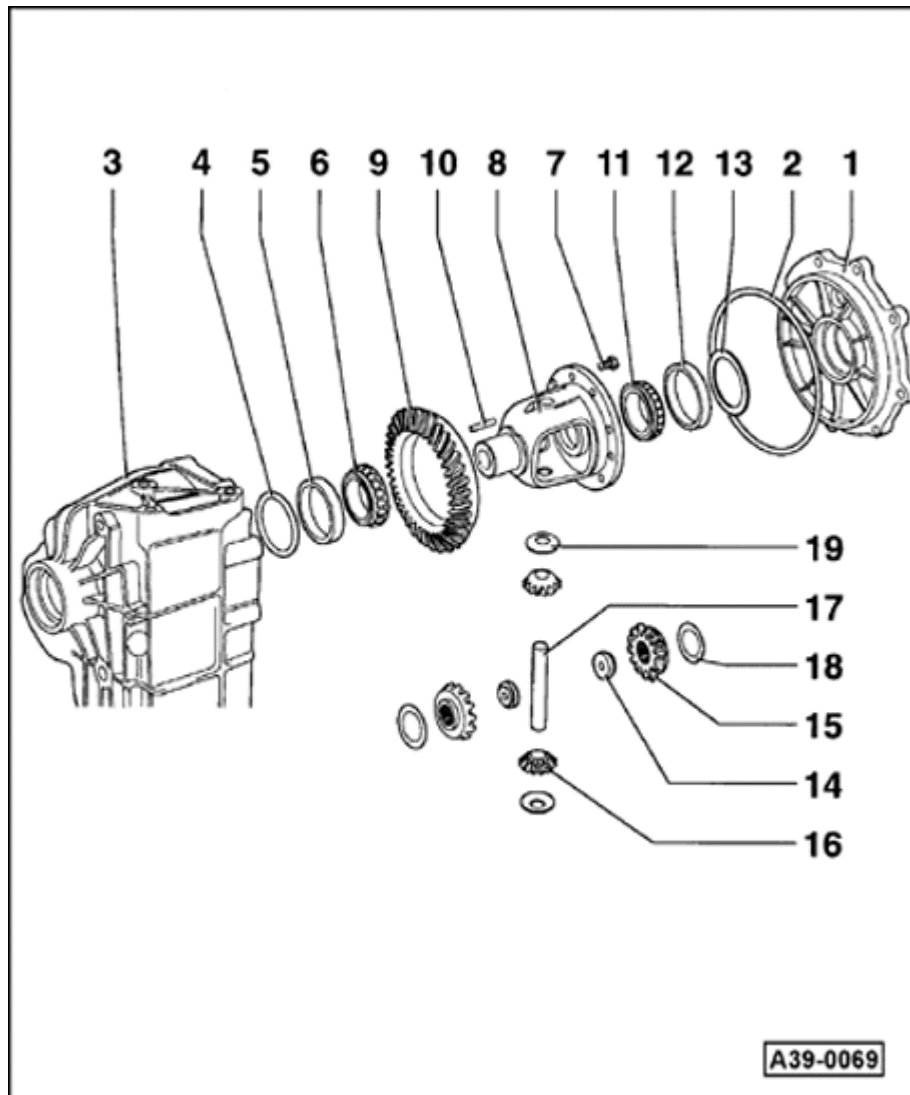


Differential, disassembling and assembling

Special tools and equipment

- ◆ VW295 needle bearing drift
- ◆ VW401 thrust plate
- ◆ VW402 thrust plate
- ◆ VW407 punch
- ◆ VW408A punch
- ◆ VW412 thrust disc
- ◆ VW442 thrust pad
- ◆ 40-21 sleeve
- ◆ 40-105 thrust piece
- ◆ 2050 thrust plate

- ◆ 3138 drift
- ◆ VAG1582 tapered roller bearing puller with VAG1582/6 attachment
- ◆ Kukko 44/2 two arm puller

**Notes:**

- ◆ Observe general repair instructions ⇒ [Page 00-14](#).
- ◆ Replace both tapered roller bearings together. If possible use same manufacturer.
- ◆ Adjustments are required when replacing components marked with 1) ⇒ List of adjustments, ⇒ [Page 39-149](#).

1 - Cover for final drive1)**2 - O-ring**

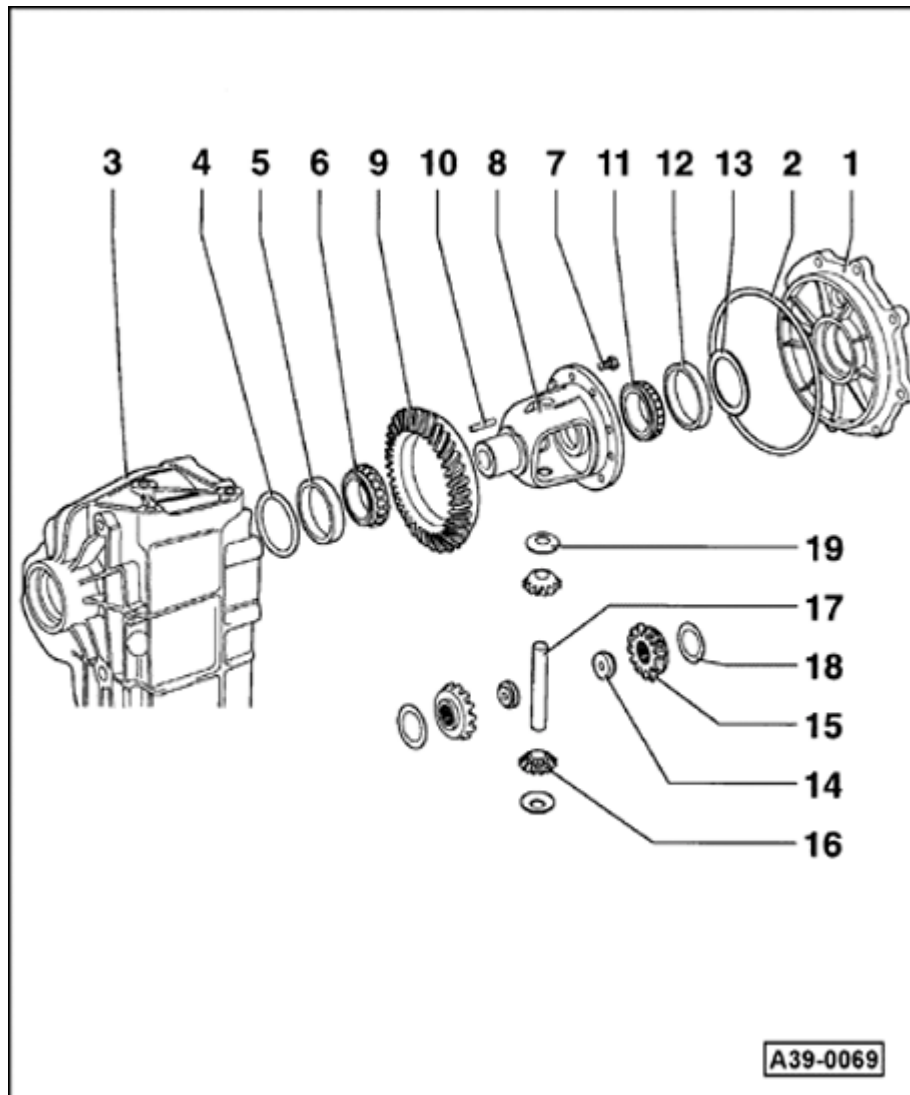
- ◆ Always replace
- ◆ Lubricate with oil before installing

3 - Final drive housing1)**4 - Shim S2**

- ◆ Note thickness
- ◆ List of adjustments ⇒ [Page 39-149](#)

5 - Small tapered roller bearing outer race1)

- ◆ Removing ⇒ [Fig. 1](#)
- ◆ Pressing in ⇒ [Fig. 2](#)



6 - Small tapered roller bearing inner race1)

- ◆ Removing ⇒ [Fig. 3](#)
- ◆ Installing ⇒ [Fig. 4](#)

7 - Bolt

- ◆ Always replace
- ◆ Lightly tighten bolts, then tighten diagonally to correct torque
- ◆ 60 Nm (44 ft lb) + 1/8 turn (45°)
- ◆ Allocation ⇒ parts catalog

8 - Differential housing1)

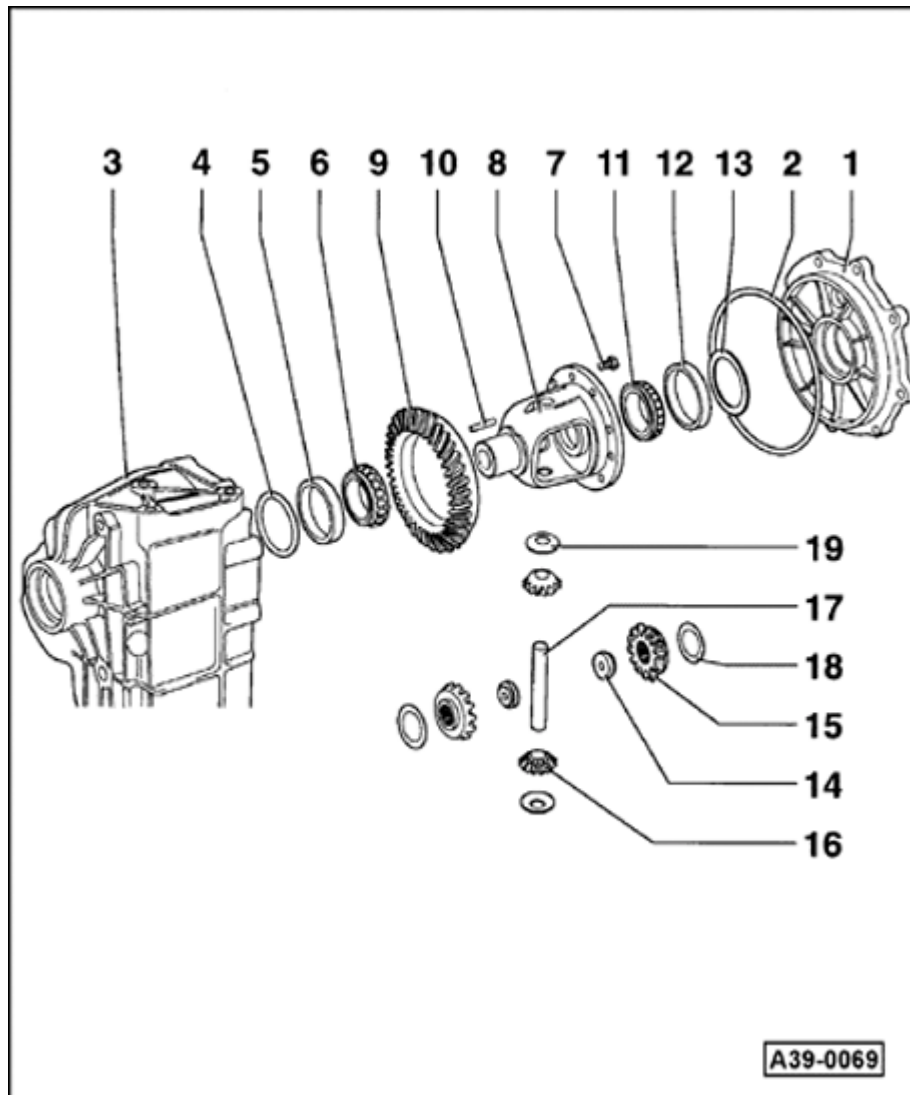
9 - Ring gear1)

- ◆ Matched with pinion shaft (in ring gear and pinion set)
- ◆ Select correct version according to code letters ⇒ parts catalog
- ◆ Remove differential housing using mandrel ⇒ [Fig. 9](#)
- ◆ Installing on differential housing ⇒ [Fig. 10](#)

10 - Roll pin

- ◆ For securing differential bevel gear shaft for differential bevel gears
- ◆ Drive in flush

39-124

**11 - Large tapered roller bearing inner race1)**

- ◆ Removing ⇒ [Fig. 5](#)
- ◆ Installing ⇒ [Fig. 6](#)

12 - Large tapered roller bearing outer race1)

- ◆ Removing ⇒ [Fig. 7](#)
- ◆ Installing ⇒ [Fig. 8](#)

13 - Shim S1

- ◆ Note thickness
- ◆ List of adjustments ⇒ [Page 39-149](#)

14 - Threaded piece**15 - Differential bevel gears, large**

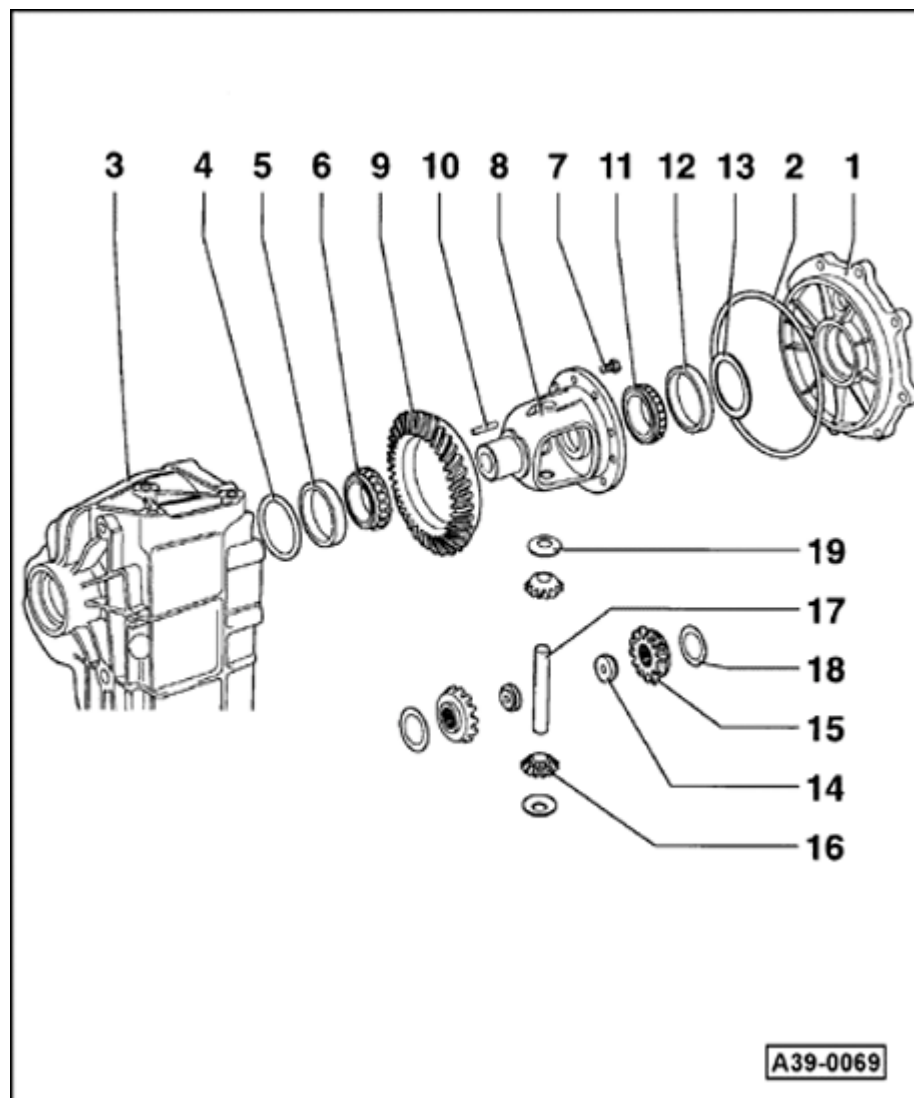
- ◆ Installing ⇒ [Fig. 11](#)
- ◆ Adjusting ⇒ [Fig. 12](#)

16 - Differential bevel gears, small

- ◆ Installing ⇒ [Fig. 11](#)

17 - Differential bevel gear shaft

- ◆ Drive out using drift
- ◆ Carefully drive in, so that thrust washer is not damaged
- ◆ Secure with roll pin (item -10-)

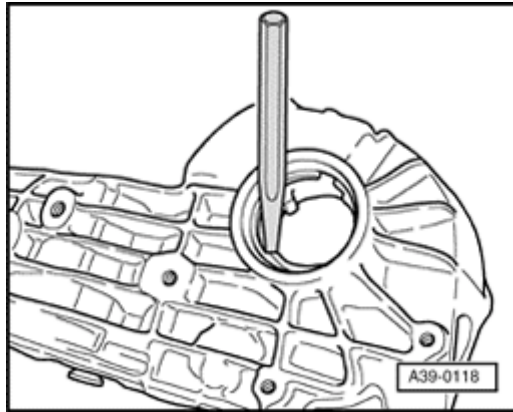


18 - Shim

- ◆ Re-determining thickness ⇒ [Fig. 12](#)

19 - Thrust washer

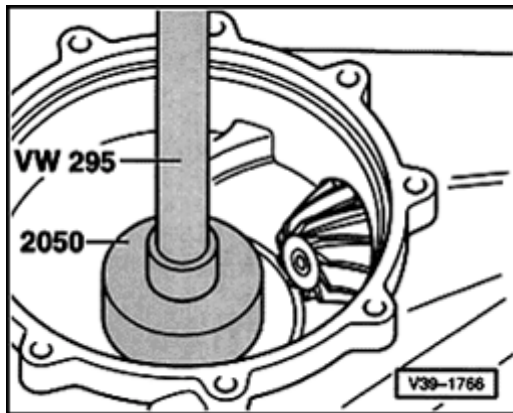
- ◆ Check for cracks



A

Fig. 1 Removing small tapered roller bearing outer race from final drive housing

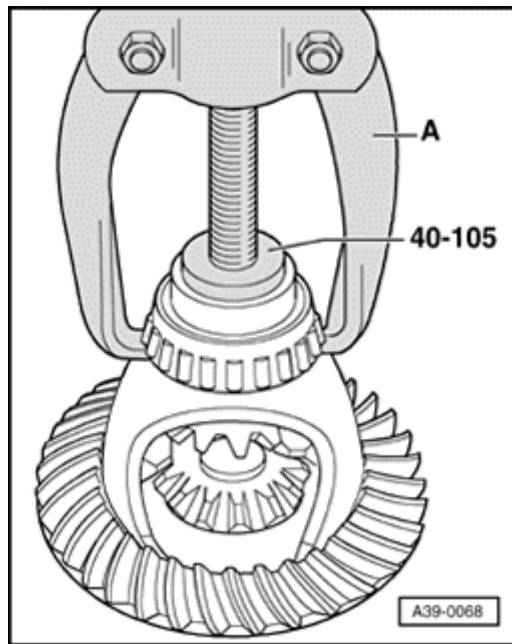
- After removing, check shims for damage.



A

Fig. 2 Pressing small tapered roller bearing outer race into rear final drive housing (drive in to stop)

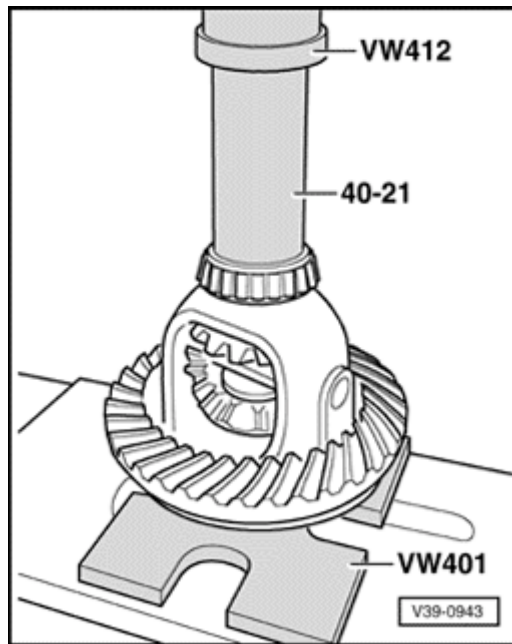
- Using VW295 needle bearing drift, lightly tap outer race into place.
- Drive in until stop is reached as shown in illustration.



A

Fig. 3 Removing small tapered roller bearing inner race

A - Two arm puller, e.g. Kukko 44/2



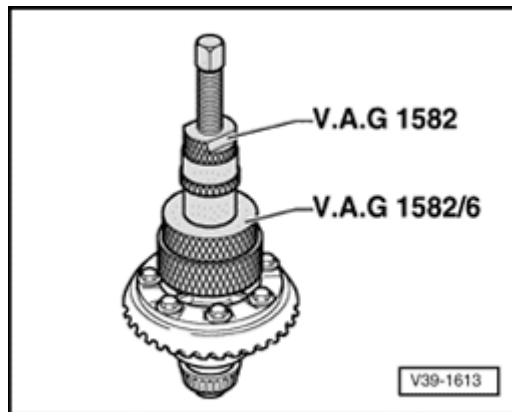
A

Fig. 4 Installing small tapered roller bearing inner race

WARNING!

Wear protective gloves.

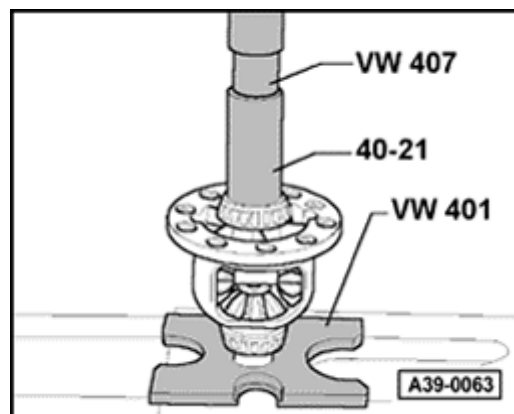
- Heat bearing to approx. 100 ° C (212 ° F), install and press down.



A

Fig. 5 Removing large tapered roller bearing inner race

- Before installing extractor, position 40-105 thrust piece on differential housing.

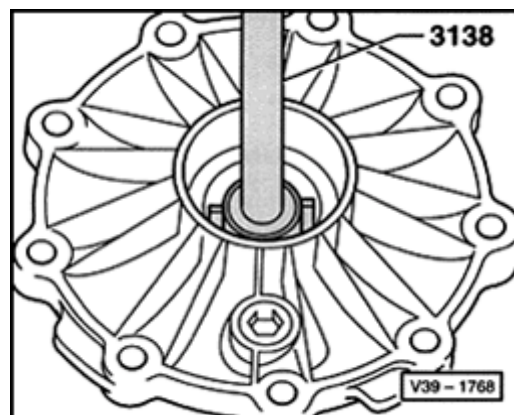


A Fig. 6 Installing large tapered roller bearing inner race

WARNING!

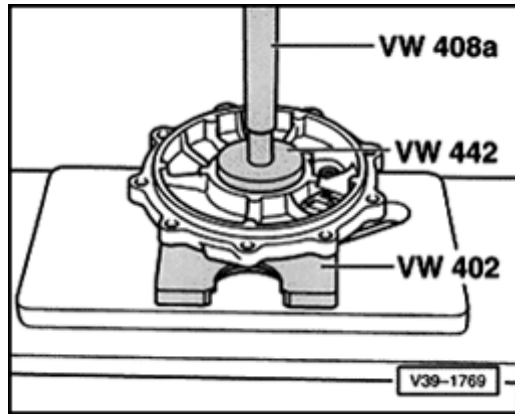
Wear protective gloves.

- Heat bearing to approx. 100 ° C (212 ° F), install and press down.

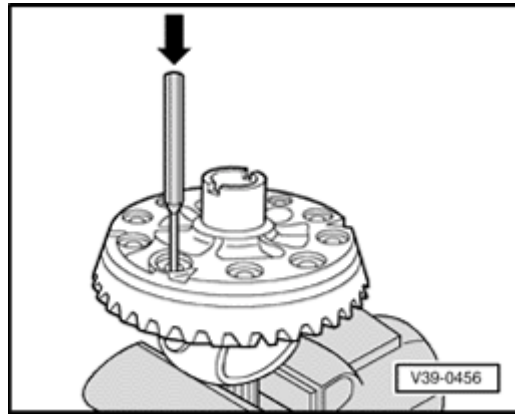


A Fig. 7 Removing large tapered roller bearing outer race from final drive cover

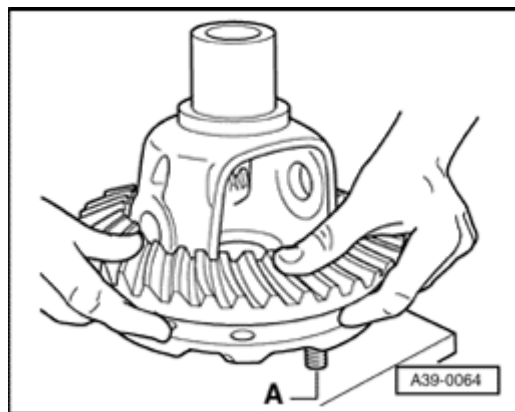
- After removing, check shims for damage.



A Fig. 8 Installing large tapered roller bearing outer race into final drive cover



A Fig. 9 Removing ring gear from differential housing



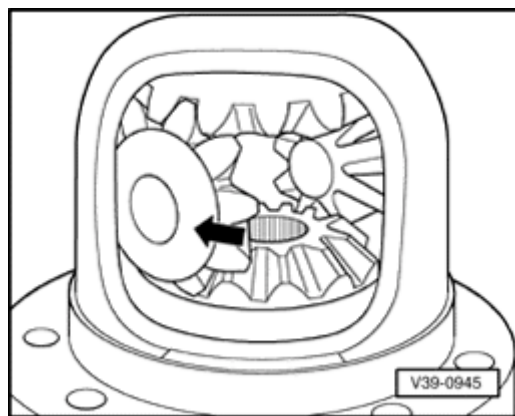
A **Fig. 10** Installing ring gear

- Use 2 centering pins -A- (locally available) as guides.

WARNING!

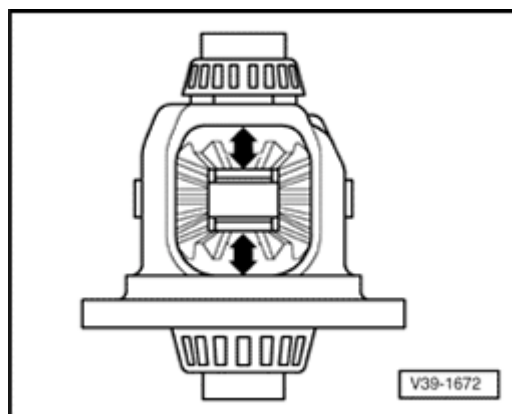
Wear protective gloves.

- Heat ring gear to approx. 100 ° C (212 ° F) and install.



A **Fig. 11** Installing differential bevel gears

- If large differential bevel gears have been replaced, measure and select new shims ⇒ [Fig. 12](#) .
- Insert large differential bevel gears with measured shims.
- Install small differential bevel gears (turned 180 °) from their final position, and rotate into place (arrow).
- Install and align thrust washers.
- Insert threaded pieces.
- Drive differential gear shaft for bevel gears in to stop and secure with roll pin.



A

Fig. 12 Adjusting differential bevel gears

- Insert large differential bevel gears with thinnest shims (0.5 mm).
- Insert small differential bevel gears (turned 180°) together with thrust washers.

Note:

From this point on, do not interchange differential bevel gears and their respective thrust washers.

- Drive in differential bevelgear shaft.
- Press small differential bevel gears outward.
- Press large differential bevel gears in direction indicated (arrows), and check play.
- Determine thickest shims for large differential bevel gears (on each side) which still just fits.
- Shims for both sides should be of equal thickness.
- Identify shims according to table. Part numbers ⇒ parts catalog

The following shims are available:

Shim thickness (mm)		
0.50	0.70	0.90
0.60	0.80	1.00

Note:

⚡ *The adjustment is also correct if no further play is perceptible, as long as the differential bevel gears can still be turned (arrow).*

