



# Technical Journal

TITLE:  
**Front Air Suspension, knock/rattle/clatter noise**

<b>REF NO:</b> TJ 31236.8.0	<b>ISSUING DEPARTMENT:</b> Technical Service	<b>CAR MARKET:</b> United States and Canada	
<b>PARTNER:</b> 3 US 7510 Volvo Cars North America		<b>ISSUE DATE:</b> 2016-06-15	<b>STATUS DATE:</b> 2016-06-22
<b>FUNC GROUP:</b> 7251	<b>FUNC DESC:</b> FR SPR, HYD/GAS/AIR, BELLOWS, CYLINDER	Page 1 of 17	

“Right first time in Time”

## Attachment

File Name	File Size
<a href="#">TJ 31236.m4a</a>	<a href="#">0.2825 MB</a>
<a href="#">TJ 31236.wmv</a>	<a href="#">2.6571 MB</a>
TJI-495571-1_1_0_en-US.pdf	5.4041 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

## 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
36004-2	Software control module downloading
36060-3	Calibration with VIDA
98632-2	Shock absorber replace acc, to TJ31236

## 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:

**\*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 correctly set, refer to the Tire Label (located in left side B-pillar) or Owners Manual.

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

\* If the noise is confirmed, then it is necessary to replace all four shock absorbers and download a new software for the suspension module (SUM) according to TJ instruction.

Spare parts to be used:

Front left air spring P/N 31476850,

Front right air spring P/N 31476851,

Rear left shock absorber P/N 31476853,

Rear right shock absorber P/N 31476854

- Replace front air springs and rear shock absorber according Vida and download SUM Upgrade, SP No. 31658477
- Important to calibrate SUM: VIDA -> Diagnostics -> Components -> Suspension module (SUM) -> Diagnostic Sequences -> Calibration of the Suspension Module (SUM)

Note: For T8 engines a service solution will be available end of Q3.

Note: Further developments regarding suspension noises are on-going, introduction time is pending.



### **VEHICLE REPORT:**

Only if the described noise not is comparable with attachments please submit a Vehicle Report. Use concern area "Vehicle Report" and sub concern area "Support not needed", use function group 7251. If material is needed it will be requested by report.

**To view TJ attachments continue to next page. This TJ has one attachment, one sound file posted separately and one video file posted separately.**



## Volvo Car Customer Service

TJ Instruction VCC-495571-1

<b>Title</b>	Shock absorber	<b>Page</b>	1 ( 14 )
<b>Action</b>	Replacement	<b>Operation number:</b>	98632-2 36004-2 36060-3

Issue	Date	Reason
1	2016-06	First issue

### Affected vehicles

Model year	Model
2016	XC90 (16-)

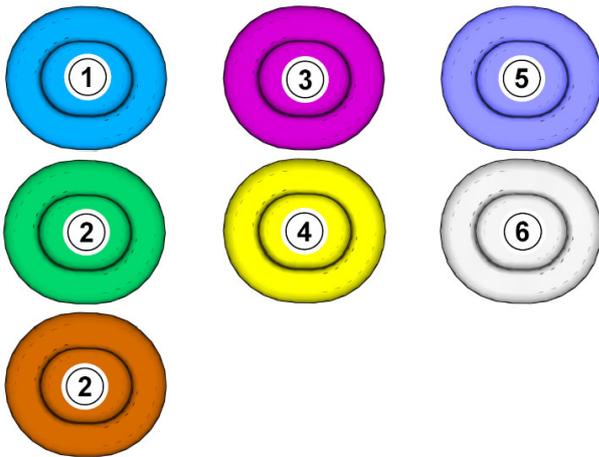
### Materials

Materials	Qty.	Part No.	Notes
Air spring	1.0	31476850	
Air spring	1.0	31476851	
Flange screw	2.0	30670571	
Flange screw	2.0	988926	
Flange screw	2.0	30640924	
Shock absorber	1.0	31476853	
Shock absorber	1.0	31476854	

## Removal

**Note! Removal steps in this procedure may contain installation details.**

## 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.**

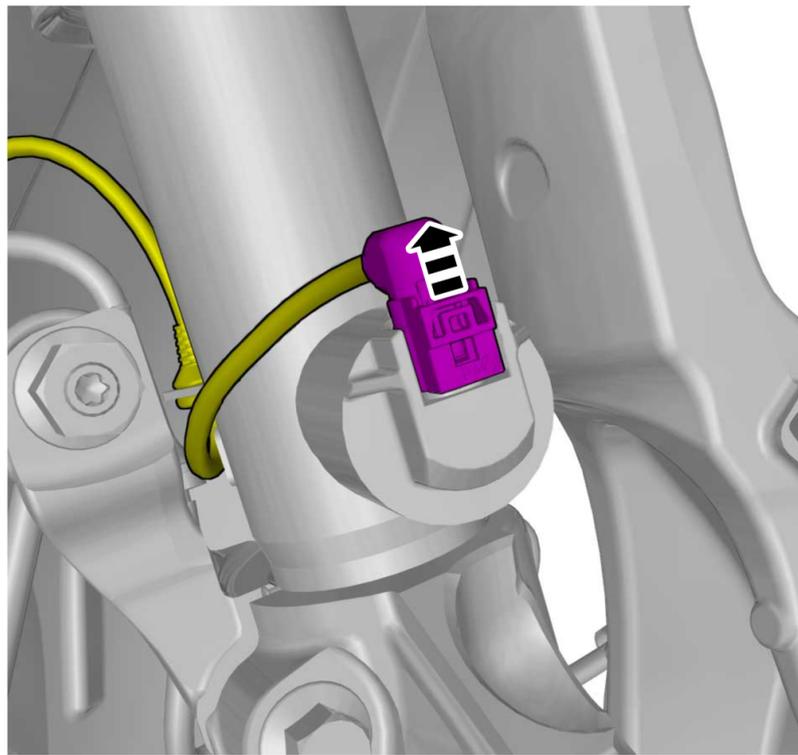
- 1 . Used for focused component, the component with which you will do something.
- 2 . Used as extra colors when you need to show or differentiate additional parts.
- 3 . Used for attachments that are to be removed/installed. May be screws, clips, connectors, etc.
- 4 . Used when the component is not 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.

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

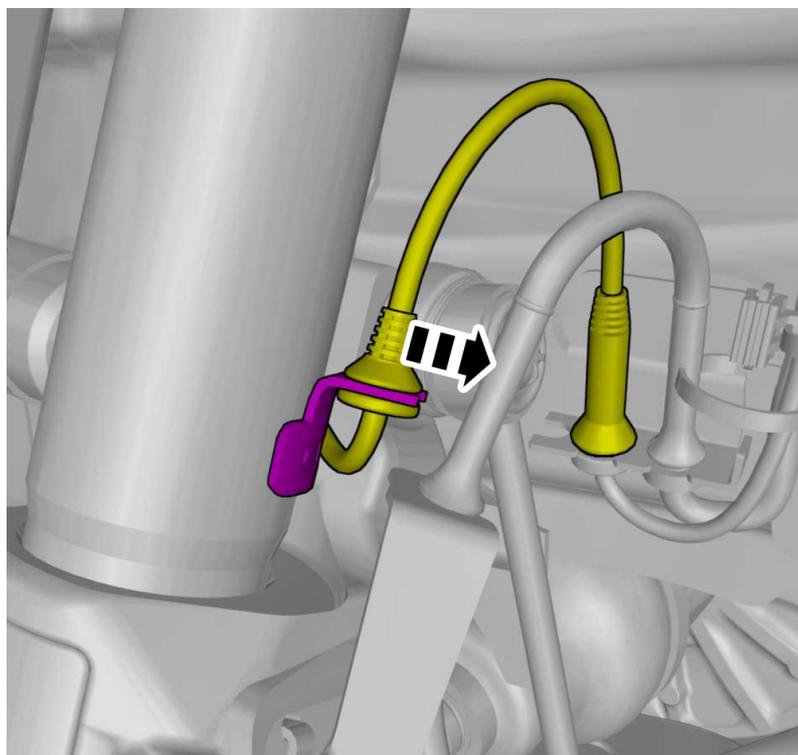
Remove the front wheel , refer to:  
 Removal, replacement and installation  
 7 - Springs and wheels  
 77 - Wheels, tyres, hubs  
 771 - wheel and wheel trim

Empty relevant air springs according to:  
 Diagnostics/ Components/ ECU / SUM /  
 Diagnostic Sequences / Emptying Air system, air bellows or Air system, air tank

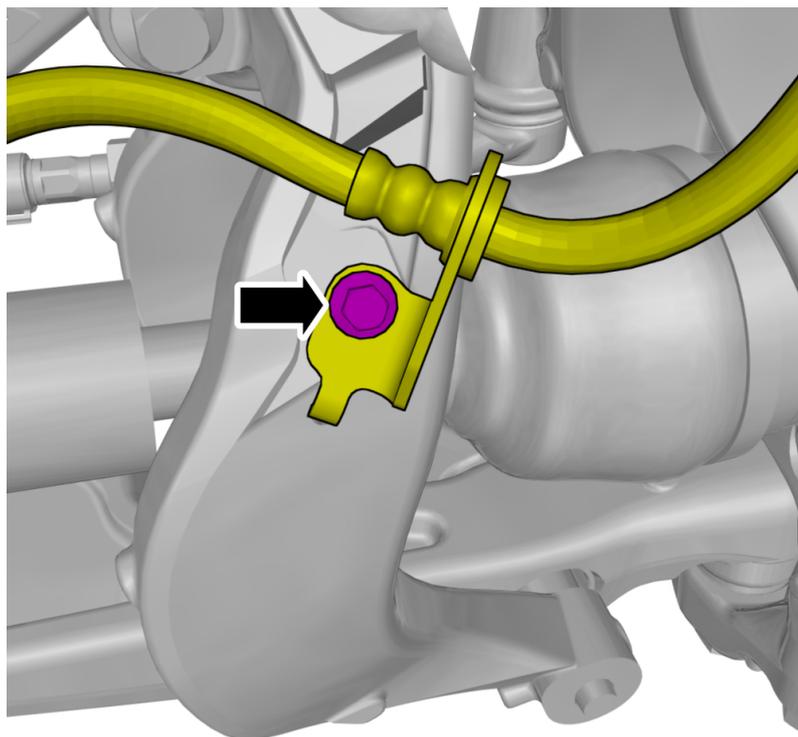
**Note! Perform the procedure one side at a time.**



Disconnect the connector.



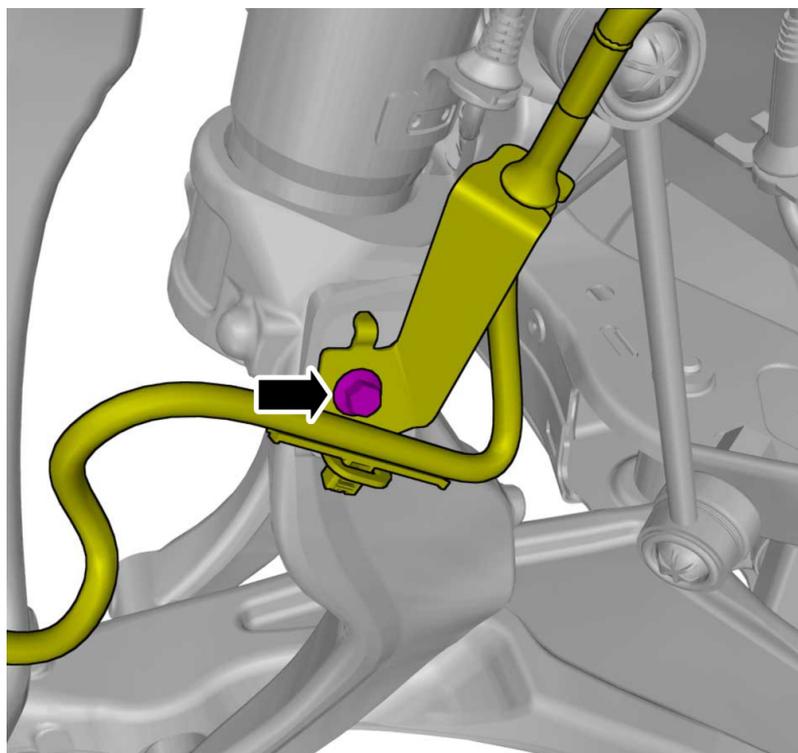
Loosen the wiring harness or move it to the side.



Remove the screw.

**Torque:**

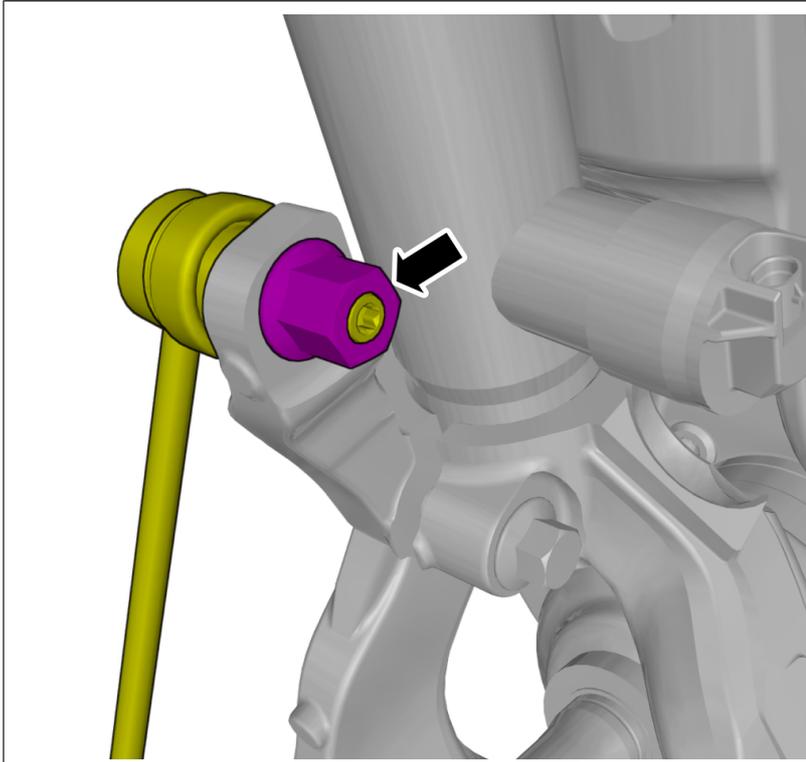
M5 , 5 Nm



Remove the screw.

**Torque:**

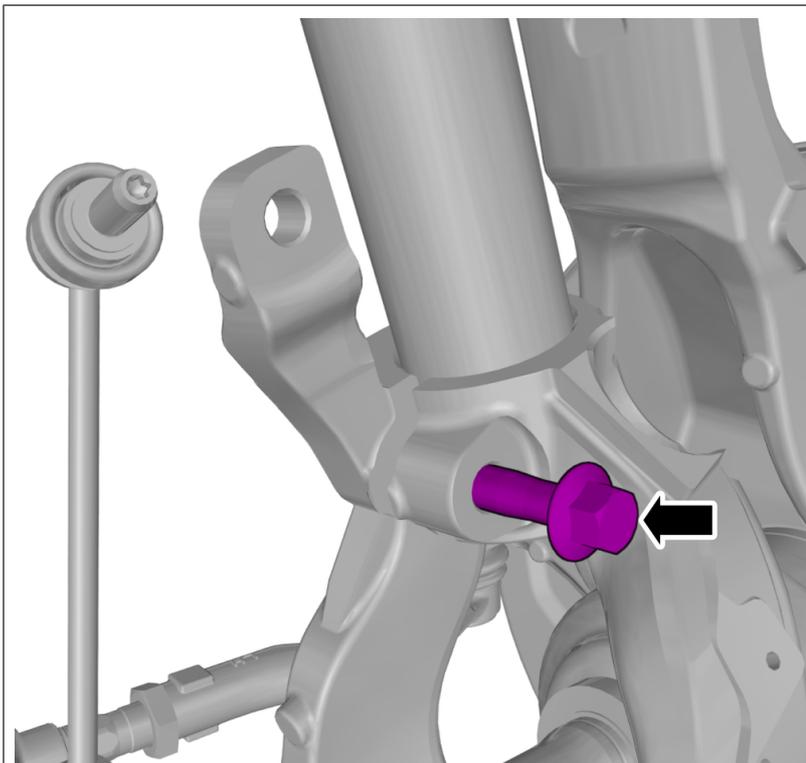
M5 , 5 Nm



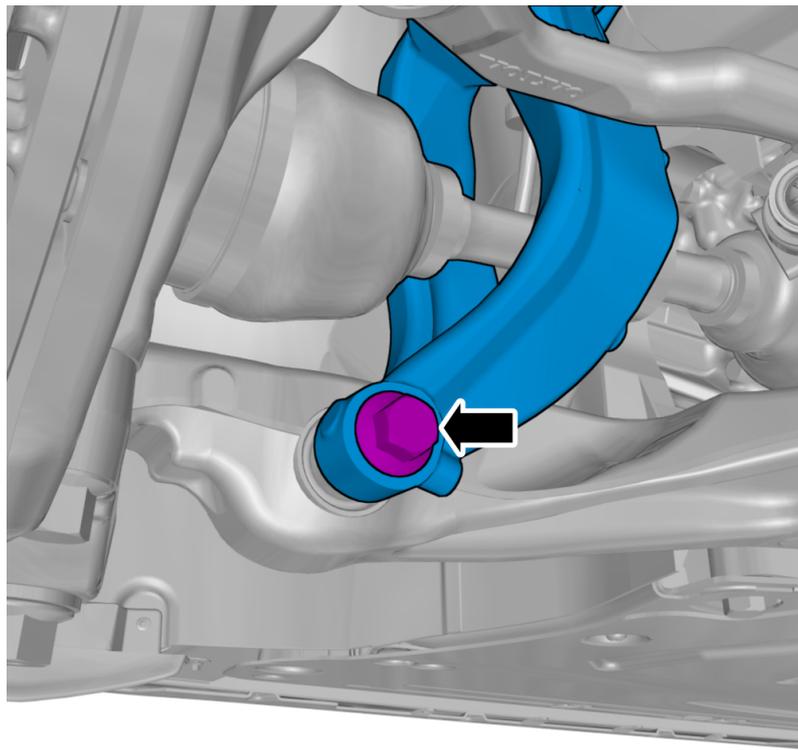
Remove the nut.

**Torque:**

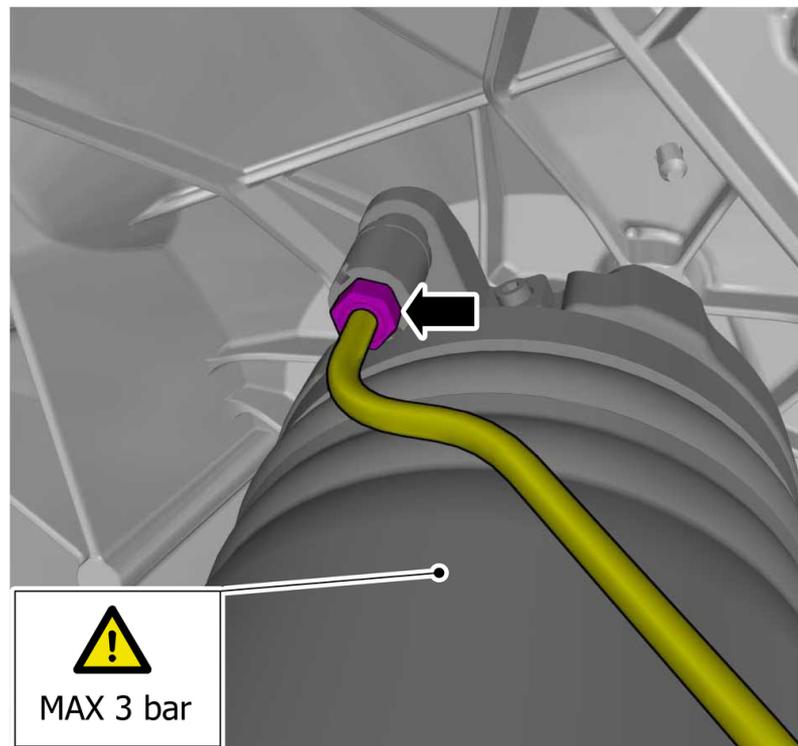
Front stabilizer bar link to strut and spring assembly , 80 Nm



Remove the screw.



Remove the screw.  
Remove the marked part.

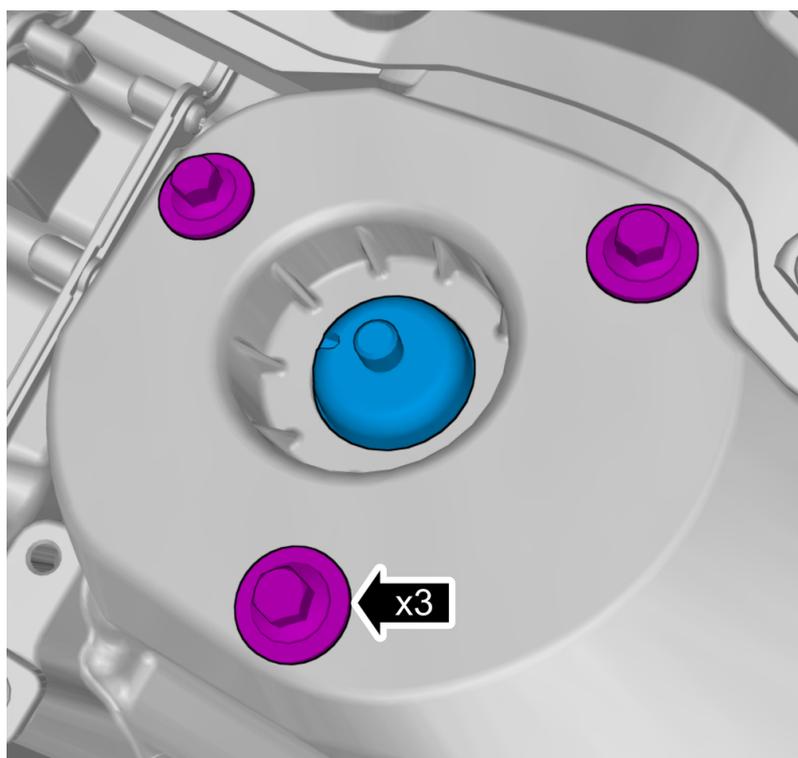


**Caution!** Make sure that the area around the component is clean and free of foreign material.

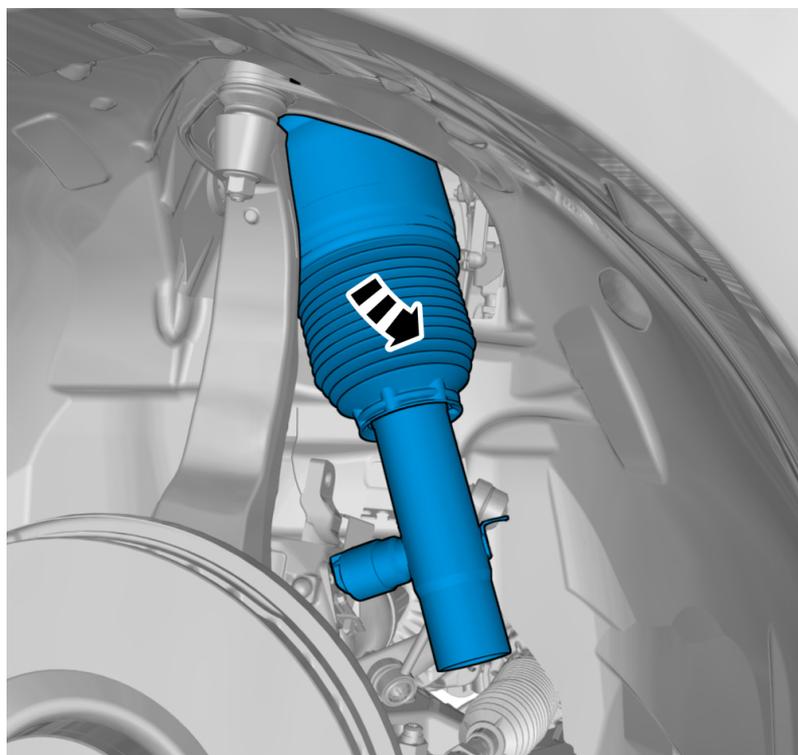
Remove the part carefully

**Torque:**

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

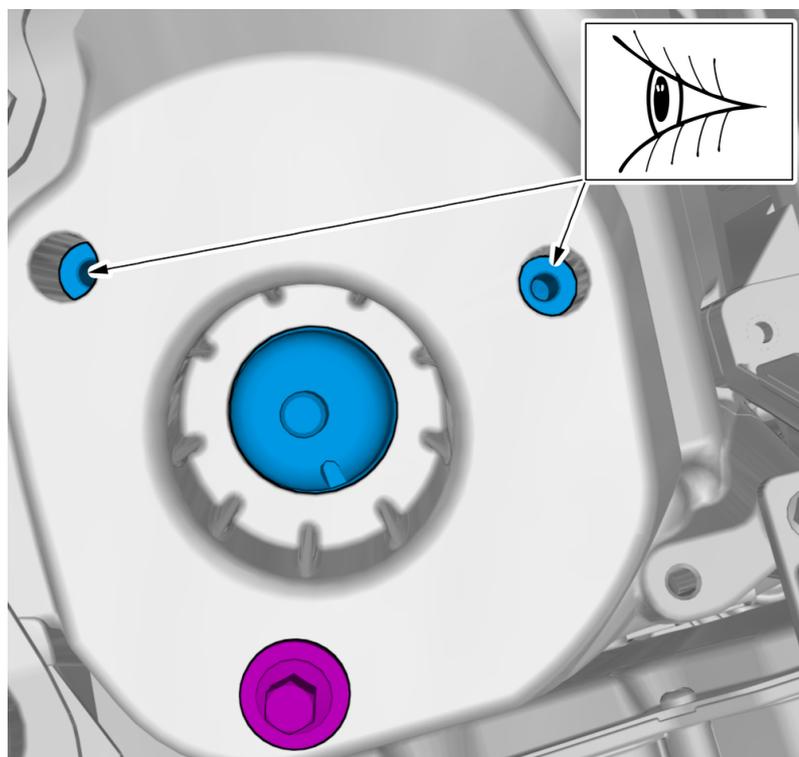


Remove the screws.



Remove the marked part.

## Installation

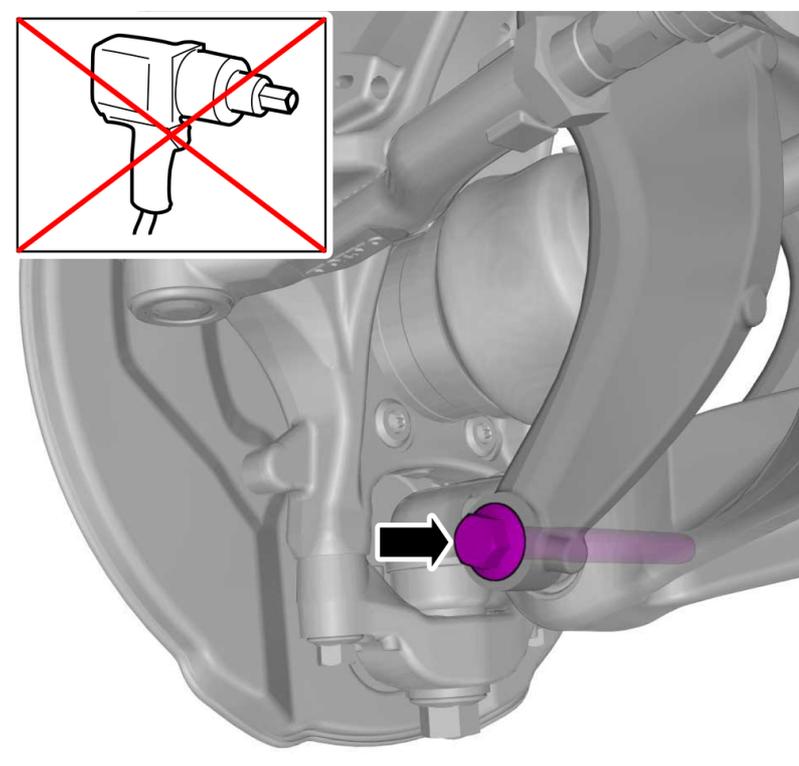


**Note!** Make sure that the component is centred.

Install the screws.

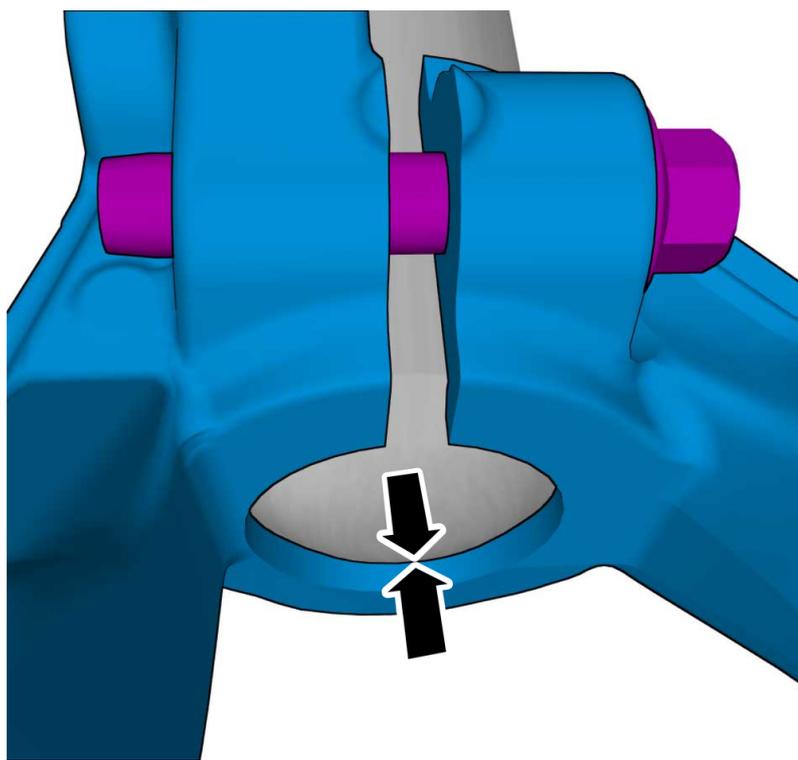
**Torque:**

M8 , 24 Nm



**Caution!** Make sure that a new bolt is installed.

**Note!** Do not fully tighten the bolt.



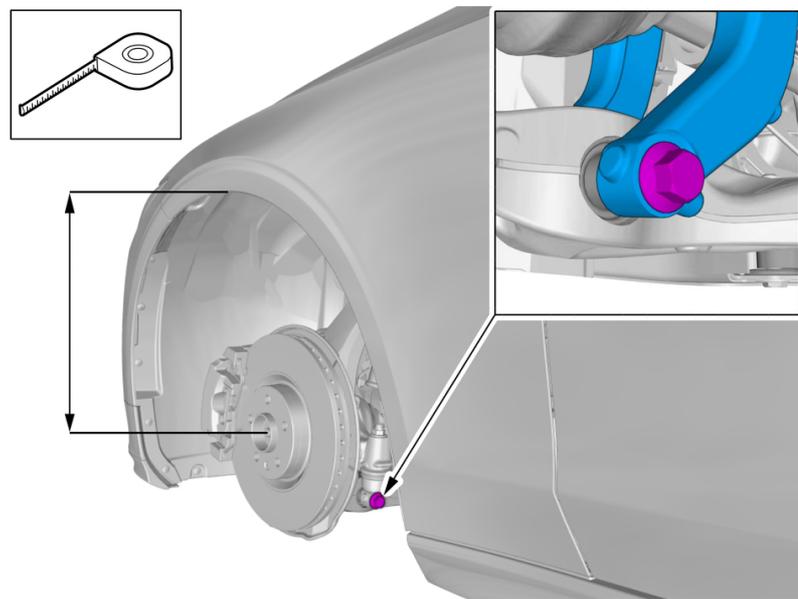
**Caution! Make sure that a new bolt is installed.**

**Caution! Make sure that the component is positioned correctly.**

Tighten the screw.

**Torque:**

Shock Absorber Fork, to Shock Absorber ,  
80 Nm



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

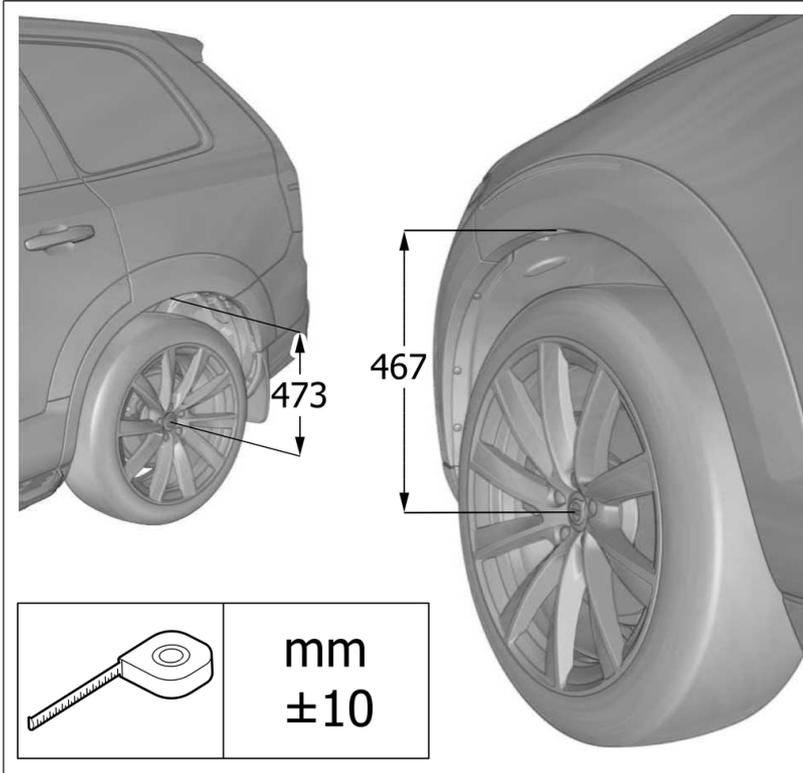
Tighten the screw.

**Torque:**

- Stage 1 : Shock Absorber Fork to Front Lower Control Arm , 140 Nm
- Stage 2 : Shock Absorber Fork to Front Lower Control Arm , 120°

See information about normal position , refer to:

Cleaning, Inspection and Adjustment  
6 - Suspension and steering  
65 - Rear wheel suspension  
652 - stay, arm, joint



To install, reverse the removal procedure.

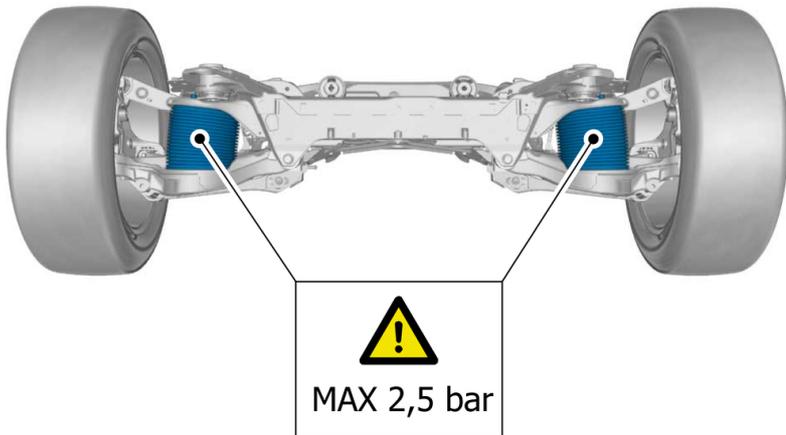
Fill relevant air springs according to:  
Diagnostics/ Components/ ECU / SUM /  
Diagnostic Sequences / Emptying Air system, air  
bellows or Air system, air tank

Repeat all method steps for the other side.

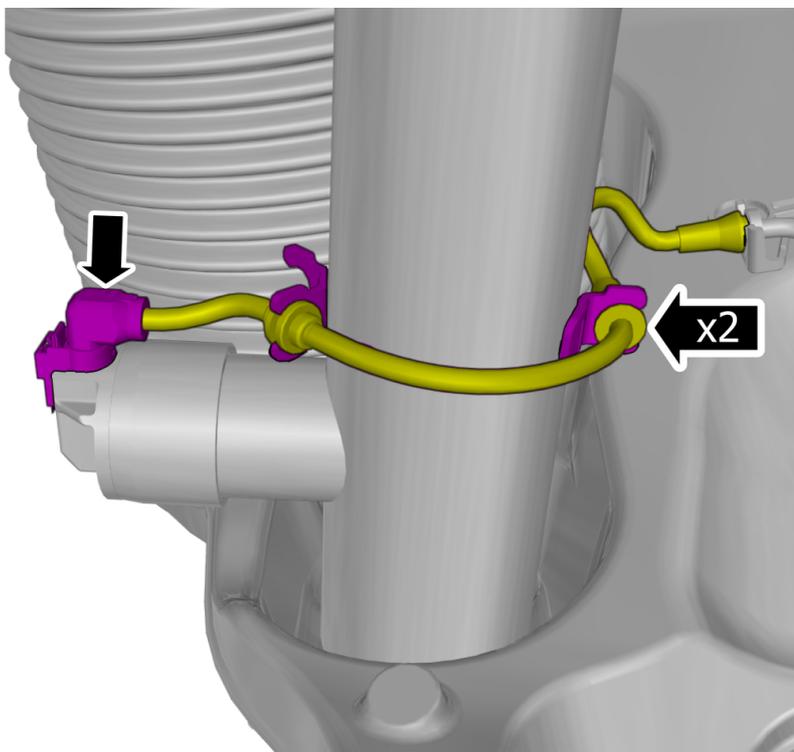
Remove rear wheel , refer to:  
Removal, replacement and installation  
7 - Springs and wheels  
77 - Wheels, tyres, hubs  
771 - wheel and wheel trim

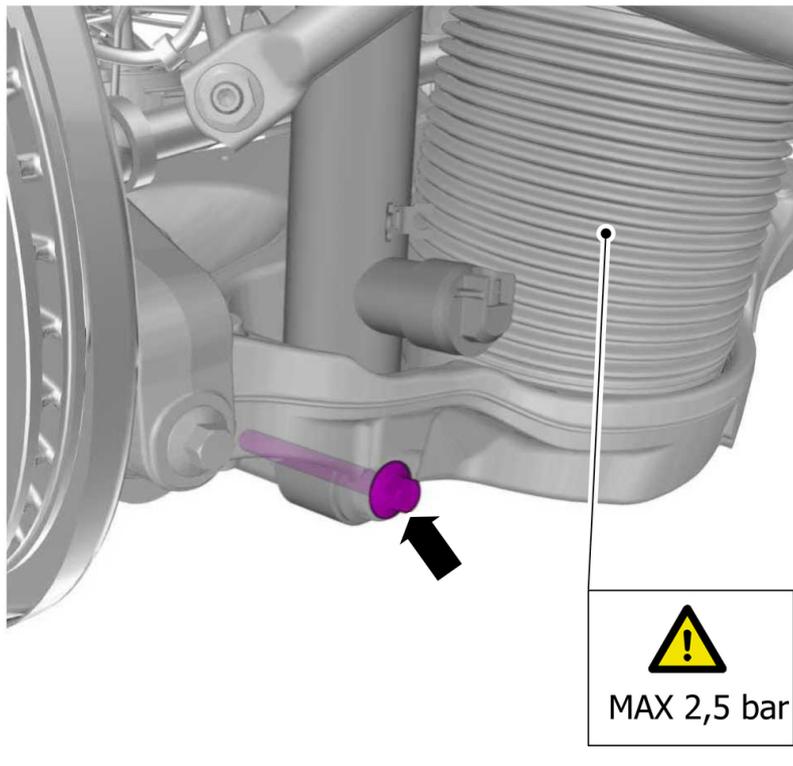
Empty relevant air springs according to:  
Diagnostics/ Components/ ECU / SUM /  
Diagnostic Sequences / Emptying Air system, air  
bellows or Air system, air tank

On both sides.



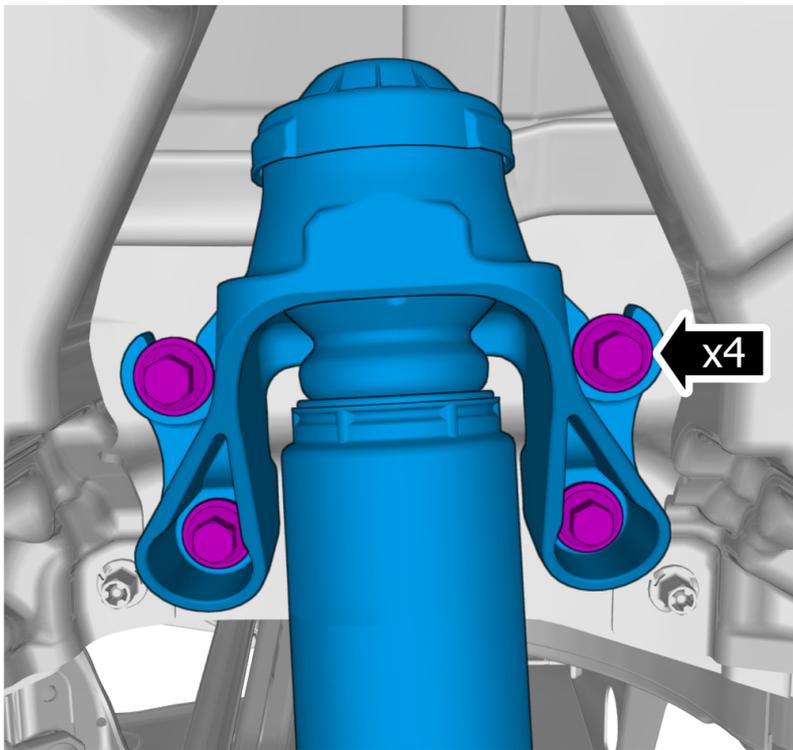
Disconnect the connector.  
Loosen the wiring harness or move it to the side.





Remove the screw.

  
MAX 2,5 bar



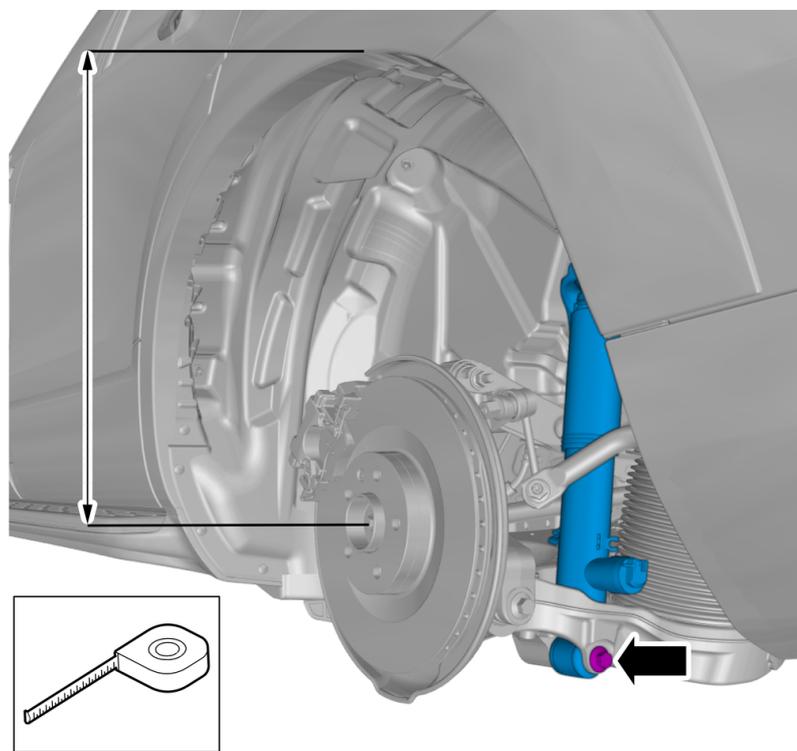
Remove the screws.  
Remove the marked part.

**Torque:**  
Rear shock absorber top mount, to Body ,  
60 Nm

Repeat the steps when removing on opposite side.

## Installation

To install, reverse the removal procedure.



**Caution! Make sure that a new bolt is installed.**

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

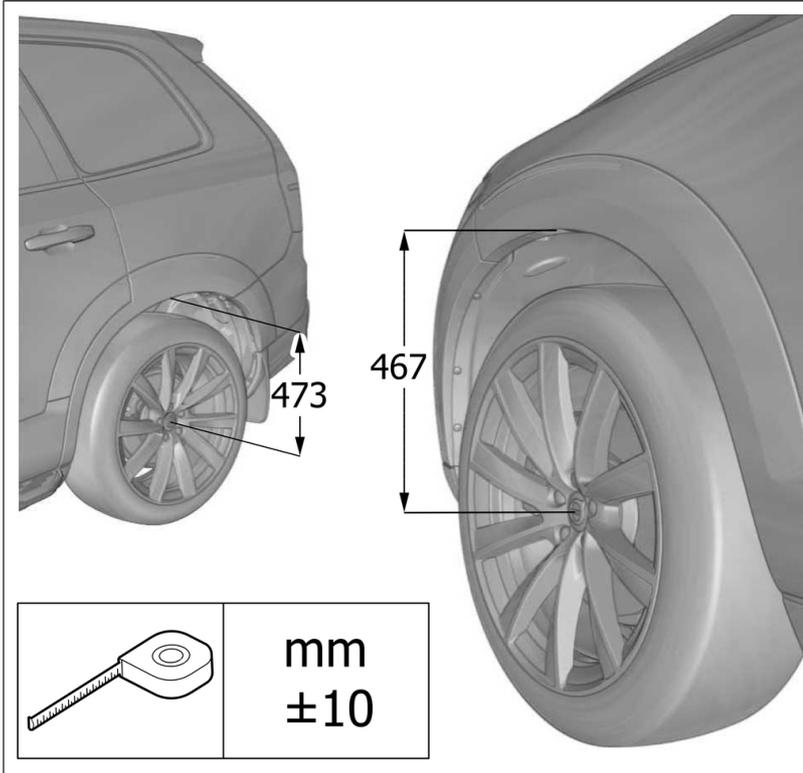
Tighten the screw.

**Torque:**

- Stage 1 : Rear shock absorber, to Lower control arm , 90 Nm
- Stage 2 : Rear shock absorber, to Lower control arm , 150°

See information about normal position , refer to:

- Cleaning, Inspection and Adjustment
- 6 - Suspension and steering
- 65 - Rear wheel suspension
- 652 - stay, arm, joint



Fill relevant air springs according to:  
Diagnostics/ Components/ ECU / SUM /  
Diagnostic Sequences / Emptying Air system, air  
bellows or Air system, air tank

On both sides.

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

Order and download software according to  
VIDA/SOFTWARE.

Check that no diagnostic trouble codes (DTCs)  
are stored.

**When necessary, carry out the following instruction.**

Calibrate according to: Diagnostics /  
Components / Control modules / Suspension  
Module (SUM) / Diagnostic sequences /  
calibration of Suspension Module (SUM)