



Technical Journal

TITLE:

Front Air Suspension, knock/rattle/clatter noiseREF NO:
TJ 32978.4.0ISSUING DEPARTMENT:
Technical ServiceCAR MARKET:
United States and CanadaPARTNER:
3 US 7510 Volvo Car USAISSUE DATE:
2018-07-13STATUS DATE:
2018-07-19FUNC GROUP:
7251FUNC DESC:
**FR SPR, HYD/GAS/AIR,
BELLOWS, CYLINDER**

Page 1 of 26

“Right first time in Time”

Attachment

File Name	File Size
TJ 32978.wmv	2.6571 MB
TJ 32978.m4a	0.2825 MB
TJ 32978 UCA Ball joint.jpg	0.1528 MB
TJI-503532-2_1_0_en-US.pdf	7.4435 MB

Vehicle Type

Type	Eng	Eng Desc	Sales	Body	Gear	Steer	Model Year	Plant	Chassis range	Struc Week Range
256	08	B4204T20					2016-2017		0000001-0114847	201505-201621
256	10	B4204T23					2016-2017		0000001-0114847	201505-201621
256	A2	B4204T27					2016-2017		0000001-0114847	201505-201621
256	BA	B1APHEV					2016-2017		0000001-0140101	201526-201640
256	BC	B1BPHEV					2016-2017		0000001-0140101	201526-201640

CSC Customer Symptom Codes

Code	Description
WV	Suspension/Clicking/clonking noise/At start/stop
WY	Suspension/Clicking/clonking noise/Unsure when/at all times
X1	Suspension/Unusual noise
8J	Shock absorption/Unusual noise



VST Operation Number

VST Operation Number	Description
36002-3	Software control module downloading
97194-2	Shock absorber, front, air suspension replace acc. to TJ32978
36050-2	Calibrating/Identifying with VIDA
36060-3	Calibration with VIDA

DTC Diagnostic Trouble Codes

Rows beginning with * are modified

Note! If using a printed copy of this Technical Journal, first check for the latest online version.

Text

DESCRIPTION:

If the vehicle is equipped with air suspension and if customer is complaining over a knock/rattle/clatter noise from the front suspension when driving on rough roads or over a road hump, then follow the advice under Service.

Note: Vehicles with Air suspension can be identified by the following VDN code: RI03.

SERVICE:

* First before replacing any air suspension parts, check condition of the ball joints in the upper control arms, it could happen that these ball joints are worn or damaged since these could create a similar noise, see picture [TJ 32978 UCA Ball joint.jpg](#).

Too high tire pressure could produce noise that could be misinterpreted as noise from the front air suspension system.

First ensure that the tire pressure is matching the Comfort tire pressure, refer to the Tire Label (located in left side B-pillar) or Owners Manual.

It is required that workshop test drive the vehicle with Comfort tire pressure in order to verify the customers complaints regarding unacceptable noise from the front suspension.

* Once it is confirmed that the knock/rattle/clatter noise is coming from the air suspension, replace front shock absorbers according to TJ Instruction VCC-503532-2 (see also movie, special tool 9997644_v3.mp4) and perform a SUM upgrade.

* Note: If these parts have been replaced previously for the same reason, then please first send a TIE Vehicle Report (Support Needed) to check if it is really needed to carry out an second repair.

Note: The Hose coupling (31429025) should be used as a tool when filling the shock absorber during reassembly, should be reused.

VEHICLE REPORT:

Yes, please submit a Vehicle Report if the service solution described in this TJ has no effect. Use concern area "Vehicle Report" and sub concern area "Support not needed", use function group 7251.

To view TJ attachment continue to next page. This TJ has four attachments.





Volvo Car Customer Service

TJ Instruction VCC-503532-2

Title	Front shock absorber, air suspension	Page	1 (23)
Action	Replacement	Operation number:	97194-2

Issue	Date	Reason
1	2017-07	First issue

Affected vehicles

Model year	Model
2016	XC90 (16-)

Materials

Materials	Qty.	Part No.	Notes
Lubricant	0.1	31400016	
Flange screw	2.0	988926	
Flange screw	2.0	30670571	
Repair kit	1.0	31681930	
Grease	0.1	31400019	US/CAN;
Grease	0.1	31400020	CN;
Shock absorber	2.0	31476852	
Shock absorber	2.0	31658905	For T8;

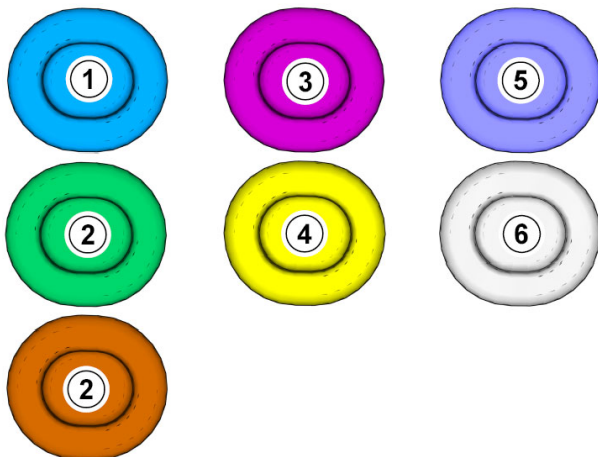
Special tools

Description	Part No.
Installation/Removal Tool	999 7644
SOCKET UPPER NUT REAR SHOCK ABSORBER	999 5500

Equipment

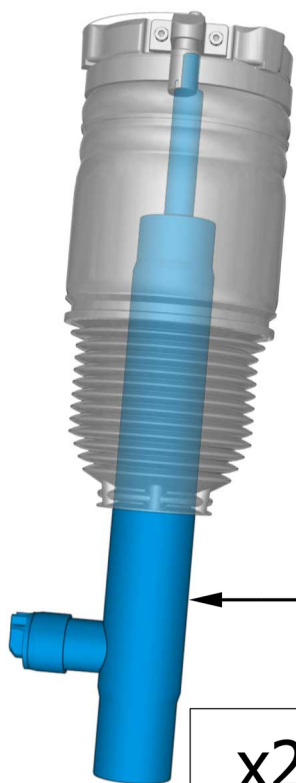
Designation	Part No.
Hose coupling (31429025)	

Color symbols

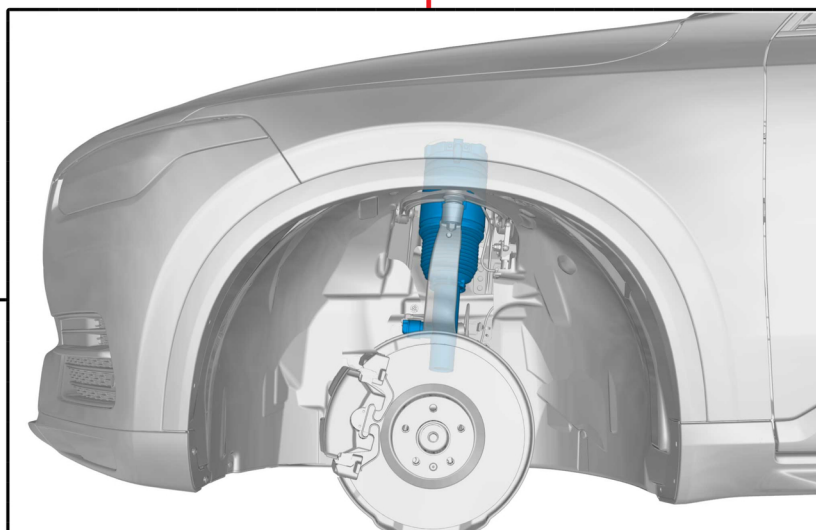


Note! This colour chart displays (in colour print and electronic version) the importance of the different colours used in the images of the method steps.

- 1 . Used for focused component, the component with which you will do something.
- 2 . Used as extra colors when you need to show or differentiate additional parts.
- 3 . Used for attachments that are to be removed/installed. May be screws, clips, connectors, etc.
- 4 . Used when the component is not fully removed from the vehicle but only hung to the side.
- 5 . Used for standard tools and special tools.
- 6 . Used as background color for vehicle components.



x2



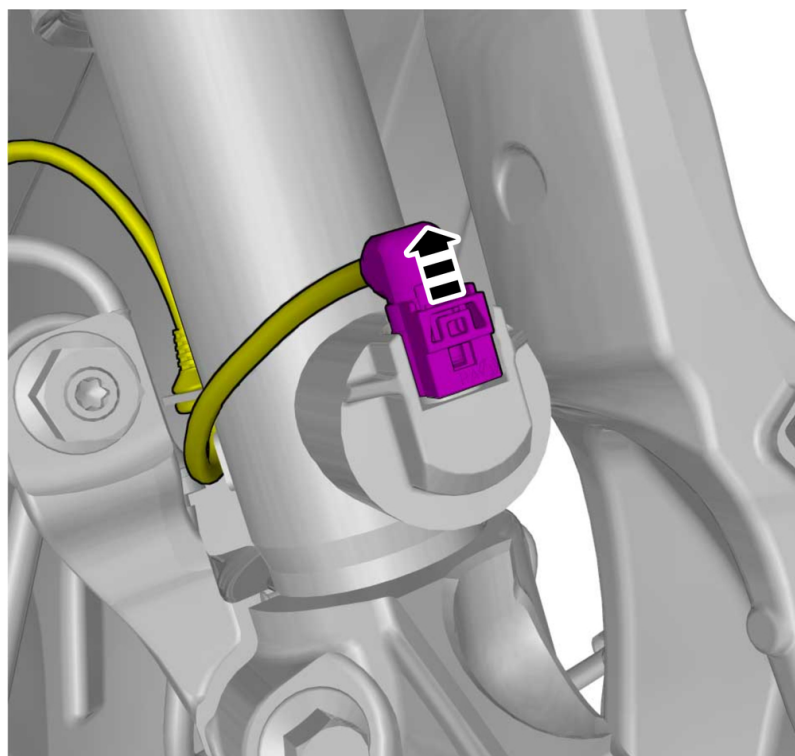
Removal

Deactivate the Air suspension control in Settings, which is found in Center Console Display top view or by way of VIDA: Diagnostics/Components/ECU/SUM/Diagnostic sequences/Enable leveling control

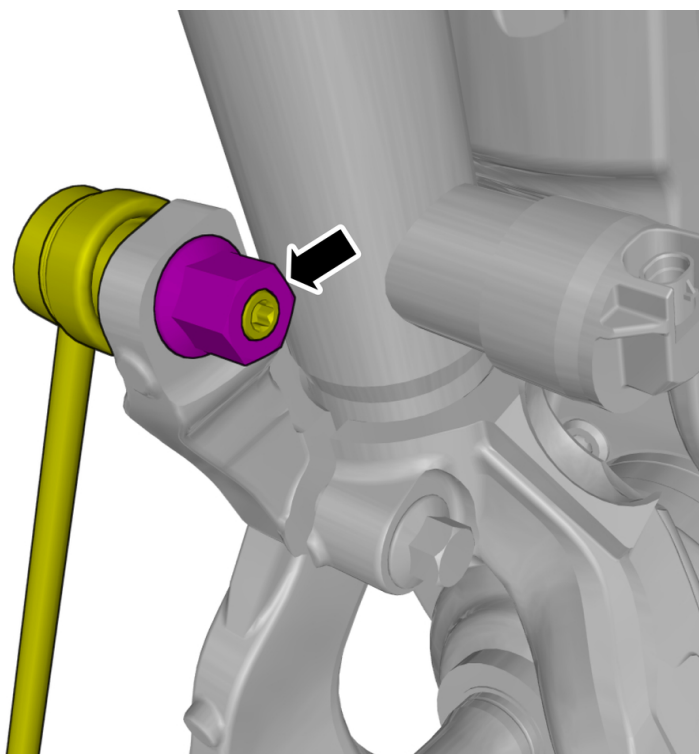
Remove the front wheel , refer to:
Removal, replacement and installation
7 - Springs and wheels
77 - Wheels, tyres, hubs
771 - wheel and wheel trim

Empty air springs according to: Diagnostics/Components/ ECU / SUM / Diagnostic Sequences / Deflating and filling air springs and reservoir

On both sides.



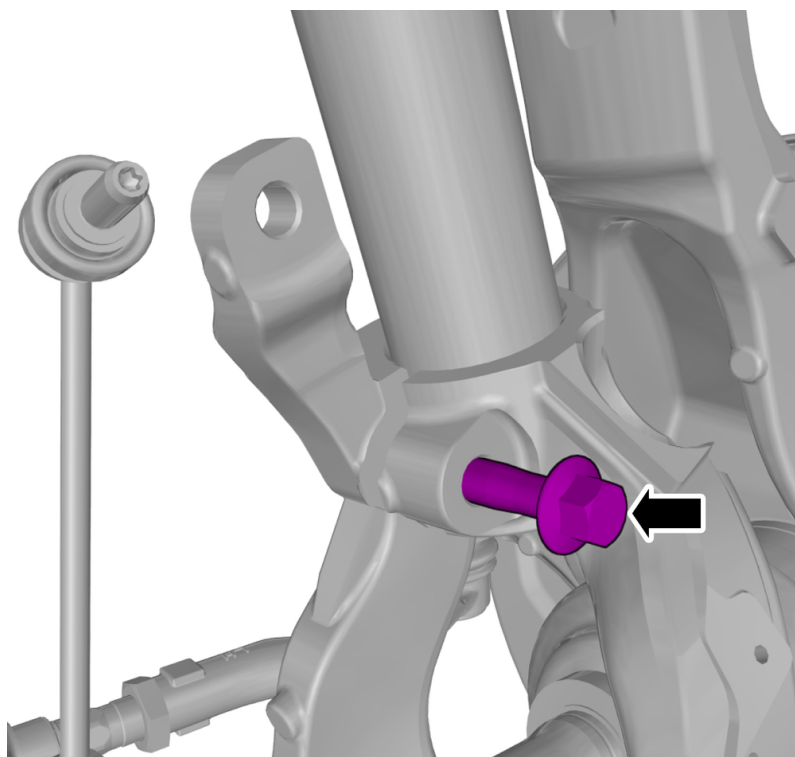
Disconnect the connector.



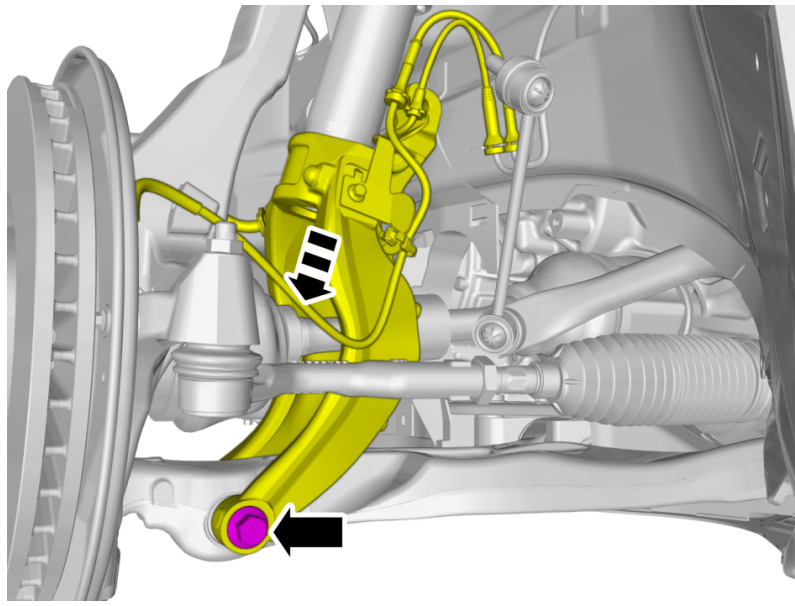
Remove the nut.

Torque:

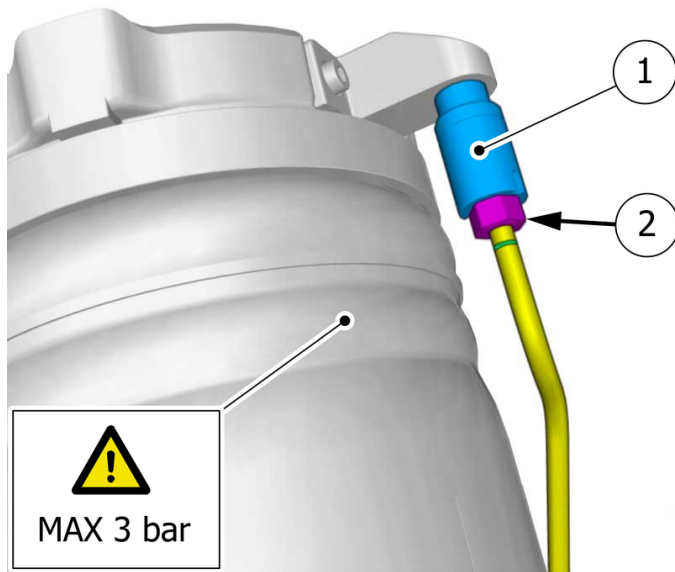
Front stabilizer bar link to strut and spring assembly , 80 Nm



Remove the screw.

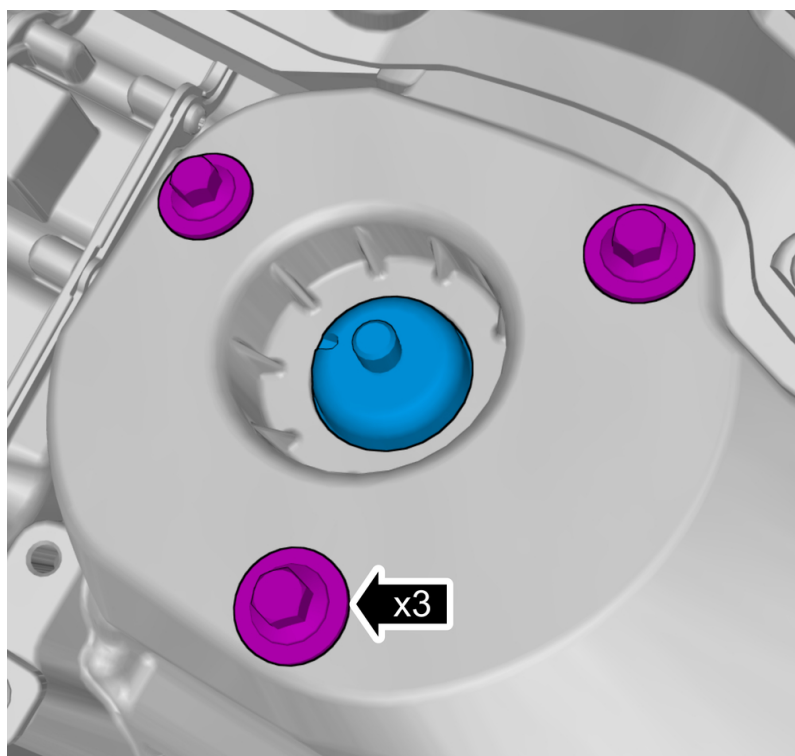


Remove the screw.
Loosen the component indicated. Do not remove it.

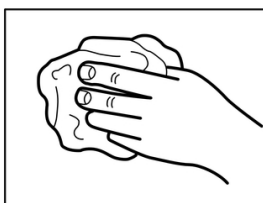
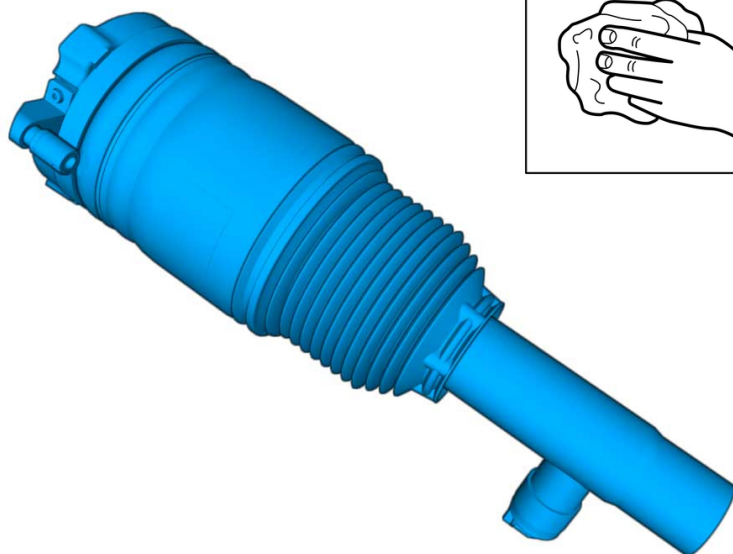


Caution! Make sure that the area around the component is clean and free of foreign material.

- 1 . **Caution! Hold the marked component in position to keep it from moving.**
- 2 . Loosen the nut.



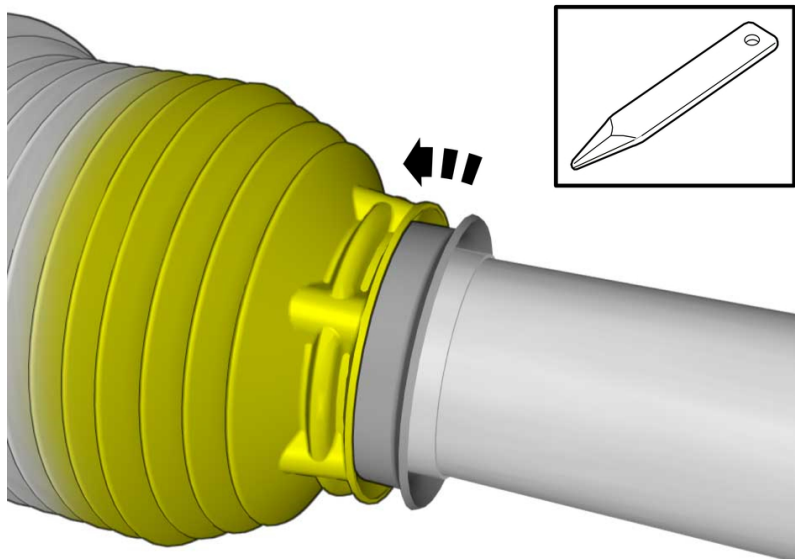
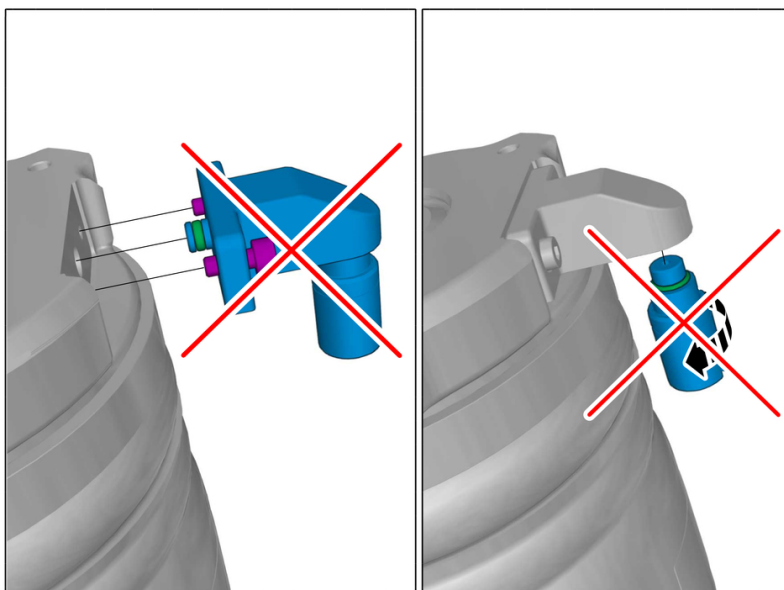
Remove the marked detail/details.



Note! Make sure that the component is clean and free of foreign material.

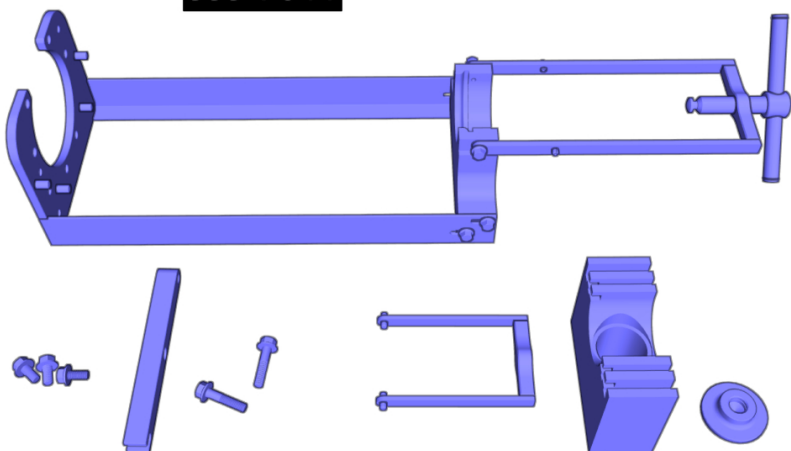
Repair

Remove the part carefully

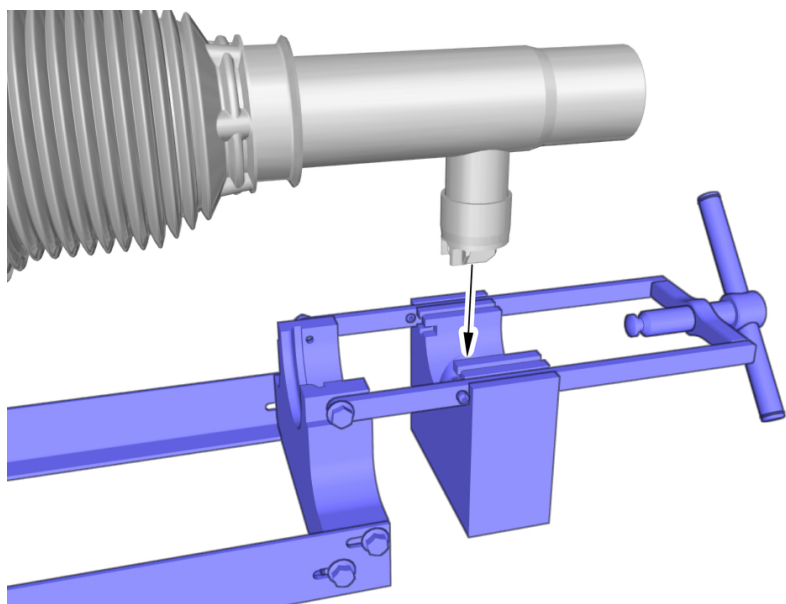
**Caution! The component must not be disassembled.**

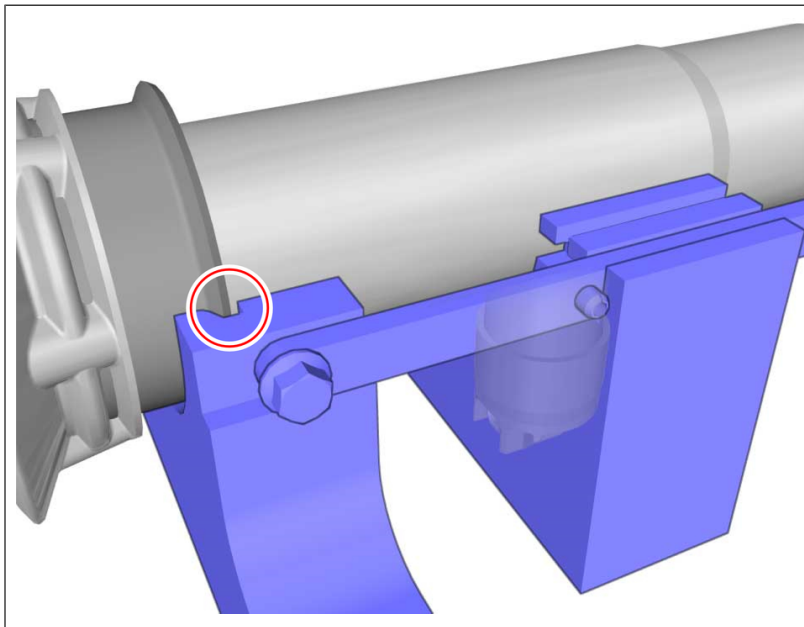
Special Tool: T9997644, Installation/Removal
Tool

999-7644



Place the component where indicated in the
graphic.

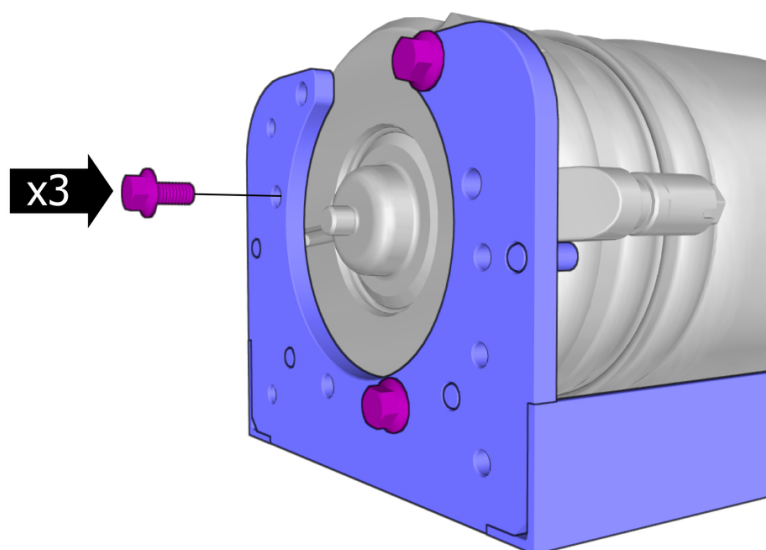


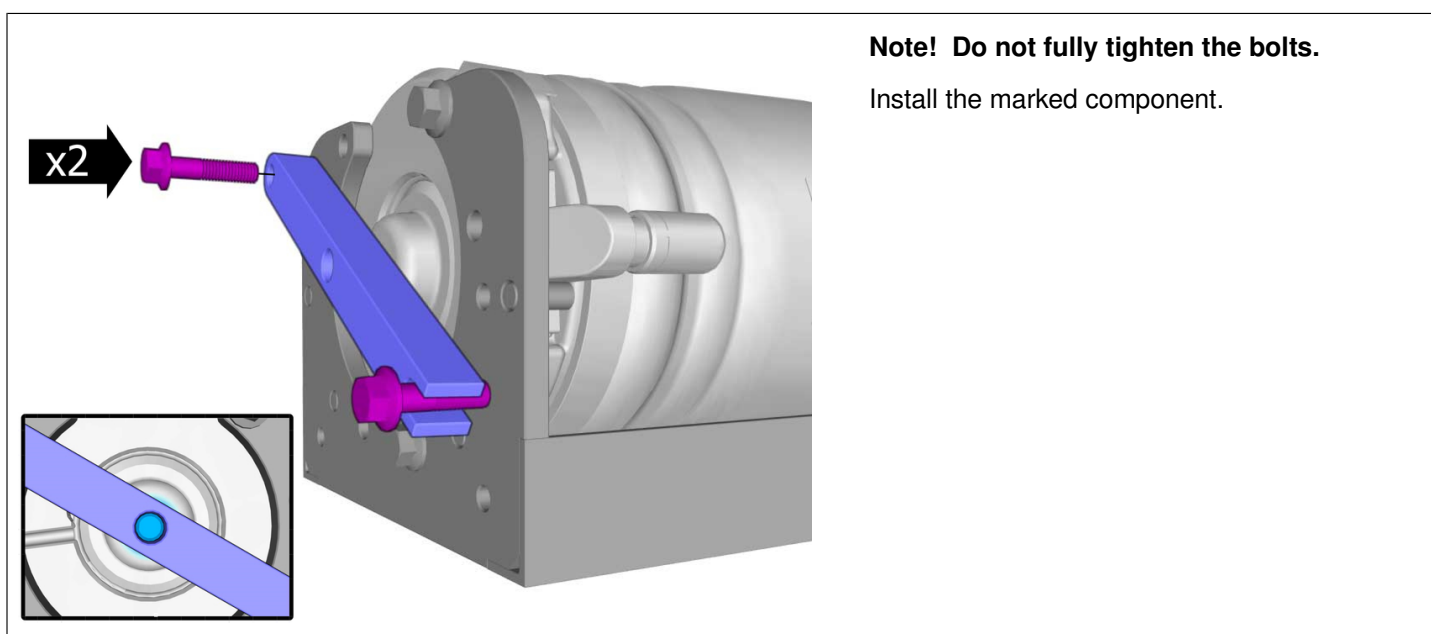
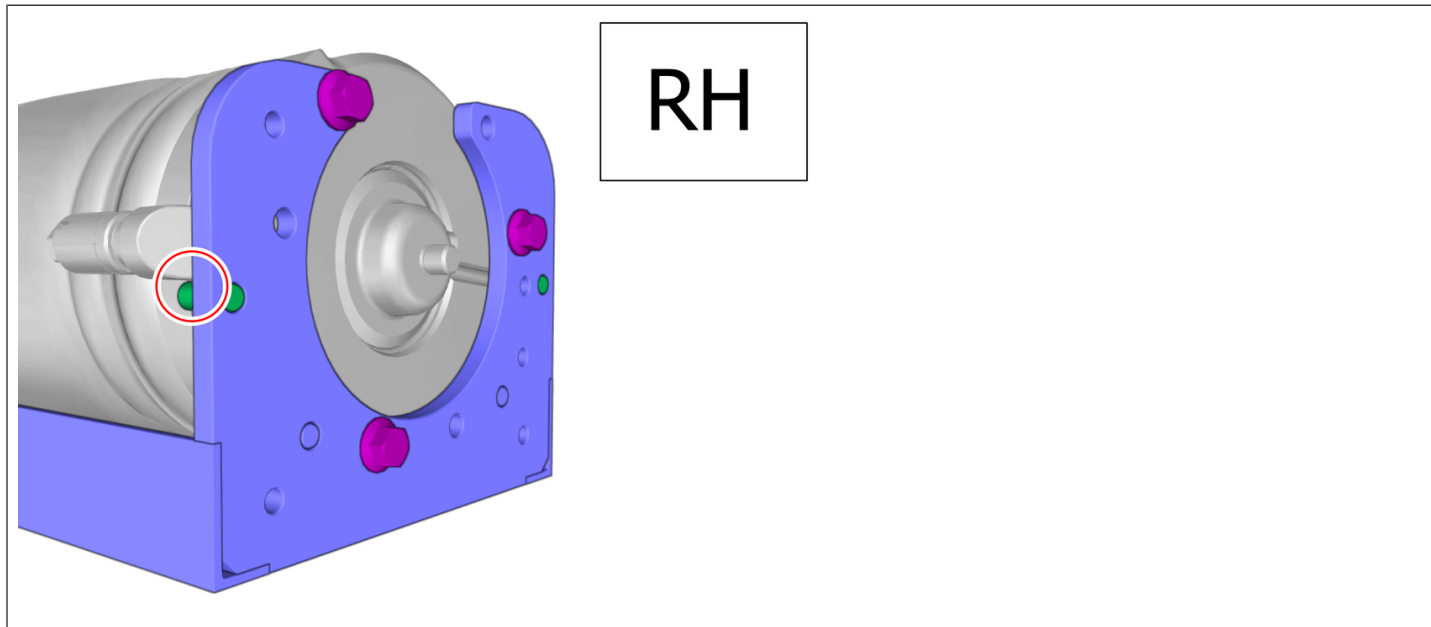


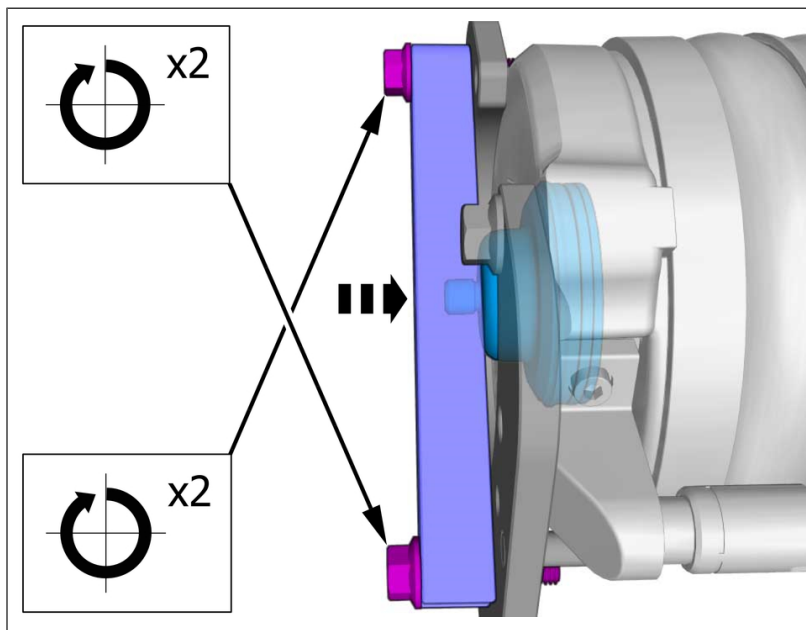
Install the screws.

Torque:

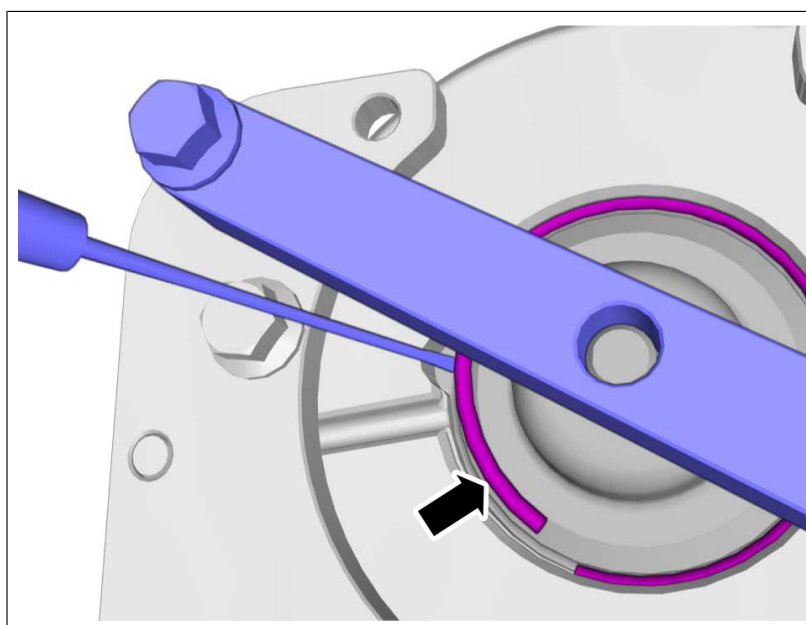
M8 , 24 Nm



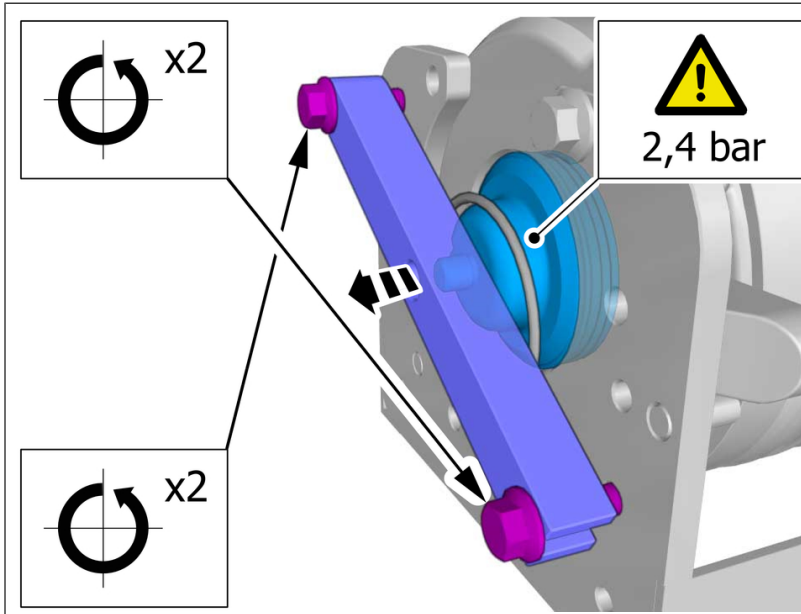




Tighten each bolt 2 turns at a time.

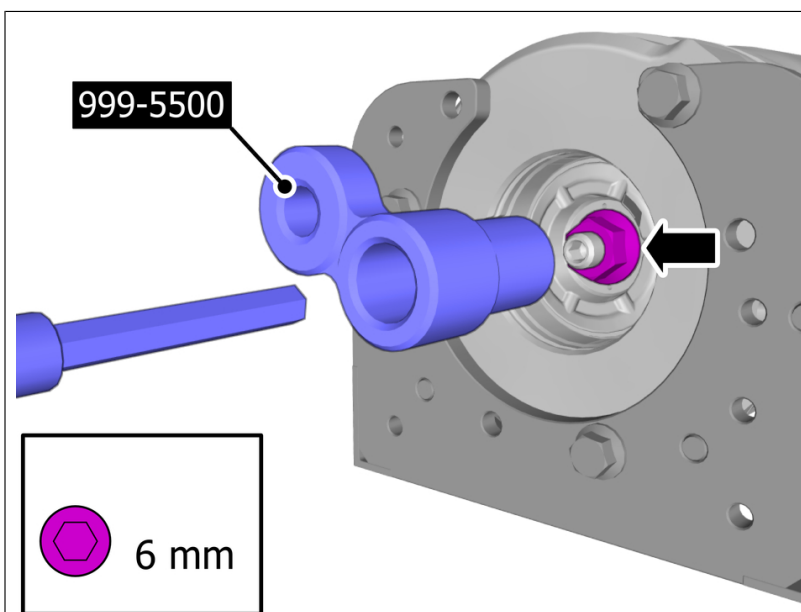


Remove the marked part.



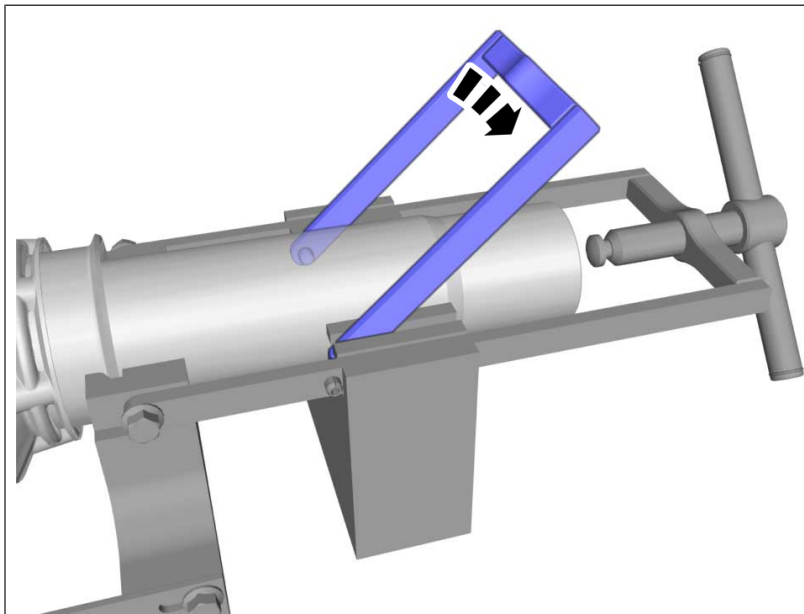
Note! Make sure that air can freely escape.

Loosen each bolt 2 turns at a time until all bolts are removed.

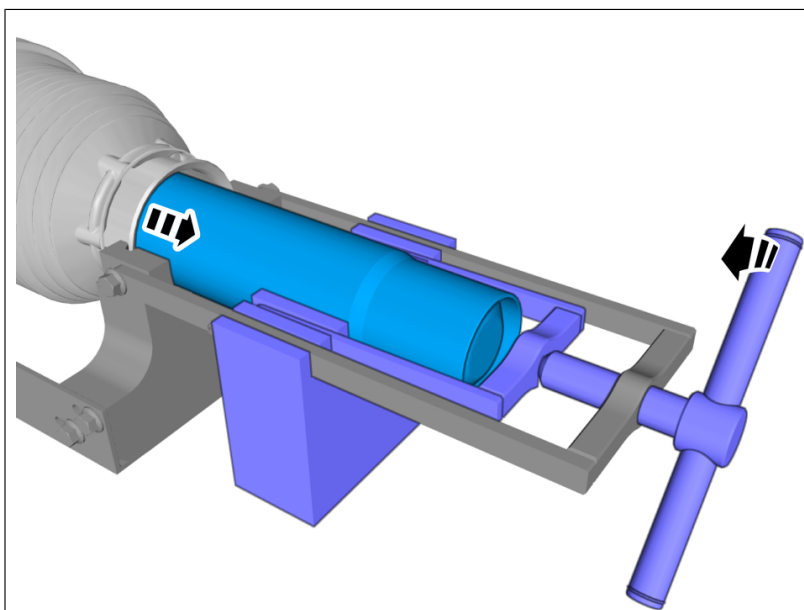


Remove the nut.

Special Tool: T9995500, SOCKET UPPER NUT
REAR SHOCK ABSORBER



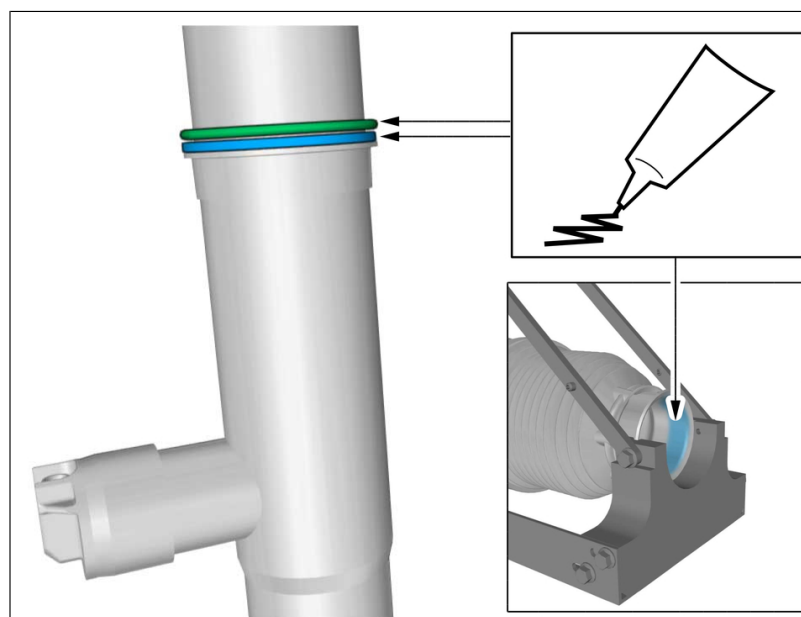
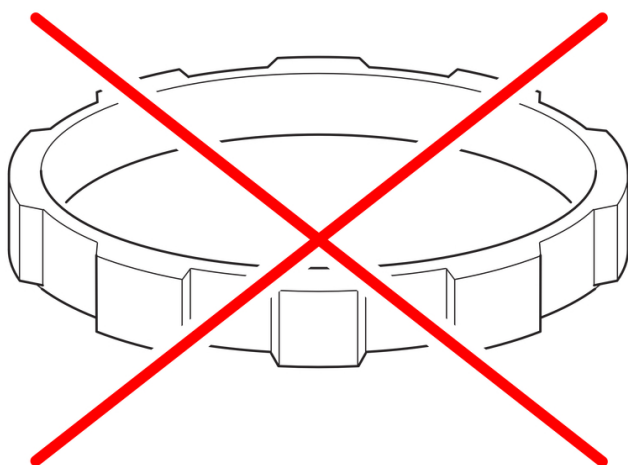
Place the component where indicated in the graphic.



Remove the part carefully

Caution! Extreme cleanliness must be exercised when handling these components.

The part is not to be reused.

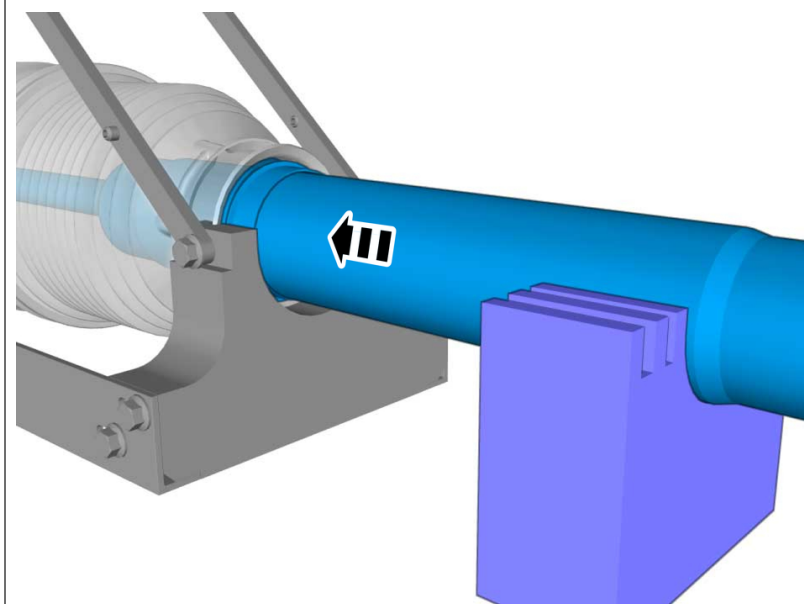


Caution! Only use the specified lubricant.

Note! Use new seals.

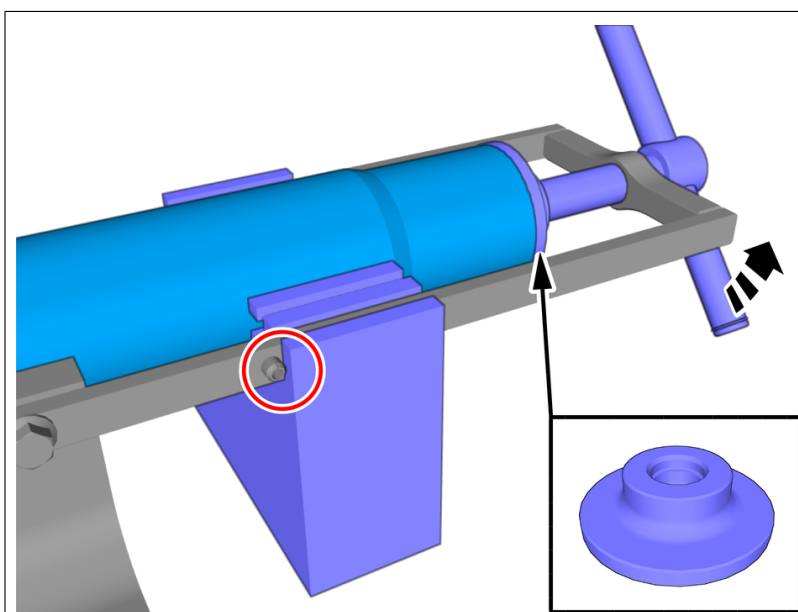
Note position of components.

Use: Lubricant , 31400016



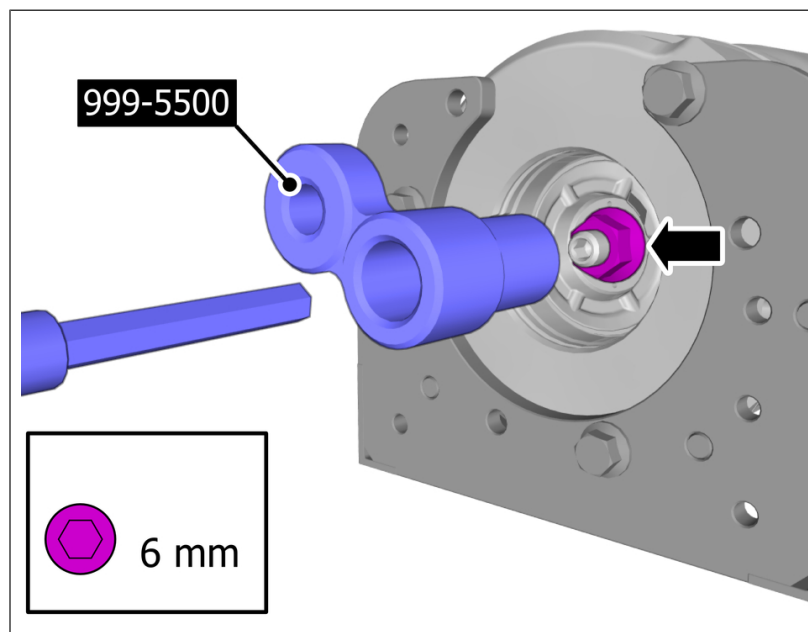
Caution! Observe caution when carrying out this step.

Use hands only.



Place the component where indicated in the graphic.

Turn in direction of arrow until stop.

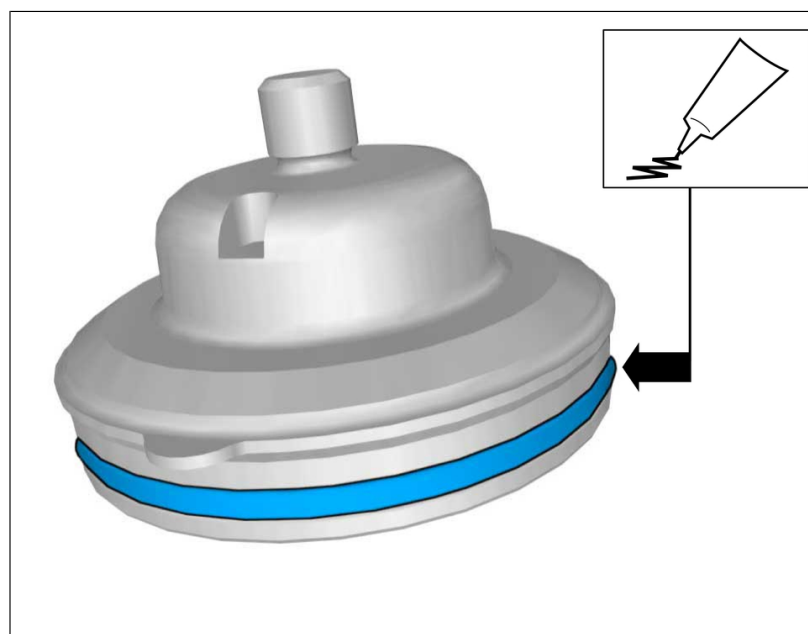


Caution! Make sure that a new nut is installed.

Tighten the nut.

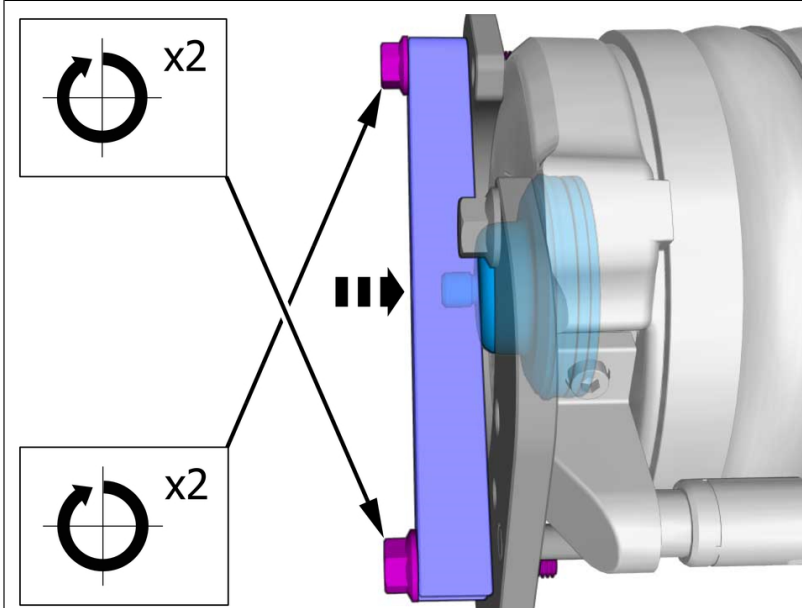
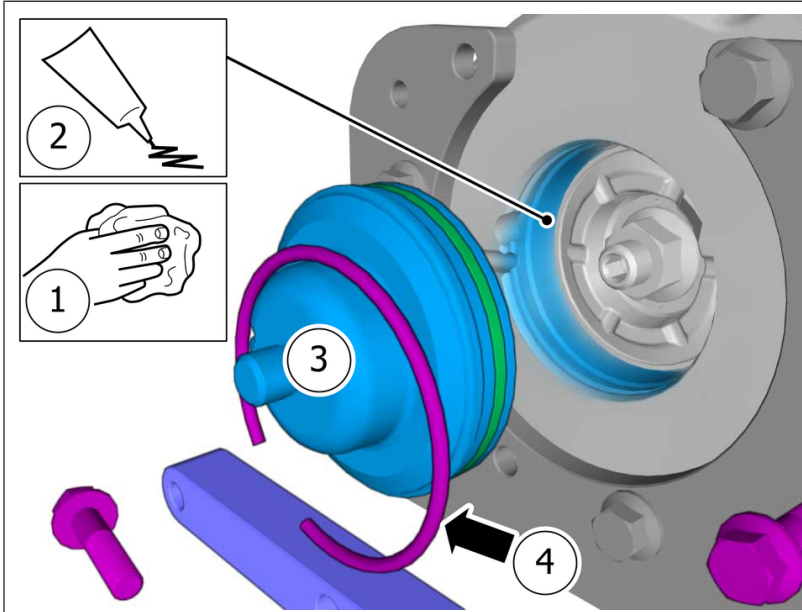
Torque:

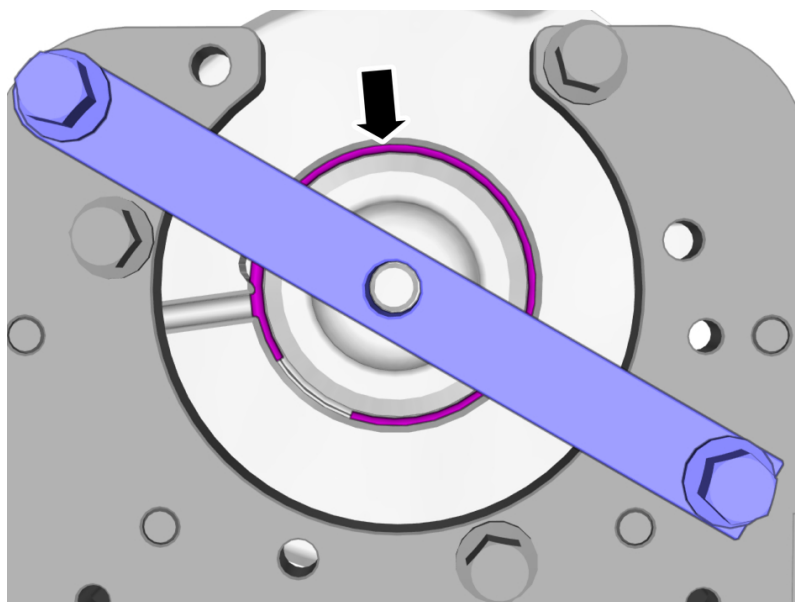
Air suspension to shock absorber , 55 Nm



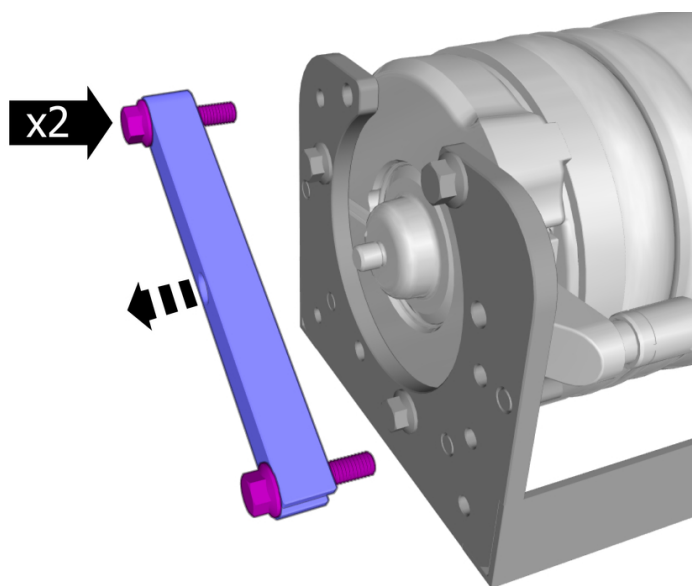
Caution! Only use the specified lubricant.

Note! Use a new seal.

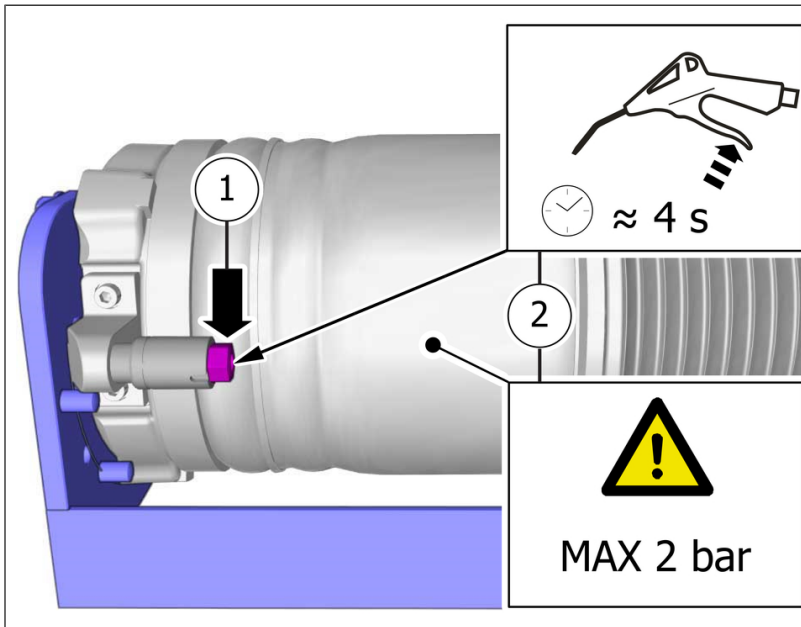




Caution! Make sure that the component is positioned correctly.

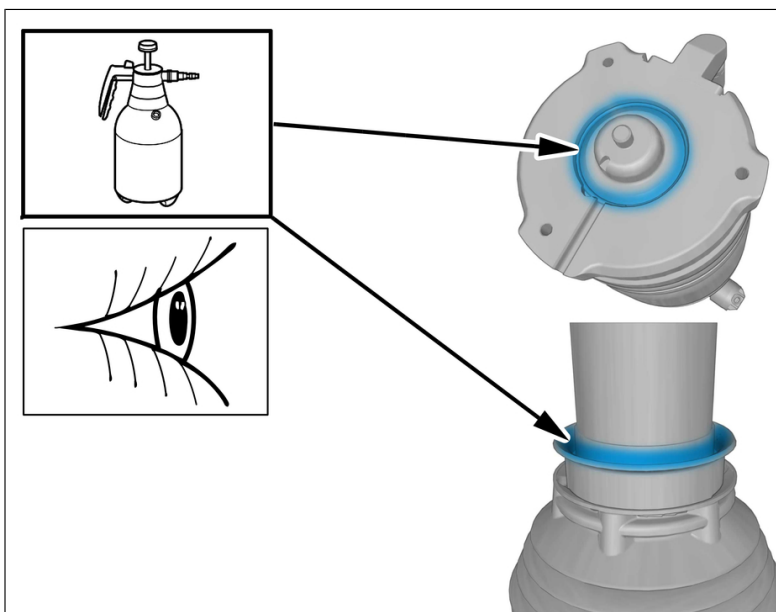


Loosen each bolt 2 turns at a time until all bolts are removed.
Remove the marked part.

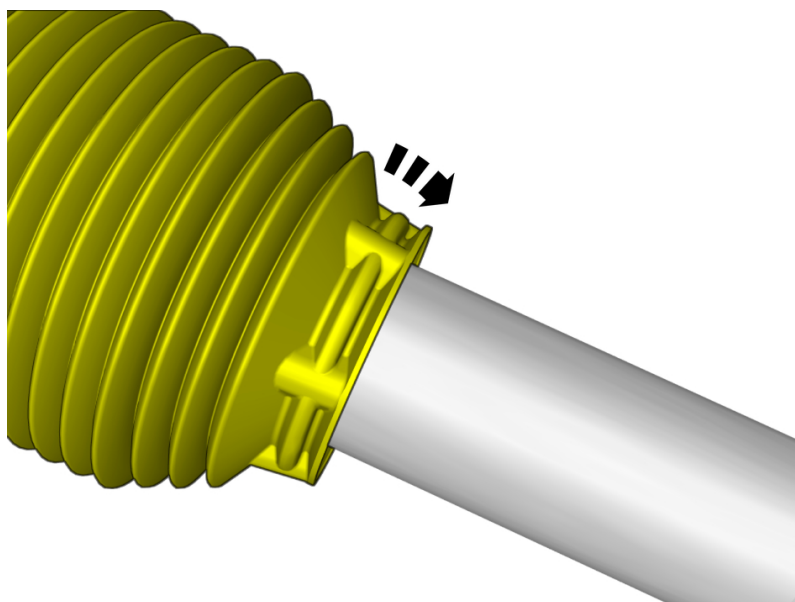


- 1 . Install the marked component.
- 2 . **Caution! Make sure that the system pressure is within specification.**

Use: Hose coupling (31429025)



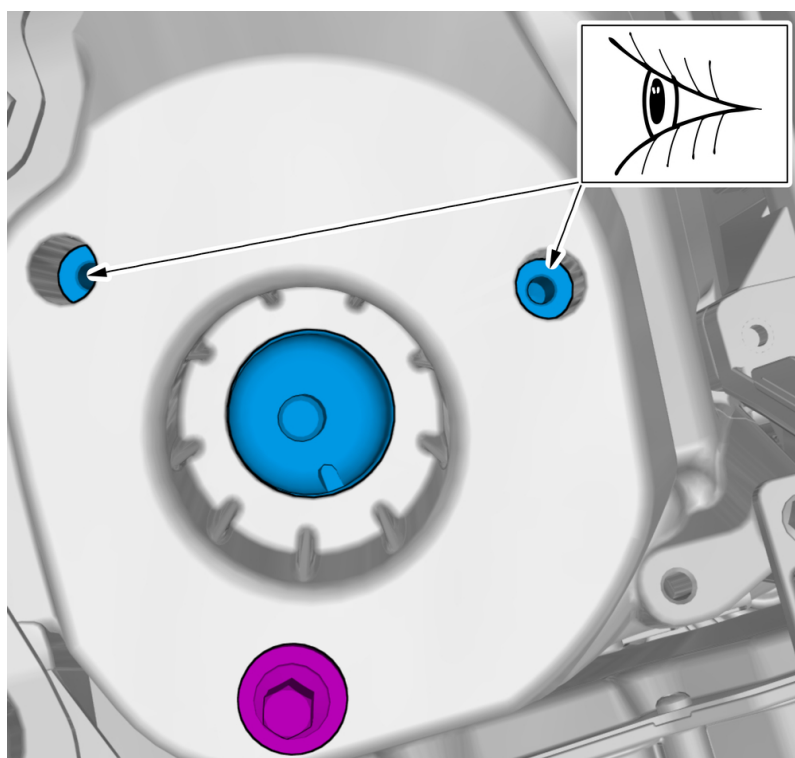
Note! Use soap solution.



Note! Make sure that the boot is correctly located.

Repeat all method steps for the other side.

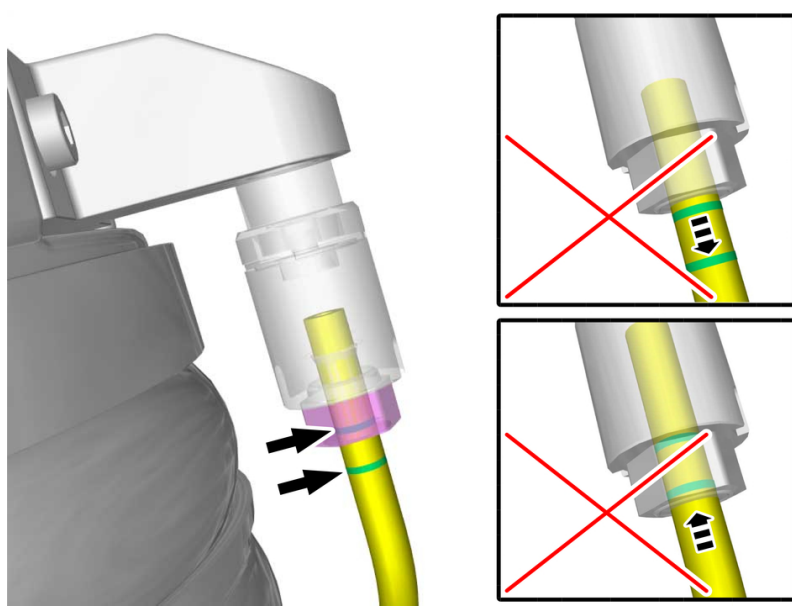
Installation



Note! Make sure that the component is centred.

Torque:

Front shock absorber bearing, to Body ,
30 Nm

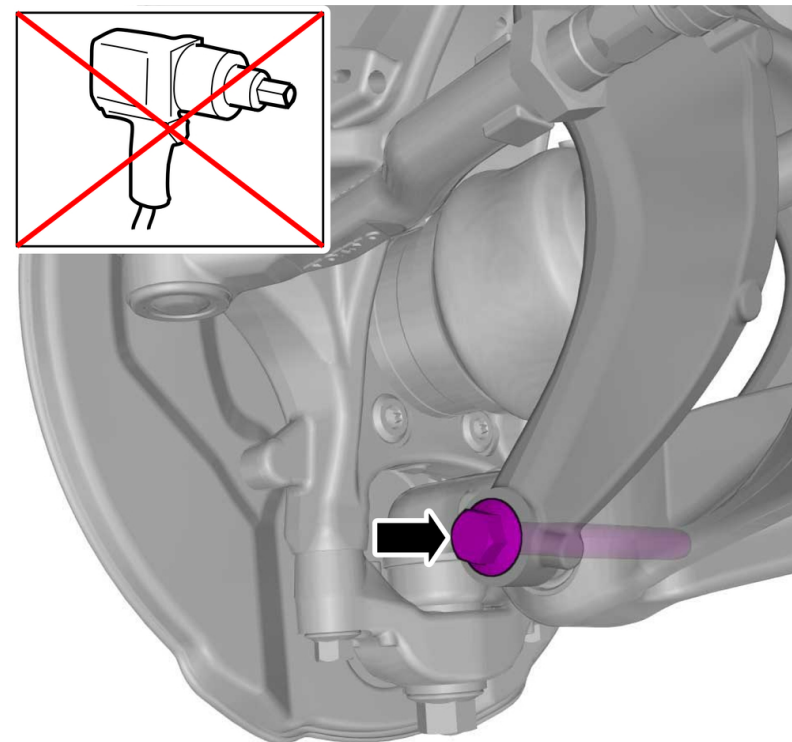


Note! Make sure that the installation marks are aligned.

Tighten the nut.

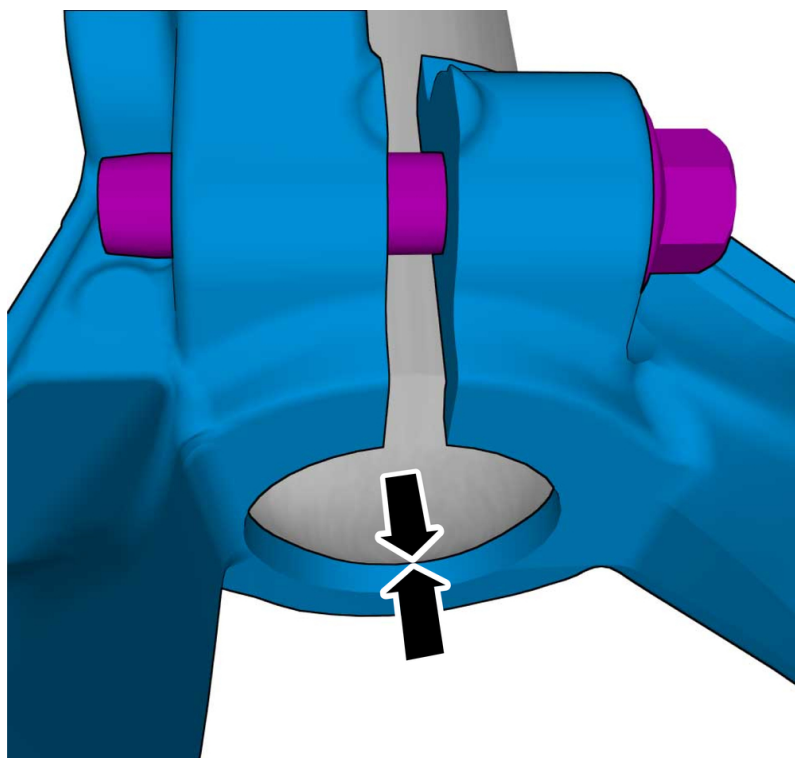
Torque:

Air hose connector, to Connector with metal thread , 5 Nm



Caution! Make sure that a new bolt is installed.

Note! Do not fully tighten the bolt.



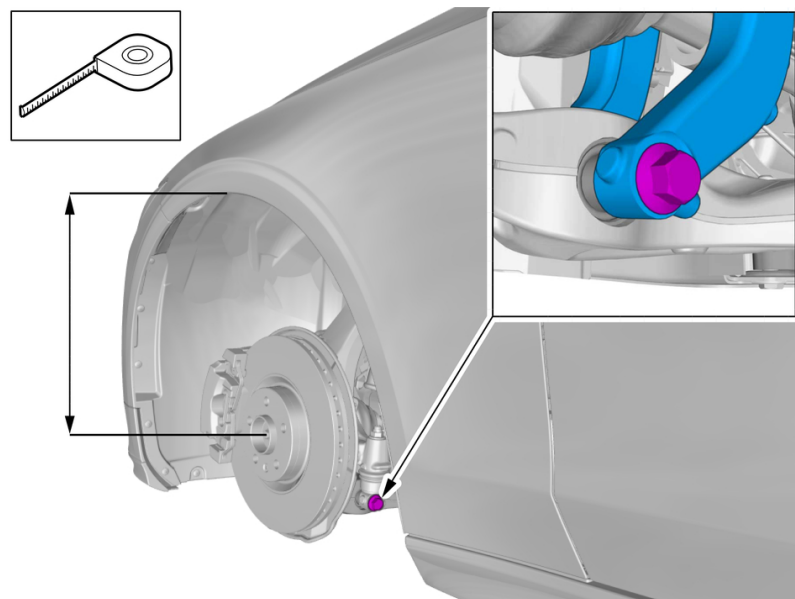
Caution! Make sure that a new bolt is installed.

Caution! Make sure that the component is positioned correctly.

Tighten the screw.

Torque:

Shock Absorber Fork, to Shock Absorber ,
60 Nm



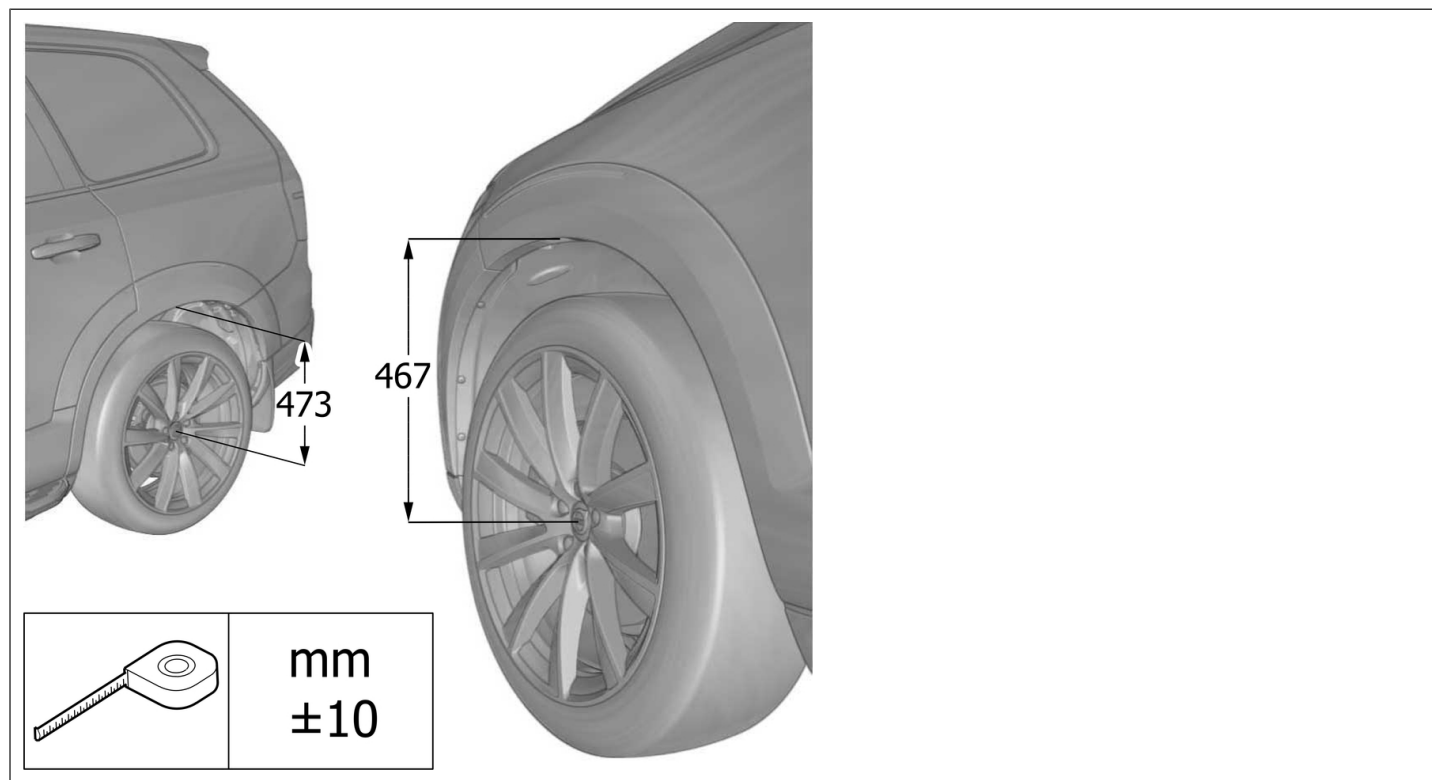
Note! Only tighten the nuts and bolts when the suspension is in the normal drive position.

Tighten the screw.

Torque:

- Stage 1 : Shock Absorber Fork to Front Lower Control Arm , 140 Nm
- Stage 2 : Shock Absorber Fork to Front Lower Control Arm , 180°

Extra information



Fill air springs according to: Diagnostics/
Components/ ECU / SUM / Diagnostic
Sequences / Deflating and filling air springs and
reservoir

**Caution! Make sure that the air springs are
inflated before lowering the vehicle.**

When necessary, carry out the following instruction.

Order and download software.