2006 TRANSMISSION

U250E Overhaul - Camry

AUTOMATIC TRANSAXLE ASSY (U250E)

COMPONENTS

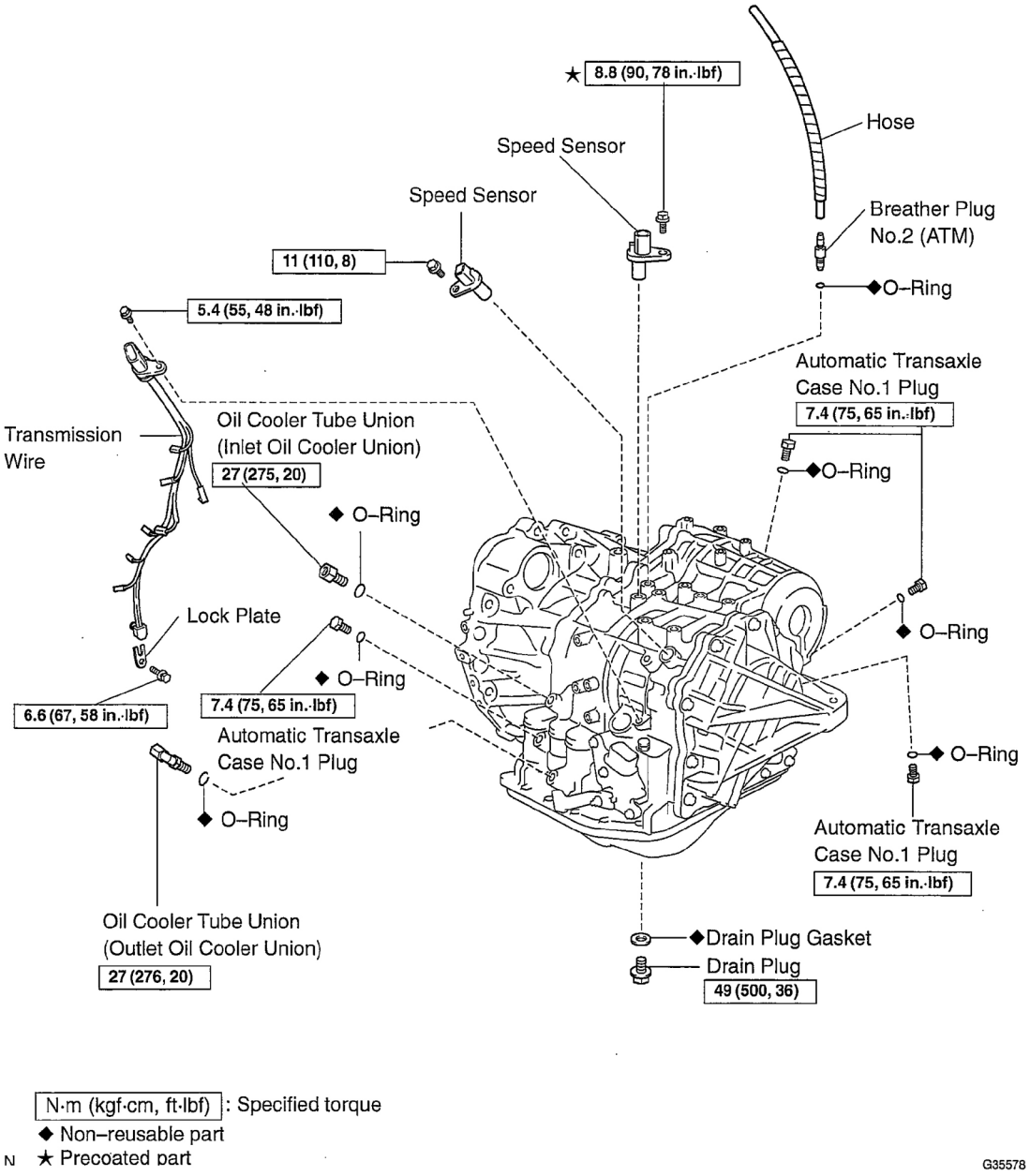


Fig. 1: Identifying Automatic Transaxle Assy (U250E) Components (1 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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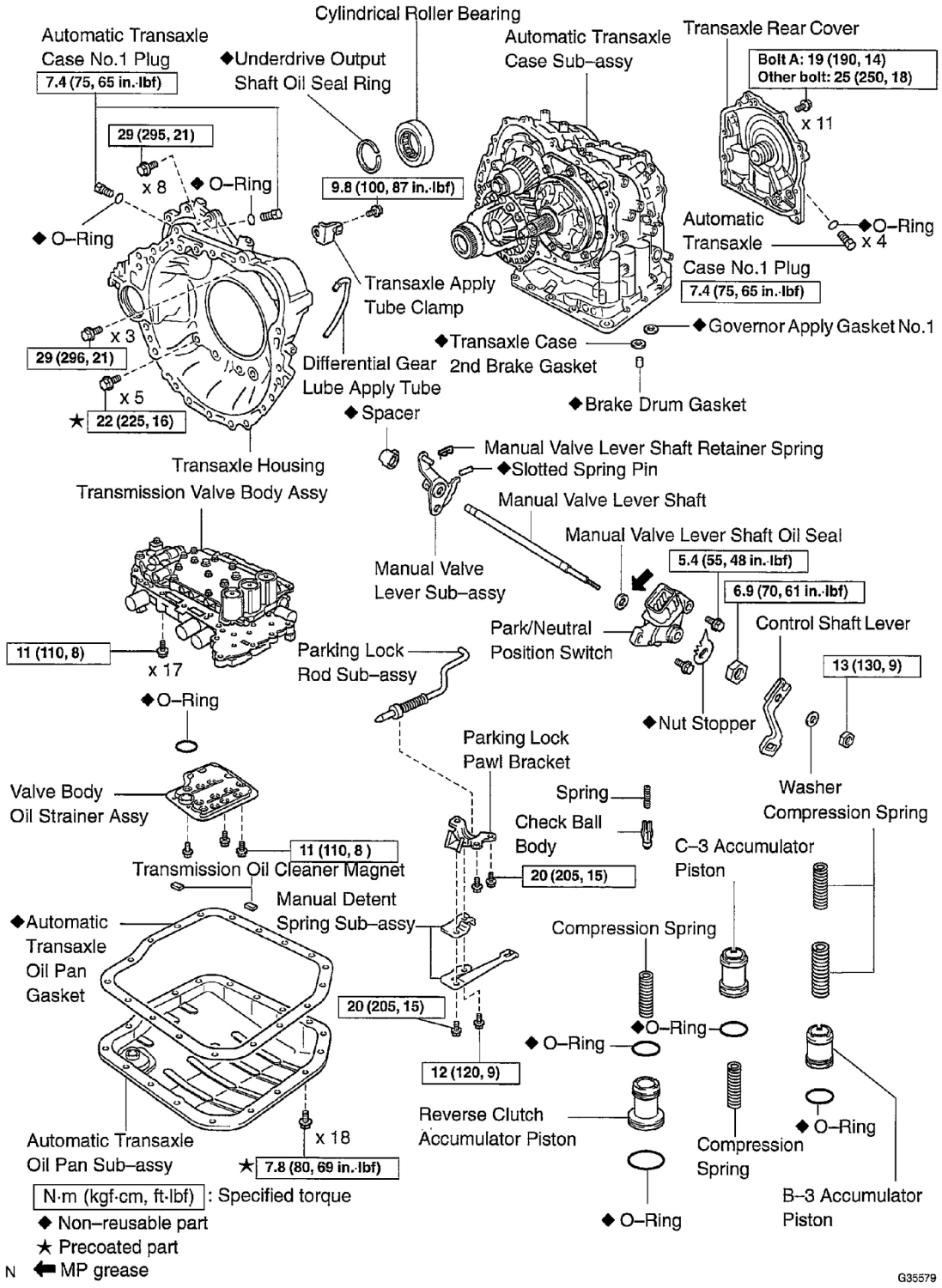


Fig. 2: Identifying Automatic Transaxle Assy (U250E) Components (2 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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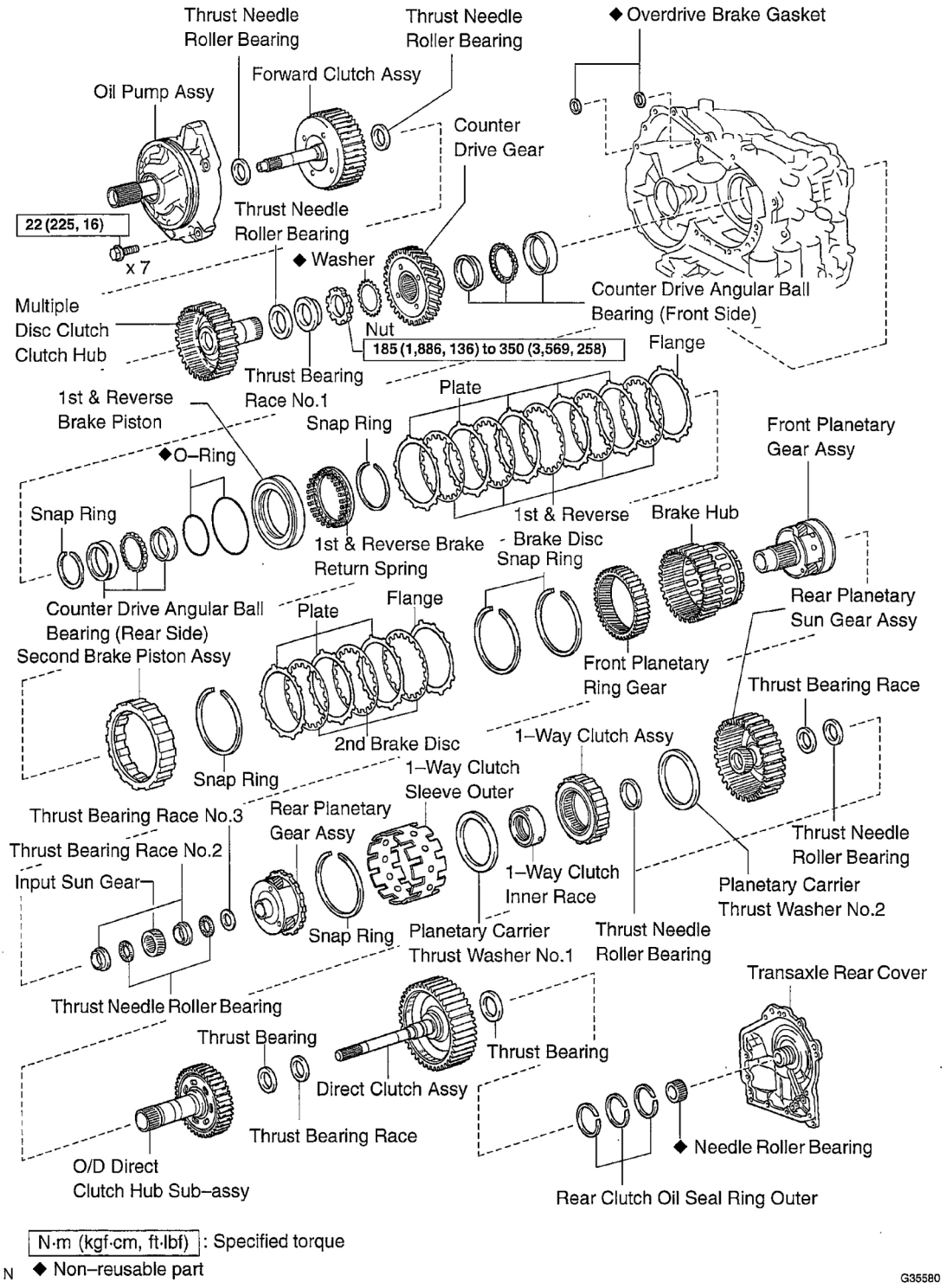


Fig. 3: Identifying Automatic Transaxle Assy (U250E) Components (3 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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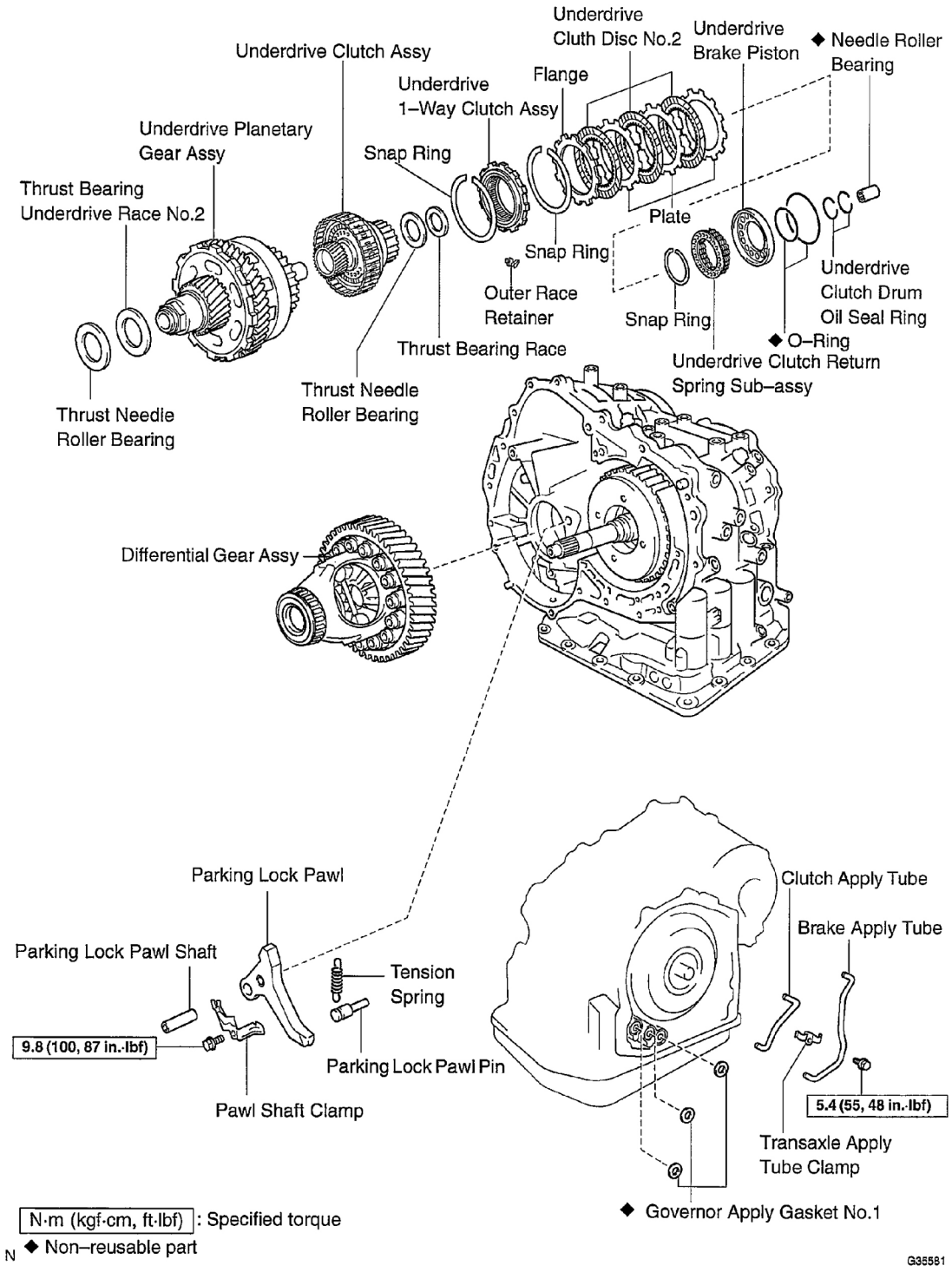


Fig. 4: Identifying Automatic Transaxle Assy (U250E) Components (4 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OVERHAUL

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1. **REMOVE PARK/NEUTRAL POSITION SWITCH ASSY**
   a. Remove the nut, washer and control shaft lever.

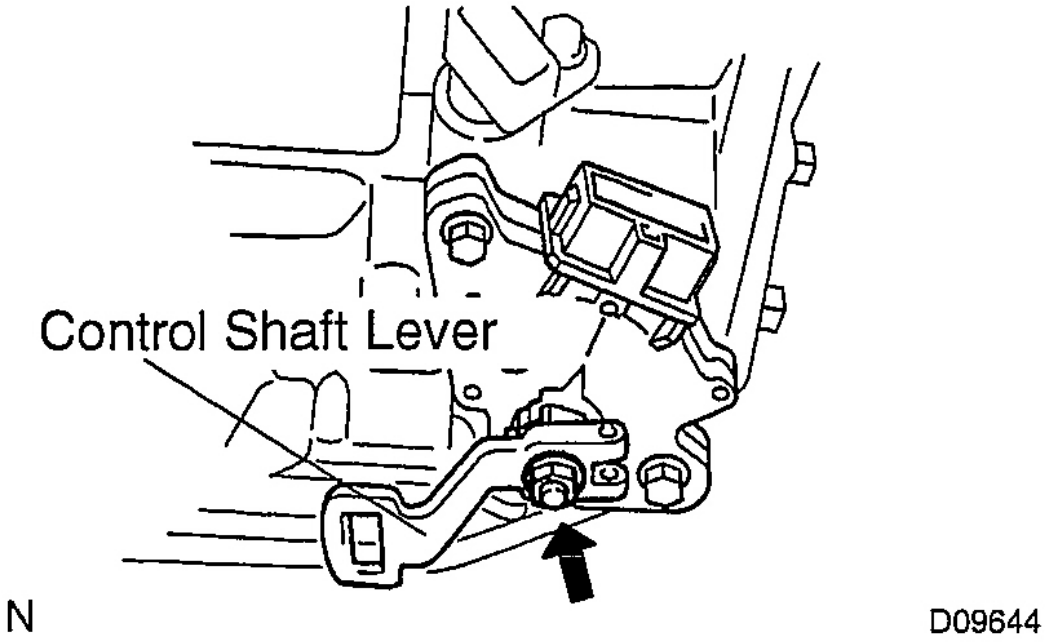


Fig. 5: Removing Control Shaft Lever Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Using a screwdriver, unstake the nut stopper, and remove the lock nut and nut stopper.

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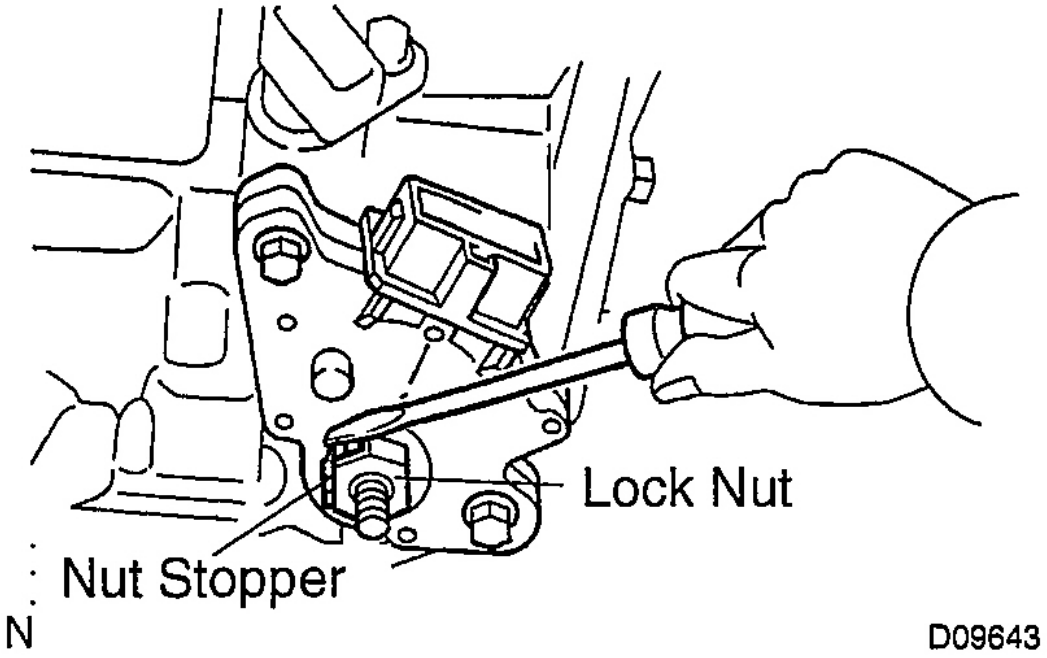


Fig. 6: Removing Lock Nut And Nut Stopper
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Remove the 2 bolts and pull out the park/neutral position switch assy.

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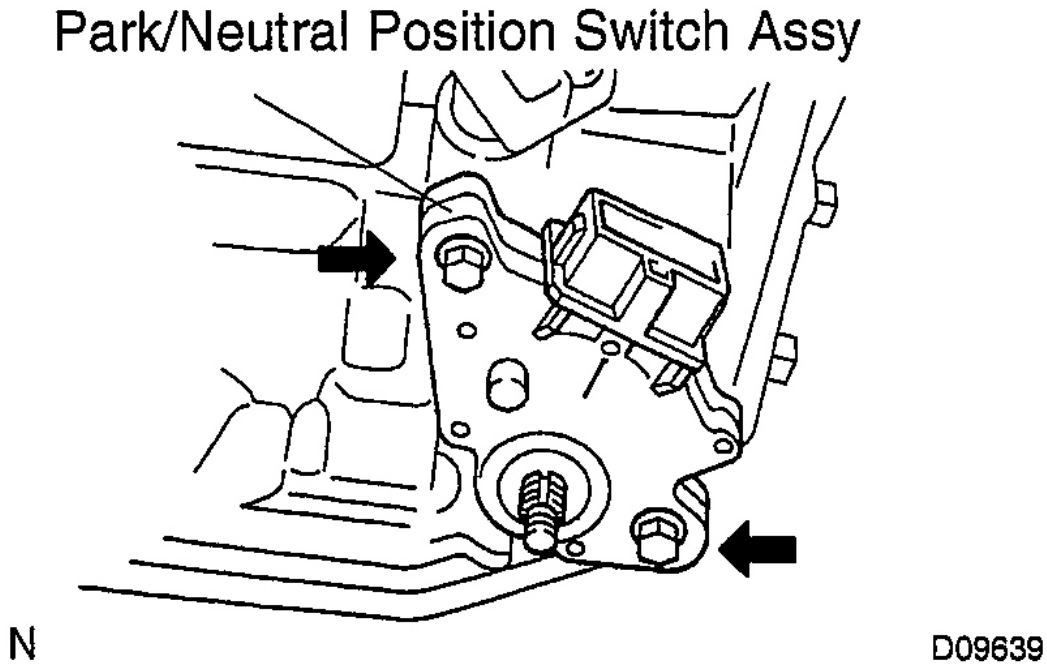


Fig. 7: Identifying Park/Neutral Position Switch Assy Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **REMOVE BREATHER PLUG NO. 2 (ATM)**
   a. Remove the breather plug No. 2 (ATM) from the transaxle case.

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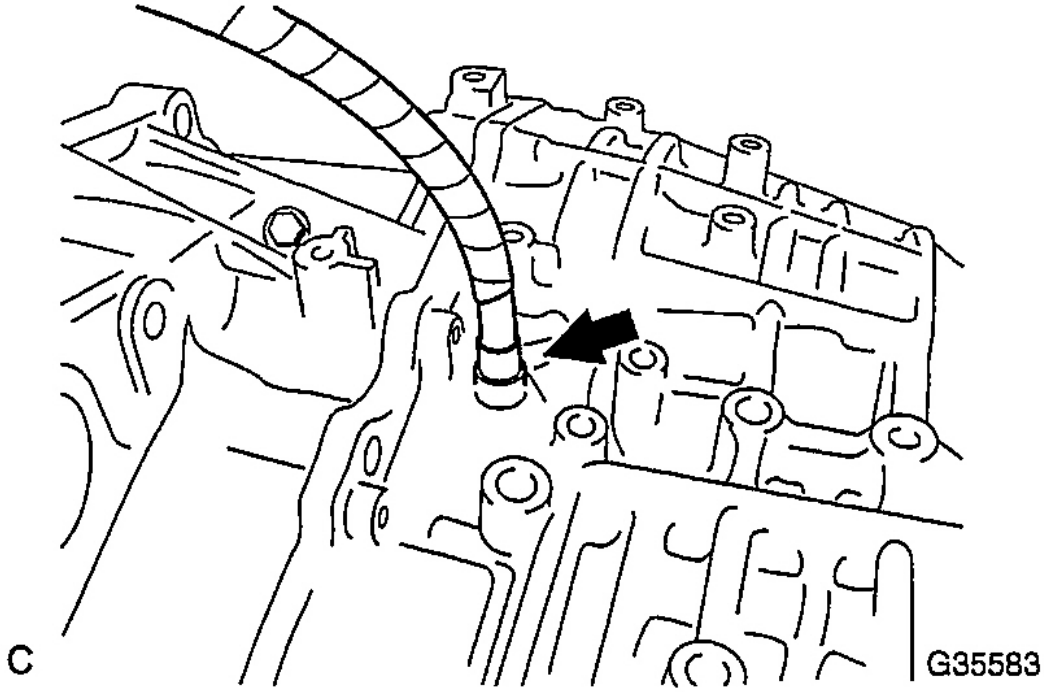


Fig. 8: Removing Breather Plug No. 2 (ATM) From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the hose and O-ring from the breather plug No.2 (ATM).

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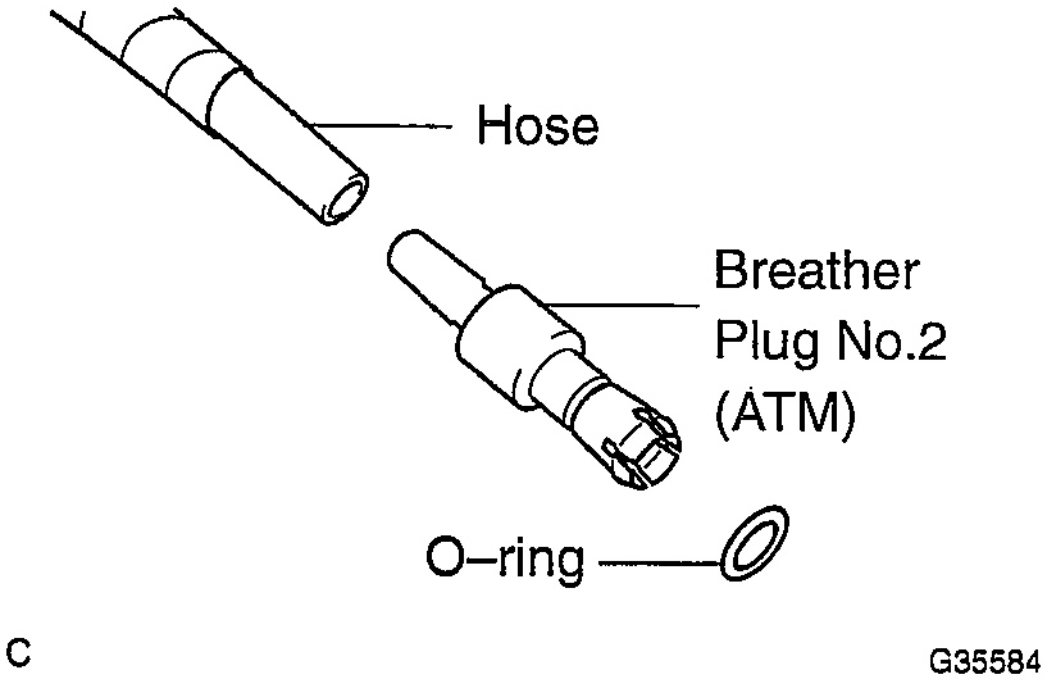


Fig. 9: Removing Hose And O-Ring From Breather Plug No. 2 (ATM)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **REMOVE OIL COOLER TUBE UNION (INLET OIL COOLER UNION)**
   a. Remove the oil cooler tube union (inlet oil cooler union).
   b. Remove the O-ring from the oil cooler tube union (inlet oil cooler union).

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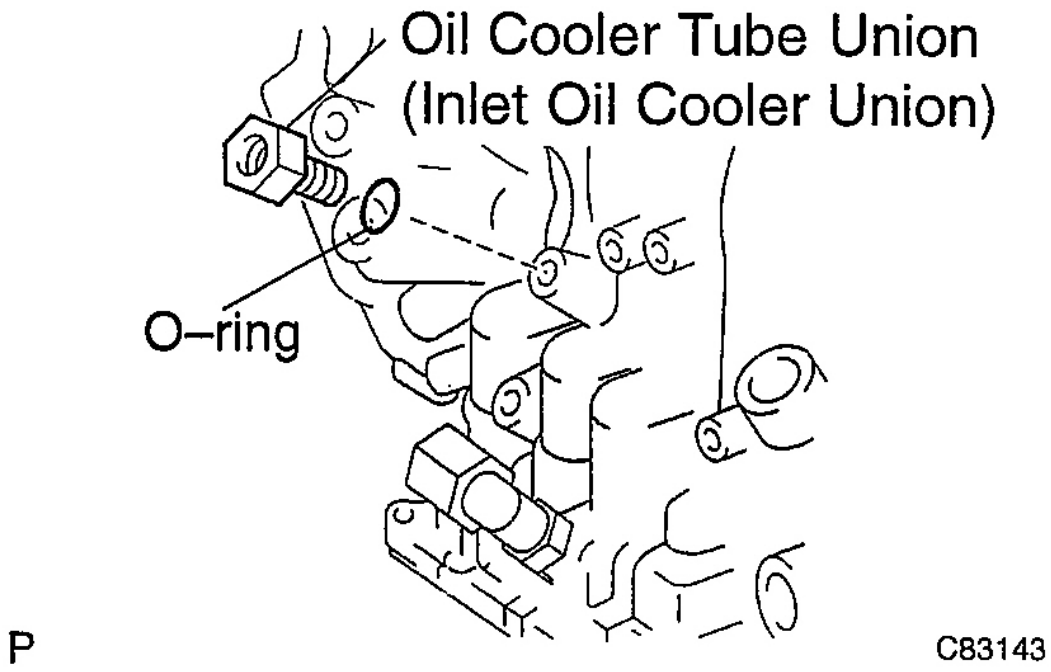


Fig. 10: Removing O-Ring From Oil Cooler Tube Union
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **REMOVE OIL COOLER TUBE UNION (OUTLET OIL COOLER UNION)**
   a. Remove the oil cooler tube union (outlet oil cooler union).
   b. Remove the O-ring from the oil cooler tube union (outlet oil cooler union).

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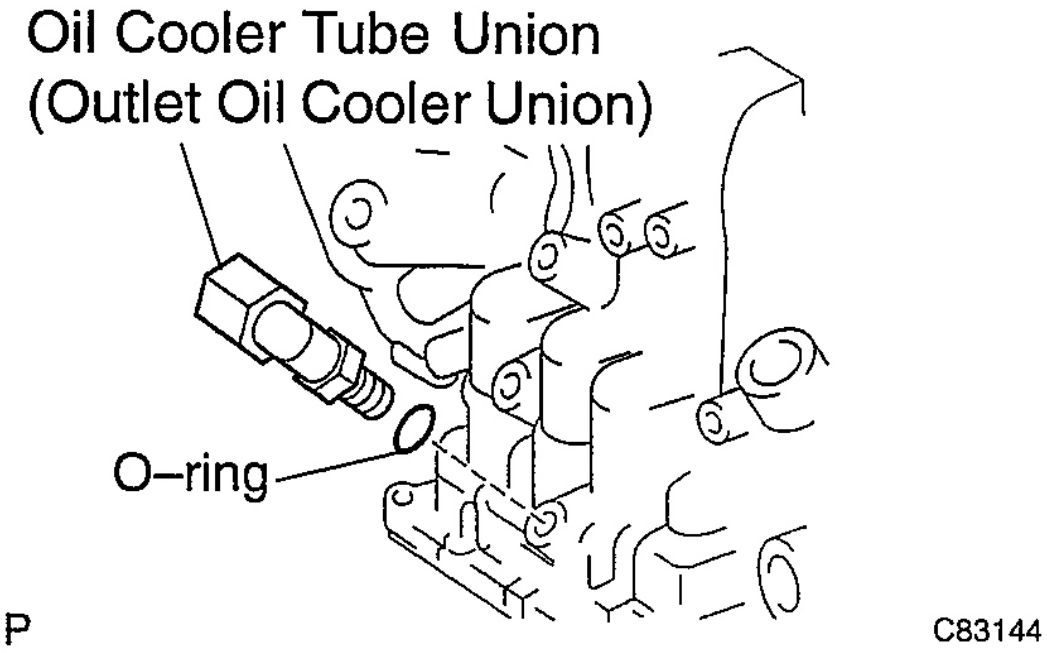


Fig. 11: Removing O-Ring From Oil Cooler Tube Union
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **REMOVE SPEED SENSOR**
   a. Remove the 2 bolts and the 2 speed sensors from the transaxle assy.

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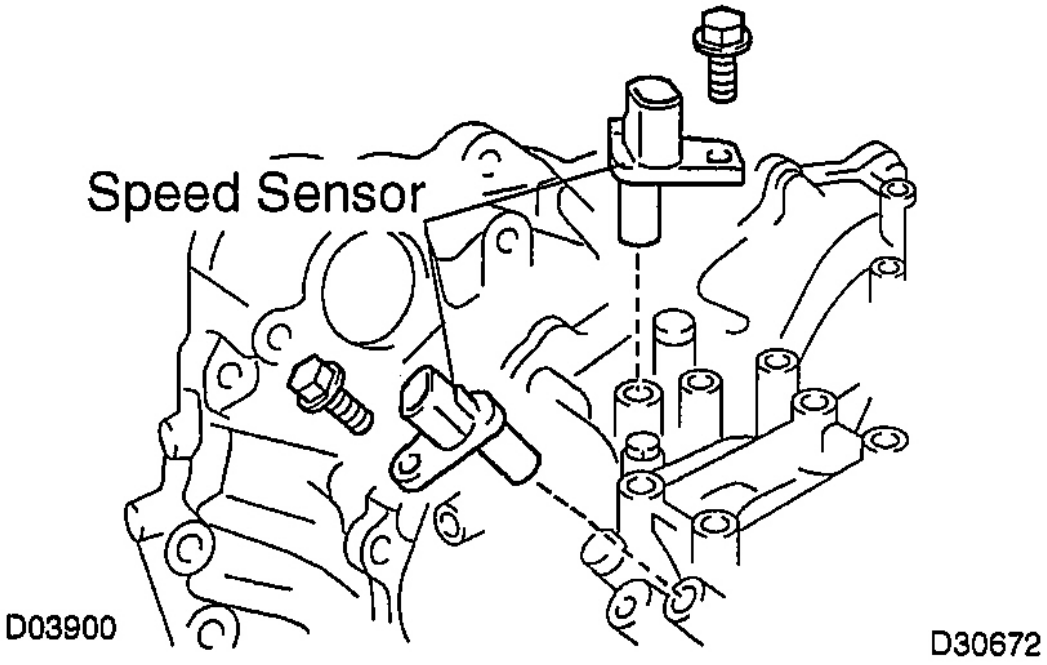


Fig. 12: Removing Speed Sensors And Bolts From Transaxle Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **REMOVE TRANSAXLE CASE NO. 1 PLUG**
   a. Remove the 4 transaxle case No. 1 plugs from the transaxle case.
   b. Remove the 4 O-rings from the 4 transaxle case No. 1 plugs.

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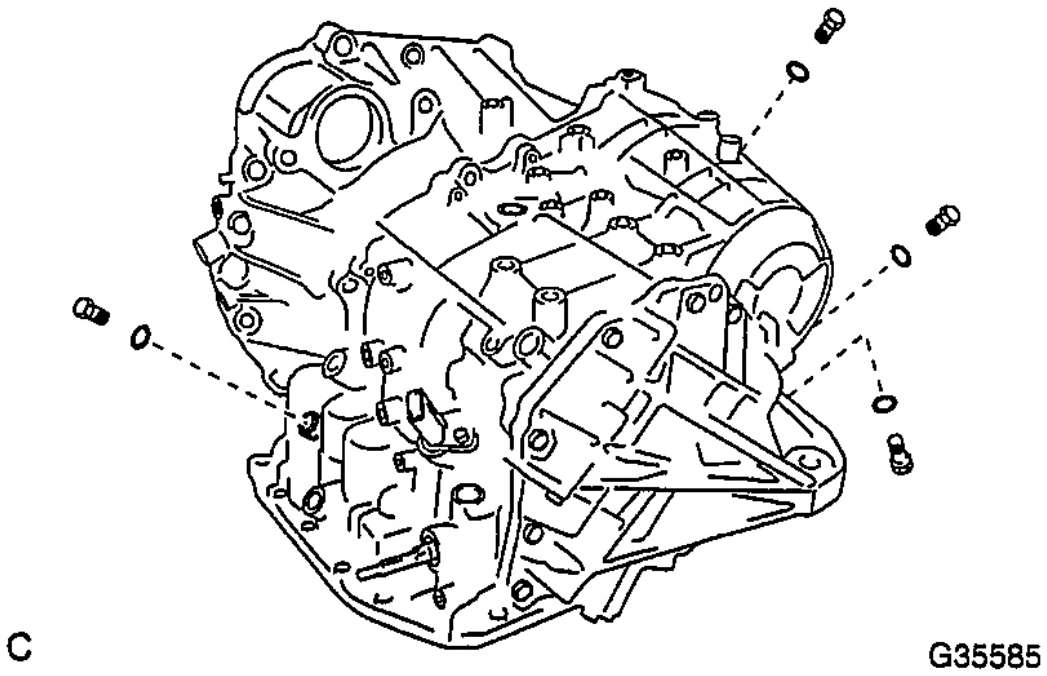


Fig. 13: Removing O-Rings From Transaxle Case No. 1 Plugs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **FIX AUTOMATIC TRANSAXLE ASSY**
   a. Fix the transaxle assy.

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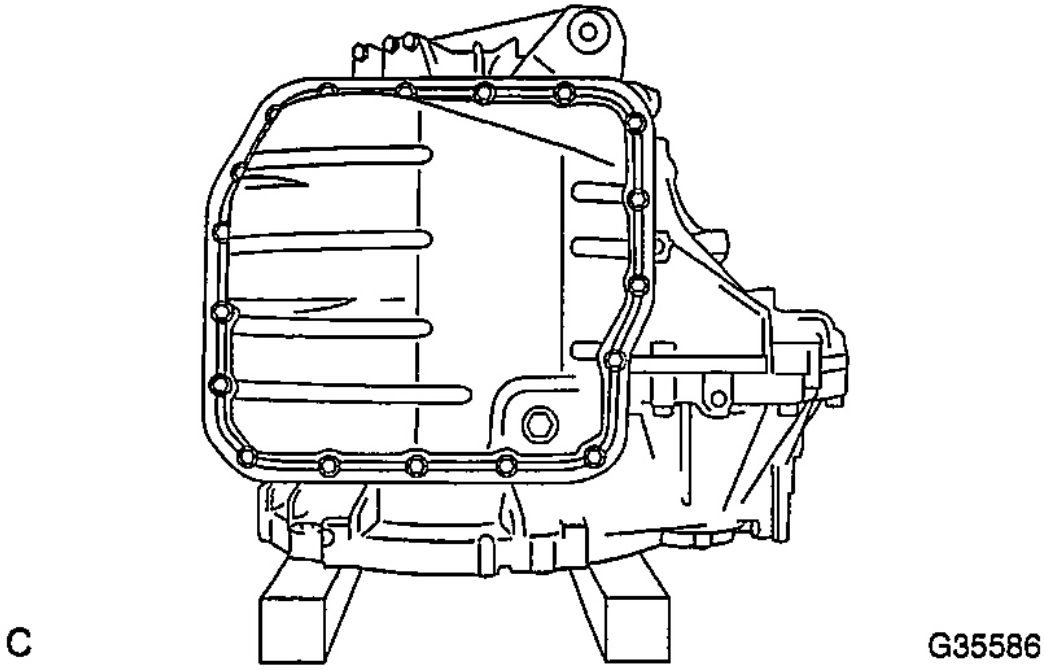


Fig. 14: Fixing Transaxle Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **REMOVE AUTOMATIC TRANSAXLE OIL PAN SUB-ASSY**
   a. Remove the drain plug and drain plug gasket from the automatic transaxle oil pan sub-assy.
   b. Remove the 18 bolts, automatic transaxle oil pan sub-assy and gasket.

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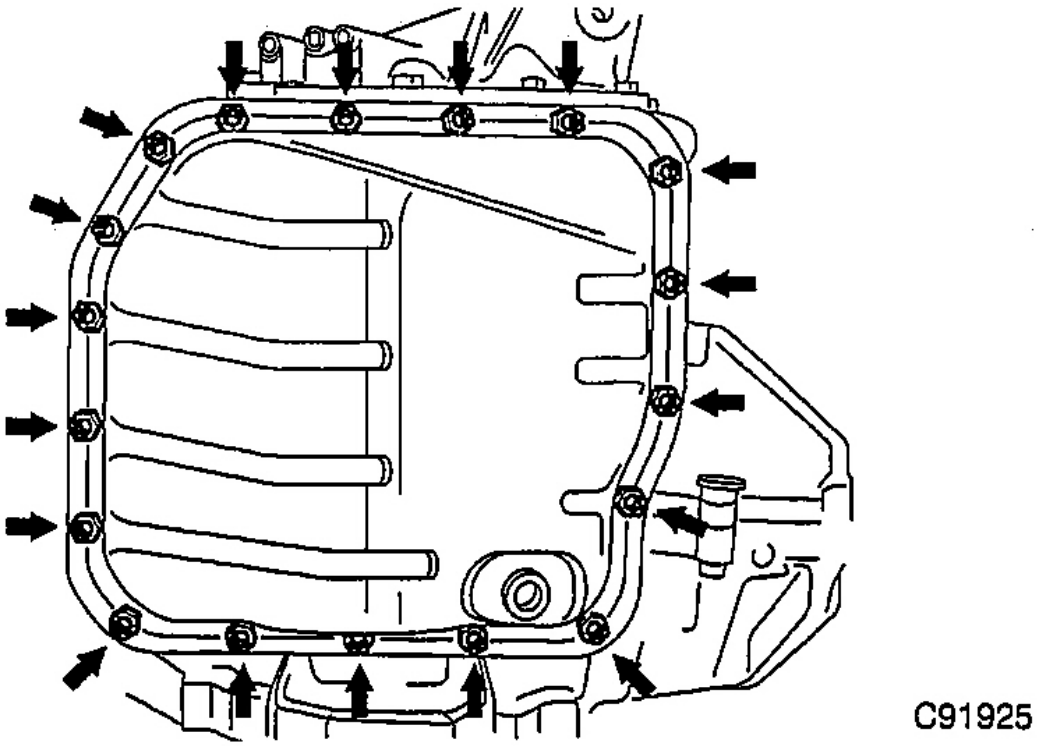


Fig. 15: Identifying Automatic Transaxle Oil Pan Sub-Assy Bolts
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c. Remove the 2 transmission oil cleaner magnets from the automatic transaxle oil pan sub-assy.

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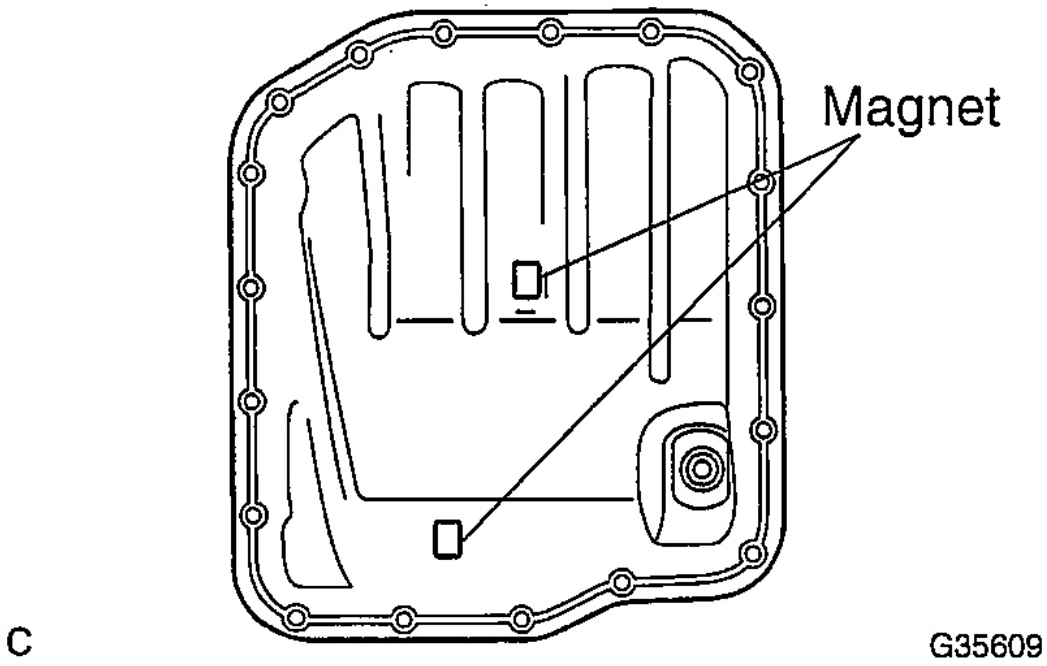


Fig. 16: Identifying Transmission Oil Cleaner Magnets
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **INSPECT TRANSMISSION OIL CLEANER MAGNET**
    a. Use the removed magnets to collect any steel chips. Examine the chips and particles in the pan and on the magnets to determine what type of wear has occurred in the transaxle:

    Steel (magnetic).... bearing, gear and plate wear

    Brass (non-magnetic).... bushing wear

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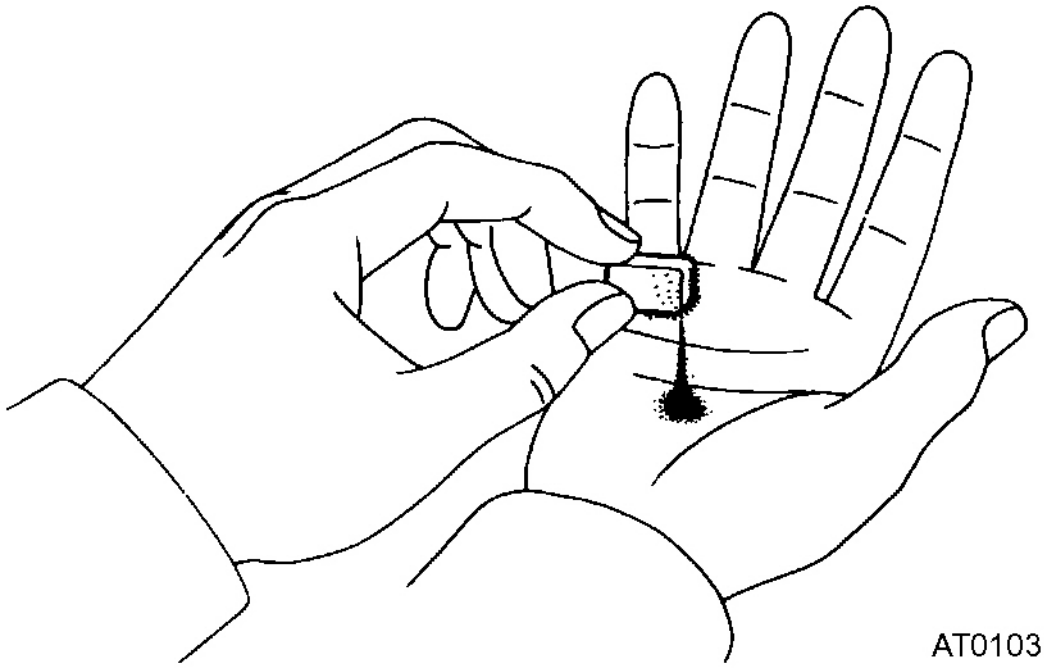


Fig. 17: Examine Foreign Objects/Particles In Pan
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. **DISCONNECT TRANSMISSION WIRE**
    a. Disconnect the 7 connectors from the shift solenoid valves.
    b. Remove the bolt, lock plate and ATF temperature sensor.

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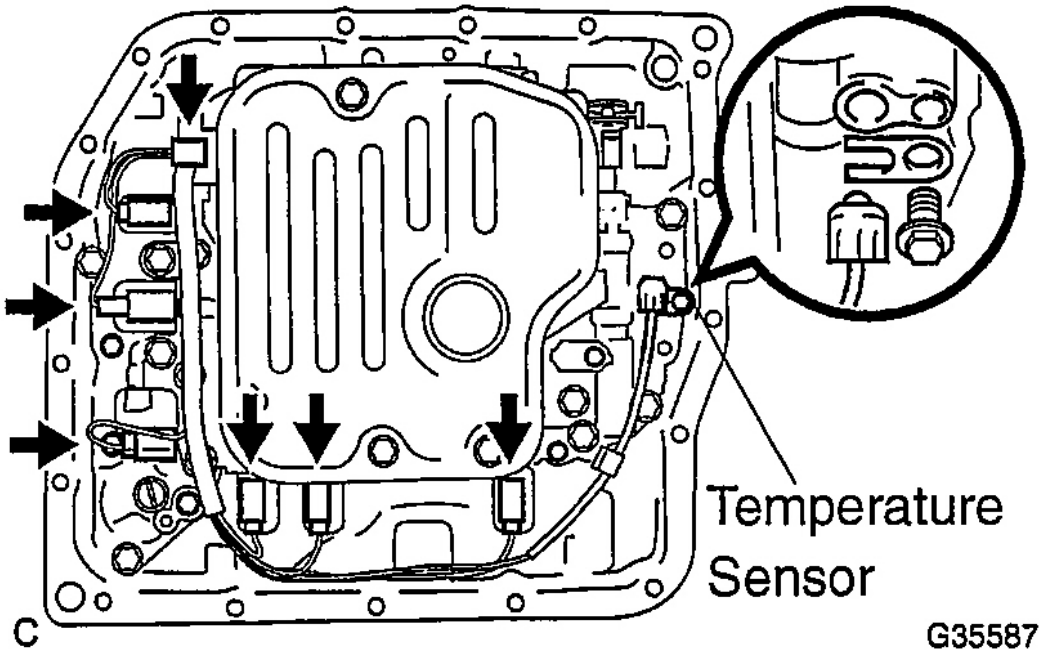


Fig. 18: Identifying ATF Temperature Sensor
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. **REMOVE TRANSMISSION WIRE**
    a. Remove the bolt and transmission wire from the transaxle case.

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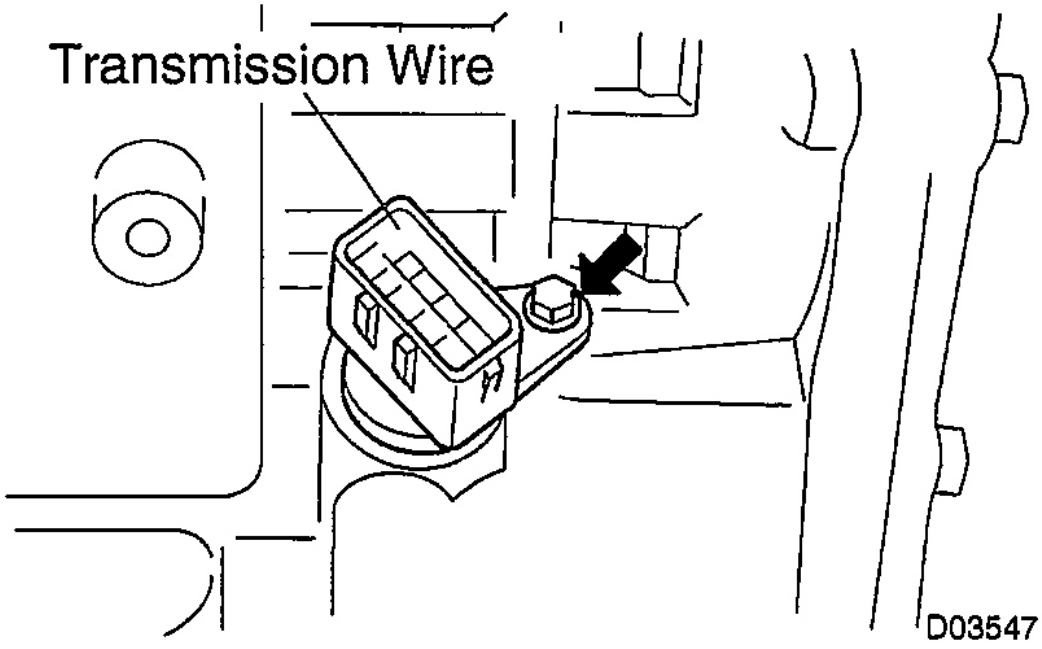


Fig. 19: Identifying Transaxle Case Bolt And Transmission Wire
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. **REMOVE VALVE BODY OIL STRAINER ASSY**
    a. Remove the 3 bolts and valve body oil strainer assy.

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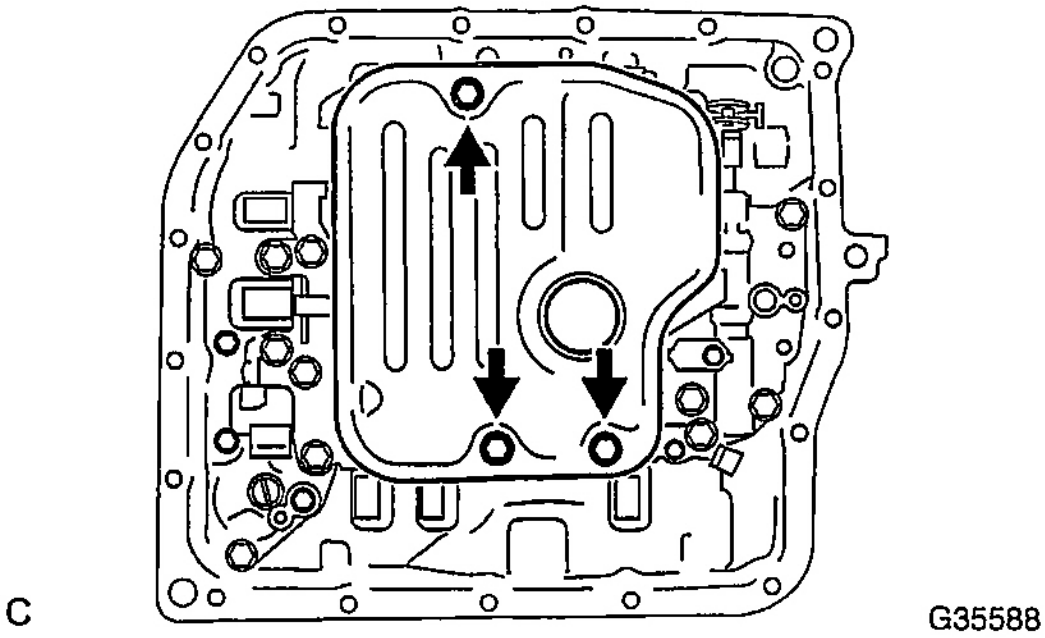


Fig. 20: Identifying Valve Body Oil Strainer Assy Bolts
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b. Remove the O-ring from the valve body oil strainer assy.

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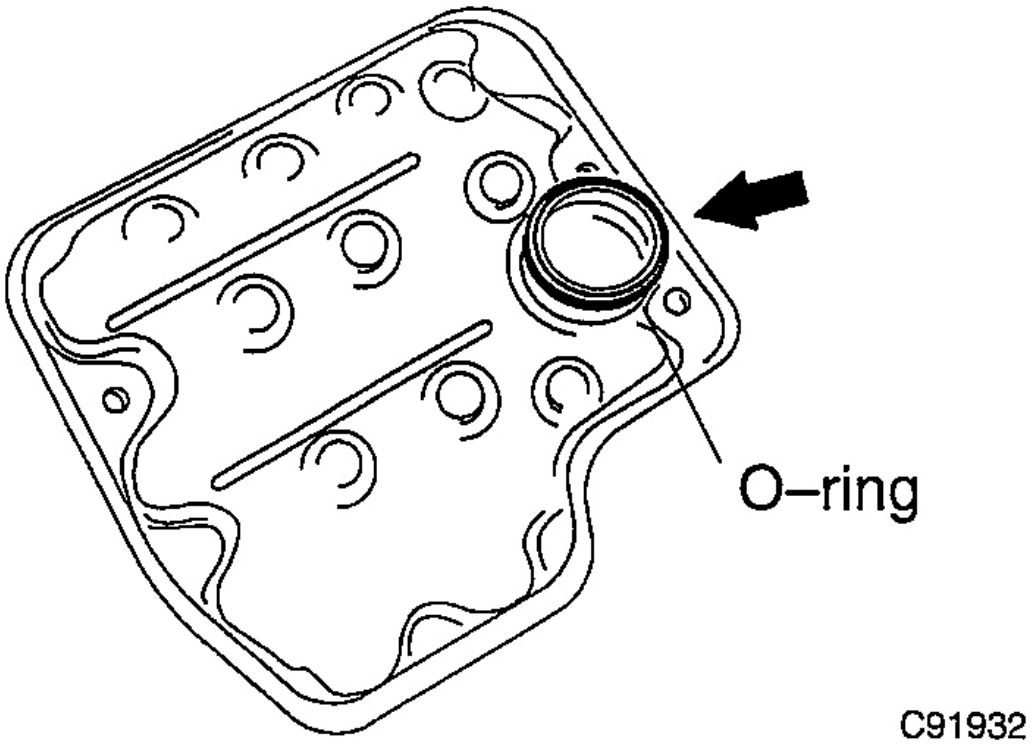


Fig. 21: Removing O-Ring From Valve Body Oil Strainer Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. **REMOVE TRANSMISSION VALVE BODY ASSY**
    a. Support the valve body assy and remove the 17 bolts and transmission valve body assy.

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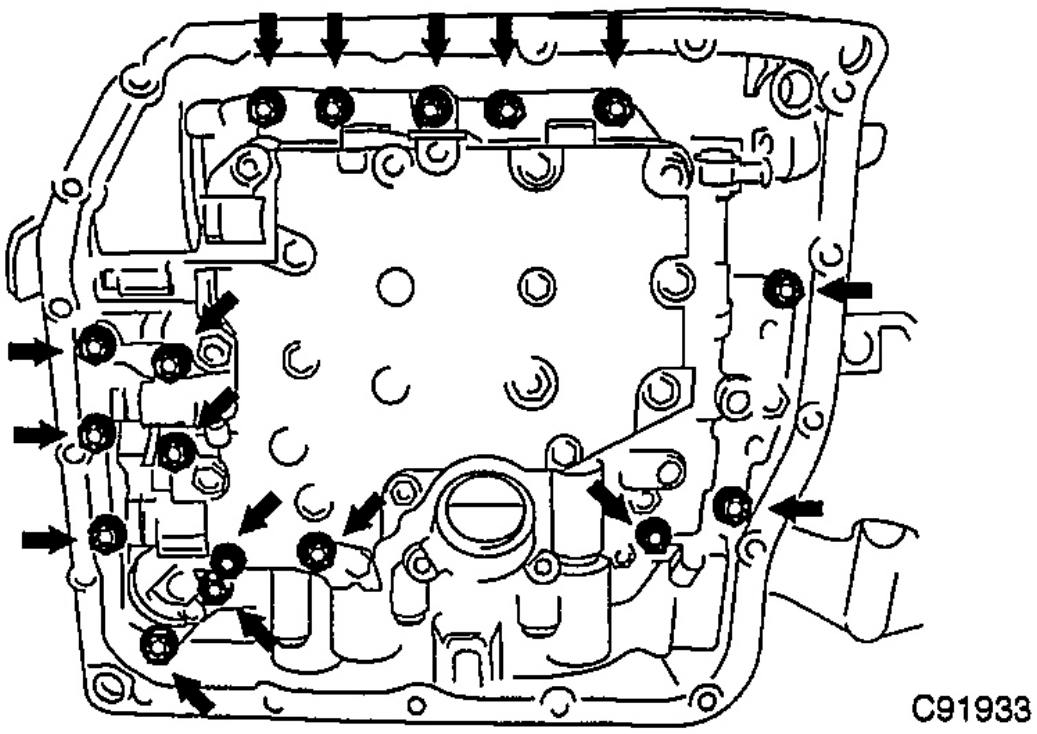


Fig. 22: Identifying Transmission Valve Body Assy Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. **REMOVE GOVERNOR APPLY GASKET NO. 1**
    a. Remove the governor apply gasket No.1 from the transaxle case.

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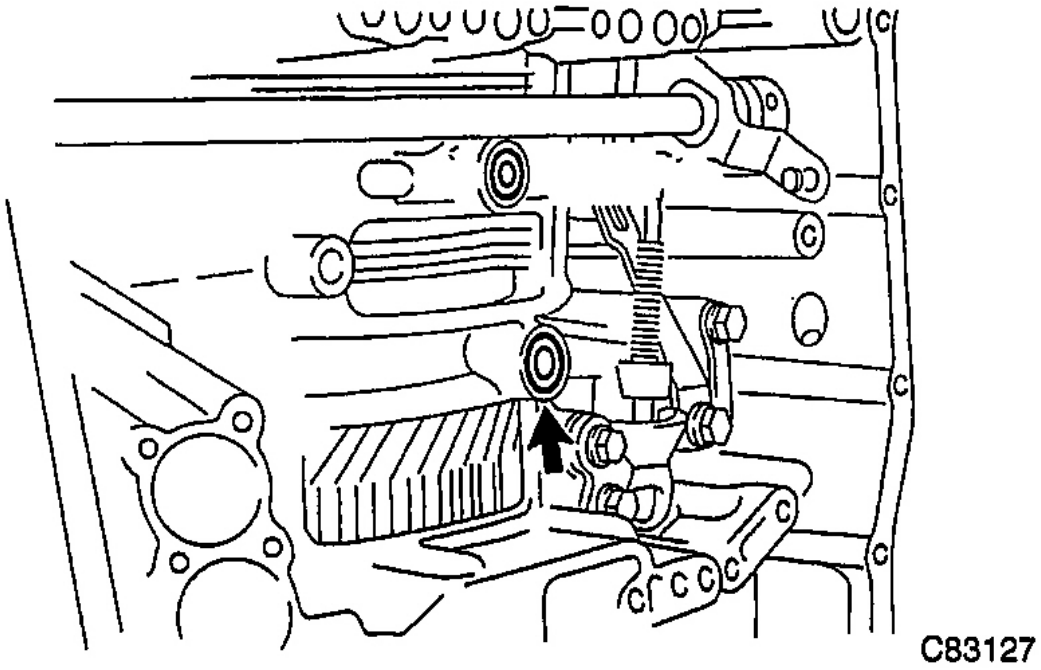


Fig. 23: Removing Governor Apply Gasket No. 1
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. **REMOVE TRANSAXLE CASE 2ND BRAKE GASKET**
    a. Remove the transaxle case 2nd brake gasket from the transaxle case.

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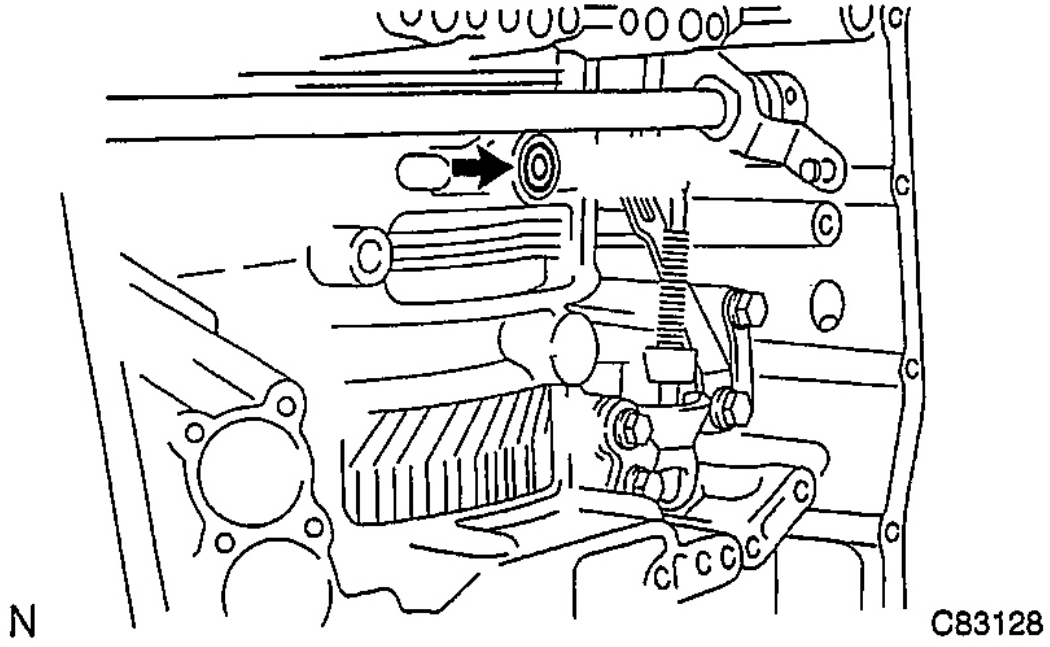


Fig. 24: Removing Transaxle Case 2nd Brake Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16. **REMOVE BRAKE DRUM GASKET**
    a. Remove the brake drum gasket from the transaxle case.

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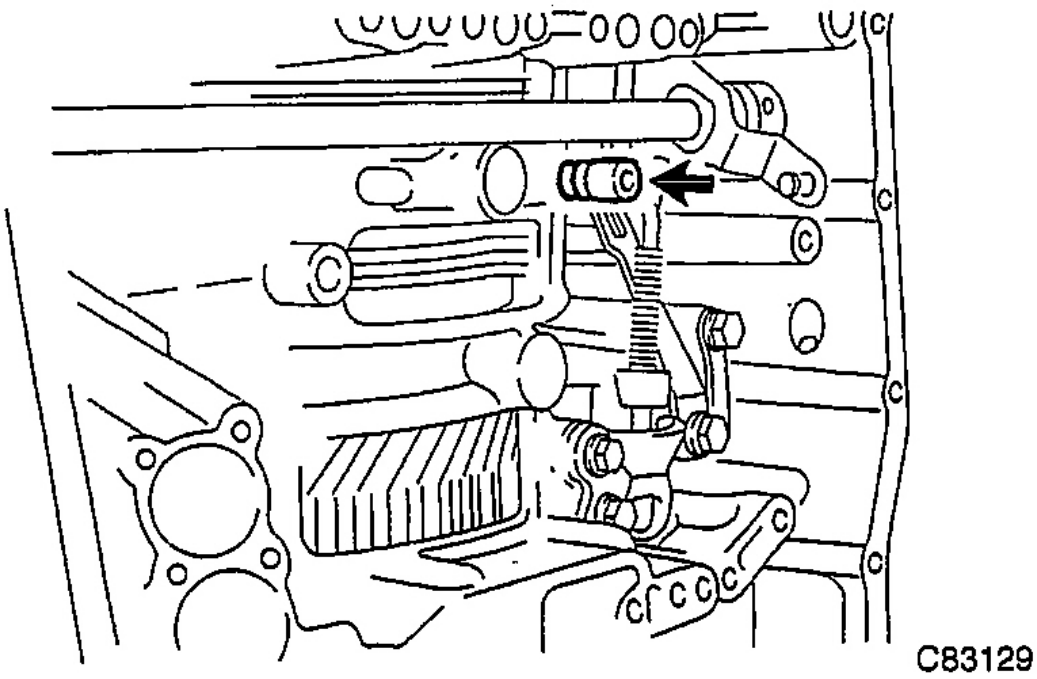


Fig. 25: Removing Brake Drum Gasket From Transaxle Case
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17. **REMOVE CHECK BALL BODY**
    a. Remove the check ball body and spring from the transaxle case.

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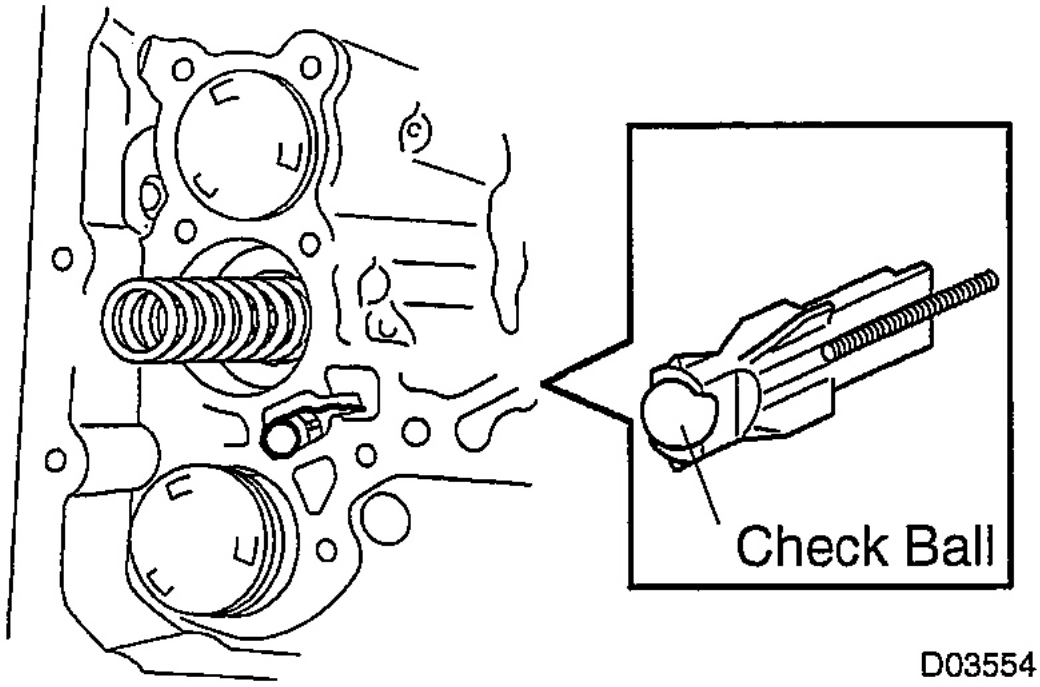


Fig. 26: Removing Check Ball Body And Spring From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

18. **REMOVE C-3 ACCUMULATOR PISTON**
    a. Remove the spring from the C-3 accumulator piston.

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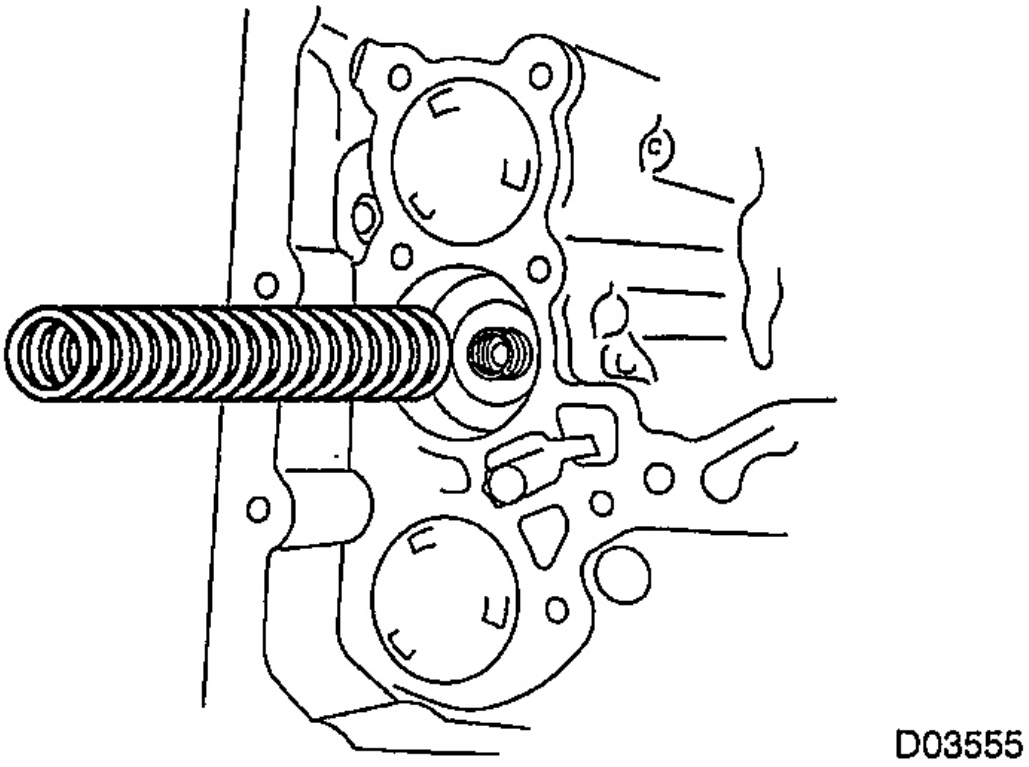


Fig. 27: Removing Spring From C-3 Accumulator Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using needle-nose pliers, remove the C-3 accumulator piston from the transaxle case.

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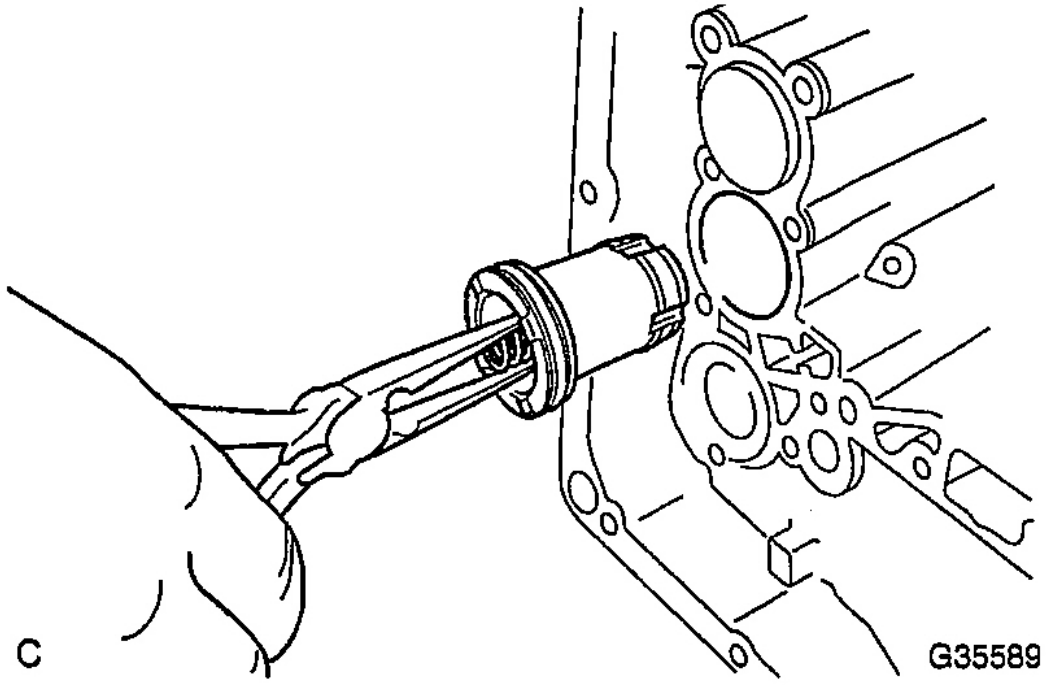


Fig. 28: Removing C-3 Accumulator Piston From Transaxle Case
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c. Remove the O-ring from the C-3 accumulator piston.

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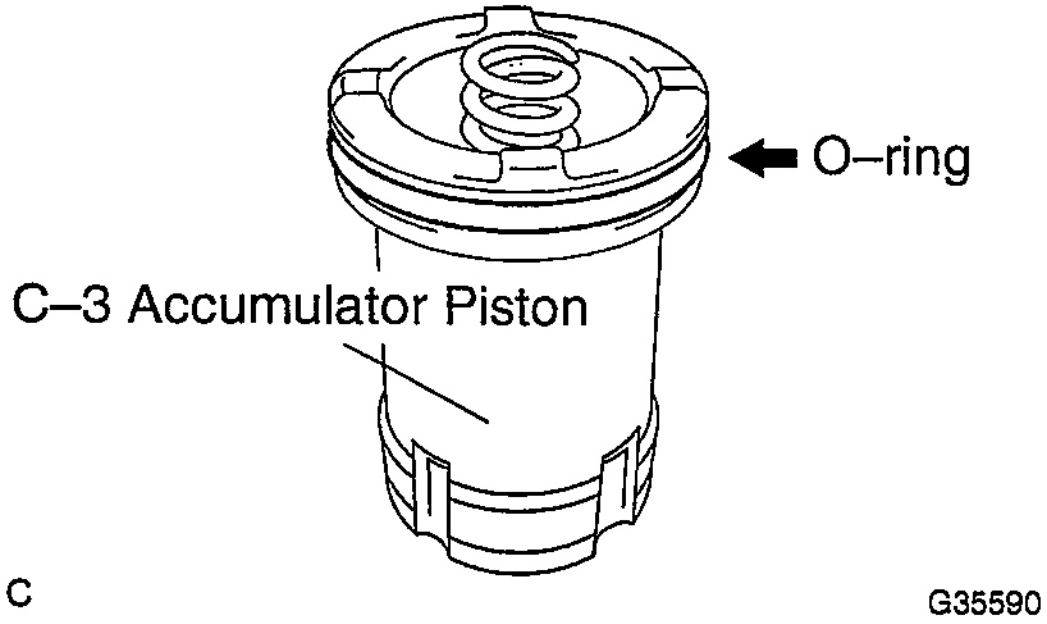


Fig. 29: Removing O-Ring From C-3 Accumulator Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

19. **REMOVE REVERSE CLUTCH ACCUMULATOR PISTON**

a. Apply compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi) to the oil hole and remove the reverse accumulator piston and spring.

NOTE:
- **Blowing air may cause the piston to jump out. When removing the pist hold it by hand using a waste.**
- **Take care not to splash ATF when air-blowing.**

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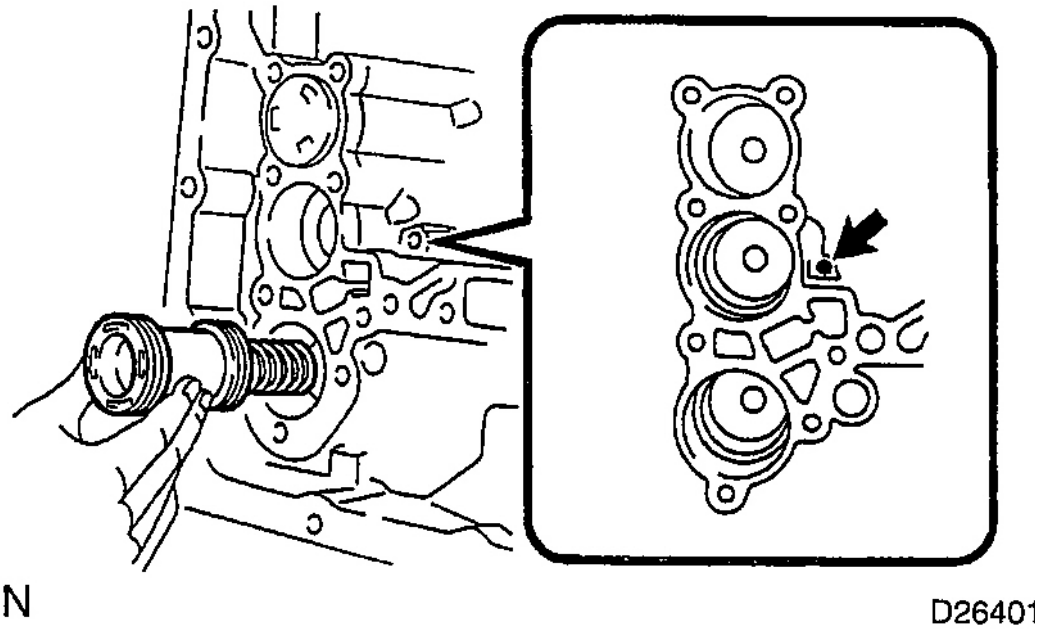


Fig. 30: Removing Reverse Accumulator Piston And Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the 2 O-rings from the reverse clutch accumulator piston.

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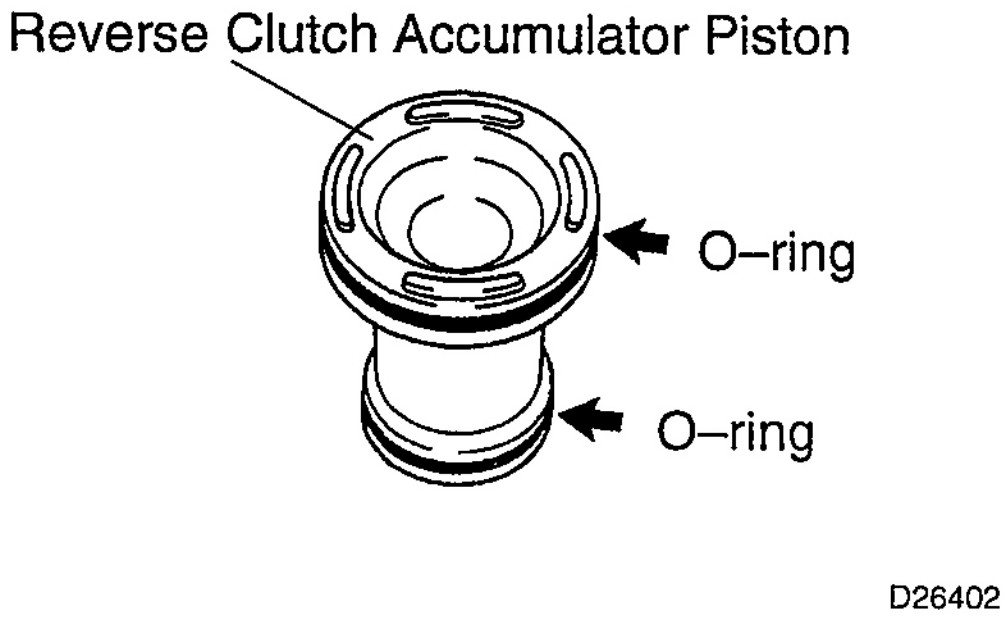


Fig. 31: Removing O-Rings From Reverse Clutch Accumulator Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

20. **REMOVE B-3 ACCUMULATOR PISTON**

a. Apply compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi) to the oil hole and remove the B-3 accumulator piston and 2 springs.

NOTE:
- **Blowing air may cause the piston to jump out. When removing the pist hold it by hand using a waste.**
- **Take care not to splash ATF when air-blowing.**

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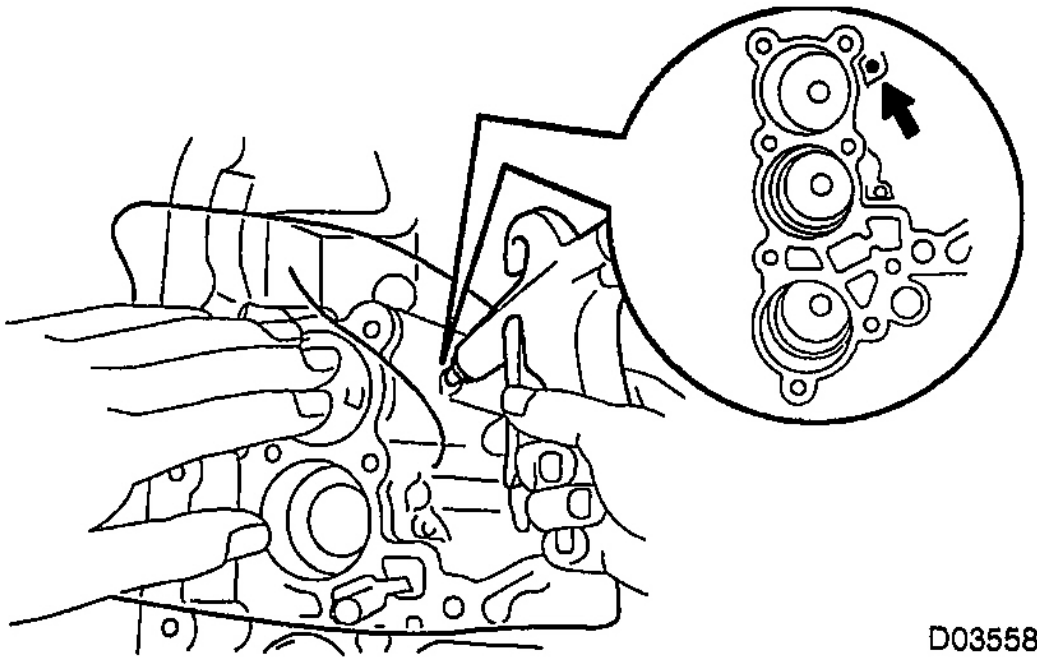


Fig. 32: Removing B-3 Accumulator Piston And Springs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the O-ring from the B-3 accumulator piston.

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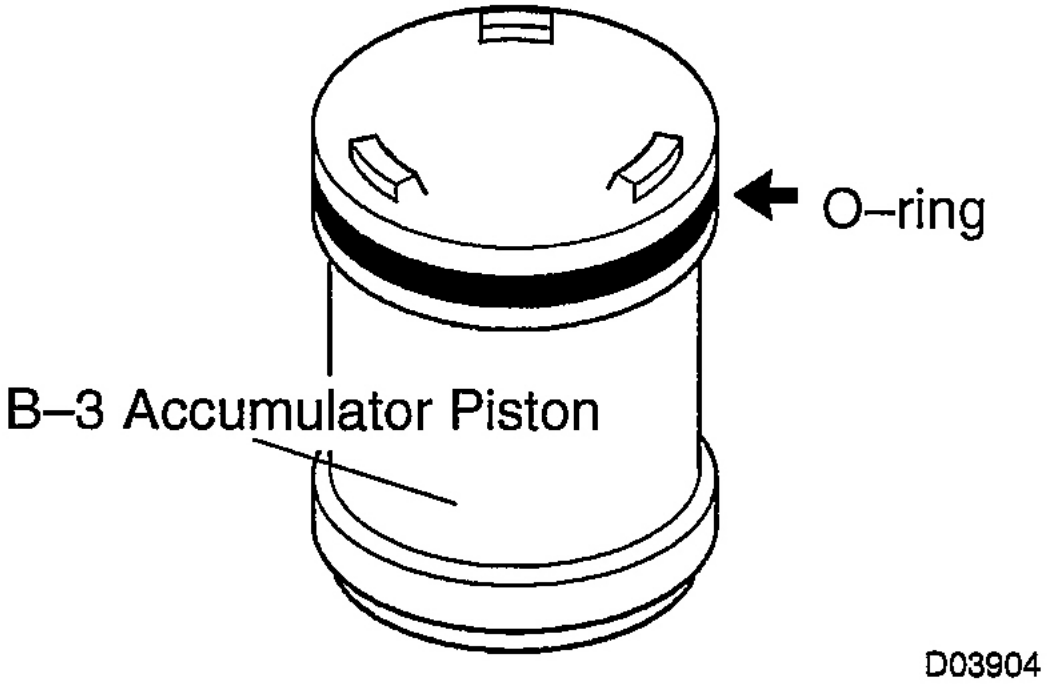


Fig. 33: Removing O-Ring From B-3 Accumulator Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

21. **REMOVE MANUAL VALVE LEVER SHAFT RETAINER SPRING**
    a. Using needle-nose pliers, remove the manual valve lever shaft retainer spring.

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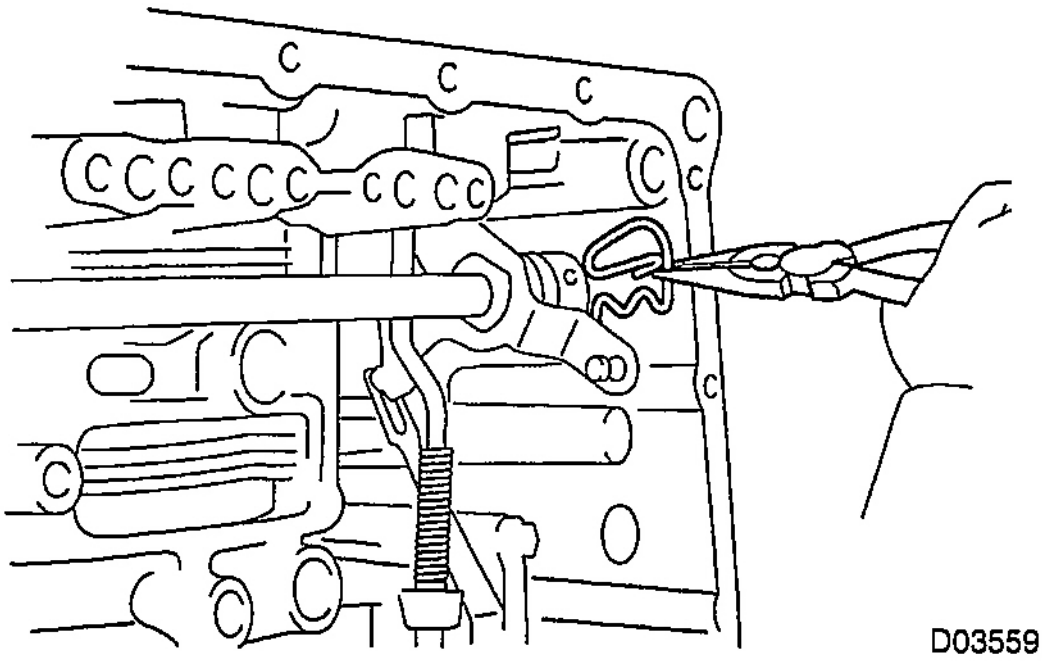


Fig. 34: Removing Manual Valve Lever Shaft Retainer Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

22. **REMOVE MANUAL DETENT SPRING SUB-ASSY**
    a. Remove the 2 bolts and manual detent spring sub-assy.

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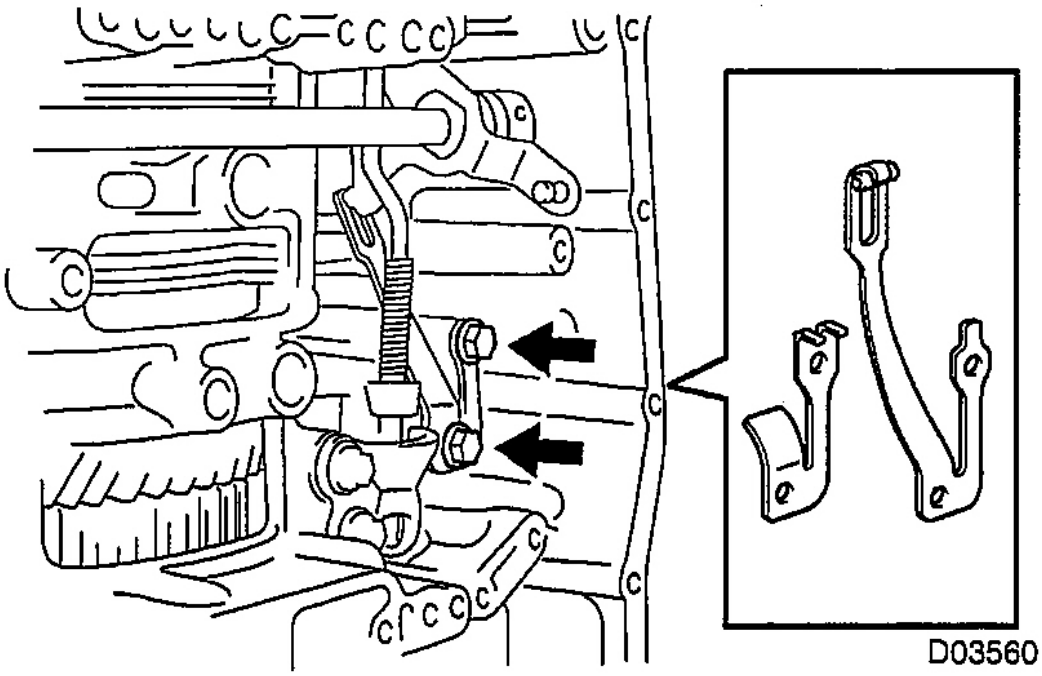


Fig. 35: Removing Bolts And Manual Detent Spring Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

23. **REMOVE PARKING LOCK PAWL BRACKET**
    a. Remove the 2 bolts and parking lock pawl bracket.

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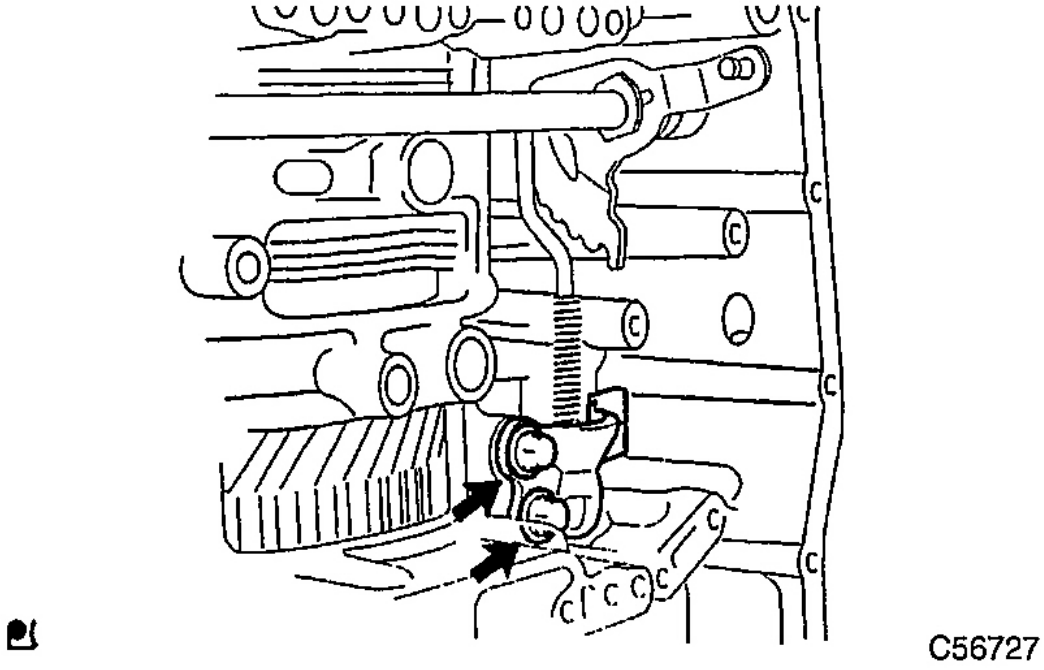


Fig. 36: Identifying Parking Lock Pawl Bracket Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

24. **REMOVE MANUAL VALVE LEVER SUB-ASSY**
    a. Using a screwdriver, slide the spacer.

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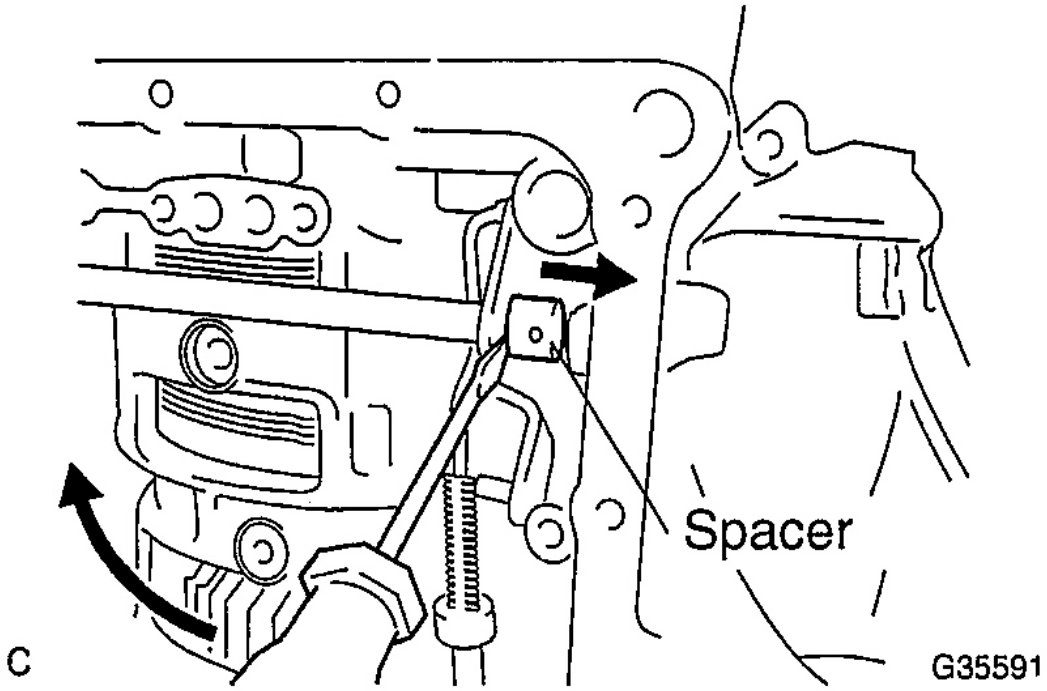


Fig. 37: Sliding Spacer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a pin punch (3.5 mm) and hammer, drive out the pin.

HINT:

Slowly drive out the pin so that it will not fall into the transaxle case.

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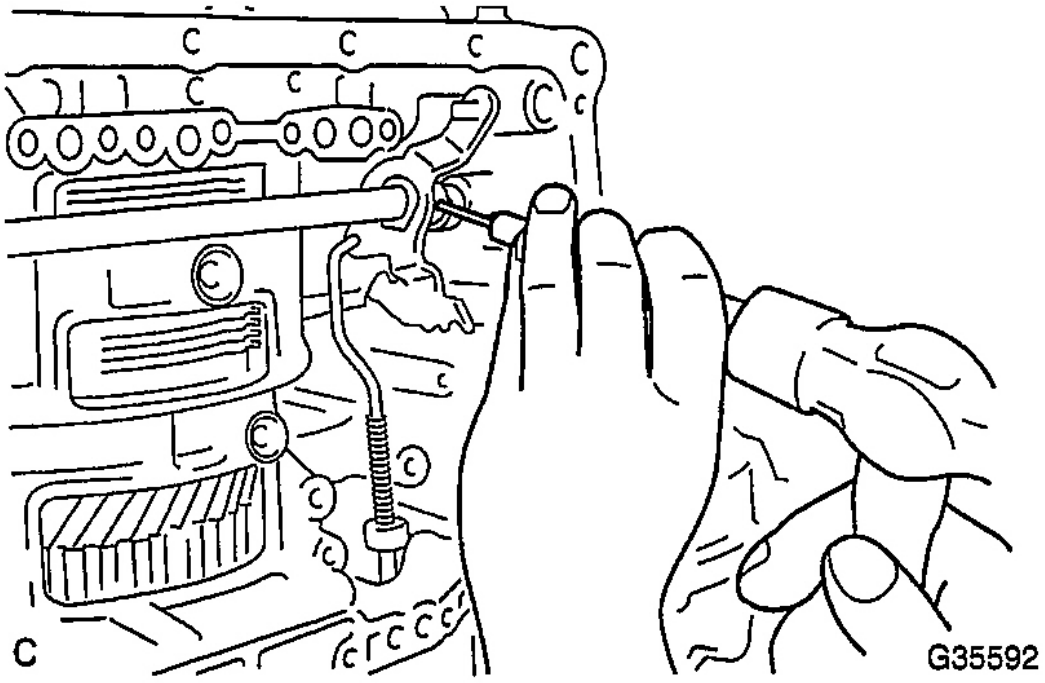


Fig. 38: Removing Pin Using Pin Punch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Remove the manual valve lever shaft, manual valve lever and spacer.

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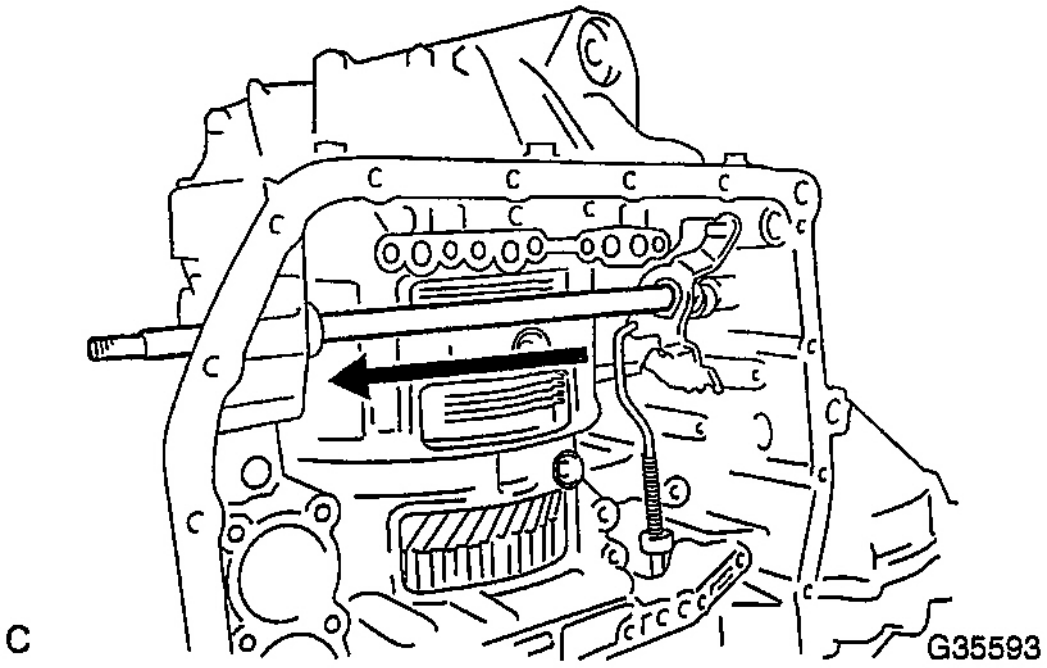


Fig. 39: Removing Manual Valve Lever Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

25. **REMOVE PARKING LOCK ROD SUB-ASSY**
    a. Remove the parking lock rod sub-assy from the manual valve lever sub-assy.

       HINT:

       Align the dial with the notches on the manual valve lever sub-assy to remove the parking lock rod sub-assy.

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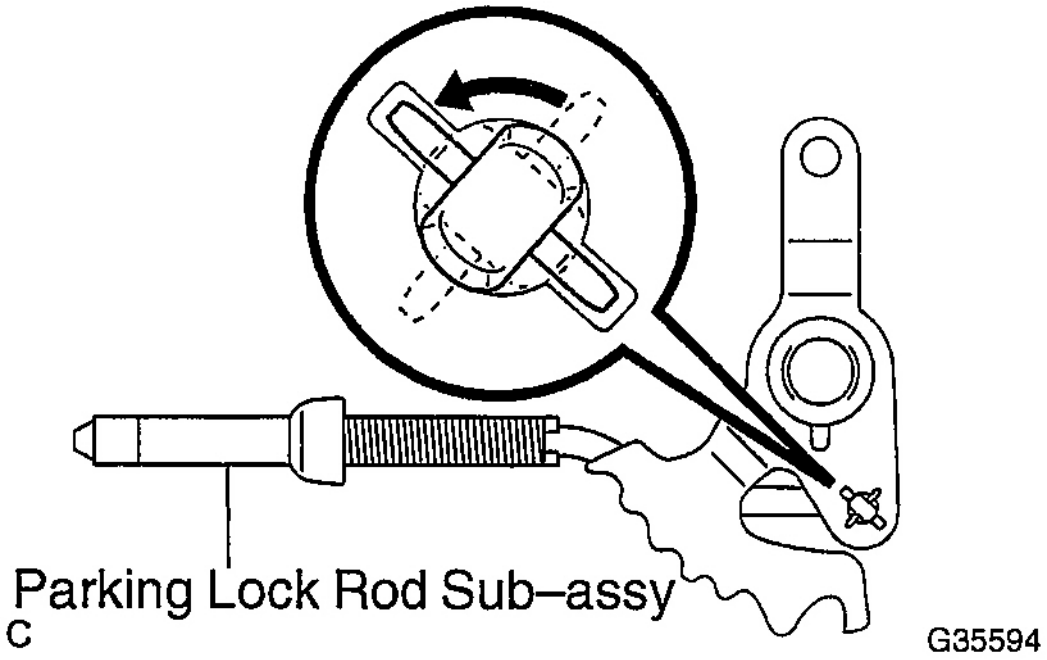


Fig. 40: Removing Parking Lock Rod Sub-Assy From Manual Valve Lever Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

26. **REMOVE MANUAL VALVE LEVER SHAFT OIL SEAL**
    a. Using a screwdriver, remove the manual valve lever shaft oil seal from the transaxle case.

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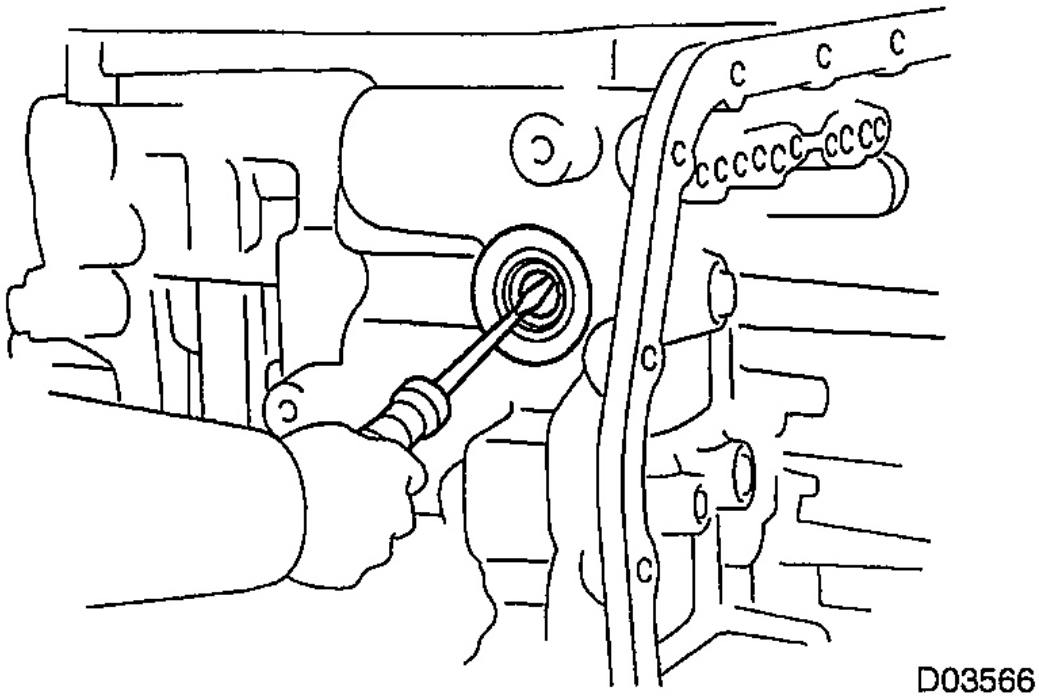


Fig. 41: Removing Manual Valve Lever Shaft Oil Seal From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

27. **FIX AUTOMATIC TRANSAXLE ASSY**
    a. Fix the transaxle case with the oil pump side facing up.
28. **INSPECT INPUT SHAFT ENDPLAY**
    a. Using a dial indicator, measure the input shaft end play.

    End play: 0.262 to 1.249 mm (0.0103 to 0.0492 in.)

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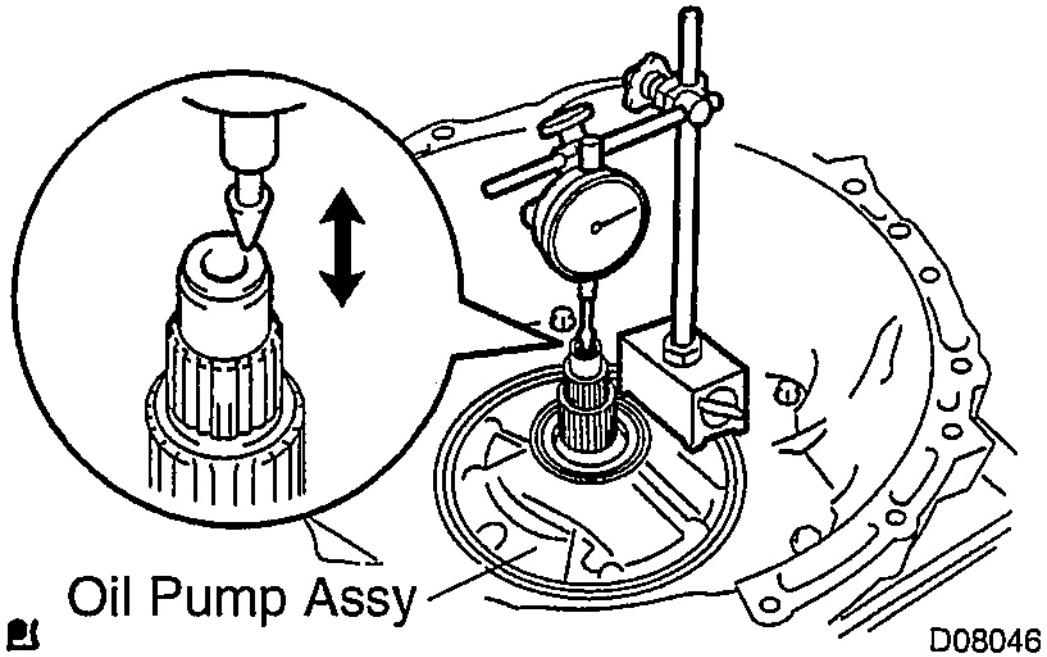


Fig. 42: Measuring Input Shaft End Play
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

29. **REMOVE TRANSAXLE HOUSING**
    a. Remove the 16 bolts.
    b. Tap on the circumference of the transaxle housing with a plastic hammer to remove the transaxle housing from the transaxle case.

NOTE: The differential may be accidentally removed when the transaxle housing is removed.

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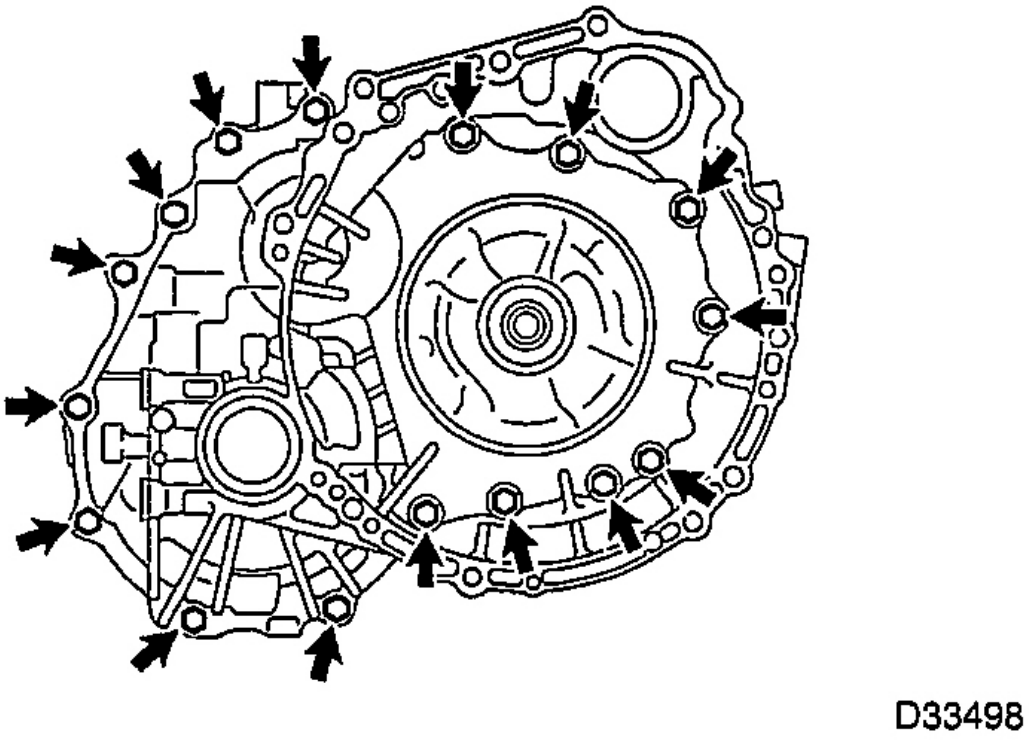


Fig. 43: Identifying Transaxle Housing Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

30. **REMOVE OIL PUMP ASSY**
    a. Remove the 7 bolts and oil pump assy from the transaxle case.

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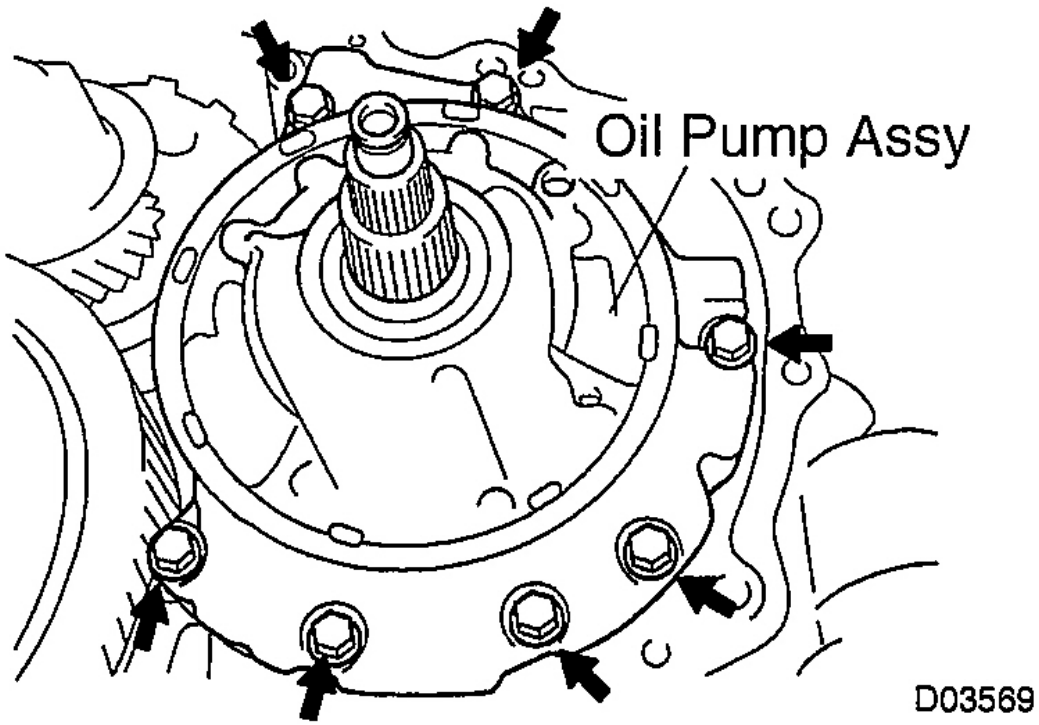


Fig. 44: Identifying Oil Pump Assy Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

31. **REMOVE THRUST NEEDLE ROLLER BEARING**
    a. Remove the thrust needle roller bearing from the underdrive planetary gear assy.

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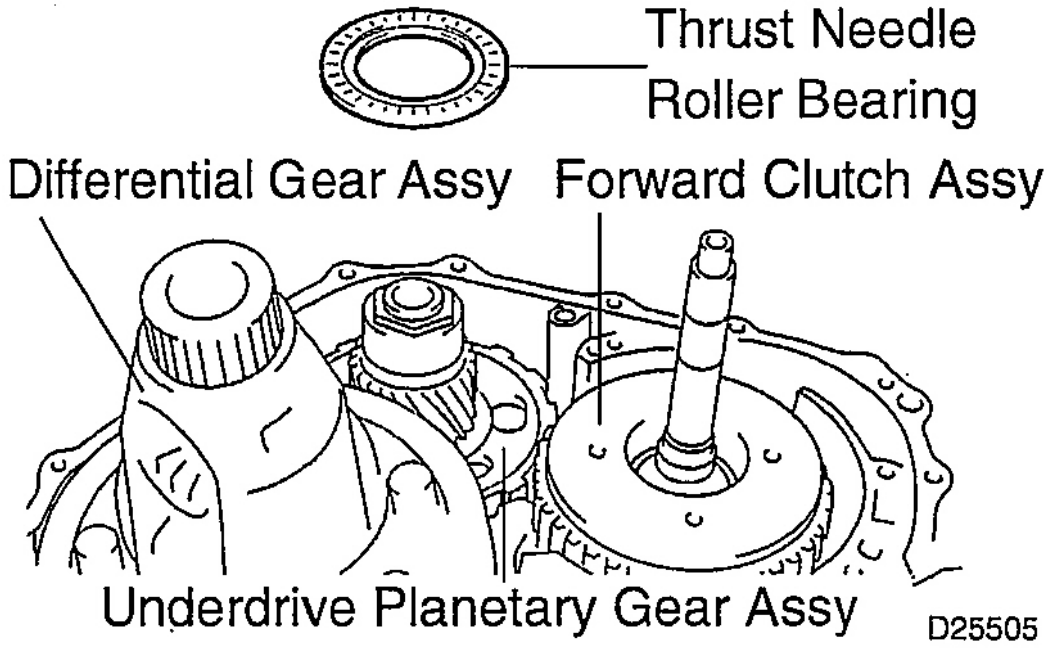


Fig. 45: Removing Thrust Needle Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

32. **REMOVE THRUST BEARING UNDERDRIVE RACE NO. 2**
    a. Remove the thrust bearing underdrive race No. 2 from the underdrive planetary gear assy.

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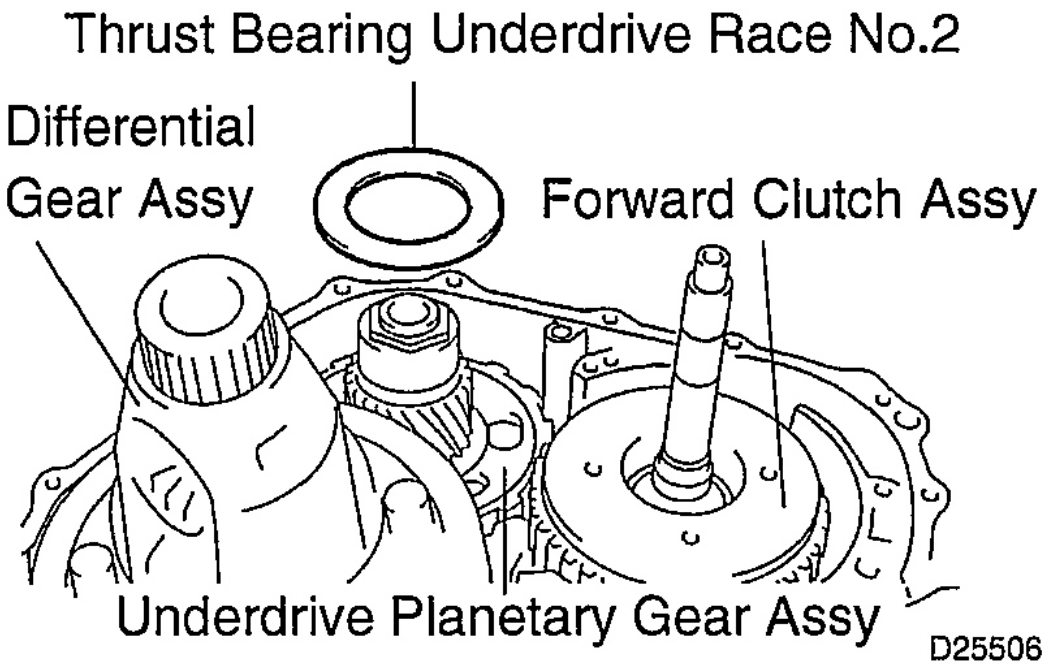


Fig. 46: Removing Thrust Bearing Underdrive Race No. 2
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

33. **REMOVE DIFFERENTIAL GEAR ASSY**
    a. Remove the differential gear assy from the transaxle case.

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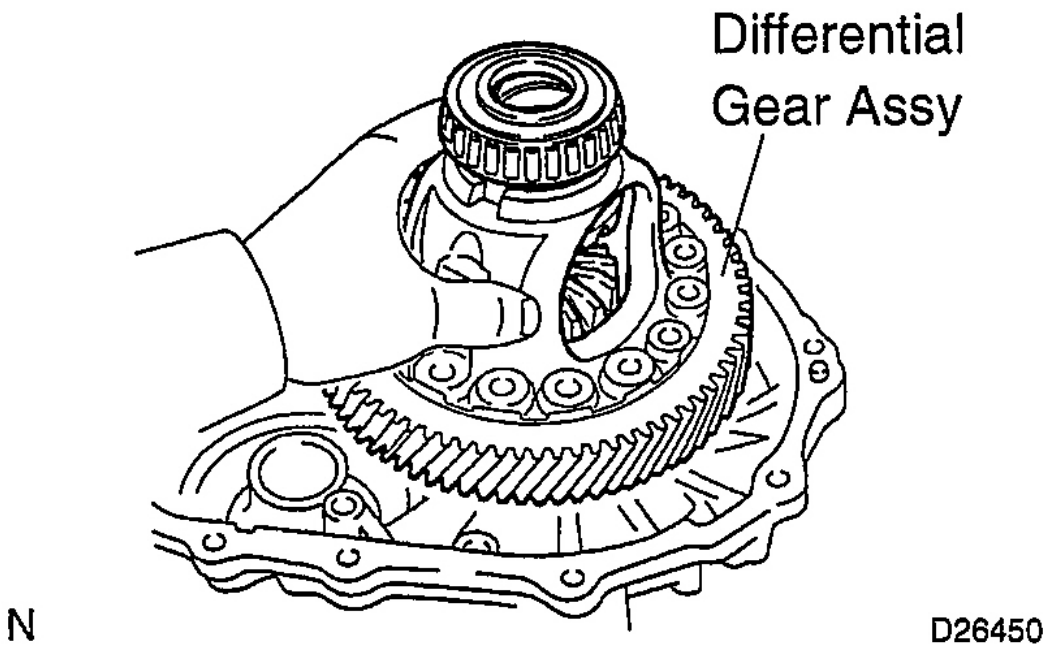


Fig. 47: Removing Differential Gear Assy From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

34. **REMOVE OVERDRIVE BRAKE GASKET**
    a. Remove the 2 overdrive brake gaskets from the transaxle case.

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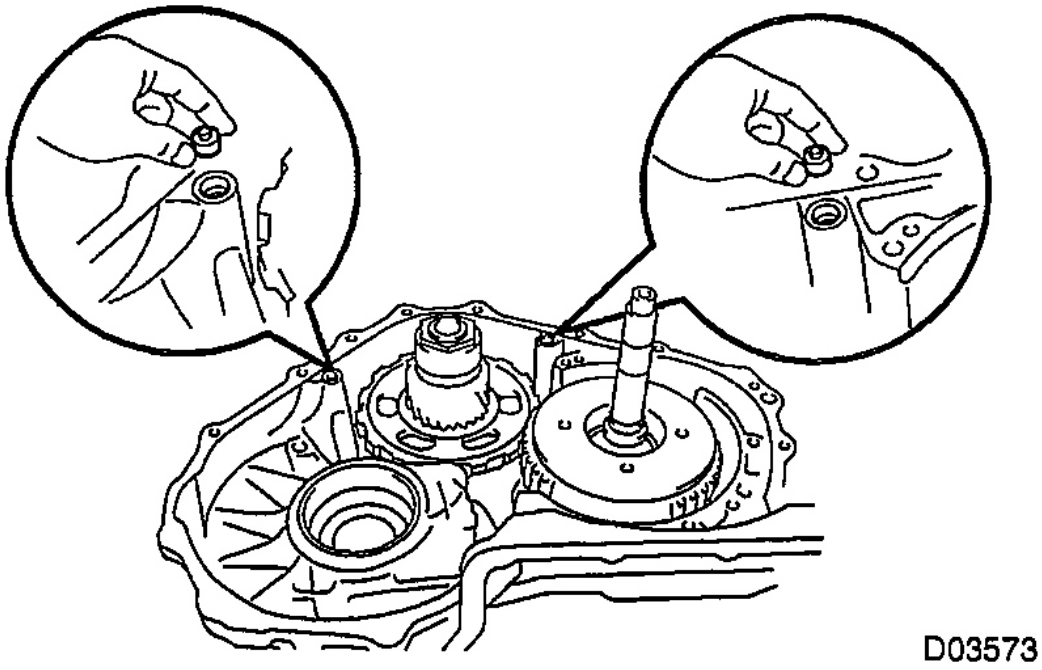


Fig. 48: Removing Overdrive Brake Gaskets From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

35. **REMOVE FORWARD CLUTCH ASSY**
    a. Remove the forward clutch assy from the transaxle case.

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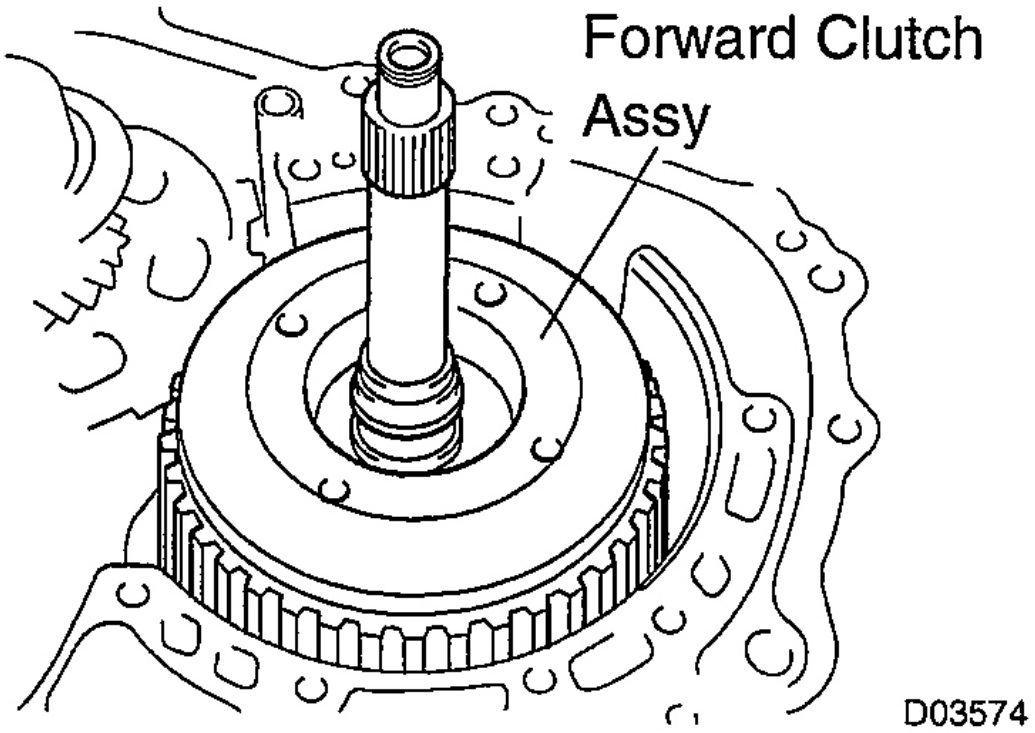


Fig. 49: Removing Forward Clutch Assy From Transaxle Case
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b. Remove the thrust needle roller bearing from the forward clutch.

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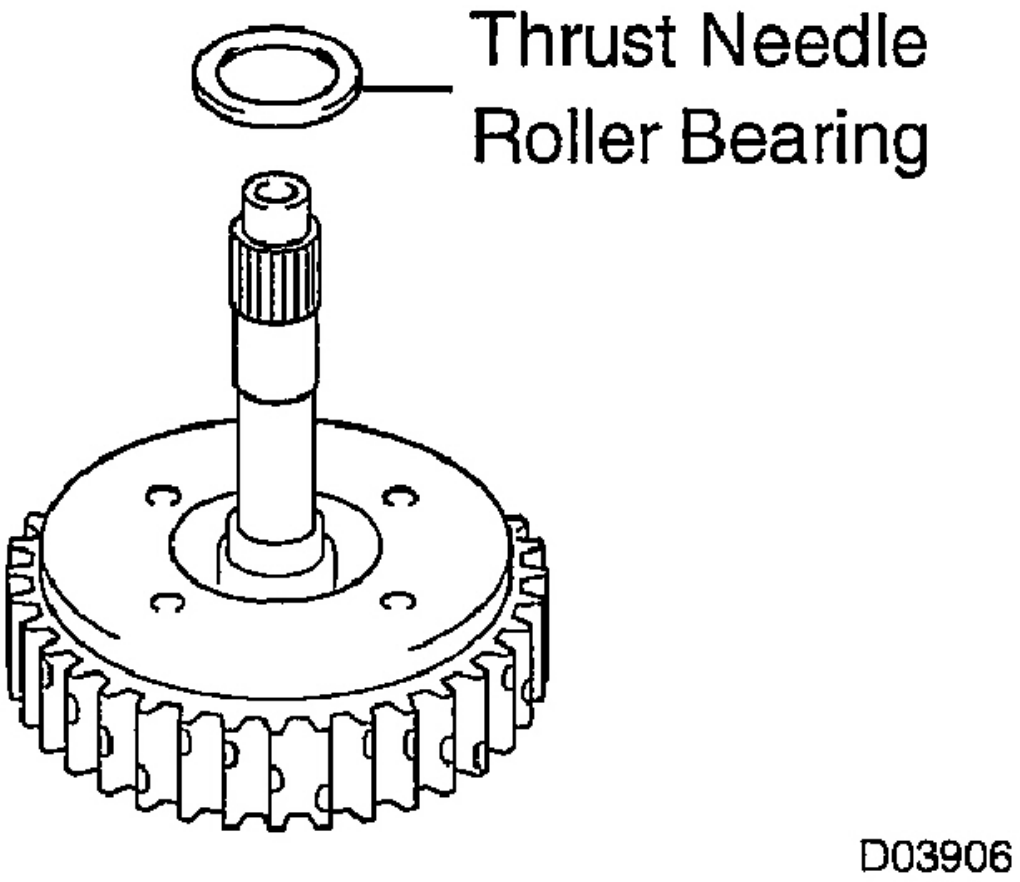


Fig. 50: Removing Thrust Needle Roller Bearing From Forward Clutch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

36. **REMOVE MULTIPLE DISC CLUTCH, CLUTCH HUB**
    a. Remove the thrust needle roller bearing, multiple disc clutch, clutch hub, thrust needle roller bearing and thrust bearing race No. 1 from the transaxle case.

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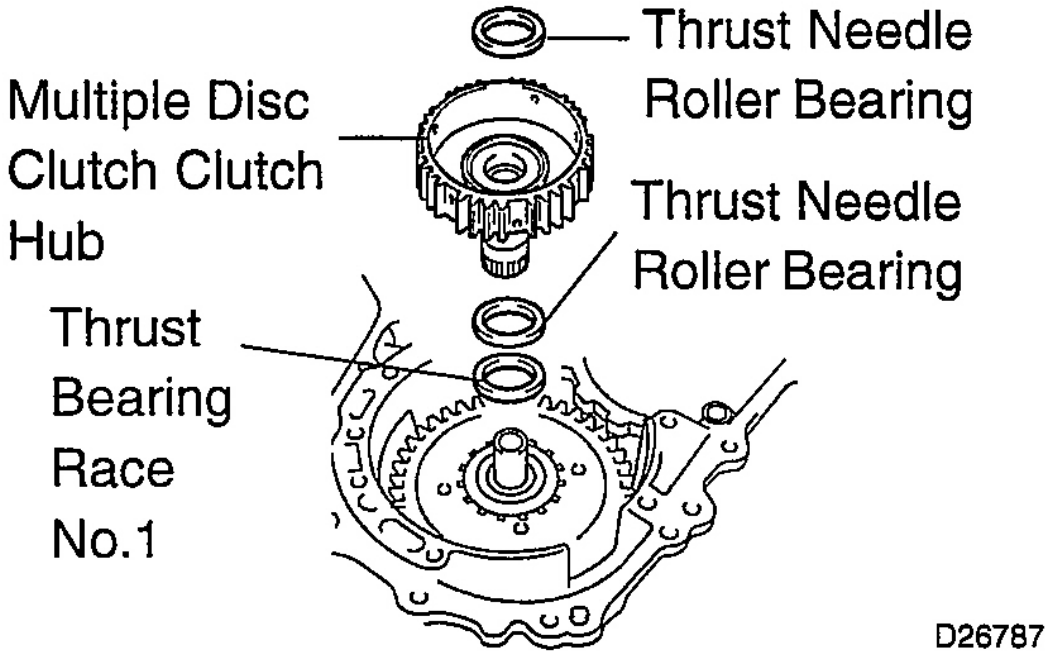


Fig. 51: Removing Multiple Disc Clutch, Clutch Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

37. **INSPECT MULTIPLE DISC CLUTCH, CLUTCH HUB**
    a. Using a dial indicator, measure the inside diameter of the multiple disc clutch, clutch hub bushing.

    Standard inside diameter: 23.025 to 23.046 mm (0.9065 to 0.9073 in.)

    Maximum inside diameter: 23.09 mm (0.9091 in.)

    NOTE:
    - **If the inside diameter is greater than the maximum, replace the multiple disc clutch, clutch hub with a new one.**
    - **Check the contact surface of the bush in the direct clutch shaft. If any scratch or discoloration is identified, replace the direct clutch sub-assy with a new one.**

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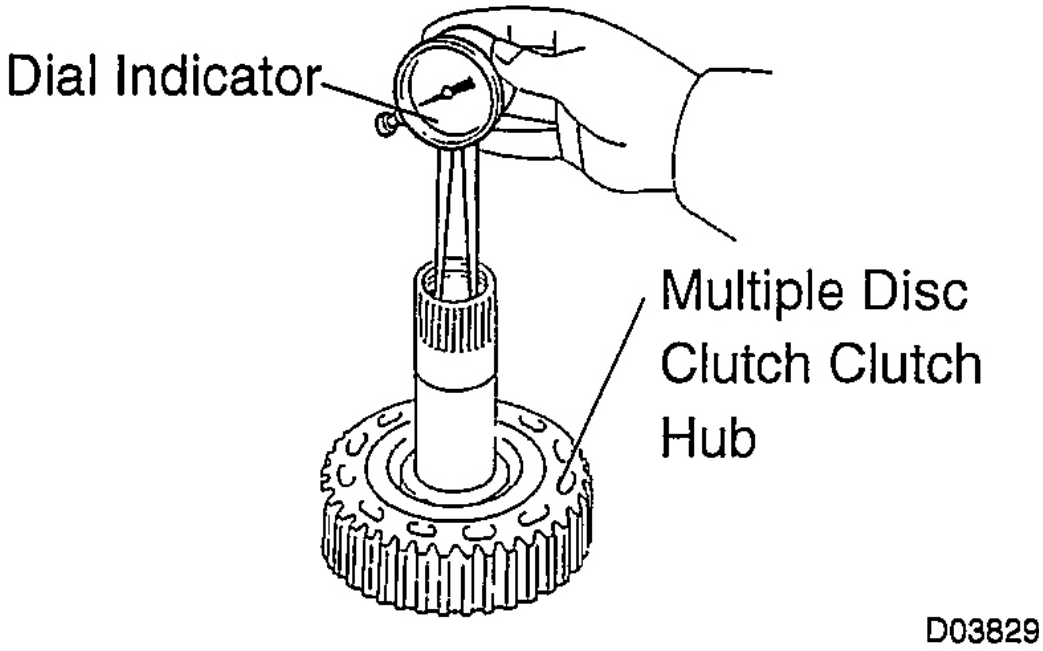


Fig. 52: Measuring Inside Diameter Of Multiple Disc Clutch Hub Bushin
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

38. **REMOVE UNDERDRIVE PLANETARY GEAR ASSY**
    a. Remove the bolt and pawl shaft clamp from the transaxle case.

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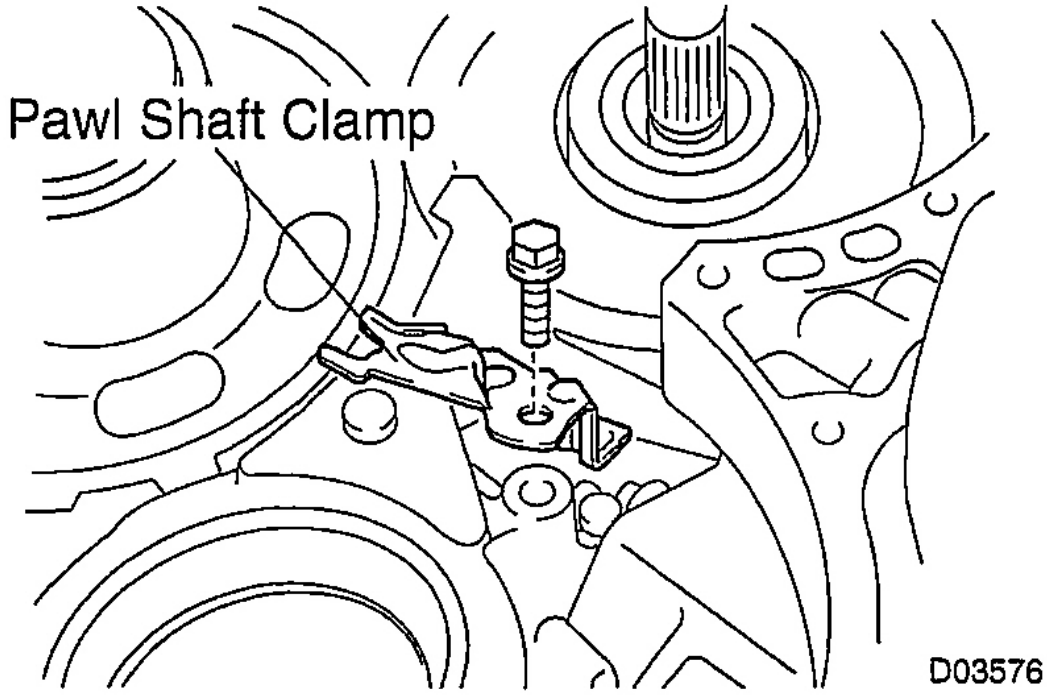


Fig. 53: Removing Bolt And Pawl Shaft Clamp From Transaxle Case
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b. Remove the parking lock pawl shaft from the transaxle case.

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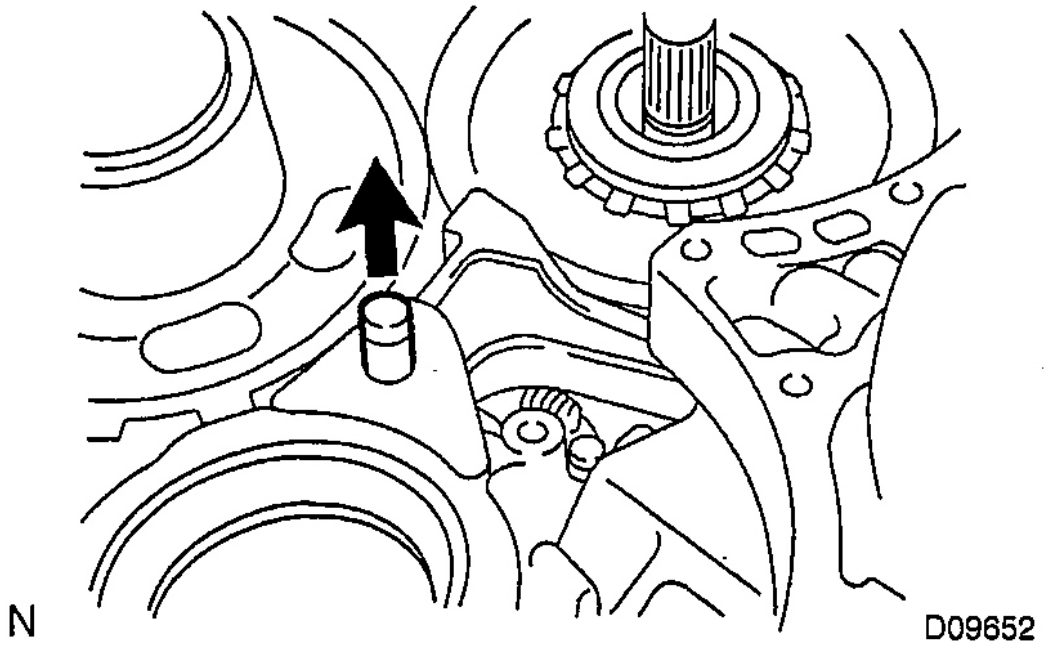


Fig. 54: Removing Parking Lock Pawl Shaft From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Push the parking lock pawl.

HINT:

Failure to do so will cause interference when the underdrive planetary gear is removed.

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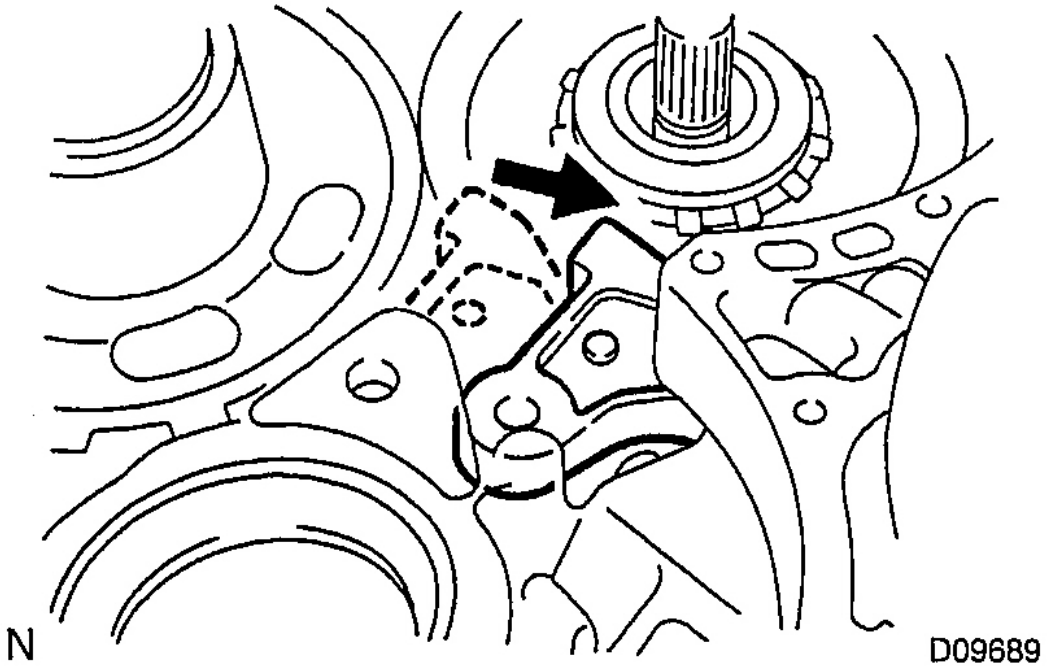


Fig. 55: Pushing Parking Lock Pawl
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Remove the underdrive planetary gear assy from the transaxle case.

NOTE: Be careful so that the underdrive planetary gear assy will not fall out.

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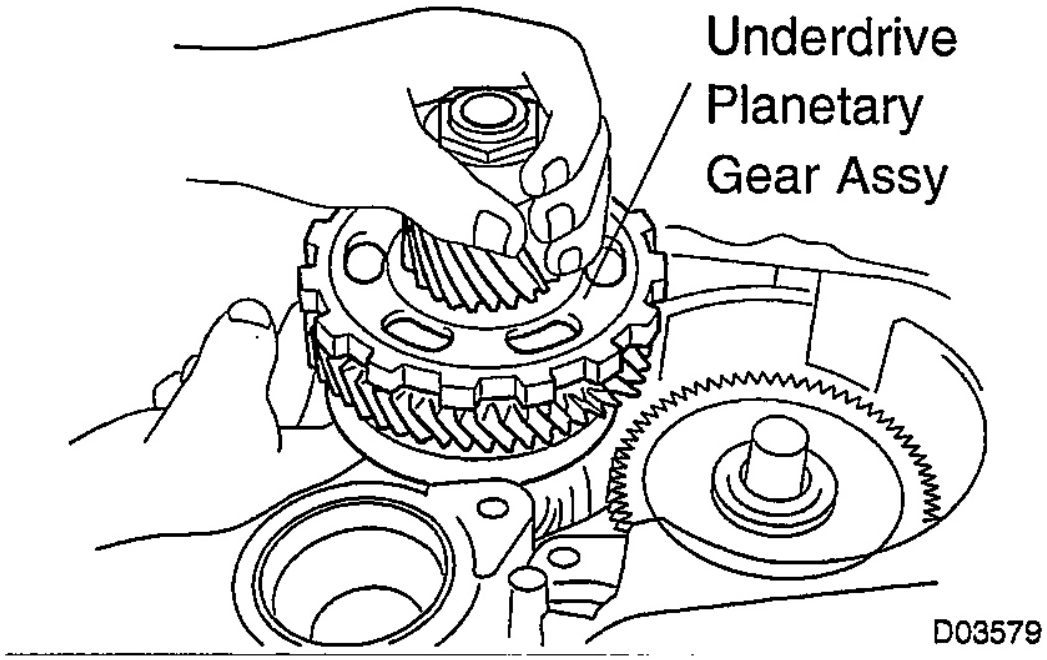


Fig. 56: Removing Underdrive Planetary Gear Assy From Transaxle Case
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39. **REMOVE PARKING LOCK PAWL**
    a. Remove the spring, pawl pin and parking lock pawl.

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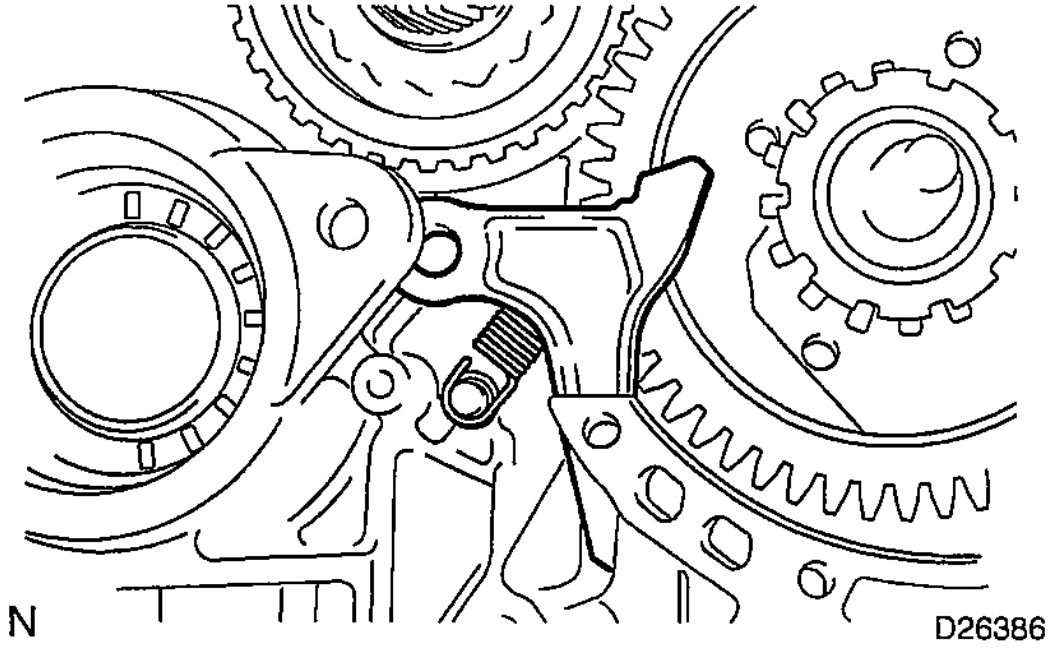


Fig. 57: Removing Spring, Pawl Pin And Parking Lock Pawl
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

40. **REMOVE UNDERDRIVE CLUTCH ASSY**
    a. Remove the underdrive clutch assy, thrust needle roller bearing and thrust bearing race from the transaxle case.

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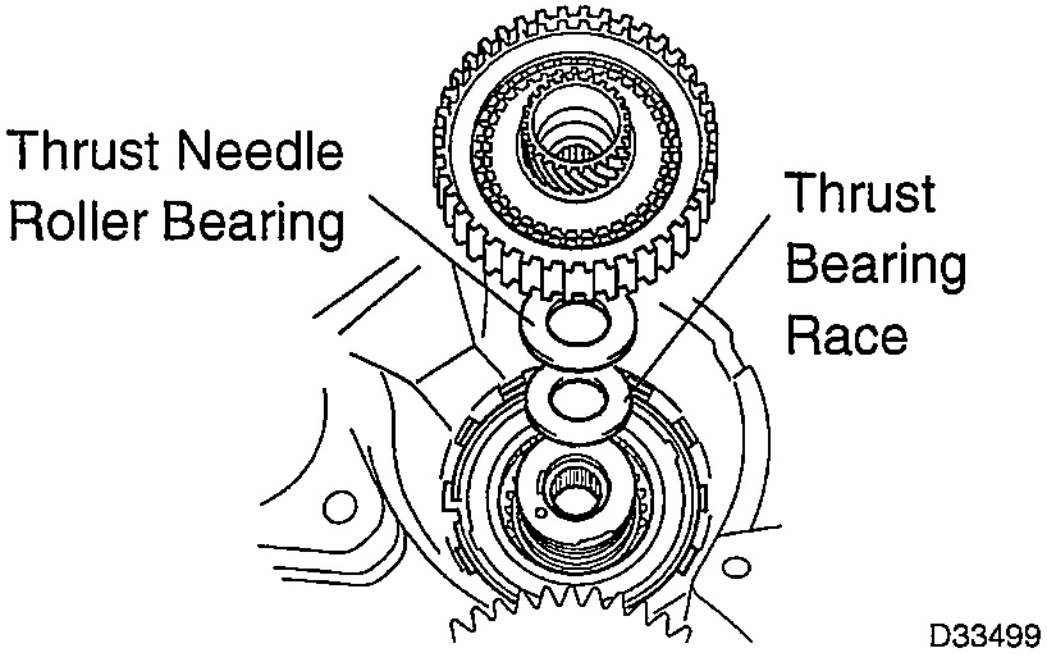


Fig. 58: Removing Thrust Needle Roller Bearing And Thrust Bearing Race
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41. **REMOVE UNDERDRIVE 1 WAY CLUTCH ASSY**
    a. Using a screwdriver, remove the snap ring from the transaxle case.

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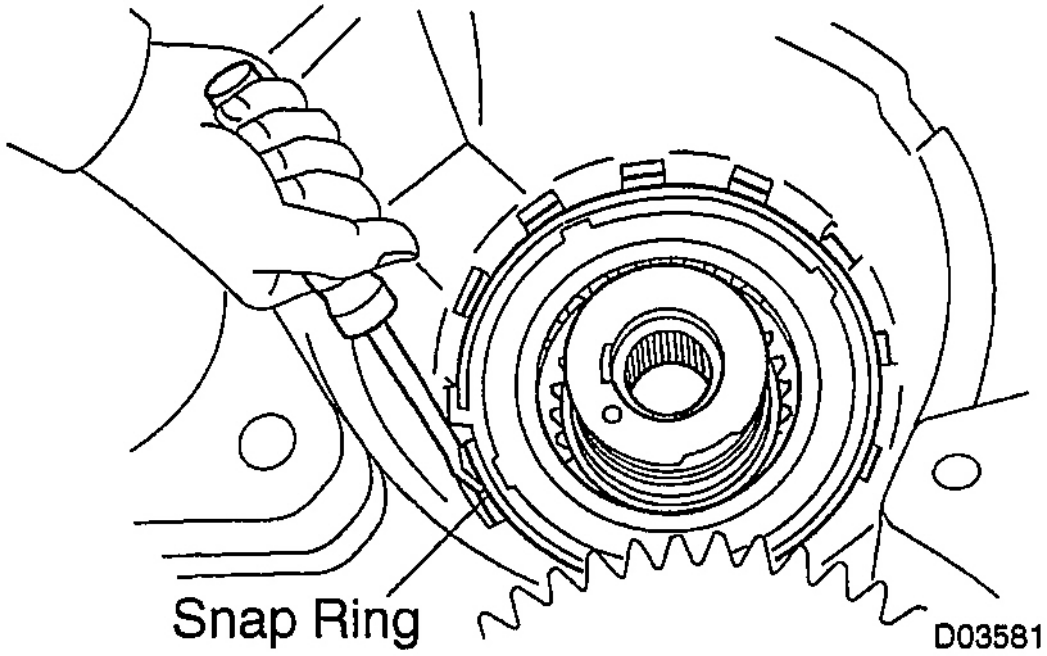


Fig. 59: Removing Snap Ring From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the underdrive 1-way clutch assy from the transaxle case.

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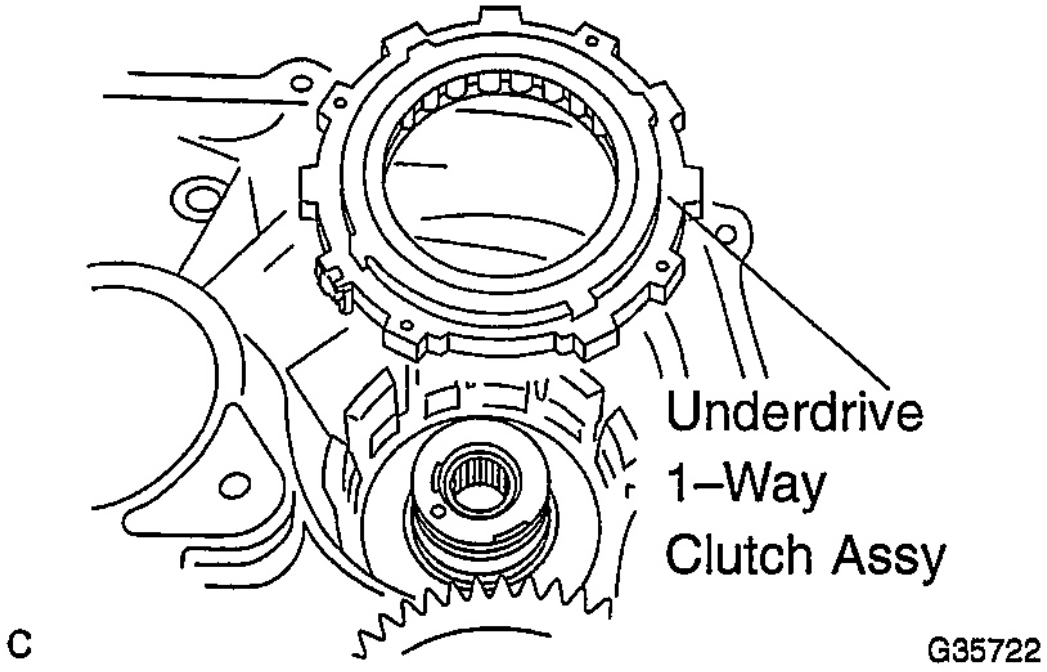


Fig. 60: Removing Underdrive 1-Way Clutch Assy From Transaxle Case
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c. Remove the outer race retainer from the 1-way clutch assy.

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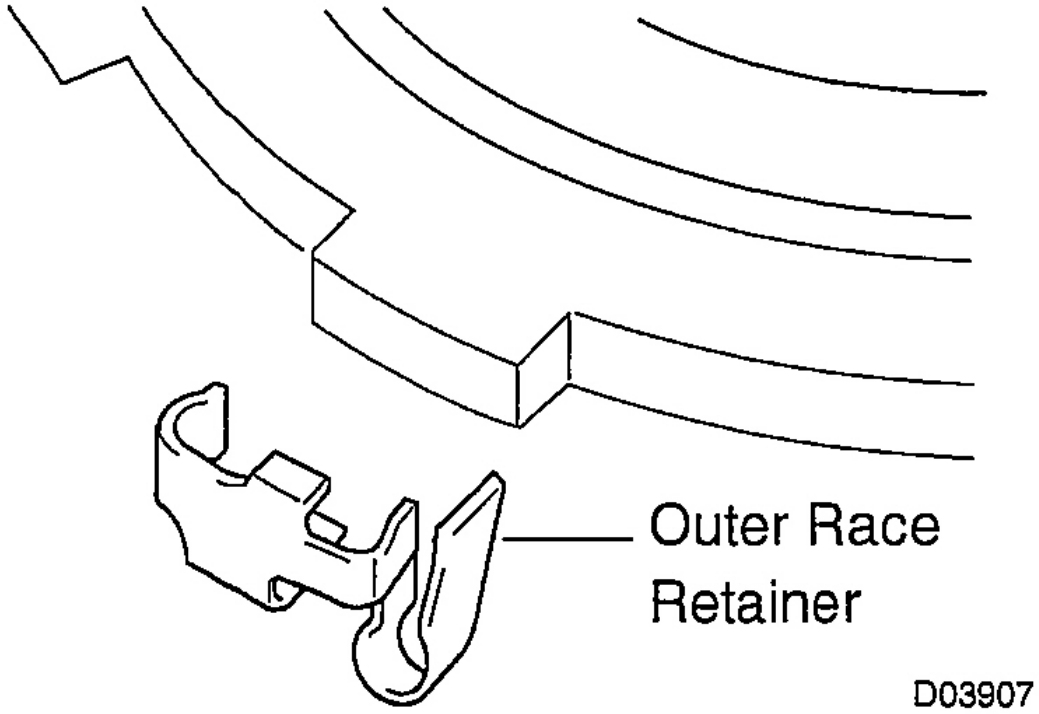


Fig. 61: Removing Outer Race Retainer From 1-Way Clutch Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

42. **REMOVE UNDERDRIVE CLUTCH DISC NO. 2**
    a. Using a screwdriver, remove the snap ring.

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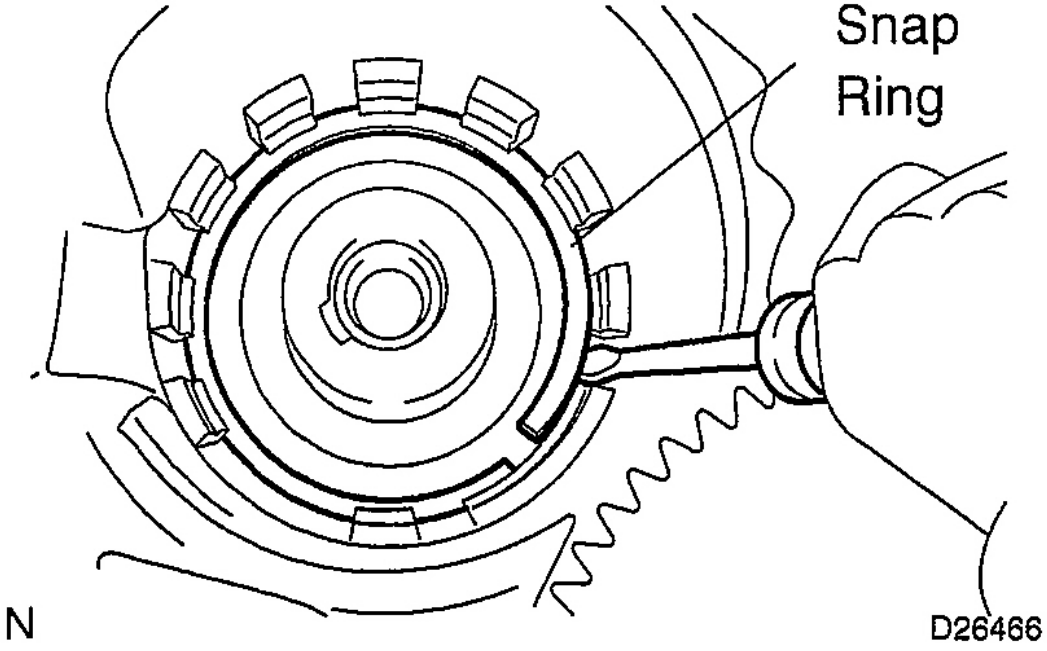


Fig. 62: Removing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the flange, 3 discs and 3 plates from the transaxle case.

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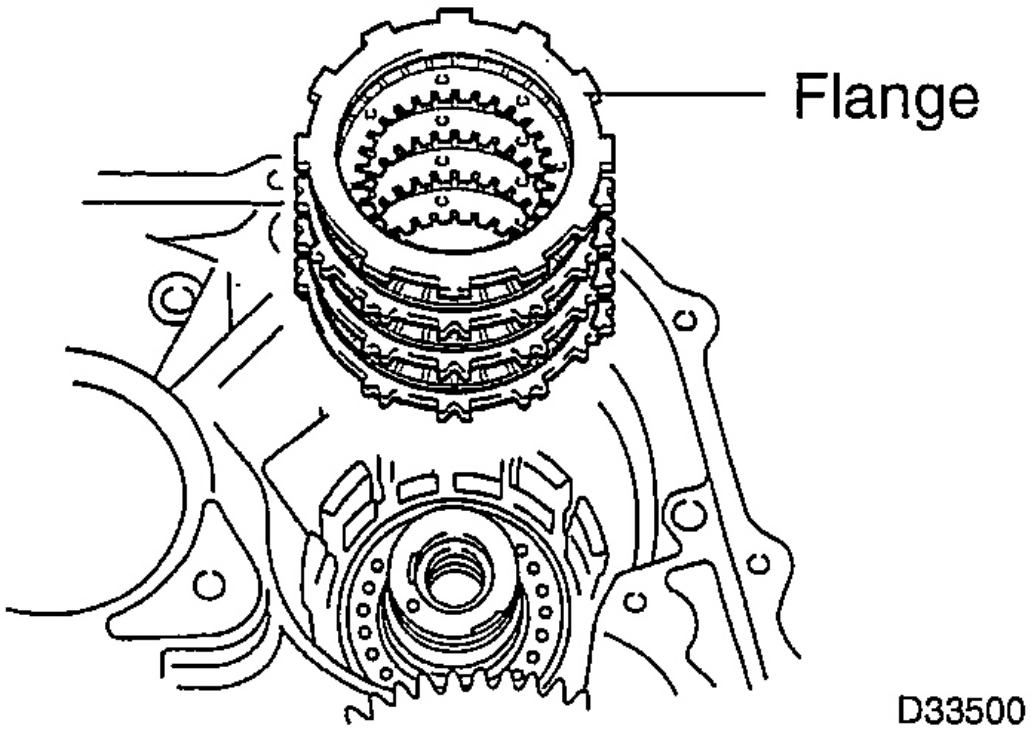


Fig. 63: Identifying Flange
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

43. **INSPECT UNDERDRIVE CLUTCH DISC NO. 2**
    a. Check to see if the sliding surfaces of the discs, plates and flange are worn or burnt.

    If necessary, replace them.

NOTE:
- **If the lining of a disc comes off or discolors, or a groove is damaged, replace all discs.**
- **Before assembling new discs, soak them in ATF for at least 15 minutes**

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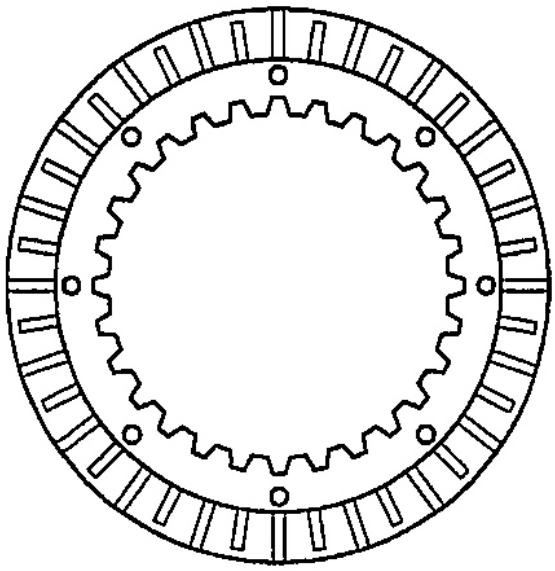


Fig. 64: Inspecting Underdrive Clutch Disc No. 2
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

44. **REMOVE TRANSAXLE REAR COVER SUB-ASSY**
    a. Remove the 11 bolts.
    b. Tap on the circumference of the rear cover with a plastic hammer to remove the transaxle rear cover sub-assy from the transaxle case.

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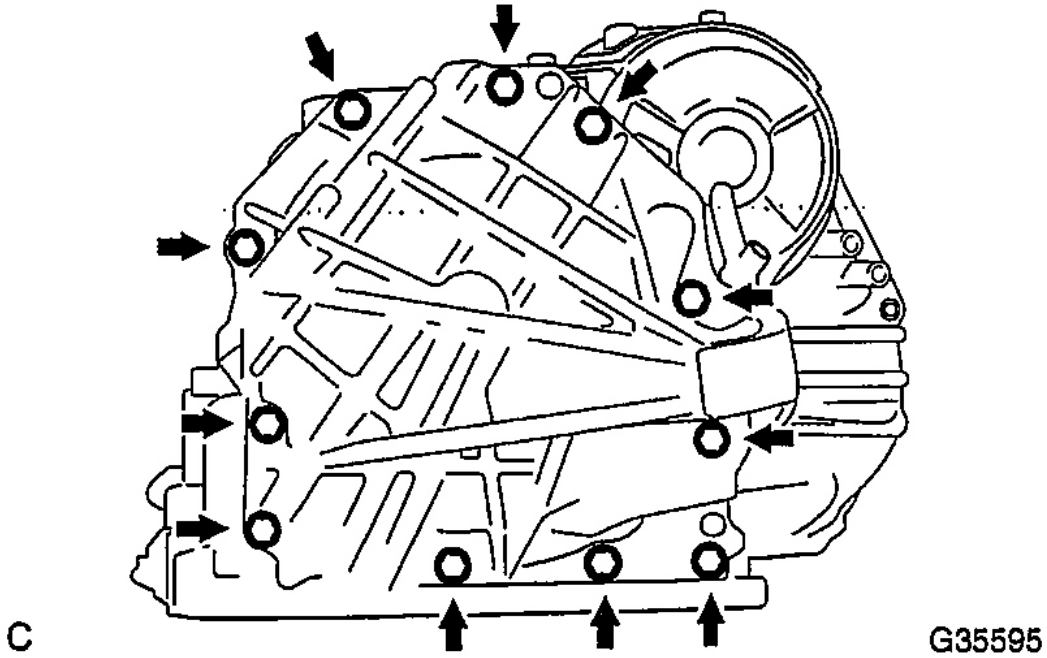


Fig. 65: Identifying Transaxle Rear Cover Sub-Assy Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

45. **REMOVE TRANSAXLE CASE NO. 1 PLUG**
    a. Remove the 4 transaxle case No.1 plugs from the transaxle rear cover.
    b. Remove the 4 O-rings from the 4 transaxle case No.1 plugs.

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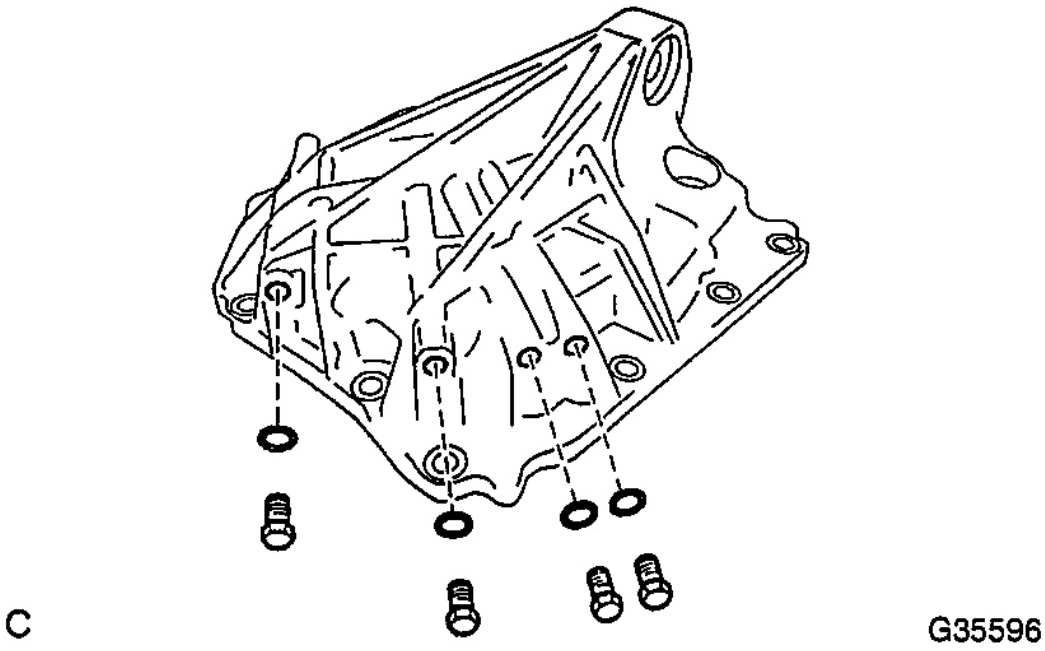


Fig. 66: Removing Transaxle Case No. 1 Plugs And O-Rings From Transaxle Rear Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

46. **REMOVE REAR CLUTCH OIL SEAL RING OUTER**
    a. Remove the 3 rear clutch oil seal ring outers from the transaxle rear cover.

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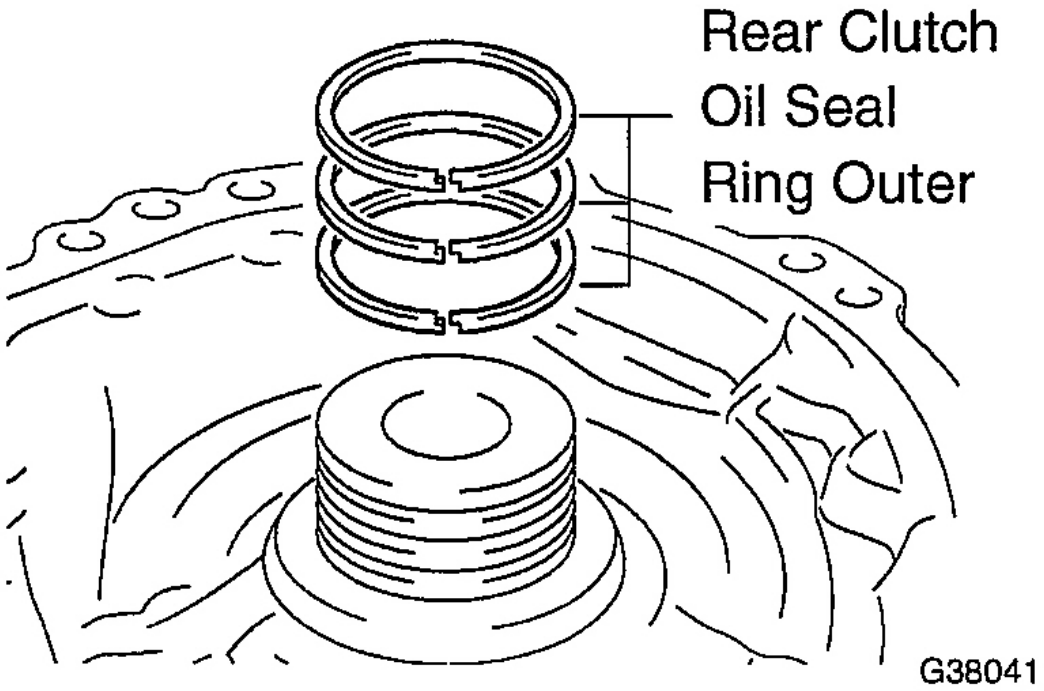


Fig. 67: Removing Rear Clutch Oil Seal Ring Outers From Transaxle Rear Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

47. **REMOVE NEEDLE ROLLER BEARING**
    a. Using SST, remove the needle-roller bearing from the transaxle rear cover.

       SST 09387-00041 (09387-01021, 09387-01030, 09387-01040)

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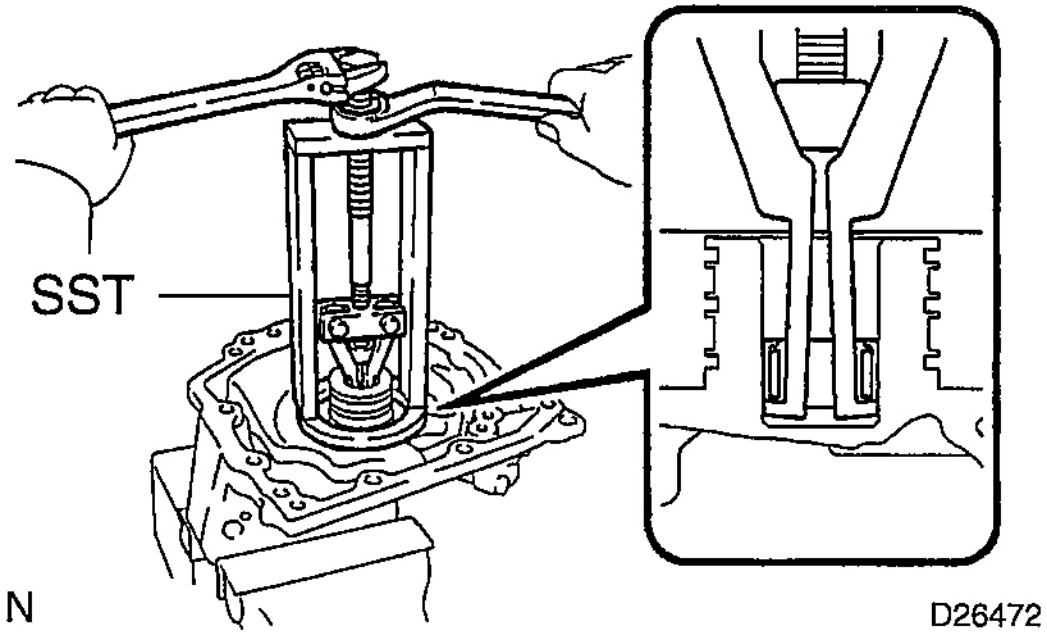


Fig. 68: Removing Needle-Roller Bearing From Transaxle Rear Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

48. **REMOVE GOVERNOR APPLY GASKET NO. 1**
    a. Using a screwdriver, remove the 3 apply gaskets.

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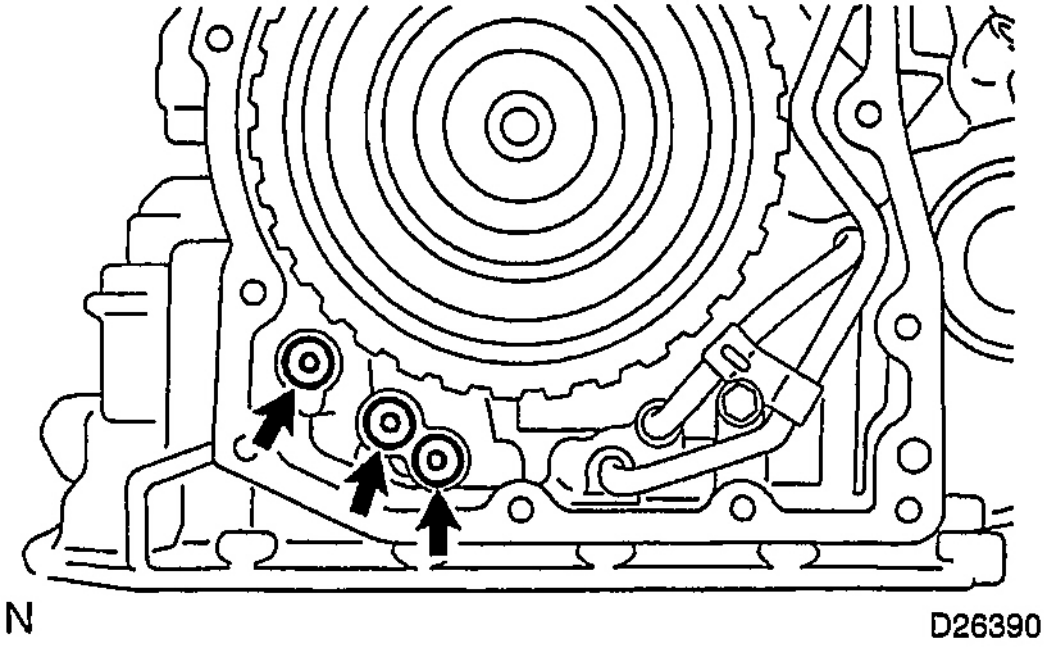


Fig. 69: Identifying Apply Gaskets
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

49. **REMOVE BRAKE APPLY TUBE**
    a. Remove the bolt and clamp.
    b. Remove the clutch apply tube.
    c. Remove the brake apply tube.

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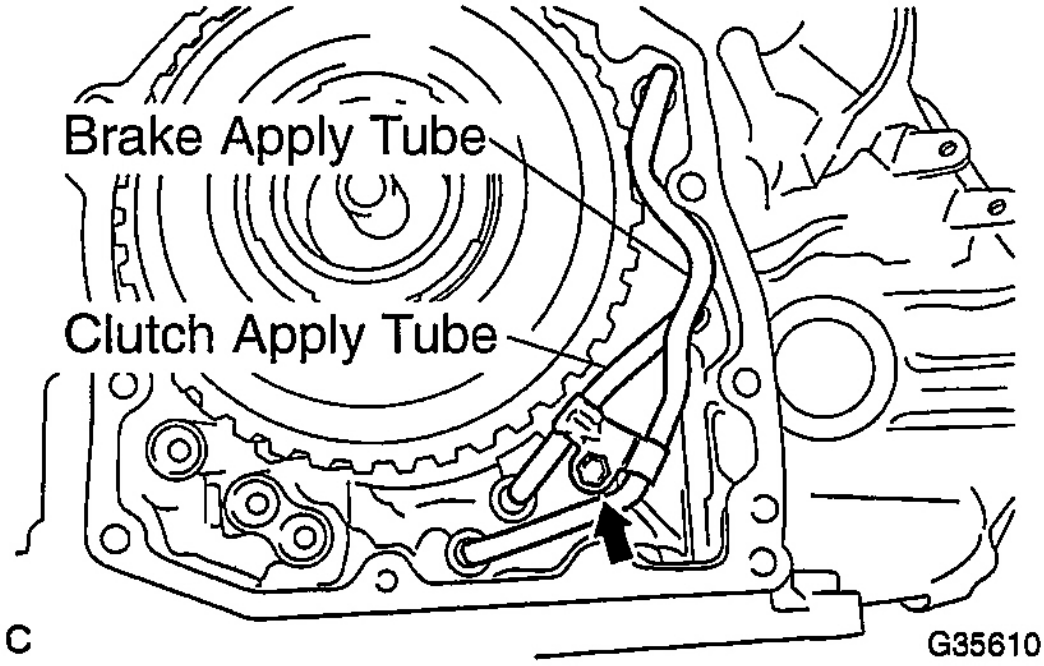


Fig. 70: Identifying Brake Apply Tube, Clutch Apply Tube, Bolt And Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

50. **REMOVE DIRECT CLUTCH ASSY**
    a. Remove the thrust bearing and the direct clutch assy from the transaxle case.

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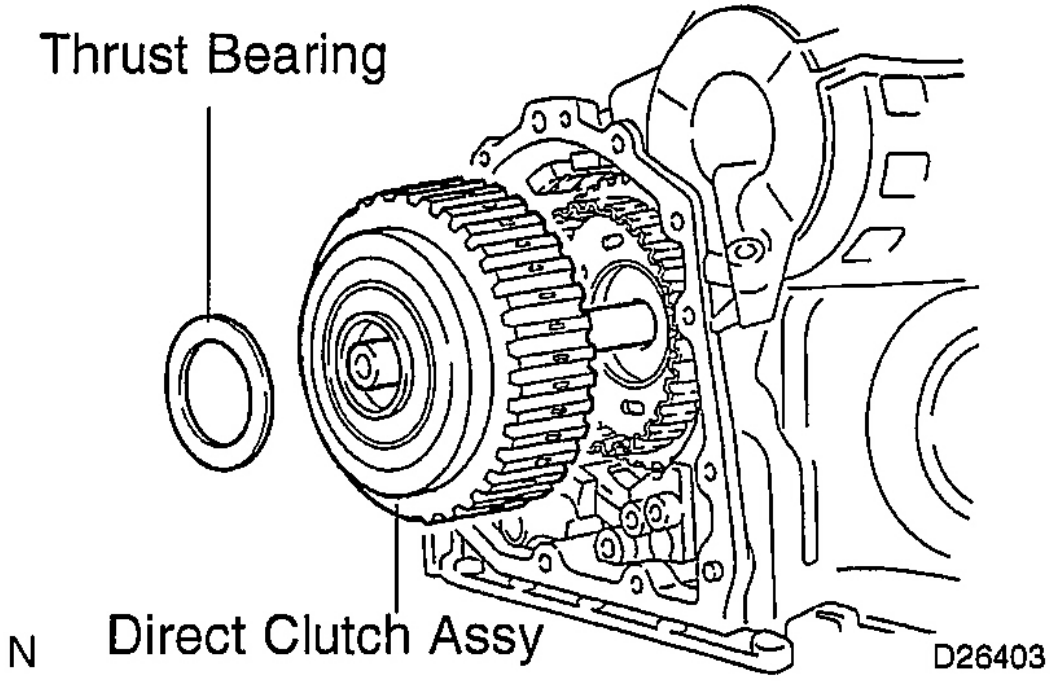


Fig. 71: Removing Thrust Bearing And Direct Clutch Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

51. **REMOVE OVERDRIVE DIRECT CLUTCH HUB SUB-ASSY**
    a. Remove the thrust bearing race, thrust bearing and overdrive direct clutch hub sub-assy from the rear planetary sun gear assy.

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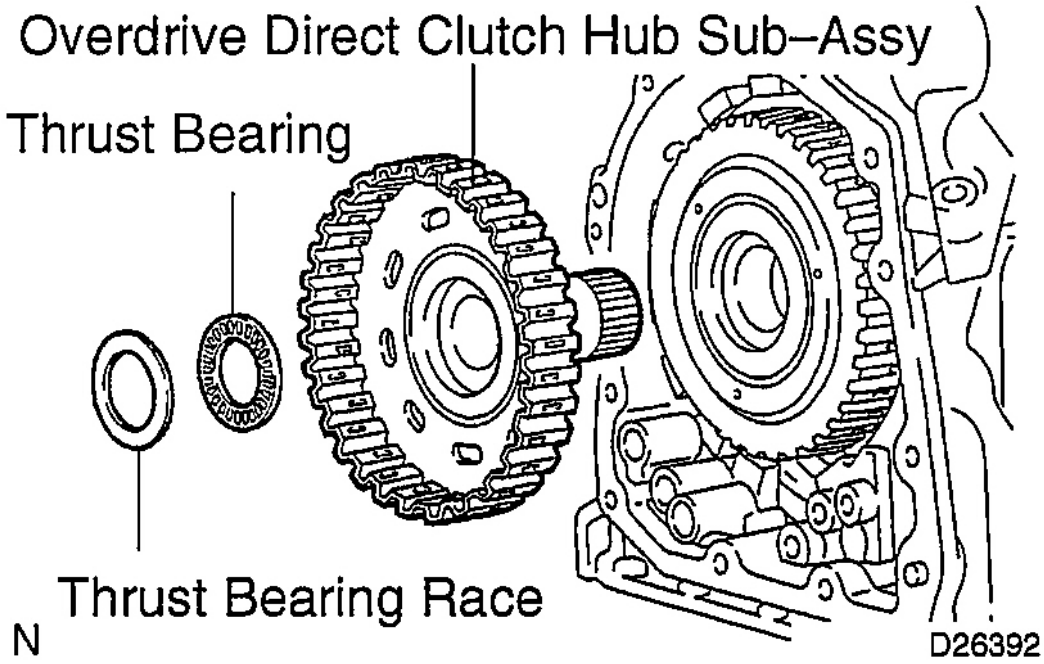


Fig. 72: Removing Overdrive Direct Clutch Hub Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

52. **INSPECT OVERDRIVE DIRECT CLUTCH DRUM SUB-ASSY**

a. Using a dial indicator, measure the inside diameter of the overdrive direct clutch drum sub-assy bushing.

Standard inside diameter: 23.025 to 23.046 mm (0.9065 to 0.9073 in.)

Maximum inside diameter: 23.09 mm (0.9091 in.)

NOTE:

- **If the inside diameter is greater than the maximum, replace the overdriv direct clutch drum sub-assy with a new one.**
- **Check the contact surface of the bush in the direct clutch shaft. If any scratch or discoloration is identified, replace the overdrive direct clutch drum sub-assy with a new one.**

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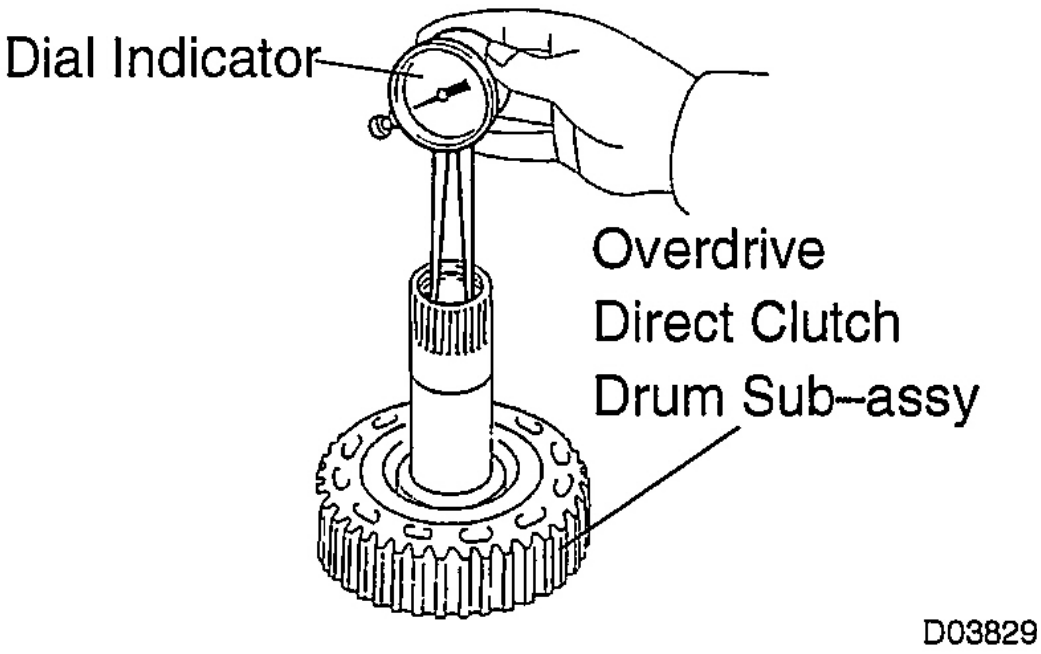


Fig. 73: Measuring Inside Diameter Of Overdrive Direct Clutch Drum Su Assy Bushing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

53. **REMOVE REAR PLANETARY SUN GEAR ASSY**
    a. Remove the rear planetary sun gear assy from the transaxle case.

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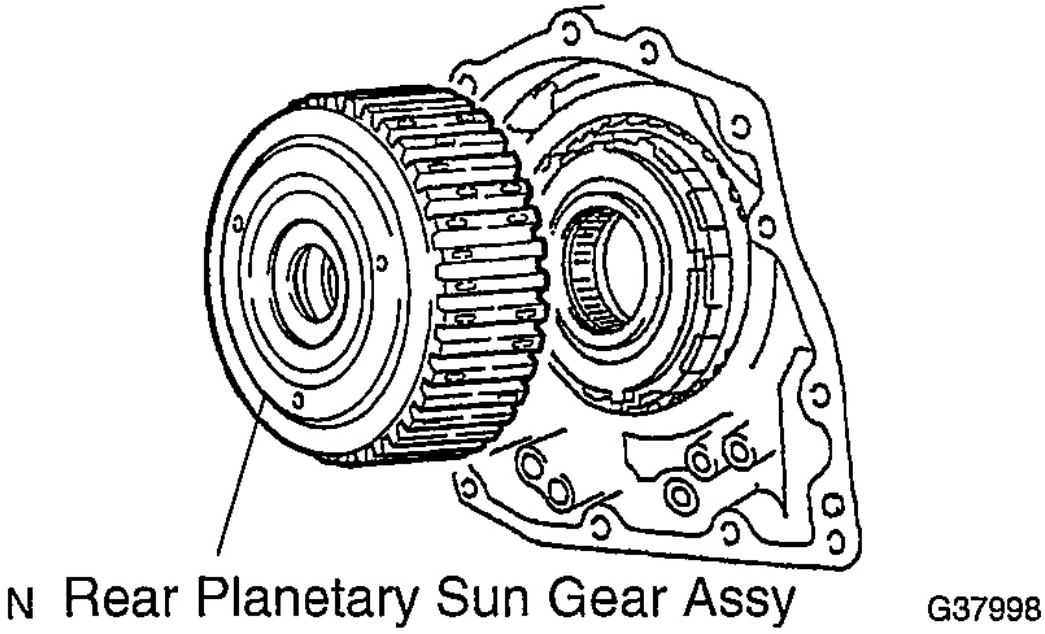


Fig. 74: Identifying Rear Planetary Sun Gear Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the thrust needle roller bearing and thrust bearing race from the rear planetary sun gear assy.

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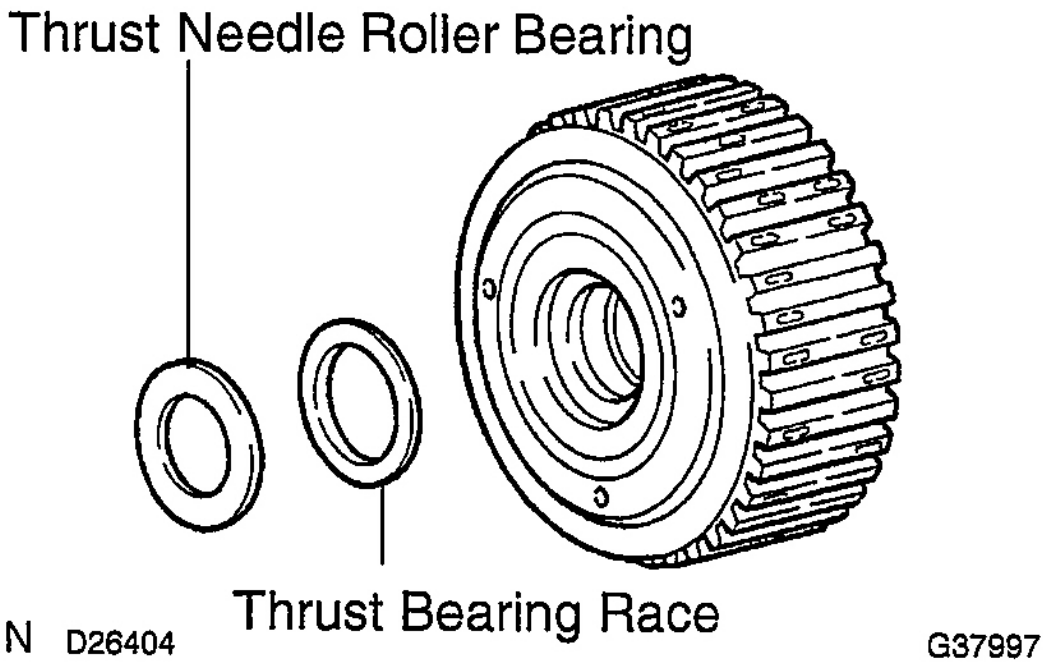


Fig. 75: Identifying Thrust Needle Roller Bearing And Thrust Bearing Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Remove the planetary carrier thrust washer No.2 from the rear planetary sun gear assy.

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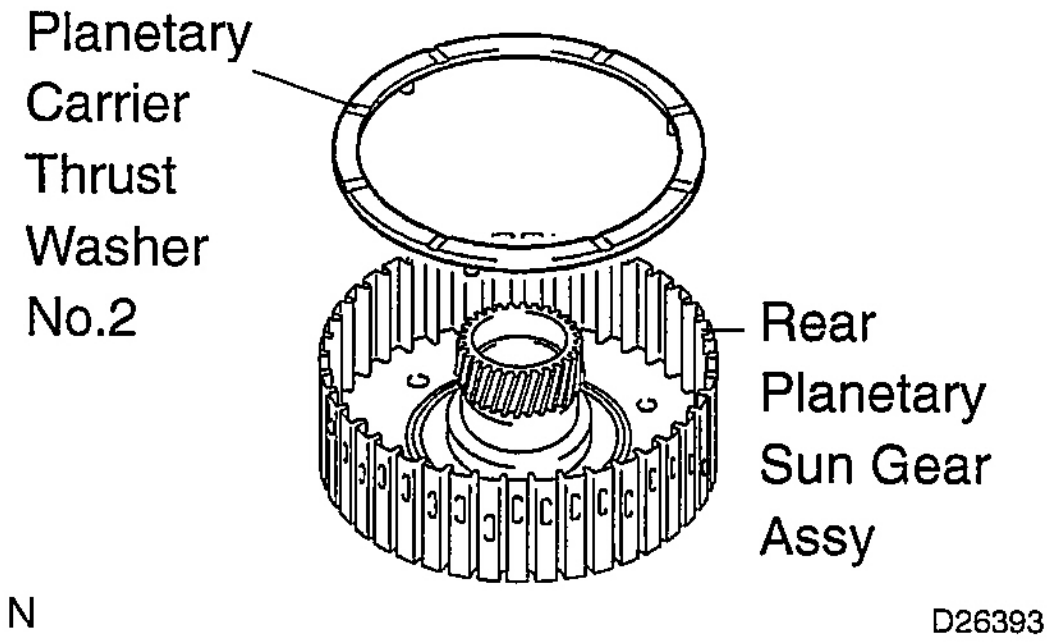


Fig. 76: Removing Planetary Carrier Thrust Washer No. 2 From Rear Planetary Sun Gear Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

54. **REMOVE 1 WAY CLUTCH ASSY**
    a. Remove the 1-way clutch assy and the thrust needle roller bearing from the transaxle case.

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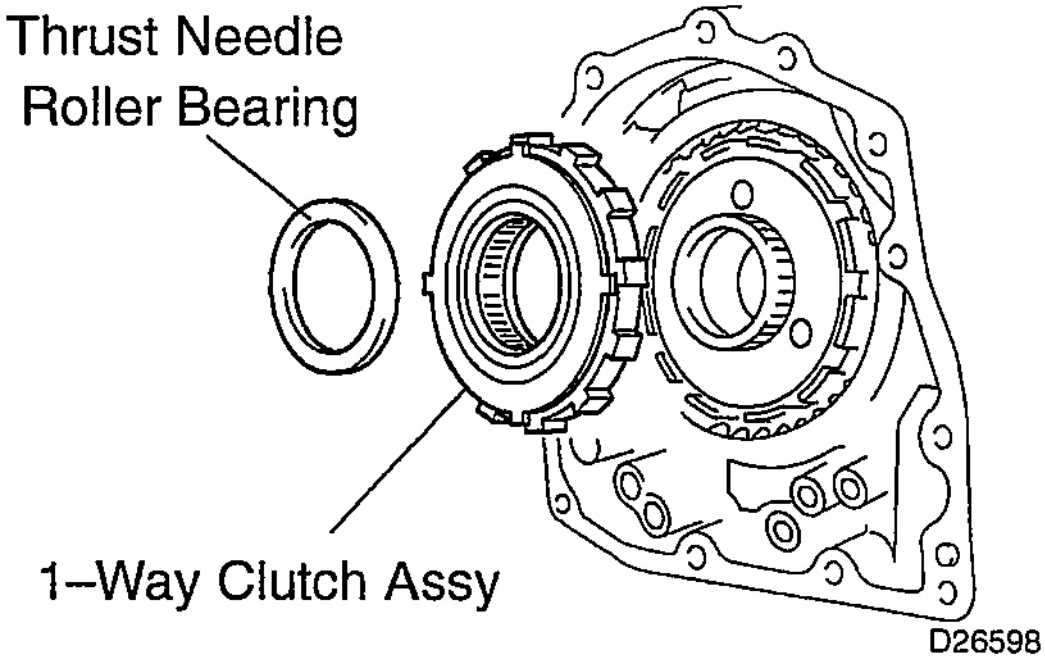


Fig. 77: Removing Thrust Needle Roller Bearing And 1-Way Clutch Assy From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the 1-way clutch inner race from the 1-way clutch assy.

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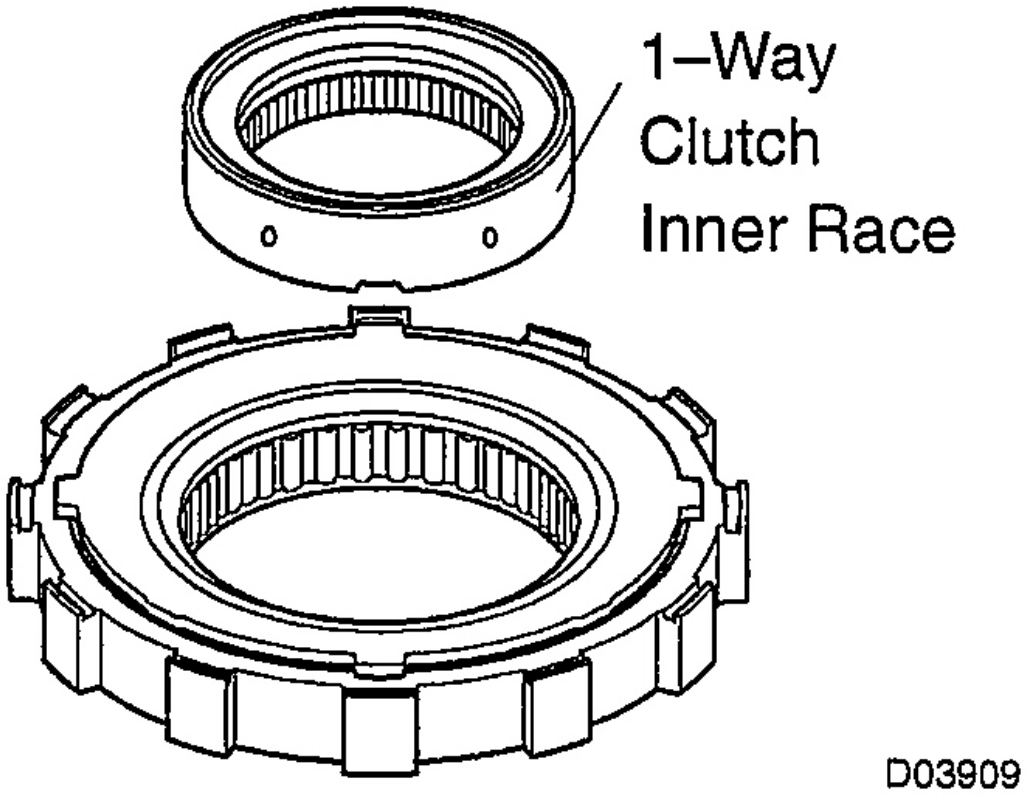


Fig. 78: Removing 1-Way Clutch Inner Race From 1-Way Clutch Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

55. **REMOVE 1-WAY CLUTCH SLEEVE OUTER**
    a. Remove the 1-way clutch sleeve outer from the transaxle case.

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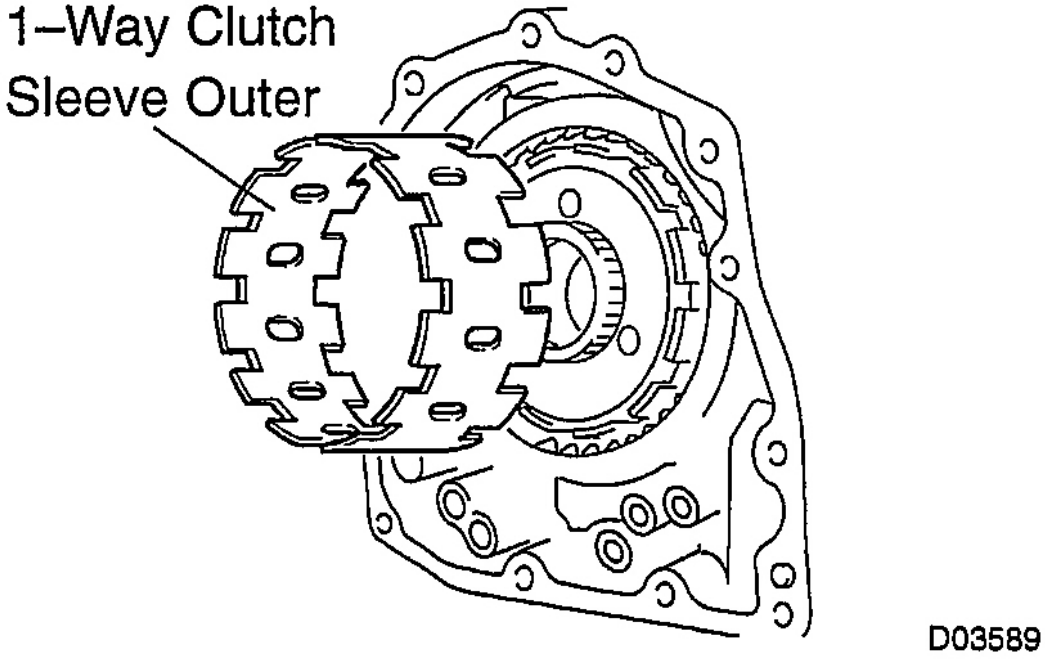


Fig. 79: Removing 1-Way Clutch Sleeve Outer From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

56. **REMOVE PLANETARY CARRIER THRUST WASHER NO. 1**
    a. Remove the planetary carrier thrust washer No. 1 from the planetary gear assy.

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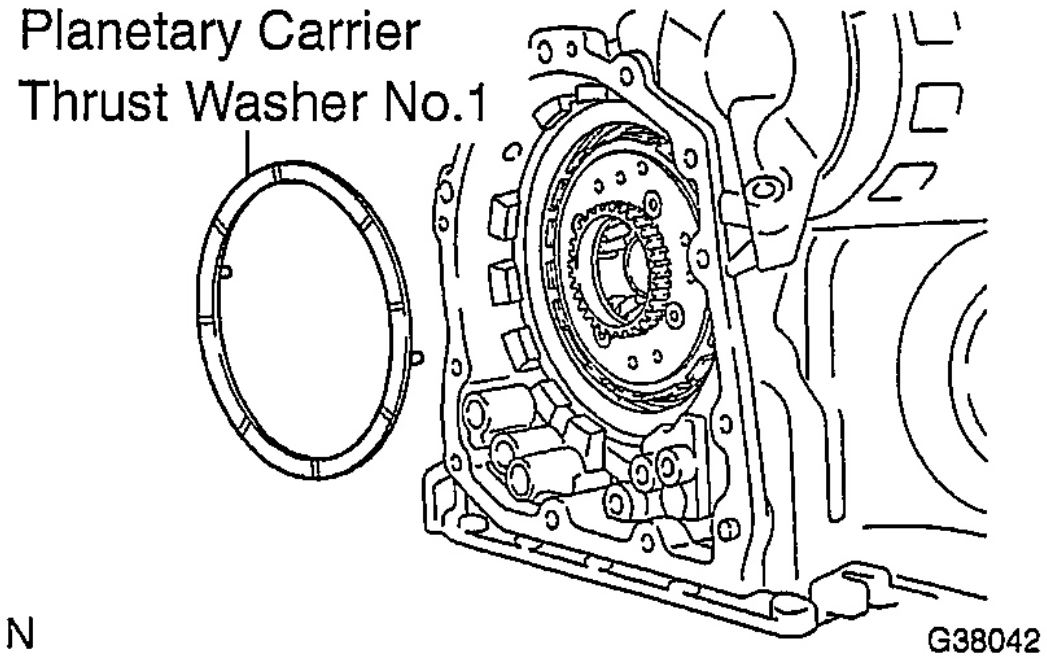


Fig. 80: Removing Planetary Carrier Thrust Washer No. 1 From Planetary Gear Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

57. **REMOVE 2ND BRAKE DISC**
    a. Using a screwdriver, remove the snap ring.
    b. Remove the flange, 3 discs and 3 plates from the transaxle case.

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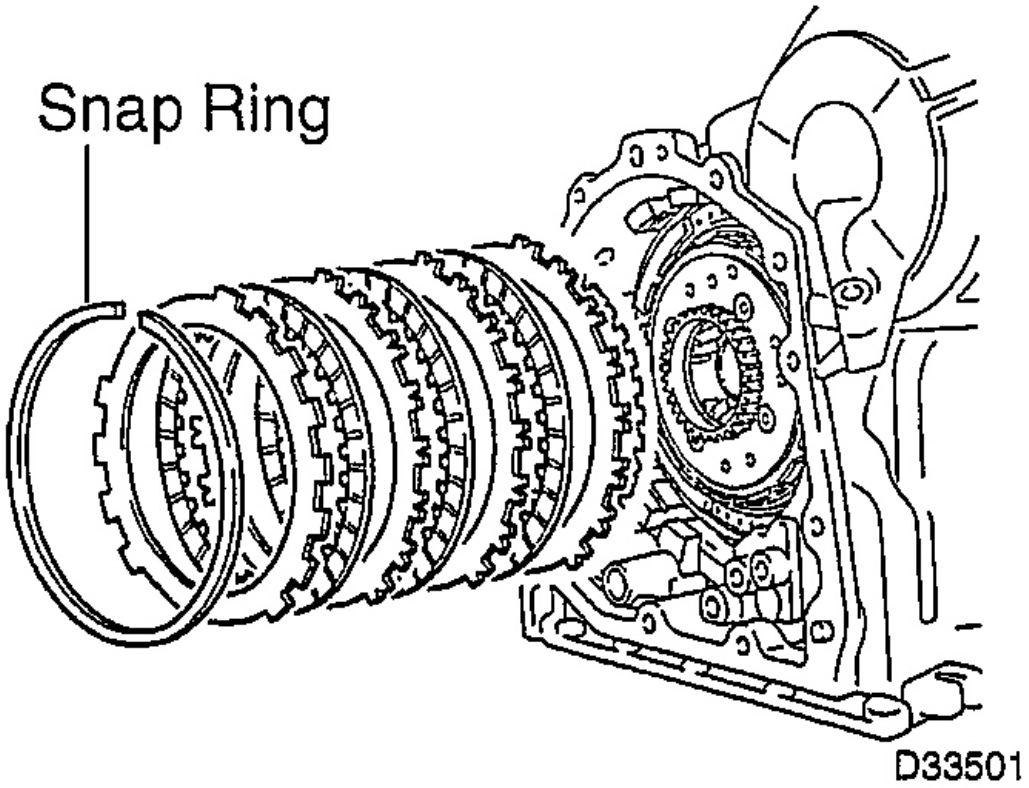


Fig. 81: Removing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

58. **INSPECT 2ND BRAKE DISC**
    a. Check to see if the sliding surfaces of the discs, plates and flange are worn or burnt.

       If necessary, replace them.

NOTE:
- **If the lining of a disc comes off or discolors, or a groove is damaged, replace all discs.**
- **Before assembling new discs, soak them in ATF for at least 15 minutes**

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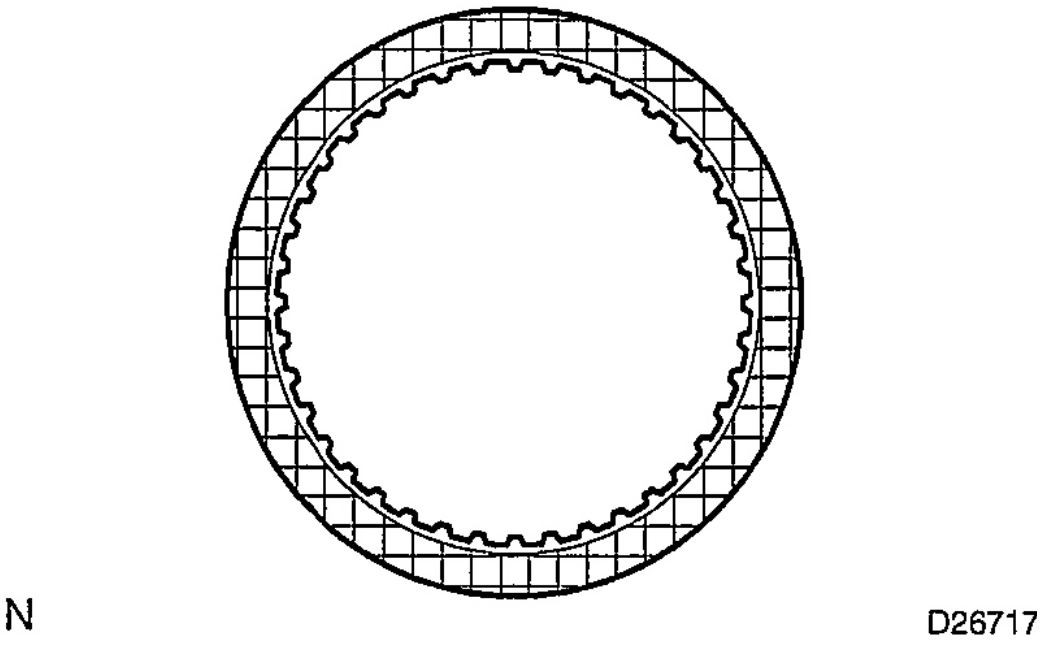


Fig. 82: Inspecting 2nd Brake Disc
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

59. **REMOVE SECOND BRAKE PISTON ASSY**
    a. Using a screwdriver, remove the snap ring.

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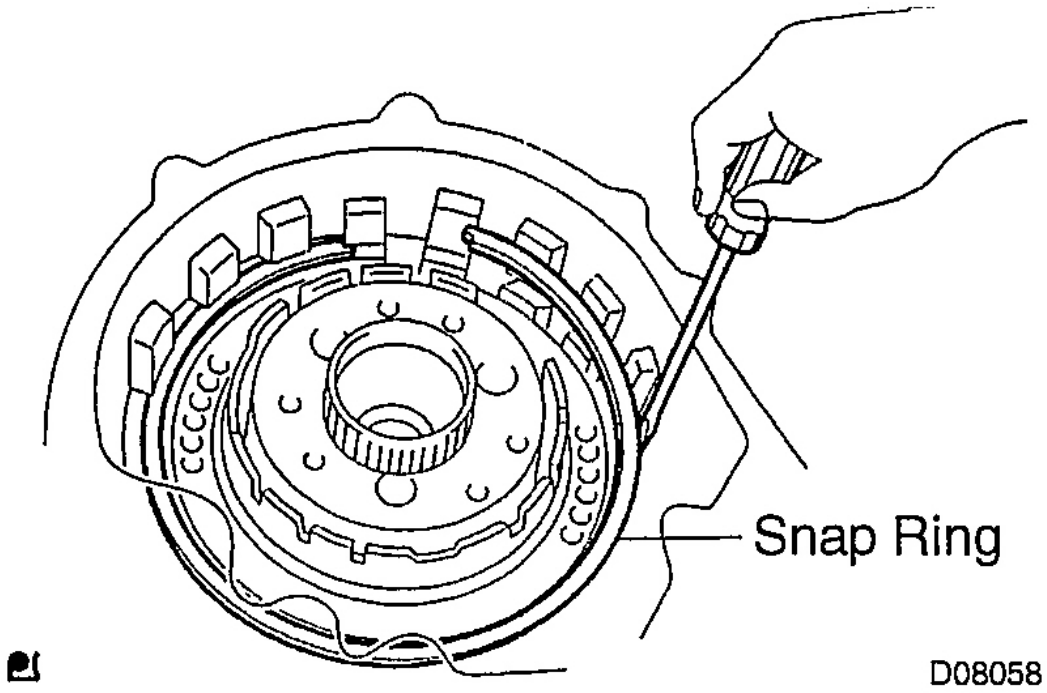


Fig. 83: Removing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the second brake piston assy from the transaxle case.

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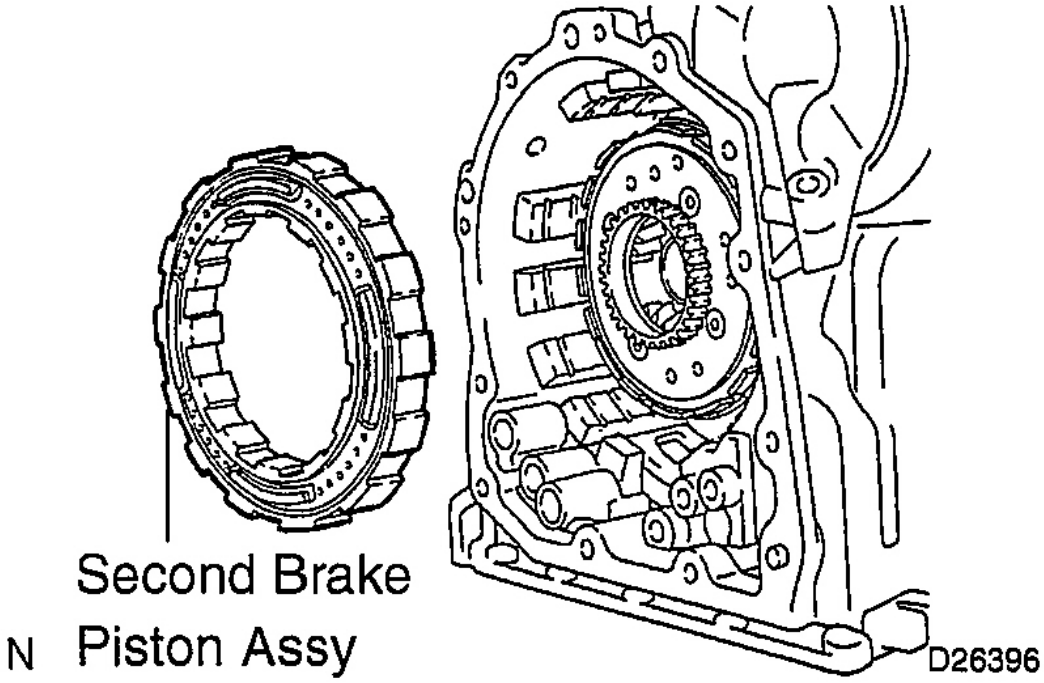


Fig. 84: Removing Second Brake Piston Assy From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

60. **REMOVE REAR PLANETARY GEAR ASSY**
    a. Using a screwdriver, remove the snap ring.

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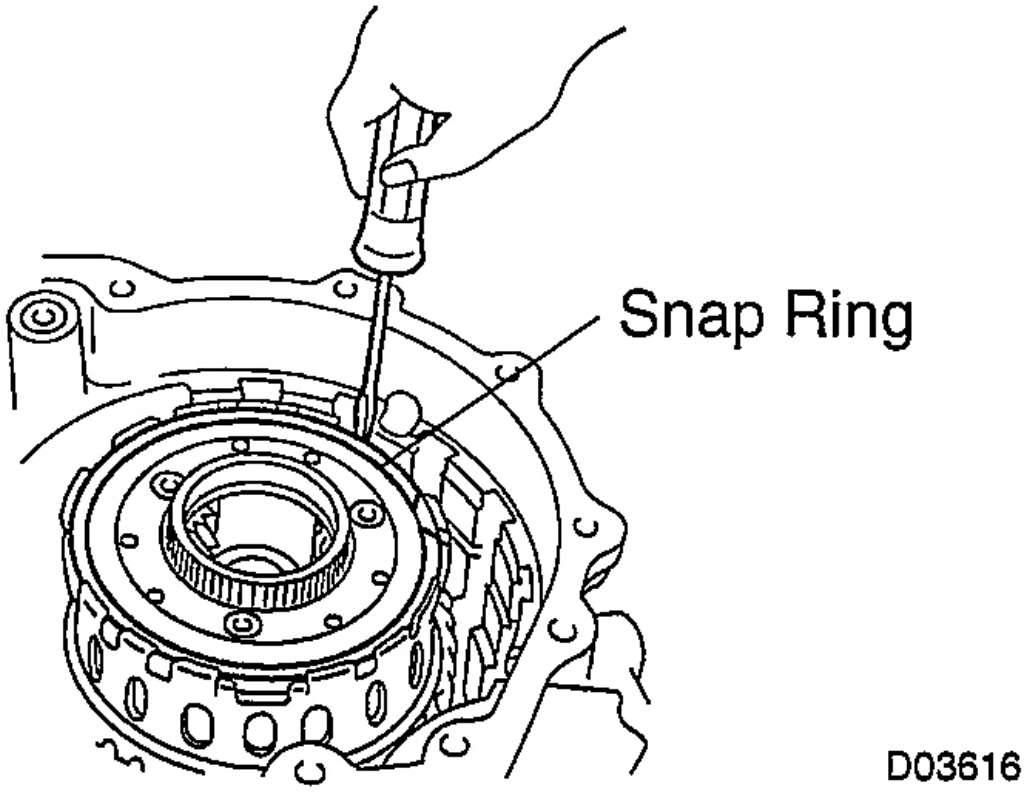


Fig. 85: Removing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the rear planetary gear assy from the transaxle case.

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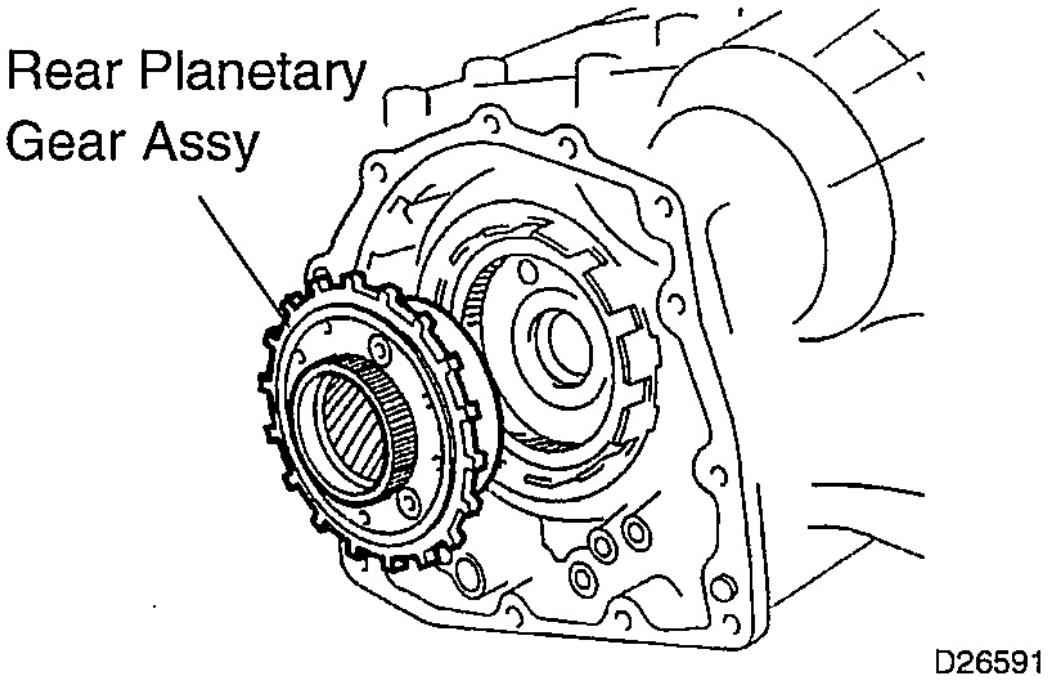


Fig. 86: Removing Rear Planetary Gear Assy From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

61. **REMOVE INPUT SUN GEAR**
    a. Remove the input sun gear, 2 thrust needle roller bearings, 2 thrust bearing race No.2 and thrust bearing race No.3 from the transaxle case.

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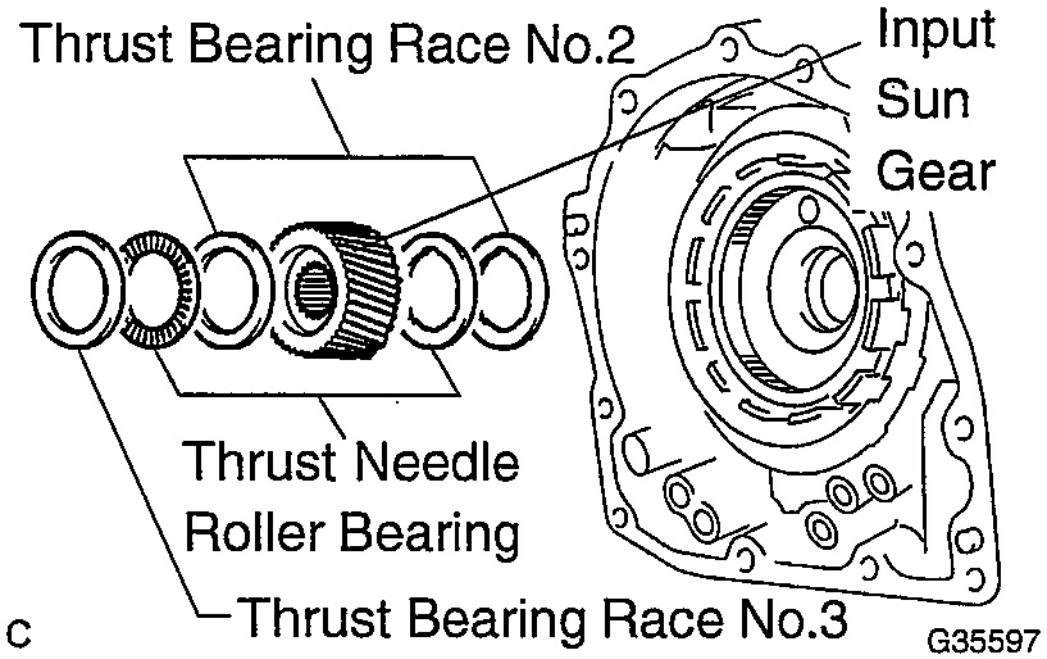


Fig. 87: Removing Input Sun Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

62. **REMOVE 1ST & REVERSE BRAKE DISC**
    a. Remove the flange, 5 discs and 5 plates from the transaxle case.

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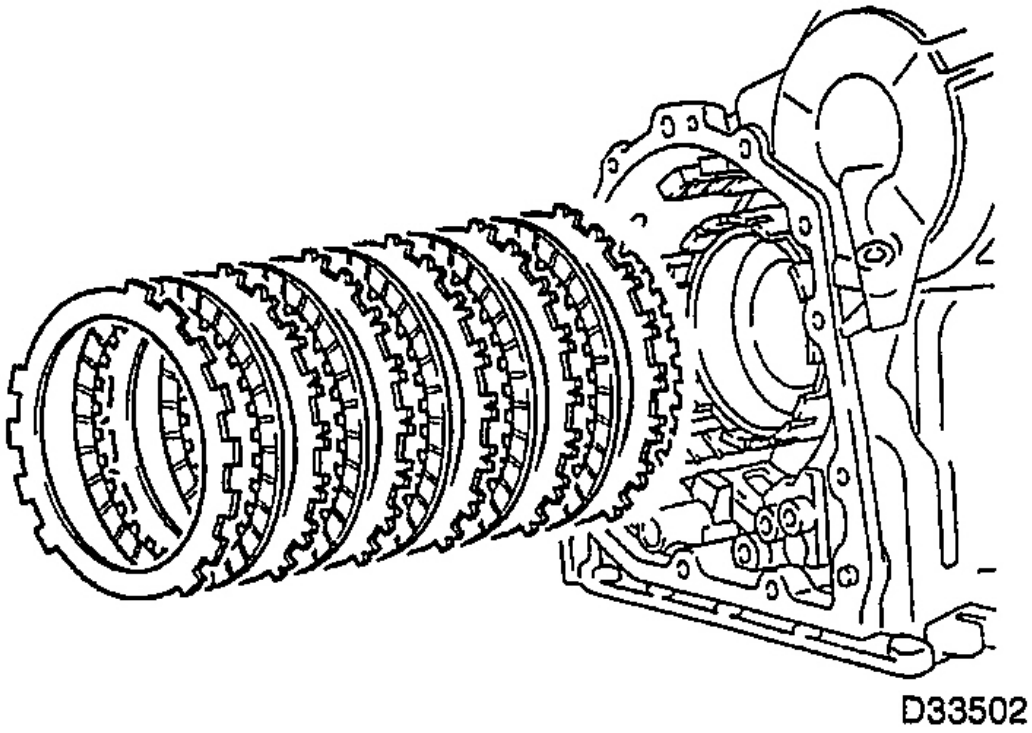


Fig. 88: Removing 1st & Reverse Brake Disc
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

63. **INSPECT 1ST & REVERSE BRAKE DISC**

a. Check to see if the sliding surfaces of the discs, plates and flange are worn or burnt.

If necessary, replace them.

NOTE:
- **If the lining of a disc comes off or discolors, or a groove is damaged, replace all discs.**
- **Before assembling new discs, soak them in ATF for at least 15 minutes**

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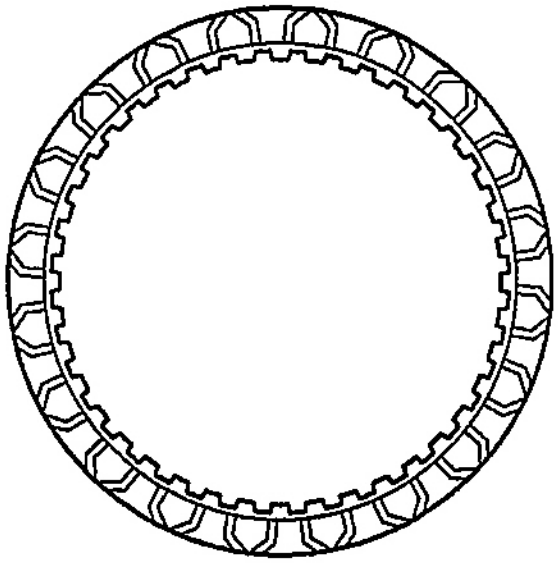


Fig. 89: Inspecting 1st & Reverse Brake Disc
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

64. **REMOVE FRONT PLANETARY GEAR ASSY**

a. Using a chisel and hammer, unstake the lock washer.

NOTE: Bend down all claws of the washer. Otherwise SST cannot be fully pressed against the nut to loosen it.

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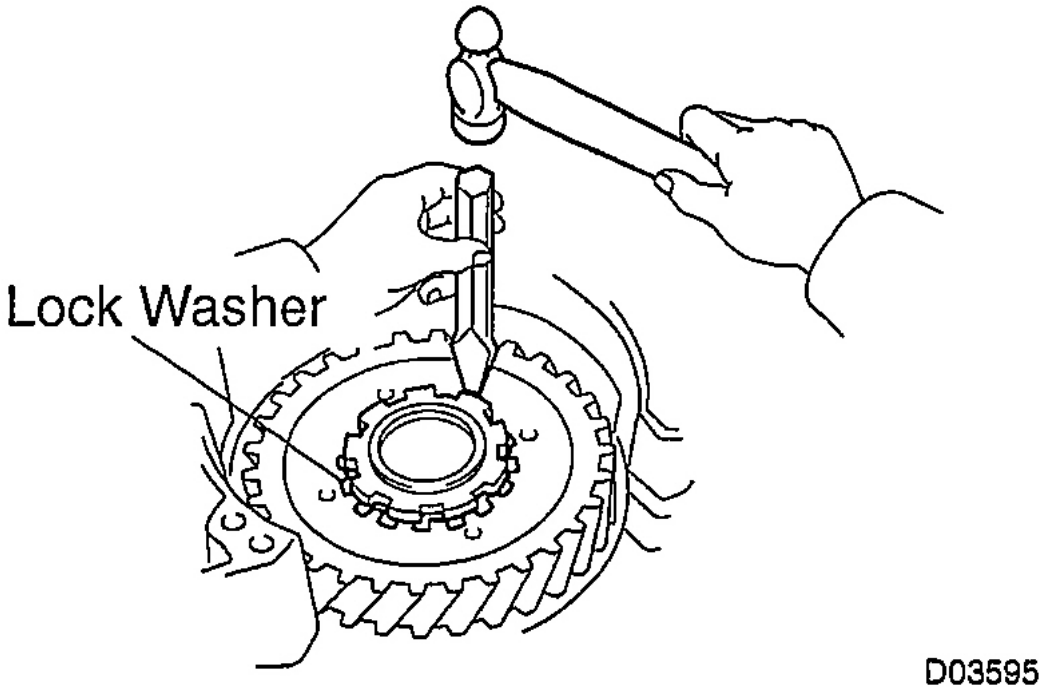


Fig. 90: Removing Lock Washer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST, remove the nut and lock washer.

   SST 09387-00030, 09387-00080

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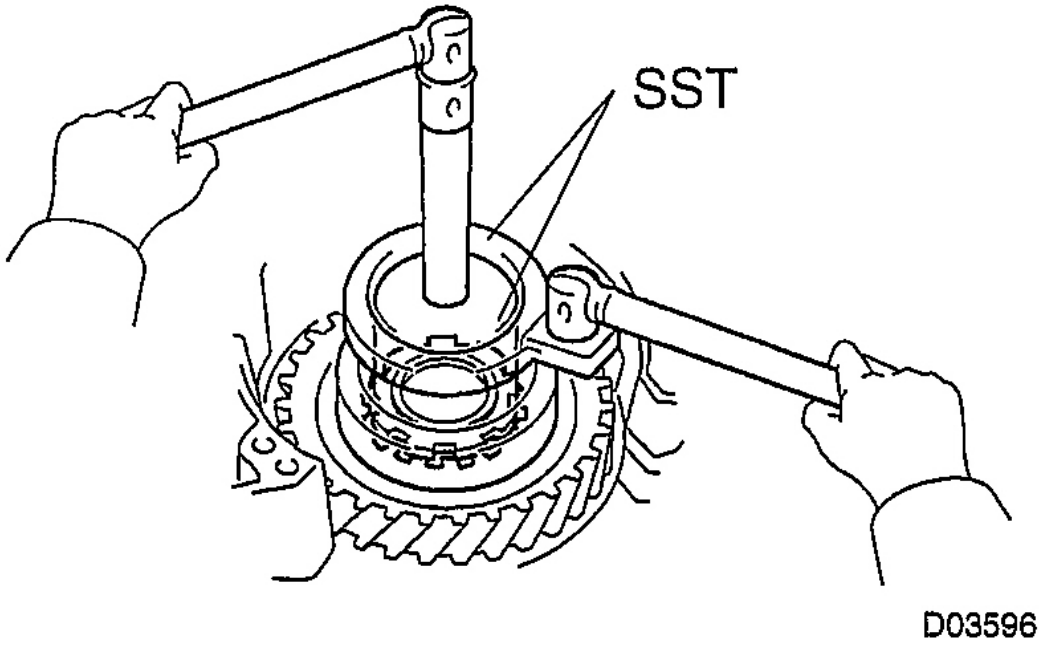


Fig. 91: Removing Nut And Lock Washer Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using SST and a press, remove the front planetary gear assy from the counter drive gear.

SST 09950-60010 (09951-00450), 09950-70010 (09951-07100)

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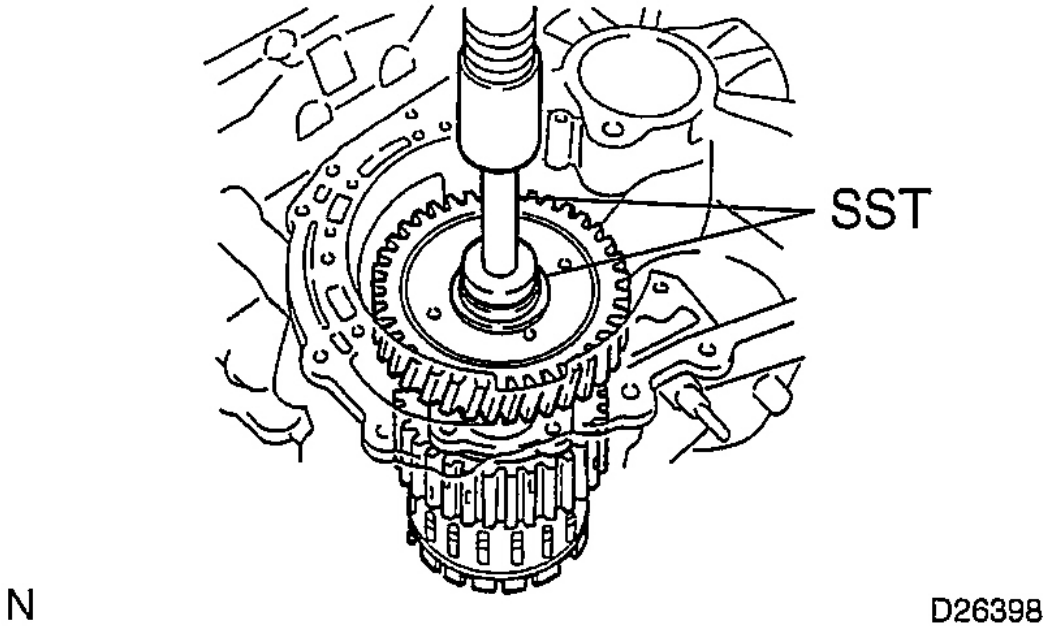


Fig. 92: Removing Front Planetary Gear Assy From Counter Drive Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Remove the front planetary gear assy from the brake hub.

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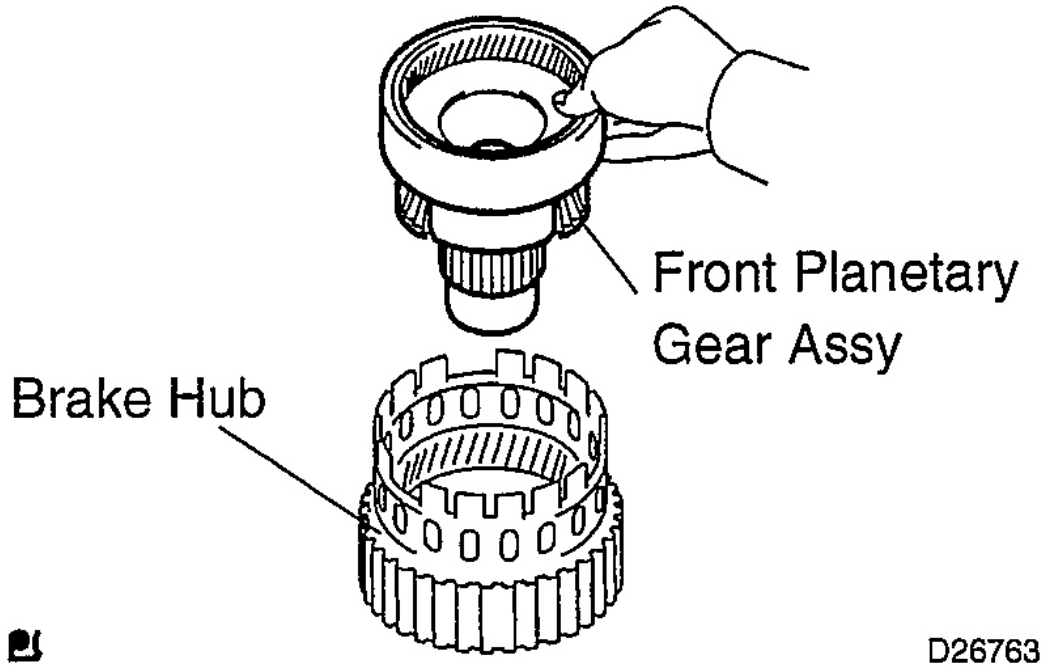


Fig. 93: Removing Front Planetary Gear Assy From Brake Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

65. **REMOVE FRONT PLANETARY RING GEAR**
    a. Using a screwdriver, remove the snap ring and front planetary ring gear from the brake hub.

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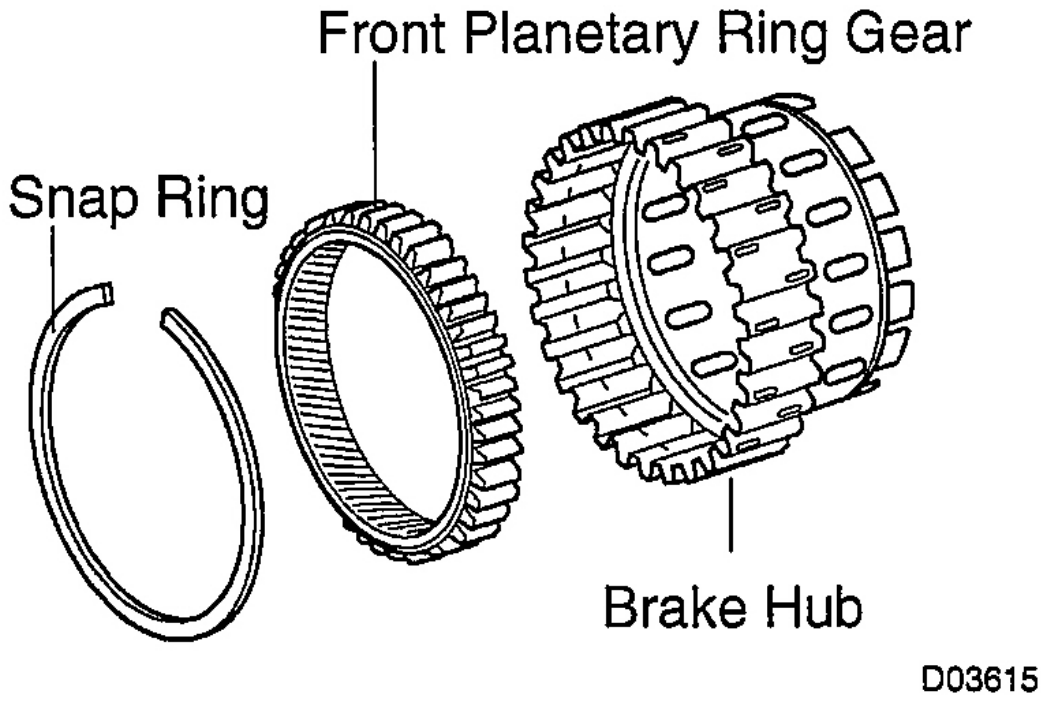


Fig. 94: Removing Front Planetary Ring Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

66. **REMOVE 1ST & REVERSE BRAKE RETURN SPRING SUB-ASSY**
    a. Place SST on the return spring, and compress the return spring with a press.

       SST 09387-00070

    b. Using a snap ring expander, remove the snap ring.

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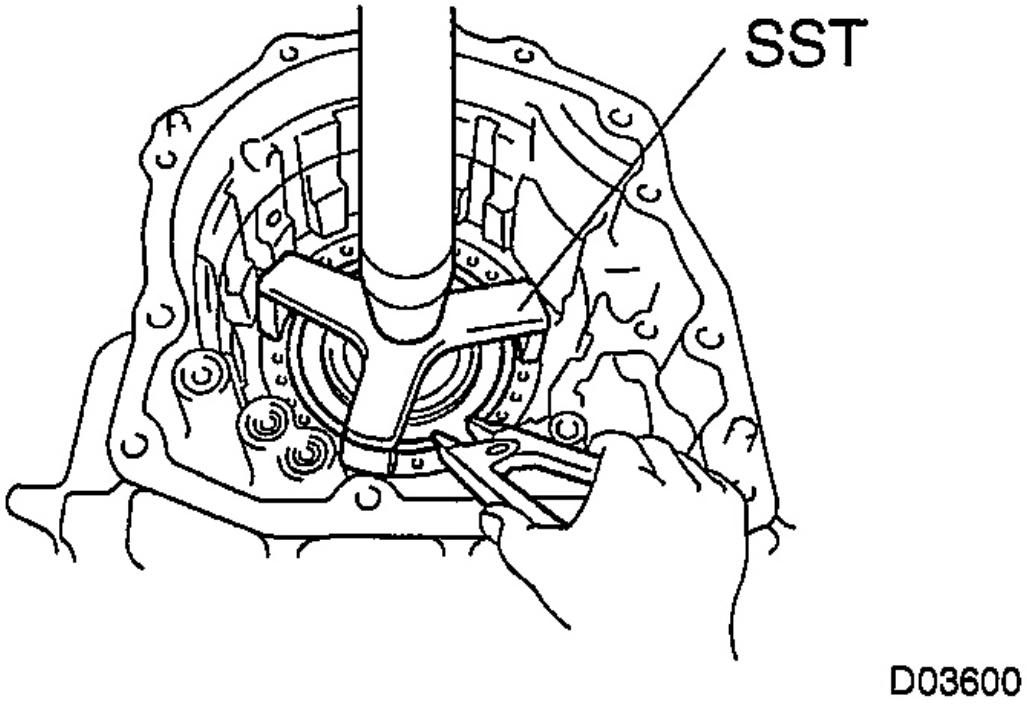


Fig. 95: Removing 1st & Reverse Brake Return Spring Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **Stop the press when the spring sheet is lowered 1 to 2 mm (0.039 to 0.078 in.) from the snap ring groove, to prevent the spring sheet from being deformed.**
- **Do not expand the snap ring excessively.**

67. **INSPECT 1ST & REVERSE BRAKE RETURN SPRING SUB-ASSY**
    a. Using vernier calipers, measure the free length of the spring together with the spring seat.

    Standard free length: 17.63 mm (0.6941 in.)

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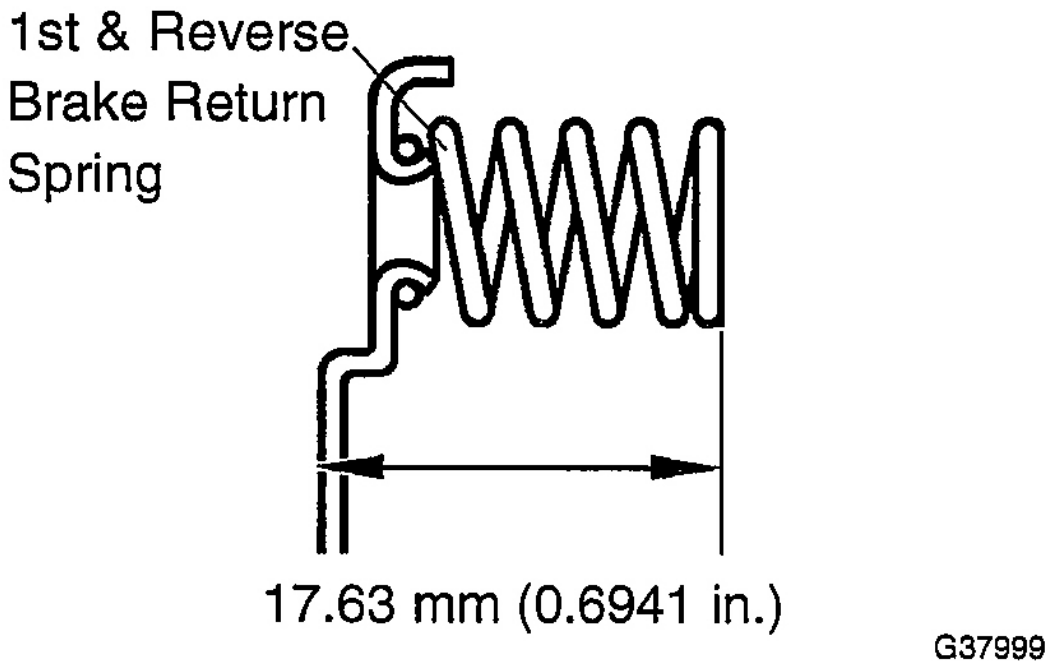


Fig. 96: Measuring Free Length Of 1st & Reverse Brake Return Spring Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

68. **REMOVE 1ST & REVERSE BRAKE PISTON**

a. Apply compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi) to the transaxle case to remove the 1st & reverse brake piston.

NOTE:
- **Blowing air may cause the piston to jump out. When removing the pistc hold it by hand using a waste.**
- **Take care not to splash ATF when air-blowing.**

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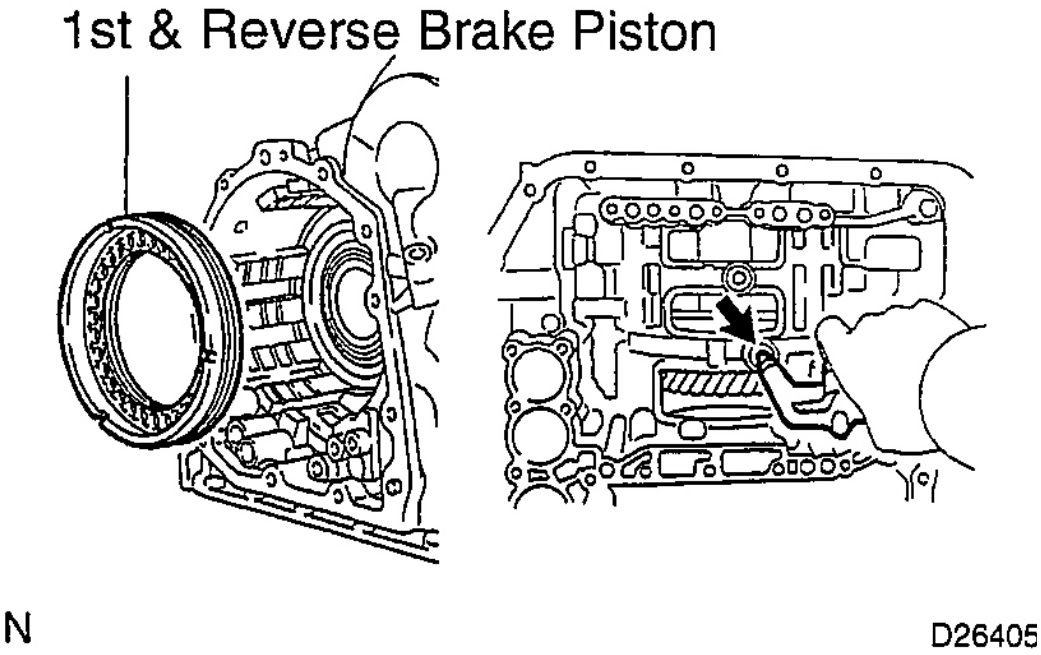


Fig. 97: Removing 1st & Reverse Brake Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the 2 O-rings from the 1st & reverse brake piston.

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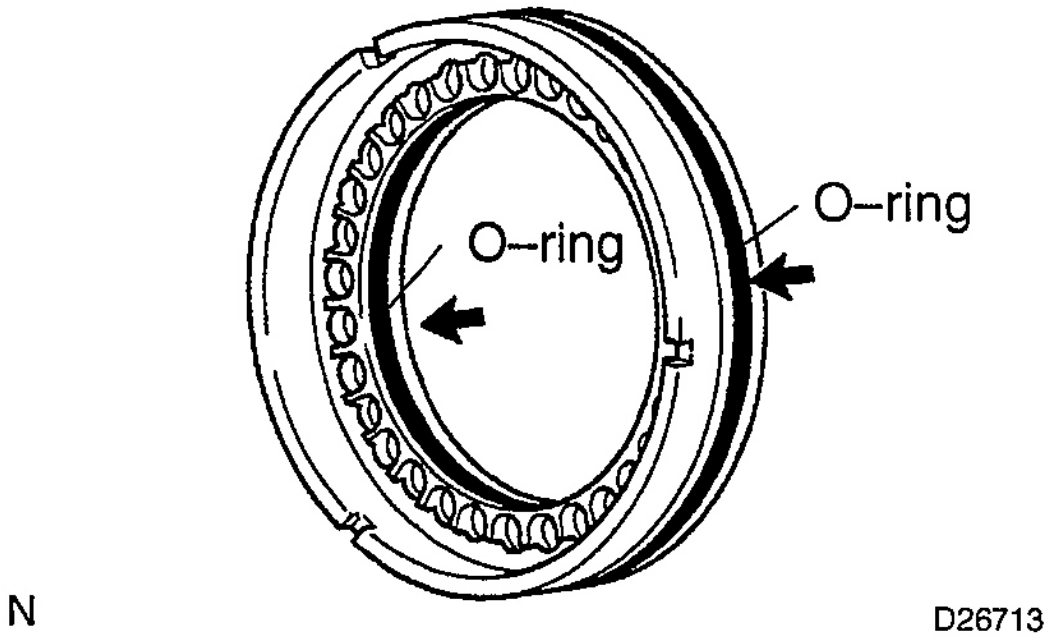


Fig. 98: Removing O-Rings From 1st & Reverse Brake Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

69. **REMOVE COUNTER DRIVE GEAR**
    a. Using SST and a press, remove the counter drive gear from the transaxle case.

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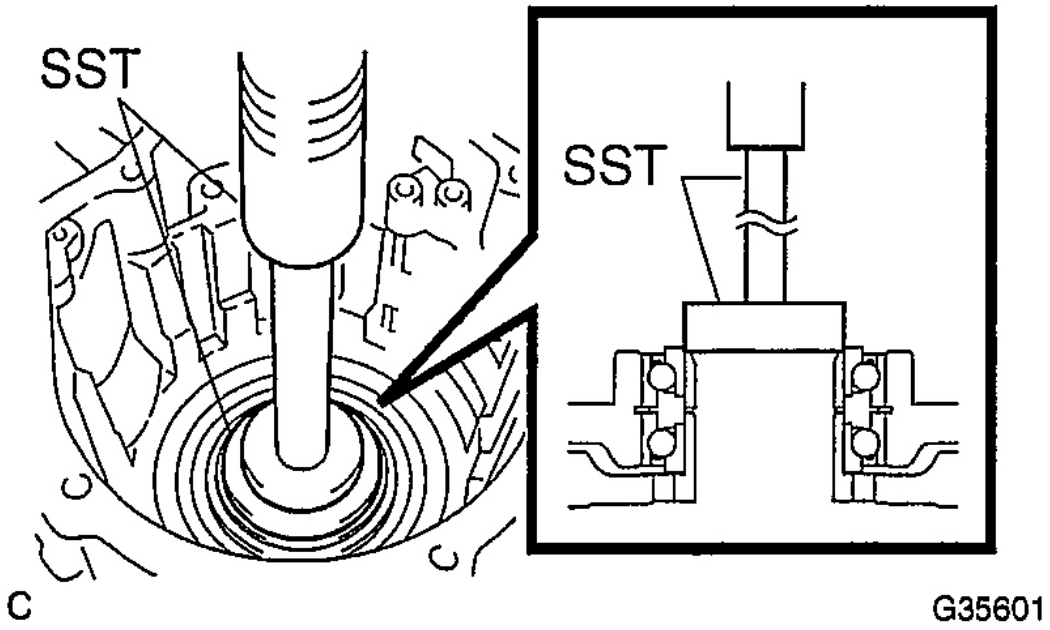


Fig. 99: Removing Counter Drive Gear From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. As shown in the illustration, tighten the 2 bolts evenly and leave a clearance of approx. 20.0 mm (0.797 in.) between the counter drive gear and the inner race.

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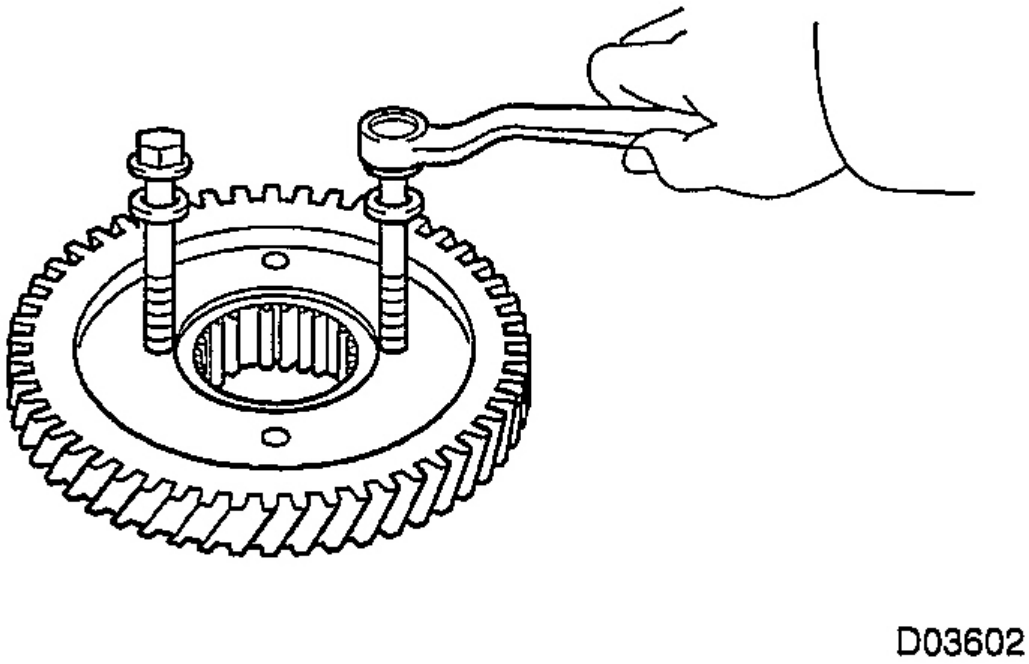


Fig. 100: Tightening Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using SST, remove the bearing inner race (front side).

SST 09950-60010 (09951-00590), 09950-00020, 09950-00030

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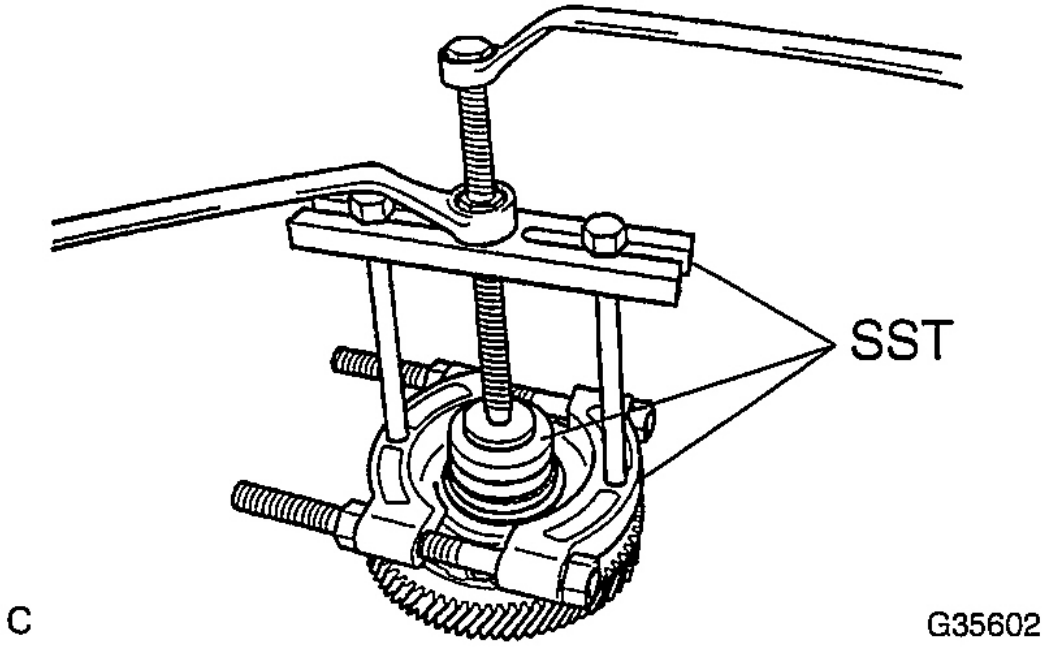


Fig. 101: Removing Bearing Inner Race (Front Side) Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

70. **REMOVE COUNTER DRIVE ANGULAR BALL BEARING**
    a. Remove the bearing inner race (rear side) and angular ball (rear side).

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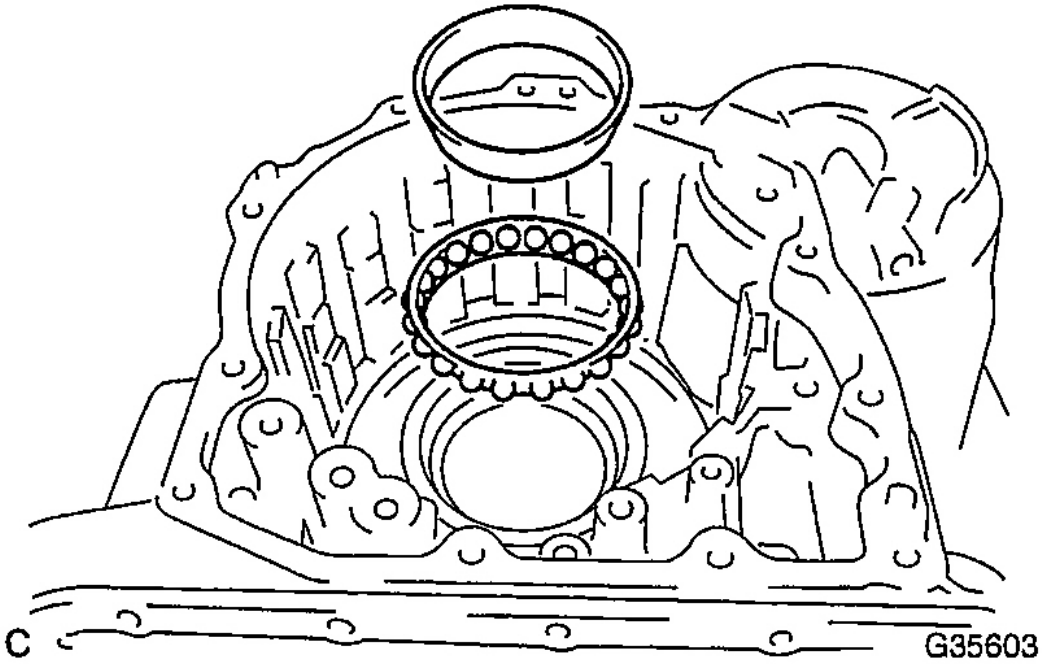


Fig. 102: Removing Bearing Inner Race And Angular Ball
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST, remove the bearing outer race (rear side) from the transaxle case.

SST 09308-00010

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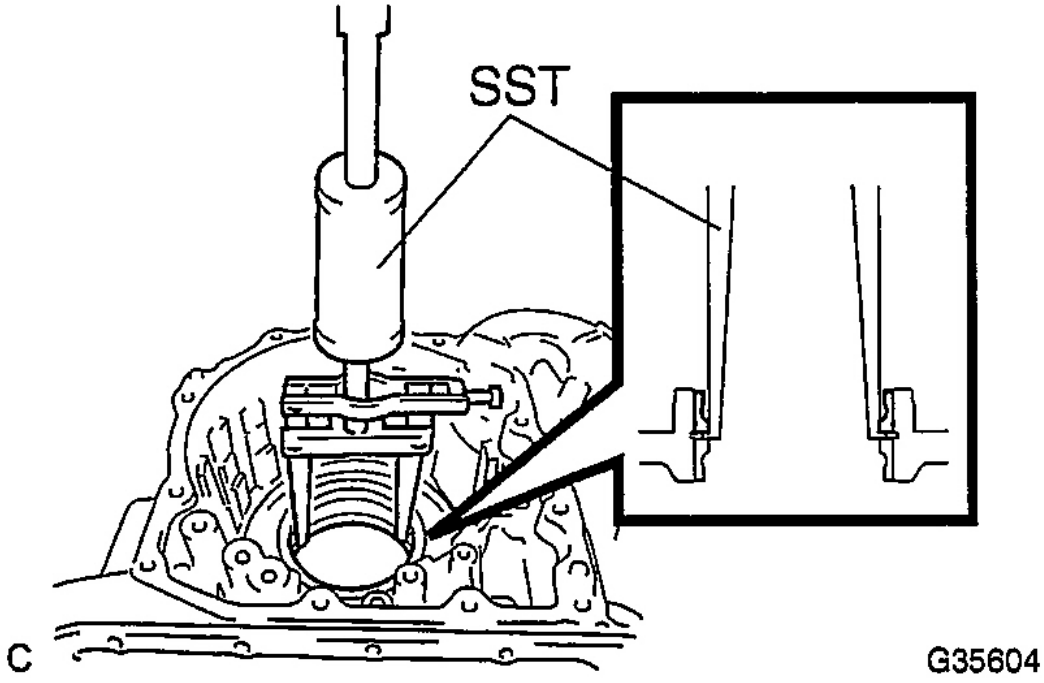


Fig. 103: Removing Bearing Outer Race From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Remove the angular ball (front side).

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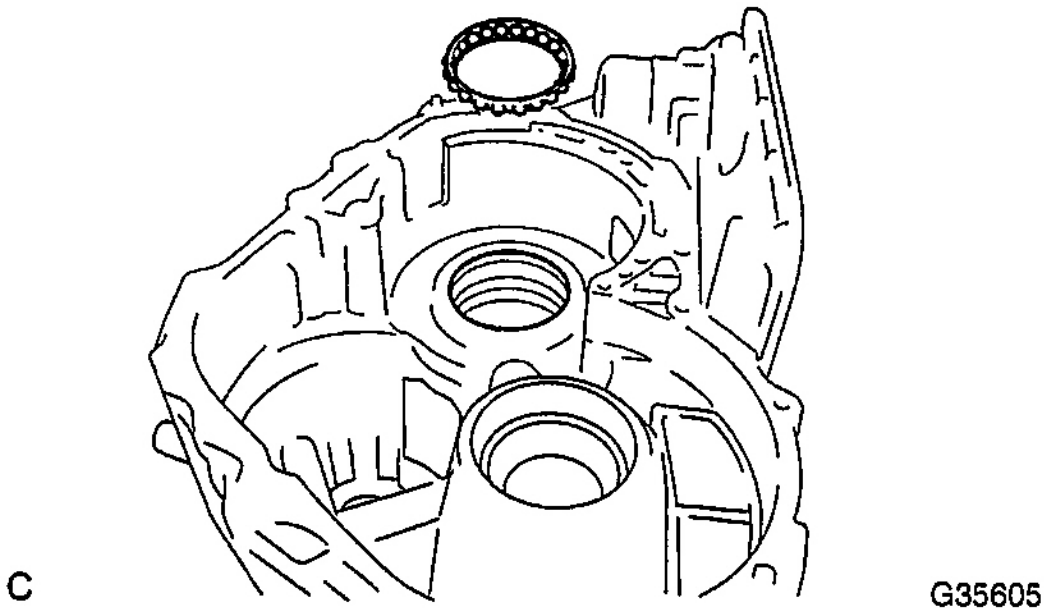


Fig. 104: Removing Angular Ball (Front Side)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Using SST and a press, remove the bearing outer race (front side) from the transaxle case.

SST 09950-70010 (09951-07200), 09950-60020 (09951-00810)

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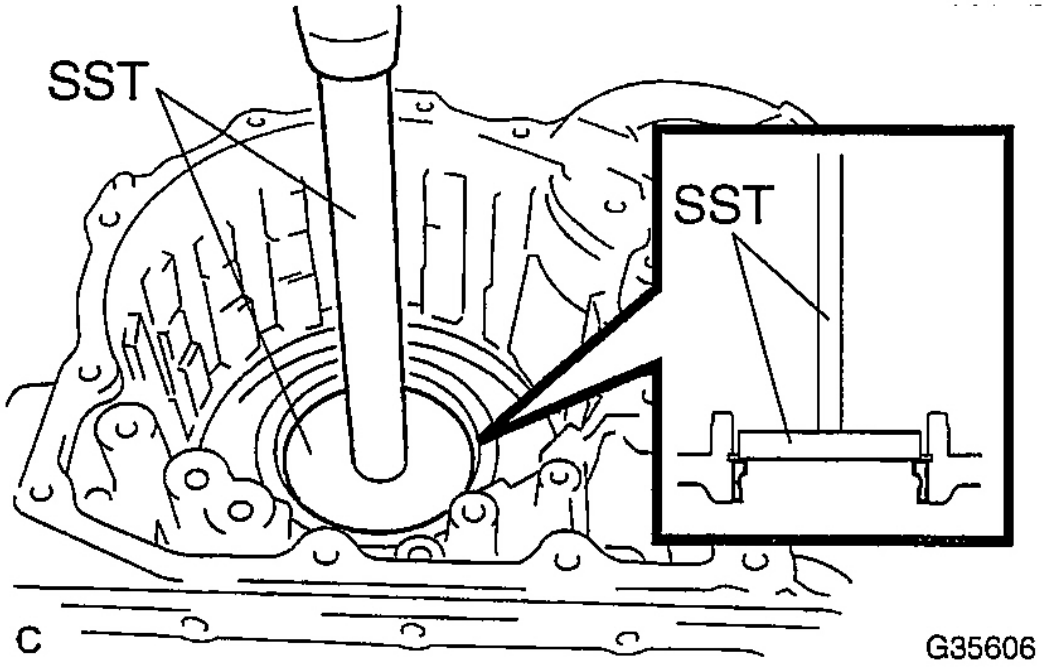


Fig. 105: Removing Bearing Outer Race From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Using a screwdriver, remove the snap ring from the transaxle case.

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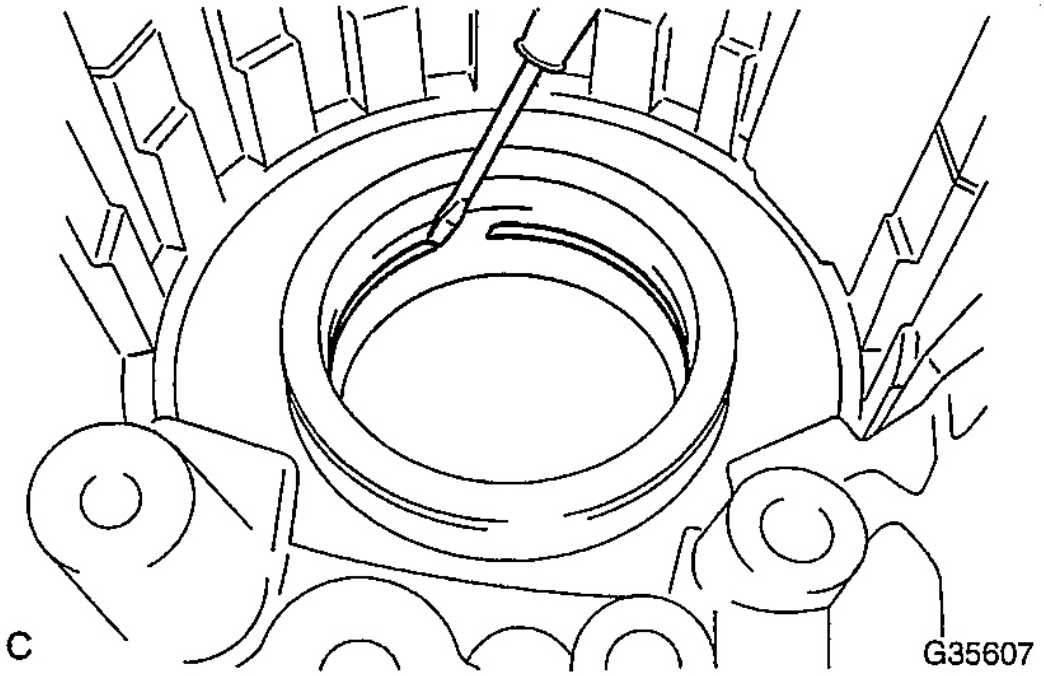


Fig. 106: Removing Snap Ring From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

71. **REMOVE UNDERDRIVE BRAKE RETURN SPRING SUB-ASSY**
    a. Place SST on the return spring, and compress the return spring with a press.

       SST 09387-00020

    b. Using a snap ring expander, remove the snap ring.

NOTE:
- **Stop the press when the spring sheet is lowered 1 to 2 mm (0.039 to 0.0 in.) from the snap ring groove, to prevent the spring sheet from being deformed.**
- **Do not expand the snap ring excessively.**

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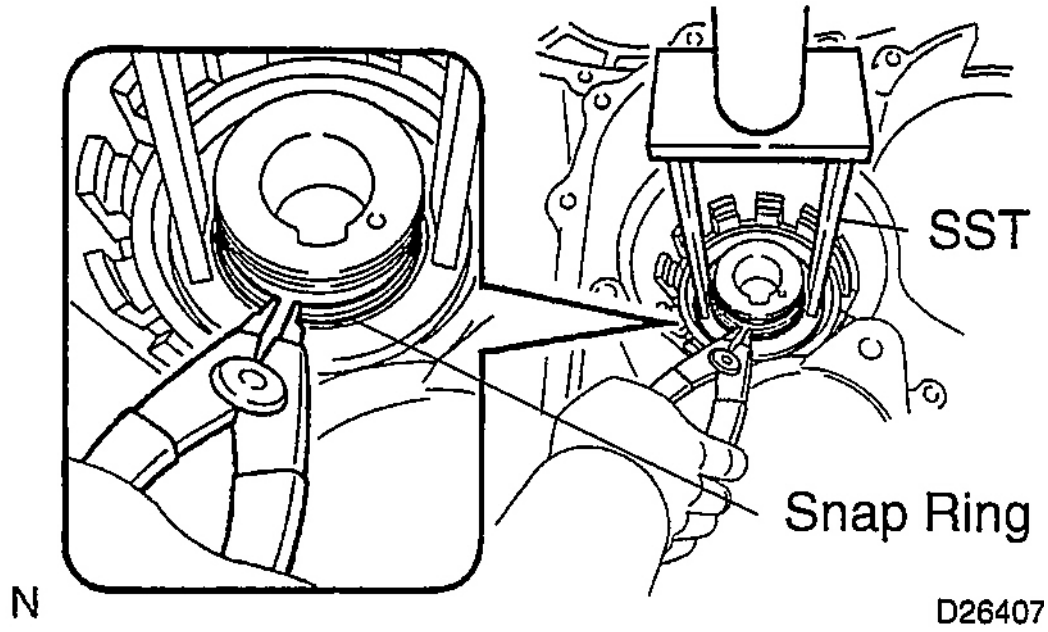


Fig. 107: Removing Underdrive Brake Return Spring Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

72. **INSPECT UNDERDRIVE BRAKE RETURN SPRING SUB-ASSY**
    a. Using vernier calipers, measure the free length of the spring together with the spring seat.

    Standard free length: 13.24 mm (0.5213 in.)

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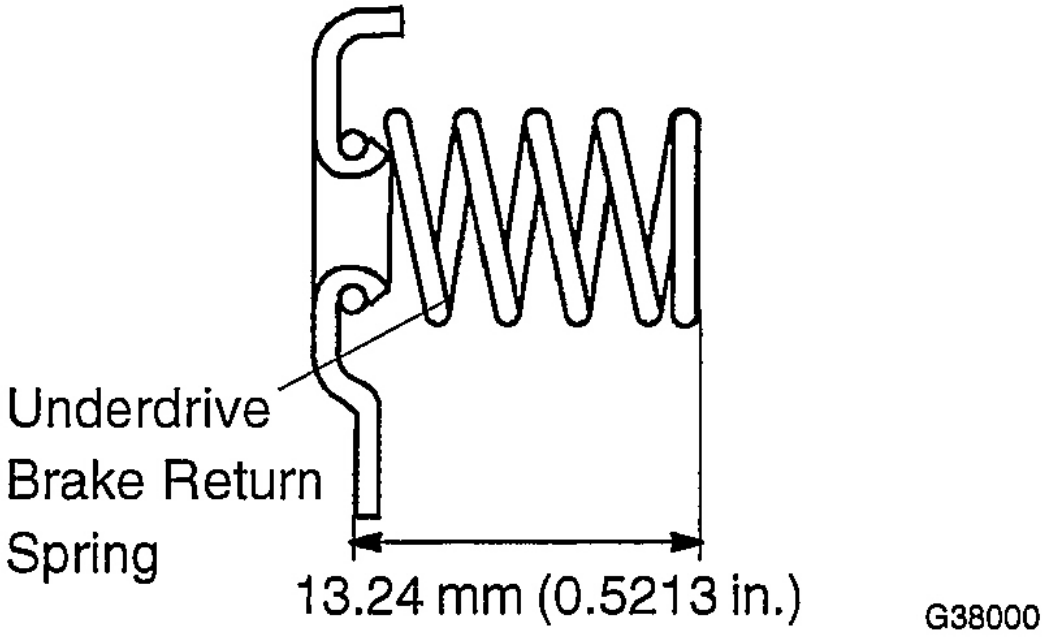


Fig. 108: Measuring Free Length Of Underdrive Brake Return Spring Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

73. **REMOVE UNDERDRIVE BRAKE PISTON**

a. Apply compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi) to the transaxle case to remove the underdrive brake piston.

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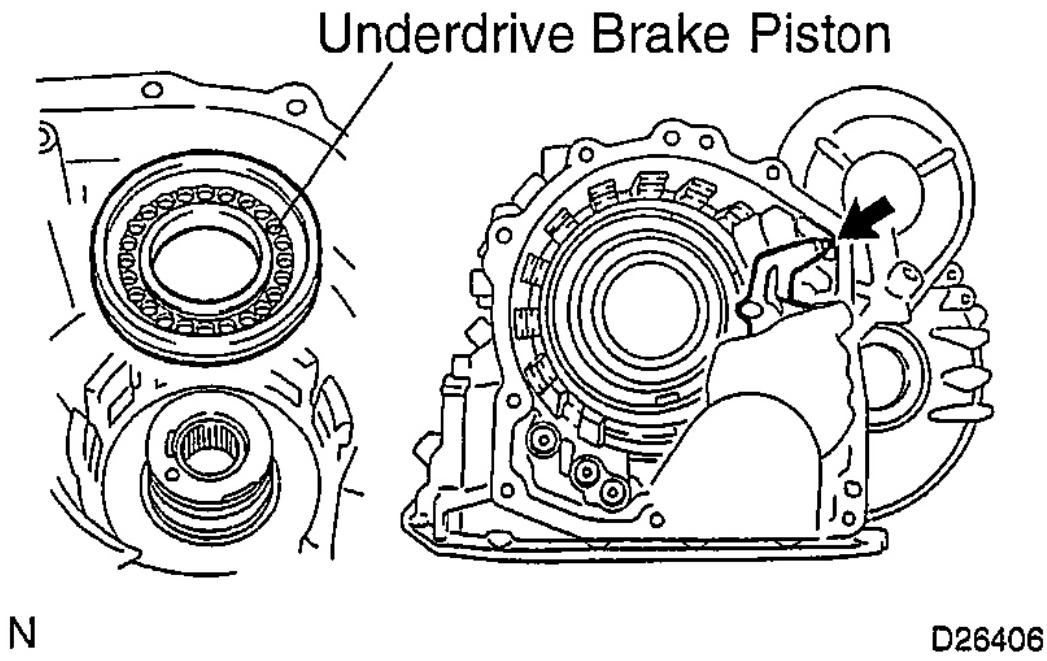


Fig. 109: Removing Underdrive Brake Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the 2 O-rings from the underdrive brake piston.

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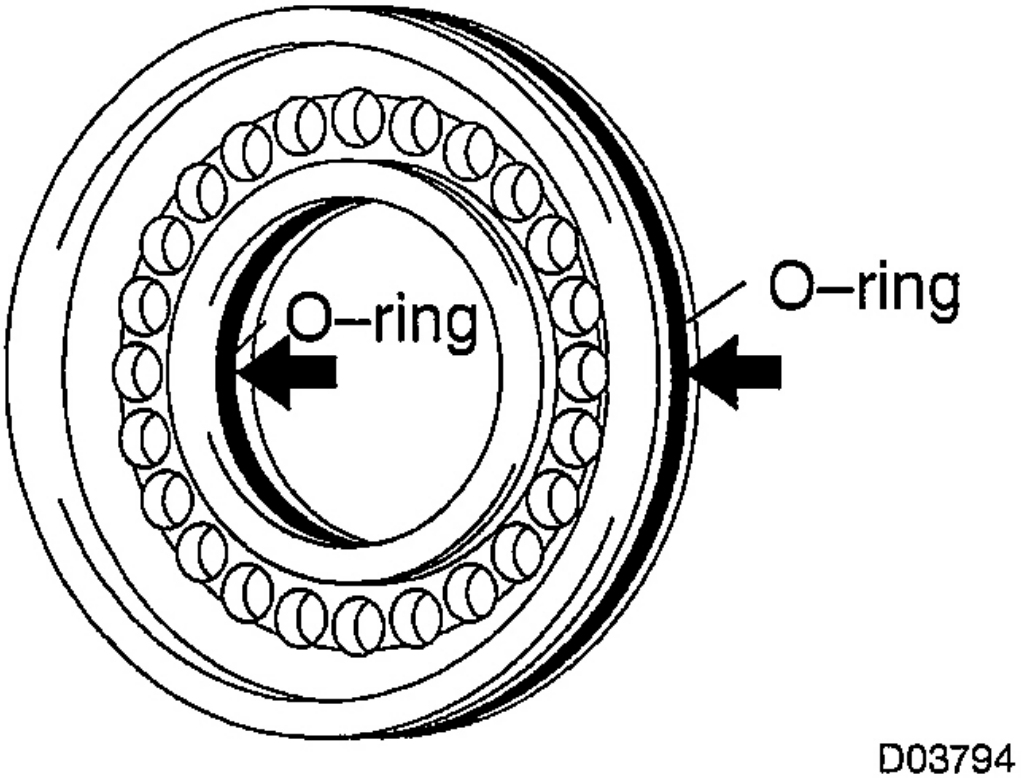


Fig. 110: Removing O-Rings From Underdrive Brake Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

74. **REMOVE NEEDLE ROLLER BEARING**
    a. Using SST, remove the needle-roller bearing from the transaxle case.

       SST 09387-00041 (09387-01010, 09387-01030, 09387-01040)

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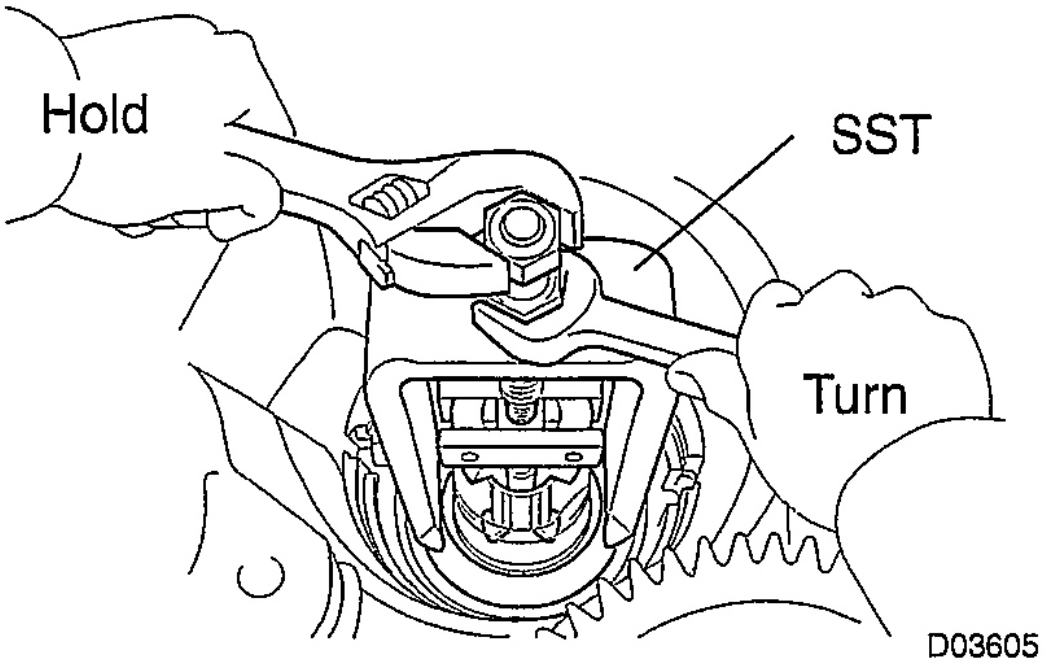


Fig. 111: Removing Needle-Roller Bearing From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

75. **REMOVE UNDERDRIVE CLUTCH DRUM OIL SEAL RING**
    a. Remove the 2 oil seal rings from the transaxle case.

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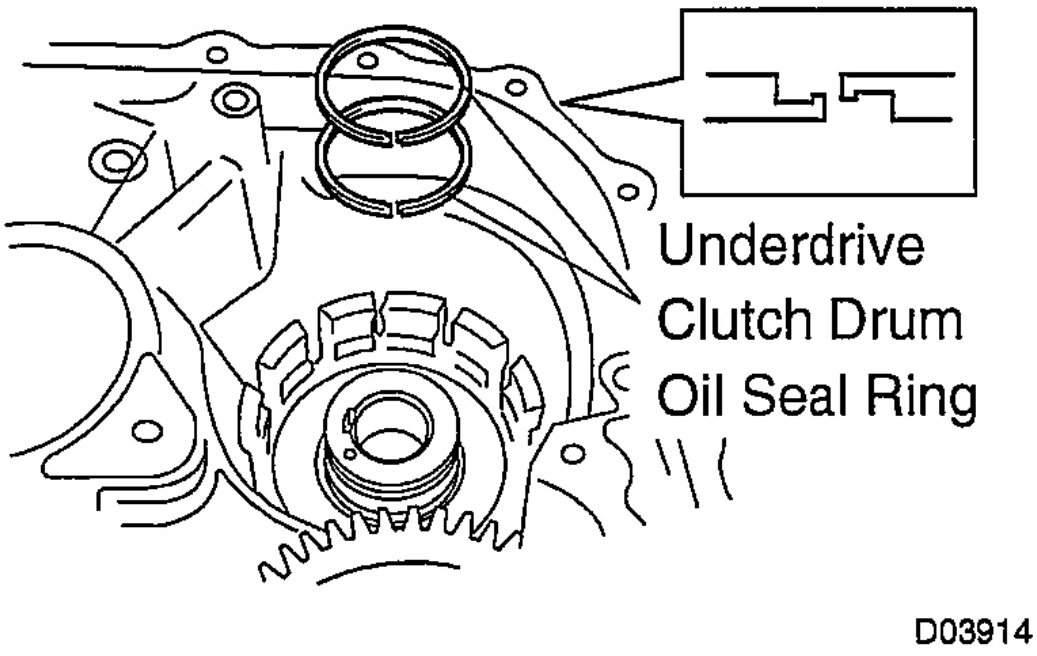


Fig. 112: Removing Oil Seal Rings From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

76. **REMOVE TRANSAXLE CASE NO. 1 PLUG**
    a. Remove the 2 transaxle case No. 1 plugs.
    b. Remove the 2 O-rings from the 2 transaxle case No. 1 plugs.

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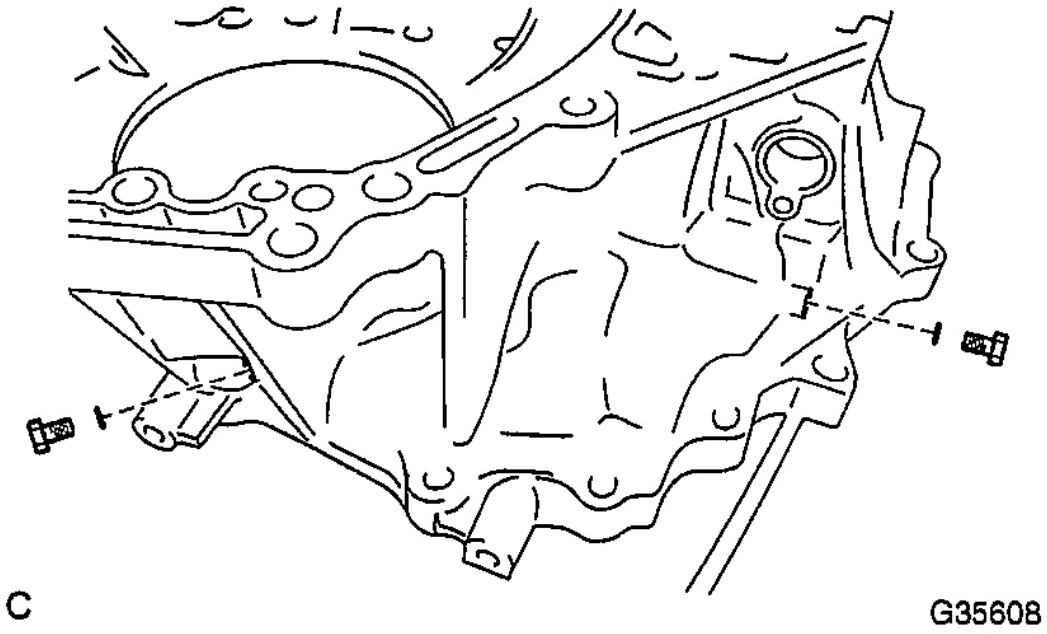


Fig. 113: Removing Transaxle Case No.1 Plugs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

77. **REMOVE UNDERDRIVE CYLINDRICAL ROLLER BEARING**

a. Using SST, remove the underdrive cylindrical roller bearing from the transaxle case.

SST 09950-50013 (09951-05010, 09953-05020), 09950-40011 (09952-04010, 09954-04010, 09955-04061, 09957-04010), 09820-00031

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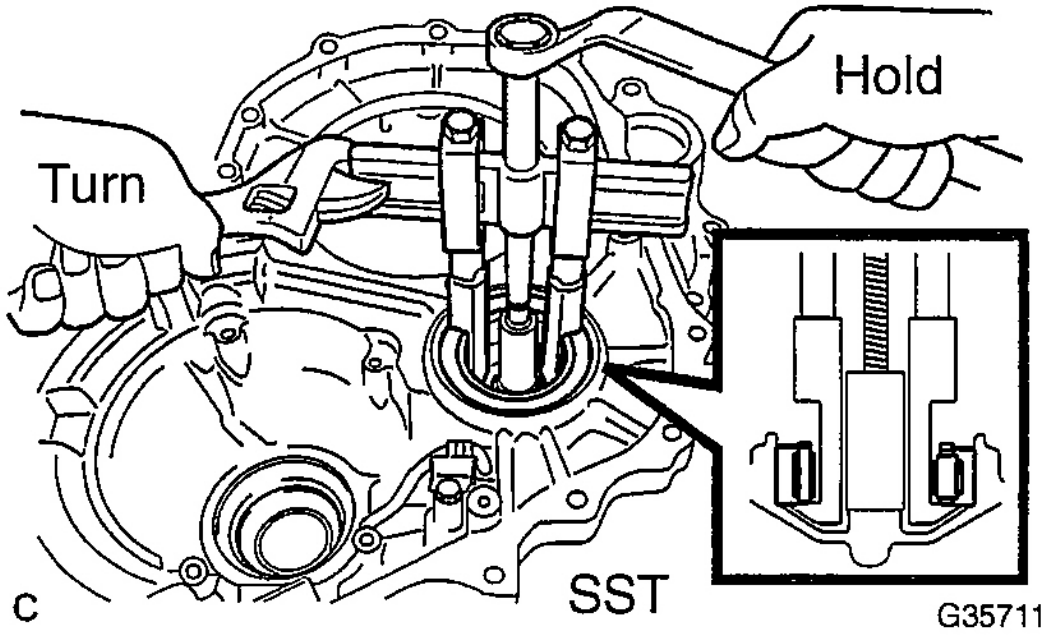


Fig. 114: Removing Underdrive Cylindrical Roller Bearing From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

78. **REMOVE UNDERDRIVE OUTPUT SHAFT OIL SEAL RING**
    a. Remove the underdrive output shaft oil seal ring from the transaxle housing.

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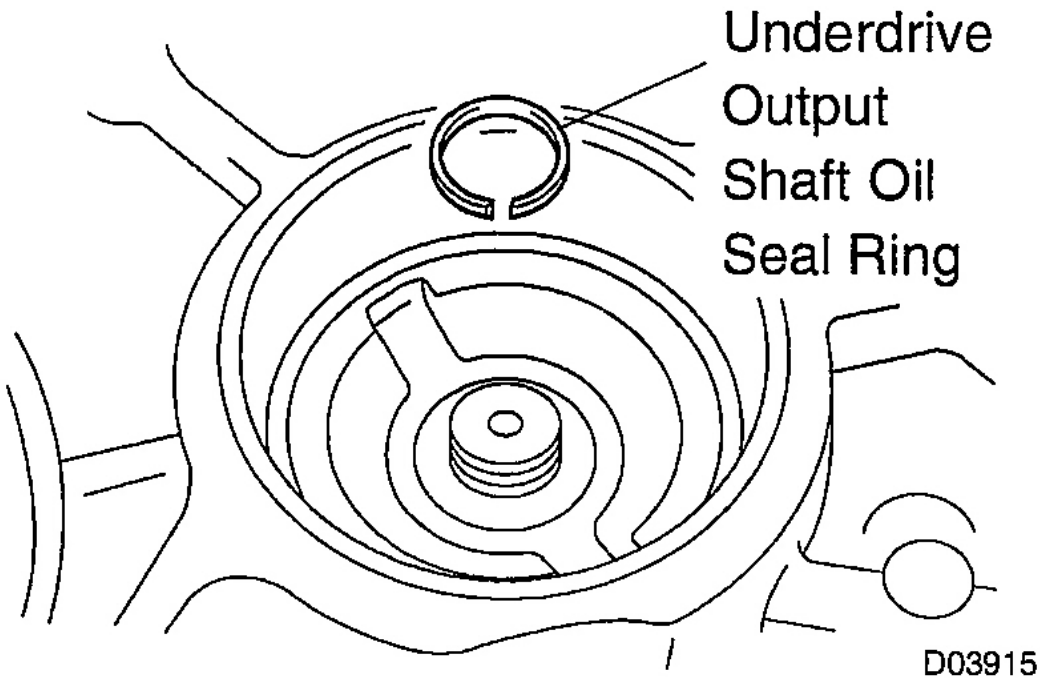


Fig. 115: Removing Underdrive Output Shaft Oil Seal Ring From Transaxle Housing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

79. **REMOVE DIFFERENTIAL GEAR LUBE APPLY TUBE**
    a. Remove the bolt, transaxle apply tube clamp and differential gear lube apply tube from the transaxle housing.

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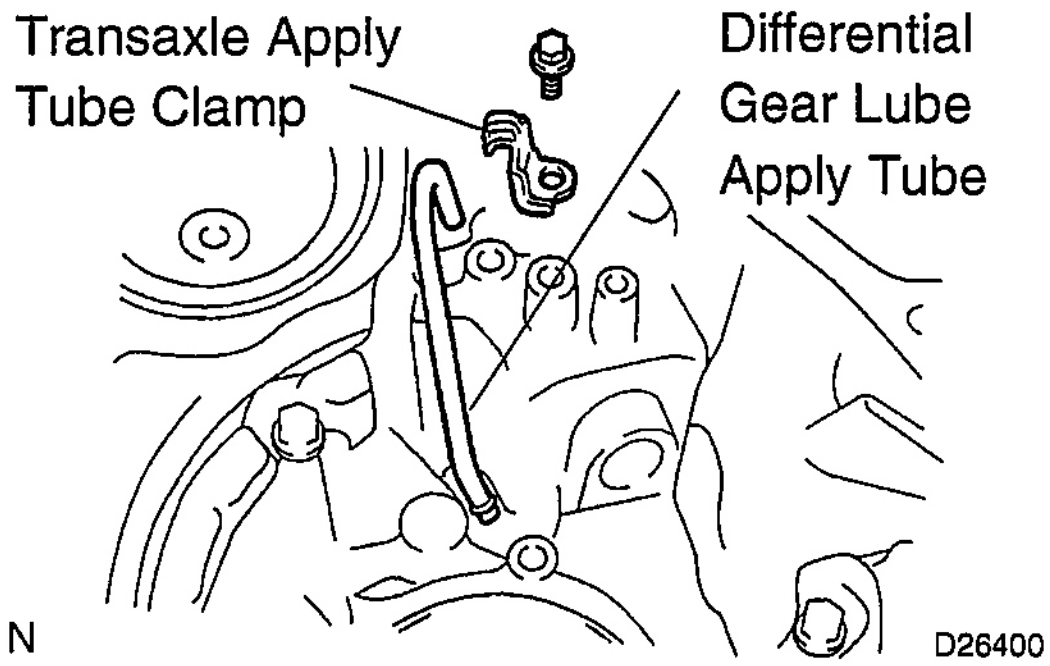


Fig. 116: Removing Differential Gear Lube Apply Tube
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

80. **BEARING POSITION**

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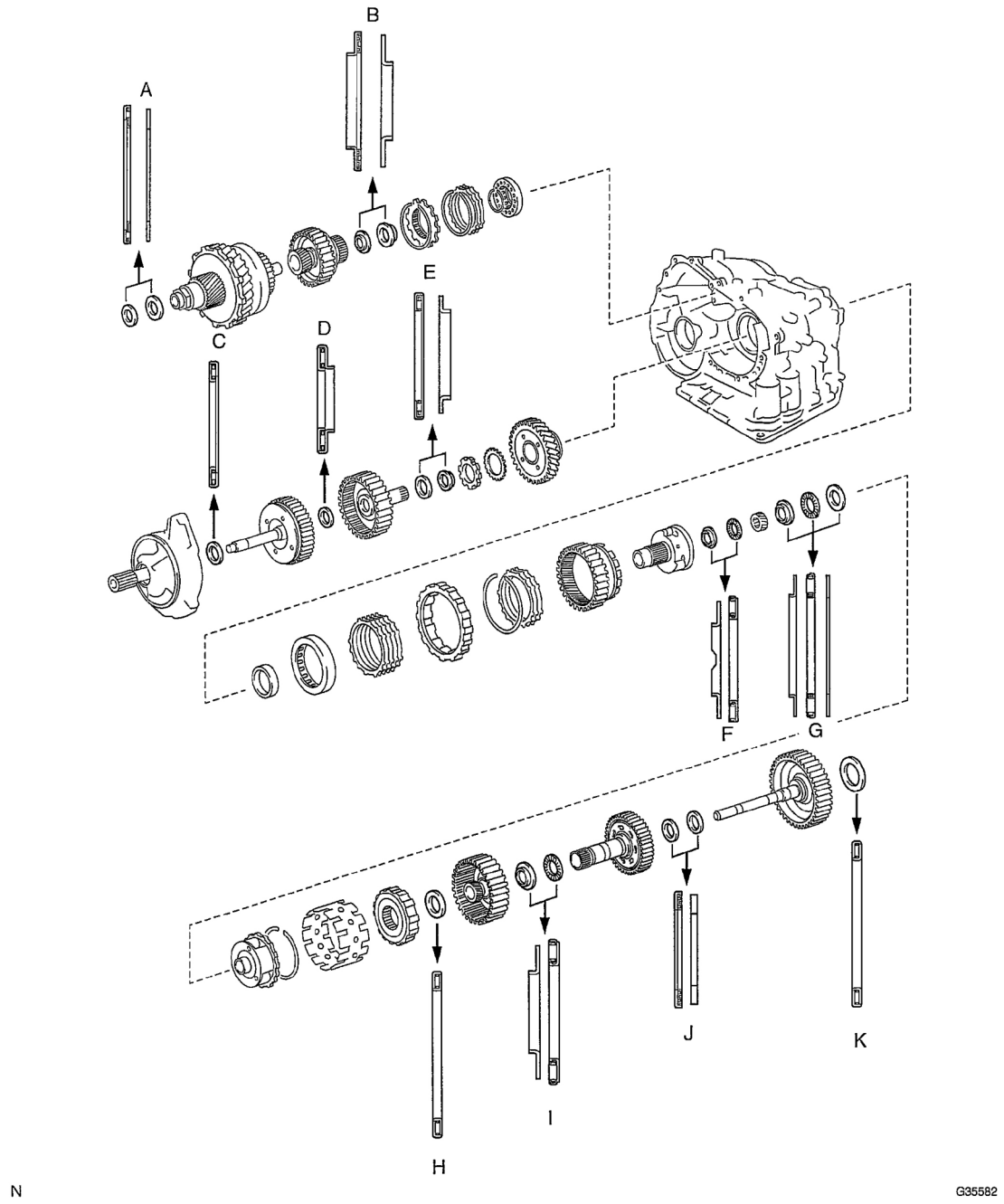


Fig. 117: Identifying Bearing Position
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

BEARING SPECIFICATION TABLE

Mark	Front Race Diameter Inside / Outside mm (in.)	Thrust Bearing Diameter Inside / Outside mm (in.)	Rear Race Diameter Inside / Outside mm (in.)
A	-	53.0 (2.0866)/78.2 (3.0787)	52.1 (2.0512)/75.5 (2.9724)
B	-	37.73 (1.4854)/58.0 (2.2835)	29.9 (1.1772)/55.5 (2.1850)

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C	-	33.85 (1.3327)/52.2 (2.0551)	-
D	-	23.5 (0.9252)/44.0 (1.7323)	-
E	-	36.3 (1.4291)/52.2 (2.0551)	34.5 (1.3583)/48.5 (1.9094)
F	34.5 (1.3583)/56.82 (2.2370)	32.4 (1.2756)/56.62 (2.2291)	-
G	40.3 (1.5866)/58.0 (2.2835)	38.6 (1.5197)/60.0 (2.3622)	38.6 (1.5197)/58.0 (2.2835)
H	-	53.6 (2.1102)/69.6 (2.7402)	-
I	33.1 (1.3031)/45.4 (1.7874)	31.85 (1.2539)/45.2 (1.7795)	-
J	-	25.0 (0.9843)/39.5 (1.5551)	23.6 (0.9291)/36.6 (1.4409)
K	-	55.9 (2.2008)/76 (2.9921) or 76.6 (3.0157)	-

81. **INSTALL DIFFERENTIAL GEAR LUBE APPLY TUBE**
    a. Install the differential gear lube apply tube and transaxle apply tube clamp with the bolt to the transaxle housing.

    Torque: 9.8 N.m (100 kgf.cm, 87 in.lbf)

    NOTE: Make sure to insert the pipe to the stopper.

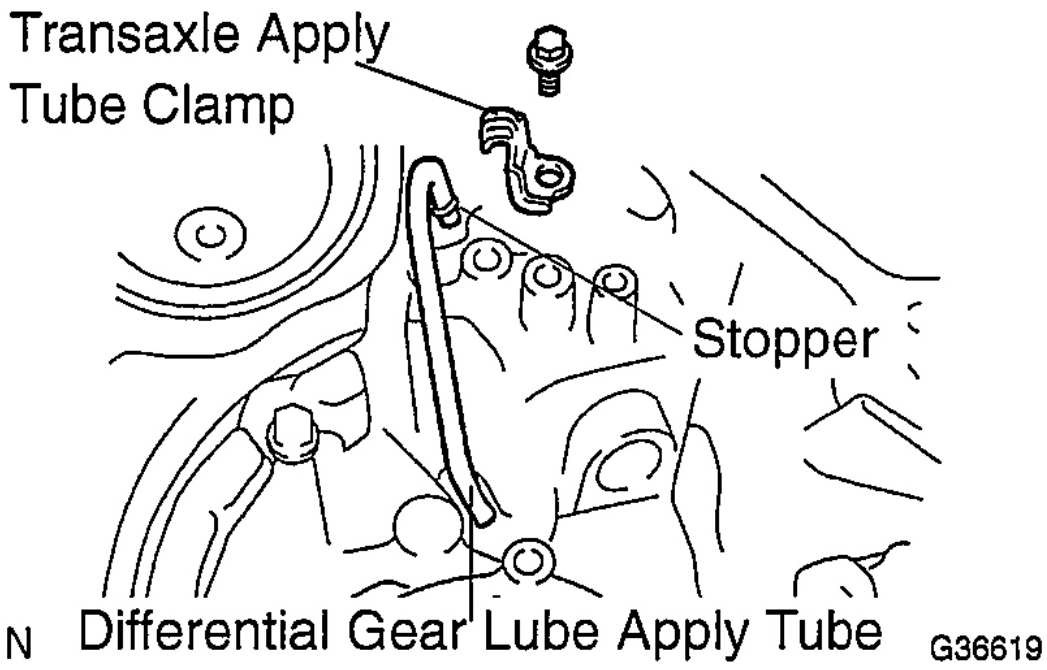


Fig. 118: Installing Differential Gear Lube Apply Tube
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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82. **INSTALL TRANSAXLE CASE NO. 1 PLUG**
    a. Install 2 new O-rings to the 2 transaxle case No. 1 plugs.
    b. Install the 2 transaxle case No.1 plugs to the transaxle housing.

    Torque: 7.4 N.m (75 kgf.cm, 65 in.lbf)

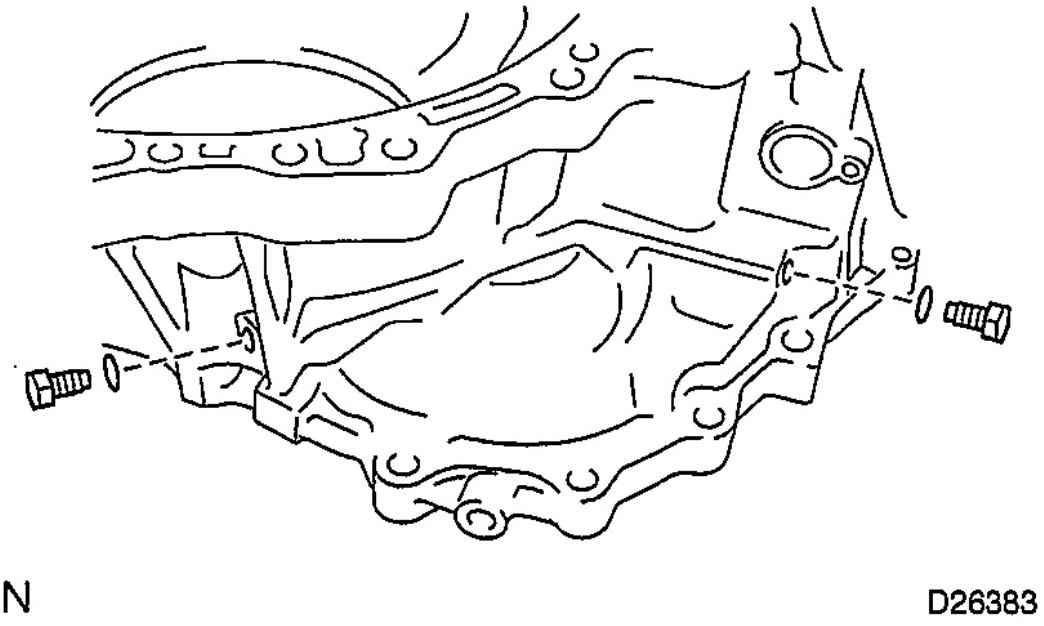


Fig. 119: Installing Transaxle Case No. 1 Plugs To Transaxle Housing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

83. **INSTALL UNDERDRIVE OUTPUT SHAFT OIL SEAL RING**
    a. Coat a new oil seal ring with ATF and install it to the transaxle housing.

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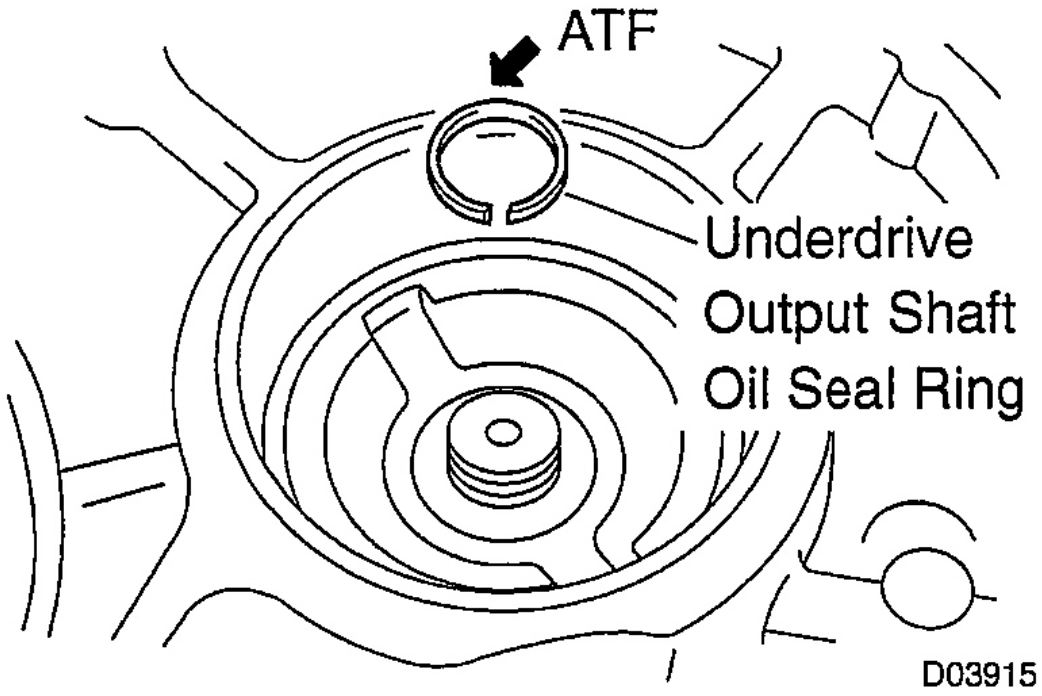


Fig. 120: Installing Underdrive Output Shaft Oil Seal Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

84. **INSTALL UNDERDRIVE CYLINDRICAL ROLLER BEARING**
    a. Coat the underdrive cylindrical roller bearing with ATF.
    b. Using SST and a press, install the underdrive cylindrical roller bearing.

NOTE: Do not apply excessive pressure to the bearing.

SST 09950-60020 (09951-00780), 09950-70010 (09951-07100)

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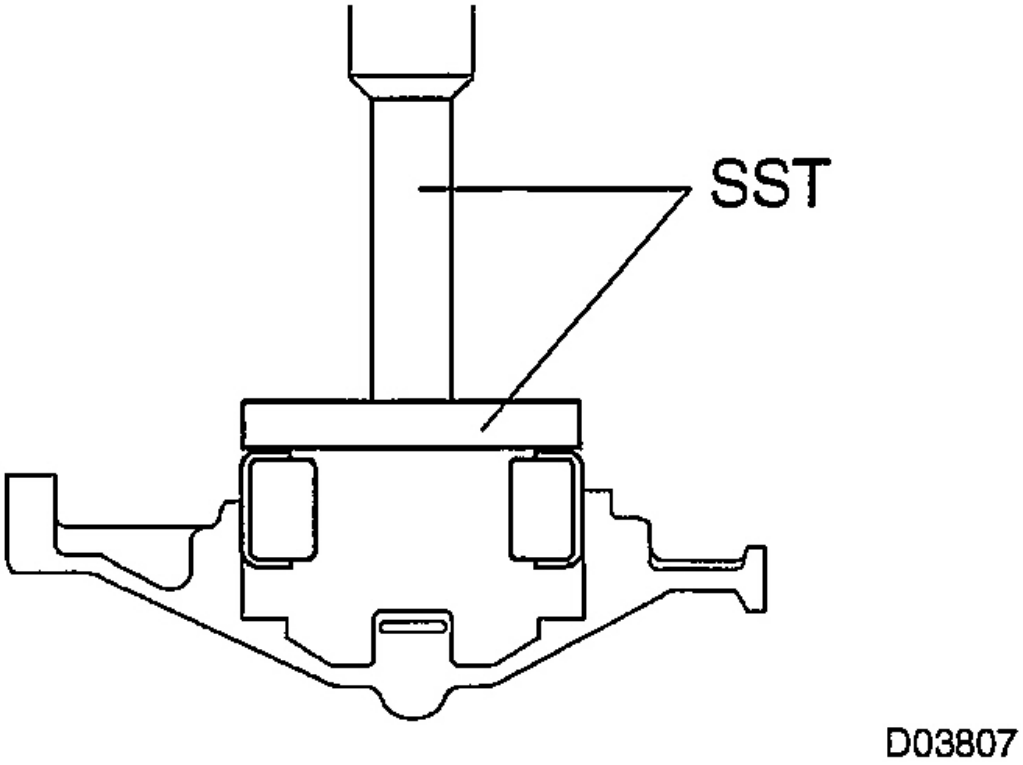


Fig. 121: Installing Underdrive Cylindrical Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

85. **INSTALL UNDERDRIVE CLUTCH DRUM OIL SEAL RING**
    a. Coat 2 new underdrive clutch drum oil seal rings with ATF, and install them to the transaxle rear cover.

NOTE:
- **Do not overly expand the gap of the oil seal ring.**
- **Engage the hooks securely. Confirm the smooth rotation.**

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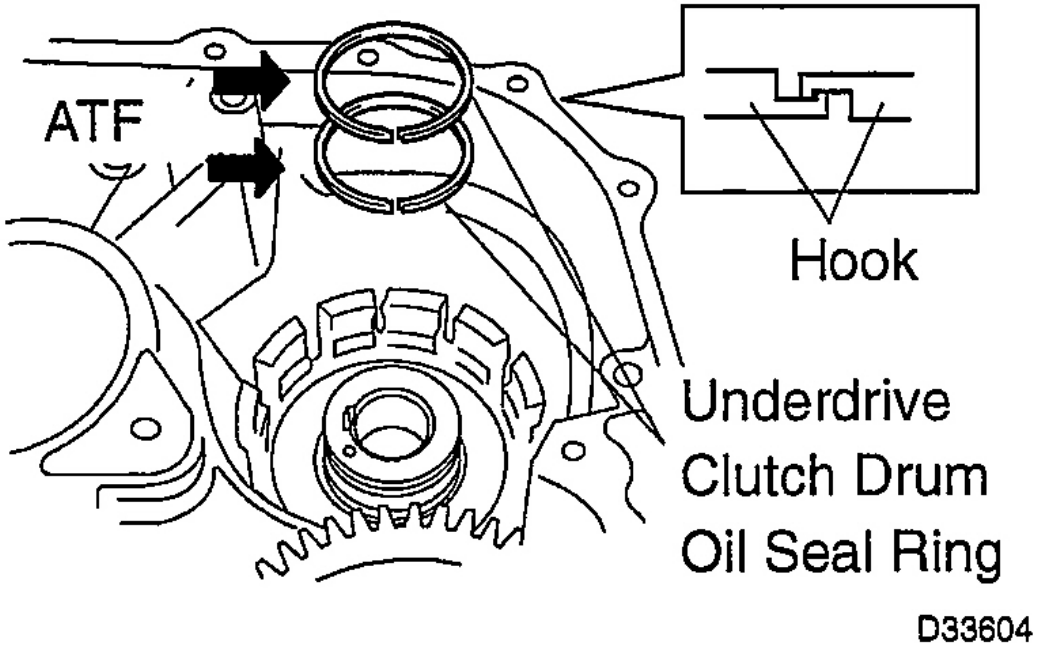


Fig. 122: Installing Underdrive Clutch Drum Oil Seal Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

86. **INSTALL NEEDLE ROLLER BEARING**

a. Wind vinyl tape around SST at the point 4.0 mm (0.157 in.) above from the bottom end until the thickness of the wound tape becomes about 5.0 mm (0.197 in.)

NOTE: Clean SST to remove oil before winding vinyl tape.

b. Coat a new needle roller bearing with ATF.

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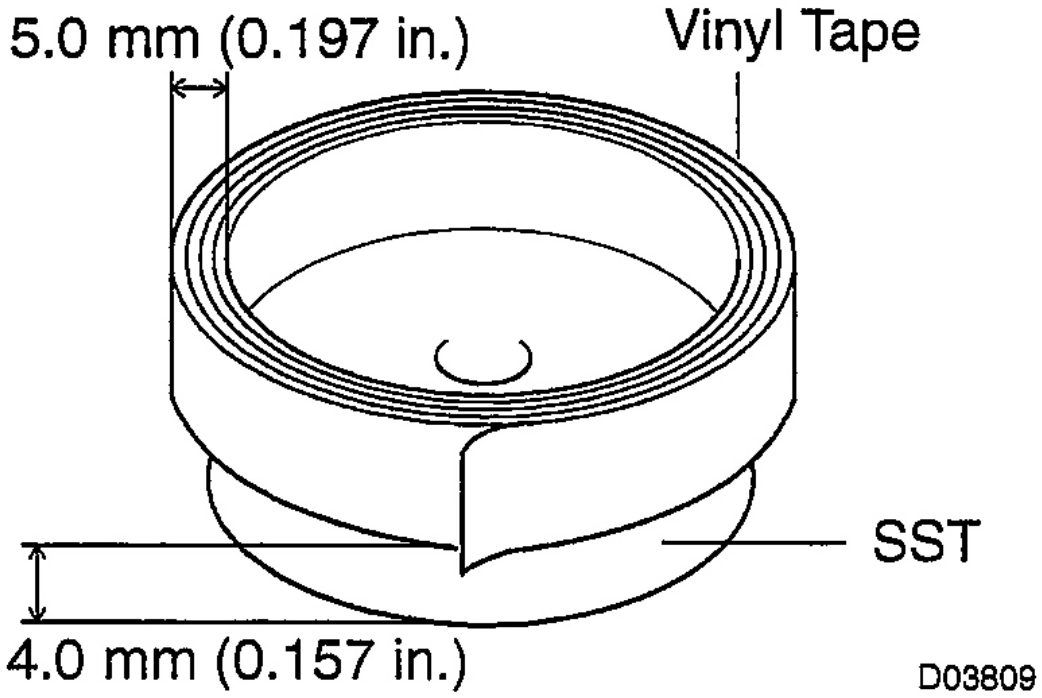


Fig. 123: Installing Needle Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using SST and a press, install the needle roller bearing to the transaxle case.

SST 09950-60010 (09951-00320), 09950-70010 (09951-07100)

NOTE: When the wound vinyl tape come into contact with the transaxle case, stop press-fitting.

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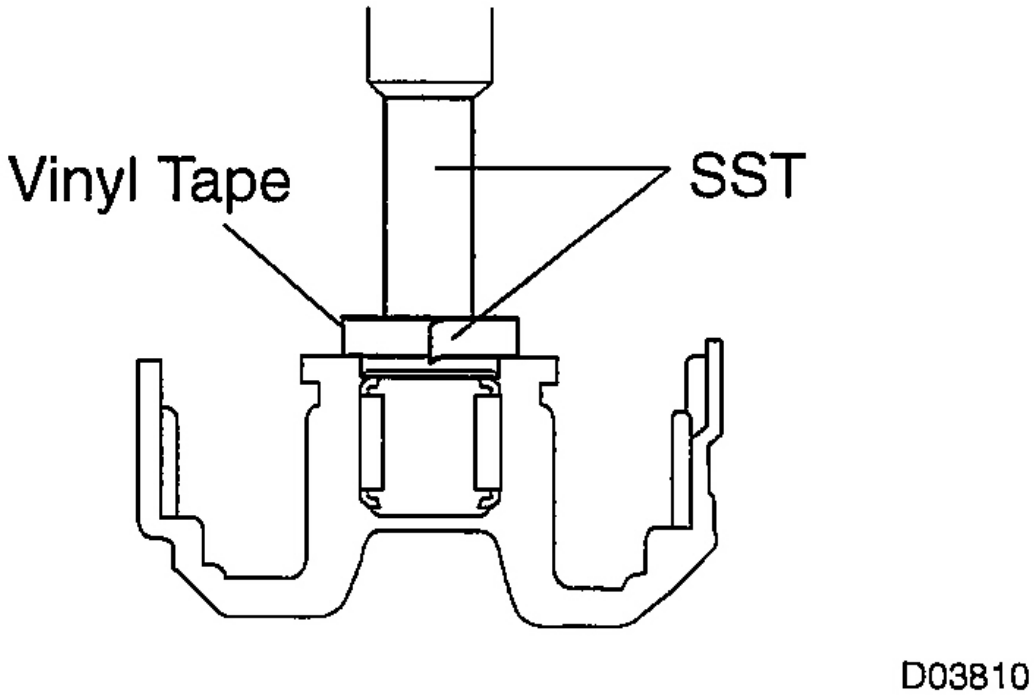


Fig. 124: Installing Needle Roller Bearing To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

87. **INSTALL UNDERDRIVE BRAKE PISTON**

a. Coat 2 new O-rings with ATF, and install them to the underdrive brake piston.

NOTE:

- **Ensure that the O-rings are not twisted or pinched.**
- **Apply enough ATF to the O-rings prior to installation.**

b. Coat the underdrive brake piston with ATF.

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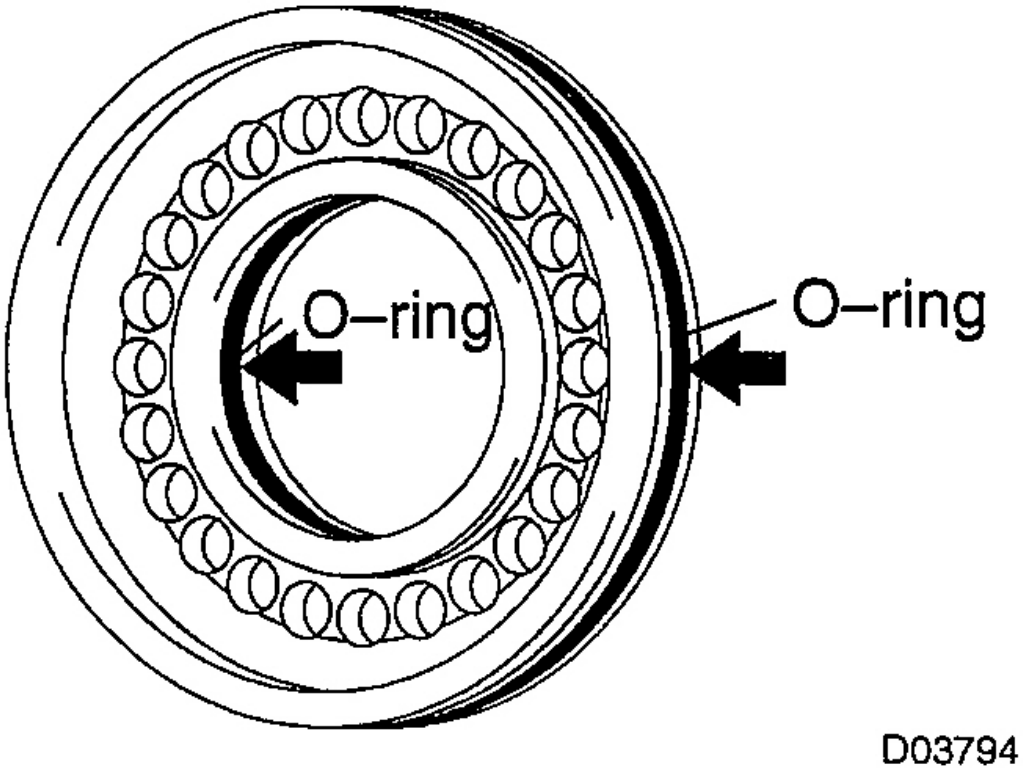


Fig. 125: Applying ATF To O-Rings
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install the underdrive brake piston to the transaxle case.

NOTE: Be careful not to damage the O-rings.

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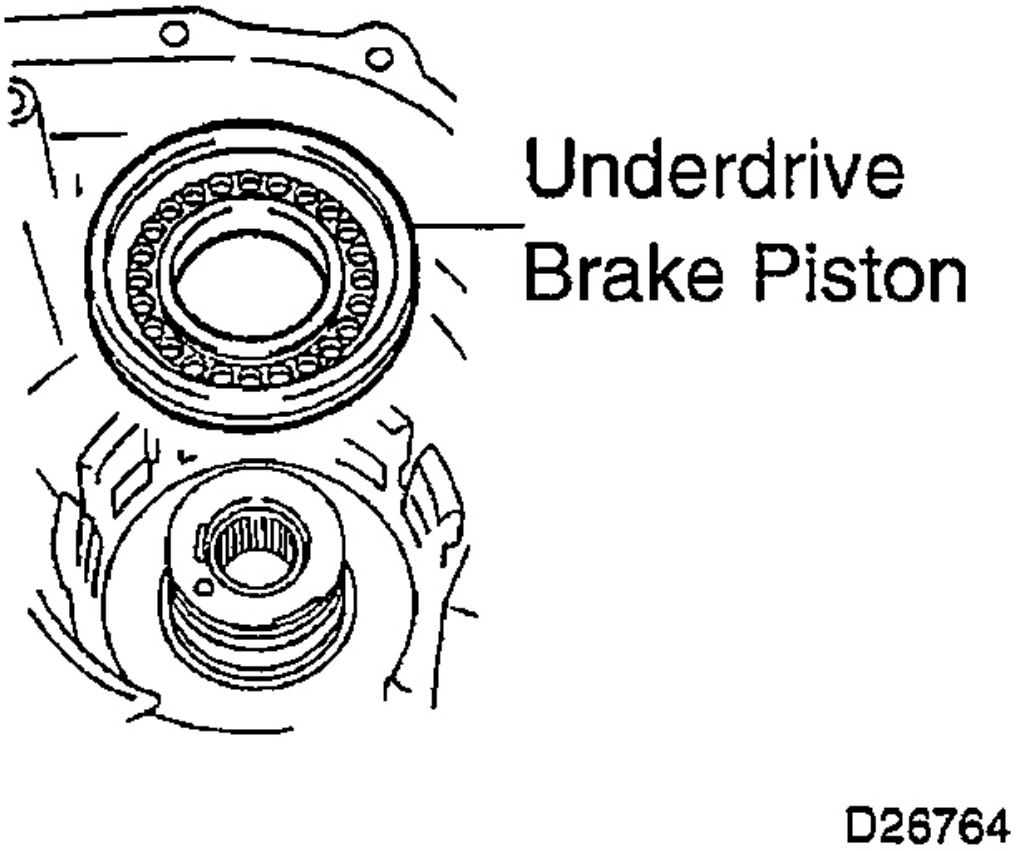


Fig. 126: Installing Underdrive Brake Piston To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

88. **INSTALL UNDERDRIVE CLUTCH RETURN SPRING SUB-ASSY**
    a. Place SST on the underdrive clutch return spring sub-assy and compress the underdrive clutch return spring sub-assy with a press.

       SST 09387-00020

    b. Using a snap ring expander, install the snap ring to the transaxle case.

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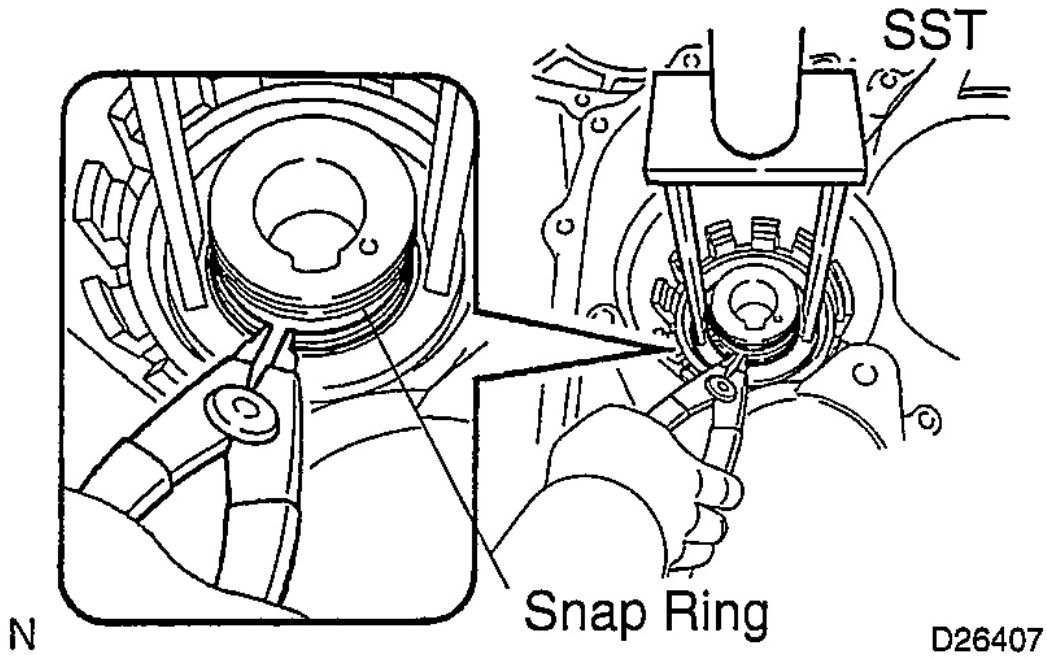


Fig. 127: Installing Snap Ring To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **Stop the press when the spring sheet is lowered 1 to 2 mm (0.039 to 0.078 in.) from the snap ring groove, to prevent the spring sheet from being deformed.**
- **Do not expand the snap ring excessively.**
- **When installing the spring sub-assembly, ensure that all springs are fit in the piston correctly.**
- **The snap ring should be securely fixed in the groove of the transaxle case.**

89. **INSTALL COUNTER DRIVE ANGULAR BALL BEARING**
    a. Install the snap ring to the transaxle case.

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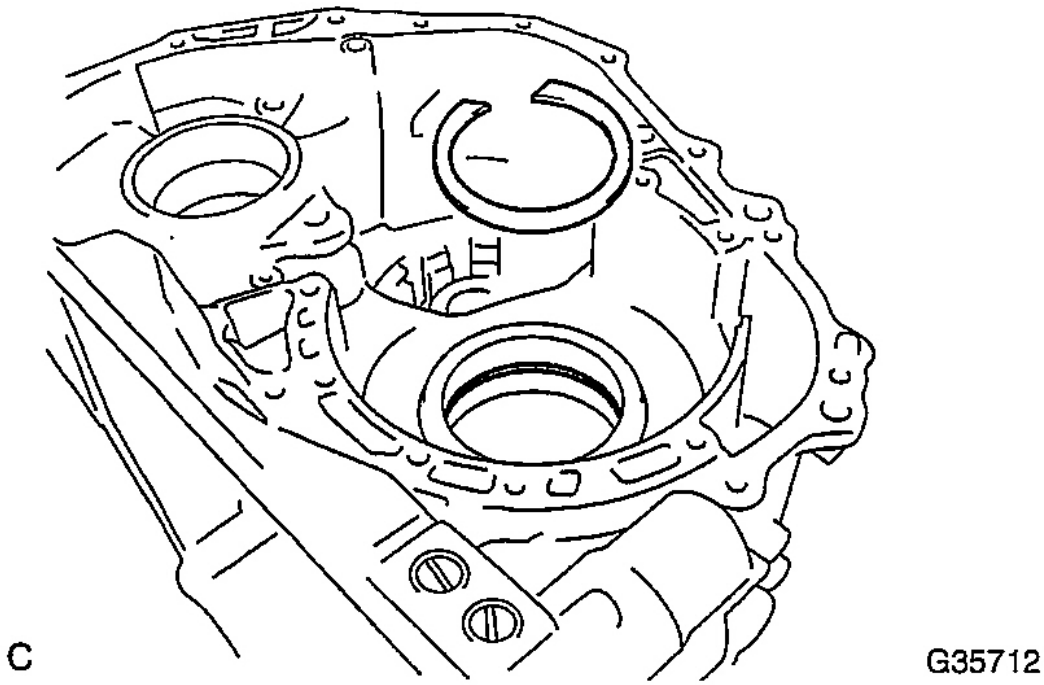


Fig. 128: Installing Snap Ring To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST and a press, install the bearing outer race (rear side) to the transaxle case.

SST 09316-12010, 09950-60020 (09951-00810), 09950-70010 (09951-07150)

NOTE:
- **Ensure that the snap ring is securely installed.**
- **Do not apply excessive pressure to the bearing outer race.**

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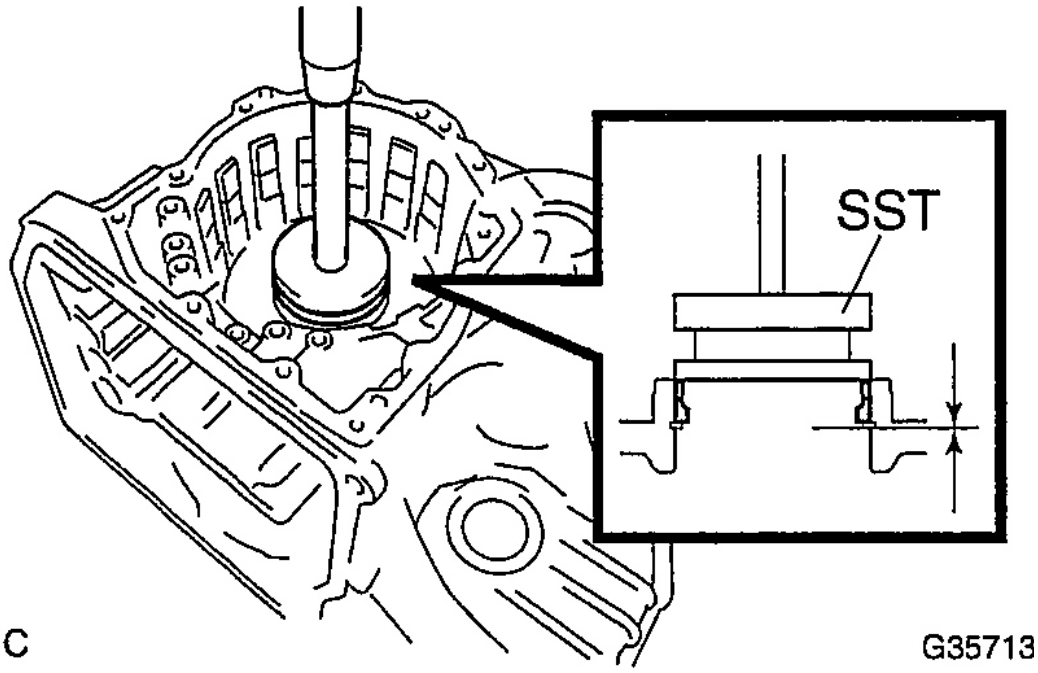


Fig. 129: Installing Bearing Outer Race To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using SST and press, install the bearing outer race (front side) to the transaxle case.

SST 09316-12010, 09950-60020 (09951-00810), 09950-70010 (09951-07150), 09523-36010, 09502-24010

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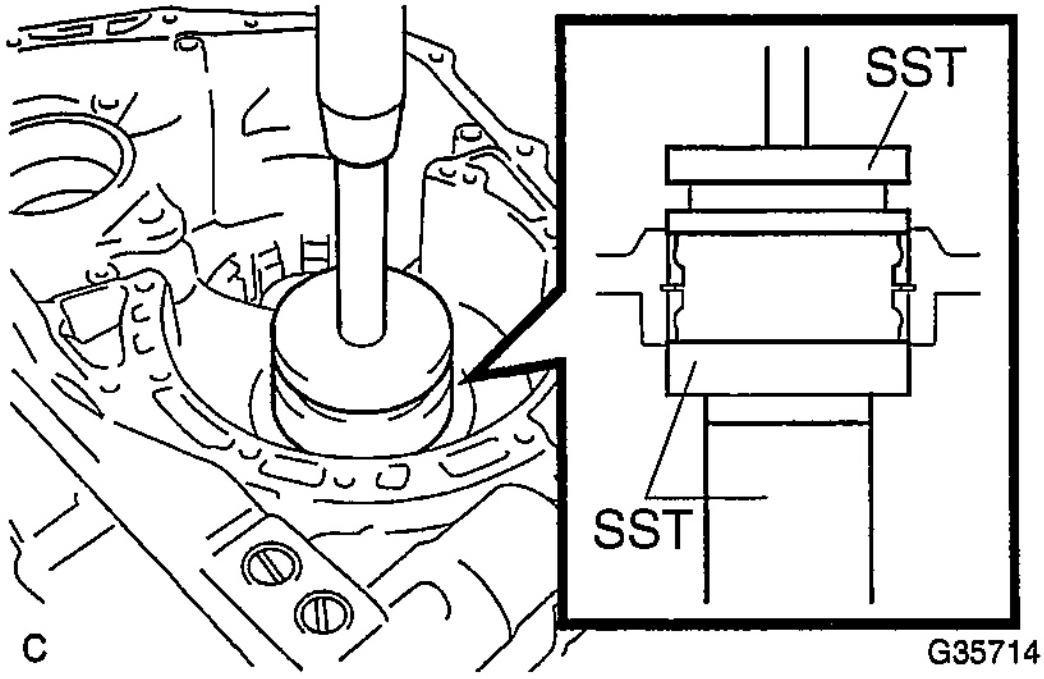


Fig. 130: Installing Bearing Outer Race To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:
- **Do not apply excessive pressure to the bearing outer race.**
- **Install the bearing outer race with a press while holding the bearing outer race with SST (09502-24010, 09523-36010).**

d. Install the 2 angular balls to the transaxle case.

90. **INSTALL COUNTER DRIVE GEAR**

a. Coat the counter drive gear with ATF.

b. Using SST and a press, install the bearing inner race (front side) to the counter drive gear.

SST 09950-70010 (09951-07150), 09649-17010

NOTE: Do not apply excessive pressure to the bearing inner race.

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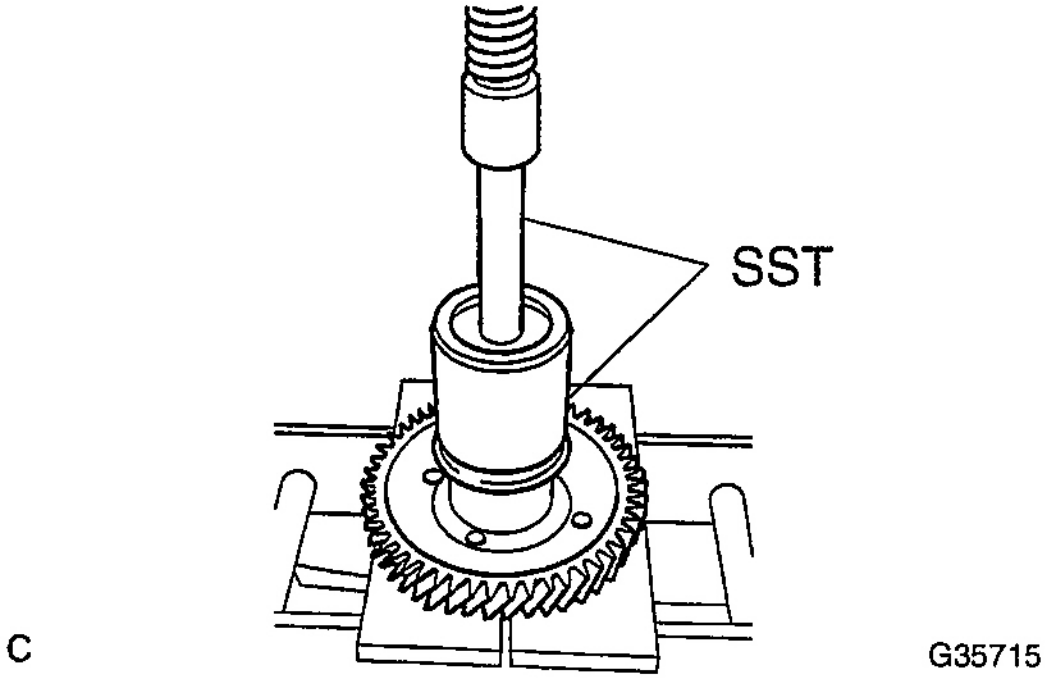


Fig. 131: Installing Counter Drive Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using SST and a press, install the counter drive gear and bearing inner race (rear side) to the transaxle case.

NOTE: Do not apply excessive pressure to them.

SST 09223-15030, 09527-17011, 09950-60020 (09951-00720), 09950-70010 (09951-07150)

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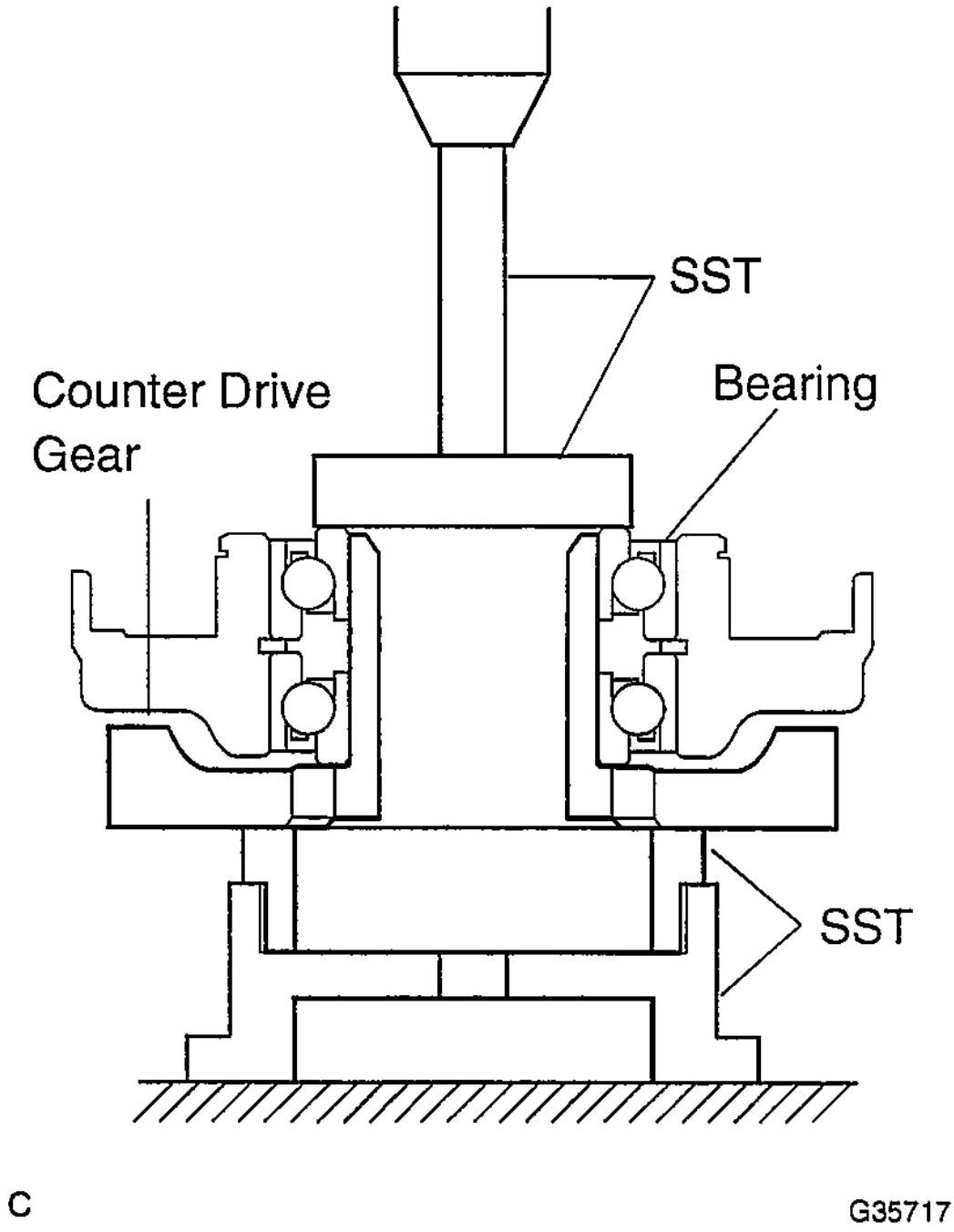


Fig. 132: Installing Counter Drive Gear And Bearing Inner Race To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

91. **INSTALL 1ST & REVERSE BRAKE PISTON**
    a. Coat 2 new O-rings with ATF.

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b. Install the 2 O-rings to the 1st & reverse brake piston.

NOTE:
- **Ensure that the O-rings are not twisted or pinched.**
- **Apply enough ATF to the O-rings prior to installation.**

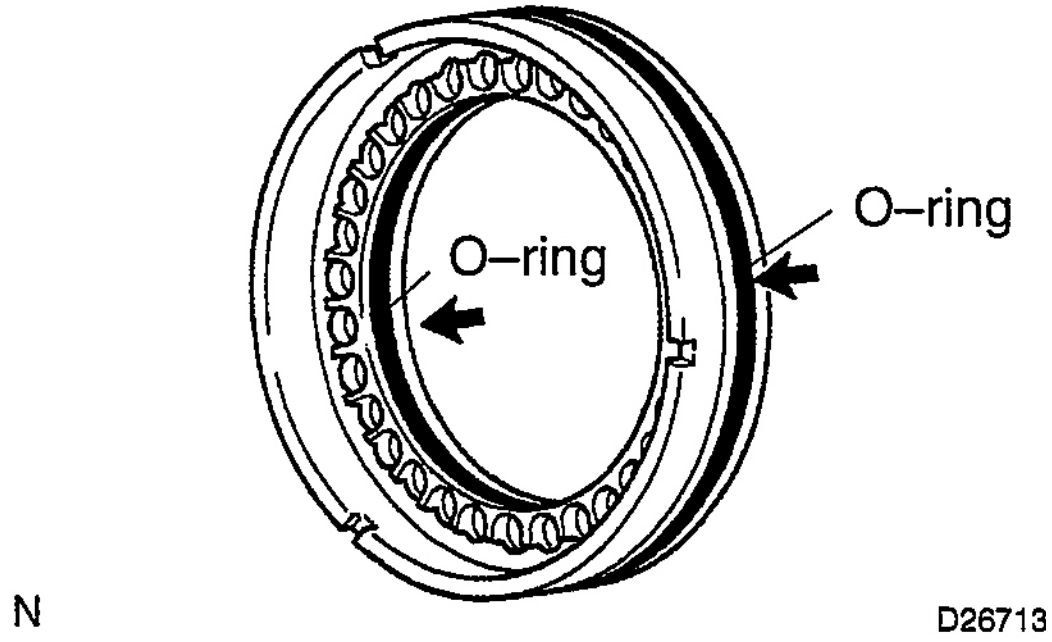


Fig. 133: Applying ATF To O-Rings
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Coat the 1st & reverse brake piston with ATF, and install it to the transaxle case.

NOTE: **Be careful not to damage the O-rings.**

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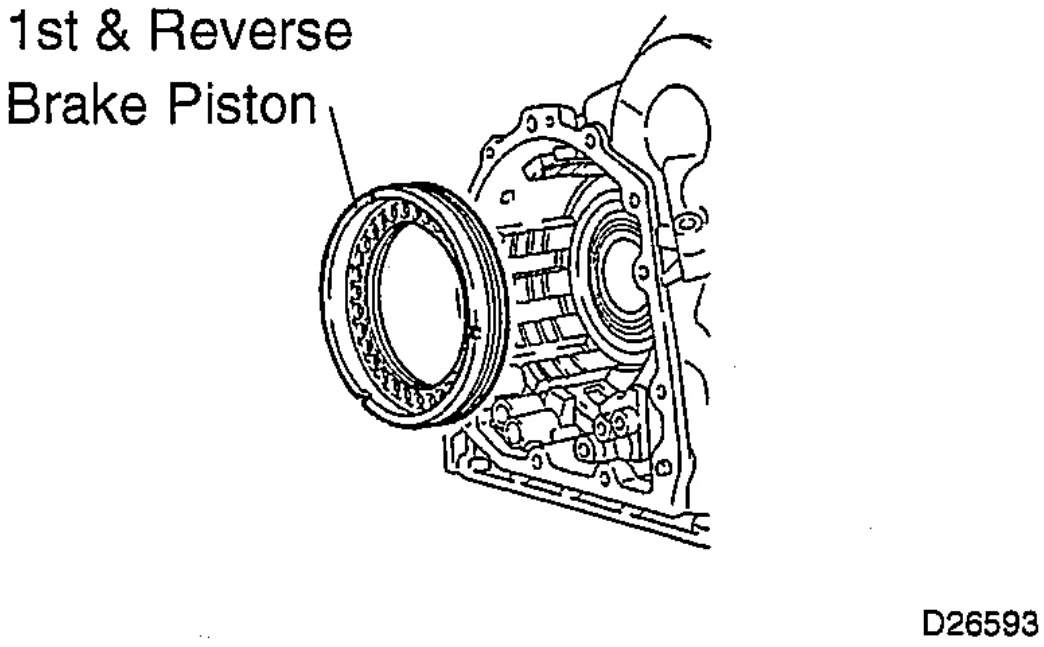


Fig. 134: Installing 1st & Reverse Brake Piston To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

92. **INSTALL 1ST & REVERSE BRAKE RETURN SPRING SUB-ASSY**
    a. Place SST on the 1st & reverse brake return spring sub-assy and compress the 1st & reverse brake return spring sub-assy with a press.

       SST 09387-00070

    b. Using a snap ring expander, install the snap ring to the transaxle case.

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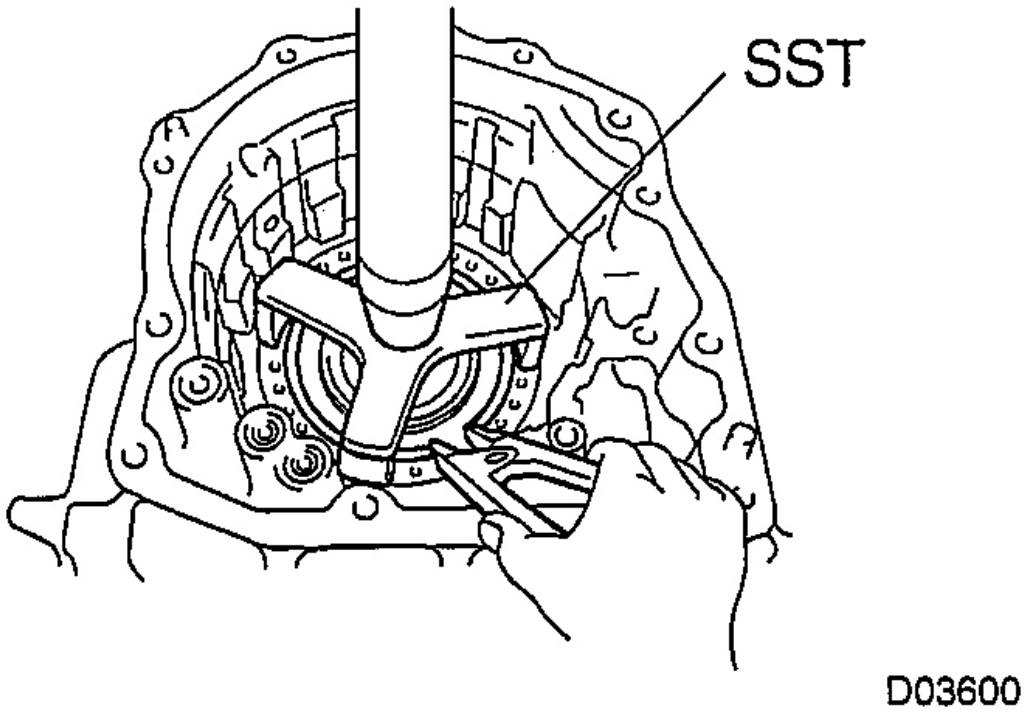


Fig. 135: Installing 1st & Reverse Brake Return Spring Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **Stop the press when the spring sheet is lowered to the place 1 to 2 mm (0.039 to 0.078 in.) from the snap ring groove, preventing the spring sheet from being deformed.**
- **Do not expand the snap ring excessively.**
- **When installing the spring sub-assembly, ensure that all springs are fit in the piston correctly.**
- **The snap ring should be securely fixed in the groove of the cylinder.**
- **Fix the snap ring to the inside of the spring seat claw securely.**

93. **INSTALL FRONT PLANETARY RING GEAR**
    a. Using a screwdriver, install the front planetary ring gear and snap ring to the brake hub.

NOTE: **Confirm the snap ring is fixed in the groove of the brake hub correctly.**

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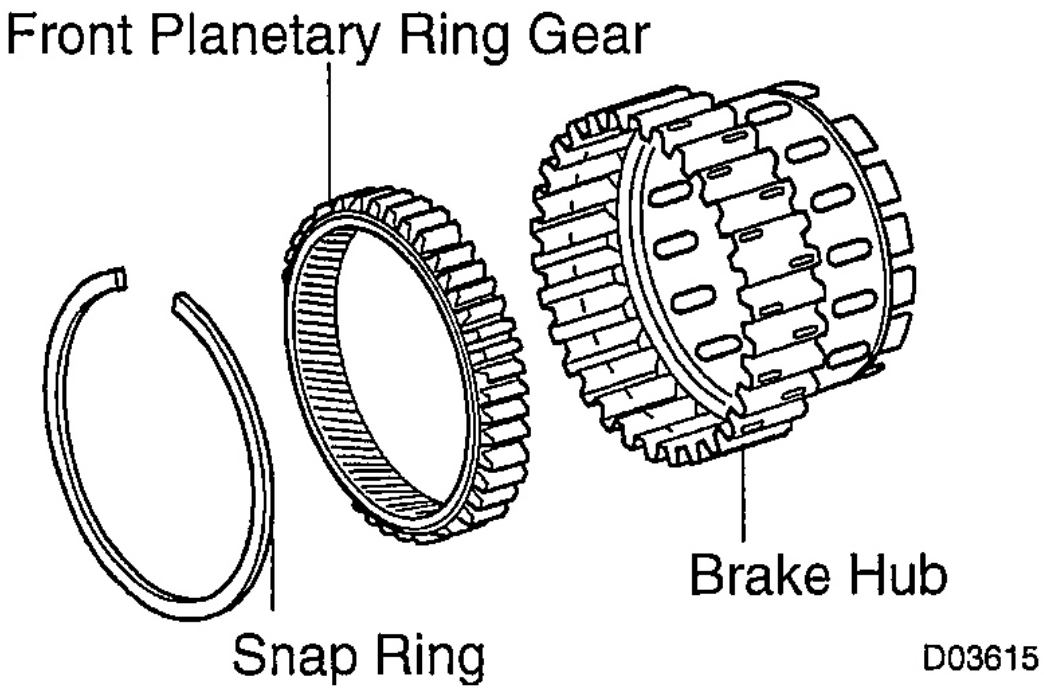


Fig. 136: Installing Front Planetary Ring Gear And Snap Ring To Brake Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

94. **INSTALL FRONT PLANETARY GEAR ASSY**
    a. Install the front planetary gear assy to the brake hub.

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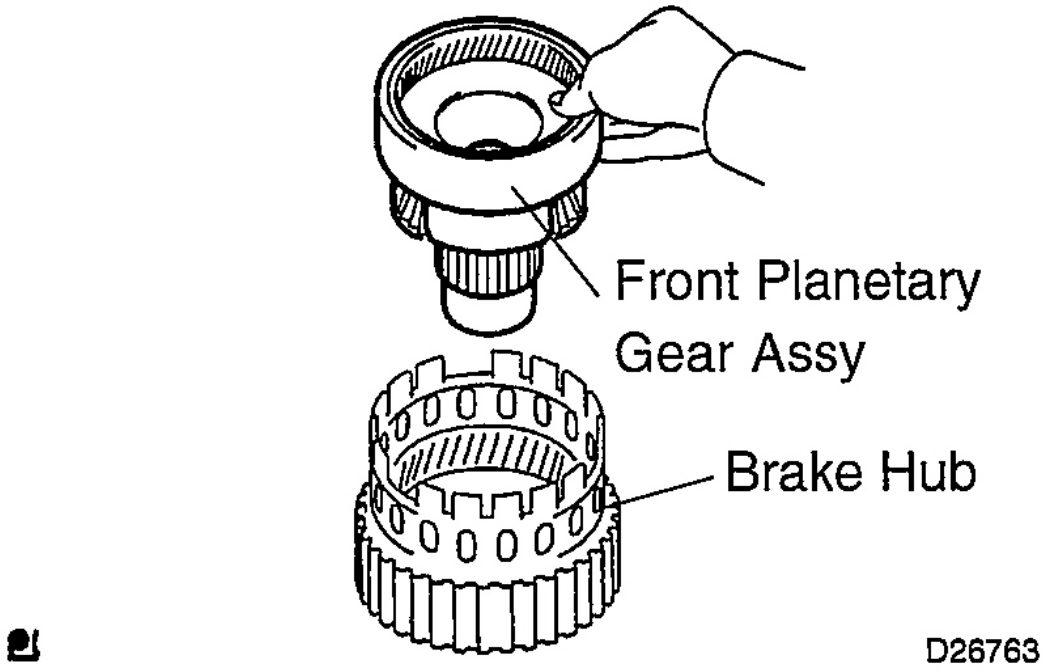


Fig. 137: Installing Front Planetary Gear Assy To Brake Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST and a press, press-fit the front planetary gear assy.

SST 09950-60010 (09951-00500), 09950-70010 (09951-07100)

NOTE:
- **Do not apply excessive pressure to the front planetary gear assy.**
- **Press the front planetary gear assembly until it just comes into contact with the angular ball bearings (front and rear sides).**

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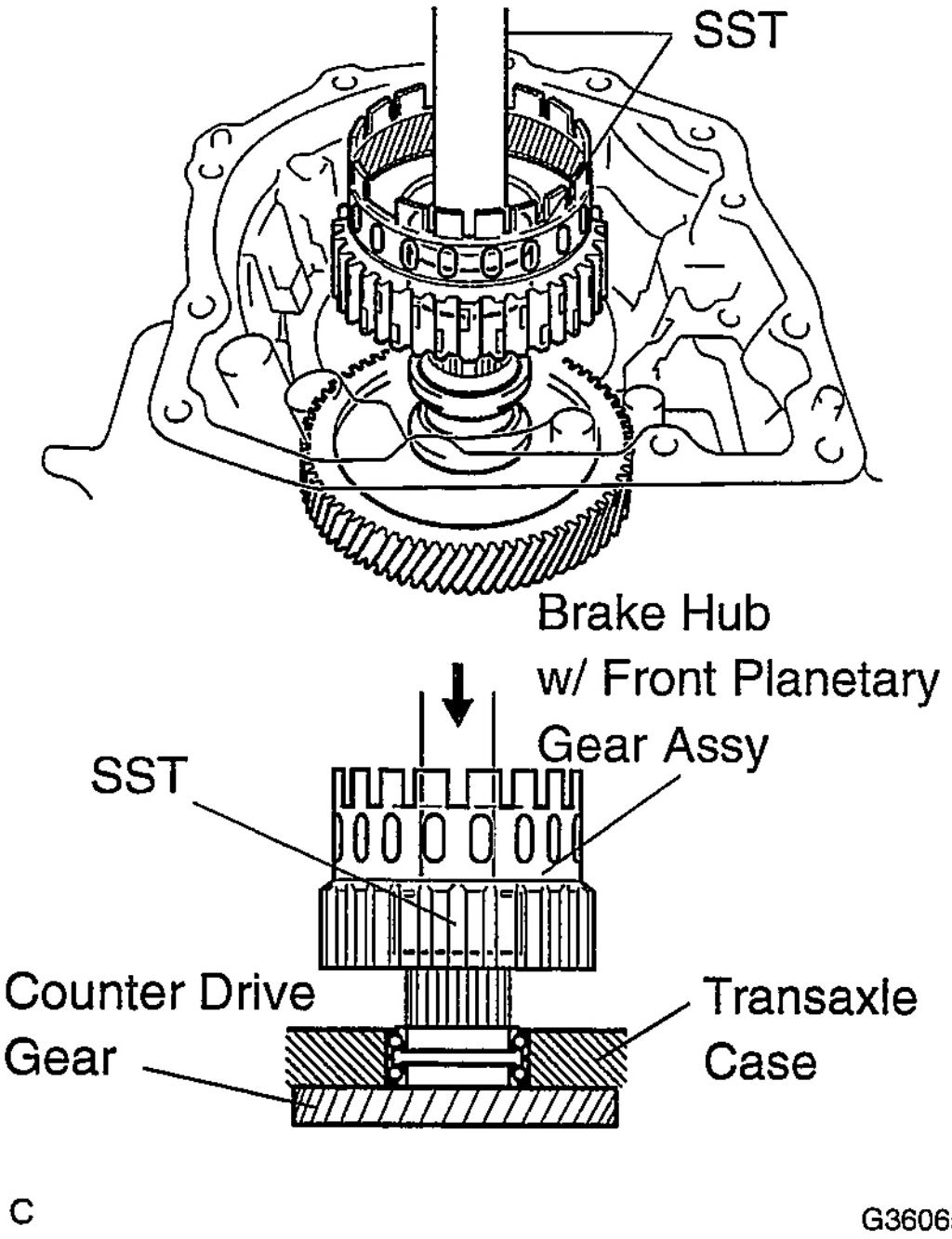


Fig. 138: Pressing-Fitting Front Planetary Gear Assy Using SST And Press
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install a new washer, as shown in the illustration.

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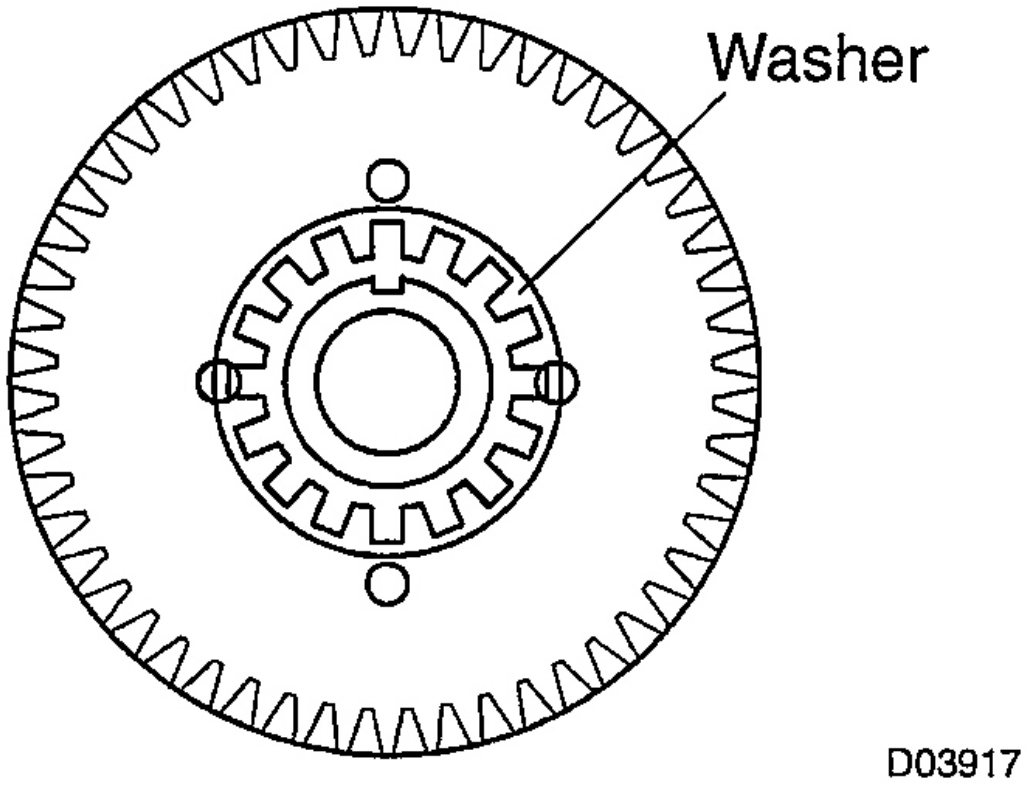


Fig. 139: Installing Washer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Using SST, install the nut.

SST 09387-00030, 09387-00080

Torque: 185 N.m (1,886 kgf.cm, 136 ft.lbf)

NOTE: Install the washer after pressing each part, then tighten the nut to the minimum tightening torque.

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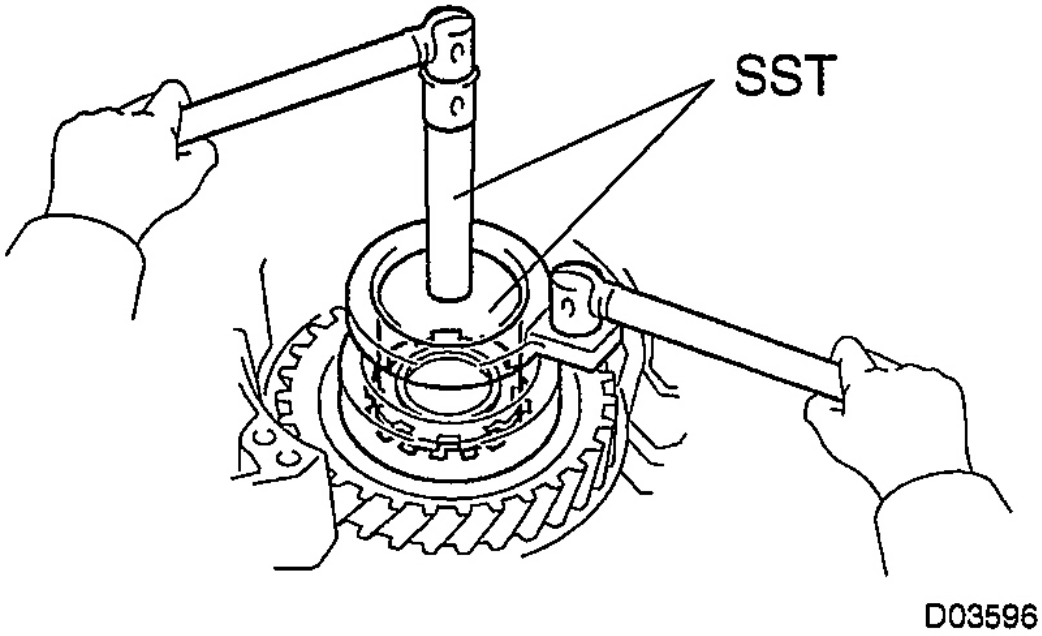


Fig. 140: Installing Nut Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Using SST and a torque wrench, measure the turning torque of the bearing while rotating SST at 60 rpm. When the measured value is not within the specified range, gradually tighten the nut until it falls within the specified range.

SST 09387-00080

Torque: 350 N.m (3,569 kgf.cm, 258 ft.lbf) (a limit)

Turning torque at 60 rpm:

0.19 to 0.4 N.m (1.9 to 4.1 kgf.cm, 1.7 to 3.5 in.lbf)

HINT:

Use a torque wrench with a fulcrum length of 160 mm (6.3 in.) to measure the turning torque.

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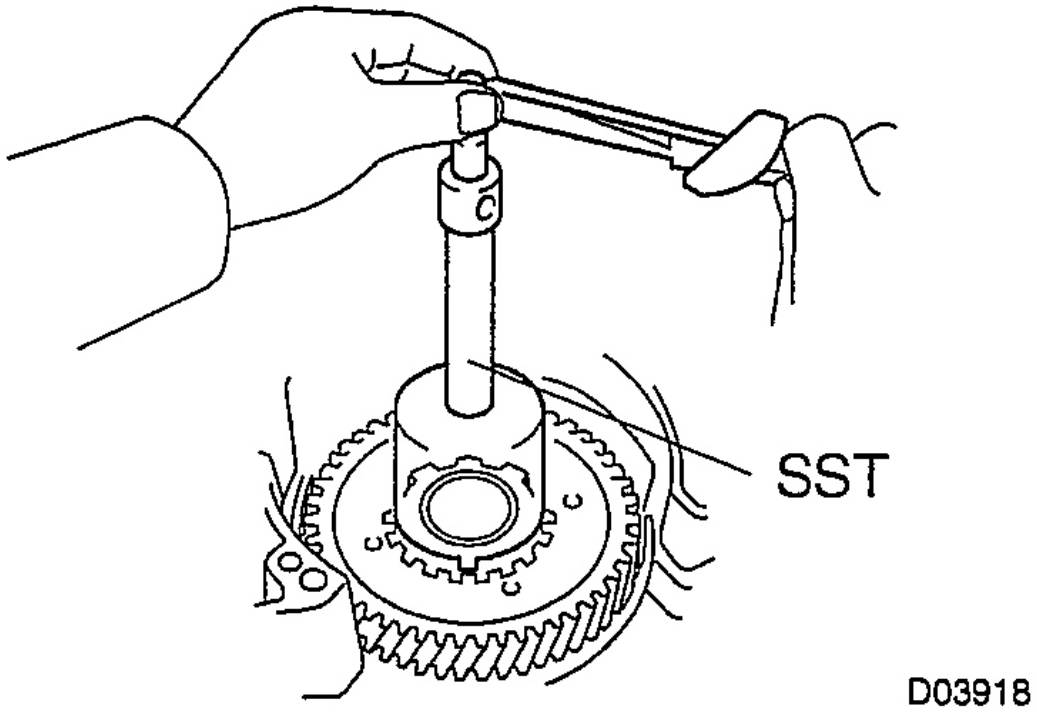


Fig. 141: Measuring Turning Torque
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Using a chisel and hammer, stake the washer.

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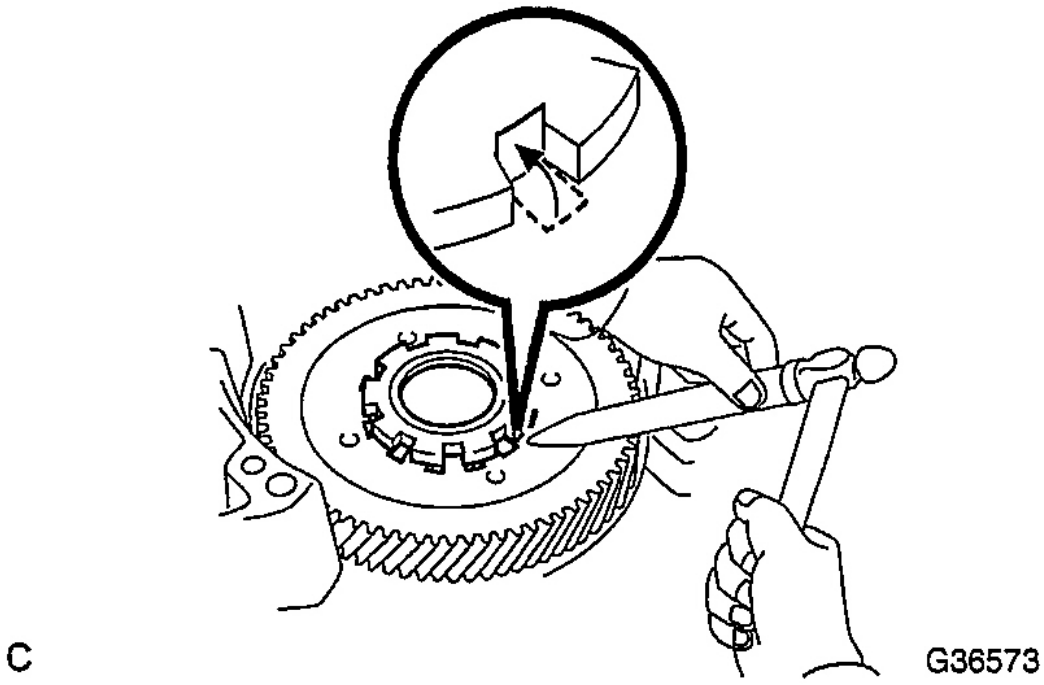


Fig. 142: Installing Washer Using A Chisel And Hammer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

95. **INSTALL INPUT SUN GEAR**
   a. Coat the 2 thrust bearings with ATF.
   b. Install the input sun gear, thrust needle roller bearings, 2 thrust bearing race No. 2 and thrust bearing race No. 3 to the transaxle case.

NOTE:
- **Ensure that the parts are installed in the correct order and direction.**

Thrust bearing and bearing race diameter: mm (in.)

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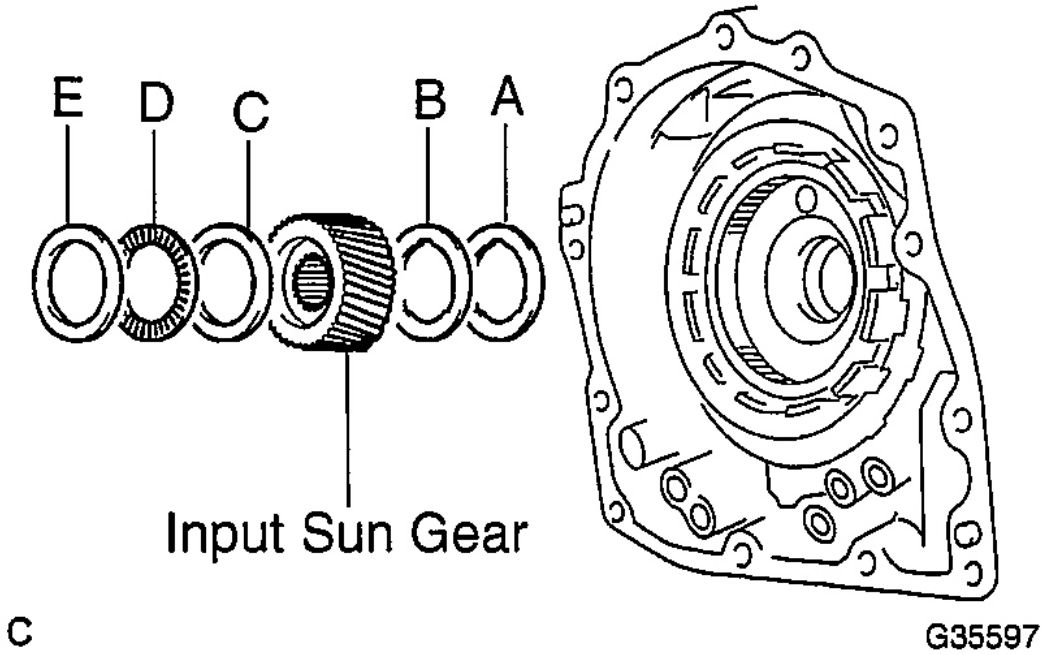


Fig. 143: Installing Input Sun Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

THRUST BEARING AND BEARING RACE - REFERENCE TABLE

	inside	outside
Bearing Race, A	34.5 (1.3583)	56.82 (2.2370)
Thrust Bearing, B	32.4 (1.2756)	56.62 (2.2291)
Bearing Race, C	40.3 (1.5866)	58.0 (2.2835)
Thrust Bearing, D	38.6 (1.5197)	60.0 (2.3622)
Bearing Race, E	38.6 (1.5197)	58.0 (2.2835)

96. **INSTALL REAR PLANETARY GEAR ASSY**
    a. Install the rear planetary gear assy to the brake hub.

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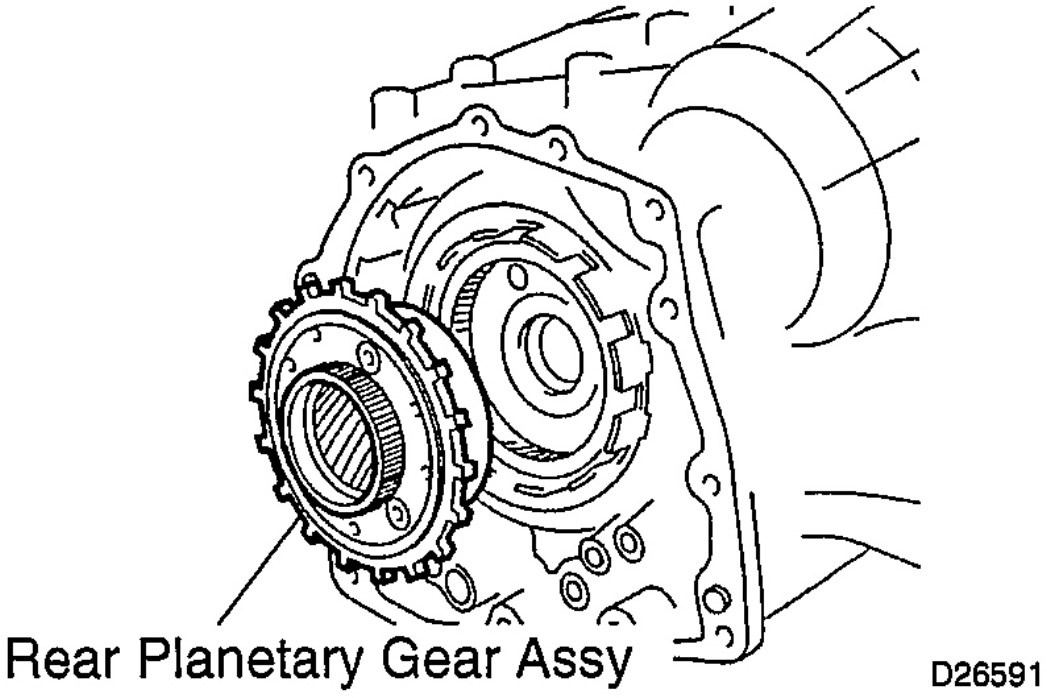


Fig. 144: Installing Rear Planetary Gear Assy To Brake Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a screwdriver, install the snap ring.

NOTE: Confirm the snap ring is fixed in the groove of the brake hub correctly.

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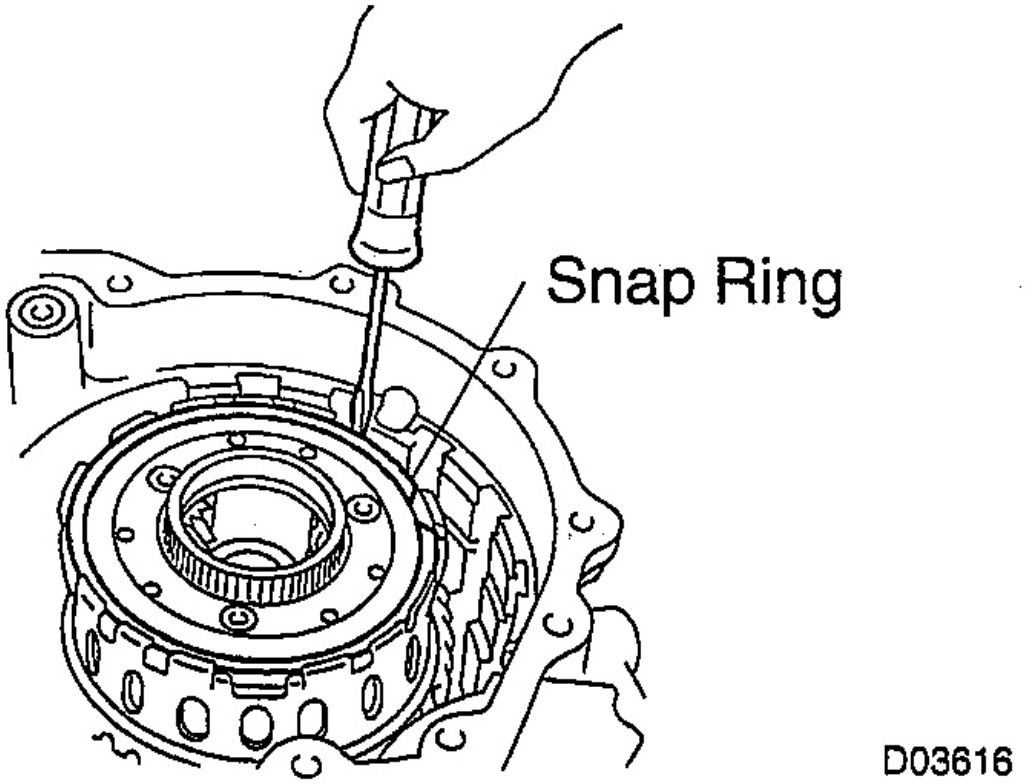


Fig. 145: Installing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

97. **INSTALL 1ST & REVERSE BRAKE DISC**
    a. Coat the 5 discs with ATF.
    b. Install the 5 plates and 5 discs.

NOTE: Be careful about the order of the discs, and plates.

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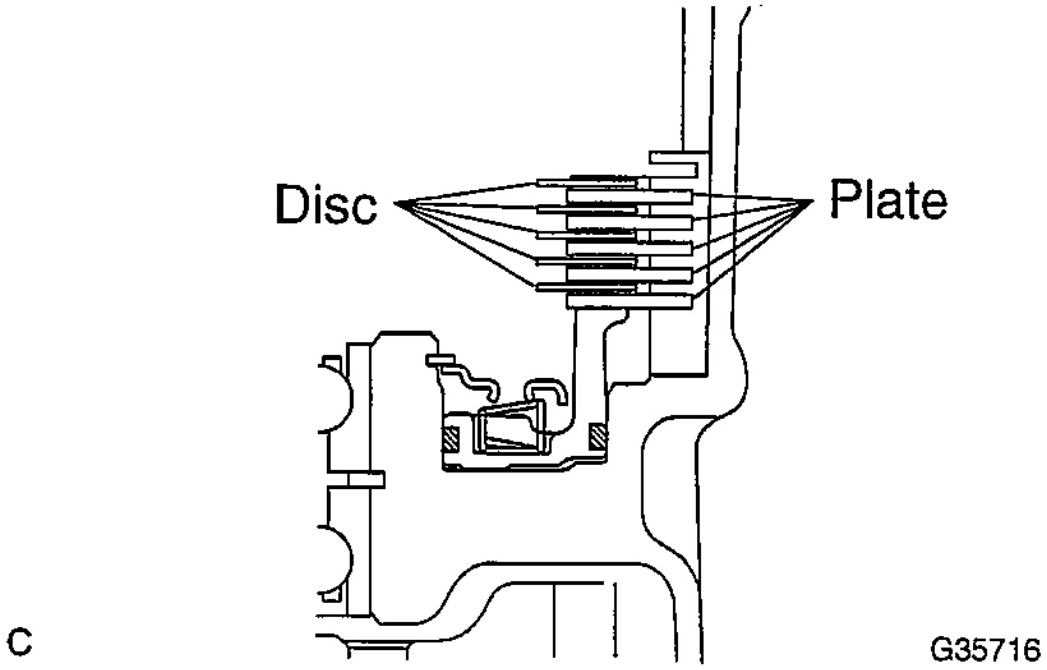


Fig. 146: Installing Plates And Discs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

98. **INSPECT PACK CLEARANCE OF FIRST & REVERSE BRAKE**
    a. Using vernier calipers, measure the distance between the disc surface and the contact surface of the second brake cylinder and transaxle case (Dimension A).
    b. Select an appropriate flange so that the pack clearance will meet the specified values.

    Pack clearance: 0.745 to 1.21 mm (0.0293 to 0.0476 in.)

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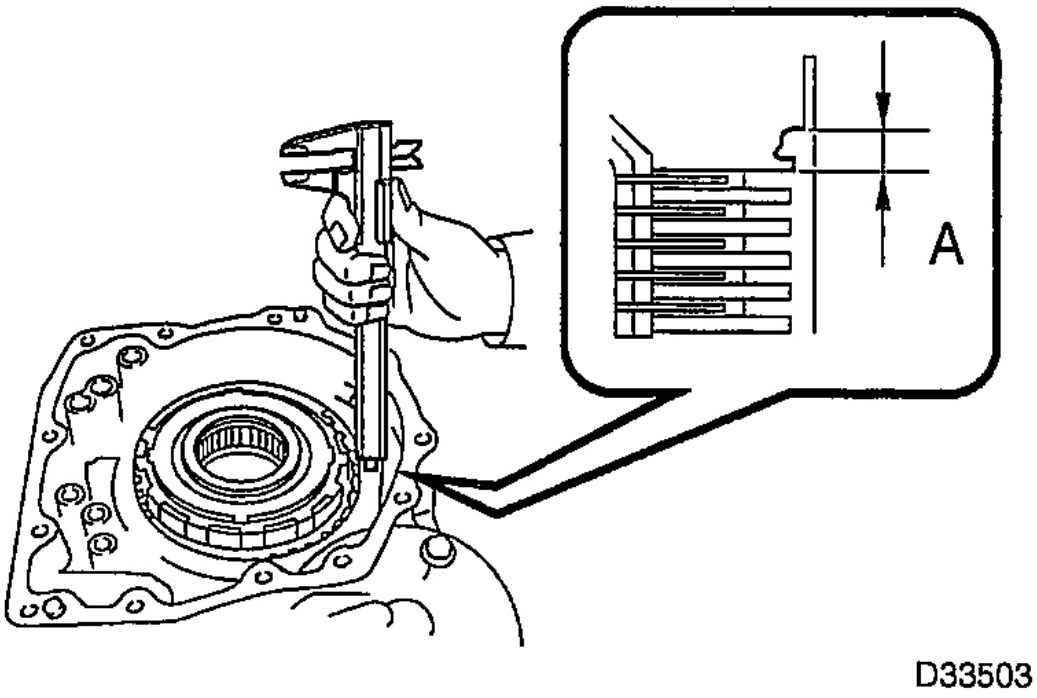


Fig. 147: Inspecting Pack Clearance Of First & Reverse Brake
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Pack clearance = Dimension A - Flange thickness

Flange thickness: mm (in.)

FLANGE THICKNESS - REFERENCE TABLE

Mark	Thickness	Mark	Thickness
1	1.8 (0.071)	5	2.2 (0.087)
2	1.9 (0.075)	6	2.3 (0.091)
3	2.0 (0.079)	7	2.4 (0.094)
4	2.1 (0.083)	8	2.5 (0.098)

c. Install the flange.

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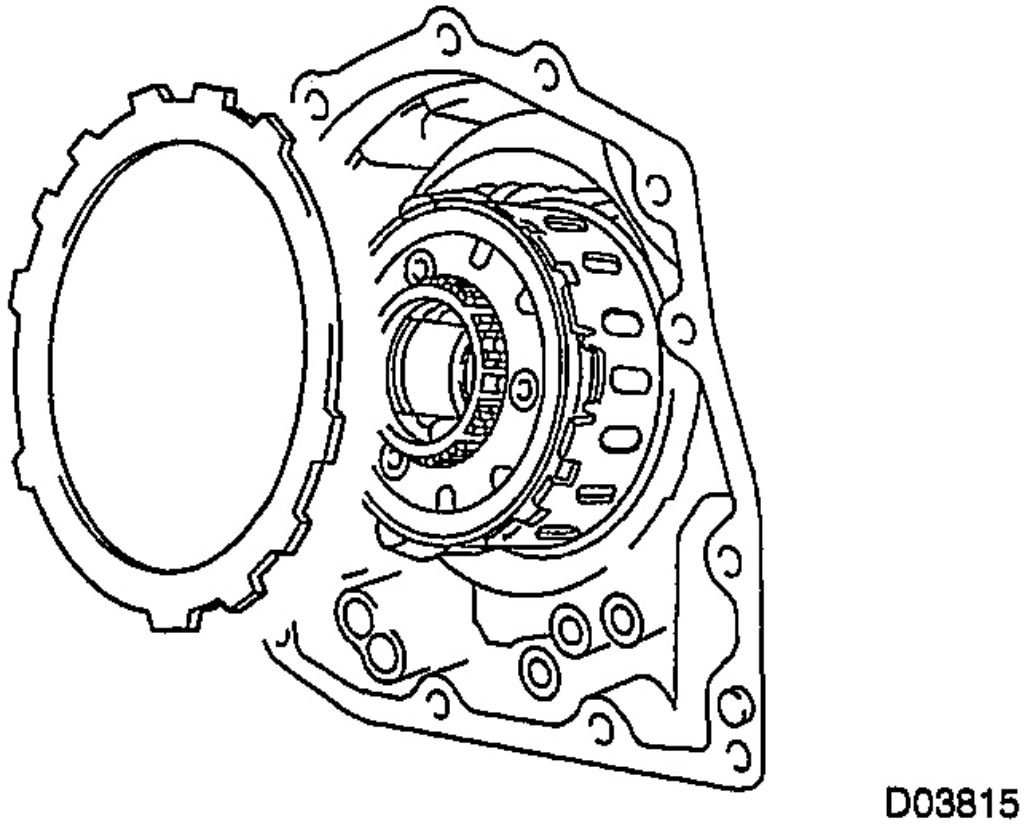


Fig. 148: Installing Flange
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

99. **INSTALL SECOND BRAKE PISTON ASSY**
    a. Install the second brake piston assy to the transaxle case.

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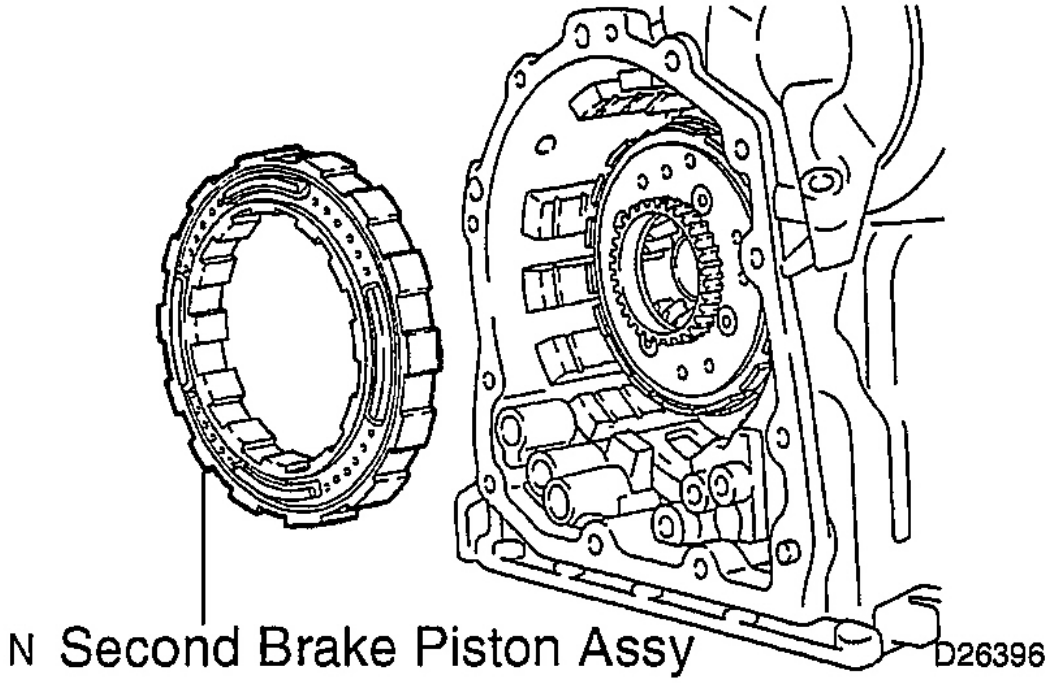


Fig. 149: Installing Second Brake Piston Assy To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the snap ring and measure the snap ring inside diameter.

Inside diameter: More than 167 mm (6.57 in.)

NOTE:

- **Install the tapered snap ring in the correct direction.**
- **When the diameter does not meet the specified values, replace the sna ring with a new one.**
- **After assembling, confirm that there is no clearance between the secon brake cylinder and the fitting surface of the cylinder in the transaxle ca**

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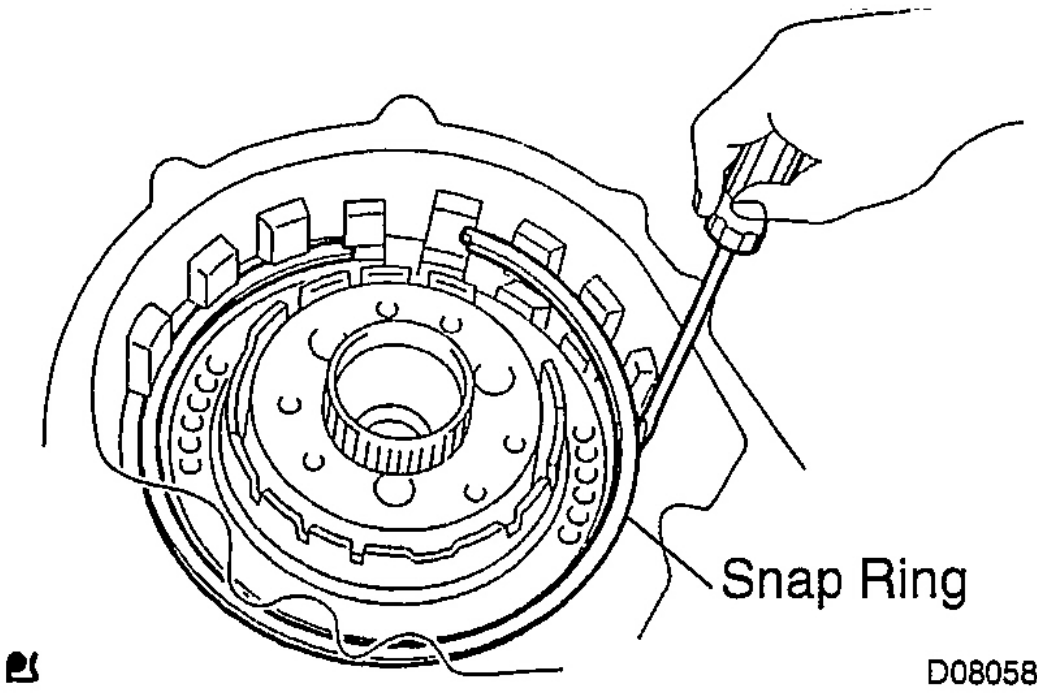


Fig. 150: Installing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

100. **INSTALL 1-WAY CLUTCH SLEEVE OUTER**

a. Install the 1-way clutch sleeve outer to the second brake cylinder assy.

NOTE: Check the direction of the sleeve outer.

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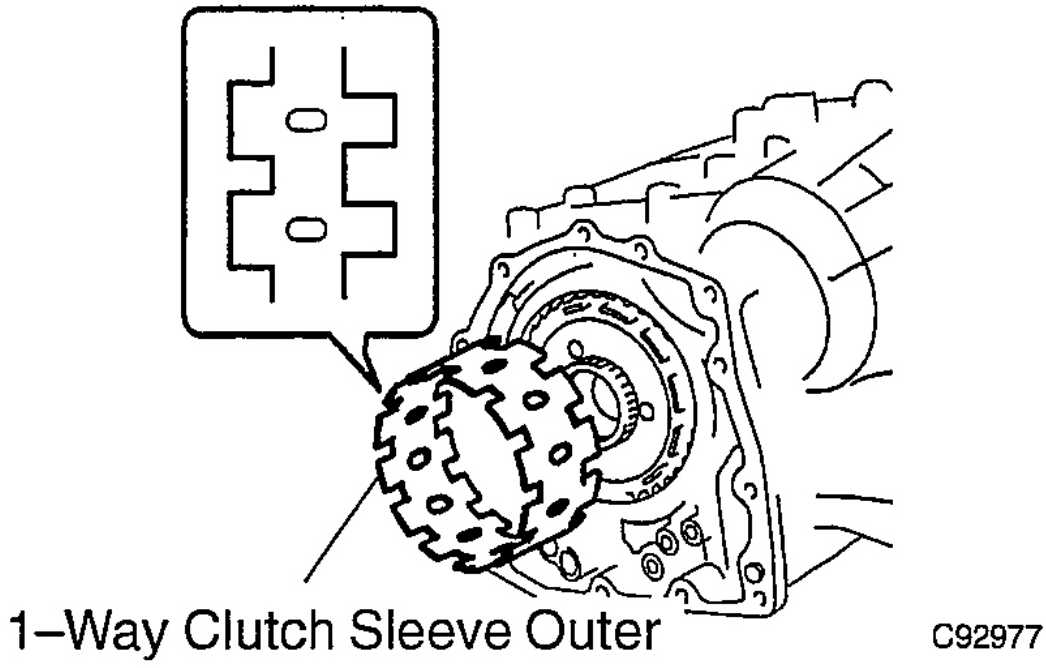


Fig. 151: Installing 1-Way Clutch Sleeve Outer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

101. **INSTALL PLANETARY CARRIER THRUST WASHER NO. 1**
   a. Coat the planetary carrier thrust washer No. 1 with ATF, and install it onto the rear planetary gear assy.

NOTE: **After installation, confirm that the projection is securely fitted in the hole of the rear planetary gear assembly.**

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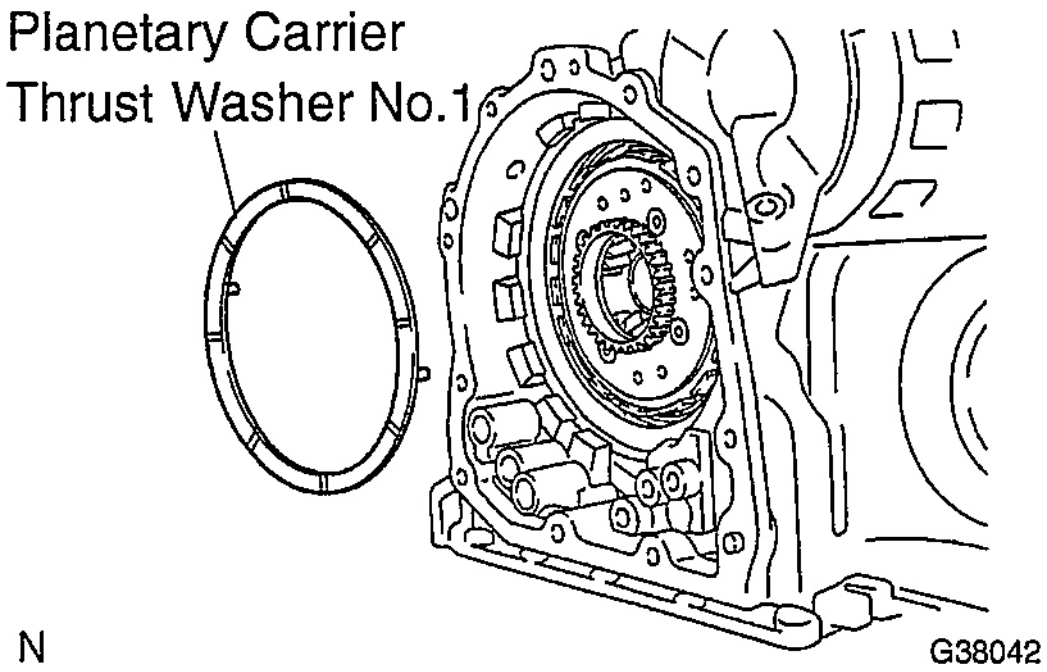


Fig. 152: Installing Planetary Carrier Thrust Washer No. 1
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

102. **INSTALL 1 WAY CLUTCH ASSY**

a. Install the 1-way clutch inner race to the 1-way clutch.

NOTE:
- **Check the direction of the inner race.**
- **Confirm that the identification mark can be seen.**

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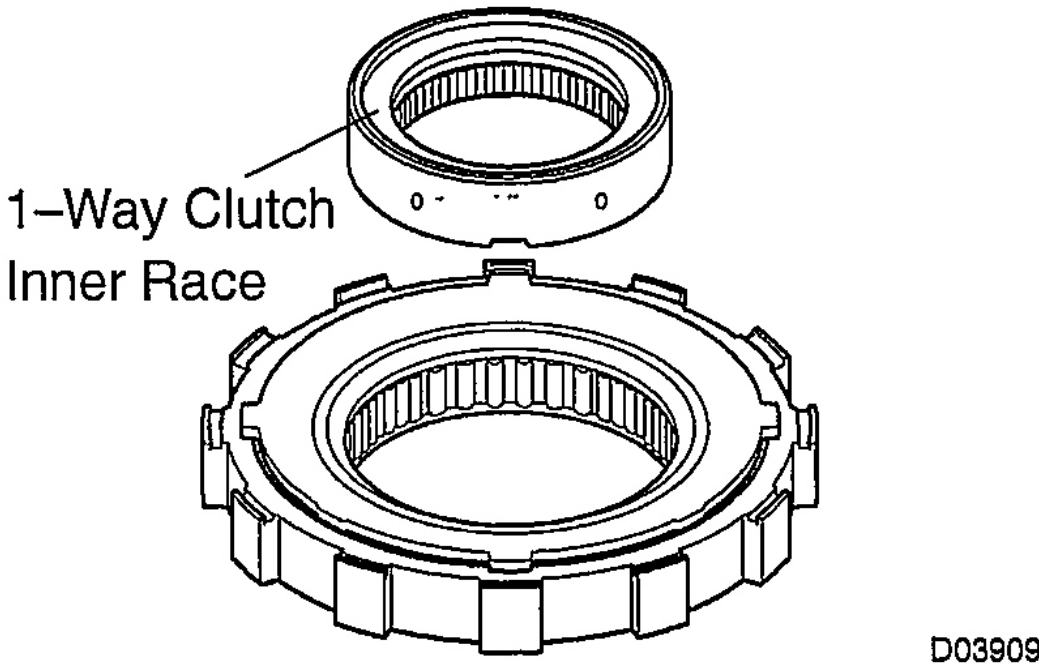


Fig. 153: Installing 1-Way Clutch Inner Race To 1-Way Clutch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Check the rotating direction of the 1-way clutch inner race for lock or free operation, as shown in the illustration.

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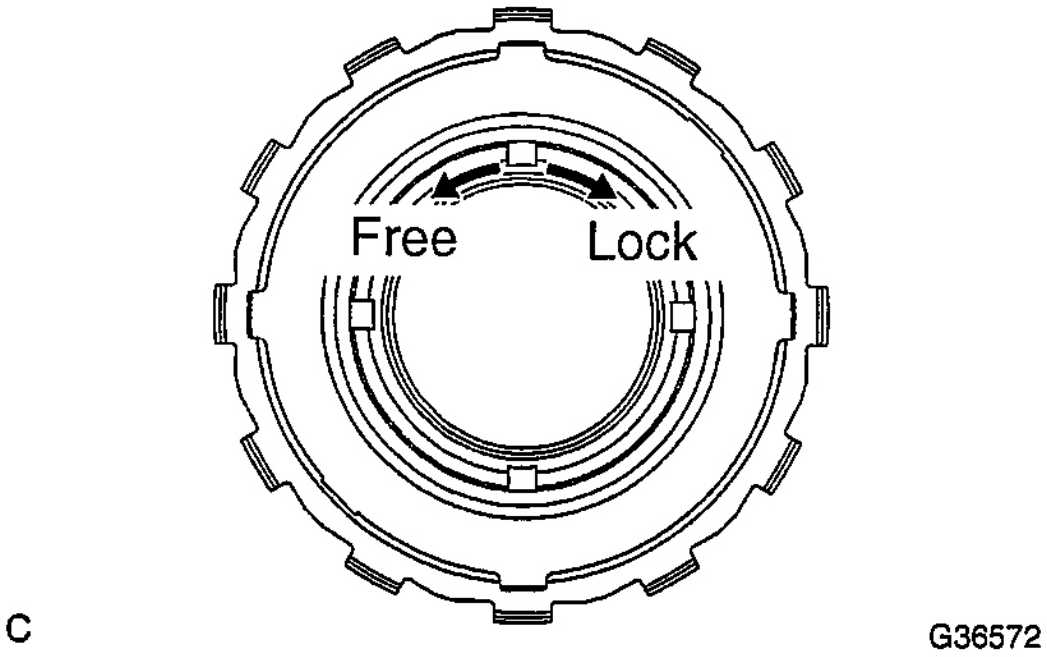


Fig. 154: Checking Rotating Direction Of 1-Way Clutch Inner Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install the 1-way clutch and thrust needle roller bearing to the 1-way clutch sleeve outer.

Bearing diameter: mm (in.)

BEARING DIAMETER - REFERENCE TABLE

	Inside	Outside
Bearing	53.3 (2.1102)	69.6 (2.7402)

NOTE: Install the thrust bearing properly so that no colored race will be visible.

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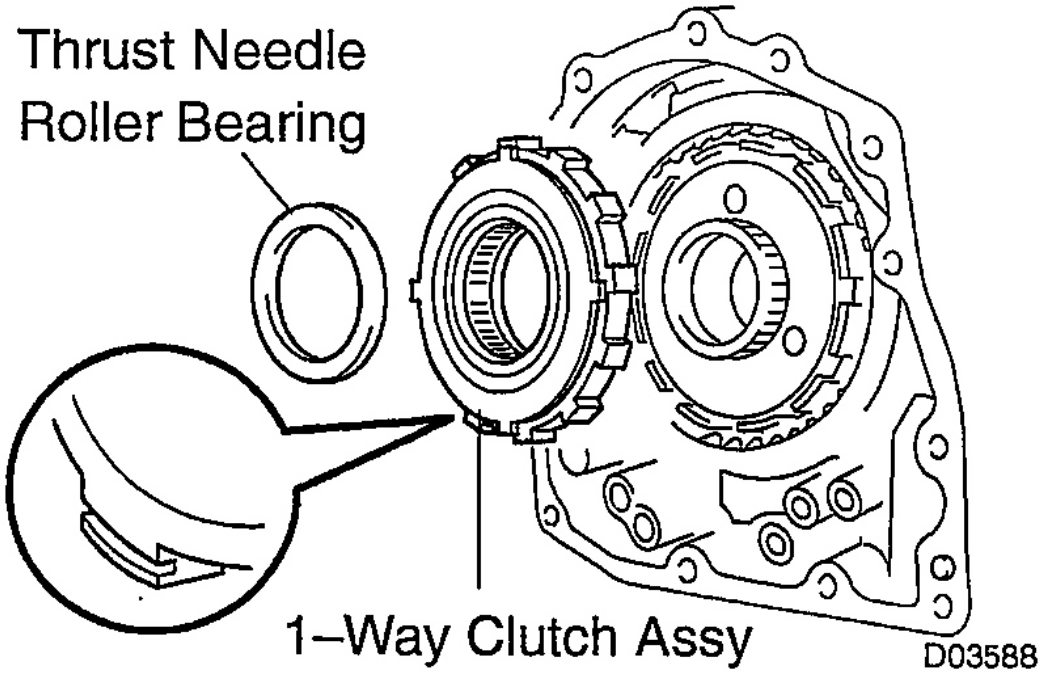


Fig. 155: Installing Thrust Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

103. **INSTALL REAR PLANETARY SUN GEAR ASSY**

a. Coat the planetary carrier thrust washer No. 2 with ATF, and install it onto the rear planetary sun gear assy.

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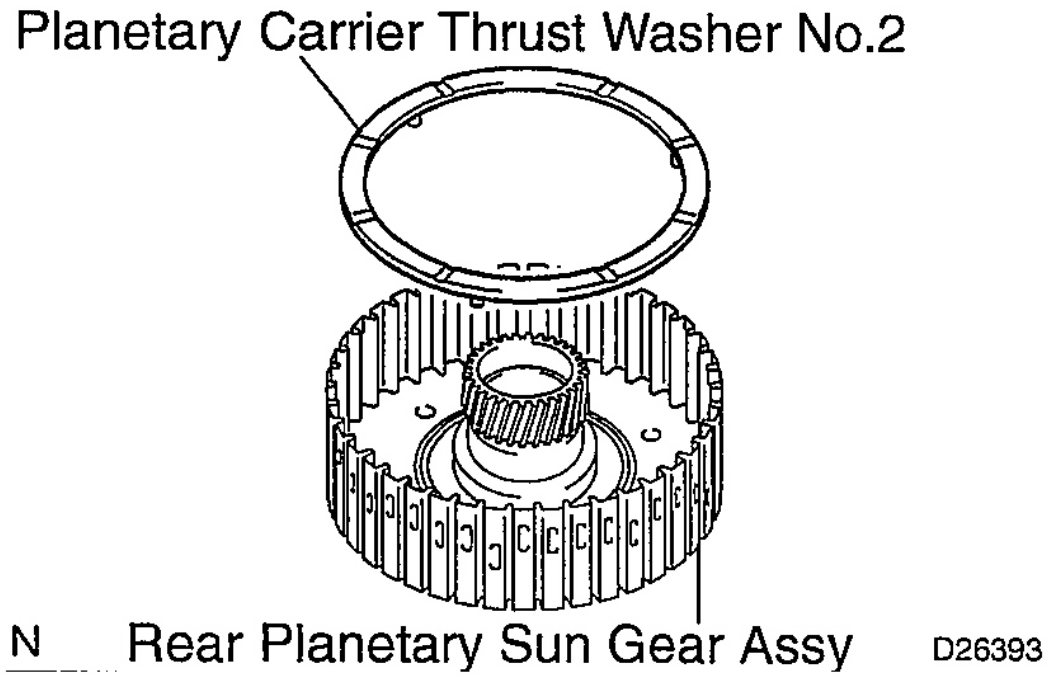


Fig. 156: Installing Rear Planetary Sun Gear Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Coat the thrust needle roller bearing with ATF. Install the thrust bearing race and needle roller bearing onto the rear planetary sun gear.

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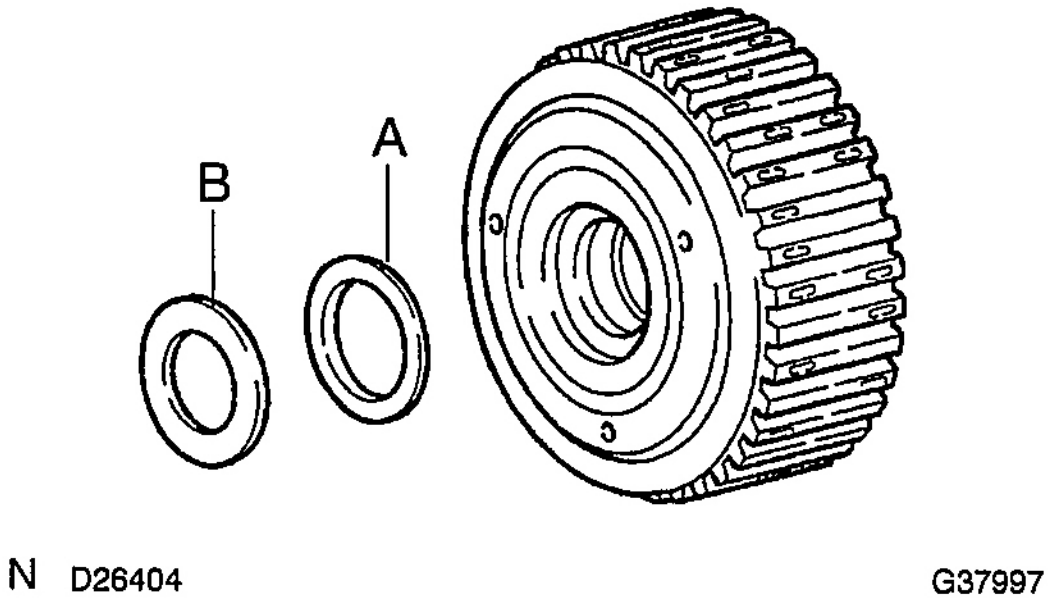


Fig. 157: Installing Thrust Bearing Race And Needle Roller Bearing Onto Rear Planetary Sun Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Bearing diameter: mm (in.)

BEARING DIAMETER - REFERENCE TABLE

	Inside	Outside
Race, A	33.1 (1.3031)	45.4 (1.7874)
Bearing, B	31.85 (1.2539)	45.2 (1.7795)

c. Install the rear planetary sun gear assy to the rear planetary gear.

NOTE: When installing the rear planetary sun gear assembly, confirm that the discs engage.

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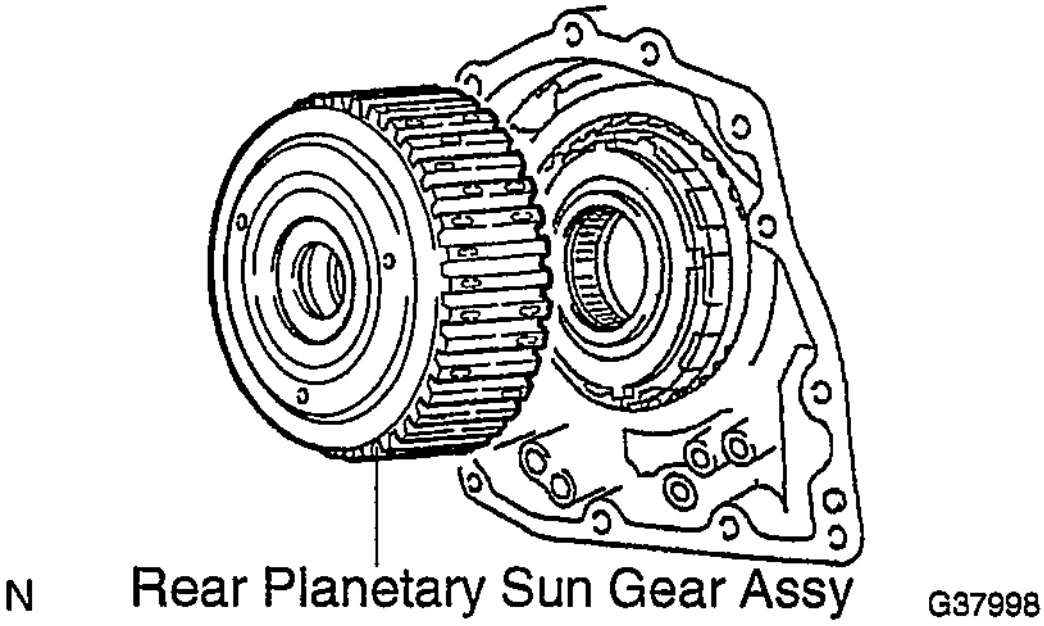


Fig. 158: Installing Rear Planetary Sun Gear Assy To Rear Planetary Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

104. **INSTALL 2ND BRAKE DISC**
   a. Coat the 3 discs with ATF.
   b. Install the 3 discs and 3 plates to the transaxle case.
   c. Temporarily install the snap ring.

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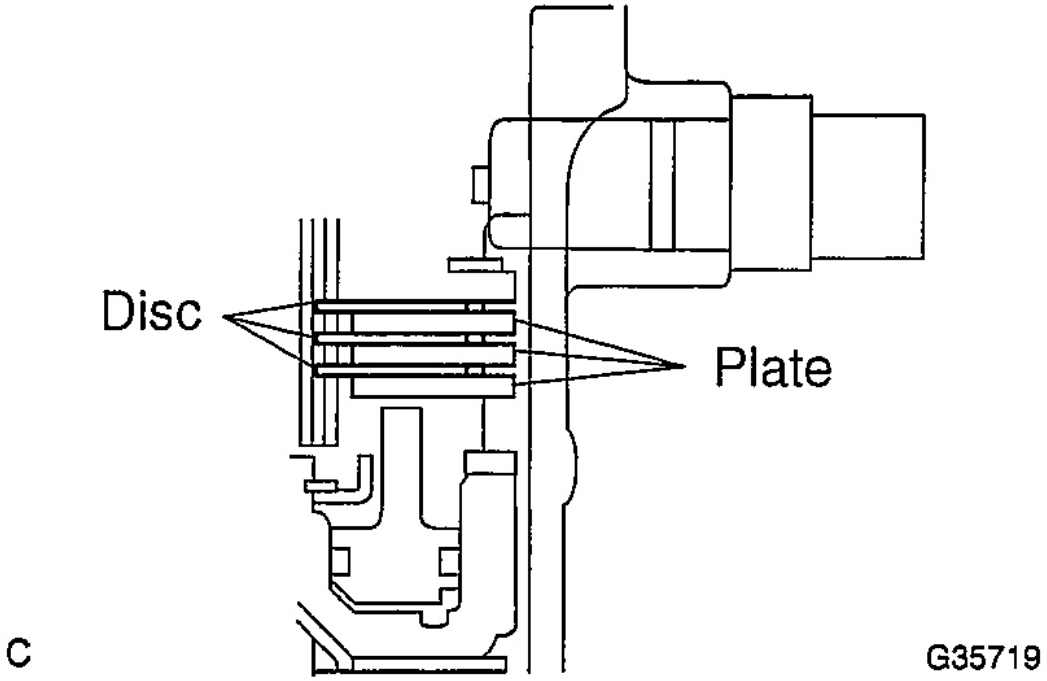


Fig. 159: Installing Discs And Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

105. **INSPECT PACK CLEARANCE OF SECOND BRAKE**

a. Using vernier calipers, measure the distance between the disc surface and snap ring surface (Dimension B).

b. Select an appropriate flange so that the pack clearance will meet the specified values.

Pack clearance: 0.53 to 0.91 mm (0.0209 to 0.0358 in.)

HINT:

Pack clearance = Dimension B - Flange thickness - Snap ring thickness 1.6 mm (0.063 in.)

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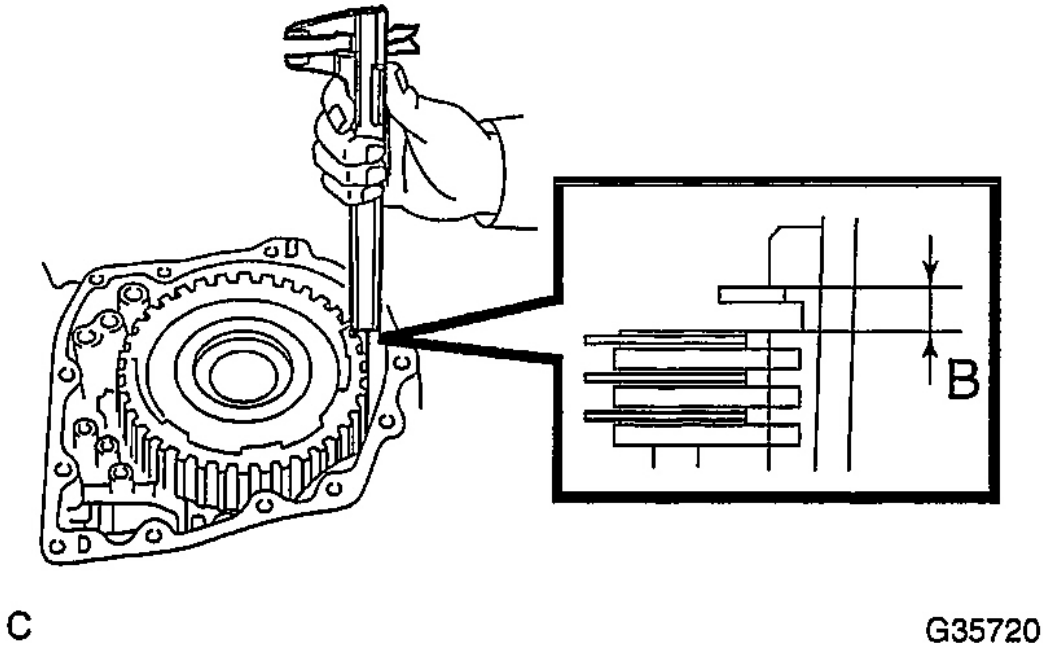


Fig. 160: Inspecting Pack Clearance Of Second Brake
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Flange thickness: mm (in.)

FLANGE THICKNESS - REFERENCE TABLE

Mark	Thickness	Mark	Thickness
0	2.9 (0.114)	5	3.4 (0.134)
1	3.0 (0.118)	6	3.5 (0.138)
2	3.1 (0.122)	7	3.6 (0.142)
3	3.2 (0.126)	8	3.7 (0.146)
4	3.3 (0.130)	-	-

c. Remove the snap ring, attach the selected flange and reinstall the snap ring.

NOTE: Install the snap ring so that its gap is visible through the groove of the transaxle case.

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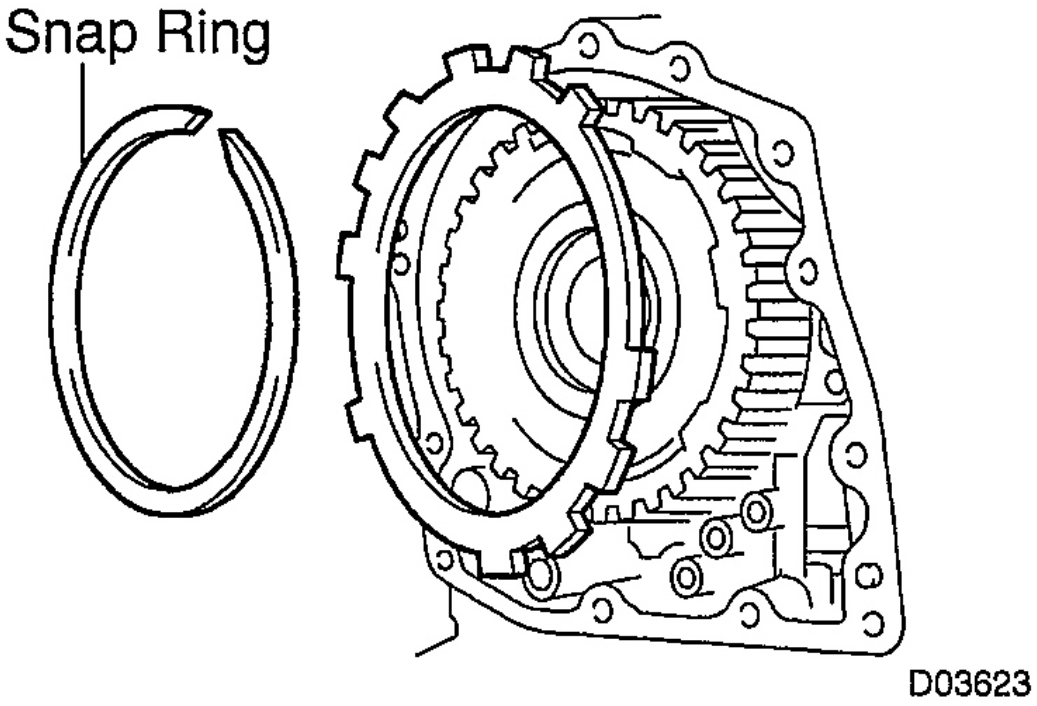


Fig. 161: Removing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

106. **INSTALL OVERDRIVE DIRECT CLUTCH HUB SUB-ASSY**

a. Install the overdrive direct clutch hub sub-assy to the planetary gear assy.

NOTE: Be careful not to damage the bush inside the overdrive clutch hub while installing.

b. Coat the thrust bearing with ATF.
c. Install the bearing race and the thrust bearing to the direct clutch hub.

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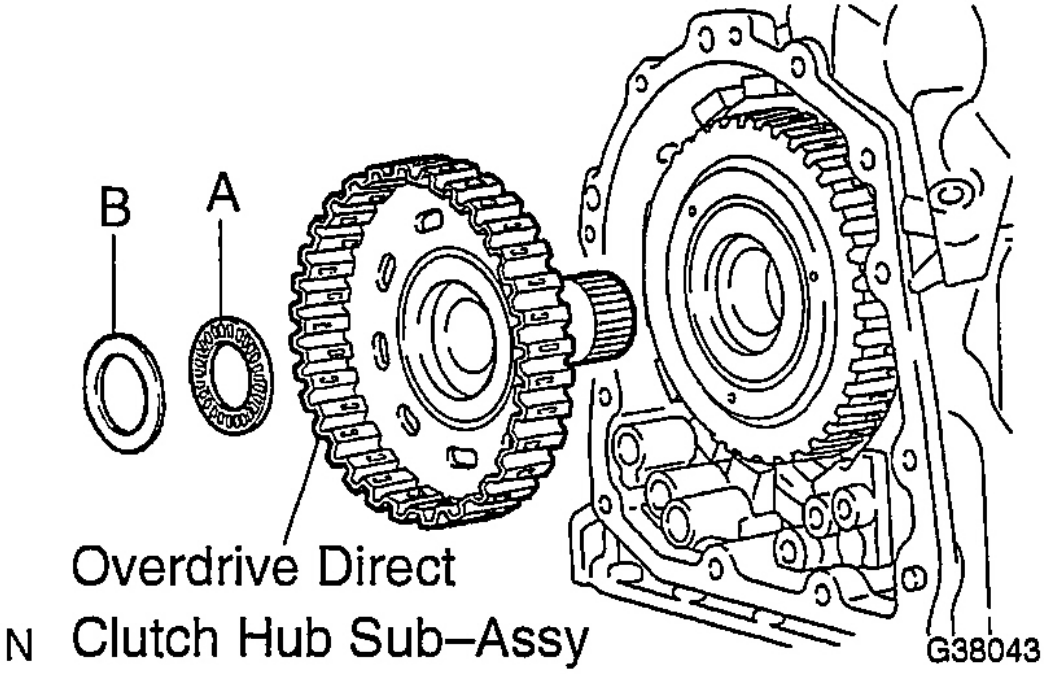


Fig. 162: Installing Overdrive Direct Clutch Hub Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: When installing the bearing, hold the overdrive clutch hub side.

Bearing and race diameter: mm (in.)

BEARING AND RACE DIAMETER - REFERENCE TABLE

	Inside	Outside
Bearing, A	25.0 (0.9843)	39.5 (1.5551)
Race, B	23.6 (0.9291)	36.6 (1.4409)

107. **INSTALL DIRECT CLUTCH ASSY**

a. Coat the thrust bearing with ATF.

b. Install the direct clutch assy and thrust bearing to the rear planetary sun gear assy.

NOTE: The disc in the direct clutch should completely match with the hub attached outside the rear planetary sun gear. Otherwise, the rear cover cannot be installed.

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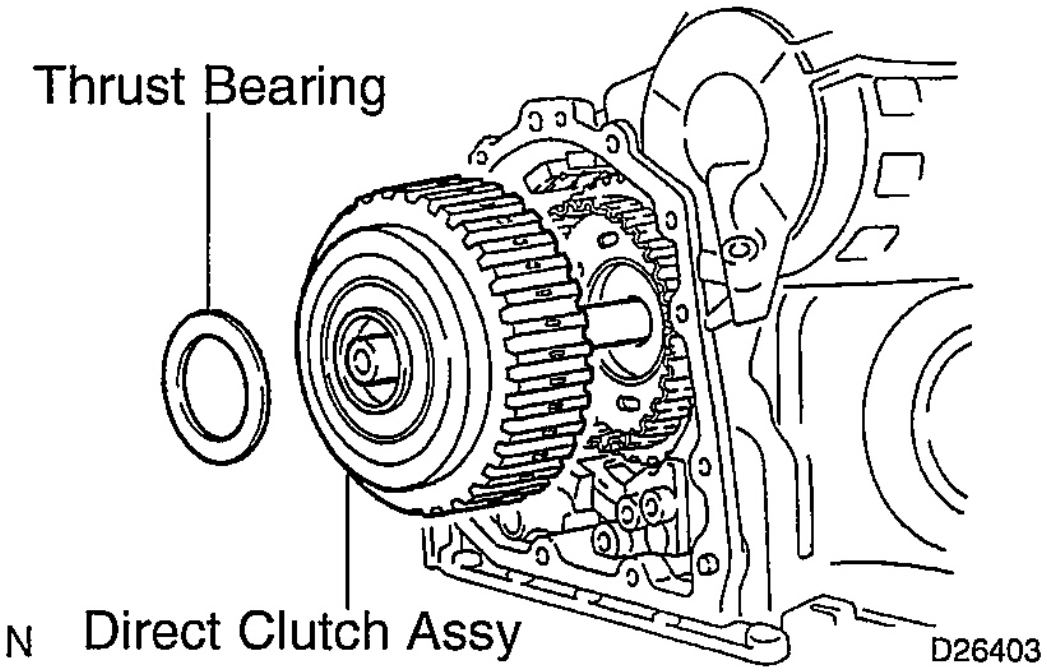


Fig. 163: Installing Direct Clutch Assy And Thrust Bearing To Rear Planetary Sun Gear Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Clean the connecting part of the transaxle case and the rear cover.
d. As shown in the illustration, place a straight edge on the direct clutch drum and measure the distance between the transaxle case and the straight edge using vernier calipers (Dimension C).

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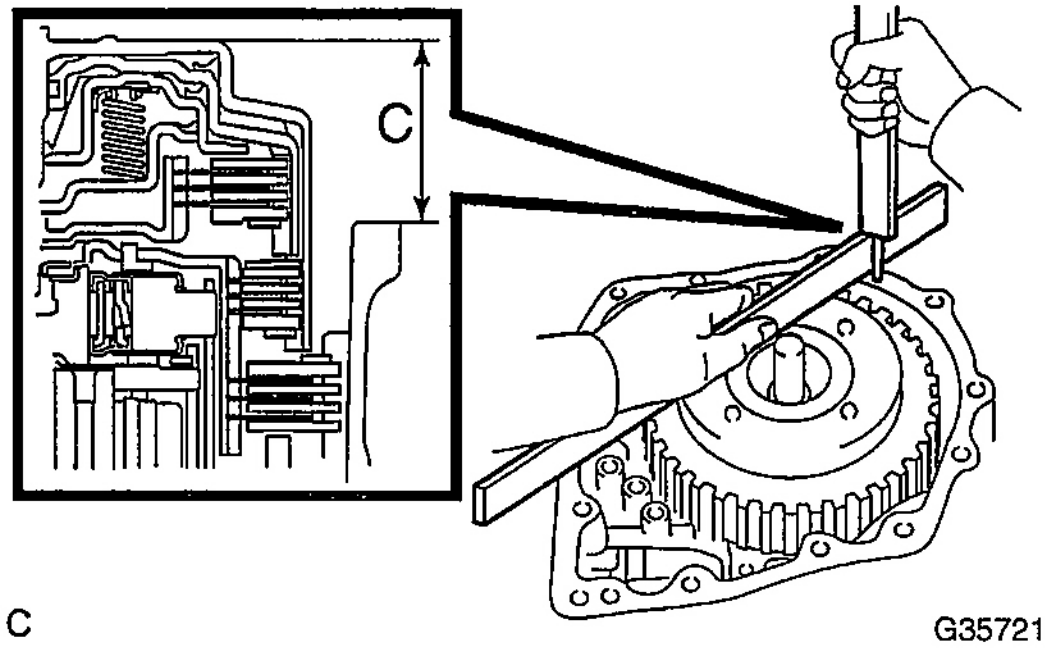


Fig. 164: Measuring Distance Between Transaxle Case And Straight Edge
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Using vernier calipers and a simple straight edge, measure the distance shown in the illustration.
f. Calculate the end play value using the following formula. Select a thrust bearing which satisfies the end play value and install it.

End play: 0.199 to 0.970 mm (0.0078 to 0.0382 in.)

NOTE: Make sure that the no colored race side is facing the direct clutch assy.

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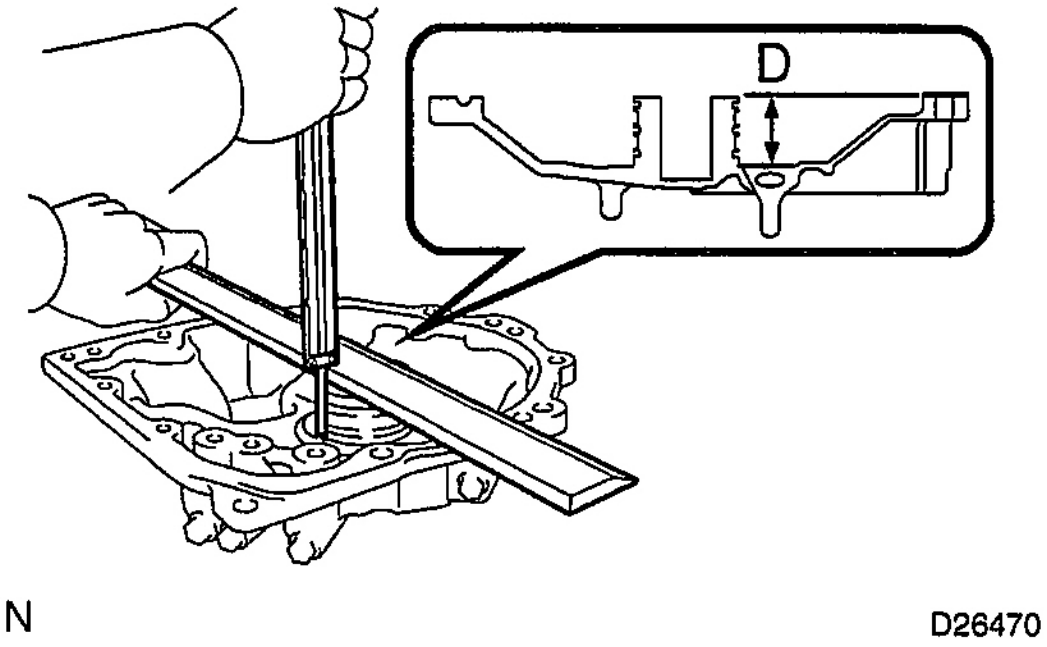


Fig. 165: Measuring Distance Using Vernier Calipers
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

End play = Dimension D - Dimension C

Bearing thickness and diameter: mm (in.)

BEARING THICKNESS AND DIAMETER - REFERENCE TABLE

Thickness	Inside	Outside
3.6 (0.1417)	55.9 (2.2008)	76 (2.9921)
3.9 (0.1535)	55.9 (2.2008)	76.6 (3.0157)

108. **INSTALL GOVERNOR APPLY GASKET NO. 1**

a. Install 3 new governor apply gasket No. 1 to the transaxle case.

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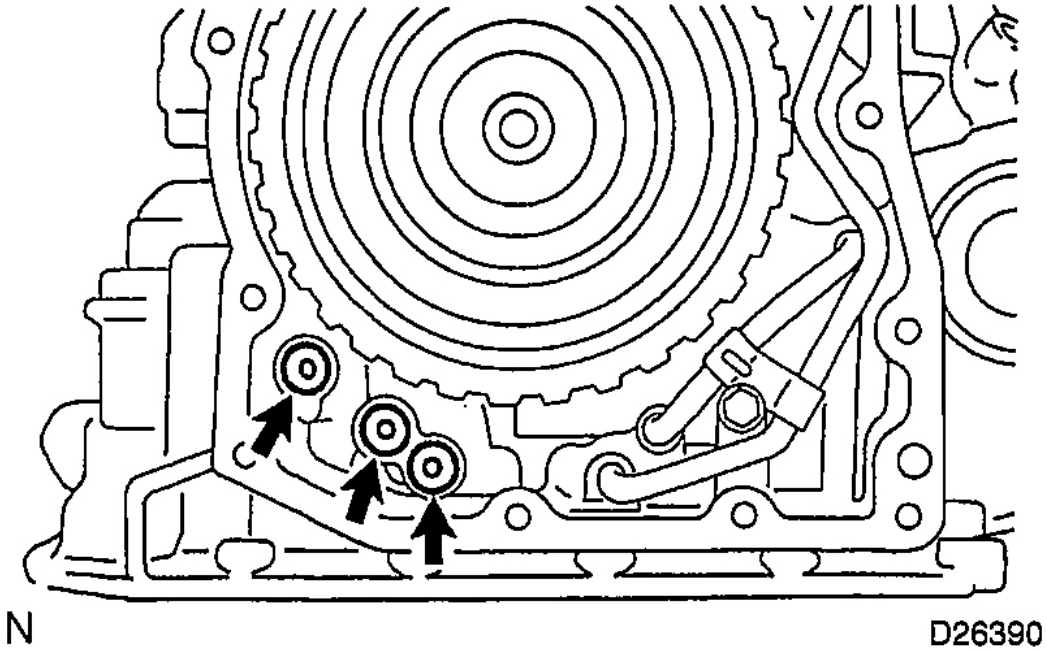


Fig. 166: Installing Governor Apply Gasket No. 1 To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

109. **INSTALL BRAKE APPLY TUBE**

a. Install the clamp to the brake apply tube.

NOTE: Make sure to install the clamp to the apply tube before installing the apply tube to the transaxle case. This prevents the apply tube from being deformed or damaged.

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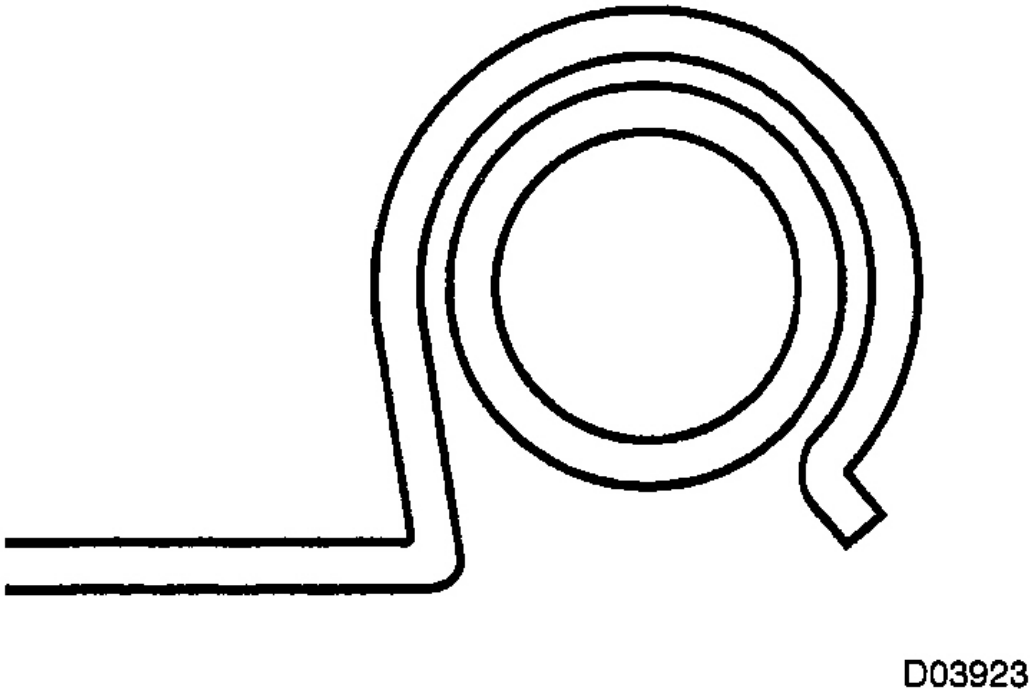


Fig. 167: Installing Clamp To Brake Apply Tube
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the clutch apply tube.
c. Install the brake apply tube to the transaxle case with the bolt.

Torque: 5.4 N.m (55 kgf.cm, 48 in.lbf)

NOTE: Each pipe should be securely inserted until it reaches the stopper.

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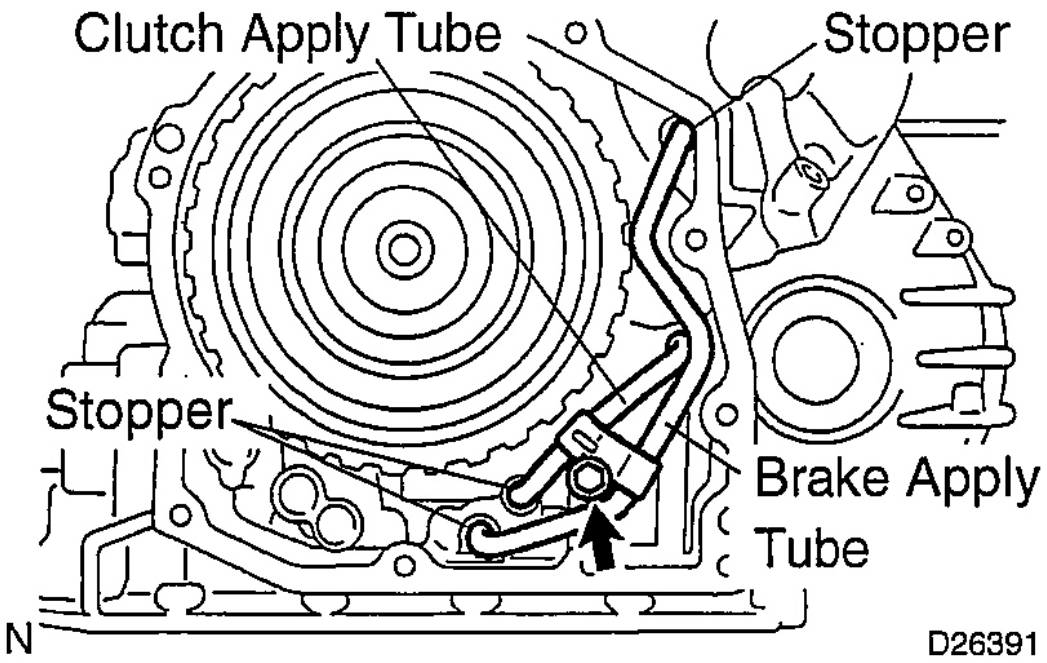


Fig. 168: Installing Clutch Apply Tube
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

110. **INSTALL NEEDLE ROLLER BEARING**

a. Using SST and a press, install a new needle roller bearing to the transaxle rear cover.

SST 09950-60010 (09951-00230, 09952-06010, 09951-00360)

Press fit depth: 20.55 to 21.25 mm (0.8091 to 0.8366 in.)

NOTE:
- **Face the inscribed mark side of the bearing race up.**
- **Press-fit until the specified value is obtained.**

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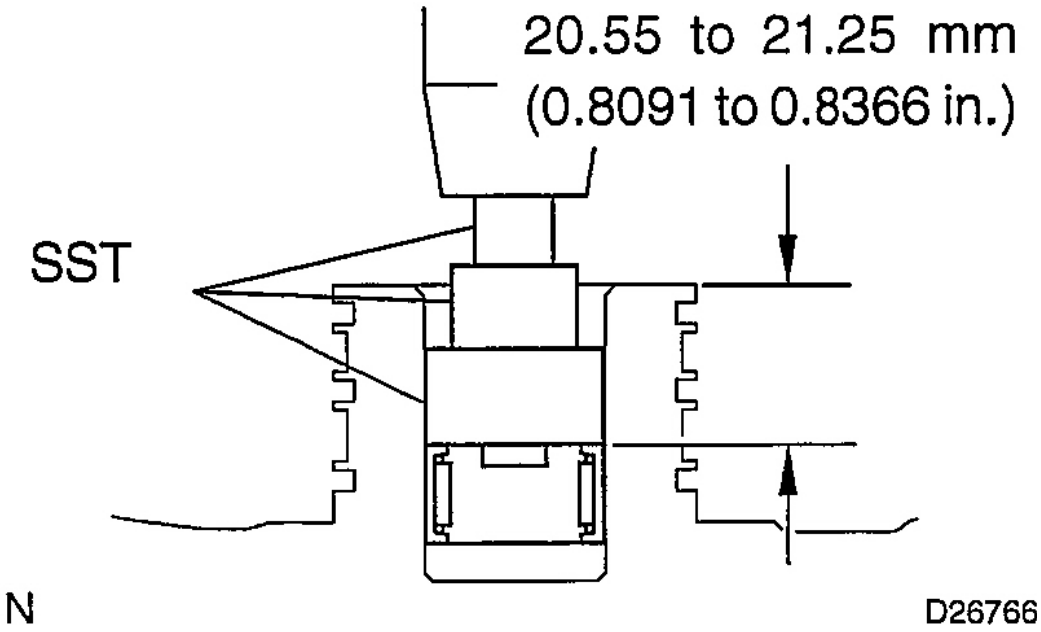


Fig. 169: Installing Needle Roller Bearing To Transaxle Rear Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Coat a needle roller bearing with ATF.

111. **INSTALL REAR CLUTCH OIL SEAL RING OUTER**

a. Coat 3 new rear clutch oil seal ring outers with ATF, and install them to the transaxle rear cover.

NOTE: The snap ring should be securely fixed in the groove of the transaxle rear cover.

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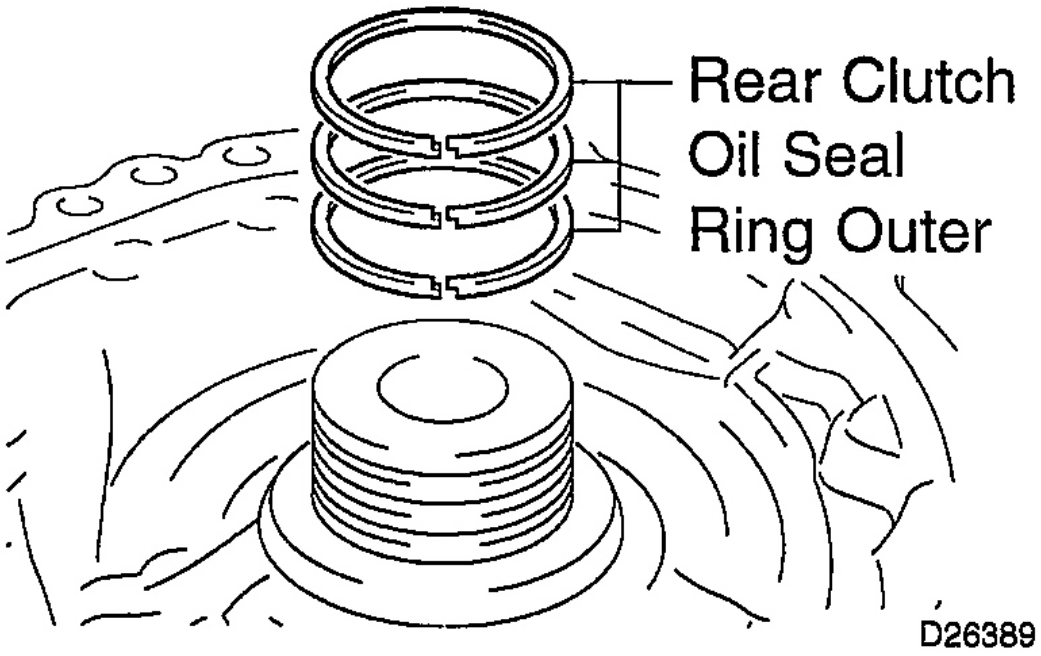


Fig. 170: Installing Rear Clutch Oil Seal Ring Outer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

112. **INSTALL TRANSAXLE CASE NO. 1 PLUG**
   a. Install 4 new O-rings to the 4 transaxle case No.1 plugs.
   b. Install the 4 transaxle case No.1 plugs to the transaxle rear cover.

   Torque: 7.4 N.m (75 kgf.cm, 65 in.lbf)

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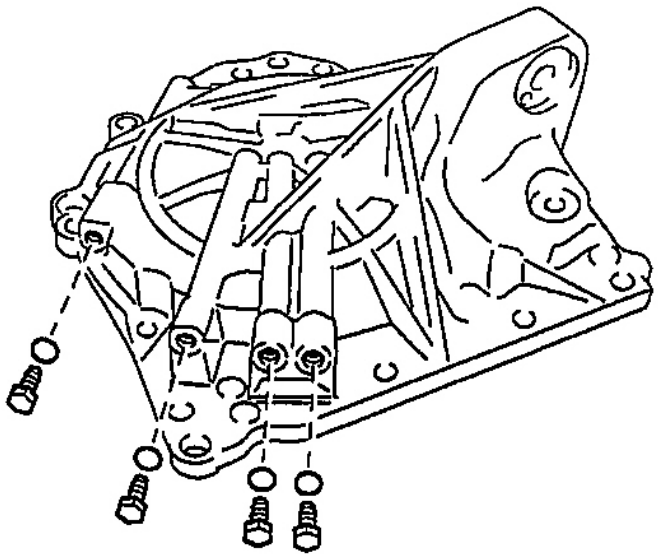


Fig. 171: Installing Transaxle Case No. 1 Plugs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

113. **INSTALL TRANSAXLE REAR COVER SUB-ASSY**

a. Remove any packing material and be careful not to get oil on the contacting surfaces of the transaxle rear cover sub-assy and the transaxle case.

b. Apply FIPG to the cover.

FIPG: Part No. 08826-00090, THREE BOND 1281 or equivalent.

NOTE: Apply FIPG in a continuous line (width 1.2mm (0.047in.)) along the sealing surface.

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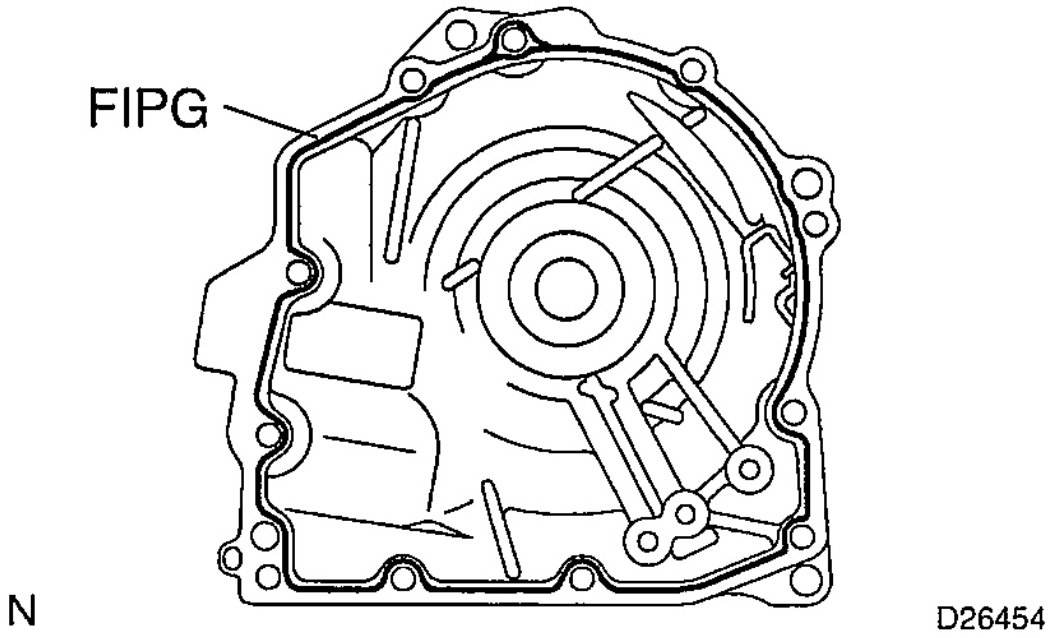


Fig. 172: Applying FIPG To Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Apply liquid sealer to the "A" bolt threads.

Sealant: Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent.

d. Install the 11 bolts.

Torque:

Bolt A: 19 N.m (190 kgf.cm, 14 ft.lbf)

Other bolts: 25 N.m (250 kgf.cm, 18 ft.lbf)

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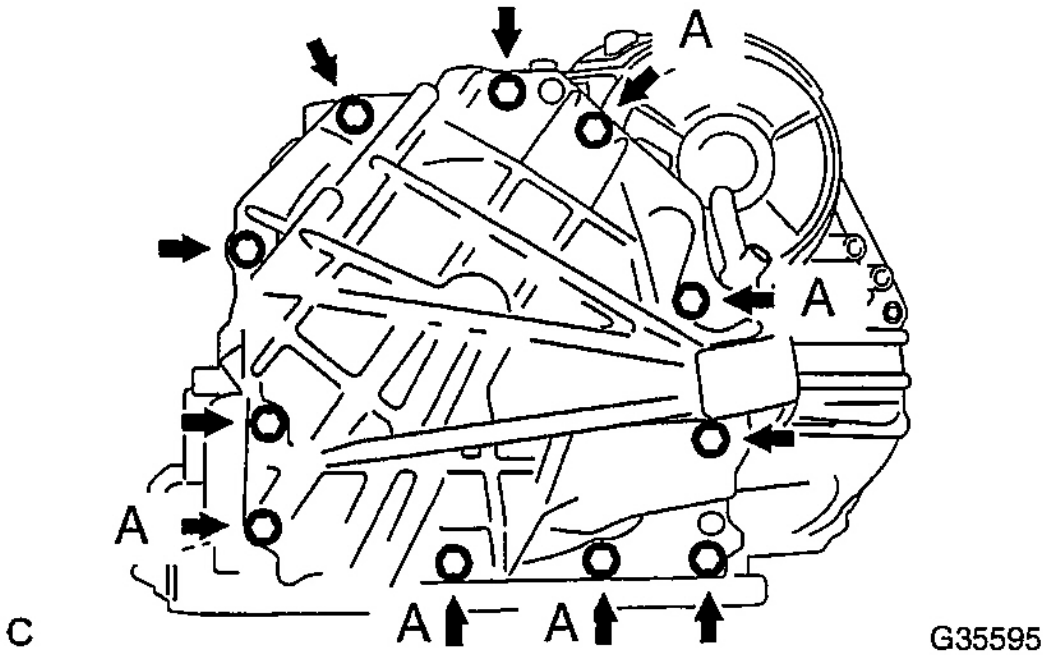


Fig. 173: Installing Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

114. **INSTALL UNDERDRIVE CLUTCH DISC NO. 2**
   a. Coat the 3 discs with ATF.
   b. Install the 3 discs, 3 plates and flange to the transaxle case.

NOTE: Be careful about the order of the discs, plates and flange.

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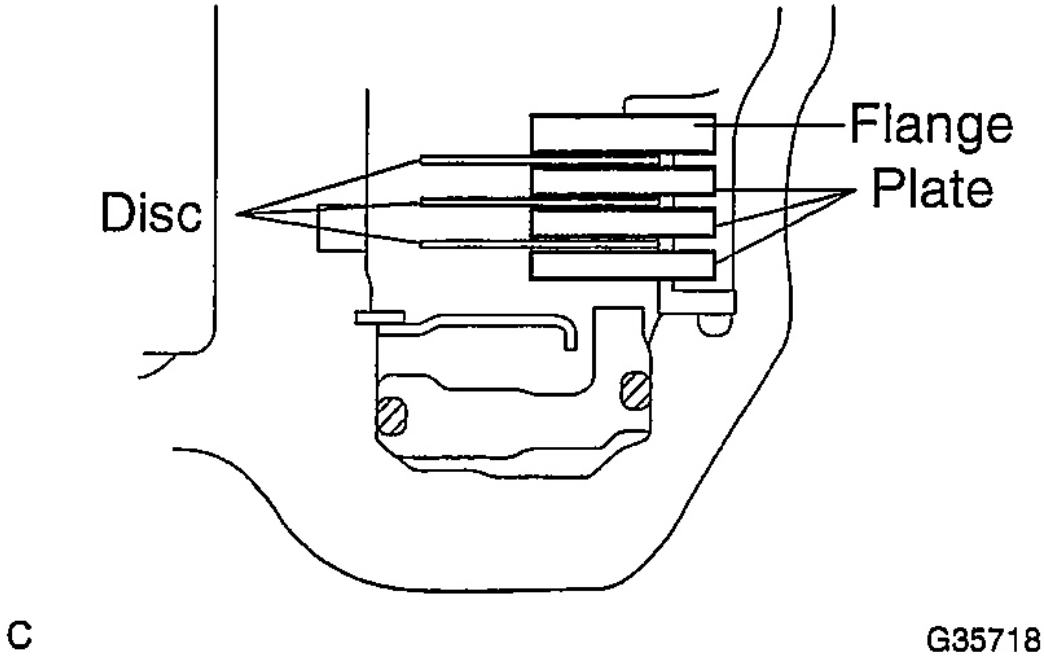


Fig. 174: Installing Discs And Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a screwdriver, install the snap ring.

NOTE: The snap ring should be securely fixed in the groove of the drum.

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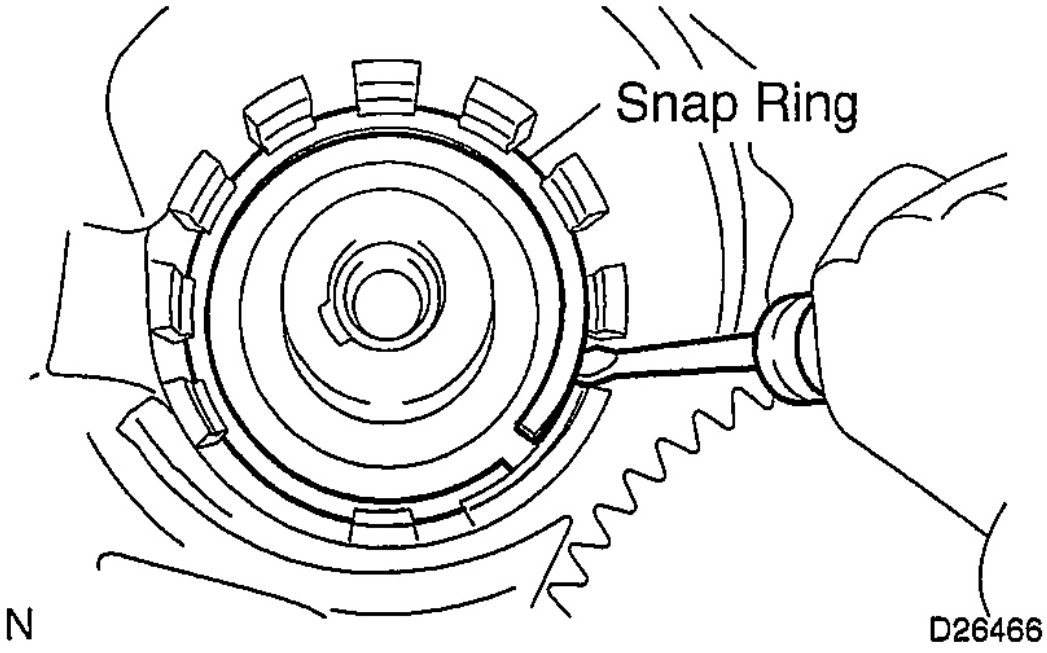


Fig. 175: Installing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

115. **INSPECT PACK CLEARANCE OF UNDERDRIVE CLUTCH NO. 2**

a. Using a dial indicator, measure the underdrive clutch No.2 pack clearance while applying and releasing compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi).

Pack clearance: 1.645 to 2.20 mm (0.0648 to 0.0866 in.)

HINT:

Select an appropriate flange from the table below so that it will meet the specified value.

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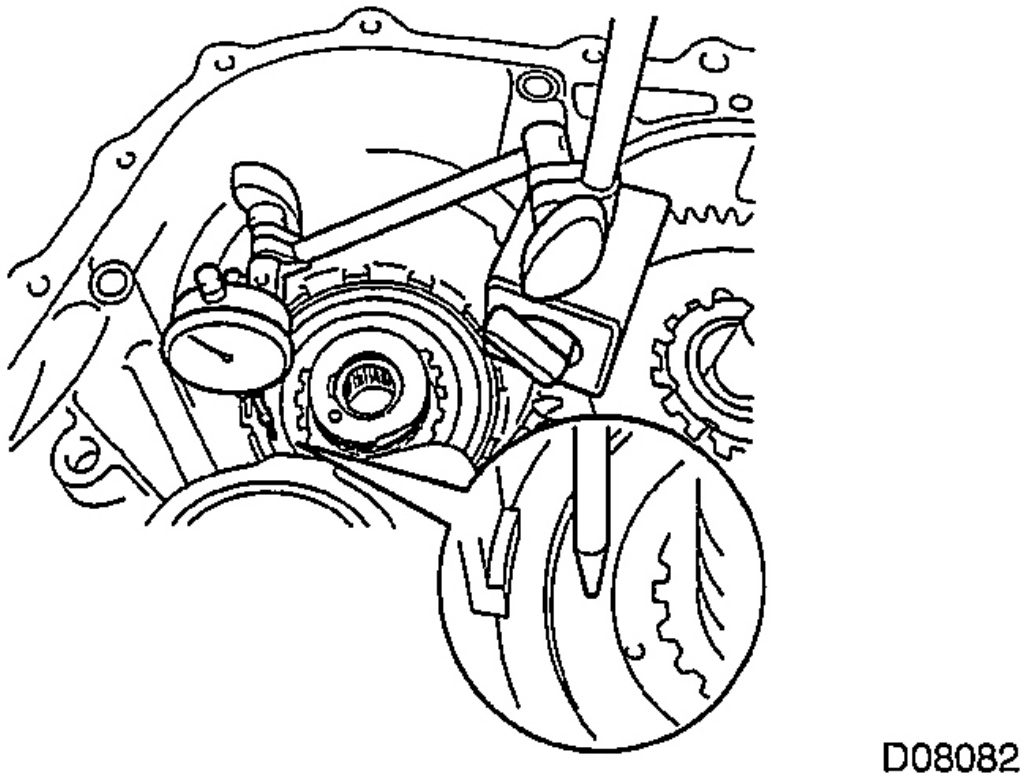


Fig. 176: Inspecting Pack Clearance Of Underdrive Clutch No. 2
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Flange thickness: mm (in.)

FLANGE THICKNESS - REFERENCE TABLE

Mark	Thickness	Mark	Thickness
Y	2.8 (0.110)	C	3.4 (0.134)
A	3.0 (0.118)	D	3.6 (0.142)
B	3.2 (0.126)	-	-

116. **INSPECT UNDERDRIVE 1 WAY CLUTCH ASSY**

a. Temporarily install the underdrive 1-way clutch assy to the underdrive clutch.
b. Rotate the underdrive clutch assy to check the rotating direction for lock or free operation.
c. Remove the underdrive 1-way clutch assy.

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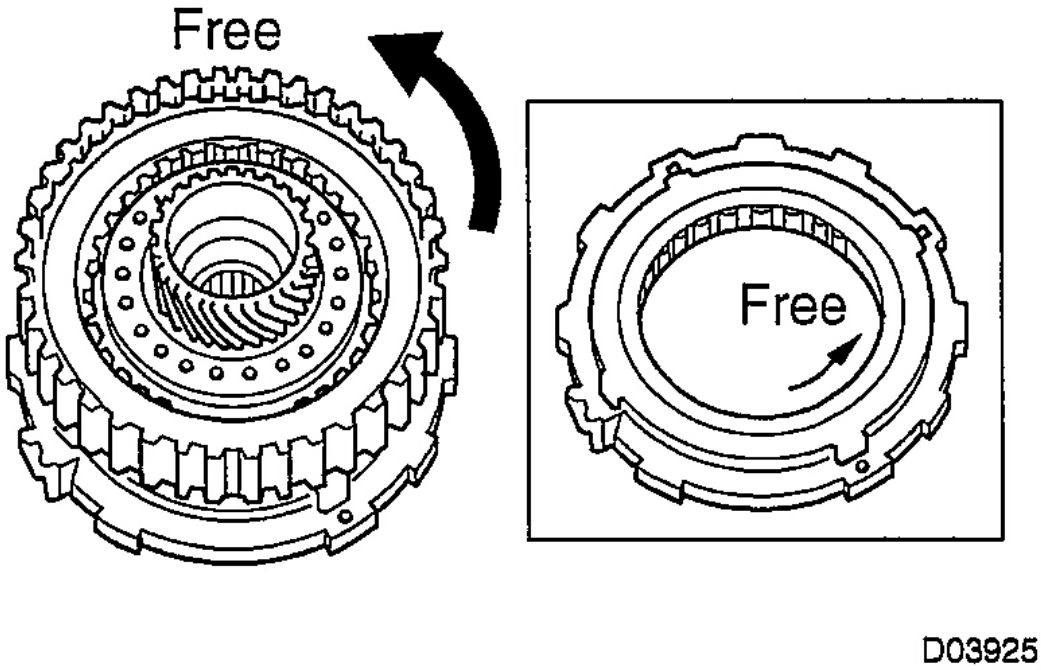


Fig. 177: Inspecting Underdrive 1 Way Clutch Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

117. **INSTALL UNDERDRIVE 1 WAY CLUTCH ASSY**

a. Install the outer race retainer to the underdrive 1-way clutch.

NOTE: Fix the outer race retainer to the external tooth of the 1-way clutch securely.

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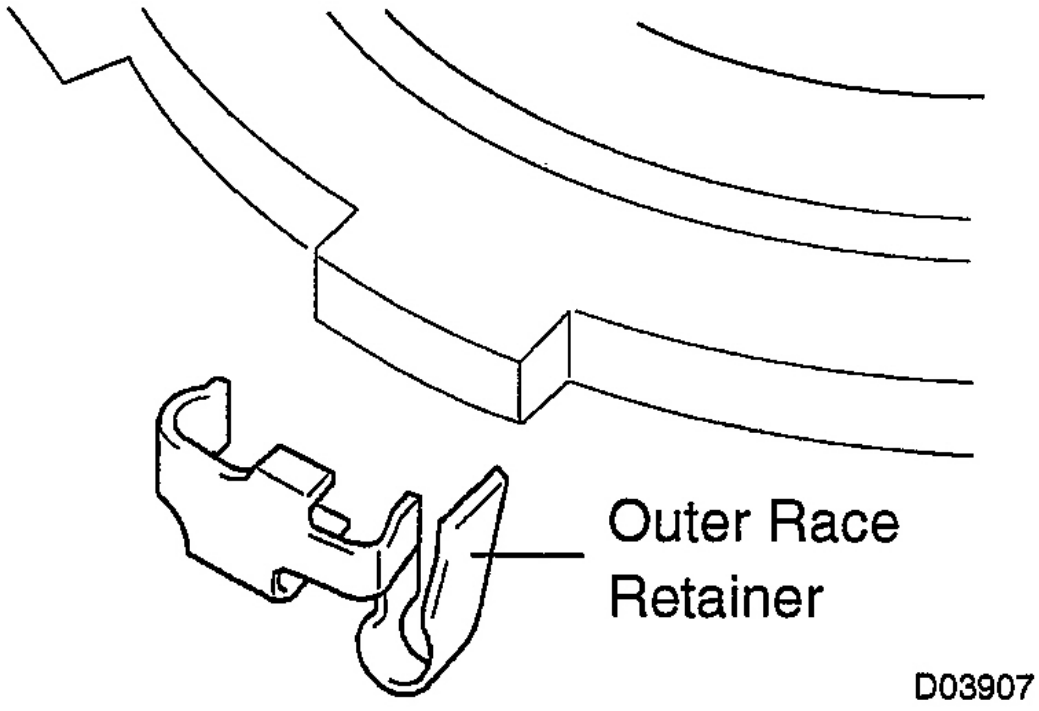


Fig. 178: Installing Outer Race Retainer To Underdrive 1-Way Clutch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the 1-way clutch to the transaxle case.

NOTE: Ensure that the outer race retainer and the mark on the transaxle case are aligned.

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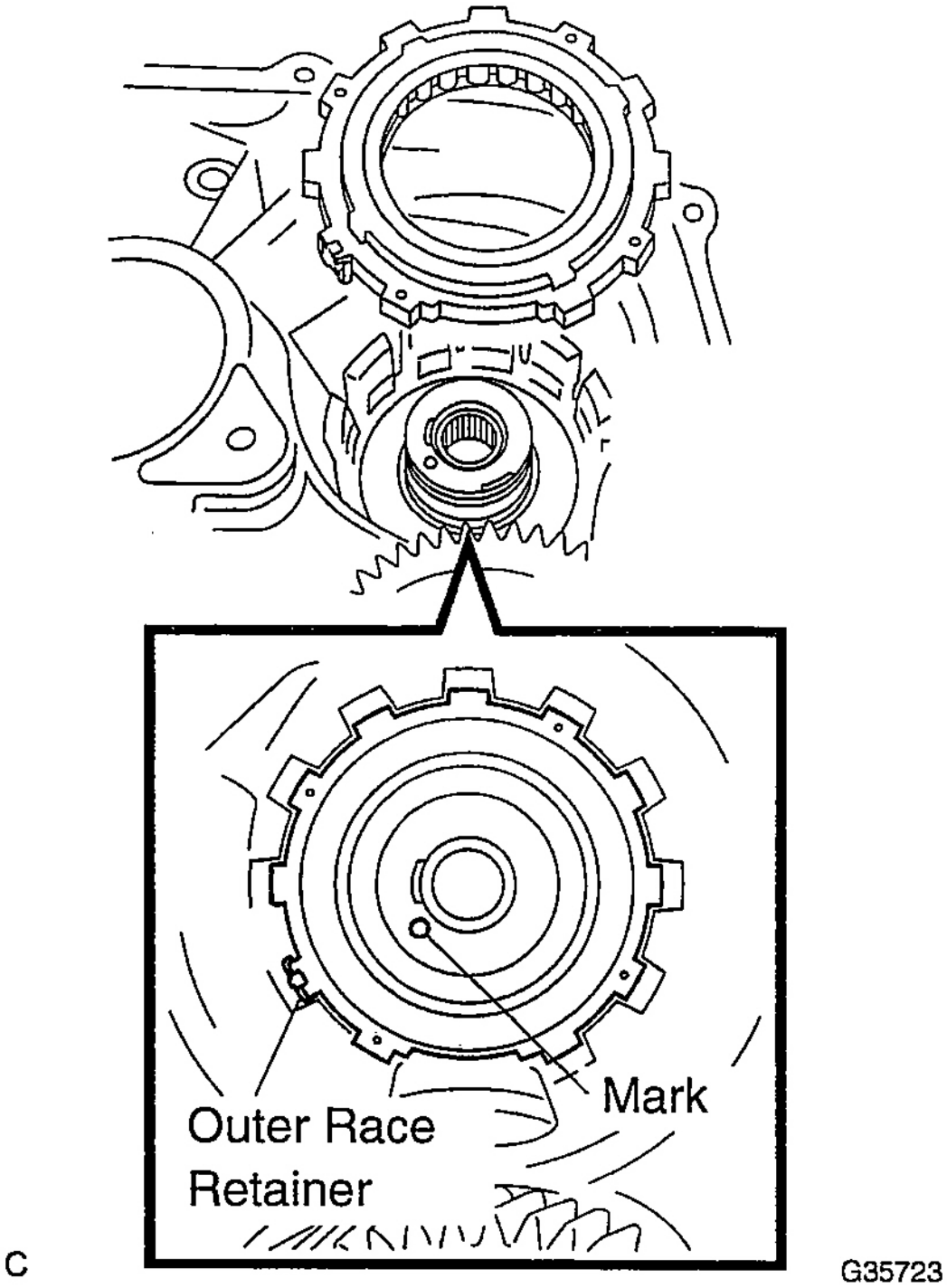


Fig. 179: Installing 1-Way Clutch To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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c. Using a screwdriver, install the snap ring to the transaxle case.

NOTE: The snap ring should be securely fixed in the groove of the transaxle case.

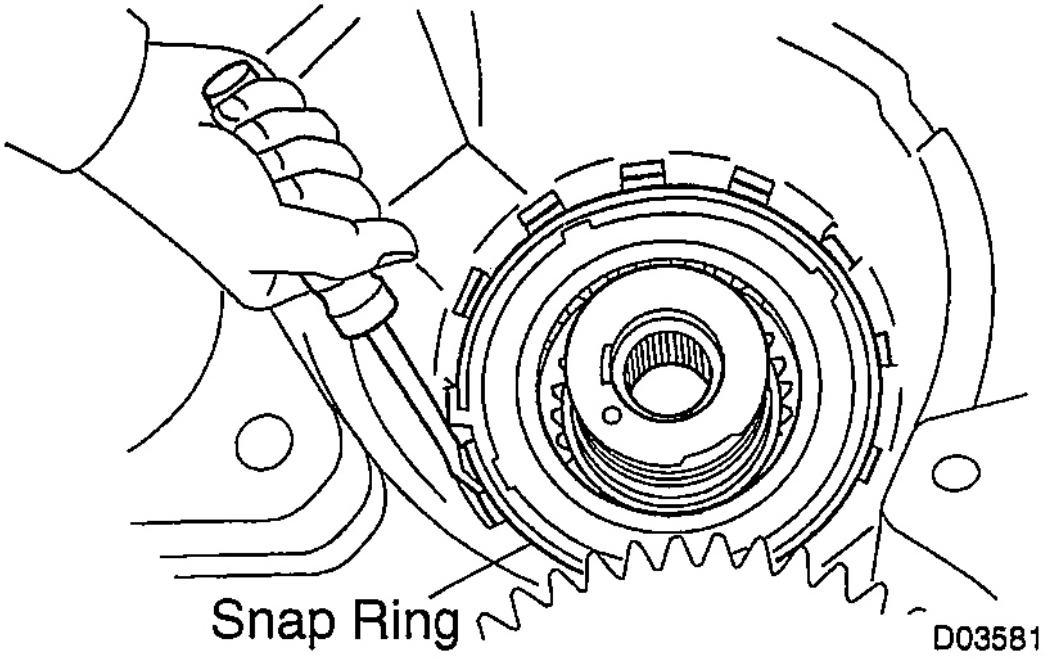


Fig. 180: Installing Snap Ring To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

118. **INSTALL UNDERDRIVE CLUTCH ASSY**

a. Coat the bearing and bearing race with ATF, and install them onto the underdrive clutch assy.

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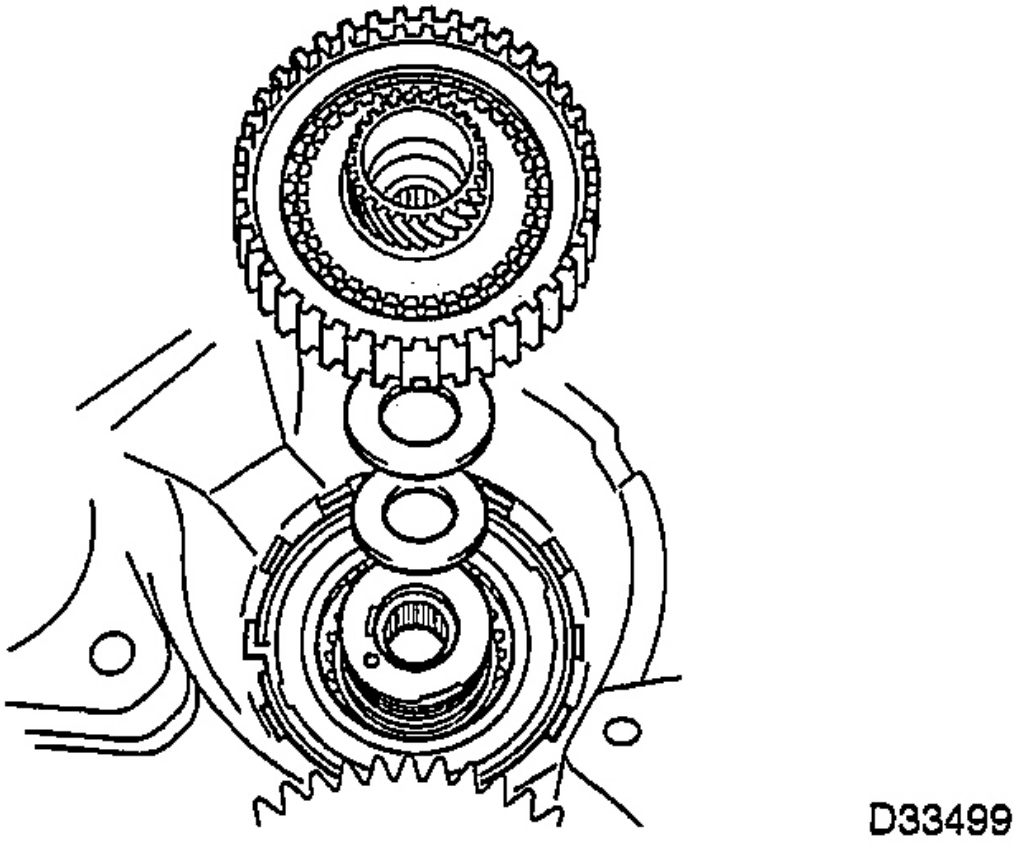


Fig. 181: Installing Underdrive Clutch Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Bearing and bearing race diameter: mm (in.)

BEARING AND BEARING RACE DIAMETER - REFERENCE TABLE

	Inside	Outside
Bearing	37.73 (1.4854)	58.0 (2.2835)
Race	29.9 (1.1772)	55.5 (2.1850)

b. Install the underdrive clutch assy to the transaxle case.

NOTE: When installing the underdrive clutch drum assy, be sure not to damage the oil seal rings.

119. **INSTALL PARKING LOCK PAWL**

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a. Install the pawl pin and spring to the parking lock pawl.

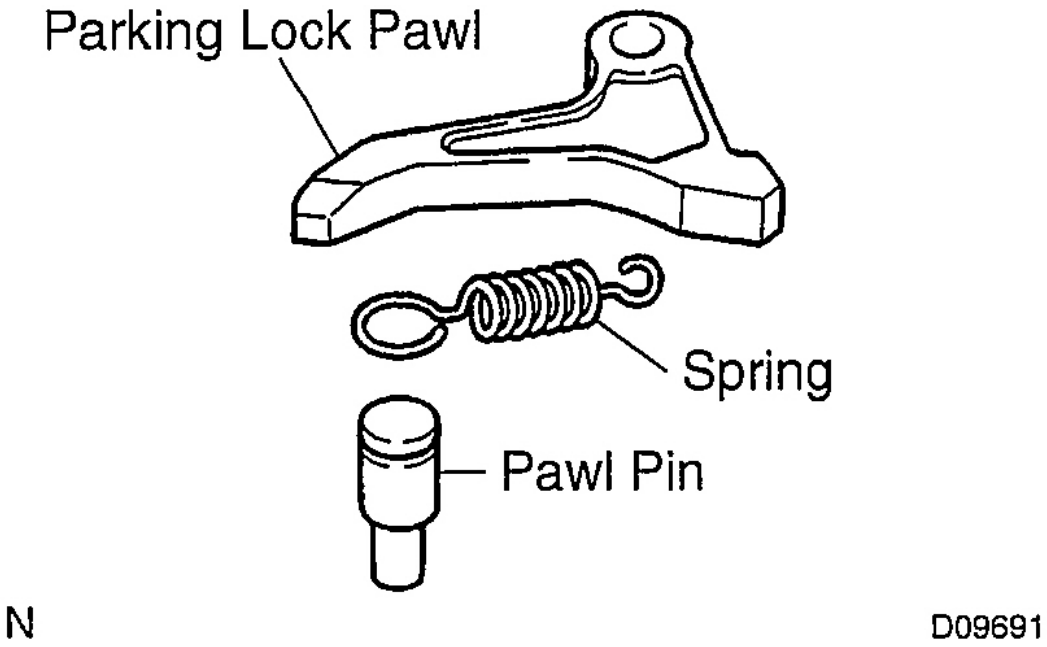


Fig. 182: Installing Pawl Pin And Spring To Parking Lock Pawl
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Temporarily install the parking lock pawl, pin and spring to the transaxle case, as shown in the illustration.

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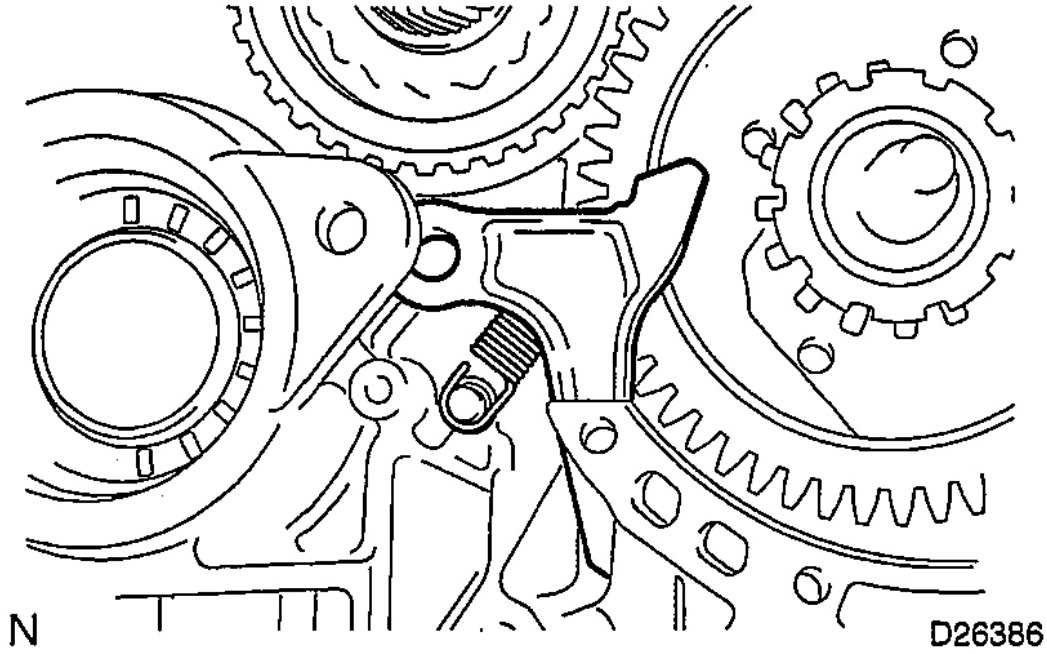


Fig. 183: Installing Parking Lock Pawl, Pin And Spring To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

120. **INSTALL UNDERDRIVE PLANETARY GEAR ASSY**

a. Install the underdrive planetary gear assy to the transaxle case.

NOTE: Engage all the discs of the underdrive clutch and hub splines of the underdrive planetary gear assy firmly and assemble them securely.

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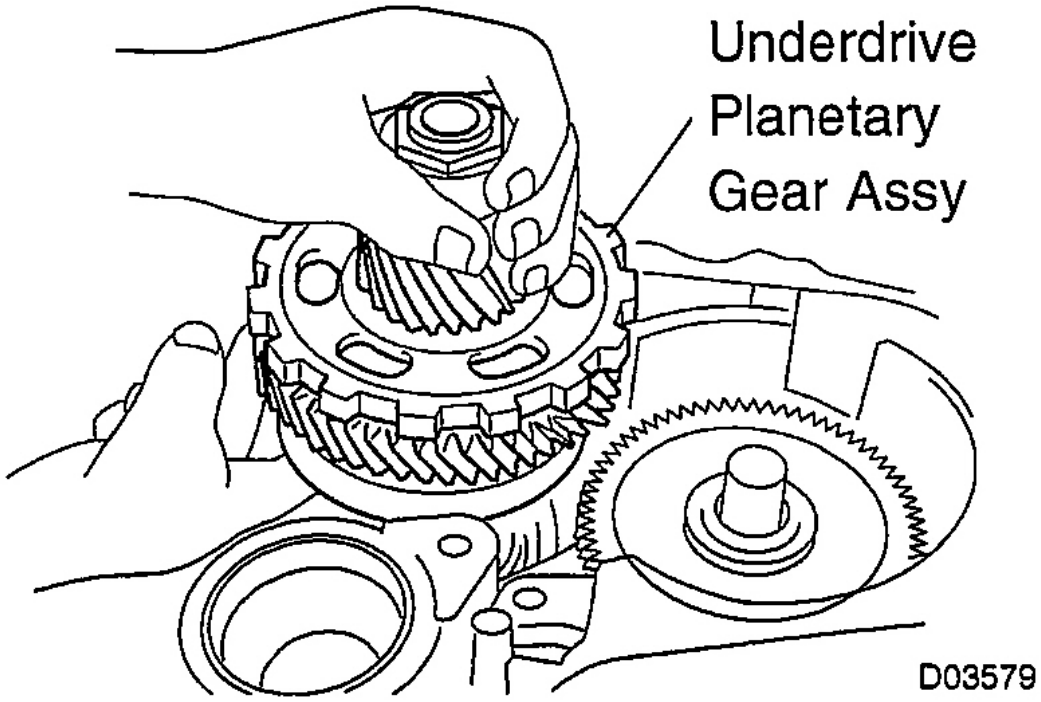


Fig. 184: Installing Underdrive Planetary Gear Assy To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the parking lock pawl shaft.

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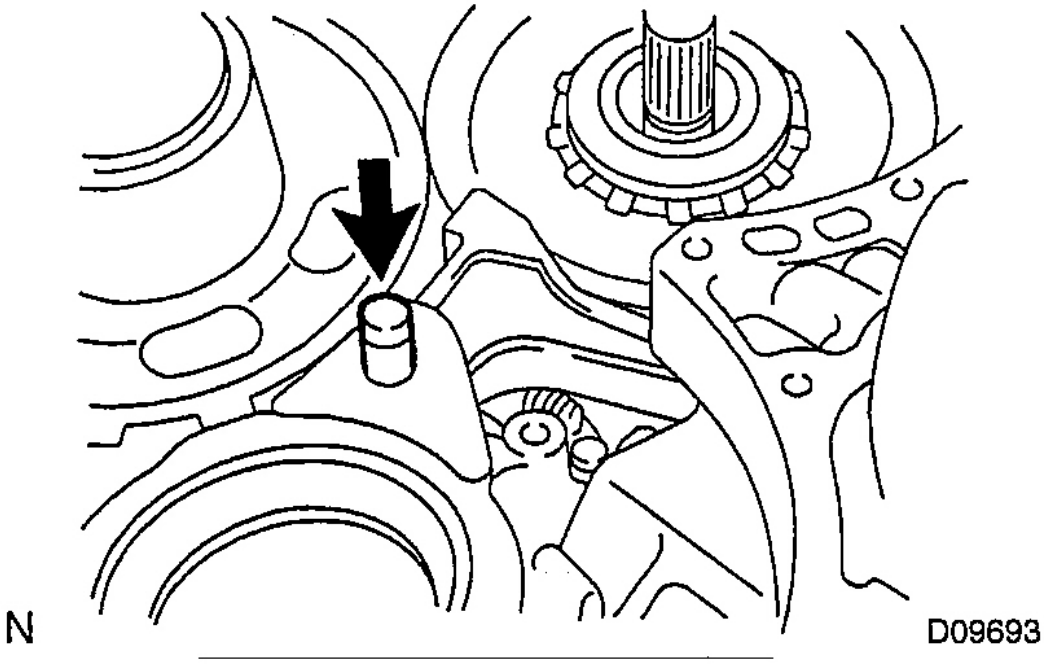


Fig. 185: Installing Parking Lock Pawl Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install the pawl shaft clamp with the bolt.

Torque: 9.8 N.m (100 kgf.cm, 87 in.lbf)

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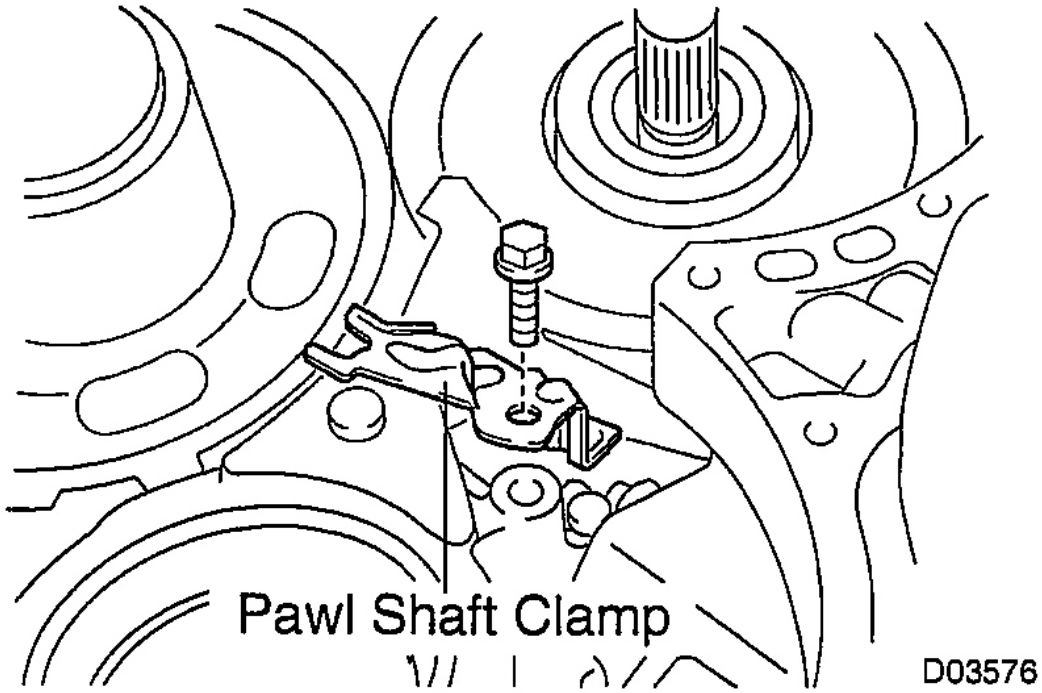


Fig. 186: Installing Pawl Shaft Clamp With Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Using a straight edge and vernier calipers as shown in the illustration, measure the gap between the top of the differential drive pinion in the underdrive planetary gear and the contact surface of the transaxle case and housing (Dimension E).

NOTE: Note down the dimension E as it is necessary for the following process.

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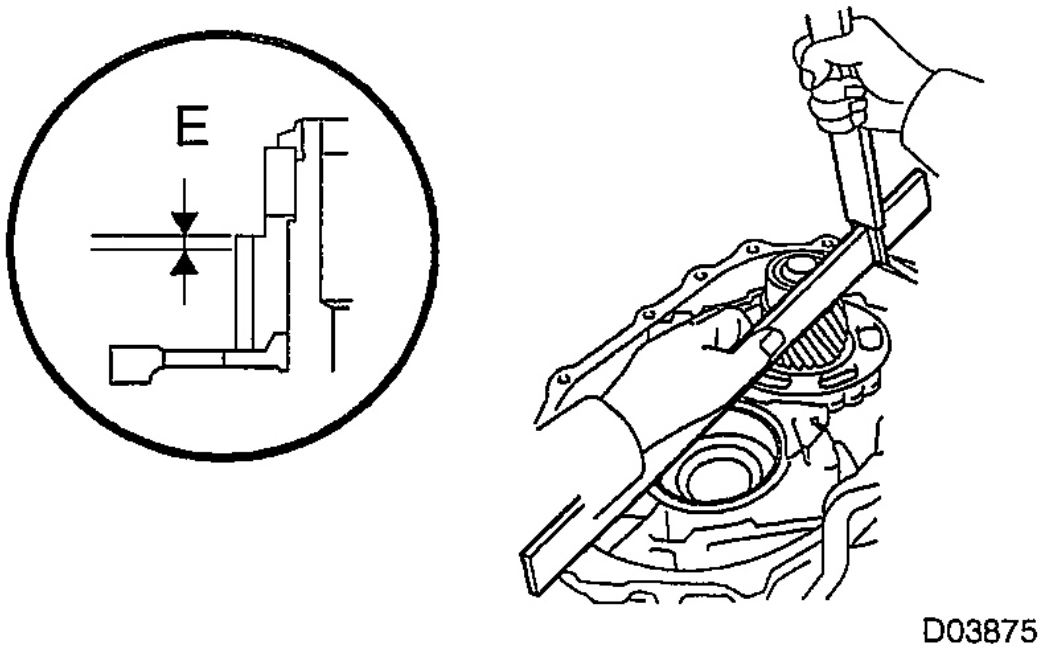


Fig. 187: Measuring Gap Between Differential Drive Pinion And Transaxle Case Contact Surface
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. As shown in the illustration, measure the 2 places of the transaxle housing, and calculate the dimension F using the following formula.

NOTE: Note down the dimension F as it is necessary for the following process.

HINT:

Dimension F = Dimension (1) - Dimension (2)

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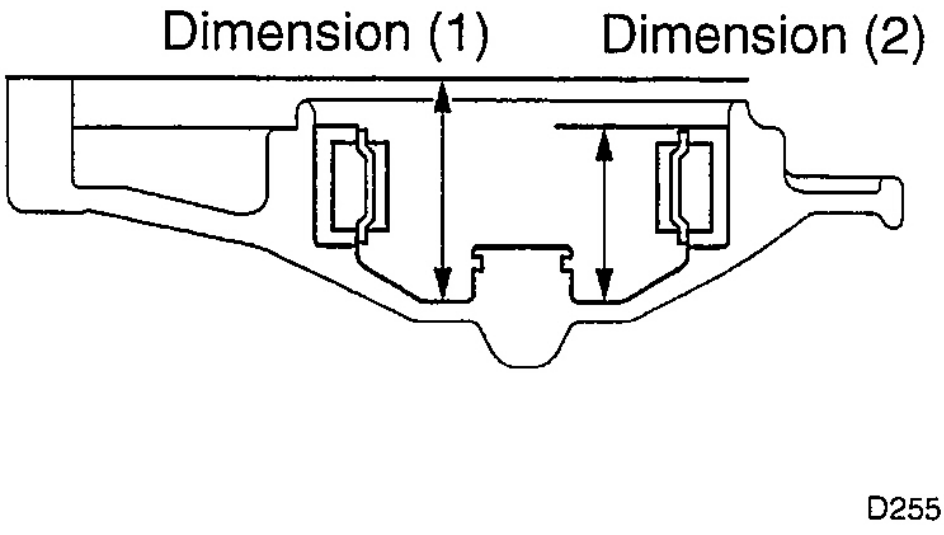


Fig. 188: Measuring Dimension Of Transaxle Housing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

121. **INSTALL MULTIPLE DISC CLUTCH, CLUTCH HUB**
    a. Install the thrust bearing race No.1 to the transaxle case in the correct direction.

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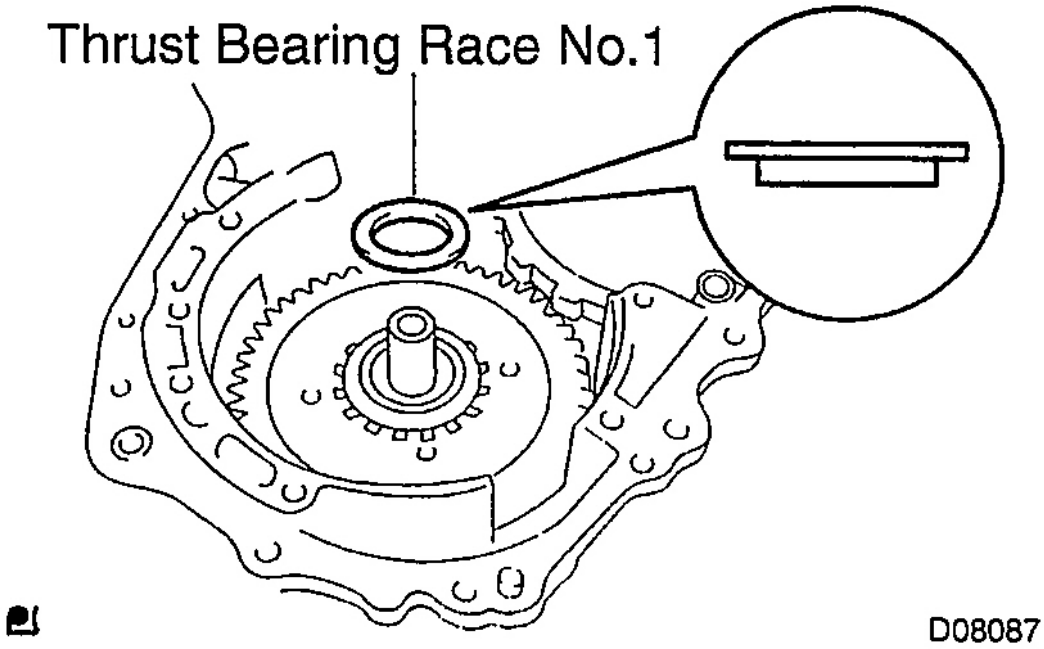


Fig. 189: Installing Thrust Bearing Race No. 1 To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Bearing race diameter: mm (in.)

BEARING RACE DIAMETER - REFERENCE TABLE

	Inside	Outside
Bearing race	34.5 (1.3583)	48.5 (1.9094)

b. Coat the thrust needle roller bearing with ATF, and install it onto the multiple disc clutch, clutch hub.

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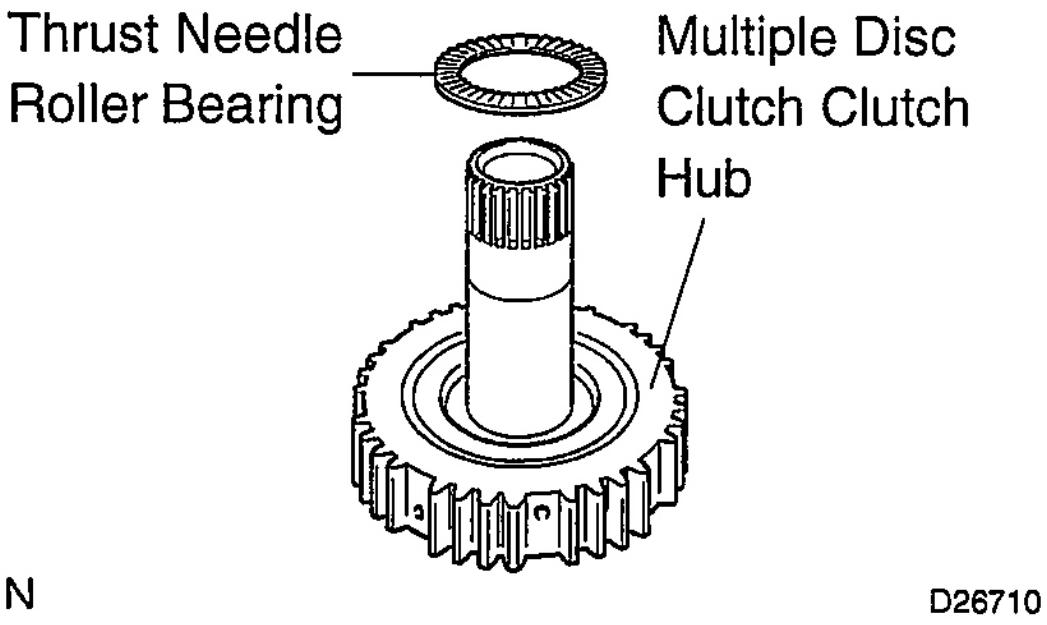


Fig. 190: Installing Thrust Needle Roller Bearing On Multiple Disc Clutch, Clutch Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Thrust bearing and race diameter: mm (in.)

THRUST BEARING AND RACE DIAMETER - REFERENCE TABLE

	Inside	Outside
Thrust Bearing	36.3 (1.4291)	52.2 (2.0551)

c. Coat the needle roller bearing with ATF.
d. Install the needle roller bearing to the multiple disc clutch, clutch hub.

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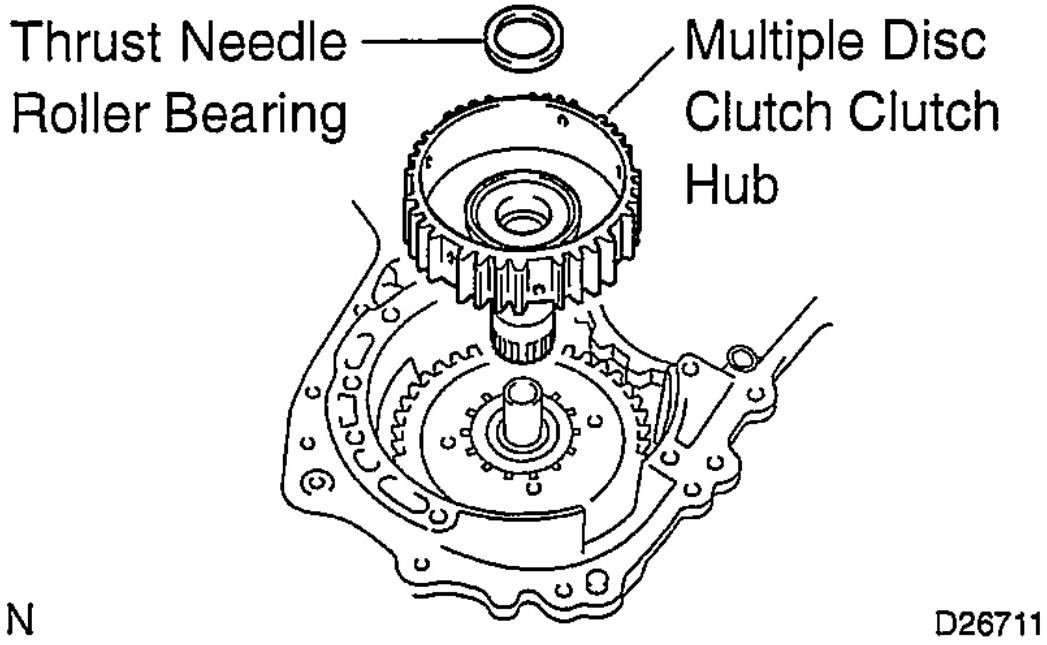


Fig. 191: Installing Needle Roller Bearing To Multiple Disc Clutch, Clutch Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Bearing diameter: mm (in.)

BEARING DIAMETER - REFERENCE TABLE

	Inside	Outside
Bearing	23.5 (0.9252)	44.0 (1.7323)

e. Install the multiple disc clutch, clutch hub to the transaxle case.

122. **INSTALL FORWARD CLUTCH ASSY**

a. Coat the thrust needle roller bearing with ATF.

b. Install the thrust needle roller bearing to the forward clutch assy.

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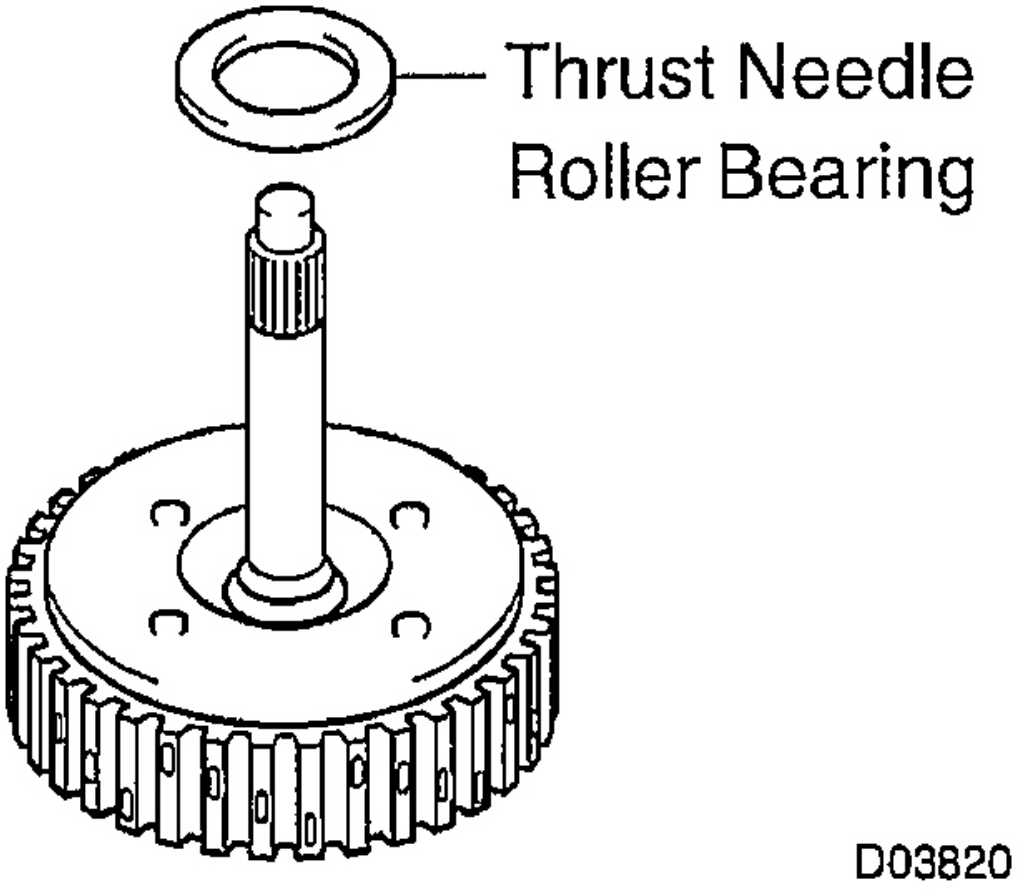


Fig. 192: Installing Thrust Bearing Roller Bearing To Forward Clutch Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Thrust bearing diameter: mm (in.)

THRUST BEARING DIAMETER - REFERENCE TABLE

	Inside	Outside
Thrust Bearing	33.85 (1.3327)	52.2 (2.0551)

NOTE: Install the thrust bearing properly so that temper colored race will be visible.

c. Install the forward clutch assy to the transaxle case.

NOTE:
- **Align the splines of all discs in the forward clutch assy with those of th**

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multiple clutch, clutch hub to assemble them securely.

- **Be careful not to damage the bush inside the forward clutch assy while installing.**

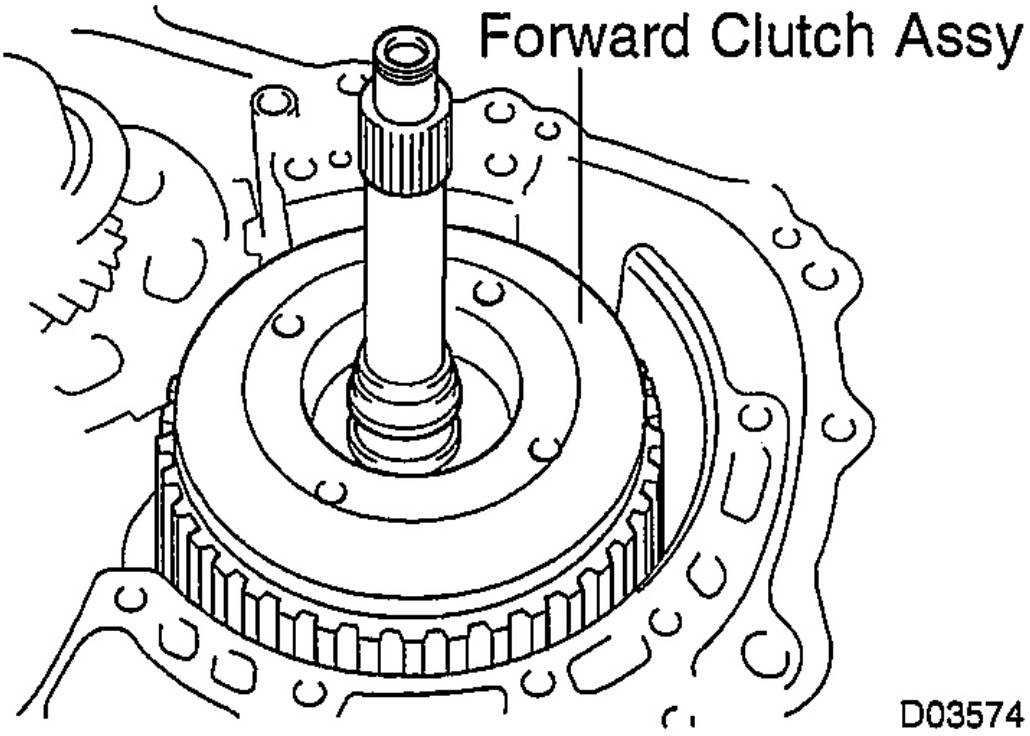


Fig. 193: Installing Forward Clutch Assy To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

123. **INSTALL OVERDRIVE BRAKE GASKET**

a. Install 2 new overdrive brake gaskets.

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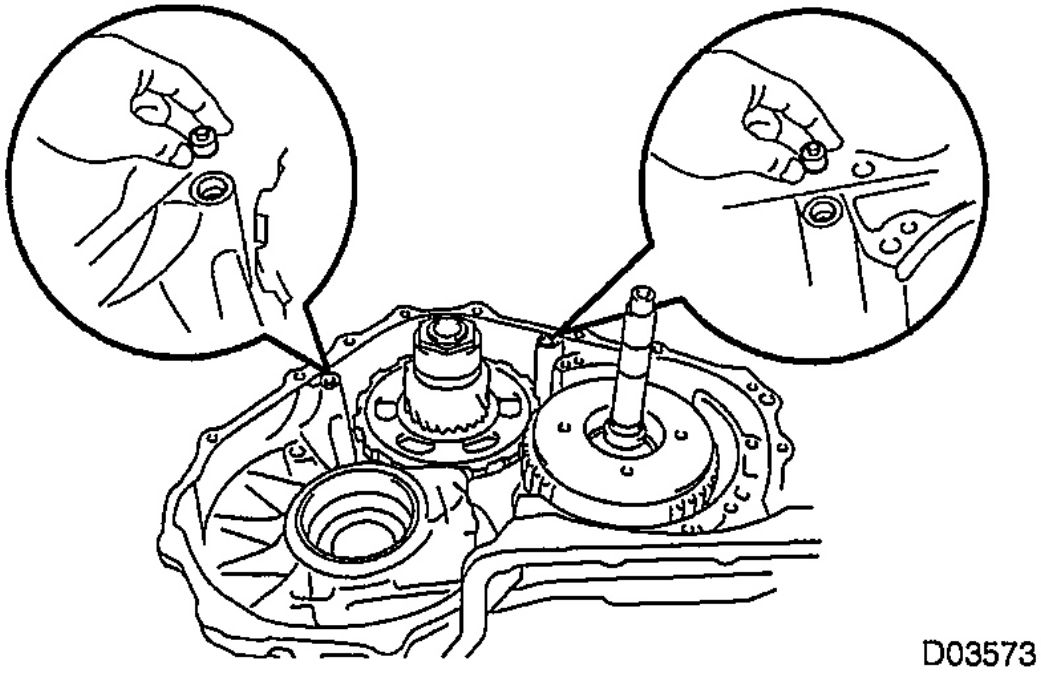


Fig. 194: Installing Overdrive Brake Gaskets
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

124. **INSTALL DIFFERENTIAL GEAR ASSY**
   a. Install the differential gear assy to the transaxle case.

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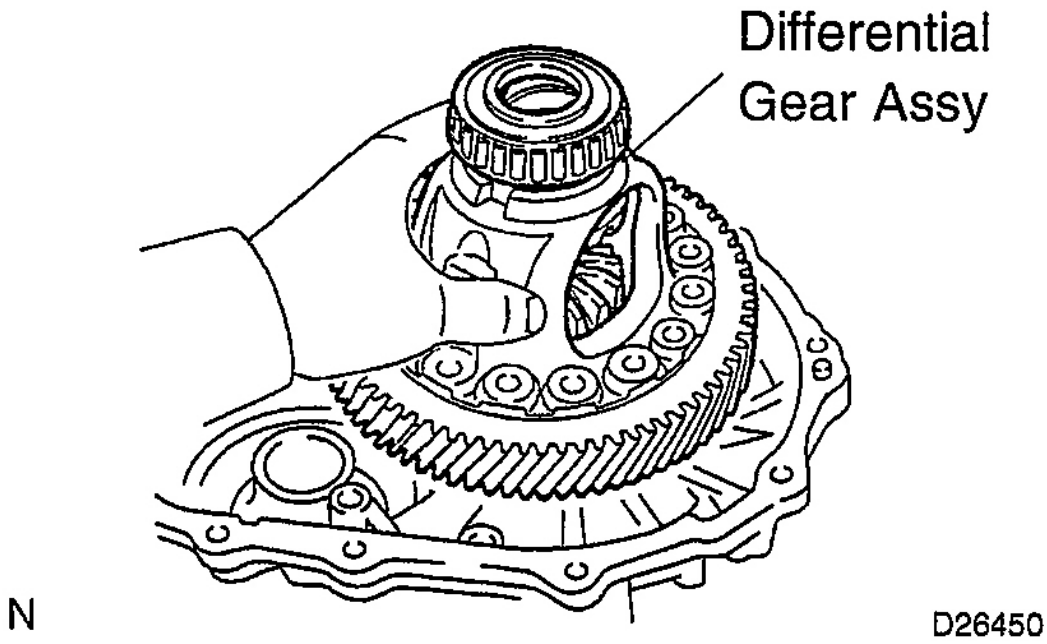


Fig. 195: Installing Differential Gear Assy To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

125. **INSTALL THRUST BEARING UNDERDRIVE RACE NO. 2**

a. Install the thrust bearing underdrive race No.2 to the underdrive planetary gear assy.

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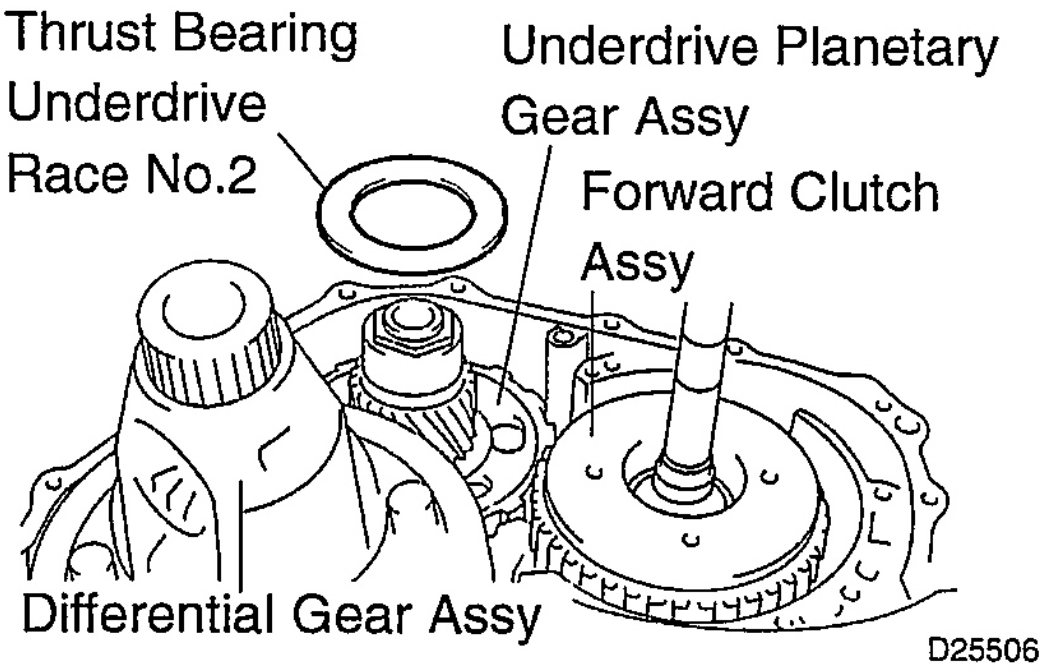


Fig. 196: Installing Thrust Bearing Underdrive Race No. 2
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

126. **INSTALL THRUST NEEDLE ROLLER BEARING**

a. Coat the thrust needle roller bearing with ATF.

b. Calculate the end play value using the following formula. (Dimensions E and F were measured when installing the needle roller bearing and underdrive planetary gear.) Select an appropriate underdrive planetary gear thrust bearing race No.2 which satisfies the specified end play value, and install it.

End play: 0.198 to 0.693 mm (0.00780 to 0.02728 in.)

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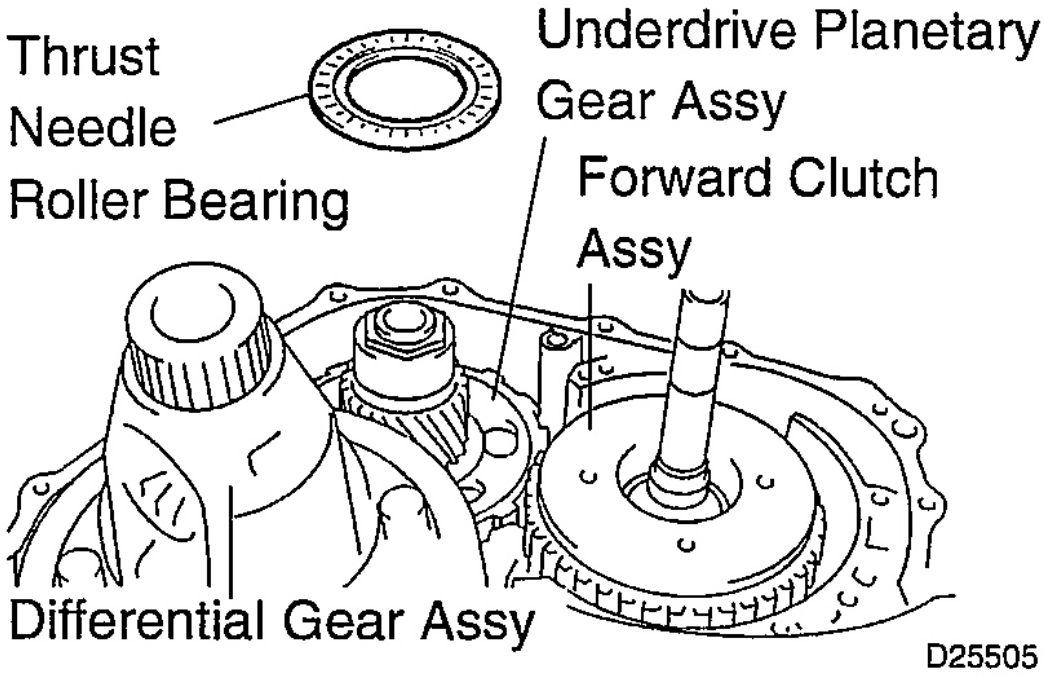


Fig. 197: Installing Thrust Needle Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

End play = Dimension F - Dimension E - Thrust bearing thickness 2.5 mm (0.0984 in.) - Underdrive thrust bearing race No.2 thickness.

Race thickness: mm (in.)

RACE THICKNESS - REFERENCE TABLE

F-E	Thickness
Less than 7.339 (0.2890)	3.5 (0.138)
7.339 (0.2890) or more	3.8 (0.150)

Bearing and bearing race diameter: mm (in.)

BEARING AND BEARING RACE DIAMETER - REFERENCE TABLE

	Inside	Outside
Bearing	53.0 (2.0866)	78.2 (3.0787)
Bearing race	52.1 (2.0512)	75.5 (2.9724)

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127. **INSTALL OIL PUMP ASSY**

a. Install the oil pump assy to the transaxle case with the 7 bolts.

Torque: 22 N.m (225 kgf.cm, 16 ft.lbf)

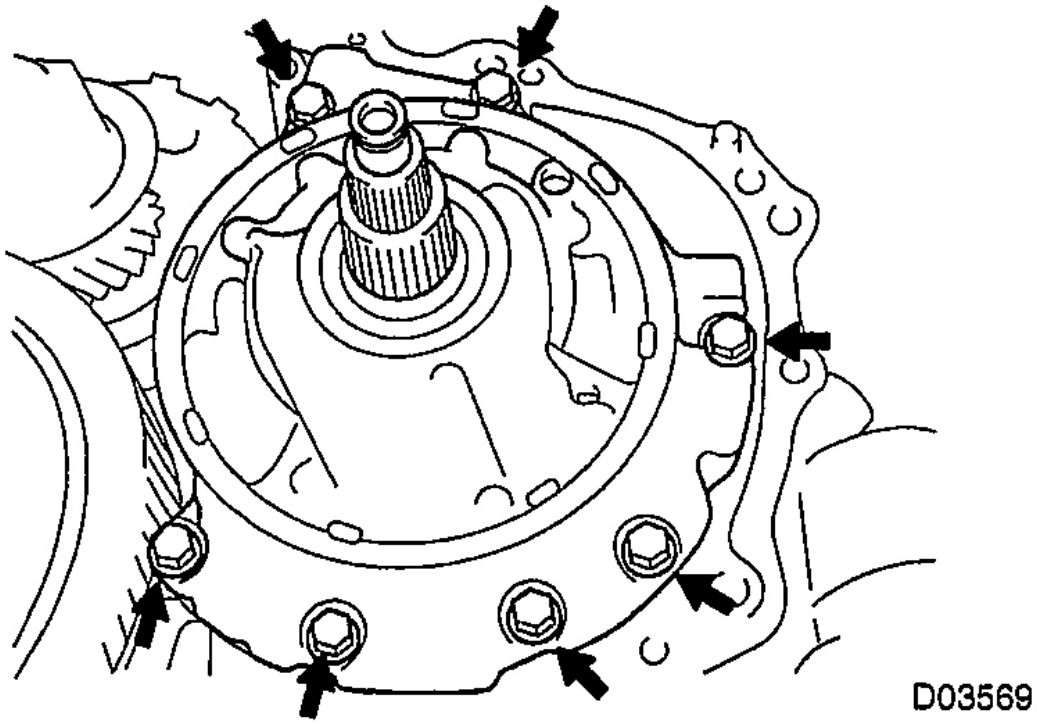


Fig. 198: Identifying Oil Pump Assy Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Coat the O-ring of the oil pump assy with ATF.

NOTE: Confirm the input shaft rotates smoothly with manual operation after assembling the oil pump assy.

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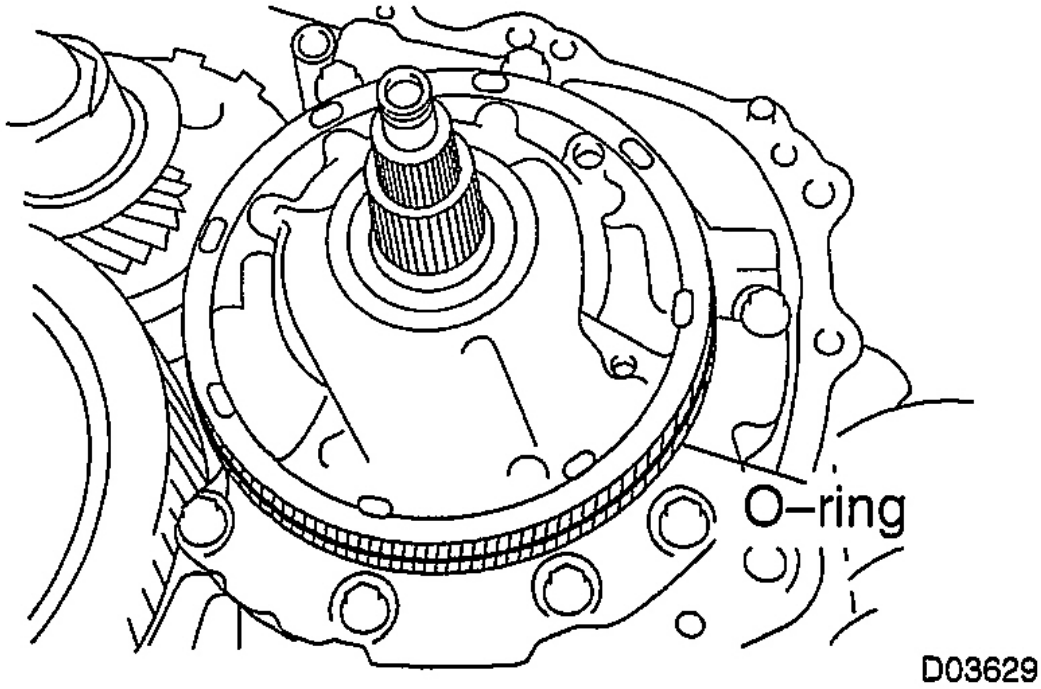


Fig. 199: Identifying O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

128. **INSTALL TRANSAXLE HOUSING**

a. Remove any packing material and be careful not to get oil on the contacting surface of the transaxle case or transaxle housing.

b. Apply FIPG to the transaxle case.

FIPG:

Part No. 08826-00090, THREE BOND 1281 or equivalent

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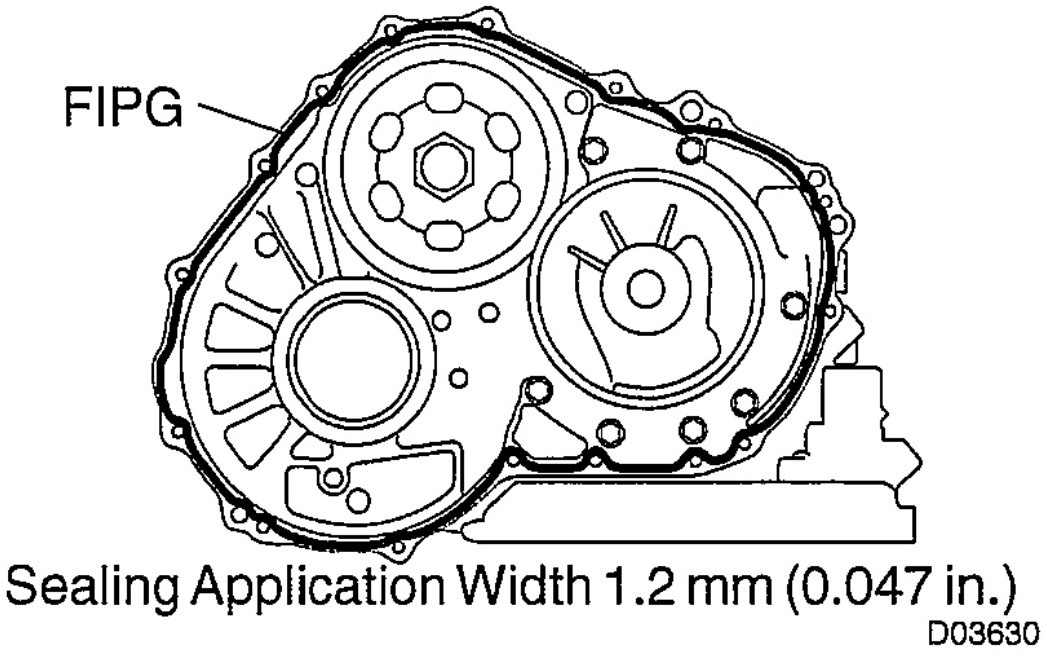


Fig. 200: Applying FIPG To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install the transaxle housing to the transaxle case with the 16 bolts.

Torque:

Bolt A: 22 N.m (225 kgf.cm, 16 ft.lbf)

Bolt B: 29 N.m (296 kgf.cm, 21 ft.lbf)

Bolt C: 29 N.m (296 kgf.cm, 21 ft.lbf)

HINT:

Apply seal packing or equivalent to the bolts A.

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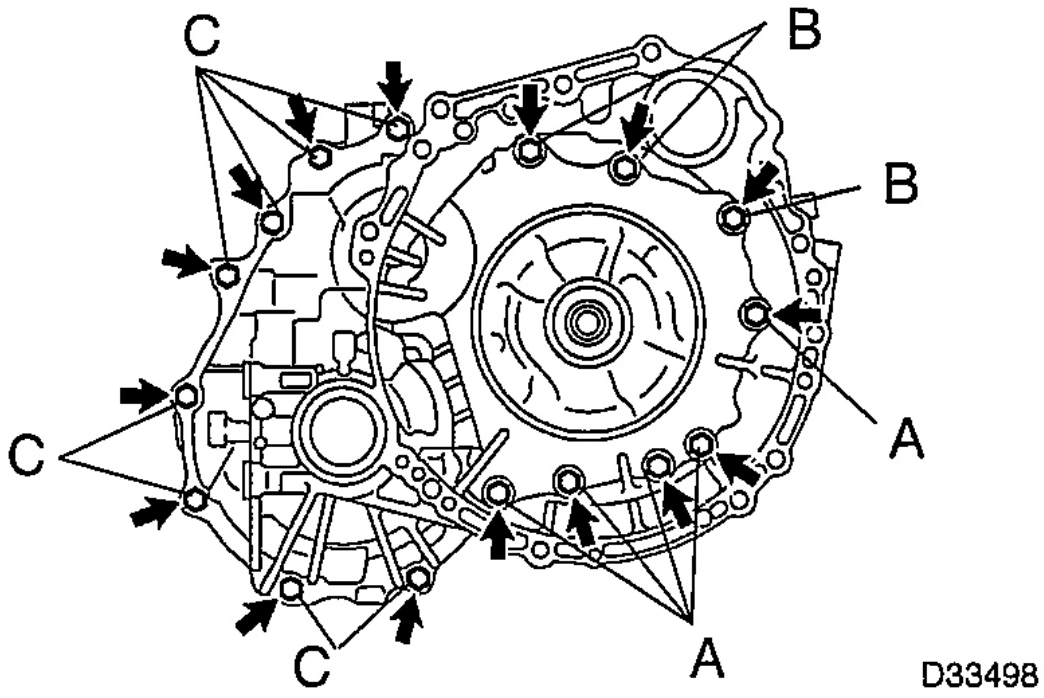


Fig. 201: Installing Transaxle Housing To Transaxle Case With Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Sealant:

Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent.

Bolt A: 50 mm (1.969 in.)

Bolt B: 50 mm (1.969 in.)

Bolt C: 42 mm (1.654 in.)

NOTE: Because the bolts A are seal bolts, apply seal packing to them and tighten within 10 minutes of application.

129. **INSPECT INPUT SHAFT ENDPLAY**

a. Using a dial indicator, measure the input shaft end play.

End play: 0.262 to 1.249 mm (0.0100 to 0.0494 in.)

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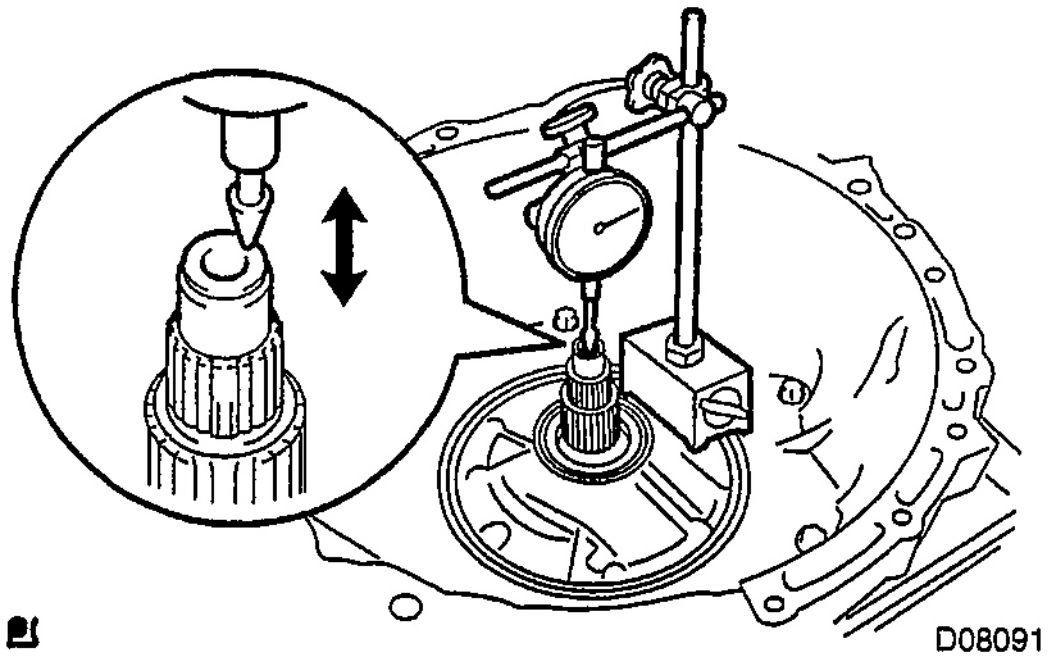


Fig. 202: Measuring Input Shaft End Play
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

130. **FIX AUTOMATIC TRANSAXLE ASSY**
   a. Fix the transaxle assy.

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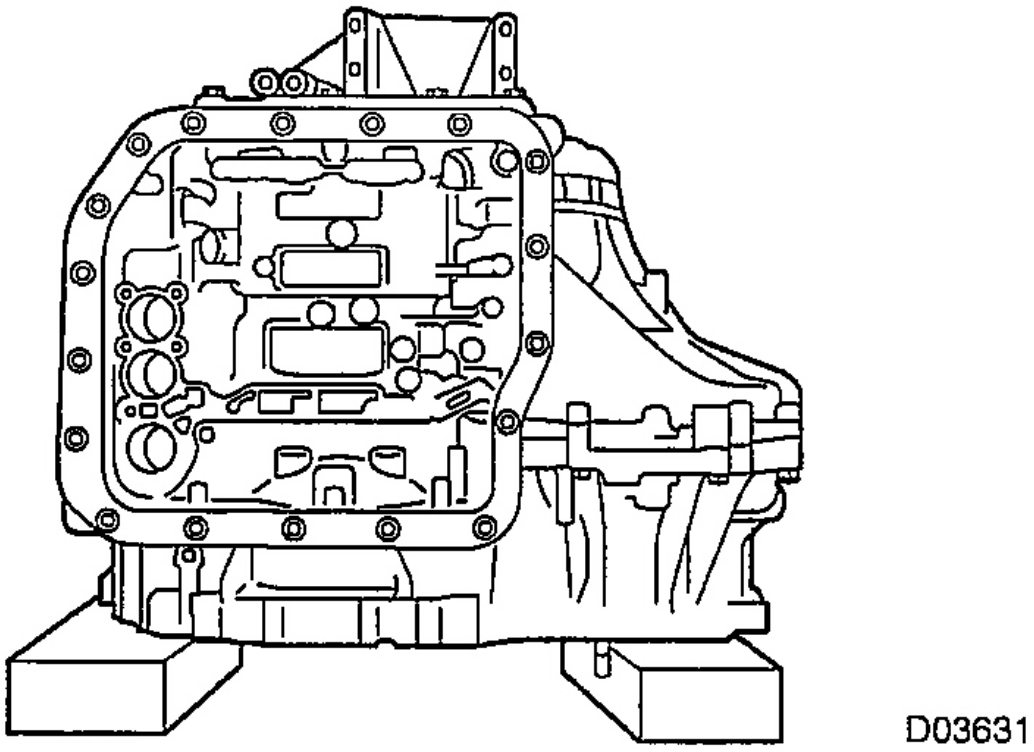


Fig. 203: Fixing Transaxle Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

131. **INSTALL MANUAL VALVE LEVER SHAFT OIL SEAL**
   a. Coat a new oil seal with MP grease.
   b. Install the oil seal to the transaxle case.

   SST 09950-60010 (09951-00230), 09950-70010 (09951-07100)

   Oil seal drive in depth: -0.5 to 0.5 (-0.0197 to 0.0197in.)

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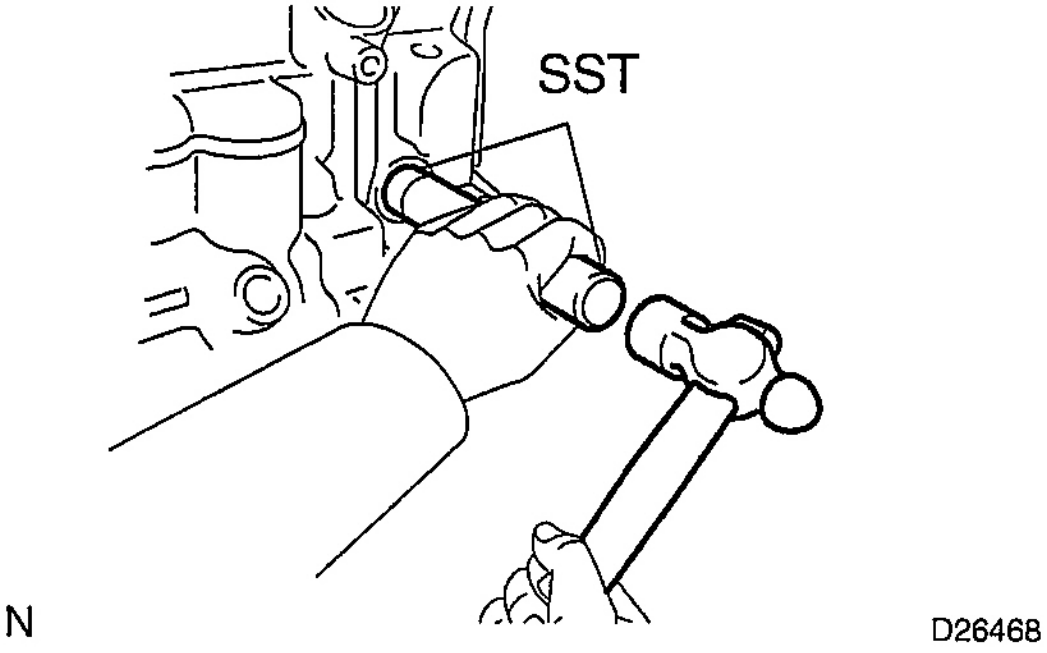


Fig. 204: Installing Oil Seal To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

132. **INSTALL PARKING LOCK ROD SUB-ASSY**

a. Install the parking lock rod to the manual valve lever.

HINT:

Align the dial with the notches on the manual valve lever and turn the dial 90° to install the parking lock rod.

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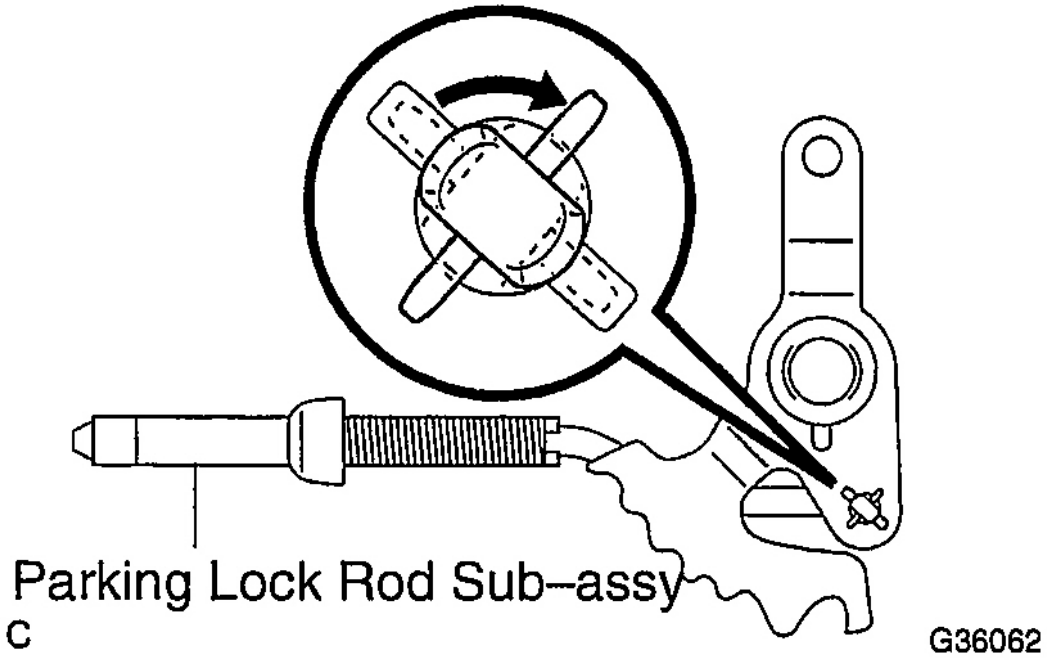


Fig. 205: Installing Parking Lock Rod Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

133. **INSTALL MANUAL VALVE LEVER SUB-ASSY**

a. Install a new spacer and the manual valve lever shaft to the transaxle case.

NOTE: Do not damage the oil seal while installing the shaft to the transaxle case.

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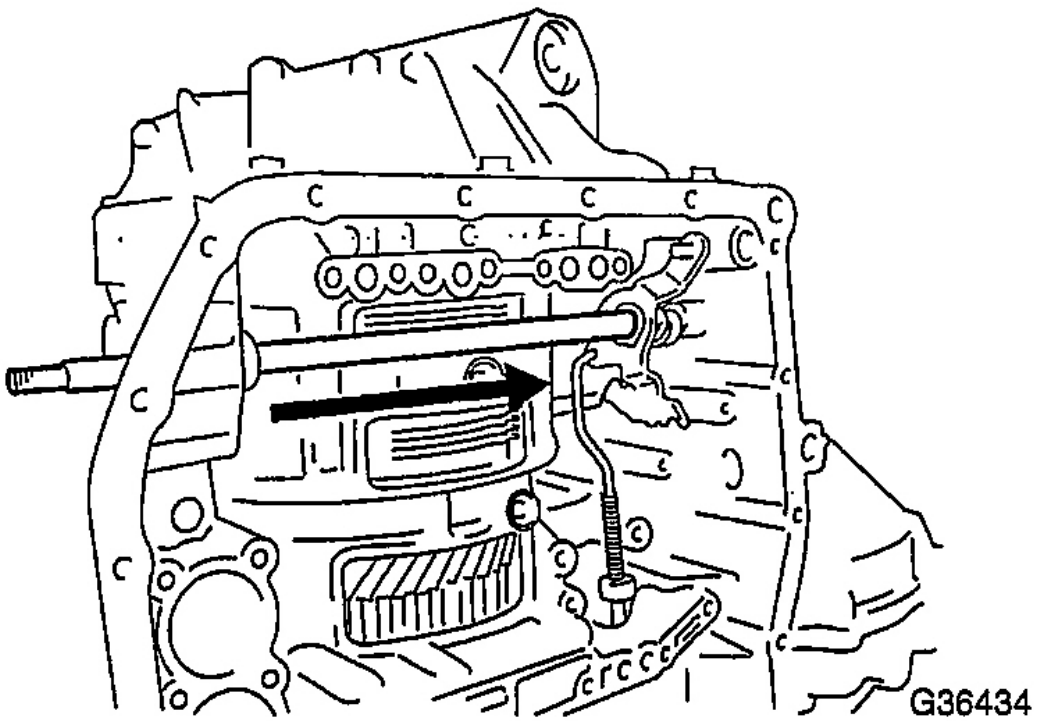


Fig. 206: Installing Manual Valve Lever Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a pin punch and hammer, drive in a new pin.

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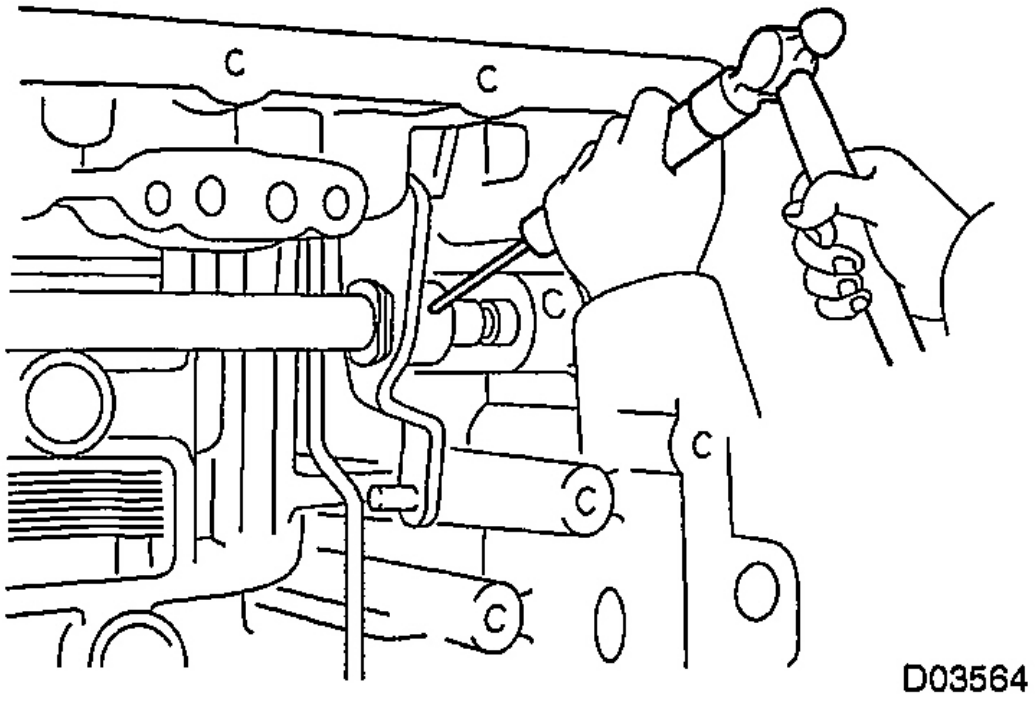


Fig. 207: Installing Pin Using Pin Punch And Hammer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Turn the spacer and the lever shaft to align the smaller hole of the spacer with the staking position mark on the lever shaft.
d. Using a pin punch, stake the spacer through the smaller hole.
e. Check that the spacer does not turn.

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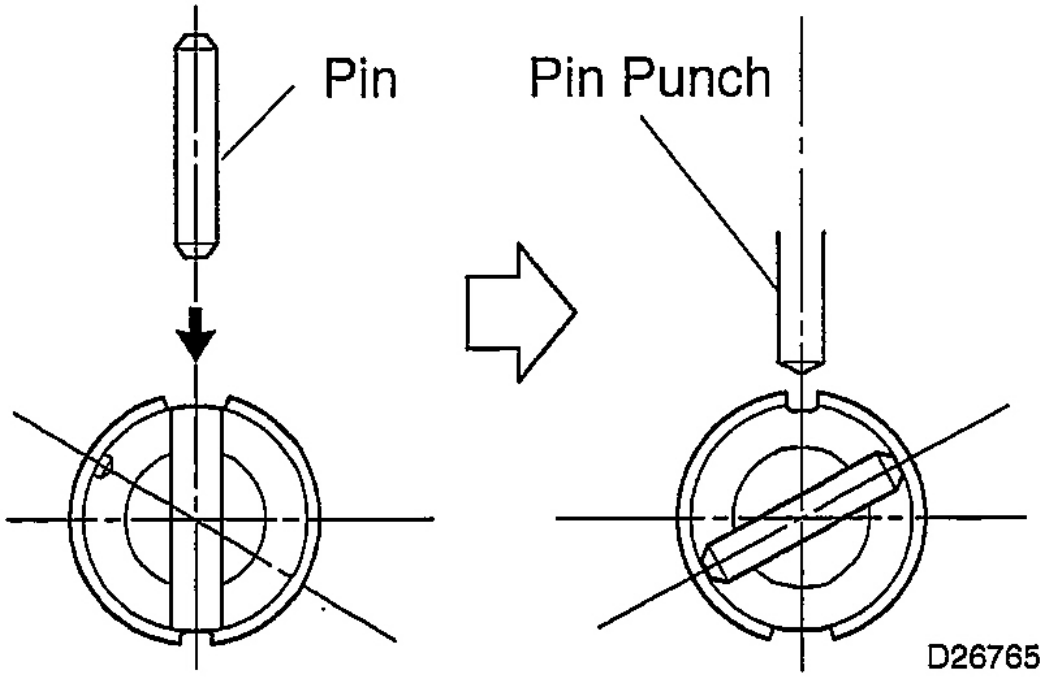


Fig. 208: Installing Spacer Using A Pin Punch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

134. **INSTALL MANUAL VALVE LEVER SHAFT RETAINER SPRING**

a. Using needle-nose pliers, install the retainer spring.

NOTE: Hang the spring on the shaft securely.

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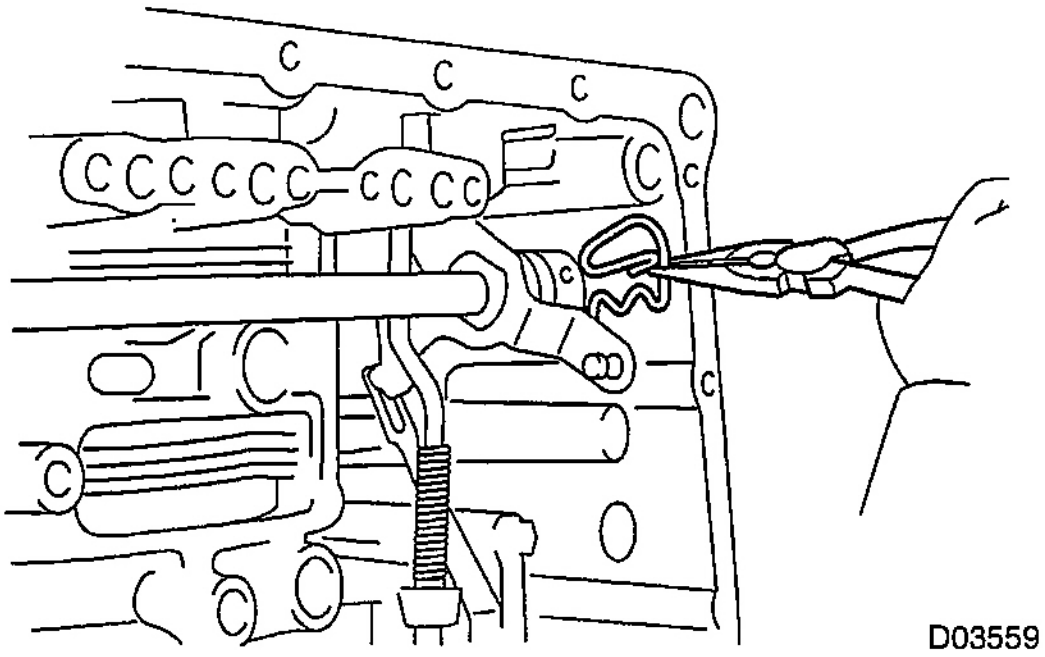


Fig. 209: Installing Manual Valve Lever Shaft Retainer Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

135. **INSTALL PARKING LOCK PAWL BRACKET**

a. Install the parking lock pawl bracket with the 2 bolts.

Torque: 20 N.m (205 kgf.cm, 15 ft.lbf)

Bolt length: 25 mm (0.984 in.)

NOTE: Be sure the parking rod is placed between the parking pawl and the guide of the parking bracket when the parking bracket is installed.

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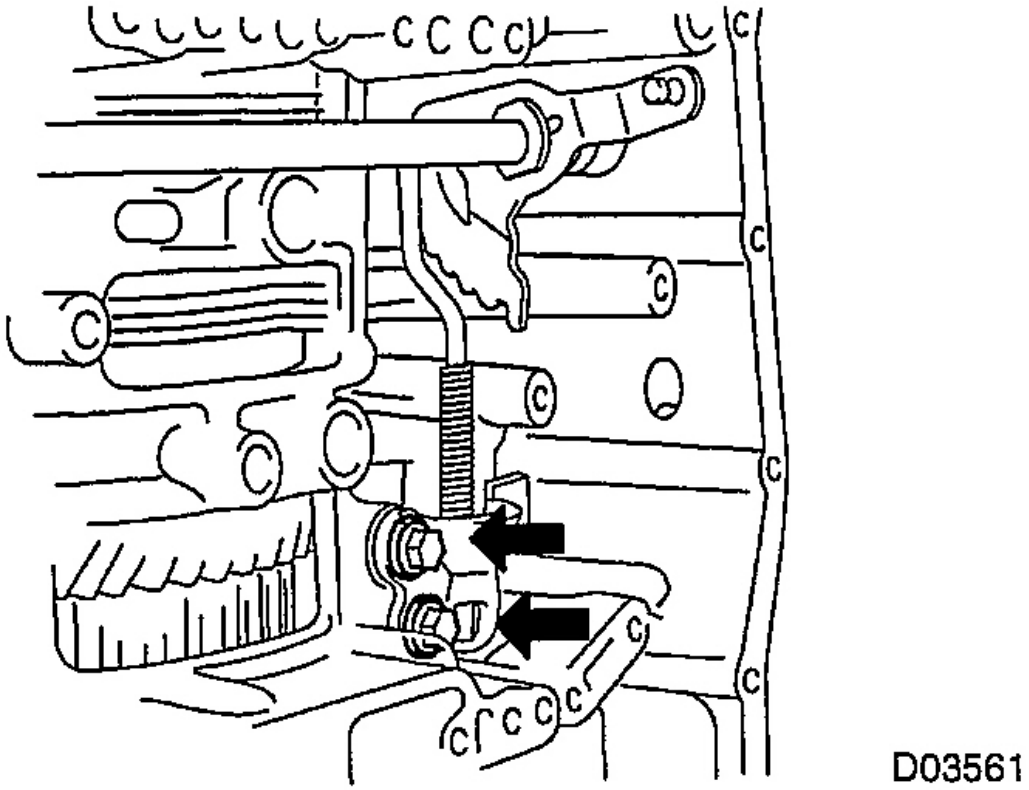


Fig. 210: Installing Parking Lock Pawl Bracket With Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

136. **INSTALL MANUAL DETENT SPRING SUB-ASSY**

a. Install the manual detent spring sub-assy with the 2 bolts.

NOTE: Make sure to install the manual detent spring first and then the cover.

HINT:

First tighten bolt A then bolt B.

Torque:

Bolt A: 20 N.m (205 kgf.cm, 15 ft.lbf)

Bolt B: 12 N.m (120 kgf.cm, 9 ft.lbf)

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Bolt length:

Bolt A: 27 mm (1.063 in.)

Bolt B: 16 mm (0.630 in.)

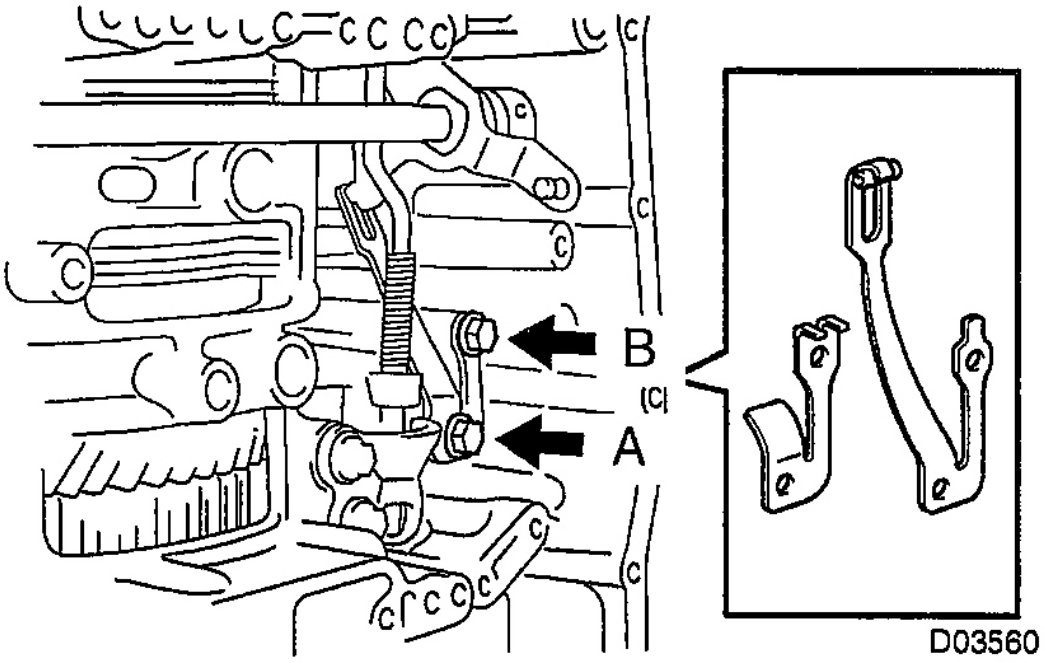


Fig. 211: Identifying Manual Detent Spring Sub-Assy And Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

137. **INSTALL B-3 ACCUMULATOR PISTON**

a. Coat a new O-ring with ATF, and install it to the B-3 accumulator piston.

NOTE: Ensure that the O-ring is not twisted.

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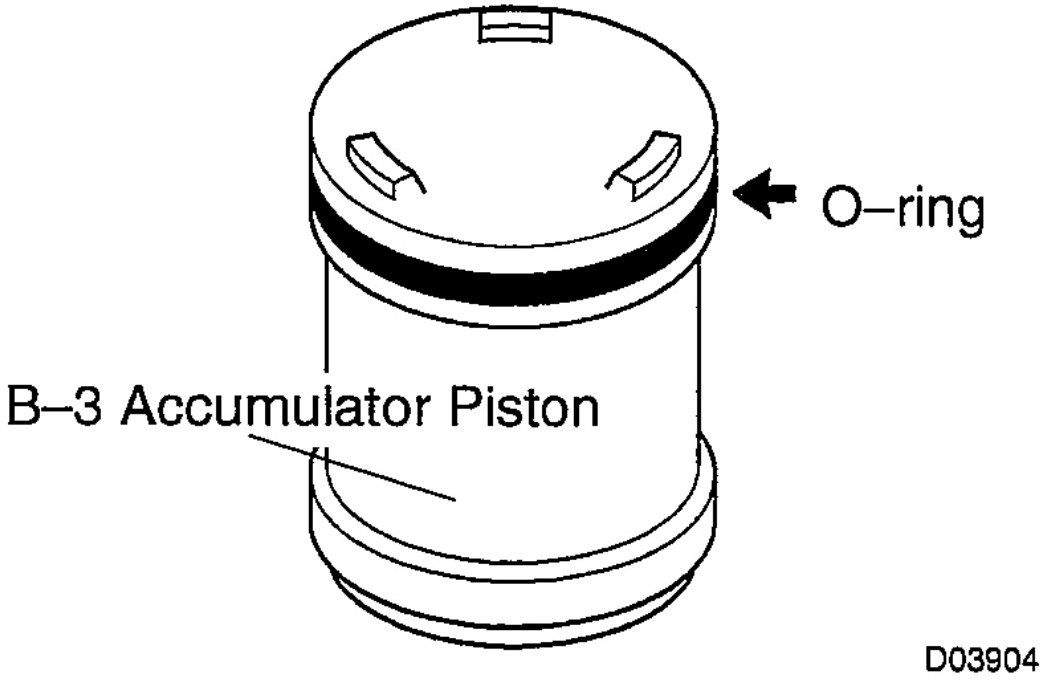


Fig. 212: Installing O-Ring To B-3 Accumulator Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Coat the piston with ATF.
c. Install the 2 compression springs and piston.

NOTE: Install the correct springs to the B-3 accumulator piston by checking the color or dimension of the springs.

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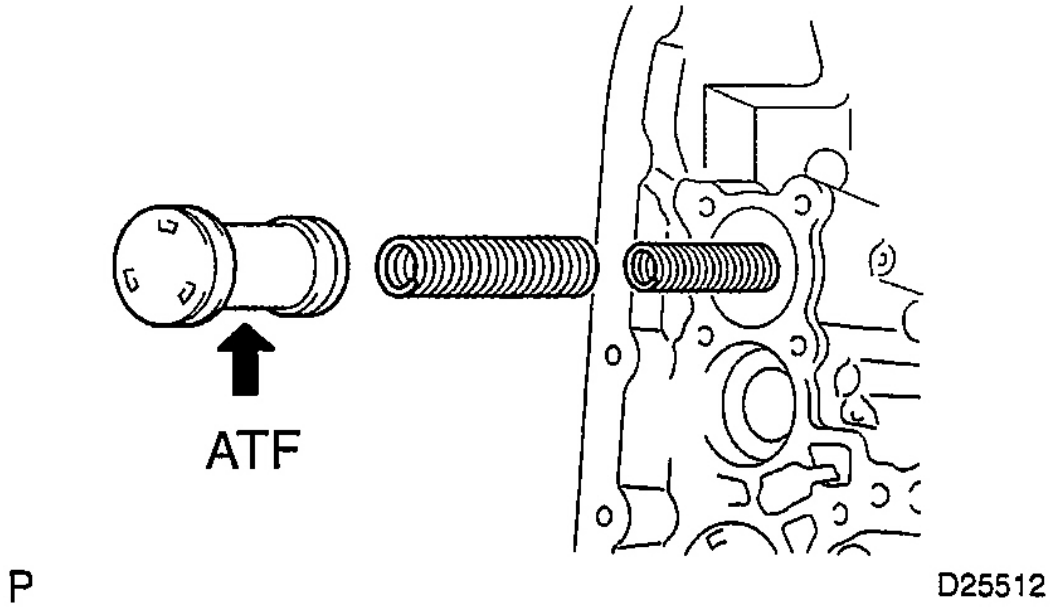


Fig. 213: Installing Compression Springs And Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Accumulator spring:

ACCUMULATOR SPRING - REFERENCE TABLE

Free length Outer diameter mm (in.)	Color
Inner 62.00 (2.4409)/ 15.50 (0.610)	Purple
Outer 74.23 (2.9224)/ 21.70 (0.854)	Purple

138. **INSTALL REVERSE CLUTCH ACCUMULATOR PISTON**

a. Coat 2 new O-rings with ATF, and install them to the reverse accumulator piston.

NOTE: Ensure that the O-rings are not twisted.

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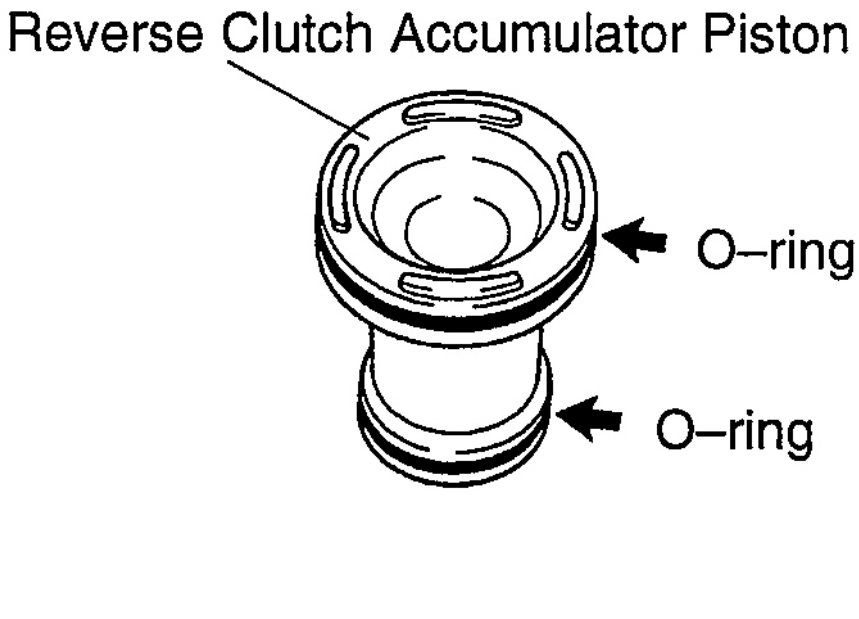


Fig. 214: Installing O-Rings To Reverse Accumulator Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Coat the piston with ATF, and install the spring and piston to the transaxle case.

NOTE: Install the correct spring to the reverse accumulator piston by checking the color or dimension of the spring.

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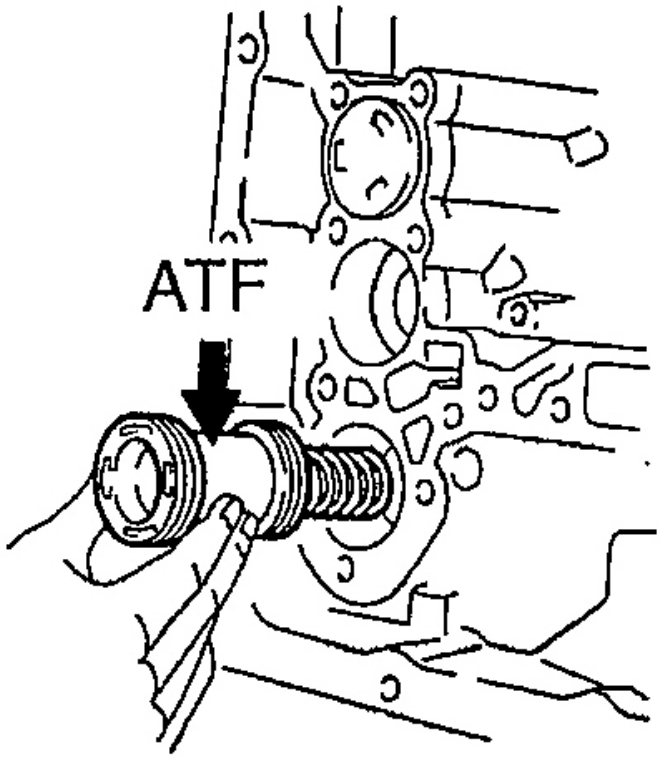


Fig. 215: Installing Spring And Piston To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Accumulator spring:

ACCUMULATOR SPRING - REFERENCE TABLE

Free length Outer diameter mm (in.)	Color
60.96 (2.3999)/ 14.10 (0.555)	Yellow

139. **INSTALL C-3 ACCUMULATOR PISTON**

a. Coat a new O-ring with ATF, and install it to the C-3 accumulator piston.

NOTE: Ensure that the O-ring is not twisted.

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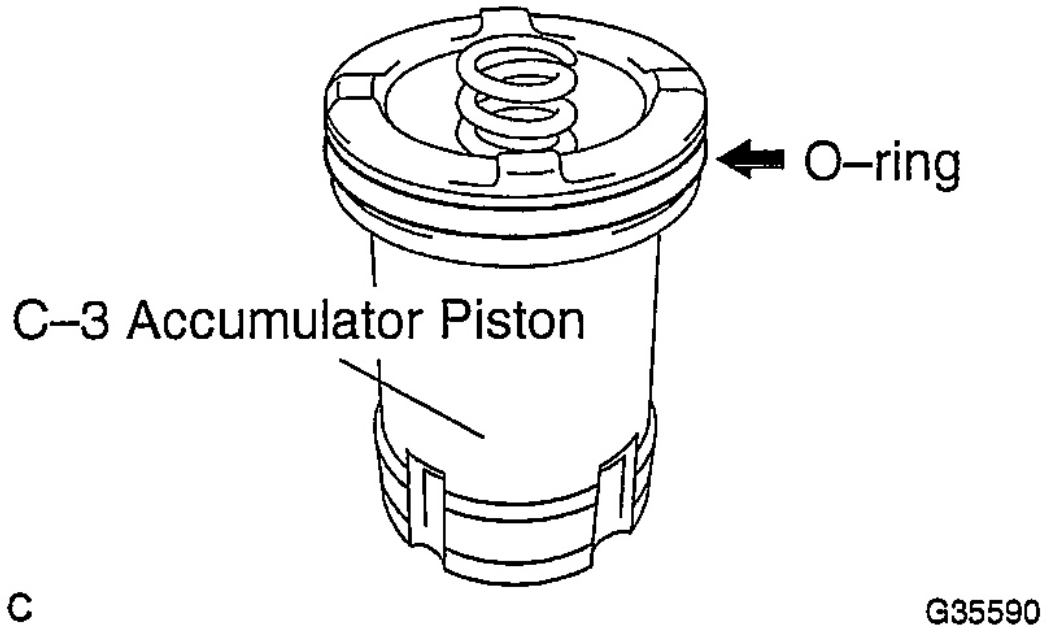


Fig. 216: Installing O-Ring To C-3 Accumulator Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Coat the piston with ATF, and install it to the transaxle case.

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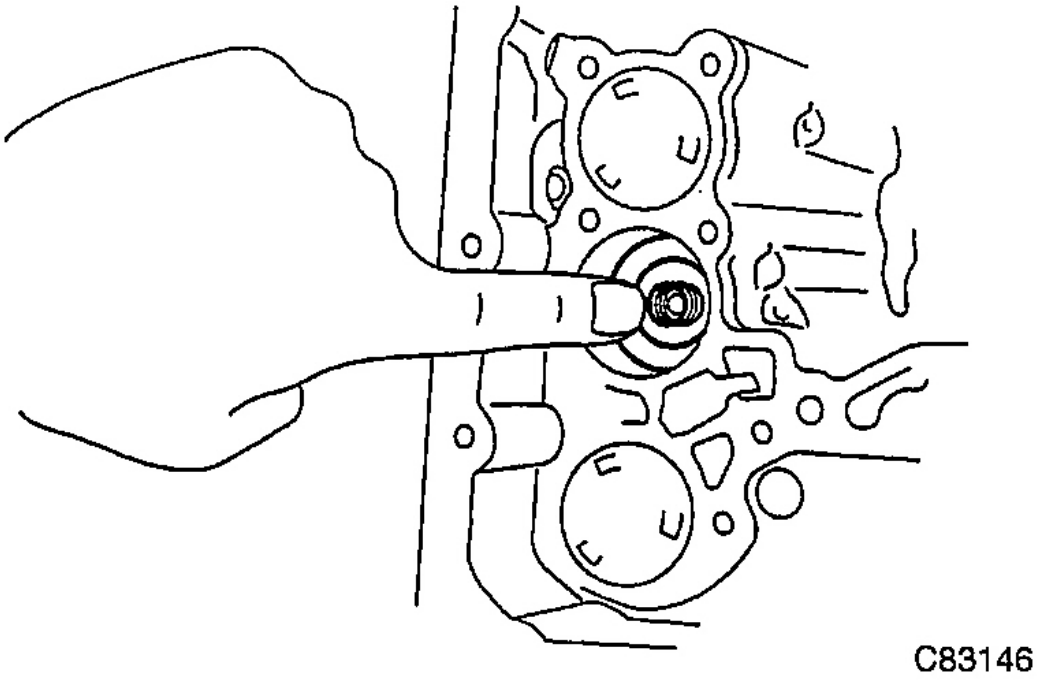


Fig. 217: Coating Piston With ATF
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install the spring to the C-3 accumulator piston.

NOTE: Install the correct spring to the C-3 accumulator piston by checking the color or dimension of the spring.

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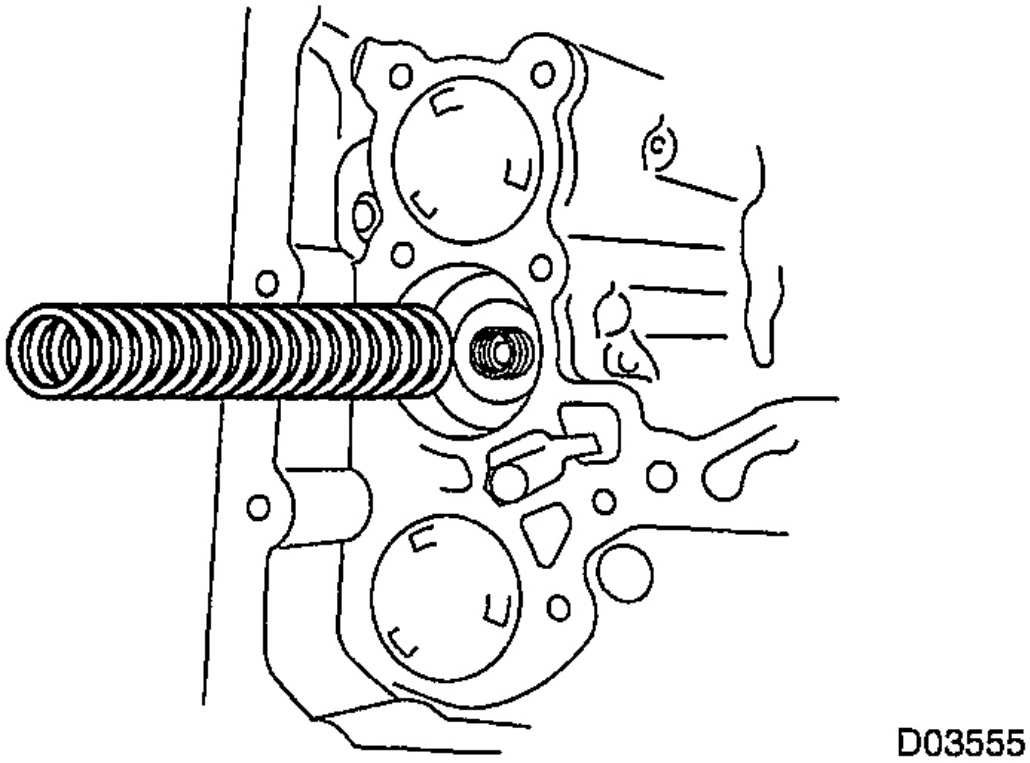


Fig. 218: Installing Spring To C-3 Accumulator Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Accumulator spring:

ACCUMULATOR SPRING - REFERENCE TABLE

Free length Outer diameter mm (in.)	Color
72.20 (2.8425)/ 19.0 (0.748)	Colorless

140. **INSTALL CHECK BALL BODY**

a. Coat the check ball body with ATF.

b. Install the check ball body and spring.

NOTE: Regarding the installation of the spring for the check ball body, be sure to place the spring in the hole in the ball body. Be careful about the direction of the parts.

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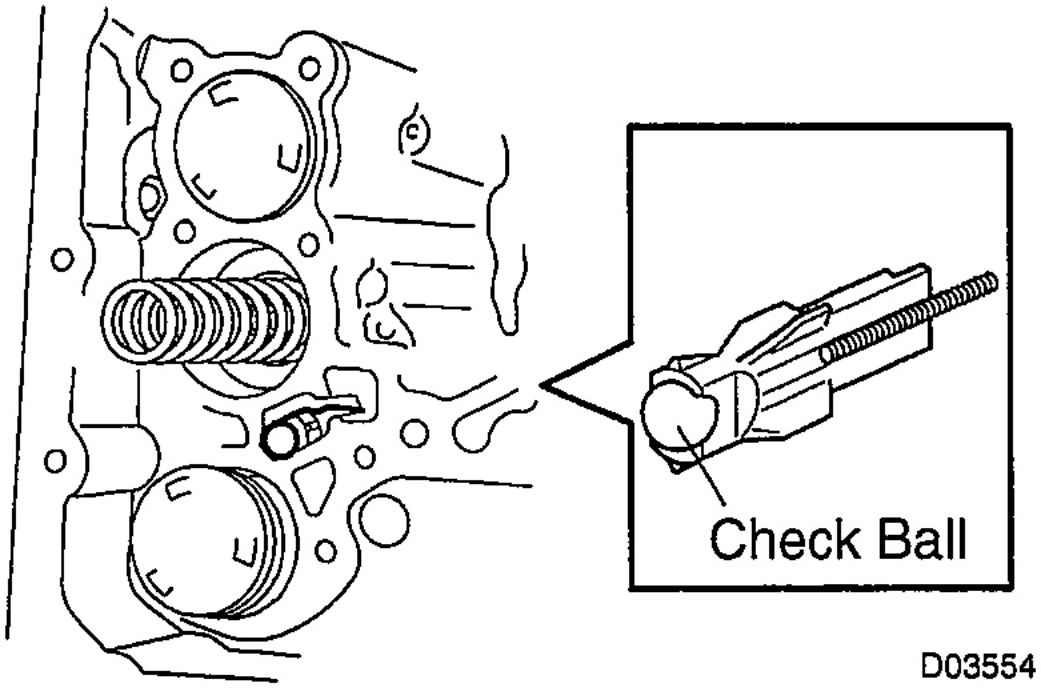


Fig. 219: Installing Check Ball Body And Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

141. **INSTALL BRAKE DRUM GASKET**

a. Coat a new brake drum gasket with ATF, and install it to the transaxle case.

NOTE: Be sure not to damage the lip of the brake drum gasket when inserting it to the case. Be careful about the direction of the gasket.

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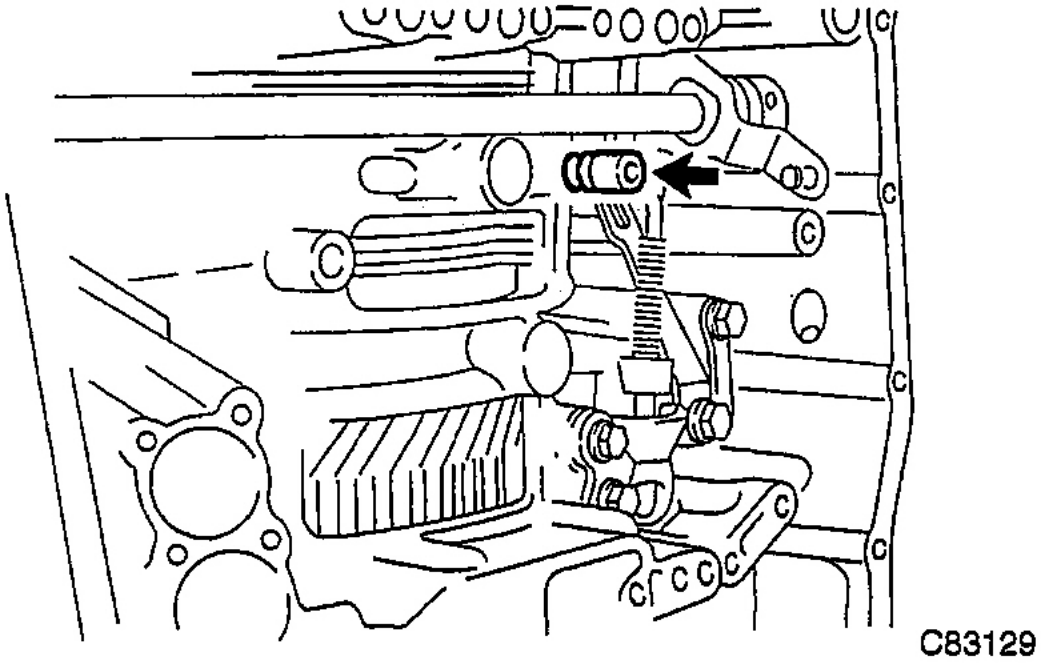


Fig. 220: Installing Brake Drum Gasket To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

142. **INSTALL TRANSAXLE CASE 2ND BRAKE GASKET**

a. Coat a new transaxle case 2nd brake gasket with ATF, and install it to the transaxle case.

NOTE: Be sure not to damage the lip of the 2nd brake gasket when inserting it to the case.

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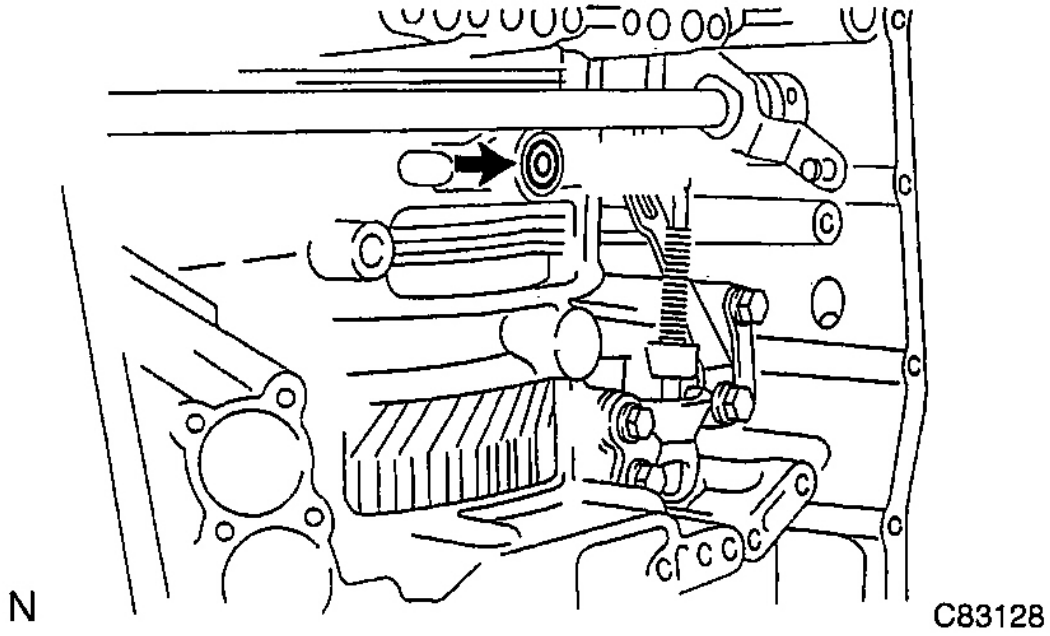


Fig. 221: Installing Transaxle Case 2nd Brake Gasket To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

143. **INSTALL GOVERNOR APPLY GASKET NO. 1**

a. Coat a new governor apply gasket No.1 with ATF, and install it to the transaxle case.

NOTE: Be sure not to damage the lip of the governor apply gasket No.1 when inserting it to the case.

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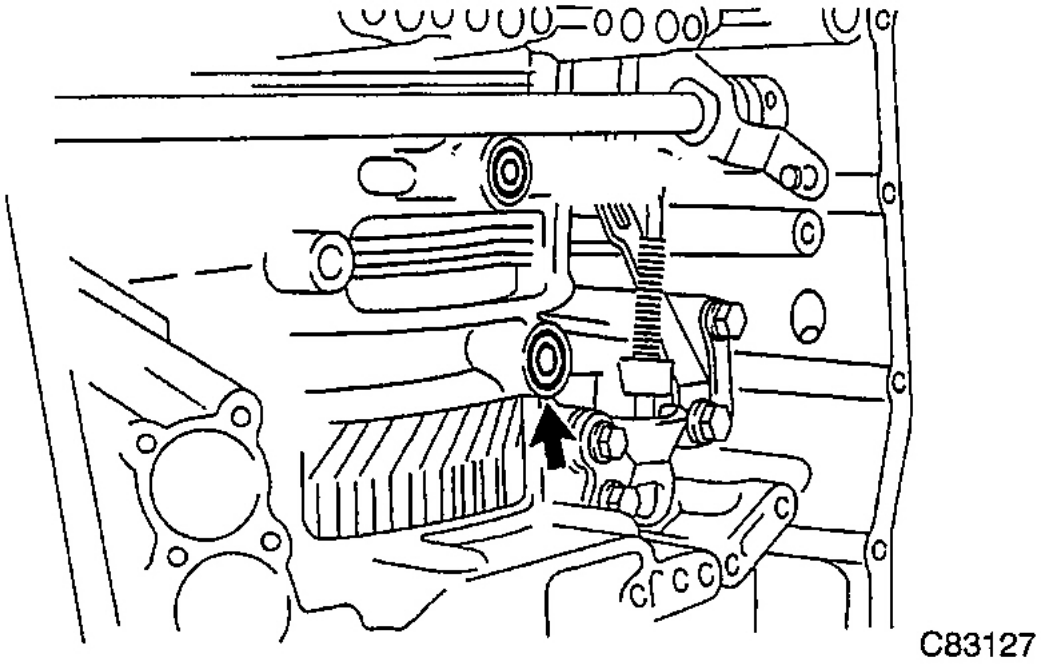


Fig. 222: Installing Governor Apply Gasket No. 1
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

144. **INSTALL TRANSMISSION VALVE BODY ASSY**

a. Confirm the manual valve lever position, and install the valve body with the 17 bolts to the transaxle case.

Torque: 11 N.m (110 kgf.cm, 8 ft.lbf)

Bolt length:

Bolt A: 25 mm (0.984 in.)

Bolt B: 57 mm (2.244 in.)

Bolt C: 41 mm (1.614 in.)

NOTE:

- **Push the valve body against the accumulator piston spring and the che ball body to install it.**
- **When installing the valve body to the transaxle case, do not hold the solenoids.**
- **First, temporarily tighten the bolts marked by * in the illustration becau**

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they are positioning bolts.

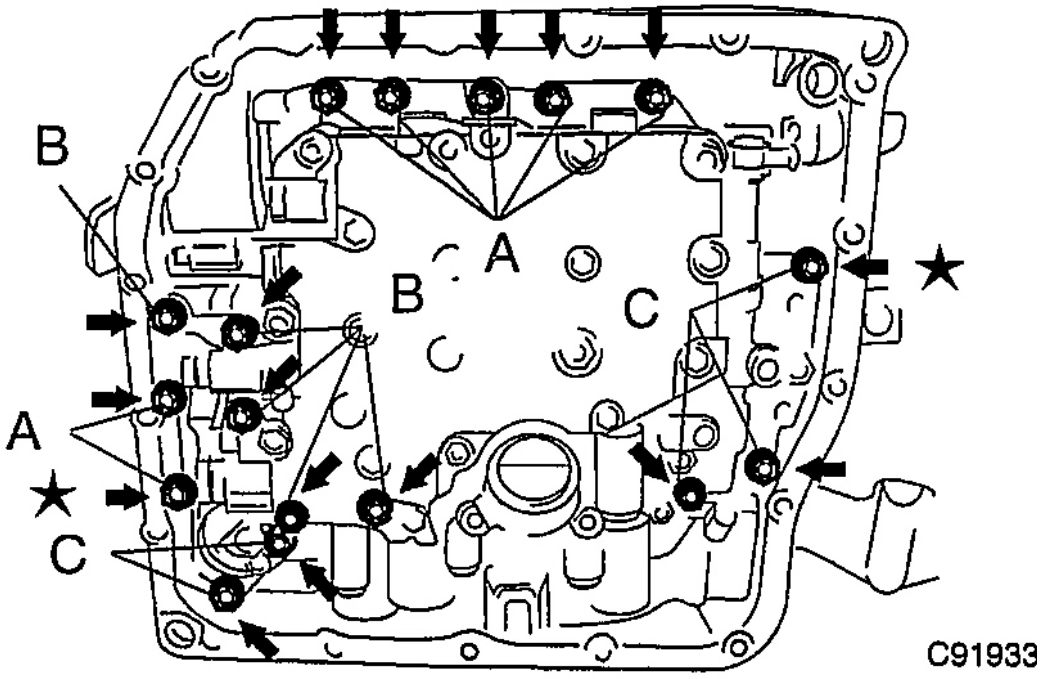


Fig. 223: Identifying Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

145. **INSTALL VALVE BODY OIL STRAINER ASSY**

a. Coat a new O-ring with ATF, and install it to the oil strainer.

NOTE: Ensure that the O-ring are not twisted or pinched.

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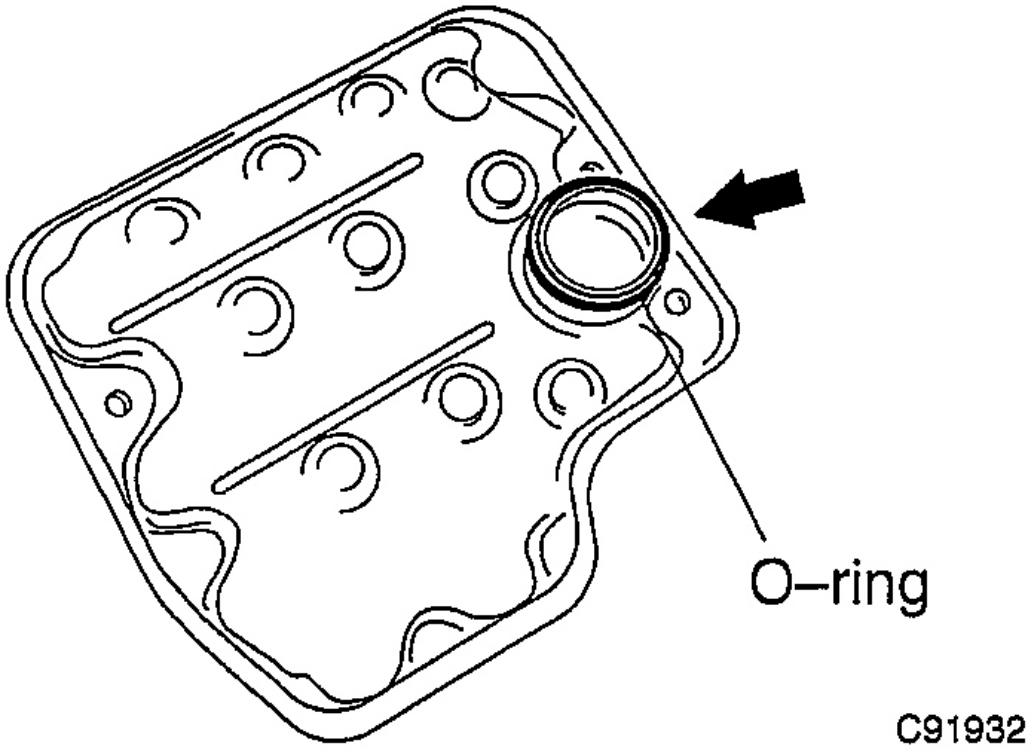


Fig. 224: Identifying O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the oil strainer to the valve body with the 3 bolts.

Torque: 11 N.m (110 kgf.cm, 8 ft.lbf)

NOTE: Apply ATF to the bolts.

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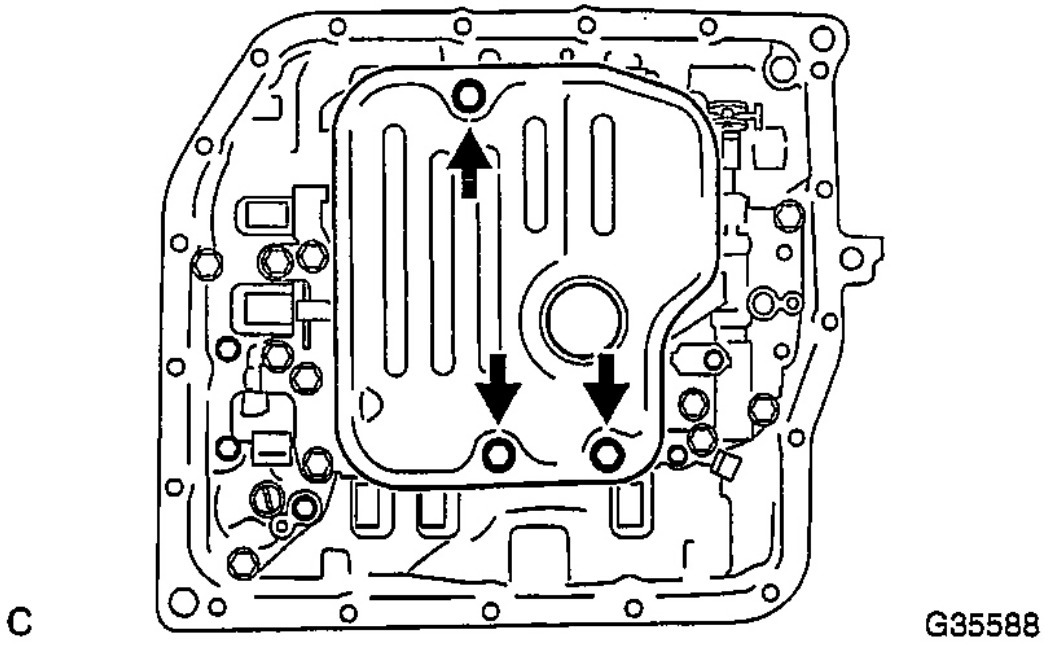


Fig. 225: Identifying Oil Strainer Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

146. **INSTALL TRANSMISSION WIRE**
   a. Coat the O-ring of the transmission wire with ATF.

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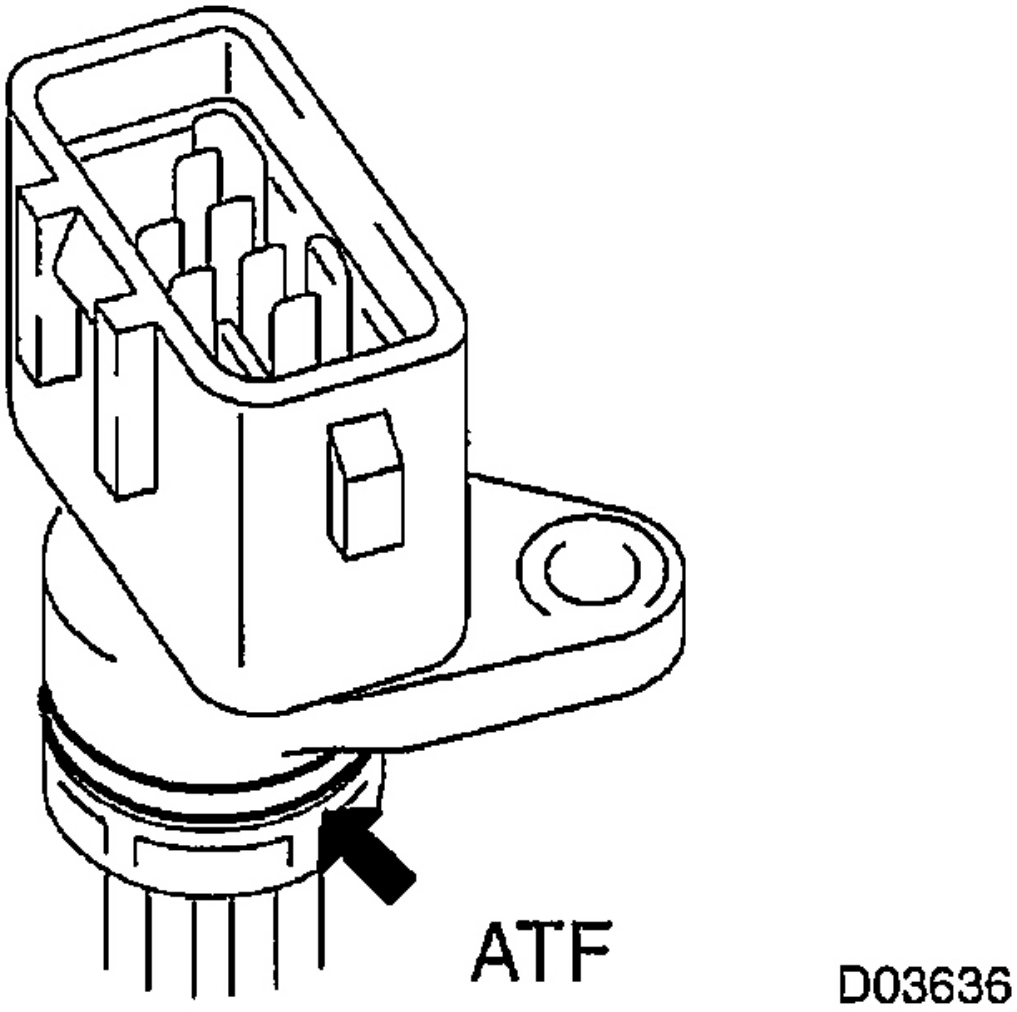


Fig. 226: Coating O-Ring Of Transmission Wire With ATF
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the transmission wire with the bolt.

Torque: 5.4 N.m (55 kgf.cm, 48 in.lbf)

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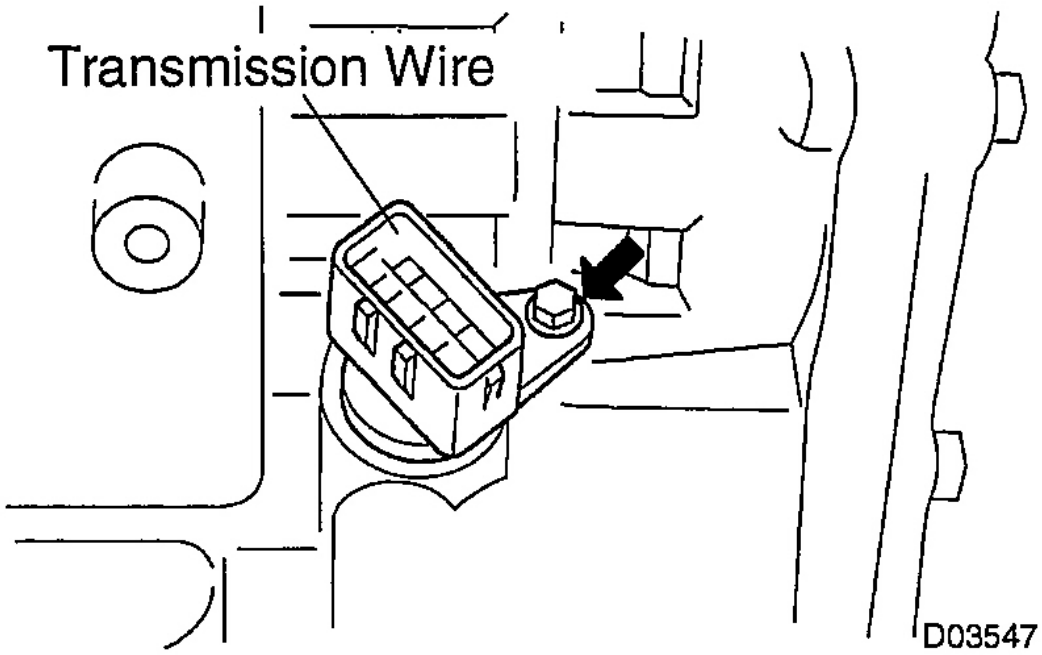


Fig. 227: Installing Transmission Wire With Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

147. **CONNECT TRANSMISSION WIRE**
   a. Coat the O-ring of the ATF temperature sensor with ATF.
   b. Install the ATF temperature sensor with the lock plate and bolt.

      Torque: 6.6 N.m (67 kgf.cm, 58 in.lbf)

      NOTE: Apply ATF to the bolt.

   c. Connect the 7 solenoid connectors.

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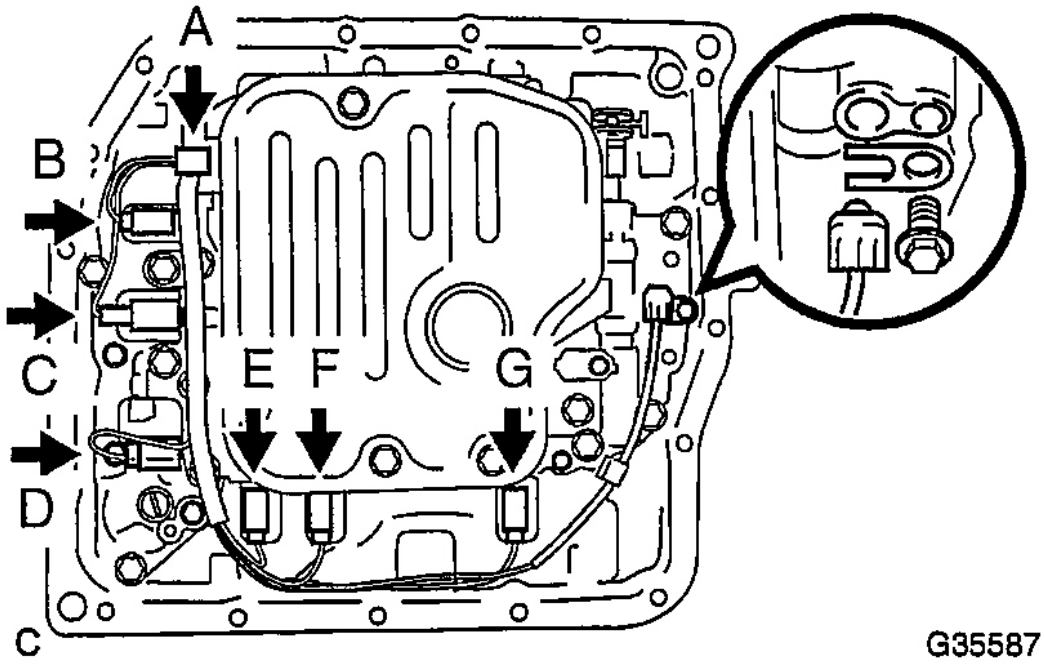


Fig. 228: Connecting Solenoid Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Connect the connectors in the following order: A, B, C, D, E, F, G.

148. **INSTALL AUTOMATIC TRANSAXLE OIL PAN SUB-ASSY**
   a. Install the 2 magnets in the oil pan.
   b. Apply seal packing or equivalent to the 18 bolts.

Sealant: Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent.

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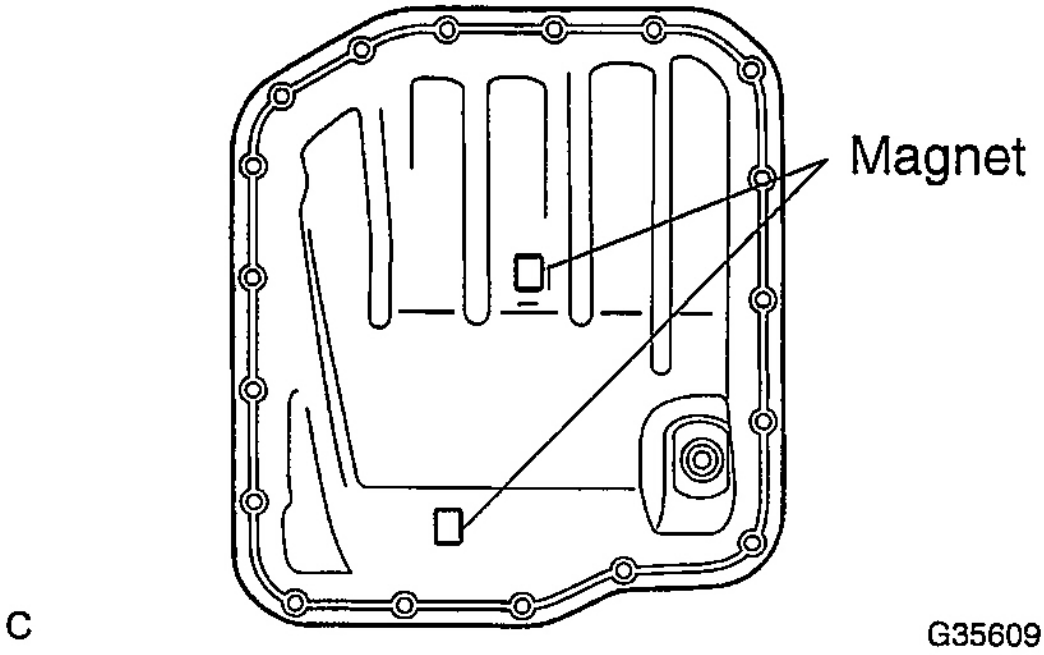


Fig. 229: Identifying Oil Pan Magnets
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install a new oil pan gasket and the oil pan to the transaxle case with the 18 bolts.

Torque: 7.8 N.m (80 kgf.cm, 69 in.lbf)

NOTE:

- **Because the bolts should be seal bolts, apply seal packing to them and tighten within 10 minutes of application.**
- **Completely remove any oil or grease from the contacting surface of the transaxle case and the oil pan with the gasket before installation.**

d. Install the drain plug and a new drain plug gasket to the automatic transaxle oil pan sub-assy.

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

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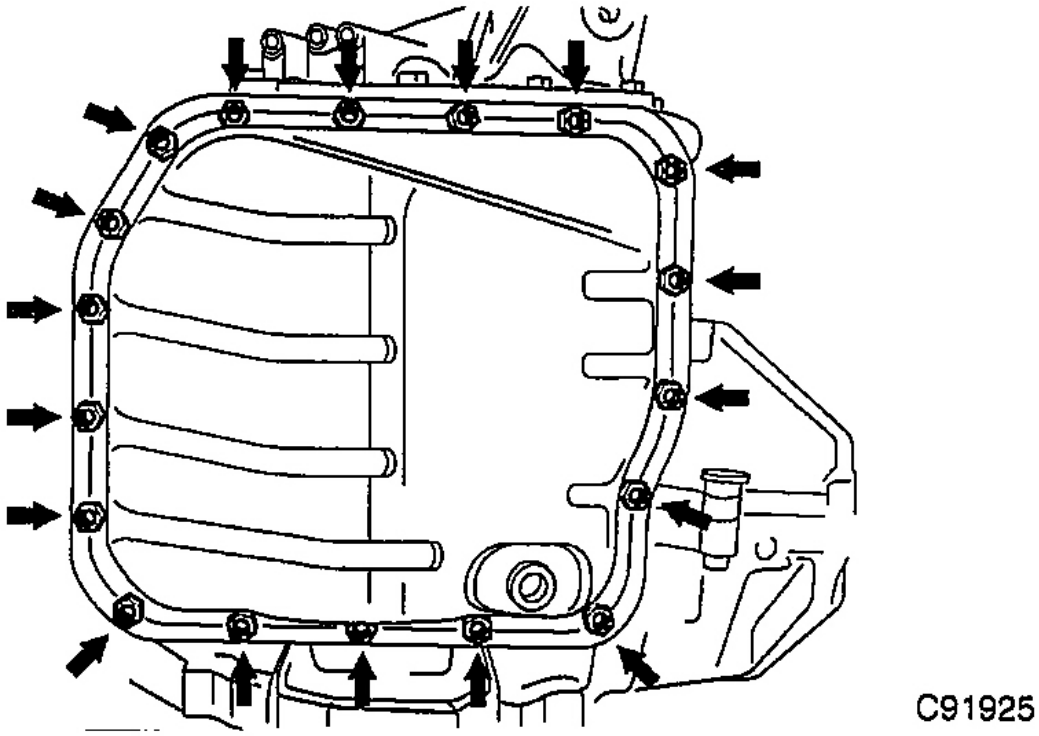


Fig. 230: Identifying Oil Pan Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

149. **INSTALL TRANSAXLE CASE NO. 1 PLUG**
   a. Coat 4 new O-rings with ATF, and install them to the 4 transaxle case No. 1 plugs.
   b. Install the 4 transaxle case No.1 plugs to the transaxle case.

   Torque: 7.4 N.m (75 kgf.cm, 65 in.lbf)

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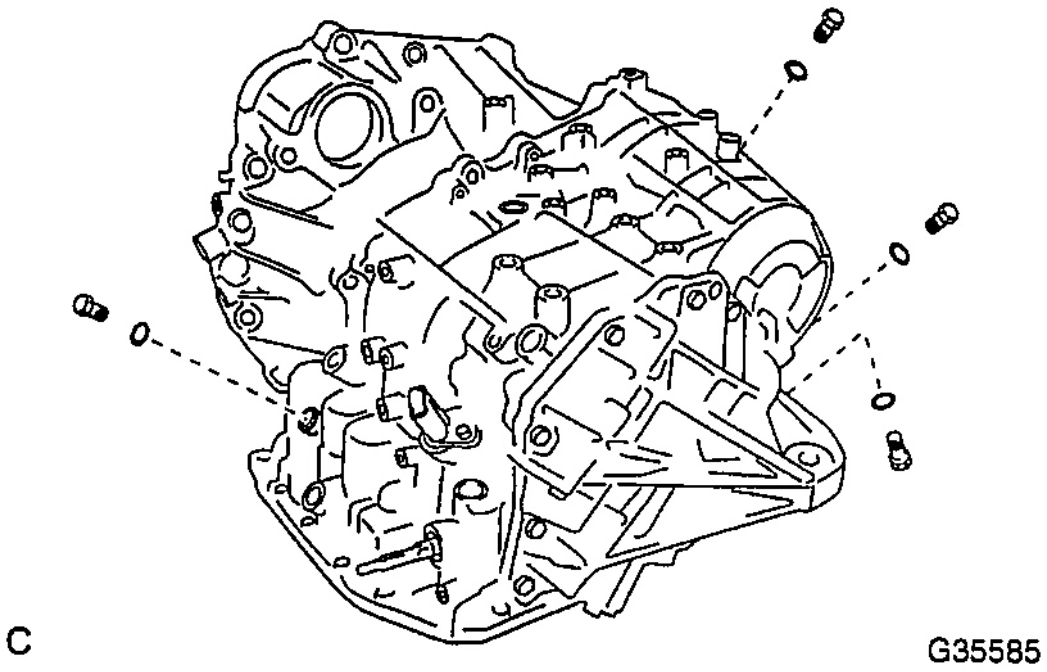


Fig. 231: Installing Transaxle Case No. 1 Plugs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

150. **INSTALL SPEED SENSOR**

a. Apply liquid sealer to the "A" bolt threads.

Sealant: Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent.

b. Install the 2 sensors to the transaxle case with the 2 bolts.

Torque:

Bolt A: 8.8 N.m (90 kgf.cm, 79 in.lbf)

Bolt B: 11 N.m (110 kgf.cm, 8 ft.lbf)

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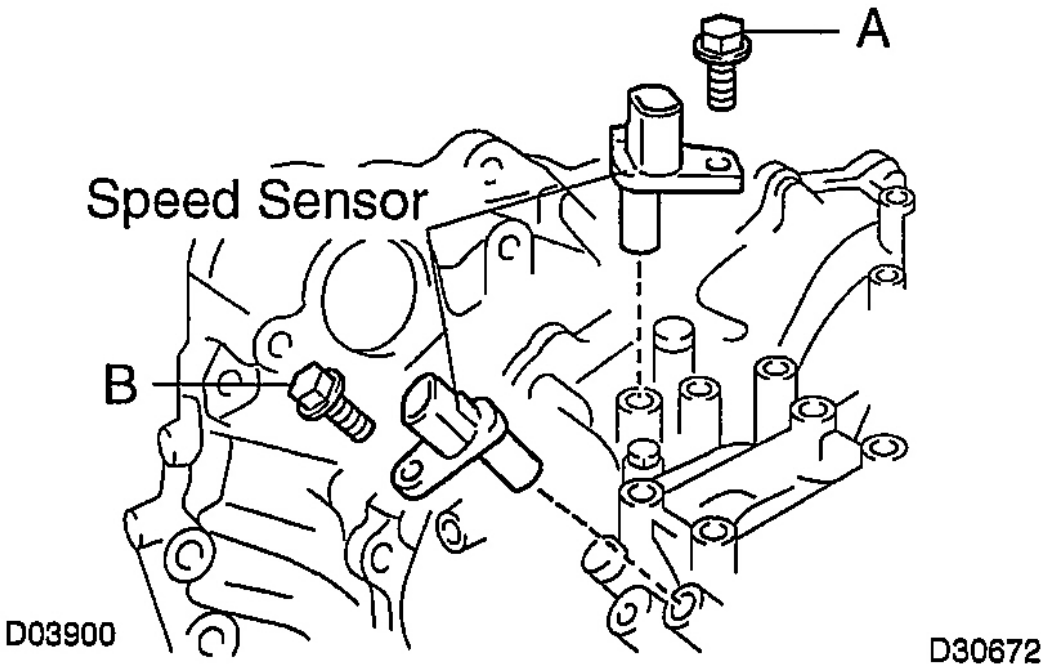


Fig. 232: Installing Sensors To Transaxle Case With Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

151. **INSTALL OIL COOLER TUBE UNION (OUTLET OIL COOLER UNION)**
   a. Coat a new O-ring with ATF, and install it to the oil cooler tube union (outlet oil cooler union).
   b. Install the oil cooler tube union (outlet oil cooler union) to the transaxle case.

   Torque: 27 N.m (276 kgf.cm, 20 ft.lbf)

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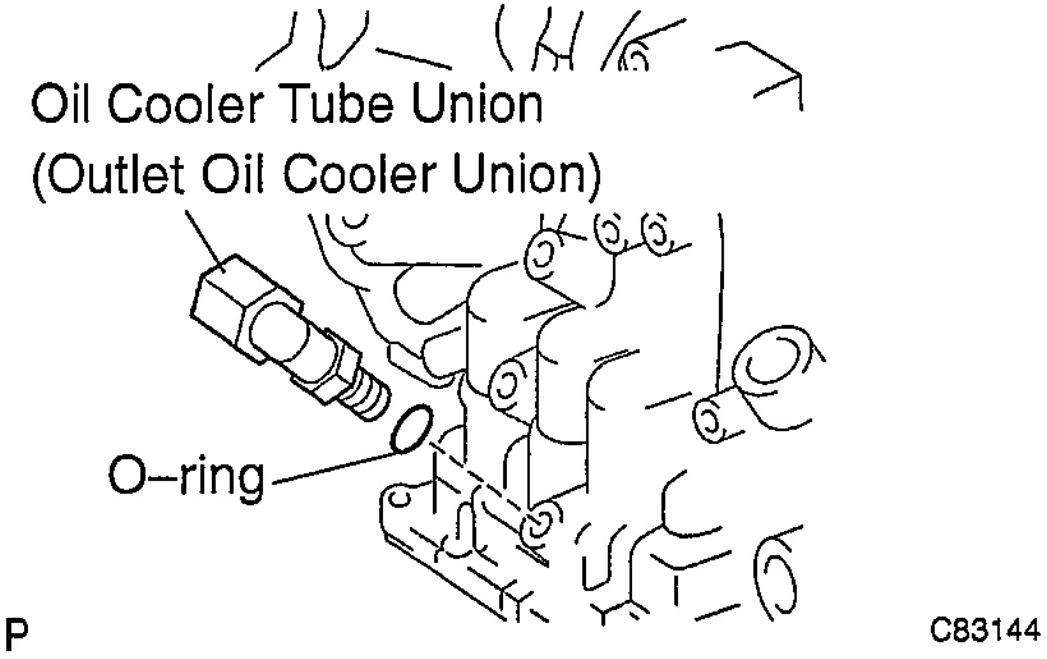


Fig. 233: Installing Oil Cooler Tube Union And O-Ring To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

152. **INSTALL OIL COOLER TUBE UNION (INLET OIL COOLER UNION)**
   a. Coat a new O-ring with ATF, and install it to the oil cooler tube union (inlet oil cooler union).
   b. Install the oil cooler tube union (inlet oil cooler union) to the transaxle case.

   Torque: 27 N.m (275 kgf.cm, 20 ft.lbf)

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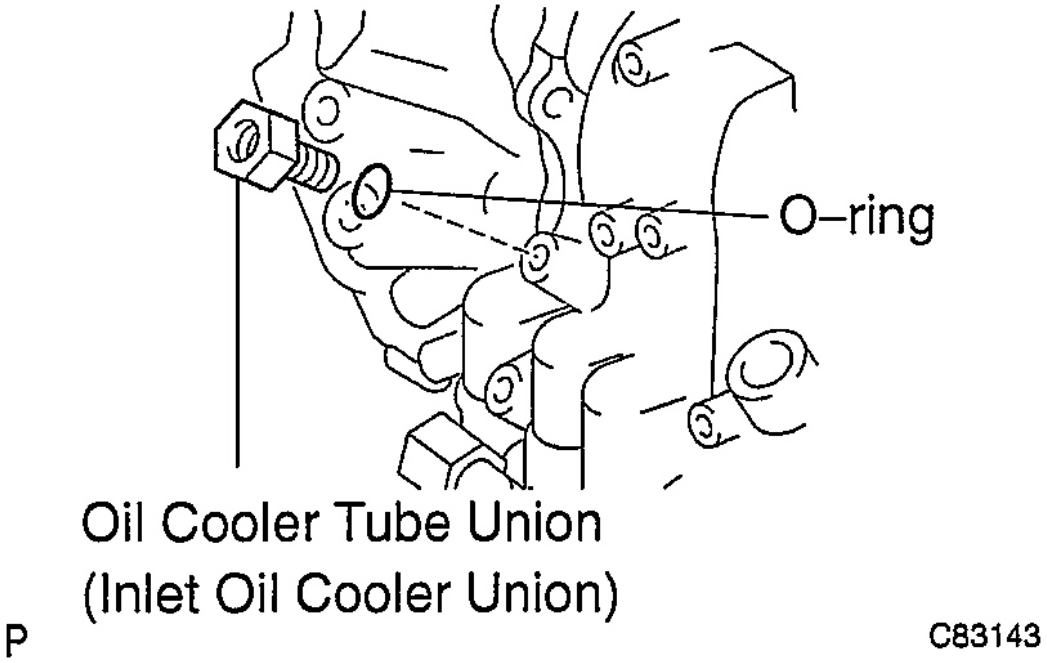


Fig. 234: Installing Oil Cooler Tube Union And O-Ring To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

153. **INSTALL BREATHER PLUG NO. 2 (ATM)**
    a. Install the hose and a new O-ring to the breather plug No. 2 (ATM).

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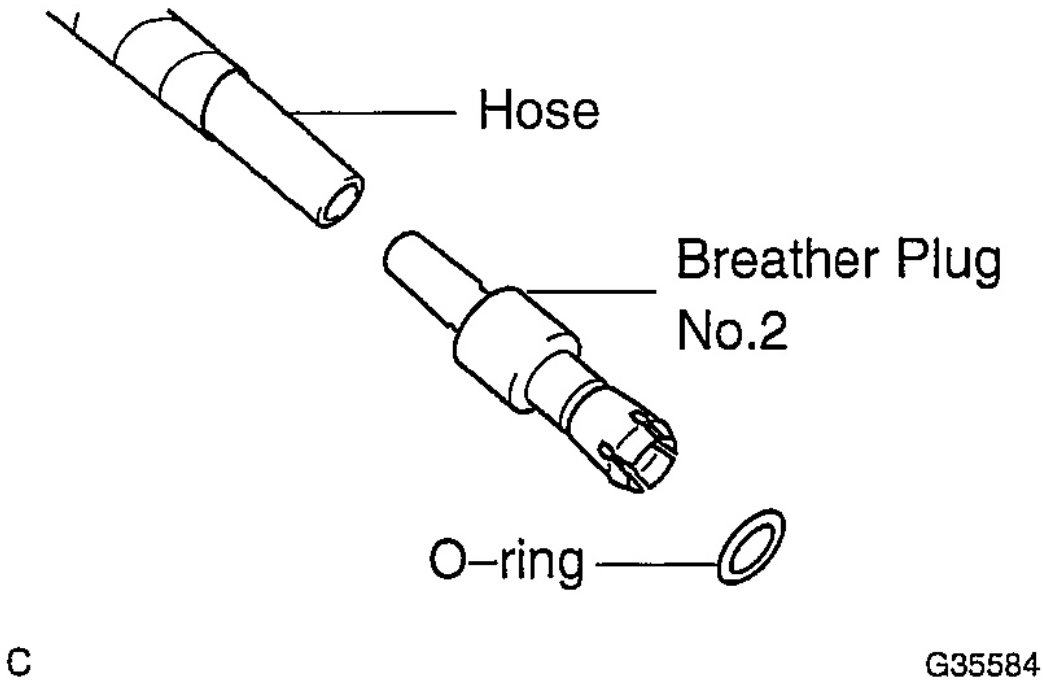


Fig. 235: Installing Hose And O-Ring To Breather Plug No. 2
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the breather plug No.2 (ATM) to the transaxle case.

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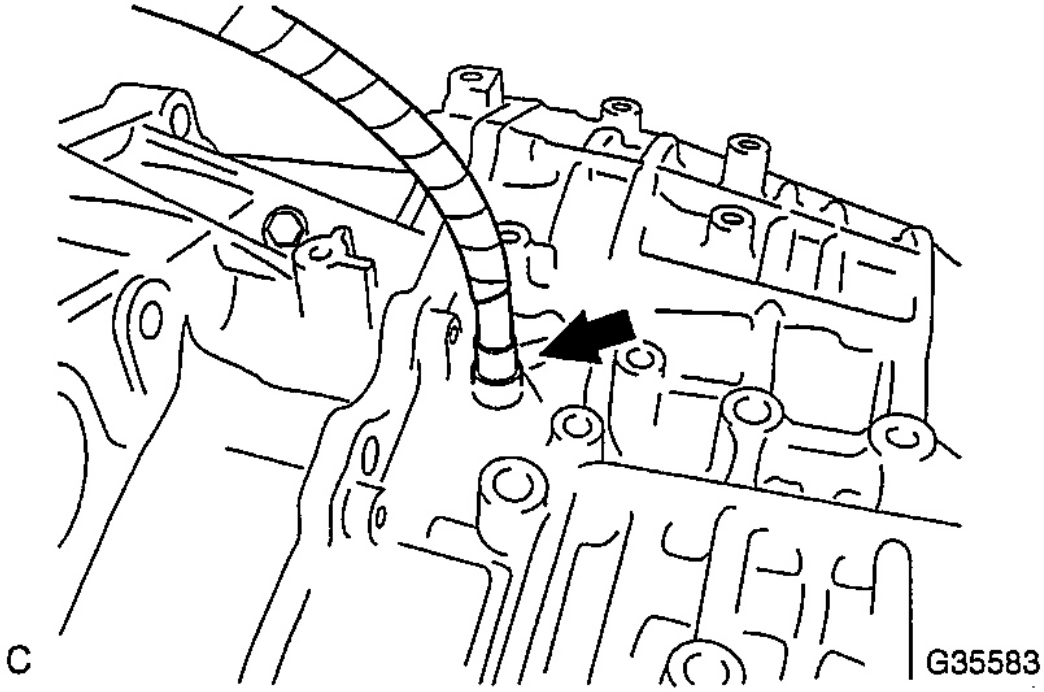


Fig. 236: Installing Breather Plug No. 2 To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

154. **INSTALL PARK/NEUTRAL POSITION SWITCH ASSY**

a. Install the park/neutral position switch onto the manual valve lever shaft and temporarily install the 2 adjusting bolts.

b. Install a new nut stopper and the nut.

Torque: 6.9 N.m (70 kgf.cm, 61 in.lbf)

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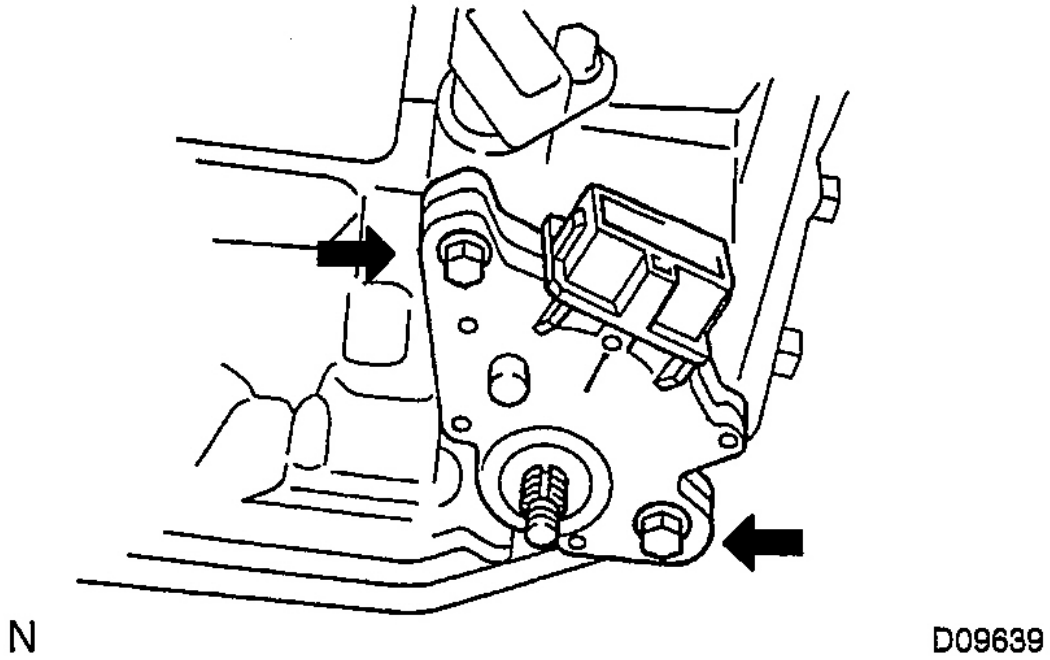


Fig. 237: Installing Nut Stopper And Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Temporarily install the control shaft lever.

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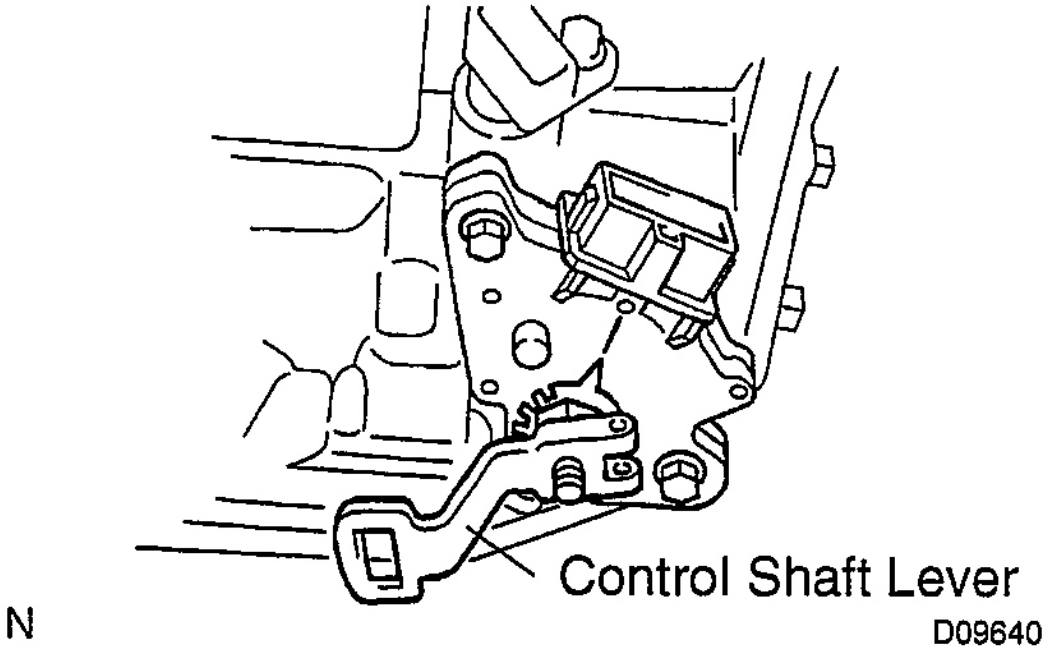


Fig. 238: Installing Control Shaft Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Turn the lever counterclockwise until it stops, and then turn it clockwise 2 notches.
e. Remove the control shaft lever.

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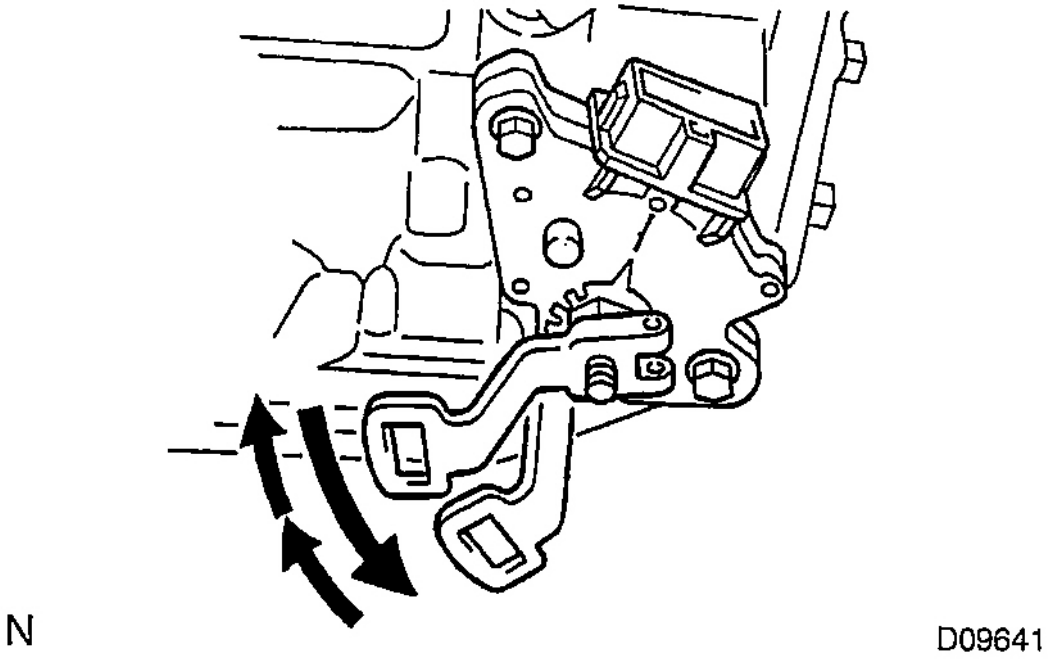


Fig. 239: Turning Control Shaft Lever Counterclockwise
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Align the groove with the neutral basic line.
g. Tighten the 2 bolts.

Torque: 5.4 N.m (55 kgf.cm, 48 in.lbf)

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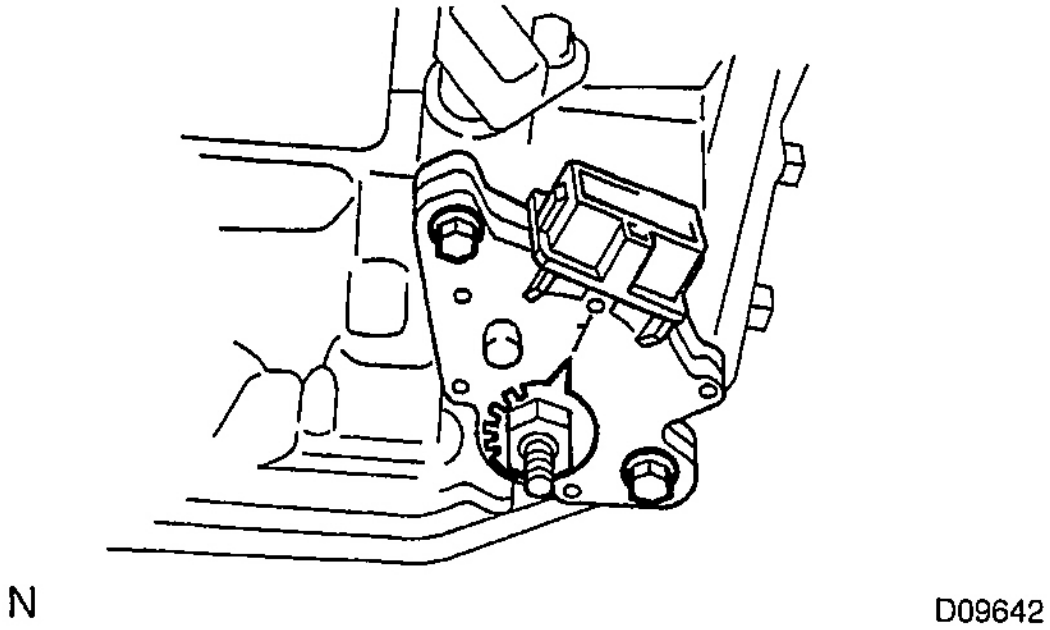


Fig. 240: Aligning Groove With Neutral Basic Line
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

h. Using a screwdriver, stake the nut stopper.

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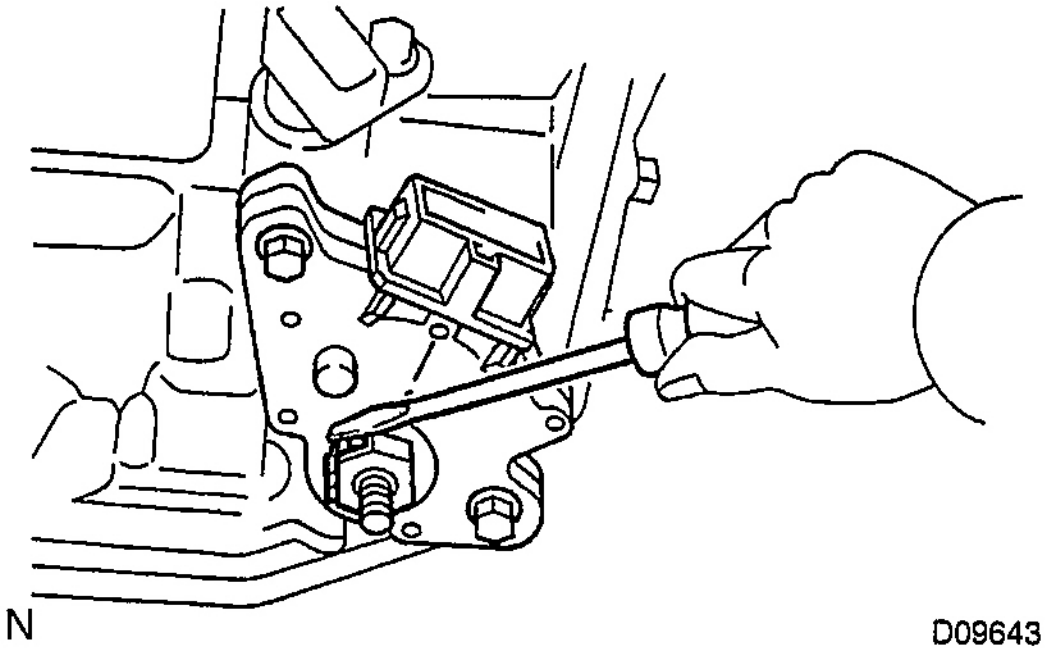


Fig. 241: Removing Nut Stopper
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

i. Install the control shaft lever, washer and nut.

Torque: 13 N.m (130 kgf.cm, 9 ft.lbf)

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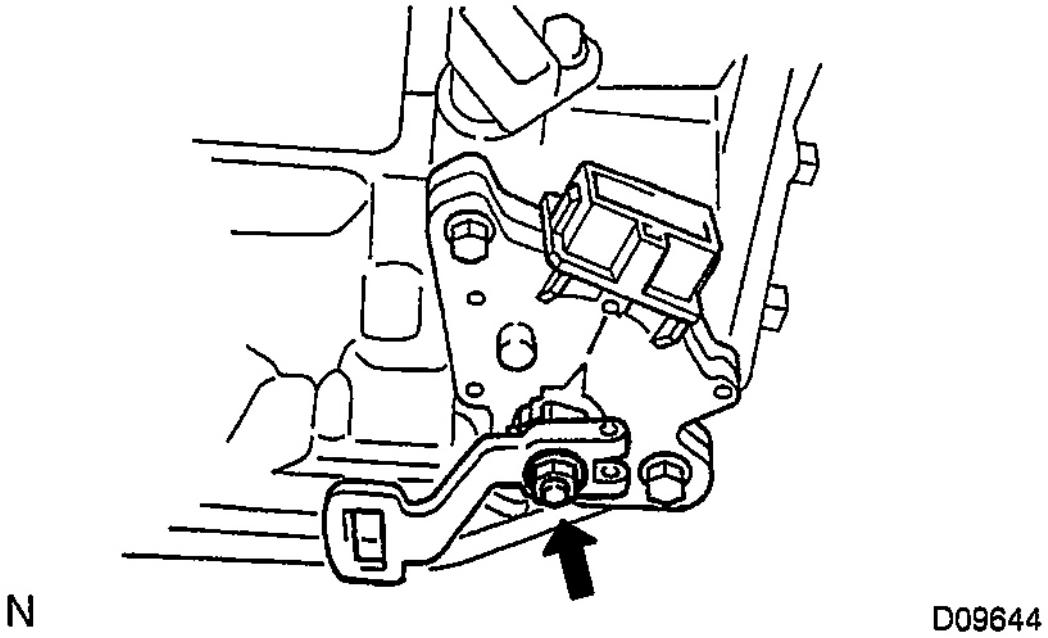


Fig. 242: Identifying Control Shaft Lever, Washer And Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OIL PUMP ASSY (U250E)

COMPONENTS

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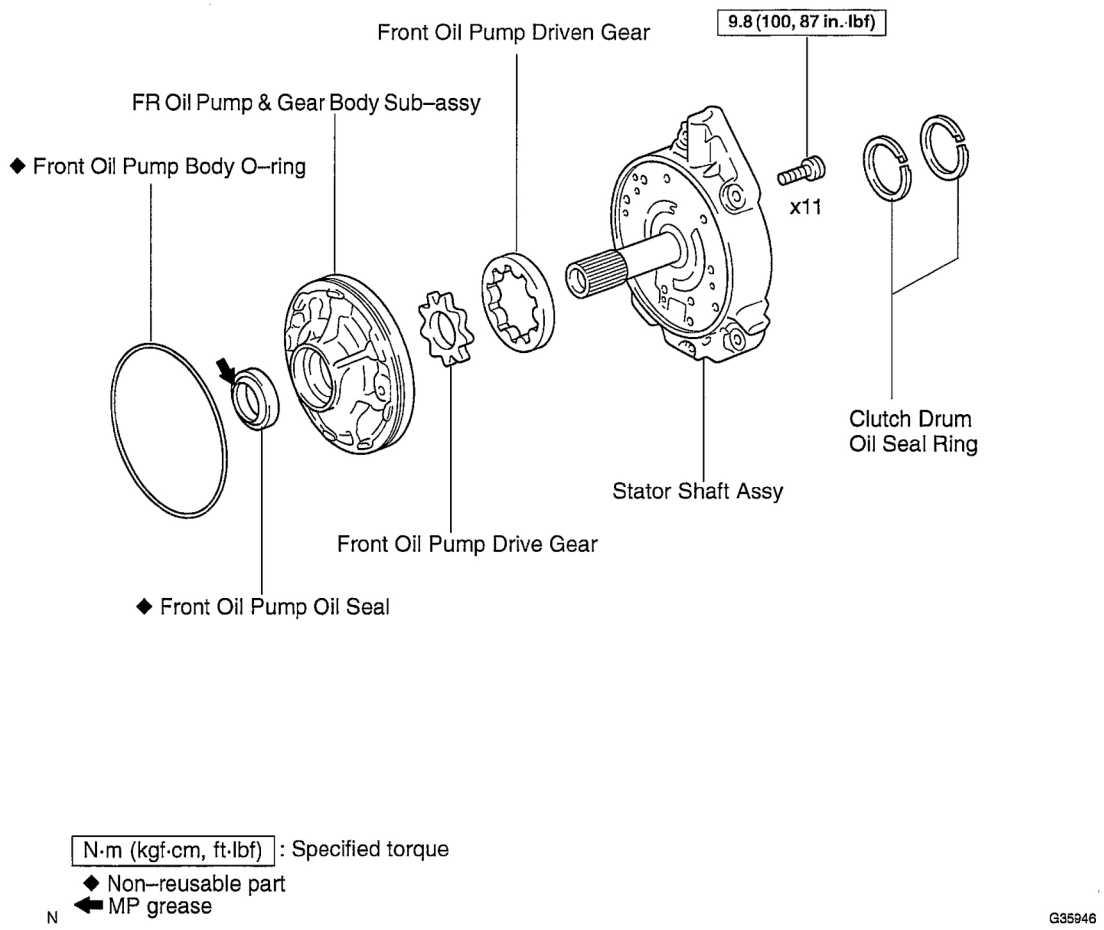


Fig. 243: Identifying Oil Pump Assy (U250E) Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OVERHAUL

1. **INSPECT OIL PUMP ASSY**
   a. Turn the drive gear with 2 screwdrivers and make sure it rotates smoothly.

NOTE: Be careful not to damage the oil seal lip.

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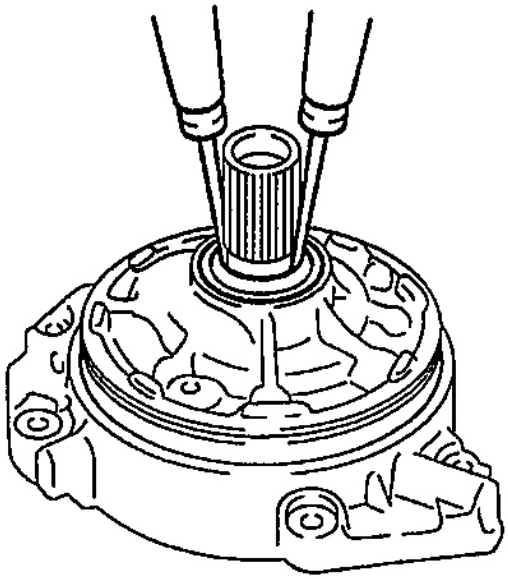


Fig. 244: Turning Drive Gear With Screwdrivers
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **REMOVE CLUTCH DRUM OIL SEAL RING**
   a. Remove the 2 clutch drum oil seal rings.

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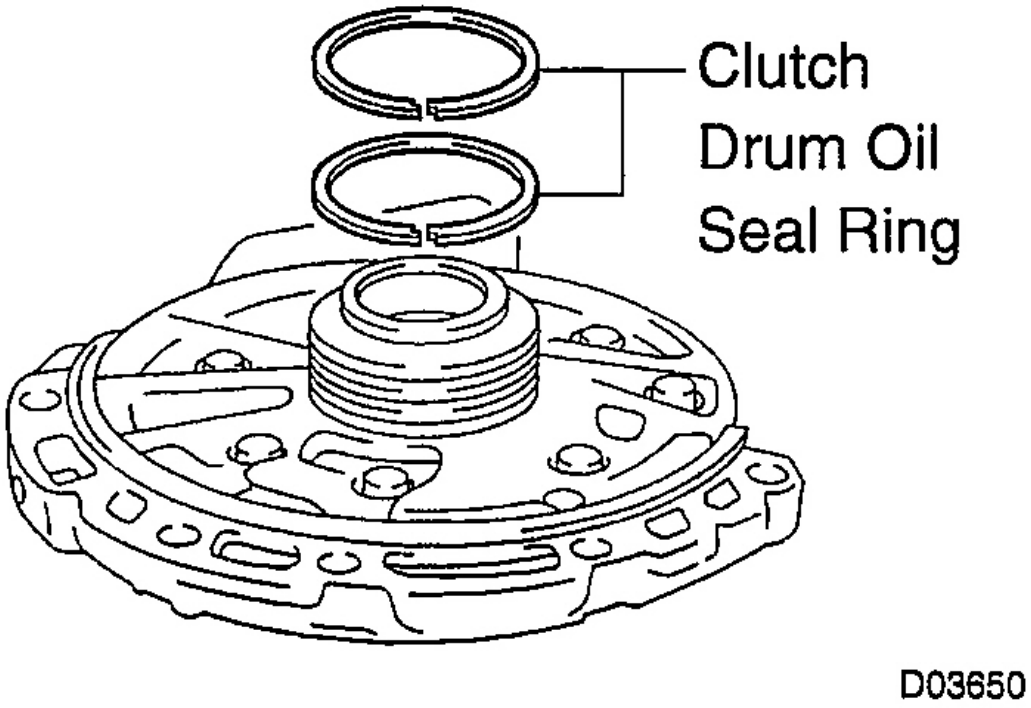


Fig. 245: Removing Clutch Drum Oil Seal Rings
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **REMOVE STATOR SHAFT ASSY**
   a. Using a torx socket (T30), remove the 11 bolts and stator shaft.
   b. Keep the gears in the order of installation.

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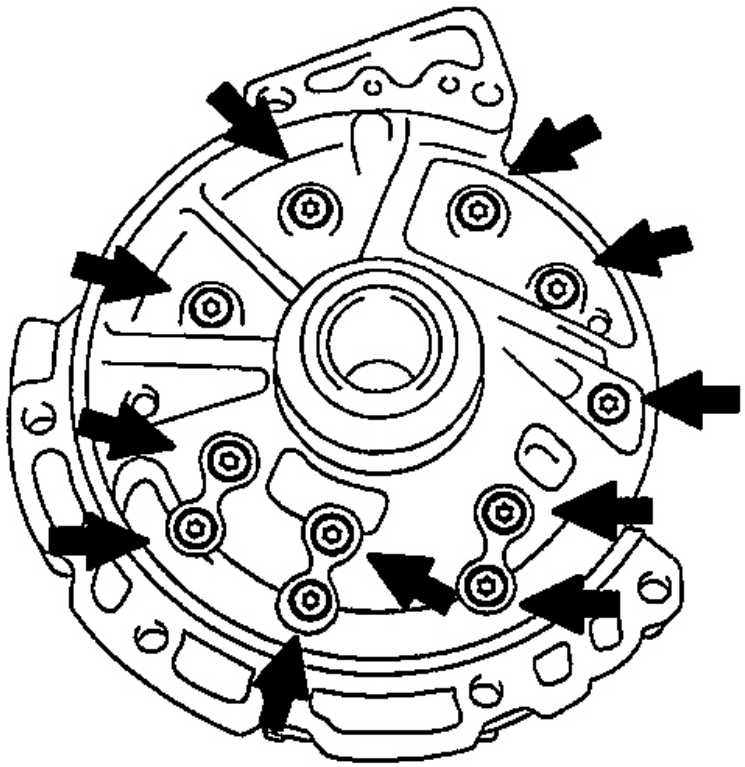


Fig. 246: Removing Stator Shaft Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSPECT CLEARANCE OF OIL PUMP ASSEMBLY**
   a. Push the driven gear to one side of the body.
   b. Using a feeler gauge, measure the clearance.

   Standard body clearance:

   0.10 to 0.17 mm (0.0039 to 0.0067 in.)

   Side clearance: 0.02 to 0.05 mm (0.001 to 0.002 in.)

   Maximum body clearance: 0.17 mm (0.0067 in.)

   If the body clearance is greater than the maximum, replace the oil pump body sub-assy.

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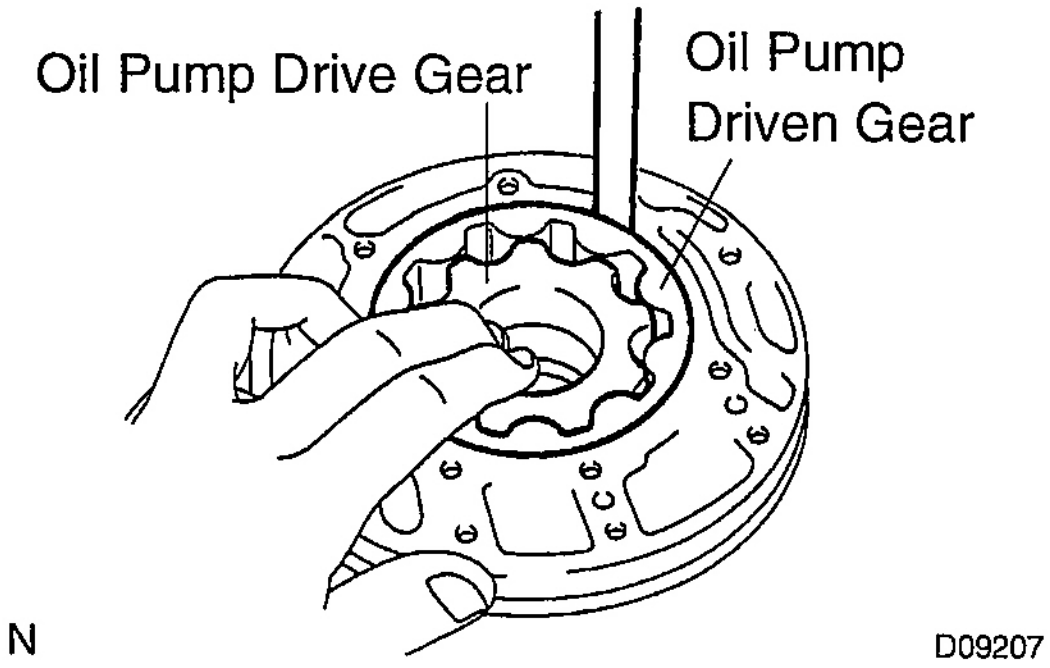


Fig. 247: Inspecting Clearance Of Oil Pump Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a feeler gauge, measure the tip clearance between the driven gear teeth and drive gear teeth.

Standard tip clearance:

0.07 to 0.15 mm (0.0028 to 0.0059 in.)

Maximum tip clearance: 0.15 mm (0.0059 in.)

If the tip clearance is greater than the maximum, replace the oil pump body sub-assy.

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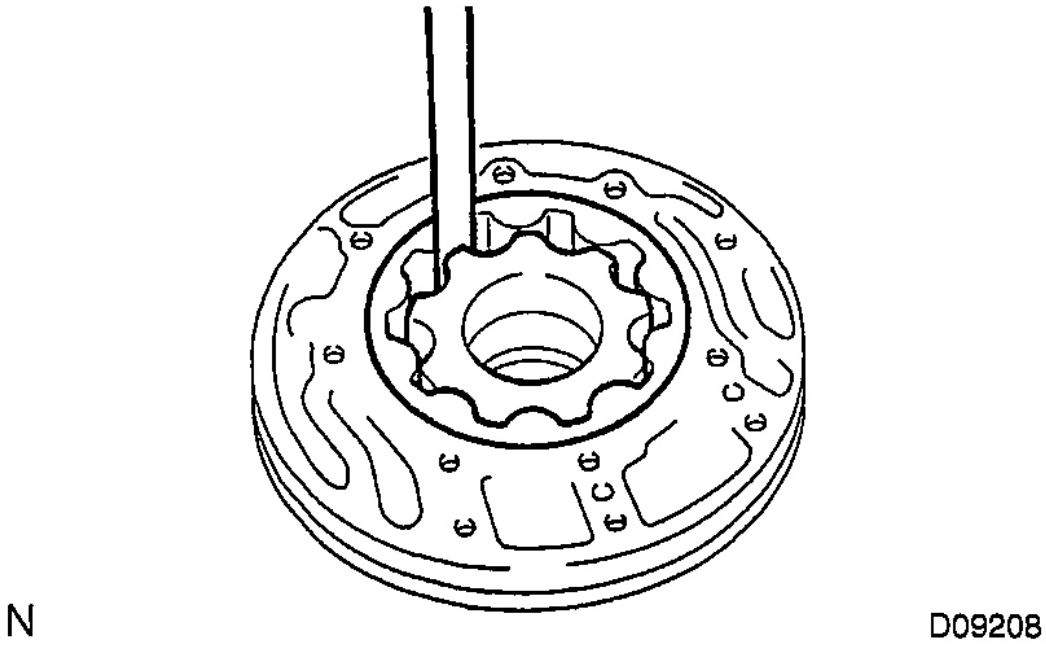


Fig. 248: Measuring Clearance Between Driven And Drive Gear Teeth
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Using a straight edge and feeler gauge, measure the side clearance of both gears.

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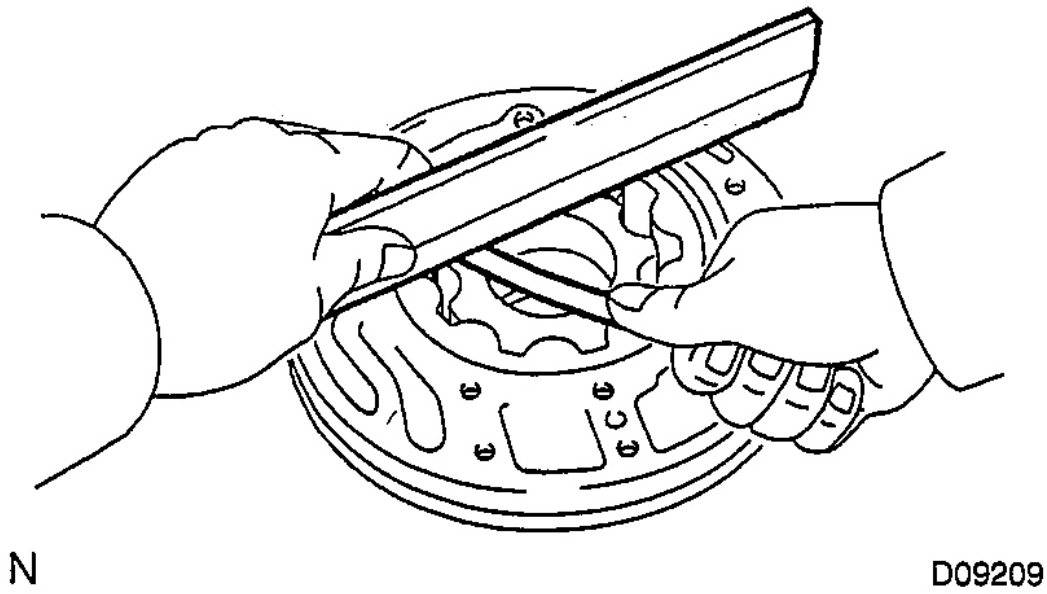


Fig. 249: Measuring Side Clearance Of Gears
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard side clearance:

0.02 to 0.05 mm (0.0008 to 0.0020 in.)

Maximum side clearance: 0.05 mm (0.0020 in.)

Drive gear thickness: mm (in.)

DRIVE GEAR THICKNESS - REFERENCE TABLE

Mark	Thickness
A	11.690 to 11.699 (0.4602 to 0.4606)
B	11.700 to 11.709 (0.4606 to 0.4610)
C	11.710 to 11.720 (0.4610 to 0.4614)
D	11.721 to 11.730 (0.4615 to 0.4618)
E	11.731 to 11.740 (0.4619 to 0.4622)

Driven gear thickness: mm (in.)

DRIVE GEAR THICKNESS - REFERENCE TABLE

Mark	Thickness
A	11.690 to 11.699 (0.4602 to 0.4606)

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B	11.700 to 11.709 (0.4606 to 0.4610)
C	11.710 to 11.720 (0.4610 to 0.4614)
D	11.721 to 11.730 (0.4615 to 0.4618)
E	11.731 to 11.740 (0.4619 to 0.4622)

5. **REMOVE FRONT OIL PUMP DRIVE GEAR**
   a. Remove the front oil pump drive gear.

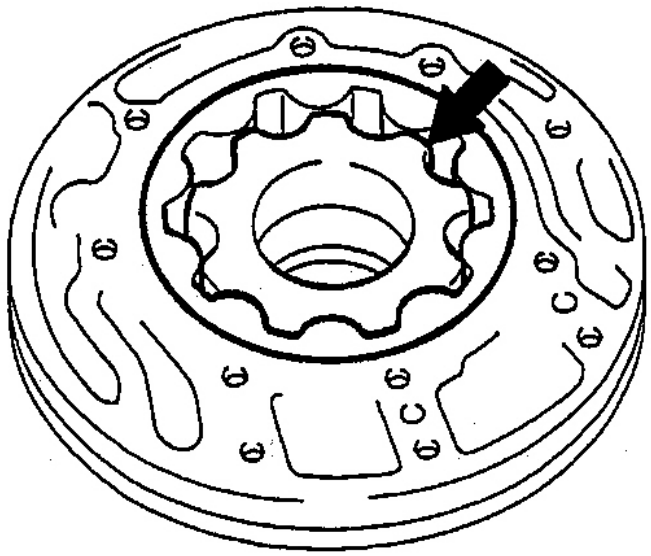


Fig. 250: Removing Front Oil Pump Drive Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **REMOVE FRONT OIL PUMP DRIVEN GEAR**
   a. Remove the front oil pump driven gear.

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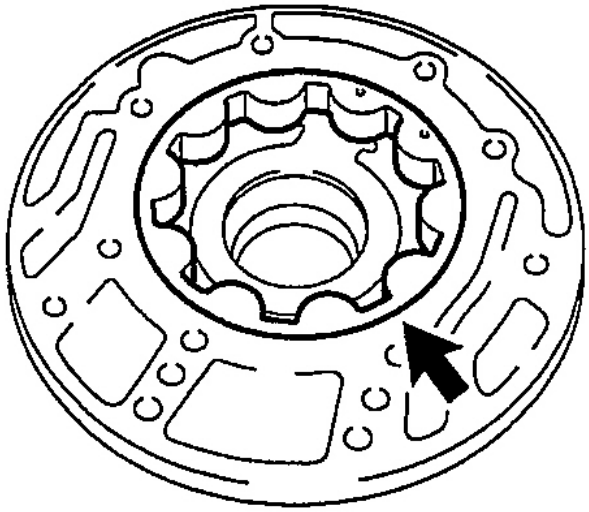


Fig. 251: Removing Front Oil Pump Driven Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **REMOVE FRONT OIL PUMP BODY O-RING**
   a. Using a screwdriver, remove the O-ring.

      HINT:

      Tape the screwdriver before use.

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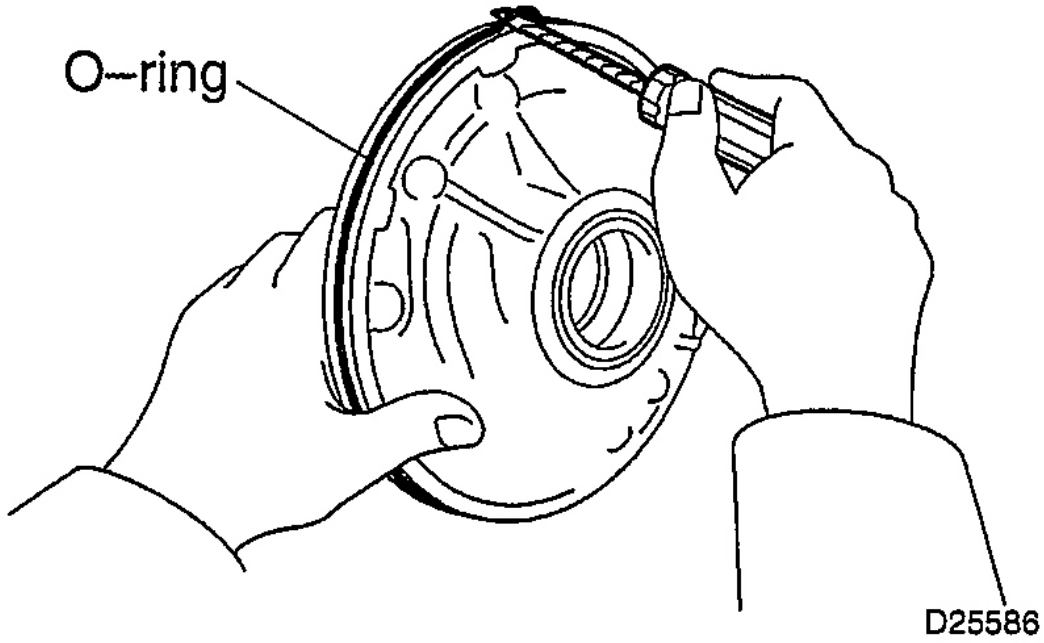


Fig. 252: Removing O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **REMOVE FRONT OIL PUMP OIL SEAL**
   a. Mount the oil pump in a soft jaw vise.
   b. Using SST, remove the oil seal from the oil pump body.

      SST 09308-00010

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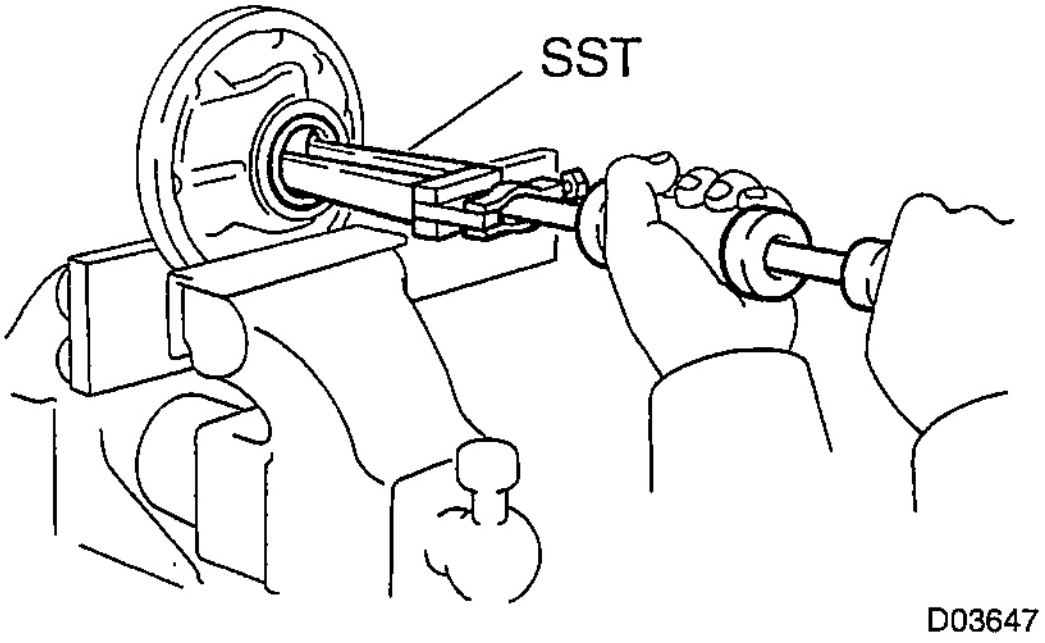


Fig. 253: Removing Oil Seal From Oil Pump Body
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **INSPECT FR OIL PUMP & GEAR BODY SUB-ASSY**
   a. Using a dial indicator, measure the inside diameter of the oil pump body bushing.

      Standard inside diameter:

      38.113 to 38.138 mm (1.50051 to 1.50149 in.)

      Maximum inside diameter: 38.188 mm (1.50346 in.)

      If the inside diameter is greater than the maximum, replace the oil pump body sub-assy.

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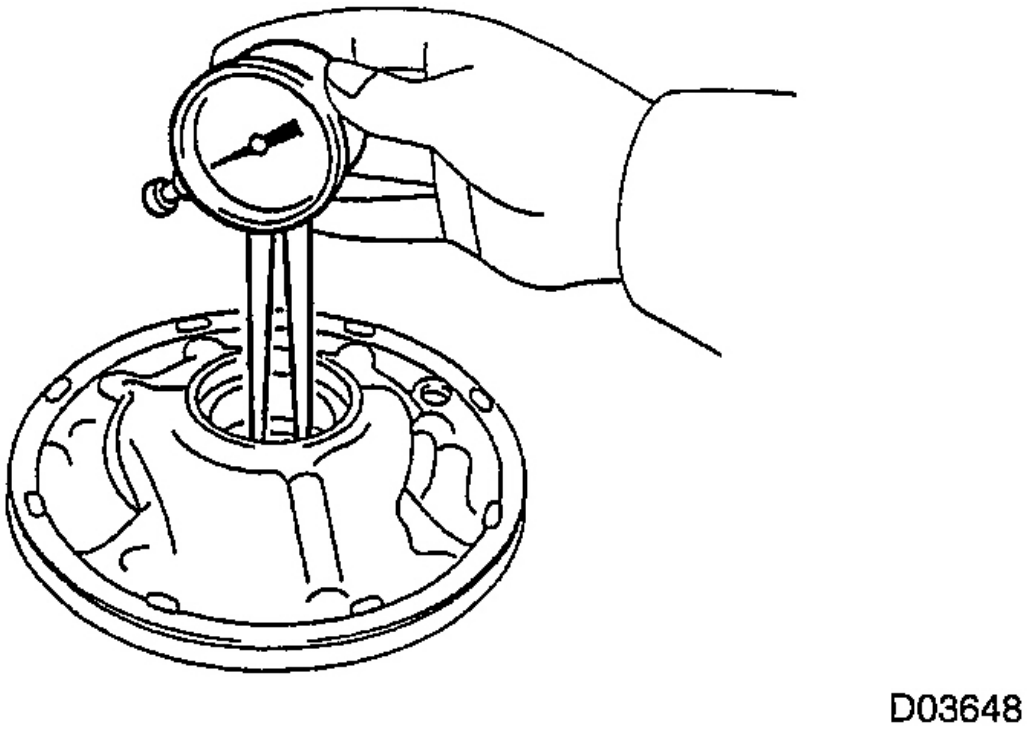


Fig. 254: Measuring Inside Diameter Of Oil Pump Body Bushing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. **INSPECT STATOR SHAFT ASSY**
    a. Using a dial indicator, measure the inside diameter of the stator shaft.

    Standard inside diameter:

    21.500 to 21.526 mm (0.84646 to 0.84748 in.)

    Maximum inside diameter: 21.57 mm (0.8492 in.)

    If the indicator diameter is greater than the maximum, replace the stator shaft.

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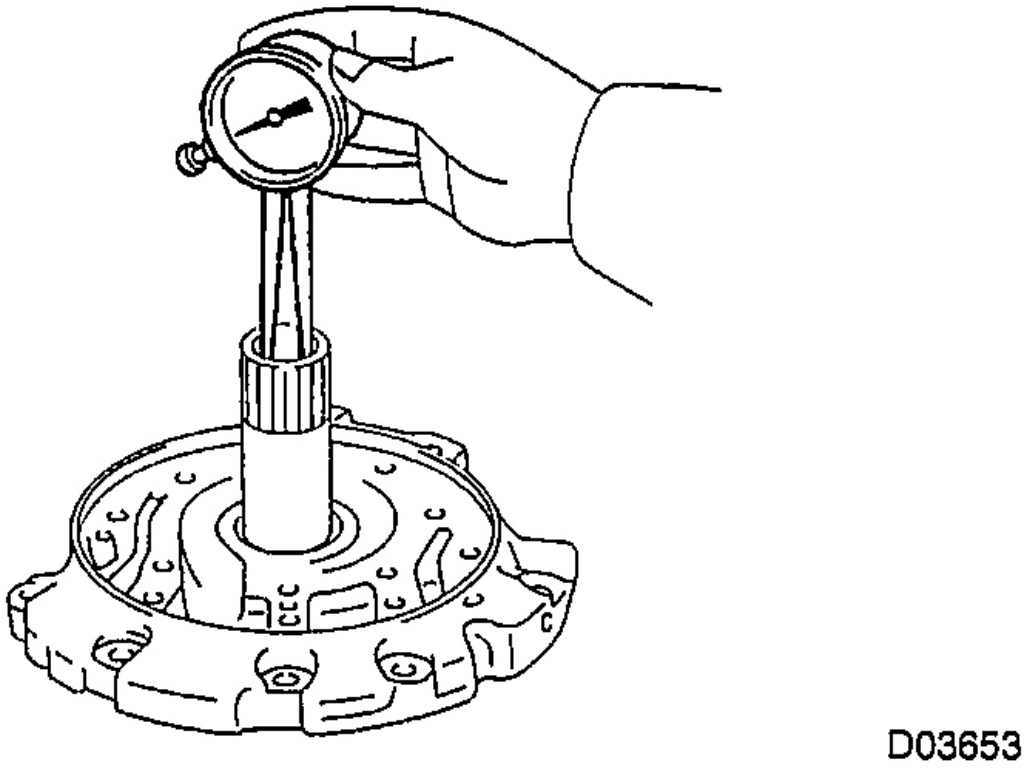


Fig. 255: Measuring Inside Diameter Of Stator Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. **INSTALL FRONT OIL PUMP OIL SEAL**
    a. Using SST and a hammer, install a new oil seal to the oil pump body.

       SST 09350-32014 (09351-32140)

       HINT:

       The seal end should be level with the outer edge of the oil pump.

    b. Coat the lip of the oil seal with MP grease.

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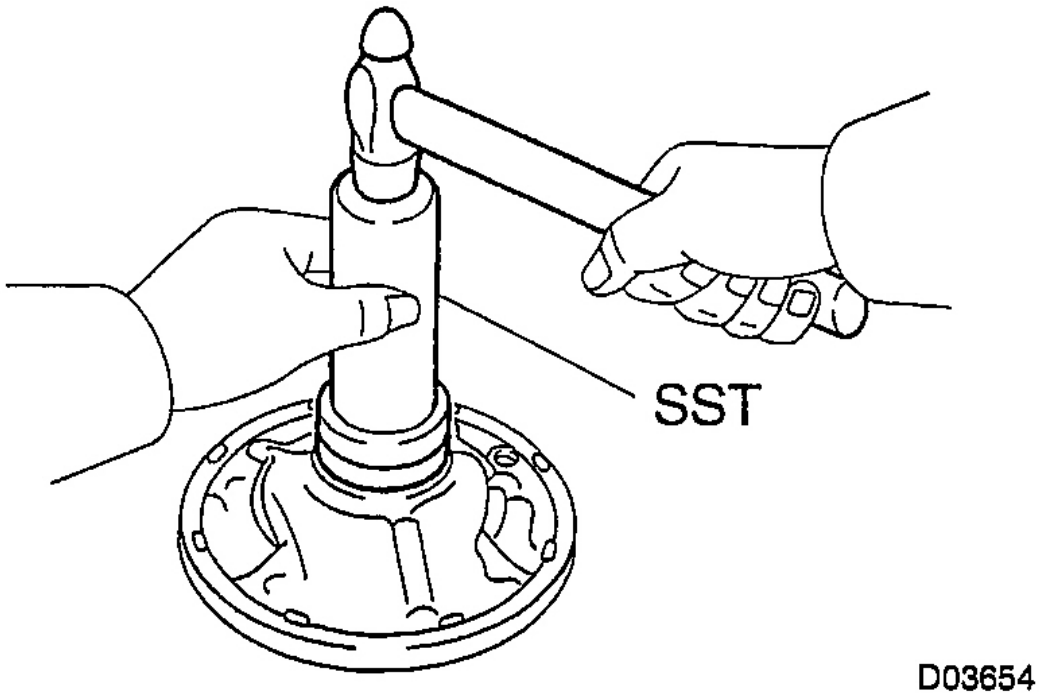


Fig. 256: Installing Oil Seal To Oil Pump Body
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. **INSTALL FRONT OIL PUMP BODY O-RING**
    a. Coat a new O-ring with ATF, and install it to the oil pump body.

NOTE: Ensure that the O-ring is not twisted or pinched.

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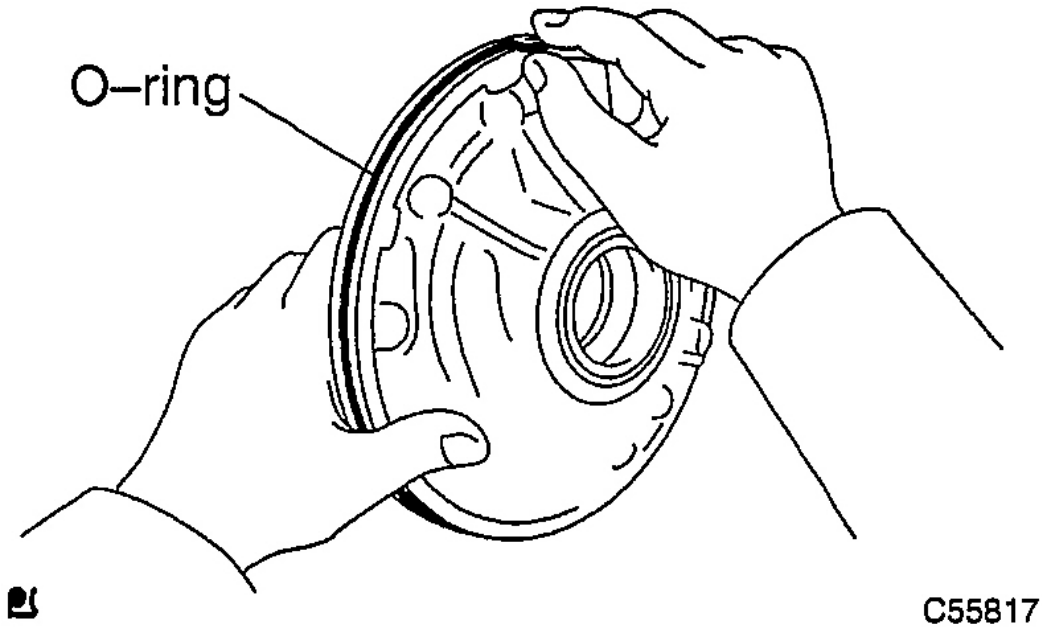


Fig. 257: Installing O-Ring To Oil Pump Body
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. **INSTALL FRONT OIL PUMP DRIVEN GEAR**
    a. Coat the front oil pump driven gear with ATF, and install it to the oil pump body with the marked side up.

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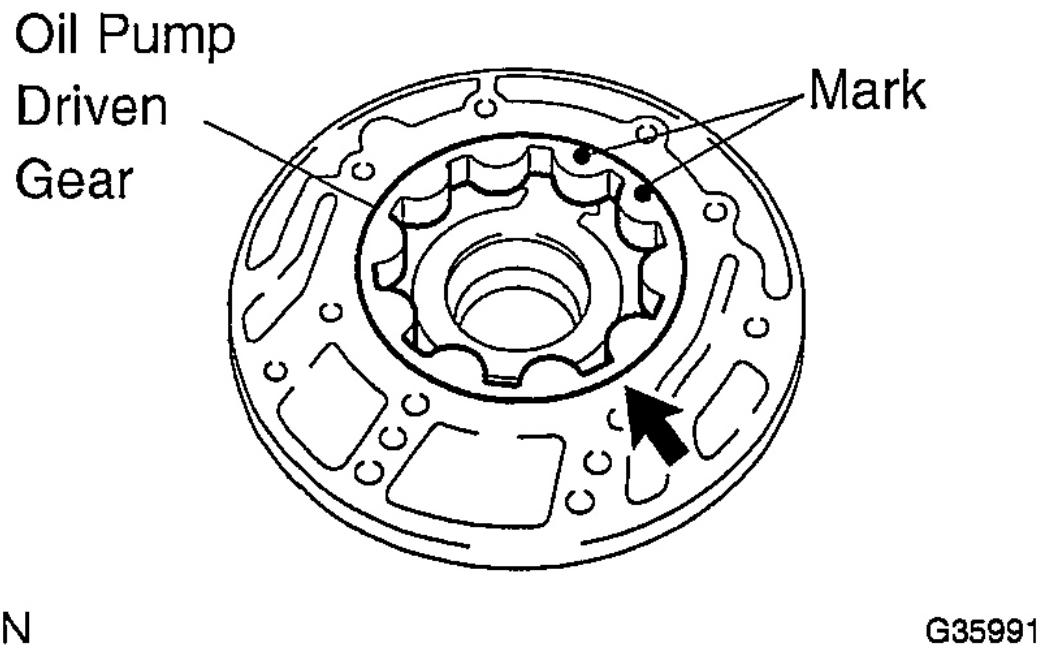


Fig. 258: Installing Front Oil Pump Driven Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. **INSTALL FRONT OIL PUMP DRIVE GEAR**
    a. Coat the front oil pump drive gear with ATF, install it to the oil pump body with the marked side up.

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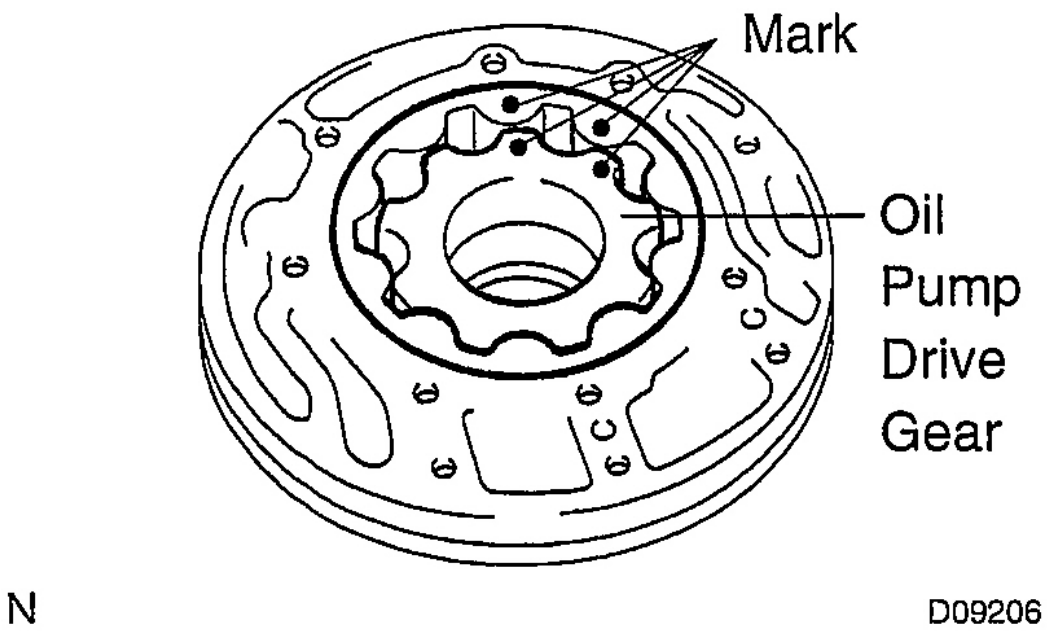


Fig. 259: Installing Front Oil Pump Drive Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. **INSTALL STATOR SHAFT ASSY**
    a. Set the stator shaft aligned with each bolt hole.
    b. Using a torx socket (T30), install the 11 bolts.

    Torque: 9.8 N.m (100 kgf.cm, 87 in.lbf)

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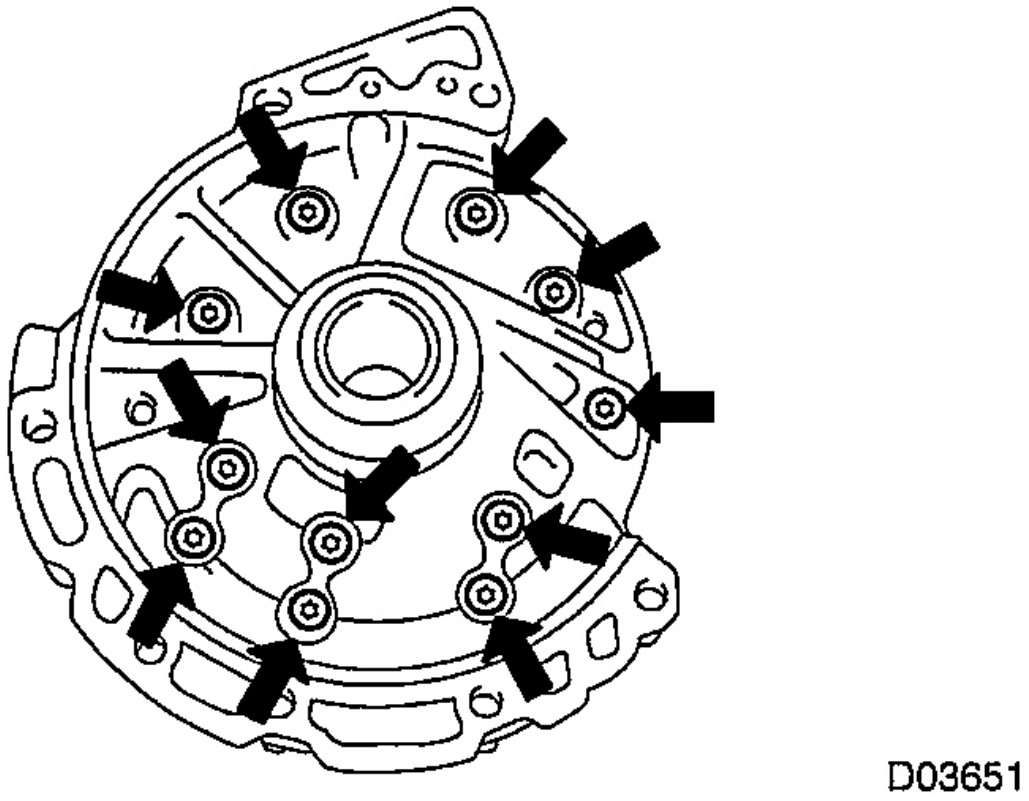


Fig. 260: Identifying Stator Shaft Assy Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16. **INSTALL CLUTCH DRUM OIL SEAL RING**
    a. Coat the 2 new clutch drum oil seal rings with ATF.
    b. Install the 2 new clutch drum oil seal rings.

NOTE: Do not expand the ring ends excessively.

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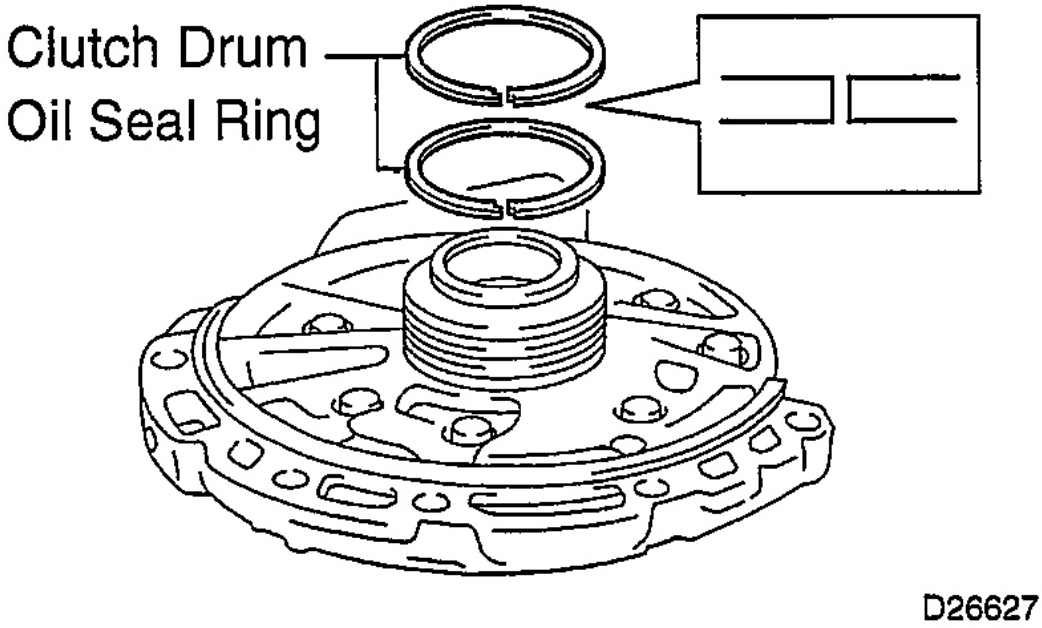


Fig. 261: Installing Clutch Drum Oil Seal Rings
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

17. **INSPECT OIL PUMP ASSY**
    a. Turn the drive gear with 2 screwdrivers and make sure it rotates smoothly.

NOTE: Be careful not to damage the oil seal lip.

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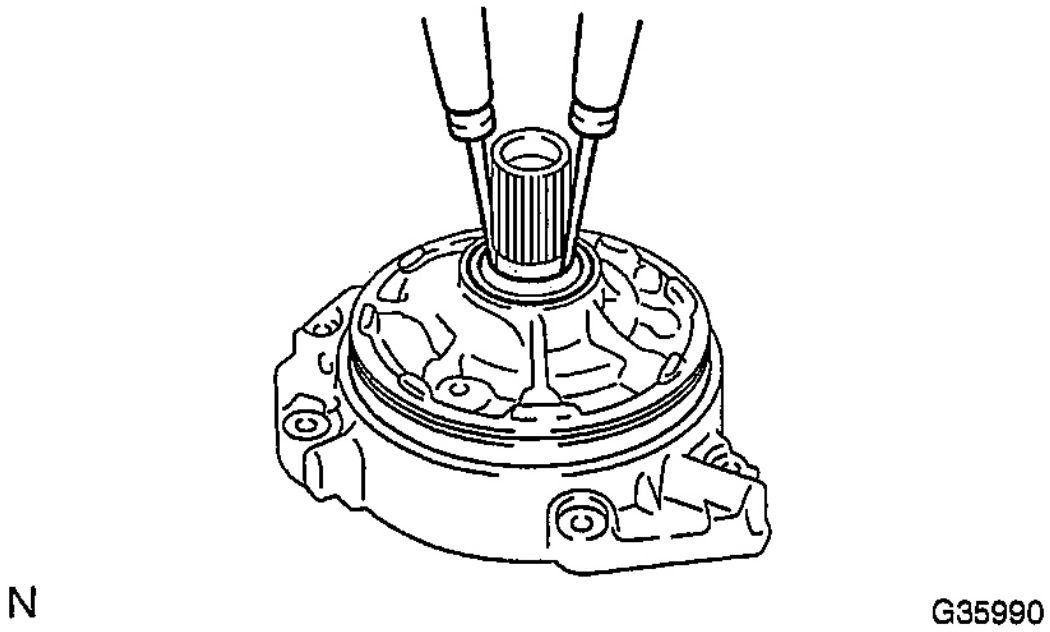


Fig. 262: Turning Drive Gear With Screwdrivers
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

FORWARD CLUTCH ASSY (U250E)

COMPONENTS

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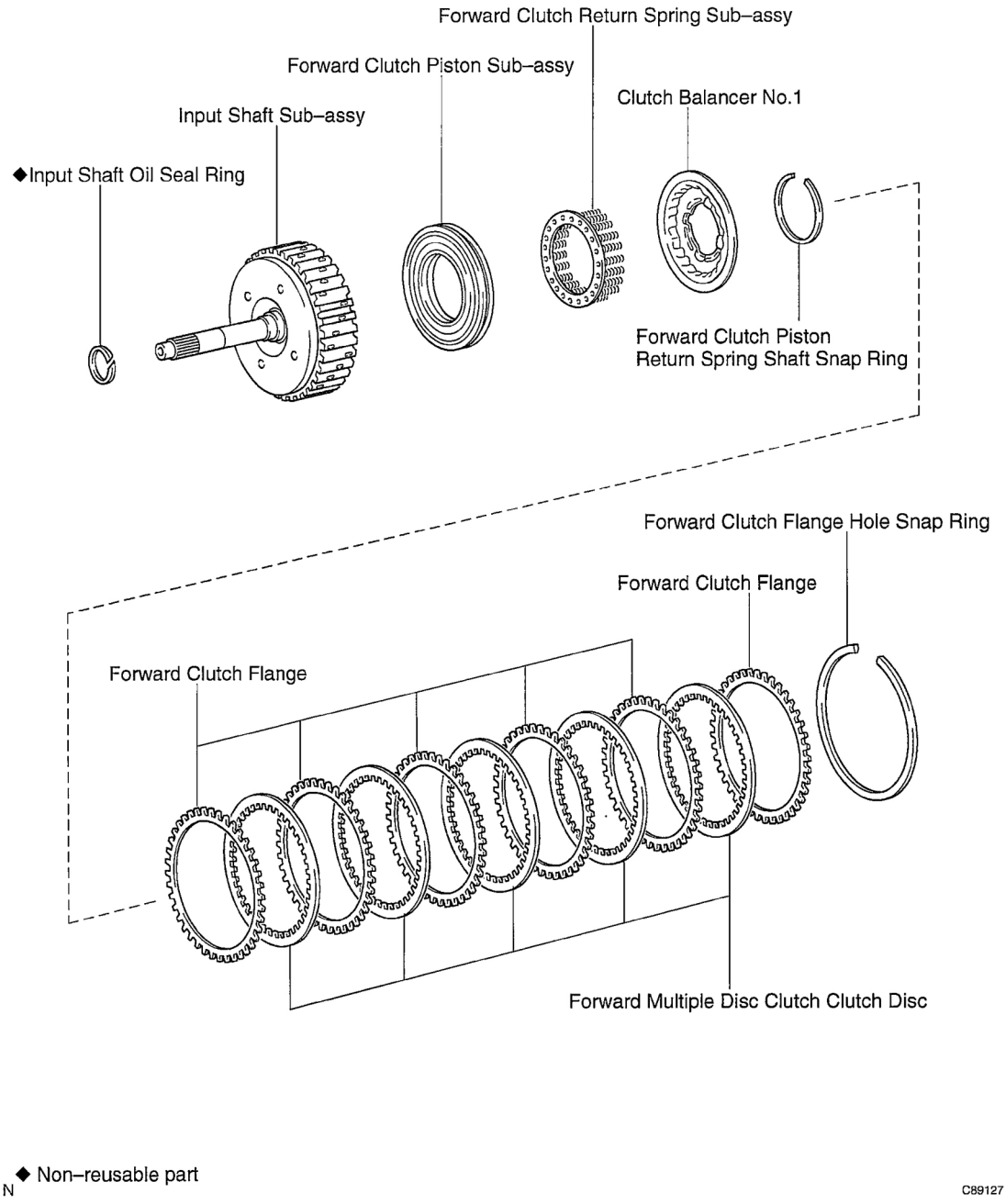


Fig. 263: Identifying Forward Clutch Assy (U250E) Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OVERHAUL

1. **INSPECT PACK CLEARANCE OF FORWARD CLUTCH**
   a. Install the forward clutch on the oil pump.

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NOTE: Be careful not to damage the oil seal ring of the oil pump.

b. Using a dial indicator, measure the forward clutch pack clearance while applying and releasing compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi).

Pack clearance: 0.85 to 1.25 mm (0.0335 to 0.0492 in.)

If the clearance is not within specification, inspect the discs, plates and flange.

HINT:

As the opening is large, cover it with a shop rag to prevent the compressed air from being released.

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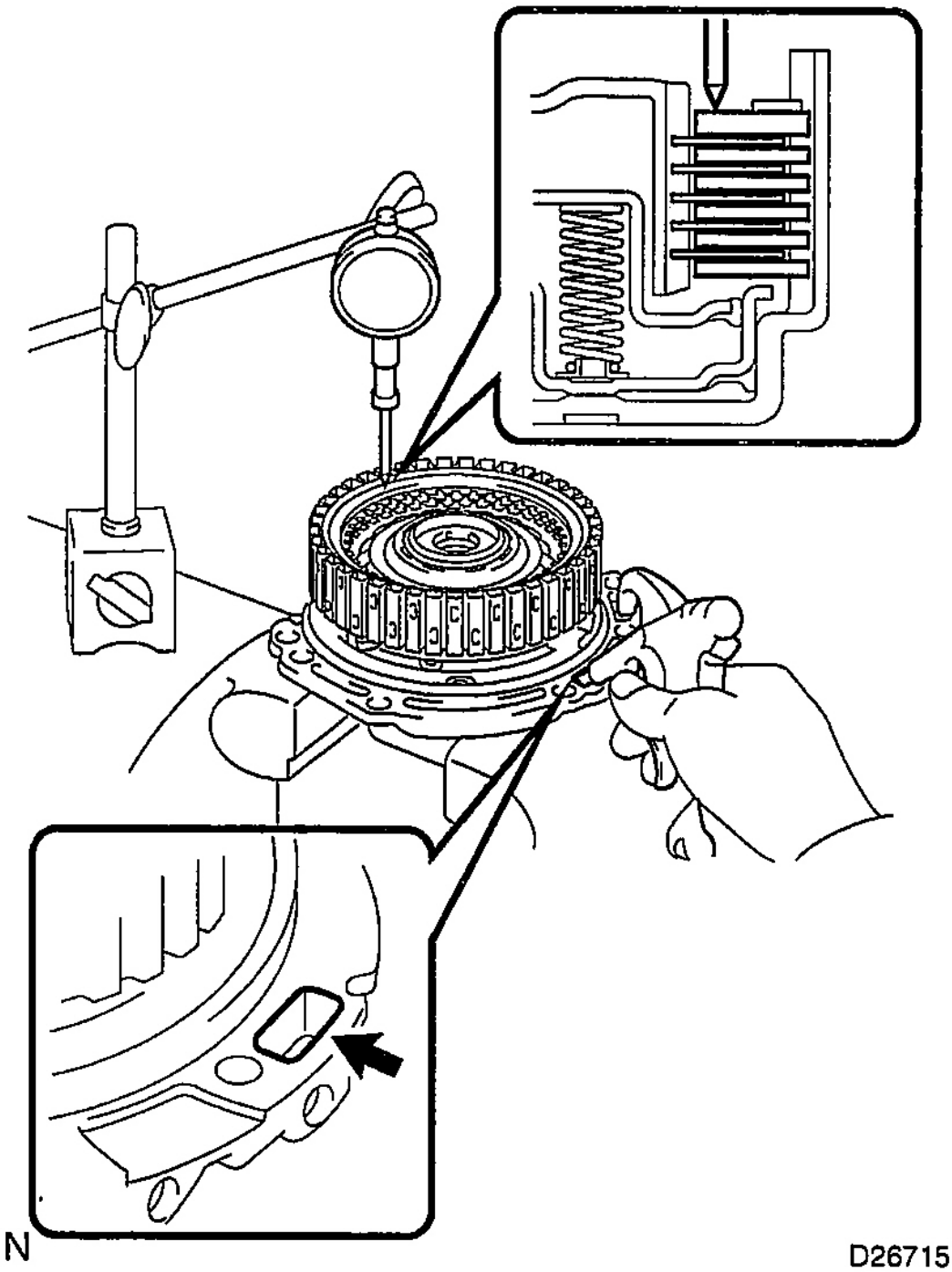


Fig. 264: Inspecting Pack Clearance Of Forward Clutch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **REMOVE FORWARD MULTIPLE DISC CLUTCH, CLUTCH DISC**

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a. Using a screwdriver, remove the snap ring.

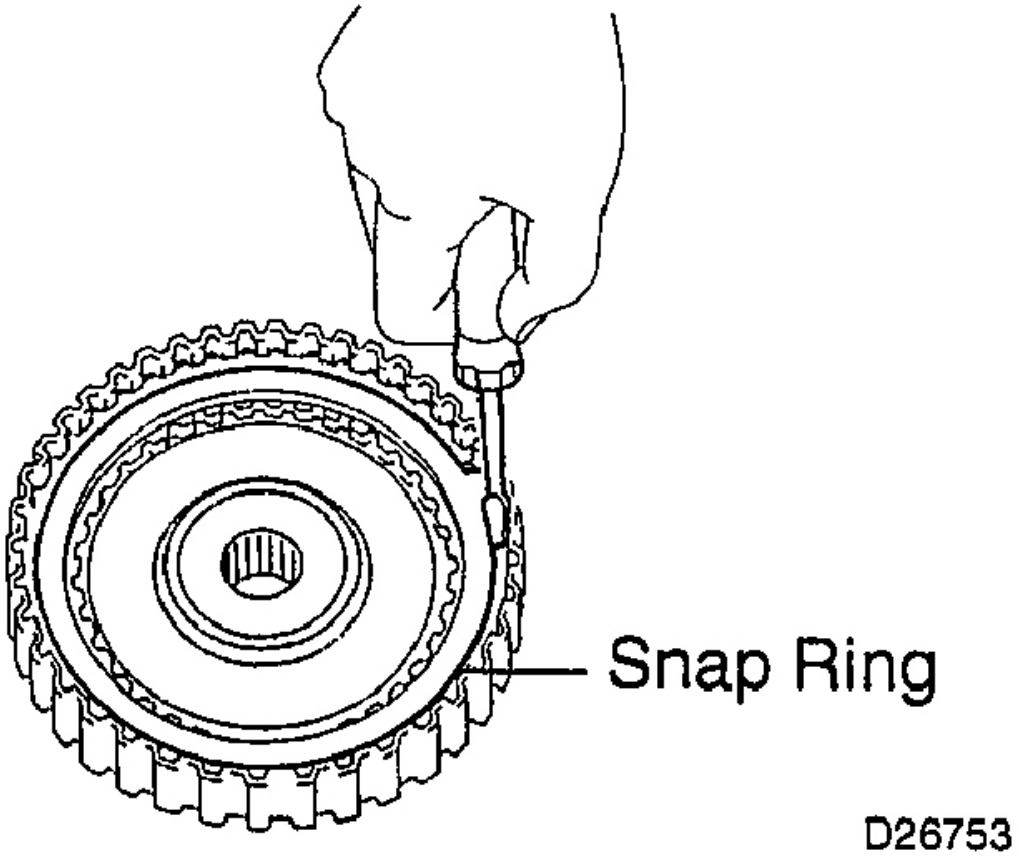


Fig. 265: Removing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the flange, 5 discs and 5 plates from the input shaft assy.

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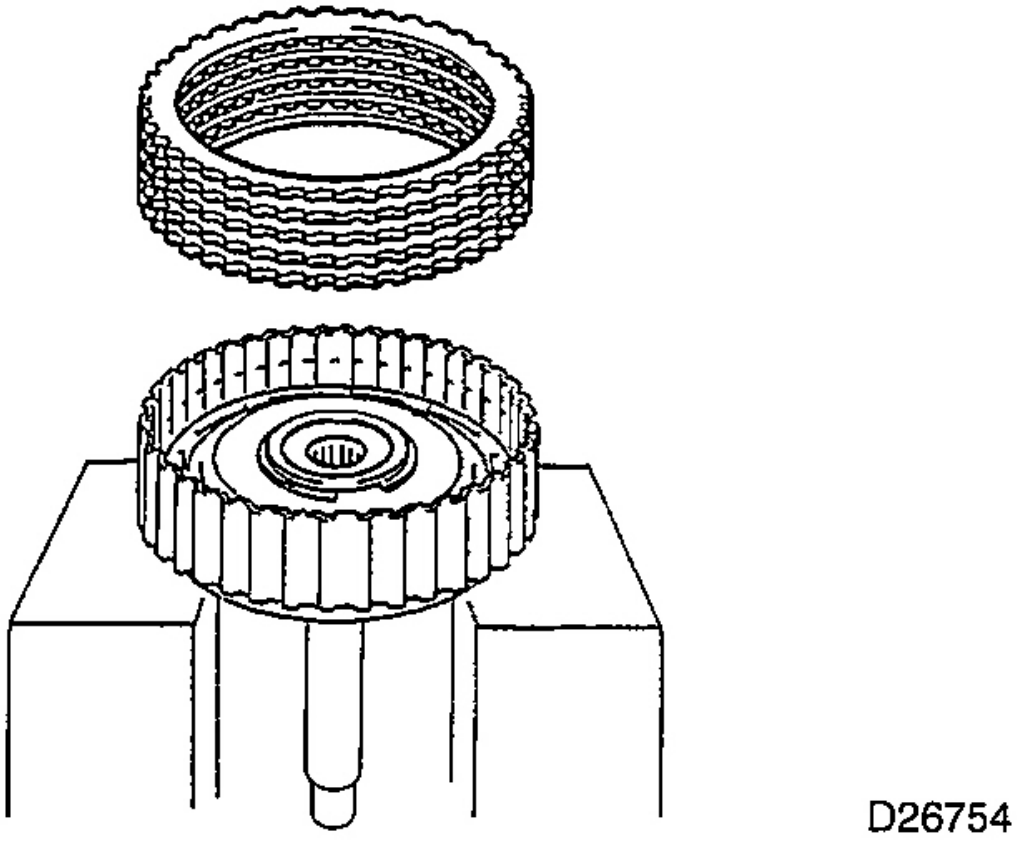


Fig. 266: Removing Flange, Discs And Plates From Input Shaft Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **INSPECT FORWARD MULTIPLE DISC CLUTCH, CLUTCH DISC**
   a. Check to see if the sliding surfaces of the discs, plates and flange are worn or burnt.

      If necessary, replace them.

      HINT:

      - If the lining of a disc comes off or discolors, or a groove is damaged, replace all discs.
      - Before assembling new discs, soak them in ATF for at least 15 minutes.

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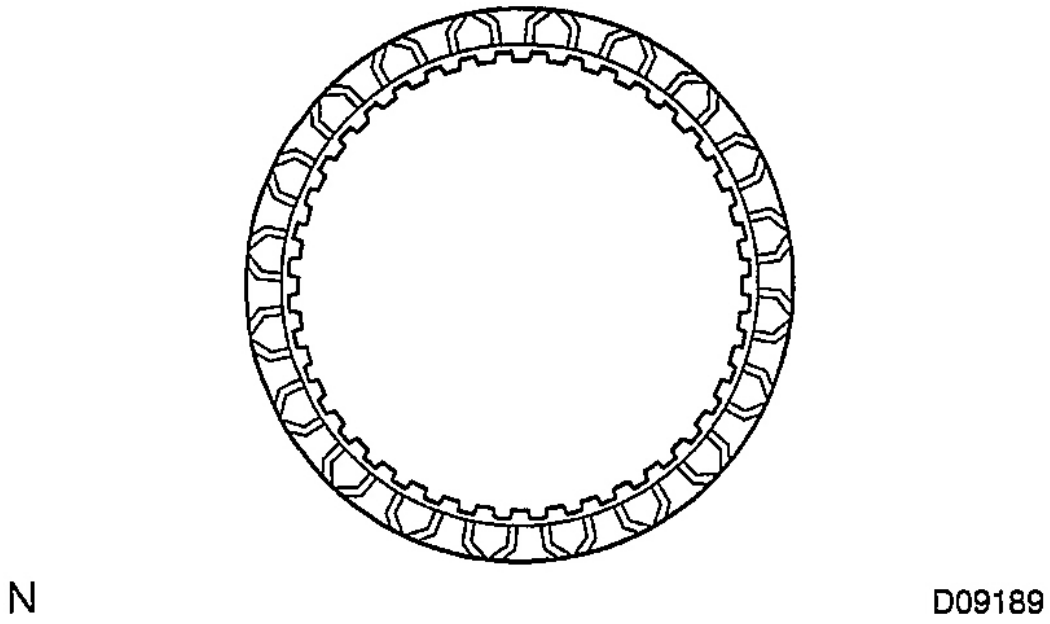


Fig. 267: Inspecting Forward Multiple Disc Clutch, Clutch Disc
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **REMOVE FORWARD CLUTCH RETURN SPRING SUB-ASSY**
   a. Place SST on the spring retainer and compress the return spring with a press.

      SST 09387-00020

   b. Using a snap ring expander, remove the snap ring.

NOTE:
- **Stop the press when the spring sheet is lowered 1 to 2 mm (0.039 to 0.0 in.) from the snap ring groove, preventing the spring sheet from being deformed.**
- **Do not expand the snap ring excessively.**

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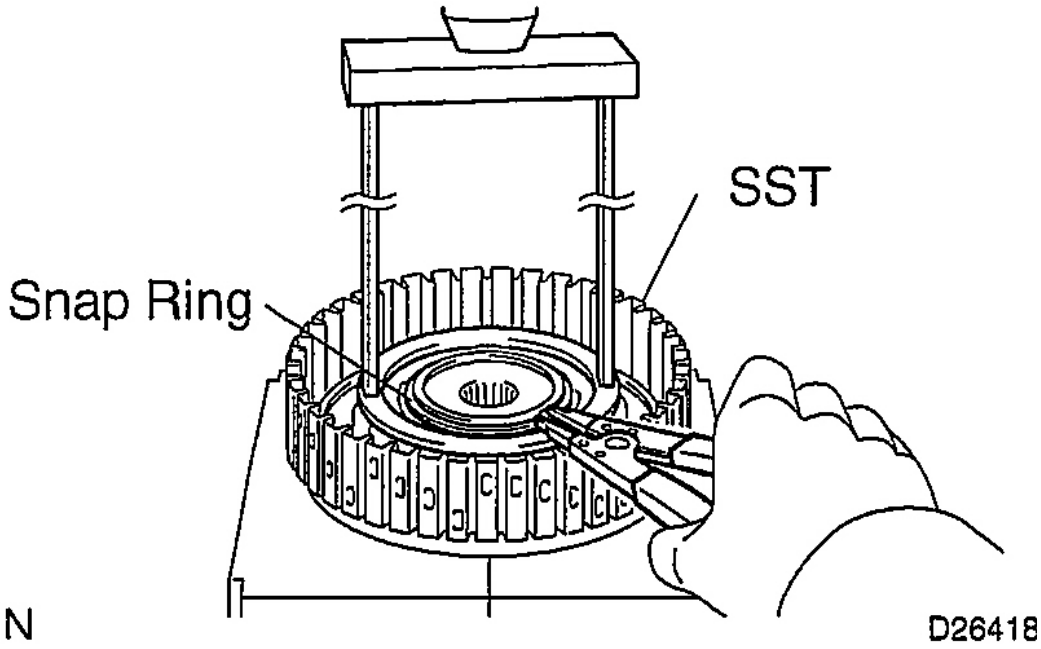


Fig. 268: Removing Forward Clutch Return Spring Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Remove the clutch balancer from the input shaft.

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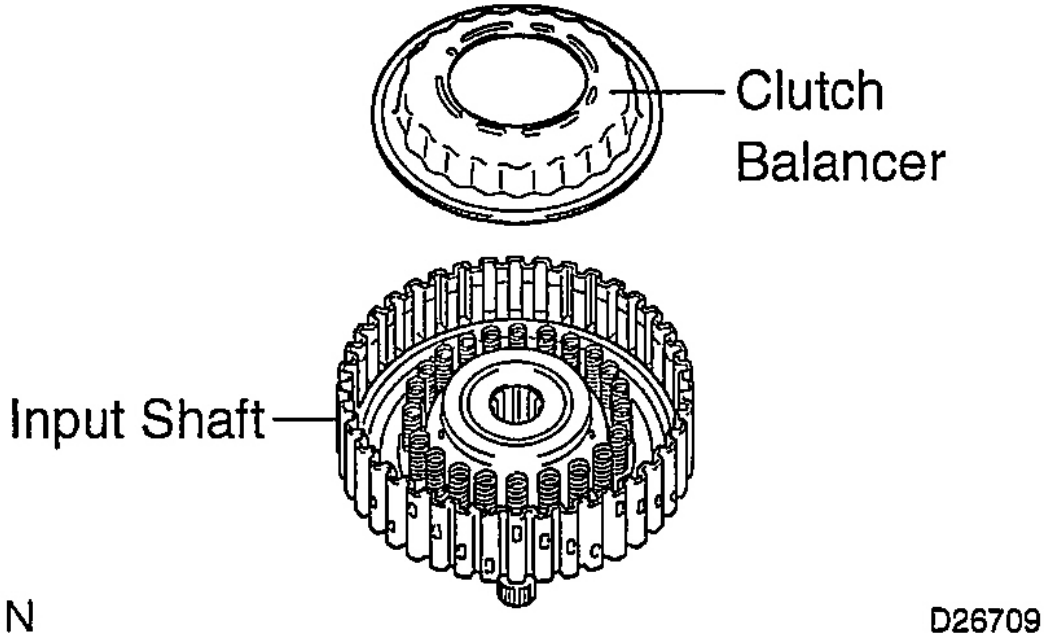


Fig. 269: Removing Clutch Balancer From Input Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Remove the forward clutch return spring sub-assy from the input shaft sub-assy.

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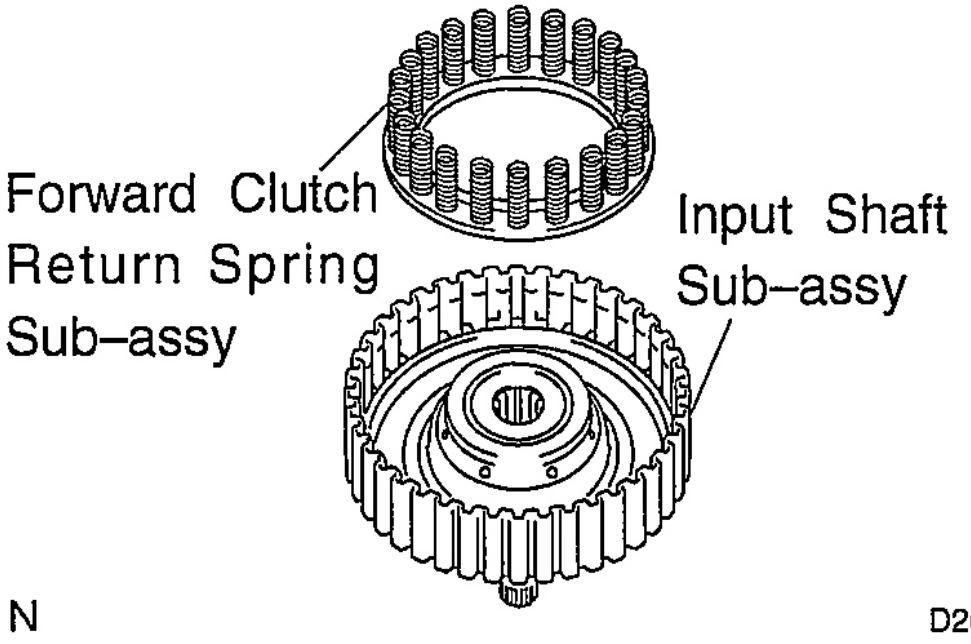


Fig. 270: Removing Forward Clutch Return Spring Sub-Assy From Input Shaft Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSPECT FORWARD CLUTCH RETURN SPRING SUB-ASSY**
   a. Using vernier calipers, measure the free length of the spring together with the spring seat.

   Standard free length: 26.74 mm (1.0528 in.)

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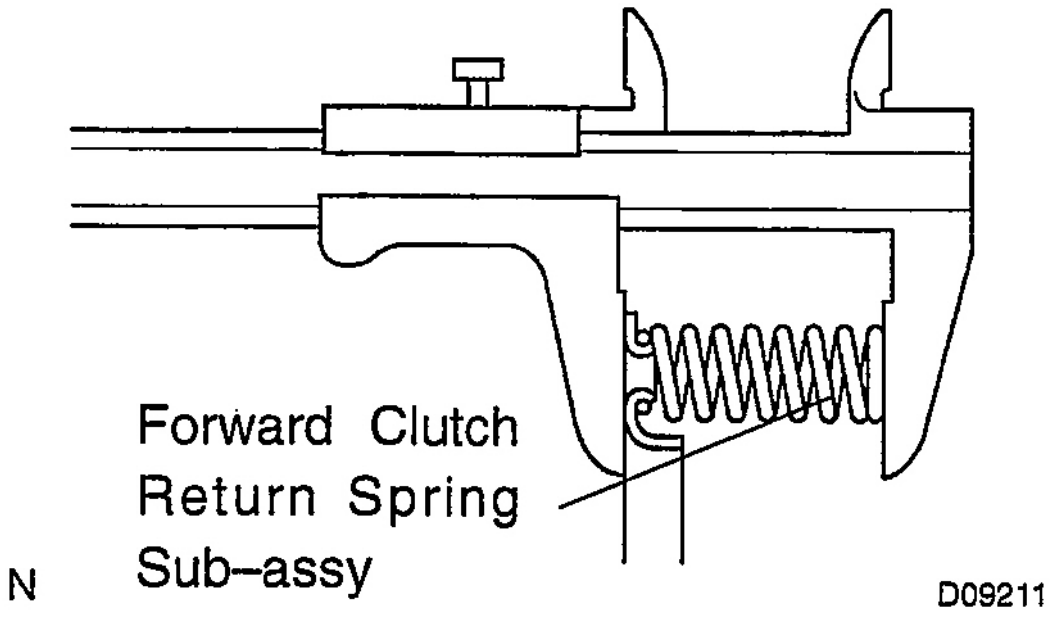


Fig. 271: Inspecting Forward Clutch Return Spring Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **REMOVE FORWARD CLUTCH PISTON SUB-ASSY**
   a. Place the forward clutch drum onto the oil pump.
   b. Holding the forward clutch piston by hand, apply compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi) to the oil pump to remove the forward clutch piston.

      HINT:

      When the piston cannot be removed as it is slanted, either blow the air again with the protruding side pushed down or remove the piston using needle nose pliers with the tip wrapped with vinyl tape.

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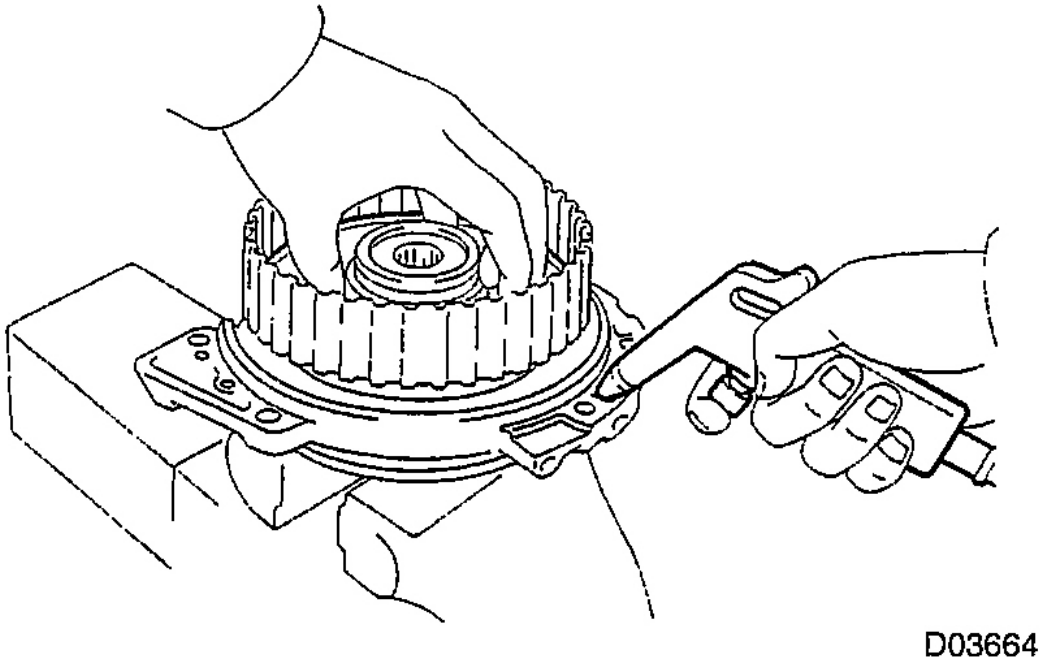


Fig. 272: Removing Forward Clutch Piston Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **REMOVE INPUT SHAFT OIL SEAL RING**
   a. Remove the input shaft oil seal ring from the input shaft.

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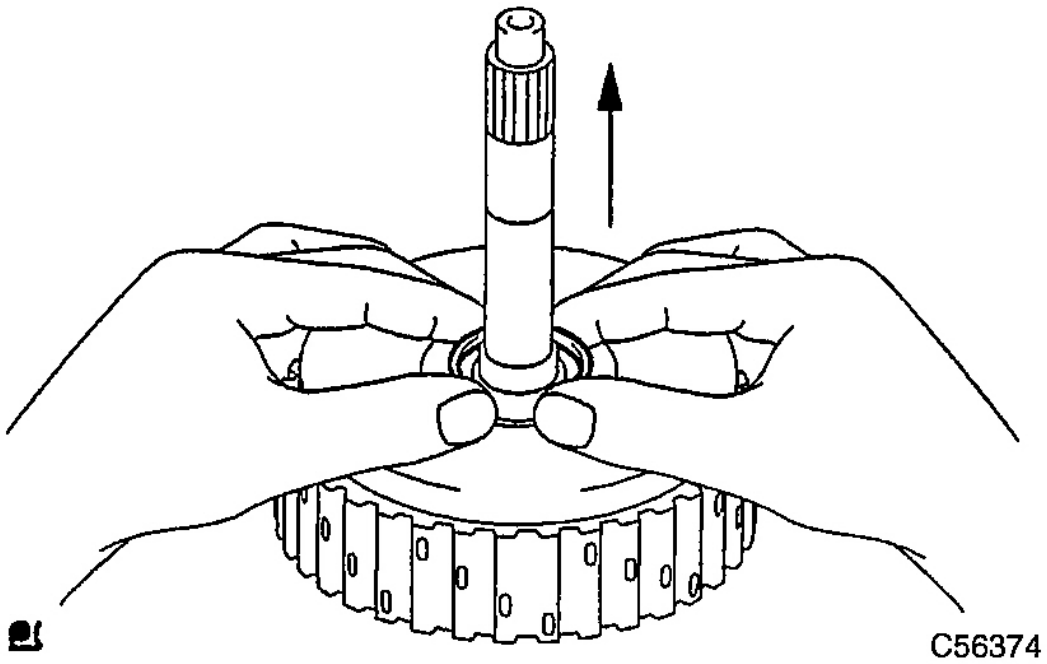


Fig. 273: Removing Input Shaft Oil Seal Ring From Input Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **INSTALL INPUT SHAFT OIL SEAL RING**
   a. Compress a new input shaft oil seal ring from both sides to adjust dimension A.

      Dimension A: 5 mm (0.197 in.)

   b. Coat the oil seal ring with ATF and install it to the input shaft.

      NOTE: Do not expand the gap of the oil seal ring too much. Securely engage the hooks.

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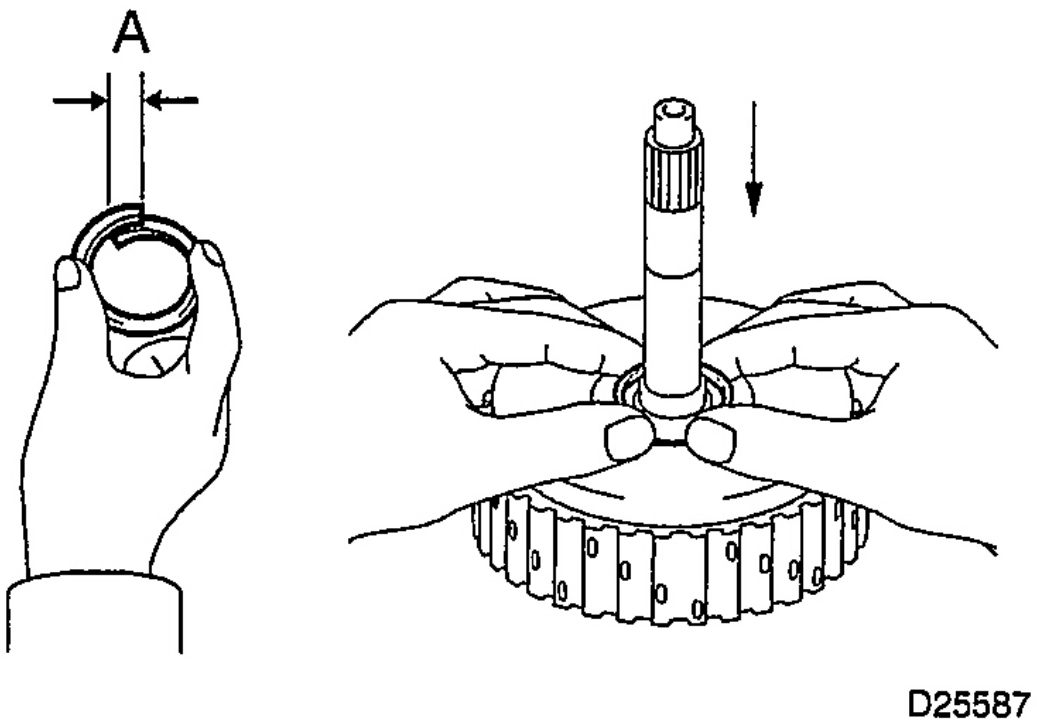


Fig. 274: Installing Input Shaft Oil Seal Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **INSTALL FORWARD CLUTCH PISTON SUB-ASSY**
   a. Coat the forward clutch piston with ATF, and install it to the input shaft.

NOTE: Be careful not to damage the lip seal of the forward clutch piston.

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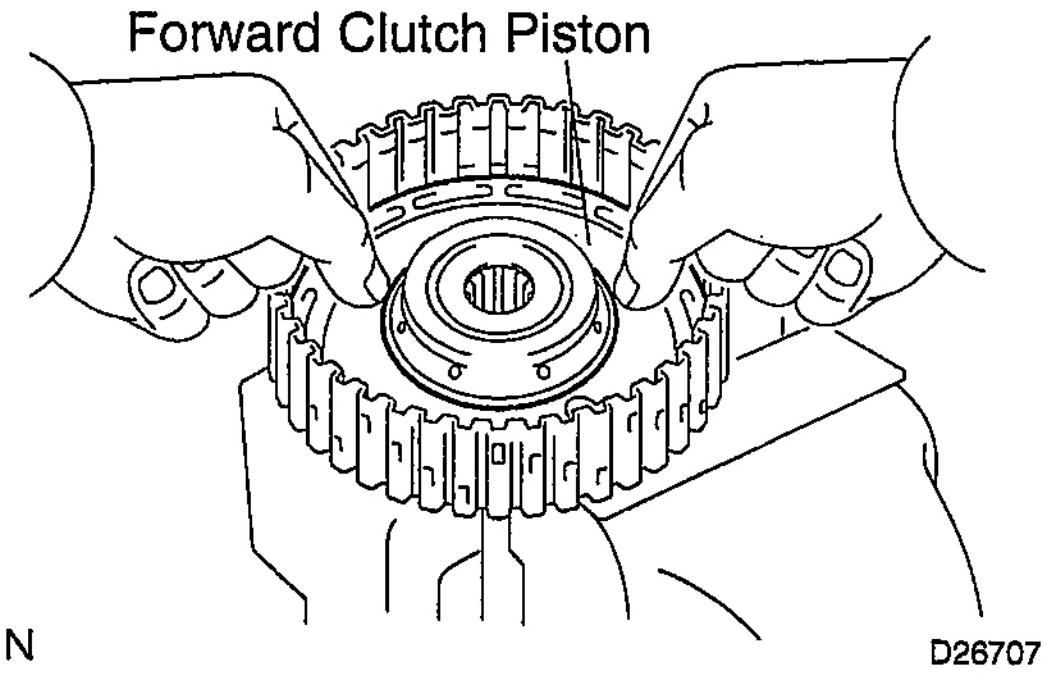


Fig. 275: Installing Forward Clutch Piston Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. **INSTALL FORWARD CLUTCH RETURN SPRING SUB-ASSY**
    a. Install the return spring sub-assy to the input shaft sub-assy.
    b. Coat the clutch balancer with ATF.

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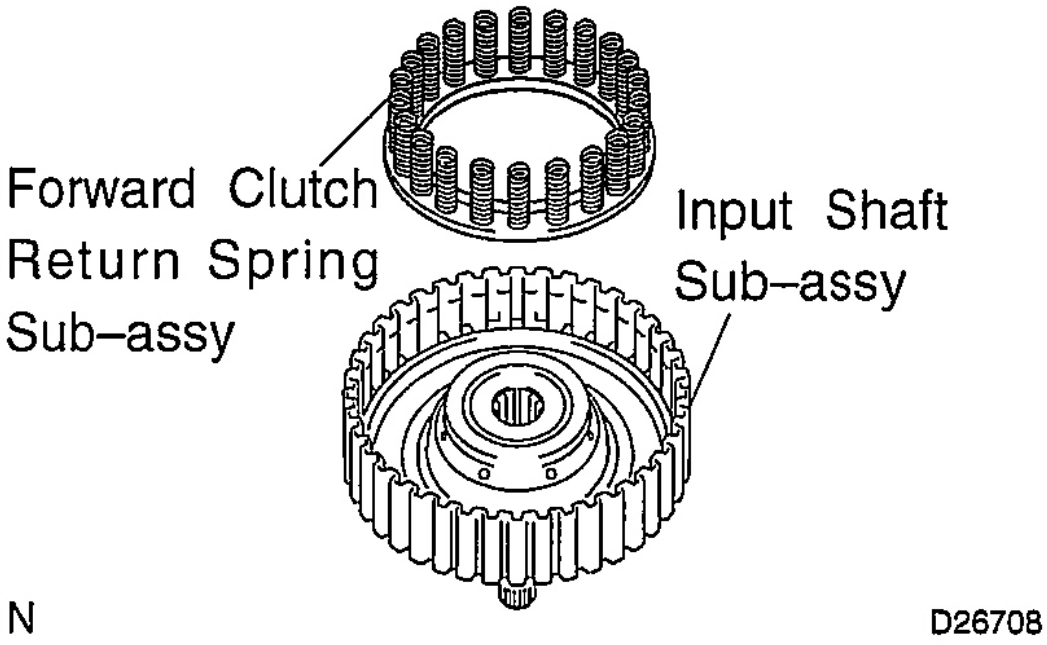


Fig. 276: Installing Return Spring Sub-Assy To Input Shaft Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install the clutch balancer to the input shaft.

NOTE:

- **Be careful not to damage the lip seal of the forward clutch balancer.**
- **Ensure that the clutch balancer is not pinched and there are no other defects on it.**
- **Apply enough ATF to the sealing lip prior to installation.**
- **When installing the spring sub-assembly, ensure that all springs are fit the clutch balancer correctly.**

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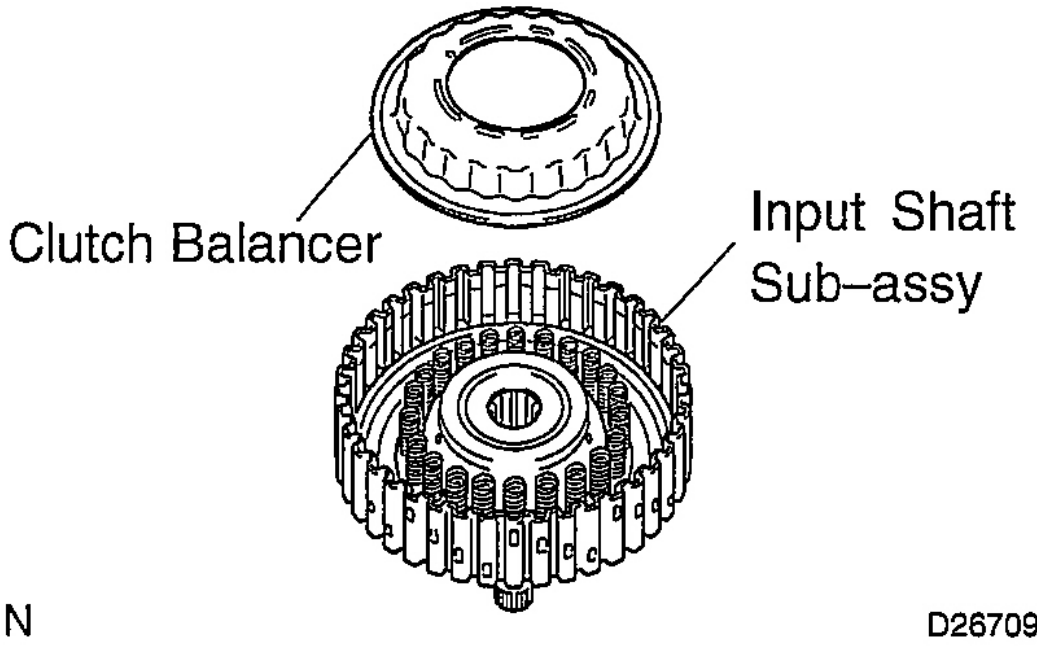


Fig. 277: Installing Clutch Balancer To Input Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Place SST on the clutch balancer, and compress the clutch balancer with a press.

   SST 09387-00020

e. Install the snap ring with a snap ring expander.
f. Be sure the end gap of the snap ring is not aligned with the spring retainer claw.

NOTE:
- **Stop the press when the spring sheet is lowered to the place 1 to 2 mm (0.039 to 0.078 in.) from the snap ring groove. This prevents the spring sheet from being deformed.**
- **Do not expand the snap ring excessively.**

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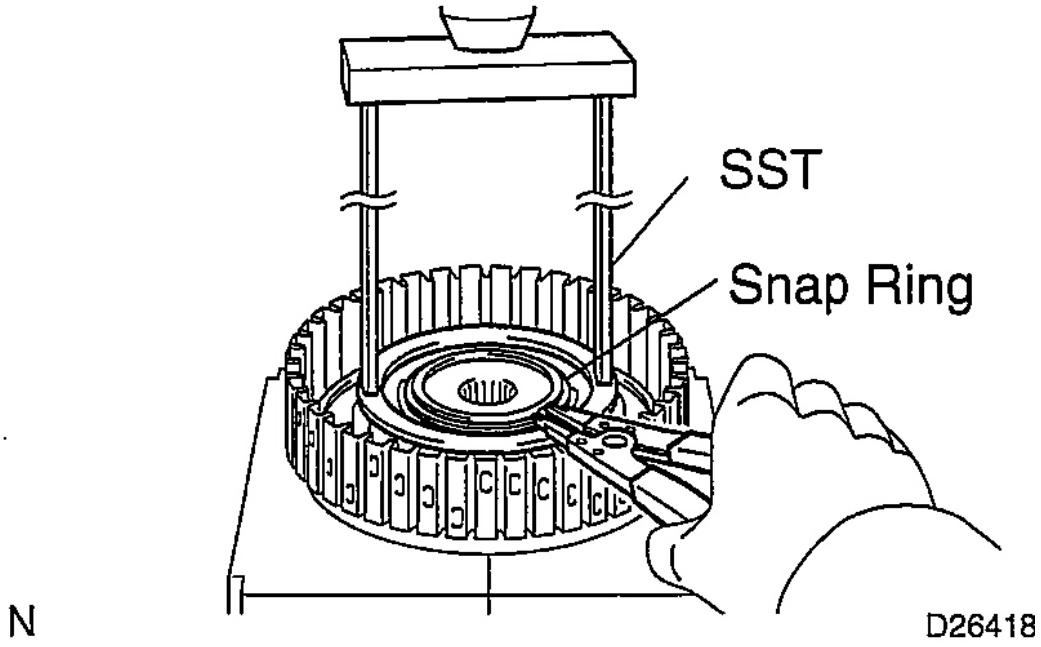


Fig. 278: Compressing Clutch Balancer With Press
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

g. Set the end gap of the snap ring in the piston as shown in the illustration.

NOTE: Ensure that the end gap of the snap ring is not aligned with any of the stoppers.

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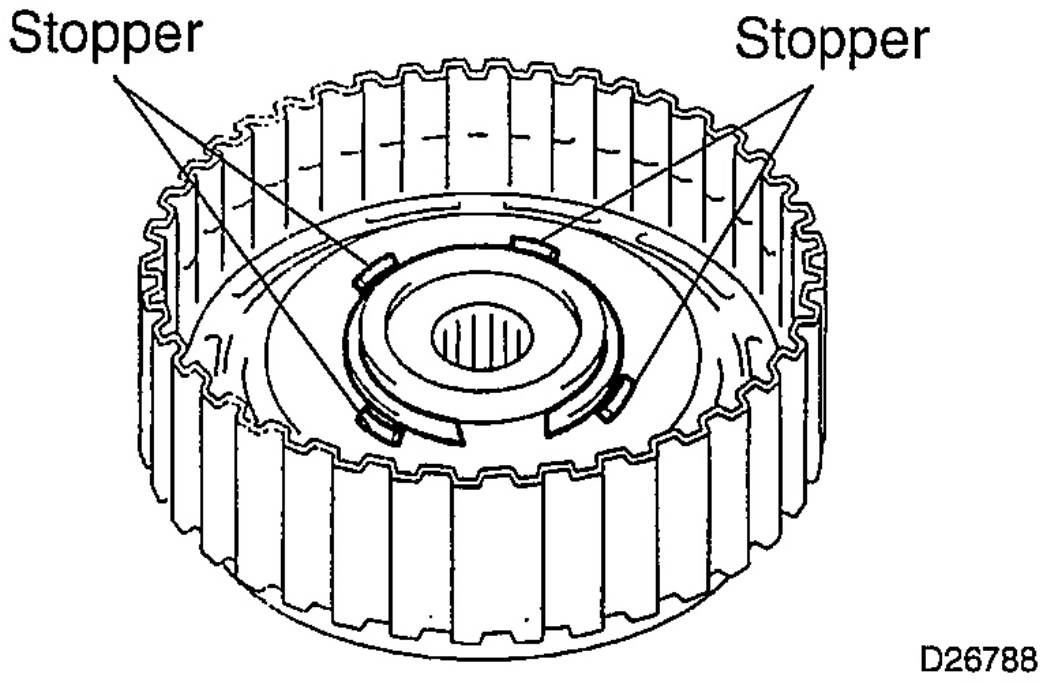


Fig. 279: Setting End Gap Of Snap Ring In Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. **INSTALL FORWARD MULTIPLE DISC CLUTCH, CLUTCH DISC**
    a. Coat the 5 discs with ATF.
    b. Install the 5 plates, 5 discs and flange to the input shaft.

NOTE: Be careful about the order of the discs, plates and flange.

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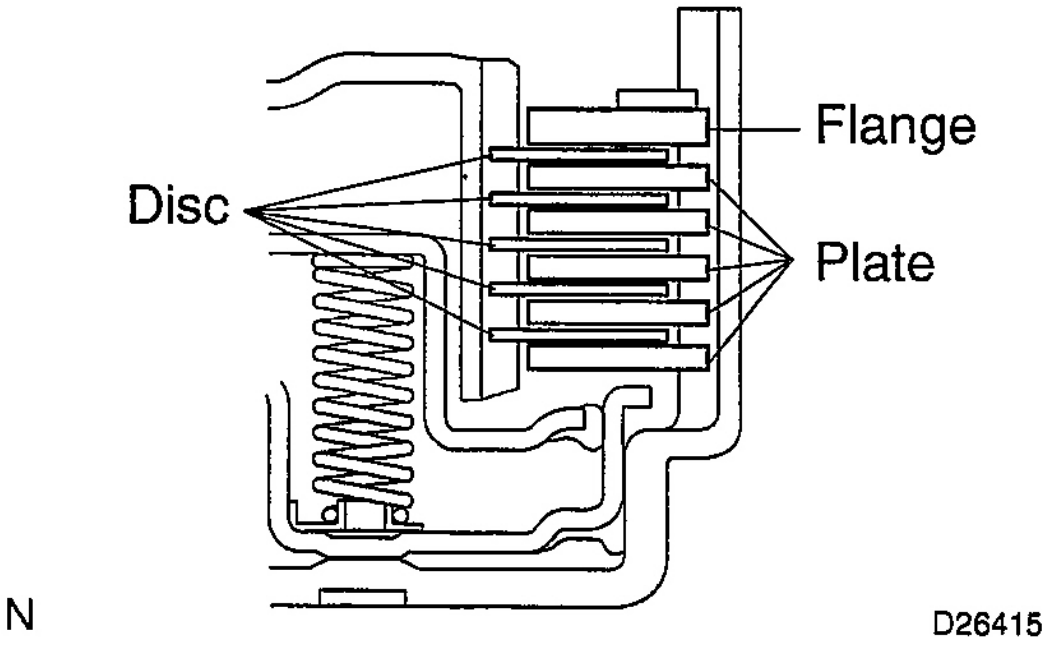


Fig. 280: Installing Plates, Discs And Flange To Input Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a screwdriver, install the snap ring.
d. Check that the end gap of the snap ring is not aligned with any of the cutouts.

NOTE: The snap ring should be securely fixed in the groove of the drum.

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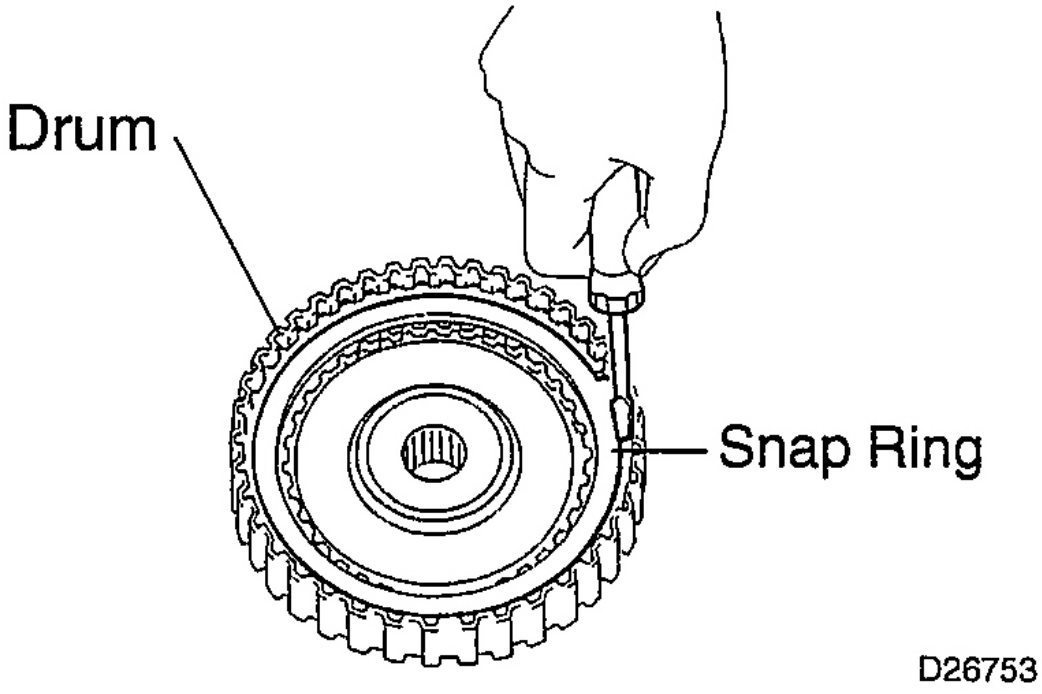


Fig. 281: Installing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. **INSPECT PACK CLEARANCE OF FORWARD CLUTCH**
    a. Using a dial indicator, measure the forward clutch pack clearance while applying and releasing compressed air (392 kPa, 4.0 kgf.cm^2 , 57 psi).

    Pack clearance: 0.85 to 1.25 mm (0.0335 to 0.0492 in.)

    If the piston stroke is less than the minimum, parts may have been assembled incorrectly. Check and reassemble again. If the clearance is not within specification, select another flange.

    HINT:

    There are 7 types of flanges of different thickness.

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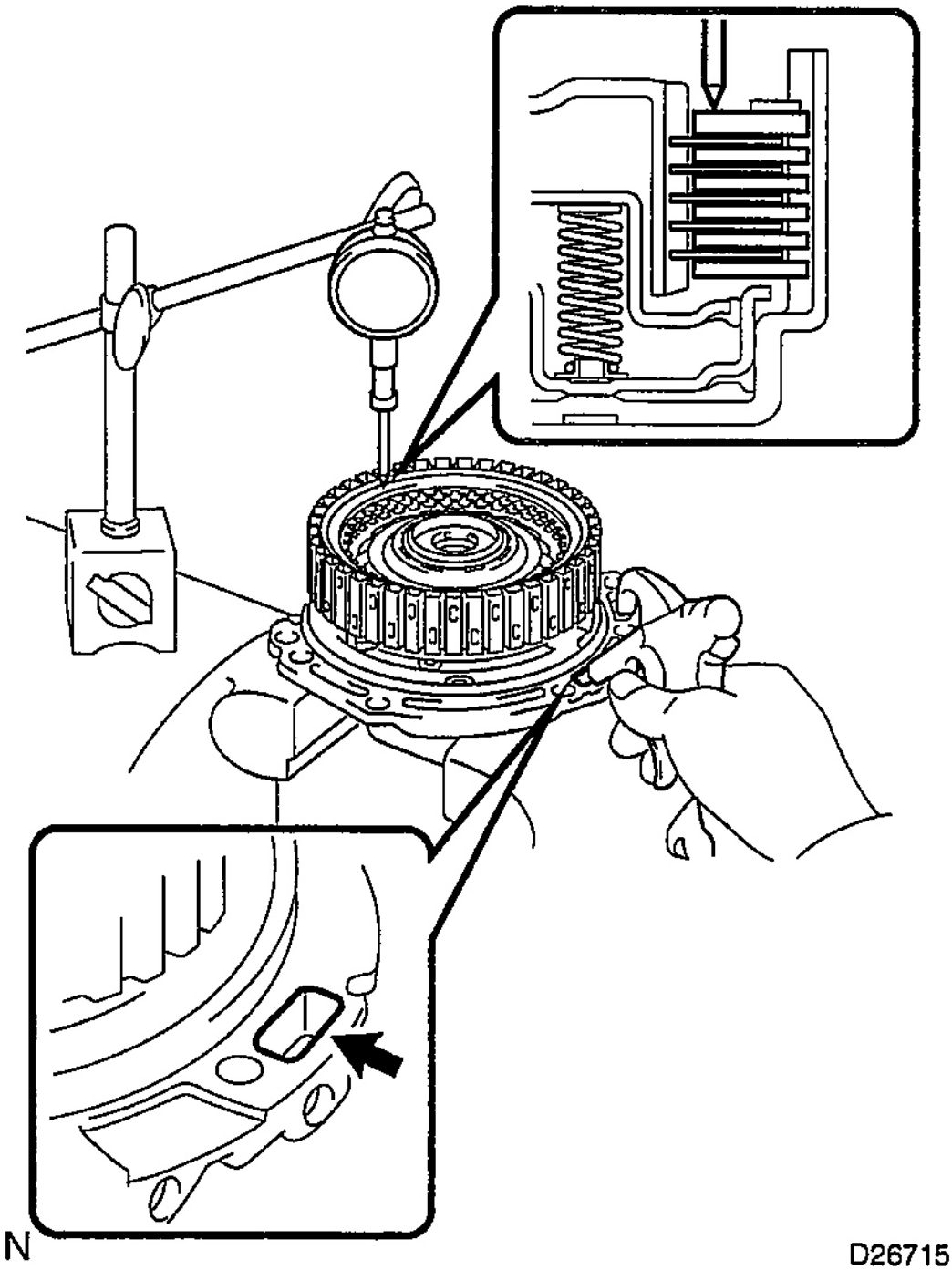


Fig. 282: Inspecting Pack Clearance Of Forward Clutch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Flange thickness: mm (in.)

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FLANGE THICKNESS - REFERENCE TABLE

No.	Thickness	No.	Thickness
0	2.85 (0.1122)	4	3.45 (0.1358)
1	3.00 (0.1181)	5	3.60 (0.1417)
2	3.15 (0.1240)	6	3.75 (0.1476)
3	3.30 (0.1299)	-	-

13. **INSPECT FORWARD MULTIPLE DISC CLUTCH, CLUTCH DISC**
    a. Temporarily install the multiple disc clutch, clutch hub into the forward clutch.
    b. Check if the discs rotate smoothly when rotating the forward clutch assy after inserting the multiple disc clutch into the multiple disc clutch, clutch hub.

NOTE: Do not place the forward clutch assy in a vise.

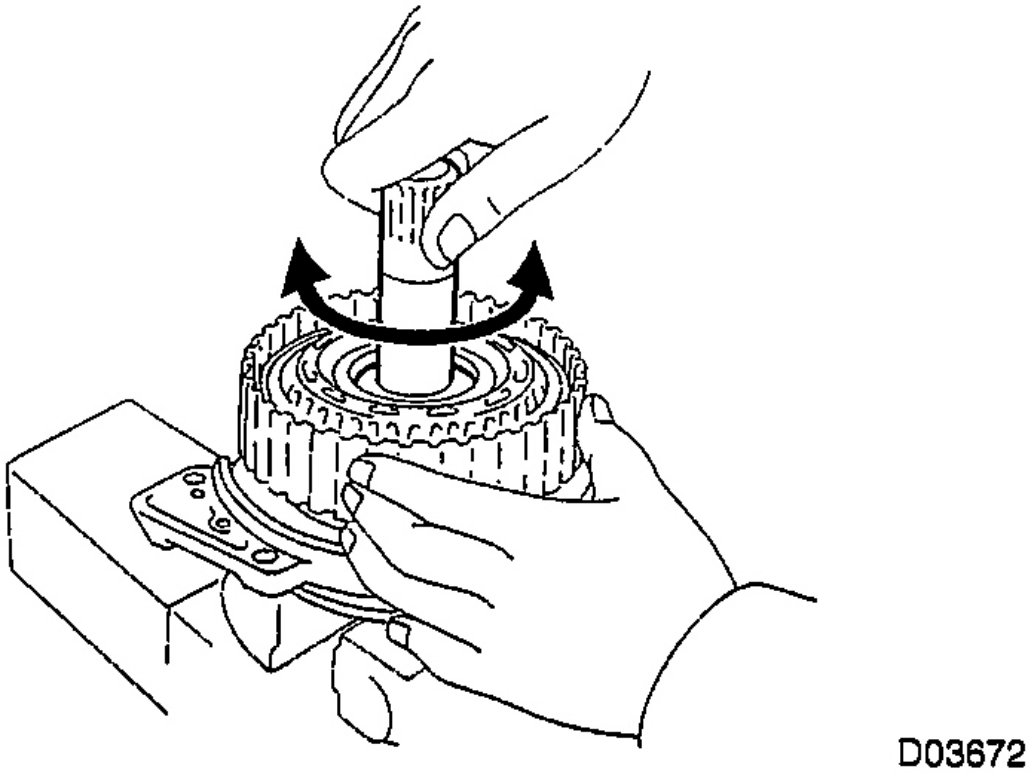


Fig. 283: Checking Disc Rotation
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DIRECT CLUTCH ASSY (U250E)

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COMPONENTS

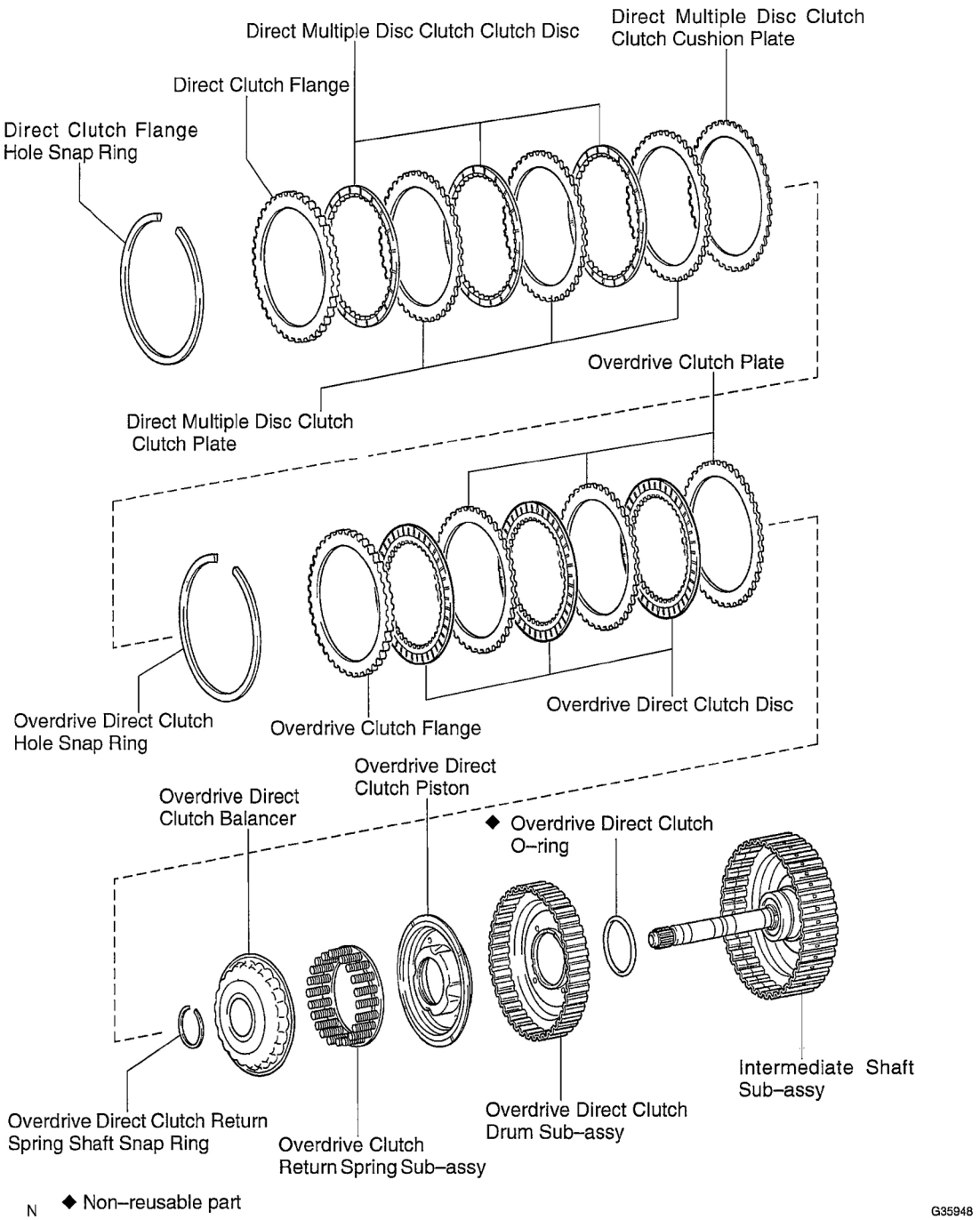


Fig. 284: Identifying Direct Clutch Assy (U250E) Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OVERHAUL

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1. **INSPECT PACK CLEARANCE OF DIRECT CLUTCH**
   a. Install the intermediate shaft and needle roller bearing on the transaxle rear cover.

      NOTE: Be careful not to damage the oil seal ring outers.

   b. Using a dial indicator, measure the direct clutch pack clearance while applying and releasing compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi).

      Pack clearance: 0.60 to 0.82 mm (0.02362 to 0.03228 in.)

      If the pack clearance is not within specification, inspect the discs, plates and flange.

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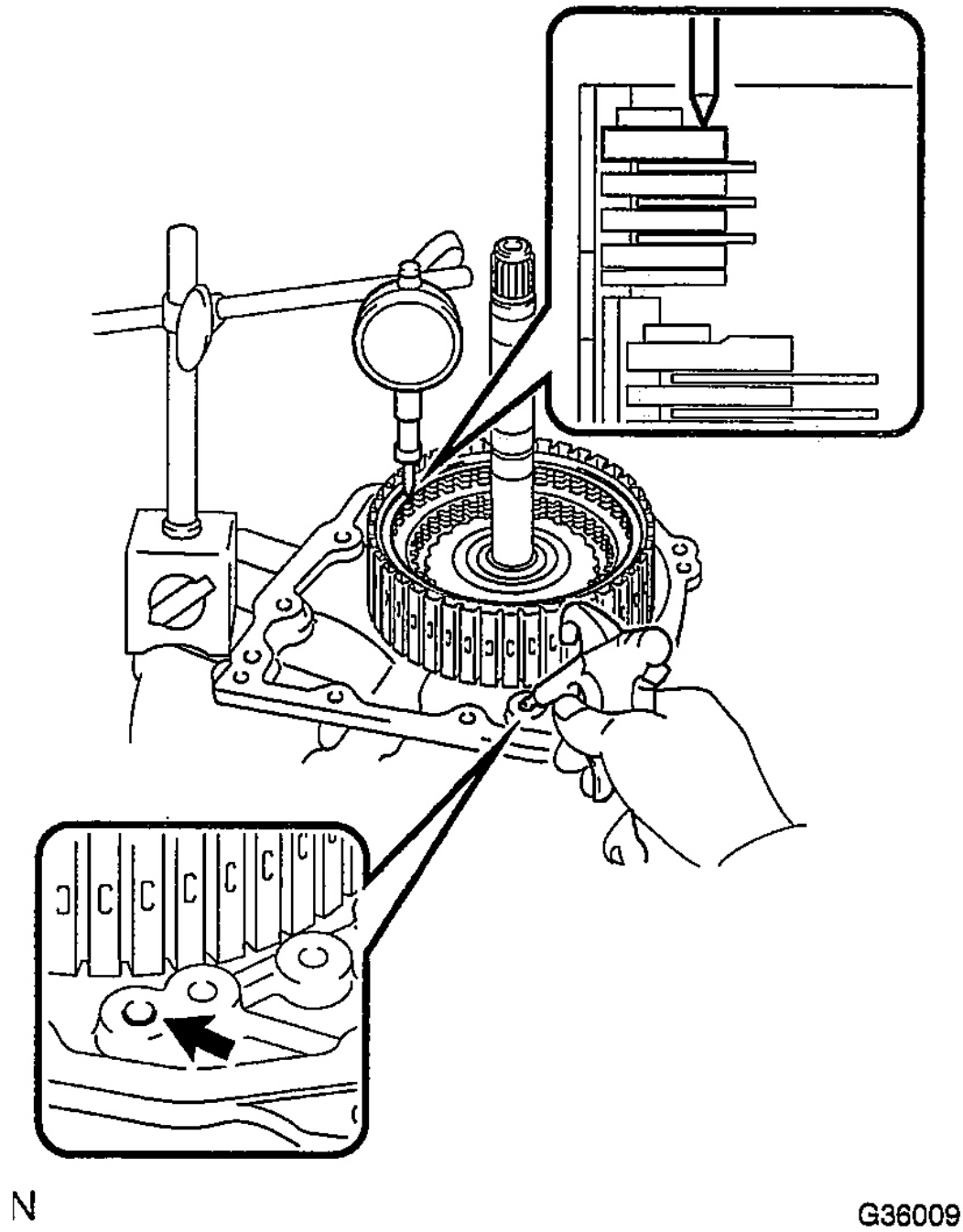


Fig. 285: Inspecting Pack Clearance Of Direct Clutch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSPECT PACK CLEARANCE OF OVERDRIVE CLUTCH**
   a. Using a dial indicator, measure the overdrive clutch pack clearance while applying and releasing

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compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi).

Pack clearance: 0.52 to 0.83 mm (0.02047 to 0.03268 in.)

If the pack clearance is not within specification, inspect the discs, plates and flange.

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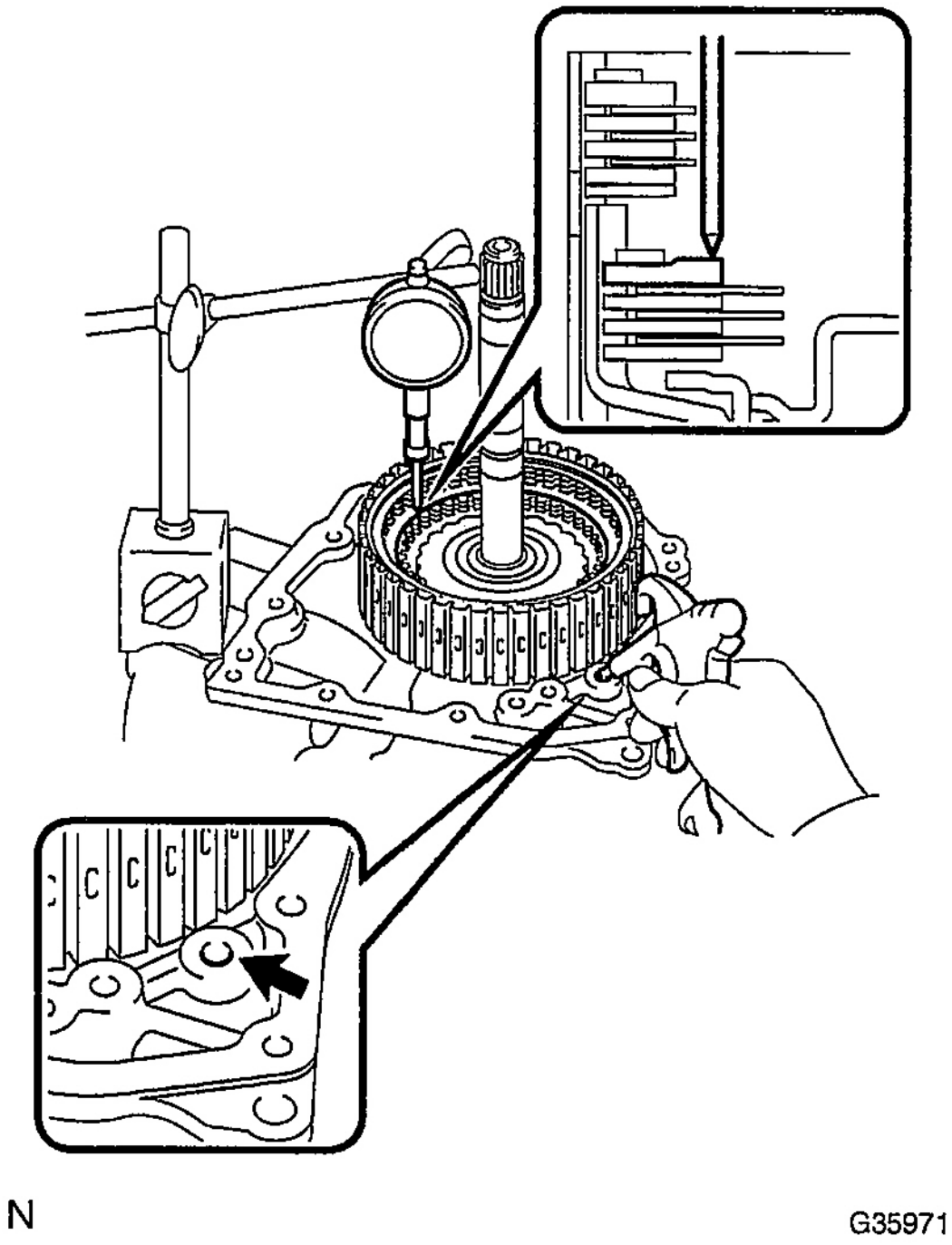


Fig. 286: Inspecting Pack Clearance Of Overdrive Clutch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **REMOVE DIRECT MULTIPLE DISC CLUTCH, CLUTCH DISC**

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a. Using a screwdriver, remove the snap ring from the intermediate shaft.

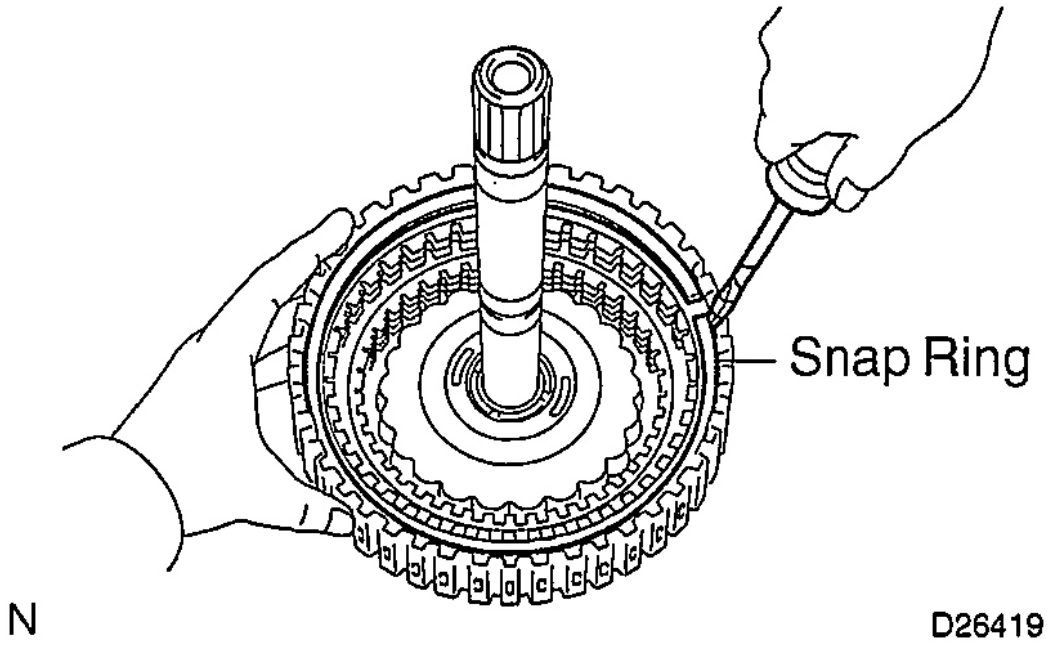


Fig. 287: Removing Snap Ring From Intermediate Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the flange, 3 discs, 3 plates and cushion plate from the intermediate shaft.

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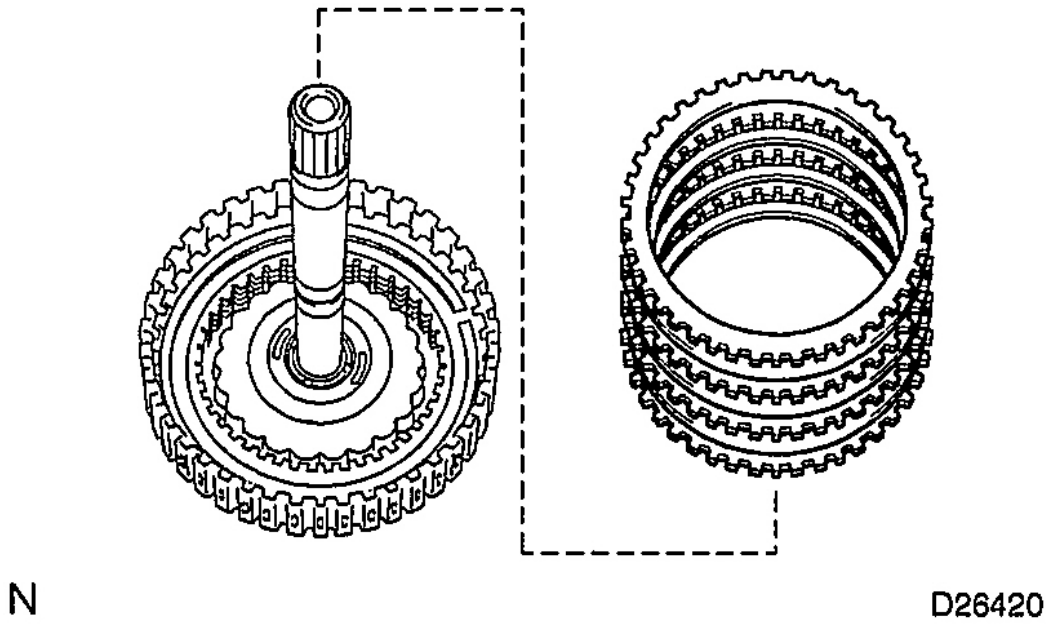


Fig. 288: Removing Flange, Discs, Plates And Cushion Plate From Intermediate Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSPECT DIRECT MULTIPLE DISC CLUTCH, CLUTCH DISC**
   a. Check to see if the sliding surfaces of the discs, plates and flange are worn or burnt.

      If necessary, replace them.

      HINT:

      - If the lining of a disc comes off or discolors, or a groove is damaged, replace all discs.
      - Before assembling new discs, soak them in ATF for at least 15 minutes.

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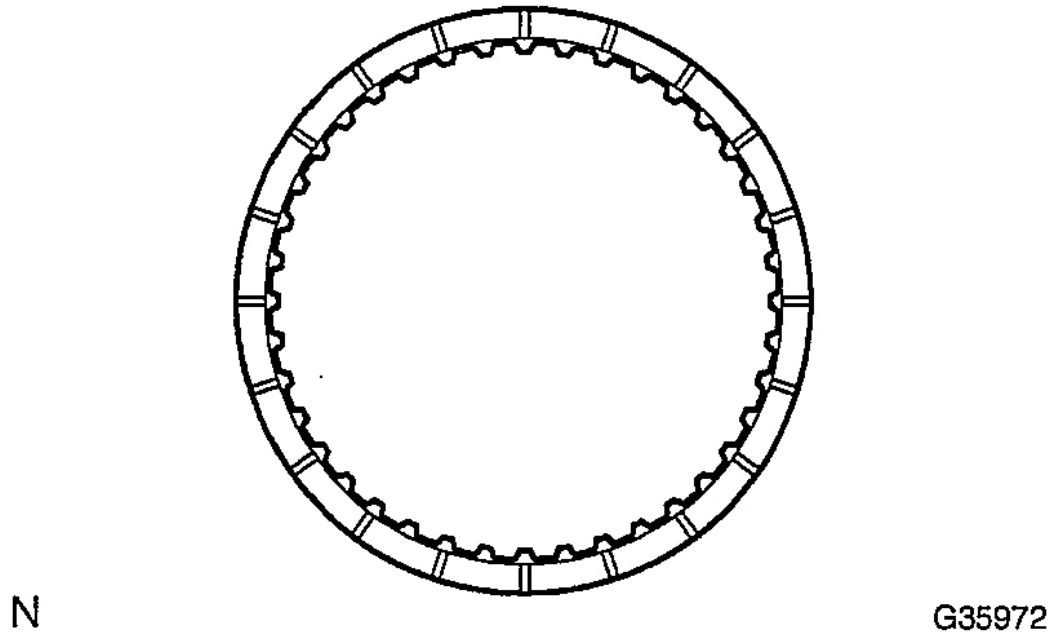


Fig. 289: Inspecting Direct Multiple Disc Clutch, Clutch Disc
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **REMOVE OVERDRIVE DIRECT CLUTCH DISC**
   a. Using a screwdriver, remove the snap ring from the intermediate shaft.
   b. Remove the flange, 3 discs and 3 plates from the intermediate shaft.

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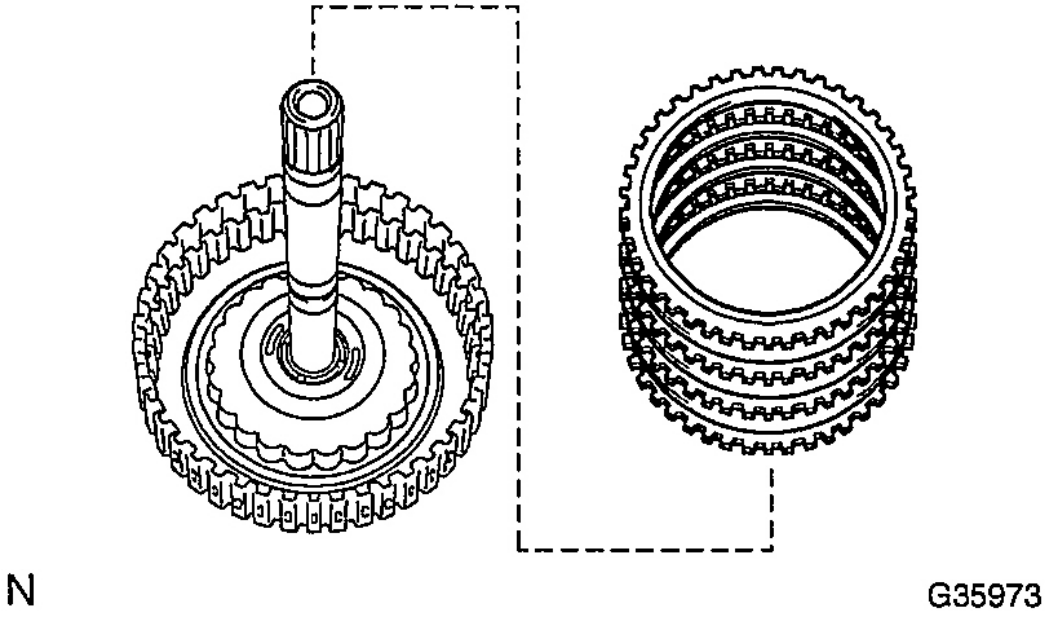


Fig. 290: Removing Flange, Discs And Plates From Intermediate Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **INSPECT OVERDRIVE DIRECT CLUTCH DISC**
   a. Check to see if the sliding surface of the disc, plate and flange are worn or burnt.

      If necessary, replace them.

      HINT:

      - If the lining of a disc comes off or discolors, or a groove is damaged, replace all discs.
      - Before assembling new discs, soak them in ATF for at least 15 minutes.

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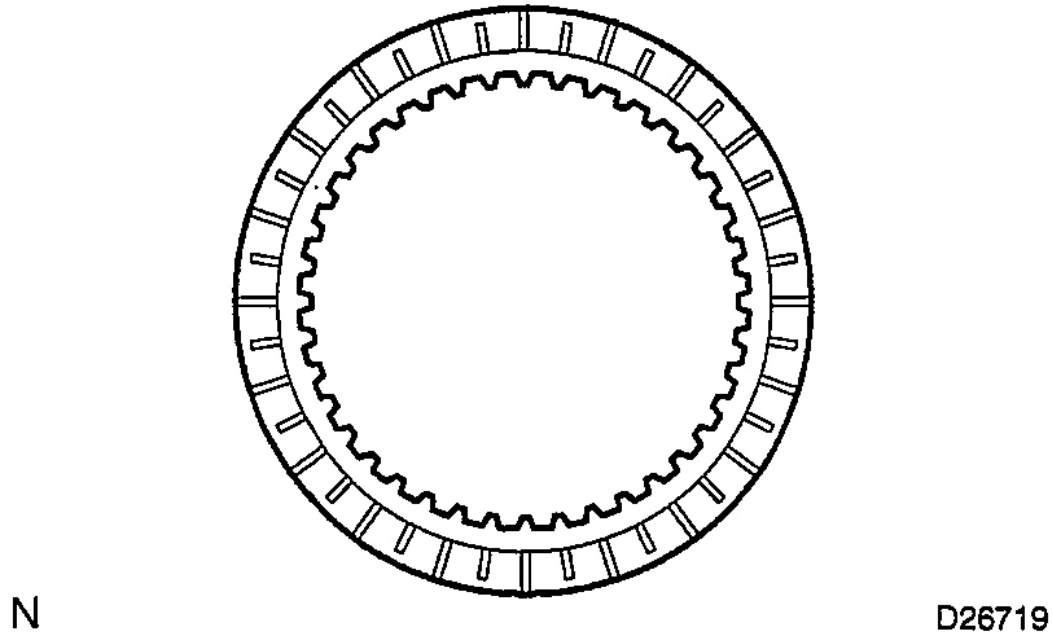


Fig. 291: Identifying Overdrive Direct Clutch Disc
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **REMOVE OVERDRIVE CLUTCH RETURN SPRING SUB-ASSY**
   a. Place SST on the clutch balancer and compress the spring with a press.

      SST 09387-00020

   b. Using a snap ring expander, remove the snap ring from the direct clutch drum.

NOTE:
- **Stop the press when the spring sheet is lowered to the place 1 to 2 mm (0.039 to 0.078 in.) from the snap ring groove. This prevents the spring sheet from being deformed.**
- **Do not expand the snap ring excessively.**

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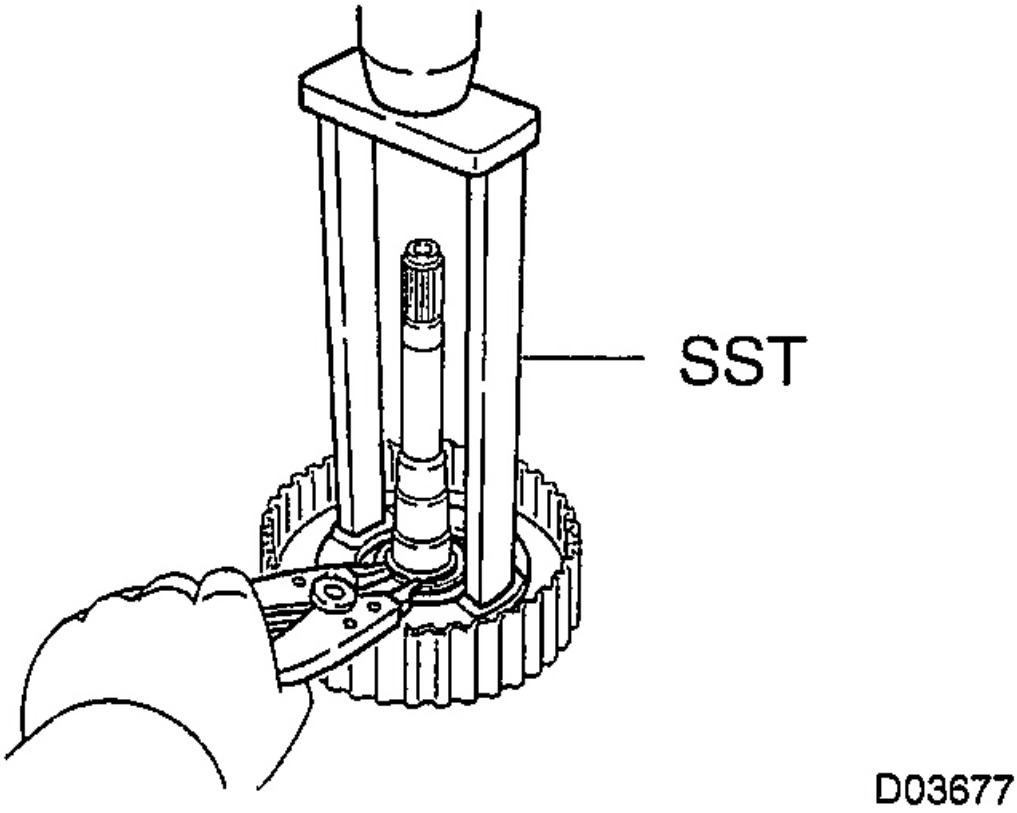


Fig. 292: Removing Overdrive Clutch Return Spring Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Remove the clutch balancer from the overdrive direct clutch drum.

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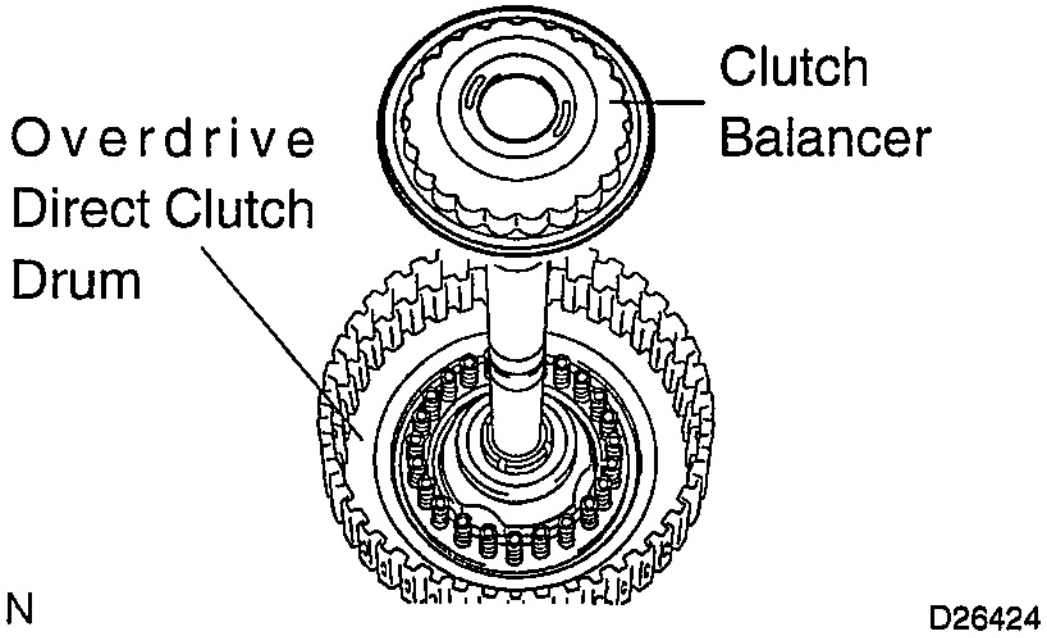


Fig. 293: Removing Clutch Balancer From Overdrive Direct Clutch Drum
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Remove the overdrive clutch return spring from the overdrive direct clutch drum.

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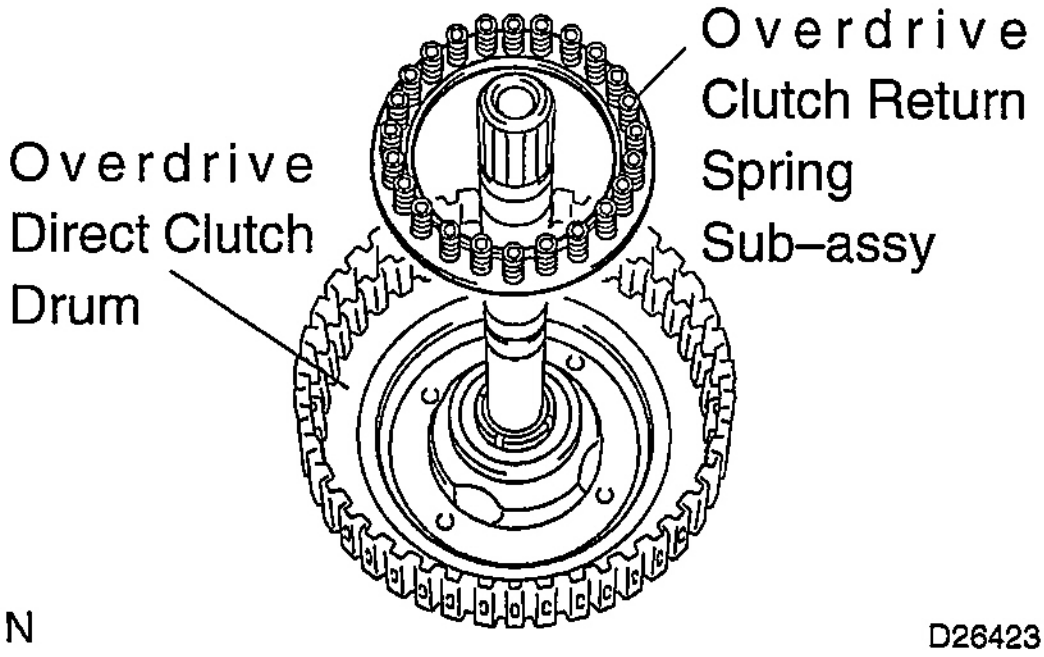


Fig. 294: Removing Overdrive Clutch Return Spring From Overdrive Direct Clutch Drum
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **INSPECT OVERDRIVE CLUTCH RETURN SPRING SUB-ASSY**
   a. Using vernier calipers, measure the free length of the spring together with the spring seat.

   Standard free length: 25.91 mm (1.0201 in.)

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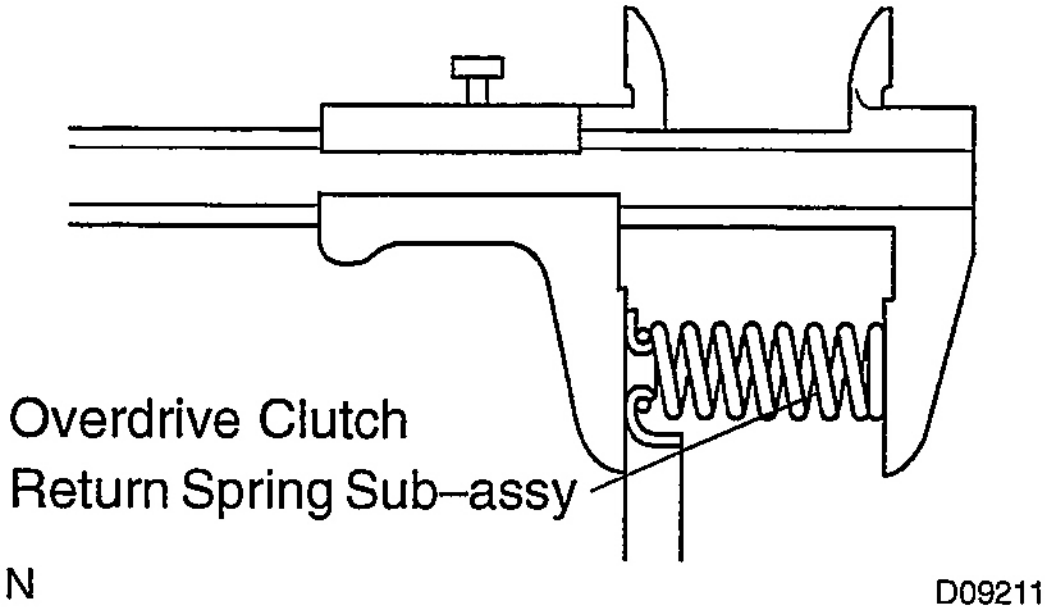


Fig. 295: Inspecting Overdrive Clutch Return Spring Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **REMOVE OVERDRIVE DIRECT CLUTCH PISTON**
   a. Install the intermediate shaft on the transaxle rear cover.
   b. Holding the direct clutch piston by hand, apply compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi) to the transaxle rear cover to remove the direct clutch piston.

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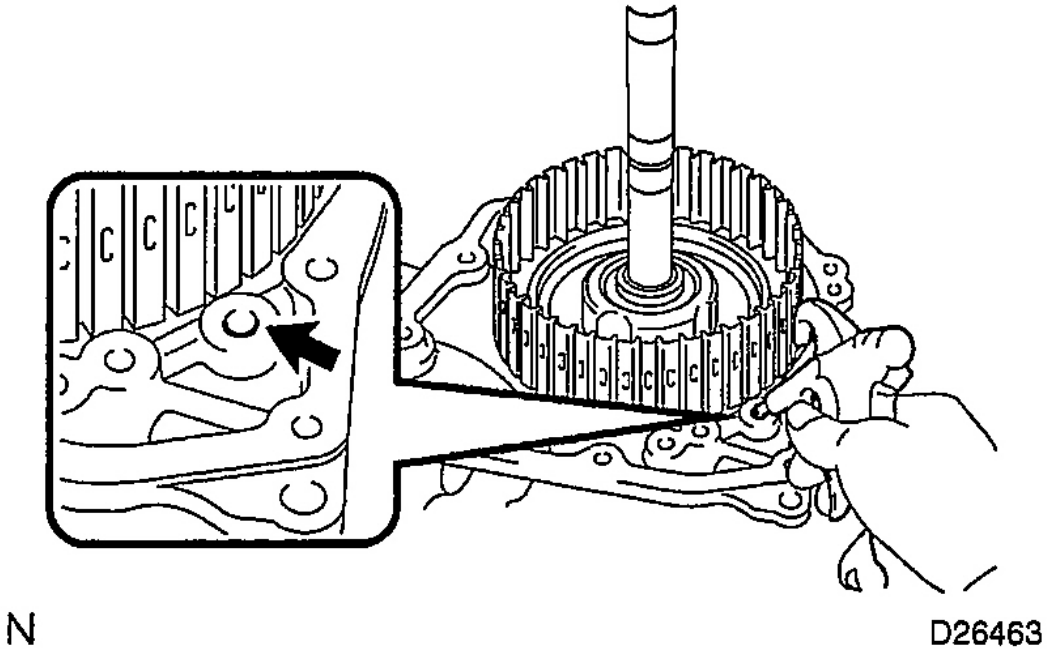


Fig. 296: Removing Overdrive Direct Clutch Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. **REMOVE OVERDRIVE DIRECT CLUTCH DRUM SUB-ASSY**

    a. Holding the direct clutch drum by hand, apply compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi) to the transaxle rear cover to remove the direct clutch drum.

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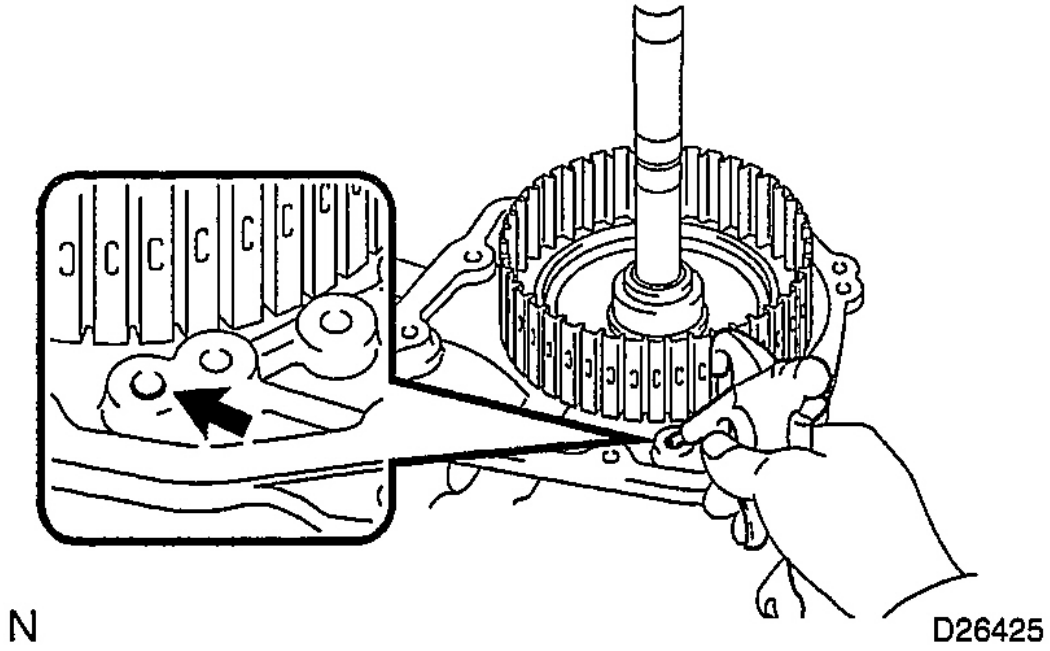


Fig. 297: Removing Overdrive Direct Clutch Drum Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. **REMOVE OVERDRIVE DIRECT CLUTCH O-RING**
    a. Using a screwdriver, remove the O-ring from the direct clutch drum.

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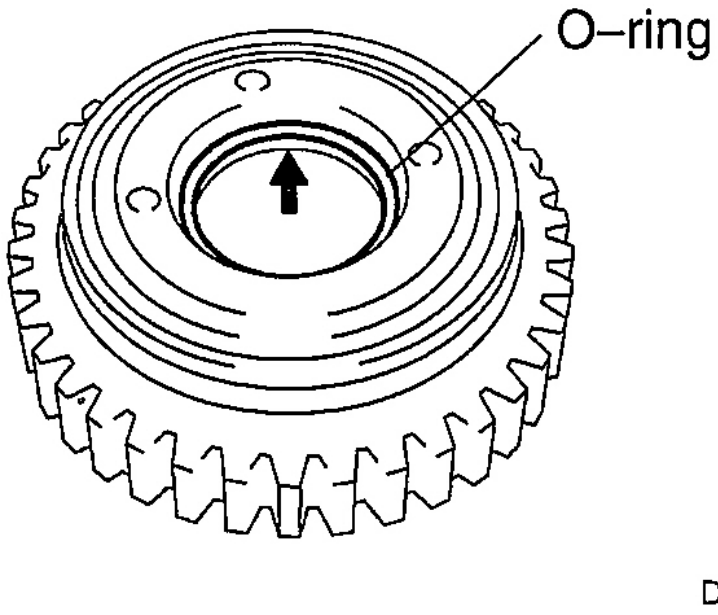


Fig. 298: Removing O-Ring From Direct Clutch Drum
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. **INSTALL OVERDRIVE DIRECT CLUTCH O-RING**
    a. Coat a new O-ring with ATF, and install it to the direct clutch drum.

NOTE: Ensure that the O-ring is not twisted or pinched.

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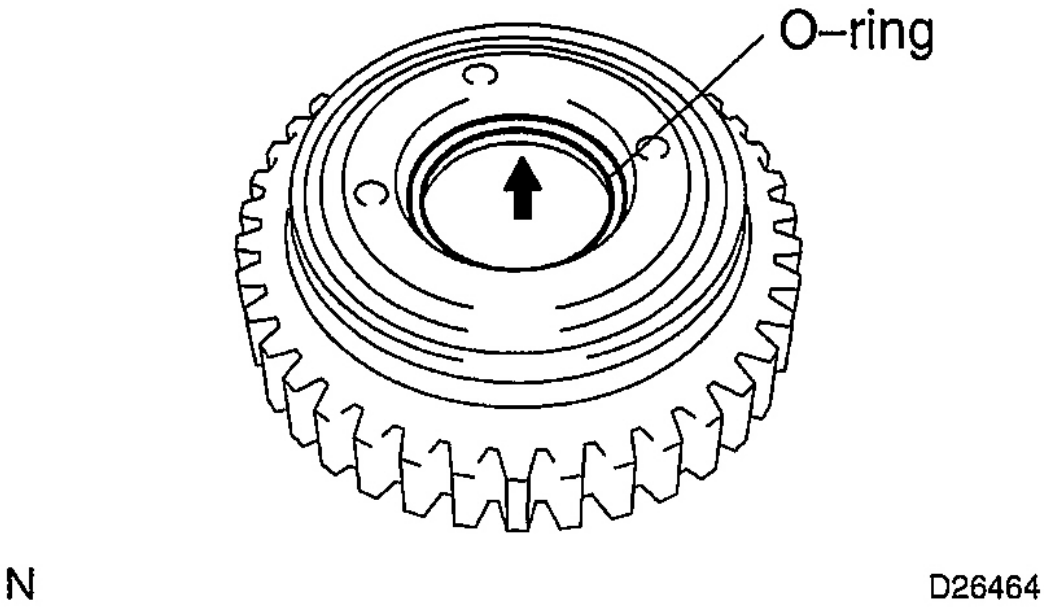


Fig. 299: Installing O-Ring To Direct Clutch Drum
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. **INSTALL OVERDRIVE DIRECT CLUTCH DRUM SUB-ASSY**
    a. Coat the direct clutch drum with ATF, and install it to the intermediate shaft.

NOTE:
- **Be careful not to damage the O-ring.**
- **Be careful not to damage the lip seal of the direct clutch drum.**

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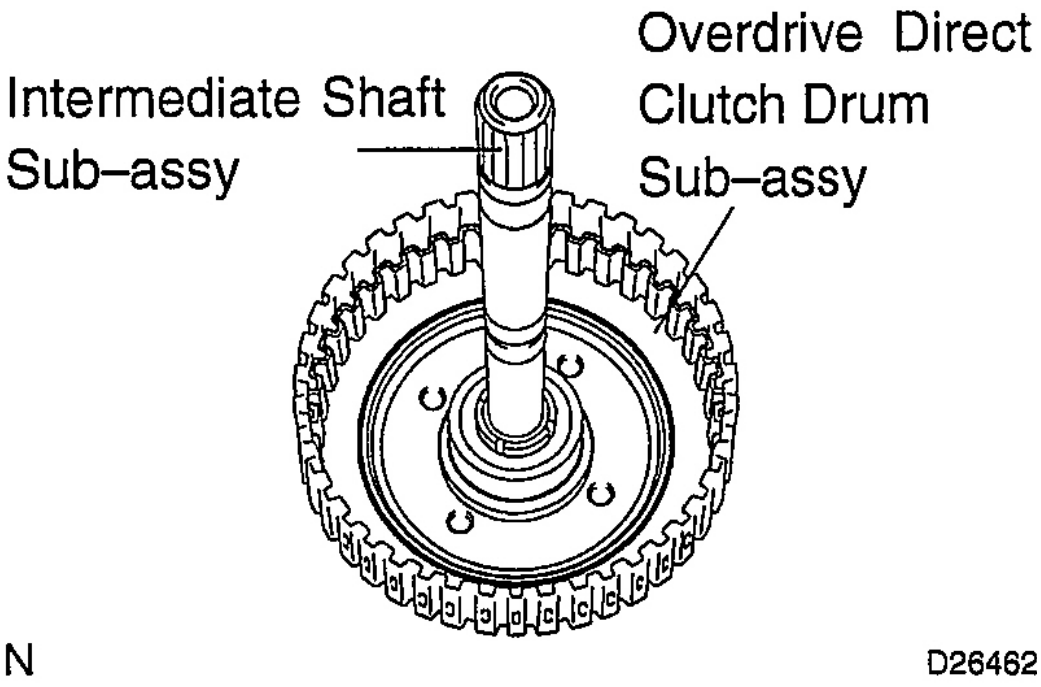


Fig. 300: Installing Direct Clutch Drum To Intermediate Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. **INSTALL OVERDRIVE DIRECT CLUTCH PISTON**
    a. Coat the overdrive direct clutch piston with ATF, and install it to the overdrive direct clutch drum sub-assy.

NOTE: Be careful not to damage the lip seal of the direct clutch piston.

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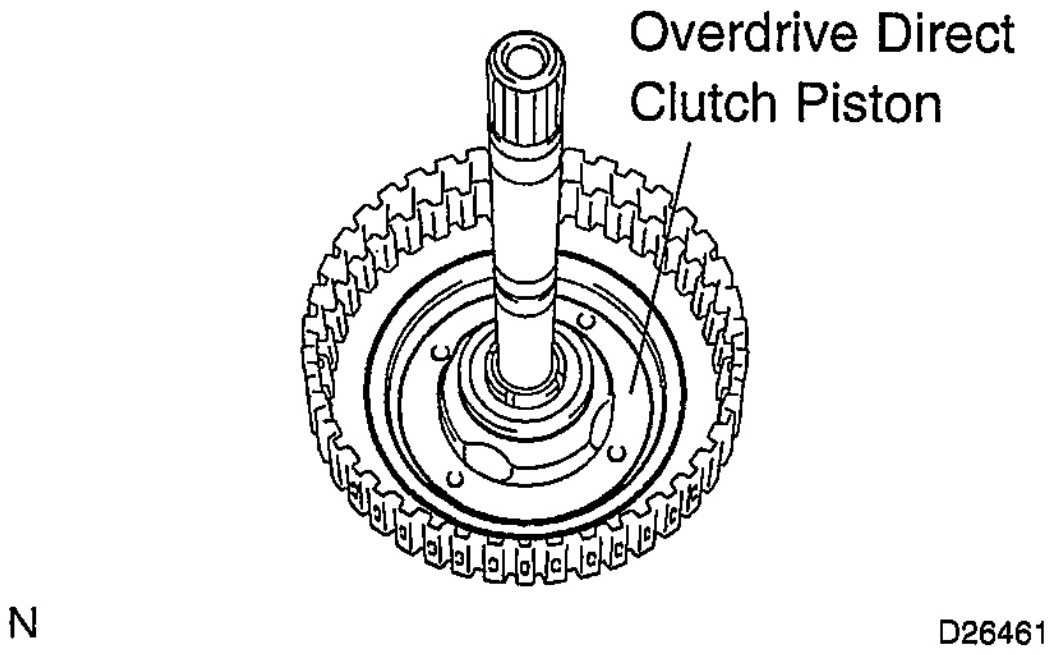


Fig. 301: Installing Overdrive Direct Clutch Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. **INSTALL OVERDRIVE CLUTCH RETURN SPRING SUB-ASSY**
    a. Install the overdrive clutch return spring sub-assy to the overdrive direct clutch drum sub-assy.

    NOTE: When installing the spring sub-assembly, ensure that all springs are fit in the piston correctly.

    b. Coat the clutch balancer with ATF.

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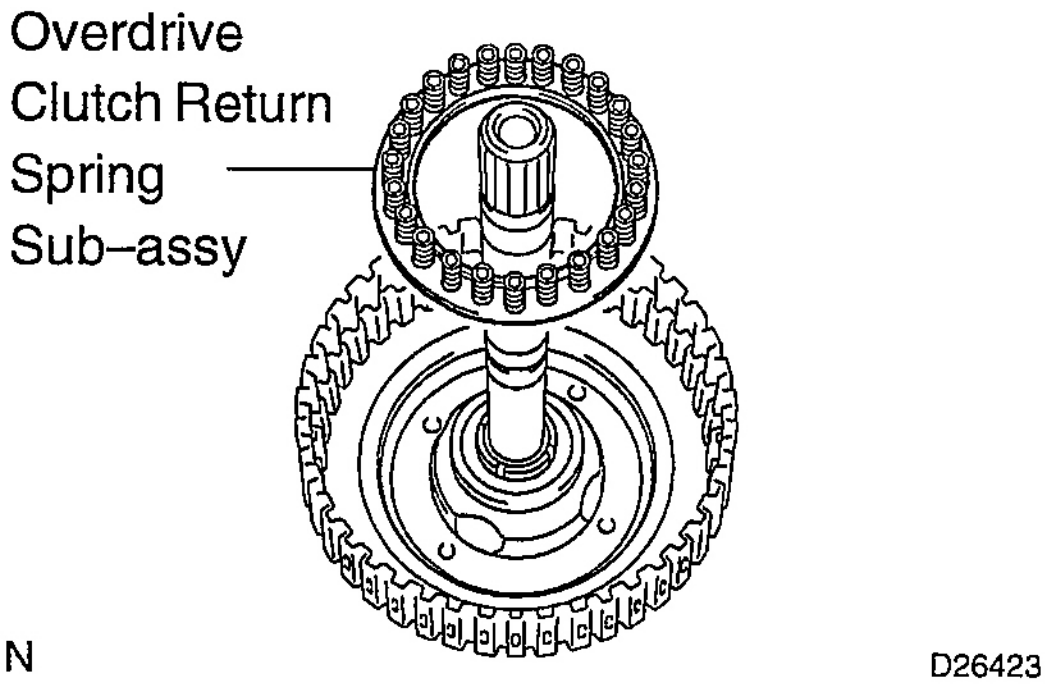


Fig. 302: Installing Overdrive Clutch Return Spring Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install the clutch balancer to the overdrive direct clutch drum sub-assy.

NOTE:
- **Be careful not to damage the lip seal of the direct clutch balancer.**
- **Ensure that the clutch balancer is not pinched and there are no other defects at the sealing lip.**
- **Apply enough ATF to the sealing lip prior to installation.**

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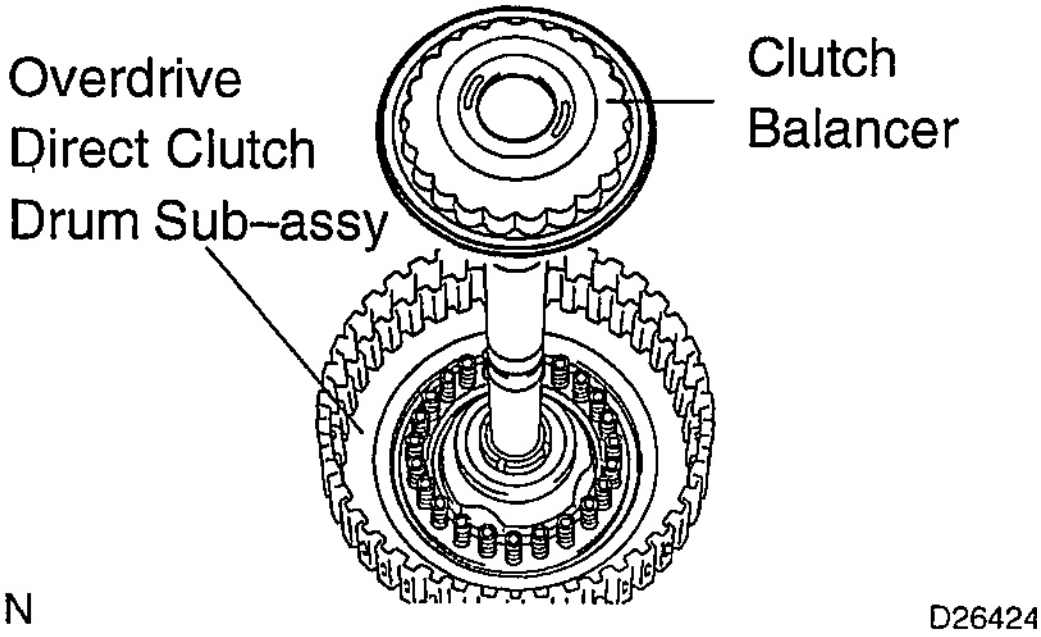


Fig. 303: Installing Clutch Balancer To Overdrive Direct Clutch Drum Su Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Place SST on the clutch balancer and compress the piston return spring with a press.

SST 09387-00020

e. Using a snap ring expander, install the snap ring to the direct clutch drum.

NOTE:
- **Stop the press when the spring sheet is lowered to the place 1 to 2 mm (0.039 to 0.078 in.) from the snap ring grove. This prevents the spring sheet from being deformed.**
- **Do not expand the snap ring excessively.**

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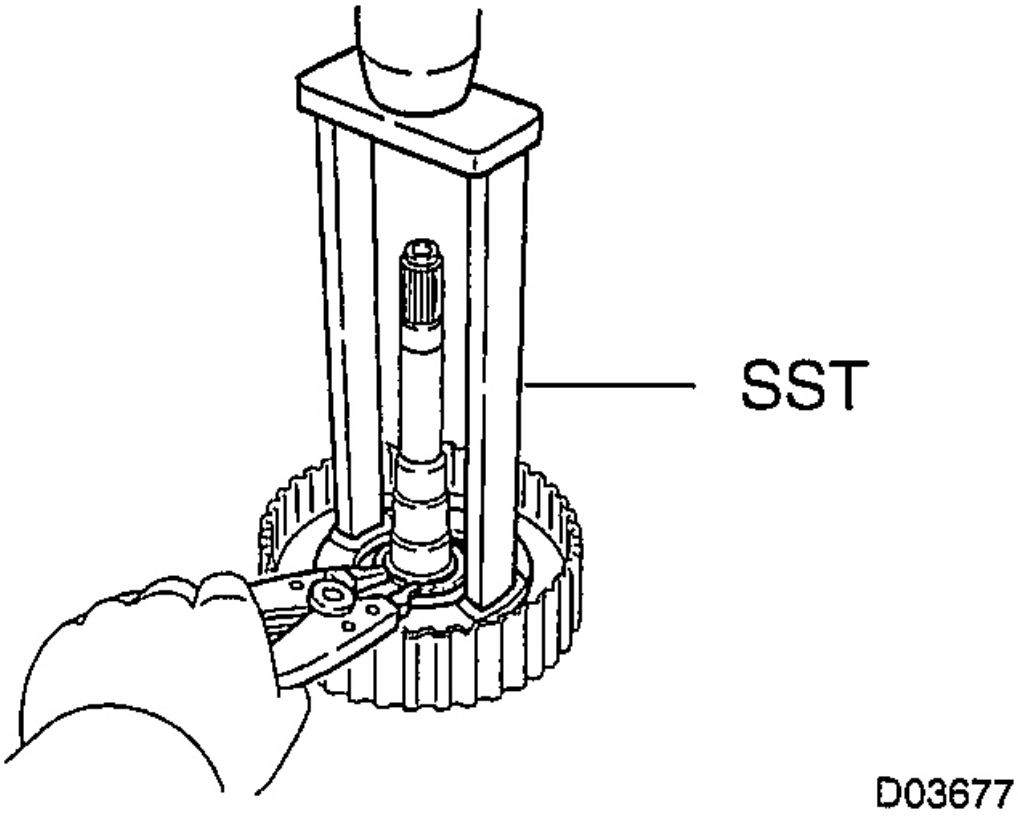


Fig. 304: Compressing Piston Return Spring With A Press
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Set the end gap of the snap ring in the piston shown in the illustration.

NOTE: Ensure that the end gap of the snap ring is not aligned with any of the stoppers.

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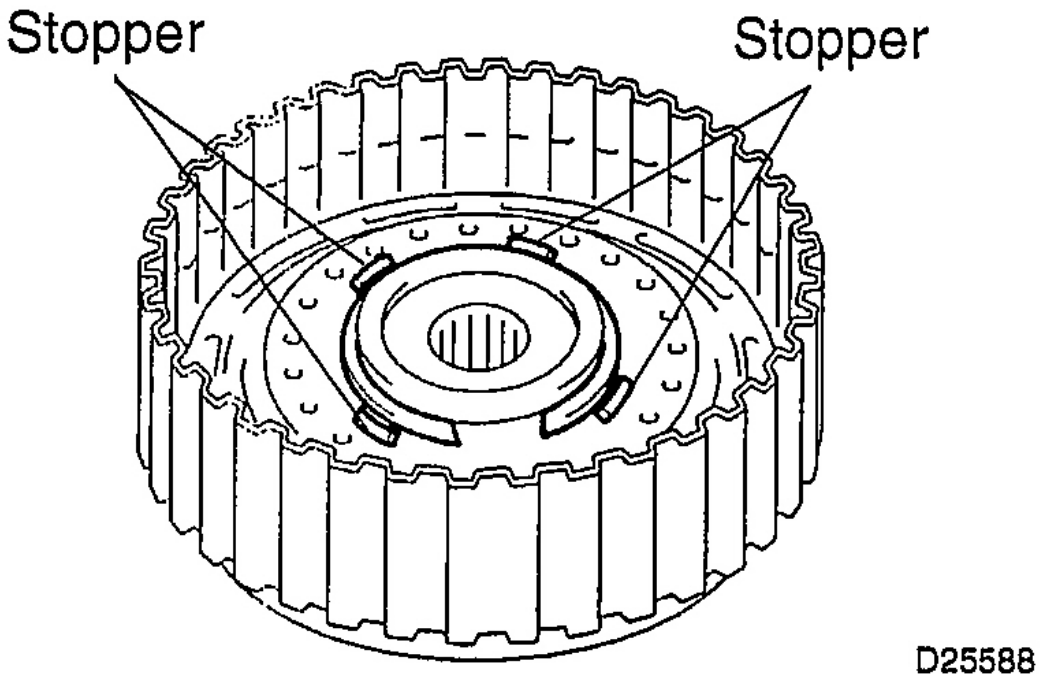


Fig. 305: Setting End Gap Of Snap Ring In Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16. **INSTALL OVERDRIVE DIRECT CLUTCH DISC**
    a. Coat the 3 discs with ATF.
    b. Install the 3 plates, 3 discs and flange to the intermediate shaft.

NOTE: Be careful about the order of the discs, plates and flange.

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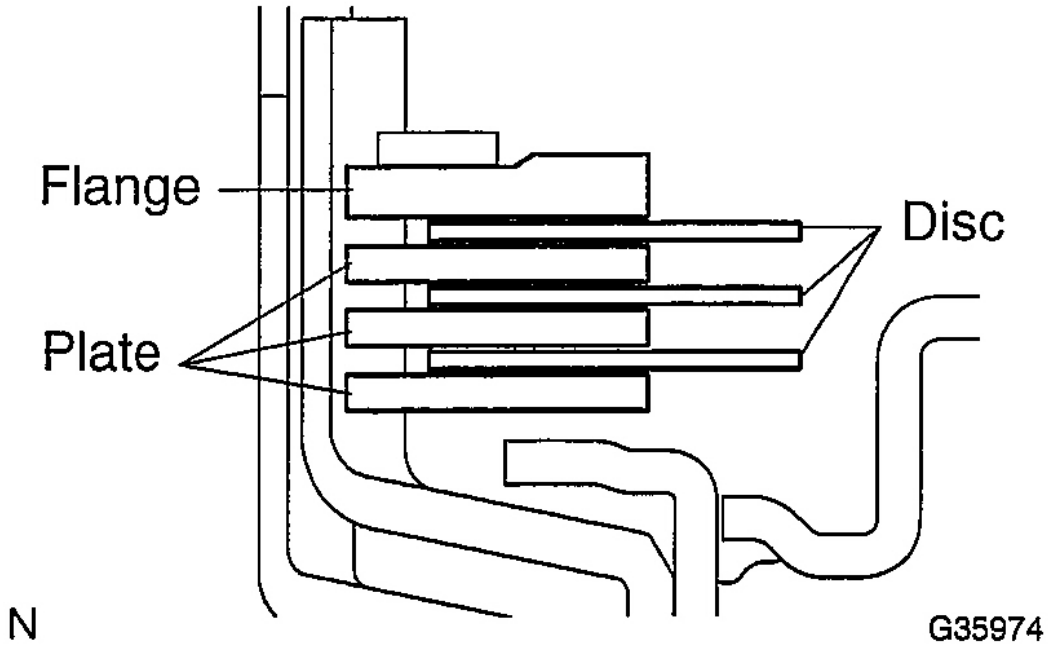


Fig. 306: Installing Plates, Discs And Flange To Intermediate Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a screwdriver, install the snap ring.

NOTE: The snap ring should be securely fixed in the groove of the drum.

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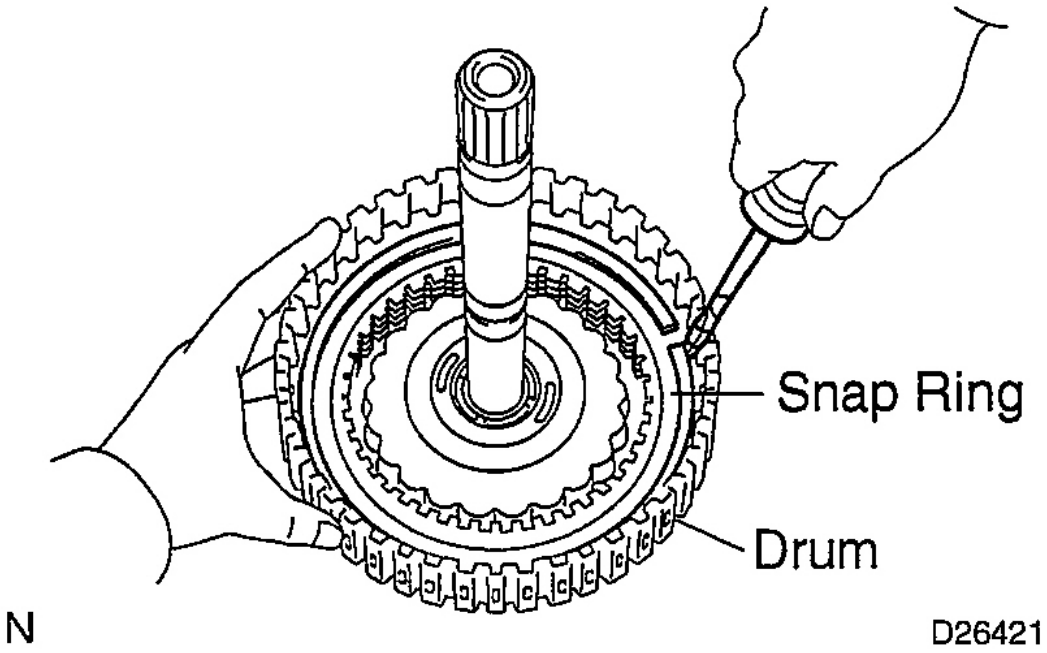


Fig. 307: Installing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

17. **INSTALL DIRECT MULTIPLE DISC CLUTCH, CLUTCH DISC**
    a. Coat the 3 discs with ATF.
    b. Install the cushion plate, 3 plates, 3 discs and flange to the intermediate shaft.

NOTE:
- **Install the cushion plate with the mark on the white surface facing the plate.**
- **Be careful about the order of discs, plates and flange installation.**

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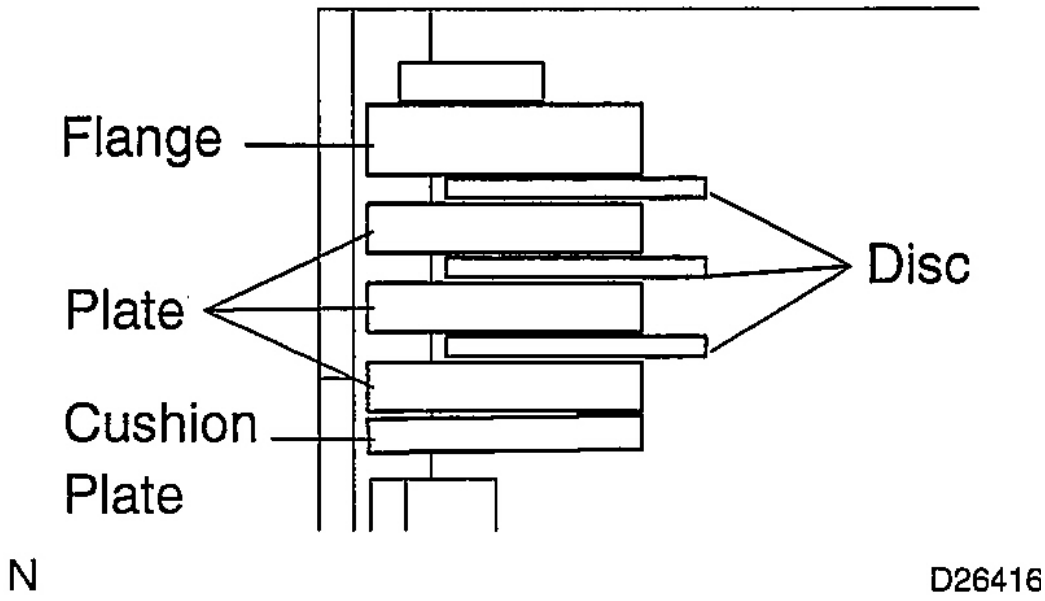


Fig. 308: Installing Cushion Plate, Plates, Discs And Flange To Intermediate Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a screwdriver, install the snap ring.

NOTE: The snap ring should be securely fixed in the groove of the drum.

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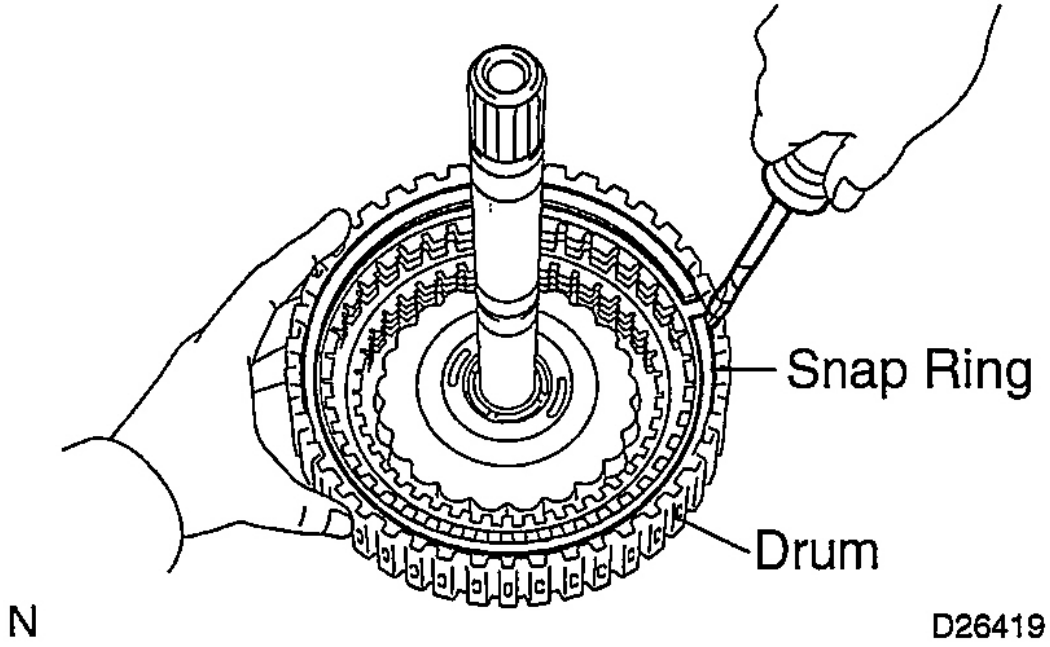


Fig. 309: Installing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

18. **INSPECT PACK CLEARANCE OF DIRECT CLUTCH**
    a. Install the intermediate shaft on the transaxle rear cover.
    b. Using a dial indicator, measure the direct clutch pack clearance while applying and releasing compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi).

    Pack clearance: 0.60 to 0.82 mm (0.02362 to 0.03228 in.)

    If the pack clearance is less than the minimum, parts may have been assembled incorrectly, so check and reassemble.

    If the stroke is not within specification, select another flange.

    HINT:

    There are 8 types of flanges of different thickness.

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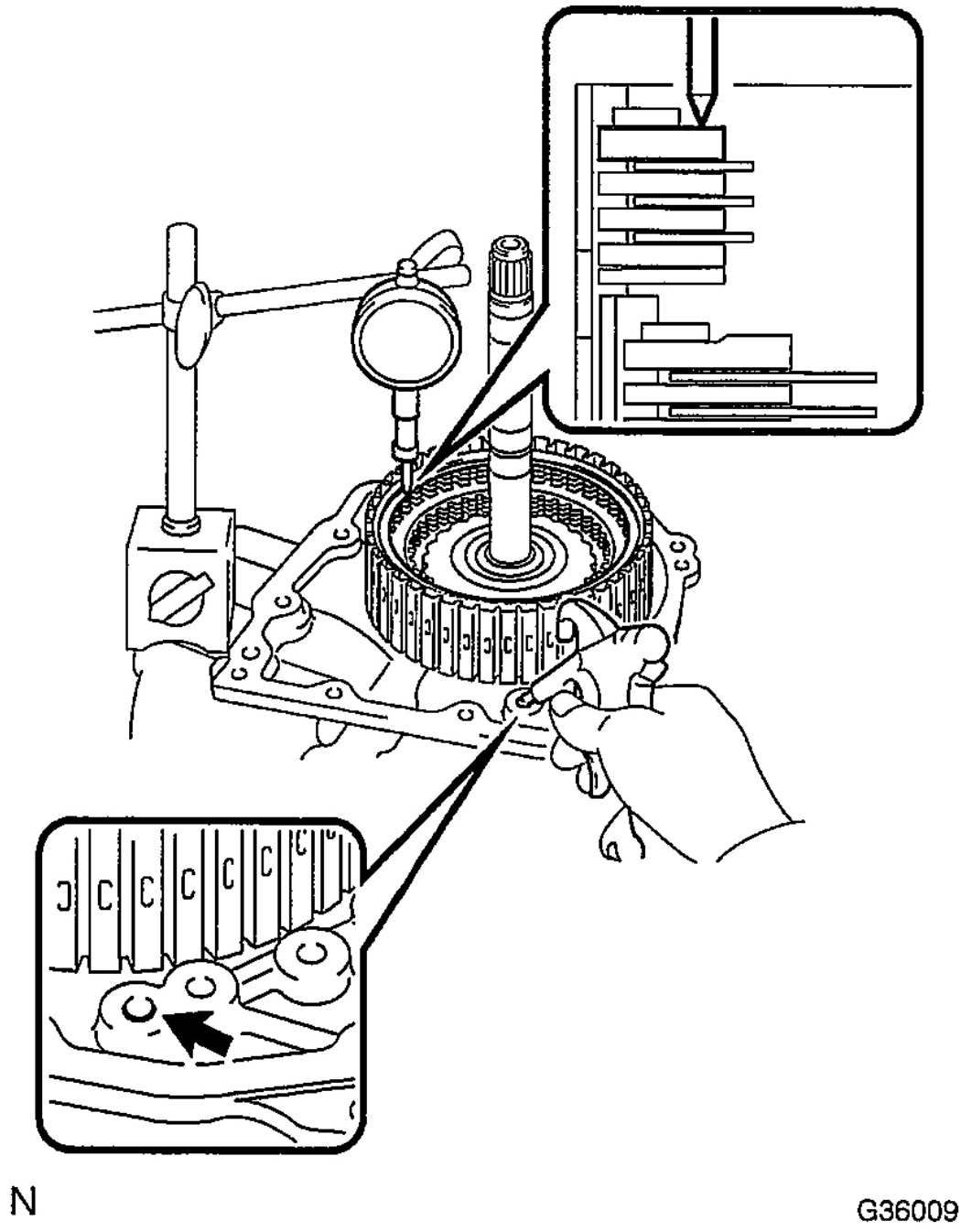


Fig. 310: Inspecting Pack Clearance Of Direct Clutch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Flange thickness: mm (in.)

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FLANGE THICKNESS - REFERENCE TABLE

No.	Thickness	No.	Thickness
0	2.9 (0.114)	4	3.3 (0.130)
1	3.0 (0.118)	5	3.4 (0.134)
2	3.1 (0.122)	6	3.5 (0.138)
3	3.2 (0.126)	7	3.6 (0.142)

19. **INSPECT PACK CLEARANCE OF OVERDRIVE CLUTCH**

a. Using a dial indicator, measure the overdrive clutch pack clearance while applying and releasing compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi).

Pack clearance: 0.52 to 0.83 mm (0.02047 to 0.03268 in.)

If the pack clearance is less than the minimum, parts may have been assembled incorrectly, so check and reassemble.

If the stroke is not within standard, select another flange.

HINT:

There are 7 types of flanges of different thickness.

Flange thickness: mm (in.)

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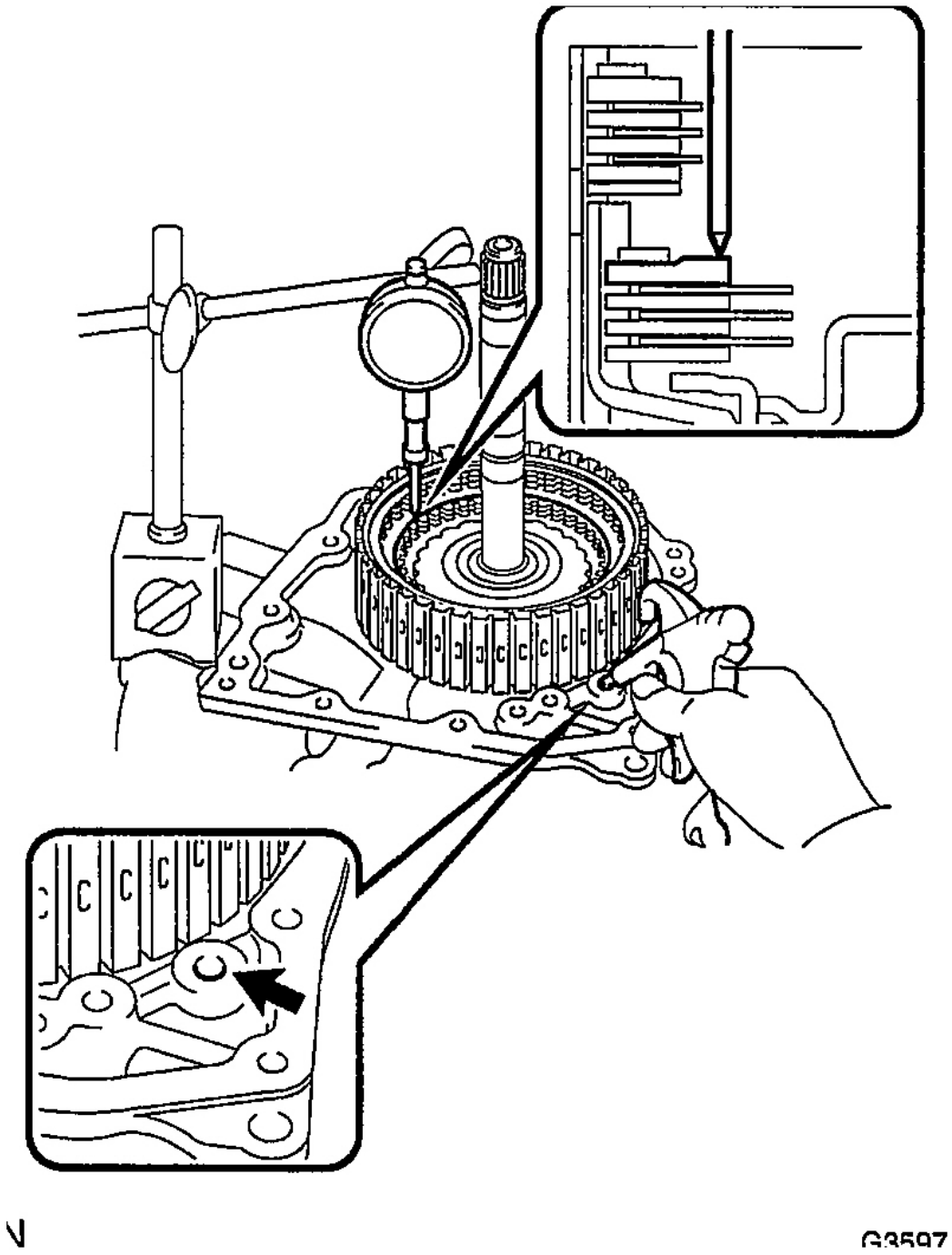


Fig. 311: Inspecting Pack Clearance Of Overdrive Clutch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

FLANGE THICKNESS - REFERENCE TABLE

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No.	Thickness	No.	Thickness
0	2.5 (0.098)	4	2.9 (0.114)
1	2.6 (0.102)	5	3.0 (0.118)
2	2.7 (0.106)	6	3.1 (0.122)
3	2.8 (0.110)	-	-

b. Check that the disc rotates when rotating the disc after inserting the rear planetary sun gear.

NOTE: Do not place the rear planetary sun gear in a vise.

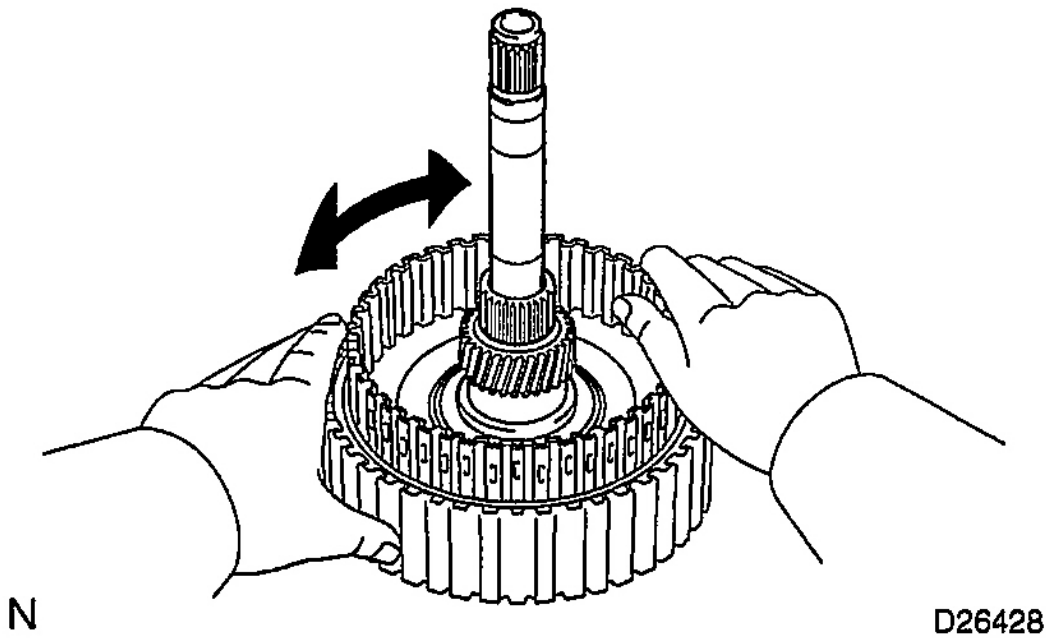


Fig. 312: Checking Disc Rotation
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SECOND BRAKE PISTON ASSY (U250E)

COMPONENTS

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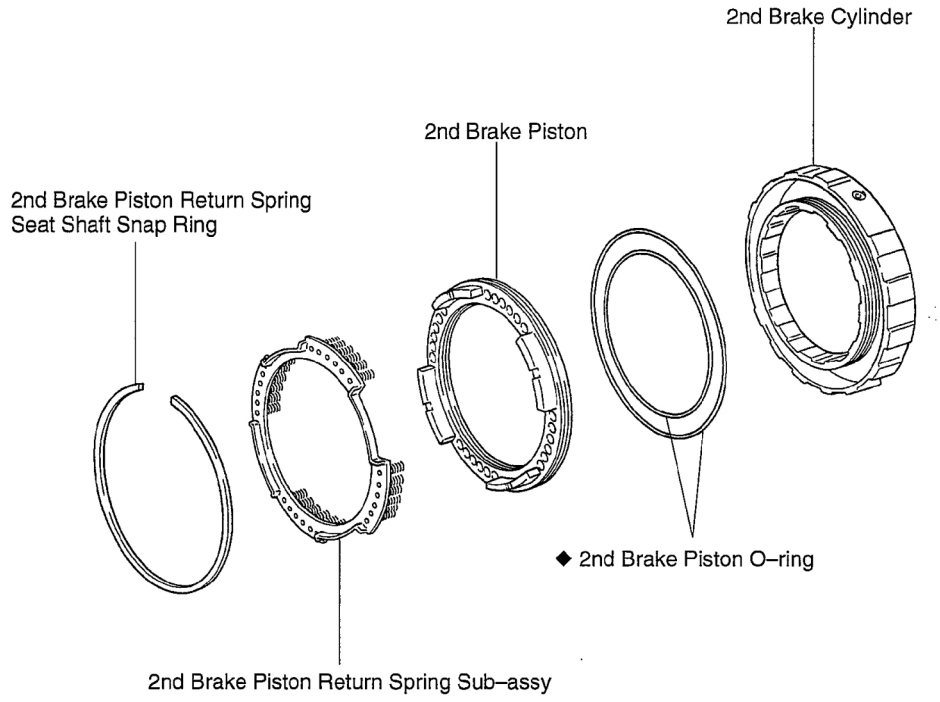


Fig. 313: Identifying Second Brake Piston Assy (U250E) Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OVERHAUL

1. **REMOVE 2ND BRAKE PISTON RETURN SPRING SUB-ASSY**
   a. Place SST on the return spring and compress it with a press.

      SST 09387-00060

   b. Using a screwdriver, remove the snap ring.

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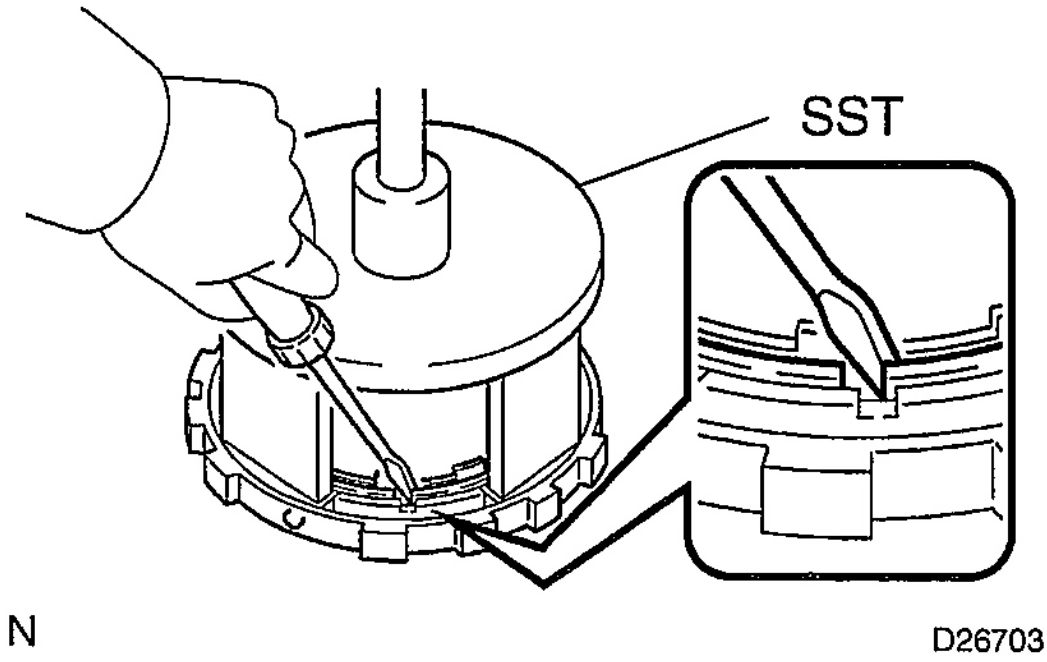


Fig. 314: Removing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Remove the 2nd brake piston return spring sub-assy.

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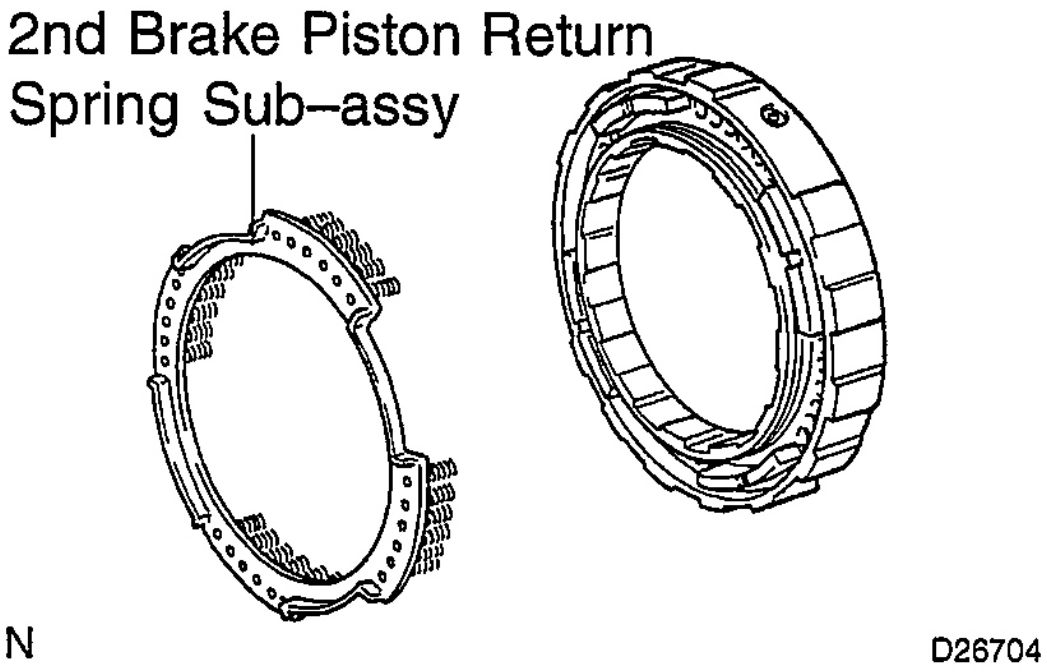


Fig. 315: Removing 2nd Brake Piston Return Spring Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSPECT 2ND BRAKE PISTON RETURN SPRING SUB-ASSY**
   a. Using vernier calipers, measure the free length of the spring together with the spring seat.

   Standard free length: 16.61 mm (0.6539 in.)

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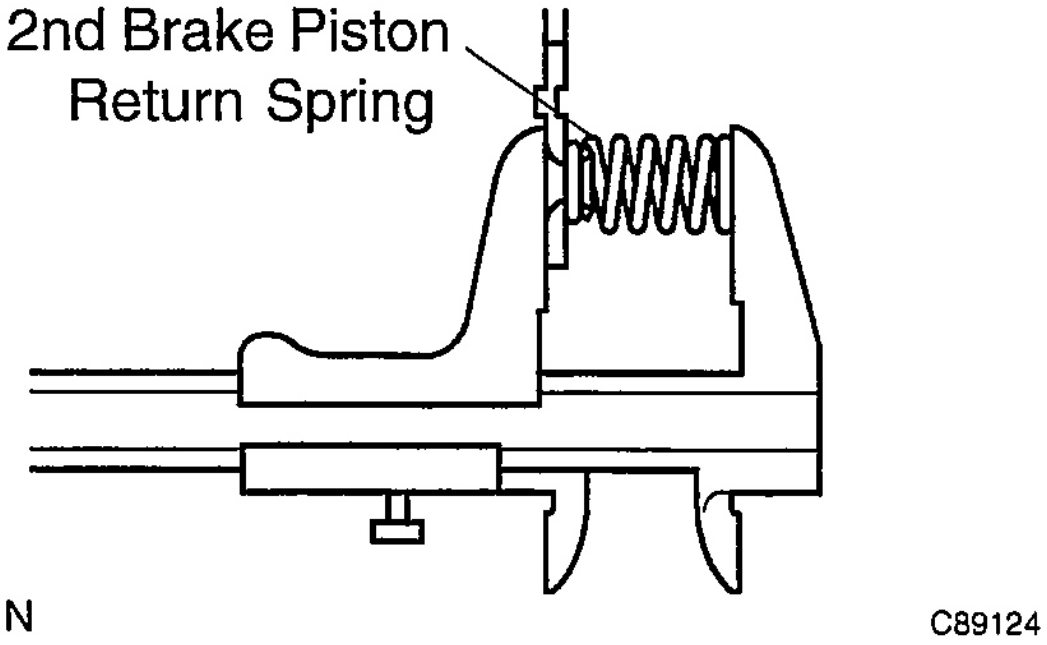


Fig. 316: Inspecting 2nd Brake Piston Return Spring Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **REMOVE 2ND BRAKE PISTON**
   a. Hold the 2nd brake piston and apply compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi) to the 2nd brake cylinder to remove the 2nd brake piston.

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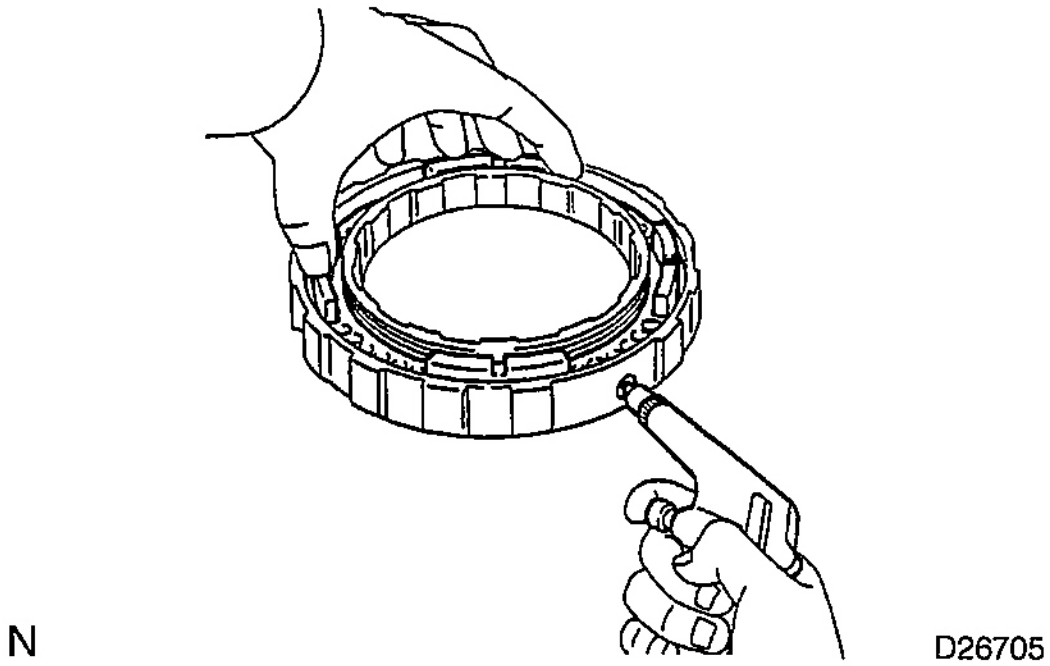


Fig. 317: Removing 2nd Brake Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **REMOVE 2ND BRAKE PISTON O-RING**
   a. Remove the 2 O-rings from the 2nd brake piston.

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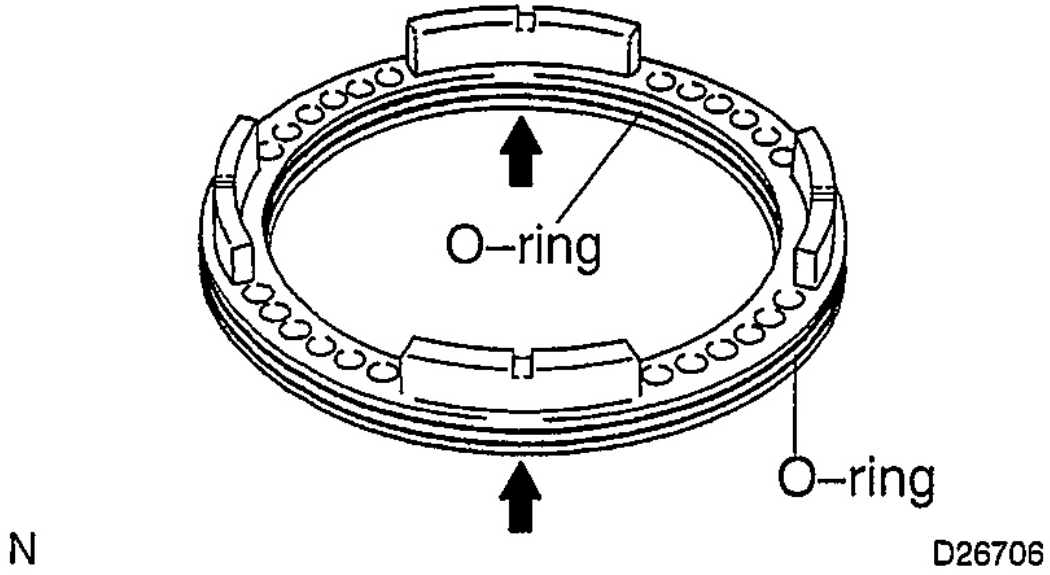


Fig. 318: Removing O-Rings From 2nd Brake Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSTALL 2ND BRAKE PISTON O-RING**
   a. Coat 2 new O-rings with ATF, and install them in the 2nd brake piston.

NOTE: Ensure that the O-ring is not twisted or pinched.

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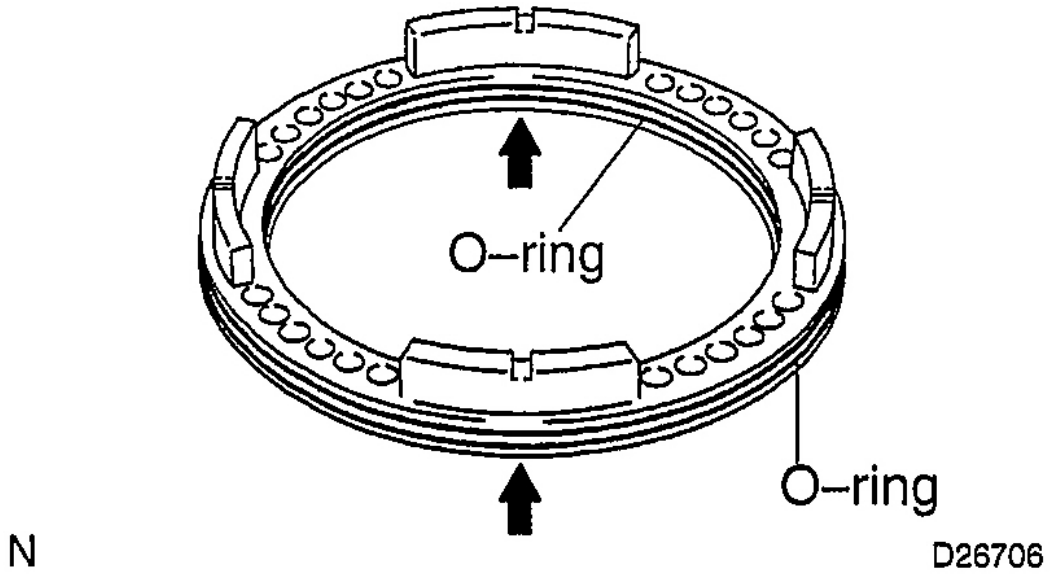


Fig. 319: Installing 2nd Brake Piston O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **INSTALL 2ND BRAKE PISTON**
   a. Coat the 2nd brake piston with ATF, and install it to the 2nd brake cylinder.

NOTE: Be careful not to damage the O-rings.

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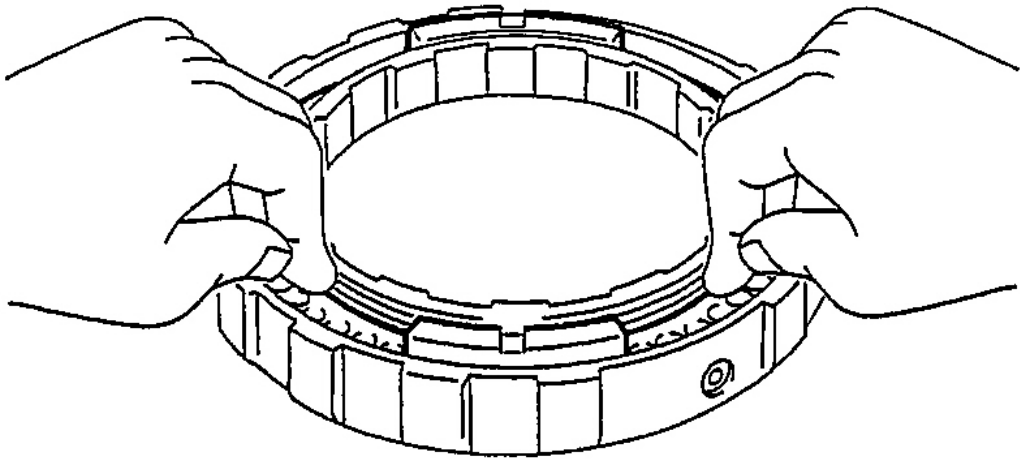


Fig. 320: Installing 2nd Brake Piston To 2nd Brake Cylinder
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **INSTALL 2ND BRAKE PISTON RETURN SPRING SUB-ASSY**
   a. Install the 2nd brake piston return spring sub-assy.

NOTE: Ensure that all springs are fit in the piston correctly.

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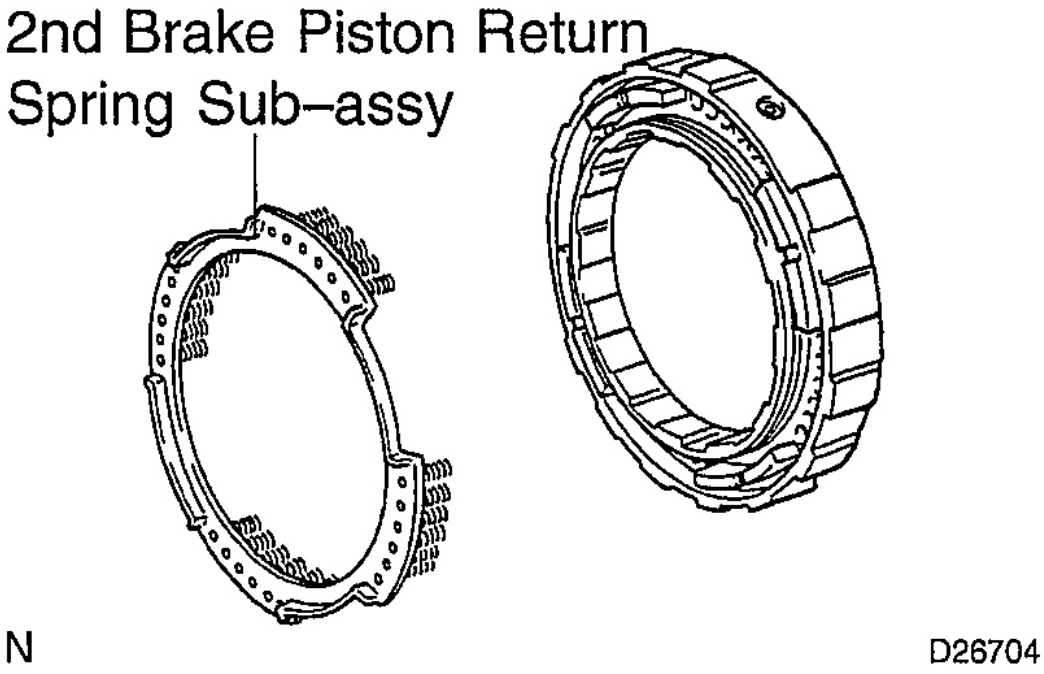


Fig. 321: Installing 2nd Brake Piston Return Spring Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Place SST on the piston return spring, and compress it with a press.

SST 09387-00060

c. Using a screwdriver, install the snap ring.

NOTE:

- **Stop the press when the spring sheet is lowered to the place 1 to 2 mm (0.039 to 0.078 in.) from the snap ring groove. This prevents the spring sheet from being deformed.**

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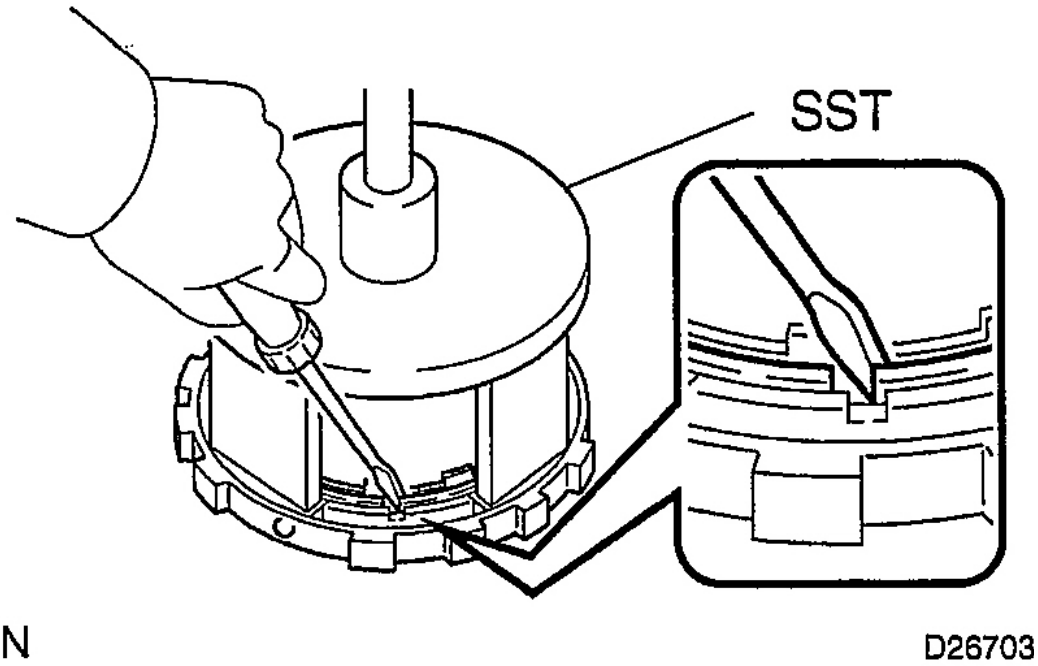


Fig. 322: Installing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

UNDERDRIVE CLUTCH ASSY (U250E)

COMPONENTS

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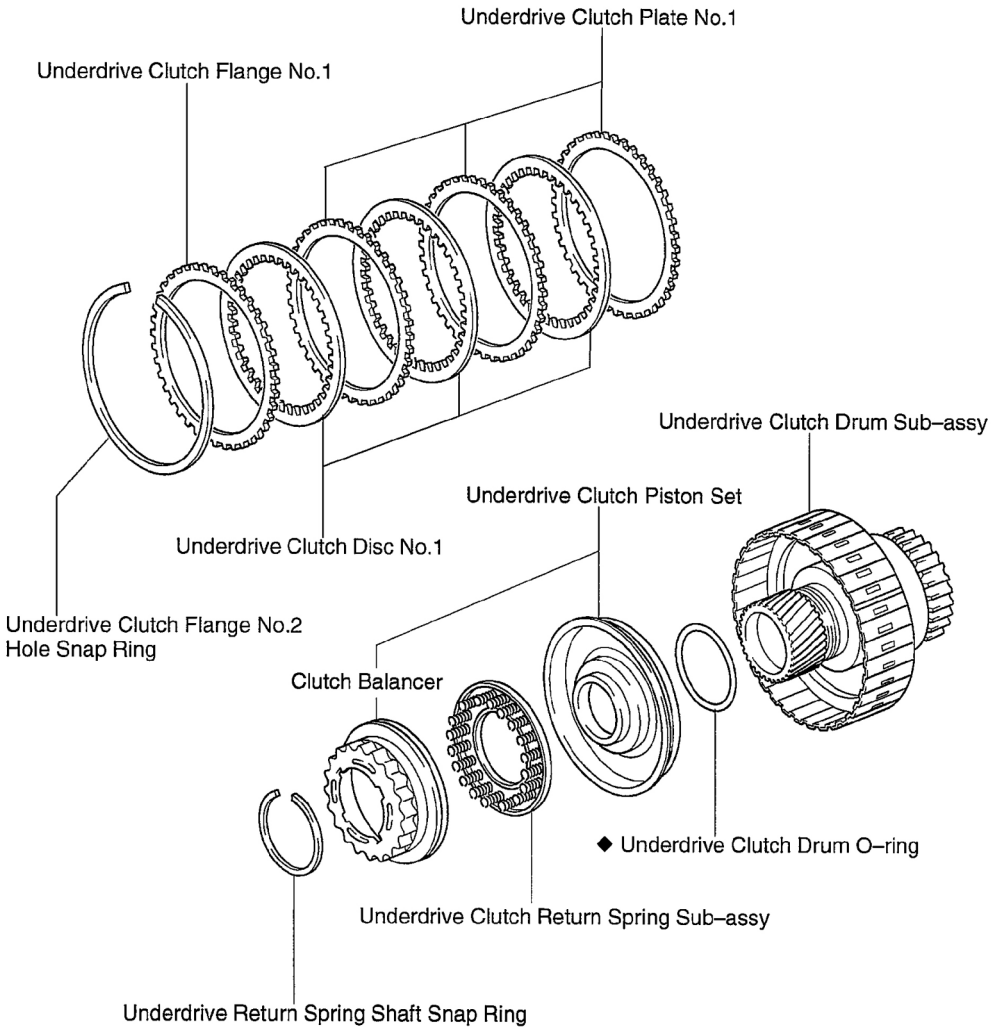


Fig. 323: Identifying Underdrive Clutch Assy (U250E) Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OVERHAUL

1. **INSPECT UNDERDRIVE PACK CLEARANCE**
   a. Install the underdrive clutch to the transaxle case.

NOTE: Be careful not to damage the oil seal rings.

   b. Install a dial indicator as shown in the illustration.

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c. Measure the underdrive clutch pack clearance while applying and releasing compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi).

Pack clearance: 1.42 to 1.71 mm (0.0559 to 0.0673 in.)

If the pack clearance is not within specification, inspect the discs, plates and flange.

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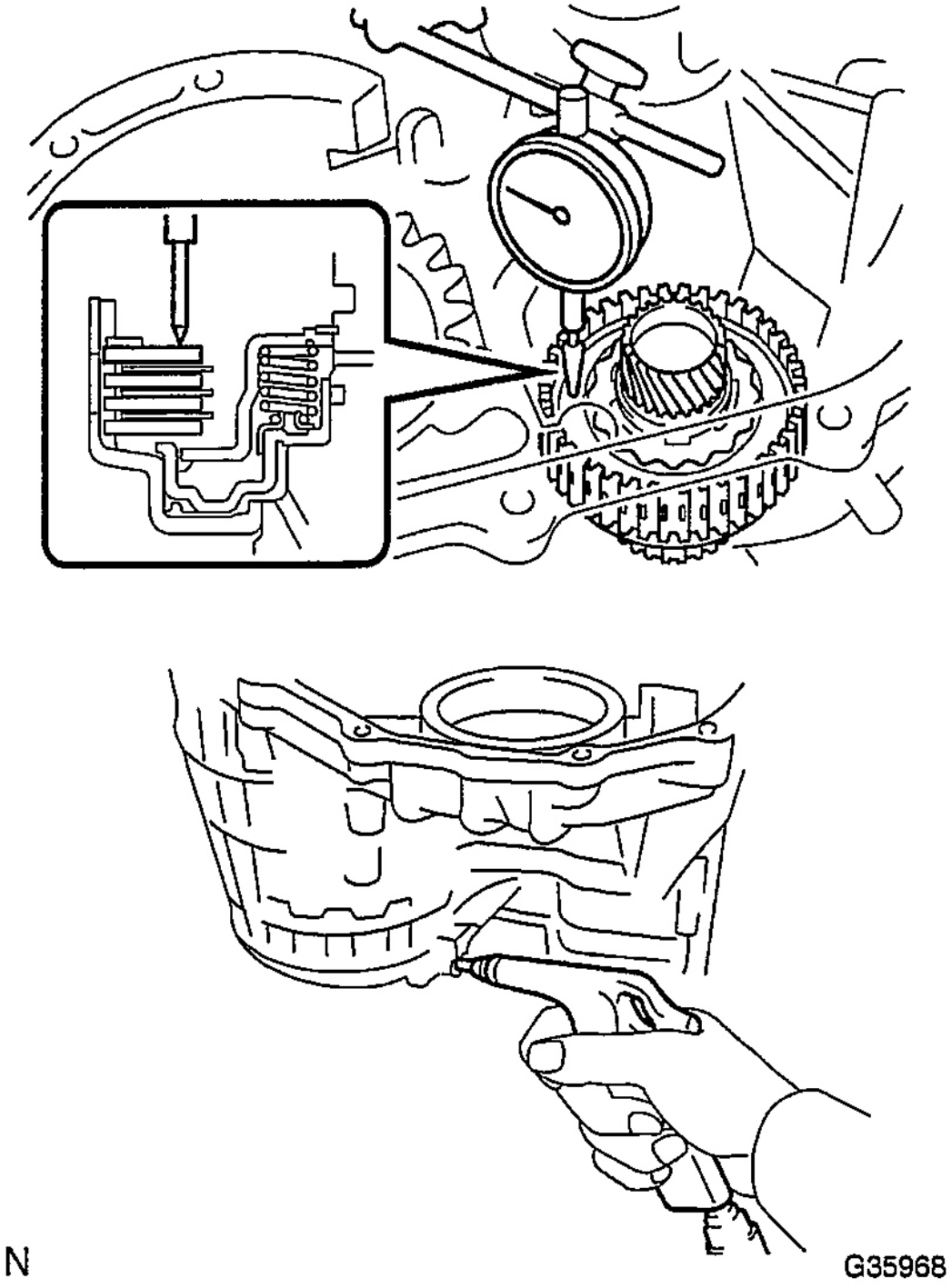


Fig. 324: Inspecting Underdrive Pack Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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2. **REMOVE UNDERDRIVE CLUTCH FLANGE NO. 2 HOLE SNAP RING**
   a. Using a screwdriver, remove the underdrive clutch flange No. 2 hole snap ring.

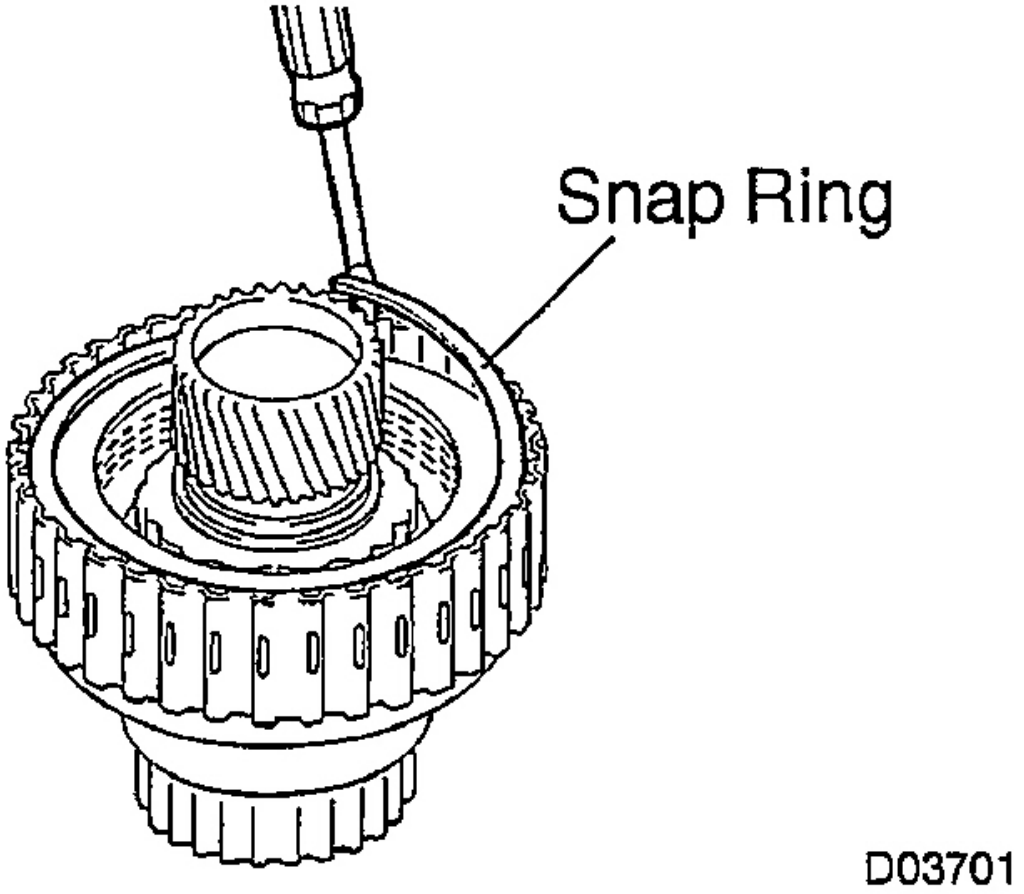


Fig. 325: Removing Underdrive Clutch Flange No. 2 Hole Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **REMOVE UNDERDRIVE CLUTCH DISC NO. 1**
   a. Remove the flange, 3 discs and 3 plates from the underdrive clutch drum.

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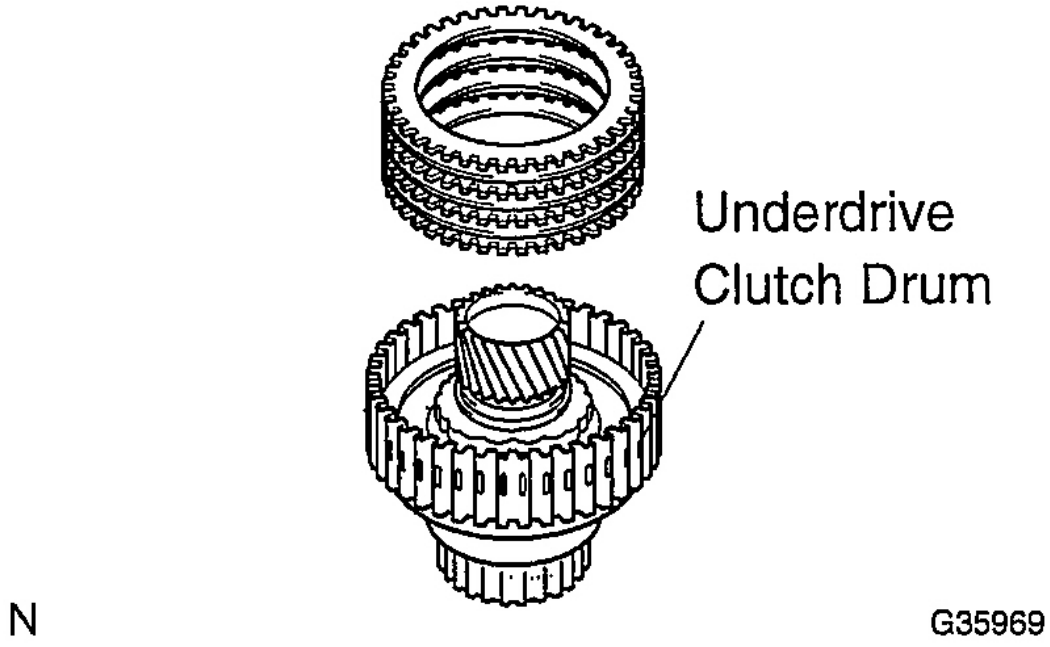


Fig. 326: Removing Flange, Discs And Plates From Underdrive Clutch Drum
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSPECT UNDERDRIVE CLUTCH DISC NO. 1**
   a. Check to see if the sliding surfaces of the discs, plates and flange are worn or burnt. If necessary, replace them.

      HINT:

      - If the lining of the discs comes off or discolors, or a groove is damaged, replace all discs.
      - Before assembling new discs, soak them in ATF for at least 15 minutes.

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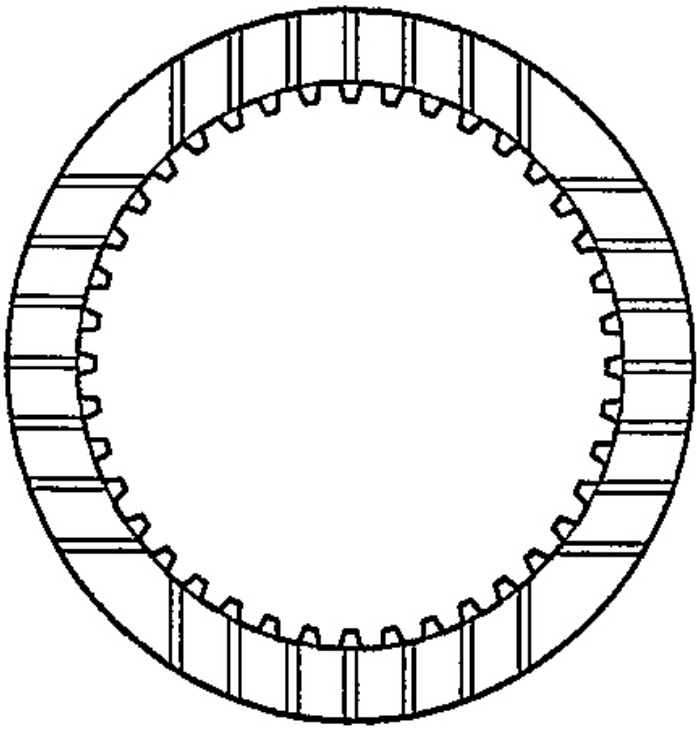


Fig. 327: Inspecting Underdrive Clutch Disc No. 1
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSPECT UNDERDRIVE CLUTCH DRUM SUB-ASSY**
   a. Using a dial indicator, measure the inside diameter of the underdrive clutch drum bushing.

      Standard drum bushing:

      32.56 to 32.58 mm (1.2818 to 1.2826 in.)

      Maximum drum bushing: 32.63 mm (1.2846 in.)

      If the inside diameter is greater than the maximum, replace the underdrive clutch drum.

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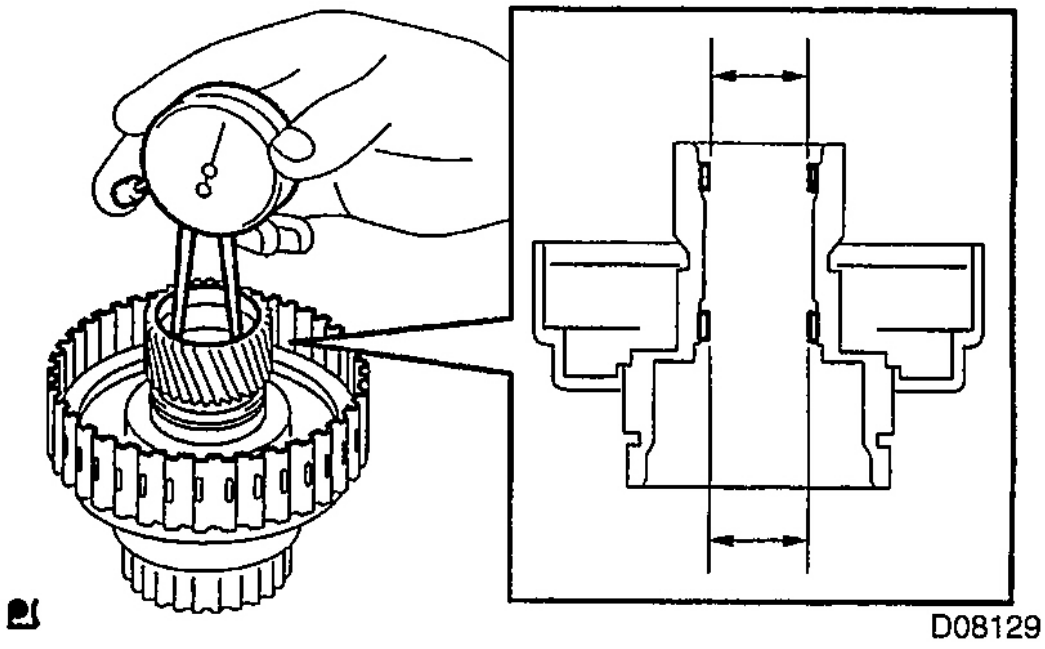


Fig. 328: Measuring Inside Diameter Of Underdrive Clutch Drum Bushing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **REMOVE UNDERDRIVE CLUTCH RETURN SPRING SUB-ASSY**
   a. Place SST on the clutch balancer and compress the spring with a press.

      SST 09350-32014 (09351-32070)

   b. Using a snap ring expander, remove the snap ring.

NOTE:
- **Stop the press when the spring sheet is lowered to the place 1 to 2 mm (0.039 to 0.078 in.) from the snap ring groove. This prevents the spring sheet from being deformed.**
- **Do not expand the snap ring excessively.**

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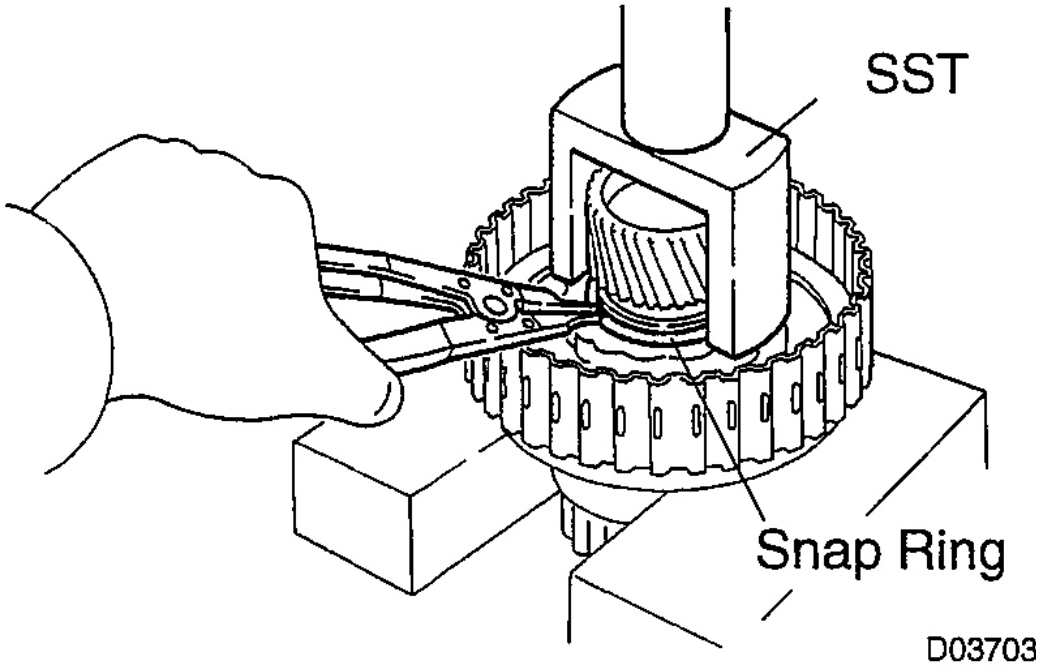


Fig. 329: Removing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Remove the clutch balancer from the underdrive clutch drum.

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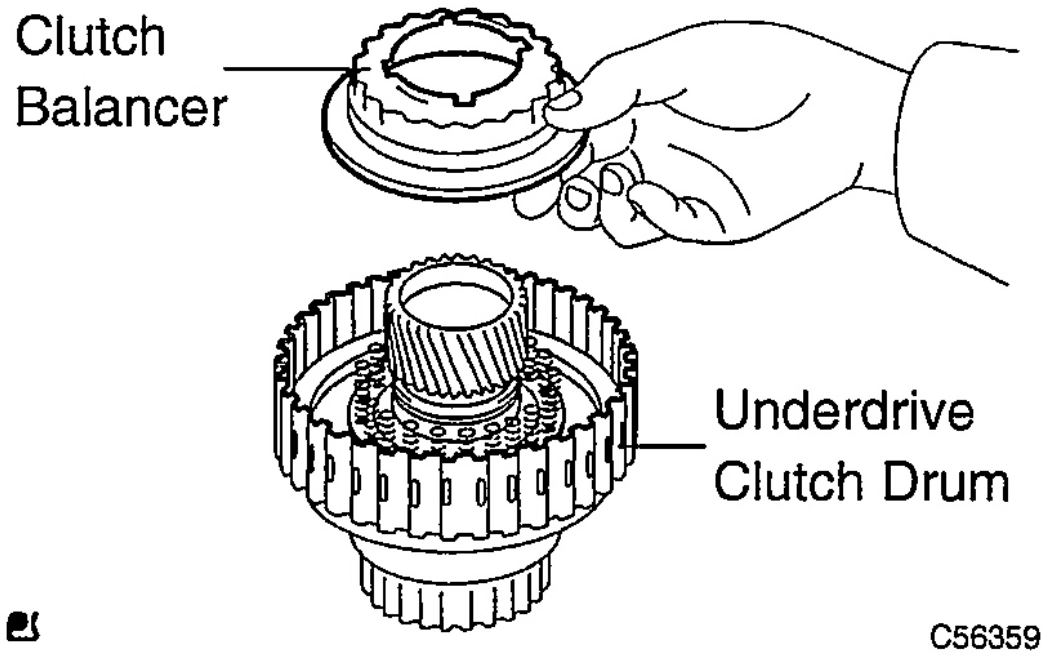


Fig. 330: Removing Clutch Balancer From Underdrive Clutch Drum
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Remove the return spring from the underdrive clutch drum.

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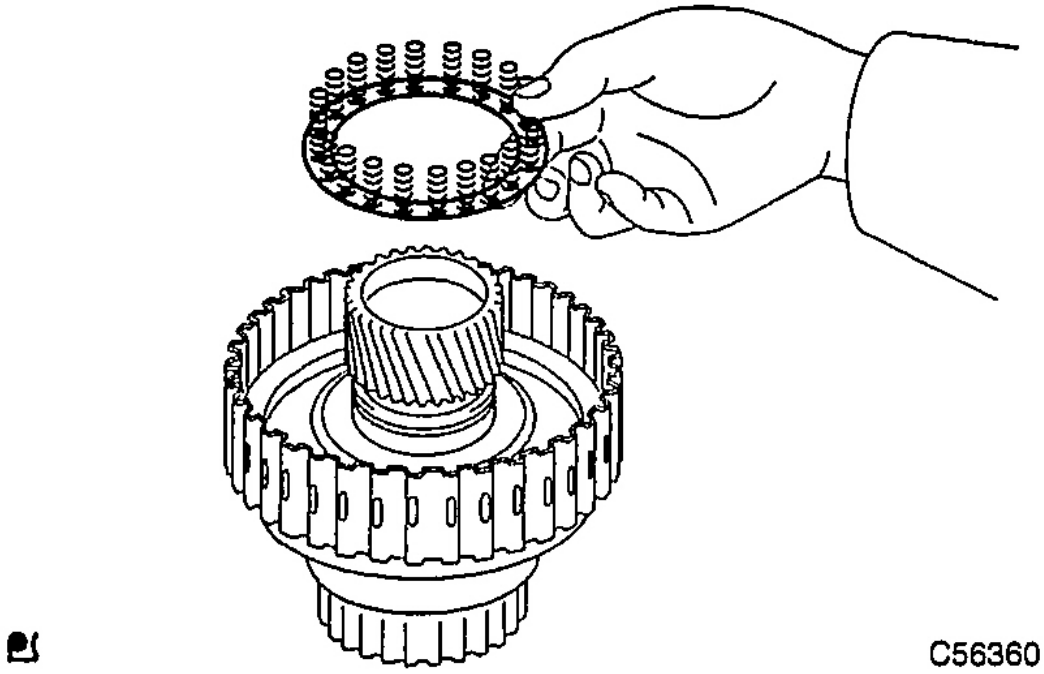


Fig. 331: Removing Return Spring From Underdrive Clutch Drum
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **INSPECT UNDERDRIVE CLUTCH RETURN SPRING SUB-ASSY**
   a. Using vernier calipers, measure the free length of the spring together with the spring seat.

   Standard free length: 17.14 mm (0.6748 in.)

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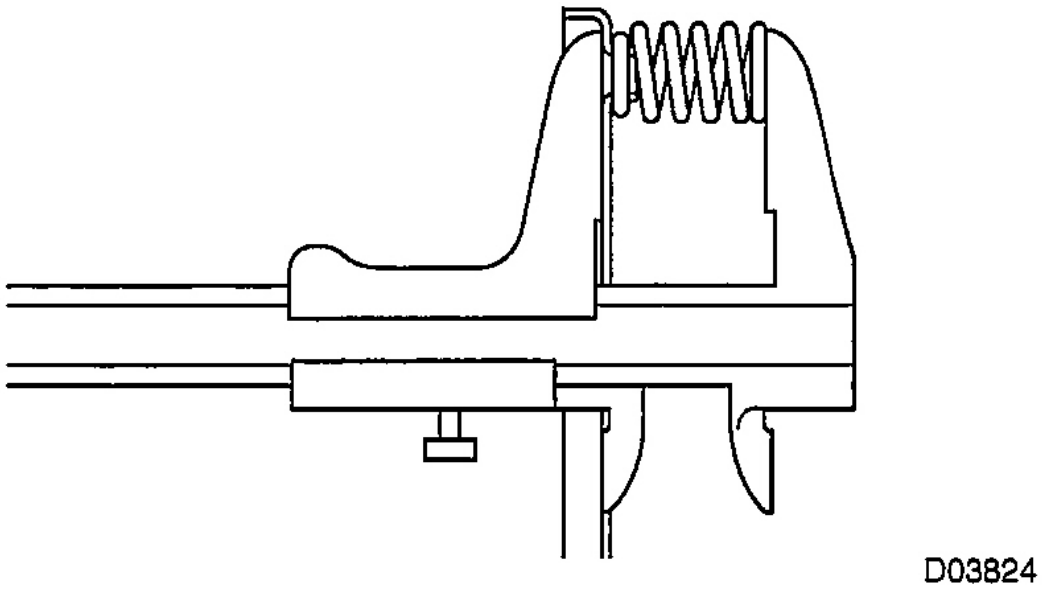


Fig. 332: Inspecting Underdrive Clutch Return Spring Sub-Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **REMOVE UNDERDRIVE CLUTCH PISTON SET**
   a. Install the underdrive clutch to the transaxle case.

NOTE: Be careful not to damage the oil seal rings.

   b. Holding the underdrive clutch piston by hand, apply compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi) to the transaxle case to remove the underdrive clutch piston.

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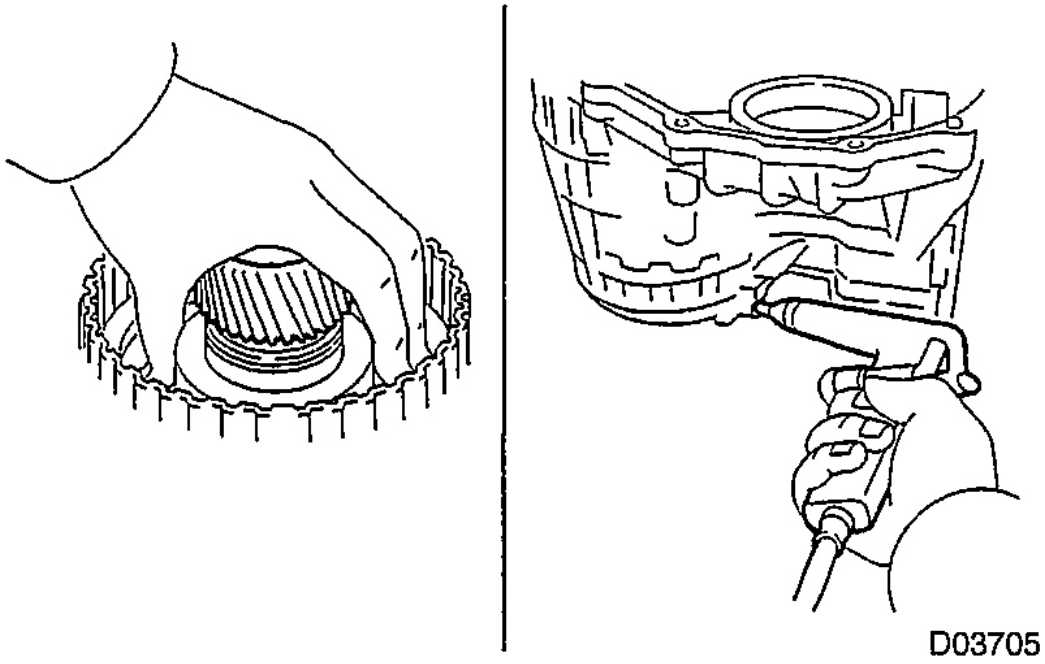


Fig. 333: Removing Underdrive Clutch Piston Set
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **REMOVE UNDERDRIVE CLUTCH DRUM O-RING**
   a. Using a screwdriver, remove the O-ring from the underdrive clutch drum.

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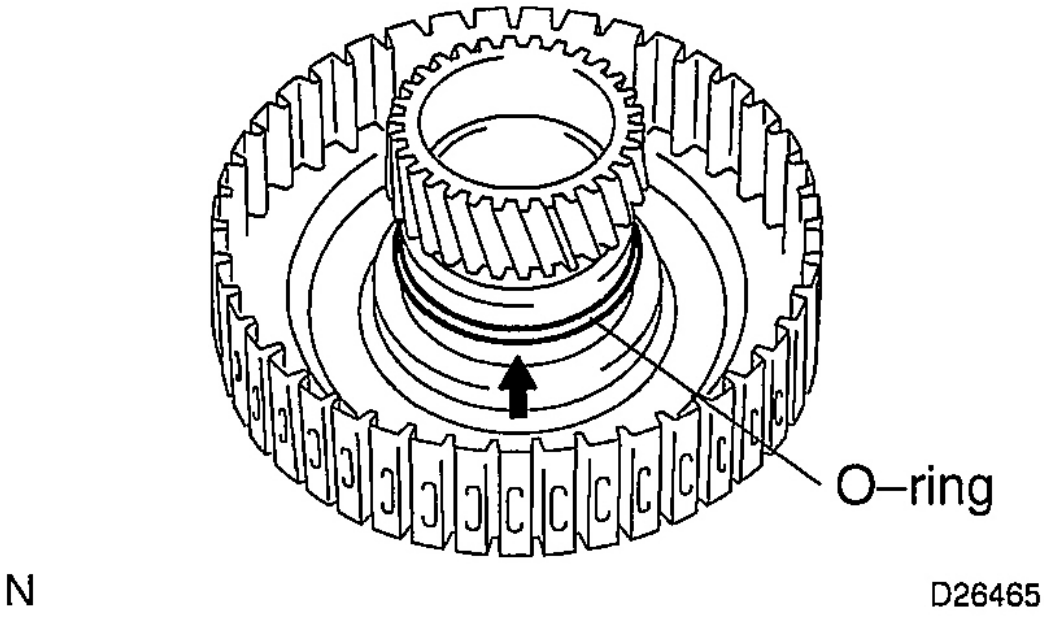


Fig. 334: Removing O-Ring From Underdrive Clutch Drum
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. **INSTALL UNDERDRIVE CLUTCH DRUM O-RING**
    a. Coat a new O-ring with ATF, and install it to the underdrive clutch drum.

NOTE: Ensure that the O-ring is not twisted or pinched.

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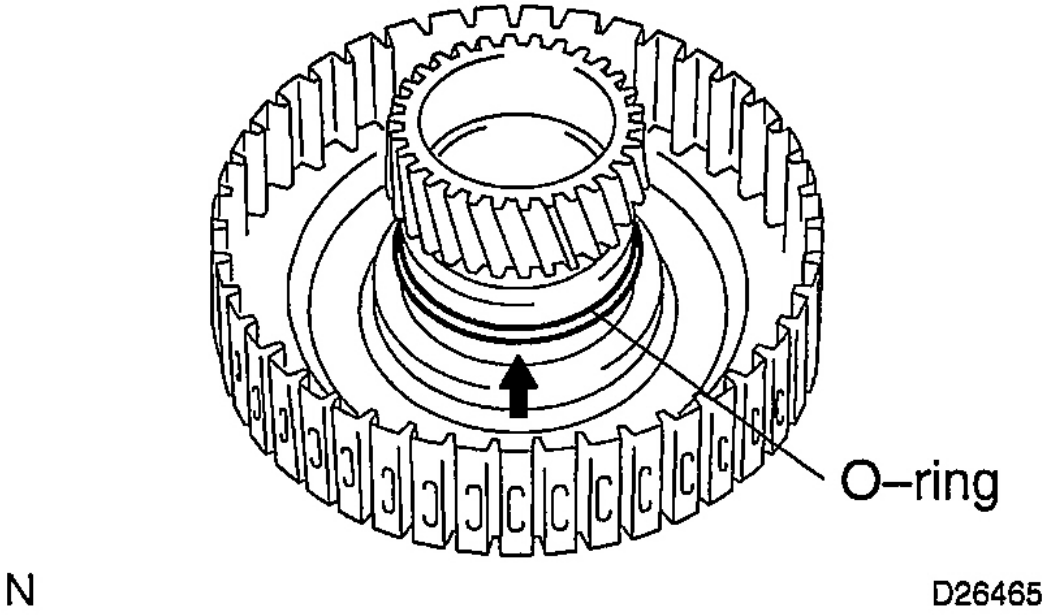


Fig. 335: Installing O-Ring To Underdrive Clutch Drum
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. **INSTALL UNDERDRIVE CLUTCH PISTON SET**
    a. Coat the underdrive clutch piston with ATF, and install it to the underdrive clutch piston drum.

NOTE:
- **Be careful not to damage the O-ring.**
- **Be careful not to damage the lip seal of the piston.**

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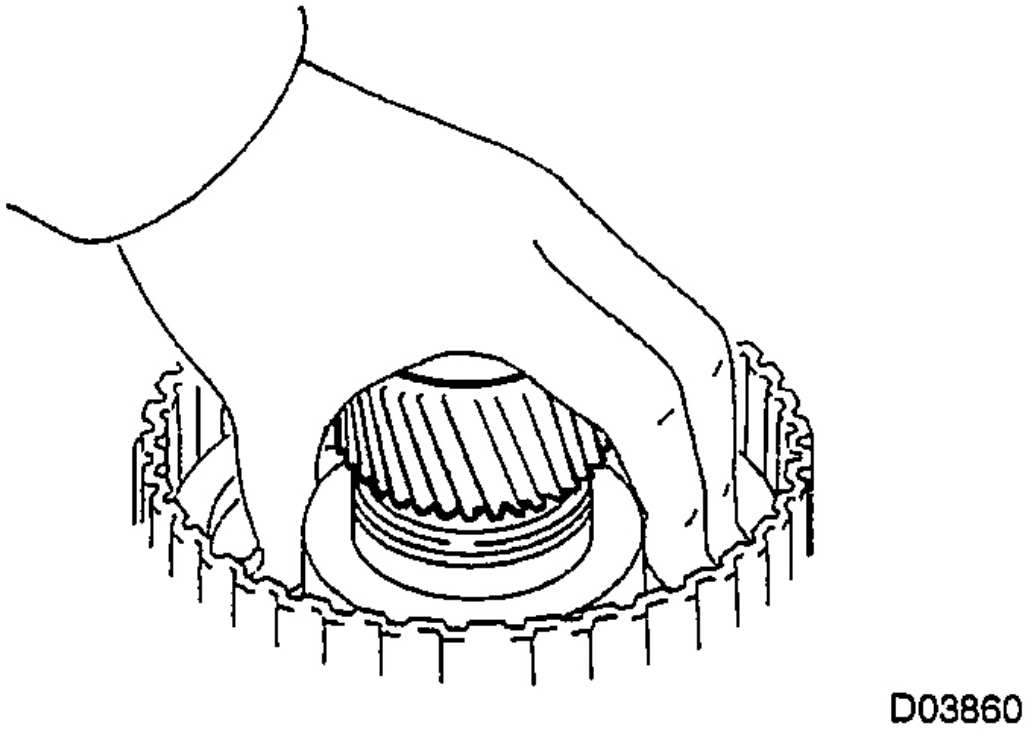


Fig. 336: Installing Underdrive Clutch Piston Set
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. **INSTALL UNDERDRIVE CLUTCH RETURN SPRING SUB-ASSY**
    a. Install the return spring to the underdrive clutch drum.

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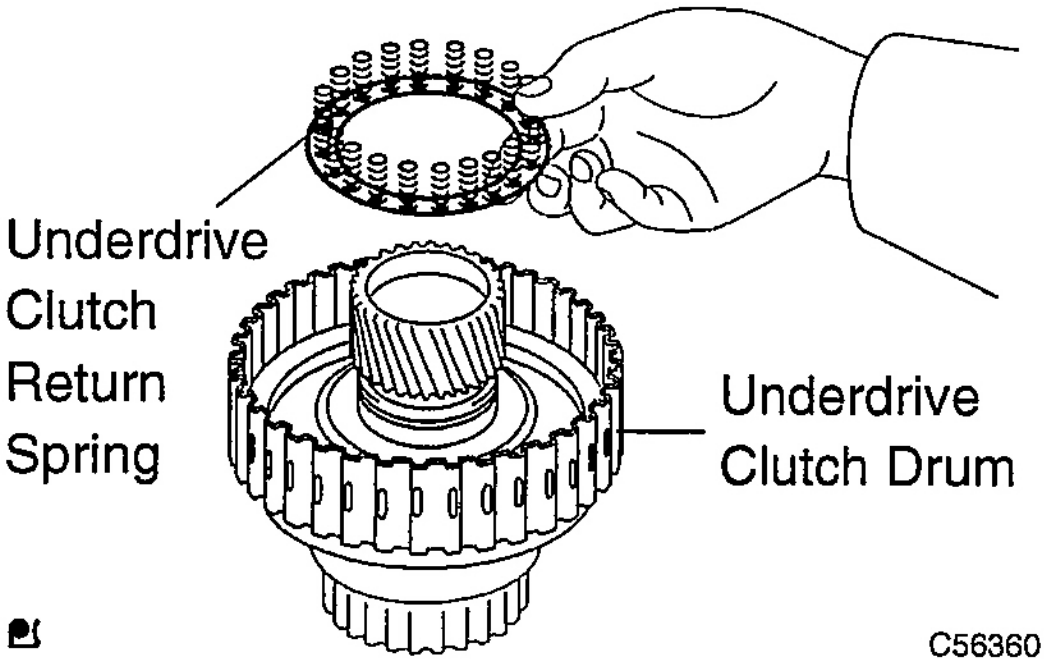


Fig. 337: Installing Return Spring To Underdrive Clutch Drum
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Coat the clutch balancer with ATF.
c. Install the clutch balancer to the underdrive clutch drum.

NOTE:
- **Be careful not to damage the lip seal of the clutch balancer.**
- **When installing the return spring, ensure that all springs are fit in the clutch balancer correctly.**

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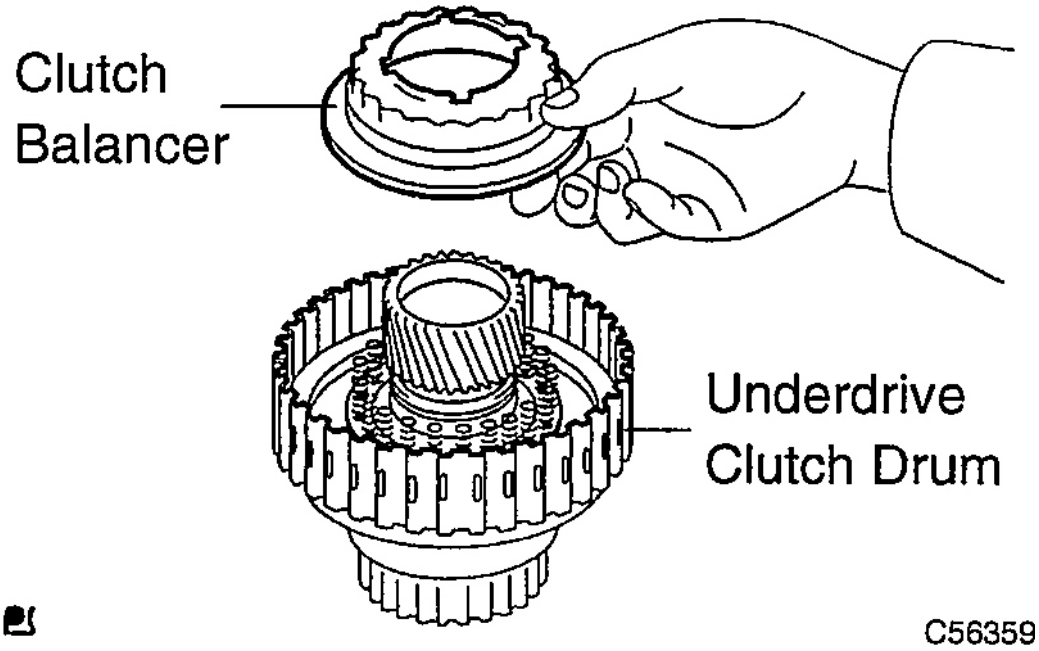


Fig. 338: Installing Clutch Balancer To Underdrive Clutch Drum
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Place SST on the clutch balancer and compress the piston return spring with a press.

SST 09350-32014 (09351-32070)

e. Using a snap ring expander, install the snap ring to the underdrive clutch drum.

NOTE:
- **Stop the press when the spring sheet is lowered to the place 1 to 2 mm (0.039 to 0.078 in.) from the snap ring grove. This prevents the spring sheet from being deformed.**
- **Do not expand the snap ring excessively.**

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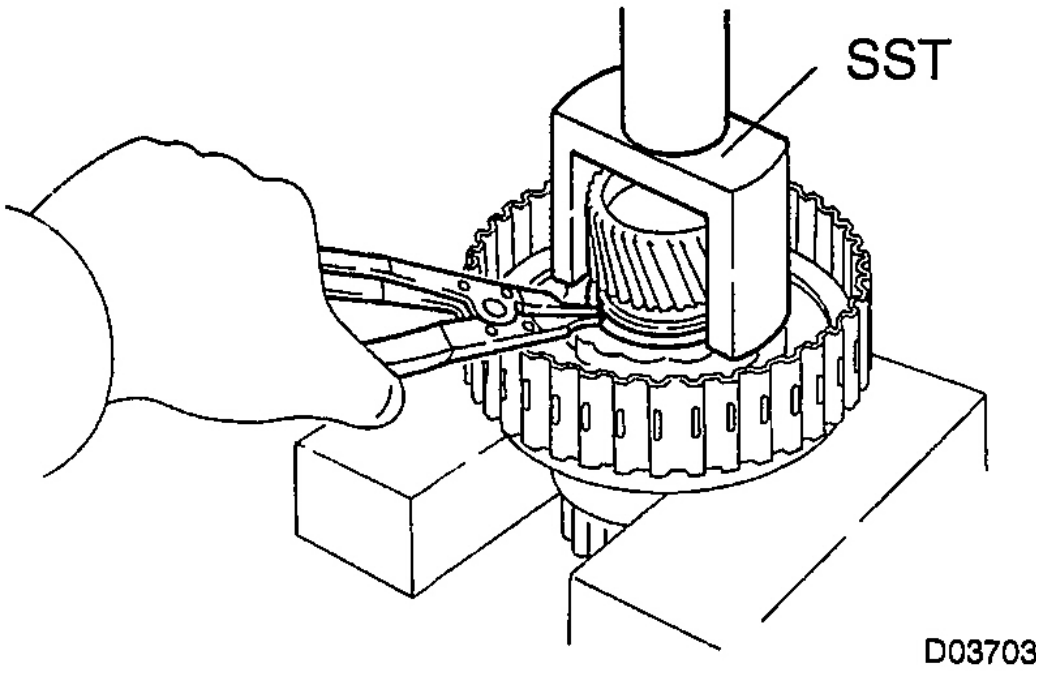


Fig. 339: Installing Snap Ring To Underdrive Clutch Drum
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Set the end gap of the snap ring in the underdrive clutch drum as shown in the illustration.

NOTE: Ensure that the end gap of the snap ring is not aligned with any of the stoppers.

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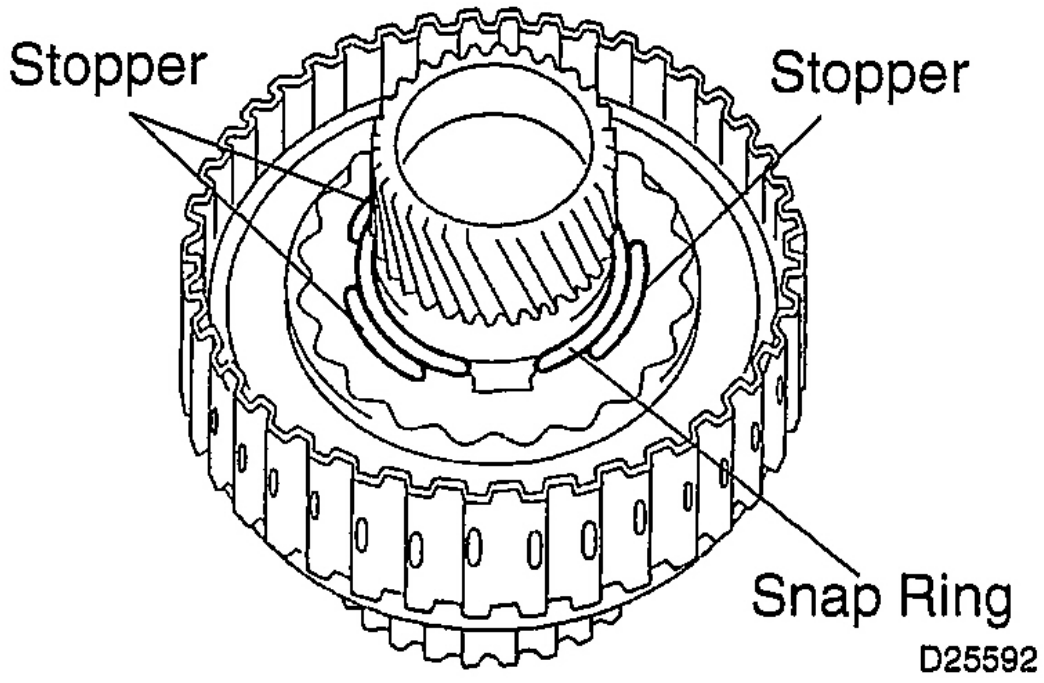


Fig. 340: Setting End Gap Of Snap Ring In Underdrive Clutch Drum
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. **INSTALL UNDERDRIVE CLUTCH DISC NO. 1**
    a. Coat the 3 discs with ATF.
    b. Install the 3 plates, 3 discs and flange to the underdrive clutch drum.

NOTE: Be careful about the order of the discs, plates and flange.

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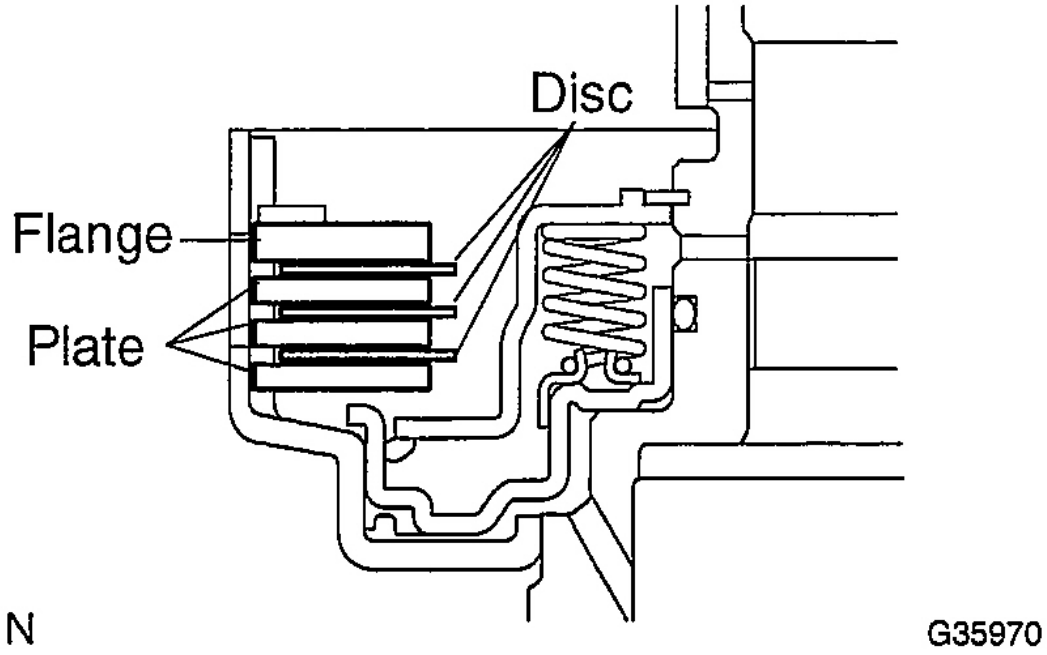


Fig. 341: Installing Plates, Discs And Flange To Underdrive Clutch Drum
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. **INSTALL UNDERDRIVE CLUTCH FLANGE NO. 2 HOLE SNAP RING**
    a. Using a screwdriver, install the underdrive clutch flange No. 2 hole snap ring.

NOTE: The snap ring should be securely fixed in the groove of the drum.

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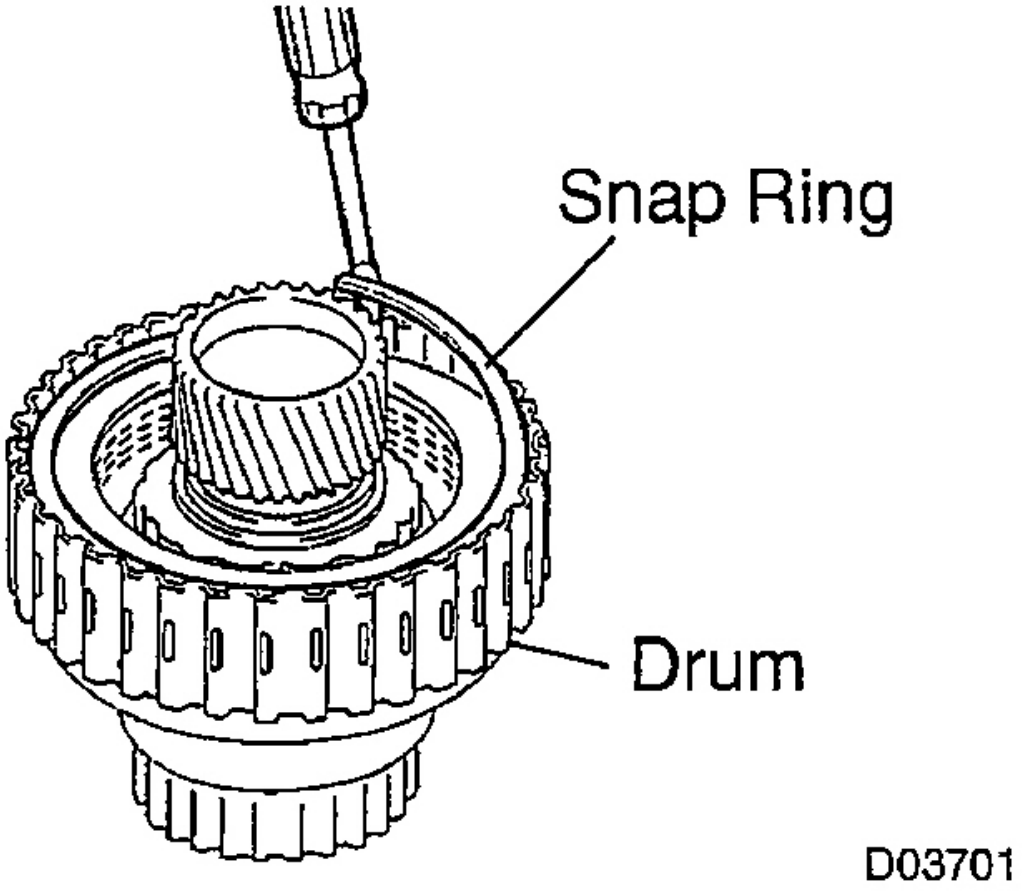


Fig. 342: Installing Underdrive Clutch Flange No. 2 Hole Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. **INSPECT UNDERDRIVE PACK CLEARANCE**
    a. Install the underdrive clutch to the transaxle case.

    NOTE: Be careful not to damage the oil seal ring.

    b. Set a dial indicator as shown in the illustration.
    c. Measure the underdrive clutch piston stroke while applying and releasing compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi).

    Park clearance: 1.42 to 1.71 mm (0.0559 to 0.0673 in.)

    If the pack clearance is less than the minimum, parts may have been assembled incorrectly, so

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check and reassemble. If the pack clearance is not within specification, select another flange.

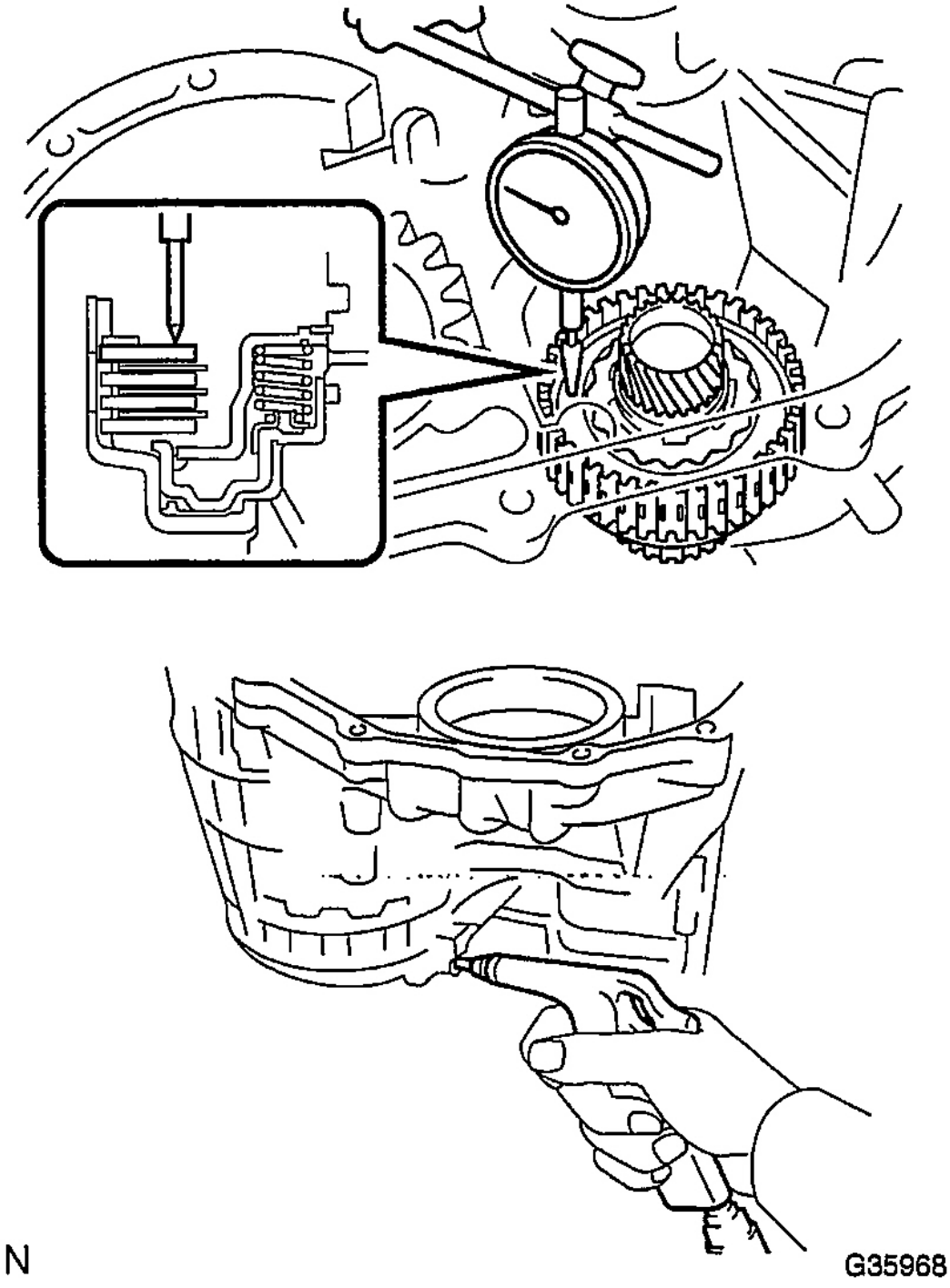


Fig. 343: Inspecting Underdrive Pack Clearance

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Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

There are 7 types of flanges of different thickness.

Flange thickness: mm (in.)

FLANGE THICKNESS - REFERENCE TABLE

Mark	Thickness	Mark	Thickness
K	2.9 (0.114)	G	3.1 (0.122)
A	3.0 (0.118)	H	3.3 (0.130)
B	3.2 (0.126)	J	3.5 (0.138)
C	3.4 (0.134)	-	-

UNDERDRIVE PLANETARY GEAR ASSY (U250E)

COMPONENTS

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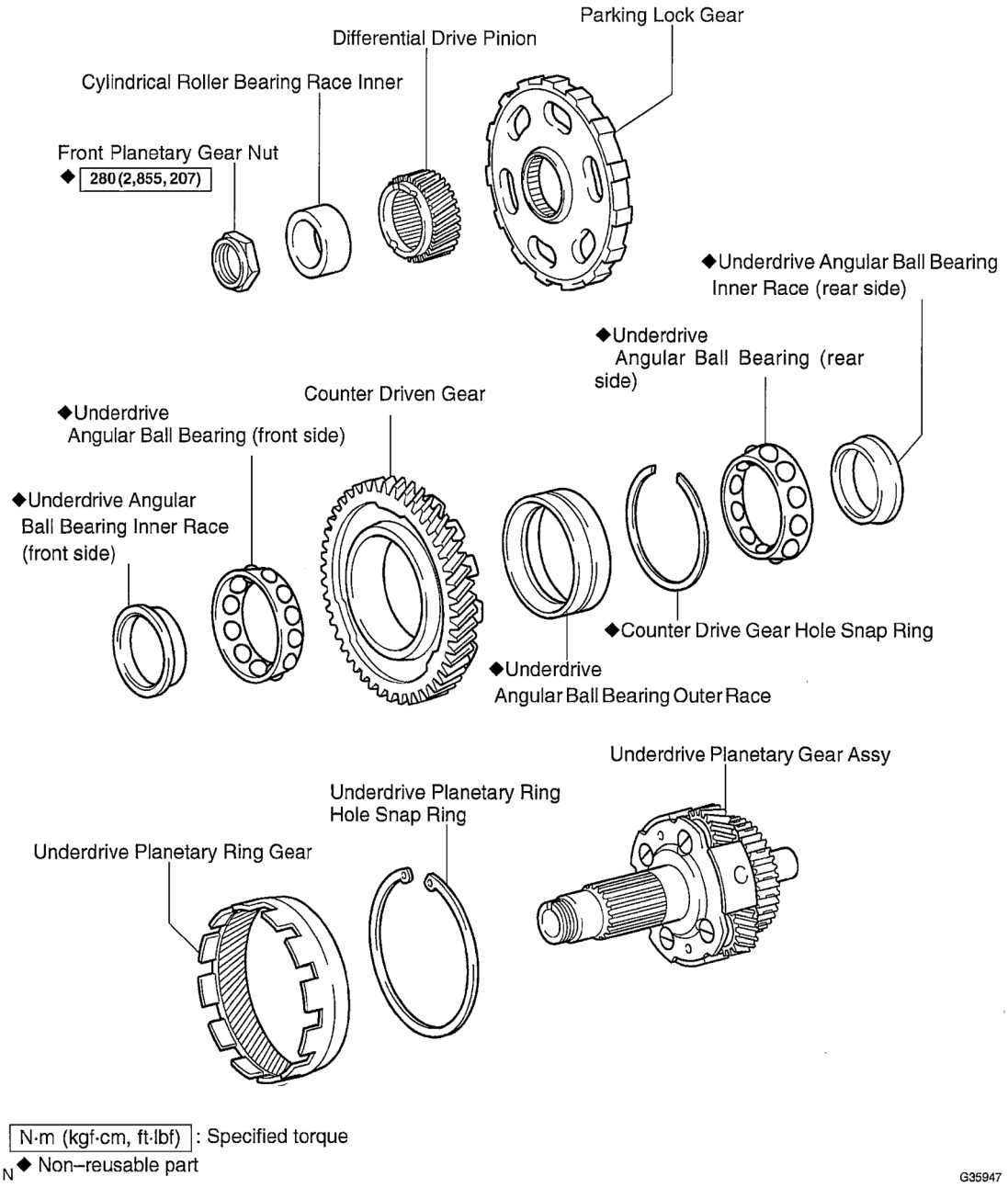


Fig. 344: Identifying Underdrive Planetary Gear Assy (U250E) Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OVERHAUL

1. **INSPECT UNDERDRIVE PLANETARY GEAR PRELOAD**
   a. Using SST, fix the underdrive planetary gear assy.

      SST 09387-00050, 09495-65040

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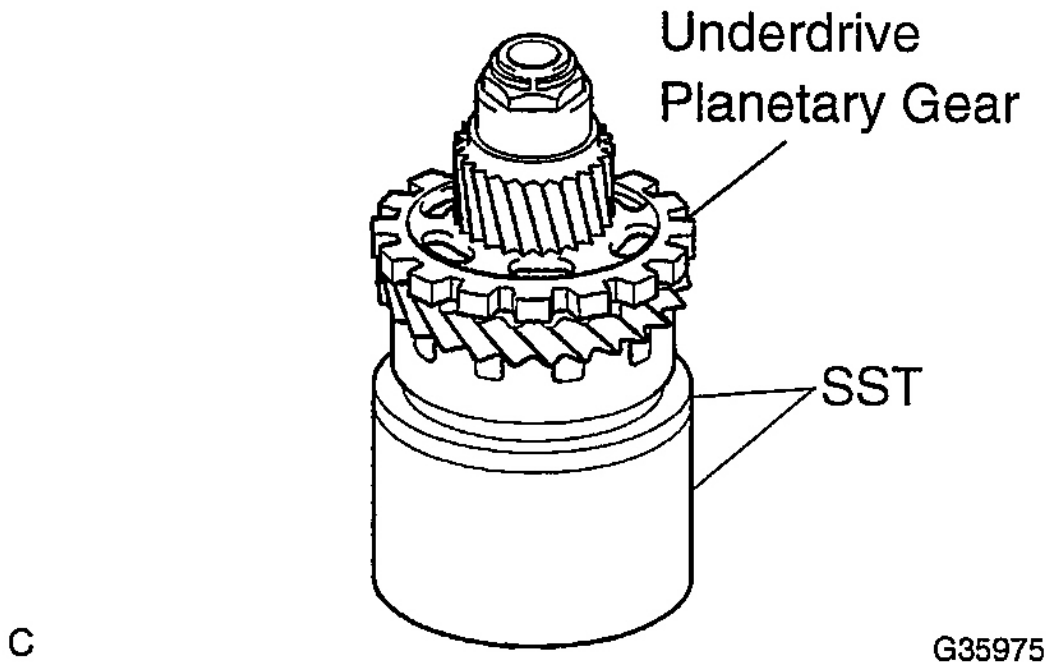


Fig. 345: Fixing Underdrive Planetary Gear Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST and a torque wrench, measure the turning torque of the underdrive planetary gear assy while rotating the torque wrench at 60 rpm.

   SST 09387-00050, 09495-65040

   Turning torque at 60 rpm.: 0.28 to 0.89 N.m (2.9 to 9.1 kgf.cm, 2.478 to 7.877 in.lbf)

   HINT:

   Use a torque wrench with a fulcrum length of 160 mm (6.3 in.).

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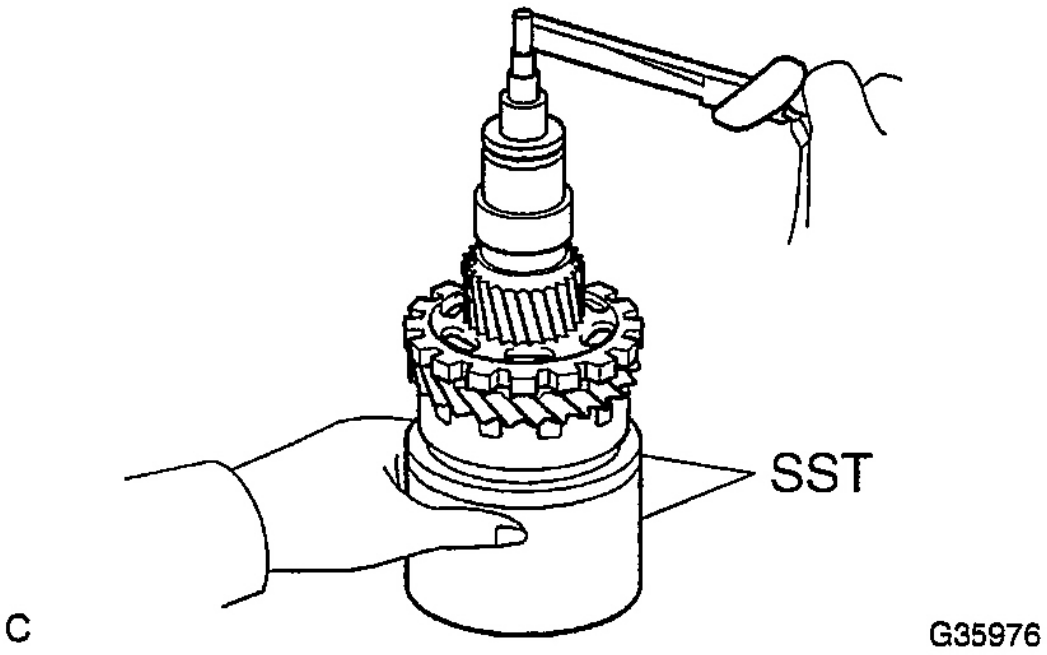


Fig. 346: Measuring Turning Torque Of Underdrive Planetary Gear Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **REMOVE FRONT PLANETARY GEAR NUT**
   a. Using SST, loosen the staked part of the gear nut.

      SST 09930-00010 (09931-00010, 09931-00020), 09387-00050, 09495-65040

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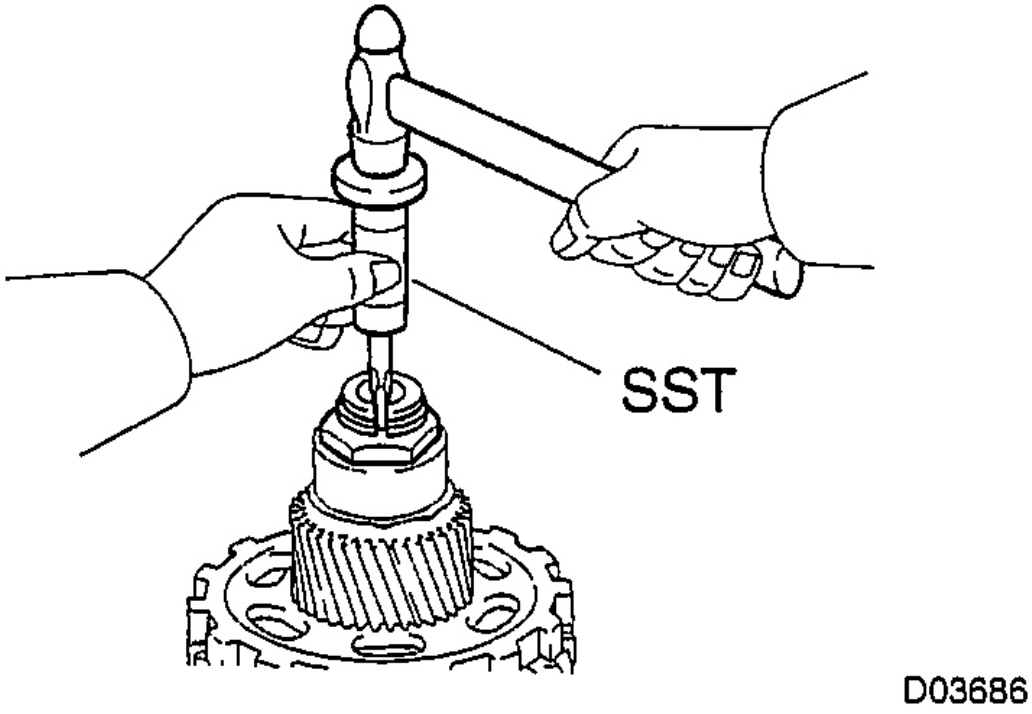


Fig. 347: Removing Front Planetary Gear Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Clamp the underdrive planetary gear in a soft jaw vise.

NOTE: Be careful not to damage the differential drive pinion.

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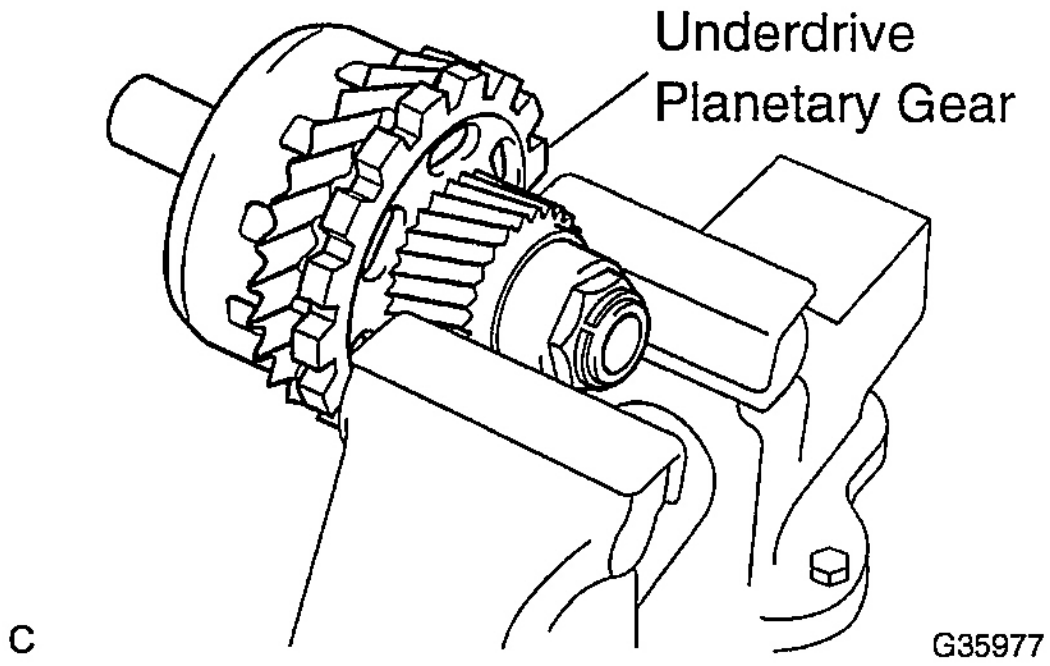


Fig. 348: Clamping Underdrive Planetary Gear In Soft Jaw Vise
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a socket wrench, remove the gear nut.

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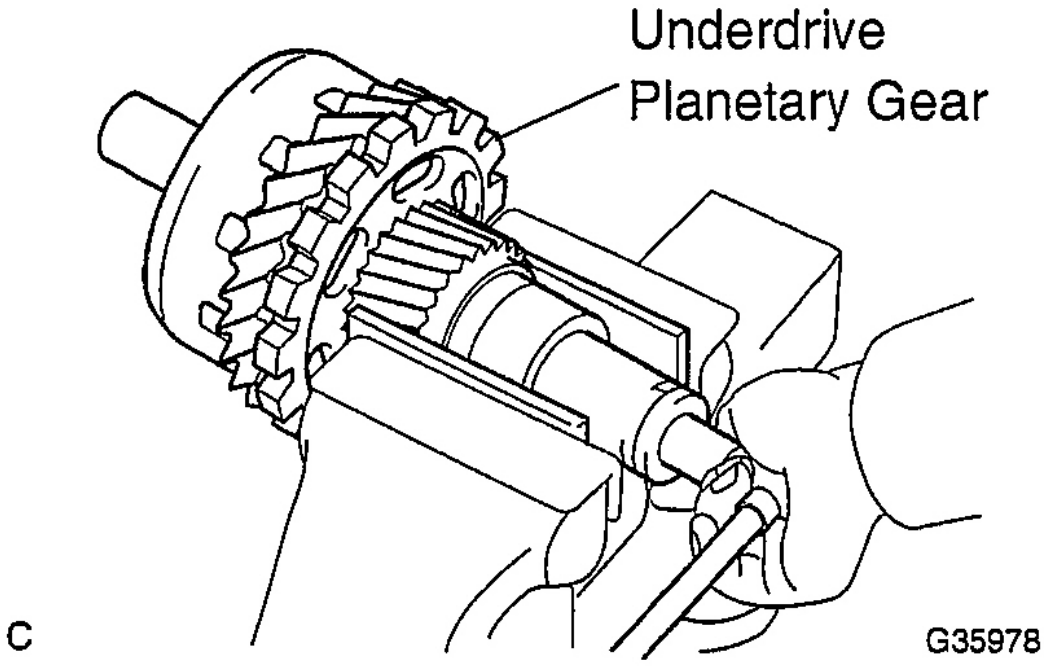


Fig. 349: Removing Gear Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **REMOVE CYLINDRICAL ROLLER BEARING RACE INNER**
   a. Using SST, remove the cylindrical roller bearing race inner.

      SST 09950-00020, 09950-00030, 09950-60010 (09951-00320), 09950-40011 (09957-04010)

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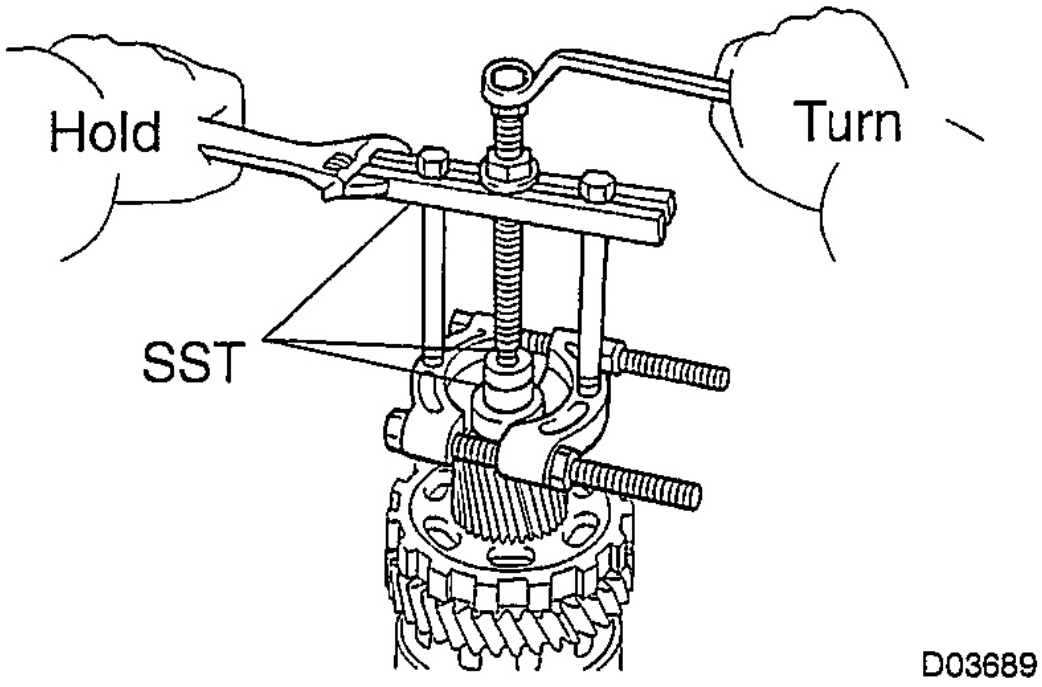


Fig. 350: Removing Cylindrical Roller Bearing Race Inner
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **REMOVE UNDERDRIVE PLANETARY GEAR ASSY**
   a. Using SST and a press, remove the differential drive pinion, parking lock gear, counter driven gear with the underdrive planetary ring gear and angular ball bearing inner race (front side).

      SST 09387-00050, 09495-65040, 09950-60010 (09951-00320), 09950-70010 (09951-07100)

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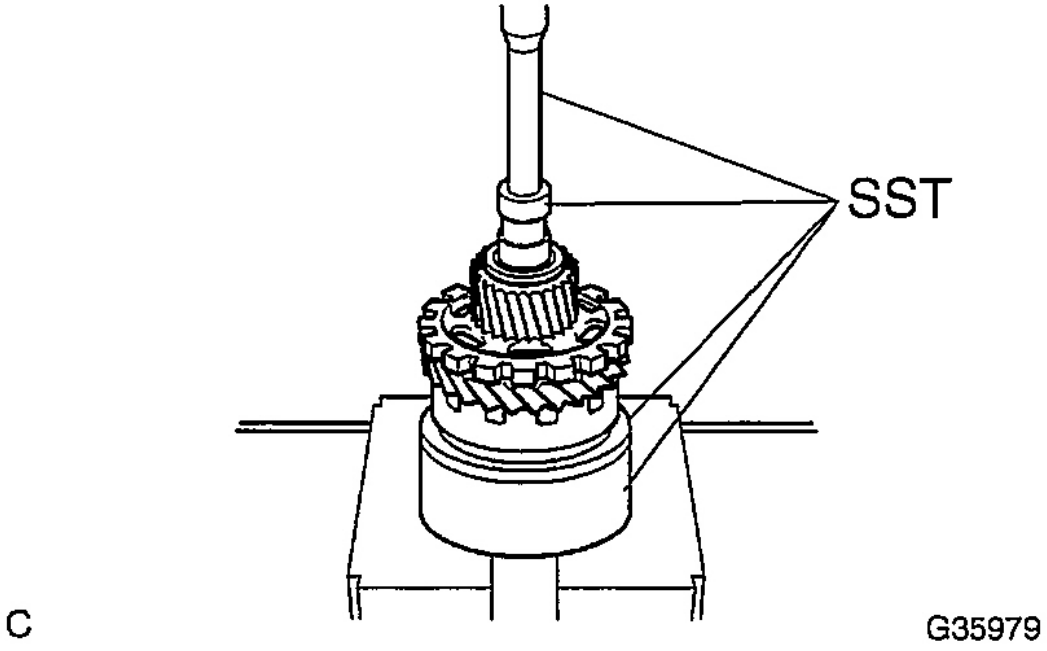


Fig. 351: Removing Underdrive Planetary Gear Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Clamp the underdrive planetary gear in a soft jaw vise.
c. Using SST, remove the angular ball bearing inner race (rear side) from the underdrive planetary gear.

   SST 09950-00020, 09950-00030, 09950-40011 (09957-04010), 09950-60010 (09951-00320)

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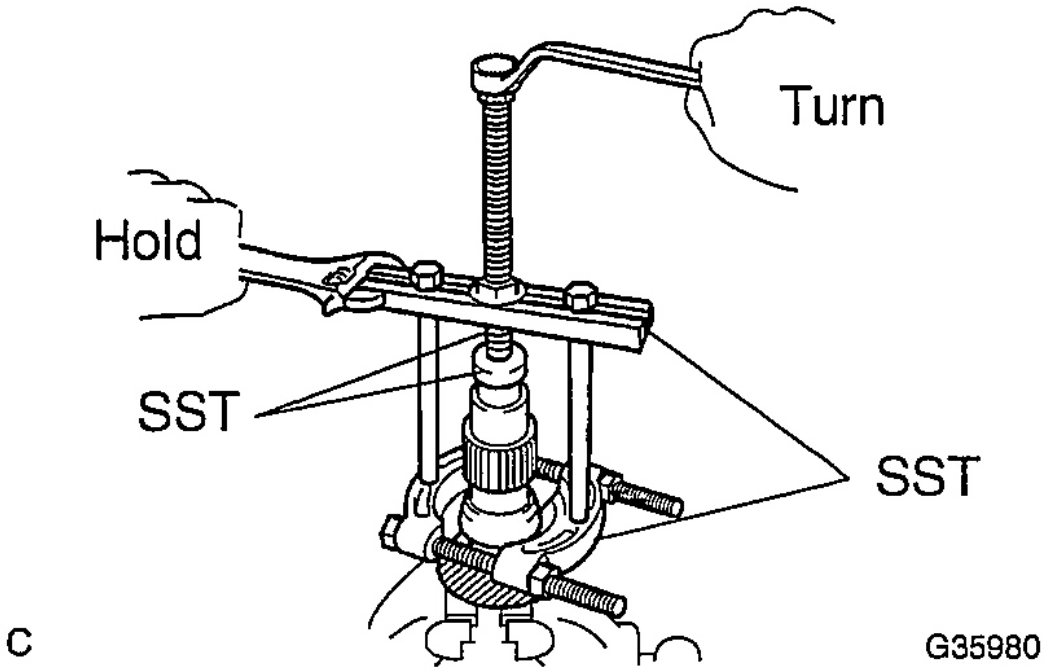


Fig. 352: Clamping Underdrive Planetary Gear In A Soft Jaw Vise
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **REMOVE UNDERDRIVE PLANETARY RING GEAR**
   a. Using snap ring pliers, remove the snap ring.

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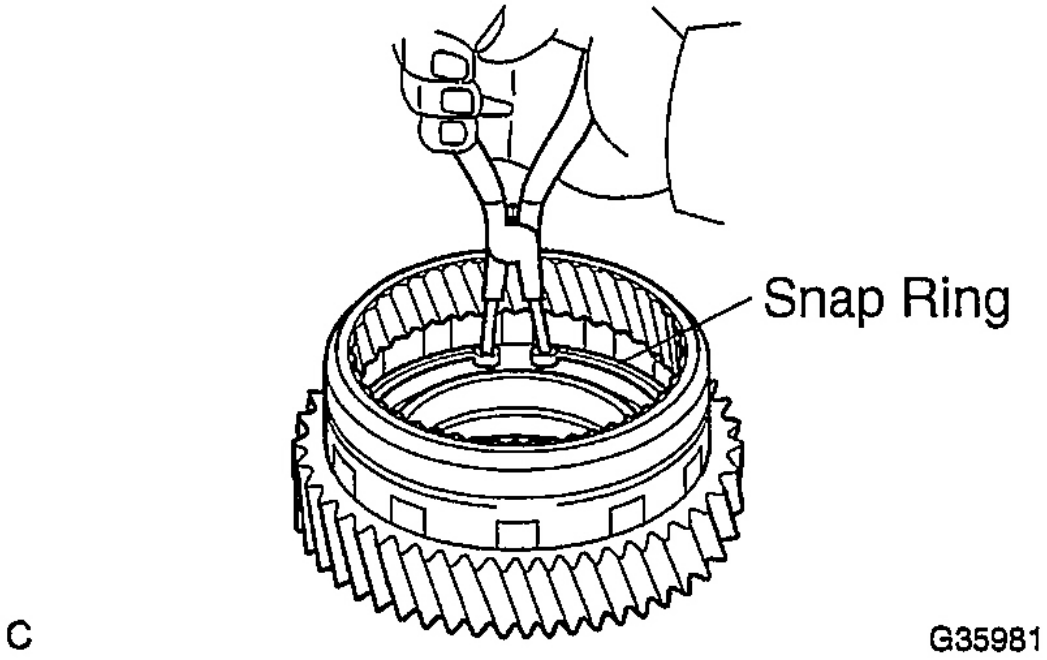


Fig. 353: Removing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the underdrive planetary ring gear from the counter driven gear.

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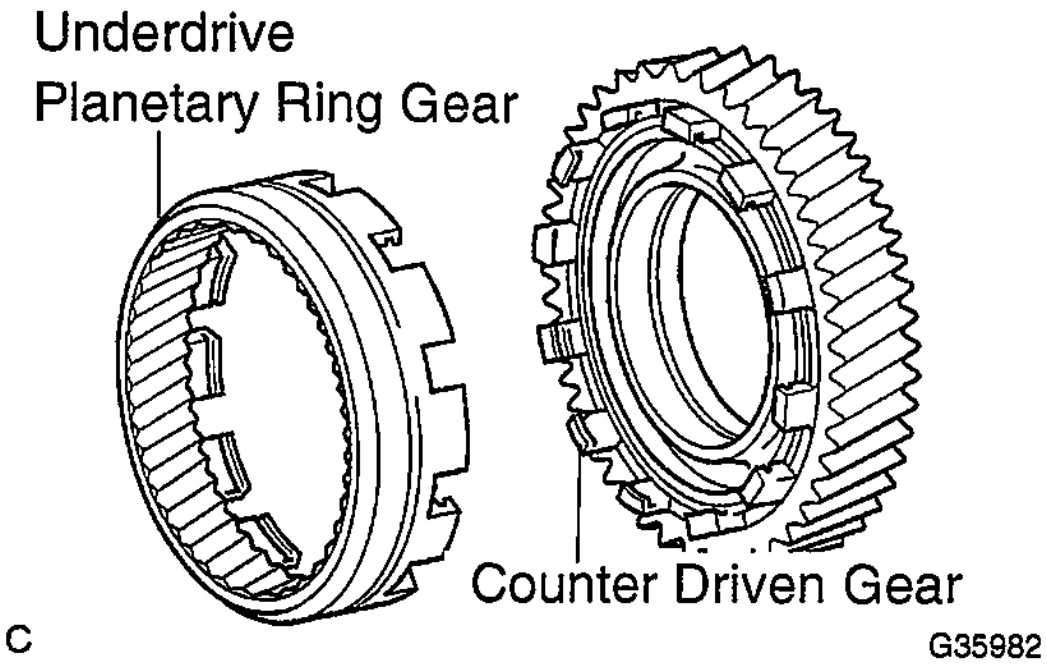


Fig. 354: Removing Underdrive Planetary Ring Gear From Counter Driven Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **INSTALL UNDERDRIVE PLANETARY RING GEAR**
   a. Install a new snap ring to a new outer race of the angular ball bearing.

      HINT:

      When replacing the bearing, also replace the counter driven gear with a new one.

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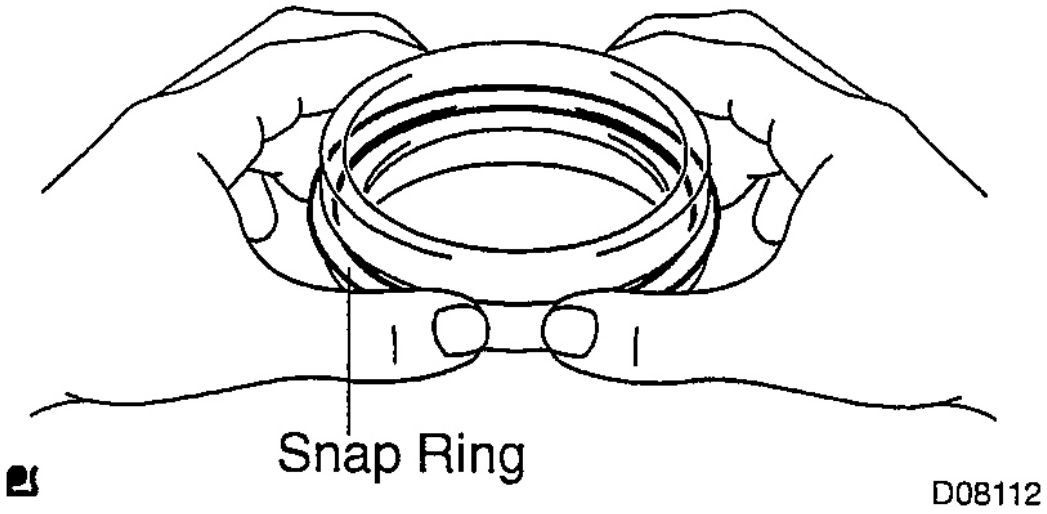
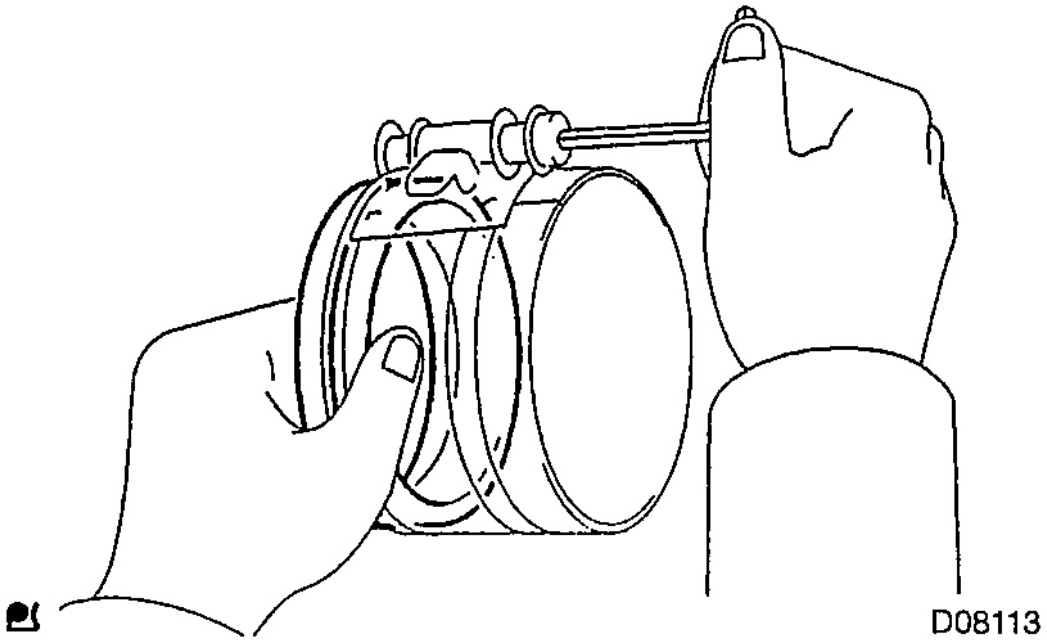


Fig. 355: Installing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a piston ring compressor, squeeze the snap ring.



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Fig. 356: Squeezing Snap Ring Using A Piston Ring Compressor
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using SST and a press, press in the outer race of the angular ball bearing.

SST 09950-60020 (09951-00890), 09950-70010 (09951-07100),

NOTE: Be sure not to damage the snap ring during outer race installation.

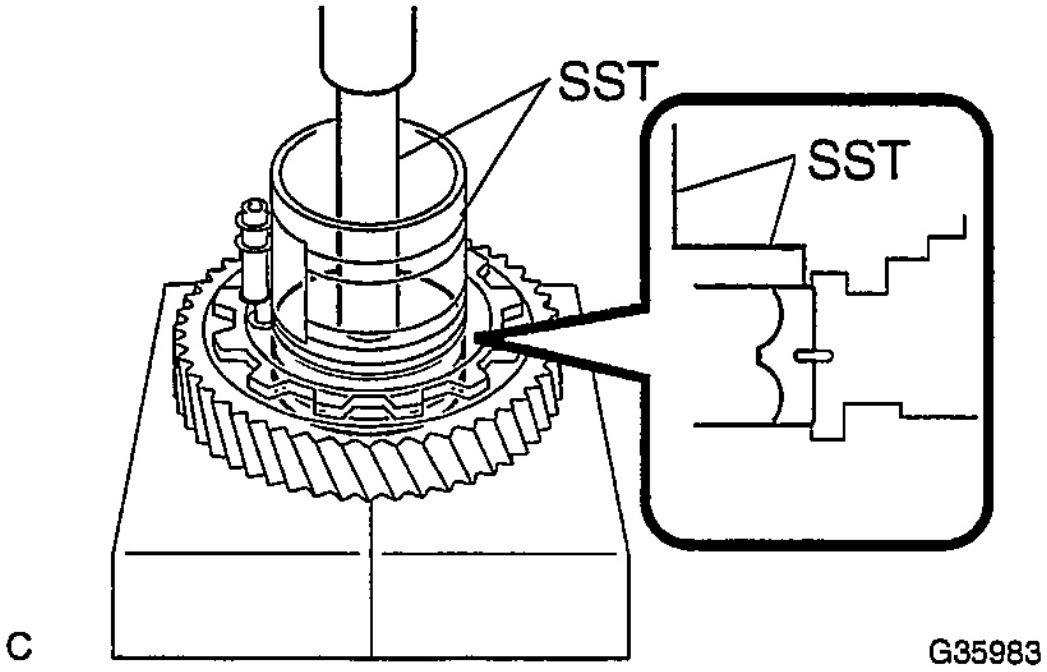


Fig. 357: Installing Outer Race Of Angular Ball Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Install the underdrive planetary ring gear to the counter driven gear.

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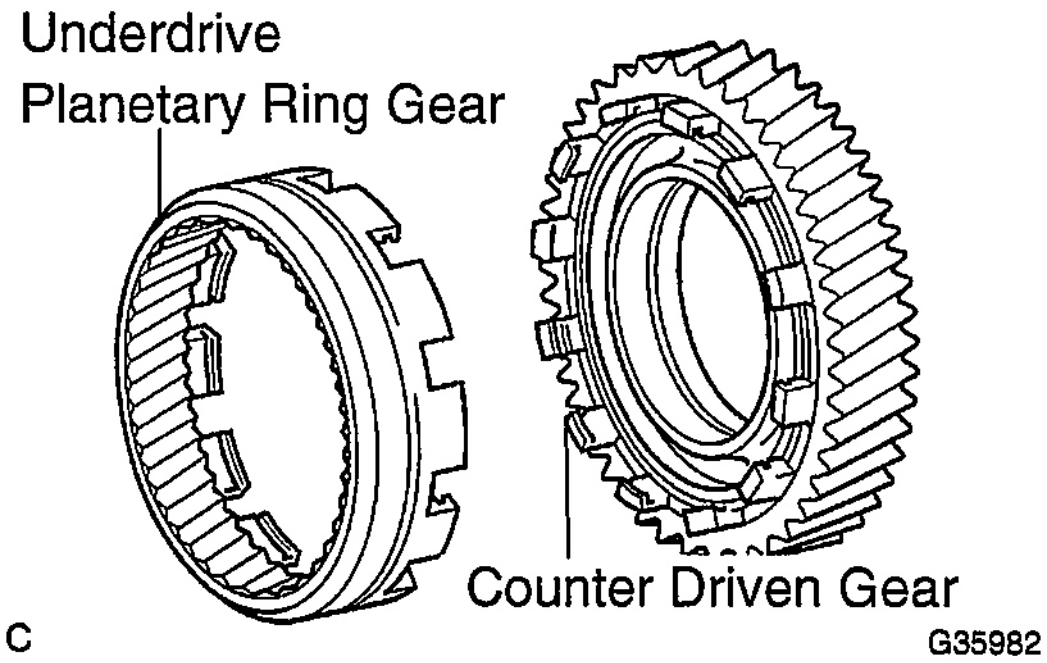


Fig. 358: Installing Underdrive Planetary Ring Gear To Counter Driven Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Using snap ring pliers, install the snap ring.

SST 09950-60020 (09951-00890), 09950-70010 (09951-07100), 99999-60012

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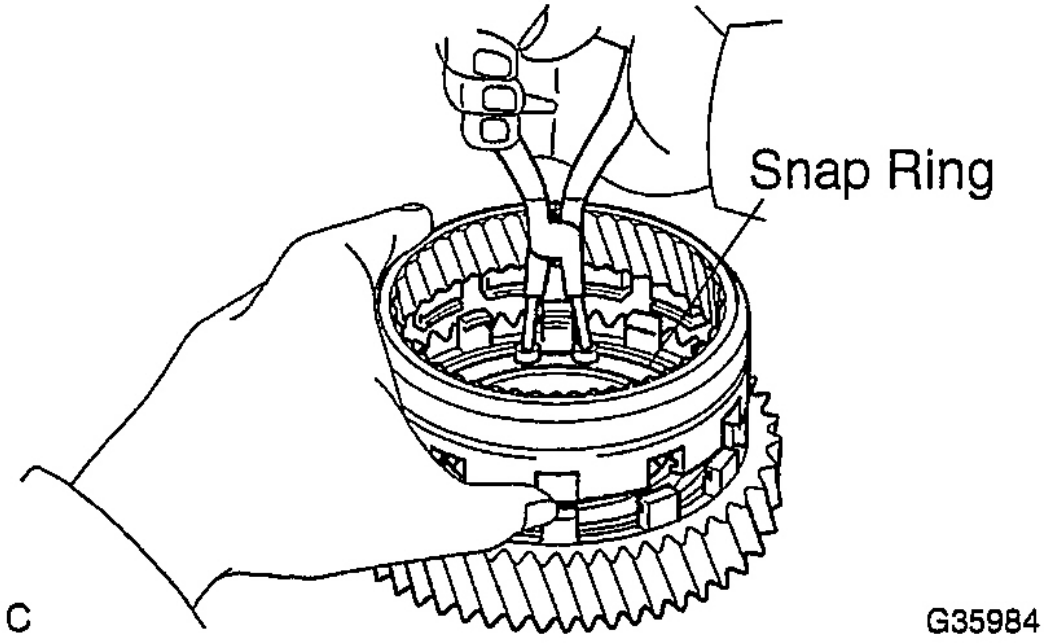


Fig. 359: Installing Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **INSTALL UNDERDRIVE PLANETARY GEAR ASSY**
   a. Using SST and a press, press the angular ball bearing inner race (rear side) into the underdrive planetary gear.

      SST 09950-60010 (09951-00260), 09950-70010 (09951-07100), 09726-40010

      NOTE: Press the bearing until it becomes flat at the bottom.

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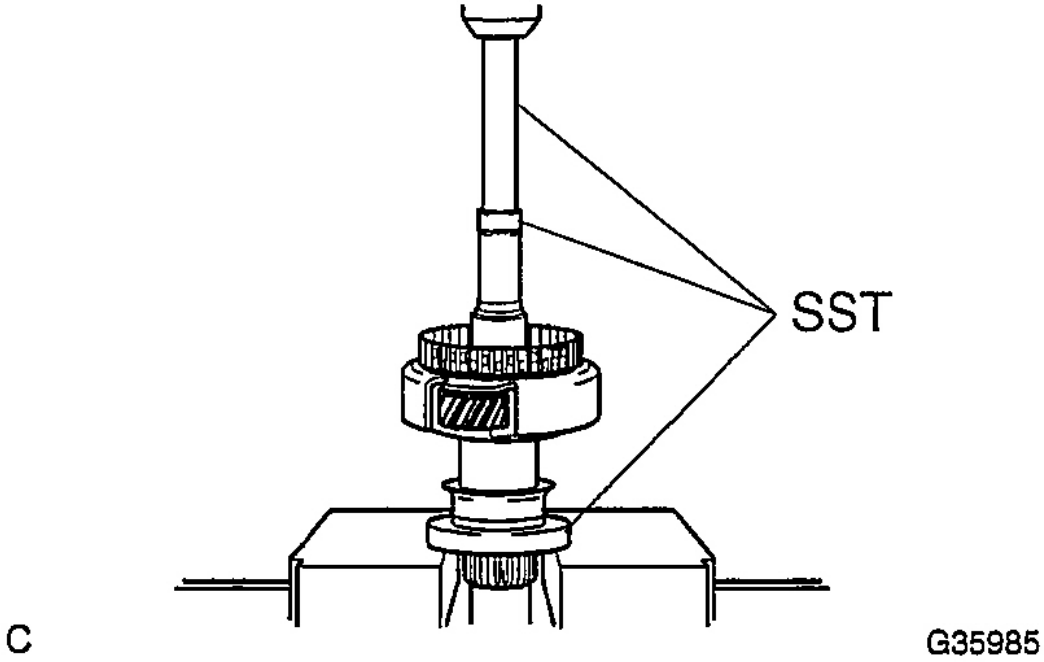


Fig. 360: Installing Underdrive Planetary Gear Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the counter driven gear with the planetary ring gear to the underdrive planetary gear.

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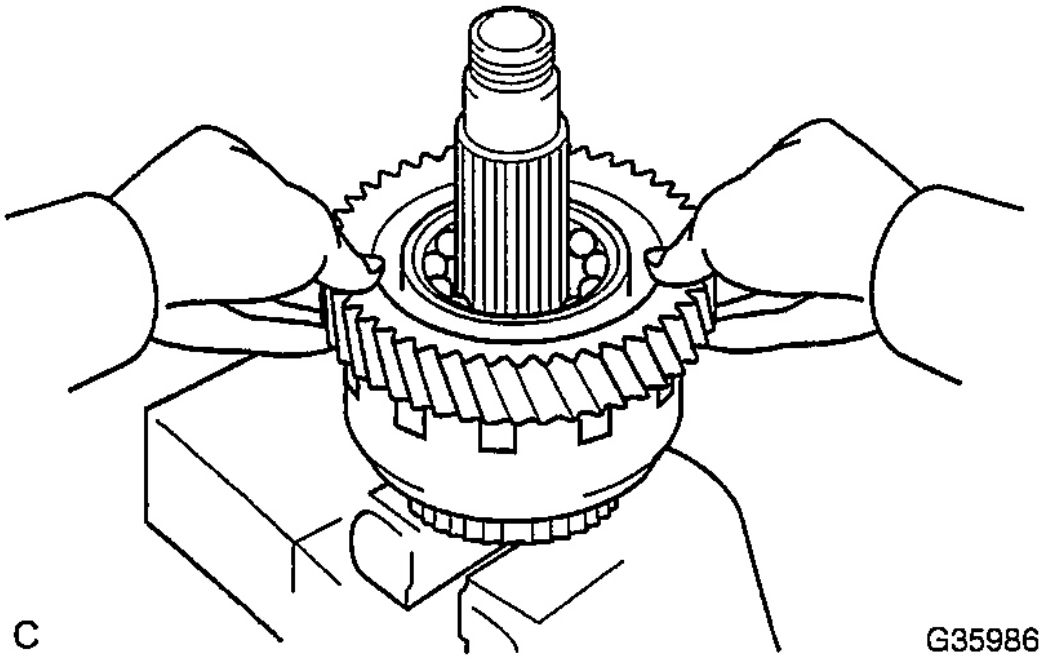


Fig. 361: Installing Counter Driven Gear With Planetary Ring Gear To Underdrive Planetary Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using SST and a press, press in the angular ball bearing inner race (front side).

SST 09950-60010 (09951-00260), 09950-70010 (09951-07100), 09726-40010

NOTE: Press the counter driven gear while rotating it.

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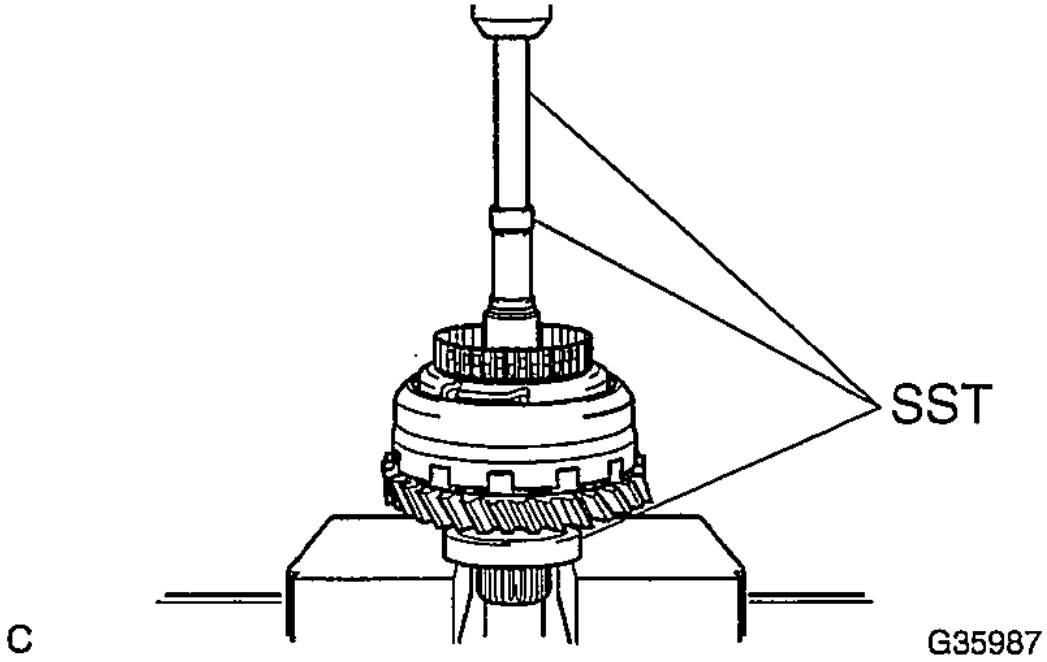


Fig. 362: Installing Angular Ball Bearing Inner Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Using a press, press in the parking lock gear.

NOTE: Press the counter driven gear while rotating it.

SST 09950-60010 (09951-00260), 09950-70010 (09951-07100), 09316-20011

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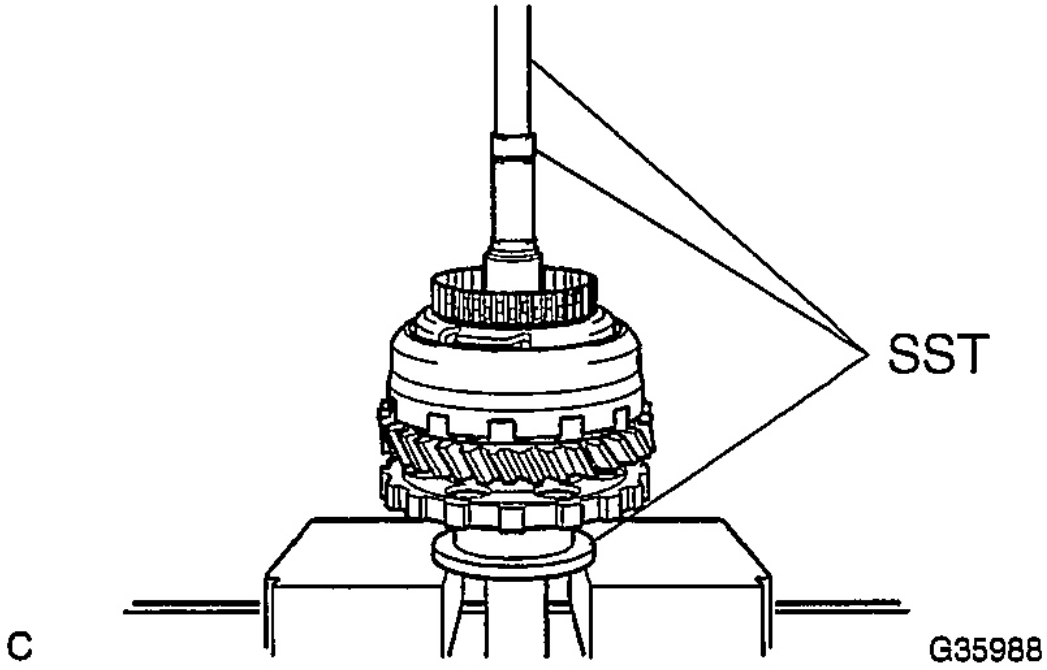


Fig. 363: Installing Parking Lock Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **INSTALL DIFFERENTIAL DRIVE PINION**
   a. Using a press, press the differential drive pinion.

      SST 09726-40010, 09950-60010 (09951-00260), 09950-70010 (09951-07100)

      NOTE: Press the counter driven gear while rotating it.

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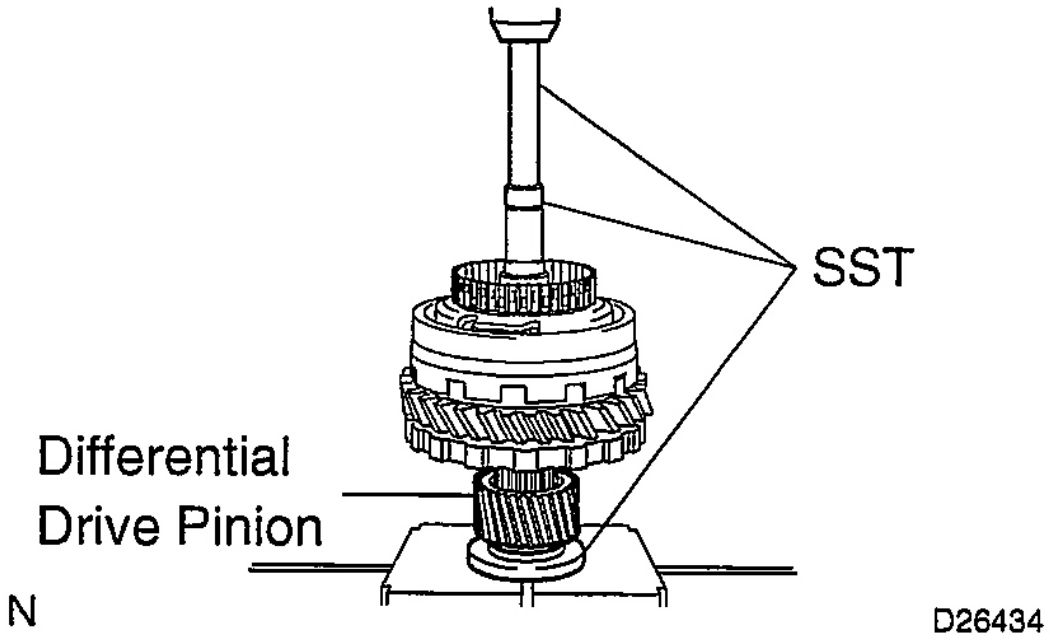


Fig. 364: Installing Differential Drive Pinion
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **INSTALL CYLINDRICAL ROLLER BEARING RACE INNER**
   a. Using a press, press the cylindrical roller bearing race inner.

NOTE: Press the counter driven gear while rotating it.

SST 09515-21010, 09950-60010 (09951-00260), 09950-70010 (09951-07100)

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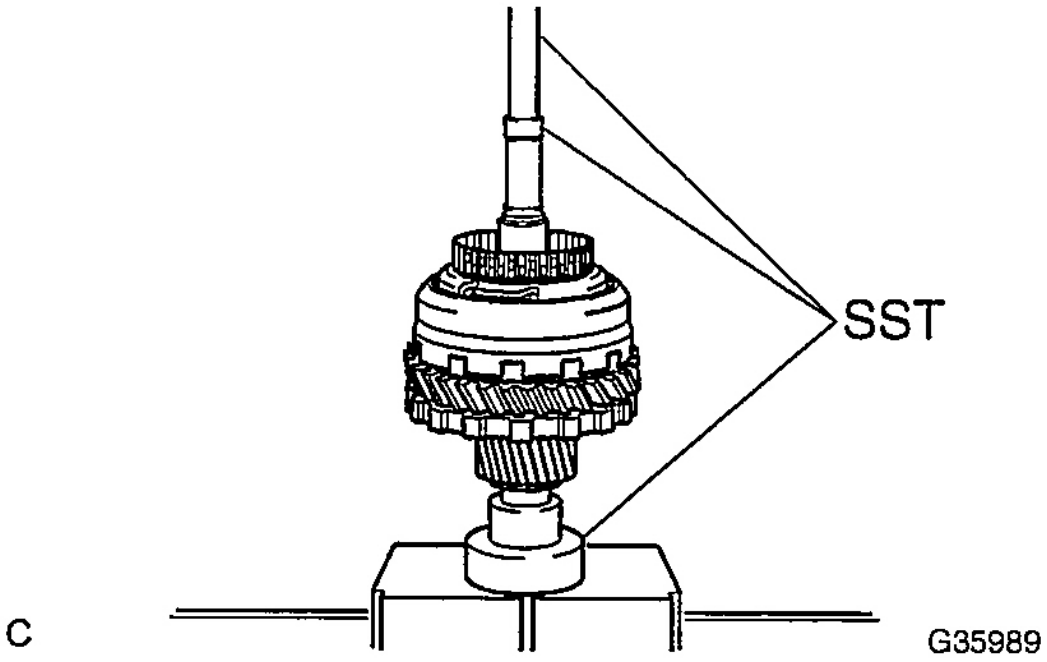


Fig. 365: Installing Cylindrical Roller Bearing Race Inner
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. **INSTALL FRONT PLANETARY GEAR NUT**
    a. Clamp the underdrive planetary gear in a soft jaw vise.

    NOTE: Be careful not to damage the differential drive pinion.

    b. Using a socket wrench, install a new gear nut.

    Torque: 280 N.m (2,855 kgf.cm, 207 ft.lbf)

    HINT:

    Use a torque wrench with a fulcrum length of 750 mm (29.53 in.).

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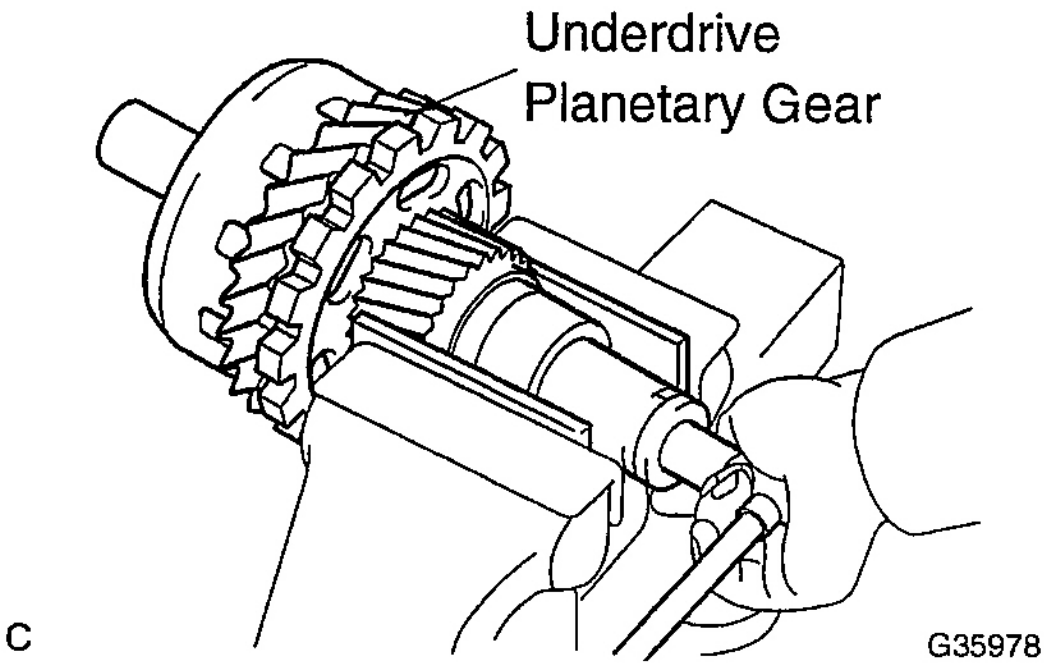


Fig. 366: Clamping Underdrive Planetary Gear In A Soft Jaw Vise
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. **INSPECT UNDERDRIVE PLANETARY GEAR PRELOAD**
    a. Using SST and a torque wrench, measure the turning torque of the underdrive planetary gear assy while rotating the torque wrench at 60 rpm.

       SST 09387-00050, 09495-65040

       Turning torque at 60 rpm.: 0.28 to 0.89 N.m (2.9 to 9.1 kgf.cm, 2.478 to 7.877 in.lbf)

       HINT:

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

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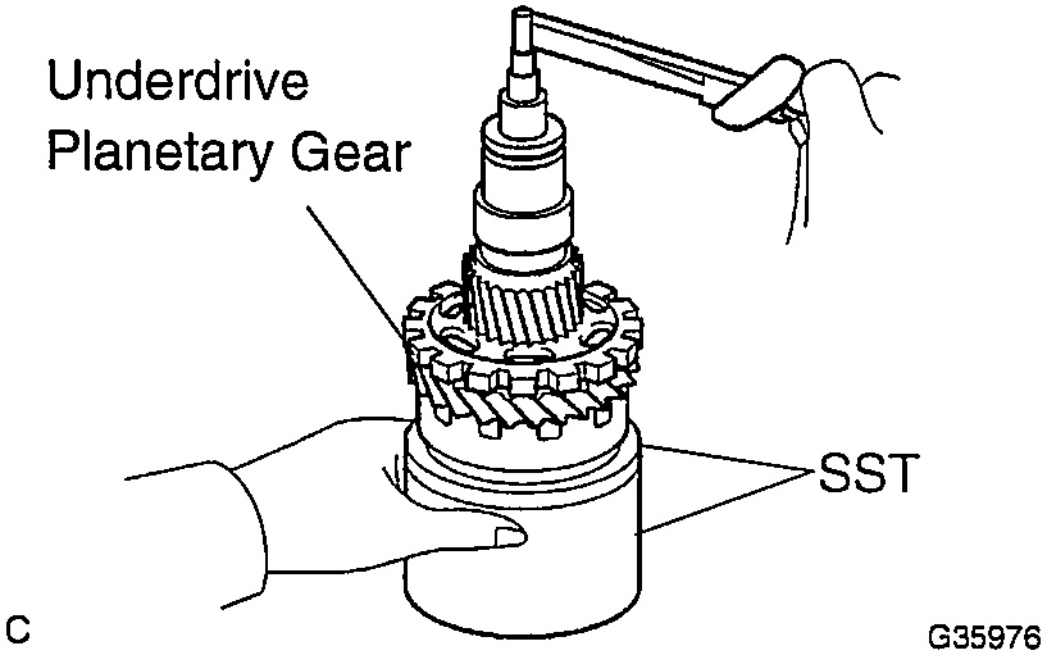


Fig. 367: Inspecting Underdrive Planetary Gear Preload
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a pin punch and hammer, stake the gear nut.

NOTE: Make sure that there are no cracks on the nut.

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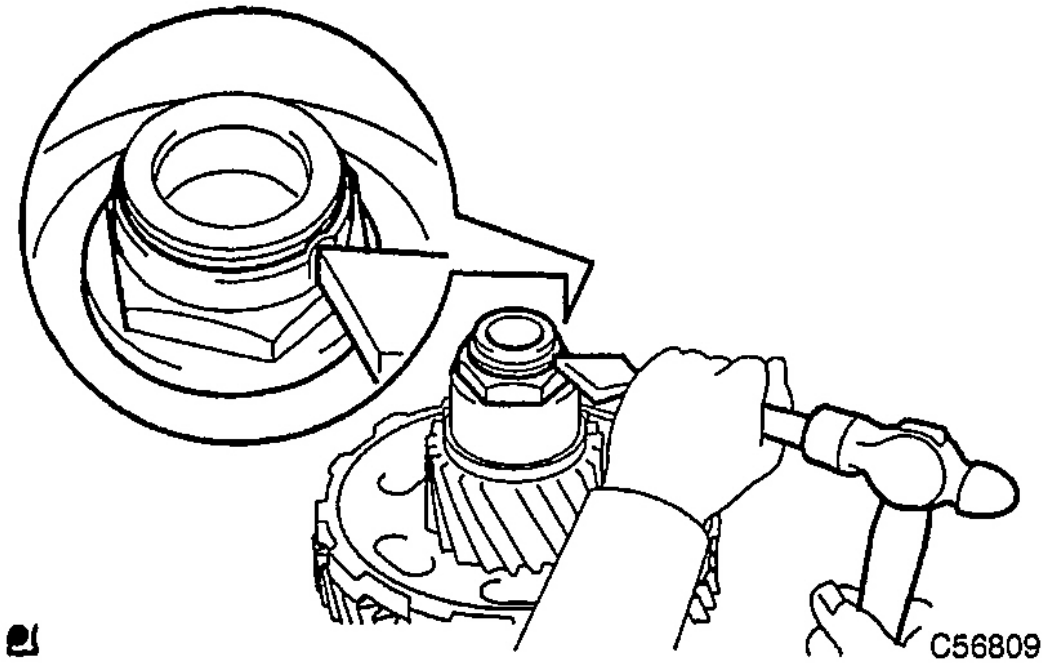


Fig. 368: Staking Gear Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TRANSMISSION VALVE BODY ASSY (U250E)

COMPONENTS

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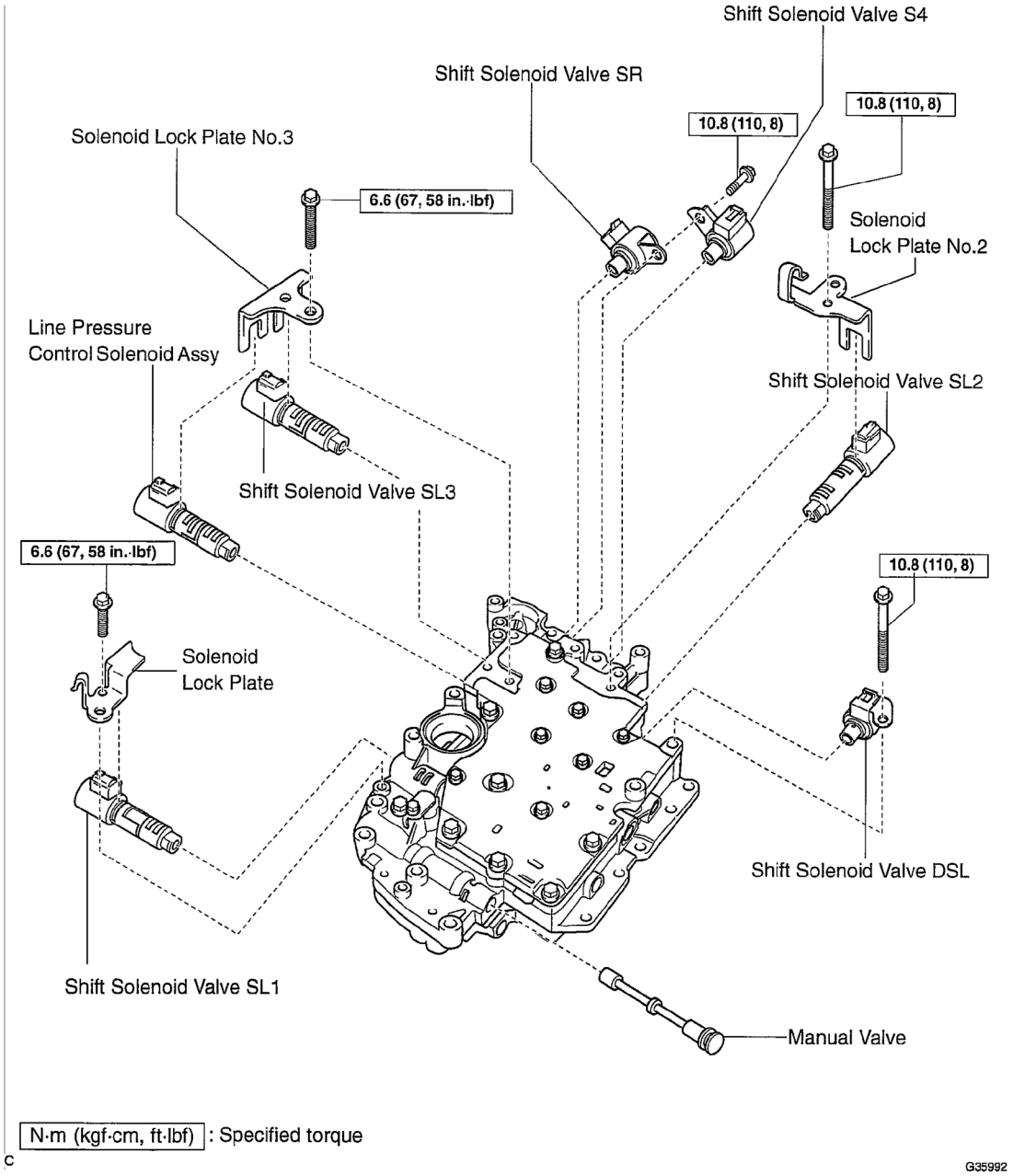


Fig. 369: Identifying Transmission Valve Body Assy (U250E) Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OVERHAUL

1. **REMOVE SHIFT SOLENOID VALVE SL3**
   a. Remove the bolt, solenoid lock plate No. 3 and shift solenoid valve SL3 from the valve body assy.
2. **REMOVE LINE PRESSURE CONTROL SOLENOID ASSY**
   a. Remove the line pressure control solenoid from the valve body assy.

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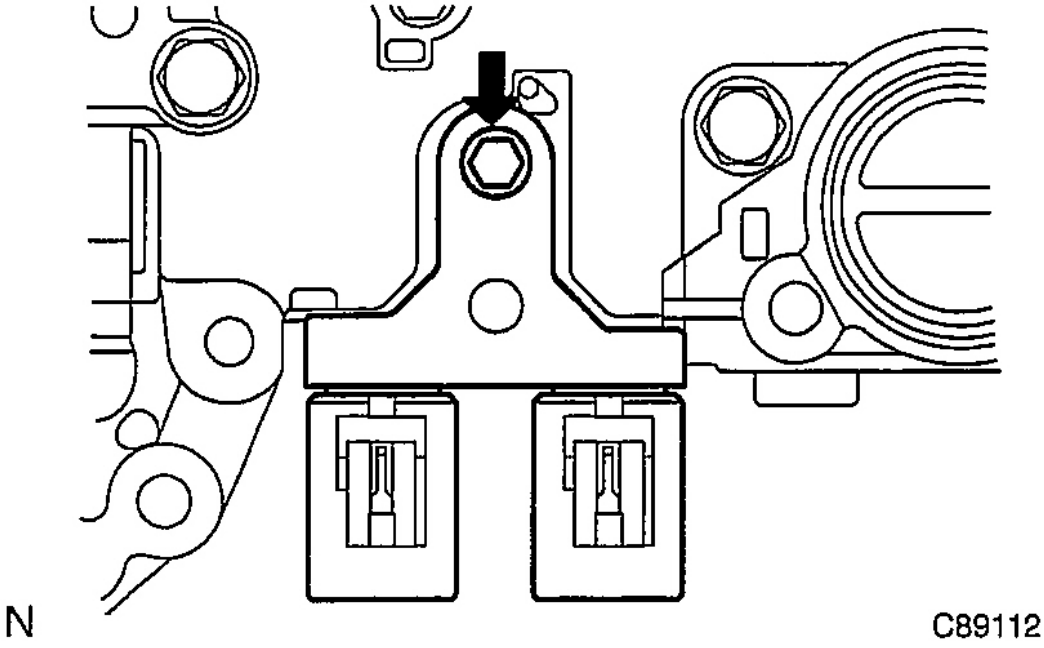


Fig. 370: Removing Line Pressure Control Solenoid From Valve Body Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **REMOVE SHIFT SOLENOID VALVE S4**
   a. Remove the bolt and shift solenoid valve S4 from the valve body assy.

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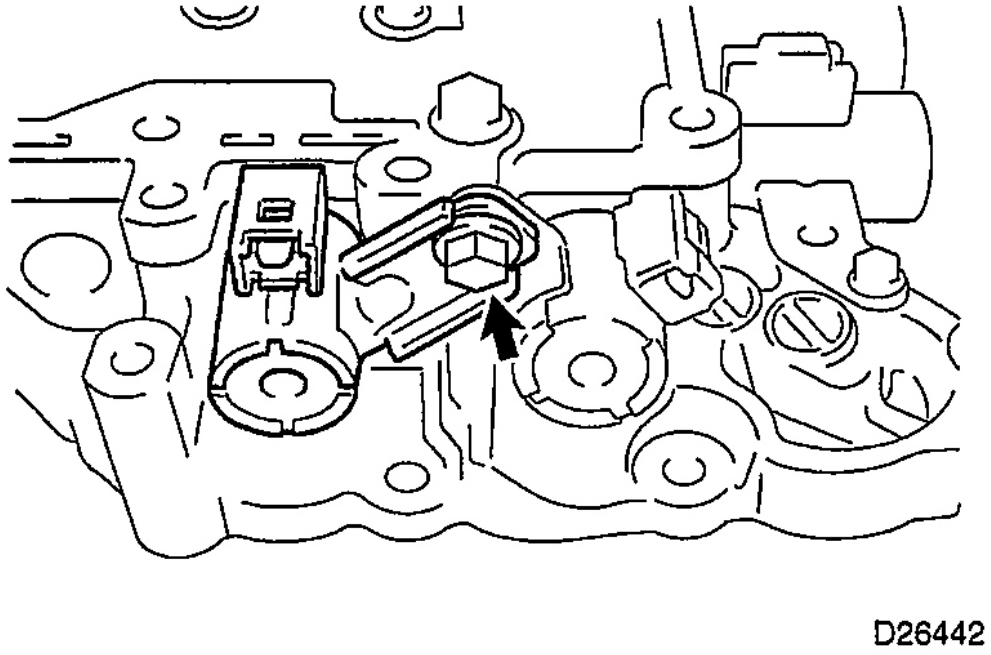


Fig. 371: Removing Shift Solenoid Valve Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **REMOVE SHIFT SOLENOID VALVE SR**
   a. Remove the shift solenoid valve SR from the valve body assy.

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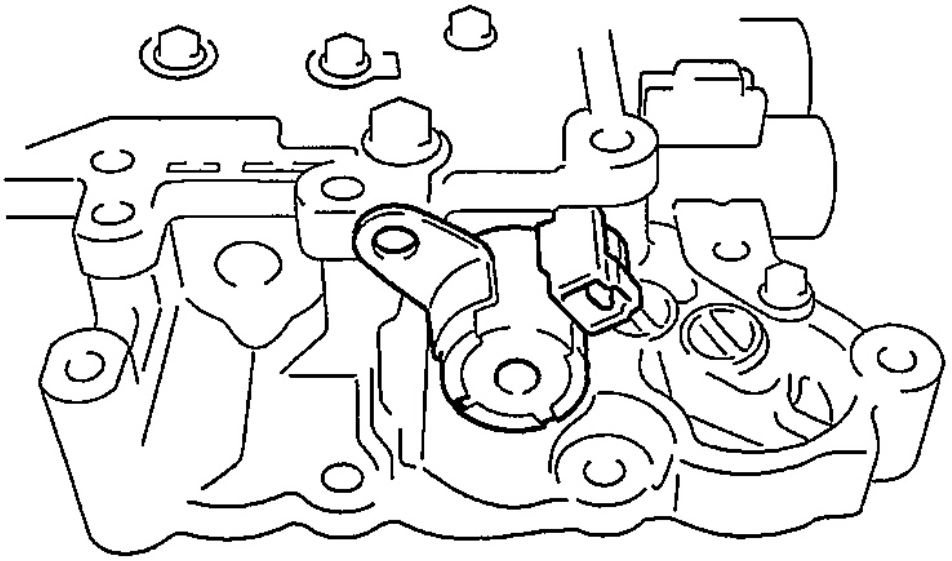


Fig. 372: Removing Shift Solenoid Valve SR From Valve Body Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **REMOVE SHIFT SOLENOID VALVE DSL**
   a. Remove the bolt and shift solenoid valve DSL from the valve body assy.

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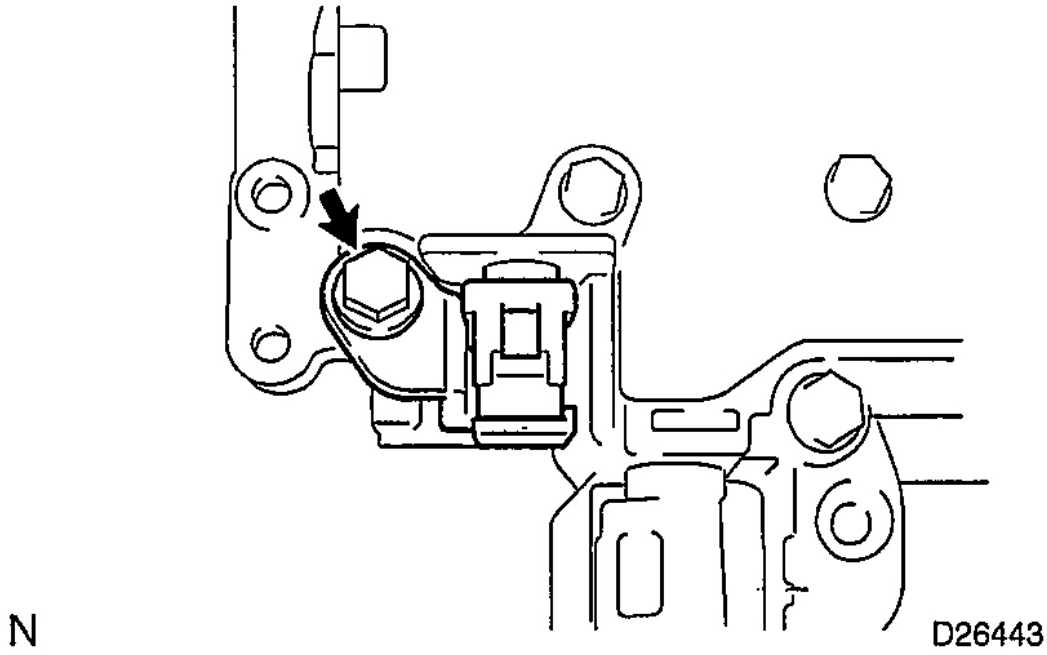


Fig. 373: Removing Shift Solenoid Valve DSL Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **REMOVE SHIFT SOLENOID VALVE SL2**
   a. Remove the bolt, solenoid lock plate No.2 and shift solenoid valve SL2 from the valve body assy.

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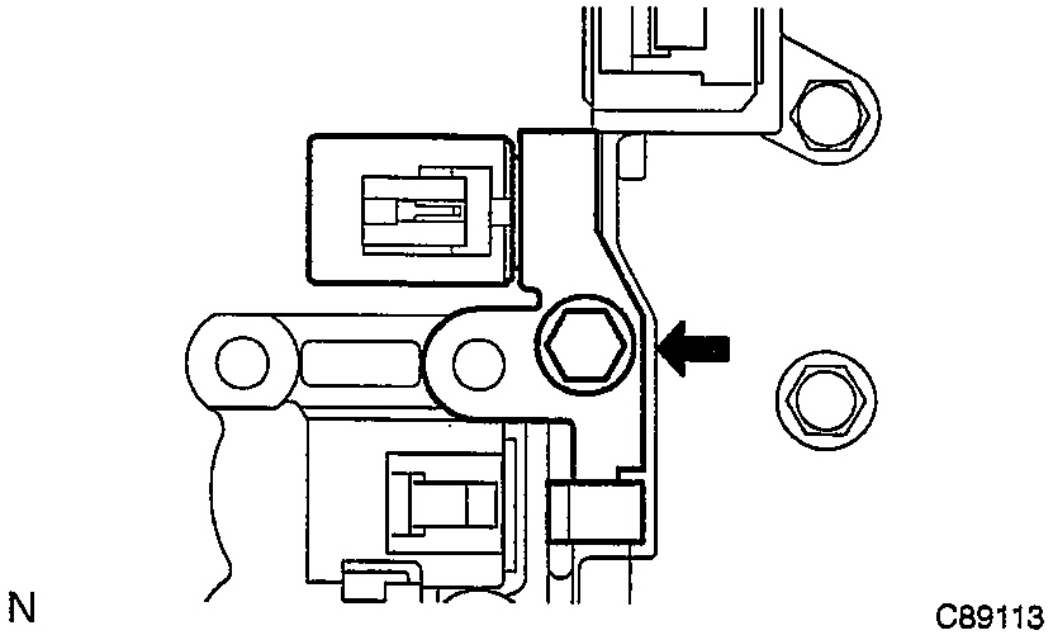


Fig. 374: Remove Shift Solenoid Valve SL2 Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **REMOVE SHIFT SOLENOID VALVE SL1**
   a. Remove the bolt, solenoid lock plate and shift solenoid valve SL1 from the valve body assy.

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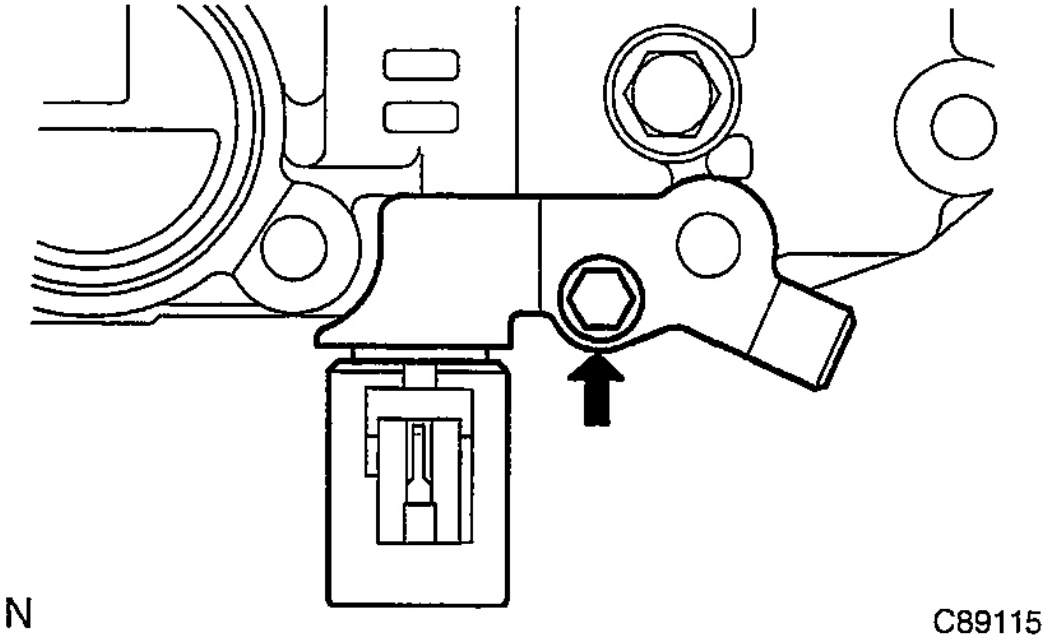


Fig. 375: Identifying Shift Solenoid Valve SL1 Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **REMOVE MANUAL VALVE**
   a. Remove the manual valve from the valve body assy.
9. **INSTALL MANUAL VALVE**
   a. Install the manual valve to the valve body assy.
10. **INSTALL SHIFT SOLENOID VALVE SL1**
    a. Install the shift solenoid valve SL1 and solenoid lock plate to the valve body assy with the bolt.

       Torque: 6.6 N.m (67 kgf.cm, 58 in.lbf)

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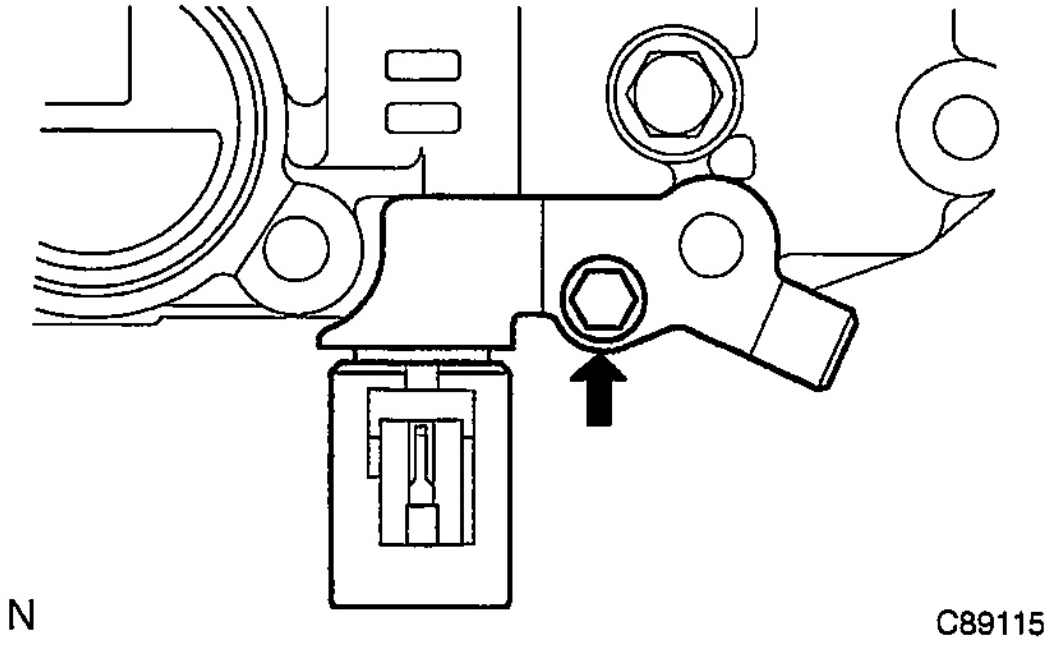


Fig. 376: Installing Shift Solenoid Valve SL1 Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. **INSTALL LINE PRESSURE CONTROL SOLENOID ASSY**
    a. Install the line pressure control solenoid assy to the valve body assy.
12. **INSTALL SHIFT SOLENOID VALVE SL3**
    a. Install the shift solenoid valve SL3 and solenoid lock plate No.3 to the valve body assy with the bolt.

    Torque: 6.6 N.m (67 kgf.cm, 58 in.lbf)

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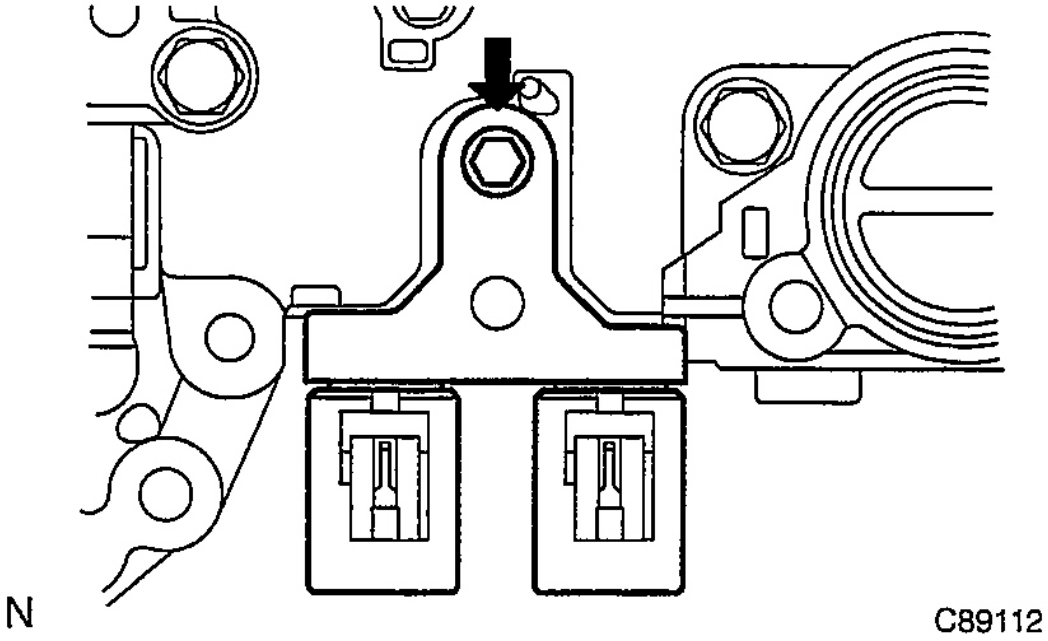


Fig. 377: Installing Shift Solenoid Valve SL3
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. **INSTALL SHIFT SOLENOID VALVE SL2**
    a. Install the shift solenoid valve SL2 and solenoid lock plate No.2 to the valve body assy with the bolt.

    Torque: 10.8 N.m (110 kgf.cm, 8 ft.lbf)

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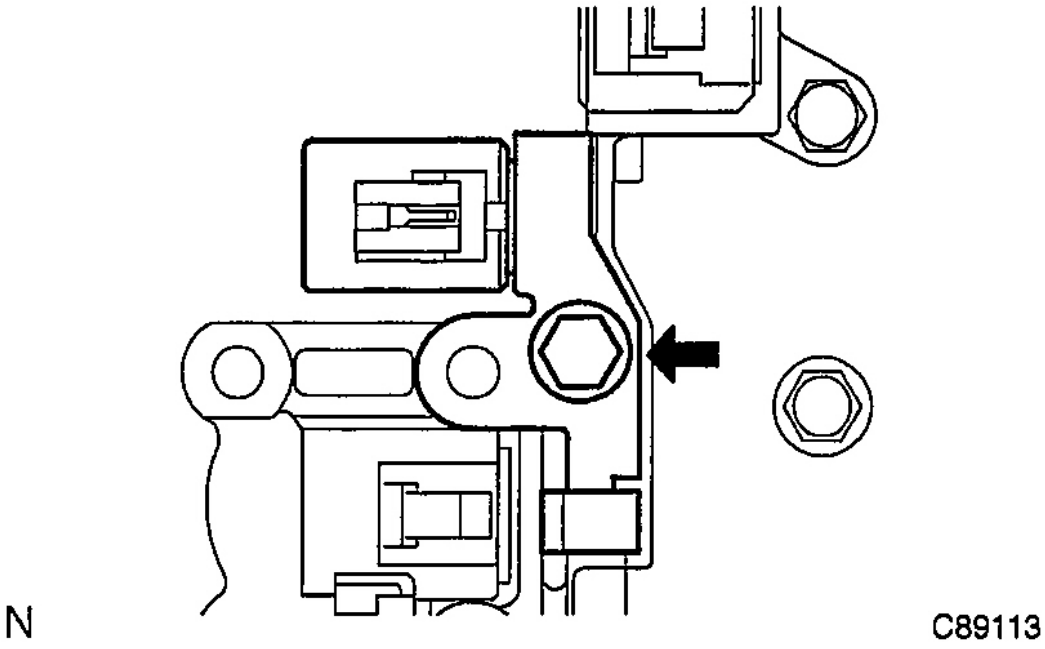


Fig. 378: Installing Shift Solenoid Valve Sl2
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. **INSTALL SHIFT SOLENOID VALVE DSL**
    a. Install the shift solenoid valve DSL to the valve body assy with the bolt.

    Torque: 10.8 N.m (110 kgf.cm, 8 ft.lbf)

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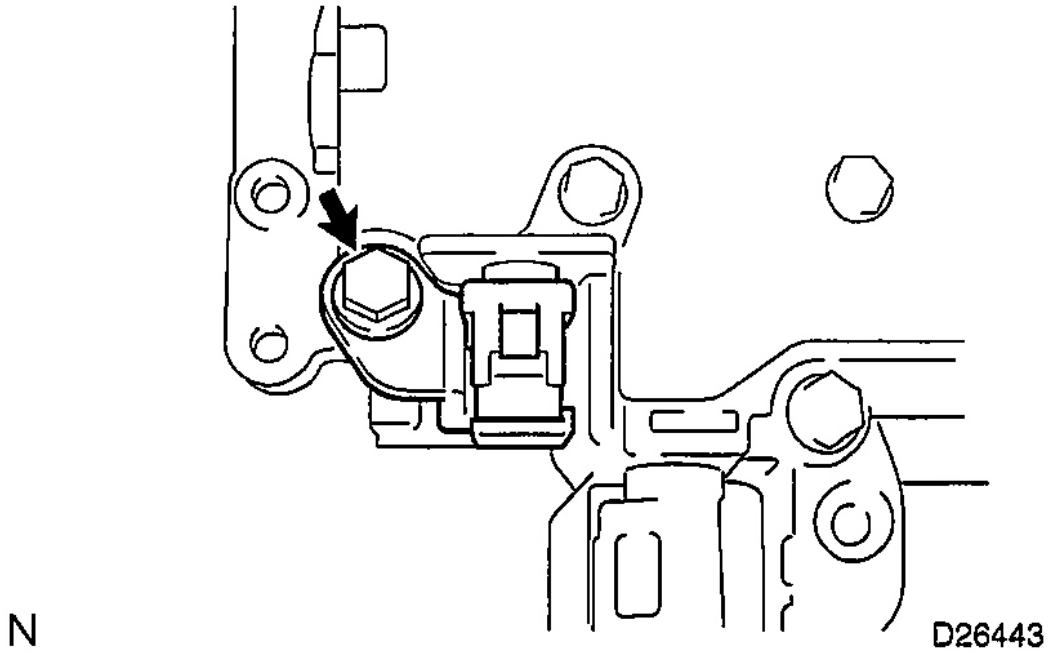


Fig. 379: Installing Shift Solenoid Valve DSL
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. **INSTALL SHIFT SOLENOID VALVE SR**
    a. Install the shift solenoid valve SR to the valve body assy.

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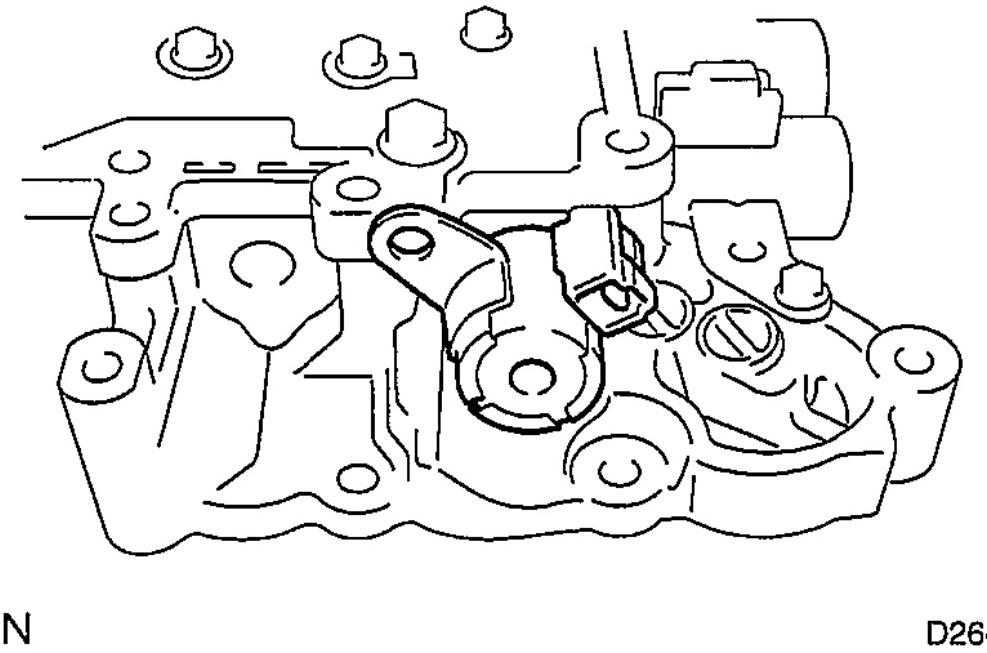


Fig. 380: Installing Shift Solenoid Valve SR To Valve Body Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16. **INSTALL SHIFT SOLENOID VALVE S4**
    a. Install the shift solenoid valve S4 to the valve body assy with the bolt.

    Torque: 10.8 N.m (110 kgf.cm, 8 ft.lbf)

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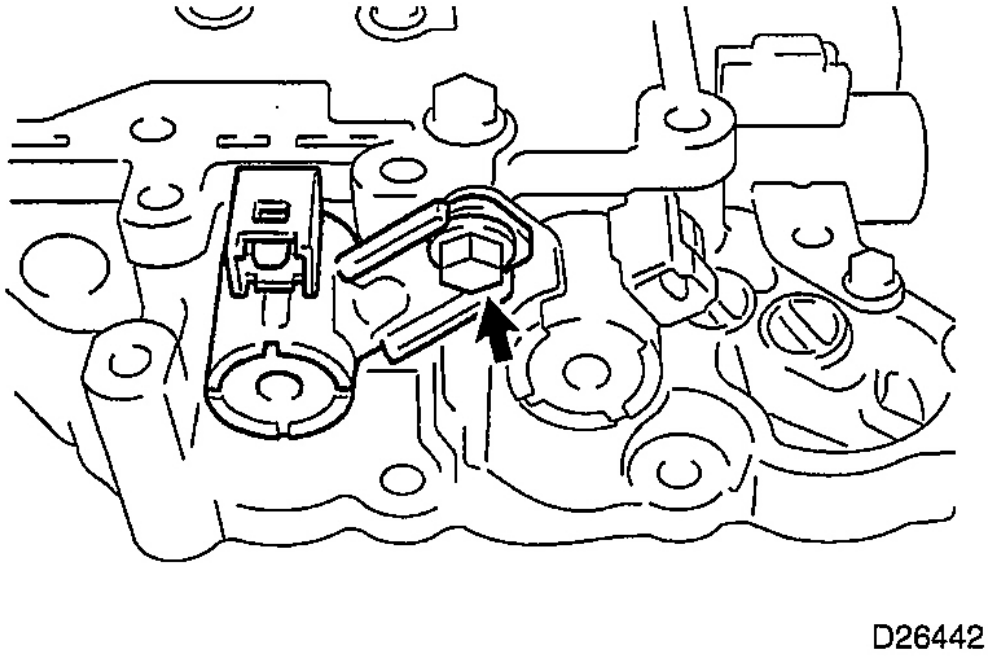


Fig. 381: Installing Shift Solenoid Valve S4
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

FRONT DIFFERENTIAL ASSY (U250E)

COMPONENTS

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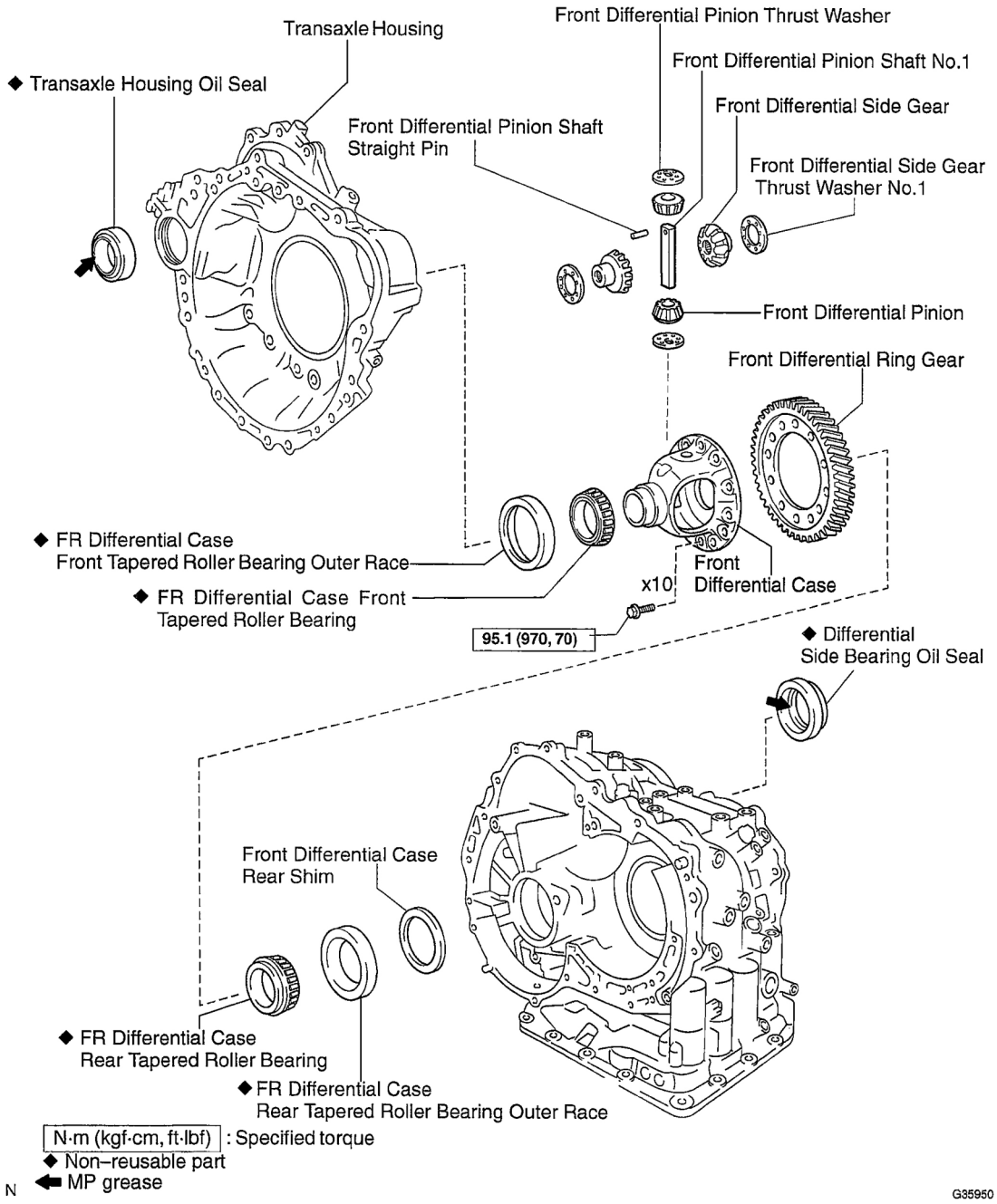


Fig. 382: Identifying Front Differential Assy (U250E) Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OVERHAUL

1. **REMOVE FRONT DIFFERENTIAL RING GEAR**
   a. Put the matchmarks on the front differential ring gear and differential case.

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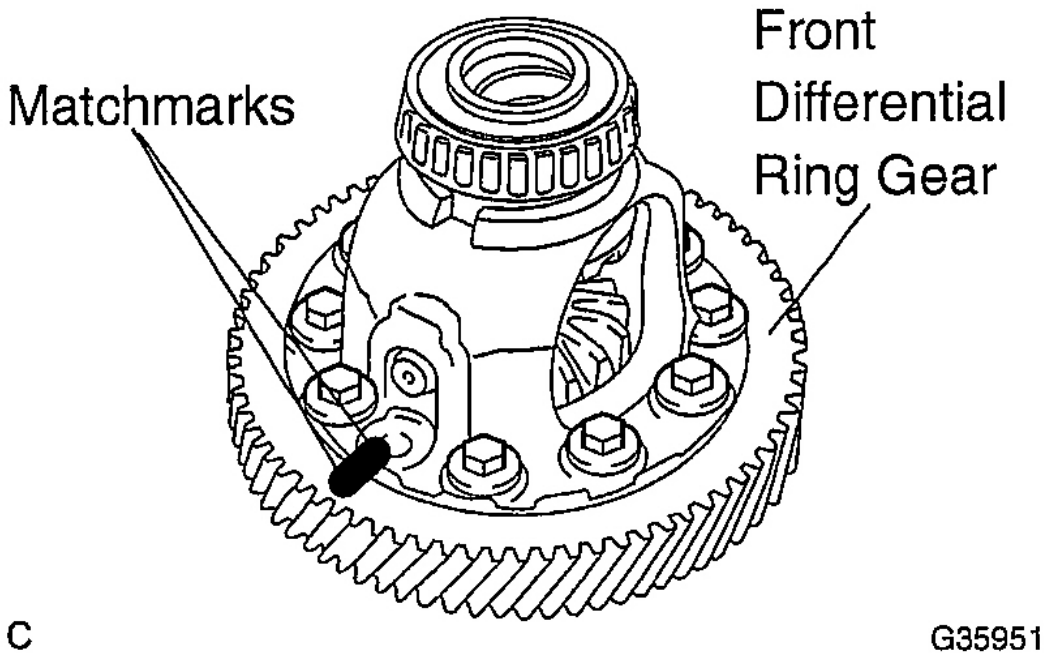


Fig. 383: Placing Matchmarks On Front Differential Ring Gear And Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the 10 bolts.

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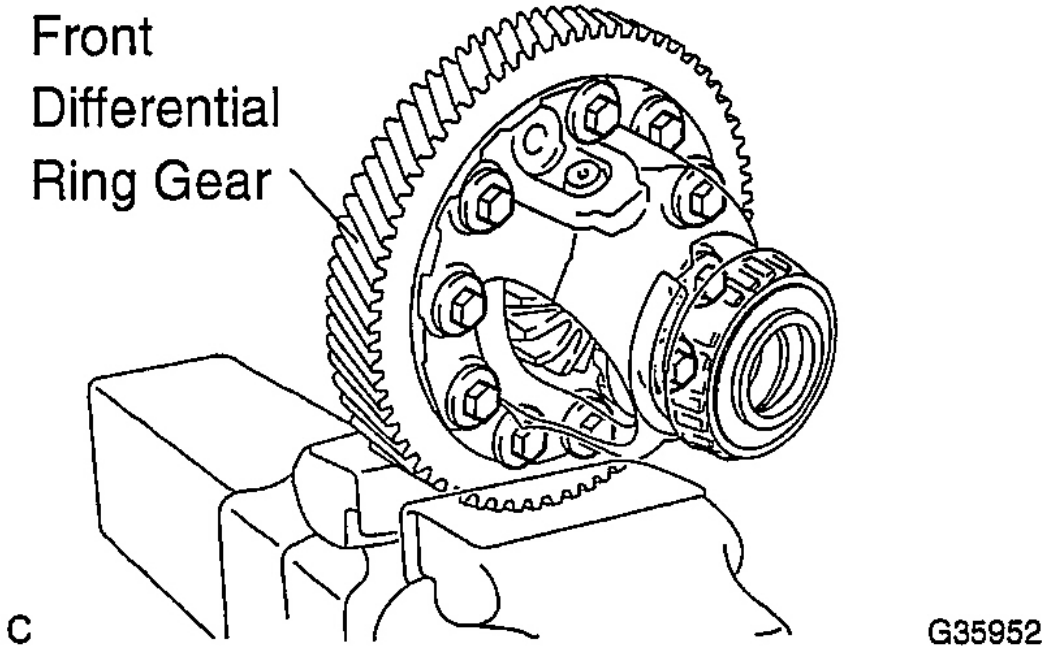


Fig. 384: Removing Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a plastic hammer, tap on the front differential ring gear to remove it from the case.

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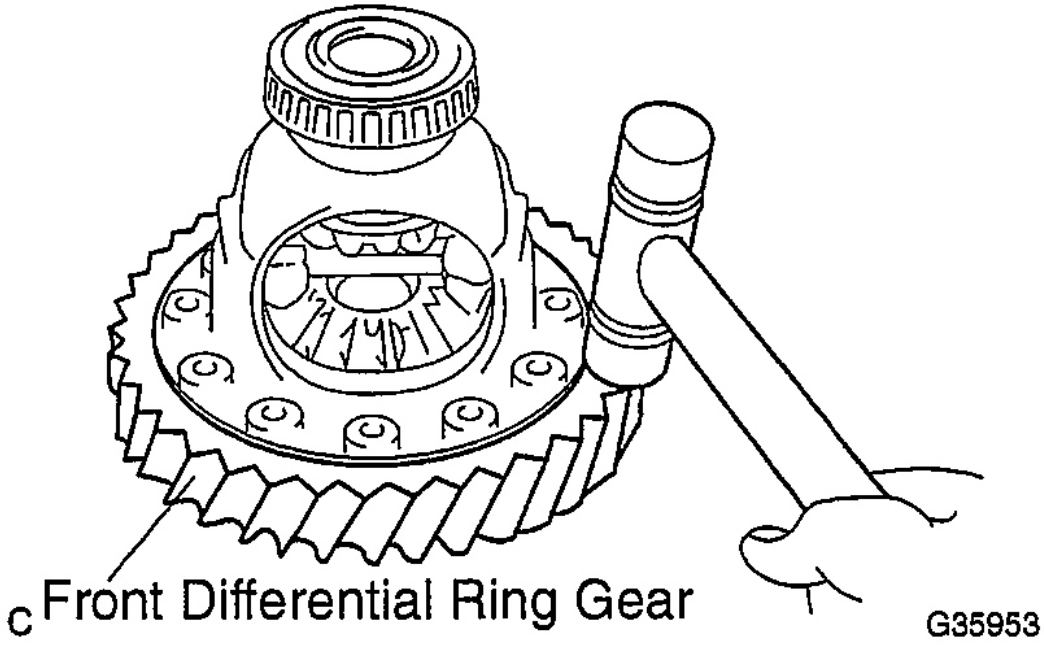


Fig. 385: Removing Differential Ring Gear From Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **REMOVE FR DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING**
   a. Using SST, remove the front differential case and front differential tapered roller bearing from the differential case.

      SST 09950-00020, 09950-00030, 09950-60010 (09951-00480), 09950-40011 (09957-04010)

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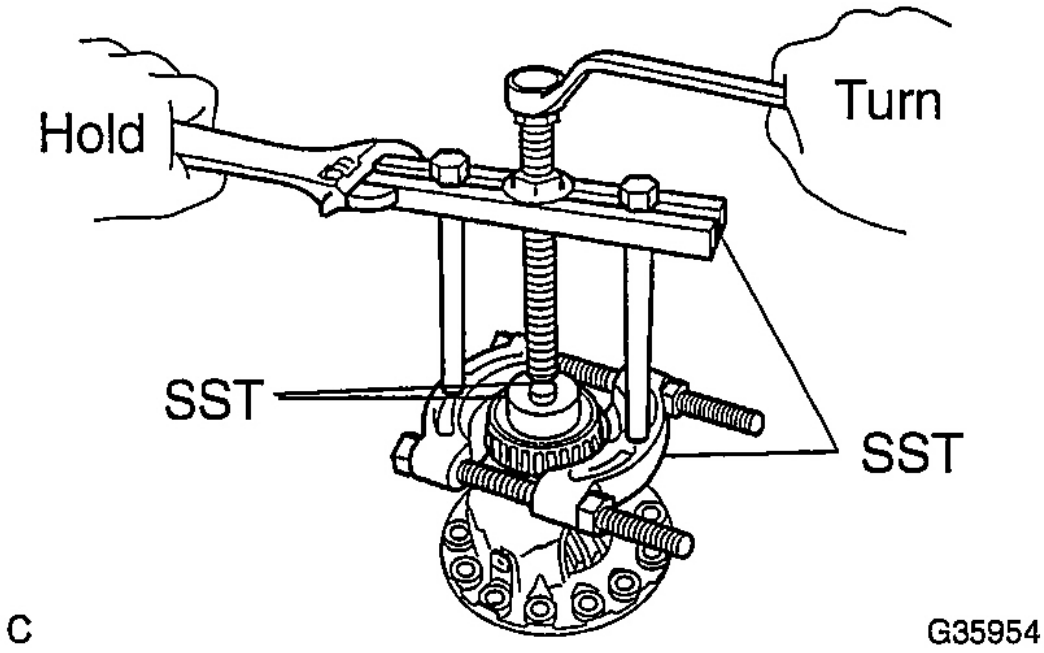


Fig. 386: Removing FR Differential Case Front Tapered Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST, remove the front differential case front tapered roller bearing outer race.

SST 09308-00010

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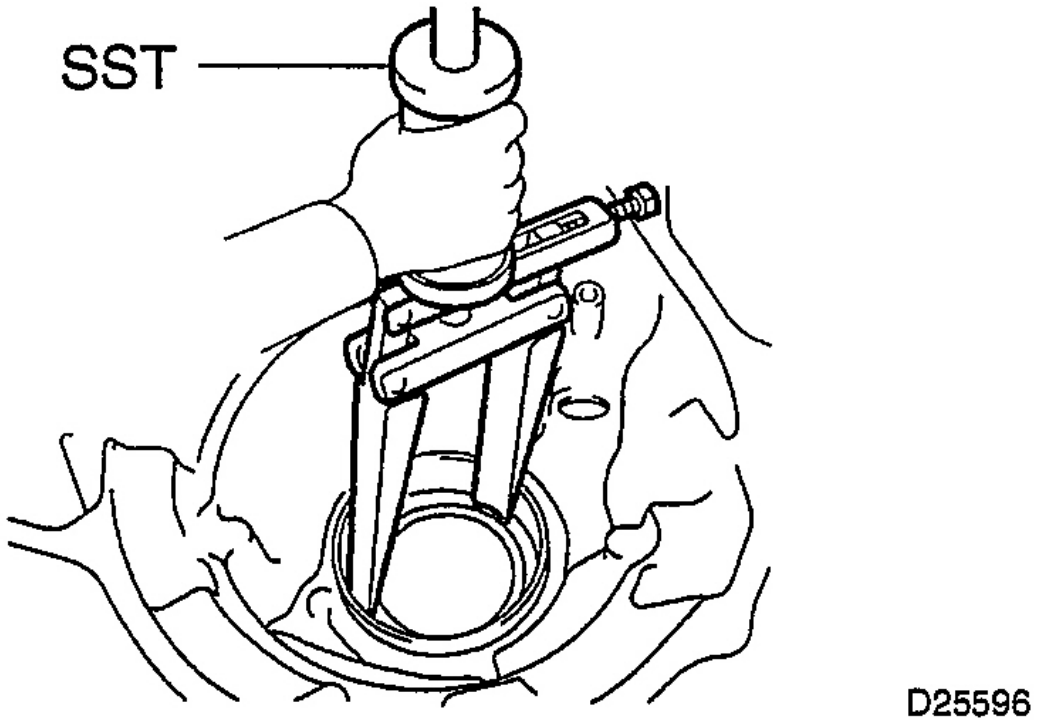


Fig. 387: Removing Front Differential Case Front Tapered Roller Bearing Outer Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **REMOVE FR DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING**
   a. Using SST, remove the front differential case rear tapered roller bearing from the differential case.

      SST 09950-00020, 09950-00030, 09950-40011 (09955-04061, 09957-04010, 09958-04011), 09950-50013 (09951-05010, 09952-05010, 09953-05020, 09954-05021, 09955-05010), 09950-60010 (09951-00480), 09950-70010 (09951-07100)

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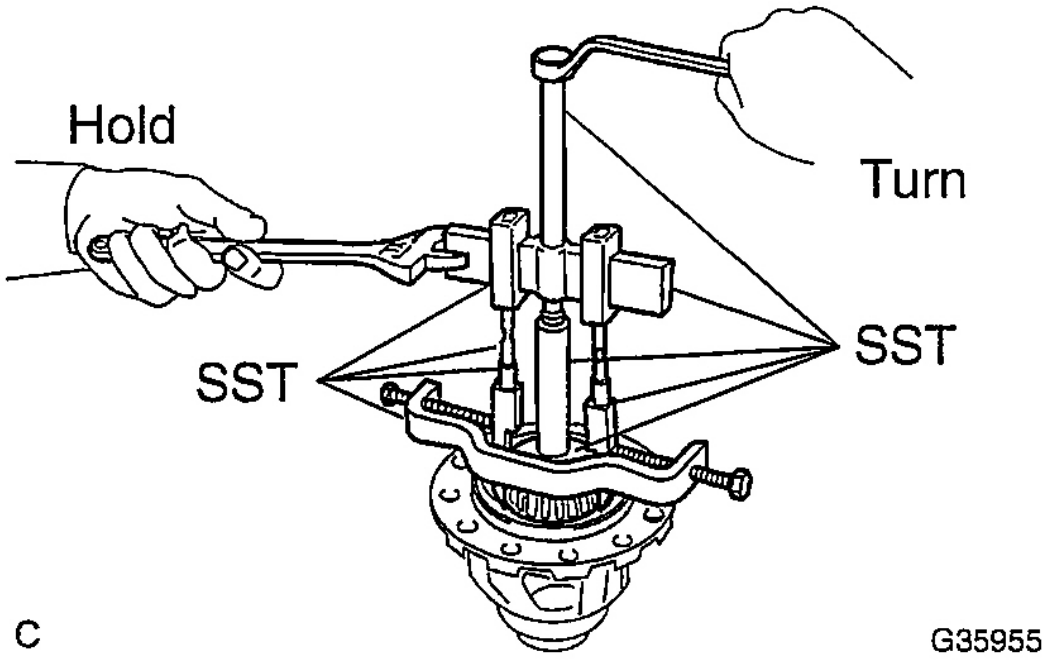


Fig. 388: Removing FR Differential Case Rear Tapered Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST, remove the front differential case rear tapered roller bearing outer race.

   SST 09308-00010

c. Remove the front differential case rear shim.

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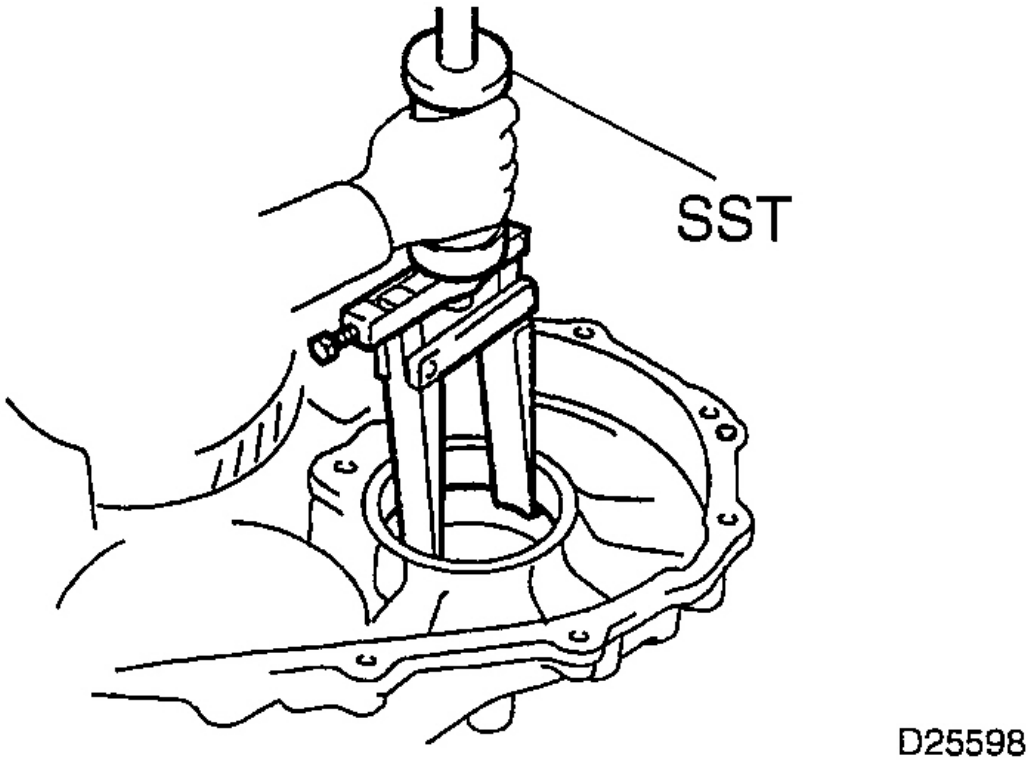


Fig. 389: Removing Front Differential Case Rear Tapered Roller Bearing Outer Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **REMOVE FRONT DIFFERENTIAL PINION SHAFT STRAIGHT PIN**
   a. Using a pin punch and hammer, remove the straight pin.

NOTE: Before removing the straight pin, unstake it with a pin punch.

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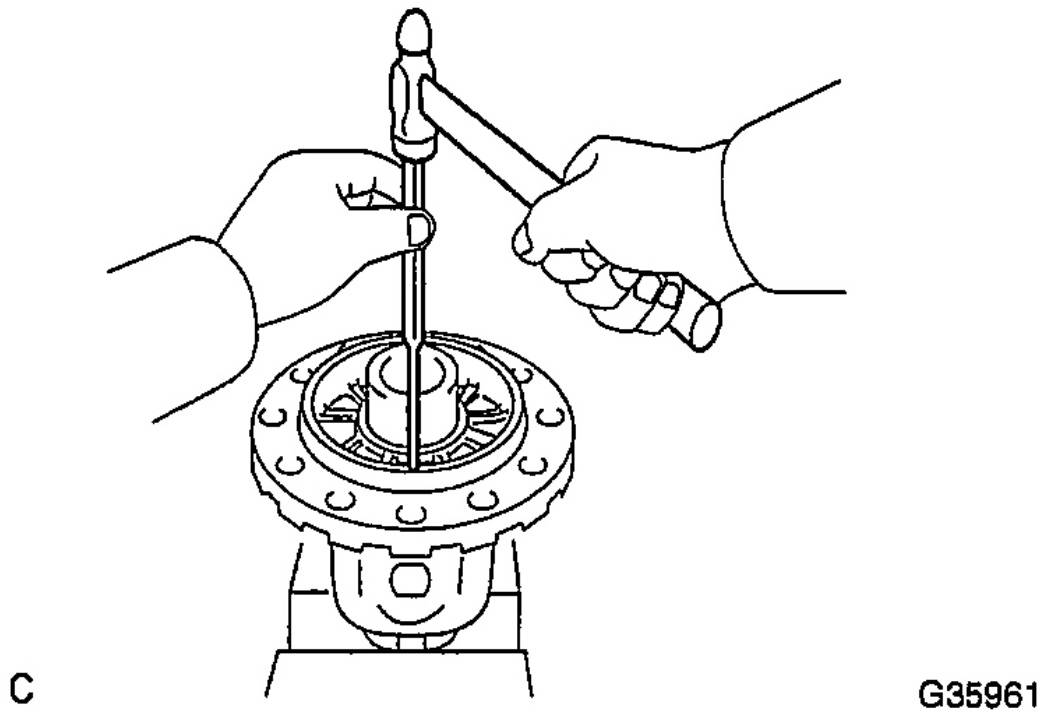


Fig. 390: Removing Straight Pin
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **REMOVE FRONT DIFFERENTIAL PINION SHAFT NO. 1**
   a. Remove the front differential pinion shaft No. 1 from the differential case.

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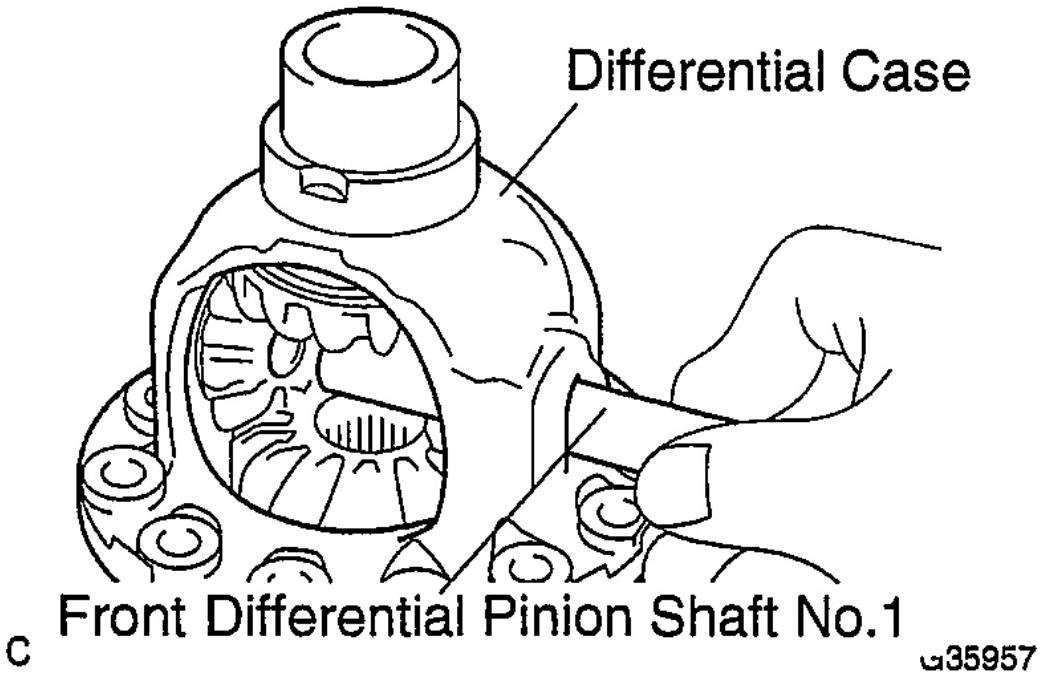


Fig. 391: Removing Front Differential Pinion Shaft No. 1 From Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **REMOVE FRONT DIFFERENTIAL SIDE GEAR**
   a. Remove the 2 front differential pinions, 2 pinion thrust washers, 2 front differential side gears and 2 side gear thrust washers from the differential case.

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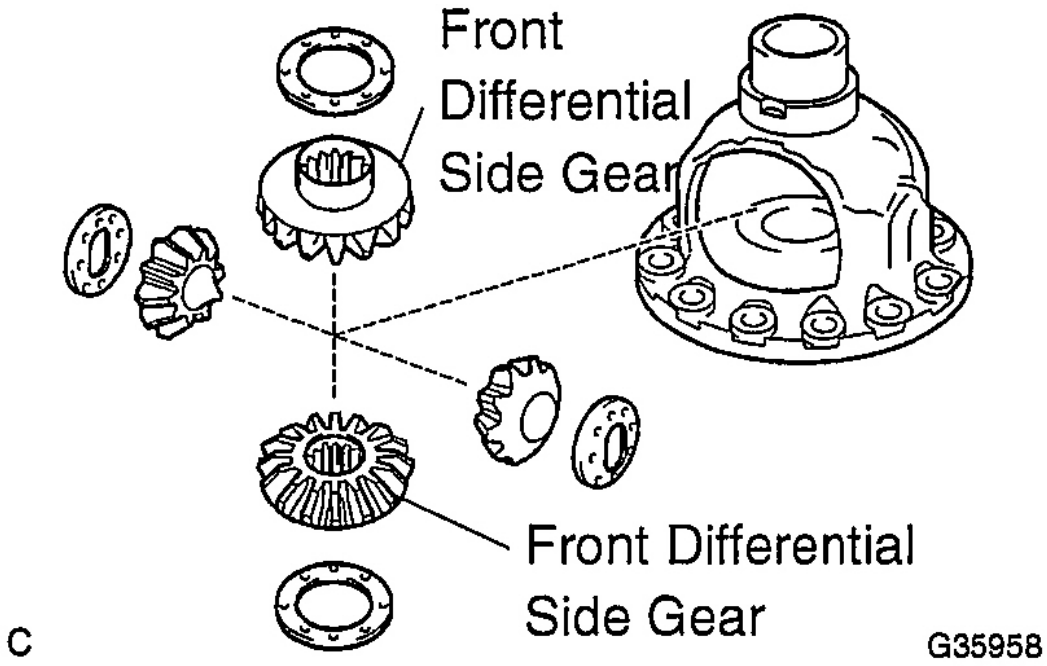


Fig. 392: Removing Front Differential Side Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **REMOVE TRANSAXLE HOUSING OIL SEAL**
   a. Using SST, remove the oil seal.

      SST 09950-70010 (09951-07200), 09950-60010 (09951-00630)

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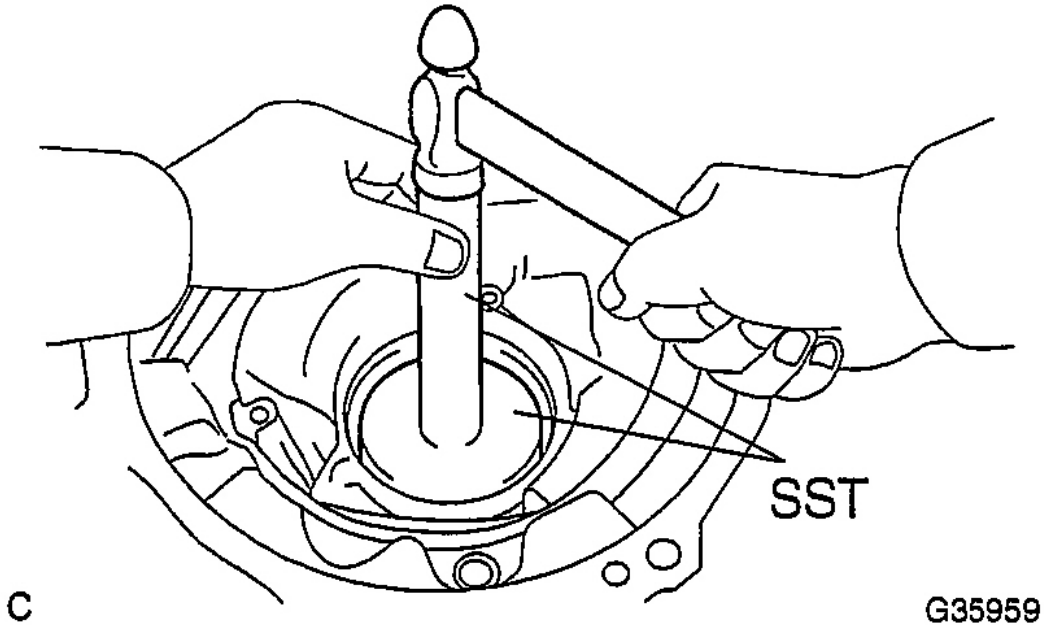


Fig. 393: Removing Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **REMOVE DIFFERENTIAL SIDE BEARING RETAINER OIL SEAL**
   a. Using SST, remove the oil seal.

      SST 09950-70010 (09951-07100), 09608-10010

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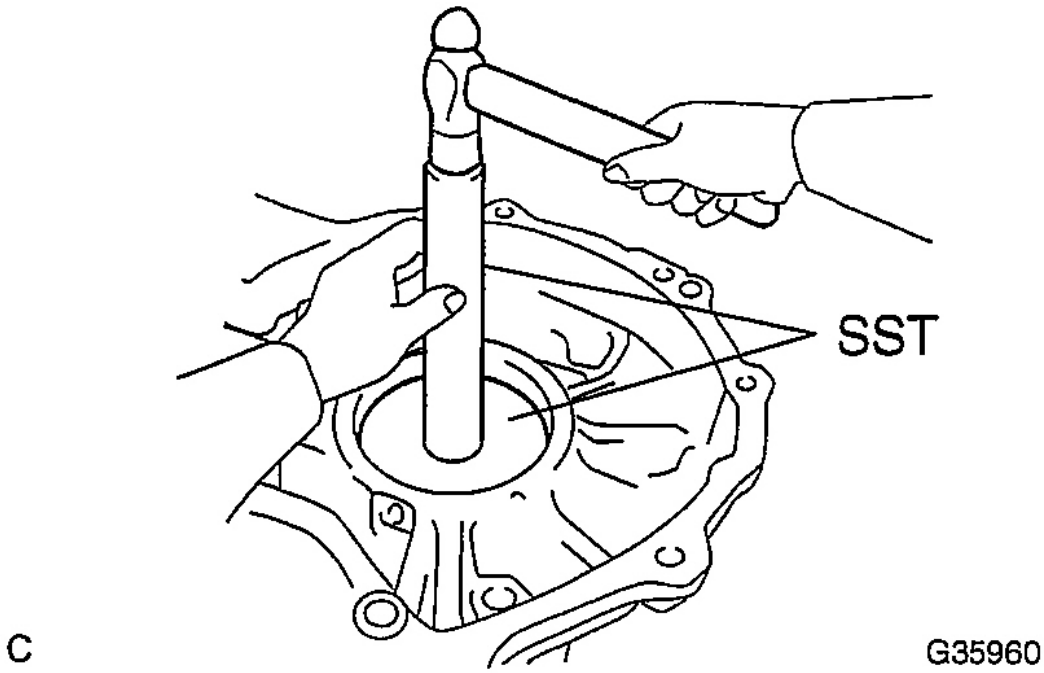


Fig. 394: Removing Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **INSTALL FRONT DIFFERENTIAL SIDE GEAR**
   a. Coat the 2 front differential side gears, 2 side gear thrust washers, 2 front differential pinions and 2 pinion thrust washers with ATF and install them to the differential case.

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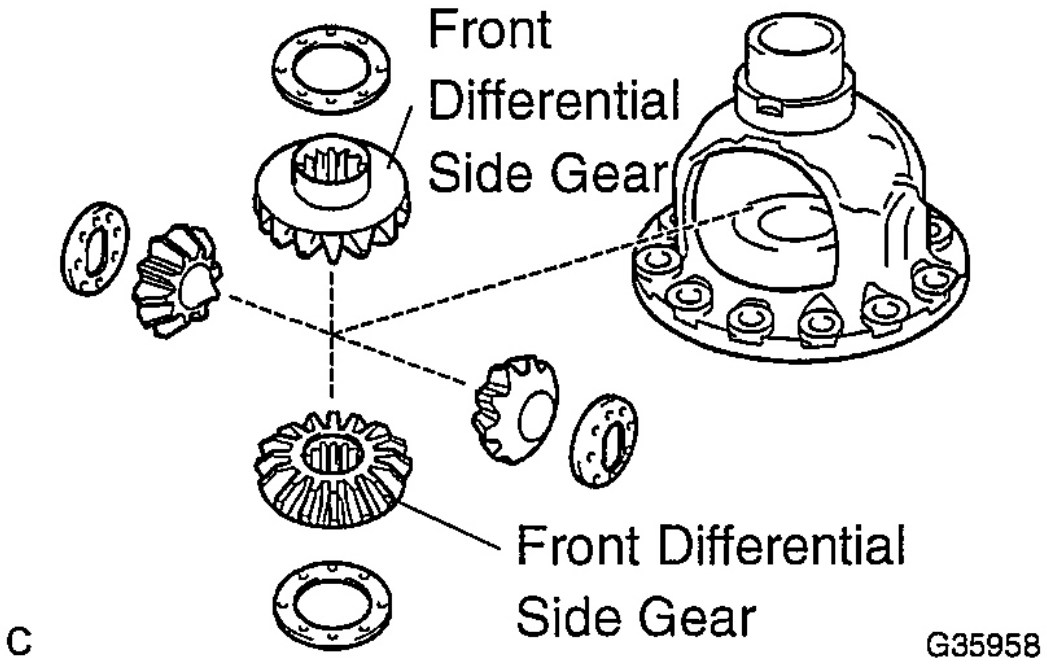


Fig. 395: Installing Front Differential Side Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. **INSTALL FRONT DIFFERENTIAL PINION SHAFT NO. 1**
    a. Coat the front differential pinion shaft No. 1 with ATF, and install it to the differential case.

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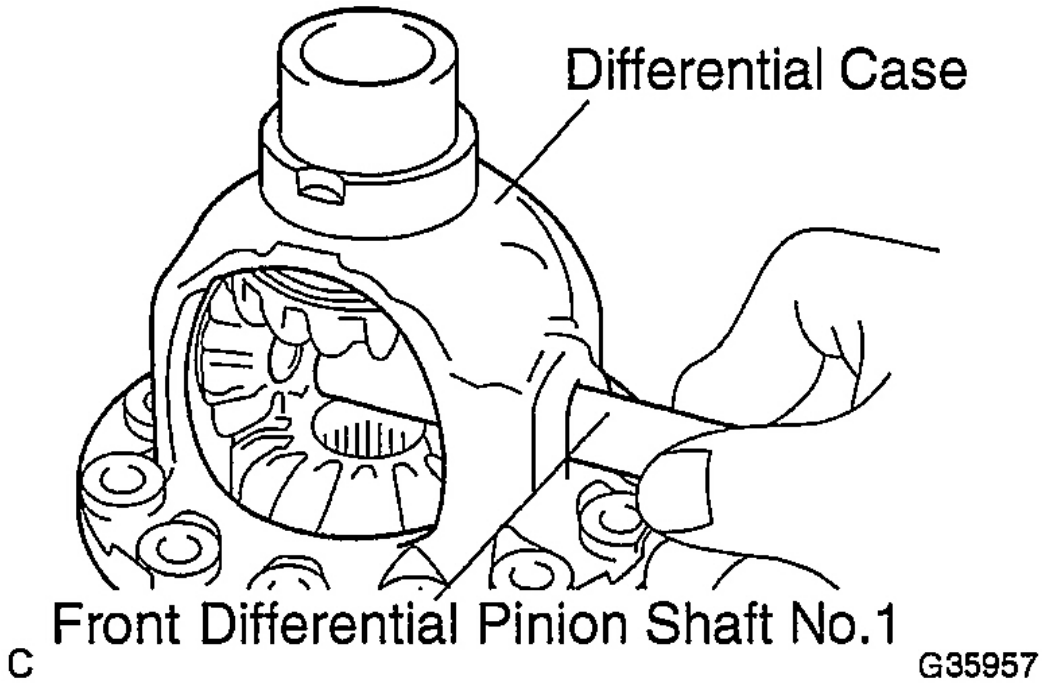


Fig. 396: Installing Front Differential Pinion Shaft No. 1 To Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. **INSPECT BACKLASH**
    a. Using a dial indicator, inspect the backlash of the side gear.

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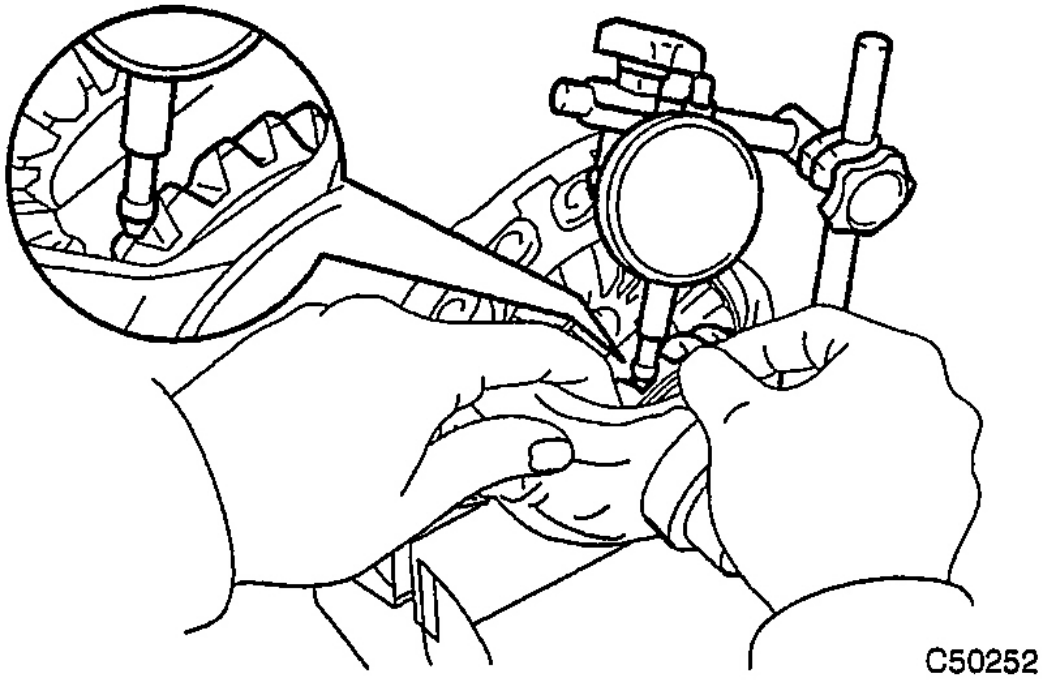


Fig. 397: Inspecting Backlash Of Side Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard backlash: 0.05 to 0.20 mm (0.0020 to 0.0079 in.)

Thrust washer thickness

THRUST WASHER THICKNESS - REFERENCE TABLE

Mark	Thickness
1	1.000 mm (0.0394 in.)
2	1.100 mm (0.0433 in.)
3	1.200 mm (0.0472 in.)
4	1.300 mm (0.0512 in.)

12. **INSTALL FRONT DIFFERENTIAL PINION SHAFT STRAIGHT PIN**
    a. Using a pin punch and hammer, install the pinion shaft straight pin.

NOTE: Align the holes, and install the pinion shaft straight pin.

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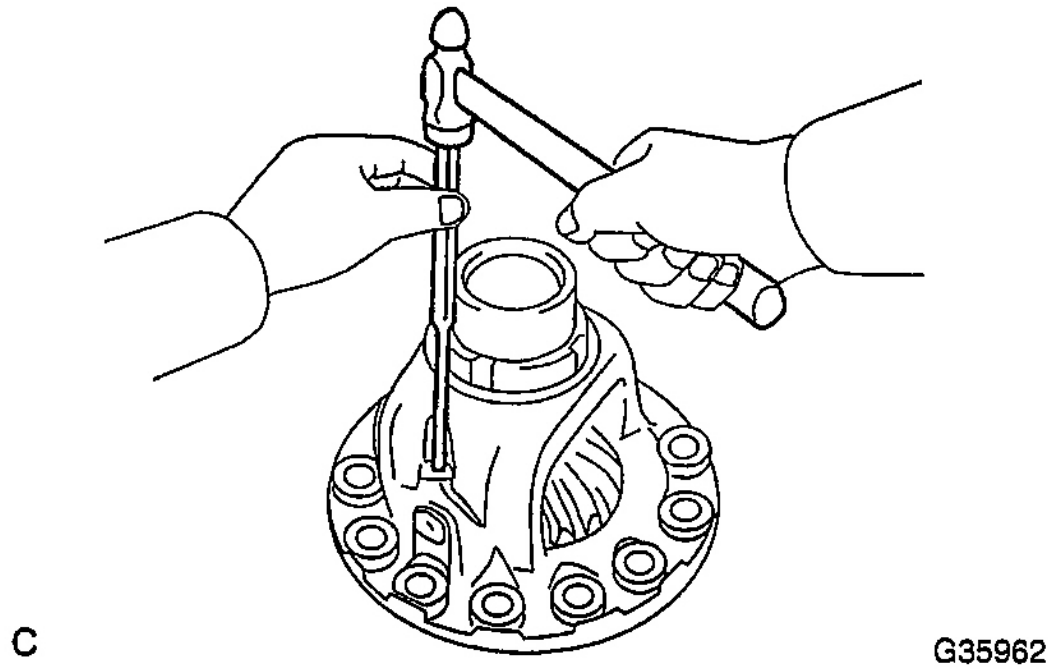


Fig. 398: Installing Pinion Shaft Straight Pin
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a chisel and hammer, stake the differential case.

NOTE: Stake it after adjusting the backlash.

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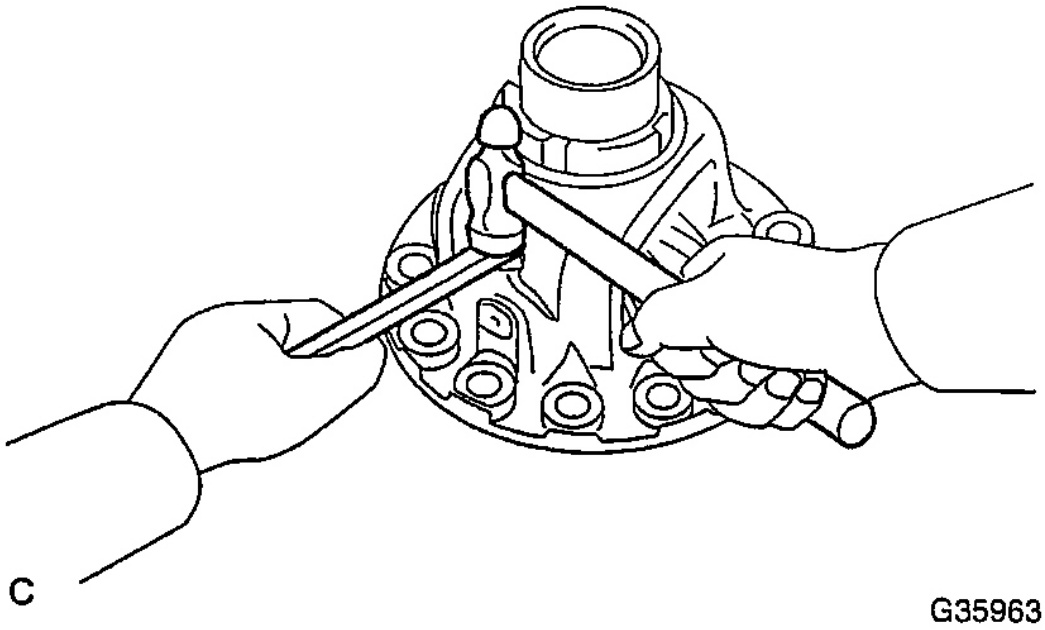


Fig. 399: Installing Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. **INSTALL FR DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING**
    a. Using SST and a press, install the front differential case rear tapered roller bearing to the differential case.

       SST 09550-60010 (09951-00480), 09950-70010 (09951-07100), 09710-04081

       NOTE: Do not damage the bearing cage during bearing inner race installation.

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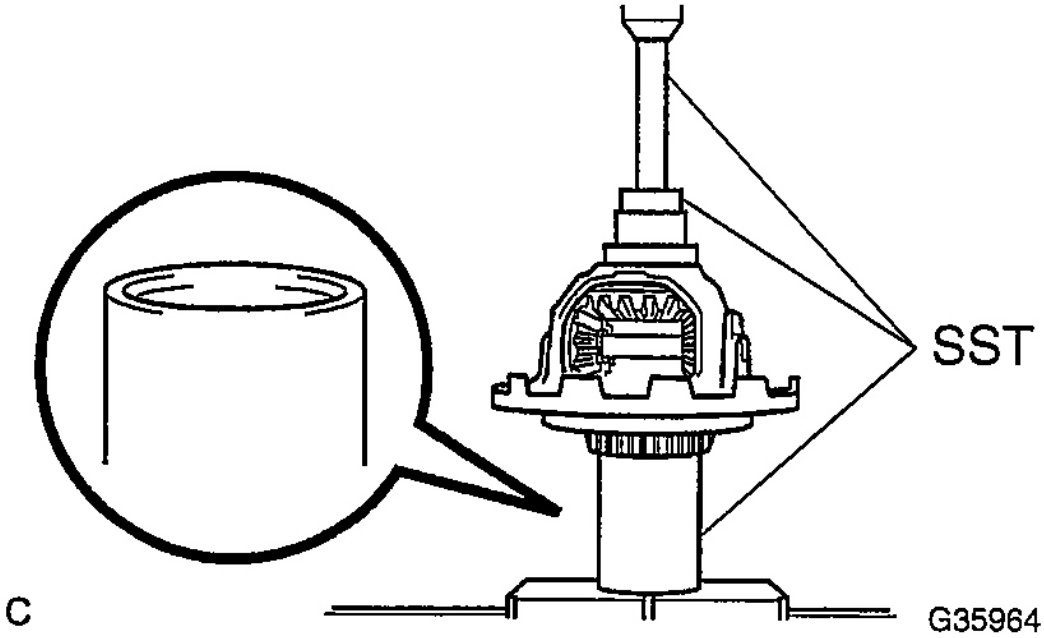


Fig. 400: Installing FR Differential Case Front Tapered Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST and a hammer, install the front differential case front tapered roller bearing outer race to the transaxle housing.

SST 09950-70010 (09951-07200), 09950-60020 (09951-00750)

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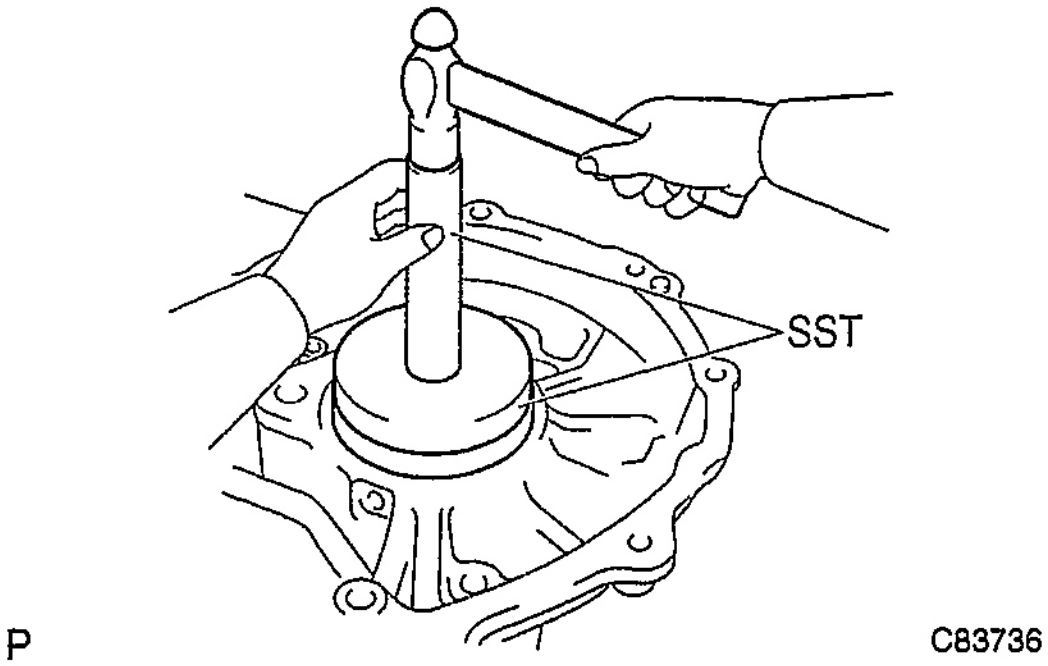


Fig. 401: Installing Front Differential Case Front Tapered Roller Bearing Outer Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. **INSTALL FR DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING**
    a. Using SST and a press, install the front differential case rear tapered roller bearing to the differential case.

    SST 09710-04081, 09550-60010 (09951-00480), 09950-70010 (09951-07100)

    NOTE: Do not damage the bearing cage during bearing inner race installation.

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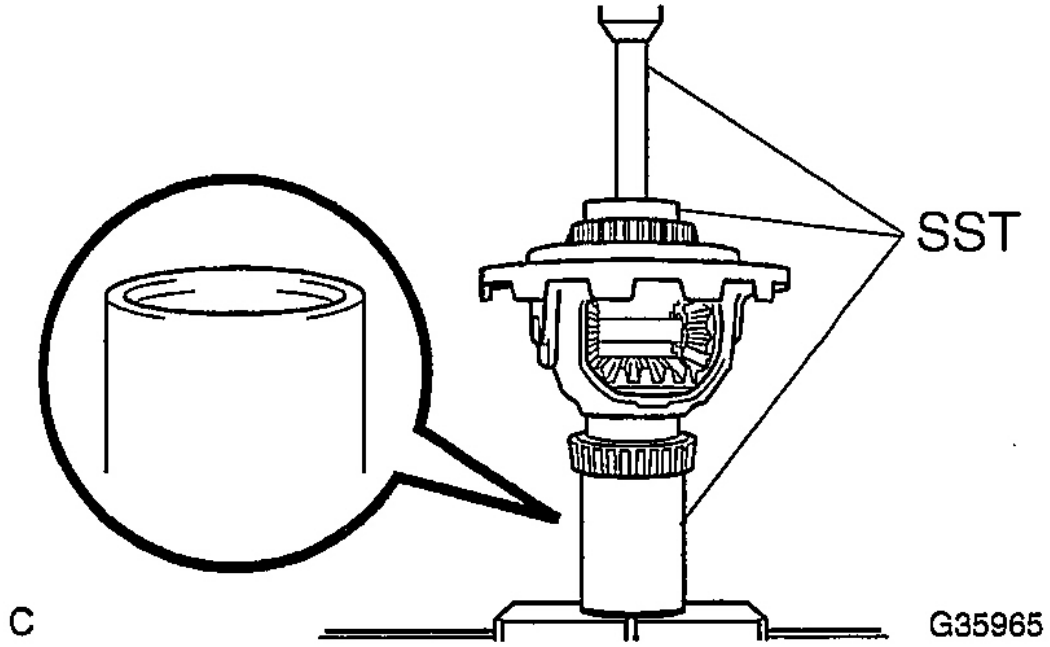


Fig. 402: Installing Front Differential Case Rear Tapered Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the front differential case rear shim.
c. Using SST and a hammer, install the front differential case rear tapered roller bearing outer race to the transaxle housing.

SST 09950-70010 (09951-07150), 09950-60020 (09951-00790)

NOTE: Ensure that there is no clearance between the bearing and transaxle housing.

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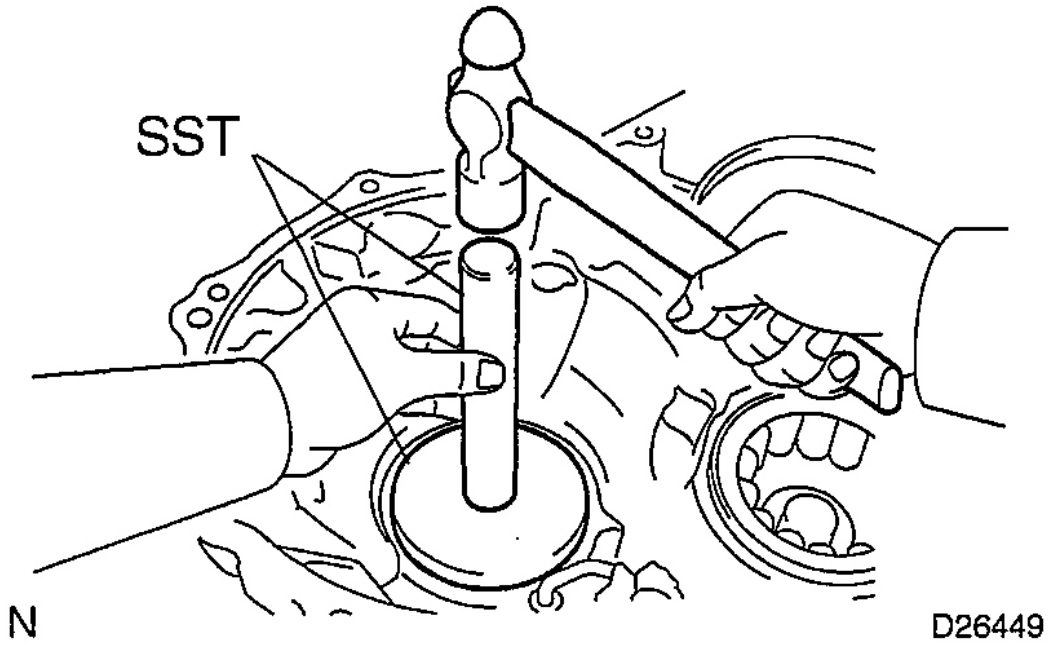


Fig. 403: Installing Front Differential Case Rear Shim
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. **ADJUST DIFFERENTIAL SIDE BEARING PRELOAD**
    a. Install the differential assy to the transaxle case.

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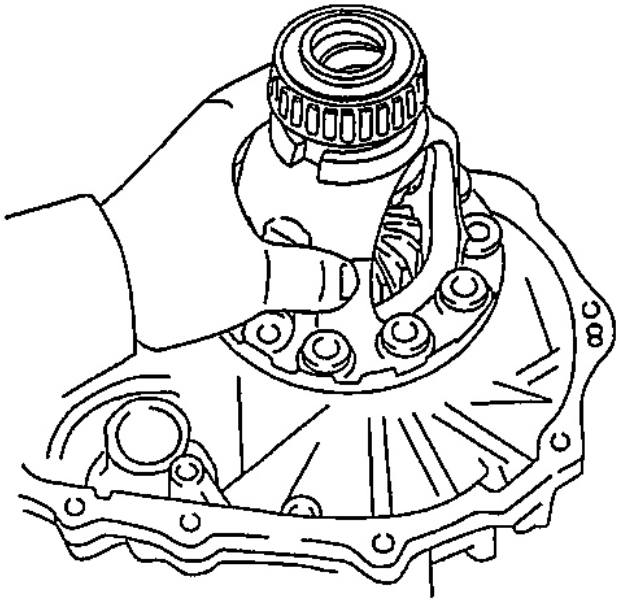


Fig. 404: Installing Differential Assy To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Clean the matching surfaces of the transaxle case and transaxle housing.
c. Install the transaxle housing to the transaxle case with the 16 bolts.

Torque:

Bolt A: 22 N.m (224 kgf.cm, 16 ft.lbf)

Bolt B: 29 N.m (296 kgf.cm, 21 ft.lbf)

Bolt C: 29 N.m (296 kgf.cm, 21 ft.lbf)

Bolt length:

Bolt A: 50 mm (1.969 in.)

Bolt B: 50 mm (1.969 in.)

Bolt C: 42 mm (1.654 in.)

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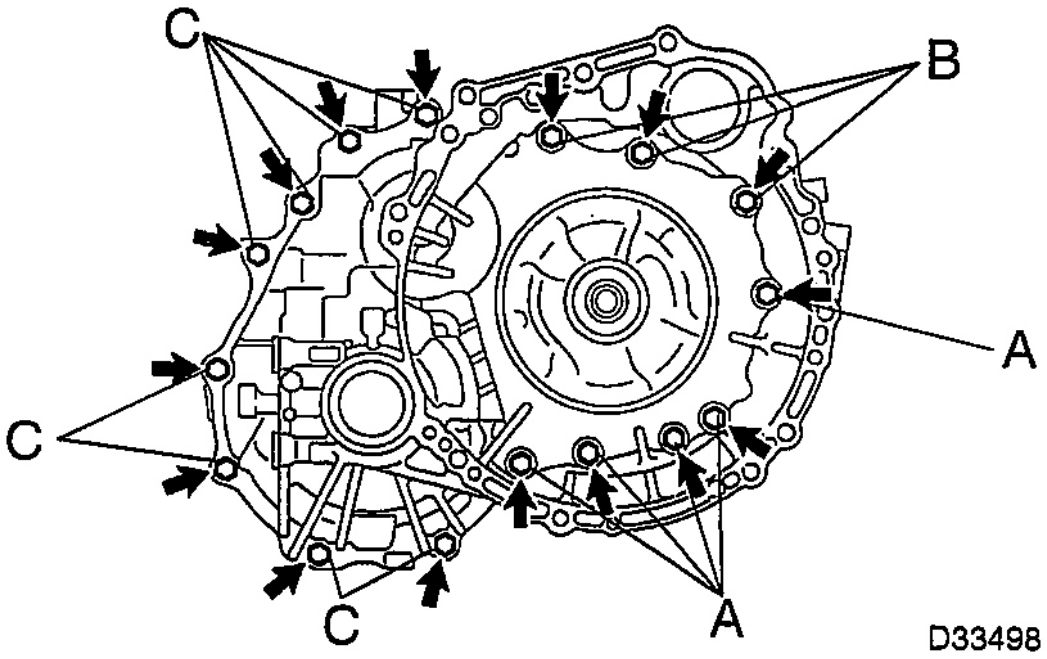


Fig. 405: Identifying Transaxle Case Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Using SST, turn the differential assy right and left 2 or 3 times to settle the bearing.

   SST 09564-32011

e. Using SST and a torque wrench, measure the turning torque of the differential.

   SST 09564-32011

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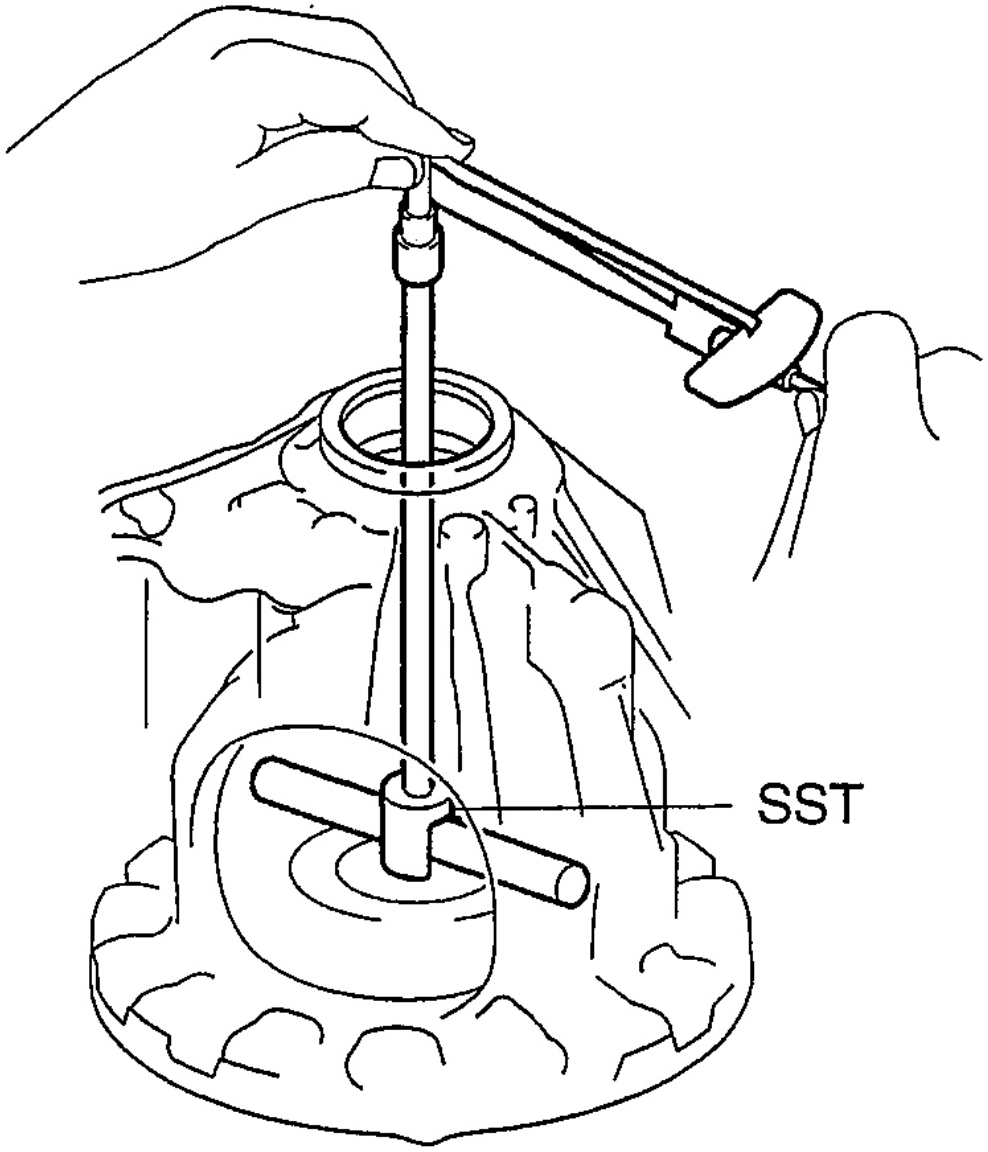


Fig. 406: Measuring Turning Torque Of Differential
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Turning torque at 60 rpm:

New bearing

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0.20 to 1.00 N.m (2.0 to 10.2 kgf.cm, 1.8 to 8.9 in.lbf)

Used bearing

0.10 to 0.35 N.m (1.0 to 3.6 kgf.cm, 0.9 to 3.1 in.lbf)

HINT:

If the turning torque is not within the specified values, refer to the table below to select a shim which turning torque is within the specified values.

Shim thickness: mm (in.)

SHIM THICKNESS - REFERENCE TABLE

Mark	Thickness	Mark	Thickness
0	1.90 (0.0748)	A	2.40 (0.0945)
1	1.95 (0.0768)	B	2.45 (0.0965)
2	2.00 (0.0787)	C	2.50 (0.0984)
3	2.05 (0.0807)	D	2.55 (0.1004)
4	2.10 (0.0827)	E	2.60 (0.1024)
5	2.15 (0.0846)	F	2.65 (0.1043)
6	2.20 (0.0866)	G	2.70 (0.1063)
7	2.25 (0.0886)	H	2.75 (0.1083)
8	2.30 (0.0906)	J	2.80 (0.1102)
9	2.35 (0.0925)		

f. Remove the 16 bolts and the transaxle housing.

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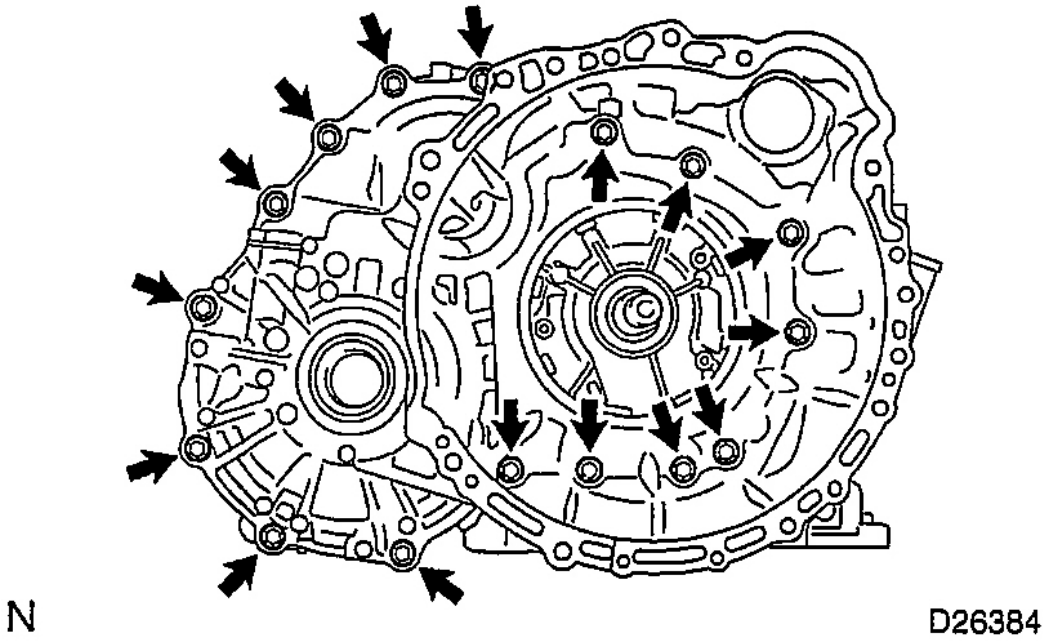


Fig. 407: Identifying Transaxle Housing Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

g. Remove the differential assy.

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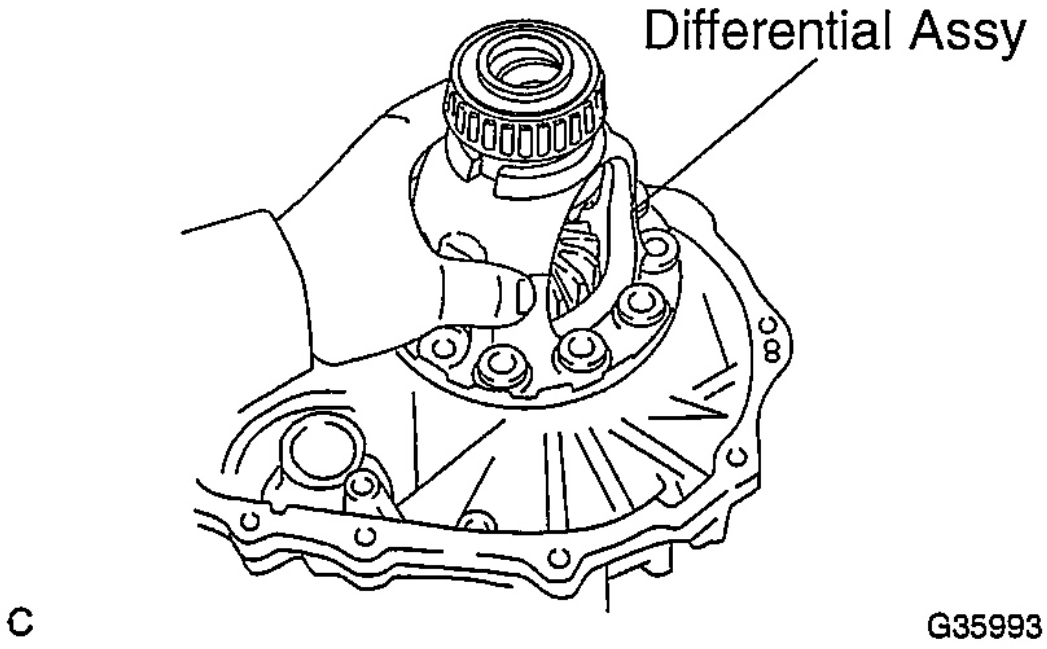


Fig. 408: Removing Differential Assy
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16. **INSTALL FRONT DIFFERENTIAL RING GEAR**
    a. Using ATF and a heater, heat the front differential ring gear to 90 to 110°C (194.0 to 230.0°F).

    NOTE: Do not heat the ring gear to more than 110°C (230.0°F).

    b. Clean the contact surface of the front differential case.

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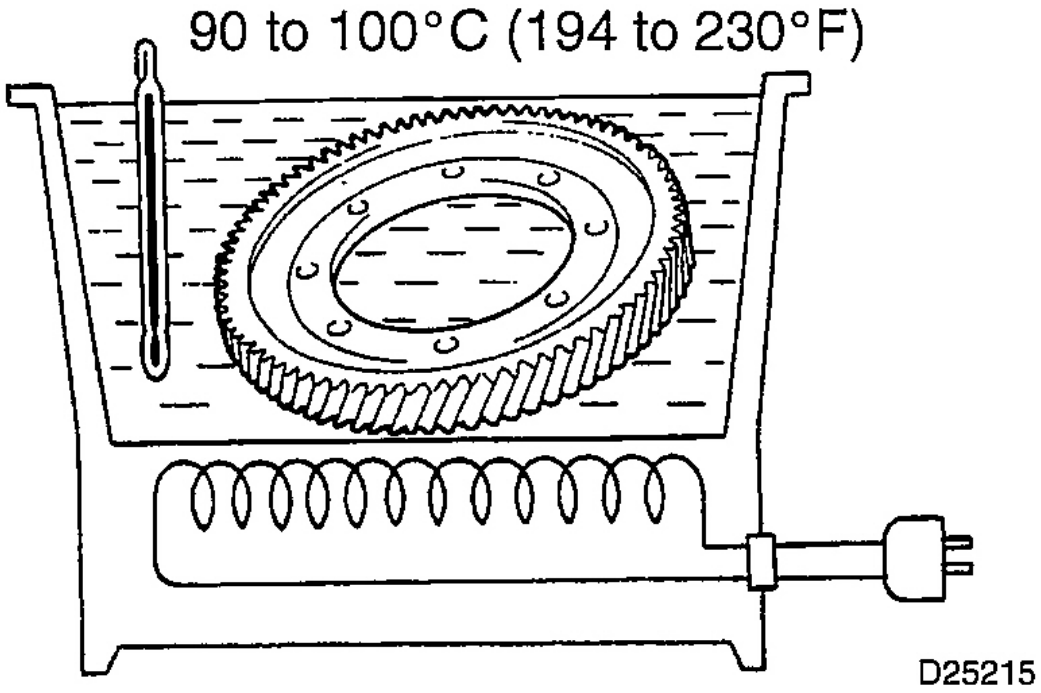


Fig. 409: Heating Front Differential Ring Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Align the matchmarks, and install the front differential ring gear case quickly.

NOTE: Do not install the bolts while the ring gear is hot.

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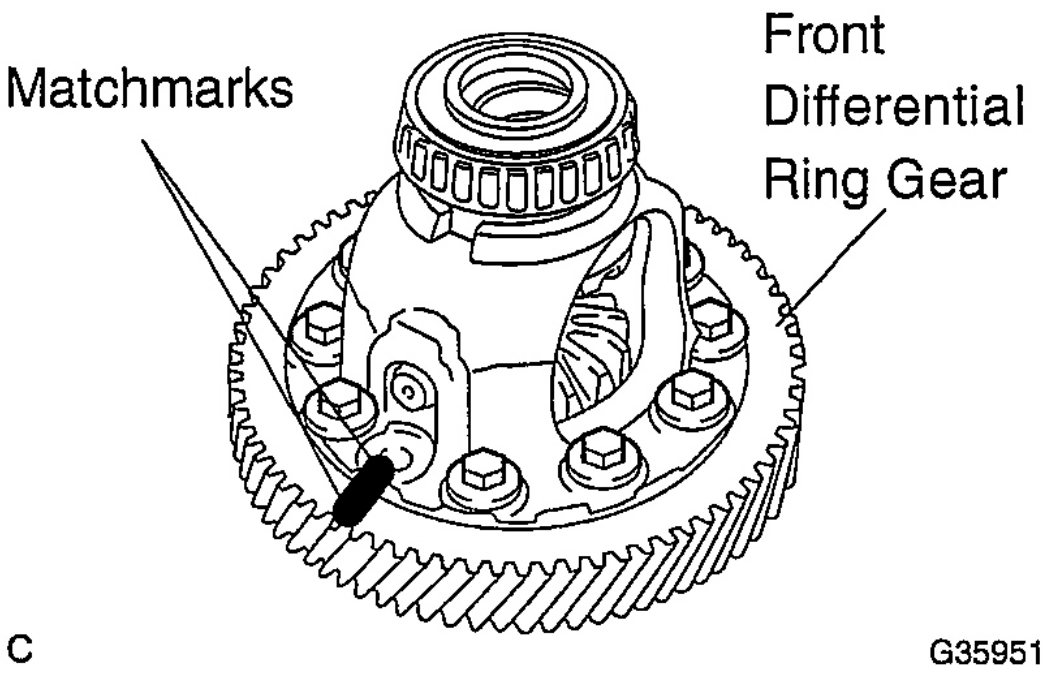


Fig. 410: Aligning Matchmarks
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Tighten the 10 bolts.

Torque: 95.1 N.m (970 kgf.cm, 70 ft.lbf)

NOTE: Tighten the bolts a little at a time in diagonal order.

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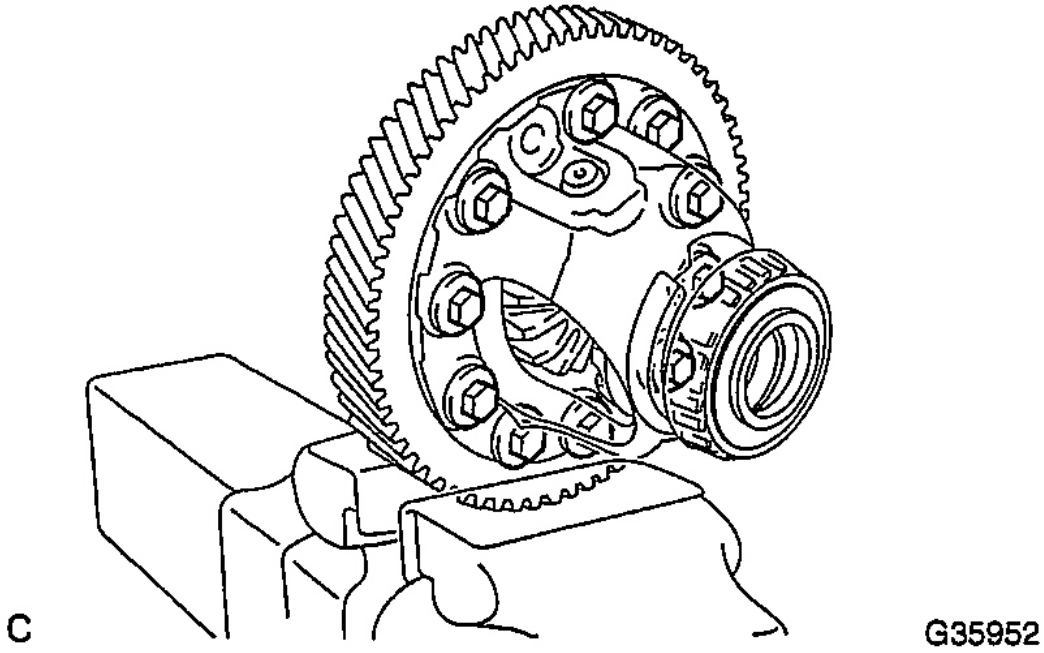


Fig. 411: Tightening Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

17. **INSTALL TRANSAXLE HOUSING OIL SEAL**
    a. Using SST and a hammer, install a new oil seal.
    b. Coat the lip of the oil seal with a little MP grease.

    Oil seal drive in depth: 0 +/- 0.5 mm (0 +/- 0.0197 in.)

    SST 09950-70010 (09951-07150), 09608-32010

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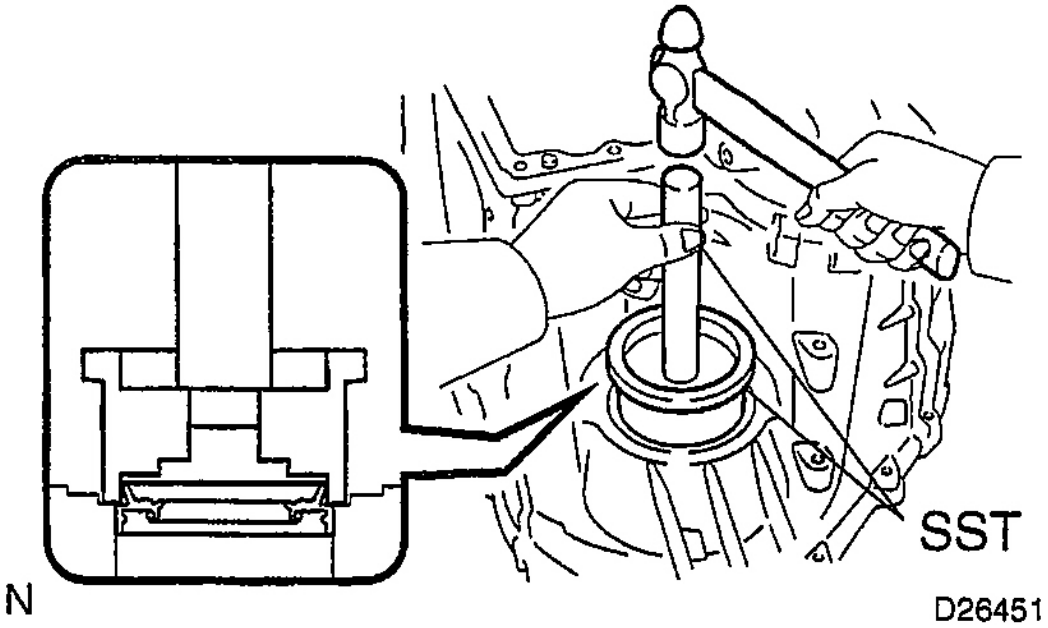


Fig. 412: Installing Transaxle Housing Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

18. **INSTALL DIFFERENTIAL SIDE BEARING RETAINER OIL SEAL**
    a. Using SST and a hammer, install a new oil seal.
    b. Coat the lip of the oil seal with a little MP grease.

    Oil seal drive in depth: 0 +/- 0.5 mm (0 +/- 0.0197 in.)

    SST 09950-70010 (09951-07150), 09726-36010

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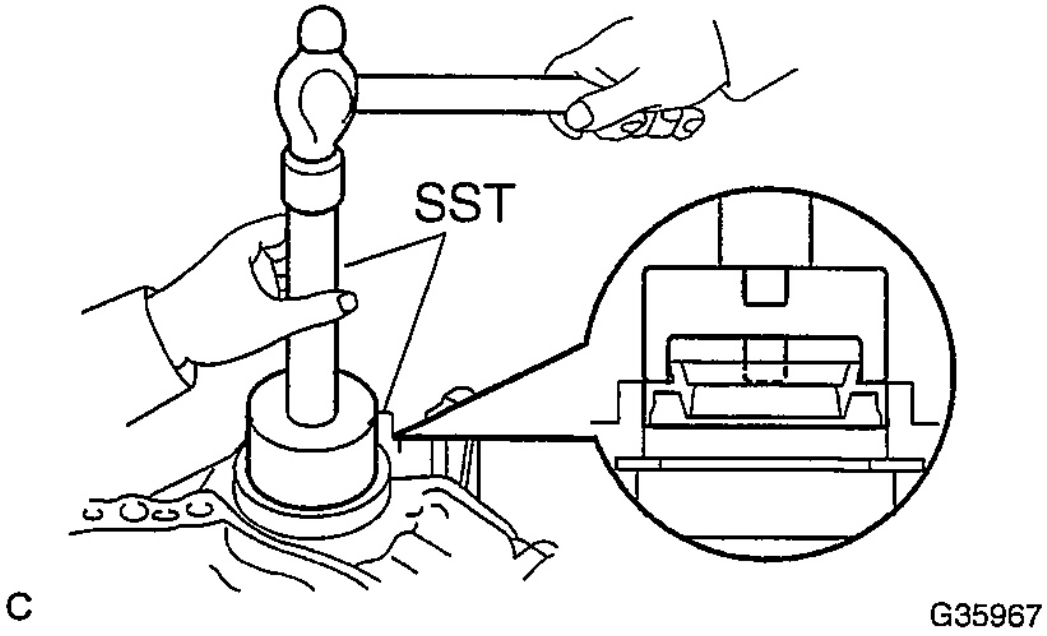


Fig. 413: Installing Differential Side Bearing Retainer Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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