

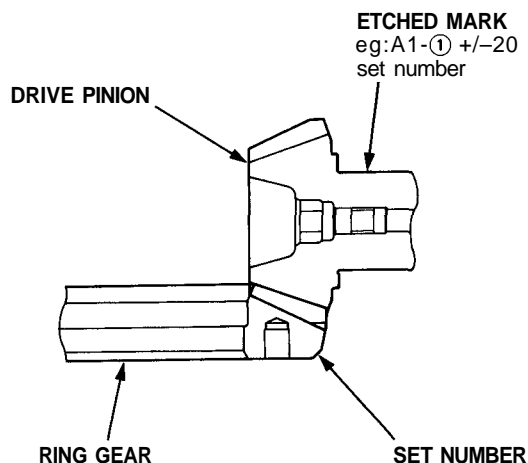


Differential Assembly

Reassembly

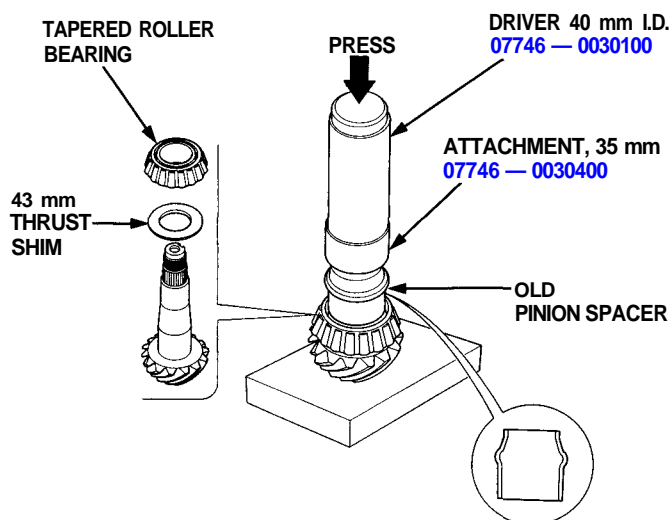
NOTE:

- If replacement is required, always replace the drive pinion and ring gear as a set.
- If necessary, check the height adjustment, see page 15-23.

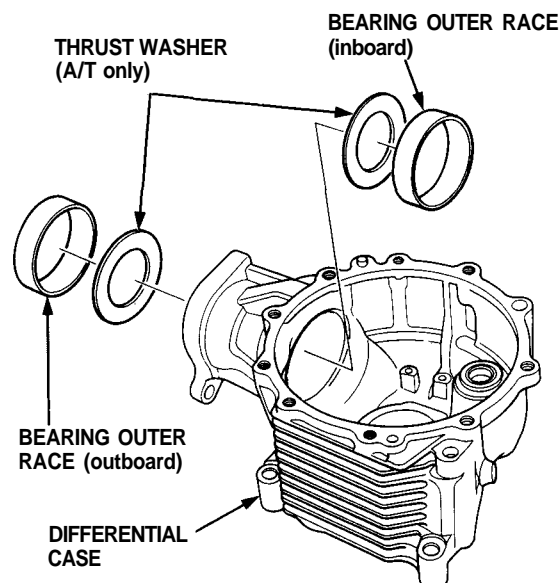


1. Install the 43 mm thrust shim and tapered roller bearing using the special tools as shown.

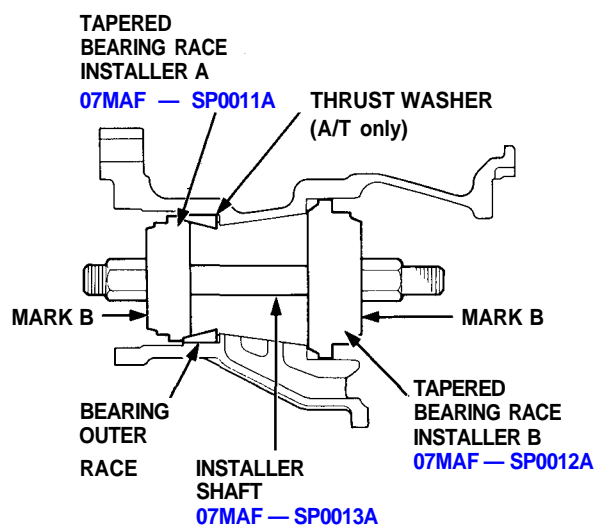
NOTE: Use old pinion spacer for bearing installation, then discard it.



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.



- 1. First install the locknut side bearing outer race.

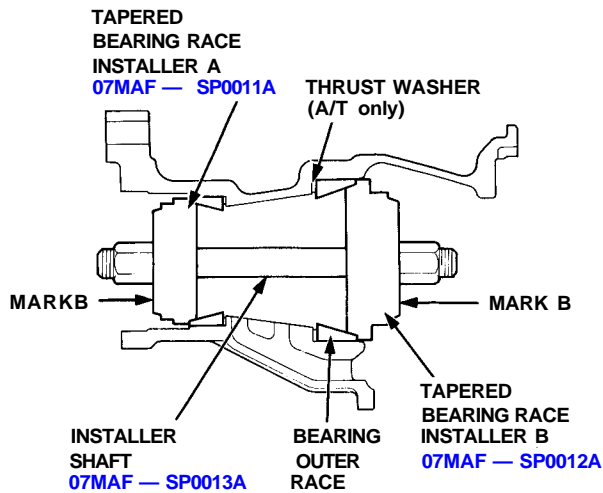


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Differential Assembly

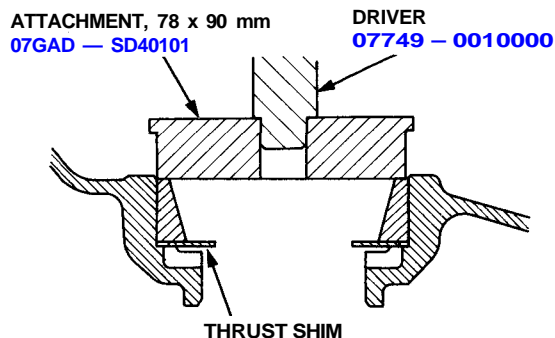
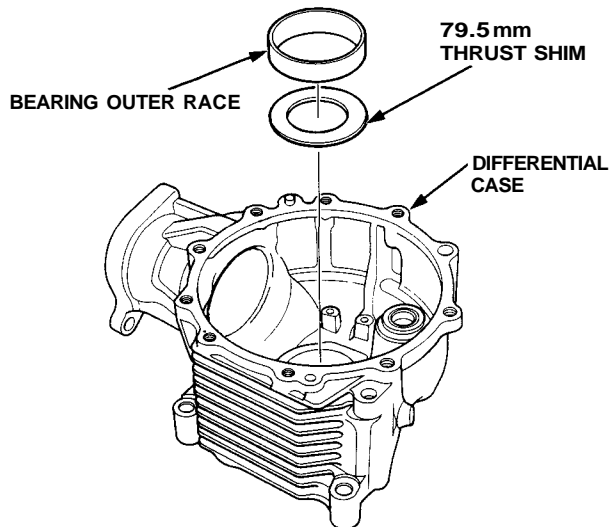
Reassembly(cont'd)

- 2. Next install the differential side bearing outer race.



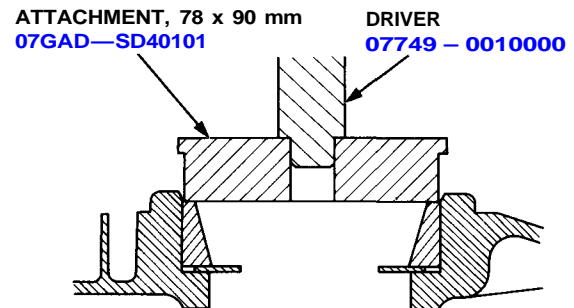
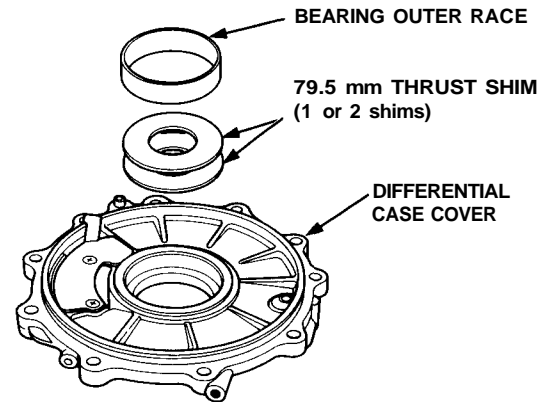
3. Install the 79.5 mm thrust shim and bearing outer race using the special tools as shown.

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



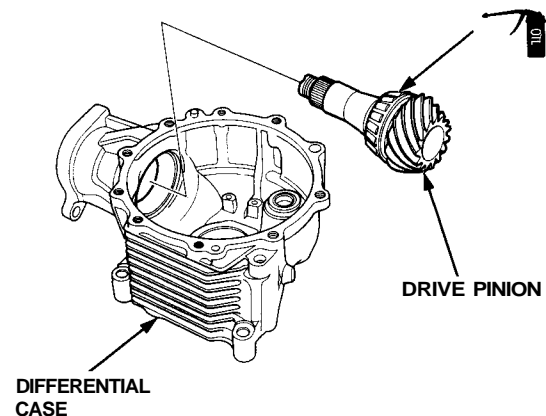
4. Install the 79.5 mm thrust shim(s) and bearing outer race using the special tools as shown.

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



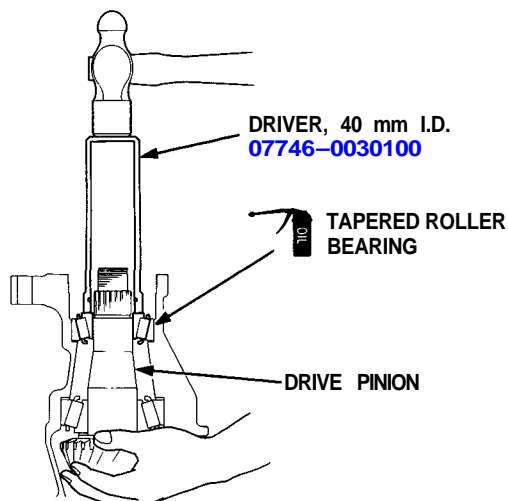
5. Apply lubricant to the tapered roller bearing, then install the drive pinion into the differential case as shown.

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



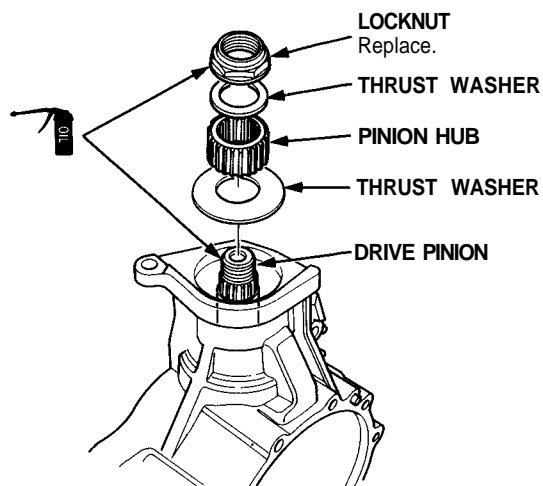


6. Apply lubricant to the tapered roller bearing, then install it using the special tool by hold the drive pinion as shown.



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

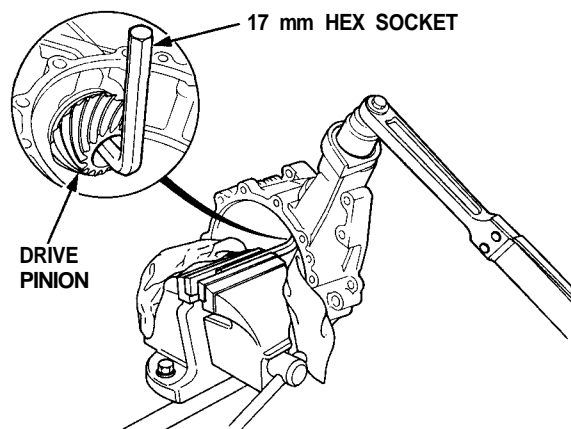
NOTE: Apply lubricant to the locknut and drive pinion of the threads.



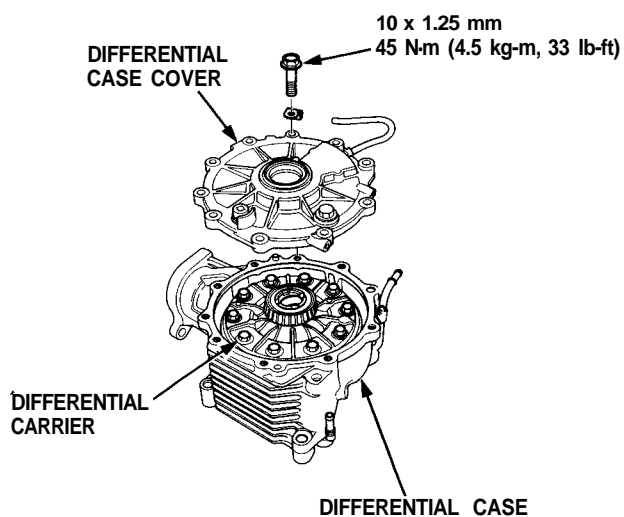
8. Hold the drive pinion using a 17 mm hex wrench and bench vise as shown, and carefully tighten the pinion locknut until there is no play in the pinion shaft.

Torque: 20 N·m (2.0 kg-m, 14 lb-ft)

NOTE: To avoid damaging the bearing, do not overtighten the locknut.



9. Clean and paint the ring gear teeth 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, and reinstall the differential case cover.
11. Install the bolts and tighten in a crisscross pattern in several steps.

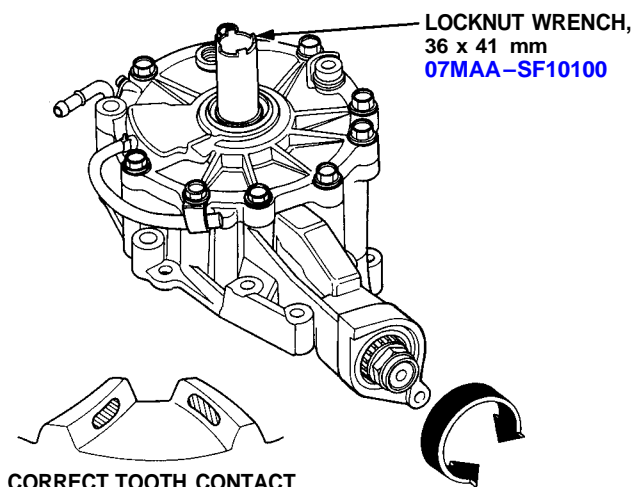


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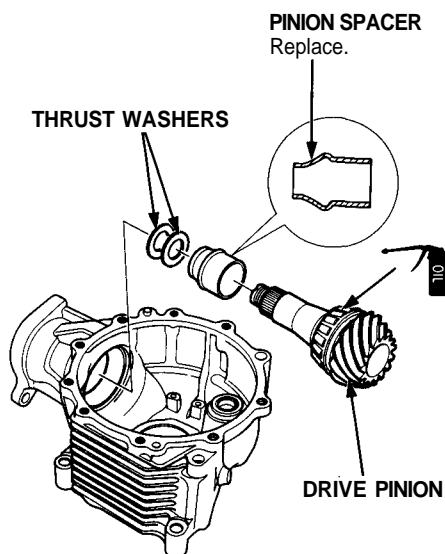
Differential Assembly

Reassembly (cont'd)

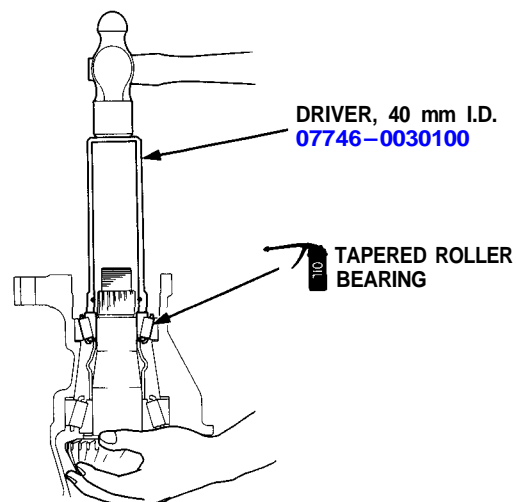
12. Install the special tool as shown.
Rotate the ring gear one full turn in both directions, while applying resistance to the drive pinion.



13. Remove the differential case cover and check the tooth contact pattern (heel and toe). Adjust the drive pinion height as needed (see page 15-24).
14. After adjusting the drive pinion height, remove the drive pinion, then install a new pinion spacer and thrust washers on the drive pinion.

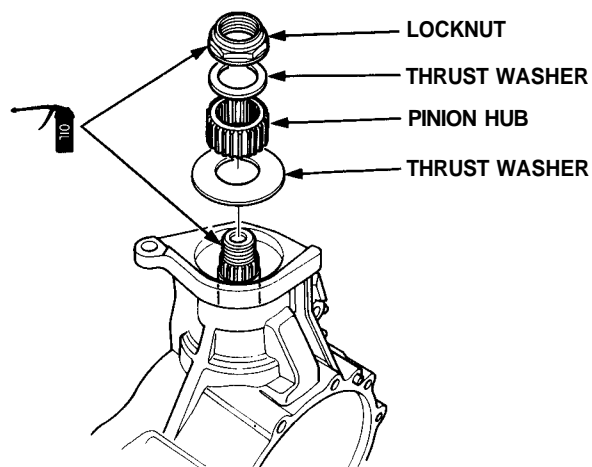


15. Apply lubricant to the tapered roller bearing, then install it using the special tool while holding the drive pinion as shown.



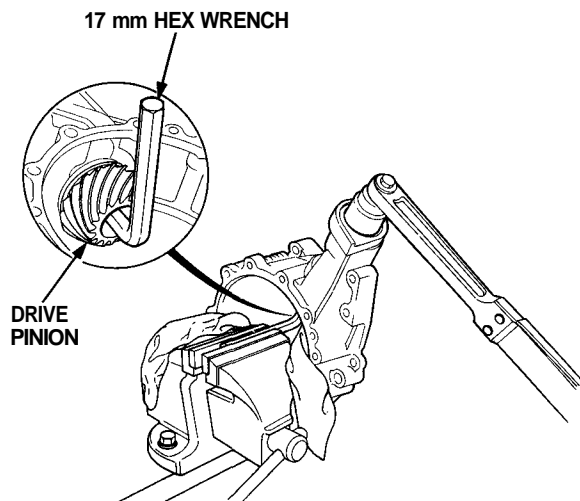
16. Install the large thrust washer, pinion hub, small thrust washers and locknut.

NOTE: Apply lubricant to the locknut and drive pinion of the threads.





17. Hold the drive pinion using a 17 mm hex wrench and bench vise as shown.



18. Tighten the locknut to 220 N-m (22 kg-m, 159 lb-ft) and measure the bearing preload.

NOTE:

- After adjustment of the gear tooth contact, adjust the total bearing preload.
- Rotate the drive pinion several times to assure proper bearing contact.

Standard:

M/T:

New Bearing: 0.93 — 1.57 N-m
(9.3 — 15.7 kg-cm, 8.1 — 13.6 lb-in)

Reused Bearing: 0.72 — 1.21 N-m
(7.2 — 12.1 kg-cm, 6.2 — 10.5 lb-in)

A/T:

New Bearing: 1.86 — 2.54 N-m
(18.6 — 25.4 kg-cm, 16.1 — 22.0 lb-in)

Reused Bearing: 1.45 — 1.95 N-m
(14.5 — 19.5 kg-cm, 12.6 — 16.9 lb-in)

If the preload exceeds the standard, replace the pinion spacer.

If the bearing preload is less than the standard, adjust by tightening the locknut a little at a time, but keep the torque within 220 N-m (22 kg-m, 159 lb-ft) — 320 N-m (32 kg-m, 231 lb-ft). If this is not possible, replace the pinion spacer.

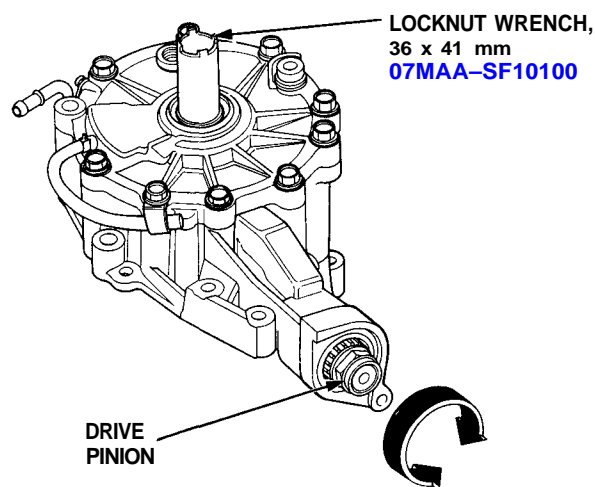
19. Clean and paint the ring gear teeth lightly and evenly with Prussian Blue (on both sides of each tooth).

20. Install the differential carrier into the differential case, and reinstall the differential case cover.

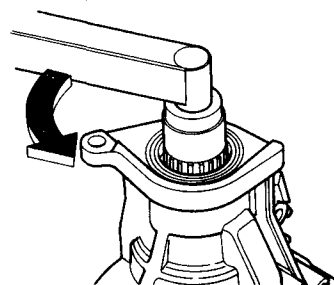
21. Install the bolts and tighten in a crisscross pattern in several steps.

Torque: 45 N-m (4.5 kg-m, 33 lb-ft)

22. Install the special tool as shown. Rotate the ring gear one full turn in both directions, while applying resistance to the drive pinion.



23. Remove the special tool and use a dial-type torque wrench on the drive pinion to check total preload.



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

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Differential Assembly

Reassembly (cont'd)

Standard:

M/T:

New bearing:

1.48 — 2.35 N-m
(14.8 — 23.5 kg-cm, 12.8 — 20.4 lb-in)

Reused bearings:

1.37 — 2.00 N-m
(13.7 — 20.0 kg-cm, 11.9 — 17.4 lb-in)

Replaced only the bearing on the ring gear side:

1.27 — 1.99 N-m
(12.7 — 19.9 kg-cm, 11.0 — 17.7 lb-in)

Replaced only the bearing on the drive pinion side:

1.58 — 2.36 N-m
(15.8 — 23.6 kg-cm, 13.7 — 20.5 lb-in)

A/T:

New bearings:

2.92 — 3.82 N-m
(29.2 — 38.2 kg-cm, 25.3 — 33.2 lb-in)

Reused bearings:

2.41 — 3.04 N-m
(24.1 — 30.4 kg-cm, 20.9 — 26.4 lb-in)

Replaced only the bearing on the ring gear side:

2.51 — 3.23 N-m
(25.1 — 32.3 kg-cm, 21.8 — 28.0 lb-in)

Replaced only the bearing on the drive pinion side:

2.82 — 3.63 N-m
(28.2 — 36.3 kg-cm, 24.5 — 31.5 lb-in)

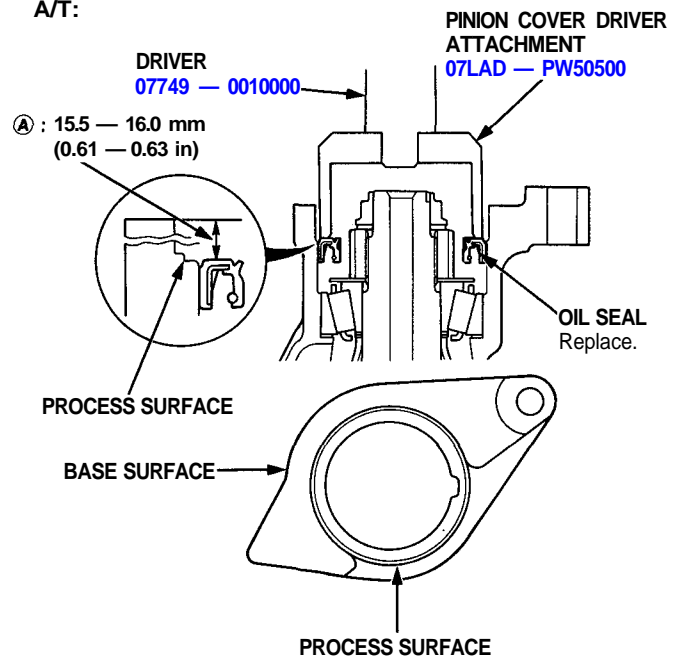
If the total bearing preload is not within the standard, correct it by increasing or decreasing the preload on the carrier bearings as needed. If there is too much preload, decrease the shim thickness equal amounts on both sides. If there is not enough preload, increase the shim thickness equal amounts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

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

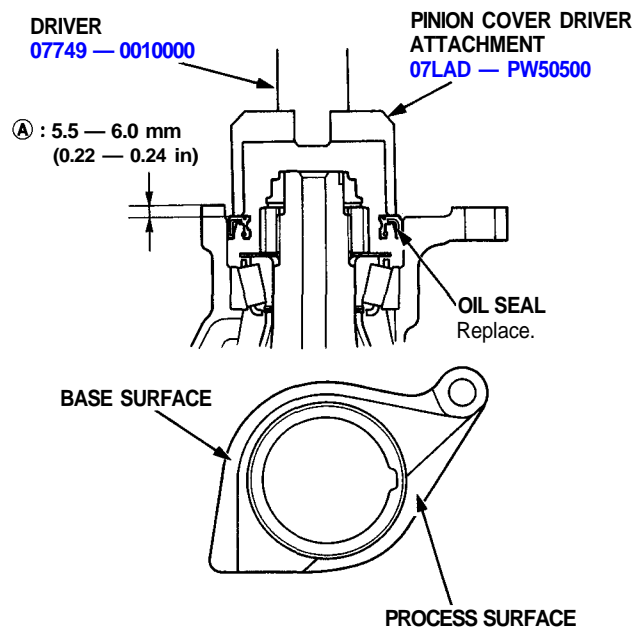
24. Install the oil seal using the special tools as shown.

NOTE: Make sure that distance (A) is correct.

A/T:



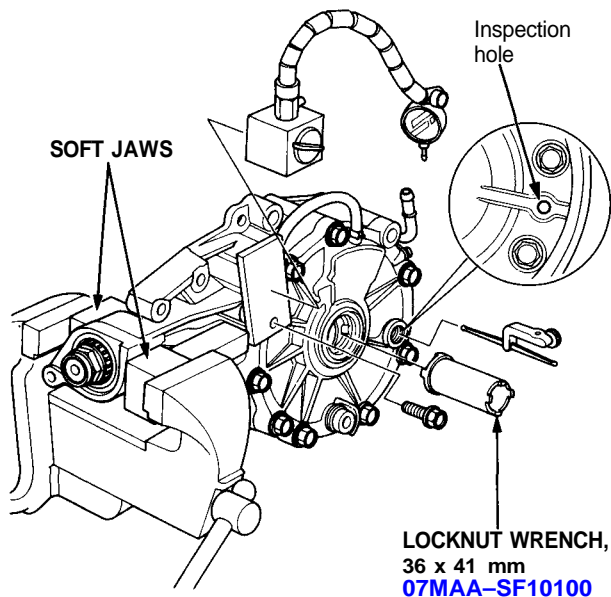
M/T:





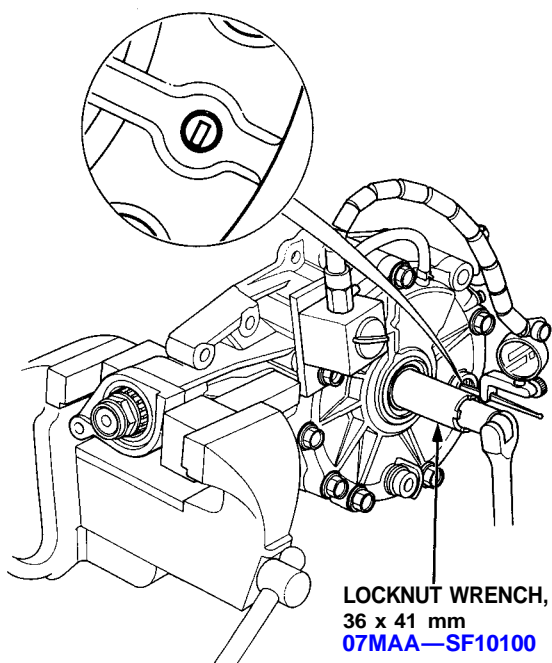
25. Hold the differential assembly using the soft jaws and bench vise as shown.

26. Align a backlash inspection hole with the oil filler plug hole and install the special tools as shown.



27. Measure backlash in three to four locations equally spaced on the differential carrier using the special tools as shown.

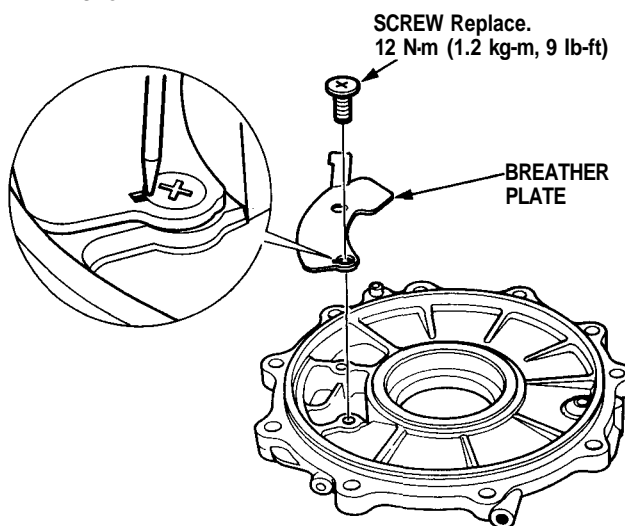
Standard: 0.06 — 0.14 mm (0.002 — 0.006 in)



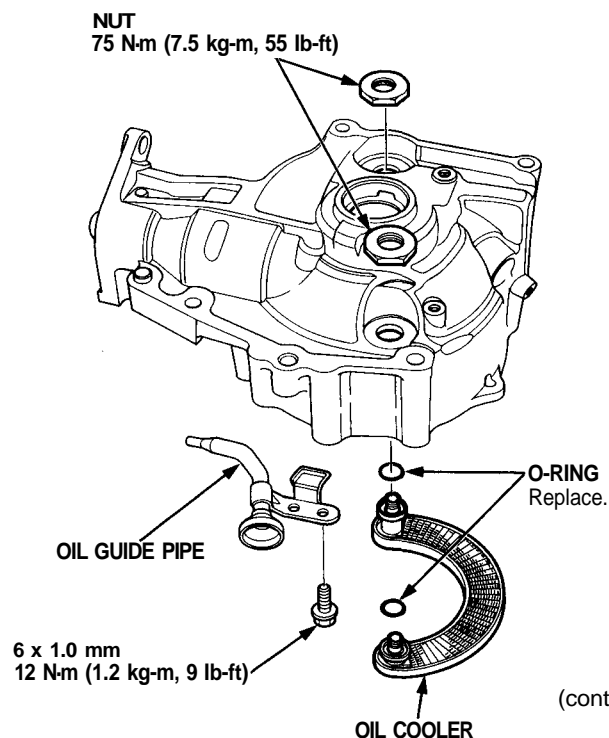
28. If the backlash is less than the standard, adjust the ring gear backlash (see page 15-24).

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 15-24).

30. After all adjustments are made, install the breather plate and stake the screw heads in the groove as shown.



31. Remove the differential assembly, then install the oil cooler and oil guide pipe.

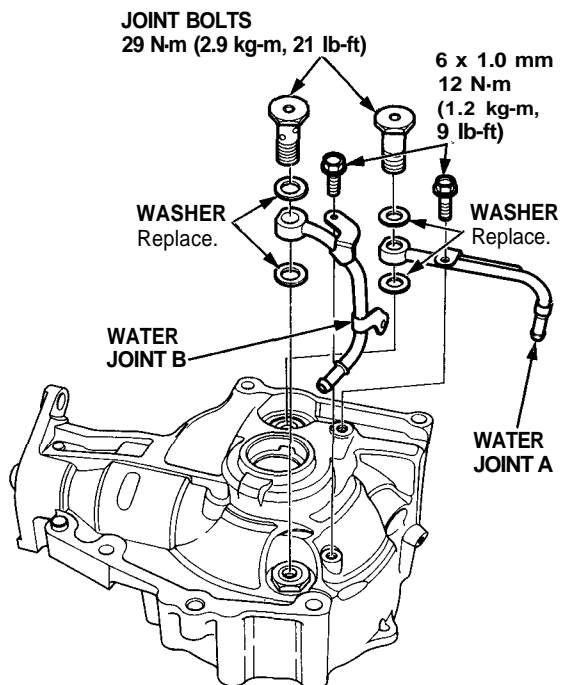


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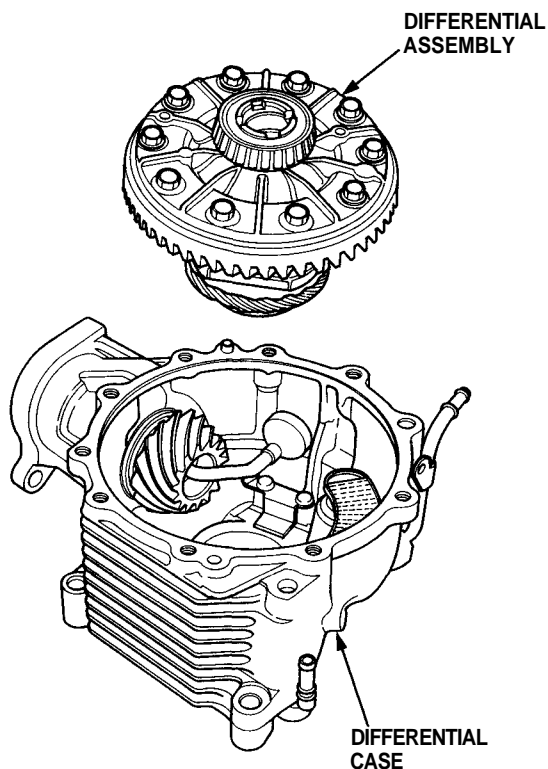
Differential Assembly

Reassembly (cont'd)

32. Install the water joints A and B, then install the joint bolts.



33. Install the differential assembly in the differential case.

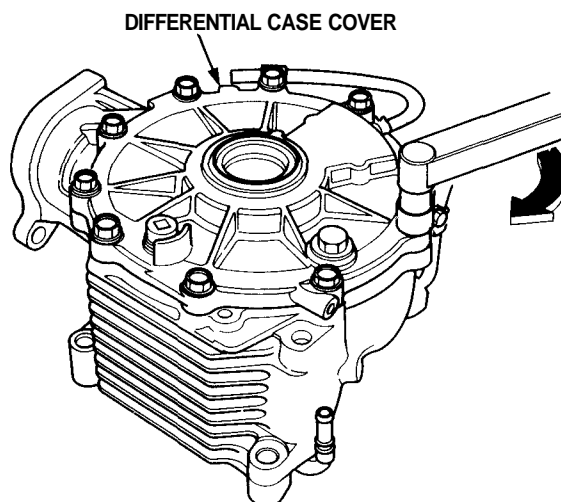


34. Install the differential case cover, and tighten the bolts in a crisscross pattern in several steps.

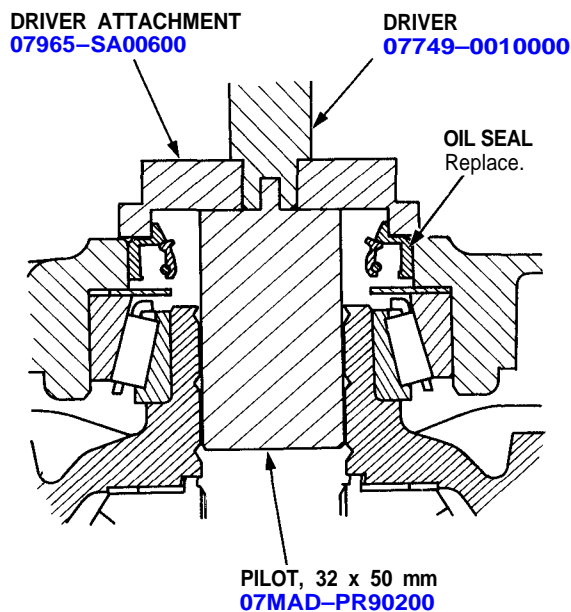
NOTE:

- Use liquid gasket (P/N 08718 — 0001).
- Remove the dirt oil from the sealing surface.
- If 20 minutes have passed after applying liquid gasket, reapply it and assemble the housings and allow it to cure at least 30 minutes after assembly before filling transmission with oil.

Torque: 45 N-m (4.5 kg-m, 33 lb-ft)



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



36. Stake the locknut tab into the groove.