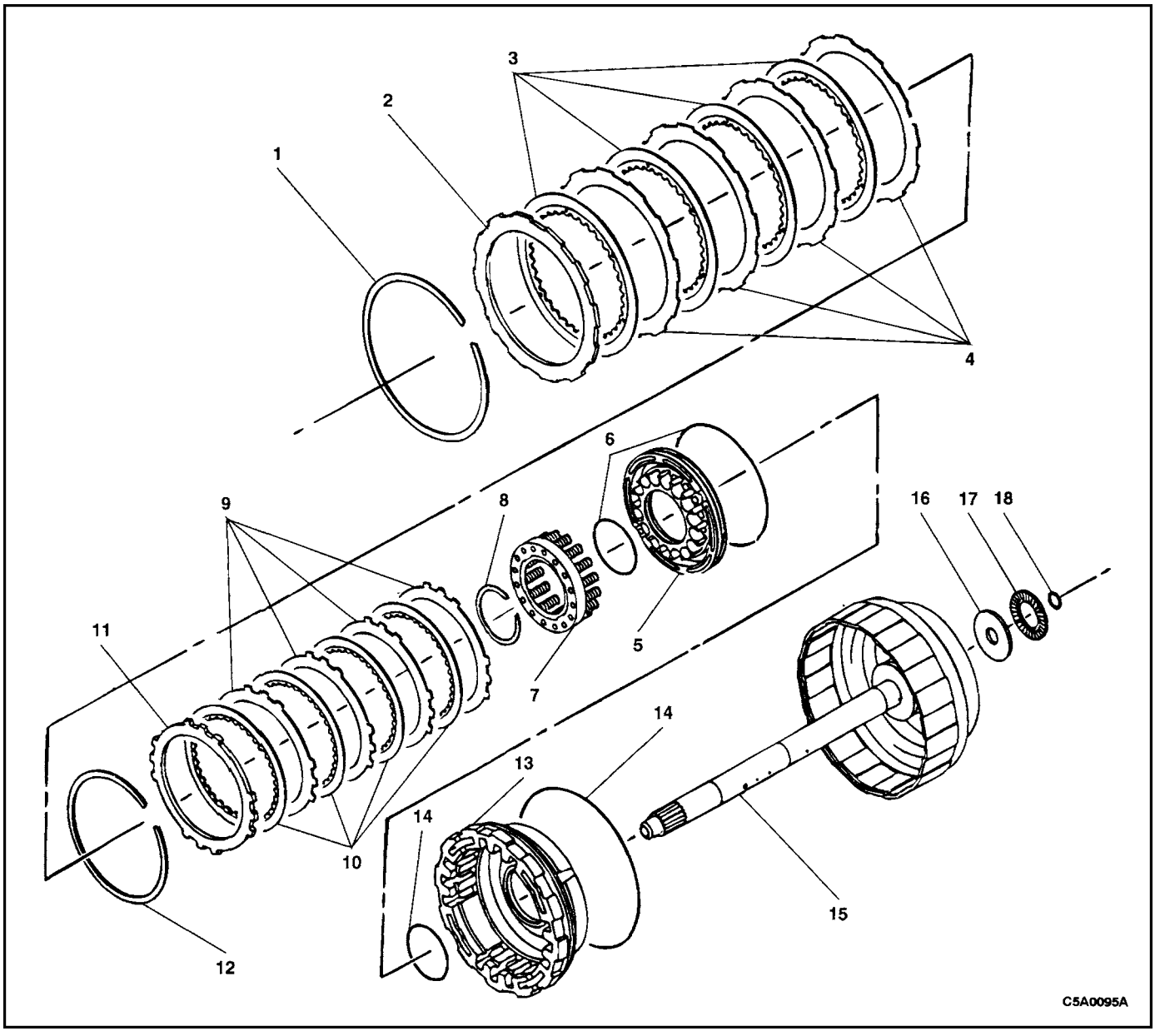
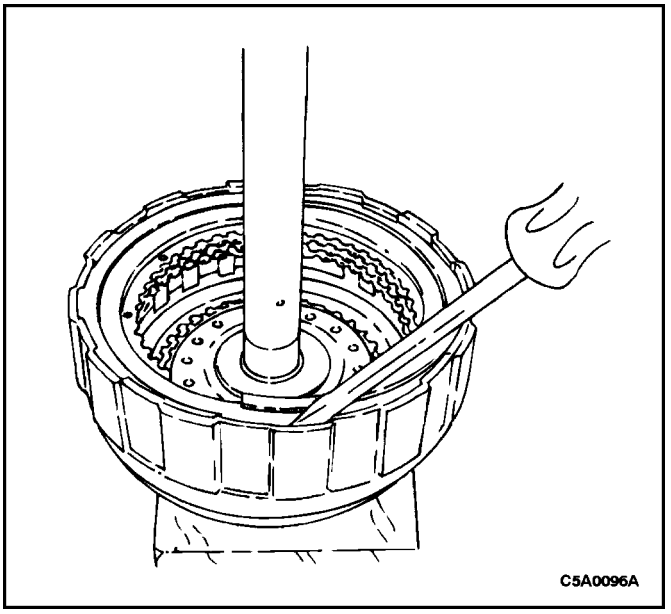
FORWARD AND DIRECT CLUTCH



1. Snap Ring
2. Forward Clutch Pressure Plate
3. Forward Clutch Friction Plate
4. Forward Clutch Steel Plate
5. Direct Clutch Piston
6. O–Rings
7. Clutch Piston Return Spring
8. Snap Ring
9. Direct Clutch Steel Plate
10. Direct Clutch Friction Plate
11. Direct Clutch Pressure Plate
12. Snap Ring
13. Forward Clutch Piston
14. O–Rings
15. Input Shaft
16. Thrust Bearing Race
17. Thrust Bearing
18. Seal Ring


C5A0096A

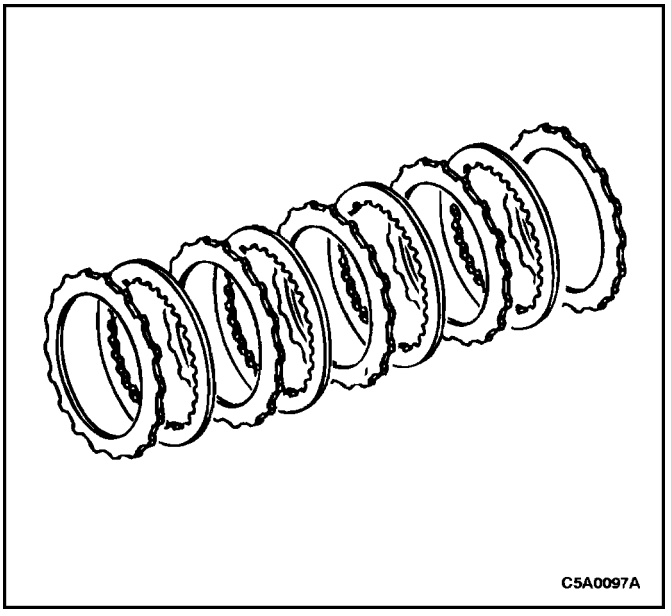
Tools Required

KM–698 Spring Compressor

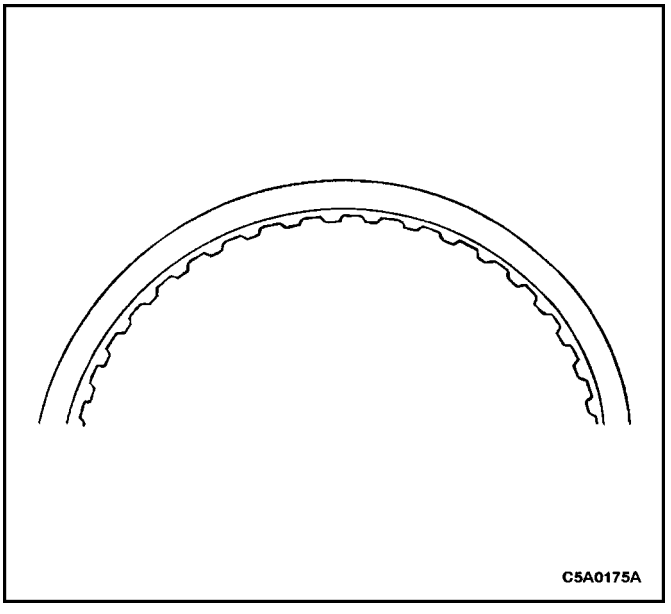
Disassembly Procedure

WARNING : USE CAUTION WHEN REMOVING SNAP RINGS OR PERSONAL INJURY MAY RESULT.

1. Carefully remove the snap ring.


C5A0097A

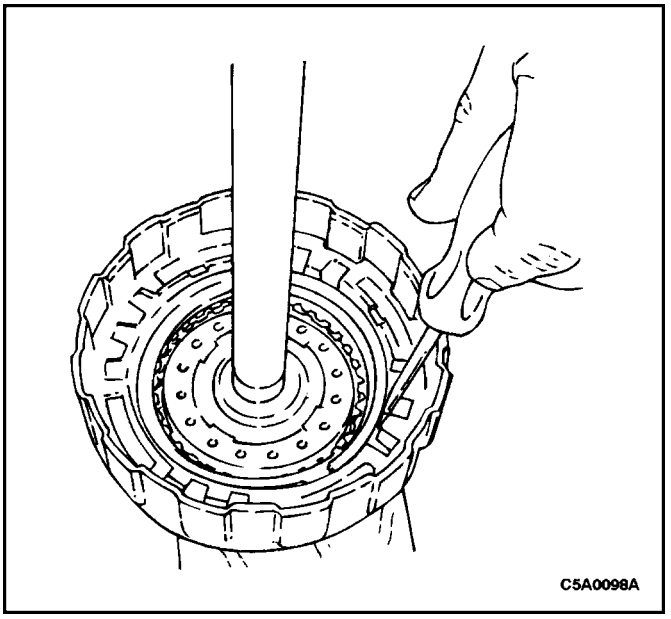
2. Remove the forward clutch pressure plate and the forward clutch disc pack.


C5A0175A

Notice : Check the steel and friction plates for wear or damage. Replace as necessary.

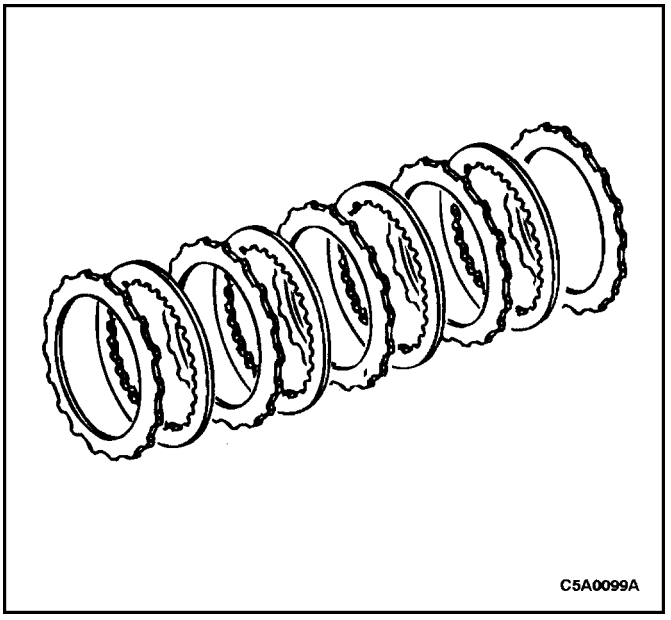
Notice : New clutch plates should be soaked in Texaco 1854 automatic transmission fluid for two hours before being assembled.

3. Inspect the forward clutch steel and friction plates.

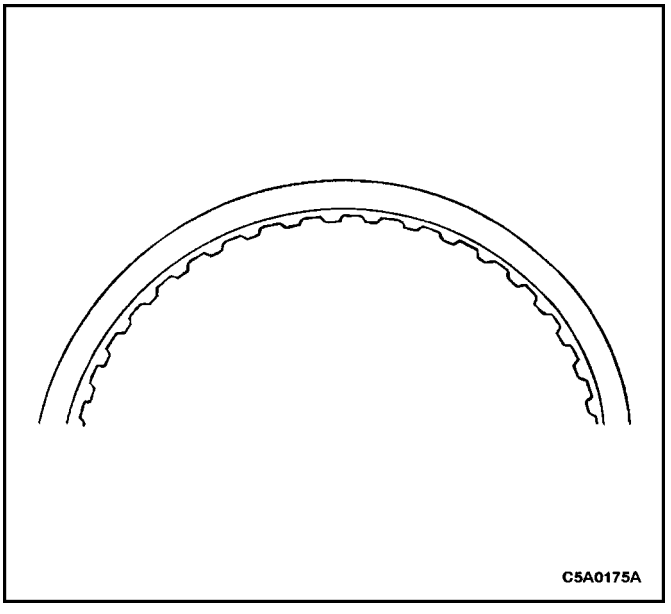

C5A0098A

WARNING : USE CAUTION WHEN REMOVING SNAP RINGS OR PERSONAL INJURY MAY RESULT.

4. Carefully remove the snap ring.


C5A0099A

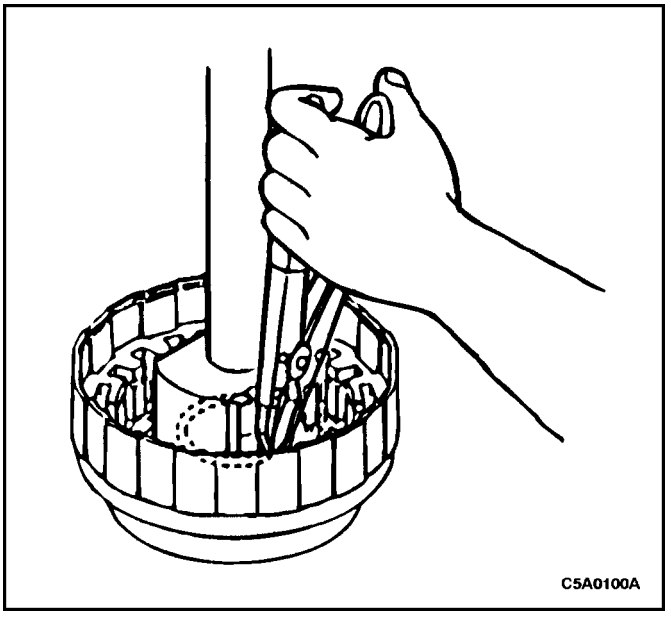
5. Remove the direct clutch pressure plate and the direct clutch disc pack.


C5A0175A

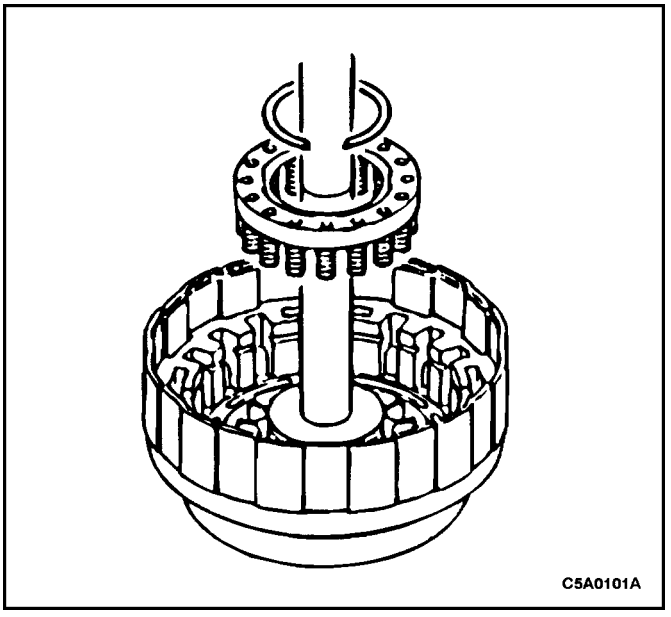
Notice : Check the steel and friction plates for wear or damage. Replace as necessary.

Notice : New clutch plates should be soaked in Texaco 1854 automatic transmission fluid for two hours before being assembled.

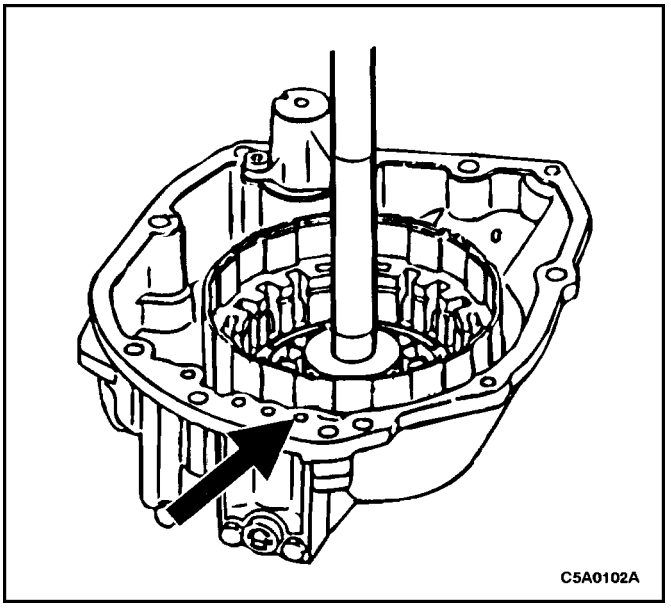
6. Inspect the direct clutch steel and friction plates.


C5A0100A

7. Position spring compressor KM 698 on the clutch piston return spring. Using a press, compress the springs, then remove the snap ring from the groove.


C5A0101A

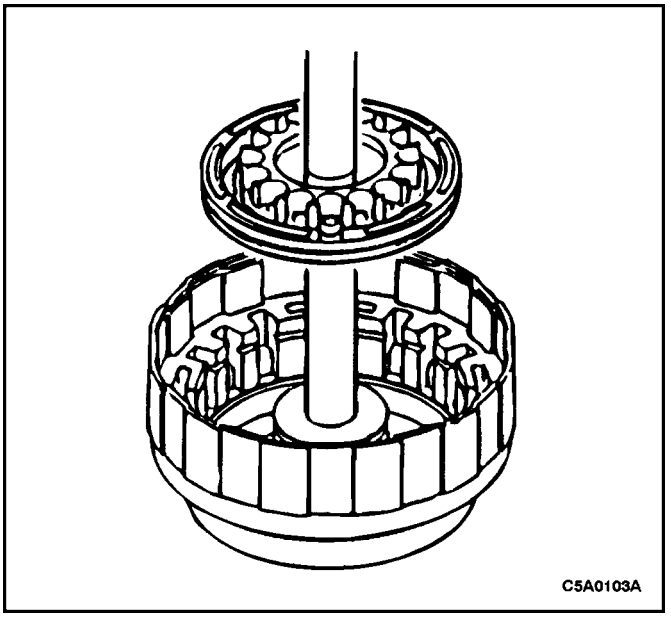
8. Remove the snap ring and the clutch piston return spring.


C5A0102A

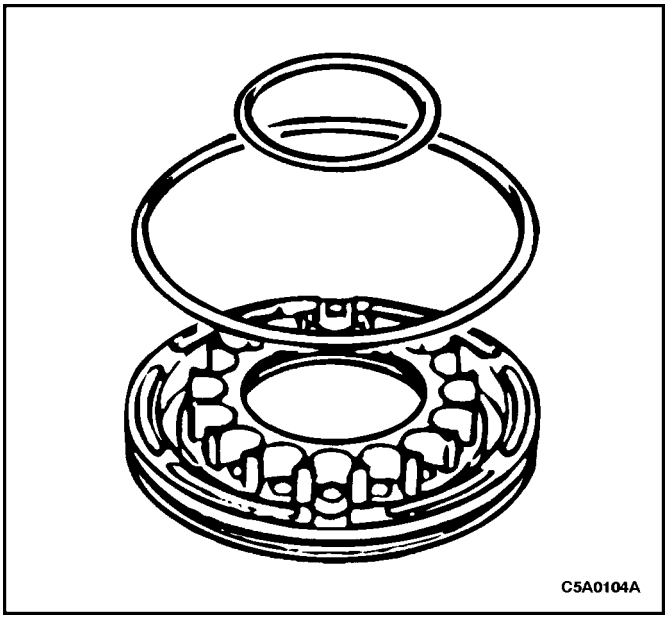
WARNING : USE CAUTION WHEN REMOVING COMPONENTS WITH COMPRESSED AIR OR PERSONAL INJURY MAY RESULT.

Notice : If the piston does not come out completely, use needlenose pliers to remove.

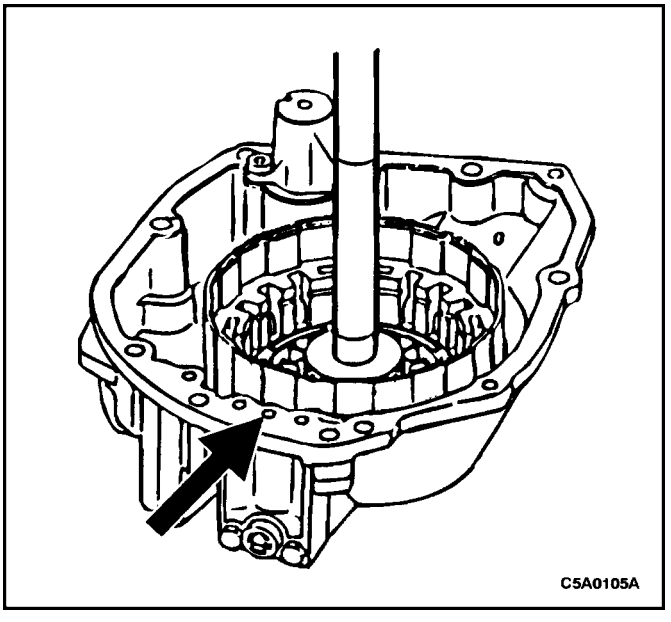
9. Install the input shaft into the rear case. Apply 57 psi (396 kPa) of compressed air into the oil passage shown to remove the direct clutch piston.


C5A0103A

10. Remove the direct clutch piston.


C5A0104A

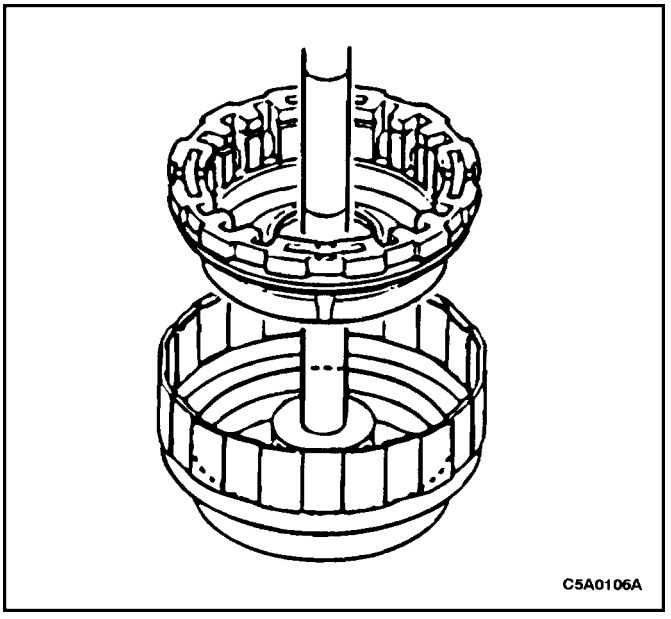
11. Remove and discard the direct clutch piston O–rings.


C5A0105A

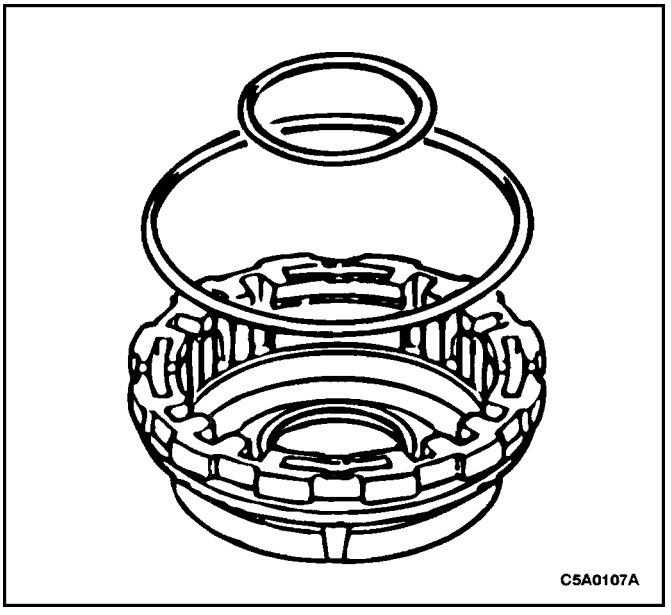
WARNING : USE CAUTION WHEN REMOVING COMPONENTS WITH COMPRESSED AIR OR PERSONAL INJURY MAY RESULT.

Notice : If the piston does not come out completely, use needlenose pliers to remove.

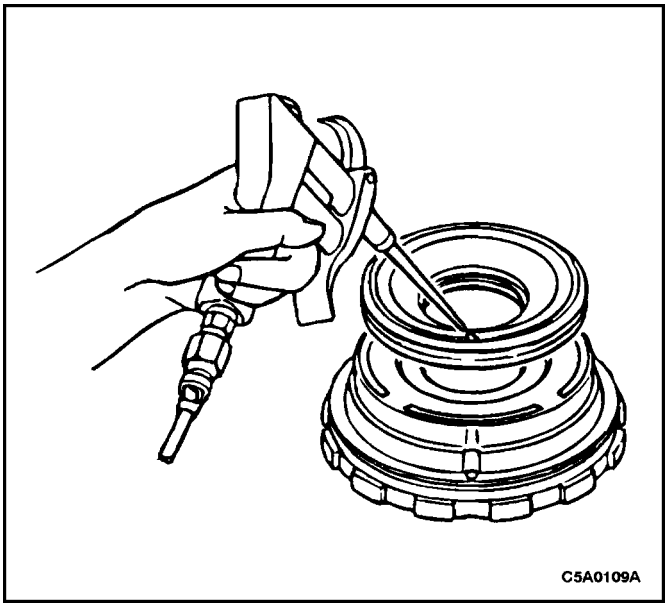
12. Install the input shaft into the rear case. Apply 57 psi (396 kPa) of compressed air into the oil passage shown to remove the forward clutch piston.



13. Remove the forward clutch piston.

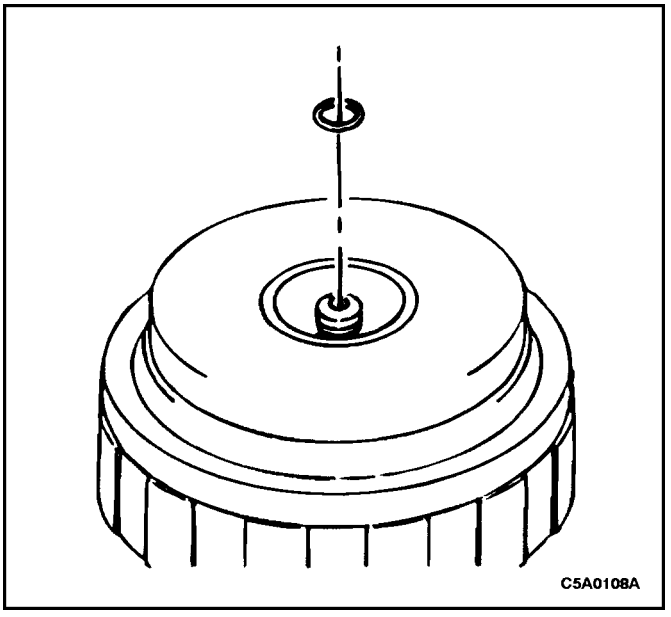


14. Remove and discard the forward clutch piston O–rings.

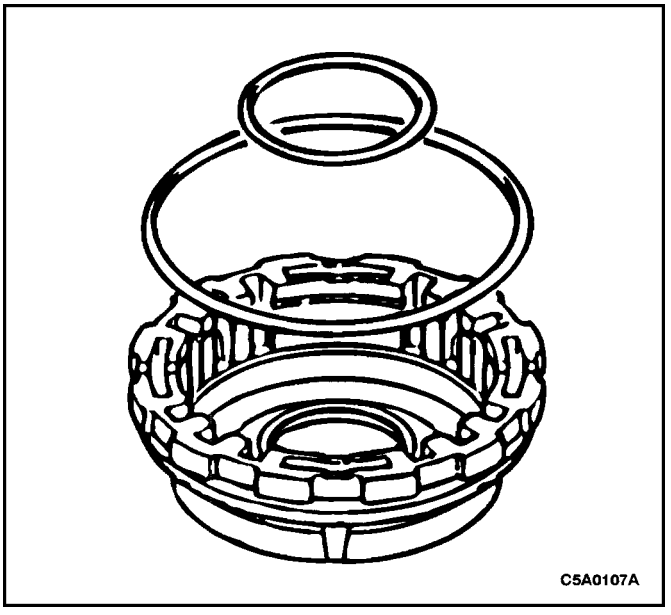


WARNING : USE CAUTION WHEN CHECKING COMPONENTS WITH COMPRESSED AIR OR PERSONAL INJURY MAY RESULT.

15. Inspect the forward and direct clutch piston.
    - Check that the valve does not leak by applying low–pressure compressed air.

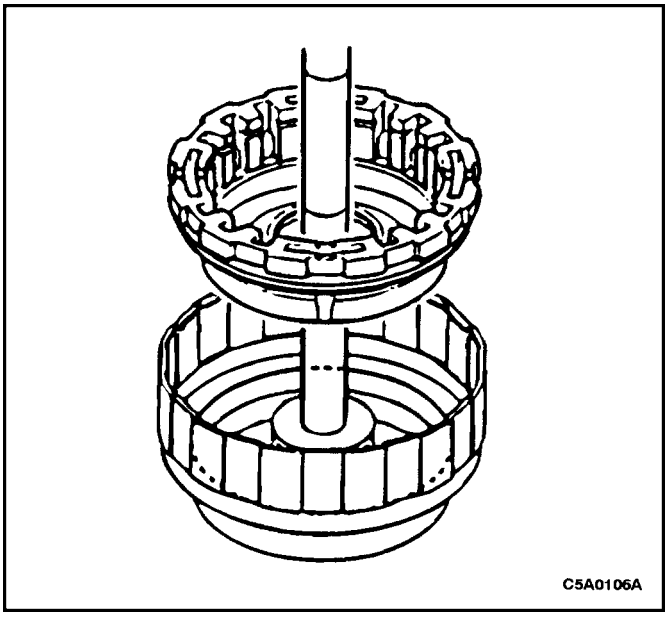

C5A0108A

16. Remove the seal ring.


C5A0107A

Assembly Procedure

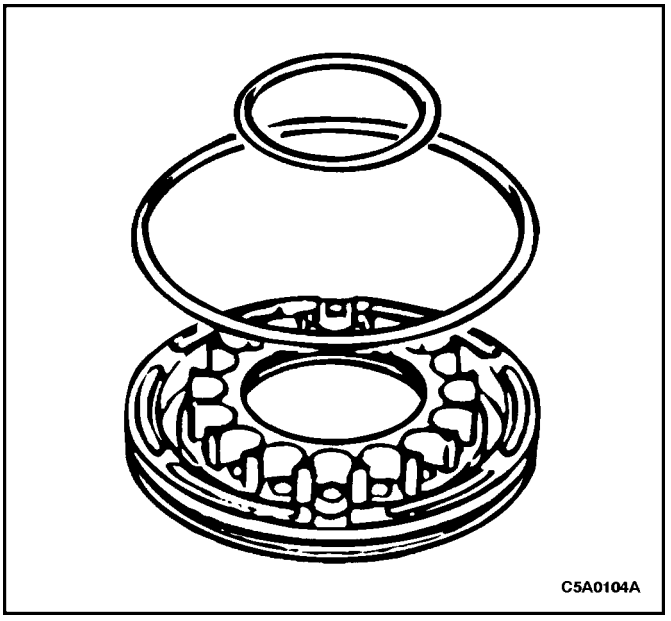
1. Clean the components using a clean, high–quality parts cleaning solvent and use compressed air to dry all parts. Inspect all parts for damage or wear.
2. Install new forward clutch piston O–rings.


C5A0106A

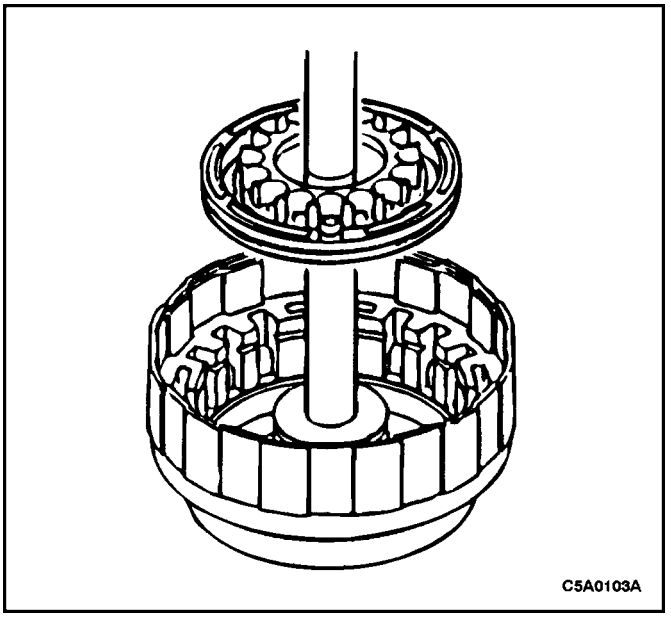
Notice : Apply Texaco 1854 automatic transmission fluid to the new forward clutch piston O–rings and the input shaft seal area.

Notice : Seat the piston by pushing evenly around the circumference of the piston, being careful not to damage the outer seal.

3. Install the forward clutch piston.


C5A0104A

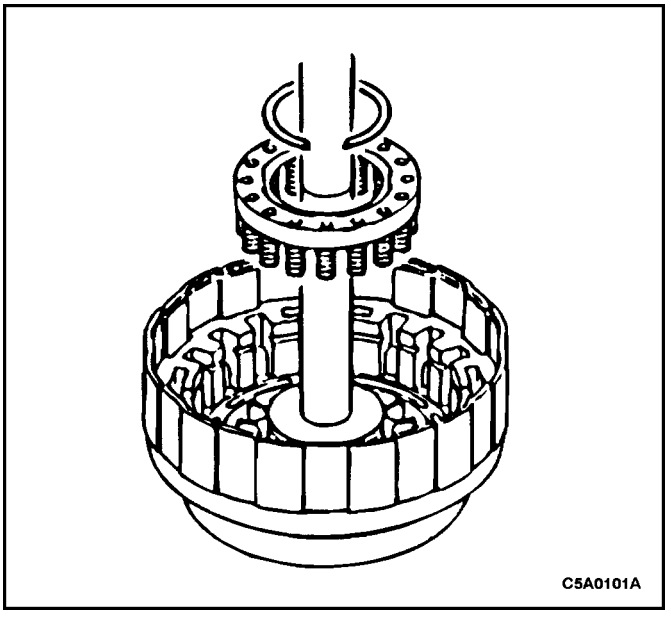
4. Install new direct clutch piston O–rings.


C5A0103A

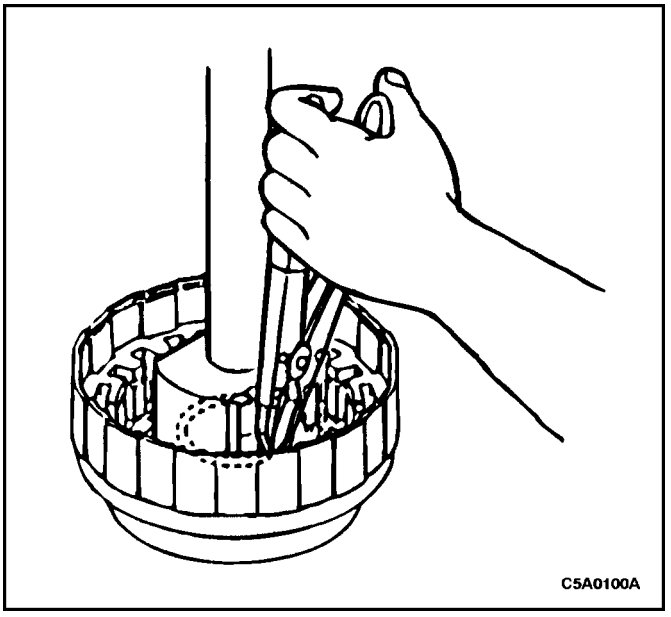
Notice : Apply Texaco 1854 automatic transmission fluid to the new direct clutch piston O–rings and the input shaft seal area.

Notice : Notice: Seat the piston by pushing evenly around the circumference of the piston, being careful not to damage the outer seal.

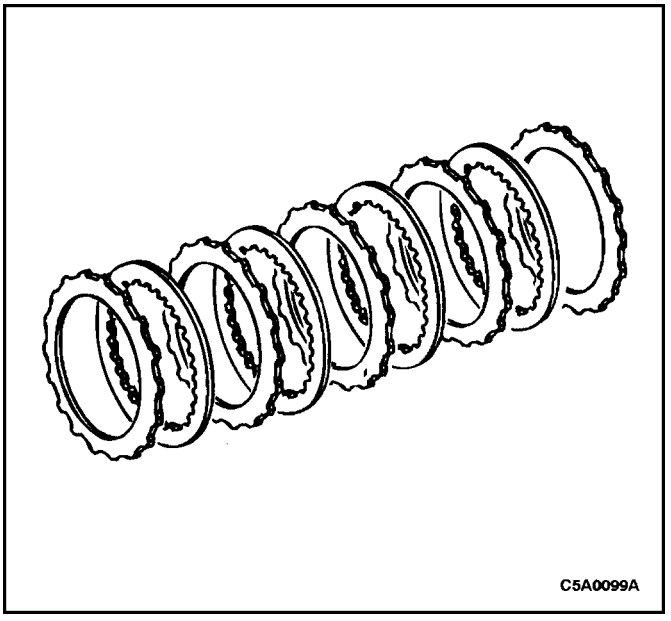
5. Install the direct clutch piston.


C5A0101A

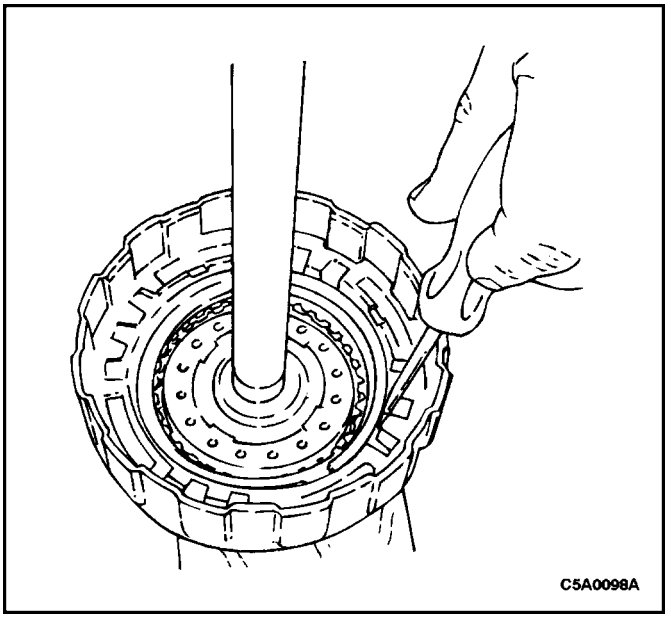
6. Install the clutch piston return spring on the direct clutch piston.


C5A0100A

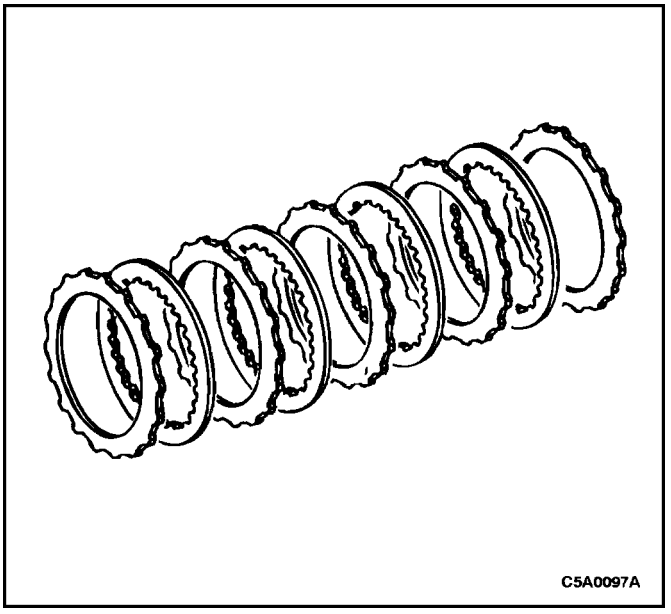
7. Install the clutch piston return spring. Position spring compressor KM–698 on the clutch piston return spring. Using a press, compress the spring, then install the snap ring into the groove.


C5A0099A

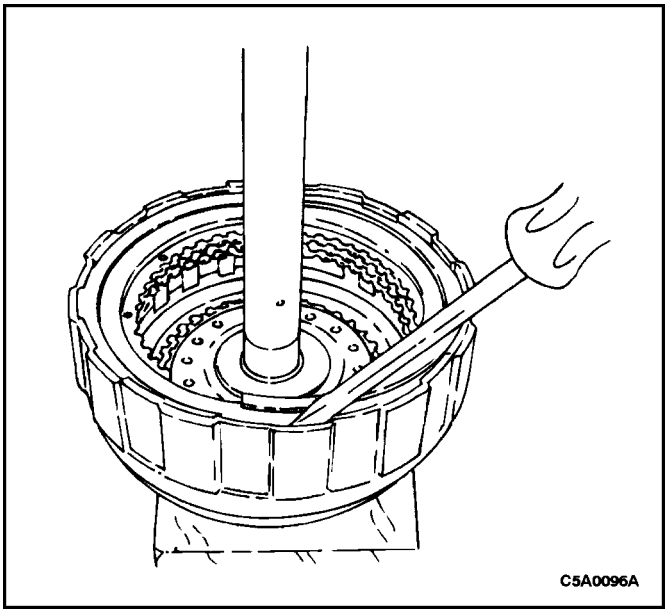
8. Install the direct clutch disc pack and direct clutch pressure plate.
   - The installation order is: steel–friction–steel–friction– steel–friction–steel–friction–pressure plate.


C5A0098A

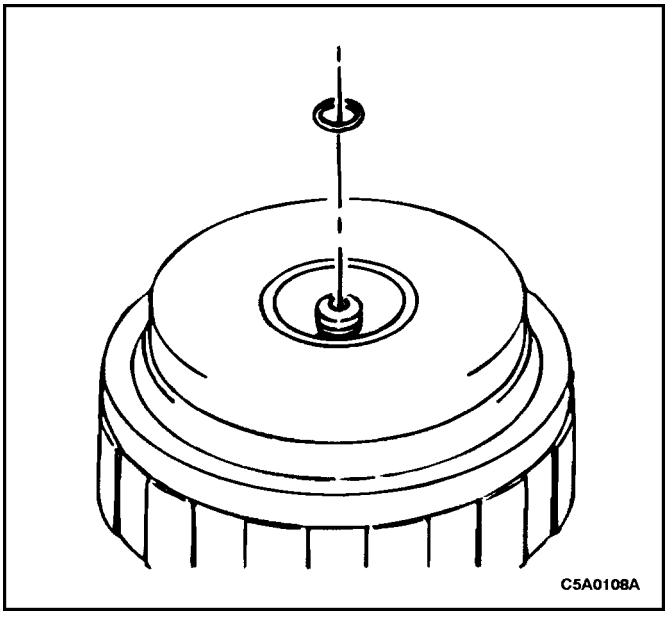
9. Install the snap ring.



10. Install the forward clutch disc pack and forward clutch pressure plate.
    - The installation order is: steel–friction–steel–friction– steel–friction–steel–friction–pressure plate.

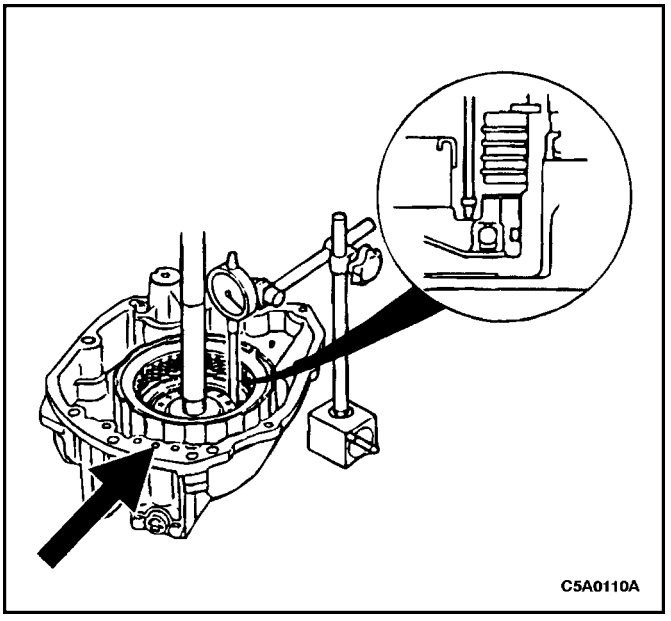


11. Install the snap ring.



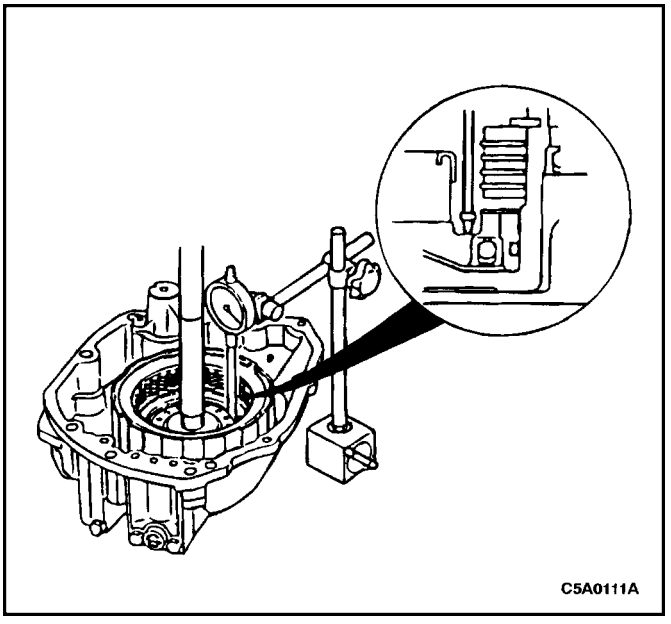
Notice : Apply Texaco 1854 automatic transmission fluid to the seal ring. Spread the seal ring apart and install it into the groove.

12. Install the seal ring.



WARNING : USE CAUTION WHEN CHECKING COMPONENTS WITH COMPRESSED AIR OR PERSONAL INJURY MAY RESULT.

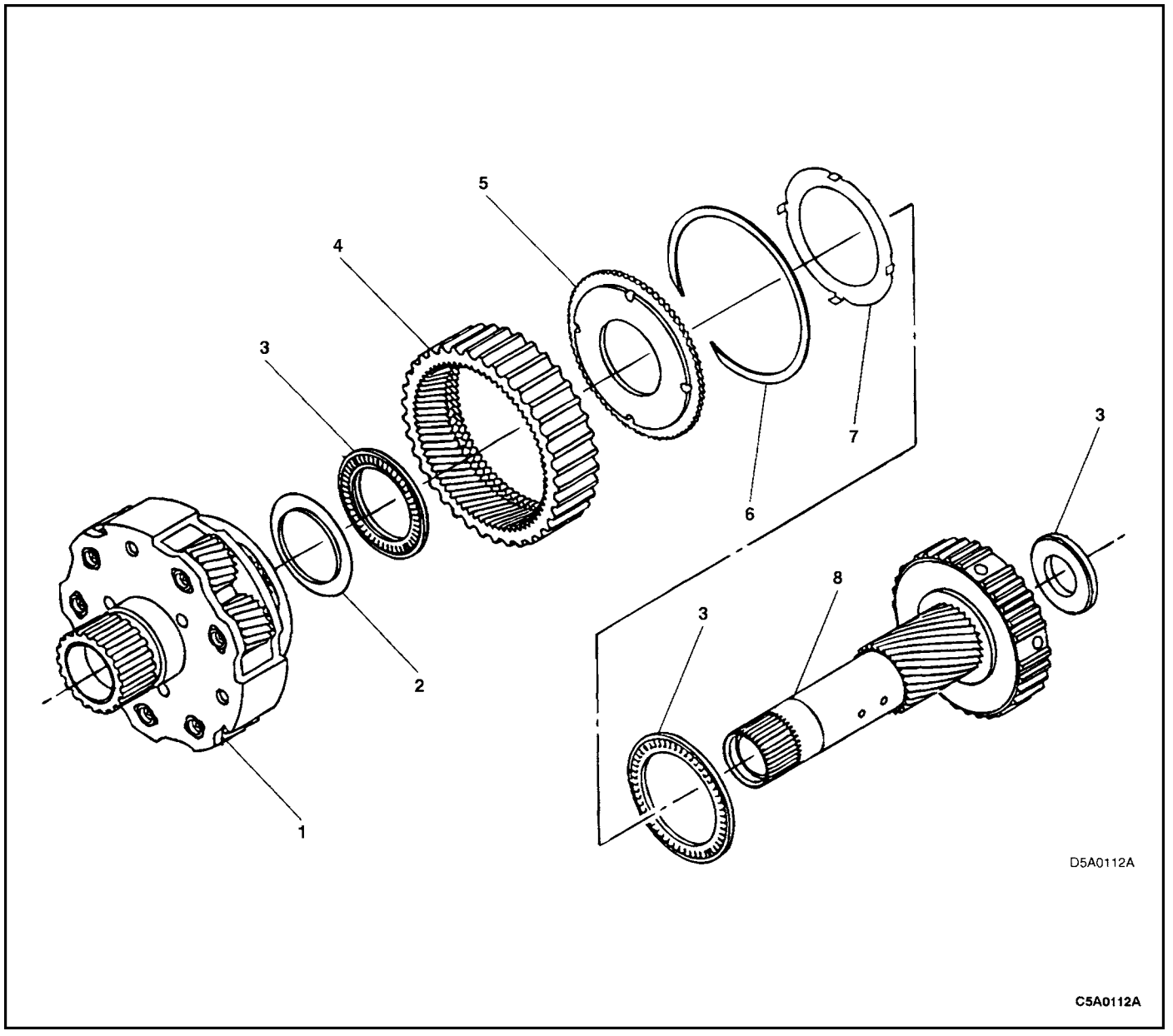
13. Check the direct clutch operation.
    - Install the forward and direct clutch assembly into the rear cover. Install a dial indicator.
    - Apply 57 psi (396 kPa) of compressed air into the oil passage and measure the direct clutch piston stroke. The piston stroke is 0.059–0.074 in (1.520–1.890 mm). The clutch should make a solid apply sound, with no whistle or sign of leaks.



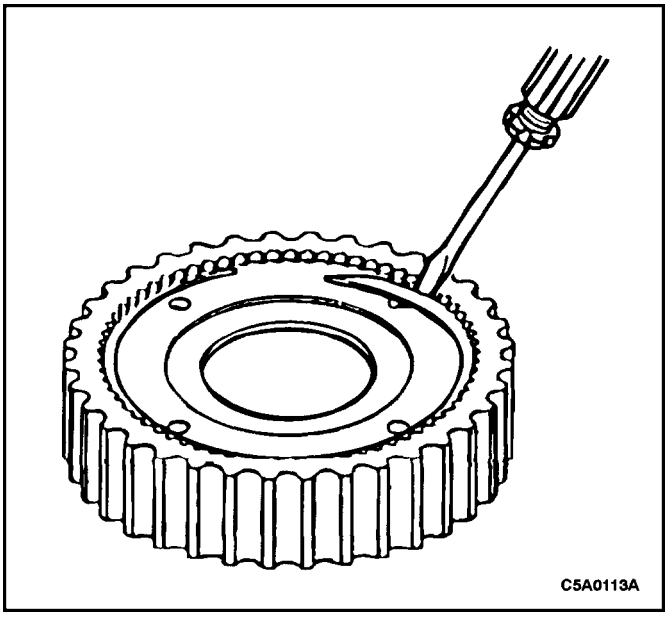
WARNING : USE CAUTION WHEN CHECKING COMPONENTS WITH COMPRESSED AIR OR PERSONAL INJURY MAY RESULT.

14. Check the forward clutch operation.
    - Install the forward and direct clutch assembly into the rear cover. Install a dial indicator.
    - Apply 57 psi (396 kPa) of compressed air into the oil passage and measure the direct clutch piston stroke. The piston stroke is 0.059–0.074 in (1.520–1.890 mm). The clutch should make a solid apply sound, with no whistle or sign of leaks.

PLANETARY GEAR AND PLANETARY SUN GEAR



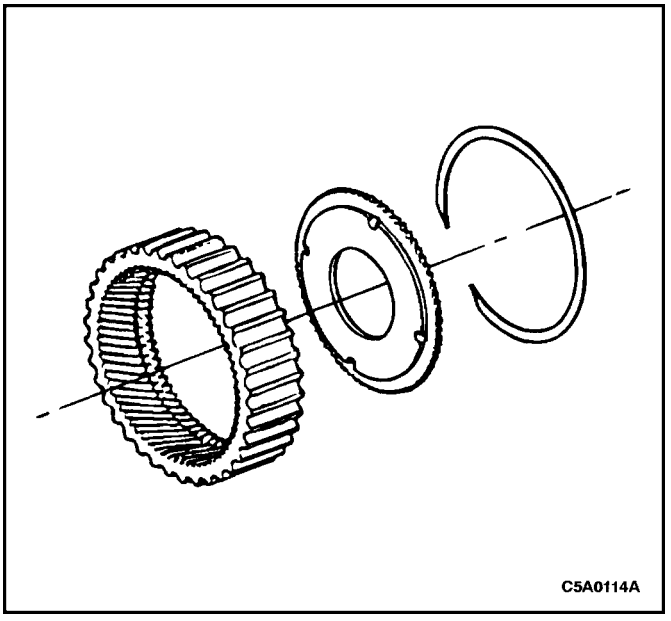
1. Planetary Gear Assembly
2. Thrust Bearing Race
3. Thrust Bearing
4. Rear Planetary Ring Gear
5. Rear Planetary Ring Gear Flange
6. Snap Ring
7. Thrust Bearing Race (Tabbed)
8. Planetary Sun Gear



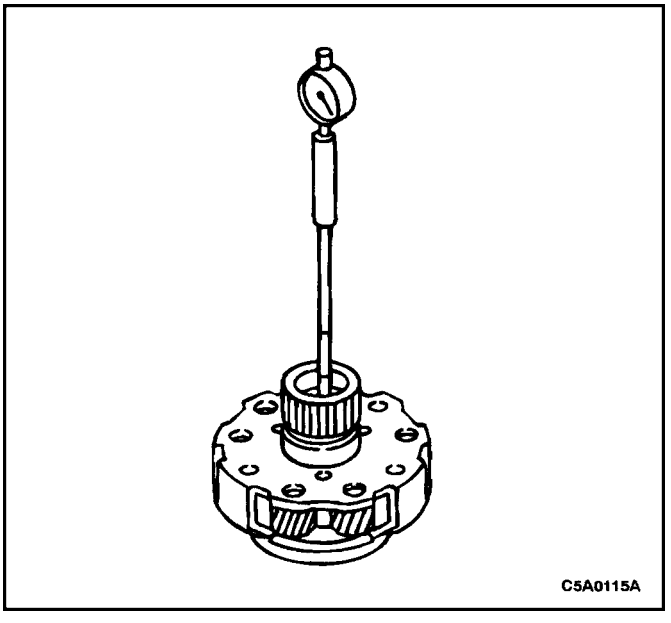
Disassembly Procedure

WARNING : USE CAUTION WHEN REMOVING SNAP RINGS OR PERSONAL INJURY MAY RESULT.

1. Carefully remove the snap ring.

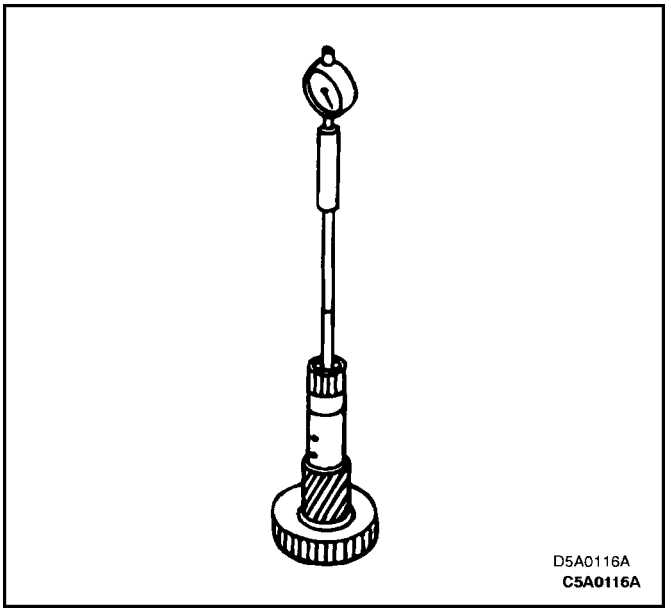


2. Remove the rear planetary ring gear flange.



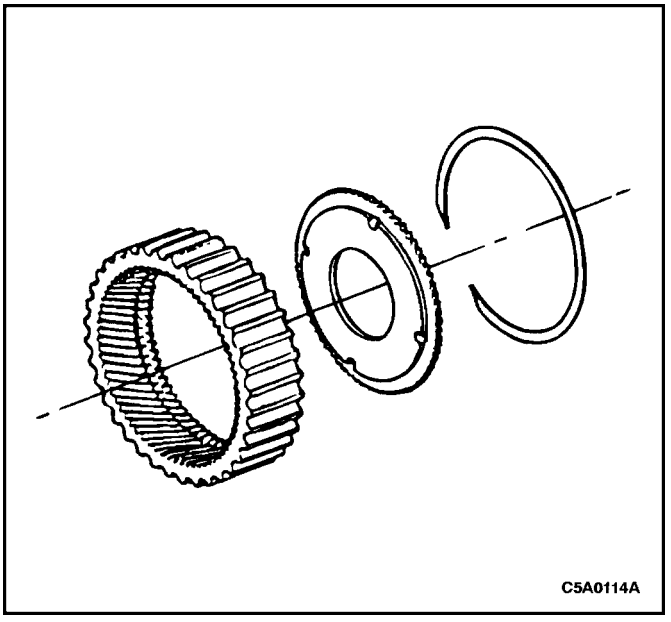
3. Inspect the planetary gear assembly.
   - Using a dial indicator, measure the inner diameter of the planetary gear bushing. Measure the bushing at three different places and calculate the average. If it is greater than the maximum, replace the planetary gear assembly.

Standard	1.181–1.182 in (30.00–30.030 mm)
Maximum	1.184 in (30.080 mm)


D5A0116A
C5A0116A

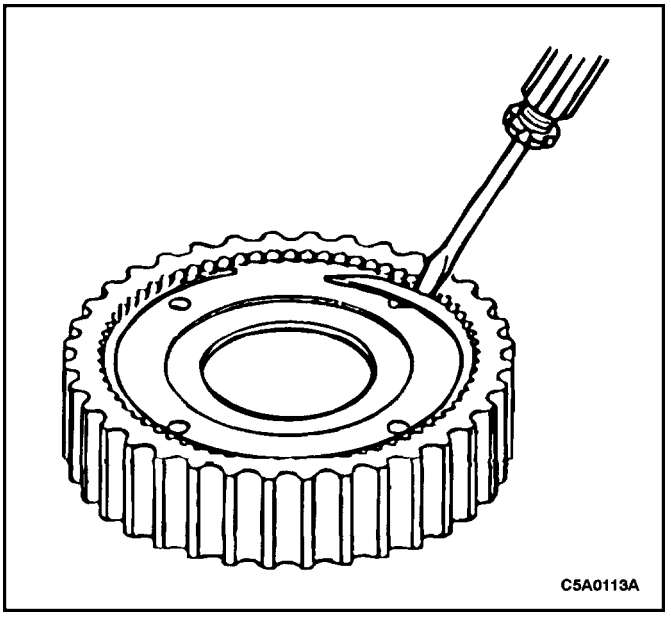
4. Inspect the planetary sun gear.
   - Using a dial indicator, measure the inner diameter of the planetary sun gear bushing. Measure the bushing at three different places and calculate the average. If it is greater than the maximum, replace the planetary sun gear.

Standard	0.846–0.847 in (21.50–21.530 mm)
Maximum	0.849 in (21.580 mm)


C5A0114A

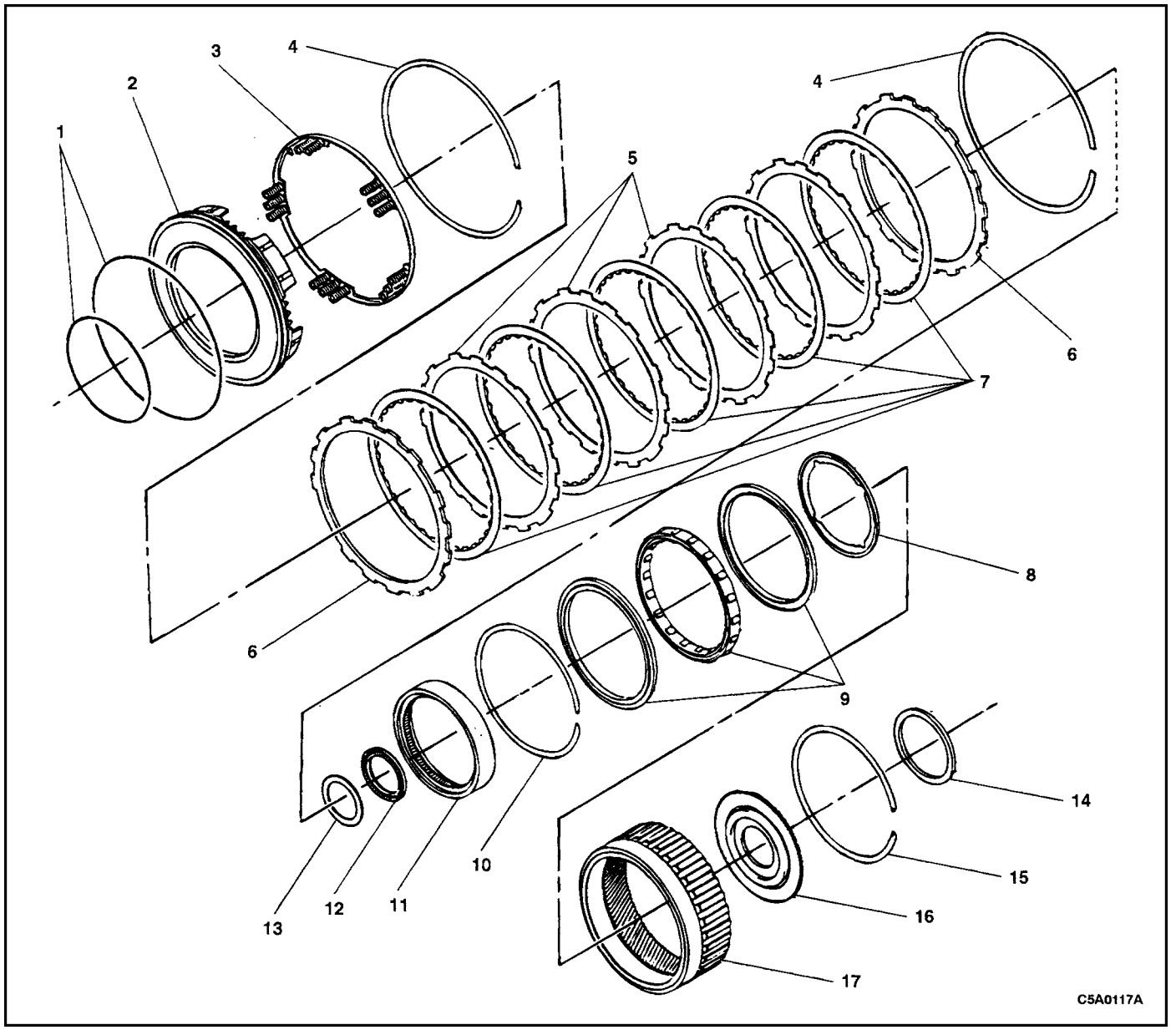
Assembly Procedure

1. Clean the components using a clean, high–quality parts cleaning solvent and use compressed air to dry all parts. Inspect all parts for damage or wear.
2. Install the rear planetary ring gear flange.

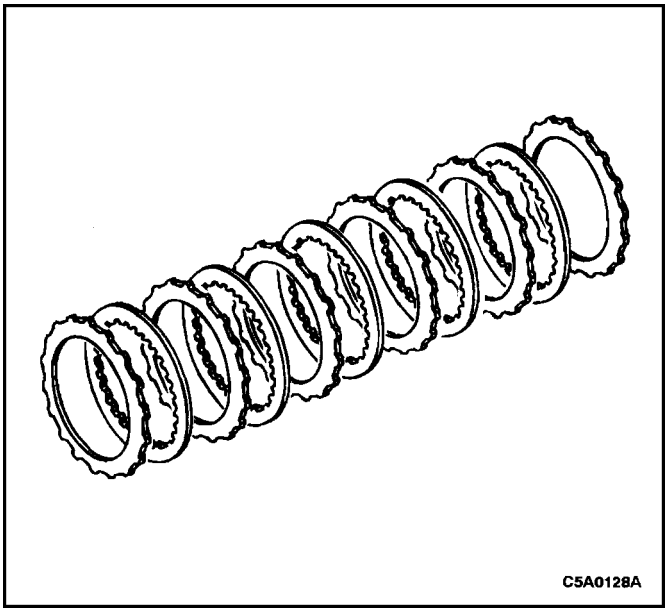

C5A0113A

3. Install the snap ring.

LOW/REVERSE BRAKE CLUTCH PISTON ASSEMBLY, FRONT PLANETARY RING GEAR AND ONE–WAY CLUTCH

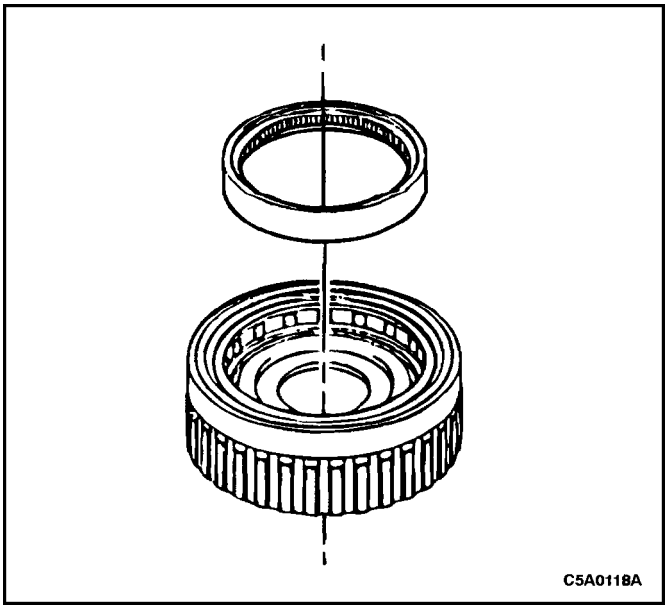


1. O–Ring
2. Low/Reverse Brake Piston
3. Brake Piston Return Spring
4. Snap Ring
5. Clutch Steel Plate
6. Clutch Pressure Plate
7. Clutch Friction Plate
8. Thrust Washer
9. One–Way Clutch
10. Snap Ring
11. One–Way Clutch Inner Race
12. Thrust Bearing
13. Thrust Bearing Race
14. Thrust Bearing
15. Snap Ring
16. Front Planetary Ring Gear Flange
17. Low/Reverse Planetary Ring Gear

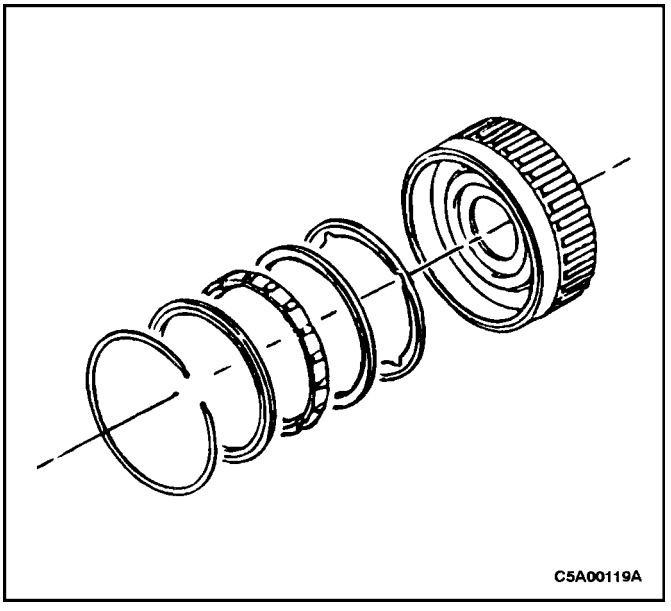

C5A0128A

Disassembly Procedure

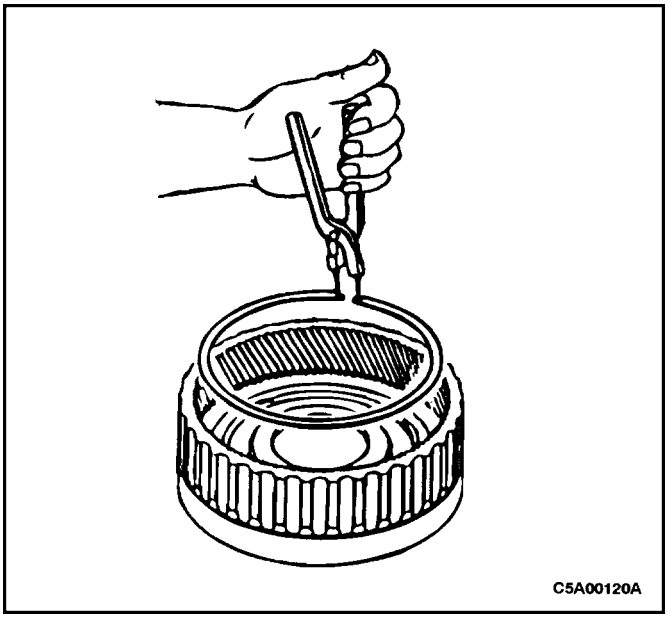
1. Remove the low/reverse clutch pack and the clutch pressure plates from the planetary ring gear.


C5A0118A

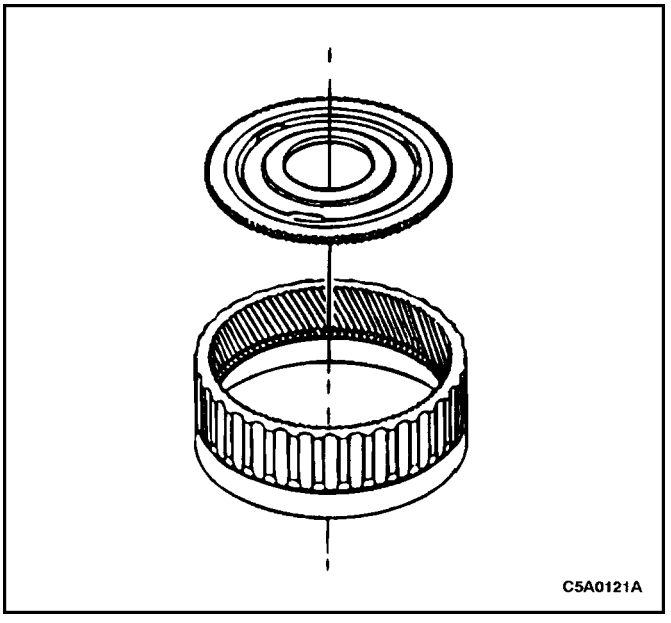
2. Remove the one–way clutch inner race.


C5A00119A

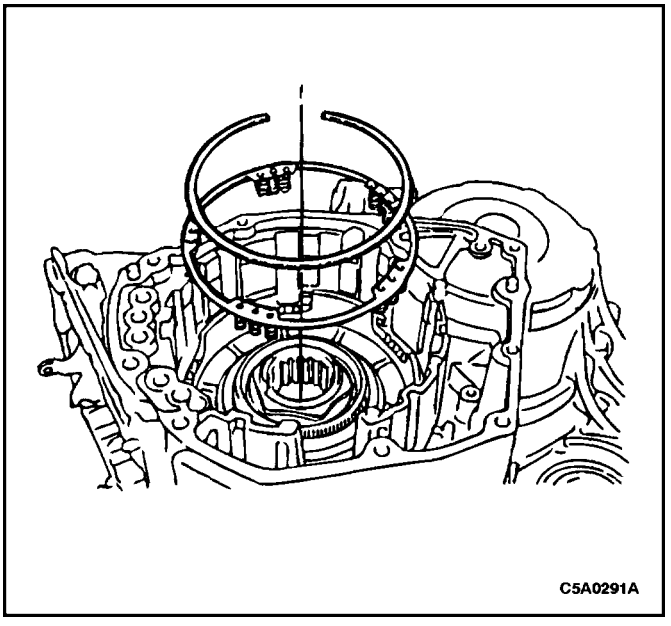
3. Remove the snap ring, one–way clutch and thrust washer.



4. Remove the snap ring.

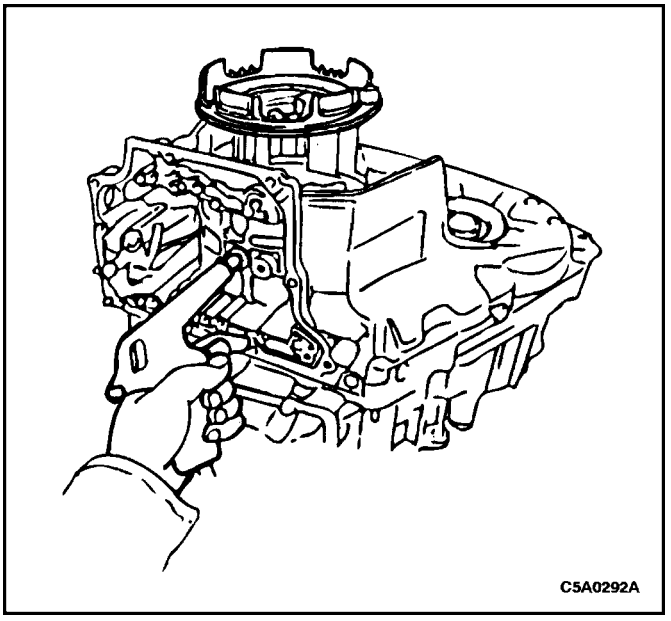


5. Remove the front planetary ring gear flange.



WARNING : USE CAUTION WHEN REMOVING SNAP RINGS OR PERSONAL INJURY MAY RESULT.

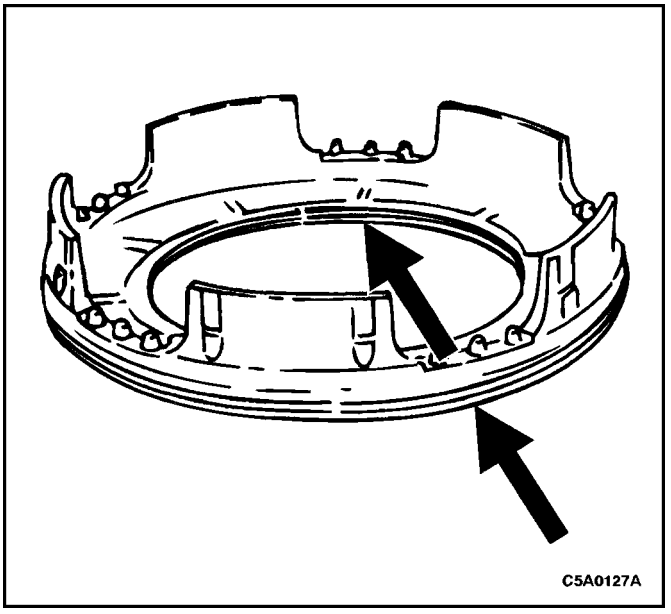
6. Remove the snap ring and the brake piston return spring.


C5A0292A

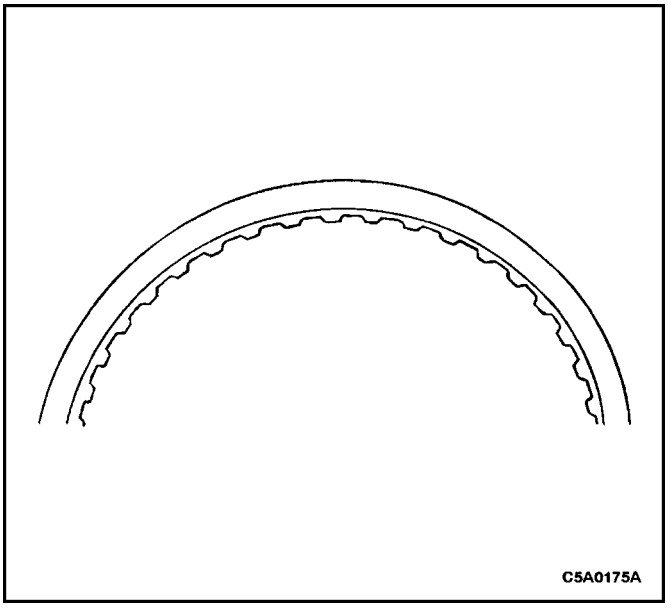
WARNING : USE CAUTION WHEN REMOVING COMPONENTS WITH COMPRESSED AIR OR PERSONAL INJURY MAY RESULT.

Notice : If the piston does not come out completely, use needlenose pliers to remove.

7. Apply 57 psi (396 kPa) of compressed air into the oil passage to remove the low/reverse brake piston.


C5A0127A

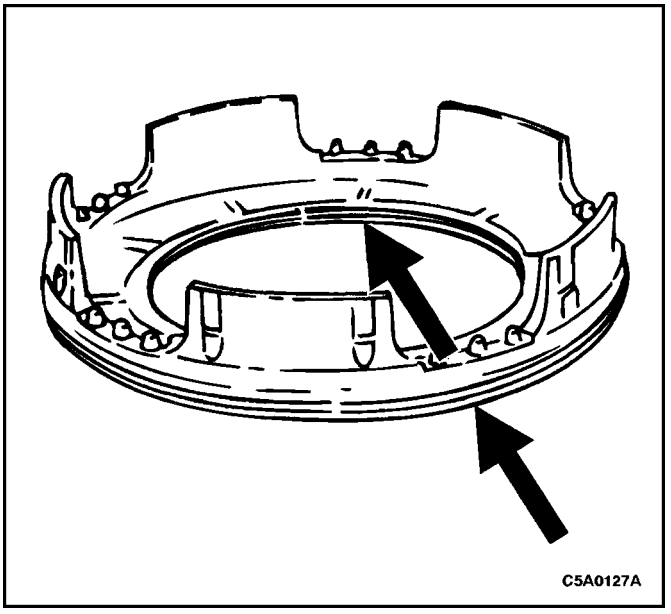
8. Remove and discard the low/reverse brake piston Orings.


C5A0175A

Notice : Check the steel and friction plates for wear or damage. Replace as necessary.

Notice : New clutch plates should be soaked in Texaco 1854 automatic transmission fluid for two hours before being assembled.

9. Inspect the clutch steel and friction plate surfaces.


C5A0127A

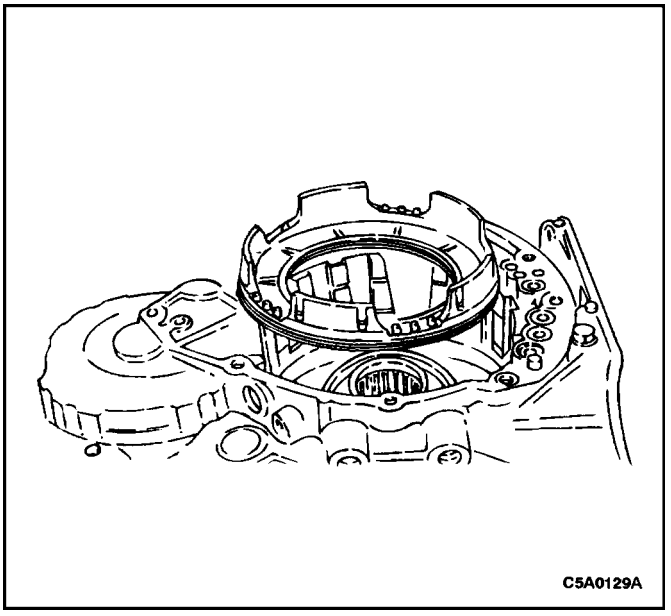
Assembly Procedure

Notice : Inspect the transaxle case for damage or wear.

Notice : Inspect all parts for damage or wear.

Notice : Check the low/reverse clutch piston and transaxle case seal area for burrs or damage.

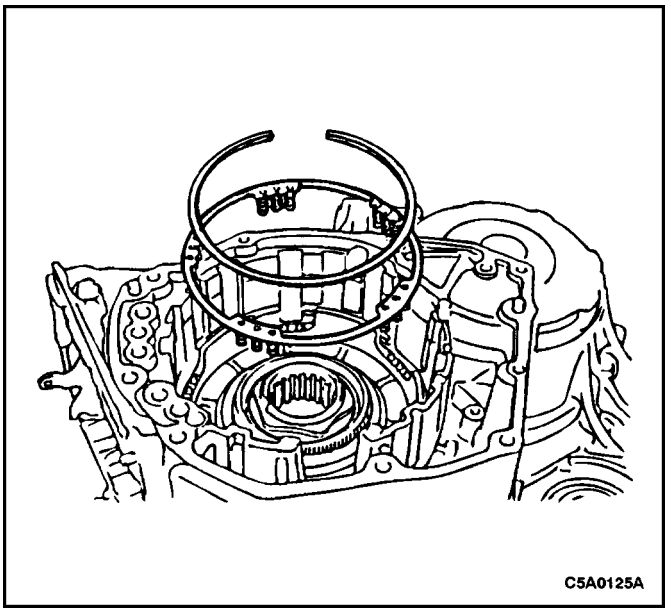
1. Clean the components using a clean, high–quality parts cleaning solvent and use compressed air to dry all parts and clean the fluid passages.
2. Install new low/reverse brake piston O–rings.


C5A0129A

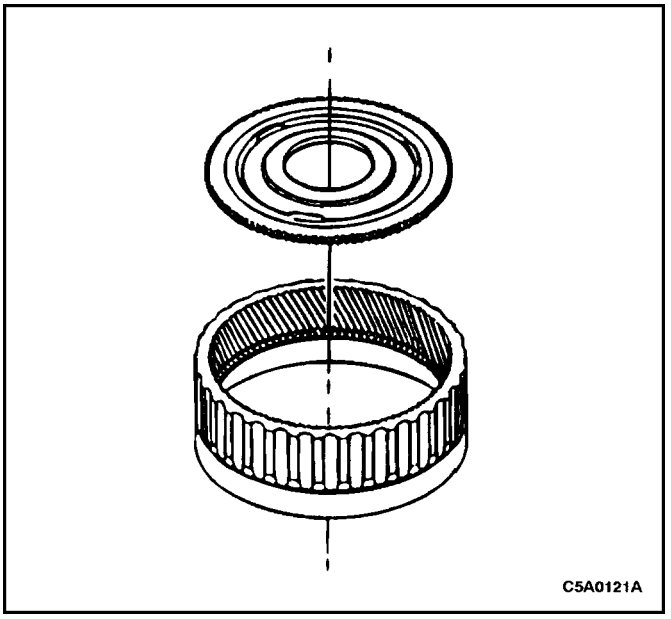
Notice : Apply Texaco 1854 automatic transmission fluid to the new low/reverse brake piston O–rings and the transaxle seal area.

Notice : Seat the piston by pushing evenly around the circumference of the piston, being careful not to damage the outer seal.

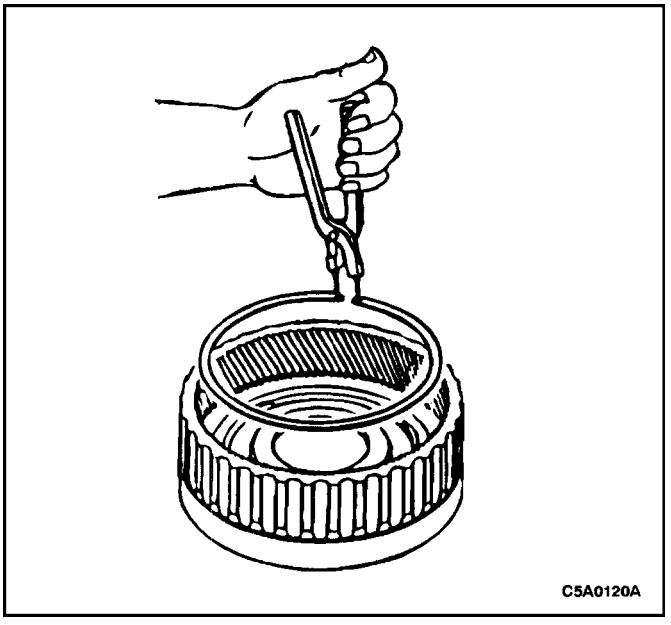
3. Install the low/reverse brake piston into the case.


C5A0125A

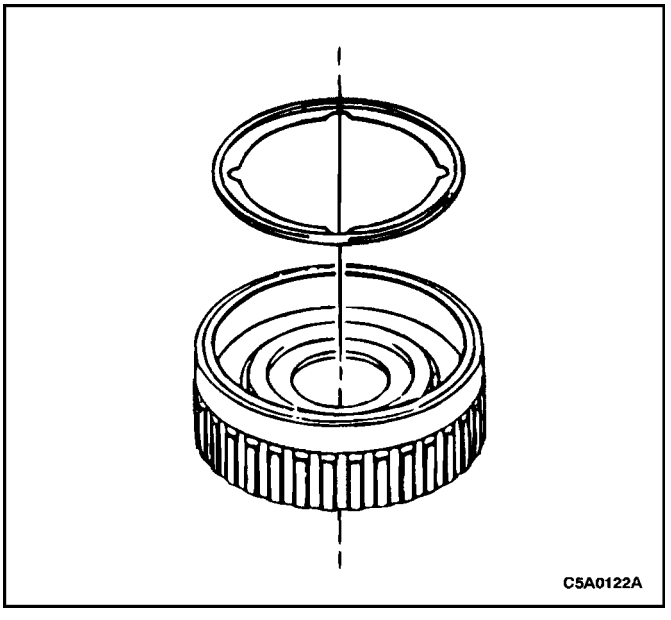
4. Install the brake piston return spring and snap ring into the case.
   - Compress the brake piston return spring by hand and install the snap ring into the groove with a screwdriver.
   - Be sure the end gap of the snap ring is not aligned with one of the case cutouts.



5. Install the front planetary ring gear flange.

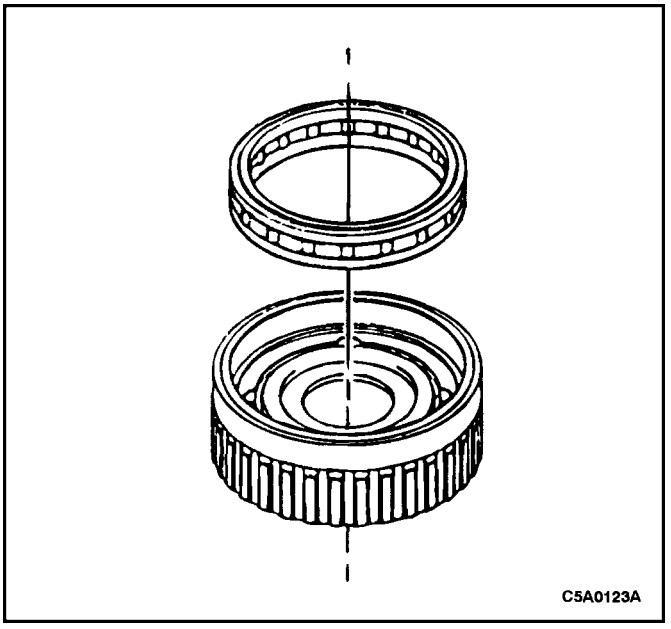


6. Install the snap ring.



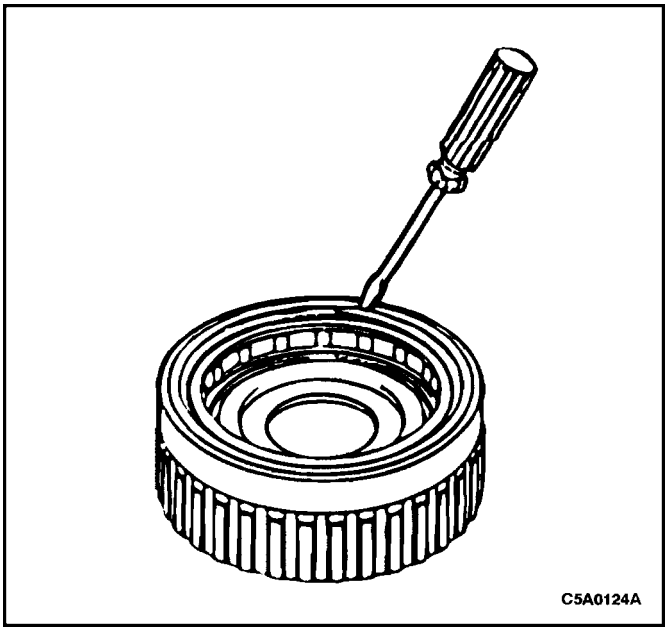
Notice : Install the flat surface of the thrust washer toward the flange.

7. Install the thrust washer.

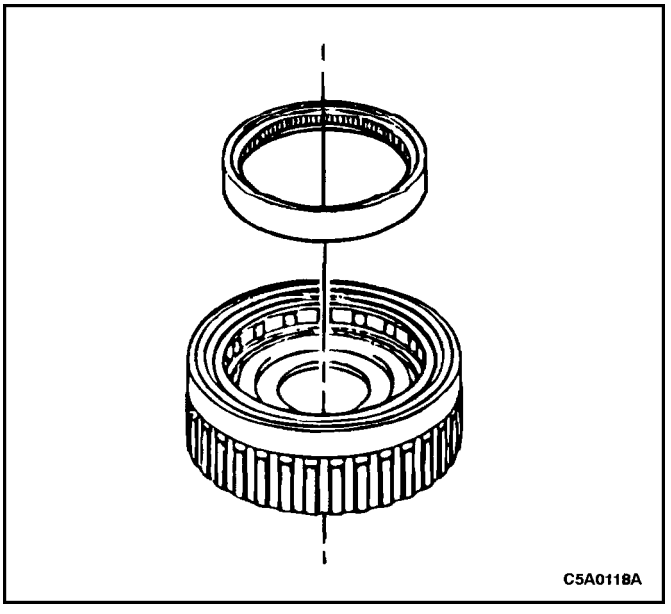

C5A0123A

Notice : Apply TOTAL FLUID HX to the one–way clutch.

8. Install the one–way clutch.


C5A0124A

9. Install the snap ring.


C5A0118A

Notice : Apply Texaco 1854 automatic transmission fluid to the one–way clutch inner race.

10. Install the one–way clutch inner race.
11. Verify the operation of the one–way clutch. While holding the front ring gear, verify that the inner race rotates smoothly when turned counterclockwise and locks when turned clockwise.