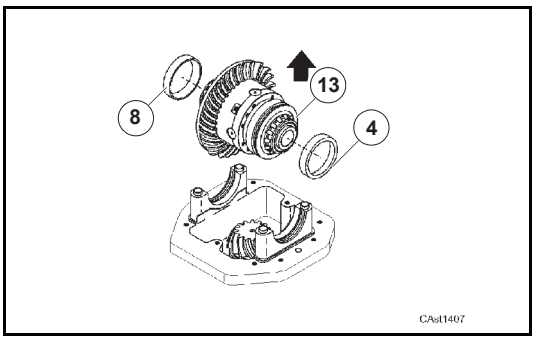
9. Remove the differential housing (13).

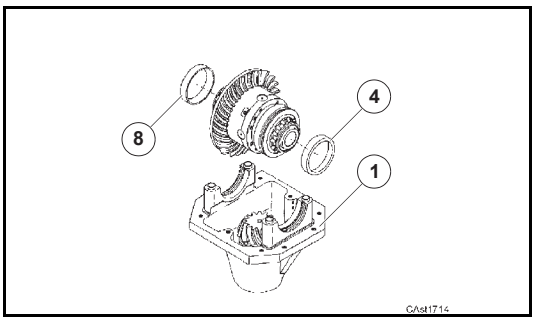
10. The bearing cups (4) and (8) are removed together with the differential housing.



Warning: do not invert the bearing cups if they are not going to be replaced.

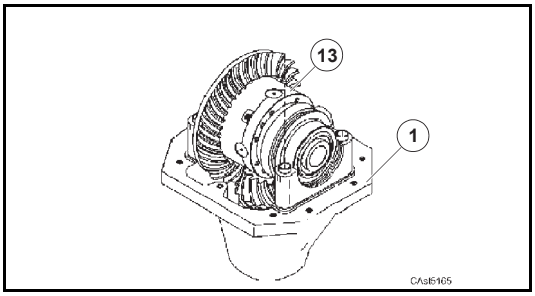
Assembly

1. Assemble the bearings cups (4) and (8) on the differential group (1) with pins and locking differential sleeve, (only for CA150021).



Warning: do not invert the bearing cups if the bearings are not replaced.

2. Position the complete differential housing (13) on the differential support (1). At the same time insert the differential locking fork into the sleeve, (only for CA150021).

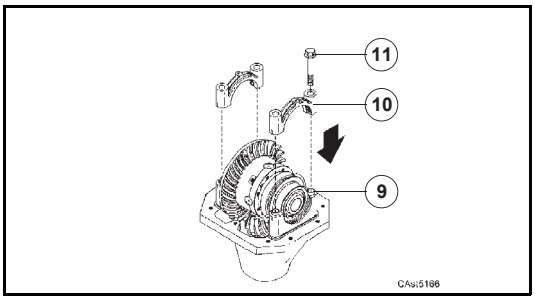


Warning: check the right side of the bevel crown assembly.

3. Move the differential group so to place the bevel crown gear on the pinion.

4. Check that all bushes (9) are in their housings and position both half collars (10) on their seats using the previously traced reference marks.

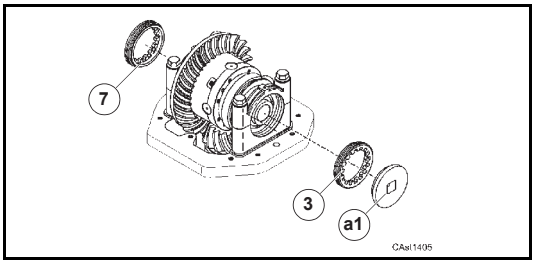
5. Lock both half collars with their fastening bolts (11).



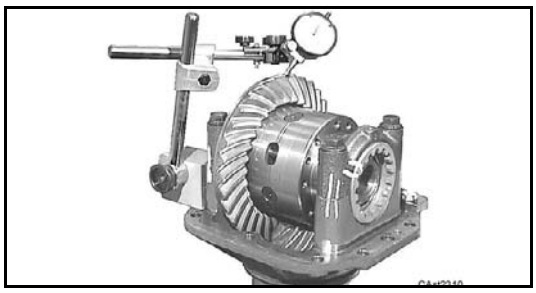
6. Assemble the adjusting ring nuts (3) and (7) to the differential support.

7. Tighten both ring nuts (3) and (7) with special tools CA119030 (a1), till the backlash is eliminated and the differential bearings are slightly preloaded.

8. Check that the differential bearings are well settled; if necessary, knock slightly with a soft hammer, in order to properly set the bearings in position.



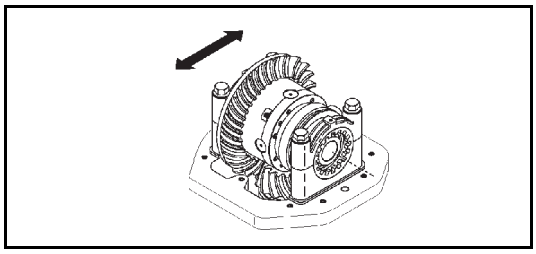
9. Position a magnetic-base dial gauge on the differential support, so that the feeler stylus touches the surface of one tooth of the crown gear with a 90° angle.



10. Lock the pinion and move the crown gear alternatively and note the pinion-ring gear backlash, measured with the comparator.

11. Repeat the operation on two or more points (teeth), rotating the crown gear to obtain an average value.

12. Check if the measured backlash value is within the requested range: **0.10 - 0.15 mm**.

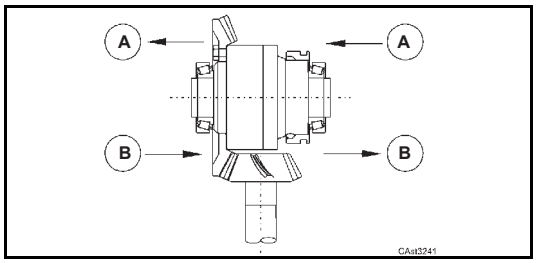


13. Set the bevel gear set backlash by turning adjusting rings (3.7) with the appropriate tool CA119030.

14. Adjust the ring nuts, remembering that:

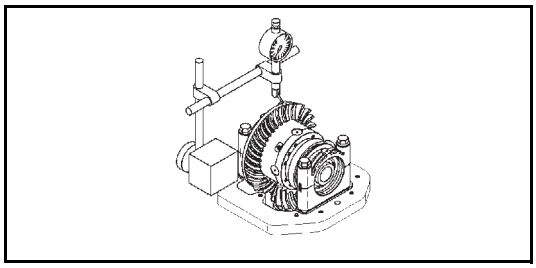
    (A): If the measured backlash is greater than the given tolerance range, unscrew the ring nut (3) and screw in the adjuster ring nut (7) by the same measure;

    (B): If the measured backlash is less than the given tolerance range, unscrew the adjuster ring nut (7) and screw in the adjuster ring nut (3) by the same measure.



15. After pinion-ring gear backlash adjustment, check that there is a minimum preloading on the differential box bearings.

16. Repeat the whole sequence of the above mentioned operations till the indicated conditions are reached.



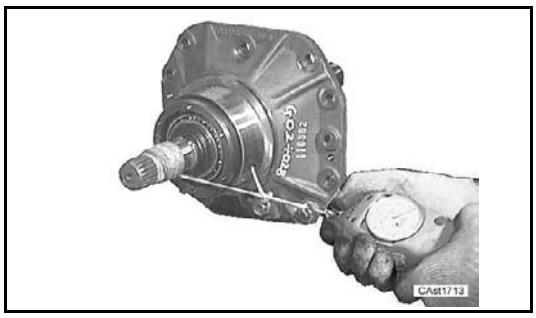
17. Once the pinion-ring gear backlash has been established, measure the total preloading (T) of the bearings (pinion-ring gear system), using a dynamometer whose cord is wound on the end of the pinion.

    The measured value should be within the following range:

    T = (P + 2.9) - (P + 4.4) daN (WA90-5)

    T = (P + 3.1) - (P + 4.7) daN (WA100M-5)

    where P is the preloading effectively measured on the pinion.

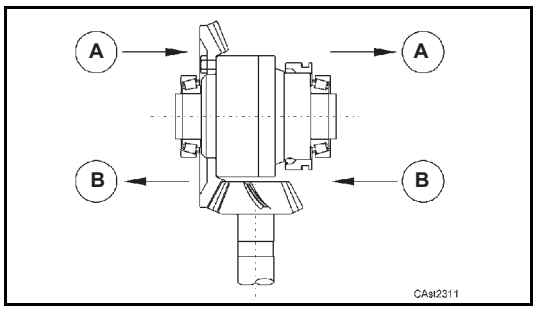


Warning: all the preloadings must be measured without the seal ring.

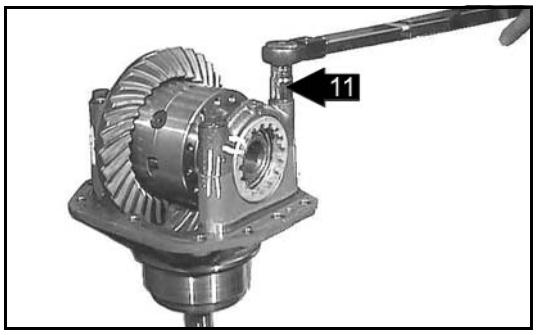
If the measurement is not within the requested range, check well the assembly of each component and operate on the adjusting ring nuts (3) and (7) of the differential support:

If the total preloading is less than the given range, screw in both adjuster ring nuts (3) and (7) by the same measure, keeping the pinion-ring gear backlash value unchanged (A);

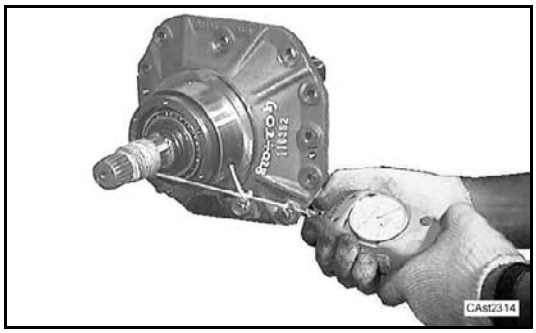
If the total preloading is greater than the given range, unscrew both adjuster ring nuts (3) and (7) by the same measure, keeping the pinion-ring gear backlash (B) value unchanged.



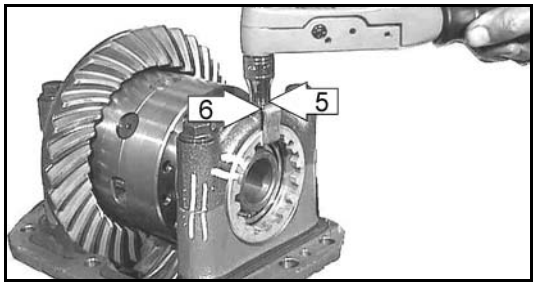
18. Tighten the bolts (11) of both half collars to the requested torque.



19. Check bearings total preload (T).
See previous page.



20. Once all the adjustment operations have been completed, fit the adjuster ring nut retainers (5) and their respective screws (6), tightening them to the requested torque.

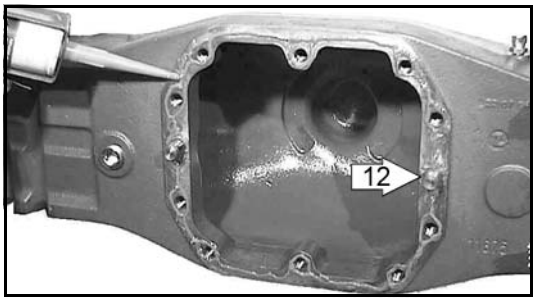


21. Before matching surfaces, make sure they are perfectly clean.

22. Degrease and clean with appropriate detergents.

23. Spread a film of sealant on the contact surface between the axle beam and the differential carrier.

24. Check that the dowel pins (12) are in their seats.



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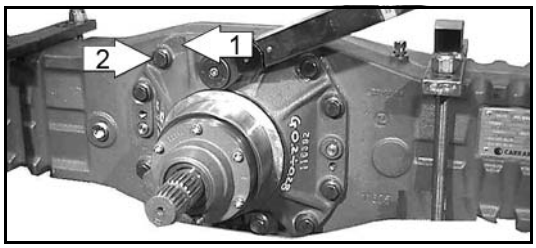
25. Position the differential carrier (1) on the axle housing and tighten the retaining bolts (2).



kgm **169 Nm**

26. Top up the oil.