



**Technical Service  
Information Bulletin**

June 11, 2007

Title:

# TRANSMISSION FLUID OR GEAR OIL LEAK FROM TRANSFER CASE VENT

Models:

'04 - '06 RX 330 (AWD/4WD) & '07 RX 350 (AWD)

TC007-07

TRANSMISSION & CLUTCH

**Introduction** Some 2004 - 2006 model year AWD/4WD RX 330 and 2007 model year AWD RX 350 vehicles may display a transmission fluid or gear oil leak from a vent on the right side of the transfer case. The leak is from the transfer RH (right-hand) bearing retainer No. 2 oil seal. Production improvements have been implemented to prevent this condition from occurring. Follow the repair procedure below to replace the RH bearing retainer No. 2 oil seal assembly.

**Applicable  
Vehicles**

- **2004 - 2006** model year **RX 330 (AWD/4WD)** vehicles.
- **2007** model year **RX 350 (AWD)** vehicles produced **BEFORE** the Production Change Effective VINs shown below.

**Production  
Change  
Information**

MODEL	PLANT	PRODUCTION CHANGE EFFECTIVE VIN
RX 350	TMK	JTJHK31U*72007281
	TMMC	2T2HK31U*7C009482

**NOTE:**

Production plant can be identified by 2 methods:

- **TMK - "JTJ"** are first 3 digits of VIN and **"2"** is 11th digit of VIN.
- **TMMC - "2T2"** are first 3 digits of VIN and **"C"** is 11th digit of VIN.

**Warranty  
Information**

OP CODE	DESCRIPTION	TIME	OFF	T1	T2
TC7005	R & R Transfer RH Bearing Retainer No 2 Oil Seal	10.7	90316-37001	65	57

**Applicable Warranty\*:**

This repair is covered under the Lexus Powertrain Warranty. This warranty is in effect for 72 months or 70,000 miles, whichever occurs first, from the vehicle's in-service date.

\* Warranty application is limited to correction of a problem based upon a customer's specific complaint.





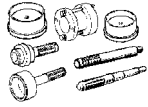
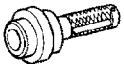
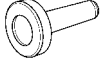









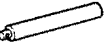
**Parts  
Information**

PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME	QTY
90316-37001	Same	Seal, Oil, No. 2 (for Transfer RH Bearing Retainer)	1
90301-70002	Same	Ring, O	1
90311-34021	Same	Seal, Oil, No. 1 (for Transfer RH Bearing Retainer)	1
12157-10010	Same	Gasket	3
90301-11018	Same	Ring, O	1
36141-21010	Same	Gasket, Transfer Cover	1
90366-38020	Same	Bearing, Tapered Roller	1

**Required  
Tools &  
Material**

TOOLS & MATERIAL	CLASSIFICATION	QUANTITY
Transfer Case Oil	Hypoid Gear Oil SAE 90 (GL-5)	0.95 U.S. qts (0.9 liters)
Transmission Fluid	ATF Type T-IV	3.8 U.S. qts (3.6 liters)
FIPG Sealant: P/N 08826-00090, Three Bond 1281, or equivalent	-	As Needed
MP Grease	-	As Needed

Required  
SSTs

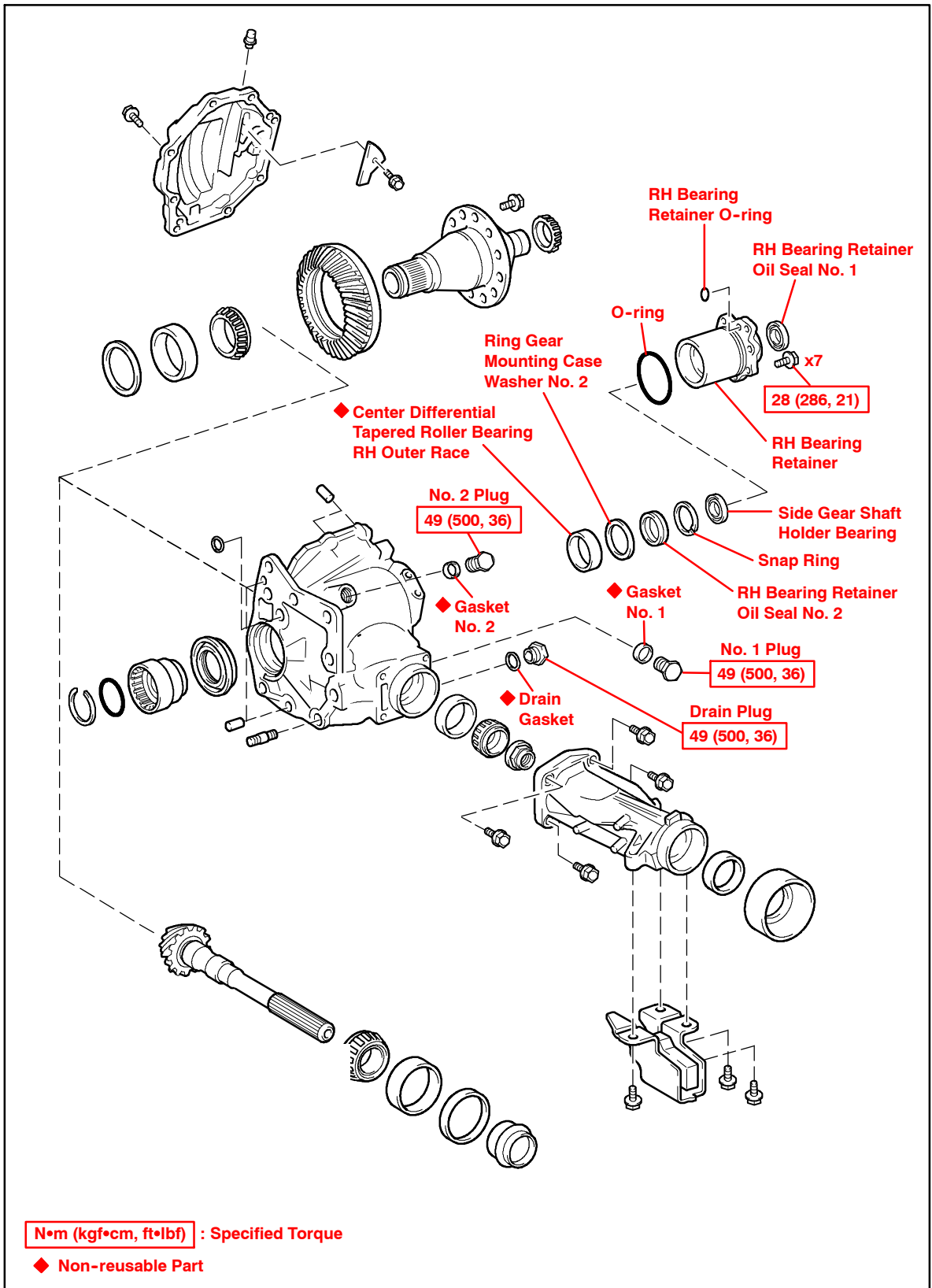
SPECIAL SERVICE TOOLS (SSTs)		PART NUMBER	QTY	DRW**	
	Oil Seal Puller (or equivalent)* 	09308-00010	1	3	
	Trans Housing Remover 	09520-10021	1	14	
	Crankshaft Service Tool Set* 	00002-62091-02	1	24	
COMPONENT(S) OF KIT/SET	<b>One (1) component from this kit/set is required:</b> <ul style="list-style-type: none"> <li>Crankshaft Front Oil Seal Replacer (P/N 09223-46011) </li> </ul>				
	RH Bearing Retainer Installer 	09387-00090	1	5	
	Output Shaft Nut Wrench 	09326-20011 (or Equivalent)	1	-	
	Bearing Remover* 	09950-00020	1	13	
	Differential Drive Pinion Holding Tool 28* 	09556-16030-01 (or Equivalent)	1	-	
	Replacer Set #1* 	09950-60010-02	1	23	
COMPONENT(S) OF KIT/SET	<b>Four (4) components from this kit/set are required:</b> <ul style="list-style-type: none"> <li>Replacer 36 (P/N 09951-00360-01) </li> <li>Replacer 54 (P/N 09951-00540-01) </li> <li>Replacer 62 (P/N 09951-00620-01) </li> <li>Adapter (P/N 09952-06010-01) </li> </ul>				
	Handle Set* 	09950-70010-02	1	23	
	COMPONENT(S) OF KIT/SET	<b>One (1) component from this kit/set is required:</b> <ul style="list-style-type: none"> <li>Handle Assembly 150 - 6.25 inch (P/N 09951-07150-01) </li> </ul>			

\* Essential SSTs.

\*\* Drawer number in SST Storage System.

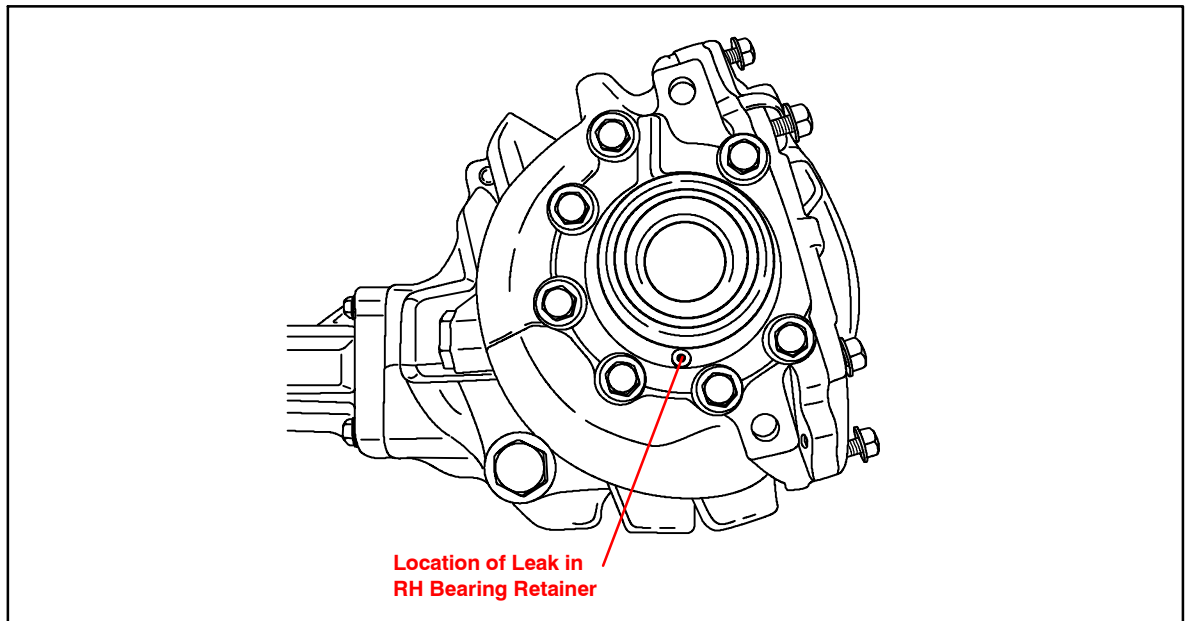
**NOTE:** Additional SSTs may be ordered by calling SPX/OTC at 1-800-933-8335.

Components



**Repair  
Procedure:  
Removal**

1. Confirm source of gear oil/transmission fluid leak is from vent on RH bearing retainer.  
(Refer to illustration below.)



2. Remove the engine assembly with transaxle.

Refer to the Technical Information System (TIS):

- 2004 model year RX 330 Repair Manual, *Engine/Hybrid System - Engine Mechanical - "3MZ-FE: Partial Engine Assy: Replacement"*.
- 2005 model year RX 330 Repair Manual, *Engine/Hybrid System - Engine Mechanical - "Partial Engine Assy (3MZ-FE): Replacement"*.
- 2006 model year RX 330 Repair Manual, *Engine/Hybrid System - Engine Mechanical - "3MZ-FE Engine Mechanical: Engine Assembly: Removal"*.
- 2007 model year RX 350 Repair Manual, *Engine/Hybrid System - Engine Mechanical - "2GR-FE Engine Mechanical: Engine Assembly: Removal"*.

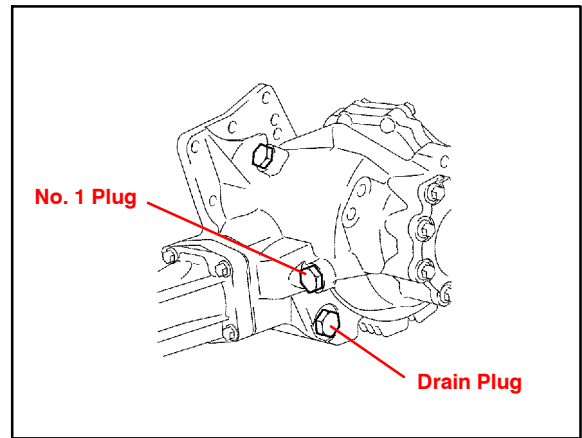
3. Remove the automatic transmission w/transfer.

Refer to TIS:

- 2004 model year RX 330 Repair Manual, *Drivetrain - Automatic Transmission/Transaxle - "U151E U151F: Automatic Transaxle Assy: Replacement"*.
- 2005 model year RX 330 Repair Manual, *Drivetrain - Automatic Transmission/Transaxle - "Automatic Transaxle Assy (U151e/U151f: Replacement"*.
- 2006 model year RX 330 Repair Manual, *Drivetrain - Automatic Transmission/Transaxle - "U151F Automatic Transaxle: Automatic Transaxle Assy: Removal"*.
- 2007 model year RX 350 Repair Manual, *Drivetrain - Automatic Transmission/Transaxle - "U151F: Automatic Transaxle: Automatic Transaxle Assy: Removal"*.

**Repair  
Procedure:  
Removal**  
(Continued)

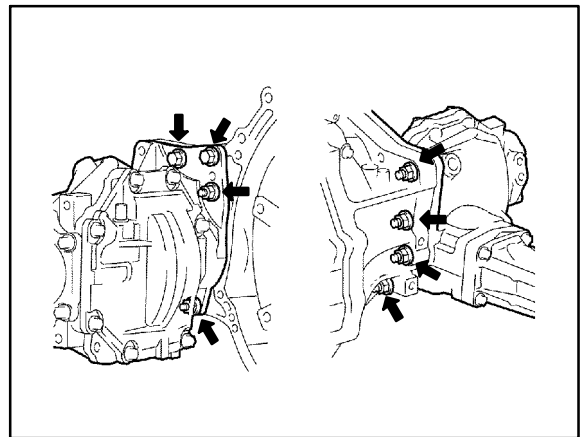
4. Remove the transfer case No. 1 plug and remove the gasket from the plug.
5. Remove the transfer drain plug and remove the gasket from the drain plug.



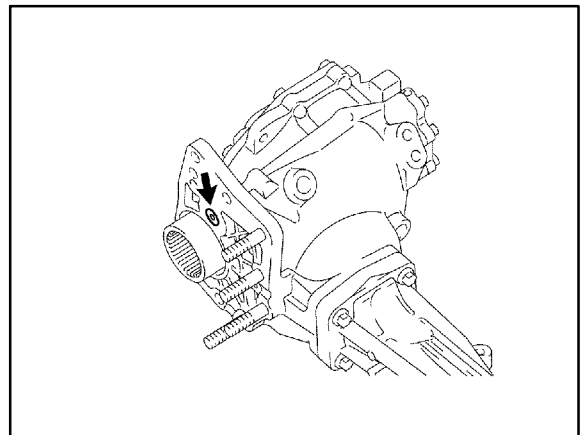
6. Remove the transfer assembly.
  - A. Remove the 2 bolts and 6 nuts.
  - B. Using a plastic hammer, drive out the transfer assembly from the transaxle assembly.

**NOTE:**

- Disconnect the transfer assembly from the transaxle assembly without tilting.
- When moving the transfer assembly, do NOT hold the assembly by the oil seals.



7. Remove the transfer cover gasket from the transfer assembly.

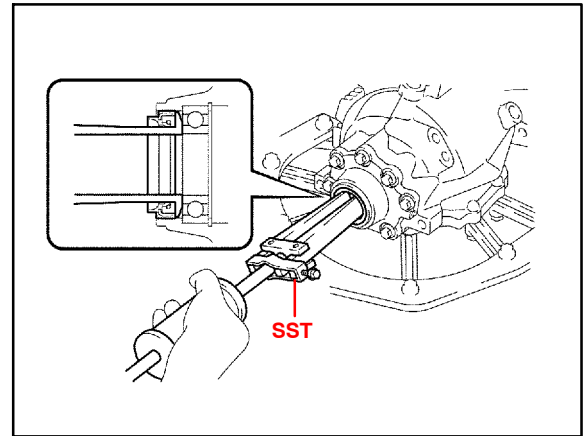


**Repair  
Procedure:  
Removal**  
(Continued)

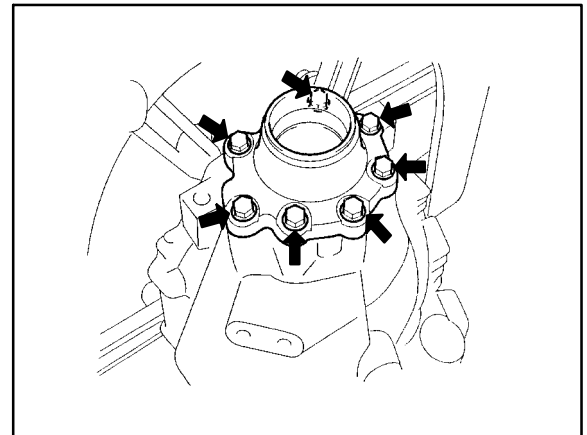
8. Using the SST, remove the transfer RH bearing retainer oil seal.
- SST P/N 09308-00010

**NOTE:**

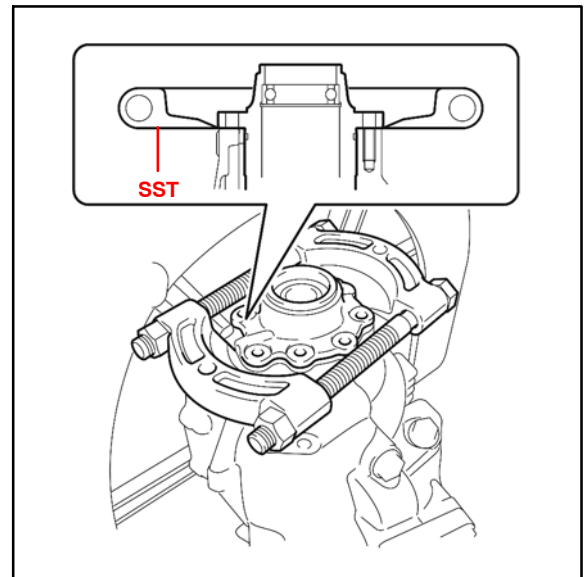
Be careful NOT to damage the oil-seal-fitted surface of the retainer.



9. Remove the transfer RH bearing retainer sub-assembly.
- A. Remove the 7 bolts from the RH bearing retainer.

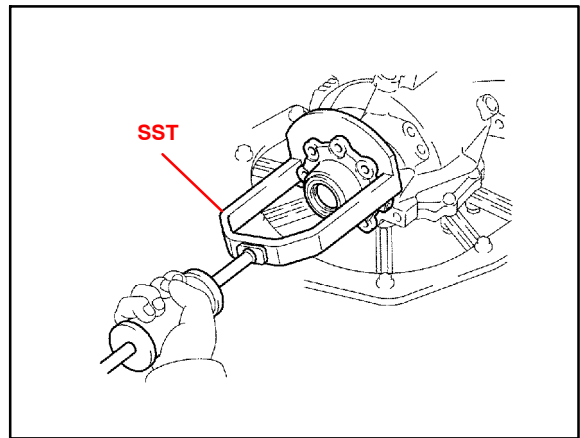


- B. Using the SST, make a clearance between the RH bearing retainer sub-assembly and the transfer case.
- SST P/N 09950-00020
- C. Remove the SST.



**Repair  
Procedure:  
Removal**  
(Continued)

- D. Using the SST, remove the RH bearing retainer from the transfer case.
- SST P/N 09520-10021

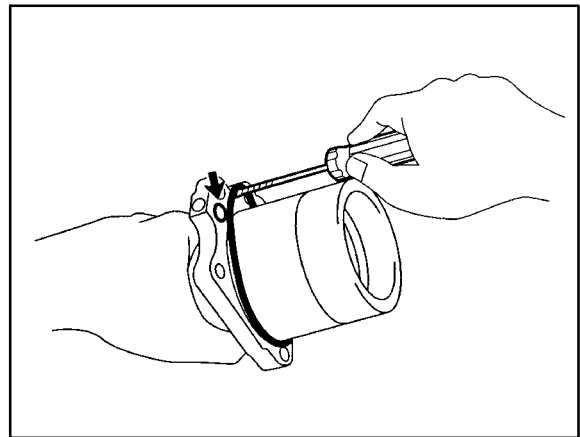


10. Remove the transfer RH bearing retainer O-ring.

Using a screwdriver with the tip protected with tape, remove the two (2) O-rings from the RH bearing retainer.

**NOTE:**

Be careful NOT to damage the retainer's groove for the O-ring.

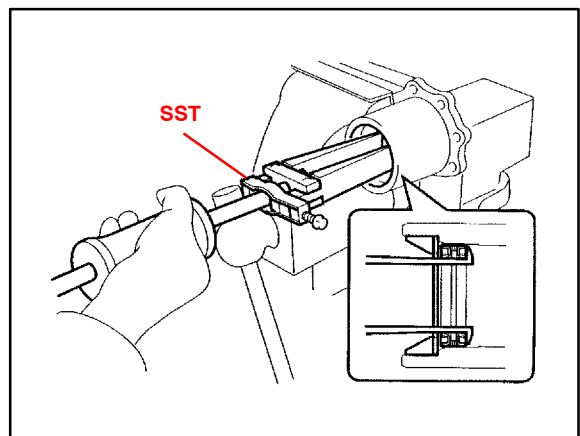


11. Remove the center differential case tapered roller bearing.

- A. Hold the RH bearing retainer in a vise.
- B. Using the SST, remove the outer race, washer, and No. 2 oil seal from the RH bearing retainer.
- SST P/N 09308-00010

**NOTE:**

Be careful NOT to damage the oil-seal-fitted surface of the retainer.



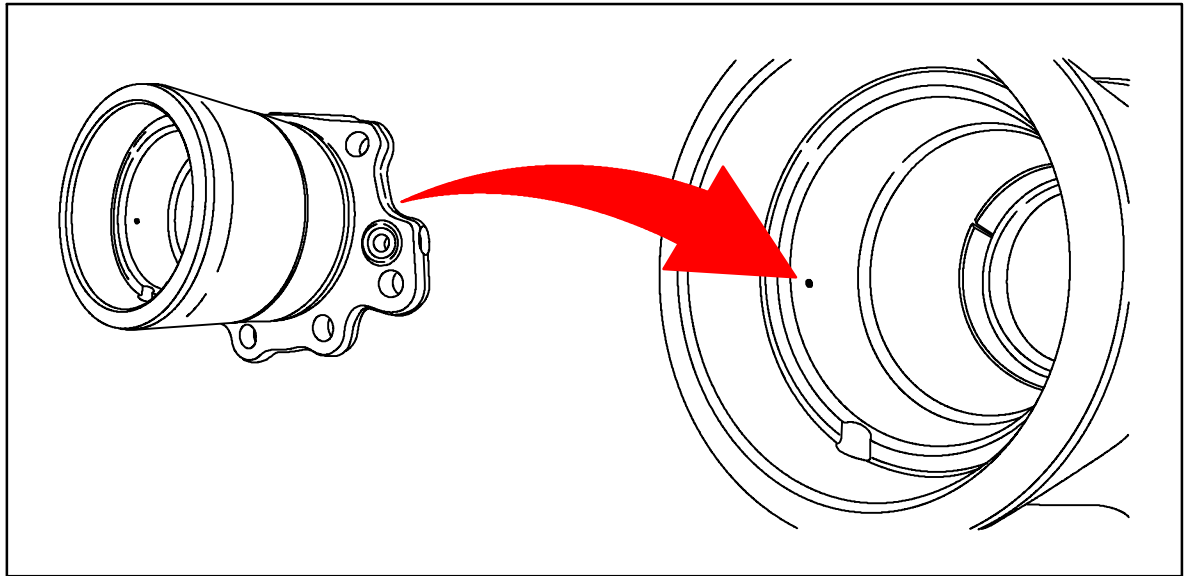


**Repair  
Procedure:  
Installation**

1. Install a NEW No. 2 oil seal in the RH bearing retainer.

**NOTE:**

The No. 2 oil seal **MUST** be positioned so that the seal is aligned over the hole located inside the RH bearing retainer. Failure to properly align the seal so that it seals on **BOTH** sides of the hole (vent) will cause the transfer case to leak fluid out of the vent assembly on the RH bearing retainer.



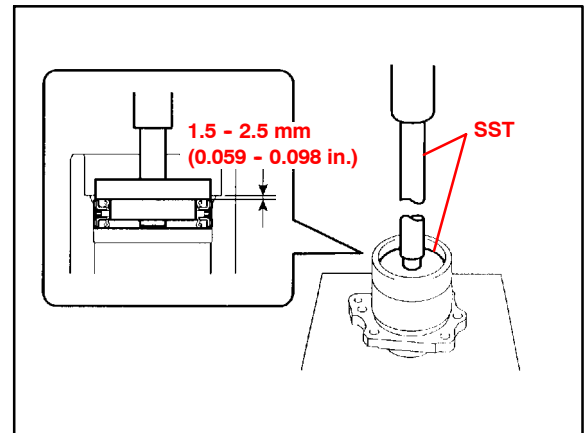
**NOTE:**

Only the outer race of the center differential case roller bearing is to be replaced with a **NEW** part. Reuse of the center differential case roller bearing should prevent the requirement to re-adjust driven pinion preload.

2. Install the transfer RH bearing retainer No. 2 oil seal.

- A. Using the SST and a press, install the oil seal to the RH bearing retainer No. 2.

- SST P/N 09950-60010  
(09951-00360, 09951-00540,  
09952-06010), 09950-70010  
(09951-07150)



**NOTE:**

Carefully press-fit so that the oil seal is **NOT** tilted.

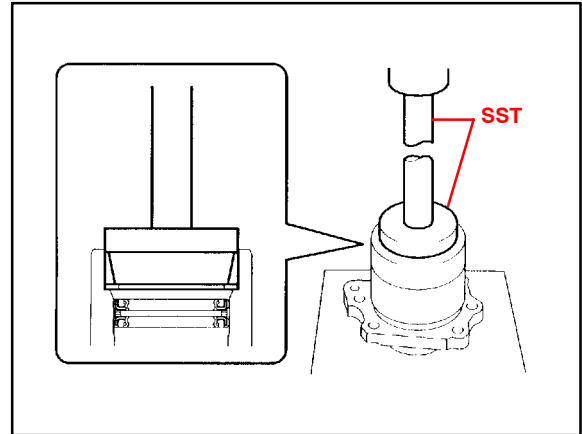
- B. Apply a small amount of MP grease No. 2 to the oil seal lip.

**Repair  
Procedure:  
Installation**  
(Continued)

3. Install the transfer ring gear mounting case washer No. 2 to the RH bearing retainer.
4. Install the center differential case tapered roller bearing.
 

Using the SST and a press, install the outer race to the RH bearing retainer.

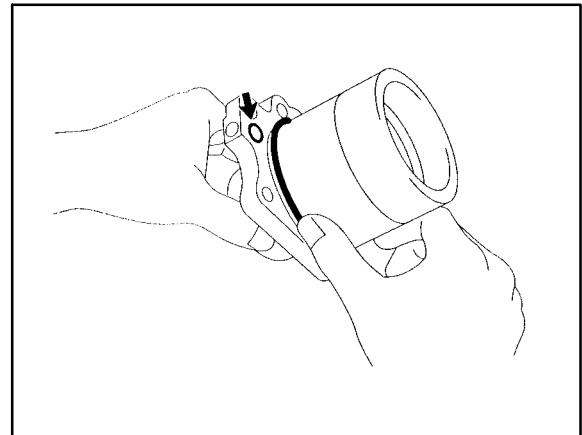
  - SST P/N 09950-60010 (09951-00620), 09950-70010 (09951-07150)



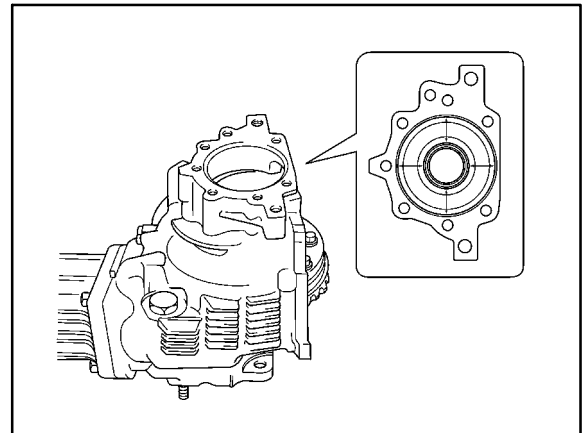
5. Install the O-ring.
  - A. Apply Hypoid gear oil to a NEW O-ring.
  - B. Install the two (2) O-rings to the RH bearing retainer.

**NOTE:**

**Be careful NOT to twist the O-ring and fit it into the retainer's groove properly.**



6. Install the transfer RH bearing retainer sub-assembly.
  - A. Place the transfer case with the face where the RH bearing retainer is to be installed facing up, as shown in the illustration.
  - B. Center-align the center differential control coupling assembly and the case.

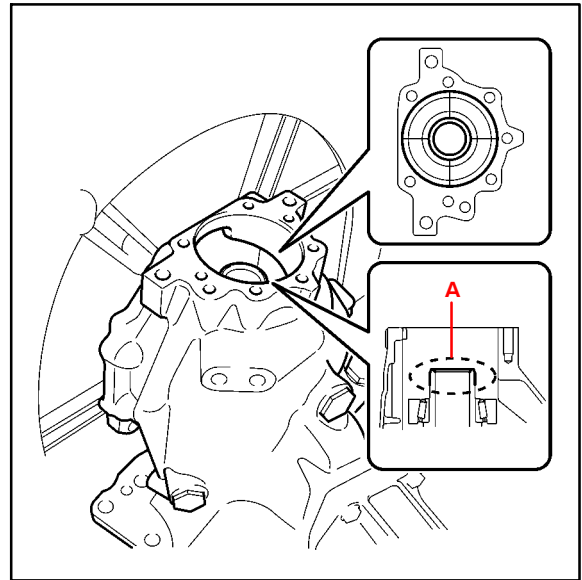


**Repair  
Procedure:  
Installation**  
(Continued)

- C. Apply MP grease No. 2 thinly to area A as shown in the illustration.

**HINT:**

Apply MP grease No. 2 to prevent the oil seal lip from rolling back.

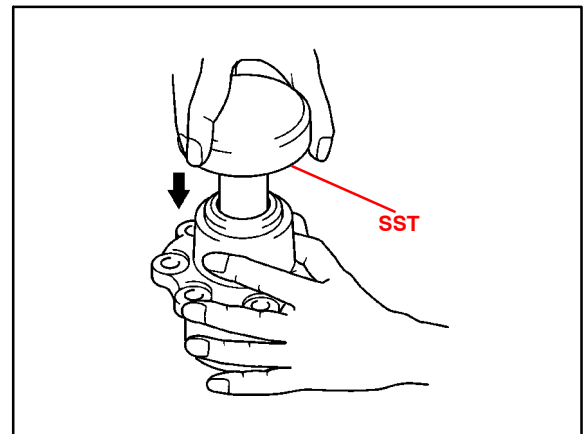


- D. Insert the SST into the transfer RH bearing retainer sub-assembly.

- SST P/N 09387-00090

**NOTE:**

Insert the SST straight in order NOT to damage the oil seal.



- E. With the SST and the transfer RH bearing sub-assembly in close contact, install the transfer RH bearing retainer sub-assembly together with the SST into the transfer case.

**NOTE:**

- Avoid interference between the case and the retainer, and between the SST and the transfer ring gear mounting case.
- Carefully check the retainer's O-ring for damage and incorrect fitting.

**Repair  
Procedure:  
Installation**  
(Continued)

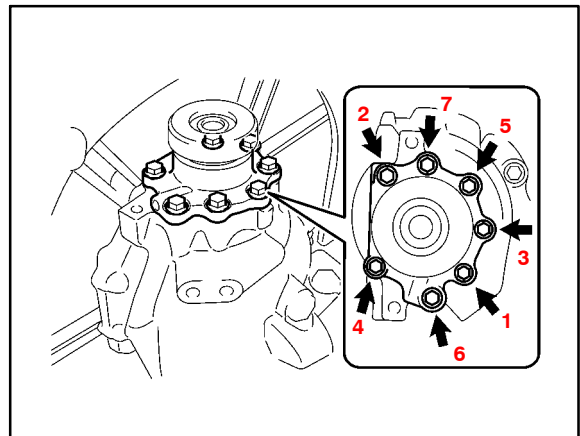
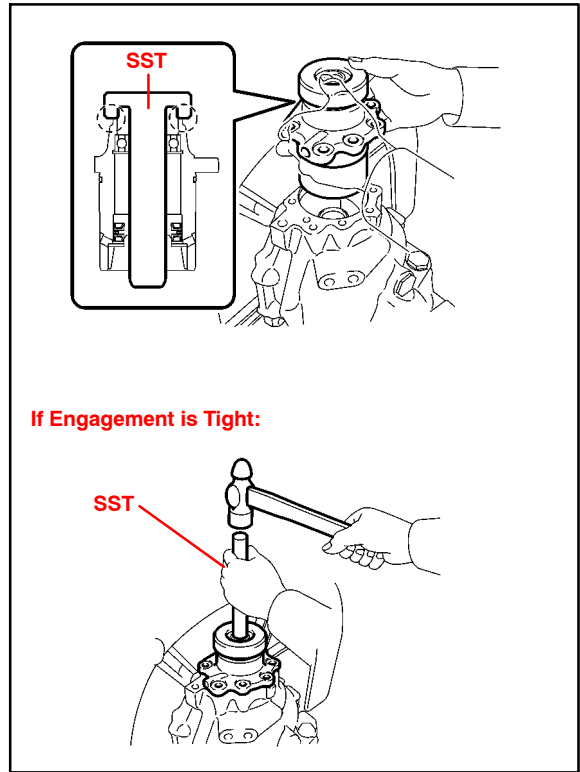
**HINT:**

- If the engagement is tight, tap the SST with a hammer placing a brass bar on the center of the SST.
- If the SST and retainer are NOT in close contact, the seal for the inner end of the retainer may NOT be properly aligned when the retainer goes into position. This may result in the lip of the oil seal being rolled back during installation.
- If the SST and retainer are NOT in close contact, the center of the retainer or transfer ring gear mounting case may come out of position when the retainer is being installed. This can cause the lip of the oil seal to be rolled back.

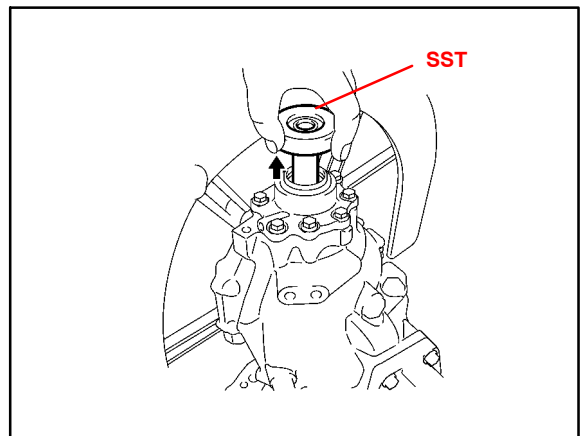
F. Make sure that the transfer RH bearing retainer sub-assembly and transfer case contact closely.

G. Tighten the 7 bolts evenly in the order shown in the illustration.

**Torque: 28 N·m (286 kgf·cm, 21 ft·lbf)**



H. Remove the SST.



**Repair  
Procedure:  
Installation**  
(Continued)

7. Inspect total preload.
- A. Using the SST and a torque wrench, measure the initial torque between the driven pinion bearing and the ring gear face.

- SST P/N 09326-20011

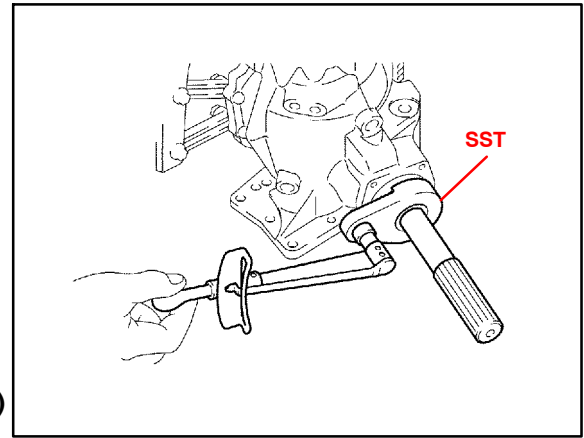
**Torque:**

**Used bearing:**

**Driven pinion preload**

**+0.15 - 0.30 N·m**

**(+1.6 - 3.1 kgf·cm, +1.3 - 2.7 in·lbf)**



**HINT:**

Use a torque wrench with a fulcrum length of 160 mm (6.30 in.).

**NOTE:**

Measure the torque after rotating the bearing in both clockwise and counterclockwise directions to make it fit.

- B. If the preload is too large, replace the bearing spacer with a NEW one.
- C. If the preload is too small, repeatedly adjust the preload by tightening the lock nut 5 - 10 degrees at a time until the standard value is obtained.
- D. If the preload is insufficient even though the tightening torque of the lock nut exceeds the maximum of the standard value, loosen the lock nut and apply gear oil SAE 90 (GL-5) to the lock nut and the screw thread and base of the driven pinion. Then repeat the preceding operation. If the tightening torque is smaller than the standard, replace the bearing spacer with a NEW one and adjust it.

- SST P/N 09326-20011, 09556-16030

**Torque: 378 N•m (3855 kgf•cm, 279 ft•lbf)**

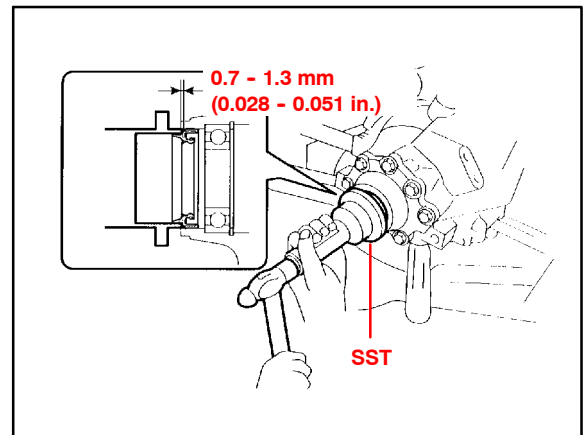
8. Install the transfer RH bearing retainer oil seal.

- A. Using the SST, drive the oil seal into the RH bearing retainer to the position shown in the illustration.

- SST P/N 09223-46011

**NOTE:**

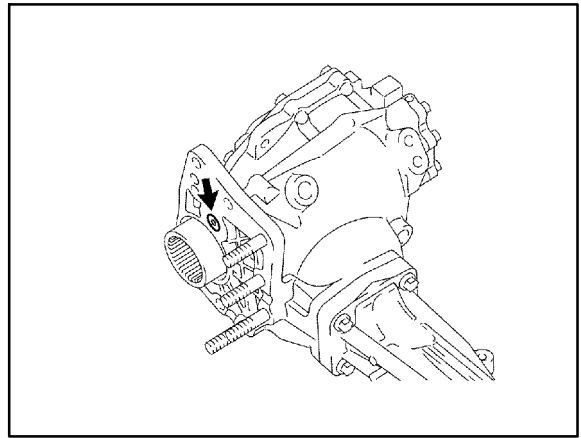
Drive in the oil seal carefully so that it will NOT be tilted.



- B. Apply MP grease to the oil seal lip.

**Repair  
Procedure:  
Installation**  
(Continued)

9. Install a NEW transfer cover gasket to the case.

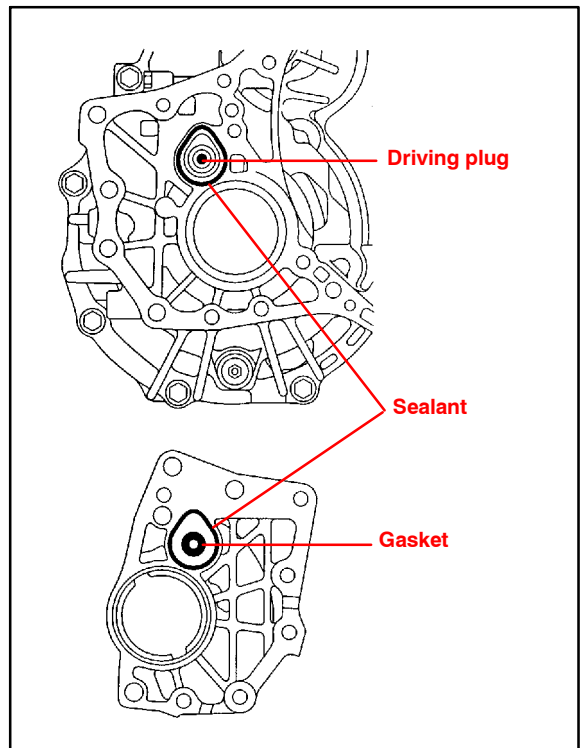


10. Install the transfer assembly.

- A. Apply FIPG sealant 1281 to the transaxle assembly and the transfer assembly in continuous beaded form of 1.2 mm (0.05 in.) diameter as shown in the illustration.
- FIPG sealant:  
P/N 08826-00090,  
Three Bond 1281,  
or equivalent

**NOTE:**

- Remove any grease from the attaching surfaces.
- Install the transfer assembly within 10 minutes after application of the sealant.
- Sealant stuck on the gasket, case oil seal, and driving plug may cause oil leakage and seizure due to oil shortage.

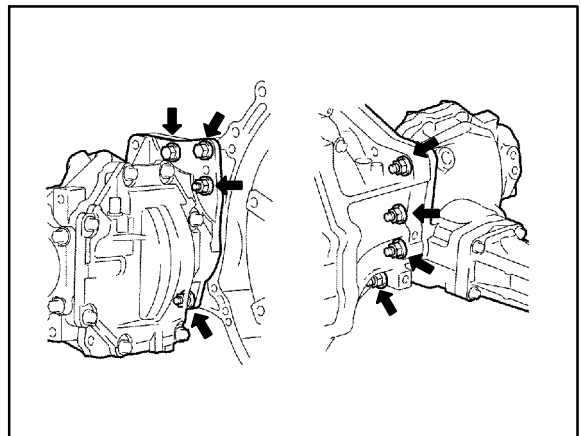


- B. Install the transfer assembly to the transaxle assembly with the 2 bolts and 6 nuts.

**Torque: 69 N·m (700 kgf·cm, 51 ft·lbf)**

**NOTE:**

- Check that the gasket is installed to the transfer assembly before installing it to the transaxle assembly.
- Install the transfer assembly to the transaxle assembly without tilting.
- When moving the transfer assembly, do NOT hold by the oil seals.



**Repair  
Procedure:  
Installation**  
(Continued)

11. Install the automatic transmission w/transfer.

Refer to TIS:

- 2004 model year RX 330 Repair Manual, *Drivetrain - Automatic Transmission/Transaxle - "U151E U151F: Automatic Transaxle Assy: Replacement"*.
- 2005 model year RX 330 Repair Manual, *Drivetrain - Automatic Transmission/Transaxle - "Automatic Transaxle Assy (U151e/U151f: Replacement"*.
- 2006 model year RX 330 Repair Manual, *Drivetrain - Automatic Transmission/Transaxle - "U151F Automatic Transaxle: Automatic Transaxle Assy: Installation"*.
- 2007 model year RX 350 Repair Manual, *Drivetrain - Automatic Transmission/Transaxle - "U151F: Automatic Transaxle: Automatic Transaxle Assy: Installation"*.

12. Install the engine assembly with transaxle.

Refer to TIS:

- 2004 model year RX 330 Repair Manual, *Engine/Hybrid System - Engine Mechanical - "3MZ-FE: Partial Engine Assy: Replacement"*.
- 2005 model year RX 330 Repair Manual, *Engine/Hybrid System - Engine Mechanical - "Partial Engine Assy (3MZ-FE): Replacement"*.
- 2006 model year RX 330 Repair Manual, *Engine/Hybrid System - Engine Mechanical - "3MZ-FE Engine Mechanical: Engine Assembly: Installation"*.
- 2007 model year RX 350 Repair Manual, *Engine/Hybrid System - Engine Mechanical - "2GR-FE Engine Mechanical: Engine Assembly: Installation"*.

13. Install the transfer drain plug with a NEW gasket.

**Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)**

14. Install the transfer case No. 1 plug.

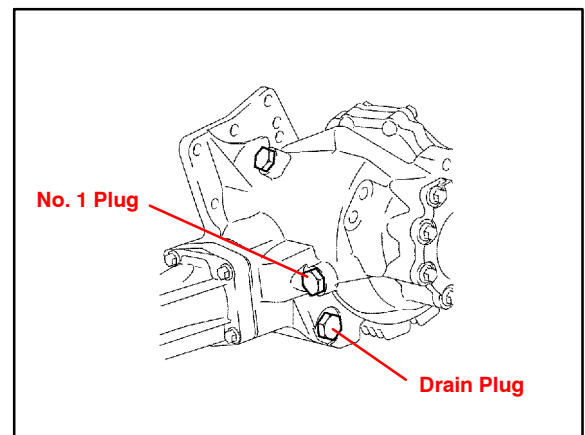
- A. Supply oil up to the level  
0 - 5 mm (0 - 0.20 in.) below the  
lowest end of the plug hole.

**Oil quantity:**

**0.95 U.S. qts (0.9 L, 0.71 Imp. qts)**

**NOTE:**

**When supplying oil, fill it slowly.**



- B. Install the No. 1 plug with a NEW gasket.

**Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)**

**Repair  
Procedure:  
Installation**  
(Continued)

15. Inspect and adjust front wheel alignment.

Refer to TIS:

- 2004 - 2006 model year RX 330 Repair Manual, *Suspension - Alignment/Handling Diagnoses - "Front Wheel Alignment: Adjustment"*.
- 2007 model year RX 350 Repair Manual, *Suspension - Front Suspension - "Suspension: Front Wheel Alignment: Adjustment"*.

16. Check the ABS speed sensor signal (ABS with EBD & BA & TRAC & VSC system).

Refer to TIS:

- 2004 - 2005 model year RX 330 Repair Manual, *Brake - Brake Control/Dynamic Control System - "ABS With EBD & BA & TRAC & VSC System: Pre-Check"*.
- 2006 model year RX 330 Repair Manual, *Brake - Brake Control/Dynamic Control System - "Brake Control: Vehicle Stability Control System: Test Mode Procedure"*.
- 2007 model year RX 350 Repair Manual, *Brake - Brake Control/Dynamic Control System - "Brake Control: Vehicle Stability Control System: Test Mode Procedure"*.

17. Re-initialize any affected power systems.

Refer to TIS for the applicable TSIB(s):

- 2004 model year RX 330 vehicles: TSIB No. PG002-03, *"Pre-Delivery Service (PDS) Information for RX 330"*.
- 2005 model year RX 330 vehicles: TSIB No. PD010-05, *"Power System Initialization During PDS"*.
- 2006 model year RX 330 vehicles: TSIB No. PD009-06, *"Power System Initialization During PDS"*.
- 2007 model year RX 350 vehicles: TSIB No. PD007-07, *"Power System Initialization During PDS"*.