SECTION RF
ROOF

CONTENTS

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

WorkFlow

INFOID:0000000001184894

DETAILED FLOW

1.OBTAIN INFORMATION ABOUT SYMPTOM

Interview the customer to obtain the malfunction information (conditions and environment when the malfunction occurred) as much as possible when the customer brings the vehicles in.

>> GO TO 2.

2.REPRODUCE THE MALFUNCTION INFORMATION

Check the malfunction on the vehicle that the customer describes.
Inspect the relation of the symptoms and the condition when the symptoms occur.

>> GO TO 3.

3.PERFORM "BASIC INSPECTION"

Perform the basic inspection.
Refer to RF-50, "Basic Inspection".

>> GO TO 4.

4.IDENTIFY THE MALFUNCTIONING SYSTEM WITH “SYMPTOM DIAGNOSIS”

Use “Symptom diagnosis” from the symptom inspection result in step 2. Then identify where to start performing the diagnosis based on possible causes and symptom.

>> GO TO 5.

5.IDENTIFY MALFUNCTIONING PARTS WITH “COMPONENT DIAGNOSIS”

Perform the diagnosis with “Component diagnosis” of the applicable system.

>> GO TO 6.

6.REPAIR OR REPLACE THE MALFUNCTIONING PARTS

Repair or replace the specified malfunctioning parts.

>> GO TO 7.

7.FINAL CHECK

Check that malfunctions are not reproduced when obtaining the malfunction information from the customer, referring to the symptom inspection result in step 2.

Are the malfunctions corrected?

YES >> INSPECTION END
NO >> GO TO 3.

INSPECTION AND ADJUSTMENT

ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL

ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Description

INFOID:0000000001184895

Initial setting is necessary when battery terminal is removed and replacing sunshade motor assembly.

NOTE:

The following specified operations are not performed under the non-initialized condition.

- Auto-slide operation
- Anti-pinch function

ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement

INFOID:0000000001184896

INITIALIZATION PROCEDURE

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

1. Return sunshade to closed position.
2. Release the close switch once, press the close switch again, press and hold the switch until shade is fully closed. (About 30 seconds)
3. Release the switch again, and press the close switch within the first 10 seconds. (keep pressing the switch)
4. After 3 or 4 seconds, the shade will be automatically operated in sequence of slide open and slide close. After the shade stops, release the switch 0.5 second later.
5. If sunshade switch operates normally, this initialization is done.

ANTI-PINCH FUNCTION

1. Full open the shade.
2. Place a piece of wood near fully closed position.
3. Close the shade completely with auto-slide close.

Check that shade opens fully and stops.

CAUTION:

- **Perform initialization procedure setting when auto-slide operation or anti-pinch function does not operate normally.**
- **Check that auto-slide operates before inspection when system initialization is performed.**
- **Do not check with hands and other part of body because they may be pinched. Do not get pinched.**
- **Depending on environment and driving conditions, if a similar impact or load is applied to the sunshade it may open.**
- **Thermal cut out may occur if open/close operation is performed continuously. In this situation allow system to cool before re-use.**

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Description

INFOID:0000000001184897

Refer to RF-4, "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Description".

ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement

INFOID:0000000001184898

Refer to RF-4, "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement" for initialization procedure and check anti-pinch function.

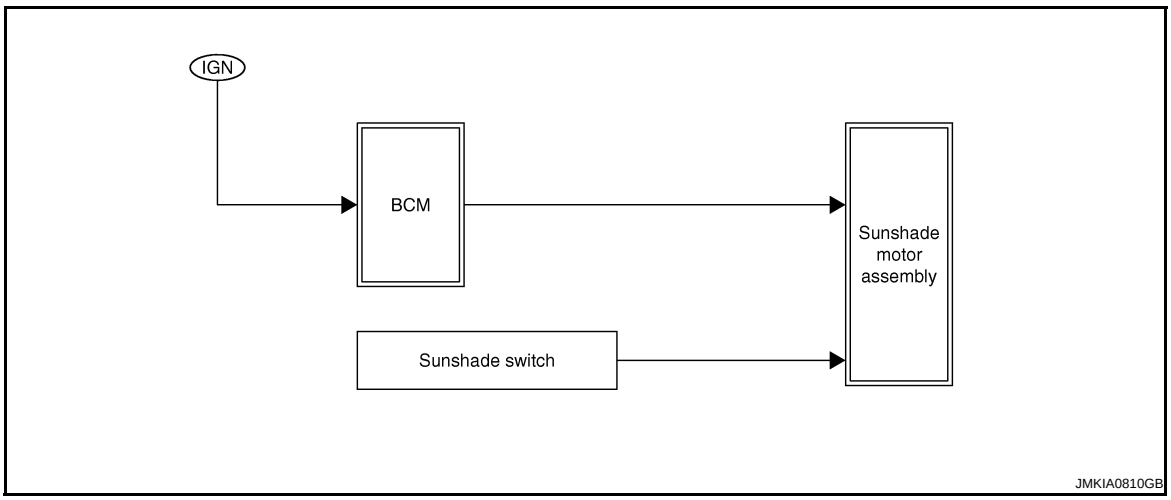
FUNCTION DIAGNOSIS

SUNSHADE SYSTEM

System Diagram

INFOID:0000000001184899

SUNSHADE SYSTEM



System Description

INFOID:0000000001184900

SUNSHADE SYSTEM

INPUT/OUTPUT SIGNAL CHART

Item	Input signal to sunshade motor assembly	Sunshade motor function	Actuator
Sunshade switch	Sunshade switch signal (slide open)	Sunshade control	Sunshade motor
	Sunshade switch signal (slide close)		

SUNSHADE OPERATION

- Sunshade motor assembly operates with the power supply from BCM while ignition switch is ON.
- Slide open and slide close signals from sunshade switch enables to operate sunshade motor.

AUTO OPERATION

Sunshade AUTO feature makes it possible to slide open and slide close the sunshade without holding the sunshade switch at the slide open or slide close position.
Auto operation is activated by a short press. (Less than 0.7 second)

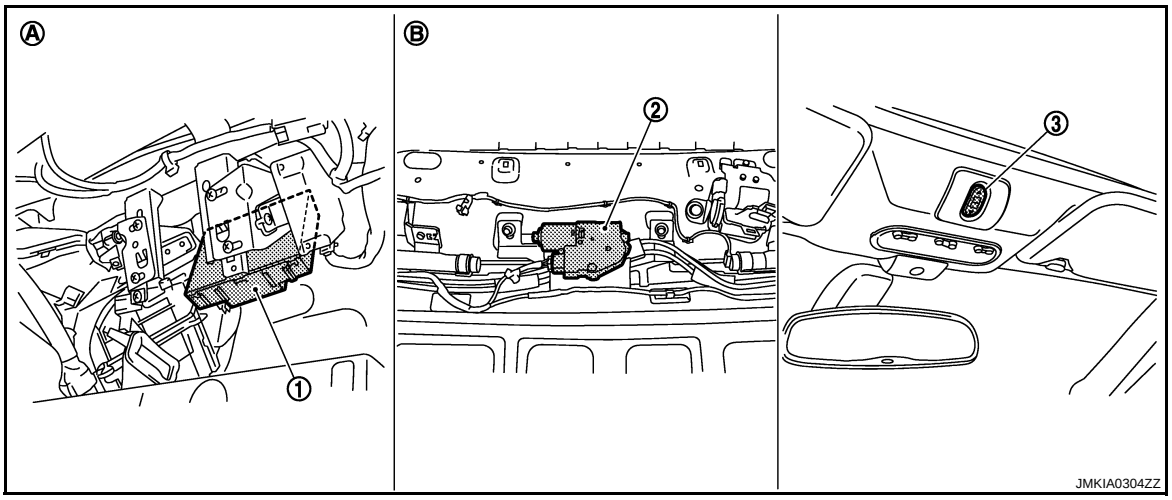
ANTI-PINCH FUNCTION

The CPU of sunshade motor assembly monitors the sunshade motor operation and the shade position (fully-closed or other) by the signals from sunshade motor assembly.
When sunshade motor detects an interruption during the slide close operation, sunshade will auto open to the full-open position.

- Close operation when ignition switch is in the “ON” position

Component Parts Location

INFOID:0000000001184901



1. BCM M65, M66, M67
2. Sunshade motor assembly R5
3. Sunshade switch R2

A. View with dash side finisher RH removed
B. View with headlining removed

Component Description

INFOID:0000000001184902

Component	Function
BCM	Supplies the power to sunshade motor assembly.
Sunshade switch	Transmits slides open/close operation signal to sunshade motor assembly.
Sunshade motor assembly	It is sunshade motor and CPU integrated type that enables to slide open/close by sunshade switch operation

COMPONENT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT

BCM (BODY CONTROL MODULE)

BCM (BODY CONTROL MODULE) : Diagnosis Procedure

INFOID:0000000001538075

1.CHECK FUSES AND FUSIBLE LINK

Check that the following fuses and fusible link are not fusing.

Terminal No.	Signal name	Fuses and fusible link No.
41	Battery power supply	9
57		J
37	ACC power supply	5
38	Ignition power supply	4

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

1. Turn ignition switch OFF.
2. Disconnect BCM connectors.
3. Check voltage between BCM harness connector and ground.

Terminals			Ignition switch position		
(+)		(–)			
BCM			OFF	ACC	ON
Connector	Terminal				
M65	37	Ground	Approx. 0 V	Battery voltage	Battery voltage
	38		Approx. 0 V	Approx. 0 V	Battery voltage
M66	41		Battery voltage	Battery voltage	Battery voltage
M67	57				

Is the measurement value normal?

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

3.CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M67	55		Existed

Does continuity exist?

YES >> INSPECTION END
NO >> Repair harness or connector.

SUNSHADE MOTOR ASSEMBLY

SUNSHADE MOTOR ASSEMBLY : Description

INFOID:0000000001184904

- BCM supplies power.
- It is sunshade motor and CPU integrated type.
- Slides open/close by sunshade switch operation.

SUNSHADE MOTOR ASSEMBLY : Component Function Check

INFOID:0000000001184905

1.CHECK SUNSHADE MOTOR FUNCTION

Check slide open/close operations with sunshade switch.

Is the inspection result normal?

YES >> Sunshade motor assembly is OK.
NO >> Refer to RF-8, "SUNSHADE MOTOR ASSEMBLY : Diagnosis Procedure".

SUNSHADE MOTOR ASSEMBLY : Diagnosis Procedure

INFOID:0000000001184906

SUNSHADE MOTOR ASSEMBLY

1.CHECK POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect sunshade motor assembly connector.
3. Turn ignition switch ON.
4. Check voltage between sunshade motor assembly harness connector and ground.

Terminal			Voltage (V) (Approx.)
(+)		(–)	
Sunshade motor assembly connector	Terminal		
R5	3	Ground	Battery voltage
	6		

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check continuity between BCM harness connector and sunshade motor assembly harness connector.

BCM connector	Terminal	Sunshade motor assembly connector	Terminal	Continuity
M67	53	R5	3	Existed
	58		6	

4. Check continuity between BCM harness connector and ground.

BCM connector	Terminal	Ground	Continuity
M67	53		Not existed
	58		

Is the inspection result normal?

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

3.CHECK BCM OUTPUT SIGNAL

1. Connect BCM connector.
2. Turn ignition switch ON.

3. Check voltage between BCM harness connector and ground.

Terminals			Voltage (V) (Approx.)
(+)		(–)	
BCM connector	Terminal		
M67	53	Ground	Battery voltage
	58		

Is the inspection result normal?

YES >> Check condition of harness and connector.
NO >> Replace BCM. Refer to BCS-65, "Removal and Installation".

4.CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between sunshade motor assembly harness connector and ground.

Sunshade motor assembly connector	Terminal	Ground	Continuity
R5	1		Existed

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-39, "Intermittent Incident".
NO >> Repair or replace harness.

SUNSHADE MOTOR ASSEMBLY : Special Repair Requirement

INFOID:0000000001184908

1.PERFORM INITIALIZATION PROCEDURE

Perform initialization procedure.
Refer to RF-4, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Check intermittent incident. Refer to GI-39, "Intermittent Incident".

2.CHECK ANTI-PINCH OPERATION

Check anti-pinch operation.
Refer to RF-4, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace sunshade motor assembly. Refer to RF-51, "Removal and Installation".

SUNSHADE SWITCH

Description

INFOID:0000000001537479

The sunshade is operated by turning the sunshade switch ON.

Component Function Check

INFOID:0000000001537480

1.CHECK SUNSHADE SWITCH FUNCTION

Do slide open/close operations operate normally with sunshade switch?

Is the inspection result normal?

YES >> Sunshade switch is OK.
NO >> Refer to RF-10, "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000001537481

1.CHECK SUNROOF SWITCH INPUT SIGNAL

1. Turn ignition switch ON.
2. Check voltage between sunshade motor assembly harness connector and ground.

Sunshade motor assembly connector	Terminals		Condition	Voltage (V) (Approx.)
	(+)	(–)		
R5	5	Ground	Sunroof switch is operated SLIDE OPEN	0
			Other than above	Battery voltage
	10		Sunroof switch is operated SLIDE CLOSE	0
			Other than above	Battery voltage

Is the inspection result normal?

YES >> Replace sunshade motor assembly. Refer to RF-51, "Removal and Installation". After that, Refer to RF-9, "SUNSHADE MOTOR ASSEMBLY : Special Repair Requirement"
NO >> GO TO 2.

2.CHECK SUNROOF SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect sunshade motor assembly connector and sunshade switch connector.
3. Check continuity between sunshade motor assembly harness connector and sunshade switch harness connector.

Sunshade motor assembly connector	Terminal	Sunshade switch connector	Terminal	Continuity
R5	5	R2	1	Existed
	10		3	

4. Check continuity between sunshade motor assembly harness connector and ground.

Sunshade motor assembly connector	Terminal	Ground	Continuity
R5	5		Not existed
	10		

Is the inspection result normal?

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

3.CHECK SUNSHADE SWITCH GROUND CIRCUIT

Check continuity between sunshade switch harness connector and sunshade motor assembly harness connector.

Sunshade switch connector	Terminal	Sunshade motor assembly connector	Terminal	Continuity
R2	2	R5	2	Existed

Is the inspection result normal?

YES >> Refer to RF-11, "Component Inspection".
NO >> Repair or replace harness.

Component Inspection

INFOID:0000000001184907

1. CHECK SUNSHADE SWITCH

1. Turn ignition switch OFF.
2. Disconnect sunshade switch connector.
3. Check continuity between sunshade switch terminals.

Terminals		Condition	Continuity
1	2	Sunshade switch is operated SLIDE OPEN	Existed
		Other than above	Not existed
3		Sunshade switch is operated SLIDE CLOSE	Existed
		Other than above	Not existed

Is the inspection result normal?

YES >> Sunshade switch is OK.
NO >> Replace sunshade switch. Refer to RF-58, "Removal and Installation".

ECU DIAGNOSIS

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:0000000001551229

VALUES ON THE DIAGNOSIS TOOL

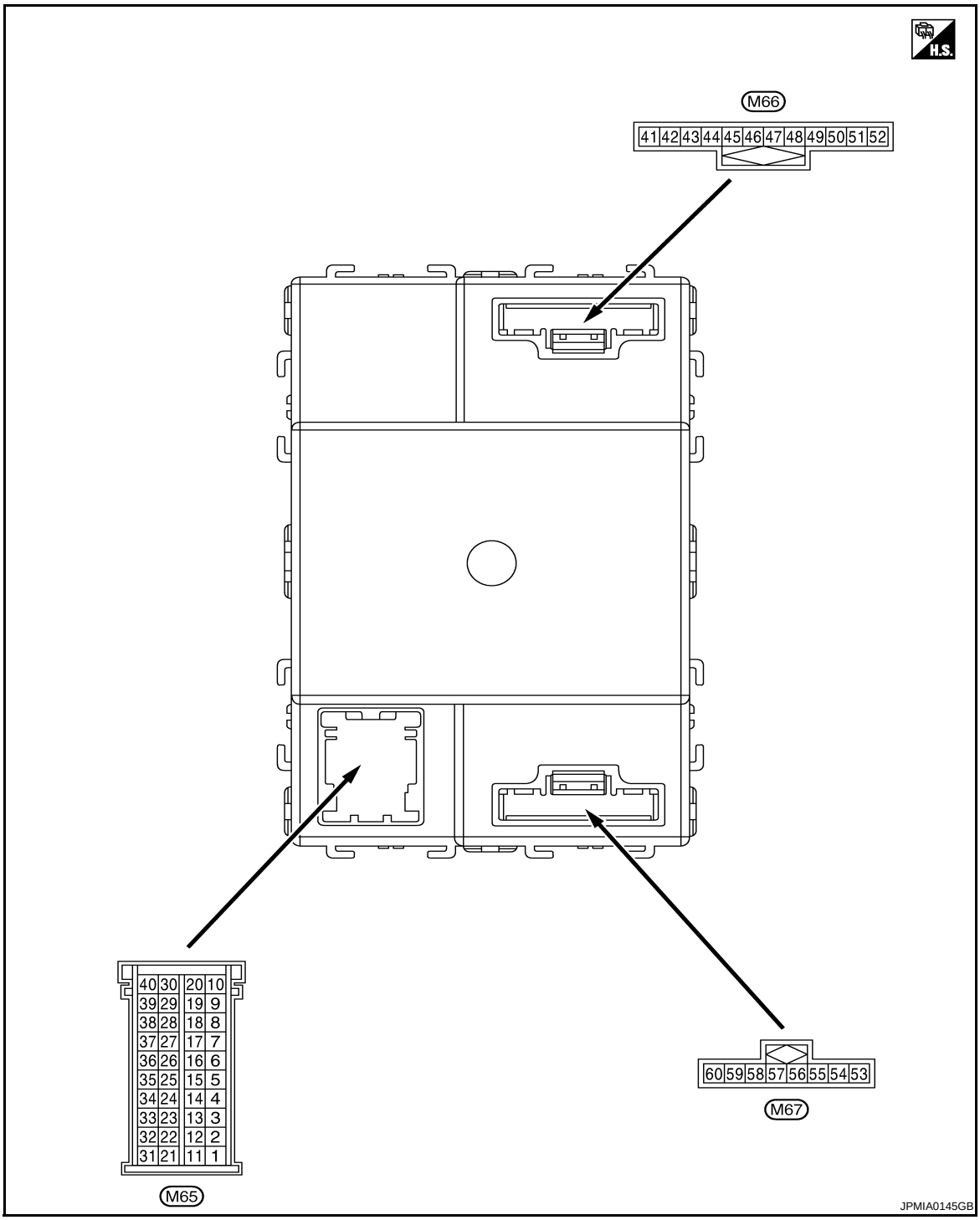
Monitor Item	Condition	Value/Status
ACC ON SW	Ignition switch OFF	Off
	Ignition switch ACC or ON	On
AIR COND SW	A/C switch OFF	Off
	A/C switch ON	On
AUT LIGHT SYS	Outside of the room is bright	Off
	Outside of the room is dark	On
AUTO LIGHT SW	Lighting switch OFF	Off
	Lighting switch AUTO	On
AUTO RELOCK	Auto lock function does not operate	Off
	Auto lock function is operating	On
BACK DOOR SW	Back door closed	Off
	Back door opened	On
BATTERY VOLT **NOTE:** Diesel engine models only	Ignition switch ON	Approximately the same as power supply voltage
BRAKE SW	Brake pedal is not depressed	Off
	Brake pedal is depressed	On
CDL LOCK SW	Door lock/unlock switch does not operate	Off
	Press door lock/unlock switch to the LOCK side	On
CDL UNLOCK SW	Door lock/unlock switch does not operate	Off
	Press door lock/unlock switch to the UNLOCK side	On
DOOR SW-AS	Passenger door closed	Off
	Passenger door opened	On
DOOR SW-DR	Driver door closed	Off
	Driver door opened	On
DOOR SW-RL	Rear LH door closed	Off
	Rear LH door opened	On
DOOR SW-RR	Rear RH door closed	Off
	Rear RH door opened	On

Monitor Item	Condition		Value/Status
ELEC PWR CUT **NOTE:** Diesel engine models only	Engine running	Fan switch ON (when engine coolant is cool) **NOTE:** Depending on the ambient temperature, battery voltage, etc.	Off
		The current status maintained with the signal from ECM received.	FREEZ
		• Fan switch OFF • Fan switch ON after engine warming UP **NOTE:** Depending on the engine coolant temperature, ambient temperature, battery voltage, etc.	INHBT
ENG COOLNT T **NOTE:** Diesel engine models only	Engine running		Approximately the same as water temperature gauge reading
ENGINE RPM **NOTE:** Diesel engine models only	Engine running		Approximately the same as tachometer reading
ENGINE RUN	Engine stopped		Off
	Engine running		On
ENGINE STATUS **NOTE:** Diesel engine models only	Engine stopped		STOP
	While the engine stalls		STALL
	Engine running		RUN
	At engine cranking		CRA
FAN ON SIG	Fan switch OFF		Off
	Fan switch ON		On
FR FOG SW	Front fog lamp switch OFF		Off
	Front fog lamp switch ON		On
FR WASHER SW	Front washer switch OFF		Off
	Front washer switch ON		On
FR WIPER LOW	Front wiper switch OFF		Off
	Front wiper switch LO		On
FR WIPER HI	Front wiper switch OFF		Off
	Front wiper switch HI		On
FR WIPER INT	Front wiper switch OFF		Off
	Front wiper switch INT		On
FR WIPER STOP	Any position other than front wiper stop position		Off
	Front wiper stop position		On
GLS BREAK SEN	The vehicle without glass break sensor		On
	The vehicle with glass break sensor		Off
HAZARD SW	When hazard switch is not pressed		Off
	When hazard switch is pressed		On
HD LIGHT TIME	—		Displays a setting time of the follow me home function set by the work support

Monitor Item	Condition	Value/Status
HEAD LAMP SW 1	Lighting switch OFF	Off
	Lighting switch 2ND	On
HEAD LAMP SW 2	Lighting switch OFF	Off
	Lighting switch 2ND	On
HI BEAM SW	Lighting switch OFF	Off
	Lighting switch HI	On
HOOD SW	Close the hood **NOTE:** Vehicles without theft warning system are OFF-fixed	Off
	Open the hood	On
H/L WASH SW	**NOTE:** The item is indicated, but not monitored	Off
IGN ON SW	Ignition switch OFF or ACC	Off
	Ignition switch ON	On
IGN SW CAN	Ignition switch OFF or ACC	Off
	Ignition switch ON	On
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	1 - 7
I-KEY LOCK	LOCK button of Intelligent Key is not pressed	Off
	LOCK button of Intelligent Key is pressed	On
I-KEY UNLOCK	UNLOCK button of Intelligent Key is not pressed	Off
	UNLOCK button of Intelligent Key is pressed	On
KEY ON SW	Mechanical key is removed from key cylinder	Off
	Mechanical key is inserted to key cylinder	On
KEYLESS LOCK	LOCK button of key fob is not pressed	Off
	LOCK button of key fob is pressed	On
KEY LESS PANIC	**NOTE:** The item is indicated, but not monitored	Off
KEYLESS UNLOCK	UNLOCK button of key fob is not pressed	Off
	UNLOCK button of key fob is pressed	On
LIT-SEN FAIL	Light & rain sensor is in normal condition	OK
	Light & rain sensor is with internal error	NOT OK
MEMORY 1	Key fob ID code is not registered in “Memory 1”	Off
	Key fob ID code is registered in “Memory 1”	On
MEMORY 2	Key fob ID code is not registered in “Memory 2”	Off
	Key fob ID code is registered in “Memory 2”	On
MEMORY 3	Key fob ID code is not registered in “Memory 3”	Off
	Key fob ID code is registered in “Memory 3”	On
MEMORY 4	Key fob ID code is not registered in “Memory 4”	Off
	Key fob ID code is registered in “Memory 4”	On
MEMORY 5	Key fob ID code is not registered in “Memory 5”	Off
	Key fob ID code is registered in “Memory 5”	On
OIL PRESS SW	• Ignition switch OFF or ACC • Engine running	Off
	Ignition switch ON	On
OUT SIDE TEMP **NOTE:** Diesel engine models	Ignition switch ON	Approximately the same as outside air temperature

Monitor Item	Condition	Value/Status
PASSING SW	Other than lighting switch PASS	Off
	Lighting switch PASS	On
REVERSE SW CAN	Except selector lever R position	Off
	Selector lever R position	On
PUSH SW	Return to ignition switch to LOCK position	Off
	Press ignition switch	On
REAR DEF SW	Rear window defogger switch OFF	Off
	Rear window defogger switch ON	On
RR FOG SW	Rear fog lamp switch OFF	Off
	Rear fog lamp switch ON	On
RR WASHER SW	Rear washer switch OFF	Off
	Rear washer switch ON	On
RR WIPER INT	Rear wiper switch OFF	Off
	Rear wiper switch INT	On
RR WIPER ON	Rear wiper switch OFF	Off
	Rear wiper switch ON	On
RR WIPER STOP	Rear wiper stop position	Off
	Other than rear wiper stop position	On
SHOCK SENSOR	Ignition switch ON	NOMAL
	After the reception of air bag deployment signal from air bag diagnosis sensor unit	Off
	During the reception of air bag deployment signal from air bag diagnosis sensor unit	On
TAIL LAMP SW	Lighting switch OFF	Off
	Lighting switch 1ST	On
TRNK OPNR SW	When back door opener switch is not pressed	Off
	When back door opener switch is pressed	On
TURN SIGNAL L	Turn signal switch OFF	Off
	Turn signal switch LH	On
TURN SIGNAL R	Turn signal switch OFF	Off
	Turn signal switch RH	On
UNLOCK SHOCK	Other than the following	Off
	During the unlock operation interlocked with air bag	On
VEHICLE SPEED	While driving	Equivalent to speedometer reading

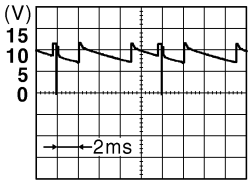
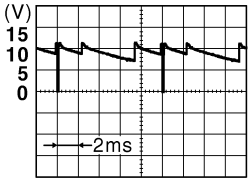
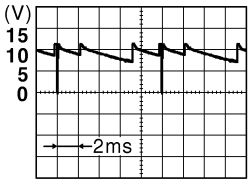
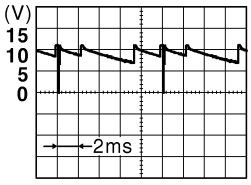
TERMINAL LAYOUT

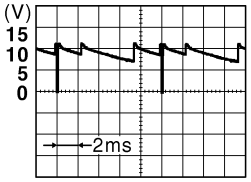
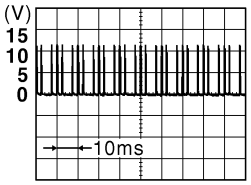
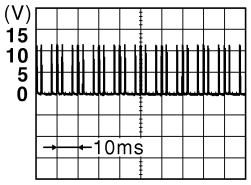
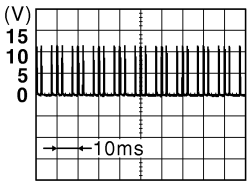
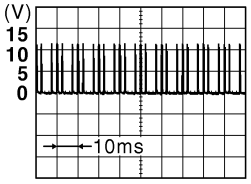


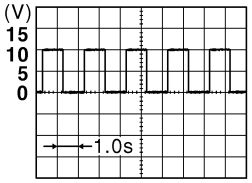
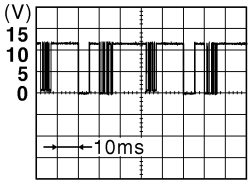
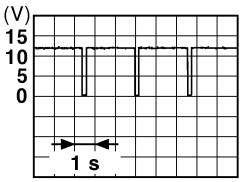
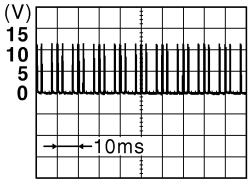
PHYSICAL VALUES

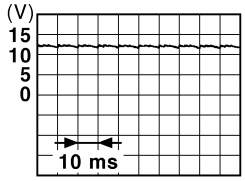
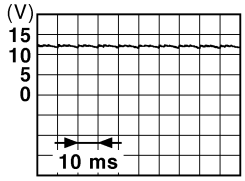
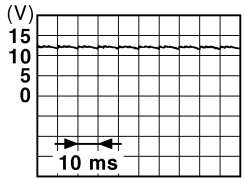
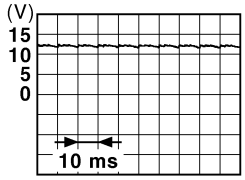
CAUTION:

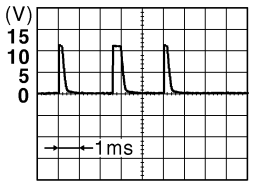
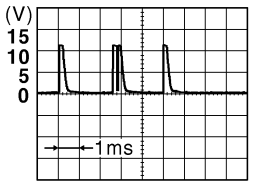
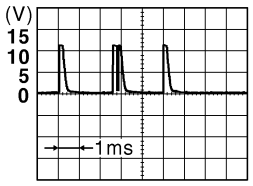
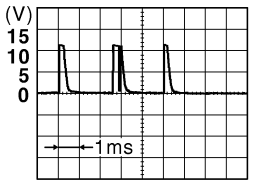
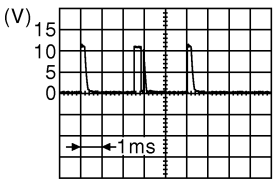
- **Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF is not to be fluctuated by being overloaded.**
- **Turn wiper intermittent dial position to 4 except when checking waveform or voltage of wiper intermittent dial position. Wiper intermittent dial position can be confirmed on CONSULT-III. Refer to BCS-27, "COMB SW : CONSULT-III Function (BCM - COMB SW)".**
- **BCM reads the status of the combination switch at 10 ms internal normally. Refer to BCS-10, "System Description".**

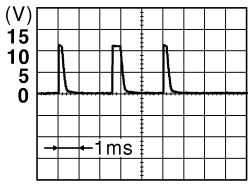
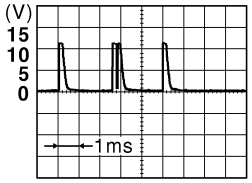
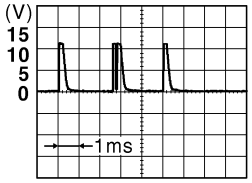
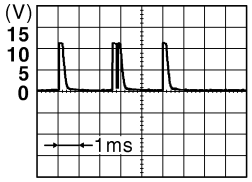
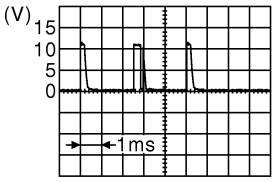
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
1 (P)	Ground	Combination switch OUTPUT 1	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	0 V
					Front wiper switch HI (Wiper intermittent dial 4)	 JPMIA0160GB 9.1 V
					Rear wiper switch INT (Wiper intermittent dial 4)	
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 3 • Wiper intermittent dial 6 • Wiper intermittent dial 7	
2 (Y)	Ground	Combination switch OUTPUT 4	Output	Combination switch (Wiper intermittent dial 4)	All switch OFF	0 V
					Lighting switch 2ND	 JPMIA0163GB 9.3 V
					Lighting switch PASS	
					Front fog lamp switch ON	
					Turn signal switch LH	
3 (LG)	Ground	Combination switch OUTPUT 3	Output	Combination switch (Wiper intermittent dial 4)	All switch OFF	0 V
					Lighting switch AUTO	 JPMIA0162GB 9.3 V
					Rear fog lamp switch OFF	
					Front wiper switch MIST	
					Front wiper switch INT	
					Front wiper switch LO	
4 (R)	Ground	Combination switch OUTPUT 2	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	0 V
					Front washer switch ON (Wiper intermittent dial 4)	 JPMIA0161GB 9.1 V
					Rear wiper switch ON (Wiper intermittent dial 4)	
					Rear washer switch ON (Wiper intermittent dial 4)	
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 5 • Wiper intermittent dial 6	

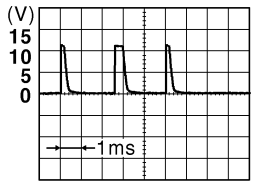
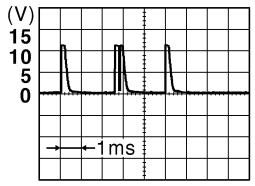
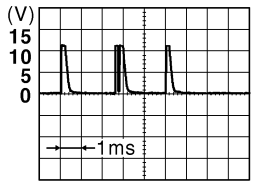
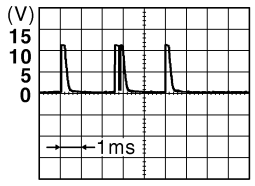
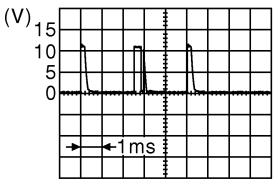
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
5 (W)	Ground	Combination switch OUTPUT 5	Output	Combination switch (Wiper intermittent dial 4)	All switch OFF	0 V
					Lighting switch 1ST	 JPMIA0164GB 9.1 V
					Lighting switch 2ND	
					Lighting switch HI	
					Turn signal switch RH	
7 (P)	Ground	Door lock/unlock switch (Lock)	Input	Door lock/unlock switch	Not pressed	 JPMIA0154GB 1.2 V
					Pressed to the lock side	0 V
8 (LG)	Ground	Hazard switch	Input	Hazard switch	Not pressed	 JPMIA0154GB 1.3 V
					Pressed	0 V
9 (BR)	Ground	Door lock/unlock switch (Unlock)	Input	Door lock/unlock switch	Not pressed	 JPMIA0154GB 1.2 V
					Pressed to the unlock side	0 V
12 (P)	Ground	Back door opener switch	Input	Back door opener switch	Not pressed	 JPMIA0154GB 1.2 V
					Pressed	0 V

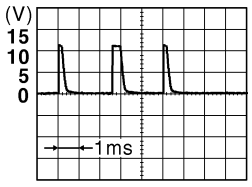
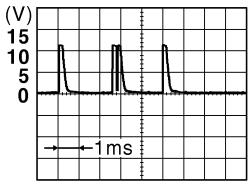
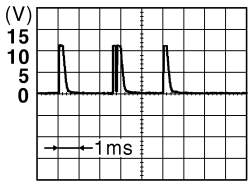
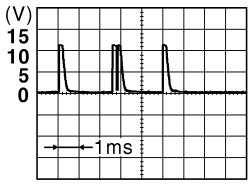
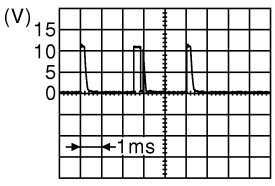
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
13 (R)	Ground	Shock detect sensor	Input	Ignition switch OFF or ACC		0 V
				Ignition switch ON		 JPMIA0155GB 6.0 V
14 (L/R)	Ground	A/C switch	Input	A/C switch	Not pressed	Battery voltage
					Pressed	0 V
15 (LG/B)	Ground	Fan switch	Input	Fan switch	Not pressed	Battery voltage
					Pressed	0 V
16 (GR)	Ground	Alarm link	Output	—		—
17 (BR)	Ground	Light & rain sensor serial link	Input/ Output	Ignition switch OFF or ACC		Battery voltage
				Ignition switch ON		 JPMIA0156GB 8.7 V
18 (SB)	Ground	Security indicator	Output	Security indicator	ON	0 V
					Blinking	 JPMIA0014GB 10.3 V
					OFF	Battery voltage
19 (L)	—	CAN-H	Input/ Output	—		—
20 (P)	—	CAN-L	Input/ Output	—		—
21 (SB)	Ground	Rear window defogger switch	Input	Rear window defogger switch	Not pressed	 JPMIA0154GB 1.1 V
					While pressing	0 V

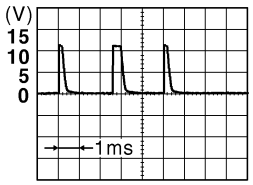
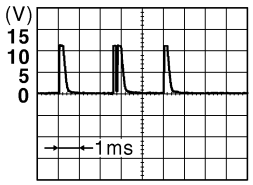
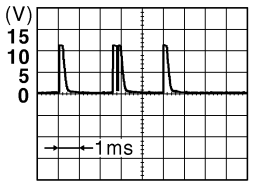
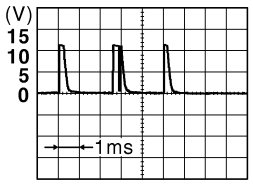
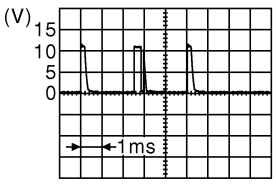
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
24 (GR)	Ground	Door lock status indicator	Output	Door lock status indicator	ON	Battery voltage
					OFF	0 V
25 (GR)	Ground	Rear door switch LH	Input	Rear door switch LH	OFF (When rear door LH closed)	 PKID0924E 11.2 V
					ON (When rear door LH opened)	0 V
26 (R)	Ground	Driver door switch	Input	Driver door switch	OFF (When driver door closed)	 PKID0924E 11.2 V
					ON (When driver door opened)	0 V
27 (BR)	Ground	Passenger door switch	Input	Passenger door switch	OFF (When passenger door closed)	 PKID0924E 11.2 V
					ON (When passenger door opened)	0 V
28 (G)	Ground	Back door switch	Input	Back door switch	OFF (When back door closed)	Battery voltage
					ON (When back door opened)	0 V
29 (LG)	Ground	Rear door switch RH	Input	Rear door switch RH	OFF (When rear door RH closed)	 PKID0924E 11.2 V
					ON (When rear door RH opened)	0 V
30 (SB)	Ground	Audio link	Input/ Output	—	—	—

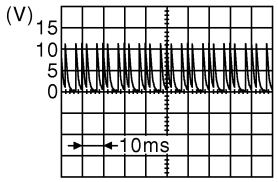
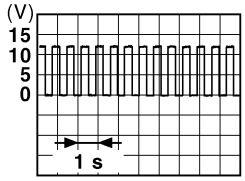
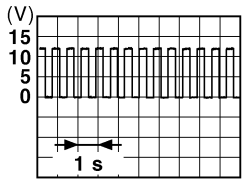
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
31 (BR)	Ground	Combination switch INPUT 5	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)	 JPMIA0165GB 1.3 V
					Front fog lamp switch ON (Wiper intermittent dial 4)	 JPMIA0167GB 1.3 V
					Rear fog lamp switch ON (Wiper intermittent dial 4)	 JPMIA0168GB 1.3 V
					Rear wiper switch ON (Wiper intermittent dial 4)	 JPMIA0169GB 1.3 V
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 6 • Wiper intermittent dial 7	 JPMIA0196GB 1.3 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
32 (G)	Ground	Combination switch INPUT 2	Input	Combination switch (Wiper intermittent dial 4)	All switch OFF	 JPMIA0165GB 1.4 V
					Lighting switch PASS	 JPMIA0167GB 1.3 V
					Lighting switch 2ND	 JPMIA0166GB 1.3 V
					Front wiper switch INT	 JPMIA0168GB 1.3 V
					Front wiper switch HI	 JPMIA0196GB 1.3 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
33 (V)	Ground	Combination switch INPUT 1	Input	Combination switch (Wiper intermittent dial 4)	All switch OFF	 JPMIA0165GB 1.4 V
					Turn signal switch LH	 JPMIA0167GB 1.3 V
					Turn signal switch RH	 JPMIA0166GB 1.3 V
					Front wiper switch LO	 JPMIA0168GB 1.3 V
					Front washer switch ON	 JPMIA0196GB 1.3 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
34 (GR)	Ground	Combination switch INPUT 4	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)	 JPMIA0165GB 1.4 V
					Lighting switch AUTO (Wiper intermittent dial 4)	 JPMIA0167GB 1.3 V
					Lighting switch 1ST (Wiper intermittent dial 4)	 JPMIA0166GB 1.3 V
					Rear wiper INT (Wiper intermittent dial 4)	 JPMIA0167GB 1.3 V
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 6	 JPMIA0196GB 1.3 V

Terminal No. (Wire color) +	Terminal No. (Wire color) –	Description Signal name	Description Input/ Output	Condition		Value (Approx.)
35 (L)	Ground	Combination switch INPUT 3	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)	 JPMIA0165GB 1.4 V
					Lighting switch HI (Wiper intermittent dial 4)	 JPMIA0166GB 1.3 V
					Lighting switch 2ND (Wiper intermittent dial 4)	 JPMIA0167GB 1.3 V
					Rear wiper switch ON	 JPMIA0169GB 1.3 V
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 3	 JPMIA0196GB 1.3 V
36 (V)	Ground	Key switch	Input	Insert mechanical key into ignition key cylinder		Battery voltage
				Remove mechanical key from ignition key cylinder		0 V
37 (R)	Ground	ACC power supply	Input	Ignition switch OFF		0 V
				Ignition switch ACC or ON		Battery voltage
38 (W)	Ground	Ignition power supply	Input	Ignition switch OFF or ACC		0 V
				Ignition switch ON		Battery voltage

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
39 (P)	Ground	NATS antenna amp.	Input/ Output	Insert mechanical key into ignition key cylinder		Just after Insert mechanical key into ignition key cylinder. Pointer of tester should move
40 (LG)	Ground	NATS antenna amp.	Input/ Output	Insert mechanical key into ignition key cylinder		Just after Insert mechanical key into ignition key cylinder. Pointer of tester should move
41 (V)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
42 (V)	Ground	Interior room lamp power supply	Output	After passing the interior room lamp battery saver operation time		0 V
				Any other time after passing the interior room lamp battery saver operation time		Battery voltage
43 (L)	Ground	Rear wiper motor	Output	Rear wiper switch OFF		0 V
				Rear wiper switch ON		Battery voltage
44 (L/W)	Ground	Rear wiper auto stop	Input	Ignition switch ON	Rear wiper stop position	0 V
					Any position other than rear wiper stop position	 JPMIA0197GB
45 (GR)	Ground	Back door lock actuator	Output	Back door opener switch	Pressed	Battery voltage (300ms)
					Not pressed	0 V
47 (G/Y)	Ground	Turn signal LH	Output	Ignition switch ON	Turn signal switch OFF	0 V
					Turn signal switch LH	 PKID0926E 6.5 V
48 (G/B)	Ground	Turn signal RH	Output	Ignition switch ON	Turn signal switch OFF	0 V
					Turn signal switch RH	 PKID0926E 6.5 V
49 (Y)	Ground	Rear fog lamp	Output	Lighting switch 1ST and front fog lamp switch ON	Rear fog lamp switch OFF	0 V
					Rear fog lamp switch ON	Battery voltage
51 (R/W)*1 (R)*2	Ground	Stop lamp switch	Input	Depress the brake pedal		Battery voltage
				Release the brake pedal		0 V

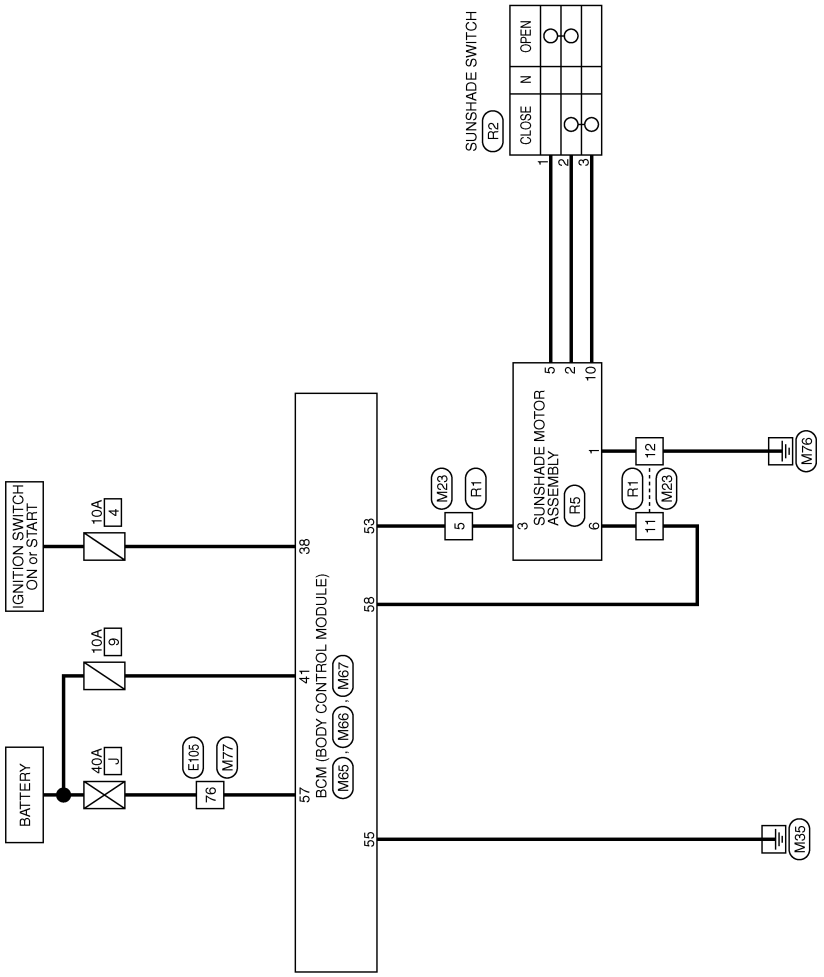
Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
52 (R)	Ground	Room lamp timer control	Output	Interior room lamp	OFF	Battery voltage
					ON	0 V
53 (L)	Ground	Power window power supply	Output	Ignition switch	OFF or ACC	0 V
					ON	Battery voltage
54 (O)	Ground	Door unlock (All)	Output	Door lock/unlock switch	Pressed to the unlock side	Battery voltage
					Pressed to the lock side	0 V
55 (B)	Ground	Ground	—	Ignition switch ON		0 V
56 (Y)*1 (SB)*2	Ground	Door lock (All)	Output	Door lock/unlock switch	Pressed to the unlock side	0 V
					Pressed to the lock side	Battery voltage
57 (Y)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
58 (P)	Ground	Power window power supply	Output	Ignition switch OFF		Battery voltage
59 (BR)	Ground	Super lock	Output	When lock button of key fob or Intelligent Key is not pressed		0 V
				When lock button of key fob or Intelligent Key is pressed		Battery voltage
60 (GR)	Ground	Driver door unlock	Output	Door lock/unlock switch	Pressed to the unlock side	Battery voltage
					Pressed to the lock side	0 V

*1: With Intelligent Key system

*2: Without Intelligent Key system

Wiring Diagram - SUNSHADE CONTROL SYSTEM -

INFOID:0000000001184910



SUNSHADE SYSTEM

2006/12/08

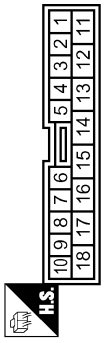
JCKWA0331GE

SUNSHADE SYSTEM

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH60MW-NS16-TM4

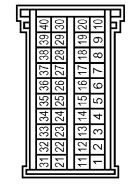
Terminal No.	Color of Wire	Signal Name [Specification]
76	Y	–

Connector No.	M23
Connector Name	WIRE TO WIRE
Connector Type	TK10FW-NS8



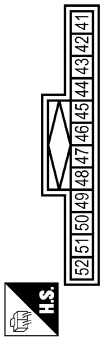
Terminal No.	Color of Wire	Signal Name [Specification]
5	L	–
11	P	–
12	B	–

Connector No.	M65
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	AAB40FB



Terminal No.	Color of Wire	Signal Name [Specification]
38	W	IGN SW

Connector No.	M66
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	FCI 211PC122S1017

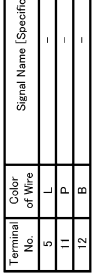


Terminal No.	Color of Wire	Signal Name [Specification]
41	V	BAT(FUSE)

Connector No.	M67
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	FCI 211PC083S0017

Terminal No.	Color of Wire	Signal Name [Specification]
53	L	POWER WDW PWR SUPPLY(LINKED TO IGN)
55	B	GND(POWER)
57	Y	BAT(F/L)
58	P	POWER WDW PWR SUPPLY(BAT)

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH60FW-NS16-TM4

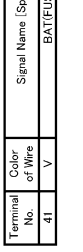


Terminal No.	Color of Wire	Signal Name [Specification]
76	Y	–

Connector No.	R1
Connector Name	WIRE TO WIRE
Connector Type	TK10MW-NS8

Terminal No.	Color of Wire	Signal Name [Specification]
5	L	–
11	P	–
12	B	–

Connector No.	R2
Connector Name	SUNSHADE SWITCH
Connector Type	TK03FW

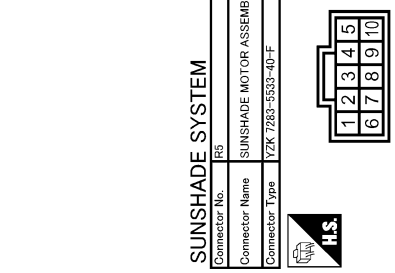


Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	–
2	B/W	–
3	G	–

JCKWA0566GB

SUNSHADE SYSTEM

Connector No.	R5
Connector Name	SUNSHADE MOTOR ASSEMBLY
Connector Type	YZK 7283-5533-40-F



Terminal No.	Color of Wire	Signal Name [Specification]
1	B	GND
2	B/W	SW GND
3	L	AUTHORITGN/RAP)
5	Y	SW OPEN
6	P	+12 BAT
10	G	SW CLOSE

JCKWA0567GE

Fail Safe

INFOID:0000000001551230

Fail-safe index

BCM performs fail-safe control when any DTC listed below is detected.

Display contents of CONSULT	Fail-safe	Cancellation
B2190: NATS ANTENNA AMP	• Inhibits engine cranking • Inhibits steering lock unlocking (Intelligent Key unit) • Fuel cut (ECM)	Erase DTC
B2191: DIFFERENCE OF KEY	• Inhibits engine cranking • Inhibits steering lock unlocking (Intelligent Key unit) • Fuel cut (ECM)	Erase DTC
B2192: ID DISCORD BCM-ECM	Fuel cut (ECM)	Erase DTC
B2193: CHAIN OF BCM-ECM	Fuel cut (ECM)	Erase DTC
B2194: DISCORD BCM-I-KEY	• Inhibits engine cranking • Inhibits steering lock unlocking (Intelligent Key unit) • Fuel cut (ECM)	Erase DTC
B2195: ANTI SCANNING	• Inhibits engine cranking • Inhibits steering lock unlocking (Intelligent Key unit) • Fuel cut (ECM)	Erase DTC
B2196: DONGLE NG	• Inhibits engine cranking • Inhibits steering lock unlocking (Intelligent Key unit) • Fuel cut (ECM)	Erase DTC

REAR WIPER CONTROL

BCM detects a rear wiper stopping position according to a rear wiper auto stop signal.
When a rear wiper auto stop signal is in the condition listed below, BCM stops power supply to rear wiper after rear wiper is activated for five seconds.

Ignition switch	Rear wiper switch	Rear wiper auto stop signal
ON	OFF	The rear wiper auto stop signal (stop position) cannot be input for 5 seconds.
	ON	The rear wiper auto stop signal does not change for 5 seconds.

NOTE:
The above operation is repeated when operating the rear wiper switch one minute after the stop of the rear wiper caused by Fail-safe.

TURN SIGNAL LAMP CONTROL

BCM detects the turn signal lamp circuit status from the terminal voltage.
BCM increases the turn signal lamp blinking speed if the bulb or harness open is detected with the turn signal lamp operating.

NOTE:
The blinking speed is normal while activating the hazard warning lamp.

LIGHT & RAIN SENSOR MALFUNCTION DETECTION FUNCTION

BCM controls the following items when LIGHT & RAIN sensor has a malfunction.

Auto Light Control

Headlamp is turned ON.

Front Wiper Control

The condition just before the activation of Fail-safe is maintained until the front wiper switch is turned OFF.

DTC Inspection Priority Chart

INFOID:0000000001551231

Priority	DTC
1	• U1000: CAN COMM CIRCUIT • U1010: CONTROL UNIT (CAN)
2	• B2190: NATS ANTENNA AMP • B2191: DIFFERNCE OF KEY • B2192: ID DISCORD BCM-ECM • B2193: CHAIN OF BCM-ECM • B2194: DISCORD BCM-I-KEY • B2195: ANTI SCANNING • B2196: DONGLE NG

DTC Index

INFOID:0000000001551232

NOTE:

Details of time display

- CRNT: Displays when there is a malfunction now or after returning to the normal condition until turning ignition switch OFF → ON again.
- PAST: Displays when there is a malfunction that is detected in the past and stored.
- 1 - 39: Displayed if any previous malfunction is present when current condition is normal. It increases like 1 → 2 → 3...38 → 39 after returning to the normal condition whenever ignition switch OFF → ON. The counter remains at 39 even if the number of cycles exceeds it. It is counted from 1 again when turning ignition switch OFF → ON after returning to the normal condition if the malfunction is detected again.

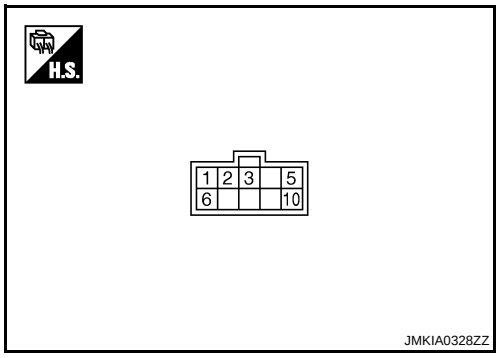
CONSULT display	TIME		Fail-safe	Refer to
No DTC is detected. further testing may be required.	—	—	—	—
U1000: CAN COMM CIRCUIT	0	1 - 39	—	BCS-33
U1010: CONTROL UNIT (CAN)	0	1 - 39	—	BCS-34
B2190: NATS ANTENNA AMP	CRNT	PAST	×	• With Intelligent Key system SEC-45 • Without Intelligent Key system SEC-194
B2191: DIFFERENCE OF KEY	CRNT	PAST	×	• With Intelligent Key system SEC-47 • Without Intelligent Key system SEC-196
B2192: ID DISCORD BCM-ECM	CRNT	PAST	×	• With Intelligent Key system SEC-48 • Without Intelligent Key system SEC-197
B2193: CHAIN OF BCM-ECM	CRNT	PAST	×	• With Intelligent Key system SEC-50 • Without Intelligent Key system SEC-199
B2194: DISCORD BCM-I-KEY	CRNT	PAST	×	SEC-51
B2195: ANTI SCANNING	CRNT	PAST	×	• With Intelligent Key system SEC-52 • Without Intelligent Key system SEC-200
B2196: DONGLE NG	CRNT	PAST	×	• With Intelligent Key system SEC-53 • Without Intelligent Key system SEC-201

SUNSHADE MOTOR ASSEMBLY

Reference Value

INFOID:0000000001184914

TERMINAL LAYOUT

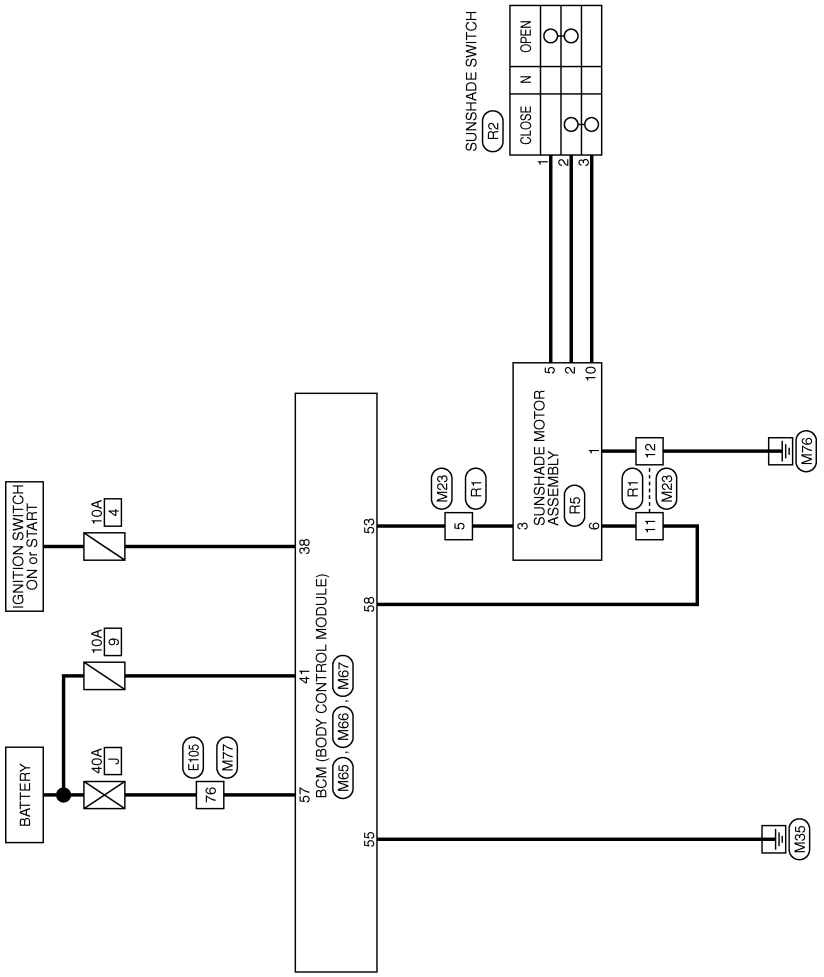


PHYSICAL VALUES

Terminal No.		Wire color	Description		Condition	Voltage (V) (Approx.)
+	-		Signal name	Input/ Output		
1	Ground	B	Ground	—	—	0
2	Ground	B/W	Sunshade switch ground	—	—	0
3	Ground	L	IGN power supply	Input	Ignition switch ON	Battery voltage
					Other than above	0
5	Ground	Y	Sunshade switch open signal	Input	Sunshade switch in following position • SLIDE OPEN	0
					Other than above	Battery voltage
6	Ground	P	Sunshade power supply	Input	—	Battery voltage
10	Ground	G	Sunshade switch close signal	Input	Sunshade switch in following position • SLIDE CLOSE	0
					Other than above	Battery voltage

Wiring Diagram - SUNSHADE CONTROL SYSTEM -

INFOID:0000000001184915



SUNSHADE SYSTEM

2006/12/08

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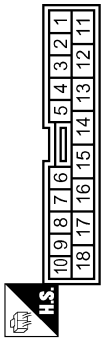
SUNSHADE SYSTEM

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH60MW-NS16-TM4

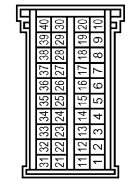
Terminal No.	Color of Wire	Signal Name [Specification]
76	Y	–

Connector No.	M23
Connector Name	WIRE TO WIRE
Connector Type	TK10FW-NS8



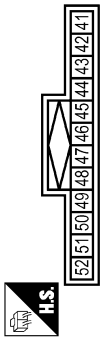
Terminal No.	Color of Wire	Signal Name [Specification]
5	L	–
11	P	–
12	B	–

Connector No.	M65
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	AAB40FB



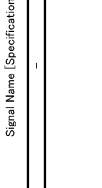
Terminal No.	Color of Wire	Signal Name [Specification]
38	W	IGN SW

Connector No.	M66
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	FCI 211PC122S1017



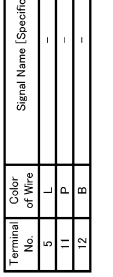
Terminal No.	Color of Wire	Signal Name [Specification]
41	V	BAT(FUSE)

Connector No.	M67
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	FCI 211PC083S0017



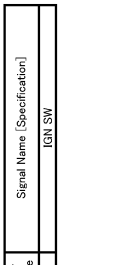
Terminal No.	Color of Wire	Signal Name [Specification]
53	L	POWER WDW PWR SUPPLY(LINKED TO IGN)
55	B	GND(POWER)
57	Y	BAT(F/L)
58	P	POWER WDW PWR SUPPLY(BAT)

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH60FW-NS16-TM4



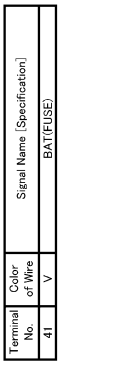
Terminal No.	Color of Wire	Signal Name [Specification]
76	Y	–

Connector No.	R1
Connector Name	WIRE TO WIRE
Connector Type	TK10MW-NS8



Terminal No.	Color of Wire	Signal Name [Specification]
5	L	–
11	P	–
12	B	–

Connector No.	R2
Connector Name	SUNSHADE SWITCH
Connector Type	TK03FW



Terminal No.	Color of Wire	Signal Name [Specification]
1	Y	–
2	B/W	–
3	G	–

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SUNSHADE SYSTEM

Connector No.	R5
Connector Name	SUNSHADE MOTOR ASSEMBLY
Connector Type	YZK 7283-5533-40-F

Terminal No.	Color of Wire	Signal Name [Specification]
1	B	GND
2	B/W	SW GND
3	L	AUTHORITGN/RAP)
5	Y	SW OPEN
6	P	+12 BAT
10	G	SW CLOSE

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SYMPTOM DIAGNOSIS

SUNSHADE DOES NOT OPEN AND CLOSE

Diagnosis Procedure

INFOID:0000000001184916

1. CHECK SUNSHADE MECHANISM

Check the following.
- Operation malfunction caused by sunshade mechanism deformation, pinched harness or other foreign materials
- Operation malfunction and interference with other parts by poor installation

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2. CHECK BCM POWER SUPPLY AND GROUND CIRCUIT

Check BCM power supply and ground circuit.
Refer to RF-7, "BCM (BODY CONTROL MODULE) : Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace the malfunctioning parts.

3. CHECK SUNSHADE MOTOR ASSEMBLY POWER SUPPLY AND GROUND CIRCUIT

Check sunshade motor assembly power supply and ground circuit.
Refer to RF-8, "SUNSHADE MOTOR ASSEMBLY : Component Function Check"

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace the malfunction parts.

4. CHECK SUNSHADE SWITCH

Check sunshade switch.
Refer to RF-10, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace the malfunction parts.

5. CONFIRM THE OPERATION

Confirm the operation again.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-39, "Intermittent Incident".
NO >> GO TO 1.

SUNSHADE DOES NOT OPEN

Diagnosis Procedure

INFOID:0000000001538384

1.CHECK SUNSHADE MECHANISM

Check the following.
- Operation malfunction caused by sunshade mechanism deformation, pinched harness or other foreign materials
- Operation malfunction and interference with other parts by poor installation

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2.CHECK SUNSHADE SWITCH

Check sunshade switch.
Refer to RF-10, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace the malfunction parts.

3.CONFIRM THE OPERATION

Confirm the operation again.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-39, "Intermittent Incident".
NO >> GO TO 1.

SUNSHADE DOES NOT CLOSE

Diagnosis Procedure

INFOID:0000000001538385

1.CHECK SUNSHADE MECHANISM

Check the following.
- Operation malfunction caused by sunshade mechanism deformation, pinched harness or other foreign materials
- Operation malfunction and interference with other parts by poor installation

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2.CHECK SUNSHADE SWITCH

Check sunshade switch.
Refer to RF-10, "Component Function Check".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace the malfunction parts.

3.CONFIRM THE OPERATION

Confirm the operation again.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-39, "Intermittent Incident".
NO >> GO TO 1.

AUTO FUNCTION DOES NOT OPERATE

Diagnosis Procedure

INFOID:0000000001538386

1.CHECK SUNSHADE MECHANISM

Check the following.
- Operation malfunction caused by sunshade mechanism deformation, pinched harness or other foreign materials
- Operation malfunction and interference with other parts by poor installation

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2.PERFORM INITIALIZATION

Perform initialization procedure.
Refer to RF-4, "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace the malfunction parts.

3.CONFIRM THE OPERATION

Confirm the operation again.

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-39, "Intermittent Incident".
NO >> GO TO 1.

ANTI-PINCH FUNCTION DOES NOT OPERATE

Diagnosis Procedure

INFOID:0000000001544652

1.CHECK SUNSHADE MECHANISM

Check the following.
- Operation malfunction caused by sunshade mechanism deformation, pinched harness or other foreign materials
- Operation malfunction and interference with other parts by poor installation

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2.PERFORM INITIALIZATION

Perform initialization procedure.
Refer to RF-4, "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Special Repair Requirement".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace the malfunction parts.

3.CONFIRM THE OPERATION

Confirm the operation again.

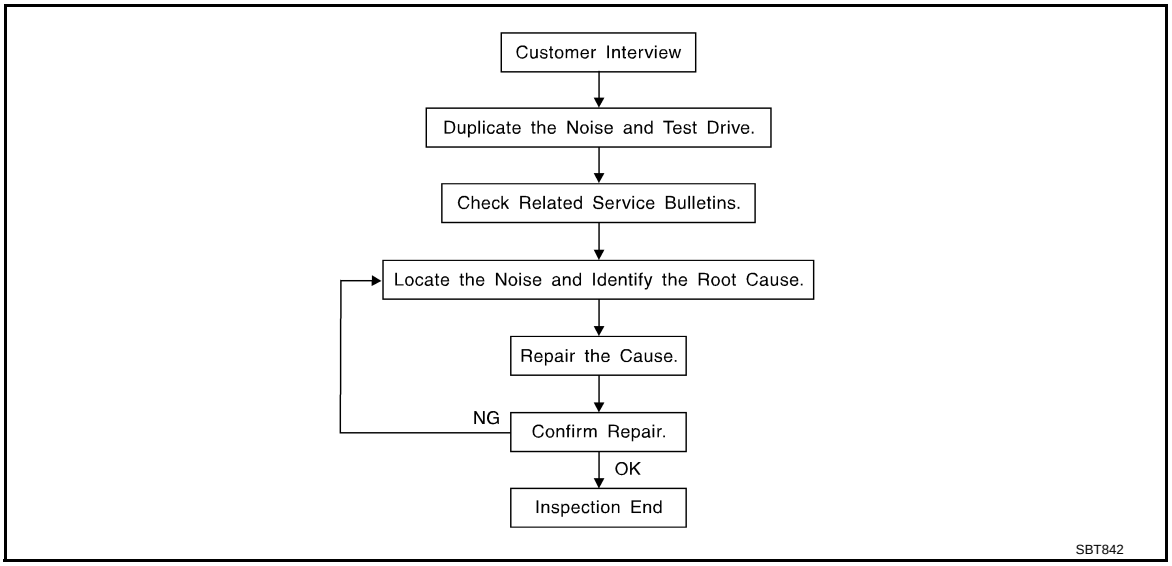
Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-39, "Intermittent Incident".
NO >> GO TO 1.

SQUEAK AND RATTLE TROUBLE DIAGNOSIS

Work Flow

INFOID:0000000001184920



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-46, "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 you may judge as acceptable may be very irritating to the customer.
- Weather conditions, especially humidity and temperature, may have a great effect on noise level.

DUPLICATE THE NOISE AND TEST DRIVE

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

If the noise can be duplicated easily during the test drive, to help identify the source of the noise, try to duplicate the noise with the vehicle stopped by doing one or all of the following:

1) Close a door.
2) Tap or push/pull around the area where the noise appears to be coming from.
3) Rev the engine.
4) Use a floor jack to recreate vehicle “twist”.
5) At idle, apply engine load (electrical load, half-clutch on M/T model, drive position on A/T model).
6) Raise the vehicle on a hoist and hit a tire with a rubber hammer.

- Drive the vehicle and attempt to duplicate the conditions the customer states exist when the noise occurs.
- If it is difficult to duplicate the noise, drive the vehicle slowly on an undulating or rough road to stress the vehicle body.

LOCATE THE NOISE AND IDENTIFY THE ROOT CAUSE

1. Narrow down the noise to a general area. To help pinpoint the source of the noise, use a listening tool (Engine Ear or mechanics stethoscope).
2. Narrow down the noise to a more specific area and identify the cause of the noise by:

- removing the components in the area that you suspect the noise is coming from.
  Do not use too much force when removing clips and fasteners, otherwise clips and fastener can be broken or lost during the repair, resulting in the creation of new noise.
- tapping or pushing/pulling the component that you suspect is causing the noise.
  Do not tap or push/pull the component with excessive force, otherwise the noise will be eliminated only temporarily.
- feeling for a vibration with your hand by touching the component(s) that you suspect is (are) causing the noise.
- placing a piece of paper between components that you suspect are causing the noise.
- looking for loose components and contact marks.
  Refer to RF-44, "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 are available through your authorized Nissan Parts Department.

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

- 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 will be visible or not fit.
  Note: Will only last a few months.
- SILICONE SPRAY
  Use when grease cannot be applied.
- DUCT TAPE
  Use to eliminate movement.

CONFIRM THE REPAIR

Confirm that the cause of a noise is repaired by test driving the vehicle. Operate the vehicle under the same conditions as when the noise originally occurred. Refer to the notes on the Diagnostic Worksheet.

Inspection Procedure

INFOID:0000000001184921

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:

Do not use silicone spray to isolate a squeak or rattle. If you saturate the area with silicone, you will not be able to recheck the repair.

CENTER CONSOLE

Components to pay attention to include:

1. Shifter assembly cover to finisher
2. A/C control unit and cluster lid C
3. Wiring harnesses behind audio and A/C control unit

The instrument panel repair and isolation procedures also apply to the center console.

DOORS

Pay attention to the:

1. Finisher and inner panel making a slapping noise
2. Inside handle escutcheon to door finisher
3. Wiring harnesses tapping
4. Door striker out of alignment causing a popping noise on starts and stops

Tapping or moving the components or pressing on them while driving to duplicate the conditions can isolate many of these incidents. You can usually insulate the areas with felt cloth tape or insulator foam blocks to repair the noise.

TRUNK

Trunk noises are often caused by a loose jack or loose items put into the trunk by the owner.
In addition look for:

1. Trunk lid 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 is present. These conditions should be duplicated when verifying and isolating the cause of the noise.

Cause of seat noise include:

1. Headrest rods and holder
2. A squeak between the seat pad cushion and frame
3. 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.

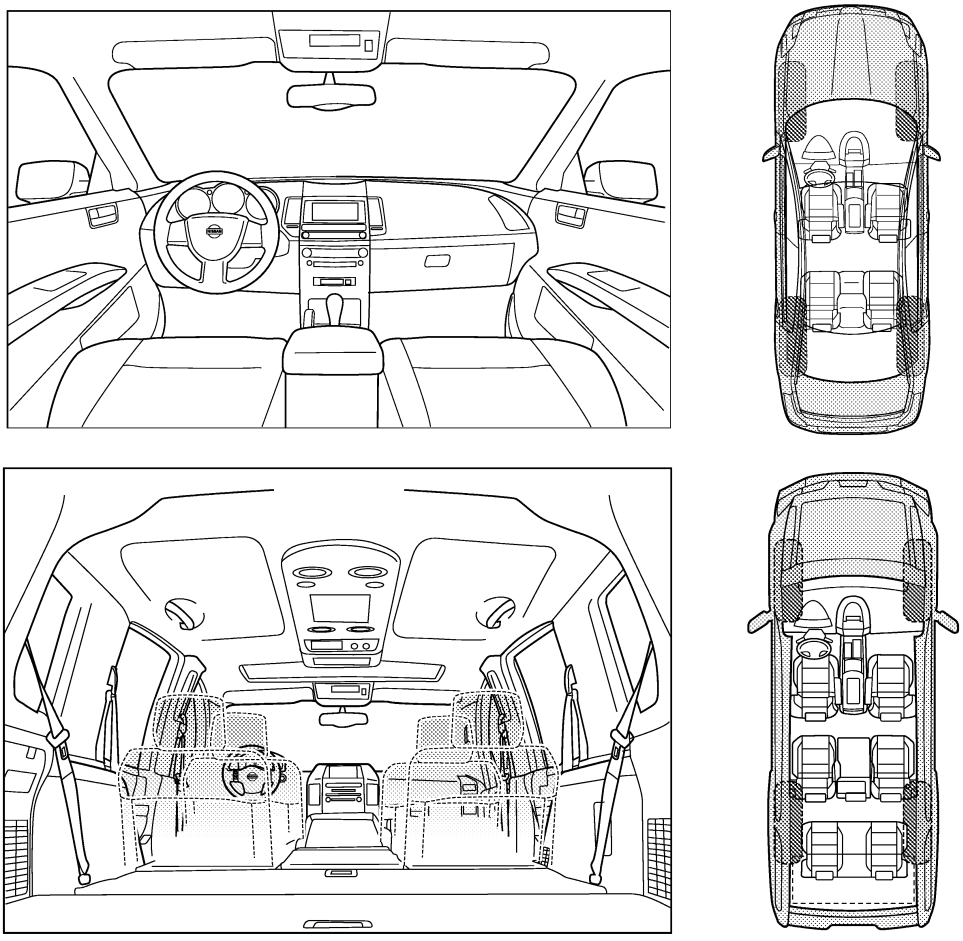
Diagnostic Worksheet

INFOID:0000000001184922

SQUEAK & RATTLE
DIAGNOSTIC WORKSHEET

Dear Nissan Customer:
We are concerned about your satisfaction with your Nissan vehicle. Repairing a squeak or rattle sometimes can be very difficult. To help us fix your Nissan right the first time, please take a moment to note the area of the vehicle where the squeak or rattle occurs and under what conditions. You may be asked to take a test drive with a service advisor or technician to ensure we confirm the noise you are hearing.

I. WHERE DOES THE NOISE COME FROM? (circle the area of the vehicle)
The illustrations are for reference only, and may not reflect the actual configuration of your vehicle.



Continue to 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.

PIIB8740E

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

PRECAUTION

PRECAUTIONS

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

INFOID:0000000001184923

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

WARNING:

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SRS section.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

Service Notice

INFOID:0000000001184924

- 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:0000000001184925

- 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.

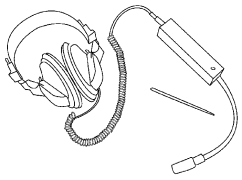
- Do not use organic solvent such as thinner, benzene, alcohol, and gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

PREPARATION

PREPARATION

Commercial Service Tool

INFOID:0000000001184926

Tool name	Description
Engine ear  SIIA0995E	Locating the noise

ON-VEHICLE MAINTENANCE

PRE-INSPECTION FOR DIAGNOSTIC

Basic Inspection

INFOID:0000000001184927

BASIC INSPECTION

1.INSPECTION START

1. Check the service history.
2. Check the following parts.

- Fuse/circuit breaker blown.
- Poor connection, open or short circuit of harness connector.
- Battery voltage.

Is the inspection result normal?

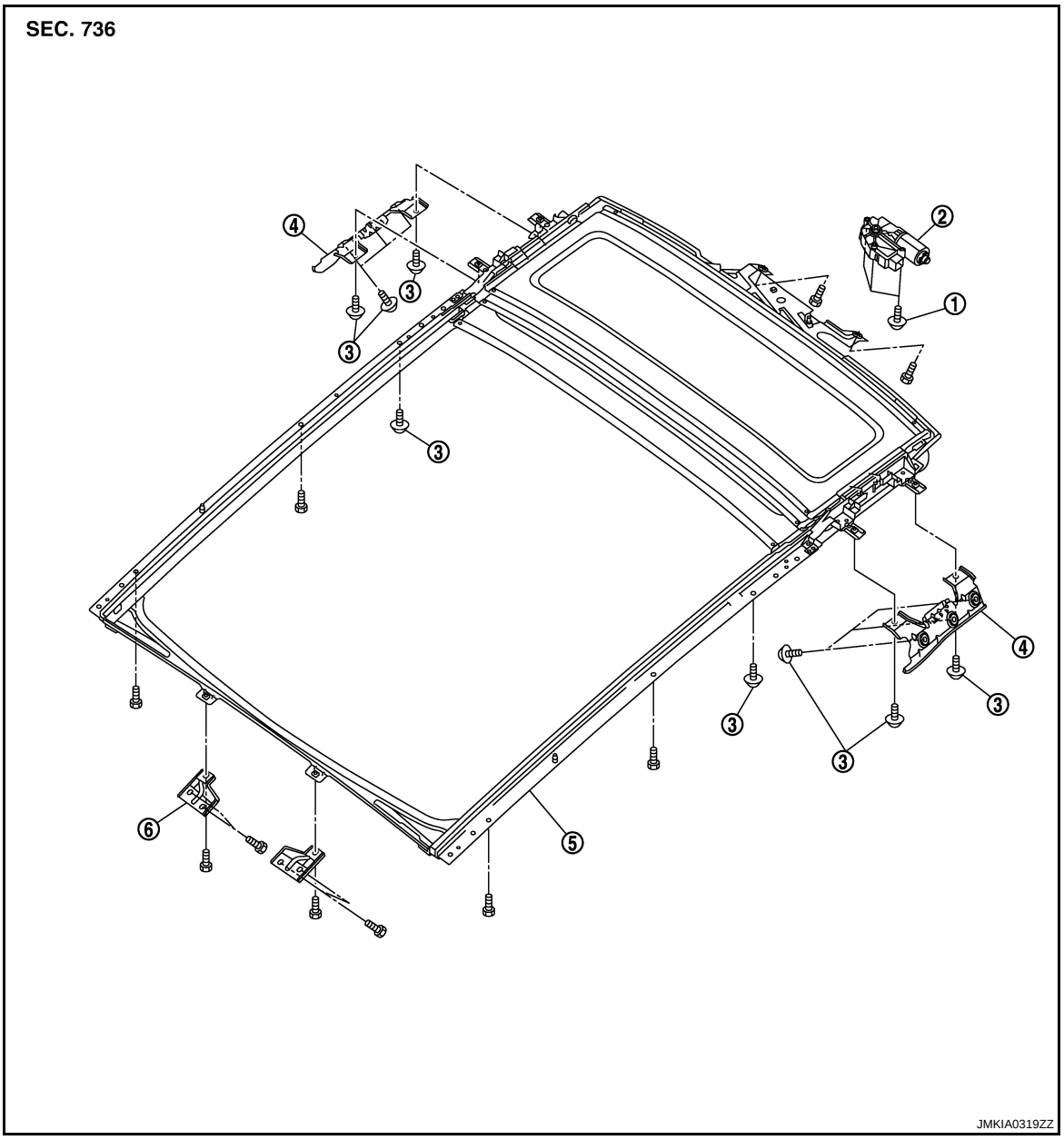
YES >> INSPECTION END
NO >> Repair or replace the malfunctioning parts.

ON-VEHICLE REPAIR

SUNSHADE MOTOR ASSEMBLY

Exploded View

INFOID:0000000001184928



1. TORX bolt
2. Sunshade motor
3. TORX bolt
4. Rear sunshade bracket
5. Sunshade unit assembly
6. Front sunshade bracket

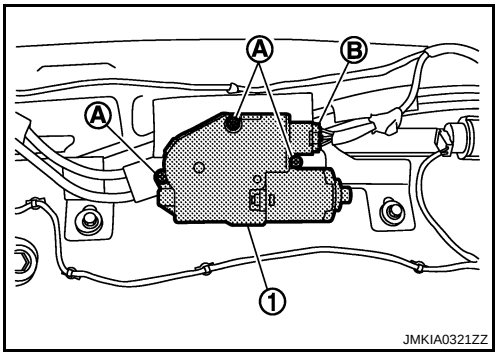
Removal and Installation

INFOID:0000000001184929

REMOVAL

1. Remove the headlining. Refer to INT-21, "Removal and Installation".
2. Remove the sunshade motor assembly.

- Remove the sunshade motor mounting TORX bolt (A).
- Disconnect harness connector (B) from sunshade motor assembly (1).



INSTALLATION

Install in the reverse order of removal.

NOTE:

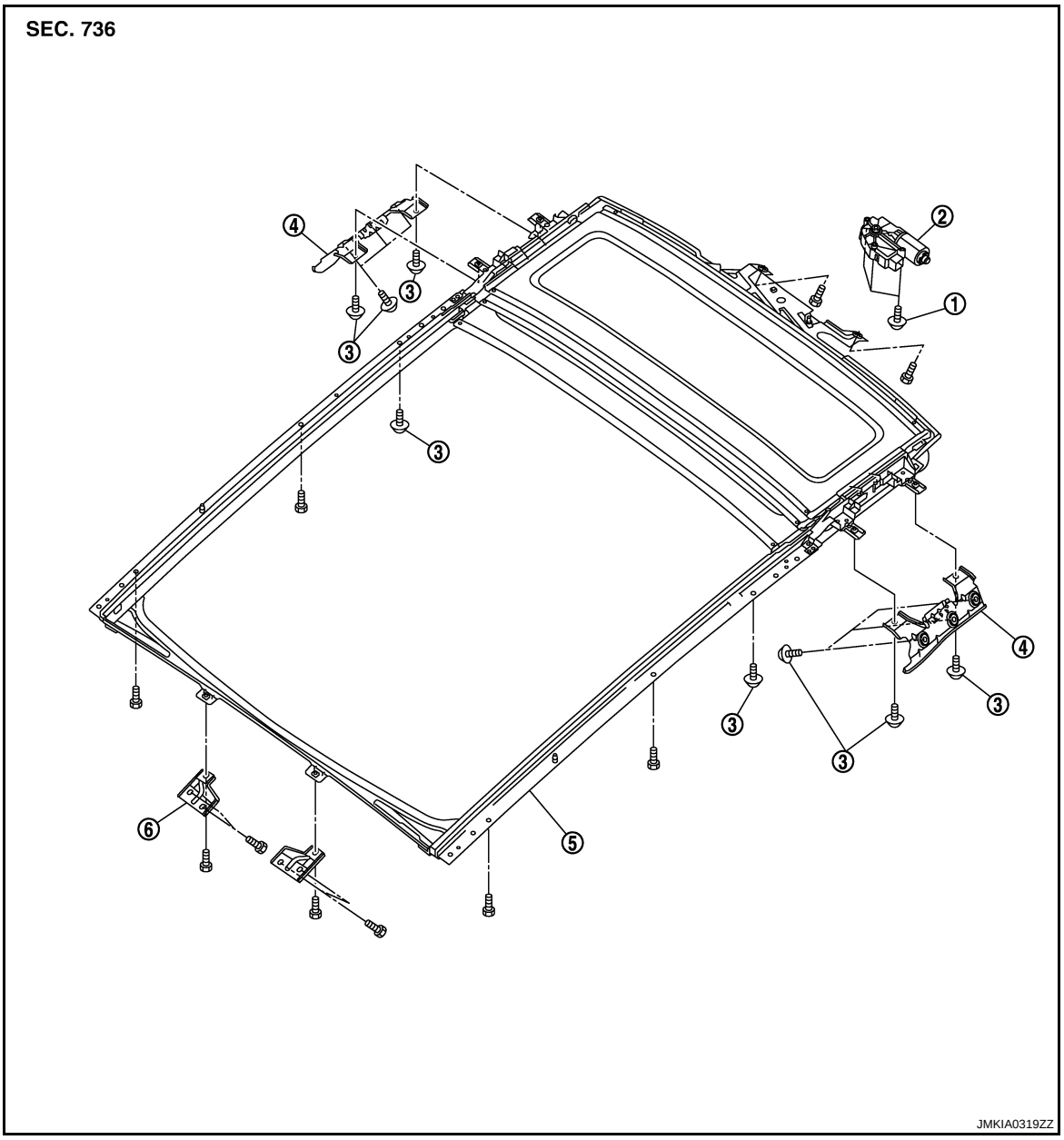
After install the sunshade motor, perform additional service. Refer to RF-4, "ADDITIONAL SERVICE WHEN REMOVING BATTERY NEGATIVE TERMINAL : Description".

SUNSHADE UNIT ASSEMBLY

Exploded View

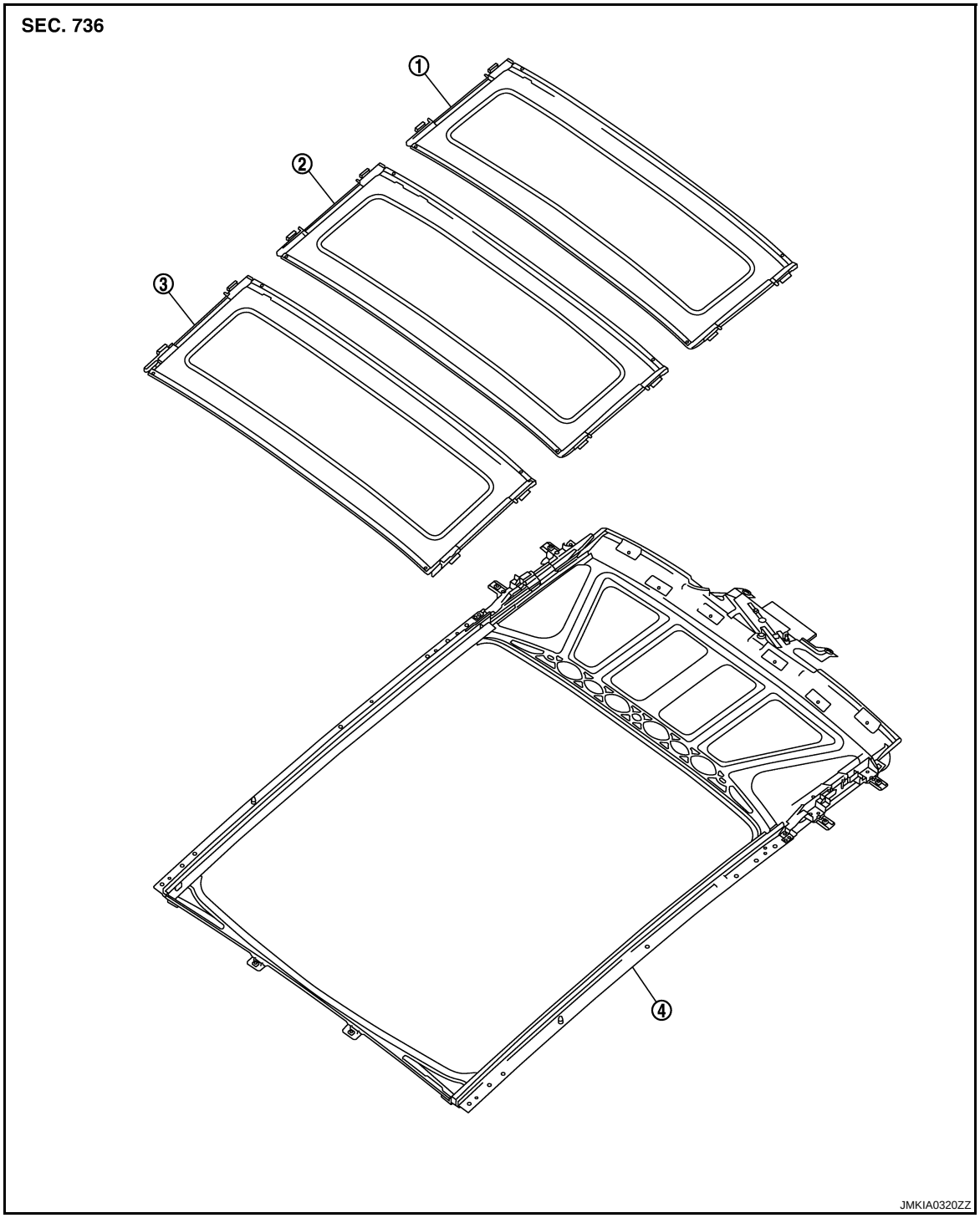
INFOID:0000000001184930

REMOVAL



1. TORX bolt
2. Sunshade motor
3. TORX bolt
4. Rear sunshade bracket
5. Sunshade unit assembly
6. Front sunshade bracket

DIASSEMBLY



1. Sunshade A
2. Sunshade B
3. Sunshade C
4. Sunshade unit assembly

Removal and Installation

INFOID:0000000001184931

REMOVAL

CAUTION:

- **Always work with a helper.**
- **Fully open the sunshade before removal.**
- **Never operate sunshade motor assembly after removal.**
- **When taking sunshade unit assembly out, use cloths to protect the seats and trim from damage.**

1. Fully open the sunshade.
2. Remove the headlining. Refer to INT-21, "Removal and Installation".
3. Remove the sunshade motor assembly. Refer to RF-51, "Removal and Installation".
4. Remove the harness clamp.
5. Remove the TORX bolt.
6. Remove the rear sunshade bracket.
7. Remove the mounting bolt from the side rail.
8. Remove the unit side bolts of the sunshade front bracket and loosen the body side bolts.
9. Remove the bolt from the rear end, and then remove sunshade unit assembly.
10. Remove the sunshade from vehicle.

INSTALLATION

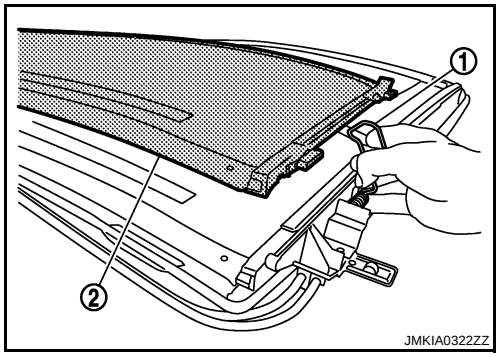
1. Temporarily tighten the mounting bolts to the sunshade front bracket.
2. Place the front end of the rail onto the sunshade front bracket.
3. Temporarily tighten the mounting bolts to the rear end of sunshade unit assembly.
4. Temporarily tighten the mounting bolts to the sunshade rear bracket.
5. Tighten the installation points diagonally excluding the installation point of the sunshade bracket around the roof.
6. Tighten the sunshade front and rear bracket bolts, of the vehicle side, and then tighten the bolt of the rail side.
7. Tighten the mounting bolt to the rear end.
8. Install the sunshade motor assembly. Refer to RF-51, "Removal and Installation".
9. Install the headlining. Refer to INT-21, "Removal and Installation".

Disassembly and Assembly

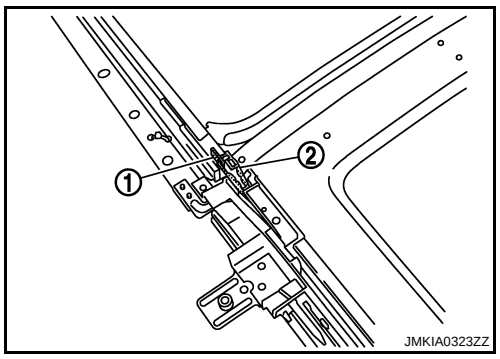
INFOID:0000000001184932

DISASSEMBLY

1. Remove the sunshade A and B.
   Slide sunshades (2) A and B while lifting up the spring (1), and then remove them from the rails



2. Remove the sunshade C.
   - Remove the tabs of the wire joint (1) and sunshade C joint (2).
   - Slide sunshades C while lifting up the spring, and then remove them from the rails



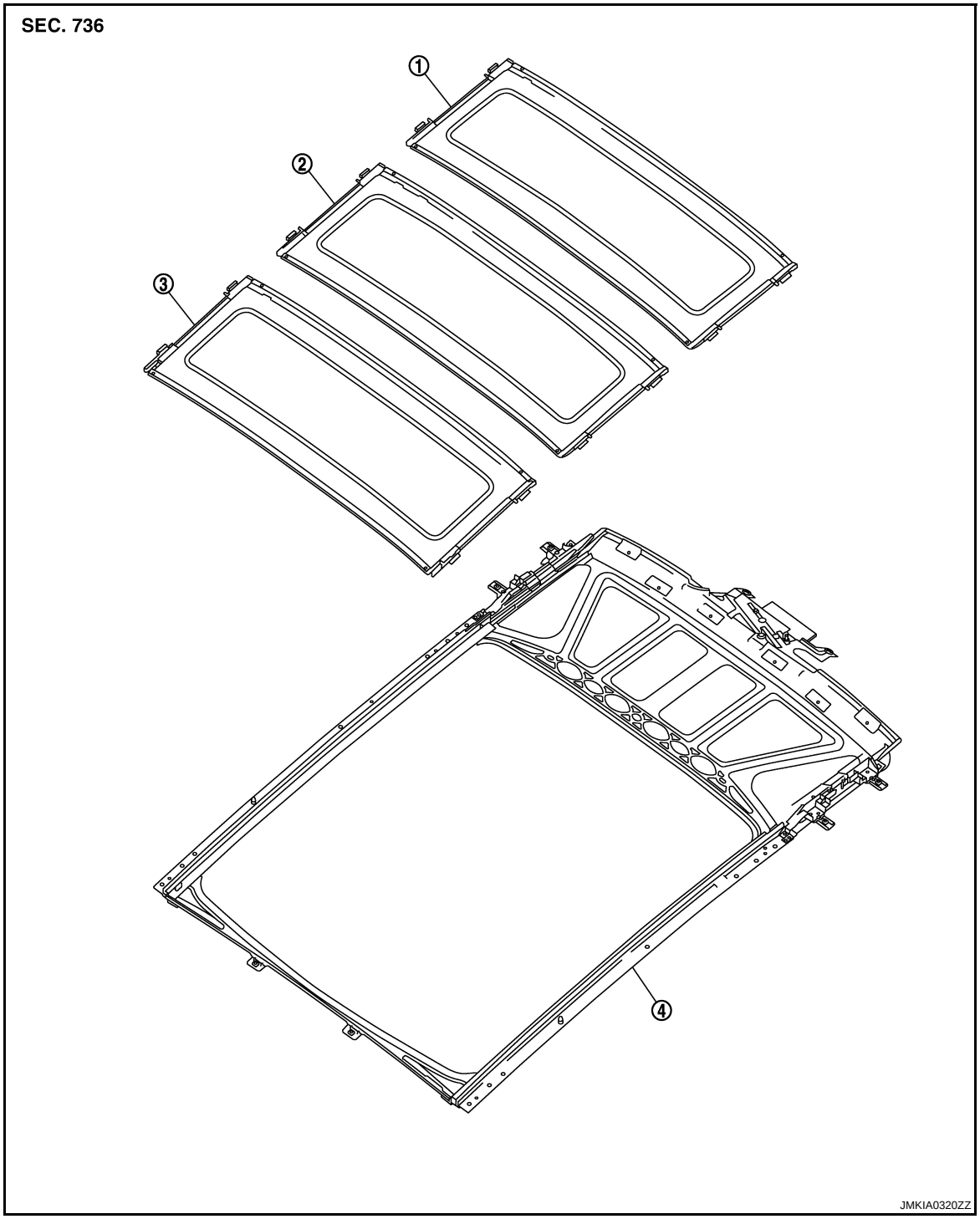
ASSEMBLY

Assemble in the reverse order of disassembly.

SUNSHADE

Exploded View

INFOID:0000000001184933



1. Sunshade A
2. Sunshade B
3. Sunshade C
4. Sunshade unit assembly

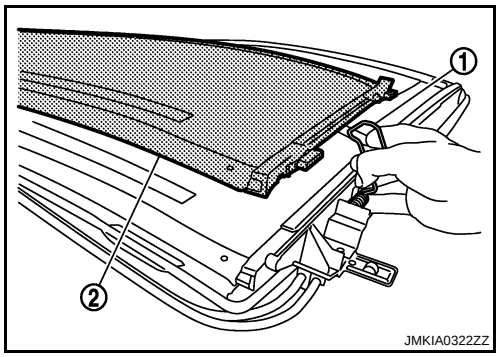
Removal and Installation

INFOID:0000000001184934

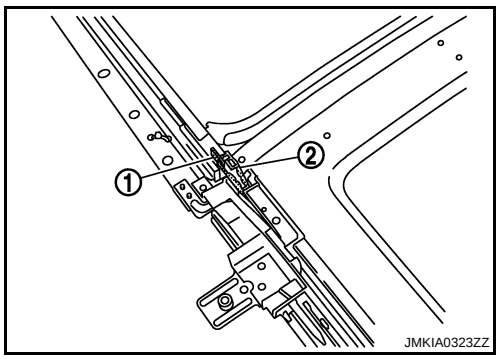
REMOVAL

1. Remove the sunshade unit assembly. Refer to RF-54, "Removal and Installation".

2. Remove the sunshade A and B.
   Slide sunshades (2) A and B while lifting up the spring (1), and then remove them from the rails



3. Remove the sunshade C.
   - Remove the tabs of the wire joint (1) and sunshade C joint (2).
   - Slide sunshades C while lifting up the spring, and then remove them from the rails



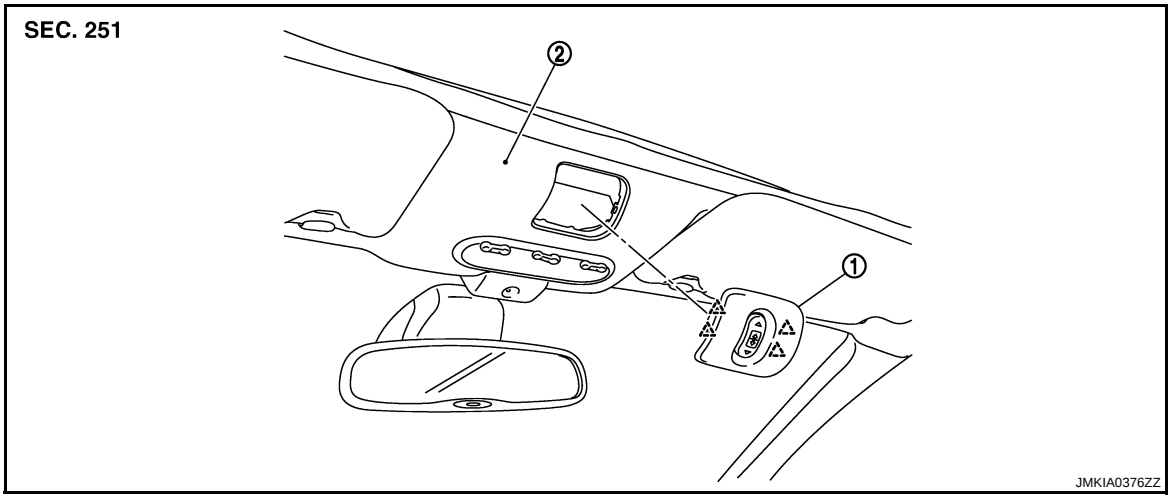
INSTALLATION

Install in the reverse order of removal.

SUNSHADE SWITCH

Exploded View

INFOID:0000000001184935



1. Sunshade switch
2. Headlining
△ : Pawl

Removal and Installation

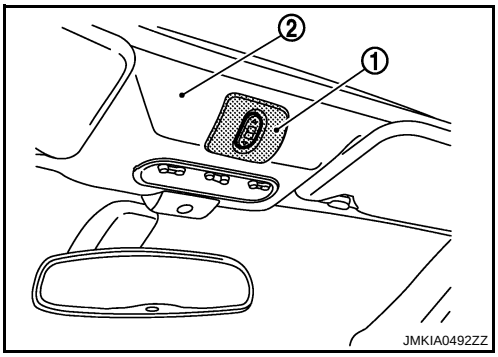
INFOID:0000000001184936

Removal

Remove the sunshade switch (1) from headlining (2).

CAUTION:

Do not bend headlining when sunshade switch removed.



Installation

Install in the reverse order of removal.