

HVAC Servo Motor Noise

Service Category Vehicle Interior

Section Heating/Air Conditioning

Market USA

Toyota Supports
 ASE Certification 

Applicability

YEAR(S)	MODEL(S)	ADDITIONAL INFORMATION
2015	Highlander, Highlander HV	

Introduction

Some 2015 model year Highlander and Highlander HV vehicles equipped with Dual Front Air Conditioning Systems may exhibit an intermittent buzzing noise condition coming from the center of the instrument panel during HVAC operation. The noise occurs during the operation of the LH and RH air mix servo motors. The Repair Procedure in this bulletin has been developed to address this condition.

Production Change Information

This bulletin applies to vehicles produced **BEFORE** the Production Change Effective VINs shown below.

MODEL	ENGINE	DRIVE	PRODUCTION CHANGE EFFECTIVE VIN
Highlander	2GR-F	2WD	5TD#KRFH#FS111214
	2GR-F	4WD	5TD#KRFH#FS208541
	1AR-F	2WD	5TD#ARFH#FS016550
Highlander HV	HYBRID	ALL	5TD#CRFH#FS013137

Warranty Information

OP CODE	DESCRIPTION	TIME	OFF	T1	T2
AC1600	R & R Servo Sub-Assy, Damper	1.2	87106-07120	91	43

APPLICABLE WARRANTY

- This repair is covered under the Toyota Basic Warranty. This warranty is in effect for 36 months or 36,000 miles, whichever occurs first, from the vehicle's in-service date.
- Warranty application is limited to occurrence of the specified condition described in this bulletin.

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Parts Information

PART NUMBER	PART NAME	QTY
87106-0E090	Servo Sub-Assy, Damper	1

Required Tools & Equipment

REQUIRED EQUIPMENT	SUPPLIER	PART NUMBER	QTY
Techstream 2.0*	ADE	TS2UNIT	1
Techstream Lite		TSLITEPDLR01	

* Essential SST.

NOTE

- Only ONE of the Techstream units listed above is required.
- Software version 11.10.034 or later is required.
- Additional Techstream units may be ordered by calling Approved Dealer Equipment (ADE) at 1-800-368-6787.

Repair Procedure

1. Slide both front seats to the rearward most position.
2. Disconnect cable from negative (–) battery terminal.

CAUTION

Wait at least 90 seconds after disconnecting the cable from the negative (–) battery terminal to disable the SRS system.

NOTICE

After turning the ignition switch off, waiting time may be required before disconnecting the cable from the negative (–) battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (–) battery terminal notice before proceeding.

Refer to the Technical Information System (TIS), applicable model and model year Repair Manual:

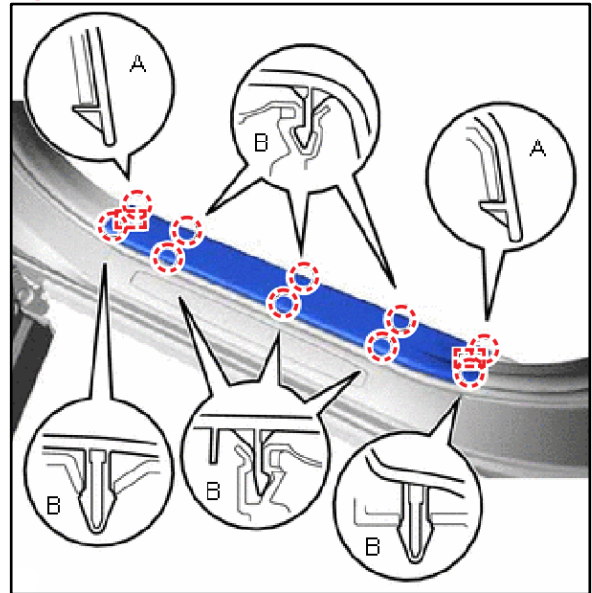
- 2015 Highlander:
 General – Introduction – [“Introduction: Repair Instruction: Precaution”](#)
- 2015 Highlander HV:
 General – Introduction – [“Introduction: Repair Instruction: Precaution”](#)

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Repair Procedure (Continued)

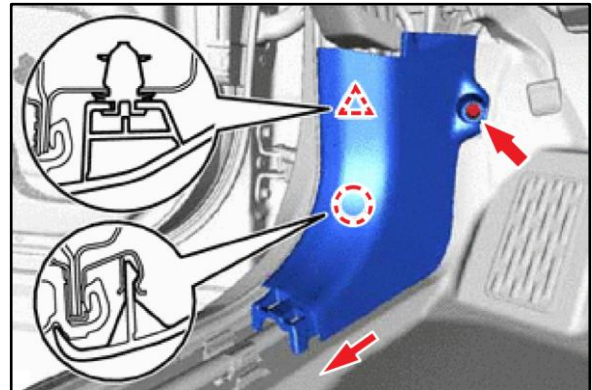
3. Remove the front door scuff plate LH.
 - A. Disengage the 2 claws.
 - B. Disengage the 8 claws and 2 guides to remove the front door scuff plate LH.

Figure 1.



4. Remove the cowl side trim sub-assembly LH.
 - A. Remove the clip.
 - B. Disengage the claw and clip to remove the cowl side trim sub-assembly LH.

Figure 2.



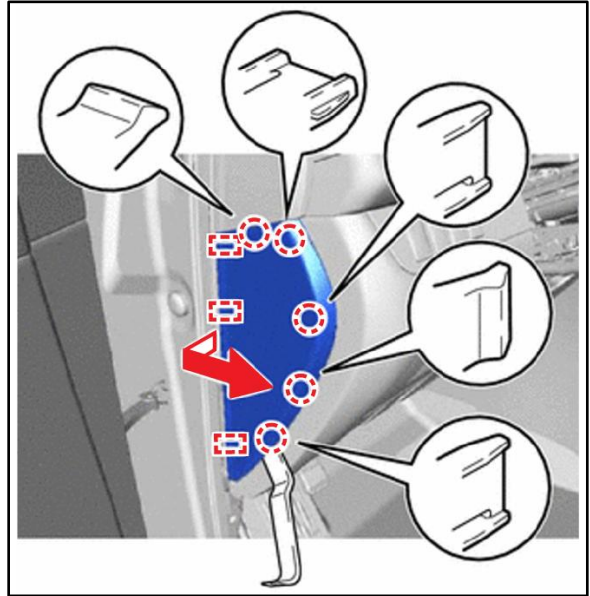
5. Remove the front door opening trim weather strip LH to the extent that allows the removal of the instrument panel finish panel end.

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Repair Procedure (Continued)

6. Remove the instrument panel finish panel end LH by using a molding remover and disengaging the 5 claws and 3 guides.

Figure 3.



7. Remove the No. 1 instrument panel under cover sub-assembly.
 - A. Remove the 2 screws.

Figure 4.

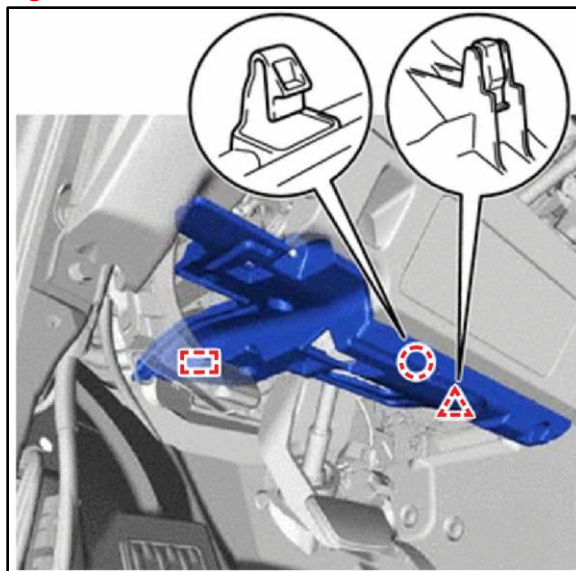


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Repair Procedure (Continued)

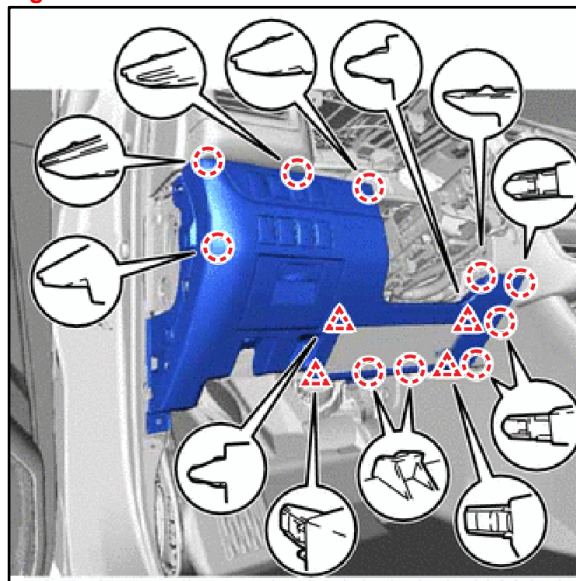
- B. Disengage the claw, clip, and guide.

Figure 5.



- 8. Disconnect the hood lock control lever sub-assembly by disengaging the claw and 2 guides.

Figure 6.

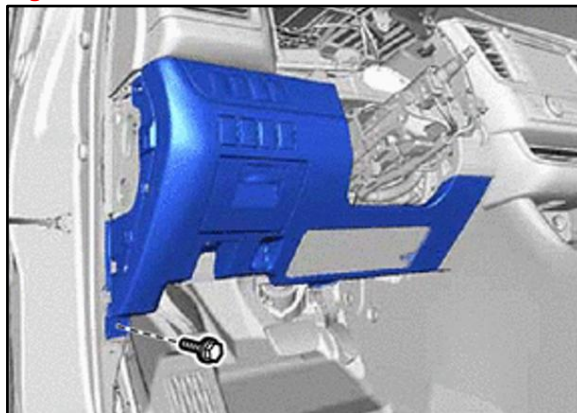


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Repair Procedure (Continued)

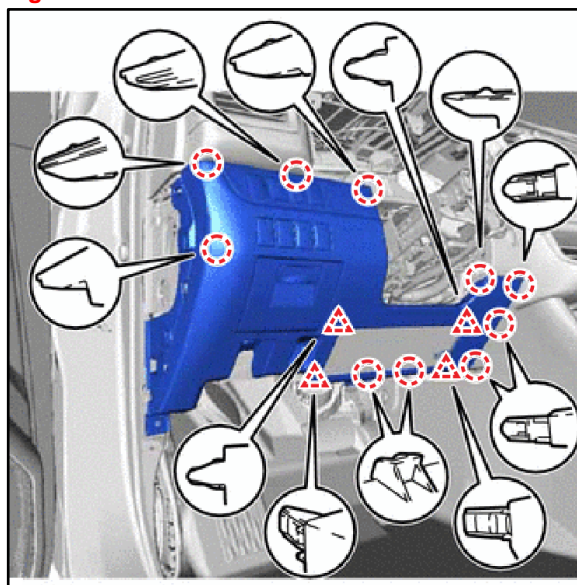
9. Remove the lower instrument panel finish panel sub-assembly.
 - A. Remove the bolt.

Figure 7.



- B. Disengage the 10 claws and 4 clips.

Figure 8.



- C. Disconnect each connector to remove the lower instrument panel finish panel sub-assembly.

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Repair Procedure (Continued)

10. Remove the lower No. 1 instrument panel airbag assembly.

CAUTION

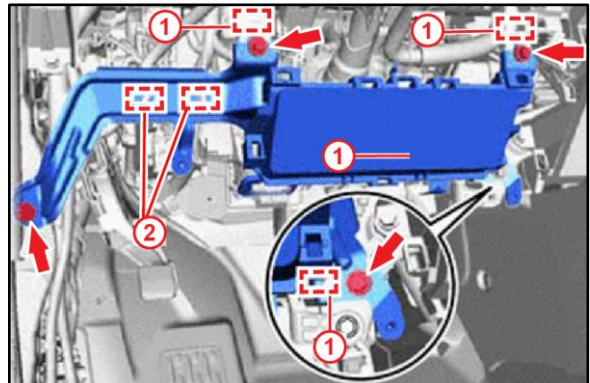
When storing the lower No. 1 instrument panel airbag assembly, keep the airbag deployment side facing upward.

- A. Check that the ignition switch is off.
- B. Check that the cable is disconnected from the negative (-) battery terminal.
- C. Remove the 4 bolts.
- D. Disengage the 2 clamps and the 3 hooks to separate the lower No. 1 instrument panel airbag assembly.

NOTICE

When separating the lower No. 1 instrument panel airbag assembly, do NOT pull the airbag wire harness.

Figure 9.



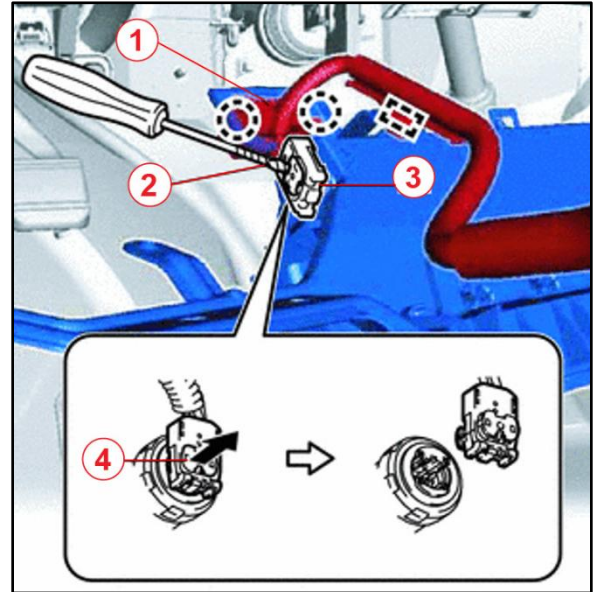
1	Hook
2	Clamp

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Repair Procedure (Continued)

- E. Disengage the 2 claws and clamp to disconnect the DLC3.

Figure 10.



1	DLC3
2	Protective Tape
3	Airbag Connector
4	Airbag Connector Lock

- F. Using a screwdriver with its tip wrapped with protective tape, release the airbag connector lock.
- G. Disconnect the airbag connector to remove the lower No.1 instrument panel airbag assembly.

NOTICE

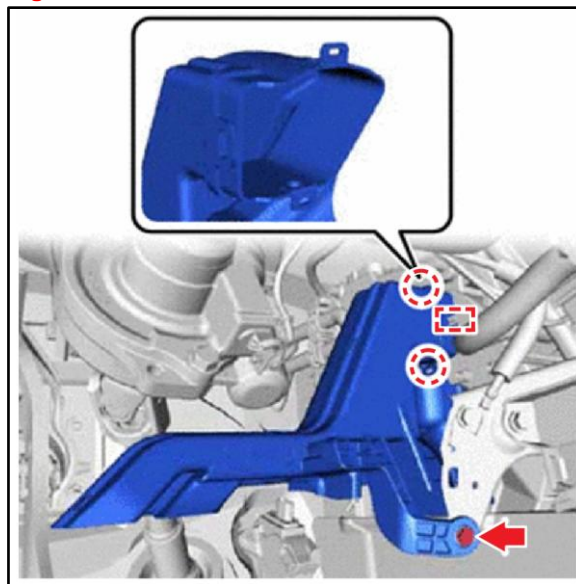
When disconnecting any airbag connector, take care not to damage the airbag wire harness.

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Repair Procedure (Continued)

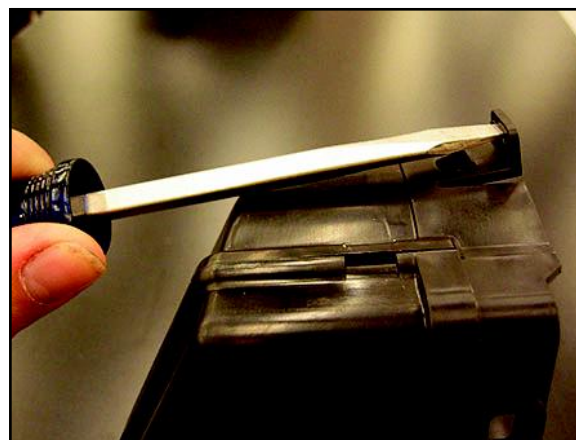
11. Remove the No. 4 air duct sub-assembly.
 - A. Remove the bolt.

Figure 11.



- B. Disengage the 2 claws (use a screw driver to gently lift and release the claws) and guide to remove the No. 4 air duct sub-assembly.

Figure 12.



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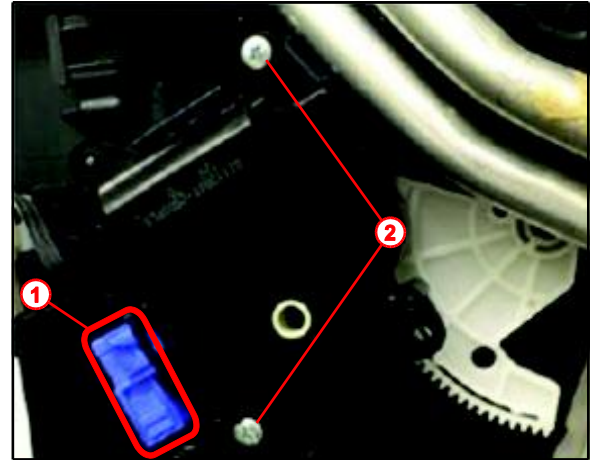
Repair Procedure (Continued)

12. Remove the driver side HVAC servo motor.
 - A. Disconnect the servo motor connector.
 - B. Remove the 2 servo motor screws.

NOTE

Once the servo motor is removed, the gear on the HVAC case will drop down.

Figure 13.



1	Servo motor connector
2	Servo motor screws

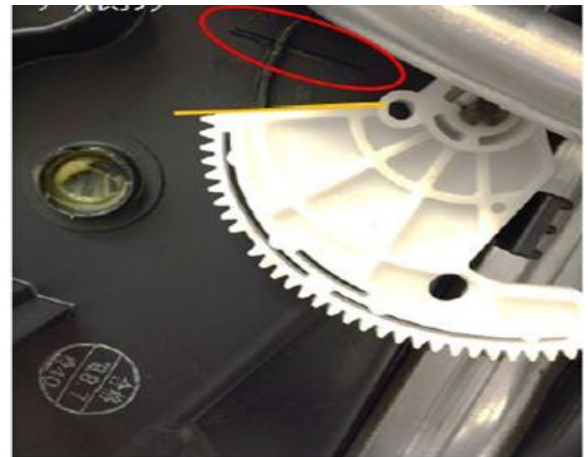
13. Install the NEW Driver Side HVAC servo motor.
 - A. Position the gear on the HVAC case to the initialized position.

NOTICE

The NEW servo motor is in the initialized position.

- (1) Use your finger and line up the top of the gear with the rib on the side of the HVAC case.

Figure 14.

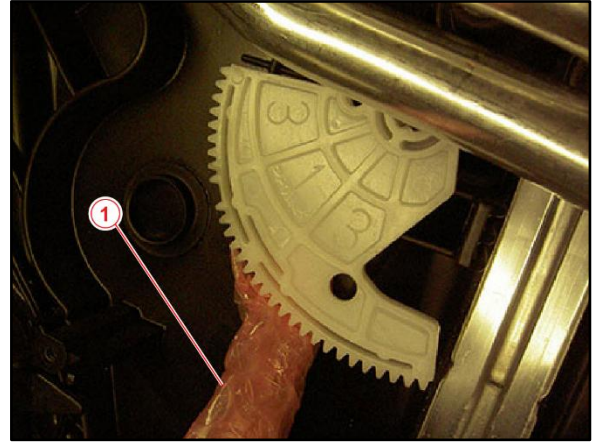


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Repair Procedure (Continued)

- (2) Hold the HVAC gear in the initialized position by placing bubble wrap, foam, paper, etc. (rolled-up bubble wrap shown), between the inside of the gear and the HVAC case.

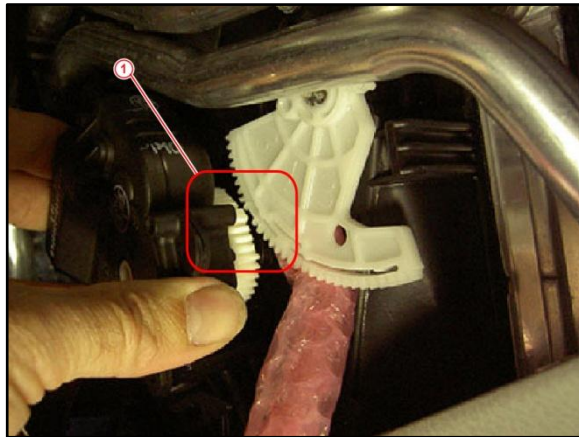
Figure 15.



1 Packing material (bubble wrap, foam, paper, etc.)

- (3) Install the NEW servo motor by aligning the key feature on the servo motor gear with the corresponding key feature on the HVAC case gear.

Figure 16.



1 Align servo motor and HVAC case gear key features

Figure 17.

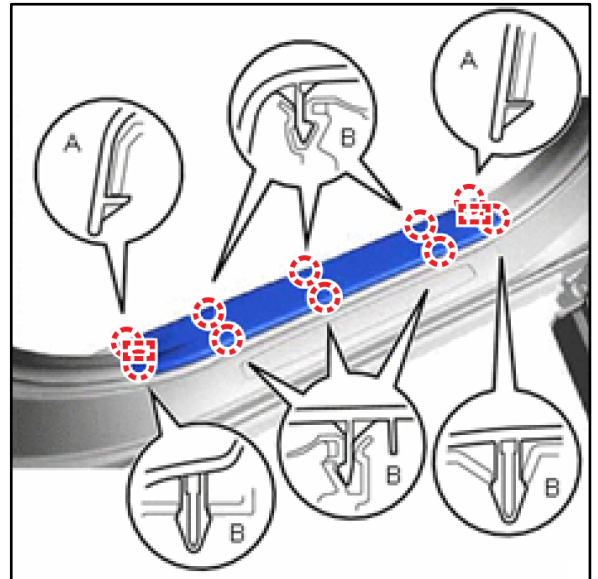


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Repair Procedure (Continued)

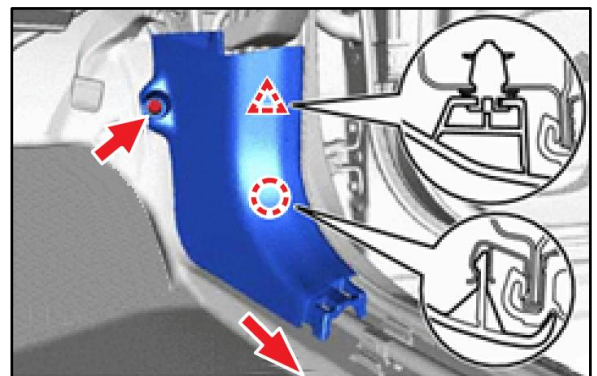
- (4) Reinstall the 2 servo motor screws.
 - (5) Reconnect the servo motor connector.
 - (6) Remove the material (bubble wrap, foam, paper, etc.) used to hold the HVAC case gear in place.
- B. Reinstall all the driver side trim panels in the reverse order of removal.
14. Disassemble the Passenger Side Trim Panel.
- A. Remove the front door scuff plate RH.
- (1) Disengage the 2 claws.
 - (2) Disengage the 8 claws and 2 guides to remove the front door scuff plate RH.

Figure 18.



- B. Remove the cowl side trim sub-assembly RH.
- (1) Remove the clip.
 - (2) Disengage the claw and clip to remove the cowl side trim sub-assembly RH.

Figure 19.

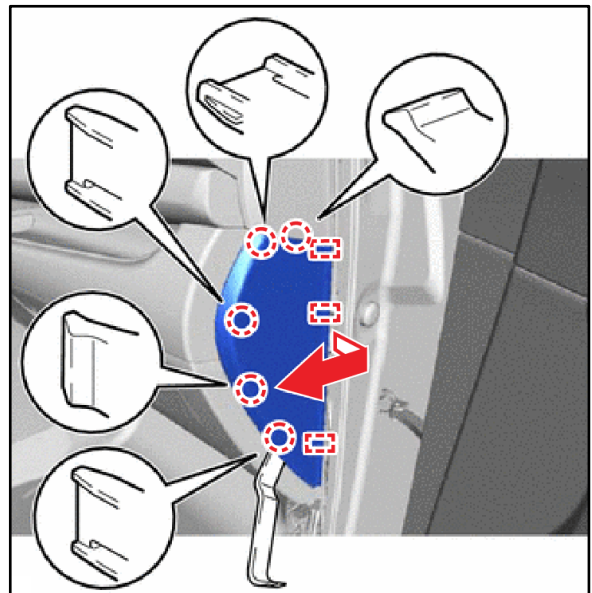


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Repair Procedure (Continued)

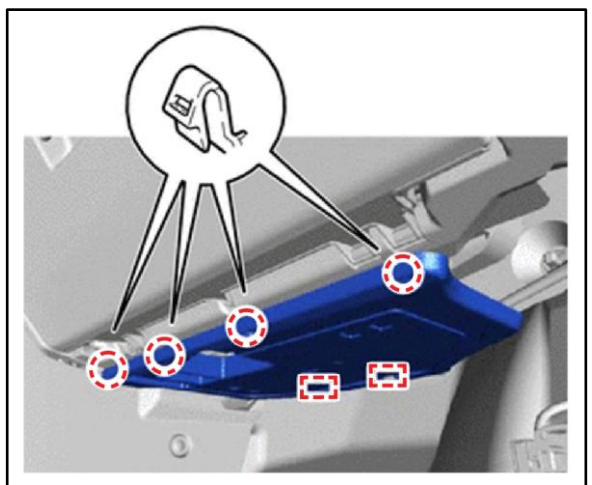
- C. Remove the front door opening trim weather strip to the extent that allows the removal of the instrument panel finish panel end.
- D. Remove the instrument panel finish panel end RH by using a molding remover and disengaging the 5 claws and 3 guides.

Figure 20.



- E. Remove the No. 2 instrument panel under cover sub-assembly by disengaging the 4 claws and 2 guides.

Figure 21.



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Repair Procedure (Continued)

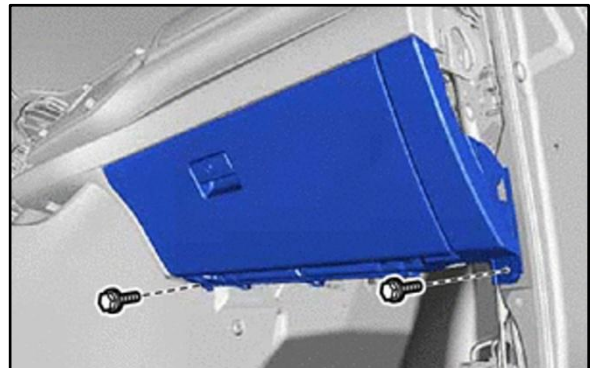
- F. Remove the lower instrument panel sub assembly.
- (1) Open the lower instrument panel sub-assembly door.
 - (2) Remove the 3 screws.

Figure 22.



- (3) Close the lower instrument panel sub-assembly door.
- (4) Remove the 2 bolts.

Figure 23.

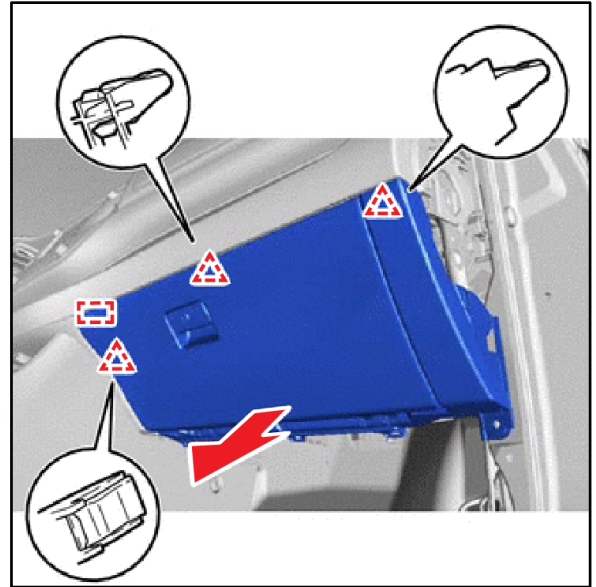


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Repair Procedure (Continued)

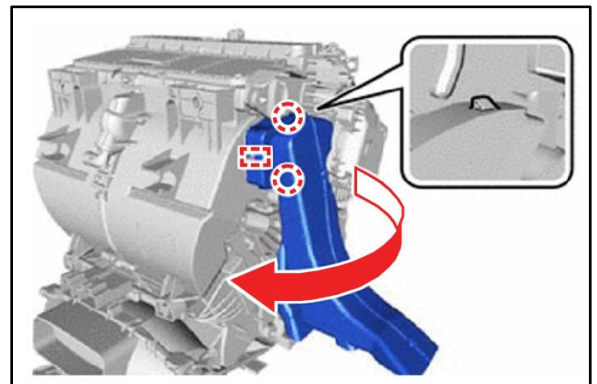
- (5) Disengage the 3 clips and guides.
- (6) Disconnect each connector and remove the lower instrument panel sub-assembly.

Figure 24.



- G. Remove the No. 3 air duct sub-assembly by disengaging the 2 claws and guide.

Figure 25.



- H. Remove the push pin from the lower trim panel.

Figure 26.



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Repair Procedure (Continued)

15. Install the Passenger Side Insulation Sheet.

The insulation sheet has adhesive applied to the top corners of the inside of the sheet. The adhesive areas are used to attach the insulation sheet in place. The bottom portion of the insulation sheet should be tucked (NOT adhered) to the inside of the lower trim panel.

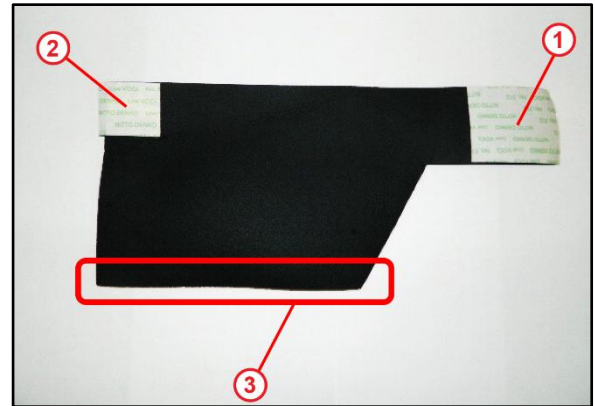
NOTE

Adhesive side faces servo motor.

A. Position the insulation sheet.

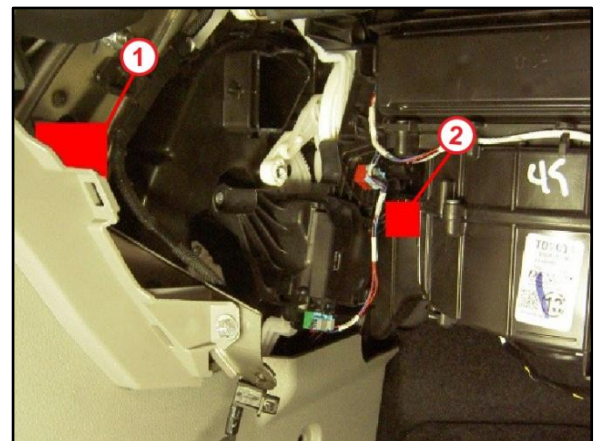
- (1) Place the narrow side of the insulation sheet adhesive against the center console/dash metal brace.
- (2) Place the wide side of the insulation sheet adhesive against the blower motor case covering the servo motor and wire harness.

Figure 27.



1	Insulation sheet, narrow side
2	Insulation sheet, wide side
3	Insulation sheet, bottom portion

Figure 28.



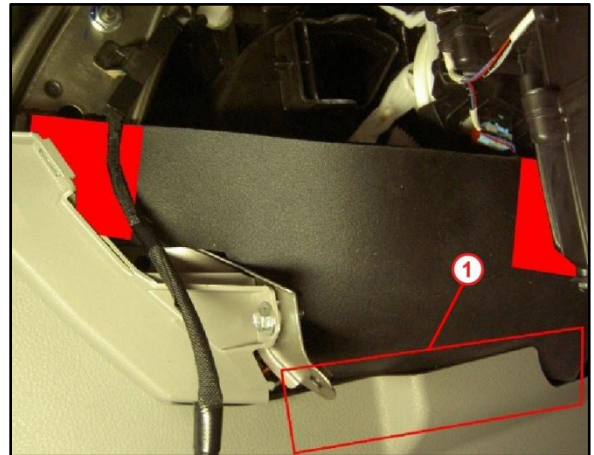
1	Center console/dash metal brace
2	Blower motor case

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Repair Procedure (Continued)

- (3) Tuck the bottom portion of the insulation sheet to the inside of the lower trim panel.
- (4) Remove the two adhesive liners and adhere to the respective locations.

Figure 29.



1	Lower trim panel
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16. Reinstall the passenger side trim panels in the reverse order from removal.
17. Reconnect the battery.
Torque: 5.4 N*m (55 kgf*cm, 48 in*lbf)
18. Initialize all affected systems.
Refer to TIS, applicable model and model year Repair Manual:
 - 2015 Highlander:
General – Introduction – [“Introduction: Repair Instruction: Initialization”](#)
 - 2015 Highlander HV:
General – Introduction – [“Introduction: Repair Instruction: Initialization”](#)
19. Verify normal operation of HVAC temperature control.

NOTE

Vehicle should be at normal operating temperature.