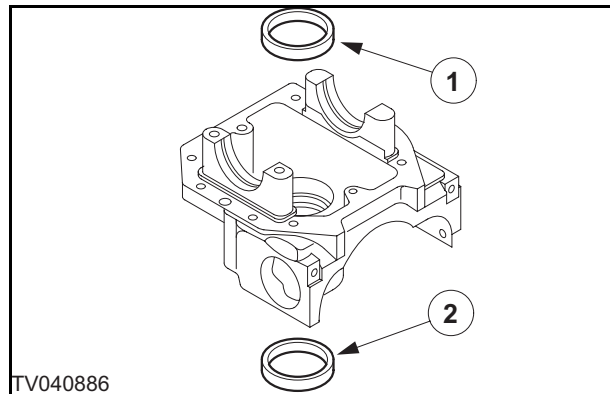


## FRONT AXLE AND STEER SYSTEM

### Assembly

1. Place the differential support on a suitable flat surface.
2. Using the special tool **CA119225 — Driver** , install the taper roller bearing cones (1) and (2).

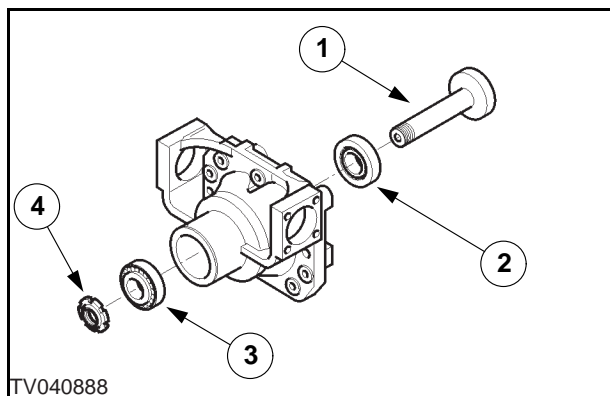


3. Install the special tool **CA715023 — false pinion** (1) with the pinion shaft taper roller bearings (2) and (3).

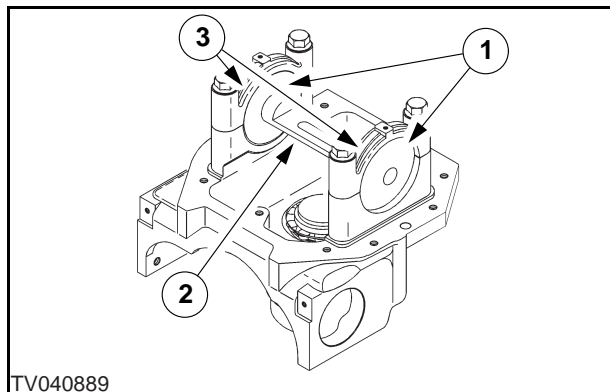
**⚠ Caution:**

- Do not over-tighten.

4. Install the pinion shaft retaining nut (4).
5. Tighten until the free play is eliminated.

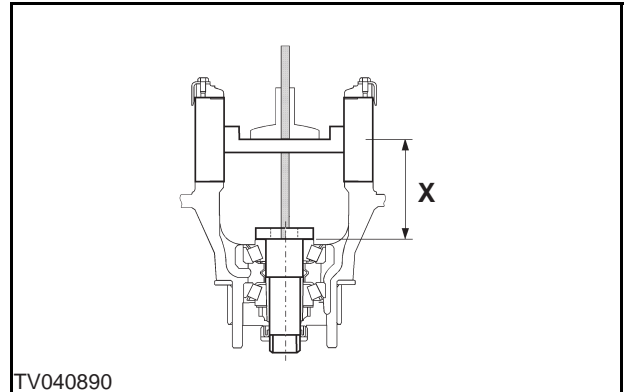


6. Install the special tools **CA119182 — false differential bearings** (1) and **CA119226 — false differential shaft** (2) into the differential support.
7. Secure the special tools into position with the differential half-collars (3).

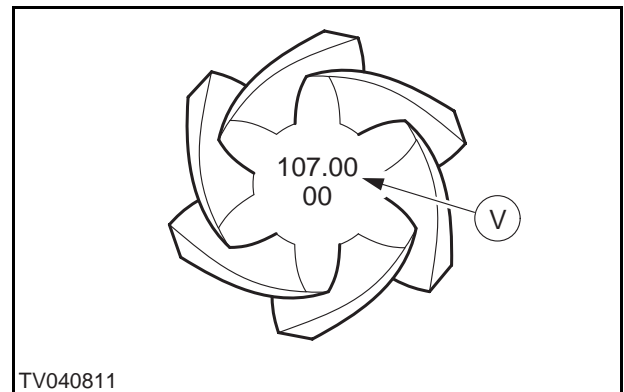


## FRONT AXLE AND STEER SYSTEM

8. Using a suitable depth gauge, measure through the false differential shaft (CA119226) **This measurement is "X"** .  
**X** = The distance between the axis of the differential taper roller bearings and the point at which the pinion head is supported, or base of the bearing.

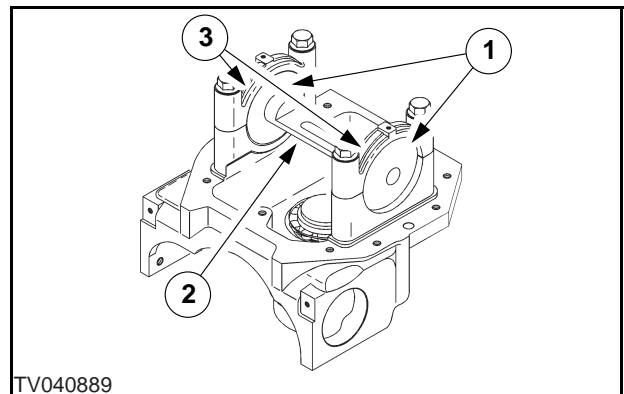


9. Determine the pinion shaft position adjustment shim "**S**" as follows:  
 subtract the value "**V**" (requested conical distance) from the calculated value "**X**" .  
**S = X — V**  
 Example: Shim thickness **S** = 109.9 – 107.00 = 2.9mm.  
 Shim thickness "**S**" = 2.9mm.



SHIM RANGE										
Thickness (mm)	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4

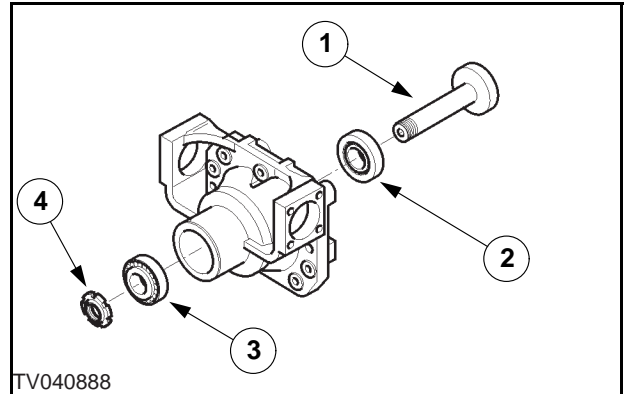
10. Remove the differential half-collars (3).  
 11. Remove the special tools **CA119182 — false differential bearings** (1) and **CA119226 — false differential shaft** (2) from the differential support.



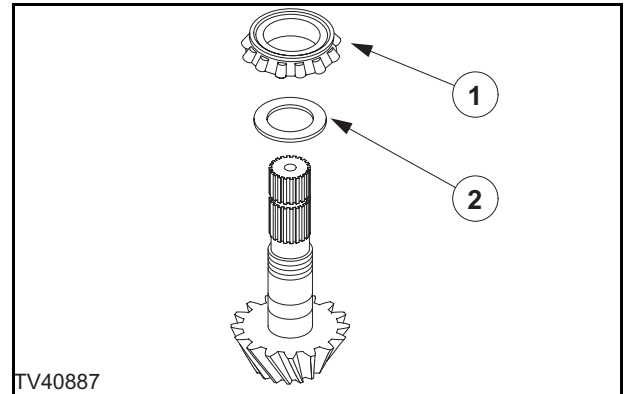
12. Remove the pinion shaft retaining nut (4).

## FRONT AXLE AND STEER SYSTEM

13. Remove the special tool **CA715023 — false pinion** (1) with the pinion shaft taper roller bearings (2) and (3).



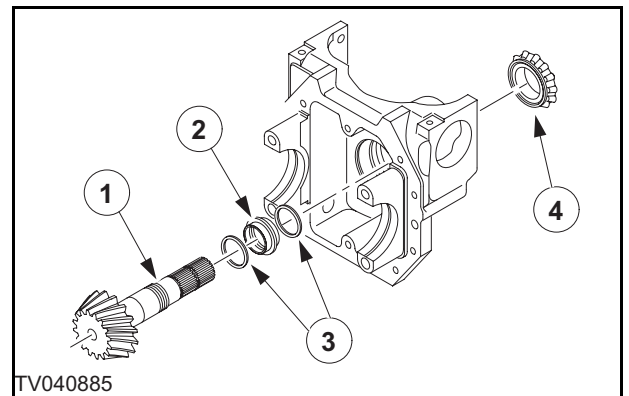
14. Install the pinion shaft position adjustment shim (2) with chamfer against the gear.
15. Using a suitable hydraulic press and the special tool **CA715179 — Driver** install the rear taper roller bearing (1).



**⚠ Caution:**

- **Always install a new collapsible spacer.**

16. Install the pinion shaft (1), new collapsible spacer (2) and the washers (3) into the differential support.
17. Using the special tool **CA715179 — Driver**, install the taper roller bearing (4).



## FRONT AXLE AND STEER SYSTEM

18. Install a new retaining lock washer (2).

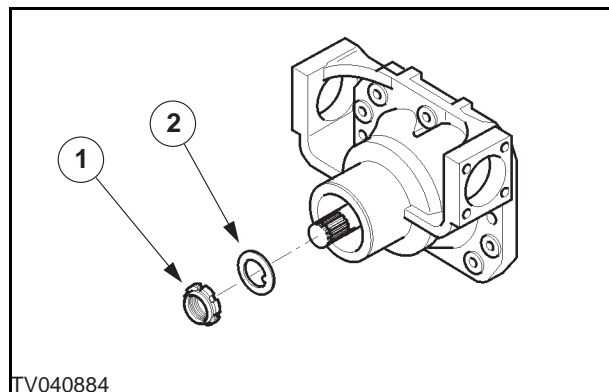
**⚠ Caution:**

- **Always install a new pinion shaft retaining nut.**

**Note:**

- Do not tighten at this stage.

19. Install a new pinion shaft retaining nut (1).



**⚠ Caution:**

- **All adjustments are to be carried out without the pinion shaft oil seal installed.**

**Note:**

- Using a suitable soft faced hammer, settle the pinion shaft bearings.

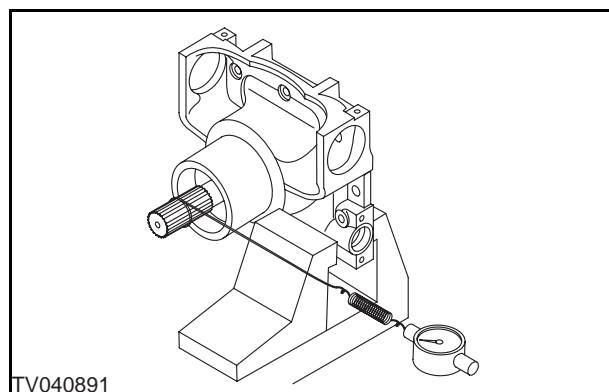
**Note:**

- Rotate the pinion shaft several times to settle the pinion shaft bearings, before measuring the pinion shaft rotational torque.

20. Using a suitable measuring device with the cord wound round the pinion shaft spline, measure the pinion shaft rotational torque.

21. The rotational torque should be within the following range excluding breakaway torque.

**9.2 to 13.7 daN**

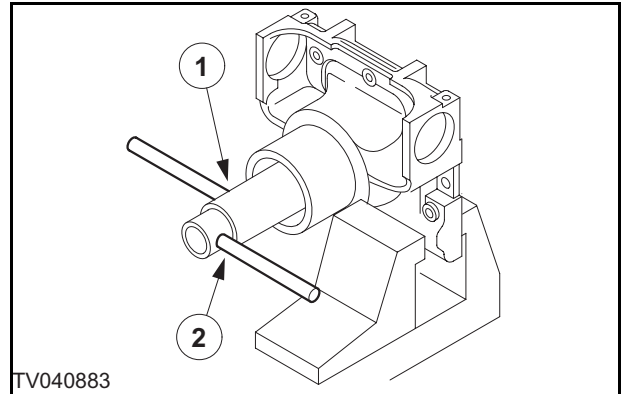


## FRONT AXLE AND STEER SYSTEM

**⚠ Caution:**

- If the stated rotational torque range is exceeded the collapsible spacer must be replaced and the procedure repeated.

22. The adjustment is carried out by increasing the pinion shaft retaining nut torque setting gradually using the special tools **CA119099 — Wrench (1)** and **CA715170 — Wrench (2)**, being careful not to exceed the stated range.



23. Once the correct rotational torque is achieved, secure the pinion shaft retaining nut.

**Note:**

- Do not install a new pinion shaft oil seal at this stage.

24. Install the differential support group. For additional information, refer to DIFFERENTIAL SUPPORT GROUP, PAGE L11-02-37 in this section.

