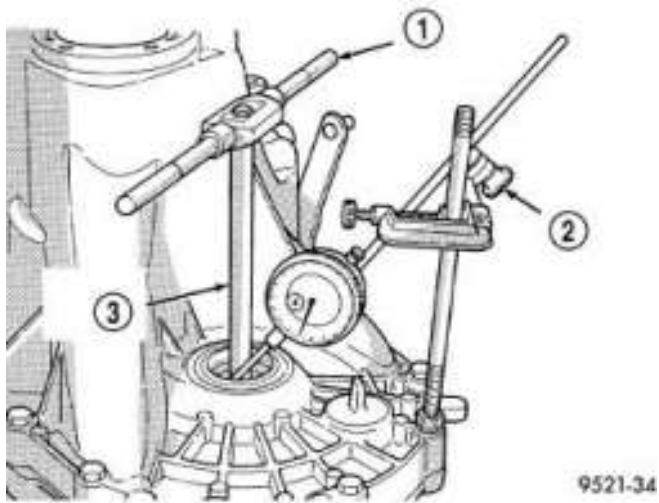


# DIFFERENTIAL, TRANSAXLE

## ADJUSTMENTS

### ADJUSTMENTS



**Fig. 89: Checking Differential Bearing End Play To Determine Shim Thickness**  
Courtesy of CHRYSLER LLC

1 - T-HANDLE
2 - DIAL INDICATOR SET
3 - TORQUE TOOL C-4995A

Measure and adjust differential side bearing preload during any transaxle service, especially when the following components are replaced:

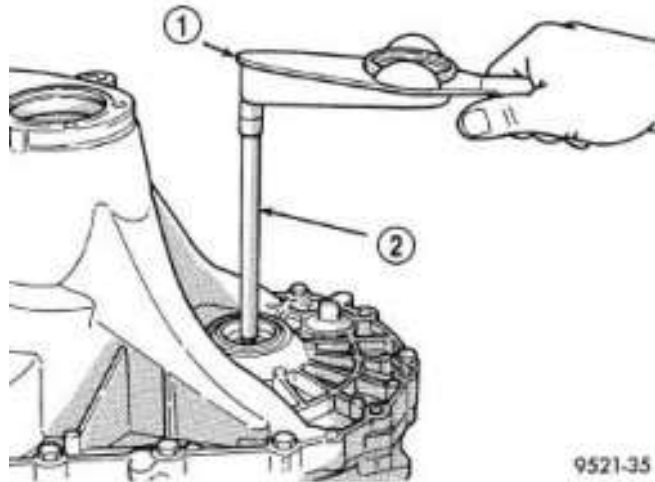
- Transaxle gear case
- Clutch bellhousing case
- Differential case
- Differential bearings

**NOTE:** True bearing turning torque readings can be obtained only with the geartrain removed from the case.

1. Remove bearing cup and existing shim from clutch bellhousing case.
2. Press in new bearing cup into bellhousing case (or use a cup that has been ground down on the outer edge for ease of measurement).
3. Press in new bearing cup into gear case side.
4. Oil differential bearings with transmission fluid. Install differential assembly in transaxle gear case. Install clutch bellhousing over gear case. Install and torque case bolts to 25 N.m (225 in. lbs.).
5. Position transaxle with bellhousing facing down on workbench with C-clamps. Position dial indicator (2). Refer to **Fig. 89**.

**NOTE:** Indicator is set up as shown for illustrative purposes only. Indicator must be parallel to T-Handle to obtain the most accurate reading.

6. Apply a medium load to differential with Torque Tool (special tool #C-4995A, Tool, Differential Bearing Torque) (3) and a T-handle (1), in the downward direction. Roll differential assembly back and forth a number of times. This will settle the bearings. Zero the dial indicator (2). To obtain end play readings, apply a medium load in an upward direction while rolling differential assembly back and forth. Record end play.



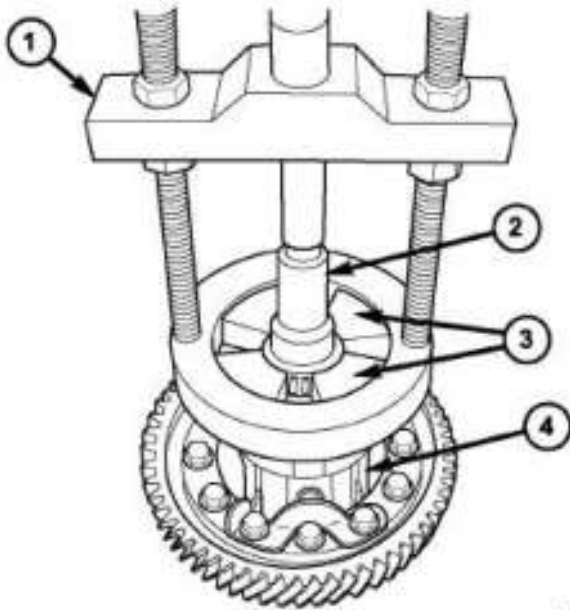
**Fig. 90: Checking Differential Bearing Turning Torque**  
Courtesy of CHRYSLER LLC

1 - INCH- POUND TORQUE WRENCH
2 - TORQUE TOOL C- 4995A

7. The shim required for proper bearing preload is the **total of end play, plus (constant) preload of 0.18 mm (0.007 in.)**. Never combine shims to obtain the required preload.
8. Remove case bolts. Remove clutch bellhousing differential bearing cup. Install shim(s) selected in 7. Then press the bearing cup into clutch bellhousing.
9. Install clutch bellhousing. Install and tighten case bolts to 25 N.m (225 in. lbs.).
10. Using Torque Tool (special tool #C-4995A, Tool, Differential Bearing Torque) (2) and an inch-pound torque wrench (1) check turning torque of the differential assembly. Refer to **Fig. 90**. **The turning torque should be 6 to 12 in. lbs. If the turning torque is too high, install a 0.05 mm (0.002 inch) thinner shim. If the turning torque is too low, install a 0.05mm (0.002 inch) thicker shim.**
11. Recheck turning torque. Repeat until the proper turning torque is obtained. Refer to 10.

## DISASSEMBLY

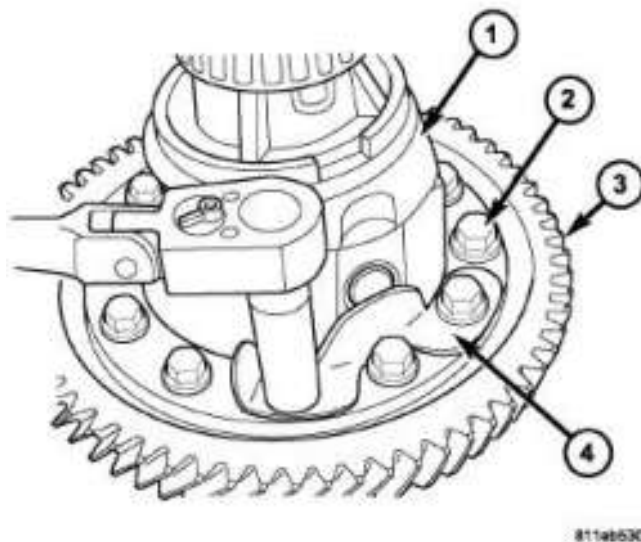
## DISASSEMBLY



**Fig. 91: Removing Differential Bearing Cone From Diff. Case Side**  
 Courtesy of CHRYSLER LLC

1 - PULLER PRESS C-293-PA
2 - ADAPTOR C-4996
3 - ADAPTOR BLOCKS C-293-45
4 - DIFFERENTIAL CASE

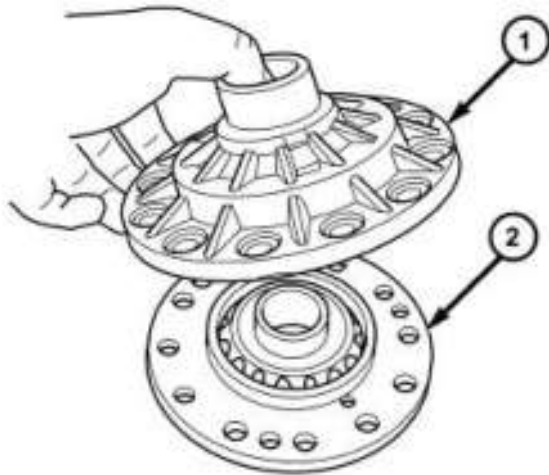
1. Remove differential bearing cones (ring gear and differential case side) using Puller (special tool #C-293-PA, Puller, Press) (1), Adapter Blocks (special tool #C-293-45, Block Set, Puller) (3), and Adaptor (special tool #C-4996, Adapter, Plug) (2). Refer to **Fig. 91**. If all wheel drive use Puller (special tool #C-293-PA, Puller, Press), four (special tool #C-293-37, Block Set, Puller) Inserts and Press Insert (special tool #9678, Press Plug) to remove the large carrier bearing.



**Fig. 92: Differential Ring Gear-to-case Bolts**  
Courtesy of CHRYSLER LLC

1 - DIFFERENTIAL CASE
2 - BOLT (12)
3 - RING GEAR
4 - PINION SHAFT RETAINER (2)

2. Remove the bolts holding the pinion shaft retainer (4) and the ring gear (3) to the differential case (1).

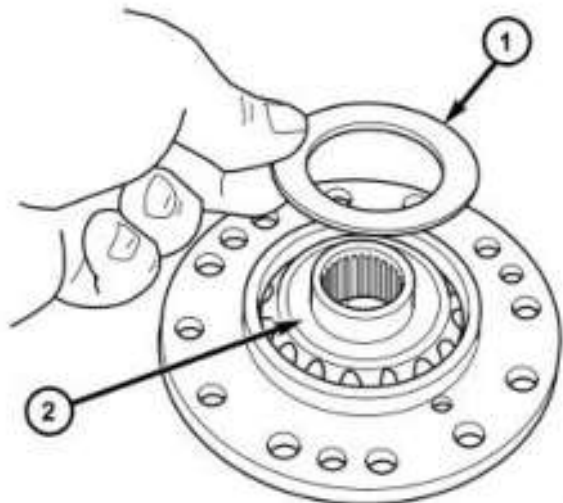


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**Fig. 93: Differential Support Plate**  
Courtesy of CHRYSLER LLC

1 - DIFFERENTIAL SUPPORT PLATE
2 - DIFFERENTIAL CASE

3. Separate differential support (1) from case (2).

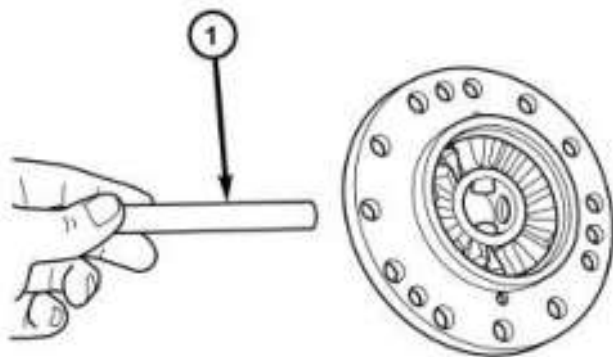


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**Fig. 94: Side Gear Thrust Washer**  
Courtesy of CHRYSLER LLC

1 - SIDE GEAR THRUST WASHER
2 - DIFFERENTIAL SIDE GEAR

4. Remove the side gear thrust washer (1).
5. Remove side gear (2).

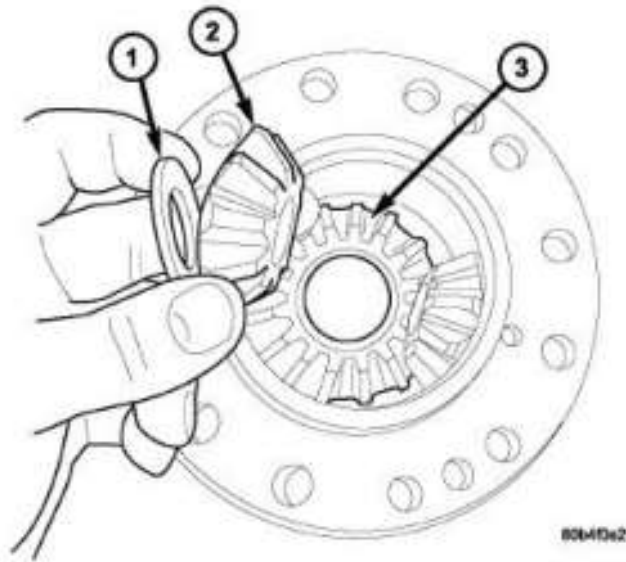


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**Fig. 95: Long Pinion Shaft**  
Courtesy of CHRYSLER LLC

1 - PINION SHAFT (LONG)
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6. Remove pinion shaft (1).

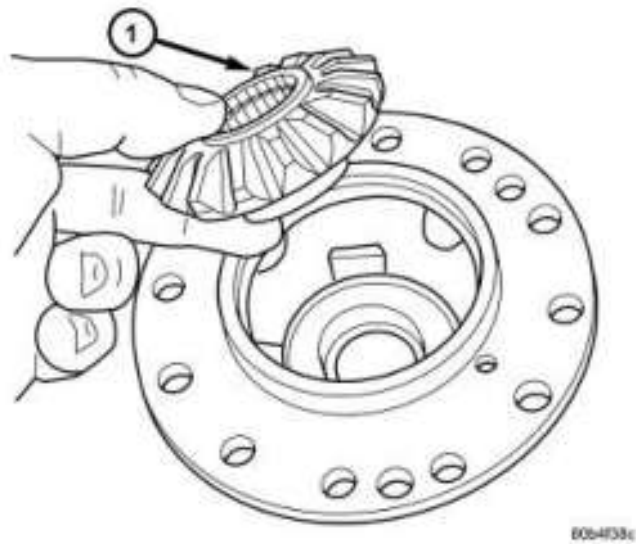


**Fig. 96: Pinion Gear And Thrust Washer**  
Courtesy of CHRYSLER LLC

1 - THRUST WASHER (4)
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2 - PINION GEAR (4)
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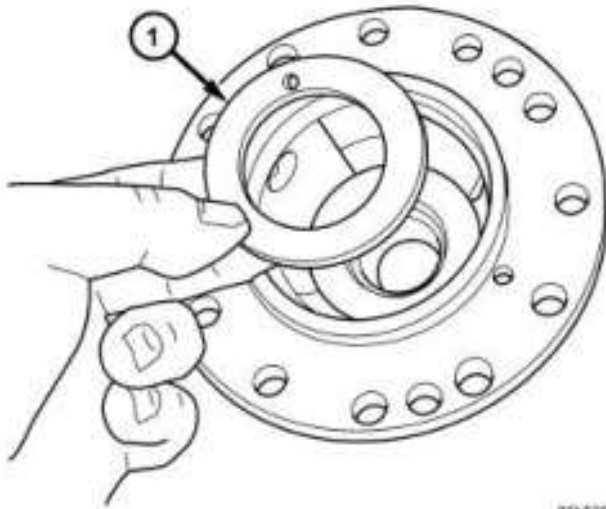
7. Remove pinion gear (2) and thrust washers (1).



**Fig. 97: Differential Side Gear**  
Courtesy of CHRYSLER LLC

1 - DIFFERENTIAL SIDE GEAR
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8. Remove side gear (1).



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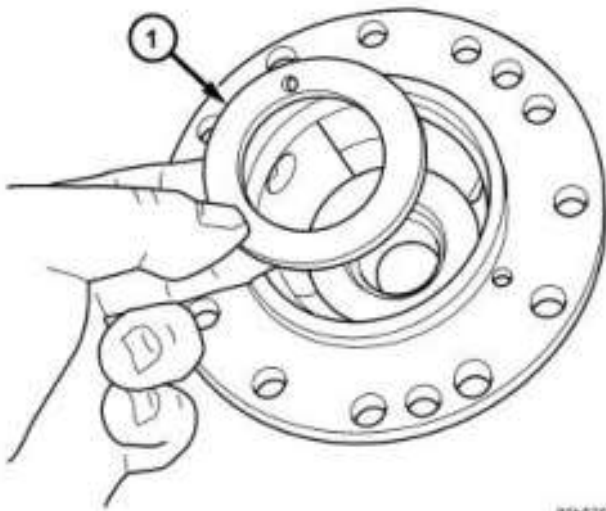
**Fig. 98: Side Gear Thrust Washer**  
Courtesy of CHRYSLER LLC

1 - SIDE GEAR THRUST WASHER

9. Remove the side gears thrust washer (1).

## ASSEMBLY

## ASSEMBLY

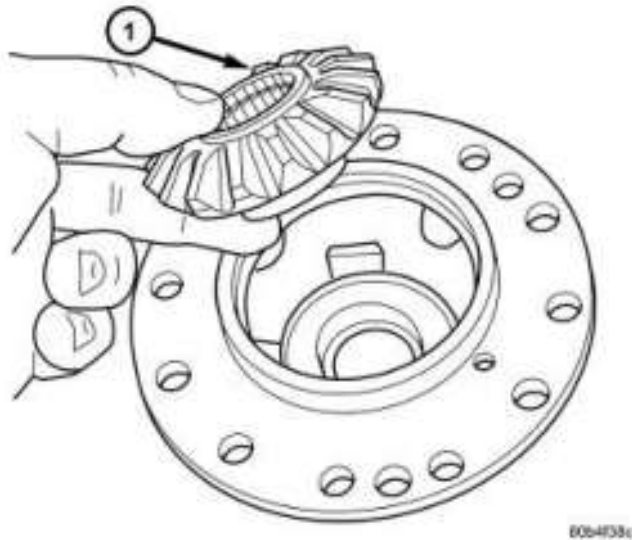


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**Fig. 99: Side Gear Thrust Washer**  
Courtesy of CHRYSLER LLC

1 - SIDE GEAR THRUST WASHER

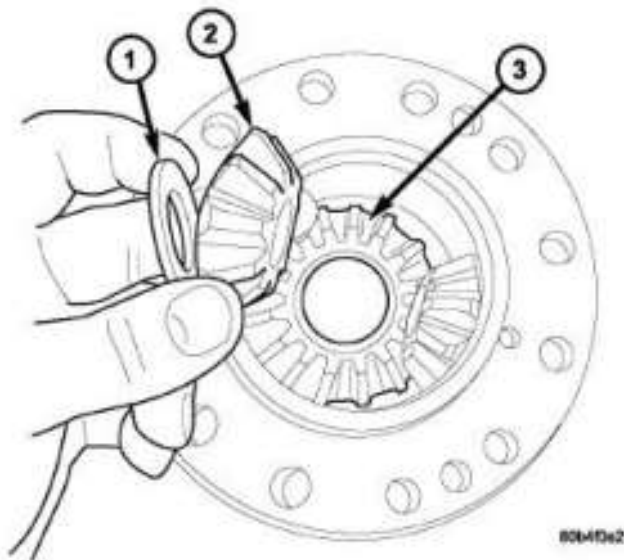
1. Install side gear thrust washer (1) into case.



**Fig. 100: Differential Side Gear**  
Courtesy of CHRYSLER LLC

1 - DIFFERENTIAL SIDE GEAR
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2. Install side gear (1).

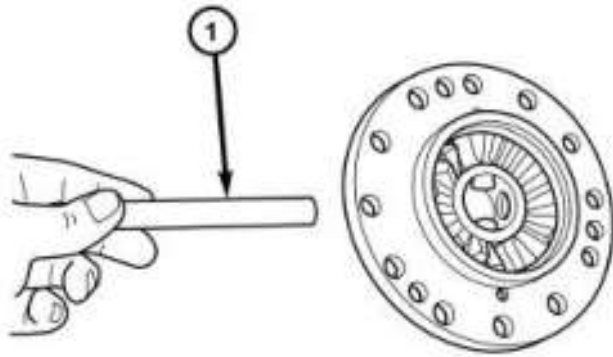


**Fig. 101: Pinion Gear And Thrust Washer**  
Courtesy of CHRYSLER LLC

1 - THRUST WASHER (4)
2 - PINION GEAR (4)

3. Install pinion gear (2) and thrust washer (1) into case.



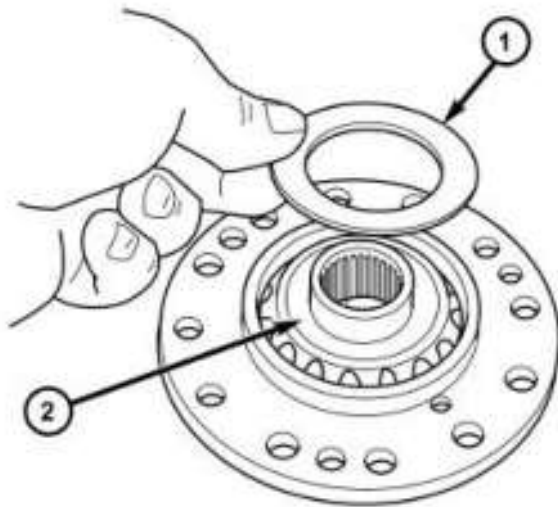


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**Fig. 102: Long Pinion Shaft**  
Courtesy of CHRYSLER LLC

1 - PINION SHAFT (LONG)
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4. Install pinion shaft (1) .

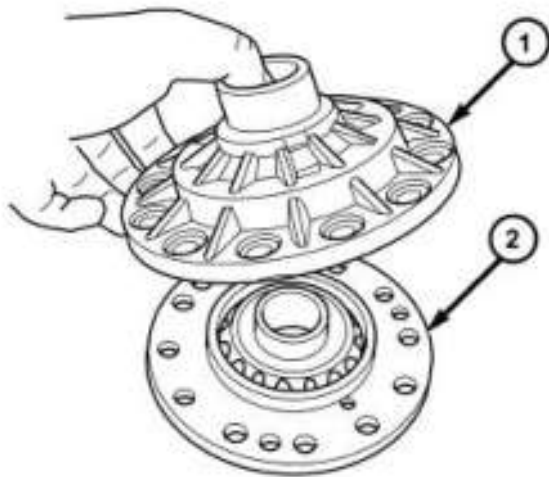


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**Fig. 103: Side Gear Thrust Washer**  
Courtesy of CHRYSLER LLC

1 - SIDE GEAR THRUST WASHER
2 - DIFFERENTIAL SIDE GEAR

5. Install the side gear (2) and the thrust washer (1).

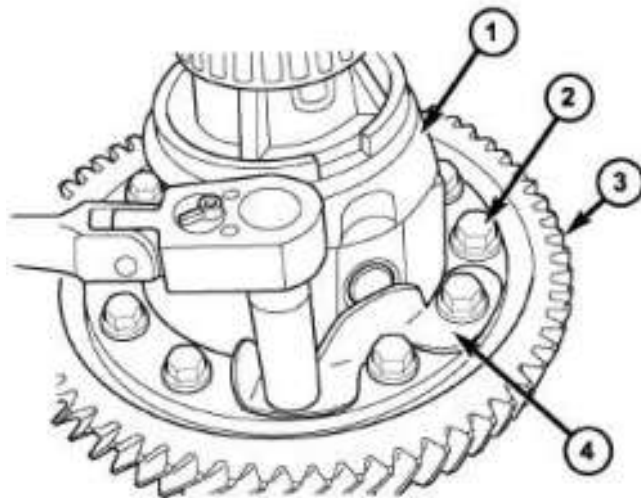


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**Fig. 104: Differential Support Plate**  
 Courtesy of CHRYSLER LLC

1 - DIFFERENTIAL SUPPORT PLATE
2 - DIFFERENTIAL CASE

6. Install differential support (1) onto case (2).

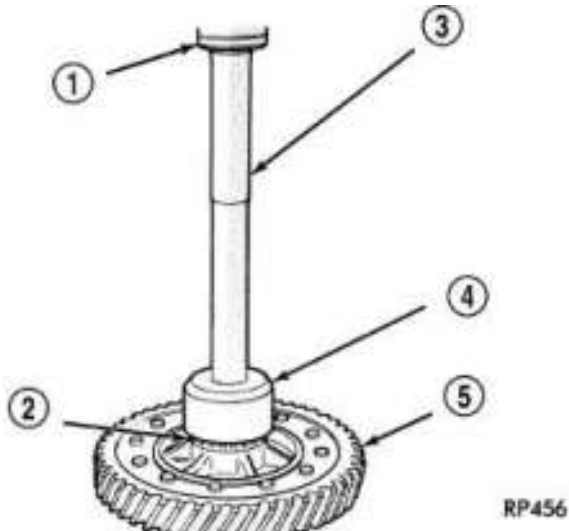


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**Fig. 105: Differential Ring Gear-to-case Bolts**  
 Courtesy of CHRYSLER LLC

1 - DIFFERENTIAL CASE
2 - BOLT (12)
3 - RING GEAR
4 - PINION SHAFT RETAINER (2)

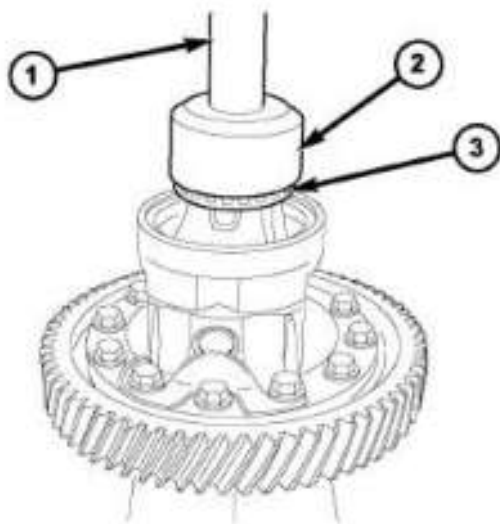
7. Install pinion shaft retainer along with **NEW** ring gear-to-case bolts (2) tighten bolts to 95 N.m (70 ft. lbs.).



**Fig. 106: Install Differential Bearing Cone To Ring Gear Side**  
Courtesy of CHRYSLER LLC

1 - ARBOR PRESS RAM
2 - BEARING CONE
3 - HANDLE C-4171
4 - INSTALLER L-4410
5 - DIFFERENTIAL ASSEMBLY

8. Using an arbor press (1), Handle (special tool #C-4171, Driver Handle, Universal) (3), and Installer (special tool #L-4410, Installer, Bearing) (4), install differential side bearing to ring gear side. Refer to **Fig. 106**.

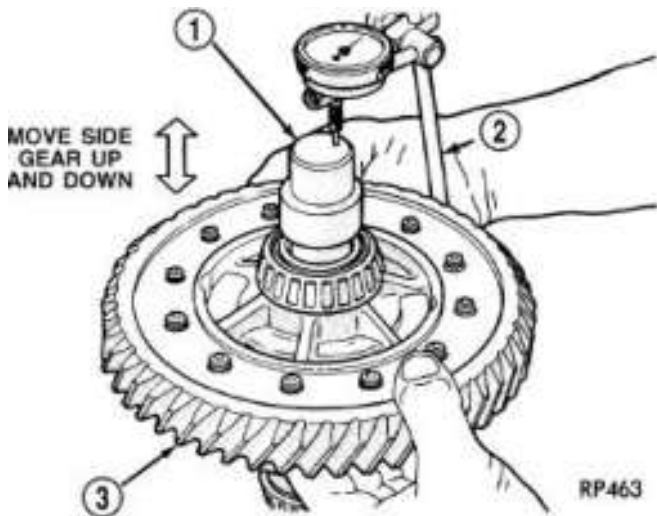


**Fig. 107: Installing Bearing Cone To Differential Case Side**  
Courtesy of CHRYSLER LLC

1 - HANDLE C-4171
2 - INSTALLER L-4410
3 - BEARING CONE

- Using an arbor press, Handle (special tool #C-4171, Driver Handle, Universal) (1), and Installer (special tool #L-4410, Installer, Bearing) (2), install differential side bearings (3) to case side. Refer to **Fig. 107**. If all wheel drive use Bearing Installer (special tool #6053, Installer, Bearing) to install the large bearing.

**Measure and Adjust Side Gear End-Play**



**Fig. 108: Checking Side Gear End Play - Typical**  
Courtesy of CHRYSLER LLC

1 - ADAPTOR C-4996 (NOTE POSITION)
2 - DIAL INDICATOR SET
3 - DIFFERENTIAL ASSEMBLY

- Rotate the assembly two full revolutions both clockwise and counterclockwise. Set up dial indicator and record end play.
- Rotate side gear 90 degrees and take another measurement (2). Refer to **Fig. 108**. Again, rotate side gear 90 degrees and record a final measurement.
- Using the smallest end play recorded, shim that side gear to within 0.001 to 0.013 inch. The other side gear should be checked using the same procedure.

**CAUTION: Side gear end play must be within 0.001 to 0.013 inch.**