

41: Replacing rear pinion seal and torque tube viscous clutch and bearing

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31/12/2015

**PRINT****41: Replacing rear pinion seal and torque tube viscous clutch and bearing****Replacing the rear pinion seal, viscous coupling and bearing in the viscous coupling housing****Special tools:**

999 5743
998 5972
999 5010
999 5069
999 5212
999 5304
999 5496
999 5504
999 5652
999 5653
999 5658
999 5744
999 5893

Note! Check that the parking brake is not applied and that no gear is engaged.**Removing the viscous coupling housing and viscous coupling unit****Disconnecting the propeller shaft from the viscous coupling**

Lift

- the car and work from underneath.

Note! Carefully follow the instructions for positioning the lifting arms according to Towing, changing wheels and rolling road / wheel spinner test .

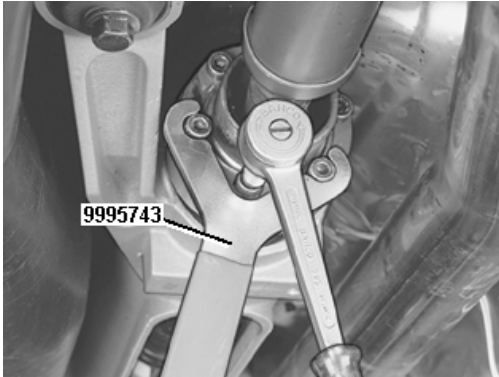
Marking the flange

- Mark the constant velocity joint

on the propeller shaft in relation to the viscous coupling flange

Slacken off the screws

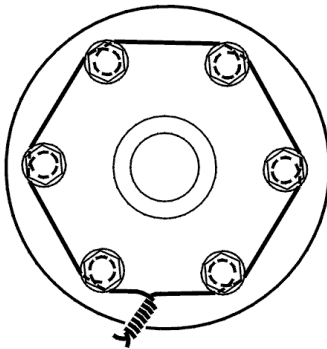
- Slacken off the screws for the propeller shaft. Slacken off the screws to halfway. Use counterhold 999 5743 .



Secure the screws

Securing the flange screws

- Secure the screws using steel wire as illustrated, so that their location on the propeller shaft CV joint cannot be changed.
- Slacken off the screws so that the threads are released but allow them to remain in the constant velocity joint.

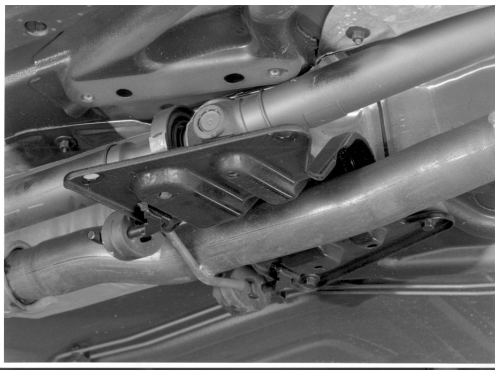


Note! The propeller shaft may have been balanced with balancing screws. For balancing screws see Specifications (Standard screw for the front and rear propeller shaft constant velocity joints and balancing screw for the rear joint).

Removing the screws for the propeller shaft bracket and cross-member

Removal

Remove the two screws for the center bearing bracket for the propeller shaft from the member. (Removed in the illustration.) Remove the screws for the member on the left-hand side. Remove the screws on right-hand side. (Removed in the illustration.)





Push the propeller shaft to the right. Tie the propeller shaft at the front and let it rest on the member.

Removing the front screw for the viscous coupling housing

Position

- a mobile jack 998 5972 , lightly under the viscous coupling housing

Remove

- the screw for the viscous coupling housing.

Lower

- the viscous coupling housing until the final drive housing is resting on the lower section of the rear axle member.

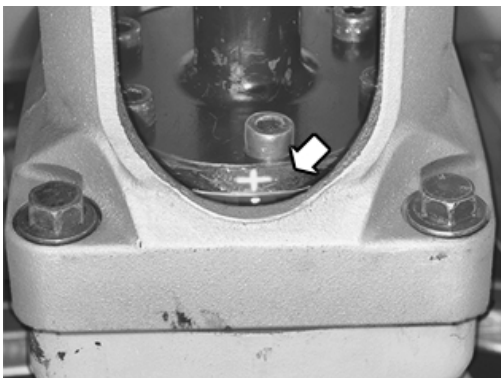
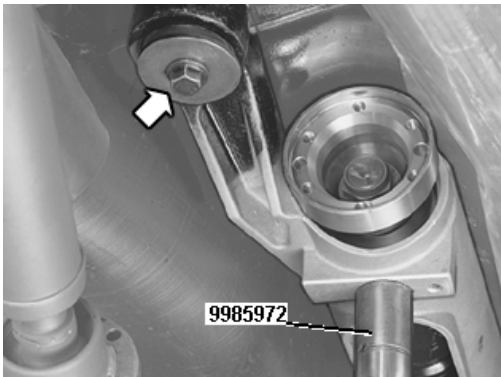
Remove

- the mobile jack.

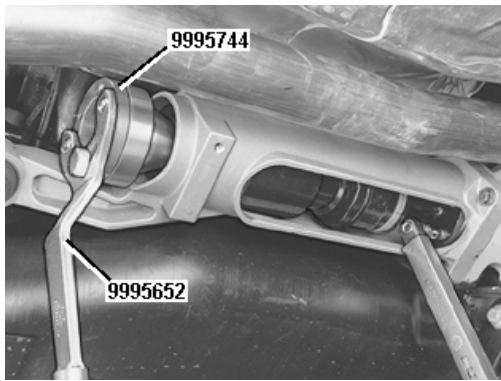
Removing the screws for the viscous coupling

Mark

- the flange on the final drive opposite the + mark on the viscous coupling as illustrated.



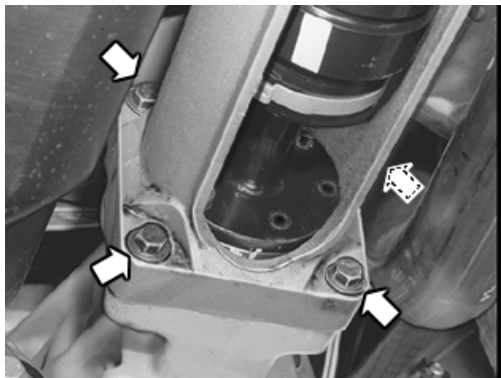
Note! The viscous coupling and the viscous coupling housing are removed as a unit.



Remove

- the screws from the flange. Use counterhold 999 5652 including adapter ring 999 5744

Removing the screws for the viscous coupling housing



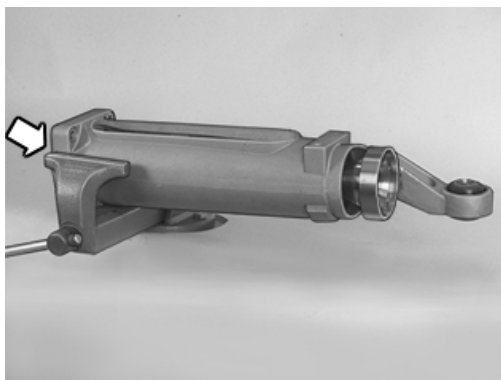
Remove

- the **lower** screws for the viscous coupling housing.
- the **upper** screws for the viscous coupling housing. Support the viscous coupling housing to prevent it falling.
- the viscous coupling housing and the viscous coupling as a unit.

If the viscous coupling or the bearing in the viscous coupling housing is not being replaced see and

Replacing the bearing in the viscous coupling housing (on the workbench)

Mounting in a vice



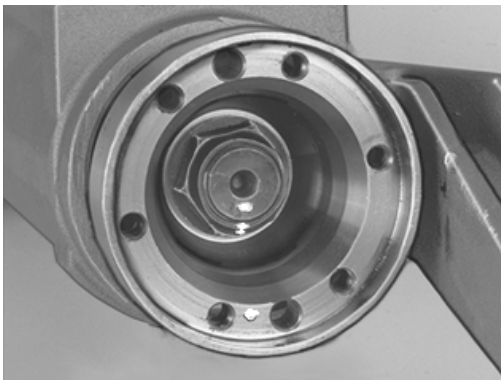
Install

- the viscous coupling housing in the vise positioned as illustrated

Note! Apply pressure only to the mounting flange so that the viscous coupling housing cylinder is not deformed.

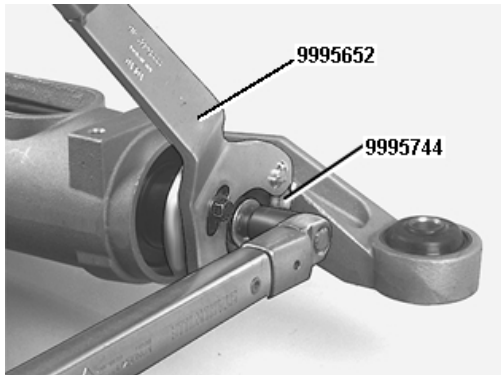
Marking and removing the flange

Mark up the internal



relationships of

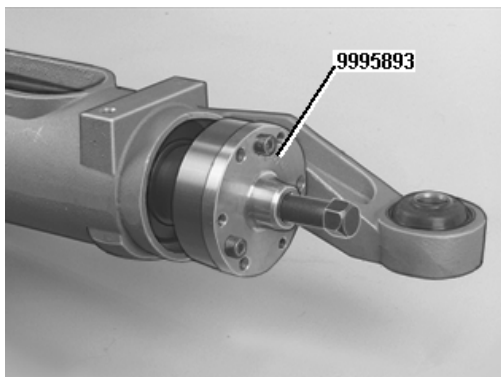
- the viscous coupling shaft end.
- the flange.



Remove

- the nut. Use counterhold 999 5652 including adapter ring 999 5744 .

Note! Do not damage the edges of the flange.



Remove

- the flange from the shaft. Use puller 999 5893 .

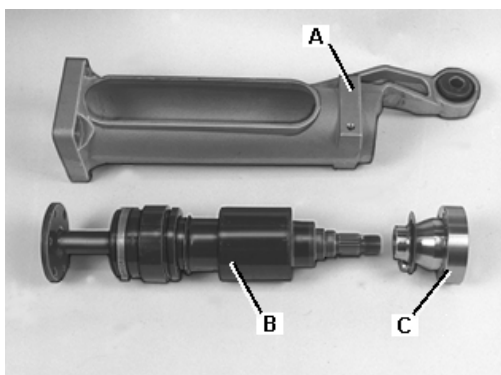
Note! Do not damage the edges of the flange.

- **Note! If the bearing in the viscous coupling housing is not being replaced, continue with**
- **Note! If the final drive is not being repaired continue to**

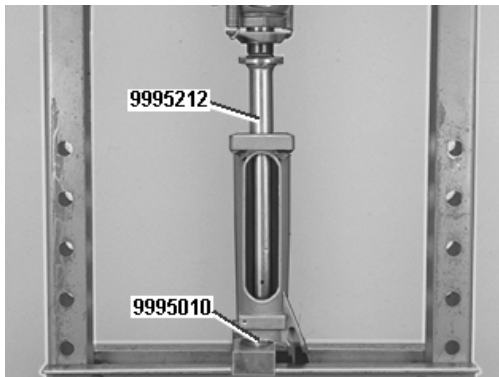
Components in the viscous coupling / viscous housing unit

The components illustrated are

- A viscous coupling housing
- B viscous coupling
- C flange



Pressing out the bearing



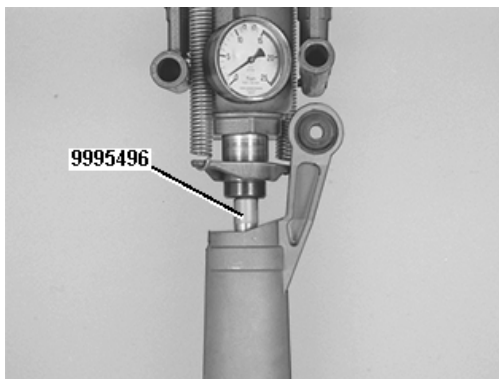
Pull out

- the viscous coupling from the viscous coupling housing. If it is stiff the unit can be put on end and a rubber mallet used to tap the end of the shaft.

Press

- the bearing out of the viscous coupling housing. Use drift 999 5010 as a support against the inside of the viscous coupling housing (as illustrated) and press tool 999 5212 against the bearing.

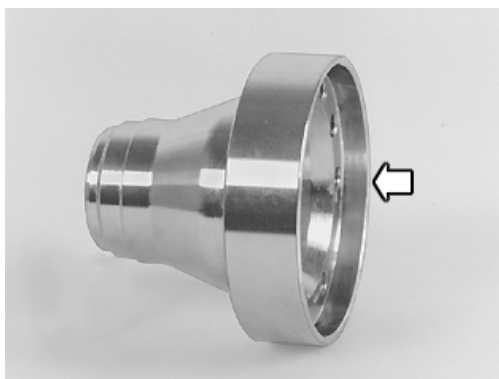
Pressing in the bearing



Press

- in the bearing to its stop in the viscous coupling housing. Use tool 999 5496 .

Checking the flange



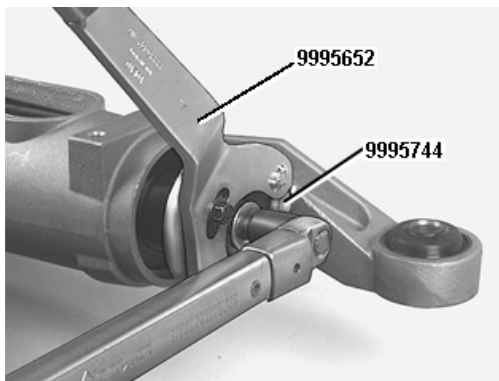
Checking the flange

- If installing the **old** flange the edges must be checked carefully. Ensure that there is **no** damage

Tightening the flange and nut on the viscous coupling

Install

- the flange so that the previous marking corresponds.

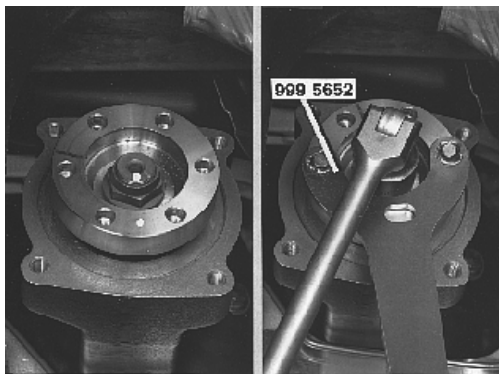


Tighten

- the flange to the viscous coupling shaft.
- Tighten to **180 Nm**. Use counterhold 999 5652

Replacing the **pinion** seal for the final drive

Marking up the flange, nut and **pinion** end



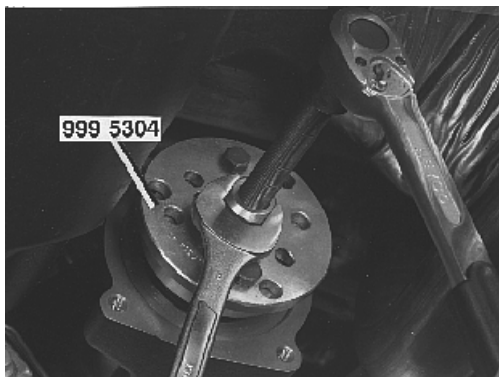
Mark up

- the position of the flange and nut in relation to the **pinion** shaft end.

Remove

- the nut. Use counterhold 999 5652

Removing the flange



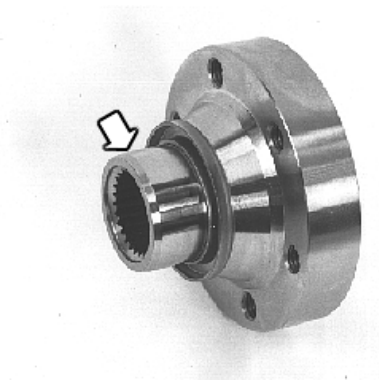
Remove the flange

- If the flange is stuck, use puller 999 5304 . Put a container under the car to collect the oil draining from the final drive.

Checking the flange

Check

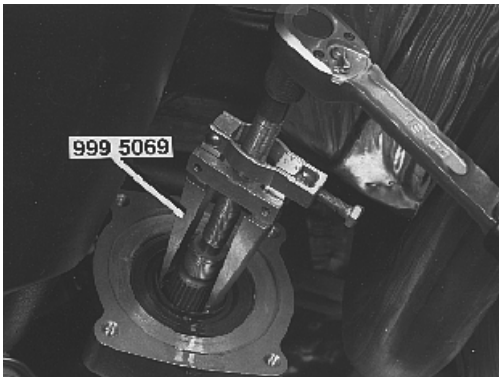
- the sealing surface of the flange (at the arrow in the illustration). Replace the flange if necessary



Removing the **pinion** seal

Remove the pinion seal

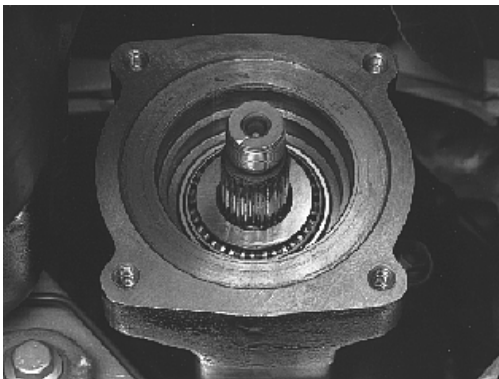
- Use extractor 999 5069 .



Check

Check

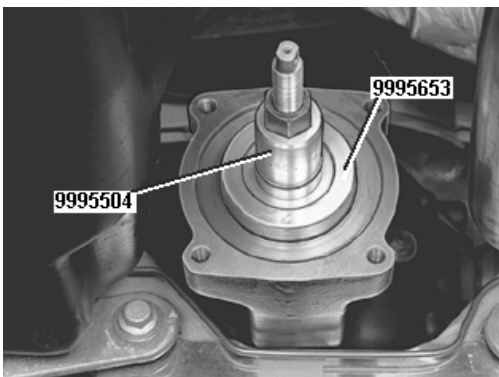
- that **no** seal residue is left



Installing the seal

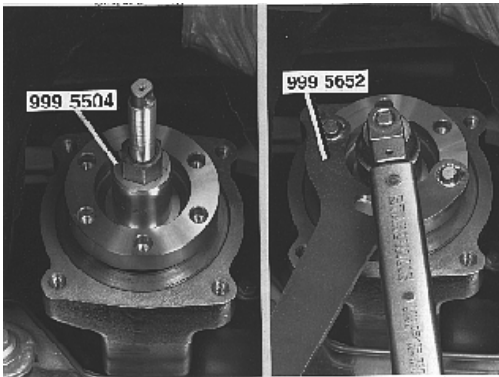
Install the seal

- Lubricate the sealing ring lip with Volvo wheel bearing grease, P/N 1161241-3.
- (Install the seal on drift 999 5653 (on the side of the tool marked 1031-1165).
- Press the seal into its seat. Use press tool 999 5504 .



Installing the flange

**and nut for the pinion
in the final drive**



Install the flange

- If reinstalling the old flange, install according to the markings made earlier. Use press tool 999 5504 .
- Install the marked nut. Tighten to **180 Nm**. Use counterhold 999 5652 .
- **Note! A pneumatic air hammer must not be used.**

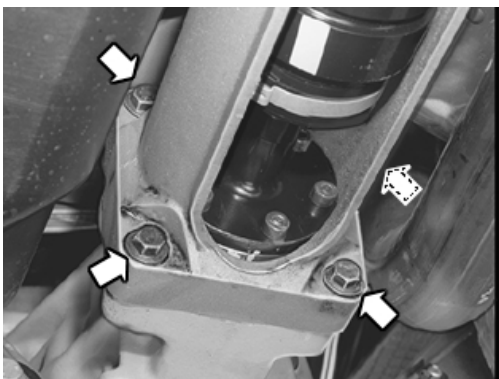
Check the marking for the pinion nut against the pinion.

If necessary, increase the torque to a **maximum of 200 Nm** so that the marking on the pinion nut is turned 5-10° past the marking on the pinion.

Note! Do not exceed a tightening torque of 200 Nm. The forces on the pinion bearing may become too great, causing the bearing to seize.

Installing the viscous coupling housing and viscous coupling unit

Installation of the viscous coupling housing and viscous coupling unit and tightening the screws viscous coupling housing



Note! If the flange on the final drive has been removed, the measurement should be carried out according to and then continue as follows.

Check

- that the mating surfaces on the final drive housing and the flange and the mating surfaces for the viscous coupling housing and viscous coupling are absolutely clean.

Align

- the unit to the final drive.

Install

- the rear **upper** screws for the viscous coupling housing in the final drive.
- the rear **lower** screws for the viscous coupling housing in the final drive.
- Lightly tighten the four screws crosswise, then tighten to **50 Nm**.

Installing the front screw for the viscous coupling housing

Position

- 998 5972
a mobile jack, lightly under the viscous coupling housing

Install

- the front screw for the viscous coupling housing. Tighten to **80 Nm**.

Remove

- the mobile jack.

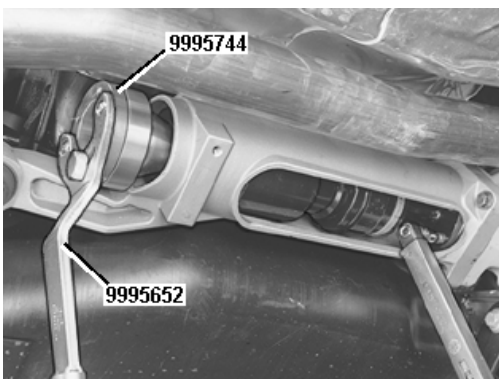
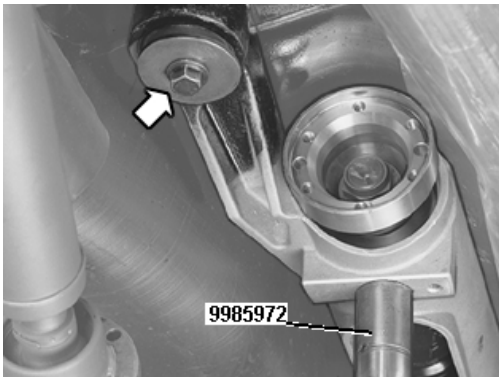
Installing the viscous coupling on final drive

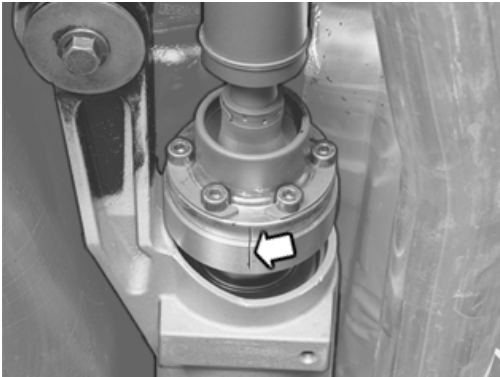
Align the viscous coupling

- Align the flange for the viscous coupling as marked earlier.
- Use new screws.
- Tighten crosswise in stages until the viscous coupling flange is in full contact. Then tighten crosswise to **25 Nm**. Then tighten the first screw once more.

Use counterhold 999 5652 including adapter ring 999 5744 .

Note! When a new viscous coupling has been installed, measure in order according to the following 3 sections:



1: 2: 3:.**Installing the propeller shaft on the viscous coupling**

Install

- the propeller shaft on the flange.

Note! Install the propeller shaft according to the earlier marking with the central joint in front of the center bearing. Check that viscous coupling and propeller shaft flange mating surfaces are clean.

Propeller shaft location

Position the propeller shaft so that center joint is in **front** of the center bearing. There is a risk that the propeller shaft can incorrectly be turned 180° because the difference between the lengths of the front and rear sections is only **13 mm**. The front section propeller shaft has a label with "Front side" applied during manufacture. The label may have become illegible or fallen off.

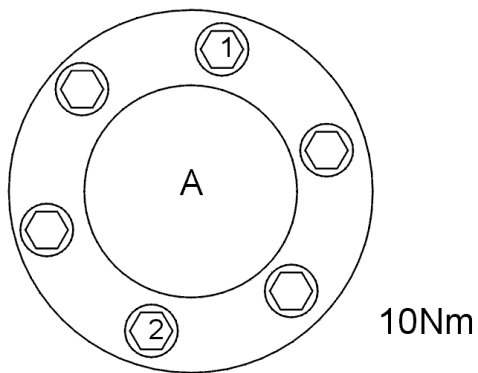
Installing the center bearing member and the center bearing bracket

Install:

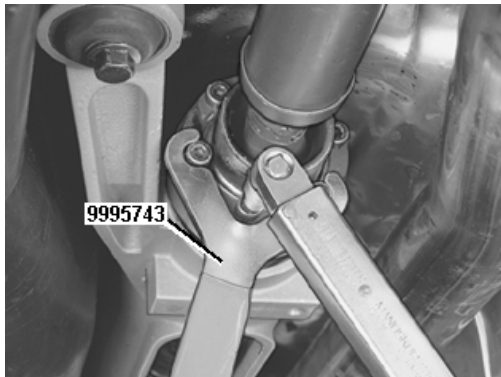
- the center bearing member in the bodywork. Press to the left and tighten to **25 Nm**.
- the center bearing bracket to the member. Tighten to **25 Nm**.

Tightening torques for the screws in the propeller shaft joint

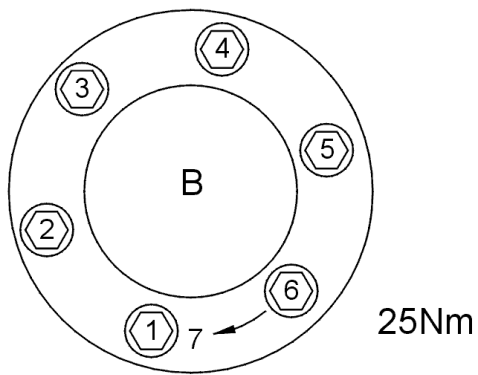
- Remove the steel wire from one screw at a time. Screw in the screw.
- Tighten screws (1) and (2) in numerical order to **10 Nm** as



illustrated (A).



Tighten screws (1) to (6) inclusive in numerical order to **25 Nm** as illustrated (B) and tighten the last screw (1) again. Use counterhold 999 5743 .



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