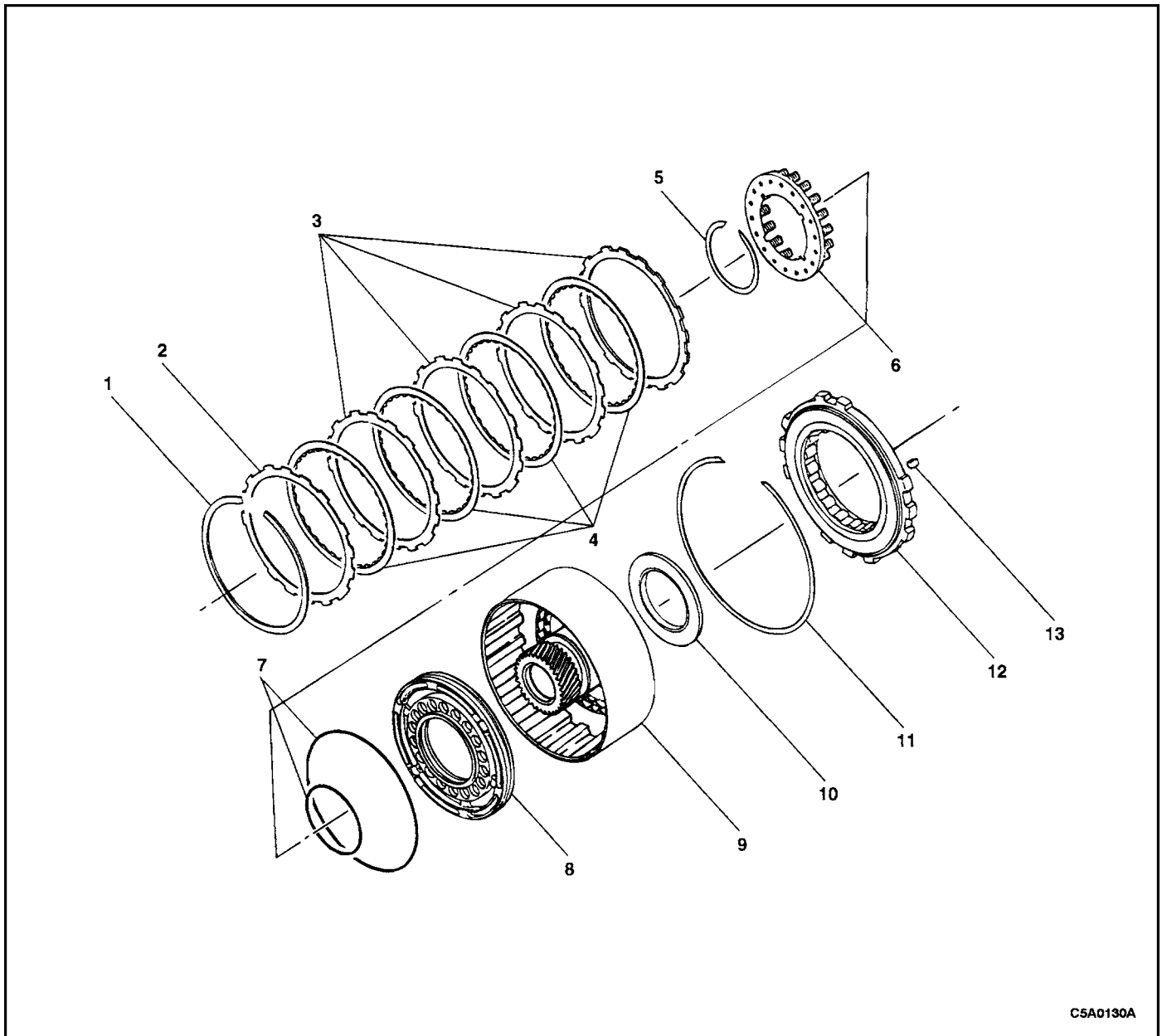
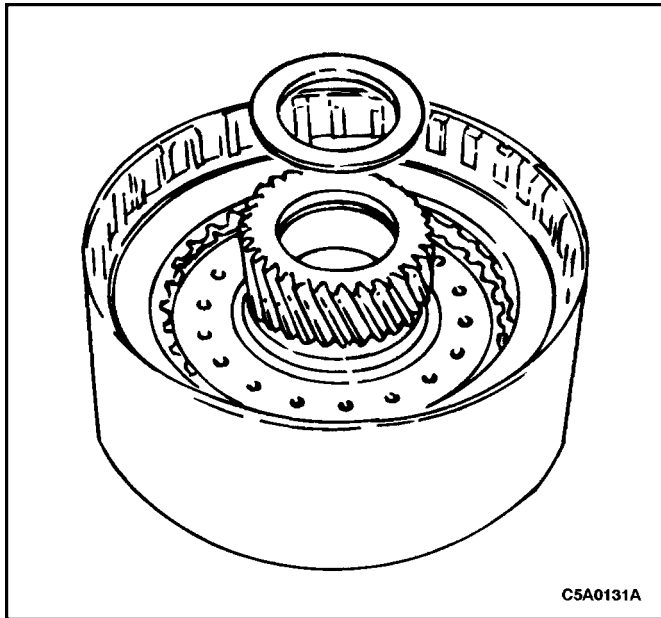


UNDERDRIVE CLUTCH



C5A0130A

- | | |
|--------------------------------|-------------------------------|
| 1. Snap Ring | 8. Underdrive Clutch Piston |
| 2. Clutch Pressure Plate | 9. Underdrive Drum |
| 3. Clutch Steel Plates | 10. Thrust Bearing |
| 4. Clutch Friction Plates | 11. Snap Ring |
| 5. Shaft Snap Ring | 12. Underdrive One-Way Clutch |
| 6. Clutch Piston Return Spring | 13. Outer Race Retainer |
| 7. O-Rings | |

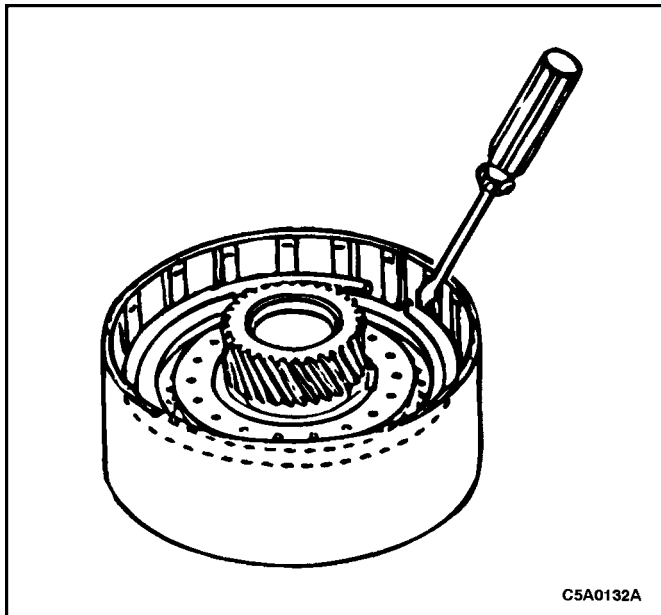


Tools Required

KM-698 Spring Compressor

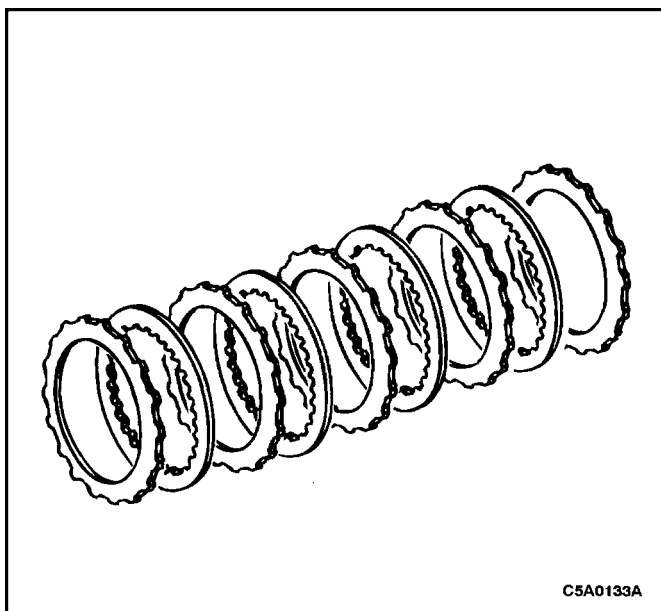
Disassembly Procedure

1. Remove the thrust washer.

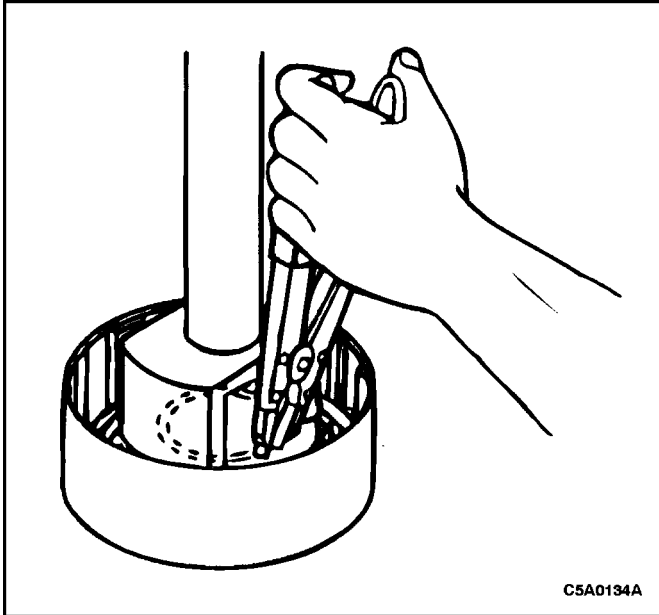


WARNING : USE CAUTION WHEN REMOVING SNAP RINGS OR PERSONAL INJURY MAY RESULT.

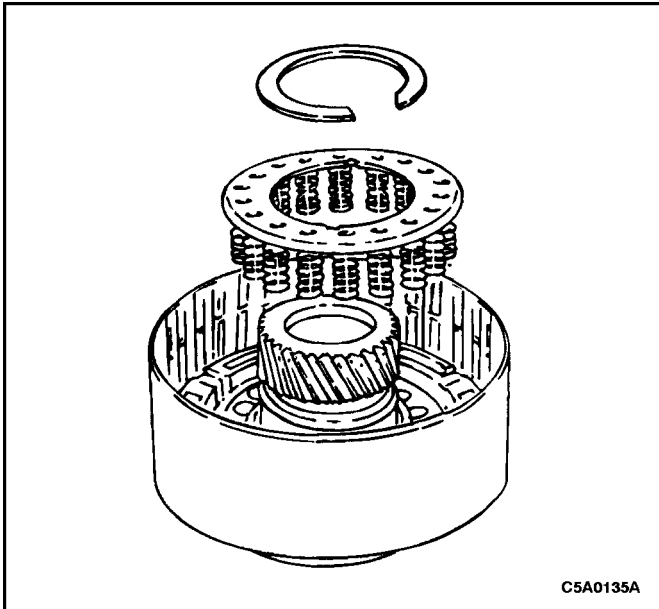
2. Carefully remove the snap ring.



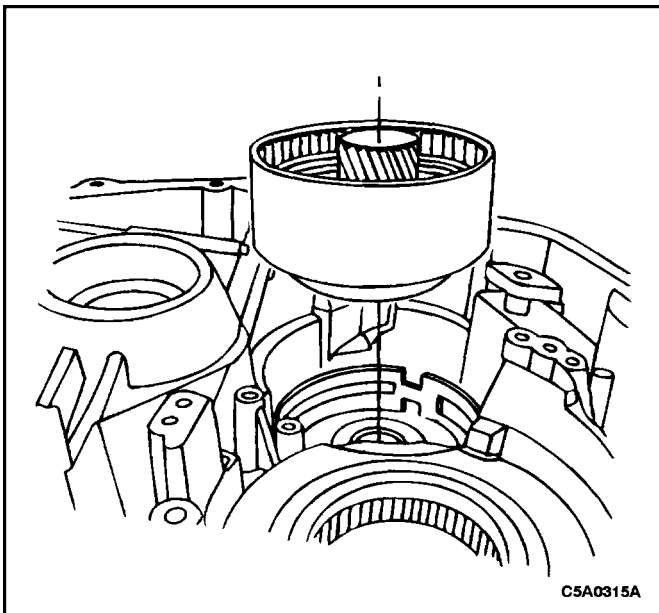
3. Remove the underdrive clutch pack.



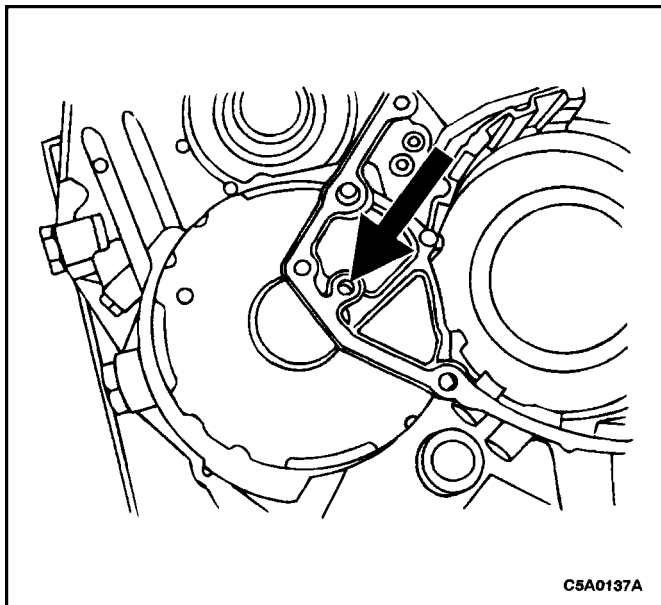
4. Position spring compressor KM-698 on the clutch piston return spring. Using a press, compress the springs, then remove the snap ring from the groove.



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



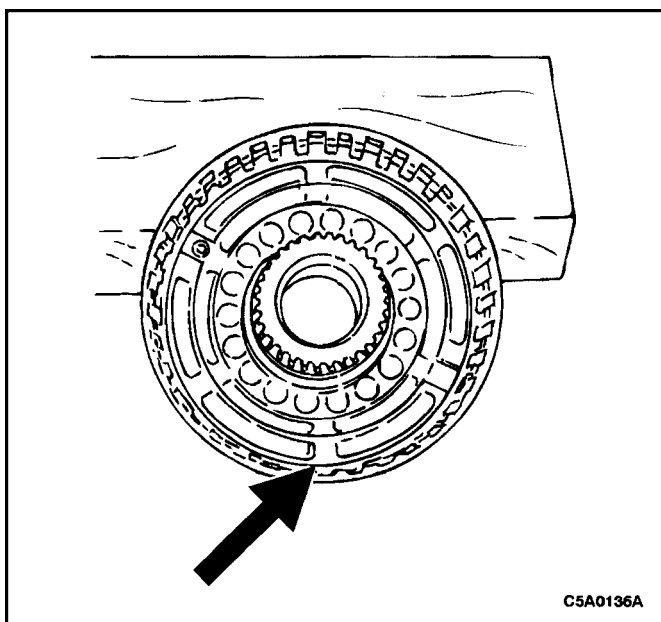
6. Install the underdrive drum into the transaxle case.



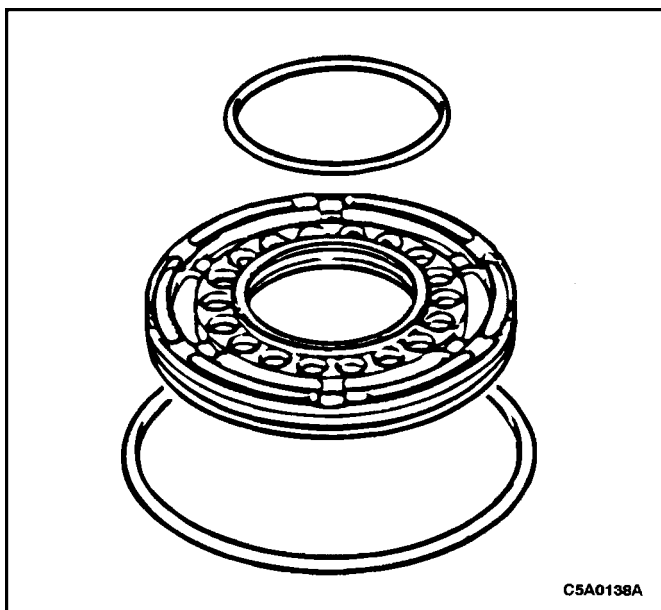
WARNING : USE CAUTION WHEN REMOVING COMPONENTS WITH COMPRESSED AIR OR PERSONAL INJURY MAY RESULT.

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

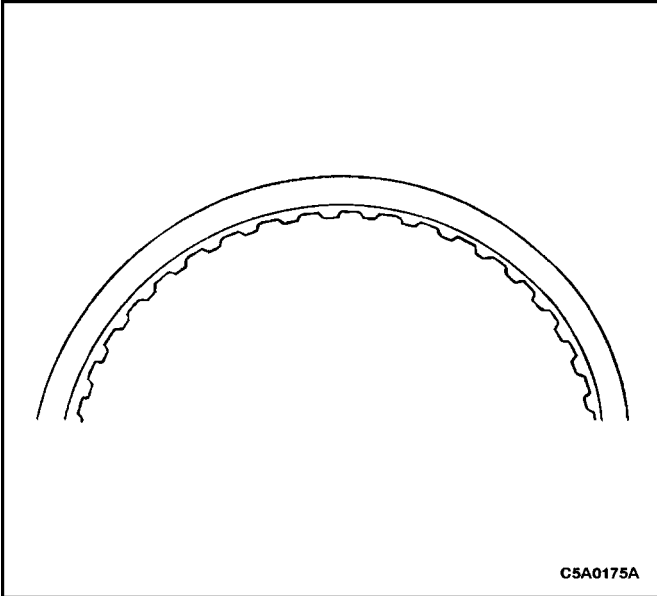
7. Apply 57 psi (396 kPa) of compressed air into the oil passage to remove the underdrive clutch piston.



8. Remove the underdrive clutch piston.



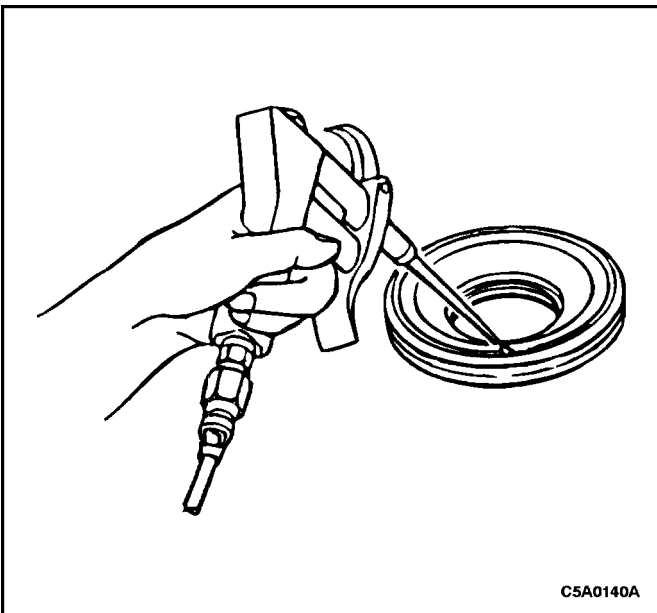
9. Remove and discard the underdrive clutch piston O-rings.



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.

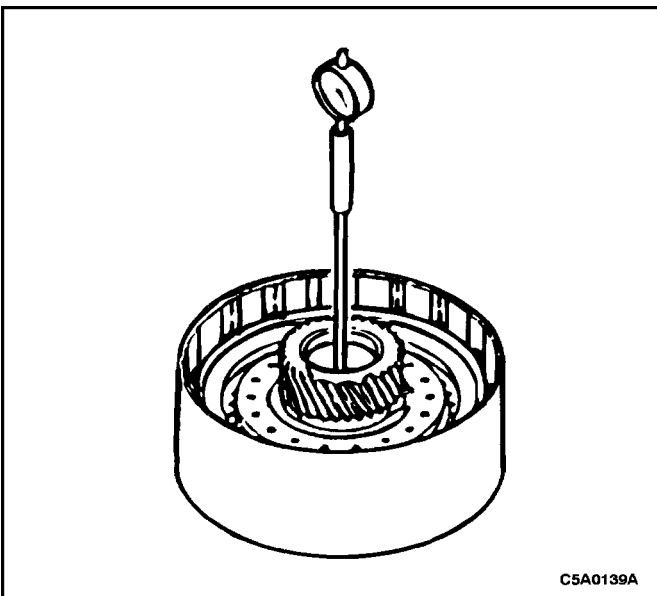
10. Inspect the clutch steel and friction plate surfaces.



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

11. Inspect the underdrive clutch piston.

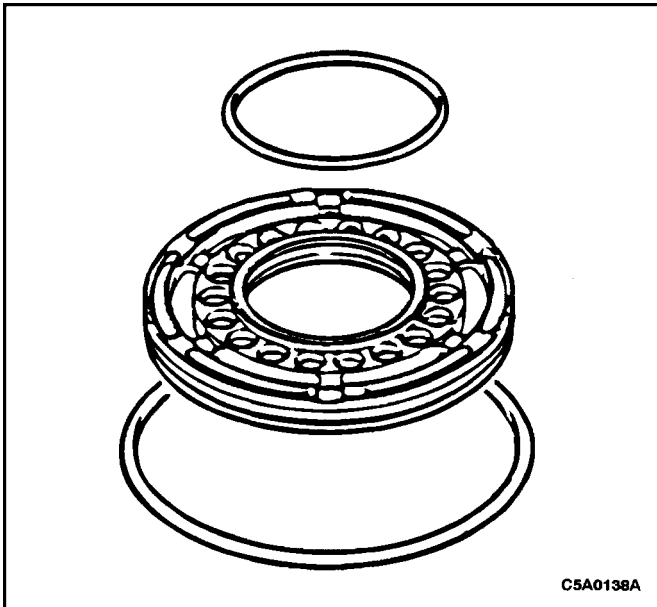
- Check that the valve does not leak by applying low-pressure compressed air.



12. Inspect the underdrive drum.

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

	Standard	Maximum
Front	1.122–1.123 in (28.5–28.525 mm)	1.124 in (28.570 mm)
Rear	1.122–1.123 in (28.5–28.525 mm)	1.124 in (28.570 mm)



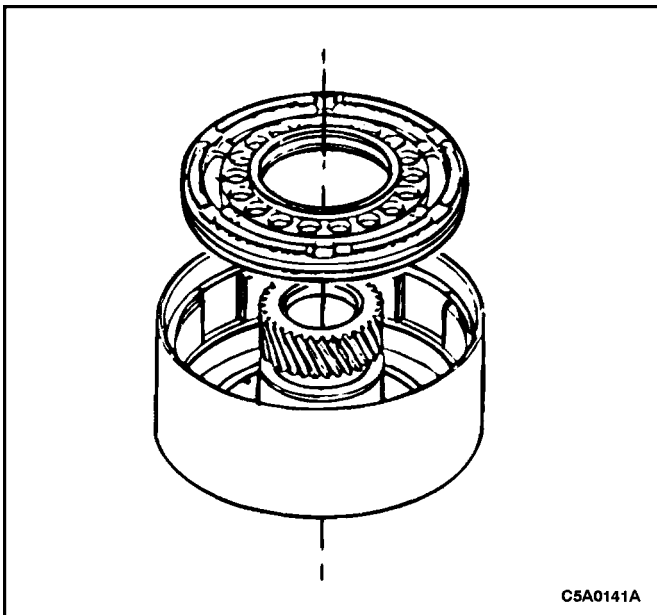
Assembly Procedure

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 underdrive clutch piston O-rings.

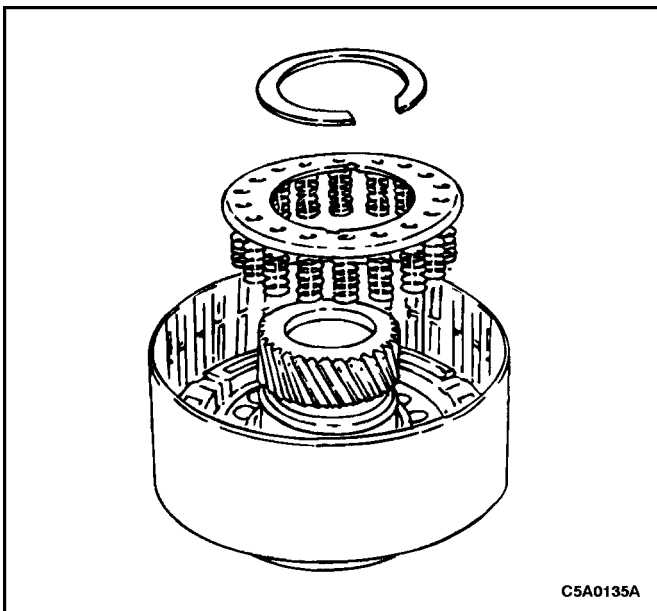
Notice : Apply Texaco 1854 automatic transmission fluid to the new underdrive clutch piston O-rings and the drum seal area.

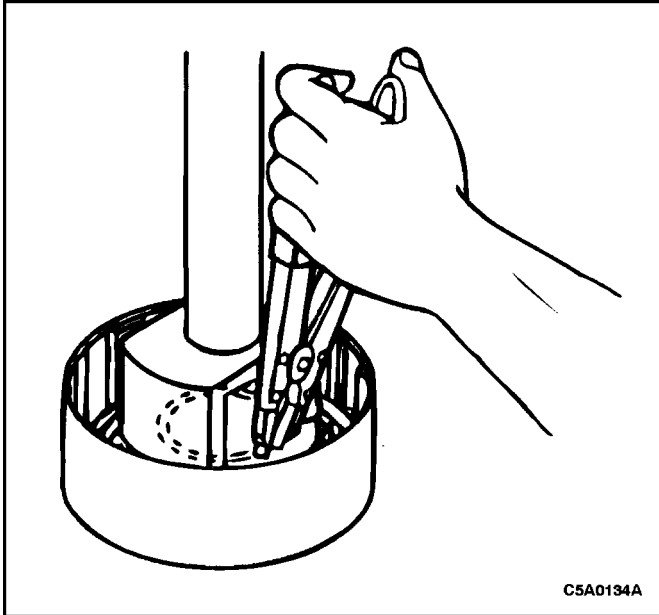
Notice : Seat the piston by pushing evenly around the circumference of the piston, being careful not to damage the outer seal.

3. Install the underdrive clutch piston into the under-drive drum.

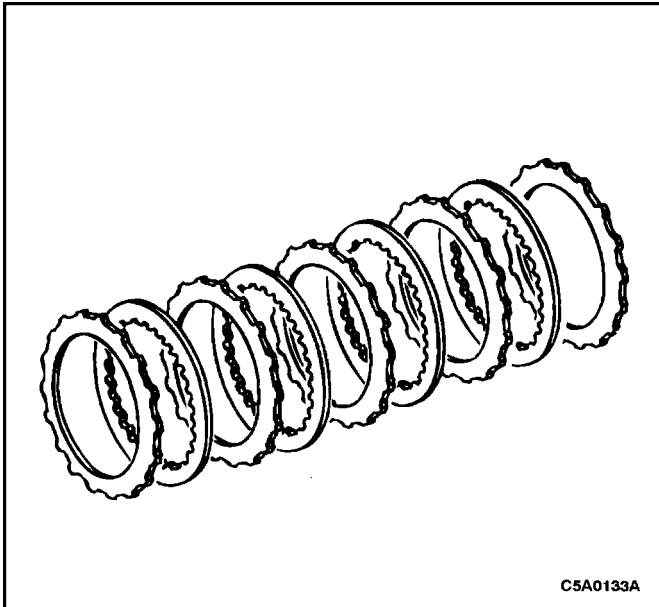


4. Install the clutch piston return spring on the under-drive piston.

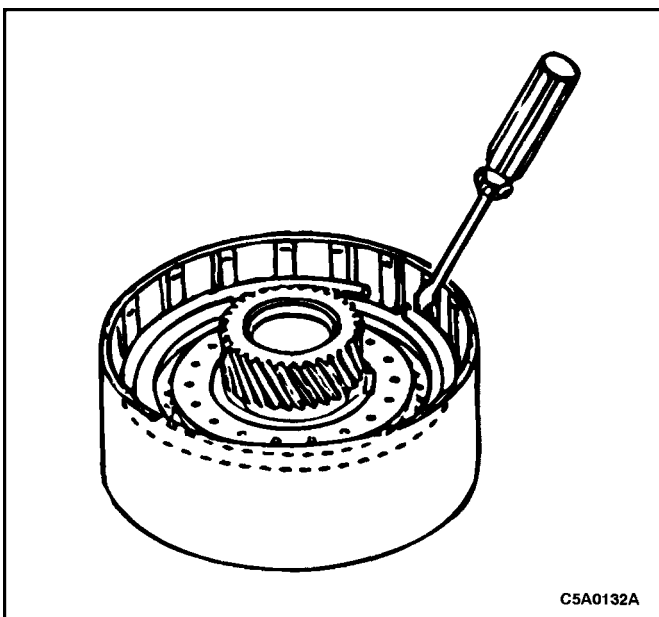




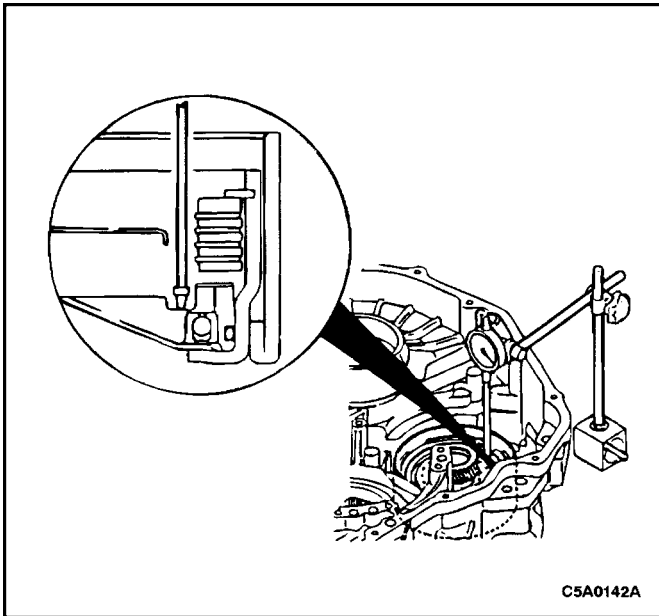
5. Position spring compressor KM-698 on the clutch piston return spring. Using a press, compress the springs, then install the snap ring into the groove.



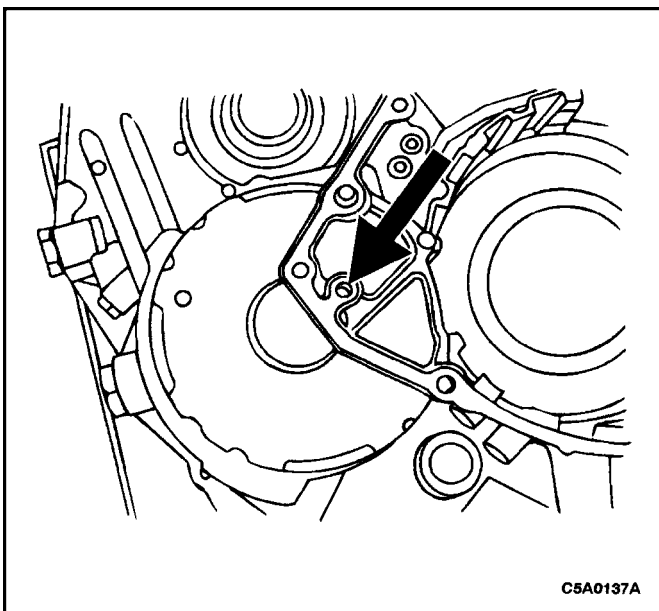
6. Install the underdrive clutch pack and the clutch pressure plate.
 - The installation order is: steel-friction-steel-friction- steel-friction-steel-friction
 - Install the pressure plate with the flat end facing upward.



7. Install the snap ring into the groove.

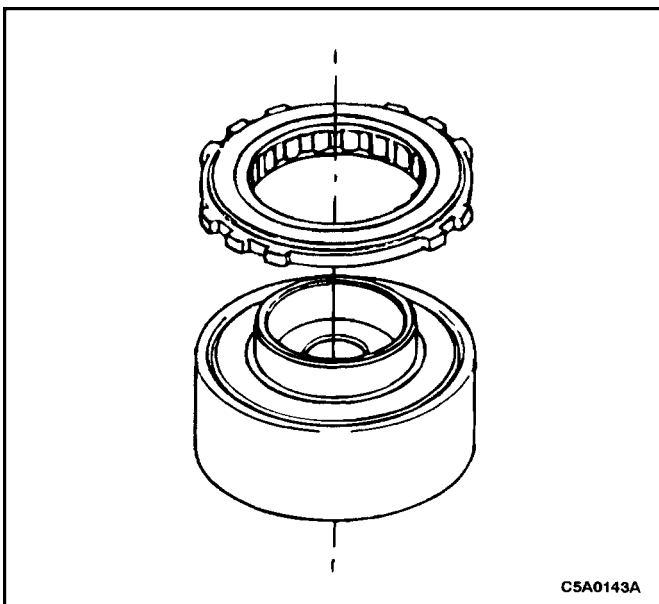


8. Check the underdrive clutch operation.
 - Install the underdrive clutch assembly into the transaxle case.
 - Install a dial indicator.

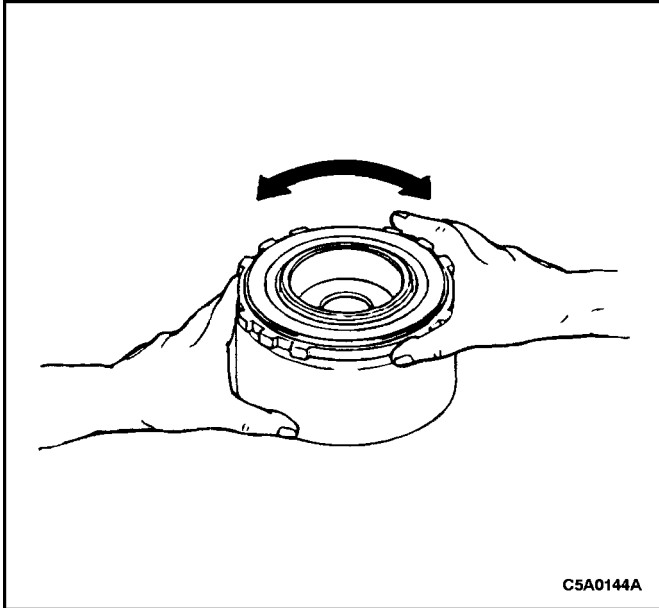


WARNING : USE CAUTION WHEN CHECKING COMPONENTS WITH COMPRESSED AIR OR PERSONAL INJURY MAY RESULT.

9. Apply 57 psi (396 kPa) of compressed air into the oil passage shown. Measure the underdrive clutch piston stroke.
 - The piston stroke is .060–.074 in (1.52–1.890 mm). The clutch should make a solid apply sound, with no whistle or sign of leaks.

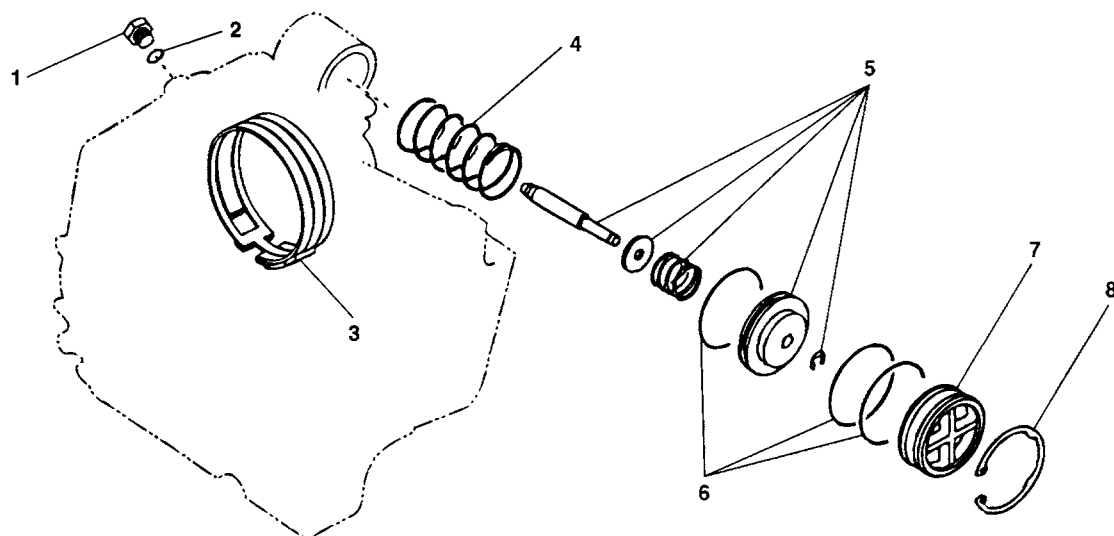


10. Install the one-way clutch onto the underdrive clutch drum.



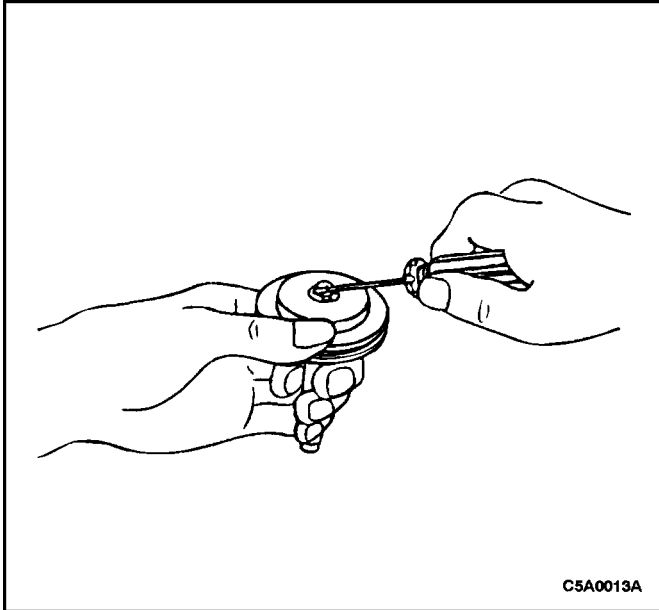
11. Verify the operation of the one-way clutch. While holding the outer race, turn the underdrive clutch. The underdrive clutch should rotate smoothly when turned counterclockwise and locks when turned clockwise.

UNDERDRIVE BRAKE



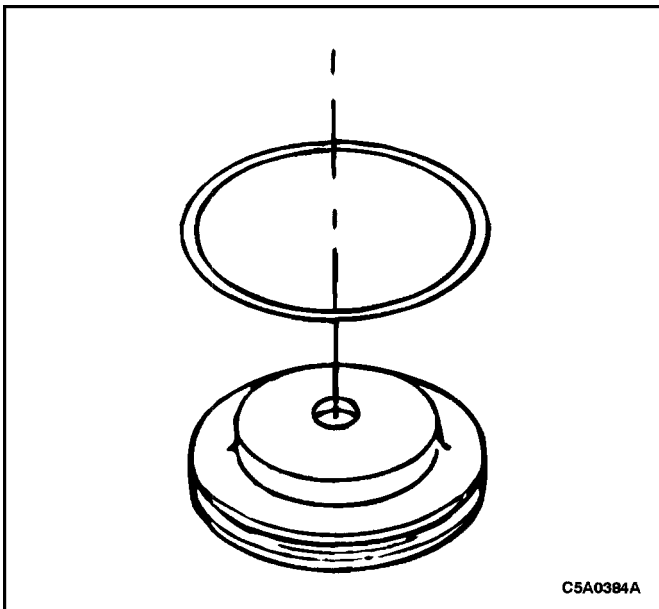
C5A0012A

- | | |
|---------------------------------|----------------------------|
| 1. Underdrive Brake Bolt | 5. Underdrive Brake Piston |
| 2. Underdrive Brake Bolt O-Ring | 6. O-Rings |
| 3. Underdrive Brake Band | 7. Underdrive Brake Cover |
| 4. Underdrive Brake Spring | 8. Snap Ring |

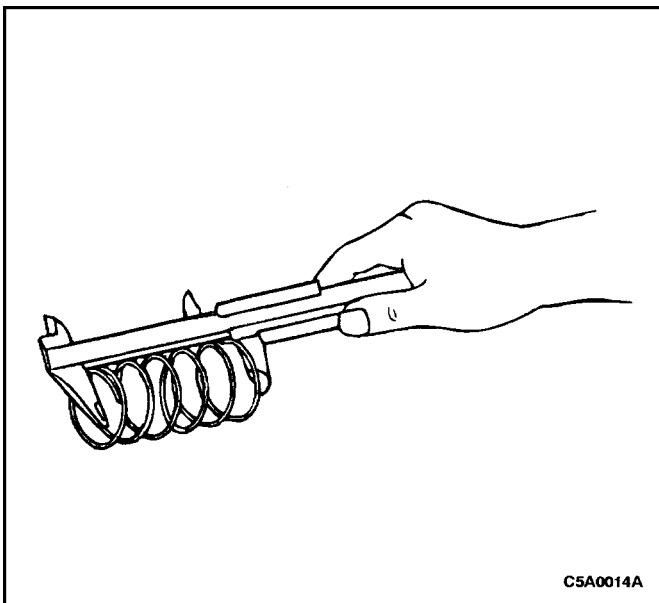


Disassembly Procedure

1. Remove and discard the snap ring from the underdrive brake piston assembly. Separate the spring, washer and piston rod.

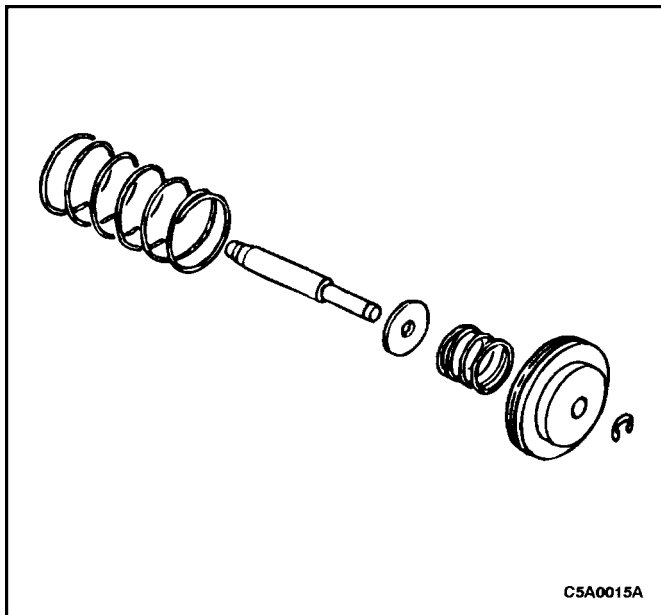


2. Remove and discard the underdrive brake piston O-ring.



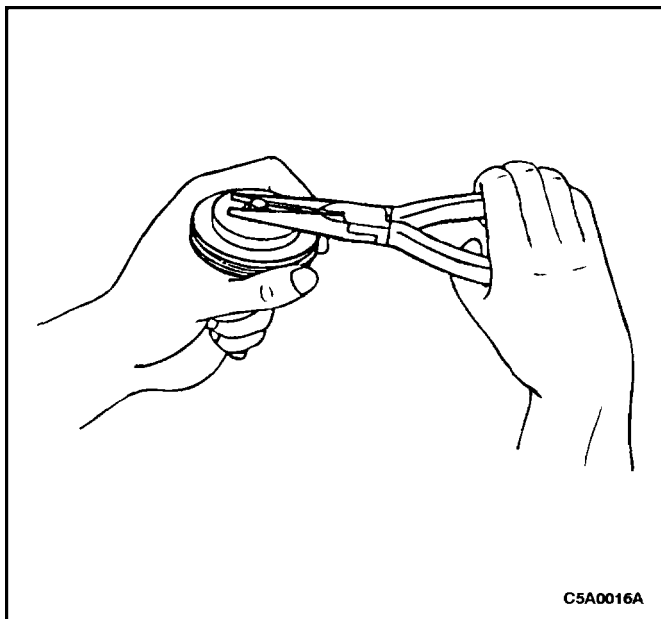
3. Inspect the underdrive brake spring.
 - Using vernier calipers, measure the free length and outer diameter of the spring. If it does not meet specifications, replace it.

	Free length	Outer Diameter
Inner	0.68 in (17.500 mm)	0.77 in (19.500 mm)
Outer	2.49 in (63.200 mm)	1.17 in (29.700 mm)



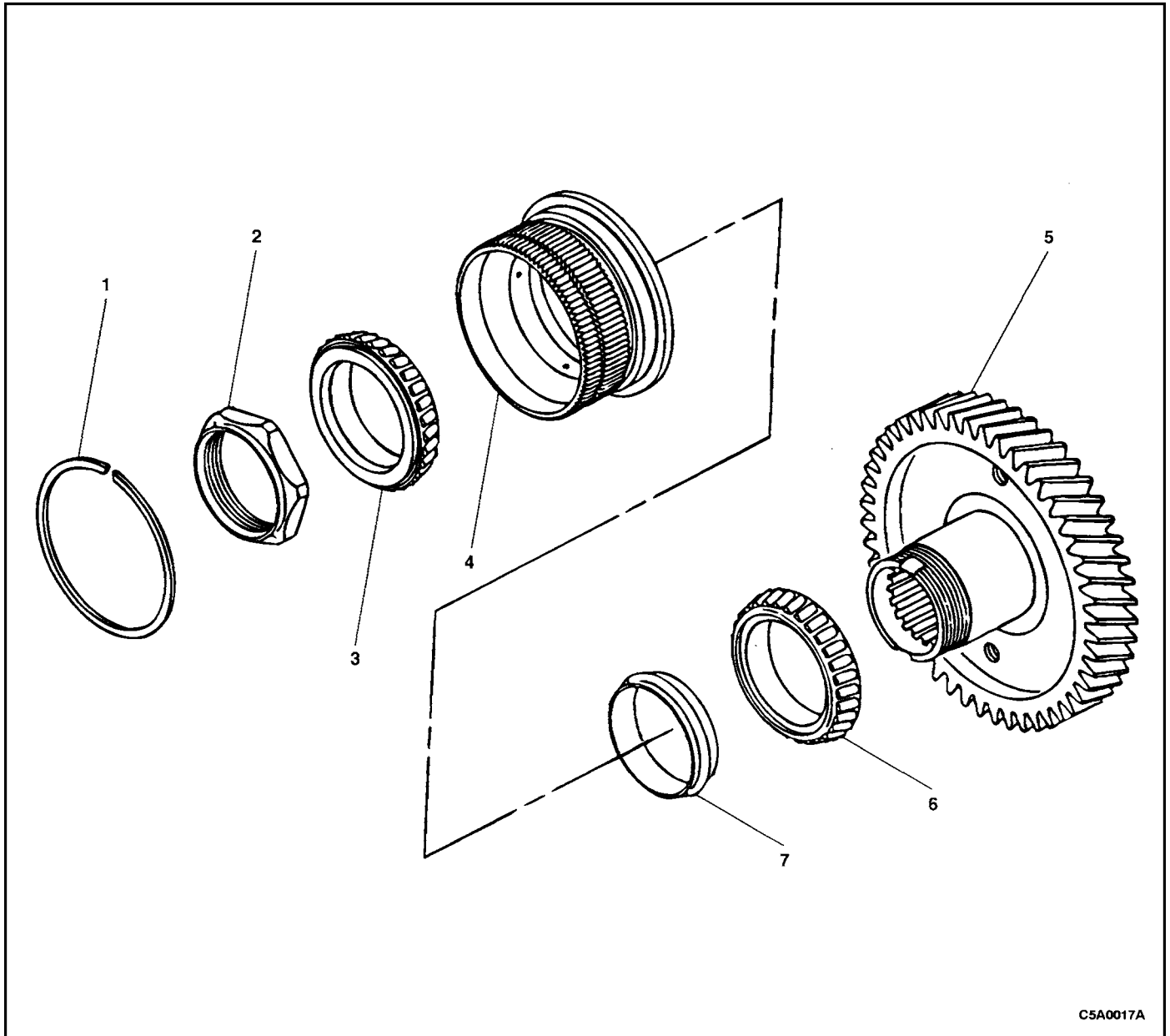
Assembly Procedure

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. Assemble the piston rod, washer and compression spring to the piston.



3. Install a new snap ring.

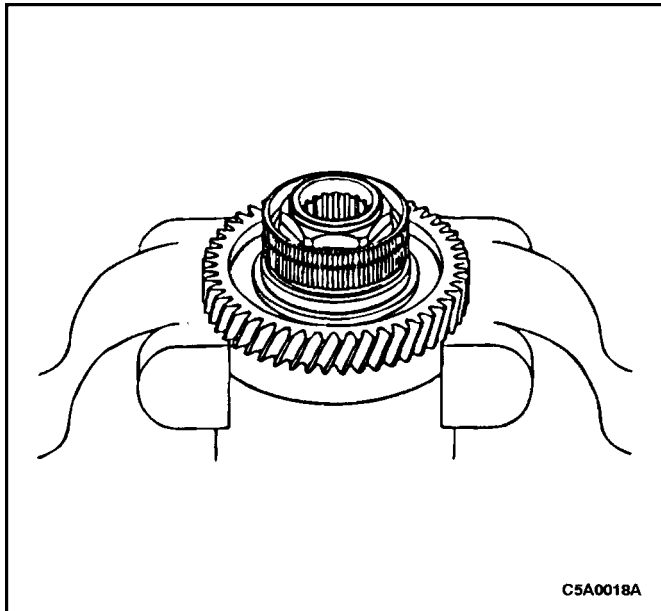
COUNTER DRIVE GEAR



C5A0017A

1. Snap Ring (Tapered)
2. locknut
3. Bearing
4. Bearing race

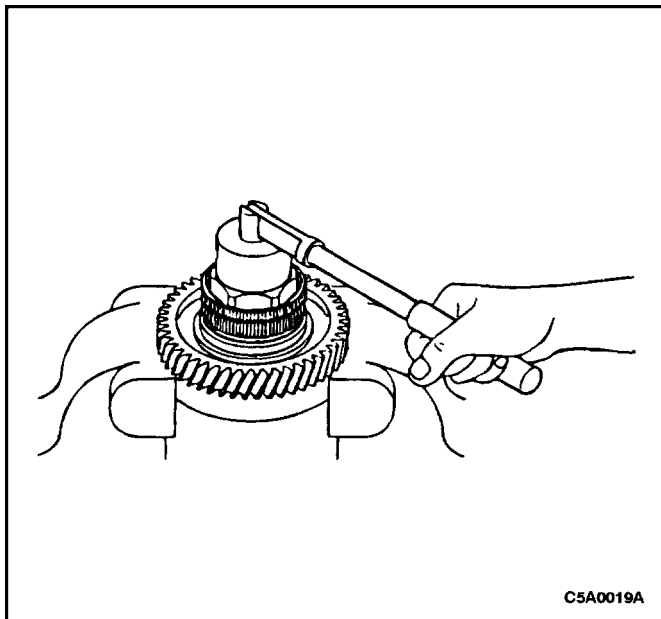
5. Counter Drive Gear
6. Bearing
7. Spacer
8. Snap Ring



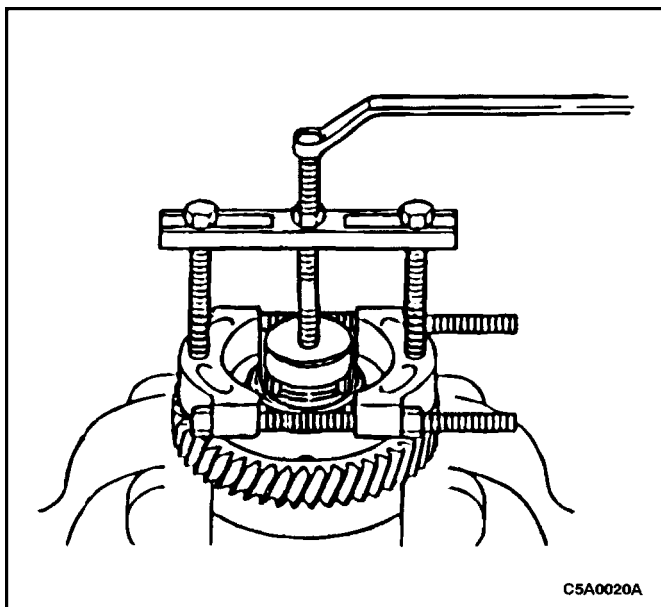
Disassembly Procedure

CAUTION : Use wood blocks or a brass jaw vise to prevent damage to the counter drive gear.

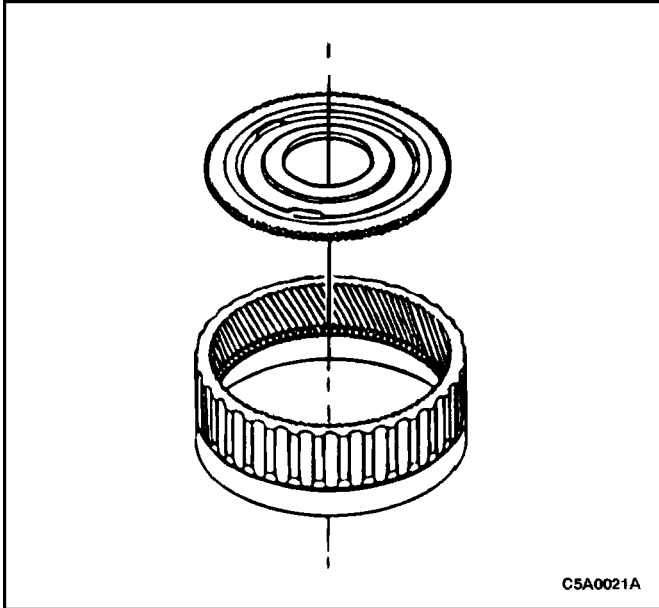
1. Install the counter drive gear into a vise.



2. Remove and discard the locknut.

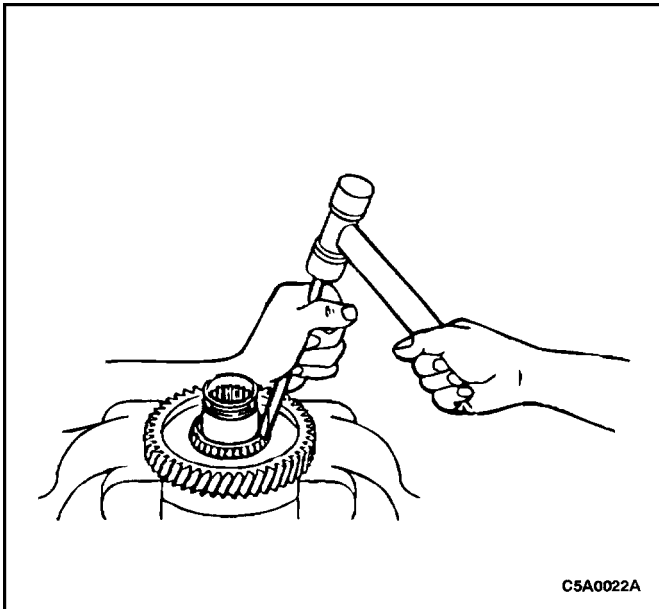


3. Using a suitable bearing puller, remove the bearing.

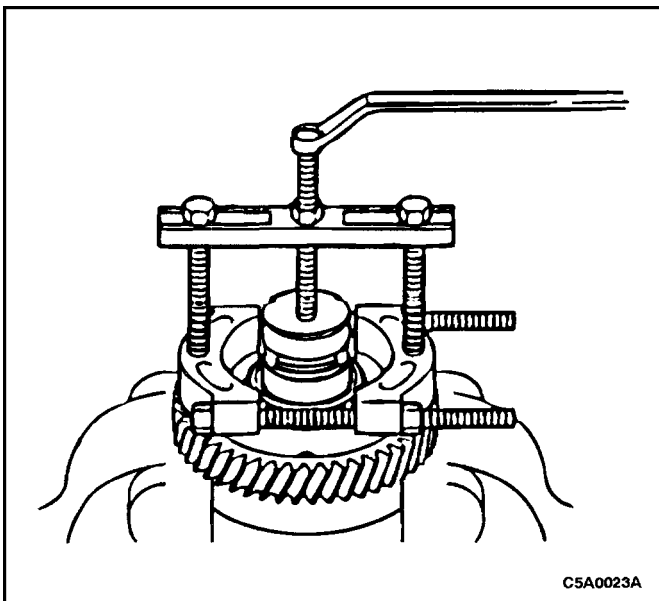


4. Remove bearing race and the spacer.

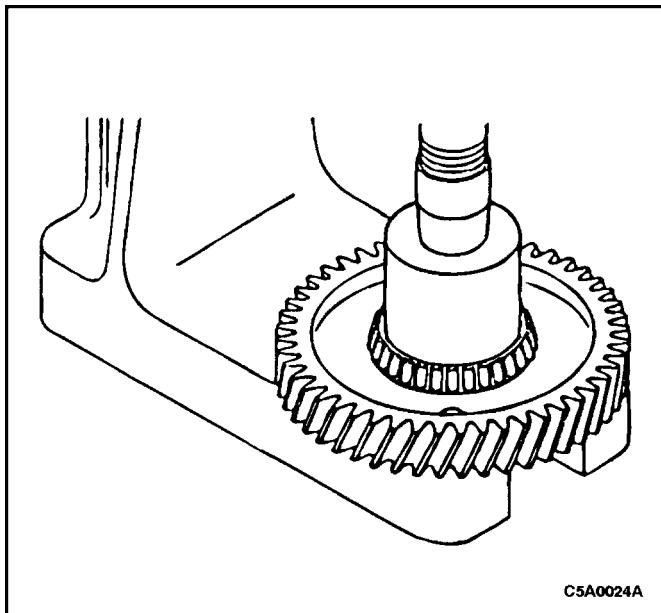
WARNING : USE CAUTION WHEN USING A CHISEL TO REMOVE COMPONENTS OR PERSONAL INJURY MAY RESULT.



5. Using a chisel, carefully remove the bearing cage and rollers.

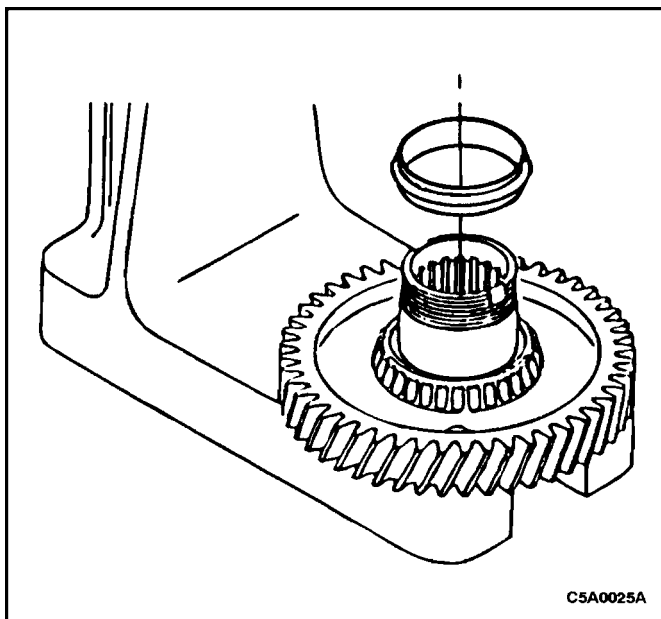


6. Using a suitable bearing puller, remove the bearing race.

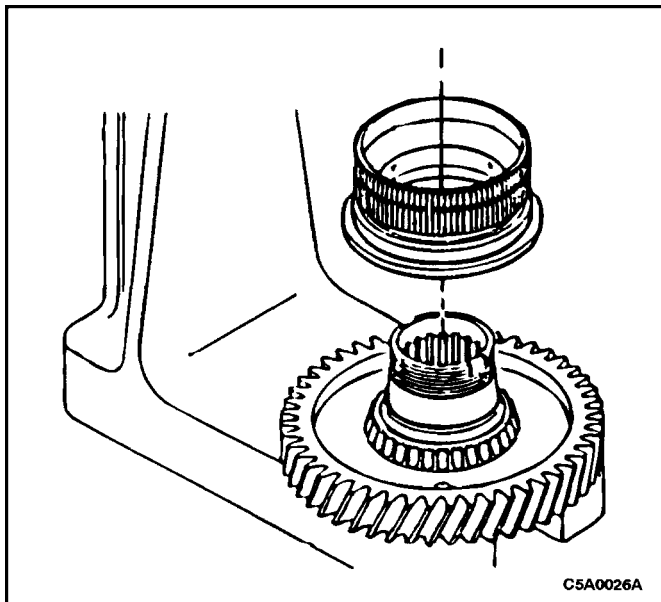


Assembly Procedure

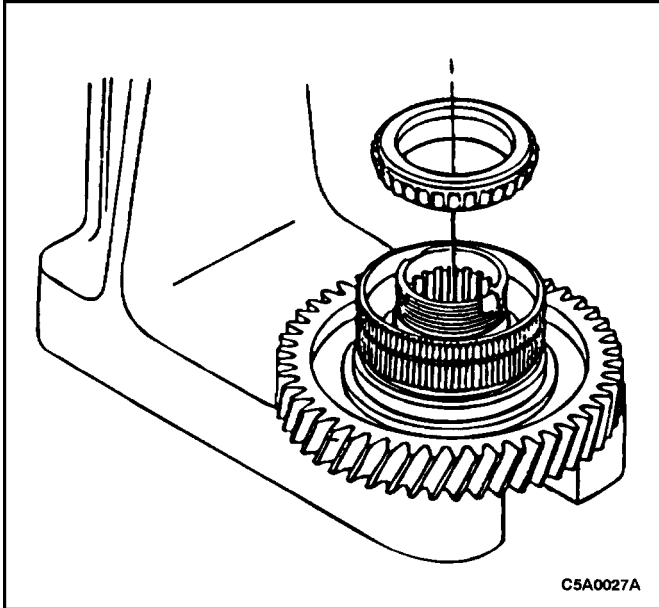
1. Clean the components using a clean, high-quality parts cleaning solvent and use compressed air to dry all parts. Inspect all parts for damage or wear.
2. Using a press, install a new inner bearing on the counter drive gear.



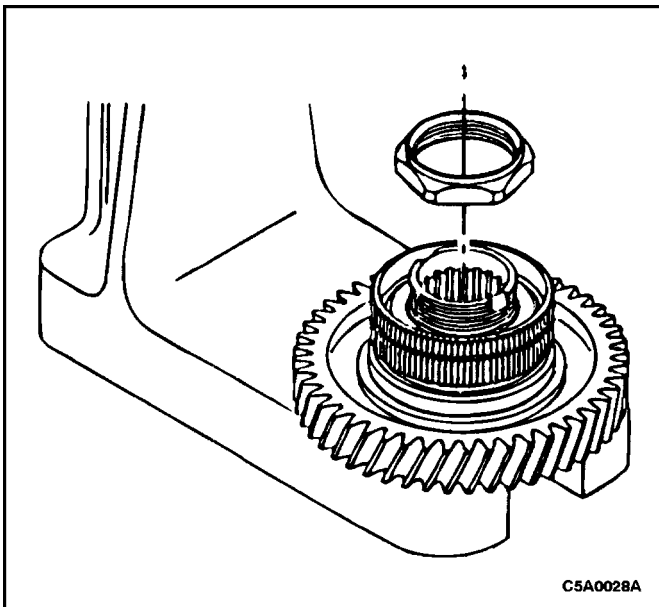
3. Install a new spacer.



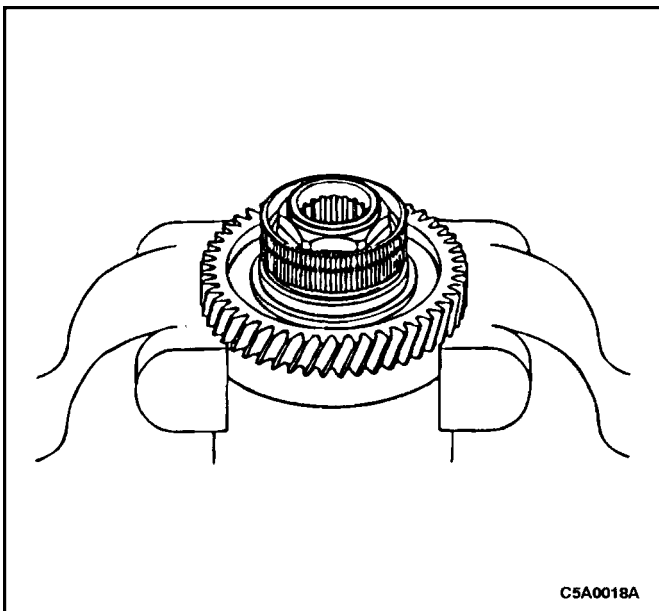
4. Install the bearing race.



5. Using a press, install a new bearing until the bearing touches the spacer.

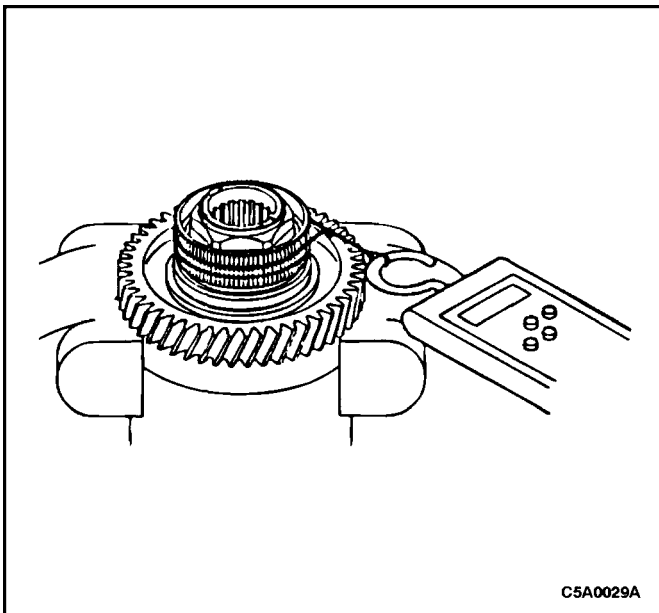


6. Install a new locknut. Do not tighten at this time.



CAUTION : Use wood blocks or a brass jaw vise to prevent damage to the counter drive gear.

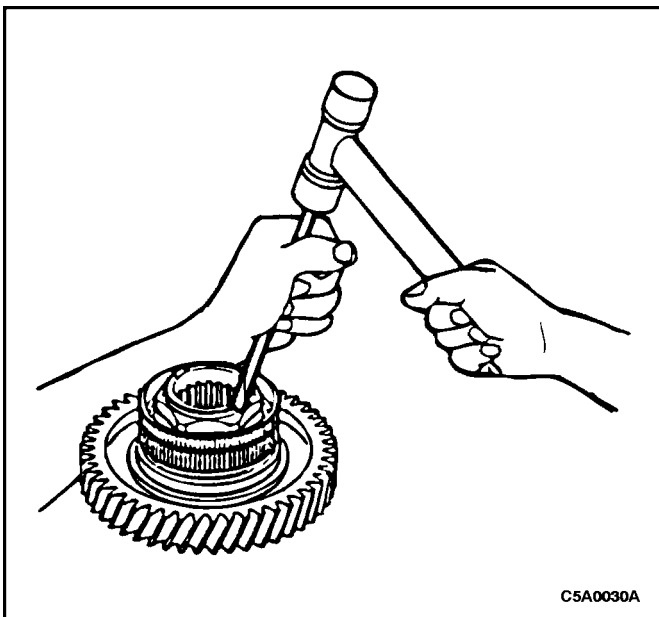
7. Install the counter drive gear into a vise.



Notice : Seat the bearing by turning the counter drive gear in both directions before measuring the torque.

Notice : Measure the starting torque three times and calculate the average. If the torque is not within specification, replace the spacer.

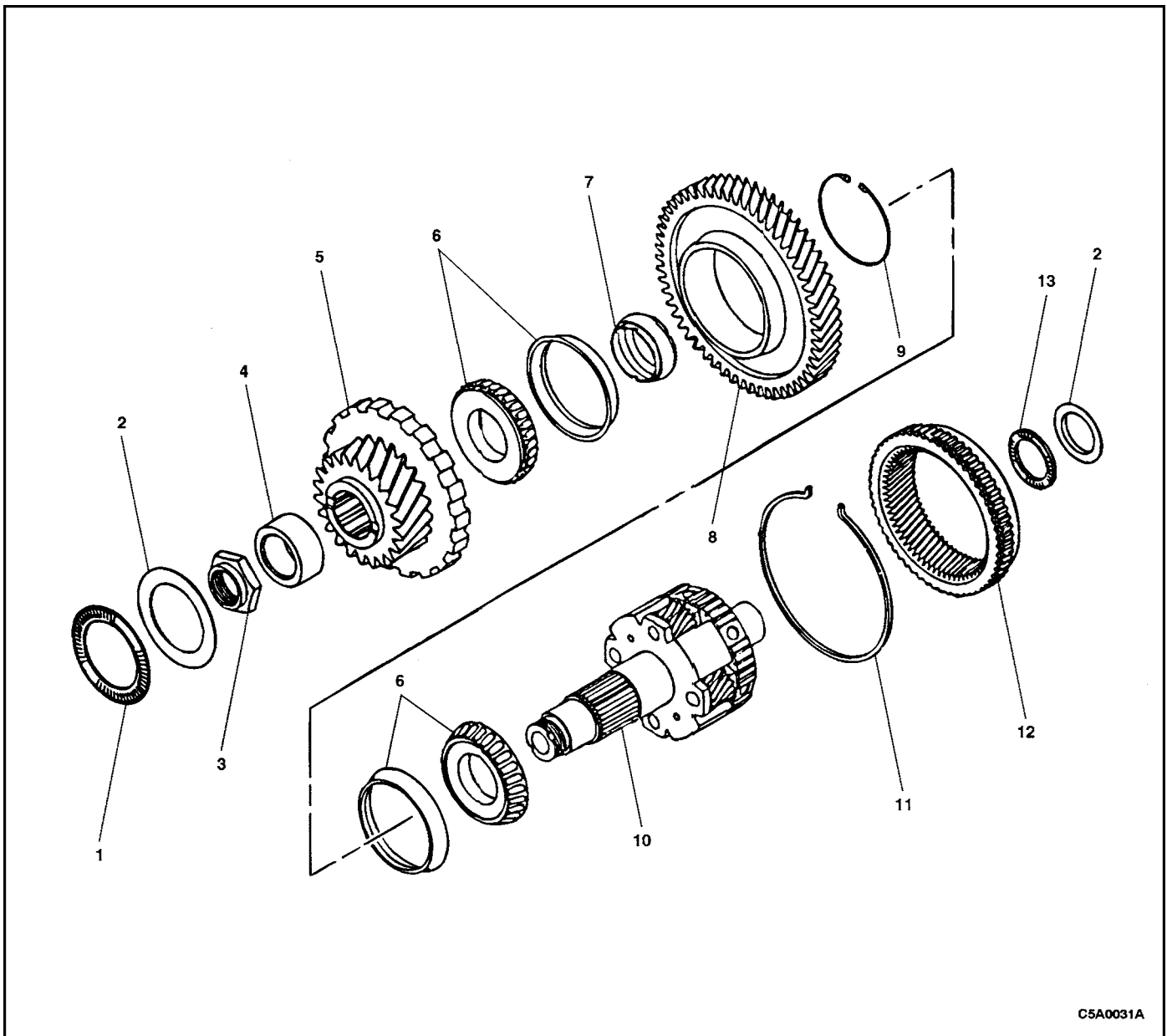
8. Tighten the locknut until the starting torque is 3–7 lb-in (.294–.784 N•m).



WARNING : USE CAUTION WHEN STAKING COMPONENTS WITH A CHISEL OR PERSONAL INJURY MAY RESULT.

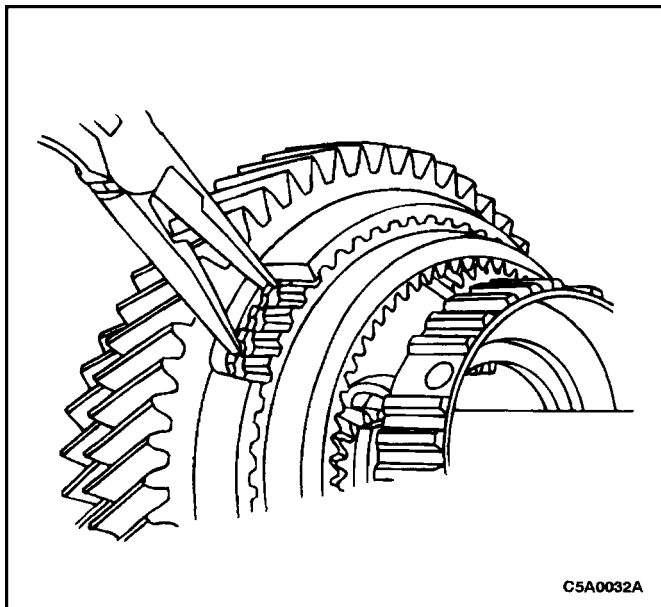
9. Using a chisel, stake the locknut into the groove in two spots.

UNDERDRIVE PLANETARY GEAR AND DIFFERENTIAL DRIVE PINION GEAR



C5A0031A

- | | |
|------------------------------------|------------------------------------|
| 1. Thrust Bearing | 8. Counter Driven Gear |
| 2. Thrust Washer | 9. Snap Ring |
| 3. locknut | 10. Underdrive Planetary Gear |
| 4. Drive Pinion Gear Inner Bearing | 11. Snap Ring |
| 5. Differential Drive Pinion Gear | 12. Underdrive Planetary Ring Gear |
| 6. Bearing and Race (Tapered) | 13. Thrust Bearing |
| 7. Spacer | |

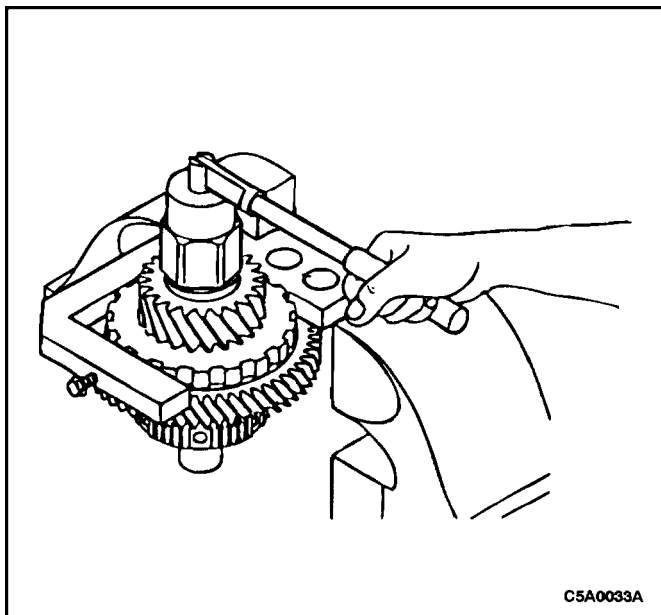


Tools Required

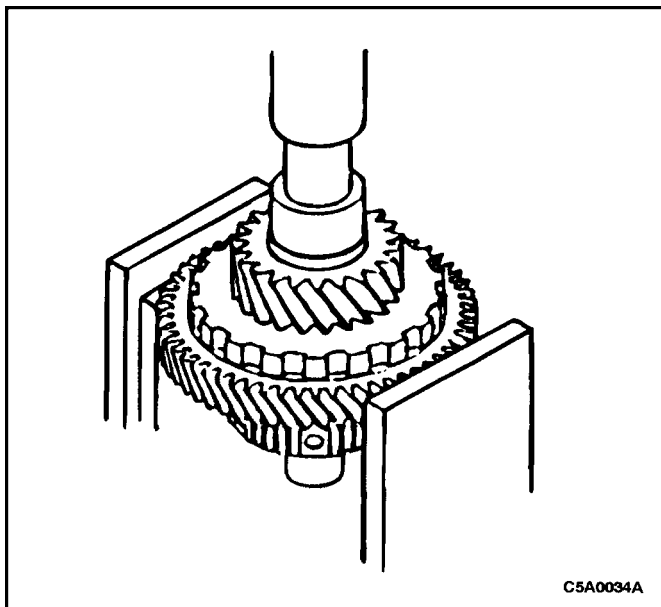
KM-696 Gear Holder
KM-697 Bearing Installer
KM-695 Bearing Installer

Disassembly Procedure

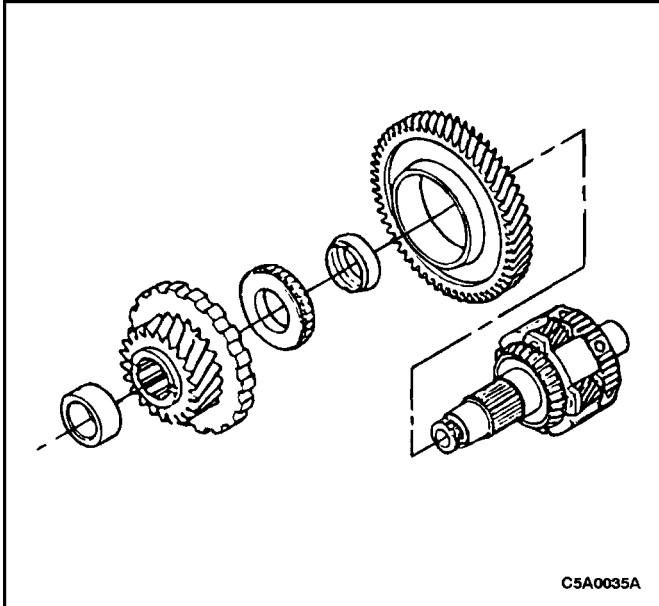
1. Compress the snap ring and remove the underdrive planetary ring gear.



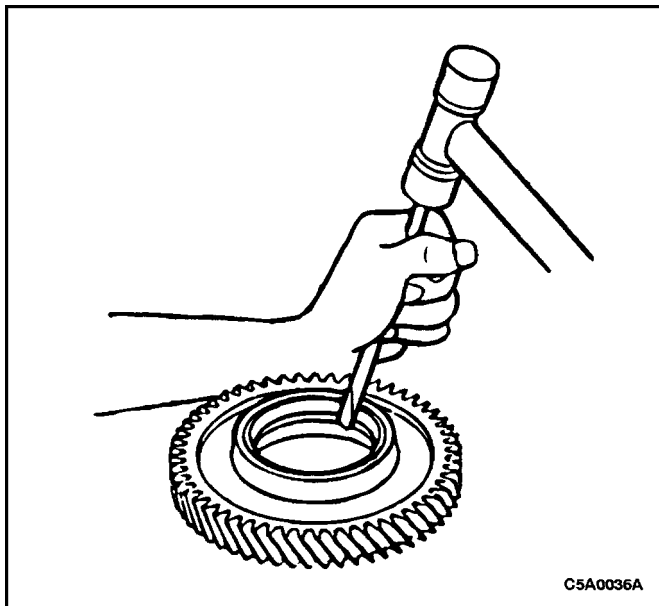
2. Using gear holder KM-696, install the gear assembly and gear holder in a vise. Remove and discard the locknut.



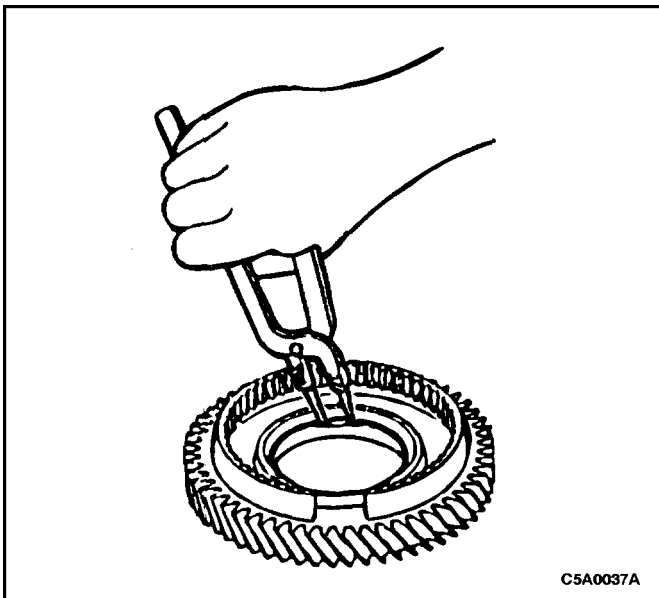
3. Install the gear assembly on a press.



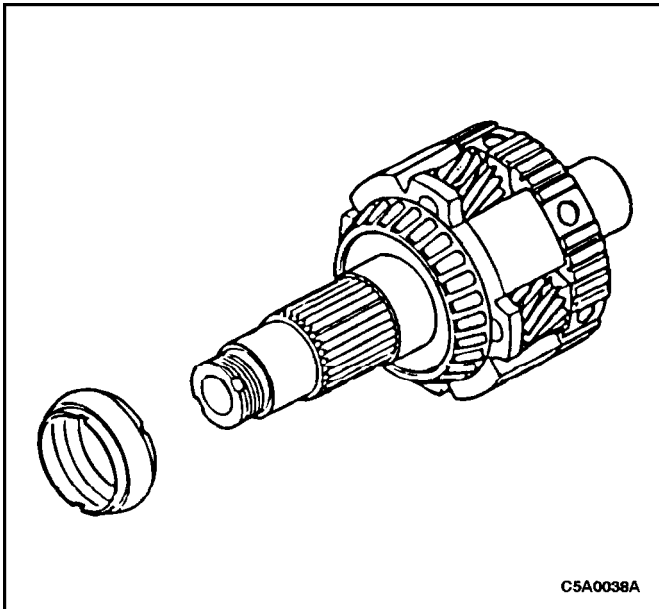
4. Press out the drive pinion gear inner bearing, differential drive pinion gear, bearing, spacer and counter driven gear.



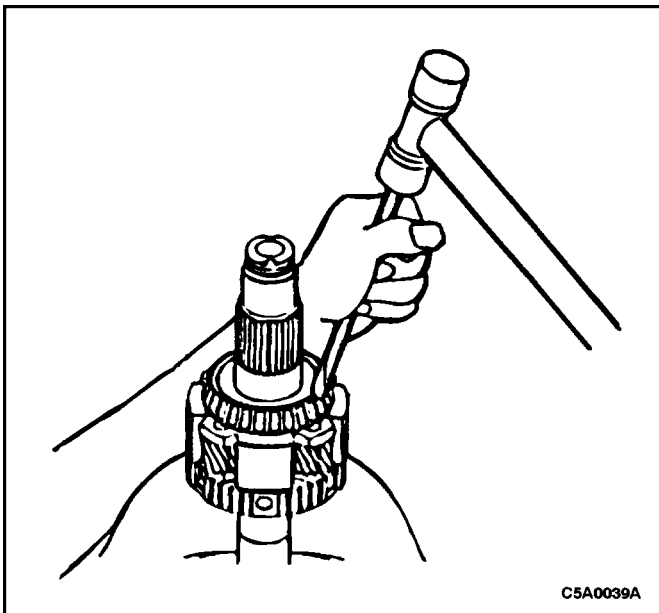
5. Remove the bearing races from the counter driven gear.



6. Remove the snap ring.

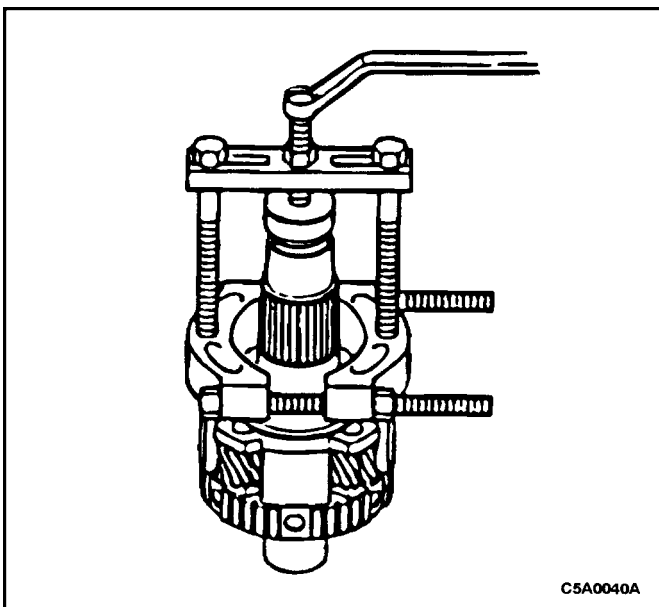


7. Remove the spacer.

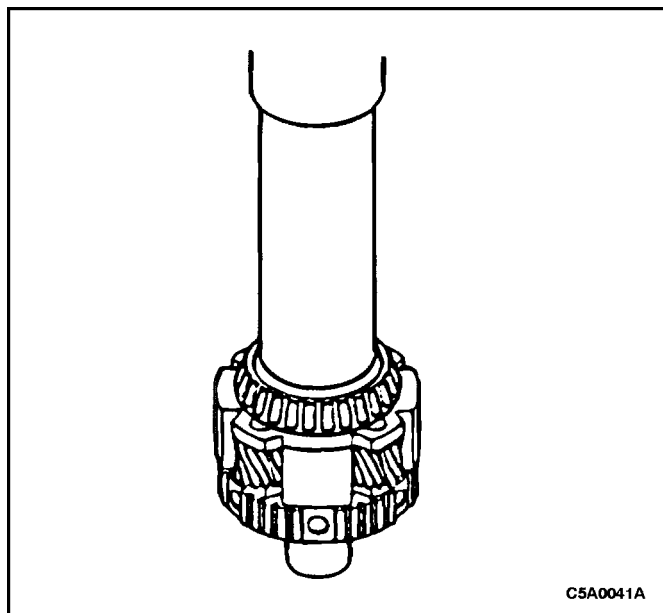


WARNING : USE CAUTION WHEN USING A CHISEL TO REMOVE COMPONENTS OR PERSONAL INJURY MAY RESULT.

8. Using a chisel and hammer, carefully remove the bearing cage and rollers.
 - Be careful not to damage the underdrive planetary gear.



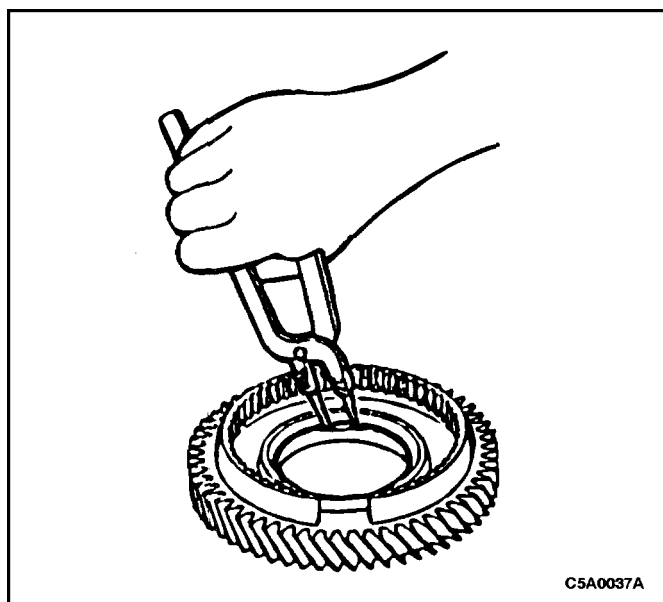
9. Using a suitable bearing puller, remove the bearing race from the underdrive planetary gear.



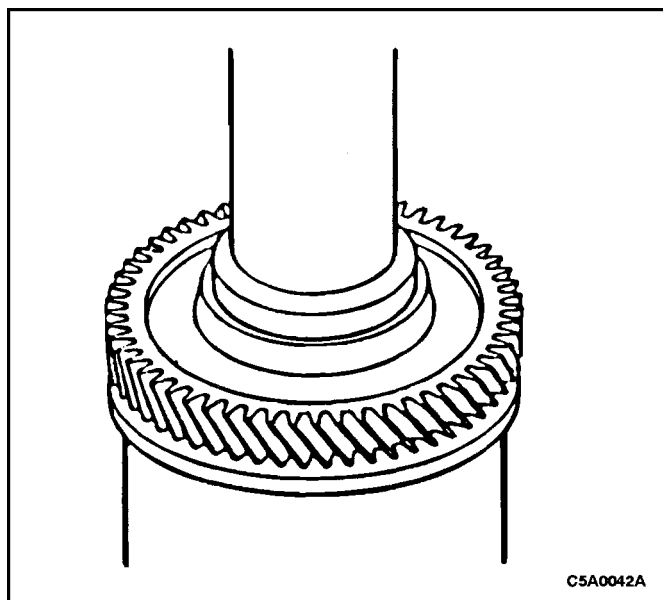
Assembly Procedure

Notice : Press the bearing until it touches the shaft

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. Using bearing installer KM-697, press a new bearing on the rear of the underdrive planetary gear.

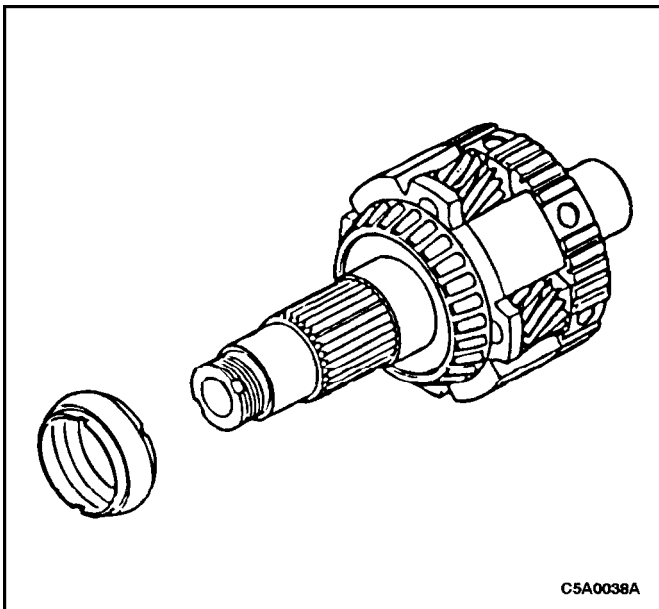


3. Install the snap ring into the counter driven gear.

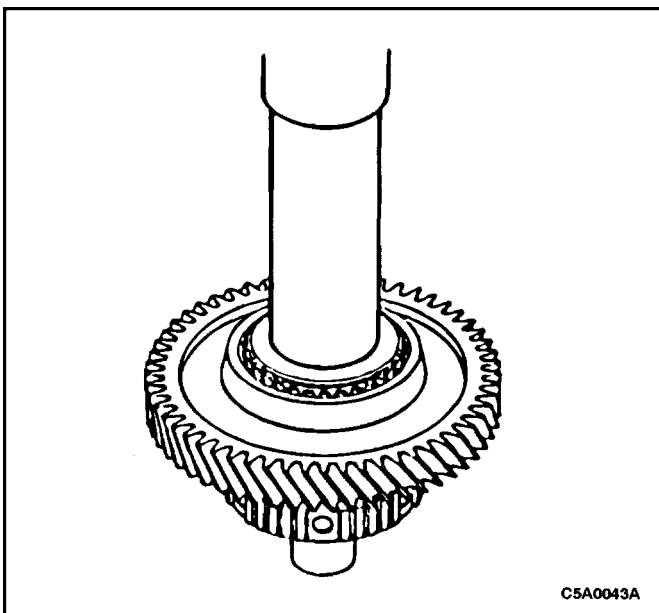


Notice : Press the bearing races into the counter driven gear until they touch the snap ring.

4. Using bearing installers KM-697 and KM-695, press the bearing races into the counter driven gear.

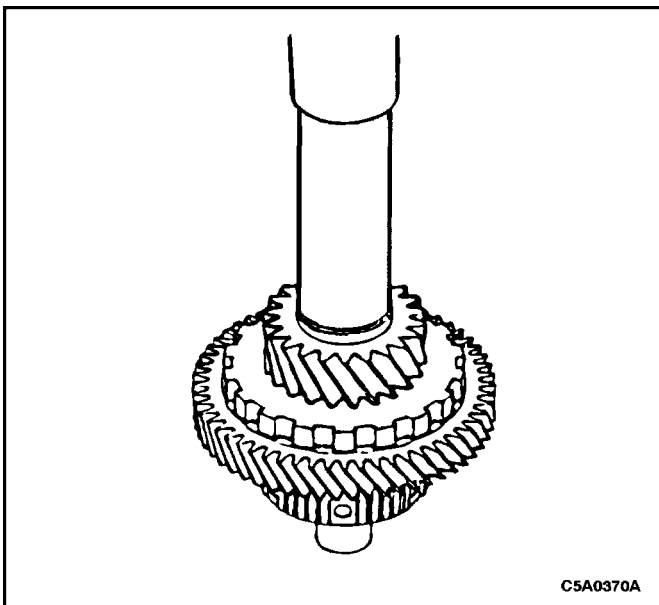


5. Install the spacer.
6. Install the counter driven gear.



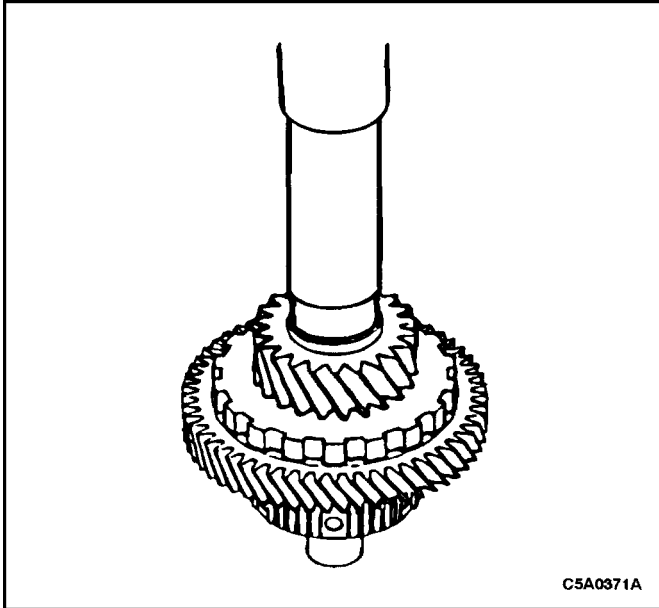
Notice : Press the new bearing until it touches the underdrive planetary gear.

7. Using bearing installer KM-697, press a new bearing onto the front of the underdrive planetary gear.



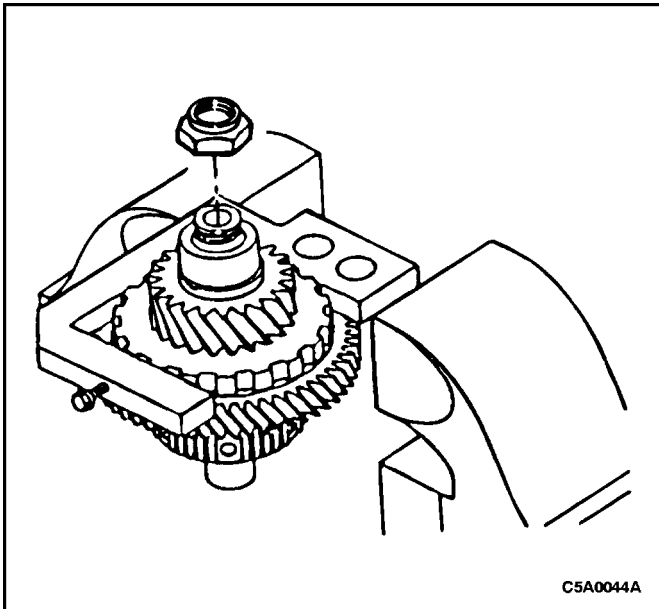
Notice : Press the differential drive pinion gear until it touches the underdrive planetary gear.

8. Using bearing installer KM-697, press the differential drive pinion gear onto the underdrive planetary gear.

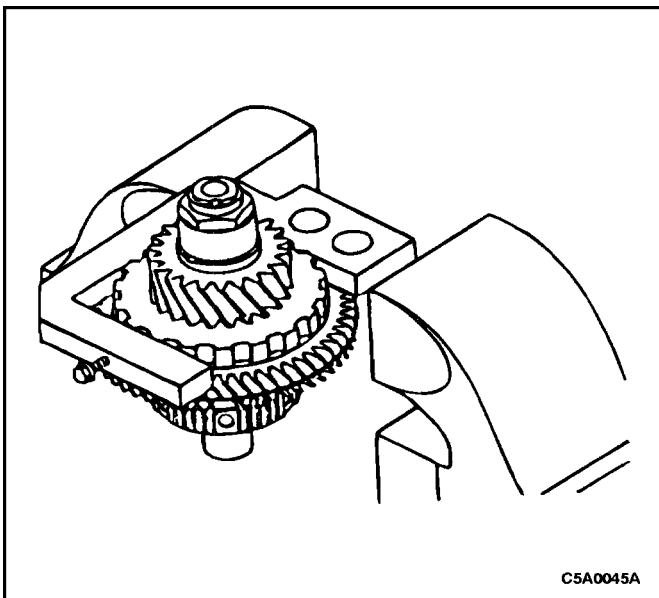


Notice : Press the drive pinion gear inner bearing until it touches the differential drive pinion gear.

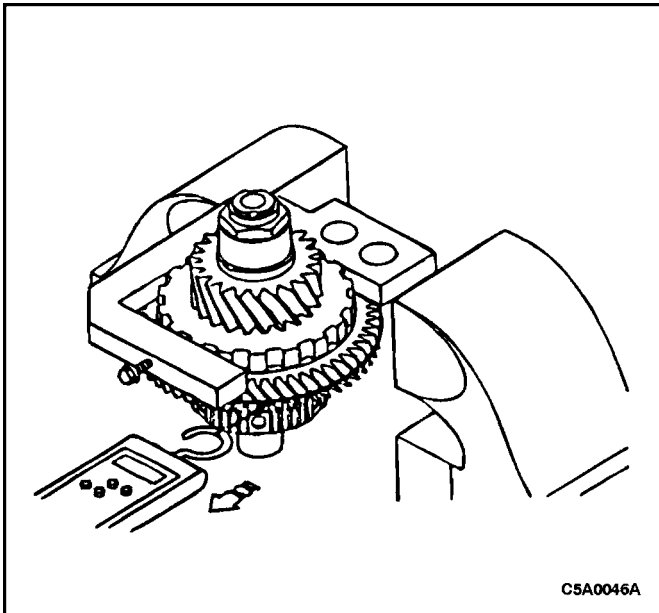
9. Using bearing installer KM-697, press on the drive pinion gear inner bearing.



10. Install a new locknut. Do not tighten at this time.



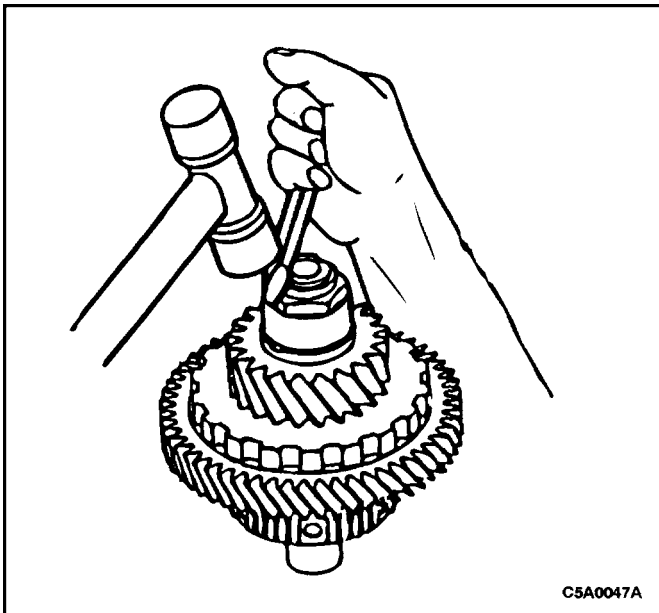
11. Install the gear assembly and gear holder KM-696 in a vise.



Notice : Seat the bearing by turning the counter drive gear in both directions before measuring the torque.

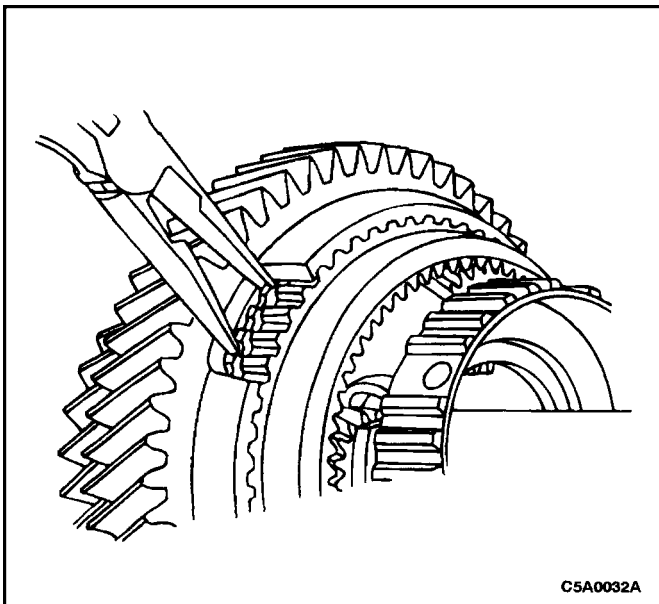
Notice : Measure the starting torque three times and calculate the average. If the torque is not within specification, replace the spacer.

12. Tighten the locknut until the starting torque is 5–12 lb-in (0.54–1.32 NSm).



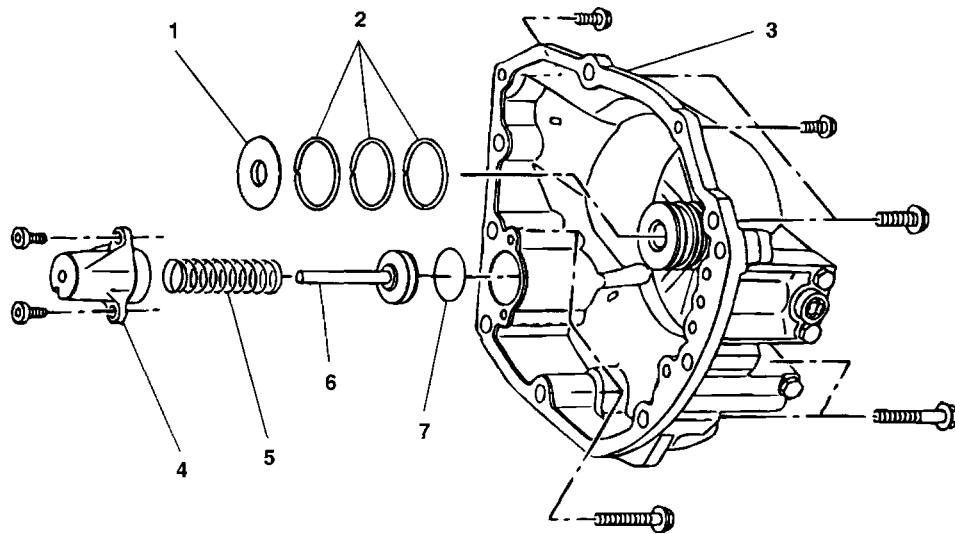
WARNING : USE CAUTION WHEN STAKING COMPONENTS WITH A CHISEL OR PERSONAL INJURY MAY RESULT.

13. Using a chisel, stake the locknut into the groove in two spots.



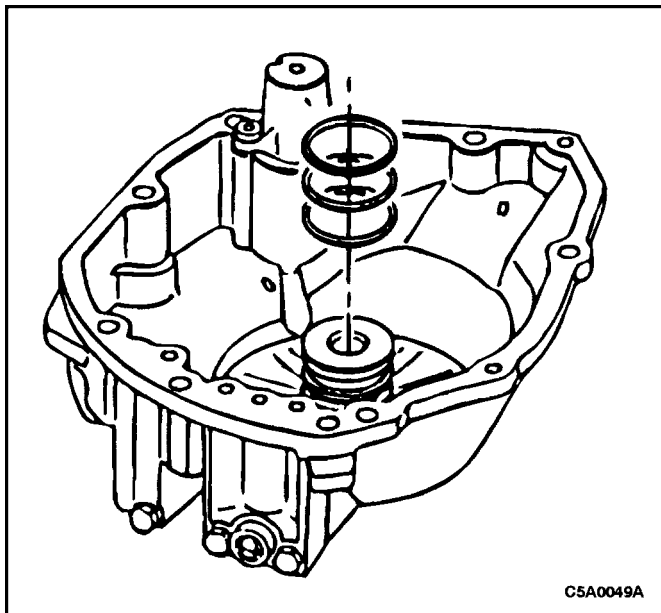
14. Install the snap ring and the underdrive planetary ring gear.

TRANSAXLE REAR CASE AND C-1 ACCUMULATOR PISTON



C5A0048A

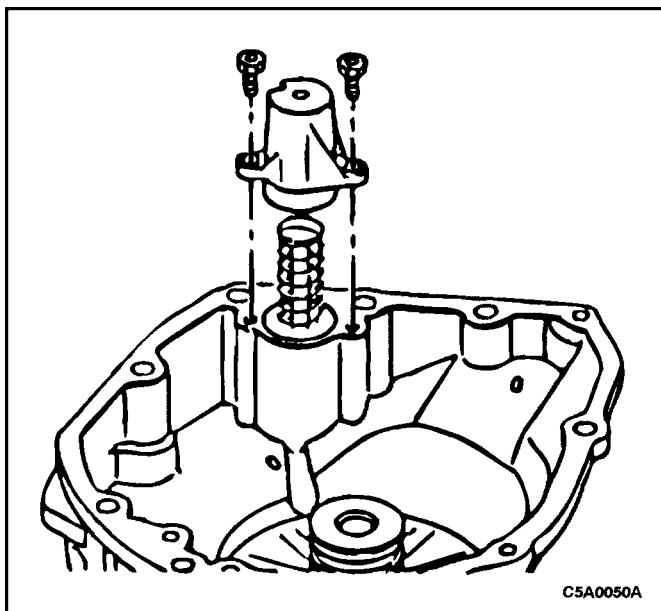
- | | |
|--------------------------|---------------------------|
| 1. Thrust Washer | 5. Spring |
| 2. Seal Rings | 6. C-1 Accumulator Piston |
| 3. Transaxle Case | 7. O-Ring |
| 4. C-1 Accumulator Cover | |



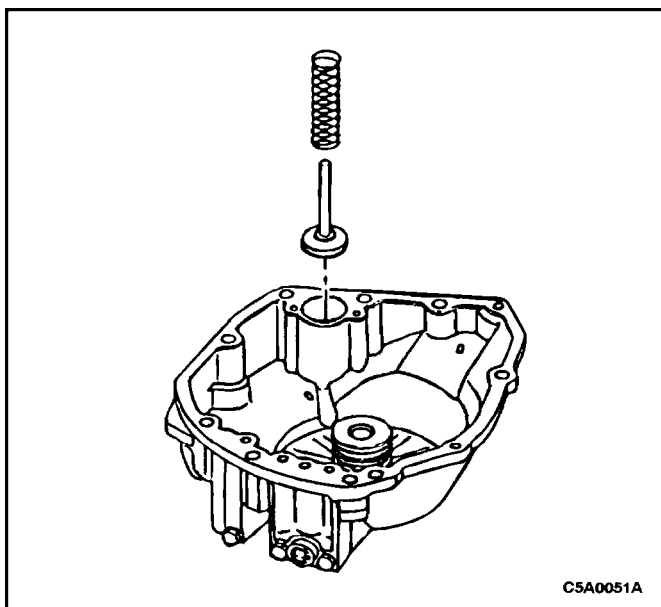
Disassembly Procedure

Notice : Do not spread the seal rings ends more than necessary.

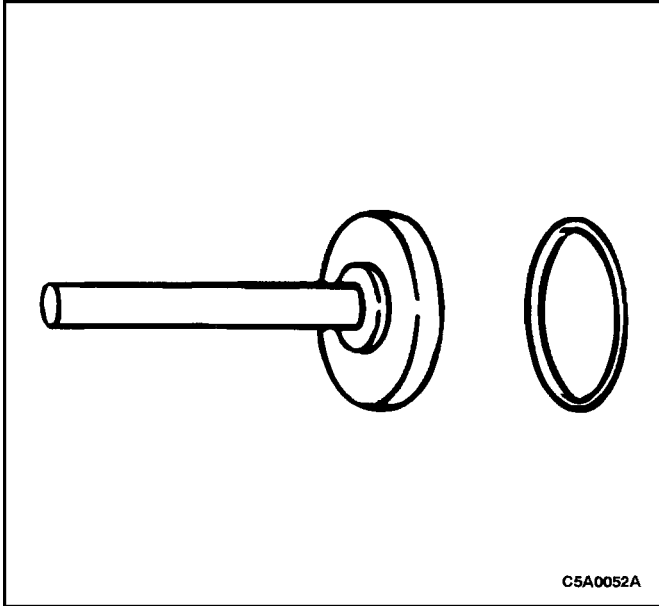
1. Remove the seal rings.



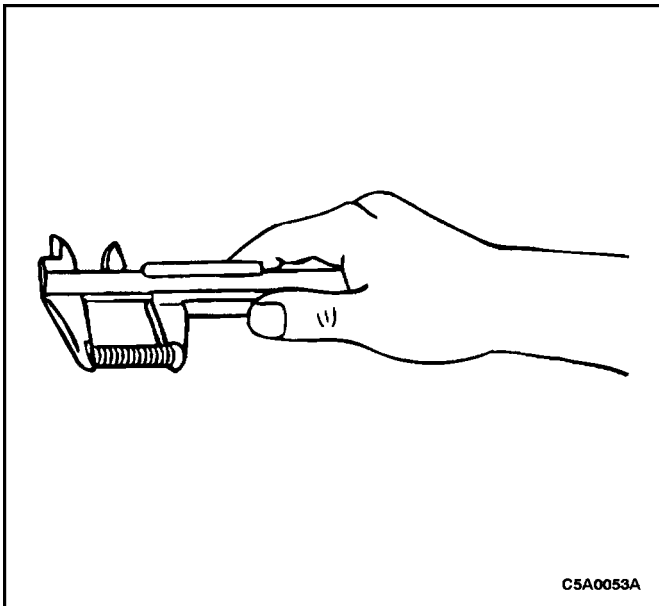
2. Remove the C-1 accumulator cover.



3. Remove the spring and the C-1 accumulator piston.

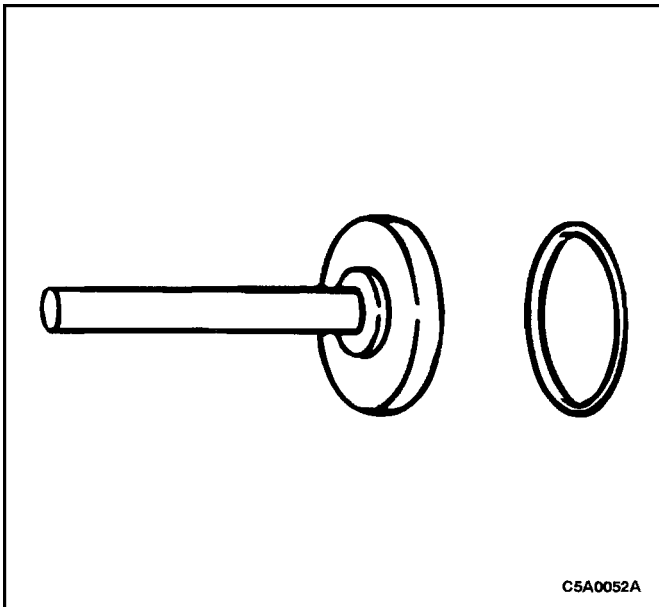


4. Remove and discard the O-ring from the C-1 accumulator piston.



5. Inspect the spring.
 - 1) Using vernier calipers, measure the free length and outer diameter of the spring. If it does not meet specifications, replace it.

Free Length	Outer Diameter
3.07 in (78.100 mm)	0.815 in (20.700 mm)

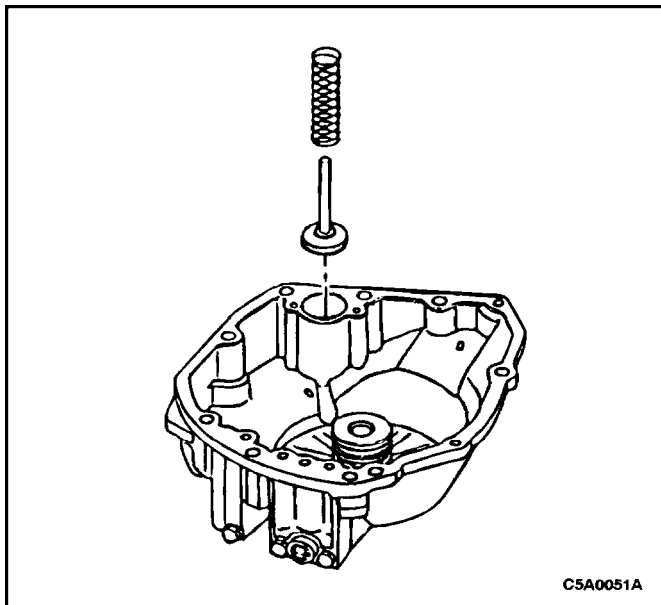


Assembly Procedure

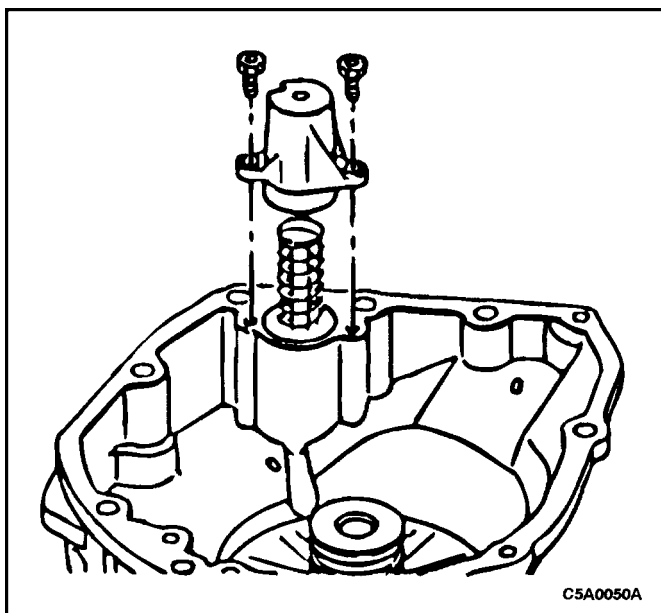
1. Clean the components using a clean, high-quality parts cleaning solvent and use compressed air to dry all parts. Inspect all parts for damage or wear.

Notice : Apply Texaco 1854 automatic transmission fluid to the O-ring and the C-1 accumulator piston cavity.

2. Install a new O-ring on the C-1 accumulator piston.



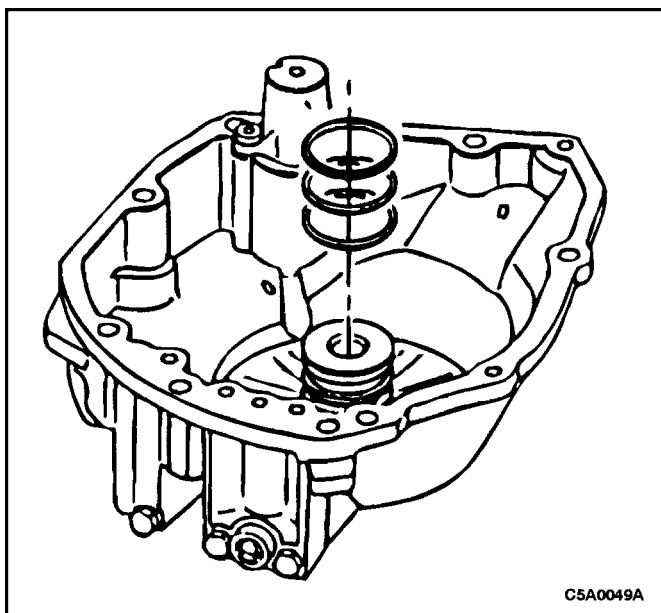
3. Install the C-1 accumulator piston and the spring.



4. Install the C-1 accumulator cover.

Tighten

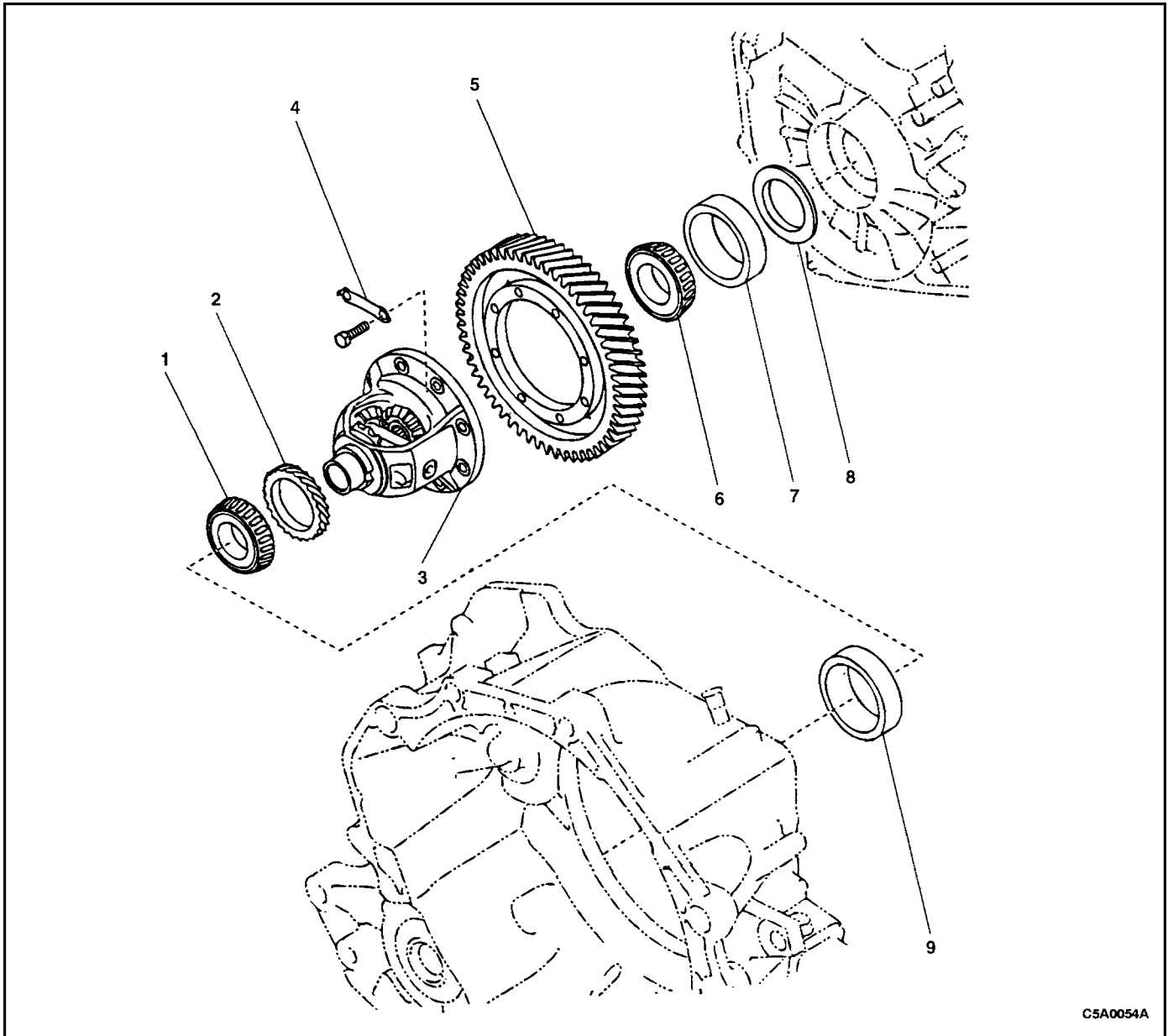
Tighten the bolts to 71–106 lb-in (8–12 N•m).



Notice : Apply Texaco 1854 automatic transmission fluid to the seal rings. Do not spread the seal rings ends more than necessary.

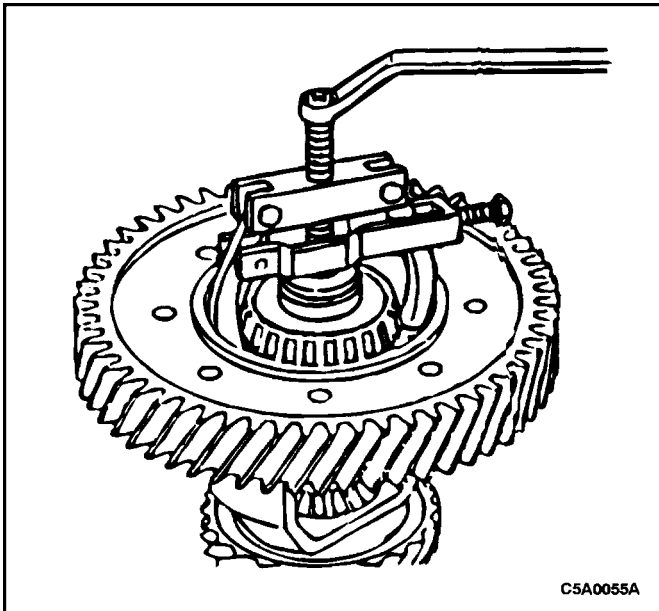
5. Install the seal rings.

DIFFERENTIAL



CSA0054A

- | | |
|---|-----------------------------------|
| 1. Inner Bearing (Differential Case Side) | 6. Outer Bearing (Ring Gear Side) |
| 2. Speedometer Drive Gear | 7. Outer Bearing Race |
| 3. Differential Case | 8. Shim |
| 4. Differential Ring Gear Bolt Lock Plate | 9. Inner Bearing Race |
| 5. Differential Ring Gear | |



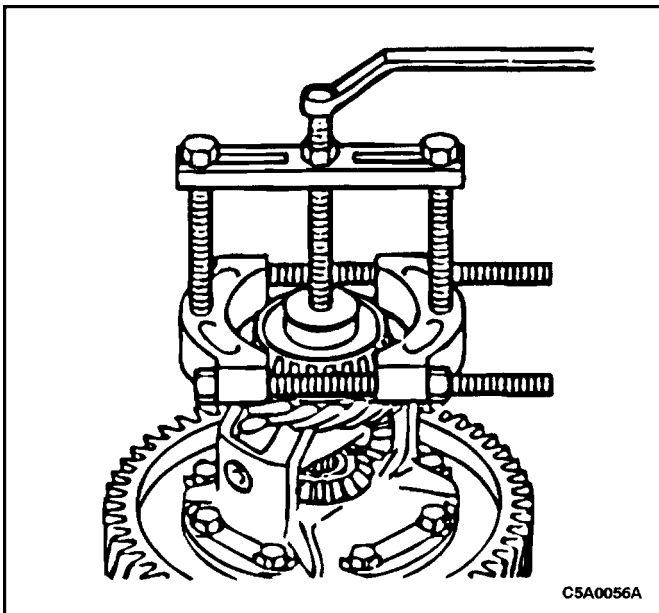
Tools Required

KM-709 Bearing Puller Adapter
KM-695 Bearing Installer
KM-J 28544 Adapter
KM-674 Oil Seal Installer
KM-210-A Bearing Puller

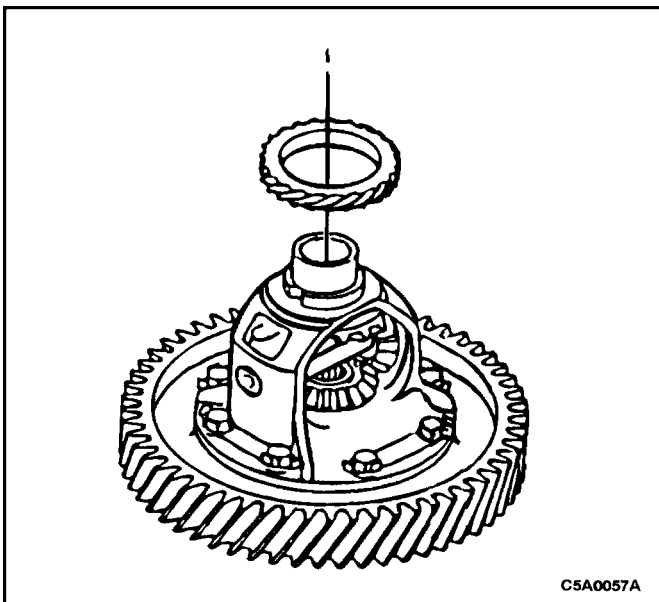
Disassembly Procedure

Notice : Install the bearing puller to the cut out portion of the differential case.

1. Using a bearing puller, remove the outer bearing.

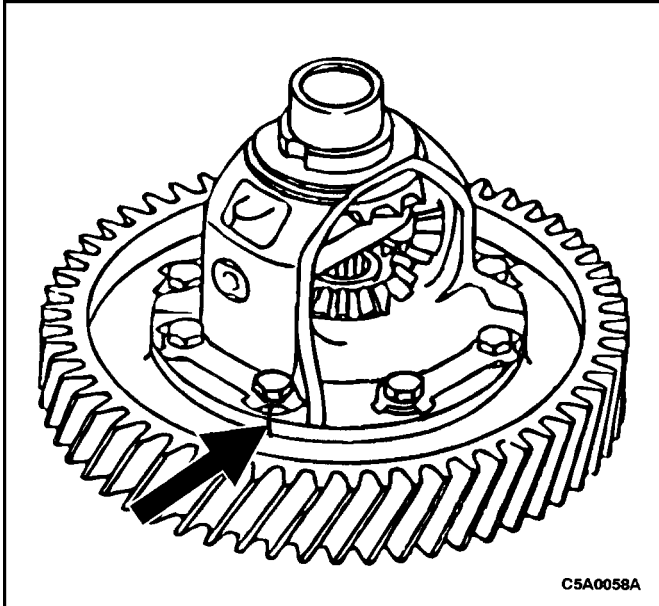


2. Using a suitable bearing puller, remove the inner bearing.

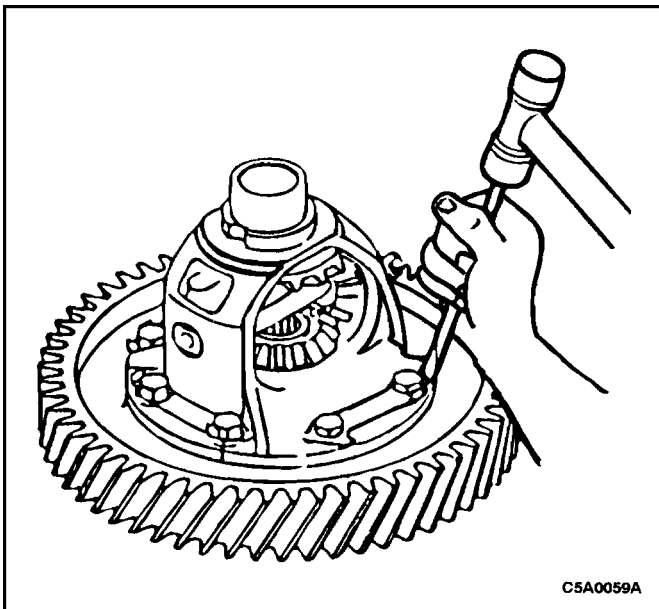


WARNING : USE CAUTION WHEN REMOVING THE SPEEDOMETER DRIVE GEAR OR PERSONAL INJURY MAY RESULT.

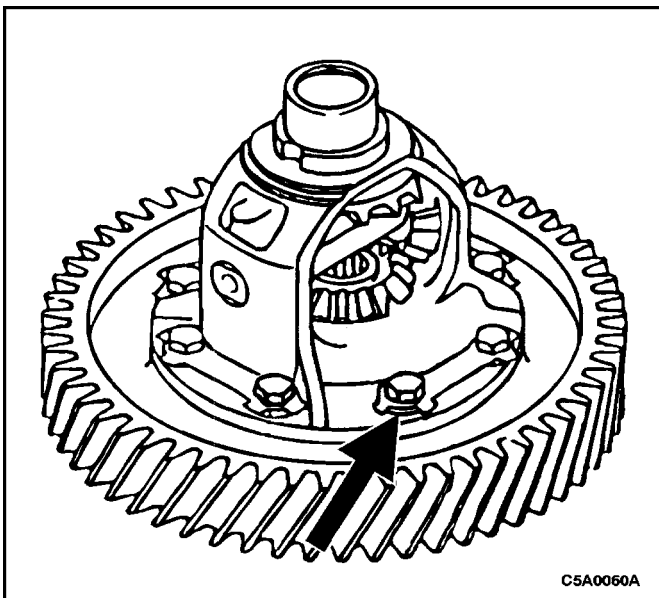
3. Remove the speedometer drive gear.



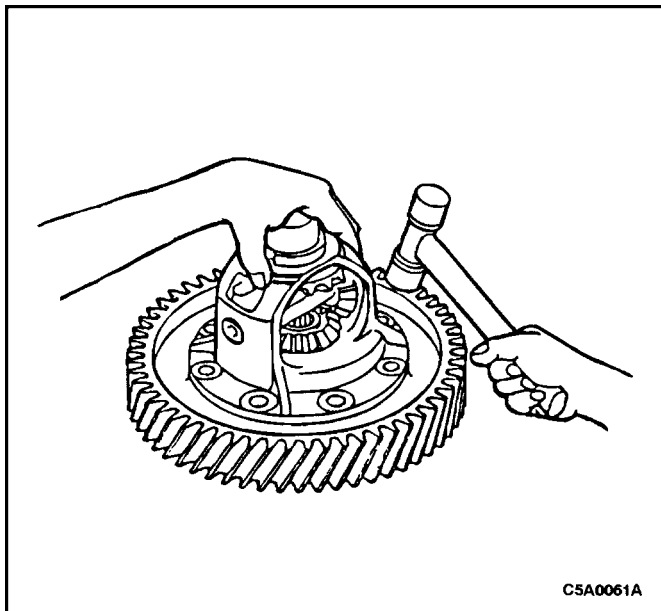
4. Index mark the differential ring gear and the differential case using a scribe.



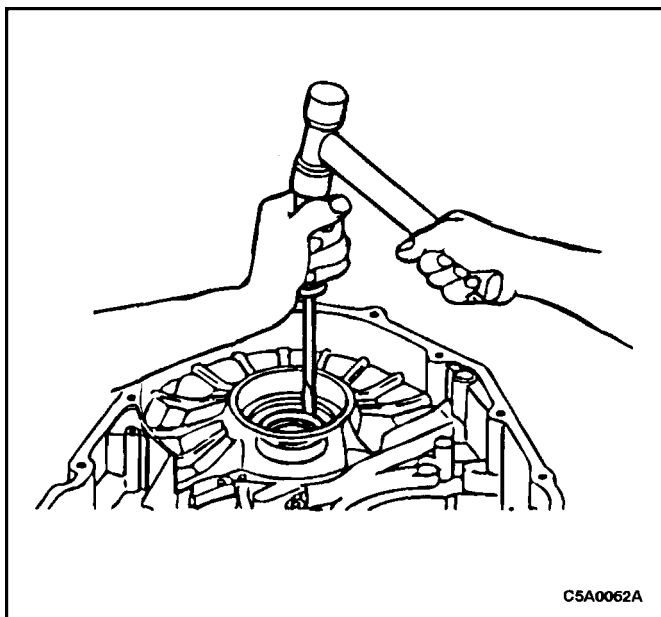
5. Tap down the tabs of the differential ring gear bolt lock plate.



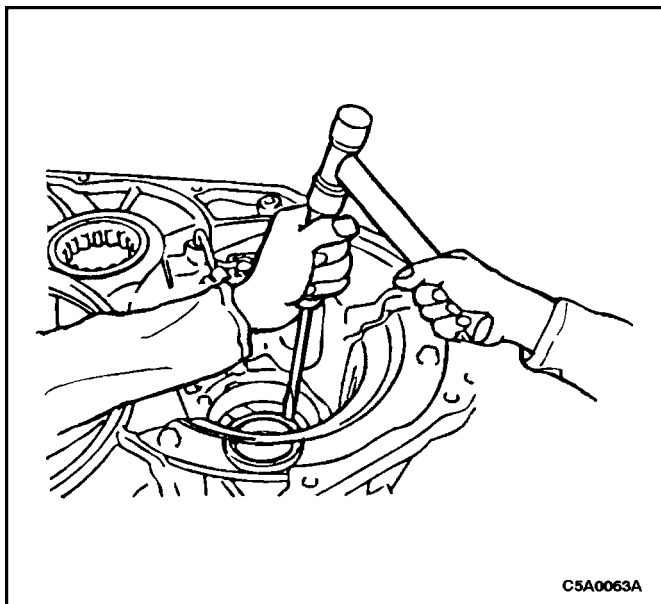
6. Remove and discard the differential ring gear bolts and lock plates.



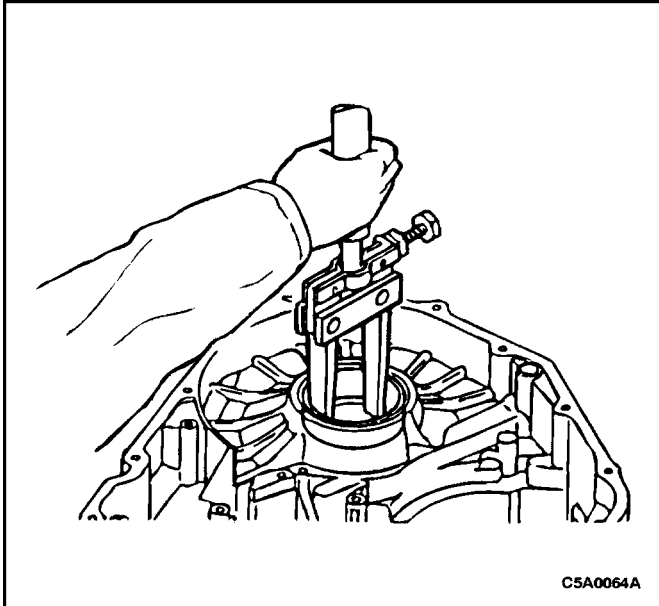
7. Using a plastic hammer, tap the on the ring gear to remove.



8. Remove and discard the oil seal from the transaxle case side.

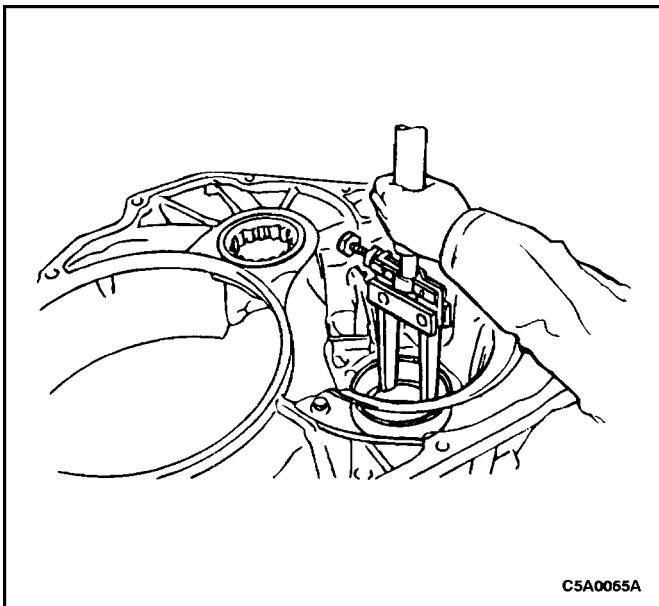


9. Remove and discard the oil seal from the transaxle housing side.

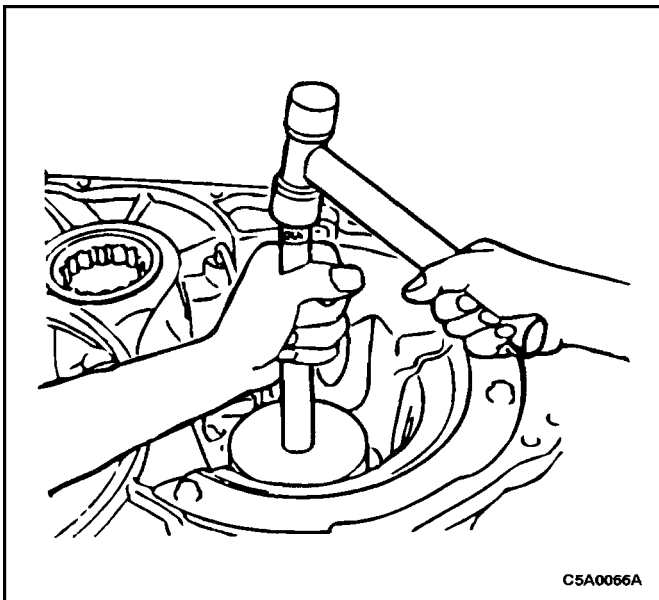


Notice : If equipped, remove preload shim.

10. Using bearing puller KM-210-A and bearing puller adapter KM-709, remove the bearing cup from the transaxle case side.

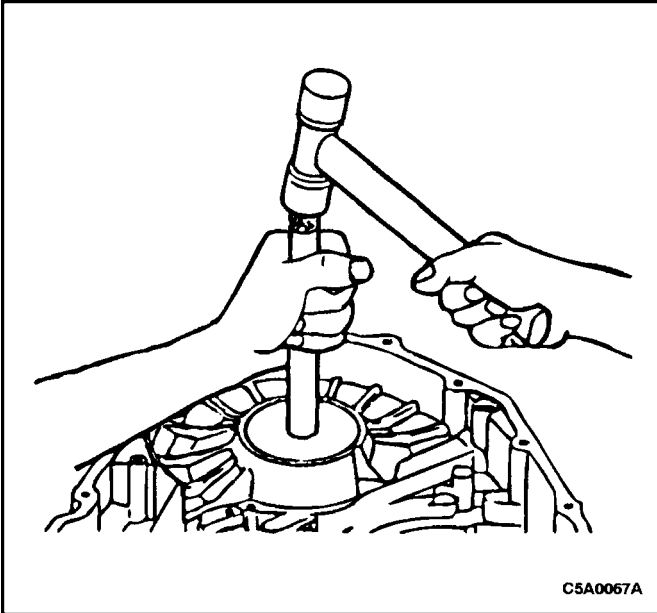


11. Using bearing puller KM-210-A and bearing puller adapter KM-709, remove the bearing cup from the transaxle housing side.



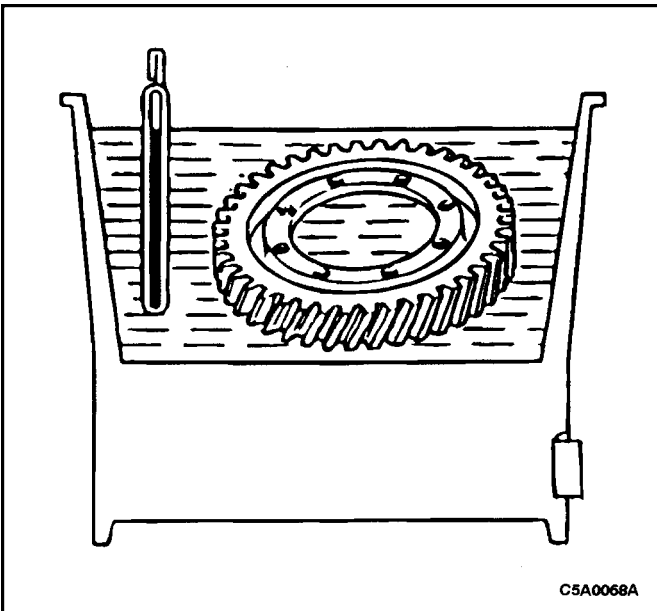
Assembly Procedure

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. Using bearing installer KM-695, install the bearing cup into the transaxle housing.



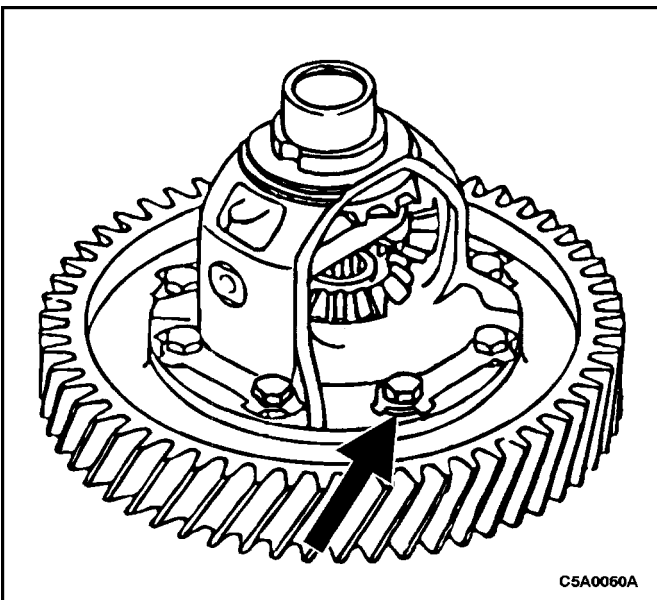
Notice : If equipped, install preload shim.

3. Using bearing installer KM-695, install the bearing cup into the transaxle case.



CAUTION : Do not heat the differential ring gear above 110° C (255° F).

4. Using an oil bath or an oven, heat the differential ring gear to 219–237° F (90–100° C).



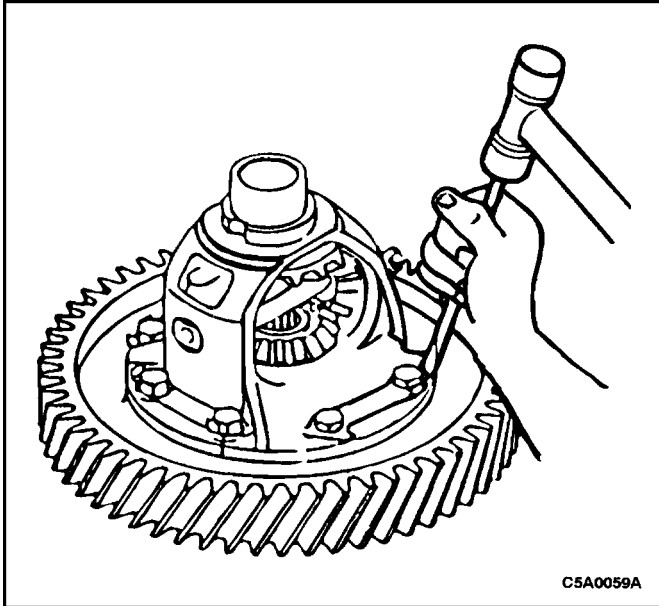
Notice : Clean the oil from the contact surface of the differential ring gear.

Notice : Tighten the bolts evenly and gradually.

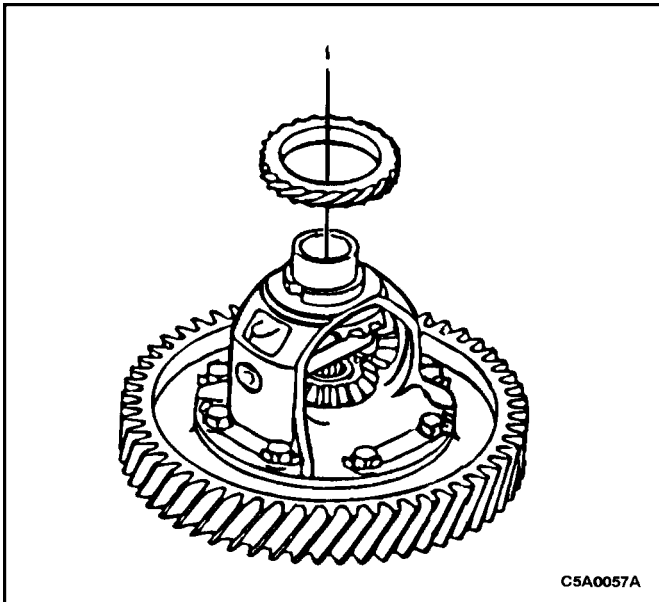
5. Install the differential ring gear on the differential case. Install new differential ring gear bolts and lock plates.

Tighten

Tighten ring gear bolts to 66–76 lb–ft (90–103 N•m).

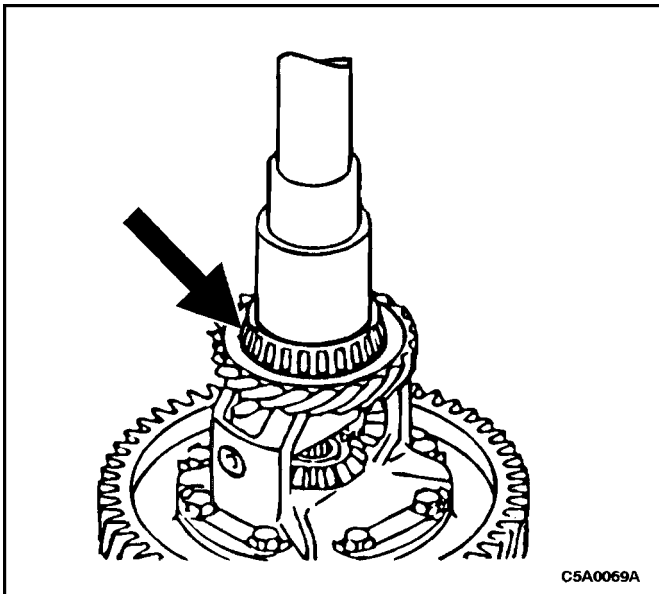


6. Bend the differential ring gear bolt lock plate tabs in the locked position.

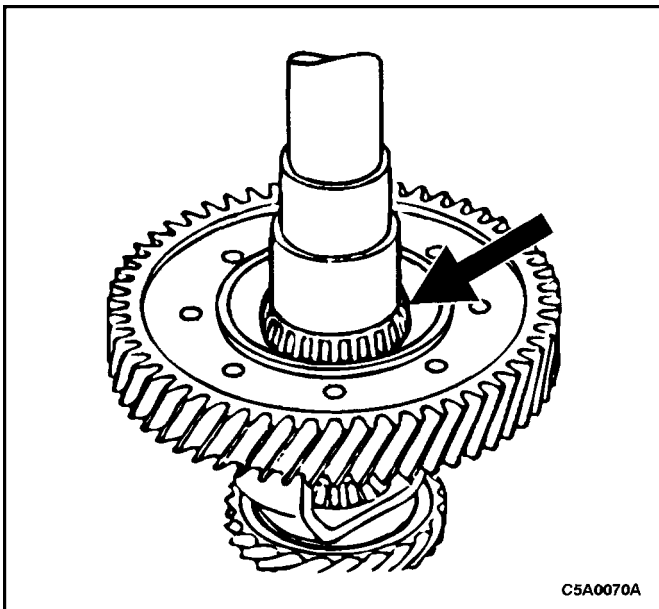


WARNING : USE CAUTION WHEN INSTALLING THE SPEEDOMETER DRIVE GEAR OR PERSONAL INJURY MAY RESULT.

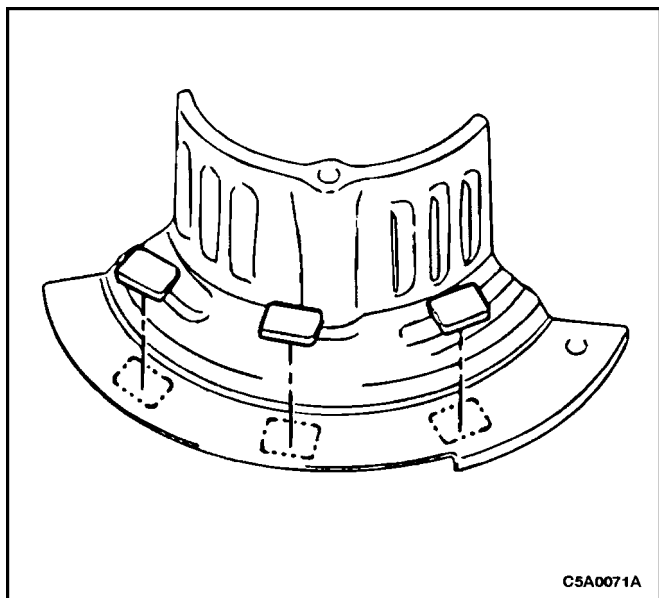
7. Install the speedometer drive gear.



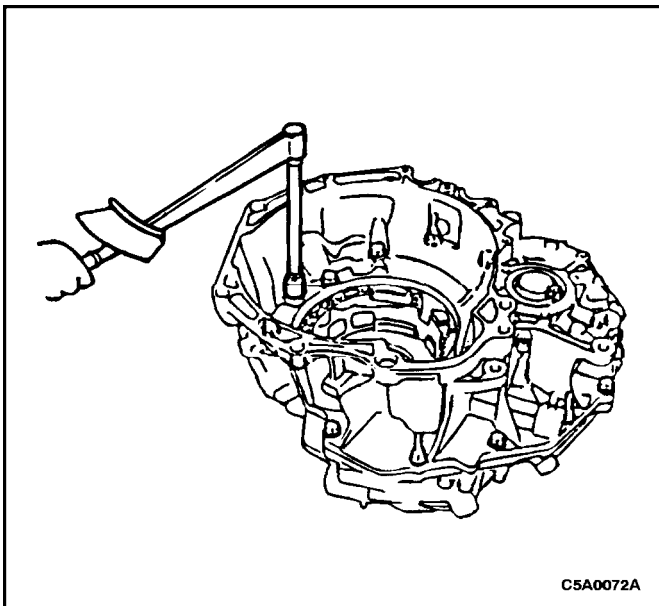
8. Using a press, press the outer bearing onto the differential case.



9. Using a press, press the inner bearing onto the differential case.



10. Install the differential assembly in the transaxle case.

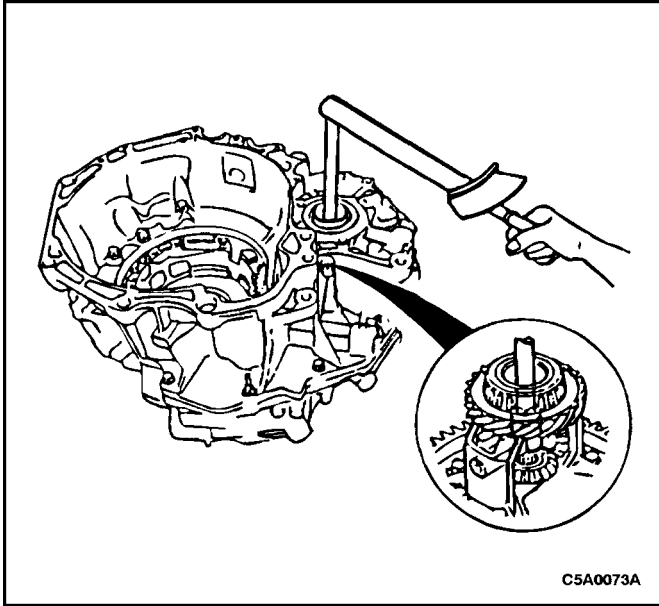


Notice : Tighten the bolts evenly and gradually.

11. Apply sealer to the transaxle case and install the transaxle housing.

Tighten

Tighten the bolts to 17–26 lb–ft (23–35 N•m).



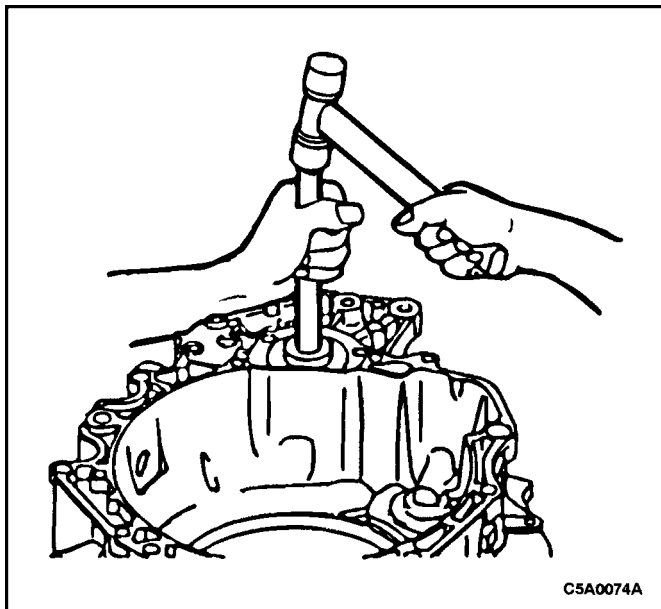
12. Using adapter KM-J-28644, measure the starting preload.

- Rotate the differential in both directions to seat the bearing.

Preload	
New Bearing	6-10 lb-in (.686-1.18 N•m)
Reused Bearing	3-5 lb-in (.343-.588 N•m)

- If the preload is not within specifications, remove the differential assembly. Remove the outer bearing race and select the correct adjusting shim. If the preload is below specifications, install a thicker shim. If the preload is above specifications, install a thinner shim.
- Install selected shim, reinstall differential assembly and recheck preload.

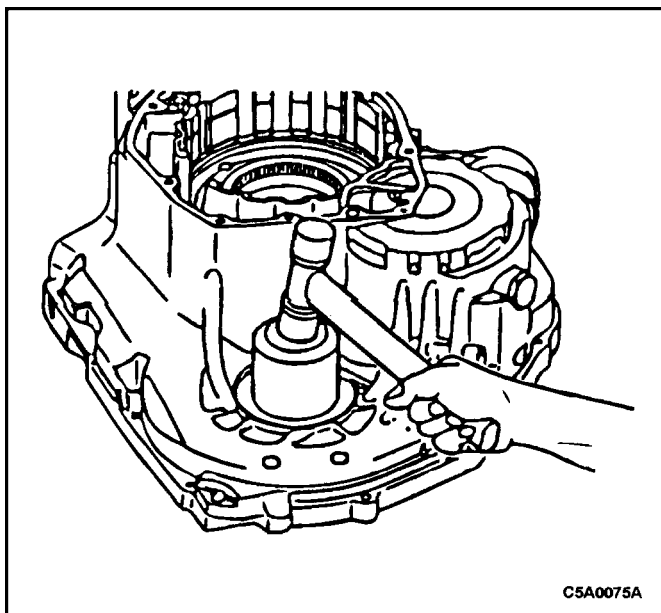
Part Number	Thickness in (mm)
5040 037 021Z	.039 (1.00)
5040 037 022W	.041 (1.05)
5040 037 023T	.043 (1.10)
5040 037 024P	.045 (1.15)
5040 037 025L	.047 (1.20)
5040 037 026H	.049 (1.25)
5040 037 027E	.051 (1.30)
5040 037 028B	.052 (1.33)
5040 037 029Y	.053 (1.36)
5040 037 030E	.054 (1.39)
5040 037 031B	.055 (1.42)
5040 037 032Y	.057 (1.45)
5040 037 033V	0.58 (1.48)
5040 037 034S	.059 (1.51)
5040 037 035N	.060 (1.54)
5040 037 036K	.061 (1.57)
5040 037 037G	.062 (1.60)
5040 037 038D	.064 (1.65)
5040 037 039A	.066 (1.70)
5040 037 040G	.068 (1.75)
5040 037 041D	.070 (1.80)
5040 037 042A	.072 (1.85)
5040 037 043X	.074 (1.90)



Notice : The distance from the outer edge of the seal to the transaxle housing should be 0.019 in (0.500 mm).

Notice : Apply Transjel Assembly Lubricant J-36850 to the oil seal lip.

13. Using oil seal installer KM-674, install a new oil seal into the transaxle housing.



Notice : Install the oil seal until the seal touches the trans-axle case.

Notice : Apply Transjel Assembly Lubricant J-36850 to the oil seal lip.

14. Using oil seal installer KM-674, install a new oil seal into the transaxle case.