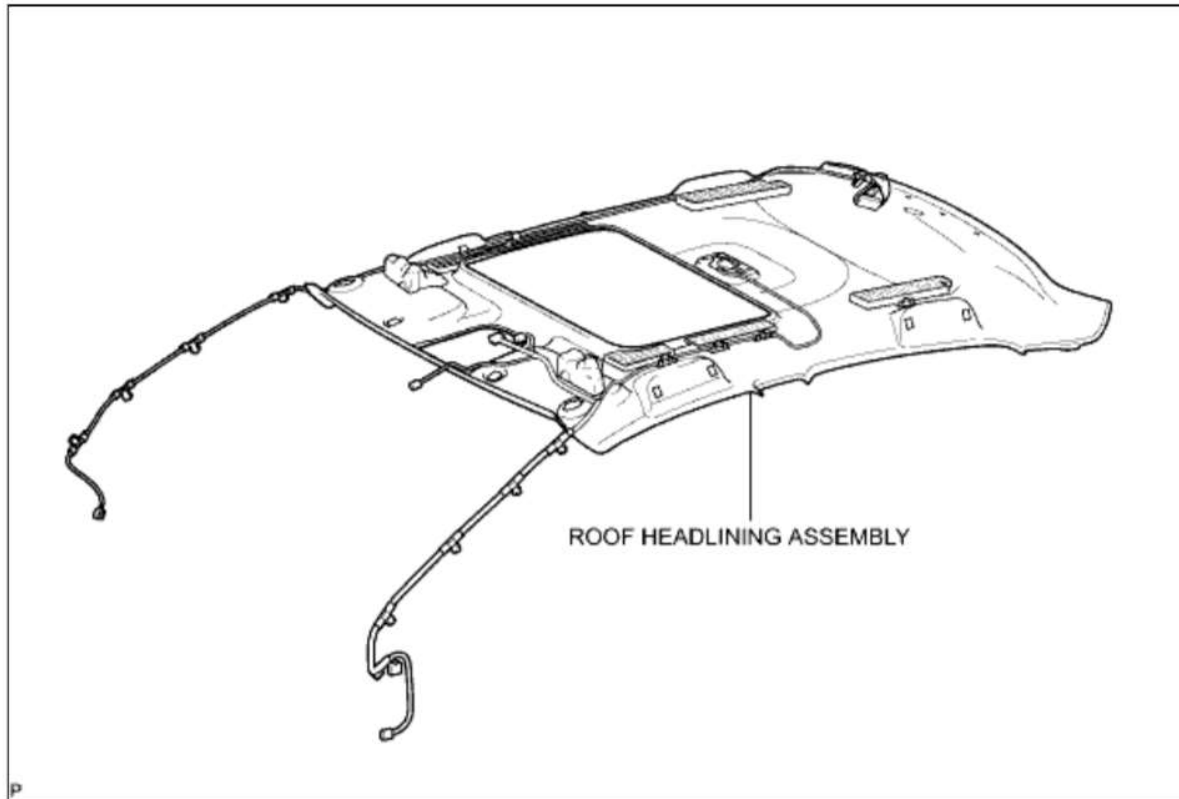


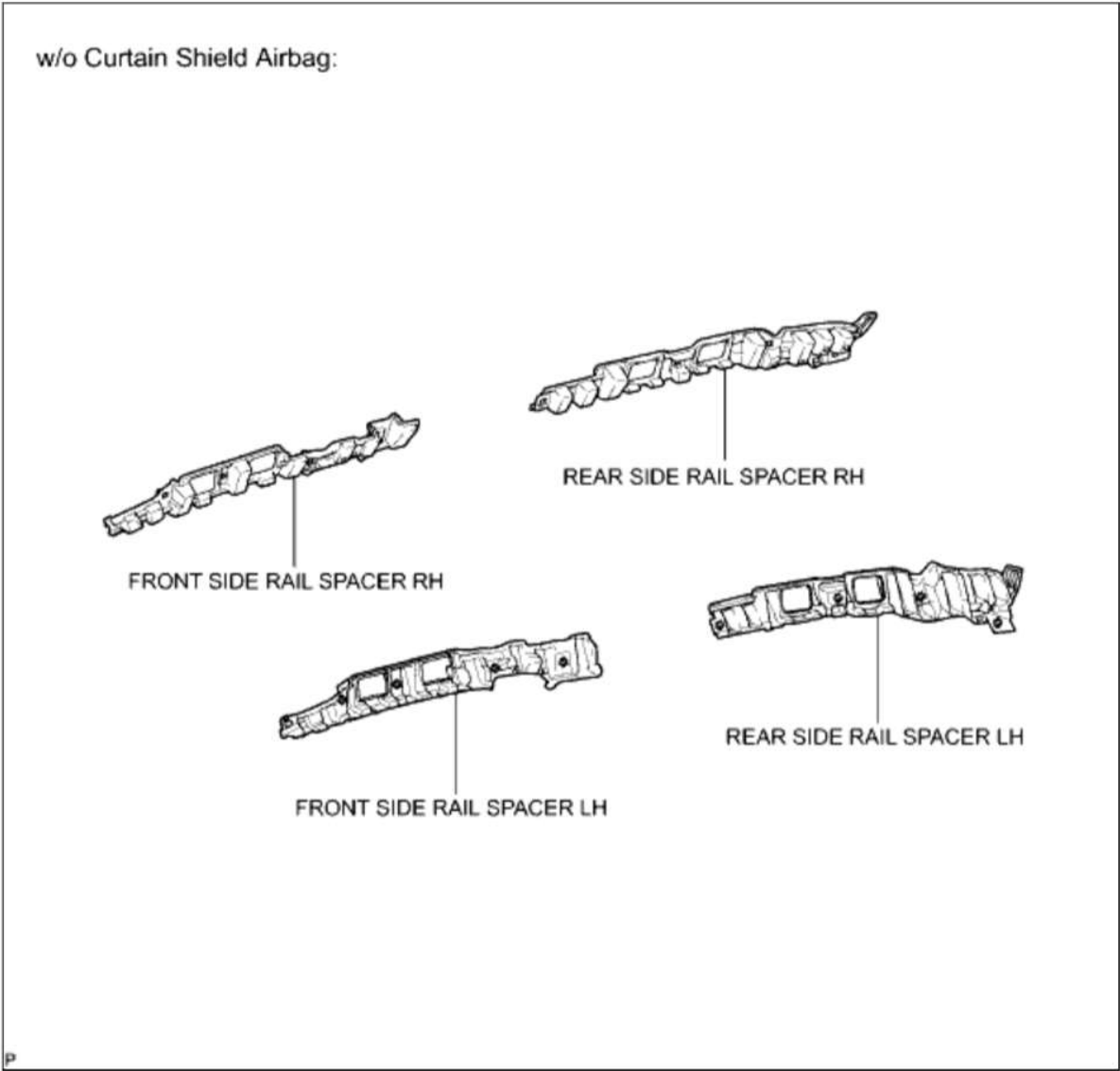
Last Modified: 3-10-2010	6.4 K	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000033TV007X
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF HOUSING: COMPONENTS (2010 Corolla)		

COMPONENTS

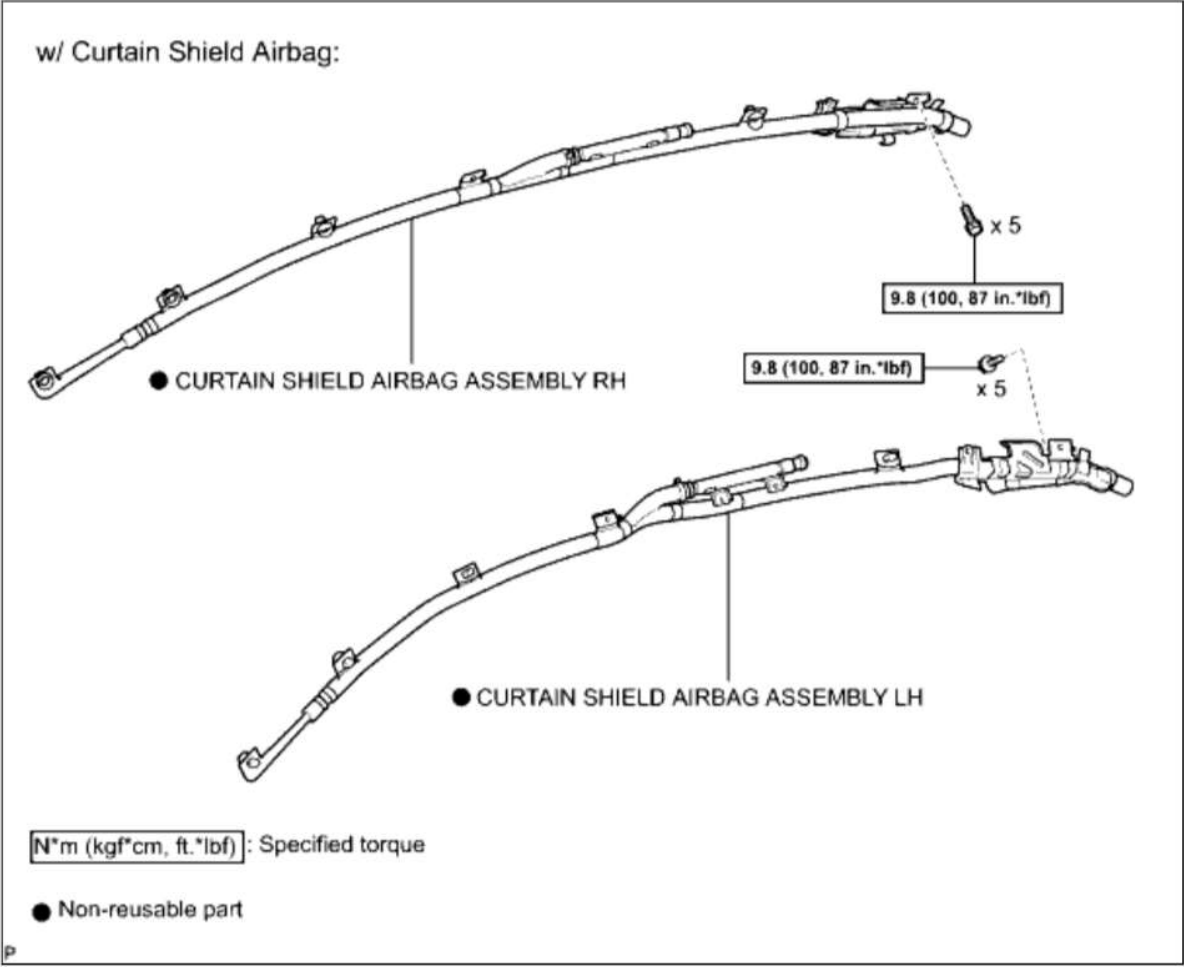
ILLUSTRATION



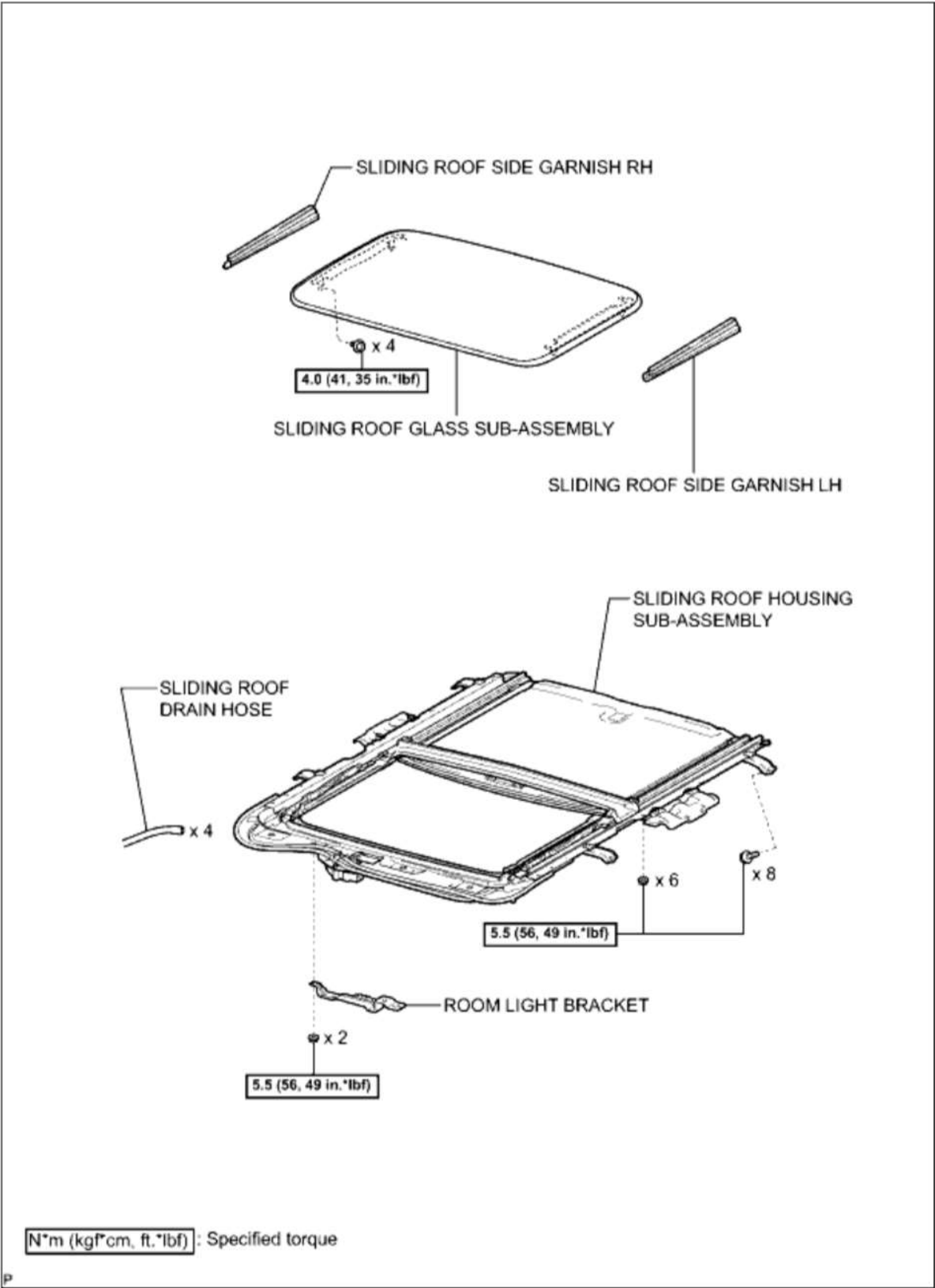
ILLUSTRATION



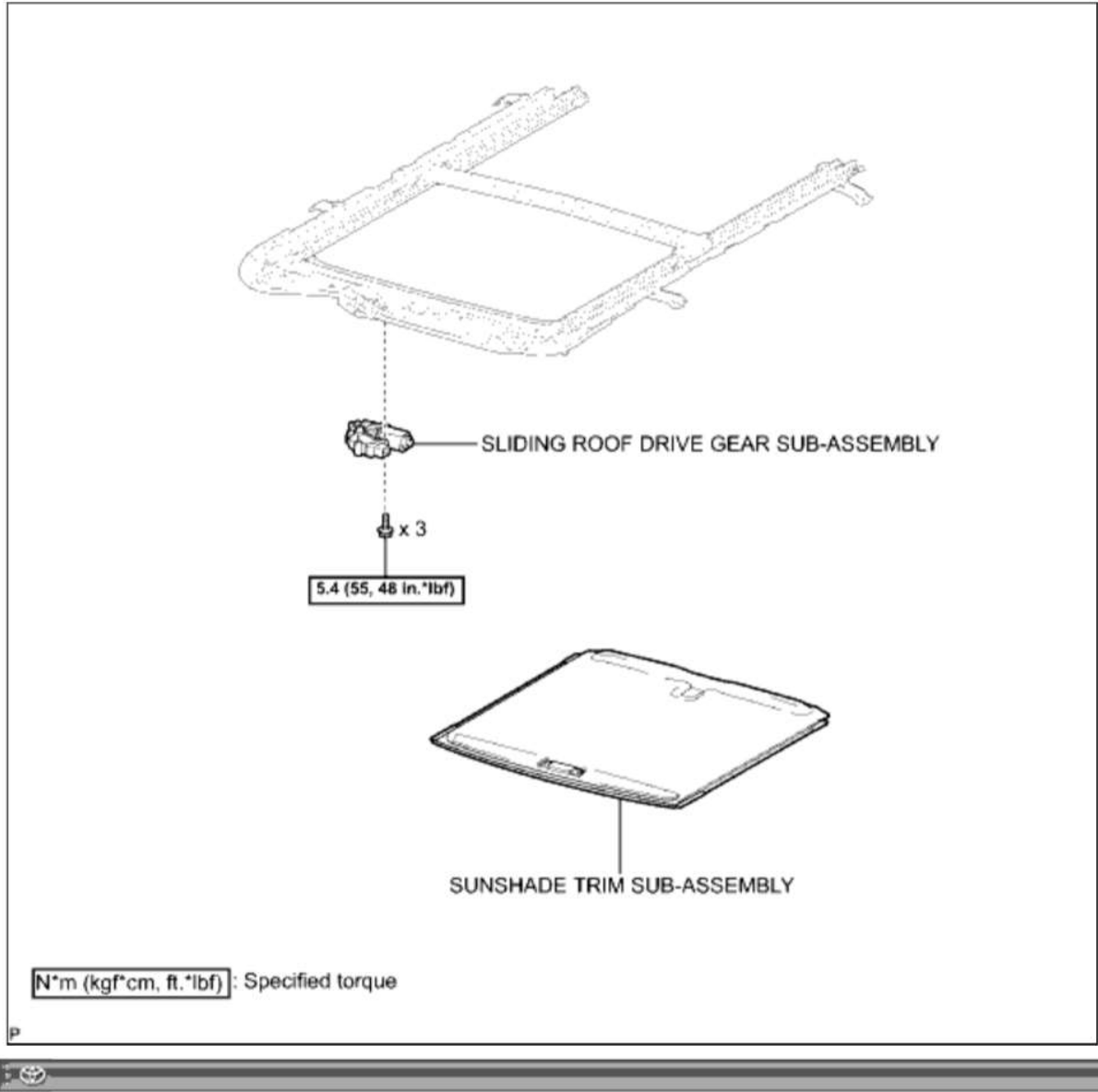
ILLUSTRATION



ILLUSTRATION



ILLUSTRATION



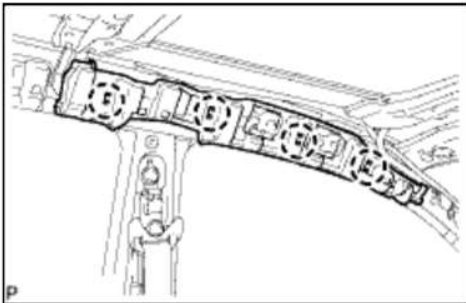
Last Modified: 3-10-2010	6.4 A	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000002W9B00NX
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF HOUSING: REMOVAL (2010 Corolla)		

REMOVAL

1. REMOVE ROOF HEADLINING ASSEMBLY

- (a) Remove the roof headlining assembly .

2. REMOVE FRONT SIDE RAIL SPACER LH (w/o Curtain Shield Airbag)



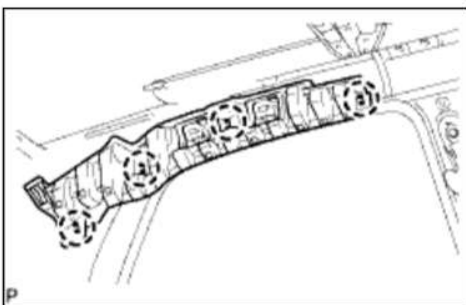
- (a) Disengage the 4 claws and remove the front side rail spacer LH.

3. REMOVE FRONT SIDE RAIL SPACER RH (w/o Curtain Shield Airbag)

HINT:

Use the same procedure for the RH side and LH side.

4. REMOVE REAR SIDE RAIL SPACER LH (w/o Curtain Shield Airbag)



- (a) Disengage the 4 claws and remove the rear side rail spacer LH.

5. REMOVE REAR SIDE RAIL SPACER RH (w/o Curtain Shield Airbag)

HINT:

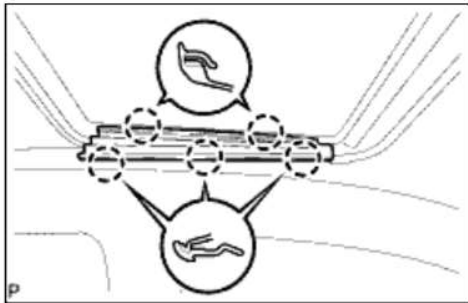
Use the same procedure for the RH side and LH side.

6. REMOVE CURTAIN SHIELD AIRBAG ASSEMBLY LH (w/ Curtain Shield Airbag)

7. REMOVE CURTAIN SHIELD AIRBAG ASSEMBLY RH (w/ Curtain Shield Airbag)

HINT:

Use the same procedure for the RH side and LH side .

8. REMOVE SLIDING ROOF SIDE GARNISH LH

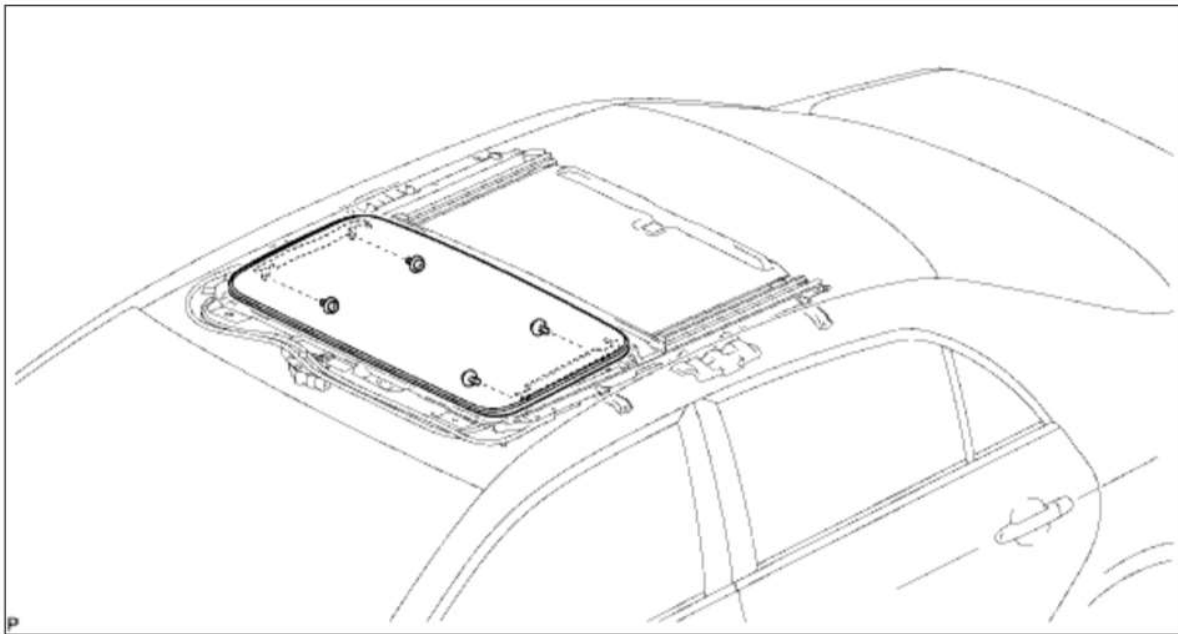
(a) Disengage the 5 claws and remove the sliding roof side garnish LH.

9. REMOVE SLIDING ROOF SIDE GARNISH RH**HINT:**

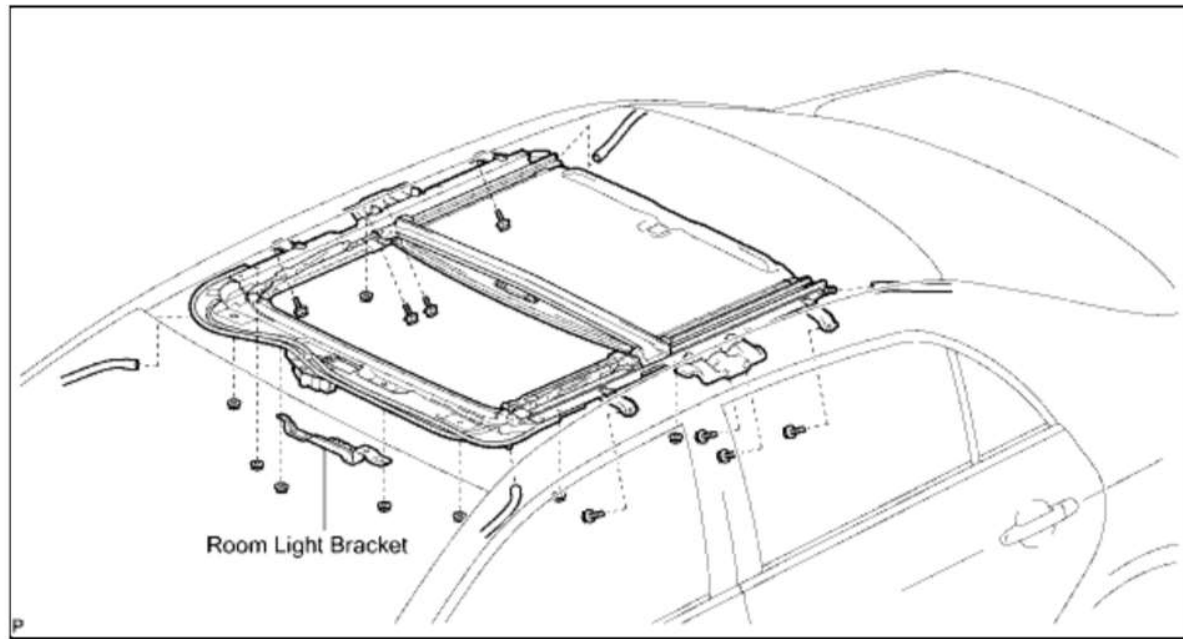
Use the same procedure for the RH side and LH side.

10. REMOVE SLIDING ROOF GLASS SUB-ASSEMBLY

(a) Using a T25 "TORX" socket wrench, remove the 4 screws and sliding roof glass sub-assembly.

**11. REMOVE SLIDING ROOF HOUSING SUB-ASSEMBLY**

- (a) Remove the 2 nuts and room light bracket.
- (b) Disconnect the 4 sliding roof drain hoses.
- (c) Remove the 8 bolts, 6 nuts, and sliding roof housing sub-assembly.

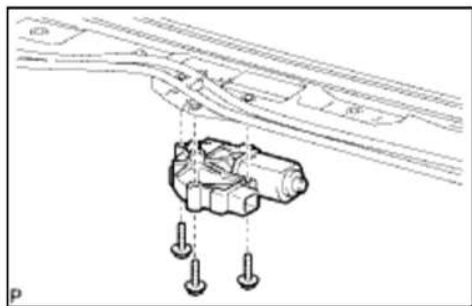


TOYOTA

Last Modified: 3-10-2010	6.4 A	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000001F2D01NX
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF HOUSING: DISASSEMBLY (2010 Corolla)		

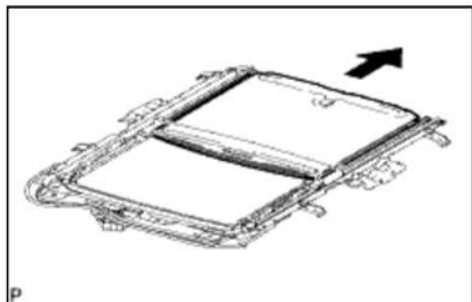
DISASSEMBLY

1. REMOVE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY



(a) Remove the 3 bolts and sliding roof drive gear sub-assembly.

2. REMOVE SUNSHADE TRIM SUB-ASSEMBLY



(a) Slide and remove the sunshade trim sub-assembly.



Last Modified: 3-10-2010	6.4 A	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000002X9U00NX
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF HOUSING: INSTALLATION (2010 Corolla)		

INSTALLATION

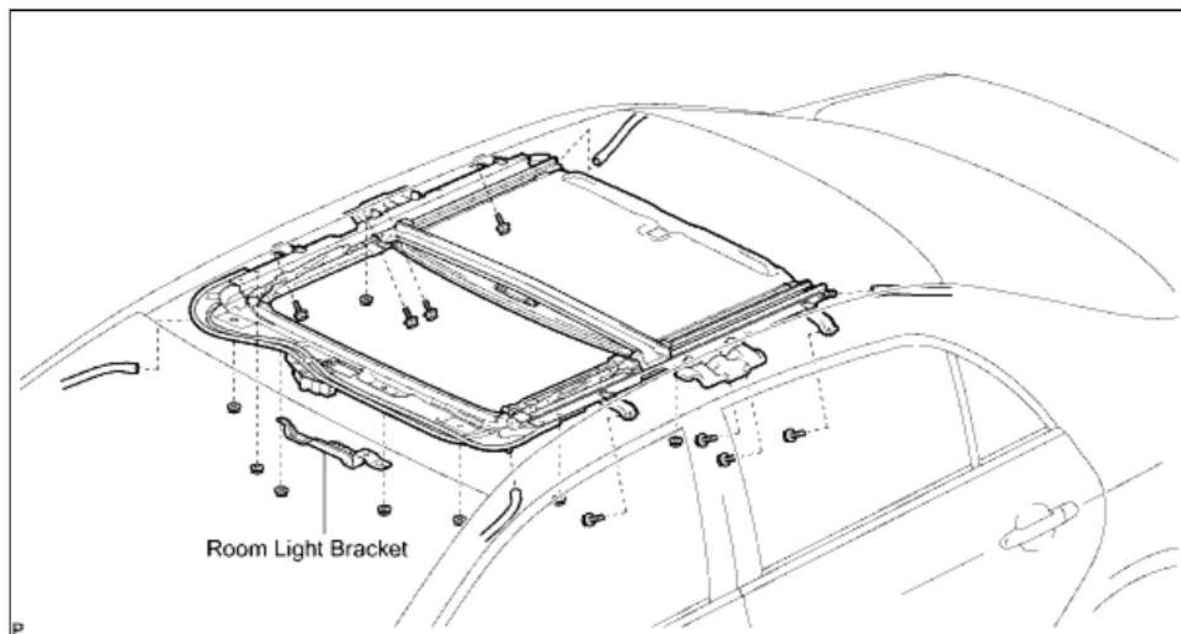
1. INSTALL SLIDING ROOF HOUSING SUB-ASSEMBLY

- (a) Install the sliding roof housing sub-assembly with the 8 bolts and 6 nuts.

Torque: 5.5 N·m (56 kgf·cm, 49in·lbf)

- (b) Install the room light bracket with the 2 nuts.

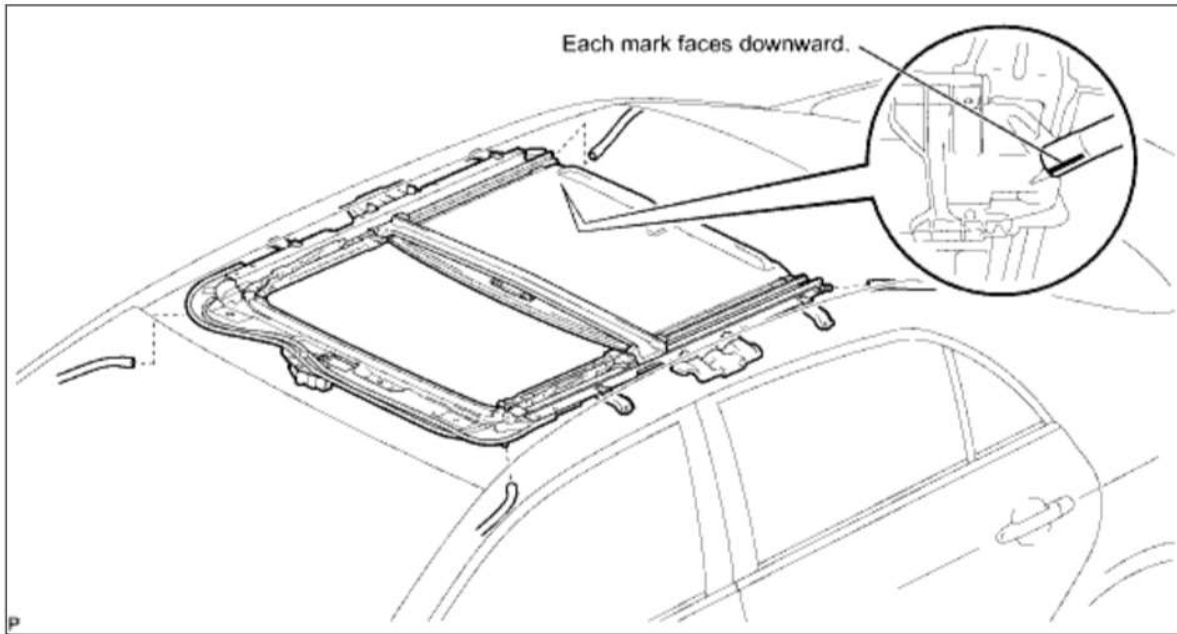
Torque: 5.5 N·m (56 kgf·cm, 49in·lbf)



- (c) Connect the 4 sliding roof drain hoses so that each mark faces downward.

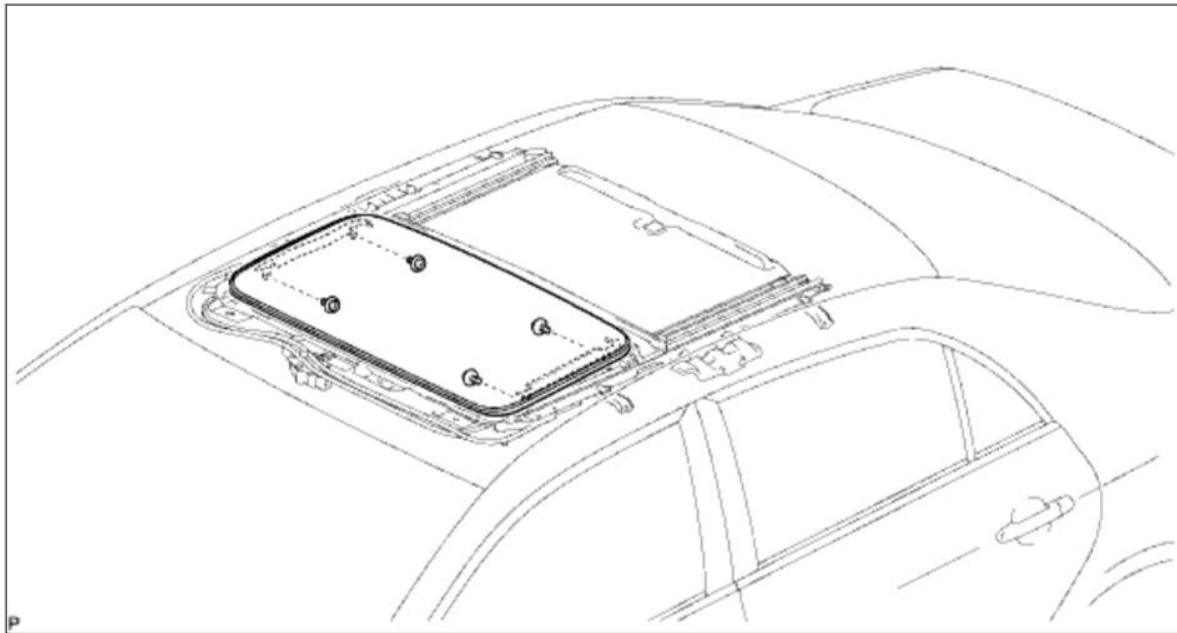
NOTICE:

Be sure to install the drain hoses properly to prevent entry of water.



2. INSTALL SLIDING ROOF GLASS SUB-ASSEMBLY

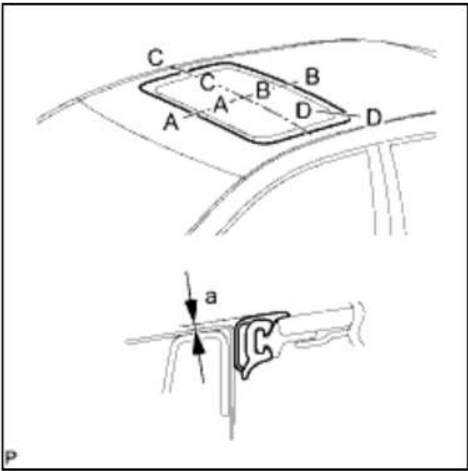
- (a) Using a T25 "TORX" driver, temporarily install the sliding roof glass sub-assembly with the 4 screws.



- (b) Perform a level check.

- (1) Check the difference in level "a" between the roof panel and the upper surface of the weatherstrip when the sliding roof glass is fully closed.

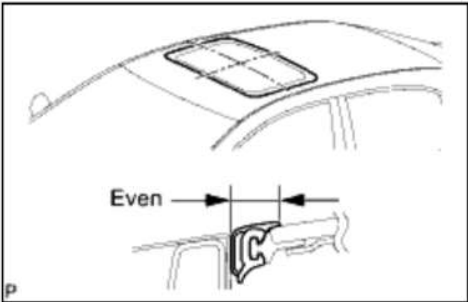
Standard



AREA	MEASUREMENT
A - A	0 + 1.0 mm (0 + 0.0393 in.) 0 - 2.0 mm (0 - 0.0784 in.)
B - B	0 + 2.0 mm (0 + 0.0784 in.) 0 - 1.0 mm (0 - 0.0393 in.)
C - C	0 + 1.5 mm (0 + 0.0590 in.) 0 - 1.5 mm (0 - 0.0590 in.)
D - D	0 + 1.5 mm (0 + 0.0590 in.) 0 - 1.0 mm (0 - 0.0393 in.)

HINT:

"+" represents the condition that the glass is above the panel level.
"-" represents the condition that the glass is below the panel level.



- (c) Perform a gap check.
(1) Check the gap between the roof panel and roof glass.

NOTICE:

The gap must be even all around.

- (d) After adjusting the sliding roof glass, using a T25 "TORX" socket wrench, install the sliding roof glass sub-assembly with the 4 screws.

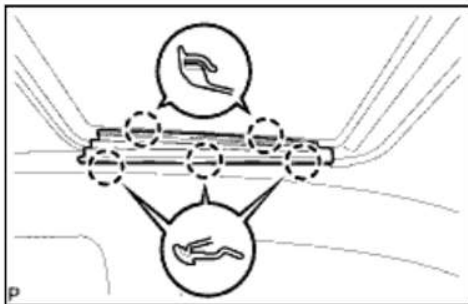
Torque: 4.0 N·m (41 kgf·cm, 35in·lbf)

3. INSPECT FOR WATER LEAK

- (a) After adjusting the sliding roof glass sub-assembly, inspect for water leaks.
(b) If there are any leaks, readjust the sliding roof glass sub-assembly.

4. INSTALL SLIDING ROOF SIDE GARNISH LH

- (a) Engage the 5 claws and install the sliding roof side garnish LH.



5. INSTALL SLIDING ROOF SIDE GARNISH RH

HINT:

Use the same procedure for the RH side and LH side.

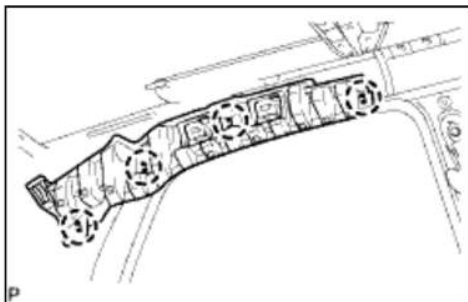
6. INSTALL CURTAIN SHIELD AIRBAG ASSEMBLY LH (w/ Curtain Shield Airbag) INFO

7. INSTALL CURTAIN SHIELD AIRBAG ASSEMBLY RH (w/ Curtain Shield Airbag)

HINT:

Use the same procedure for the RH side and LH side INFO.

8. INSTALL REAR SIDE RAIL SPACER LH (w/o Curtain Shield Airbag)



(a) Engage the 4 claws and install the rear side rail spacer LH.

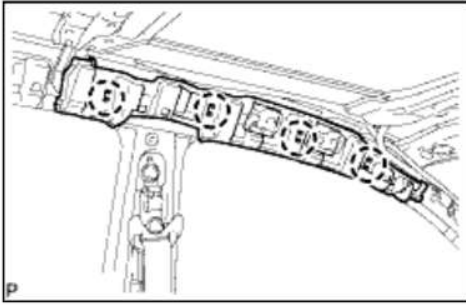
9. INSTALL REAR SIDE RAIL SPACER RH (w/o Curtain Shield Airbag)

HINT:

Use the same procedure for the RH side and LH side.

10. INSTALL FRONT SIDE RAIL SPACER LH (w/o Curtain Shield Airbag)

(a) Engage the 4 claws and install the front side rail spacer LH.



11. INSTALL FRONT SIDE RAIL SPACER RH (w/o Curtain Shield Airbag)

HINT:

Use the same procedure for the RH side and LH side.

12. INSTALL ROOF HEADLINING ASSEMBLY

- (a) Install the roof headlining assembly .

13. RESET SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY



14. INSPECT SLIDING ROOF SYSTEM

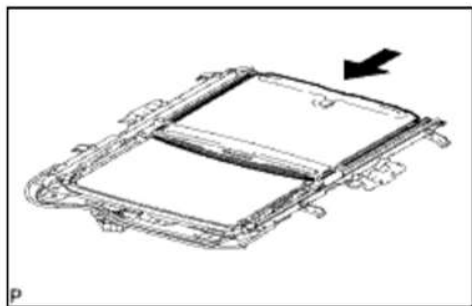




Last Modified: 3-10-2010	6.4 A	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000001F2E01NX
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF HOUSING: REASSEMBLY (2010 Corolla)		

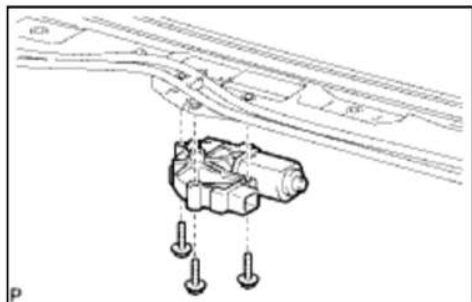
REASSEMBLY

1. INSTALL SUNSHADE TRIM SUB-ASSEMBLY



- (a) Insert the sunshade trim into the sliding roof housing sub-assembly.

2. INSTALL SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY



- (a) Install the sliding roof drive gear sub-assembly with the 3 bolts.

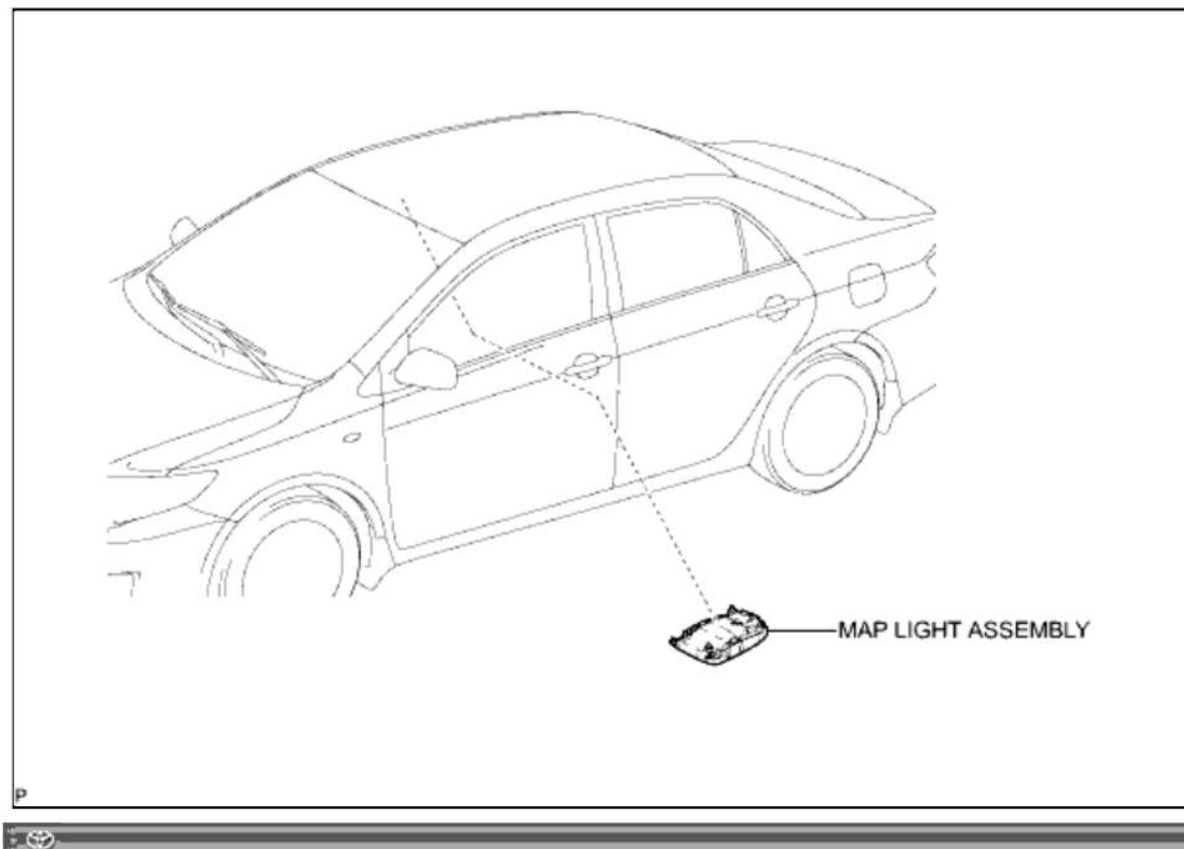
Torque: 5.4 N·m (55 kgf·cm, 48in·lbf)



Last Modified: 3-10-2010	6.4 K	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000030W200EX
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF SWITCH ASSEMBLY: COMPONENTS (2010 Corolla)		

COMPONENTS

ILLUSTRATION



Last Modified: 3-10-2010	6.4 A	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000001I06010X
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF SWITCH ASSEMBLY: REMOVAL (2010 Corolla)		

REMOVAL

1. REMOVE MAP LIGHT ASSEMBLY



cardiagn.com

Last Modified: 3-10-2010	6.4 G	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000001I0400VX
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF SWITCH ASSEMBLY: INSPECTION (2010 Corolla)		

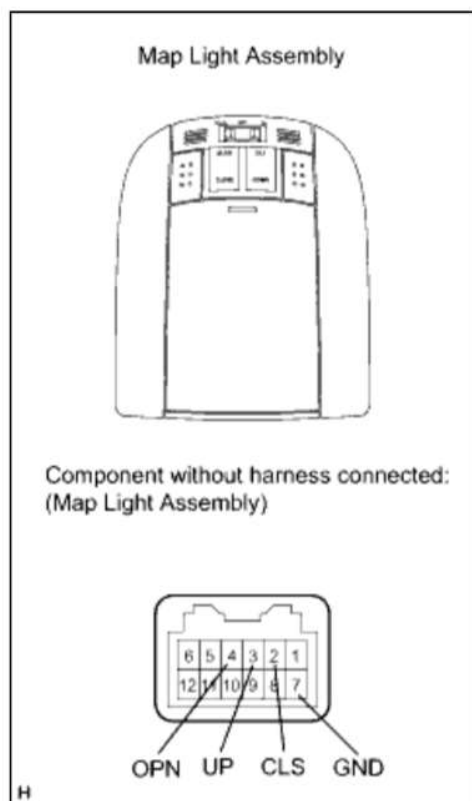
INSPECTION

1. INSPECT MAP LIGHT ASSEMBLY

(a) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
4 (OPN) - 7 (GND)	SLIDE OPEN switch pushed	Below 1 Ω
4 (OPN) - 7 (GND)	SLIDE OPEN switch not pushed	1 M Ω or higher
2 (CLS) - 7 (GND)	SLIDE CLOSE switch pushed	Below 1 Ω
2 (CLS) - 7 (GND)	SLIDE CLOSE switch not pushed	1 M Ω or higher
3 (UP) - 7 (GND)	TILT UP switch pushed	Below 1 Ω
3 (UP) - 7 (GND)	TILT UP switch not pushed	1 M Ω or higher
4 (OPN) - 7 (GND)	TILT DOWN switch not pushed	1 M Ω or higher
2 (CLS) - 7 (GND)	TILT DOWN switch not pushed	1 M Ω or higher



If the result is not as specified, replace the map light assembly.

(b) Measure the voltage using diode test mode.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
Positive lead → 2 (CLS)	TILT DOWN switch pushed	0.4 to 1.2 V

Negative lead → 7 (GND)		
Positive lead → 4 (OPN) Negative lead → 7 (GND)	TILT DOWN switch pushed	0.4 to 1.2 V
Positive lead → 7 (GND) Negative lead → 2 (CLS)	TILT DOWN switch pushed	2.5 to 3.3 V
Positive lead → 7 (GND) Negative lead → 4 (OPN)	TILT DOWN switch pushed	2.5 to 3.3 V

NOTICE:

This procedure is for using a digital tester which has diode test mode such as a TOYOTA electrical tester. If a tester which does not have diode test mode is used, the diode may break.



Last Modified: 3-10-2010	6.4 A	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000001I03010X
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF SWITCH ASSEMBLY: INSTALLATION (2010 Corolla)		

INSTALLATION

1. INSTALL MAP LIGHT ASSEMBLY



cardiagn.com

Last Modified: 3-10-2010	6.4 L	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000002VRL00YX
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF SYSTEM: PRECAUTION (2010 Corolla)		

PRECAUTION

1. EXPRESSIONS OF IGNITION SWITCH

(a) The type of ignition switch used on this model differs according to the specifications of the vehicle. The expressions listed in the table below are used in this section.

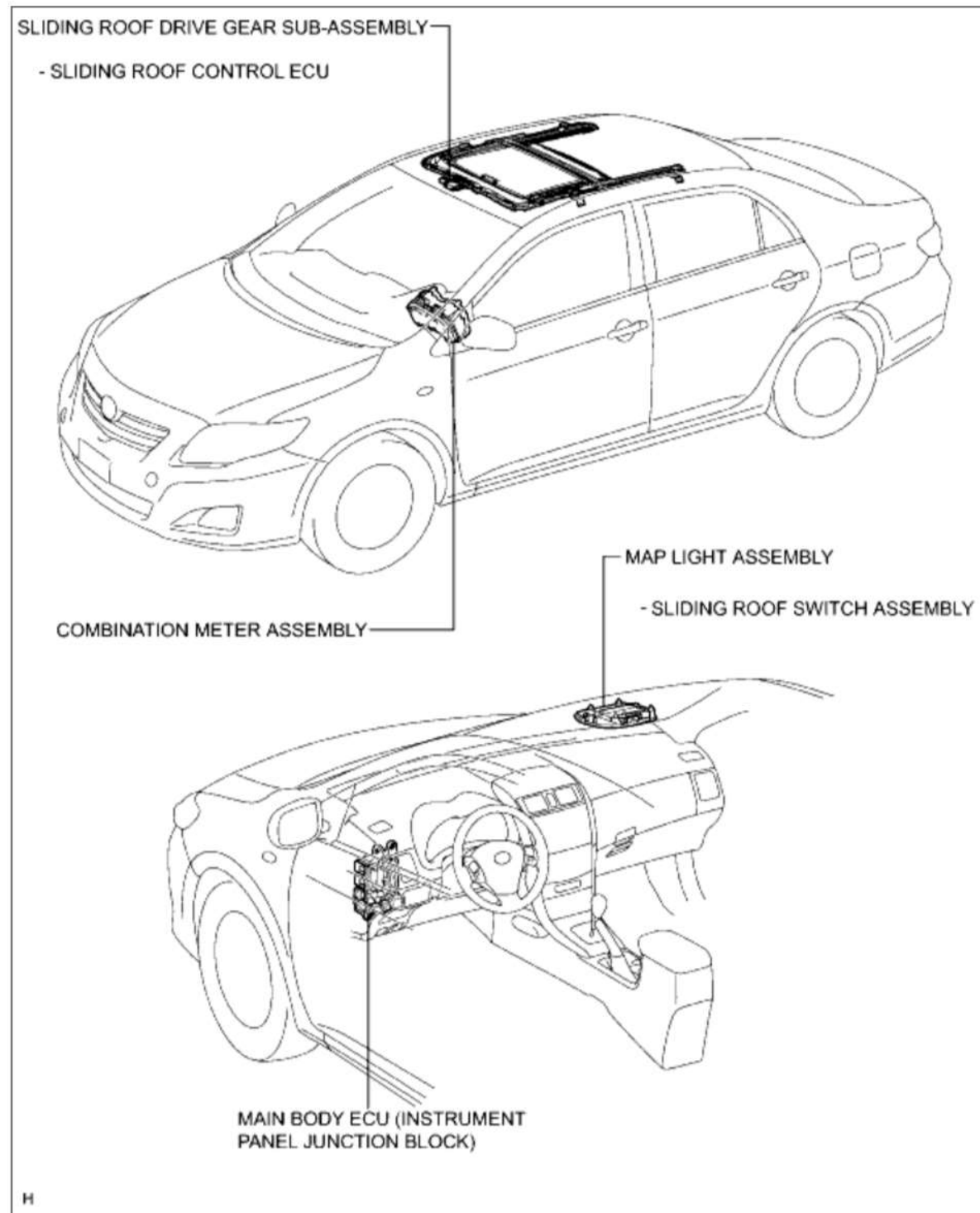
SWITCH TYPE		IGNITION SWITCH (POSITION)	ENGINE SWITCH (CONDITION)
Expression	Ignition Switch off	LOCK	Off
	Ignition Switch ON	ON	On (IG)
	Ignition Switch ACC	ACC	On (ACC)
	Engine Start	START	Start



Last Modified: 3-10-2010	6.4 R	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000001VJK00TX
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF SYSTEM: PARTS LOCATION (2010 Corolla)		

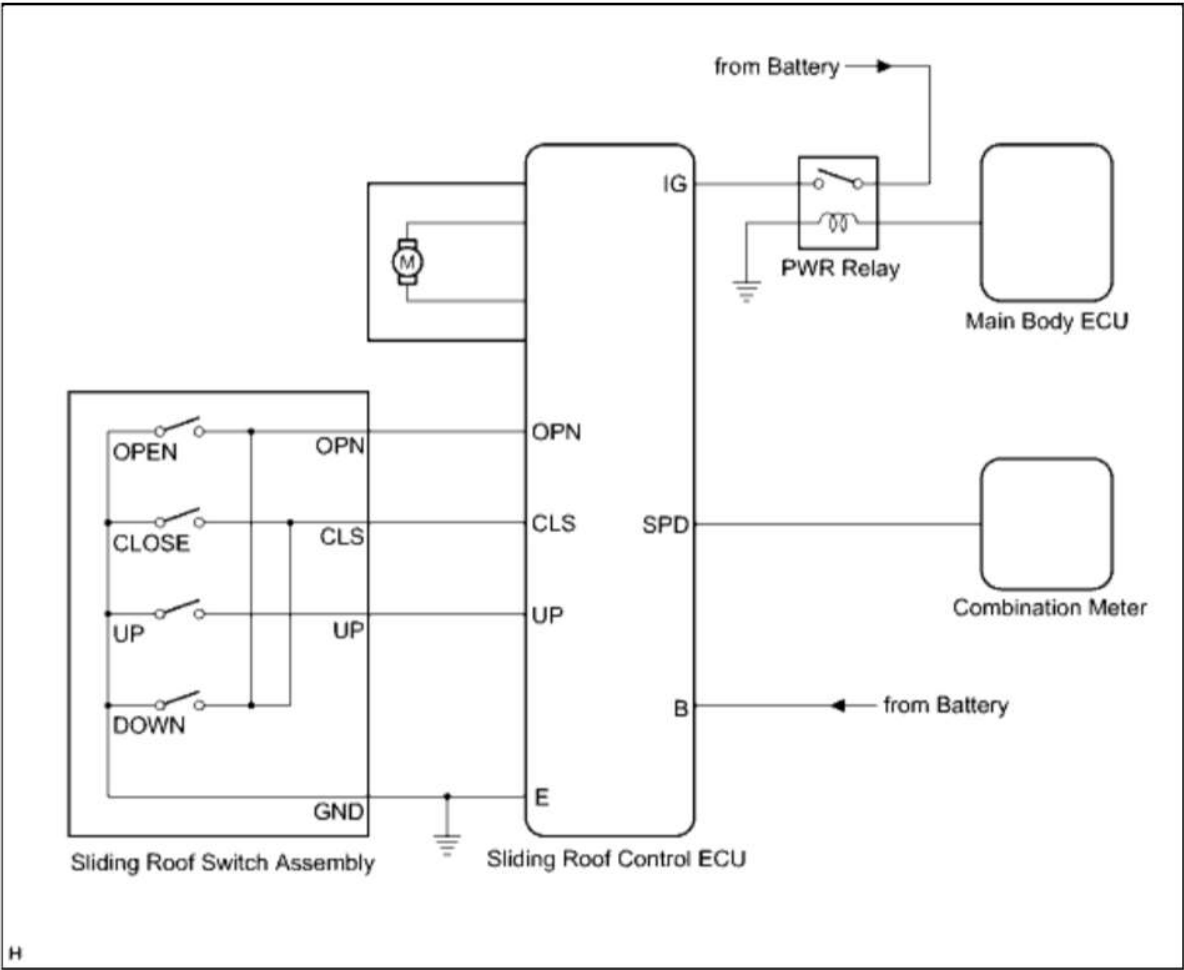
PARTS LOCATION

ILLUSTRATION



Last Modified: 3-10-2010	6.4 U	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000001VJP01TX
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF SYSTEM: SYSTEM DIAGRAM (2010 Corolla)		

SYSTEM DIAGRAM



Last Modified: 3-10-2010	6.4 D	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000001VJJ00YX
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF SYSTEM: HOW TO PROCEED WITH TROUBLESHOOTING (2010 Corolla)		

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

Use the following procedure to troubleshoot the sliding roof system.

1.	VEHICLE BROUGHT TO WORKSHOP
-----------	------------------------------------

NEXT



2.	CUSTOMER PROBLEM ANALYSIS
-----------	----------------------------------

HINT:

- In troubleshooting, confirm that the problem symptoms have been accurately identified. Preconceptions should be discarded in order to make an accurate judgment. To clearly understand what the problem symptoms are, it is extremely important to ask the customer about the problem and the conditions at the time the malfunction occurred.
- Gather as much information as possible for reference. Past problems that seem unrelated may also help in some cases.
- The following 5 items are important points in the problem analysis:

What	Vehicle model, system name
When	Date, time, occurrence frequency
Where	Road conditions
Under what conditions?	Driving conditions, weather conditions
How did it happen?	Problem symptoms

NEXT



3. INSPECT BATTERY VOLTAGE

(a) Measure the battery voltage.

Standard Voltage:

11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

NEXT**4. PROBLEM SYMPTOMS TABLE**

(a) Refer to Problem Symptoms Table .

Result:

RESULT	PROCEED TO
Fault is not listed in problem symptoms table	A
Fault is listed in problem symptoms table	B

B ► Go to step 6

A**5. OVERALL ANALYSIS AND TROUBLESHOOTING**

(a) Terminals of ECU 

(b) Operation Check 

NEXT



6.	REPAIR OR REPLACE
----	-------------------

NEXT



7.	CONFIRMATION TEST
----	-------------------

NEXT ► END

	TOYOTA
--	--------

cardiagn.com

Last Modified: 3-10-2010	6.4 D	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000001VJN013X
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF SYSTEM: SYSTEM DESCRIPTION (2010 Corolla)		

SYSTEM DESCRIPTION

1. GENERAL

This system has the following functions: manual slide open and close, auto slide open and close, manual tilt up and down, auto tilt up and down, jam protection, and key off operation.

2. FUNCTION OF MAIN COMPONENT

COMPONENT	FUNCTION
Sliding roof drive gear sub-assembly (Sliding roof control ECU)	The sliding roof control ECU operates the sliding roof motor forward and backward, which tilts or slides the sliding roof glass. The sliding roof control ECU is built into the sliding roof drive gear sub-assembly.
Map light assembly (Sliding roof switch assembly)	The sliding roof switch assembly outputs operational signals to the sliding roof control ECU. The sliding roof switch is built into the map light assembly.

3. SYSTEM OPERATION

The sliding roof has the following features.

FUNCTION	OUTLINE
Manual slide open and close	This function causes the sliding roof to open (or close) when the SLIDE OPEN switch (or SLIDE CLOSE switch) is pressed for a maximum of 0.3 seconds. The sliding roof stops as soon as the switch is released.
Auto slide open and close	This function causes the sliding roof to fully open (or close) when the SLIDE OPEN switch (or SLIDE CLOSE switch) is pressed for a minimum of 0.3 seconds.
Manual tilt up and down	This function causes the sliding roof to tilt up (or tilt down) when the TILT UP switch (or TILT DOWN switch) is pressed for a maximum of 0.3 seconds.
Auto tilt up and down	This function enables the sliding roof to tilt up (or down) when the TILT UP switch (or TILT DOWN switch) is pressed for a minimum of 0.3 seconds.
Jam protection function	The jam protection function automatically stops the sliding roof, or stops the sliding roof and opens it halfway (or fully tilts it upward) if a foreign object gets jammed in the sliding roof during closing operation (or tilt down operation).
Key off operation	This function makes it possible to operate the sliding roof for approximately 43 seconds after the ignition switch is turned off if the front doors are not opened.
Comfort stop function	This function stops the sliding roof in a position that reduces wind noise when fully opened.

FUNCTION	OUTLINE
Sliding roof open warning	When the ignition switch is turned from on to off and the driver door is opened with the sliding roof open, the multi buzzer in the combination meter sounds once.



Last Modified: 3-10-2010	6.4 D	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000002RO800BX
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF SYSTEM: OPERATION CHECK (2010 Corolla)		

OPERATION CHECK

1. CHECK AUTO OPERATION

- (a) Turn the ignition switch to ON.
- (b) When the roof glass is fully closed, press the SLIDE OPEN switch for 0.3 seconds or more. Check that the roof glass automatically slides until comfort stop position. Press the SLIDE OPEN switch for 0.3 seconds or more again. Check that the roof glass automatically slides until it is fully opened.
- (c) When the roof glass is fully open, press the SLIDE CLOSE switch for 0.3 seconds or more. Check that the roof glass automatically slides until it is fully closed.
- (d) When the roof glass is fully closed, press the TILT UP switch for 0.3 seconds or more. Check that the roof glass automatically tilts until it is fully tilted upward.
- (e) When the roof glass is fully open, press the TILT DOWN switch for 0.3 seconds or more. Check that the roof glass automatically tilts until it is fully tilted downward.
- (f) When the AUTO function is operating, check that pressing any sliding roof switch stops the roof glass operation.

HINT:

When pressing the switch for 0.3 seconds or less, the roof glass moves but the AUTO function does not operate.

2. CHECK SLIDING ROOF OPERATION AFTER IGNITION SWITCH IS TURNED OFF

- (a) Turn the ignition switch from on to off, and check that the sliding roof operates. Then open and close the driver side door once, and check that the sliding roof does not operate.
- (b) Turn the ignition switch from on to off and wait for approximately 45 seconds. Check that the sliding roof does not operate.
- (c) Operate the AUTO (SLIDE OPEN/CLOSE or TILT UP/DOWN) function. While the roof glass is in motion, turn the ignition switch from on to off. Check that the AUTO function continues until the roof glass opens or closes fully.

3. CHECK JAM PROTECTION FUNCTION

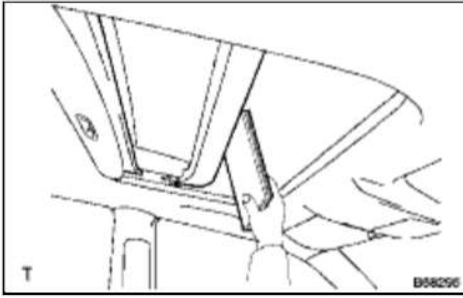
CAUTION:

- Do not use a part of your body, for example, your hand, to check the jam protection.
- Do not allow anything to become caught in the sliding roof by accident in this procedure.
- Perform the inspection from the inside of the vehicle.

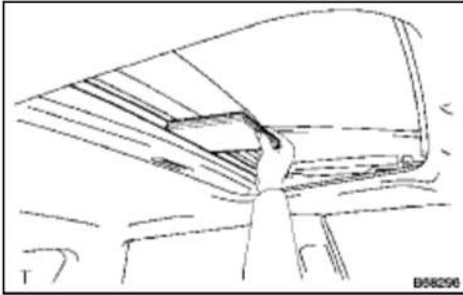
NOTICE:

- Do not use hard objects such as a hammer, to avoid damaging the roof.
- If the jam protection does not operate, reset the sliding roof drive gear (motor).

- (a) When the sliding roof auto function is operating and a foreign object is caught between the vehicle body and



glass, check that the roof glass opens a distance of 189 mm (7.44 in.) from the point of contact with the object, or opens fully if an opening distance of 189 mm (7.44 in.) is not available.



(b) When the TILT UP/DOWN function is operating, and a foreign object is caught between the vehicle body and the roof glass, check that the sliding roof tilts up fully.



Last Modified: 3-10-2010	6.4 D	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000001VJR01ZX
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF SYSTEM: INITIALIZATION (2010 Corolla)		

INITIALIZATION

1. INITIALIZE SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY

NOTICE:

When removing the sliding roof drive gear sub-assembly, the sliding roof drive gear sub-assembly (sliding roof control ECU) requires initialization. If a reset is not executed, the following functions do not operate: auto operation, key off operation and jam protection function.

- Turn the ignition switch to ON.
- Make sure that the sliding roof is fully closed.
- Press the TILT UP switch until the sliding roof stops at the fully tilt up position. Then release the switch.
- Press and hold the TILT UP switch until the following movement finishes and then release the switch: approximately 10 seconds → tilt up (approximately 5 mm) → tilt down (approximately 5 mm).
- Within 5 seconds after finishing the previous step, press and hold the TILT UP switch until the following movement finishes and then release the switch: approximately 5 seconds → tilt down → fully closed → slide open → fully open → slide close → fully closed.
- Finish the initialization.
- Check that the AUTO operation works normally.

NOTICE:

If the following conditions occur during initialization procedure, initialization will fail:

- One of the following electric loads is given to the vehicle during the initialization: Cranking the engine, Power window operation, Rear defogger operation, Blower operation, Power seat operation, Power door lock operation or Headlight illumination.
- The ignition switch is turned off.
- Another switch is turned on during initialization.
- The vehicle experiences a strong vibration during initialization, such as slamming of a door.

HINT:

- If the sliding roof cannot be fully closed or its position has become misaligned, perform initialization again.
- If the roof glass stops moving or starts moving in the opposite direction while the CLOSE/UP switch is held down, continue to hold the switch for another 10 seconds or more to return the sliding roof control ECU to an uninitialized condition. Then perform the initialization procedure again.
- If the AUTO operation function and jam protection function do not operate after the drive gear has been reset, replace the sliding roof drive gear sub-assembly (sliding roof control ECU).



Last Modified: 3-10-2010	6.4 T	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000001VJM01UX
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF SYSTEM: PROBLEM SYMPTOMS TABLE (2010 Corolla)		

PROBLEM SYMPTOMS TABLE

HINT:

- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Sliding Roof System

SYMPTOM	SUSPECTED AREA	SEE PAGE
Sliding function and tilt function do not operate	Sliding roof ECU power source circuit	INFO
	Sliding roof control switch circuit	INFO
Either sliding function or tilt function does not operate	Sliding roof control switch circuit	INFO



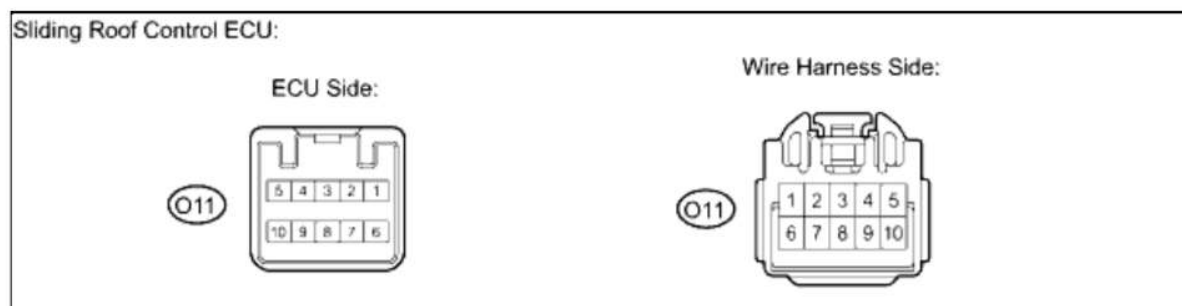
TOYOTA

Last Modified: 3-10-2010	6.4 U	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000001VJL014X
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF SYSTEM: TERMINALS OF ECU (2010 Corolla)		

TERMINALS OF ECU

1. CHECK SLIDING ROOF DRIVE GEAR SUB-ASSEMBLY (SLIDING ROOF CONTROL ECU)

(a) Disconnect the O11 ECU connector.



(b) Measure the resistance and voltage on the wire harness side according to the value(s) in the table below.

TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
O11-10 (B) - O11-5 (E)	BE - W-B	+B power supply	Always	11 to 14 V
O11-3 (IG) - O11-5 (E)	Y - W-B	Power supply	Ignition switch off	Below 1 V
O11-3 (IG) - O11-5 (E)	Y - W-B	Power supply	Ignition switch ON	11 to 14 V
O11-1 (OPN) - O11-5 (E)	G - W-B	Sliding roof motor open	SLIDE OPEN switch OFF	10 k Ω or higher
O11-1 (OPN) - O11-5 (E)	G - W-B	Sliding roof motor open	SLIDE OPEN switch ON	Below 1 Ω
O11-2 (CLS) - O11-5 (E)	L - W-B	Sliding roof motor close	SLIDE CLOSE switch OFF	10 k Ω or higher
O11-2 (CLS) - O11-5 (E)	L - W-B	Sliding roof motor close	SLIDE CLOSE switch ON	Below 1 Ω
O11-6 (UP) - O11-5 (E)	R - W-B	Sliding roof motor up	TILT UP switch OFF	10 k Ω or higher
O11-6 (UP) - O11-5 (E)	R - W-B	Sliding roof motor up	TILT UP switch ON	Below 1 Ω

TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
O11-5 (E) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction on the wire harness side.

(c) Reconnect the O11 ECU connector.

(d) Measure the voltage according to the value(s) in the table below.

TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
O11-1 (OPN) - O11-5 (E)	G - W-B	Sliding roof motor open	Ignition switch ON, sliding roof closed, SLIDE OPEN switch OFF	11 to 14 V
O11-1 (OPN) - O11-5 (E)	G - W-B	Sliding roof motor open	Ignition switch ON, sliding roof closed, SLIDE OPEN switch ON	Below 1 V
O11-2 (CLS) - O11-5 (E)	L - W-B	Sliding roof motor close	Ignition switch ON, sliding roof open, SLIDE CLOSE switch OFF	11 to 14 V
O11-2 (CLS) - O11-5 (E)	L - W-B	Sliding roof motor close	Ignition switch ON, sliding roof open, SLIDE CLOSE switch ON	Below 1 V
O11-6 (UP) - O11-5 (E)	R - W-B	Sliding roof motor up	Ignition switch ON, sliding roof closed, TILT UP switch OFF	11 to 14 V
O11-6 (UP) - O11-5 (E)	R - W-B	Sliding roof motor up	Ignition switch ON, sliding roof closed, TILT UP switch ON	Below 1 V

If the result is not as specified, the ECU may have a malfunction.

2. CHECK MAP LIGHT ASSEMBLY (SLIDING ROOF SWITCH ASSEMBLY)

(a) Disconnect the O10 switch connector.



(b) Measure the resistance on the wire harness side according to the value(s) in the table below.

TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
O10-7 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
O10-2 (CLS) - O10-7 (GND)	L - W-B	Sliding roof close switch signal	SLIDE CLOSE switch OFF	10 k Ω or higher
O10-2 (CLS) - O10-7 (GND)	L - W-B	Sliding roof close switch signal	SLIDE CLOSE switch ON	Below 1 Ω
O10-3 (UP) - O10-7 (GND)	R - W-B	Sliding roof up switch signal	TILT UP switch OFF	10 k Ω or higher
O10-3 (UP) - O10-7 (GND)	R - W-B	Sliding roof up switch signal	TILT UP switch ON	Below 1 Ω
O10-4 (OPN) - O10-7 (GND)	G - W-B	Sliding roof open switch signal	SLIDE OPEN switch OFF	10 k Ω or higher
O10-4 (OPN) - O10-7 (GND)	G - W-B	Sliding roof open switch signal	SLIDE OPEN switch ON	Below 1 Ω

If the result is not as specified, there may be a malfunction on the wire harness side.

(c) Reconnect the O10 switch connector.

(d) Measure the voltage according to the value(s) in the table below.

TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
O10-2 (CLS) - O10-7 (GND)	L - W-B	Sliding roof close switch signal	Ignition switch ON, sliding roof open, SLIDE CLOSE switch OFF	11 to 14 V
O10-2 (CLS) - O10-7 (GND)	L - W-B	Sliding roof close switch signal	Ignition switch ON, sliding roof open, SLIDE CLOSE switch ON	Below 1 V
O10-3 (UP) - O10-7 (GND)	R - W-B	Sliding roof up switch signal	Ignition switch ON, sliding roof closed, TILT UP switch OFF	11 to 14 V
O10-3 (UP) - O10-7 (GND)	R - W-B	Sliding roof up switch signal	Ignition switch ON, sliding roof closed, TILT UP switch ON	Below 1 V
O10-4 (OPN) - O10-7 (GND)	G - W-B	Sliding roof open switch signal	Ignition switch ON, sliding roof closed, SLIDE OPEN switch OFF	11 to 14 V
O10-4 (OPN) - O10-7 (GND)	G - W-B	Sliding roof open switch signal	Ignition switch ON, sliding roof closed, SLIDE OPEN switch ON	Below 1 V

TESTER CONNECTION	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
			switch ON	

If the result is not as specified, the switch may have a malfunction.



Last Modified: 3-10-2010	6.4 U	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000000X8Z03LX
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF SYSTEM: FAIL-SAFE CHART (2010 Corolla)		

FAIL-SAFE CHART

1. SLIDING ROOF OPERATION IN FAIL-SAFE MODE

(a) Operation switch is shorted to ground

- If a SLIDE OPEN/CLOSE or TILT UP/DOWN switch signal remains on for more than 30 seconds, the signal will be ignored after this 30 second time period elapses.

(b) Failure of one hall sensor

- When the ECU recognizes a failure of one hall sensor, the AUTO function will be prohibited.

(c) Failure of two hall sensors

- The ECU cannot recognize whether the hall sensors are malfunctioning or the motor is stalled. If the motor is operating, the ECU will stop the motor immediately. After stopping motor operation, the ECU will operate normally the next time a switch is pressed.

(d) Simultaneous input

- When both TILT UP and SLIDE OPEN/CLOSE signals are sent, the ECU will ignore the signals and stop operating the sliding roof.

(e) Sliding roof position problem

- If the ECU recognizes a problem with the position of the sliding roof, the ECU will stop the motor (if initialization is being performed, the motor will be allowed to operate). After stopping the motor, the ECU will clear its stored position data. As a result of clearing the stored position data, initialization will be required. Refer to Initialization for details.

(f) Exceeding maximum allowable motor runtime

- The ECU monitors the motor operation time to protect the motor. If the total motor operation time exceeds 120 seconds during SLIDE OPEN or TILT UP operation, the ECU will stop the motor. After the motor is stopped, the motor operation will be prohibited until 100 seconds have passed.

(g) Relay error

- If the ECU recognizes this error, the ECU will stop the motor immediately.

(h) Failure in EEPROM parameters

- If the ECU recognizes this failure, the ECU will stop the motor immediately. After the motor is stopped, all functions will be prohibited.

(i) Supply voltage out of range (9 to 15 V)

- If the ECU recognizes that the supply voltage is not within the specified range, the ECU will stop the motor. However, while a jam protection reverse operation is being performed, the motor will not be stopped until the reverse operation is completed. After the motor is stopped, all functions will be prohibited until the supply voltage returns to normal.

(j) Strong voltage spike (load dump detected*)

- When the ECU recognizes a strong voltage spike (load dump detected), the ECU will stop the

motor. After the motor is stopped, all functions are prohibited during the voltage spike.

HINT:

***: A load dump occurs when a large electrical load has been removed from the charging system, causing system voltage to spike.**



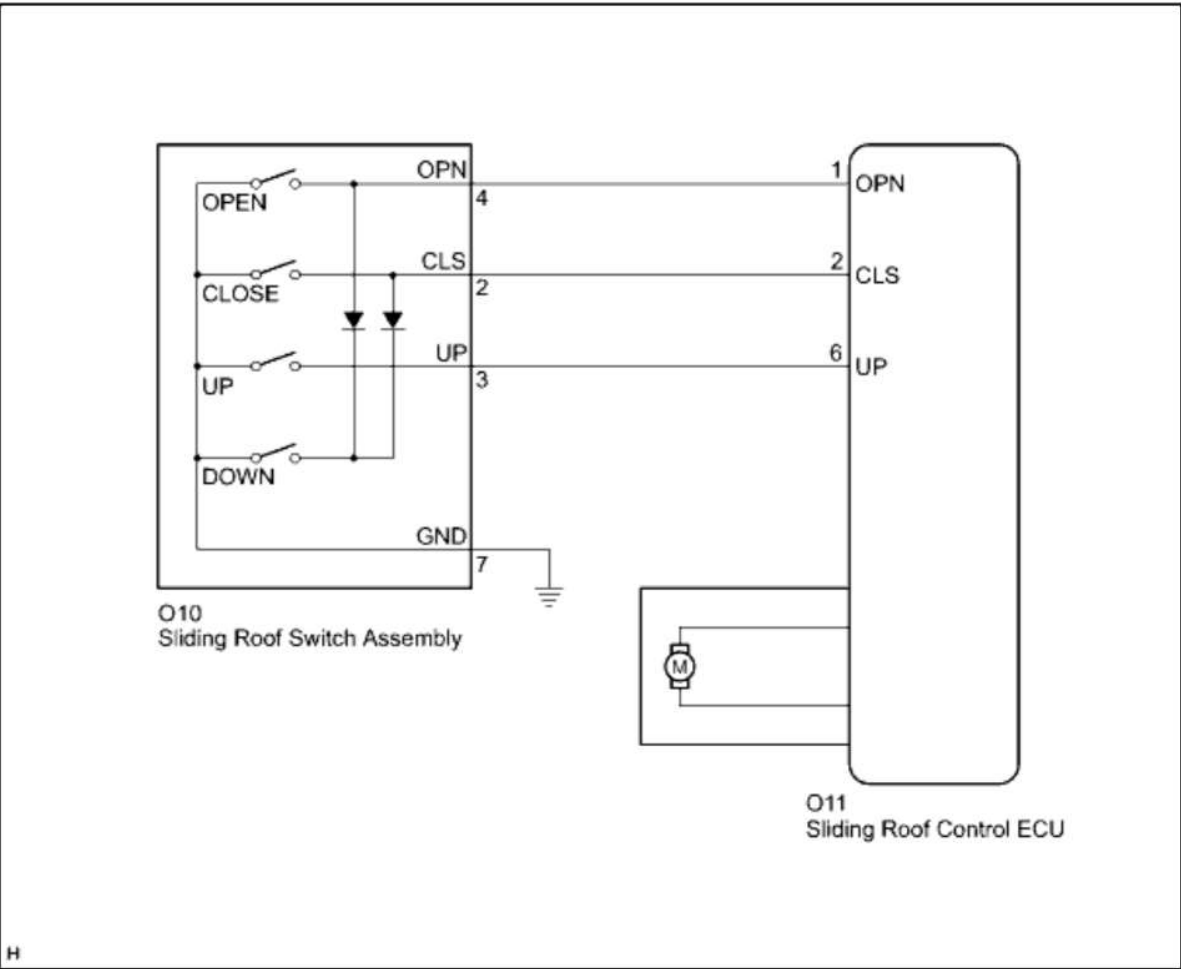
Last Modified: 3-10-2010	6.4 J	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000001VJU000X
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF SYSTEM: Sliding Roof Control Switch Circuit (2010 Corolla)		

Sliding Roof Control Switch Circuit

DESCRIPTION

If either the sliding function or tilt function does not operate, there may be a malfunction in the sliding roof switch assembly circuit.

WIRING DIAGRAM

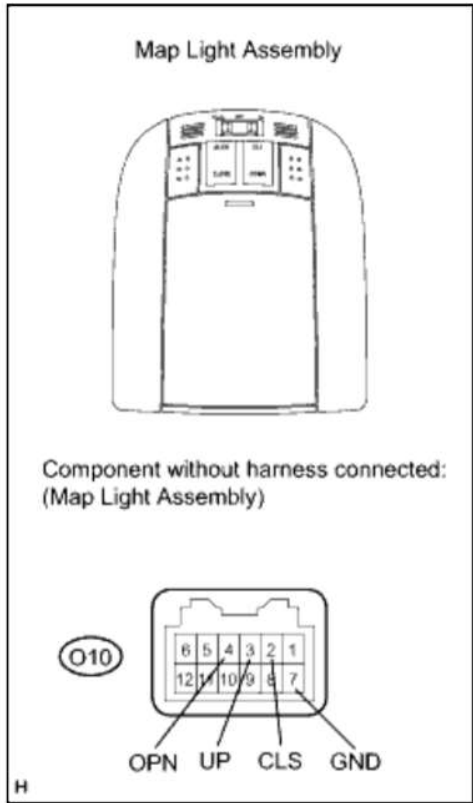


INSPECTION PROCEDURE

NOTICE:
When the sliding roof drive gear sub-assembly is reinstalled or replaced, the sliding roof drive gear sub-assembly must be initialized .

PROCEDURE

1. INSPECT MAP LIGHT ASSEMBLY (SLIDING ROOF SWITCH ASSEMBLY)



(a) Remove the map light assembly INFO.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
O10-4 (OPN) - O10-7 (GND)	SLIDE OPEN switch pushed	Below 1 Ω
O10-4 (OPN) - O10-7 (GND)	SLIDE OPEN switch not pushed	1 M Ω or higher
O10-2 (CLS) - O10-7 (GND)	SLIDE CLOSE switch pushed	Below 1 Ω
O10-2 (CLS) - O10-7 (GND)	SLIDE CLOSE switch not pushed	1 M Ω or higher
O10-3 (UP) - O10-7 (GND)	TILT UP switch pushed	Below 1 Ω
O10-3 (UP) - O10-7 (GND)	TILT UP switch not pushed	1 M Ω or higher
O10-4 (OPN) - O10-7 (GND)	TILT DOWN switch not pushed	1 M Ω or higher
O10-2 (CLS) - O10-7 (GND)	TILT DOWN switch not pushed	1 M Ω or higher

(c) Measure the voltage using diode test mode.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
Positive lead → O10-2 (CLS) Negative lead → O10-7 (GND)	TILT DOWN switch pushed	0.4 to 1.2 V
Positive lead → O10-4 (OPN) Negative lead → O10-7 (GND)	TILT DOWN switch pushed	0.4 to 1.2 V
Positive lead → O10-7 (GND) Negative lead → O10-2 (CLS)	TILT DOWN switch pushed	2.5 to 3.3 V
Positive lead → O10-7 (GND) Negative lead → O10-4 (OPN)	TILT DOWN switch pushed	2.5 to 3.3 V

NOTICE:

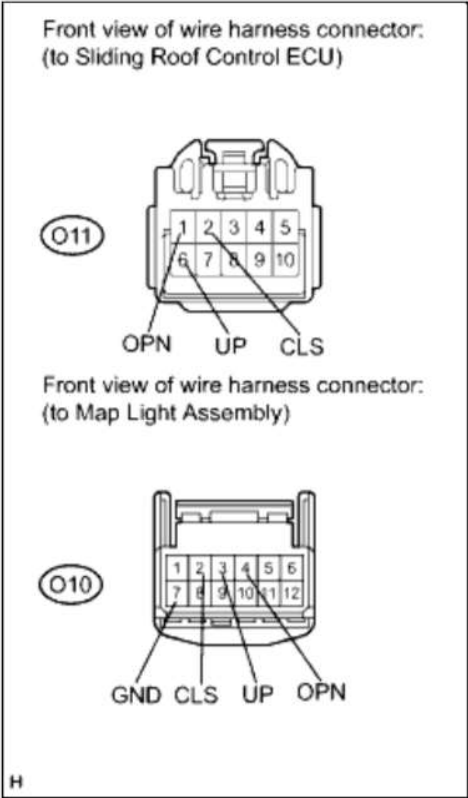
This procedure is for using a digital tester which has diode test mode such as a TOYOTA electrical tester. If a tester which does not have diode test mode is used, the diode may break.

NG ► REPLACE MAP LIGHT ASSEMBLY (SLIDING ROOF SWITCH ASSEMBLY)

OK
▼

2.	CHECK HARNESS AND CONNECTOR (MAP LIGHT ASSEMBLY - SLIDING ROOF DRIVE GEAR AND BODY GROUND)
----	---

(a) Disconnect the O11 ECU connector.



(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
O 11-1 (OPN) - O 10-4 (OPN)	Always	Below 1 Ω
O 11-2 (CLS) - O 10-2 (CLS)	Always	Below 1 Ω
O 11-6 (UP) - O 10-3 (UP)	Always	Below 1 Ω
O 11-1 (OPN) - Body ground	Always	10 k Ω or higher
O 11-2 (CLS) - Body ground	Always	10 k Ω or higher
O 11-6 (UP) - Body ground	Always	10 k Ω or higher
O 10-7 (GND) - Body ground	Always	Below 1 Ω

NG ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ► **REPLACE SLIDING ROOF DRIVE GEAR
SUB-ASSEMBLY (SLIDING ROOF CONTROL ECU)**

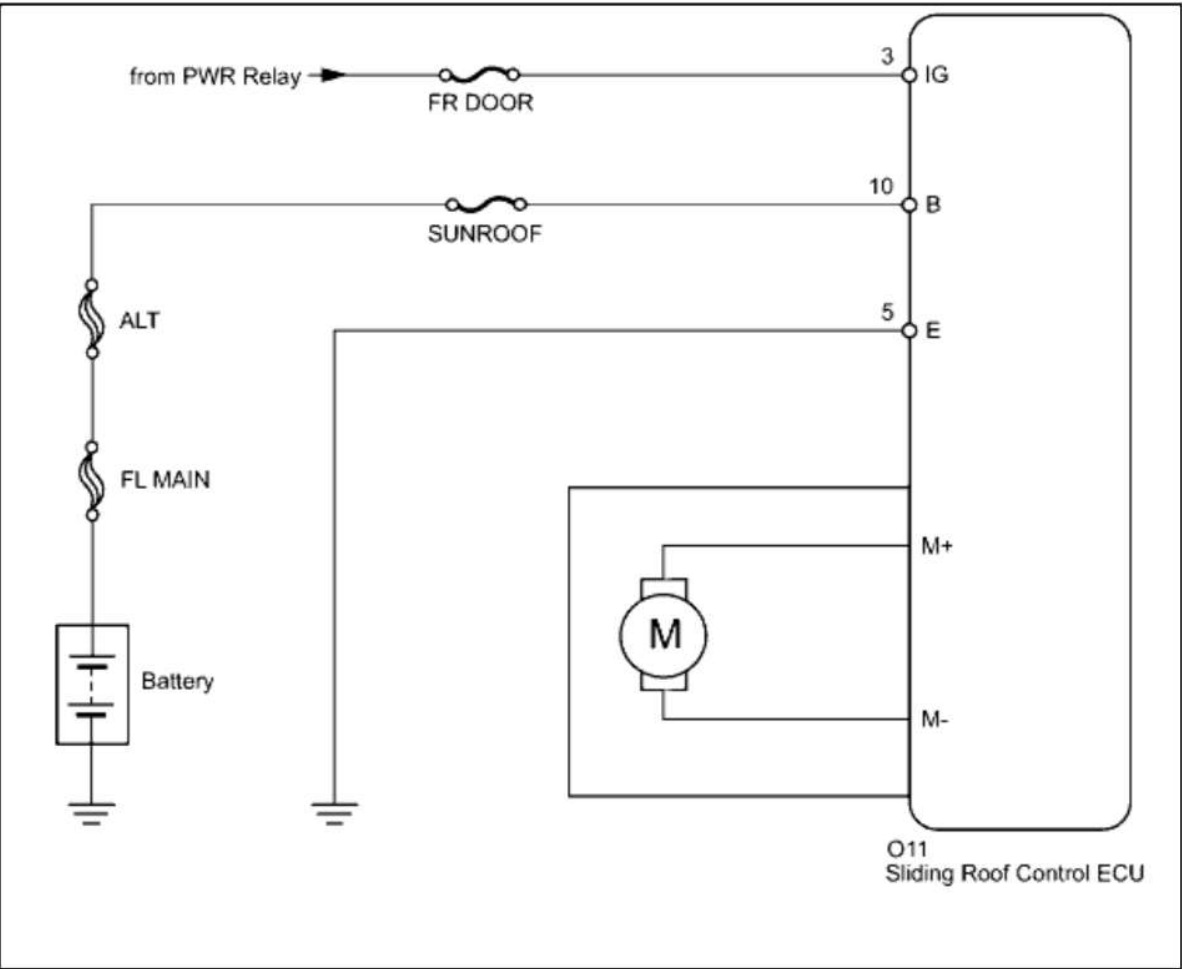
Last Modified: 3-10-2010	6.4 J	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000001VJT015X
Title: SLIDING ROOF / CONVERTIBLE: SLIDING ROOF SYSTEM: Sliding Roof ECU Power Source Circuit (2010 Corolla)		

Sliding Roof ECU Power Source Circuit

DESCRIPTION

If either the sliding function or tilt function does not operate, there may be a malfunction in the sliding roof control ECU power source circuit.

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. INSPECT FUSE (SUNROOF, FR DOOR)

- (a) Remove the SUNROOF and FR DOOR fuses from the instrument panel junction block.
 (b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

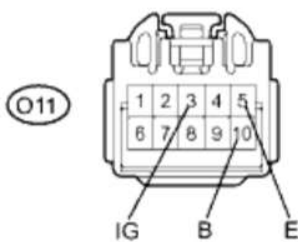
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
SUNROOF fuse	Always	Below 1 Ω
FR DOOR fuse	Always	Below 1 Ω

NG ► REPLACE FUSE

OK
▼

2. CHECK HARNESS AND CONNECTOR (SLIDING ROOF DRIVE GEAR - BATTERY, BODY GROUND)

Front view of wire harness connector:
 (to Sliding Roof Control ECU)



- (a) Disconnect the O11 ECU connector.

- (b) Measure the voltage and resistance according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
O11-10 (B) - Body ground	Always	11 to 14 V

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
O 11-3 (IG) - Body ground	Ignition switch off	Below 1 V
O 11-3 (IG) - Body ground	Ignition switch ON	11 to 14 V

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
O 11-5 (E) - Body ground	Always	Below 1 Ω

NG ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ► **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN
IN PROBLEM SYMPTOMS TABLE**



TOYOTA