

Ball joint, replacing

Special tools: [951 2050](#) , [951 2927](#) , [999 7076](#) . , [999 7148](#) , [999 2709](#) , [999 5500](#) , [999 5796](#) , [5781-B](#)

Note! The illustrations in this service information are used for different model years and/or models. Some variation may occur. However, the essential information in the illustrations is always correct.

Preparatory work

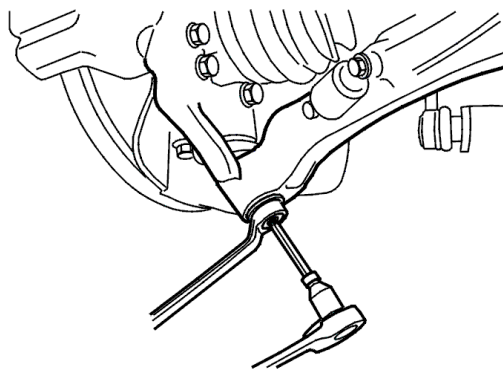
Note! Replace on both sides.

Remove the front wheels.

Removal

Removing the ball joint nut

Remove the nut on the control arm. Use a Torx wrench as a counterhold.



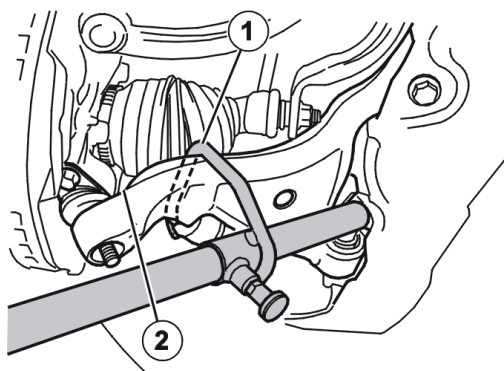
Removing the ball joint in the control arm

Caution! Do not pull the drive shaft as the axial pinions cannot support large loads.

Note! If the hook is positioned at point (2) there is a risk of damaging the rubber boot on the ball joint.

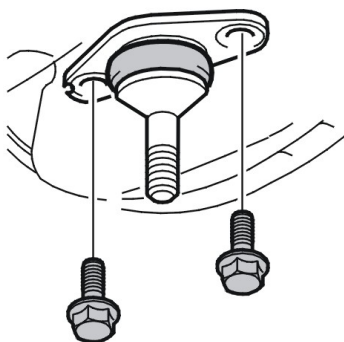
Press the control arm down using lever [999 7076](#) . Position the hook at (1).

Release the spring strut from the control arm.



Removing the ball joint screws

Remove the 2 x screws for the drive shaft.

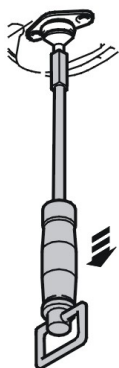


Removing the ball joint

Install:

- the nut [999 7148](#) on the ball joint
- the sledgehammer [999 2709](#) on the nut.

Tap off the ball joint.

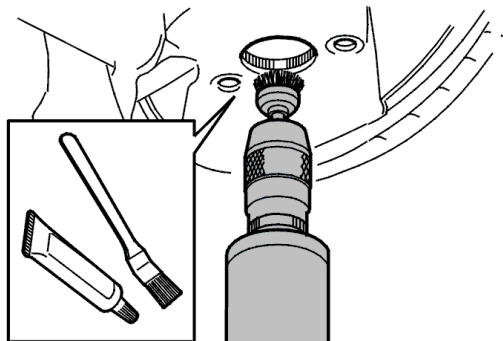


Cleaning the ball joint mounting

Warning! Always use protective goggles.

Clean the mating surfaces for the ball joint and seat. Use a rotating wire brush.

Lubricate the seat using wheel bearing grease.



Installation

Note! For tightening torques, see: [Tightening torque](#) .

Installing the guide screws

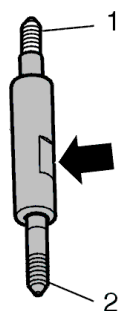
The guide screws [5781-3B](#) have a wrench grip (see arrow) which is asymmetrically positioned.

Aluminum wheel spindle

Use the screw (1) with the greater distance from the wrench grip.

Steel wheel spindle

Use the screw (2) with the shortest distance

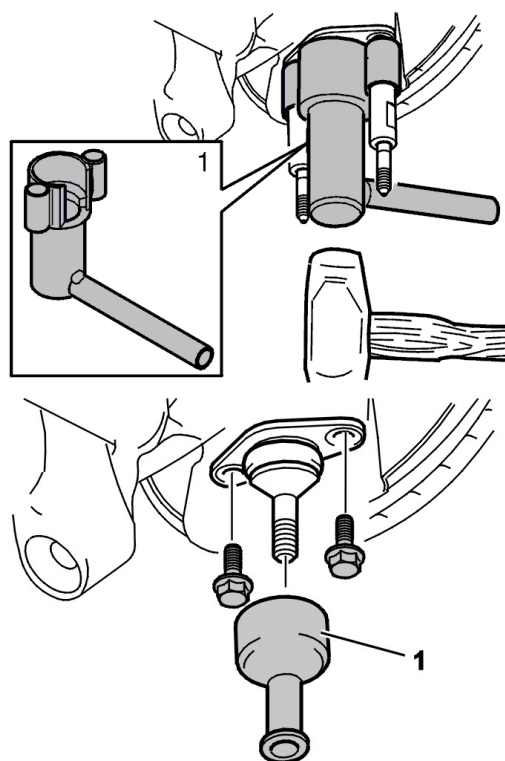
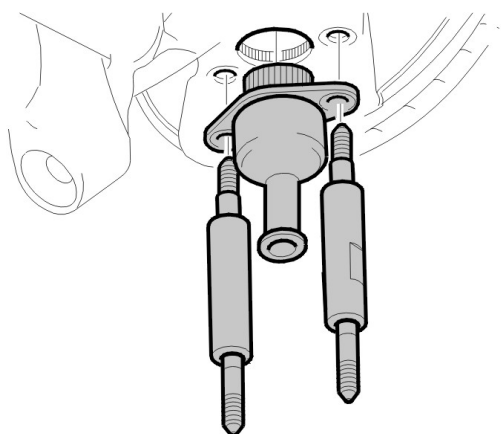


from the wrench grip.

Installing the ball joint

Caution! Leave the protective cap for the ball joint in position to prevent damaging the rubber boot.

Loosely install the new ball joint using the guide screws.

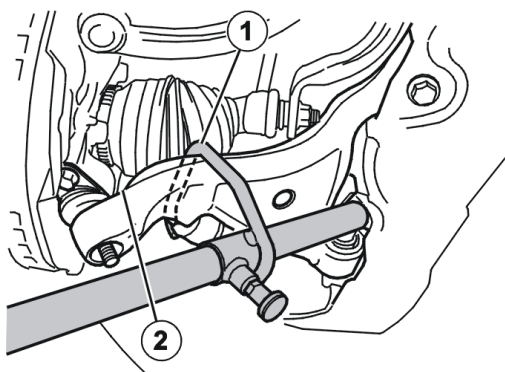


Press the ball joint up towards the seat. Use press tool [999 5796](#) . Check that the ball joint is centered in the seat.

Knock in the ball joint. Use a copper mallet. Remove the guide screws.

Tighten the ball joint. Use 2 x new screws. Tighten. See: [Tightening torque](#) . Remove the protective cap.

Installing the control arm and ball joint



Caution! Do not pull the drive shaft as the axial pinions cannot support large loads.

Note! If the hook is positioned at point (2) there is a risk of damaging the rubber boot on the ball joint.

Press the control arm down using lever [999 7076](#) . Position the hook at (1).
Align the spring strut in the control arm.

Installing the ball joint nut

Caution! The ball joint pinion must not rotate.
Use [951 2927](#) as a counterhold to prevent damaging the rubber boot

Note! Use [999 5500](#) as a torque wrench.

Note! A counterhold is not required when angle tightening if the joint has been tightened to 50 Nm. The friction between the ball joint and control arm is greater than between the nut and threads on the ball joint.

Install the 1 x nut.

Tighten according to step 1. See [Tightening torque](#) .

Use protractor: [951 2050](#) .

Angle-tighten according to step 2. See [Tightening torque](#) .

Finishing

Install the wheels. See: [Installing wheels](#) .

Replacing front control arm

Special tools: [951 2050](#)

Removing front control arm

Note! When replacing the left control arm, the engine must be lifted out if the car is equipped with transmission 4T65. For the right-hand control arm the engine must be lifted before the screw on the control arm front bushing can be replaced.

Preparation

Remove

stub axle according to [Wheel spindle](#).

- stub axle according to [Wheel spindle, replacing](#)
- the splash guard under the engine.

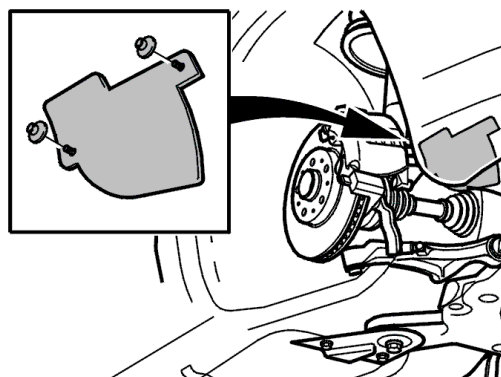
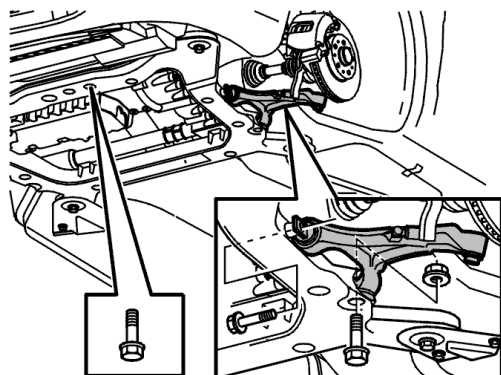
Removing left front control arm

Remove

- front engine mounting screw

Note! Applies to cars equipped with 4T65 transmission . Lift up the left-hand side of the engine approximately 25 mm to expose the control arm screw. Use a mobile jack. Use a wooden block between jack and engine.

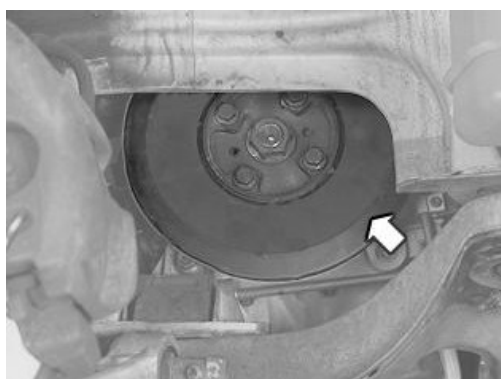
- screws and nut for the control arm in the sub-frame
- the control arm.
- Slacken off the right lower front part of the fender liner.
- Remove the plastic nuts on the fender liner.
- Remove the cover plate.
- Bend out the fender liner.



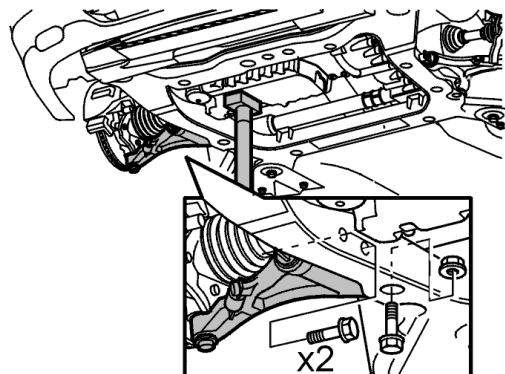
Removing right front control arm

[Applies to cars with six-cylinder engines:](#)

Remove vibration damper.



- Remove the both right hand engine mounting screws.



- Lift up the right-hand side of the engine approximately 25 mm to expose the control arm screw. Use a mobile jack.

Note! Use a wooden block between jack and engine.

- Remove the control arm screws and nut in the sub-frame.
- Remove the control arm.

Installing control arm front

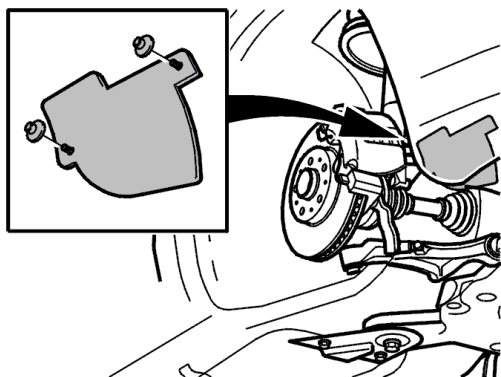
- Install the control arm on the sub-frame. Use new screws and new nut.
- Tighten the front screws to 65 Nm and angle-tighten 90°. Use bevel protractor [951 2050](#).
- Tighten the rear screw and nut to 105 Nm and angle-tighten 90°.

Applies when installing the left hand control arm (if the engine is raised)

- Lower the engine.
- Tighten the front engine mounting to 50 Nm.

Applies when installing right front control arm

- Lower the engine.
- Tighten the screws on the right engine mounting to 35 Nm and angle-tighten 90°. Use new screws.
- Install vibration damper. Use new screws. Tighten to 35 Nm and angle-tighten 50°. Applies to cars with six cylinder engines.
- Install the stub axle according to [Wheel spindle, replacing](#).
- Reinstall splash guard under engine.
- Install the fender liner and the protective plate with both plastic nuts



Replacing the limiter roll

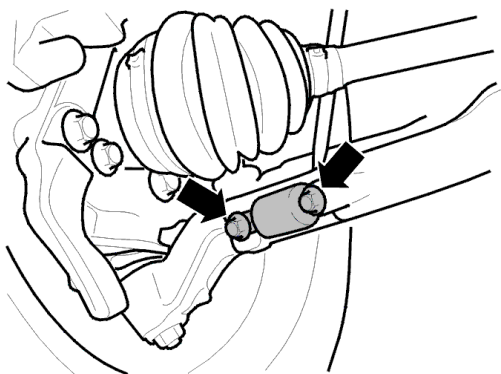
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Note! The diameter of the roll varies in relation to the tyre dimensions. When replacing with a larger tyre dimension the rolling radius increases which means a larger turning circle. Ensure that the correct roll is ordered.

Removing the limiter roll

Remove:

- the screws (x 2)
- the roll.



Installing the limiter roll

Install:

- the roll
- 2 screws Tighten to 25 Nm.

Note! Always use new screws.

Bushing control arm, replacing

Special tools: [951 2050](#) , [951 2923](#) , [999 5045](#) , [999 7032](#) , [999 7209](#) , [999 7035](#) , [999 7037](#) , [999 7048](#) , [999 7050](#) , [999 7051](#) , [999 7054](#)

Note! As the illustrations in this service information are used for different model years

and / or models, some variation may occur. However, the essential information in the illustrations is always correct.

Preparations

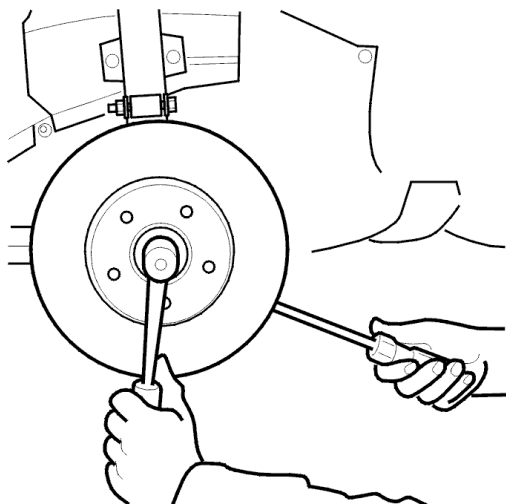
Note! When replacing the left control arm, the engine must be lifted out if the car is equipped with transmission 4T65. For the right hand control arm the engine must be lifted for the screw on the control arm front bushing to be replaced.

Disconnecting drive shaft

Remove:

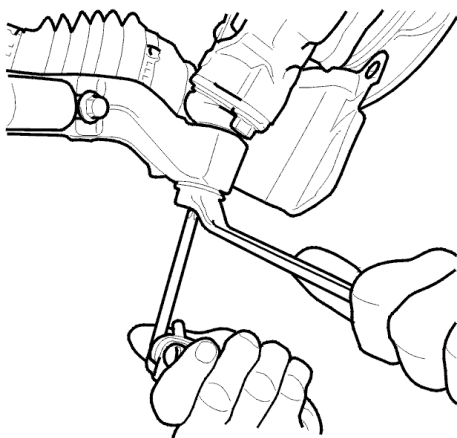
- the wheel
- the drive shaft screw. Use a screwdriver as a counterhold on the brake disc.

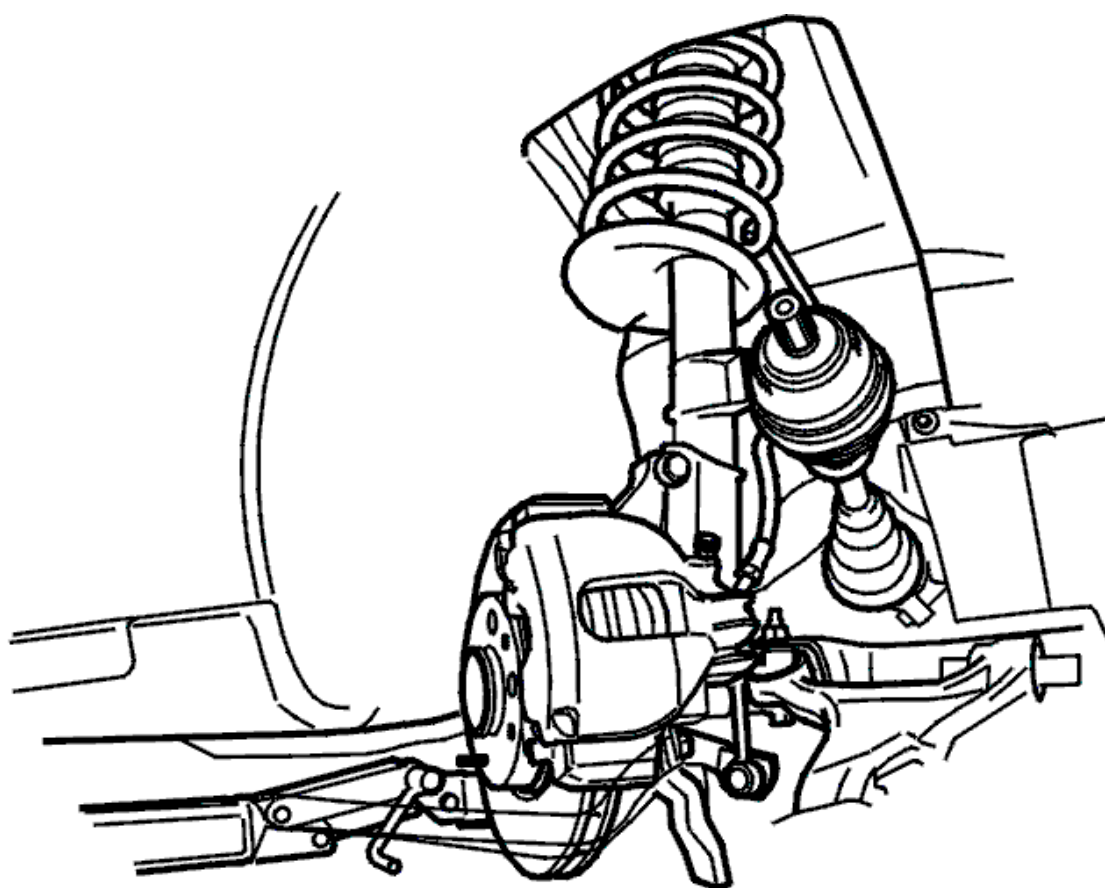
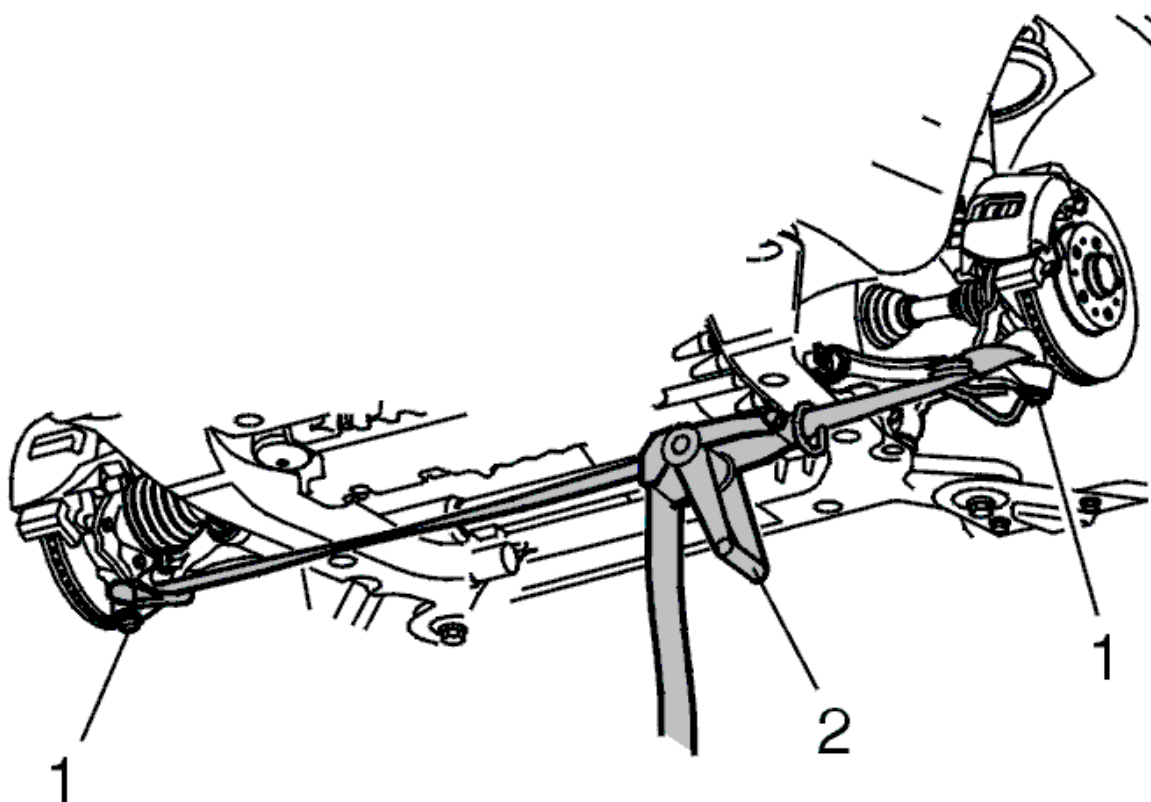
Slacken off the drive shaft in the hub by knocking the drive shaft approximately 10-15 mm into the hub. Use a rubber or copper mallet.



Disconnecting ball joint

- Remove the nut on the ball joint. Use a torx wrench as a counterhold.





Removing the left control arm

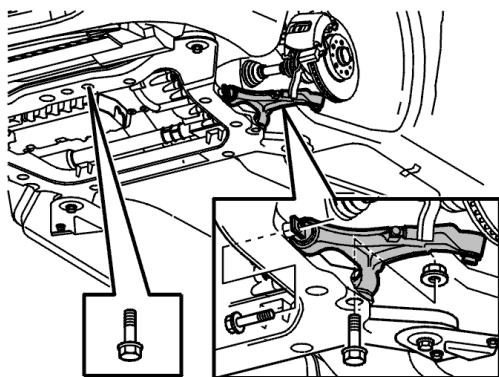
Applies to cars equipped with the 4T65 EV/GT transmissions:

- Remove the screw for the front motor mounting.

Applies to all models:

- Lift up the left-hand side of the engine approximately 25 mm to expose the control arm screw. Use a mobile jack.

Note! Use a wooden block between the jack and engine.



Remove:

- the screws and the nut for the control arm in the sub-frame
- the control arm.

Removing the right control arm

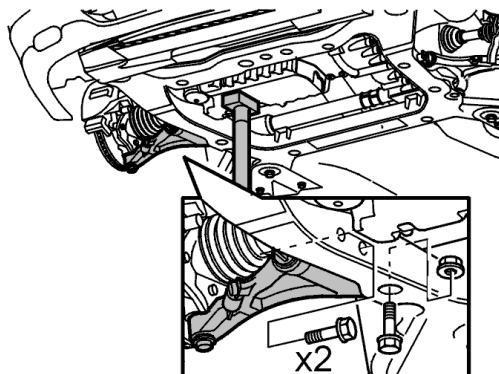
Applies only to cars with 6 cylinder engines:

- Remove the vibration damper.

Applies to all models:

- Remove both the right hand engine mounting screws
- Lift the right-hand side of the engine approximately 25 mm to expose the control arm screw. Use a mobile jack.

Note! Use a wooden block between the jack and engine.



Remove:

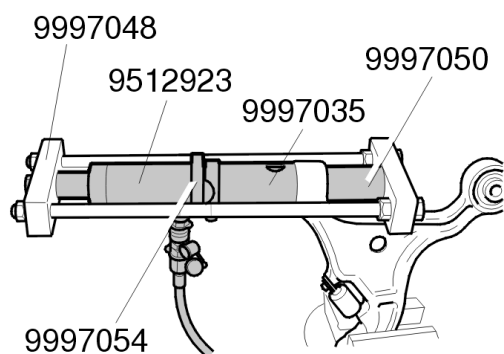
- the screws and the nut for the control arm in the sub-frame
- the control arm.

Removing the front bushing

- Position the control arm in a vise with soft jaws.

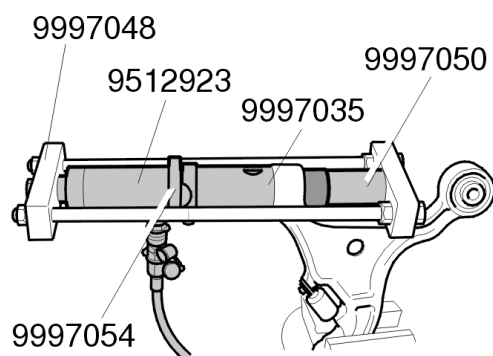
Note! Measure and note the position of the bushing before removal.

Use tool 999 7048 together with hydraulic



- Use tool [999 7048](#) together with hydraulic cylinder [951 2923](#) with [999 7054](#) , [999 7050](#) and [999 7035](#) .
- Press out the bushing
- Clean in and around the bushing in the control arm.

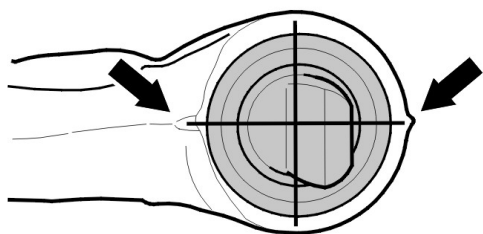
Installing the front bushing



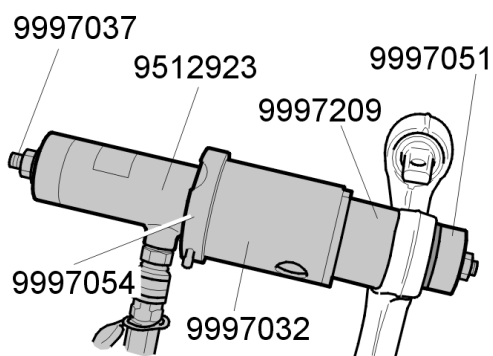
- Use tool [999 7048](#) together with hydraulic cylinder [951 2923](#) with [999 7054](#) , [999 7050](#) and [999 7035](#) .
- Press the bushing in.

Note! Do not press in more than the measured bushing position.

Caution! Ensure that the bushing is at the correct angle in the control arm.



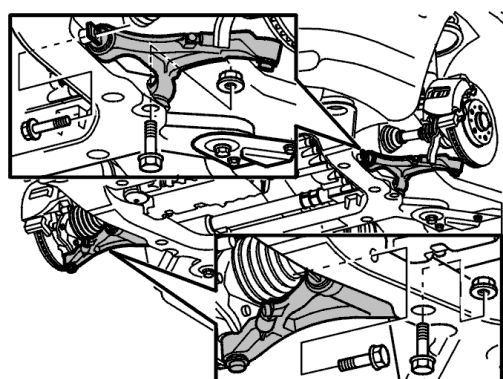
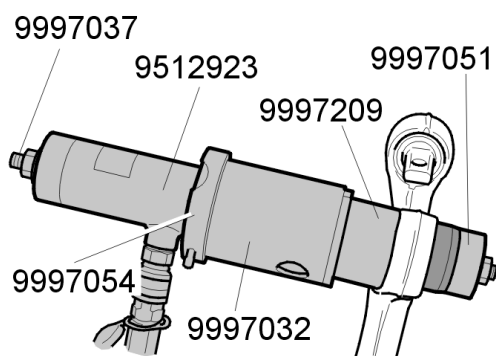
Removing the rear bushing



- Position the control arm in a vise with soft jaws.
- Note! Measure and note the position of the bushing before removal.
- Use tool [951 2923](#) with [999 7054](#) , [999 7037](#) , [999 7032](#) , [999 7209](#) and [999 7051](#) .
- Press out the bushing

Installing the rear bushing

- Use tool [951 2923](#) with [999 7054](#) , [999 7037](#) ,



[999 7032](#) , [999 7209](#) and [999 7051](#) .

- Press the bushing in.

Note! Do not press in more than the measured bushing position.

Installing the right control arm

- Install the control arm. Use new screws
- Tighten the front screws. Tighten to 65 Nm. Angle-tighten 90°. Use bevel protractor [951 2050](#) .
- Tighten the rear screw and nut. Tighten to 105 Nm. Angle-tighten 90°.
- Lower the engine
- Remove the mobile jack
- Tighten the screws on the right engine mounting. Tighten to 35 Nm. Angle-tighten 90°. Use new screws.

Applies only to cars with 6 cylinder engines:

- Install the vibration damper. Use new screws. Tighten to 35 Nm. Angle-tighten 50°.

Installing the left control arm

- Install the control arm. Use new screws
- Tighten the front screws. Tighten to 65 Nm. Angle-tighten 90°. Use bevel protractor [951 2050](#) .
- Tighten the rear screw and nut. Tighten to 105 Nm. Angle-tighten 90°

Applies to cars equipped with the 4T65 EV/GT transmissions:

- Lower the engine
- Tighten the front engine mounting. Tighten to 50 Nm
- Remove the mobile jack

Installing the drive shaft

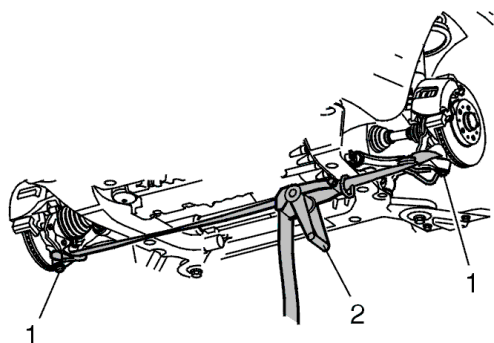
- Clean the drive shaft splines
- Release and remove the retaining strap on the spring strut
- Align the drive shaft in the hub
- Lubricate and install the drive shaft screws

- Lubricate and install the drive shaft screws.

Installing the ball joint

Warning! Ensure that the tension strap is correctly secured in the control arms.

- Pull down the control arms (1) using a tension strap (2)
- Align the ball joint in the control arm
- Remove the tensioner strap.

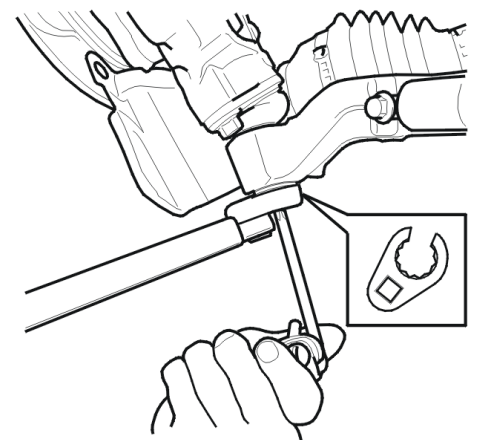


Tightening the ball joint

Warning! Ensure that the tension strap is correctly secured in the control arms.

- Install a new nut on the ball joint. Tighten.
See: [Tightening torque](#) . Use a torx wrench as a counterhold.

Note! Make sure that the mating surfaces on the ball joint and link are clean.



Tightening the drive shaft

- Tighten the drive shaft. See [Tightening torque](#) . Use a screwdriver as a counterhold on the brake disc.

Install:

- the splash guard under the engine
- the wheels. See [Installing wheels](#) .

