HVAC Servo Motor Noise

Service Category  Vehicle Interior
Section  Heating/Air Conditioning  Market  USA

Applicability

<table>
<thead>
<tr>
<th>YEAR(S)</th>
<th>MODEL(S)</th>
<th>ADDITIONAL INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>Highlander, Highlander HV</td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>ENGINE</th>
<th>DRIVE</th>
<th>PRODUCTION CHANGE EFFECTIVE VIN</th>
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</thead>
<tbody>
<tr>
<td>Highlander</td>
<td>2GR-F</td>
<td>2WD</td>
<td>5TD#KRFH#FS111214</td>
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<tr>
<td></td>
<td>2GR-F</td>
<td>4WD</td>
<td>5TD#KRFH#FS208541</td>
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<td></td>
<td>1AR-F</td>
<td>2WD</td>
<td>5TD#ARFH#FS016550</td>
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<tr>
<td>Highlander HV</td>
<td>HYBRID</td>
<td>ALL</td>
<td>5TD#CRFH#FS013137</td>
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Warranty Information

<table>
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<tr>
<th>OP CODE</th>
<th>DESCRIPTION</th>
<th>TIME</th>
<th>OFP</th>
<th>T1</th>
<th>T2</th>
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<tbody>
<tr>
<td>AC1600</td>
<td>R &amp; R Servo Sub-Assy, Damper</td>
<td>1.2</td>
<td>87106-07120</td>
<td>91</td>
<td>43</td>
</tr>
</tbody>
</table>

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.
HVAC Servo Motor Noise

Parts Information

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>PART NAME</th>
<th>QTY</th>
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</thead>
<tbody>
<tr>
<td>87106-0E090</td>
<td>Servo Sub-Assy, Damper</td>
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Required Tools & Equipment

<table>
<thead>
<tr>
<th>REQUIRED EQUIPMENT</th>
<th>SUPPLIER</th>
<th>PART NUMBER</th>
<th>QTY</th>
</tr>
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<tbody>
<tr>
<td>Techstream 2.0*</td>
<td>ADE</td>
<td>TS2UNIT</td>
<td>1</td>
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<tr>
<td>Techstream Lite</td>
<td>ADE</td>
<td>TSLITEPDLR01</td>
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</tbody>
</table>

* 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:
- 2015 Highlander HV:
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.

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.

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

7. Remove the No. 1 instrument panel under cover sub-assembly.
   A. Remove the 2 screws.
Repair Procedure (Continued)

B. Disengage the claw, clip, and guide.

8. Disconnect the hood lock control lever sub-assembly by disengaging the claw and 2 guides.
9. Remove the lower instrument panel finish panel sub-assembly.
   A. Remove the bolt.

B. Disengage the 10 claws and 4 clips.

C. Disconnect each connector to remove the lower instrument panel finish panel sub-assembly.
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.
Repair Procedure (Continued)

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

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.
Repair Procedure (Continued)

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

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.
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. Servo motor connector and screws](image)

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.
(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.

(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.
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.


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.

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.
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.

E. Remove the No. 2 instrument panel under cover sub-assembly by disengaging the 4 claws and 2 guides.
F. Remove the lower instrument panel sub assembly.
   (1) Open the lower instrument panel sub-assembly door.
   (2) Remove the 3 screws.
   (3) Close the lower instrument panel sub-assembly door.
   (4) Remove the 2 bolts.
(5) Disengage the 3 clips and guides.
(6) Disconnect each connector and remove the lower instrument panel sub-assembly.

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

H. Remove the push pin from the lower trim panel.
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
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. Lower trim panel](image)

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:
   - 2015 Highlander HV:

19. Verify normal operation of HVAC temperature control.

   **NOTE**
   Vehicle should be at normal operating temperature.