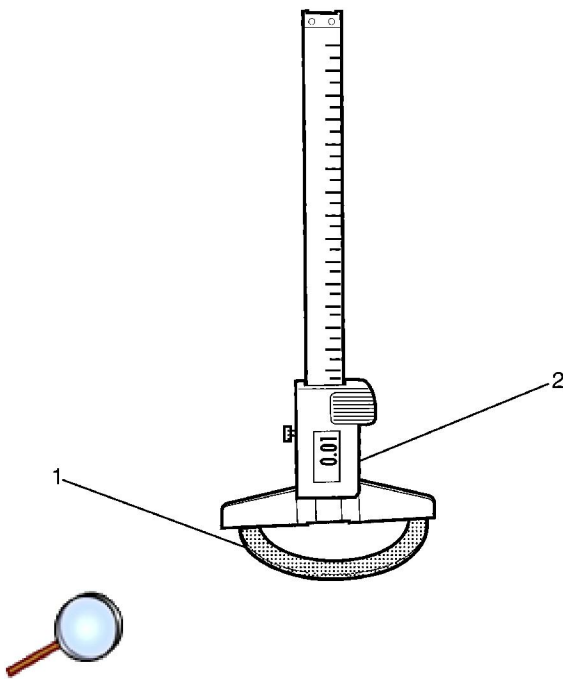


Rear Axle Assemble

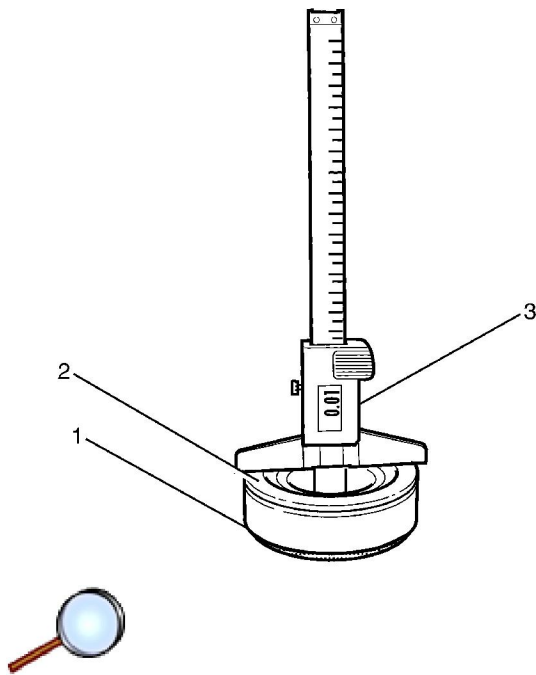
Tools Required

- [DT-48723](#) Pinion Head Bearing Cup Installer.
- [DT-48725](#) Pinion Tail Bearing Cup Installer.
- [DT-48722](#) Left Axle Seal Installer.
- [DT-48721](#) Right Axle Seal Installer.
- [DT-48727](#) Pinion Seal Installer.
- [DT-48728](#) Differential Bearing Installer.
- [DT-48806](#) Pinion Bearing Measurement Spacer.
- [DT-48807](#) Pinion Head Bearing Installer.



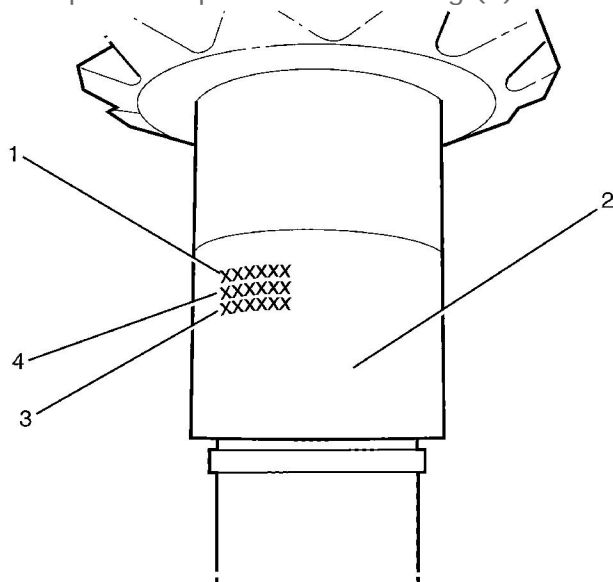
Important: Use [DT-48806](#) otherwise bearing height cannot be measured correctly.

1. Measure the thickness of [DT-48806](#) (1) using a depth gauge (2). (e.g - 3.67mm).
2. Record the thickness of the [DT-48806](#) (1).



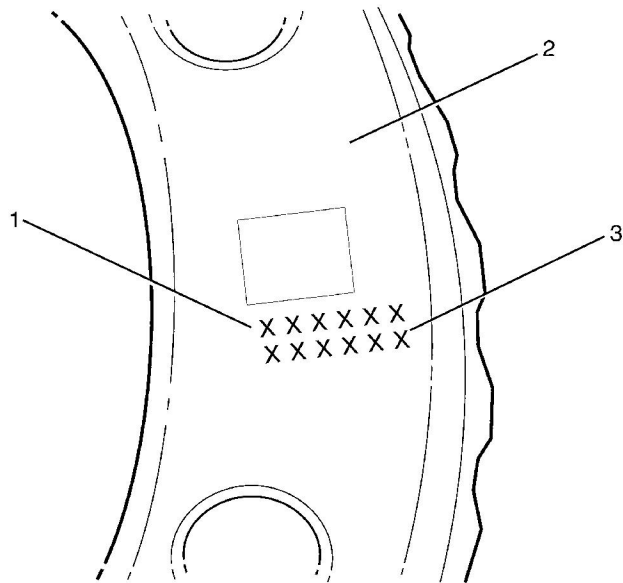
Important: Rotate the pinion head bearing (2) to settle for correct measurement.

3. Measure the thickness of the [DT-48806](#) (1) and the pinion head bearing (2) with the depth gauge (3) (e.g - 33.925mm).
4. Record the thickness of the [DT-48806](#) (1) and pinion head bearing (2).
5. Subtract the thickness of [DT-48806](#) (1) 3.67mm from the total thickness of the pinion bearing measurement spacer (1) and the pinion bearing (2) 33.925mm to determine the pinion head bearing (2) thickness.
6. Example - The pinion head bearing (2) thickness is $33.925\text{mm} - 3.67\text{mm} = 30.255\text{mm}$

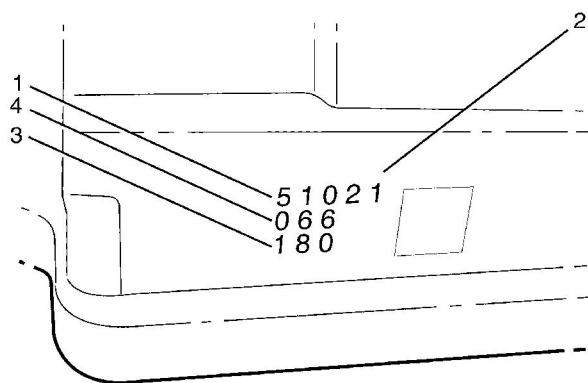


7. Record the serial number (1), set number (3) and size (4) which are stamped into the pinion gear (2).
8. Example:

- Serial Number A0200008 (1)
- Pinion Size 106.475mm (4)
- Set Number 260125 (3)



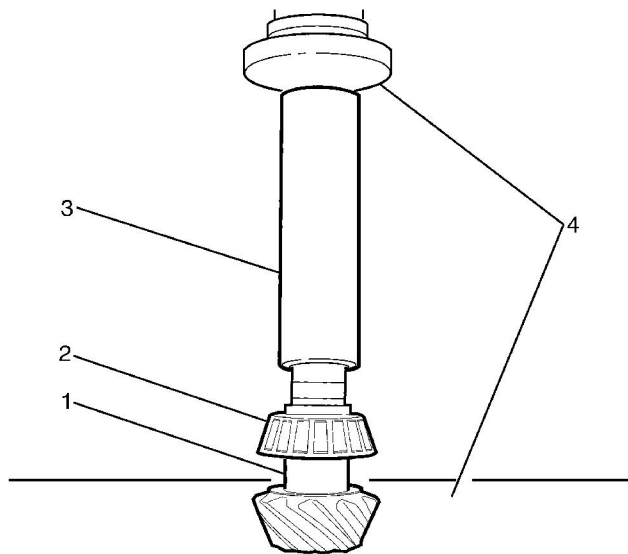
9. Check that the serial number (1) and set number (3) which are stamped into the ring gear (2) match those of the pinion set in step 7.
10. Example:
 - Serial Number A0200008 (1)
 - Set Number 260125 (3)



Important: The identification number (1, 3, and 4) is stamped into the differential housing

(2).

11. Identify the differential housing.
 - Manufacturing date (1).
 - Item number (4).
 - Size equals 138 plus the number on the housing. Example - 138.180mm (3).
12. Record the differential housing size. Example - 138.180mm
13. Determine the thickness of the pinion shim.
 - Add the pinion plus the bearing Example - $106.475\text{mm} + 30.255\text{mm} = 136.730\text{mm}$.
 - Subtract the pinion plus the head bearing from the housing size, also subtract the correction factor. The correction factor is .05mm. Example $138.180 - 136.730 - 0.05 = 1.40\text{mm}$ thickness shim required.
14. Position the correct shim onto the pinion head.



Important: Use [DT-48807](#) (3) to aid in pinion bearing (2) installation.

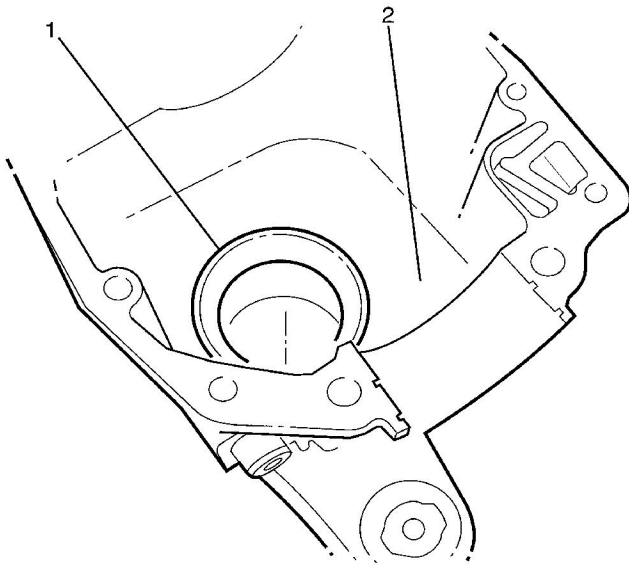
Important: Position the pinion gear (1) onto an aluminium plate in suitable press (4) before pressing the pinion head bearing (2) to prevent damage to the pinion (1).

15. Position the NEW pinion head bearing (2) onto the pinion gear (1).

Important: Use a suitable press (4) to install the NEW differential pinion head bearing (2).

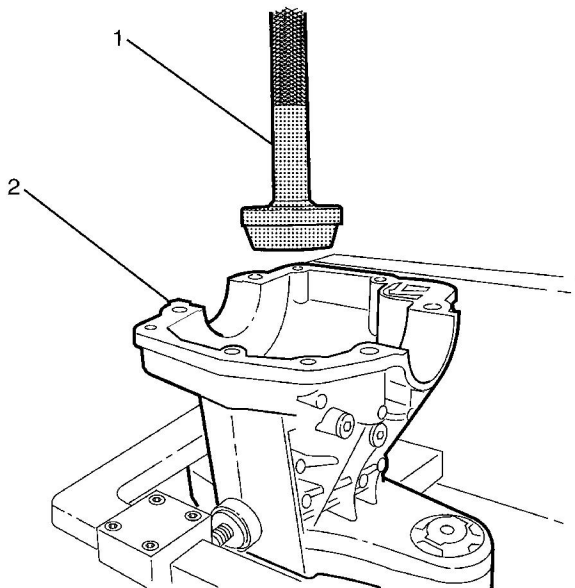
16. Press the NEW pinion head bearing (2) onto the pinion gear using [DT-48807](#) (3).
17. Clean the ring gear and the contact area of the differential.

Caution: Refer to [Safety Glasses Caution](#) in the Preface section.

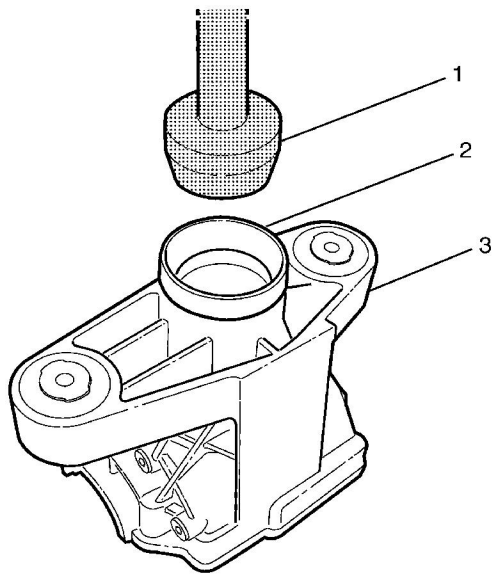


Important: To make fitting easier cool the bearing cups (2).

18. Position the NEW head bearing cup (1) into the differential housing (2).

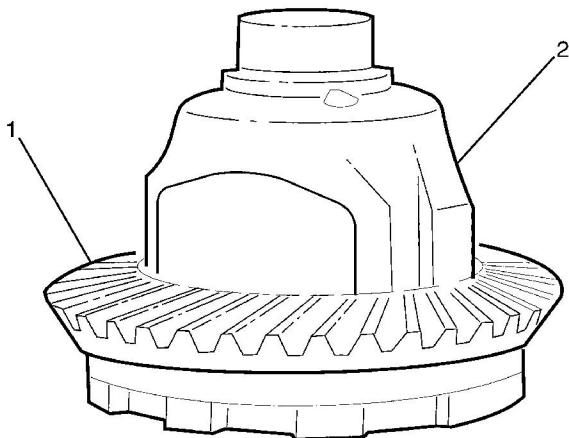


19. Press the NEW head bearing cup in with [DT-48723](#) (1) and rotate until it fits tightly in the front differential housing (2).
20. Use a feeler gauge to make sure the NEW head bearing cup is seated correctly.



Important: To make fitting easier cool the bearing cup (2).

21. Position the NEW tail bearing cup (2) to the differential housing (3).
22. Press the NEW tail bearing cup in with [DT-48725](#) (1) and rotate until it fits tightly in the front differential housing (2).
23. Use a feeler gauge to make sure the NEW tail bearing cup is seated correctly.



Important: Warm the ring gear (1) evenly using a hotplate until it fits over the differential (2).

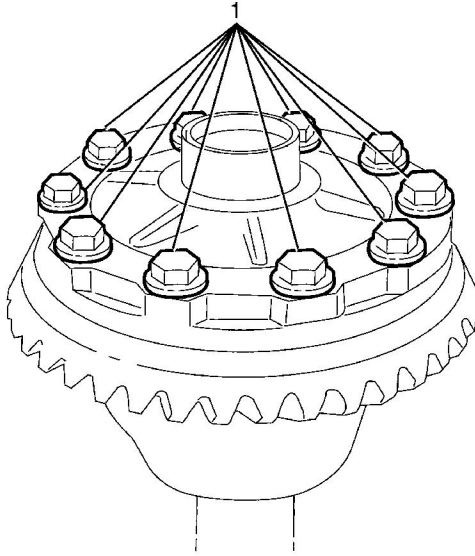
24. Position the ring gear (1) to the differential (2).

Important: Do not fully tighten the NEW ring gear to differential retaining bolts at this stage.

Important: The ring gear has to cool before the ring gear to differential retaining bolts can be tightened.

25. Install two NEW ring gear to differential retaining bolts.

Notice: Refer to [Fastener Notice](#) in the Preface section.



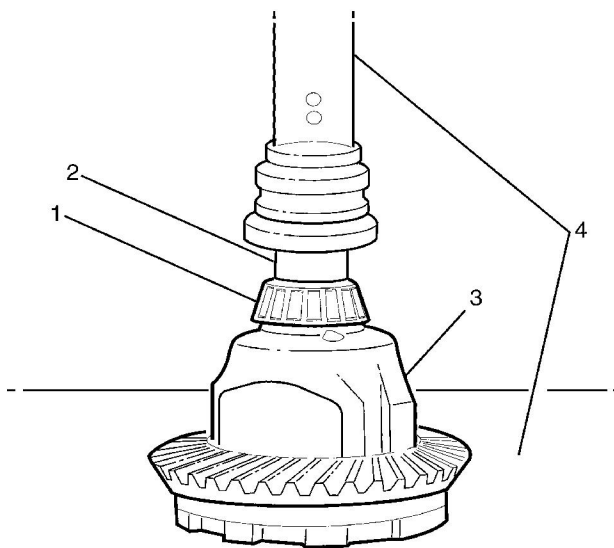
Important: The ring gear has to cool before the ring gear to differential retaining bolts (1) can be tightened.

Important: Tighten the ring gear to differential retaining bolts (1) working diagonally.

26. Install the remaining NEW ring gear to differential retaining bolts (1).

Tighten

Tighten the bolts to 125 N-m (96 lb ft).

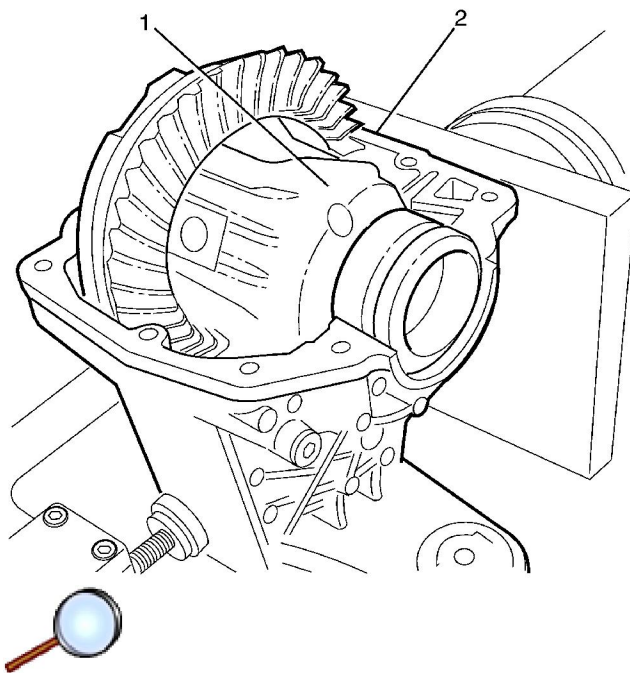


Important: Use a suitable press (4) to install the right differential bearing (1).

27. Press the right differential bearing (1) to the differential (3) with [DT-48728](#) (2).

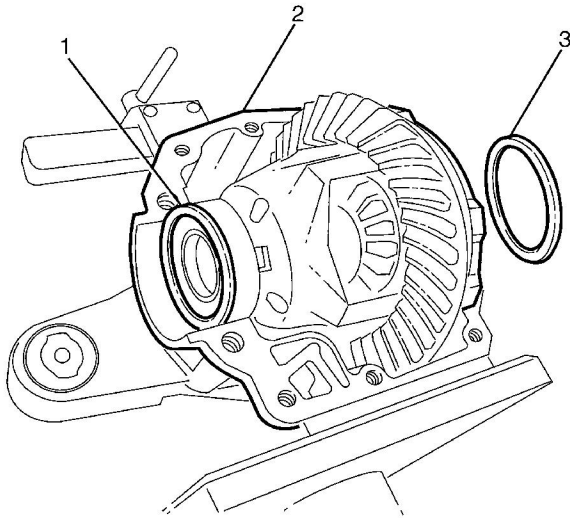
Important: Use a suitable press (4) to install the left differential bearing.

28. Rotate and press the left bearing to the differential with [DT-48728](#) (2).

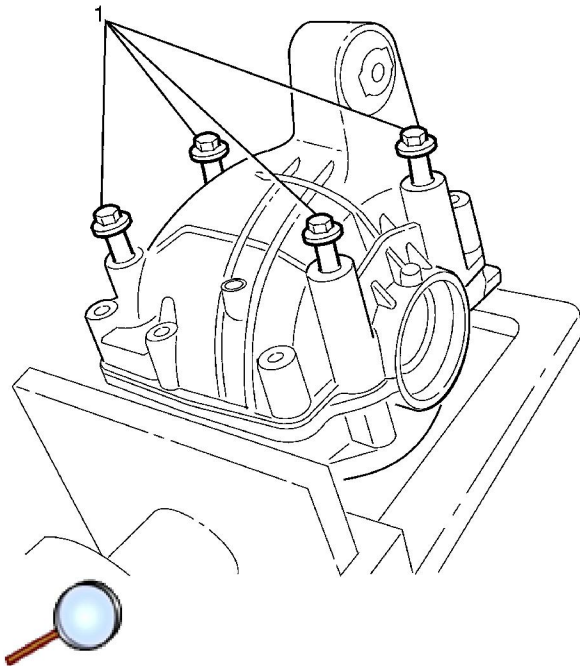


Important: Position the differential (1) to the differential housing (2) using a suitable tool or with the aid of an assistant.

29. Position the differential (1) to the differential housing (2).

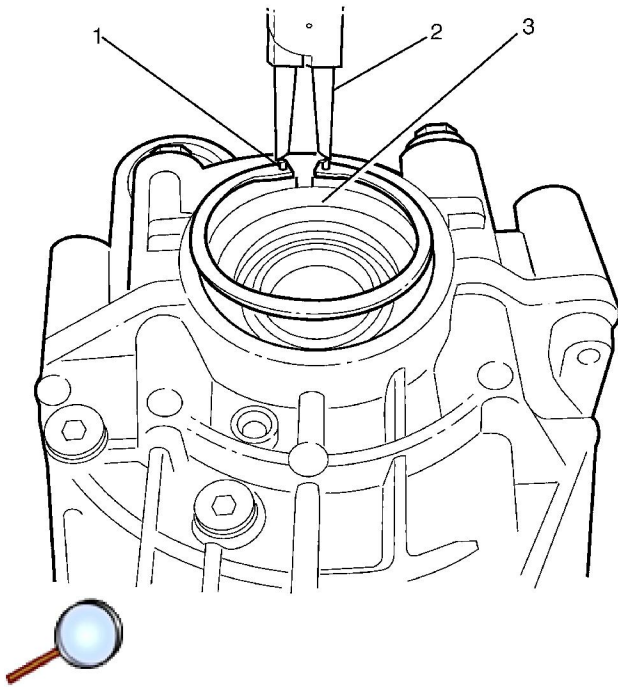


30. Position the left shim (3) and right shim (1) to the original position in the differential housing (2).



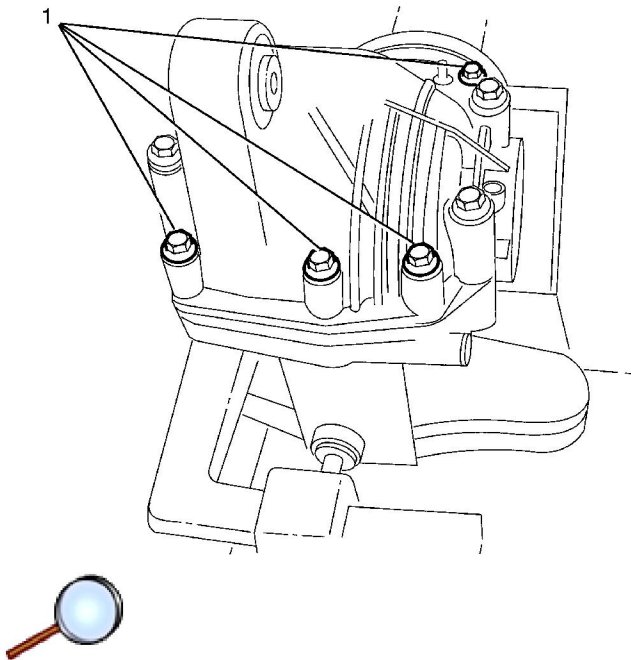
Important: Do not fully tighten the bearing bolts (1) in stage. The differential has to be able to move freely within the differential housing to allow fitment of the circlip.

31. Position the differential housing cover to the differential housing and retain with the 4 bearing bolts (1).
32. Turn the differential assembly left through 90° for the differential to slide down in the housing.



Important: Align the opening of the circlip (1) with the opening on the differential housing.

33. Install the circlip (1) to the differential (3) with circlip pliers (2).
34. Make sure the circlip (1) is fitted correctly.



Important: Tighten the differential housing cover to differential housing retaining bolts (1) working diagonally.

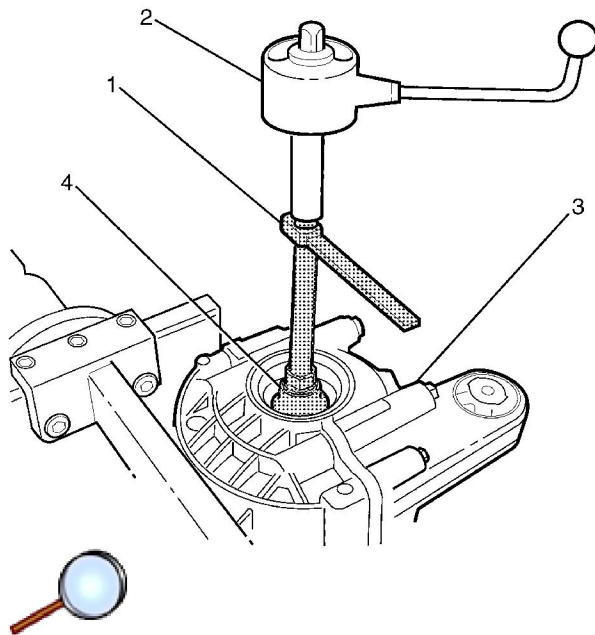
35. Install the remaining differential housing cover to differential housing retaining bolts (1).

Tighten

Tighten the housing bolts to 53 N-m (39 lb ft).

Tighten

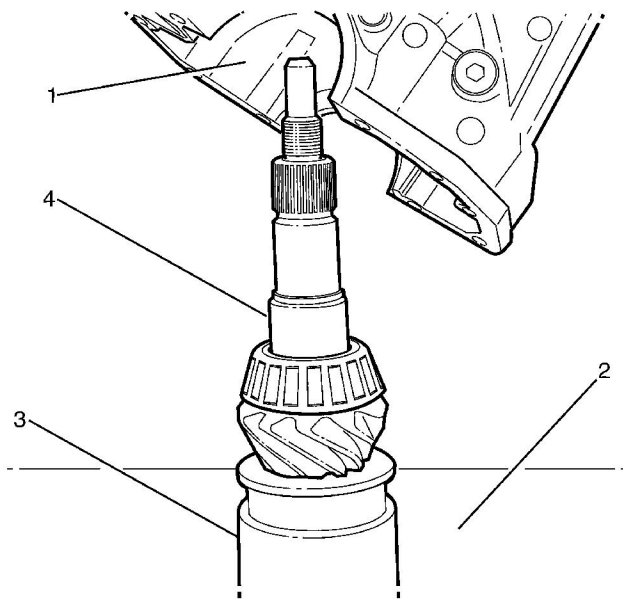
Tighten the bearing bolts to 153 N-m (112 lb ft).



36. Position the backlash tool (1, 4) to the differential assembly (3).
37. Secure the backlash tool (1) to the differential assembly (3) by adjusting the spreading nut (4).
38. Mount the turning torque gauge (2) to the backlash tool (1).
39. Rotate the turning torque gauge (2) clockwise and record reading.

Important: This figure is for NEW bearings only.

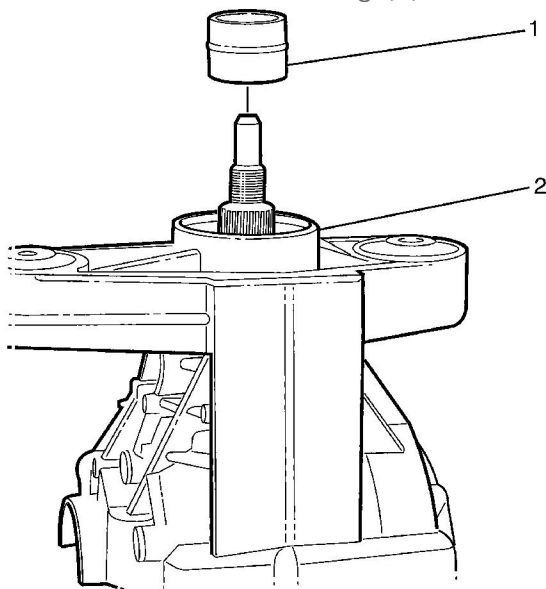
40. Turning torque should be between 2.0 to 3.3 Nm (27 lb in).
41. If the measured turning torque is outside the tolerance:
 - Remove the rear differential housing.
 - If turning torque is too high or too low, fit a thinner or thicker shim respectively.
 - Repeat from steps 5-11 from the disassembly procedure then from step 27 onwards in the assembly procedure.
 - Check turning torque. Repeat until the turning torque is correct.
42. Remove differential assembly. Repeat steps 5 through 11 from the disassembly procedure.



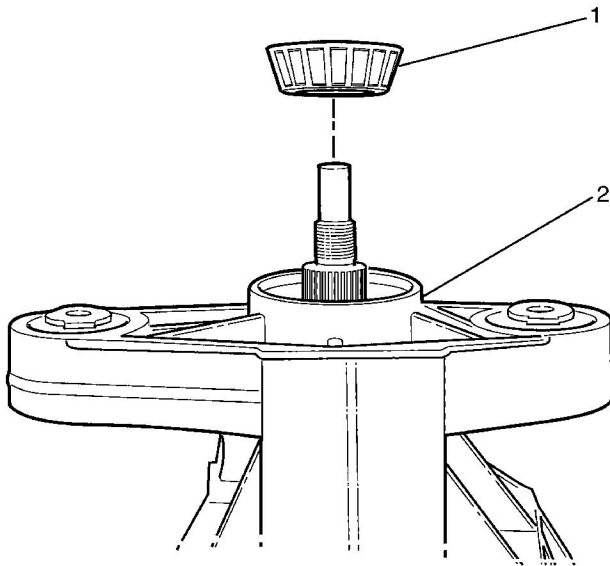
43. Position the pinion (4) on [DT-48728](#) (3) in a suitable press (2).

Important: The differential housing (1) must not rest on the press (2). Use a suitable supporting tool (3) to elevate pinion (4).

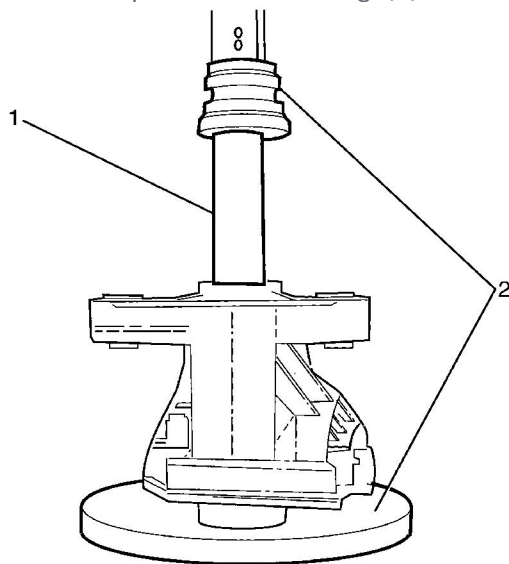
44. Position the differential housing (1) over the pinion gear (4).



45. Position a NEW collapsible spacer (1) to the differential (2).

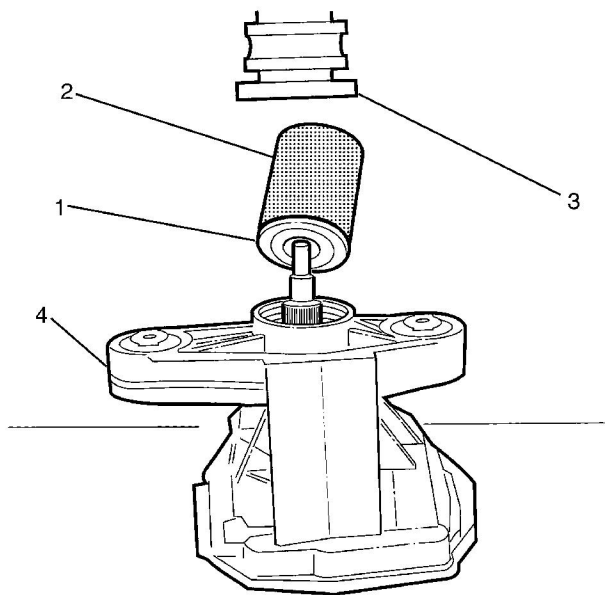


46. Position the pinion tail bearing (1) to the differential housing (2).



Important: Take care to only press the tail bearing until it rests on the collapsible spacer so that it is not damaged.

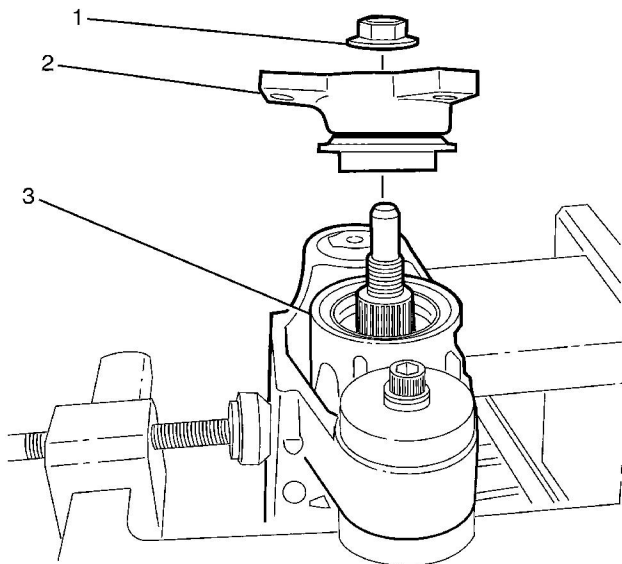
47. Use a suitable press (2) and [DT-48723](#) (1) to press the tail bearing until it rests against the collapsible spacer.
48. Remove the supporting tool so that the differential housing rests on the table.



49. Lubricate the NEW pinion flange seal (1) with correct grease. Refer to [Adhesives, Fluids, Lubricants, and Sealers](#) .

Important: Use [DT-48727](#) to install the seals to correct depth.

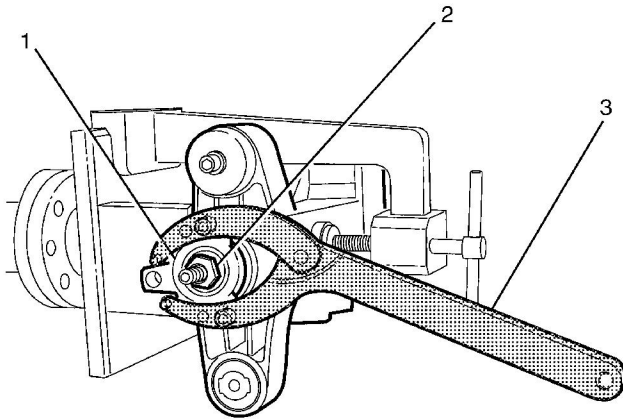
50. Install the pinion flange seal (1) to the differential housing (4) with [DT-48727](#) (2) in a suitable press (3).
51. Mount the differential housing (4) on a suitable holding device.



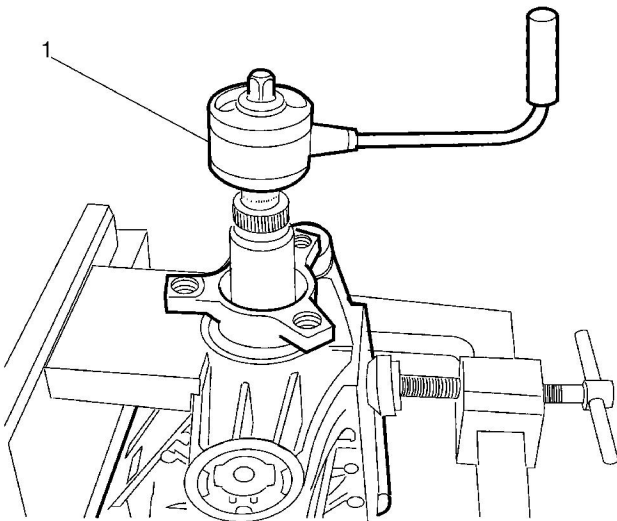
52. Position the pinion flange (2) to the differential (3).
53. Lubricate the contact surface of the prevailing torque pinion flange retaining nut (1) with correct grease. Refer to [Adhesives, Fluids, Lubricants, and Sealers](#) .
54. Apply correct loctite to the thread of the NEW prevailing torque pinion flange retaining nut (1).

Important: Do not fully tighten the NEW prevailing torque pinion flange retaining nut at this stage. Overtightening will require disassembly and fitment of a new collapsible spacer and possibly bearings.

55. Install the NEW prevailing torque pinion flange retaining nut (1) to the differential (3).



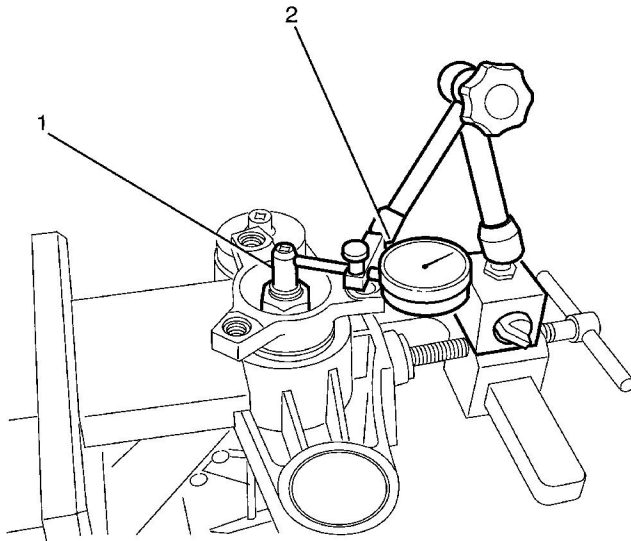
56. Install the universal pulley holder (3) to the pinion flange (1).
 57. Tighten the prevailing torque pinion flange retaining nut (2) carefully until it has no play.
 58. Remove the universal pulley holder from the pinion flange (1).
 59. Turn the differential assembly through 90°.



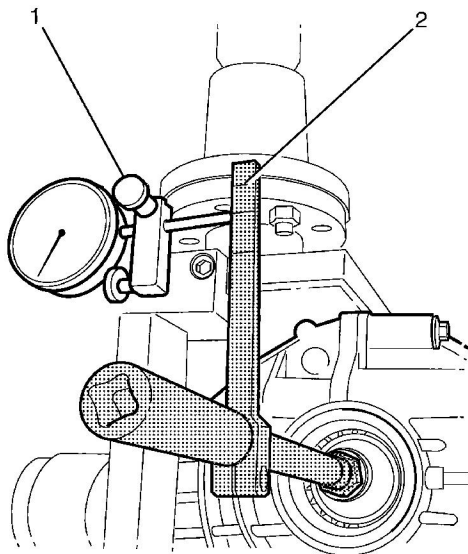
60. Position the turning torque gauge (1) to the prevailing torque pinion flange nut.
 61. Turn the turning torque gauge (1) in a clockwise direction and record reading.

Important: This torque figure is for NEW bearings only.

62. Turning torque should be between 2.2 and 2.7 Nm (20-25 lb in).
63. If the turning torque is below specified tolerance, tighten the prevailing torque pinion flange retaining nut in small steps and check turning torque until specified turning torque is reached.
64. If the turning torque is above specified tolerance disassemble, fit new collapsible spacer and repeat until correct specification is achieved.



65. Position a dial gauge (2) to measure the concentric running on centering while turning the pinion (1).
66. If the measured value is above .1mm remove the pinion flange and re-install at a different angle. Repeat steps 52-66 in the assembly procedure. Make sure the turning torque is .1-.2 N-m higher than recorded in step 63 but not higher than 2.7 N-m.

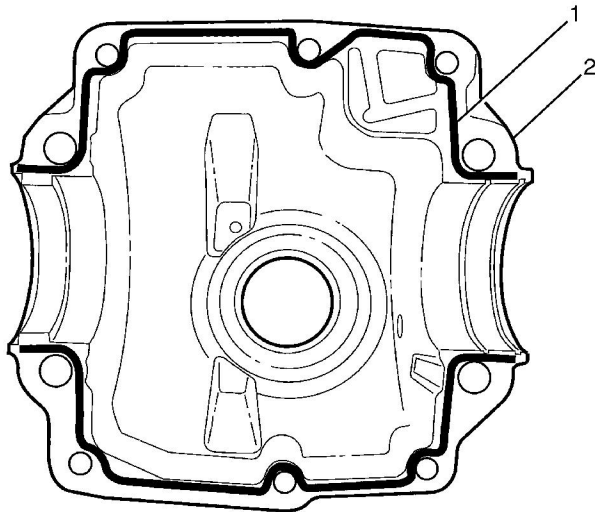


67. Position the backlash tool (2) to the differential assembly.

Important: The location of the dial gauge on the backlash tool (2) arm corresponds to the

edge of the ring gear (210mm)

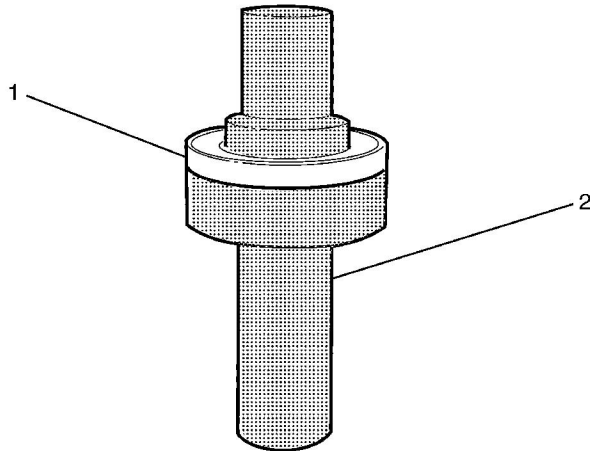
68. Position the dial gauge (1) to the backlash tool (2).
69. Use a suitable tool to move the backlash tool (2) within the backlash and record the reading.
70. Backlash must be between .07 and .18 mm.
71. If the backlash is not between the specified tolerance, it must be adjusted with differential shims otherwise turning torque set during steps 38-43 will be changed.
72. If a .05 mm thinner shim is used on the right a .05 mm thicker shim has to be added to the left.
73. Remove the rear differential housing. Refer to steps 5 and 6 in the disassembly procedure.



74. Clean the mating faces of the differential housings (2).

Important: Apply a 1mm liquid seal bead (1) to the differential housing. Use the graphic as a template.

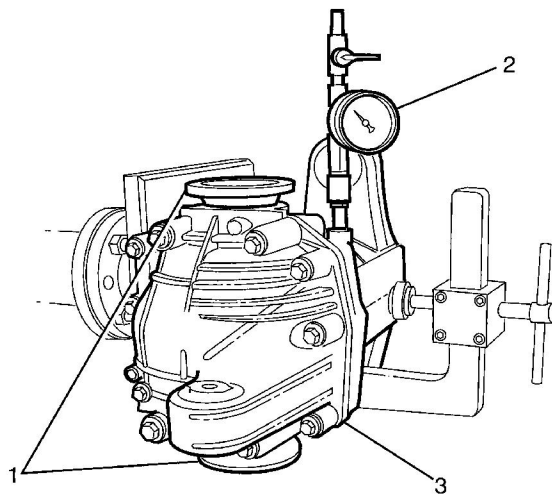
75. Apply a 1mm liquid seal bead (loctite 5910).(1) to the mating face of the differential housing. Refer to [Adhesives, Fluids, Lubricants, and Sealers](#) .
76. Install the differential housing cover to the differential housing. Refer to steps 26 through 33.



Important: The left and right rear axle shaft seals are different sizes so there are 2 different size installers. Make sure that the correct seal installer is used for the correct seal.

Important: Fill the space between the dust lip and the seal lip with the correct grease.

77. Install the left and right rear axle shaft seals (1) using [DT-48722](#) and [DT-48721](#) (2).



78. Install two rear axle flanges or two sealing plugs (1) to seal the differential (3).

Important: Set the air pressure regulator to .4 bar before connecting.

79. Remove the oil drain plug and install the air pressure regulator (2).
80. Connect the air supply to the regulator (2) and pressurise the differential (3) to .4 bar.

81. Disconnect the air supply from the regulator (2).
82. The pressure should not decrease from .4 bar within 3 minutes. If the pressure decreases, locate and repair leakage.
83. Install the differential (3) to the vehicle. Refer to [Differential Replacement](#) .
84. Fill the differential fluid. Refer to the filling procedure in [Differential Oil Replacement](#) .