

Abnormal Buzz/Groan Noise at 20 - 30 mph

Service Category Drivetrain

Section Transfer/4wd/Awd

Market USA

Toyota Supports
 ASE Certification 

Applicability

YEAR(S)	MODEL(S)	ADDITIONAL INFORMATION
2019	RAV4	

Introduction

Some 2019 model year RAV4 vehicles may exhibit an abnormal buzz/groan noise at 20 – 30 mph when accelerating from a stop and/or at 13 – 20 mph on deceleration after driving the vehicle for 15 – 20 minutes or more. This condition occurs with Normal drive mode selected during disconnect/connect timing of AWD system. Follow the Repair Procedure in this bulletin to address this condition.

NOTE

This Service Bulletin ONLY applies to 2019 model year RAV4 Limited and Adventure grade vehicles with Torque Vectoring AWD System.

Warranty Information

OP CODE	DESCRIPTION	TIME	OFF	T1	T2
TC1902	R & R Transfer Case Electro-magnetic Clutch Assembly	3.5	41406-42010	91	19

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.

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Parts Information

PART NUMBER		PART NAME	QTY
PREVIOUS	NEW		
N/A	41406-42010	Electro-magnetic Clutch Assy	1
N/A	90301-99240	O-ring*	1
90430-18008	90430-A0003	Transaxle Refill/Overflow Plug Gasket*	2
	90341-18035	Drain Plug	1
	12157-10010	Transfer Case Refill/Drain Plug Gasket*	2
	90311-35056	Passenger Front Axle Seal*	1
	90177-22001	Nut, Lock*	1
	90119-10461	Bolt, W/Washer*	1
	90521-75002	Ring, Hole Snap*	1
	00289-ATFWS	Automatic Transmission Fluid WS	4
	08885-02606	Transfer Case Gear Oil (LX85 LSD Type)	1

*Nonreusable part.

Required Tools & Equipment

REQUIRED EQUIPMENT	SUPPLIER	PART NUMBER	QTY
Techstream ADVi*	ADE	TSADVUNIT	1
Techstream 2.0		TS2UNIT	
Techstream Lite		TSLITEPDLR01	
Techstream Lite (Green Cable)		TSLP2DLR01	

*Essential SST.

NOTE

- Only ONE of the Techstream units listed above is required.
- Software version 14.10.028 or later is required.
- Additional Techstream units may be ordered by calling Approved Dealer Equipment (ADE) at 1-800-368-6787.

REQUIRED TOOLS & MATERIAL	PART NUMBER	QUANTITY
Body Grease W	08887-02007	1
MP (Multi-Purpose) Grease	–	As Needed

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Repair Procedure

Diagnosis

Confirm the vehicle exhibits an abnormal buzz/groan noise from the transfer case during one or both of the following conditions.

- Driving at 20 – 30 mph when accelerating from a stop during AWD system disconnect timing
- Driving at 13 – 20 mph on deceleration during AWD system connect timing

NOTE

- Use chassis ears to confirm the noise is coming from the transfer case.
- Monitor the 4WD ECU Data List “Front and rear axle coupling position sensor status” to confirm the noise is occurring at AWD system disconnect and/or connect timing.

HINT

While driving above 20 mph, the system can be manually switched back and forth from disconnect to connect by switching drive mode from Normal to Sport.

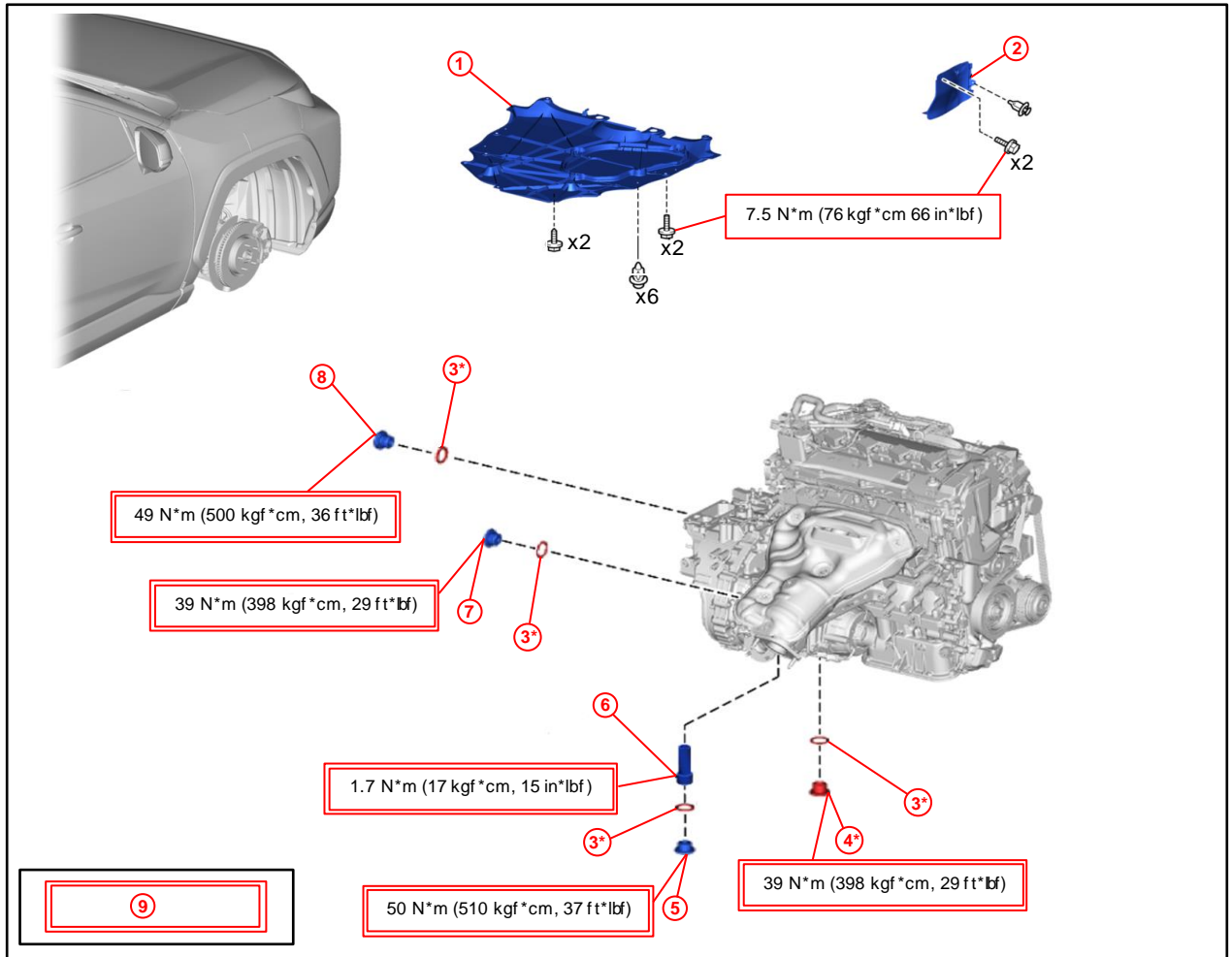
Does the vehicle exhibit an abnormal buzz/groan noise from the transfer case during one or both conditions described above?

- **YES** — Review the Component Overview subsection (pg. 4 – 5) and complete the Repair Procedure in this Service Bulletin.
- **NO** — This bulletin does NOT apply. Continue diagnosis using the applicable Repair Manual.

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Repair Procedure (continued)

Component Overview (One of Two)



*Component to be replaced.

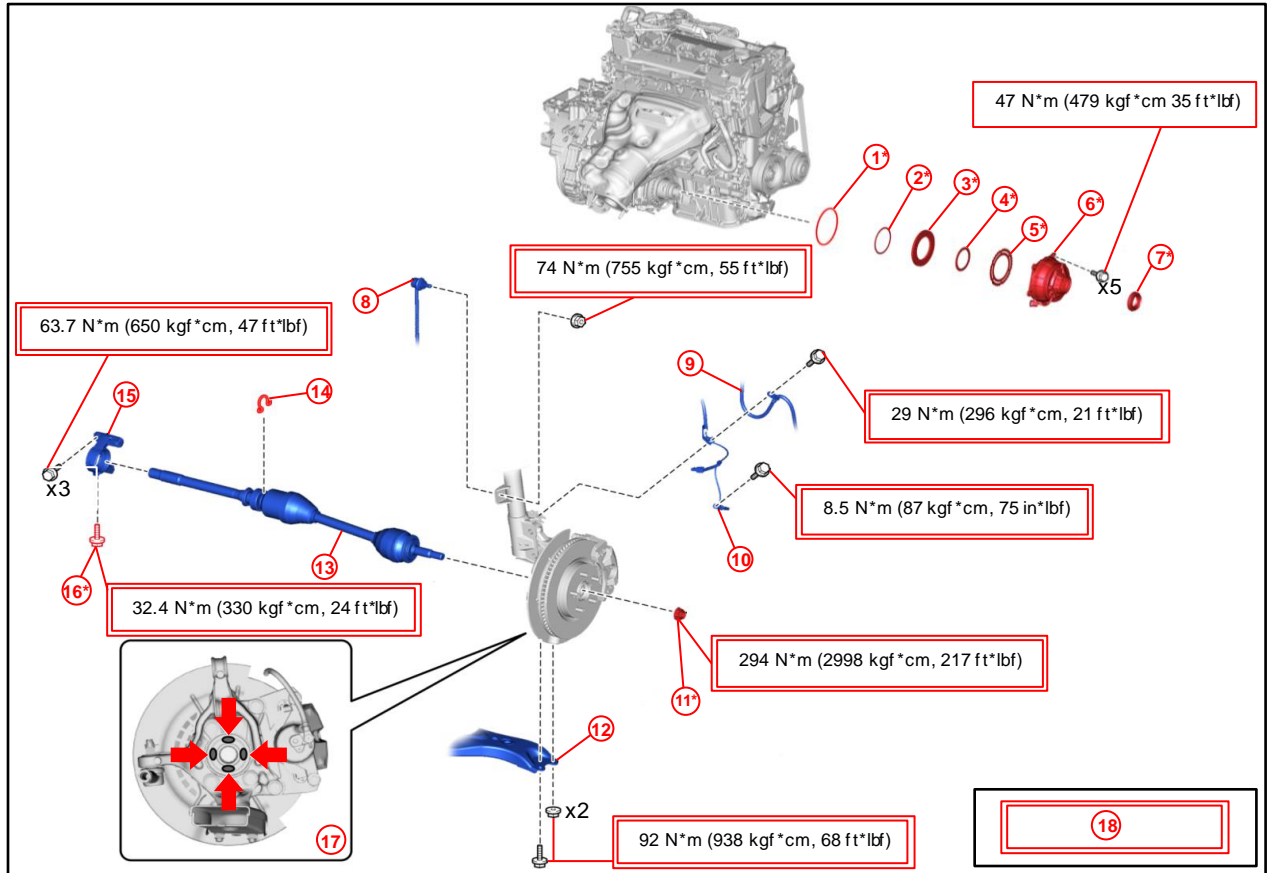
1	No. 2 Engine Under Cover Assembly
2	Front Fender Apron Seal RH
3	Gasket*
4	Transfer Drain Plug
5	Overflow Plug

6	No. 1 Transmission Oil Filter Tube
7	Transfer Filler Plug
8	Refill Plug
9	Torque Specification

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Repair Procedure (continued)

Component Overview (Two of Two)



*Component to be replaced. (Component is part of the transfer case electro-magnetic clutch assembly.)

1	O-ring
2	Shim*
3	Armature Plate*
4	Thrust Roller Bearing*
5	Outer Plate*
6	Cover*
7	Transfer Case Oil Seal (MP Grease)
8	Front Stabilizer Link Assembly RH
9	Front Flexible Hose

10	Front Speed Sensor RH
11	Front Axle Shaft Nut RH (Do Not Apply Lubricant to Threaded Parts)
12	Front Lower No. 1 Suspension Arm Assembly RH
13	Front Drive Shaft Assembly RH
14	Drive Shaft Bearing Bracket Hole Snap Ring
15	Drive Shaft Bearing Bracket
16	Bolt
17	Toyota Body Grease W (Application Area)
18	Torque Specification

NOTE
Tightening torque for major areas involving basic vehicle performance, such as moving, turning, and stopping.

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Repair Procedure (continued)

Transfer Case Electro-magnetic Clutch Assembly Removal

1. Remove the front drive shaft assembly RH.

NOTE

Make sure to drain ALL automatic transaxle fluid and transfer oil BEFORE drive shaft removal to prevent the two oils from mixing.

Refer to TIS, applicable model and model year Repair Manual:

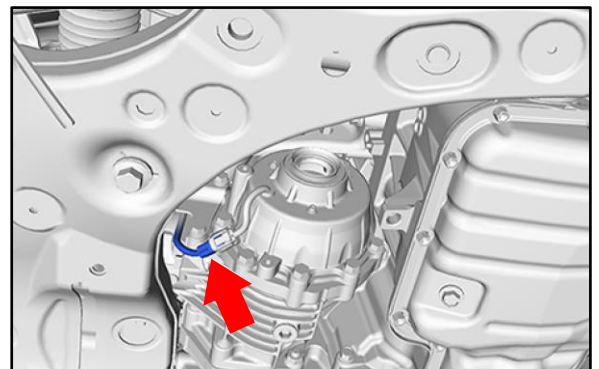
- 2019 RAV4:
Drivetrain – Drive Shaft/Propeller Shaft – [“Drive Shaft / Propeller Shaft: Front Drive Shaft Assembly \(for AWD\): Removal”](#)

NOTICE

Discard the old transfer case assembly drain plug after removal. Do NOT reuse the old drain plug.

2. Remove the drive shaft bearing bracket.
3. Remove the transfer case electro-magnetic clutch.
 - A. Disconnect the connector.

Figure 1.



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Repair Procedure (continued)

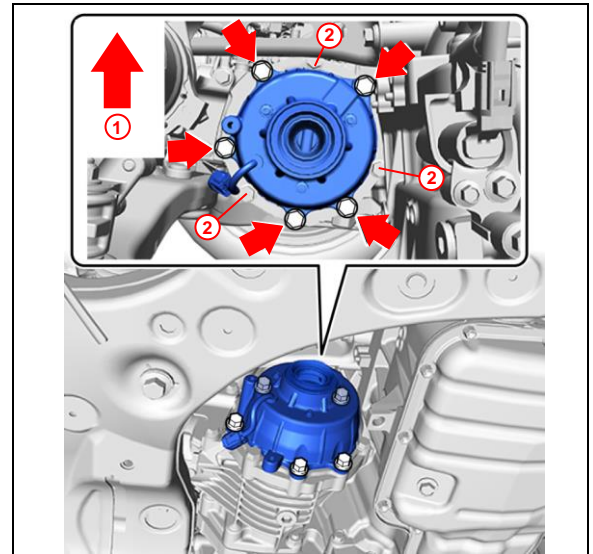
Transfer Case Electro-magnetic Clutch Assembly Removal (continued)

- B. Remove the five bolts and electro-magnetic clutch assembly cover.
- Do NOT remove the three bolts attaching the ring gear assembly housing to the transfer case.

NOTE

Gently remove the cover to prevent the disconnect shaft from being pulled out with the electro-magnetic clutch assembly.

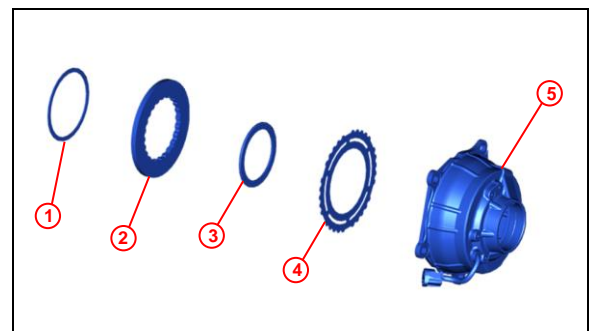
Figure 2.



1	Vehicle Upward
2	Bolt (Do Not Remove)

- C. Remove the shim, armature plate, thrust roller bearing, outer plate, and cover.
- D. Mark and store the five removed components in a container for removed components to avoid reinstalling them in error.

Figure 3.



1	Shim
2	Armature Plate
3	Thrust Roller Bearing
4	Outer Plate
5	Cover

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Repair Procedure (continued)

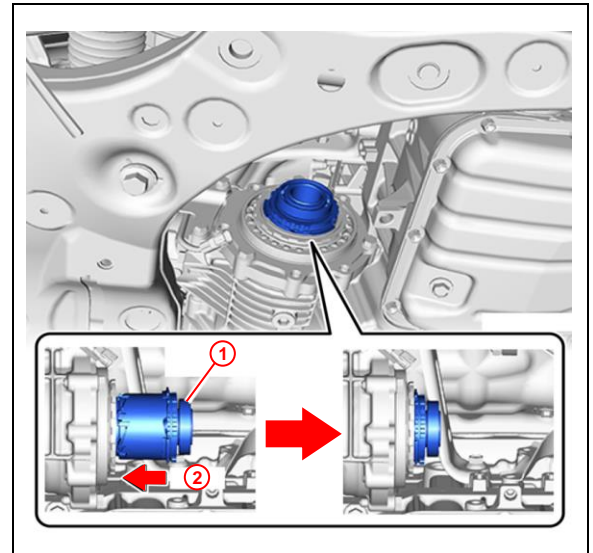
Transfer Case Electro-magnetic Clutch Assembly Removal (continued)

- E. If the disconnect shaft is pulled out together with the electro-magnetic clutch cover, push it toward the vehicle inner side (automatic transaxle side).

NOTE

Make sure to push the disconnect shaft back to its original position to ensure proper installation of the NEW electro-magnetic clutch.

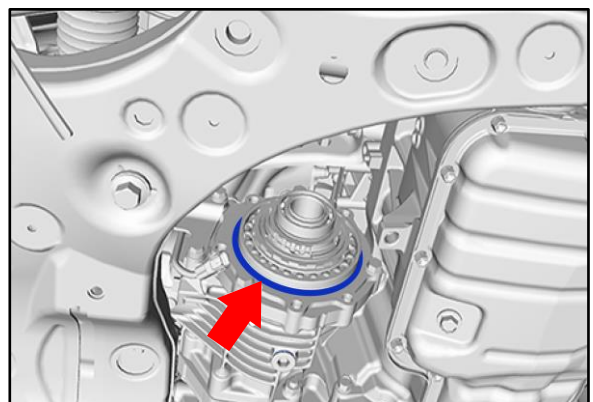
Figure 4.



1	Shaft
2	Push

- F. Remove the O-ring.
- G. Destroy the removed O-ring and store it in a container for removed components to avoid reinstalling it in error.

Figure 5.



Abnormal Buzz/Groan Noise at 20 - 30 mph

Repair Procedure (continued)

Transfer Case Electro-magnetic Clutch Assembly Installation

1. Install the NEW transfer case electro-magnetic clutch.
 - A. Make sure the outer plate is securely installed to the NEW transfer case electro-magnetic clutch cover.

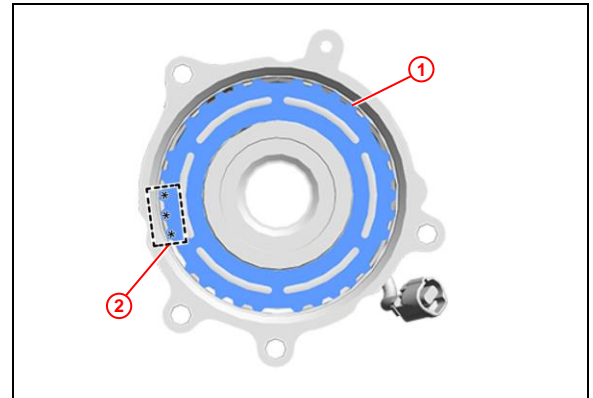
NOTE

- Do NOT exchange ANY component of the NEW transfer case electro-magnetic clutch, in which shim adjustment has been made, with any other kit component.
- Do NOT disassemble the outer plate from the cover of the NEW electro-magnetic clutch.

NOTICE

Confirm that the outer plate is attached in the correct position to avoid damage to the outer plate and/or misalignment during installation.

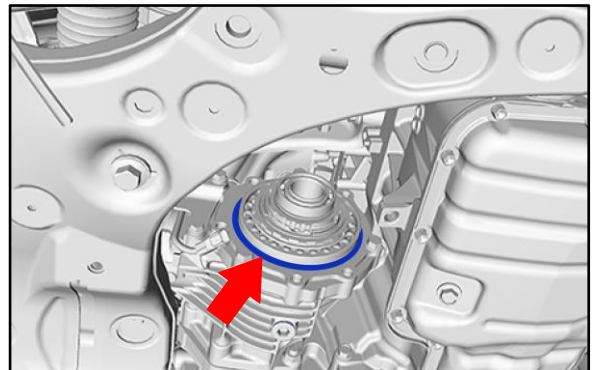
Figure 6.



1	Outer Plate (Do Not Remove)
2	Engraved Mark

- B. Install the NEW O-ring.

Figure 7.



Abnormal Buzz/Groan Noise at 20 - 30 mph

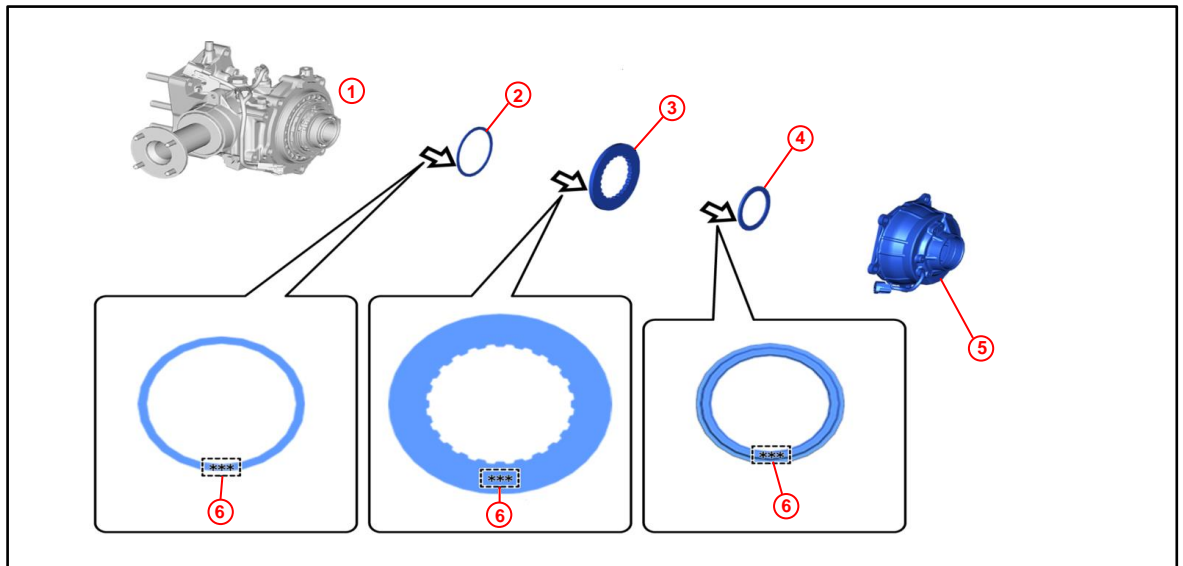
Repair Procedure (continued)

Transfer Case Electro-magnetic Clutch Assembly Installation (continued)

NOTE

A NEW shim, armature plate, and thrust roller bearing MUST be installed to the transfer case with the engraved mark surfaces facing the vehicle inner side (automatic transaxle side).

Figure 8.



1	Engraved Marks Facing Toward Vehicle Inner Side (Automatic Transaxle Side)
2	Shim
3	Armature Plate

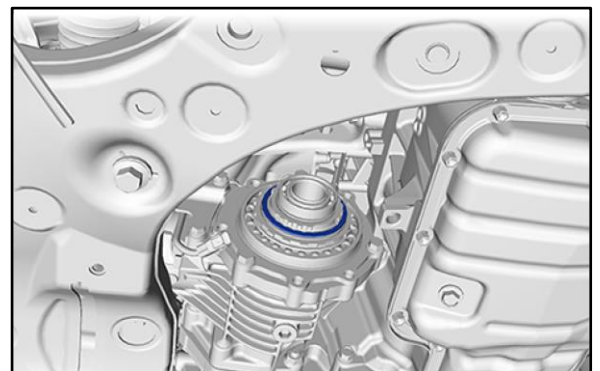
4	Thrust Roller Bearing
5	Cover With Outer Plate
6	Engraved Mark

- C. Install the NEW shim to the transfer case with its engraved mark surface facing the vehicle inner side (automatic transaxle side).

NOTE

After proper installation, the engraved mark should NOT be visible.

Figure 9.



Abnormal Buzz/Groan Noise at 20 - 30 mph

Repair Procedure (continued)

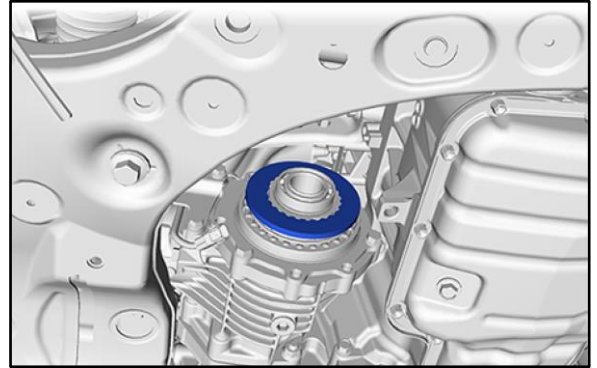
Transfer Case Electro-magnetic Clutch Assembly Installation (continued)

- D. Install the NEW armature plate to the transfer case with its engraved mark surface facing the vehicle inner side (automatic transaxle side).

NOTE

After proper installation, the engraved mark should NOT be visible.

Figure 10.

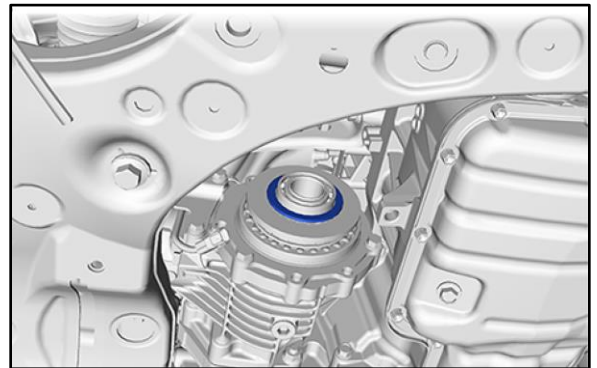


- E. Install the NEW thrust roller bearing to the transfer case with its engraved mark surface facing the vehicle inner side (automatic transaxle side).

NOTE

After proper installation, the engraved mark should NOT be visible.

Figure 11.



Abnormal Buzz/Groan Noise at 20 - 30 mph

Repair Procedure (continued)

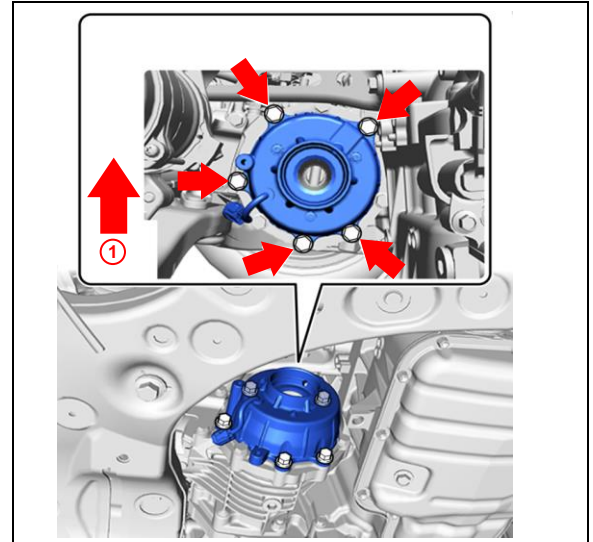
Transfer Case Electro-magnetic Clutch Assembly Installation (continued)

- F. Clean the surface where the NEW transfer case electro-magnetic clutch cover will be installed.
- G. Temporarily install the NEW transfer case electro-magnetic clutch cover together with the outer plate to the transfer case with the five bolts.

NOTE

- Do NOT disassemble the outer plate from the NEW transfer case electro-magnetic clutch.
- Install the cover straight to prevent the outer plate from moving out of place.
- Temporarily install the cover together with the outer plate by tightening the five bolts by hand. There will be clearance of approximately 1 mm between the transfer case and the cover before fully tightening the bolts to specified torque.

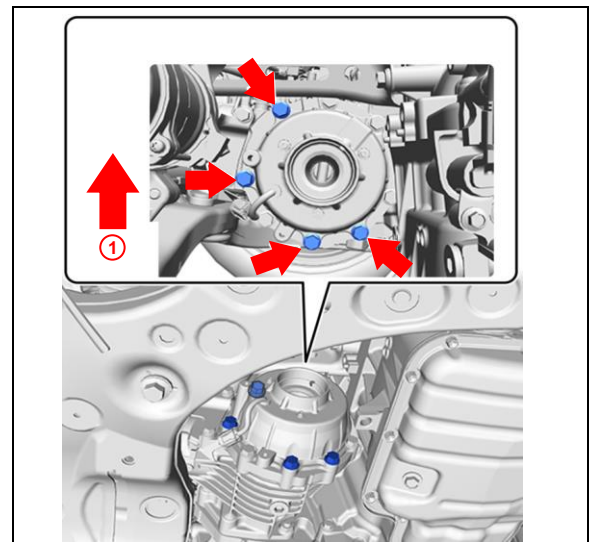
Figure 12.



1 Vehicle Upward

- H. Tighten the four bolts.
Torque: 47 N*m (479 kgf*cm, 35 ft*lbf)

Figure 13.



1 Vehicle Upward

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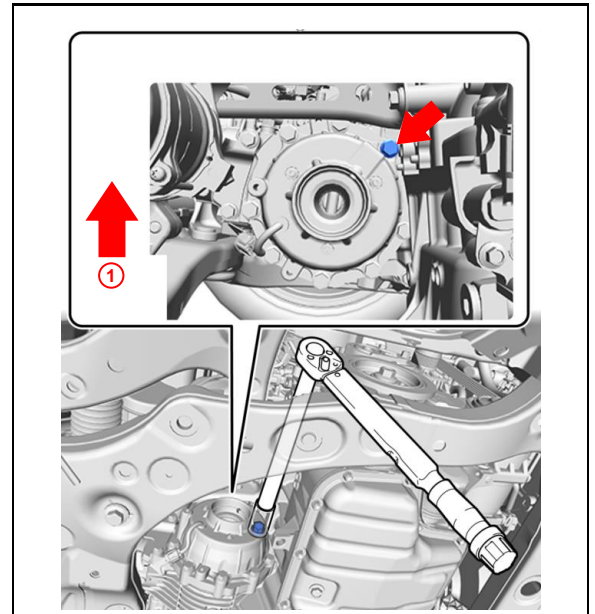
Repair Procedure (continued)

Transfer Case Electro-magnetic Clutch Assembly Installation (continued)

- I. Using a 14-mm socket wrench with extensions, tighten the remaining cover bolt.

Torque: 47 N*m (479 kgf*cm, 35 ft*lbf)

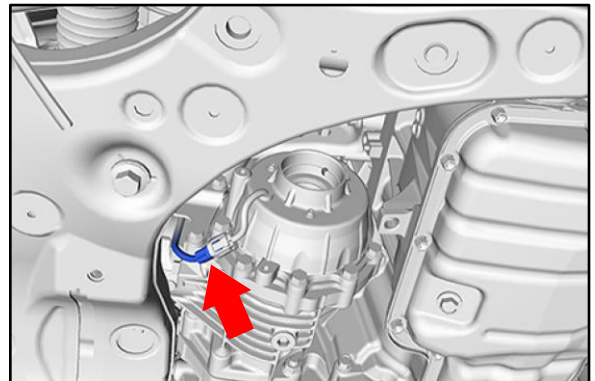
Figure 14.



1	Vehicle Upward
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- J. Connect the connector.

Figure 15.



- 2. Install the NEW transfer case oil seal RH.
- 3. Reinstall the drive shaft bearing bracket.
Torque: 63.7 N*m (650 kgf*cm, 47 ft*lbf)

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Repair Procedure (continued)

Transfer Case Electro-magnetic Clutch Assembly Installation (continued)

4. Reinstall the front drive shaft assembly RH.

Refer to TIS, applicable model and model year Repair Manual:

- 2019 RAV4:
Drivetrain – Drive Shaft/Propeller Shaft – [“Drive Shaft / Propeller Shaft: Front Drive Shaft Assembly \(for AWD\): Installation”](#)

5. Add automatic transaxle fluid.

Refer to TIS, applicable model and model year Repair Manual:

- 2019 RAV4:
Drivetrain – Automatic Transmission/Transaxle – [“UB80E \(Automatic Transmission / Transaxle\): Automatic Transaxle Fluid: Adjustment”](#)

6. Install the NEW transfer case assembly drain plug.

7. Add transfer oil.

Refer to TIS, applicable model and model year Repair Manual:

- 2019 RAV4:
General – Maintenance – [“Maintenance: GF2A Transfer Oil: Replacement”](#)

8. Reinstall the front under cover and front wheel RH.

9. Check and clear DTCs.

10. Inspect and adjust front wheel alignment.

Refer to TIS, applicable model and model year Repair Manual:

- 2019 RAV4:
Suspension – Alignment/Handling Diagnosis – [“Alignment / Handling Diagnosis: Front Wheel Alignment: Adjustment”](#)

11. Test-drive the vehicle and confirm the condition no longer exists.