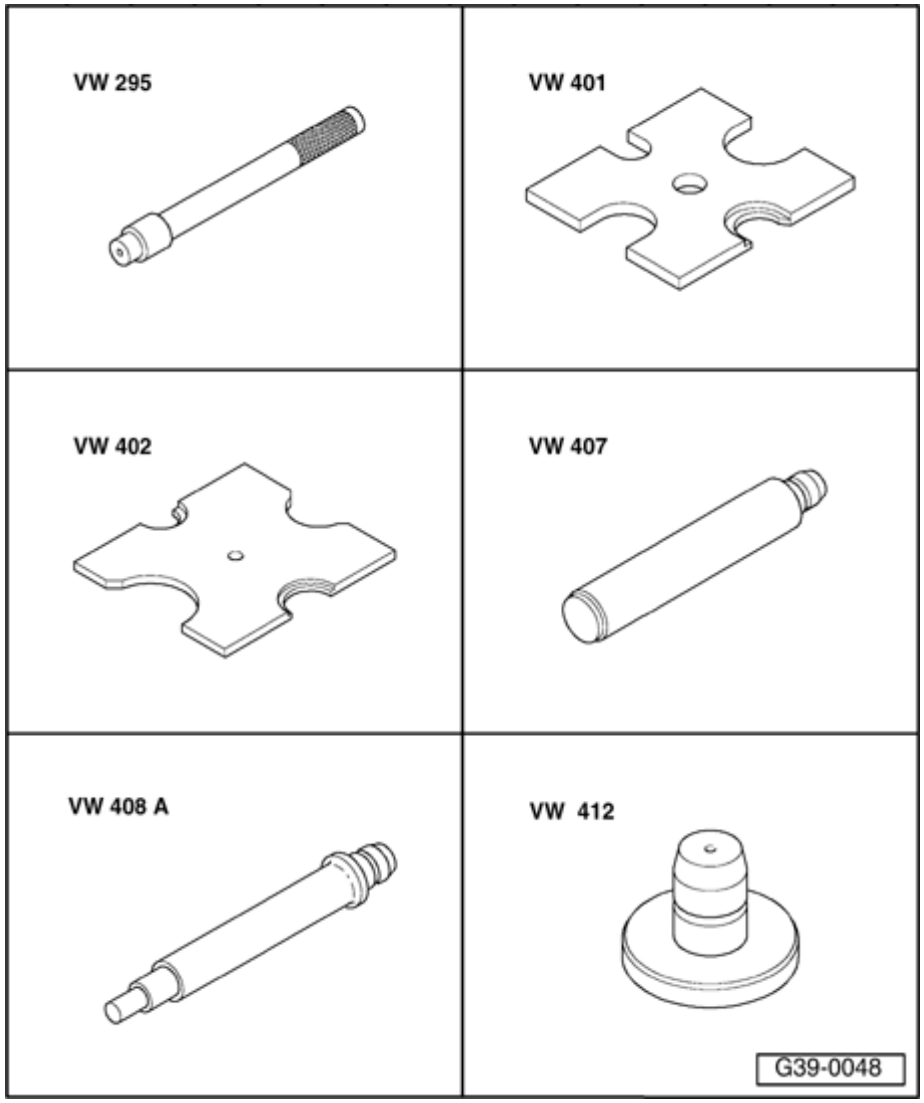
39-136

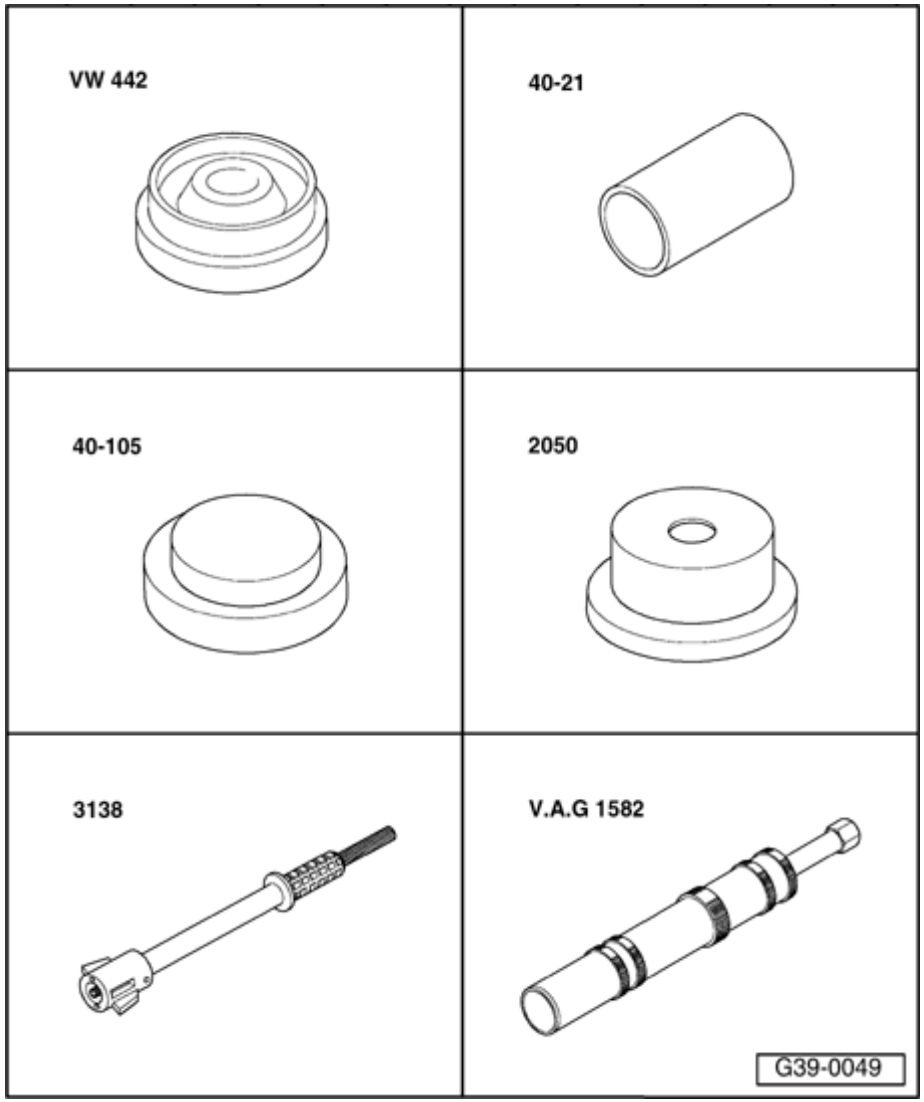


Differential, disassembling and assembling

Special tools and equipment

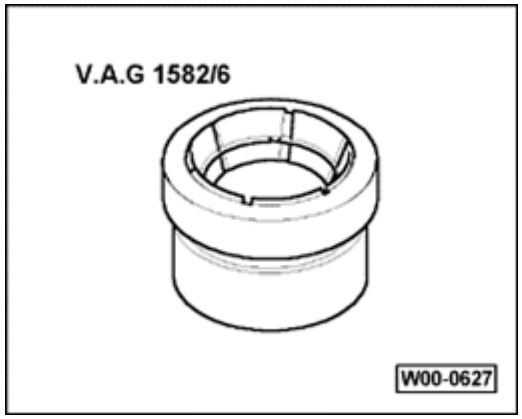
- VW295 needle bearing drift
- VW401 thrust plate
- VW402 thrust plate
- VW407 punch
- VW408A punch
- VW412 punch

39-137

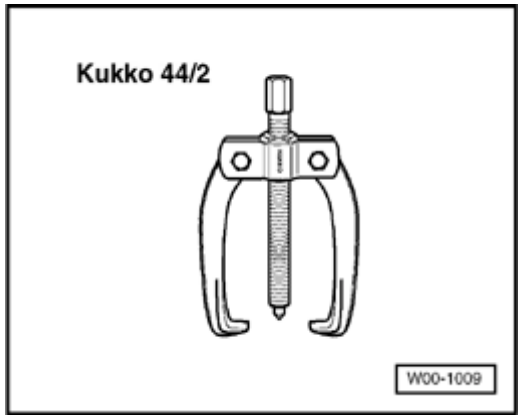


- VW442 thrust pad
- 40-21 sleeve
- 40-105 thrust pad
- 2050 thrust plate
- 3138 drift
- Tapered roller bearing puller VAG1582 taper roller bearing puller

39-138

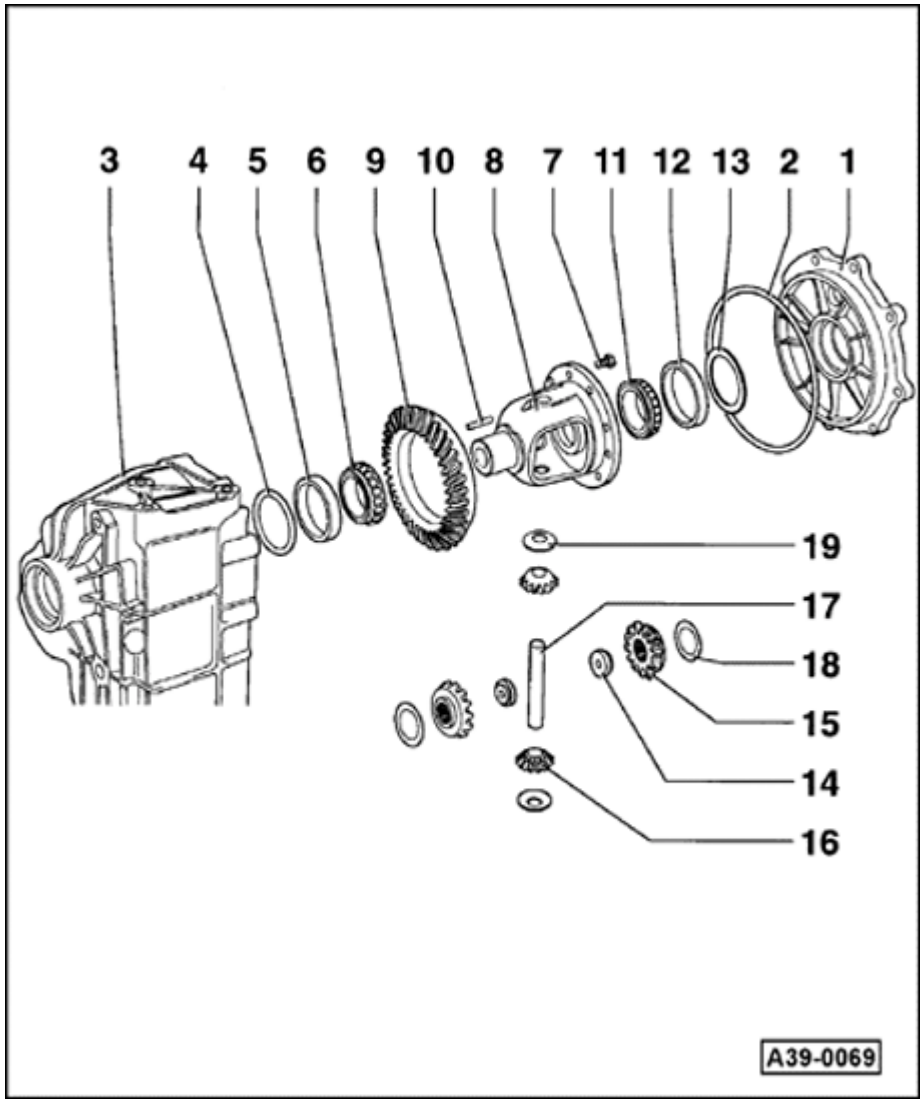


- VAG1582/6 attachment to VAG1582



- Kukko 44/2 two-arm puller

39-139



Notes:

- *General repair notes: ⇒ page 00-27 .*
- *Replace both tapered roller bearings together. If possible, use same manufacturer!*
- *Adjustments are required when replacing components marked with 1) ⇒ Adjustment overview ⇒ page 39-170 .*

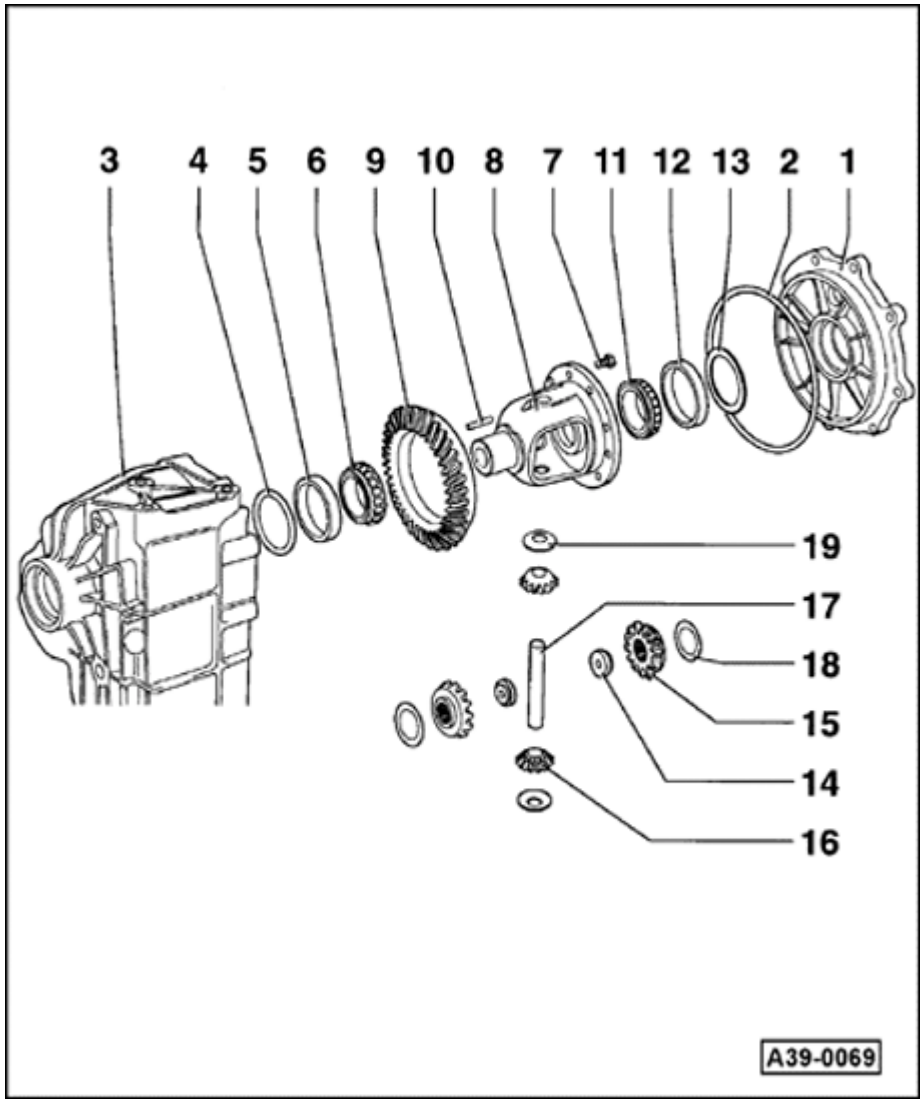
1 - Cover for final drive 1)

2 - O-ring

- Always replace
- Insert with oil

3 - Final drive housing 1)

39-140



4 - Shim "S2"

- Note thickness
- Adjustment overview ⇒ page 39-170

5 - Small tapered roller bearing outer race 1)

- Driving out ⇒ Fig. 1
- Pressing in ⇒ Fig. 2

6 - Small tapered roller bearing inner race 1)

- Pulling off ⇒ Fig. 3
- Pressing on ⇒ Fig. 4

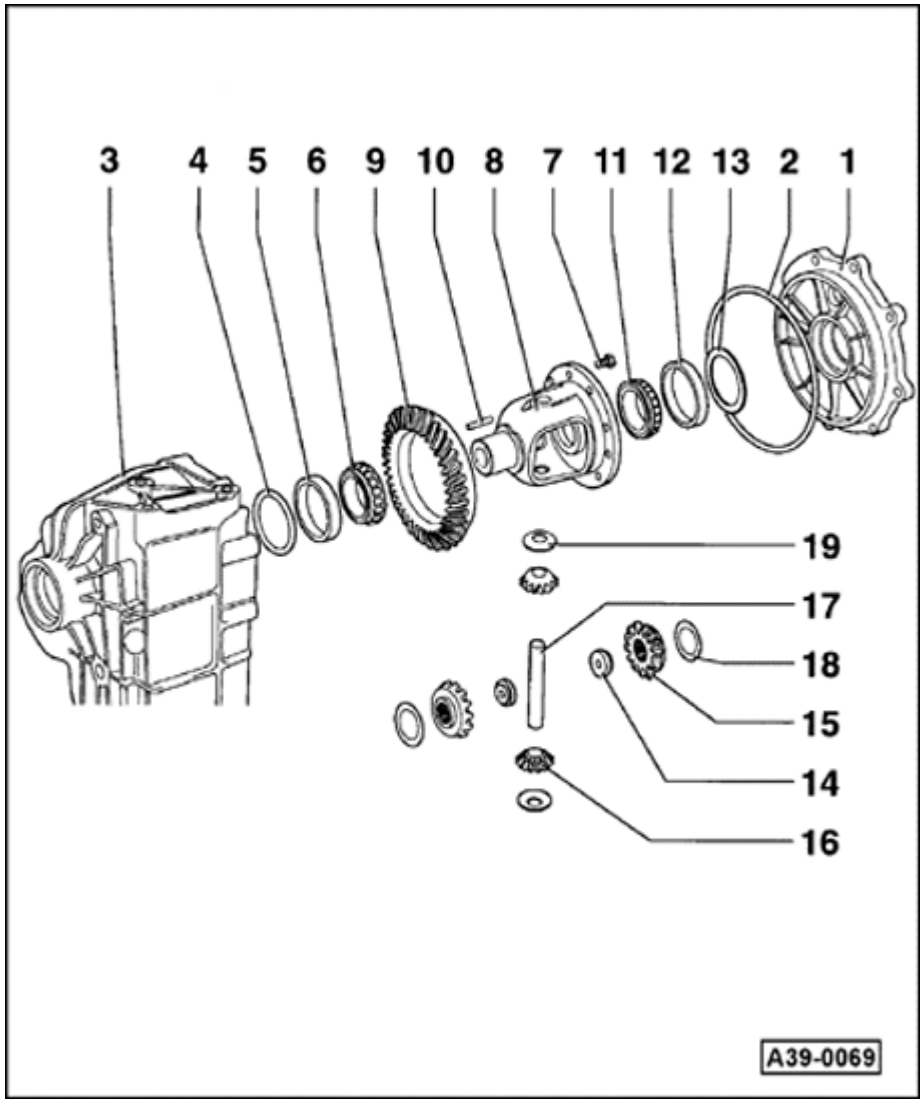
7 - Bolt - tighten to 60 Nm and then tighten an additional 45-5.

- Always replace
- Allocation

⇒ *Parts-catalog*

- Lightly tighten bolts then tighten diagonally to correct torque.

39-141



8 - Differential housing [1)]

9 - Ring gear [1)]

- Matched to drive pinion (gear set)
- Application according to transmission code letters

⇒ *Parts-catalog*

- Press off of housing using drift ⇒ Fig. 9
- Install on differential housing ⇒ Fig. 10

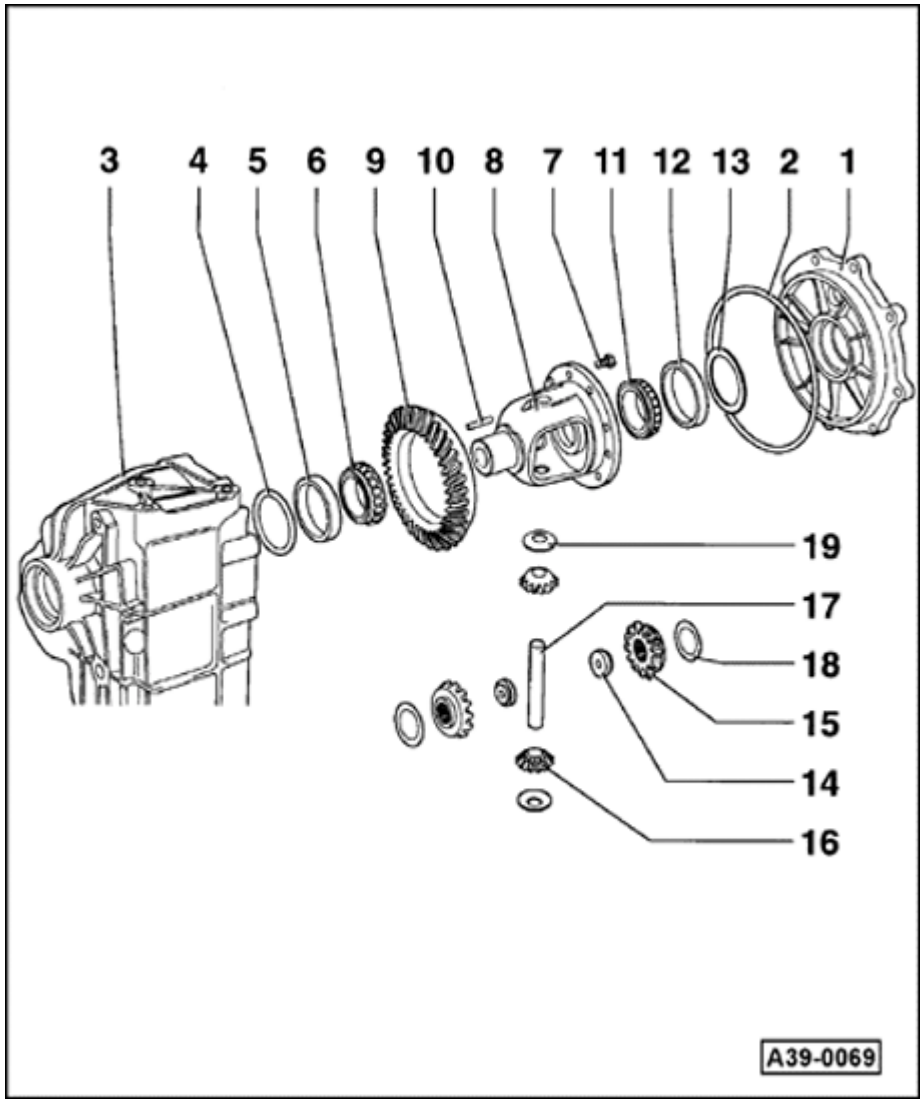
10 - roll pin

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

11 - Large tapered roller bearing inner race [1)]

- Pulling off ⇒ Fig. 5
- Pressing on ⇒ Fig. 6

39-142



12 - Large tapered roller bearing outer race [1)]

- Driving out ⇒ Fig. 7
- Pressing in ⇒ Fig. 8

13 - Adjustment shim "S1"

- Note thickness
- List of adjustments ⇒ page 39-170

14 - Threaded piece

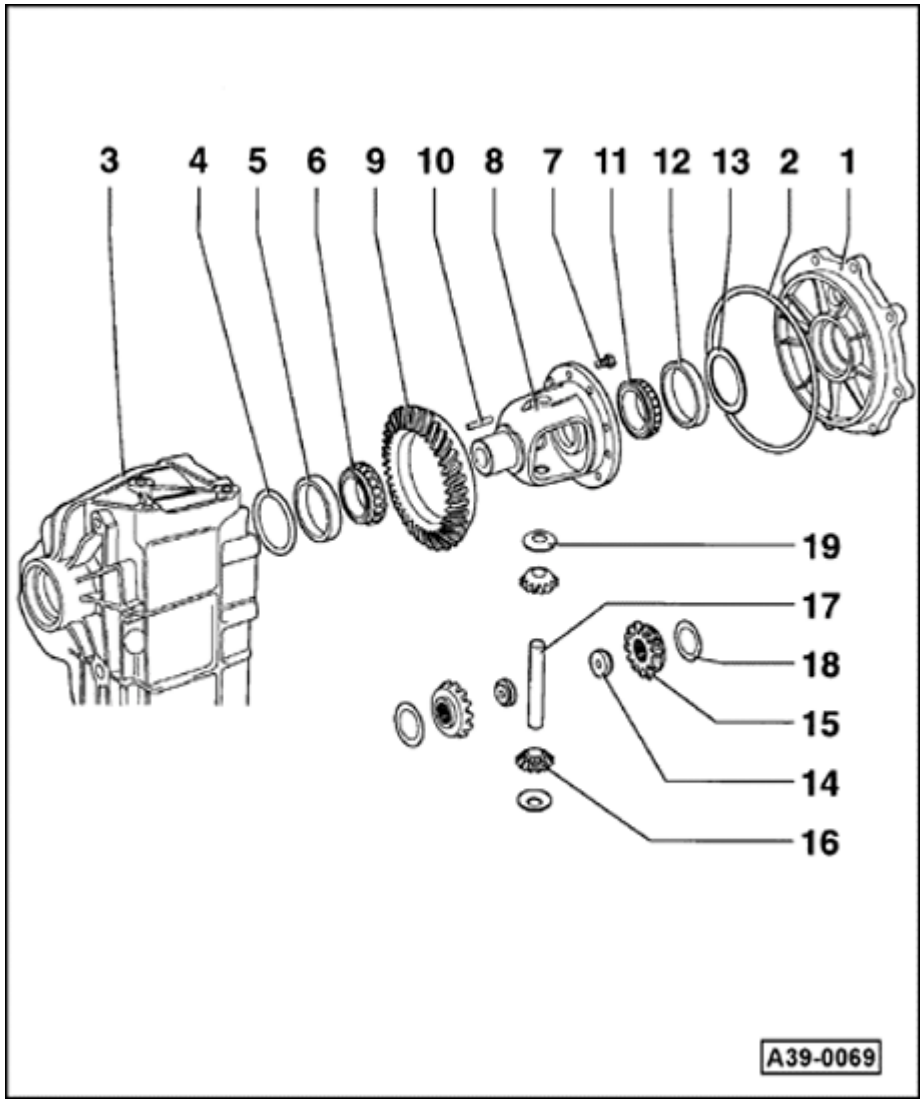
15 - Large differential bevel gear

- Installing ⇒ Fig. 11
- Adjusting ⇒ Fig. 12

16 - Small differential bevel gear

- Installing ⇒ Fig. 11

39-143



17 - Shaft for differential bevel gears

- Drive out using drift
- Drive in carefully so as not to damage thrust washers.
- Secure with locking pin -Item 10 -

18 - Adjustment shim

- Re-determine thickness ⇒ Fig. 12

19 - Thrust washer

- Check for cracks

39-144

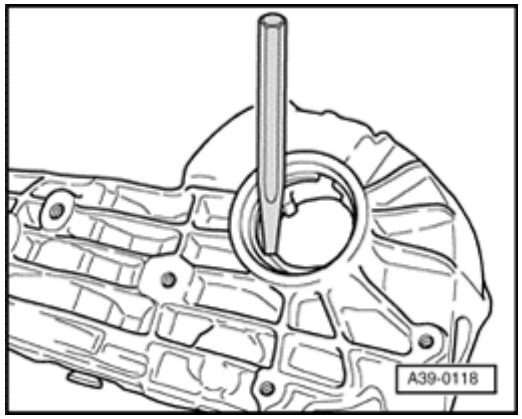


Fig. 1 Driving small tapered roller bearing outer race out of housing

- Check adjustment shims for damage after removing.

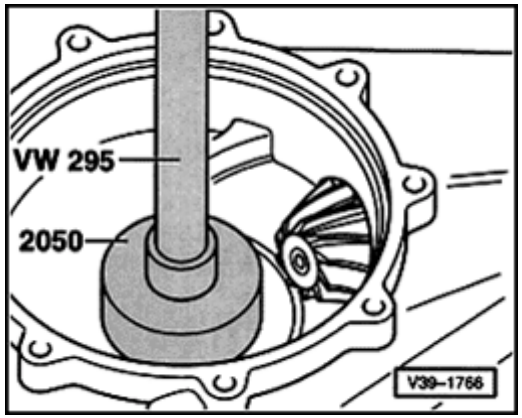


Fig. 2 Pressing tapered roller bearing outer race into housing

- Install outer race with VW295 needle bearing drift by tapping lightly using hammer.
- Then drive in to stop, as shown in illustration.

39-145

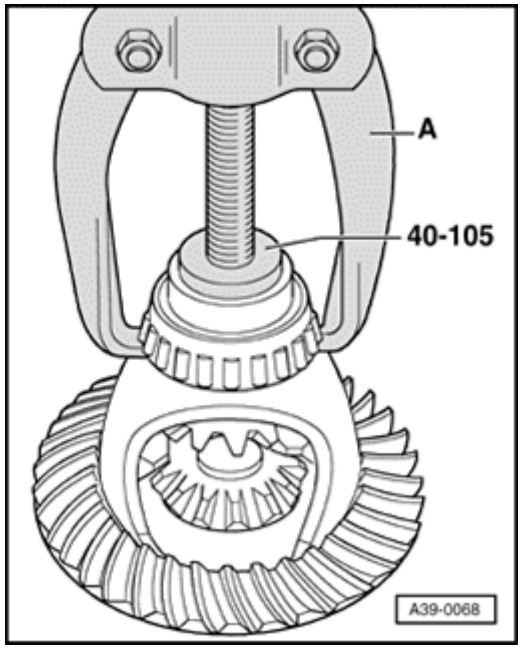


Fig. 3 Pulling off small tapered roller bearing inner race

A - Kukko 44/2 two-arm puller

39-146

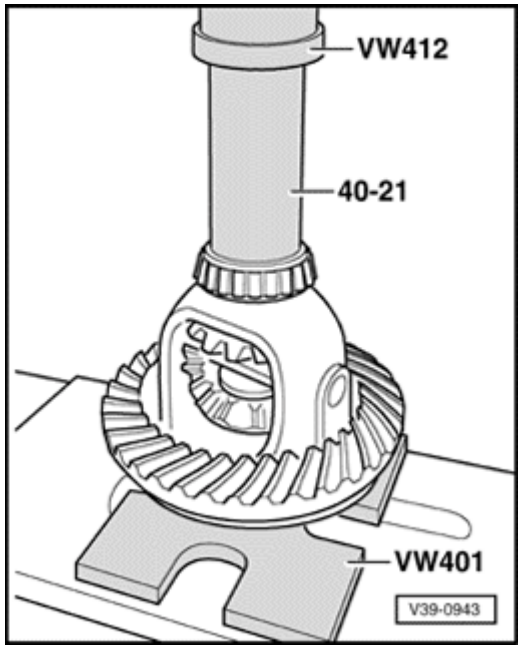


Fig. 4 Pressing on small tapered roller bearing inner race

WARNING!

Wear protective gloves!

- Heat inner race to approx. 100 °C ,position and press on.

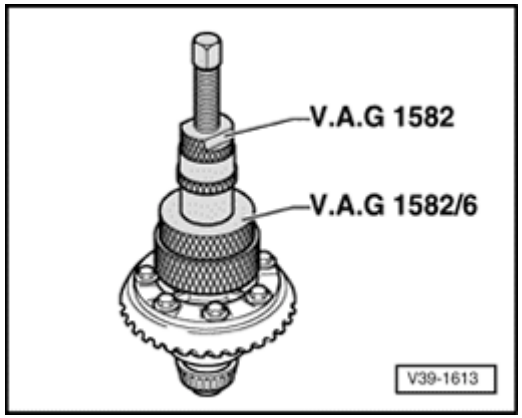


Fig. 5 Pulling off large tapered roller bearing inner race

- Before installing removal tool, set 40-105 thrust piece onto differential housing.

39-147

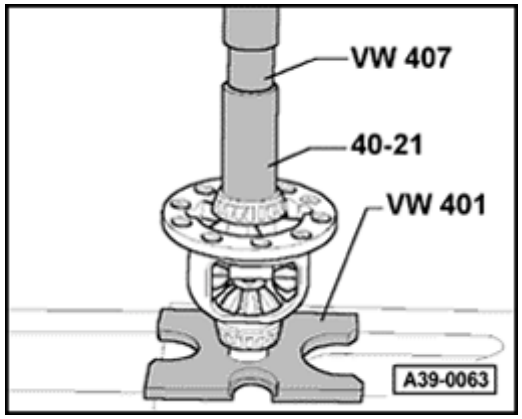


Fig. 6 Pressing on large tapered roller bearing inner race

WARNING!

Wear protective gloves!

- Heat inner race to approx. 100 °C ,position and press on.

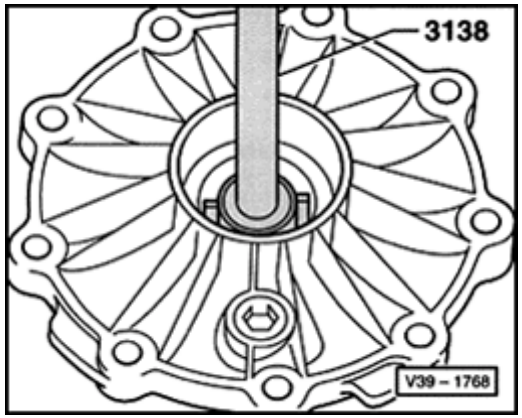


Fig. 7 Driving large tapered roller bearing outer race out of cover

- Check adjustment shims for damage after removing.

39-148

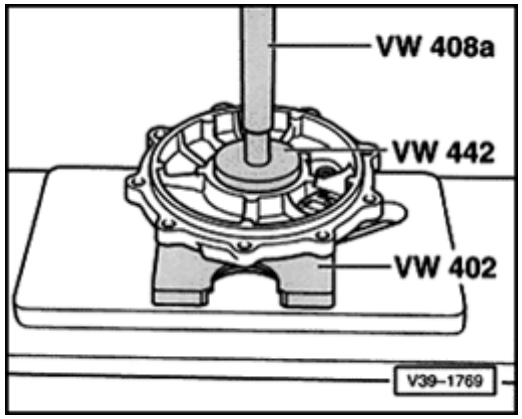


Fig. 8 Pressing large tapered roller bearing outer race into cover

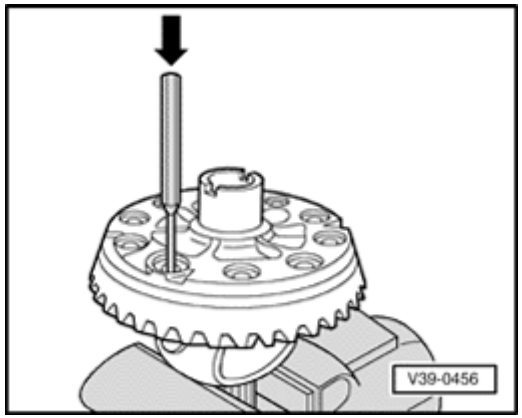


Fig. 9 Driving out ring gear from housing

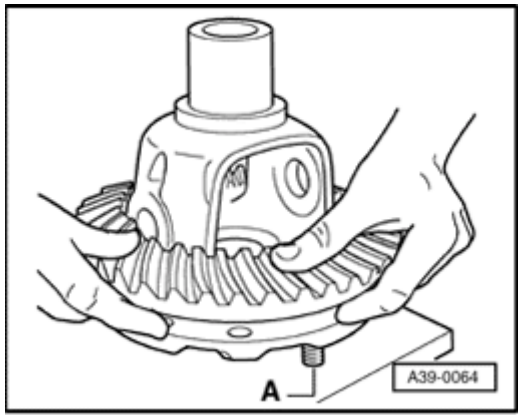


Fig. 10 Installing ring gear

WARNING!

Wear protective gloves!

- When installing ring gear, guide with centering pins -A- (self-made).
- Heat ring gear to approx. 100 ° C and position.

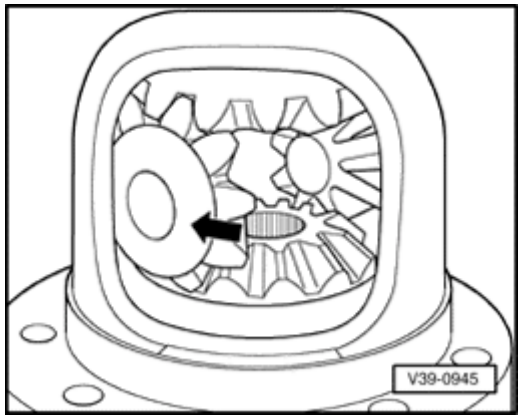


Fig. 11 Installing small differential bevel gears

- If the large differential bevel gears were replaced, adjustment shims must be re-determined ⇒ Fig. 12 .
- Insert large differential bevel gears with determined adjustment shims.
- Insert small differential bevel gears at 180 ° from their final position and rotate into place (arrow).
- Install thrust washers and locate.
- Install threaded pieces.
- Drive in differential bevel gear shaft to final position and secure.

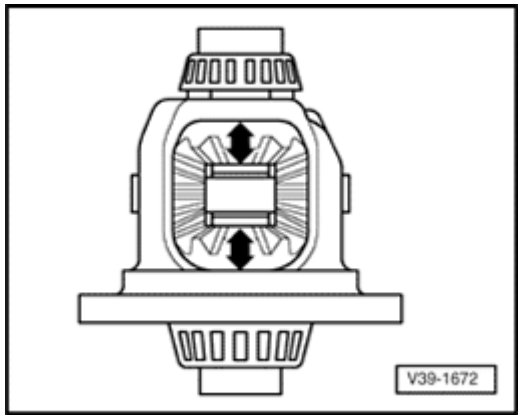


Fig. 12 Adjusting differential bevel gears

- Install large differential bevel gears with the thinnest shims (0.5 mm).
- Insert small differential bevel gears 180° from final position together with thrust washers.

Note:

Do not rearrange differential bevel gears and thrust washers again!

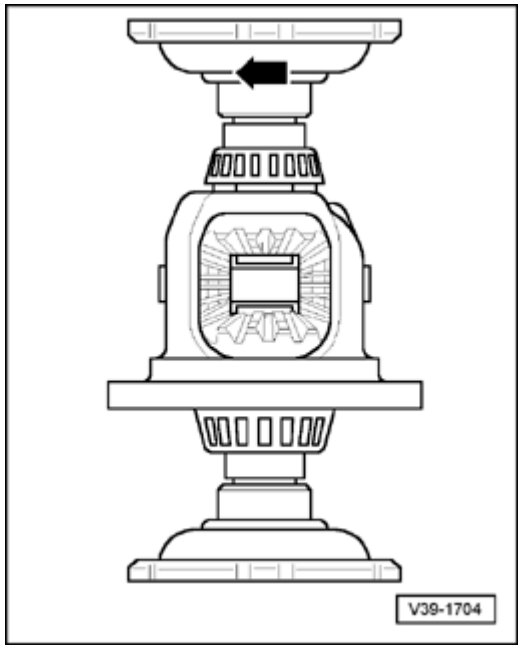
- Drive in shaft for differential bevel gears.
- Press the small differential bevel gears toward the outside.
- Push large differential bevel gears in direction of arrow and check play.
- Determine the largest possible shim that can still be installed for the large differential bevel gears on each side.
  - ♦ Adjustment shims should be the same thickness on both sides.
- Determine adjustment shims according to table. Part numbers

⇒ *Parts-catalog*

Available adjustment shims:

Shim thickness (mm)		
0.50	0.70	0.90
0.60	0.80	1.00

Note:



The adjustment is also correct when no more play can be felt, but the differential bevel gears can just barely be rotated (arrow).