Rear Axle - All Wheel Drive Vehicles, servicing

Note:

- When removing and installing the rear axle, it is recommended to remove axle together with rear final drive and to separate outside the vehicle. If only the axle beam is to be removed and installed, the control arms may remain connected to the shock absorber. In both cases, disconnect vacuum line and electrical wire before lowering the assembly.

- Always replace self-locking bolts and nuts.

- Always replace corroded bolts/nuts.

- The harness connector for the ABS wheel speed sensor wire can be found beneath the rear seat bench.
- **Suspension strut**
  - unbolt and bolt in ⇒ 42-1, Removing and installing suspension strut to body and ⇒ 42-2, Unbolting and bolting on suspension strut to control arm
  - Disassembling and assembling ⇒ 42-2, Suspension strut - vehicles with All Wheel Drive, disassembling and assembling
  - Allocation ⇒ Electronic parts catalog "ETKA"

- **Drive axle**
  - Removing and installing ⇒
42-2, Unbolting and bolting on drive shaft and drive axle to differential and ⇒ 42-2, Unbolting and bolting on drive axle

- Servicing ⇒ 42-2, Rear drive axle, servicing

- **Final drive**
  - Removing from and installing on axle beam ⇒ 42-2, Removing and installing rear final drive to axle beam

- **Mounting bracket and transmission carrier**
  - Unbolt and bolt in ⇒ 42-2, Removing and installing mounting bracket and transmission carrier
  - Replacing bonded rubber bushing ⇒ 42-2, Pressing out and in bonded rubber bushing for transmission carrier

- **Drive shaft**
  - Removing and installing ⇒ 42-2, Unbolting and bolting on drive shaft and drive axle to differential
  - Mark installation position before removing

- **Anti-roll bar**
  - Removing and installing ⇒ 42-2, Removing and installing anti-roll bar

- **Rear axle body**
  - Replacing bonded rubber bushing ⇒ 42-2, Determining installation
**position and ⇒ 42-2, Pulling in bonded rubber bushing**

- **Mounting bracket for rear axle**
  - Removing and installing to body ⇒ 42-2, Removing and installing mounting bracket to body

- **Control arm**
  - unbolt and bolt in ⇒ 42-2, Unbolting and bolting on control arm
  - Replacing bonded rubber bushing ⇒ 42-2, Pulling out bonded rubber bushing and ⇒ 42-2, Pulling in bonded rubber bushing
  - Bonded rubber bushing with eccentric socket ⇒ 42-2, Rubber bushing for correcting toe and camber

- **Wheel bearing**
  - Servicing ⇒ 42-3, Wheel bearing - All Wheel Drive Vehicles - disc brakes, servicing
  - Servicing the brakes ⇒ 46-3, Rear brakes - disc brake, servicing and ⇒ 47-4, Rear brake caliper, servicing

- **Hex bolt, 85 Nm**

- **Hex bolt for seatbelt brace, 25 Nm**
Unbolting and bolting on suspension strut to control arm

Before bolting on, bring control arm to horizontal position (curb weight condition) Removing and installing suspension strut to body ⇒ 42-1, Removing and installing suspension strut to body

Tightening torque of - A - : 65 Nm.

Note:

- Support control arm, otherwise constant velocity joint may be damaged caused by excessive bending.

Unbolting and bolting on drive shaft and drive axle to differential
Always mark installation position of drive shaft before removing. Imbalance will be too large if installed in offset position.

Tightening torque of - A - and - B - : 45 Nm.

**Note:**
- *Always secure drive shaft with a wire otherwise constant velocity joint will be damaged.*

Unbolting and bolting on drive axle

Only loosen and tighten with vehicle standing on its wheels (risk of accident).

Tightening torque: 90 Nm + 45 ° (1/8) additional turn

**Note:**
- *Before attaching nut, remove any paint residue or corrosion at thread of outer joint.*

Removing and installing anti-roll bar

Unbolting and bolting on control arm

Before tightening, bring control arm to horizontal position (curb weight condition).

To remove interior bolt on right control arm, brake pressure regulator must be removed from axle beam.

Tightening torque of - A - : 120 Nm.

Pulling out bonded rubber bushing

- A - Socket 17 mm - B - separating tool 12 - 75 mm, e.g. Kukko Separating Tool 12-75mm 17/1
Pulling in bonded rubber bushing

Beforehand, apply acid-free lubricant onto rubber, e.g. assembly paste G 052 109 A2.

Installation position: Bearing shoulder outward at outer bearing, inward at inner bearing (toward vehicle center).

**Note:**

- Deviation of camber and toe setting values at the rear axle can be corrected by using a bonded rubber bushing with eccentric socket ⇒ 42-2, Rubber bushing for correcting toe and camber.

Rubber bushing for correcting toe and camber

This rubber bushing - A - is equipped with an eccentric socket. This allows the position of the control arm to shift.

This rubber bushing must only be used for the interior bushing area of the control arm. Depending on the installation position, camber and/or toe can be modified.
<table>
<thead>
<tr>
<th>Installation position</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upward eccentric</td>
<td>Negative camber change</td>
</tr>
<tr>
<td>Downward eccentric</td>
<td>Positive camber change</td>
</tr>
<tr>
<td>Forward eccentric</td>
<td>Positive toe change</td>
</tr>
<tr>
<td>Backward eccentric</td>
<td>Negative toe change</td>
</tr>
</tbody>
</table>

**Note:**

- *This bearing allows camber and toe changes up to a maximum of 18°.*

Removing and installing rear final drive to axle beam

Removing and installing viscous clutch


Tightening torque of - A - : 45 Nm.
Determining installation position

Draw a line to connect the edges of the segments on the bonded rubber bushing metal core.

Continuous line must align with center line of the hole - arrow -.

Note:

- *The kidney-shaped recess must point toward vehicle center when facing forward.*

Pulling in bonded rubber bushing

Position one half of the bonded rubber bushing correctly and pull in using Bushing Puller 3128 and sleeve 3128/1. Then position second half of bushing and pull in.
Removing and installing mounting bracket and transmission carrier

Removing and installing completely

When installing mounting bracket to transmission carrier outside the vehicle, observe the correct position of the components to each other. Bonded rubber bushing must always be free of tension when installed in vehicle.

Tightening torques:

A - 45 Nm
B - 65 Nm
C - 85 Nm
D - 85 Nm

Pressing out and in bonded rubber bushing for transmission carrier
Installation position arbitrary, rim offset: flush up to lower edge - arrow - :

Removing and installing mounting bracket to body

Before removal, mark installation position of mounting bracket to longitudinal member, otherwise rear axle must be aligned on wheel alignment stand after re-installation.

Tightening torques:
A - 130 Nm
B - 60 Nm
C - 85 Nm

Rear drive axle, servicing

Removing and installing drive axle ⇒ 42-2, Unbolting and bolting on drive shaft and drive axle to differential

Note:
- Grease filling: outer constant velocity (CV) joint 80 g G-6.3, inner constant velocity joint 80 g G-6.3
- Grease filling for outer joint: Press in half of the grease into joint, evenly distribute other half in the cover.
- **Grease filling inner joint**: Press in half of the grease amount into joint from both sides, evenly distribute remaining grease in the cover.

- **When replacing CV boot, add more grease to joint if necessary.**

- **Securing ring**
  - Replace
  - Remove and install using Circlip Pliers VW161A

- **Inner CV joint 81 mm ⌀**
  - Replace only as complete unit
- Pressing off ⇒ 40-3, Pressing off inner constant velocity joint
- Pressing on ⇒ 40-3, Pressing on inner constant velocity joint
- grease ⇒ 42-2, Rear drive axle, servicing
- Checking ⇒ 40-3, Inner constant velocity joint, checking

■ Dished washer
  - Splines on interior ◇
  - Installation position: Large ◇ (concave side) rests against CV joint

■ CV boot for CV joint 94 mm ◇
  - Rubber version
  - Check for tears and scuffing
  - Installation position: at the end of the cover 1 to 1 1/2 rolling in visible
  - Coat cap on inside using D3
  - Drive off using drift

■ Drive axle
  - Different lengths of drive axle - short shaft, right

■ Hose clamp
  - Replace
  - Tensioning ⇒ 40-3, Tensioning clamp on small diameter
- **CV boot for CV joint 81 mm**
  - Description: Polyesterelastomere
  - Check for tears and scuffing
  - Installation position: at the end of the cover 1 to 1 1/2 rolling in visible
  - Briefly air out CV boot before tensioning small hose clamp to allow pressure to equalize ⇒ 40-3, **Venting CV boot**

- **Hose clamp**
  - Replace
  - Tensioning ⇒ 40-3, **Tensioning clamp on small diameter**

- **Dished washer**
  - Large (concave side) rests against thrust washer

- **Thrust washer**

- **Securing ring**
  - Replace
  - Insert in groove on shaft

- **Outer CV joint 81 mm**
  - Replace only as complete unit
  - Removing ⇒ 40-3, **Removing outer constant velocity joint**
  - Installing: Drive onto shaft using plastic hammer until expanded securing ring contracts
- grease ⇒ 42-2, Rear drive axle, servicing

- Checking ⇒ 40-3, Outer constant velocity joint, checking

- Supporting rings, inside
  - Prevent ballooning of CV boot
  - Installed only on left drive axle, transmission side

**Cap nut in longitudinal member - vehicles with All Wheel Drive, reworking**

If cap nut thread is damaged in longitudinal member, either thread must be cut or cap nut must be drilled through.

- If necessary, remove control arm.
- Drill upward through damaged cap nut in longitudinal member using drill 10.2 mm Ø.

**Note:**

- *Do not cant drill when drilling.*

**Warning!**

*Use safety goggles.*

![Diagram](image.jpg)

1 - cap nut
2 - Reinforcement plate
3 - longitudinal member

- Cut new thread M12 x 1.5 in cap nut.

- To mount rear axle, use new bolt N 010 137 1 and washer N 011 531 7.

Tightening torque: 65 Nm.

Note:

- The procedure described here, must only be performed on one cap nut per vehicle side.

Suspension strut - vehicles with All Wheel Drive, disassembling and assembling

- Concealment cap
  - Pry out using screwdriver
  - press in ⇒ 42-2, Pressing
cap into suspension strut bearing

- Installation position ⇒ 42-1, Pressing cap into suspension strut bearing

- Seal

- Self-locking hex nut, 30 Nm
  - Replace

- Belleville washer

- Upper rubber bushing

- Seal (foam)
  - Replace

- Upper spring seat
  - Welded nuts must lie in grooves of spring seat
  - Installation position toward spring seat ⇒ 42-2, Installation position of spring plate toward spring seat

- Spring seat
  - Installation position ⇒ 42-2, Installation position of spring seat and ⇒ 42-2, Installation position of spring plate toward spring seat

- Spacer tube

- Lower rubber bushing

- Mount for buffer stop

- Washer

- Buffer stop

- Ring (aluminum)

- Boot
- Protective cap
- Coil spring
  - Removing and installing ⇒ 42-1, **Spring, removing and installing**
  - Allocation ⇒ *Electronic parts catalog "ETKA"*
- Base plate
- Securing ring
- Lower spring plate
  - Installation position ⇒ 42-2, **Installation position of lower spring seat**
- Shock absorbers
  - individually replaceable
  - Removing and installing ⇒ 42-1, **Removing and installing suspension strut to body** and ⇒ 42-2, **Unbolting and bolting on suspension strut to control arm**
  - Disposal ⇒ *Special information, suspension No 2*
  - Check shock absorber for leaks and noises ⇒ *Special information, suspension No. 17*
  - Allocation ⇒ *Electronic parts catalog "ETKA"*
Installation position of lower spring seat

1 - lower spring plate

2 - Socket in shock absorber eye

Install spring plate so that holes - a - align with socket - 2 - in shock absorber eye. Otherwise, the tire can come into contact with the spring plate - 1 - under extreme driving conditions.

Installation position of spring seat
Installation position of spring plate toward spring seat

Upper spring plate and spring seat - arrow A - are marked - arrow B -. This must point in direction of driving when installing, otherwise there could be damage on the shock absorber piston rod.

Align suspension strut bearing toward shock absorber center

- A - Axis of shock absorber eye
- B - Axis of suspension strut bearing

Axis - C - of cap 90° offset toward axis - A - of shock absorber eye.

Pressing cap into suspension strut bearing