status on CONSULT		
4	ON	OFF
3	ON	OFF
2	ON	OFF
1	OFF	OFF

Draw Operation/Down

—	Parts state	
	Output parts	
	Parcel shelf motor (draw)	
CONSULT data monitor item		
PS STATE(DRAW)	PS OUT(UP)	PS OUT(DOWN)
Status on CONSULT		
1	OFF	ON
2	OFF	ON
3	OFF	ON
4	OFF	ON
5	OFF	ON
6	OFF	OFF

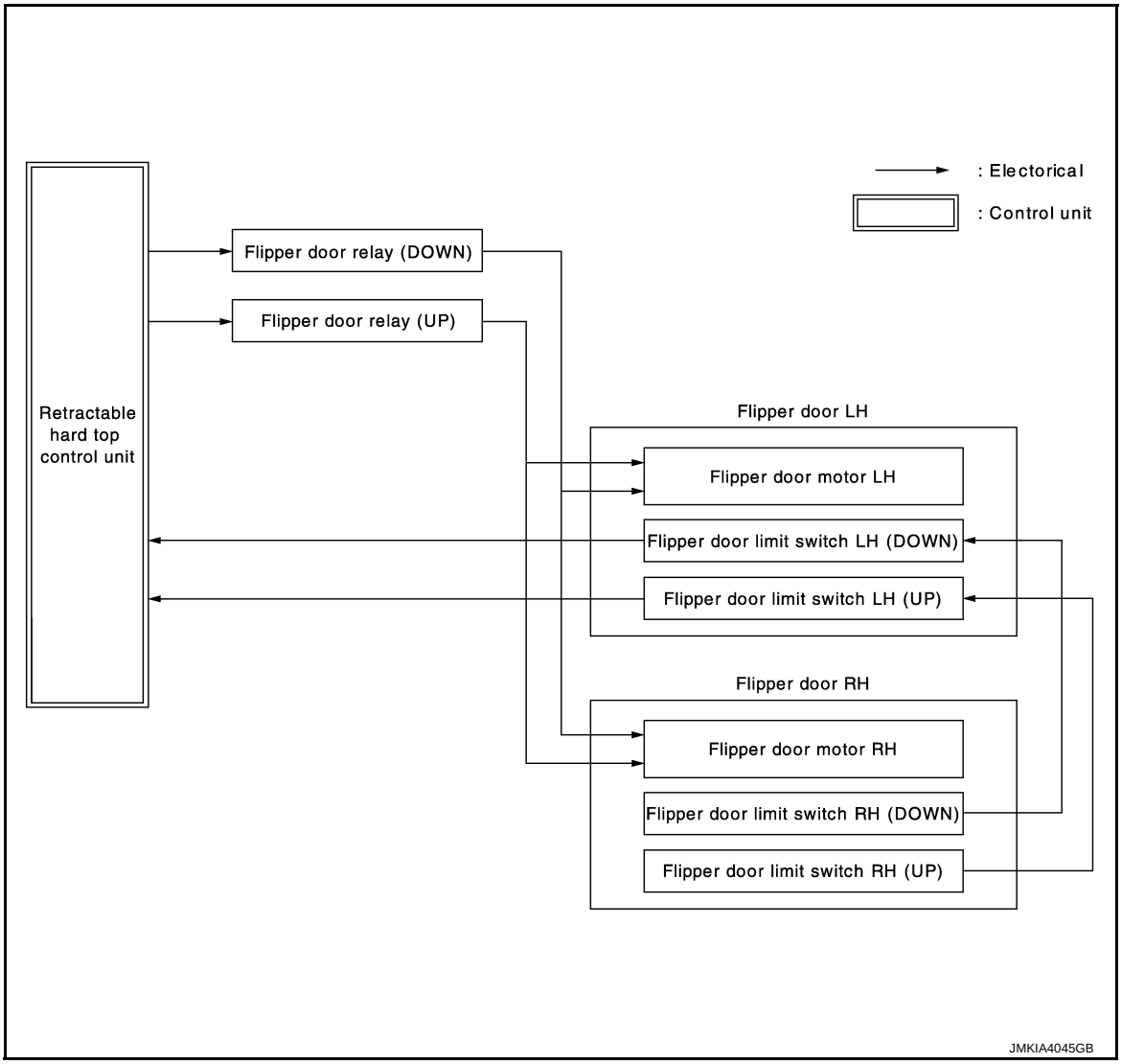
Draw Operation/Up

—	Parts state
	Output parts
	Parcel shelf motor (draw)
CONSULT data monitor item	
PS STATE(DRAW)	PS OUT(UP)	PS OUT(DOWN)
Status on CONSULT		
6	ON	OFF
5	ON	OFF
4	ON	OFF
3	ON	OFF
2	ON	OFF
1	OFF	OFF

FLIPPER DOOR FUNCTION

FLIPPER DOOR FUNCTION : System Diagram

INFOID:0000000008158262



FLIPPER DOOR FUNCTION : System Description

INFOID:0000000008158263

SYSTEM DESCRIPTION

Flipper door (LH/RH) is installed on trunk lid back side. Each flipper door integrates flipper door motor and flipper door limit switch. Up and down operations are performed by flipper door motor. Up and down positions of flipper door are detected by flipper door limit switch.
Retractable hard top control unit performs open and close operations of retractable hard top system interlocking with flipper door and other retractable hard top components.

SEQUENCE OF FLIPPER DOOR

There are 3 states in flipper door. Open and close operations of retractable hard top system are performed interlocking with other retractable hard top components. (For interlocking with other components, refer to RF-20, "RETRACTABLE HARD TOP SYSTEM : System Description".)
Parts state (CONSULT display) according to sequential flipper door operations is as shown in the following table.

Up Operation

—	Parts state			
	Input parts		Output parts	
	Flipper door limit switch (up)	Flipper door limit switch (down)	Flipper door motor	
CONSULT data monitor item				
FLPD STATE	FLPD LIMIT SW(UP)	FLPD LIMIT SW(DOWN)	FLPD OUT(UP)	FLPD OUT(DOWN)
Status on CONSULT				
1	OFF	ON	ON	OFF
2	OFF	OFF	ON	OFF
4	ON	OFF	OFF	OFF

NOTE:

FLPD STATE 3 is not available.

Down Operation

—	Parts state			
	Input parts		Output parts	
	Flipper door limit switch (up)	Flipper door limit switch (down)	Flipper door motor	
CONSULT data monitor item				
FLPD STATE	FLPD LIMIT SW(UP)	FLPD LIMIT SW(DOWN)	FLPD OUT(UP)	FLPD OUT(DOWN)
Status on CONSULT				
4	ON	OFF	OFF	ON
2	OFF	OFF	OFF	ON
1	OFF	ON	OFF	OFF

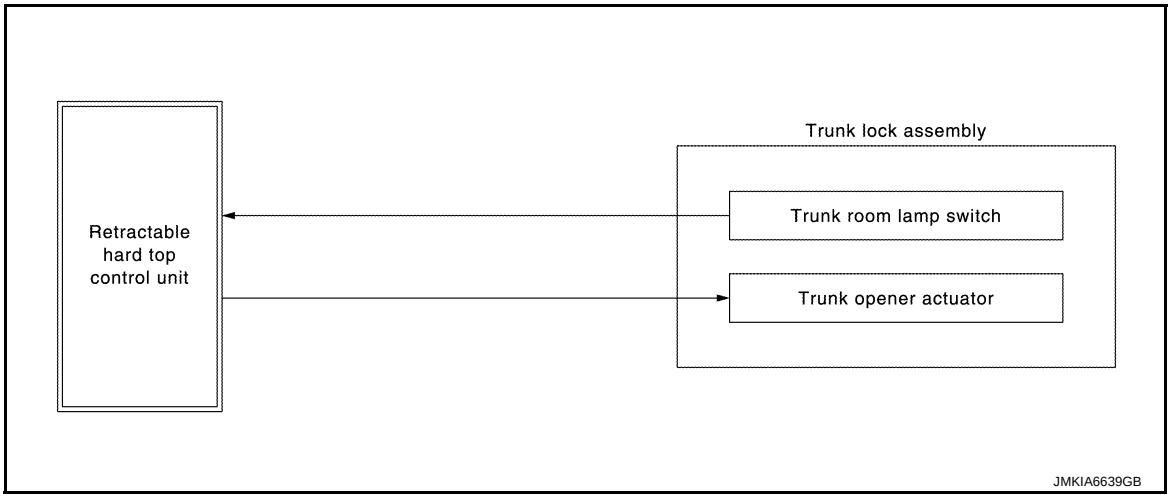
NOTE:

FLPD STATE 3 is not available.

TRUNK LID CONTROL FUNCTION

TRUNK LID CONTROL FUNCTION : System Diagram

INFOID:0000000008158264



TRUNK LID CONTROL FUNCTION : System Description

INFOID:0000000008158265

SYSTEM DESCRIPTION

Retractable hard top control unit performs trunk lid opener operation and trunk lid closure operation, when open and close operations of retractable hard top are performed.

NOTE:

For trunk lid opener operation other than retractable hard top system operation, refer to DLK-42, "System Description". For trunk lid auto closure other than retractable hard top system operation, refer to DLK-44, "System Description".

TRUNK LID OPERATION FOR RETRACTABLE HARD TOP SYSTEM

Trunk opener operation and trunk closure operation during retractable hard top system operation are as shown in the following.

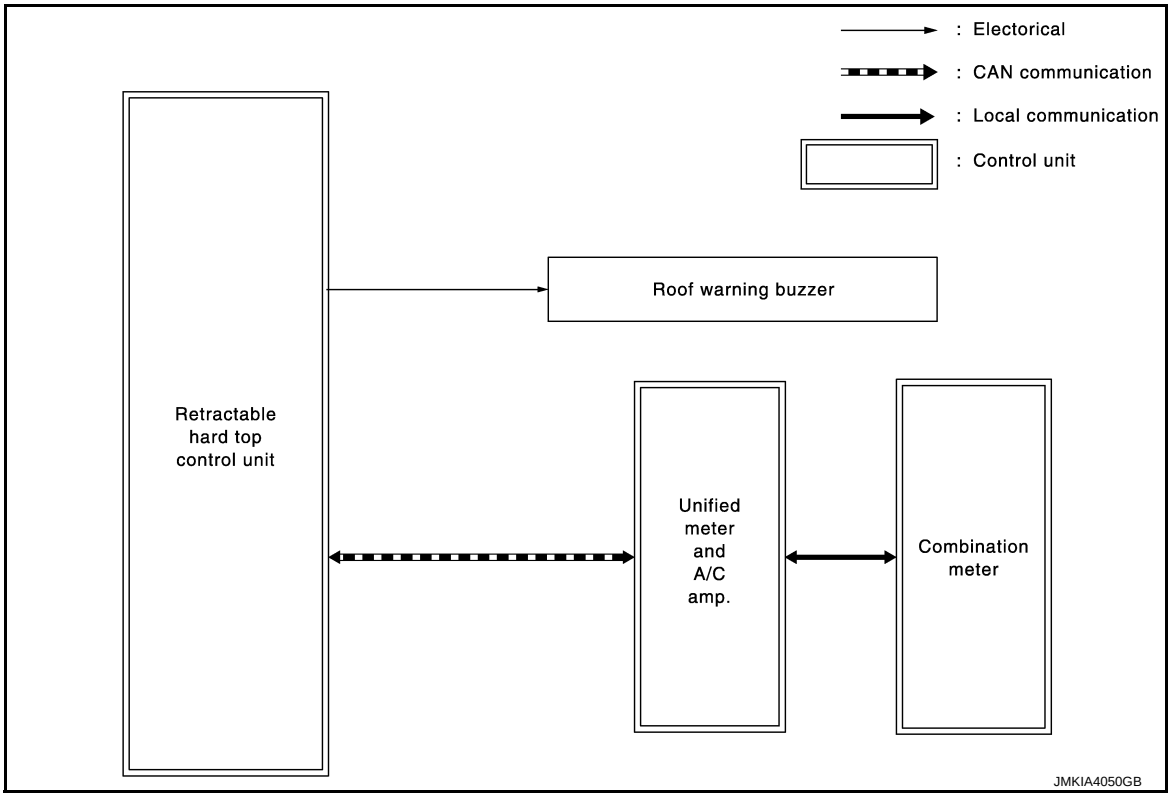
Trunk Lid Opener Operation

Trunk lid opener operation does not need trunk lid opener switch input, when retractable hard top system operation is performed. Retractable hard top control unit performs trunk lid open operation. Other operations are the same as trunk lid open function (DLK-42, "System Description") of door lock system.

WARNING FUNCTION

WARNING FUNCTION : System Diagram

INFOID:0000000008158266



WARNING FUNCTION : System Description

INFOID:0000000008158267

SYSTEM DESCRIPTION

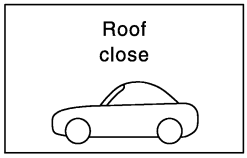
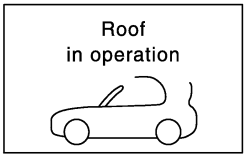
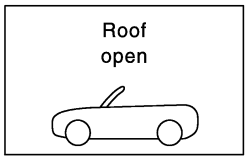
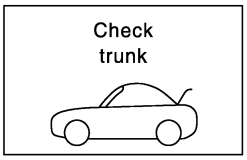
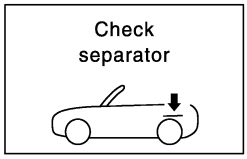
Retractable hard top control unit indicates retractable hard top system state using roof warning buzzer and LCD.

LCD INDICATION

LCD in combination meter displays the following items.

NOTE:

- LCD does not display the following items if initialization (roof state, roof latch state, or parcel shelf state) is not complete.
  Perform initialization when the following screen is not displayed. Refer to RF-74, "Description".
- LCD does not display the following screen if battery voltage is low when roof open/close switch is operated. When roof open/ close switch is released, “Roof in operation” is displayed. (roof warning buzzer does not sound)

Item	Display on LCD	Item	Display on LCD
Roof close : It is displayed when retractable hard top system is fully closed	 JMKIA4118ZZ	Roof in operation : It is displayed when retractable hard top system is in operation	 JMKIA4119ZZ
Roof open : It is displayed when retractable hard top system is fully open	 JMKIA4120ZZ	Check trunk : Retractable hard top can not operate when trunk lid is open	 JMKIA4121ZZ
Check separator : Retractable hard top can not operate when tonneau board is not set	 JMKIA4122ZZ		

WARNING BUZZER FUNCTION

Roof warning buzzer sounds due to the following conditions.

NOTE:

Warning buzzer operation in initialize procedure, Refer to RF-74, "Description".

Operation/condition	Buzzer sounds	Cause	Action
Normal • Open and close operations by roof open /close switch, or an open operation by door request switch is performed • Operation is complete (fully closed or fully open)	Pi-	—	
Retractable hard top stops during operation	Pi, Pi	Foreign materials are trapped in moving parts	Check moving part for trapped foreign materials, deformation, and looseness Check operation and DTC, after erasing self diagnosis result
Release roof open/close switch		Roof state is not in end position (not in fully close or fully open position)	Operate retractable hard top to end position.
Retractable hard top does not operate		Shift position is R	Shift the shift position to P or N
		Trunk lid is not closed	Close trunk lid
		Tonneau board is not set	Set tonneau board
		Thermo protection (stage 2) is in operation	Wait for 20 minutes or more without performing operation
		Impossible operation is requested (A close operation while the roof is fully closed or an open operation while the roof is fully open)	—
Engine stops		Retractable hard top is not fully closed or fully open	Fully close or fully open retractable hard top

Operation/condition	Buzzer sounds	Cause	Action
The vehicle is driven	Pi----------...	Retractable hard top is not fully closed or fully open	Fully close or fully open retractable hard top
Ignition switch is OFF	Buzzer sounds 2 times in 5 second intervals from 1 minute after reconnecting battery for 15 minutes	Roof state is not in end position (not in fully close or fully open position)	Operate retractable hard top to end position.
Ignition is OFF after battery is re-connected		Initialization is not complete	Perform initialization

DIAGNOSIS SYSTEM (RETRACTABLE HARD TOP CONTROL UNIT)

CONSULT Function

INFOID:0000000008158268

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with retractable hard top control unit.

Diagnosis mode		Function Description
Ecu Identification		The retractable hard top control unit part number is displayed.
Self Diagnostic Result		Displays the diagnosis results judged by retractable hard top control unit.
	Freeze Frame Data	The retractable hard top control unit records the vehicle condition at the time a particular DTC is detected, and displays.
Data Monitor		The retractable hard top control unit input/output signals are displayed.
Active Test		The signals used to activate each device are forcibly supplied from retractable hard top control unit.
Work Support		Changes the setting for each system function.
CAN Diag Support Monitor		Monitors the reception status of CAN communication viewed from retractable hard top control unit. Refer to CONSULT operation manual.

WORK SUPPORT

CONSULT display			Description
Item		Indication	
TRUNK OPENER		ON	Perform trunk opener actuator OPEN operation
FLIPPER DOOR Always perform this operation after completely understanding about retractable hard top operation. Refer to RF-39, "FLIPPER DOOR FUNCTION : System Description". **CAUTION:** **This operation may interfere with and damage parts. Always check the precautions. Refer to RF-10, "Precautions for Retractable Hard Top Service".**		UP	Flipper door (LH/RH) performs UP operation
		DOWN	Flipper door (LH/RH) performs DOWN operation
ROOF LATCH		OPEN	Roof latch performs UNLOCK operation
		CLOSE	Roof latch performs LOCK operation
ROOF STATE LEARNING		START	Roof position is learned
ROOF STATE RESET		START	Roof position memory is erased
ROOF/TRUNK/PARCEL SHELF Always perform this operation after completely understanding about retractable hard top operation. Refer to RF-37, "PARCEL SHELF FUNCTION : System Description". **CAUTION:** **This operation may interfere with and damage parts. Always check the precautions. Refer to RF-10, "Precautions for Retractable Hard Top Service".** • **Before opening trunk lid, release trunk opener lock-up.** • **Before operating roof, release roof opener lock-up.**	PS (DRAW)	UP	Parcel shelf performs UP operation
		DOWN	Parcel shelf performs DOWN operation
	PS (ROTA)	VERT	Parcel shelf performs VERTICAL operation
		HORI	Parcel shelf performs HORIZONTAL operation
	ROOF	OPEN	Retractable hard top performs OPEN operation
		CLOSE	Retractable hard top performs CLOSE operation
	TRUNK	OPEN	Trunk lid performs OPEN operation
		CLOSE	Trunk lid performs CLOSE operation

SELF-DIAG RESULT

Refer to RF-64, "DTC Index".

Freeze Frame Data

The retractable hard top control unit records the following vehicle condition at the time a particular DTC is detected, and displays on CONSULT.

CONSULT display		Description
Item	Indication	
ROOF SW(OPEN)	ON/OFF	OPEN input state of roof open/close switch is displayed
ROOF SW(CLOSE)	ON/OFF	CLOSE input state of roof open/close switch is displayed
TONNEAU SW	ON/OFF	State of tonneau board switch is displayed
LATCH LIMIT SW	ON/OFF	Input state of roof latch limit switch is displayed
LATCH LOCK SEN	ON/OFF	Input state of roof latch lock sensor is displayed
TRUNK STATUS SEN	ON/OFF	Input state of trunk status sensor is displayed
TR LINK SEN A(LH)	ON/OFF	Input state of trunk link sensor (RH) is displayed
TR LINK SEN A(RH)	ON/OFF	Input state of trunk link sensor (LH) is displayed
FLPD LIMIT SW(DWN)	ON/OFF	Input state of flipper door limit switch (DOWN) is displayed
FLPD LIMIT SW(UP)	ON/OFF	Input state of flipper door limit switch (UP) is displayed
ROOF STATE	OK/NG	Condition of retractable hard top system state is displayed
HYDRAULIC STATE	OK/NG	Condition of hydraulic system state is displayed
LATCH STATE	OK/NG	Condition of roof latch state is displayed
FLPD STATE	OK/NG	Condition of flipper door (LH/RH) state is displayed
PUMP OUT(LH)	ON/OFF	Left rotation output state to hydraulic motor is displayed
PUMP OUT(RH)	ON/OFF	Right rotation output state to hydraulic motor is displayed
SWITCH VALVE 1 OUT	ON/OFF	Output state to switching valve 1 is displayed
SWITCH VALVE 2 OUT	ON/OFF	Output state to switching valve 2 is displayed
TR LINK SEN B(LH)	ON/OFF	Input state of trunk link sensor (RH) is displayed
TR LINK SEN B(RH)	ON/OFF	Input state of trunk link sensor (LH) is displayed
PS STATE(TOP)	ON/OFF	Parcel shelf (DRAW) position (TOP) is displayed
PS STATE(BOTTOM)	ON/OFF	Parcel shelf (DRAW) position (BOTTOM) is displayed
LATCH OUT(ULK)	ON/OFF	OPEN output state to roof latch motor is displayed
LATCH OUT(LCK)	ON/OFF	CLOSE output state to roof latch motor is displayed
R WIN LH OUT(UP)	ON/OFF	CLOSE output state to rear power window motor (LH) is displayed
R WIN LH OUT(DWN)	ON/OFF	OPEN output state to rear power window motor (LH) is displayed
R WIN RH OUT(UP)	ON/OFF	CLOSE output state to rear power window motor (RH) is displayed
R WIN RH OUT(DWN)	ON/OFF	OPEN output state to rear power window motor (RH) is displayed
REAR DEF ON SIG	ON/OFF	Input state of rear window defogger ON signal from BCM is displayed
PS OUT(UP)	ON/OFF	UP output state to parcel shelf motor (DRAW) is displayed
PS OUT(DOWN)	ON/OFF	DOWN output state to parcel shelf motor (DRAW) is displayed
PS OUT(HORI)	ON/OFF	HORIZONTAL output state to parcel shelf motor (ROTATE) is displayed
PS OUT(VERT)	ON/OFF	VERTICAL output state to parcel shelf motor (ROTATE) is displayed
TRUNK OPEN OUT	ON/OFF	OPEN output state to trunk opener actuator is displayed
FLPD OUT(UP)	ON/OFF	UP output state to flipper door motor (LH/RH) is displayed
FLPD OUT(DWN)	ON/OFF	DOWN output state to flipper door motor (LH/RH) is displayed
DTC OCCURRENCE COUNTER	—	The number of times that ignition switch is turned ON after DTC is detected

DATA MONITOR

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

CONSULT display		Description
Item	Indication/Unit	
LATCH OUT(ULK)	ON/OFF/NG	OPEN output state to roof latch motor is displayed
LATCH OUT(LCK)	ON/OFF/NG	CLOSE output state to roof latch motor is displayed
LATCH VALUE	0-255	Pulse number from roof latch status sensor is displayed
LATCH LIMIT SW	LOCK/UNLK	Input state of roof latch limit switch is displayed
LATCH STATE	NG/CLOSE/ MID/OPEN	State of roof latch is displayed
PS VALUE(DRAW)	0-65535	Pulse number from parcel shelf status sensor (DRAW) is displayed
PS VALUE(ROTA)	0-65535	Pulse number from parcel shelf status sensor (ROTATE) is displayed
PS OUT(UP)	ON/OFF/NG	UP output state to parcel shelf motor (DRAW) is displayed
PS OUT(DOWN)	ON/OFF/NG	DOWN output state to parcel shelf motor (DRAW) is displayed
PS OUT(VERT)	ON/OFF/NG	VERTICAL output state to parcel shelf motor (ROTATE) is displayed
PS OUT(HORI)	ON/OFF/NG	HORIZONTAL output state to parcel shelf motor (ROTATE) is displayed
PS STATE(DRAW)	NG/1-6	DRAW state of parcel shelf is displayed
PS STATE(ROTA)	NG/1-4	ROTATE state of parcel shelf is displayed
ROOF VALUE	0-1023	Pulse number from roof status sensor is displayed
PUMP OUT(RH)	ON/OFF/NG	Right rotation output state to hydraulic motor is displayed
PUMP OUT(LH)	ON/OFF/NG	Left rotation output state to hydraulic motor is displayed
SWITCH VLV 1 OUT	ON/OFF/NG	Output state to switching valve 1 is displayed
SWITCH VLV 2 OUT	ON/OFF/NG	Output state to switching valve 2 is displayed
ROOF STATE	NG/1-42	State of retractable hard top system is displayed
HYDRAULIC STATE	NG/1-22	State of hydraulic system is displayed
ROOF SW(OPEN)	ON/OFF	OPEN input state of roof open/close switch is displayed
ROOF SW(CLOSE)	ON/OFF	CLOSE input state of roof open/close switch is displayed
ROOF LINK STATE	NG/1-8	State of roof link is displayed
TRUNK LINK SEN(RH)	ON/OFF/NG	Input state of trunk link sensor (RH) is displayed
TRUNK LINK SEN(LH)	ON/OFF/NG	Input state of trunk link sensor (LH) is displayed
TR ROOM LAMP SW	ON/OFF	Input state from trunk room lamp switch is displayed
TRUNK STATUS SEN	ON/OFF/NG	Input state of trunk status sensor is displayed
TRUNK OPEN OUT	ON/OFF/NG	OPEN output state to trunk opener actuator is displayed
FLPD LIMIT SW(DWN)	ON/OFF	Input state of flipper door limit switch (DOWN) is displayed
FLPD LIMIT SW(UP)	ON/OFF	Input state of flipper door limit switch (UP) is displayed
FLPD OUT(UP)	ON/OFF/NG	UP output state to flipper door motor (LH/RH) is displayed
FLPD OUT(DWN)	ON/OFF/NG	DOWN output state to flipper door motor (LH/RH) is displayed
FLPD STATE	NG/1, 2, 4	State of flipper door (LH/RH) is displayed
R WIN LH OUT(UP)	ON/OFF/NG	CLOSE output state to rear power window motor (LH) is displayed
R WIN LH OUT(DWN)	ON/OFF/NG	OPEN output state to rear power window motor (LH) is displayed
R WIN RH OUT(UP)	ON/OFF/NG	CLOSE output state to rear power window motor (RH) is displayed
R WIN RH OUT(DWN)	ON/OFF/NG	OPEN output state to rear power window motor (RH) is displayed
REAR DEF ON SIG	ON/OFF	Input state of rear window defogger ON signal from BCM is displayed
REAR DEF OUT	ON/OFF/NG	Output state to rear window defogger is displayed
R WIN CURENT(LH)	0-25.5	Current value to rear power window motor (LH) is displayed
R WIN CURENT(RH)	0-25.5	Current value to rear power window motor (RH) is displayed
RR WIN STATE(LH)	UP/MID/DOWN	State of rear power window motor (LH) is displayed

CONSULT display		Description
Item	Indication/Unit	
RR WIN STATE(RH)	UP/MID/DOWN	State of rear power window motor (RH) is displayed
RAP SIGNAL	ON/OFF	Input state of RAP signal from BCM is displayed
TR MODE SIGNAL	ON/OFF	Output state of trunk mode signal to trunk closure control unit is displayed
ROOF STATE(AUDIO)	ON/OFF/NG	Output state of roof status signal to audio unit is displayed
ROOF BUZZER OUT	ON/OFF/NG	Out put state to roof warning buzzer is displayed
LOCAL COMM 1	NG/SLEEP/NG	State of serial link 1 is displayed
LOCAL COMM 2	NG/SLEEP/NG	State of serial link 2 is displayed
ROOF MODE	NG/STOP/ CLOSE/OK	Inhibition mode of retractable hard top system is displayed
POP-UP BAR DPLOY	OK/NG	It is displayed whether or not pop-up bar is deployed
POP-UP BAR DIAG	OK/NG	It is displayed whether or not pop-up bar is malfunctioning
SWITCH VLV COND	OK/NG	Diagnosis result of switching valve is displayed
PWR SOURCE COND	OK/NG	Diagnosis result of battery power supply is displayed
CPU COND	OK/NG	Diagnosis result of CPU is displayed
ROOF COND	OK/NG	Diagnosis result of roof position is displayed
SENSOR COND	OK/NG	Diagnosis result of sensor (hall sensor) is displayed
IGN ON SIG(BCM)	OK/NG	Receiving state of ignition ON signal from BCM is displayed
VHCL STOP-METER	OK/NG	Receiving state of vehicle speed (0 km/h) from combination meter is displayed
CIRCUIT COND	OK/NG	Diagnosis result of circuit is displayed
ROOF TIMEOUT	OK/NG	Time out state of roof operation is displayed
CAN COMM	OK/NG	Diagnosis result of CAN communication is displayed
THERMO PROTECT 1	OK/NG	Non-operation state of thermo protection (stage1) is displayed
PRMIT ENG ST (BCM)	OK/NG	Input state of engine cranking signal from BCM is displayed
SHIFT R SIG	OK/NG	Input state of shift position (R position) is displayed
THERMO PROTECT 2	OK/NG	Non-operation state of thermo protection (stage 2) is displayed
TONNEAU SW	OK/NG	State of tonneau board switch is displayed
BRK LAMP SW(BCM)	OK/NG	Receiving state of brake lamp switch signal from BCM is displayed
THERMO VALUE	0-65535	Count value of thermo protection is displayed
PWR SOURCE VALUE	0-20	Voltage value of power supply is displayed
ROOF INITIAL(OPEN)	OK/NG	Learning state of roof position (OPEN) is displayed
ROOF INITIAL(CLOSE)	OK/NG	Learning state of roof position (CLOSE) is displayed
PSHELF INITIAL(ROTA)	OK/NG	Learning state of parcel shelf position (ROTATE) is displayed
PSHELF INITIAL(DRAW)	OK/NG	Learning position of parcel shelf position (DRAW) is displayed

ACTIVE TEST

CONSULT display		Description
Item	Indication	
ROOF SYSTEM	OPEN	Retractable hard top system performs open operation
	CLOSE	Retractable hard top system performs close operation
ROOF STATE OUTPUT(AUDIO)	ON	Full open position signal of roof is transmitted to audio unit
FRONT POWER WINDOW (LH/RH)	DOWN	Front power window (LH/RH) performs open operation
REAR POWER WINDOW(LH)	UP	Rear power window (LH) performs close operation
	DOWN	Rear power window (LH) performs open operation

CONSULT display		Description
Item	Indication	
REAR POWER WINDOW(RH)	UP	Rear power window (RH) performs close operation
	DOWN	Rear power window (RH) performs open operation

ECU DIAGNOSIS INFORMATION

RETRACTABLE HARD TOP CONTROL UNIT

Reference Value

INFOID:0000000008158269

VALUES ON THE DIAGNOSIS TOOL

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

CONSULT MONITOR ITEM

Monitor Item	Condition		Status/Value
LATCH LOCK SEN	State of roof latch	Lock	ON
		Other than above	OFF
		Roof latch lock sensor circuit is short	NG
LATCH STATE SEN	State of roof latch motor	Operate	ON ⇔ OFF
		Stop	ON or OFF
		Roof latch lock sensor circuit is short	NG
LATCH OUT(ULK)	Operation of roof latch motor	Unlock is in operation	ON
		Other than above	OFF
		Roof latch motor (UNLOCK) circuit is short	NG
LATCH OUT(LCK)	Operation of roof latch motor	Lock is in operation	ON
		Other than above	OFF
		Roof latch motor (LOCK) circuit is short	NG
LATCH VALUE	State of roof latch	Lock	0
		Halfway position	1-77
		Unlock	78 or more
LATCH LIMIT SW	State of roof latch	Roof is fully close and roof latch is in LOCK	CLOSE
		Other than above	OPEN
LATCH STATE	State of roof latch	Initialization is not complete	NG
		LOCK	CLOSE
		Halfway position	MID
		UNLOCK	OPEN
PS VALUE(DRAW)	State of parcel shelf	Top	Retractable hard top fully open state: 2246 Retractable hard top fully closed state: 2220
		Bottom	1000
PS VALUE(ROTA)	State of parcel shelf	Vertical	3190
		Horizontal	Retractable hard top fully open state: 1340 Retractable hard top fully closed state: 1000
PS OUT(UP)	Operation of parcel shelf	Up operation is in operation	ON
		Other than above	OFF
		Parcel shelf (UP) circuit is short	NG
PS OUT(DOWN)	Operation of parcel shelf	DOWN operation is in operation	ON
		Other than above	OFF
		Parcel shelf (DOWN) circuit is short	NG

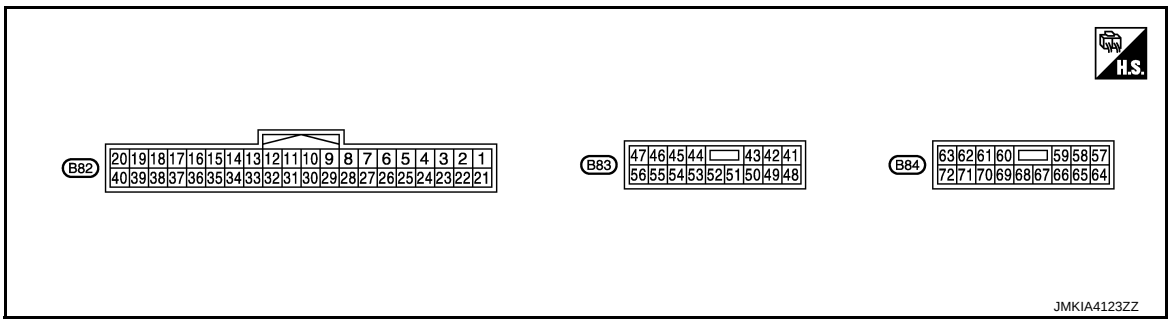
Monitor Item	Condition		Status/Value
PS OUT(VERT)	Operation of parcel shelf	Vertical operation is in operation	ON
		Other than above	OFF
		Parcel shelf (VERTICAL) circuit is short	NG
PS OUT(HORI)	Operation of parcel shelf	Horizontal operation is in operation	ON
		Other than above	OFF
		Parcel shelf (HORIZONTAL) circuit is short	NG
PS STATE(DRAW)	State of parcel shelf	For the details, refer to RF-37, "PARCEL SHELF FUNCTION : System Description"	1-6
		State of parcel shelf status sensor (DRAW) is not recognized	NG
PS STATE(ROTA)	State of parcel shelf	For the details, refer to RF-37, "PARCEL SHELF FUNCTION : System Description"	1-4
		State of parcel shelf status sensor (ROTATE) is not recognized	NG
ROOF VALUE	Roof status sensor signal		0-1023
PUMP OUT(RH)	Operation of hydraulic pump motor	Turning clockwise	ON
		Other than above	OFF
		Hydraulic pump motor (RH) circuit is short	NG
PUMP OUT(LH)	Operation of hydraulic pump motor	Turning counterclockwise	ON
		Other than above	OFF
		Hydraulic pump motor (LH) circuit is short	NG
SWITCH VLV 1 OUT	Operation of switching valve 1	Operate	ON
		Stop	OFF
		Switching valve 1 circuit is short	NG
SWITCH VLV 2 OUT	Operation of switching valve 2	Operate	ON
		Stop	OFF
		Switching valve 2 circuit is short	NG
ROOF STATE	State of roof	For the details, refer to RF-20, "RETRACTABLE HARD TOP SYSTEM : System Description"	1-42
		State of roof is not recognized	NG
HYDRAULIC STATE	State of hydraulic system	For the details, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description"	1-22
		State of hydraulic system is not recognized	NG
ROOF SW(OPEN)	State of roof open/close switch	OPEN operation is in operation	ON
		Other than above	OFF
ROOF SW(CLOSE)	State of roof open/close switch	CLOSE operation is in operation	ON
		Other than above	OFF
ROOF LINK STATE	State of roof link	For the details, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description"	1-8
		State of roof is not recognized	NG
TRUNK LINK SEN(RH)	State of trunk link lock (RH)	LOCK	ON
		Other than above	OFF
		Trunk link lock (RH) circuit is short or open	NG

Monitor Item	Condition		Status/Value
TRUNK LINK SEN(LH)	State of trunk link lock (LH)	LOCK	ON
		Other than above	OFF
		Trunk link lock (LH) circuit is short or open	NG
TR ROOM LAMP SW	State of trunk lid (trunk room lamp switch)	Open	ON
		Other than above	OFF
TRUNK STATUS SEN	State of trunk lid	Fully OPEN	ON
		Other than above	OFF
		Trunk status sensor circuit is short or open	NG
TRUNK OPEN OUT	Operation of trunk lid opener actuator	OPEN operation is in operation	ON
		Other than above	OFF
		Trunk lid opener actuator circuit is short	NG
FLPD LIMIT SW(DWN)	State of flipper door	Both of flipper door (LH/RH) are in DOWN position	ON
		Other than above	OFF
FLPD LIMIT SW(UP)	State of flipper door	Both of flipper door (LH/RH) are in UP position	ON
		Other than above	OFF
FLPD OUT(UP)	Operation of flipper door	UP operation is in operation	ON
		Other than above	OFF
		Flipper door motor (UP) circuit is short	NG
FLPD OUT(DWN)	Operation of flipper door	DOWN operation is in operation	ON
		Other than above	OFF
		Flipper door motor (DOWN) circuit is short	NG
FLPD STATE	State of flipper door	For the details, refer to RF-39, "FLIPPER DOOR FUNCTION : System Description"	1, 2, 4
		State of flipper door is not recognized	NG
R WIN LH OUT(UP)	Operation of rear power window (LH)	UP operation is in operation	ON
		Other than above	OFF
		Rear power window LH (UP) circuit is short	NG
R WIN LH OUT(DWN)	Operation of rear power window (LH)	DOWN operation is in operation	ON
		Other than above	OFF
		Rear power window LH (DOWN) circuit is short	NG
R WIN RH OUT(UP)	Operation of rear power window (RH)	UP operation is in operation	ON
		Other than above	OFF
		Rear power window RH (UP) circuit is short	NG
R WIN RH OUT(DWN)	Operation of rear power window (RH)	DOWN operation is in operation	ON
		Other than above	OFF
		Rear power window RH (DOWN) circuit is short	NG
REAR DEF ON SIG	State of rear window defogger switch	While operating	ON
		Stop	OFF
REAR DEF OUT	State of rear window defogger system	Operate	ON
		Stop	OFF
		Rear window defogger circuit is short	NG
R WIN CURENT(LH)	Current value to rear power window motor (LH)		0-25.5 (A)

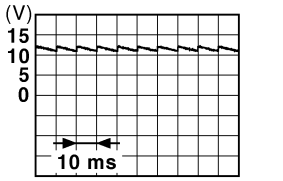
Monitor Item	Condition		Status/Value
R WIN CURENT(RH)	Current value to rear power window motor (RH)		0-25.5 (A)
RR WIN STATE(LH)	State of rear power window (LH)	Upper	UP
		Halfway	MID
		Lower end	DOWN
RR WIN STATE(RH)	State of rear power window (RH)	Upper	UP
		Halfway	MID
		Lower end	DOWN
RAP SIGNAL	State of RAP	Operate	ON
		Stop	OFF
TR MODE SIGNAL	State of trunk mode signal	Output	ON
		Stop	OFF
ROOF STATE(AUDIO)	State of roof	State of fully open	ON
		Other than above	OFF
		Roof state signal (audio) circuit is short	NG
ROOF BUZZER OUT	State of roof warning buzzer	Operate	ON
		Stop	OFF
		Roof warning buzzer circuit is short	NG
LOCAL COMM 1	State of local communication 1	Normal	OK
		It is in sleep mode	SLEEP
		Communication error	NG
LOCAL COMM 2	State of local communication 2	Normal	OK
		It is in sleep mode	SLEEP
		Communication error	NG
ROOF MODE	Roof operation mode	Normal	OK
		Only close operation is possible	CLOSE
		Operation is stop	STOP
		Operation is inhibited	NG
POP-UP BAR DPLOY	State of pop-up bar	Normal	OK
		State of deployment	NG
POP-UP BAR DIAG	Self-diagnosis result of pop-up bar	Normal	OK
		Malfunctioning is detected	NG
SWITCH VLV COND	Diagnosis result of retractable hard top control unit	Diagnosis result of retractable hard top control unit	OK
		Switching valve (1/2) system is malfunctioning	NG
PWR SOURCE COND	Power supply voltage state of retractable hard top control unit	Normal	OK
		Malfunction	NG
CPU COND	Diagnosis result of retractable hard top control unit	CPU is normal	OK
		CPU is not normal	NG
ROOF COND	Diagnosis result of retractable hard top control unit	Roof position is normal	OK
		Roof position is not normal	NG
SENSOR COND	Diagnosis result of retractable hard top control unit	Hole sensor system is normal	OK
		Hole sensor system is not normal	NG
IGN ON SIG(BCM)	Power position signal (via CAN from BCM)	ON	OK
		Other than above	NG

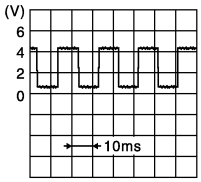
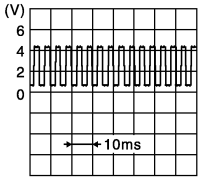
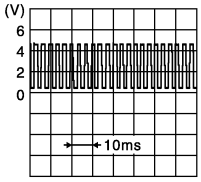
Monitor Item	Condition		Status/Value
VHCL STOP-METER	Vehicle speed signal (via CAN from meter and A/C amp.)	0km/h	OK
		Other than above	NG
CIRCUIT COND	Diagnosis result of retractable hard top control unit	Circuit system is normal	OK
		Circuit system is not normal	NG
ROOF TIMEOUT	State of roof operation	Normal	OK
		Malfunction	NG
CAN COMM	CAN communication status	Normal	OK
		Malfunction	NG
THERMO PROTECT 1	Thermo protection (Stage1)	In non-operation	OK
		In operation	NG
SHIFT R SIG	Shift position	Other than R position	OK
		R position	NG
PRMIT ENG ST(BCM)	Permit engine start signal	Signal is not received	OK
		Signal is in receiving	NG
THERMO PROTECT-2	Thermo protection (Stage2)	In non-operation	OK
		In operation	NG
TONNEAU SW	Tonneau board	Set	OK
		Other than above	NG
BRK LAMP SW(BCM)	Brake lamp switch signal (via CAN from BCM)	Brake is depressed	OK
		Brake is released	NG
THERMO VALUE	Conversion value of thermo protection		0-65535
PWR SOURCE VALUE	Power supply voltage value of retractable hard top control unit		0-20 (V)
ROOF INITIAL(OPEN)	State of performing roof position initialization	Registration of full open position is complete	OK
		Registration of full open position is not complete	NG
ROOF INITIAL(CLOSE)	State of performing roof position initialization	Registration of full closed position is complete	OK
		Registration of full closed position is not complete	NG
PSHELF INITIAL(ROTA)	State of performing parcel shelf position initialization	Registration of rotation position is complete	OK
		Registration of rotation position is not complete	NG
PSHELF INITIAL(DRAW)	State of performing parcel shelf position initialization	Registration of draw position is complete	OK
		Registration of draw position is not complete	NG

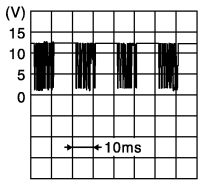
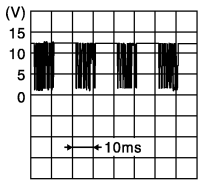
TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition			Value (Approx.)
+	–	Signal name	Input/ Output				
1 (G)	Ground	Roof open/close switch (OPEN)	Input	Ignition switch ON	Roof open/close switch (OPEN)	Pressed	0 V
						Released	Battery voltage
2 (BR)	Ground	Roof open/close switch (CLOSE)	Input	Ignition switch ON	Roof open/close switch (CLOSE)	Pressed	0 V
						Released	Battery voltage
3 (B)	Ground	Flipper door limit switch ground	—	Ignition switch ON	—		0 V
4 (L)	Ground	Tonneau board switch	Input	Ignition switch ON	Tonneau board	Hooked	Battery voltage
						Released	0 V
5 (SB)	Ground	Trunk room lamp switch	Input	Ignition switch ON	Trunk lid	Locked	 JPMIA0011GB
						Other than above	0 V
6 (L)	Ground	Roof latch limit switch	Input	Ignition switch ON	Roof	Close	0 V
						Other than above	Battery voltage
7 (W)	Ground	Flipper door limit switch (UP)	Input	Ignition switch ON	Flipper door LH and RH	Top	0 V
						Other than above	Battery voltage
8 (G)	Ground	Flipper door limit switch (DOWN)	Input	Ignition switch ON	Flipper door LH and RH	Bottom	0 V
						Other than above	Battery voltage
11 (W)	Ground	RAP signal	Input	Ignition switch ON	RAP function	Active	Battery voltage
						Inactive	0 V
12 (Y)	Ground	Back up lamp signal	Input	Ignition switch ON	Shift position	R position	Battery voltage
						Other than above	0 V
13 (BG)	Ground	Sensor power supply	Output	Ignition switch OFF	—		5 V
14 (P)	Ground	Trunk link sensor (LH)	Input	Ignition switch ON	Trunk link lock (LH)	LOCK	0.3 V
						Other than above	1.5 V
15 (SB)	Ground	Trunk link sensor (RH)	Input	Ignition switch ON	Trunk link lock (RH)	LOCK	0.3 V
						Other than above	1.5 V

Terminal No. (Wire color)		Description		Condition			Value (Approx.)
+	–	Signal name	Input/ Output				
16 (GR)	Ground	Roof latch status sensor	Input	Ignition switch ON	Roof latch	Operate	 JMKIA4021GB
						Stop	0.5 or 4.5 V
17 (G)	Ground	Roof latch lock sensor	Input	Ignition switch ON	Roof latch	LOCK	1.0 V
						Other than above	3.8 V
18 (LG)	Ground	Trunk status sensor	Input	Ignition switch ON	Trunk lid (front)	Fully open	1.0 V
						Other than above	3.8 V
22 (V)	Ground	Roof status sensor power supply	Output	Ignition switch ON	—		5 V
23 (B)	Ground	Roof status sensor ground	—	Ignition switch ON	—		0 V
24 (GR)	Ground	Parcel shelf status sensor (DRAW)	Input	Ignition switch ON	Parcel shelf motor (DRAW)	Active	 JMKIA4022GB
						Inactive	0.5 V or 5 V
25 (R)	Ground	Parcel shelf status sensor (ROTATION)	Input	Ignition switch ON	Parcel shelf motor (ROTATE)	Active	 JMKIA4023GB
						Inactive	0.5 V or 5 V
26 (P)	Ground	Roof status sensor signal	Input	Ignition switch ON	Roof	Fully close→Fully open	0.5 V→5 V
27 (Y)	Ground	Trunk lid open request signal (BCM)	Output	—	Trunk opener	Operate	0 V →Battery voltage →0 V
						Other than above	0 V
28 (BG)	Ground	Flipper door motor ground	—	Ignition switch ON	—		0 V

Terminal No. (Wire color)		Description		Condition			Value (Approx.)
+	–	Signal name	Input/ Output				
29 (V)	Ground	Local communication (BCM)	Input/ Output	Ignition switch ON	—		 JMKIA4024GB
30 (GR)	Ground	Local communication (POWER WINDOW)	Input/ Output	Ignition switch ON	—		 JMKIA4024GB
31 (L)	Ground	CAN-H	Input/ Output	—	—		—
32 (P)	Ground	CAN-L	Input/ Output	—	—		—
33 (V)	Ground	Roof status siganal (AUDIO)	Output	Ignition switch ON	Retractable hard top	Fully open	Battery voltage
						Other than above	0 V
35 (B)	Ground	Roof warning buzzer	Output	Ignition switch ON	Roof warning buzzer	Sounds	0 V
						Not sounds	Battery voltage
36 (Y)	Ground	Hydraulic pump relay (RH)	—	Ignition switch ON	Hydraulic pump motor (RH)	Active	0 V
						Inactive	Battery voltage
37 (W)	Ground	Hydraulic pump relay (LH)	—	Ignition switch ON	Hydraulic pump motor (LH)	Active	0 V
						Inactive	Battery voltage
38 (BR)	Ground	Hydraulic pump relay ground	—	Ignition switch ON	—		0 V
41 (SB)	Ground	Parcel shelf motor (UP)	Output	Ignition switch ON	Parcel shelf motor (DRAW-UP)	Active	Battery voltage
						Inactive	0 V
42 (W)	Ground	Parcel shelf motor (DOWN)	Output	Ignition switch ON	Parcel shelf motor (DRAW-DOWN)	Active	Battery voltage
						Inactive	0 V
43 (BR)	Ground	Hydraulic pump power supply relay	Output	Ignition switch ON	Retractable hard top system	Active	Battery voltage
						Inactive	0 V
44 (R)	Ground	Parcel shelf motor (HORIZONTAL)	Output	Ignition switch ON	Parcel shelf motor (ROTATION-HORIZONTAL)	Active	Battery voltage
						Inactive	0 V
45 (BR)	Ground	Parcel shelf motor (VERTICAL)	Output	Ignition switch ON	Parcel shelf motor (ROTATION-VERTICAL)	Active	Battery voltage
						Inactive	0 V
46 (G)	Ground	Flipper door motor (UP)	Output	Ignition switch ON	Flipper door motor (UP)	Active	Battery voltage
						Inactive	0 V

Terminal No. (Wire color)		Description		Condition			Value (Approx.)
+	–	Signal name	Input/ Output				
47 (L)	Ground	Flipper door motor (DOWN)	Output	Ignition switch ON	Flipper door motor (DOWN)	Active	Battery voltage
						Inactive	0 V
48 (R)	Ground	Roof latch motor (OPEN)	Output	Ignition switch ON	Roof latch motor (OPEN)	Active	Battery voltage
						Inactive	0 V
49 (Y)	Ground	Roof latch motor (CLOSE)	Output	Ignition switch ON	Roof latch motor (CLOSE)	Active	Battery voltage
						Inactive	0 V
51 (SB)	Ground	Trunk lid opener actuator	Output	—	Trunk lid opener	Operate	0 V → Battery voltage → 0 V
						Stop	0 V
52 (V)	Ground	Trunk lid opener actuator ground	—	Ignition switch ON	—		0 V
53 (BG)	Ground	Rear power window motor LH (UP)	Output	Ignition switch ON	Rear power window motor LH (UP)	Active	Battery voltage
						Inactive	0 V
54 (LG)	Ground	Rear power window motor LH (DOWN)	Output	Ignition switch ON	Rear power window motor LH (DOWN)	Active	Battery voltage
						Inactive	0 V
55 (GR)	Ground	Rear power window motor RH (UP)	Output	Ignition switch ON	Rear power window motor RH (UP)	Active	Battery voltage
						Inactive	0 V
56 (P)	Ground	Rear power window motor RH (DOWN)	Output	Ignition switch ON	Rear power window motor RH (DOWN)	Active	Battery voltage
						Inactive	0 V
57 (Y)	Ground	Power source (ROOF)	Input	—	—		Battery voltage
58 (Y)	Ground	Power source (ROOF)	Input	—	—		Battery voltage
59 (Y)	Ground	Power source (ROOF)	Input	—	—		Battery voltage
60 (B)	Ground	Ground (ROOF)	—	Ignition switch ON	—		0 V
61 (B)	Ground	Ground (ROOF)	—	Ignition switch ON	—		0 V
62 (GR)	Ground	Power source (POWER WINDOW)	Input	—	—		Battery voltage
63 (Y)	Ground	Power source (POWER WINDOW)	Input	—	—		Battery voltage
64 (B)	Ground	Ground (POWER WINDOW)	—	Ignition switch ON	—		0 V
65 (B)	Ground	Ground (POWER WINDOW)	—	Ignition switch ON	—		0 V
66 (P)	Ground	Switching valve 1	Output	Ignition switch ON	Switching valve 1	Active	Battery voltage
						Inactive	0 V

Terminal No. (Wire color)		Description		Condition			Value (Approx.)
+	–	Signal name	Input/ Output				
67 (SB)	Ground	Switching valve 2	Output	Ignition switch ON	Switching valve 2	Active	Battery voltage
						Inactive	0 V
68 (L)	Ground	Switching valve ground	—	Ignition switch ON	—		0 V
69 (G)	Ground	Power source (REAR WINDOW DEFOGGER)	Input	—	—		Battery voltage
70 (P)	Ground	Power source (REAR WINDOW DEFOGGER)	Input	—	—		Battery voltage
71 (BR)	Ground	Rear window defogger power supply	Output	Ignition switch ON	Rear defogger switch ON and roof is fully closed		Battery voltage
72 (W)	Ground	Rear window defogger power supply	Output	Ignition switch ON	Rear defogger switch ON and roof is fully closed		Battery voltage

Fail-safe

INFOID:0000000008158270

FAIL-SAFE CONTROL BY DTC

Retractable hard top control unit performs fail-safe control when any DTC are detected.

Display contents of CONSULT		Fail-safe	Cancellation
U1000	CAN COMM CIRCUIT	Inhibit retractable hard top operation.	Communication is normal
U1010	CONTROL UNIT (CAN)	Inhibit retractable hard top operation.	Communication is normal
U0140	LOCAL COMM-1	Inhibit retractable hard top operation.	Communication is normal
U0215	LOCAL COMM-1	Inhibit retractable hard top operation.	Communication is normal
B1701	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Replace retractable hard top control unit.
B1702	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Replace retractable hard top control unit.
B1709	ROOF SWITCH(OPEN)	Inhibit retractable hard top operation.	Detects roof open/close switch (OPEN) is OFF
B170A	ROOF SWITCH(CLOSE)	Inhibit retractable hard top operation.	Detects roof open/close switch (CLOSE) is OFF
B170B	ROOF SWITCH	Inhibit retractable hard top operation.	Detects roof open/close switch (OPEN/CLOSE) is OFF
B170C	TRUNK LINK SENSOR(LH)	Inhibit retractable hard top operation.	Detects normal value
B170D	TRUNK LINK SENSOR(RH)	Inhibit retractable hard top operation.	Detects normal value
B170F	SENSOR POWER SUPPLY	Inhibit retractable hard top operation.	Detects normal value
B1710	LATCH STATUS SENSOR	Inhibit retractable hard top operation.	Detects normal value
B1711	LATCH LOCK SENSOR	Inhibit retractable hard top operation.	Detects normal value
B1712	TRUNK STATUS SENSOR	Inhibit retractable hard top operation.	Detects normal value
B1715	ROOF STATUS SEN PWR	Inhibit retractable hard top operation.	Detects normal value
B1716	PS STATUS SEN(DRAW)	Inhibit retractable hard top operation.	Detects normal value
B1718	PS STATUS SEN(ROTA)	Inhibit retractable hard top operation.	Detects normal value
B1719	ROOF STATUS SEN	Inhibit retractable hard top operation.	Detects normal value

Display contents of CONSULT		Fail-safe	Cancellation
B171A	HYDRAULIC PMP(LH)	Inhibit retractable hard top operation.	Detects normal value
B171B	HYDRAULIC PMP(RH)	Inhibit retractable hard top operation.	Detects normal value
B171C	SWITCHING VALVE 1	Inhibit retractable hard top operation.	Detects normal value
B171D	SWITCHING VALVE 2	Inhibit retractable hard top operation.	Detects normal value
B171E	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B171F	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1720	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1721	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1722	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1723	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1724	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1725	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1726	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1728	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1729	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B172A	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B172B	ROOF STATE SIG(AUDIO)	Inhibit retractable hard top operation.	Detects normal value
B172D	ROOF WARNING BUZZ-ER	Inhibit retractable hard top operation.	Detects normal value
B172E	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B172F	REAR PWR WINDOW(LH)	Inhibit retractable hard top operation.	Detects normal value
B1730	REAR PWR WIN-DOW(RH)	Inhibit retractable hard top operation.	Detects normal value
B1731	HYDRAULIC STATE 1	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1732	HYDRAULIC STATE 2	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1733	HYDRAULIC STATE 3	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1734	HYDRAULIC STATE 4	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1735	HYDRAULIC STATE 5	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1736	HYDRAULIC STATE 6	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1737	HYDRAULIC STATE 7	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1738	HYDRAULIC STATE 8	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1739	HYDRAULIC STATE 9	Inhibit retractable hard top operation.	Turn ignition switch OFF
B173A	HYDRAULIC STATE 10	Inhibit retractable hard top operation.	Turn ignition switch OFF
B173B	HYDRAULIC STATE 11	Inhibit retractable hard top operation.	Turn ignition switch OFF
B173C	HYDRAULIC STATE 12	Inhibit retractable hard top operation.	Turn ignition switch OFF
B173D	HYDRAULIC STATE 13	Inhibit retractable hard top operation.	Turn ignition switch OFF
B173E	HYDRAULIC STATE 14	Inhibit retractable hard top operation.	Turn ignition switch OFF
B173F	HYDRAULIC STATE 15	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1740	HYDRAULIC STATE 16	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1741	HYDRAULIC STATE 17	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1742	HYDRAULIC STATE 18	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1743	HYDRAULIC STATE 19	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1744	HYDRAULIC STATE 20	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1745	HYDRAULIC STATE 21	Inhibit retractable hard top operation.	Turn ignition switch OFF

Display contents of CONSULT		Fail-safe	Cancellation
B1746	HYDRAULIC STATE 22	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1747	P SHELF (DRAW) STATE 1	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1748	P SHELF (DRAW) STATE 2	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1749	P SHELF (DRAW) STATE 3	Inhibit retractable hard top operation.	Turn ignition switch OFF
B174A	P SHELF (DRAW) STATE 4	Inhibit retractable hard top operation.	Turn ignition switch OFF
B174B	P SHELF (DRAW) STATE 5	Inhibit retractable hard top operation.	Turn ignition switch OFF
B174C	P SHELF (DRAW) STATE 6	Inhibit retractable hard top operation.	Turn ignition switch OFF
B174D	P SHELF (ROT) STATE 1	Inhibit retractable hard top operation.	Turn ignition switch OFF
B174E	P SHELF (ROT) STATE 2	Inhibit retractable hard top operation.	Turn ignition switch OFF
B174F	P SHELF (ROT) STATE 3	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1750	P SHELF (ROT) STATE 4	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1751	ROOF LATCH STATE 1	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1752	ROOF LATCH STATE 2	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1753	ROOF LATCH STATE 3	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1754	FLIPPER DOOR STATE 1	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1755	FLIPPER DOOR STATE 2	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1756	FLIPPER DOOR STATE 3	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1757	FLIPPER DOOR STATE 4	Inhibit retractable hard top operation.	Turn ignition switch OFF
B1758	THERMO PROTECTION	Inhibit retractable hard top operation.	It is not in thermo protection area (Refer to RF-20, "RETRACTABLE HARD TOP SYSTEM : System Description")
B175C	PWR SOURCE(ROOF)	Inhibit retractable hard top operation.	Power source is 11.4 (V) or more for 0.5 second
B175D	PWR SOURCE(ROOF)	Inhibit retractable hard top operation.	Power source is14.5 (V) or more for 4 seconds
B175E	PWR SOURCE(WINDOW)	Inhibit retractable hard top operation and rear power window operation.	Power source (power window) is 9.5 (V) or less
B175F	PWR SOURCE(WINDOW)	Inhibit retractable hard top operation and rear power window operation.	Power source (power window) is 15.5 (V) or more
B1760	ROOF CONTROL UNIT	Inhibit rear window defogger operation.	Detects normal value
B1761	ROOF CONTROL UNIT	Inhibit retractable hard top operation.	Detects normal value
B1762	ROOF STATE	Inhibit retractable hard top operation.	Detects normal value
B1763	HYDRAULIC STATE	Inhibit retractable hard top operation.	Detects normal value
B1764	ROOF LATCH STATE	Inhibit retractable hard top operation.	Detects normal value
B1765	FLIPPER DOOR STATE	Inhibit retractable hard top operation.	Detects normal value

DTC Inspection Priority Chart

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If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	Display contents of CONSULT	
1	U1000	CAN COMM CIRCUIT
	U1010	CONTROL UNIT (CAN)

Priority	Display contents of CONSULT	
2	B175C	PWR SOURCE(ROOF)
	B175D	PWR SOURCE(ROOF)
	B175E	PWR SOURCE(WINDOW)
	B175F	PWR SOURCE(WINDOW)
3	B1701	ROOF CONTROL UNIT
	B1702	ROOF CONTROL UNIT
	B171E	ROOF CONTROL UNIT
	B171F	ROOF CONTROL UNIT
	B1720	ROOF CONTROL UNIT
	B1721	ROOF CONTROL UNIT
	B1722	ROOF CONTROL UNIT
	B1723	ROOF CONTROL UNIT
	B1724	ROOF CONTROL UNIT
	B1725	ROOF CONTROL UNIT
	B1726	ROOF CONTROL UNIT
	B1728	ROOF CONTROL UNIT
	B1729	ROOF CONTROL UNIT
	B172A	ROOF CONTROL UNIT
	B172E	ROOF CONTROL UNIT
	B1760	ROOF CONTROL UNIT
	B1761	ROOF CONTROL UNIT
4	B170F	SENSOR POWER SUPPLY
5	U0140	LOCAL COMM-1
	U0215	LOCAL COMM-1
	B1709	ROOF SWITCH(OPEN)
	B170A	ROOF SWITCH(CLOSE)
	B170B	ROOF SWITCH
	B1758	THERMO PROTECTION
	B171A	HYDRAULIC PMP(LH)
	B171B	HYDRAULIC PMP(RH)
	B171C	SWITCHING VALVE 1
	B171D	SWITCHING VALVE 2
	B172F	REAR PWR WINDOW(LH)
	B1730	REAR PWR WINDOW(RH)
	B1715	ROOF STATE SEN PWR
	B170C	TRUNK LINK SENSOR(LH)
	B170D	TRUNK LINK SENSOR(RH)
	B1710	LATCH STATUS SENSOR
	B1711	LATCH LOCK SENSOR
	B1712	TRUNK STATUS SENSOR
	B1716	PS STATUS SEN(ROTA)
	B1718	PS STATUS SEN(DRAW)
	B1719	ROOF STATUS SEN
6	B172D	ROOF WARNING BUZZER

Priority	Display contents of CONSULT	
7	B1731	HYDRAULIC STATE 1
	B1732	HYDRAULIC STATE 2
	B1733	HYDRAULIC STATE 3
	B1734	HYDRAULIC STATE 4
	B1735	HYDRAULIC STATE 5
	B1736	HYDRAULIC STATE 6
	B1737	HYDRAULIC STATE 7
	B1738	HYDRAULIC STATE 8
	B1739	HYDRAULIC STATE 9
	B173A	HYDRAULIC STATE 10
	B173B	HYDRAULIC STATE 11
	B173C	HYDRAULIC STATE 12
	B173D	HYDRAULIC STATE 13
	B173E	HYDRAULIC STATE 14
	B173F	HYDRAULIC STATE 15
	B1740	HYDRAULIC STATE 16
	B1741	HYDRAULIC STATE 17
	B1742	HYDRAULIC STATE 18
	B1743	HYDRAULIC STATE 19
	B1744	HYDRAULIC STATE 20
	B1745	HYDRAULIC STATE 21
	B1746	HYDRAULIC STATE 22
	B1747	P SHELF (DRAW) STATE 1
	B1748	P SHELF (DRAW) STATE 2
	B1749	P SHELF (DRAW) STATE 3
	B174A	P SHELF (DRAW) STATE 4
	B174B	P SHELF (DRAW) STATE 5
	B174C	P SHELF (DRAW) STATE 6
	B174D	P SHELF (ROT) STATE 1
	B174E	P SHELF (ROT) STATE 2
	B174F	P SHELF (ROT) STATE 3
	B1750	P SHELF (ROT) STATE 4
	B1751	ROOF LATCH STATE 1
	B1752	ROOF LATCH STATE 2
	B1753	ROOF LATCH STATE 3
	B1754	FLIPPER DOOR STATE 1
	B1755	FLIPPER DOOR STATE 2
	B1756	FLIPPER DOOR STATE 3
	B1757	FLIPPER DOOR STATE 4
8	B1707	ROOF OPEN STATE
	B1708	ROOF CLOSE STATE
9	B1764	ROOF LATCH STATE
	B1765	FLIPPER DOOR STATE
10	B1762	ROOF STATE

Priority	Display contents of CONSULT	
11	B1763	HYDRAULIC STATE
12	B172B	ROOF STATE SIG(AUDIO)

DTC Index

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NOTE:
For details of Freeze Frame Data, refer to RF-45, "CONSULT Function".

Display contents of CONSULT		Fail-safe	Freeze Frame Data	Reference page
No DTC is detected. Further testing may be required.		—	—	—
U1000	CAN COMM CIRCUIT	×	×	RF-78
U1010	CONTROL UNIT (CAN)	×	×	RF-79
U0140	LOCAL COMM-1	×	×	RF-80
U0215	LOCAL COMM-2	×	×	RF-81
B1701	ROOF CONTROL UNIT	×	×	RF-83
B1702	ROOF CONTROL UNIT	×	×	RF-84
B1707	ROOF OPEN STATE	—	×	RF-85
B1708	ROOF CLOSE STATE	—	×	RF-87
B1709	ROOF SWITCH(OPEN)	×	×	RF-89
B170A	ROOF SWITCH(CLOSE)	×	×	RF-91
B170B	ROOF SWITCH	×	×	RF-93
B170C	TRUNK LINK SENSOR(LH)	×	×	RF-95
B170D	TRUNK LINK SENSOR(RH)	×	×	RF-97
B170F	SENSOR POWER SUPPLY	×	×	RF-99
B1710	LATCH STATUS SENSOR	×	×	RF-102
B1711	LATCH LOCK SENSOR	×	×	RF-104
B1712	TRUNK STATUS SENSOR	×	×	RF-106
B1715	ROOF STATUS SEN PWR	×	×	RF-108
B1716	PS STATUS SEN(DRAW)	×	×	RF-110
B1718	PS STATUS SEN(ROTA)	×	×	RF-112
B1719	ROOF STATUS SEN	×	×	RF-114
B171A	HYDRAULIC PMP(LH)	×	×	RF-116
B171B	HYDRAULIC PMP(RH)	×	×	RF-118
B171C	SWITCHING VALVE 1	×	×	RF-120
B171D	SWITCHING VALVE 2	×	×	RF-122
B171E	ROOF CONTROL UNIT	×	×	RF-124
B171F	ROOF CONTROL UNIT	×	×	RF-125
B1720	ROOF CONTROL UNIT	×	×	RF-126
B1721	ROOF CONTROL UNIT	×	×	RF-127
B1722	ROOF CONTROL UNIT	×	×	RF-128
B1723	ROOF CONTROL UNIT	×	×	RF-129
B1724	ROOF CONTROL UNIT	×	×	RF-130
B1725	ROOF CONTROL UNIT	×	×	RF-131
B1726	ROOF CONTROL UNIT	×	×	RF-132
B1728	ROOF CONTROL UNIT	×	×	RF-133

Display contents of CONSULT		Fail-safe	Freeze Frame Data	Reference page
B1729	ROOF CONTROL UNIT	×	×	RF-134
B172A	ROOF CONTROL UNIT	×	×	RF-135
B172B	ROOF STATE SIG(AUDIO)	×	×	RF-136
B172D	ROOF WARNING BUZZER	×	×	RF-138
B172E	ROOF CONTROL UNIT	×	×	RF-140
B172F	REAR PWR WINDOW(LH)	×	×	RF-141
B1730	REAR PWR WINDOW(RH)	×	×	RF-143
B1731	HYDRAULIC STATE 1	×	×	RF-145
B1732	HYDRAULIC STATE 2	×	×	RF-147
B1733	HYDRAULIC STATE 3	×	×	RF-149
B1734	HYDRAULIC STATE 4	×	×	RF-151
B1735	HYDRAULIC STATE 5	×	×	RF-153
B1736	HYDRAULIC STATE 6	×	×	RF-155
B1737	HYDRAULIC STATE 7	×	×	RF-156
B1738	HYDRAULIC STATE 8	×	×	RF-157
B1739	HYDRAULIC STATE 9	×	×	RF-158
B173A	HYDRAULIC STATE 10	×	×	RF-159
B173B	HYDRAULIC STATE 11	×	×	RF-160
B173C	HYDRAULIC STATE 12	×	×	RF-161
B173D	HYDRAULIC STATE 13	×	×	RF-162
B173E	HYDRAULIC STATE 14	×	×	RF-163
B173F	HYDRAULIC STATE 15	×	×	RF-164
B1740	HYDRAULIC STATE 16	×	×	RF-165
B1741	HYDRAULIC STATE 17	×	×	RF-168
B1742	HYDRAULIC STATE 18	×	×	RF-169
B1743	HYDRAULIC STATE 19	×	×	RF-171
B1744	HYDRAULIC STATE 20	×	×	RF-173
B1745	HYDRAULIC STATE 21	×	×	RF-175
B1746	HYDRAULIC STATE 22	×	×	RF-177
B1747	P SHELF (DRAW) STATE 1	×	×	RF-179
B1748	P SHELF (DRAW) STATE 2	×	×	RF-180
B1749	P SHELF (DRAW) STATE 3	×	×	RF-181
B174A	P SHELF (DRAW) STATE 4	×	×	RF-182
B174B	P SHELF (DRAW) STATE 5	×	×	RF-183
B174C	P SHELF (DRAW) STATE 6	×	×	RF-184
B174D	P SHELF (ROT) STATE 1	×	×	RF-185
B174E	P SHELF (ROT) STATE 2	×	×	RF-186
B174F	P SHELF (ROT) STATE 3	×	×	RF-187
B1750	P SHELF (ROT) STATE 4	×	×	RF-188
B1751	ROOF LATCH STATE 1	×	×	RF-189
B1752	ROOF LATCH STATE 2	×	×	RF-190
B1753	ROOF LATCH STATE 3	×	×	RF-191
B1754	FLIPPER DOOR STATE 1	×	×	RF-192
B1755	FLIPPER DOOR STATE 2	×	×	RF-193

Display contents of CONSULT		Fail-safe	Freeze Frame Data	Reference page
B1756	FLIPPER DOOR STATE 3	×	×	RF-194
B1757	FLIPPER DOOR STATE 4	×	×	RF-195
B1758	THERMO PROTECTION	×	×	RF-196
B175C	PWR SOURCE(ROOF)	×	×	RF-197
B175D	PWR SOURCE(ROOF)	×	×	RF-198
B175E	PWR SOURCE(WINDOW)	×	×	RF-199
B175F	PWR SOURCE(WINDOW)	×	×	RF-201
B1760	ROOF CONTROL UNIT	×	×	RF-203
B1761	ROOF CONTROL UNIT	×	×	RF-204
B1762	ROOF STATE	×	×	RF-205
B1763	HYDRAULIC STATE	×	×	RF-208
B1764	ROOF LATCH STATE	×	×	RF-210
B1765	FLIPPER DOOR STATE	×	×	RF-211

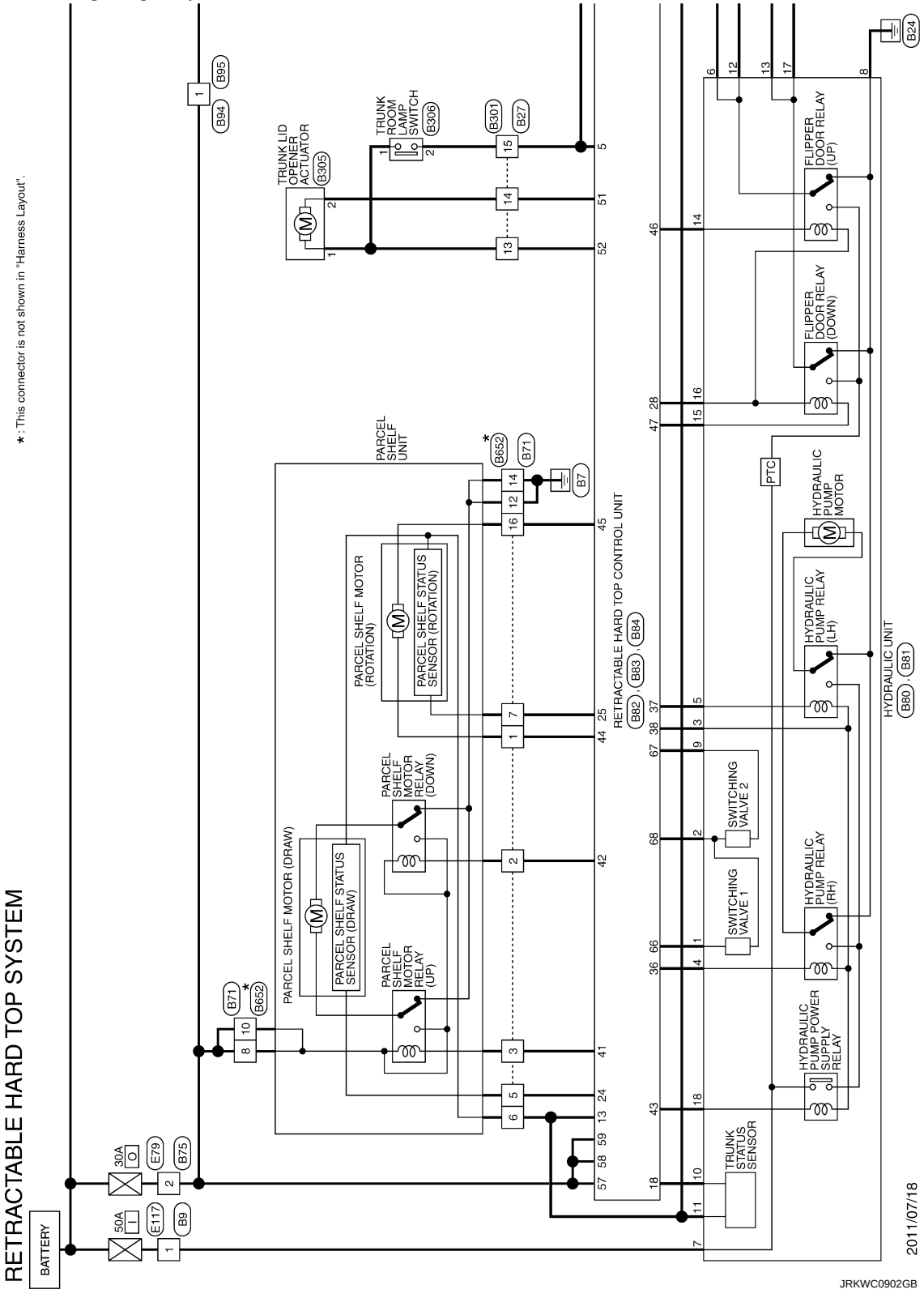
WIRING DIAGRAM

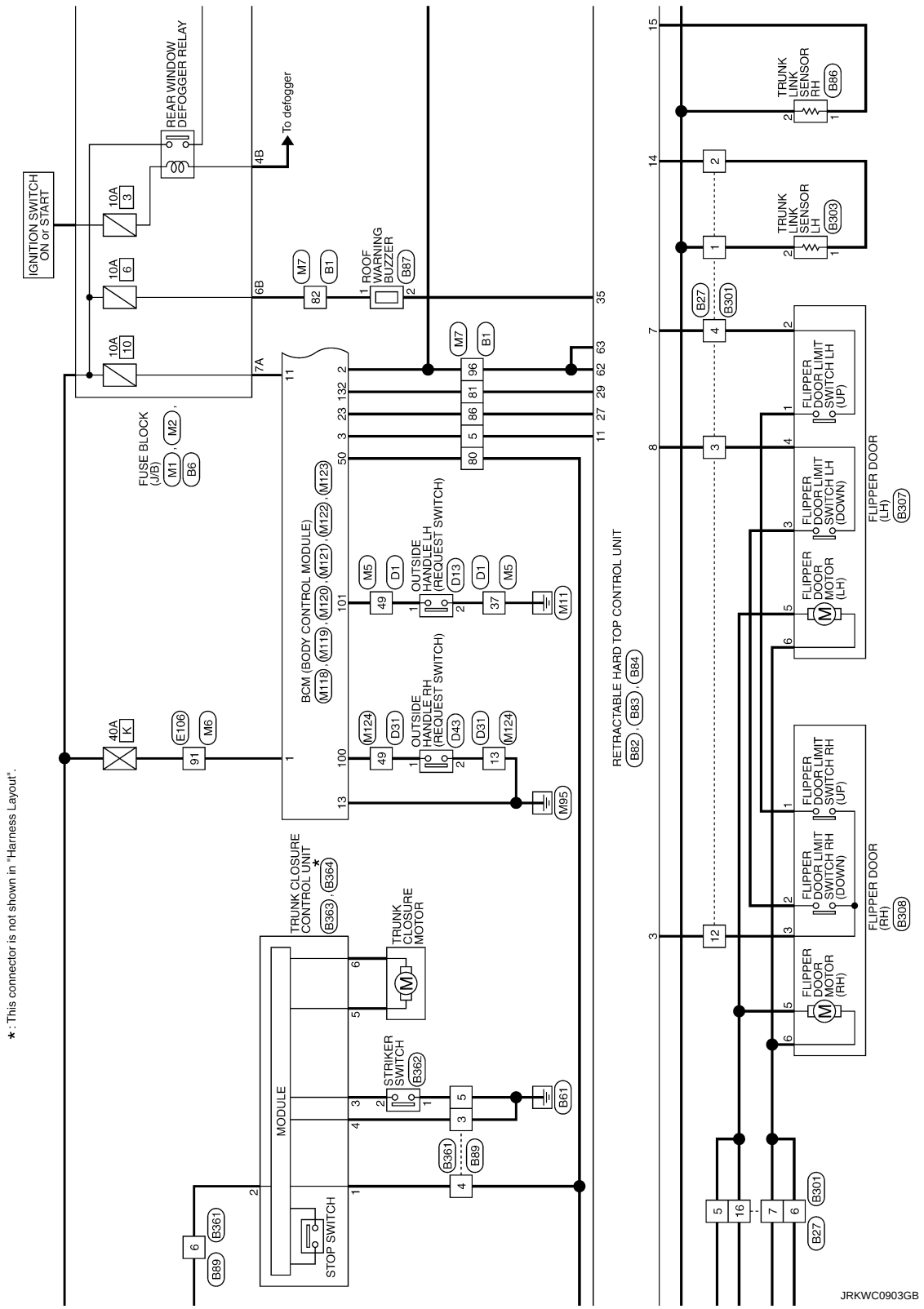
RETRACTABLE HARD TOP SYSTEM

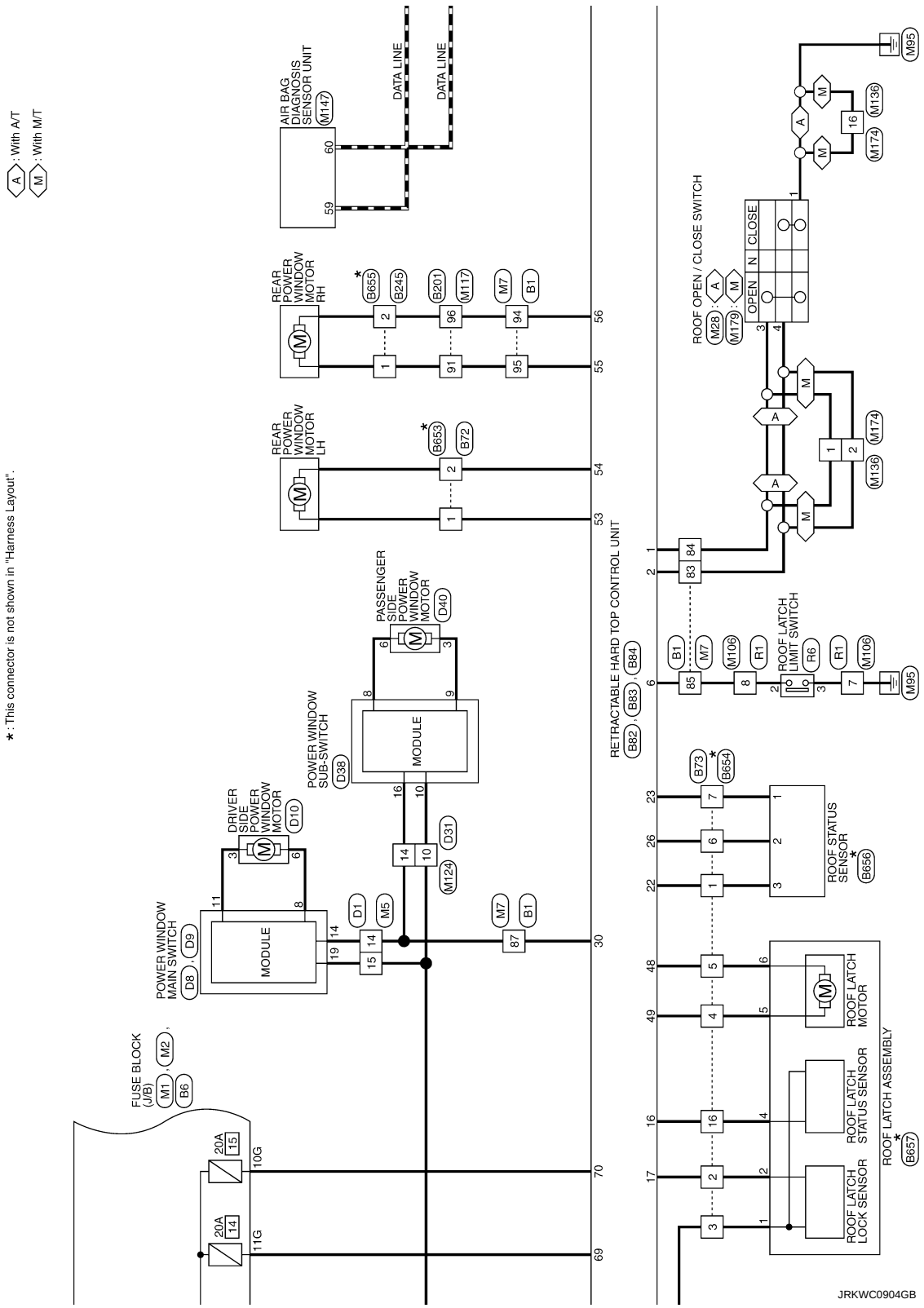
Wiring Diagram

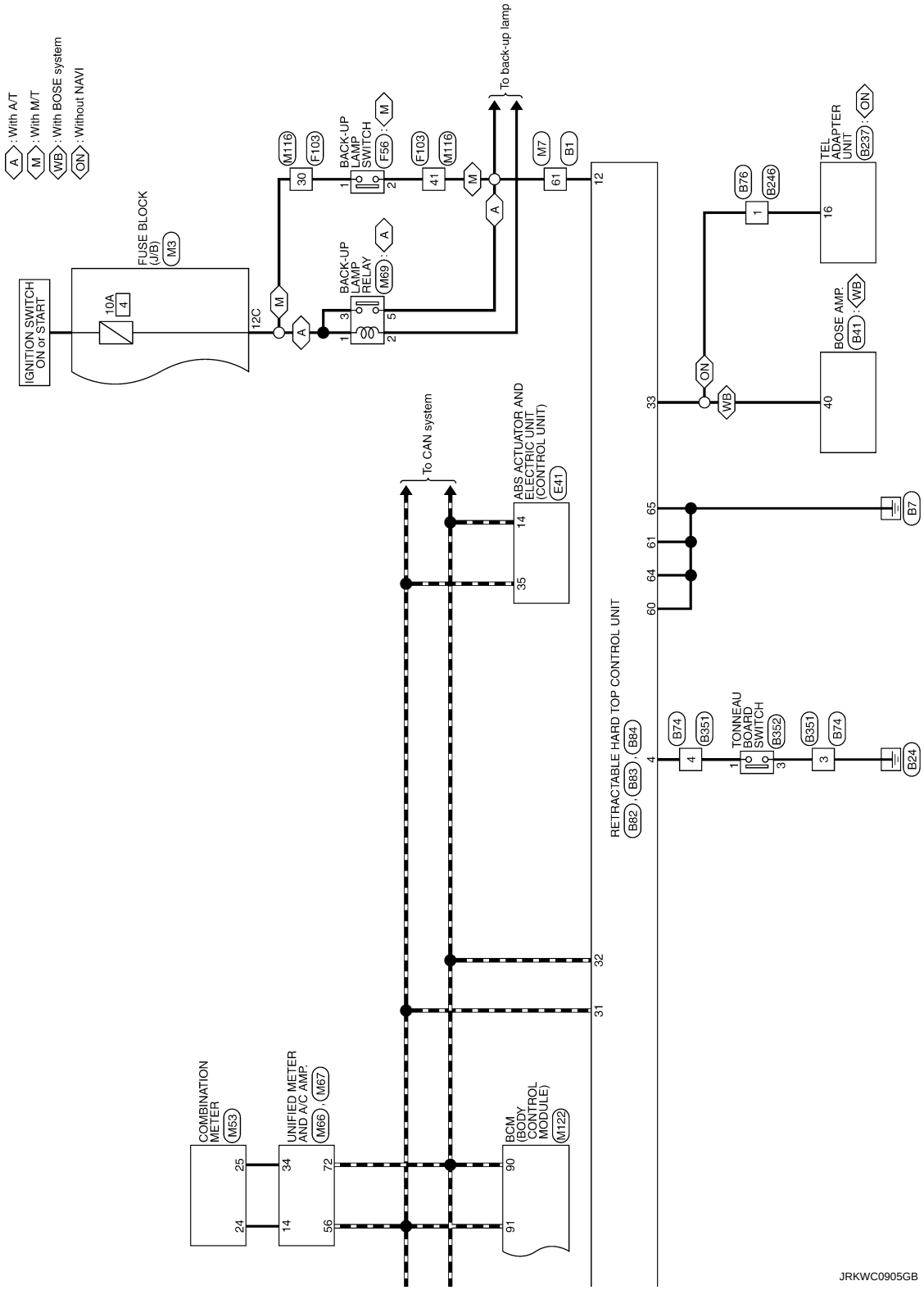
INFOID:0000000008158273

For connector terminal arrangements, harness layouts, and alphabets in a ⬡ (option abbreviation; if not described in wiring diagram), refer to GI-12, "Connector Information".




IGNITION SWITCH ON or START
REAR WINDOW DEFOGGER RELAY
To defogger
ROOF WARNING BUZZER
FUSE BLOCK (J/B)
BCM (BODY CONTROL MODULE)
OUTSIDE HANDLE LH (REQUEST SWITCH)
OUTSIDE HANDLE RH (REQUEST SWITCH)
TRUNK CLOSURE CONTROL UNIT
TRUNK CLOSURE MOTOR
STRIKER SWITCH
STOP SWITCH
MODULE
RETRACTABLE HARD TOP CONTROL UNIT
TRUNK LINK SENSOR RH
TRUNK LINK SENSOR LH
FLIPPER DOOR (LH)
FLIPPER DOOR (RH)
FLIPPER DOOR LIMIT SWITCH LH (UP)
FLIPPER DOOR LIMIT SWITCH LH (DOWN)
FLIPPER DOOR LIMIT SWITCH RH (UP)
FLIPPER DOOR LIMIT SWITCH RH (DOWN)
FLIPPER DOOR MOTOR (LH)
FLIPPER DOOR MOTOR (RH)
★: This connector is not shown in "Harness Layout".
JRKWC0903GB


A : With A/T
M : With M/T
* : This connector is not shown in "Harness Layout".
AIR BAG DIAGNOSIS SENSOR UNIT M147
DATA LINE
DATA LINE
REAR POWER WINDOW MOTOR RH
REAR POWER WINDOW MOTOR LH
PASSENGER SIDE POWER WINDOW MOTOR D40
POWER WINDOW SUB-SWITCH D38
MODULE
DRIVER SIDE POWER WINDOW MOTOR D10
POWER WINDOW MAIN SWITCH D8, D9
MODULE
FUSE BLOCK (J/B) M1, M2, B6
20A 15
20A 14
10G
11G
RETRACTABLE HARD TOP CONTROL UNIT B82, B83, B84
ROOF OPEN / CLOSE SWITCH M28, M179
OPEN
N
CLOSE
ROOF LATCH LIMIT SWITCH
ROOF STATUS SENSOR B656
ROOF LATCH ASSEMBLY B657
ROOF LATCH MOTOR
ROOF LATCH STATUS SENSOR
ROOF LATCH LOCK SENSOR
JRKWC0904GB


A : With A/T
M : With M/T
WB : With BOSE system
ON : Without NAVI
To back-up lamp
FUSE BLOCK (J/B) M3
IGNITION SWITCH ON or START
10A 4
12C
BACK-UP LAMP RELAY M69
BACK-UP LAMP SWITCH F56
M116
F103
M7
B1
TEL ADAPTER UNIT B237
B76
B246
BOSE AMP. B41
To CAN system
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) E41
RETRACTABLE HARD TOP CONTROL UNIT B82, B83, B84
TONNEAU BOARD SWITCH B352
B74
B351
B7
B24
COMBINATION METER M53
UNIFIED METER AND A/C AMP. M66, M67
BCM (BODY CONTROL MODULE) M122
JRKWC0905GB

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

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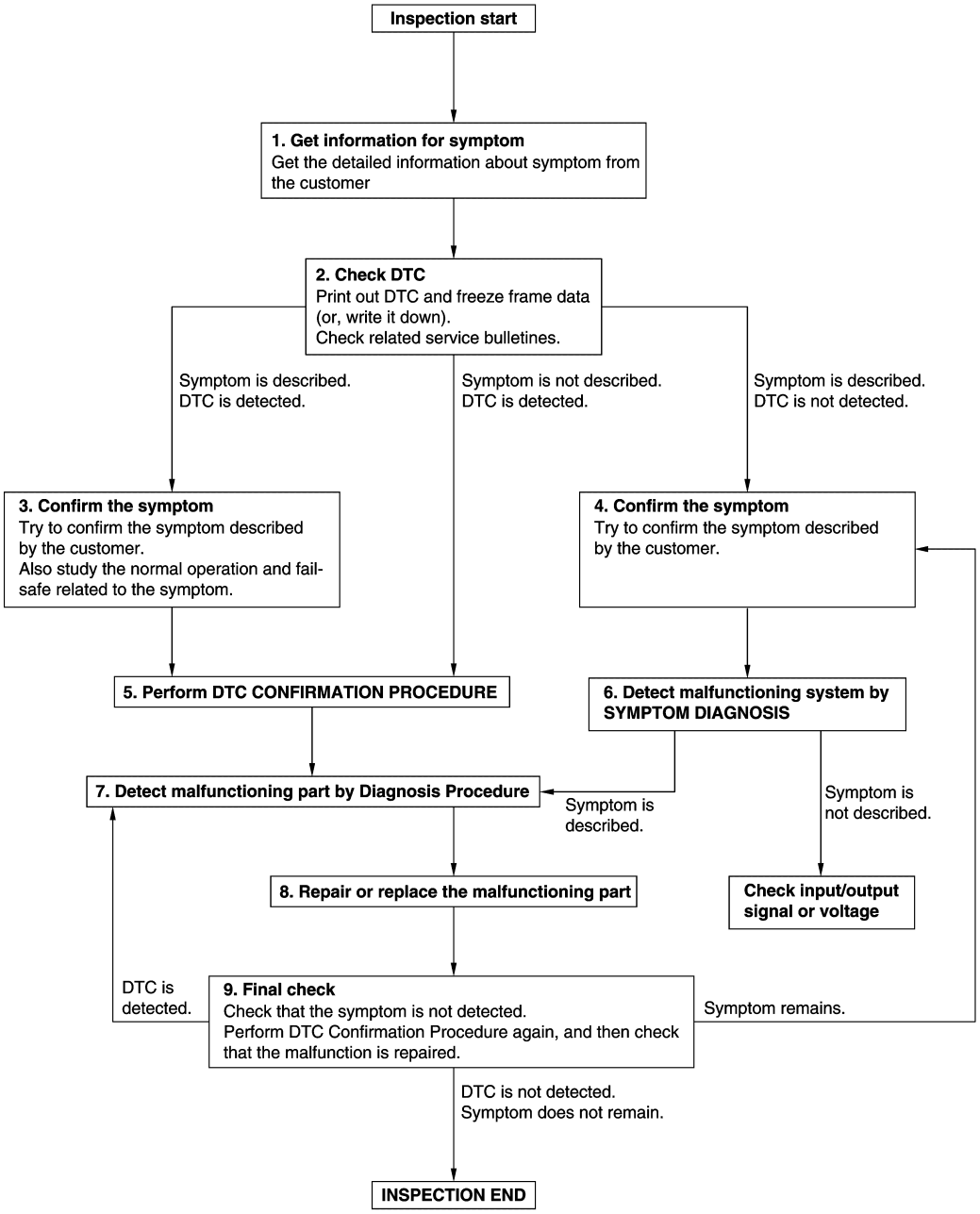
OVERALL SEQUENCE



JMKIA8652GB

DETAILED FLOW

1.GET INFORMATION FOR SYMPTOM

1. Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurs).
2. Check operation condition of the function that is malfunctioning.

>> GO TO 2.

2.CHECK DTC

1. Check DTC.
2. Perform the following procedure if DTC is detected.

- Record DTC and freeze frame data (Print them out using CONSULT.)
- Erase DTC.
- Study the relationship between the cause detected by DTC and the symptom described by the customer.

3. Check related service bulletins for information.

Are any symptoms described and any DTC detected?

Symptom is described, DTC is detected>>GO TO 3.
Symptom is described, DTC is not detected>>GO TO 4.
Symptom is not described, DTC is detected>>GO TO 5.

3.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.
Also study the normal operation and fail-safe related to the symptom.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

4.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC CONFIRMATION PROCEDURE for the detected DTC, and then check that DTC is detected again. At this time, always connect CONSULT to the vehicle, and check self diagnostic results in real time.
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

NOTE:

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC CONFIRMATION PROCEDURE is not included on Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during this check.
  If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC CONFIRMATION PROCEDURE.

Is DTC detected?

YES >> GO TO 7.
NO >> Check according to GI-42, "Intermittent Incident".

6.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.

Is the symptom described?

YES >> GO TO 7.
NO >> Monitor input data from related sensors or check voltage of related module terminals using CONSULT.

7.DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

Inspect according to Diagnosis Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 8.
NO >> Check according to GI-42, "Intermittent Incident".

8. REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnosis Procedure again after repair and replacement.
3. Check DTC. If DTC is detected, erase it.

>> GO TO 9.

9. FINAL CHECK

When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.
When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Is DTC detected and does symptom remain?

YES-1 >> DTC is detected: GO TO 7.
YES-2 >> Symptom remains: GO TO 4.
NO >> Before returning the vehicle to the customer, always erase DTC.

ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL

Description

INFOID:0000000008158275

There are 2 kinds of operations in initialization of retractable hard top system.
- Without CONSULT: Position information of parcel shelf and roof latch is memorized.
- With CONSULT: Roof position information is memorized.

It is necessary to perform initialization, because normal position information of each part is lost when the operation show in the following table are performed.

Operation	Operation procedure	Refer to
Battery terminal is disconnected	1. Without CONSULT	RF-74
	2. For front power window system	
Retractable hard top control unit is replaced	1. Without CONSULT	RF-75
	2. For front power window system	
	3. With CONSULT	
Roof components are replaced or removed and installed (Roof link, Roof panel No.1-3, Roof latch)	With CONSULT	RF-76
Parcel shelf components are replaced or removed and installed	Without CONSULT	RF-76
Roof latch components are replaced or removed and installed	Without CONSULT	RF-76
Open and close operations of retractable hard top are repeated without fully closing and fully opening	Without CONSULT	RF-76
15 minutes or more are passed without fully closing or fully opening retractable hard top	Without CONSULT	RF-76

NOTE:
The following state occurs if initialization is not complete.
- LCD on combination meter does not display retractable hard top system state.
- Audio system functions (Sound equalizer automatic switching function, hands-free phone system and voice recognition) do not operate.
- Fun speed control at roof open function of automatic air conditioner system does not operate.

Work Procedure

INFOID:0000000008158276

1.PERFORM INITIALIZATION WITHOUT CONSULT

Perform initialization without CONSULT. Refer to RF-76, "Work Procedure".

>> GO TO 2.

2.PERFORM INITIALIZATION FOR FRONT POWER WINDOW

Perform initialization for front power window. Refer to PWC-5, "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement".

>> GO TO 3.

3.CHECK RETRACTABLE HARD TOP OPERATION

Check retractable hard top operation.

Does it operate normally?

YES >> WORK END
NO >> GO TO 1.

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

Description

INFOID:0000000008158277

There are 2 kinds of operations in initialization of retractable hard top system.
- Without CONSULT: Position information of parcel shelf and roof latch is memorized.
- With CONSULT: Roof position information is memorized.

It is necessary to perform initialization, because normal position information of each part is lost when the operation show in the following table are performed.

Operation	Operation procedure	Refer to
Battery terminal is disconnected	1. Without CONSULT	RF-74
	2. For front power window system	
Retractable hard top control unit is replaced	1. Without CONSULT	RF-75
	2. For front power window system	
	3. With CONSULT	
Roof components are replaced or removed and installed (Roof link, Roof panel No.1-3, Roof latch)	With CONSULT	RF-76
Parcel shelf components are replaced or removed and installed	Without CONSULT	RF-76
Roof latch components are replaced or removed and installed	Without CONSULT	RF-76
Open and close operations of retractable hard top are repeated without fully closing and fully opening	Without CONSULT	RF-76
15 minutes or more are passed without fully closing or fully opening retractable hard top	Without CONSULT	RF-76

NOTE:
The following state occurs if initialization is not complete.
- LCD on combination meter does not display retractable hard top system state.
- Audio system functions (Sound equalizer automatic switching function, hands-free phone system and voice recognition) do not operate.
- Fun speed control at roof open function of automatic air conditioner system does not operate.

Work Procedure

INFOID:0000000008158278

1.PERFORM INITIALIZATION WITHOUT CONSULT

Perform initialization without CONSULT. Refer to RF-76, "Work Procedure".

>> GO TO 2.

2.PERFORM INITIALIZATION FOR FRONT POWER WINDOW

Perform initialization for front power window. Refer to PWC-5, "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement".

>> GO TO 3.

3.PERFORM INITIALIZATION WITH CONSULT

Perform initialization with CONSULT. Refer to RF-76, "Work Procedure".

>> GO TO 4.

4.CHECK RETRACTABLE HARD TOP OPERATION

Check retractable hard top operation.

Is the inspection result normal ?

YES >> WORK END
NO >> GO TO 1.

INITIALIZATION OF ROOF SYSTEM

Description

INFOID:0000000008158279

There are 2 kinds of operations in initialization of retractable hard top system.
- Without CONSULT: Position information of parcel shelf and roof latch is memorized.
- With CONSULT: Roof position information is memorized.

It is necessary to perform initialization, because normal position information of each part is lost when the operation show in the following table are performed.

Operation	Operation procedure	Refer to
Battery terminal is disconnected	1. Without CONSULT	RF-74
	2. For front power window system	
Retractable hard top control unit is replaced	1. Without CONSULT	RF-75
	2. For front power window system	
	3. With CONSULT	
Roof components are replaced or removed and installed (Roof link, Roof panel No.1-3, Roof latch)	With CONSULT	RF-76
Parcel shelf components are replaced or removed and installed	Without CONSULT	RF-76
Roof latch components are replaced or removed and installed	Without CONSULT	RF-76
Open and close operations of retractable hard top are repeated without fully closing and fully opening	Without CONSULT	RF-76
15 minutes or more are passed without fully closing or fully opening retractable hard top	Without CONSULT	RF-76

NOTE:
The following state occurs if initialization is not complete.
- LCD on combination meter does not display retractable hard top system state.
- Audio system functions (Sound equalizer automatic switching function, hands-free phone system and voice recognition) do not operate.
- Fun speed control at roof open function of automatic air conditioner system does not operate.

Work Procedure

INFOID:0000000008158280

1. INSPECTION START

Will CONSULT be used?

Will CONSULT be used?

YES >> GO TO 2.
NO >> GO TO 7.

2. STEP 1

With CONSULT
1. Start engine.
2. Fully close retractable hard top.

>> GO TO 3.

3. STEP 2

Check the operation.

What was the operation performed?

Replace or remove and install roof components.>>GO TO 4.
Replace retractable hard top control unit.>>GO TO 5.

4. STEP 3

Perform “ROOF STATE RESET” in “Work Support” mode of “RETRACTABLE HARD TOP” using CONSULT and erase the current memorized position. Refer to RF-45, "CONSULT Function".

>> GO TO 5.

5. STEP 4

Perform “ROOF STATE LEARNING” in “Work Support” mode of “RETRACTABLE HARD TOP” using CONSULT and memorize the new roof position. Refer to RF-45, "CONSULT Function".
Fully close the roof and repeat this operation (STEP 4), if roof warning buzzer sounds twice or does not sound during the initialization.
NOTE:
Retractable hard top operation during this procedure is as per the following items.
1. Roof warning buzzer sounds once at the same time retractable hard top open operation is performed by roof open/close switch (OPEN) operation, after touching “Start” on CONSULT screen.
2. Roof warning buzzer sounds once when the roof is fully open.
3. Roof warning buzzer sounds once at the same time retractable hard top close operation is performed by roof open/close switch (CLOSE) operation.
4. Roof warning buzzer sounds once when the roof is fully closed.

>> GO TO 6.

6. STEP 5

Check that retractable hard top operates normally by operating from fully closed to fully open positions and from fully open to fully closed positions.

>> WORK END

7. STEP 1

Without CONSULT
1. Start engine.
2. Press and hold OPEN or CLOSE of roof open/close switch and check that parcel shelf and roof latch* stop after operating.
   *: Depending on the operation (RF-74, "Description"), roof latch may not operate.

Does roof warning buzzer sounds once at the same time parcel shelf stops?

YES >> GO TO 9.
NO >> GO TO 8.

8. STEP 2

Repeat operation of step 1 until roof warning buzzer sounds once at the same time parcel shelf stops.

>> GO TO 9.

9. STEP 3

Check that retractable hard top operates normally by operating from fully closed to fully open positions and from fully open to fully closed positions.

>> WORK END

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000008158281

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control unit, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN H-line, CAN L-line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

DTC Logic

INFOID:0000000008158282

DTC DETECTION LOGIC

NOTE:

If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name	DTC detection condition	Possible cause
U1000	CAN COMM CIRCUIT	When retractable hard top control unit cannot communicate CAN communication signal continuously for 2 seconds or more.	CAN communication system

Diagnosis Procedure

INFOID:0000000008158283

1. PERFORM SELF DIAGNOSTIC

1. Turn ignition switch ON and wait for 2 seconds or more.
2. Check “Self Diagnostic Results” mode of “RETRACTABLE HARD TOP” using CONSULT.

Is the DTC displayed?

YES >> Refer to LAN-14, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-42, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

DTC Logic

INFOID:0000000008158284

DTC DETECTION LOGIC

DTC No.	Trouble doagnosis name	DTC detection condition	Possible cause
U1010	CONTROL UNIT (CAN)	Retractable hard top control unit detected internal CAN communication circuit malfunction.	Retractablr hard top control unit

Diagnosis Procedure

INFOID:0000000008158285

1.REPLACE BCM

When DTC “U1010” is detected, replace retractable hard top control unit.

>> Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

U0140 LOCAL COMMUNICATION-1

Description

INFOID:0000000008158286

Retractable hard top control unit performs local communication with BCM, power window main switch and power window sub-switch using communication line.

DTC Logic

INFOID:0000000008158287

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
U0140	LOCAL COMM-1	The communication between retractable hard top control unit and BCM is interrupted for a period of time.	• Communication line • BCM

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self Diagnostic Results” mode of “RETRACTABLE HARD TOP” using CONSULT.

Is the DTC detected?

YES >> Perform diagnosis procedure. Refer to RF-80, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158288

1.CHECK COMMUNICATION LINE

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit and BCM connector.
3. Check continuity between retractable hard top control unit harness connector and BCM harness connector.

Retractable hard top control unit		BCM		Continuity
Connector	Terminal	Connector	Terminal	
B82	29	M123	132	Existed

4. Check continuity between retractable hard top control unit harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	29		Not existed

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-79, "Removal and Installation".
NO >> Repair or replace harness.

U0215 LOCAL COMMUNICATION-2

Description

INFOID:0000000008158289

Retractable hard top control unit performs local communication with BCM, power window main switch and power window sub-switch using communication line.

DTC Logic

INFOID:0000000008158290

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
U0215	LOCAL COMM-2	The communication between retractable hard top control unit, power window main switch and power window sub-switch is interrupted for a period of time.	• Communication line • Power window main switch • Power window sub-switch

DTC CONFIRMATION PROCEDURE

1.RERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self Diagnostic Results” mode of “RETRACTABLE HARD TOP” using CONSULT.

Is the DTC detected?

YES >> Perform diagnosis procedure. Refer to RF-81, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158291

1.CHECK POWER WINDOW MAIN SWITCH

Check power window main switch. Refer to PWC-15, "POWER WINDOW MAIN SWITCH : Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK POWER WINDOW SUB-SWITCH

Check power window sub-switch. Refer to PWC-16, "POWER WINDOW SUB-SWITCH : Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK COMMUNICATION LINE-1

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit, power window main switch connector and power window sub-switch connector.
3. Check continuity between retractable hard top control unit harness connector and power window main switch harness connector.

Retractable hard top control unit		Power window main switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	30	D8	7	Existed

4. Check continuity between retractable hard top control unit harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	30		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace harness.

4. CHECK COMMUNICATION LINE-2

1. Check continuity between retractable hard top control unit harness connector and power window sub-switch harness connector.

Retractable hard top control unit		Power window sub-switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	30	D38	15	Existed

2. Check continuity between retractable hard top control unit harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	30		Not existed

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace harness.

B1701 RETRACTABLE HARD TOP CONTROL UNIT

DTC Logic

INFOID:0000000008158292

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B1701	ROOF CONTROL UNIT	Retractable hard top control unit detects internal malfunction.	Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Refer to RF-83, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158293

1.CHECK SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Replace retractable hard top control unti. Refer to RF-295, "Removal and Installation".
3. Perform DTC Confirmation Procedure. Refer to RF-83, "DTC Logic".

>> INSPECTION END

B1702 RETRACTABLE HARD TOP CONTROL UNIT

DTC Logic

INFOID:0000000008158294

DTC DETECTION LOGIC

NOTE:

If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B1702	ROOF CONTROL UNIT	Retractable hard top control unit detects internal malfunction.	Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Refer to RF-84, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158295

1.CHECK SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Replace retractable hard top control unti. Refer to RF-295, "Removal and Installation".
3. Perform DTC Confirmation Procedure. Refer to RF-84, "DTC Logic".

>> INSPECTION END

B1707 ROOF OPEN STATE

Description

INFOID:0000000008158296

Roof status sensor is installed to roof link assembly LH. This sensor is a potentiometer that converts the roof position to a voltage signal and transmits it to retractable hard top control unit. Retractable hard top control unit recognizes the roof position using this signal.

DTC Logic

INFOID:0000000008158297

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B1707	ROOF OPEN STATE	[LOST]	Retractable hard top control unit does not learn roof fully open position	• Harness or connectors (The sensor circuit is open or shorted.) • Retractable hard top • Retractable hard top control unit • Roof status sensor • Initialization is not complete

DTC CONFIRMATION PROCEDURE

1. PERFORM INITIALIZE

Refer to RF-76, "Description".

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-85, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158298

1. CHECK ROOF STATUS SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect roof status sensor harness connector.
3. Turn ignition switch ON.
4. Check the voltage between roof status sensor harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Roof status sensor			
Connector	Terminal		
B656	3	Ground	5

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2. CHECK ROOF STATUS SENSOR GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.

2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between roof status sensor harness connector and retractable hard top control unit harness connector.

Roof status sensor		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B656	1	B82	23	Existed

4. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK ROOF STATUS SENSOR INPUT SIGNAL CIRCUIT FOR OPEN AND SHORT

1. Check the continuity between roof status sensor harness connector and retractable hard top control unit harness connector.

Roof status sensor		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B656	2	B82	26	Existed

2. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace harness.

4.REPLACE ROOF STATUS SENSOR

Replace roof status sensor. Refer to RF-15, "Component Parts Location".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 5.

5.CHECK RETRACTABLE HARD TOP

Check retractable hard top mechanism deformation, looseness, rattle, interference with other parts, and pinched foreign materials. Refer to RF-273, "Exploded View".

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace malfunctioning part.

6.REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 7.

7.CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B1708 ROOF CLOSE STATE

Description

INFOID:0000000008158299

Roof status sensor is installed to roof link assembly LH. This sensor is a potentiometer that converts the roof position to a voltage signal and transmits it to retractable hard top control unit. Retractable hard top control unit recognizes the roof position using this signal.

DTC Logic

INFOID:0000000008158300

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B1708	ROOF CLOSE STATE	[LOST]	Retractable hard top control unit does not learn roof fully closed position	• Harness or connectors (The sensor circuit is open or shorted.) • Retractable hard top • Retractable hard top control unit • Roof status sensor • Initialization is not complete

DTC CONFIRMATION PROCEDURE

1.PERFORM INITIALIZE

Refer to RF-76, "Description".

>> GO TO 2.

2. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-87, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158301

1.CHECK ROOF STATUS SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect roof status sensor harness connector.
3. Turn ignition switch ON.
4. Check the voltage between roof status sensor harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Roof status sensor			
Connector	Terminal		
B656	3	Ground	5

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK ROOF STATUS SENSOR GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.

2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between roof status sensor harness connector and retractable hard top control unit harness connector.

Roof status sensor		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B656	1	B82	23	Existed

4. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK ROOF STATUS SENSOR INPUT SIGNAL CIRCUIT FOR OPEN AND SHORT

1. Check the continuity between roof status sensor harness connector and retractable hard top control unit harness connector.

Roof status sensor		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B656	2	B82	26	Existed

2. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace harness.

4.REPLACE ROOF STATUS SENSOR

Replace roof status sensor. Refer to RF-15, "Component Parts Location".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 5.

5.CHECK RETRACTABLE HARD TOP

Check retractable hard top mechanism deformation, looseness, rattle, interference with other parts, and pinched foreign materials. Refer to RF-273, "Exploded View".

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace malfunctioning part.

6.REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 7.

7.CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B1709 ROOF OPEN/CLOSE SWITCH (OPEN)

DTC Logic

INFOID:0000000008158302

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1709	ROOF SWITCH-OPEN	[TIMEOUT]	Retractable hard top control unit detects roof open/close switch (open) operation for 60 seconds	• Harness or connectors (The roof open/close switch circuit is shorted.) • Retractable hard top control unit • Roof open/close switch

DTC CONFIRMATION PROCEDURE

1.CHECK ROOF OPEN/CLOSE SWITCH SIGNAL

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-89, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158303

1.CHECK ROOF OPEN/CLOSE SWITCH POWER SUPPLY CIRCUIT-I

1. Turn ignition switch OFF.
2. Disconnect roof open/close switch harness connector.
3. Turn ignition switch ON.
4. Check the voltage between roof open/close switch harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Roof open/close switch			
Connector	Terminal		
M28 (A/T models)	3	Ground	Battery voltage
M179 (M/T models)			

Is the inspection result normal?

YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK ROOF OPEN/CLOSE SWITCH POWER SUPPLY CIRCUIT-II

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between retractable hard top control unit harness connector and roof open/close switch harness connector.

Retractable hard top control unit		Roof open/close switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	1	M28 (A/T models)	3	Existed
		M179 (M/T models)		

4. Check harness for short to ground.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK ROOF OPEN/CLOSE SWITCH

Check roof open/close switch. Refer to RF-90, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace roof open/close switch. Refer to RF-15, "Component Parts Location".

4.REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation"

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 5.

5.CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

Component Inspection

INFOID:0000000008158304

1.CHECK ROOF OPEN/CLOSE SWITCH

1. Turn ignition switch OFF.
2. Disconnect roof open/close switch harness connector.
3. Check the continuity between roof open/close switch terminals under the following conditions.

Terminal	Condition		Continuity
1 and 3	Roof open/close switch	Open pressed	Existed
		Except above	Not existed
1 and 4		Close pressed	Existed
		Except above	Not existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace roof open/close switch. Refer to RF-15, "Component Parts Location".

B170A ROOF OPEN/CLOSE SWITCH (CLOSE)

DTC Logic

INFOID:0000000008158305

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B170A	ROOF SWITCH-CLOSE	[TIMEOUT]	Retractable hard top control unit detects roof open/close switch (close) operation for 60 seconds	• Harness or connectors (The roof open/close switch circuit is shorted.) • Retractable hard top control unit • Roof open/close switch

DTC CONFIRMATION PROCEDURE

1.CHECK ROOF OPEN/CLOSE SWITCH SIGNAL

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-91, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158306

1.CHECK ROOF OPEN/CLOSE SWITCH POWER SUPPLY CIRCUIT-I

1. Turn ignition switch OFF.
2. Disconnect roof open/close switch harness connector.
3. Turn ignition switch ON.
4. Check the voltage between roof open/close switch harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Roof open/close switch			
Connector	Terminal		
M28 (A/T models)	4	Ground	Battery voltage
M179 (M/T models)			

Is the inspection result normal?

YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK ROOF OPEN/CLOSE SWITCH POWER SUPPLY CIRCUIT-II

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between retractable hard top control unit harness connector and roof open/close switch harness connector.

Retractable hard top control unit		Roof open/close switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	2	M28 (A/T models)	4	Existed
		M179 (M/T models)		

4. Check harness for short to ground.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK ROOF OPEN/CLOSE SWITCH

Check roof open/close switch. Refer to RF-92, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace roof open/close switch. Refer to RF-15, "Component Parts Location".

4.REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 5.

5.CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

Component Inspection

INFOID:0000000008158307

1.CHECK ROOF OPEN/CLOSE SWITCH

1. Turn ignition switch OFF.
2. Disconnect roof open/close switch harness connector.
3. Check the continuity between roof open/close switch terminals under the following conditions.

Terminal	Condition		Continuity
1 and 3	Roof open/close switch	Open pressed	Existed
		Except above	Not existed
1 and 4		Close pressed	Existed
		Except above	Not existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace roof open/close switch. Refer to RF-15, "Component Parts Location".

B170B ROOF OPEN/CLOSE SWITCH

DTC Logic

INFOID:0000000008158308

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B170B	ROOF SWITCH	[INCORRECT]	Retractable hard top control unit detects roof open/close switch open operation and close operation at the same time	• Harness or connectors (The roof open/close switch circuit is shorted.) • Retractable hard top control unit • Roof open/close switch

DTC CONFIRMATION PROCEDURE

1.CHECK ROOF OPEN/CLOSE SWITCH SIGNAL

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-93, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158309

1.CHECK ROOF OPEN/CLOSE SWITCH POWER SUPPLY CIRCUIT-I

1. Turn ignition switch OFF.
2. Disconnect roof open/close switch harness connector.
3. Turn ignition switch ON.
4. Check the voltage between roof open/close switch harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Roof open/close switch			
Connector	Terminal		
M28 (A/T models)	3	Ground	Battery voltage
M179 (M/T models)			
M28 (A/T models)	4		
M179 (M/T models)			

Is the inspection result normal?

YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK ROOF OPEN/CLOSE SWITCH POWER SUPPLY CIRCUIT-II

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between retractable hard top control unit harness connector and roof open/close switch harness connector.

Retractable hard top control unit		Roof open/close switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	1	M28 (A/T models)	3	Existed
		M179 (M/T models)		
	2	M28 (A/T models)	4	
		M179 (M/T models)		

4. Check harness for short to ground.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK ROOF OPEN/CLOSE SWITCH

Check roof open/close switch. Refer to RF-94, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace roof open/close switch. Refer to RF-15, "Component Parts Location".

4.REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 5.

5.CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

Component Inspection

INFOID:0000000008158310

1.CHECK ROOF OPEN/CLOSE SWITCH

1. Turn ignition switch OFF.
2. Disconnect roof open/close switch harness connector.
3. Check the continuity between roof open/close switch terminals under the following conditions.

Terminal	Condition		Continuity
1 and 3	Roof open/close switch	Open pressed	Existed
		Except above	Not existed
1 and 4		Close pressed	Existed
		Except above	Not existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace roof open/close switch. Refer to RF-15, "Component Parts Location".

B170C TRUNK LINK SENSOR (LH)

DTC Logic

INFOID:0000000008158311

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B170C	TRUNK LINK SENSOR-LH	[PWR-SHORT]	Trunk link sensor (LH) circuit is open, short to ground or short to power.	• Harness or connectors (The sensor circuit is open or shorted.) • Retractable hard top control unit • Trunk link (LH) • Trunk link sensor (LH)
		[GND-SHORT/ OPEN]		

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-95, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158312

1.CHECK TRUNK LINK SENSOR (LH) POWER SUPPLY CIRCUIT-I

1. Turn ignition switch OFF.
2. Disconnect trunk link sensor (LH) harness connector.
3. Turn ignition switch ON.
4. Check the voltage between trunk link sensor (LH) harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Trunk link sensor (LH)			
Connector	Terminal		
B303	2	Ground	5

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK TRUNK LINK SENSOR (LH) GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between trunk link sensor (LH) sensor harness connector and retractable hard top control unit harness connector.

Trunk link sensor (LH)		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B303	1	B82	14	Existed

4. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3. REPLACE TRUNK LINK SENSOR (LH)

Replace trunk link sensor (LH) sensor. Refer to RF-15, "Component Parts Location".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 4.

4. CHECK RETRACTABLE HARD TOP

Check retractable hard top mechanism deformation, looseness, rattle, interference with other parts, and pinched foreign materials. Refer to RF-273, "Exploded View".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning part.

5. REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 6.

6. CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B170D TRUNK LINK SENSOR (RH)

DTC Logic

INFOID:0000000008158313

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B170D	TRUNK LINK SENSOR-RH	[PWR-SHORT]	Trunk link sensor (RH) circuit is open, short to ground or short to power.	• Harness or connectors (The sensor circuit is open or shorted.) • Retractable hard top control unit • Trunk link (RH) • Trunk link sensor (RH)
		[GND-SHORT/ OPEN]		

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-97, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158314

1.CHECK TRUNK LINK SENSOR (RH) POWER SUPPLY CIRCUIT-I

1. Turn ignition switch OFF.
2. Disconnect trunk link sensor (RH) harness connector.
3. Turn ignition switch ON.
4. Check the voltage between trunk link sensor (RH) harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Trunk link sensor (RH)			
Connector	Terminal		
B86	2	Ground	5

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK TRUNK LINK SENSOR (RH) GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between trunk link sensor (RH) sensor harness connector and retractable hard top control unit harness connector.

Trunk link sensor (RH)		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B86	1	B82	15	Existed

4. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK TRUNK LINK SENSOR (RH)

Replace trunk link sensor (RH) sensor. Refer to RF-15, "Component Parts Location".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 4.

4.CHECK RETRACTABLE HARD TOP

Check retractable hard top mechanism deformation, looseness, rattle, interference with other parts, and pinched foreign materials. Refer to RF-273, "Exploded View".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning part.

5.REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 6.

6.CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B170F SENSOR POWER SUPPLY

DTC Logic

INFOID:0000000008158315

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B170F	SENSOR POWER SUPPLY	[GND-SHORT]	Sensor power supply circuit is short to ground	• Harness or connectors [Parcel shelf motor (draw) circuit is shorted.] [Parcel shelf motor (rotation) circuit is shorted.] (Trunk status sensor circuit is shorted.) [Trunk link sensor (LH) circuit is shorted.] [Trunk link sensor (RH) circuit is shorted.] (Roof latch lock sensor circuit is shorted.) (Roof latch status sensor circuit is shorted.) • Hydraulic unit • Parcel shelf unit • Trunk link sensor (LH) • Trunk link sensor (RH) • Roof latch assembly • Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-95, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158316

1.CHECK ROOF LATCH LOCK SENSOR POWER SUPPLY CIRCUIT-I

1. Turn ignition switch OFF.
2. Disconnect roof latch assembly (roof latch lock sensor) harness connector.
3. Turn ignition switch ON.
4. Check the voltage between roof latch assembly (roof latch lock sensor) harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Roof latch assembly (roof latch lock sensor)			
Connector	Terminal		
B657	1	Ground	5

Is the inspection result normal?

YES >> GO TO 9.
NO >> GO TO 2.

2.CHECK ROOF LATCH LOCK SENSOR POWER SUPPLY CIRCUIT-II

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between roof latch assembly (roof latch lock sensor) harness connector and retractable hard top control unit harness connector.

Roof latch assembly (roof latch lock sensor)		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B657	1	B82	13	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK SENSOR POWER SUPPLY CIRCUIT

1. Disconnect following parts harness connector.

- Hydraulic unit
- Parcel shelf unit
- Roof latch assembly
- Trunk link sensor (LH)
- Trunk link sensor (RH)

2. Check harness for short to ground (Check the continuity between following parts harness connector and ground, or retractable hard top control unit harness connector and ground).

Parts			Ground	Continuity
Name	Connector	Terminal		
Hydraulic unit (trunk status sensor)	B80	11	Ground	Not existed
Parcel shelf unit [parcel shelf motor (draw) and parcel shelf motor (rotation)]	B71	6		
Roof latch assembly (roof latch lock sensor and roof latch status sensor)	B657	1		
Trunk link sensor (LH)	B303	2		
Trunk link sensor (RH)	B86	2		

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	13	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace harness.

4.CHECK PARCEL SHELF UNIT

1. Reconnect retractable hard top control unit harness connector and parcel shelf unit harness connector.
2. Turn ignition switch ON.
3. Check DTC.

Is DTC B170F displayed?

YES >> Replace parcel shelf unit. Refer to RF-276, "REAR PARCEL SHELF UNIT : Removal and Installation".
NO >> GO TO 5.

5.CHECK ROOF LATCH ASSEMBLY

1. Turn ignition switch OFF.
2. Reconnect roof latch assembly harness connector.
3. Turn ignition switch ON.
4. Check DTC.

Is DTC B170F displayed?

YES >> Replace roof latch assembly. Refer to RF-255, "ROOF LOCK ASSEMBLY : Removal and Installation".
NO >> GO TO 6.

6. CHECK TRUNK LINK SENSOR (LH)

1. Turn ignition switch OFF.
2. Reconnect trunk link sensor (LH) harness connector.
3. Turn ignition switch ON.
4. Check DTC.

Is DTC B170F displayed?

YES >> Replace trunk link sensor (LH). Refer to RF-15, "Component Parts Location".
NO >> GO TO 7.

7. CHECK TRUNK LINK SENSOR (RH)

1. Turn ignition switch OFF.
2. Reconnect trunk link sensor (RH) harness connector.
3. Turn ignition switch ON.
4. Check DTC.

Is DTC B170F displayed?

YES >> Replace trunk link sensor (RH). Refer to RF-15, "Component Parts Location".
NO >> GO TO 8.

8. CHECK HYDRAULIC UNIT

1. Turn ignition switch OFF.
2. Reconnect hydraulic unit harness connector.
3. Turn ignition switch ON.
4. Check DTC.

Is DTC B170F displayed?

YES >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".
NO >> GO TO 9.

9. REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 10.

10. CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B1710 ROOF LATCH STATUS SENSOR

DTC Logic

INFOID:0000000008158317

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1710	LATCH STATUS SENSOR	[PWR-SHORT]	Roof latch status sensor circuit is open, short to ground or short to power.	• Harness or connectors (The sensor circuit is open or shorted.) • Retractable hard top • Retractable hard top control unit • Roof latch status sensor
		[GND-SHORT/ OPEN]		

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-95, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158318

1.CHECK ROOF LATCH STATUS SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect roof latch assembly (roof latch status sensor) harness connector.
3. Turn ignition switch ON.
4. Check the voltage between roof latch assembly (roof latch status sensor) harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Roof latch assembly (roof latch status sensor)			
Connector	Terminal		
B657	1	Ground	5

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK ROOF LATCH STATUS SENSOR GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between roof latch assembly (roof latch status sensor) harness connector and retractable hard top control unit harness connector.

Roof latch assembly (roof latch status sensor)		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B657	4	B82	16	Existed

4. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3. REPLACE ROOF LATCH ASSEMBLY

Replace roof latch assembly. Refer to RF-255, "ROOF LOCK ASSEMBLY : Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 4.

4. CHECK RETRACTABLE HARD TOP

Check retractable hard top mechanism deformation, looseness, rattle, interference with other parts, and pinched foreign materials. Refer to RF-273, "Exploded View".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning part.

5. REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 6.

6. CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B1711 ROOF LATCH LOCK SENSOR

DTC Logic

INFOID:0000000008158319

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1711	LATCH LOCK SENSOR	[PWR-SHORT]	Roof latch lock sensor circuit is open, short to ground or short to power.	• Harness or connectors (The sensor circuit is open or shorted.) • Retractable hard top • Retractable hard top control unit • Roof latch lock sensor
		[GND-SHORT/ OPEN]		

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-95, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158320

1.CHECK ROOF LATCH LOCK SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect roof latch assembly (roof latch lock sensor) harness connector.
3. Turn ignition switch ON.
4. Check the voltage between roof latch assembly (roof latch lock sensor) harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Roof latch assembly (roof latch lock sensor)			
Connector	Terminal		
B657	1	Ground	5

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK ROOF LATCH LOCK SENSOR GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between roof latch assembly (roof latch lock sensor) harness connector and retractable hard top control unit harness connector.

Roof latch assembly (roof latch lock sensor)		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B657	2	B82	17	Existed

4. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3. REPLACE ROOF LATCH ASSEMBLY

Replace roof latch assembly. Refer to RF-255, "ROOF LOCK ASSEMBLY : Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 4.

4. CHECK RETRACTABLE HARD TOP

Check retractable hard top mechanism deformation, looseness, rattle, interference with other parts, and pinched foreign materials. Refer to RF-273, "Exploded View".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning part.

5. REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation",

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 6.

6. CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B1712 TRUNK STATUS SENSOR

DTC Logic

INFOID:0000000008158321

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B1712	TRUNK STATUS SENSOR	[PWR-SHORT]	Trunk status sensor circuit is open, short to ground or short to power.	• Harness or connectors (The sensor circuit is open or shorted.) • Hydraulic unit • Retractable hard top control unit
		[GND-SHORT/OPEN]		

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-95, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158322

1.CHECK TRUNK STATUS SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect hydraulic unit (trunk status sensor) harness connector.
3. Turn ignition switch ON.
4. Check the voltage between hydraulic unit (trunk status sensor) harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Hydraulic unit (trunk status sensor)			
Connector	Terminal		
B80	11	Ground	5

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK TRUNK STATUS SENSOR GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between hydraulic unit (trunk status sensor) harness connector and retractable hard top control unit harness connector.

Hydraulic unit (trunk status sensor)		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B80	10	B82	18	Existed

4. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3.REPLACE HYDRAULIC UNIT

Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 4.

4.REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 5.

5.CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B1715 ROOF STATUS SENSOR POWER SUPPLY

DTC Logic

INFOID:0000000008158323

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B1715	ROOF STAUS SEN PWR	[GND-SHORT]	Roof status sensor power supply circuit is short to ground.	• Harness or connectors (The sensor circuit is short-ed.) • Retractable hard top • Retractable hard top control unit • Roof status sensor

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-108, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158324

1. CHECK ROOF STATUS SENSOR POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect roof status sensor harness connector.
3. Turn ignition switch ON.
4. Check the voltage between roof status sensor harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Roof status sensor			
Connector	Terminal		
B656	3	Ground	5

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2. CHECK ROOF STATUS SENSOR GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between roof status sensor harness connector and retractable hard top control unit harness connector.

Roof status sensor		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B656	1	B82	23	Existed

4. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3. REPLACE ROOF STATUS SENSOR

Replace roof status sensor. Refer to RF-15, "Component Parts Location".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 4.

4. CHECK RETRACTABLE HARD TOP

Check retractable hard top mechanism deformation, looseness, rattle, interference with other parts, and pinched foreign materials. Refer to RF-273, "Exploded View".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning part.

5. REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 6.

6. CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B1716 PARCEL SHELF STATUS SENSOR (DRAW)

DTC Logic

INFOID:0000000008158325

DTC DETECTION LOGIC

NOTE:

If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B1718	PS STAUS SEN (DRAW)	[PWR-SHORT]	Parcel shelf status sensor (draw) circuit is open, short to ground or short to power.	• Harness or connectors (The sensor circuit is open or shorted.) • Parcel shelf unit • Retractable hard top control unit
		[GND-SHORT/OPEN]		

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-110, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158326

1. CHECK PARCEL SHELF STATUS SENSOR (DRAW) POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect parcel shelf unit [parcel shelf status sensor (draw)] harness connector.
3. Turn ignition switch ON.
4. Check the voltage between parcel shelf unit [parcel shelf status sensor (draw)] harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Parcel shelf unit [parcel shelf status sensor (draw)]			
Connector	Terminal		
B71	6	Ground	5

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2. CHECK PARCEL SHELF STATUS SENSOR (DRAW) GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between parcel shelf unit [parcel shelf status sensor (draw)] harness connector and retractable hard top control unit harness connector.

Parcel shelf unit [parcel shelf status sensor (draw)]		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B71	5	B82	24	Existed

4. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3. CHECK PARCEL SHELF UNIT

Replace parcel shelf unit. Refer to RF-276, "REAR PARCEL SHELF UNIT : Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 4.

4. CHECK RETRACTABLE HARD TOP

Check retractable hard top mechanism deformation, looseness, rattle, interference with other parts, and pinched foreign materials. Refer to RF-273, "Exploded View".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning part.

5. REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 6.

6. CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B1718 PARCEL SHELF STATUS SENSOR (ROTATE)

DTC Logic

INFOID:0000000008158327

DTC DETECTION LOGIC

NOTE:

If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B1716	PS STATUS SEN(ROTA)	[PWR-SHORT]	Parcel shelf status sensor (rotation) circuit is open, short to ground or short to power.	• Harness or connectors (The sensor circuit is open or shorted.) • Parcel shelf motor (rotation) • Retractable hard top control unit
		[GND-SHORT/OPEN]		

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-112, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158328

1. CHECK PARCEL SHELF STATUS SENSOR (ROTATION) POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect parcel shelf unit [parcel shelf status sensor (rotation)] harness connector.
3. Turn ignition switch ON.
4. Check the voltage between parcel shelf unit [parcel shelf status sensor (rotation)] harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Parcel shelf unit [parcel shelf status sensor (rotation)]			
Connector	Terminal		
B71	6	Ground	5

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2. CHECK PARCEL SHELF STATUS SENSOR (ROTATION) GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between parcel shelf unit [parcel shelf status sensor (rotation)] harness connector and retractable hard top control unit harness connector.

Parcel shelf unit [parcel shelf status sensor (rotation)]		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B71	7	B82	25	Existed

4. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3. REPLACE PARCEL SHELF UNIT

Replace parcel shelf unit. Refer to RF-276, "REAR PARCEL SHELF UNIT : Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 4.

4. CHECK RETRACTABLE HARD TOP

Check retractable hard top mechanism deformation, looseness, rattle, interference with other parts, and pinched foreign materials. Refer to RF-273, "Exploded View".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning part.

5. REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 6.

6. CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B1719 ROOF STATUS SENSOR

DTC Logic

INFOID:0000000008158329

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B1719	ROOF STATUS SEN	[GND-SHORT]	Roof status sensor signal circuit is open, short to ground or short to power.	• Harness or connectors (The sensor circuit is open or shorted.) • Retractable hard top control unit • Roof status sensor
		[PWR-SHORT/OPEN]		

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-114, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158330

1. CHECK ROOF STATUS SENSOR GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect roof status sensor harness connector and retractable hard top control unit harness connector.
3. Check the continuity between roof status sensor harness connector and retractable hard top control unit harness connector.

Roof status sensor		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B656	1	B82	23	Existed

4. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2. CHECK ROOF STATUS SENSOR INPUT SIGNAL CIRCUIT FOR OPEN AND SHORT

1. Check the continuity between roof status sensor harness connector and retractable hard top control unit harness connector.

Roof status sensor		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B656	2	B82	26	Existed

2. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3. REPLACE ROOF STATUS SENSOR

Replace roof status sensor. Refer to RF-15, "Component Parts Location".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 4.

4. CHECK RETRACTABLE HARD TOP

Check retractable hard top mechanism deformation, looseness, rattle, interference with other parts, and pinched foreign materials. Refer to RF-273, "Exploded View".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning part.

5. REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 6.

6. CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B171A HYDRAULIC PUMP (LH)

DTC Logic

INFOID:0000000008158331

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B171A	HYDRAULIC PMP(LH)	[GND-SHORT]	Hydraulic pump relay (LH) circuit is open, short to ground or short to power.	• Harness or connectors (The hydraulic pump relay (LH) circuit is open or shorted.) • Hydraulic unit • Retractable hard top control unit
		[PWR-SHORT]		
		[OPEN]		

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-116, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158332

1. CHECK HYDRAULIC PUMP RELAY (LH) POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect hydraulic unit [hydraulic pump relay (LH)] harness connector.
3. Turn ignition switch ON.
4. Check the voltage between hydraulic unit [hydraulic pump relay (LH)] harness connector and ground.

(+)		(–)	Voltage (V) (Approx)
Hydraulic unit [hydraulic pump relay (LH)]			
Connector	Terminal		
B80	5	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2. CHECK HYDRAULIC PUMP RELAY (LH) GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between hydraulic unit [hydraulic pump relay (LH)] harness connector and retractable hard top control unit harness connector.

Hydraulic unit [hydraulic pump relay (LH)]		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B80	3	B82	38	Existed

4. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3. REPLACE HYDRAULIC UNIT

Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 4.

4. REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 5.

5. CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B171B HYDRAULIC PUMP (RH)

DTC Logic

INFOID:0000000008158333

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B171B	HYDRAULIC PMP (RH)	[GND-SHORT]	Hydraulic pump relay (RH) circuit is open, short to ground or short to power.	• Harness or connectors (The hydraulic pump relay (RH) circuit is open or shorted.) • Hydraulic unit • Retractable hard top control unit
		[PWR-SHORT]		
		[OPEN]		

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-118, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158334

1. CHECK HYDRAULIC PUMP RELAY (RH) POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect hydraulic unit [hydraulic pump relay (RH)] harness connector.
3. Turn ignition switch ON.
4. Check the voltage between hydraulic unit [hydraulic pump relay (RH)] harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Hydraulic unit [hydraulic pump relay (RH)]			
Connector	Terminal		
B80	4	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2. CHECK HYDRAULIC PUMP RELAY (RH) GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between hydraulic unit [hydraulic pump relay (RH)] harness connector and retractable hard top control unit harness connector.

Hydraulic unit [hydraulic pump relay (RH)]		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B80	3	B82	38	Existed

4. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3. REPLACE HYDRAULIC UNIT

Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 4.

4. REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 5.

5. CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B171C SWITCHING VALVE 1

DTC Logic

INFOID:0000000008158335

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B171C	SWITCHING VALVE 1	[GND-SHORT]	Switching valve 1 circuit is open, short to ground or short to power.	• Harness or connectors (The switching valve 1 circuit is open or shorted.) • Hydraulic unit • Retractable hard top control unit
		[PWR-SHORT]		
		[OPEN]		

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-120, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158336

1. CHECK SWITCHING VALVE 1 POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect hydraulic unit (switching valve 1) harness connector.
3. Turn ignition switch ON.
4. Check the voltage between hydraulic unit (switching valve 1) harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Hydraulic unit (switching valve 1)			
Connector	Terminal		
B80	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2. CHECK SWITCHING VALVE 1 GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between hydraulic unit (switching valve 1) harness connector and retractable hard top control unit harness connector.

Hydraulic unit (switching valve 1)		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B80	2	B84	68	Existed

4. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3. REPLACE HYDRAULIC UNIT

Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 4.

4. REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 5.

5. CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B171D SWITCHING VALVE 2

DTC Logic

INFOID:0000000008158337

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B171D	SWITCHING VALVE 2	[GND-SHORT]	Switching valve 2 circuit is open, short to ground or short to power.	• Harness or connectors (The switching valve 2 circuit is open or shorted.) • Hydraulic unit • Retractable hard top control unit
		[PWR-SHORT]		
		[OPEN]		

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-120, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158338

1. CHECK SWITCHING VALVE 2 POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect hydraulic unit (switching valve 2) harness connector.
3. Turn ignition switch ON.
4. Check the voltage between hydraulic unit (switching valve 2) harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Hydraulic unit (switching valve 2)			
Connector	Terminal		
B80	9	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2. CHECK SWITCHING VALVE 2 GROUND CIRCUIT FOR OPEN AND SHORT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector.
3. Check the continuity between hydraulic unit (switching valve 2) harness connector and retractable hard top control unit harness connector.

Hydraulic unit (switching valve 2)		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B80	9	B84	67	Existed

4. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3. REPLACE HYDRAULIC UNIT

Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 4.

4. REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 5.

5. CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B171E RETRACTABLE HARD TOP CONTROL UNIT

DTC Logic

INFOID:0000000008158339

DTC DETECTION LOGIC

NOTE:

If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B171E	ROOF CONTROL UNIT	• Retractable hard top control unit detects output to parcel shelf motor (draw)-UP without output request. • Retractable hard top control unit requests output to parcel shelf motor (draw)-UP but cannot detect output.	Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Refer to RF-124, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158340

1.CHECK SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
3. Perform DTC Confirmation Procedure. Refer to RF-124, "DTC Logic".

>> INSPECTION END

B171F RETRACTABLE HARD TOP CONTROL UNIT

DTC Logic

INFOID:0000000008158341

DTC DETECTION LOGIC

NOTE:

If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B171F	ROOF CONTROL UNIT	• Retractable hard top control unit detects output to parcel shelf motor (draw)-DOWN without output request. • Retractable hard top control unit requests output to parcel shelf motor (draw)-DOWN but cannot detect output.	Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Refer to RF-125, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158342

1.CHECK SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
3. Perform DTC Confirmation Procedure. Refer to RF-125, "DTC Logic".

>> INSPECTION END

B1720 RETRACTABLE HARD TOP CONTROL UNIT

DTC Logic

INFOID:0000000008158343

DTC DETECTION LOGIC

NOTE:

If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B1720	ROOF CONTROL UNIT	• Retractable hard top control unit detects output to parcel shelf motor (rotation)-HORIZONTAL without output request. • Retractable hard top control unit requests output to parcel shelf motor (rotation)-HORIZONTAL but cannot detect output.	Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Refer to RF-126, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158344

1.CHECK SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
3. Perform DTC Confirmation Procedure. Refer to RF-126, "DTC Logic".

>> INSPECTION END

B1721 RETRACTABLE HARD TOP CONTROL UNIT

DTC Logic

INFOID:0000000008158345

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B1721	ROOF CONTROL UNIT	• Retractable hard top control unit detects output to parcel shelf motor (rotation)-VERTICAL without output request. • Retractable hard top control unit requests output to parcel shelf motor (rotation)-VERTICAL but cannot detect output.	Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Refer to RF-127, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158346

1.CHECK SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
3. Perform DTC Confirmation Procedure. Refer to RF-127, "DTC Logic".

>> INSPECTION END

B1722 RETRACTABLE HARD TOP CONTROL UNIT

DTC Logic

INFOID:0000000008158347

DTC DETECTION LOGIC

NOTE:

If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B1722	ROOF CONTROL UNIT	• Retractable hard top control unit detects output toflipper door motor (LH/RH)-UP without output request. • Retractable hard top control unit requests output to parcel shelf motor flipper door motor (LH/RH)-UP but cannot detect output.	Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Refer to RF-128, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158348

1.CHECK SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
3. Perform DTC Confirmation Procedure. Refer to RF-128, "DTC Logic".

>> INSPECTION END

B1723 RETRACTABLE HARD TOP CONTROL UNIT

DTC Logic

INFOID:0000000008158349

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B1723	ROOF CONTROL UNIT	• Retractable hard top control unit detects output toflipper door motor (LH/RH)-DOWN without output request. • Retractable hard top control unit requests output to parcel shelf motor flipper door motor (LH/RH)-DOWN but cannot detect output.	Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Refer to RF-129, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158350

1.CHECK SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
3. Perform DTC Confirmation Procedure. Refer to RF-129, "DTC Logic".

>> INSPECTION END

B1724 RETRACTABLE HARD TOP CONTROL UNIT

DTC Logic

INFOID:0000000008158351

DTC DETECTION LOGIC

NOTE:

If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B1724	ROOF CONTROL UNIT	Retractable hard top control unit requests output to roof latch motor-UNLOCK but cannot detect output.	Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Refer to RF-130, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158352

1.CHECK SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
3. Perform DTC Confirmation Procedure. Refer to RF-130, "DTC Logic".

>> INSPECTION END

B1725 RETRACTABLE HARD TOP CONTROL UNIT

DTC Logic

INFOID:0000000008158353

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B1725	ROOF CONTROL UNIT	Retractable hard top control unit requests output to roof latch motor-LOCK but cannot detect output.	Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Refer to RF-131, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158354

1.CHECK SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
3. Perform DTC Confirmation Procedure. Refer to RF-131, "DTC Logic".

>> INSPECTION END

B1726 RETRACTABLE HARD TOP CONTROL UNIT

DTC Logic

INFOID:0000000008158355

DTC DETECTION LOGIC

NOTE:

If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B1726	ROOF CONTROL UNIT	• Retractable hard top control unit detects output to trunk lid opener actuator without output request. • Retractable hard top control unit requests output to trunk lid opener actuator but cannot detect output.	Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Refer to RF-132, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158356

1.CHECK SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
3. Perform DTC Confirmation Procedure. Refer to RF-132, "DTC Logic".

>> INSPECTION END

B1728 RETRACTABLE HARD TOP CONTROL UNIT

DTC Logic

INFOID:0000000008158357

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC	Trouble diagnosis name	DTC detecting condition	Possible cause
B1728	ROOF CONTROL UNIT	• Retractable hard top control unit detects output torear power window motor (LH)-UP without output request. • Retractable hard top control unit requests output to rear power window motor (LH)-UP but cannot detect output.	Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Refer to RF-133, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158358

1.CHECK SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
3. Perform DTC Confirmation Procedure. Refer to RF-133, "DTC Logic".

>> INSPECTION END

B1729 RETRACTABLE HARD TOP CONTROL UNIT

DTC Logic

INFOID:0000000008158359

DTC DETECTION LOGIC

NOTE:

If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B1729	ROOF CONTROL UNIT	• Retractable hard top control unit detects output torear power window motor (LH)-DOWN without output request. • Retractable hard top control unit requests output to rear power window motor (LH)-DOWN but cannot detect output.	Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Refer to RF-134, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158360

1.CHECK SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
3. Perform DTC Confirmation Procedure. Refer to RF-134, "DTC Logic".

>> INSPECTION END

B172A RETRACTABLE HARD TOP CONTROL UNIT

DTC Logic

INFOID:0000000008158361

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name	DTC detecting condition	Possible cause
B172A	ROOF CONTROL UNIT	• Retractable hard top control unit detects output torear power window motor (RH)-UP without output request. • Retractable hard top control unit requests output to rear power window motor (RH)-UP but cannot detect output.	Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Refer to RF-135, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158362

1.CHECK SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
3. Perform DTC Confirmation Procedure. Refer to RF-135, "DTC Logic".

>> INSPECTION END

B172B ROOF STATUS SIGNAL (AUDIO)

Description

INFOID:0000000008158363

Retractable hard top control unit transmits retractable hard top open and close states to audio volume control unit. Audio volume control unit automatically switches equalizer according to retractable hard top open or close state that is received.

DTC Logic

INFOID:0000000008158364

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B172B	ROOF STATE SIG (AUDIO)	[PWR-SHORT]	BOSE AMP. (with NAVI) or tel adapter unit (without NAVI) circuit is short to power.	• Harness or connectors (The BOSE AMP. circuit is shorted) (The tel adapter unit circuit is shorted) • BOSE AMP. (with NAVI) • Tel adapter unit (without NAVI) • Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-120, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158365

1. CHECK ROOF POSITION SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector and BOSE AMP. (with NAVI) or tel adapter unit (without NAVI) harness connector.
3. Check voltage between retractable hard top control unit harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Retractable hard top control unit			
Connector	Terminal		
B82	33	Ground	0

Is the inspection result normal?

YES-1 >> BOSE AMP. (with NAVI): GO TO 2.
YES-2 >> Tel adapter unit (without): GO TO 3.
NO >> Repair or replace harness or connectors.

2. CHECK BOSE AMP.

Check BOSE AMP. Refer to AV-347, "BOSE AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace BOSE AMP.

3. CHECK TEL ADAPTER UNIT

Check tel adapter unit. Refer to AV-196, "TEL ADAPTER UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace BOSE AMP.

4. REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 5.

5. CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B172D ROOF WARNING BUZZER

DTC Logic

INFOID:0000000008158366

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B172D	ROOF WARNING BUZZER	[PWR-SHORT]	Roof warning buzzer circuit is short to power.	• Harness or connectors (The roof warning buzzer circuit is shorted) • Retractable hard top control unit • Roof warning buzzer

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-120, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158367

1. CHECK ROOF WARNING BUZZER CIRCUIT-I

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit harness connector and fuse block (J/B) harness connector.
3. Check voltage between retractable hard top control unit harness connector and ground.

Retractable hard top control unit		(–)	Voltage (V) (Approx.)
(+)			
Connector	Terminal		
B82	35	Ground	0

Is the inspection result normal?

YES >> GO TO 3.
NO >> GO TO 2.

2. CHECK ROOF WARNING BUZZER CIRCUIT-II

1. Disconnect roof warning buzzer harness connector.
2. Check voltage between fuse block (J/B) harness connector and ground.

Fuse block (J/B)		(–)	Voltage (V) (Approx.)
(+)			
Connector	Terminal		
M2	6B	Ground	0

3. Check voltage between retractable hard top control unit harness connector and ground.

Retractable hard top control unit		(–)	Voltage (V) (Approx.)
(+)			
Connector	Terminal		
B82	35	Ground	0

Is the inspection result normal?

YES >> Replace warning buzzer. Refer to INT-15, "Removal and Installation".
NO >> Repair or replace harness or connector.

3.CHECK FUSE BLOCK (J/B)

Check fuse block (J/B). Refer to PG-110, "Fuse, Connector and Terminal Arrangement".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace fuse block (J/B).

4.REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 5.

5.CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B172E RETRACTABLE HARD TOP CONTROL UNIT

DTC Logic

INFOID:0000000008158368

DTC DETECTION LOGIC

NOTE:

If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC	Trouble diagnosis name	DTC detecting condition	Possible cause
B172E	ROOF CONTROL UNIT	• Retractable hard top control unit detects output torear power window motor (RH)-DOWN without output request. • Retractable hard top control unit requests output to rear power window motor (RH)-DOWN but cannot detect output.	Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Refer to RF-140, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158369

1.CHECK SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
3. Perform DTC Confirmation Procedure. Refer to RF-83, "DTC Logic".

>> INSPECTION END

B172F REAR POWER WINDOW (LH)

DTC Logic

INFOID:0000000008158370

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B172F	REAR PWR WINDOW(LH)	[OPEN]	Rear power window motor (LH) circuit is open.	• Harness or connectors (The rear power window motor (LH) circuit is open or shorted.) • Rear power window motor (LH) • Retractable hard top control unit
		[TIME-OUT]	An improper current is sent to the retractable hard top control unit through rear power window motor (LH).	

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE-I

1. Turn ignition switch ON.
2. Operate rear power window (LH) to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> GO TO 2.
NO >> INSPECTION END

2. PERFORM DTC CONFIRMATION PROCEDURE-II

1. Turn ignition switch OFF and wait at least 2 minutes.
2. Operate rear power window (LH) to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-141, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158371

1. CHECK RETRACTABLE HARD TOP CONTROL UNIT OUTPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect rear power window motor (LH) harness connector.
3. Turn ignition switch ON.
4. Check voltage between rear power window motor (LH) harness connector and ground.

(+)		(–)	Condition		Voltage (V) (Approx.)
Connector	Terminal				
B72	1	Ground	Power window main switch (rear LH)	UP	Battery voltage
				DOWN	0
	2			UP	0
				DOWN	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2. CHECK REAR POWER WINDOW MOTOR (LH) CIRCUIT FOR OPEN AND SHORT

Check rear power window motor (LH). Refer to PWC-20, "REAR LH : Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace rear power window motor (LH). Refer to PWC-9, "Component Parts Location".

3. REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 4.

4. CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B1730 REAR POWER WINDOW (RH)

DTC Logic

INFOID:0000000008158372

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B1730	REAR PWR WINDOW(RH)	[OPEN]	Rear power window motor (RH) circuit is open.	• Harness or connectors (The rear power window motor (RH) circuit is open or shorted.) • Rear power window motor (RH) • Retractable hard top control unit
		[TIME-OUT]	An improper current is sent to the retractable hard top control unit through rear power window motor (RH).	

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE-I

1. Turn ignition switch ON.
2. Operate rear power window (RH) to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> GO TO 2.
NO >> INSPECTION END

2. PERFORM DTC CONFIRMATION PROCEDURE-II

1. Turn ignition switch OFF and wait at least 2 minutes.
2. Operate rear power window (RH) to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-141, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158373

1. CHECK RETRACTABLE HARD TOP CONTROL UNIT OUTPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect rear power window motor (RH) harness connector.
3. Turn ignition switch ON.
4. Check voltage between rear power window motor (RH) harness connector and ground.

(+)		(–)	Condition		Voltage (V) (Approx.)
Connector	Terminal				
B245	1	Ground	Power window main switch (rear RH)	UP	Battery voltage
				DOWN	0
	2			UP	0
				DOWN	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2. CHECK REAR POWER WINDOW MOTOR (RH) CIRCUIT FOR OPEN AND SHORT

Check rear power window motor (RH). Refer to PWC-22, "REAR RH : Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace rear power window motor (RH). Refer to PWC-9, "Component Parts Location".

3. REPLACE RETRACTABLE HARD TOP CONTROL UNIT

Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 4.

4. CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

B1731 HYDRAULIC STATE 1

Description

INFOID:0000000008158374

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158375

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1731	HYDRAULIC STATE 1	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 1 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 2, 3 or 4 is not detected for 2 seconds	• Hydraulic system • Trunk lid • Trunk room lamp switch • Hydraulic unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-145, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158376

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Trunk lid: Refer to DLK-235, "TRUNK LID ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK TRUNK ROOM LAMP SWITCH

Check trunk room lamp switch. Refer to DLK-81, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK TRUNK ROOM LAMP SWITCH SIGNAL

Check “TR ROOM LAMP SW” in “DATA MONITOR” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
TR ROOM LAMP SW	Trunk lid	Open	ON
		Closed	OFF

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4. CHECK TRUNK ROOM LAMP SWITCH CIRCUIT

1. Disconnect trunk room lamp switch connector, BCM connector, trunk closure control unit connector and retractable hard top control unit connector.
2. Check continuity between retractable hard top control unit harness connector and trunk room lamp switch harness connector.

Retractable hard top control unit		Trunk room lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	5	B306	2	Existed

3. Check continuity between BCM harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	5		Not existed

Is the inspection result normal?

YES >> Check trunk lid auto closure system. Refer to DLK-186, "OPEN/CLOSURE FUNCTION : Diagnosis Procedure".
NO >> Repair harness or connector.

5. CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B1732 HYDRAULIC STATE 2

Description

INFOID:0000000008158377

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158378

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1732	HYDRAULIC STATE2	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 2 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 4 is not detected for 2 seconds • Close operation: Hydraulic state 1 is not detected for 2 seconds	• Hydraulic system • Trunk lid • Trunk room lamp switch • Hydraulic unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-147, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158379

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Trunk lid: Refer to DLK-235, "TRUNK LID ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK TRUNK ROOM LAMP SWITCH

Check trunk room lamp switch. Refer to DLK-81, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK TRUNK ROOM LAMP SWITCH SIGNAL

Check “TR ROOM LAMP SW” in “DATA MONITOR” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
TR ROOM LAMP SW	Trunk lid	Open	ON
		Closed	OFF

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4. CHECK TRUNK ROOM LAMP SWITCH CIRCUIT

1. Disconnect trunk room lamp switch connector, BCM connector, trunk closure control unit connector and retractable hard top control unit connector.
2. Check continuity between retractable hard top control unit harness connector and trunk room lamp switch harness connector.

Retractable hard top control unit		Trunk room lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	5	B306	2	Existed

3. Check continuity between BCM harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	5		Not existed

Is the inspection result normal?

YES >> Check trunk lid auto closure system. Refer to DLK-186, "OPEN/CLOSURE FUNCTION : Diagnosis Procedure".
NO >> Repair harness or connector.

5. CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B1733 HYDRAULIC STATE 3

Description

INFOID:0000000008158380

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158381

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1733	HYDRAULIC STATE 3	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 3 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 4 is not detected for 2 seconds • Close operation: Hydraulic state 1 is not detected for 2 seconds	• Hydraulic system • Trunk lid • Trunk room lamp switch • Hydraulic unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-149, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158382

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Trunk lid: Refer to DLK-235, "TRUNK LID ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK TRUNK ROOM LAMP SWITCH

Check trunk room lamp switch. Refer to DLK-81, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK TRUNK ROOM LAMP SWITCH SIGNAL

Check “TR ROOM LAMP SW” in “DATA MONITOR” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
TR ROOM LAMP SW	Trunk lid	Open	ON
		Closed	OFF

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4. CHECK TRUNK ROOM LAMP SWITCH CIRCUIT

1. Disconnect trunk room lamp switch connector, BCM connector, trunk closure control unit connector and retractable hard top control unit connector.
2. Check continuity between retractable hard top control unit harness connector and trunk room lamp switch harness connector.

Retractable hard top control unit		Trunk room lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	5	B306	2	Existed

3. Check continuity between BCM harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	5		Not existed

Is the inspection result normal?

YES >> Check trunk lid auto closure system. Refer to DLK-186, "OPEN/CLOSURE FUNCTION : Diagnosis Procedure".
NO >> Repair harness or connector.

5. CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B1734 HYDRAULIC STATE 4

Description

INFOID:0000000008158383

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158384

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1734	HYDRAULIC STATE 4	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 4 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 5 is not detected for 0.6 second • Close operation: Hydraulic state 1, 2 or 3 is not detected for 2 seconds	• Hydraulic system • Trunk lid • Trunk room lamp switch • Hydraulic unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-151, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158385

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Trunk lid: Refer to DLK-235, "TRUNK LID ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK TRUNK ROOM LAMP SWITCH

Check trunk room lamp switch. Refer to DLK-81, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK TRUNK ROOM LAMP SWITCH SIGNAL

Check “TR ROOM LAMP SW” in “DATA MONITOR” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
TR ROOM LAMP SW	Trunk lid	Open	ON
		Closed	OFF

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4. CHECK TRUNK ROOM LAMP SWITCH CIRCUIT

1. Disconnect trunk room lamp switch connector, BCM connector, trunk closure control unit connector and retractable hard top control unit connector.
2. Check continuity between retractable hard top control unit harness connector and trunk room lamp switch harness connector.

Retractable hard top control unit		Trunk room lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	5	B306	2	Existed

3. Check continuity between BCM harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	5		Not existed

Is the inspection result normal?

YES >> Check trunk lid auto closure system. Refer to DLK-186, "OPEN/CLOSURE FUNCTION : Diagnosis Procedure".
NO >> Repair harness or connector.

5. CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B1735 HYDRAULIC STATE 5

Description

INFOID:0000000008158386

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158387

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1735	HYDRAULIC STATE 5	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 5 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 6 is not detected for 7 seconds • Close operation: Hydraulic state 4 is not detected for 7 seconds	• Hydraulic system • Trunk lid • Trunk room lamp switch • Hydraulic unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-153, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158388

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Trunk lid: Refer to DLK-235, "TRUNK LID ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK TRUNK ROOM LAMP SWITCH

Check trunk room lamp switch. Refer to DLK-81, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK TRUNK ROOM LAMP SWITCH SIGNAL

Check “TR ROOM LAMP SW” in “DATA MONITOR” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
TR ROOM LAMP SW	Trunk lid	Open	ON
		Closed	OFF

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4. CHECK TRUNK ROOM LAMP SWITCH CIRCUIT

1. Disconnect trunk room lamp switch connector, BCM connector, trunk closure control unit connector and retractable hard top control unit connector.
2. Check continuity between retractable hard top control unit harness connector and trunk room lamp switch harness connector.

Retractable hard top control unit		Trunk room lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	5	B306	2	Existed

3. Check continuity between BCM harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	5		Not existed

Is the inspection result normal?

YES >> Check trunk lid auto closure system. Refer to DLK-186, "OPEN/CLOSURE FUNCTION : Diagnosis Procedure".
NO >> Repair harness or connector.

5. CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B1736 HYDRAULIC STATE 6

Description

INFOID:0000000008158389

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158390

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1736	HYDRAULIC STATE 6	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 6 for the specified period of time, during a close operation • Close operation: Hydraulic state 4 is not detected for 3 seconds	• Hydraulic system • Hydraulic unit • Roof • Roof latch • Roof latch motor

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-155, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158391

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Roof: Refer to RF-273, "Exploded View".
- Roof latch: Refer to RF-255, "ROOF LOCK ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK ROOF LATCH MOTOR

Check roof latch motor. Refer to RF-223, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B1737 HYDRAULIC STATE 7

Description

INFOID:0000000008158392

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158393

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1737	HYDRAULIC STATE 7	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 7 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 8 is not detected for 5 seconds • Close operation: Hydraulic state 6 is not detected for 5 seconds	• Hydraulic system • Hydraulic unit • Roof • Roof latch • Roof latch motor

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-156, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158394

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Roof: Refer to RF-273, "Exploded View".
- Roof latch: Refer to RF-255, "ROOF LOCK ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK ROOF LATCH MOTOR

Check roof latch motor. Refer to RF-223, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B1738 HYDRAULIC STATE 8

Description

INFOID:0000000008158395

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158396

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1738	HYDRAULIC STATE 8	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 8 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 9 is not detected for 2 seconds	• Hydraulic system • Hydraulic unit • Roof • Roof latch • Roof latch motor

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-157, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158397

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Roof: Refer to RF-273, "Exploded View".
- Roof latch: Refer to RF-255, "ROOF LOCK ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK ROOF LATCH MOTOR

Check roof latch motor. Refer to RF-223, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B1739 HYDRAULIC STATE 9

Description

INFOID:0000000008158398

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158399

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1739	HYDRAULIC STATE 9	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 9 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 10 is not detected for 4 seconds • Close operation: Hydraulic state 8 is not detected for 3 seconds	• Hydraulic system • Roof • Hydraulic unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-158, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158400

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Roof: Refer to RF-273, "Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B173A HYDRAULIC STATE 10

Description

INFOID:0000000008158401

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158402

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B173A	HYDRAULIC STATE 10	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 10 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 11 is not detected for 4.5 seconds • Close operation: Hydraulic state 9 is not detected for 5 seconds	• Hydraulic system • Roof • Hydraulic unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-159, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158403

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Roof: Refer to RF-273, "Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B173B HYDRAULIC STATE 11

Description

INFOID:0000000008158404

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158405

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B173B	HYDRAULIC STATE 11	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 11 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 12 is not detected for 4 seconds • Close operation: Hydraulic state 10 is not detected for 7 seconds	• Hydraulic system • Roof • Hydraulic unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-160, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158406

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Roof: Refer to RF-273, "Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B173C HYDRAULIC STATE 12

Description

INFOID:0000000008158407

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158408

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B173C	HYDRAULIC STATE 12	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 12 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 13 is not detected for 2 seconds • Close operation: Hydraulic state 11 is not detected for 2.5 seconds	• Hydraulic system • Roof • Hydraulic unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-161, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158409

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Roof: Refer to RF-273, "Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B173D HYDRAULIC STATE 13

Description

INFOID:0000000008158410

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158411

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B173D	HYDRAULIC STATE 13	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 13 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 14 is not detected for 3 seconds • Close operation: Hydraulic state 12 is not detected for 2.5 seconds	• Hydraulic system • Roof • Hydraulic unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-162, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158412

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Roof: Refer to RF-273, "Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B173E HYDRAULIC STATE 14

Description

INFOID:0000000008158413

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158414

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B173E	HYDRAULIC STATE 14	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 14 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 15 is not detected for 3.5 seconds • Close operation: Hydraulic state 13 is not detected for 2.5 seconds	• Hydraulic system • Roof • Hydraulic unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-163, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158415

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Roof: Refer to RF-273, "Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B173F HYDRAULIC STATE 15

Description

INFOID:0000000008158416

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158417

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B173F	HYDRAULIC STATE 15	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 15 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 16 is not detected for 3.5 seconds • Close operation: Hydraulic state 14 is not detected for 2.5 seconds	• Hydraulic system • Hydraulic unit • Roof • Roof latch • Roof latch motor

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-164, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158418

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Roof: Refer to RF-273, "Exploded View".
- Roof latch: Refer to RF-255, "ROOF LOCK ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK ROOF LATCH MOTOR

Check roof latch motor. Refer to RF-223, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B1740 HYDRAULIC STATE 16

Description

INFOID:0000000008158419

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158420

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1740	HYDRAULIC STATE 16	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 16 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 17 is not detected for 5 seconds	• Hydraulic system • Hydraulic unit • Trunk • Trunk room lamp switch • Parcel shelf motor • Flipper door motor • Flipper door limit switch • Roof latch • Roof latch motor

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-165, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158421

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Trunk lid: Refer to DLK-235, "TRUNK LID ASSEMBLY : Exploded View".
- Parcel shelf: Refer to RF-276, "REAR PARCEL SHELF UNIT : Exploded View".
- Flipper door: Refer to RF-281, "Exploded View".
- Roof: Refer to RF-273, "Exploded View".
- Roof latch assy: Refer to RF-255, "ROOF LOCK ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK TRUNK ROOM LAMP SWITCH

Check trunk room lamp switch. Refer to DLK-81, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK TRUNK ROOM LAMP SWITCH SIGNAL

Check “TR ROOM LAMP SW” in “DATA MONITOR” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
TR ROOM LAMP SW	Trunk lid	Open	ON
		Closed	OFF

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4. CHECK TRUNK ROOM LAMP SWITCH CIRCUIT

1. Disconnect trunk room lamp switch connector, BCM connector trunk closure control unit connector and retractable hard top control unit connector.
2. Check continuity between retractable hard top control unit harness connector and trunk room lamp switch harness connector.

Retractable hard top control unit		Trunk room lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	5	B306	2	Existed

3. Check continuity between BCM harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	5		Not existed

Is the inspection result normal?

YES >> Check trunk lid auto closure system. Refer to DLK-186, "OPEN/CLOSURE FUNCTION : Diagnosis Procedure".
NO >> Repair harness or connector.

5. CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 6.
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

6. CHECK PARCEL SHELF MOTOR

Check parcel shelf motor. Refer to RF-224, "Diagnosis Procedure" (DRAW) and RF-226, "Diagnosis Procedure"(ROTATION).

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace parcel shelf. Refer to RF-276, "REAR PARCEL SHELF UNIT : Removal and Installation".

7. CHECK FLIPPER DOOR MOTOR

Check flipper door motor. Refer to RF-221, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 8.
NO >> Replace flipper door. Refer to RF-281, "Removal and Installation".

8. CHECK FLIPPER DOOR LIMIT SWITCH

Check flipper door limit switch. Refer to RF-221, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 9.
NO >> Replace flipper door. Refer to RF-281, "Removal and Installation".

9. CHECK ROOF LATCH MOTOR

Check roof latch motor. Refer to RF-223, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace roof latch motor. Refer to RF-255, "ROOF LOCK ASSEMBLY : Removal and Installation".

B1741 HYDRAULIC STATE 17

Description

INFOID:0000000008158422

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158423

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1741	HYDRAULIC STATE 17	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 17 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 18 is not detected for 3 seconds	• Hydraulic system • Hydraulic unit • Roof • Roof latch • Roof latch motor

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-168, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158424

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Roof: Refer to RF-273, "Exploded View".
- Roof latch: Refer to RF-255, "ROOF LOCK ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK ROOF LATCH MOTOR

Check roof latch motor. Refer to RF-223, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B1742 HYDRAULIC STATE 18

Description

INFOID:0000000008158425

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158426

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1742	HYDRAULIC STATE 18	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 18 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 19 is not detected for 7 seconds • Close operation: Hydraulic state 17 is not detected for 7 seconds	• Hydraulic system • Trunk lid • Trunk room lamp switch • Hydraulic unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-169, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158427

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Trunk lid: Refer to DLK-235, "TRUNK LID ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK TRUNK ROOM LAMP SWITCH

Check trunk room lamp switch. Refer to DLK-81, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK TRUNK ROOM LAMP SWITCH SIGNAL

Check “TR ROOM LAMP SW” in “DATA MONITOR” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
TR ROOM LAMP SW	Trunk lid	Open	ON
		Closed	OFF

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4. CHECK TRUNK ROOM LAMP SWITCH CIRCUIT

1. Disconnect trunk room lamp switch connector, BCM connector trunk closure control unit connector and retractable hard top control unit connector.
2. Check continuity between retractable hard top control unit harness connector and trunk room lamp switch harness connector.

Retractable hard top control unit		Trunk room lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	5	B306	2	Existed

3. Check continuity between BCM harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	5		Not existed

Is the inspection result normal?

YES >> Check trunk lid auto closure system. Refer to DLK-186, "OPEN/CLOSURE FUNCTION : Diagnosis Procedure".
NO >> Repair harness or connector.

5. CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B1743 HYDRAULIC STATE 19

Description

INFOID:0000000008158428

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158429

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1743	HYDRAULIC STATE 19	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 19 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 20 is not detected for 2 seconds • Close operation: Hydraulic state 18 is not detected for 0.6 second	• Hydraulic system • Trunk lid • Trunk room lamp switch • Hydraulic unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-171, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158430

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Trunk lid: Refer to DLK-235, "TRUNK LID ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK TRUNK ROOM LAMP SWITCH

Check trunk room lamp switch. Refer to DLK-81, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK TRUNK ROOM LAMP SWITCH SIGNAL

Check “TR ROOM LAMP SW” in “DATA MONITOR” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
TR ROOM LAMP SW	Trunk lid	Open	ON
		Closed	OFF

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4. CHECK TRUNK ROOM LAMP SWITCH CIRCUIT

1. Disconnect trunk room lamp switch connector, BCM connector, trunk closure control unit connector and retractable hard top control unit connector.
2. Check continuity between retractable hard top control unit harness connector and trunk room lamp switch harness connector.

Retractable hard top control unit		Trunk room lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	5	B306	2	Existed

3. Check continuity between BCM harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	5		Not existed

Is the inspection result normal?

YES >> Check trunk lid auto closure system. Refer to DLK-186, "OPEN/CLOSURE FUNCTION : Diagnosis Procedure".
NO >> Repair harness or connector.

5. CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B1744 HYDRAULIC STATE 20

Description

INFOID:0000000008158431

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158432

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1744	HYDRAULIC STATE 20	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 20 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 21 is not detected for 2 seconds • Close operation: Hydraulic state 19 is not detected for 2 seconds	• Hydraulic system • Trunk lid • Trunk room lamp switch • Hydraulic unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-173, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158433

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Trunk lid: Refer to DLK-235, "TRUNK LID ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK TRUNK ROOM LAMP SWITCH

Check trunk room lamp switch. Refer to DLK-81, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK TRUNK ROOM LAMP SWITCH SIGNAL

Check “TR ROOM LAMP SW” in “DATA MONITOR” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
TR ROOM LAMP SW	Trunk lid	Open	ON
		Closed	OFF

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4. CHECK TRUNK ROOM LAMP SWITCH CIRCUIT

1. Disconnect trunk room lamp switch connector, BCM connector, trunk closure control unit connector and retractable hard top control unit connector.
2. Check continuity between retractable hard top control unit harness connector and trunk room lamp switch harness connector.

Retractable hard top control unit		Trunk room lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	5	B306	2	Existed

3. Check continuity between BCM harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	5		Not existed

Is the inspection result normal?

YES >> Check trunk lid auto closure system. Refer to DLK-186, "OPEN/CLOSURE FUNCTION : Diagnosis Procedure".
NO >> Repair harness or connector.

5. CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B1745 HYDRAULIC STATE 21

Description

INFOID:0000000008158434

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158435

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1745	HYDRAULIC STATE 21	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 21 for the specified period of time, during an open and close operation • Open operation: Hydraulic state 22 is not detected for 2 seconds • Close operation: Hydraulic state 20 is not detected for 2 seconds	• Hydraulic system • Trunk lid • Trunk room lamp switch • Hydraulic unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-175, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158436

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Trunk lid: Refer to DLK-235, "TRUNK LID ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK TRUNK ROOM LAMP SWITCH

Check trunk room lamp switch. Refer to DLK-81, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK TRUNK ROOM LAMP SWITCH SIGNAL

Check “TR ROOM LAMP SW” in “DATA MONITOR” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
TR ROOM LAMP SW	Trunk lid	Open	ON
		Closed	OFF

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4. CHECK TRUNK ROOM LAMP SWITCH CIRCUIT

1. Disconnect trunk room lamp switch connector, BCM connector, trunk closure control unit connector and retractable hard top control unit connector.
2. Check continuity between retractable hard top control unit harness connector and trunk room lamp switch harness connector.

Retractable hard top control unit		Trunk room lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	5	B306	2	Existed

3. Check continuity between BCM harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	5		Not existed

Is the inspection result normal?

YES >> Check trunk lid auto closure system. Refer to DLK-186, "OPEN/CLOSURE FUNCTION : Diagnosis Procedure".
NO >> Repair harness or connector.

5. CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B1746 HYDRAULIC STATE 22

Description

INFOID:0000000008158437

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158438

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1746	HYDRAULIC STATE 22	[TIMEOUT]	Retractable hard top control unit does not detect changing from hydraulic state 22 for the specified period of time, during an open and close operation • Close operation: Hydraulic state 21 is not detected for 2 seconds	• Hydraulic system • Trunk lid • Trunk room lamp switch • Hydraulic unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-177, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158439

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Trunk lid: Refer to DLK-235, "TRUNK LID ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK TRUNK ROOM LAMP SWITCH

Check trunk room lamp switch. Refer to DLK-81, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK TRUNK ROOM LAMP SWITCH SIGNAL

Check “TR ROOM LAMP SW” in “DATA MONITOR” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
TR ROOM LAMP SW	Trunk lid	Open	ON
		Closed	OFF

Is the inspection result normal?

YES >> GO TO 5.
NO >> GO TO 4.

4. CHECK TRUNK ROOM LAMP SWITCH CIRCUIT

1. Disconnect trunk room lamp switch connector, BCM connector, trunk closure control unit connector and retractable hard top control unit connector.
2. Check continuity between retractable hard top control unit harness connector and trunk room lamp switch harness connector.

Retractable hard top control unit		Trunk room lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	5	B306	2	Existed

3. Check continuity between BCM harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	5		Not existed

Is the inspection result normal?

YES >> Check trunk lid auto closure system. Refer to DLK-186, "OPEN/CLOSURE FUNCTION : Diagnosis Procedure".
NO >> Repair harness or connector.

5. CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B1747 PARCEL SHELF (DRAW)-STATE 1

Description

INFOID:0000000008158440

There are 4 rotation operation states and 6 draw operation states in parcel shelf. Open and close operations of retractable hard tops are performed interlocking with other retractable hard top system components. For the detail, refer to RF-37, "PARCEL SHELF FUNCTION : System Description".

DTC Logic

INFOID:0000000008158441

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1747	P SHELF (DRAW) STATE 1	[TIMEOUT]	Retractable hard top control unit does not detect changing from parcel shelf (draw) state 1 for the specified period of time, during an open and close operation • DOWN operation: Parcel shelf (draw) state 1 is not detected for 2 seconds	• Parcel shelf • Parcel shelf motor (draw)

DTC CONFIRMATION PROCEDURE

1.PERFORM INITIALIZE

Perform initialization without CONSULT. Refer to RF-76, "Description".

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open then fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-179, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158442

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
• Parcel shelf: Refer to RF-276, "REAR PARCEL SHELF UNIT : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK PARCEL SHELF MOTOR

Check parcel shelf motor (draw). Refer to RF-224, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B1748 PARCEL SHELF (DRAW)-STATE 2

Description

INFOID:0000000008158443

There are 4 rotation operation states and 6 draw operation states in parcel shelf. Open and close operations of retractable hard tops are performed interlocking with other retractable hard top system components. For the detail, refer to RF-37, "PARCEL SHELF FUNCTION : System Description".

DTC Logic

INFOID:0000000008158444

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1748	P SHELF (DRAW) STATE 2	[TIMEOUT]	Retractable hard top control unit does not detect changing from parcel shelf (draw) state 2 for the specified period of time, during an open and close operation • Down operation: Parcel shelf (draw) state 3 is not detected for 4 seconds • Up operation: Parcel shelf (draw) state 1 is not detected for 4 seconds	• Parcel shelf • Parcel shelf motor (draw)

DTC CONFIRMATION PROCEDURE

1.PERFORM INITIALIZE

Perform initialization without CONSULT. Refer to RF-76, "Description".

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open then fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-180, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158445

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
• Parcel shelf: Refer to RF-276, "REAR PARCEL SHELF UNIT : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK PARCEL SHELF MOTOR

Check parcel shelf motor (draw). Refer to RF-224, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B1749 PARCEL SHELF (DRAW)-STATE 3

Description

INFOID:0000000008158446

There are 4 rotation operation states and 6 draw operation states in parcel shelf. Open and close operations of retractable hard tops are performed interlocking with other retractable hard top system components. For the detail, refer to RF-37, "PARCEL SHELF FUNCTION : System Description".

DTC Logic

INFOID:0000000008158447

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1749	P SHELF (DRAW) STATE 3	[TIMEOUT]	Retractable hard top control unit does not detect changing from parcel shelf (draw) state 3 for the specified period of time, during an open and close operation • Down operation: Parcel shelf (draw) state 4 is not detected for 4 seconds • Up operation: Parcel shelf (draw) state 2 is not detected for 4 seconds	• Parcel shelf • Parcel shelf motor (draw)

DTC CONFIRMATION PROCEDURE

1.PERFORM INITIALIZE

Perform initialization without CONSULT. Refer to RF-76, "Description".

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open then fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-181, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158448

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
• Parcel shelf: Refer to RF-276, "REAR PARCEL SHELF UNIT : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK PARCEL SHELF MOTOR

Check parcel shelf motor (draw). Refer to RF-224, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B174A PARCEL SHELF (DRAW)-STATE 4

Description

INFOID:0000000008158449

There are 4 rotation operation states and 6 draw operation states in parcel shelf. Open and close operations of retractable hard tops are performed interlocking with other retractable hard top system components. For the detail, refer to RF-37, "PARCEL SHELF FUNCTION : System Description".

DTC Logic

INFOID:0000000008158450

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B174A	P SHELF (DRAW) STATE 4	[TIMEOUT]	Retractable hard top control unit does not detect changing from parcel shelf (draw) state 4 for the specified period of time, during an open and close operation • Down operation: Parcel shelf (draw) state 5 is not detected for 4 seconds • Up operation: Parcel shelf (draw) state 3 is not detected for 4 seconds	• Parcel shelf • Parcel shelf motor (draw)

DTC CONFIRMATION PROCEDURE

1.PERFORM INITIALIZE

Perform initialization without CONSULT. Refer to RF-76, "Description".

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open then fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-182, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158451

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
• Parcel shelf: Refer to RF-276, "REAR PARCEL SHELF UNIT : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK PARCEL SHELF MOTOR

Check parcel shelf motor (draw). Refer to RF-224, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B174B PARCEL SHELF (DRAW)-STATE 5

Description

INFOID:0000000008158452

There are 4 rotation operation states and 6 draw operation states in parcel shelf. Open and close operations of retractable hard tops are performed interlocking with other retractable hard top system components. For the detail, refer to RF-37, "PARCEL SHELF FUNCTION : System Description".

DTC Logic

INFOID:0000000008158453

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B174B	P SHELF (DRAW) STATE 5	[TIMEOUT]	Retractable hard top control unit does not detect changing from parcel shelf (draw) state 5 for the specified period of time, during an open and close operation • Down operation: Parcel shelf (draw) state 5 is not detected for 4 seconds • Up operation: Parcel shelf (draw) state 4 is not detected for 6.5 seconds	• Parcel shelf • Parcel shelf motor (draw)

DTC CONFIRMATION PROCEDURE

1.PERFORM INITIALIZE

Perform initialization without CONSULT. Refer to RF-76, "Description".

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open then fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-188, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158454

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
• Parcel shelf: Refer to RF-276, "REAR PARCEL SHELF UNIT : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK PARCEL SHELF MOTOR

Check parcel shelf motor (draw). Refer to RF-224, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B174C PARCEL SHELF (DRAW)-STATE 6

Description

INFOID:0000000008158455

There are 4 rotation operation states and 6 draw operation states in parcel shelf. Open and close operations of retractable hard tops are performed interlocking with other retractable hard top system components. For the detail, refer to RF-37, "PARCEL SHELF FUNCTION : System Description".

DTC Logic

INFOID:0000000008158456

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B174C	P SHELF (DRAW) STATE 6	[TIMEOUT]	Retractable hard top control unit does not detect changing from parcel shelf (draw) state 6 for the specified period of time, during an open and close operation • Up operation: Parcel shelf (draw) state 5 is not detected for 1 seconds	• Parcel shelf • Parcel shelf motor (draw)

DTC CONFIRMATION PROCEDURE

1.PERFORM INITIALIZE

Perform initialization without CONSULT. Refer to RF-76, "Description".

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open then fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-184, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158457

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
• Parcel shelf: Refer to RF-276, "REAR PARCEL SHELF UNIT : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK PARCEL SHELF MOTOR

Check parcel shelf motor (draw). Refer to RF-224, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B174D PARCEL SHELF (ROTATE)-STATE 1

Description

INFOID:0000000008158458

There are 4 rotation operation states and 6 draw operation states in parcel shelf. Open and close operations of retractable hard tops are performed interlocking with other retractable hard top system components. For the detail, refer to RF-37, "PARCEL SHELF FUNCTION : System Description".

DTC Logic

INFOID:0000000008158459

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B174D	P SHELF (ROT) STATE 1	[TIMEOUT]	Retractable hard top control unit does not detect changing from parcel shelf (rotation) state 1 for the specified period of time, during an open and close operation • Vertical operation: Parcel shelf (rotation) state 2 is not detected for 0.5 second	• Parcel shelf • Parcel shelf motor (rotation)

DTC CONFIRMATION PROCEDURE

1.PERFORM INITIALIZE

Perform initialization without CONSULT. Refer to RF-76, "Description".

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open then fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-185, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158460

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
• Parcel shelf: Refer to RF-276, "REAR PARCEL SHELF UNIT : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK PARCEL SHELF MOTOR

Check parcel shelf motor (rotation). Refer to RF-226, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B174E PARCEL SHELF (ROTATE)-STATE 2

Description

INFOID:0000000008158461

There are 4 rotation operation states and 6 draw operation states in parcel shelf. Open and close operations of retractable hard tops are performed interlocking with other retractable hard top system components. For the detail, refer to RF-37, "PARCEL SHELF FUNCTION : System Description".

DTC Logic

INFOID:0000000008158462

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B174E	P SHELF (ROT) STATE 2	[TIMEOUT]	Retractable hard top control unit does not detect changing from parcel shelf (rotation) state 2 for the specified period of time, during an open and close operation • Vertical operation: Parcel shelf (rotation) state 3 is not detected for 0.5 second • Horizontal operation: Parcel shelf (rotation) state 1 is not detected for 0.5 second	• Parcel shelf • Parcel shelf motor (rotation)

DTC CONFIRMATION PROCEDURE

1.PERFORM INITIALIZE

Perform initialization without CONSULT. Refer to RF-76, "Description".

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open then fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-186, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158463

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
• Parcel shelf: Refer to RF-276, "REAR PARCEL SHELF UNIT : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK PARCEL SHELF MOTOR

Check parcel shelf motor (rotation). Refer to RF-226, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B174F PARCEL SHELF (ROTATE)-STATE 3

Description

INFOID:0000000008158464

There are 4 rotation operation states and 6 draw operation states in parcel shelf. Open and close operations of retractable hard tops are performed interlocking with other retractable hard top system components. For the detail, refer to RF-37, "PARCEL SHELF FUNCTION : System Description".

DTC Logic

INFOID:0000000008158465

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B174F	P SHELF (ROT) STATE 3	[TIMEOUT]	Retractable hard top control unit does not detect changing from parcel shelf (rotation) state 3 for the specified period of time, during an open and close operation • Vertical operation: Parcel shelf (rotation) state 4 is not detected for 2 seconds • Horizontal operation: Parcel shelf (rotation) state 2 is not detected for 2 seconds	• Parcel shelf • Parcel shelf motor (rotation)

DTC CONFIRMATION PROCEDURE

1.PERFORM INITIALIZE

Perform initialization without CONSULT. Refer to RF-76, "Description".

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open then fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-187, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158466

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
• Parcel shelf: Refer to RF-276, "REAR PARCEL SHELF UNIT : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK PARCEL SHELF MOTOR

Check parcel shelf motor (rotation). Refer to RF-226, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B1750 PARCEL SHELF (ROTATE)-STATE 4

Description

INFOID:0000000008158467

There are 4 rotation operation states and 6 draw operation states in parcel shelf. Open and close operations of retractable hard tops are performed interlocking with other retractable hard top system components. For the detail, refer to RF-37, "PARCEL SHELF FUNCTION : System Description".

DTC Logic

INFOID:0000000008158468

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1750	P SHELF (ROT) STATE 4	[TIMEOUT]	Retractable hard top control unit does not detect changing from parcel shelf (rotation) state 4 for the specified period of time, during an open and close operation • Horizontal operation: Parcel shelf (rotation) state 3 is not detected for 0.5 second	• Parcel shelf • Parcel shelf motor (rotation)

DTC CONFIRMATION PROCEDURE

1.PERFORM INITIALIZE

Perform initialization without CONSULT. Refer to RF-76, "Description".

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open then fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-188, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158469

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
• Parcel shelf: Refer to RF-276, "REAR PARCEL SHELF UNIT : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK PARCEL SHELF MOTOR

Check parcel shelf motor (rotation). Refer to RF-226, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B1751 ROOF LATCH STATE 1

Description

INFOID:0000000008158470

There are 3 states in roof latch. Open and close operations of retractable hard tope system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-35, "ROOF LATCH FUNCTION : System Description".

DTC Logic

INFOID:0000000008158471

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1751	ROOF LATCH STATE 1	[TIMEOUT]	Retractable hard top control unit does not detect changing from roof latch state 1 for the specified period of time, during an open and close operation • Unlock operation: roof latch state 2 is not detected for 0.5 second	• Roof latch • Roof latch motor • Roof

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnosis Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-189, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158472

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Roof: Refer to.RF-273, "Exploded View".
- Roof latch: Refer to RF-255, "ROOF LOCK ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK ROOF LATCH MOTOR

Check roof latch motor. Refer to RF-223, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B1752 ROOF LATCH STATE 2

Description

INFOID:0000000008158473

There are 3 states in roof latch. Open and close operations of retractable hard tope system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-35, "ROOF LATCH FUNCTION : System Description".

DTC Logic

INFOID:0000000008158474

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1752	ROOF LATCH STATE 2	[TIMEOUT]	Retractable hard top control unit does not detect changing from roof latch state 2 for the specified period of time, during an open and close operation • Unlock operation: roof latch state 3 is not detected for 2 seconds • Lock operation: roof latch state 1 is not detected for 2 seconds	• Roof latch • Roof latch motor • Roof

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnosis Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-190, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158475

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
• Roof: Refer to.RF-273, "Exploded View".
• Roof latch: Refer to RF-255, "ROOF LOCK ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK ROOF LATCH MOTOR

Check roof latch motor. Refer to RF-223, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B1753 ROOF LATCH STATE 3

Description

INFOID:0000000008158476

There are 3 states in roof latch. Open and close operations of retractable hard tope system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-35, "ROOF LATCH FUNCTION : System Description".

DTC Logic

INFOID:0000000008158477

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1753	ROOF LATCH STATE 3	[TIMEOUT]	Retractable hard top control unit does not detect changing from roof latch state 3 for the specified period of time, during an open and close operation • Lock operation: roof latch state 2 is not detected for 0.5 second	• Roof latch • Roof latch motor • Roof

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnosis Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-191, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158478

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Roof: Refer to.RF-273, "Exploded View".
- Roof latch: Refer to RF-255, "ROOF LOCK ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK ROOF LATCH MOTOR

Check roof latch motor. Refer to RF-223, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B1754 FLIPPER DOOR STATE 1

Description

INFOID:0000000008158479

There are 4 states in flipper door. Open and close operations of retractable hard top system are performed interlocking with other retractable hard top components. For the detail, refer to RF-39, "FLIPPER DOOR FUNCTION : System Description".

DTC Logic

INFOID:0000000008158480

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1754	FLIPPER DOOR STATE 1	[TIMEOUT]	Retractable hard top control unit does not detect changing from flipper door state 3 for the specified period of time, during an open and close operation • Up operation: flipper door state 2 is not detected for 0.5 second	• Flipper door • Flipper door limit switch • Flipper door motor

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-192, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158481

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
• Flipper door: Refer to RF-281, "Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK FLIPPER DOOR LIMIT SWITCH

Check flipper door limit switch. Refer to RF-217, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK FLIPPER DOOR MOTOR

Check flipper door motor. Refer to RF-221, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B1755 FLIPPER DOOR STATE 2

Description

INFOID:0000000008158482

There are 4 states in flipper door. Open and close operations of retractable hard top system are performed interlocking with other retractable hard top components. For the detail, refer to RF-39, "FLIPPER DOOR FUNCTION : System Description".

DTC Logic

INFOID:0000000008158483

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1755	FLIPPER DOOR STATE 2	[TIMEOUT]	Retractable hard top control unit does not detect changing from flipper door state 2 for the specified period of time, during an open and close operation • Up operation: flipper door state 4 is not detected for 5 seconds • Down operation: flipper door state 1 is not detected for 5 seconds	• Flipper door • Flipper door limit switch • Flipper door motor

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-193, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158484

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
• Flipper door: Refer to RF-281, "Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK FLIPPER DOOR LIMIT SWITCH

Check flipper door limit switch. Refer to RF-217, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK FLIPPER DOOR MOTOR

Check flipper door motor. Refer to RF-221, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B1756 FLIPPER DOOR STATE 3

Description

INFOID:0000000008158485

There are 4 states in flipper door. Open and close operations of retractable hard top system are performed interlocking with other retractable hard top components. For the detail, refer to RF-39, "FLIPPER DOOR FUNCTION : System Description".

DTC Logic

INFOID:0000000008158486

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1756	FLIPPER DOOR STATE 3	[TIMEOUT]	Retractable hard top control unit does not detect changing from flipper door state 2 for the specified period of time, during an open and close operation • Up operation: Flipper door state 4 is not detected for 5 seconds • Down operation: Flipper door state 1 is not detected for 5 seconds	• Flipper door • Flipper door limit switch • Flipper door motor

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-194, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158487

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
• Flipper door: Refer to RF-281, "Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK FLIPPER DOOR LIMIT SWITCH

Check flipper door limit switch. Refer to RF-217, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK FLIPPER DOOR MOTOR

Check flipper door motor. Refer to RF-221, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B1757 FLIPPER DOOR STATE 4

Description

INFOID:0000000008158488

There are 4 states in flipper door. Open and close operations of retractable hard top system are performed interlocking with other retractable hard top components. For the detail, refer to RF-39, "FLIPPER DOOR FUNCTION : System Description".

DTC Logic

INFOID:0000000008158489

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1757	FLIPPER DOOR STATE 4	[TIMEOUT]	Retractable hard top control unit does not detect changing from flipper door state 4 for the specified period of time, during an open and close operation • Down operation: Flipper door state 3 is not detected for 1 second	• Flipper door • Flipper door limit switch • Flipper door motor

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-195, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158490

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
• Flipper door: Refer to RF-281, "Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK FLIPPER DOOR LIMIT SWITCH

Check flipper door limit switch. Refer to RF-217, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK FLIPPER DOOR MOTOR

Check flipper door motor. Refer to RF-221, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

B1758 THERMO PROTECTION

Description

INFOID:0000000008158491

Retractable hard top control unit calculates hydraulic pump temperature according to system operating time, prevents hydraulic system temperature from increasing excessively, and protects the system.

DTC Logic

INFOID:0000000008158492

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1758	THERMO PROTECTION	[ACTIVE]	Thermo protection is active. (Thermo protection: Refer to RF-20, "RETRACTABLE HARD TOP SYSTEM : System Description")	Retractable hard top system is operated continuously

DTC CONFIRMATION PROCEDURE

1.COOL DOWN HYDRAULIC SYSTEM

Wait 20 minutes without operation.

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-196, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158493

1.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC Confirmation Procedure. Refer to RF-83, "DTC Logic".

Is the DTC displayed again?

YES >> Replace retractable hard top control unit. Refer to RF-192, "Diagnosis Procedure".
NO >> INSPECTION END

B175C POWER SOURCE (ROOF)

Description

INFOID:0000000008158494

Power supply (roof) voltage for retractable hard top control unit is monitored. Retractable hard top system operation is inhibited when voltage outside the specified value is detected.

DTC Logic

INFOID:0000000008158495

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B175C	PWR SOURCE(ROOF)	[LOW VOLTAGE]	It is the detected that the battery voltage is 10.6 V or less input to retractable hard top control unit power source (roof) terminal.	• Power source circuit • Battery condition • Charging system

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-196, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158496

1.CHECK CHARGING SYSTEM

Check charging system. Refer to CHG-3, "Work Flow (With EXP-800 NI or GR8-1200 NI)" or CHG-7, "Work Flow (Without EXP-800 NI or GR8-1200 NI)".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunction parts.

2.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit for retractable hard top control unit. Refer to RF-212, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunction parts.

B175D POWER SOURCE (ROOF)

Description

INFOID:0000000008158497

Power supply (roof) voltage for retractable hard top control unit is monitored. Retractable hard top system operation is inhibited when voltage outside the specified value is detected.

DTC Logic

INFOID:0000000008158498

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B175D	PWR SOURCE(ROOF)	[HIGH VOLTAGE]	It is the detected that the battery voltage is 15.0 V or more input to retractable hard top control unit power source (roof) terminal.	• Power source circuit • Battery condition • Charging system

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-196, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158499

1.CHECK CHARGING SYSTEM

Check charging system. Refer to CHG-3, "Work Flow (With EXP-800 NI or GR8-1200 NI)" or CHG-7, "Work Flow (Without EXP-800 NI or GR8-1200 NI)".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunction parts.

2.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit for retractable hard top control unit. Refer to RF-212, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunction parts.

B175E POWER SOURCE (POWER WINDOW)

Description

INFOID:0000000008158500

Retractable hard top control unit watches power supply condition of power supply (power window) terminal.

DTC Logic

INFOID:0000000008158501

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B175E	PWR SOURCE(WINDOW)	[LOW VOLTAGE]	It is the detected that the battery voltage is 9.0 V or less input to retractable hard top control unit power source (power window) terminal.	• Power source circuit (for power window) • Battery condition • Charging system • BCM power supply and ground

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-196, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158502

1.CHECK CHARGING SYSTEM

Check charging system. Refer to CHG-3, "Work Flow (With EXP-800 NI or GR8-1200 NI)" or CHG-7, "Work Flow (Without EXP-800 NI or GR8-1200 NI)".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK POWER WINDOW MAIN SWITCH AND POWER WINDOW SUB-SWITCH POWER SUPPLY AND GROUND CIRCUIT

Check power window main switch and power window sub-switch power supply and ground circuit. Refer to PWC-15, "POWER WINDOW MAIN SWITCH : Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK BCM POWER SUPPLY AND GROUND CIRCUIT

Check BCM power supply and ground circuit. Refer to BCS-40, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace malfunctioning part.

4.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit connector.
3. Turn ignition switch ON.

4. Check voltage between retractable hard top control unit harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Retractable hard top control unit			
Connector	Terminal		
B84	62	Ground	Battery voltage
	63		

s the inspection result normal?

YES >> Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
NO >> GO TO 5.

5. CHECK CONTINUITY POWER WINDOW POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check continuity between BCM harness connector and retractable hard top control unit harness connector.

BCM		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
M118	2	B84	62	Existed
			63	

4. Also check harness for short to ground.

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-79, "Removal and Installation".
NO >> Repair or replace harness.

B175F POWER SOURCE (POWER WINDOW)

Description

INFOID:0000000008158503

Retractable hard top control unit watches power supply condition of power supply (power window) terminal.

DTC Logic

INFOID:0000000008158504

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible causes
B175F	PWR SOURCE(WINDOW)	[HIGH VOLTAGE]	It is the detect that the battery voltage is 16.0 V or more input to retractable hard top control unit power source (power window) terminal.	• Power source circuit (for power window) • Battery condition • Charging system • BCM power supply and ground

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-201, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158505

1.CHECK CHARGING SYSTEM

Check charging system. Refer to CHG-3, "Work Flow (With EXP-800 NI or GR8-1200 NI)" or CHG-7, "Work Flow (Without EXP-800 NI or GR8-1200 NI)".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK POWER WINDOW MAIN SWITCH AND POWER WINDOW SUB-SWITCH POWER SUPPLY AND GROUND CIRCUIT

Check power window main switch and power window sub-switch power supply and ground circuit. Refer to PWC-15, "POWER WINDOW MAIN SWITCH : Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK BCM POWER SUPPLY AND GROUND CIRCUIT

Check BCM power supply and ground circuit. Refer to BCS-40, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace malfunctioning part.

4.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit connector.
3. Turn ignition switch ON.
4. Check voltage between retractable hard top control unit harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Retractable hard top control unit			
Connector	Terminal		
B84	62	Ground	Battery voltage
	63		

s the inspection result normal?

YES >> Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
NO >> GO TO 5.

5. CHECK CONTINUITY POWER WINDOW POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check continuity between BCM harness connector and retractable hard top control unit harness connector.

BCM		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
M118	2	B84	62	Existed
			63	

4. Also check harness for short to ground.

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-79, "Removal and Installation".
NO >> Repair or replace harness.

B1760 RETRACTABLE HARD TOP CONTROL UNIT

DTC Logic

INFOID:0000000008158506

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC	Trouble diagnosis name	DTC detecting condition	Possible cause
B1760	ROOF CONTROL UNIT	• Retractable hard top control unit detects output to rear window defogger without output request. • Retractable hard top control unit requests output to rear window defogger but cannot detect output.	Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Turn ignition switch ON.
2. Turn rear window defogger ON.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Refer to RF-203, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158507

1.CHECK SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
3. Perform DTC Confirmation Procedure. Refer to RF-124, "DTC Logic".

>> INSPECTION END

B1761 RETRACTABLE HARD TOP CONTROL UNIT

DTC Logic

INFOID:0000000008158508

DTC DETECTION LOGIC

NOTE:

If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC	Trouble diagnosis name	DTC detecting condition	Possible cause
B1761	ROOF CONTROL UNIT	• Retractable hard top control unit detects output to hydraulic pump power supply relay without output request. • Retractable hard top control unit requests output to hydraulic pump power supply relay but cannot detect output.	Retractable hard top control unit

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Refer to RF-204, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158509

1.CHECK SELF DIAGNOSTIC RESULT

1. Turn ignition switch OFF.
2. Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
3. Perform DTC Confirmation Procedure. Refer to RF-83, "DTC Logic".

>> INSPECTION END

B1762 ROOF STATE

Description

INFOID:0000000008158510

There are 42 states in retractable hard top, regardless of open and close operations. Retractable hard top system performs open and close operations using combination of these 42 states.

DTC Logic

INFOID:0000000008158511

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1762	ROOF STATE	[INCORRECT]	Retractable hard top control unit does not recognize roof condition.	• Roof • Roof latch • Hydraulic unit • Parcel shelf • Flipper door LH/RH

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-208, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158512

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Trunk lid: Refer to DLK-235, "TRUNK LID ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.PERFORM INITIALIZATION

1. Perform initialization without CONSULT (refer to RF-76, "Work Procedure").
2. Perform DTC Confirmation Procedure. Refer to RF-205, "DTC Logic".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 3.

3.CHECK TRUNK ROOM LAMP SWITCH

Check trunk room lamp switch. Refer to DLK-81, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace malfunctioning part.

4.CHECK TRUNK ROOM LAMP SWITCH SIGNAL

Check “TR ROOM LAMP SW” in “DATA MONITOR” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
TR ROOM LAMP SW	Trunk lid	Open	ON
		Closed	OFF

Is the inspection result normal?

YES >> GO TO 6.
NO >> GO TO 5.

5. CHECK TRUNK ROOM LAMP SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect trunk room lamp switch connector, BCM connector, trunk closure control unit connector and retractable hard top control unit connector.
3. Check continuity between retractable hard top control unit harness connector and trunk room lamp switch harness connector.

Retractable hard top control unit		Trunk room lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	5	B306	2	Existed

4. Check continuity between BCM harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	5		Not existed

Is the inspection result normal?

YES >> Check trunk lid auto closure system. Refer to DLK-186, "OPEN/CLOSURE FUNCTION : Diagnosis Procedure".
NO >> Repair harness or connector.

6. CHECK ROOF LATCH LIMIT SWITCH SIGNAL

1. Connect retractable hard top control unit connector.
2. Check “LATCH LIMIT SW” in “Data Monitor” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
LATCH LIMIT SW	ROOF LATCH	Roof is fully closed and roof latch is locked	CLOSE
		Other than above	OPEN

Is the inspection result normal?

YES >> GO TO 9.
NO >> GO TO 7.

7. CHECK ROOF LATCH LIMIT SWITCH CIRCUIT

1. Disconnect roof latch limit switch connector and retractable hard top control unit connector.
2. Check continuity between retractable hard top control unit harness connector and roof latch limit switch harness connector.

Retractable hard top control unit		Roof latch limit switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	6	R6	2	Existed

3. Check continuity between retractable hard top control harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	6		Not existed

Is the inspection result normal?

YES >> GO TO 8.
NO >> Repair harness or connector.

8. CHECK ROOF LATCH LIMIT SWITCH CIRCUIT

Check continuity between retractable hard top control harness connector and ground.

Roof latch limit switch		Ground	Continuity
Connector	Terminal		
R6	3		Existed

Is the inspection result normal?

YES >> Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".
NO >> Repair harness or connector.

9. CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B1763 HYDRAULIC STATE

Description

INFOID:0000000008158513

There are 22 states in hydraulic system. Hydraulic system is controlled using combination of these 22 states and, at the same time, open and close operations of retractable hard top system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-31, "HYDRAULIC SYSTEM CONTROL FUNCTION : System Description".

DTC Logic

INFOID:0000000008158514

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1763	HYDRAULIC STATE	[INCORRECT]	Retractable hard top control unit does not recognize hydraulic system condition.	• Trunk link sensor LH/RH • Trunk status sensor • Trunk room lamp switch • Roof latch condition

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-diagnostic Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-208, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158515

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Hydraulic system: Refer to RF-285, "Exploded View".
- Trunk lid: Refer to DLK-235, "TRUNK LID ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.PERFORM INITIALIZATION

1. Perform “RESET ROOF STATE” in “WORK SUPPORT” mode of “RETRACTABLE HARD TOP” using CONSULT (refer to RF-45, "CONSULT Function").
2. Perform initialization with CONSULT (refer to RF-76, "Work Procedure").
3. Perform DTC Confirmation Procedure. Refer to RF-205, "DTC Logic".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 3.

3.CHECK TRUNK LID OPENER ACTUATOR

Check trunk lid opener actuator. Refer to DLK-186, "OPEN/CLOSURE FUNCTION : Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace malfunctioning part.

4. CHECK TRUNK ROOM LAMP SWITCH

Check trunk room lamp switch. Refer to DLK-81, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace malfunctioning part.

5. CHECK TRUNK ROOM LAMP SWITCH SIGNAL

Check “TR ROOM LAMP SW” in “DATA MONITOR” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
TR ROOM LAMP SW	Trunk lid	Open	ON
		Closed	OFF

Is the inspection result normal?

YES >> GO TO 7.
NO >> GO TO 6.

6. CHECK TRUNK ROOM LAMP SWITCH CIRCUIT

1. Disconnect trunk room lamp switch connector, BCM connector trunk closure control unit connector and retractable hard top control unit connector.
2. Check continuity between retractable hard top control unit harness connector and trunk room lamp switch harness connector.

Retractable hard top control unit		Trunk room lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	5	B306	2	Existed

3. Check continuity between BCM harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	5		Not existed

Is the inspection result normal?

YES >> Check trunk lid auto closure system. Refer to DLK-186, "OPEN/CLOSURE FUNCTION : Diagnosis Procedure".
NO >> Repair harness or connector.

7. CHECK HYDRAULIC PUMP POWER SUPPLY RELAY

Check hydraulic pump power supply relay. Refer to RF-228, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".

B1764 ROOF LATCH STATE

Description

INFOID:0000000008158516

There are 3 states in roof latch. Open and close operations of retractable hard tope system are performed interlocking with other retractable hard top system components. For the detail, refer to RF-35, "ROOF LATCH FUNCTION : System Description".

DTC Logic

INFOID:0000000008158517

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1764	ROOF LATCH STATE	[INCORRECT]	Retractable hard top control unit does not recognize roof latch condition.	• Roof latch motor • Roof latch limit switch • Roof latch lock sensor

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check “Self-Diagnosis Result” of “RETRACTABLE HARD TOP” using CONSULT.

Is DTC detected?

YES >> Go to RF-210, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158518

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
- Roof: Refer to RF-273, "Exploded View".
- Roof latch: Refer to RF-255, "ROOF LOCK ASSEMBLY : Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.PERFORM INITIALIZATION

1. Perform initialization with roof open/close switch (refer to RF-76, "Work Procedure").
2. Perform DTC Confirmation Procedure. Refer to RF-205, "DTC Logic".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace retractable hard top control unit. Refer to RF-15, "Component Parts Location".

B1765 FLIPPER DOOR STATE

Description

INFOID:0000000008158519

There are 4 states in flipper door. Open and close operations of retractable hard top system are performed interlocking with other retractable hard top components. For the detail, refer to RF-39, "FLIPPER DOOR FUNCTION : System Description".

DTC Logic

INFOID:0000000008158520

DTC DETECTION LOGIC

NOTE:
If two or more DTCs are detected, refer to RF-61, "DTC Inspection Priority Chart", and determine trouble diagnosis order.

DTC No.	Trouble diagnosis name		DTC detecting condition	Possible cause
B1765	FLIPPER DOOR STATE	[INCORRECT]	Retractable hard top control unit does not recognize flipper door condition.	• Flipper door limit switch LH/RH (UP/DOWN) • Flipper door motor LH/RH (UP/DOWN)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

1. Start engine.
2. Operate retractable hard top to fully open and fully close.
3. Check DTC.

Is DTC detected?

YES >> Go to RF-211, "Diagnosis Procedure".
NO >> INSPECTION END

Diagnosis Procedure

INFOID:0000000008158521

1.CHECK RETRACTABLE HARD TOP SYSTEM COMPONENT PARTS

Check retractable hard top component parts as bellow deformation, looseness, rattle, interference with other parts, and pinched foreign materials.
• Flipper door: Refer to RF-281, "Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning part.

2.CHECK FLIPPER DOOR LIMIT SWITCH

Check flipper door limit switch. Refer to RF-217, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Repair or replace malfunctioning part.

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:0000000008158522

1.CHECK FUSE AND FUSIBLE LINK

Check that the following fuse and fusible link are not blown.

Signal name	Fuse and fusible link No.
Battery power supply	O

Is the fuse fusing?

YES >> Replace the blown fuse or fusible link after repairing the affected circuit if a fuse or fusible link is blown.
NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT-I

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit connectors.
3. Check voltage between retractable hard top control unit harness connector and ground.

(+)		(–)	Voltage (Approx.)
Retractable hard top control unit			
Connector	Terminal		
B84	57	Ground	Battery voltage
	58		
	59		

Is the measurement value normal?

YES >> GO TO 3.
NO >> Repair harness or connector.

3.CHECK POWER SUPPLY CIRCUIT-II

1. Turn ignition switch ON.
2. Check voltage between retractable hard top control unit harness connector and ground.

(+)		(–)	Voltage (Approx.)
Retractable hard top control unit			
Connector	Terminal		
B82	11	Ground	Battery voltage

Is the measurement value normal?

YES >> GO TO 4.
NO >> Repair harness or connector.

4.CHECK GROUND CIRCUIT

Check continuity between retractable hard top control unit harness connector and ground.

Retractable hard top control unit			Continuity
Connector	Terminal		
B84	60	Ground	Existed
	61		

Does continuity exist?

YES >> INSPECTION END
NO >> Repair harness or connector.

ROOF OPEN/CLOSE SWITCH

Component Function Check

INFOID:0000000008158523

1.CHECK FUNCTION

Check “ROOF SW(OPEN)” or “ROOF SW(CLOSE)” in “Data Monitor” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
ROOF SW(OPEN)	Roof open/close switch	Open	ON
		Closed	OFF
ROOF SW(CLOSE)	Roof open/close switch	Open	OFF
		Closed	ON

Is the inspection result normal?

YES >> Roof open/close switch is normal.
NO >> Refer to RF-213, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000008158524

1.CHECK ROOF OPEN/CLOSE SWITCH POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect roof open/close switch connector.
3. Turn ignition switch ON.
4. Check the voltage between roof open/close switch harness connector and ground.

(+)		(–)	Voltage (V) (Applox.)
Roof open/close switch			
Connector	Terminal		
M28 (A/T models)	3	Ground	Battery voltage
M179 (M/T models)			
M28 (A/T models)	4		
M179 (M/T models)			

Is the inspection result normal?

YES >> GO TO 3.
NO >> GO TO 2.

2.CHECK ROOF OPEN/CLOSE SWITCH POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit connector.
3. Check the continuity between retractable hard top control unit harness connector and roof open/close switch harness connector.

Retractable hard top control unit		Roof open/close switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	1	M28 (A/T models)	3	Existed
		M179 (M/T models)		
	2	M28 (A/T models)	4	
		M179 (M/T models)		

4. Check harness for short to ground.

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace harness.

3.CHECK ROOF OPEN/CLOSE SWITCH GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit connector.
3. Check the continuity between roof open/close switch harness connector and ground.

Roof open/close switch		Ground	Continuity
Connector	Terminal		
M28 (A/T models)	1		Existed
M179 (M/T models)			

4. Check harness for short to ground.

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace harness.

4.CHECK ROOF OPEN/CLOSE SWITCH

Refer to RF-94, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Replace roof open/close switch. Refer to RF-15, "Component Parts Location".

5.REPLACE RETRACTABLE HARD TOP CONTROL UNIT

1. Replace retractable hard top control unit. Refer to RF-15, "Component Parts Location".
2. Refer to RF-75, "Work Procedure".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 6.

6.CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

TONNEAU BOARD SWITCH

Component Function Check

INFOID:0000000008158525

1.CHECK FUNCTION

Check “TONNEAU SW” in “Data Monitor” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
TONNEAU SW	Tonneau board	Set	OK
		Other than above	NG

Is the inspection result normal?

YES >> INSPECTION END
NO >> Refer to RF-224, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000008158526

1.CHECK TONNEAU BOARD SWITCH POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect tonneau board switch connector.
3. Turn ignition switch ON.
4. Check the voltage between tonneau board switch harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Tonneau board switch			
Connector	Terminal		
B352	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK TONNEAU BOARD SWITCH GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check the continuity between tonneau board switch harness connector and ground.

Tonneau board switch		Ground	Continuity
Connector	Terminal		
B352	3		Existed

3. Check harness for short to power.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3.REPLACE TONNEAU BOARD SWITCH

Replace tonneau board switch.

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 4.

4.REPLACE RETRACTABLE HARD TOP CONTROL UNIT

1. Replace retractable hard top control unit. Refer to RF-15, "Component Parts Location".
2. Refer to RF-75, "Work Procedure".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 5.

5.CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

FLIPPER DOOR LIMIT SWITCH

Diagnosis Procedure

INFOID:0000000008158527

1.CHECK FUNCTION

1. Turn ignition switch ON.
2. Check the voltage between retractable hard top control unit terminals and ground under the following conditions.

(+)		(–)	Condition		Voltage (V) (Approx.)
Retractable hard top control unit					
Connector	Terminal				
B82	7	Ground	Flipper door (LH & RH))	Top	0
				Other than above	Battery voltage
	8			Bottom	0
				Other than above	Battery voltage

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 2.

2.CHECK FLIPPER DOOR LIMIT SWITCH POWER SUPPLY CIRCUIT-I

1. Turn ignition switch OFF.
2. Disconnect flipper door (LH) harness connector.
3. Turn ignition switch ON.
4. Check the voltage between flipper door (LH) harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Flipper door (LH)			
Connector	Terminal		
B307	2	Ground	Battery voltage
	4		

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK FLIPPER DOOR LIMIT SWITCH POWER SUPPLY CIRCUIT-II

1. Turn ignition switch OFF.
2. Reconnect flipper door (LH) harness connector.
3. Disconnect flipper door (RH) harness connector.
4. Turn ignition switch ON.
5. Check the voltage between flipper door (RH) harness connector and ground under the following conditions.

(+)		(–)	Condition		Voltage (V) (Approx.)
Flipper door (RH)					
Connector	Terminal				
B308	1	Ground	Flipper door (LH)	Top	Battery voltage
				Other than above	0
	2			Bottom	Battery voltage
				Other than above	0

Is the inspection result normal?

YES >> GO TO 5.

NO >> GO TO 4.

4. CHECK FLIPPER DOOR LIMIT SWITCH POWER SUPPLY CIRCUIT-III

1. Turn ignition switch OFF.
2. Disconnect flipper door (LH) harness connector.
3. Check the continuity between flipper door (LH) harness connector and flipper door (RH) harness connector.

Flipper door (LH)		Flipper door (RH)		Continuity
Connector	Terminal	Connector	Terminal	
B307	1	B308	1	Existed
	3		2	

4. Check harness for short to ground and short to power.

Is the inspection result normal?

YES >> Replace flipper door (LH). Refer to RF-15, "Component Parts Location".
NO >> Repair or replace harness.

5. CHECK FLIPPER DOOR LIMIT SWITCH GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect flipper door (RH) harness connector.
3. Disconnect retractable hard top control unit harness connector.
4. Check the continuity between flipper door (RH) harness connector and retractable hard top control unit harness connector.

Flipper door (RH)		Retractable hard top control unit		Continuity
Connector	Terminal	Connector	Terminal	
B308	3	B82	3	Existed

5. Check harness for short to short to power.

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair or replace harness.

6. REPLACE FLIPPER DOOR (RH)

Replace flipper door (RH). Refer to RF-15, "Component Parts Location".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 7.

7. REPLACE RETRACTABLE HARD TOP CONTROL UNIT

1. Replace retractable hard top control unit. Refer to RF-15, "Component Parts Location".
2. Refer to RF-75, "Work Procedure".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 8.

8. CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

BACK-UP LAMP CIRCUIT

Description

INFOID:0000000008158528

Retractable hard top control unit receives shift position R signal from back up lamp for the preconditions.

Component Function Check

INFOID:0000000008158529

1.CHECK FUNCTION

Check “SHIFT R SIG” in “Data Monitor” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
SHIFT R SIG	Shift position	Other than R position	OK
		R position	NG

Is the inspection result normal?

YES >> INSPECTION END
NO >> Go to RF-224, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000008158530

1.CHECK BACK-UP LAMP RELAY OR BACK-UP LAMP SWITCH POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect back-up lamp relay (A/T models) or back-up lamp switch (M/T models) harness connector.
3. Check the voltage between back-up lamp relay (A/T models) or back-up lamp switch (M/T models) harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Back-up lamp relay			
Connector	Terminal		
M69	3	Ground	Battery voltage

(+)		(–)	Voltage (V) (Approx.)
Back-up lamp switch			
Connector	Terminal		
F56	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.
NO-1 >> Check 10 A fuse [No. 4 located in the fuse block (J/B)].
NO-2 >> Check harness for open or short between back-up lamp relay (A/T models) or back-up lamp switch (M/T models) and fuse.

2.CHECK BACK-UP LAMP RELAY OR BACK-UP LAMP SWITCH GROUND CIRCUIT

1. Disconnect retractable hard top control unit connector.
2. Check the continuity between retractable hard top control unit harness connector and back-up lamp relay (A/T models) or back-up lamp switch (M/T models) harness connector.

Retractable hard top control unit		Back-up lamp relay		Continuity
Connector	Terminal	Connector	Terminal	
B82	12	M69	5	Existed

Retractable hard top control unit		Back-up lamp switch		Continuity
Connector	Terminal	Connector	Terminal	
B82	12	F56	2	Existed

3. Check harness for short to ground or short to power.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK BACK-UP LAMP RELAY OR BACK-UP LAMP SWITCH

Check back-up lamp relay (A/T models) (refer to TM-102, "Diagnosis Flow") or back-up lamp switch (M/T models) (refer to TM-8, "Component Inspection")

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace malfunctioning part.

4.REPLACE RETRACTABLE HARD TOP CONTROL UNIT

1. Replace retractable hard top control unit. Refer to RF-15, "Component Parts Location".
2. Refer to RF-75, "Work Procedure".

Is the inspection result normal?

YES >> INSPECTION END
NO >> GO TO 5.

5.CHECK INTERMITTENT INCIDENT

Refer to GI-42, "Intermittent Incident".

>> INSPECTION END

FLIPPER DOOR MOTOR

Diagnosis Procedure

INFOID:0000000008158531

1.CHECK FLIPPER DOOR MOTOR CIRCUIT-1

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit connector and hydraulic unit connector.
3. Check the continuity between retractable hard top control unit harness connector and hydraulic unit harness connector.

Retractable hard top control unit		Hydraulic unit		Continuity
Connector	Terminal	Connector	Terminal	
B82	28	B80	16	Existed
B83	46		14	
	47		15	

4. Check harness for short to ground.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK FLIPPER DOOR MOTOR CIRCUIT-2

1. Disconnect flipper door (LH/RH) connector.
2. Check the continuity between hydraulic unit harness connector and flipper door (LH/RH) connector.

Hydraulic unit		Flipper door		Continuity
Connector	Terminal	Connector	Terminal	
B27	6	LH: B307 RH: B308	5	Existed
	12			
	13		6	
	17			

3. Check harness for short to ground.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK FLIPPER DOOR POWER SUPPLY

1. Connect retractable hard top control unit connector and hydraulic unit connector.
2. Turn ignition switch ON.
3. Perform “FLIPPER DOOR” in “WORK SUPPORT” mode of “RETRACTABLE HARD TOP” using CONSULT (refer to RF-45, "CONSULT Function").
4. Check the voltage between flipper door harness connector and ground under the conditions.

(+)		(–)	Work Support item		Voltage (V) (Approx.)
Flipper door					
Connector	Terminal				
LH: B307 RH: B308	5	Ground	FLIPPER DOOR	UP	Battery voltage
				DOWN	0
	6			UP	0
				DOWN	Battery voltage

CAUTION:

This operation may result in serious damage to components. Never operate the flipper door if the roof and trunk lid are in the closed position. Doing so may cause the roof to open inside the trunk. Check the roof and trunk lid position before proceeding.

Is the inspection result normal?

YES >> Replace flipper door (malfunctioning part). Refer to RF-281, "Removal and Installation".
NO >> GO TO 4.

4. CHECK RETRACTABLE HARD TOP CONTROL UNIT OUTPUT

1. Turn ignition switch OFF.
2. Connect flipper door (LH/RH) connector.
3. Turn ignition switch ON.
4. Check “FLPD OUT(UP)” and “FLPD OUT(DWN)” in “Data Monitor” mode of “RETRACTABLE HARD TOP” using CONSULT.

Monitor item	Condition		Status
FLPD OUT (UP)	Flipper door (LH and RH)	Up operation	ON
		Down operation	OFF
FLPD OUT (DWN)		Down operation	ON
		Up operation	OFF

Is the inspection result normal?

YES >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation".
NO >> Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

ROOF LATCH MOTOR

Diagnosis Procedure

INFOID:0000000008158532

1.CHECK ROOF LATCH MOTOR POWER SUPPLY

1. Turn ignition switch ON.
2. Perform “ROOF LATCH” in “WORK SUPPORT” mode of “RETRACTABLE HARD TOP” using CONSULT (refer to RF-45, "CONSULT Function").
3. Check the voltage between roof latch assembly harness connector and ground under the following conditions.

(+)		(–)	Work Support item		Voltage (V) (Approx.)
Roof latch assembly					
Connector	Terminal				
B657	5	Ground	ROOF LATCH	OPEN	0
	6				Battery voltage
	5			CLOSE	Battery voltage
	6				0

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

2.CHECK ROOF LATCH MOTOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit connector and roof latch assembly connector.
3. Check the continuity between retractable hard top control unit harness connector and roof latch assembly harness connector.

Retractable hard top control unit		Roof latch assembly		Continuity
Connector	Terminal	Connector	Terminal	
B82	48	B657	6	Existed
	49		5	

4. Check harness for short to ground.

Is the inspection result normal?

YES >> Replace roof latch motor. Refer to RF-255, "ROOF LOCK ASSEMBLY : Removal and Installation".
NO >> Repair or replace harness.

PARCEL SHELF MOTOR (DRAW)

Diagnosis Procedure

INFOID:0000000008158533

1.CHECK PARCEL SHELF MOTOR (DRAW) CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit connector and parcel shelf unit connector.
3. Check the continuity between retractable hard top control unit harness connector and parcel shelf unit harness connector.

Retractable hard top control unit		Parcel shelf unit		Continuity
Connector	Terminal	Connector	Terminal	
B83	41	B71	3	Existed
	42		2	

4. Check harness for short to ground.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK PARCEL SHELF MOTOR (DRAW) GROUND CIRCUIT

1. Check the continuity between parcel shelf unit harness connector and ground.

Parcel shelf unit		Ground	Continuity
Connector	Terminal		
B71	12		Existed
	14		

2. Check harness for short to ground.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK PARCEL SHELF MOTOR (DRAW) POWER SUPPLY

1. Turn ignition switch OFF.
2. Connect retractable hard top control unit connector.
3. Turn ignition switch ON.
4. Perform “ROOF/TRUNK/PARCEL SHELF” in “WORK SUPPORT” mode of “RETRACTABLE HARD TOP” using CONSULT (refer to RF-45, "CONSULT Function").
5. Check the voltage between parcel shelf unit harness connector and ground.

(+)		(–)	Work Support item		Voltage (V) (Approx.)
Parcel shelf unit					
Connector	Terminal				
B71	2	Ground	PS (DRAW)	UP	0
				DOWN	Battery voltage
	3			UP	Battery voltage
				DOWN	0

CAUTION:
This operation may interfere with and damage parts. Always check the precautions. Refer to RF-10, "Precautions for Retractable Hard Top Service".
- **Before opening trunk lid, release trunk opener lock-up.**
- **Before operating roof, release roof opener lock-up.**

Is the inspection result normal?

YES >> Replace parcel shelf unit. Refer to RF-276, "REAR PARCEL SHELF UNIT : Removal and Installation".

NO >> Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

PARCEL SHELF MOTOR (ROTATION)

Diagnosis Procedure

INFOID:0000000008158534

1.CHECK PARCEL SHELF MOTOR (ROTATION) CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect retractable hard top control unit connector and parcel shelf unit connector.
3. Check the continuity between retractable hard top control unit harness connector and parcel shelf unit harness connector.

Retractable hard top control unit		Parcel shelf unit		Continuity
Connector	Terminal	Connector	Terminal	
B83	44	B71	1	Existed
	45		16	

4. Check harness for short to ground.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

2.CHECK PARCEL SHELF MOTOR (ROTATION) POWER SUPPLY

1. Turn ignition switch OFF.
2. Connect retractable hard top control unit connector.
3. Turn ignition switch ON.
4. Perform “ROOF/TRUNK/PARCEL SHELF” in “WORK SUPPORT” mode of “RETRACTABLE HARD TOP” using CONSULT (refer to RF-45, "CONSULT Function").
5. Check the voltage between parcel shelf unit harness connector and ground under.

(+)		(–)	Work Support item		Voltage (V) (Approx.)
Parcel shelf unit					
Connector	Terminal				
B71	1	Ground	PS (ROTA)	VERT	0
	16			HORI	Battery voltage
	1			VERT	Battery voltage
	16			HORI	0

CAUTION:
This operation may interfere with and damage parts. Always check the precautions. Refer to RF-10, "Precautions for Retractable Hard Top Service".
- **Before opening trunk lid, release trunk opener lock-up.**
- **Before operating roof, release roof opener lock-up.**

Is the inspection result normal?

YES >> Replace parcel shelf unit. Refer to RF-276, "REAR PARCEL SHELF UNIT : Removal and Installation".
NO >> Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

ROOF WARNING BUZZER

Diagnosis Procedure

INFOID:0000000008158535

1.CHECK ROOF WARNING BUZZER POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect roof warning buzzer connector.
3. Check voltage between roof warning buzzer harness connector and ground.

Roof warning buzzer		(–)	Voltage (V) (Approx.)
(+)			
Connector	Terminal		
B87	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.
NO-1 >> Check 10 A fuse [No. 6 located in the fuse block (J/B)].
NO-2 >> Check harness for open or short between roof warning buzzer and fuse.

2.CHECK ROOF WARNING BUZZER CIRCUIT

1. Disconnect retractable hard top control unit connector.
2. Check continuity between retractable hard top control unit harness connector and roof warning buzzer harness connector.

Retractable hard top control unit		Roof warning buzzer		Continuity
Connector	Terminal	Connector	Terminal	
B82	35	B87	2	Existed

3. Check continuity between retractable hard top control unit harness connector and ground.

Retractable hard top control unit		Ground	Continuity
Connector	Terminal		
B82	35		Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK ROOF WARNING BUZZER SIGNAL

1. Connect retractable hard top control unit connector and roof warning buzzer connector.
2. Check voltage between retractable hard top control unit harness connector and ground.

Retractable hard top control unit		(–)	Condition		Voltage (V) (Approx.)
(+)					
Connector	Terminal				
B82	35	Ground	Roof warning buzzer (Operate retractable hard top with roof open/close switch)	Sounds	0
				Other than above	Battery voltage

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace roof warning buzzer. Refer to RF-15, "Component Parts Location".

HYDRAULIC PUMP MOTOR POWER SUPPLY RELAY

Diagnosis Procedure

INFOID:0000000008158536

1.CHECK FUSIBLE LINK

Check 50 A fusible link [letter M, located in the fuse, fusible link and relay box].

Is the fusible link blown?

YES >> Replace the blown fusible link after repairing the affected circuit if a fusible link is blown.
NO >> GO TO 2.

2.CHECK HYDRAULIC UNIT POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect hydraulic unit connector.
3. Check the voltage between hydraulic unit harness connector and ground.

(+)		(–)	Voltage (V) (Approx.)
Hydraulic unit			
Connector	Terminal		
B81	7	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

3.CHECK HYDRAULIC UNIT GROUND CIRCUIT

1. Disconnect retractable hard top control unit connector.
2. Check the continuity between retractable hard top control unit harness connector and hydraulic unit harness connector.

Retractable hard top control unit		Hydraulic unit		Continuity
Connector	Terminal	Connector	Terminal	
B82	38	B80	3	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace harness.

4.CHECK RETRACTABLE HARD TOP CONTROL UNIT OUTPUT

1. Connect retractable hard top control unit connector and hydraulic unit connector.
2. Check the voltage between hydraulic unit harness connector and ground.

(+)		(–)	Condition		Voltage (V) (Approx.)
Hydraulic unit					
Connector	Terminal				
B80	18	Ground	Retractable hard top	Operate	Battery voltage
				Stop	0

Is the inspection result normal?

YES >> Replace hydraulic unit. Refer to RF-285, "Removal and Installation"
NO >> Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation"

SYMPTOM DIAGNOSIS

RETRACTABLE HARD TOP DOES NOT OPERATE USING DOOR REQUEST SWITCH

Diagnosis Procedure

INFOID:0000000008158537

1.CHECK DOOR LOCK FUNCTION

Check door lock function (with door request switch LH/RH).

Does door lock/unlock with with door request switch (LH/RH)?

YES >> GO TO 2.
NO >> Refer to DLK-179, "ALL DOOR : Diagnosis Procedure".

2.CONFIRM THE OPERATION

Confirm the operation again.

Is the result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

ROOF WARNING BUZZER DOES NOT SOUND

Diagnosis Procedure

INFOID:0000000008158538

1.CHECK ROOF WARNING BUZZER

Check roof warning buzzer.
Refer to RF-227, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2.CONFIRM THE OPERATION

Confirm the operation again.

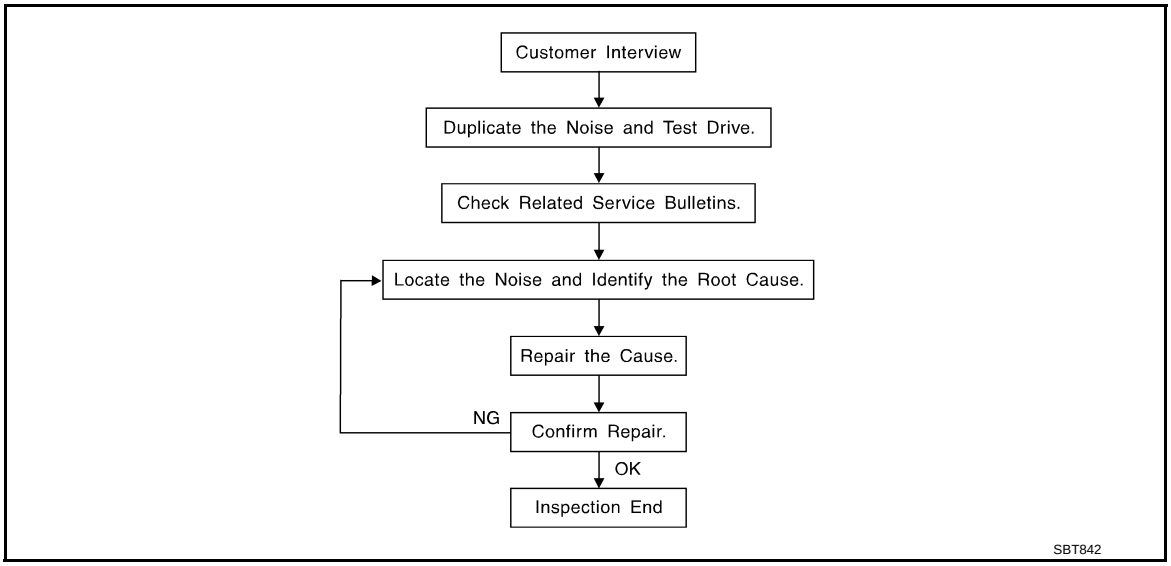
Is the result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".
NO >> Replace retractable hard top control unit. Refer to RF-295, "Removal and Installation".

SQUEAK AND RATTLE TROUBLE DIAGNOSES

Work Flow

INFOID:0000000008158539



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 of the customer's comments; refer to RF-235, "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 a test drive 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 a technician 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

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 the repair is reconfirmed.

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.

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 is are suspected to be the cause of the noise.
  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 is are suspected to be the cause of 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 by hand by touching the component(s) that is are suspected to be the cause of the noise.
- Placing a piece of paper between components that is are suspected to be the cause of the noise.
- Looking for loose components and contact marks.
  Refer to RF-233, "Inspection Procedure".

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. These insulators are available through the authorized Nissan Parts Department.

CAUTION:
Never use excessive force as many components are constructed of plastic and may be damaged.
NOTE:

- URETHANE PADS
  Insulates connectors, harness, etc.
- INSULATOR (Foam blocks)
  Insulates components from contact. Can be used to fill space behind a panel.
- INSULATOR (Light foam block)
- FELT CLOTHTAPE
  Used to insulate where movement does not occur. Ideal for instrument panel applications.
  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 is be visible or does not fit.
  Note: Will only last a few months.
- SILICONE SPRAY
  Used when grease cannot be applied.
- DUCT TAPE
  Used 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.

Inspection Procedure

INFOID:0000000008158540

Refer to Table of Contents for specific component removal and installation information.

INSTRUMENT PANEL

Most incidents are caused by contact and movement between:

1. Cluster lid A and instrument panel
2. Acrylic lens and combination meter housing
3. Instrument panel to front pillar garnish
4. Instrument panel to windshield
5. Instrument panel mounting pins
6. Wiring harnesses behind the combination meter
7. A/C defroster duct and duct joint

These incidents can usually be located by tapping or moving the components to duplicate the noise or by pressing on the components while driving to stop the noise. Most of these incidents can be repaired by applying felt cloth tape or silicon spray (in hard to reach areas). Urethane pads can be used to insulate wiring harness.

CAUTION:

Never use silicone spray to isolate a squeak or rattle. If the area is saturated with silicone, the recheck of repair becomes impossible.

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 following:

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. The areas can usually be insulated with felt cloth tape or insulator foam blocks to repair the noise.

TRUNK

Trunk noises are often caused by a loose jack or loose items put into the trunk by the customer.
In addition look for the following:

1. Trunk lid dumpers out of adjustment
2. Trunk lid striker out of adjustment
3. Trunk lid torsion bars knocking together
4. A loose license plate or bracket

Most of these incidents can be repaired by adjusting, securing or insulating the item(s) or component(s) causing the noise.

SUNROOF/HEADLINING

Noises in the sunroof/headlining area can often be traced to one of the following:

1. Sunroof lid, rail, linkage or seals making a rattle or light knocking noise
2. Sunvisor shaft shaking in the holder
3. Front or rear windshield touching headlining and squeaking

Again, pressing on the components to stop the noise while duplicating the conditions can isolate most of these incidents. Repairs usually consist of insulating with felt cloth tape.

SEATS

When isolating seat noise it is important to note the position the seat is in and the load placed on the seat when the noise occurs. 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. 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

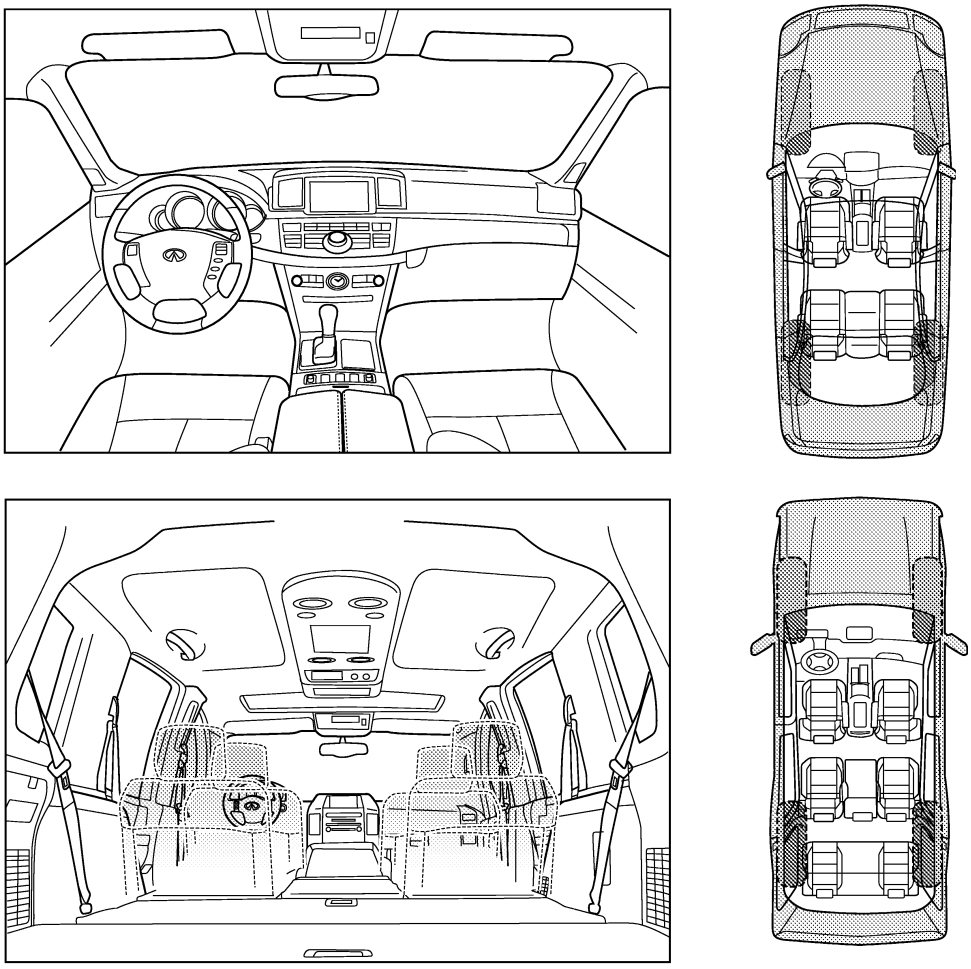
INFOID:0000000008158541

INFINITI

SQUEAK & RATTLE DIAGNOSTIC WORKSHEET

Dear Infiniti Customer:
We are concerned about your satisfaction with your Infiniti vehicle. Repairing a squeak or rattle sometimes can be very difficult. To help us fix your Infiniti right the first time, please take a moment to note the area of the vehicle where the squeak or rattle occurs and under what conditions. You may be asked to take a test drive with a service consultant 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 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.

PIIB8741E

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
- ☐ 1st time in the morning
- ☐ only when it is cold outside
- ☐ only when it is hot outside
- ☐ after sitting out in the rain
- ☐ when it is raining or wet
- ☐ dry or dusty conditions
- ☐ 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

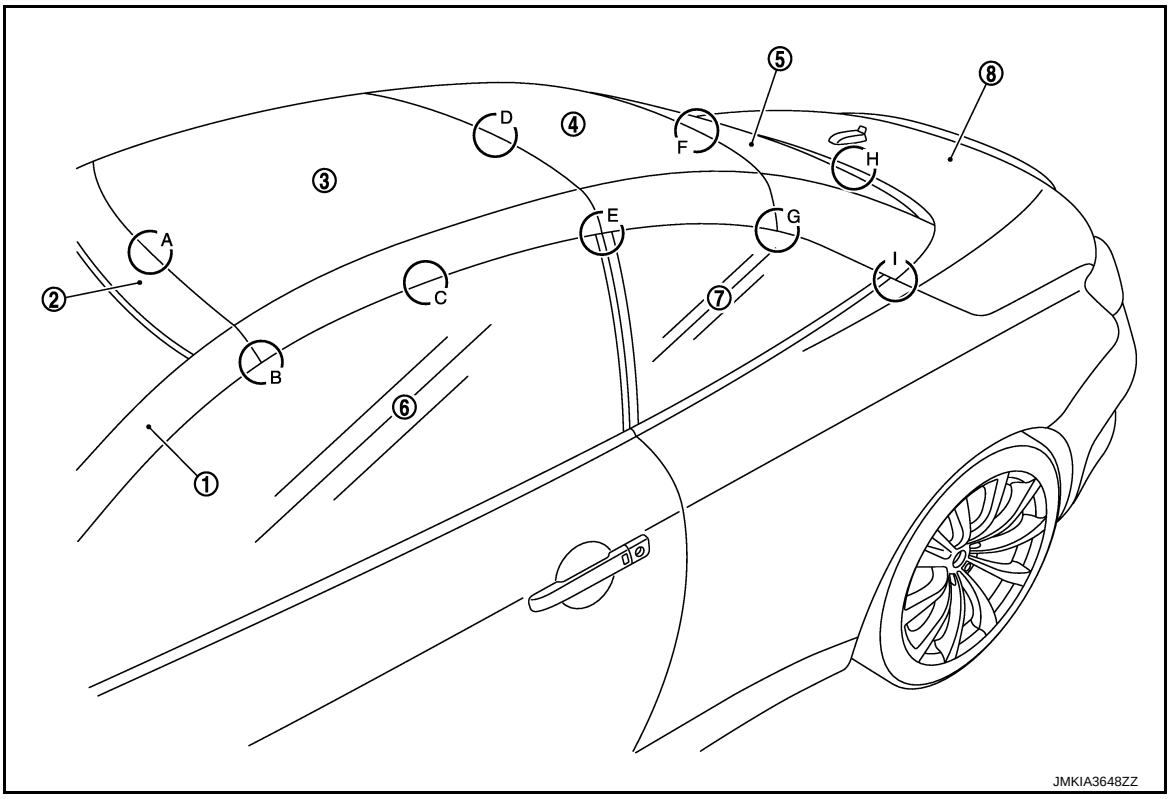
PIIB8742E

PERIODIC MAINTENANCE

WATER LEAKAGE TROUBLE DIAGNOSIS

Repairing Method for Water Leakage Around Retractable Hard Top

INFOID:0000000008158542



1. Front pillar
2. Front roof
3. Front roof panel assembly
4. Center roof panel assembly
5. Rear roof panel assembly
6. Front door glass
7. Quarter window glass
8. Trunk lid assembly

WATER LEAKAGE FROM A

The cause of water leakage may be from poor contact between the front roof and the body side weather-strip.
Cause: There may be incorrect adjustment between the front roof and the body side weather-strip.

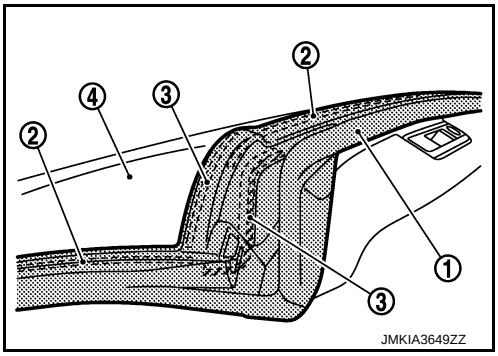
Repair Procedure 1

Check that front roof and the front roof panel are flush and adjust if necessary.
Refer to RF-260, "Adjustment".
Check and adjust the gap between the front roof and the front roof panel if necessary.
Refer to RF-260, "Adjustment".

WATER LEAKAGE FROM B

The cause of water leakage may be from poor contact between the front pillar upper portion and body side weather-strip.

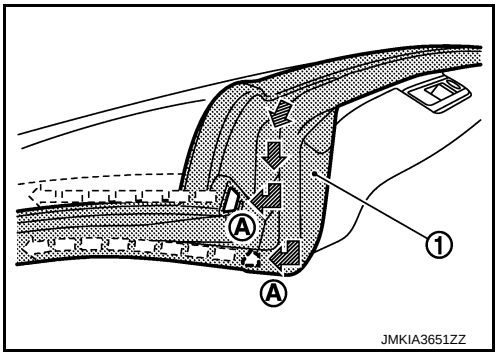
Cause: Double-sided tape (2) and EPT seal (3) on body side weather-strip (1) backside does not securely contact front pillar upper portion (4).



Repair procedure 2

- Fill the clearance with butyl if clearance is detected between front roof panel and weather-strip. Replace the part if water leakeage is still detected.
- Replace body side weather-strip with new one and check that double-sided tape and EPT seal securely contacts front pillar upper portion and front roof.

The cause of water leakage may be from inefficiency of water evacuation.
Cause: The body side weather-strip (1) drain hole (A) is plugged.

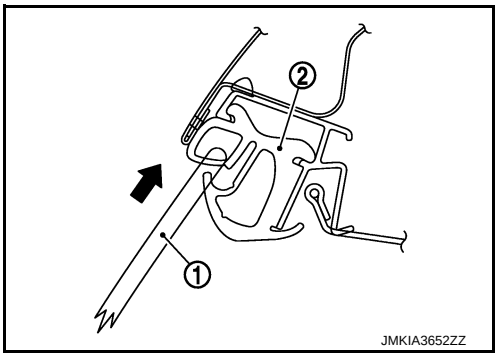


Repair Procedure 3

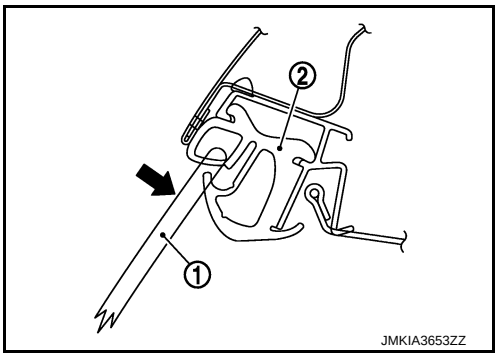
Cleanse the drain holes of body side weather-strip.
Unplug the drain hole (A) on both sides of front body side weather-strip.

WATER LEAKAGE FROM C

The cause of water leakage may be from poor contact between the door glass (1) and front roof panel weather-strip (2) in vertical direction.
Cause: The power window cannot apply enough vertical pressure to the front roof panel weather-strip via the door glass.



The cause of water leakage may be from poor contact between the door glass (1) and front roof panel weather-strip in (2) lateral direction.
Cause: The power window cannot apply enough lateral pressure to the front roof panel weather-strip via the door glass.



Repair Procedure 4

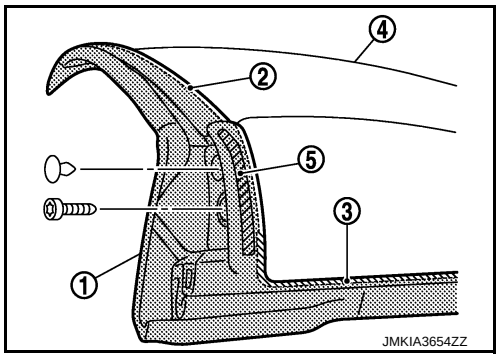
Adjust the door glass and quarter window glass. Refer to GW-18, "Inspection and Adjustment".

WATER LEAKAGE FROM D

The cause of water leakage may be from poor contact between front roof panel and center roof panel.
Cause: There may be incorrect adjustment between front roof panel and center roof panel.

Repair Procedure 5

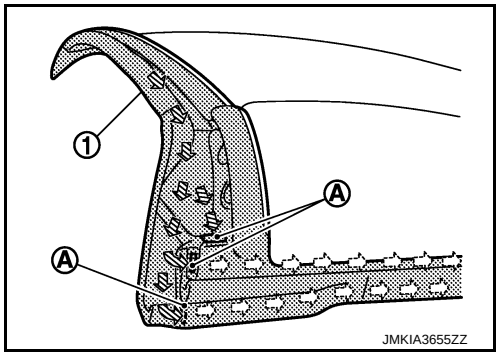
Check and adjust the flatness deviation between the front roof panel and the center roof panel if necessary.
Refer to RF-265, "Adjustment".
Check and adjust the gap between the front roof panel and the center roof panel if necessary.
Refer to RF-265, "Adjustment".
The cause of water leakage may be from poor contact or gap between the front roof panel and center roof panel weather-strip top.
Cause: Double-sided tape (2), EPT seal (3) and butyl (5) on center roof panel weather-strip (1) backside does not securely contact center roof panel (4).



Repair Procedure 6

- Fill the clearance with butyl if clearance is detected between center roof panel and weather-strip. Replace the part if water leakeage is still detected.
- Replace center roof panel weather-strip with new one and check that double-sided tape and EPT seal securely contacts center roof panel.

The cause of water leakage may be from inefficiency of water evacuation.
Cause: The center roof panel weather-strip front (1) drains holes (A) are plugged.



Repair Procedure7

Cleanse the drain holes of center roof panel weather-strip front.
Unplug the drain holes (A) (A) on both sides of center roof panel weather-strip front.

WATER LEAKAGE FROM E

The cause of water leakage may be between the top edges of door glass and quarter window glasses.
Cause: The flatness between door glass and quarter window glasses is incorrect.

Repair Procedure 8

Check the flatness between the door glass and quarter window glass using a thin plastic card. The resistance must be same at each point.

- If the flatness is incorrect.
- Adjust the door glass and quarter window glass. Refer to GW-18, "Inspection and Adjustment".

WATER LEAKAGE FROM F

The cause of water leakage may be from poor contact between the center roof panel and the rear roof panel.
Cause: There may be incorrect adjustment between the center roof panel and the rear roof panel.

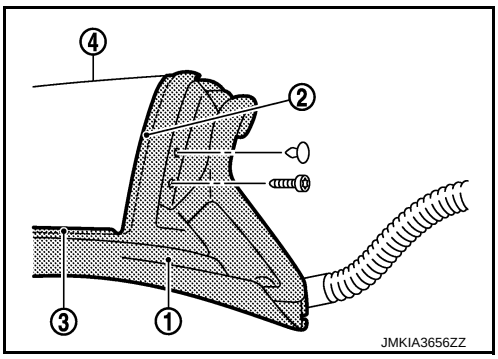
Repair Procedure 9

Check that center roof panel and the rear roof panel are flush and adjust if necessary.
Refer to RF-269, "Adjustment".

WATER LEAKAGE FROM G

The cause of water leakage may be from poor contact or gap between the center roof panel weather-strip and rear roof panel.

Cause: Double-sided tape (2) and EPT seal (3) on center roof panel weather-strip (1) back side does not securely contact center roof panel (4).

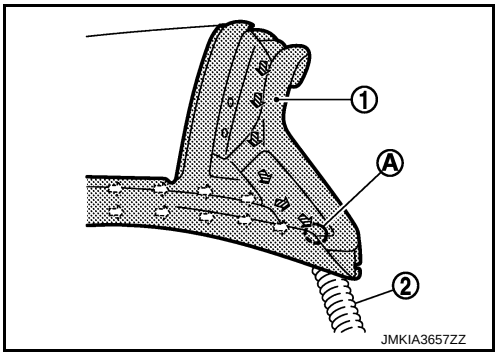


Repair Procedure 10

- Fill the clearance with butyl if clearance is detected between rear roof panel and weather-strip. Replace the part if water leakeage is still detected.
- Replace center roof panel weather-strip with new one and check that double-sided tape and EPT seal securely contacts center roof panel.

The cause of water leakage may be from inefficiency of water evacuation.

Cause: Center roof panel weather-strip (1) drain holes (A) are plugged.



Repair Procedure 11

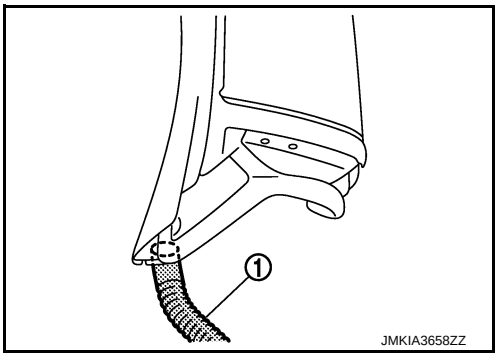
Cleanse the drain holes of center roof panel weather-strip.

Unplug the drain holes (A) on both sides of center roof panel weather-strip rear.

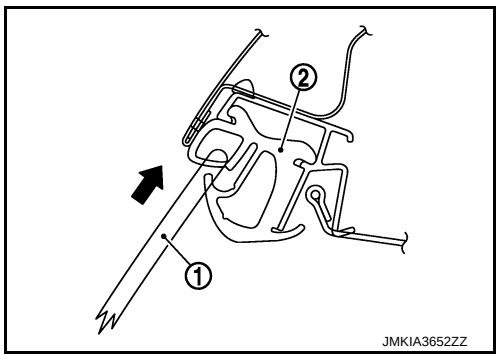
- Check the connection between the center roof panel weather-strip and drain tube.

Repair Procedure 12

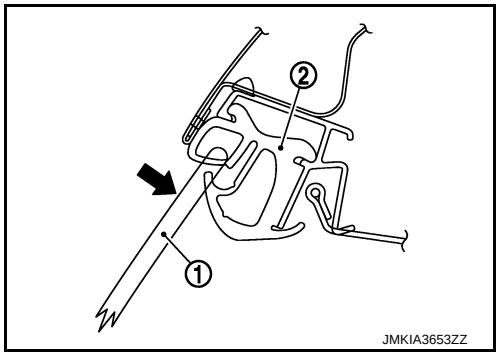
Align the connection claw position of drain tube (1) and insert.



The cause of water leakage may be from poor contact between the quarter window glass (1) and center roof panel weather-strip (2) in vertical direction.
Cause: The power window cannot apply enough vertical pressure to the center roof panel weather-strip via the quarter window glass.



The cause of water leakage may be from poor contact between the quarter window glass (1) and center roof panel weather-strip in (2) lateral direction.
Cause: The power window cannot apply enough lateral pressure to the center roof panel weather-strip via the quarter window glass.



Repair Procedure 13
Adjust the door glass quarter window glass. Refer to GW-18, "Inspection and Adjustment".

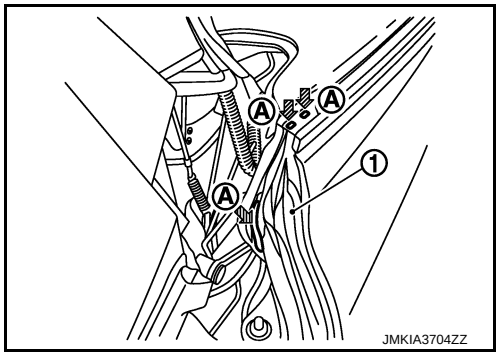
WATER LEAKAGE FROM H

If water leakage occurs from front area of trunk lid to trunk room inside, the cause of water leakage may be from poor contact between the rear roof panel and the trunk lid panel.
Cause: There may be incorrect adjustment between the rear roof panel and the trunk lid panel.

Repair Procedure 14
Check and adjust the contact deviation between the rear roof panel and the trunk lid panel if necessary.
Refer to RF-269, "Adjustment".

WATER LEAKAGE FROM I

The cause of water leakage may be from inefficiency of water evacuation.
Cause: The body side weather-strip (1) drains holes (A) are plugged.



Repair Procedure 15
Cleanse the drain holes of the body side weather-strip.
Unplug the drain holes (A) on both sides of the body side weather-strip.

Water Leakage Test

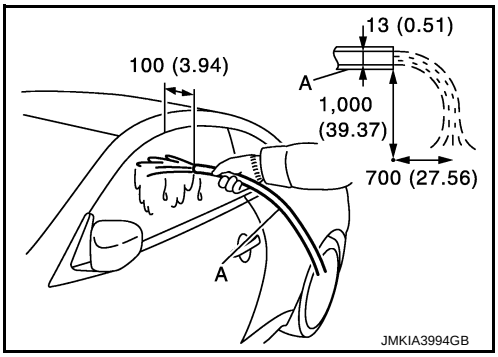
INFOID:0000000008158543

- Visually check for water leakage after repairing.
- If complaint or claim for water leakage come from owner although hose test goes well, shower test is needed.

NOTE:
It is considered normal if level of water flow on center pillar upper end is kept at a level that water flows along with passenger room side glass.

HOW TO CHECK BY HOSE

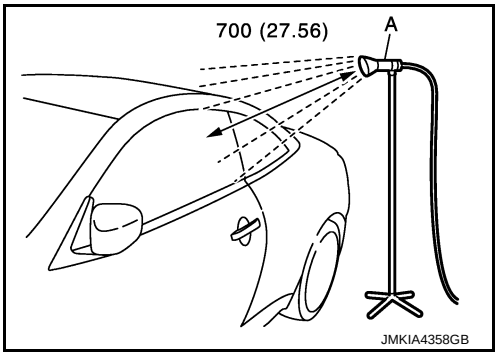
1. 2 workers are required. One worker checks inside the vehicle, and the other one washes with water.
2. Use 13 mm (0.51 in) diameter hose (A). Adjust water pressure by following method.
   Hold the hose horizontally, and release water at 1000 mm (39.37 in) height from ground. Adjust the distance, between the ground point just below the hose and the water dropping point, to reach 700 mm (27.56 in). (See the figure.)



3. Keeping the distance between the hose and the testing area by 100 mm (3.94 in), apply water along the area 3 times. During applying water, move the hose by 100 mm (3.94 in)/sec speed.
4. Visually check for water leakage.

HOW TO CHECK BY SHOWER

1. Adjust water flow as the same as hose test.
2. Shower by hose with shower head (A) keeping distance about 700 mm (27.56 in) far from vehicle.
3. Keep showering 30min against each weather-strip which might cause water leakage.



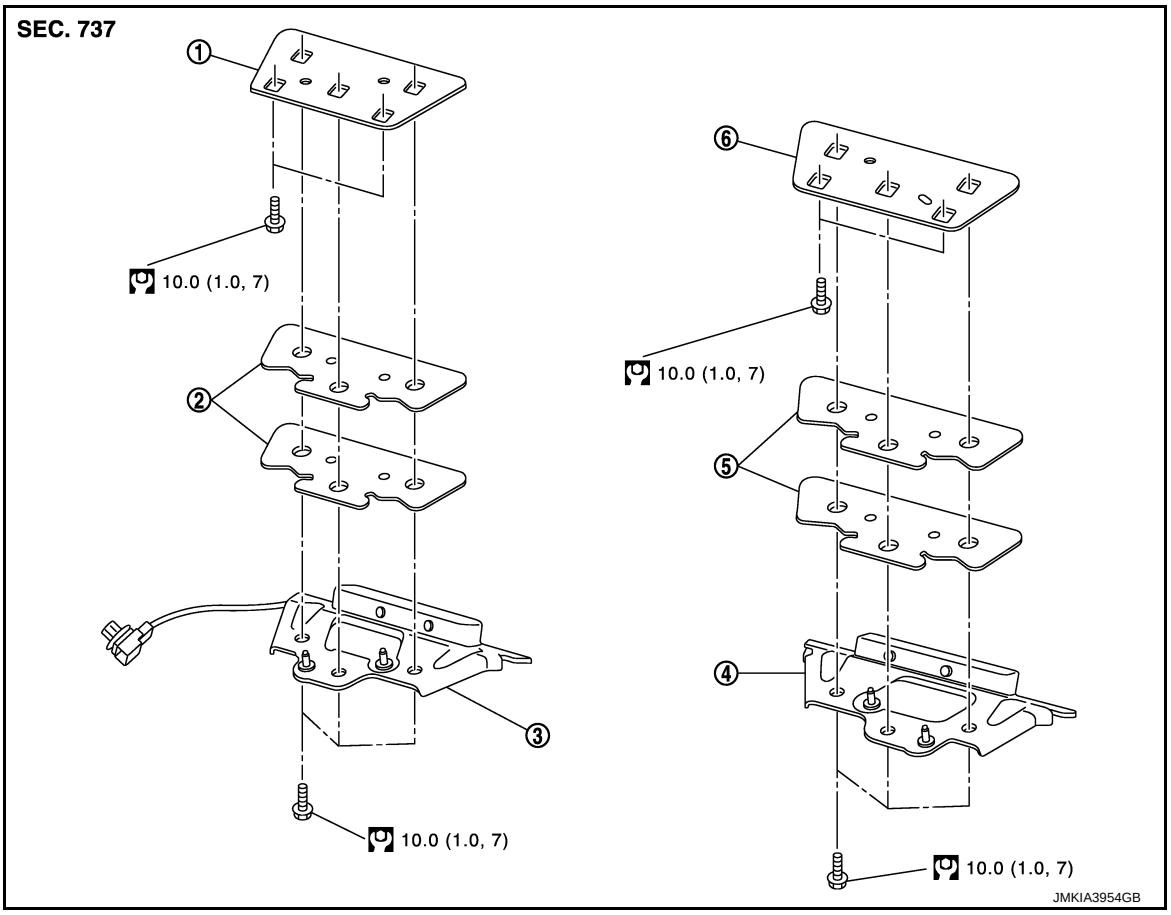
4. Visually check for water leakage.

REMOVAL AND INSTALLATION

FRONT LATCH ASSEMBLY

Exploded View

INFOID:0000000008158544



1. Latch plate RH
2. Shim RH
3. Front latch assembly RH
4. Front latch assembly LH
5. Shim LH
6. Latch plate LH

Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

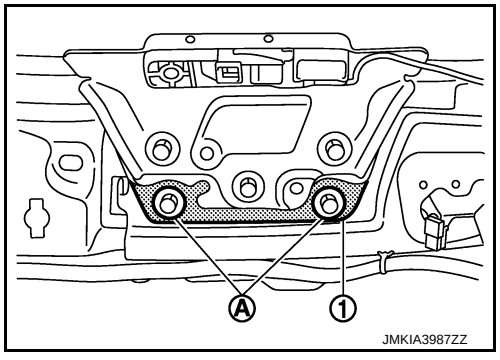
INFOID:0000000008158545

REMVAL

1. Remove roof front finisher. Refer to RF-246, "Removal and Installation".
2. Disconnect roof latch limit switch harness connector.
3. Remove mounting bolts, and then remove front latch assembly.

CAUTION:

- **Never loosen mounting bolts (A).**
- **Never remove latch plate (LH/RH) (1).**



INSTALLATION

Install in the reverse order of removal.

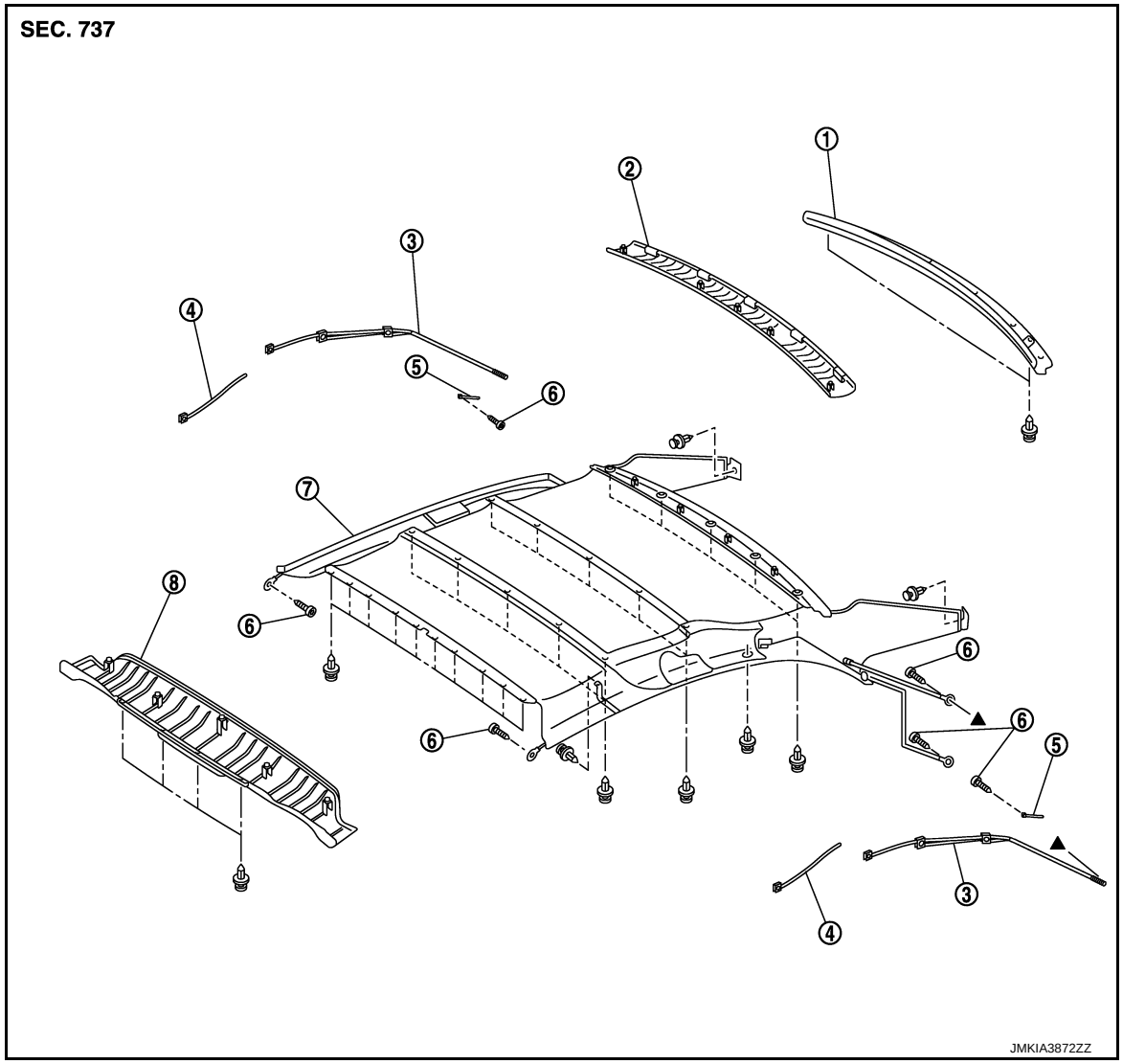
NOTE:

- Perform initialization according to the work after installing front lach assembly. Refer to RF-74, "Description".
- Adjust door glass and quarter window glass. Refer to GW-18, "Inspection and Adjustment".
- Perform water leakage test. Refer to RF-241, "Water Leakage Test".

HEADLINING

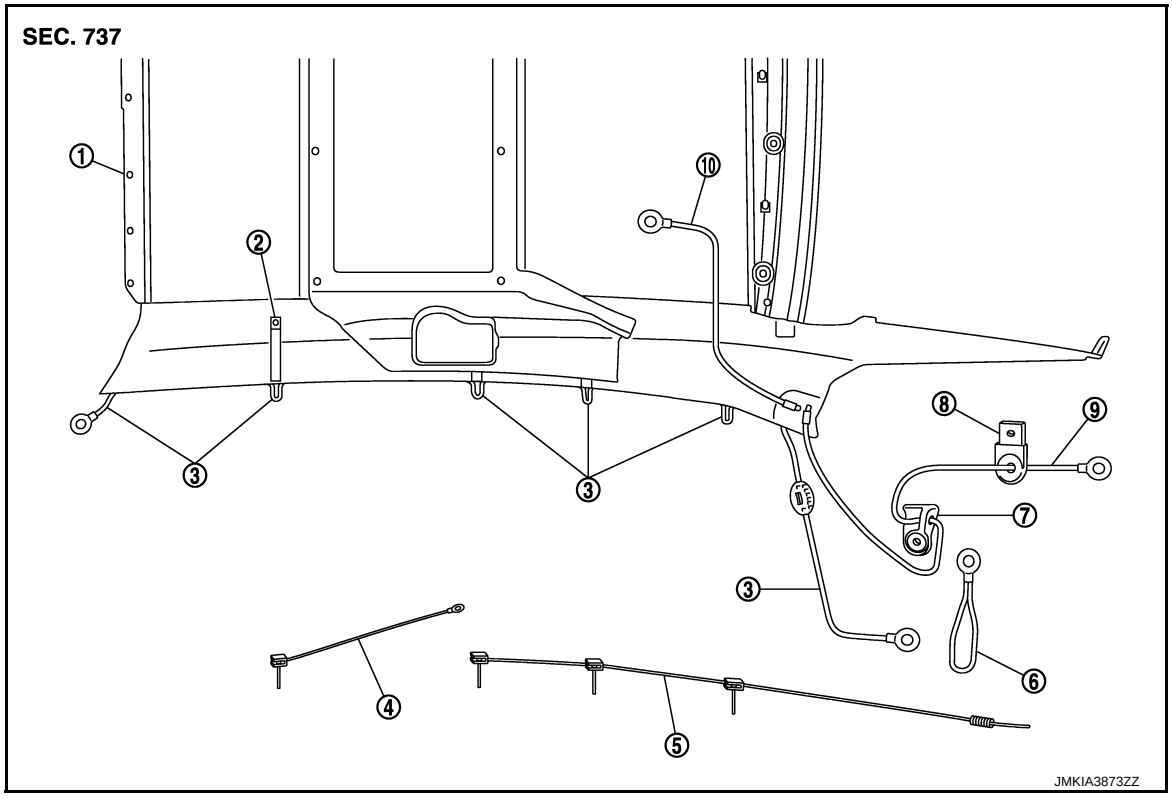
Exploded View

INFOID:0000000008158546



1. Rear roof lower garnish
2. Rear roof upper garnish
3. Main tether cord
4. Tension cord
5. Guide
6. TORX screw
7. Headlining
8. Front roof garnish

CORD



1. Headlining
2. Rubber strap
3. Main cord
4. Tension cord
5. Main tether cord
6. Guide
7. Deflector A
8. Deflector B
9. C-post cord
10. Rubber cord

Removal and Installation

INFOID:0000000008158547

REMOVAL

CAUTION:

Protect the rear fender with a fender protectoer.

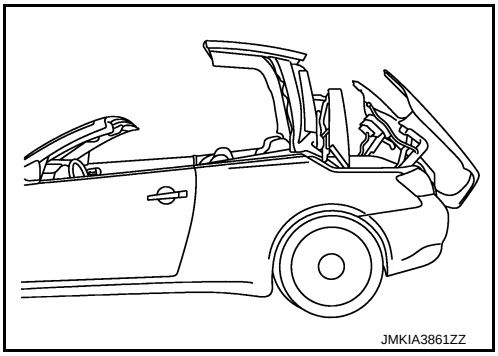
NOTE:

- Operate roof manually if it does not operate electrically. Refer to RF-298, "Manual Operation".
- All graphics are on the LH roof link side.

1. Stop roof as shown in the figure (during open operation).

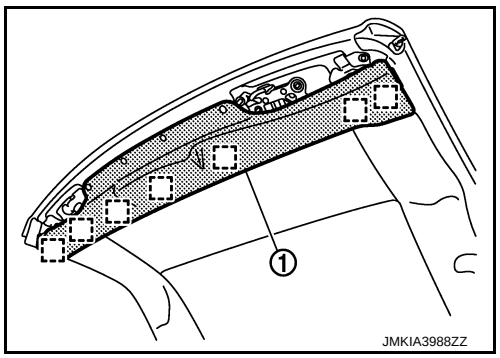
   CAUTION:

   Be careful of the roof and rear parcel shelf unit positions when operating, because roof may drop little by little and may interfere with rear parcel shelf unit when roof is in the middle position for a long period of time.



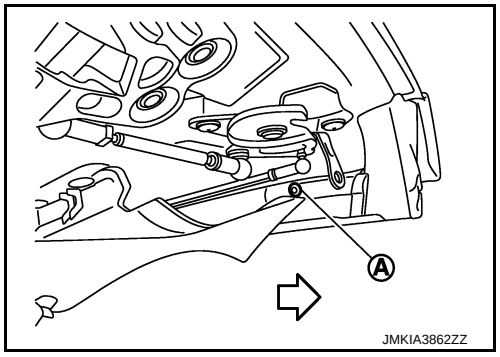
2. Remove clips and metal clips, and then remove front roof garnish (1).

: Metal clip

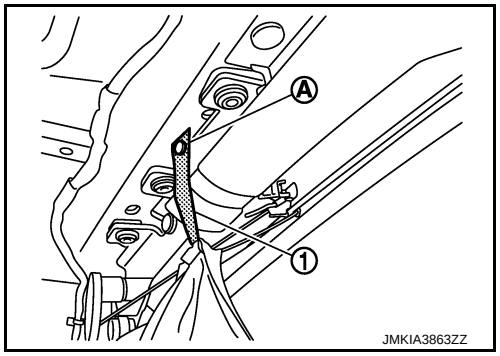


3. Remove headlining and main cord mounting TORX screw (LH/RH) (A) from front roof panel front side.

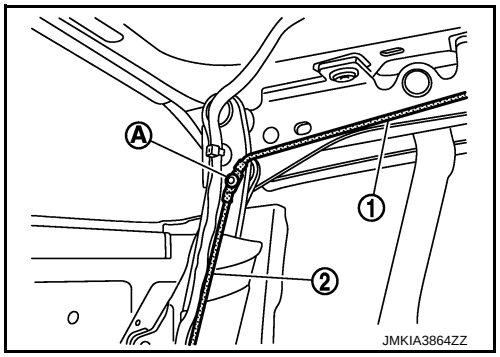
: Vehicle front



4. Remove front side clips of front roof panel.
5. Remove clip (LH/RH) (A), and then rubber strap (1) from front roof panel.

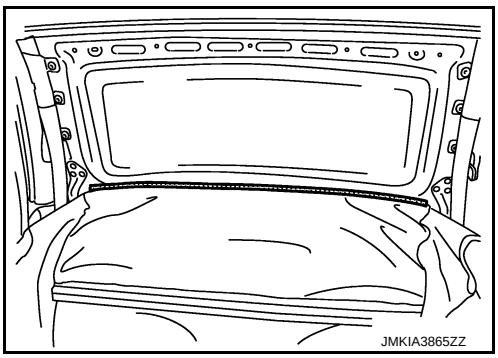


6. Remove rear side clips of front roof panel.
7. Remove TORX screw (A), and then tension cord (1) and rubber cord (2) through clearance between front roof panel and center roof panel.



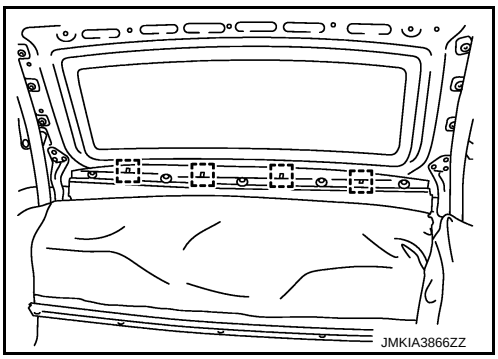
8. Remove tension cord from front roof panel support rail.
9. Remove front side clips and intermediate clips of center roof panel.
10. Remove main tether cord stopper from center roof panel support rail. (3spot)
11. Remove deflector B mounting TORX screws.

12. Remove retainer from center roof panel.



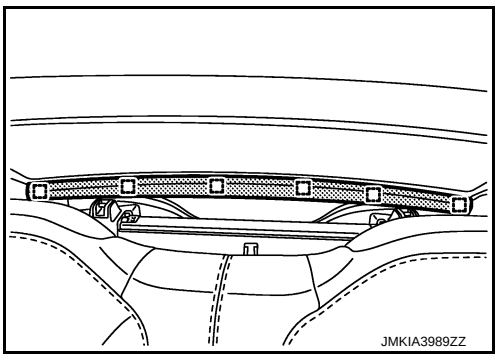
13. Remove rear side clips of center roof panel.
14. Remove metal clips, and then remove headlining from center roof panel.

: Metal clip

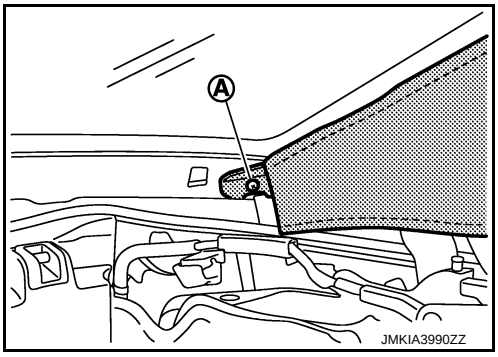


15. Remove clips and metal clips, and then remove rear roof lower garnish.

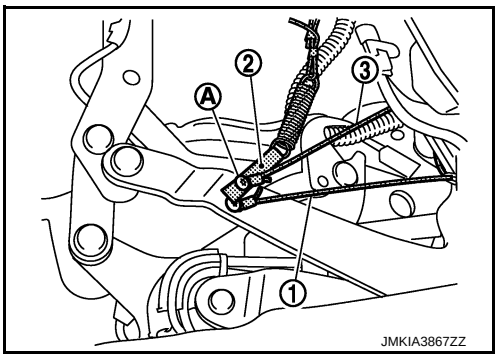
: Metal clip



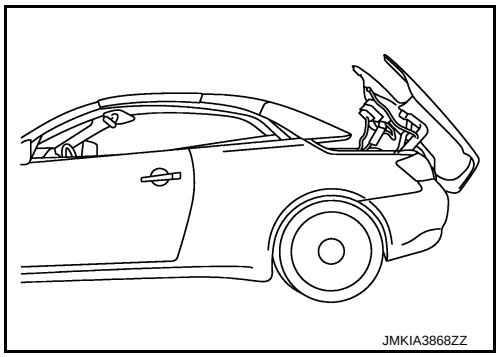
16. Remove clip (LH/RH) (A), and then remove headlining from rear roof panel.



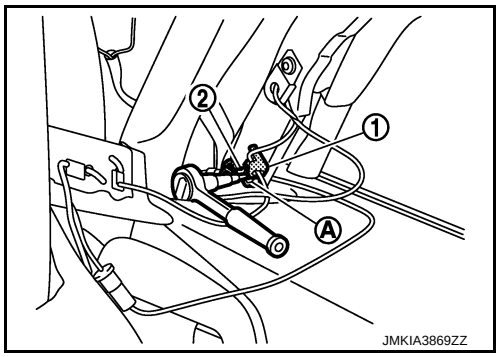
17. Remove main cord (1), main tether cord (2), and C-post cord (3) mounting TORX screws (A) from roof link.



18. Stop roof as shown in the figure (roof is closed and trunk is open).

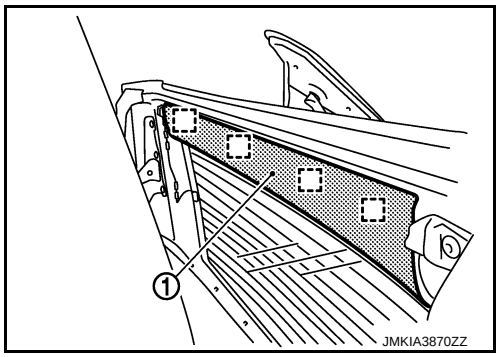


19. Remove deflector A (1) and guide (2) mounting TORX screws (A) from roof link.



20. Remove the headlining from vehicle.
21. Remove metal clips, and then remove rear roof upper garnish (1).

: Metal clip



INSTALLATION

CAUTION:

Use TORX srews that is larger by a size when re-installing headlining.

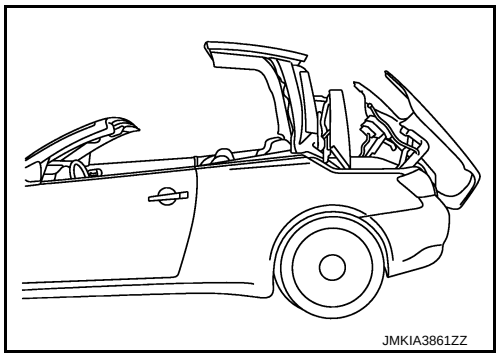
NOTE:

All graphics are on the LH roof link side.

1. Stop roof as shown in the figure (in the middle of open operation).

   CAUTION:

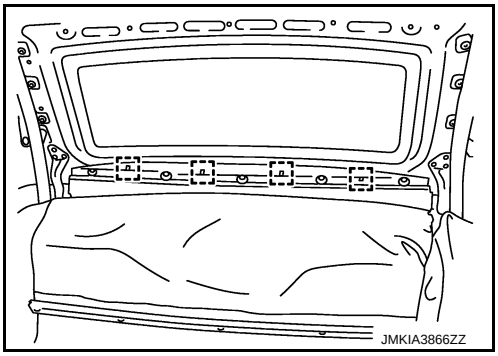
   Be careful of the roof and rear parcel shelf unit positions when operating, because roof may drop little by little and may interfere with rear parcel shelf unit when roof is in the middle position for a long period of time.



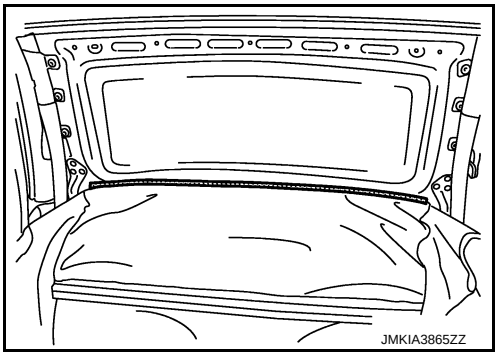
2. Install rear roof upper garnish.

3. Install headlining metal clips and clips to center roof panel rear side.

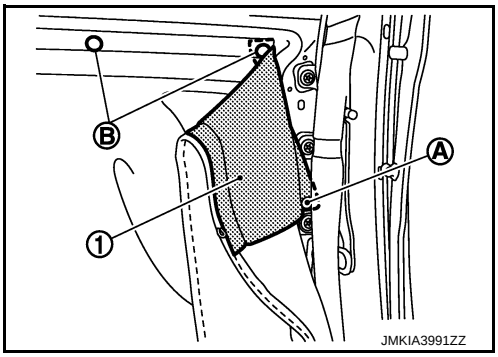
: Metal clip



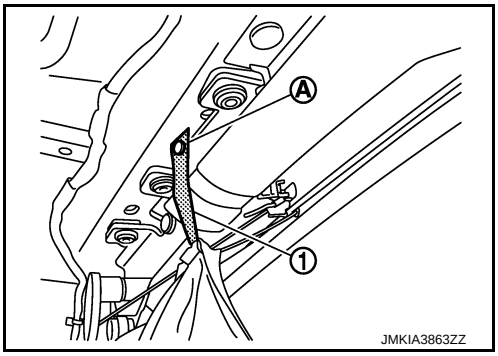
4. Install headlining retainer to center roof panel.



5. Install intermediate clips (A) to center roof panel.
   Fix back side of flap portion (1) of headlining cloth using clips
6. Install front side clips (B) to center roof panel.

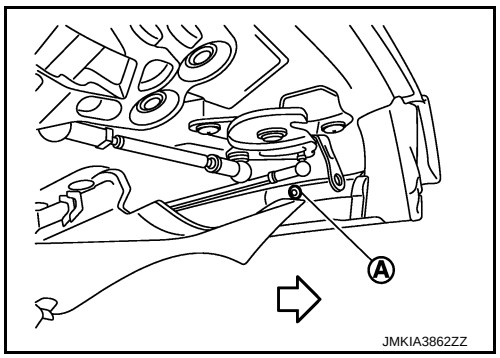


7. Install front side and rear side clips to front roof panel.
8. Install rubber strap (1) using clip (LH/RH) (A).



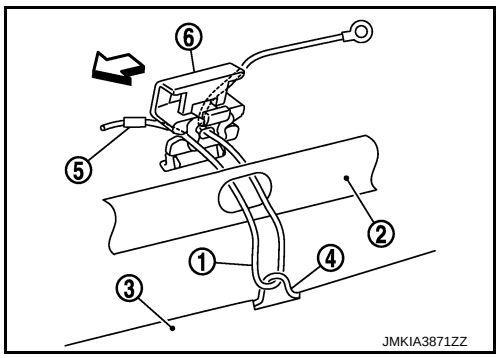
9. Install headlining and main cord mounting TORX screw (LH/RH) (A) to front roof panel front side.

⇦ : Vehicle front



10. As shown in the figure, pass tension code (1) through front roof panel support rail (2) and main code (4) of headlining (3), and then hook tension code crimping portion (5) to stopper groove. Hook stopper (6) claws to roof panel support rail and engage stopper to front roof panel support rail.

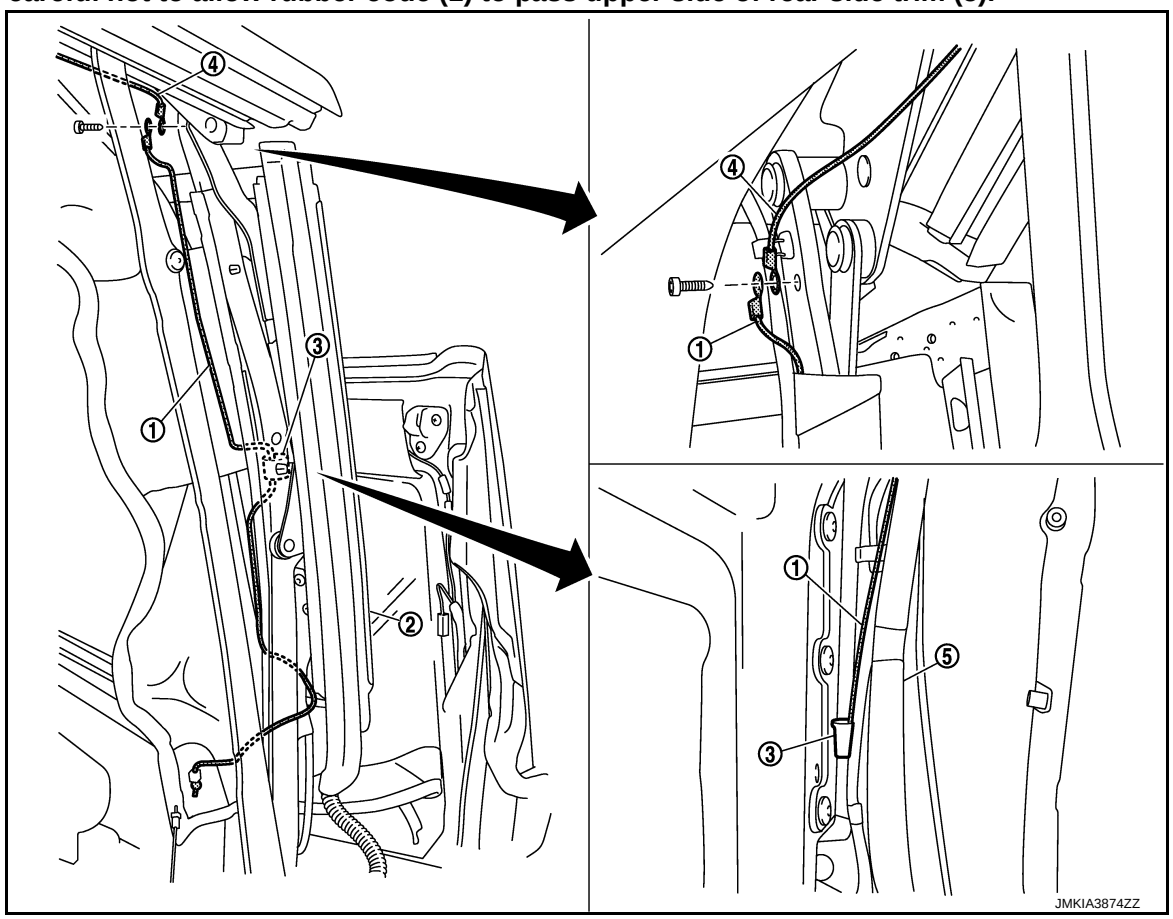
⇦ : Vehicle front



11. Pass rubber code (1) through clearance between roof link and center roof panel (2), and then pass it through trim sleeve (3).
12. Install tension code (4) and rubber code (1) together using TORX screws.

CAUTION:

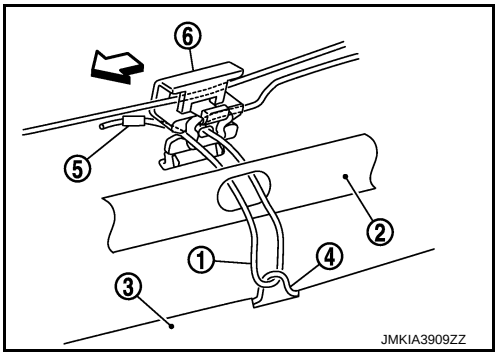
Be careful not to allow rubber code (1) to pass upper side of rear side trim (5).



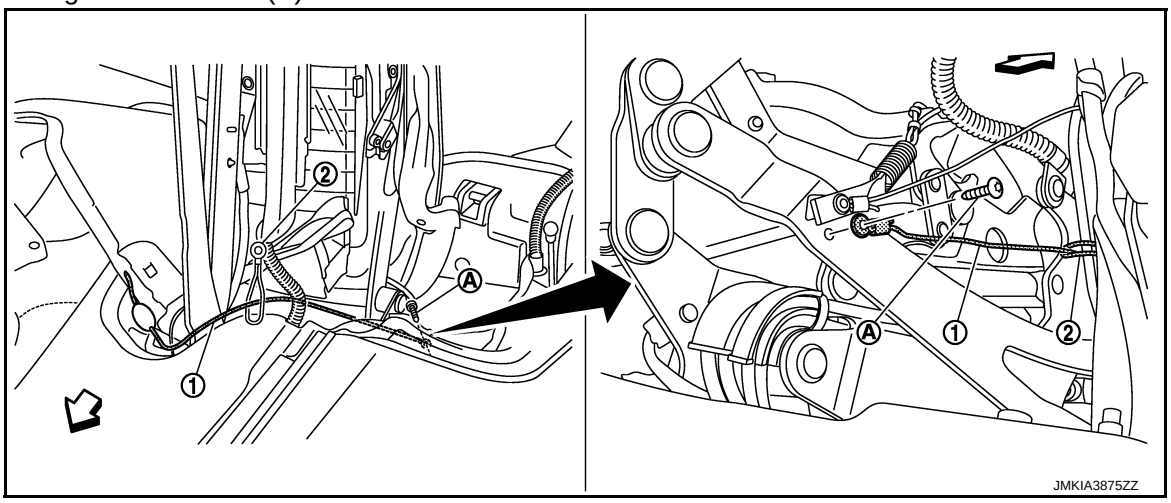
⇦ : Vehicle front

13. As shown in the figure, pass main tether code (1) through center roof panel support rail (2) and main code (4) of headlining (3), and then hook tension code crimping portion (5) to stopper groove.
    Hook stopper (6) claws to roof panel support rail and engage stopper to center roof panel support rail. (3 spot)

    ⇦ : Vehicle front

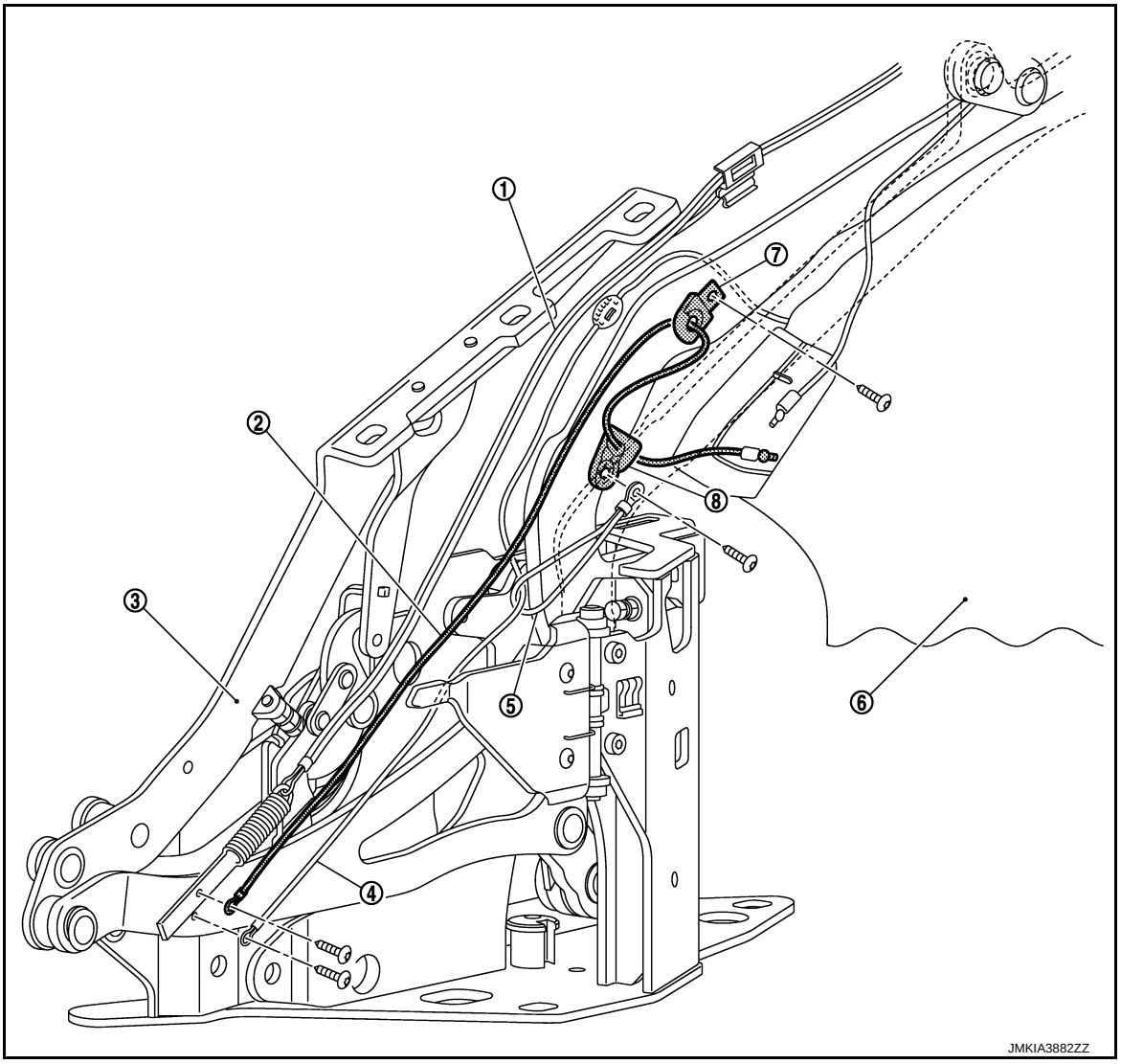


14. Pull strongly main tether code.
15. As shown in the figure, set main code (1), pass it through guide (2), and fix to rear and lower side of roof link using TORX screws (A).



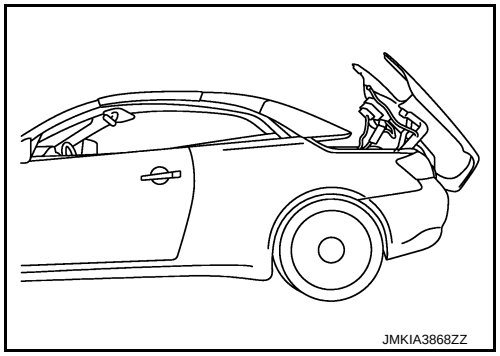
    ⇦ : Vehicle front

16. As shown in the figure, set C-post code (2) and install deflector B (7) to roof link using TORX screws.
    CAUTION:
    Pass C-post cord (2) to deflector B (1) from inner side to outer side and fix to roof link assembly (3).

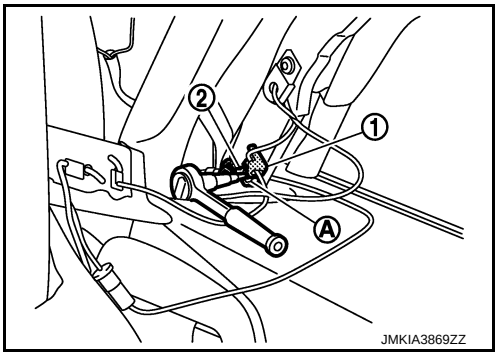


1. Main tether cord
2. C-post cord
3. Roof link assembly LH
4. Main cord
5. Guide
6. Headlining
7. Deflector B
8. Deflector A

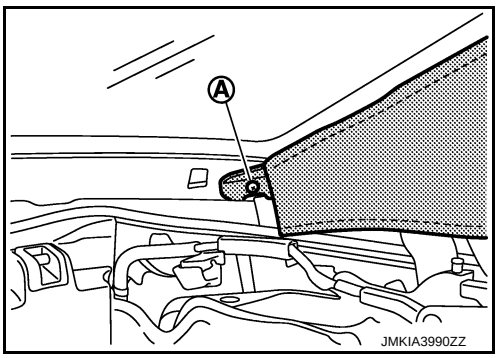
17. Hang main tether code and C-post code to trunk side.
18. Stop roof as shown in the figure (roof is closed and trunk is open).



19. From passenger room side, fix guide (2) and deflector A (1) together using TORX screws (A).



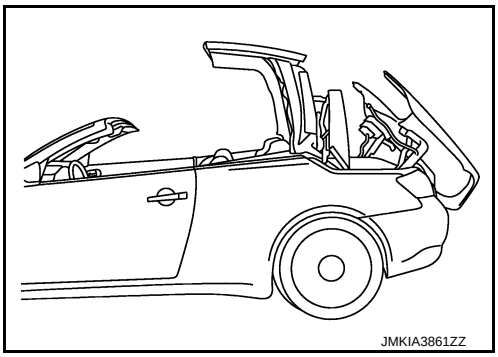
20. Install rear end of headlining to rear roof panel using clip (LH/RH) (A).



21. Install rear roof lower garnish.
22. Stop roof as shown in the figure (in the middle of roof open operation).

    CAUTION:

    Be careful of the roof and rear parcel shelf unit positions when operating, because roof may drop little by little and may interfere with rear parcel shelf unit when roof is in the middle position for a long period of time.



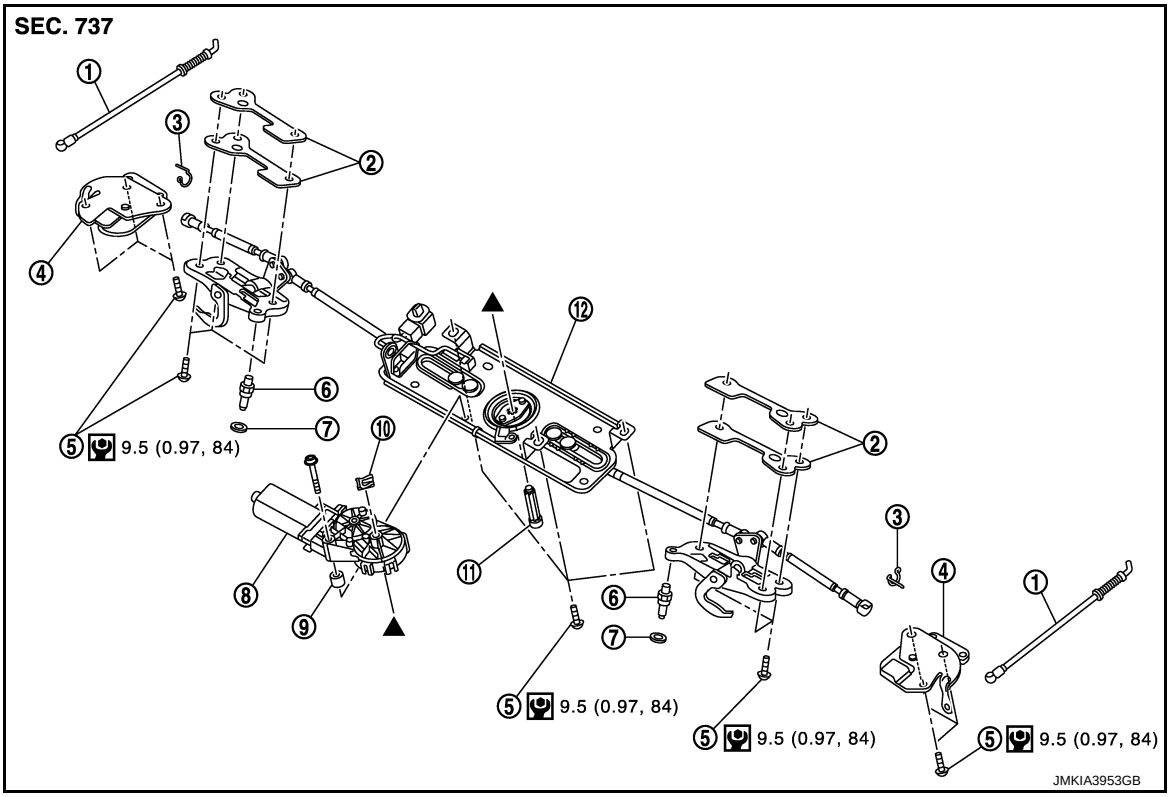
23. Pull main tether code and C-post code and fix to roof link together using TORX screws.
24. Install front roof garnish.
25. Fully close roof.

ROOF LOCK ASSEMBLY

ROOF LOCK ASSEMBLY

ROOF LOCK ASSEMBLY : Exploded View

INFOID:0000000008158548



1. Rod	2. Shim	3. Snap pin
4. Plate	5. TORX bolt	6. Centering pin
7. O-ring	8. Roof latch motor	9. Spacer
10. Retaining plate	11. Roof latch motor shaft	12. Roof lock assembly

Refer to GI-4, "Components" for symbols in the figure.

ROOF LOCK ASSEMBLY : Removal and Installation

INFOID:0000000008158549

REMVAL

CAUTION:

Protect the rear fender with a fender protectoer.

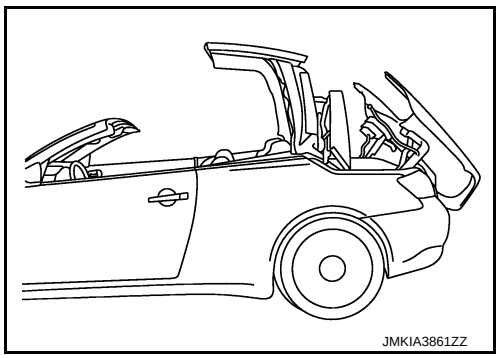
NOTE:

Operate roof manually if it does not operate electrically. Refer to RF-298, "Manual Operation".

1. Stop roof as shown in the figure (during open operation).

   CAUTION:

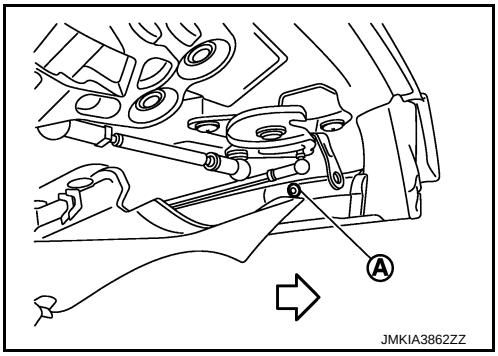
   Be careful of the roof and rear parcel shelf unit positions when operating, because roof may drop little by little and may interfere with rear parcel shelf unit when roof is in the middle position for a long period of time.



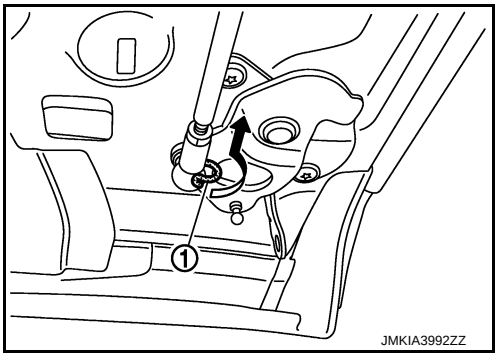
2. Remove front roof garnish. Refer to RF-246, "Removal and Installation".

3. Remove headlining and main cord mounting TORX screw (LH/RH) (A) from front roof panel front side.

⇦ :Vehicle front



4. Pull ball joint side downward and remove rod.
5. Remove snap pin (1), and then remove roof lock assembly lod from plate.



6. Remove mounting bolts, and then remove plate.
7. Remove mounting bolts, and then remove roof lock assembly and shims.

INSTALLATION

Install in the reverse order of removal.

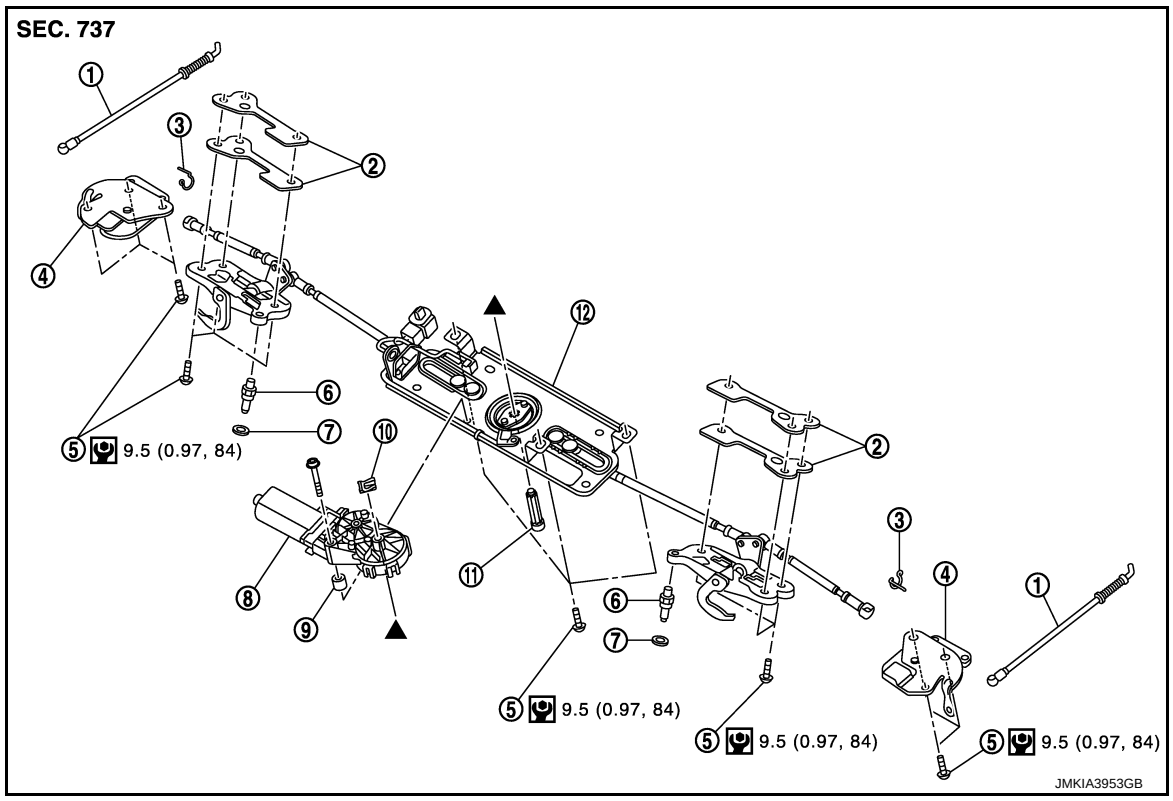
NOTE:

- Perform initialization according to the work after installing roof lock assembly. Refer to RF-74, "Description".
- Adjust door glass and quarter window glass. Refer to GW-18, "Inspection and Adjustment".
- Perform water leakage test. Refer to RF-241, "Water Leakage Test".

ROOF LATCH MOTOR

ROOF LATCH MOTOR : Exploded View

INFOID:0000000008158550



1. Rod	2. Shim	3. Snap pin
4. Plate	5. TORX bolt	6. Centering pin
7. O-ring	8. Roof latch motor	9. Spacer
10. Retaining plate	11. Roof latch motor shaft	12. Roof lock assembly

Refer to GI-4, "Components" for symbols in the figure.

ROOF LATCH MOTOR : Removal and Installation

INFOID:0000000008158551

REMOVAL

CAUTION:

Protect the rear fender with a fender protectoer.

NOTE:

Operate roof manually if it does not operate electrically. Refer to RF-298, "Manual Operation".

1. Remove roof lock assembly. Refer to RF-255, "ROOF LOCK ASSEMBLY : Removal and Installation".
2. Remove retaining plate, and then remove roof latch motor shaft.
3. Disconnect roof latch motor harness connector.
4. Remove mounting bolt, and then remove roof latch motor.

INSTALLATION

Install in the reverse order of removal.

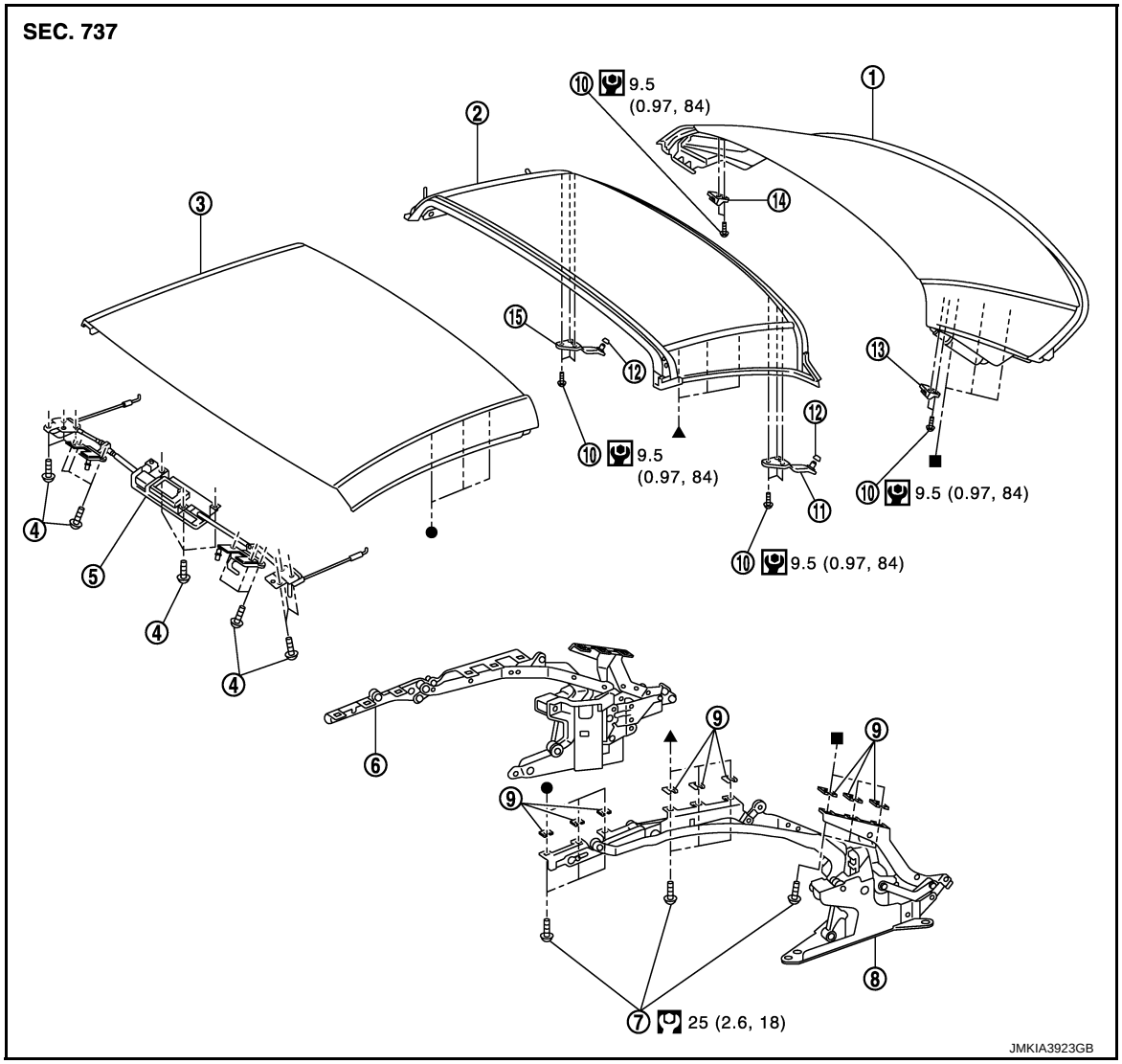
NOTE:

- Perform initialization according to the work after installing roof latch motor. Refer to RF-74, "Description".
- Adjust door glass and quarter window glass. Refer to GW-18, "Inspection and Adjustment".
- Perform water leakage test. Refer to RF-241, "Water Leakage Test".

FRONT ROOF PANEL

Exploded View

INFOID:0000000008158552



1. Rear roof panel	2. Center roof panel	3. Front roof panel
4. TORX bolt	5. Roof lock assembly	6. Roof link assembly RH
7 TORX bolt	8. Roof link assembly LH	9. Shim
10. TORX bolt	11. Center roof panel pin LH	12. O-ring
13. Center roof panel retainer LH	14. Center roof panel retainer RH	15. Center roof panel pin RH

Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

INFOID:0000000008158553

REMVAL

CAUTION:

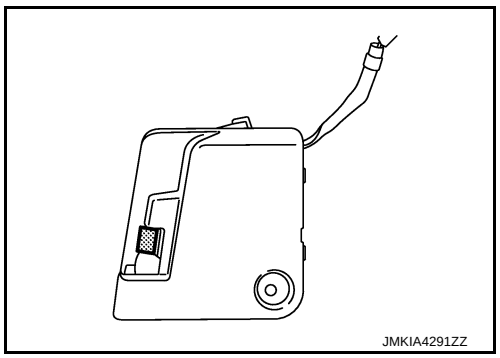
Protect the rear fender with a fender protector.

NOTE:

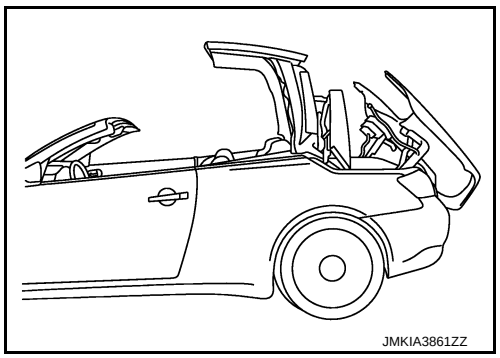
Operate roof manually if it does not operate electrically. Refer to RF-298, "Manual Operation".

1. Remove headlining. Refer to RF-246, "Removal and Installation".
2. Remove trunk room trim. Refer to INT-24, "Removal and Installation".

3. Put small piece to the tonneau board switch, connect harness connector to vehicle.



4. Stop roof as shown in the figure (during open operation).
CAUTION:
Be careful of the roof and rear parcel shelf unit positions when operating, because roof may drop little by little and may interfere with rear parcel shelf unit when roof is in the middle position for a long period of time.



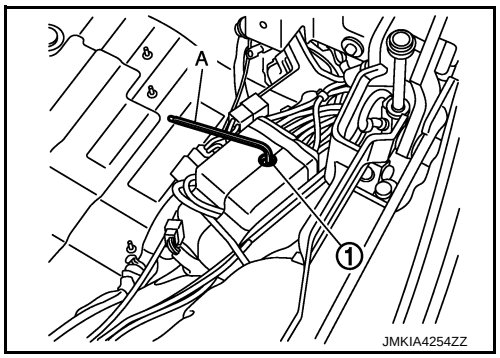
5. Remove roof lock assembly. Refer to RF-255, "ROOF LOCK ASSEMBLY : Removal and Installation".
6. Remove harness clamp.
7. Remove front side trim. Refer to RF-273, "Exploded View".
8. Put matching mark on front roof panel.
9. Loosen front roof panel mounting TORX bolts, record shim quantity, and remove shims.
10. Remove front roof panel mounting TORX bolts and remove front roof panel

INSTALLATION

1. Temporarily fix front roof panel to roof link.
2. Insert shims between front roof panel and roof link according to recorded shim quantity.
3. Align matching mark and tighten TORX bolts.
4. Install front side trim. Refer to RF-273, "Exploded View".
5. Install harness clamp.
6. Install roof lock assembly. Refer to RF-255, "ROOF LOCK ASSEMBLY : Removal and Installation".
7. Open hydraulic unit valve (1) slowly while supporting roof. Using a hexagon wrench (A).

Opening torque: Max 2.0 N·m (0.2 kg-m, 18 in-lb)

CAUTION:
Check that valve opening torque is always with in the specified value for preventing oil leakage.



8. Open and close roof manually and check that interference is not detected.
CAUTION:
- **This operation requires two people.**
- **Keep hands away from the moving parts.**
9. Close hydraulic unit valve.

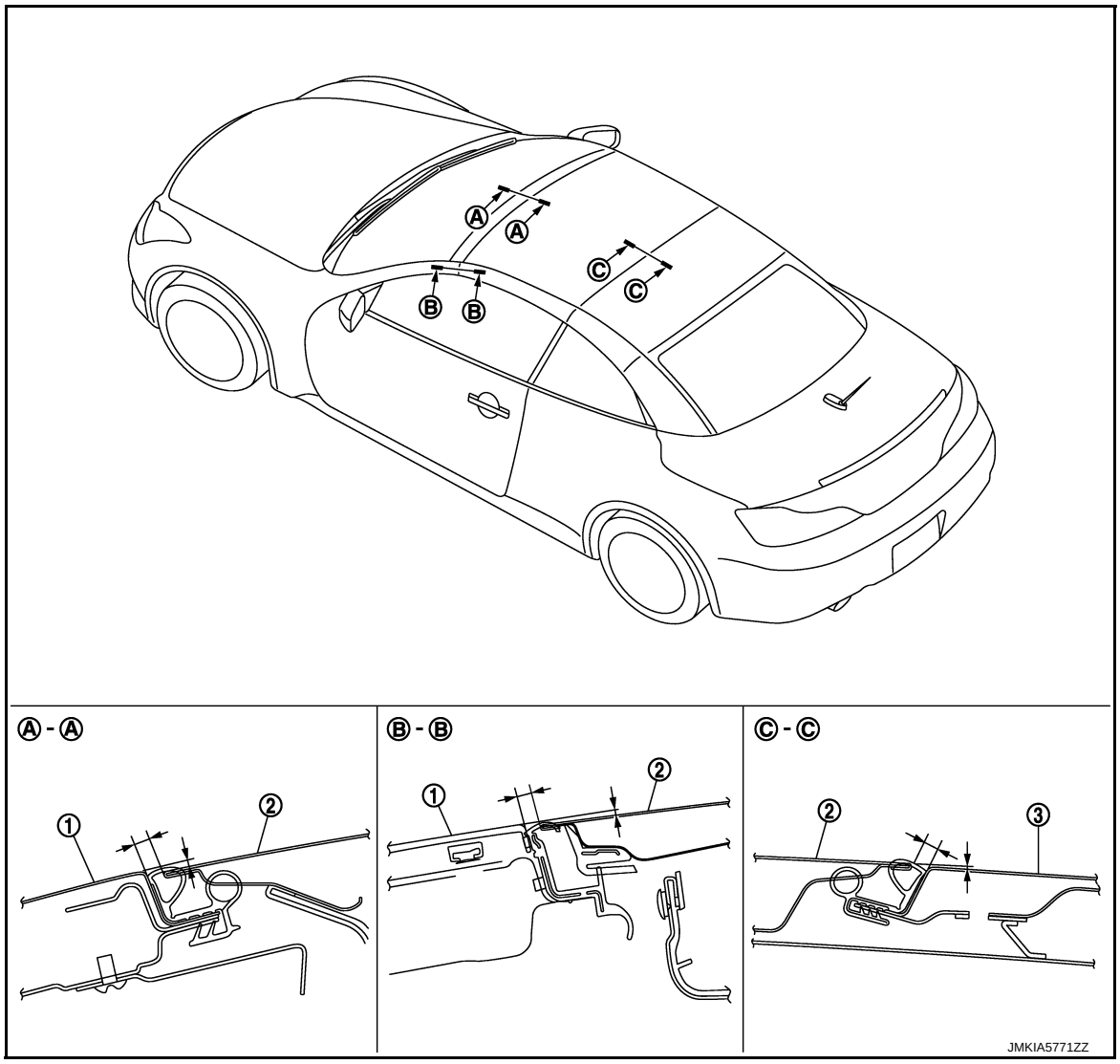
Closing torque: 1.8 – 2.2 N·m (0.18 – 0.22 kg-m, 16 – 19 in-lb)

CAUTION:
Check that valve closing torque is always with in the specified value for preventing oil leakage.

10. Install trunk room trim. Refer to INT-24, "Removal and Installation".
11. Perform front roof panel adjustment. Refer to RF-260, "Adjustment".
12. Install headlining. Refer to RF-246, "Removal and Installation".

Adjustment

INFOID:0000000008158554



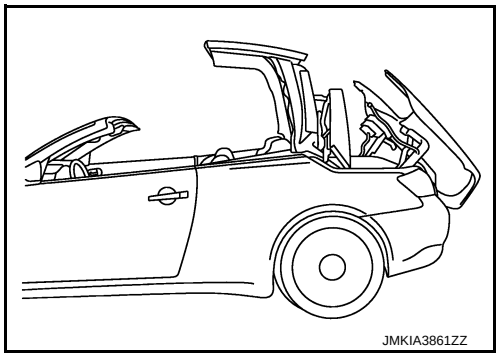
1. Roof panel
2. Front roof panel
3. Center roof panel

Check the clearance and the surface height between front roof panel and each part by visually and touching. If the clearance and the surface height are out of specification, adjust them according to the procedures shown below.

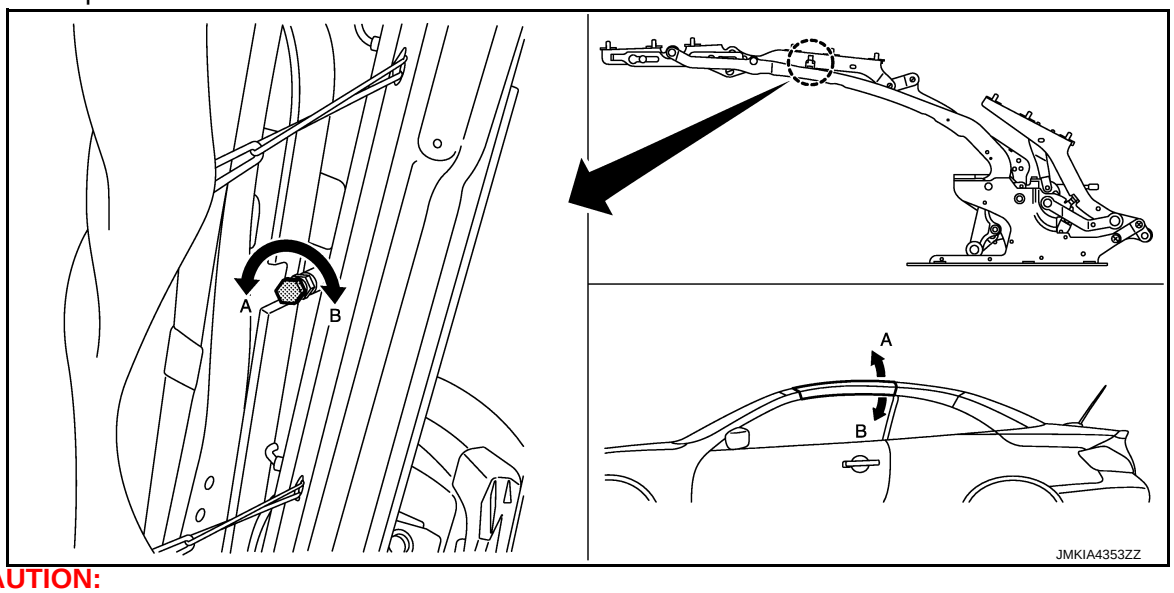
CAUTION:
Fully close roof. Check that front and rear lock is locked.

Portion		Clearance	Surface height (Front side is to be higher than rear side)
Roof panel – Front roof panel (center)	A – A	4.9 – 7.9 mm (0.193 – 0.311 in)	0.5 – 2.5 mm (0.020 – 0.098 in)
Roof panel – Front roof panel (side)	B – B	4.9 – 7.9 mm (0.193 – 0.311 in)	0.0 – 1.5 mm (0.000 – 0.059 in)
Front roof panel – Center roof panel	C – C	4.9 – 7.9 mm (0.193 – 0.311 in)	0.0 – 2.0 mm (0.000 – 0.079 in)

1. Remove headlining. Refer to RF-246, "Removal and Installation".
2. Stop roof as shown in the figure (during open operation).
   CAUTION:
   Be careful of the roof and rear parcel shelf unit positions when operating, because roof may drop little by little and may interfere with rear parcel shelf unit when roof is in the middle position for a long period of time.

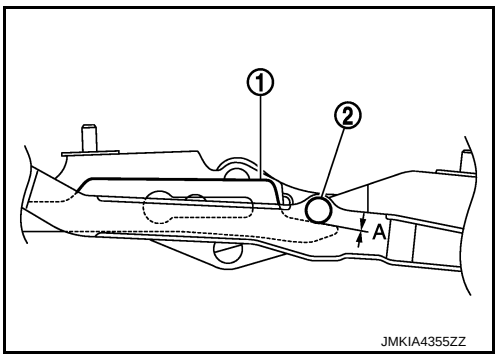


3. Loosen front roof panel mounting TORX bolt.
4. Adjust front roof panel.
   - If surface height difference is out of the specified value, and then adjust using shims.
   - If clearance is out of the specified value, and slide front roof panel to front or rear direction.
5. Tighten each TORX bolt to the specified torque. Refer to RF-258, "Exploded View".
6. If shim adjustment is not completed normally, rotate the adjusting bolt of roof link assembly and adjust front roof panel inclination.



CAUTION:

Adjust the adjusting bolt so that no clearance (A) and looseness are left between slider (1) and pin (2) when roof is fully closed.

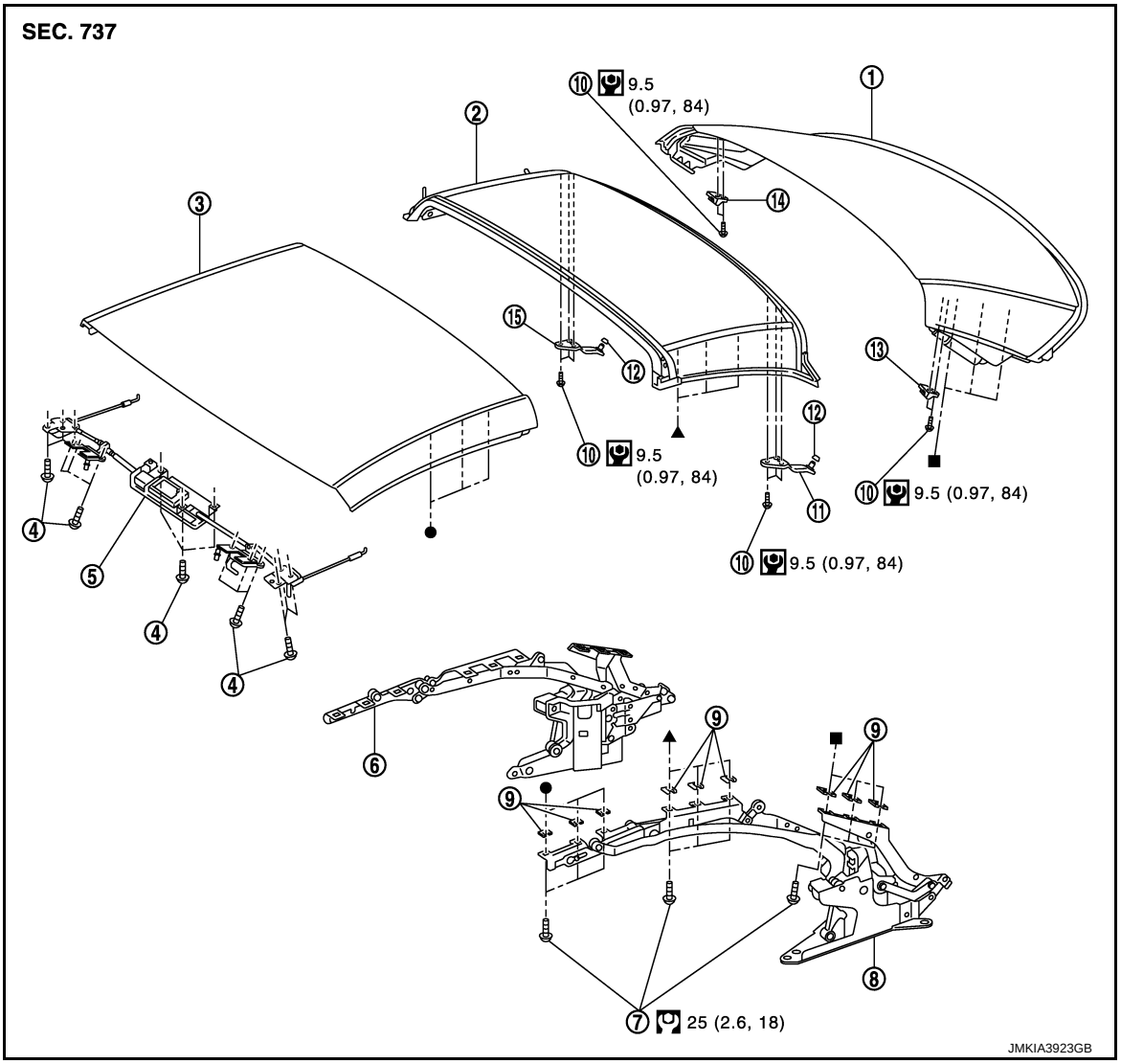


7. If C – C is out of the specified value, adjust center roof panel. Refer to RF-265, "Adjustment".
8. Open and close roof. Check that lock and unlock operation is normal several times.
9. Perform initialization according to the work after adjusting front roof panel. Refer to RF-74, "Description".
10. Adjust door glass and quarter window glass. Refer to GW-18, "Inspection and Adjustment".
11. Perform water leakage test. Refer to RF-241, "Water Leakage Test".
12. Install headlining. Refer to RF-246, "Removal and Installation".

CENTER ROOF PANEL

Exploded View

INFOID:0000000008158555



1. Rear roof panel	2. Center roof panel	3. Front roof panel
4. TORX bolt	5. Roof lock assembly	6. Roof link assembly RH
7 TORX bolt	8. Roof link assembly LH	9. Shim
10. TORX bolt	11. Center roof panel pin LH	12. O-ring
13. Center roof panel retainer LH	14. Center roof panel retainer RH	15. Center roof panel pin RH

Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

INFOID:0000000008158556

REMVAL

CAUTION:

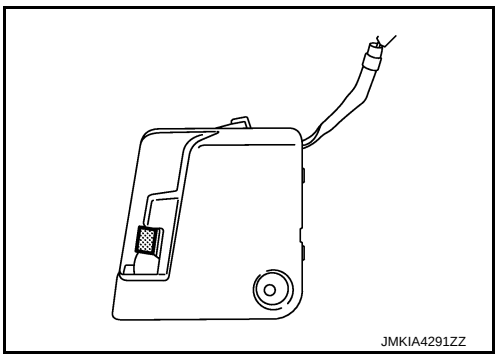
Protect the rear fender with a fender protector.

NOTE:

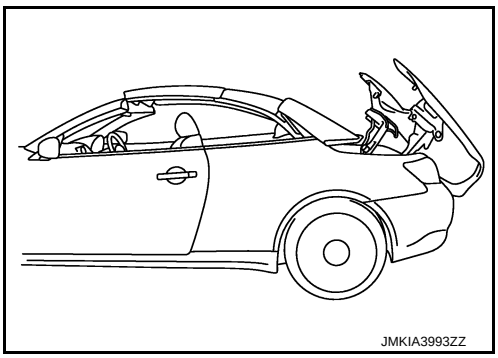
Operate roof manually if it does not operate electrically. Refer to RF-298, "Manual Operation".

1. Remove headlining. Refer to RF-246, "Removal and Installation".
2. Remove trunk room trim. Refer to INT-24, "Removal and Installation".

3. Put small piece to the tonneau board switch, connect harness connector to vehicle.



4. Stop roof as shown in the figure (during open operation).



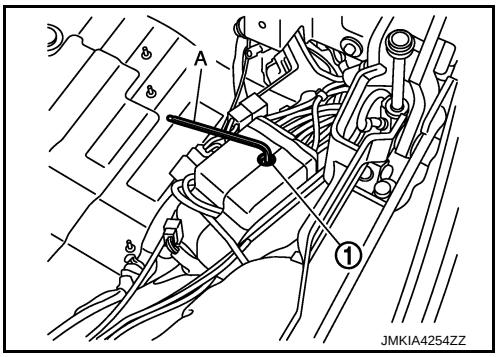
5. Remove rear side trim. Refer to RF-273, "Exploded View".
6. Put matching mark on center roof panel.
7. Loosen center roof panel mounting TORX bolts, record shim quantity, and remove shims.
8. Remove center roof panel mounting TORX bolts and remove center roof panel.

INSTALLATON

1. Temporarily fix center roof panel to roof link.
2. Insert shims between center roof panel and roof link according to recorded shim quantity.
3. Align matching mark and tighten TORX bolts.
4. Install rear side trim. Refer to RF-273, "Exploded View".
5. Open hydraulic unit valve (1) slowly while supporting roof. Using a hexagon wrench (A).

Opening torque: Max 2.0 N·m (0.2 kg-m, 18 in-lb)

CAUTION:
Check that valve opening torque is always with in the specified value for preventing oil leakage.



6. Open and close roof manually and check that interference is not detected.
   CAUTION:
   - **This operation requires two people.**
   - **Keep hands away from the moving parts.**
7. Close hydraulic unit valve.

Closing torque: 1.8 – 2.2 N·m (0.18 – 0.22 kg-m, 16 – 19 in-lb)

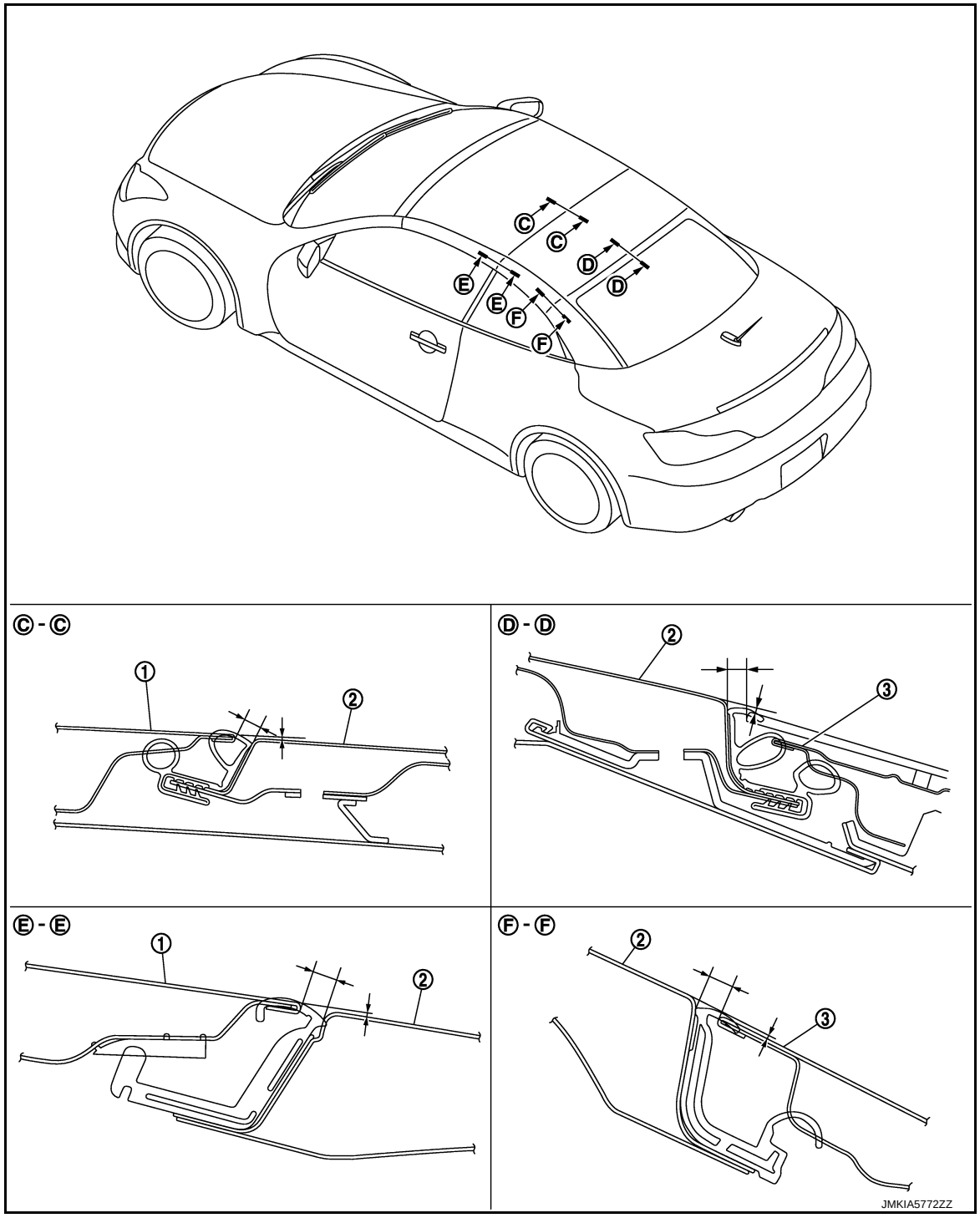
CAUTION:
Check that valve closing torque is always with in the specified value for preventing oil leakage.

8. Install trunk room trim. Refer to INT-24, "Removal and Installation".
9. Perform center roof panel adjustment. Refer to RF-265, "Adjustment".

10. Install headlining. Refer to RF-246, "Removal and Installation".

Adjustment

INFOID:0000000008158557



1. Front roof panel
2. Center roof panel
3. Rear roof panel

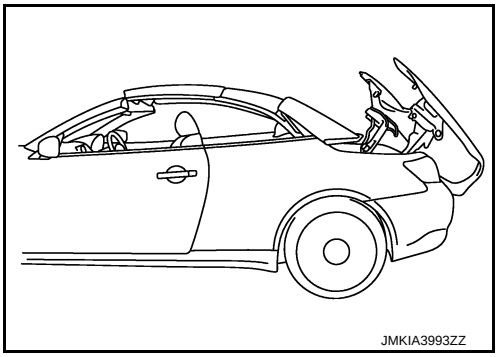
Check the clearance and the surface height between center roof panel and each part by visually and touching. If the clearance and the surface height are out of specification, adjust them according to the procedures shown below.

CAUTION:

Fully close roof. Check that front and rear lock is locked.

Portion		Clearance	Surface height (Front side is to be higher than rear side)
Front roof panel – Center roof panel	C – C	4.9 – 7.9 mm (0.193 – 0.311 in)	0.0 – 2.0 mm (0.000 – 0.079 in)
Center roof panel – Rear roof panel	D – D	4.9 – 7.9 mm (0.193 – 0.311 in)	0.4 – 3.4 mm (0.016 – 0.134 in)
Front roof panel – Center roof panel	E – E	4.9 – 7.9 mm (0.193 – 0.311 in)	0.0 – 1.5 mm (0.000 – 0.059 in)
Center roof panel – Rear roof panel	F – F	4.9 – 7.9 mm (0.193 – 0.311 in)	0.0 – 1.5 mm (0.000 – 0.059 in)

1. Remove headlining. Refer to RF-246, "Removal and Installation".
2. Stop roof as shown in the figure (during open operation).

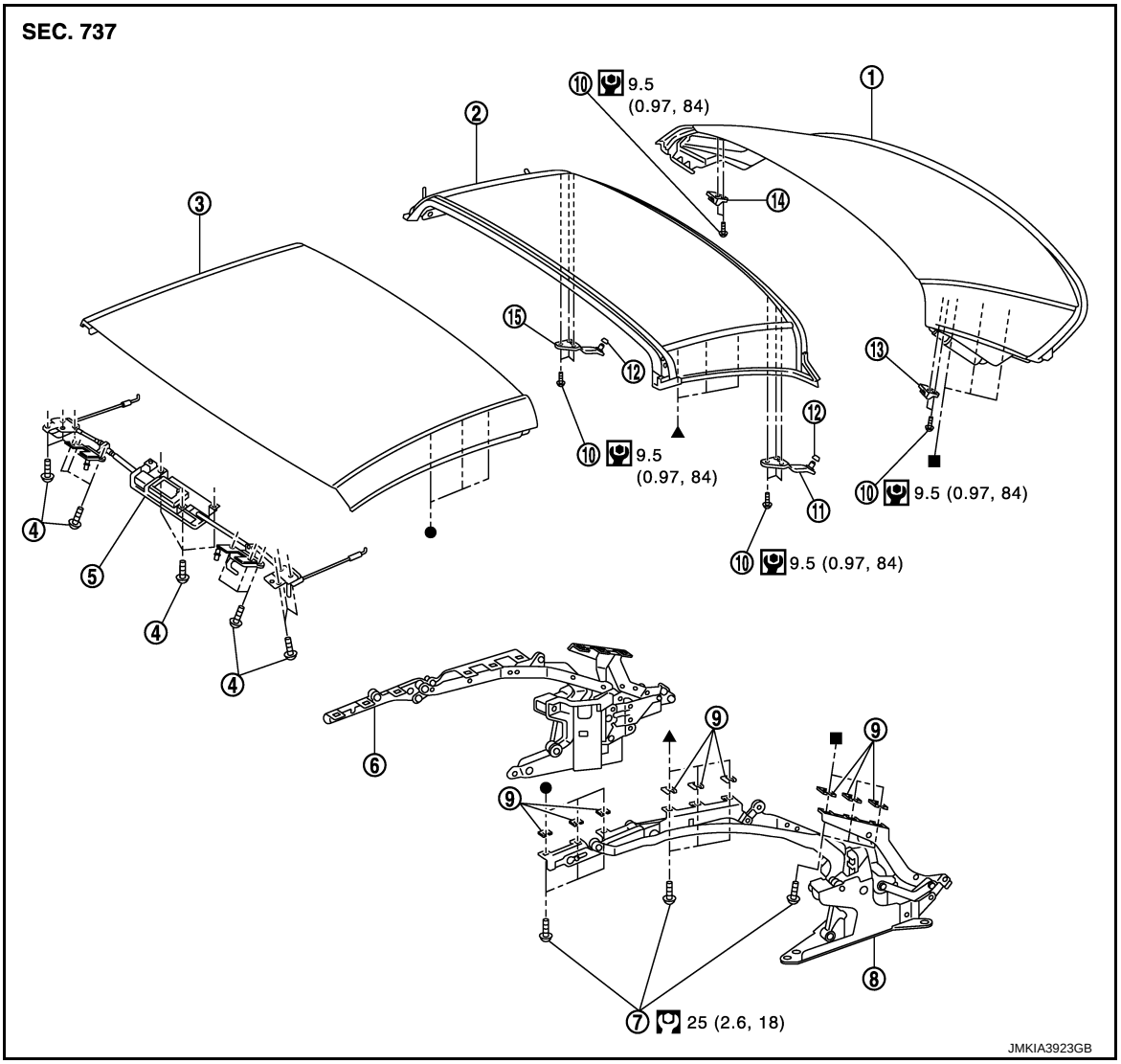


3. Loosen center roof panel mounting TORX bolt.
4. Adjust center roof panel.
   - If surface height difference is out of the specified value, and then adjust using shims.
   - If clearance is out of the specified value, and slide center roof panel to front or rear direction.
5. Tighten each TORX bolt to the specified torque. Refer to RF-263, "Exploded View".
6. If D – D is out of the specified value, adjust rear roof panel. Refer to RF-269, "Adjustment".
7. Open and close roof. Check that lock and unlock operation is normal several times.
8. Perform initialization according to the work after adjusting center roof panel. Refer to RF-74, "Description".
9. Adjust door glass and quarter window glass. Refer to GW-18, "Inspection and Adjustment".
10. Perform water leakage test. Refer to RF-241, "Water Leakage Test".
11. Install headlining. Refer to RF-246, "Removal and Installation".

REAR ROOF PANEL

Exploded View

INFOID:0000000008158558



1. Rear roof panel	2. Center roof panel	3. Front roof panel
4. TORX bolt	5. Roof lock assembly	6. Roof link assembly RH
7 TORX bolt	8. Roof link assembly LH	9. Shim
10. TORX bolt	11. Center roof panel pin LH	12. O-ring
13. Center roof panel retainer LH	14. Center roof panel retainer RH	15. Center roof panel pin RH

Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

INFOID:0000000008158559

REMVAL

CAUTION:

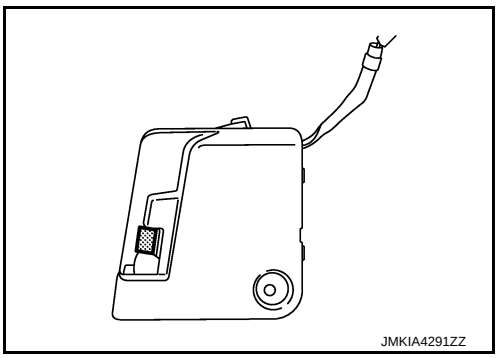
Protect the rear fender with a fender protector.

NOTE:

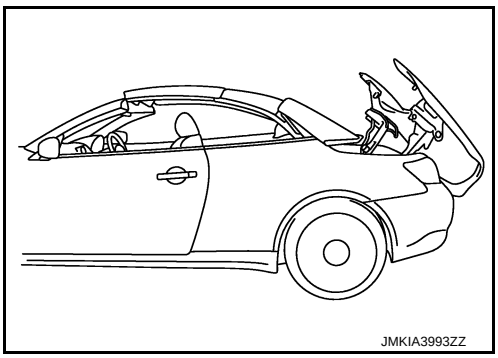
Operate roof manually if it does not operate electrically. Refer to RF-298, "Manual Operation".

1. Remove headlining. Refer to RF-246, "Removal and Installation".
2. Remove trunk room trim. Refer to INT-24, "Removal and Installation".

3. Put small piece to the tonneau board switch, connect harness connector to vehicle.



4. Stop roof as shown in the figure (during open operation).



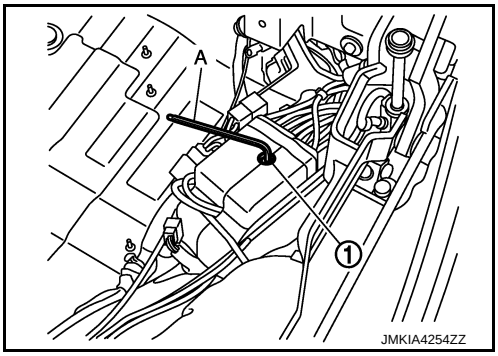
5. Remove harness clamp.
6. Put matching mark on rear roof panel.
7. Loosen rear roof panel mounting TORX bolts, record shim quantity, and remove shims.
8. Remove rear roof panel mounting TORX bolts and remove rear roof panel.

INSTALLATION

1. Temporarily fix rear roof panel to roof link.
2. Insert shims between rear roof panel and roof link according to recorded them quantity.
3. Align matching mark and tighten TORX bolts.
4. Install harness clamp.
5. Open hydraulic unit valve (1) slowly while supporting roof. Using a hexagon wrench (A).

Opening torque: Max 2.0 N·m (0.2 kg-m, 18 in-lb)

CAUTION:
Check that valve opening torque is always with in the specified value for preventing oil leakage.



6. Open and close roof manually and check that interference is not detected.
   CAUTION:
   - **This operation requires two people.**
   - **Keep hands away from the moving parts.**
7. Close hydraulic unit valve.

Closing torque: 1.8 – 2.2 N·m (0.18 – 0.22 kg-m, 16 – 19 in-lb)

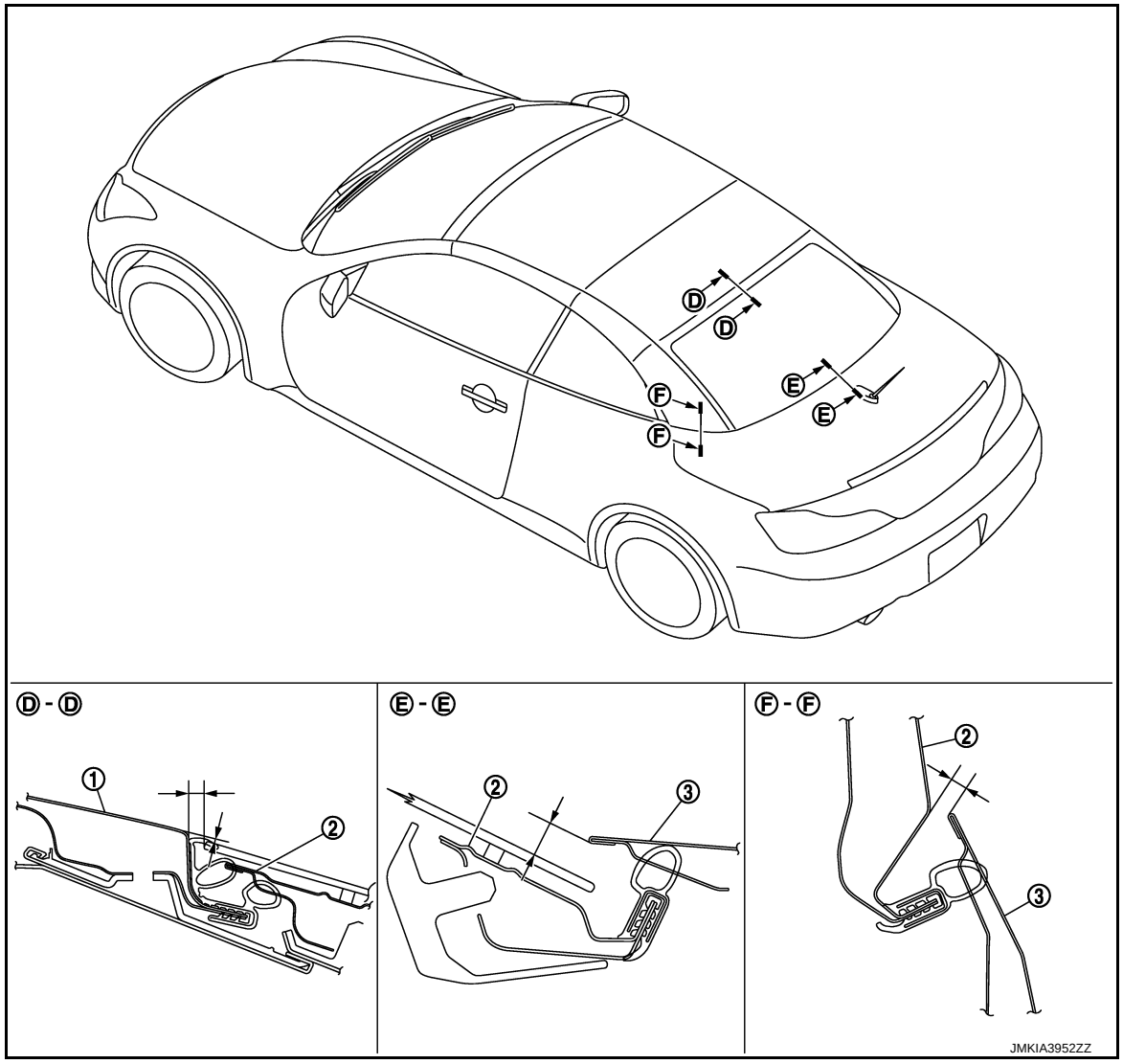
CAUTION:
Check that valve closing torque is always with in the specified value for preventing oil leakage.

8. Install trunk room trim. Refer to INT-24, "Removal and Installation".
9. Perform front roof panel adjustment. Refer to RF-269, "Adjustment".

10. Install headlining. Refer to RF-246, "Removal and Installation".

Adjustment

INFOID:0000000008158560



1. Center roof panel
2. Rear roof panel
3. Trunk lid

Check the clearance and the surface height between rear roof panel and each part by visually and touching. If the clearance and the surface height are out of specification, adjust them according to the procedures shown below.

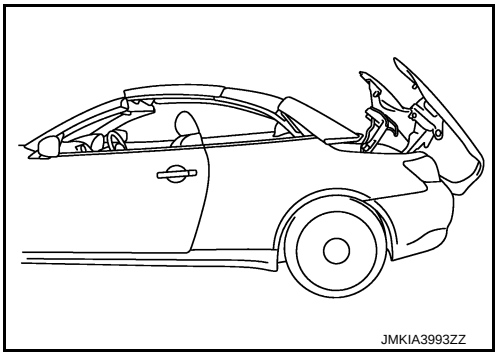
CAUTION:

Fully close roof. Check that front and rear lock is locked.

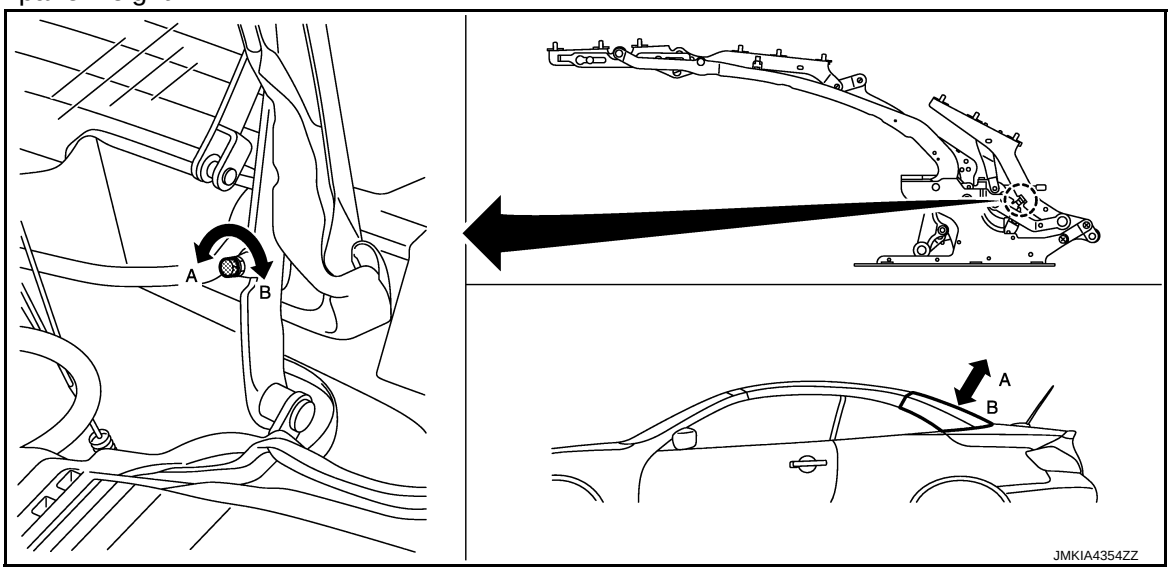
Portion		Clearance	Surface height
Center roof panel – Rear roof panel	D – D	4.9 – 7.9 mm (0.193 – 0.311 in)	0.4 – 3.4 mm (0.016 – 0.134 in)
Rear roof panel – Trunk lid	E – E	—	7.7 – 15.7 mm (0.303 – 0.618 in)
Rear roof panel – Trunk lid	F – F	6.8 – 10.8 mm (0.268 – 0.425 in)	—

1. Remove headlining. Refer to RF-246, "Removal and Installation".

2. Stop roof as shown in the figure (during open operation).



3. Loosen rear roof panel mounting TORX bolt.
4. Adjust rear roof panel.
   - If surface height difference is out of the specified value, and then adjust using shims.
   - If clearance is out of the specified value, and slide rear roof panel to front or rear direction.
5. Tighten each TORX bolt to the specified torque. Refer to RF-267, "Exploded View".
6. If shim adjustment is not completed normally, rotate the adjusting bolt of roof link assembly and adjust rear roof panel height.

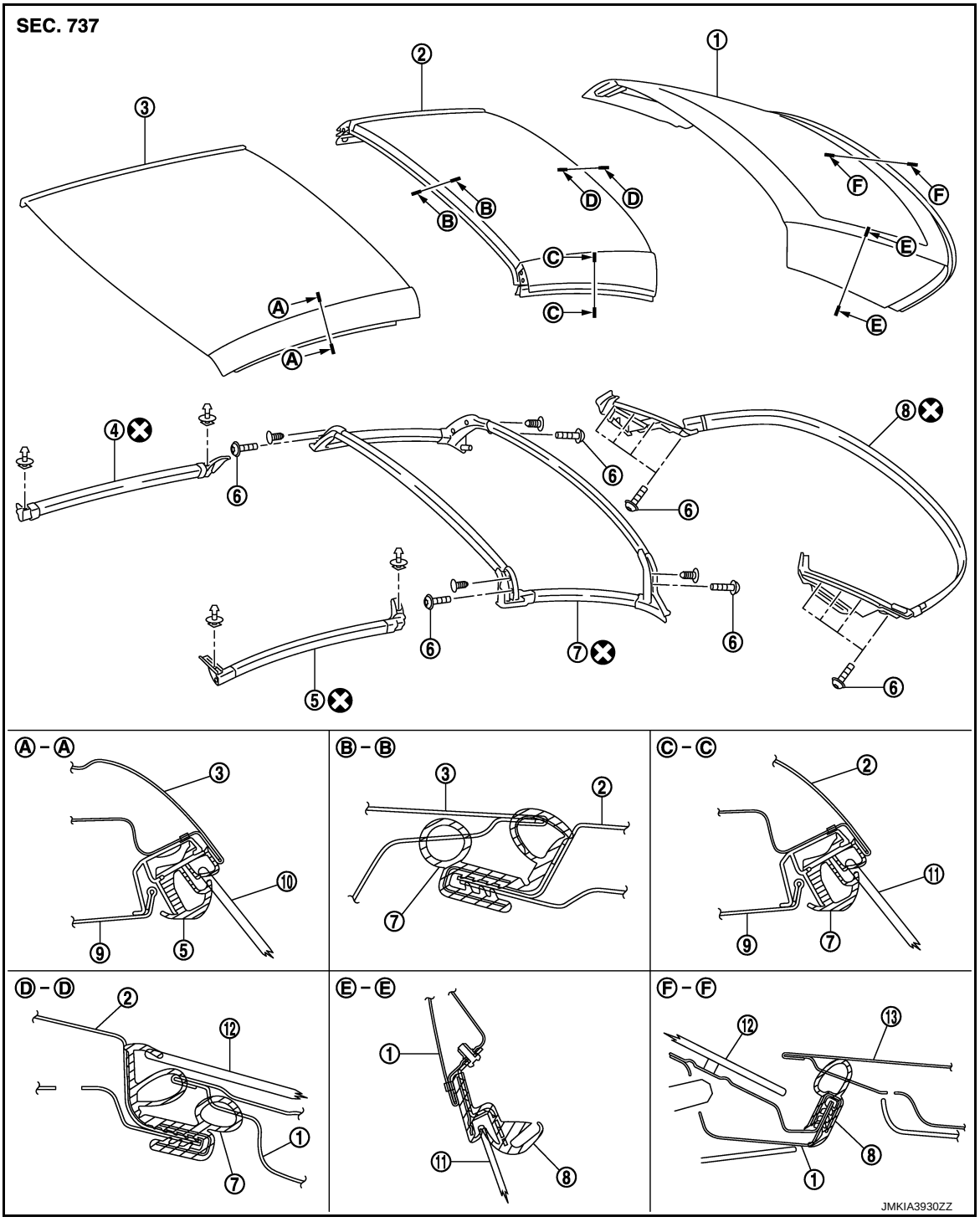


7. Open and close roof. Check that lock and unlock operation is normal several times.
8. Perform initialization according to the work after adjusting rear roof panel. Refer to RF-74, "Description".
9. Adjust door glass and quarter window glass. Refer to GW-18, "Inspection and Adjustment".
10. Perform water leakage test. Refer to RF-241, "Water Leakage Test".
11. Install headlining. Refer to RF-246, "Removal and Installation".

ROOF SEALING

Exploded View

INFOID:0000000008158561



1. Rear roof panel
2. Center roof panel
3. Front roof panel
4. Front roof weather-strip RH
5. Front roof weather-strip LH
6. TORX bolt
7. Center roof weather-strip
8. Rear roof weather-strip
9. Headlining
10. Door glass
11. Quarter window glass
12. Rear window glass
13. Trunk lid

Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

INFOID:0000000008158562

REMOVAL

CAUTION:

Protect the rear fender with a fender protector.

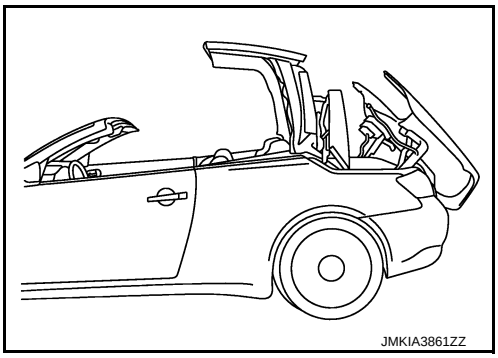
NOTE:

Operate roof manually if it does not operate electrically. Refer to RF-298, "Manual Operation".

1. Stop roof as shown in the figure (during open operation).

   CAUTION:

   Be careful of the roof and rear parcel shelf unit positions when operating, because roof may drop little by little and may interfere with rear parcel shelf unit when roof is in the middle position for a long period of time.



2. Remove clips, and then front roof weather-strip.
3. Remove TORX bolts and clips, and then center roof weather-strip.
4. Remove TORX bolts, and then rear roof weather-strip.

INSTALLATION

Install in the reverse order of removal.

NOTE:

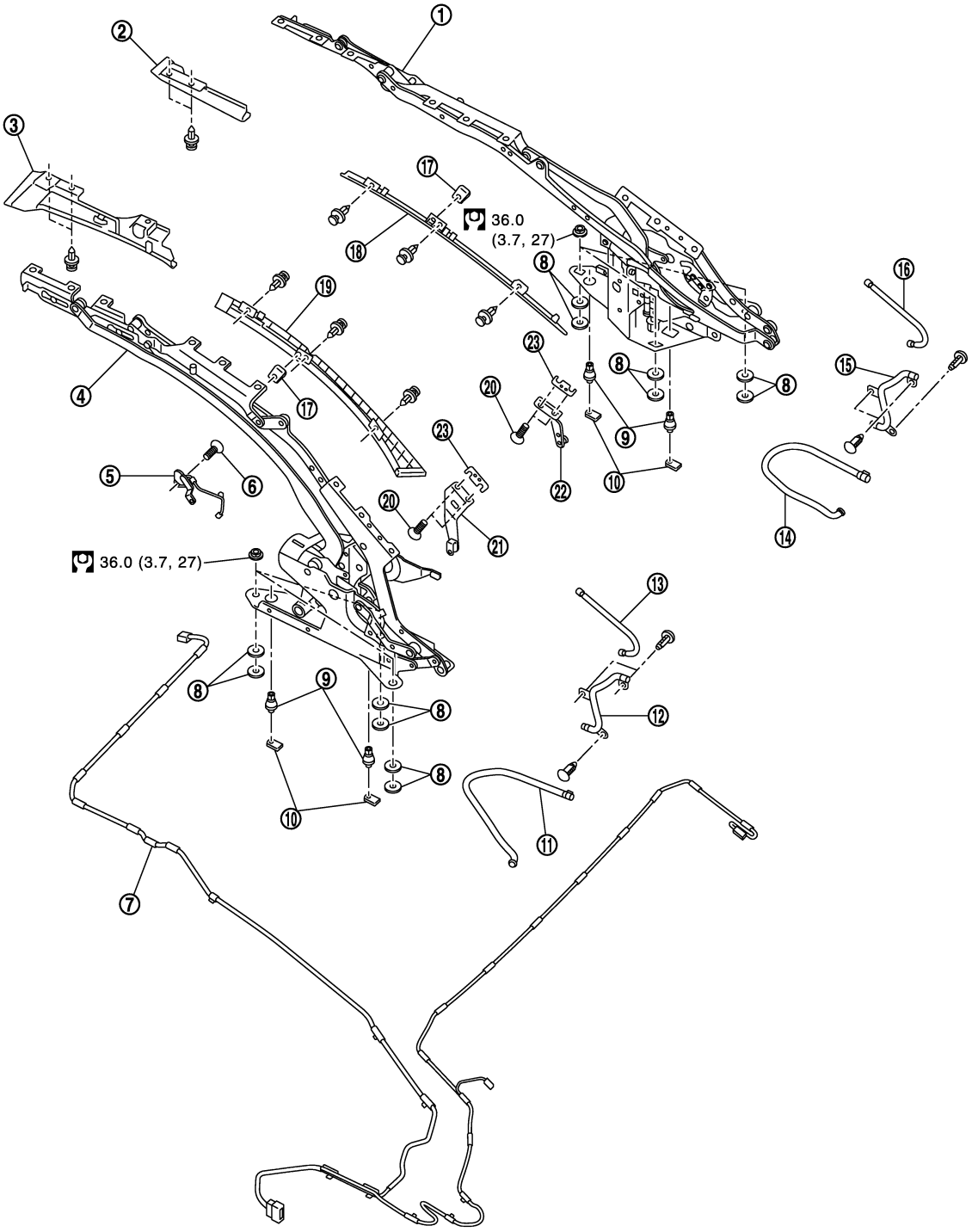
- Rerform initialization according to the work after installing roof sealing. Refer to RF-74, "Description".
- Adjust door glass and quarter window glass. Refer to GW-18, "Inspection and Adjustment".
- Perform water leakage test. Refer to RF-241, "Water Leakage Test".

ROOF LINK ASSEMBLY

Exploded View

INFOID:0000000008158563

SEC. 737



JMKIA3967GB

1. Roof link assembly RH
2. Front side trim RH
3. Front side trim LH
4. Roof link assembly LH
5. Roof status sensor
6. TORX bolt
7. Roof harness
8. Shim
9. Centering bolt

10. Centering plate
11. Drain tube lower LH
12. Drain tube center LH
13. Drain tube upper LH
14. Drain tube lower RH
15. Drain tube center RH
16. Drain tube upper RH
17. Trim sleeve
18. Rear side trim RH
19. Rear side trim LH
20. TORX bolt
21. Bolt receiver LH
22. Bolt receiver RH
23. Shim

Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

INFOID:0000000008158564

REMOVAL

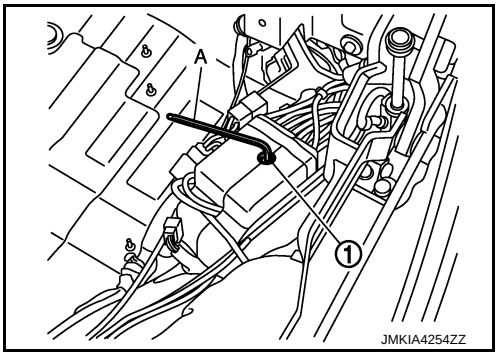
CAUTION:
- **Protect the rear fender with a fender protector.**
- **This work requires two people.**
- **Keep hands away from the moving parts.**

NOTE:
Operate roof manually if it does not operate electrically. Refer to RF-298, "Manual Operation".

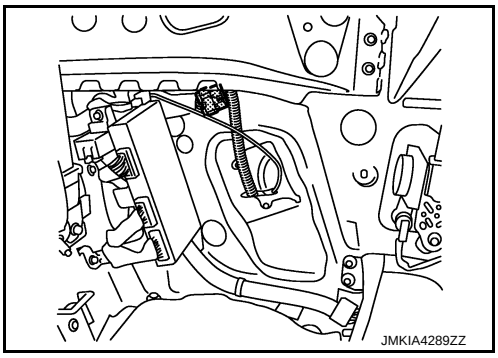
1. Remove rear seat cushion and seatback. Refer to SE-222, "Removal and Installation".
2. Remove rear side finisher. Refer to INT-15, "Removal and Installation".
3. Remove headlining. Refer to RF-246, "Removal and Installation".
4. Remove trunk room trim. Refer to INT-24, "Removal and Installation".
5. Remove front roof panel. Refer to RF-258, "Removal and Installation".
6. Remove center roof panel. Refer to RF-263, "Removal and Installation".
7. Remove rear roof panel. Refer to RF-267, "Removal and Installation".
8. Open hydraulic unit valve (1). Using a hexagon wrench (A).

Opening torque: Max 2.0 N·m (0.2 kg-m, 18 in-lb)

CAUTION:
Check that valve opening torque is always with in the specified value for preventing oil leakage.



9. Remove roof drive cylinder and roof lock cylinder from roof link assembly. Refer to RF-285, "Removal and Installation".
10. From passenger room side, disconnect harness connector. (LH side only)

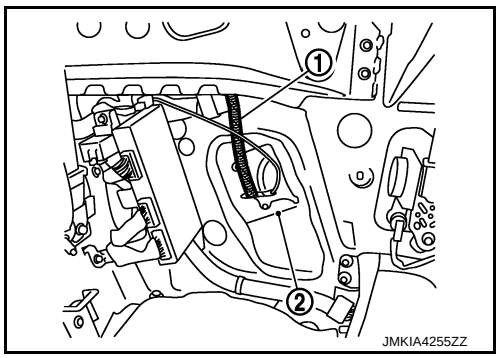


11. Remove mounting nuts, and then reomve roof link assembly.
    CAUTION:
    - **Never loosen centering bolts.**
    - **Never change shims.**

INSTALLATION

1. Install roof link assembly.
   CAUTION:

Inseret lower end drain tube (1) to the hole of sealing screen (2) through the vehicle.



2. From passenger room side connect harness connector. (LH side only)
3. Install roof drive cylinder and roof lock cylinder for roof link assembly. Refer to RF-285, "Removal and Installation".
4. Close hydraulic unit valve. Using a hexagon wrench.

Closing torque: 1.8 – 2.2 N·m (0.18 – 0.22 kg-m, 16 – 19 in-lb)

CAUTION:
Check that valve closing torque is always with in the specified value for preventing oil leakage.

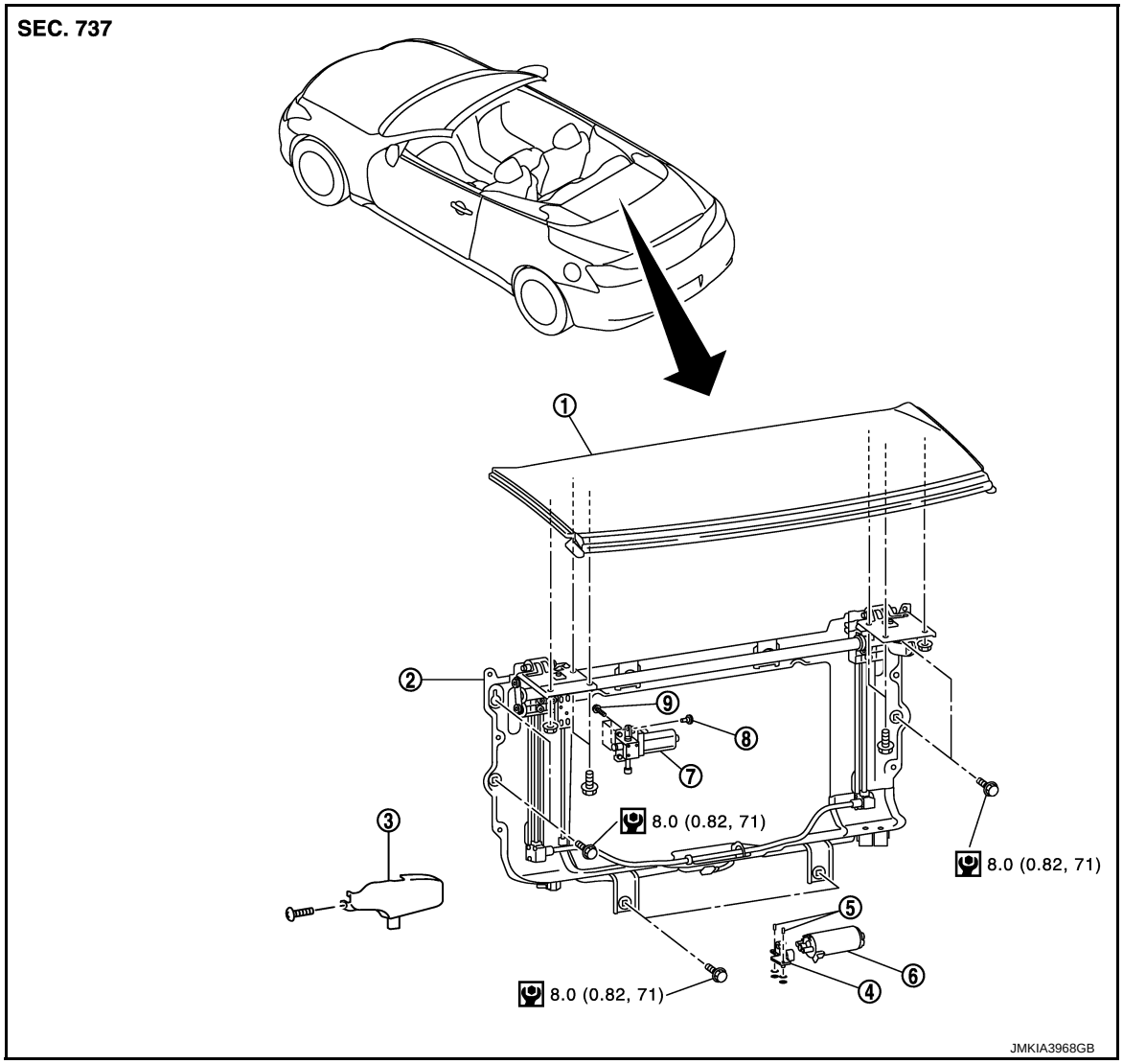
5. Install rear roof panel. Refer to RF-267, "Removal and Installation".
6. Install center roof panel. Refer to RF-263, "Removal and Installation".
7. Install front roof panel. Refer to RF-258, "Removal and Installation".
8. Perform front roof panel adjustment. Refer to RF-260, "Adjustment".
9. Perform center roof panel adjustment. Refer to RF-265, "Adjustment".
10. Perform rear roof panel adjustment. Refer to RF-269, "Adjustment".
11. Install trunk room trim. Refer to INT-24, "Removal and Installation".
12. Install headlining. Refer to RF-246, "Removal and Installation".
13. Install rear side finisher. Refer to INT-15, "Removal and Installation".
14. Install rear seat cushion and seatback. Refer to SE-222, "Removal and Installation".

REAR PARCEL SHELF FINISHER

REAR PARCEL SHELF UNIT

REAR PARCEL SHELF UNIT : Exploded View

INFOID:0000000008158565



1. Rear parcel shelf finisher board
2. Rear parcel shelf unit
3. Parcel shelf motor (rotate) cover
4. Parcel shelf motor (draw) bracket
5. Pin
6. Parcel shelf motor (draw)
7. Parcel shelf motor (rotate)
8. Special bolt
9. TORX bolt

Refer to GI-4, "Components" for symbols in the figure.

REAR PARCEL SHELF UNIT : Removal and Installation

INFOID:0000000008158566

REMOVAL

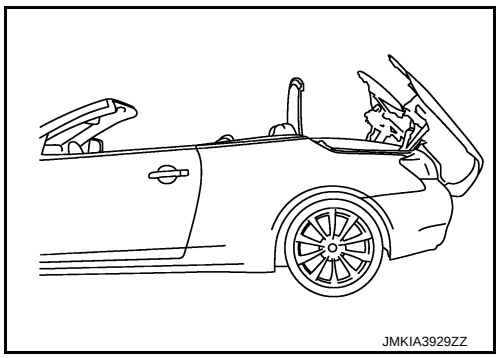
CAUTION:

Protect the rear fender with a fender protector.

NOTE:

Operate roof manually if it does not operate electrically. Refer to RF-298, "Manual Operation".

1. Stop roof as shown in the figure (during open operation).



2. Remove mounting bolts and nuts, and then remove rear parcel shelf finisher board.
3. Open trunk while roof is fully close.
4. Remove trunk trim. Refer to INT-24, "Removal and Installation".
5. Put matching mark on rear parcel shelf unit.
6. Disconnect rear parcel shelf unit harness connector.
7. Remove mounting bolts, and then remove rear parcel shelf unit.

INSTALLATION

Install in the reverse order of removal.

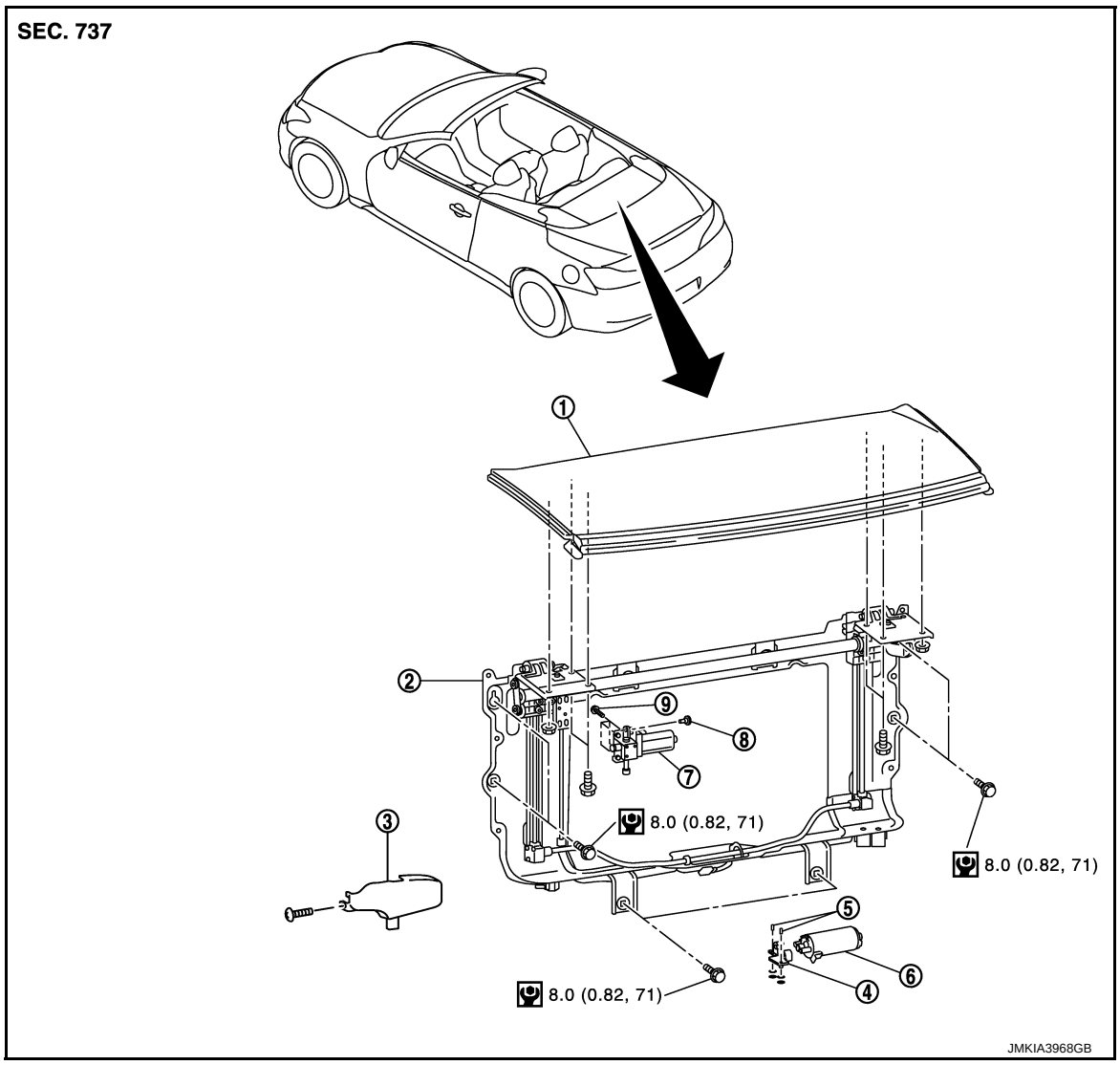
NOTE:

Perform initialization according to the work after installing rear parcel shelf unit. Refer to .RF-74, "Description"

PARCEL SHELF MOTOR (ROTATE)

PARCEL SHELF MOTOR (ROTATE) : Exploded View

INFOID:0000000008158567



1. Rear parcel shelf finisher board
2. Rear parcel shelf unit
3. Parcel shelf motor (rotate) cover
4. Parcel shelf motor (draw) bracket
5. Pin
6. Parcel shelf motor (draw)
7. Parcel shelf motor (rotate)
8. Special bolt
9. TORX bolt

Refer to GI-4, "Components" for symbols in the figure.

PARCEL SHELF MOTOR (ROTATE) : Removal and Installation

INFOID:0000000008158568

REMOVAL

CAUTION:

Protect the rear fender with a fender protector.

NOTE:

Operate roof manually if it does not operate electrically. Refer to RF-298, "Manual Operation".

1. Remover rear parcel shelf unit. Refer to RF-276, "REAR PARCEL SHELF UNIT : Removal and Installation".
2. Disconnect parcel shelf motor (rotate) harness connector.
3. Remove special bolt and TORX bolts, and then remove parcel shelf motor (rotate).

INSTALLATION

Install in the reverse order of removal.

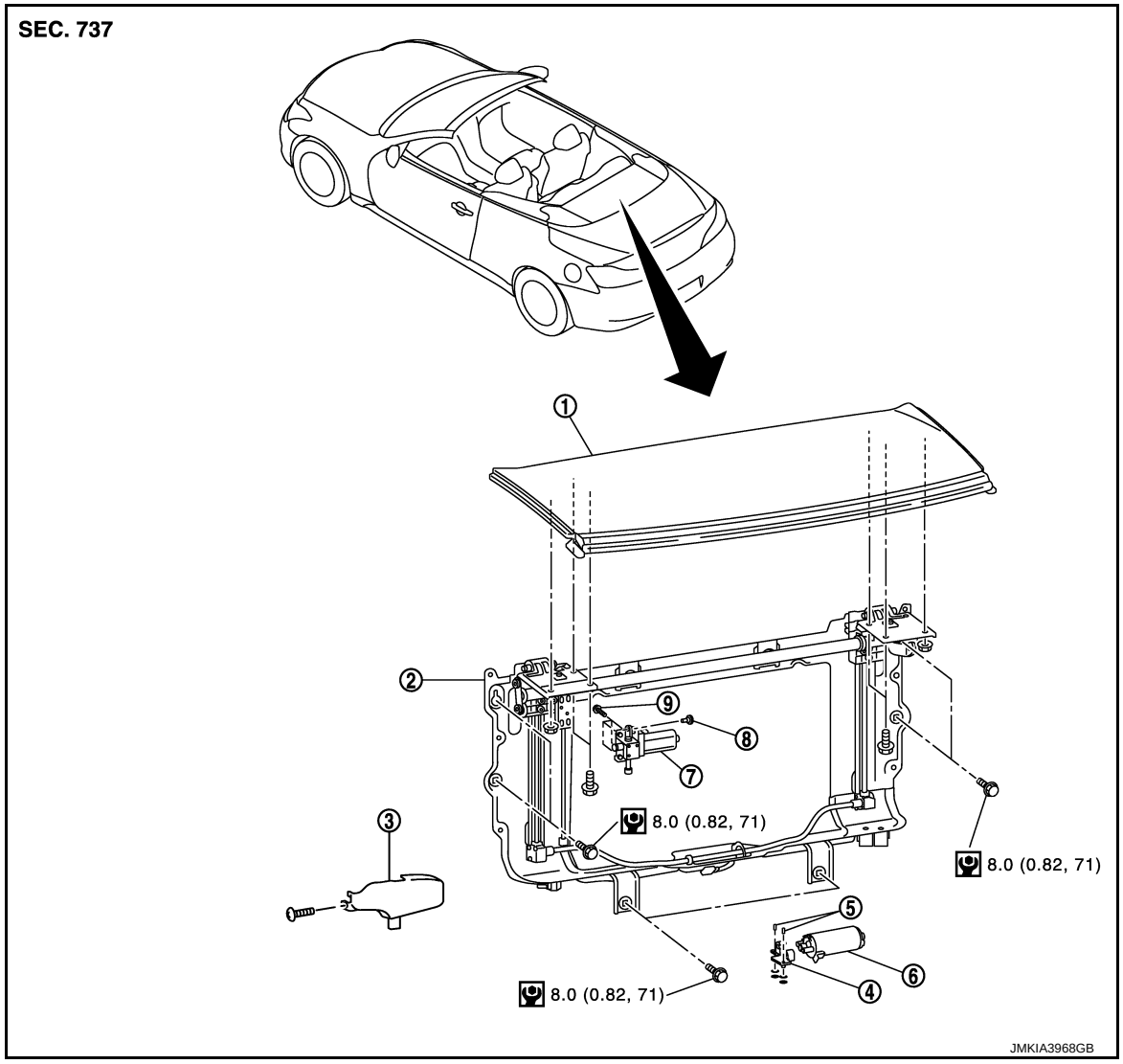
NOTE:

Perform initialization according to the work after installing parcel shelf motor (rotate). Refer to RF-74, "Description".

PARCEL SHELF MOTOR (DRAW)

PARCEL SHELF MOTOR (DRAW) : Exploded View

INFOID:0000000008158569



1. Rear parcel shelf finisher board
2. Rear parcel shelf unit
3. Parcel shelf motor (rotate) cover
4. Parcel shelf motor (draw) bracket
5. Pin
6. Parcel shelf motor (draw)
7. Parcel shelf motor (rotate)
8. Special bolt
9. TORX bolt

Refer to GI-4, "Components" for symbols in the figure.

PARCEL SHELF MOTOR (DRAW) : Removal and Installation

INFOID:0000000008158570

REMOVAL

CAUTION:

Protect the rear fender with a fender protector.

NOTE:

Operate roof manually if it does not operate electrically. Refer to RF-298, "Manual Operation".

1. Remove rear parcel shelf unit. Refer to RF-276, "REAR PARCEL SHELF UNIT : Removal and Installation".
2. Disconnect parcel shelf motor (draw) harness connector.

3. Remove wire from parcel shelf motor (draw).
4. Remove pin and washer, and parcel shelf motor (draw) bracket.

INSTALLATION

Install in the reverse order of removal.

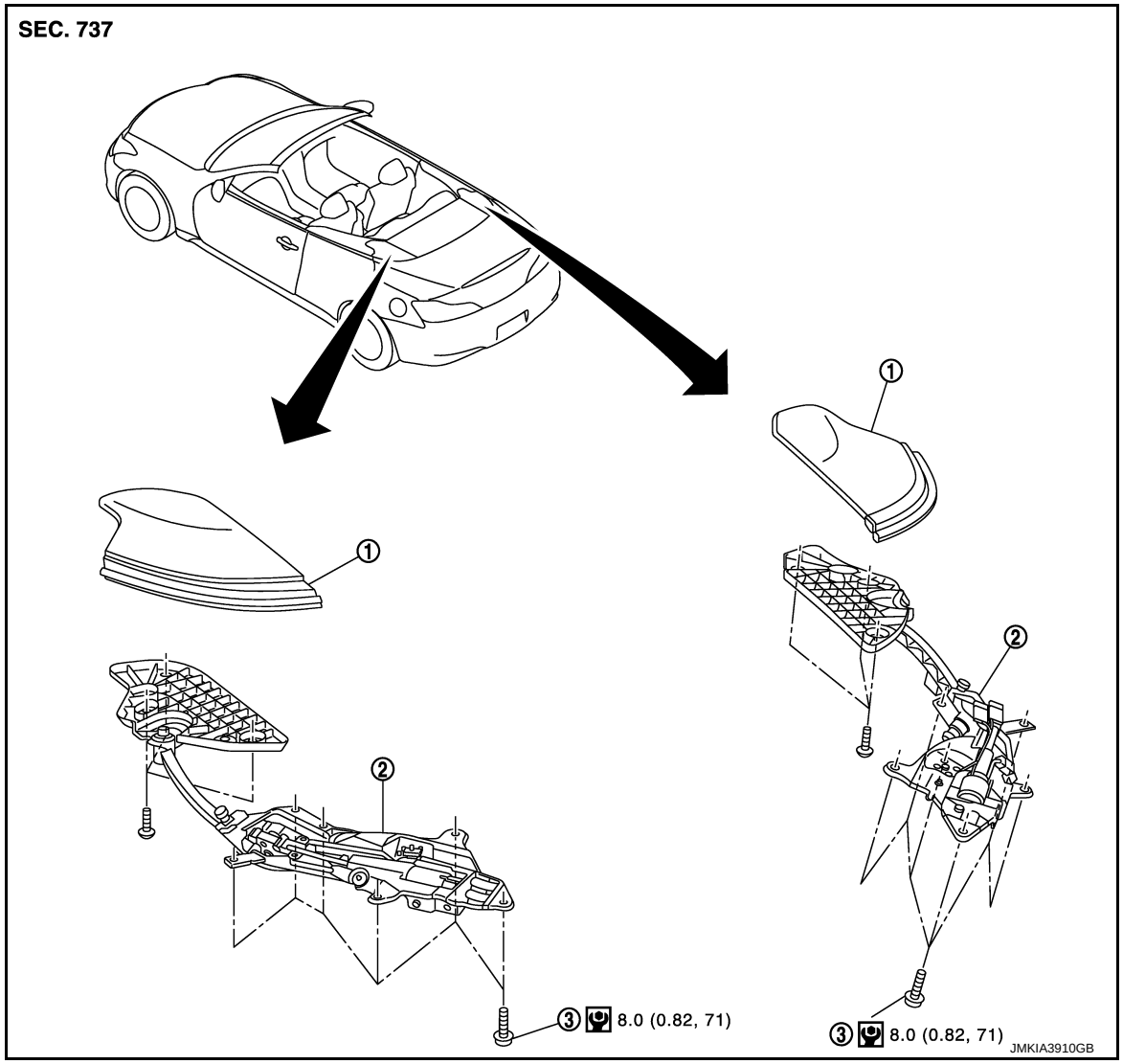
NOTE:

Perform initialization according to the work after installing parcel shelf motor (draw). Refer to RF-74, "Description".

FLIPPER DOOR

Exploded View

INFOID:0000000008158571



1. Flipper door board
2. Flipper door unit
3. TORX bolt

Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

INFOID:0000000008158572

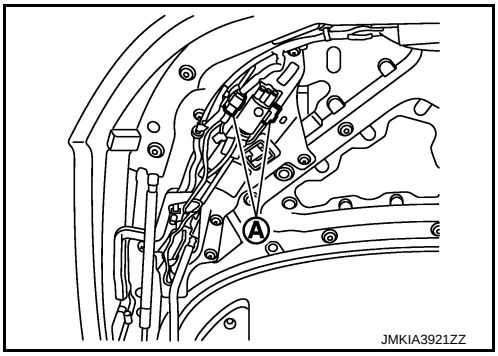
REMOVAL

CAUTION:

Protect the rear fender with a fender protector.

1. Open trunk while roof is fully open.
2. Remove trunk lid trim. Refer to INT-24, "Removal and Installation".
3. Remove mounting screws, and then remove flipper door board.
4. Remove trunk hinge harness clamp.

5. Disconnect flipper door harness connector (A).



6. Remove TORX bolt, and then remove flipper door unit.

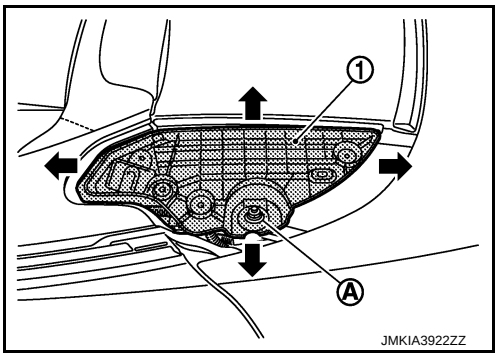
INSTALLATION

Install in the reverse order of removal.

Adjustment

INFOID:0000000008158573

1. Check offset volume of flipper door board (outside).
2. Remove flipper door board (outside).
3. Loosen flipper door unit adjustment nuts (A), slide flipper door board (inside) (1) back, forth, right, left or tilting for the equivalent offset volume of flipper door board (outside).

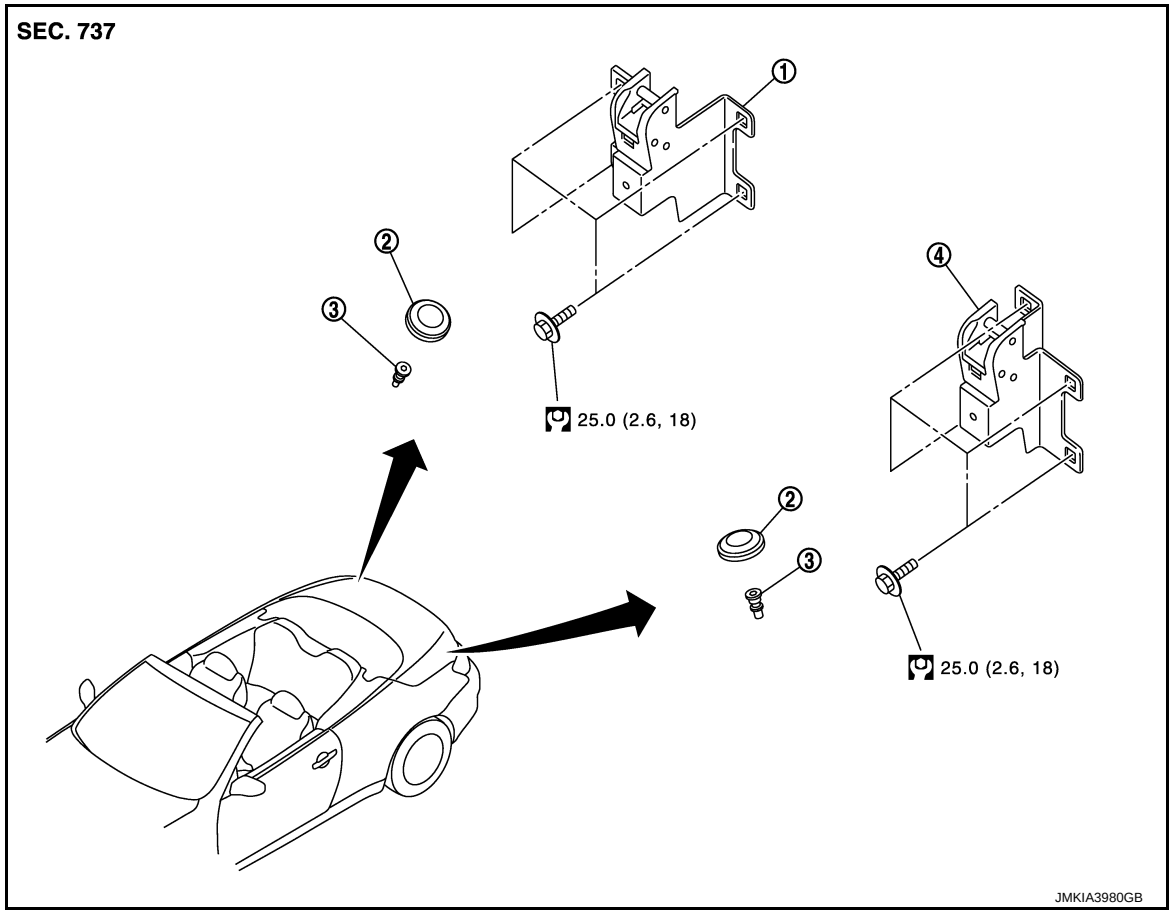


4. Install flipper door board (outside).

ROOF SUPPORT BUMPER

Exploded View

INFOID:0000000008158574



1. Roof support bumper RH
2. Bumper rubber
3. Special bolt
4. Roof support bumper LH

Refer to GI-4, "Components" for symbols in the figure.

Removal and Installation

INFOID:0000000008158575

REMOVAL

CAUTION:

Protect the rear fender with a fender protector.

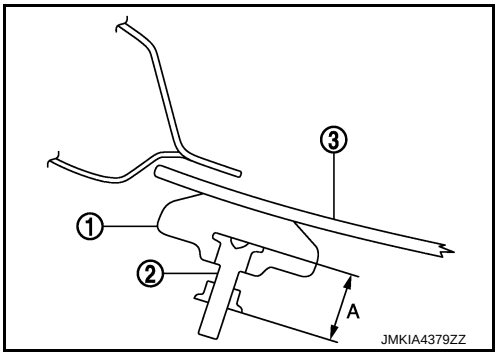
NOTE:

Operate roof manually if it does not operate electrically. Refer to RF-298, "Manual Operation".

1. Remove trunk room trim. Refer to INT-24, "Removal and Installation".
2. Put matching mark on roof support bumper.
3. Remove mounting bolts, and then roof support bumper.
4. Remove bumper rubber.
5. Remove special bolts.

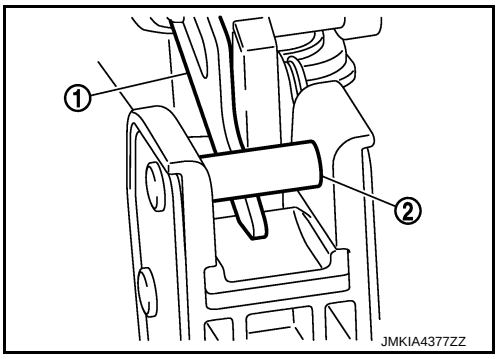
NOTE:

- Measure the dimension (A) as shown in the figure, before removing special bolt (2).
- Check that no clearance is left between bumper rubber (1) and glass (3) while roof is open.

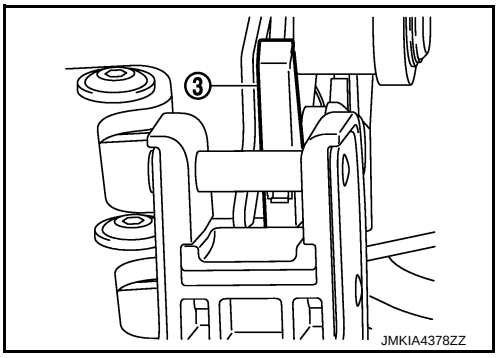


INSTALLATION

1. Install special bolts.
   CAUTION:
   When installing bolts, adjust the dimension to a value that is measured before removal.
2. Install bumper rubber.
3. Install roof support bumper.
   CAUTION:
   - **Check that slider (1) and pin (2) never contact each other while roof is open, after the installation.**



- **Check that no clearance is left between plastic parts (3) and roof support bumper.**

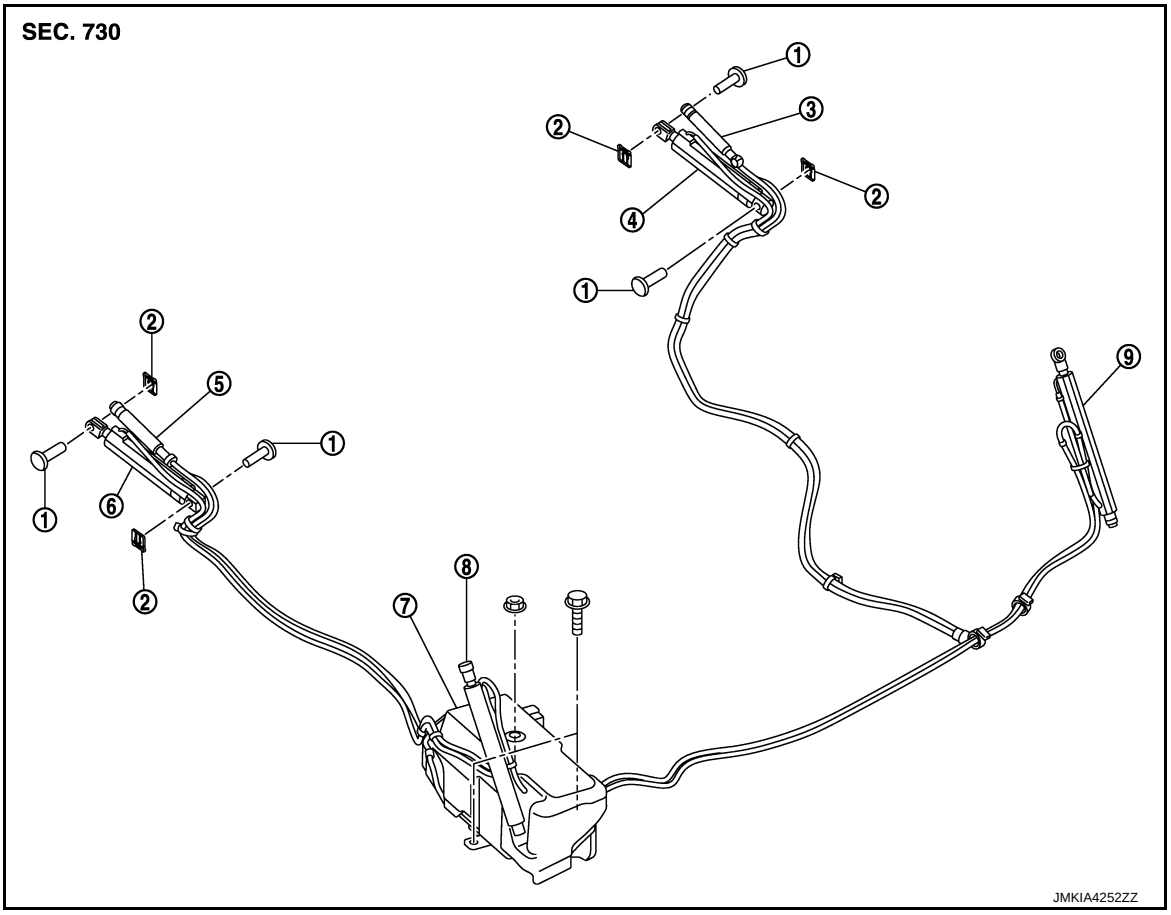


- **Check that no clearance is left between bumper rubber and glass while roof is open.**
- **Drive the vehicle while roof is open and check that low level noise is not detected.**

HYDRAULIC SYSTEM

Exploded View

INFOID:0000000008158576



1. Pin	2. Retaining plate	3. Roof lock cylinder RH
4. Roof drive cylinder RH	5. Roof lock cylinder LH	6. Roof drive cylinder LH
7. Hdraulic unit assembly	8. Trunk lid drive cylinder LH	9. Trunk lid drive cylinder RH

Removal and Installation

INFOID:0000000008158577

REMOVAL

CAUTION:

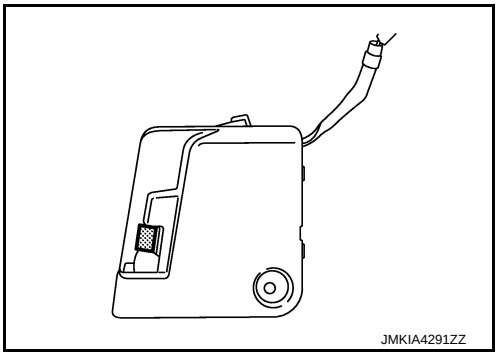
- **Protect the rear fender with a fender protector.**
- **Never bend or twist hydraulic hoses sharply, or strongly pull them.**
- **After installation, hydraulic hoses must not move towards self- locking bands.**
- **Never let the ends of self-locking bands touch hydraulic hoses.**

NOTE:

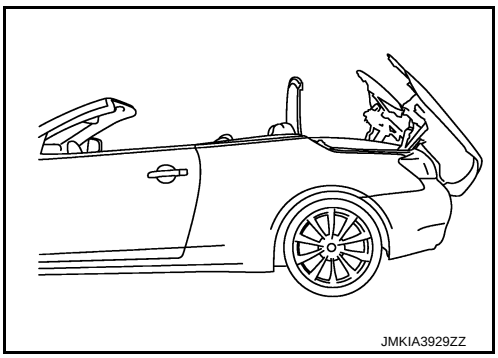
Operate roof manually if it does not operate electrically. Refer to RF-298, "Manual Operation".

1. Remove trunk room trim. Refer to INT-24, "Removal and Installation".

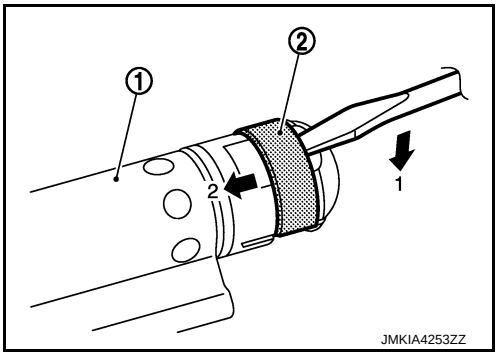
2. Put small piece to the tonneau board switch, connect harness connector to vehicle.



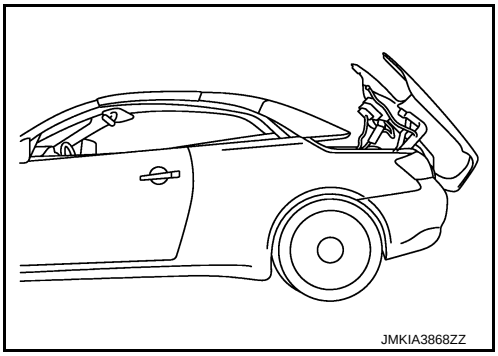
3. Stop roof as shown in the figure (during open operation).



4. Remove rear seat cushion and seatback. Refer to SE-222, "Removal and Installation".
5. Remove rear side finisher. Refer to INT-15, "Removal and Installation".
6. Remove metal clip (2) from roof lock cylinder (1) front side.



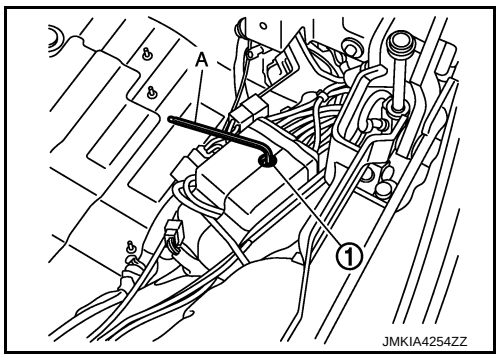
7. Stop roof as shown in the figure (roof is closed and trunk is open).



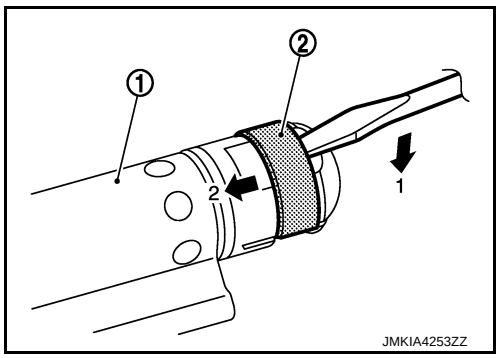
8. Open hydraulic unit valve (1). Using a hexagon wrench (A).

Opening torque: Max 2.0 N·m (0.2 kg-m, 18 in-lb)

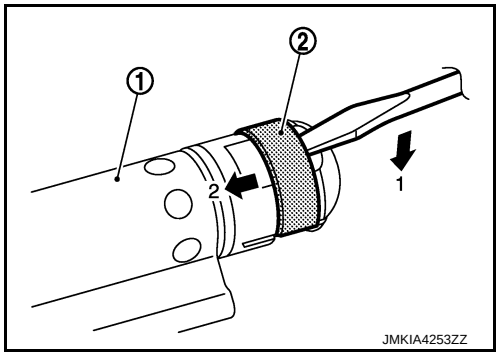
CAUTION:
Check that valve opening torque is always with in the specified value for preventing oil leakage.



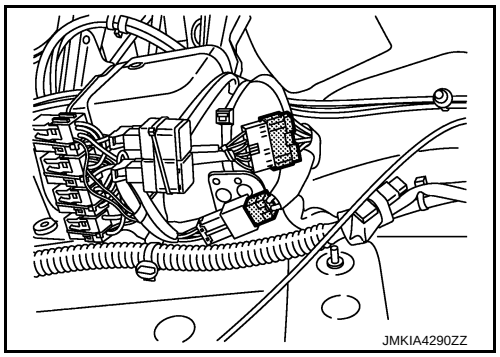
9. Remove metal clip (2) from roof lock cylinder (1) rear side.



10. Remove retaining plate, and then remove pin from roof drive cylinder front side and rear side.
11. Remove roof drive cylinder and roof lock cylinder from roof link assembly.
12. remove metal clip (2) from trunk lid drive cylinder (1), front side and rear side.



13. Remove hose clamp.
14. Disconnect hydraulic unit harness connectors.



15. Remove mounting bolts and nut, and then remove hydraulic unit assembly.

INSTALLATION

Install in the reverse order of removal.

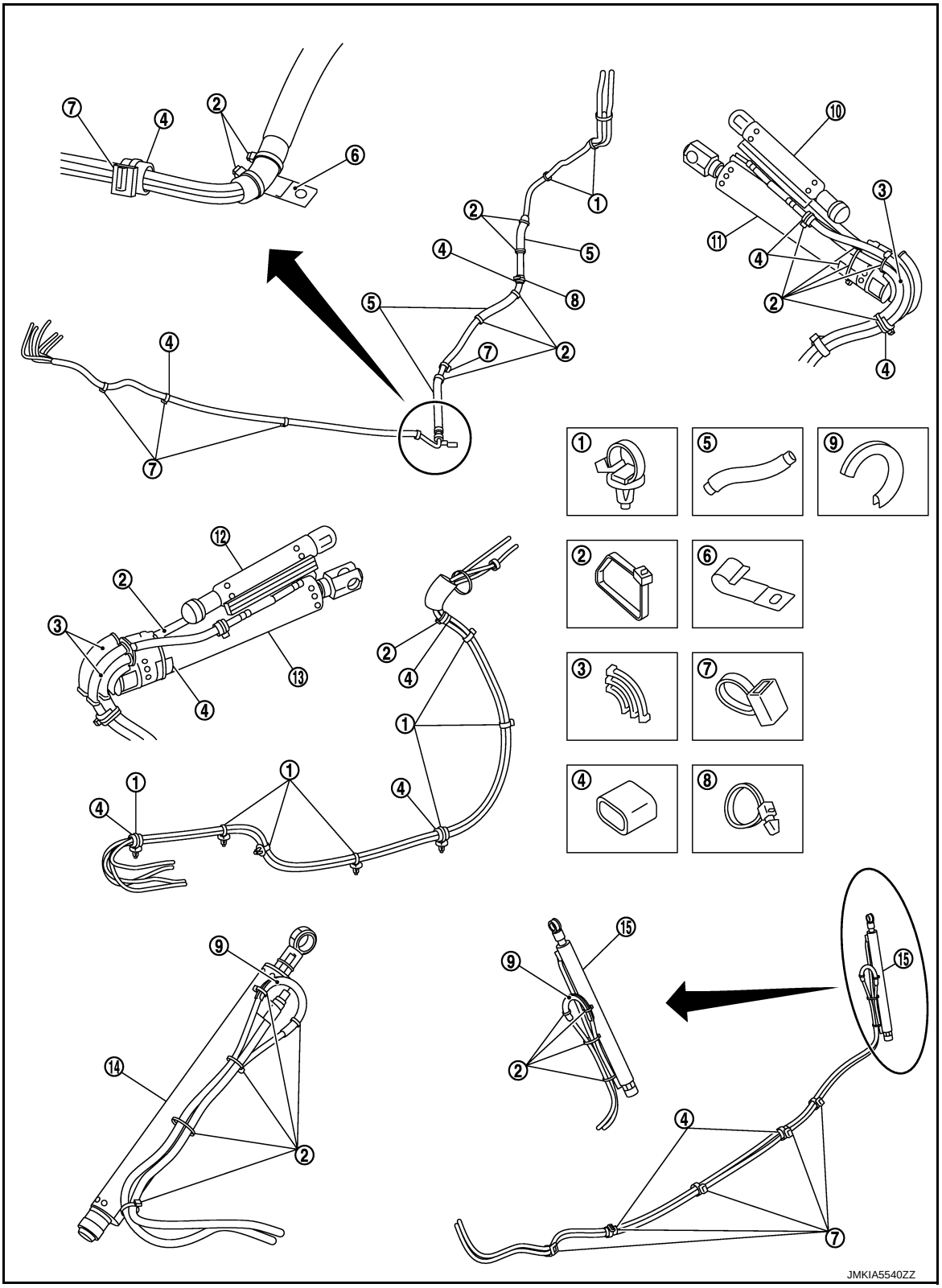
CAUTION:
- **Never bend or twist hydraulic hoses sharply, or strongly pull them.**
- **After installation, hydraulic hoses must not move towards self- locking bands.**

- **Never let the ends of self-locking bands touch hydraulic hoses.**

HYDRAULIC CYLINDER

Exploded View

INFOID:0000000008158578



1. Strap tie
2. Cable tie
3. Radius holder (double way)
4. Felt
5. Corrugated hose
6. Steel clip
7. Strap tie (with clip)
8. Strap tie (with arrowhead)
9. Radius holder (single way)

10. Roof lock cylinder (RH)
11. Roof drive cylinder (RH)
12. Roof lock cylinder (LH)
13. Roof drive cylinder (LH)
14. Trunk lid drive cylinder (LH)
15. Trunk lid drive cylinder (RH)

Removal and Installation

INFOID:0000000008158579

HYDRAULIC CYLINDER ASSEMBLY

Removal

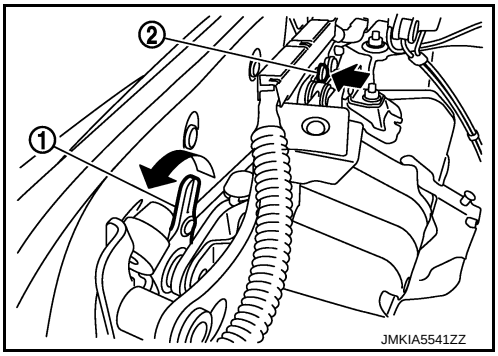
CAUTION:

- **Protect the rear fender with a fender protector.**
- **Never bend or twist hydraulic hoses sharply, or strongly pull them.**
- **After installation, hydraulic hoses must not move towards self- locking bands.**
- **Never let the ends of self-locking bands touch hydraulic hoses.**
- **Remove rear parcel board and set bracket to the straight up position for preventing interference from rear parcel board roof.**

1. Remove trunk room trim. Refer to INT-24, "Removal and Installation".
2. Remove rear cushion and seatback. Refer to SE-222, "Removal and Installation".
3. Remove rear side finisher. Refer to INT-15, "Removal and Installation".
4. Open relief valve of oil pump.
5. Set trunk lid to the backdrop status.
   - Open trunk lid manually.
   - Release trunk lid lock (1), (2) toward vehicle rear.

     CAUTION:

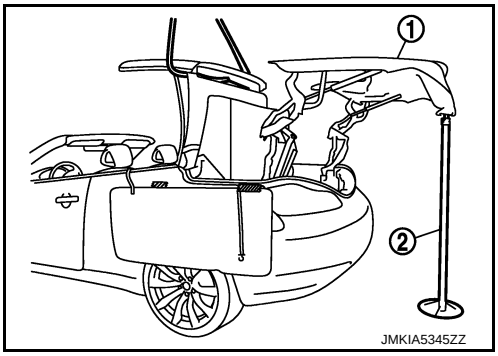
     Never move roof manually faster than with automatic operation to prevent hydraulic system from a damage.



   - Lift trunk lid to the backdrop status.
   - Support trunk lid (1) using a stand (2) as shown in the figure.

     CAUTION:

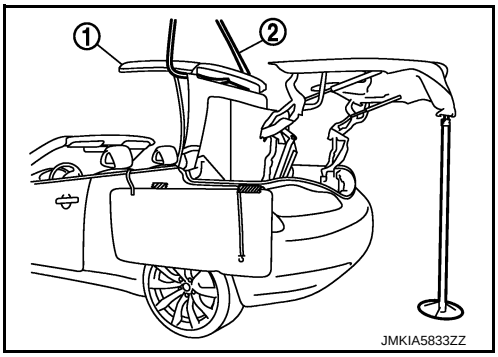
     - **Always hold trunk lid, because trunk lid moves according to change in hydraulic pressure after removing cylinders.**
     - **Two workers are required for manual operation.**



6. Manually set retractable hard top (1) to the straight up position and hold using a lashing belt (2) as shown in the figure. Release front lock on "Work Support" using CONSULT-III.

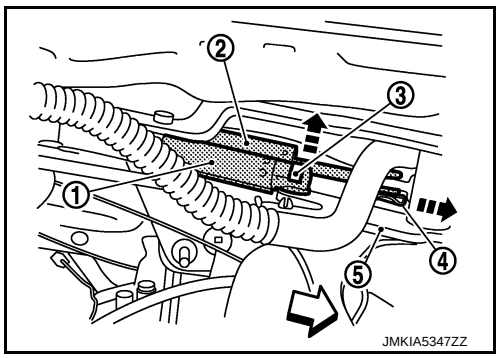
   CAUTION:

   Always hold retractable hard top using lashing belt, because retractable hard top moves according to change in hydraulic pressure after removing cylinders.



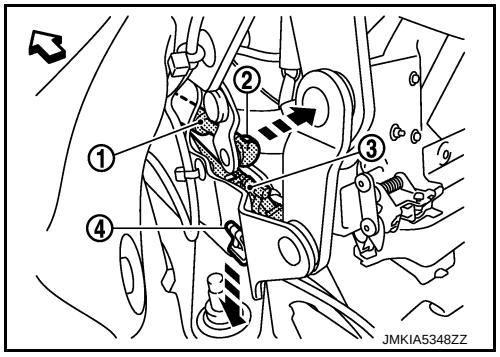
7. Remove roof lock cylinder upper portion from roof link assembly (5).
   - Remove clip (3) of roof lock cylinder.
   - Remove roof lock cylinder (1).
8. Remove roof drive cylinder upper portion from roof link assembly (5).
   - Remove retaining plate (4) of roof drive cylinder.
   - Remove roof drive cylinder (2).

   ⇦ : Vehicle front

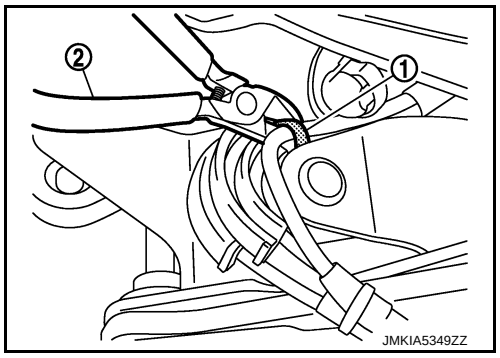


9. Remove roof lock cylinder lower portion from roof link assembly.
   - Remove clip (2) of roof lock cylinder.
   - Remove roof lock cylinder (1).
10. Remove roof drive cylinder lower portion from roof link assembly.
    - Remove retaining plate (4) of roof drive cylinder.
    - Remove roof drive cylinder (3).

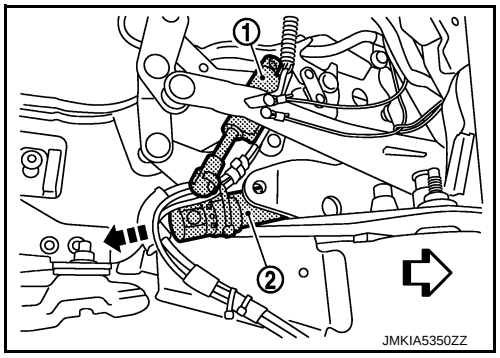
    ⇦ : Vehicle front



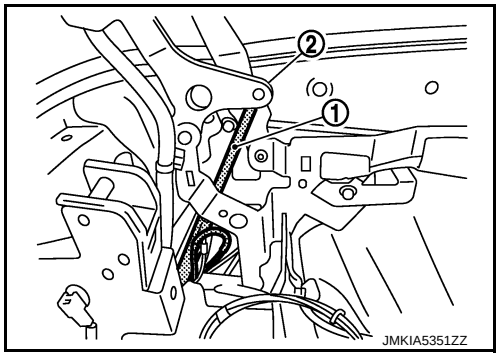
11. Cut clip (1) of roof drive cylinder lower portion using nippers (2) as shown in the figure.



12. Take out roof lock cylinder (1) and roof drive cylinder (2) together in the direction as shown by the arrow in the figure.



13. Remove trunk lid drive cylinder (1) from trunk link (2).
    - Remove hydraulic pump assembly.
    - Remove clip of trunk lid cylinder. Remove trunk lid cylinder.



14. Remove hydraulic hose from hydraulic cylinder.
    - Record the installation position of hydraulic cylinder and hydraulic hose.
    - Put a paint mark showing the clip band position of hydraulic hose.
    - Cut clip band using nippers.
    - Remove hydraulic hose.

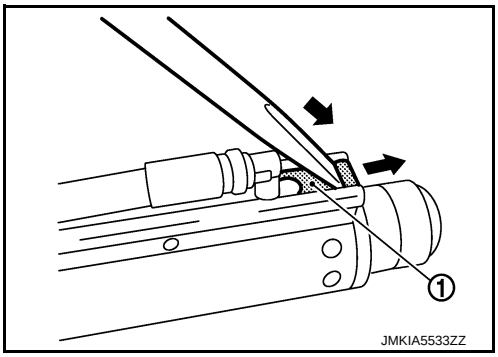
    CAUTION:
    Never damage hydraulic hose.

HYDRAULIC HOSE ASSEMBLY

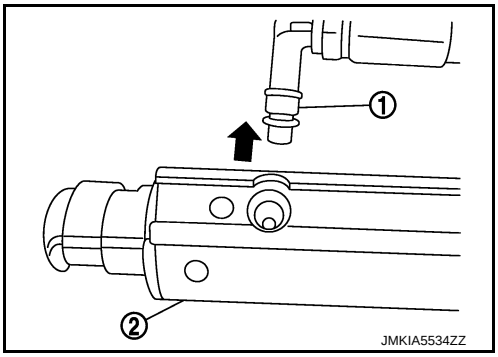
Removal

1. Remove the hydraulic hose retaining clip (1) using a flat-bladed screwdriver as show in the figure.

   CAUTION:
   - **Disengage the clip slowly and carefully.**
   - **Place shop paper under the cylinder to catch any hydraulic fluid that may spill.**



2. Remove the hydraulic hose (1) from cylinder (2).

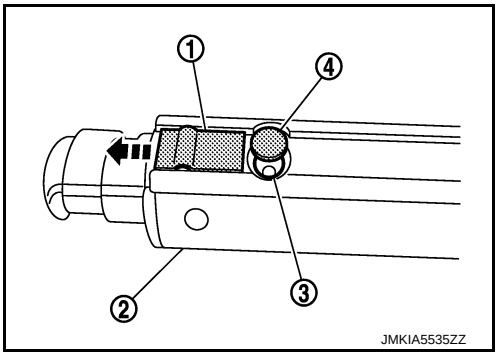


INSTALLATION

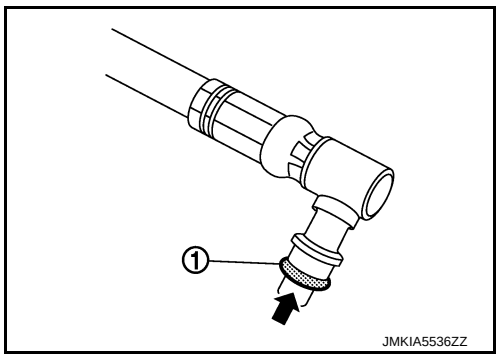
Install in the reverse order of removal.

CAUTION:
- **Prepare the service cylinder for fitting. Remove retaining clips and remove blind plugs.**
- **Check the connection bore profile if the O-rings are removed from the blind plugs.**
- **Remove O-ring, if not removed, using a pin that is not sharp.**
- **Normally, O-ring is attached to blind plugs.**
- **Check connections including O-ring for damage and cleanliness.**

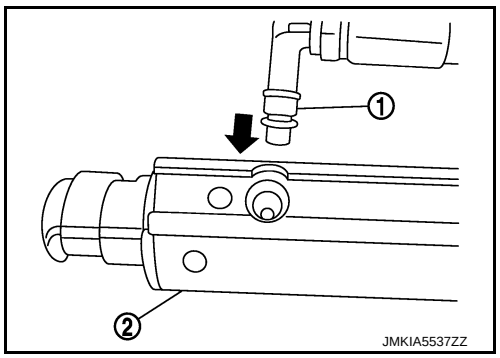
1. Slide retaining clip (1) of new hydraulic cylinder (2) toward outside as shown in the figure, remove blind plugs (4), and remove O-ring (3).



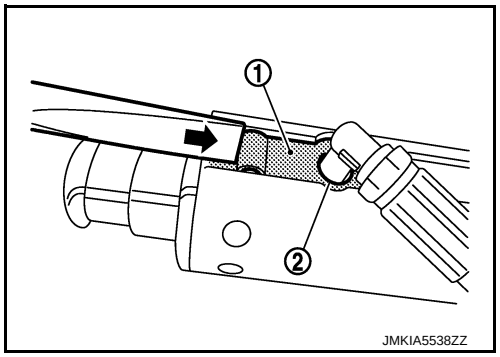
2. Apply hydraulic oil to O-ring (1), and install it to hydraulic hose body.
CAUTION:
Never damage O-ring.



3. Install the hydraulic hose (1) to the cylinder (2).
CAUTION:
- **Never damage O-ring.**
- **Install hydraulic hose slowly and carefully.**



4. Slide the hydraulic hose retaining clip (1) using a flat-bladed screwdriver to the position (2) as show in the figure.



5. Install hydraulic hose to the paint mark position and fix using the specified clip band.
6. Install the hydraulic cylinder to the roof mechanism.
7. Work Support.
   - Open relief valve of oil pump.
   - Select roof open and close function on "Work Support" using CONSULT-III.
   - Operate oil pump toward roof open for 5 seconds, and then toward roof close for 5 seconds.
   - Close relief valve of oil pump.

   CAUTION:
   - **Full open and fully close the roof 3 times and check for leakage from hydraulic cylinder.**
   - **Always install component parts like clips and hoses to the original installed positions.**
   - **Check oil level before and after each cycle. A lower level due to oil leakage may cause hydraulic pump's damage.**
8. Install all of the removed component parts.

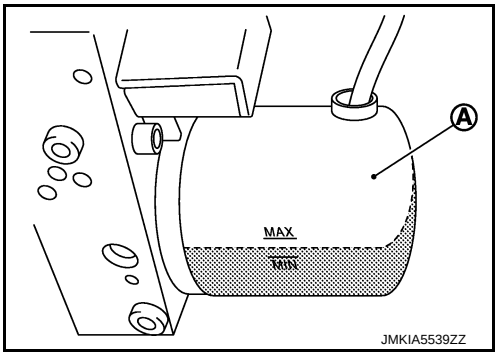
REFILLING

Fill and bleed of hydraulic system

Checking oil level

1. Close the roof completely.
2. Remove the trunk room trim. Refer to INT-24, "Removal and Installation".
3. Lift the hydraulic unit pump carefully from the hydraulic unit assembly position.
4. Remove the foam cover.

5. Put the hydraulic unit pump in the horizontal position and check that the oil level is between "MIN" and "MAX" (A).



Filling oil

1. Remove the filling plug.
2. Fill with hydraulic oil to the max mark on the reservoir using a suitable and clean funnel.
3. Tighten filling plug to the specified torque. Torque: 2.0 N·m (0.2 kg-m, 18 in-lb)

NOTE:
- Approximately 250ml of 560ml of oil is drained from the system during removal and installation procedure.
- Be sure to refill oil to the specified level.

CAUTION:
- **Never overtighten torque.**
- **Fully open and fully close the roof 3 times. Check for leakage and check oil level.**
- **Filler plug must be tightened to the specified torque for preventing oil leakage.**

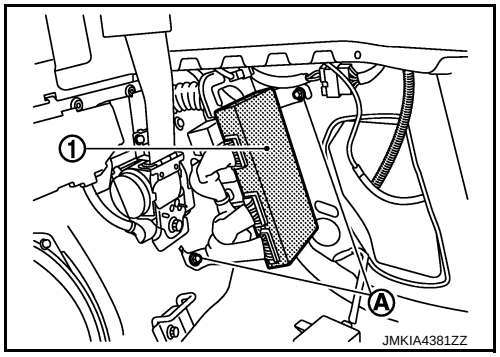
RETRACTABLE HARD TOP CONTROL UNIT

Removal and Installation

INFOID:0000000008158580

REMOVAL

1. Remove rear side finisher LH. Refer to INT-15, "Removal and Installation".
2. Remove bolts (A).
3. Remove retractable hard top control unit (1) and disconnect the connector.



INSTALLATION

Install in the reverse order of removal.

NOTE:

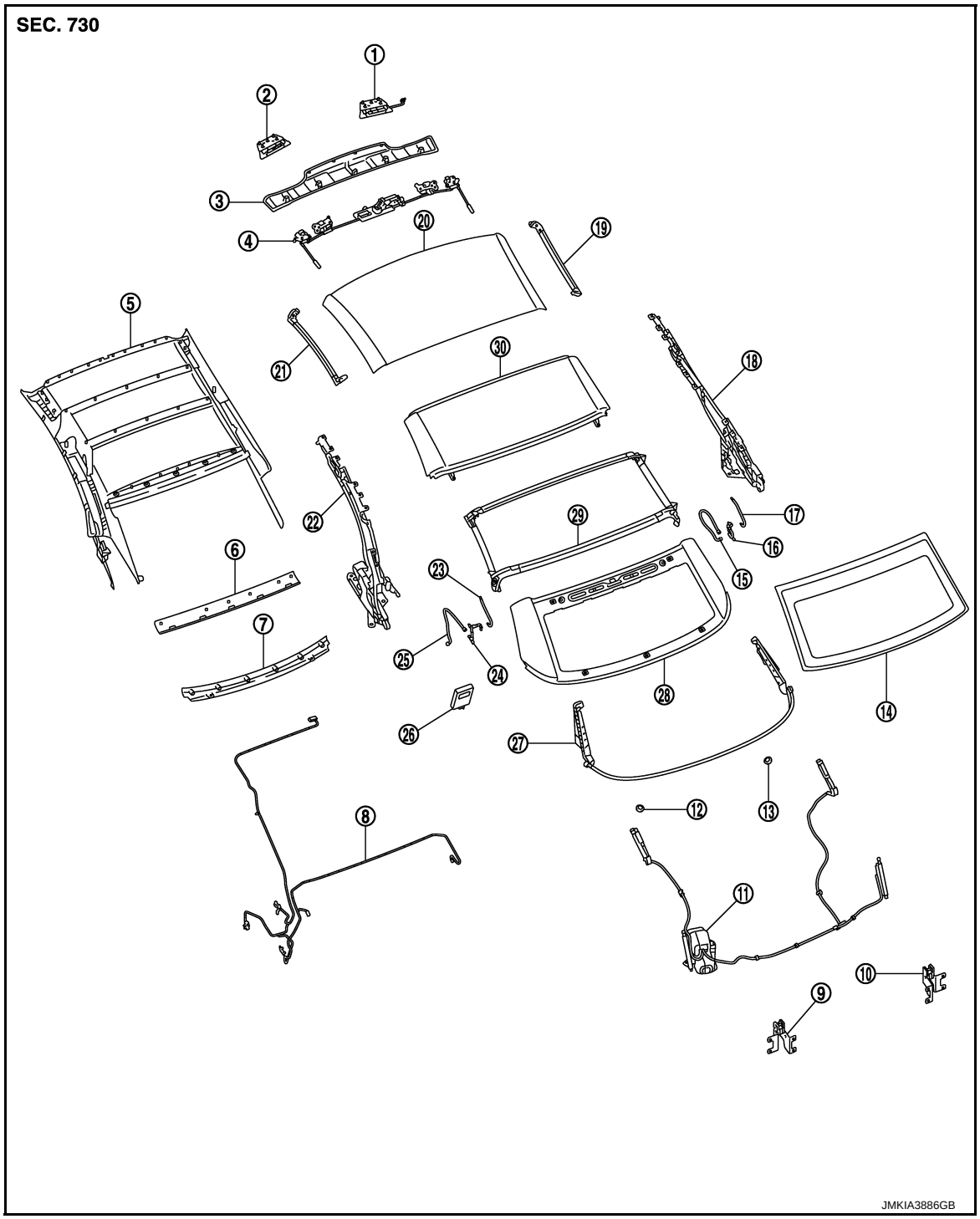
After installing the retractable hard top control unit, perform additional service when replacing control unit. Refer to RF-74, "Work Procedure".

UNIT REMOVAL AND INSTALLATION

RETRACTABLE HARD ROOF ASSEMBLY

Exploded View

INFOID:0000000008158581



1. Front latch assembly RH
2. Front latch assembly LH
3. Front roof garnish
4. Roof lock assembly
5. Headlining
6. Rear roof upper garnish
7. Rear roof lower garnish
8. Roof harness
9. Roof support bumper LH
10. Roof support bumper RH
11. Hydraulic unit assembly
12. Bumper rubber LH
13. Bumper rubber RH
14. Rear glass
15. Drain tube upper RH

16. Drain tube center RH
17. Drain tube lower RH
18. Roof link assembly RH
19. Front roof weather-strip RH
20. Front roof panel
21. Front roof weather-strip LH
22. Roof link assembly LH
23. Drain tube lower LH
24. Drain tube center LH
25. Drain tube upper LH
26. Control unit
27. Rear roof weather-strip
28. Rear roof panel
29. Center roof weather-strip
30. Center roof panel

Removal and Installation

INFOID:0000000008158582

REMOVAL

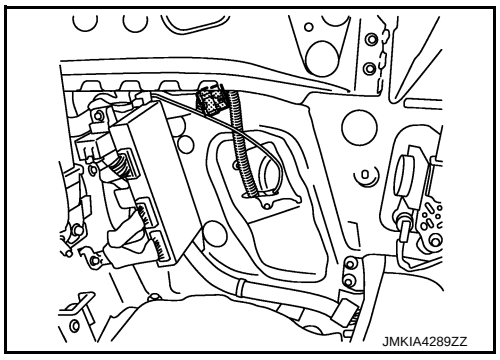
CAUTION:

- **Protect the rear fender with a fender protector.**
- **Take all precaution to avoid any interference between the retractable hard top and the body.**
- **Never bend or twist hydraulic hoses sharply, or strongly pull them.**
- **After installation, hydraulic hoses must not move towards self- locking bands.**
- **Never let the ends of self-locking bands touch hydraulic hoses.**

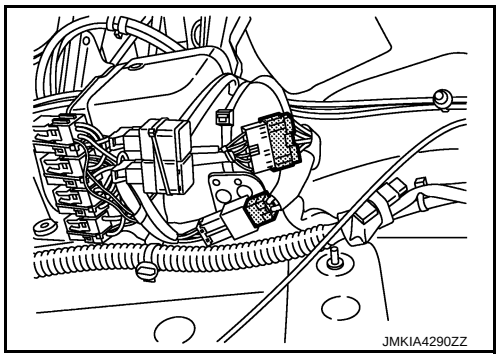
NOTE:

Operate roof manually if it does not operate electrically. Refer to RF-298, "Manual Operation".

1. Roof is fully open.
2. Remove rear seat cushion and seatback. Refer to SE-222, "Removal and Installation".
3. Remove rear side finisher. Refer to INT-15, "Removal and Installation".
4. Remove trunk lid trim. Refer to INT-24, "Removal and Installation".
5. Remove rear parcel shelf finisher board. Refer to RF-276, "REAR PARCEL SHELF UNIT : Removal and Installation".
6. Roof is fully close.
7. Remove trunk lid assembly. Refer to DLK-235, "TRUNK LID ASSEMBLY : Removal and Installation".
8. Remove trunk room trim. Refer to INT-24, "Removal and Installation".
9. Perform unlock opration of roof lock assembly in WORK SUPPORT of CONSULT-III.RF-45, "CONSULT Function"
10. Remove hydraulic unit, hose clamp and trunk drive cylinder. Refer to RF-285, "Removal and Installation".
11. From passenger roof side, disconnect harness connector. (LH side only)



12. Disconnect hydraulic unit harness connector.



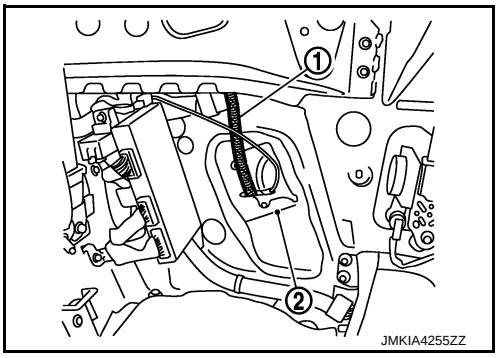
13. Remove roof link assembly mounting nuts. Refer to RF-274, "Removal and Installation"
14. Lift roof assembly and hydraulic unit assembly simultaneously, and then remove them from the vehicle in the rear direction.

CAUTION:
This operation requires five people.

INSTALLATION

Install in the reverse order of removal.

CAUTION:
- **Never bend or twist hydraulic hoses sharply, or strongly pull them.**
- **After installation, hydraulic hoses must not move towards self- locking bands.**
- **Never let the ends of self-locking bands touch hydraulic hoses.**
- **Insert lower end of drain tube (1) to the hole of sealing screen (2) through the vehicle body.**



NOTE:
- Perform initialization according to the work after installing retractable hard roof assembly. Refer to RF-74, "Description".
- Adjust door glass and quarter window glass. Refer to GW-18, "Inspection and Adjustment".
- Perform water leakage test. Refer to RF-241, "Water Leakage Test".

Manual Operation

INFOID:0000000008158583

CAUTION:
- **Protect the rear fender with a fender protector.**
- **Take all precaution to avoid any interference between the retractable hard top and the body.**

CLOSE STATE TO OPEN STATE

1. Remove metal clip from front roof garnish rear end. Insert a hexagon wrench through clearance between headlining. Rotate roof latch motor shaft using the hexagon wrench and then unlock roof lock assembly.
   CAUTION:
   Be careful not to deform front roof garnish.
2. Remove rear parcel shelf finisher board from trunk room side. Refer to RF-276, "REAR PARCEL SHELF UNIT : Removal and Installation".
3. Remove TORX bolt from rear parcel shelf unit linkage. Check that rear parcel shelf board mounting bracket moves freely while not interfering with other components.
4. Remove trunk room trim, and then open hydraulic unit valve.

   Opening torque: Max 2.0 N·m (0.2 kg-m, 18 in-lb)

   CAUTION:
   Check that valve opening torque is always with in the specified value for preventing oil leakage.
5. Remove trunk lid assembly. Refer to DLK-235, "TRUNK LID ASSEMBLY : Removal and Installation".
6. Pry roof link and unlock roof lock.
7. Open roof by manually.
   CAUTION:
   - **This operation requires two people.**
   - **Keep hands away from the moving parts.**

OPEN STATE TO CLOSE STATE

1. Remove seat cushion and seatback. Refer to SE-222, "Removal and Installation".
2. Remove rear side finisher. Refer to INT-15, "Removal and Installation".

3. Remove TORX bolt from rear parcel shelf unit linkage. Check that rear parcel shelf board mounting bracket moves freely while not interfering with other components.
4. Remove rear parcel shelf finisher board. Refer to RF-276, "REAR PARCEL SHELF UNIT : Removal and Installation".
5. Remove trunk lid assembly. Refer to DLK-235, "TRUNK LID ASSEMBLY : Removal and Installation".
6. Remove trunk lid drive cylinder upper side pin. Refer to RF-285, "Removal and Installation".
7. Lift up trunk hinge.
8. Remove front roof garnish. Rotate roof latch motor shaft using the hexagon wrench and then unlock roof lock assembly.
9. Remove roof drive cylinder front side pin. Refer to RF-285, "Removal and Installation".
   CAUTION:
   Wait until tension on roof drive cylinder after roof operation is released.
10. Close roof by manually.
    CAUTION:
    - **This operation requires two people.**
    - **Keep hands away from the moving parts.**
11. Remove trunk room trim, and then open hydraulic unit valve.

    Opening torque: Max 2.0 N·m (0.2 kg-m, 18 in-lb)

    CAUTION:
    Check that valve opening torque is always with in the specified value for preventing oil leakage.