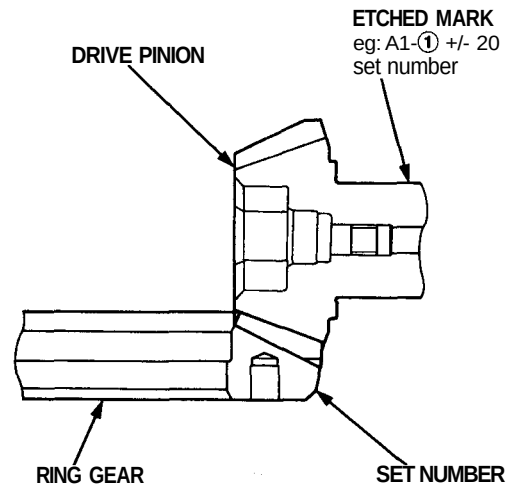


Differential Assembly

Reassembly

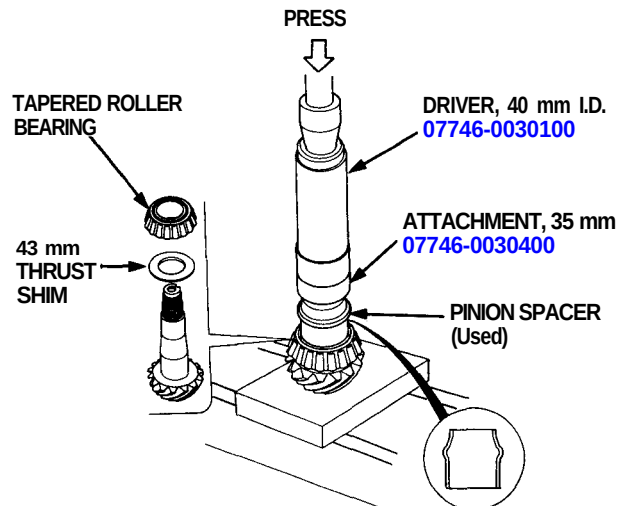
NOTE:

- If replacement is required, always replace the drive pinion and ring gear as a set.
- If the drive pinion and ring gear are replaced, check the height adjustment (see page 15-24).
- If replacement of one of the tapered roller bearings in the drive pinion and in the differential carrier is required, use the same make bearings and replace both bearings at the same time.



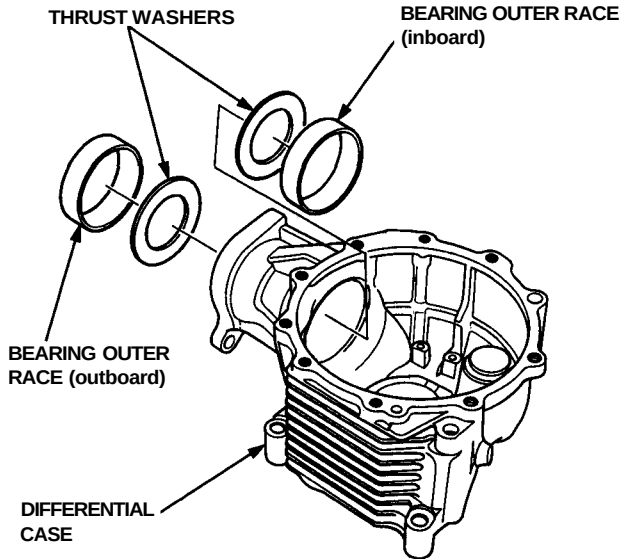
1. Install the 43 mm thrust shim and tapered roller bearing using the special tools and a press as shown.

NOTE: Use a used pinion spacer with the special tool for bearing installation, and then discard the used pinion spacer.

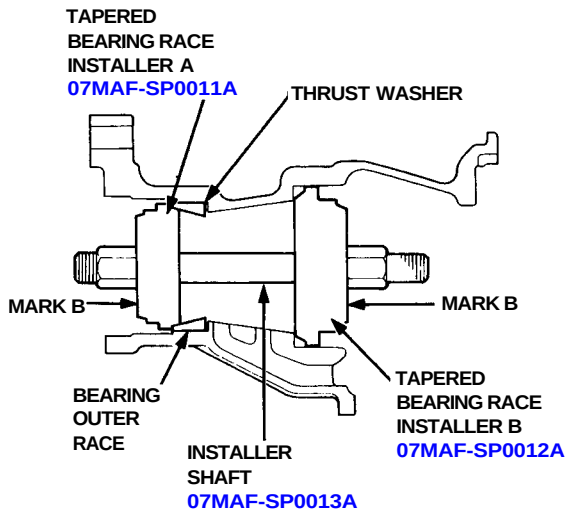




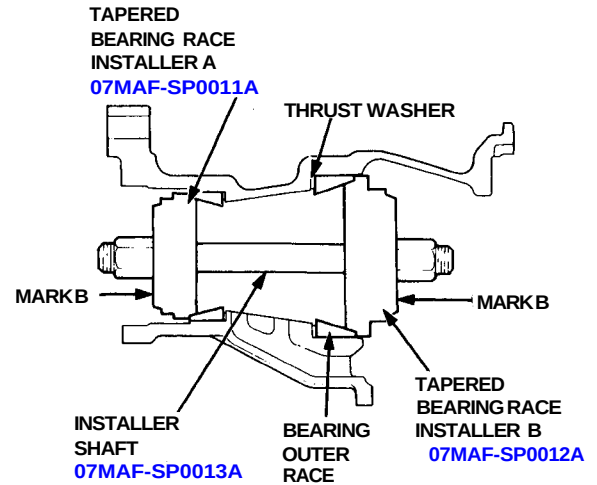
2. Check the differential case bearing surface areas for burrs, and remove as needed. Position the inboard thrust washer into the differential case. Using the sides of the special tools stamped "A", install the outboard bearing outer race as shown. Repeat for the inboard bearing outer race.



- a. First install the outboard bearing outer race.

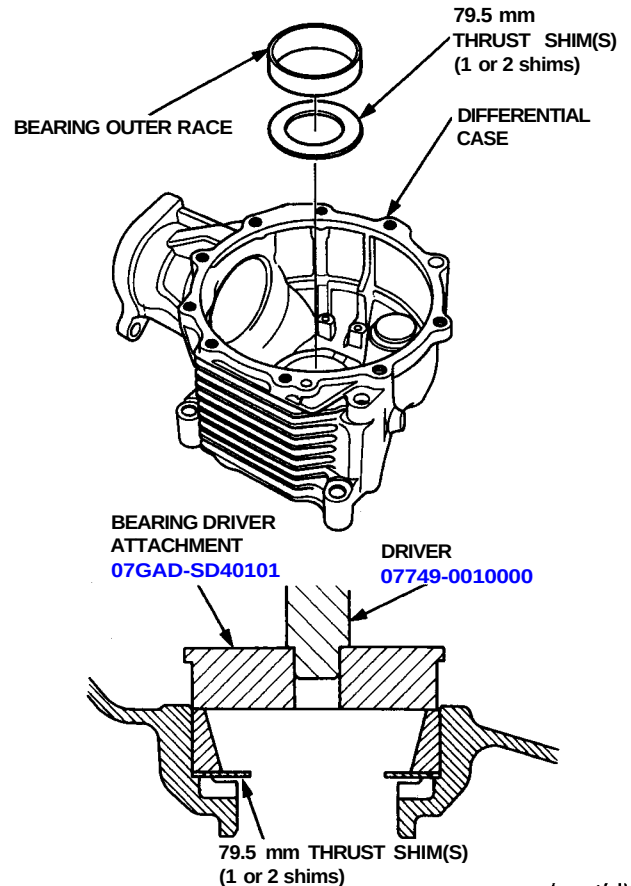


- b. Next install the inboard bearing outer race.



3. Install the 79.5 mm thrust shim(s) and bearing outer race using the special tools as shown.

NOTE: Install the 79.5 mm thrust shim(s) that was removed.



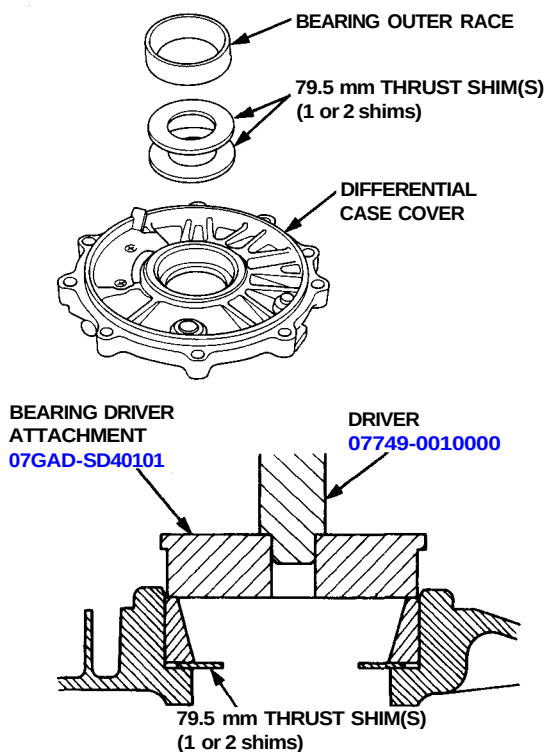
(cont'd)

Differential Assembly

Reassembly (cont'd)

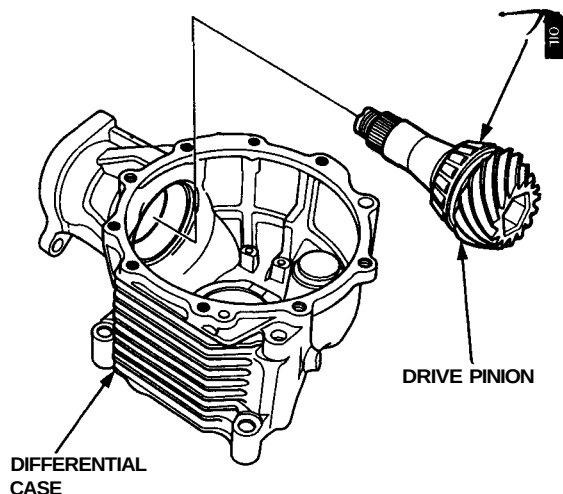
4. Install the 79.5 mm thrust shim(s) and bearing outer race using the special tools as shown.

NOTE: Install the 79.5 mm thrust shim(s) that was removed.

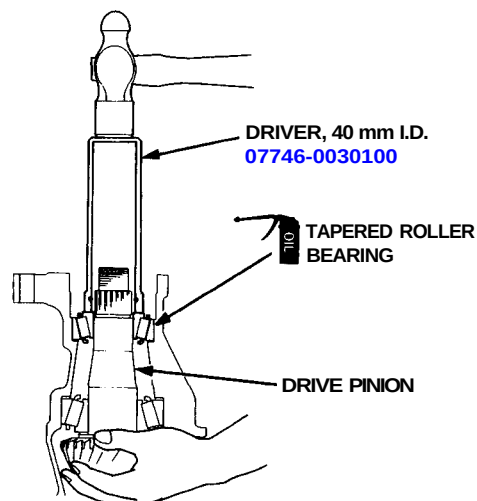


5. Apply lubricant to the tapered roller bearing, then install the drive pinion into the differential case as shown.

NOTE: Do not install the pinion spacer and thrust washers at this time.

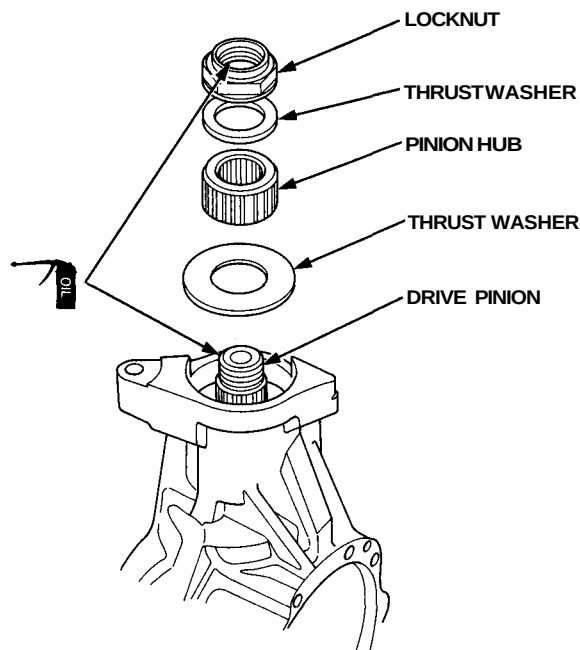


6. Apply lubricant to the tapered roller bearing, then install it using the special tool while holding the drive pinion as shown.



7. Install the large thrust washer, pinion hub, small thrust washer, and a new locknut.

NOTE: Lubricate the locknut and drive pinion threads with gear oil.

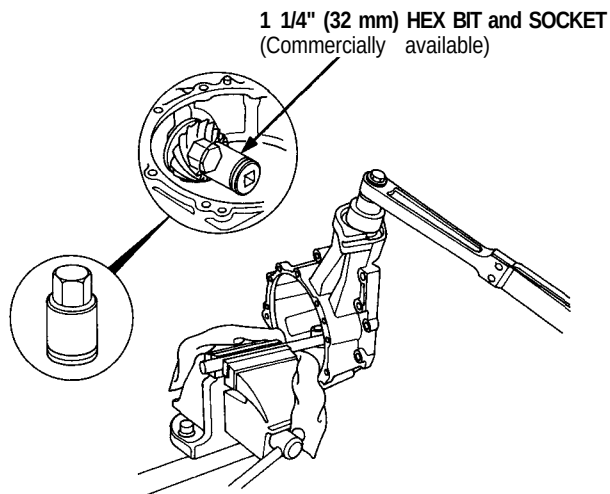




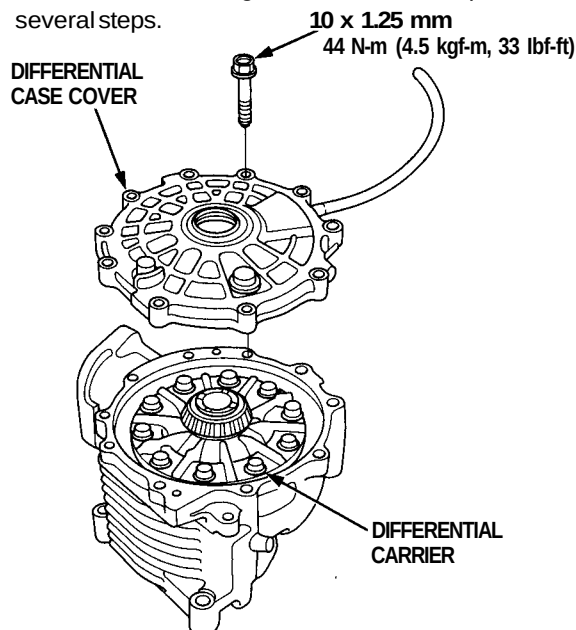
8. Hold the drive pinion with a 1 1/4" (32 mm) hex bit and socket as shown, then carefully tighten the pinion locknut until there is no play in the pinion shaft.

Torque: 20 N-m (2.0 kgf-m, 14 lbf-ft)

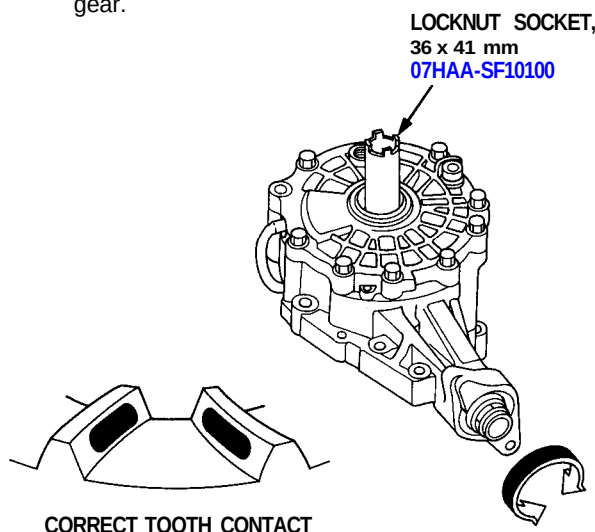
CAUTION: To avoid damaging the tapered roller bearing, do not overtighten the locknut.



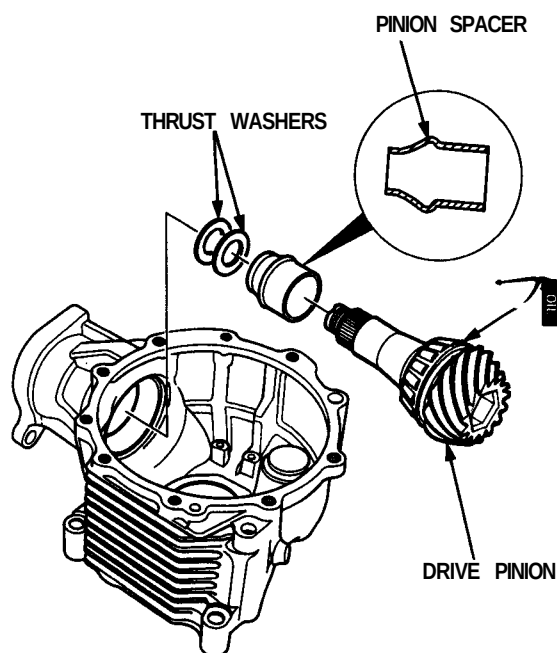
9. Clean the ring gear teeth, then paint them lightly and evenly with Prussian Blue (on both sides of each tooth).
10. Apply lubricant to the tapered roller bearings, install the differential carrier into the differential case, then install the differential case cover.
11. Install the bolts and tighten in a crisscross pattern in several steps.



12. Install the special tool as shown, then rotate the drive pinion in both directions so that the ring gear rotate one full turn in both directions. During this operation resistance should be applied to the ring gear.



13. Remove the differential case cover, and check the tooth contact pattern (heel and toe). Adjust the ring gear tooth contact as needed (see page 15-25).
14. After adjusting the ring gear tooth contact, remove the drive pinion, then install a new pinion spacer and thrust washers on the drive pinion.

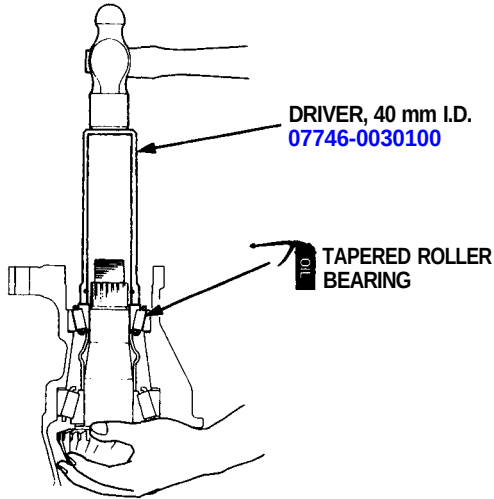


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Differential Assembly

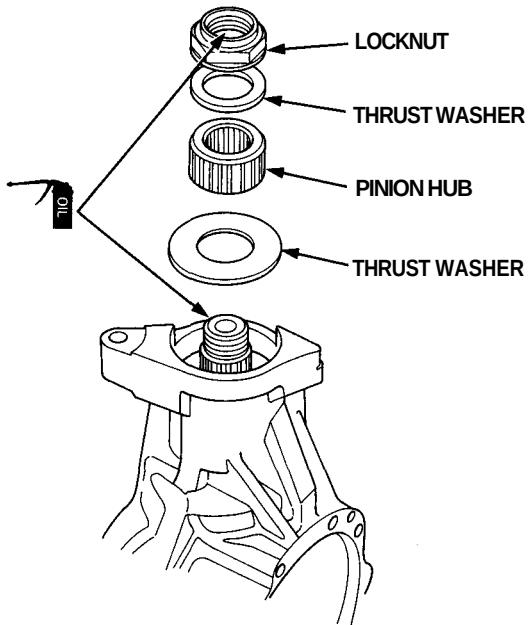
Reassembly (cont'd)

15. Apply lubricant to the tapered roller bearing, then install it using the special tool while holding the drive pinion as shown.

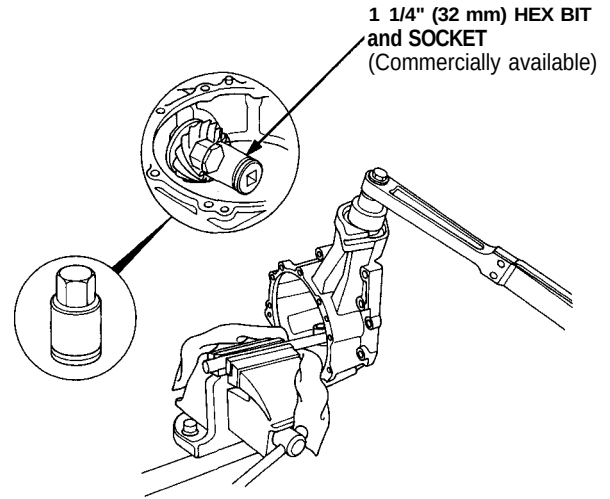


16. Install the large thrust washer, pinion hub, small thrust washer and locknut.

NOTE: Lubricate the locknut and drive pinion threads with gear oil.



17. Hold the drive pinion with a 1 1/4" (32 mm) hex bit and socket as shown.



18. Tighten the locknut to 216 N-m (22 kgf-m, 159 lbf-ft), and measure the tapered roller bearing preload (Tp).

NOTE: Rotate the drive pinion several times to assure proper tapered roller bearing contact.

Standard:

New Bearing: 1.82 - 2.49 N-m
(18.6 - 25.4 kgf-cm, 16.1 - 22.0 lbf-in)

Reused Bearing: 1.42 - 1.91 N-m
(14.5 - 19.5 kgf-cm, 12.6 - 16.9 lbf-in)

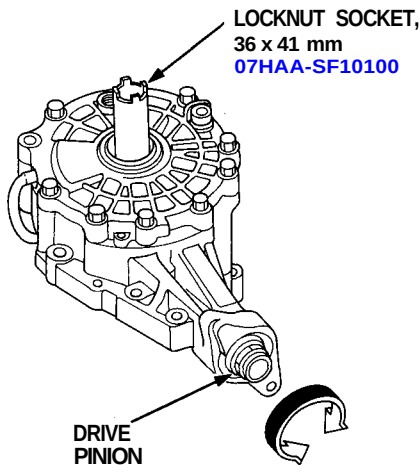
- If the tapered roller bearing preload exceeds the standard, replace the pinion spacer.
- If the tapered roller bearing preload is less than the standard, adjust by tightening the locknut a little at a time, but keep the torque within 216 - 313 N-m (22 - 32 kgf-m, 159 - 231 lbf-ft). If this not possible, replace the pinion spacer.



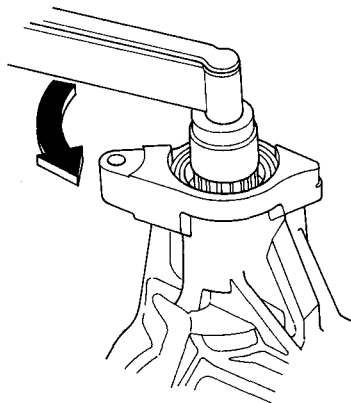
19. Clean the ring gear teeth, then paint them lightly and evenly with Prussian Blue (on both sides of each tooth).
20. Install the differential carrier into the differential case, and reinstall the differential case cover.
21. Install the bolts and tighten in a crisscross pattern in several steps.

Torque: 44 N-m (4.5 kgf-m, 33 lbf-ft)

22. Install the special tool as shown. Rotate the drive pinion in both directions so that the ring gear rotate one full turn in both directions. During this operation resistance should be applied to the ring gear.



23. Remove the special tool, and use a dial-type torque wrench on the drive pinion to check total bearing preload. The total bearing preload should exceed the drive pinion bearing preload by the amount shown in the next column.



NOTE: Rotate the drive pinion several times to ensure proper bearing contact.

Standard:

New differential carrier tapered roller bearing:

Total bearing preload (from step 23)

-Tp (from step 18)

= 1.04 -1.26 N-m (10.6 -12.8 kgf-cm, 9.2 -11.1 lbf-in)

Reused differential carrier tapered roller bearing:

Total bearing preload (from step 23)

-Tp (from step 18)

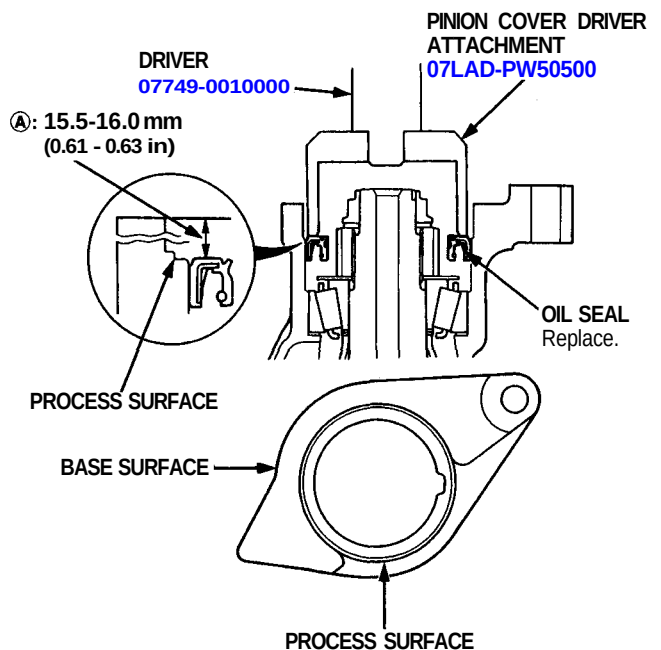
= 0.94 -1.07 N-m (9.6 -10.9 kgf-cm, 8.33 - 9.46 lbf-in)

If the total bearing preload is not within the standard, correct it by increasing or decreasing the preload on the carrier bearings as needed. If there is too much preload, decrease the shim thickness equal amounts on both sides. If there is not enough preload, increase the shim thickness equal amounts on both sides.

NOTE: Be sure the same amount of shim thickness is added or subtracted from both sides, so that the tooth contact pattern and backlash are not affected.

24. Install the oil seal using the special tools as shown.

NOTE: Make sure that distance **A** is correct.

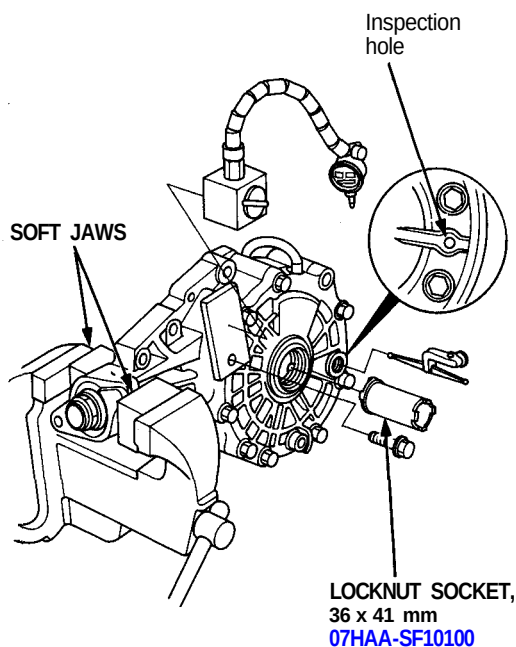


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Differential Assembly

Reassembly (cont'd)

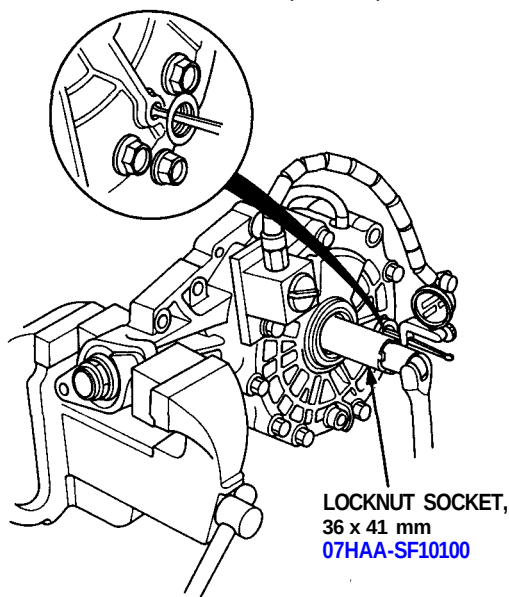
25. Hold the differential assembly using a bench vise with soft jaws as shown.



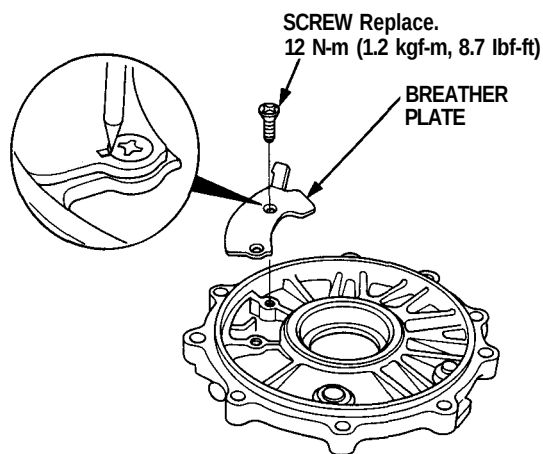
26. Align a backlash inspection hole with the oil filler plug hole, and install the special tools as shown.
27. Measure backlash on the differential carrier using the special tools as shown. After measuring, remove the dial gauge and turn the differential carrier one full turn, then remeasure the backlash.

Standard: 0.06 - 0.14 mm (0.002 - 0.006 in)

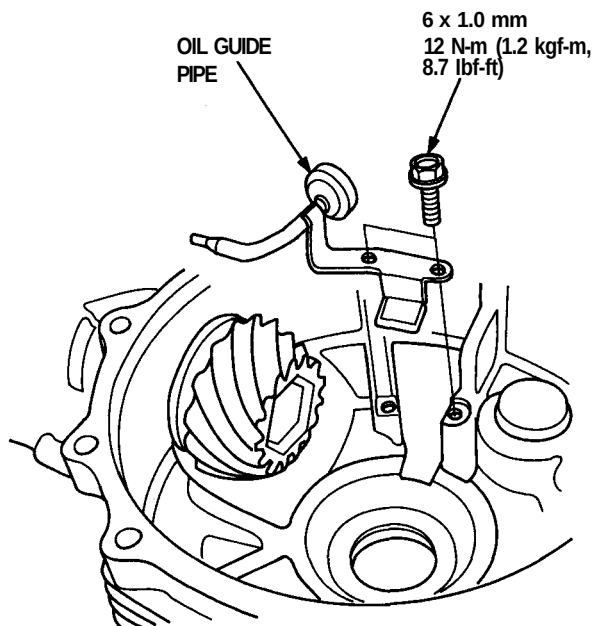
The difference between the two measurements taken must not exceed 0.06 mm (0.002 in).



28. If the backlash is less than the standard, adjust the ring gear backlash (see page 15-25).
29. Remove the differential case cover, and check the tooth contact pattern (face and flank). If the tooth contact is not correct, adjust ring gear contact (see page 15-25).
30. After all adjustments are made, install the breather plate and stake the screw heads in the groove as shown.

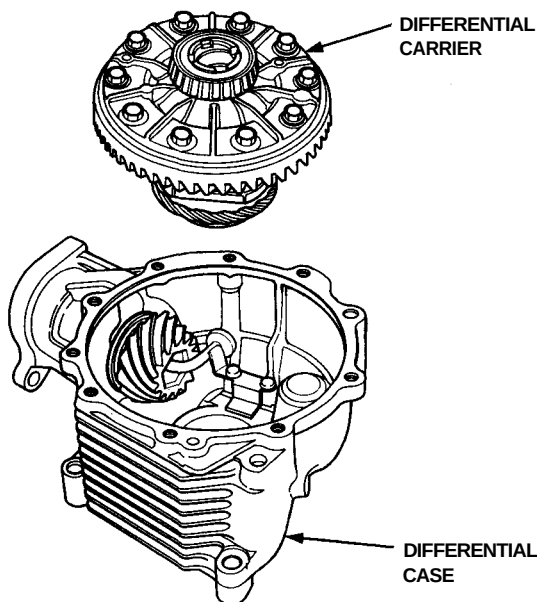


31. Remove the differential carrier, then install the oil guide pipe.





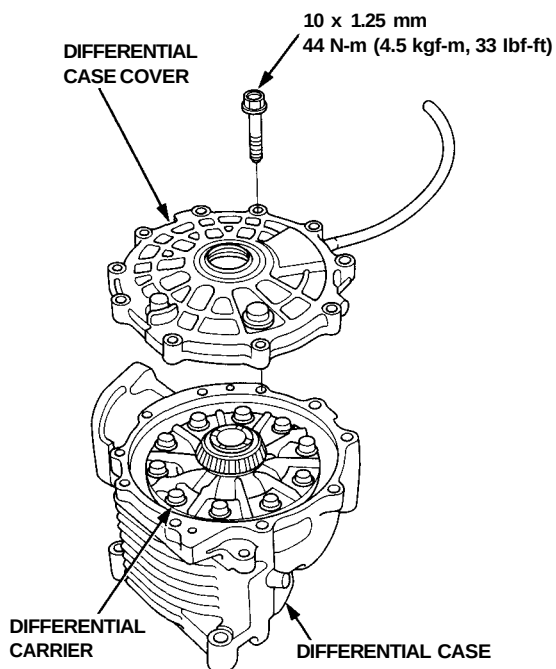
32. Install the differential carrier in the differential case.



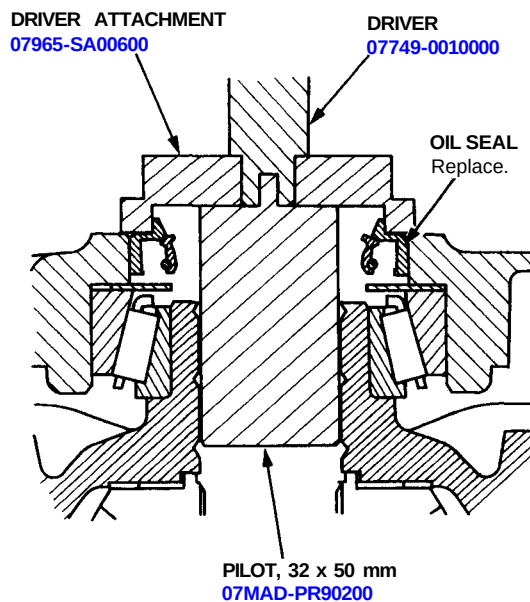
33. Install the differential case cover, and tighten the bolts in a crisscross pattern in several steps.

NOTE:

- Use liquid gasket (P/N 08718 - 0001).
- Remove any dirt and oil from the sealing surface.
- If 20 minutes have passed after applying liquid gasket, reapply it, assemble the housings, and allow it to cure at least 20 minutes after assembly before filling differential with oil.



34. Install the oil seal using the special tools as shown.



35. Stake the locknut tab into the groove.

