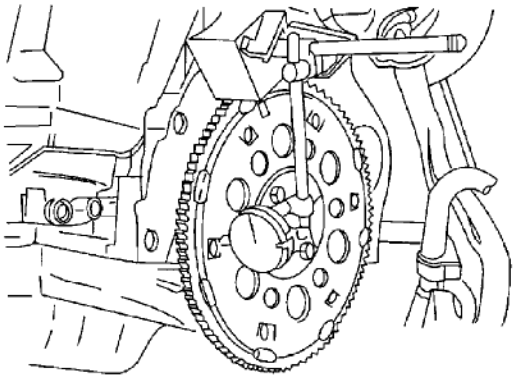
Drive Plate Deflection Inspection



1. Inspect if the drive plate deflection is within standard value.

   Specifications
   The drive plate deflection standard value is 0.2 mm (0.008 in).

2. If the standard value is not within the specified value, replace the drive plate.

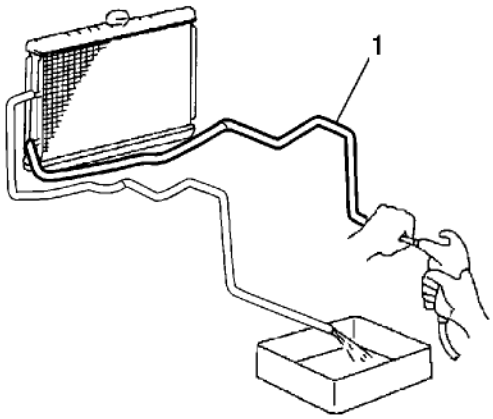
   Important: When assembling the torque converter and drive plate, be sure to use the correct bolt and length. If the bolts are too long, it may cause damage to the component.

   Important: Do not tighten the bolts using an impact wrench.

3. When abnormal wear, sticking torque converter sleeve or oil pump is found, replace the torque converter and/or automatic transmission.

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Cooler Pipe Bending and Choke Inspection



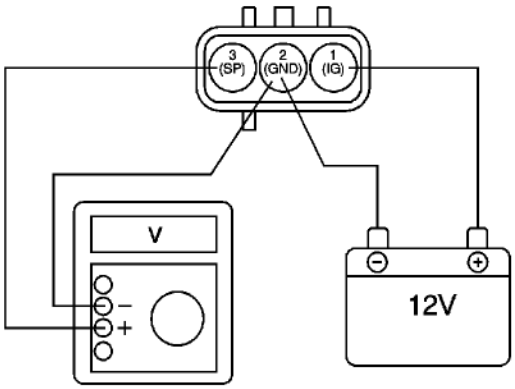


Important: Inspect for abnormal pipe bending in the cooler pipe, pipe deformation or other damage.

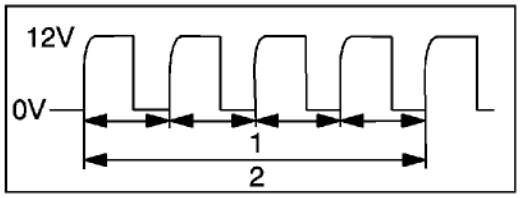
1. Replace the pipe(s) as necessary.
2. Apply compressed air from the cooler pipe inlet side (1). Confirm smooth air flow.
3. Remove foreign particles and clean the inside of pipe line(s), as necessary.

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Vehicle Speed Sensor Inspection



1. Remove the connector from the vehicle speed sensor. Connect 12 volt power supply and voltmeter to the terminal. Do not mistake polarity.



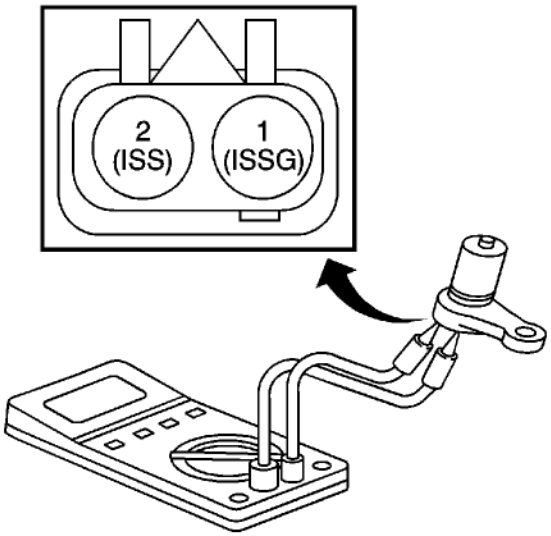
2. Rotate the driven gear.
3. Observe the voltage.

Important: The voltage value will change from approximately 0 to 12 to 0 volts per pulse (1). There will be 4 pulses per revolution (2).

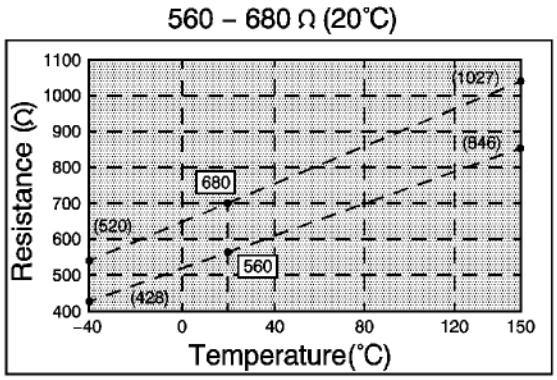
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4. If the result of the inspection are not desired, replace the vehicle speed sensor.

Input Speed Sensor Inspection



1. Measure the resistance of each input speed sensor between terminals.



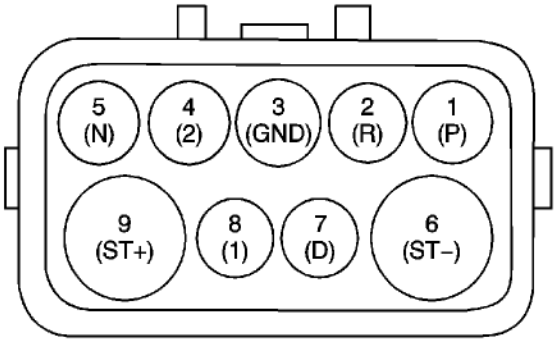
2. If the resistance value is not between the minimum and maximum resistance plot lines, then measure the sensor resistance at 20°C (68°F).

Important: The resistance of the sensor can become infinity ohm when the resistance measurement is made at high temperatures.

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3. If both resistance measurements are not between the minimum and maximum resistance plot lines, replace the input speed sensor.

Park / Neutral Position Switch Inspection



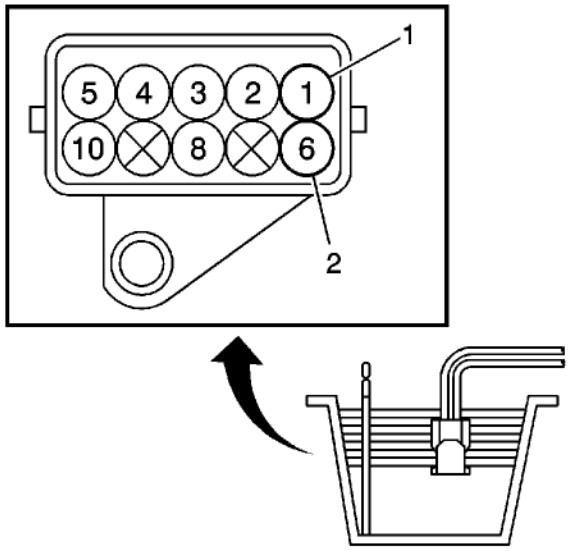
1. Disconnect the park/neutral position (PNP) switch.

Range	Starter Circuit		Indicator Circuit						
	ST+	ST−	IG	P	R	N	D	2	1
P	○—○	○—○	○—○						
R			○—	——	—○				
N	○—○	○—○	○—	——	——	—○			
D			○—	——	——	——	—○		
2			○—	——	——	——	——	—○	
1			○—	——	——	——	——	——	—○
Polarity	+	−	+	−	−	−	−	−	−

2. Test the continuity of each range according to the polarity and indicator circuit table.
3. If an incorrect range is displayed during testing, replace the PNP switch.

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Transmission Fluid Temperature Sensor Inspection

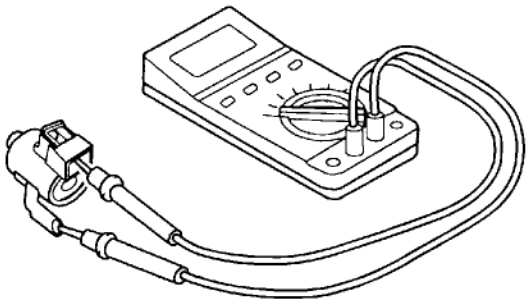




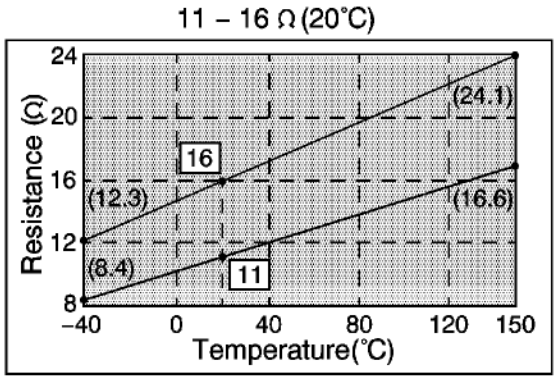
1. Measure the resistance of the transmission fluid temperature (TFT) sensor between terminals 1 and 6 (1, 2) of the TFT connector at 10°C (50°F) and 110°C (230°F).
2. If the resistance measurement of 10°C (50°F) is not between 5.8-7.09 k ohms, replace the TFT sensor.
3. If the resistance measurement of 110°C (230°F) is not between 0.23-0.263 k ohms, replace the TFT sensor.

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1, 2 Shift Solenoid, Timing Solenoid, and Lock-Up Solenoid Inspection



1. Inspect the resistance of each shift solenoid between the terminal and the ground.

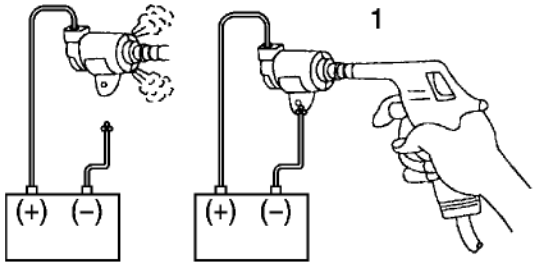


Important: The resistance of the solenoid can become infinity ohm when the resistance measurement is made at high temperatures.

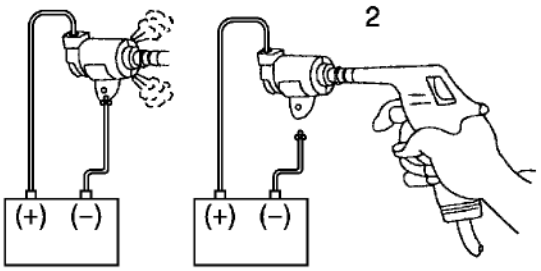
2. If the resistance value is not between the minimum and maximum resistance plot lines, then

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measure the solenoid resistance at 20°C (68°F).

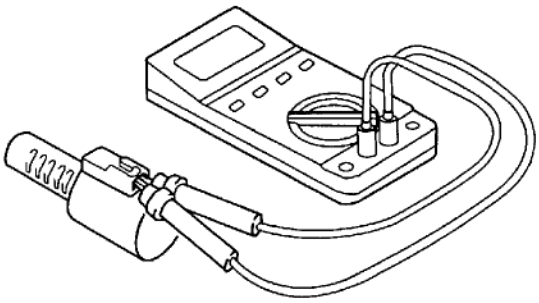


3. Test the operation of the shift solenoid. The shift solenoid is a normally open solenoid. Air will only pass through the solenoid when it is not energized.
4. Apply compressed air to the solenoid inlet.
5. If the solenoid does not allow air to pass thought the solenoid, replace the solenoid.
6. Apply B+ and Ground to the solenoid.
7. If the solenoid allows air to pass through the solenoid, replace the solenoid (1).

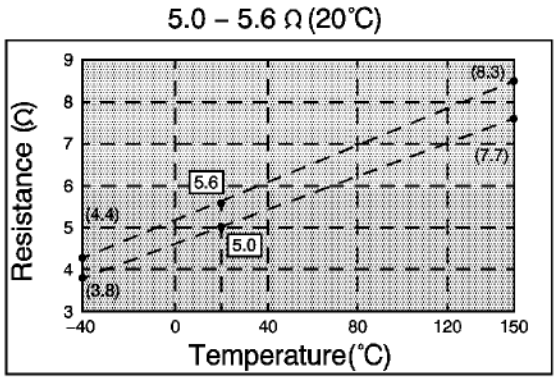


8. Test the operation of the timing solenoid. The timing solenoid is a normally closed solenoid (2). Air will only pass through the solenoid when the solenoid is energized.
9. Apply compressed air to the solenoid inlet.
10. If the solenoid allows air to pass through the solenoid, replace the solenoid.
11. Apply B+ and Ground to the solenoid.
12. If the solenoid does not allow air to pass thought the solenoid, replace the solenoid.

Pressure Control Solenoid Valve Inspection



1. Measure the resistance of each pressure control solenoid (PCS) between terminals.



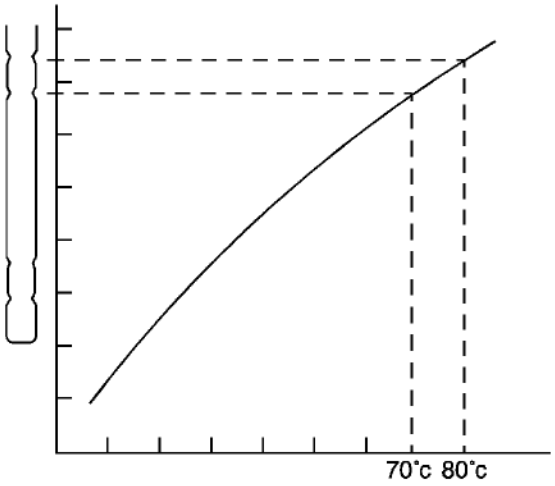
2. If the resistance value is not between the minimum and maximum resistance plot lines, then measure the solenoid resistance at 20°C (68°F).

Important: The resistance of the solenoid can become infinity ohm when the resistance measurement is made at high temperatures.

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3. If both resistance measurements are not between the minimum and maximum resistance plot lines, replace the PCS.

Transmission Fluid Level Inspection



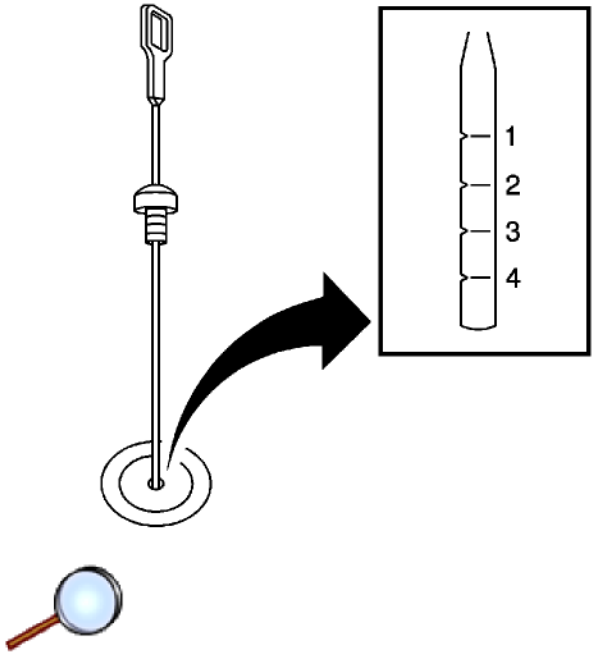
Important: When adding fluid or making a complet fluid change, always use T-IV Automatic Transmission Fluid.

Important: Measure the fluid level when the transaxle temperature is 70°C-80°C (158°F-176°F).

Important: During the fluid level check, the selector lever must be in position P.

1. Make sure the vehicle is level.
2. Shift into all range from P to 1 and return to P with engine idling.
3. Remove the transaxle fluid dipstick and check the transaxle fluid level.

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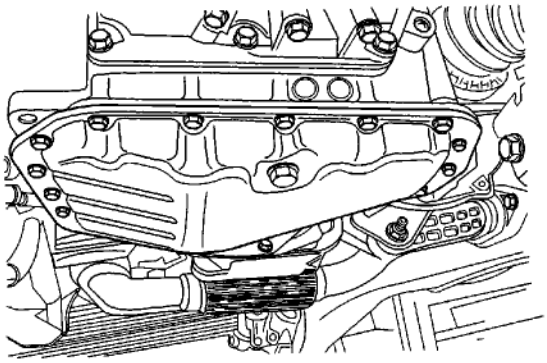
Important: The correct fluid level must be between the HOT MIN (2) and the HOT MAX (1) notches on the dipstick.

4. If the fluid level is below the MIN notch, add transaxle fluid through the fluid filler tube and check for leaks in the transaxle.
5. If the fluid above the MAX notch, the transaxle is overfilled. Drain some of the fluid through the fluid pan drain plug. Check the transaxle fluid level.

Transmission Fluid Draining

Draining Procedure

Caution: Refer to Vehicle Lifting and Jacking Caution in the Preface section.



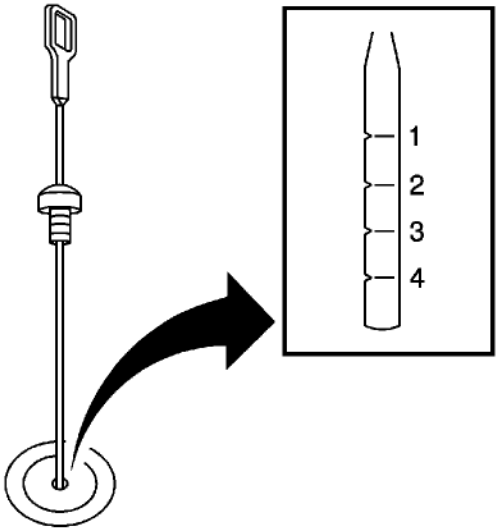
1. Raise and support the vehicle.
2. Place a suitable fluid drainage container under the transaxle.
3. Remove the fluid drain plug. Allow the fluid to drain completely.
4. Clean the drain plug threads.

Caution: Refer to Fastener Caution in the Preface section.

5. Install the fluid drain plug and tighten to **17 N·m (13 lb ft)**.

Filling Procedure

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1. Remove the drainage container and lower the vehicle.
2. Add 3/4 of the recommended amount of T-IV Automatic Transmission Fluid.
3. Start the engine and allow it to reach normal operating temperature.
4. Shift the gear selector through all positions.

Note: The correct fluid level must be between the HOT MIN (2) and the HOT MAX (1) notches on the dipstick.

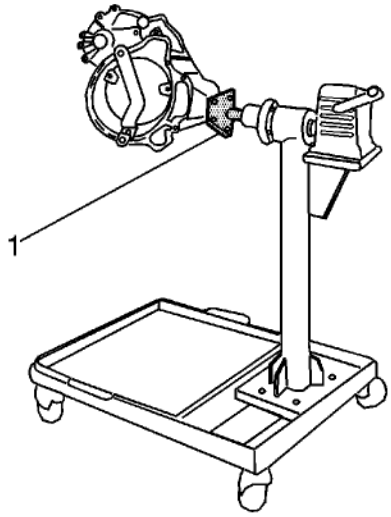
5. Check the fluid level and add fluid until the dipstick indicates the proper level.

Transmission Disassemble

Special Tools

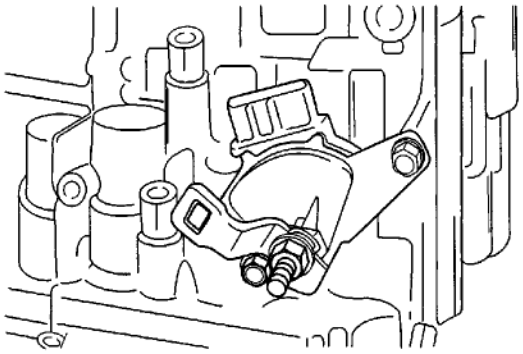
- DT 46451 (DW240-020) Brake/Clutch Spring Compressor
- DT 46454 (DW240-050) Overdrive Brake Adapter
- DT 46455 (DW240-060-01) Brake Spring Compressor Bolt/Nut
- DT 46457 (DW240-070) 1st and Reverse Brake Adapter
- DT 46463 (DW240-150) Transaxle Case Side Bearing Outer Race Adapter
- DT 46465 (DW240-170) Adapter Handle
- DT 46469-2 (DW260-021) Automatic Transaxle Overhaul Fixture
- DT 46472 (DW260-041) Planetary Ring Gear Nut Removal/Installation Socket

Disassembly Procedure

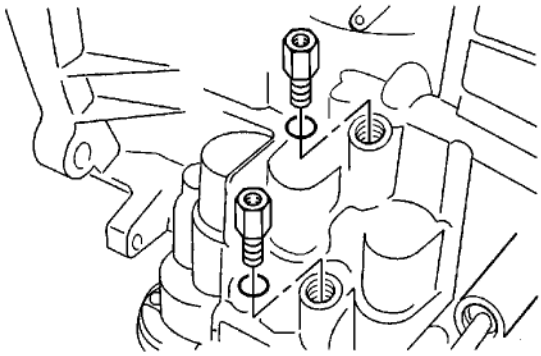


1. Remove the transaxle assembly from the vehicle. Refer to Transmission Replacement.
2. Install the transaxle assembly to the transaxle support stand using DT 46453 (1).

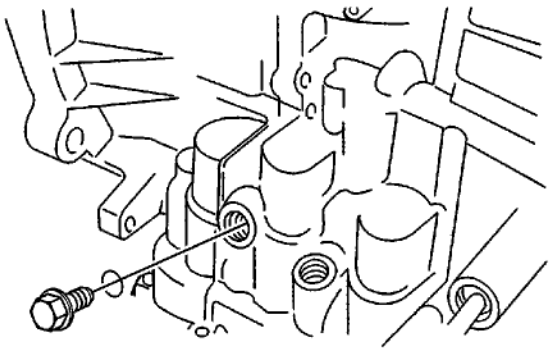
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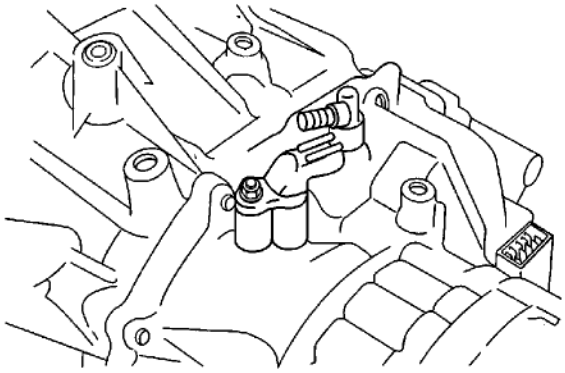
3. Remove the nut, washer and control lever.
4. Using a screwdriver, unstake the lock washer.
5. Remove the bolts and nut and pull out the park/neutral position (PNP) switch.



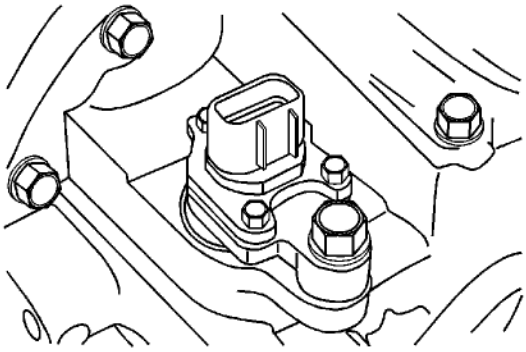
6. Remove the unions from the transaxle case.
7. Remove the O-rings from the unions.



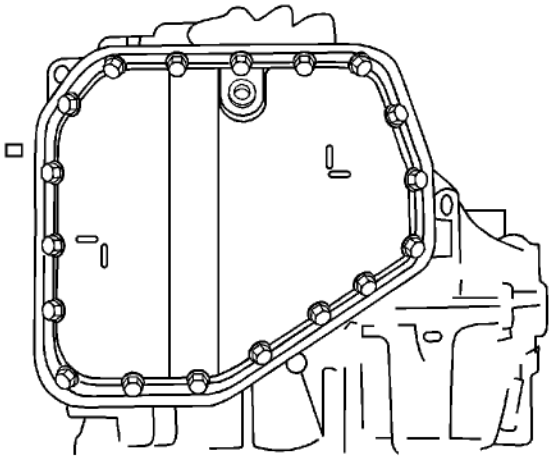
8. Remove the bolt plug from the transaxle case.
9. Remove the O-ring from the bolt plug.



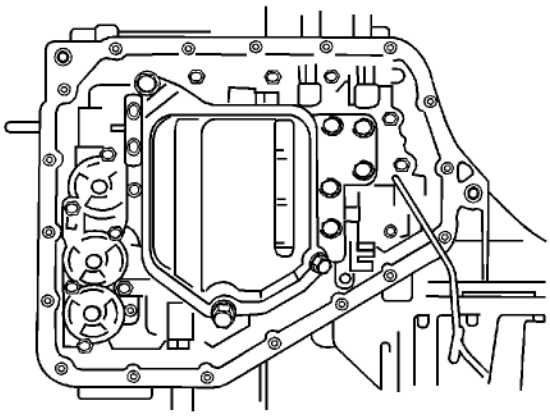
10. Remove the bolt and the input shaft speed (ISS) sensor.
11. Remove the breather plug.
12. Remove the O-ring from the breather plug.



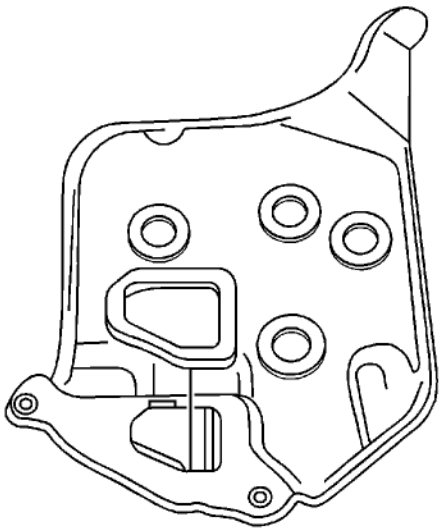
13. Remove the bolt and the output shaft speed (OSS) sensor.



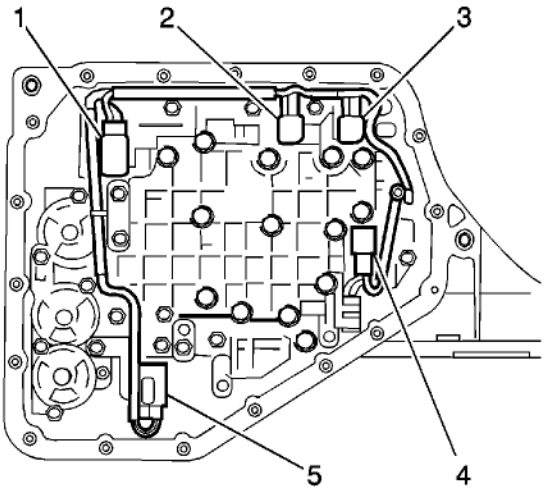
14. Remove the oil pan bolts.
15. Remove the oil pan and gasket.
16. Remove the drain plug from the oil pan.



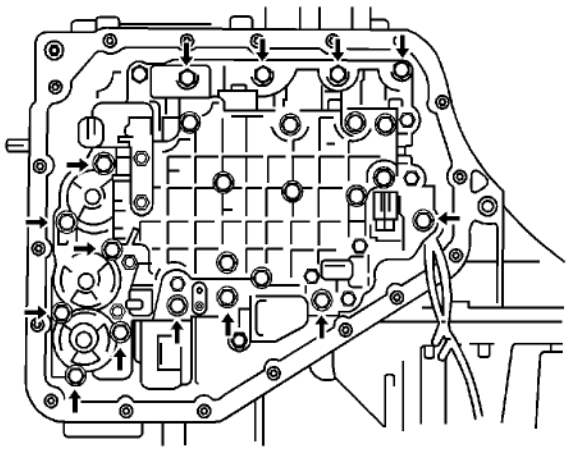
17. Remove the bolts and oil strainer.



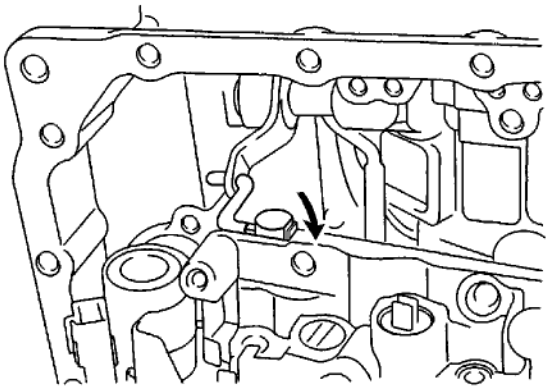
18. Remove the gasket from the oil strainer.



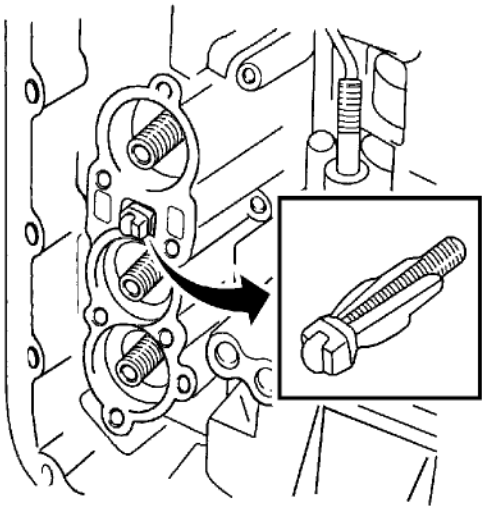
19. Remove the bolt and transmission fluid temperature sensor with the clamp.
20. Disconnect the 5 solenoid connectors.
    - Lock-up control solenoid (5)
    - Pressure control solenoid (1)
    - No. 2 shift solenoid (2)
    - No. 1 shift solenoid (3)
    - Timing solenoid (4)



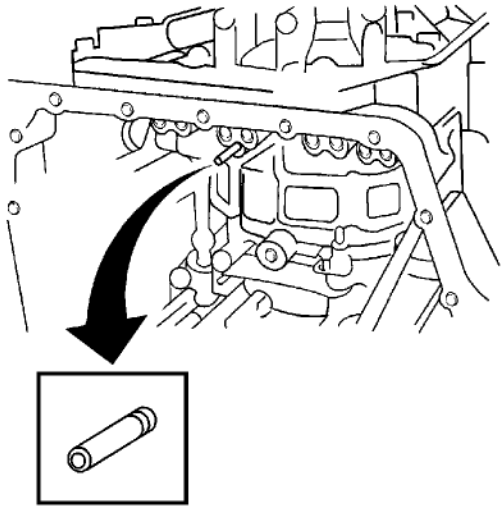
21. Support the valve body assembly and remove the bolts.



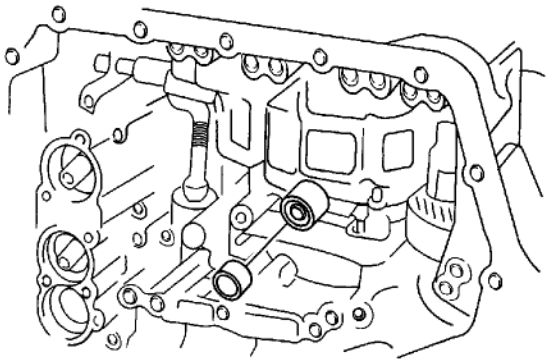
22. Disconnect the manual valve control rod from the manual valve lever and remove the valve body assembly.



23. Remove the check valve and spring.

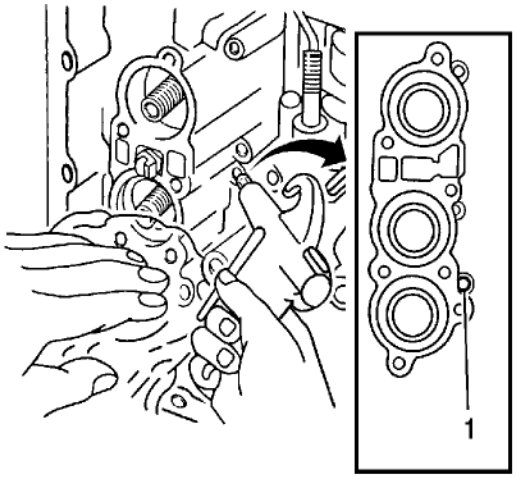


24. Remove the brake drum gasket.



25. Remove the governor apply gasket.

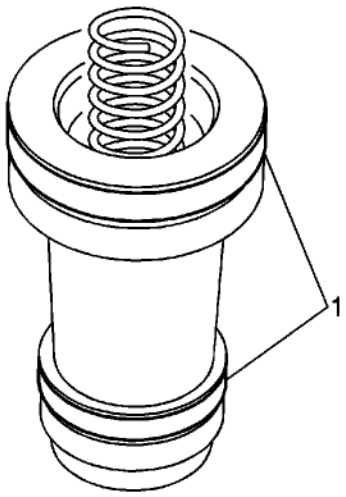
Caution: Refer to Compressed Air Should Not Exceed 98 kPa (14 psi) Caution in the Preface section.



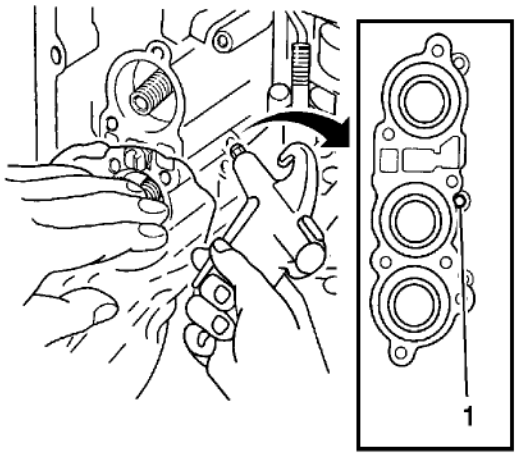
Note:

- Air pressure may cause the pistons to jump out. When removing the piston, hold it in place with your hand using a waste cloth.
- Take care not to splash automatic transaxle fluid (ATF) when air-blowing.

26. Apply compressed air to the oil hole (1) and remove the direct clutch accumulator piston and spring.
27. Remove the spring.



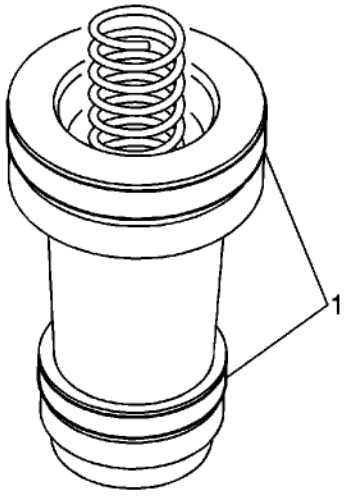
28. Remove the 2 O-rings (1) from the direct clutch accumulator piston.



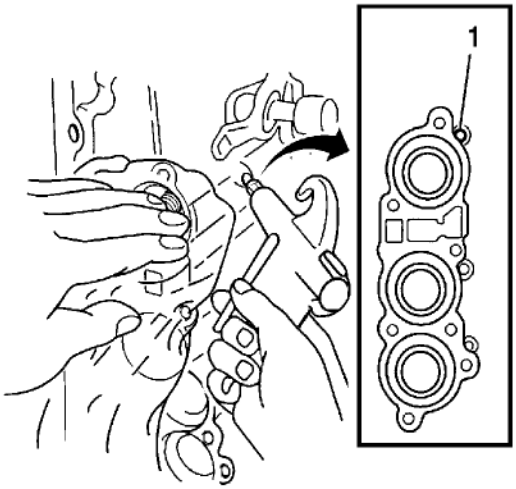
Note:

- Air pressure may cause the pistons to jump out. When removing the piston, hold it in place with your hand using a waste cloth.
- Take care not to splash ATF when air-blowing.

29. Apply compressed air to the oil hole (1) and remove the forward clutch accumulator piston and spring.
30. Remove the spring.



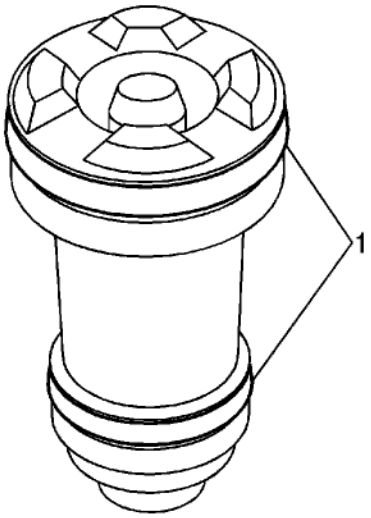
31. Remove the O-rings (1) from the forward clutch accumulator piston.



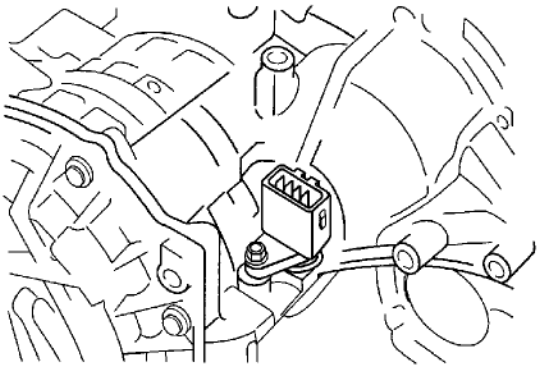
Note:

- Air pressure may cause the pistons to jump out. When removing the piston, hold it in place with your hand using a waste cloth.
- Take care not to splash ATF when air-blowing.

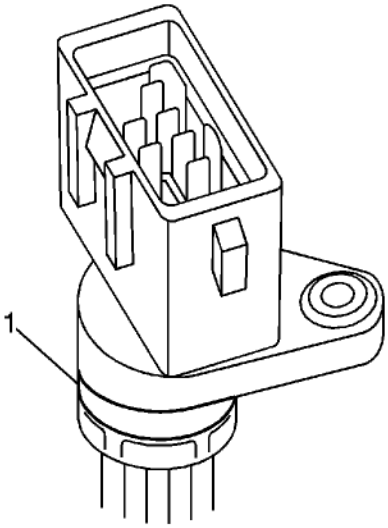
32. Apply compressed air to the oil hole (1) and remove the over drive (O/D) and 2nd brake clutch accumulator piston and spring.



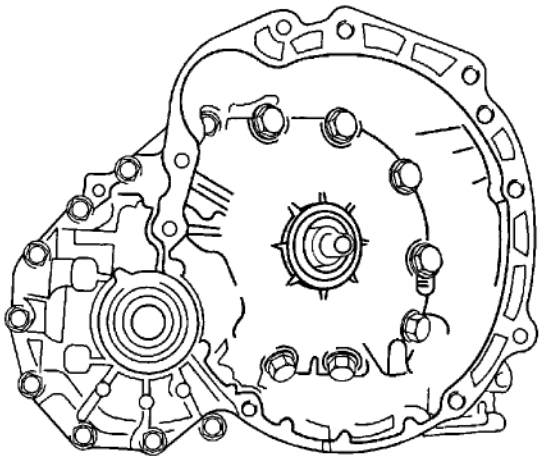
33. Remove the O-rings (1) from the O/D and 2nd brake accumulator piston.



34. Remove the bolt and the transaxle wire from the transaxle case.

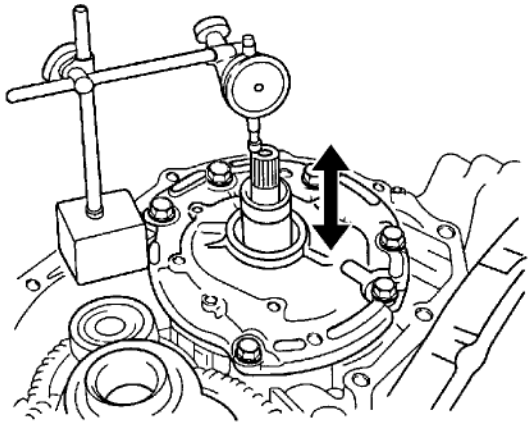


35. Remove the O-ring (1) from the transaxle wire.



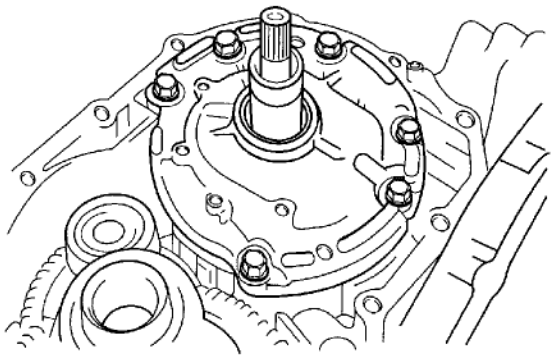
Note: Be careful not to drop the differential gear assembly when the transaxle housing is removed.

36. Remove the bolts and tap on the circumference of the transaxle housing with a plastic hammer to remove the transaxle housing from the transaxle case.

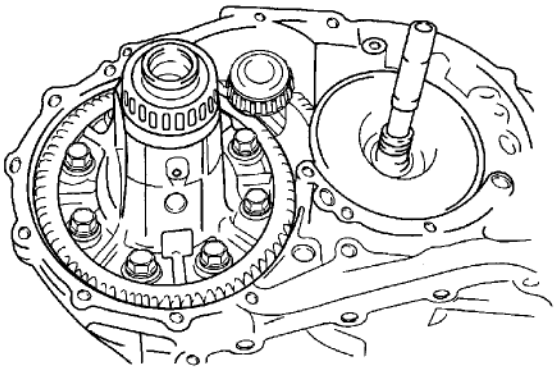


37. Using a dial indicator, measure the input shaft end play.

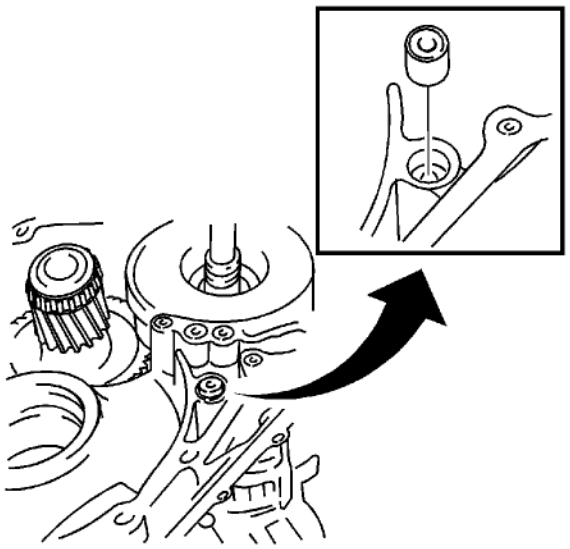
Specification
The end play is 0.3-0.9 mm (0.012-0.035 in).



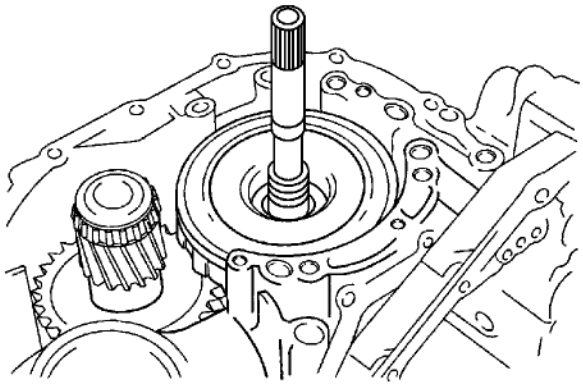
38. Remove the bolts and oil pump.



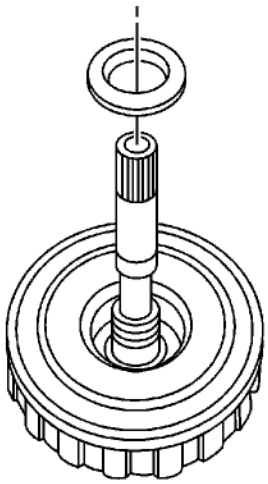
39. Remove the differential gear assembly from the transaxle case.



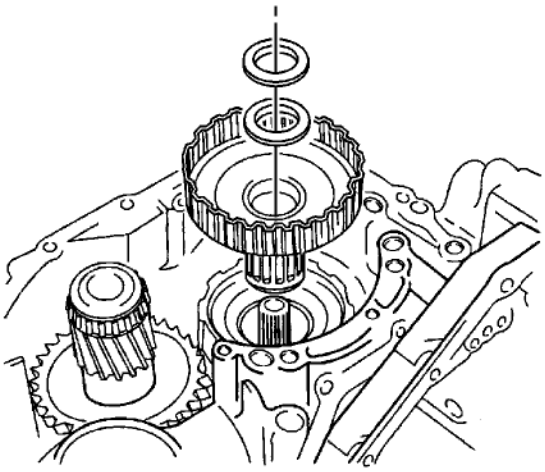
40. Remove the governor apply gasket.



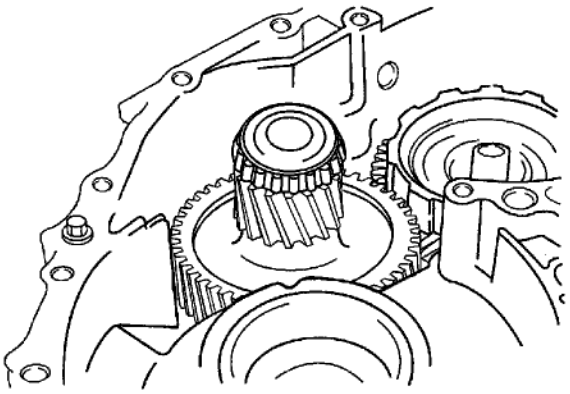
41. Remove the direct clutch assembly from the transaxle case.



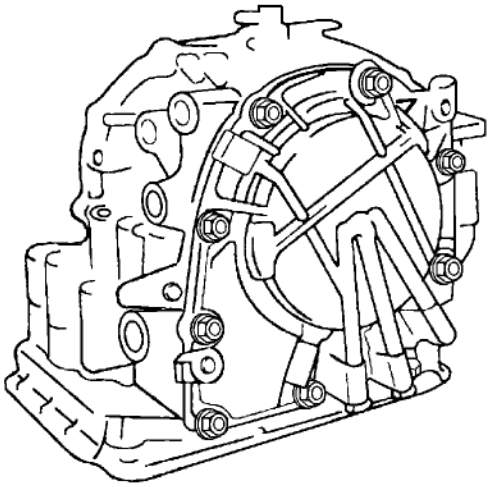
42. Remove the thrust needle roller bearing from the direct clutch assembly.



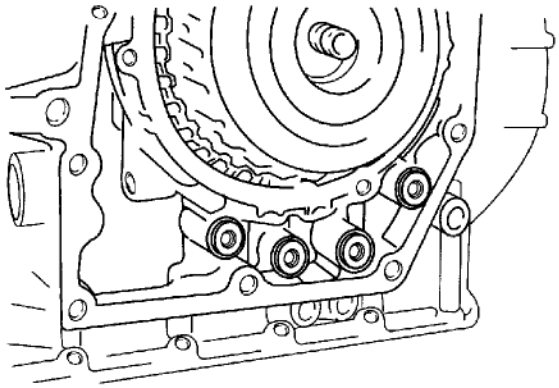
43. Remove the direct clutch hub, thrust needle roller bearing and thrust bearing race from the transaxle case.



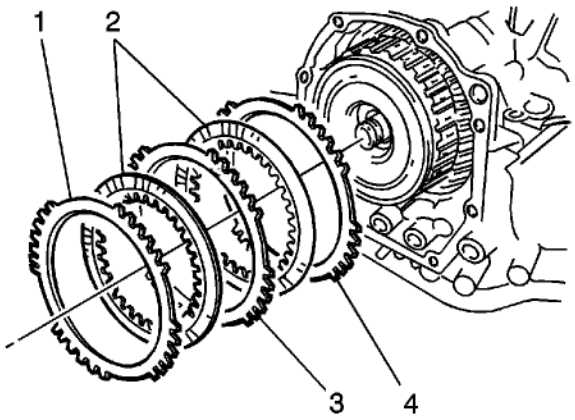
44. Remove the counter driven gear assembly from the transaxle case.



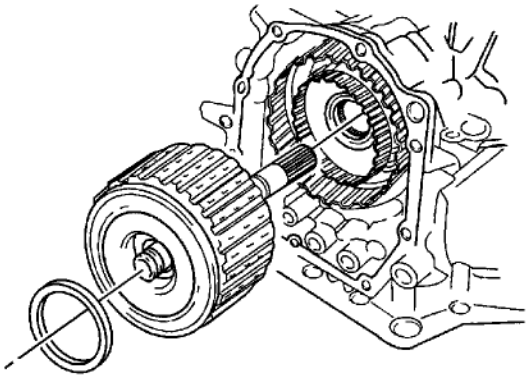
45. Remove the bolts and tap on the circumference of the transaxle rear cover with a plastic hammer to remove the transaxle rear cover from the transaxle case.



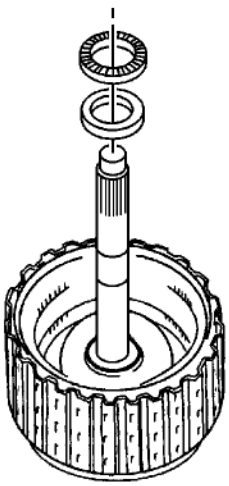
46. Remove the governor apply gaskets.



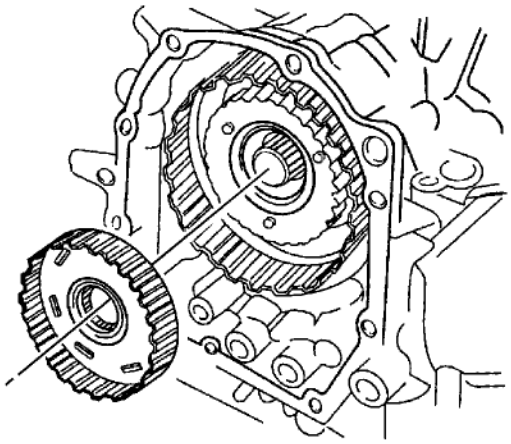
47. Remove 2nd coast and O/D brake flange (1), 2 discs (2), and 2 plates (3) from the transaxle case.



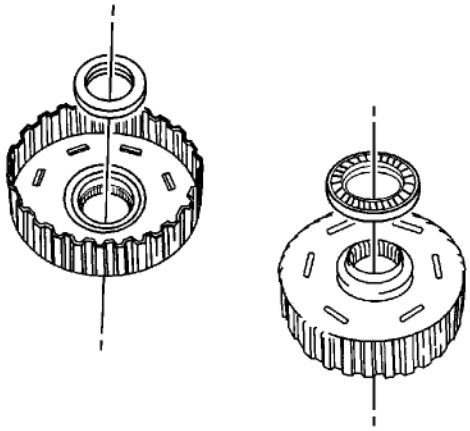
48. Remove the thrust needle roller bearing and the forward and reverse clutch assembly.



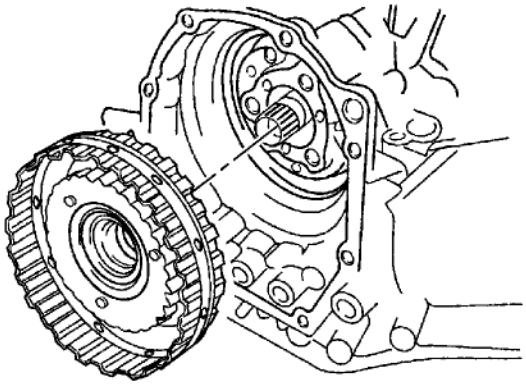
49. Remove the thrust needle roller bearing and thrust bearing race from the forward and reverse clutch assembly.



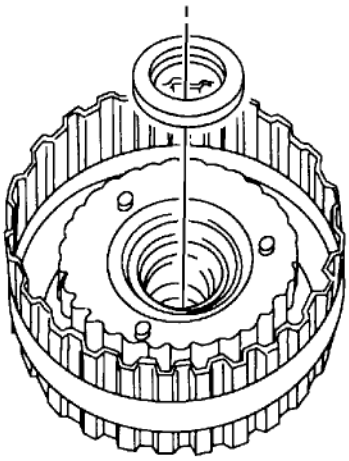
50. Remove the forward clutch hub from the transaxle case.



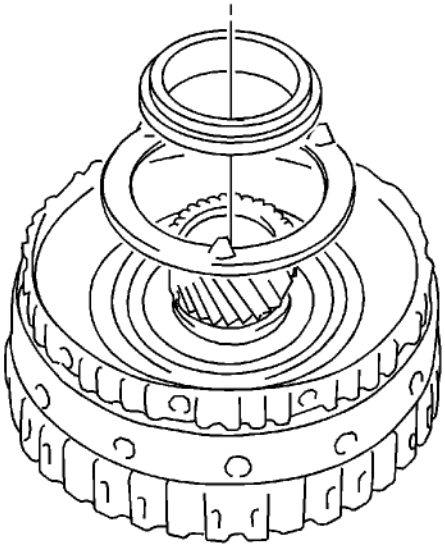
51. Remove the thrust bearing race and thrust needle roller bearing from the forward clutch hub.



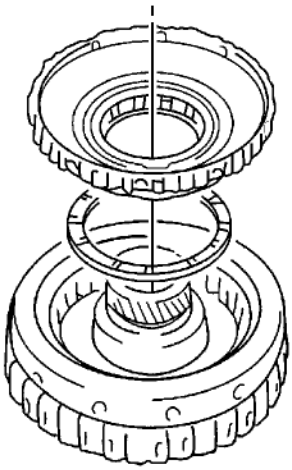
52. Remove the rear planetary sun gear and 1-way clutch assembly.



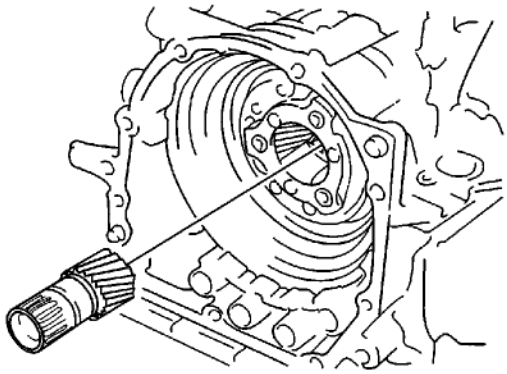
53. Remove the thrust bearing race from the rear planetary sun gear and 1-way clutch assembly.



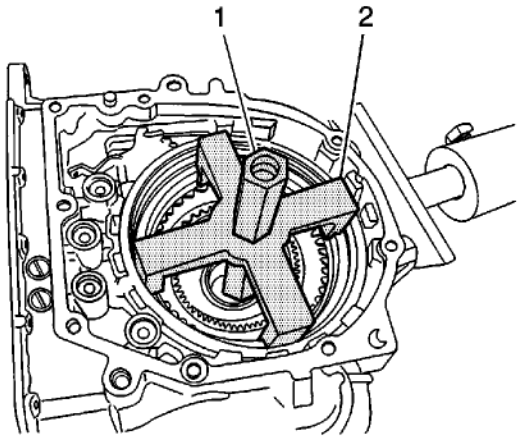
54. Remove the thrust needle roller bearing and planetary carrier thrust washer from the rear planetary sun gear and 1-way clutch assembly.



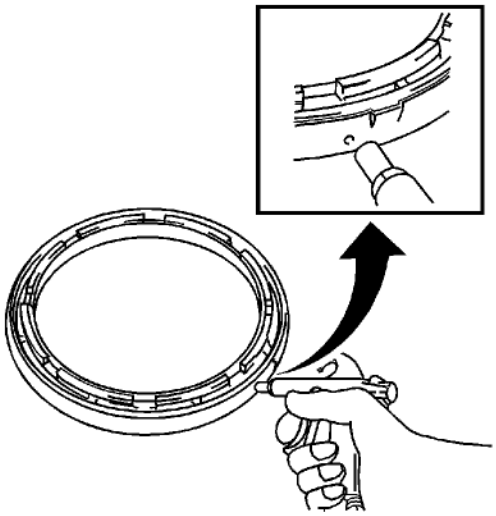
55. Remove the 1-way clutch assembly and thrust washer from the rear planetary sun gear.



56. Remove the front planetary sun gear from the transaxle case.
57. Remove the thrust bearing race from the front planetary sun gear.



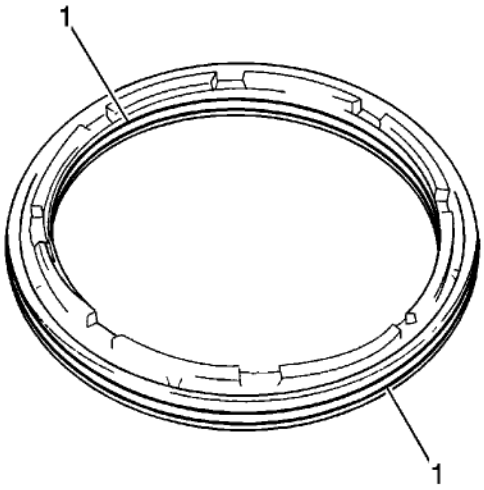
58. Using DT 46455 (1) and DT 46458 (2), remove the 2 snap rings, 2nd brake piston, and 2nd brake piston return spring.



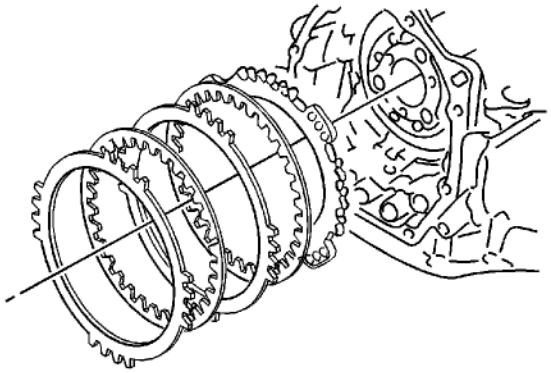
Note:

- Air pressure may cause the pistons to jump out. When removing the piston, hold it in place with your hand using a waste cloth.
- Take care not to splash ATF when air-blowing.

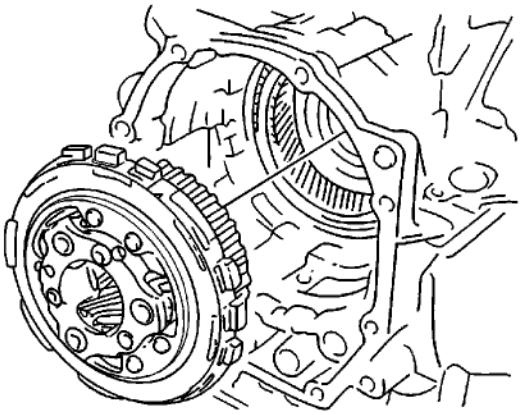
59. Apply compressed air to the 2nd brake to remove the 2nd brake piston from the 2nd brake clutch cylinder.



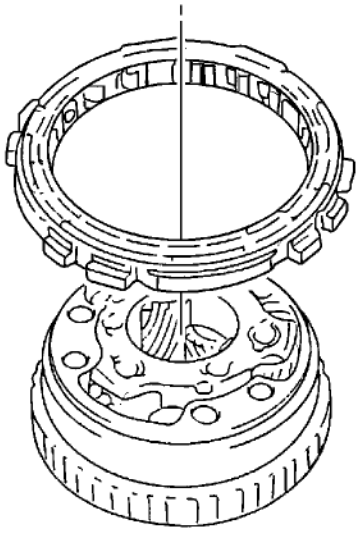
60. Remove the O-rings (1) from the 2nd brake piston.



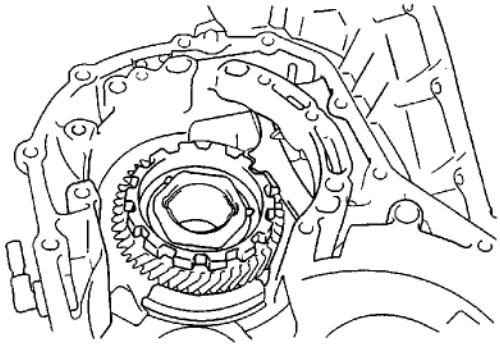
61. Remove the 2 plates, 2 discs, and flange.



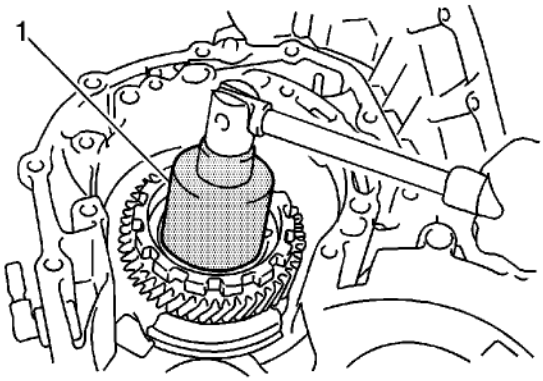
62. Remove the No. 2 1-way clutch and planetary gear from the transaxle case.



63. Remove the No. 2 1-way clutch from the planetary gear and remove the anti-rattle clip.

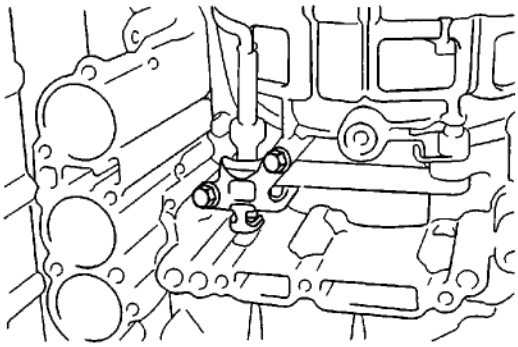


64. Fix the counter drive gear with the parking lock pawl.

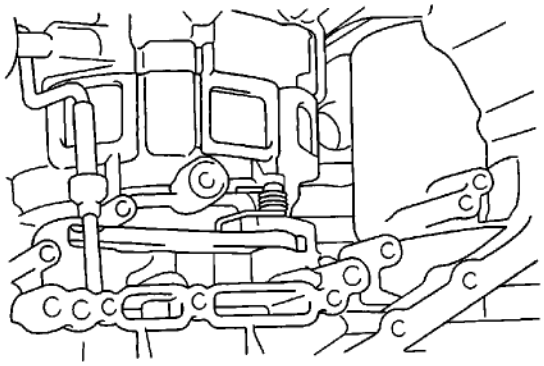


Caution: Do not chisel and remove the planetary ring gear nut staking before removing the nut. Damage to the planetary ring gear could result if force is applied . Remove the nut without unstaking the planetary ring gear. If force is used to unstake the planetary ring gear nut, damage the bearing could result.

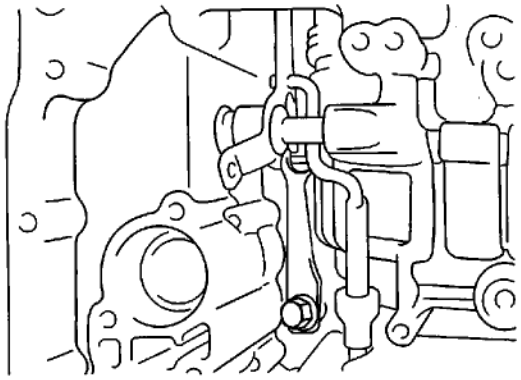
65. Remove the planetary ring gear nut using planetary ring gear nut removal/installation socket DT 46472 (1).



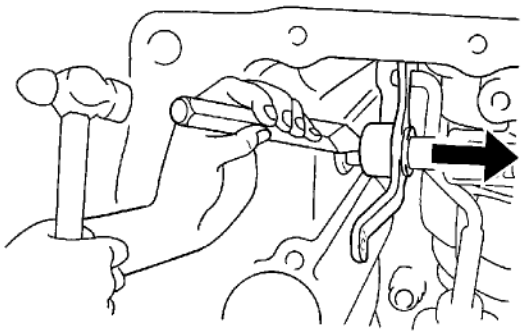
66. Remove the bolts and parking lock pawl bracket.



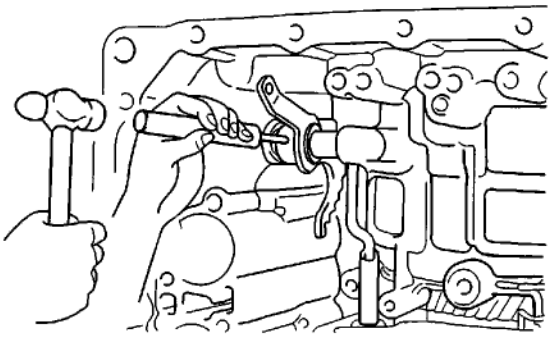
67. Remove the parking lock pawl shaft, torsion spring and parking lock pawl.



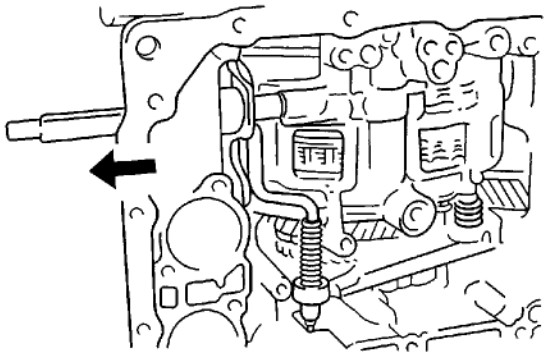
68. Remove the bolt and manual detent spring.



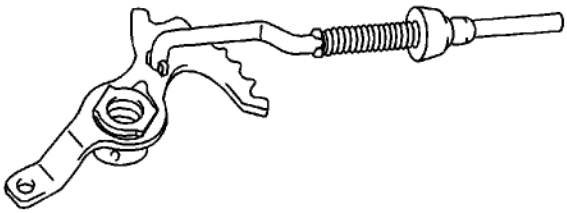
69. Using a chisel and hammer, unstake and remove the spacer.



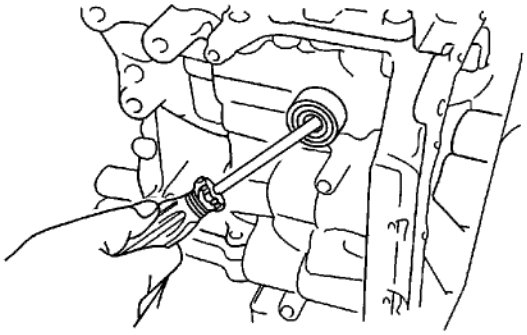
70. Using a pin punch and hammer, drive out the pin.



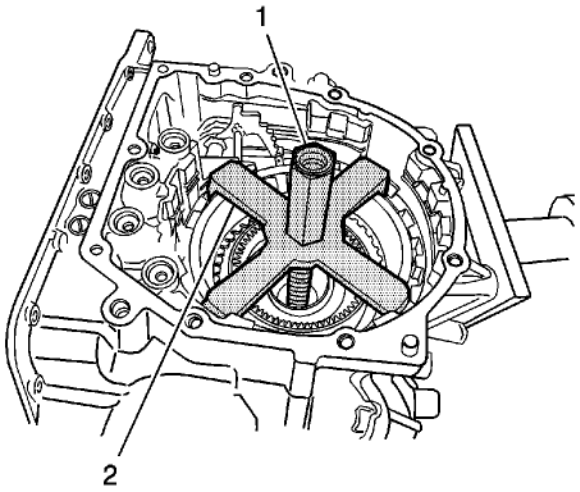
71. Remove the manual valve lever shaft and manual valve lever.



72. Remove the parking lock rod from the manual valve lever.

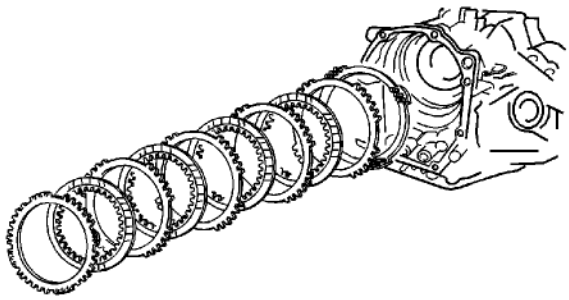


73. Using a screwdriver, remove the oil seal.

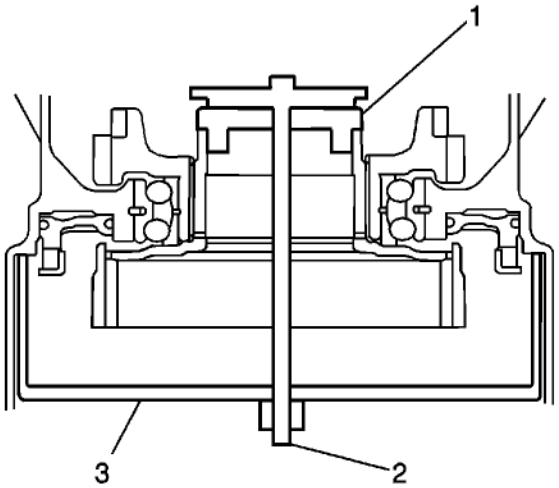


Warning: Use extreme care when removing snap rings. Always wear adequate eye protection in order to avoid personal injury.

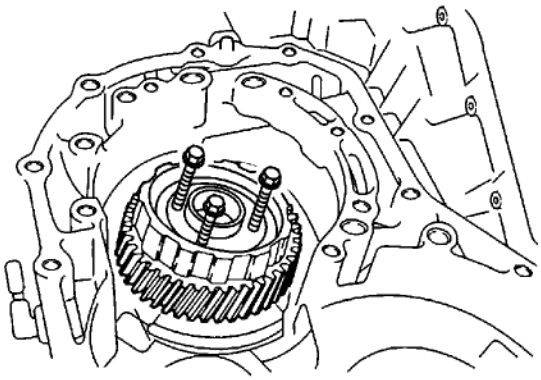
74. Using DT 46455 (1) and DT 46457 (2), remove the snap ring of 1st and reverse brake.



75. Remove the flange, 4 discs, 4 plates, and return spring.



76. Using DT 46455 (2), DT 46457 (3), and DT 46459 (1), remove the planetary ring gear.

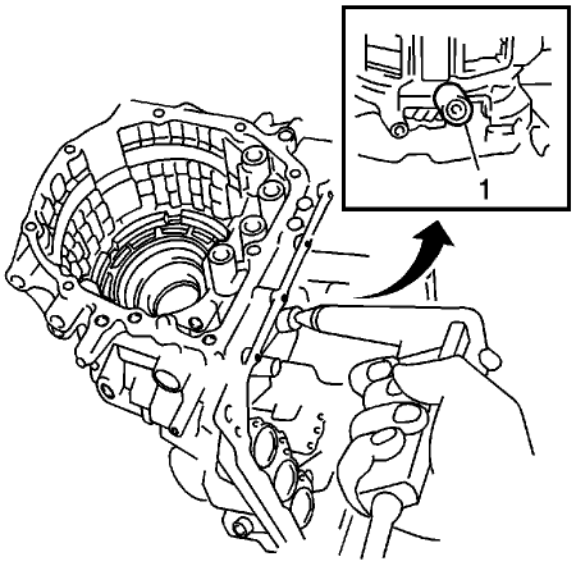


77. Install the bolts to the counter drive gear.

Specification

- The bolt (M6) L is equal to 40-80 mm (1.57-3.15 in).
- The bolt (M6) pitch is equal to 1.0 mm (0.04 in).

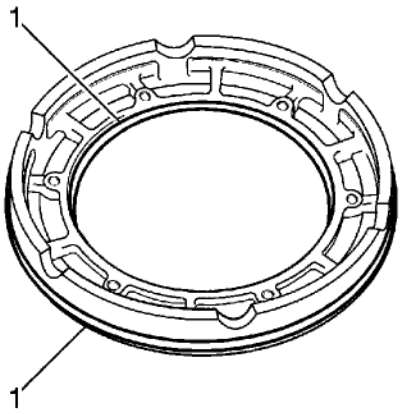
78. Rotate the bolts in order and remove the counter drive gear and planetary ring gear.



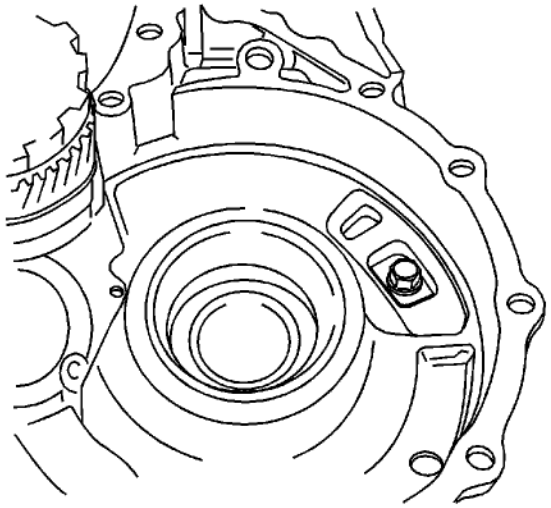
Note:

- Air pressure may cause the pistons to jump out. When removing the piston, hold it in place with your hand using a waste cloth.
- Take care not to splash ATF when air-blowing.

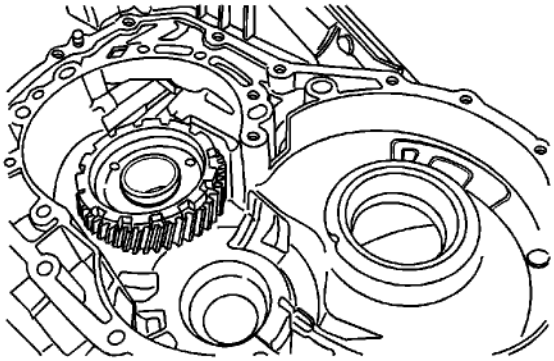
79. Apply compressed air to the transaxle case to remove the 1st and reverse brake piston.



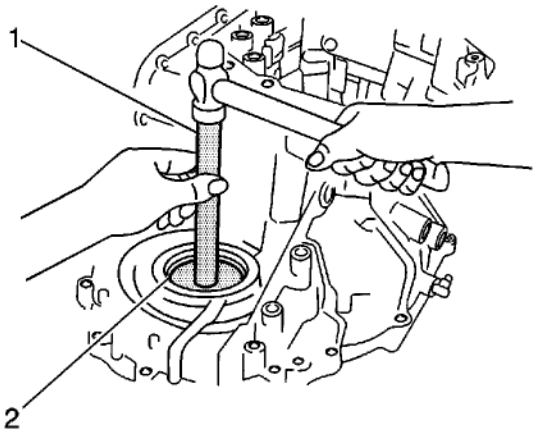
80. Remove the O-rings (1) from the 1st and reverse brake piston.



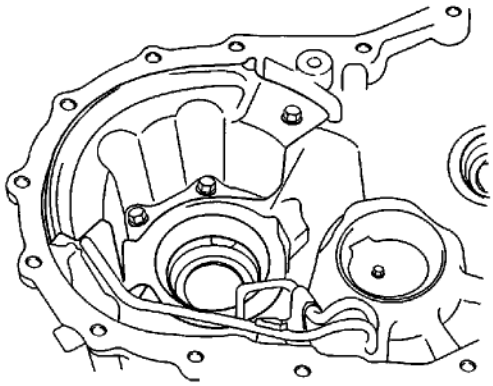
81. Remove the bolt and No. 1 transaxle case plate from the transaxle case.



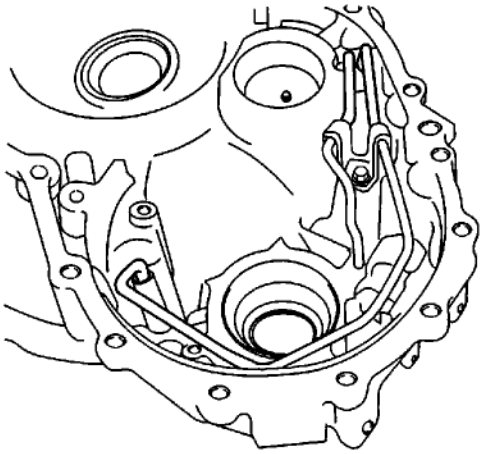
82. Using a suitable puller, remove the counter driven gear outer tapered roller bearing race and shim from the transaxle case.
83. Using a driver, remove the oil seal from the transaxle case.



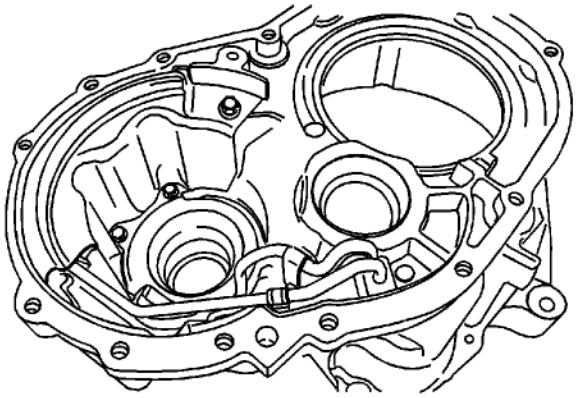
84. Using DT 46463 (2) and DT 46465 (1), remove the transaxle case side bearing outer race and shim.



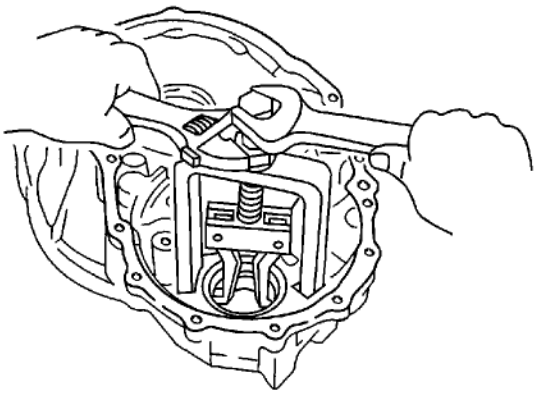
85. Remove the bolts and oil reservoir lock plate from the transaxle housing.



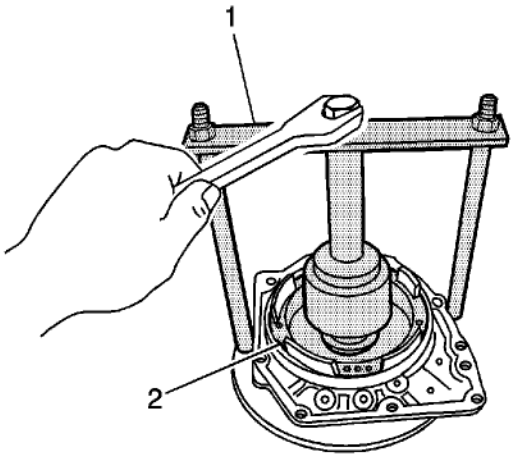
86. Remove the bolt and No. 1 transaxle apply pipe clamp from the transaxle housing.
87. Remove the transaxle lube apply pipe and differential gear lube apply pipe from the transaxle housing.



88. Using a suitable puller, remove the counter driven gear outer tapered roller bearing race from the transaxle housing.
89. Using a driver, remove the oil seal from the transaxle housing.

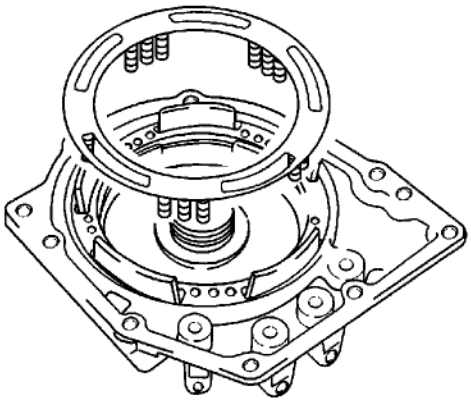


90. Using a suitable puller, remove the side bearing outer race from the transaxle housing.

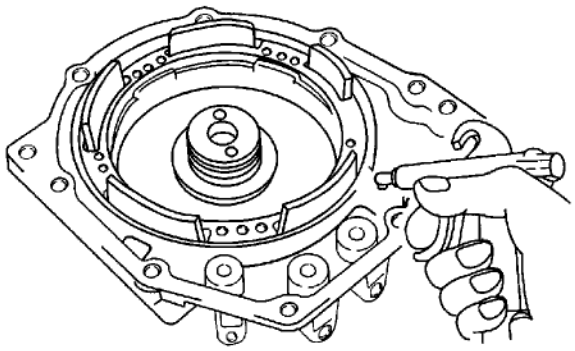


Warning: Use extreme care when removing snap rings. Always wear adequate eye protection in order to avoid personal injury.

91. Using DT 46451 (1), DT 46454 (2) and a driver, remove the snap ring.



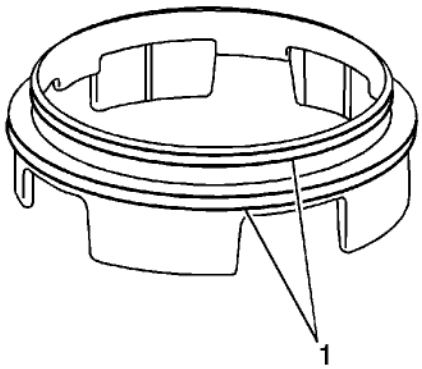
92. Remove the O/D brake return spring.



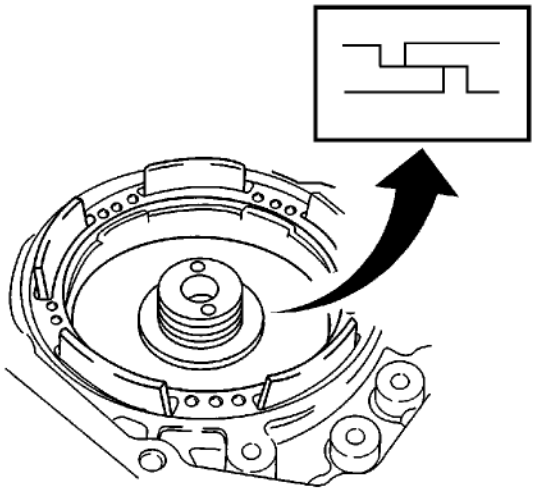
Note:

- Air pressure may cause the pistons to jump out. When removing the piston, hold it in place with your hand using a waste cloth.
- Take care not to splash ATF when air-blowing.

93. Apply compressed air to the transaxle rear cover to remove the O/D brake piston.

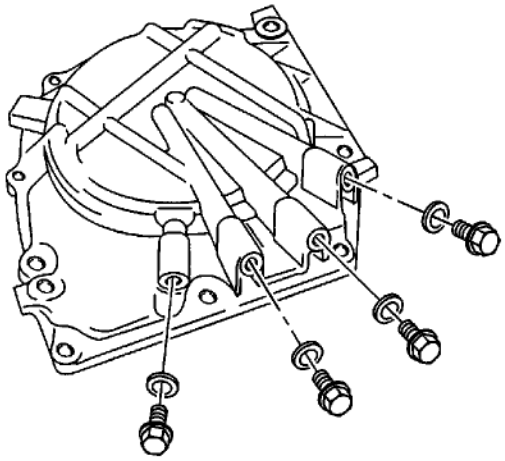


94. Remove the O-rings (1) from the O/D brake piston.



Note: Do not expand the seal ring excessively.

95. Remove the seal rings from the transaxle rear cover.



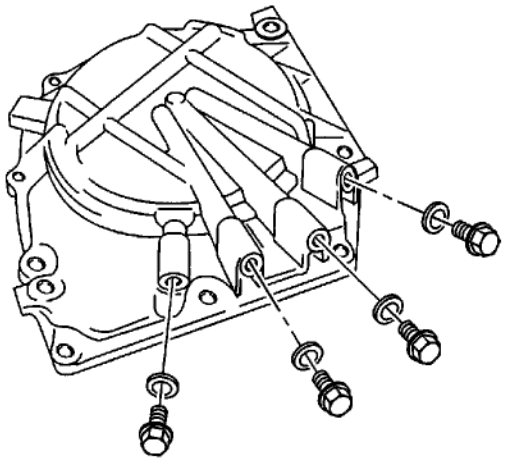
96. Remove the bolt plugs and O-rings from the transaxle rear cover.

Transmission Assemble

Special Tools

- DT 46451 (DW240-020) Brake Clutch Spring Compressor
- DT 46454 (DW240-050) Overdrive Brake Adapter
- DT 46455 (DW240-060-01) Brake Spring Compressor Bolt/Nut
- DT 46456 (DW240-060-02) Brake Spring Compressor Plate
- DT 46457 DW240-070) 1st/Reverse Brake Adapter
- DT 46458 (DW240-080) 2nd Brake Adapter
- DT 46460 (DW240-100) Counter Drive Gear Installation Adapter
- DT 46461 (DW240-130) Differential Preload Adapter
- DT 46462 (DW240-140) Transaxle Housing Side Bearing Outer Race Adapter
- DT 46464 (DW240-160) Transaxle Case Outer Tapered Roller Bearing Race Adapter
- DT 46465 (DW240-170) Adapter Handle
- DT 46471 (DW260-031-01) Transaxle Housing Oil Seal Installer
- DT 46472 (DW260-041) Planetary Ring Gear Nut Removal/Installation Socket
- DT 47521 (DW260-031-02) Transaxle Case Oil Seal Installer

Assembly Procedure

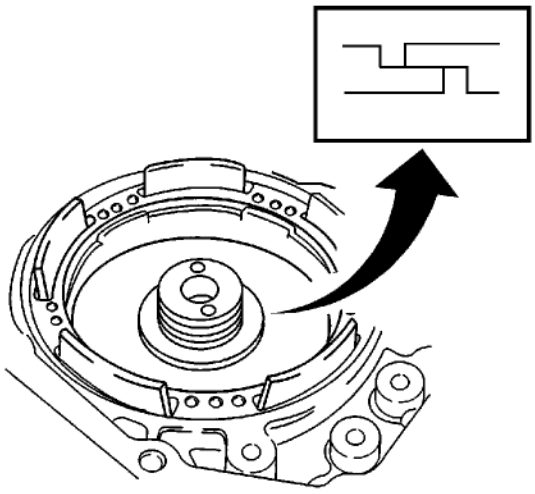


1. Install new O-rings to the bolt plugs.

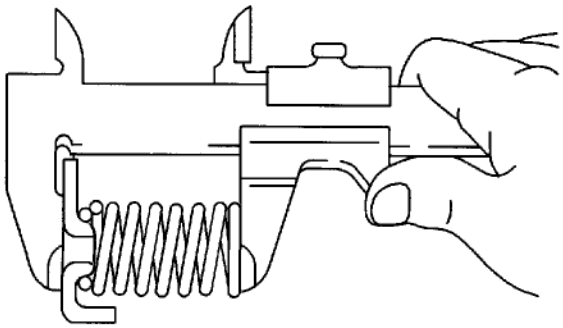
Caution: Refer to Fastener Caution in the Preface section.

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2. Install the bolt plugs with the O-rings to the transaxle rear cover and tighten to **7 N·m (62 lb in)**.

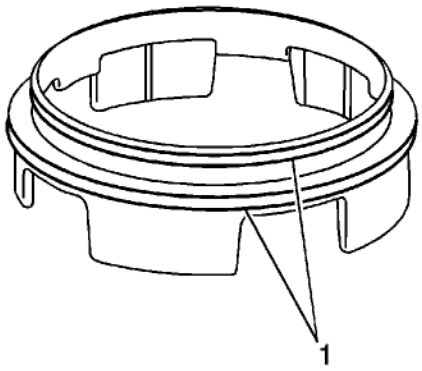


3. Install the seal rings to the transaxle rear cover.

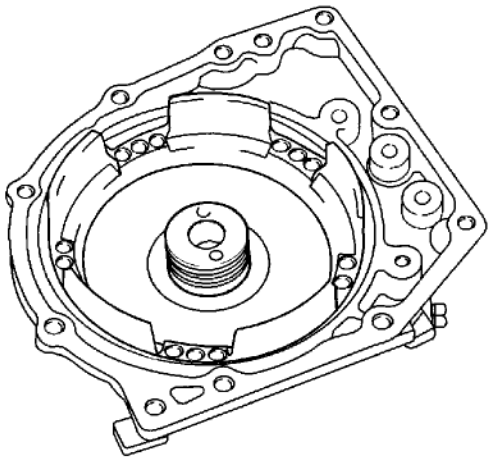


4. Using the vernier calipers, measure the free length of the overdrive (O/D) brake piston return spring together with the spring seat.

Specification
The standard free length is 18.99 mm (0.7476 in).

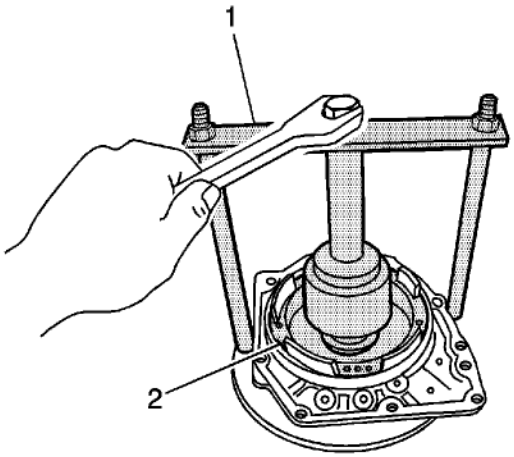


5. Coat the new O-rings (1) with automatic transaxle fluid (ATF). Install the O-rings to the O/D brake piston.

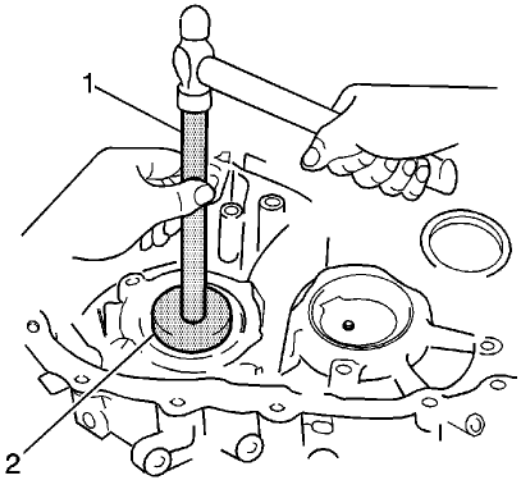


Note: Do not damage the O-rings of the O/D brake piston.

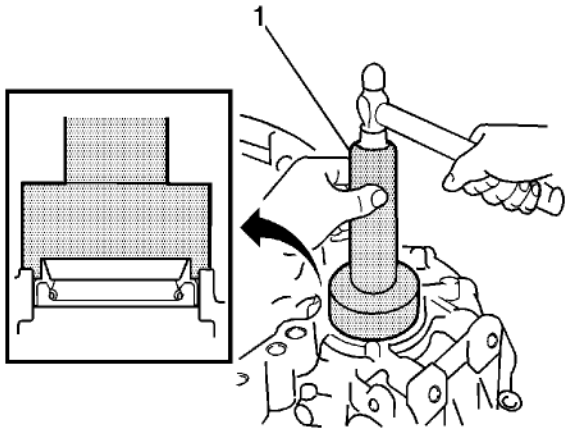
6. Coat the O/D brake piston with ATF. Install the piston to the transaxle rear cover.



7. Using DT 46451 (1), DT 46454 (2) and a driver, install the O/D brake return spring and snap ring to the transaxle rear cover.

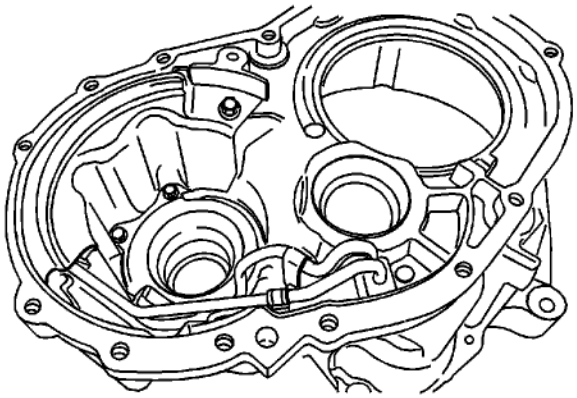


8. Using DT 46462 (2) and DT 46465 (1), install a new side bearing outer race into the transaxle housing.



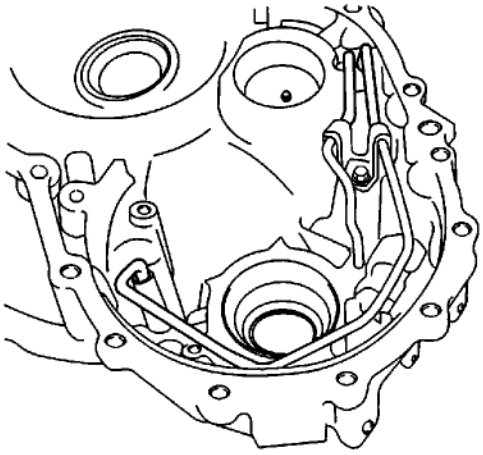
9. Using DT 46471 (1) and a hammer, drive in a new transaxle housing oil seal.

Specification
The oil seal depth is 3.1 mm (0.122 in).

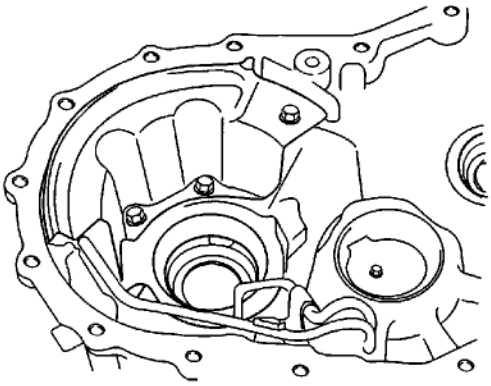


Note: Press-fit the outer tapered roller bearing race until the race contacts the transaxle housing.

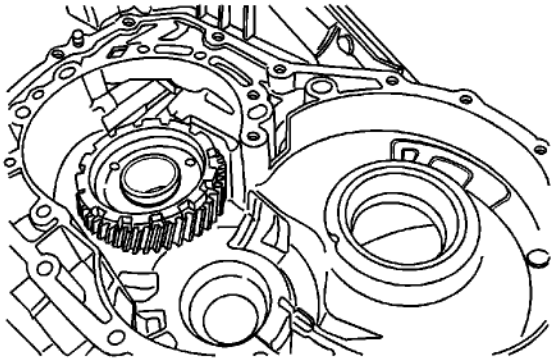
10. Install a new outer tapered roller bearing race into the transaxle housing.



11. Install the transaxle lube apply pipe and differential gear lube apply pipe to the transaxle housing.
12. Install the No. 1 transaxle apply pipe clamp to the transaxle housing with the bolt and tighten to **5 N·m (44 lb in)**.

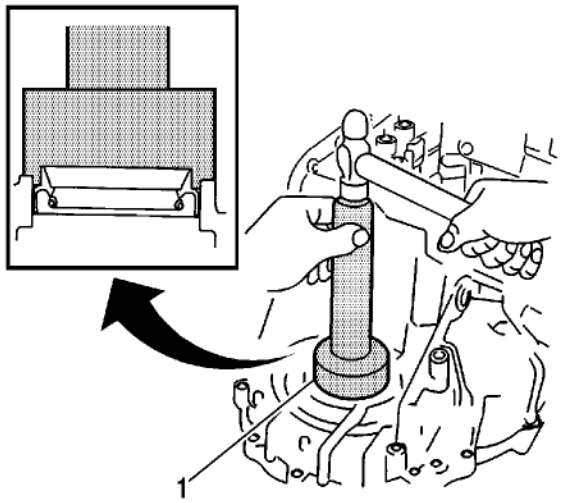


13. Install the oil reservoir lock plate to the transaxle housing.
14. Install the oil reservoir lock plate bolts and tighten to **5 N·m (44 lb in)**.



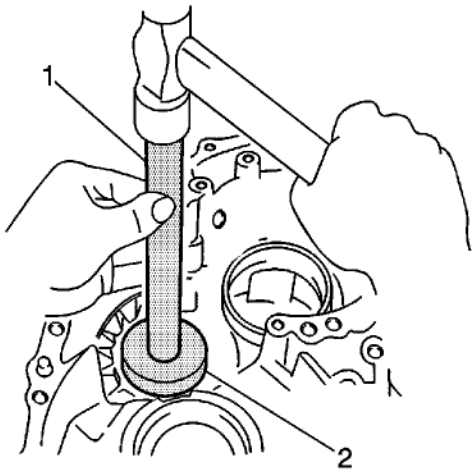
Note: First install a shim of the same thickness as the original shim.

15. Install the shim to the transaxle case.
16. Install a new bearing outer race into the transaxle case.



17. Using DT 47521 (1) and a hammer, drive in a new transaxle case oil seal.

Specifications
The oil seal depth is 4.3 mm (0.169 in).

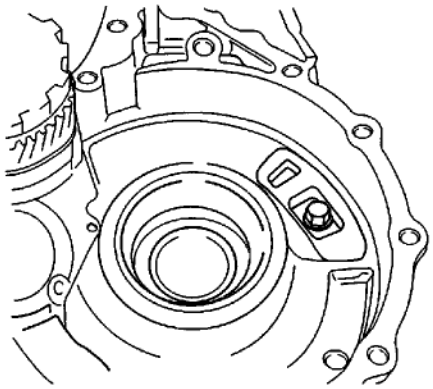


Note: First install a shim of the same thickness as the original shim.

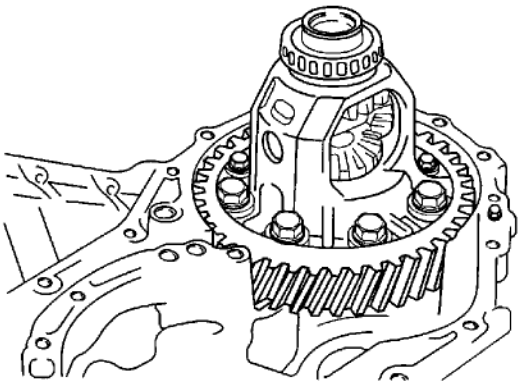
18. Install the shim to the transaxle case.

Note: Press-fit the shim until the shim contacts the transaxle case.

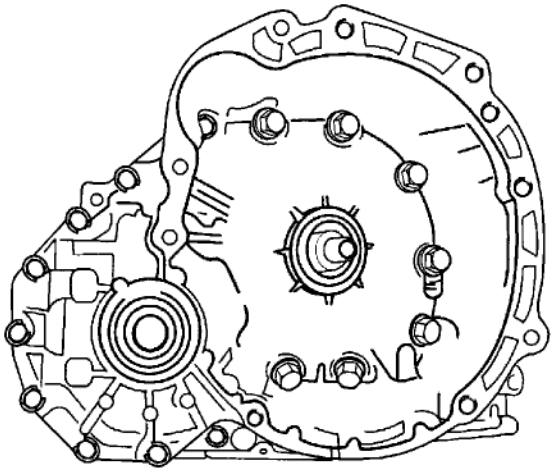
19. Using DT 46464 (2) and DT 46465 (1), press in a new outer tapered roller bearing race into the transaxle case.



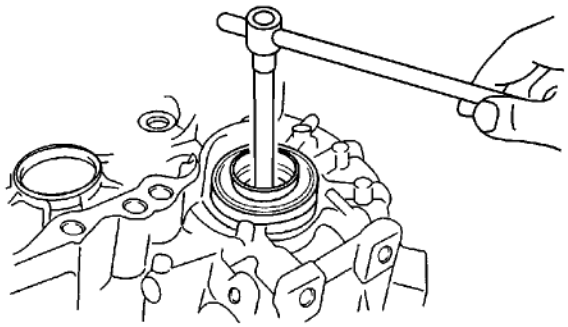
20. Install the No. 1 transaxle case plate to the transaxle case.
21. Install the transaxle case plate bolt and tighten to **10 N·m (89 lb in)**.



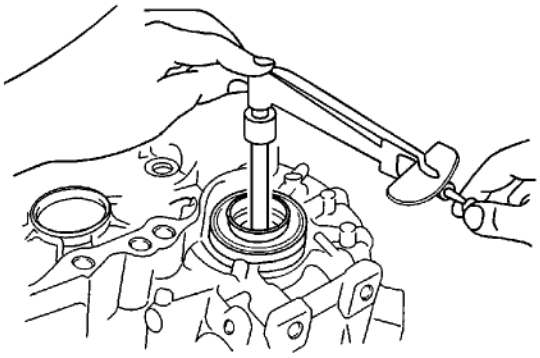
22. Install the differential gear to the transaxle case.



23. Install the transaxle housing and hand tighten the bolts of the transaxle housing.
24. Tighten 8 bolts of the transaxle housing completely and tighten to **29 N·m (22 lb ft)**.

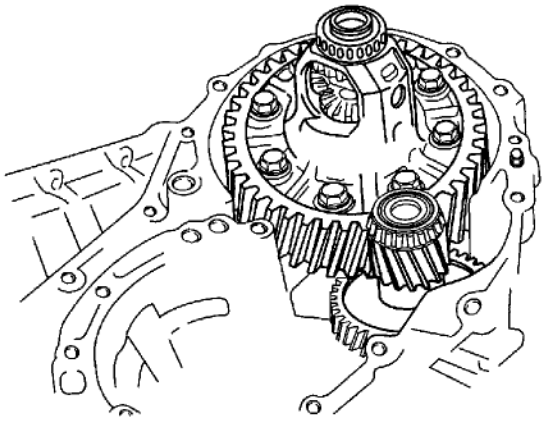


25. Using DT 46461 , turn the differential gear assembly right and left 2 or 3 times to allow the bearing to settle.

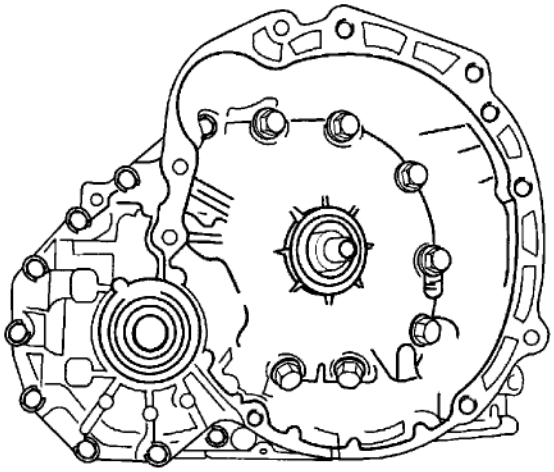


Note: Note the measured value.

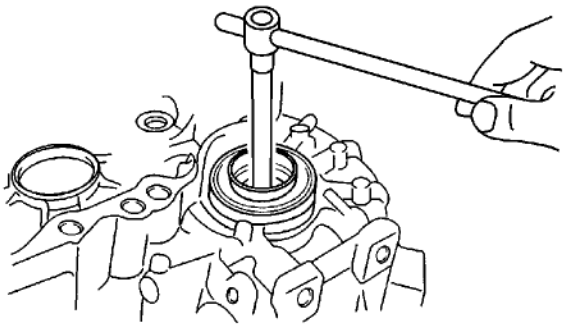
26. Using DT 46461 and a small torque wrench, measure the preload of the differential gear.



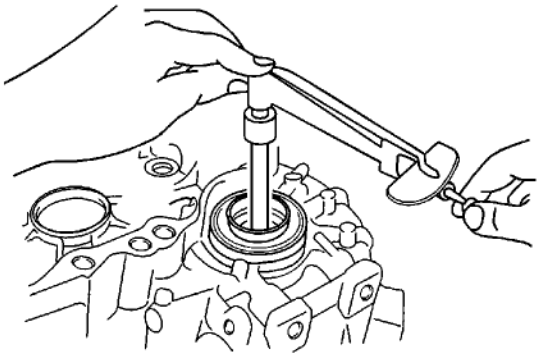
27. Remove the transaxle housing and install the counter driven gear.



28. Install the transaxle housing and hand tighten the bolts of the transaxle housing.
29. Tighten 8 bolts of the transaxle housing completely and tighten to **29 N·m (21 lb ft)**.



30. Using DT 46461 , turn the differential gear assembly right and left 2 or 3 times to allow the bearing to settle.



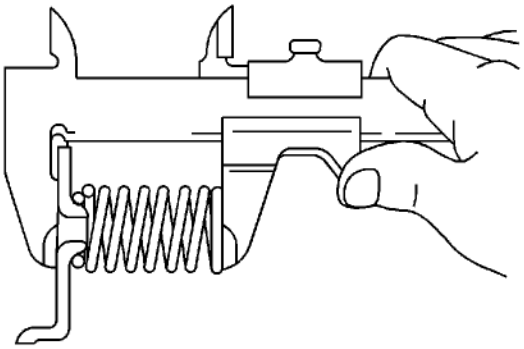
31. Using DT 46461 and a small torque wrench, measure the preload of the differential gear. From this value deduct the value measured previously. This new value is the preload of the counter driven gear.

Specification

- The preload for a new bearing is 0.33-0.76 N·m (3.21-6.77 lb in).
- The preload for a used bearing is 0.17-0.38 N·m (1.48-3.39 lb in).

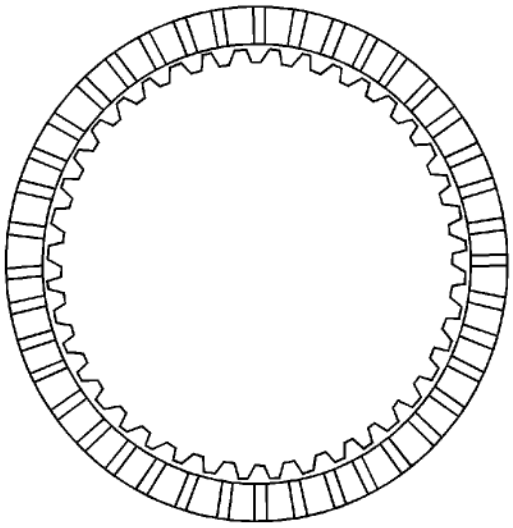
Note: When the preload is larger than the specification, select a thinner adjuster shim. When the preload is smaller than specification, select a thicker adjuster shim.

32. If the preload of the counter driven gear does not satisfy the specification, select the adjuster shim from the table below and re-measure the value. Until the value is within the specification, repeat the procedure.



33. Using the vernier calipers, measure the free length of the 1st and reverse brake piston return spring together with the spring seat.

Specification
The standard free length is 18.053 mm (0.7107 in).



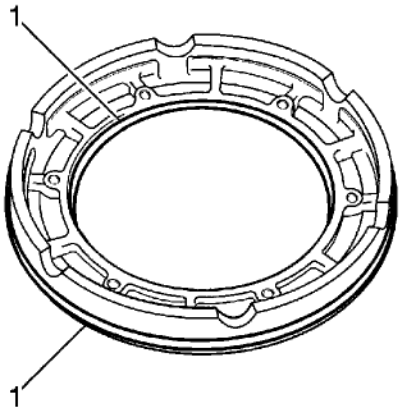
Note:

- If the lining of the disc is peeling off or discolored, or even if a part of the groove is

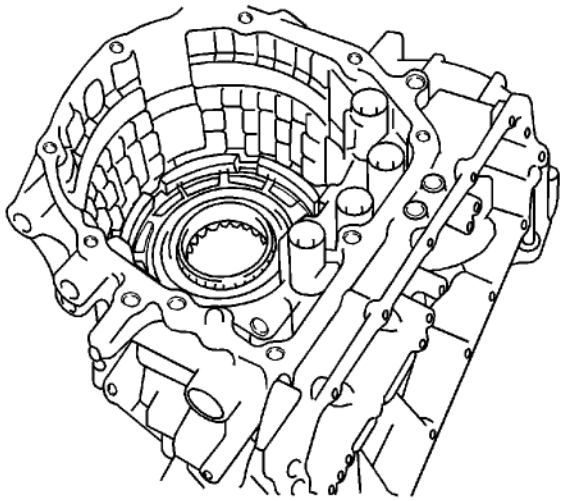
defaced, replace all discs.

- Before assembling the new discs, soak the discs in ATF for at least 15 minutes.

34. Inspect the sliding surface of the disc, the plate and the flange of the 1st and reverse brake for wear or burn. Replace if necessary.

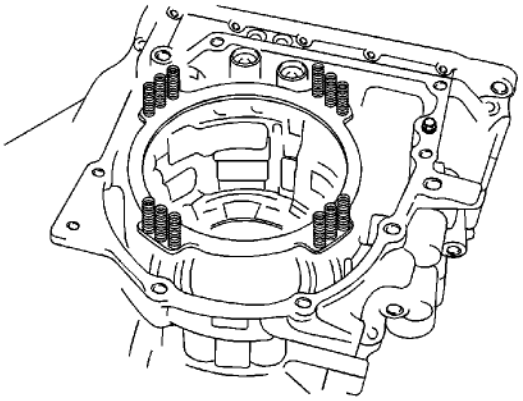


35. Coat the new O-rings (1) with ATF and install the O-rings to the 1st and reverse piston.

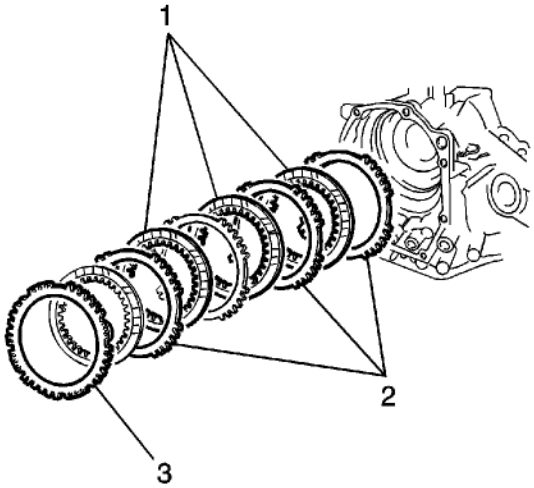


Note: Do not damage the O-rings of the 1st and reverse brake piston.

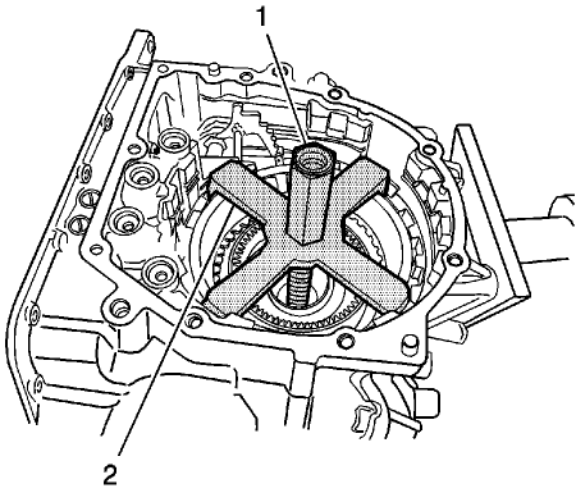
36. Install the 1st and reverse brake piston to the transaxle case.



37. Install the return spring to the transaxle case.

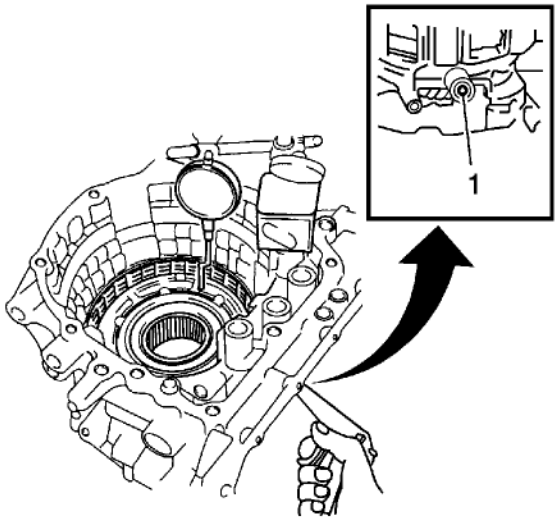


38. Install the 4 plates, the 4 discs and the flange in order: 2-1-2-1-2-1-2-1-3, where (2)=Plate, (1)=Disc, and (3)=Flange



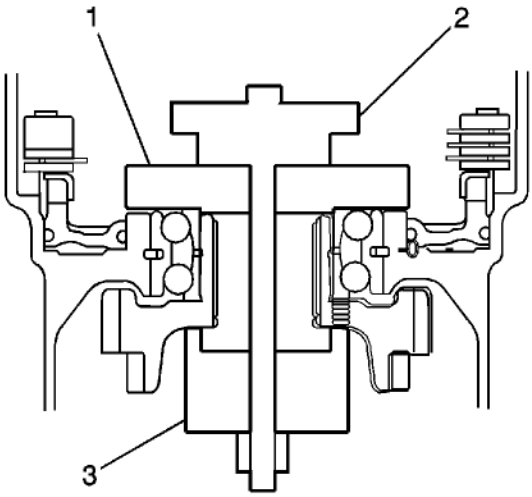
Note: Verify that the snap ring is installed correctly in the groove of the transaxle case.

39. Using DT 46457 (2) and DT 46455 (1), install the snap ring.



Note: If the piston stroke is non-standard, inspect the discs, the plates and the flange. The piston stroke is 0.6-1.3 mm (0.024-0.051 in).

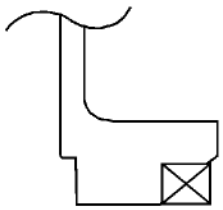
40. Using a dial indicator, measure the 1st and reverse brake piston stroke while applying and releasing compressed air.

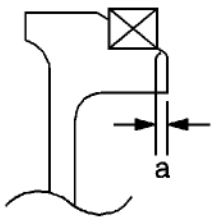




Note: Do not apply excessive force to the transaxle case.

41. Using DT 46460 (3), DT 46455 (2) and DT 46456 (1), install the counter drive gear.

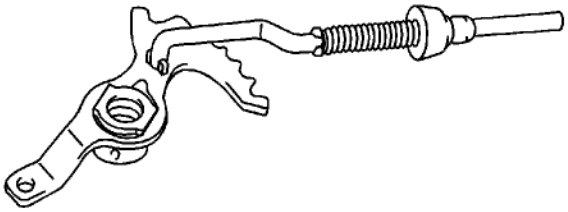




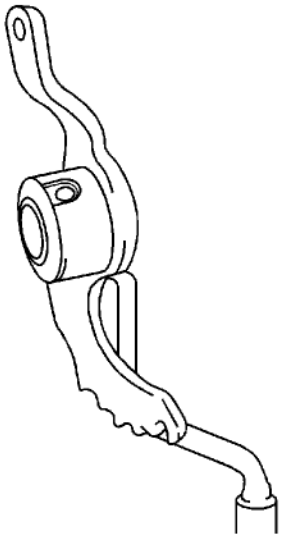


42. Coat a new oil seal with ATF.
43. Install the oil seal to the transaxle case.

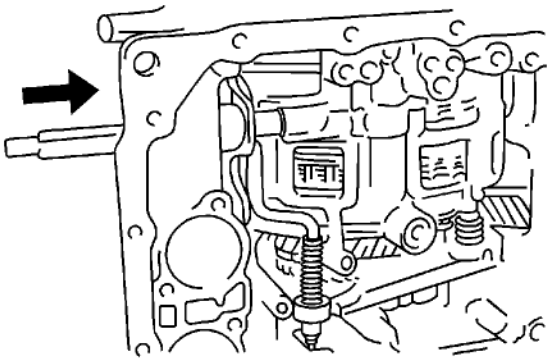
Specification
The oil seal depth is 0.75-1.25 mm (0.030-0.049 in).



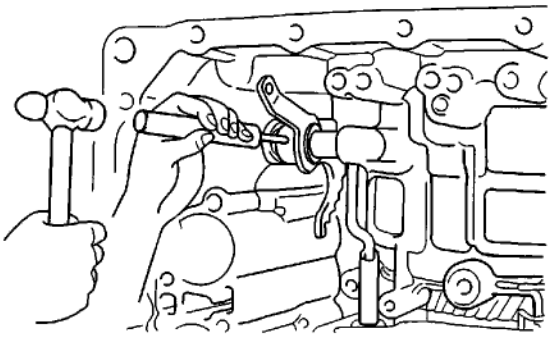
44. Install the parking lock rod to the manual valve lever.



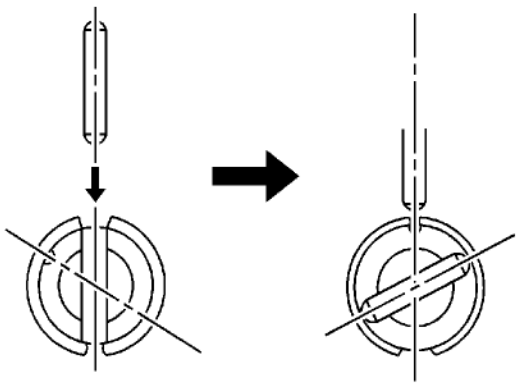
45. Install a new spacer to the manual valve lever.



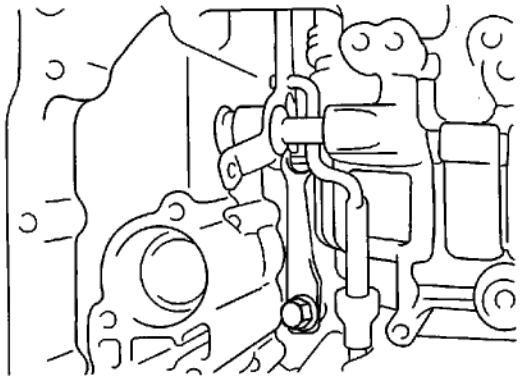
46. Install the manual valve lever shaft and the manual valve lever.



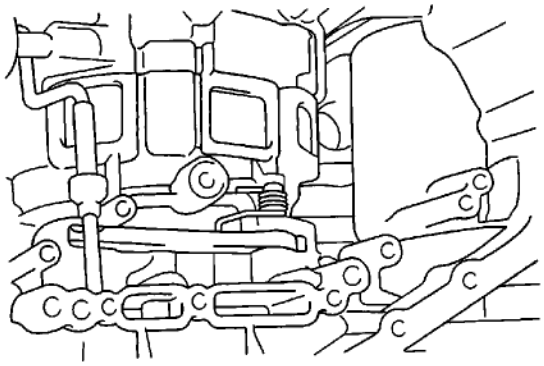
47. Using a pin punch and hammer, drive in a new pin.



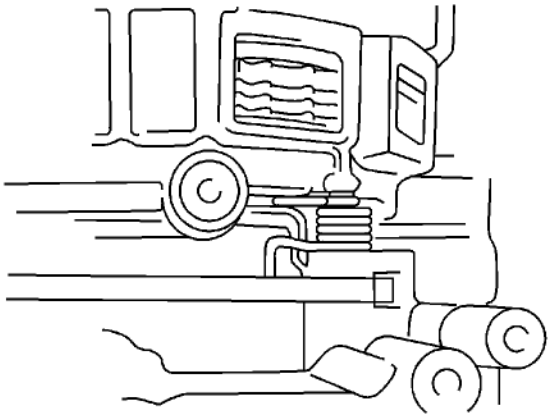
48. Turn the spacer and the lever shaft to align the small hole for locating the staking position in the spacer with the staking position mark on the lever shaft.
49. Using a pin punch, stake the spacer through the small hole.
50. Verify that the spacer does not turn.



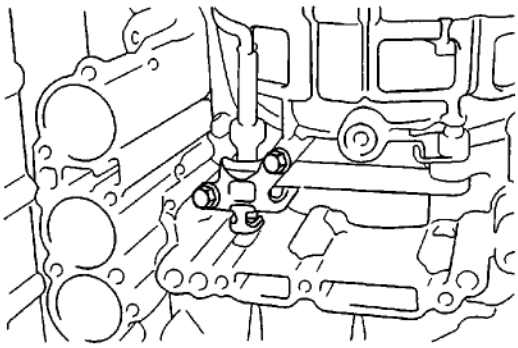
51. Install the manual detent spring.
52. Install the manual detent spring bolt and tighten to **10 N·m (89 lb in)**.



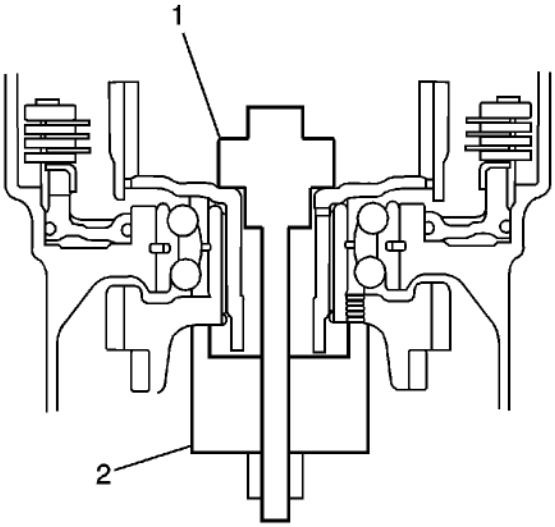
53. Install the parking lock shaft, torsion spring, and the parking lock pawl.



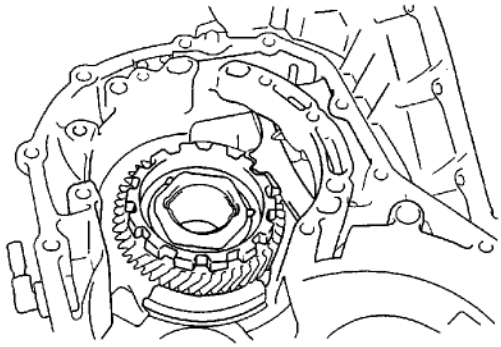
54. Verify that the edge of the torsion spring fits into the groove securely.



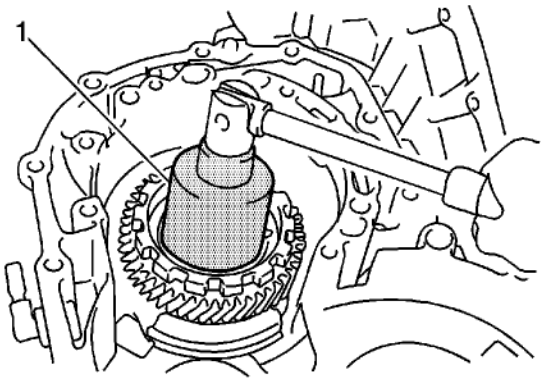
55. Install the parking lock pawl bracket.
56. Install the parking lock pawl bolts and tighten to **7 N·m (62 lb in)**.



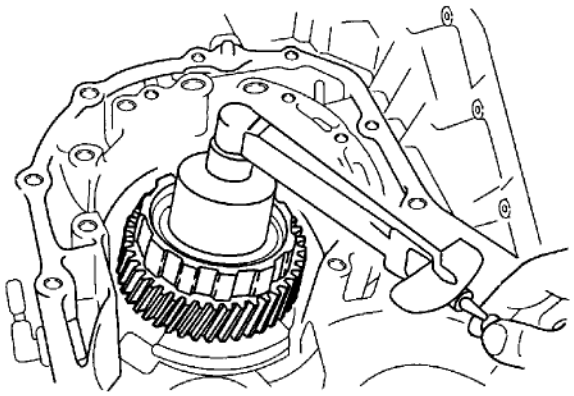
57. Replace the planetary ring flange of the planetary ring gear.
58. Using DT 46460 (2) and DT 46455 (1), install the planetary ring gear.



59. Fix the counter drive gear with the parking lock pawl.



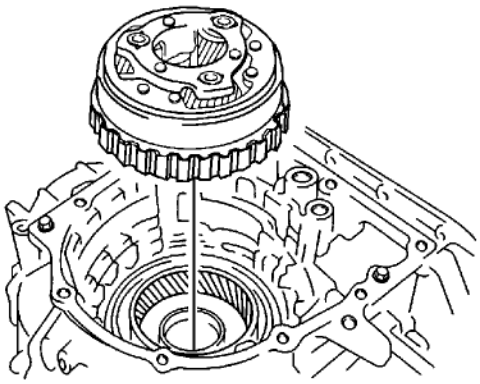
60. Using DT 46472 (1), install a new nut and tighten to **10 N·m (89 lb in)**.



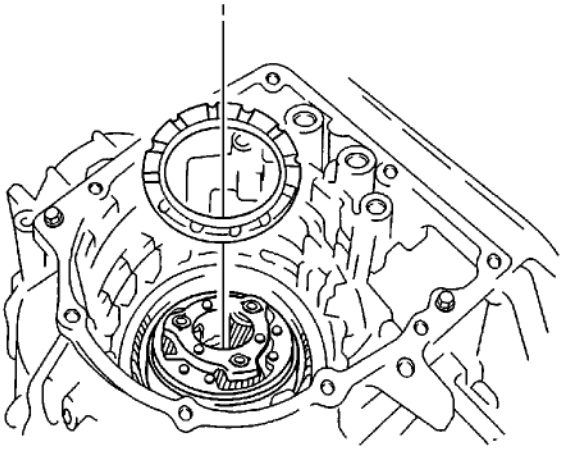
61. Using a small torque wrench, turn the counter drive gear 100 turn per minute and measure the preload and tighten to **29 N·m (22 lb ft)**.

Specification
When the preload is smaller than the specification, tighten the nut more and adjust the preload to 0.05-0.35 N·m (0.43-3.12 lb in).

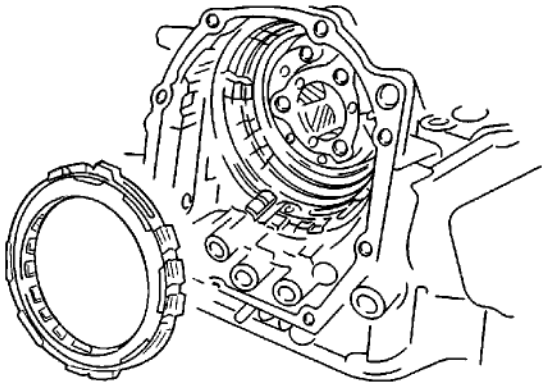
62. Stake the nut.



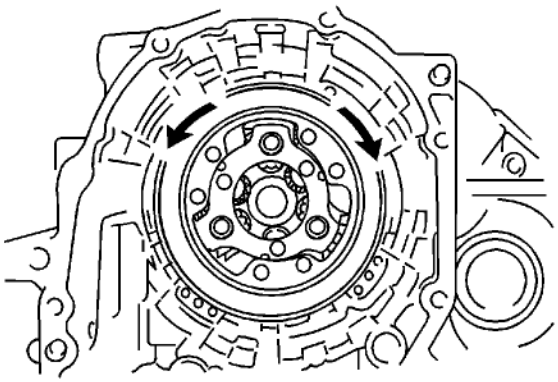
63. Install the planetary gear to the transaxle case.



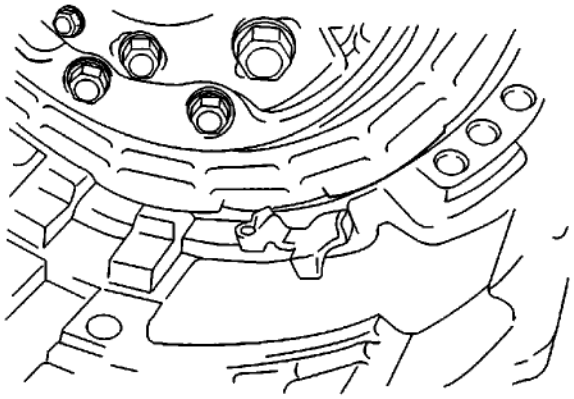
64. Coat the planetary carrier thrust washer with petroleum jelly and install the washer onto the planetary gear.



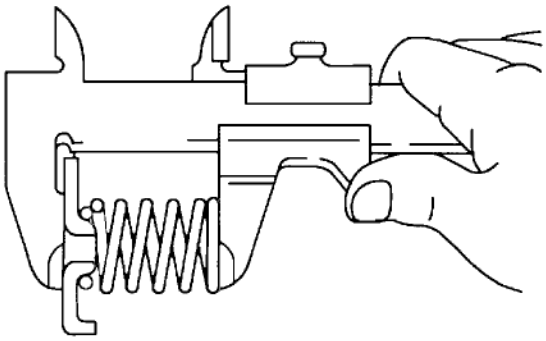
65. Install the No. 2 one-way clutch to the transaxle case.



66. Verify that the planetary gear turns freely counterclockwise and locks clockwise.

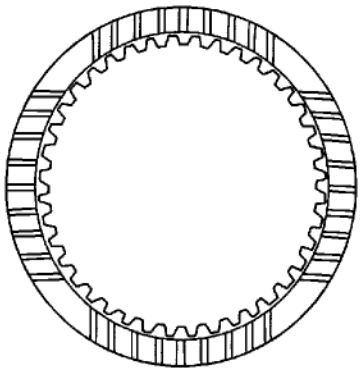


67. Install the anti-rattle clip in the space between the No. 2 one-way clutch outer race and transaxle case. Push the anti-rattle clip in place until you hear the click.



68. Using vernier calipers, measure the free length of the 2nd brake piston return spring together with the spring seat.

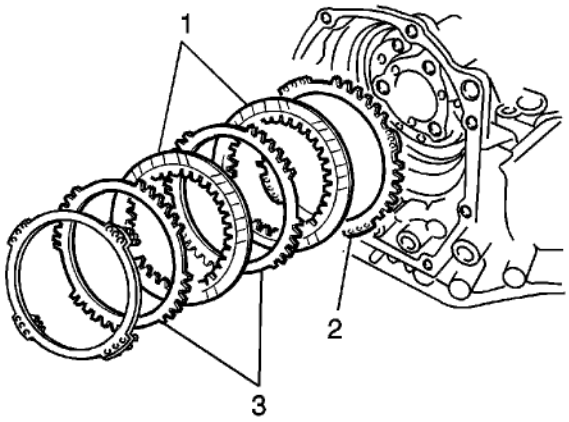
Specification
The standard free length is 15.85 mm (0.6240 in).



Note:

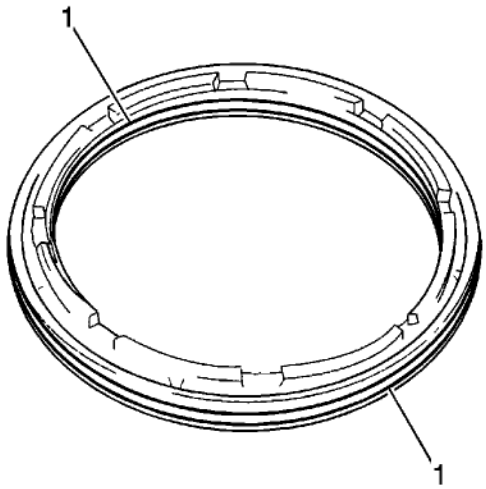
- If the lining of the disc is peeling off or discolored, or even if a part of the groove is defaced, replace all discs.
- Before assembling the new discs, soak the discs in ATF for at least 15 minutes.

69. If the sliding surface of the disc, the plate and the flange of 2nd brake are worn or burnt, replace the parts.

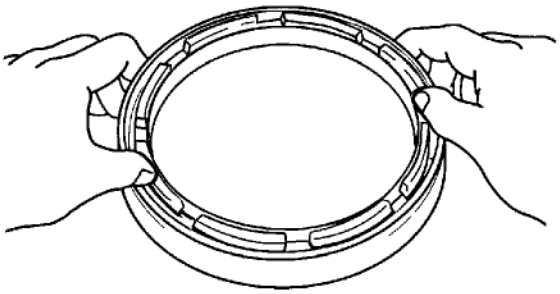


Note: Install the snap ring in the groove of the transaxle case correctly.

70. Install the flange, 2 discs and 2 plates in order: 2-1-3-1-3, where (1)=Disc, (2)=Flange, and (3)=Plate.
71. Install the 2nd brake return spring.

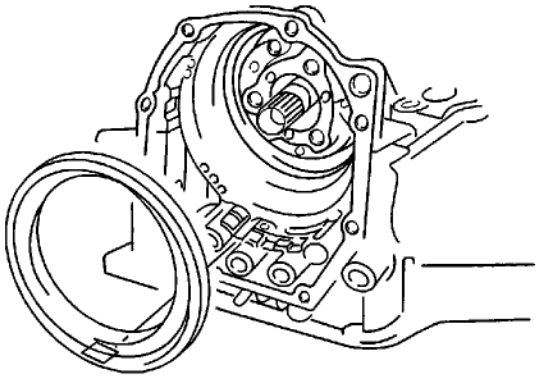


72. Coat the new O-rings (1) with ATF and install the O-rings to the 2nd brake piston.

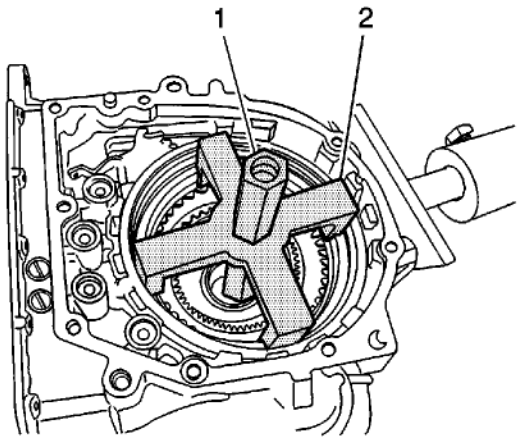


Note: Do not damage the O-rings.

73. Install the 2nd brake piston into the 2nd brake clutch cylinder.



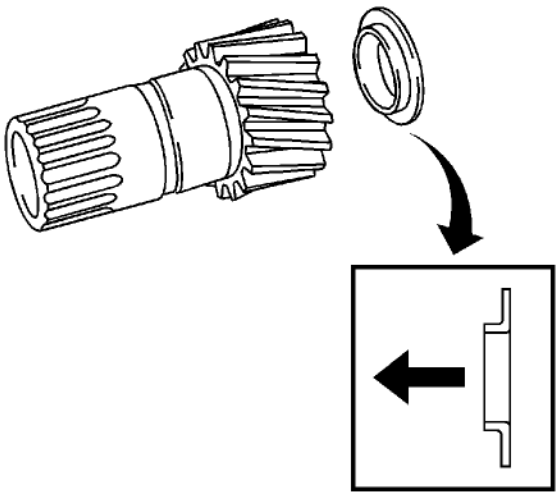
74. Install the 2nd brake clutch cylinder to the transaxle case.



75. Using DT 46455 (1) and DT 46458 (2), compress the 2nd brake piston return spring.

Note: Install the snap ring in the groove of the transaxle case correctly.

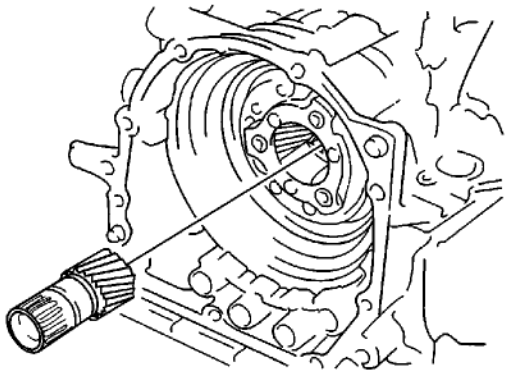
76. Using a screwdriver, install the snap ring.



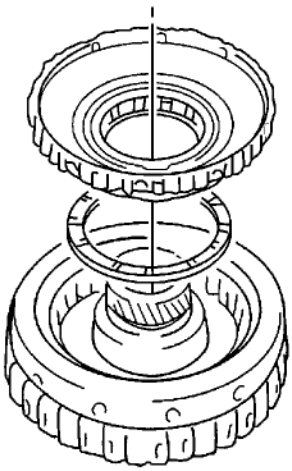
77. Coat the thrust bearing race with petroleum jelly and install the race onto the front planetary sun gear.

Specification

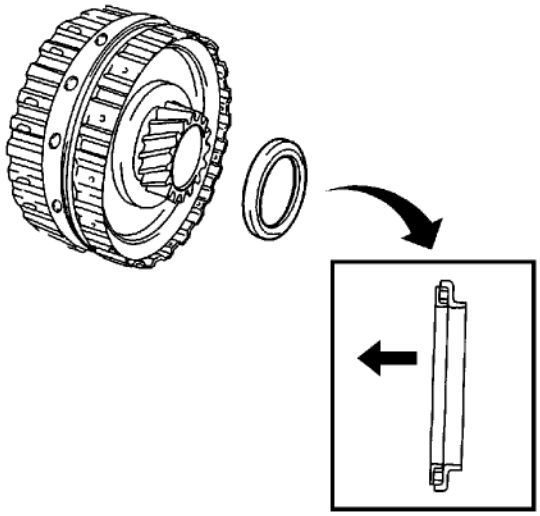
- The race inner diameter is 19.3 mm (0.760 in).
- The race outer diameter is 29.0 mm (1.142 in).



78. Install the front planetary sun gear to the transaxle case.



79. Install the thrust washer and the one-way clutch assembly to the rear planetary sun gear.

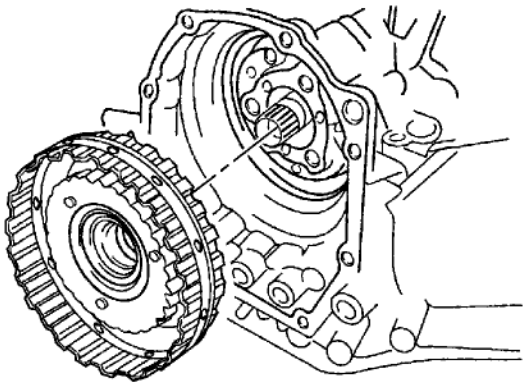


Note: Verify the direction of the bearing.

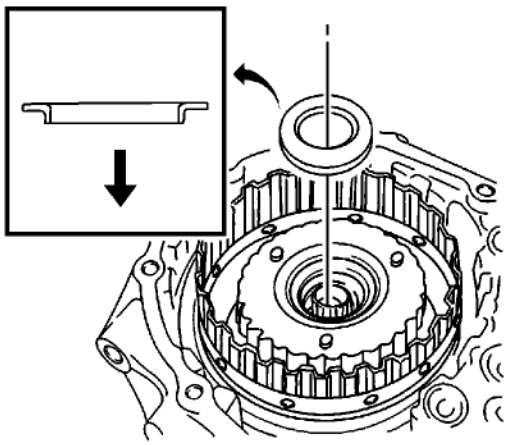
80. Coat the thrust bearing race with petroleum jelly and install the race onto the rear planetary sun gear and the one-way clutch assembly.

Specification

- The bearing inner diameter is 42.5 mm (1.673 in).
- The bearing outer diameter is 57.5 mm (2.264 in).



81. Install the rear planetary sun gear and the one-way clutch assembly to the transaxle case.

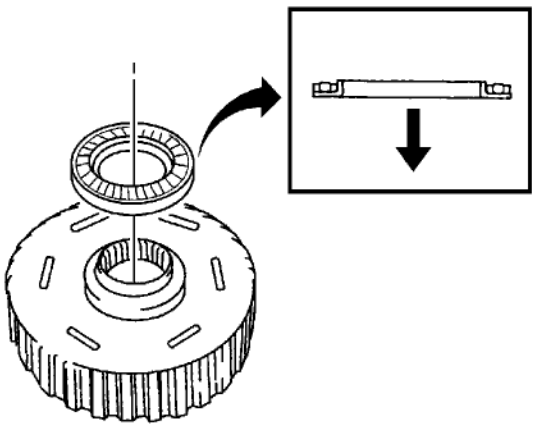


Note: Verify the direction of the race.

82. Coat the thrust bearing race with petroleum jelly and install the race onto the transaxle case.

Specification

- The race inner diameter is 34.95 mm (1.3760 in).
- The race outer diameter is 45.50 mm (1.7913 in).

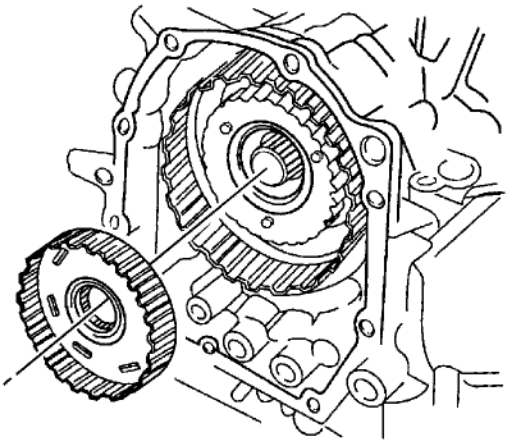


Note: Verify the direction of the bearing.

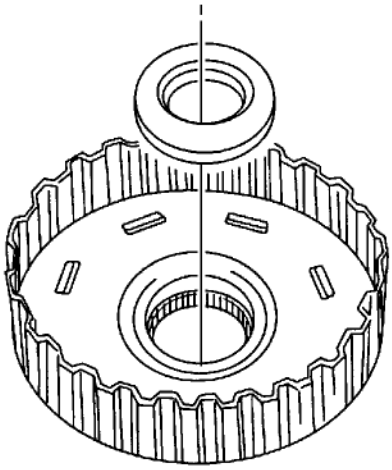
83. Coat the thrust needle roller bearing with petroleum jelly and install the bearing onto the forward clutch hub.

Specification

- The bearing inner diameter is 33.3 mm (1.311 in).
- The bearing outer diameter is 46.5 mm (1.831 in).



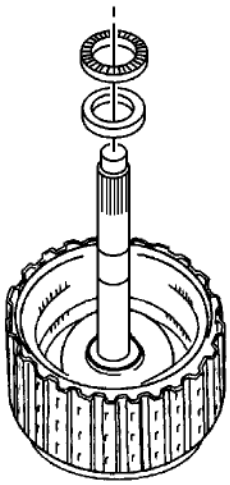
84. Install the forward clutch hub to the transaxle case.



85. Coat the thrust bearing race with petroleum jelly and install the race onto the forward clutch hub.

Specification

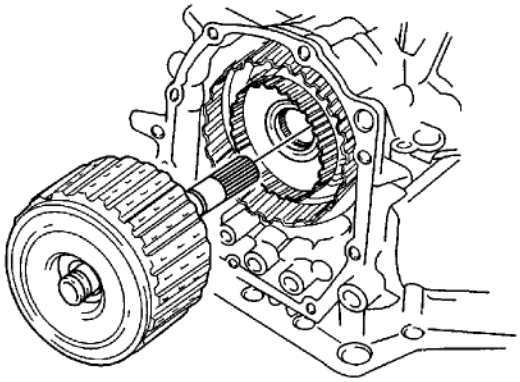
- The race inner diameter is 19.3 mm (0.760 in).
- The race outer diameter is 30.6 mm (1.205 in).



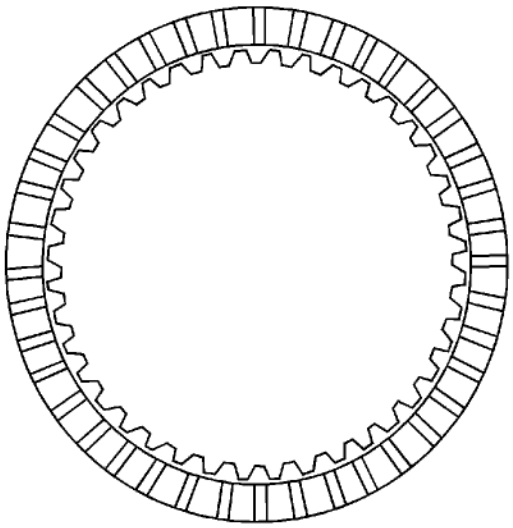
86. Install the thrust bearing race and thrust needle roller bearing to the forward and reverse clutch assembly.

Specification

- The race inner diameter is 18.1 mm (0.713 in).
- The race outer diameter is 28.2 mm (1.110 in).
- The bearing inner diameter is 18.1 mm (0.713 in).
- The bearing outer diameter is 29.6 mm (1.165 in).



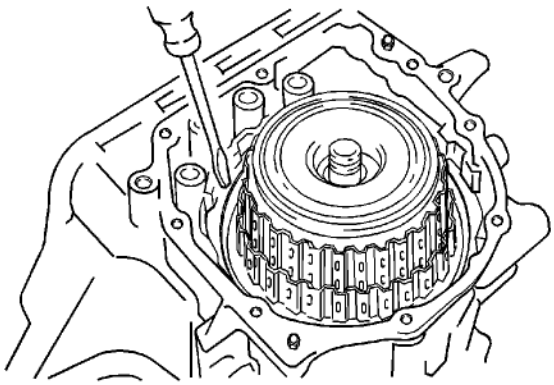
87. Install the forward and reverse clutch assembly to the transaxle case.



Note:

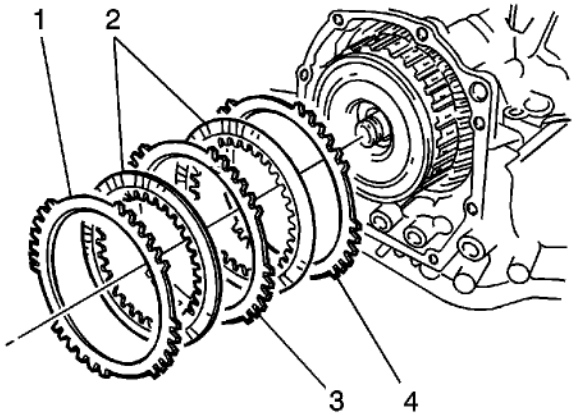
- If the lining of the disc is peeling off or discolored, or even if the part of the printed mark is defaced, replace all discs.
- Before assembling new discs, soak the discs in ATF for at least 15 minutes.

88. If the sliding surface of the disc, the plate and the flange of 2nd coast and O/D brake are worn or burnt, replace the components.



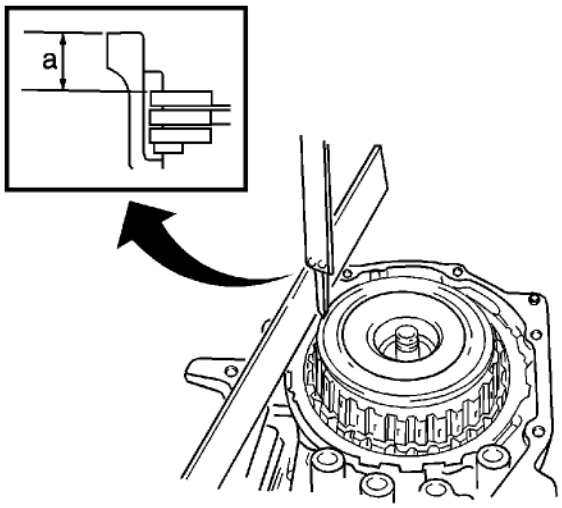
Note: Install the snap ring in the groove of the transaxle case correctly.

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



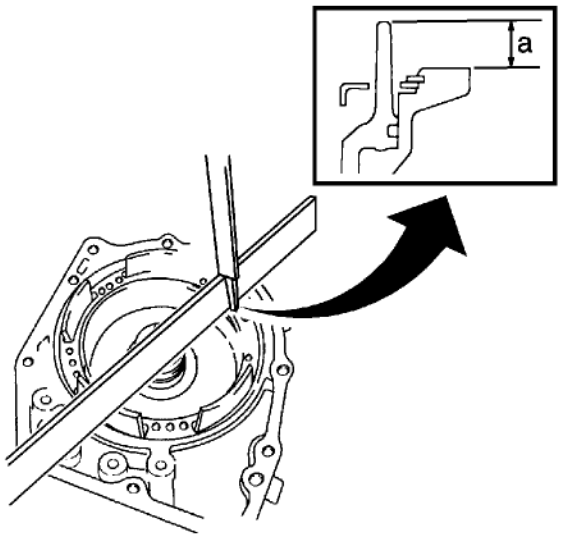


90. Install the flange, 2 discs and 2 plates to the transaxle case in the following order: 4-2-3-2-1, Flange (4), Non-Selective (3)=Plate, (2)=-Disc, and (1)=Selective Plate.
91. Clean the connected part the transaxle case and the transaxle rear cover.

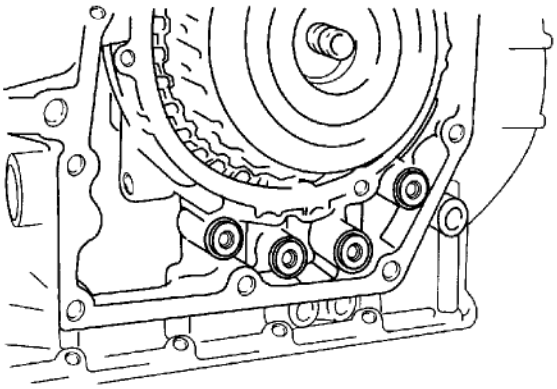




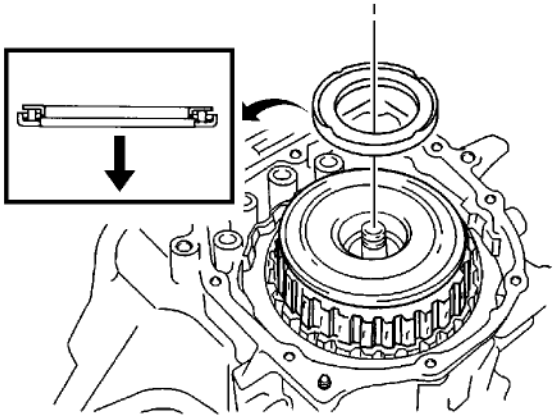
92. Place a straight edge on the transaxle case and measure the distance between the 2nd coast and the O/D brake flange and the straight edge using vernier calipers (a).



93. Place a straight edge on the O/D brake piston and measure the distance between the transaxle rear cover and the straight edge using vernier calipers (a).
94. Calculate the piston stroke value using the following formula. Piston stroke = Dimension A - Dimension B. Select and install a plate which satisfies the piston stroke value.



95. Install new governor apply gaskets to the transaxle rear cover.

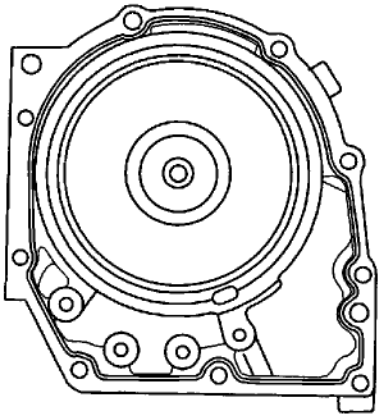


96. Coat the thrust needle roller bearing with petroleum jelly and install the bearing onto the forward and reverse clutch assembly.

Specification

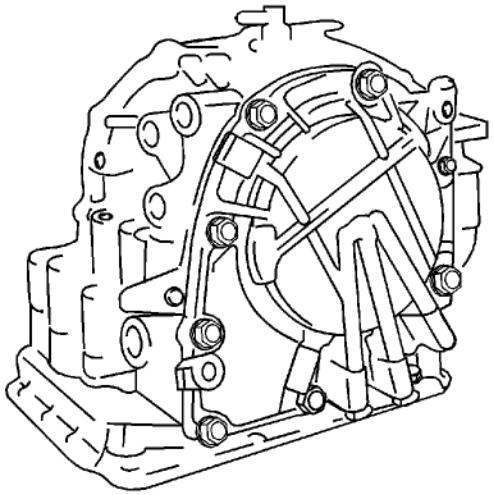
- The bearing inner diameter is 43.2 mm (1.701 in).
- The bearing outer diameter is 62.0 mm (2.441 in).

97. Remove any packing material. Do not get oil on the contacting surfaces of the transaxle rear cover or transaxle case.

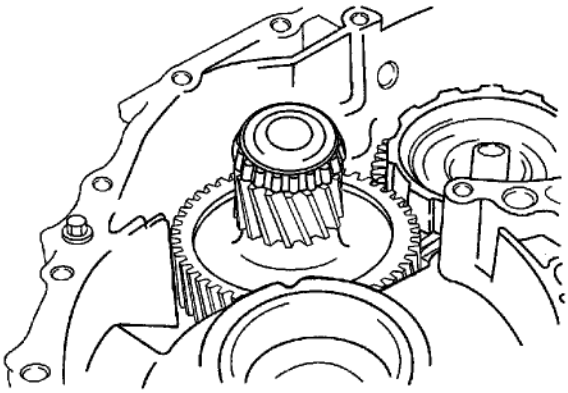


98. Apply three bond 1281 or equivalent to the transaxle rear cover.

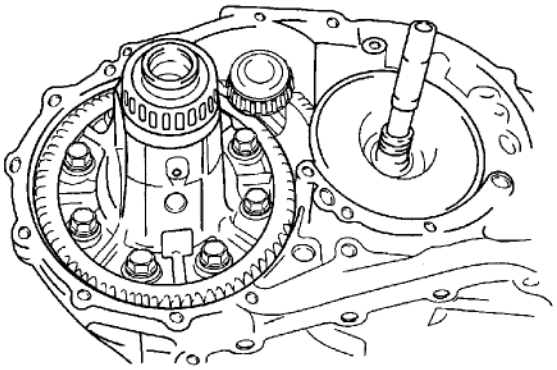
Specification
The seal bend width is 1.2 mm (0.047 in).



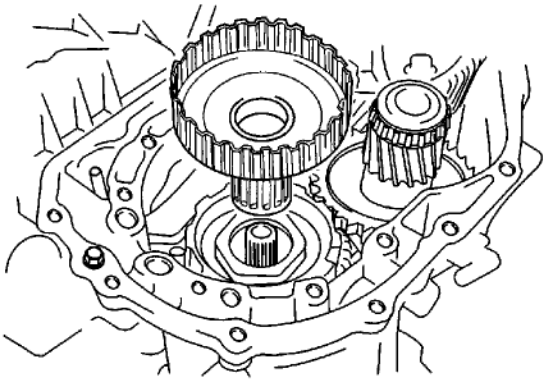
99. Install the transaxle rear cover to the transaxle case.
100. Install the transaxle rear cover bolts and tighten to **25 N·m (18 lb ft)**.



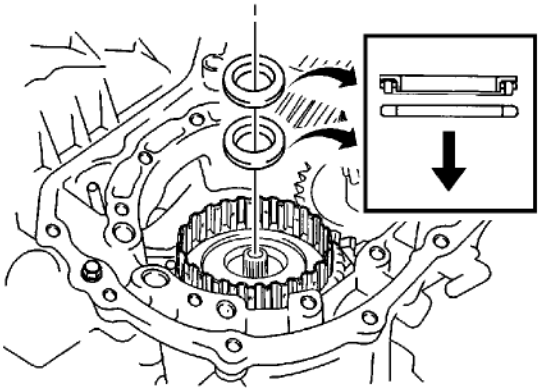
101. Install the counter driven gear assembly to the transaxle case.



102. Install the differential gear assembly to the transaxle case.



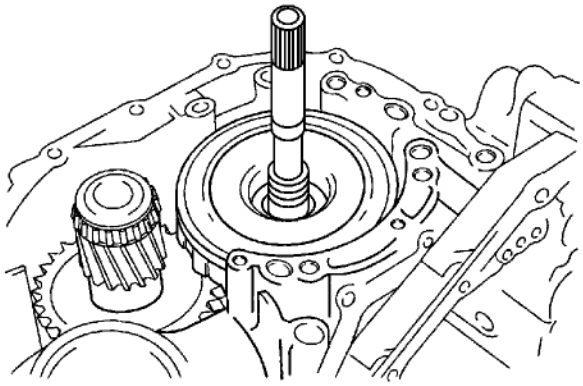
103. Install the direct clutch hub to the transaxle case.



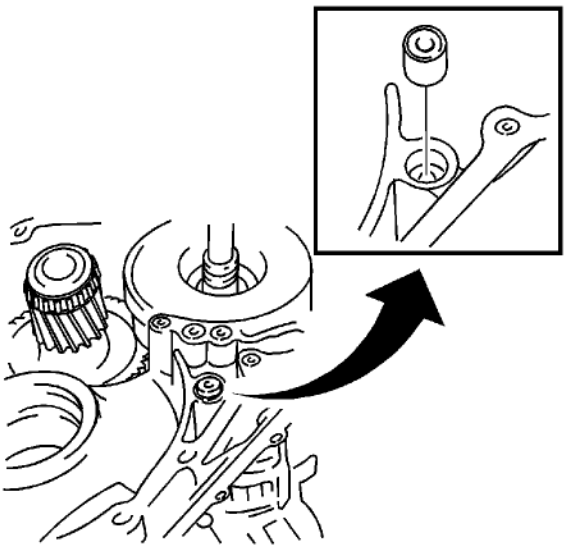
104. Install the thrust bearing race and the thrust needle roller bearing to the transaxle case.

Specification

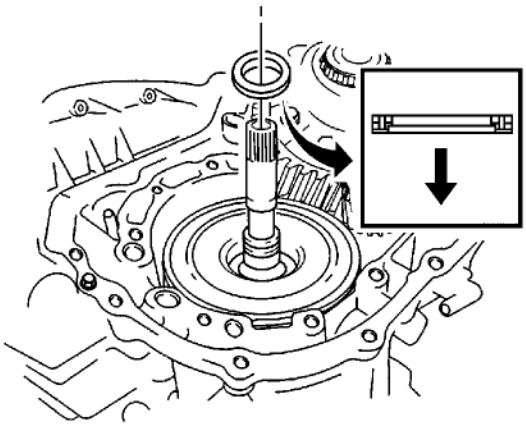
- The race inner diameter is 20.5 mm (0.807 in).
- The race outer diameter is 32.6 mm (1.283 in).
- The bearing inner diameter is 17.8 mm (0.701 in).
- The bearing outer diameter is 30.2 mm (1.189 in).



105. Install the clutch assembly to the transaxle case.

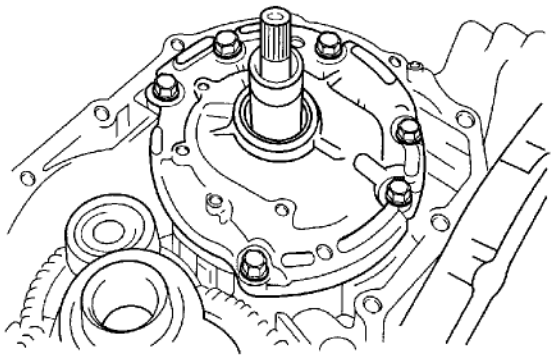


106. Install a new governor apply gasket.



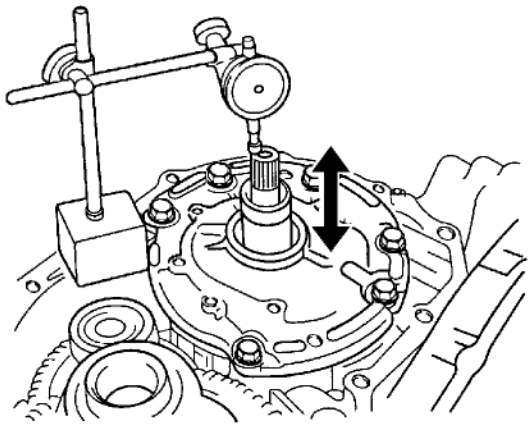
Note: Verify the direction of the bearing.

107. Install the thrust needle roller bearing to the transaxle case.
108. Place the oil pump through the input shaft, and align the bolt holes of the oil pump with the transaxle case.





109. Install the oil pump bolts and tighten to **25 N·m (18 lb ft)**.





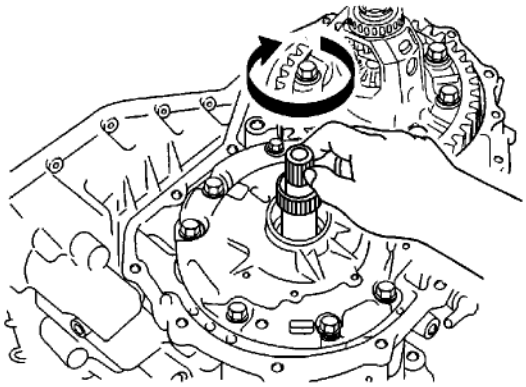
Note: If the end play is not as specified, select and replace the thrust needle roller bearing.

110. Measure the end play in axial direction.

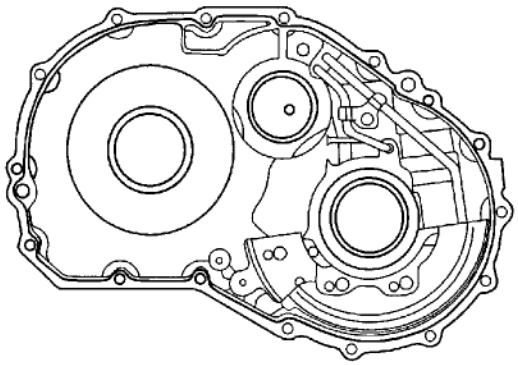
Specification

- The end play is 0.3-0.9 mm (0.012-0.035 in).
- The bearing inner diameter is 32.5 mm (1.280 in).
- The bearing outer diameter is 48.5 mm (1.909 in).
- The bearing thickness is 4.21 mm (0.1657 in).

- The bearing inner diameter is 32.9 mm (1.295 in).
- The bearing outer diameter is 48.5 mm (1.909 in).
- The bearing thickness is 3.62 mm (0.1425 in).

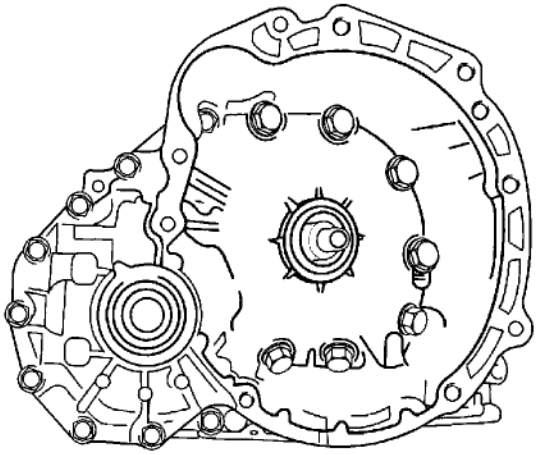


111. Confirm that the input shaft rotates smoothly.

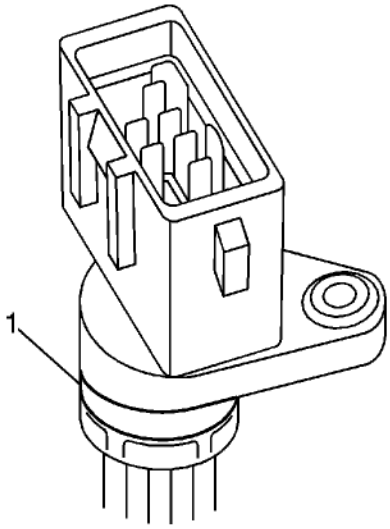


112. Remove any packing material. Do not get oil on the contacting surfaces of the transaxle housing or the transaxle case.
113. Apply three bond 1281 or equivalent to the transaxle housing.

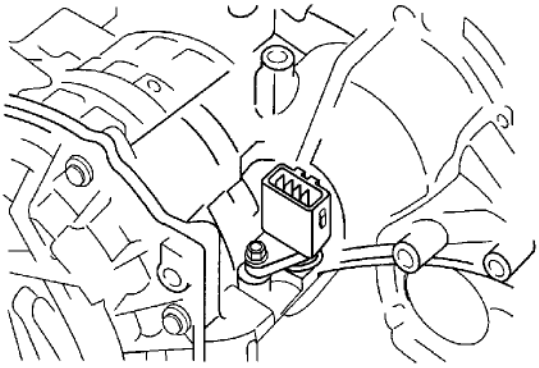
Specification
The seal bend width is 1.2 mm (0.047 in).



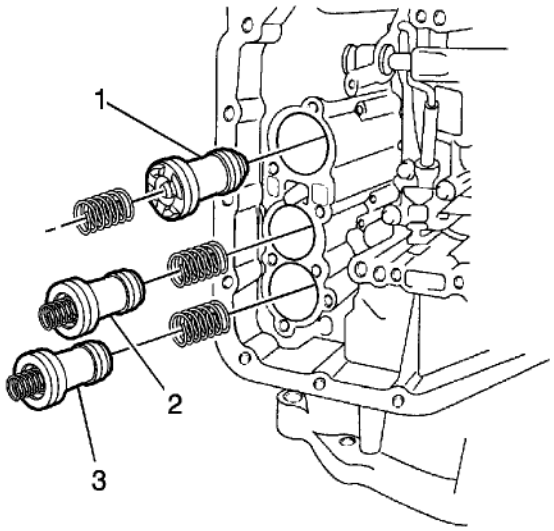
114. Install the transaxle housing to the transaxle case.
115. Install the transaxle housing bolts and tighten to **29 N·m (22 lb ft)**.
116. Apply seal packing or equivalent to the bolts.



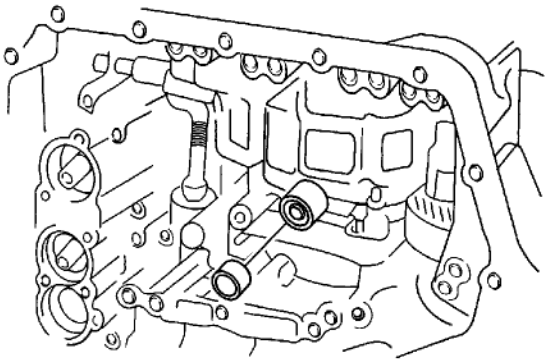
117. Coat a new O-ring (1) with ATF, install the O-ring to the transaxle wire.



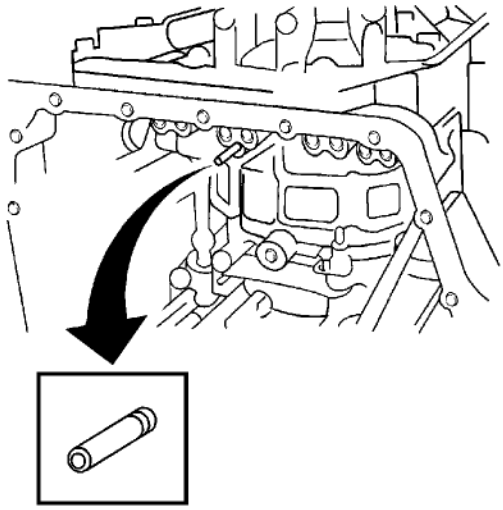
118. Install the transaxle wire to the transaxle case.
119. Install the transaxle wire bolt and tighten to **5 N·m (44 lb in)**.



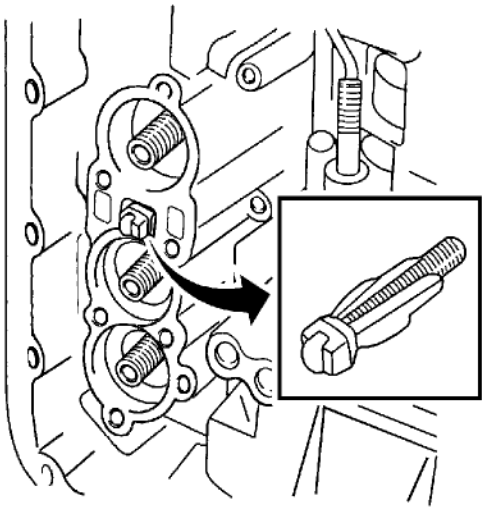
120. Coat the new O-rings with ATF and install the O-rings to the pistons (1, 2, 3).
121. Coat the springs and accumulator pistons with ATF and install the components.



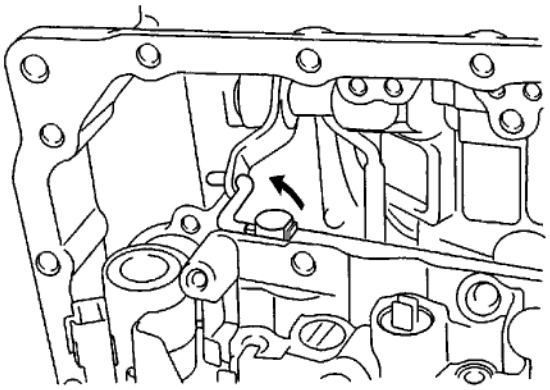
122. Coat a new governor apply gasket with ATF and install the gasket into the transaxle case.



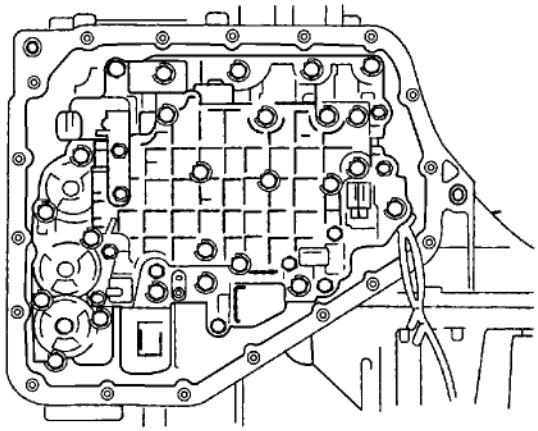
123. Coat a new brake drum gasket with ATF and install the gasket into the transaxle case.



124. Install the spring and the check valve.

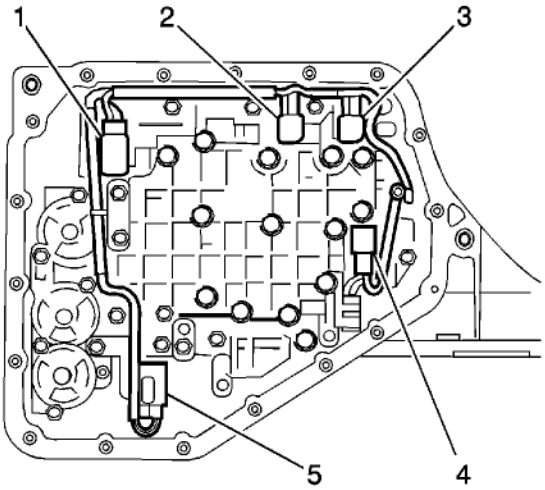


125. Connect the manual valve control rod to the manual valve lever.



Note: When installing the valve body to the transaxle case, do not let each of the accumulator pistons incline. When installing the valve body to the transaxle case, do not hold the solenoids.

126. Install the valve body assembly to the transaxle case.
127. Install the valve body bolts and tighten to **11 N·m (97 lb in)**.

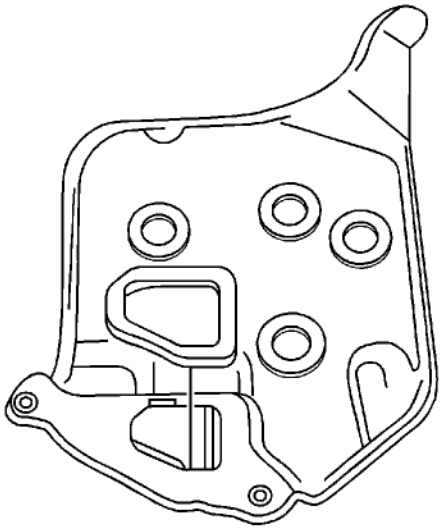


128. Connect the transaxle wire connector and harness to the valve body assembly.
129. Connect the 5 connectors.
    129.1. The lock-up control solenoid (5)
    129.2. The pressure control solenoid (1)
    129.3. The No. 2 shift solenoid (2)

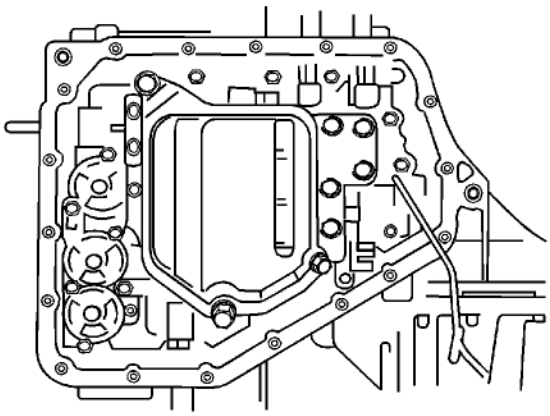
129.4. The No. 1 shift solenoid (3)
129.5. The timing solenoid (4)

Note: Verify that the transaxle wire does not come out from the oil pan installations surface.

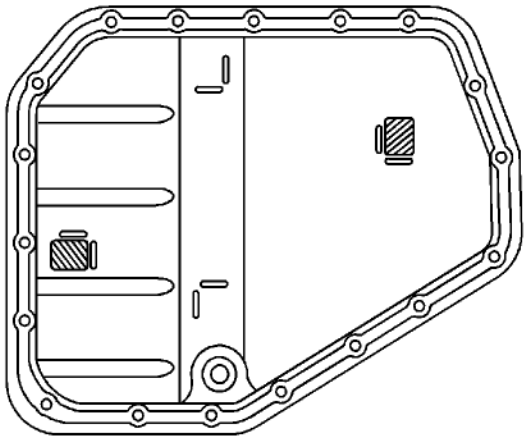
130. Install the TFT sensor with a clamp.



131. Install a new gasket to the oil strainer.

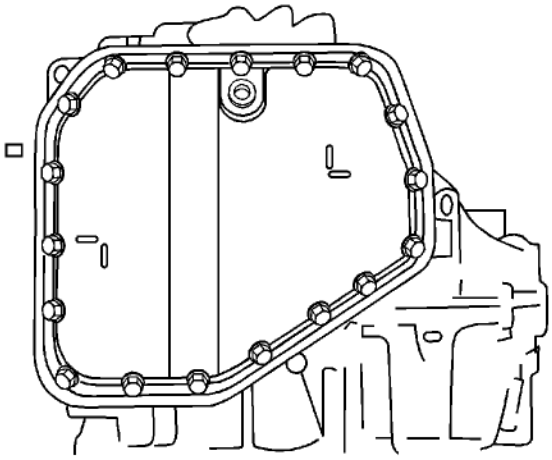


132. Install the oil strainer to the valve body.
133. Install the oil strainer bolts and tighten to **10 N·m (89 lb in)**.



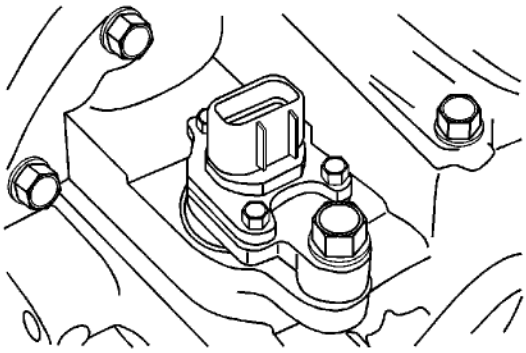


134. Install two magnets in the oil pan.

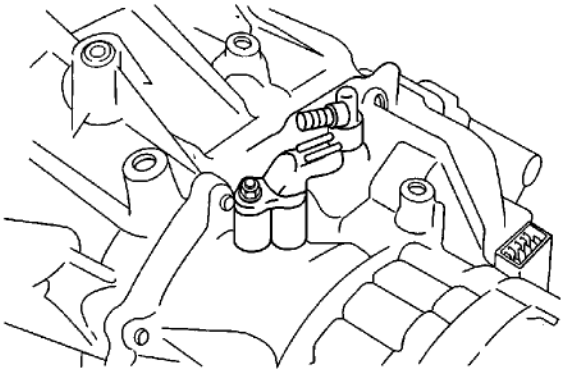




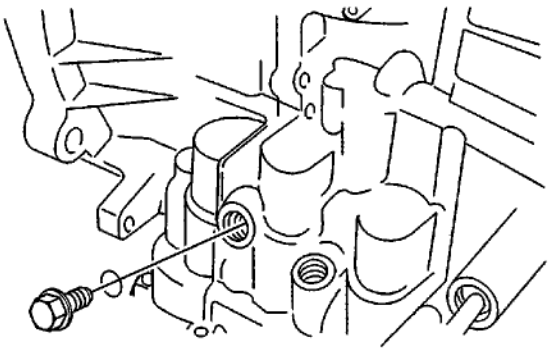
135. Install a new gasket to the oil pan and install the oil pan to the transaxle case.
136. Install the oil pan bolts and tighten to **7 N·m (62 lb in)**.



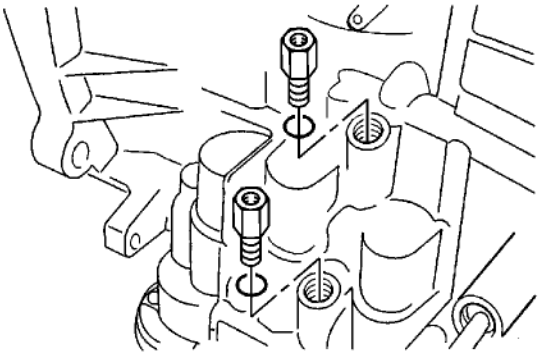
137. Install the output shaft speed (OSS) sensor.
138. Install the (OSS) bolt and tighten to **7 N·m (62 lb in)**.



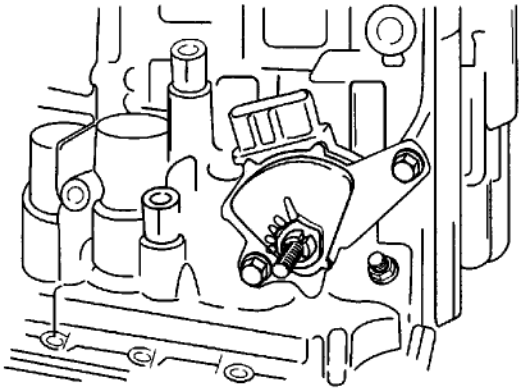
139. Install the No. 1 breather plug.
140. Install the input shaft speed (ISS) sensor.
141. Install the (ISS) bolt and tighten to **5 N·m (44 lb in)**.



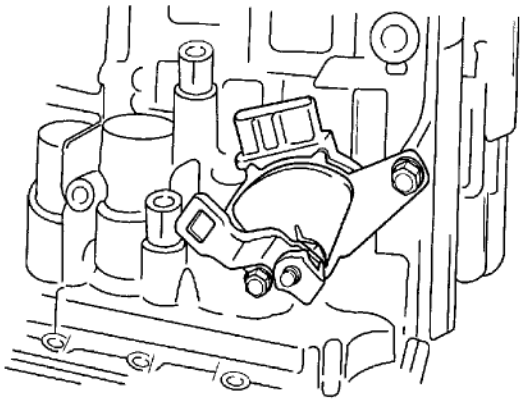
142. Coat the new O-ring with ATF and install the O-ring to the bolt plug.
143. Install the bolt plug to the transaxle case and tighten to **7 N·m (62 lb in)**.



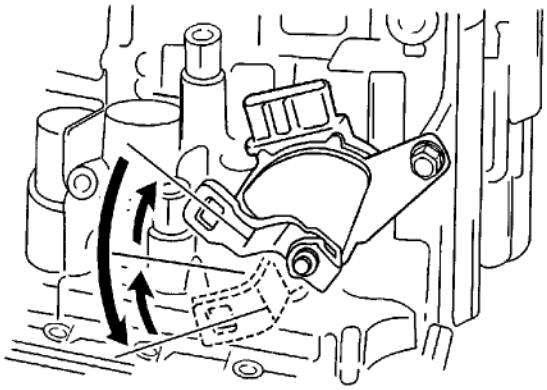
144. Coat new O-rings with ATF and install the O-rings to the unions.
145. Install the unions to the transaxle case and tighten to **25 N·m (18 lb ft)**.



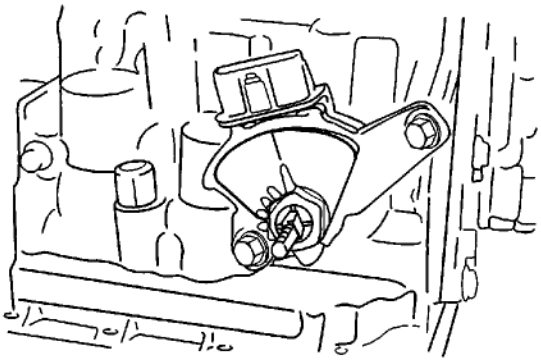
146. Install the PNP switch to the manual valve lever shaft and temporarily install the adjusting bolts.
147. Install a new lock washer and nuts and tighten to **12 N·m (106 lb in)**.



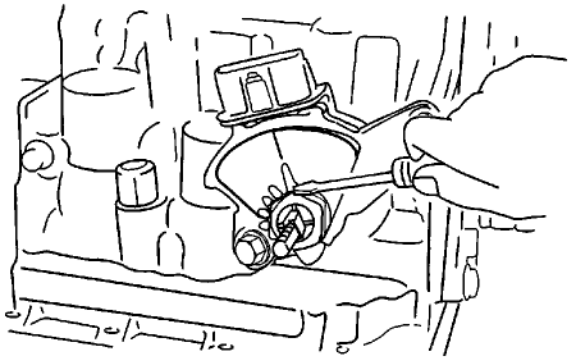
148. Temporarily install the control lever.



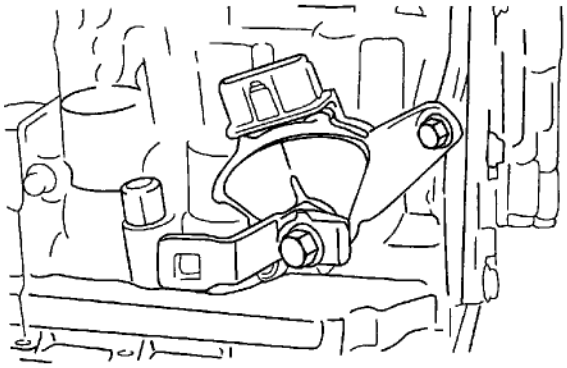
149. Turn the lever counterclockwise until the lever stops, then turn clockwise 2 notches.
150. Remove the control lever.



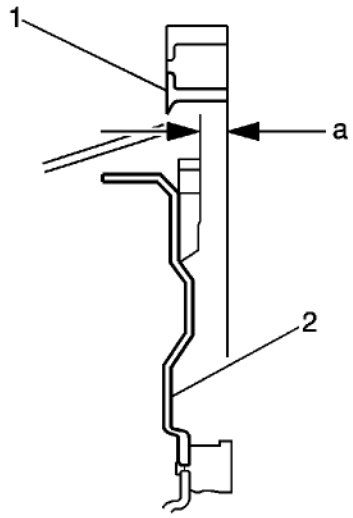
151. Align the groove with the neutral basic and tighten to **5 N·m (44 lb in)**.



152. Using a screwdriver, stake the nut with the lock washer.



153. Install the control lever.
154. Install the control lever washer and nut and tighten to **12 N·m (106 lb in)**.



155. Install the torque converter (2) to the transaxle.
156. Measure the installation depth of the torque converter.

Specification
The standard value is 11.1 mm (0.44 in).

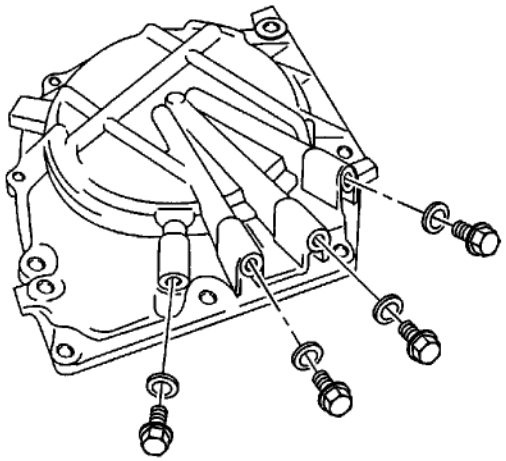
157. If the measured value is beyond the standard value, readjust the torque converter within the specified value.

Transmission Assemble

Special Tools

- DT 46451 (DW240-020) Brake Clutch Spring Compressor
- DT 46454 (DW240-050) Overdrive Brake Adapter
- DT 46455 (DW240-060-01) Brake Spring Compressor Bolt/Nut
- DT 46456 (DW240-060-02) Brake Spring Compressor Plate
- DT 46457 DW240-070) 1st/Reverse Brake Adapter
- DT 46458 (DW240-080) 2nd Brake Adapter
- DT 46460 (DW240-100) Counter Drive Gear Installation Adapter
- DT 46461 (DW240-130) Differential Preload Adapter
- DT 46462 (DW240-140) Transaxle Housing Side Bearing Outer Race Adapter
- DT 46464 (DW240-160) Transaxle Case Outer Tapered Roller Bearing Race Adapter
- DT 46465 (DW240-170) Adapter Handle
- DT 46471 (DW260-031-01) Transaxle Housing Oil Seal Installer
- DT 46472 (DW260-041) Planetary Ring Gear Nut Removal/Installation Socket
- DT 47521 (DW260-031-02) Transaxle Case Oil Seal Installer

Assembly Procedure

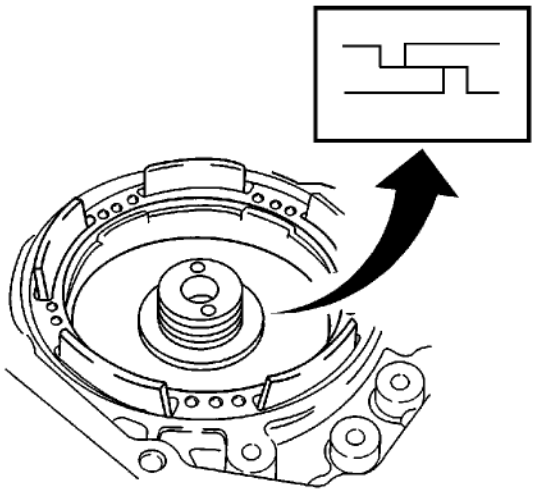


1. Install new O-rings to the bolt plugs.

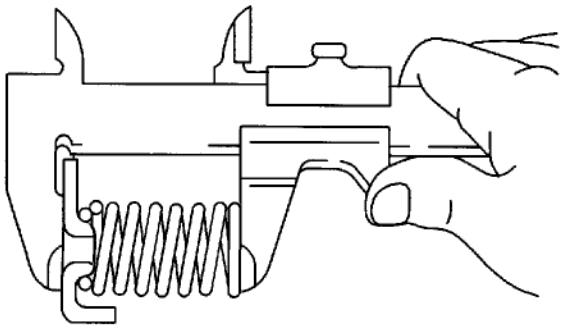
Caution: Refer to Fastener Caution in the Preface section.

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2. Install the bolt plugs with the O-rings to the transaxle rear cover and tighten to **7 N·m (62 lb in)**.

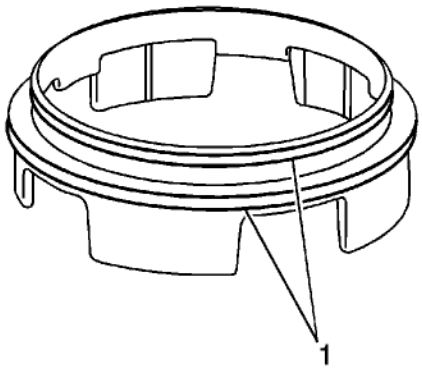


3. Install the seal rings to the transaxle rear cover.

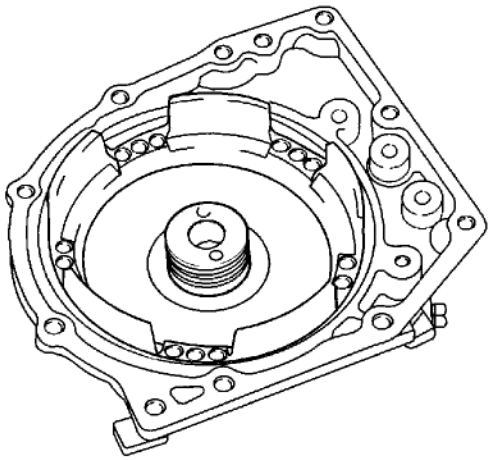


4. Using the vernier calipers, measure the free length of the overdrive (O/D) brake piston return spring together with the spring seat.

Specification
The standard free length is 18.99 mm (0.7476 in).

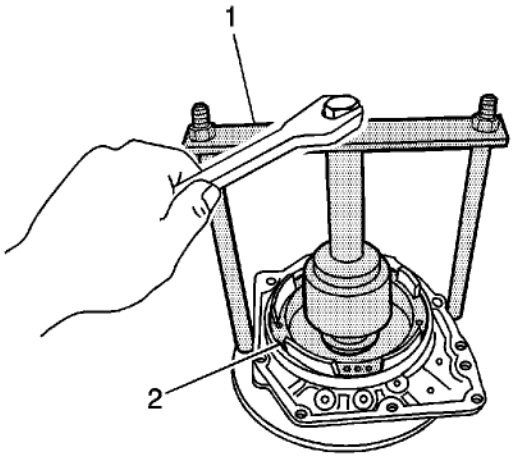


5. Coat the new O-rings (1) with automatic transaxle fluid (ATF). Install the O-rings to the O/D brake piston.

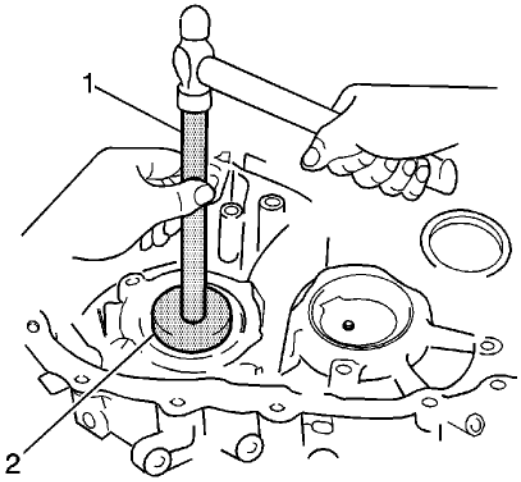


Note: Do not damage the O-rings of the O/D brake piston.

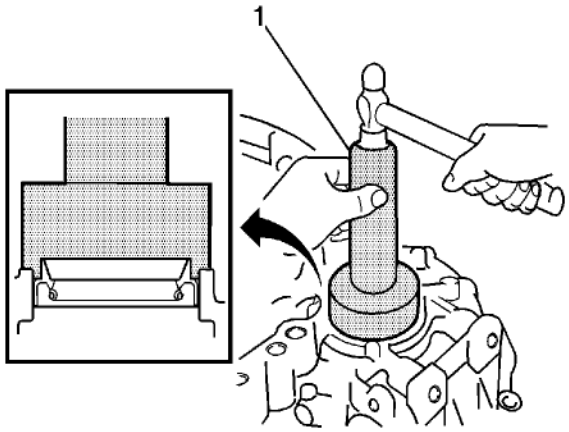
6. Coat the O/D brake piston with ATF. Install the piston to the transaxle rear cover.



7. Using DT 46451 (1), DT 46454 (2) and a driver, install the O/D brake return spring and snap ring to the transaxle rear cover.

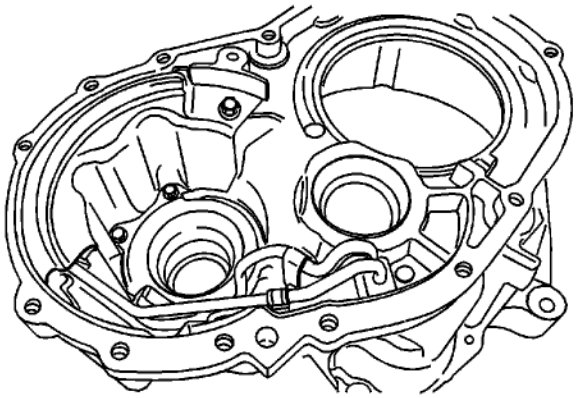


8. Using DT 46462 (2) and DT 46465 (1), install a new side bearing outer race into the transaxle housing.



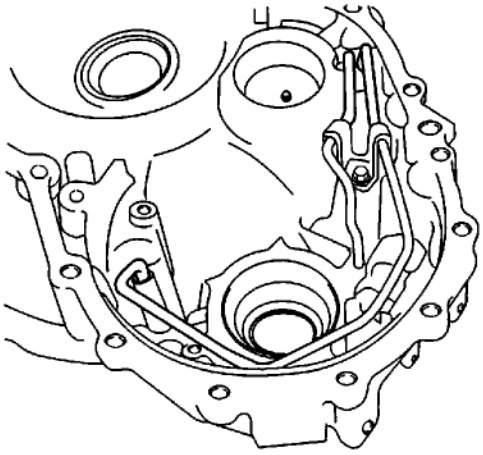
9. Using DT 46471 (1) and a hammer, drive in a new transaxle housing oil seal.

Specification
The oil seal depth is 3.1 mm (0.122 in).

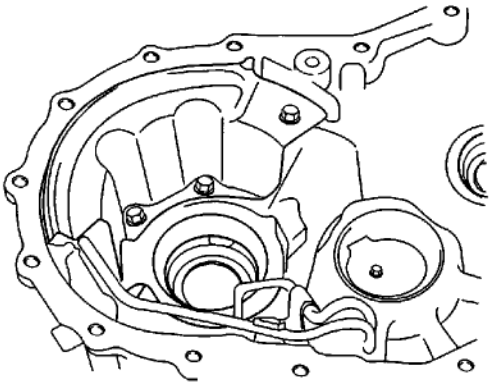


Note: Press-fit the outer tapered roller bearing race until the race contacts the transaxle housing.

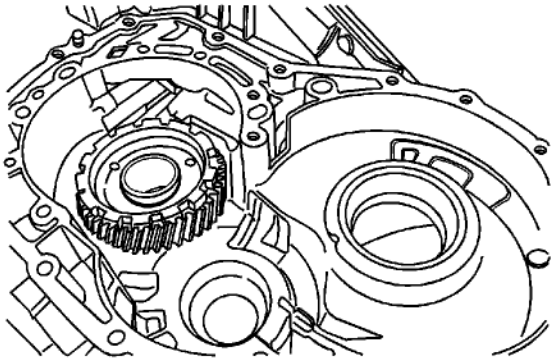
10. Install a new outer tapered roller bearing race into the transaxle housing.



11. Install the transaxle lube apply pipe and differential gear lube apply pipe to the transaxle housing.
12. Install the No. 1 transaxle apply pipe clamp to the transaxle housing with the bolt and tighten to **5 N·m (44 lb in)**.

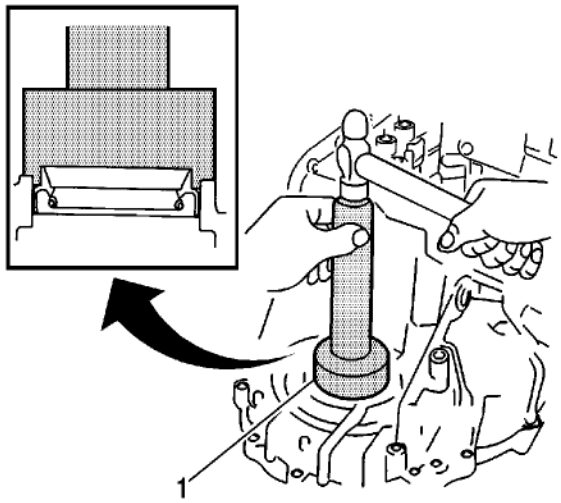


13. Install the oil reservoir lock plate to the transaxle housing.
14. Install the oil reservoir lock plate bolts and tighten to **5 N·m (44 lb in)**.



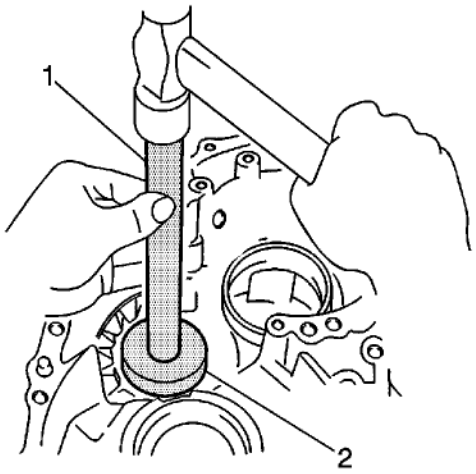
Note: First install a shim of the same thickness as the original shim.

15. Install the shim to the transaxle case.
16. Install a new bearing outer race into the transaxle case.



17. Using DT 47521 (1) and a hammer, drive in a new transaxle case oil seal.

Specifications
The oil seal depth is 4.3 mm (0.169 in).

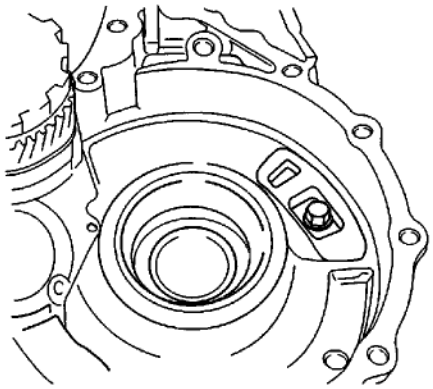


Note: First install a shim of the same thickness as the original shim.

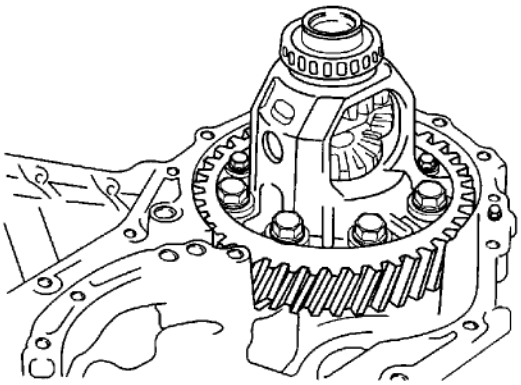
18. Install the shim to the transaxle case.

Note: Press-fit the shim until the shim contacts the transaxle case.

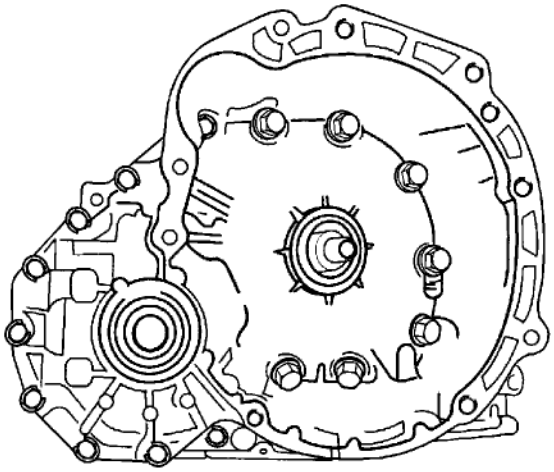
19. Using DT 46464 (2) and DT 46465 (1), press in a new outer tapered roller bearing race into the transaxle case.



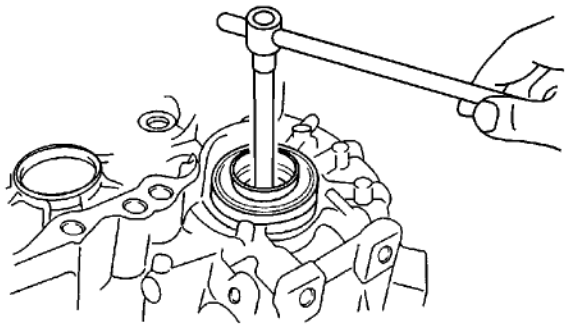
20. Install the No. 1 transaxle case plate to the transaxle case.
21. Install the transaxle case plate bolt and tighten to **10 N·m (89 lb in)**.



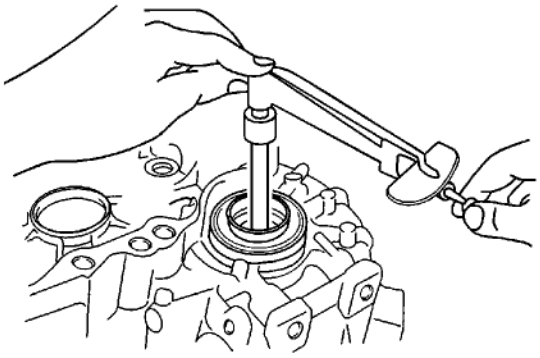
22. Install the differential gear to the transaxle case.



23. Install the transaxle housing and hand tighten the bolts of the transaxle housing.
24. Tighten 8 bolts of the transaxle housing completely and tighten to **29 N·m (22 lb ft)**.

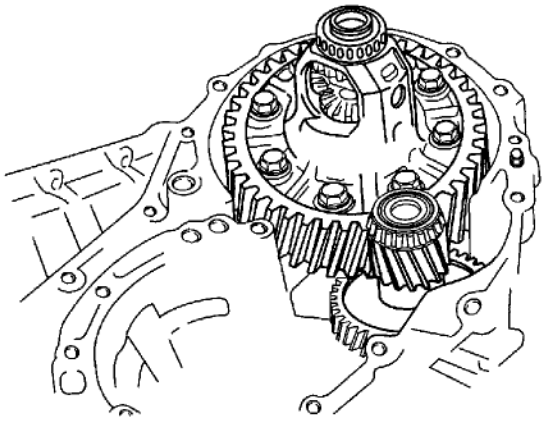


25. Using DT 46461 , turn the differential gear assembly right and left 2 or 3 times to allow the bearing to settle.

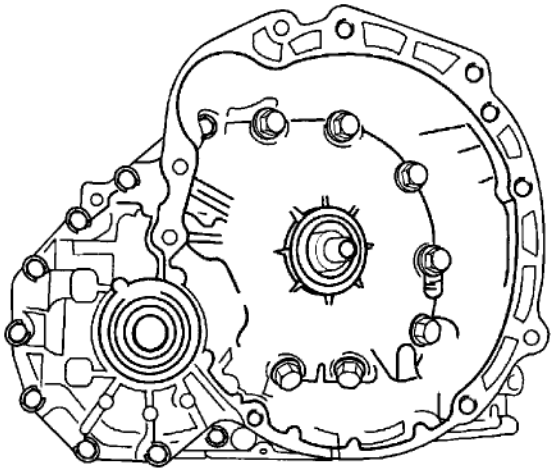


Note: Note the measured value.

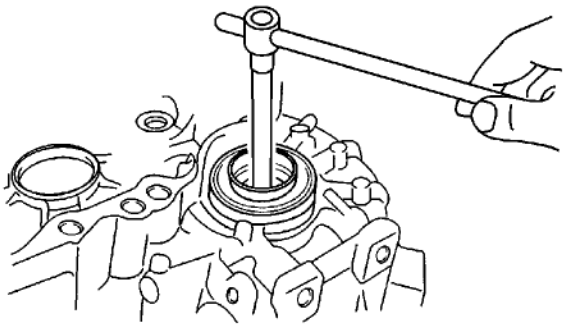
26. Using DT 46461 and a small torque wrench, measure the preload of the differential gear.



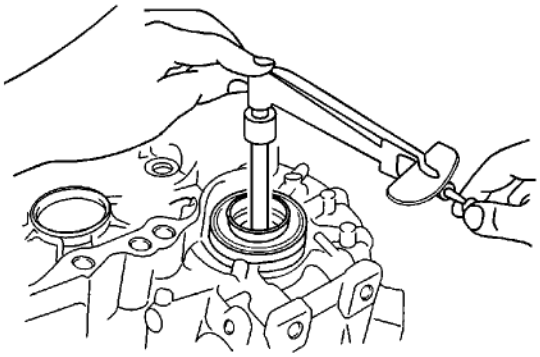
27. Remove the transaxle housing and install the counter driven gear.



28. Install the transaxle housing and hand tighten the bolts of the transaxle housing.
29. Tighten 8 bolts of the transaxle housing completely and tighten to **29 N·m (21 lb ft)**.



30. Using DT 46461 , turn the differential gear assembly right and left 2 or 3 times to allow the bearing to settle.



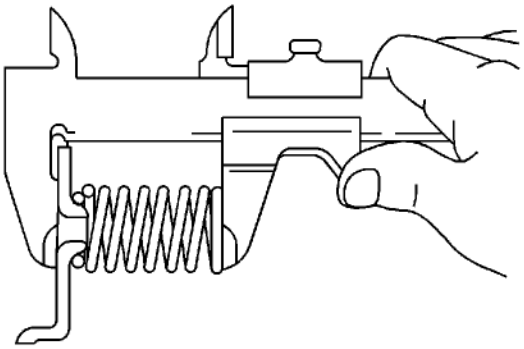
31. Using DT 46461 and a small torque wrench, measure the preload of the differential gear. From this value deduct the value measured previously. This new value is the preload of the counter driven gear.

Specification

- The preload for a new bearing is 0.33-0.76 N·m (3.21-6.77 lb in).
- The preload for a used bearing is 0.17-0.38 N·m (1.48-3.39 lb in).

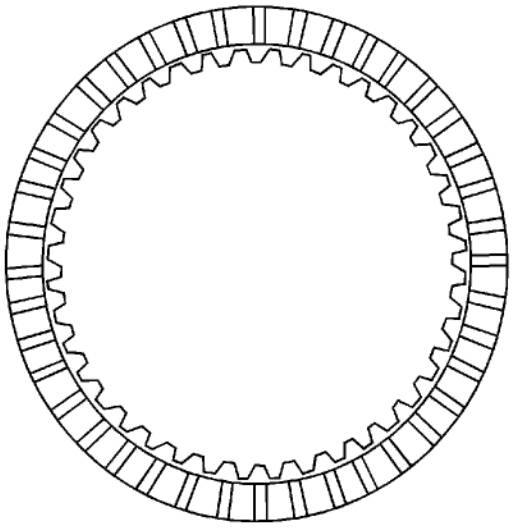
Note: When the preload is larger than the specification, select a thinner adjuster shim. When the preload is smaller than specification, select a thicker adjuster shim.

32. If the preload of the counter driven gear does not satisfy the specification, select the adjuster shim from the table below and re-measure the value. Until the value is within the specification, repeat the procedure.



33. Using the vernier calipers, measure the free length of the 1st and reverse brake piston return spring together with the spring seat.

Specification
The standard free length is 18.053 mm (0.7107 in).



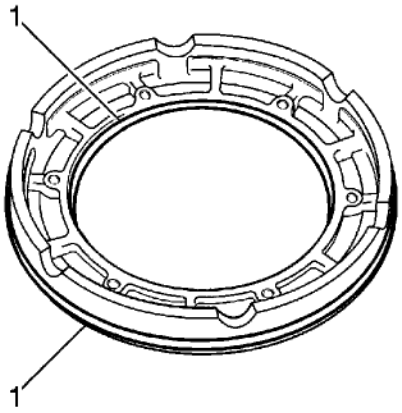
Note:

- If the lining of the disc is peeling off or discolored, or even if a part of the groove is

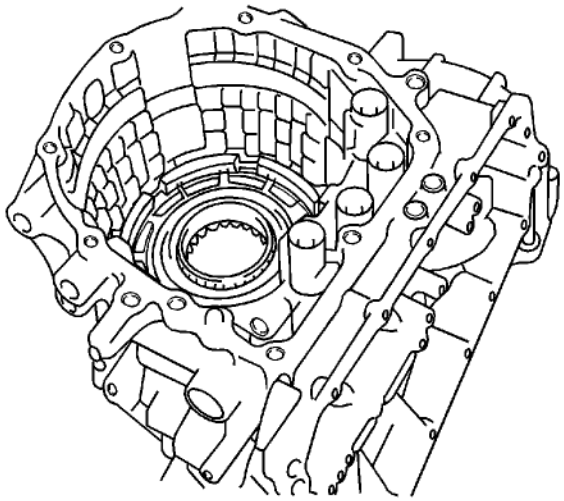
defaced, replace all discs.

- Before assembling the new discs, soak the discs in ATF for at least 15 minutes.

34. Inspect the sliding surface of the disc, the plate and the flange of the 1st and reverse brake for wear or burn. Replace if necessary.

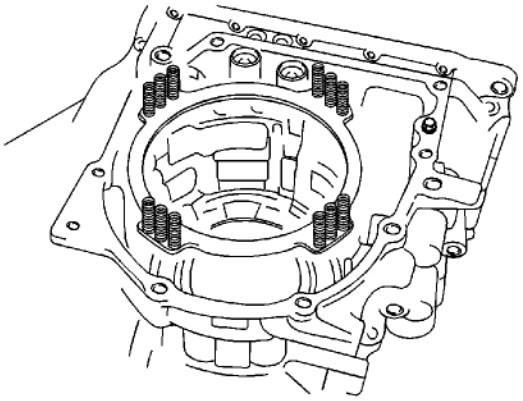


35. Coat the new O-rings (1) with ATF and install the O-rings to the 1st and reverse piston.

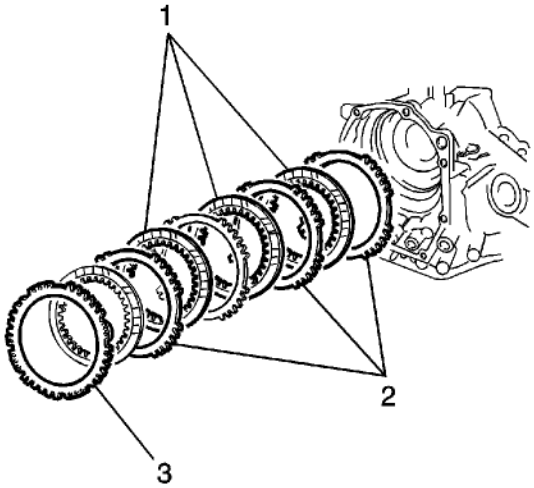


Note: Do not damage the O-rings of the 1st and reverse brake piston.

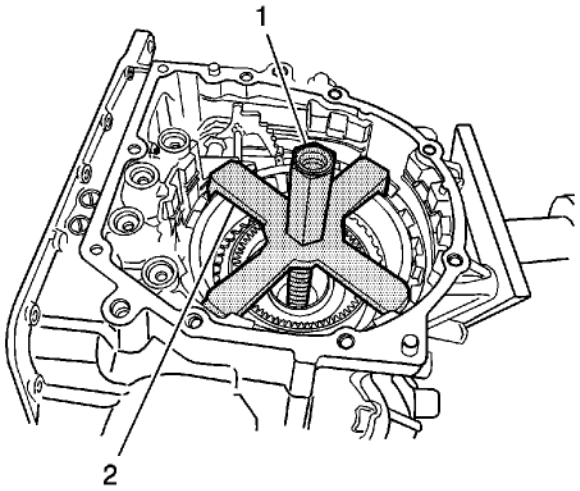
36. Install the 1st and reverse brake piston to the transaxle case.



37. Install the return spring to the transaxle case.

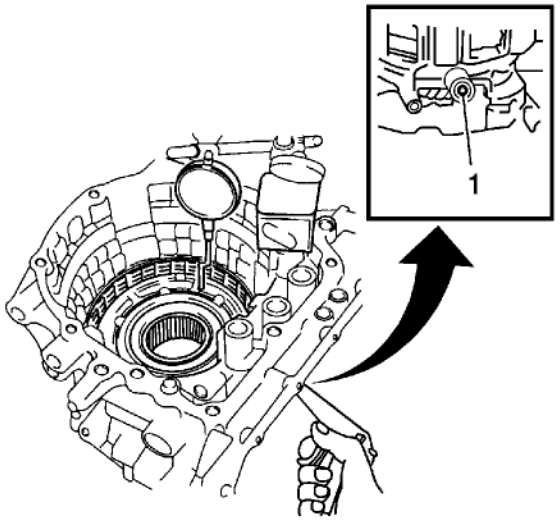


38. Install the 4 plates, the 4 discs and the flange in order: 2-1-2-1-2-1-2-1-3, where (2)=Plate, (1)=Disc, and (3)=Flange



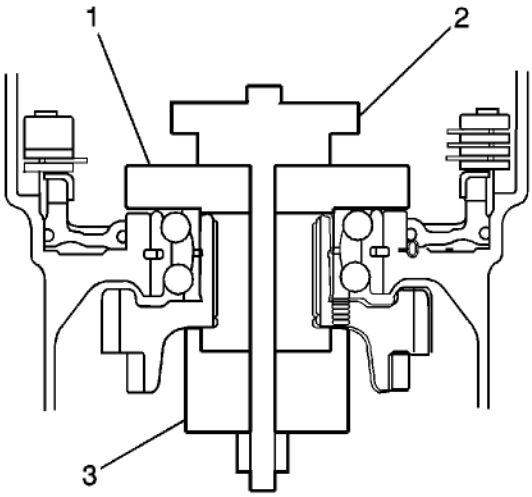
Note: Verify that the snap ring is installed correctly in the groove of the transaxle case.

39. Using DT 46457 (2) and DT 46455 (1), install the snap ring.



Note: If the piston stroke is non-standard, inspect the discs, the plates and the flange. The piston stroke is 0.6-1.3 mm (0.024-0.051 in).

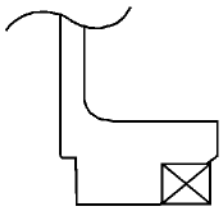
40. Using a dial indicator, measure the 1st and reverse brake piston stroke while applying and releasing compressed air.

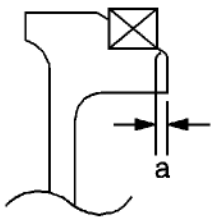




Note: Do not apply excessive force to the transaxle case.

41. Using DT 46460 (3), DT 46455 (2) and DT 46456 (1), install the counter drive gear.

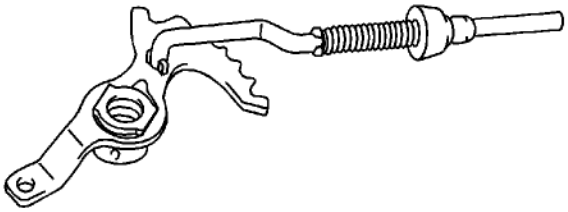




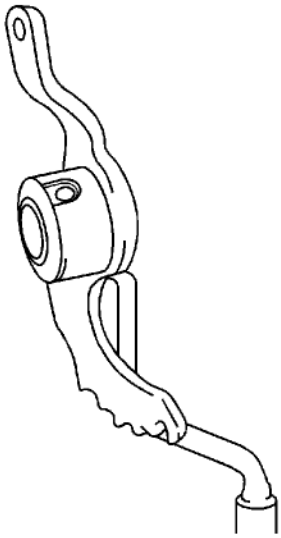


42. Coat a new oil seal with ATF.
43. Install the oil seal to the transaxle case.

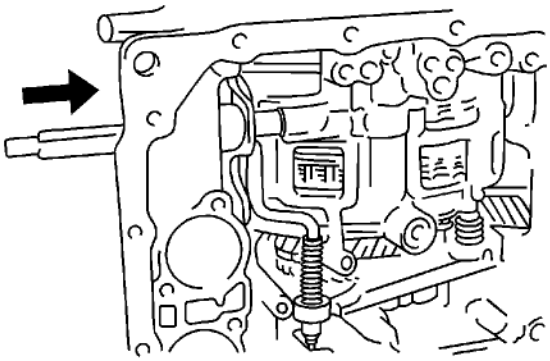
Specification
The oil seal depth is 0.75-1.25 mm (0.030-0.049 in).



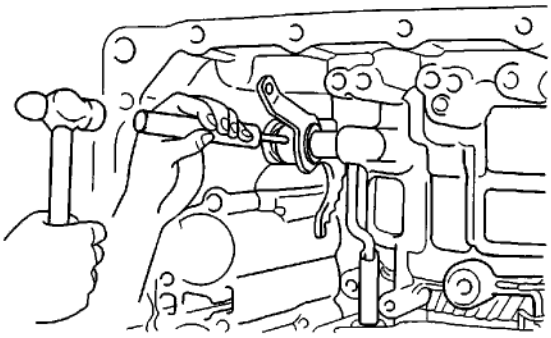
44. Install the parking lock rod to the manual valve lever.



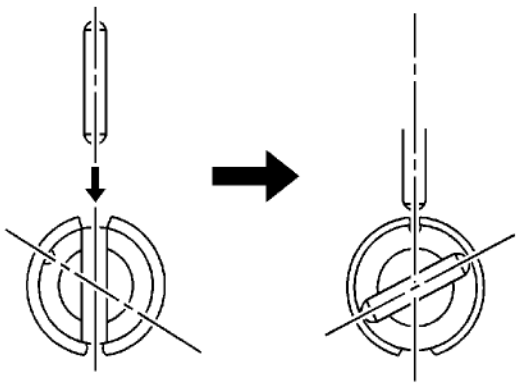
45. Install a new spacer to the manual valve lever.



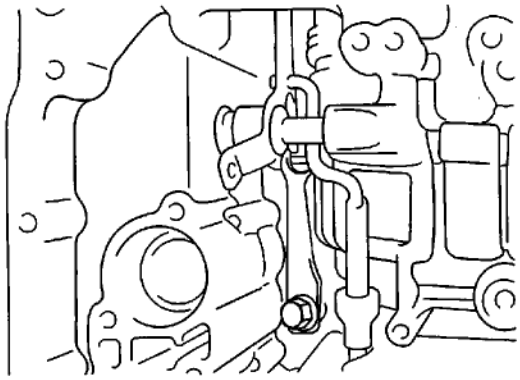
46. Install the manual valve lever shaft and the manual valve lever.



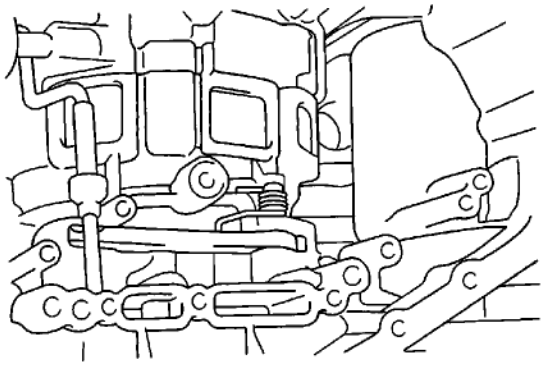
47. Using a pin punch and hammer, drive in a new pin.



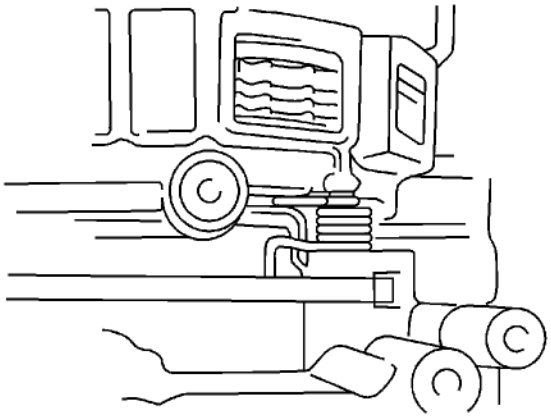
48. Turn the spacer and the lever shaft to align the small hole for locating the staking position in the spacer with the staking position mark on the lever shaft.
49. Using a pin punch, stake the spacer through the small hole.
50. Verify that the spacer does not turn.



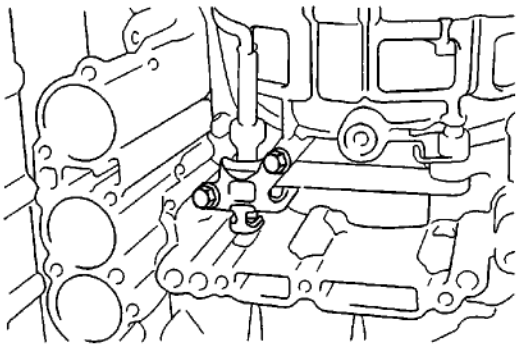
51. Install the manual detent spring.
52. Install the manual detent spring bolt and tighten to **10 N·m (89 lb in)**.



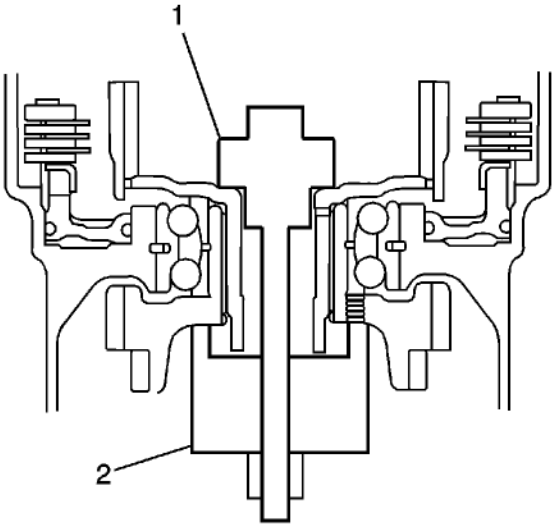
53. Install the parking lock shaft, torsion spring, and the parking lock pawl.



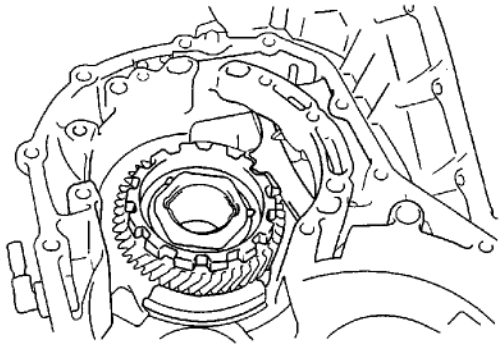
54. Verify that the edge of the torsion spring fits into the groove securely.



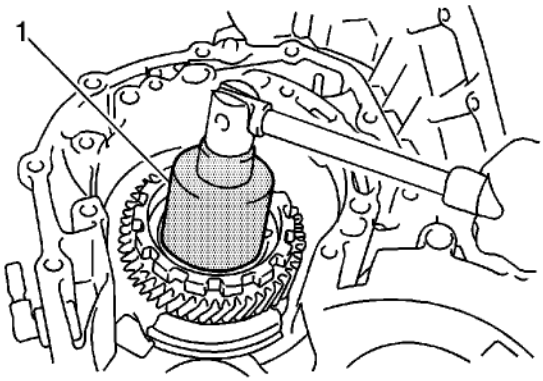
55. Install the parking lock pawl bracket.
56. Install the parking lock pawl bolts and tighten to **7 N·m (62 lb in)**.



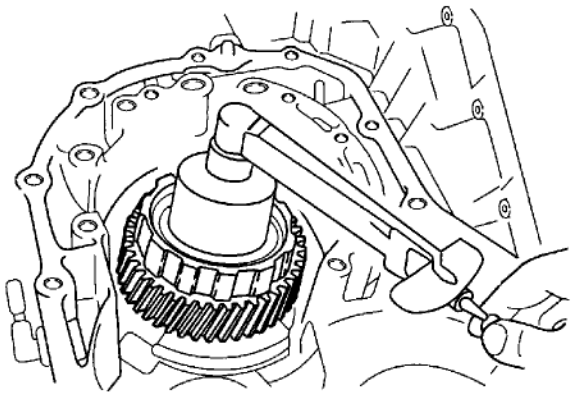
57. Replace the planetary ring flange of the planetary ring gear.
58. Using DT 46460 (2) and DT 46455 (1), install the planetary ring gear.



59. Fix the counter drive gear with the parking lock pawl.



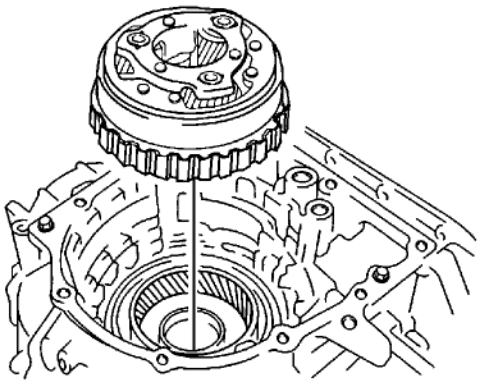
60. Using DT 46472 (1), install a new nut and tighten to **10 N·m (89 lb in)**.



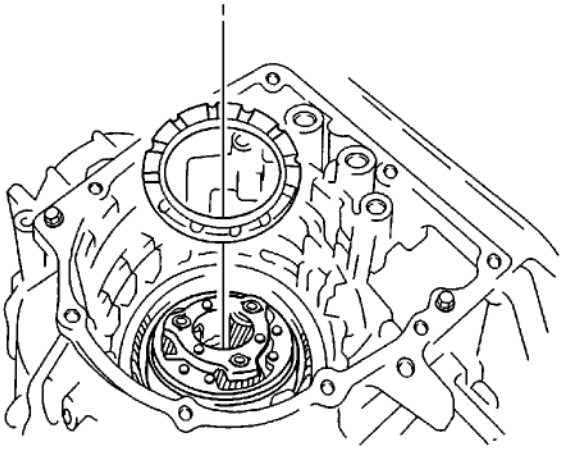
61. Using a small torque wrench, turn the counter drive gear 100 turn per minute and measure the preload and tighten to **29 N·m (22 lb ft)**.

Specification
When the preload is smaller than the specification, tighten the nut more and adjust the preload to 0.05-0.35 N·m (0.43-3.12 lb in).

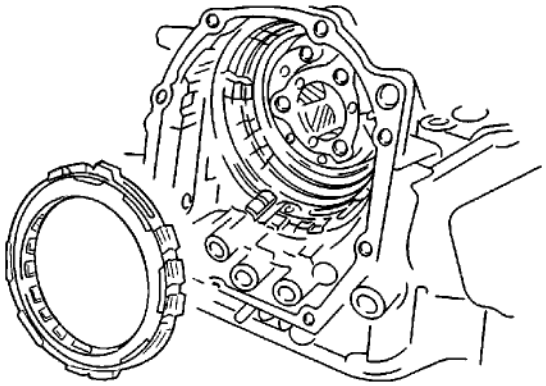
62. Stake the nut.



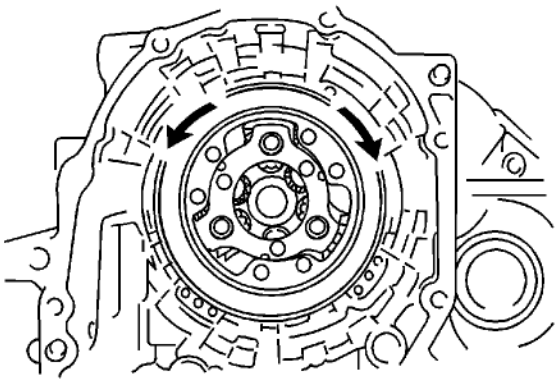
63. Install the planetary gear to the transaxle case.



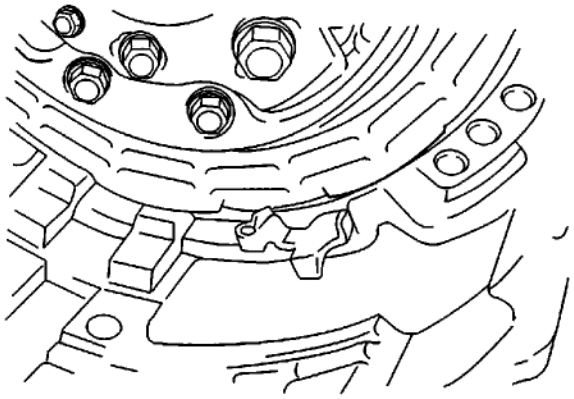
64. Coat the planetary carrier thrust washer with petroleum jelly and install the washer onto the planetary gear.



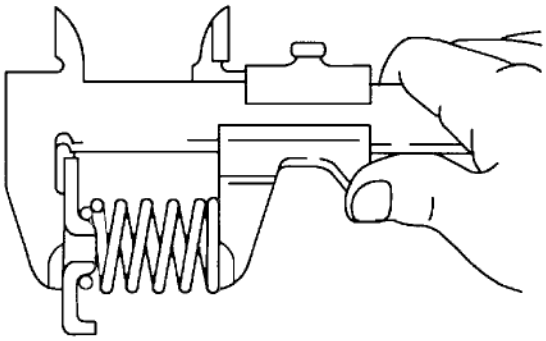
65. Install the No. 2 one-way clutch to the transaxle case.



66. Verify that the planetary gear turns freely counterclockwise and locks clockwise.

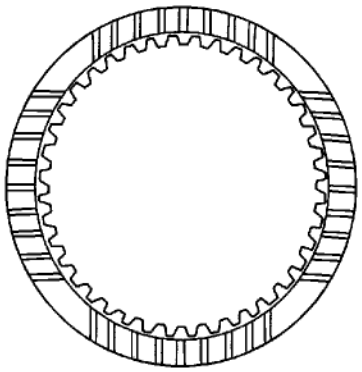


67. Install the anti-rattle clip in the space between the No. 2 one-way clutch outer race and transaxle case. Push the anti-rattle clip in place until you hear the click.



68. Using vernier calipers, measure the free length of the 2nd brake piston return spring together with the spring seat.

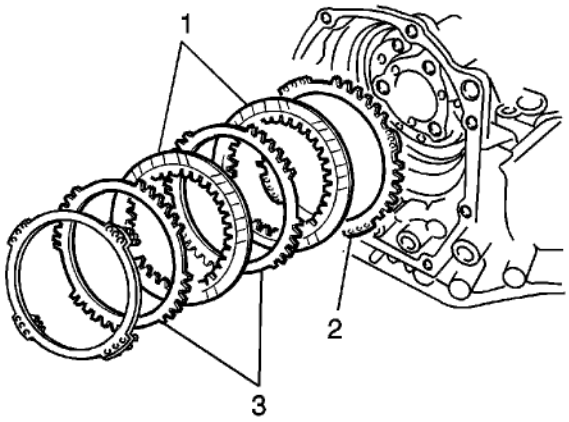
Specification
The standard free length is 15.85 mm (0.6240 in).



Note:

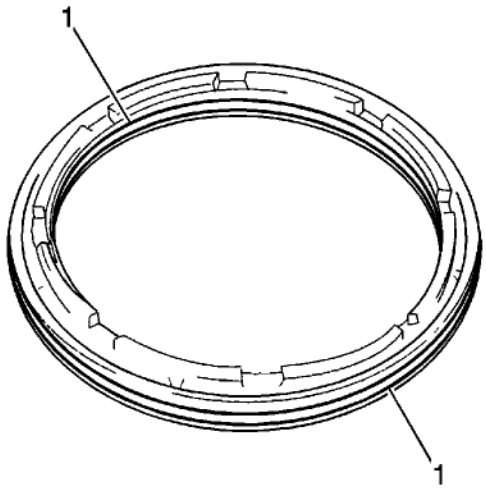
- If the lining of the disc is peeling off or discolored, or even if a part of the groove is defaced, replace all discs.
- Before assembling the new discs, soak the discs in ATF for at least 15 minutes.

69. If the sliding surface of the disc, the plate and the flange of 2nd brake are worn or burnt, replace the parts.

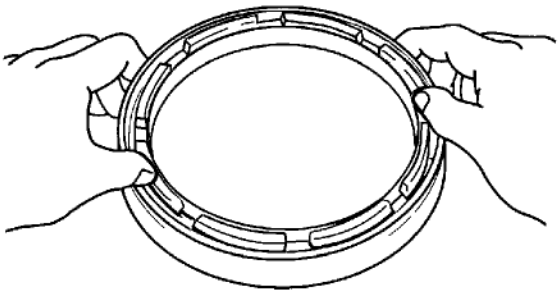


Note: Install the snap ring in the groove of the transaxle case correctly.

70. Install the flange, 2 discs and 2 plates in order: 2-1-3-1-3, where (1)=Disc, (2)=Flange, and (3)=Plate.
71. Install the 2nd brake return spring.

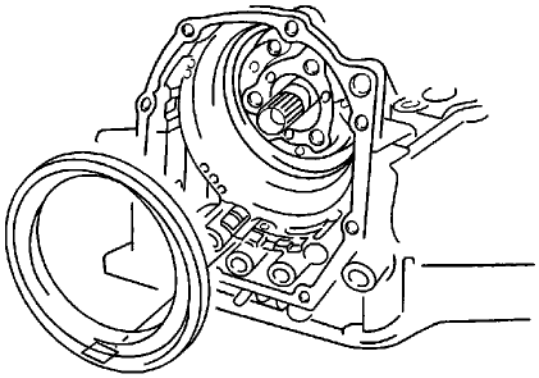


72. Coat the new O-rings (1) with ATF and install the O-rings to the 2nd brake piston.

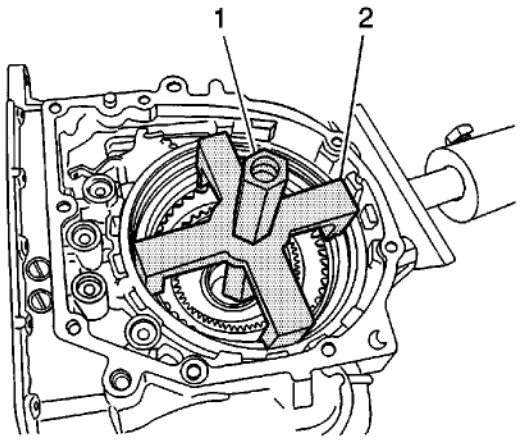


Note: Do not damage the O-rings.

73. Install the 2nd brake piston into the 2nd brake clutch cylinder.



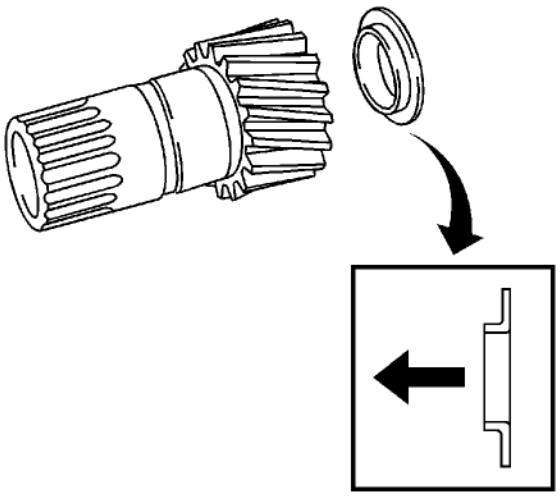
74. Install the 2nd brake clutch cylinder to the transaxle case.



75. Using DT 46455 (1) and DT 46458 (2), compress the 2nd brake piston return spring.

Note: Install the snap ring in the groove of the transaxle case correctly.

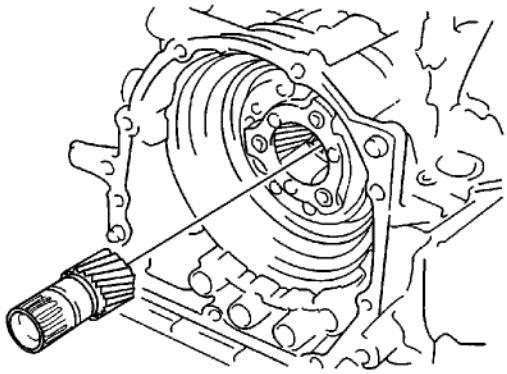
76. Using a screwdriver, install the snap ring.



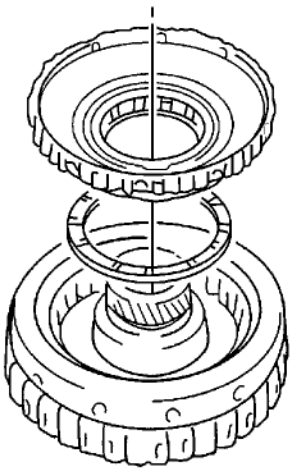
77. Coat the thrust bearing race with petroleum jelly and install the race onto the front planetary sun gear.

Specification

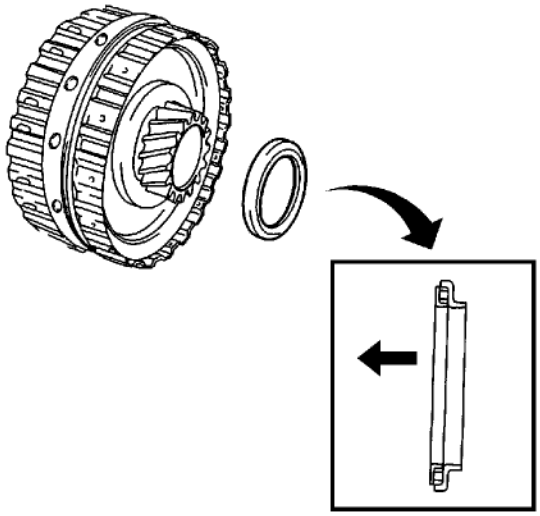
- The race inner diameter is 19.3 mm (0.760 in).
- The race outer diameter is 29.0 mm (1.142 in).



78. Install the front planetary sun gear to the transaxle case.



79. Install the thrust washer and the one-way clutch assembly to the rear planetary sun gear.

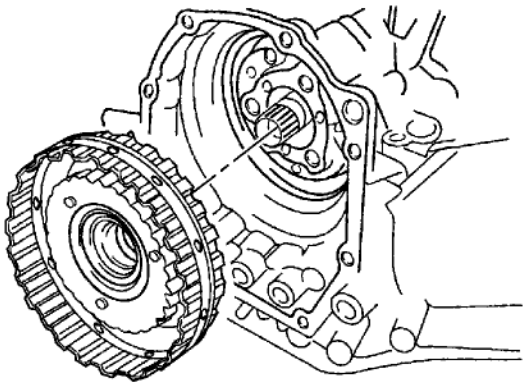


Note: Verify the direction of the bearing.

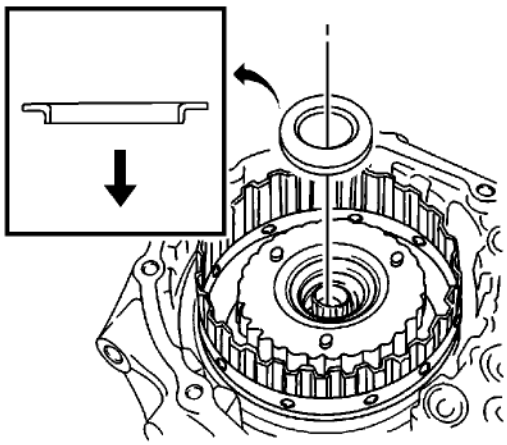
80. Coat the thrust bearing race with petroleum jelly and install the race onto the rear planetary sun gear and the one-way clutch assembly.

Specification

- The bearing inner diameter is 42.5 mm (1.673 in).
- The bearing outer diameter is 57.5 mm (2.264 in).



81. Install the rear planetary sun gear and the one-way clutch assembly to the transaxle case.

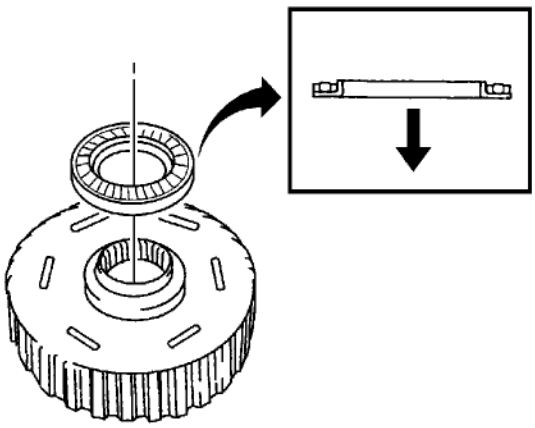


Note: Verify the direction of the race.

82. Coat the thrust bearing race with petroleum jelly and install the race onto the transaxle case.

Specification

- The race inner diameter is 34.95 mm (1.3760 in).
- The race outer diameter is 45.50 mm (1.7913 in).

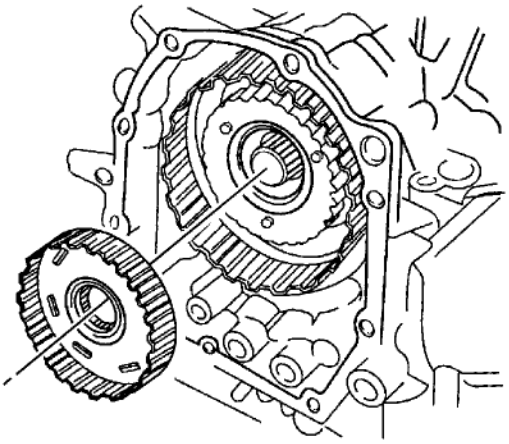


Note: Verify the direction of the bearing.

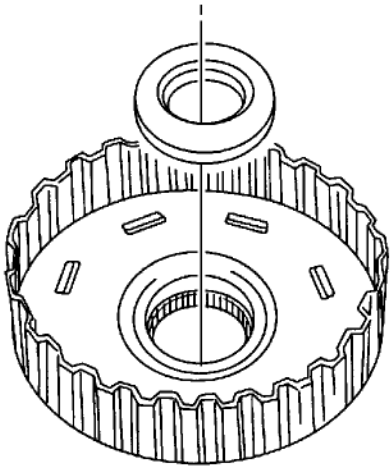
83. Coat the thrust needle roller bearing with petroleum jelly and install the bearing onto the forward clutch hub.

Specification

- The bearing inner diameter is 33.3 mm (1.311 in).
- The bearing outer diameter is 46.5 mm (1.831 in).



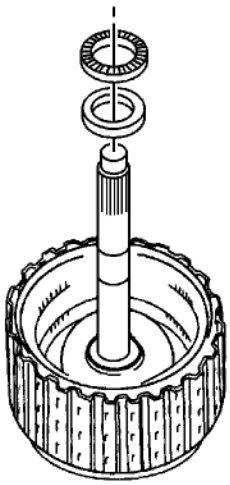
84. Install the forward clutch hub to the transaxle case.



85. Coat the thrust bearing race with petroleum jelly and install the race onto the forward clutch hub.

Specification

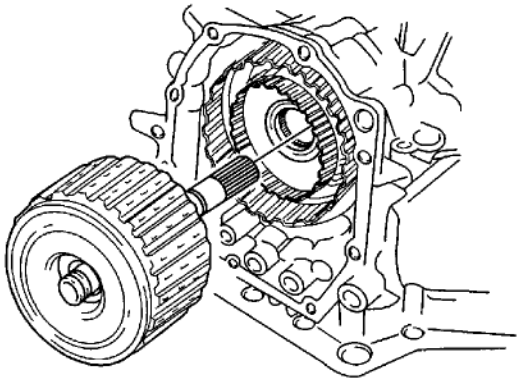
- The race inner diameter is 19.3 mm (0.760 in).
- The race outer diameter is 30.6 mm (1.205 in).



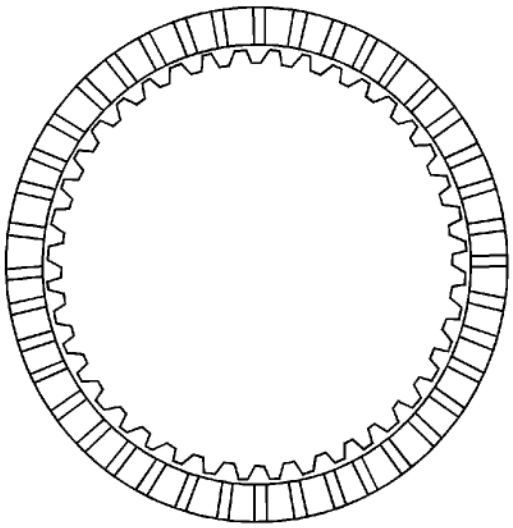
86. Install the thrust bearing race and thrust needle roller bearing to the forward and reverse clutch assembly.

Specification

- The race inner diameter is 18.1 mm (0.713 in).
- The race outer diameter is 28.2 mm (1.110 in).
- The bearing inner diameter is 18.1 mm (0.713 in).
- The bearing outer diameter is 29.6 mm (1.165 in).



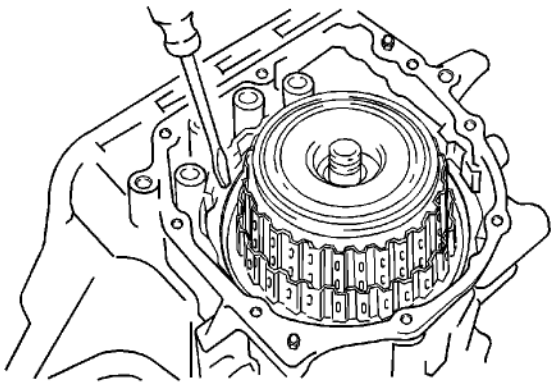
87. Install the forward and reverse clutch assembly to the transaxle case.



Note:

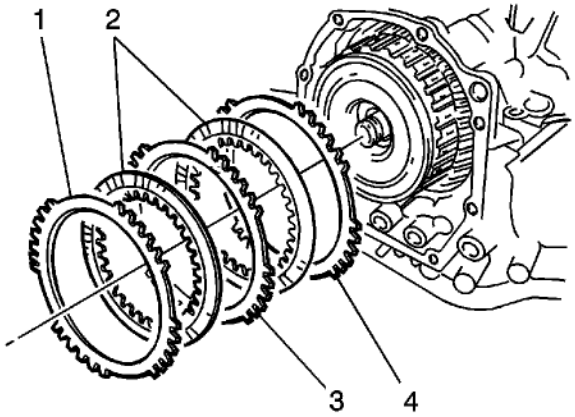
- If the lining of the disc is peeling off or discolored, or even if the part of the printed mark is defaced, replace all discs.
- Before assembling new discs, soak the discs in ATF for at least 15 minutes.

88. If the sliding surface of the disc, the plate and the flange of 2nd coast and O/D brake are worn or burnt, replace the components.



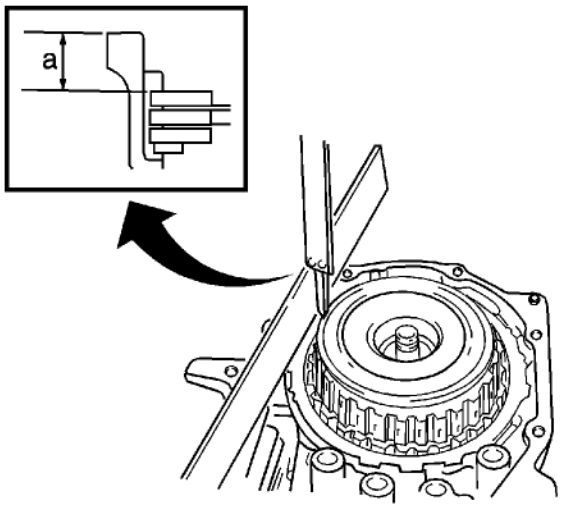
Note: Install the snap ring in the groove of the transaxle case correctly.

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



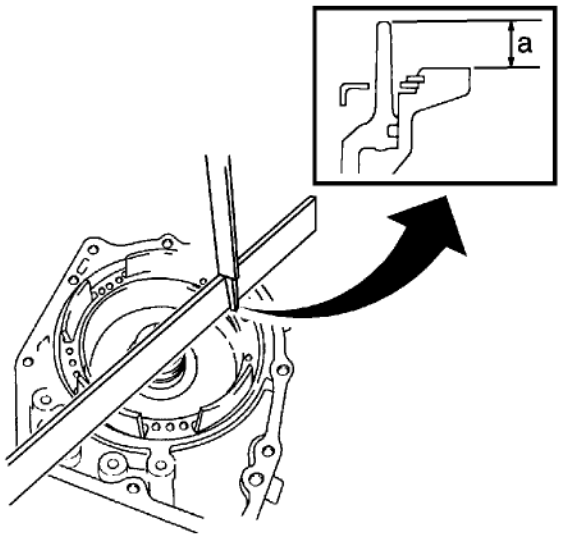


90. Install the flange, 2 discs and 2 plates to the transaxle case in the following order: 4-2-3-2-1, Flange (4), Non-Selective (3)=Plate, (2)=-Disc, and (1)=Selective Plate.
91. Clean the connected part the transaxle case and the transaxle rear cover.

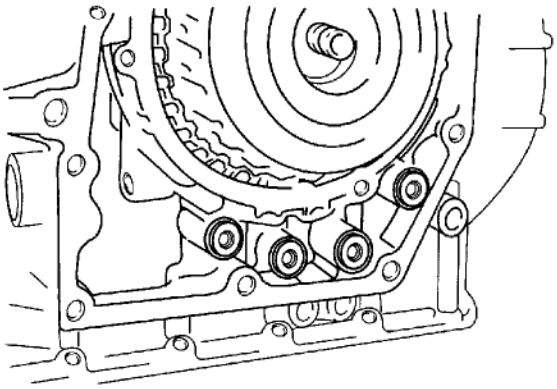




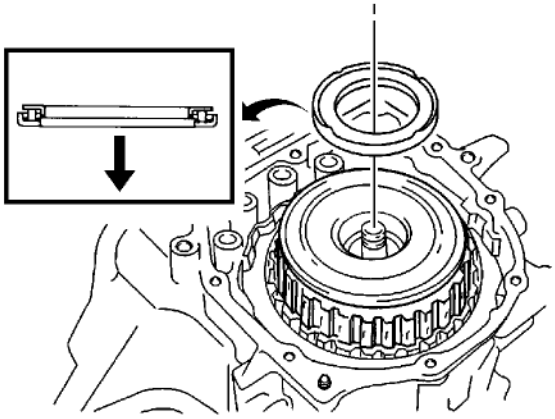
92. Place a straight edge on the transaxle case and measure the distance between the 2nd coast and the O/D brake flange and the straight edge using vernier calipers (a).



93. Place a straight edge on the O/D brake piston and measure the distance between the transaxle rear cover and the straight edge using vernier calipers (a).
94. Calculate the piston stroke value using the following formula. Piston stroke = Dimension A - Dimension B. Select and install a plate which satisfies the piston stroke value.



95. Install new governor apply gaskets to the transaxle rear cover.

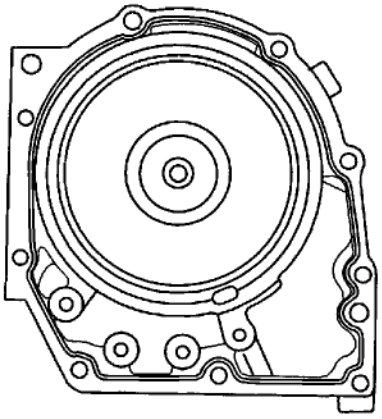


96. Coat the thrust needle roller bearing with petroleum jelly and install the bearing onto the forward and reverse clutch assembly.

Specification

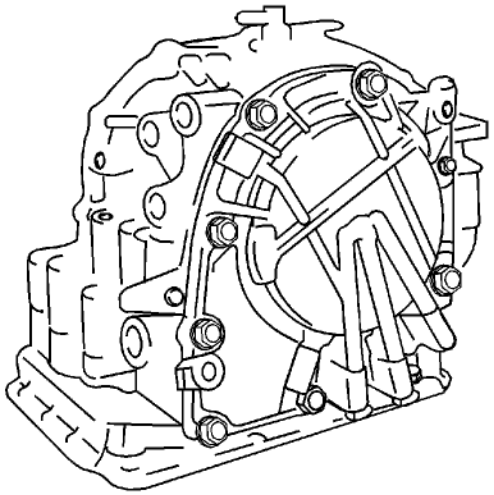
- The bearing inner diameter is 43.2 mm (1.701 in).
- The bearing outer diameter is 62.0 mm (2.441 in).

97. Remove any packing material. Do not get oil on the contacting surfaces of the transaxle rear cover or transaxle case.

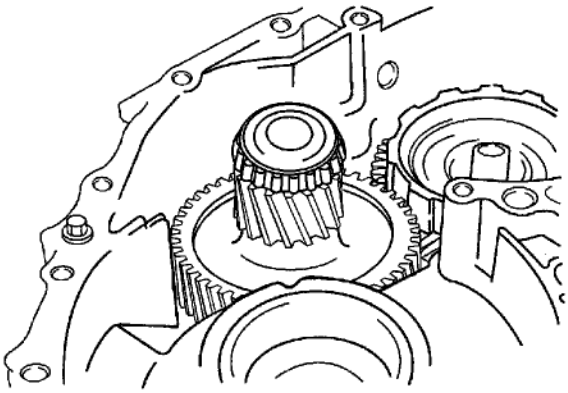


98. Apply three bond 1281 or equivalent to the transaxle rear cover.

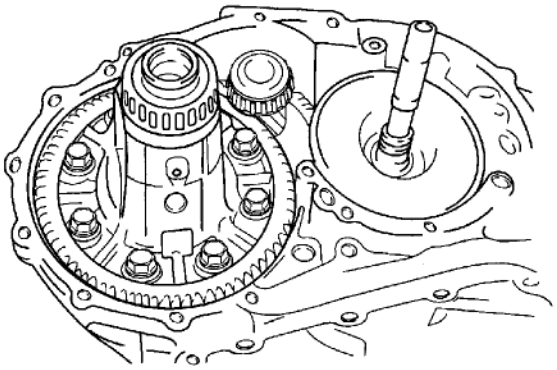
Specification
The seal bend width is 1.2 mm (0.047 in).



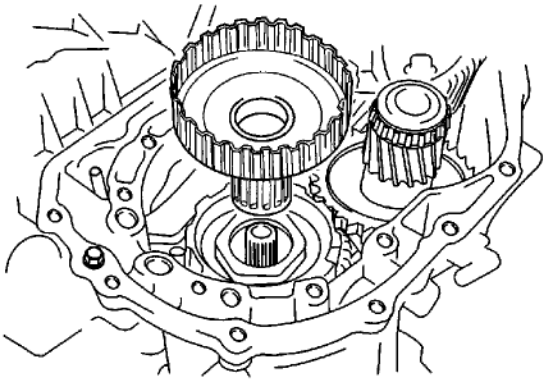
99. Install the transaxle rear cover to the transaxle case.
100. Install the transaxle rear cover bolts and tighten to **25 N·m (18 lb ft)**.



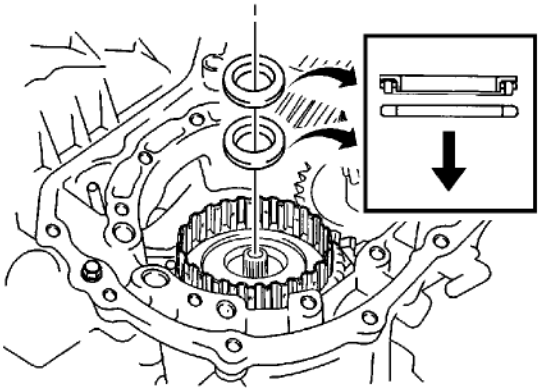
101. Install the counter driven gear assembly to the transaxle case.



102. Install the differential gear assembly to the transaxle case.



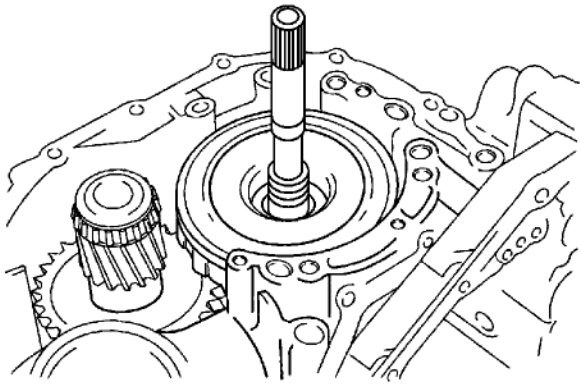
103. Install the direct clutch hub to the transaxle case.



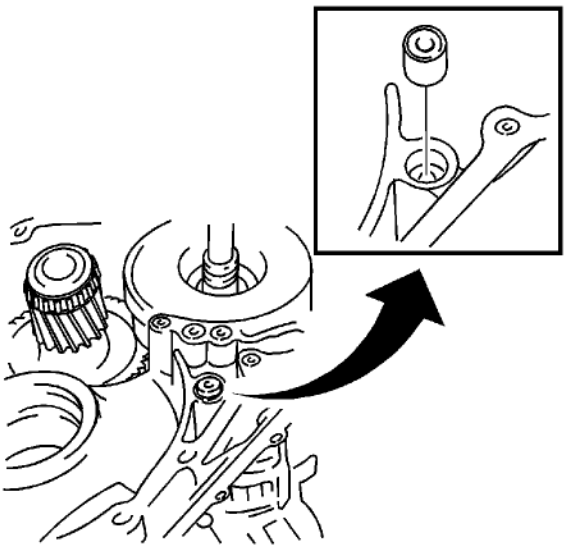
104. Install the thrust bearing race and the thrust needle roller bearing to the transaxle case.

Specification

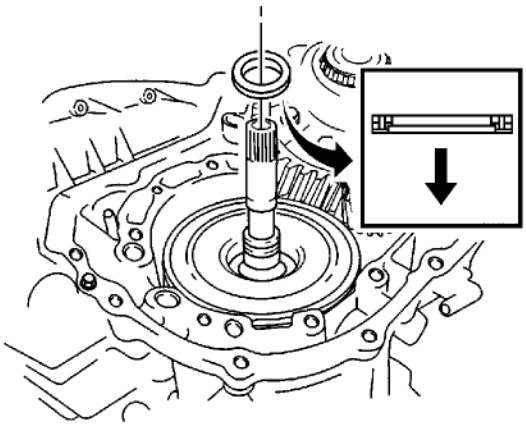
- The race inner diameter is 20.5 mm (0.807 in).
- The race outer diameter is 32.6 mm (1.283 in).
- The bearing inner diameter is 17.8 mm (0.701 in).
- The bearing outer diameter is 30.2 mm (1.189 in).



105. Install the clutch assembly to the transaxle case.

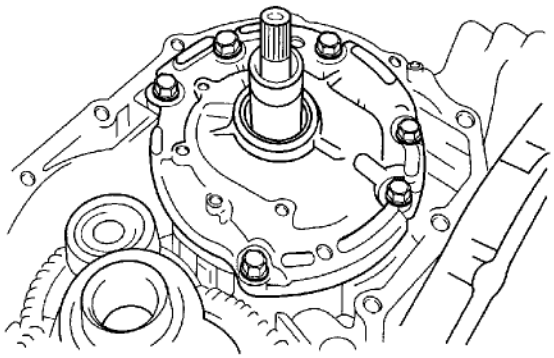


106. Install a new governor apply gasket.



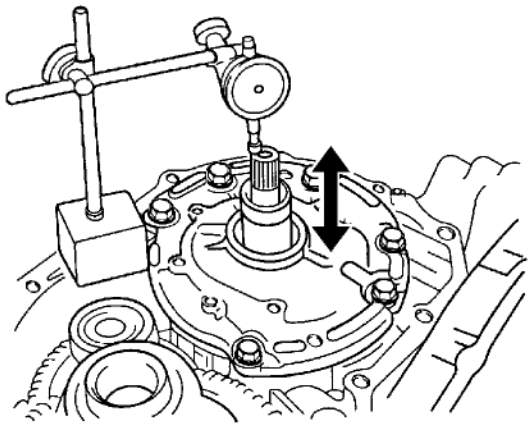
Note: Verify the direction of the bearing.

107. Install the thrust needle roller bearing to the transaxle case.
108. Place the oil pump through the input shaft, and align the bolt holes of the oil pump with the transaxle case.





109. Install the oil pump bolts and tighten to **25 N·m (18 lb ft)**.





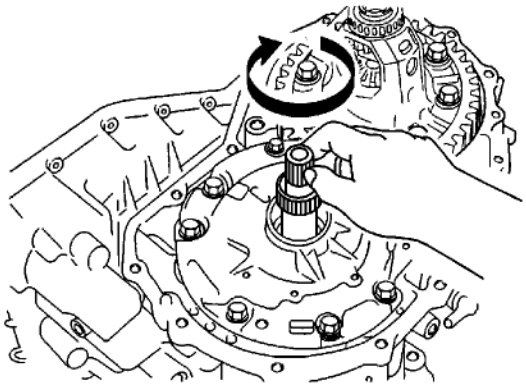
Note: If the end play is not as specified, select and replace the thrust needle roller bearing.

110. Measure the end play in axial direction.

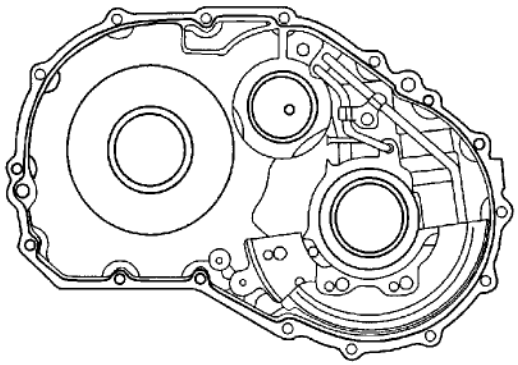
Specification

- The end play is 0.3-0.9 mm (0.012-0.035 in).
- The bearing inner diameter is 32.5 mm (1.280 in).
- The bearing outer diameter is 48.5 mm (1.909 in).
- The bearing thickness is 4.21 mm (0.1657 in).

- The bearing inner diameter is 32.9 mm (1.295 in).
- The bearing outer diameter is 48.5 mm (1.909 in).
- The bearing thickness is 3.62 mm (0.1425 in).

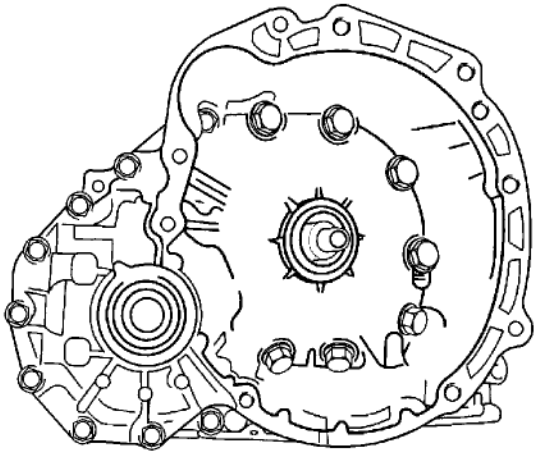


111. Confirm that the input shaft rotates smoothly.

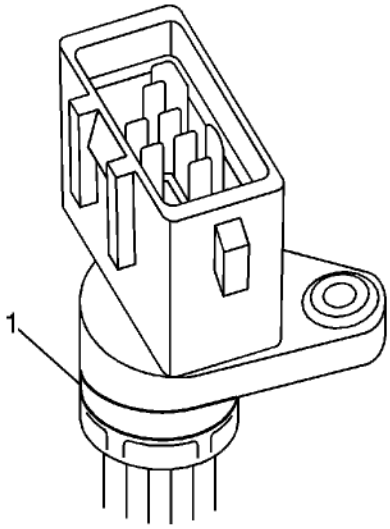


112. Remove any packing material. Do not get oil on the contacting surfaces of the transaxle housing or the transaxle case.
113. Apply three bond 1281 or equivalent to the transaxle housing.

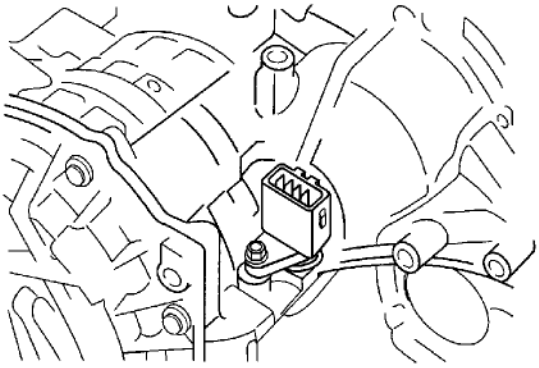
Specification
The seal bend width is 1.2 mm (0.047 in).



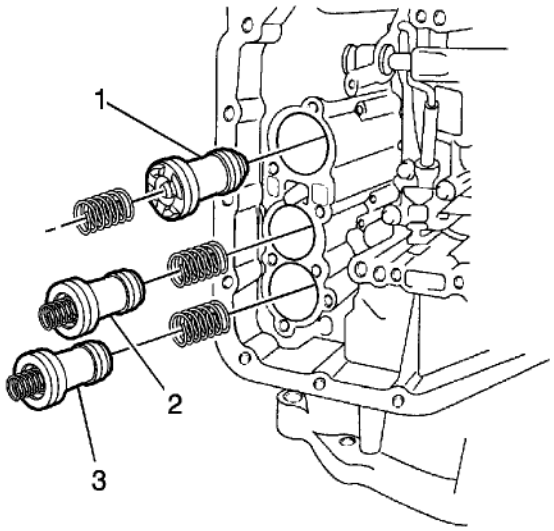
114. Install the transaxle housing to the transaxle case.
115. Install the transaxle housing bolts and tighten to **29 N·m (22 lb ft)**.
116. Apply seal packing or equivalent to the bolts.



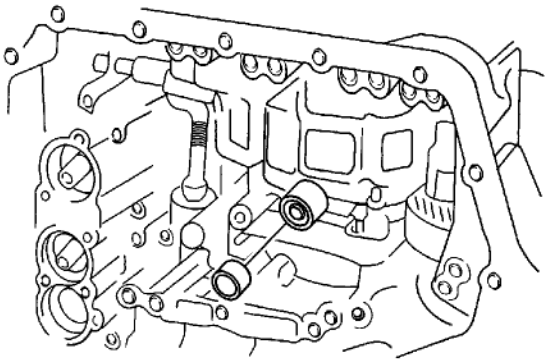
117. Coat a new O-ring (1) with ATF, install the O-ring to the transaxle wire.



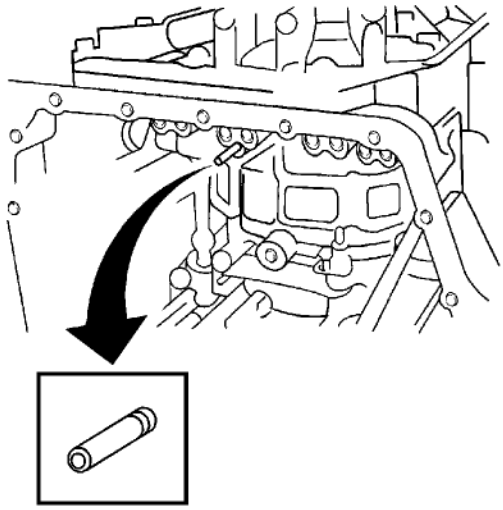
118. Install the transaxle wire to the transaxle case.
119. Install the transaxle wire bolt and tighten to **5 N·m (44 lb in)**.



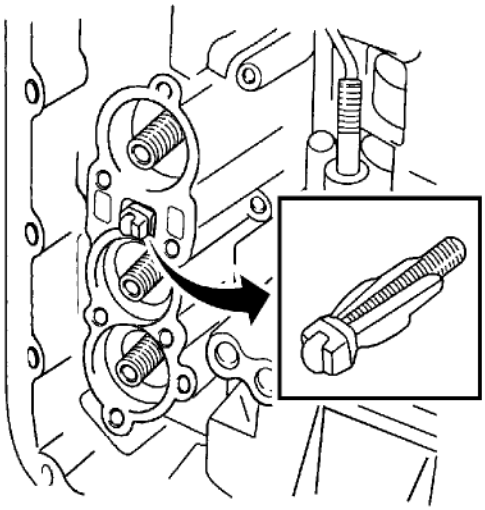
120. Coat the new O-rings with ATF and install the O-rings to the pistons (1, 2, 3).
121. Coat the springs and accumulator pistons with ATF and install the components.



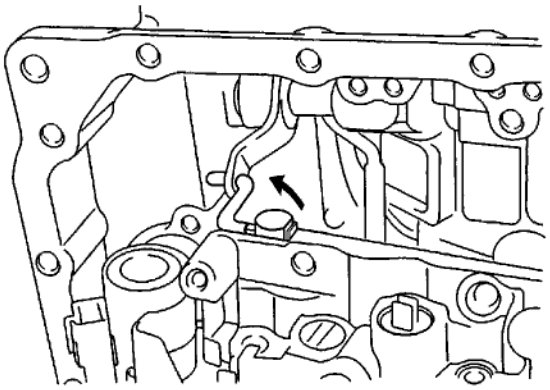
122. Coat a new governor apply gasket with ATF and install the gasket into the transaxle case.



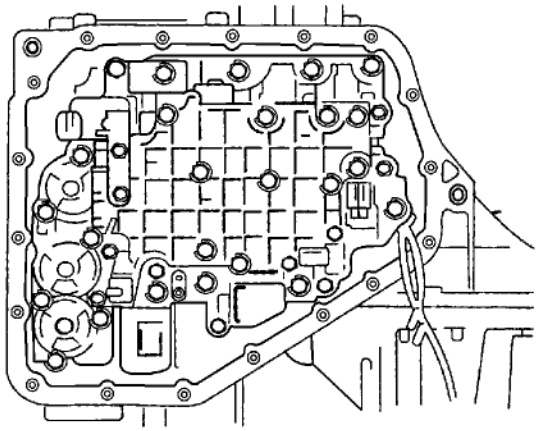
123. Coat a new brake drum gasket with ATF and install the gasket into the transaxle case.



124. Install the spring and the check valve.

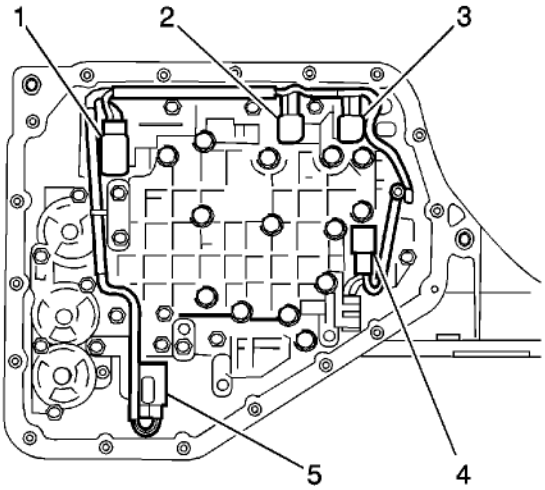


125. Connect the manual valve control rod to the manual valve lever.



Note: When installing the valve body to the transaxle case, do not let each of the accumulator pistons incline. When installing the valve body to the transaxle case, do not hold the solenoids.

126. Install the valve body assembly to the transaxle case.
127. Install the valve body bolts and tighten to **11 N·m (97 lb in)**.

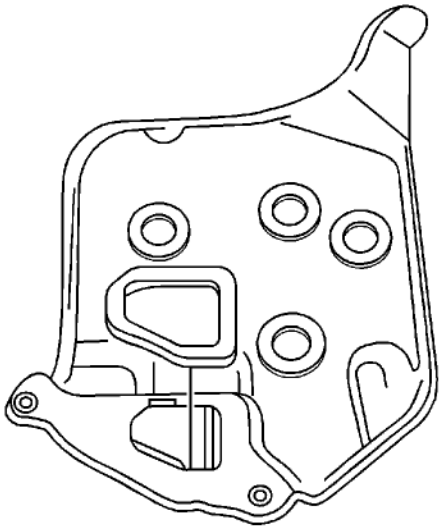


128. Connect the transaxle wire connector and harness to the valve body assembly.
129. Connect the 5 connectors.
    129.1. The lock-up control solenoid (5)
    129.2. The pressure control solenoid (1)
    129.3. The No. 2 shift solenoid (2)

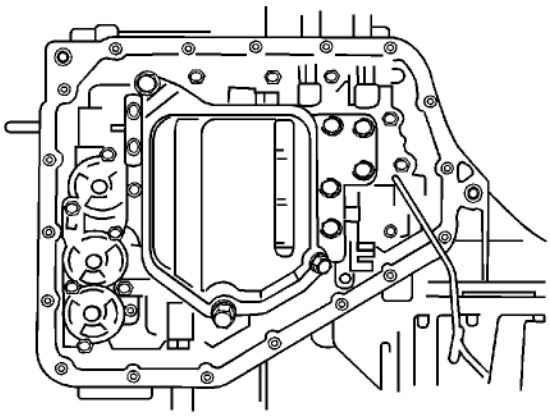
129.4. The No. 1 shift solenoid (3)
129.5. The timing solenoid (4)

Note: Verify that the transaxle wire does not come out from the oil pan installations surface.

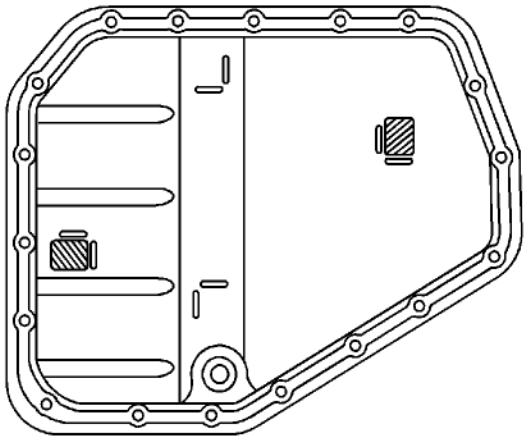
130. Install the TFT sensor with a clamp.



131. Install a new gasket to the oil strainer.

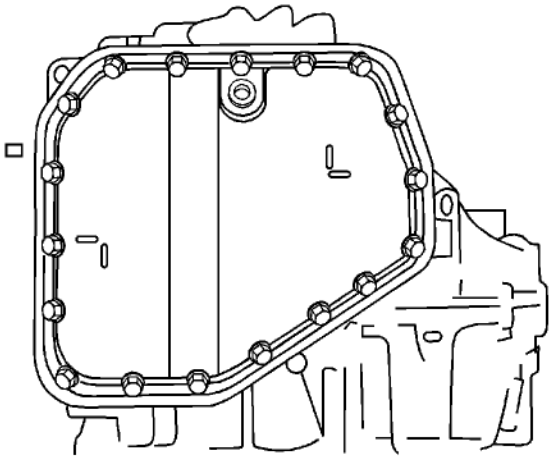


132. Install the oil strainer to the valve body.
133. Install the oil strainer bolts and tighten to **10 N·m (89 lb in)**.



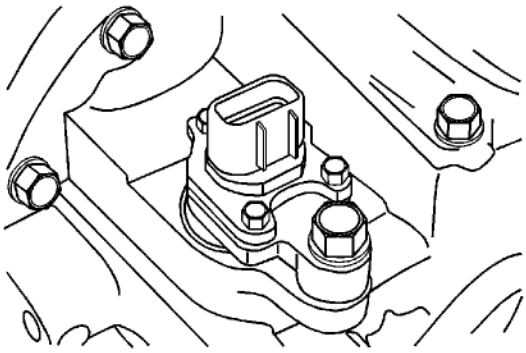


134. Install two magnets in the oil pan.

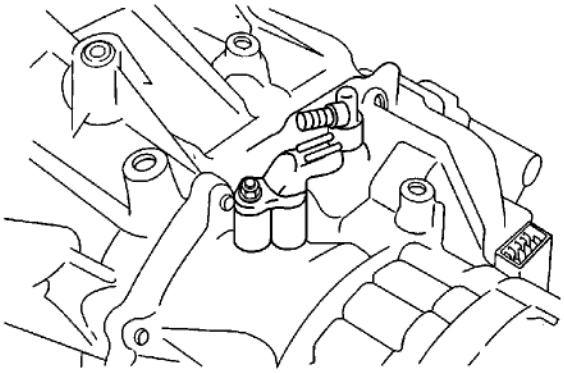




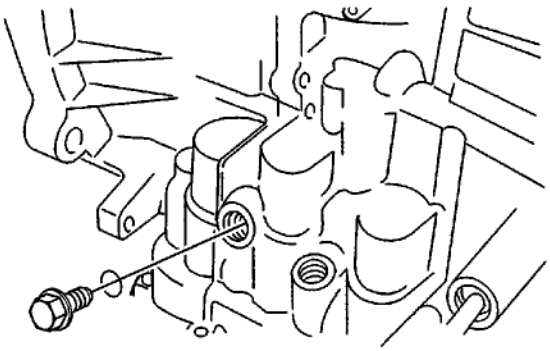
135. Install a new gasket to the oil pan and install the oil pan to the transaxle case.
136. Install the oil pan bolts and tighten to **7 N·m (62 lb in)**.



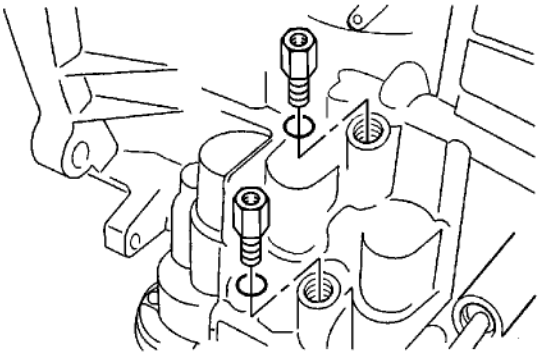
137. Install the output shaft speed (OSS) sensor.
138. Install the (OSS) bolt and tighten to **7 N·m (62 lb in)**.



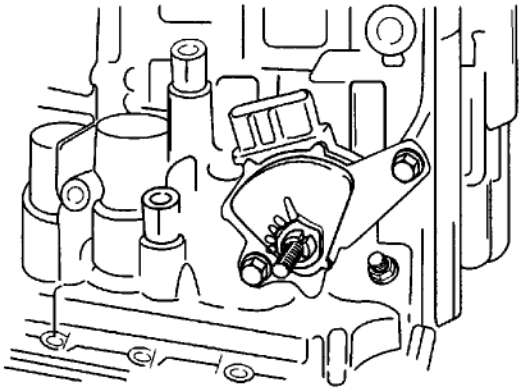
139. Install the No. 1 breather plug.
140. Install the input shaft speed (ISS) sensor.
141. Install the (ISS) bolt and tighten to **5 N·m (44 lb in)**.



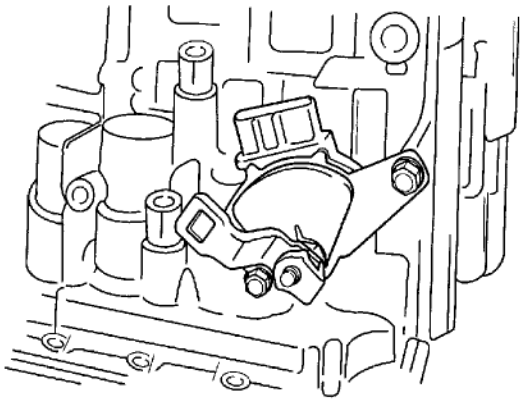
142. Coat the new O-ring with ATF and install the O-ring to the bolt plug.
143. Install the bolt plug to the transaxle case and tighten to **7 N·m (62 lb in)**.



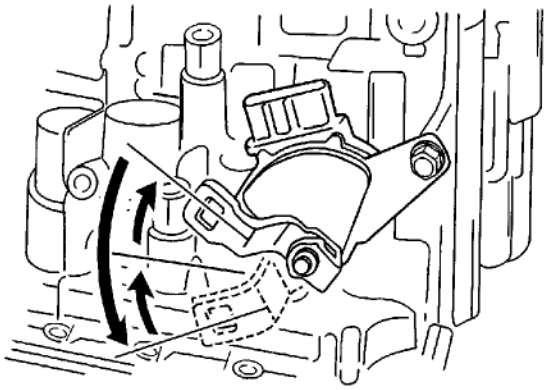
144. Coat new O-rings with ATF and install the O-rings to the unions.
145. Install the unions to the transaxle case and tighten to **25 N·m (18 lb ft)**.



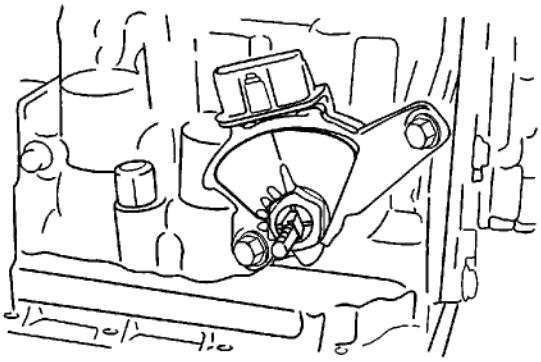
146. Install the PNP switch to the manual valve lever shaft and temporarily install the adjusting bolts.
147. Install a new lock washer and nuts and tighten to **12 N·m (106 lb in)**.



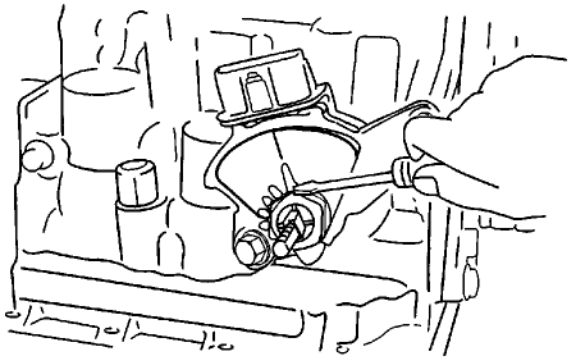
148. Temporarily install the control lever.



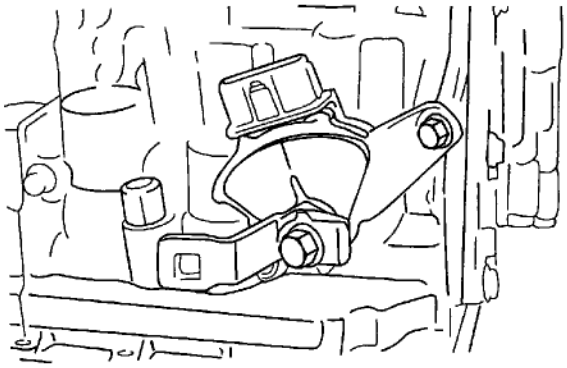
149. Turn the lever counterclockwise until the lever stops, then turn clockwise 2 notches.
150. Remove the control lever.



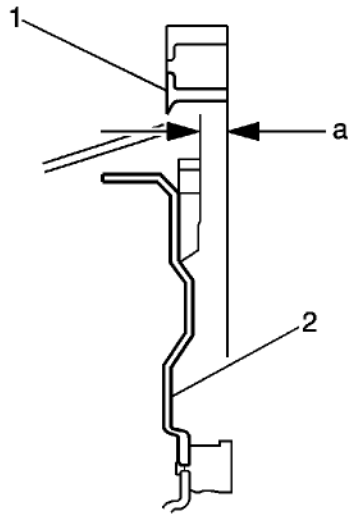
151. Align the groove with the neutral basic and tighten to **5 N·m (44 lb in)**.



152. Using a screwdriver, stake the nut with the lock washer.



153. Install the control lever.
154. Install the control lever washer and nut and tighten to **12 N·m (106 lb in)**.



155. Install the torque converter (2) to the transaxle.
156. Measure the installation depth of the torque converter.

Specification
The standard value is 11.1 mm (0.44 in).

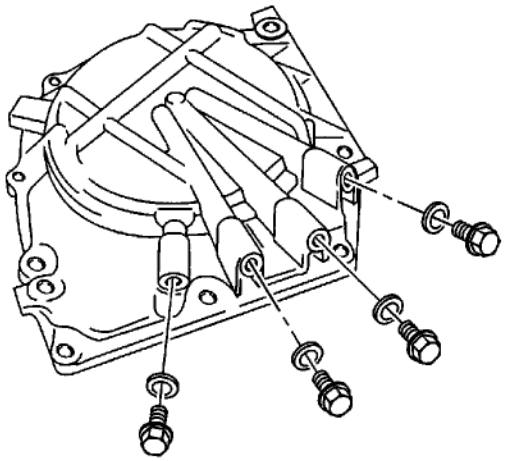
157. If the measured value is beyond the standard value, readjust the torque converter within the specified value.

Transmission Assemble

Special Tools

- DT 46451 (DW240-020) Brake Clutch Spring Compressor
- DT 46454 (DW240-050) Overdrive Brake Adapter
- DT 46455 (DW240-060-01) Brake Spring Compressor Bolt/Nut
- DT 46456 (DW240-060-02) Brake Spring Compressor Plate
- DT 46457 DW240-070) 1st/Reverse Brake Adapter
- DT 46458 (DW240-080) 2nd Brake Adapter
- DT 46460 (DW240-100) Counter Drive Gear Installation Adapter
- DT 46461 (DW240-130) Differential Preload Adapter
- DT 46462 (DW240-140) Transaxle Housing Side Bearing Outer Race Adapter
- DT 46464 (DW240-160) Transaxle Case Outer Tapered Roller Bearing Race Adapter
- DT 46465 (DW240-170) Adapter Handle
- DT 46471 (DW260-031-01) Transaxle Housing Oil Seal Installer
- DT 46472 (DW260-041) Planetary Ring Gear Nut Removal/Installation Socket
- DT 47521 (DW260-031-02) Transaxle Case Oil Seal Installer

Assembly Procedure

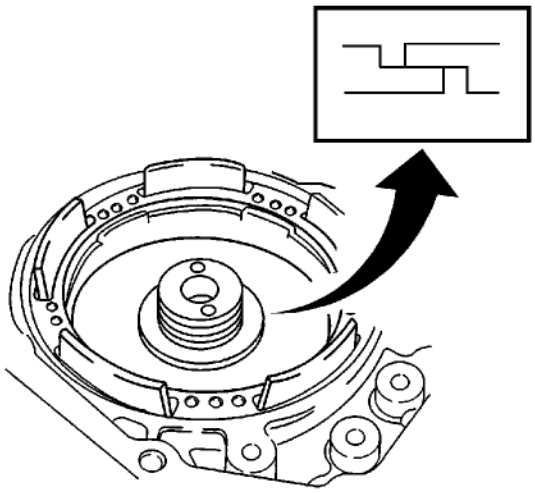


1. Install new O-rings to the bolt plugs.

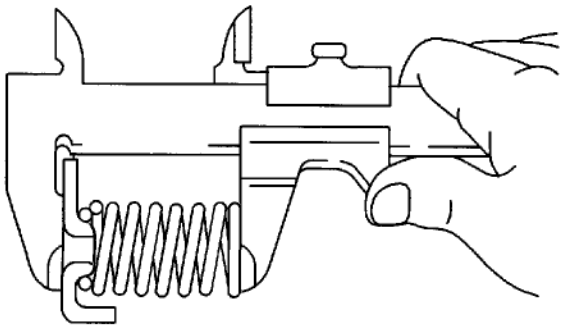
Caution: Refer to Fastener Caution in the Preface section.

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2. Install the bolt plugs with the O-rings to the transaxle rear cover and tighten to **7 N·m (62 lb in)**.

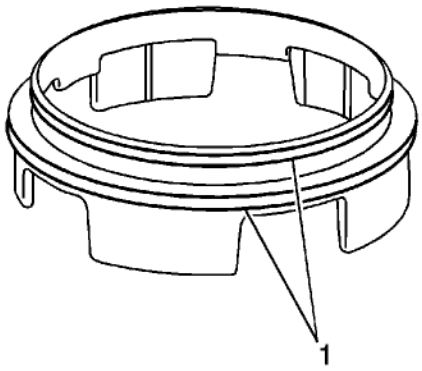


3. Install the seal rings to the transaxle rear cover.

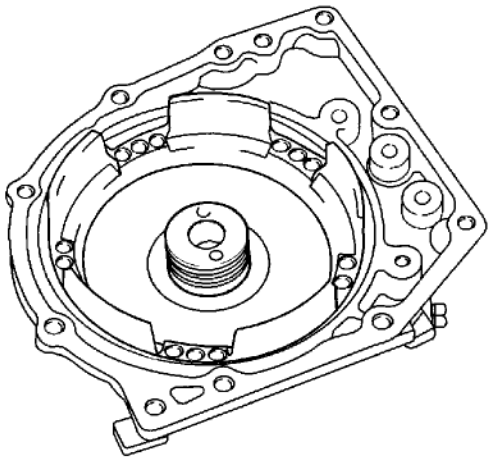


4. Using the vernier calipers, measure the free length of the overdrive (O/D) brake piston return spring together with the spring seat.

Specification
The standard free length is 18.99 mm (0.7476 in).

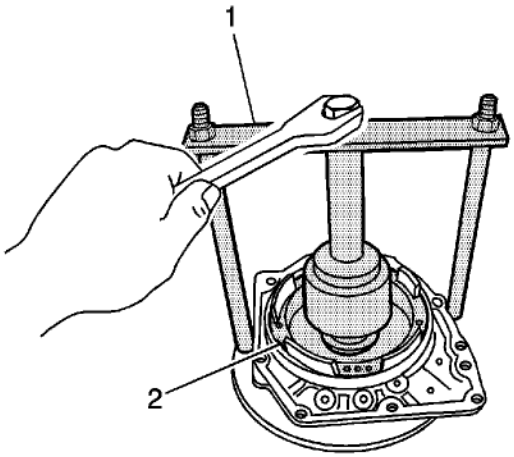


5. Coat the new O-rings (1) with automatic transaxle fluid (ATF). Install the O-rings to the O/D brake piston.

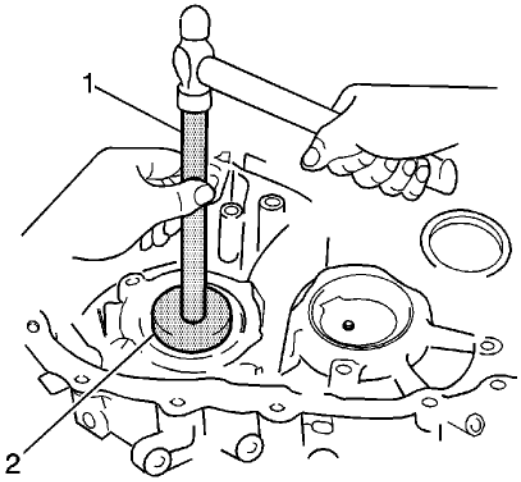


Note: Do not damage the O-rings of the O/D brake piston.

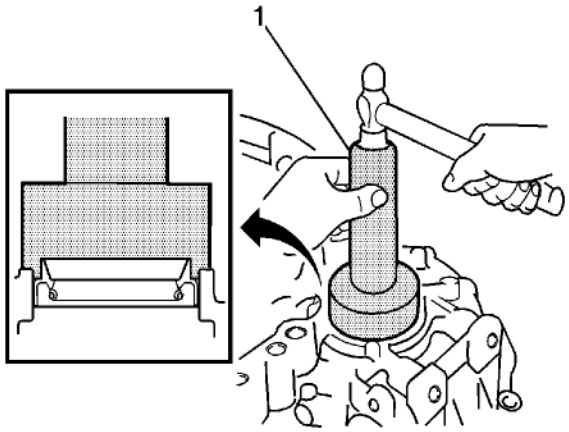
6. Coat the O/D brake piston with ATF. Install the piston to the transaxle rear cover.



7. Using DT 46451 (1), DT 46454 (2) and a driver, install the O/D brake return spring and snap ring to the transaxle rear cover.

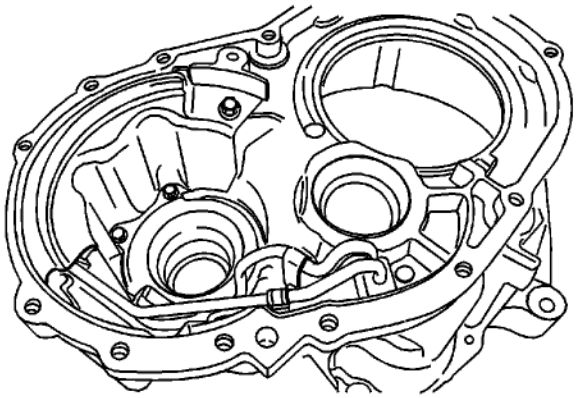


8. Using DT 46462 (2) and DT 46465 (1), install a new side bearing outer race into the transaxle housing.



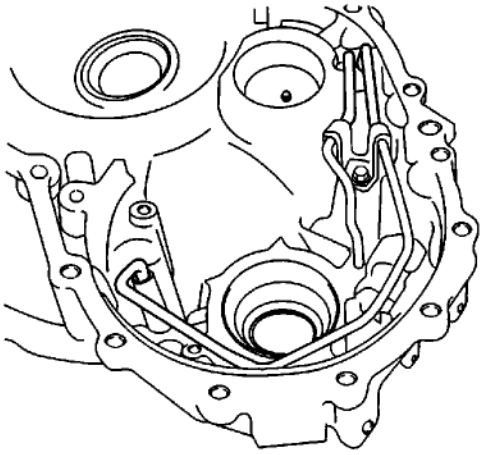
9. Using DT 46471 (1) and a hammer, drive in a new transaxle housing oil seal.

Specification
The oil seal depth is 3.1 mm (0.122 in).

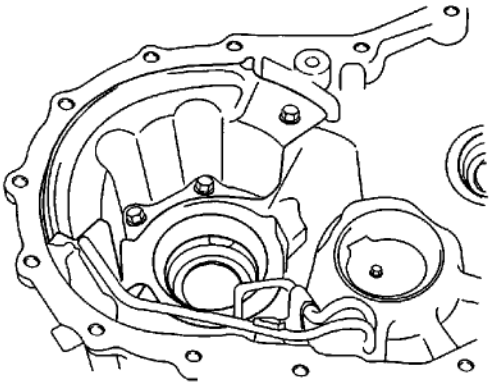


Note: Press-fit the outer tapered roller bearing race until the race contacts the transaxle housing.

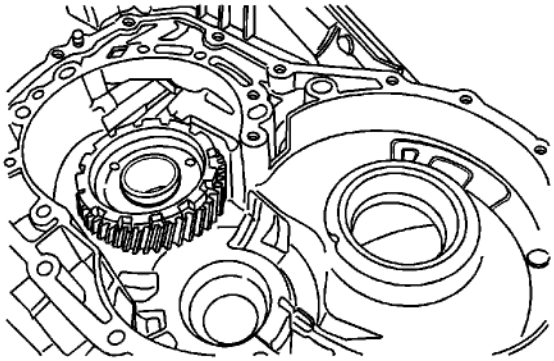
10. Install a new outer tapered roller bearing race into the transaxle housing.



11. Install the transaxle lube apply pipe and differential gear lube apply pipe to the transaxle housing.
12. Install the No. 1 transaxle apply pipe clamp to the transaxle housing with the bolt and tighten to **5 N·m (44 lb in)**.

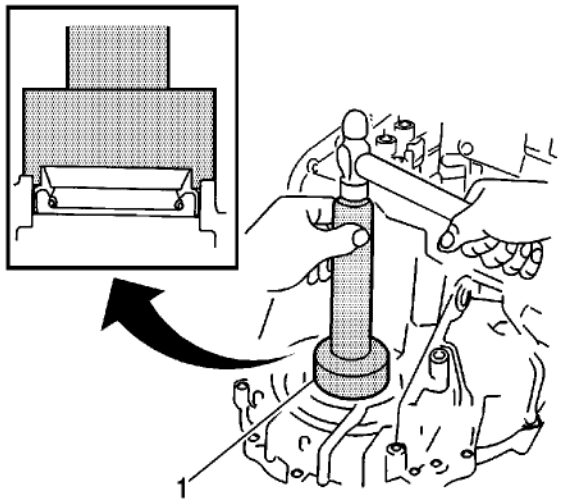


13. Install the oil reservoir lock plate to the transaxle housing.
14. Install the oil reservoir lock plate bolts and tighten to **5 N·m (44 lb in)**.



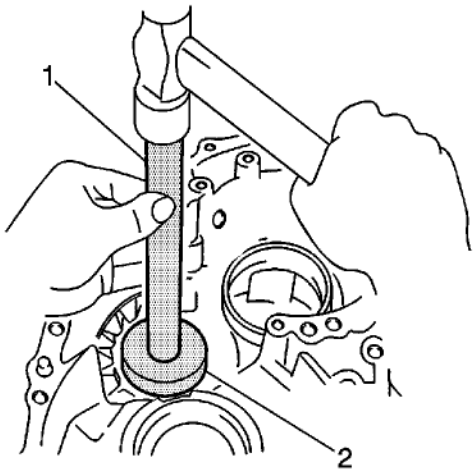
Note: First install a shim of the same thickness as the original shim.

15. Install the shim to the transaxle case.
16. Install a new bearing outer race into the transaxle case.



17. Using DT 47521 (1) and a hammer, drive in a new transaxle case oil seal.

Specifications
The oil seal depth is 4.3 mm (0.169 in).

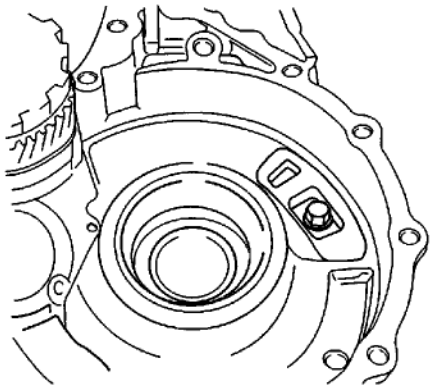


Note: First install a shim of the same thickness as the original shim.

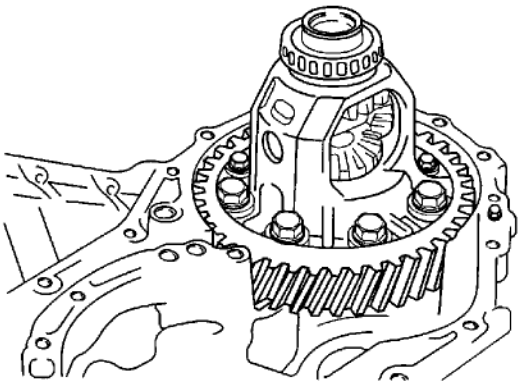
18. Install the shim to the transaxle case.

Note: Press-fit the shim until the shim contacts the transaxle case.

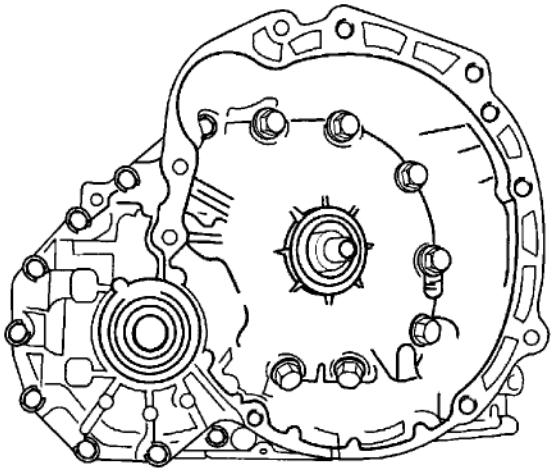
19. Using DT 46464 (2) and DT 46465 (1), press in a new outer tapered roller bearing race into the transaxle case.



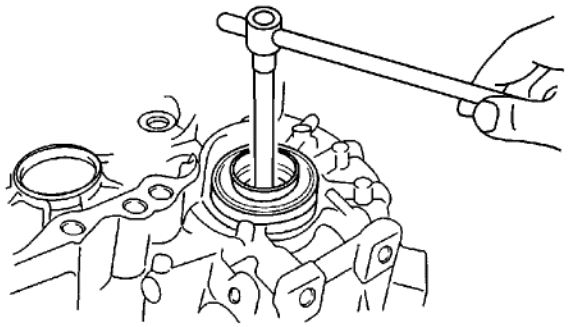
20. Install the No. 1 transaxle case plate to the transaxle case.
21. Install the transaxle case plate bolt and tighten to **10 N·m (89 lb in)**.



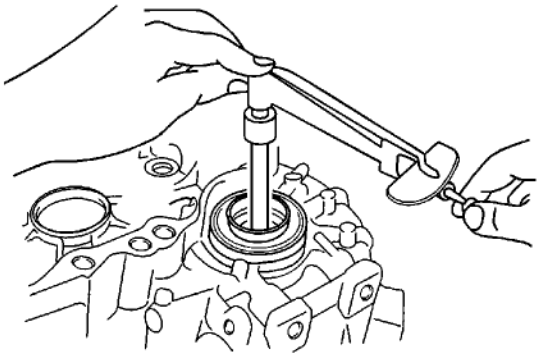
22. Install the differential gear to the transaxle case.



23. Install the transaxle housing and hand tighten the bolts of the transaxle housing.
24. Tighten 8 bolts of the transaxle housing completely and tighten to **29 N·m (22 lb ft)**.

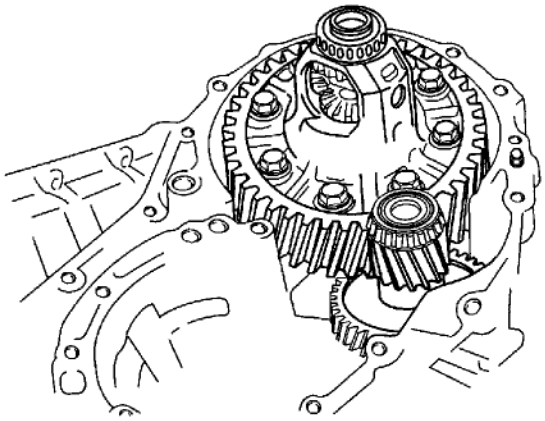


25. Using DT 46461 , turn the differential gear assembly right and left 2 or 3 times to allow the bearing to settle.

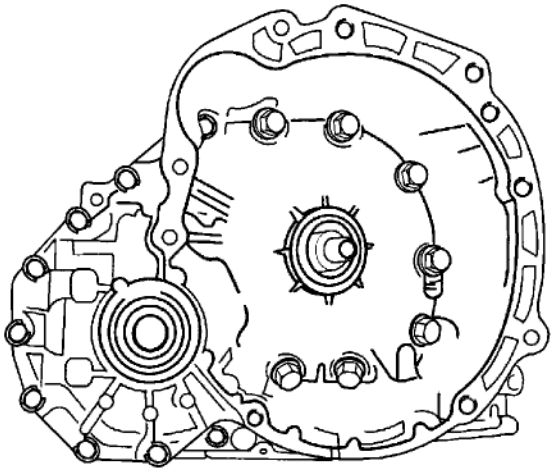


Note: Note the measured value.

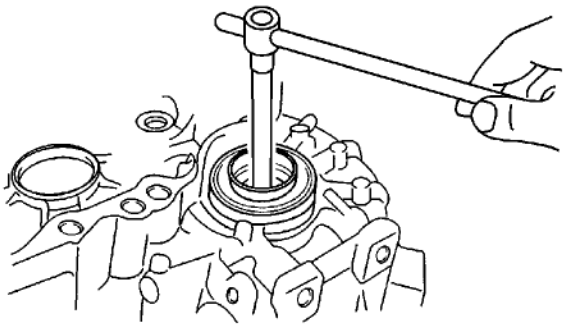
26. Using DT 46461 and a small torque wrench, measure the preload of the differential gear.



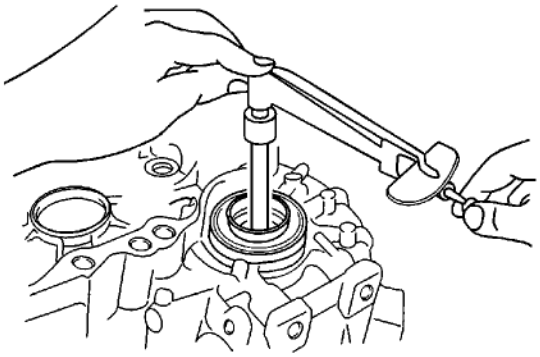
27. Remove the transaxle housing and install the counter driven gear.



28. Install the transaxle housing and hand tighten the bolts of the transaxle housing.
29. Tighten 8 bolts of the transaxle housing completely and tighten to **29 N·m (21 lb ft)**.



30. Using DT 46461 , turn the differential gear assembly right and left 2 or 3 times to allow the bearing to settle.



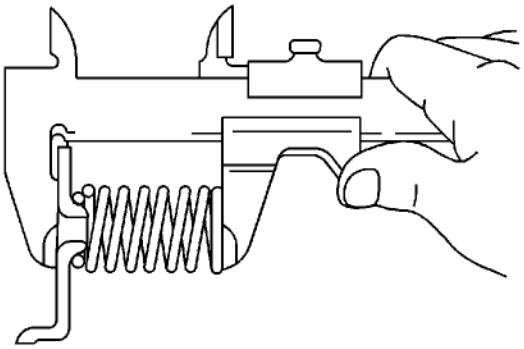
31. Using DT 46461 and a small torque wrench, measure the preload of the differential gear. From this value deduct the value measured previously. This new value is the preload of the counter driven gear.

Specification

- The preload for a new bearing is 0.33-0.76 N·m (3.21-6.77 lb in).
- The preload for a used bearing is 0.17-0.38 N·m (1.48-3.39 lb in).

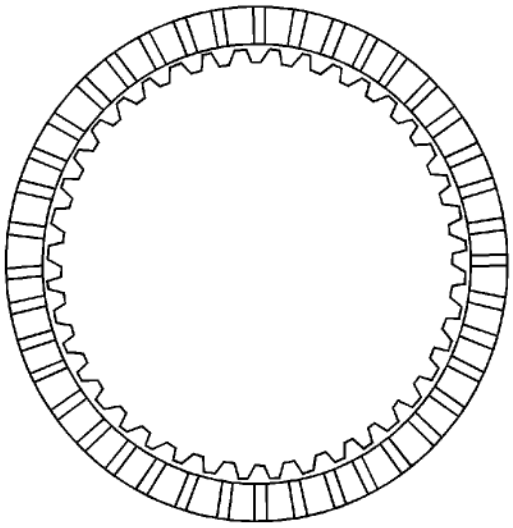
Note: When the preload is larger than the specification, select a thinner adjuster shim. When the preload is smaller than specification, select a thicker adjuster shim.

32. If the preload of the counter driven gear does not satisfy the specification, select the adjuster shim from the table below and re-measure the value. Until the value is within the specification, repeat the procedure.



33. Using the vernier calipers, measure the free length of the 1st and reverse brake piston return spring together with the spring seat.

Specification
The standard free length is 18.053 mm (0.7107 in).



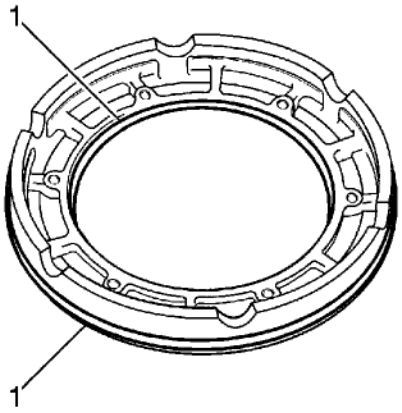
Note:

- If the lining of the disc is peeling off or discolored, or even if a part of the groove is

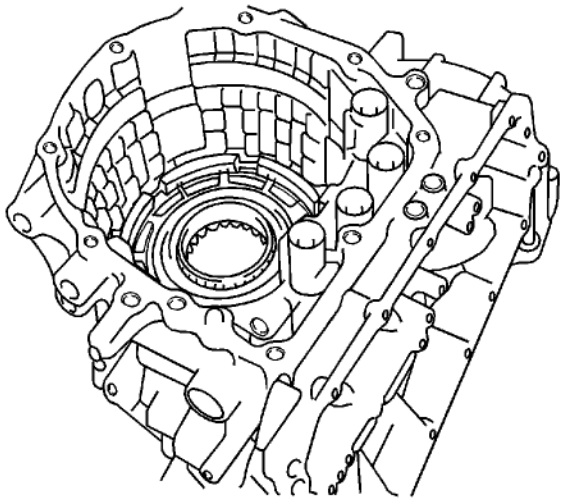
defaced, replace all discs.

- Before assembling the new discs, soak the discs in ATF for at least 15 minutes.

34. Inspect the sliding surface of the disc, the plate and the flange of the 1st and reverse brake for wear or burn. Replace if necessary.

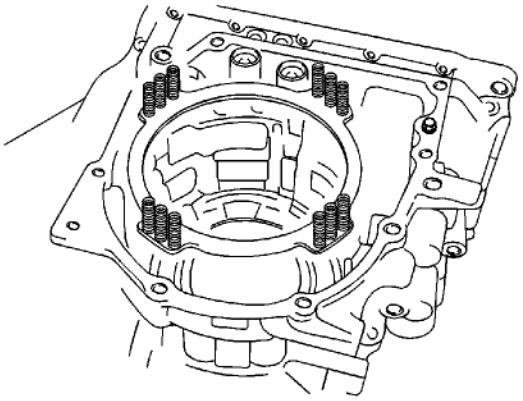


35. Coat the new O-rings (1) with ATF and install the O-rings to the 1st and reverse piston.

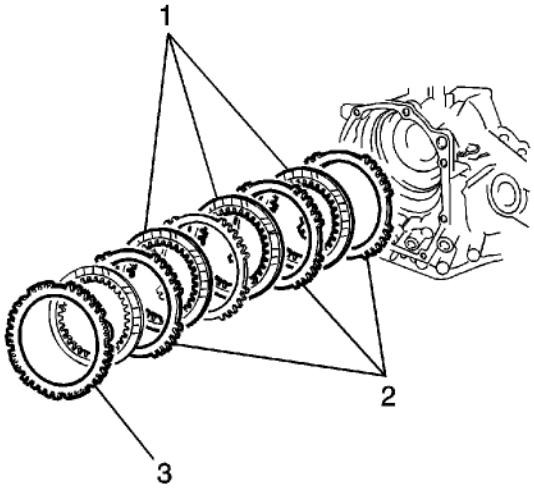


Note: Do not damage the O-rings of the 1st and reverse brake piston.

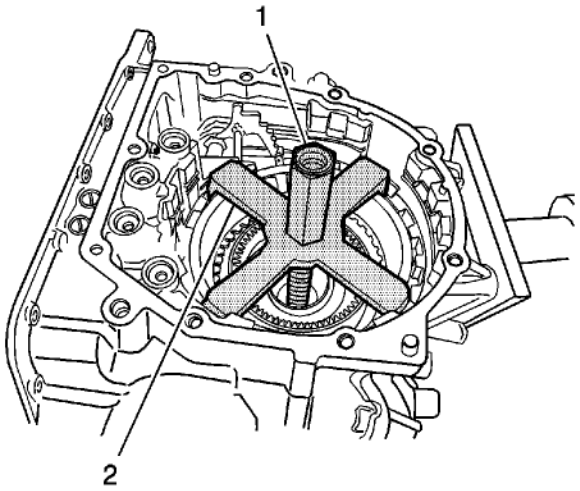
36. Install the 1st and reverse brake piston to the transaxle case.



37. Install the return spring to the transaxle case.

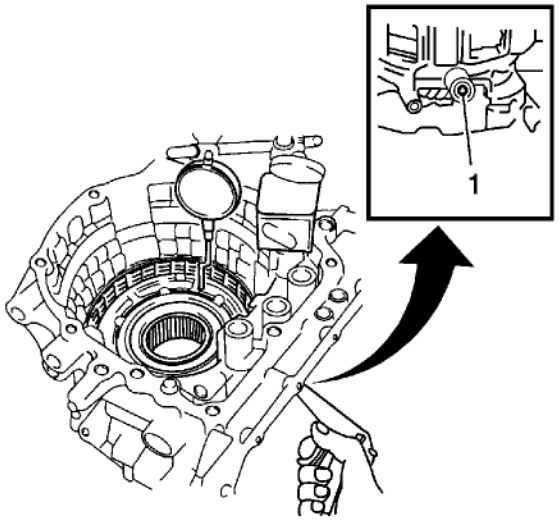


38. Install the 4 plates, the 4 discs and the flange in order: 2-1-2-1-2-1-2-1-3, where (2)=Plate, (1)=Disc, and (3)=Flange



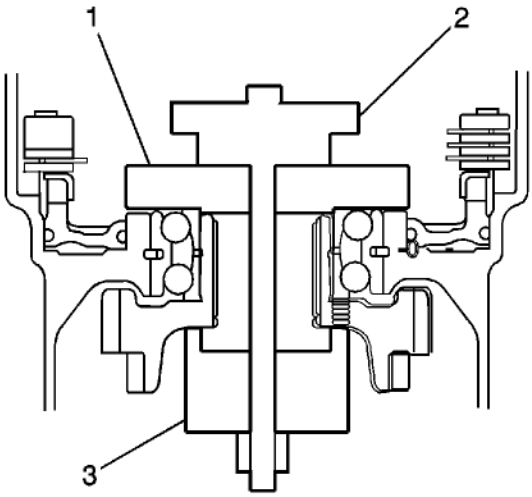
Note: Verify that the snap ring is installed correctly in the groove of the transaxle case.

39. Using DT 46457 (2) and DT 46455 (1), install the snap ring.



Note: If the piston stroke is non-standard, inspect the discs, the plates and the flange. The piston stroke is 0.6-1.3 mm (0.024-0.051 in).

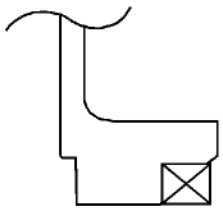
40. Using a dial indicator, measure the 1st and reverse brake piston stroke while applying and releasing compressed air.

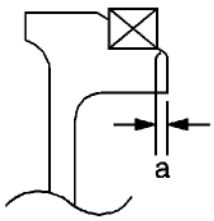




Note: Do not apply excessive force to the transaxle case.

41. Using DT 46460 (3), DT 46455 (2) and DT 46456 (1), install the counter drive gear.

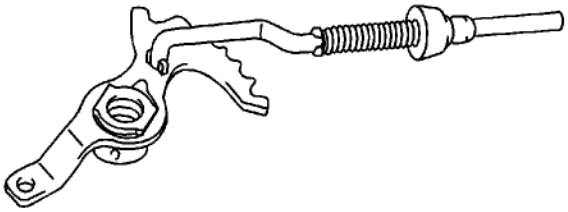




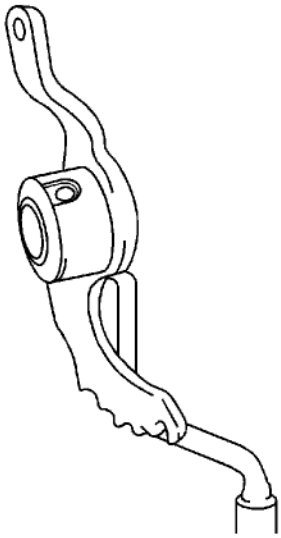


42. Coat a new oil seal with ATF.
43. Install the oil seal to the transaxle case.

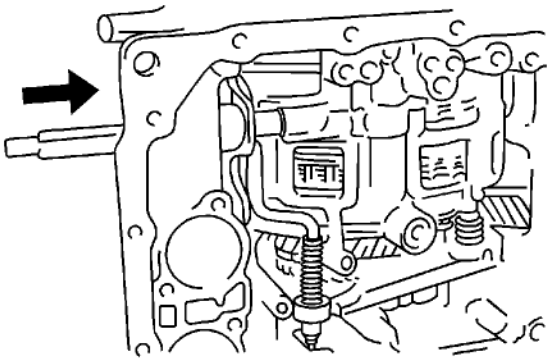
Specification
The oil seal depth is 0.75-1.25 mm (0.030-0.049 in).



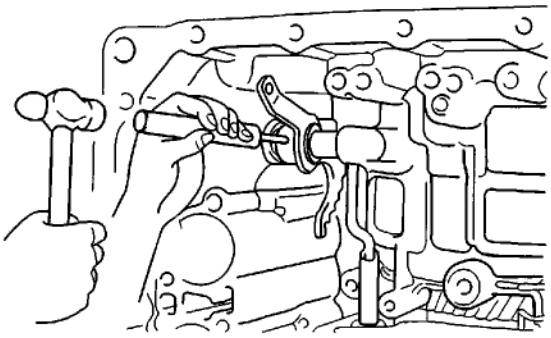
44. Install the parking lock rod to the manual valve lever.



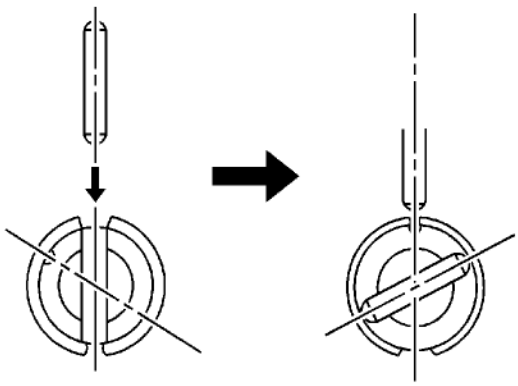
45. Install a new spacer to the manual valve lever.



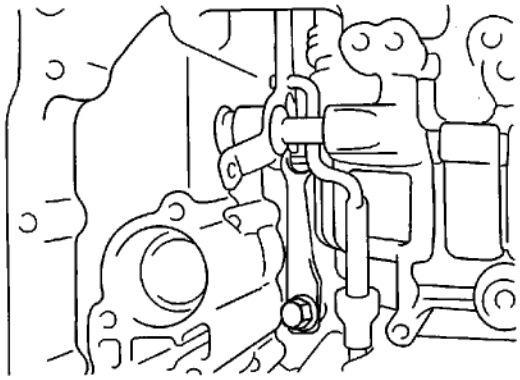
46. Install the manual valve lever shaft and the manual valve lever.



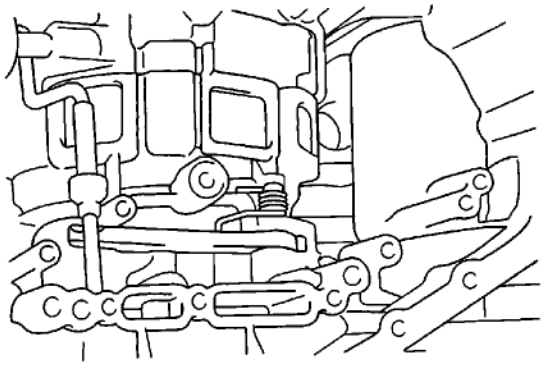
47. Using a pin punch and hammer, drive in a new pin.



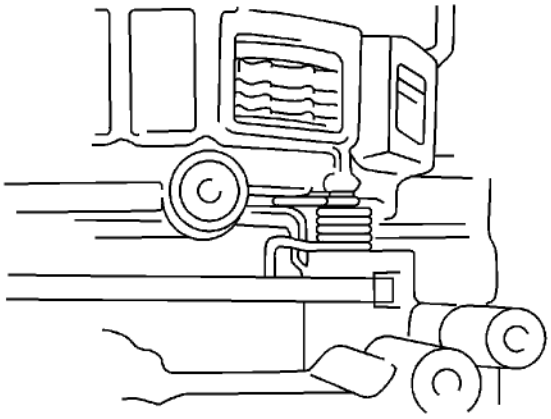
48. Turn the spacer and the lever shaft to align the small hole for locating the staking position in the spacer with the staking position mark on the lever shaft.
49. Using a pin punch, stake the spacer through the small hole.
50. Verify that the spacer does not turn.



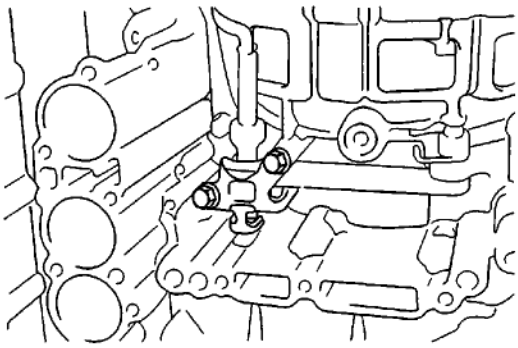
51. Install the manual detent spring.
52. Install the manual detent spring bolt and tighten to **10 N·m (89 lb in)**.



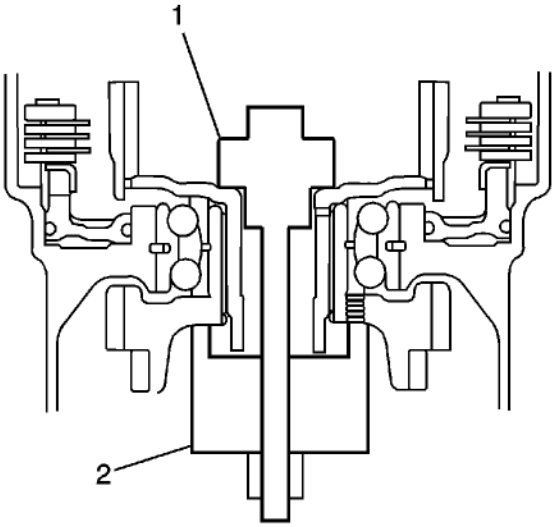
53. Install the parking lock shaft, torsion spring, and the parking lock pawl.



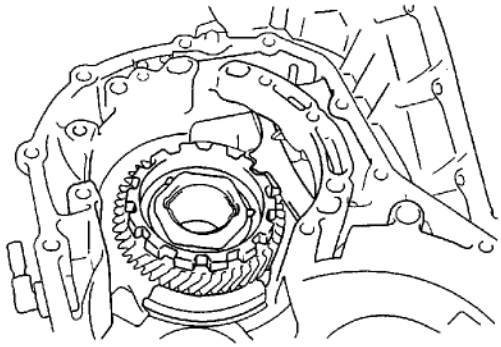
54. Verify that the edge of the torsion spring fits into the groove securely.



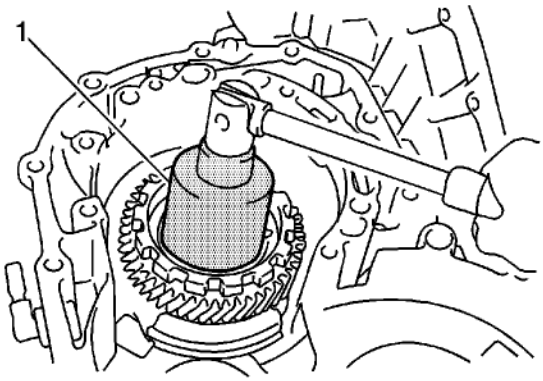
55. Install the parking lock pawl bracket.
56. Install the parking lock pawl bolts and tighten to **7 N·m (62 lb in)**.



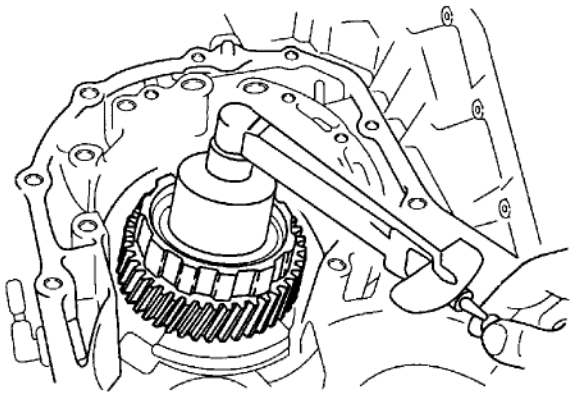
57. Replace the planetary ring flange of the planetary ring gear.
58. Using DT 46460 (2) and DT 46455 (1), install the planetary ring gear.



59. Fix the counter drive gear with the parking lock pawl.



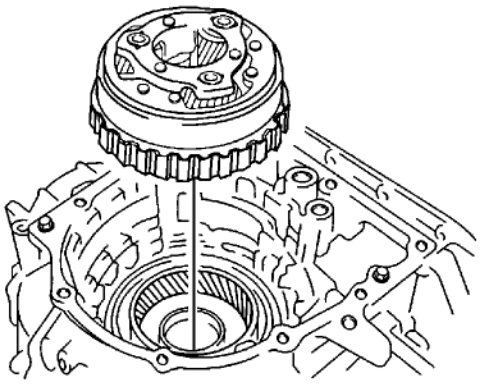
60. Using DT 46472 (1), install a new nut and tighten to **10 N·m (89 lb in)**.



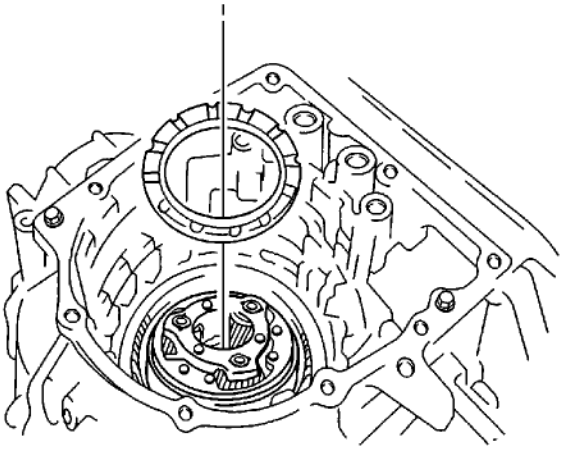
61. Using a small torque wrench, turn the counter drive gear 100 turn per minute and measure the preload and tighten to **29 N·m (22 lb ft)**.

Specification
When the preload is smaller than the specification, tighten the nut more and adjust the preload to 0.05-0.35 N·m (0.43-3.12 lb in).

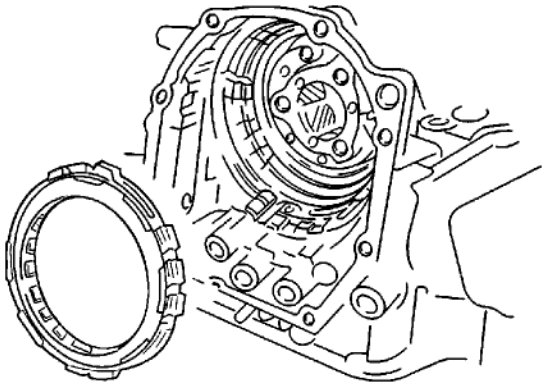
62. Stake the nut.



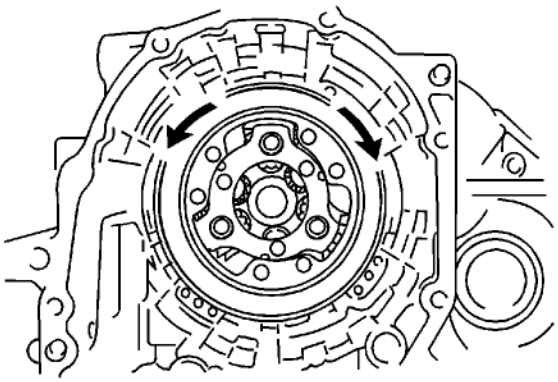
63. Install the planetary gear to the transaxle case.



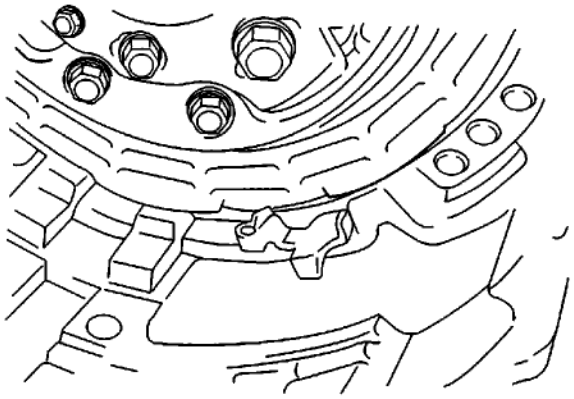
64. Coat the planetary carrier thrust washer with petroleum jelly and install the washer onto the planetary gear.



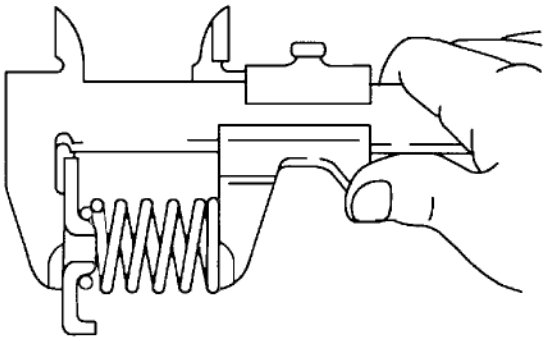
65. Install the No. 2 one-way clutch to the transaxle case.



66. Verify that the planetary gear turns freely counterclockwise and locks clockwise.

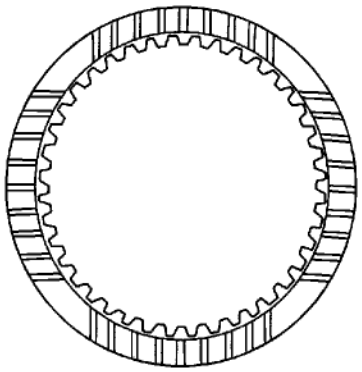


67. Install the anti-rattle clip in the space between the No. 2 one-way clutch outer race and transaxle case. Push the anti-rattle clip in place until you hear the click.



68. Using vernier calipers, measure the free length of the 2nd brake piston return spring together with the spring seat.

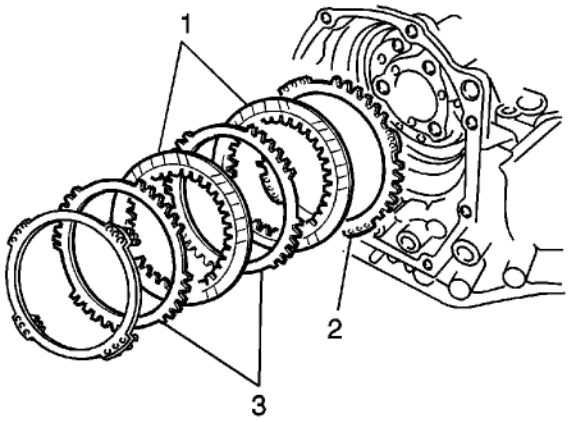
Specification
The standard free length is 15.85 mm (0.6240 in).



Note:

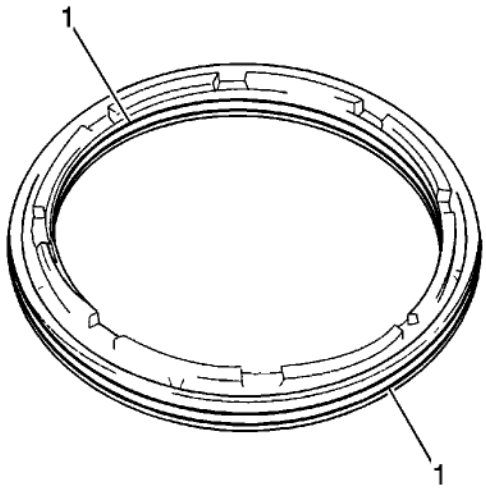
- If the lining of the disc is peeling off or discolored, or even if a part of the groove is defaced, replace all discs.
- Before assembling the new discs, soak the discs in ATF for at least 15 minutes.

69. If the sliding surface of the disc, the plate and the flange of 2nd brake are worn or burnt, replace the parts.

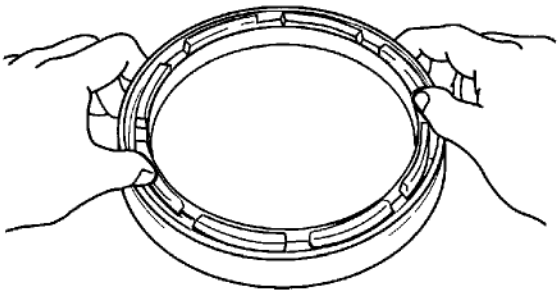


Note: Install the snap ring in the groove of the transaxle case correctly.

70. Install the flange, 2 discs and 2 plates in order: 2-1-3-1-3, where (1)=Disc, (2)=Flange, and (3)=Plate.
71. Install the 2nd brake return spring.

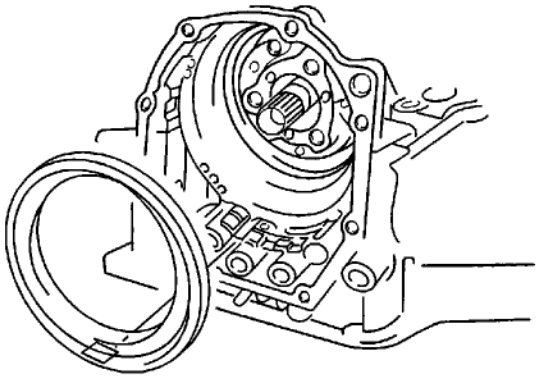


72. Coat the new O-rings (1) with ATF and install the O-rings to the 2nd brake piston.

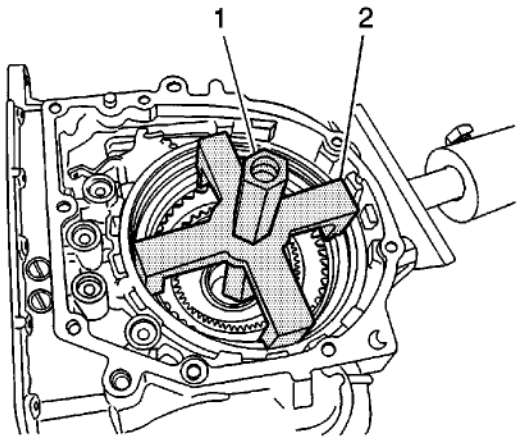


Note: Do not damage the O-rings.

73. Install the 2nd brake piston into the 2nd brake clutch cylinder.



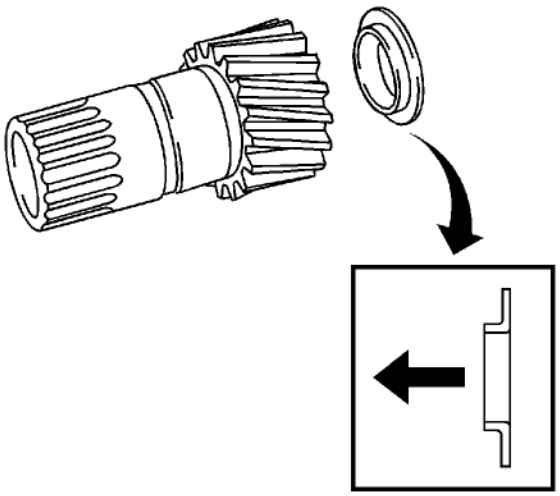
74. Install the 2nd brake clutch cylinder to the transaxle case.



75. Using DT 46455 (1) and DT 46458 (2), compress the 2nd brake piston return spring.

Note: Install the snap ring in the groove of the transaxle case correctly.

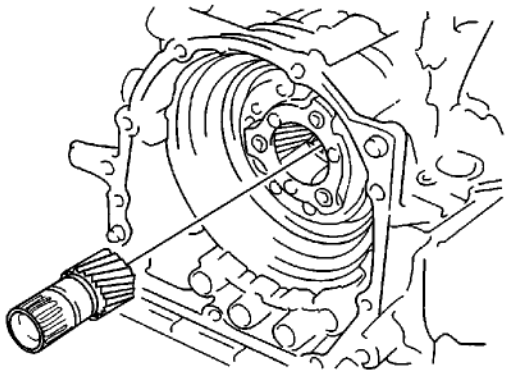
76. Using a screwdriver, install the snap ring.



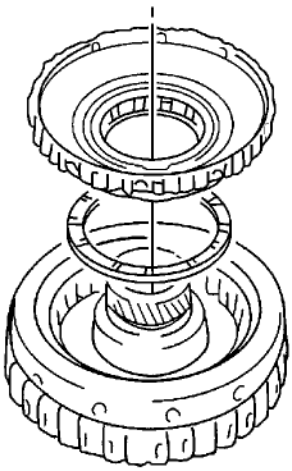
77. Coat the thrust bearing race with petroleum jelly and install the race onto the front planetary sun gear.

Specification

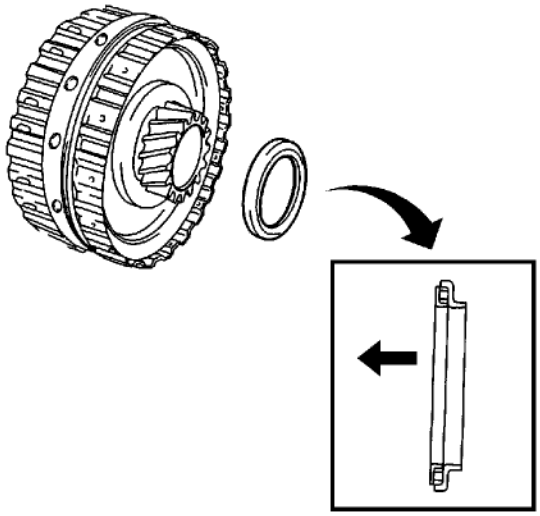
- The race inner diameter is 19.3 mm (0.760 in).
- The race outer diameter is 29.0 mm (1.142 in).



78. Install the front planetary sun gear to the transaxle case.



79. Install the thrust washer and the one-way clutch assembly to the rear planetary sun gear.

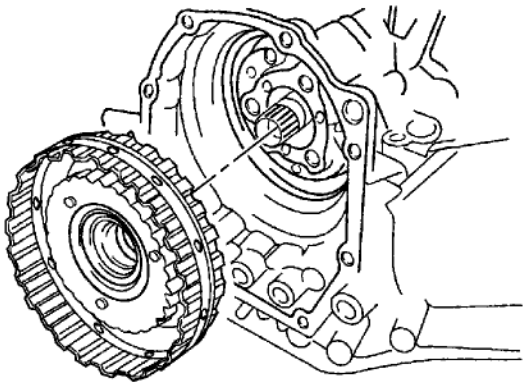


Note: Verify the direction of the bearing.

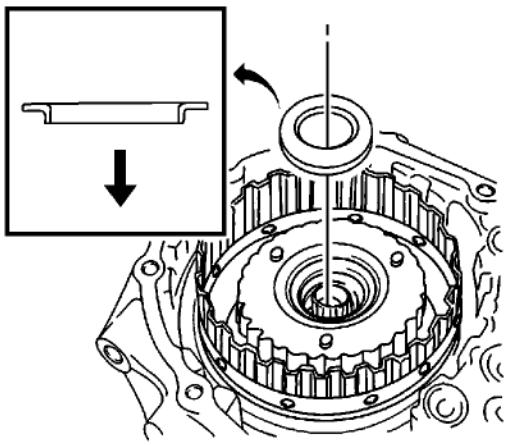
80. Coat the thrust bearing race with petroleum jelly and install the race onto the rear planetary sun gear and the one-way clutch assembly.

Specification

- The bearing inner diameter is 42.5 mm (1.673 in).
- The bearing outer diameter is 57.5 mm (2.264 in).



81. Install the rear planetary sun gear and the one-way clutch assembly to the transaxle case.

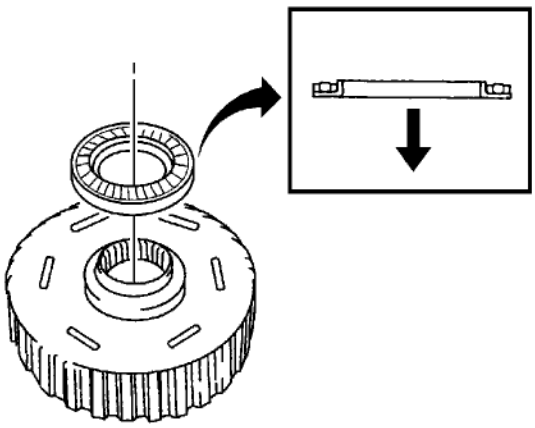


Note: Verify the direction of the race.

82. Coat the thrust bearing race with petroleum jelly and install the race onto the transaxle case.

Specification

- The race inner diameter is 34.95 mm (1.3760 in).
- The race outer diameter is 45.50 mm (1.7913 in).

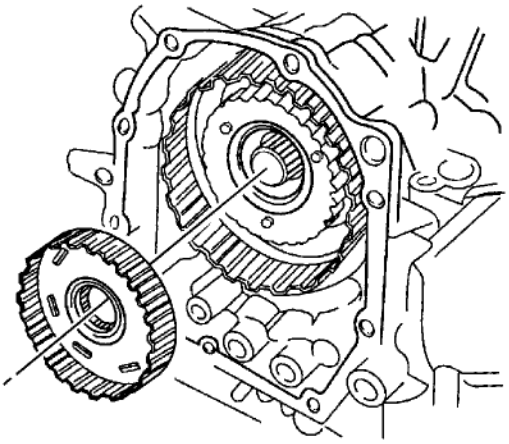


Note: Verify the direction of the bearing.

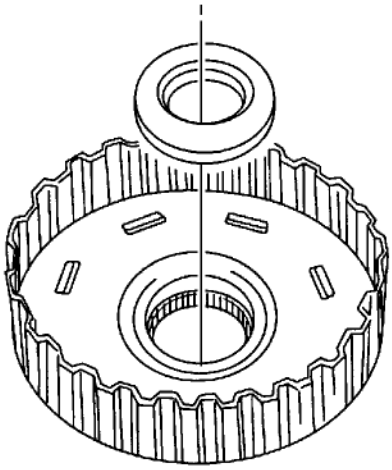
83. Coat the thrust needle roller bearing with petroleum jelly and install the bearing onto the forward clutch hub.

Specification

- The bearing inner diameter is 33.3 mm (1.311 in).
- The bearing outer diameter is 46.5 mm (1.831 in).



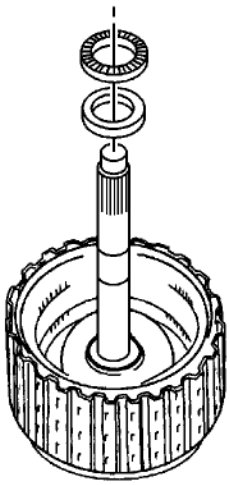
84. Install the forward clutch hub to the transaxle case.



85. Coat the thrust bearing race with petroleum jelly and install the race onto the forward clutch hub.

Specification

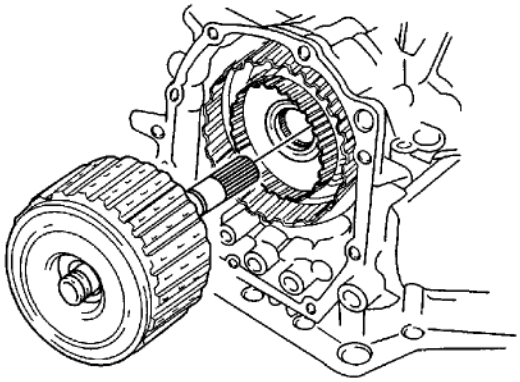
- The race inner diameter is 19.3 mm (0.760 in).
- The race outer diameter is 30.6 mm (1.205 in).



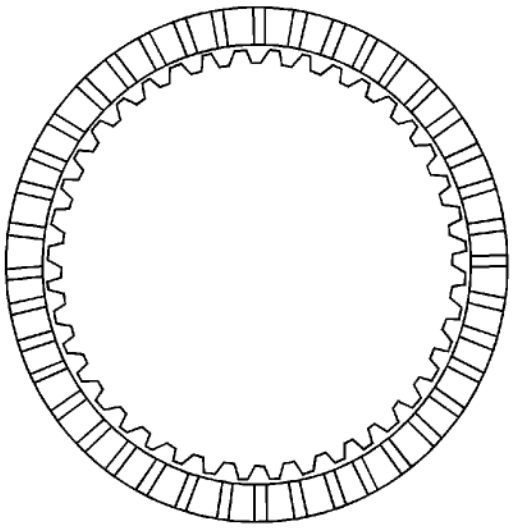
86. Install the thrust bearing race and thrust needle roller bearing to the forward and reverse clutch assembly.

Specification

- The race inner diameter is 18.1 mm (0.713 in).
- The race outer diameter is 28.2 mm (1.110 in).
- The bearing inner diameter is 18.1 mm (0.713 in).
- The bearing outer diameter is 29.6 mm (1.165 in).



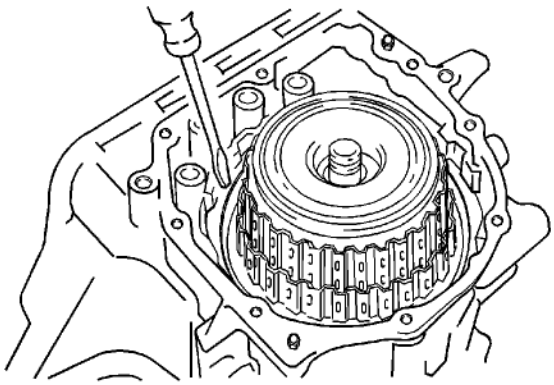
87. Install the forward and reverse clutch assembly to the transaxle case.



Note:

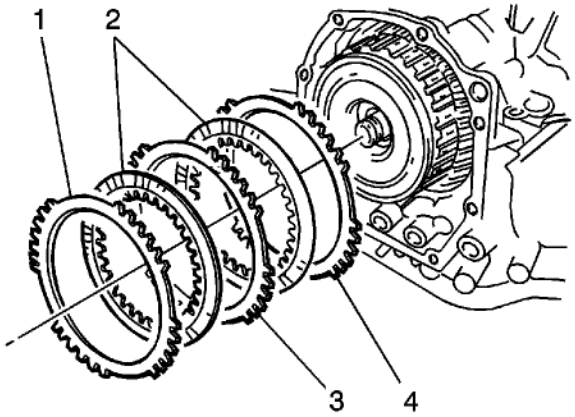
- If the lining of the disc is peeling off or discolored, or even if the part of the printed mark is defaced, replace all discs.
- Before assembling new discs, soak the discs in ATF for at least 15 minutes.

88. If the sliding surface of the disc, the plate and the flange of 2nd coast and O/D brake are worn or burnt, replace the components.



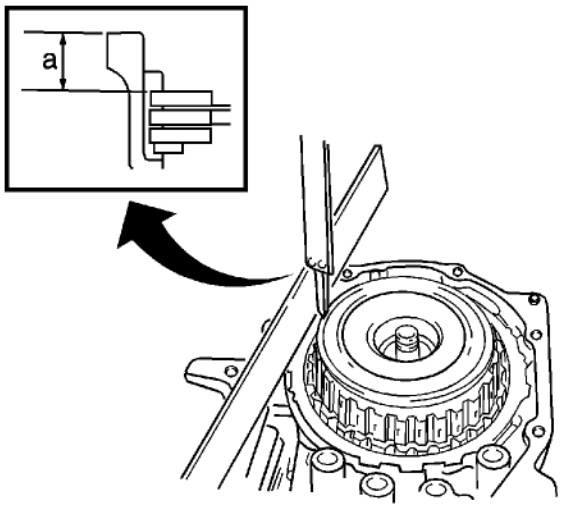
Note: Install the snap ring in the groove of the transaxle case correctly.

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



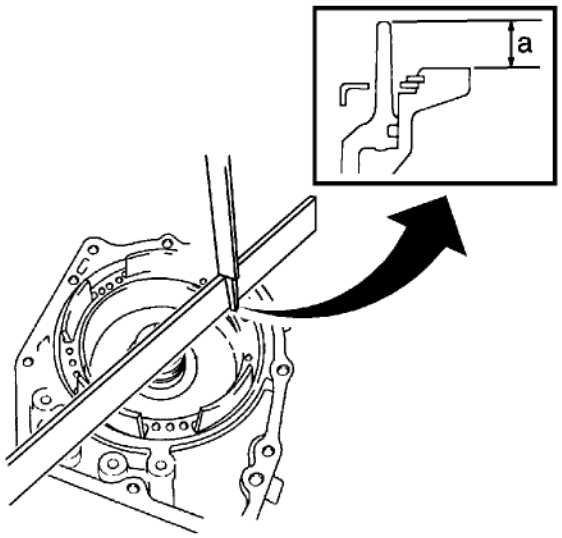


90. Install the flange, 2 discs and 2 plates to the transaxle case in the following order: 4-2-3-2-1, Flange (4), Non-Selective (3)=Plate, (2)=-Disc, and (1)=Selective Plate.
91. Clean the connected part the transaxle case and the transaxle rear cover.

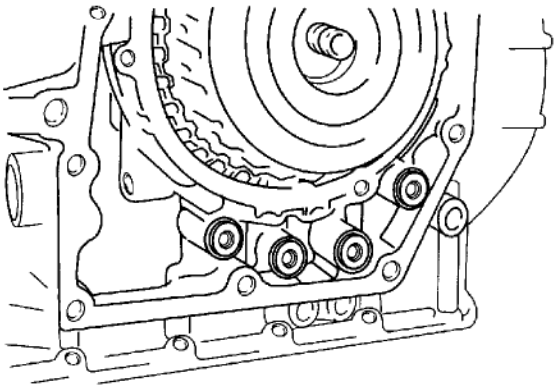




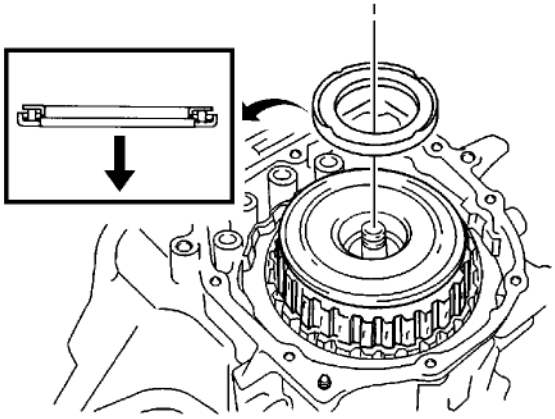
92. Place a straight edge on the transaxle case and measure the distance between the 2nd coast and the O/D brake flange and the straight edge using vernier calipers (a).



93. Place a straight edge on the O/D brake piston and measure the distance between the transaxle rear cover and the straight edge using vernier calipers (a).
94. Calculate the piston stroke value using the following formula. Piston stroke = Dimension A - Dimension B. Select and install a plate which satisfies the piston stroke value.



95. Install new governor apply gaskets to the transaxle rear cover.

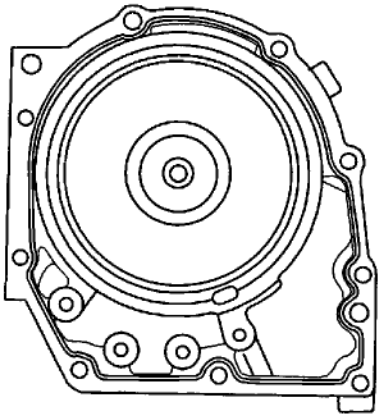


96. Coat the thrust needle roller bearing with petroleum jelly and install the bearing onto the forward and reverse clutch assembly.

Specification

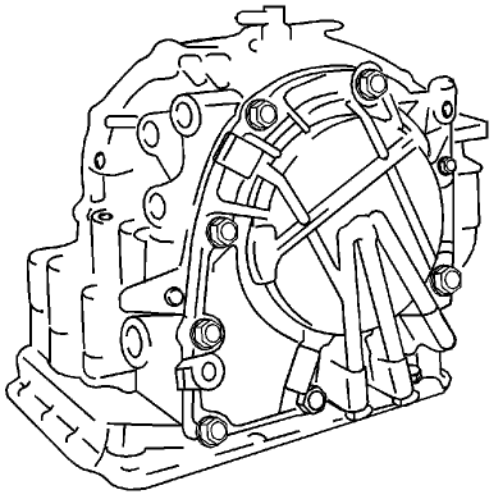
- The bearing inner diameter is 43.2 mm (1.701 in).
- The bearing outer diameter is 62.0 mm (2.441 in).

97. Remove any packing material. Do not get oil on the contacting surfaces of the transaxle rear cover or transaxle case.

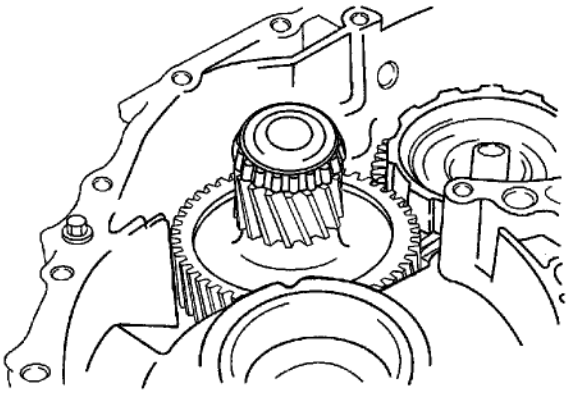


98. Apply three bond 1281 or equivalent to the transaxle rear cover.

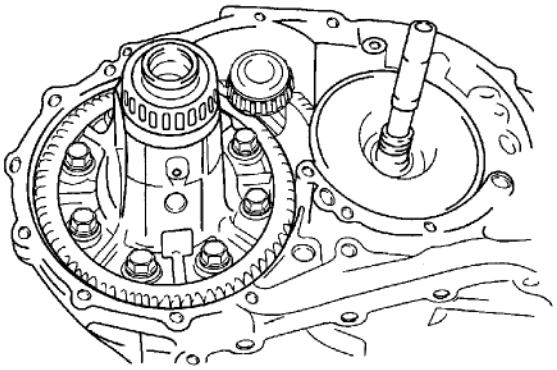
Specification
The seal bend width is 1.2 mm (0.047 in).



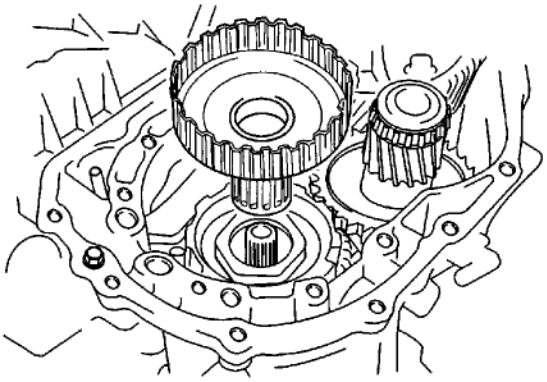
99. Install the transaxle rear cover to the transaxle case.
100. Install the transaxle rear cover bolts and tighten to **25 N·m (18 lb ft)**.



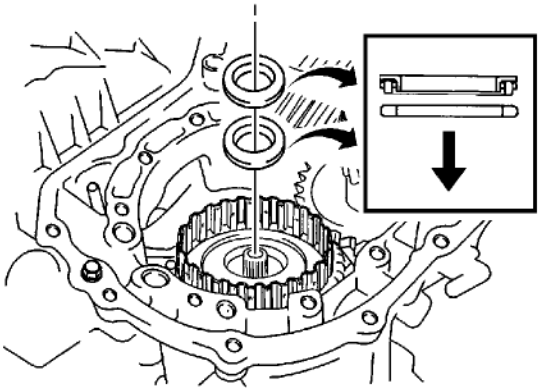
101. Install the counter driven gear assembly to the transaxle case.



102. Install the differential gear assembly to the transaxle case.



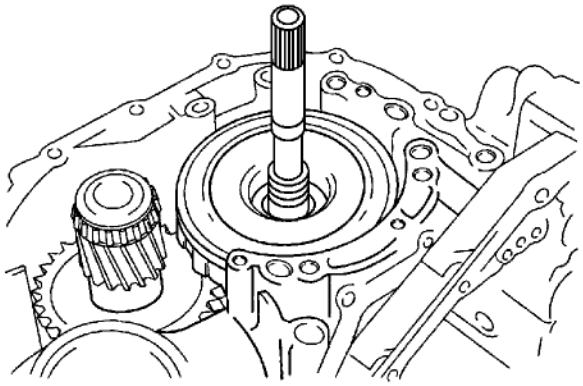
103. Install the direct clutch hub to the transaxle case.



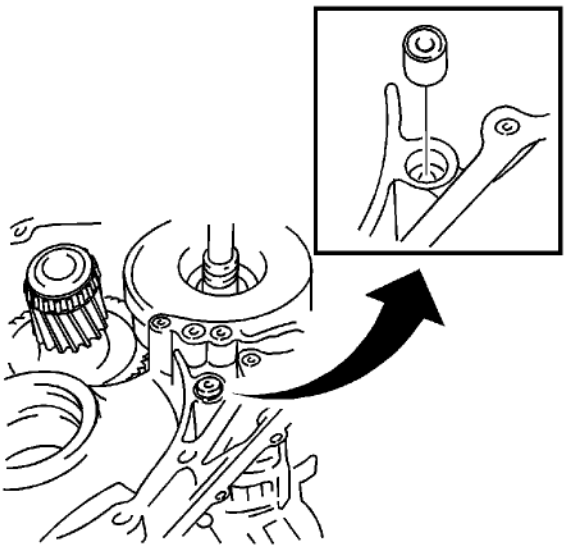
104. Install the thrust bearing race and the thrust needle roller bearing to the transaxle case.

Specification

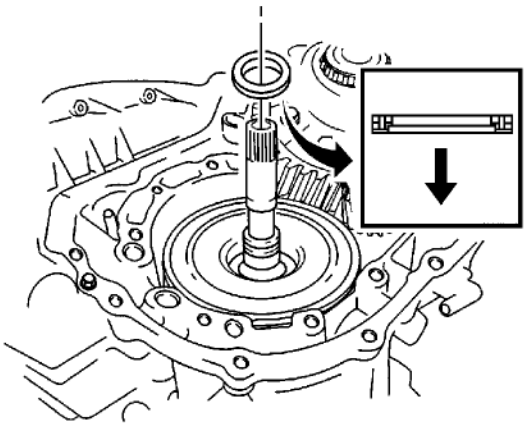
- The race inner diameter is 20.5 mm (0.807 in).
- The race outer diameter is 32.6 mm (1.283 in).
- The bearing inner diameter is 17.8 mm (0.701 in).
- The bearing outer diameter is 30.2 mm (1.189 in).



105. Install the clutch assembly to the transaxle case.

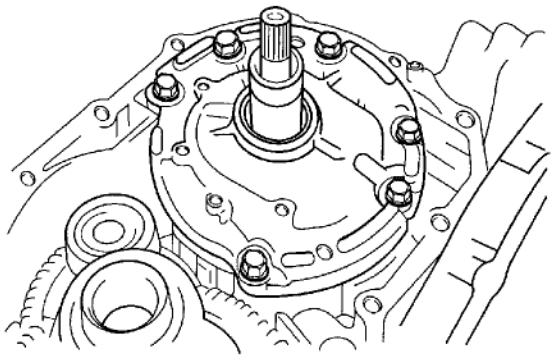


106. Install a new governor apply gasket.



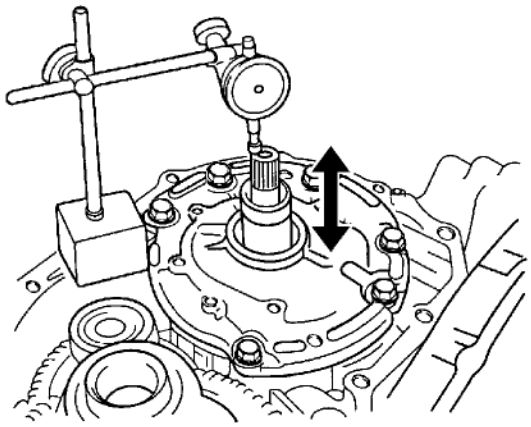
Note: Verify the direction of the bearing.

107. Install the thrust needle roller bearing to the transaxle case.
108. Place the oil pump through the input shaft, and align the bolt holes of the oil pump with the transaxle case.





109. Install the oil pump bolts and tighten to **25 N·m (18 lb ft)**.





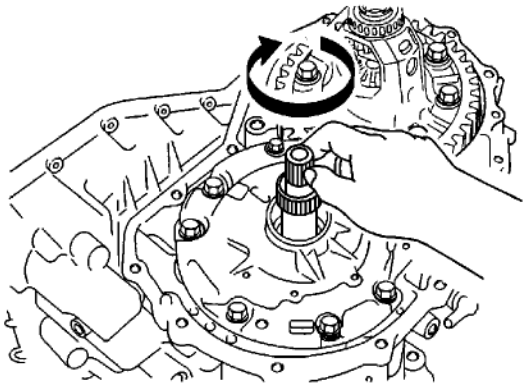
Note: If the end play is not as specified, select and replace the thrust needle roller bearing.

110. Measure the end play in axial direction.

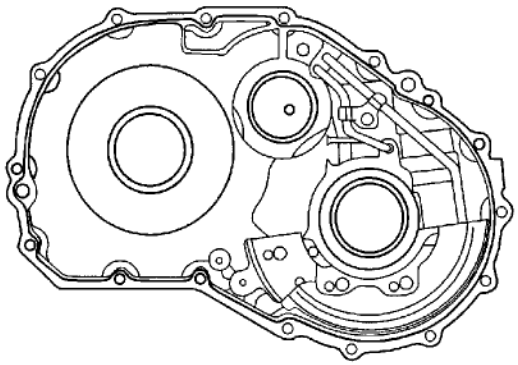
Specification

- The end play is 0.3-0.9 mm (0.012-0.035 in).
- The bearing inner diameter is 32.5 mm (1.280 in).
- The bearing outer diameter is 48.5 mm (1.909 in).
- The bearing thickness is 4.21 mm (0.1657 in).

- The bearing inner diameter is 32.9 mm (1.295 in).
- The bearing outer diameter is 48.5 mm (1.909 in).
- The bearing thickness is 3.62 mm (0.1425 in).

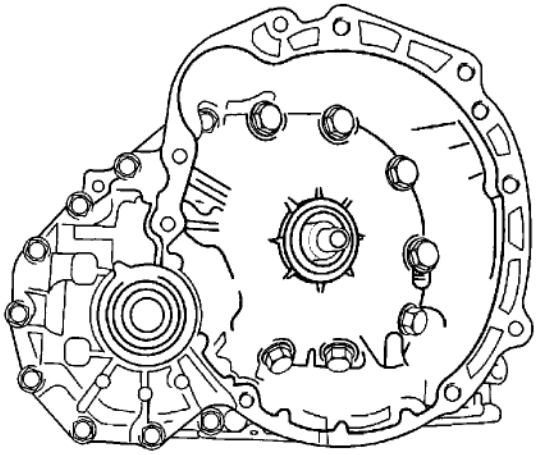


111. Confirm that the input shaft rotates smoothly.

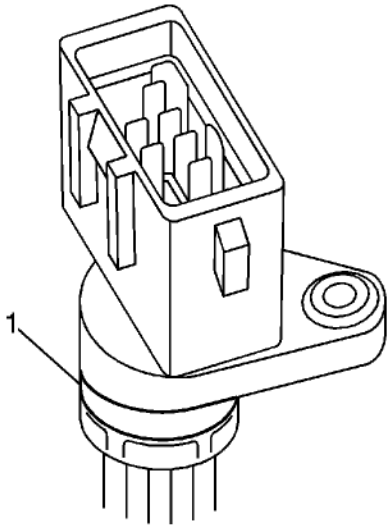


112. Remove any packing material. Do not get oil on the contacting surfaces of the transaxle housing or the transaxle case.
113. Apply three bond 1281 or equivalent to the transaxle housing.

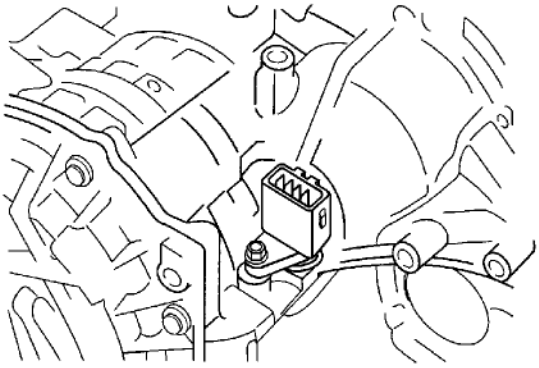
Specification
The seal bend width is 1.2 mm (0.047 in).



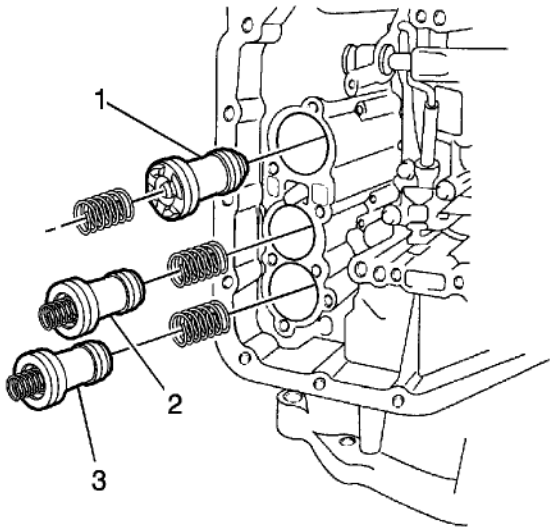
114. Install the transaxle housing to the transaxle case.
115. Install the transaxle housing bolts and tighten to **29 N·m (22 lb ft)**.
116. Apply seal packing or equivalent to the bolts.



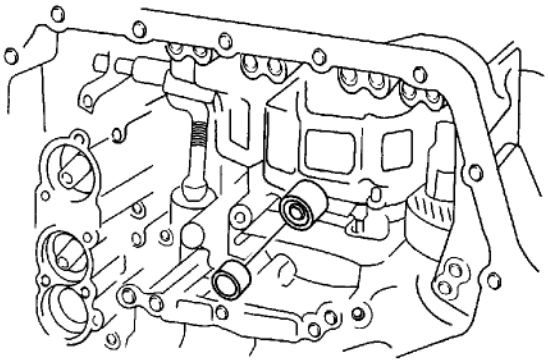
117. Coat a new O-ring (1) with ATF, install the O-ring to the transaxle wire.



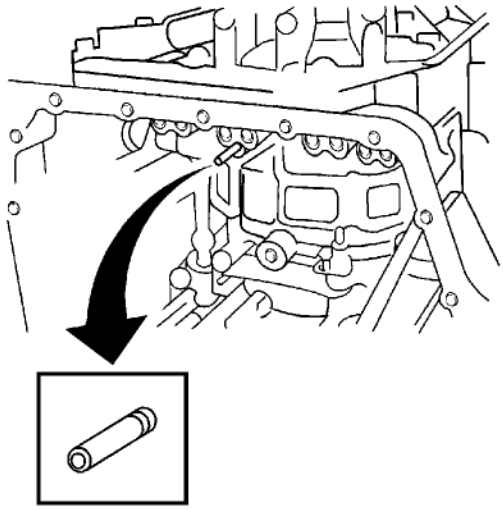
118. Install the transaxle wire to the transaxle case.
119. Install the transaxle wire bolt and tighten to **5 N·m (44 lb in)**.



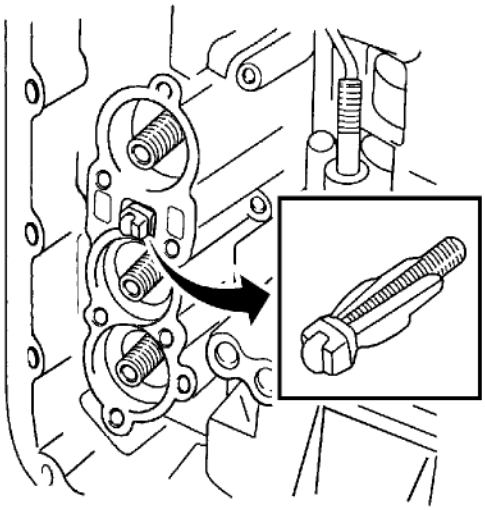
120. Coat the new O-rings with ATF and install the O-rings to the pistons (1, 2, 3).
121. Coat the springs and accumulator pistons with ATF and install the components.



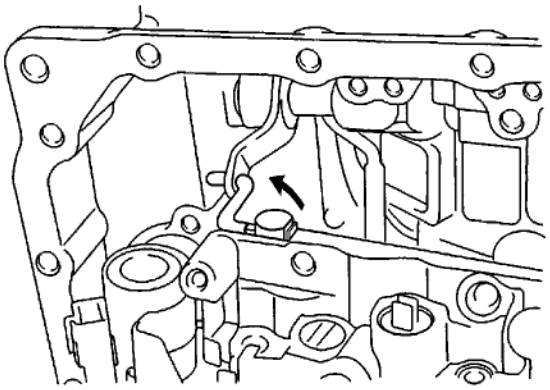
122. Coat a new governor apply gasket with ATF and install the gasket into the transaxle case.



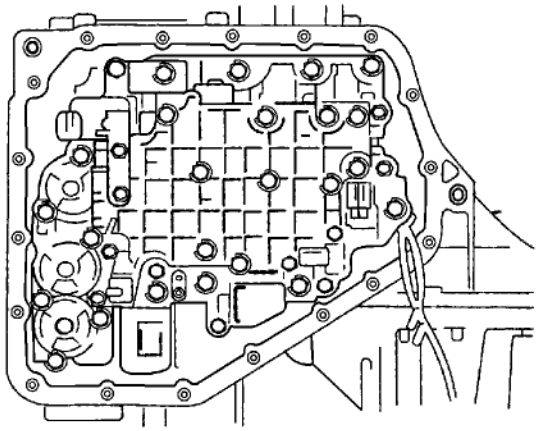
123. Coat a new brake drum gasket with ATF and install the gasket into the transaxle case.



124. Install the spring and the check valve.

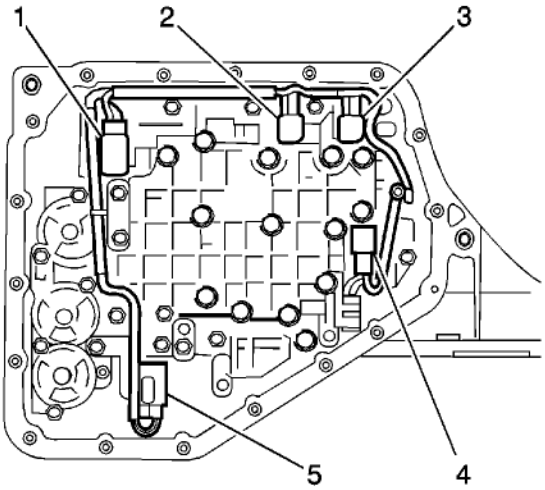


125. Connect the manual valve control rod to the manual valve lever.



Note: When installing the valve body to the transaxle case, do not let each of the accumulator pistons incline. When installing the valve body to the transaxle case, do not hold the solenoids.

126. Install the valve body assembly to the transaxle case.
127. Install the valve body bolts and tighten to **11 N·m (97 lb in)**.

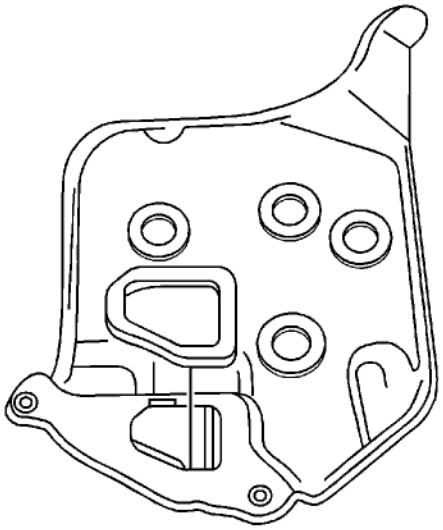


128. Connect the transaxle wire connector and harness to the valve body assembly.
129. Connect the 5 connectors.
    129.1. The lock-up control solenoid (5)
    129.2. The pressure control solenoid (1)
    129.3. The No. 2 shift solenoid (2)

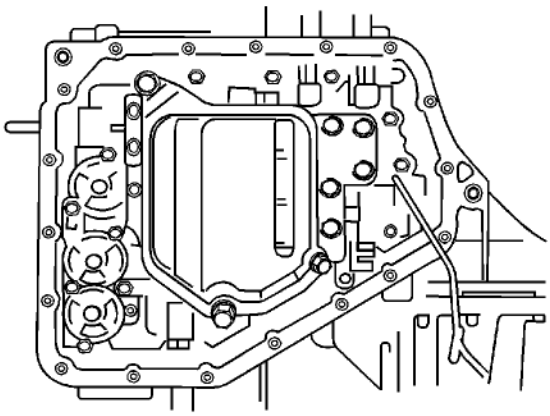
129.4. The No. 1 shift solenoid (3)
129.5. The timing solenoid (4)

Note: Verify that the transaxle wire does not come out from the oil pan installations surface.

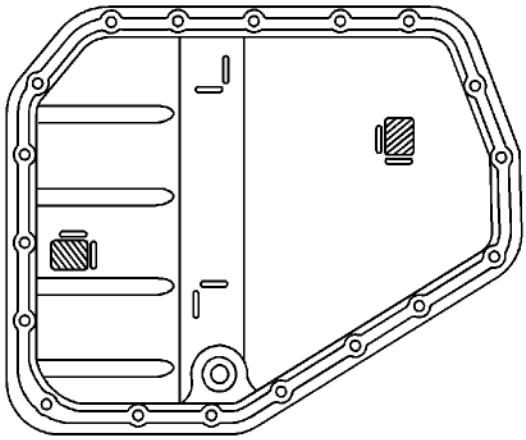
130. Install the TFT sensor with a clamp.



131. Install a new gasket to the oil strainer.

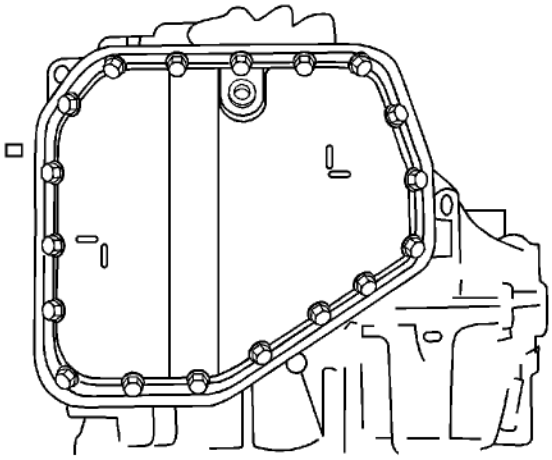


132. Install the oil strainer to the valve body.
133. Install the oil strainer bolts and tighten to **10 N·m (89 lb in)**.



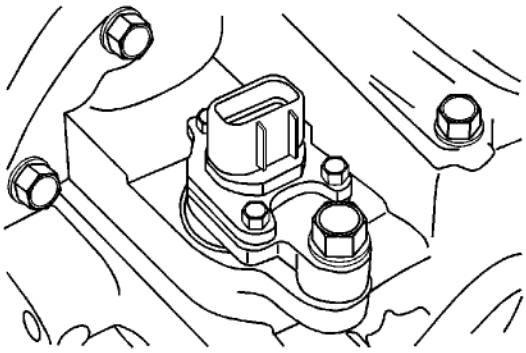


134. Install two magnets in the oil pan.

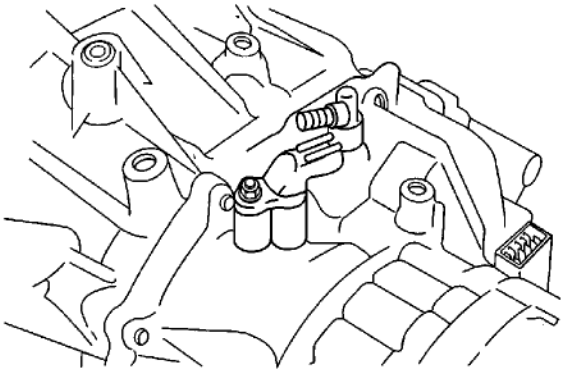




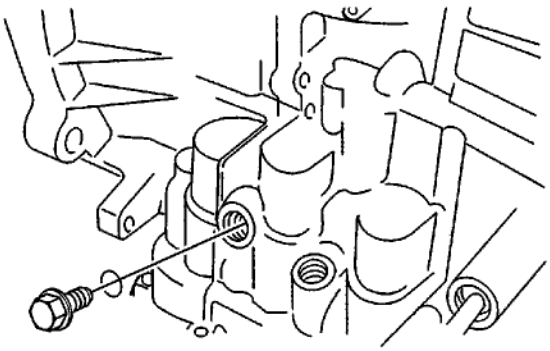
135. Install a new gasket to the oil pan and install the oil pan to the transaxle case.
136. Install the oil pan bolts and tighten to **7 N·m (62 lb in)**.



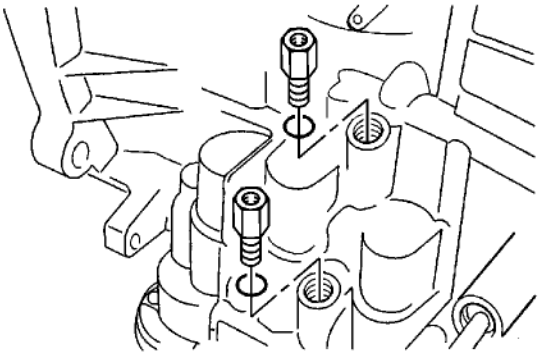
137. Install the output shaft speed (OSS) sensor.
138. Install the (OSS) bolt and tighten to **7 N·m (62 lb in)**.



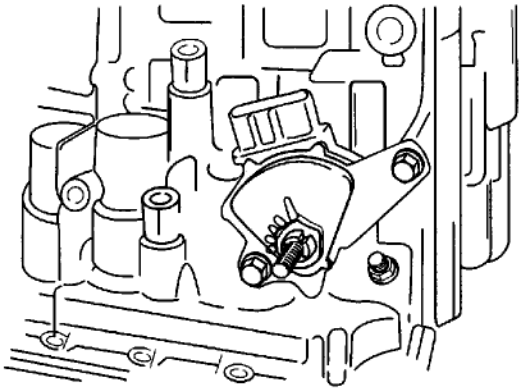
139. Install the No. 1 breather plug.
140. Install the input shaft speed (ISS) sensor.
141. Install the (ISS) bolt and tighten to **5 N·m (44 lb in)**.



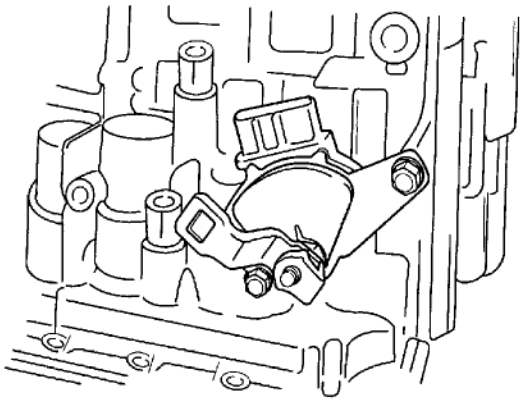
142. Coat the new O-ring with ATF and install the O-ring to the bolt plug.
143. Install the bolt plug to the transaxle case and tighten to **7 N·m (62 lb in)**.



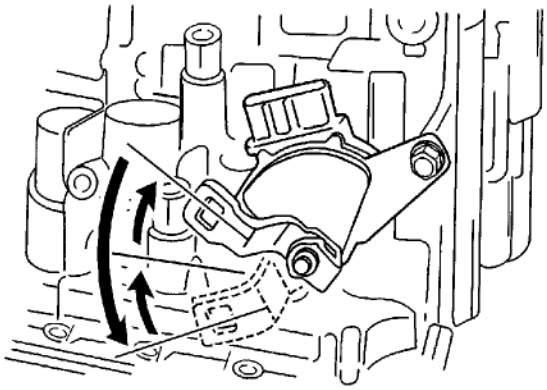
144. Coat new O-rings with ATF and install the O-rings to the unions.
145. Install the unions to the transaxle case and tighten to **25 N·m (18 lb ft)**.



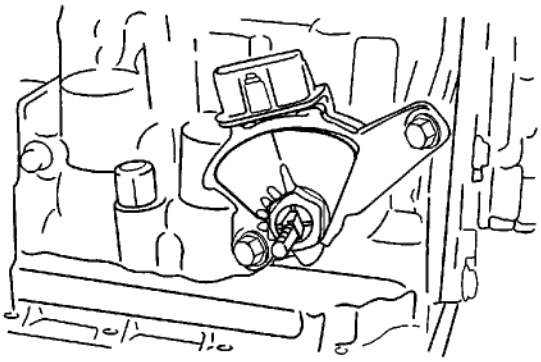
146. Install the PNP switch to the manual valve lever shaft and temporarily install the adjusting bolts.
147. Install a new lock washer and nuts and tighten to **12 N·m (106 lb in)**.



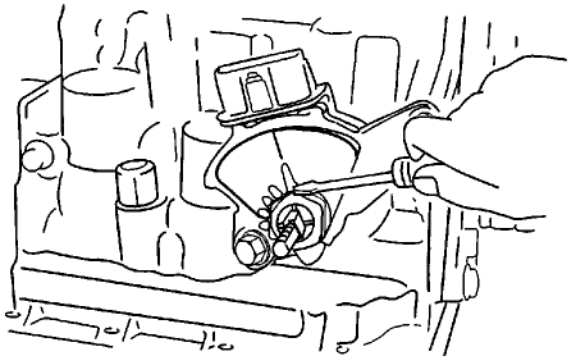
148. Temporarily install the control lever.



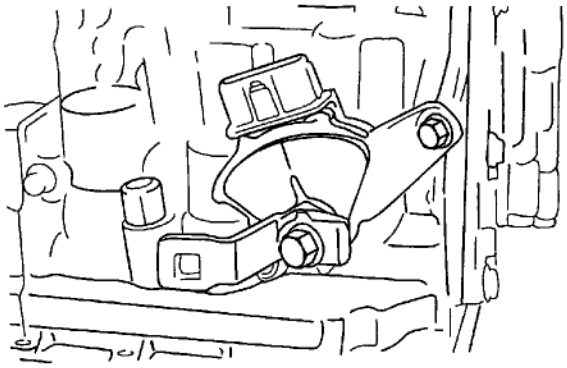
149. Turn the lever counterclockwise until the lever stops, then turn clockwise 2 notches.
150. Remove the control lever.



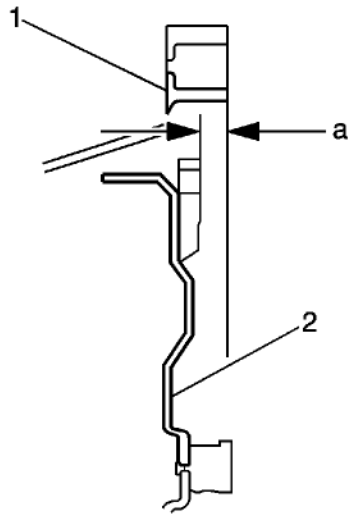
151. Align the groove with the neutral basic and tighten to **5 N·m (44 lb in)**.



152. Using a screwdriver, stake the nut with the lock washer.



153. Install the control lever.
154. Install the control lever washer and nut and tighten to **12 N·m (106 lb in)**.

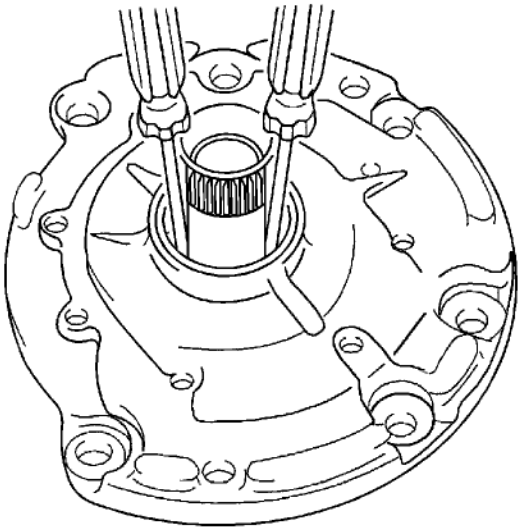


155. Install the torque converter (2) to the transaxle.
156. Measure the installation depth of the torque converter.

Specification
The standard value is 11.1 mm (0.44 in).

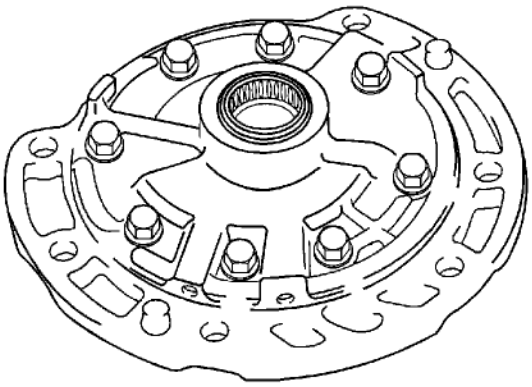
157. If the measured value is beyond the standard value, readjust the torque converter within the specified value.

Oil Pump Disassemble



Caution: Use extreme care when working around oil seals. Damage to the lip of a seal will cause oil leaks.

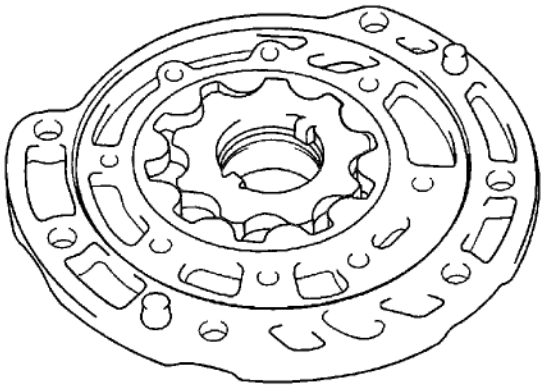
1. Turn the drive gear with 2 screwdrivers and make sure it rotates smoothly.



Note: Do not let the driver drop as it might come off attached to the stator shaft.

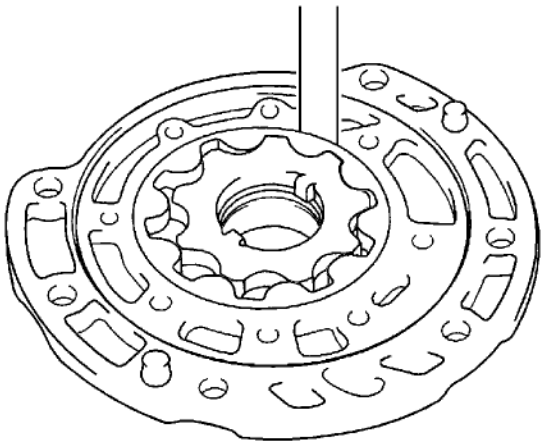
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2. Remove the 8 bolts and the stator shaft.



3. Remove the oil pump drive gear and driven gear from the oil pump body.

Oil Pump Inspection



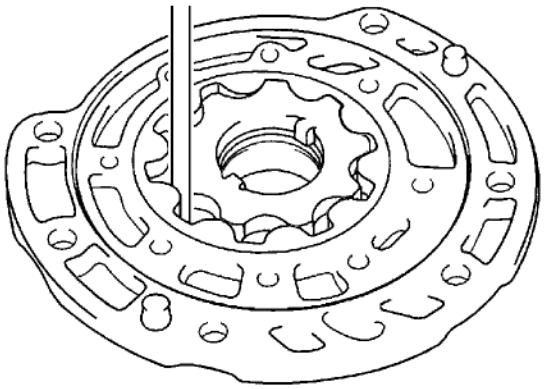


Important: If the body clearance is greater than the maximum, replace the oil pump body sub-assembly.

1. Push the driven gear to one side of the body. Using a feeler gage, measure the clearance.

   Specifications
   - The standard body clearance is 0.1-0.17 mm (0.0039-0.0067 in).
   - The maximum body clearance is 0.17 mm (0.0067 in).

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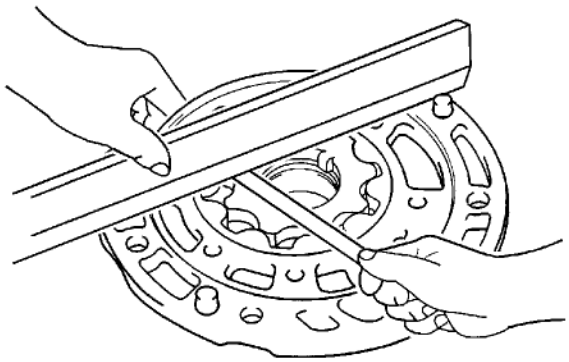


Important: If the tip clearance is greater than the maximum, replace the oil pump body sub-assembly.

2. Measure the tip clearance between the driven gear teeth and drive gear teeth.

Specifications

- The standard tip clearance is 0.07-0.15 mm (0.0028-0.0059 in).
- The maximum tip clearance is 0.15 mm (0.0059 in).



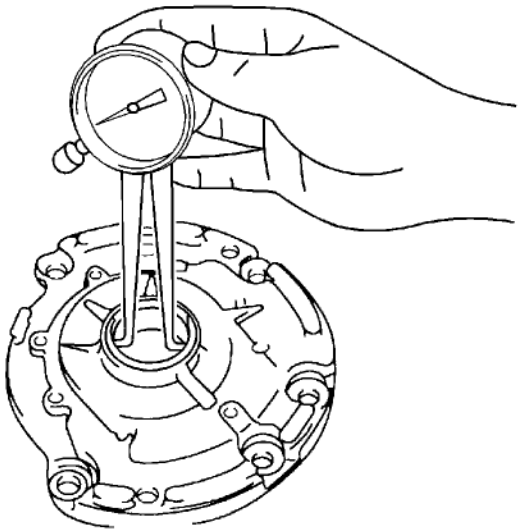
Important: If the side clearance is greater than the maximum, replace the drive gear,

driven gear, or pump body.

3. Using a steel straight edge and feeler gage, measure the side clearance of both gears.

Specifications

- The standard side clearance is 0.02-0.05 mm (0.0008-0.002 in).
- The maximum side clearance is 0.05 mm (0.002 in).

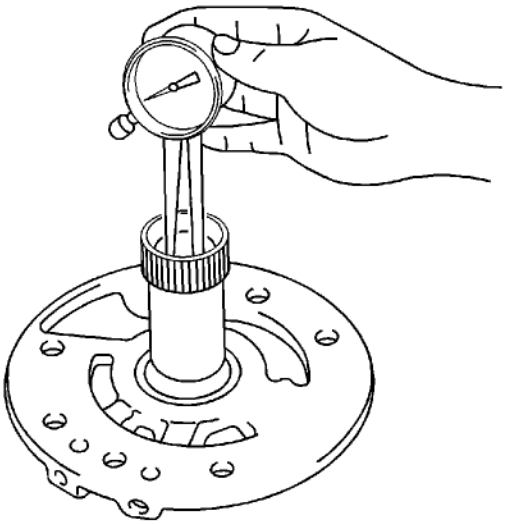


Important: If the inside diameter is greater than the maximum, replace the oil pump body sub-assembly.

4. Using a dial indicator, measure the inside diameter of the oil pump body bushing.

Specifications

- The standard inside diameter is 38.126 mm (1.501 in).
- The maximum inside diameter is 38.188 mm (1.5034 in).



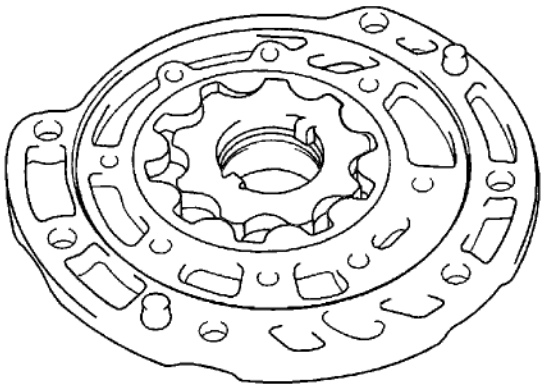
Important: If the inside diameter is greater than the maximum, replace the stator shaft.

5. Using a dial indicator, measure the inside diameter of the stator shaft bushings.

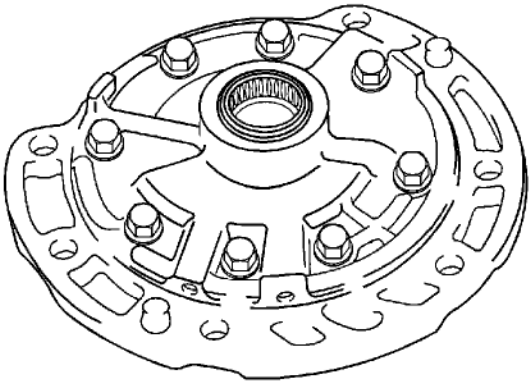
Specifications

- The standard inside diameter is 18.437 mm (0.7258 in).
- The maximum inside diameter is 18.5 mm (0.728 in).

Oil Pump Assemble



1. Install the oil pump drive gear and driven gear.

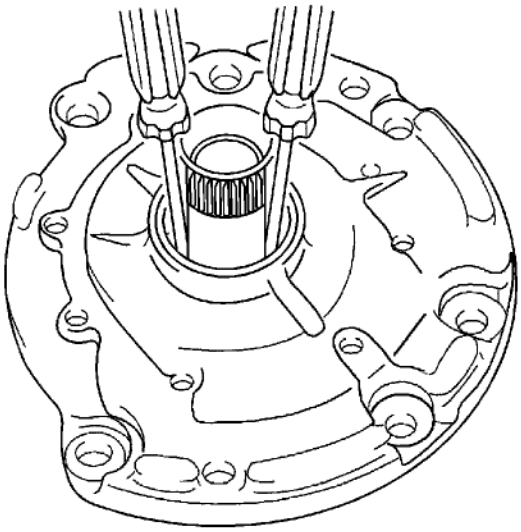


2. Align the stator shaft with each bolt hole.

   Caution: Refer to Fastener Caution in the Preface section.

3. Install the 8 bolts and tighten to **10 N·m (89 lb in)**.

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Caution: Use extreme care when working around oil seals. Damage to the lip of a seal will cause oil leaks.

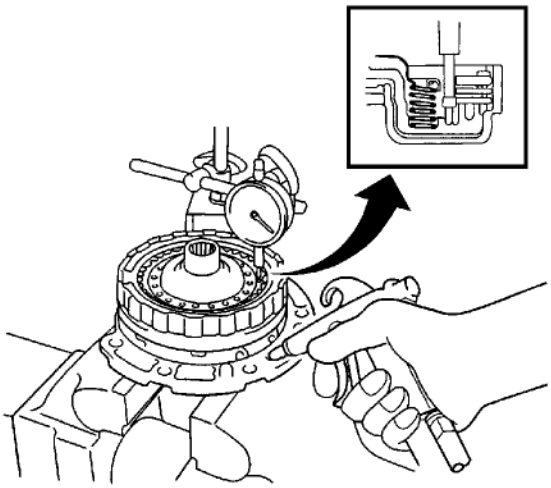
4. Turn the drive gear with 2 screwdrivers and make sure it rotates smoothly.

Direct Clutch Assembly Disassemble

Special Tools

- DT 46451 (DW240-020) Brake Clutch Spring Compressor
- DT 46453 (DW240-040) Direct Clutch Adapter

Caution: Refer to Compressed Air Should Not Exceed 98 kPa (14 psi) Caution in the Preface section.

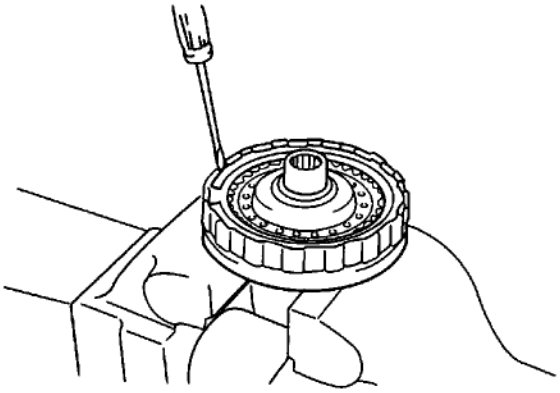


1. Install the direct clutch and thrust needle roller bearing on the oil pump.
2. Using a dial indicator, measure the direct clutch piston stroke while applying and releasing compressed air.

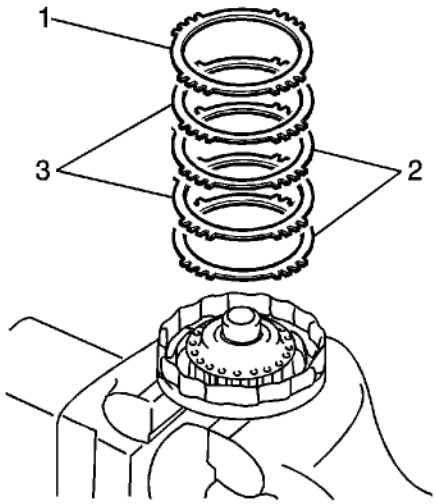
   If the stroke is non-standard, inspect the discs, the plates, and the flange.

   Specifications
   The piston stroke is 0.4-0.8 mm (0.016-0.031 in).

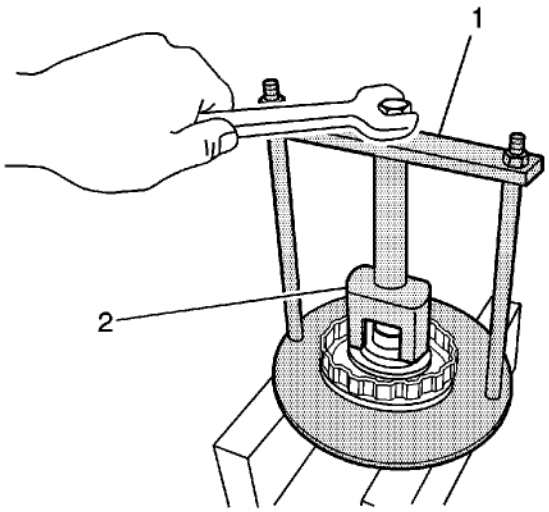
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3. Using a screwdriver, remove the snap ring.



4. Remove the flange (1), 2 discs (2), and 2 plates (3).

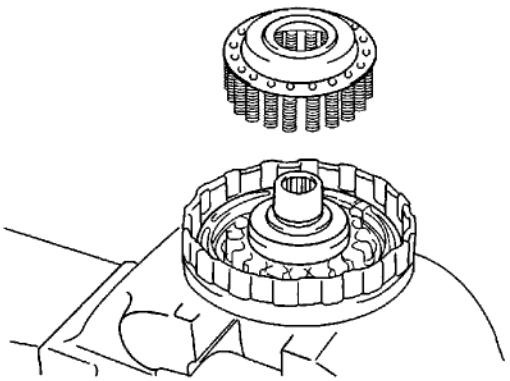


5. Place DT 46451 (1) and DT 46453 (2) on the direct clutch return spring and compress.

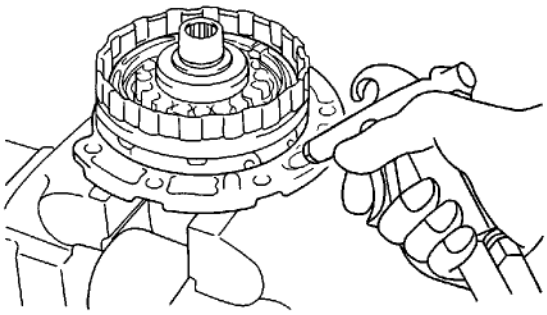
Caution: Do not depress the direct clutch piston return spring lower than 1-2 mm (0.039-0.078 in.) beyond the snap ring groove. This will prevent the direct clutch piston return spring from becoming distorted.

Note: Do not expand the snap ring excessively.

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



7. Remove the direct clutch return spring.



8. Install the direct clutch on the oil pump.

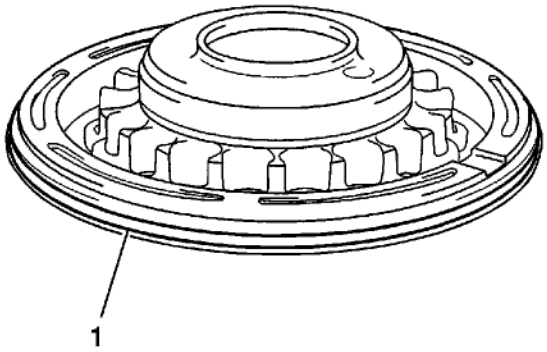
   Caution: Refer to Compressed Air Should Not Exceed 98 kPa (14 psi) Caution in the Preface section.

   Note: Air pressure may cause the pistons to jump-out. When removing the piston, hold it with your hand using a waste cloth.

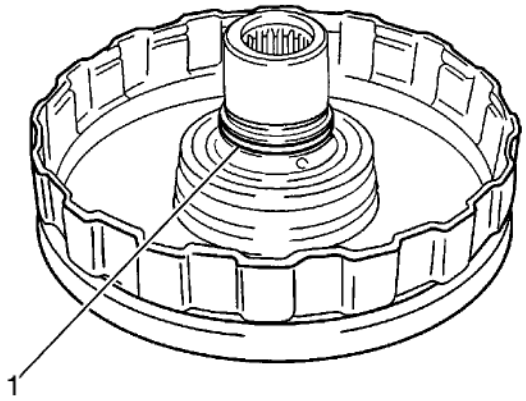
   Note: Do not splash ATF when air-blowing.

9. Apply compressed air to the oil pump to remove the direct clutch piston.

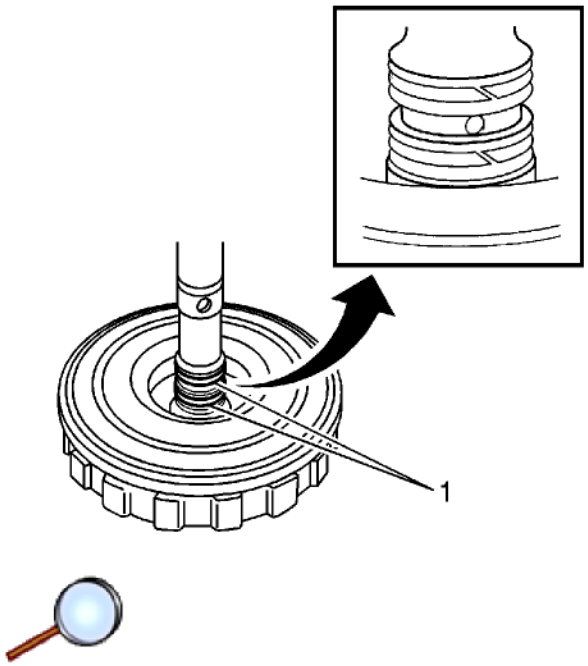
   When the piston can not be removed as it is slanted, either blow the air again with the protruding side pushed or remove the piston using needle nose pliers with vinyl tape on the tip.



10. Using a small screwdriver, remove the O-ring (1) from the direct clutch piston.



11. Remove the O-ring (1) from the input shaft.

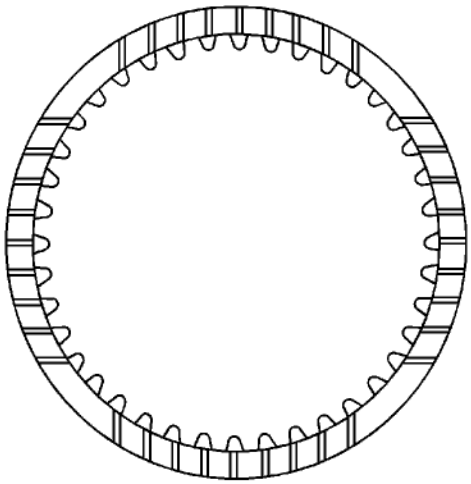


Note: Do not expand the ring ends excessively.

12. Remove the seal rings (1) from the input shaft.

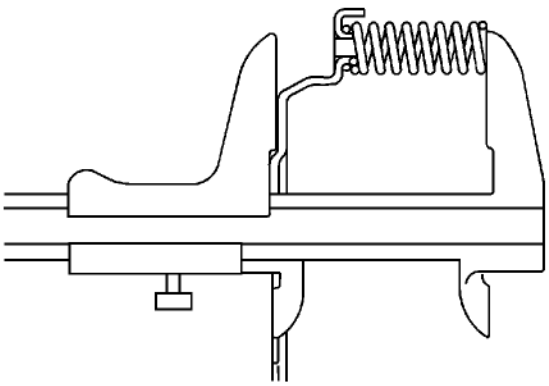
Direct Clutch Inspection

Warning: Refer to Safety Glasses Warning in the Preface section.





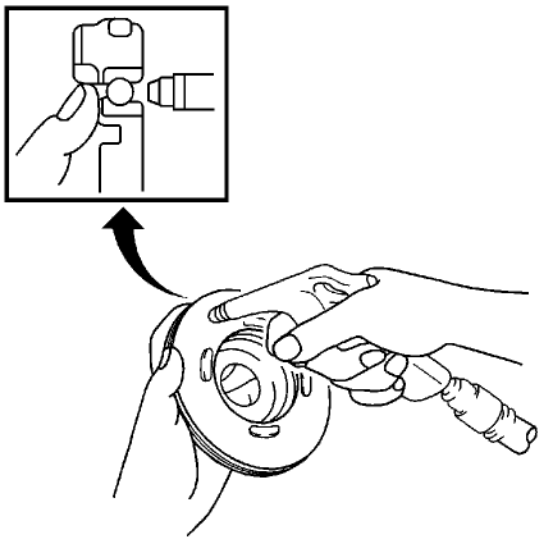
1. Check to see if the sliding surface of the disc, plate, and flange are worn or burnt. Replace them if necessary.
   - If the lining of the disc is peeling off or discolored, or even if a part of the printed number is defaced, replace all discs.
   - Before assembling new discs, soak them in ATF for at least 15 minutes.



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2. Using vernier calipers, measure the free length of the direct clutch return spring together with the spring sheet.

Specifications
Standard free length is 36.04 mm (1.4189 in).

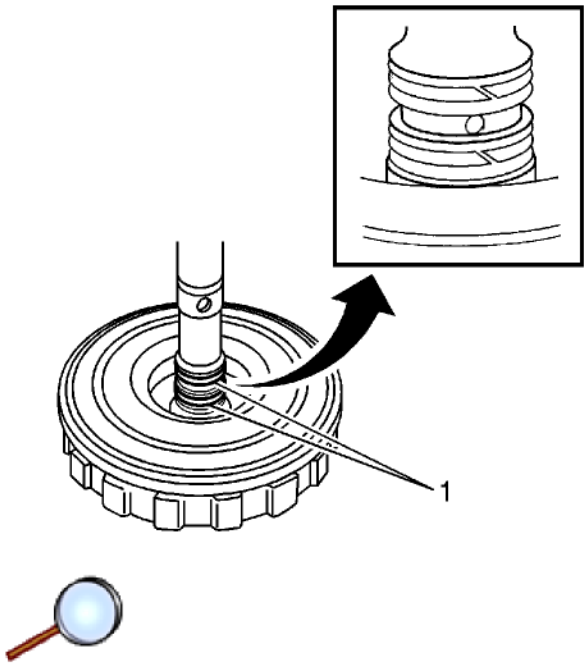


3. Check that the check ball is free by shaking the direct clutch piston.
4. Check that the valve does not leak by applying low-pressure compressed air.

Direct Clutch Assembly Assemble

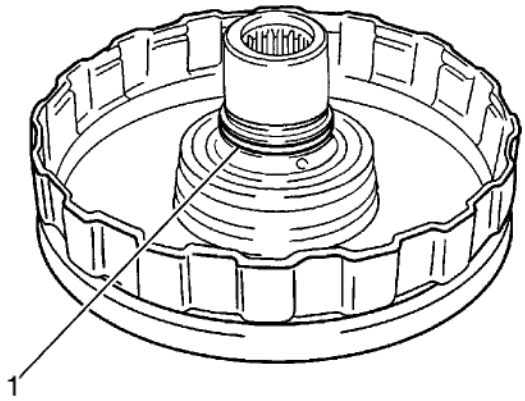
Special Tools

- DT 46451 (DW240-020) Brake/Clutch Spring Compressor
- DT 46453 (DW240-040) Direct Clutch Adapter



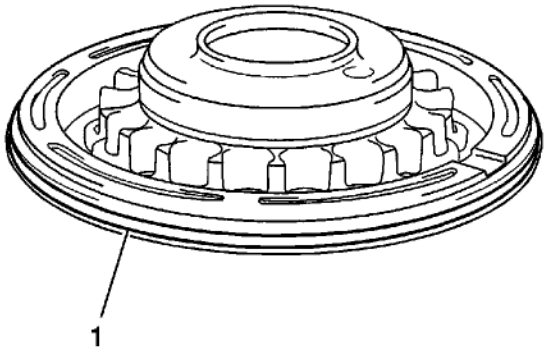
Note: Do not expand the ring ends excessively.

1. Install the seal rings (1) to the input shaft.

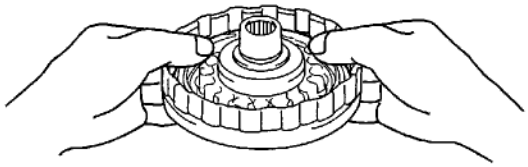


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2. Coat a new O-ring (1) with automatic transmission fluid (ATF) and install the O-ring to the input shaft.

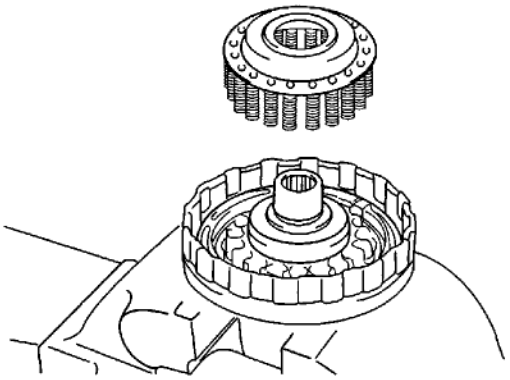


3. Coat a new O-ring (1) with ATF and install the O-ring to the direct clutch piston.

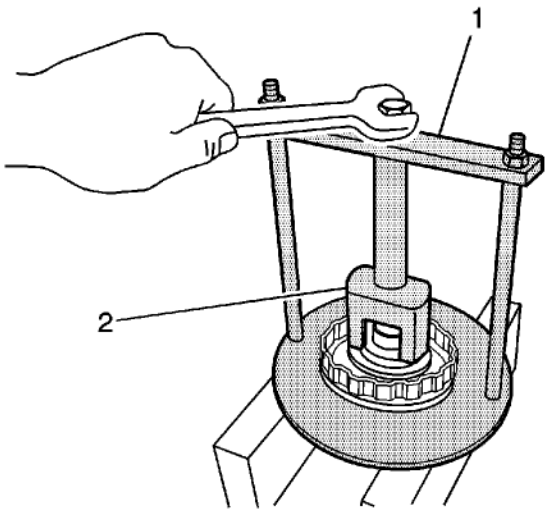


Note: Do not damage the lip seal of direct clutch piston.

4. Coat the direct clutch piston with ATF, and install it to the direct clutch drum.



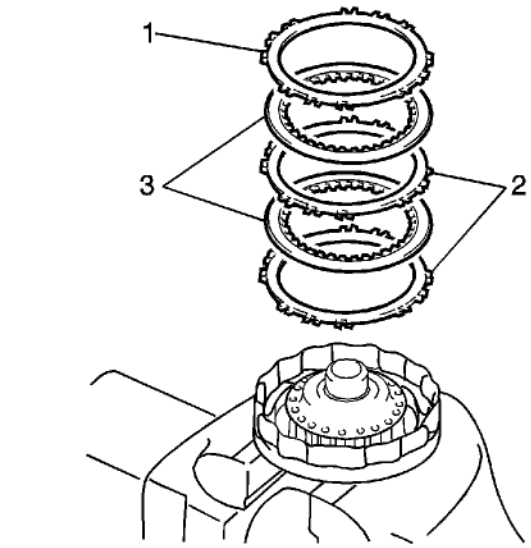
5. Install the direct clutch return spring.



6. Place DT 46451 (1) and DT 46453 (2) on the return spring and compress.

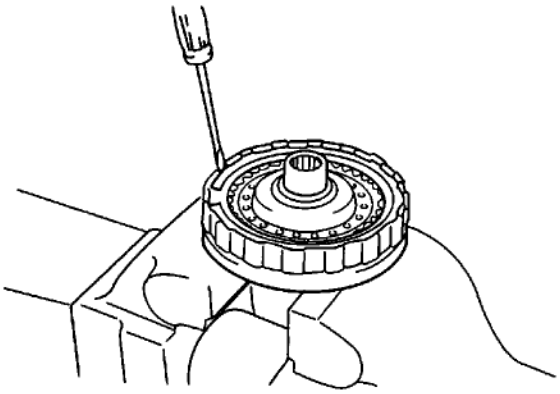
   Note: Do not expand the snap ring excessively.

7. Using a snap ring expander, install the snap ring.

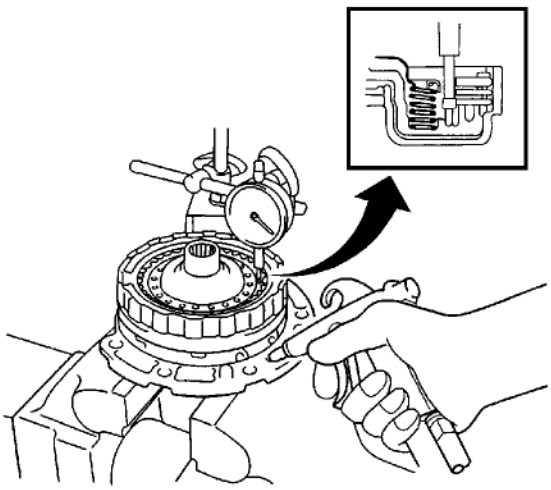


Note: Before installing the discs, coat them with ATF.

8. Install the 2 plates (2), 2 discs (3), and the flange (1) in order: 2-3-2-3-1.



9. Using a screwdriver, remove the snap ring.
10. Check that the end gap of the snap ring is not aligned with one of the cutouts.



11. Install the direct clutch on the oil pump.

    Caution: Refer to Compressed Air Should Not Exceed 98 kPa (14 psi) Caution in the Preface section.

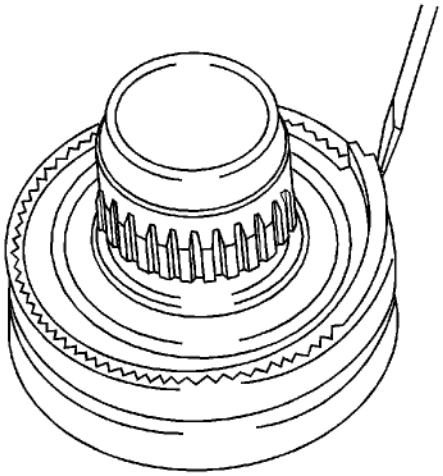
12. Using a dial indicator, measure the direct clutch piston stroke while applying and releasing compressed air.

    Specifications
    The piston stroke is 0.4-0.8 mm (0.016-0.031 in).

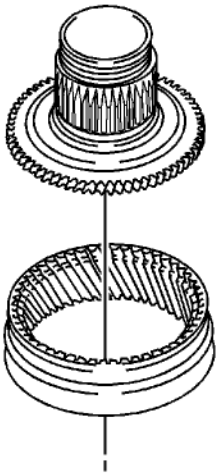
    - If the piston stroke is less than the limit of piston stroke, parts may have been assembled incorrectly, so check and reassemble again.
    - If the stroke is non-standard, select another flange.
    - There are 3 flanges in different thickness.

    Specifications
    - The number 1 flange thickness is 3 mm (0.118 in).
    - The number 2 flange thickness is 3.2 mm (0.126 in).
    - The number 3 flange thickness is 3.4 mm (0.134 in).

Planetary Ring Gear Disassemble



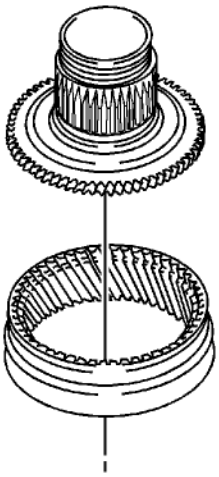
1. Using a screwdriver, remove the snap ring.



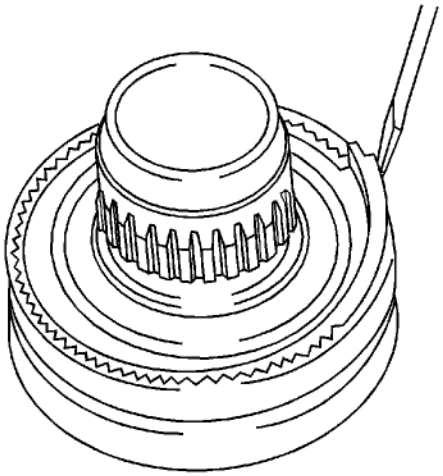
2. Remove the planetary ring gear flange from the planetary ring gear.

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Planetary Ring Gear Assemble



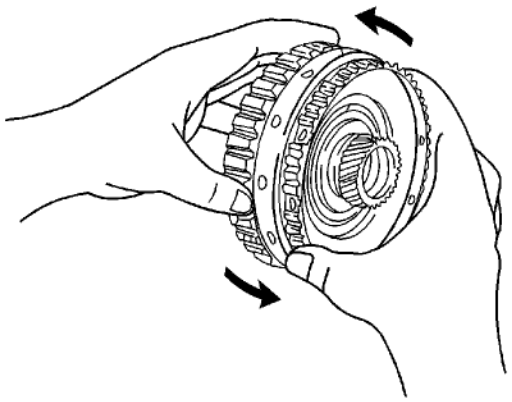
1. Install a new planetary ring gear flange to the planetary ring gear.



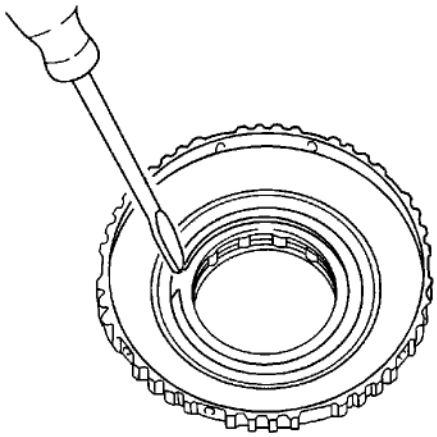
2. Using a screwdriver, install the snap ring.

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One Way Clutch Disassemble

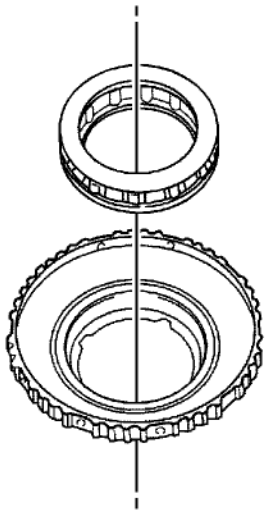


1. Install the one-way clutch and thrust washer to the rear planetary sun gear.
2. Hold the rear planetary sun gear and turn the one-way clutch. The one-way clutch should turn freely clockwise and should lock counterclockwise.

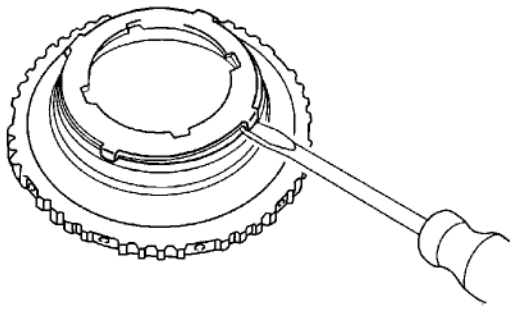


3. Using a screwdriver, remove the snap ring from the 2nd brake hub.

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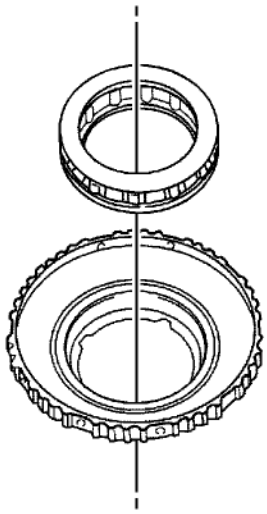


4. Remove the one-way clutch from the 2nd brake hub.

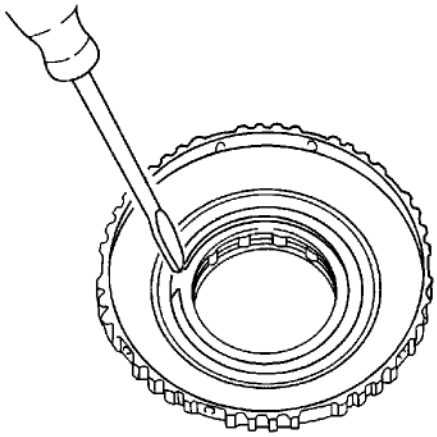


5. Using a small screwdriver, remove the retainer from the 2nd brake hub.

One Way Clutch Assemble

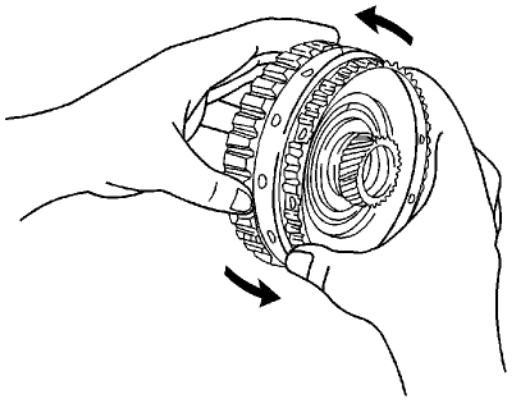


1. Install the retainer on the 2nd brake hub.
2. Install the one-way clutch.



3. Using a screwdriver, install the snap ring.

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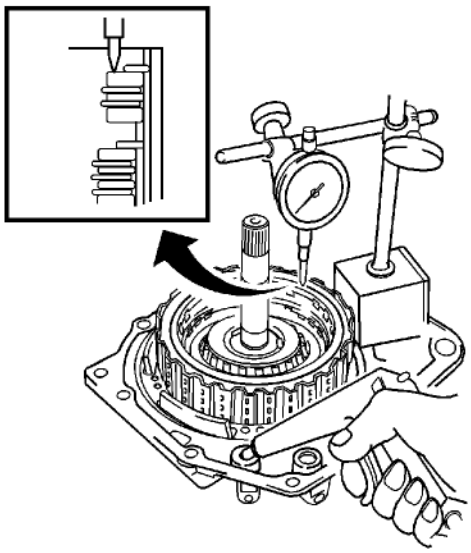
4. Install the one-way clutch and thrust washer to the rear planetary sun gear.
5. Hold the rear planetary sun gear and turn the one-way clutch. The one-way clutch should turn freely counterclockwise and should lock clockwise.

Forward and Reverse Clutch Disassemble

Special Tools

- DT 46451 (DW240-020) Brake/Clutch Spring Compressor
- DT 46452 (DW240-030) Forward Clutch Adapter
- DT 47520 (DW240-120) Measuring Terminal

Caution: Refer to Compressed Air Should Not Exceed 98 kPa (14 psi) Caution in the Preface section.

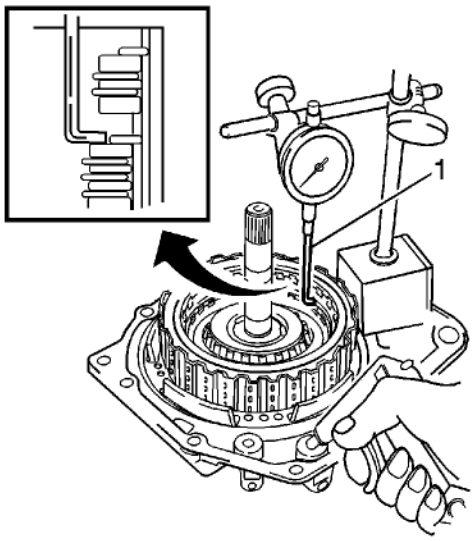


1. Install the forward and reverse clutch and thrust needle roller bearing on the transaxle rear cover.
2. Using a dial indicator, measure the reverse clutch pack clearance while applying and releasing compressed air.

   If the stroke is non-standard, inspect the discs, plates, and flange.

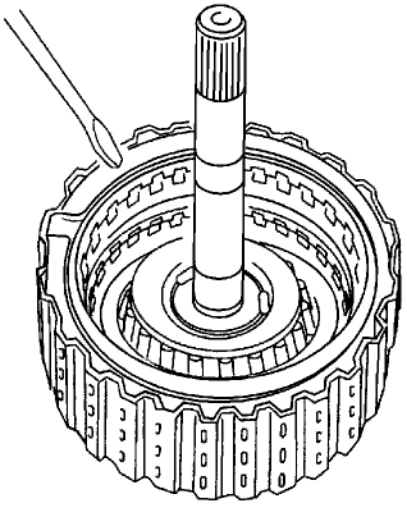
   Specifications
   The pack clearance is 0.4-1 mm (0.0157-0.0394 in).

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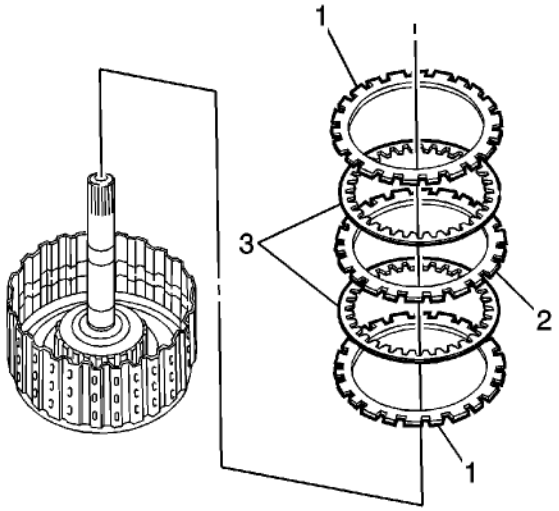


3. Install the forward and reverse clutch and thrust needle roller bearing on the transaxle rear cover.
4. Using a dial indicator and DT 47520 (1) , measure the forward clutch pack clearance while applying and releasing compressed air.
   - The forward and reverse clutch will come out as you apply the compressed air. Therefore, while the checking is being done, press on the input shaft of the forward and reverse clutch using stamping machine or alike so that the pressure is not applied on the forward and reverse clutch.
   - If the stroke is non-standard, inspect the discs, plates and flange.

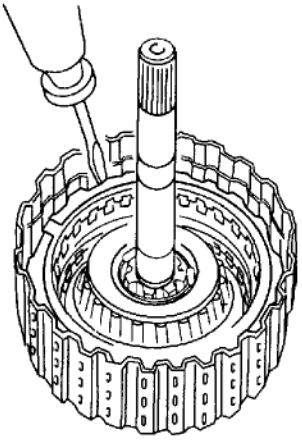
Specifications
The pack clearance is 1.1-1.5 mm (0.043-0.059 in).



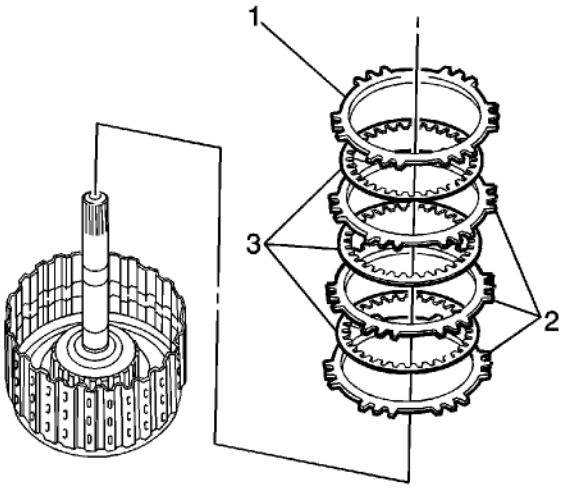
5. Using a screwdriver, remove the reverse clutch snap ring.



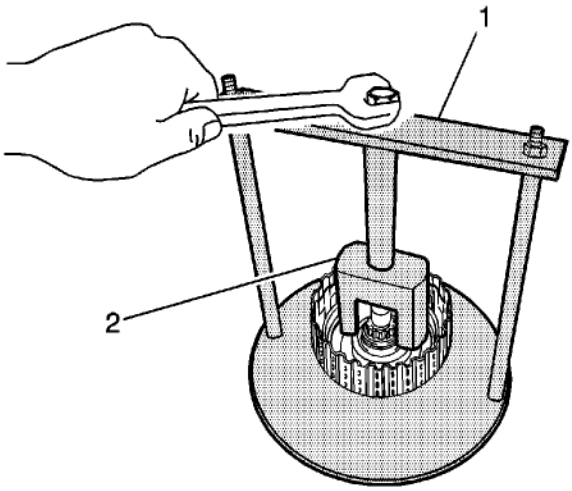
6. Remove the 2 flanges (1), the 2 discs (3), and the plate (2) from the reverse clutch drum.



7. Using a screwdriver, remove the snap ring.



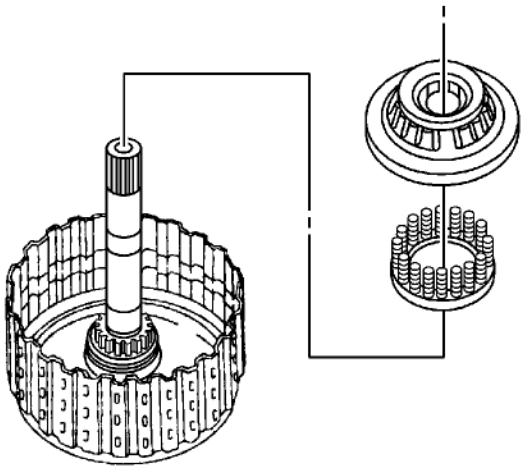
8. Remove the flange (1), 3 discs (3), and 3 plates (2) from the forward clutch drum.



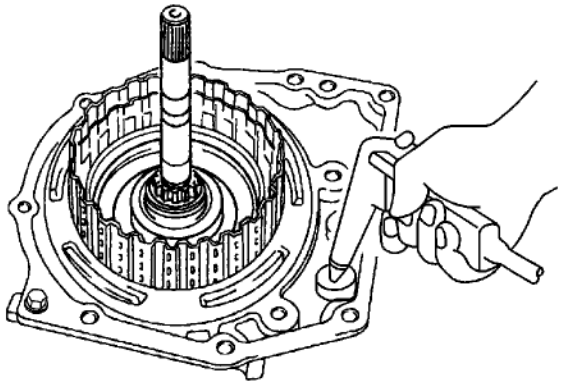
9. Using DT 46451 (1) and DT 46452 (2) , compress the spring.

   Note: Do not expand the snap ring excessively.

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



11. Remove the clutch balancer and forward clutch return spring.



12. Install the forward and reverse multiple disc clutch on the transaxle rear cover.

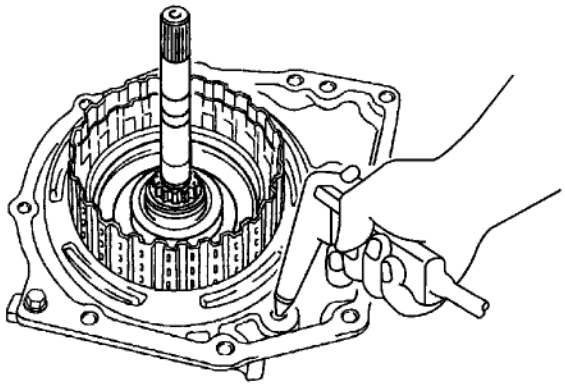
Note:

- Air pressure may cause the pistons to jump-out. When removing the piston, hold it with your hand using a waste cloth.
- Take care not to splash automatic transmission fluid (ATF) when air-blowing.

13. Apply compressed air to the transaxle rear cover to remove the forward clutch piston.

When the piston cannot be removed as it is slanted, either blow the air again with the protruding side pushed or remove the piston using a needle-nose pliers with vinyl tape on the

tip.

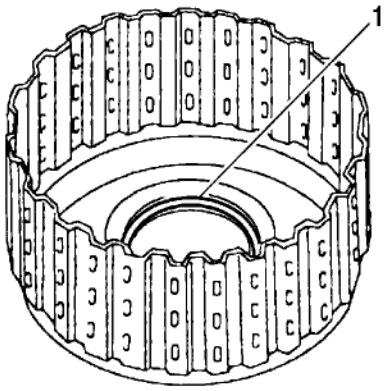




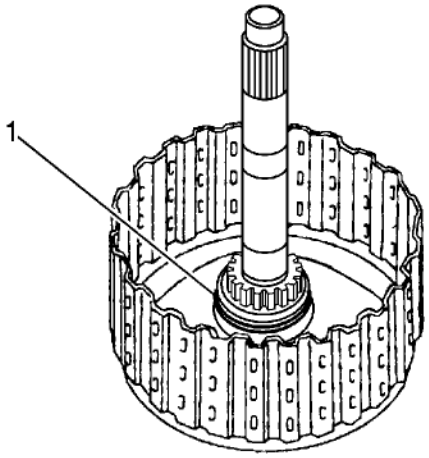
Note: Air pressure may cause the drums to jump-out. When removing the drum, hold it with your hand using a waste cloth.

14. Apply compressed air to the transaxle rear cover to remove the forward clutch drum.

    When the drum can not be removed as it is slanted, either blow the air again with the protruding side pushed or remove the drum using a needle nose pliers with vinyl tape on the tip.

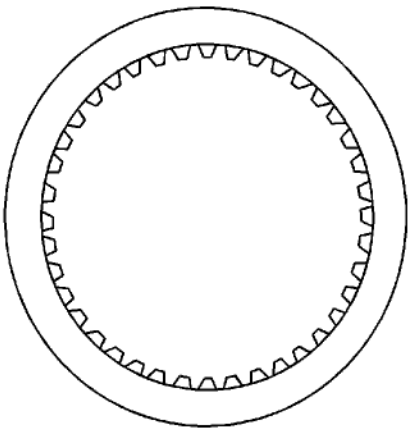


15. Using a small screwdriver, remove the O-ring (1) from the forward clutch drum.

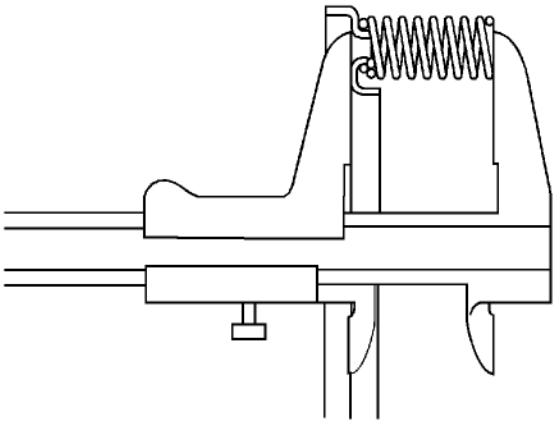


16. Using a small screwdriver, remove the O-ring (1) from the intermediate shaft sub-assembly.

Forward and Reverse Clutch Inspection



1. Check to see if the sliding surface of the disc, plate, and flange are worn or burnt. Replace them if necessary.
   - If the lining of the disc is peeling off or discolored, or even if a part of the printed number is defaced, replace all discs.
   - Before assembling new discs, soak them in ATF for at least 15 minutes.



2. Using vernier calipers, measure the free length of the spring together with the spring seat.

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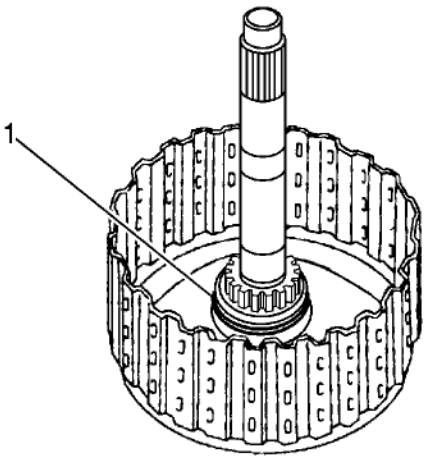
Specifications

The standard free length is 24.04 mm (0.9465 in).

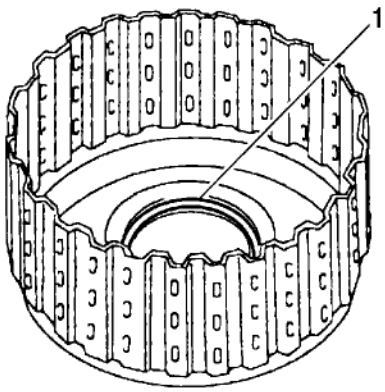
Forward and Reverse Clutch Assemble

Special Tools

- DT 46451 (DW240-020) Brake/Clutch Spring Compressor
- DT 46452 (DW240-030) Forward Clutch Adapter
- DT 47520 (DW240-120) Measuring Terminal

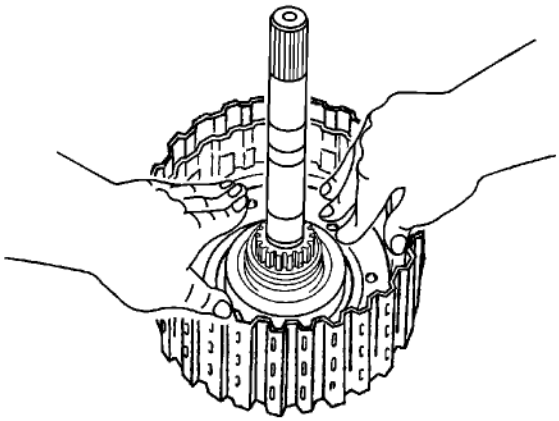


1. Coat a new O-ring (1) with automatic transmission fluid (ATF) and install it to the intermediate shaft sub-assembly.



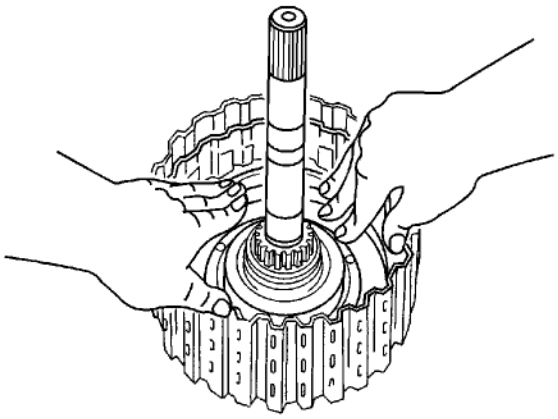
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2. Coat a new O-ring (1) with ATF, and install it to the forward clutch drum.



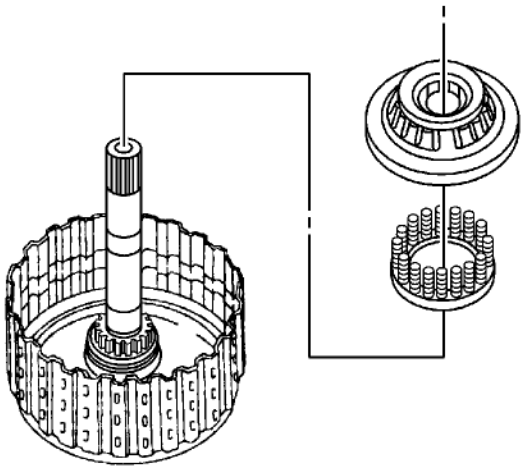
Note: Do not damage the O-ring and lip seal of forward clutch drum.

3. Coat the forward clutch drum with ATF, install the forward clutch drum.



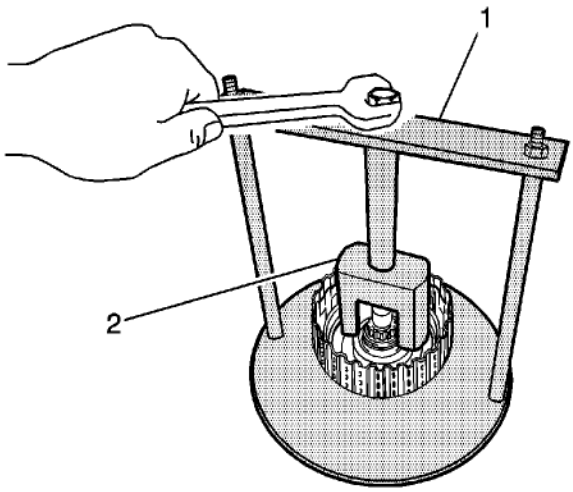
Note: Do not damage the lip seal of forward clutch return spring.

4. Coat the forward clutch piston with ATF, install the forward clutch piston.



Note: Do not damage the lip seal of forward clutch return spring.

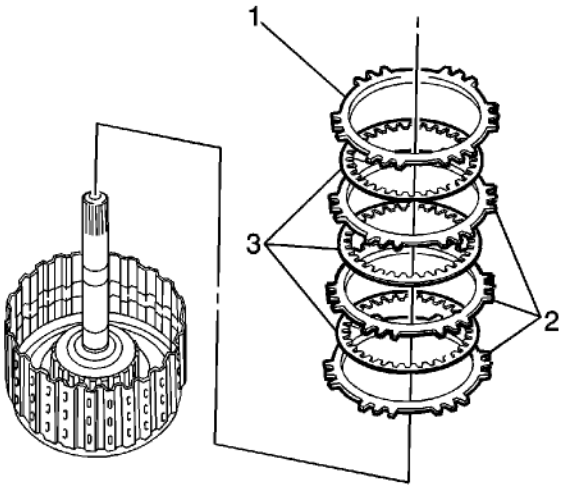
5. Install the forward clutch return spring and clutch balancer.



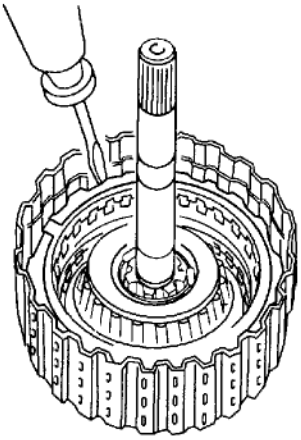
6. Place DT 46451 (1) and DT 46452 (2) on the clutch balancer and compress the piston return spring.

Note: Do not expand the snap ring excessively.

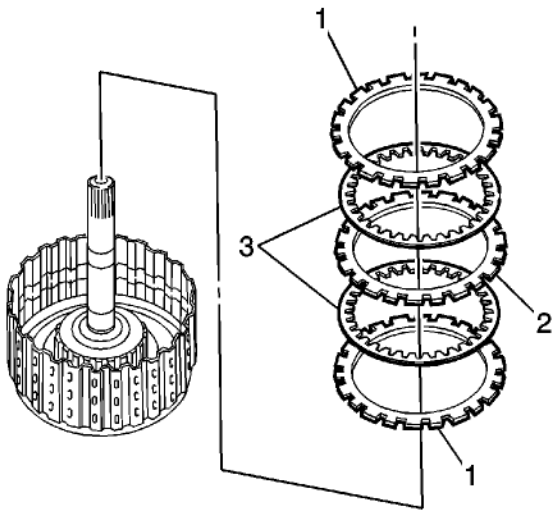
7. Using a snap ring expander, install the snap ring.



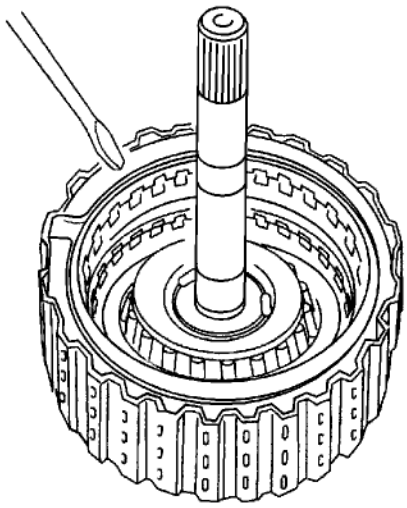
8. Install the 3 plates (2), 3 discs (3), and the flange (1) in order 2-3-2-3-2-3-1.



9. Using a screwdriver, install the snap ring.
10. Check that the end gap of the snap ring is not aligned with one of the cutouts.

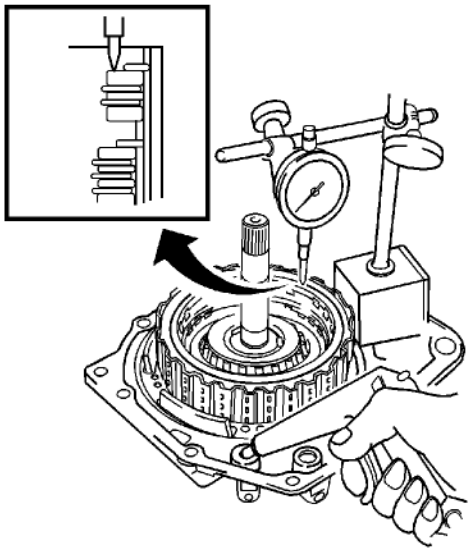


11. Install the plate (2), 2 discs (3), and 2 flanges (1) in order 1-3-2-3-1.



12. Using a screwdriver, install the snap ring.
13. Check that the end gap of the snap ring is not aligned with one of the cutouts.

Caution: Refer to Compressed Air Should Not Exceed 98 kPa (14 psi) Caution in the Preface section.



14. Install the forward and reverse clutch and thrust needle roller bearing on the transaxle rear cover.
15. Using a dial indicator, measure the reverse clutch pack clearance while applying and releasing compressed air.
    - If the pack clearance is less than the limit of pack clearance, parts may have been assembled incorrectly, so check and reassemble again.

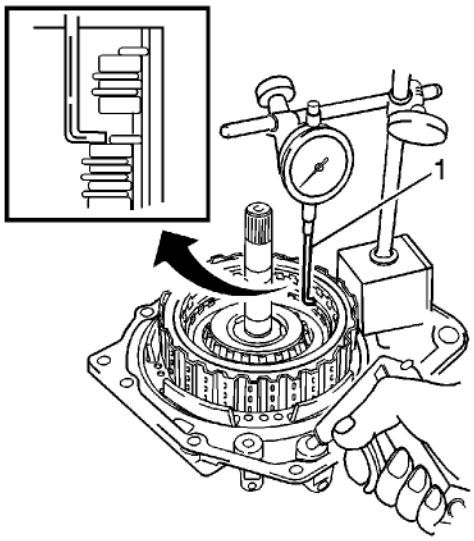
    If the pack clearance is non-standard, select another flange.

Specifications
The pack clearance is 0.4-1 mm (0.0157-0.0394 in).

- There are 4 flanges in different thickness.

Specifications

- The number 1 flange thickness is 3 mm (0.118 in).
- The number 2 flange thickness is 3.2 mm (0.126 in).
- The number 3 flange thickness is 3.4 mm (0.134 in).
- The number 4 flange thickness is 3.6 mm (0.142 in).



16. Install the forward and reverse clutch and thrust needle roller bearing on the transaxle rear cover.
17. Using a dial indicator and DT 46464 (1) , measure the forward clutch pack clearance while applying and releasing compressed air.
    - The forward and reverse clutch will come out as you apply the compressed air. Therefore, while the checking is being done, press on the input shaft of the forward and reverse clutch using stamping machine or alike so that the pressure is not applied on the forward and reverse clutch.
    - If the pack clearance is less than the limit of pack clearance, parts may have been assembled incorrectly, so check and reassemble again.

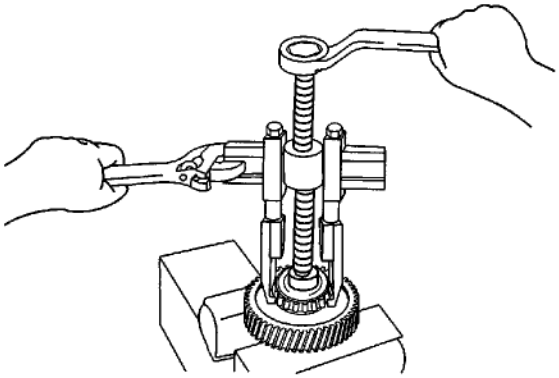
    If the pack clearance is not within specifications, select another flange.

Specifications
The pack clearance is 1.1-1.5 mm (0.043-0.059 in).

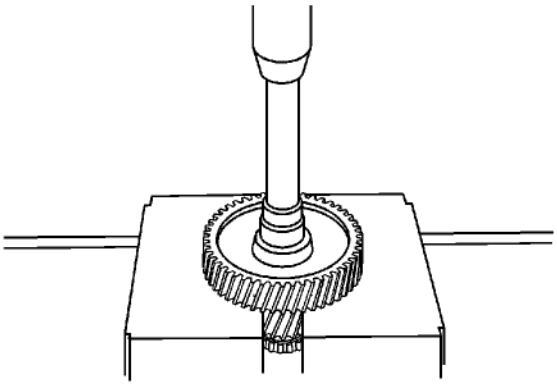
- There are 4 flanges in different thickness.

Specifications
- The number 1 flange thickness is 3 mm (0.118 in).
- The number 2 flange thickness is 3.2 mm (0.126 in).
- The number 3 flange thickness is 3.4 mm (0.134 in).
- The number four flange thickness is 3.6 mm (0.142 in).

Counter Drive Gear Disassemble

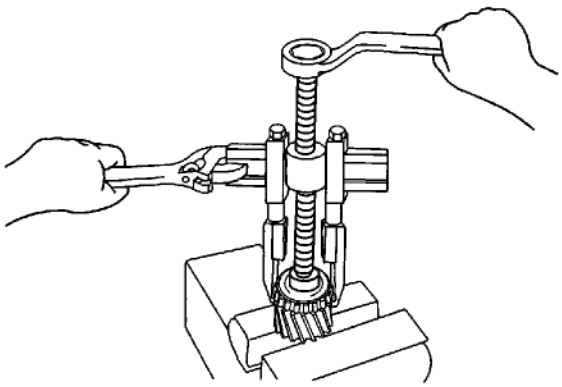


1. Using a suitable puller, remove the tapered roller bearing from the transaxle case side.



2. Using a press, remove the counter driven gear.

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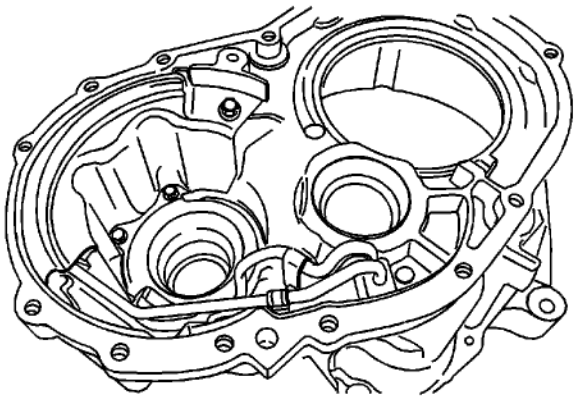


3. Using a suitable puller, remove the tapered roller bearing.
4. Using a suitable puller, remove the outer tapered roller bearing race and shim from the transaxle case.
5. Using a suitable puller, remove the outer tapered roller bearing race from the transaxle housing.

Counter Drive Gear Assemble

Tools Required

- DT 46464 (DW240-160) Transaxle Case Outer Tapered Roller Bearing Race Adapter
- DT 46465 (DW240-170) Adapter Handle

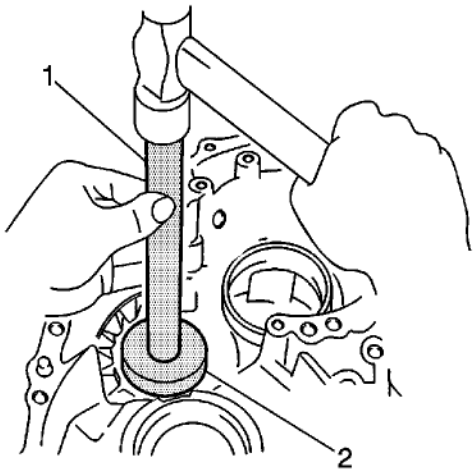




Important: Press-fit the outer tapered roller bearing race until it contacts the transaxle housing.

1. Install a new outer tapered roller bearing race into the transaxle housing.

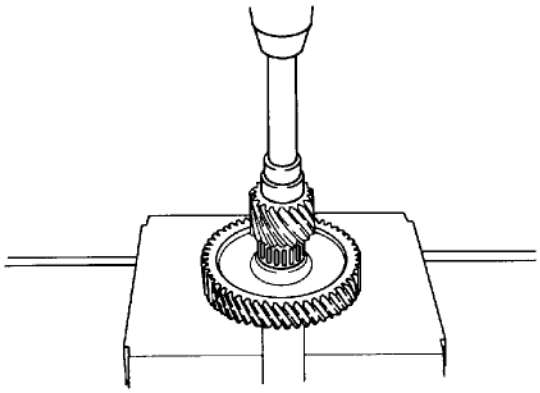
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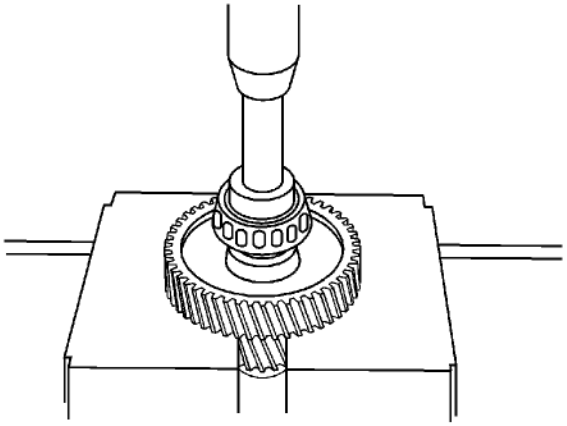
Important: Press-fit the shim until it contacts the transaxle case.

Important: Install a shim of the same thickness as the one removed.

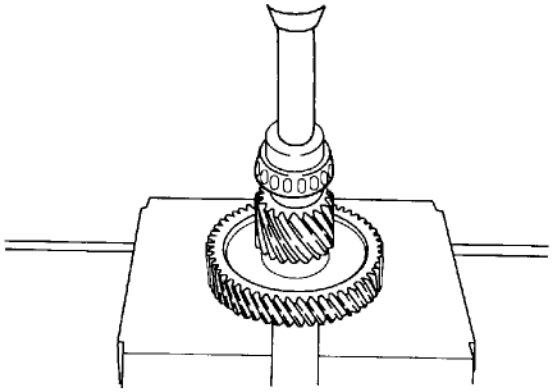
2. Install the shim to the transaxle case.
3. Using DT 46464 (2) and DT 46465 (1), press in a new outer tapered roller bearing race into the transaxle case.



4. Using a press, install the counter driven gear.



5. Using a press, install a new tapered roller bearing on the transaxle case side.

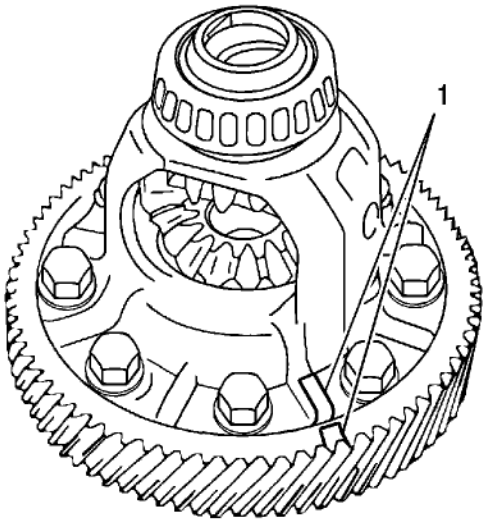


6. Using a press, install a new tapered roller bearing on the transaxle housing side.

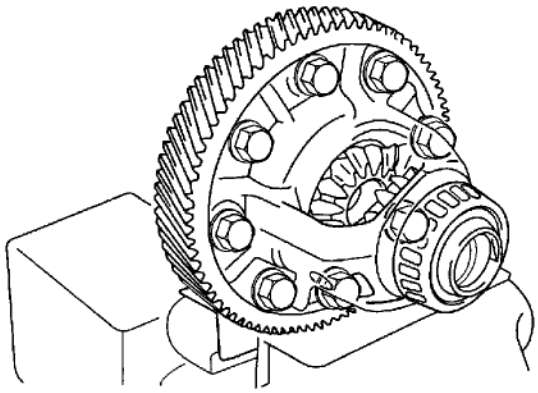
Differential Assembly Disassemble

Tools Required

- DT 46463 (DW240-150) Transaxle Case Side Bearing Outer Race Adapter
- DT 46465 (DW240-170) Adapter Handle

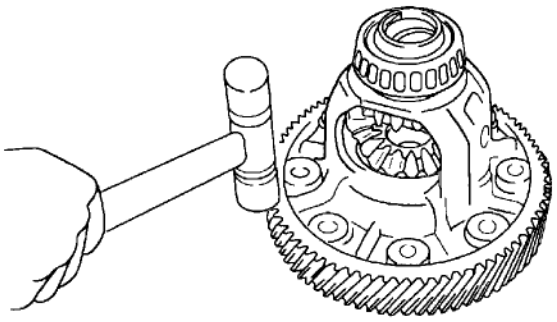


1. Place the matchmarks (1) on the ring gear and differential case.

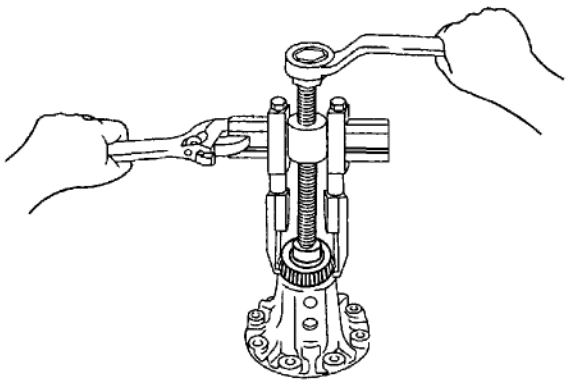


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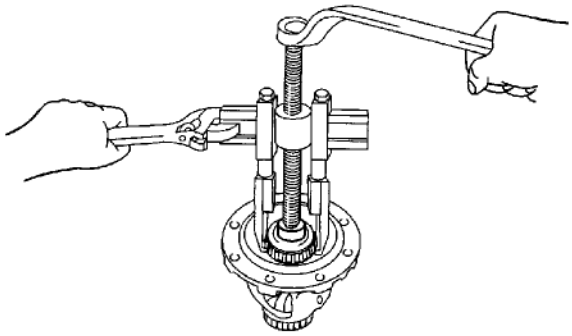
2. Remove the bolts.



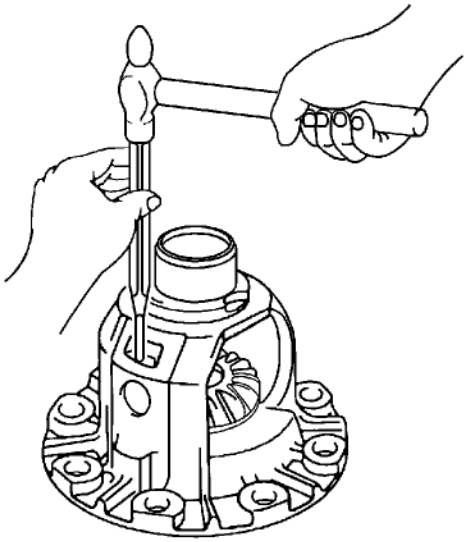
3. Using a plastic hammer, tap on the ring gear to remove it from the case.



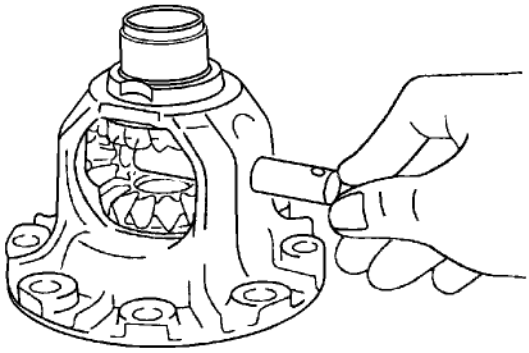
4. Using a suitable puller, remove the tapered roller bearing on the transaxle housing side.



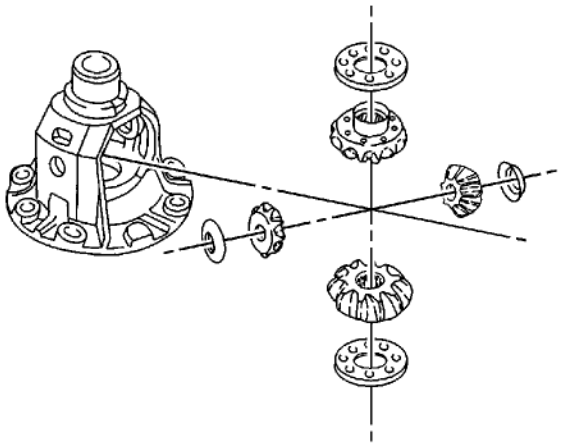
5. Using a suitable puller, remove the tapered roller bearing on the transaxle case side.



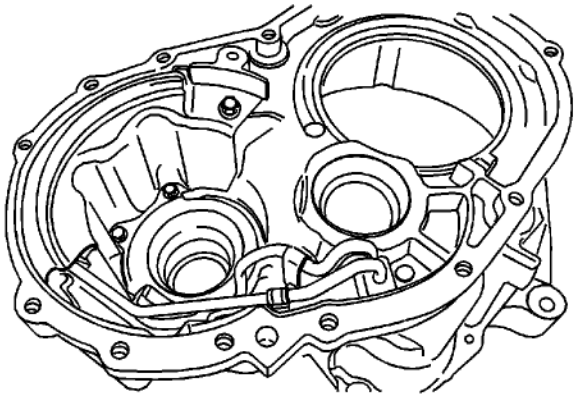
6. Using a pin punch and hammer, drive out the pin from the ring gear side.



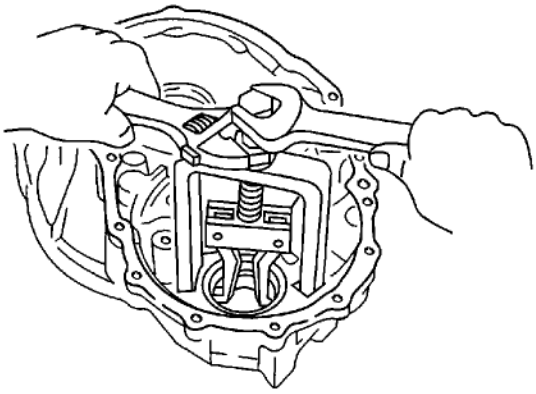
7. Remove the differential pinion shaft from the case.



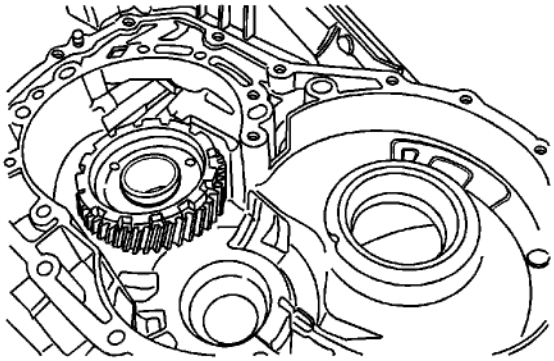
8. Remove the differential pinion gears, differential side gears, differential pinion thrust washers, and differential side gear thrust washers.



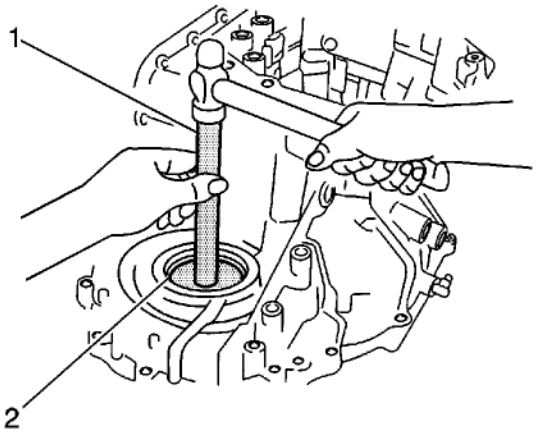
9. Using a driver, remove the oil seal from the transaxle housing.



10. Using a suitable puller, remove the side bearing outer race from the transaxle housing.



11. Using a driver, remove the oil seal from the transaxle case.

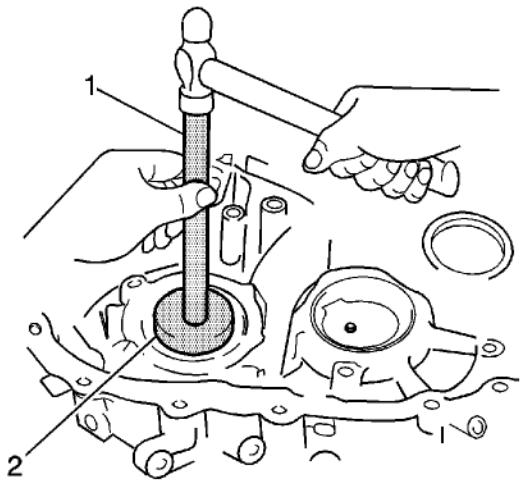


12. Using DT 46463 (2) and DT 46465 (1), remove the transaxle case side bearing outer race and shim.

Differential Assembly Assemble

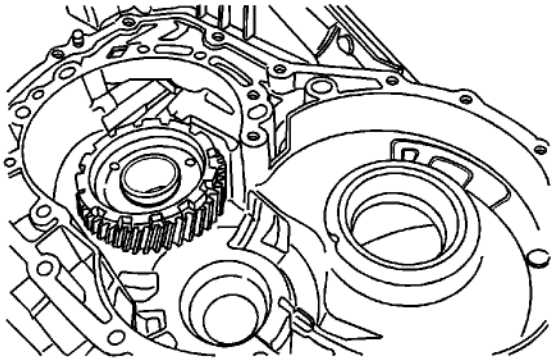
Special Tools

- DT 46461 (DW240-130) Differential Preload Adapter
- DT 46462 (DW240-140) Transaxle Case Side Bearing Outer Race Adapter
- DT 46465 (DW240-170) Adapter Handle
- DT 46471 (DW260-031-01) Transaxle Housing Oil Seal Installer
- DT 47521 (DW260-031-02) Transaxle Case Oil Seal Installer



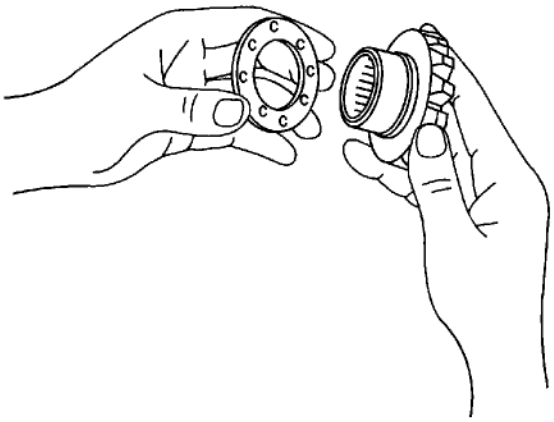
1. Using DT 46462 (2) and DT 46465 (1), install a new side bearing outer race into the transaxle housing.

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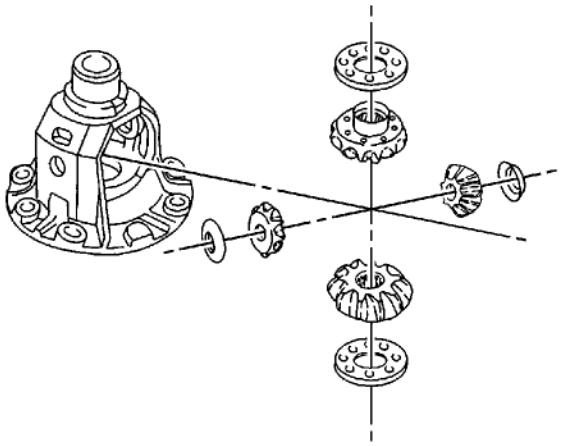


Note: Install a shim of the same thickness as the one removed.

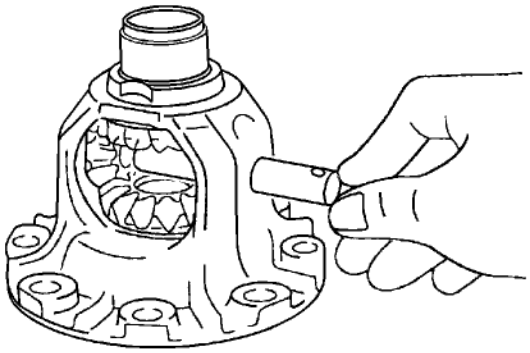
2. Install the shim into the transaxle case.
3. Install a new side bearing outer race into the transaxle case.



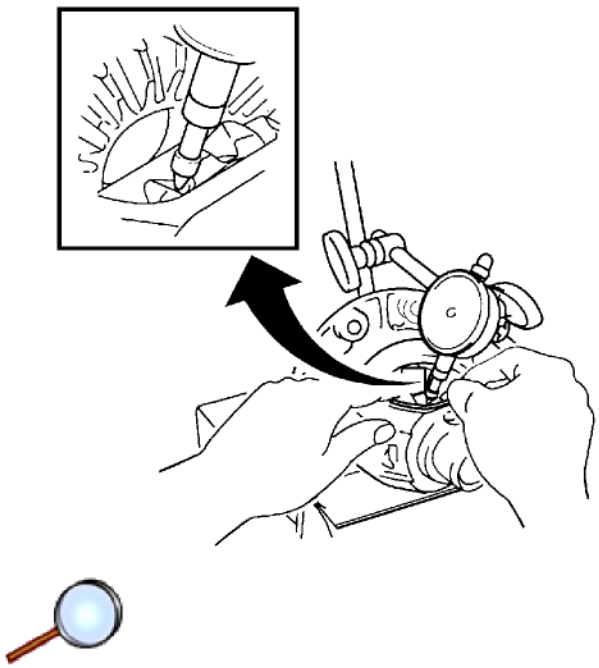
4. Coat the thrust washers, side gears, pinion gears, and pinion thrust washers with automatic transmission fluid (ATF).
5. Install the differential side gear thrust washers onto the differential side gears.



6. Install the side gears with thrust washers, pinion gears, and pinion thrust washers into the differential case.
7. Coat the pinion shaft with ATF.



8. Install the pinion shaft and align the lock pin holes on the pinion shaft and differential case.



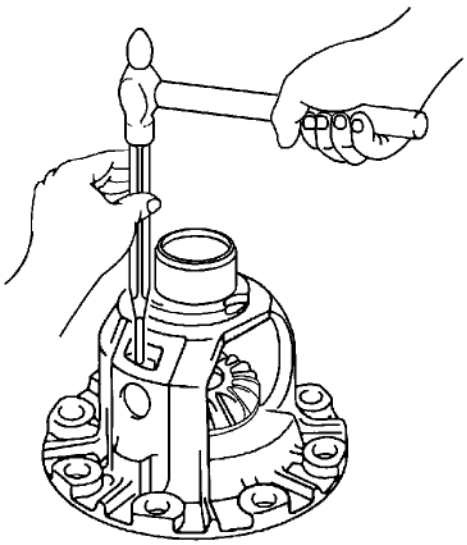
Note: If the backlash is out of specification, install the correct thrust washer to the side gear.

9. Measure the side gear backlash while holding one pinion gear toward the case.

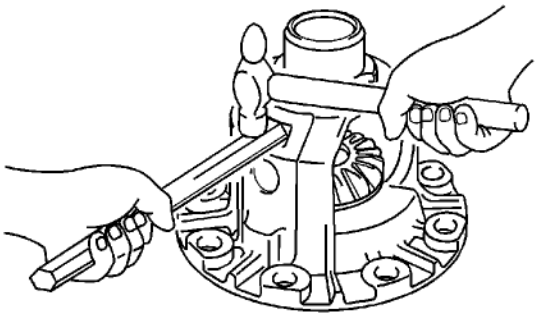
   Specifications
   The standard backlash is 0.05-0.2 mm (0.002-0.0079 in).

   Note:
   - Try to select washers of the same size for both sides.
   - If the backlash is not within the specification, install a thrust washer of a different thickness.

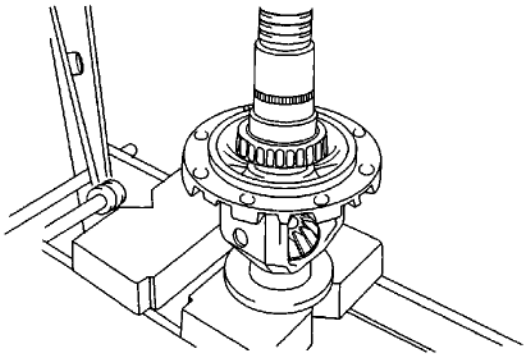
10. Select thrust washers which will ensure that the backlash is within the specification. Refer to Transmission General Specifications.



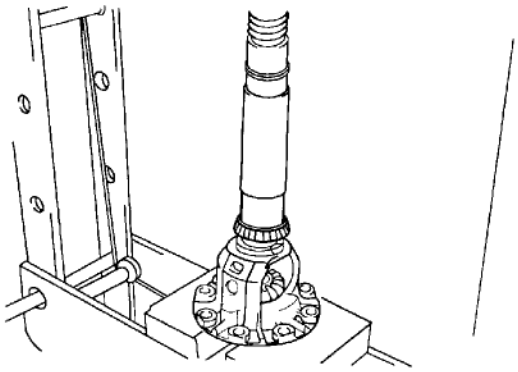
11. Using a hammer and punch, drive the pin through the case and the pinion shaft.



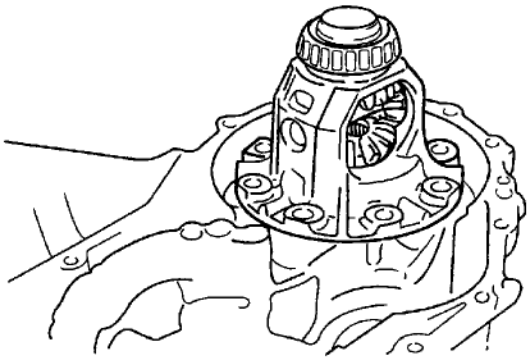
12. Using a hammer and chisel, stake the differential case.



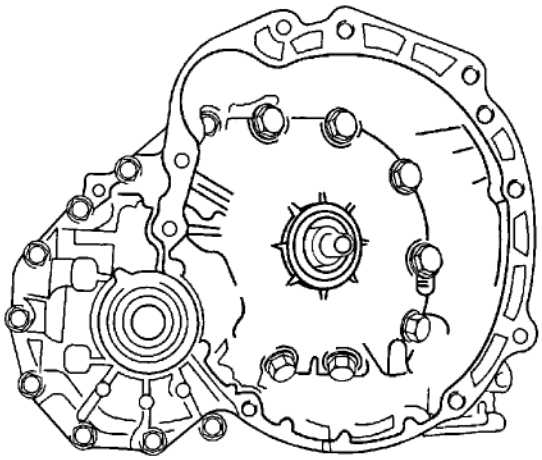
13. Using a press, install the tapered roller bearing into the differential case.



14. Using a press, install the tapered roller bearing into the differential case.
15. Remove any foreign material. Do not get oil on the contacting surfaces of the transaxle housing or transaxle case.



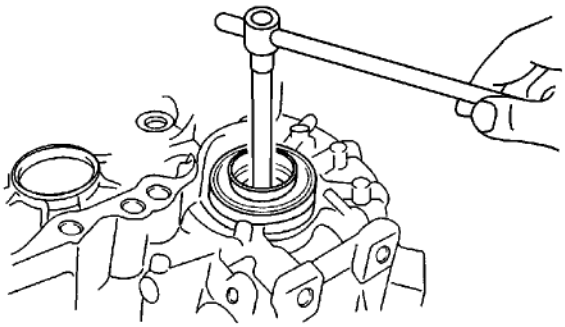
16. Install the differential into the transaxle case.



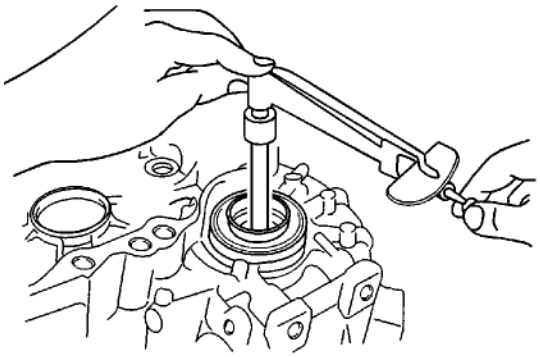
17. Install the transaxle housing temporarily.

    Caution: Refer to Fastener Caution in the Preface section.

18. Install the transaxle bolts and tighten eight of them to **29 N·m (22 lb ft)**.



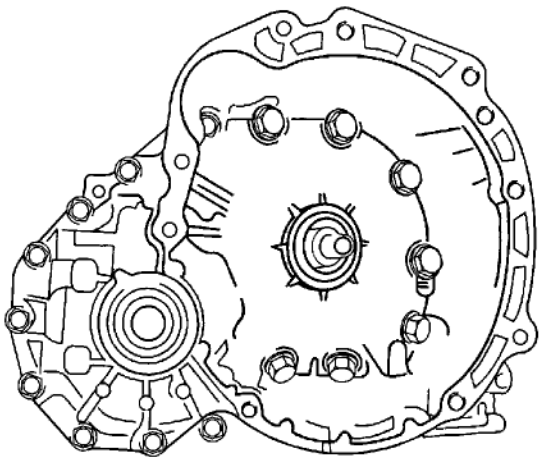
19. Using DT 46461 , turn the differential gear assembly right and left 2-3 times to allow the bearing to settle.



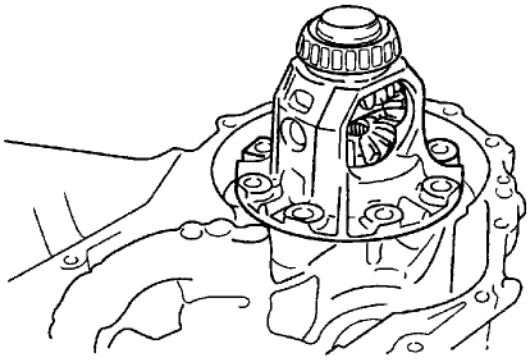
Note: If the preload is not within specifications, remove the differential from the transaxle case.

20. Using DT 46461 and a small torque wrench, measure the preload of the differential gear.

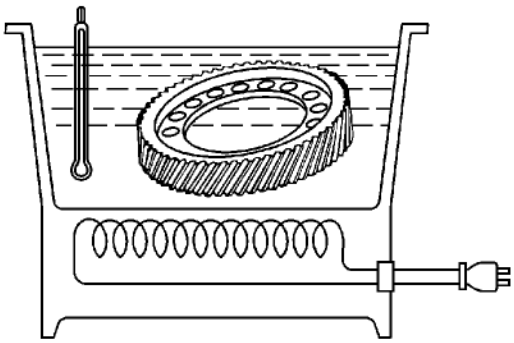
    Specifications
    - New bearing preload is 0.78-1.37 N·m (6.9-12.2 lb in).
    - Used bearing preload is 0.39-0.69 N·m (3.5-6.1 lb in).
21. Re-select the transaxle case side adjusting the shim according to the shim thickness table. Refer to Transmission General Specifications.



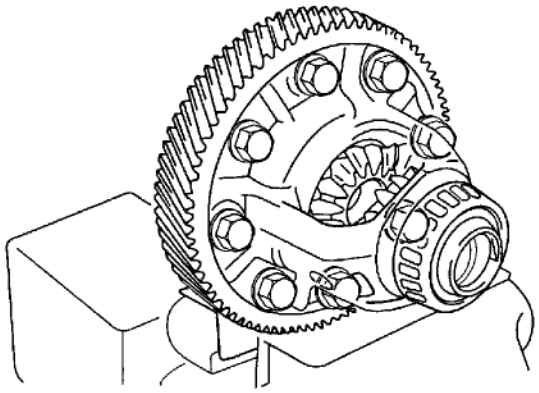
22. Using a plastic hammer, remove the bolts and transaxle housing.



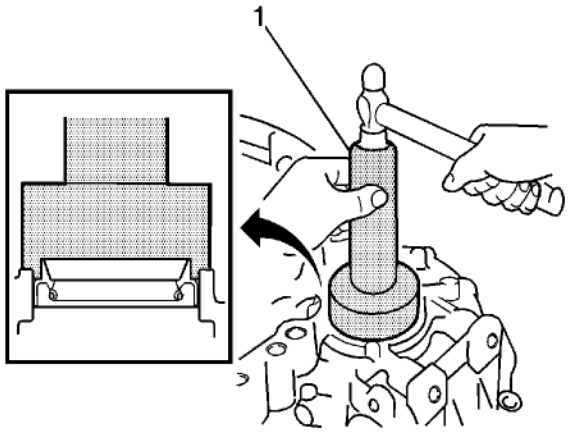
23. Remove the differential gear from the transaxle case.



24. Clean the contact surface of the differential case.
25. Heat the ring gear in water and boil for 10 minutes.
26. Carefully remove the ring gear from the water.
27. After the moisture on the ring gear has completely evaporated, quickly install the ring gear to the differential case.

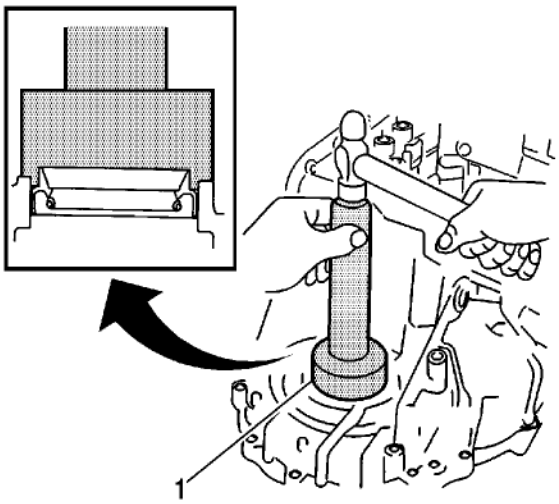


28. Install the bolts and tighten to **102 N·m (75 lb ft)**.



29. Using DT 46471 (1) and a hammer, drive in a new transaxle housing oil seal.

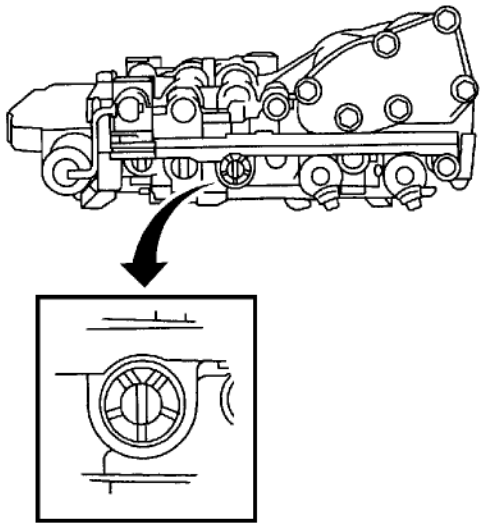
Specifications
The oil seal in depth is 3.1 mm (0.122 in).



30. Using DT 47521 (1), drive in a new transaxle case oil seal.

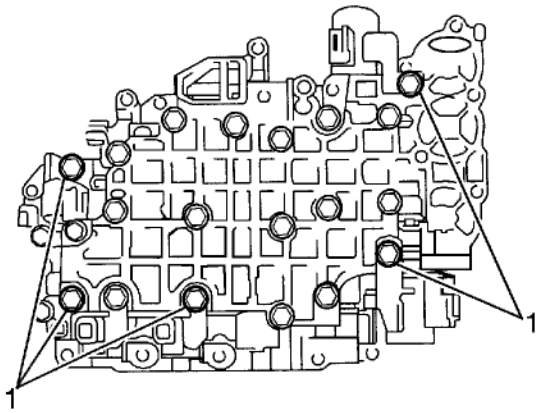
Specifications
The oil seal in depth is 4.3 mm (0.169 in).

Control Valve Body Disassemble



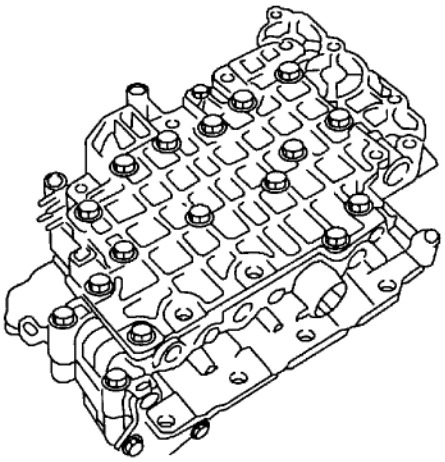
Important: Because the line pressure is changed by the position of the pin and groove in the sleeve end, be sure to check the position.

1. Write down the relative position of the primary regulator valve sleeve, plug, and pin.
2. Remove the manual valve.

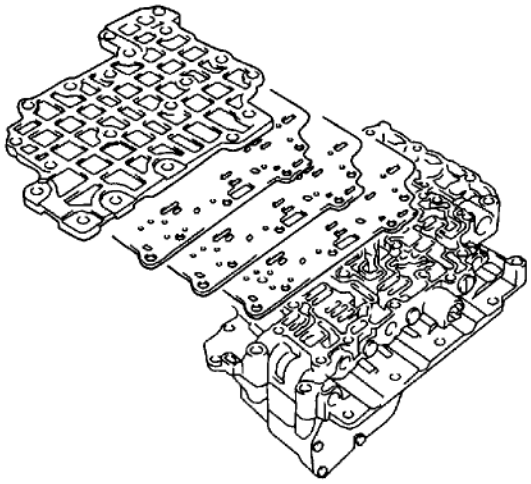


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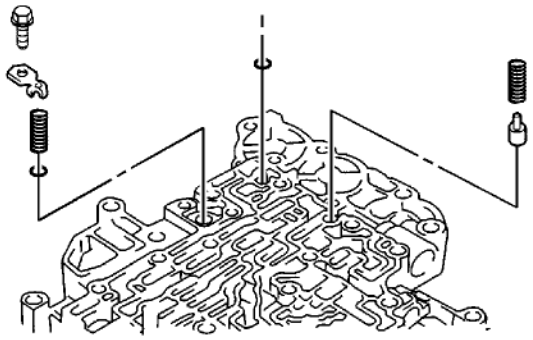
3. Remove the bolts (1) and shift solenoid valves.



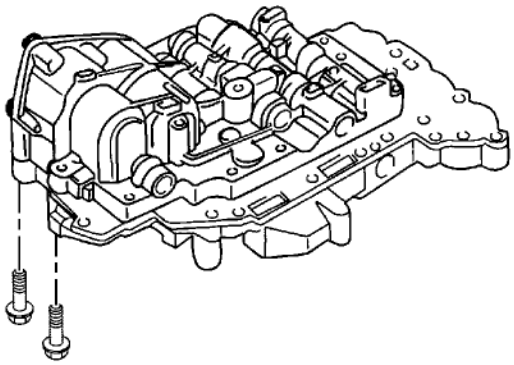
4. Remove the bolts.



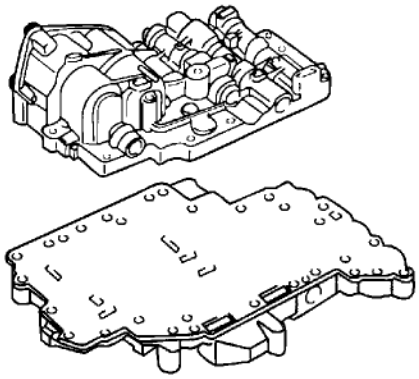
5. Remove the cover, gaskets, and plate.



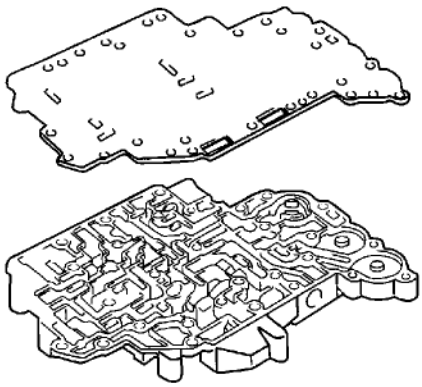
6. Remove the spring, check valve, and check ball.
7. Remove the bolt, spring seat, spring, and ball.
8. Turn over the valve body.



9. Remove the bolts from the valve body.



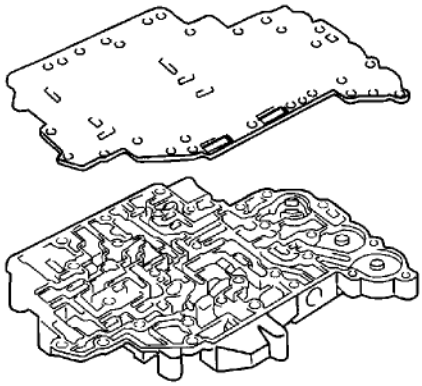
10. Remove the upper valve body from the lower valve body.



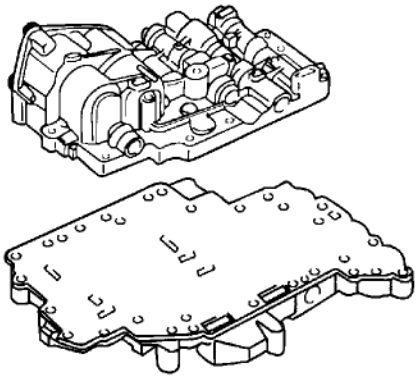
Important: Be careful that the check balls do not fall out.

11. Remove the valve body plate from the lower valve body.

Control Valve Body Assemble



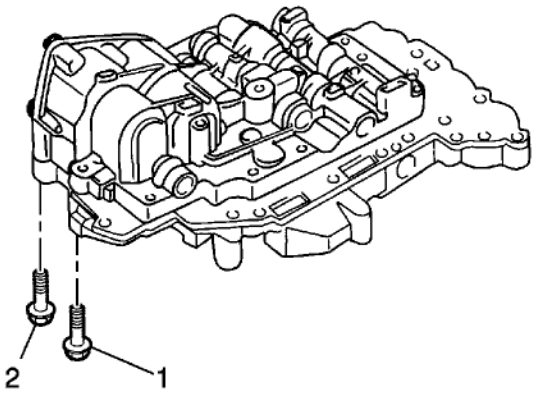
1. Install the valve body plate to the lower valve body.



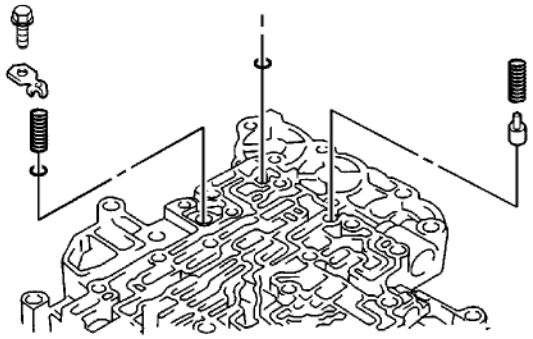
2. Install the upper valve body to the lower valve body.

Caution: Refer to Fastener Caution in the Preface section.

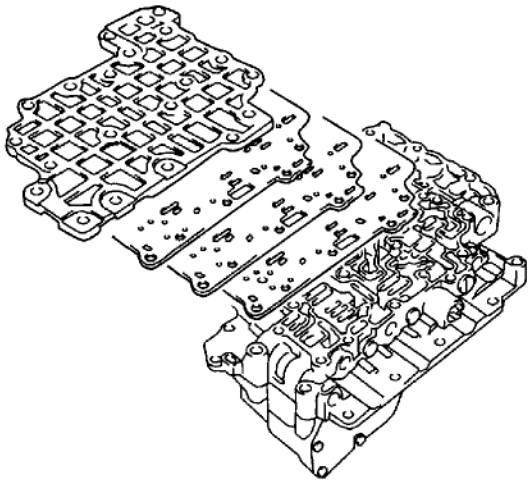
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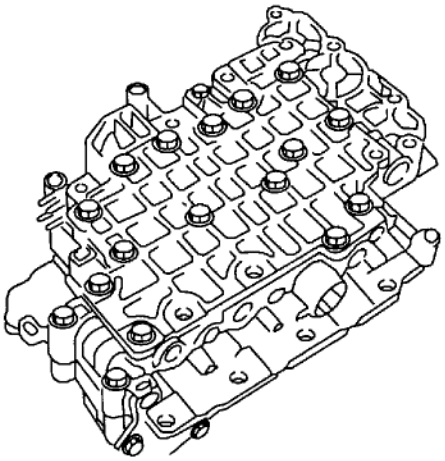
3. Install the bolts to the valve body. The bolt lengths are 49 mm (1.93 in) (1) and the 36 mm (1.42 in) (2) and tighten to **11 N·m (97 lb in)**.
4. Turn the valve body.



5. Install the check valve, spring, and check ball.
6. Install the ball, spring, spring seat, and bolt and tighten to **7.0 N·m (62 lb in)**.



7. Install the gaskets, plate, and the lower valve body cover.

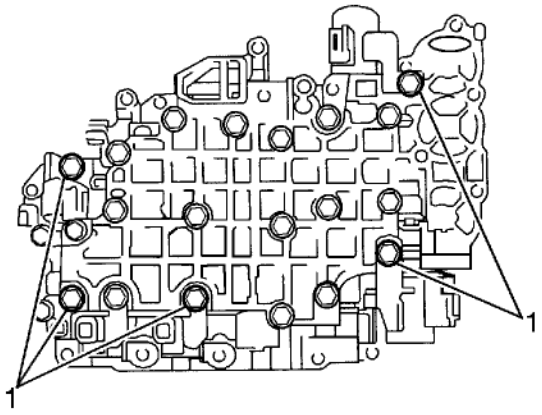


8. The bolt lengths are as follows:

Specifications

- 49 mm (1.93 in)
- 20 mm (0.79 in)
- 60 mm (2.36 in)

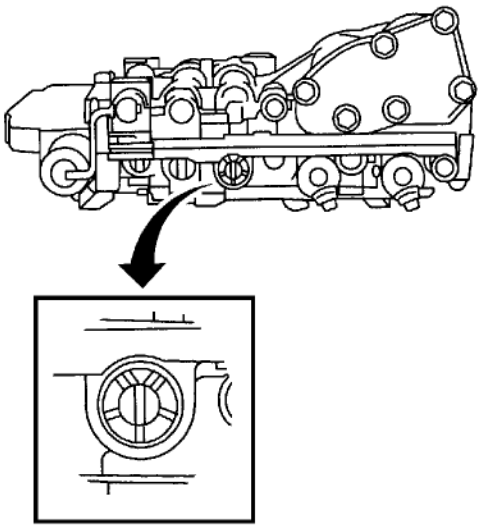
9. Install the lower valve body cover bolts and tighten to **11 N·m (97 lb in)**.



10. Install the shift solenoid valves (1).

    The bolt lengths are as follows:

    Specifications
    - 49 mm (1.93 in)
    - 20 mm (0.79 in).
11. Install the shift solenoid valve bolts and tighten to **11 N·m (97 lb in)**.
12. Install the manual valve.



13. Make sure the primary regulator valve is positioned in the same place where it was removed.