

Torsen differential, disassembling and assembling

Special tools and equipment

- ◆ VW401 and VW402 thrust plate

- ◆ VW407 punch

- ◆ VW412 punch

- ◆ VW416B tube

- ◆ VW421 tube

- ◆ VW439 guide pin

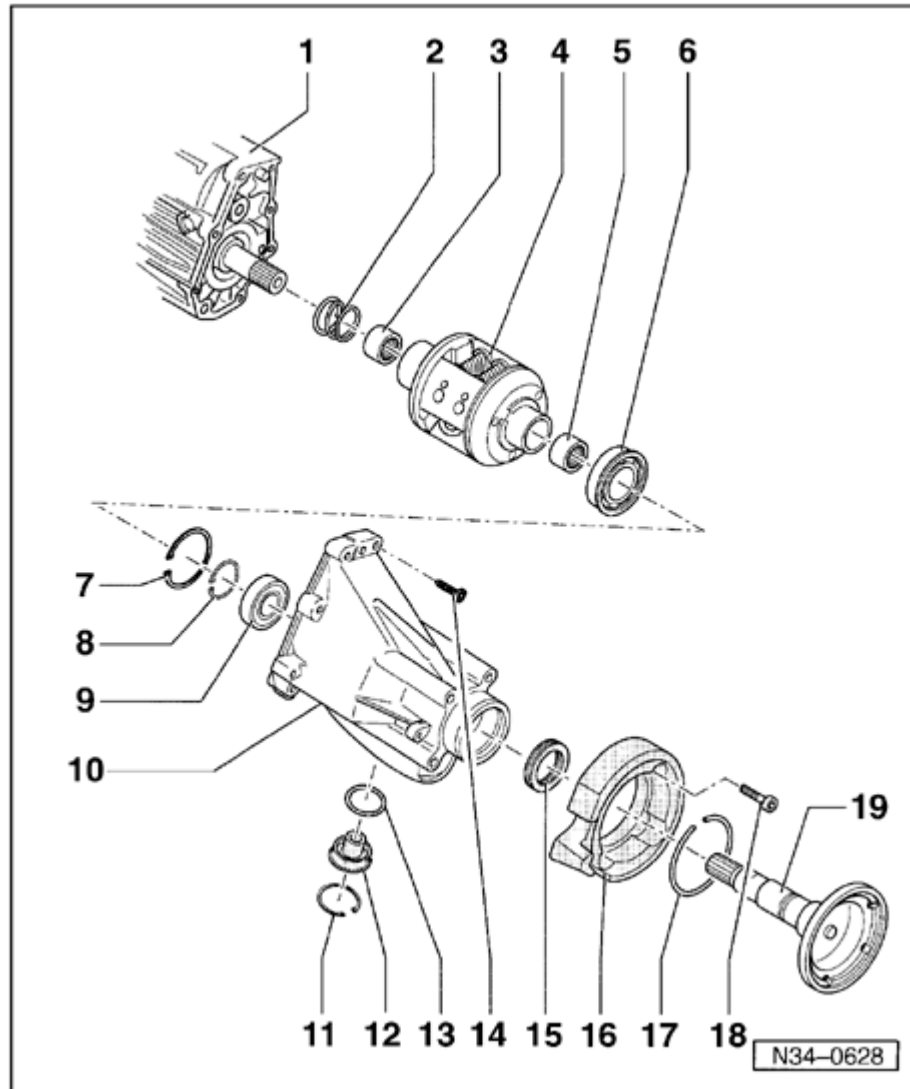
- ◆ VW519 sleeve

- ◆ VW681 extractor lever

- ◆ VW771/15 threaded piece from VW771 slide
hammer-complete set

- ◆ 40-21 sleeve

- ◆ 2040 press tube
- ◆ 3002 pressure piece
- ◆ Kukko 17/2 separating tool
- ◆ Kukko 21/4 extractor

**1 - Transmission housing****2 - Spring****3 - Front needle bearing**

- ◆ Pulling out ⇒ [Fig. 8](#)
- ◆ Installation position ⇒ [Fig. 9](#)
- ◆ Pressing in ⇒ [Fig. 11](#)

4 - Torsen differential

- ◆ Do not disassemble
- ◆ Press out after removing flange shaft ⇒ [Fig. 3](#)
- ◆ Replace if damaged
- ◆ Pressing in ⇒ [Fig. 12](#)

5 - Rear needle bearing

- ◆ Pulling out ⇒ [Fig. 8](#)
- ◆ Installation position ⇒ [Fig. 10](#)
- ◆ Pressing in ⇒ [Fig. 11](#)

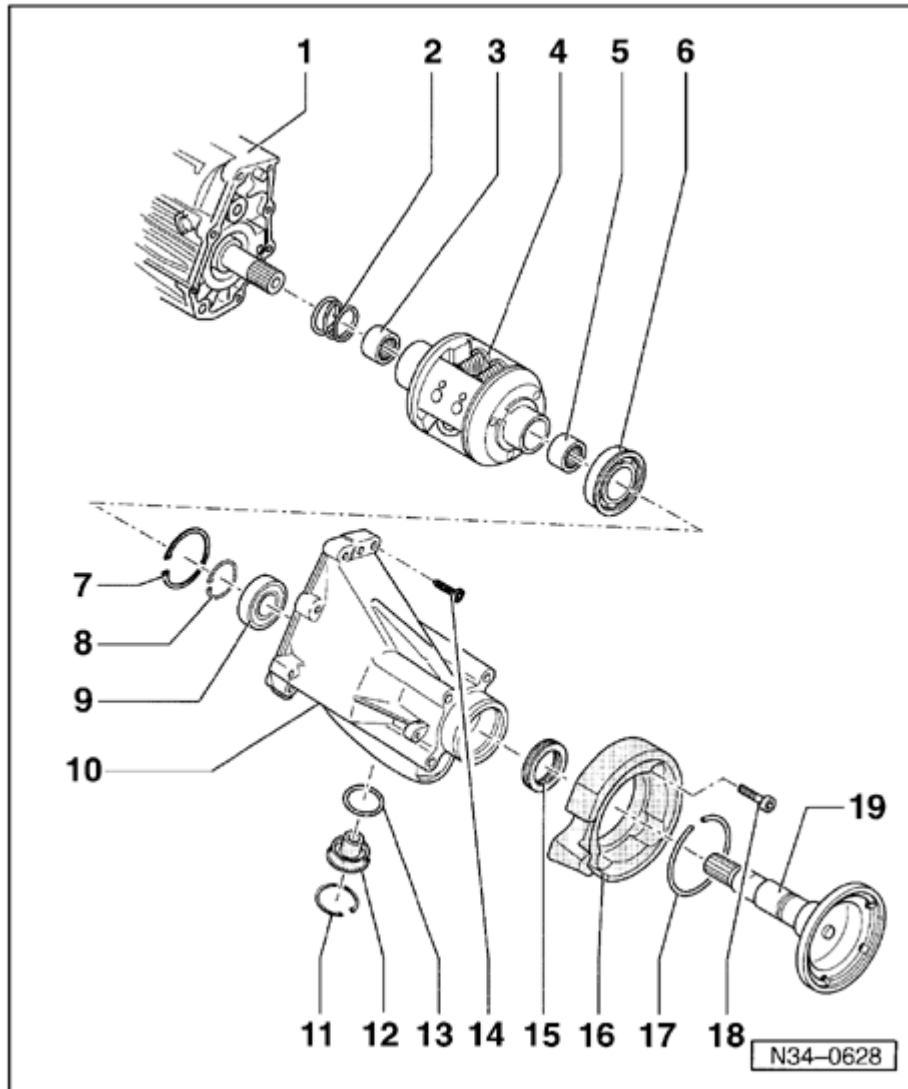
6 - Ball bearing

- ◆ For Torsen differential
- ◆ Pressing off ⇒ [Fig. 4](#)
- ◆ Pressing on ⇒ [Fig. 5](#)

7 - Circlip

8 - Circlip

- ◆ Remove and install together with flange shaft ⇒ [Fig. 2](#)

**9 - Ball bearing**

- ◆ For flange shaft
- ◆ Pressing out ⇒ [Fig. 6](#)
- ◆ Pressing in ⇒ [Fig. 7](#)

10 - Torsen differential cover**11 - Circlip****12 - Plug**

- ◆ Removing ⇒ [Fig. 1](#)

13 - O-ring

- ◆ Always replace
- ◆ Lubricate before installing

14 - Torx® bolt

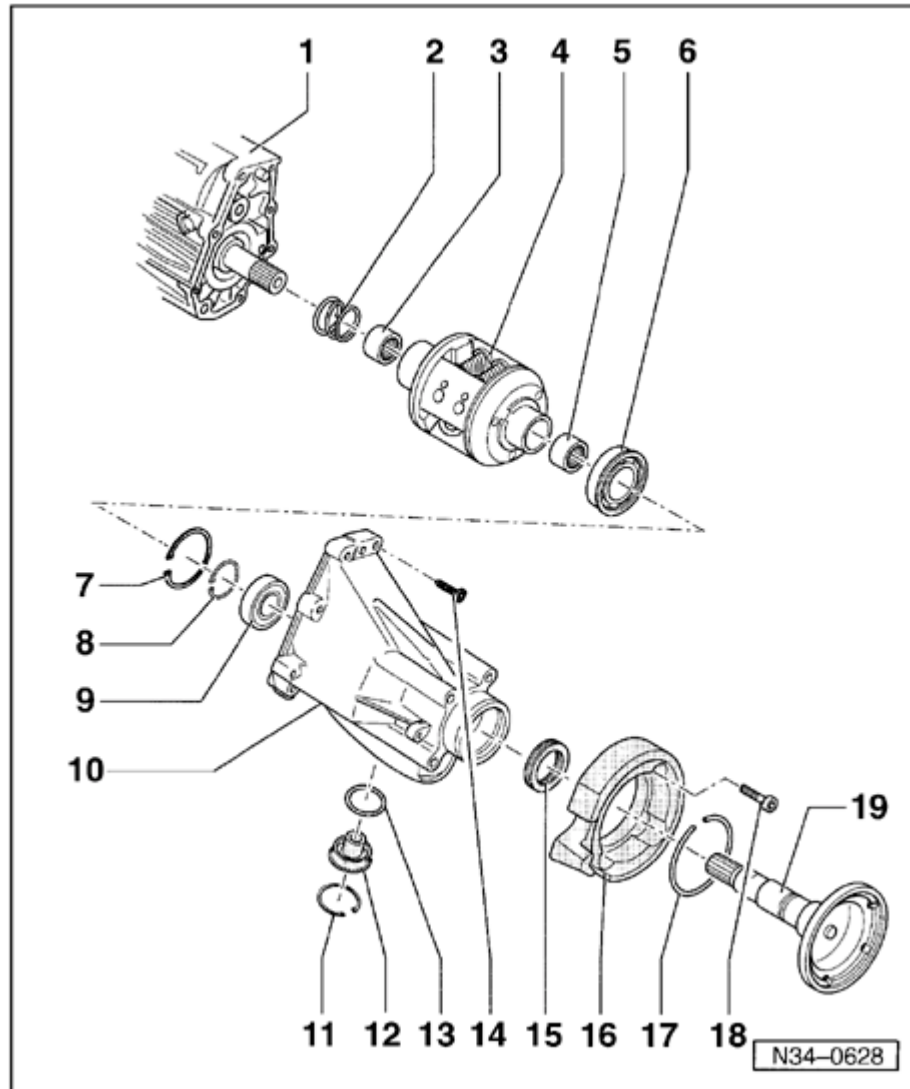
- ◆ 22 Nm (16 ft lb)

15 - Seal

- ◆ Pull out using VW681 extractor lever
- ◆ Driving in ⇒ [Fig. 13](#)

16 - Vibration dampener**17 - Circlip**

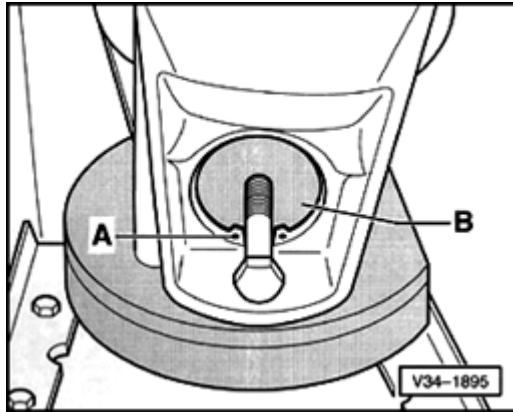
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**18 - Torx® bolt**

- ◆ Always replace
- ◆ 35 Nm (26 ft lb)
- ◆ Self-locking

19 - Flange shaft

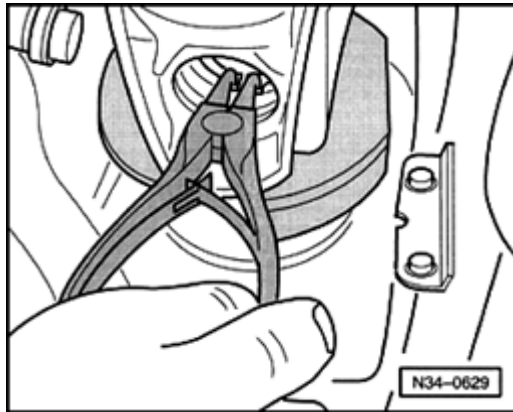
- ◆ Removing and installing ⇒ [Fig. 2](#)



A

Fig. 1 Removing plug

- Remove circlip -A-.
- Screw M8 bolt into thread of plug -B-.
- Remove plug -B- using bolt.

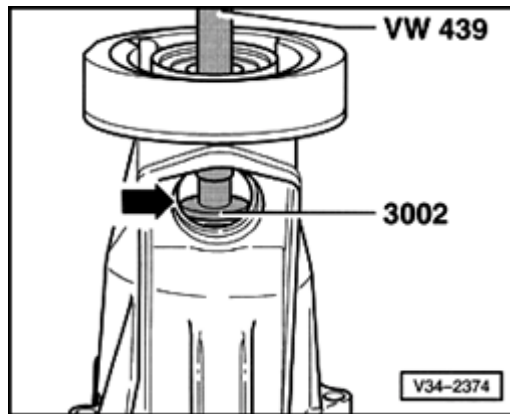


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Fig. 2 Removing and installing flange shaft

- Spread circlip and pull out flange shaft.
- When installing flange shaft, circlip must be installed at same time.
The circlip must be fully seated in the base of the groove.

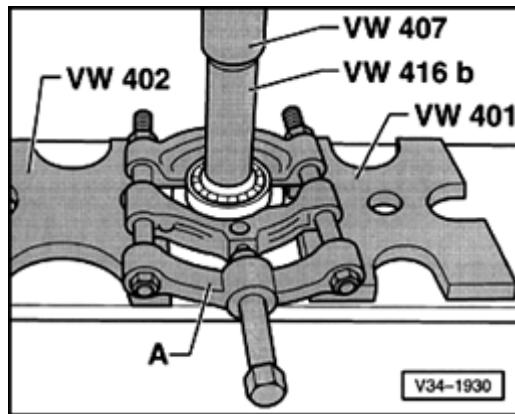
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Fig. 3 Removing Torsen differential

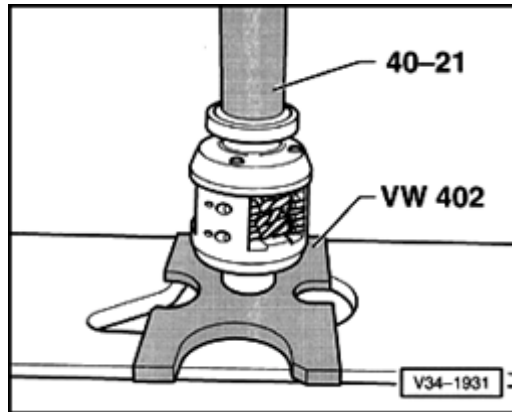
- Position 3002 thrust piece directly on Torsen differential through opening (arrow).



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Fig. 4 Pressing off ball bearing from Torsen differential

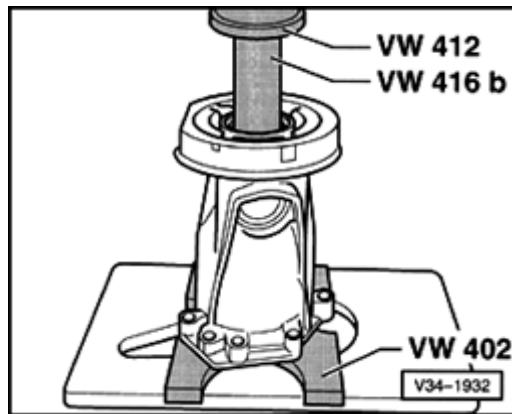
- A - Separating tool 22-115 mm, e.g. Kukko 17/2



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Fig. 5 Pressing ball bearing onto Torsen differential

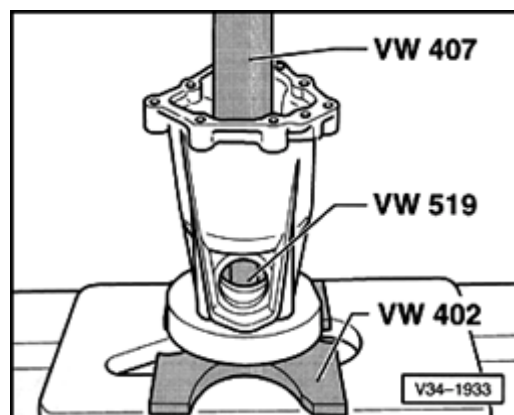
- Press ball bearing on until stop is reached.



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Fig. 6 Pressing out ball bearing for flange shaft

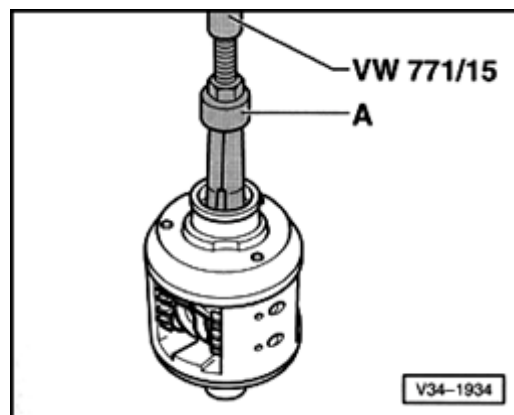
- Remove circlip before pressing out bearing.



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Fig. 7 Pressing in ball bearing for flange shaft

- Install circlip after pressing in ball bearing.

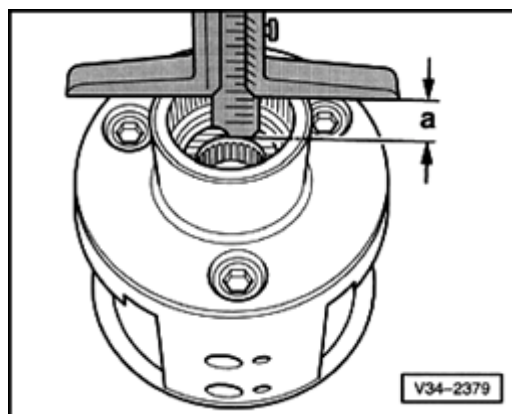


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Fig. 8 Pulling out needle bearing

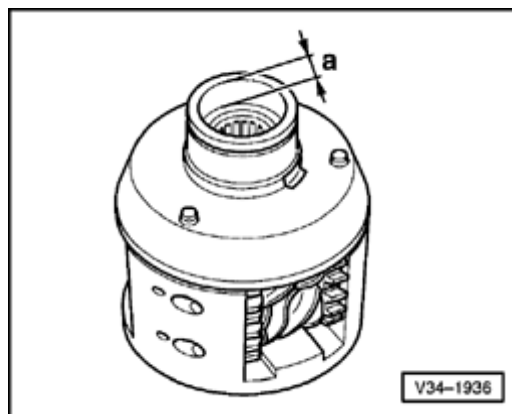
A - Extractor 22-28 mm, e.g. Kukko 21/4

Both needle bearings in the Torsen differential are removed using the same puller.



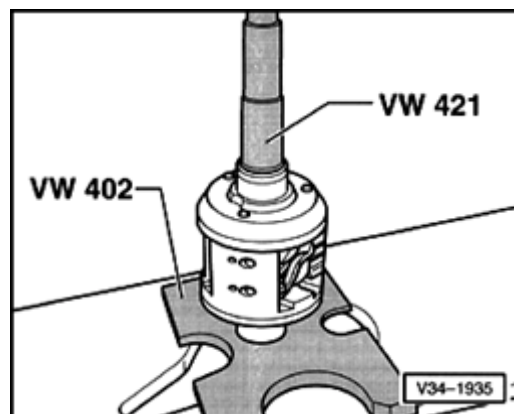
A **Fig. 9** Installation position of front needle bearing

Dimension -a-: 32.5 mm (1.279 in.)



A **Fig. 10** Installation position of rear needle bearing

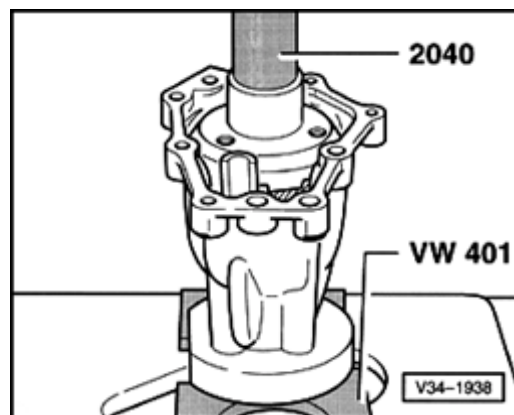
Dimension -a-: 14 mm (0.551 in.)



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Fig. 11 Pressing in needle bearing

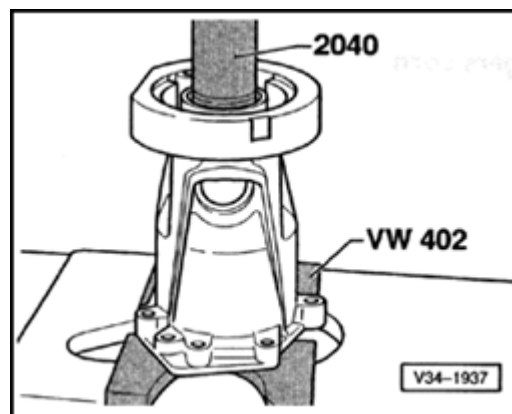
Both needle bearings in the Torsen differential are pressed in using the same special tool.



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Fig. 12 Pressing in Torsen differential

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A

Fig. 13 Driving in seal

- Lubricate sealing lip and dust lip with gear oil.
- Lightly oil outer circumference of seal.

Installation position: 2 mm (0.078 in.) below surface of cover