

## PARKING & NEUTRAL



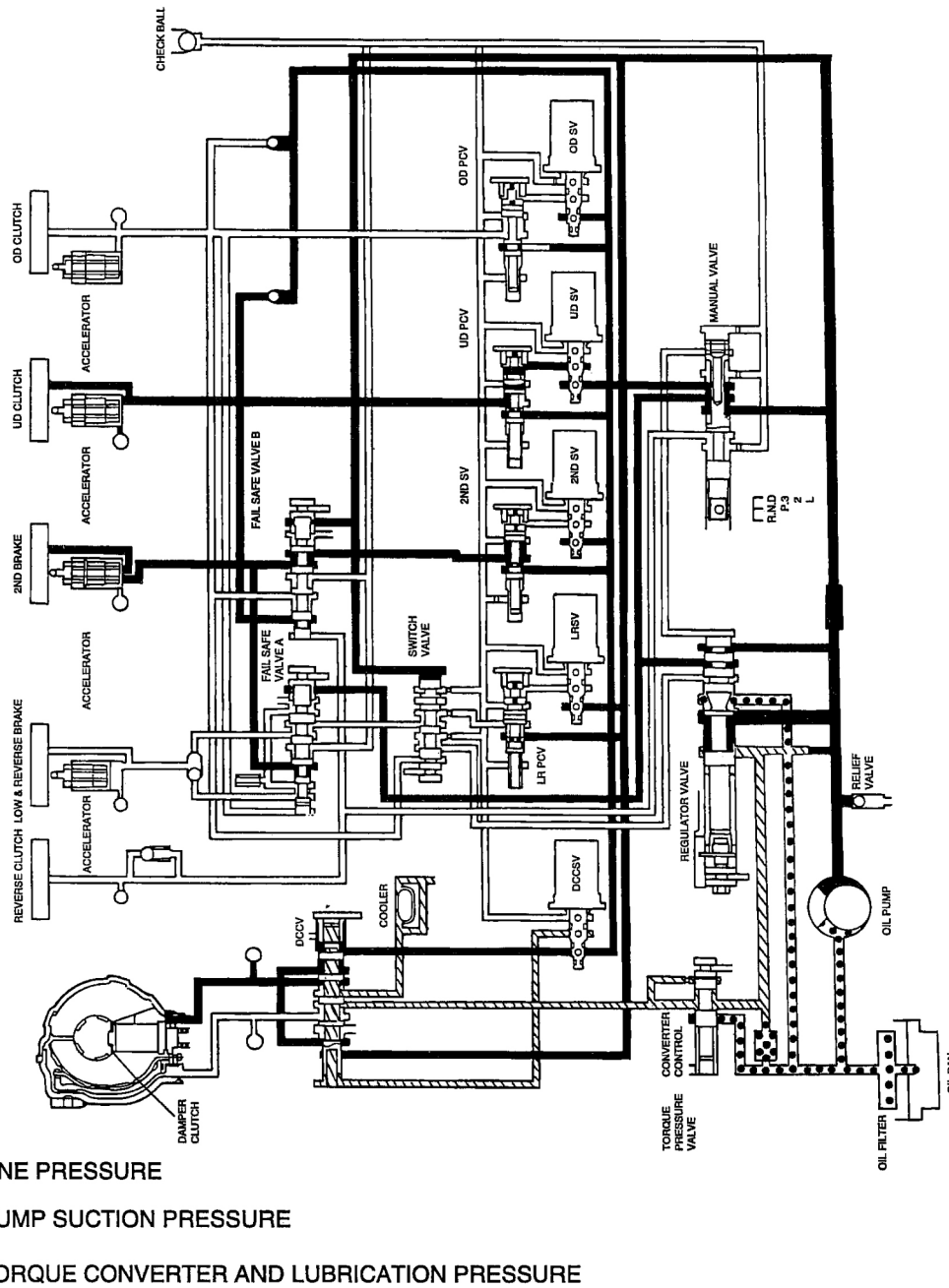
### **Fig. 99: Identifying Parking & Neutral Hydraulic Circuit**

**FIRST**



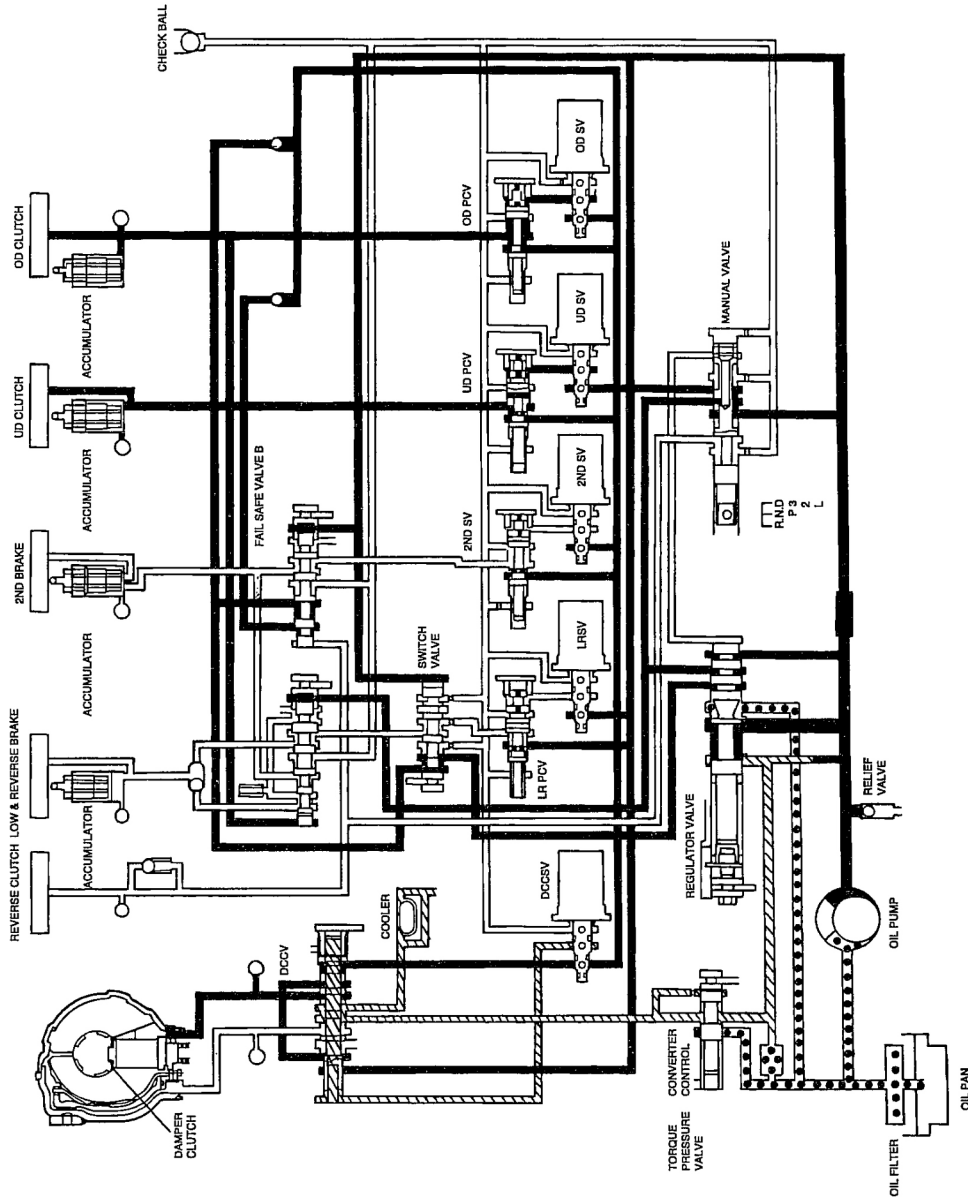
**Fig. 100: Identifying 1st Hydraulic Circuit**  
**Courtesy of KIA MOTORS AMERICA, INC.**

SECOND



**Fig. 101: Identifying 2nd Hydraulic Circuit**  
Courtesy of KIA MOTORS AMERICA, INC.

THIRD

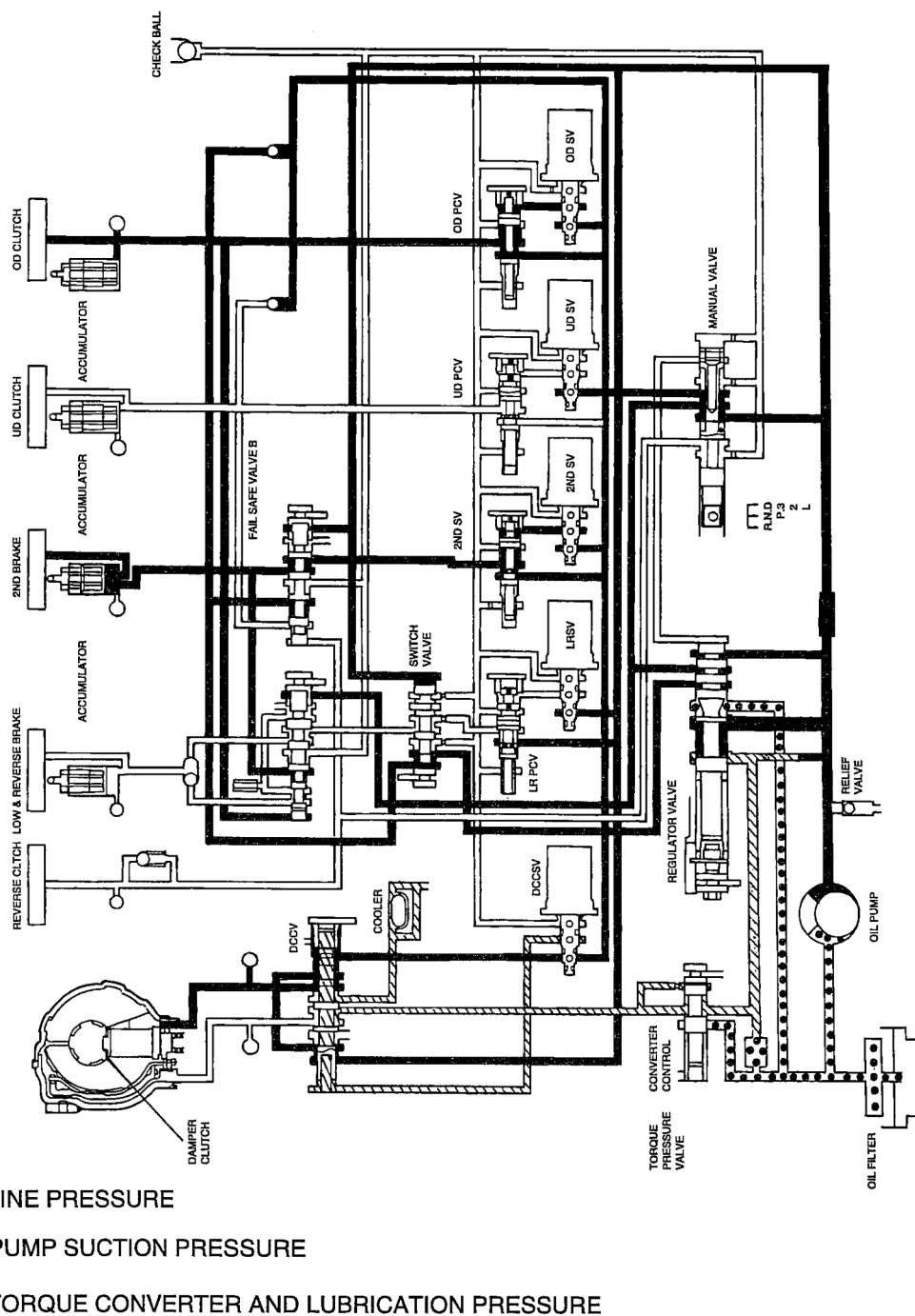


- LINE PRESSURE
- PUMP SUCTION PRESSURE
- TORQUE CONVERTER AND LUBRICATION PRESSURE

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**Fig. 102: Identifying 3rd Hydraulic Circuit**  
Courtesy of KIA MOTORS AMERICA, INC.

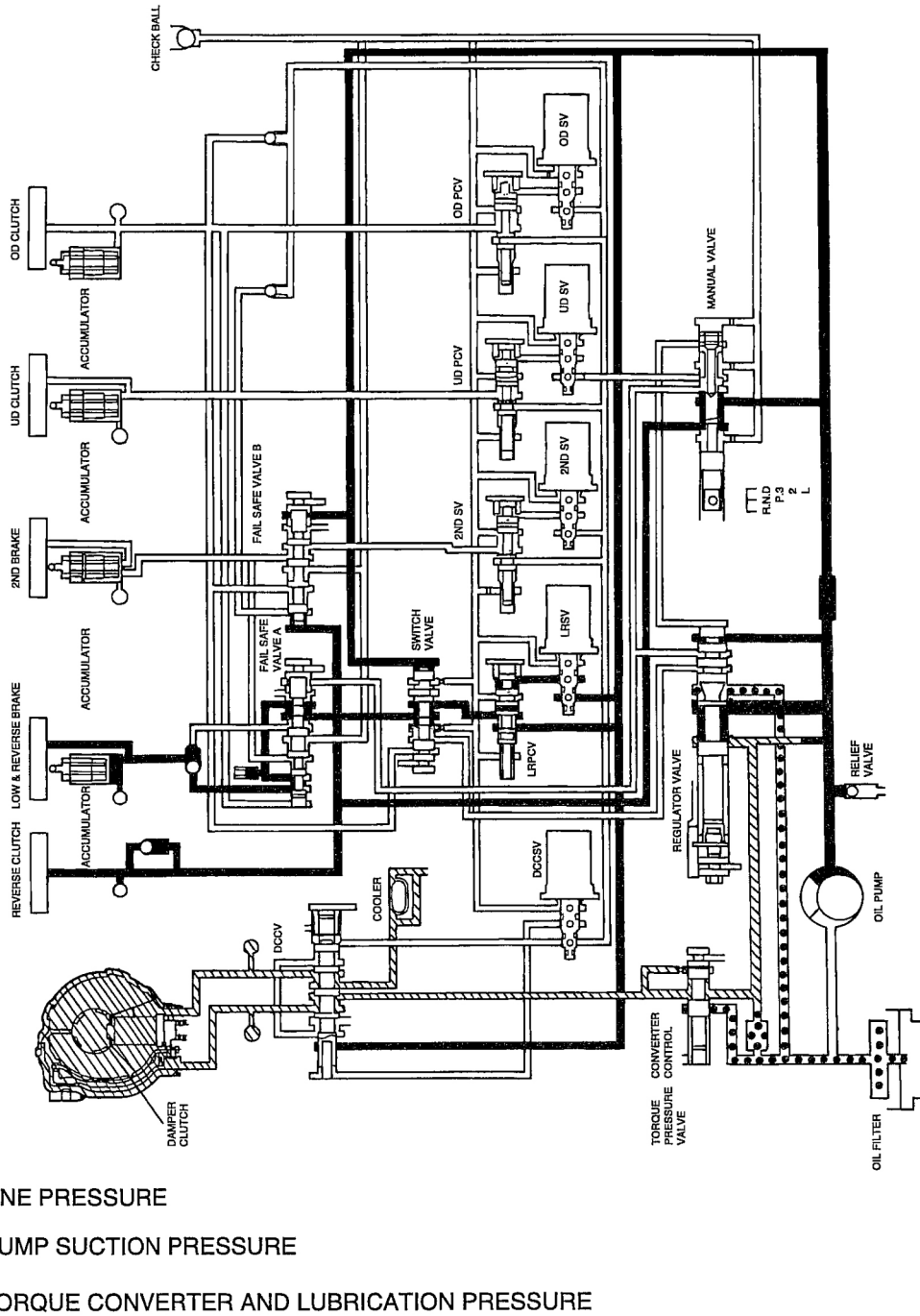
FOURTH



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**Fig. 103: Identifying 4th Hydraulic Circuit**  
 Courtesy of KIA MOTORS AMERICA, INC.

**REVERSE**



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**Fig. 104: Identifying Reverse Hydraulic Circuit**  
Courtesy of KIA MOTORS AMERICA, INC.

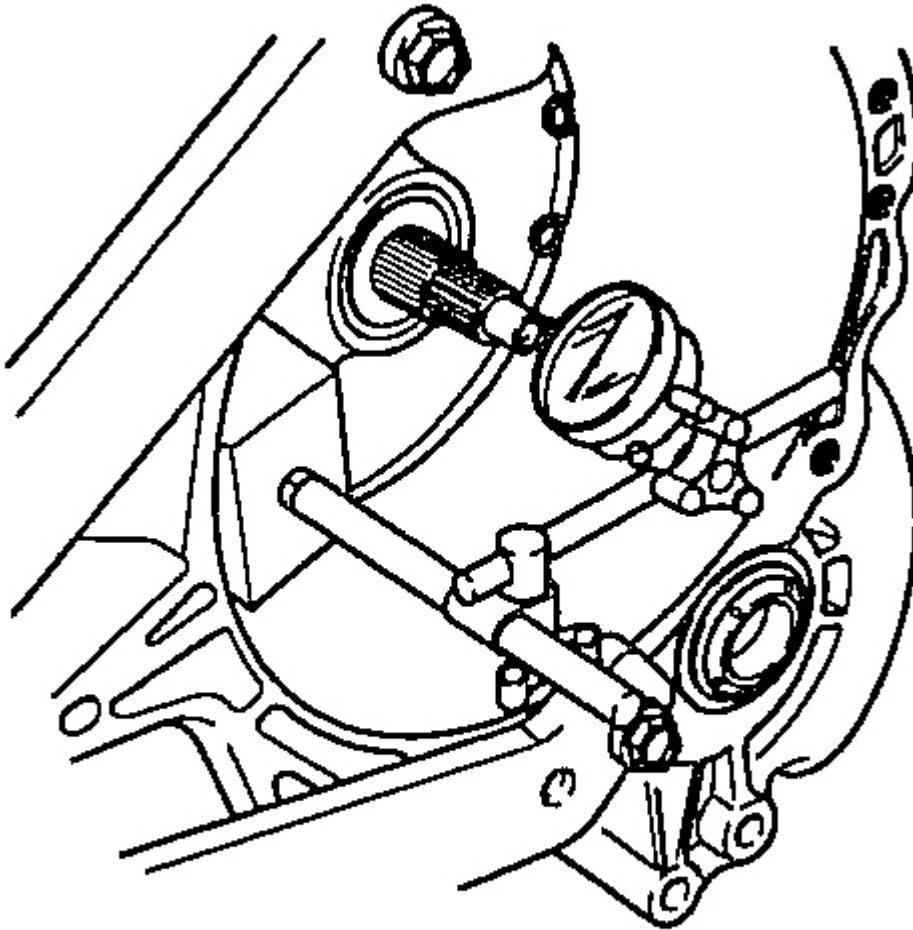
## DISASSEMBLY

**CAUTION:** 1. Because the automatic transmission is manufactured from high-

**precision parts, sufficient care must be taken not to scratch or damage these parts during disassembly and reassembly.**

- 2. The working area should be covered with a rubber mat to keep it clean at all times.**
- 3. Do not wear any cloth gloves and do not use any rags during disassembly. Use nylon cloth or paper towels if you need to use something.**
- 4. Parts which have been disassembled should all be cleaned. Metal parts can be cleaned with normal detergent but they should be dried completely using compressed air.**
- 5. Clutch discs, plastic thrust plates and rubber parts should be cleaned with automatic transmission fluid (ATF) so that they do not become dirty.**
- 6. If the transmission body has been damaged, disassemble and clean the cooler system also.**

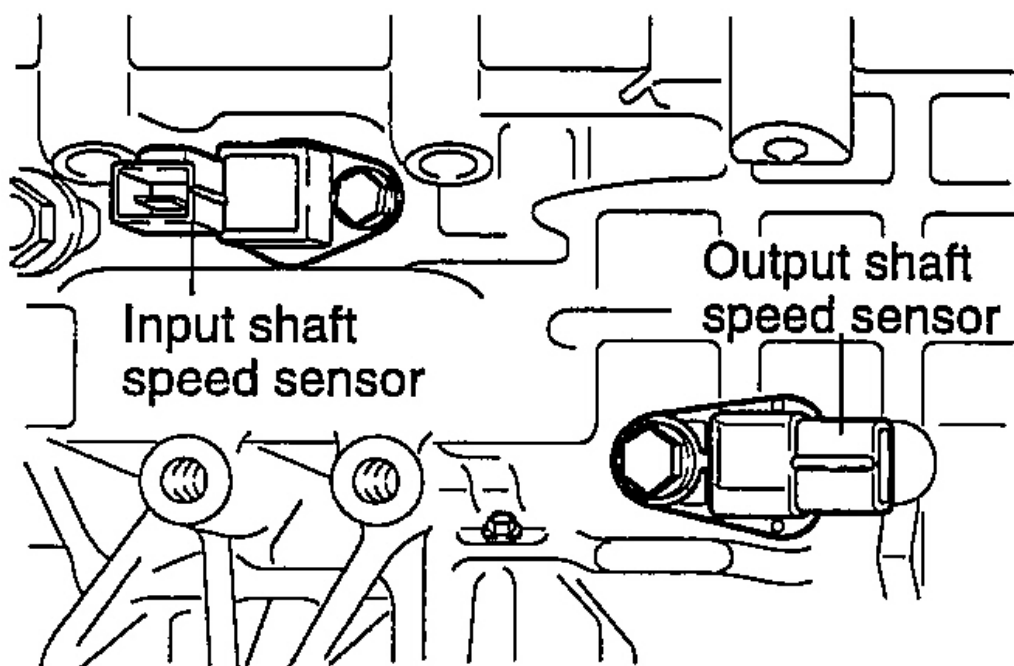
1. Remove the torque converter and set aside.
2. Measure the input shaft end play.



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**Fig. 105: Measuring Input Shaft End Play**  
Courtesy of KIA MOTORS AMERICA, INC.

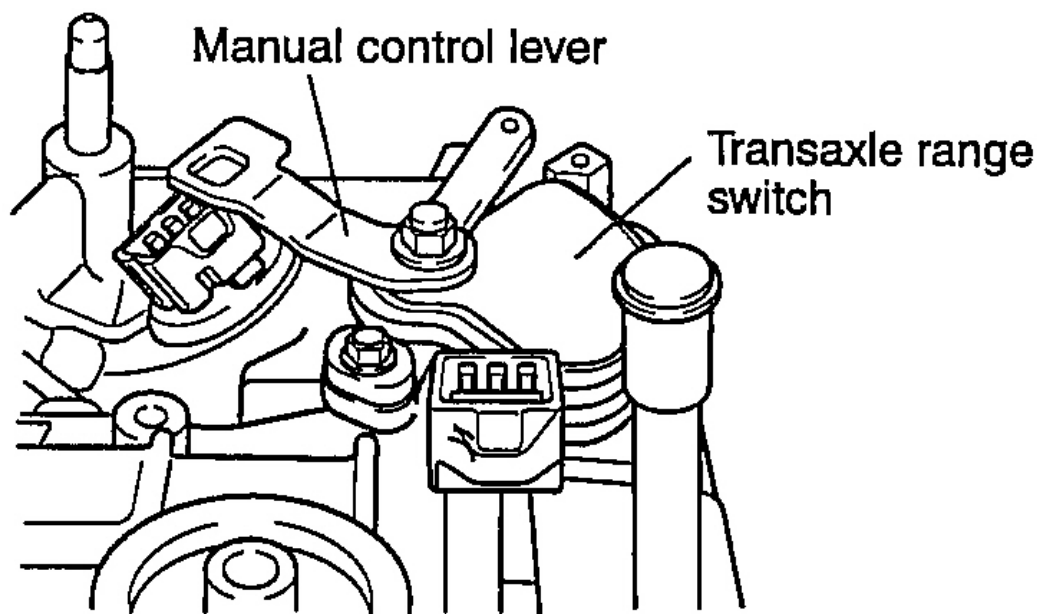
3. Remove the left and right roll stopper brackets.
4. Remove the wiring harness bracket.
5. Remove the control cable support bracket.
6. Remove the dipstick.
7. Remove the oil cooler feed tube, gasket, and eye bolt.
8. Remove the input shaft speed sensor and the output shaft speed sensor.



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**Fig. 106: Removing Input Shaft Sensor & Output Shaft Speed Sensor**  
Courtesy of KIA MOTORS AMERICA, INC.

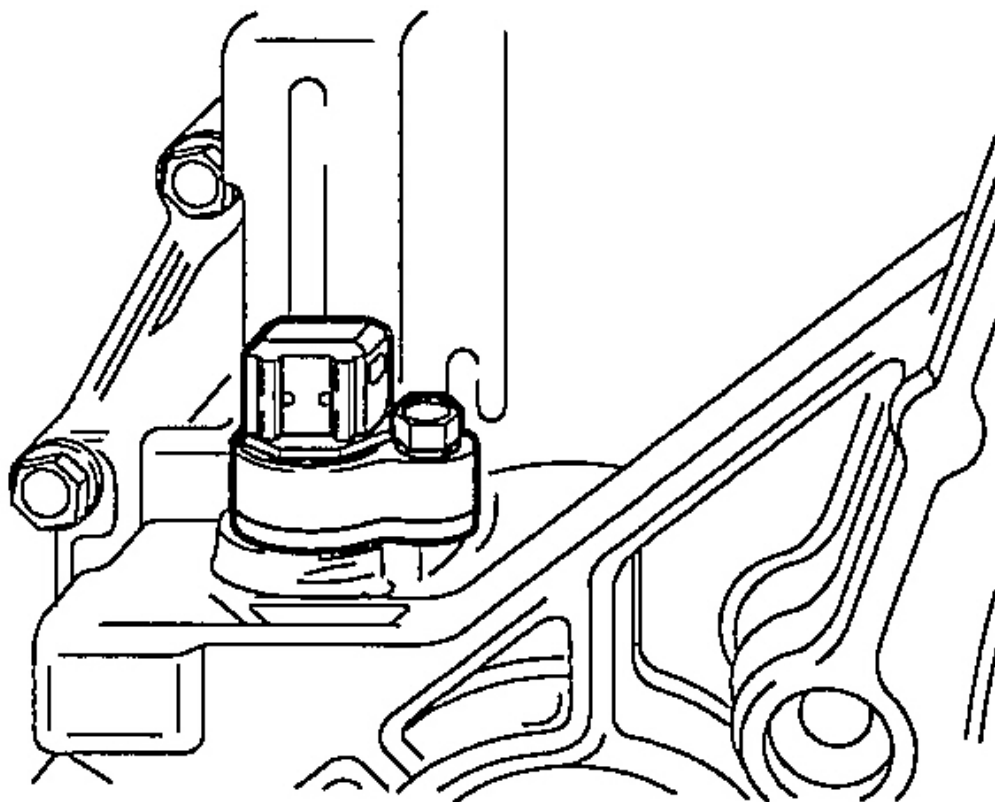
9. Remove the manual control lever, then remove the transaxle range switch.



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**Fig. 107: Removing Manual Control Lever & Transaxle Range Switch**  
Courtesy of KIA MOTORS AMERICA, INC.

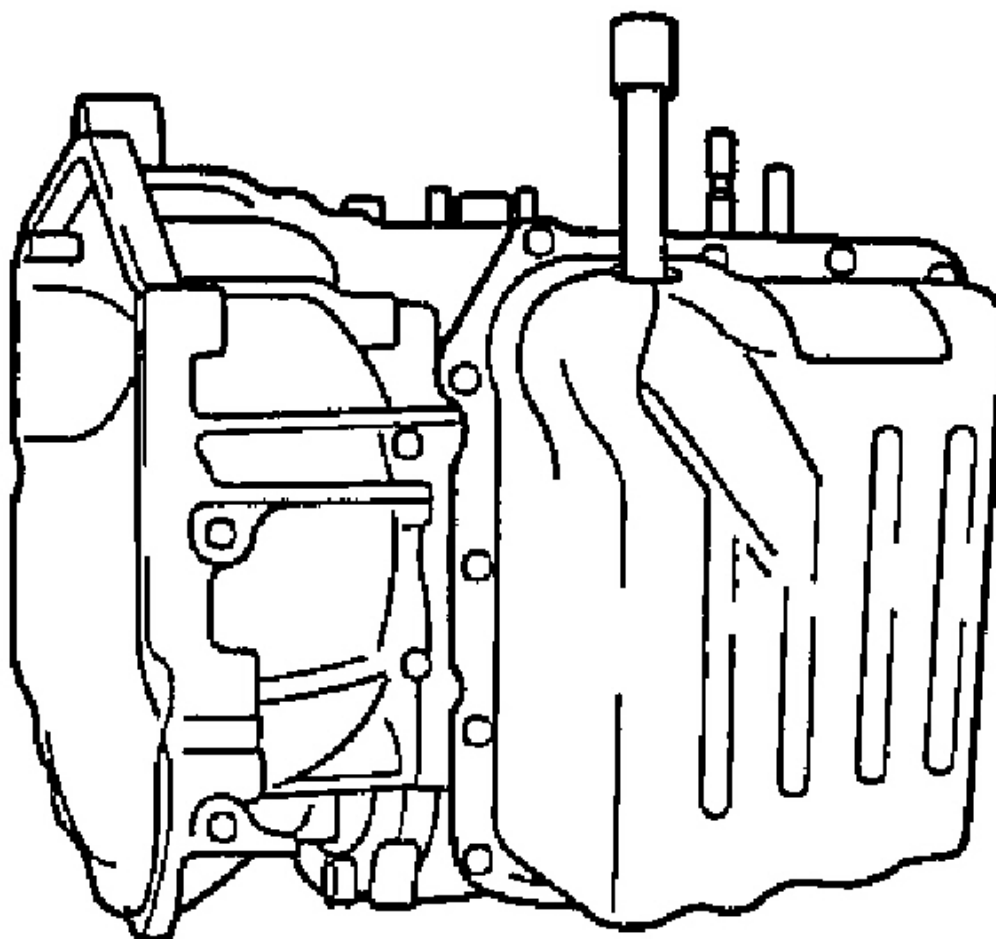
10. Remove the vehicle speed sensor.



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**Fig. 108: Removing Vehicle Speed Sensor**  
Courtesy of KIA MOTORS AMERICA, INC.

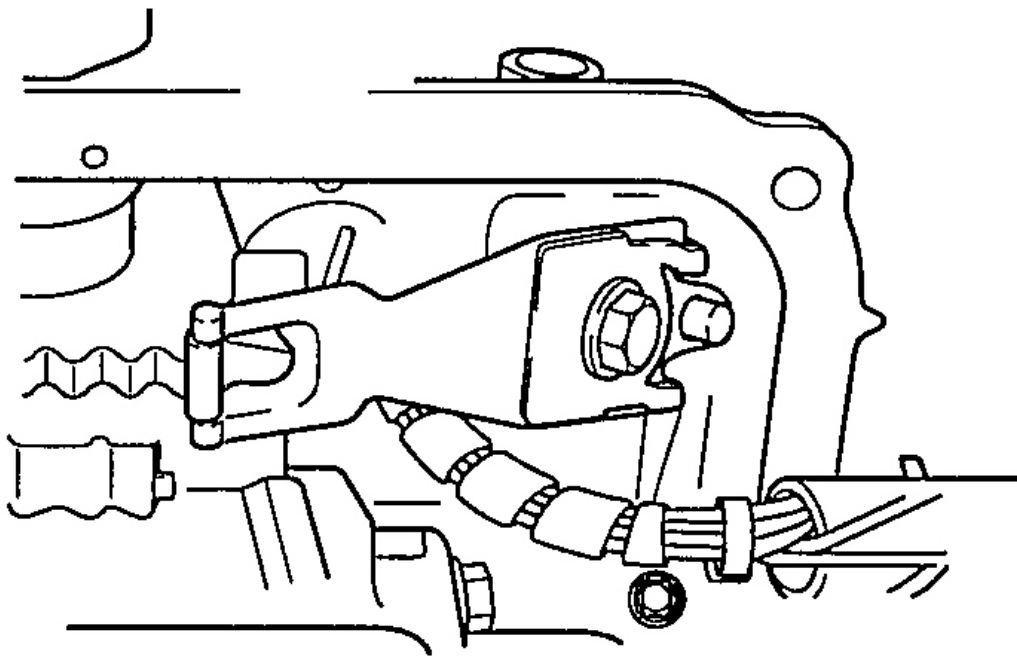
11. Remove the valve body cover.



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**Fig. 109: Removing Valve Body Cover**  
Courtesy of KIA MOTORS AMERICA, INC.

12. Remove the manual control shaft detent.

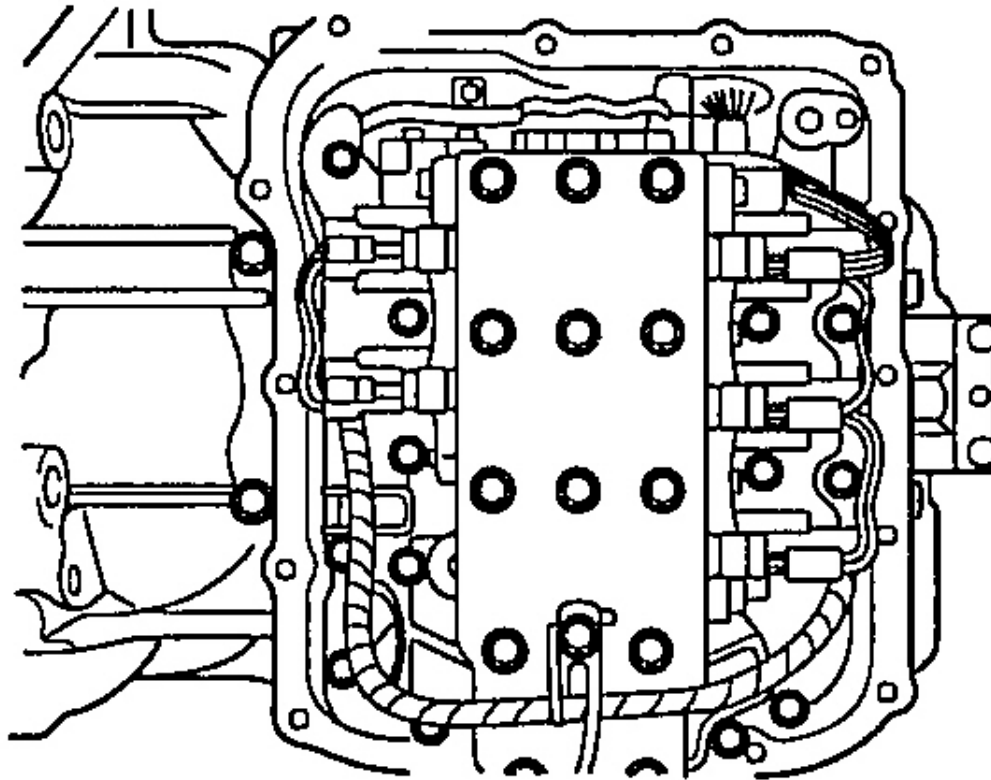


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**Fig. 110: Removing Manual Control Shaft Detent**  
Courtesy of KIA MOTORS AMERICA, INC.

13. Disconnect the harness connectors of the valve body.

**CAUTION:** To prevent damage to transaxle components make sure that the manual control lever and the park/neutral switch have been removed before attempting to remove the valve body.



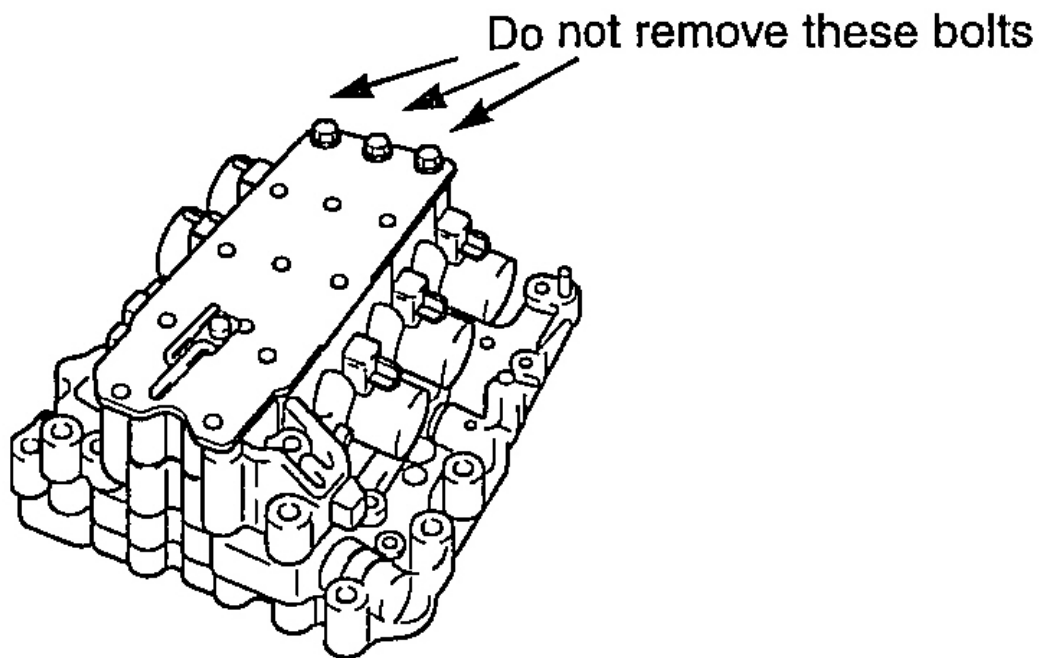
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**Fig. 111: Removing Valve Body Mounting Bolts (1 Of 2)**

Courtesy of KIA MOTORS AMERICA, INC.

**NOTE:** The valve body mounting bolts are different lengths. Note the locations of the bolts to aid in assembly.

14. Remove 28 of the valve body mounting bolts. Do not remove the bolts shown in the illustration at this time.

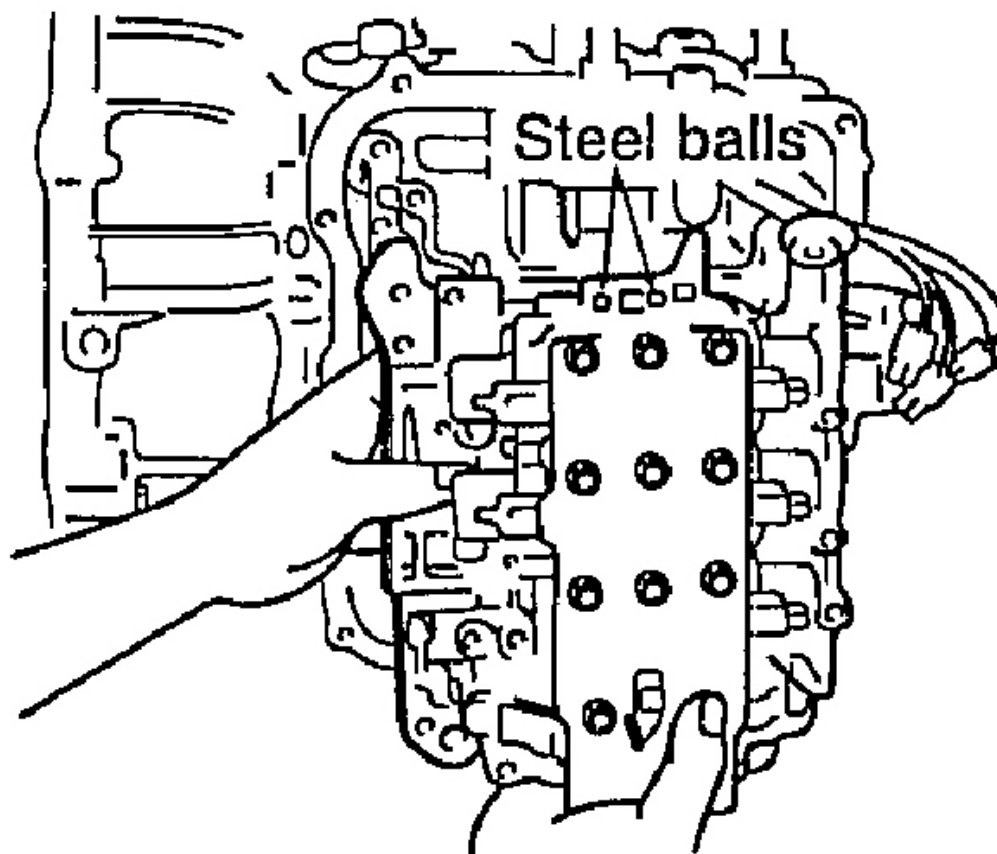


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**Fig. 112: Removing Valve Body Mounting Bolts (2 Of 2)**  
Courtesy of KIA MOTORS AMERICA, INC.

15. Remove the oil temperature sensor.
16. Remove the valve body, gasket, and the 2 steel balls.

**NOTE:**        **Make sure not to lose the 2 steel balls.**

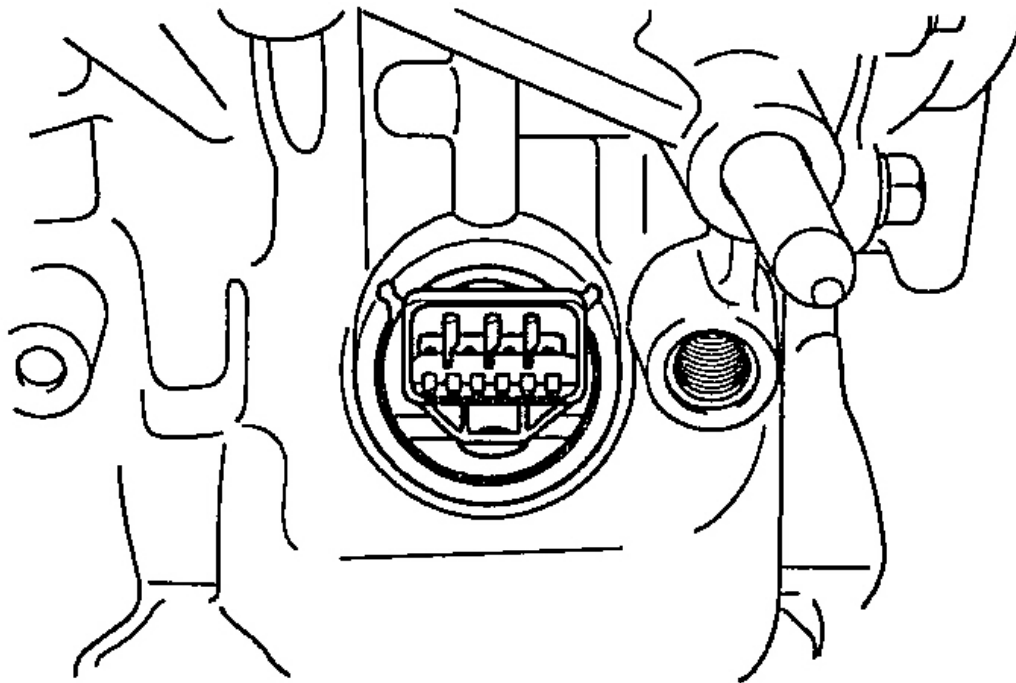


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**Fig. 113: Locating Steel Balls**

Courtesy of KIA MOTORS AMERICA, INC.

17. Remove the solenoid valve wiring harness snap ring.
18. Remove the solenoid valve harness.

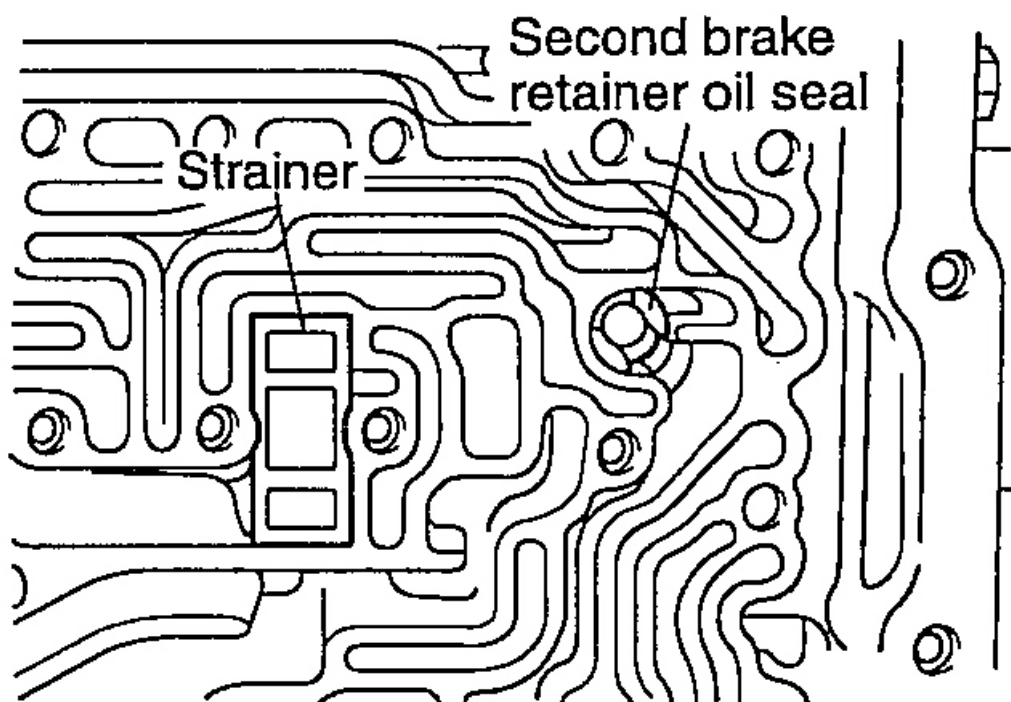


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**Fig. 114: Removing Solenoid Valve Harness**  
Courtesy of KIA MOTORS AMERICA, INC.

19. Remove the strainer.
20. Remove the second brake retainer oil seal.

**CAUTION:** The second brake retainer oil seal must be removed before removing the transaxle powertrain components from the case or damage to the seal will occur.



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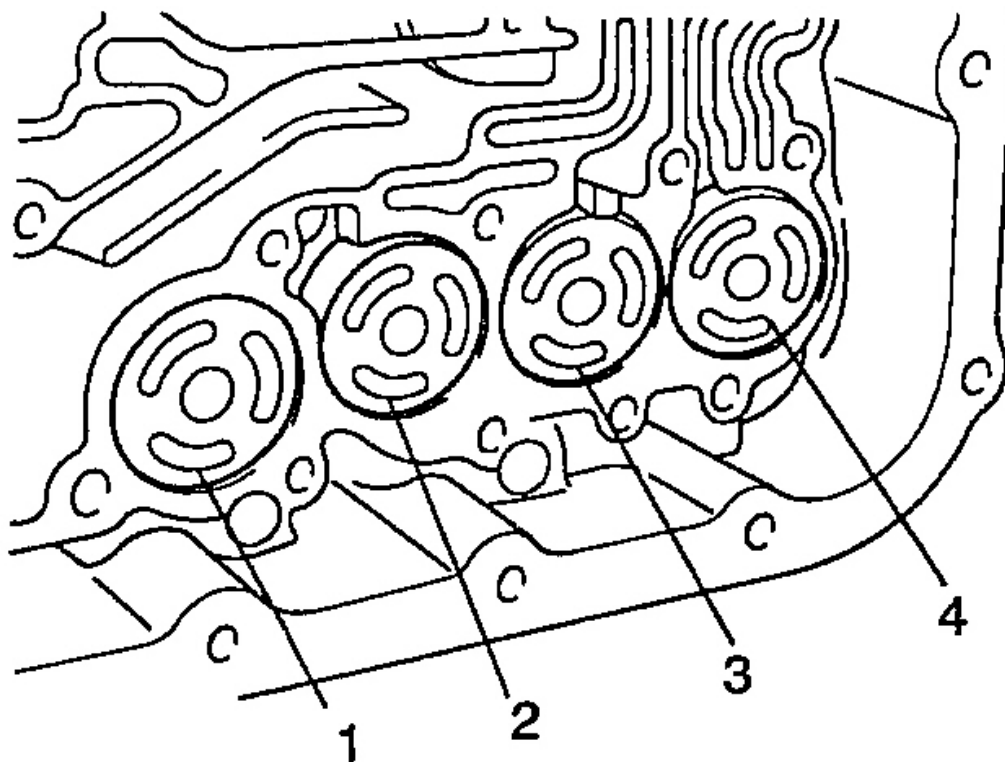
**Fig. 115: Removing Second Brake Retainer Oil Seal**  
 Courtesy of KIA MOTORS AMERICA, INC.

21. Remove the 4 accumulator pistons, the 4 large springs, and the 3 small springs.

| Number | Functional Name   |
|--------|-------------------|
| 1      | Low-Reverse Brake |
| 2      | Underdrive Clutch |
| 3      | Second Brake      |
| 4      | Overdrive Clutch  |

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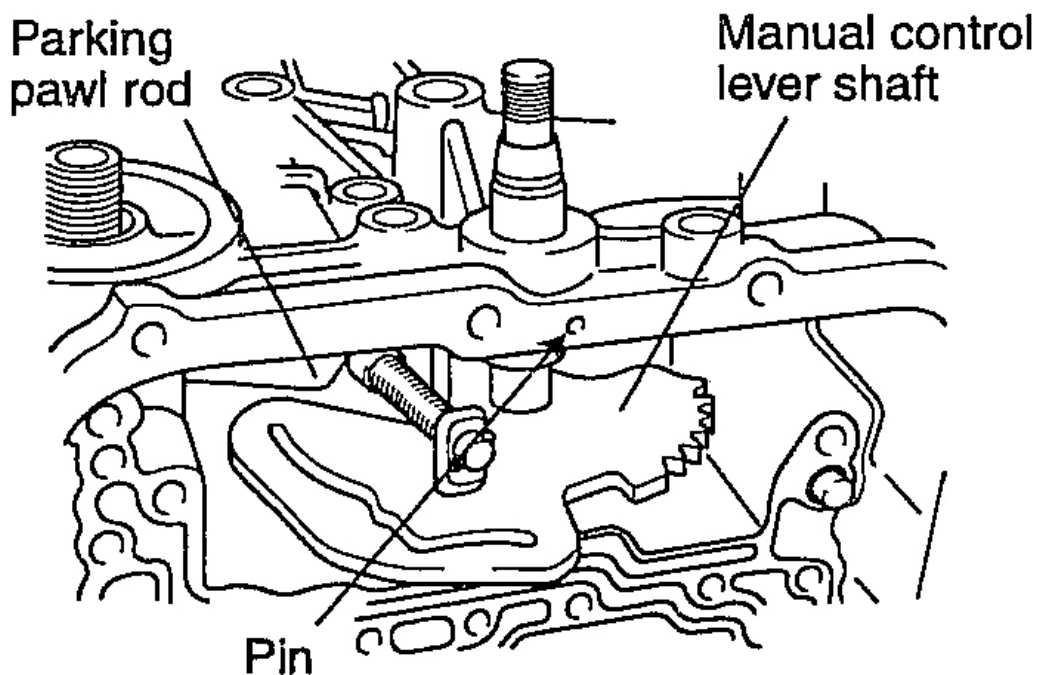
**Fig. 116: Removing Accumulator Pistons, Large Springs & Small Springs (1 Of 2)**  
Courtesy of KIA MOTORS AMERICA, INC.



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**Fig. 117: Removing Accumulator Pistons, Large Springs & Small Springs (2 Of 2)**  
Courtesy of KIA MOTORS AMERICA, INC.

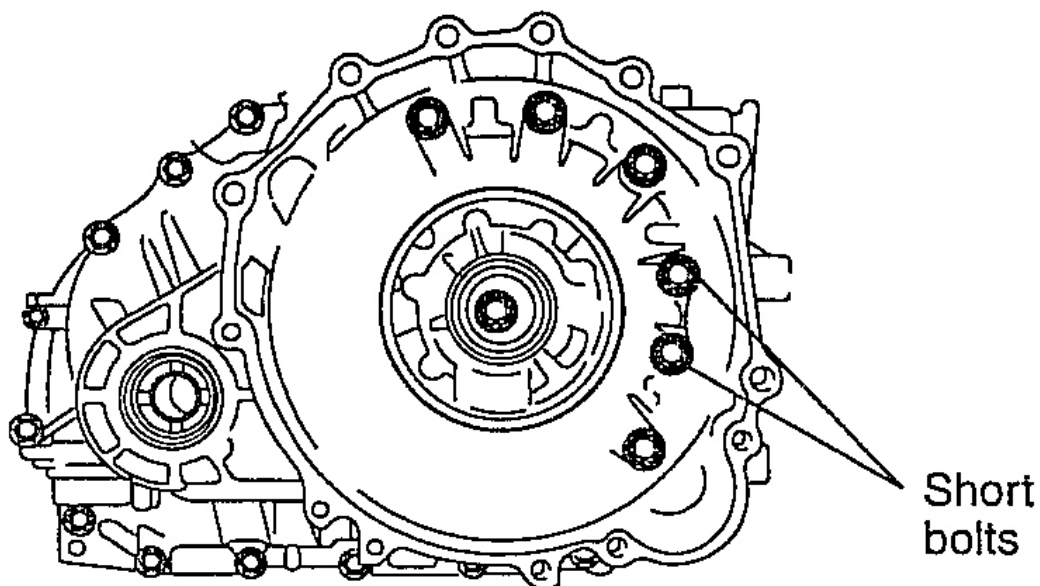
22. Remove the manual control lever shaft pin (roller).
23. Remove the manual control lever shaft.
24. Remove the parking pawl rod.



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**Fig. 118: Removing Parking Pawl Rod**  
 Courtesy of KIA MOTORS AMERICA, INC.

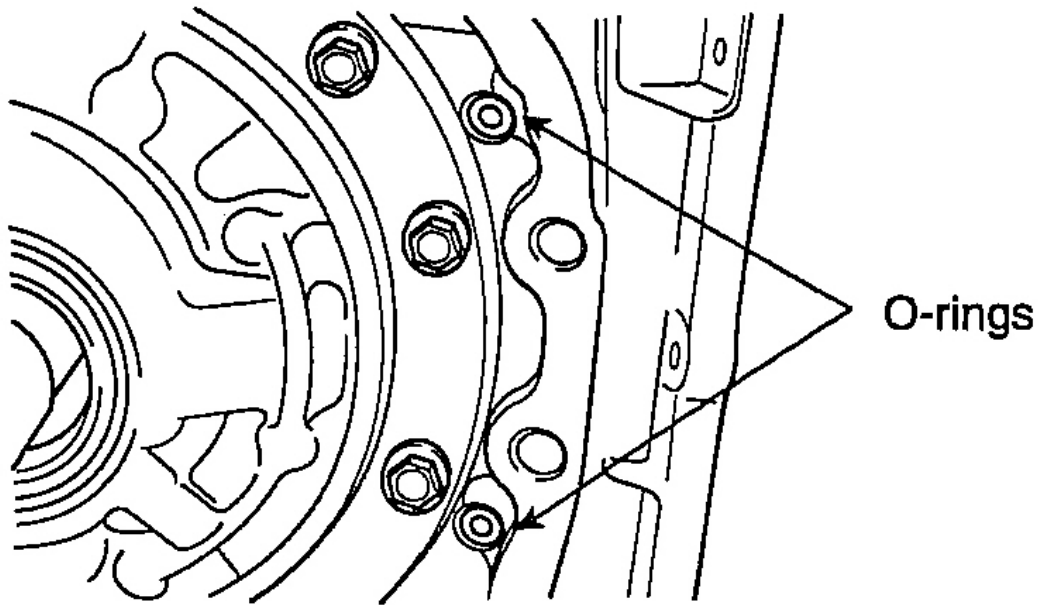
25. Remove the torque converter housing and 18 mounting bolts. Tap the housing off with a non-metallic hammer.



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**Fig. 119: Removing Torque Converter Housing**  
Courtesy of KIA MOTORS AMERICA, INC.

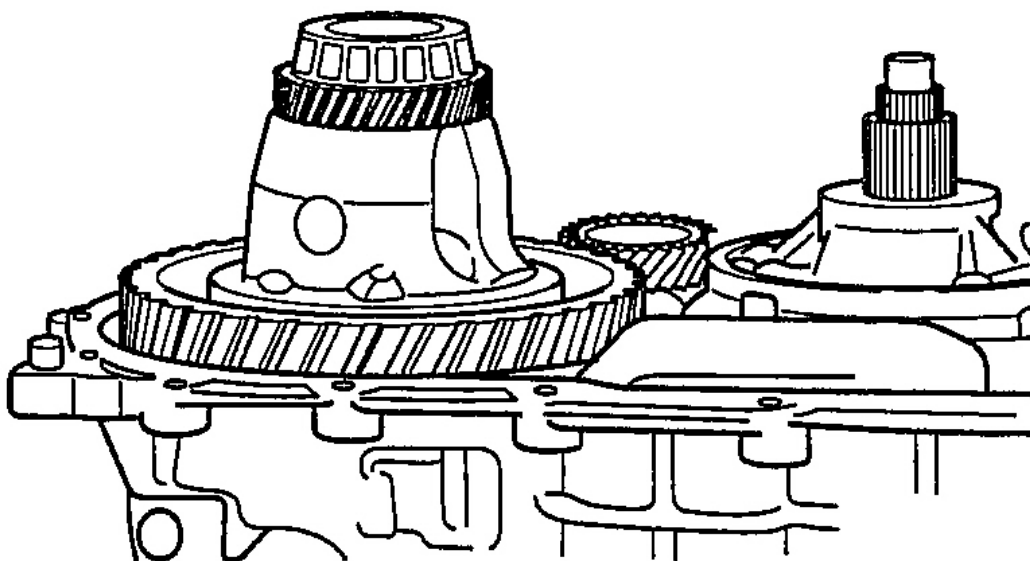
26. Remove the 2 O-rings from the case.



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**Fig. 120: Removing O-Rings From Case**  
Courtesy of KIA MOTORS AMERICA, INC.

27. Remove the differential.

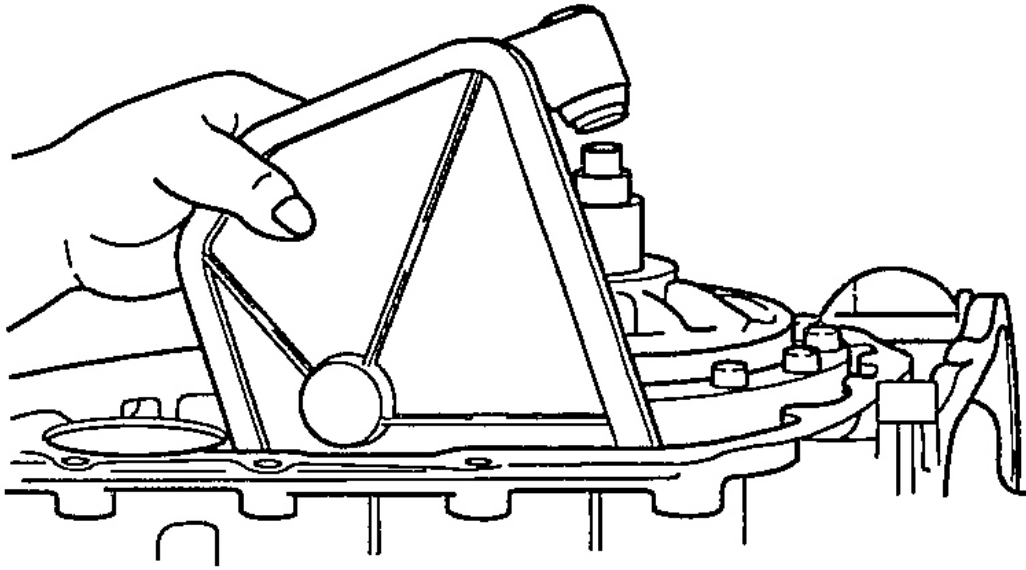


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**Fig. 121: Removing Differential**

Courtesy of KIA MOTORS AMERICA, INC.

28. Remove the main oil filter.

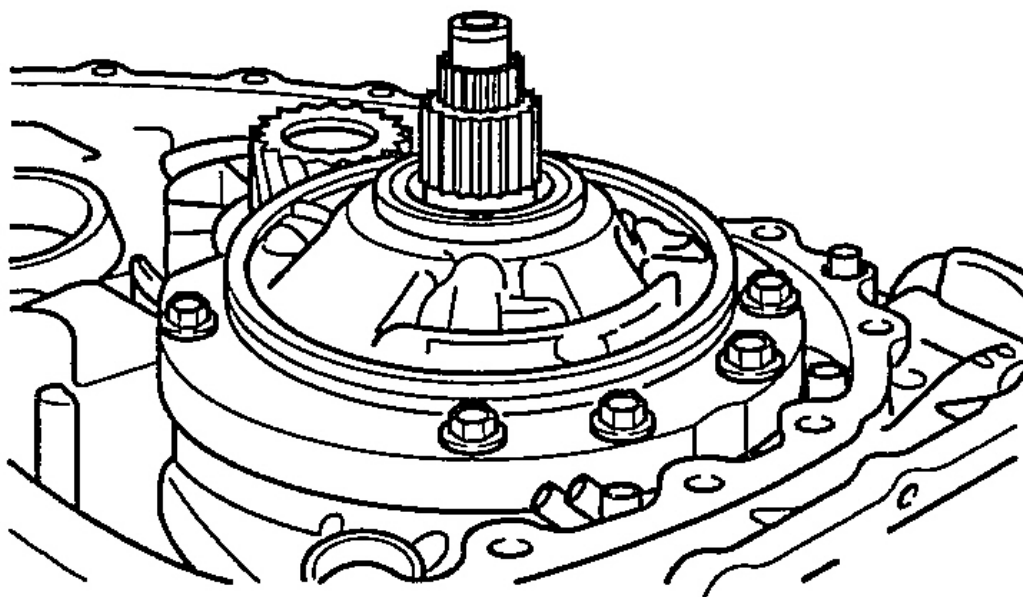


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**Fig. 122: Removing Main Oil Filter**  
Courtesy of KIA MOTORS AMERICA, INC.

29. Remove oil pump mounting bolts.

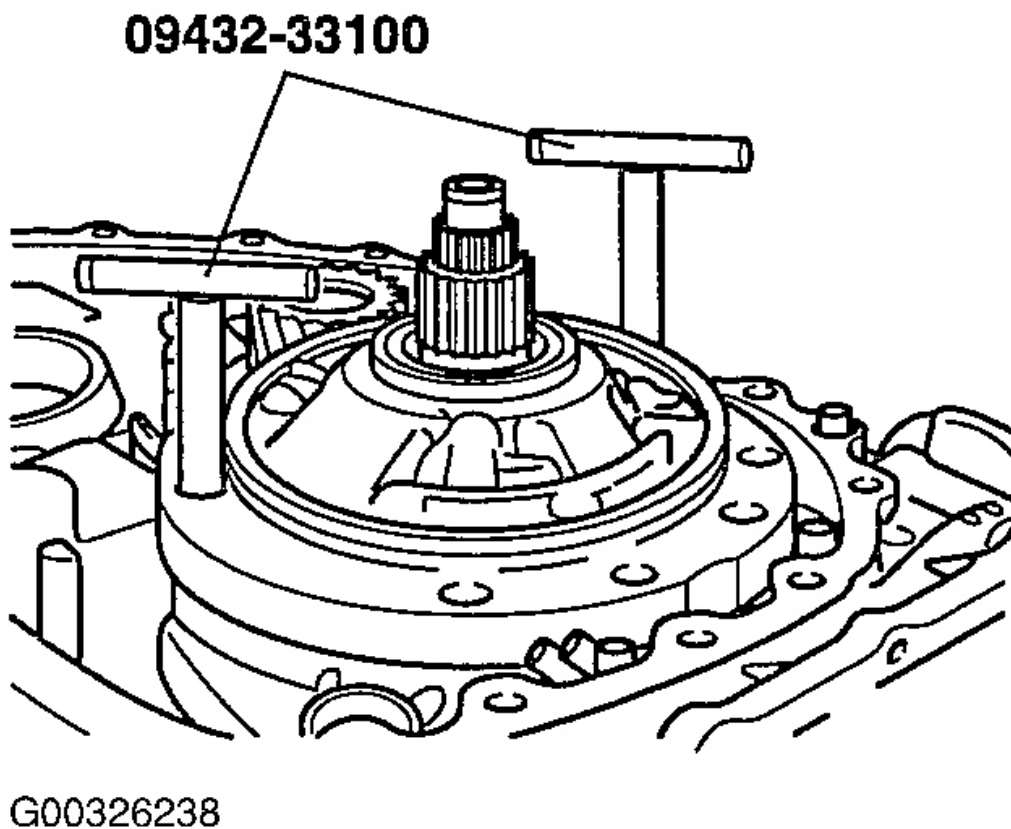
**CAUTION:** The oil pump is not serviceable, it must be replaced as a pump assembly. Do not disassemble the pump as improper alignment during assembly will cause pump failure and could cause damage to the transaxle.



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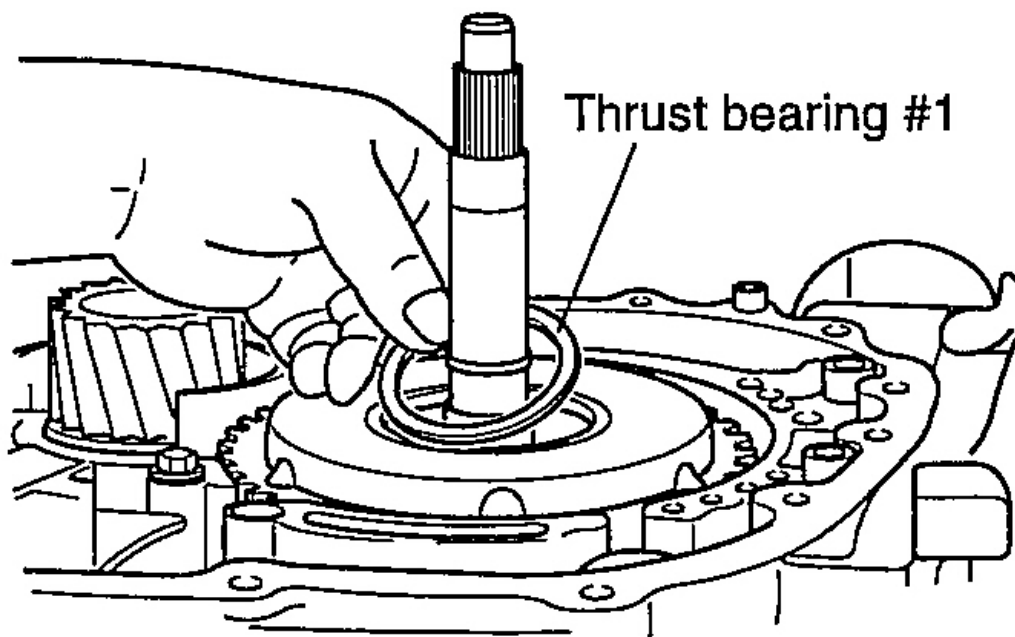
**Fig. 123: Removing Oil Pump Mounting Bolts**  
Courtesy of KIA MOTORS AMERICA, INC.

30. Install the special tool (09452-33100), as shown in the illustration.



**Fig. 124: Identifying Oil Pump Remover (09452-33100)**  
Courtesy of KIA MOTORS AMERICA, INC.

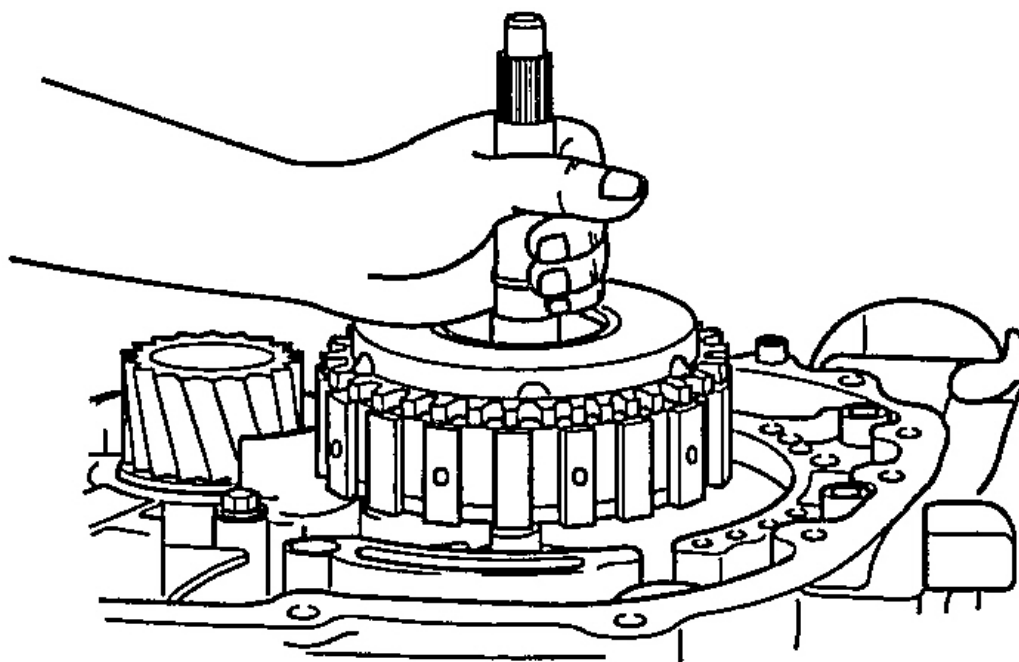
31. Remove the oil pump by turning special tool screws clockwise.
32. Remove the oil pump gasket.
33. Remove thrust bearing #1.



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**Fig. 125: Removing Thrust Bearing #1**  
Courtesy of KIA MOTORS AMERICA, INC.

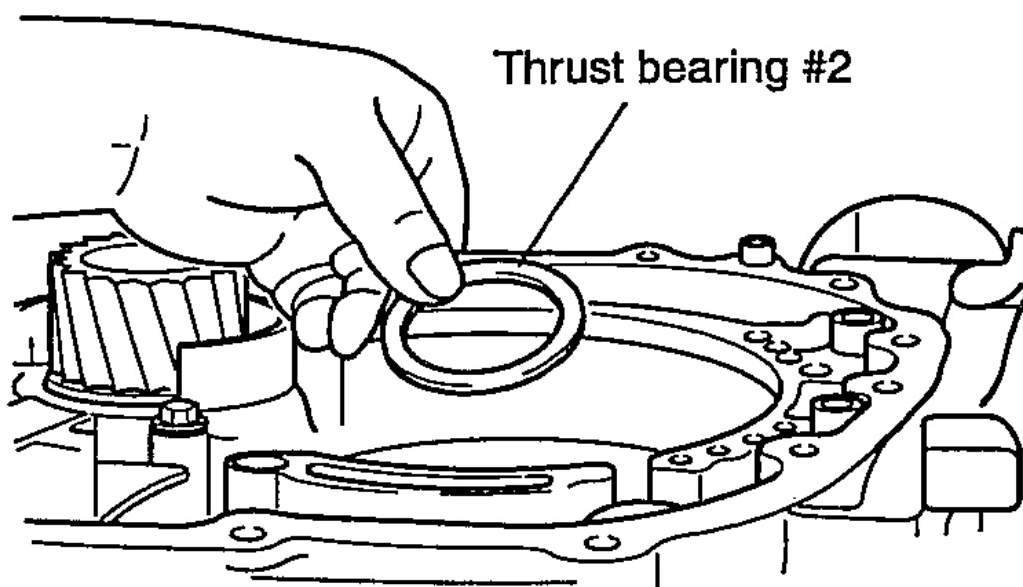
34. Grasp the input shaft, then pull out the underdrive clutch and input shaft as an assembly.



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**Fig. 126: Removing Underdrive Clutch & Input Shaft**  
Courtesy of KIA MOTORS AMERICA, INC.

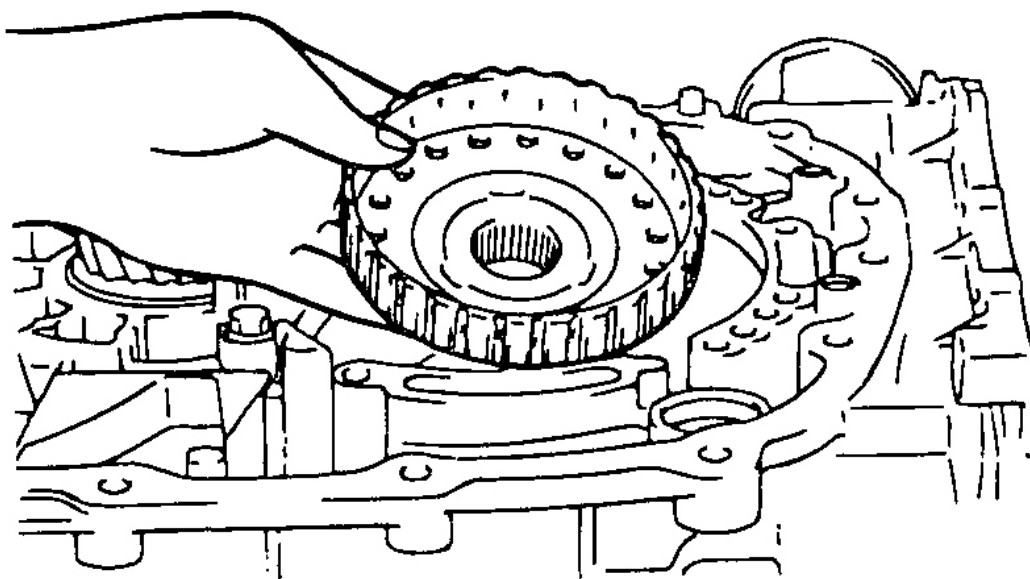
35. Remove thrust bearing #2.



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**Fig. 127: Removing Thrust Bearing #2**  
Courtesy of KIA MOTORS AMERICA, INC.

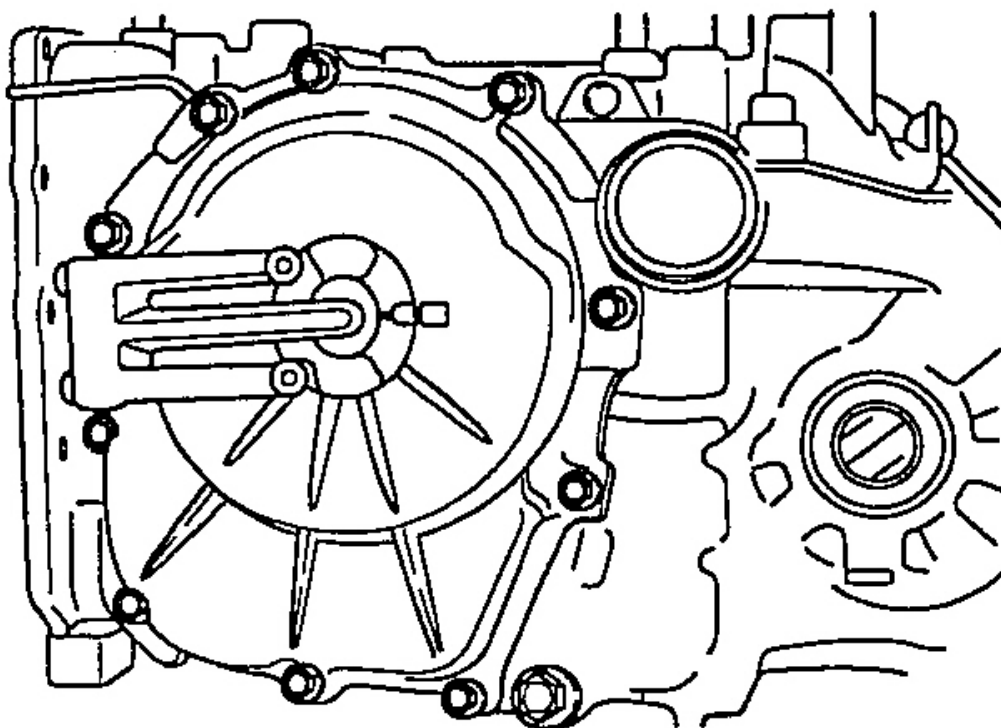
36. Remove the underdrive clutch hub.



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**Fig. 128: Removing Underdrive Clutch Hub**  
Courtesy of KIA MOTORS AMERICA, INC.

37. Remove the rear cover and mounting bolts.



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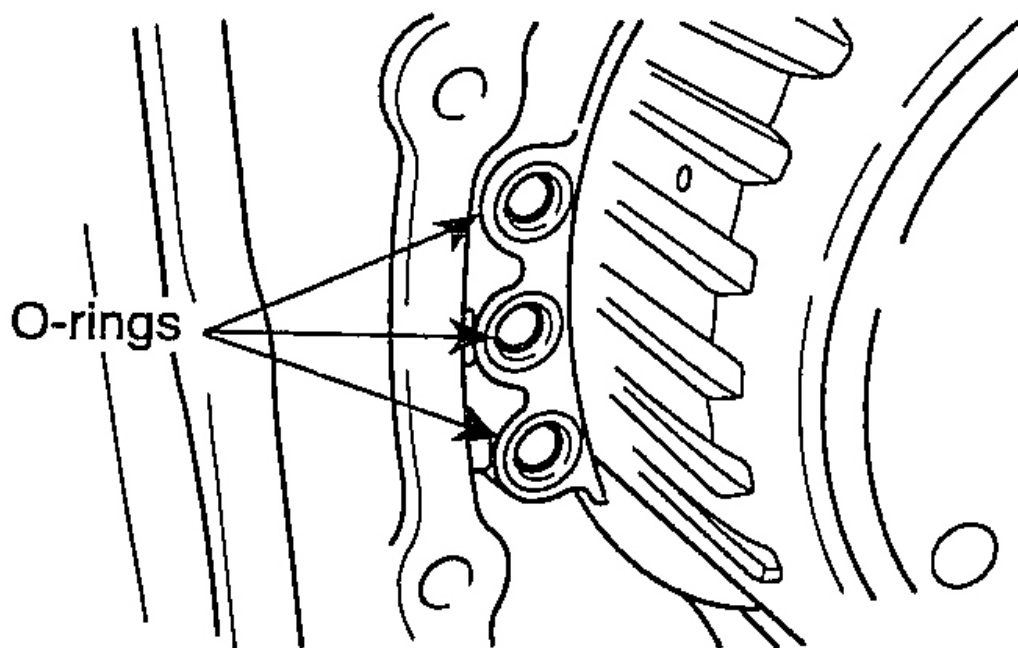
**Fig. 129: Removing Rear Cover**

Courtesy of KIA MOTORS AMERICA, INC.

- 38. Remove the thrust race #8.
- 39. Remove the 4 seal rings.

**NOTE:** Do not remove the input shaft rear bearing unless it is defective.  
Once this bearing has been removed, it **MUST** be replaced.

- 40. Remove the 3 O-rings.

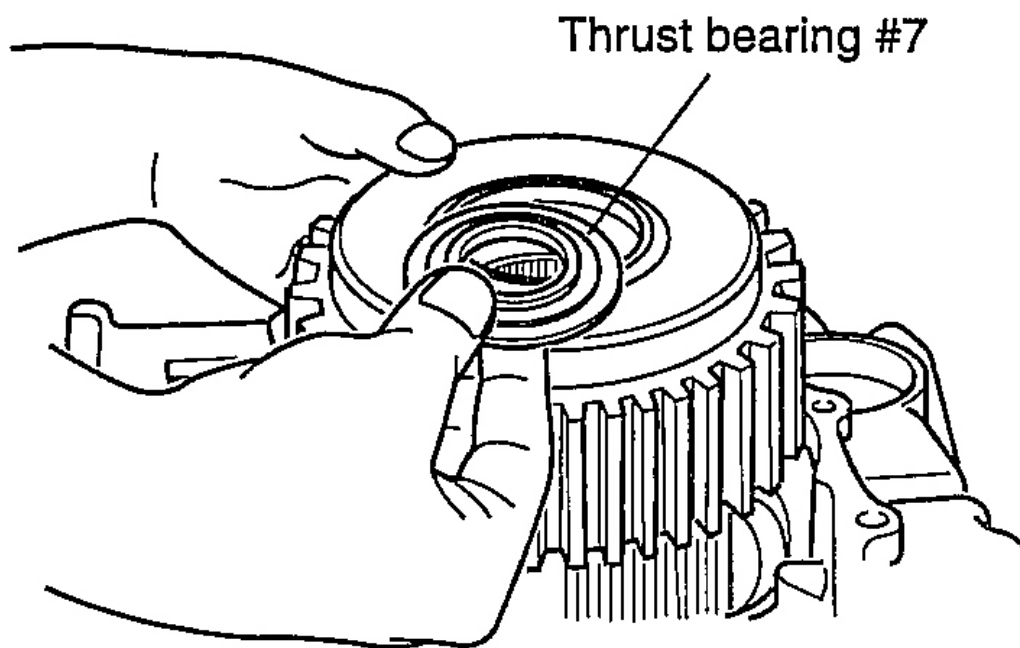


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**Fig. 130: Removing 3 O-Rings**

Courtesy of KIA MOTORS AMERICA, INC.

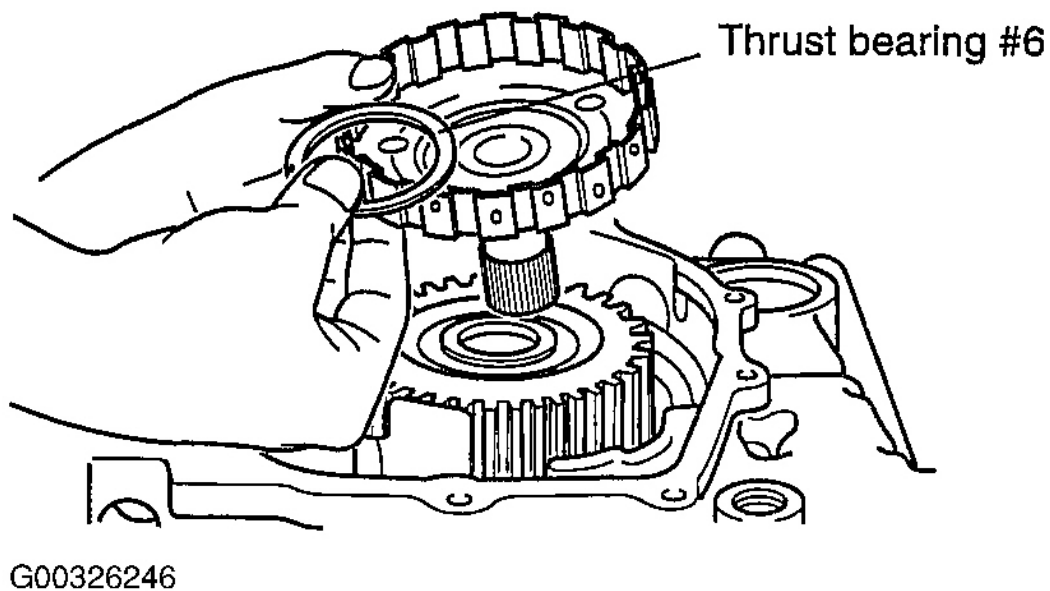
41. Remove thrust bearing #7.



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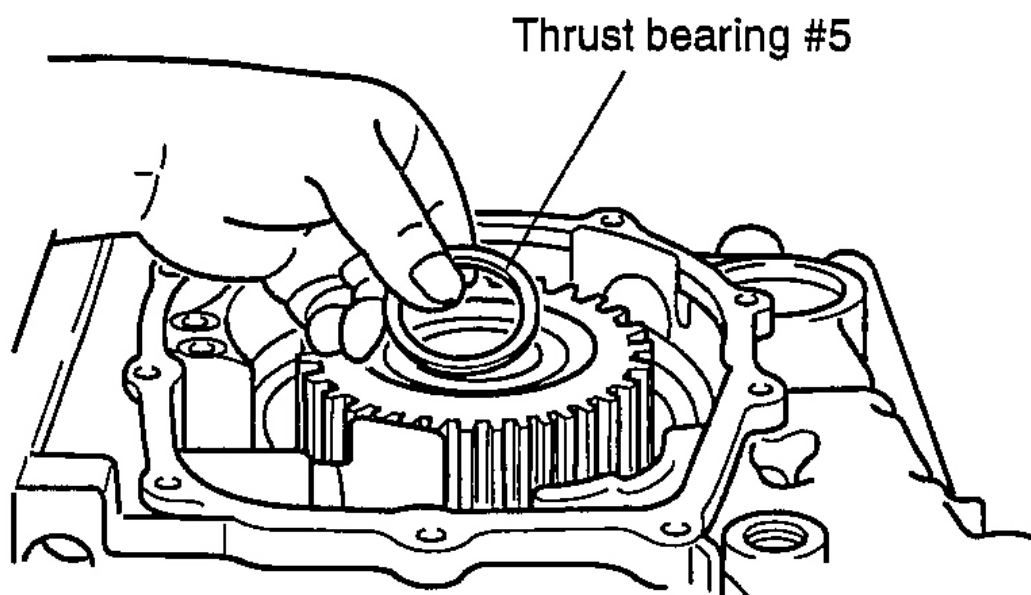
**Fig. 131: Removing Thrust Bearing #7**  
Courtesy of KIA MOTORS AMERICA, INC.

42. Remove the reverse and overdrive clutch.
43. Remove thrust bearing #6.



**Fig. 132: Removing Thrust Bearing #6**  
Courtesy of KIA MOTORS AMERICA, INC.

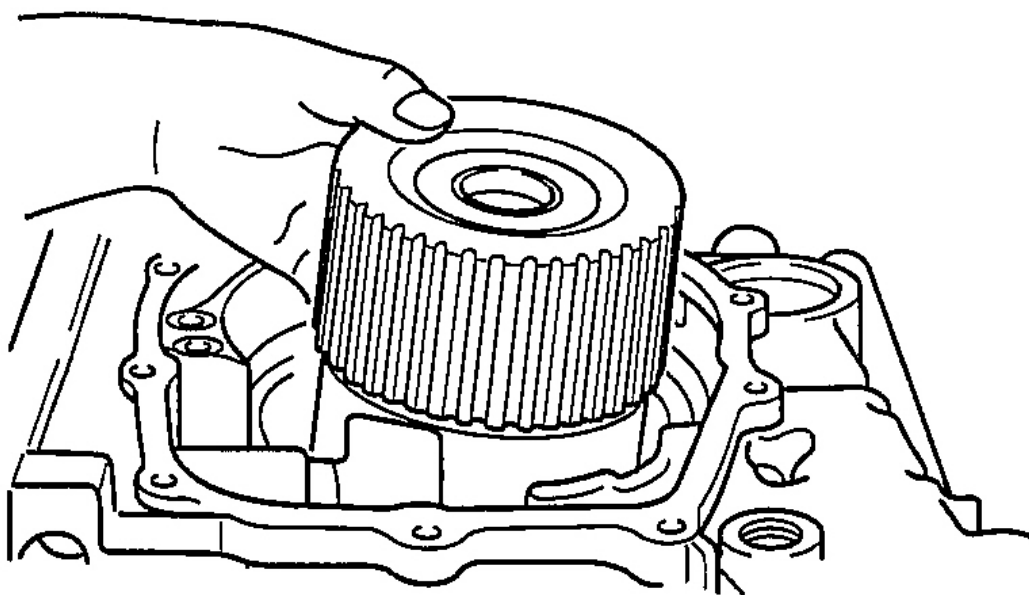
44. Remove the overdrive clutch hub.
45. Remove thrust bearing #5.



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**Fig. 133: Removing Thrust Bearing #5**  
Courtesy of KIA MOTORS AMERICA, INC.

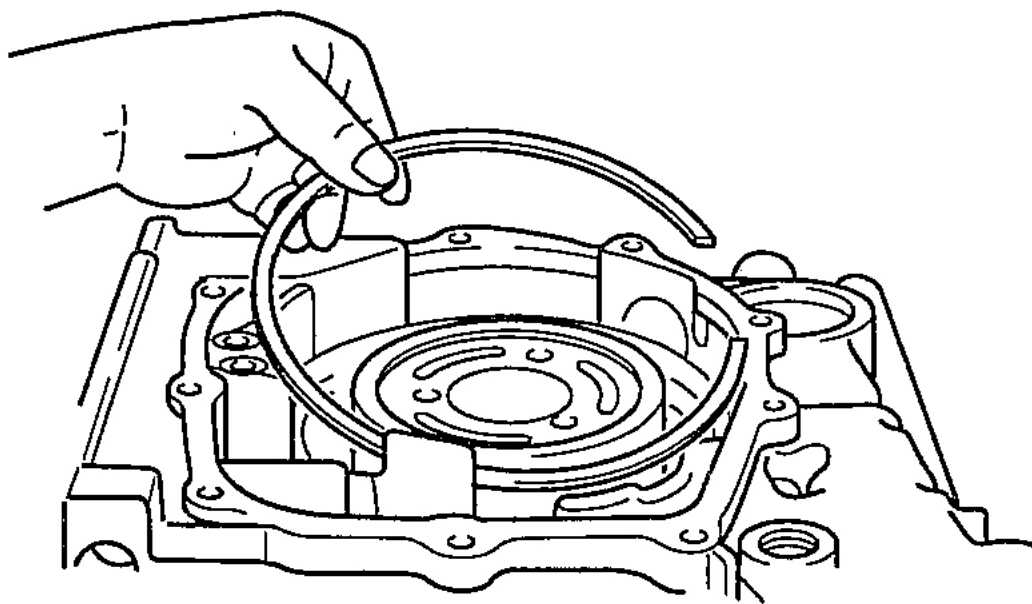
46. Remove the planetary reverse sun gear.



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**Fig. 134: Removing Planetary Reverse Sun Gear**  
Courtesy of KIA MOTORS AMERICA, INC.

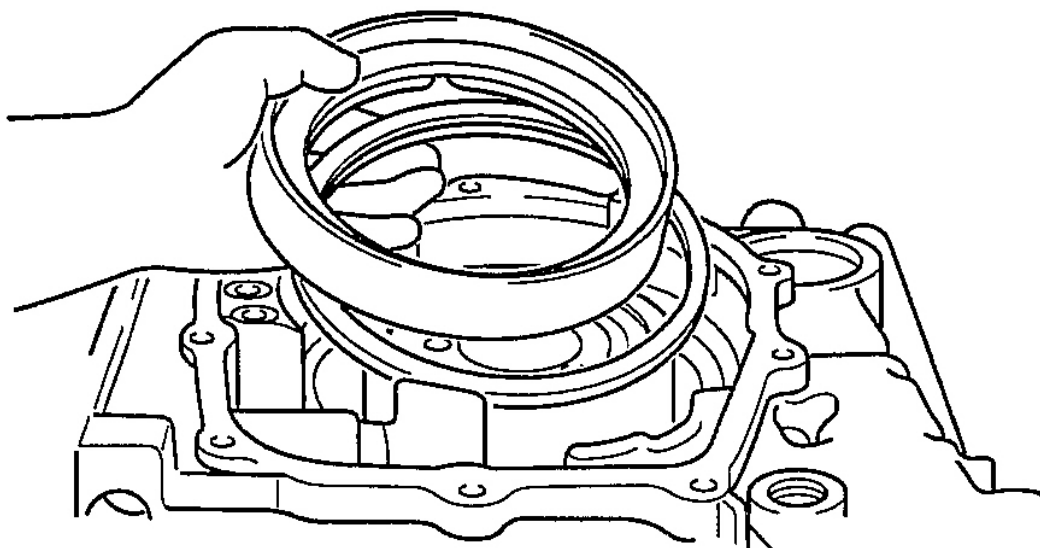
47. Remove the second brake piston snap ring.



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**Fig. 135: Removing Second Brake Piston Snap Ring**  
Courtesy of KIA MOTORS AMERICA, INC.

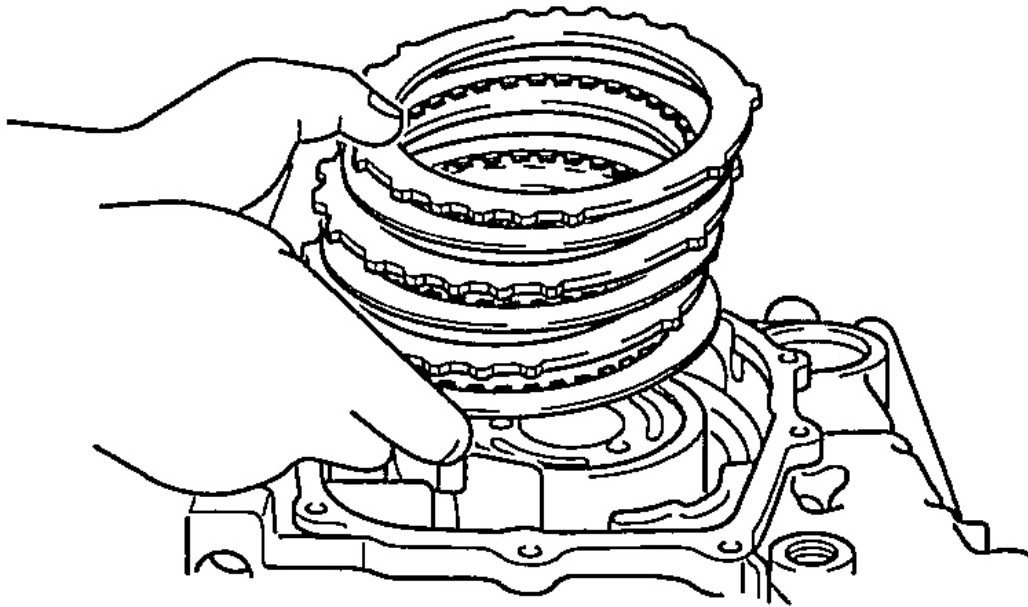
48. Remove the second brake piston and return spring.



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**Fig. 136: Removing Second Brake Piston & Return Spring**  
Courtesy of KIA MOTORS AMERICA, INC.

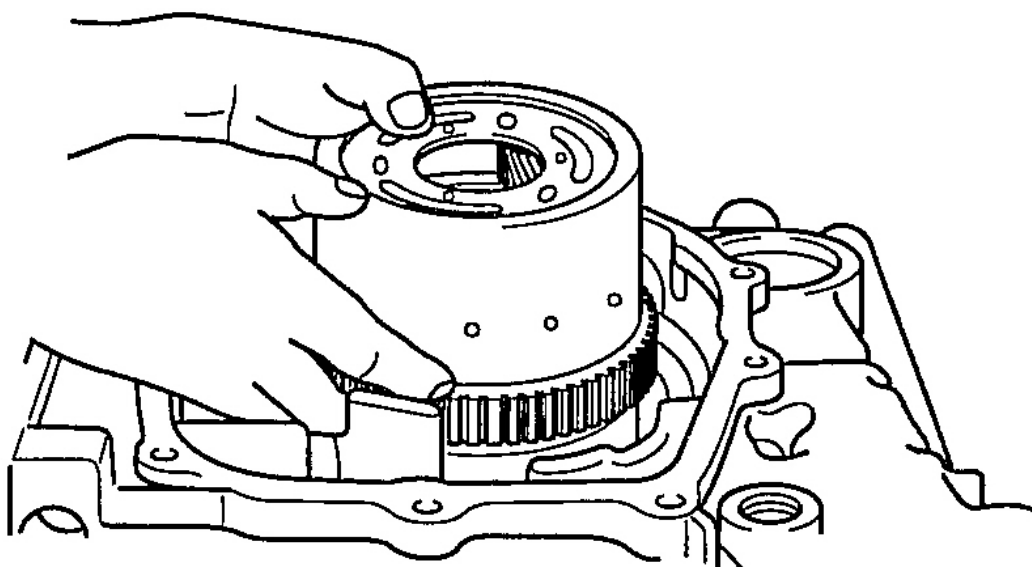
49. Remove the second brake pressure plate, 3 brake discs, and 2 brake plates.



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**Fig. 137: Removing Second Brake Pressure Plate, 3 Brake Discs & 2 Brake Plates**  
Courtesy of KIA MOTORS AMERICA, INC.

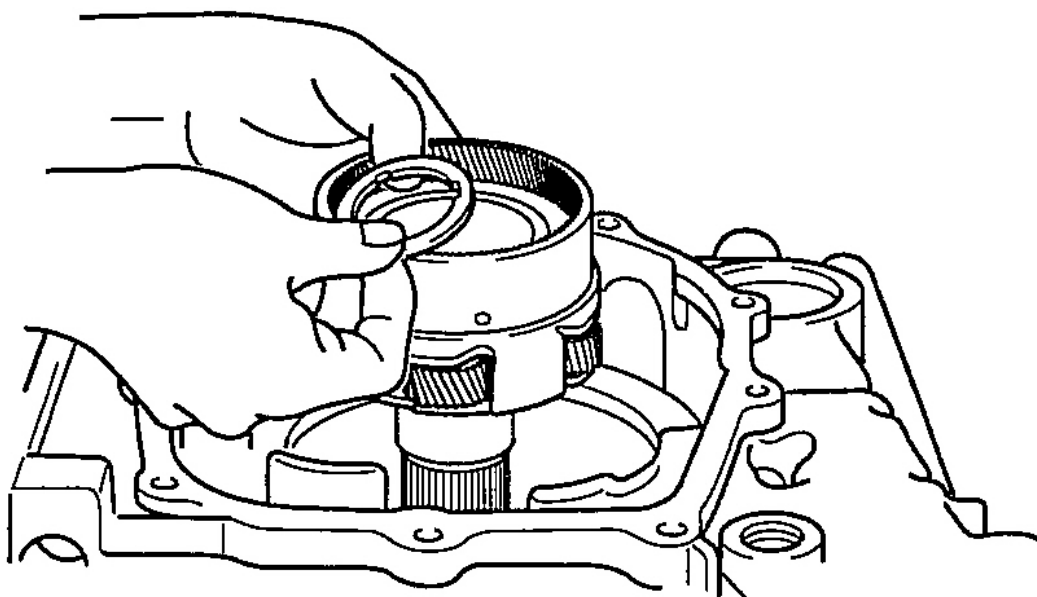
50. Remove the overdrive planetary carrier.



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**Fig. 138: Removing Overdrive Planetary Carrier**  
Courtesy of KIA MOTORS AMERICA, INC.

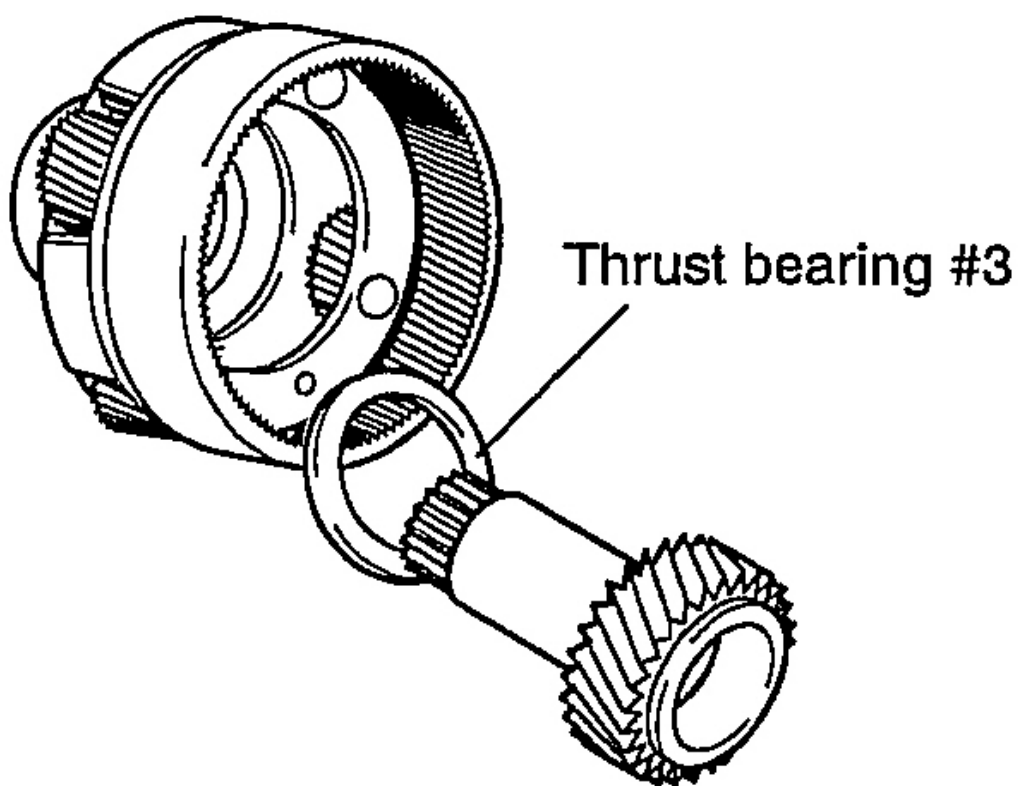
51. Remove thrust bearing #4.



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**Fig. 139: Remove Thrust Bearing #4**  
Courtesy of KIA MOTORS AMERICA, INC.

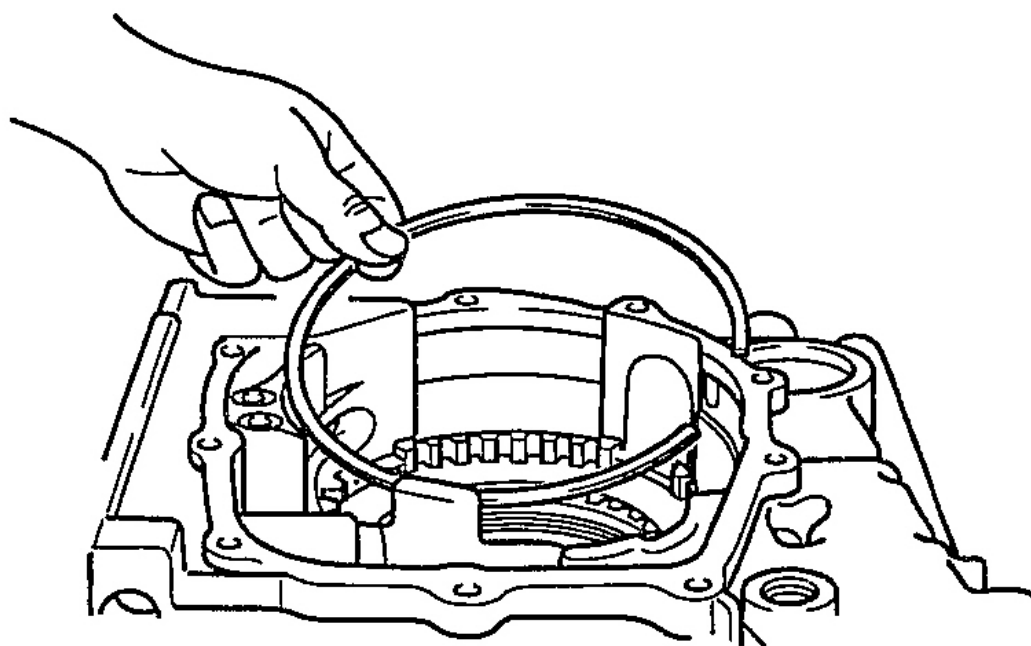
52. Remove the output planetary carrier.
53. Remove the underdrive sun gear.
54. Remove thrust bearing #3.



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**Fig. 140: Removing Thrust Bearing #3**  
Courtesy of KIA MOTORS AMERICA, INC.

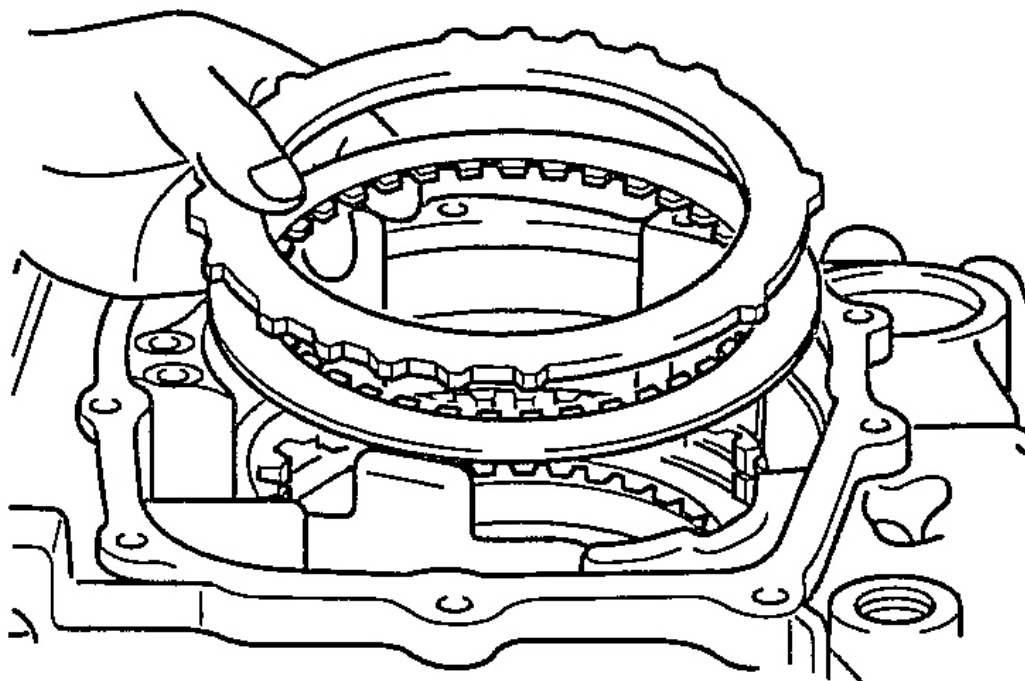
55. Remove the low/reverse reaction plate snap ring.



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**Fig. 141: Removing Low/Reverse Reaction Plate Snap Ring**  
Courtesy of KIA MOTORS AMERICA, INC.

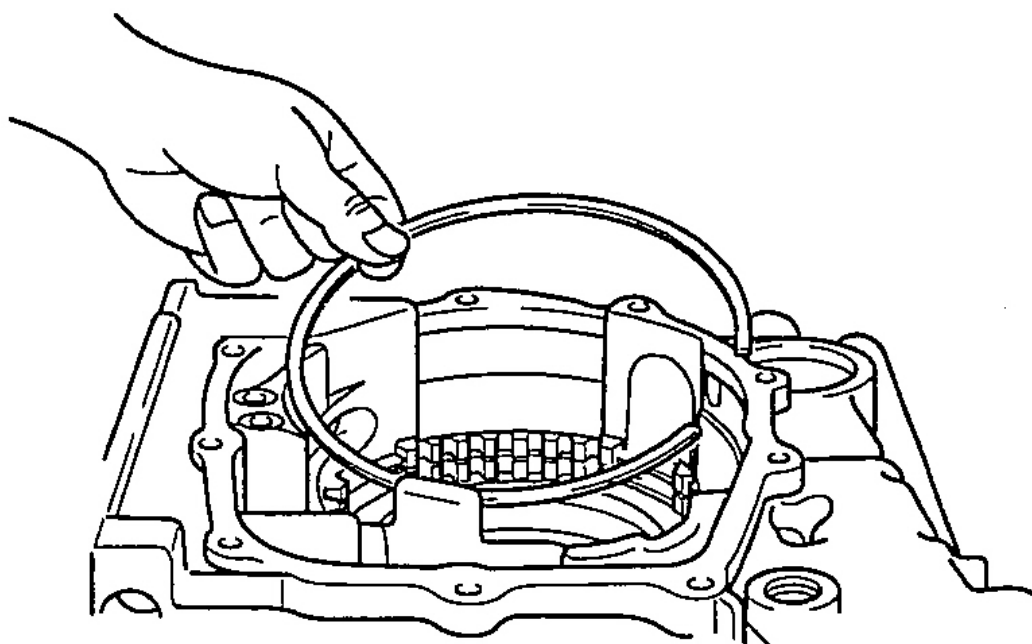
56. Remove the low/reverse reaction plate and brake disc.



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**Fig. 142: Removing Low/Reverse Reaction Plate & Brake Disc**  
Courtesy of KIA MOTORS AMERICA, INC.

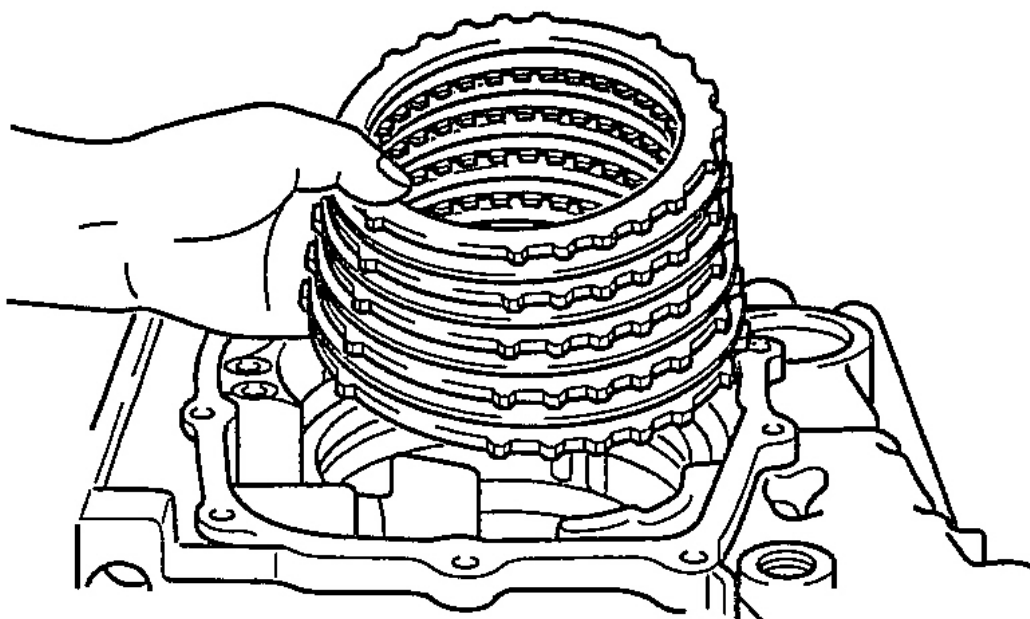
57. Remove the low/reverse brake snap ring.



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**Fig. 143: Removing Low/Reverse Brake Snap Ring**  
Courtesy of KIA MOTORS AMERICA, INC.

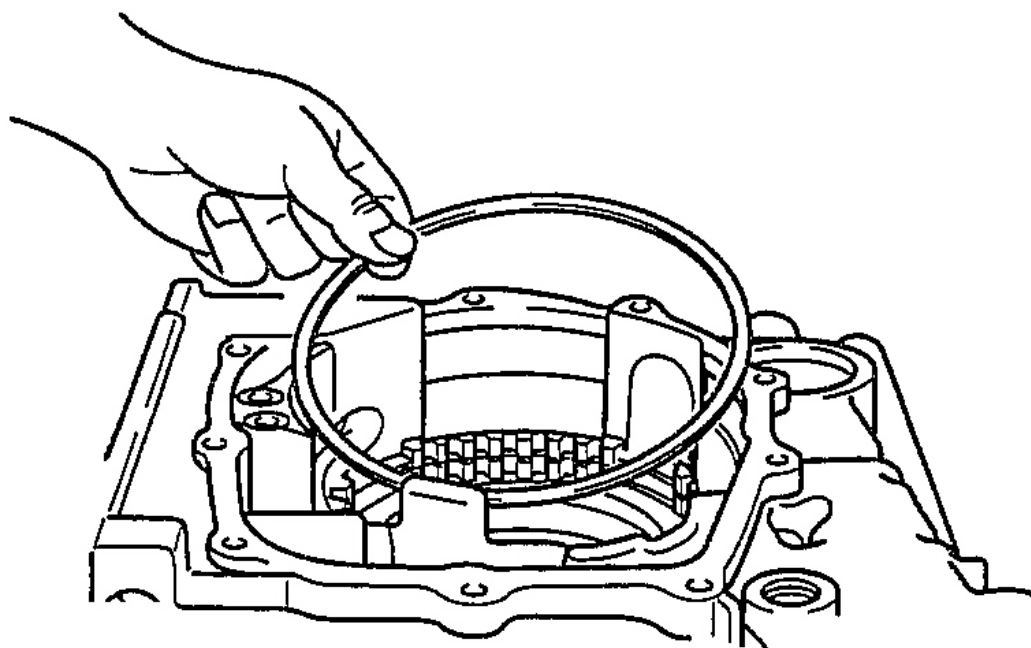
58. Remove the low/reverse 6 brake discs, 5 brake plates, and brake pressure plate.



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**Fig. 144: Removing Low/Reverse 6 Brake Discs, 5 Brake Plates & Brake Pressure Plate**  
Courtesy of KIA MOTORS AMERICA, INC.

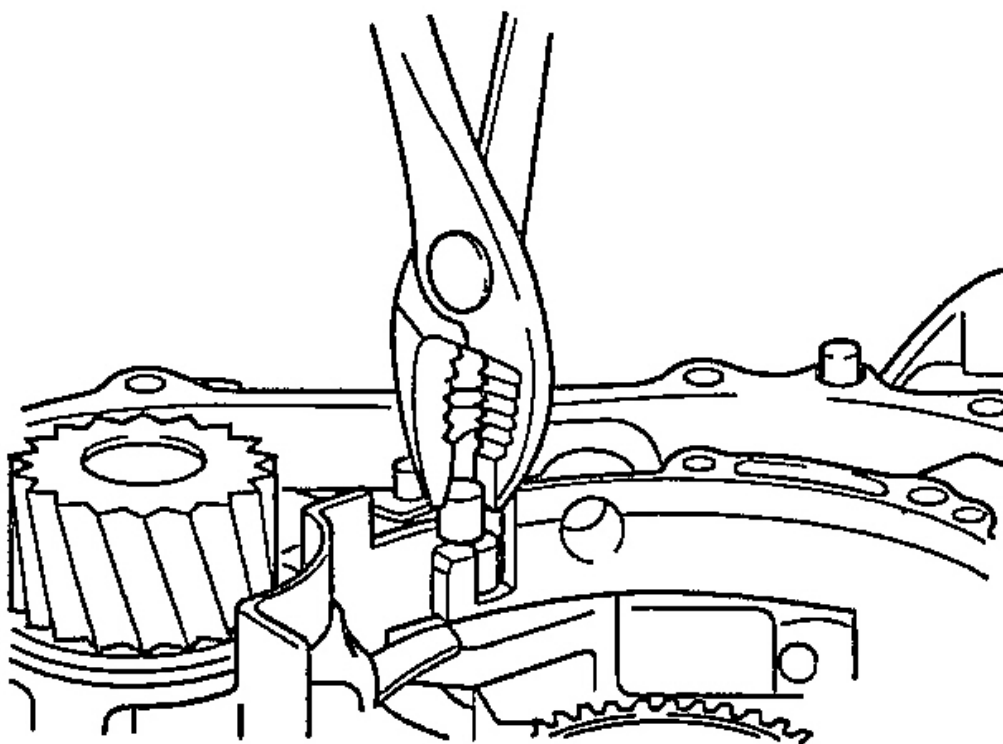
59. Remove the wave spring.



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**Fig. 145: Removing Wave Spring**  
Courtesy of KIA MOTORS AMERICA, INC.

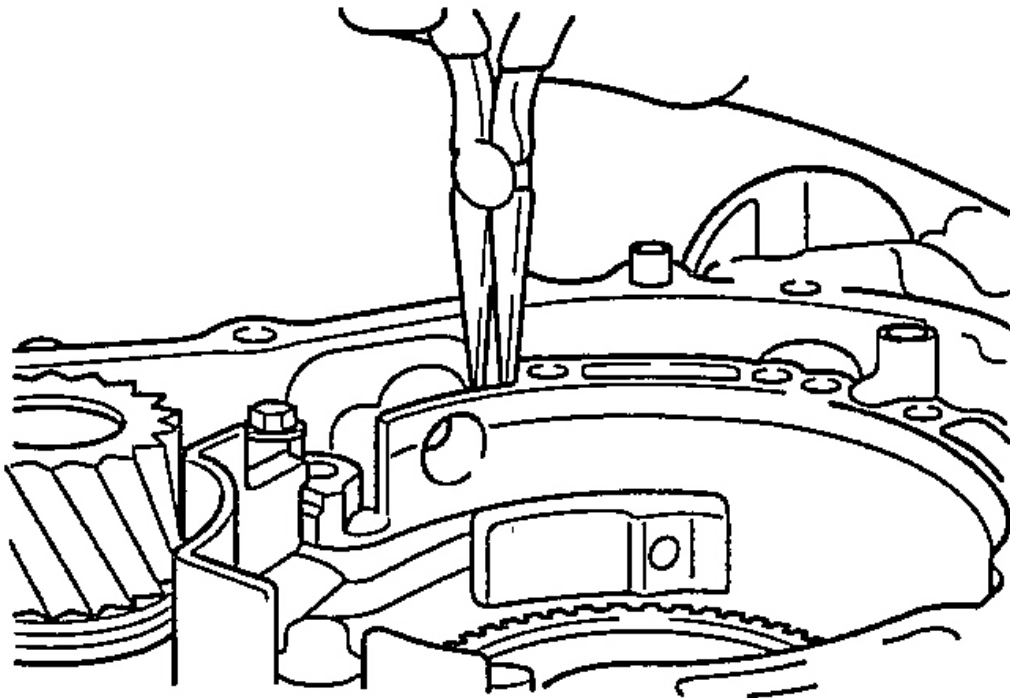
60. Remove the parking pawl shaft.
61. Remove the spacer.



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**Fig. 146: Removing Spacer****Courtesy of KIA MOTORS AMERICA, INC.**

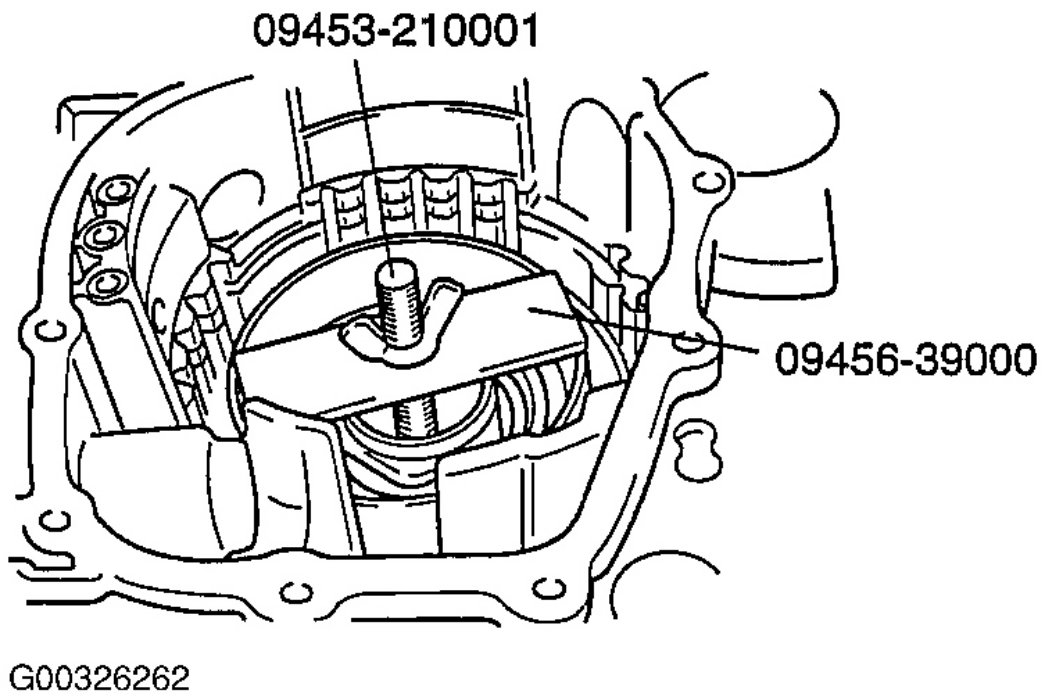
62. Remove the parking pawl spring. Note the orientation of the spring to aid in reassembly.
63. Remove the 2 parking roller support shafts.



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**Fig. 147: Removing Parking Roller Support Shafts**  
Courtesy of KIA MOTORS AMERICA, INC.

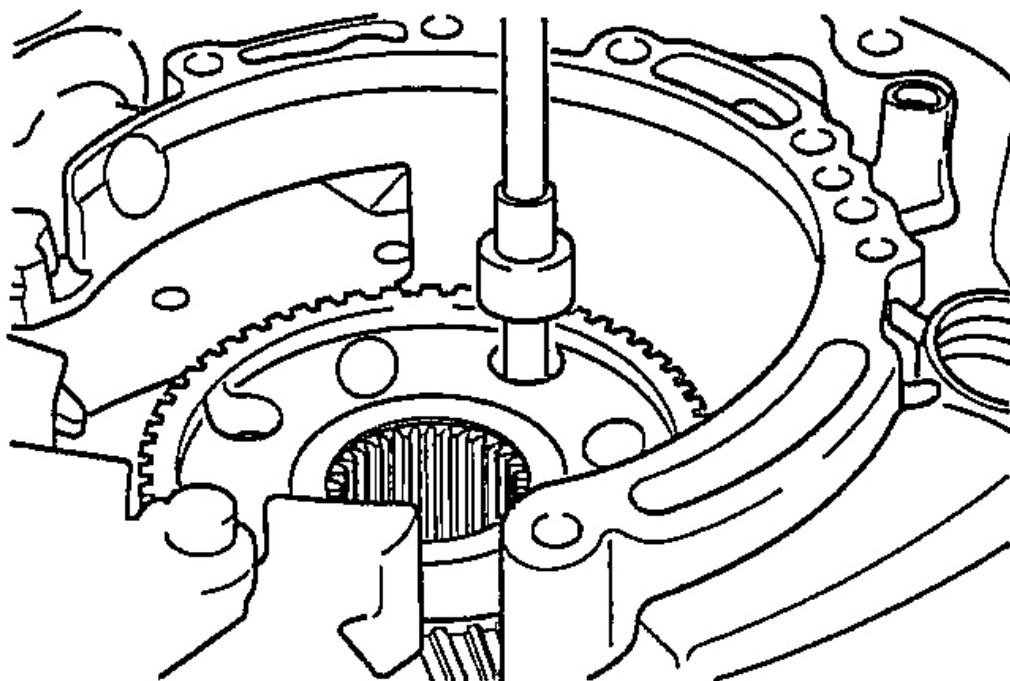
64. Remove the parking pawl case.
65. Remove the parking roller support.
66. Remove the snap ring.



**Fig. 148: Identifying Spring Compressor (0956-39000) & A/B Clearance Dummy Plate (09456-39100)**

Courtesy of KIA MOTORS AMERICA, INC.

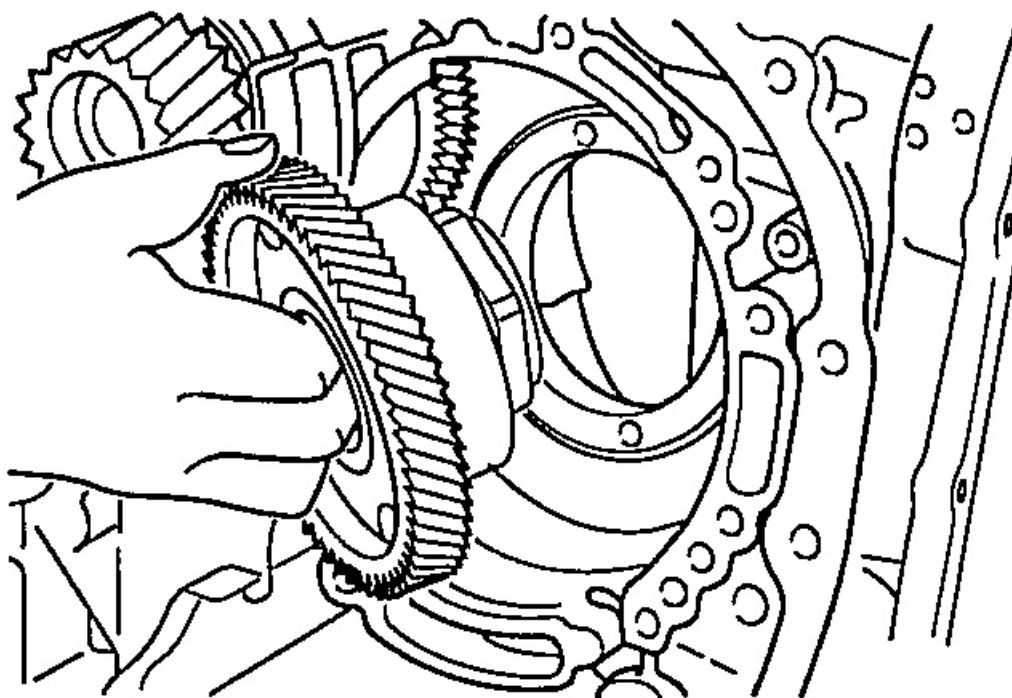
67. Remove the spring retainer.
68. Remove the return spring.
69. Remove the low/reverse brake piston. Use compressed air directed into the valve body passage.
70. Remove the 7 transfer gear mounting bolts.



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**Fig. 149: Removing Transfer Gear Mounting Bolts**  
Courtesy of KIA MOTORS AMERICA, INC.

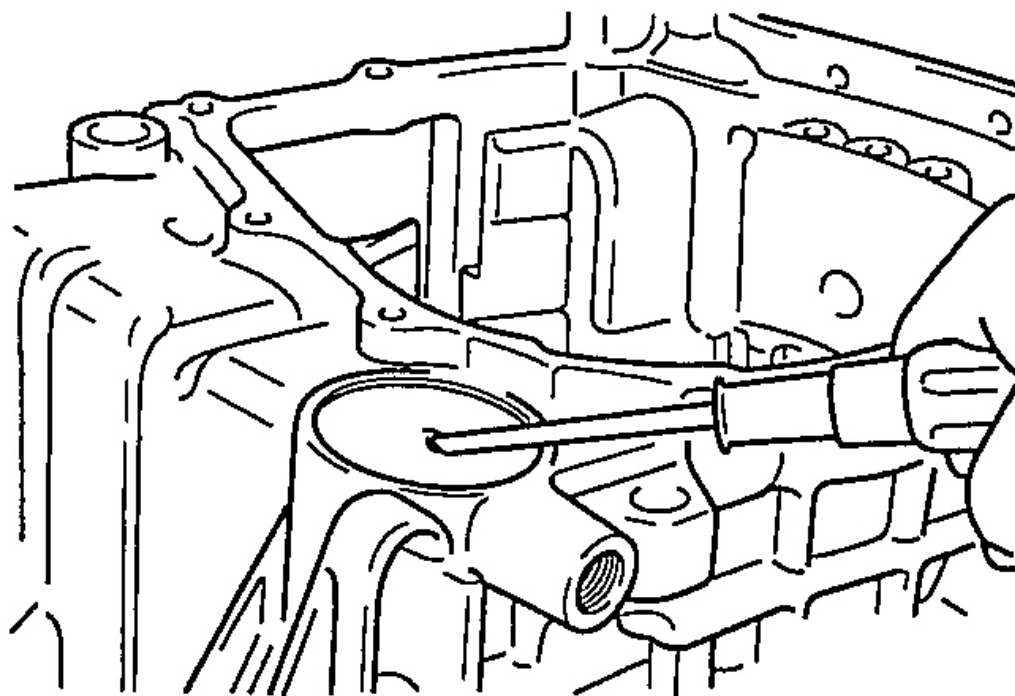
71. Remove the transfer drive gear.



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**Fig. 150: Removing Transfer Drive Gear**  
Courtesy of KIA MOTORS AMERICA, INC.

72. Remove the plastic cap, if present.



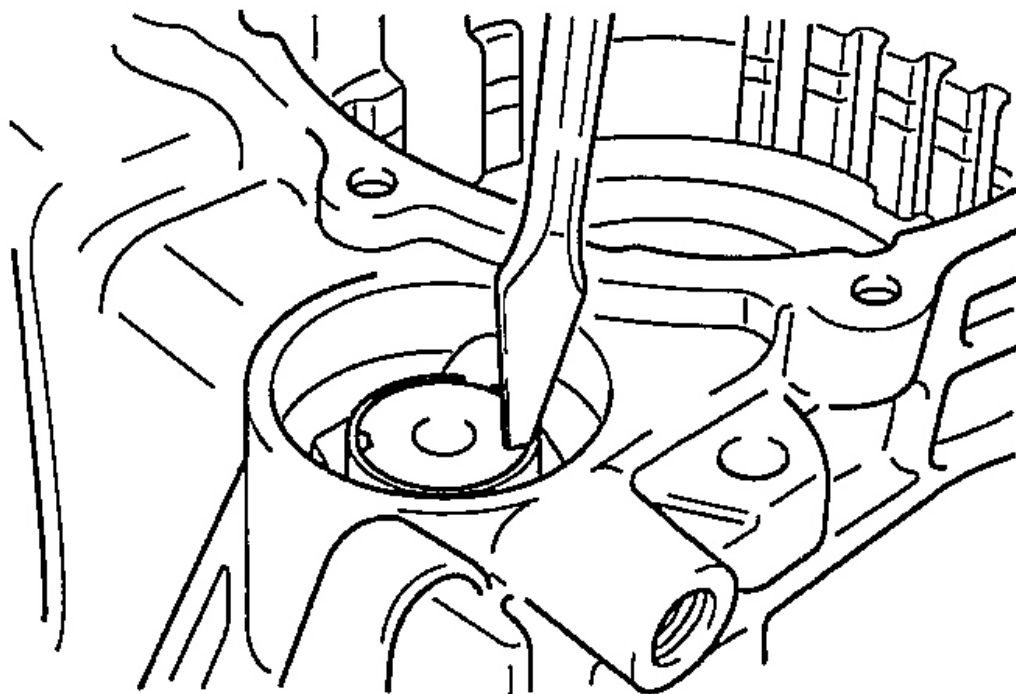
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**Fig. 151: Removing Plastic Cap**

Courtesy of KIA MOTORS AMERICA, INC.

73. Straighten the locking tab of the output shaft lock nut, if bent.

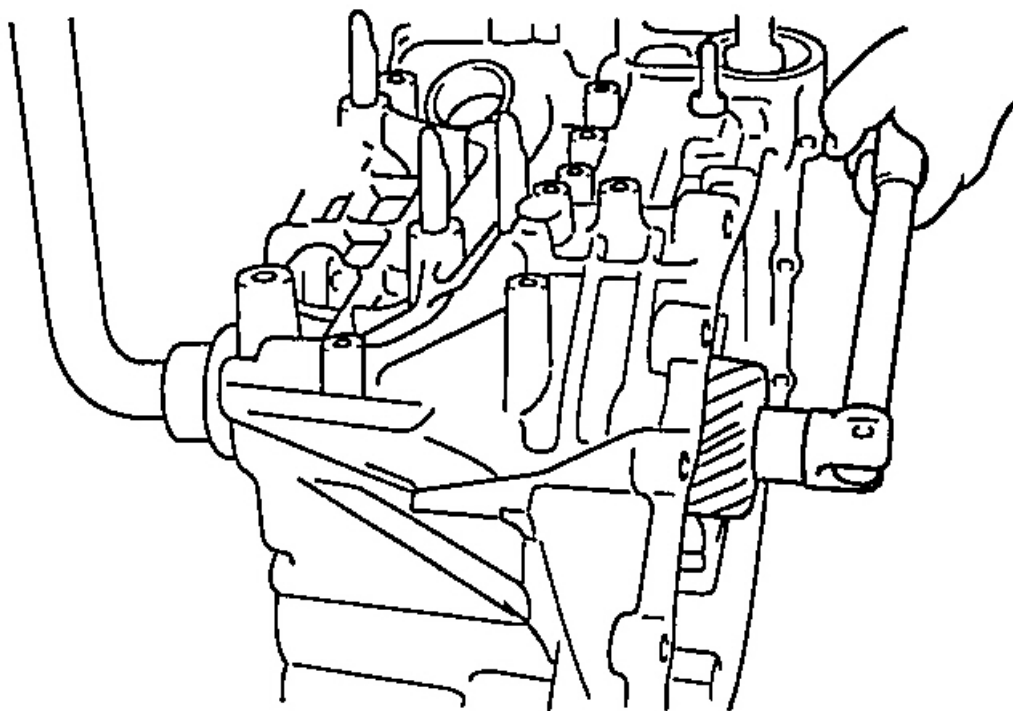
**NOTE:** The output shaft lock nut is left-hand thread.



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**Fig. 152: Removing Output Shaft Lock Nut (1 Of 2)**  
Courtesy of KIA MOTORS AMERICA, INC.

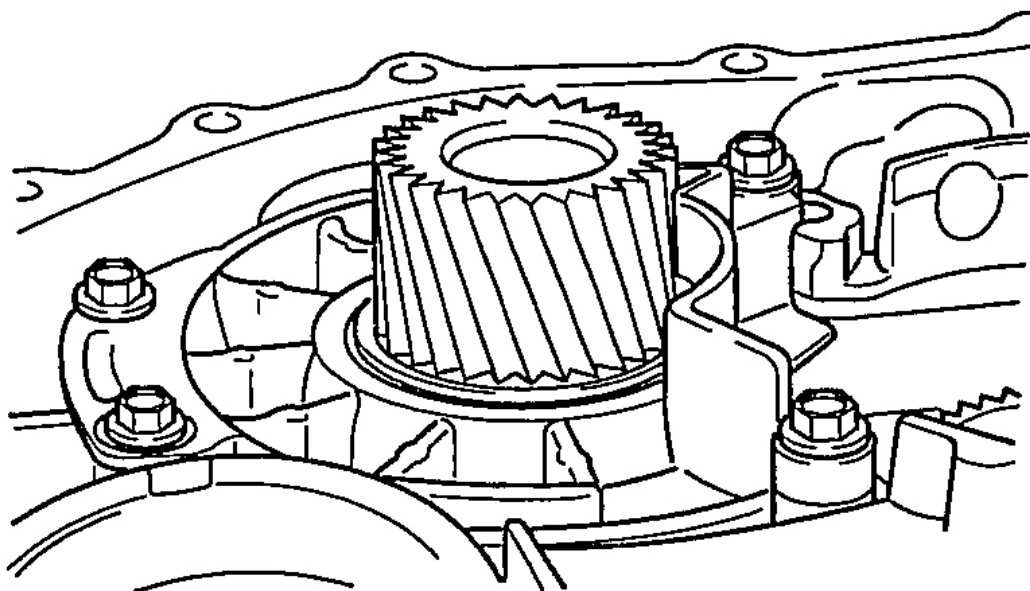
74. Remove the output shaft lock nut.



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**Fig. 153: Removing Output Shaft Lock Nut (2 Of 2)**  
Courtesy of KIA MOTORS AMERICA, INC.

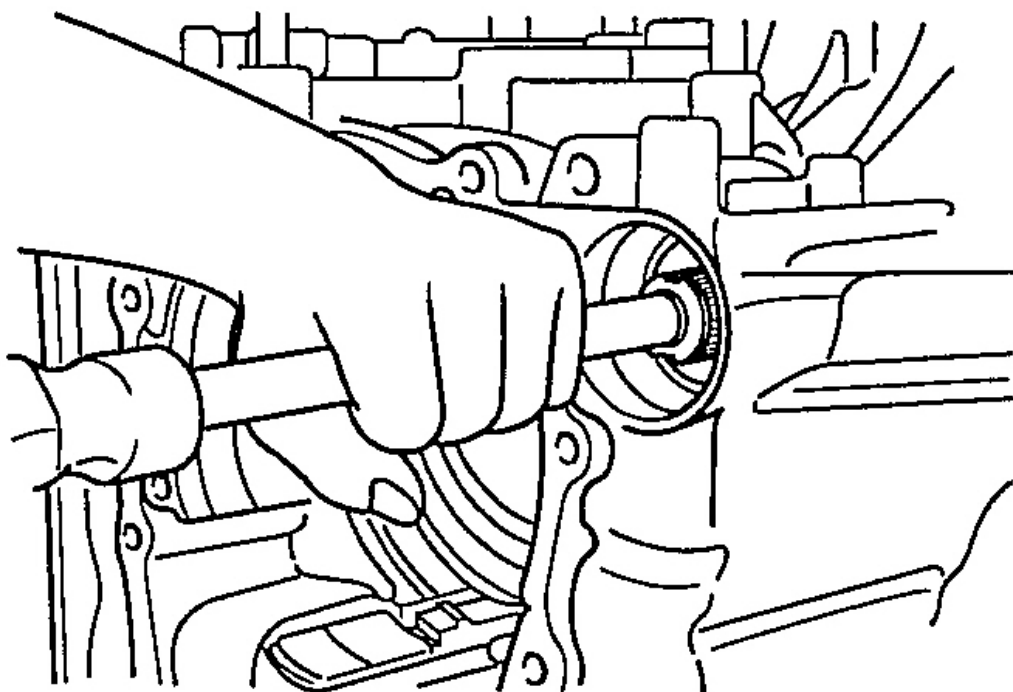
75. Remove the output shaft bearing retainer mounting bolts.



G00326268

**Fig. 154: Removing Output Shaft Bearing Retainer Mounting Bolts**  
Courtesy of KIA MOTORS AMERICA, INC.

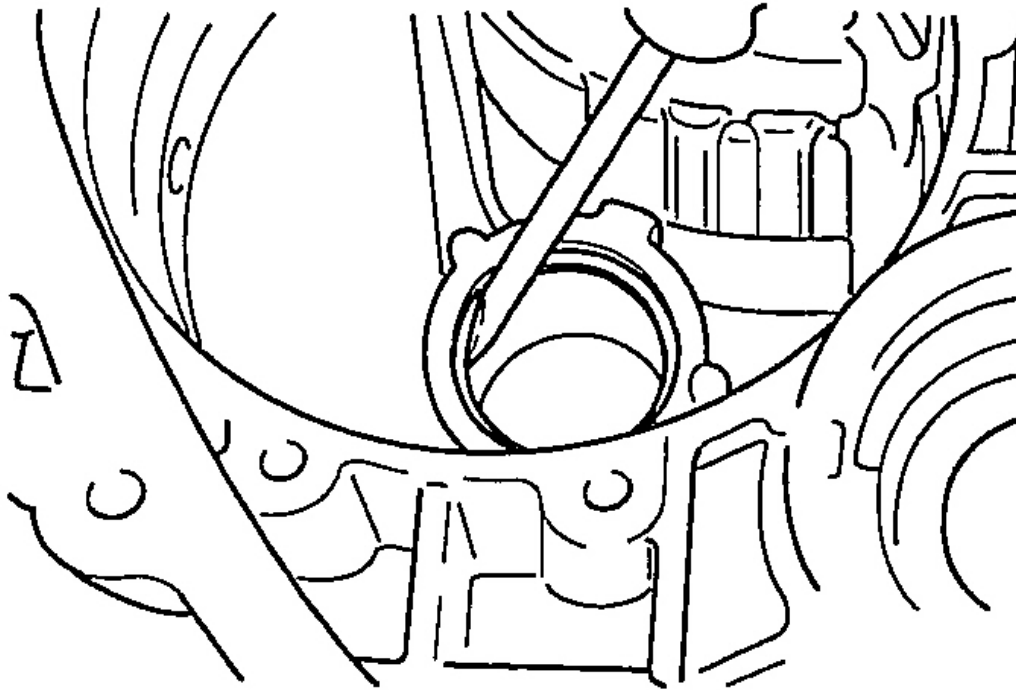
76. Tap out the output shaft, tapered roller bearing, and the collar from the back side.



G00326269

**Fig. 155: Removing Output Shaft, Tapered Roller Bearing, & Collar**  
Courtesy of KIA MOTORS AMERICA, INC.

77. Tap out the bearing outer race and spacer using a suitable driver.



G00326270

**Fig. 156: Removing Bearing Outer Race & Spacer**  
Courtesy of KIA MOTORS AMERICA, INC.

78. Remove the snap ring.
79. Remove the differential bearing outer race and spacer from the torque converter housing.
80. Remove the differential bearing outer race from the transaxle case.

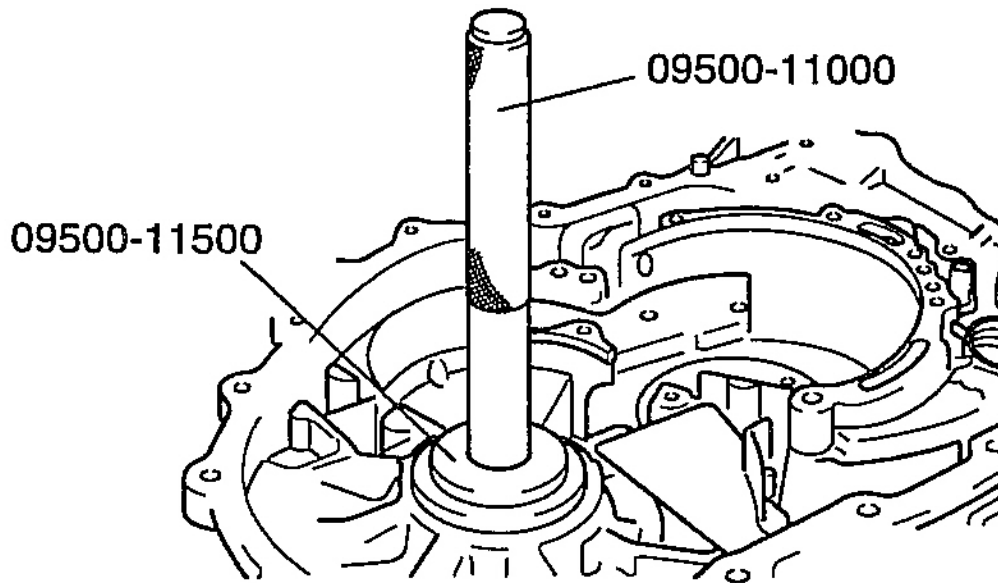
## REASSEMBLY

### CAUTION:

- Never reuse the gasket, O-ring, oil seal, etc. Always replace with a new one when reassembling.
- Never use grease other than blue petrolatum jelly and white Vaseline.
- Apply ATF to friction components, rotating parts, and sliding parts before installation. Immerse a new clutch disc or brake disc in ATF for at least two hours before assembling them.
- Never apply sealant or adhesive to gaskets.
- When replacing a bushing, replace the assembly which it belongs to.
- Never use any cloth gloves or any rags during reassembly.

**Use nylon cloth or paper towels if you need to use something.  
Change the oil in the cooler system.**

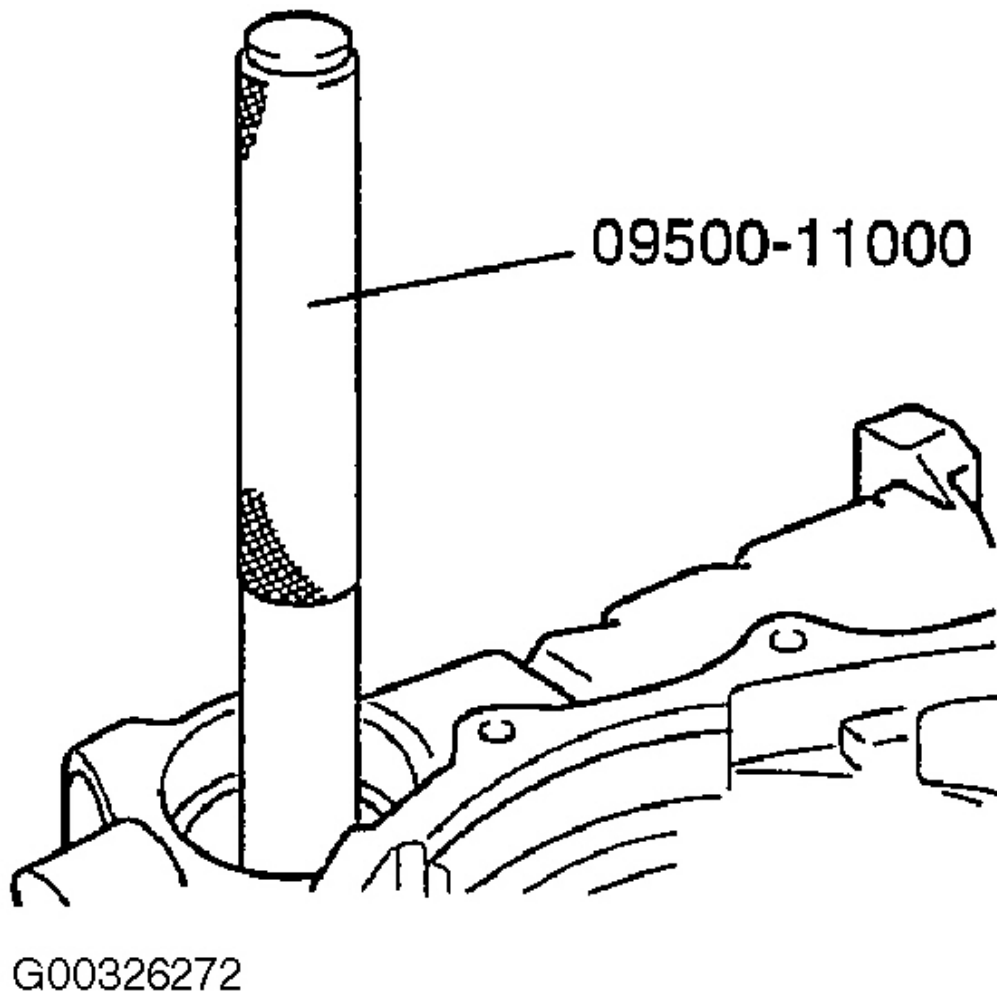
1. Tap the differential bearing outer race into the transaxle case using special tools (09500-11000 and 09532-11500).



G00326271

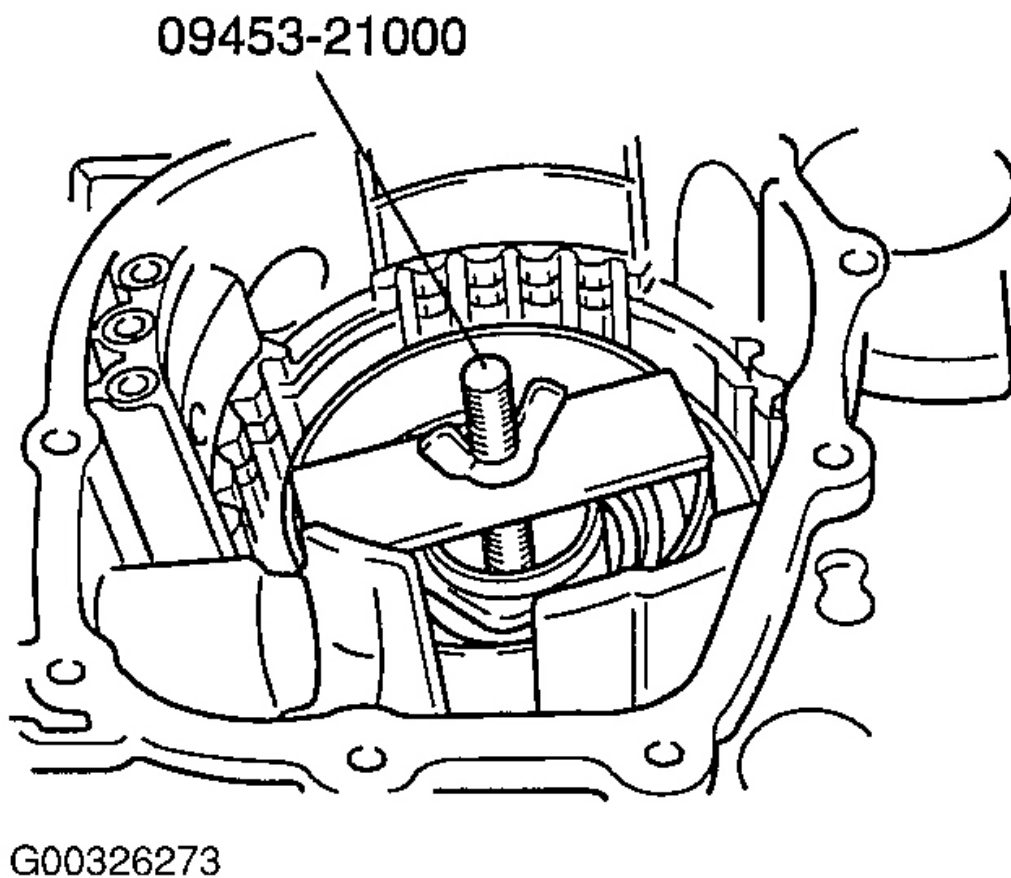
**Fig. 157: Installing Differential Bearing Outer Race**  
**Courtesy of KIA MOTORS AMERICA, INC.**

2. Tap the output shaft bearing outer race into the transaxle case using special tool (09500-11000).



**Fig. 158: Installing Output Shaft Bearing Outer Race**  
Courtesy of KIA MOTORS AMERICA, INC.

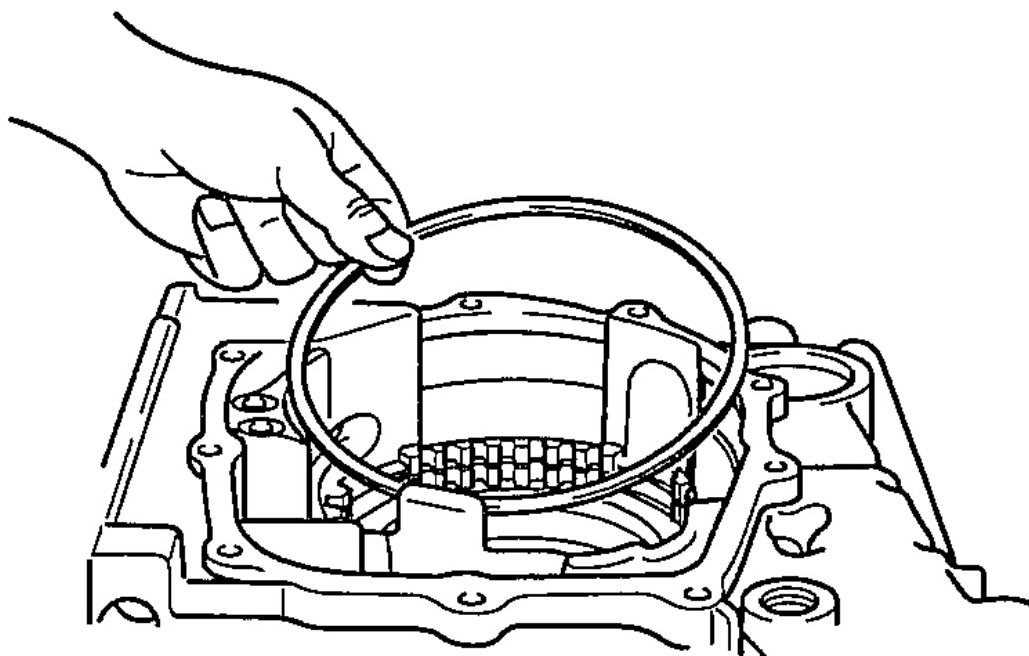
3. Install the spacer and the snap ring.
4. Install the low-reverse brake piston, return spring, and spring retainer.
5. Install the snap ring using special tools (09453-21000). To be sure that you have the correct snap ring, measure the thickness and compare it to the chart in the service manual.



**Fig. 159: Installing Low/Reverse Brake Snap Ring**  
Courtesy of KIA MOTORS AMERICA, INC.

6. Install the wave spring.

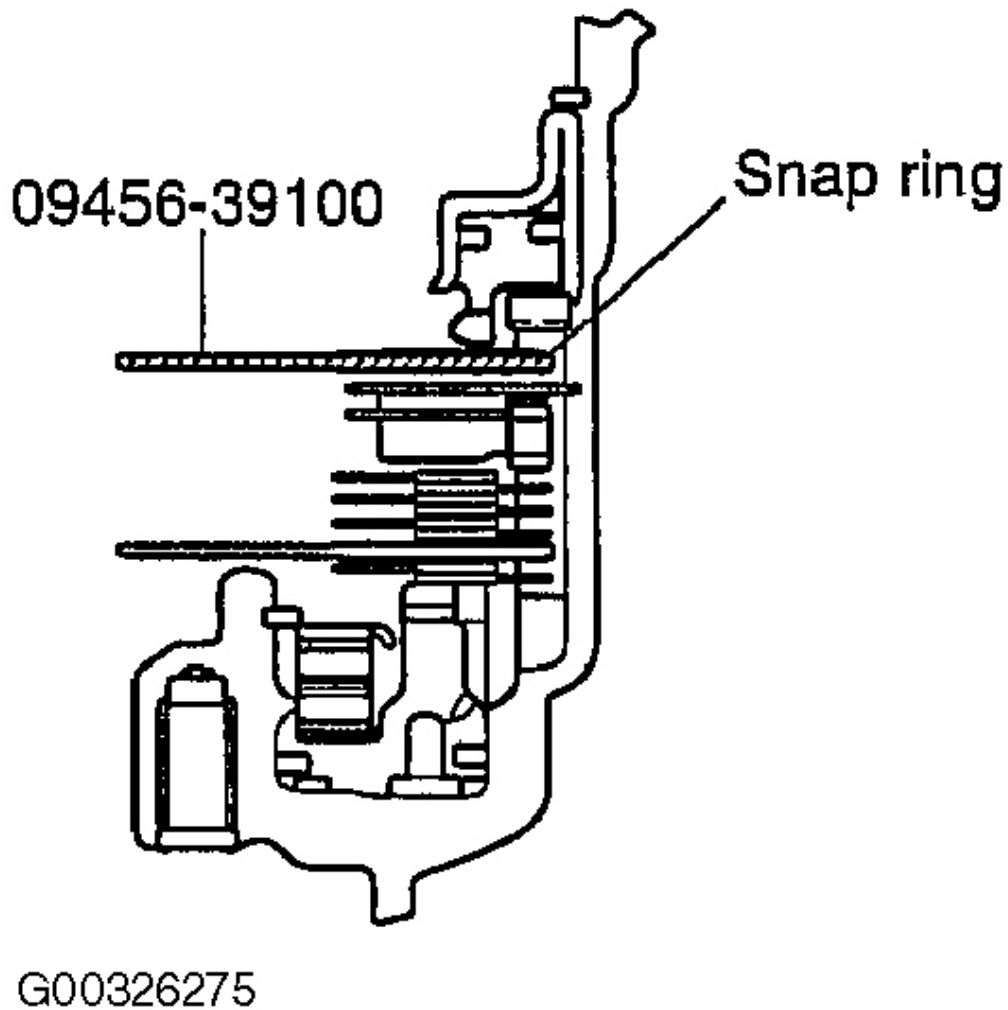
**NOTE:** In steps 7 through 9, you will determine the actual clearance between the low-reverse brake discs and plates when the clutch is released.



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**Fig. 160: Installing Wave Washer**  
Courtesy of KIA MOTORS AMERICA, INC.

7. Replace the pressure plate of the low-reverse brake, then install the brake discs, 5 brake plates and the snap ring.

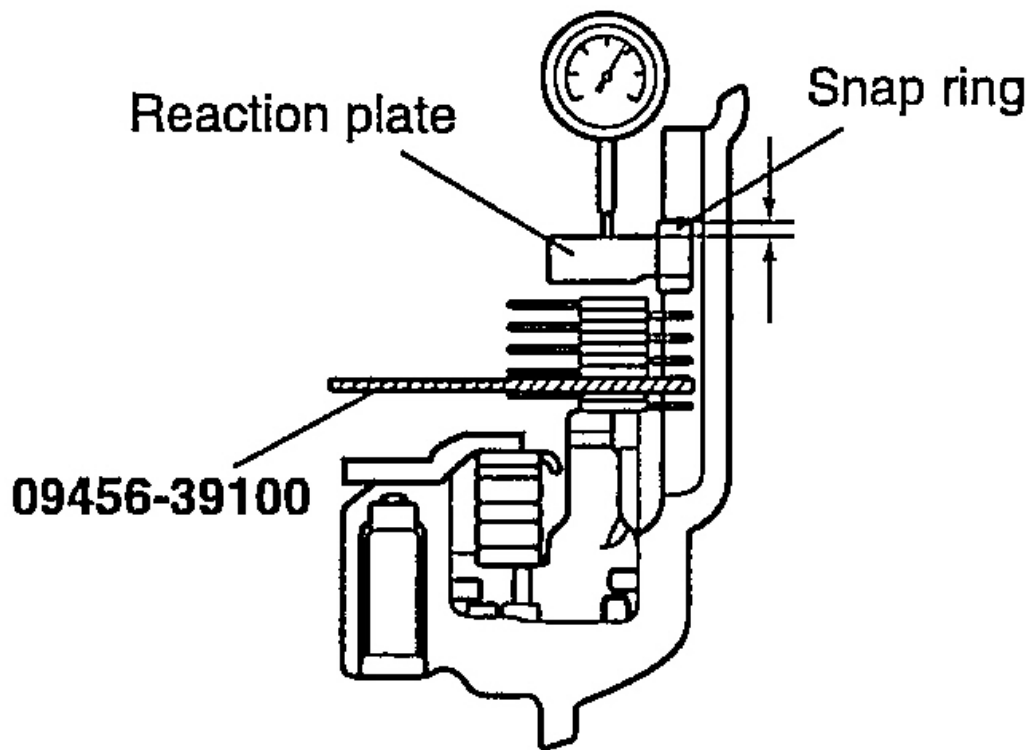


**Fig. 161: Installing Pressure Plate Of The Low-Reverse Brake, Brake Discs & Snap Ring**  
 Courtesy of KIA MOTORS AMERICA, INC.

8. Install the low and reverse reaction plate and the old snap ring.
9. With a dial indicator installed, move the special tool up and down to measure the end play.

Standard Value:

0-0.16 mm (0-0.0063 in.)



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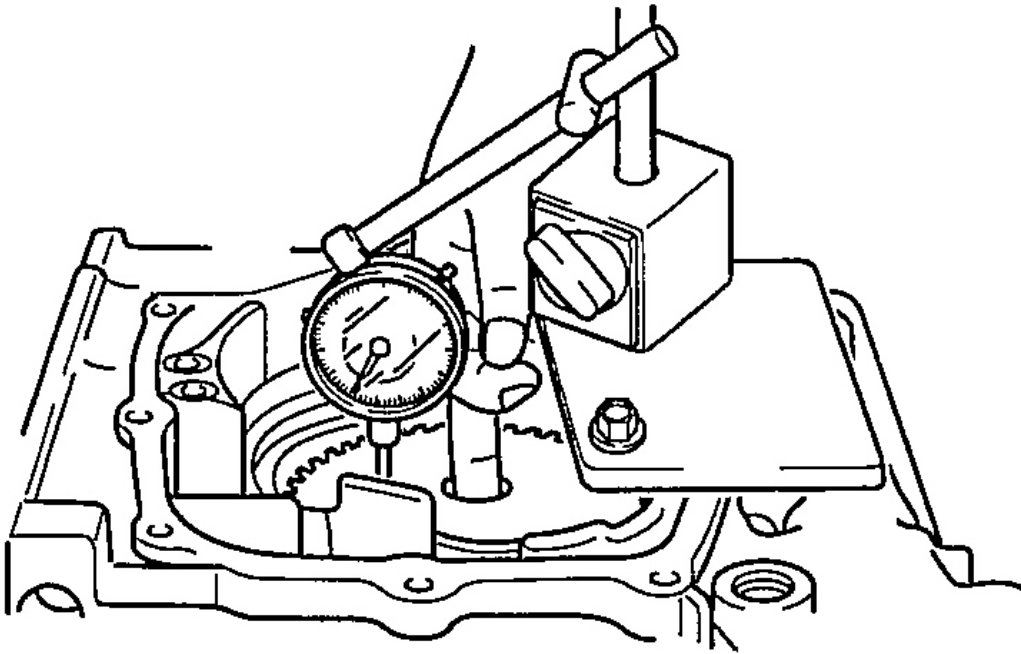
**Fig. 162: Checking Brake Reaction Plate End Play**  
 Courtesy of KIA MOTORS AMERICA, INC.

If the end play is incorrect, measure the old snap ring, then select the proper snap ring, using snap ring and spacer adjustment charts, and recheck the clearance. See **SNAP RING & SPACER ADJUSTMENT**.

10. Remove the special tool.

**NOTE:** In steps 11 through 16, you will determine the actual clearance between the second brake discs and plates when the clutch is released.

11. Install the 3 second brake discs and 2 plates.
12. Install the second brake return spring, second brake piston, and snap ring.
13. Install a dial indicator as shown in the illustration.



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**Fig. 163: Checking Second Brake End Play**  
Courtesy of KIA MOTORS AMERICA, INC.

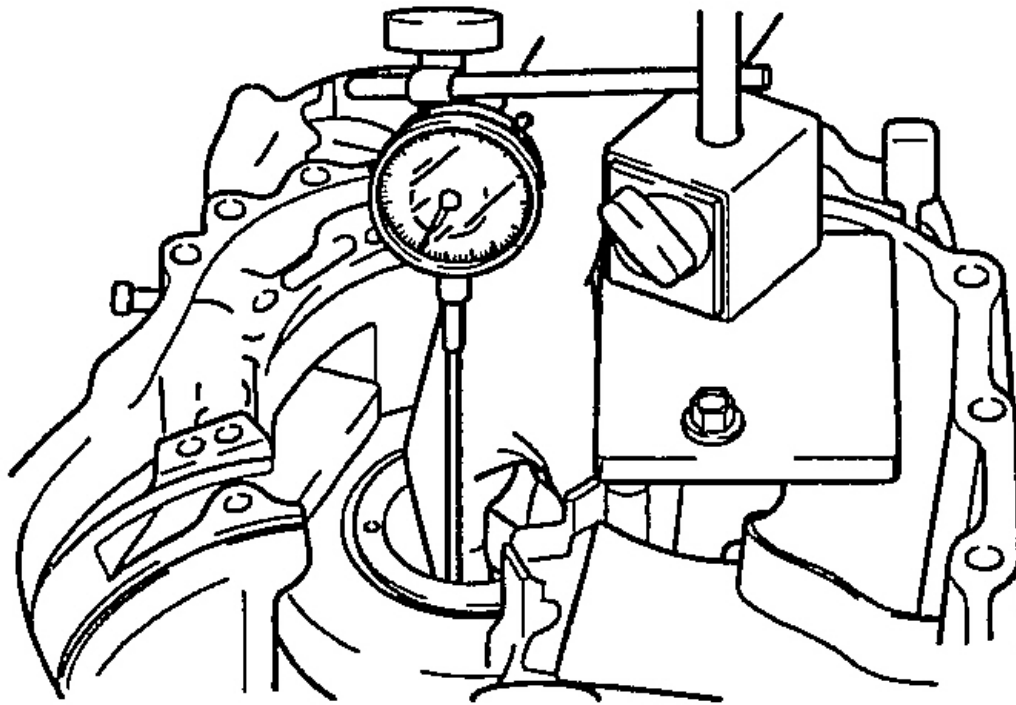
14. Move up and down, while observing the end play.
15. To determine the proper thickness of the second brake pressure plate.

Standard Value:

0.79-1.25 mm (0.0311-0.0492 in.)

16. If the standard value is incorrect, select a pressure plate of the proper thickness from the chart in the service manual and recheck the clearance.

**NOTE:** In steps 18 through 21, you will determine the actual clearance between the low-reverse brake discs and plates when the clutch is released.



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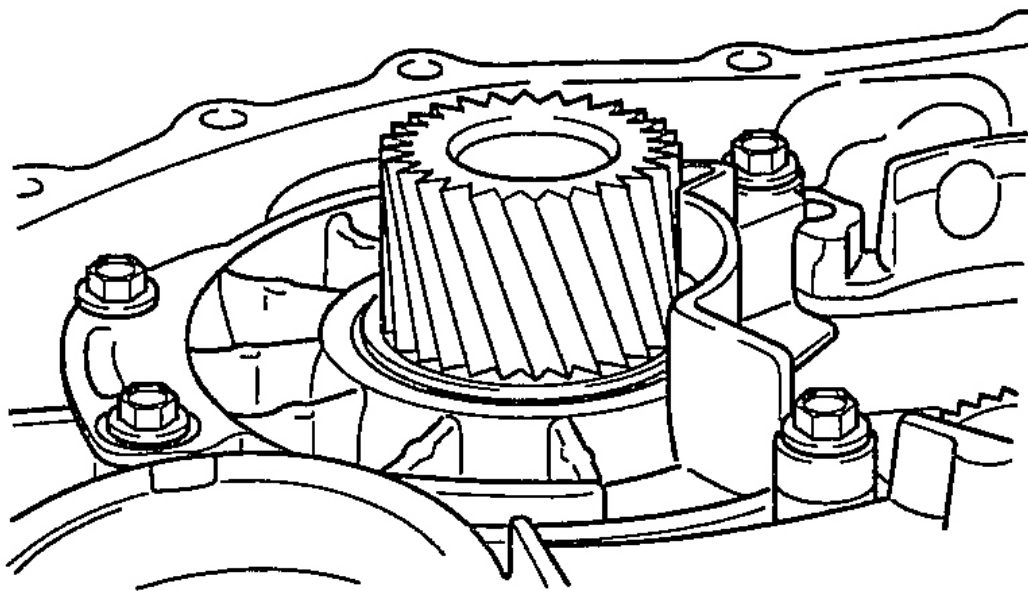
**Fig. 164: Checking Low/Reverse Brake End Play**  
Courtesy of KIA MOTORS AMERICA, INC.

17. Install the special tool in place of the low/reverse brake pressure plate.
18. Install the 6 brake discs, 5 brake plates and snap ring.
19. Turn the transaxle upside down, install a dial indicator, as shown in the illustration.
20. Move the special tool up and down while observing the end play.
21. To determine the proper thickness of the low/reverse brake pressure plate.

Standard Value:

1.65-2.11 mm (0.0650-0.0830 in.)

22. If the standard value is incorrect, select a pressure plate of the proper thickness, using snap ring and spacer adjustment charts, and recheck the clearance. See **SNAP RING & SPACER ADJUSTMENT**.
23. Remove the special tool.
24. Install the output shaft.
25. Install the output bearing retainer mounting bolts. Tighten the bolts to 23 Nm (17 lbs. ft) of torque.

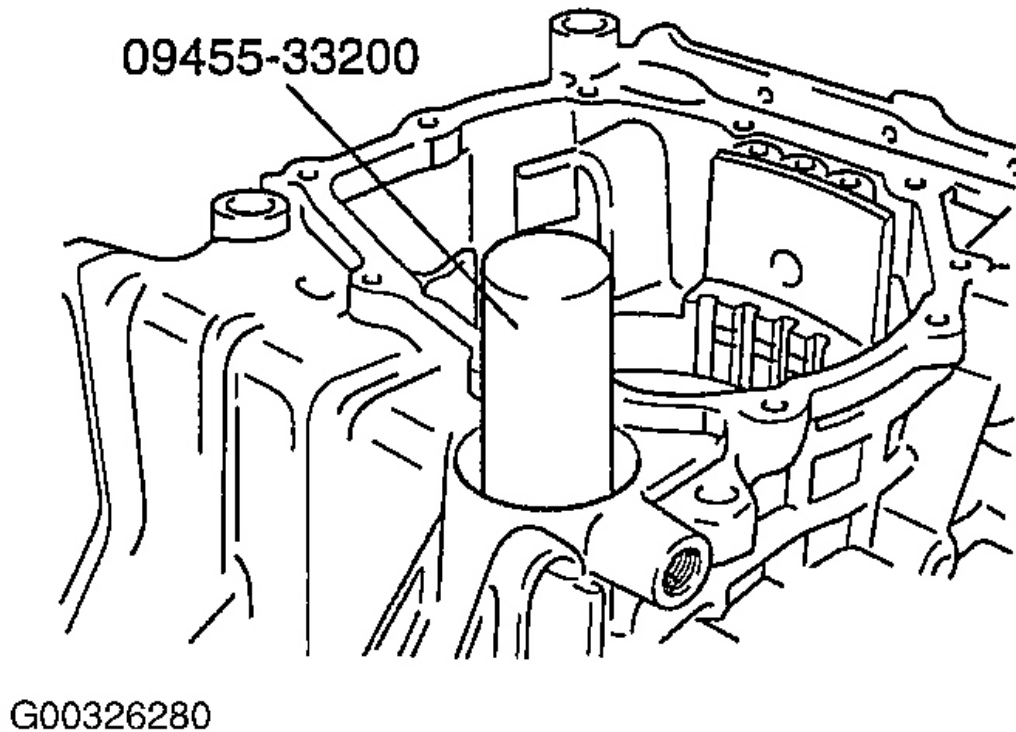


G00326279

**Fig. 165: Installing Output Bearing Retainer Mounting Bolts**  
Courtesy of KIA MOTORS AMERICA, INC.

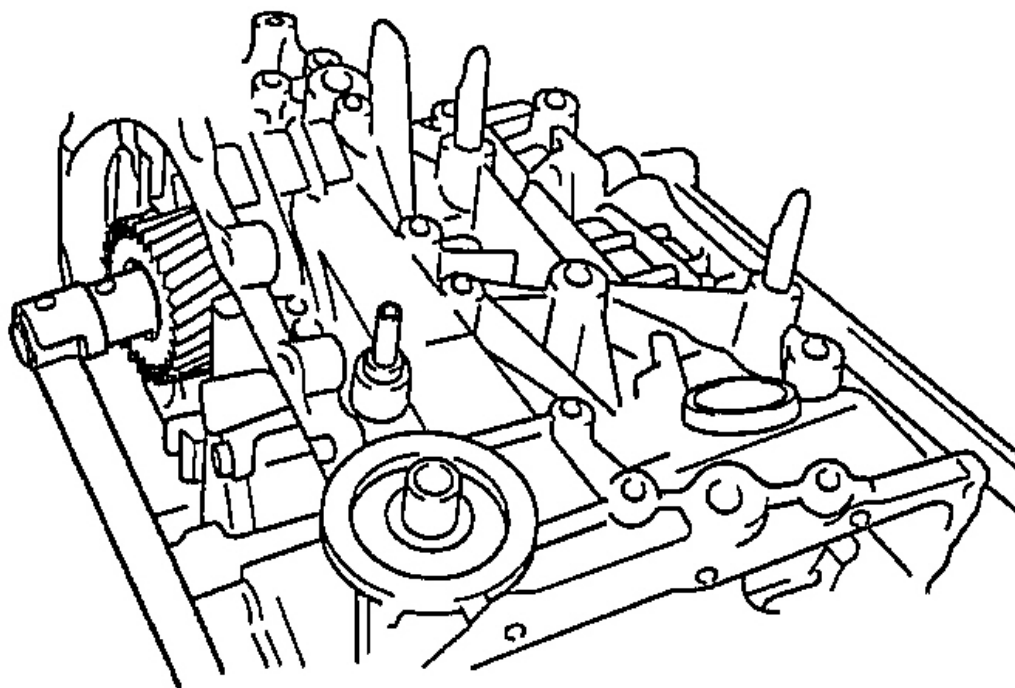
26. Install the output shaft collar and tapered roller bearing using special tool (09455-33200).

**NOTE:** The output shaft lock nut is left-hand thread.



**Fig. 166: Identifying Bearing Installer (09455-33200)**  
Courtesy of KIA MOTORS AMERICA, INC.

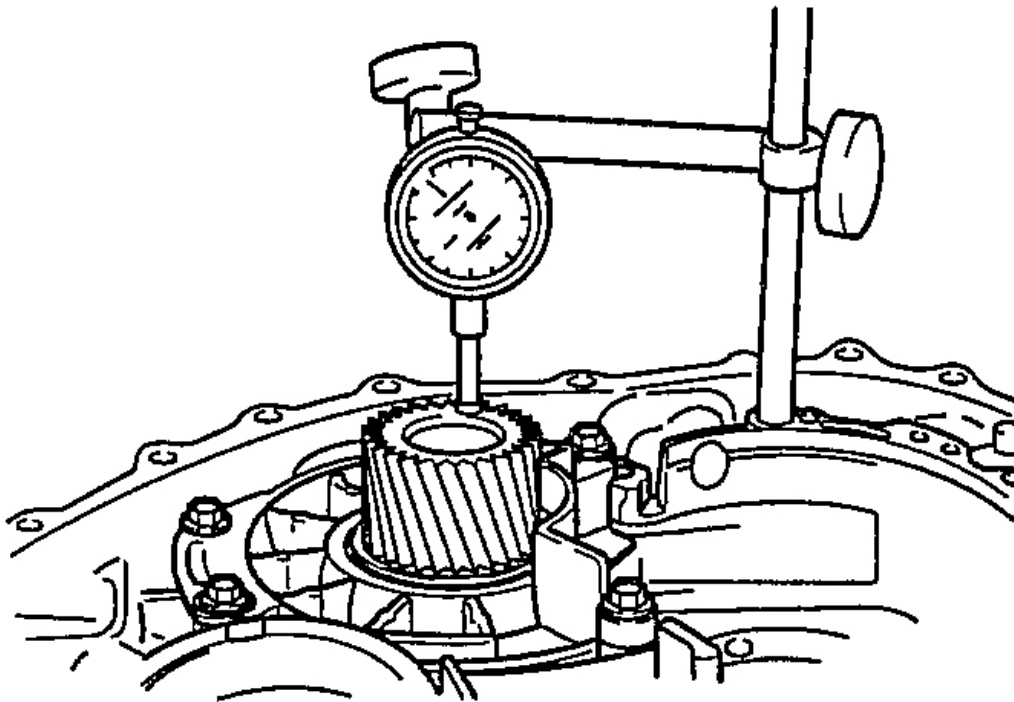
27. Apply ATF and install the old lock nut and tighten to 167 Nm (123 lbs. ft). Loosen the nut 1 full turn, then retighten to specifications. Do not stake the lock nut unless instructed to do so by the instructor.



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**Fig. 167: Installing Output Shaft Lock Nut**  
Courtesy of KIA MOTORS AMERICA, INC.

28. Install a dial indicator as shown in the illustration.



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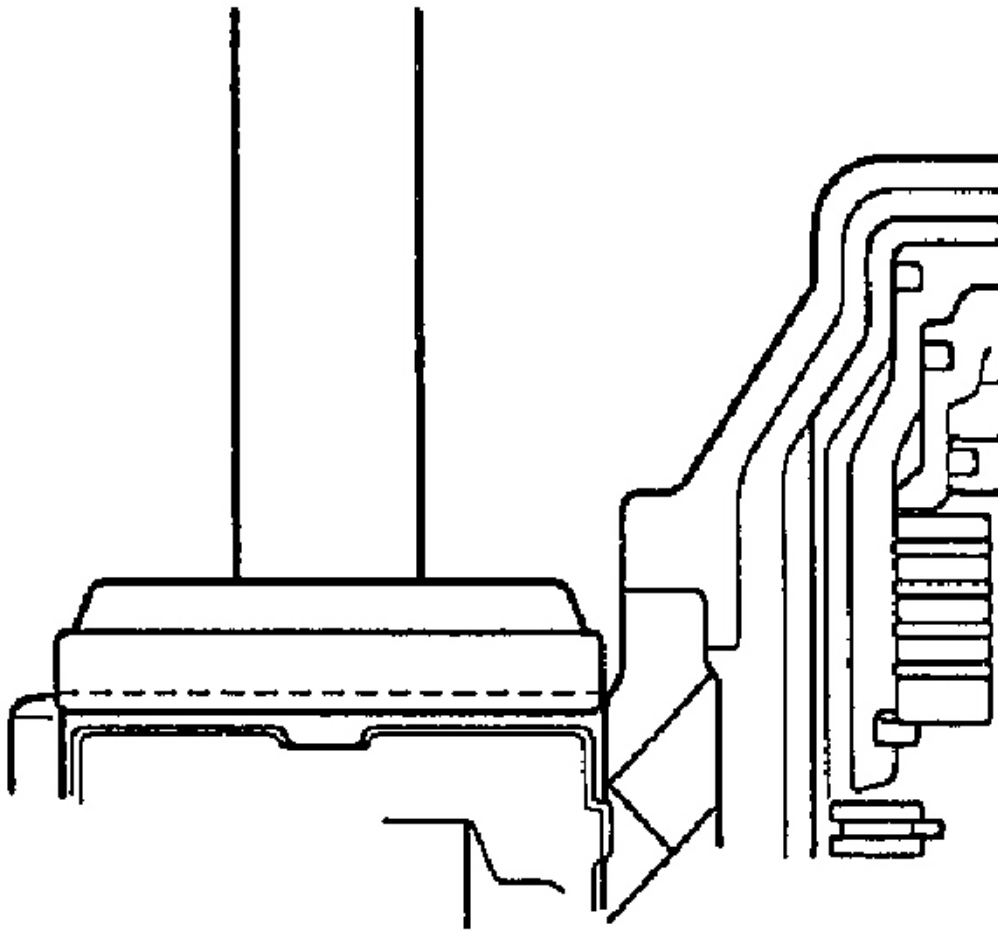
**Fig. 168: Checking Output Shaft End Play**  
Courtesy of KIA MOTORS AMERICA, INC.

29. Move the output shaft in and out to measure the end play.

Standard Value:

0.01-0.09 mm (0.0004-0.0035 in.)

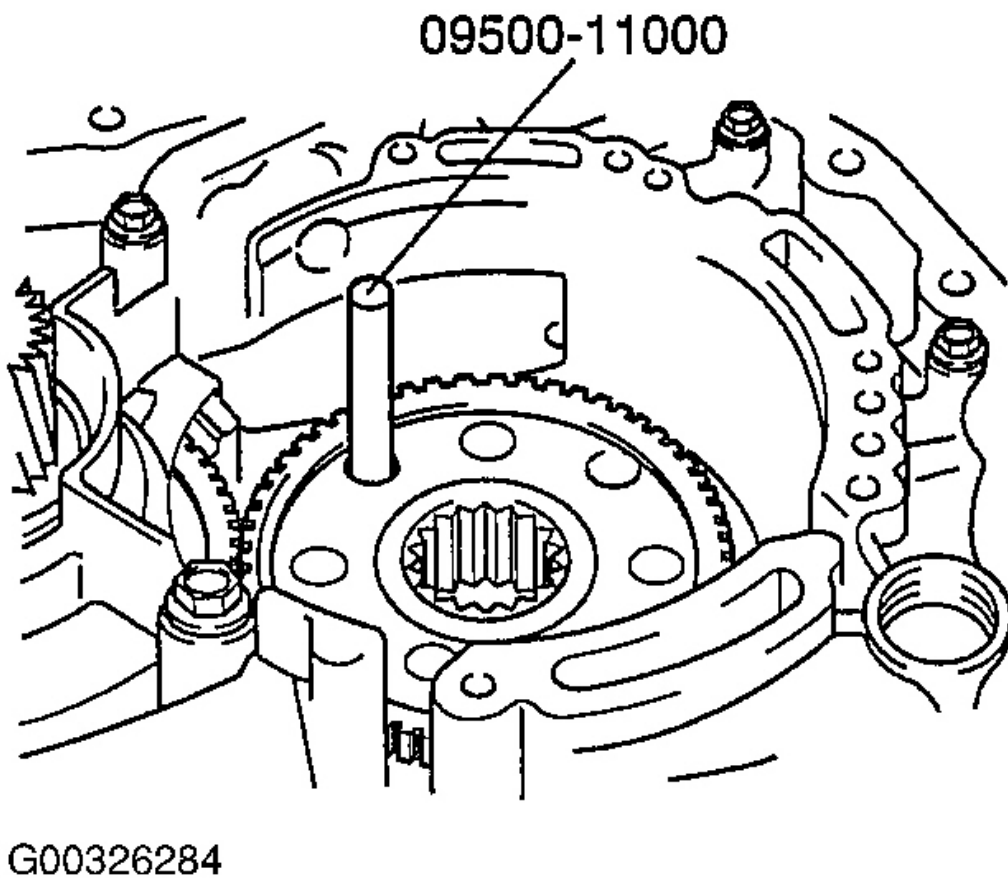
30. If the standard value is incorrect, use this formula to select the correct spacer using snap ring and spacer adjustment charts. See **SNAP RING & SPACER ADJUSTMENT**.
31. Install the output shaft protective cap.



G00326283

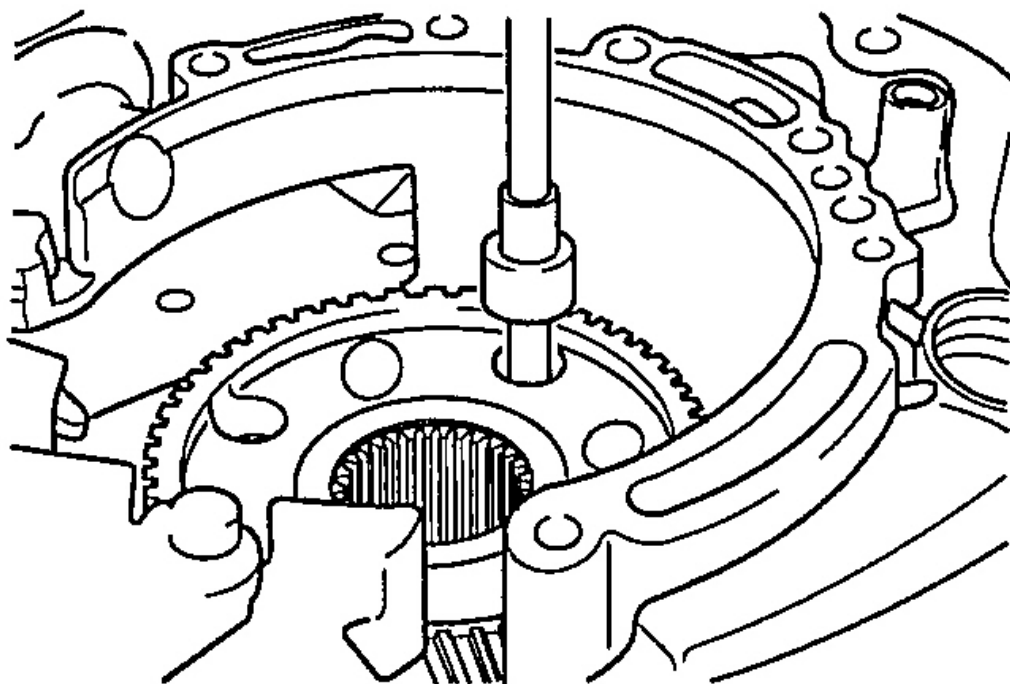
**Fig. 169: Installing Output Shaft Protective Cap**  
Courtesy of KIA MOTORS AMERICA, INC.

32. Install the transfer drive gear using special tool (09500-11000).



**Fig. 170: Installing Transfer Drive Gear**  
Courtesy of KIA MOTORS AMERICA, INC.

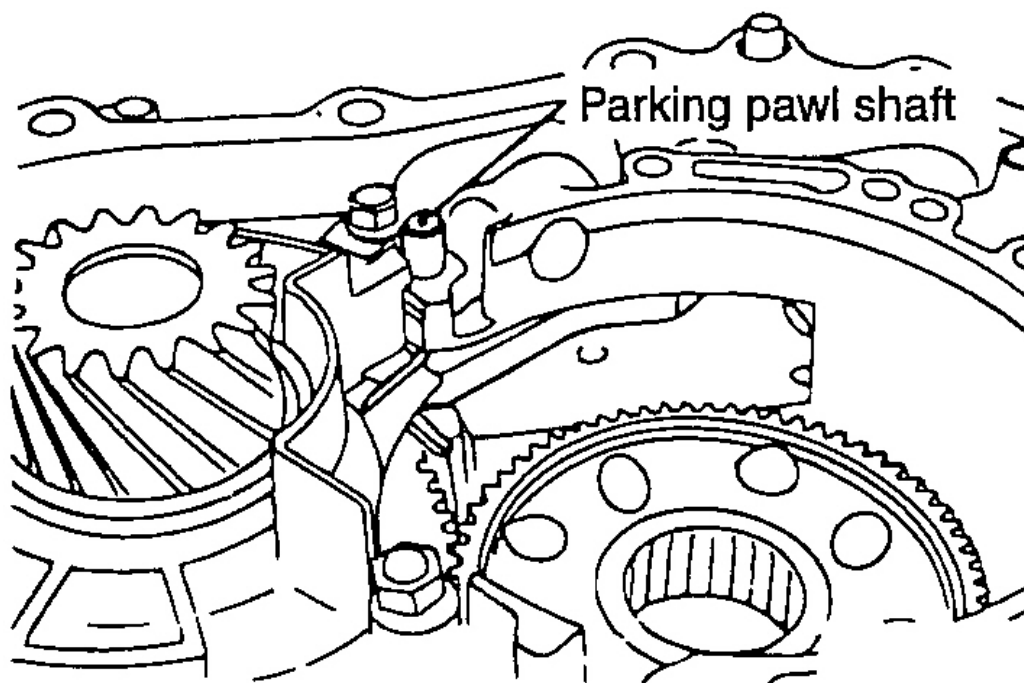
33. Install the 7 transfer gear mounting bolts. Tighten the bolts to 19 Nm (14 lbs. ft).



G00326285

**Fig. 171: Installing Transfer Gear Mounting gear**  
Courtesy of KIA MOTORS AMERICA, INC.

34. Install the parking pawl, spacer and spring, then install the parking pawl shaft.

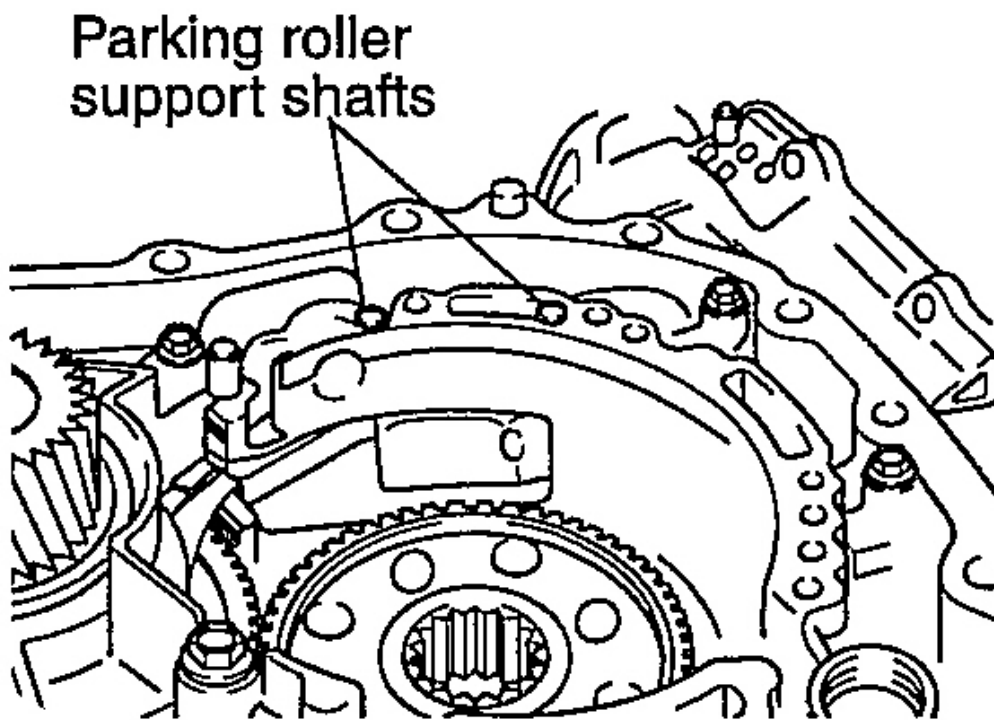


G00326286

**Fig. 172: Installing Parking Pawl Shaft**  
Courtesy of KIA MOTORS AMERICA, INC.

35. Install the parking roller support, then the two parking roller support shafts.

**CAUTION:** Be sure to install the thrust bearing in the proper direction.

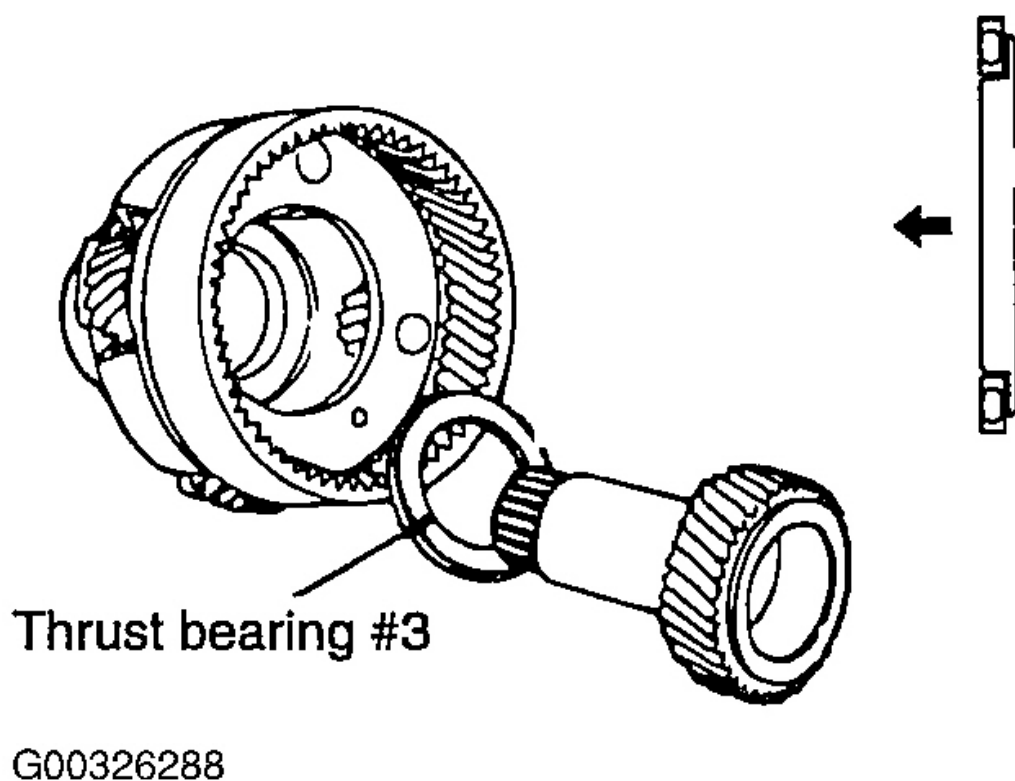


G00326287

**Fig. 173: Installing Parking Roller Support Shafts**  
Courtesy of KIA MOTORS AMERICA, INC.

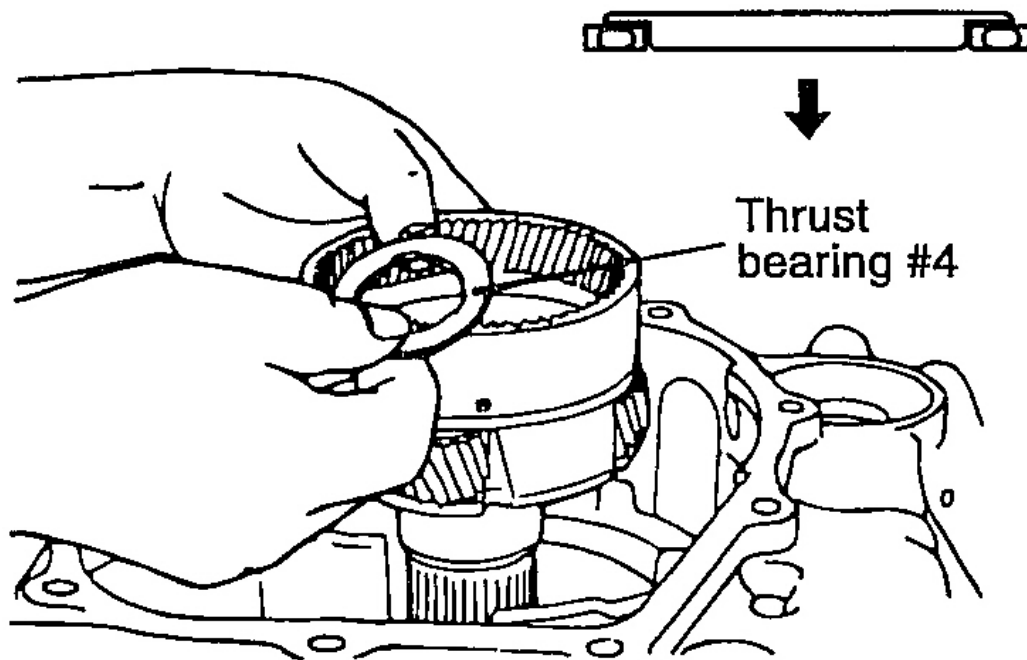
36. Install the underdrive sun gear and thrust bearing #3 to the output planetary carrier.

**CAUTION:** Be sure to install the thrust bearing in the proper direction.



**Fig. 174: Installing Underdrive Sun Gear & Thrust Bearing #3 To Output Planetary Carrier**  
Courtesy of KIA MOTORS AMERICA, INC.

37. Install the output planetary carrier and thrust bearing #4.

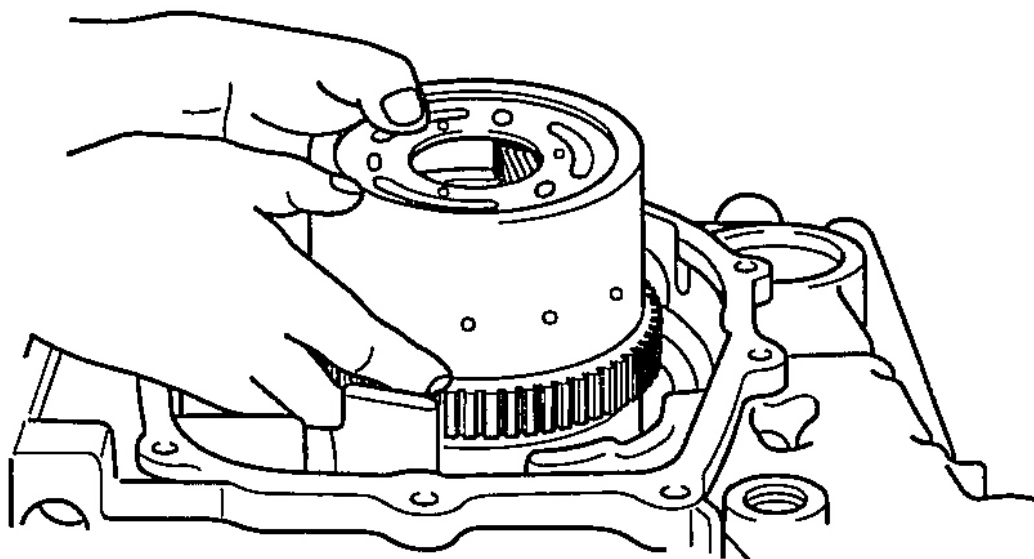


G00326289

**Fig. 175: Installing Output Planetary Carrier & Thrust Bearing #4**  
Courtesy of KIA MOTORS AMERICA, INC.

38. Install the overdrive planetary carrier.

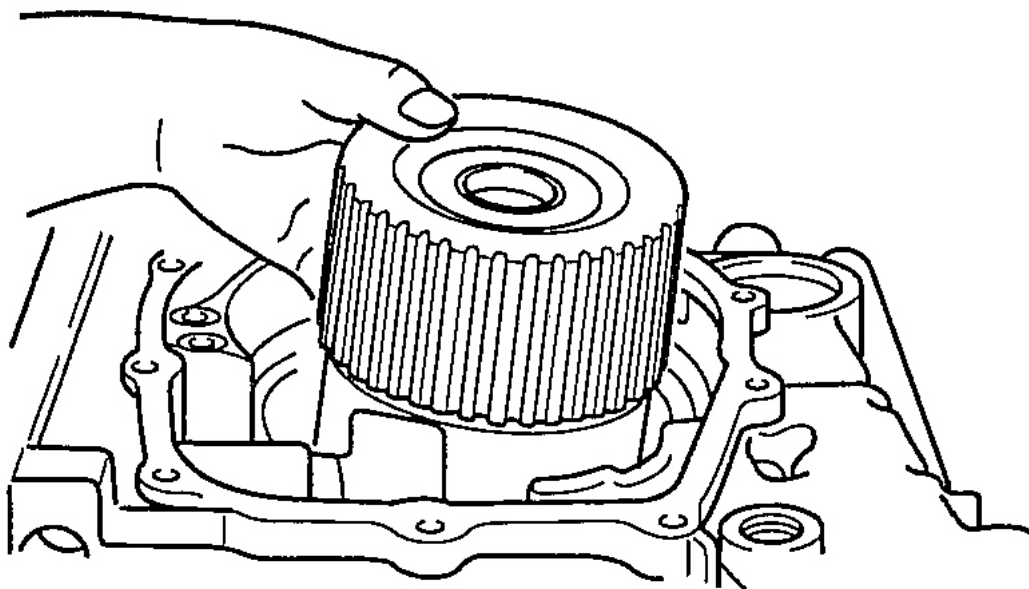
**NOTE:** Rotating the output shaft will help align the clutch teeth and help the carrier seat.



G00326290

**Fig. 176: Installing Overdrive Planetary Carrier**  
Courtesy of KIA MOTORS AMERICA, INC.

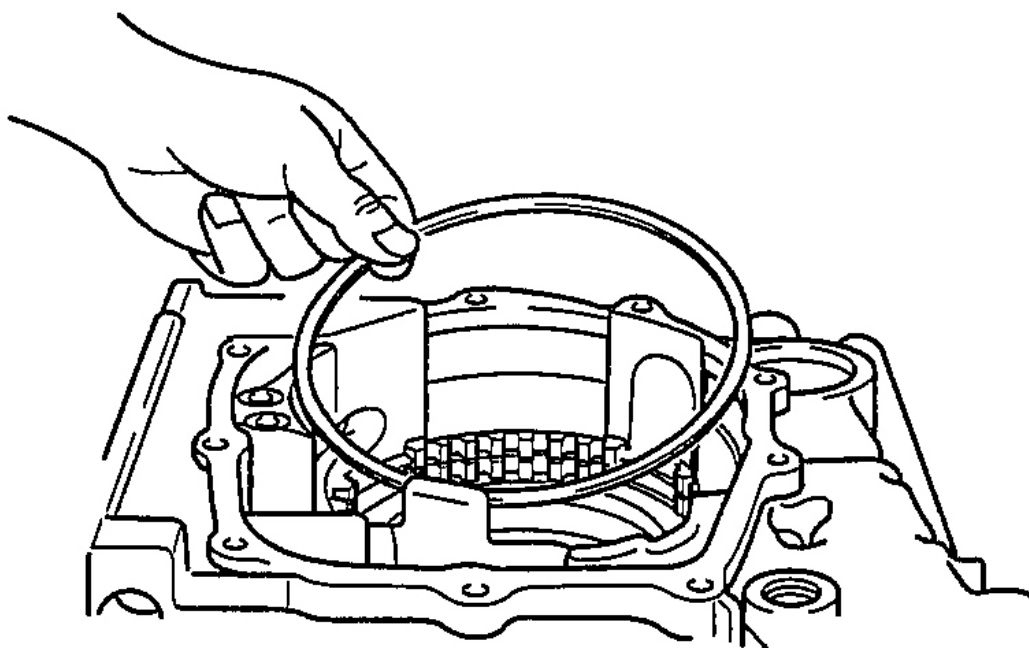
39. Install the reverse planetary sun gear.



G00326291

**Fig. 177: Installing Reverse Planetary Sun Gear**  
Courtesy of KIA MOTORS AMERICA, INC.

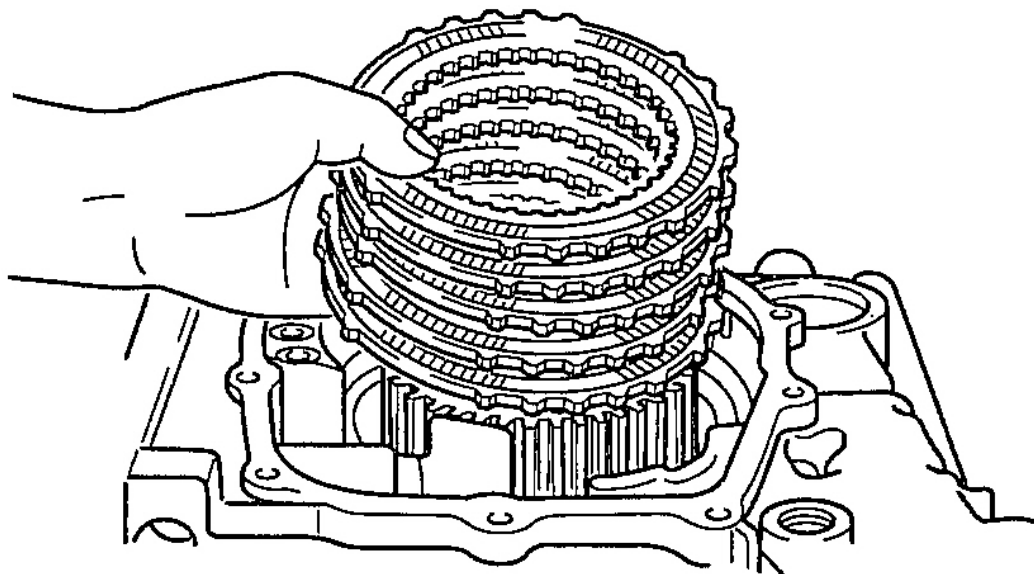
40. Install the wave spring.



G00326292

**Fig. 178: Installing Wave Spring**  
Courtesy of KIA MOTORS AMERICA, INC.

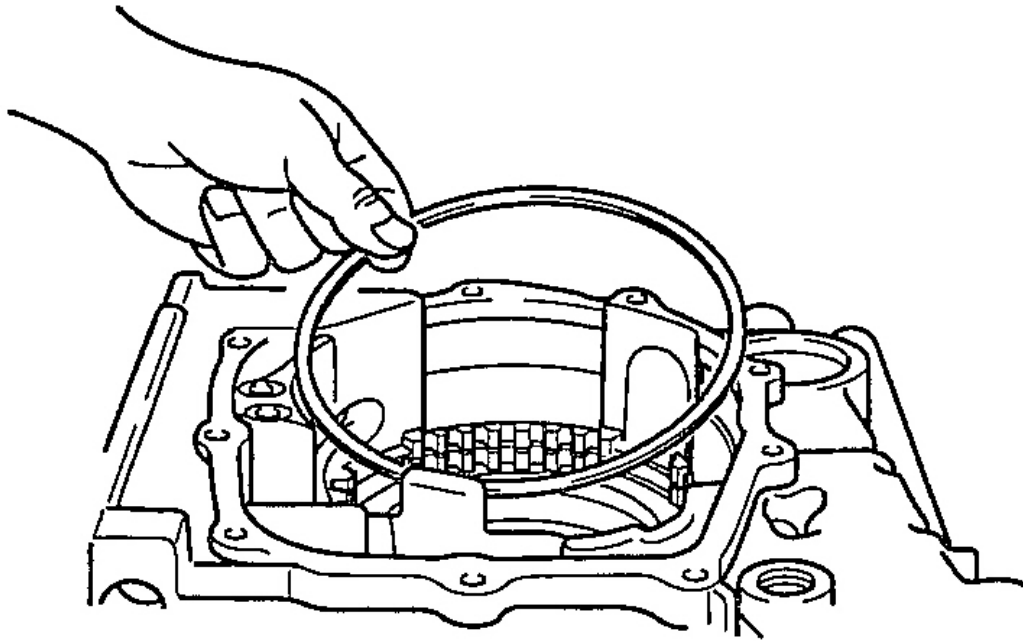
41. Install the low/reverse pressure plate, 6 brake discs, and 5 brake plates.



G00326293

**Fig. 179: Installing Low/Reverse Plate, 6 Brake Discs & 5 Brake Plates**  
Courtesy of KIA MOTORS AMERICA, INC.

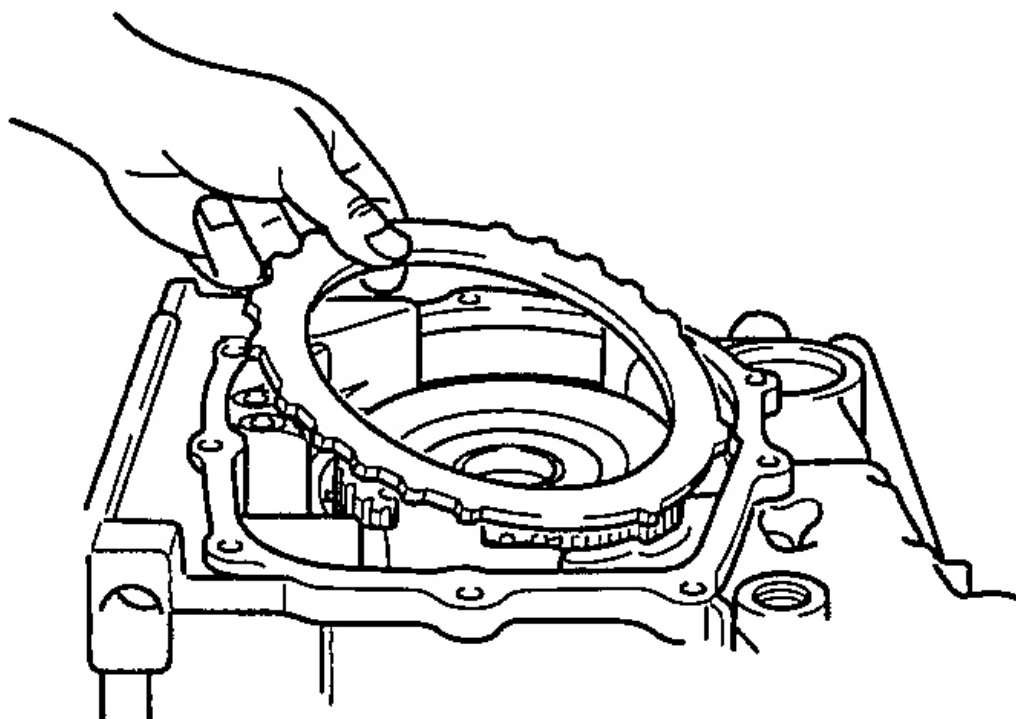
42. Install the snap ring.



G00326294

**Fig. 180: Installing Snap Ring**  
Courtesy of KIA MOTORS AMERICA, INC.

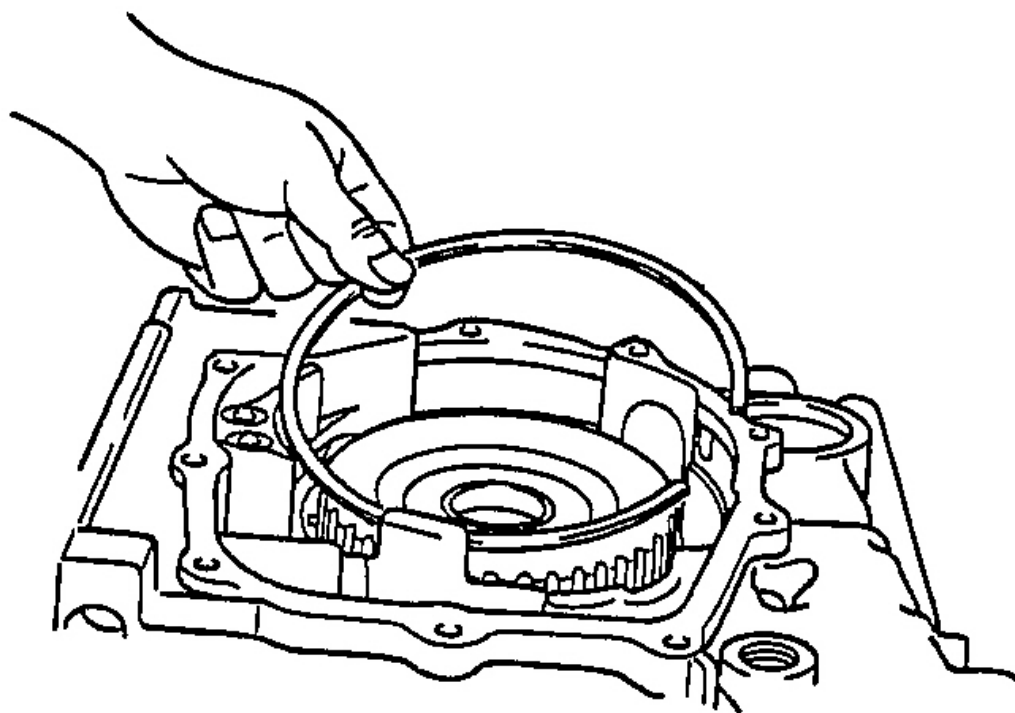
43. Install the reaction plate.



G00326295

**Fig. 181: Installing Reaction Plate**  
Courtesy of KIA MOTORS AMERICA, INC.

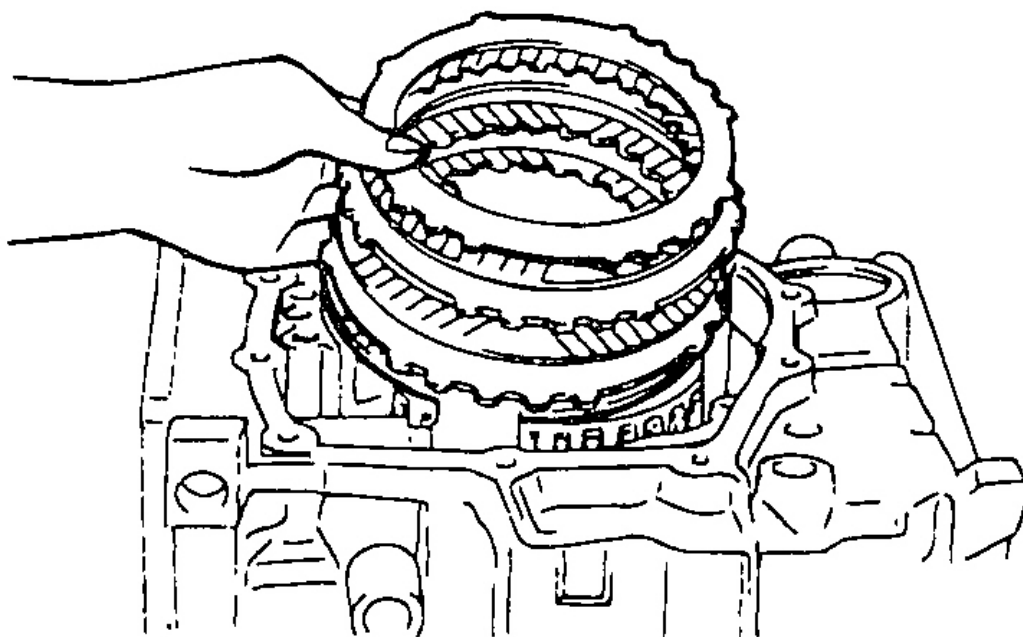
44. Install the snap ring.



G00326296

**Fig. 182: Installing Snap Ring**  
Courtesy of KIA MOTORS AMERICA, INC.

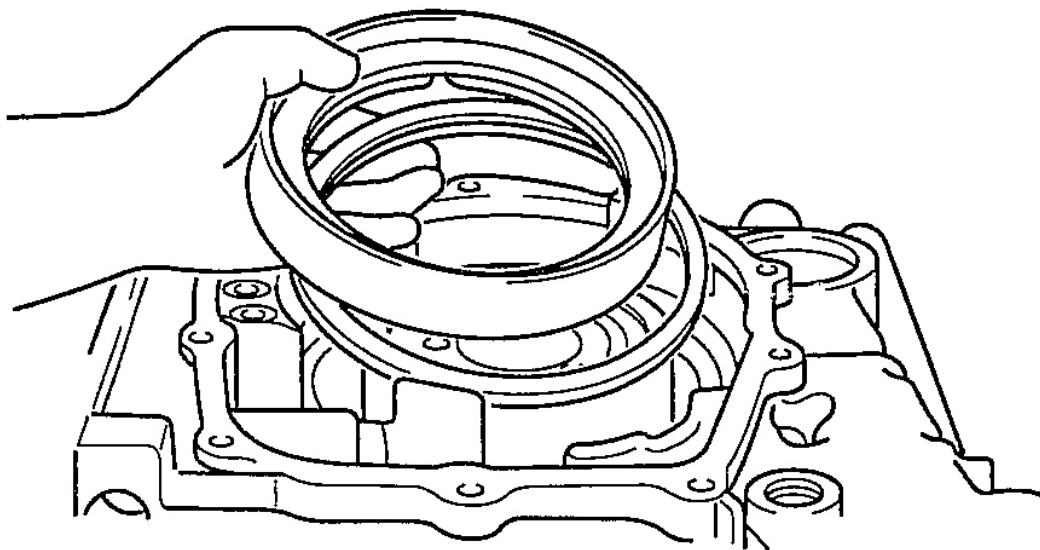
45. Install the second brake pressure plate, 3 brake discs, and 2 brake plates.



G00326297

**Fig. 183: Installing Second Brake Pressure Plate, 3 Brake Discs & 2 Brake Plates**  
Courtesy of KIA MOTORS AMERICA, INC.

46. Install the return spring and second brake piston.

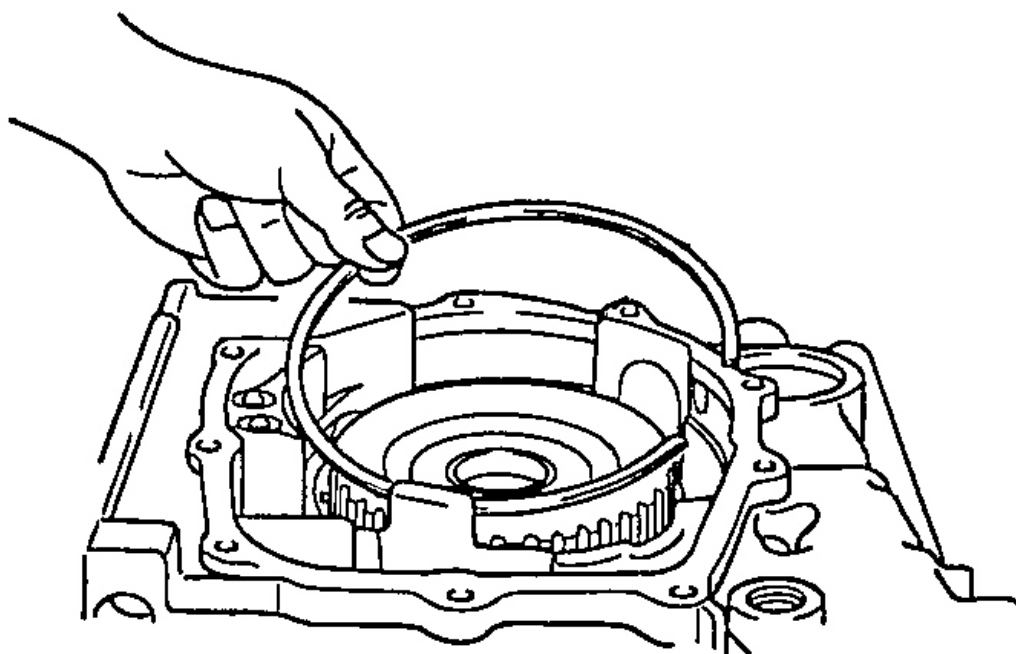


G00326298

**Fig. 184: Installing Return Spring & Second Brake Piston**  
Courtesy of KIA MOTORS AMERICA, INC.

47. Install the snap ring.

**CAUTION:** Be sure to install the thrust bearing in the proper direction.

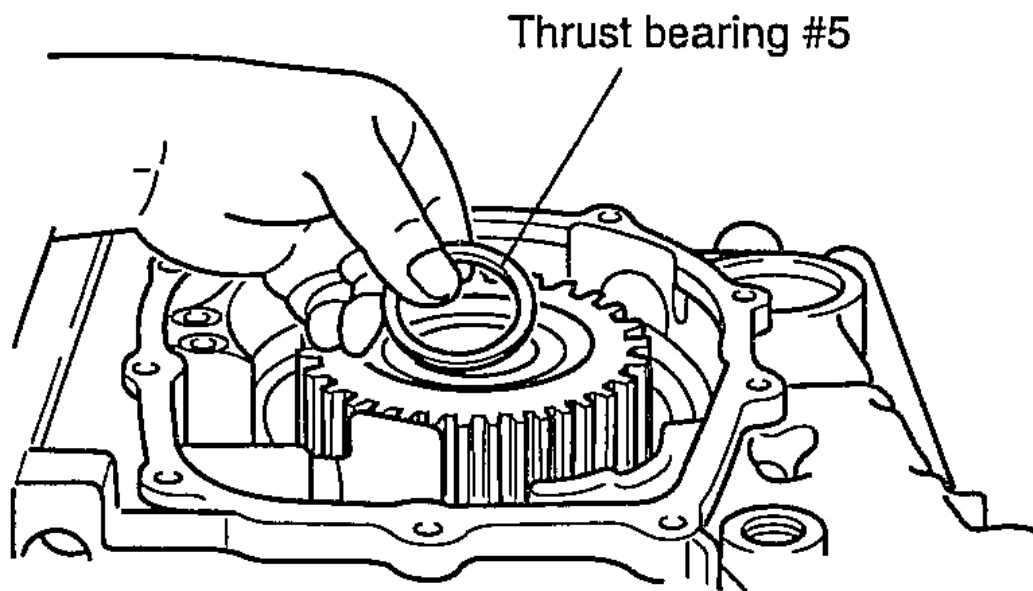


G00326299

**Fig. 185: Installing Snap Ring**  
Courtesy of KIA MOTORS AMERICA, INC.

48. Install thrust bearing #5.

**CAUTION:** Be sure to install the thrust bearing in the proper direction.

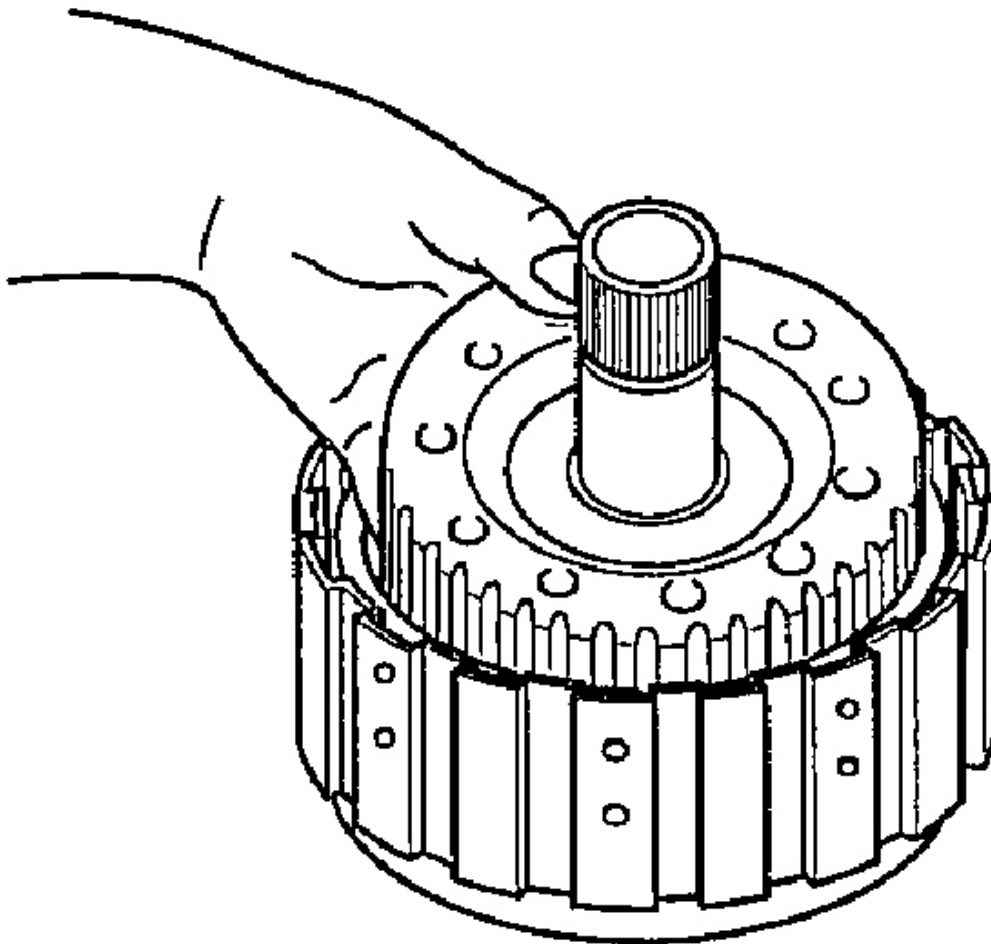


G00326300

**Fig. 186: Installing Thrust Bearing #5**  
Courtesy of KIA MOTORS AMERICA, INC.

49. Install the overdrive clutch hub and thrust bearing #6 to the reverse and overdrive clutch.

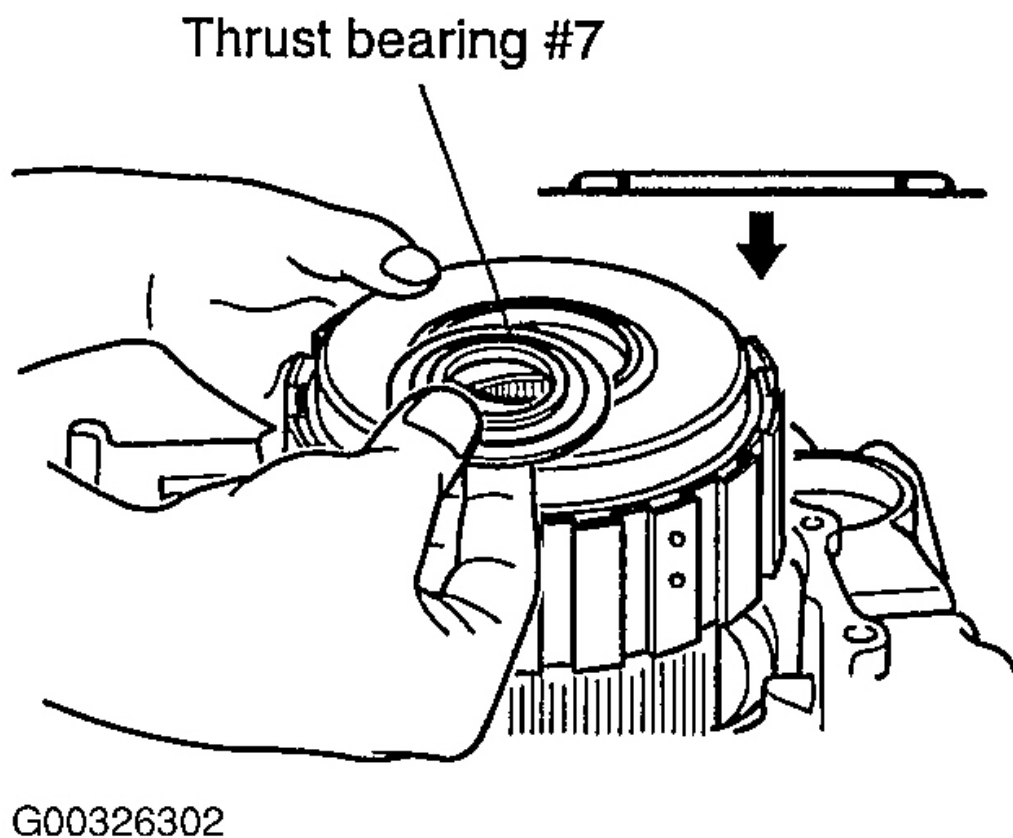
**CAUTION:** Be sure to install the thrust bearing in the proper direction.



G00326301

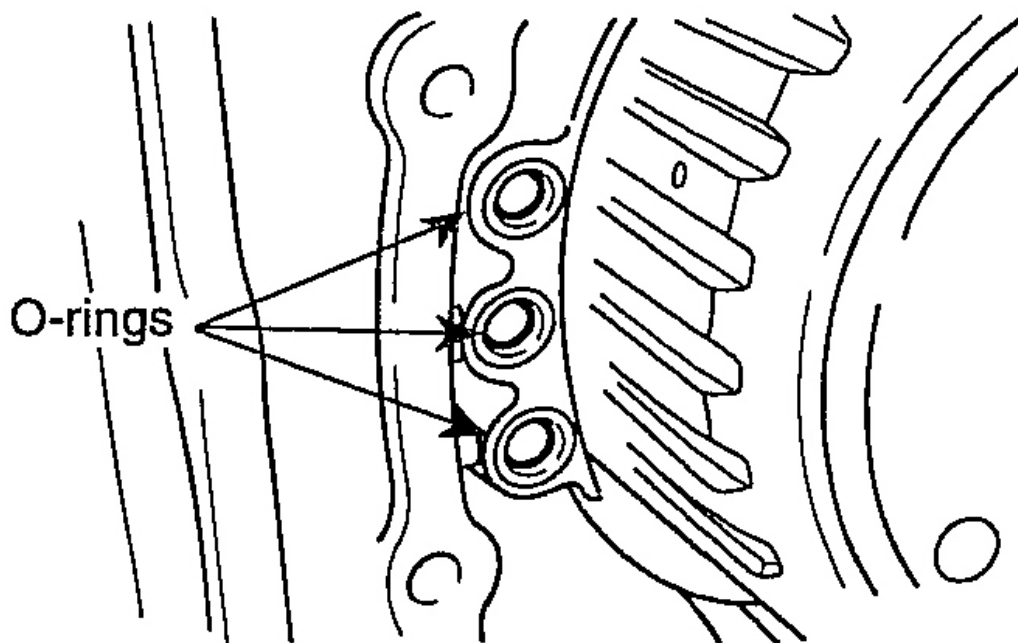
**Fig. 187: Installing Overdrive Clutch Hub & Thrust Bearing #6 To Reverse & Overdrive Clutch**  
Courtesy of KIA MOTORS AMERICA, INC.

50. Install the reverse and overdrive clutch and thrust bearing #7.



**Fig. 188: Installing Reverse & Overdrive Clutch & Thrust Bearing #7**  
Courtesy of KIA MOTORS AMERICA, INC.

51. Install the three O-rings.



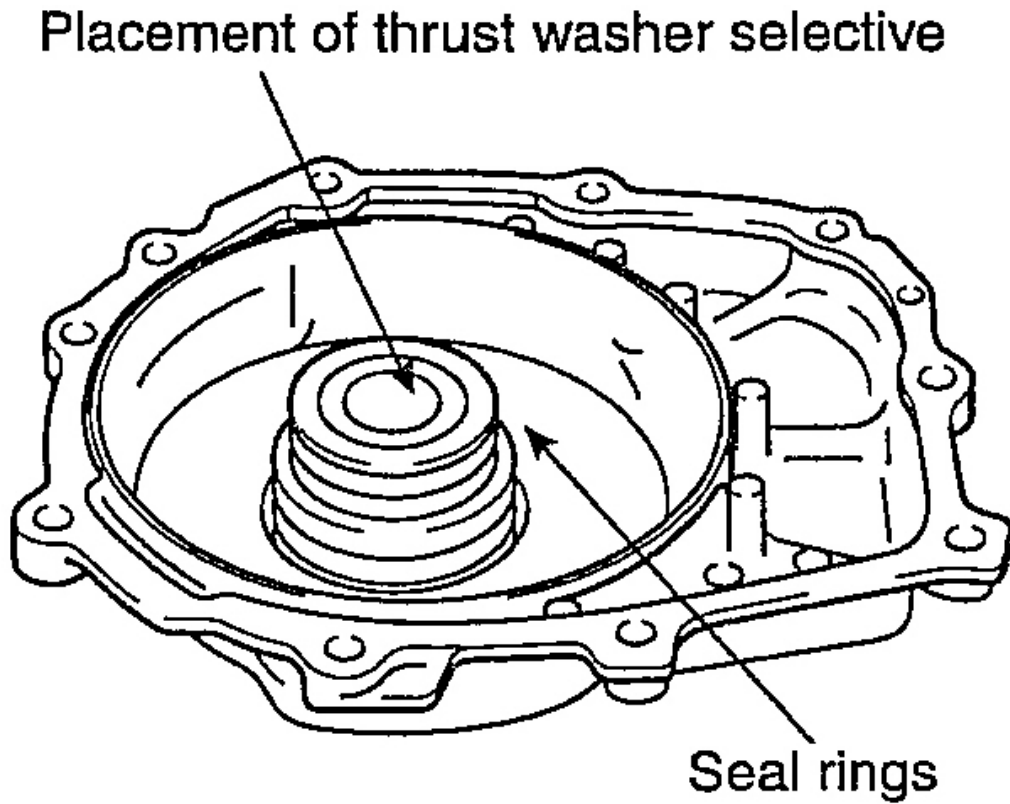
G00326303

**Fig. 189: Installing O-Rings**

Courtesy of KIA MOTORS AMERICA, INC.

52. Install the 3 seal rings into the rear cover.

**NOTE:** The cover should be clean and dry for step 56. It is only being installed to measure the underdrive sun gear end play.



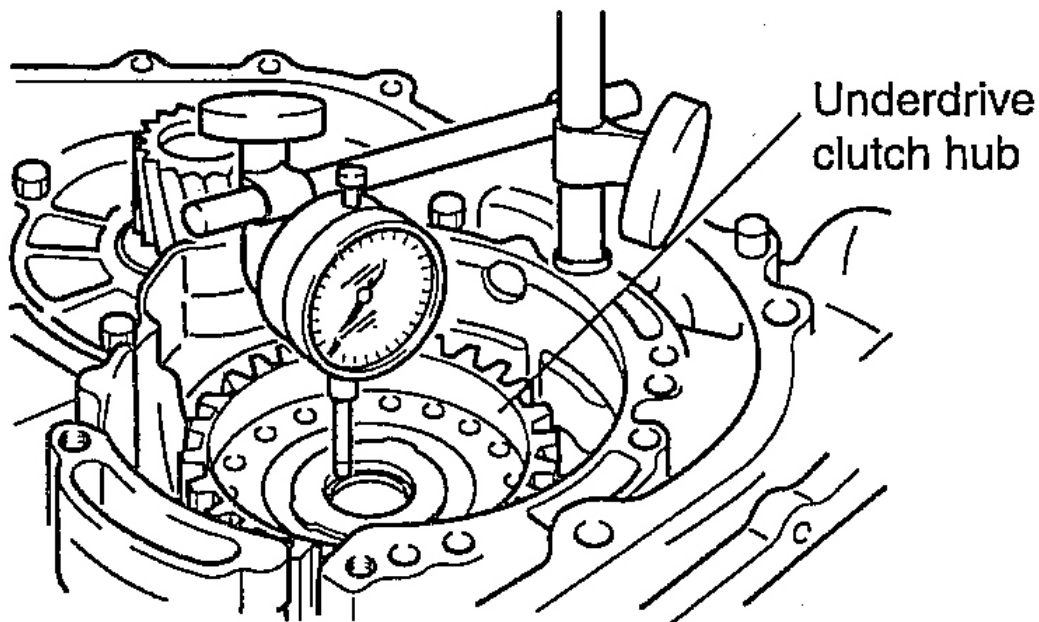
G00326304

**Fig. 190: Installing Rear Seal Rings Into Rear Cover**  
Courtesy of KIA MOTORS AMERICA, INC.

53. Install the used thrust race #8 and rear cover.
54. Using a dial indicator, measure the end play of the underdrive sun gear.

Standard Value:

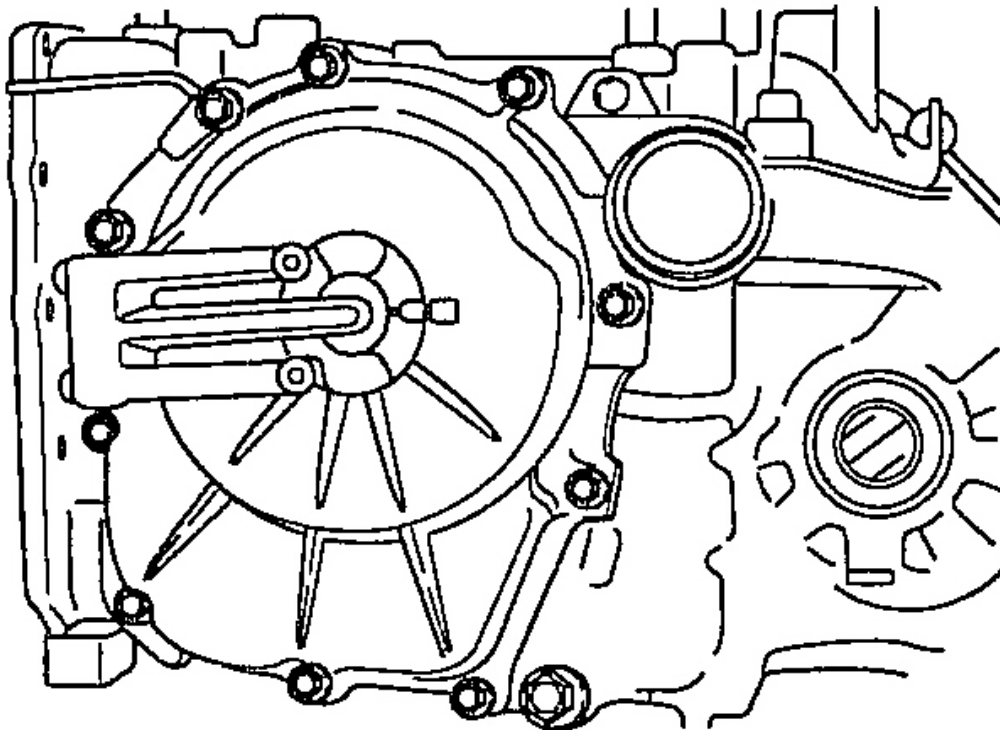
0.25-0.45 mm (0.0098-0.0177 in.)



G00326305

**Fig. 191: Measuring Underdrive Gear End Play**  
Courtesy of KIA MOTORS AMERICA, INC.

55. If the end play exceeds the standard value, measure the used race with a micrometer and select the proper size using snap ring and spacer adjustment charts. See **SNAP RING & SPACER ADJUSTMENT**.
56. Reinstall the rear cover and mounting bolts. Tighten the mounting bolts to 23 Nm (17 lbs. ft).

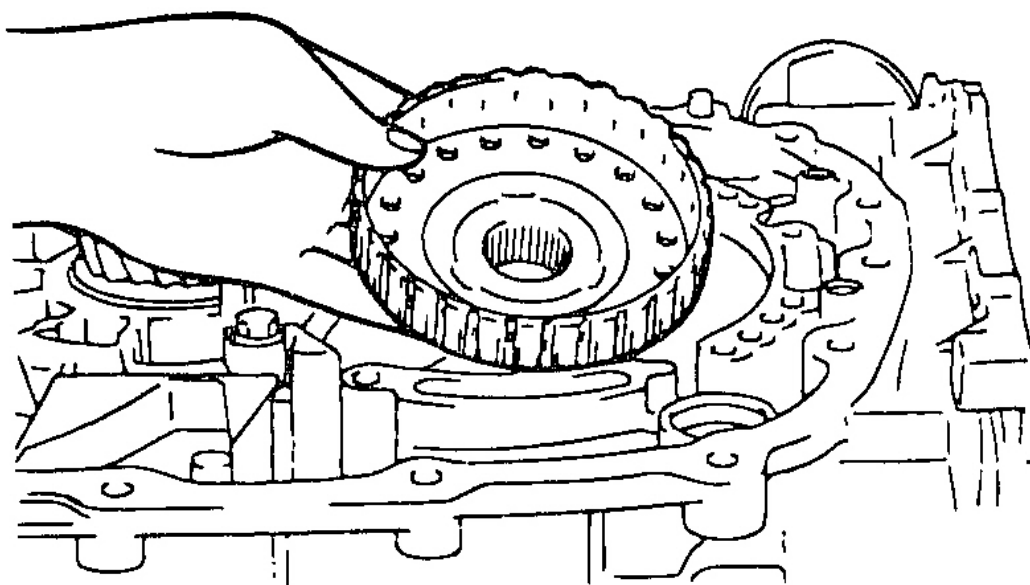


G00326306

**Fig. 192: Installing Rear Cover**  
Courtesy of KIA MOTORS AMERICA, INC.

57. Install the underdrive clutch hub.

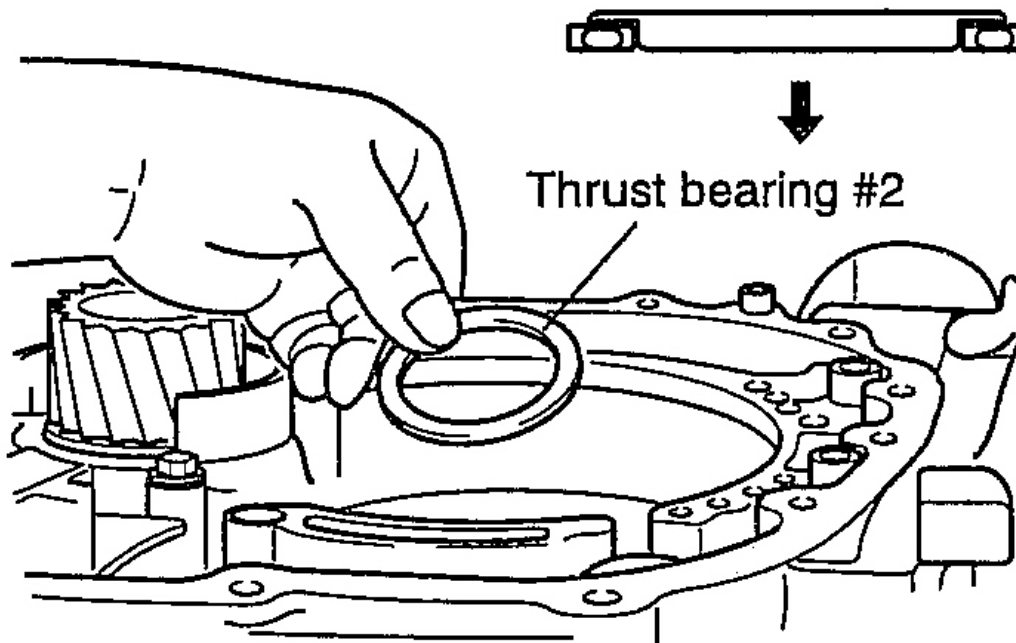
**CAUTION:** Be sure to install the thrust bearing in the proper direction.



G00326307

**Fig. 193: Installing Under Clutch Hub**  
Courtesy of KIA MOTORS AMERICA, INC.

58. Install thrust bearing #2.

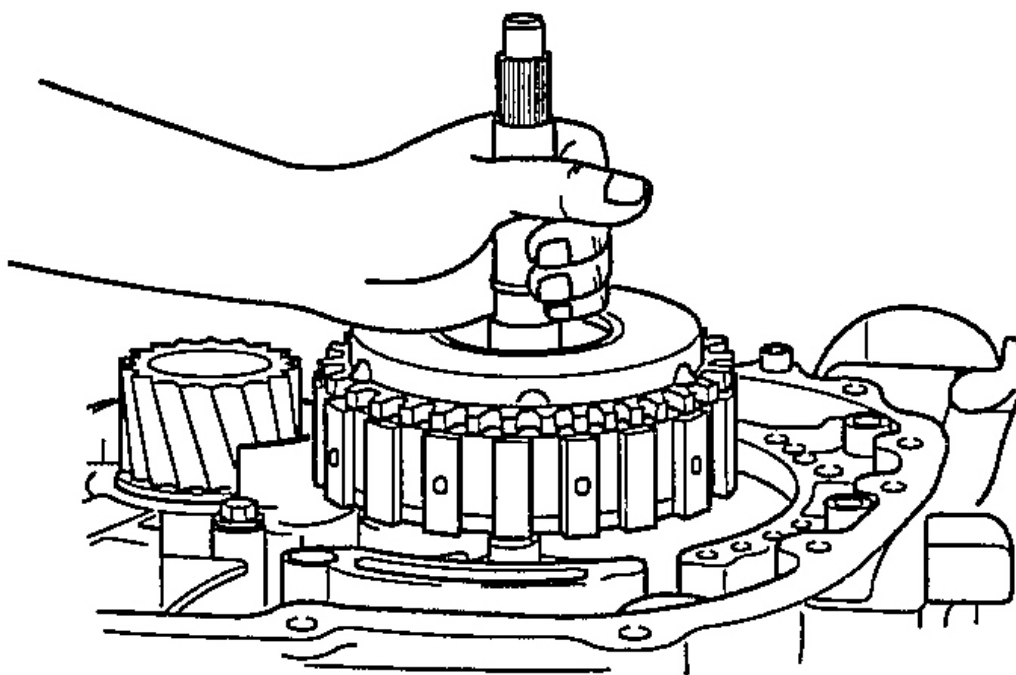


G00326308

**Fig. 194: Installing Thrust Bearing #2**  
Courtesy of KIA MOTORS AMERICA, INC.

59. Grasp the input shaft and lower the underdrive clutch into position.

**NOTE:** Looking into the hole where the input speed sensor mounts to the case will help you ensure that the underdrive clutch is fully seated.

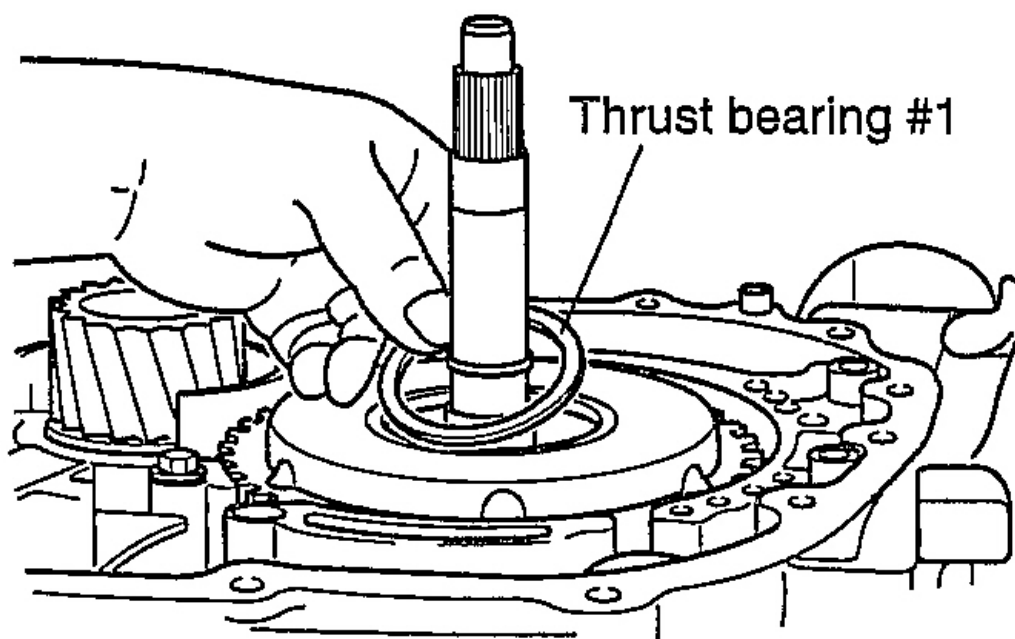


G00326309

**Fig. 195: Installing Input Shaft & Underdrive Clutch**  
Courtesy of KIA MOTORS AMERICA, INC.

60. Install the used thrust bearing #1.

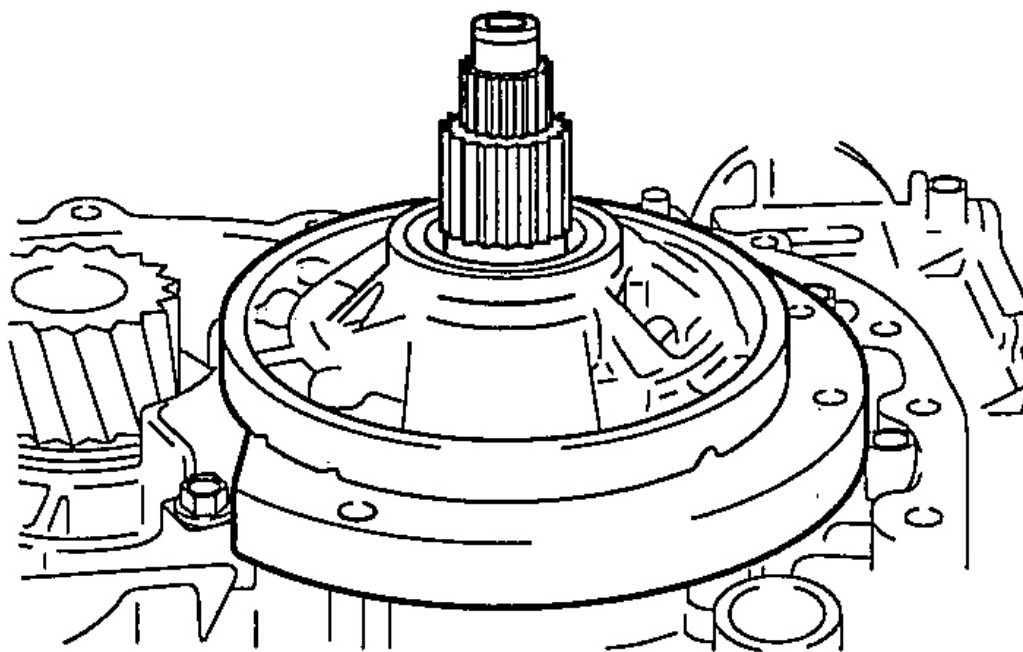
**CAUTION:** Be sure to use a new oil pump gasket.



G00326310

**Fig. 196: Installing Thrust Bearing #1**  
Courtesy of KIA MOTORS AMERICA, INC.

61. Install the oil pump, a new gasket, and the oil pump mounting bolts.



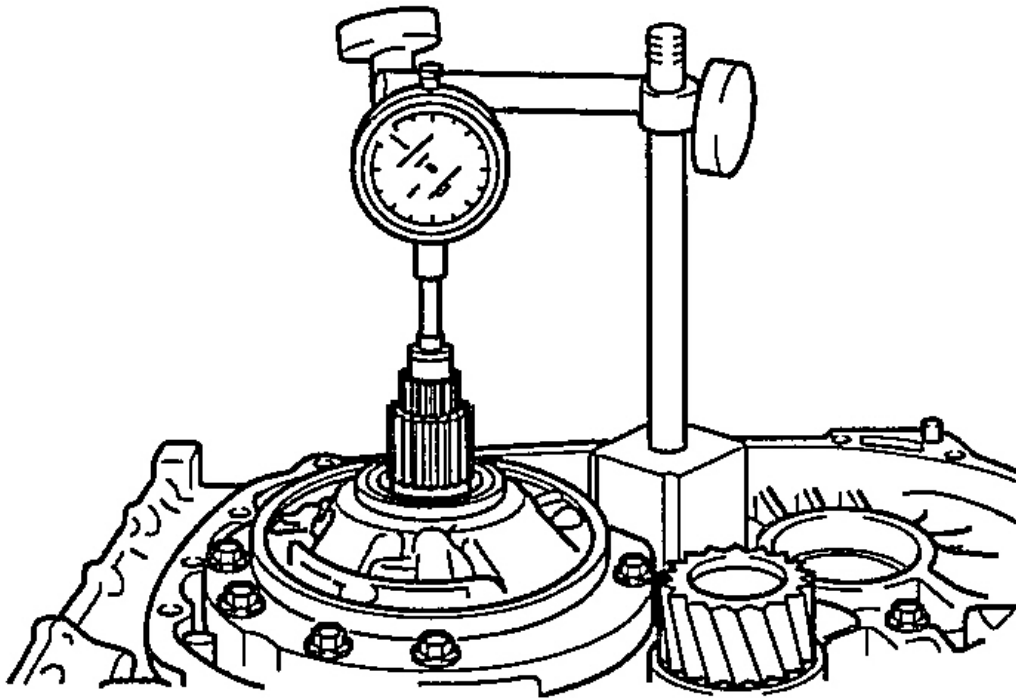
G00326311

**Fig. 197: Installing Oil Pump**  
Courtesy of KIA MOTORS AMERICA, INC.

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

Standard Value:

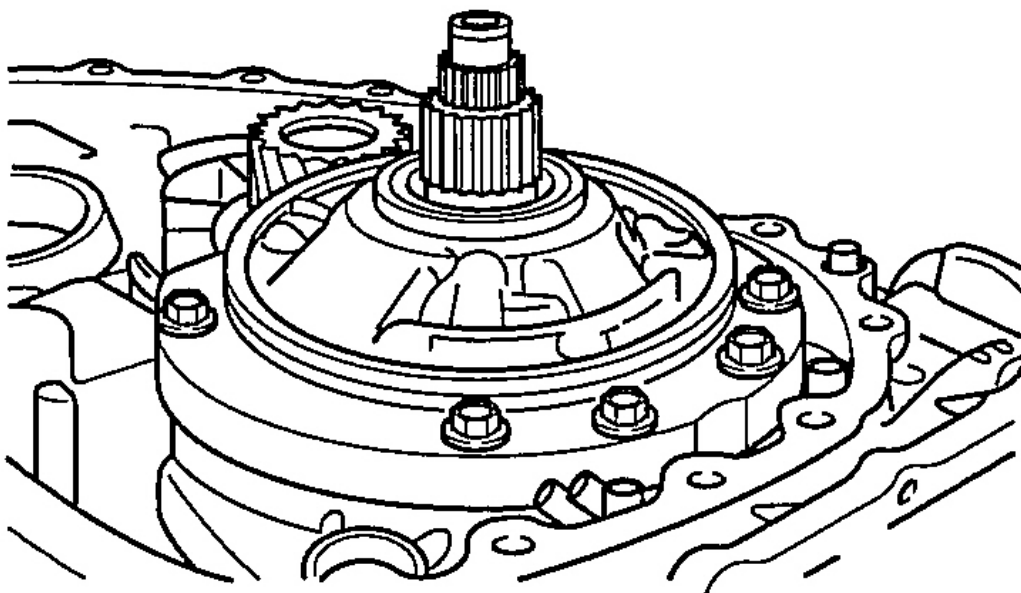
0.70-1.45 mm (0.0276-0.0371 in.)



G00326312

**Fig. 198: Measuring Input Shaft End Play**  
 Courtesy of KIA MOTORS AMERICA, INC.

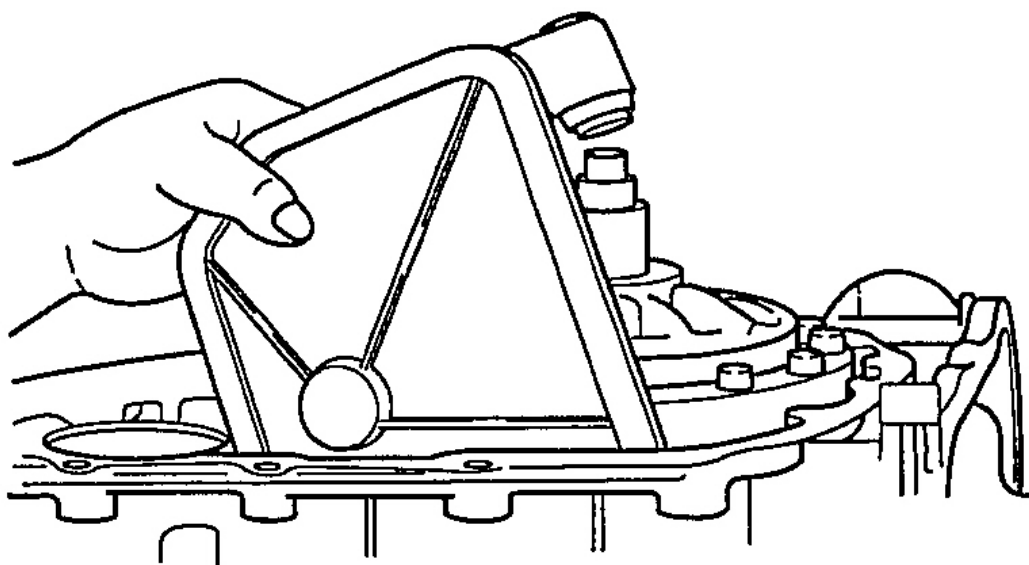
63. If the end play exceeds the standard value, measure the used race with a micrometer and select the proper size using snap ring and spacer adjustment charts. See **SNAP RING & SPACER ADJUSTMENT**.
64. Reinstall the oil pump and mounting bolts. Tighten the mounting bolts to 23 Nm (17 lbs. ft).



G00326313

**Fig. 199: Installing Oil Pump Mounting Bolts**  
Courtesy of KIA MOTORS AMERICA, INC.

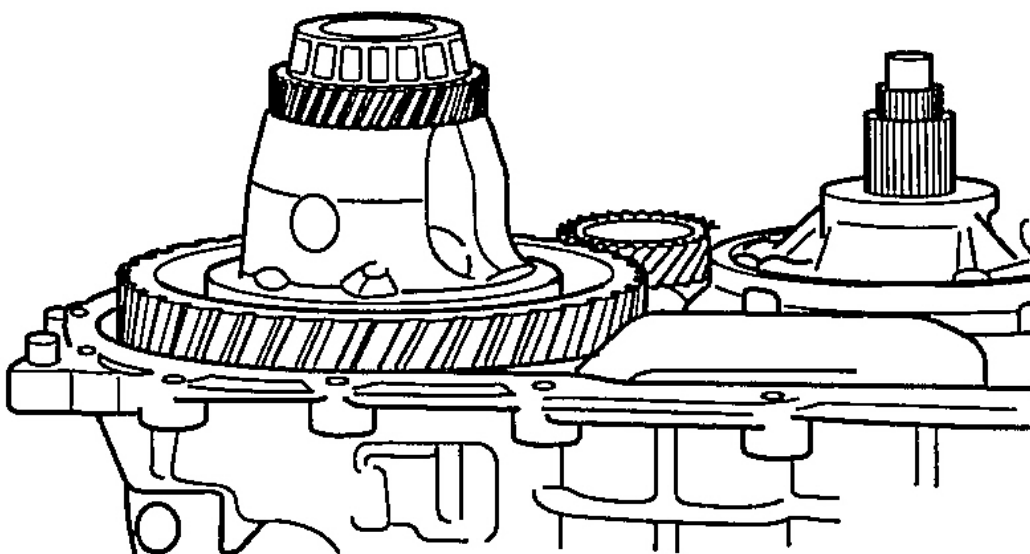
65. Install the oil internal filter.



G00326314

**Fig. 200: Installing Oil Internal Filter**  
Courtesy of KIA MOTORS AMERICA, INC.

66. Install the differential.

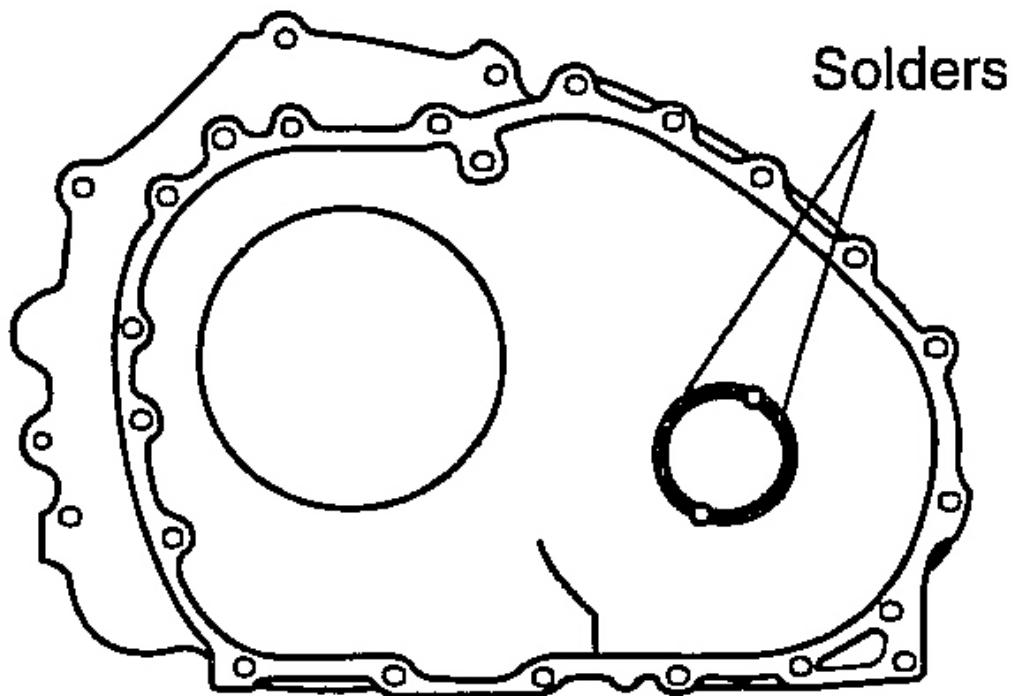


G00326315

**Fig. 201: Installing Differential**

Courtesy of KIA MOTORS AMERICA, INC.

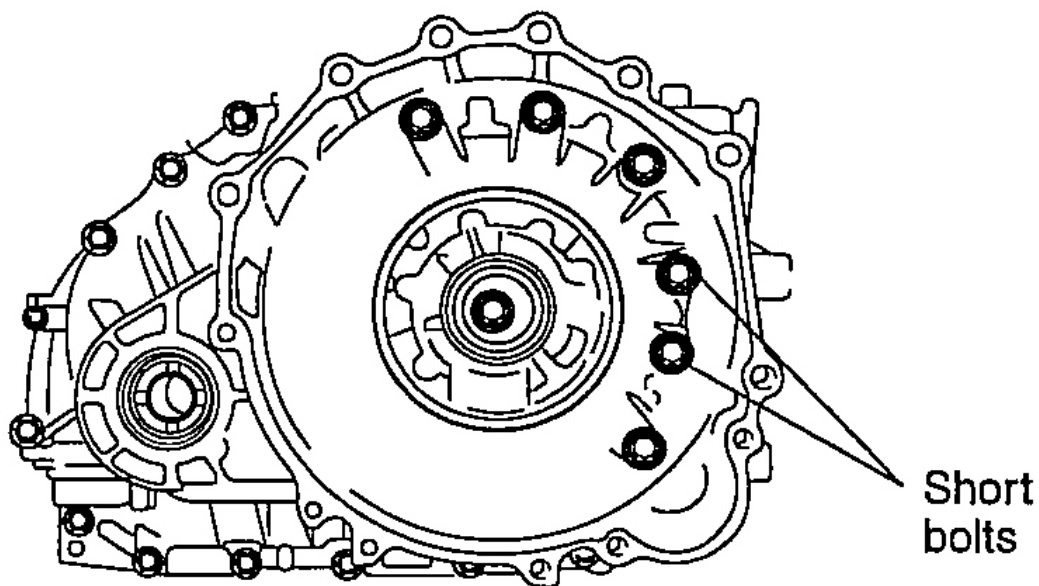
67. Place two strips of solder, approximately 10 mm (0.39 in) long and 3 mm (0.12 in) thick, on the torque converter housing.



G00326316

**Fig. 202: Identifying Location Of Strips Of Solder On Torque Converter**  
Courtesy of KIA MOTORS AMERICA, INC.

68. Install the torque converter housing and mounting bolts. Tighten the bolts to 47 Nm (35 lbs. ft) of torque.



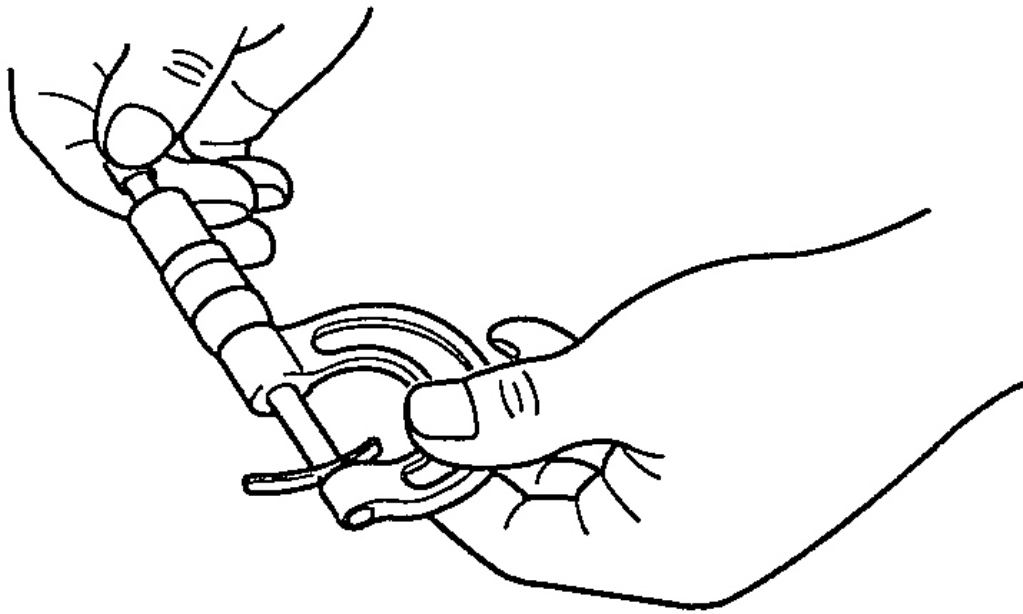
G00326317

**Fig. 203: Installing Torque Converter**  
Courtesy of KIA MOTORS AMERICA, INC.

69. Remove the torque converter housing, the bolts and the solder.
70. Using a micrometer, measure the thickness of the pressed solder.
71. Select a spacer that will give the following clearance.

Standard Value:

0.045 mm (0.0018 in.)-0.105 mm (0.0041 in.)

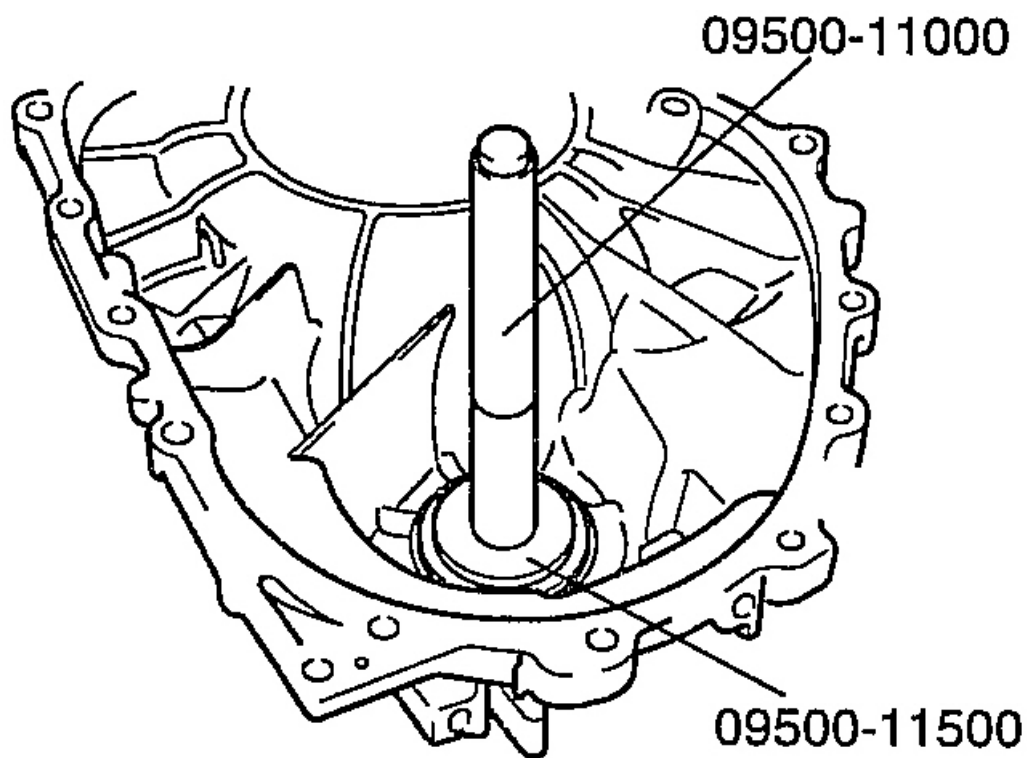


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**Fig. 204: Measuring Spacer**

Courtesy of KIA MOTORS AMERICA, INC.

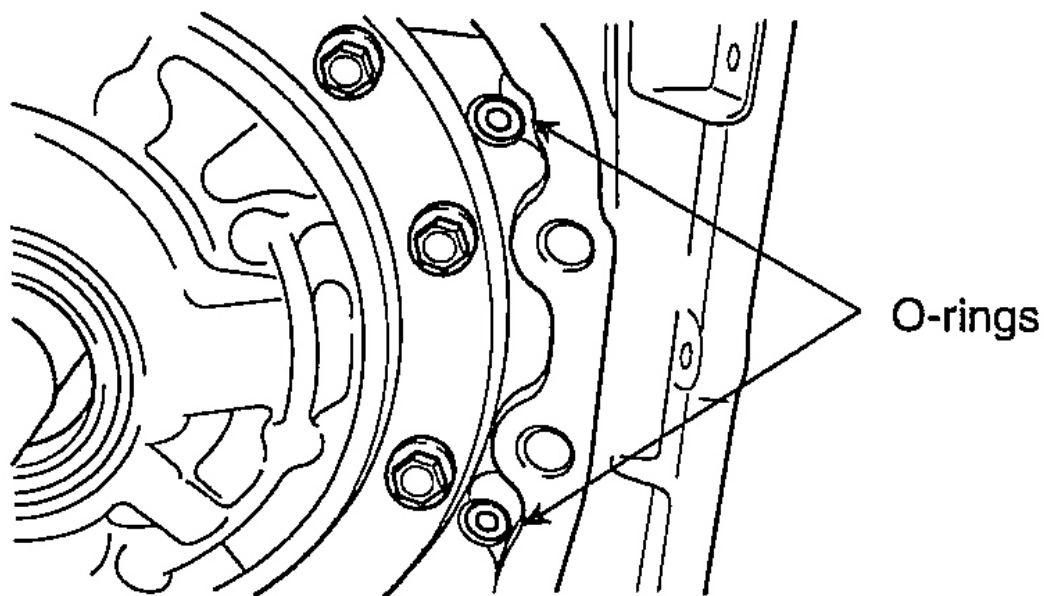
72. Install the differential spacer selected in the previous step in the torque converter housing.
73. Use special tools 09532-11500 and 09500-11000 to press in the differential bearing outer race.



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**Fig. 205: Installing Differential Bearing Outer Race**  
Courtesy of KIA MOTORS AMERICA, INC.

74. Install the two O-rings.

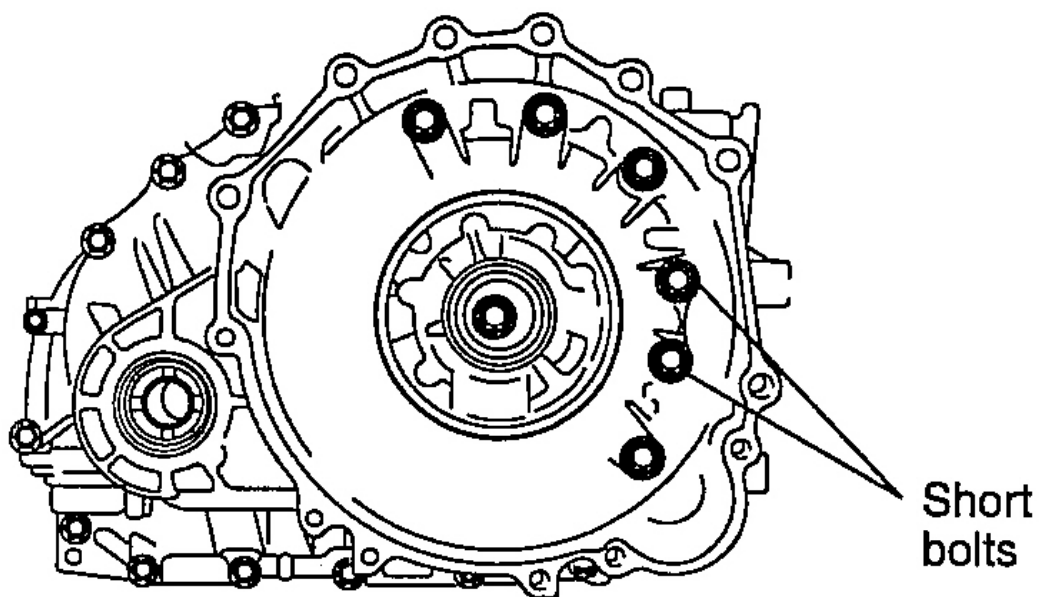


G00326320

**Fig. 206: Installing O-Rings**

Courtesy of KIA MOTORS AMERICA, INC.

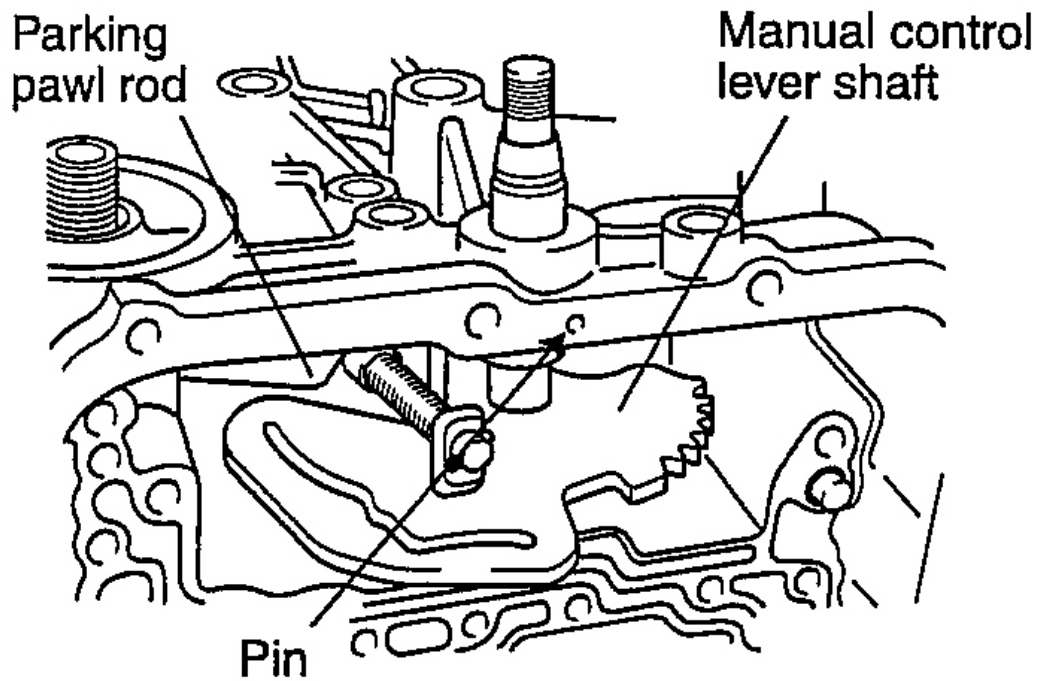
75. Install the torque converter housing and mounting bolts. Tighten the bolts to 47 Nm (35 lbs. ft) of torque.



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**Fig. 207: Installing Torque Converter Mounting Bolts**  
Courtesy of KIA MOTORS AMERICA, INC.

76. Install the manual control lever shaft and parking pawl.



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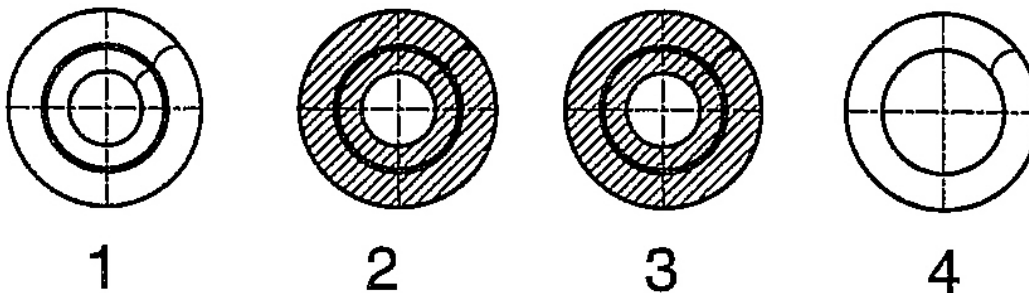
**Fig. 208: Installing Manual Control Lever Shaft & Parking Pawl Rod**  
 Courtesy of KIA MOTORS AMERICA, INC.

77. Install the manual control shaft roller.
78. Install the three small springs and three larger springs into the accumulator pistons. The accumulator springs are identified in the illustrations.

| Number | Function Name     |
|--------|-------------------|
| 1      | Low-Reverse Brake |
| 2      | Underdrive Clutch |
| 3      | Second Brake      |
| 4      | Overdrive Clutch  |

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**Fig. 209: Installing 3 Small Springs & 3 Large Springs Into Accumulator Pistons (1 Of 2)**  
 Courtesy of KIA MOTORS AMERICA, INC.



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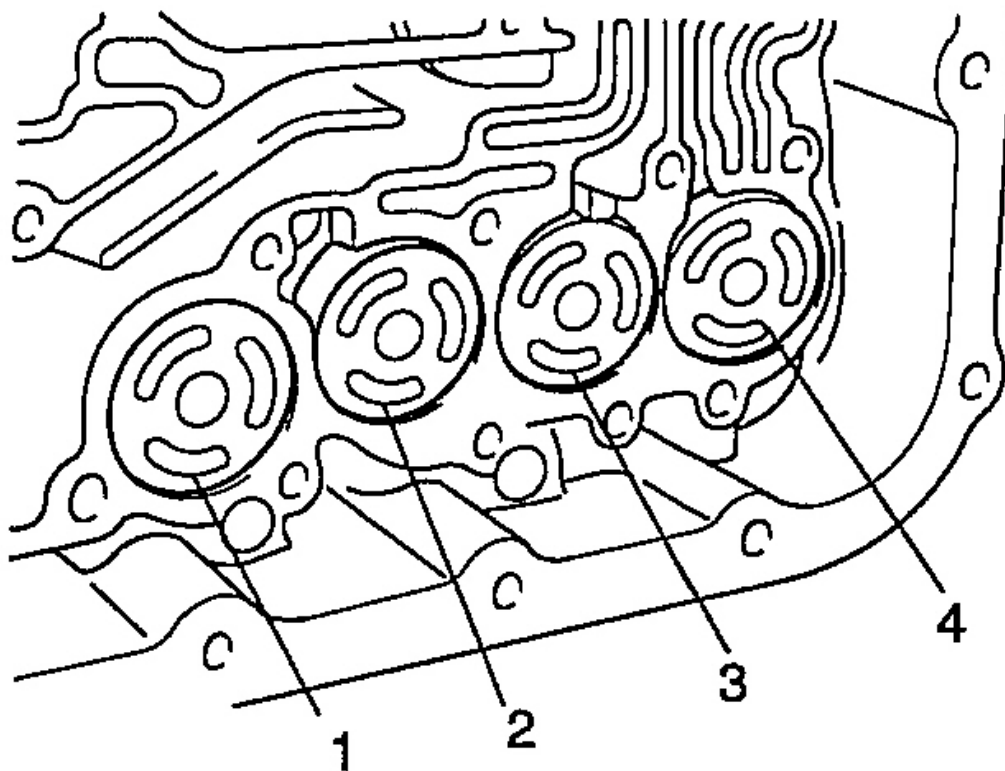
**Fig. 210: Installing 3 Small Springs & 3 Large Springs Into Accumulator Pistons (2 Of 2)**  
 Courtesy of KIA MOTORS AMERICA, INC.

79. Install the accumulators with the springs according to the illustrations. The accumulators should be flush with the transaxle case.

| Number | Function Name     | Color  |
|--------|-------------------|--------|
| 1      | Low-Reverse Brake | None   |
| 2      | Underdrive Clutch | Yellow |
| 3      | Second Brake      | Blue   |
| 4      | Overdrive Clutch  | None   |

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**Fig. 211: Installing Accumulators With Springs (1 Of 2)**  
Courtesy of KIA MOTORS AMERICA, INC.

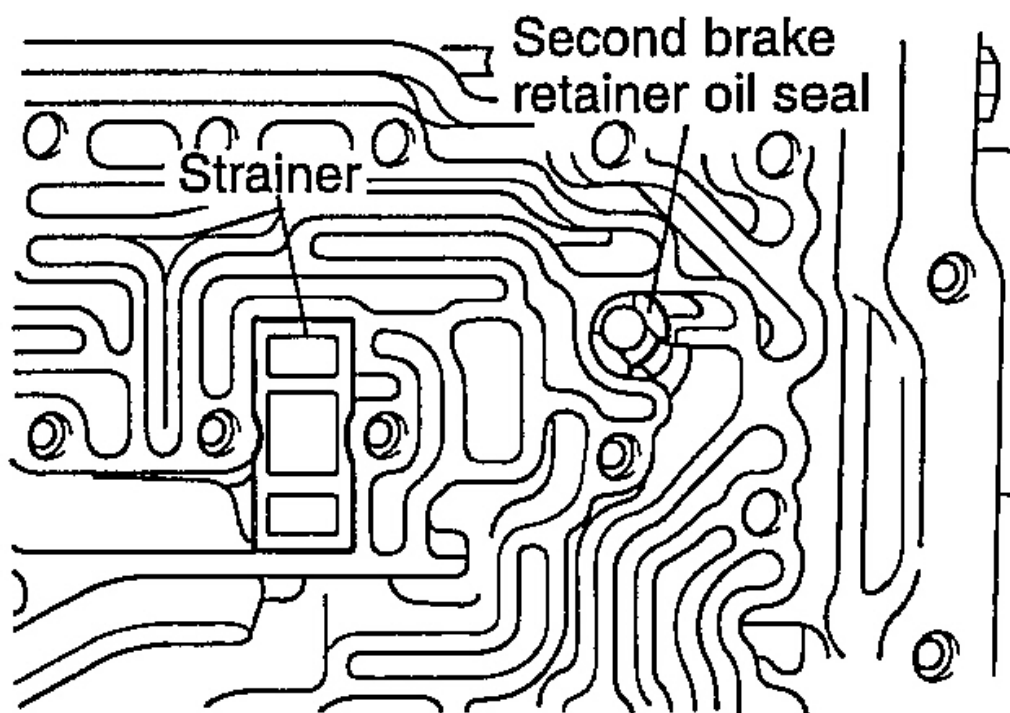


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**Fig. 212: Installing Accumulators With Springs (1 Of 2)**  
 Courtesy of KIA MOTORS AMERICA, INC.

80. Install the strainer and the second brake retainer oil seal.

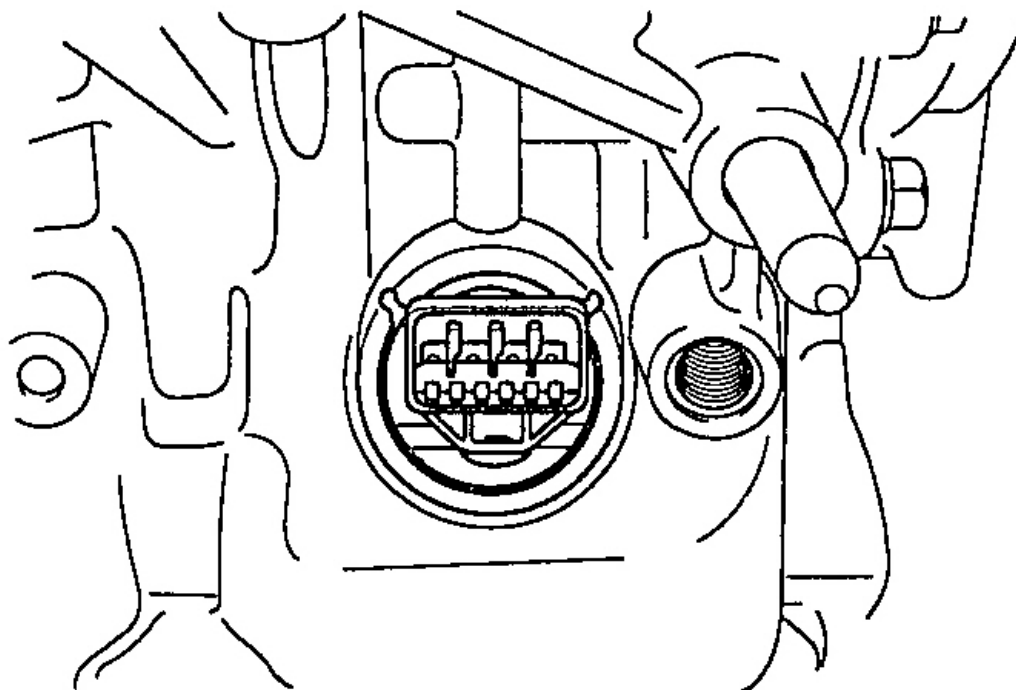
**NOTE:**      **Note the oil seal orientation in the illustration.**



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**Fig. 213: Installing Strainer & Second Brake Retainer Oil Seal**  
Courtesy of KIA MOTORS AMERICA, INC.

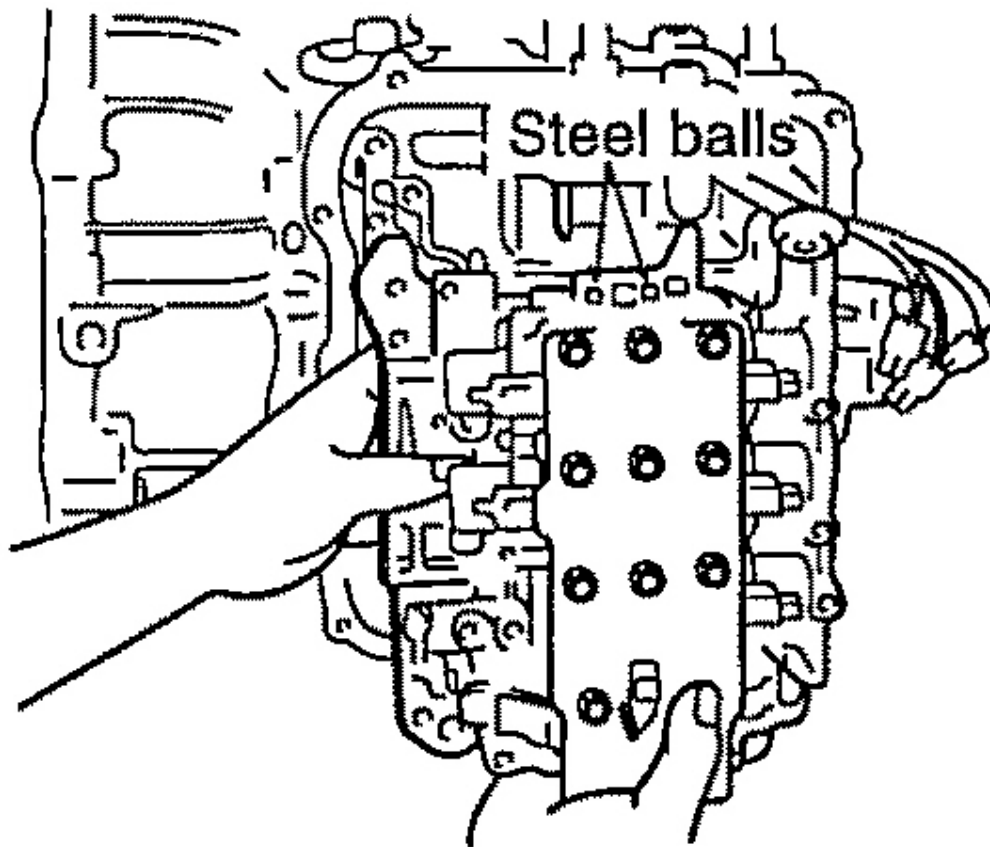
81. Install the solenoid wiring harness, then install the snap ring in its groove.



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**Fig. 214: Installing Solenoid Wiring Harness**  
Courtesy of KIA MOTORS AMERICA, INC.

82. Install the valve body, gasket, and two steel balls.



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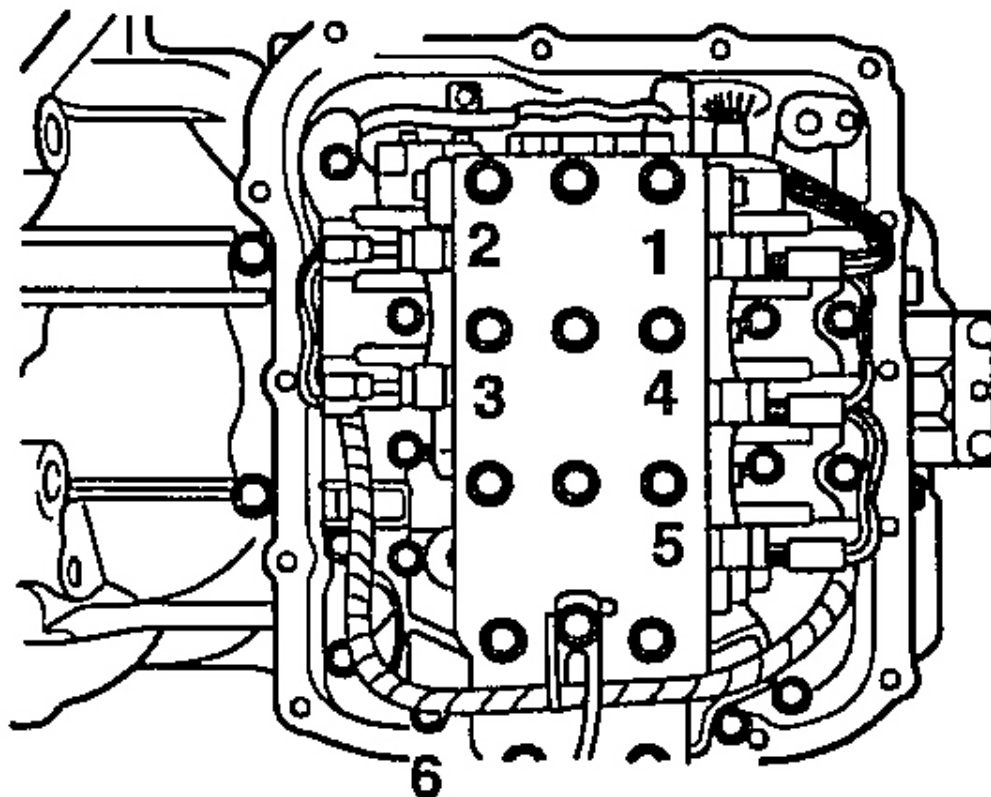
**Fig. 215: Installing Valve Body, Gasket & Steel Balls**  
Courtesy of KIA MOTORS AMERICA, INC.

83. Install the oil temperature sensor. Tighten the mounting bolt to 11 Nm (8 lbs. ft.).
84. Install 28 valve body mounting bolts. Tighten all valve body mounting bolts to 11 Nm (8 lbs. ft.).
85. Connect the solenoid wiring and temperature sensor connectors according to the illustration and the chart below.

| No. | Part to be connected                 | Wire color           | Connector housing color |
|-----|--------------------------------------|----------------------|-------------------------|
| 1   | Underdrive solenoid valve            | White, Red, Red      | Black                   |
| 2   | Overdrive solenoid valve             | Orange, Red          | Black                   |
| 3   | Low-Reverse solenoid valve           | Brown, Yellow        | Milky White             |
| 4   | Second solenoid valve                | Green, Red, Red      | Milky White             |
| 5   | Damper clutch control solenoid valve | Blue, Yellow, Yellow | Black                   |
| 6   | Oil temp. sensor                     | Black, Red           | Black                   |

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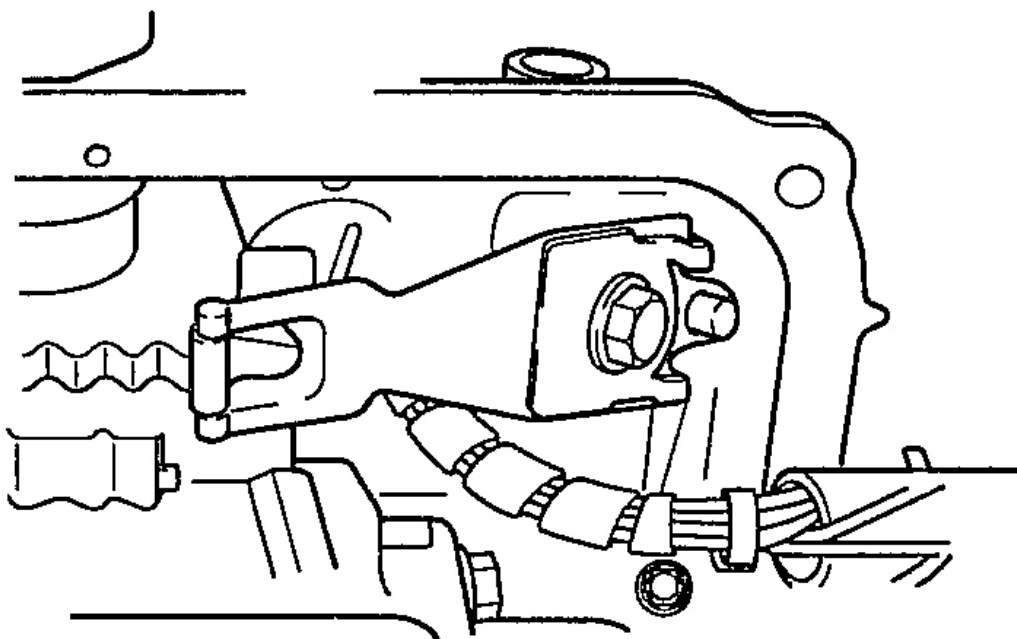
**Fig. 216: Connecting Solenoid Wiring & Temperature Sensor Connectors (1 Of 2)**  
 Courtesy of KIA MOTORS AMERICA, INC.



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**Fig. 217: Connecting Solenoid Wiring & Temperature Sensor Connectors (2 Of 2)**  
Courtesy of KIA MOTORS AMERICA, INC.

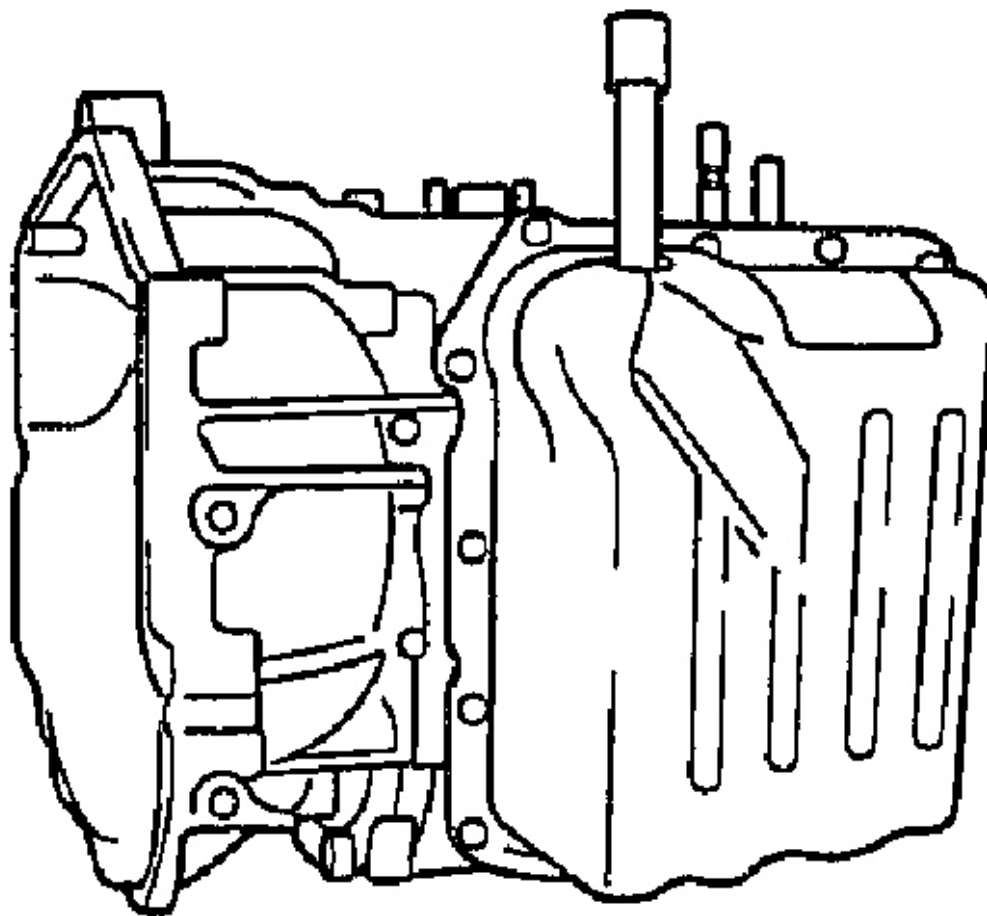
86. Install the manual control shaft detent. Tighten the nut to 6 Nm (4.4 lbs. ft) of torque.



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**Fig. 218: Installing Manual Control Shaft Detent**  
Courtesy of KIA MOTORS AMERICA, INC.

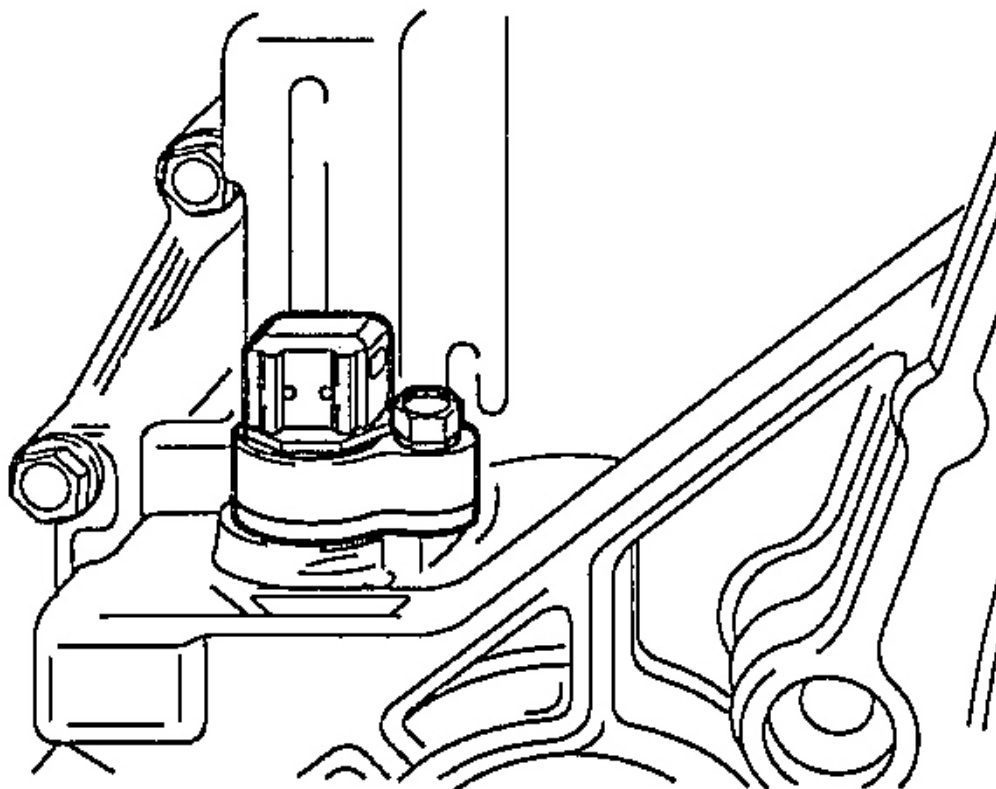
87. Install the valve body cover and mounting bolts. Tighten the mounting bolts to 9 Nm of torque.



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**Fig. 219: Installing Valve Body Cover**  
Courtesy of KIA MOTORS AMERICA, INC.

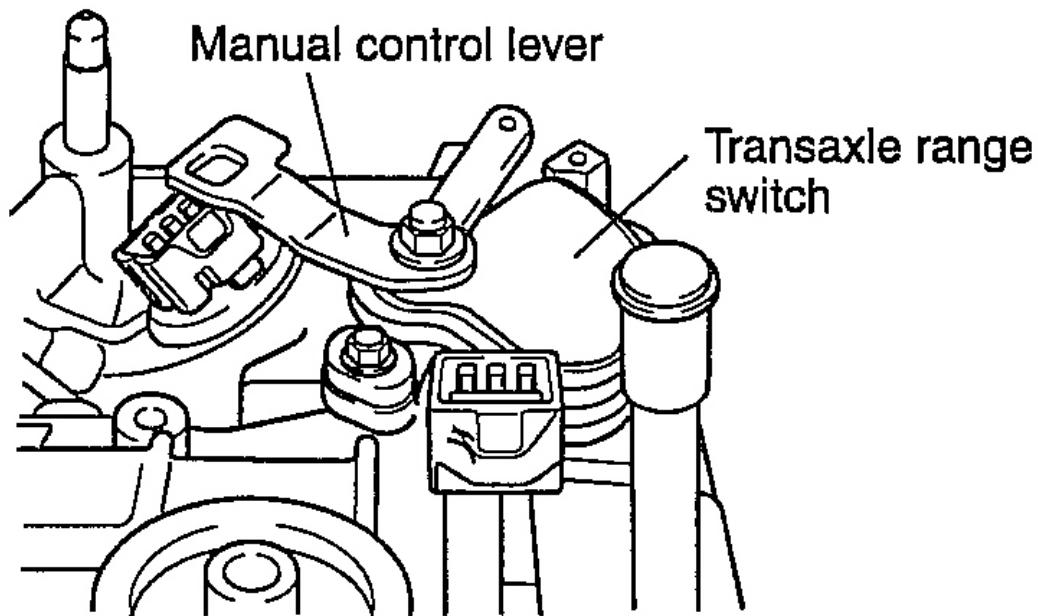
88. Install the vehicle speed sensor and mounting bolt. Tighten the mounting bolt to 5 Nm (3.7 lbs. ft.) of torque.



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**Fig. 220: Installing Vehicle Speed Sensor**  
Courtesy of KIA MOTORS AMERICA, INC.

89. Install the park/neutral position switch. Tighten the mounting bolt to 11 Nm (8 lbs. ft) of torque.

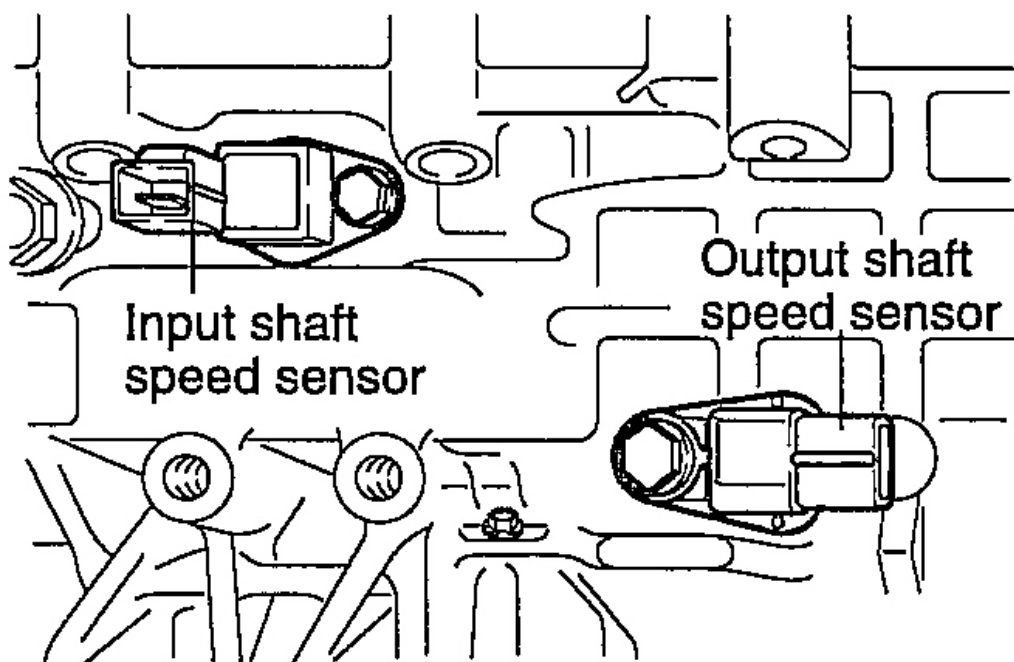


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**Fig. 221: Installing Park/neutral Position Switch**  
Courtesy of KIA MOTORS AMERICA, INC.

90. Install the manual control lever. Tighten the mounting nut to 22 Nm (26 lbs. ft) of torque.
91. Install the input and output shaft speed sensors. Tighten the mounting bolts to 11 Nm (8 lbs. ft.) of torque.

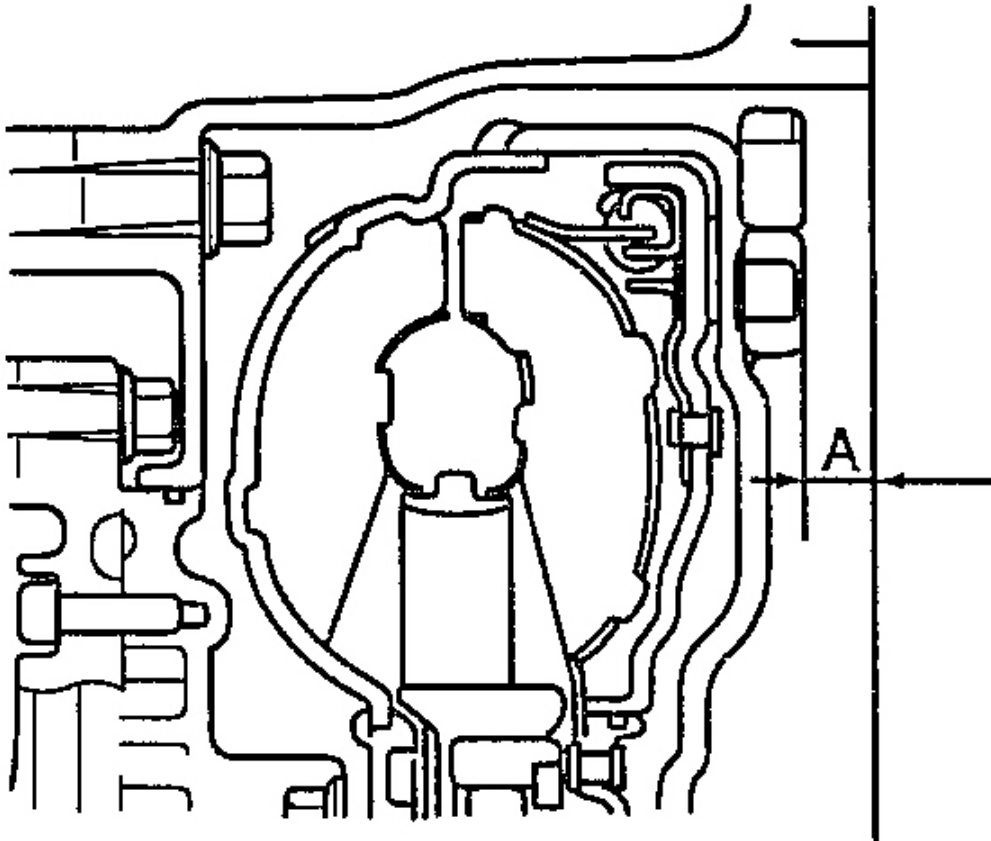
**CAUTION:** Make sure that you are installing the correct oil filter. While the engine oil filter and the transaxle oil filter look similar, their filtering action is different. Installing the wrong oil filter could cause damage to the transaxle. Transaxle oil filters are identified as A/T ONLY.



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**Fig. 222: Installing Input & Output Shaft Speed Sensors**  
Courtesy of KIA MOTORS AMERICA, INC.

92. Install the cooler feed tube with a new gasket and the eye bolt. Tighten the eye bolt to 30 Nm (22 lbs. ft) of torque.



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**Fig. 223: Installing Cooler Feed Tube**  
Courtesy of KIA MOTORS AMERICA, INC.

93. Install the dipstick.
94. Install the control cable bracket. Tighten the mounting bolt to 23 Nm (17 lbs. ft).
95. Install the wiring harness bracket. Tighten the mounting bolt to 23 Nm (17 lbs. ft).
96. Install the two roll stopper brackets. Tighten the mounting bolts to 69 Nm (51 lbs. ft).
97. Install the torque convertor and secure it so that dimension A.

Meets the reference value.

Reference value :

approx. 12.2 mm (0.480 in.)

**CAUTION:** Apply ATF to the oil pump drive hub before installing the torque converter. Be careful not to damage the oil pump seal.