Transaxle Whine Noise

Service Category: Drivetrain
Section: Automatic Transmission/Transaxle

Market: USA

Applicability

<table>
<thead>
<tr>
<th>YEAR(S)</th>
<th>MODEL(S)</th>
<th>ADDITIONAL INFORMATION</th>
</tr>
</thead>
</table>
| 2006 – 2010 | RAV4 | Drive Type(s): 4WD, 2WD  
Engine(s): 2GR  
Transmission(s): 5AT  
VDS(s): BK31V, BK32V, BK33V, BK34V, BK35V, BK4DV, DF4DV, DK4DV, EK4DV, JK4DV, KK4DV, RK4DV, WK4DV, XK4DV, YK4DV, ZK31V, ZK32V, ZK33V, ZK34V, ZK35V, ZK4DV  
WMI(s): 2T3, JTM |

Introduction

Some 2006 – 2010 model year RAV4 vehicles equipped with the 5 speed automatic transaxle may exhibit a whine noise from the final drive gear assembly. This noise is usually noticeable between 20 MPH up to 65 MPH. Two engine mounts and the left front drive shaft damper have been revised to reduce the noise level heard by the customer. If further improvement is necessary, a honing process has been added to the final drive gear assembly to further reduce the noise concern. Please refer to the repair procedure below to address this condition.

Warranty Information

<table>
<thead>
<tr>
<th>OP CODE</th>
<th>DESCRIPTION</th>
<th>DRIVE-TRAIN</th>
<th>TIME</th>
<th>OFP</th>
<th>T1</th>
<th>T2</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC1007</td>
<td>R &amp; R Engine Mounting Insulators LH, Rear, and Left Front Drive Shaft Damper</td>
<td>2WD</td>
<td>3.3</td>
<td>43474-0R0#0</td>
<td>91</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4WD</td>
<td>3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TC1008</td>
<td>R &amp; R Transaxle Assembly</td>
<td>2WD</td>
<td>8.3</td>
<td>30500-42##0</td>
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<td></td>
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<td></td>
<td></td>
<td>4WD</td>
<td>9.0</td>
<td></td>
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</tbody>
</table>

APPLICABLE WARRANTY

- This repair is covered under the Toyota Powertrain Warranty. This warranty is in effect for 60 months or 60,000 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.
Transaxle Whine Noise

Parts Information

<table>
<thead>
<tr>
<th>PREVIOUS PART NUMBER</th>
<th>CURRENT PART NUMBER</th>
<th>DRIVE-TRAIN</th>
<th>PART NAME</th>
<th>QTY</th>
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<tbody>
<tr>
<td>12372-31020</td>
<td>12372-31021</td>
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<td>12371-31101</td>
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<td>12371-31110</td>
<td>12371-31111</td>
<td>4WD</td>
<td></td>
<td></td>
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<tr>
<td>43474-0R040</td>
<td>43474-0R041</td>
<td>Steel Wheel</td>
<td>Damper, Drive Shaft</td>
<td>1</td>
</tr>
<tr>
<td>43474-0R050</td>
<td>43474-0R051</td>
<td>Alloy Wheel</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>90080-17238</td>
<td>Same</td>
<td>All</td>
<td>Nut (for Front Drive Shaft LH)</td>
<td>1</td>
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<tr>
<td>04438-0R020</td>
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<td>All</td>
<td>Boot Kit, Front Drive Shaft</td>
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<tr>
<td>42345-07090</td>
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<td>All</td>
<td>Clamp (for Front Drive Shaft</td>
<td>1</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Damper, LH)</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>30510-4H190-84</td>
<td>2WD</td>
<td>REMAN Transaxle Assembly</td>
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<tr>
<td>N/A</td>
<td>30510-4H202-84</td>
<td>4WD</td>
<td>As Needed</td>
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<tr>
<td>00289-ATFWS</td>
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<td>All</td>
<td>ATF WS</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>
</thead>
<tbody>
<tr>
<td>TIS Techstream*</td>
<td>ADE</td>
<td>TSPKG1</td>
<td>1</td>
</tr>
<tr>
<td>or Techstream Lite</td>
<td></td>
<td>TSLITEDLR01</td>
<td></td>
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</tbody>
</table>

NOTE: Software version 5.01.001 or later is required.

* Essential SST.

NOTE
Additional TIS Techstream or Techstream Lite units may be ordered by calling Approved Dealer Equipment (ADE) at 1-800-368-6787.
Transaxle Whine Noise

Repair Procedure

1. Test drive the vehicle while at operating temperature and listen for a whine noise from the Drivetrain.

Is there a whine type noise coming from the transaxle area between 20 – 65 MPH?

- **YES** — Proceed to step 2.
- **NO** — This TSB does NOT apply. Refer to the Repair Manual for additional diagnosis.

2. Confirm the fluid level is at the correct level. If adjustment was necessary, test drive again to see if the noise has improved. If no improvement, proceed to step 3.

3. Replace the engine mounting insulators (LH & Rear) and the left front drive shaft damper.

   A. Replace the engine mounting insulator LH.

   (1) Remove the V-bank cover sub-assembly by detaching the 3 clips.

   (2) Remove the radiator support opening cover by removing the 9 clips.
Transaxle Whine Noise

Repair Procedure (Continued)

(3) Remove the battery clamp sub-assembly.
   1. Remove the bolt and loosen the nut.
   2. Detach the 2 wire harness clamps.
   3. Detach the hook of the battery clamp from the battery bracket front, and then remove the battery clamp.

(4) Remove the battery.
Transaxle Whine Noise

Repair Procedure (Continued)

(5) Remove the front battery bracket.
   1. Detach the 2 wire harness clamps.
   2. Remove the 4 bolts and front bracket.

(6) Remove the battery bracket reinforcement by removing the 2 bolts.
(7) Remove the air cleaner cap sub-assembly.

1. Disconnect the mass air flow meter connector.

2. Disconnect the VSV (air intake control) connector.

3. Disconnect the wire harness clamp and 2 vacuum hoses.

4. Disconnect the No. 2 ventilation hose from the air cleaner hose.

5. Loosen the No. 1 air cleaner hose clamp.

6. Unfasten the 2 hook clamps, and then remove the air cleaner cap.

7. Remove the air cleaner filter element from the air cleaner case.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mass Air Flow Meter Connector</td>
</tr>
<tr>
<td>2</td>
<td>Purge VSV Connector</td>
</tr>
<tr>
<td>3</td>
<td>Wire Harness Clamp</td>
</tr>
<tr>
<td>4</td>
<td>Vacuum Hoses</td>
</tr>
<tr>
<td>5</td>
<td>No. 2 Ventilation Hose Clamp</td>
</tr>
<tr>
<td>6</td>
<td>No. 1 Air Cleaner Hose Clamp</td>
</tr>
</tbody>
</table>
Transaxle Whine Noise

Repair Procedure (Continued)

(8) Remove the air cleaner case.
    1. Disconnect the harness clamp.
    2. Remove the 3 bolts and air cleaner case.
    3. Remove the wire harness clamp.

(9) Remove the 2 bolts and bracket for the engine harness.

NOTE
This will improve access to the engine mounting insulator LH.

Figure 7.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bolt</td>
</tr>
<tr>
<td>2</td>
<td>Wire Harness Clamp</td>
</tr>
</tbody>
</table>

Figure 8.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bolt</td>
</tr>
<tr>
<td>2</td>
<td>Bracket</td>
</tr>
</tbody>
</table>
Transaxle Whine Noise

Repair Procedure (Continued)

(10) Raise the vehicle and remove the engine undercovers.

1. Remove the 8 plastic clips, 8 bolts, and the large engine undercover.
2. Remove the 3 plastic clips and the small engine undercover.
3. Lower the vehicle.

Figure 9.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bolts for Large Engine Undercover</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Clips for Large Engine Undercover</td>
<td></td>
</tr>
</tbody>
</table>
(11) Using a hydraulic jack with a rubber pad or wood block, gently support the engine/transaxle assembly to remove the load from the bolt and nut of the engine mounting insulator LH.

(12) Remove the bolt and nut, and disconnect the engine mounting insulator LH.

(13) Remove the 4 bolts and engine mounting insulator LH.

(14) Install the NEW engine mounting insulator LH with the 4 bolts. Torque: 95 N·m (969 kgf·cm, 70 ft·lbf)

**HINT**

It may be necessary to lower the engine/transaxle assembly up to 15 mm (0.60 in.) to improve access to the lower rear bolt with a torque wrench.
Transaxle Whine Noise

Repair Procedure (Continued)

(15) Install the bolt and nut, and connect the engine mounting insulator LH.

Torque: 56 N*m (571 kgf*cm, 41 ft*lbf)

NOTICE
While holding the bolt in place, tighten the nut.

(16) Remove the hydraulic jack that was used to support the engine/transaxle assembly.

(17) Install the air cleaner case.

1. Install the 3 bolts and air cleaner case.

   Torque: 5.0 N*m (51 kgf*cm, 44 in*lbf)

2. Connect the harness clamp.
Transaxle Whine Noise

Repair Procedure (Continued)

(18) Install the air cleaner cap sub-assembly.

1. Install the air cleaner filter element from the air cleaner case.

2. Fasten the 2 hook clamps, and then the air cleaner cap.

3. Tighten the No. 1 air cleaner hose clamp.

4. Connect the No. 2 ventilation hose from the air cleaner hose.

5. Connect the wire harness clamp and 3 vacuum hoses.

6. Connect the VSV (air intake control) connector.

7. Connect the mass air flow meter connector.

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**Figure 15.**

| 1  | Mass Air Flow Meter Connector |
| 2  | Purge VSV Connector           |
| 3  | Wire Harness Clamp            |
| 4  | Vacuum Hoses                  |
| 5  | No. 2 Ventilation Hose Clamp  |
| 6  | No. 1 Air Cleaner Hose Clamp  |
(19) Install the 2 bolts and the battery bracket reinforcement.

**Torque: 19 N*m (194 kgf*cm, 14 ft*lbf)**

![Figure 16](image)

(20) Install the front battery bracket.

1. Install the 4 bolts and front bracket.

**Torque: 19 N*m (194 kgf*cm, 14 ft*lbf)**

2. Attach the 2 wire harness clamps.

![Figure 17](image)

<table>
<thead>
<tr>
<th></th>
<th>Clamps</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Bolts</td>
</tr>
</tbody>
</table>

(21) Install the battery.
Repair Procedure (Continued)

(22) Install the battery clamp sub-assembly.

1. Attach the hook of the battery clamp to the battery bracket front, and then to the battery clamp.
2. Attach the 2 wire harness clamps.
3. Install the bolt and nut.
   Torque: 5.0 N*m (51 kgf*cm, 44 in*lbf)

(23) Attach the radiator support opening cover and the 9 clips.
Repair Procedure (Continued)

(24) Attach the V-bank cover sub-assembly and the 3 clips.

B. Replace the engine mounting insulator rear.

(1) Raise the vehicle and place a jack stand with a rubber cover under the transaxle case to support the engine/transaxle during removal of the bolt.
Repair Procedure (Continued)

(2) Remove the bolt and disconnect the engine mounting insulator rear.

(3) Remove the 2 nuts, 2 bolts, and engine mounting insulator rear.
Transaxle Whine Noise

Repair Procedure (Continued)

(4) Remove the bolt from the shift cable bracket.

(5) Remove the engine mounting insulator rear.

(6) Install the 2 nuts, 2 bolts, and the NEW engine mounting insulator rear.

Torque: 95 N·m (969 kgf·cm, 70 ft·lbf)

Figure 24.

(7) Install the bolt from the shift cable bracket.

Torque: 12 N·m (122 kgf·cm, 9 ft·lbf)
(8) Install the bolt and connect the engine mounting insulator rear.
Torque: 95 N*m (969 kgf*cm, 70 ft*lbf)

(9) Remove the jack stand.
Transaxle Whine Noise

Repair Procedure (Continued)

C. Replace the left front drive shaft damper.

(1) Remove the left front drive shaft assembly.

**NOTE**
Some ATF may leak from the transaxle during drive shaft removal. This ATF will need to be refilled after the repair is complete.

Refer to the Technical Information System (TIS), applicable model year RAV4 Repair Manual:

- **2WD:**

- **4WD:**

(2) Remove the drive shaft damper by removing the inboard joint assembly.

Refer to TIS, applicable model year RAV4 Repair Manual:

- **2WD:**

- **4WD:**

(3) Install the NEW drive shaft damper with a NEW clamp and inboard boot kit.

**NOTE**
The orientation of the damper is not critical. It can be placed on the shaft in either direction.

Refer to TIS, applicable model year RAV4 Repair Manual:

- **2WD:**
**Transaxle Whine Noise**

Repair Procedure (Continued)

- **4WD:**
  

  (4) Install the left front drive shaft assembly with a new drive shaft nut.

  Refer to TIS, applicable model year RAV4 Repair Manual:

  - **2WD:**
    

  - **4WD:**
    

4. Confirm the ATF level is correct.

5. Repeat the test drive until the transaxle is at operating temperature and listen for the whine noise from the Drivetrain.

Is the whine noise from the transaxle reduced to an acceptable level between 20 – 65 MPH?

- **NO** — Proceed to step 6.

- **YES** — STOP. The repair is complete.

6. Replace the automatic transaxle assembly.

Refer to TIS, applicable model year RAV4 Repair Manual:

**U151E:**

  

  

**U151F:**

  

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Transaxle Whine Noise

Repair Procedure (Continued)


7. Using Techstream, reset the memory.
   **System Select > Engine & ECT > Utility > Reset Memory**

   Refer to TIS, applicable model year RAV4 Repair Manual:

   - **U151E:**

   - **U151F:**

8. Perform the Road Test to complete the ECM learning process.

   Refer to TIS, applicable model year RAV4 Repair Manual:

   - **U151E:**

   - **U151F:**
     Drivetrain – Automatic Transmission/Transaxle – “U151F Automatic Transaxle: Automatic Transaxle Assembly: Road Test”

9. Confirm the whine noise condition has been corrected.