



**Technical Service
Information Bulletin**

September 6, 2006

Title:
TRANSFER CASE O-RING SEAL LEAK

Models:
'03 - '04 GX 470

**TRANSMISSION & CLUTCH
TC007-06**

Introduction Some 2003 - 2004 model year GX 470 vehicles may experience oil seepage from the transfer case, where the transfer case actuator is installed. An improved O-ring for the transfer case actuator was implemented in production to eliminate this condition.

- Applicable Vehicles**
- **2003 - 2004** model year **GX 470** vehicles produced **BEFORE** the Production Change Effective VIN shown below.

**Production
Change
Information**

MODEL	PRODUCTION CHANGE EFFECTIVE VIN
GX 470	JTJBT20X*40066580

**Parts
Information**

PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME	QTY
N/A	90301-56009	O-ring	1
N/A	04362-60120	Gasket Kit, Transfer Overhaul	1

**Required
Tools &
Material**

TOOLS & MATERIAL	QUANTITY
Gear Oil, API GL-5, SAE 75W90	1.4 liters
Torque Wrench	1
Miscellaneous Hand Tools	As Needed
FIPG Sealant: P/N 08826-00090, Three Bond 1281, or equivalent	As Needed
Sealant: P/N 08833-00080, Toyota Genuine Adhesive 1344, Three Bond 1344, Loctite 242, or equivalent	As Needed
MP Grease	As Needed

**Warranty
Information**

OP CODE	DESCRIPTION	TIME	OPF	T1	T2
TC5003	R & R Transfer Case Actuator O-ring	8.5	90301-56009	65	13







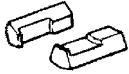


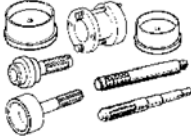
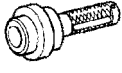




Applicable Warranty*:

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.


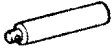



* Warranty application is limited to correction of a problem based upon a customer's specific complaint.



Required SSTs

ITEM NO.	SPECIAL SERVICE TOOLS (SSTs)	PART NUMBER	QTY	DRW**
1	Companion Flange Holding Tool* NOTE: • All components from this kit/set are required. 	09330-00021	1	3
2	Universal Puller Set "B"* 	09950-40011-02	1	24
COMPONENT(S) OF KIT/SET	Seven (7) components from this kit/set are required: <ul style="list-style-type: none"> • Hanger 200 (P/N 09951-04020)  • Slide Arm (P/N 09952-04010)  • Center Bolt 200 (P/N 09953-04030)  • Arm 25 (P/N 09954-04010)  • Claw No. 5 (P/N 09955-04051)  • Attachment (P/N 09957-04010)  • Holder (P/N 09958-04011)  			
3	Crankshaft Service Tool Set* 	00002-62091-02	1	24
COMPONENT(S) OF KIT/SET	One (1) component from this kit/set is required: <ul style="list-style-type: none"> • Crankshaft Front Oil Seal Replacer (P/N 09223-46011)  			
4	Seal Ring Tool* 	09631-32020	1	12
5	Replacer Set #1* 	09950-60010-02	1	23
COMPONENT(S) OF KIT/SET	Two (2) components from this kit/set are required: <ul style="list-style-type: none"> • Replacer 32 (P/N 09951-00320-01)  • Replacer 59 (P/N 09951-00590-01)  			

Required SSTs
(Continued)

ITEM NO.	SPECIAL SERVICE TOOLS (SSTs)	PART NUMBER	QTY	DRW**
6	Handle Set* 	00950-70010-02	1	23
COMPONENT(S) OF KIT/SET	One (1) component from this kit/set is required: <ul style="list-style-type: none"> Handle Assembly 100 - 4.25" (P/N 09951-07100-01) 			
7	Transmission Transfer Bearing Replacer Set 	09316-60011	1	
COMPONENT(S) OF KIT/SET	One (1) component from this kit/set is required: <ul style="list-style-type: none"> Replacer Pipe*** (P/N 09316-00011, or equivalent) 			
8	Pilot Bearing Installer*** 	09304-12012 (or equivalent)	1	

* Essential SSTs.

** Drawer number in SST Storage System.

*** These tools may be ordered from SPX/OTC, or an equivalent tool may be used.

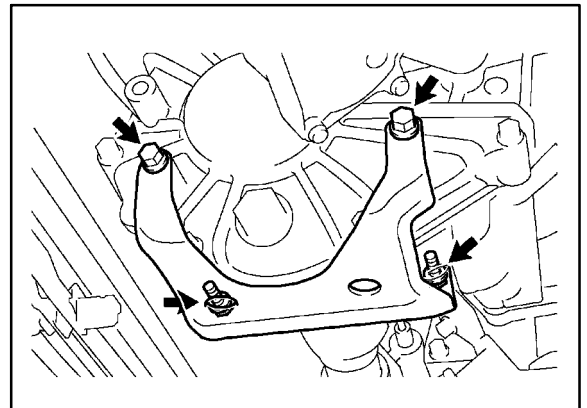
NOTE:

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

Repair Procedure

Verify that there is an oil leak from the transfer case. Proceed to remove the transfer case and replace the O-ring using the following procedure.

1. Drain the transfer oil.
2. Remove the transfer case lower protector by removing the 4 bolts.

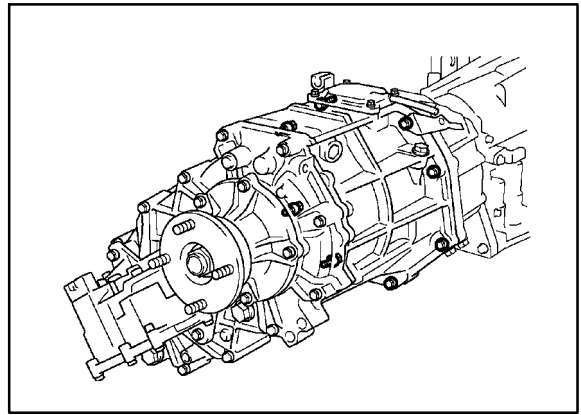


3. Remove the automatic transmission assembly.

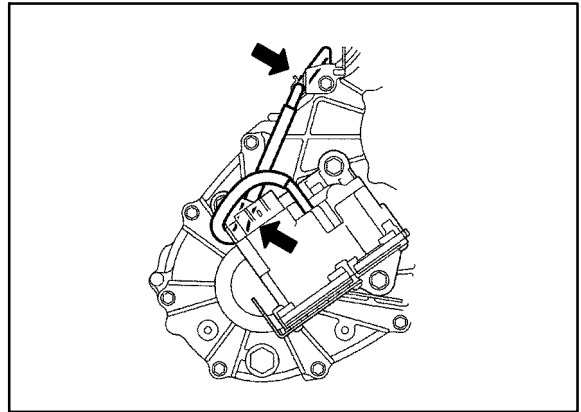
Refer to the Technical Information System (TIS), 2003 or 2004 model year GX 470 Repair Manual: *Automatic Transmission / Trans: Automatic Transmission Assy: Replacement*.

**Repair
Procedure**
(Continued)

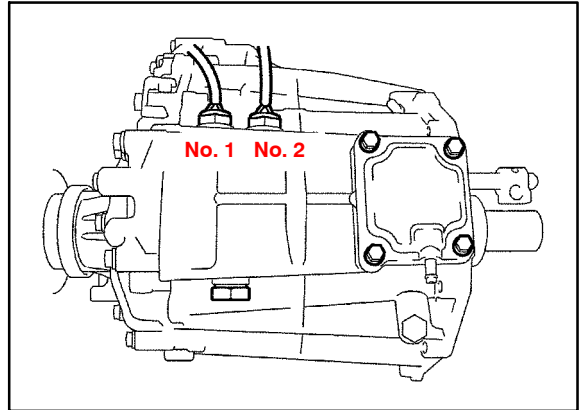
4. Remove the transfer assembly.
Remove the 8 bolts and 2 clamps
from the transmission.



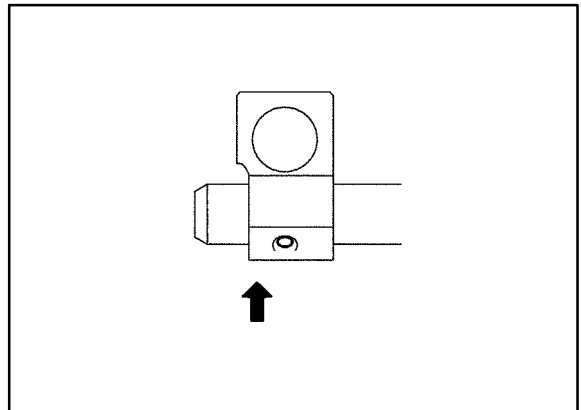
5. Remove the actuator motor
breather hoses.



6. Remove the switches.
Remove the indicator No. 1 and
No. 2 switches, case No. 1 plug,
and gaskets.



7. Remove the transfer gear shift
head No. 2.
Using a pin punch and hammer,
remove the slotted pin from the gear
shift head No. 2.

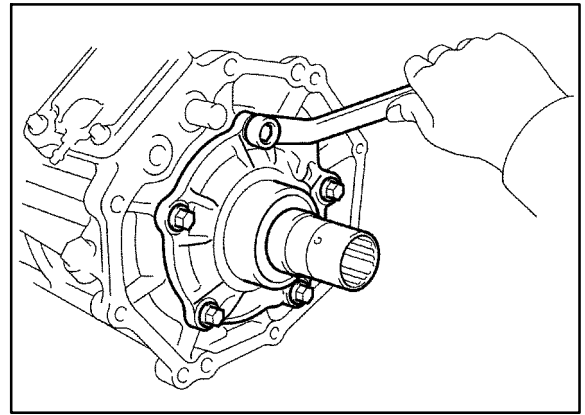


**Repair
Procedure**
(Continued)

8. Remove the transfer RH bearing retainer sub-assembly by removing the 5 bolts.

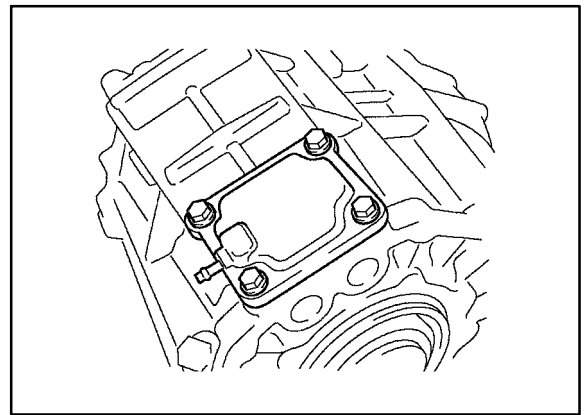
HINT:

If necessary, tap the extension housing with a plastic hammer to remove it.



9. Remove the transfer cover type T oil seal.
Using a screwdriver and hammer, remove the oil seal from the bearing retainer sub-assembly.

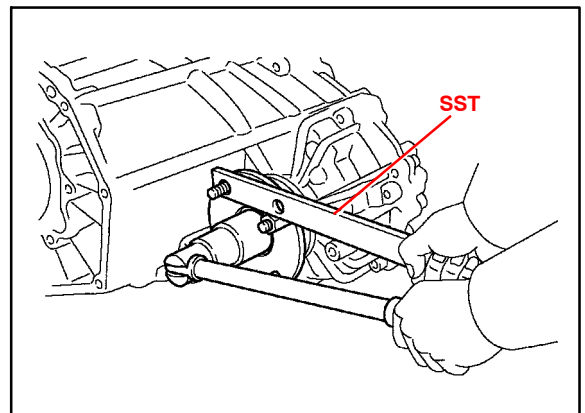
10. Remove the transfer case cover sub-assembly by removing the 4 bolts.



11. Remove the breather oil deflector.

12. Remove the front output shaft companion flange sub-assembly.
- A. Using a chisel and hammer, loosen the staked part of the output shaft companion flange lock nut.
 - B. Using the SST to hold the output shaft companion flange, remove the output shaft companion flange lock nut.

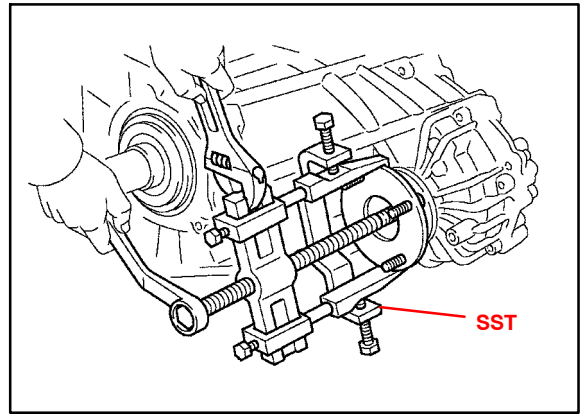
- **SST P/N 09330-00021**



**Repair
Procedure**
(Continued)

- C. Using the SSTs, remove the front output shaft companion flange sub-assembly.

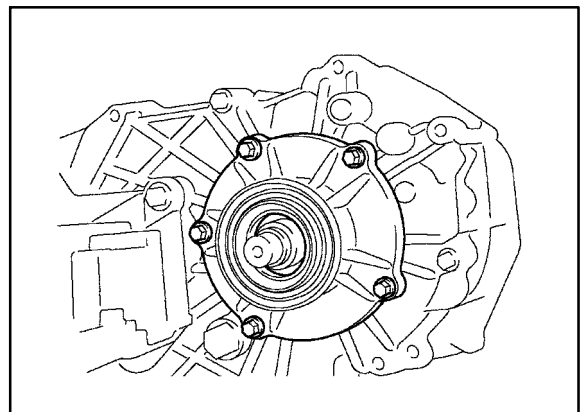
- **SST P/N 09950-40011-02 (09951-04020, 09952-04010, 09953-04030, 09954-04010, 09955-04051, 09957-04010, 09958-04011)**



13. Remove the front transfer output shaft companion flange oil seal.
Using a screwdriver and hammer, remove the oil seal from the output shaft companion flange sub-assembly.
14. Remove the rear output shaft companion flange sub-assembly in the same way as the front output shaft companion flange sub-assembly (step 12).
15. Remove the rear transfer output shaft companion flange oil seal.
Using a screwdriver and hammer, remove the oil seal from the rear output shaft companion flange sub-assembly.
16. Remove the extension housing assembly by removing the 5 bolts.

HINT:

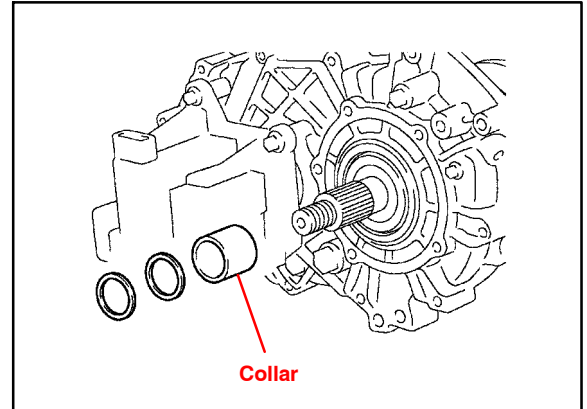
If necessary, tap the extension housing assembly rear with a plastic hammer to remove it.



**Repair
Procedure**
(Continued)

17. Remove the transfer extension housing type T oil seal.
Using a screwdriver and hammer, remove the oil seal.

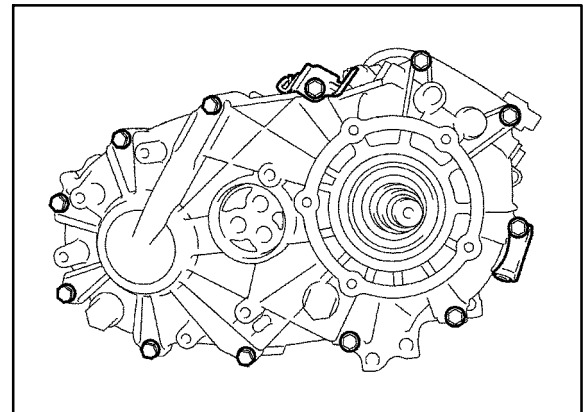
18. Remove the 2 transfer output washers and collar.



19. Remove the transfer case rear by removing the 12 bolts and 2 clamps.

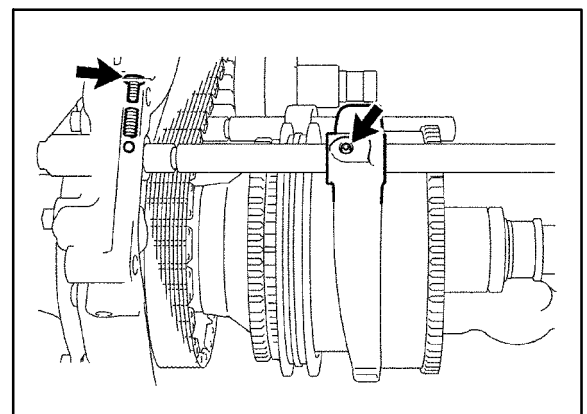
HINT:

If necessary, tap the transfer case rear with a plastic hammer to remove it.



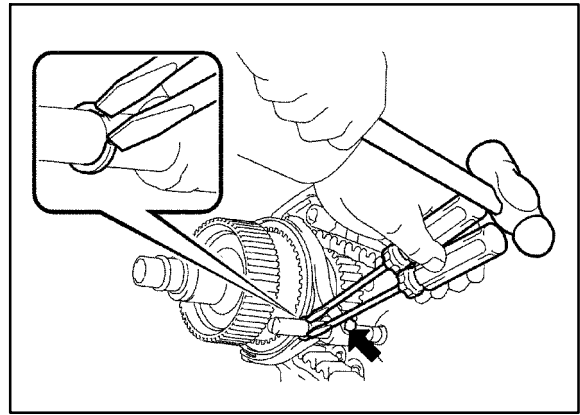
20. Remove the transfer gear shift fork No. 2 w/transfer high and low clutch sleeve.

- A. Using a hexagon wrench, remove the plug No. 1.
- B. Using a magnetic finger, remove the spring and ball from the hole.
- C. Using a pin punch and hammer, drive out the slotted spring pin.
- D. Remove the gear shift fork No. 2 and high and low shift fork shaft.
- E. Remove the high and low clutch sleeve.

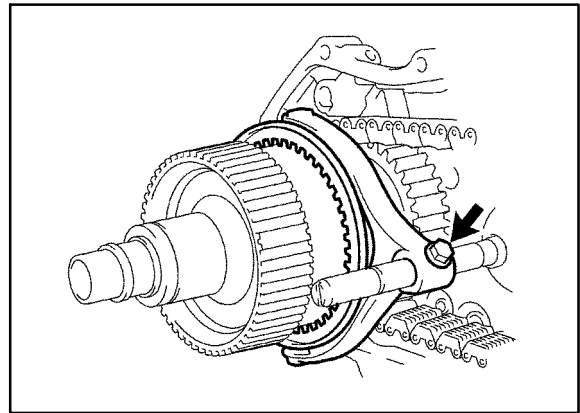


**Repair
Procedure**
(Continued)

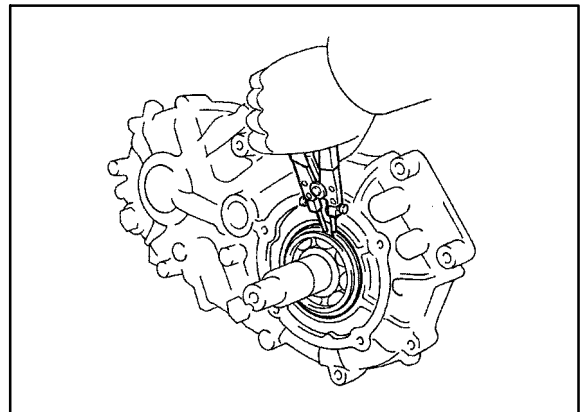
21. Remove the center differential lock fork sub-assembly w/front drive clutch sleeve.
- A. Using 2 screwdrivers and a hammer, tap out the snap ring.



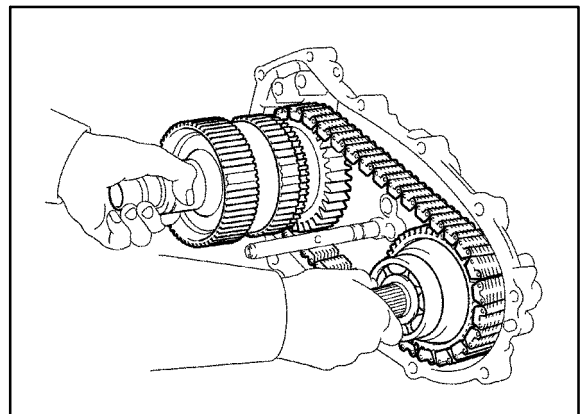
- B. Remove the bolt, center differential lock fork sub-assembly, and front drive clutch sleeve.



22. Remove the rear output shaft sub-assembly, front drive chain, and driven sprocket sub-assembly.
- A. Using a snap ring expander, remove the snap ring.
- B. Mount the transfer case rear in a vise.

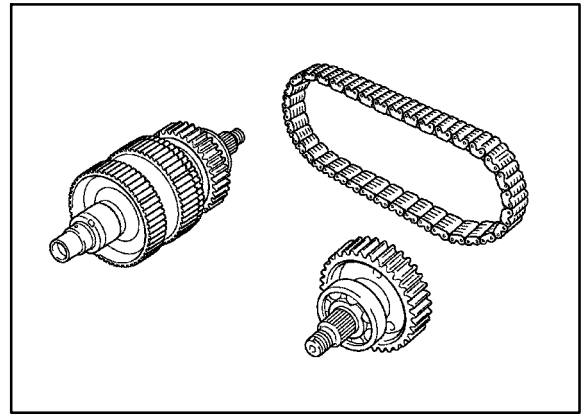


- C. Using a plastic hammer, carefully tap the transfer case rear, and remove the rear output shaft sub-assembly together with the front drive chain and the driven sprocket sub-assembly.



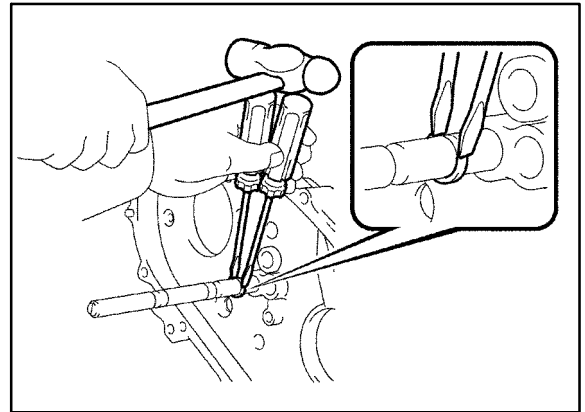
**Repair
Procedure**
(Continued)

- D. Remove the rear output shaft sub-assembly, front drive chain, and driven sprocket sub-assembly.

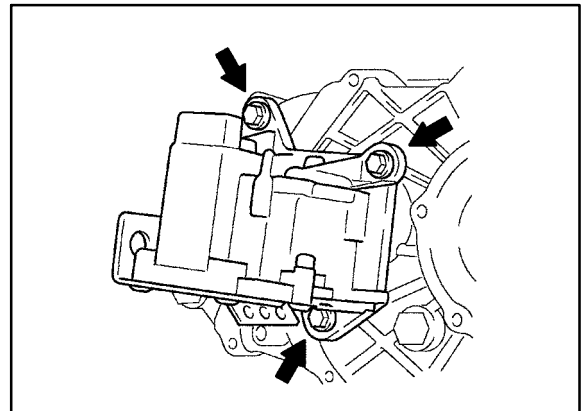


23. Remove the transfer shift actuator assembly.

- A. Using 2 screwdrivers and a hammer, tap out the snap ring.



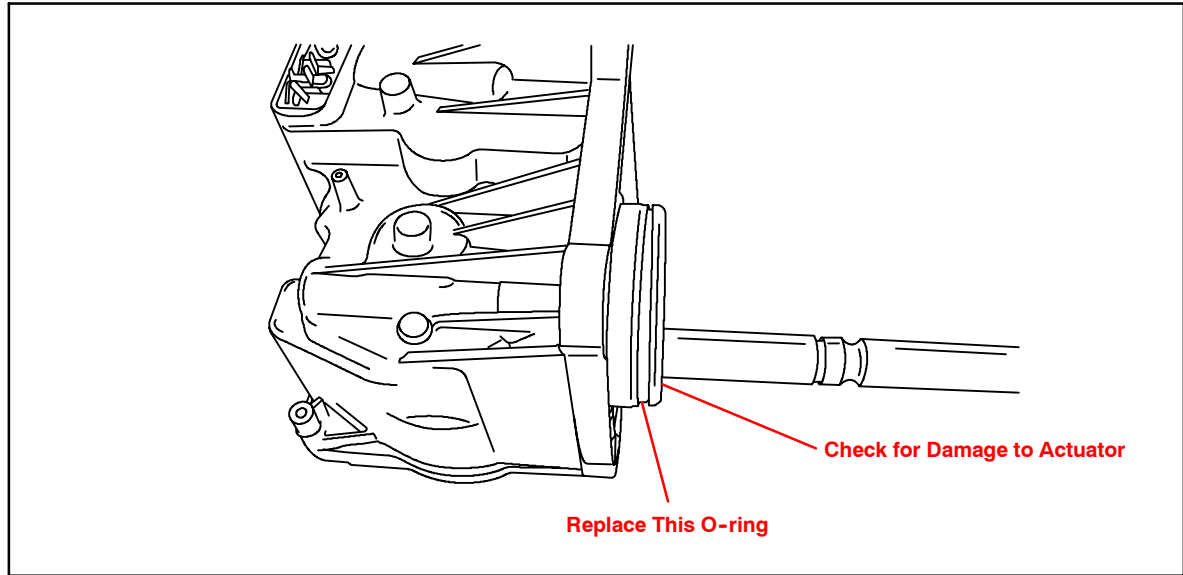
- B. Remove the 3 bolts and the transfer shift actuator assembly.



24. Remove the old O-ring on the transfer case actuator assembly.

**Repair
Procedure**
(Continued)

25. Examine the transfer case actuator sealing surface and confirm the plastic is intact and NOT damaged. If the transfer case plastic IS damaged, replace the transfer case actuator.



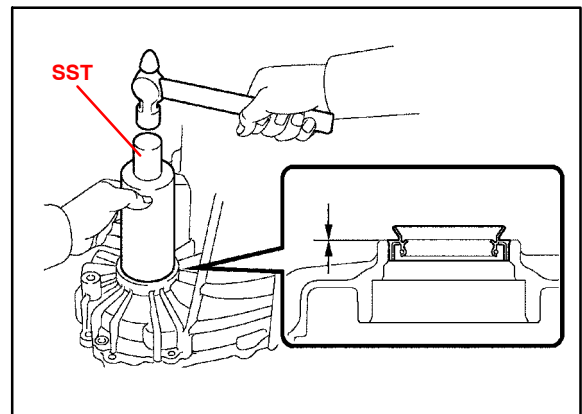
26. Install the NEW O-ring on the transfer case actuator.

27. Install the transfer case oil seal.

- A. Using the SST (or equivalent tool) and a hammer, drive in a NEW oil seal until its surface is flush with the case upper surface (No. 1).

- **SST P/N 09316-60011 (09316-00011, or equivalent)**

- B. Coat the lip of the oil seal with MP grease.

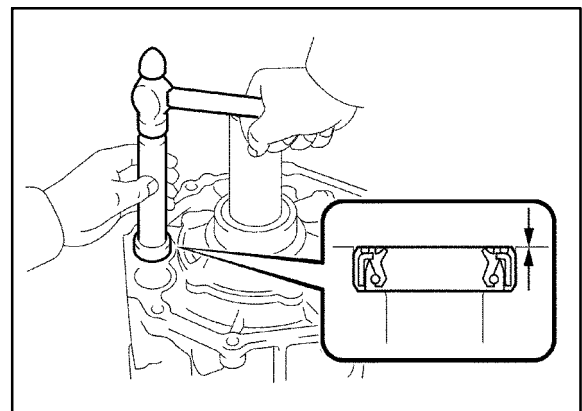


- C. Using the SST (or equivalent tool) and a hammer, drive in a NEW oil seal until its surface is flush with the case upper surface (No. 2).

- **SST P/N 09304-12012 (or equivalent)**

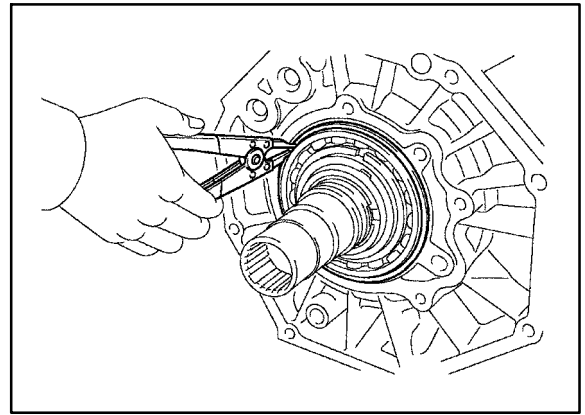
Oil seal drive in depth:
-0.5 to 0.5 mm (-0.020 to 0.020 in.)

- D. Coat the lip of the oil seal with MP grease.



**Repair
Procedure**
(Continued)

- E. Using a snap ring expander, install the snap ring.

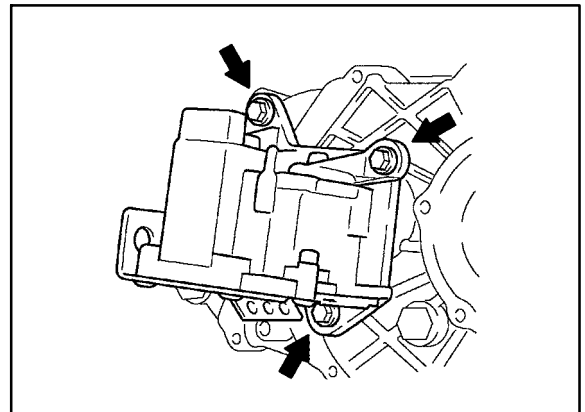


28. Install the transfer shift actuator assembly.

- A. Install the actuator assembly with the 3 bolts.

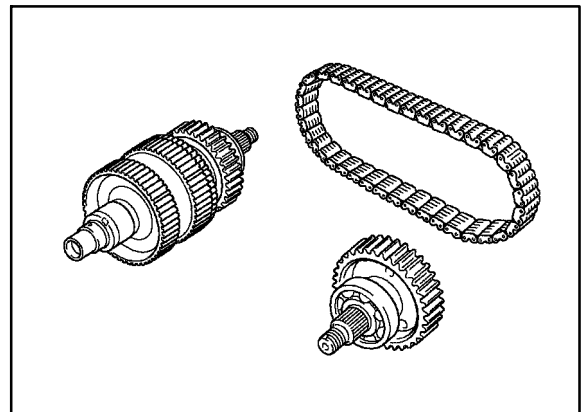
**Torque: 20 N•m
(204 kgf•cm, 15 ft•lbf)**

- B. Using a screwdriver and hammer, drive in the 2 snap rings.



29. Install the rear output shaft sub-assembly, front drive chain, and driven sprocket sub-assembly.

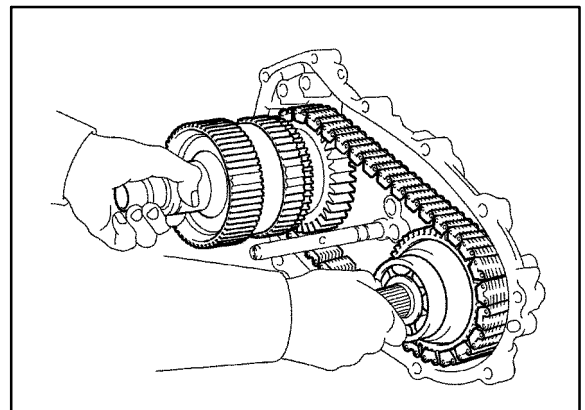
- A. Install the rear output shaft sub-assembly and driven sprocket to the front drive chain.



- B. Install the rear output shaft sub-assembly, front drive chain, and driven sprocket sub-assembly to the case rear.

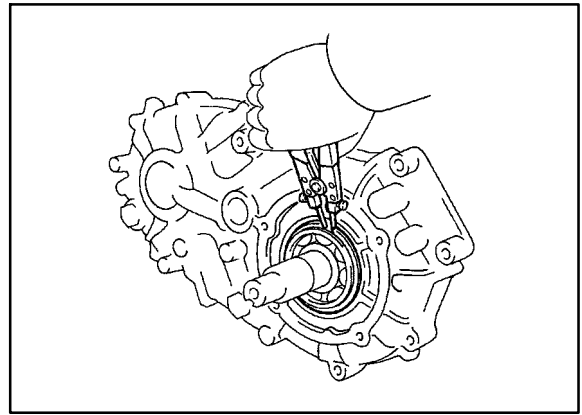
HINT:

Check that the rear output shaft sub-assembly and driven sprocket sub-assembly turn lightly. If necessary, heat the rear case to about 122 - 176°F (50 - 80°C).

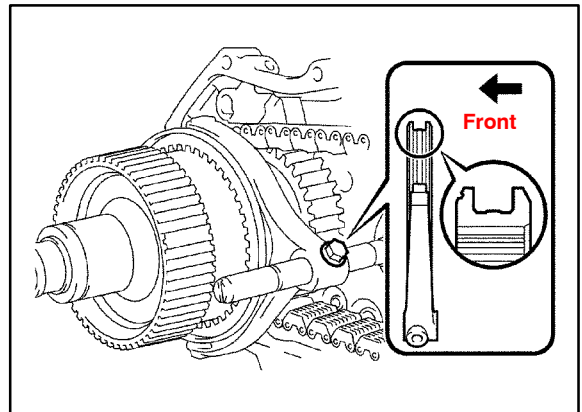


**Repair
Procedure**
(Continued)

- C. Using a snap ring expander, install the snap ring.



30. Install the center differential lock fork sub-assembly w/front drive clutch sleeve.
- Install the center differential lock fork sub-assembly and front drive clutch sleeve.
 - Install the bolt.
**Torque: 24 N•m
(245 kgf•cm, 18 ft•lbf)**
 - Using a screwdriver and hammer, drive in the snap ring.



NOTE:

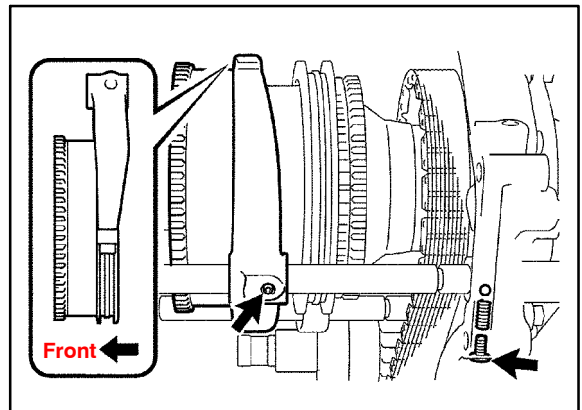
Make sure to install the fork and clutch sleeve in the correct direction.

31. Install the transfer gear shift fork No. 2 w/transfer high and low clutch sleeve.
- Install the gear shift fork No. 2 and high and low shift fork shaft and high and low clutch sleeve.

NOTE:

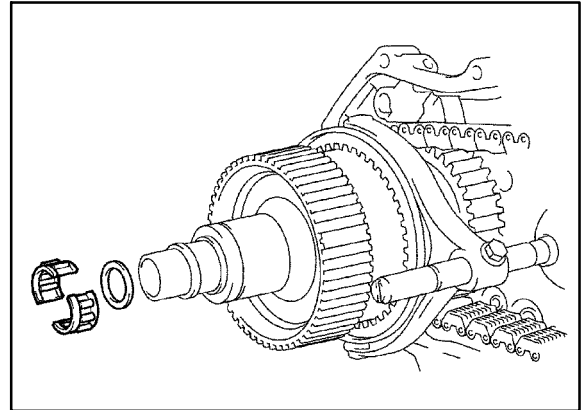
Make sure to install the fork in the correct direction.

- Apply sealant to the plug No. 1 threads.
 - Sealant: P/N 08833-00080, Toyota Genuine Adhesive 1344, Three Bond 1344, Loctite 242, or equivalent**
- Install the spring and ball to the hole.

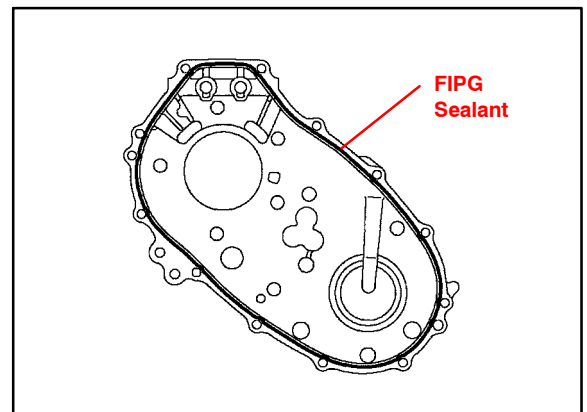


**Repair
Procedure**
(Continued)

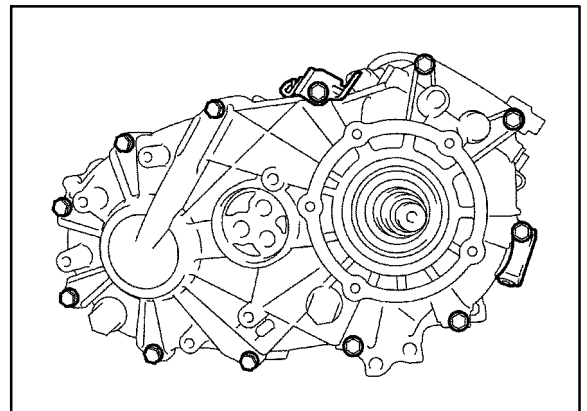
- D. Install the plug No. 1 to the hole.
Torque: 18.6 N•m (190 kgf•cm, 14 ft•lbf)
- E. Using a pin punch and hammer,
Install the slotted pin.
32. Install the transfer output
shaft spacer.
33. Install the transfer output shaft front
needle roller bearing.



34. Install the transfer case rear.
- A. Apply FIPG sealant to the case rear, as shown.
- **FIPG sealant:**
P/N 08826-00090,
Three Bond 1281,
or equivalent

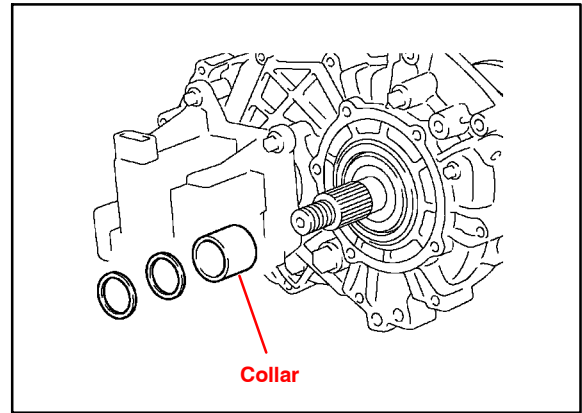


- B. Install the 2 clamps and case rear
with the 12 bolts.
- Torque: 28 N•m**
(285 kgf•cm, 21 ft•lbf)



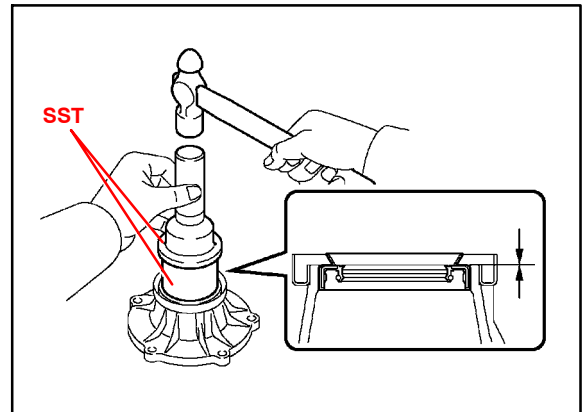
**Repair
Procedure**
(Continued)

35. Install the collar and 2 transfer output washers.



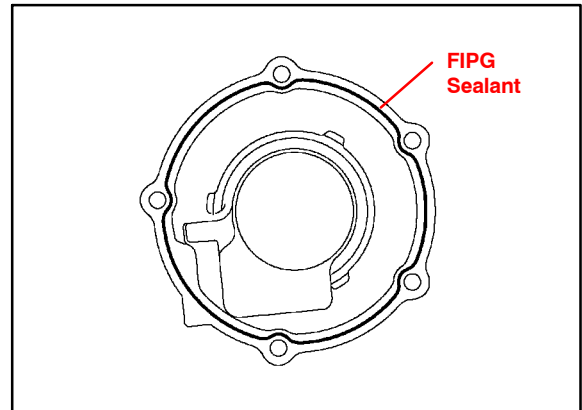
36. Install the transfer extension housing type T oil seal.

- A. Using the SSTs and a hammer, drive in a NEW oil seal until its surface is flush with the housing upper surface.
- **SST P/N 00002-62091-02 (09223-46011), 09631-32020**
- B. Coat the lip of the oil seal with MP grease.



37. Install the extension housing assembly.

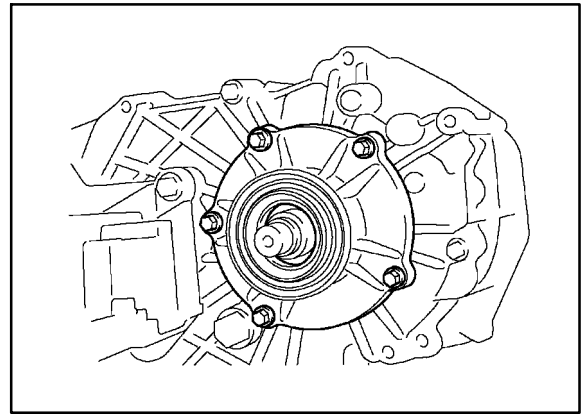
- A. Apply FIPG sealant to the extension housing assembly rear, as shown.
- **FIPG sealant:
P/N 08826-00090,
Three Bond 1281,
or equivalent**
- B. Apply sealant to the bolt threads.
- **Sealant: P/N 08833-00080,
Toyota Genuine Adhesive
1344, Three Bond 1344,
Loctite 242, or equivalent**



**Repair
Procedure**
(Continued)

- C. Install the extension housing assembly with the 5 bolts.

Torque: 12 N•m (122 kgf•cm, 9 ft•lbf)



38. Install the front transfer output shaft companion flange oil seal.

- A. Using the SSTs and a hammer, drive in a NEW oil seal.

- **SST P/N 09950-60010-02 (09951-00320-01), 09950-70010-02 (09951-07100-01)**

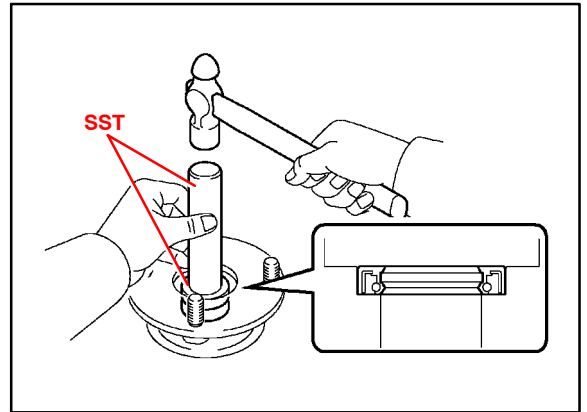
- B. Coat the lip of the oil seal with MP grease.

39. Install the rear transfer output shaft companion flange oil seal.

- A. Using the SSTs and a hammer, drive in a NEW oil seal.

- **SST P/N 09950-60010-02 (09951-00320-01), 09950-70010-02 (09951-07100-01)**

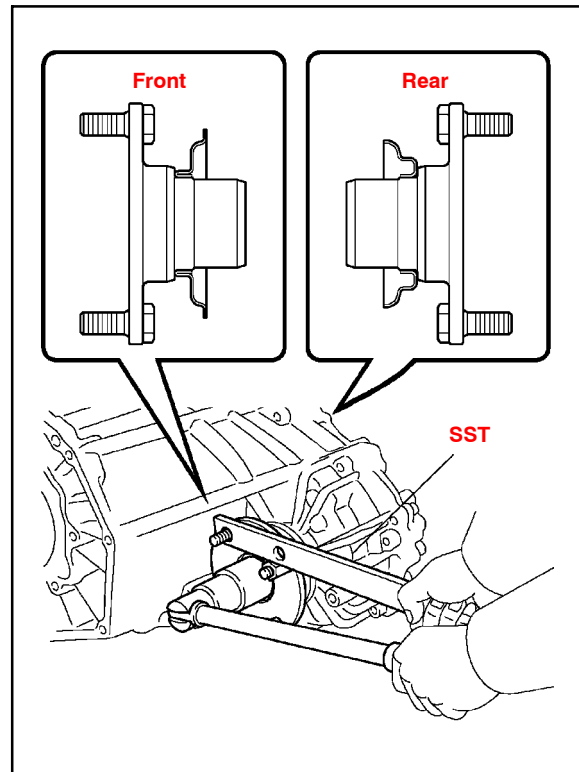
- B. Coat the lip of the oil seal with MP grease.



Repair Procedure
(Continued)

40. Install the front output shaft companion flange sub-assembly.
- Install the companion flange sub-assembly to the drive sprocket sub-assembly.
 - Using the SST to hold the companion flange, install a NEW companion flange lock nut.
 - SST P/N 09330-00021**

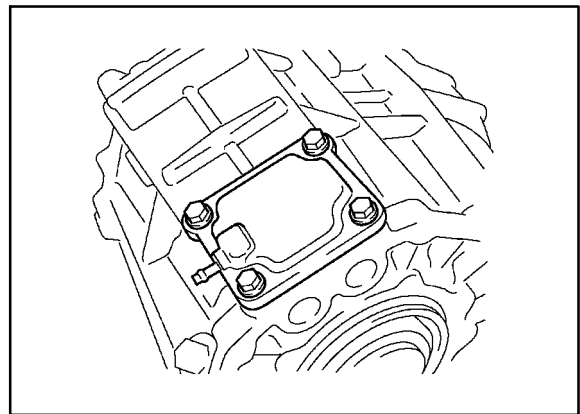
Torque: 118 N•m
(1,203 kgf•cm, 87 ft•lbf)
 - Using a chisel and hammer, stake the companion flange lock nut.
41. Install the rear output shaft companion flange sub-assembly.
- Using the SST, install the rear companion flange sub-assembly in the same way as the front companion flange sub-assembly.



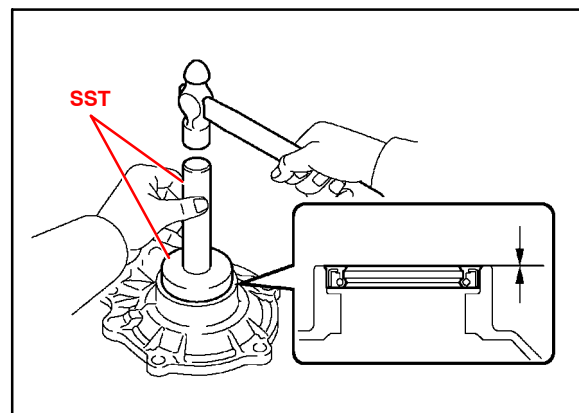
- SST P/N 09330-00021**
- Torque: 118 N•m**
(1,203 kgf•cm, 87 ft•lbf)

42. Install the breather oil deflector.
43. Install the transfer case cover sub-assembly with the 4 bolts.

Torque: 18 N•m
(184 kgf•cm, 13 ft•lbf)



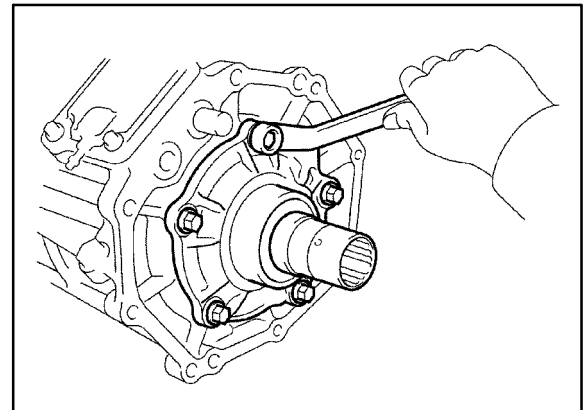
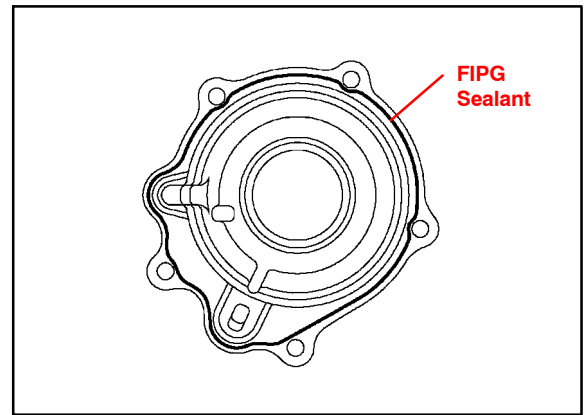
44. Install the transfer cover type T oil seal.
- Using the SSTs and a hammer, drive in a NEW oil seal until its surface is flush with the retainer upper surface.
 - Coat the lip of the oil seal with MP grease.
 - SST P/N 09950-60010-02**
(09951-00590-01),
09950-70010-02
(09951-07100-01)



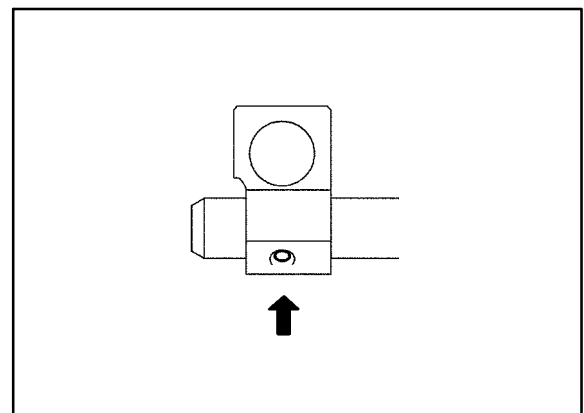
**Repair
Procedure**
(Continued)

45. Install the transfer RH bearing retainer sub-assembly.
- A. Apply FIPG sealant to the bearing retainer sub-assembly, as shown.
 - **FIPG sealant:**
P/N 08826-00090,
Three Bond 1281,
or equivalent
 - B. Apply sealant to the bolt thread.
 - **Sealant: P/N 08833-00080,**
Toyota Genuine Adhesive 1344, Three Bond 1344,
Loctite 242, or equivalent
 - C. Install the bearing retainer sub-assembly with the 5 bolts.

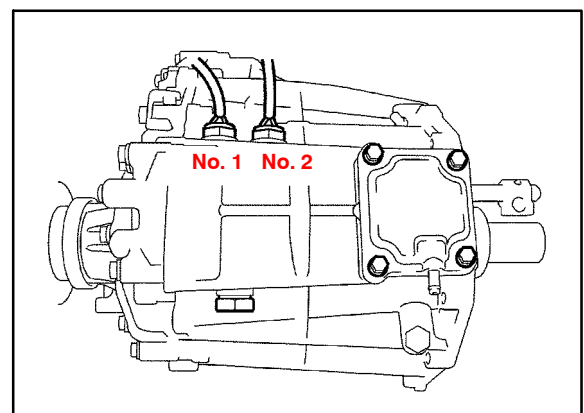
Torque: 11.5 N•m
(117 kgf•cm, 8 ft•lbf)



46. Install the transfer gear shift head No. 2.
- Using a pin punch and hammer, install the slotted pin to the gear shift head No. 2.



47. Install the switches.
- Install NEW gaskets, the indicator switches, and the case No. 1 plug.
- Torque: 37 N•m (377 kgf•cm, 27 ft•lbf)**

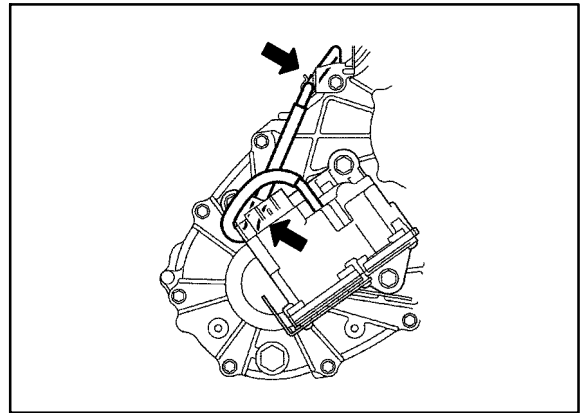


**Repair
Procedure**
(Continued)

48. Install hoses.

NOTE:

- Place the hose between the transfer rear case and the actuator motor.
- Adjust the clamp position to prevent excessive bending, pulling, or pushing on the hose.



49. Install the transfer assembly.

- A. Install the transfer to the automatic transmission.
- B. Install the 2 clamps and 8 bolts.

Torque: 24 N•m (245 kgf•cm, 17 ft•lbf)

50. Install the automatic transmission assembly.

Refer to TIS, 2003 or 2004 model year GX 470 Repair Manual: *Automatic Transmission / Trans: Automatic Transmission Assy: Replacement.*

51. Install the transfer case lower protector with the 4 bolts.

Torque: 18 N•m (184 kgf•cm, 13 ft•lbf)

52. Add transfer oil.

Refer to TIS, 2003 or 2004 model year GX 470 Repair Manual: *Transfer: Transfer Oil: Adjustment.*