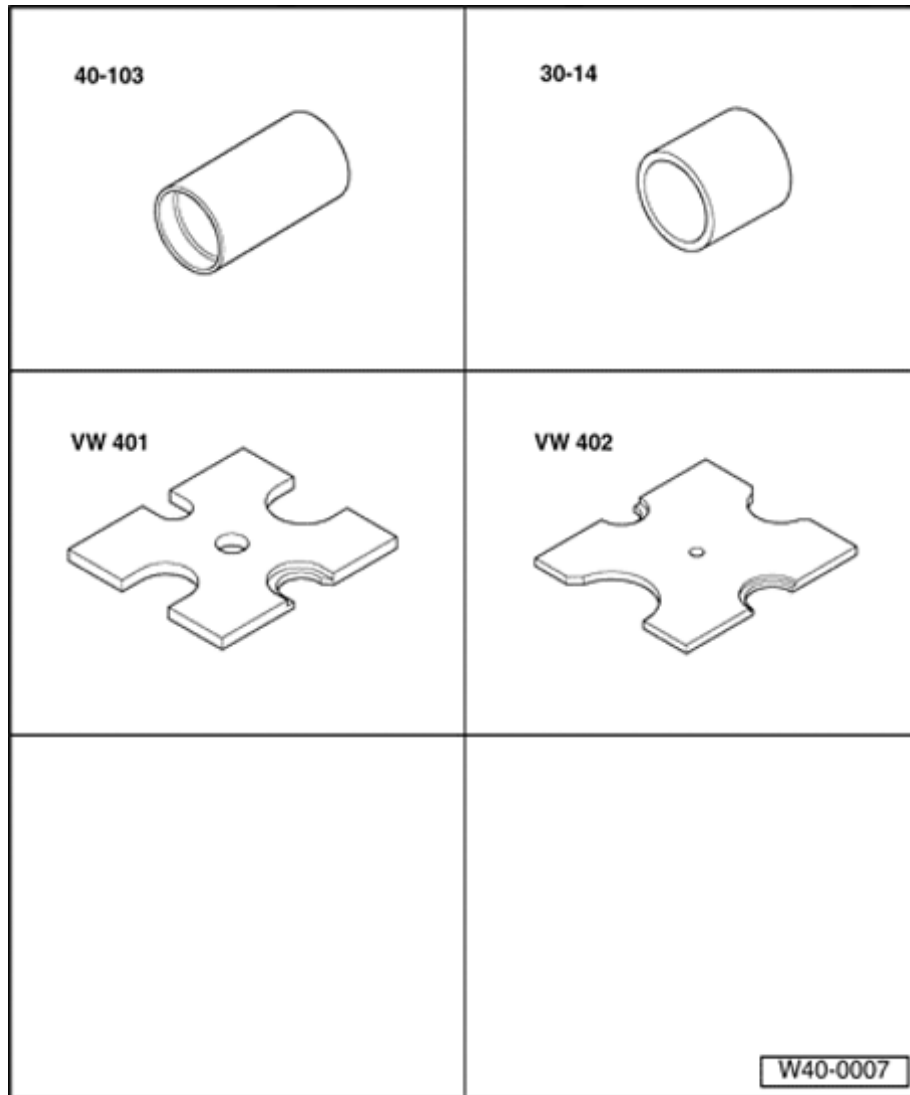


Front suspension, servicing

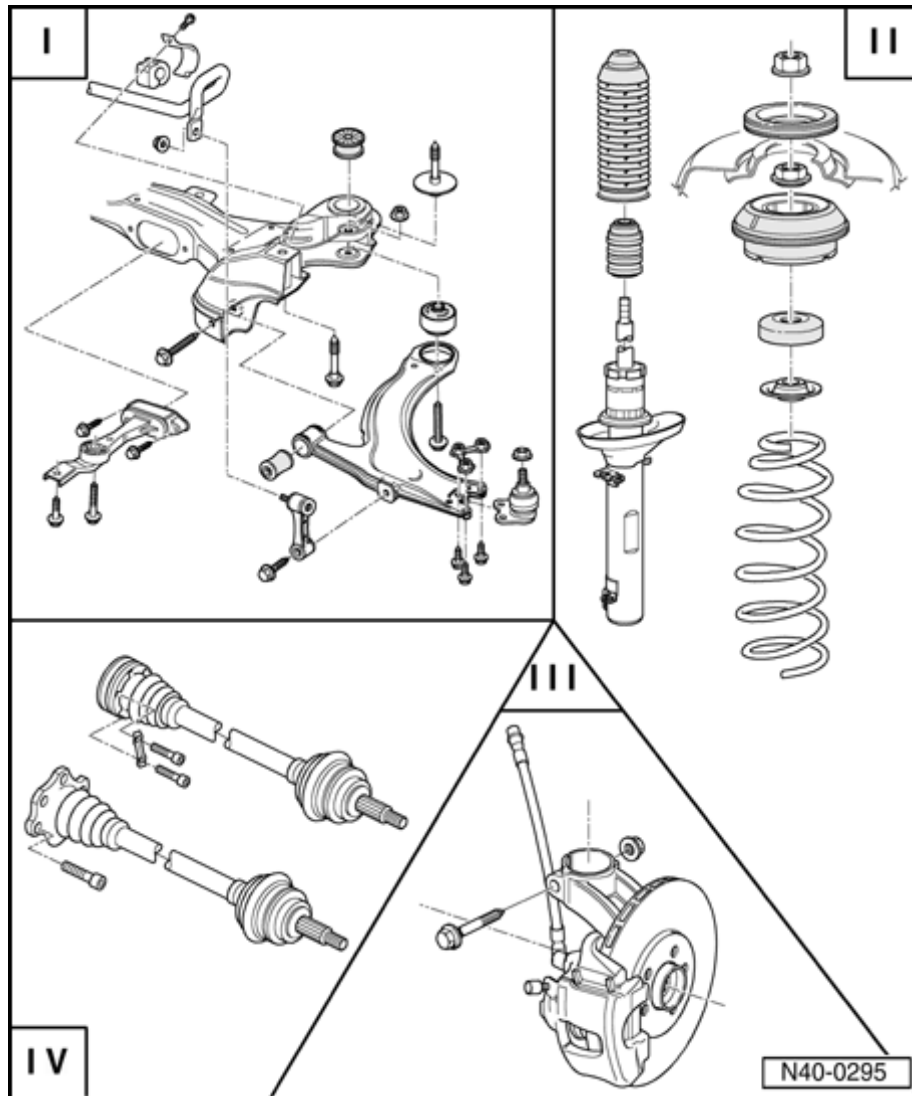
Special tools and equipment

- ◆ 3301 Assembly tool
- ◆ 2010 Tube
- ◆ VW 516 Tube
- ◆ 3288/2 Assembly tool
- ◆ VW 411 Press tool
- ◆ VW 447 i Thrust plate



Special Tools and equipment

- ◆ 40-103 Support
- ◆ 30-14 Tube
- ◆ VW 401 Press plate
- ◆ VW 402 Press plate



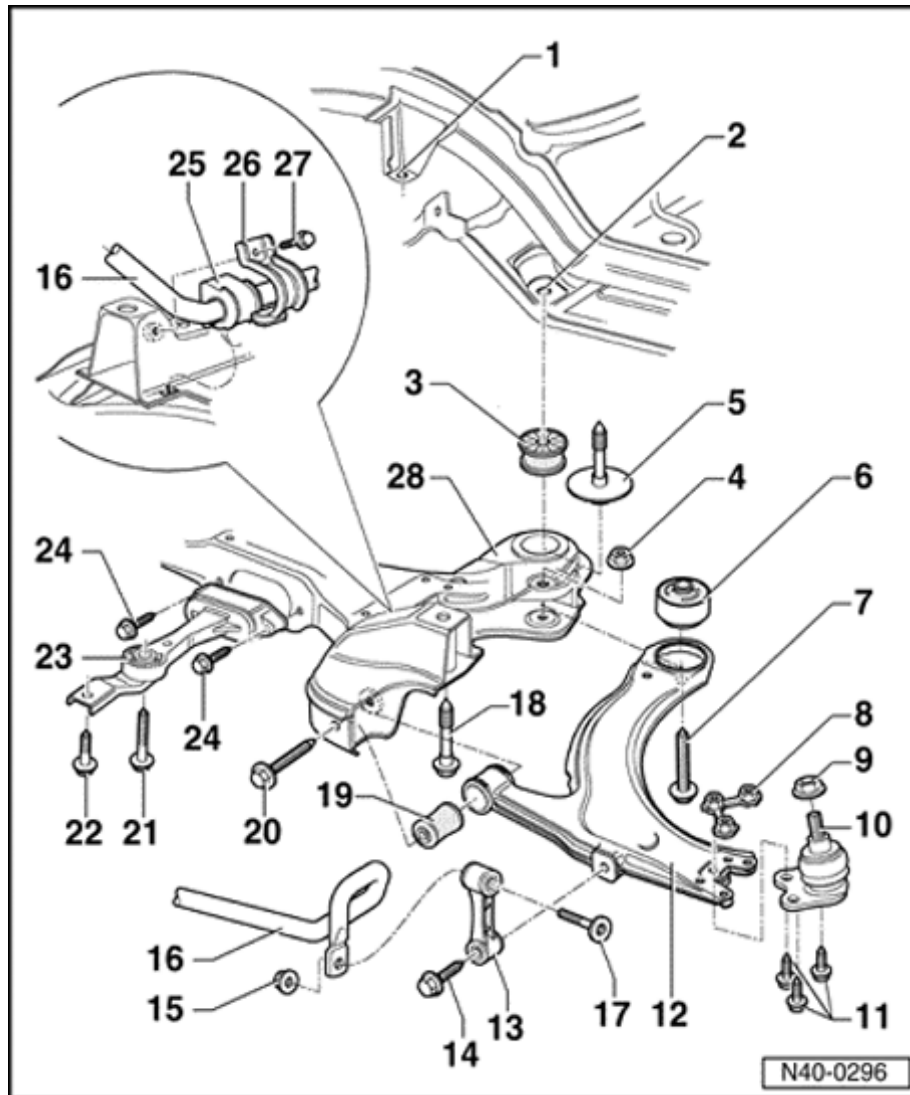
Front axle, Overview

I - Sub-frame, stabilizer bar and control arm, removing and installing ⇒ [Page 40-4](#)

II - Front suspension strut, servicing ⇒ [Page 40-43](#)

III - Wheel bearings, servicing ⇒ [Page 40-26](#)

IV - Axle shafts, servicing ⇒ [Page 40-50](#)



I - Sub-frame, stabilizer bar and control arm, overview

Note:

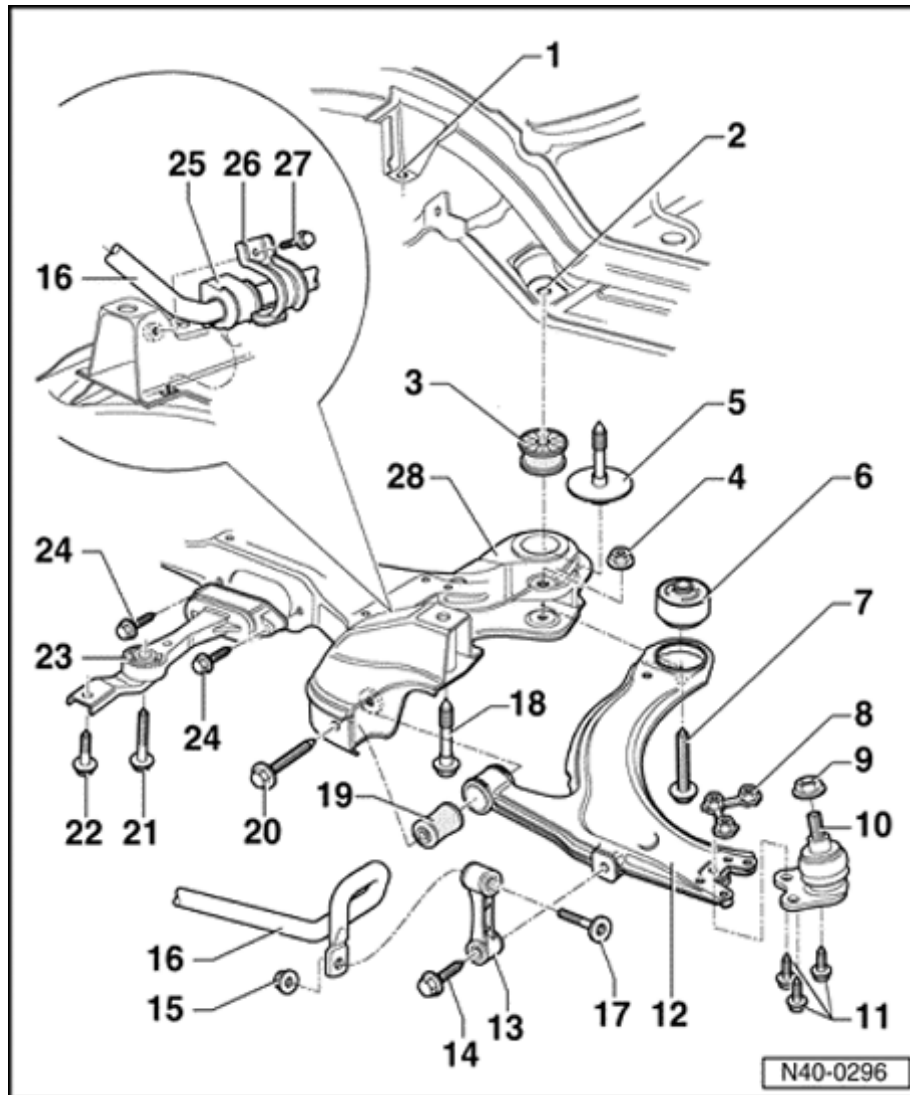
- ◆ If a vehicle has to be moved after removing axle shaft, first install outer joint and tighten to 50 Nm (37 ft lb), otherwise wheel bearing will be damaged.
- ◆ Do not attempt to weld or straighten load bearing suspension components, or components which control wheels.
- ◆ Always replace self-locking nuts.
- ◆ Always replace corroded nuts/bolts.

1 - Sub-frame retaining bracket

- ◆ Weld nut can not be repaired. If nut is damaged bracket must be completely replaced.

2 - Weld nut in body

- ◆ If weld nut is damaged, it can be repaired with a Heli-coil.



3 - Bonded rubber bushing

- ◆ Removing and installing ⇒ [Page 40-23](#)

4 - Self-locking nut

- ◆ Always replace

5 - Bolt

- ◆ M14 x 1.5 x 63
- ◆ 100 Nm (74 ft lb) and turn 90° further
- ◆ Always replace

6 - Rear control arm bushing

- ◆ Installation position ⇒ [Page 40-19](#)
- ◆ Pressing out and in ⇒ [Page 40-19](#)

7 - Bolt

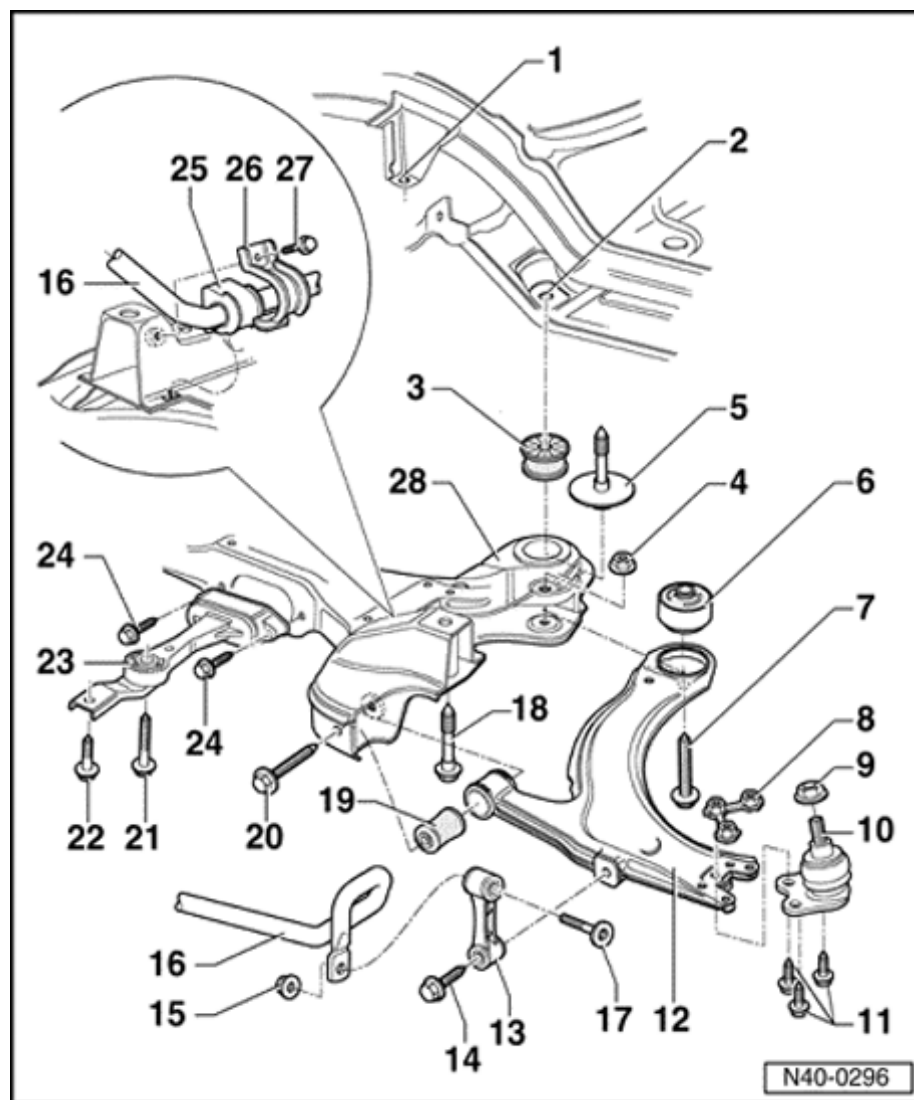
- ◆ M12 x 1.5 x 70
- ◆ 70 Nm (52 ft lb) and turn 90° further
- ◆ Always replace

8 - Plate with nuts

9 - Self-locking nut

- ◆ 45 Nm (33 ft lb)

◆ Always replace



10 - Ball joint

- ◆ Removing and installing ⇒ [Page 40-10](#)
- ◆ Checking ⇒ [Page 40-9](#)

11 - Bolt

- ◆ 20 Nm (15 ft lb) and turn 90° further
- ◆ Always replace

12 - Control arm

13 - Connecting link

14 - Bolt

- ◆ 45 Nm (33 ft lb)

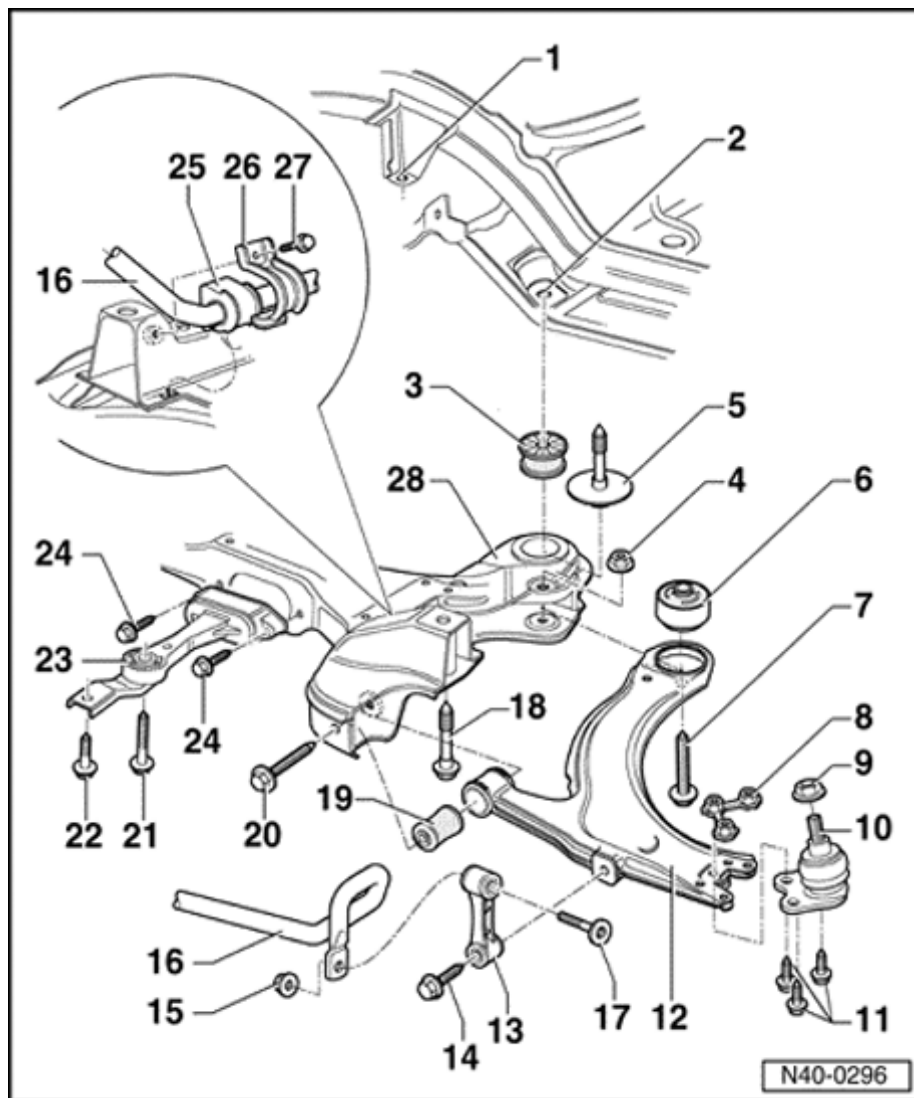
15 - Self-locking nut

- ◆ 30 Nm (22 ft lb)
- ◆ Always replace

16 - Stabilizer bar

- ◆ Sub-frame must be lowered to remove and install.

17 - Socket bolt

**18 - Bolt**

- ◆ M14 x 1.5 x 95
- ◆ 100 Nm (74 ft lb) and turn 90° further
- ◆ Always replace

19 - Front control arm bushing

- ◆ Pressing out ⇒ [Page 40-18](#)
- ◆ Pressing in ⇒ [Page 40-18](#)

20 - Bolt

- ◆ M12 x 1.5 x 82
- ◆ 70 Nm (52 ft lb) and turn 90° further
- ◆ Always replace

21 - Bolt

- ◆ 50 Nm (37 ft lb)
- ◆ M10 x 70

22 - Bolt

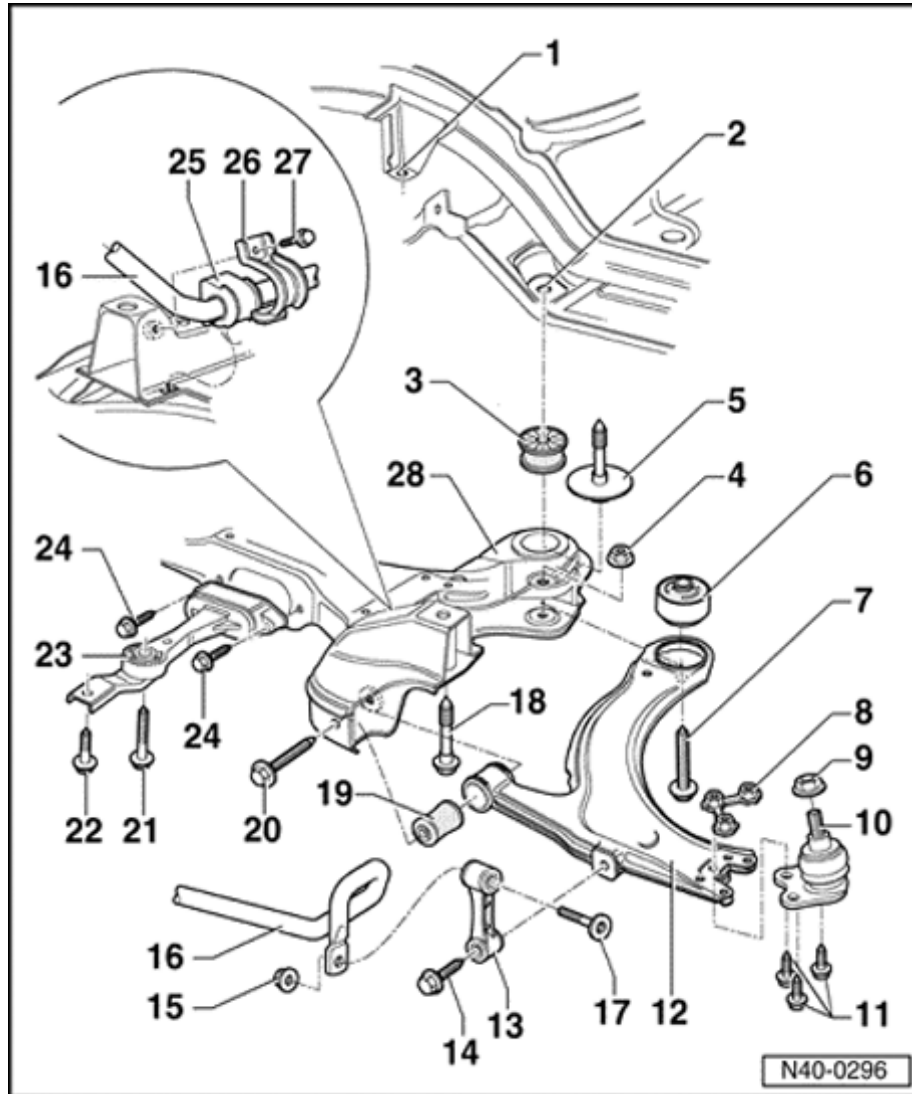
- ◆ 50 Nm (37 ft lb)
- ◆ M10 x 30

23 - Pendulum support

24 - Bolt

◆ 25 Nm (18 ft lb)

◆ M8 x 48



25 - Rubber bushing

26 - Bracket for stabilizer bar bushing

27 - Bolt

◆ 25 Nm (18 ft lb)

28 - Sub-frame

◆ If damaged, do not repair threads in Sub-frame for front control arm bolt



Ball joint, checking

Axial play, checking

A

- Pull ball joint down and press up again.

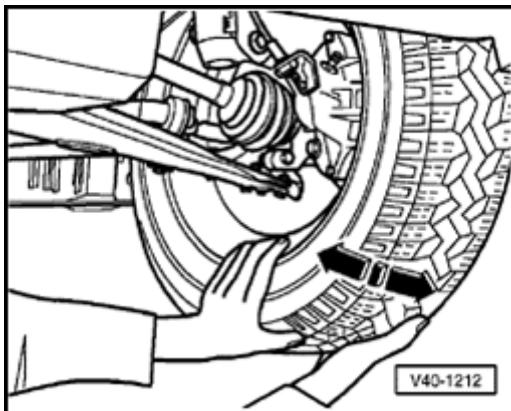
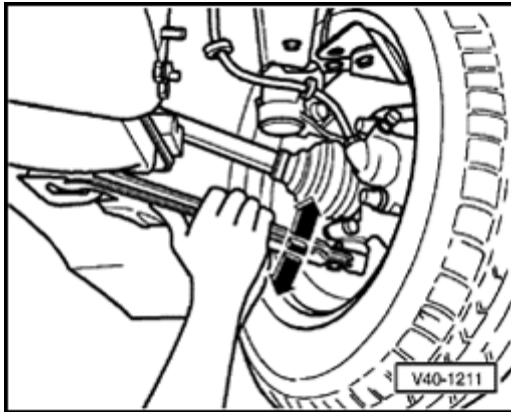
Radial play, checking

A

- Press lower part of wheel out and in.

Note:

- ◆ *There must be no visual play for both tests.*
- ◆ *Observe ball joint during checks.*
- ◆ *Take into account wheel bearing and/or upper strut mount movement.*
- ◆ *Check rubber boot for damage, replace ball joint if necessary*



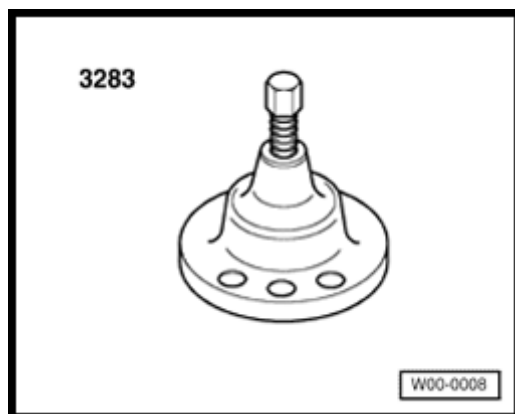


Ball joint, removing and installing

Special Tools and equipment

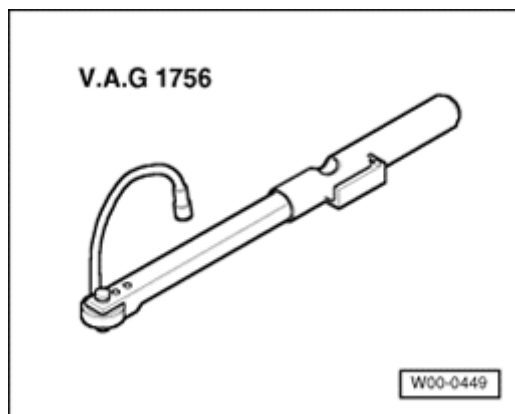
A

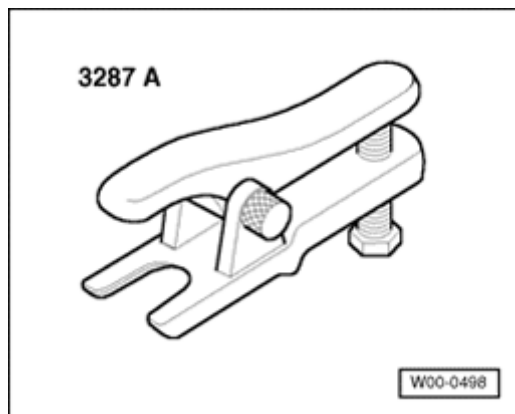
- ◆ 3283 Press



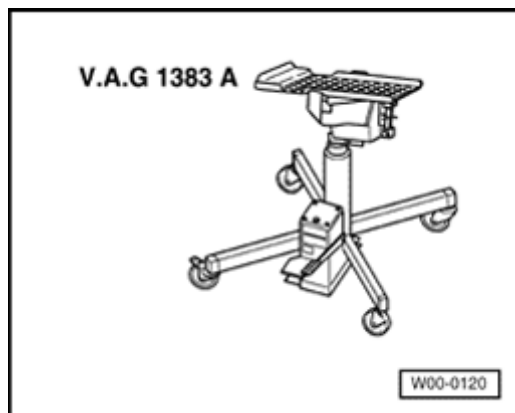
A

- ◆ VAG 1756 Angle wrench





A ♦ 3287A Ball joint puller



A ♦ VAG 1383A Engine/transmission jack

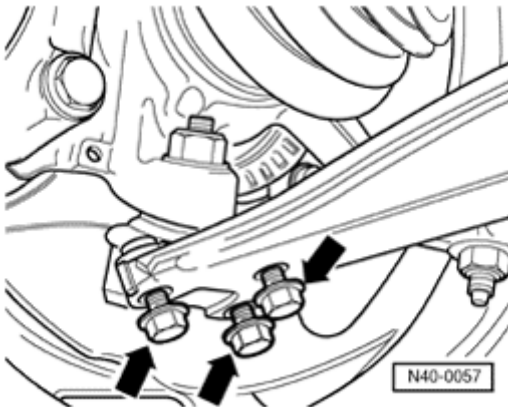


Removing

WARNING!

Vehicle must be standing on its wheels when loosening or tightening 12 point axle nut.

- Loosen 12-point axle nut.
- Lift vehicle to relieve load on front axle and remove noise insulation.
- A** - Remove bolts (arrows).



- A** - Press axle shaft out. Position tool as shown.

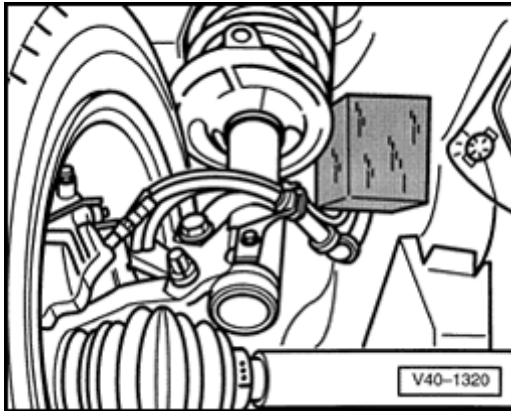


Note:

- ◆ *When pressing the drive axle out make sure that sufficient clearance is available.*
- ◆ *Do not allow drive axle to hang by inner CV or triple-rotor joint to avoid damaging bearing surfaces. Tie drive axle to stabilizer bar or other suspension component if it is to remain attached to drive flange.*
- ◆ *Do not flex inner CV or triple-rotor joint more than 25 degrees from its original angle.*

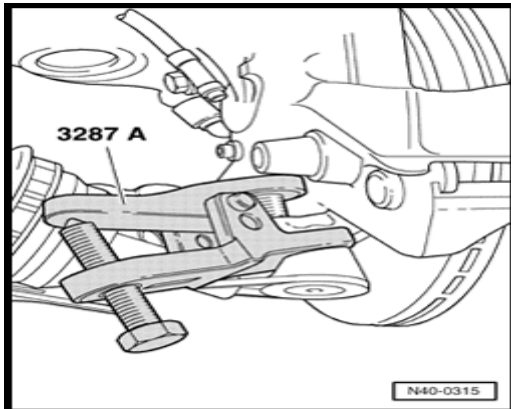


- Pull wheel bearing housing with ball joint out from control arm.



A

- Swing wheel with suspension strut out and support.

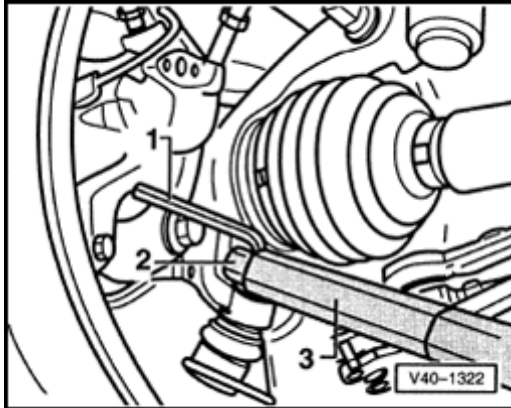


A

- Install ball joint puller, as shown, and press out ball joint.

WARNING!

- ♦ **Place engine/transmission jack VAG 1383A, or similar, underneath to ensure safety.**
- ♦ **For safety reasons and to protect ball joint threads, leave nut threaded on a few turns.**



A

Installing

- Install new self-locking nut, and counter-hold with T40 Torx[®] bit.

1 - Torx[®] bit T40

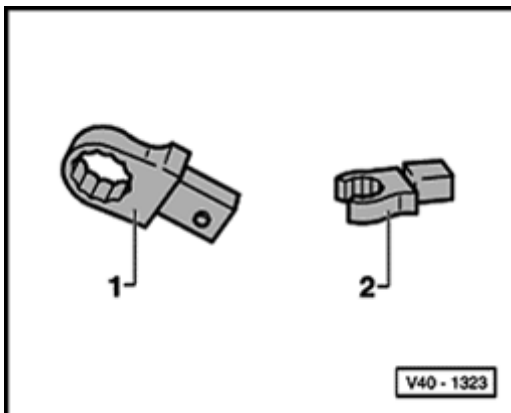
2 - Box wrench insert or slotted ring wrench insert

3 - VAG 1331

- Install ball joint in wheel bearing housing.

- Secure ball joint to control arm (bolts on old marks).

Use new bolts!



A

1 - Box wrench insert (commercial type, 18 mm AF)

2 - Open end wrench insert (commercial type, 18 mm AF)

Note:

Check boot for damage or twisting.

**Tightening torque:**

Ball joint to control arm 20 Nm (15 ft lb) +
90°

Use new bolts!

Ball joint to wheel bearing
housing 45 Nm (33 ft lb)

12-point nut for axle shaft to
wheel hub 50 Nm (37 ft lb) +
30°

Use new nuts!

Tightening torque ⇒ [Page 40-51](#)



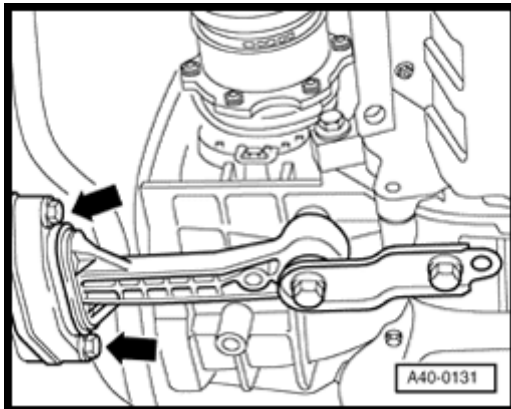
Control arm, removing and installing

Removing

- Remove wheel.
- Remove noise insulation.

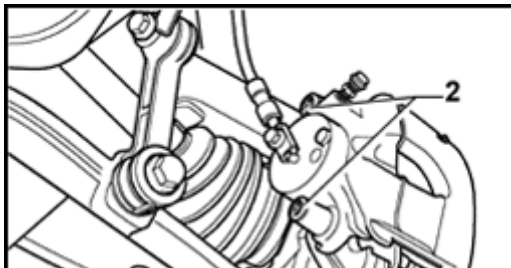
Vehicles with automatic transmission

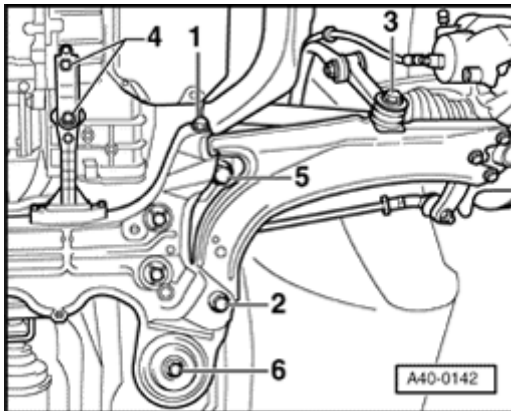
- A
- Remove bolts (arrows).



Following work sequence applies to all engines

- A
- Remove bolts -1-.
 - Disconnect axle shaft from transmission drive flange.
 - Pull wheel bearing housing with ball joint from control arm.





A

- Remove stabilizer bracket bolt -3- from control arm.
- Remove control arm bolts -1- and -2-.

Vehicles with automatic transmission

- Push engine/transmission assembly forward with a lever.
- Remove control arm.

Reassemble in reverse sequence.

Tightening torque:

Ball joint to control arm 20 Nm (15 ft lb) + 90°

Use new bolts!

Pendulum support to sub-frame

M 10 x 70 50 Nm (37 ft lb)

M 10 x 30 50 Nm (37 ft lb)

Front bolt for control arm 70 Nm (52 ft lb) + 90°

Rear bolt for control arm

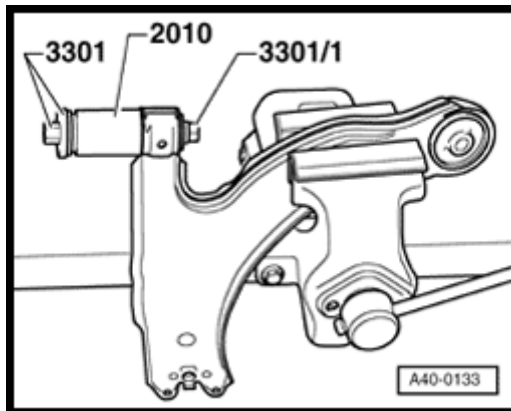
Use new bolts!

Coupling rod to stabilizer bar

30 Nm (22 ft lb)

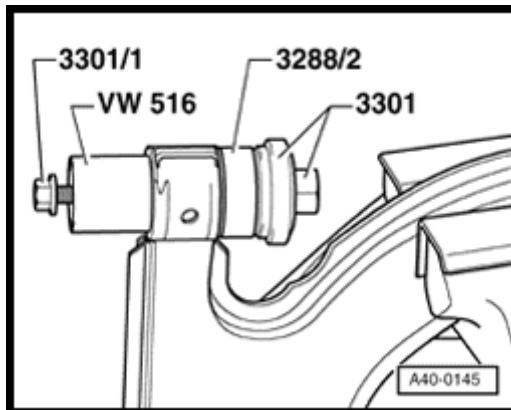


Bonded rubber bushing for control arm, replacing



A

Fig. 1 Front control arm bushing, pressing out

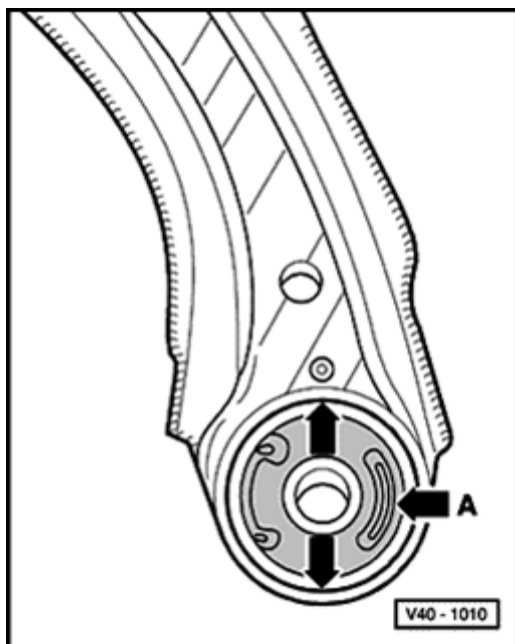


A

Fig. 2 Front control arm bushing, pressing in

Note:

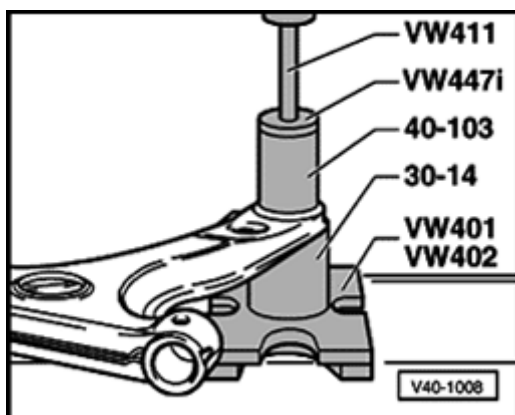
- ◆ To aid pressing in use oil G 294 421 A1
- ◆ Never use grease!



A

Fig. 3 Rear control arm mount, installation position

One of embossed arrows points toward projection (arrow A) on control arm.



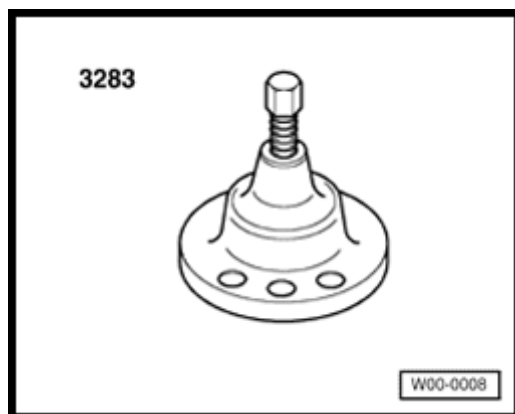
A

Fig. 4 Rear control arm bushing, pressing out/in



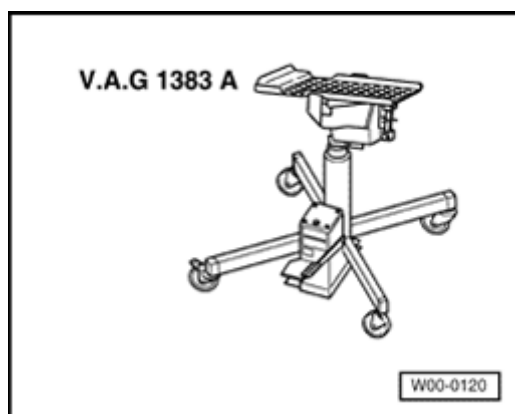
Sub-frame, removing and installing

Special Tools and equipment



A

- ◆ 3283 Press



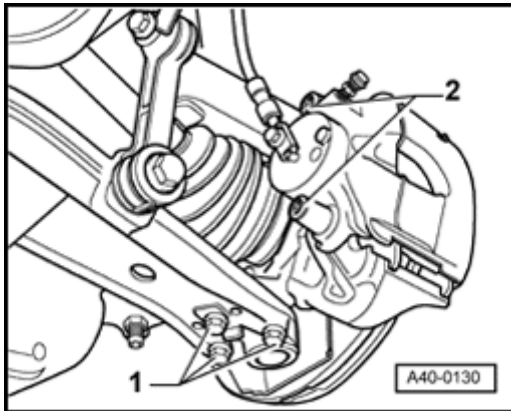
A

- ◆ VAG 1383 A transmission jack



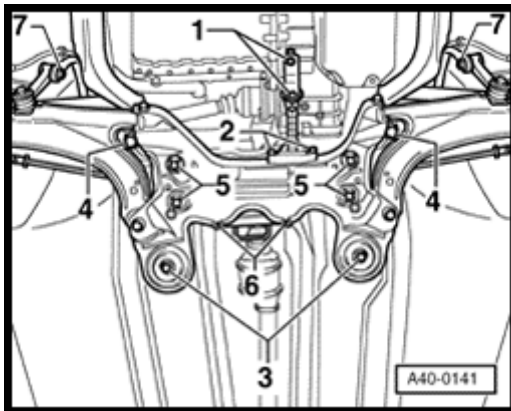
Removing

- Remove noise insulation.



A

- Remove bolts -1-.
- Disconnect axle shaft from transmission drive flange.
- Pull wheel bearing housing with ball joint out, from control arm.
- Swing wheel, with suspension strut, out and support.



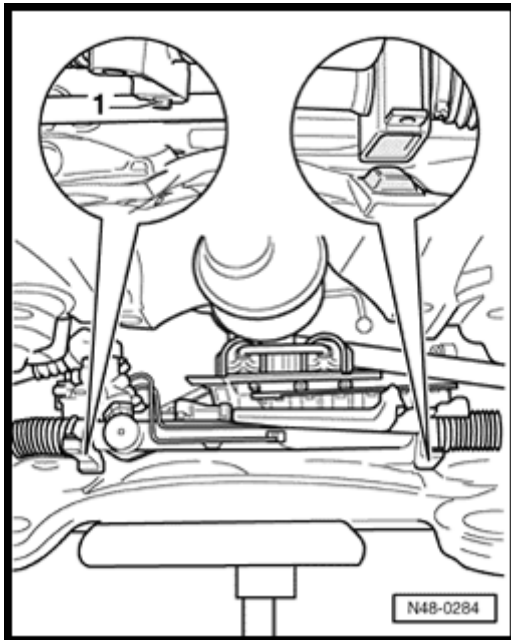
A

- Remove bolts -1- and -2- and remove pendulum support.
- Remove steering gear bolts -5-.
- Remove stabilizer bar link nut -7-.
- On TDI engines, remove exhaust system bolts -6-.
- Place transmission jack VAG 1383A with 1359/2 under sub-frame.
- Remove bolts -3- and -4- for sub-frame.
- Lower sub-frame using engine/transmission jack VAG 1383 A.



Installing

Before installing sub-frame bolts, position steering gear on sub-frame and install bolts.



A

Threaded sleeve -1- must seat in subframe hole.

Continue installation in reverse sequence.

- Check steering wheel position during test drive.
- Check front wheel toe if steering wheel is not positioned straight ahead.

Tightening torque:

Ball joint to control arm 20 Nm (15 ft lb) + 90°

Use new bolts!

Pendulum support to sub-frame

M 10 x 70 50 Nm (37 ft lb)

M 10 x 30 50 Nm (37 ft lb)

Steering gear to sub-frame 20 Nm (15 ft lb) + 90°

Use new bolts!

Coupling rod to stabilizer bar 30 Nm (22 ft lb)

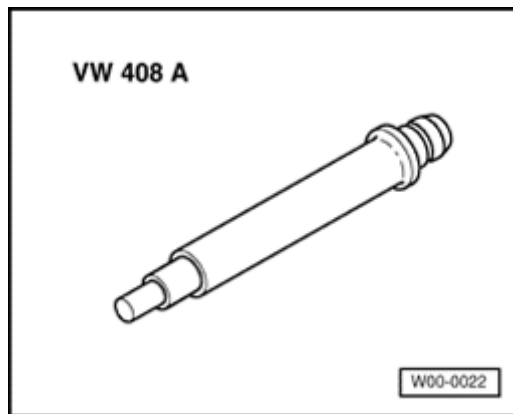


Bonded rubber bushings for sub-frame, removing and installing

Special Tools and equipment

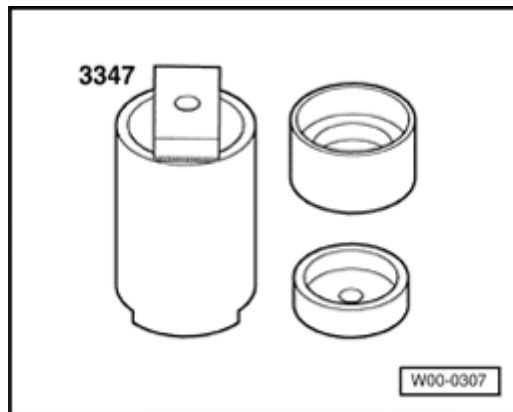
A

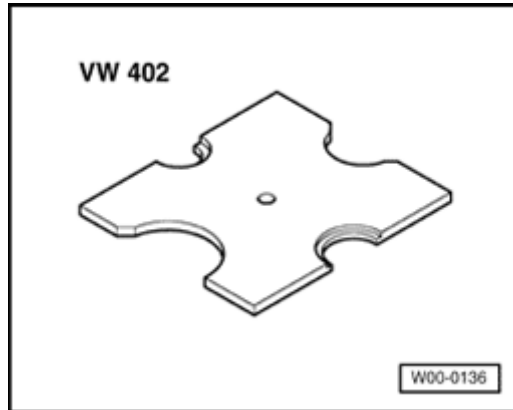
- ◆ VW 408A Press tool



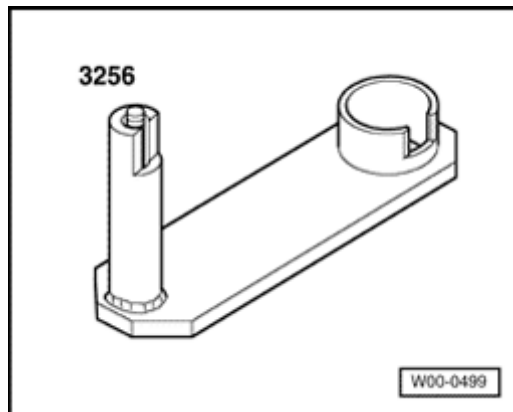
A

- ◆ 3347 Tube





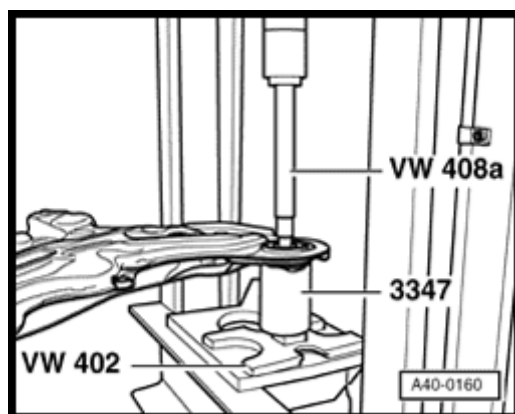
- A ♦ VW 402 Thrust plate



- A ♦ 3256 Counterhold

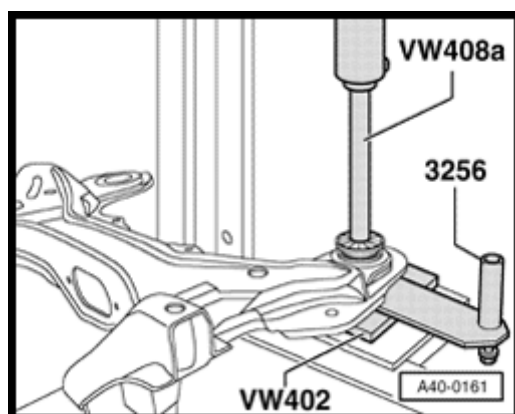


Removing and installing only possible with sub-frame removed, removing sub-frame ⇒ [Page 40-20](#)



A

Bonded rubber bushing, pressing out



A

Bonded rubber bushing, pressing in

Note:

- ◆ *To aid pressing in use light oil*
- ◆ *Never use grease!*