



# FITTING INSTRUCTIONS

**making everyday smoother**



- Increased comfort • Better driveability • More safety



**VOLKSWAGEN T5**  
with VB-FullAir 4-Corner air suspension

**FOR KIT 10509064XX**

## What's changed

New version number:	V2.3	
Release date:	2/21/2013	
Changed compared to	V2.2	
<b>Page:</b>	<b>What is changed:</b>	
17	Picture of valve block changed	
23	Picture of valve block changed	

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# 1. Safety regulations

## Personal safety regulations

- Always wear appropriate safety clothes and safety shoes.
- Do not wear any rings, watches, or free hanging clothes.
- Never keep any loose goods in pockets of clothes.
- Bind long hair together.
- Never use defect tools. Use tools only for the purpose where it is meant for.
- Wear safety goggles.

## General safety regulations

- Always use a car lift to perform the operations.
- Be sure the vehicle is always supported properly when necessary.
- Be sure the vehicle can not roll away.
- Incapable fitting operations may result in dangerous situations.

## Used Symbols

### Attention



***When the warning symbol is displayed, information of great importance to the safety and / or health of the involved persons is provided. This symbol is also used in operations that are crucial for the correct mounting of the air suspension set.***

### Tip



***When the tip symbol is displayed, advice is given to make the mounting of the air suspension set more easy.***

### Torque



***xx Nm***

***Every bolted joint in this manual comes with a torque.***

## 2. General fitting regulations

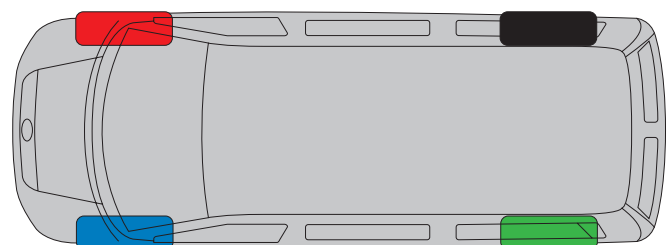
This manual has been carefully crafted to provide the best way to fit the air suspension mentioned on the cover of this manual. However, the manual is a random indication of the technical specifications at any given time.

VB-Airsuspension reserves the right to make technical changes in the air suspension kit without any notification.

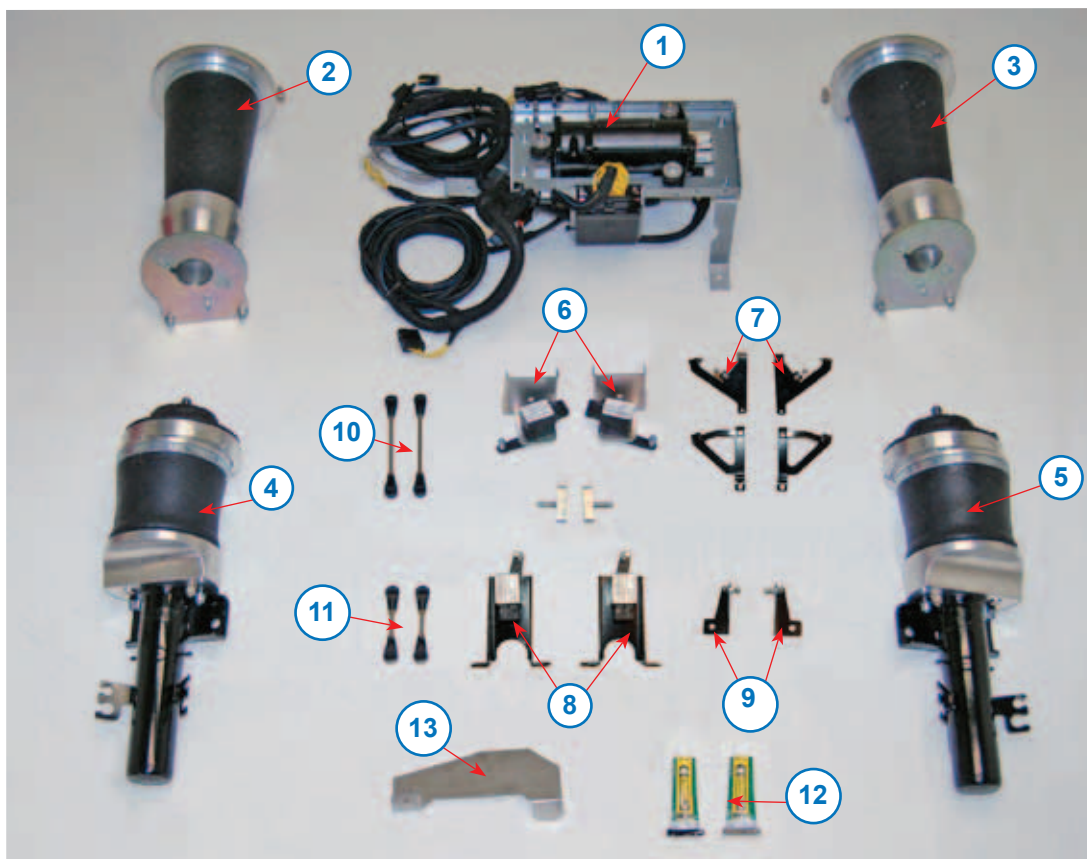
Fitting of the air suspension kit can only be done in a from VB-Airsuspension authorised workshop. The fitting can only be done by authorised mechanics. The mechanics must have proper experience in electric/electronics, pneumatics and regular vehicle technics.

- When necessary, use the work-shop manuals of the vehicle.
- Always follow the directions of the vehicle manufacturer, unless otherwise expressly stated in this manual.
- Work clean.
- Always tighten the bolts and nuts according the recommended torque.
- Whenever changes are made to the original corrosion protection, restore it immediately. For this purpose use for example protective coating or spray wax.
- Always re-fit the removed wires and tubes on the original way.
- Always secure the wires and air tubes with plenty of tie-wraps. Secure all connectors properly and make sure that there is no stress on them.
- All electrical cables must be kept at least 100 mm away from the ABS/ESP block, its sensors and other controllers.
- Make sure the air-tubes do not make sharp corners and can not bend or wear against other parts.
- Connecting electrical cables or air-tubes to brake lines is strictly prohibited!
- Make sure no tools, cleaning rags or other materials remain under the car.
- Check the air suspension after finishing the fitting according the checklist.
- Check after the fitting, the system for air leakage.
- When finishing the fitting, always make a test drive.
- The air-suspension is split up in four corners, which correspond to one corner of the vehicle. When a part is specific for one corner, this will be marked with a coloured sticker.

Colour	Description
Red	Right front
Blue	Left front
Green	Left rear
Black	Right rear



### 3. Overview of the air-suspension kit



The air-suspension kit consists of numerous different parts. To keep things clear, only the main parts have been included on the above picture. The more common parts, like for example the fitting materials, have been left out.

Nr.	Description
1	Compressor
2	Air-spring rear left
3	Air-spring rear right
4	McPherson shock absorber + air-spring left
5	McPherson shock absorber + air-spring right
6	Heightsensors front + Clamping bolts
7	Ball-joint brackets, front

Nr.	Description
8	Heightsensors rear
9	Ball-joint brackets, rear
10	Heightsensor rods, front
11	Heightsensor rods, rear
12	Glue
13	Heat shield

For an overview of the place where the different parts are located, please see the chapter “Exploded View” in chapter 8. You can also find the partnumbers there.



## 4. Fitting the rear axle air-suspension

### 4.1 Preparations

1. Remove the original shock absorbers. To do this, remove the marked bolts. Please notice that these bolts have to be re-used, so do not discard them!



***Always secure the rear axle to prevent tension in the parts. Tension can induce unexpected behaviour and result in damage or even injuries!***

2. Remove the original coil-springs.



***Lower the rear axle a little to make this easier.***

3. Remove the rubber top plates (1), bottom plates (2) and bump stops (3).

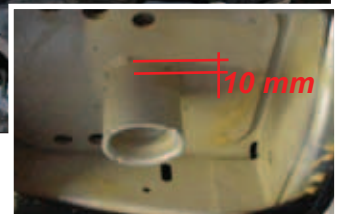
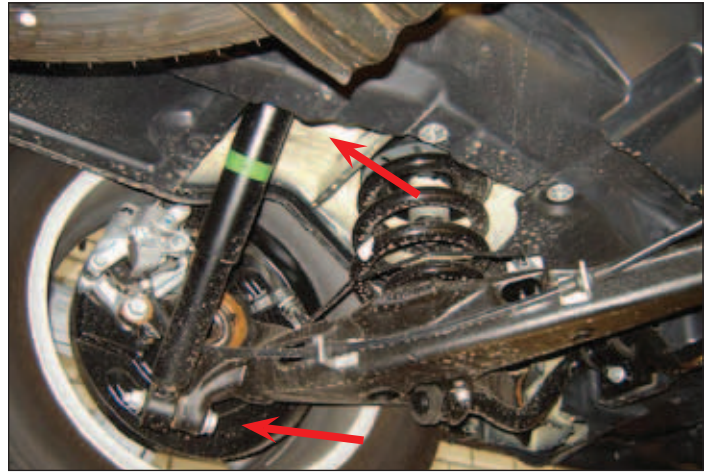
4. Cut-off the original bump-stop holders, to create space for the air-springs. Leave a piece of about **10 mm** to support the air-springs.



***Protect the ABS sensoren in the rear wheels while cutting!***



***Protect the surface with an anti-corrosion substance as for example paint! Don't use a greasy substance because the air-spring has to be stuck together.***



5. Check the size of the existing hole in the suspension arms, which is marked on the picture. The hole will be used for the head of an align screw and should be big enough for it. When necessary, please enlarge the hole to **ø10,5 mm**.



***Protect the surface with an anti-corrosion substance as for example paint or spray-wax!***



6. Plastic covers are either secured with bolts or with clamp rings. The latter can be removed by sticking a screw driver in a recess and loosening it like a normal nut.



7. Remove the cover at the left hand side of the vehicle as well.



8. Remove the cover, which is hanging just in front of the fuel tank as well.





9. Cut-off a small piece of the heat shield, with about the size of the marked area. This is necessary to be able to hang the compressor at this position.

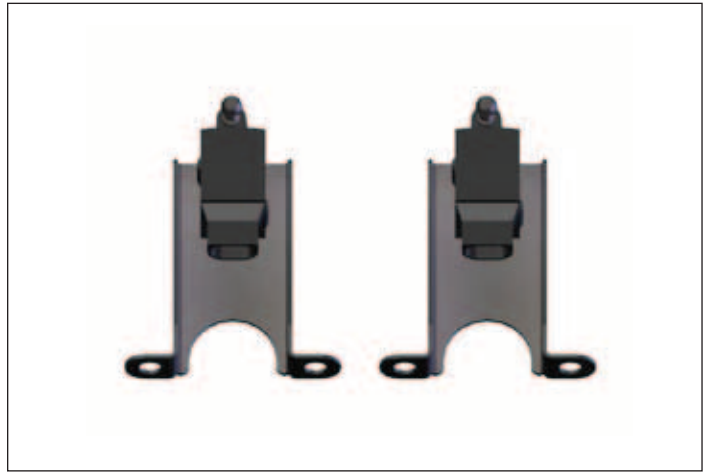


10. Remove the cover which is hanging just behind the fuel tank.



## 4.2 Heightsensoren

1. The next step is the fitting of the height-sensors. These have already been fitted to the brackets by VB-Airsuspension.



2. Secure the heightsensor assemblies to the chassis. To do so, use the supports of the stabiliser bar.



60 Nm

4 x Original bolt M10



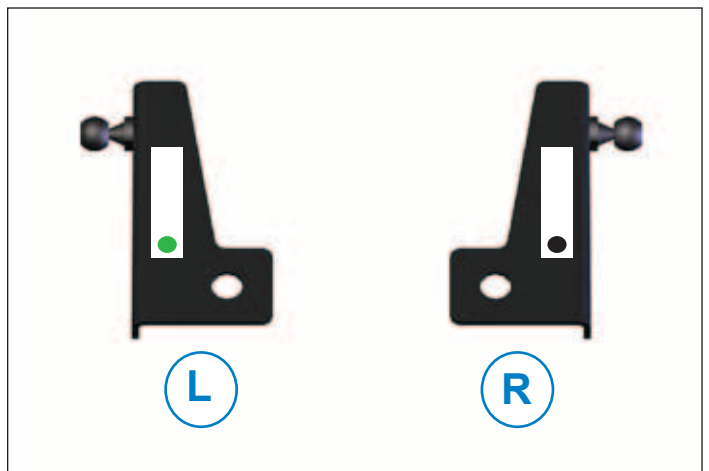
**If the vehicle has Xenon lights, please first continue with chapter 11. The Xenon modificationkit would be mounted.**



3. Mount the ball-joints to the ball-joint brackets, as can be seen to the right. Please notice that these brackets are different and that the ball-joints should point to the **inner side**.



**Notice the colour marks on the separate parts. This is to define the position in the car, see page 5 for details!**



4. Mount the brackets to the suspension arm, as shown on the picture to the right. Use the original stabiliser bolts.

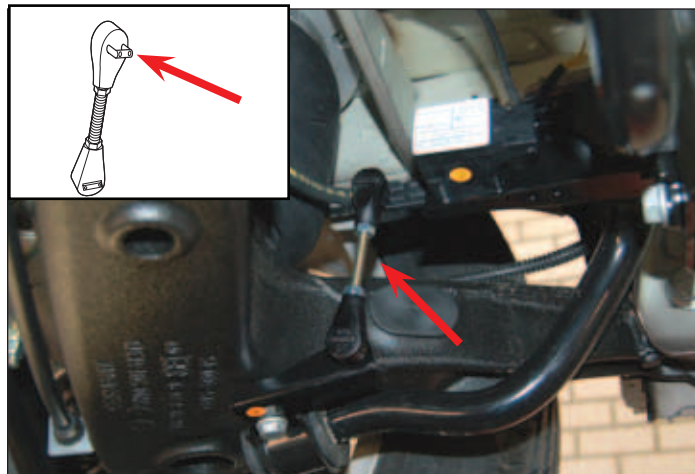


30 Nm

4 x Original bolt M8



5. Compare the length of the height sensor rods according to the size mentioned in the packing list. The length is measured between the centre of the two black ball-joints.
6. Mount the height sensor rods by pressing them onto the ball-joints at both ends, as can be seen on the picture on the right. Secure the rods by pressing the clips (see small picture).



#### 4.3 The air-springs

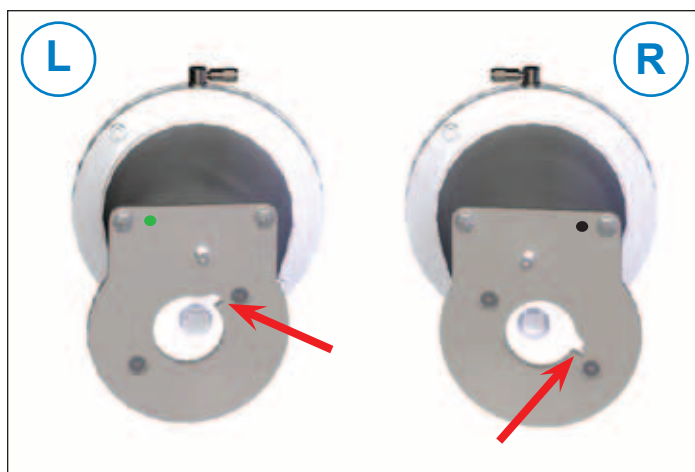
1. The next thing to do is fitting the air-springs. Please notice that these are different. The difference can easily be spotted, when looking at the position of the marked recess.



**The air connections on the top side of the spring should point to the rear-middle of the vehicle.**



**Notice the colour marks on the separate parts. This is to define the position in the car, see page 5 for details!**



2. Before mounting the air-springs, connect the air-tubes to them. This will be a lot more difficult later on!

**Right : Black**  
**Left : Green**



**Make sure that the tubes are clean and cut straight. Always use a special tool to do this!**

3. Apply some glue to the chassis, in the area where the springs will be fit.



**Make sure that the surface is properly cleaned and grease-proof!**





4. Do the same to the bottom mounting plate of the air-springs.



***Make sure that the surface is properly cleaned and grease-proof!***



5. Mounting the air-springs at the original position of the coil-springs, as can be seen on the picture. Use a tyre valve to pump some air-pressure into the air-springs. This is to press the mounting plates properly against the chassis and suspension arms until the glue has hardened.



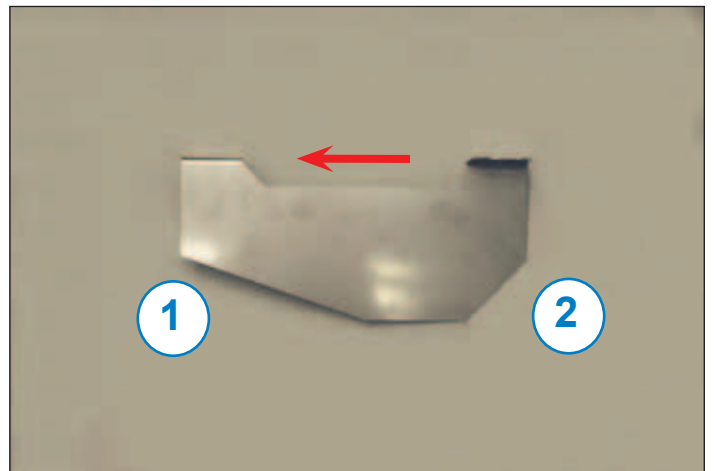
***Remember the difference between the springs, see page 5 for details!***



***The glue should harden for at least 5 hours, before the pressure of the air-springs can be released!***



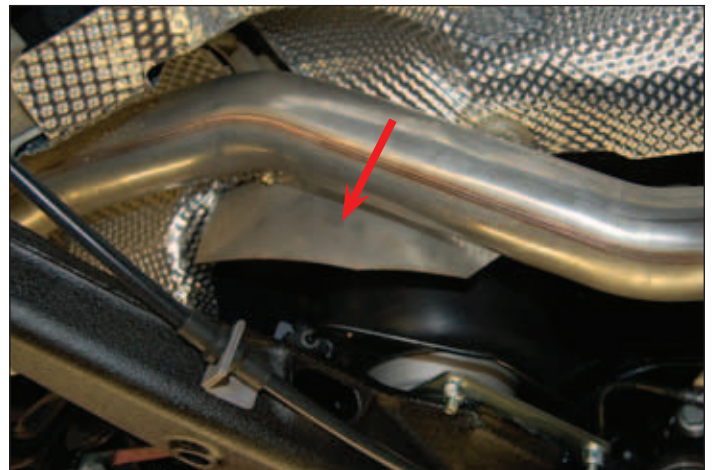
6. To protect the air-spring from the exhaust heat, the shield plate should be used. The plate is shown to the right. Please notice that the plate is asymmetrical. The long chamfered side (1) should point towards the front of the vehicle. The short chamfered side (2) to the rear.



7. Mount the shield at the marked location, between the exhaust pipe and the air-spring. Use the bolts and clamp rings, which are also used for the original heat shields.
8. The plate has to be bend a little when fitting it.



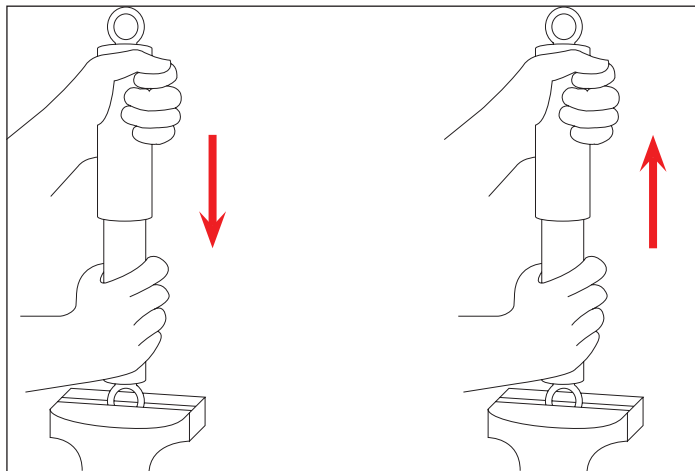
***If the vehicle has Xenon lights, please first continue with chapter 11 point 3.***





#### 4.4 Fitting the shock absorbers

1. First, the air has to be released from the shock absorbers. To do this, fully press the top of the shock absorber down and then slowly pull it out again until you can't go any further. At the top of the stroke you may hear a slurping sound. This indicates that there's air in the shock absorber. Repeat this step until you cannot hear the sound any more, all the air will be released now. Please notice that this step may take from 2 up to 20 times!



2. Use all original fasteners to mount the shock absorbers.



**Keep the top side of the shock absorbers pointing up at all times!**



**Upper original bolt**

**70Nm+90°**



**lower original bolt**

**180Nm+180°**



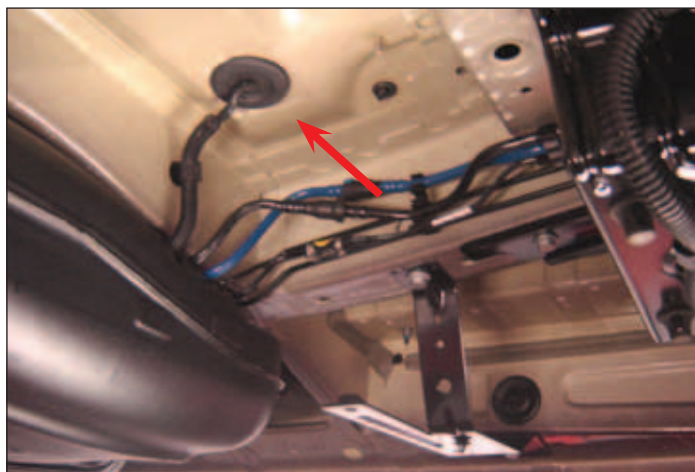
**\*\* Do not secure these bolts yet! The vehicle has to be in driving height first!**

#### 4.5 The compressor

There are 2 versions of the compressorbox. One is for the petrol cars and one for the diesel cars.

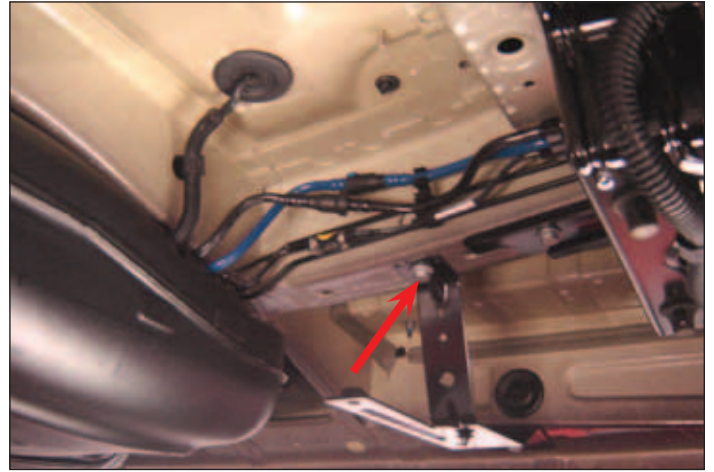
The position for the compressor-unit is directly in front of the fuel tank. The covers have been removed in a previous step.

1. Remove the grommet which is originally used to lead some cables into the cab. Enlarge the hole in the grommet and slip the VB-Airsuspension cable through it (the one with the two white connectors).
2. Press the grommet back into the chassis, thus leading the VB-Airsuspension cable into the cab.

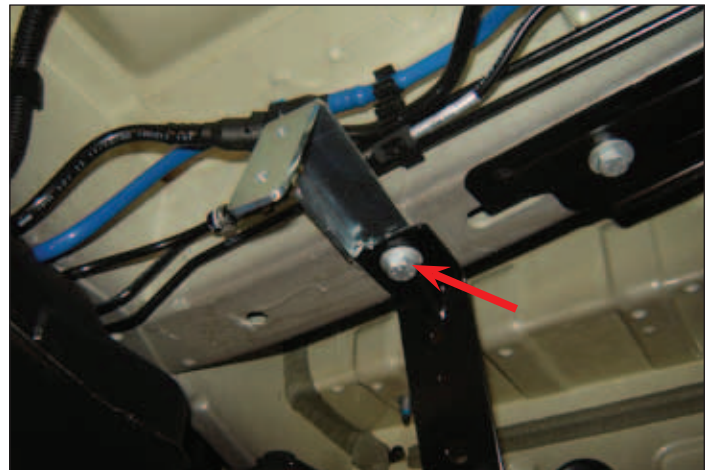


#### 4.5.1 Vehicles with diesel engine

1. Loosen the screw shown in the picture.



2. Secure the first compressor bracket (see smaller picture) between the chassis and the previously removed support.
3. Use the supplied bolt instead of the original one.



	<b>1 x Bolt M8x30</b>
<b>20 Nm</b>	

4. Press the supplied rubber grommet into the marked hole.

The grommet can only be fit in a single way.



5. Slide the steel rod into the grommet that has been pressed into the chassis. The other side has to be secured to the previously described hole.



	<b>1 x Bolt M8x20</b> <b>1 x Washer M8</b>
<b>20 Nm</b>	



#### 4.5.2 Vehicle with petrol engine

1. Mount the first compressor bracket between the chassis and the bracket which been loosen earlier.

	<b>1 x Bolt M8x30</b>
<b>20 Nm</b>	



2. Mount the bracket as shown.

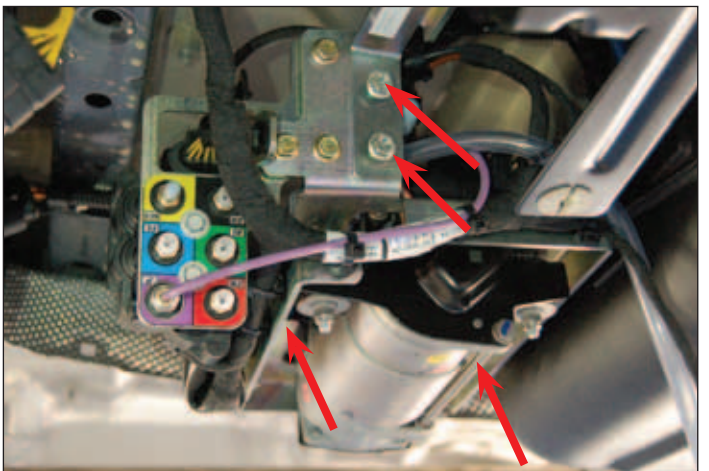
	<b>1 x Bolt M8x20</b> <b>1 x Washer M8</b>
<b>20 Nm</b>	



#### 4.5.3 For both types

1. Mount the complete compressor assembly to the brackets fit earlier.
2. Make sure that the cable can be lead to the front of the vehicle and the small cable towards the back.

	<b>4 x Flange lock nut M6</b>
<b>6 Nm</b>	



3. Lead the tube along the fuel filling line up, all the way to the filler opening.
4. Lead the tube behind the support of the filler opening and secure it with a tie-wrap.

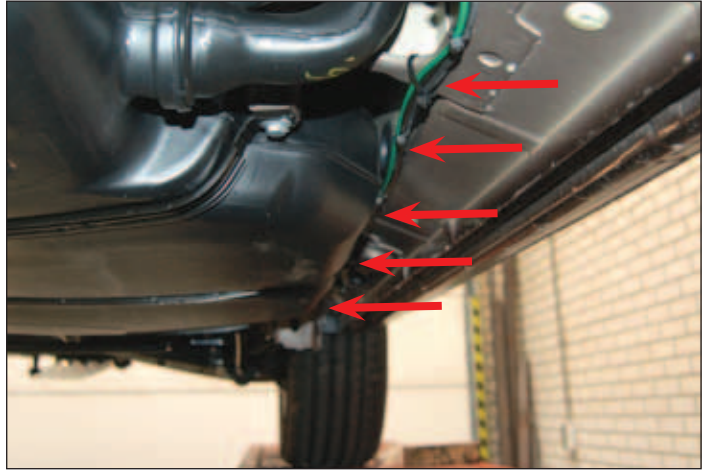


#### 4.6 Air-tubes and heightsensor cables

1. Lead the heightsensor cables towards the rear of the vehicle, along the fuel tank. Secure the cables properly, using sufficient tie-wraps.



**Secure the cables according the instructions on page 5!**



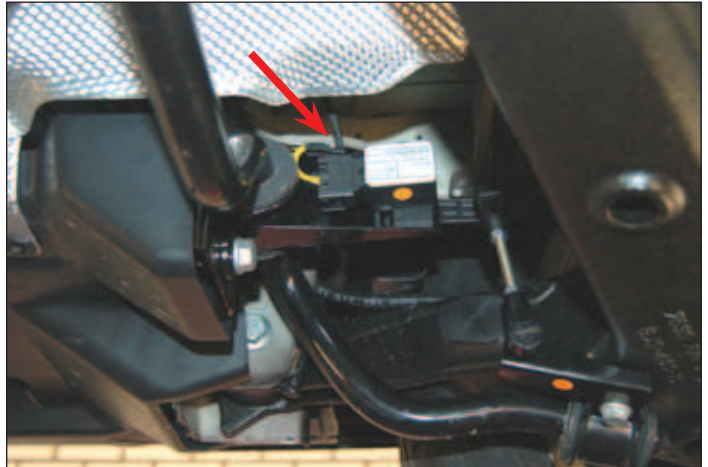
2. Lay the longer heightsensor cable, over the marked protection plate, to the right hand side of the vehicle.



3. Lead the cable over the protection plate to the heightsensor.
4. Connect the cable to the heightsensor. Secure the cable with a tie-wrap to the heightsensor bracket at the marked hole.



**Avoid possible stress in the connectors and wires!**



5. Lead the shorter heightsensor cable to the left hand heightsensor. Connect this cable to the heightsensor and secure it, with a tie-wrap, at the marked hole.

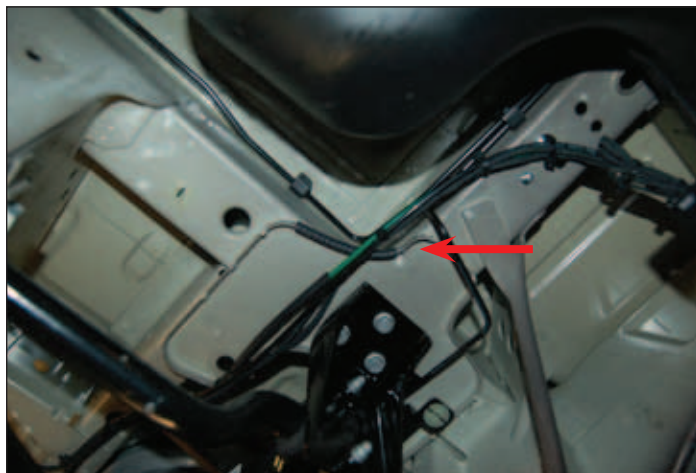


**Avoid possible stress in the connectors and wires!**

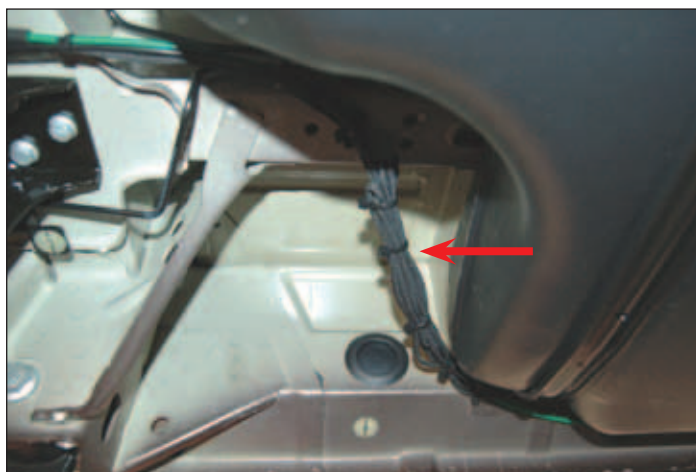




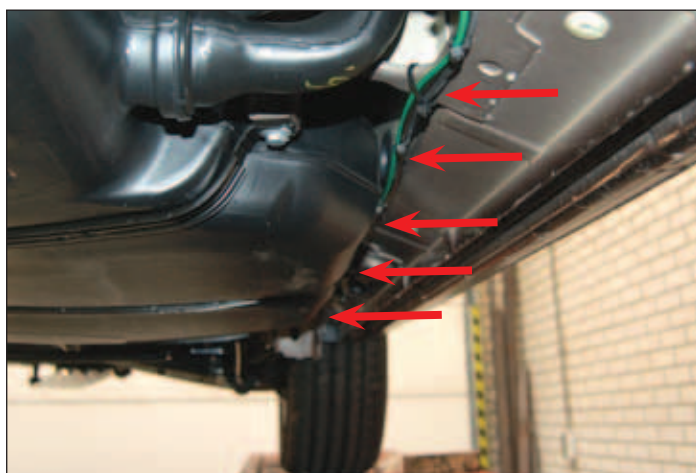
6. Lead the both air tubes to the shown position. The position is just in front of the stabiliser, on the left side of the vehicle.
7. Protect the air tubes with a protectionhose and tight them with cable ties.



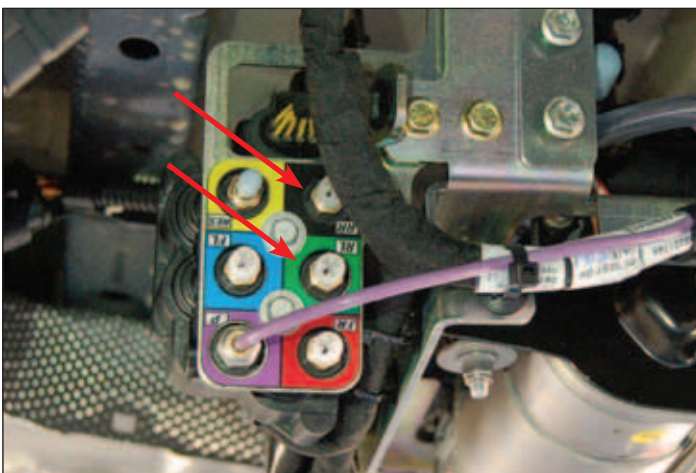
8. Lead both air-tubes towards the left hand side of the vehicle, right behind the fuel tank and just in front of the stabiliser bar.
9. Protect the air-tubes with, for example, conduit. Secure them properly, using sufficient tie-wraps.



10. Lead the air-tubes, along the previously secured heightsensor cables, to the compressor.



11. Connect the air-tubes to the compressor. Notice the colour marks, this defines the way to connect the air-tubes, see page 5 for details!



## 5. Fitting the front axle air-suspension

### 5.1 Preparations



***Please check, before disassemble, the workshop manual of the manufacturer. Always follow these instructions!***

1. Remove the front wheels.



***Always secure the front axle to prevent tension in the parts. Tension can induce unexpected behaviour and result in damage or even injuries!***

2. Remove the plastic cover shown to the right, in case it's present at the vehicle. Cut-off the marked part and re-fit the cover to it's original position.



***The mentioned cover can not be found on every vehicle!***

3. Remove both stabiliser arms, of which one is marked to the right.

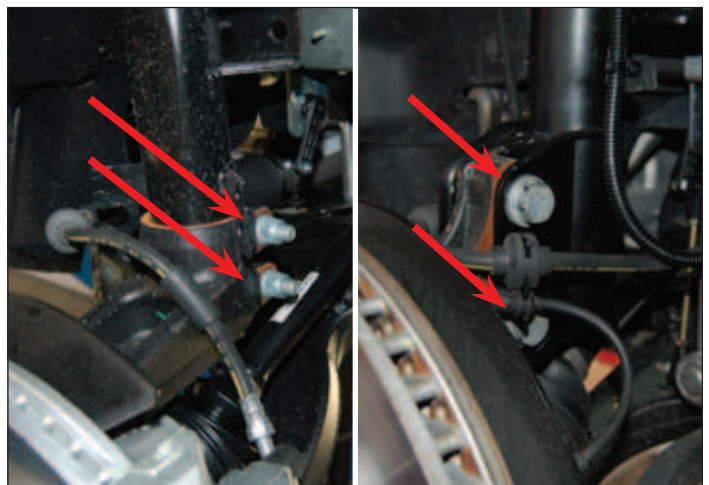
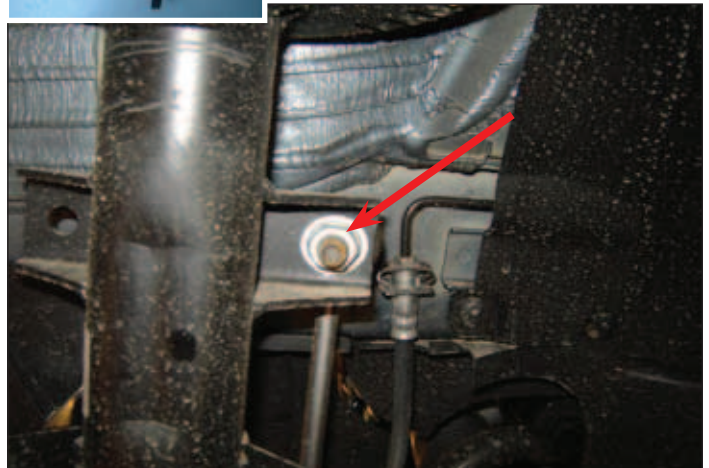


***There are two versions: one for standard to 3,0t and one for the maxi front axle. See exploded view for details.***

4. Remove the bolts holding the bottom of the McPherson shock absorbers.

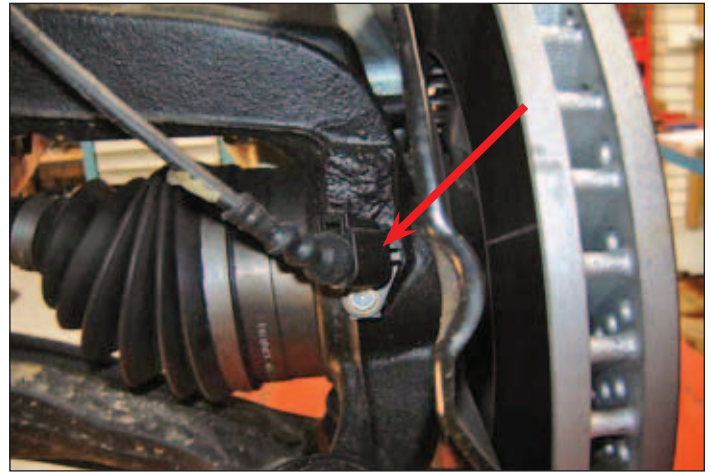


***Check the workshop manual of the vehicle manufacturer before removing the shock absorbers! Follow all instructions in the workshop manual!***





5. Gently remove the connectors of the ABS system from the suspension arm. This is to prevent them from being in the way when removing the McPherson shock absorbers.



6. Now remove all other cables from the shock absorbers.



7. Remove the windscreen wipers, as well as the covers, thus uncovering the upper attachment of the McPherson shock absorbers.



8. Remove the rubber caps, which are shielding the attachment of the McPherson shock absorbers.



9. Remove the nuts to loosen the shock absorbers. After this, remove the stop plates.



10. Bend open the clamping part of the suspension arm and remove the complete McPherson shock absorber.



***Lower the suspension arm to create more space for the removal of the shock absorbers!***



## 5.2 Fitting the VB shock absorbers + air-springs

1. Slide the bottom side of the VB-Airsuspension Air-springs/McPherson shock absorbers into the original attachment in the suspension arm.



***Notice the colour marks on the separate parts. This is to define the position in the car, see page 5 for details!***



2. Now secure the top of the shock absorbers with the original fitting materials.



**80 Nm**

**2 x Original nut M14**





3. Secure the bottom of the shock absorbers.  
With a standard front axle:
  - 1) Torque both bolts to **50 Nm**
  - 2) Torque both bolts to **75 Nm** and turn it **180°** further.

With a maxi front axle:

- 1) Torque both bolts to **150 Nm** and turn it **90°** further.

On the left you see the standard version and on the right the Maxi version.



***Tightening the bolts according to the described process as mentioned here!***

4. Secure all cables to the McPherson absorbers again.
5. Don't forget the ABS cable!



**60Nm+45°**

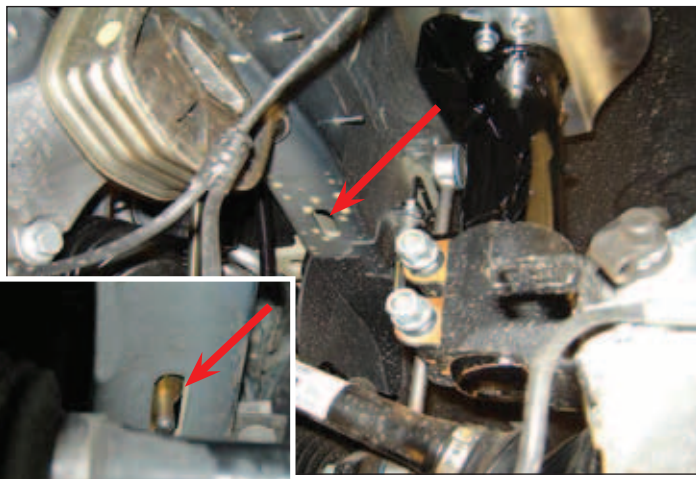
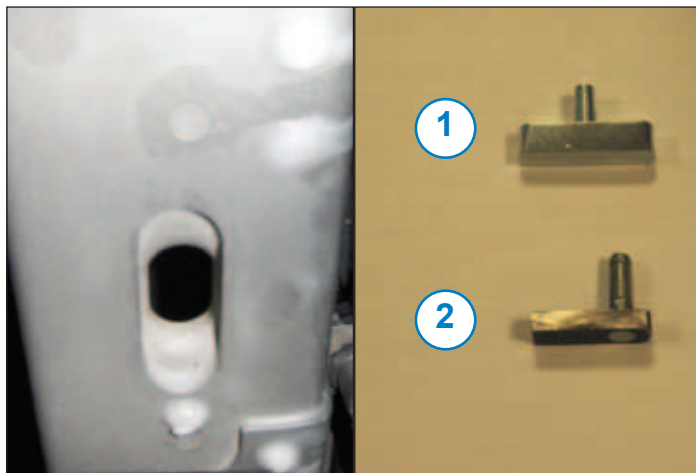
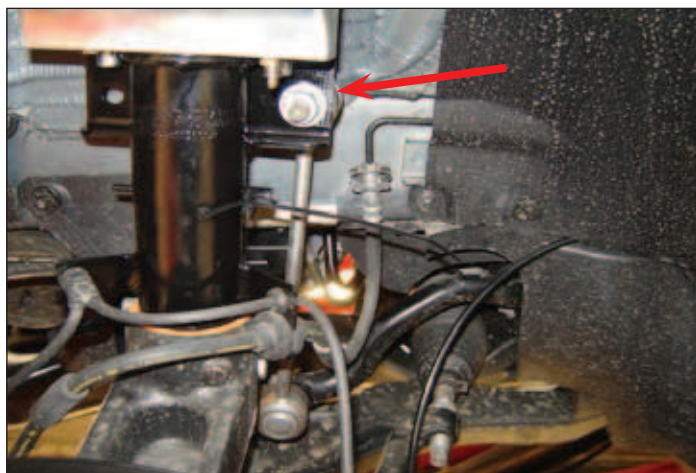
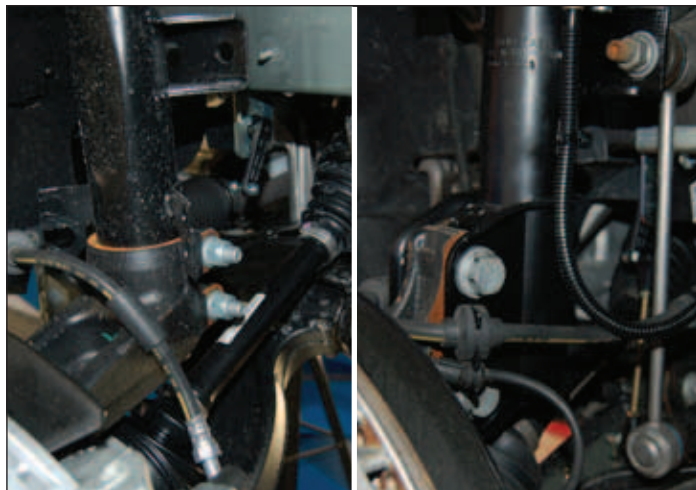
**2 x Original bolt  
2 x Original nut**

### 5.3 Heightsensors

1. In the kit, there are two types of clamping bolts supplied.

In the chassis there is a slot hole. When this hole is open completely, use bolt type 1. The its half closed as on the picture, use type 2.

2. Slip the clamping bolt into the chassis at the marked location. Turn the bolt, thus preventing it from falling through the hole.



- Finally, fit the heightsensor assemblies to the vehicle with the clamping bolts

	<b>2 x Washer M8</b> <b>2 x Lock nut M8</b>
<b>20 Nm</b>	

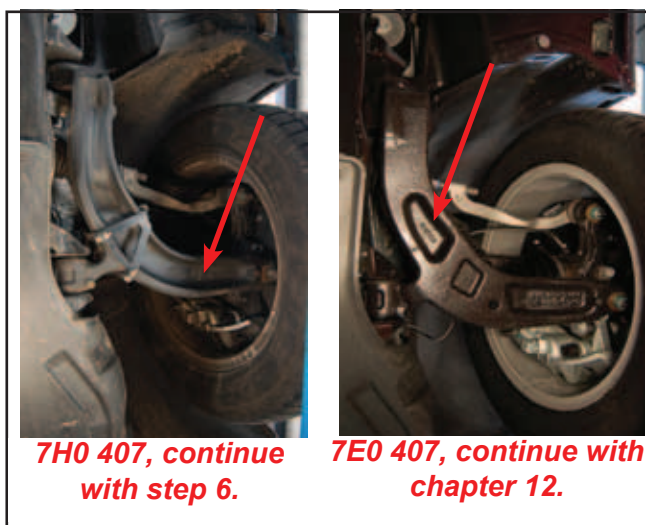
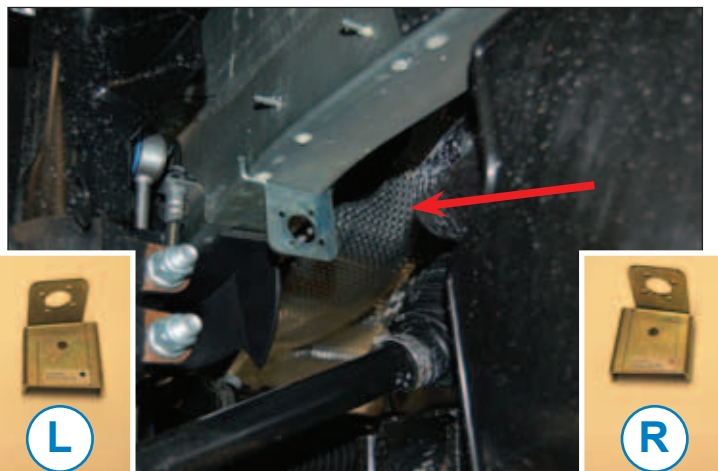
	<b>Notice the colour marks on the separate parts. This is to define the position in the car, see page 5 for details!</b>
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- Mind that the heightsensor brackets are different. Check the picture to see the difference. When in doubt, check the exploded view as well.

- Check the partnumber of the suspension arm, it is located by the arrow.

Does the partnumber start with:

- 7H0 407 XXX X, continue with step 6
- 7E0 407 XXX X, continue with chapter 12.



- The next step is fitting the ball-joint brackets. These brackets are mirrored to each other. Secure, in case this wasn't done already, the ball-joints to the brackets. Do so in the way shown to the right.

	<b>2 x Ball joint M6</b> <b>2 x Washer M6</b> <b>2 x Lock nut M6</b>
<b>10 Nm</b>	

	<b>Notice the colour marks on the separate parts. This is to define the position in the car, see page 5 for details!</b>
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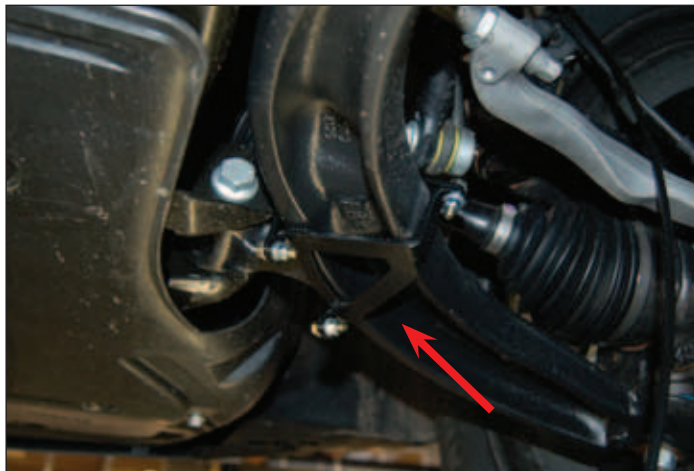




7. Mount the brackets around the suspension arms, as on the picture. The ball-joints should be pointing towards the front of the vehicle.

	<b>6 x Bolt M6</b> <b>12 x Washer M6</b> <b>6 x Lock nut M6</b>
<b>10 Nm</b>	

	<b>On the picture to the right you can see the right hand side of the vehicle!</b>
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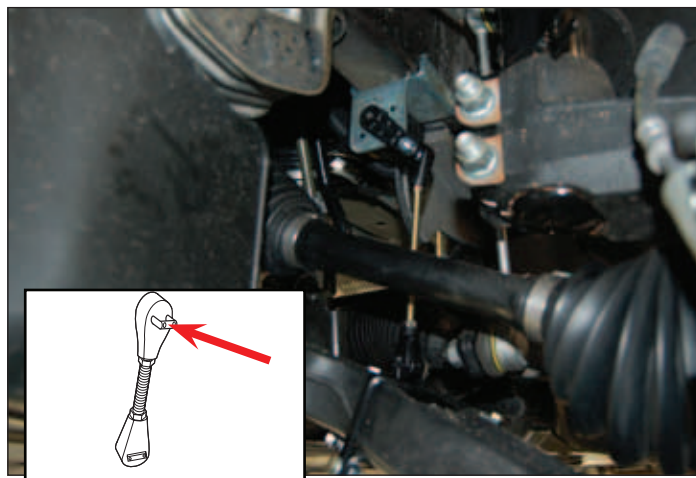


8. Check if the heightsensor rods are the right size. The length is measured between the centre of the two black ball-joints.

Standard version: **L = 150mm**

+30mm version: **L = 160mm**

9. Mount the height sensor rods by pressing them onto the ball-joints at both ends, as can be seen on the picture on the right. Secure the rods by pressing the clips (see small picture).

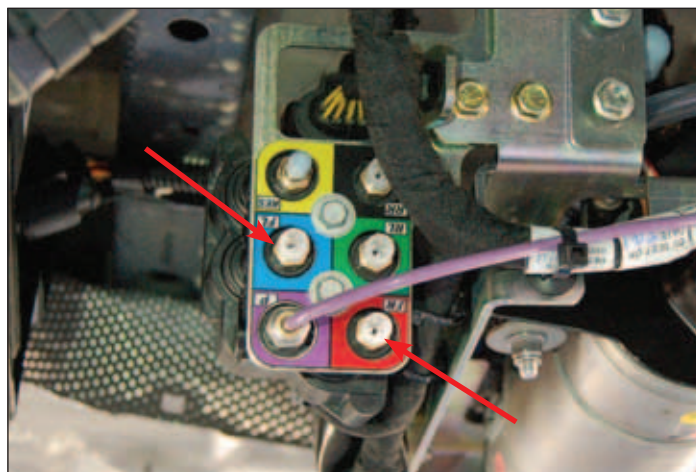


#### 5.4 Heightsensor cables and air-tubes

1. Connect the air-tubes to the compressor. Pay attention to the colour marks on the compressor, these should be the same as the colours of the air-tubes. See page 5 for explanation.

**Right : red**

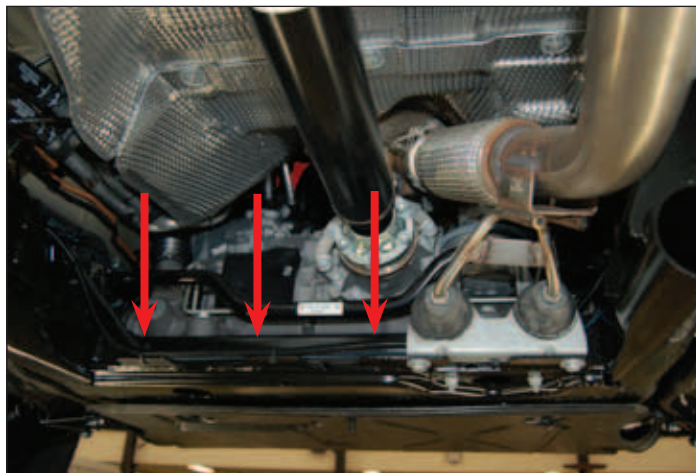
**Left : blue**



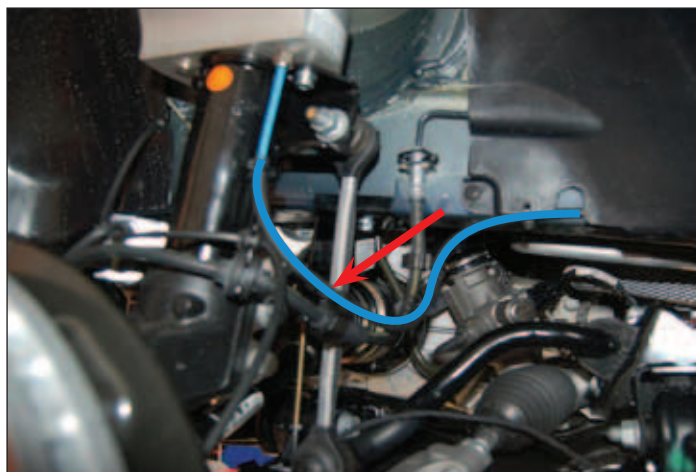
2. Lead the air-tubes as well as the heightsensor cables towards the front of the vehicle.



3. Lead the longer heightsensor cable, together with the right hand air-tube, to the right hand side of the vehicle.
4. Push the air-tube into a free position on the clamps and secure the heightsensor cable to it.



5. Connect the heightsensor cables, as well as the air-tubes. Mind that enough length is left to make it possible to turn the shock absorbers.
6. Connect the **red** air tube to the right air spring.
7. Connect the **blue** air tube to the left air spring.



***Slide the line at least 80 mm in the air connection.***

8. Lead the air tube along the marked way.
9. Secure the air tube with the special clips.





## 6. The wiring harness

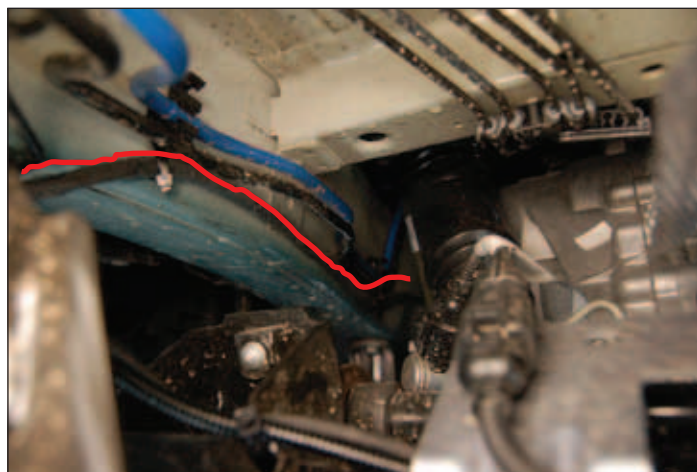
### 6.1 Power connection

1. Lead the main current cables to the front of the vehicle, as shown to the right. Secure the cables with plenty of tie-wraps and make sure they cannot grind.
2. Lead the wiring harness above the gearbox support to the top. (See red line)
3. Lead the cables up through the engine compartment. Make sure the cable ends up near the battery. Lead the cable from here on further to the front of the engine compartment.



***Make sure that the cables cannot get near any heated or moving parts! Never secure anything to the brake lines!***

4. Lead the cables underneath the front plastic plate of the battery compartment.



5. Connect the plus (+) cable, which the fuses are attached to as well, to the plus (+) of the battery. The other cable should be connected to the ground (-) of the battery. Neatly secure the cables with tie-wraps.



***Make sure the battery can be removed fast in case of an accident! Never attach cables to the battery itself and don't lay them on top of the battery!***



## 6.2 Signal connections



***The base vehicle has to be equipped with factory option: **UF1**  
If not, please continue with chapter 13.***

1. Start by removing the passenger seat.



2. In case the vehicle is equipped with a second battery, this has to be removed temporarily. This is necessary to be able to lead the cables into the cab.



***This step and the next are only necessary in case an extra battery is equipped!***



3. Loosen the seat console. It may be necessary to remove some other parts for this, as for example a relay.

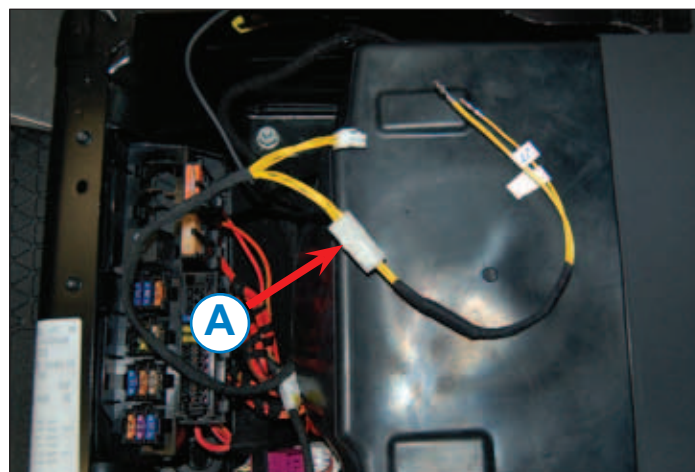
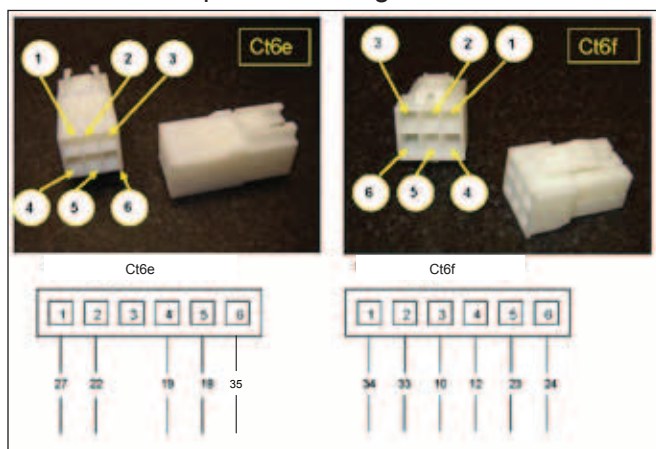




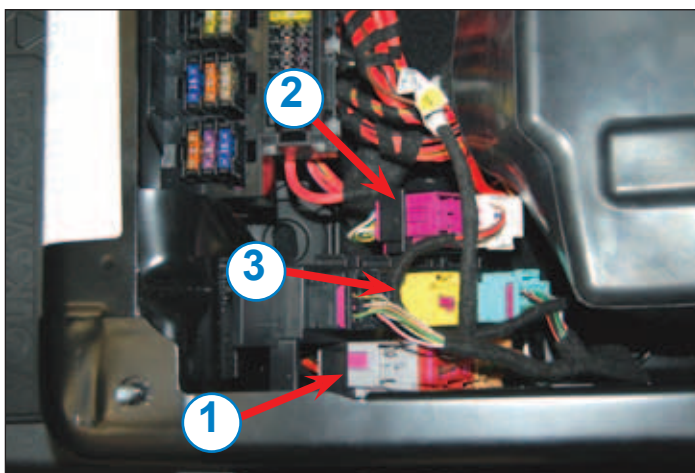
4. Now pull the control cables into the cab. These have been pushed through the grommet on page 13.



5. Connect the supplied 3-core wire (A) to the VB-Airsuspension wiring harness.



6. Check whether the three marked connectors are available underneath the seat console: grey (1), yellow (2) and purple (3).



7. Connect the wires from the signal cable according to the following table:

Wire	Signal	Position
27	Brake signal	Grey connector (1), pin 1
22	Ignition feed (15+)	Purple connector (2), pin 9
18	Speed signal	Yellow connector (3), pin 2

The pin position can be found on the connector

### 6.3 Remote control

1. Now the remote control has to be fitted. Find a suitable place to do this. VB-Airsuspension advises the compartment attached to the seat console. In case this isn't present one can use the supplied bracket.



***Make sure that the remote NEVER gets in the way of airbags!***

2. Carefully stick a screwdriver between the console and the compartment, loosening the compartment from the console.
3. Continue this process at different locations to remove the compartment completely.
4. Drill a **ø5 mm** hole into the compartment, in the position shown to the right. Enlarge the holes to a slotted hole, to be able to slide the cable in them. Please check the next step as well.

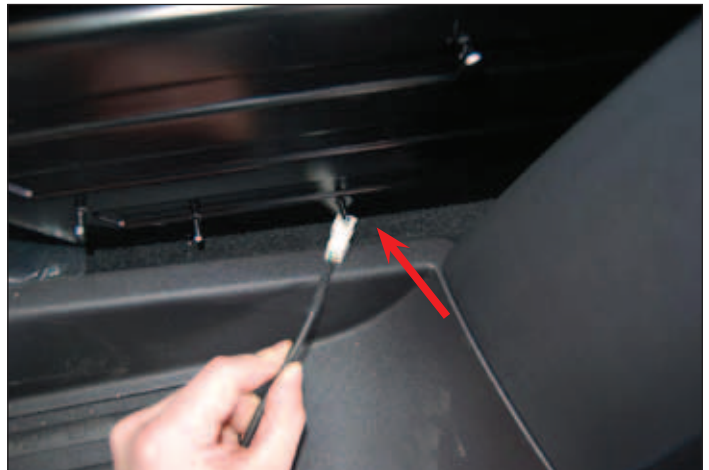




5. Lay the straight part of the curled cable through the holes. Use a tie-wrap to pose as strain relief.



6. Lead the connector underneath the seat console to the VB-Airsuspension wiring harness, which can be found in the seat console.



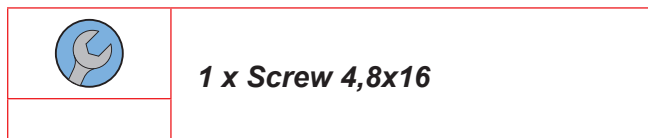
7. Connect the connector (1) to the VB-Airsuspension wiring harness.



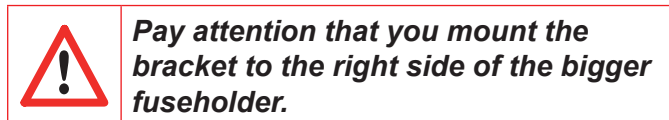
8. Mount the seating console back into the vehicle. Neatly roll-up the excess cable. However, make sure that the connectors of the VB wiring harness can be reached from the front of the vehicle.
9. Mount the seat back onto the console and, finally, re-fit the compartment.



10. Mount the fuseholder bracket to the bigger fuseholder.



11. Slide the little fuseholder over the fuseholder bracket.



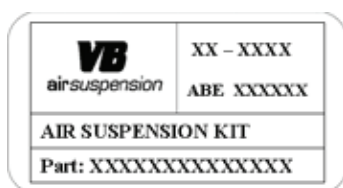
12. Connect the fuse holders to the cable-tree. Slide the terminals of the red wires into a fuse-holder and put a **40 A** fuse in it (**Z1**). Now slide the terminals of the yellow wires into the other fuse-holder and put a **7,5 A** fuse in it (**Z2**).
13. Finally, mark the fuses with a label, to make it clear that these fuses are for the air-suspension.

#### 6.4 Warranty stickers

1. Stick the supplied warranty sticker, as on the picture, on the B-pillar on the passenger side.



2. Stick the kit-sticker, as on the picture, under the hood on the marked place.

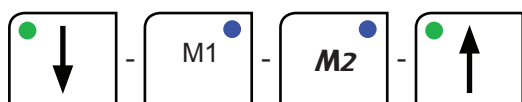


3. Stick one of each sticker also in the maintenance booklet of the vehicle.

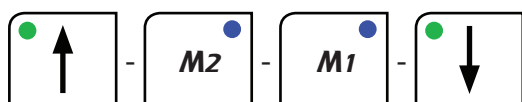


## 6.5 Calibration

1. Place the vehicle on a car lift and make the wheels hanging free from the ground. Turn the ignition on.
2. Press the **SERVICE**-key briefly (LED lights up) and then within 10 seconds the following code:



3. The system will give a long beep and reboot. During the first beep, hold the SERVICE-key, until a second long beep is heard. Now enter the following code within 10 seconds:



4. The calibration mode is now activated. The vehicle will calibrate itself automatically.



***It can occur the LED of the down-button will light up. If so, push this button until the compressor starts.***

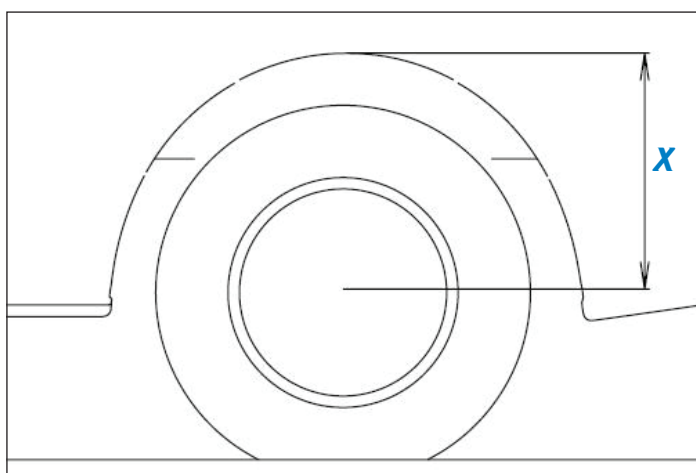
5. When the calibration is finished, the remote control will give a long signal. The air-suspension will restart automatically and the air-suspension is back in normal user mode.
6. Finally, secure all bolts which have been marked by **\*\*\* Do not tighten these bolts yet!\*** and check the vehicle according the checklist in the appendix!

### **Standard +30mm Tolerance**

Measure X front: 440 mm    470 mm (+/- 10mm)  
Measure X rear: 445 mm    475 mm (+/- 10mm)



***The option Autolevel, in case this is fitted, has to be calibrated now. Follow the instructions of the corresponding manual.***





## 7. Checklist

### 7.1. System finishing

OK

- |      |   |                          |
|------|---|--------------------------|
| 1.1  | Chassis height checked according the manual                                 | <input type="checkbox"/> |
| 1.3  | Heightsensor correctly fitted   | <input type="checkbox"/> |
| 1.4  | Shock absorbers relieved of air   | <input type="checkbox"/> |
| 1.5  | Bolts tightened to the right torque and checked off in fitting instructions | <input type="checkbox"/> |
| 1.6  | Tubes, cables and connectors correctly secured                              | <input type="checkbox"/> |
| 1.7  | System checked for air-leaks  | <input type="checkbox"/> |
| 1.8  | Space around the air-springs checked  | <input type="checkbox"/> |
| 1.9  | Documentation present   | <input type="checkbox"/> |
| 1.10 | Warranty form filled out and identification sticker fitted                  | <input type="checkbox"/> |

### 7.2. Functions of system

OK

- |     |                    |                          |
|-----|--------------------|--------------------------|
| 2.1 | Manual raising     | <input type="checkbox"/> |
| 2.2 | Automatic lowering | <input type="checkbox"/> |
| 2.3 | Manual lowering    | <input type="checkbox"/> |
| 2.4 | Automatic raising  | <input type="checkbox"/> |
| 2.5 | Testdrive approved | <input type="checkbox"/> |

## 8. Torque recommendations

### 8.1 Specific torque values

Connection	Torque	Comments
Fastener McPherson Air-spring upper side	80 Nm	
Bolts McPherson Air-spring down side	75 Nm + 180°	According instructions <sup>1</sup>
Upper bolts rear shock absorber	70 Nm + 90°	
Lower bolts rear shock absorber	120 Nm + 180°	

#### <sup>1</sup> Torque instructions McPherson Air-spring underside.

With a standard front axle:

- 1) Torque both bolts to **50 Nm**
- 2) Torque both bolts to **75 Nm** and turn it **180°** further.

With a maxi front axle:

- 1) Torque both bolts to **150 Nm** and turn it **90°** further.

### 8.2 Standard torque values

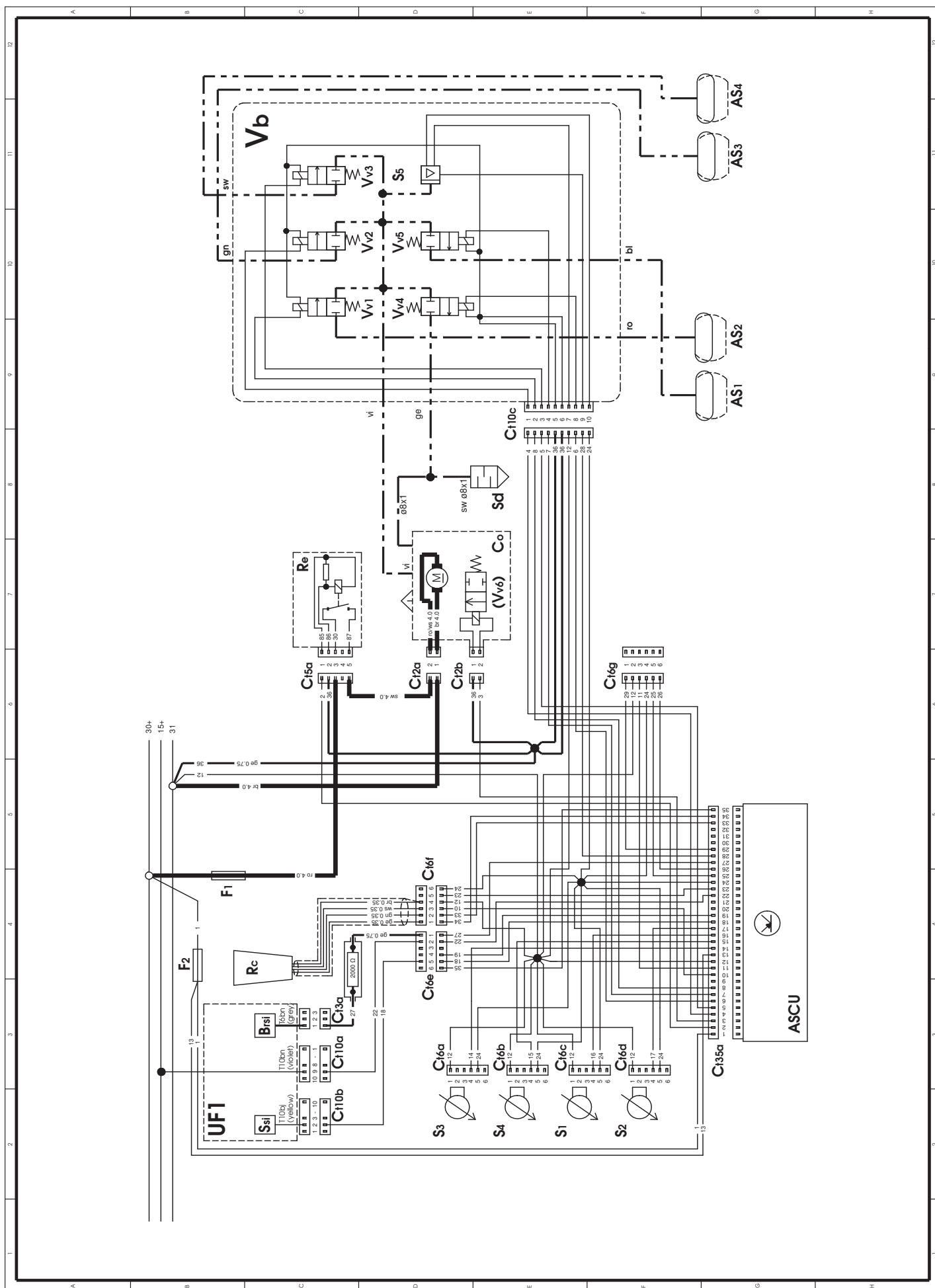
**Attention:** Torque values represented here are intend to be for general information, not for specific installations. In special instances, where the torque values of the factory service manual deviate from the torque values recommended here, always follow the factory service manual.

Bolt type	Grade 8.8	Grade 10.9
M3 x 0,50	1 Nm	1,5 Nm
M4 x 0,70	4 Nm	6 Nm
M5 x 0,80	6 Nm	8,5 Nm
M6 x 1,00	8,5 Nm	12,5 Nm
M7 x 1,00	14 Nm	20,5 Nm
M8 x 1,00	22 Nm	32 Nm
M8 x 1,25	20,5 Nm	30 Nm
M10 x 1,00	45 Nm	67 Nm
M10 x 1,25	43 Nm	64 Nm
M10 x 1,50	41 Nm	60 Nm
M12 x 1,25	77 Nm	112 Nm
M12 x 1,50	74 Nm	108 Nm
M12 x 1,75	71 Nm	104 Nm
M14 x 1,50	121 Nm	175 Nm
M14 x 2,00	113 Nm	165 Nm
M16 x 1,50	180 Nm	270 Nm
M16 x 2,00	170 Nm	250 Nm
M18 x 1,50	270 Nm	390 Nm
M18 x 2,50	245 Nm	350 Nm
M20 x 1,50	380 Nm	540 Nm
M20 x 2,50	350 Nm	490 Nm
M22 x 1,50	510 Nm	720 Nm
M22 x 2,50	470 Nm	670 Nm





#### **Attention:**

At the above listed torque values are in Nm. (NOT in lb.-ft.) The tolerance on the values is +/- 10%.

## 9. Wiring diagram

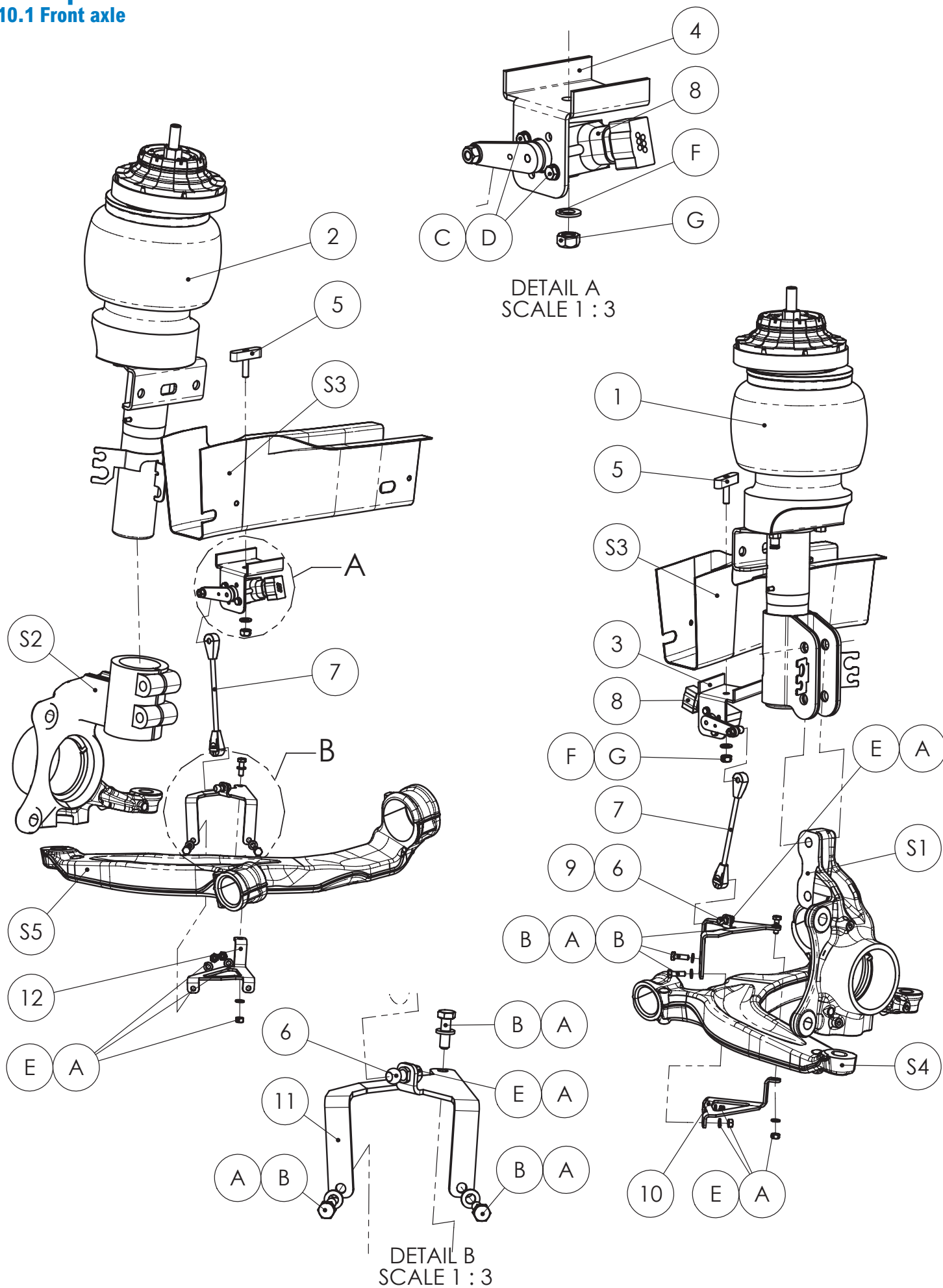




Name	Description
ASCU	VB-ASCU (control unit)
AS1	Air spring front left
AS2	Air spring front right
AS3	Air spring rear left
AS4	Air spring rear right
Brsi	Brake signal
Bz	Warning buzzer
Co	Compressor
Ct2a	Connector, 2-pole, compressor
Ct2b	Connector, 2-pole, valve on compressor
Ct3a	Connector, 3-pole, brake signal (brown, delivery unassembled)
Ct5a	Connector, 5-pole, relay Re
Ct6a	Connector, 6-pole, height sensor S1
Ct6b	Connector, 6-pole, height sensor S2
Ct6c	Connector, 6-pole, height sensor S3
Ct6d	Connector, 6-pole, height sensor S4
Ct6e	Connector, 6-pole, VB-supplycable (white, delivery unassembled)
Ct6f	Connector, 6-pole, remote control
Ct6g	Connector, 6-pole, option connector
Ct10a	Connector, 10-pole, 15+ (black, delivery unassembled)
Ct10b	Connector, 10-pole, speed signal (yellow, delivery unassembled)
Ct10c	Connector, 10-pole, valve block connection
Ct35a	Connector, 35-pole, VB-ASCU control unit
F1	Fuse compressor, 40A
F2	Fuse control unit, 7,5A
Rc	Remote control
Re	Compressor relay
S1	Height sensor front left
S2	Height sensor front right
S3	Height sensor rear left
S4	Height sensor rear right
S5	Pressure sensor on valve block
Ssi	Speed signal
Vb	Valve block
Vv1	Valve for air spring, right front on valve block
Vv2	Valve for air spring, left rear on valve block
Vv3	Valve for air spring, right rear on valve block
Vv4	Dump valve, to release air on valve block
Vv5	Valve for air spring, left front on valve block
Vv6	Release valve on compressor box
<b>Colour codes (not mentioned is yellow with numbers)</b>	
bl	Blue
br	Brown
ge	Yellow
gn	Green
ro	Red
ro/ws	Red/White
rs	Pink
sw	Black
vi	Violet
ws	White
	0,50 mm²
	0.75 mm²
	4,00 mm²
	Air tube PA12 Ø4x1 (color, see diagram)

## 10. Exploded view

### 10.1 Front axle



Item	Qty	Description	Order number
1	2	McPherson air spring Maxi	105 210 10 01
2	2	McPherson air spring standard	105 210 10 02
3	1	Heightsensorbracket, left	105 209 00 63
4	1	Heightsensorbracket, right	105 209 00 62
5	2	Clamp bolt	105 213 10 47
6	2	Ball-joint M6	105 209 51 78
7	2	Heightsensor rod	105 209 50 03
8	2	Heightsensor	105 209 10 31
9	1	Ball-joint bracket, left	105 209 00 76
10	1	Clamp plate ball-joint bracket, left	105 209 00 78
11	1	Ball-joint bracket, right	105 209 00 75
12	1	Clamp plate ball-joint bracket, right	105 209 00 77

Item	Qty	Description	Order number
A	16	Washer M6	001 120 60 00A
B	6	Bolt M6X20	001 010 60 20AA
C	4	Washer M5	001 120 50 00A
D	4	Bolt M5X10	001 010 50 10AA
E	10	Lock nut M6	001 100 60 00AA
F	2	Washer M8	001 120 80 00A
G	2	Steel lock nut M8	001 100 80 00AA

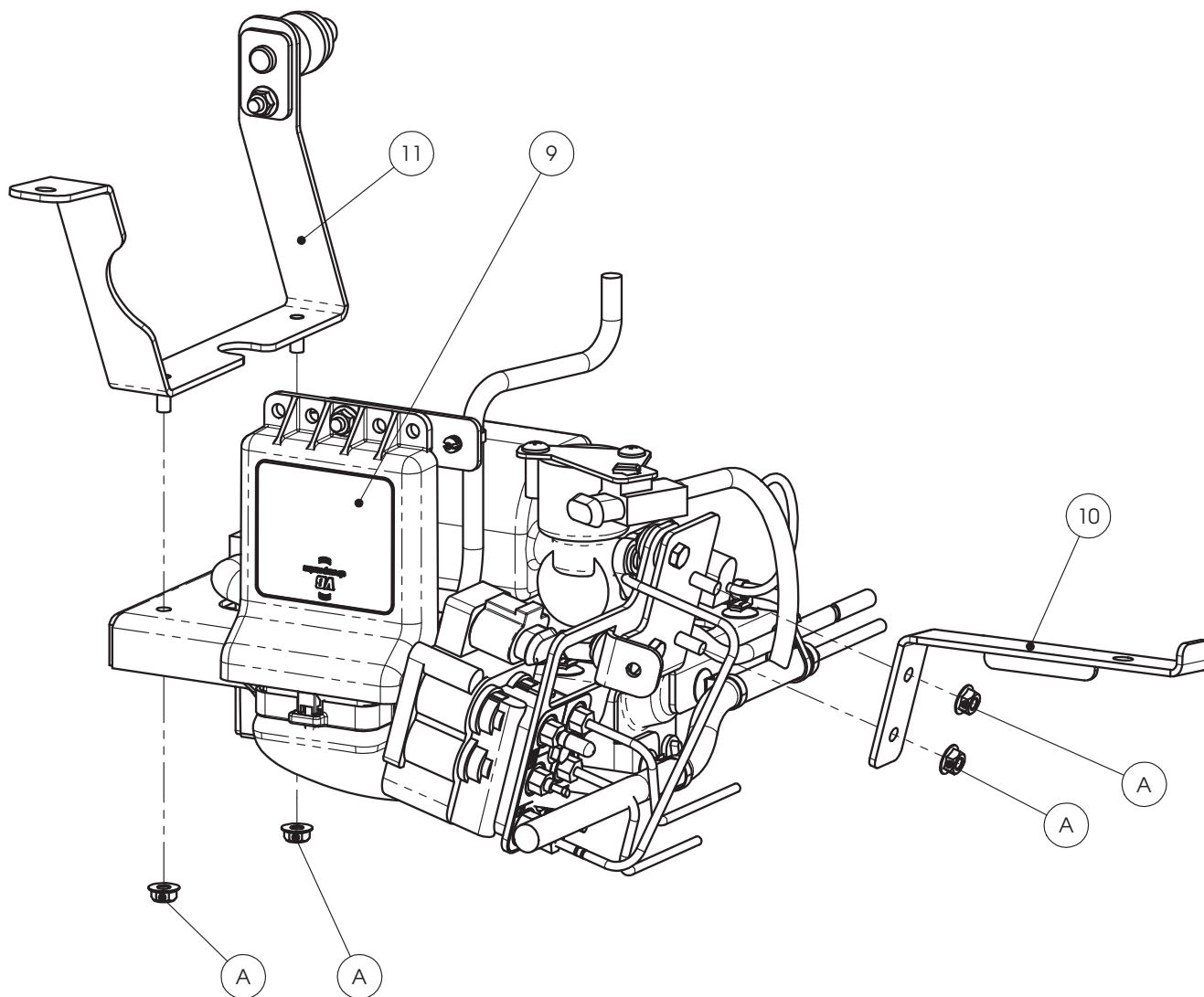
Item	Qty	Description
S1	1	Bearing body left standard
S2	1	Bearing body right maxi
S3	1	Chassis
S4	1	Suspension arm left
S5	1	Suspension arm right



***In the Exploded view, you can see the difference between the standard and the maxi version of the McPherson air-spring. On the left side you can see the standard version and right the maxi version.***

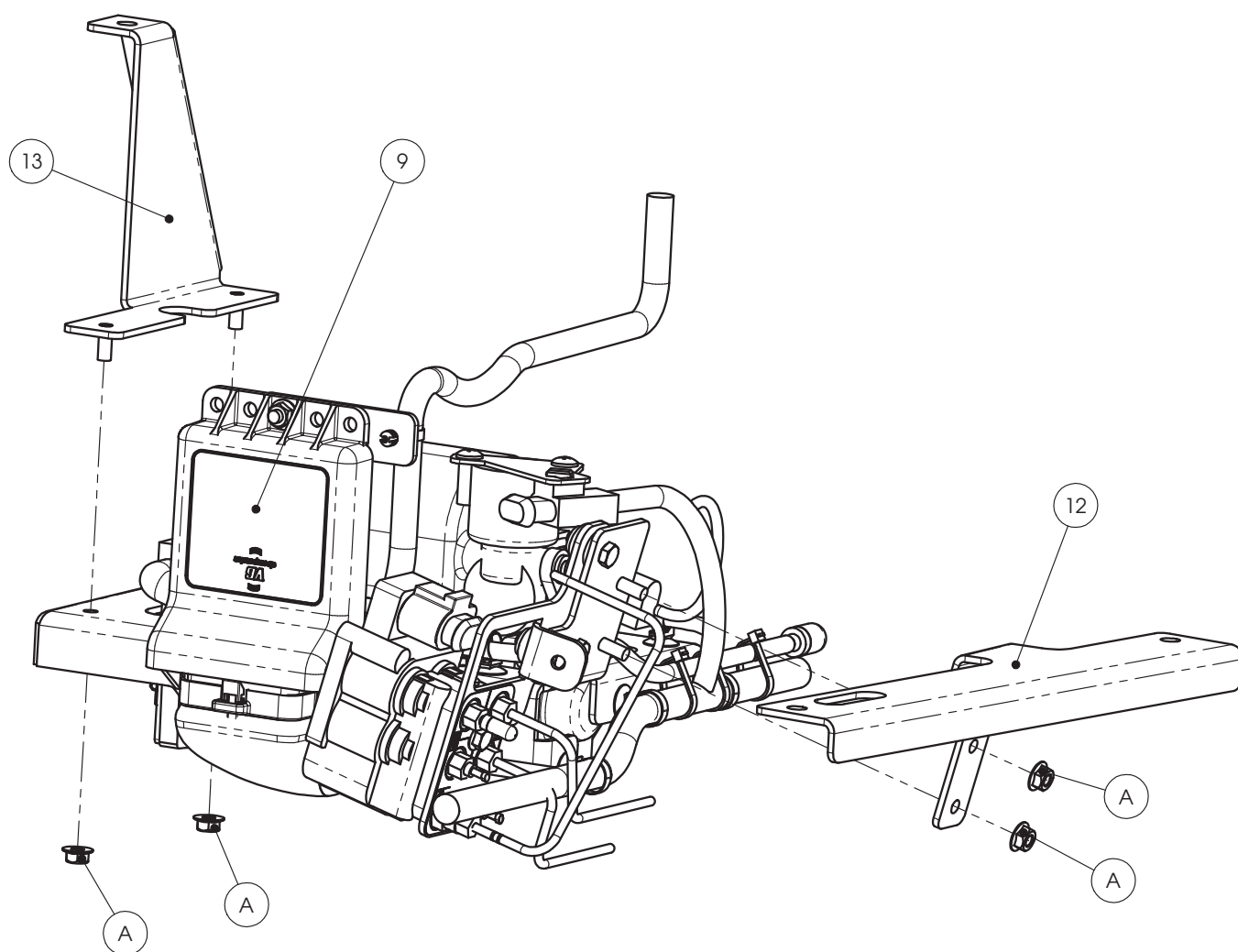


## 10.2 Compressorbox diesel



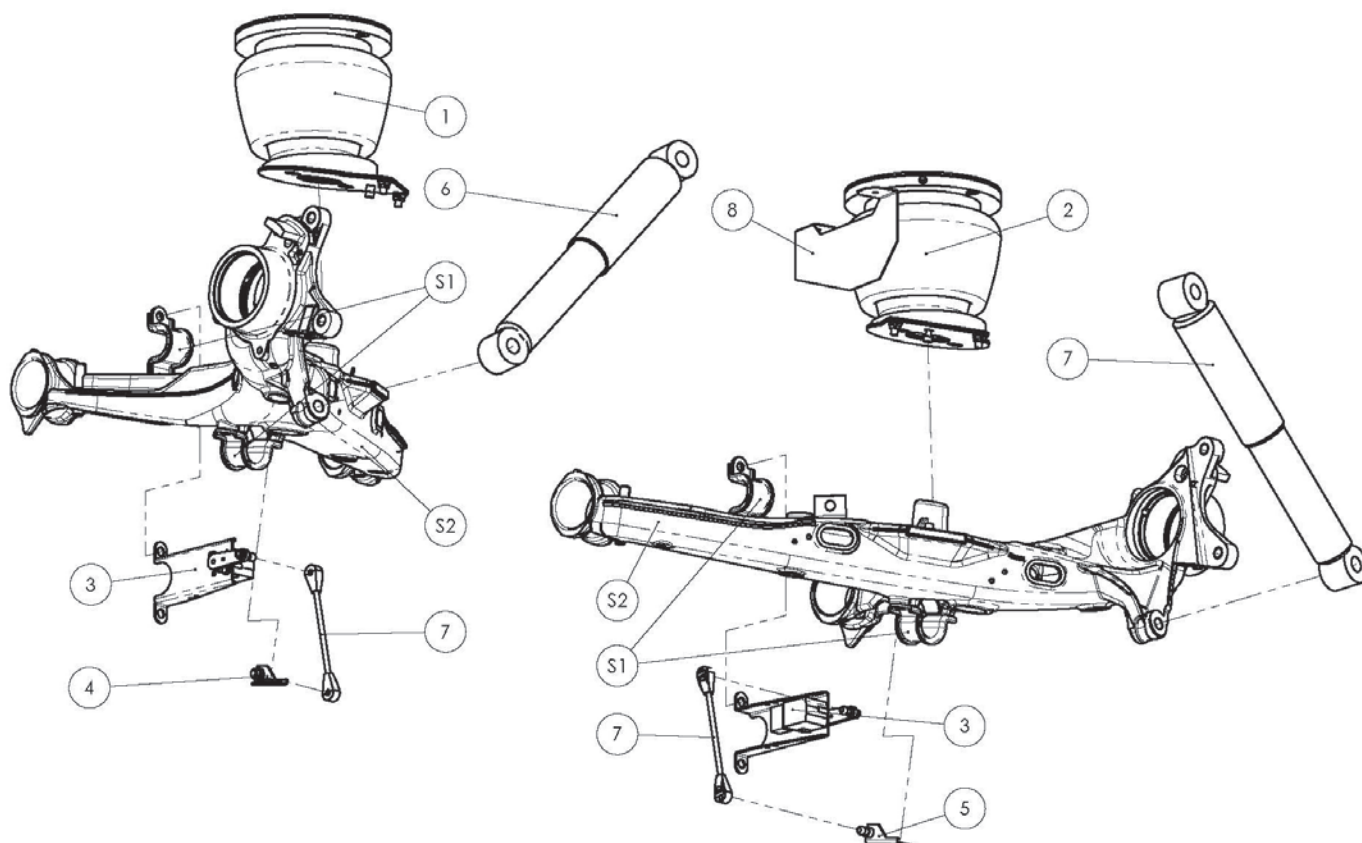
Item	Qty.	Description	Part. nr.
9	1	Compressor unit	105 213 01 12
10	1	Compressor bracket 1	105 213 10 89
11	1	Compressor bracket 2	105 213 10 90
A	4	Lock nut M6	001 100 60 01AB

## 10.3 Compressorbox petrol



Item	Qty.	Description	Part. nr.
9	1	Compressor unit	105 213 01 12
12	1	Compressor bracket 1	105 213 10 87
13	1	Compressor bracket 2	105 213 10 95
A	4	Lock nut M6	001 100 60 01AB

## 10.4 Rearaxle



Item	Qty	Description	Order number
1	1	Air spring left	105 203 22 52
2	1	Air spring right	105 203 22 53
3	2	Heightsensor	105 209 51 86
4	1	Ball-joint left	105 209 51 53K
5	1	Ball-joint right	105 209 51 52K
6	2	Shock absorber	105 210 40 77
7	2	Heightsensor rod	105 209 50 02
8	1	Heat shield	105 235 00 14

Item	Qty	Description
S1	4	Stabiliser bracket
S2	2	Suspension arm

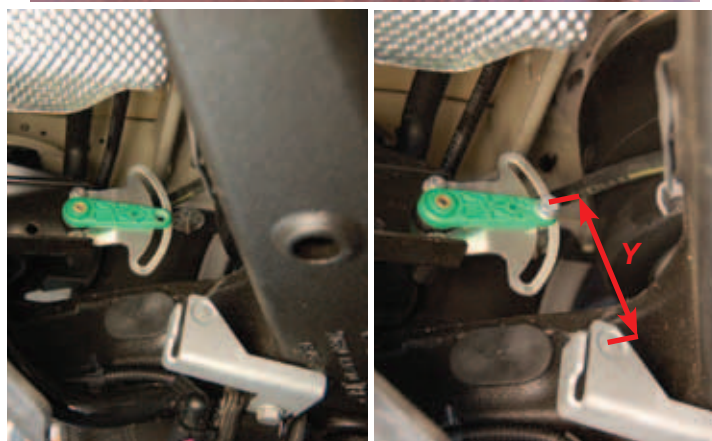


## 11. Fitting the Xenon modificationkit

1. Disconnect the original heightsensormount
2. First, continue with chapter 4.3.
3. Set the vehicle at ride height.
4. Disassemble the original heightsensor.
5. Drill with a Ø6mm drill the ball joint out of the heightsensormount.



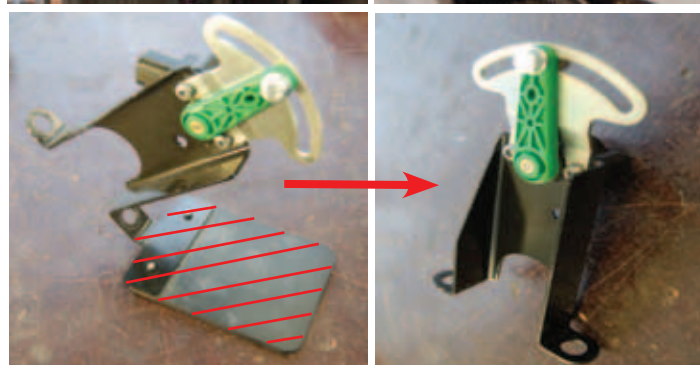
6. Mount the original heightsensor back at its bracket together with the mounting bracket for the heightsensormount.
7. Mount the original heightsensormount to the mounting bracket, the dimension Y must be the same length as the original heightsensormount.



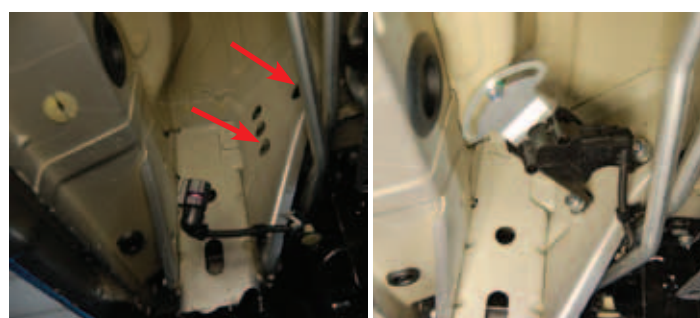
	<b>1 x Bolt M6x20</b>
	<b>2 x Washer M6</b>
<b>10 Nm</b>	<b>1 x Lock nut M6</b>

8. Disassemble the original heightsensor with bracket.
9. Remove the marked rubber protection plate.

	<b>Protect the surface with an anti corrosion substance.</b>
--	--



10. Mount the original heightsensor bracket with the heightsensor at the shown place to make place for the VB heightsensor. This place is in front of the rear right wheel.
11. Connect the original connector back to the original heightsensor.
12. Remove the original ball joint bracket with the heightsensor rod.
13. Continue at page 10 with point 3.



## 12. Suspension arm modelyear 2012

From modelyear 2012 volkswagen has modified their suspension arms. On this modified suspension arms you have to use extra plastic blocks to mount the ball joint brackets to the suspension arms.

To see if this applies to you, please check the partnumber of the suspension arm.

The modified suspensionarms begins with 7E0 407....., while the "old" suspension arms begins with 7H0 407 .....

Only with suspension arms who begins with 7E0 407 .... you should use the extra plastic blocks to mount the ball joint brackets.

7H0 407 .....

continue on page 22 with point 6.




7E0 407 .....

continue on page 42 with point 1.



1. Mount the smallest blocks on the lower ball joint bracket like shown in the picture.


	<b>2 x Bolt M6x12</b> <b>2 x Washer M6</b>
<b>4 Nm</b>	

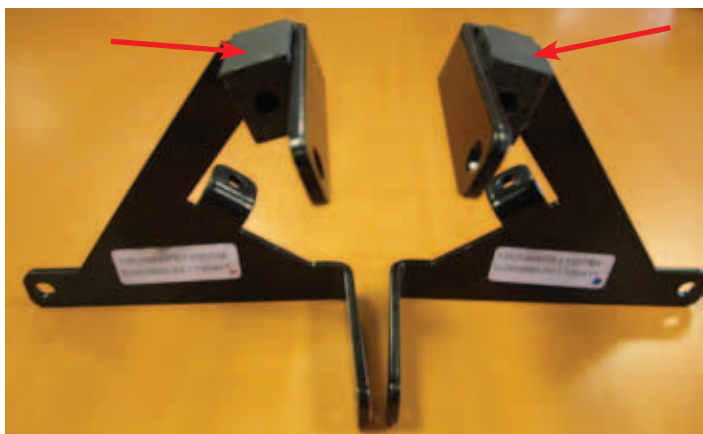
	<b>Place the rounded edge in the corner to make sure the the block is properly seated.</b>
---	--




2. Mount the bigger blocks to the upper ball joint brackets like shown in the picture.

	<b>2 x Bolt M6x16</b> <b>2 x Washer M6</b>
<b>4 Nm</b>	

	<b>Place the rounded edge in the corner to make sure the the block is properly seated.</b>
---	--



3. The next step is fitting the ball-joint brackets. These brackets are mirrored to each other. Secure, in case this wasn't done already, the ball-joints to the brackets. Do so in the way shown to the right.

	<b>2 x Ball joint M6</b> <b>2 x Washer M6</b> <b>2 x Lock nut M6</b>
<b>10 Nm</b>	





4. Lay the upper bracket over the suspension arm like shown in the picture. The ball-joints should be pointing towards the front of the vehicle.



**Notice the colour marks on the separate parts. This is to define the position in the car, see page 5 for details!**



5. Mount with the two shown bolts the lower bracket to the upper bracket. Don't secure these bolts yet.



**10 Nm**

**4 x Bolt M6x20  
8 x Washer M6  
4 x Lock nut M6**



**On the picture to the right you can see the right hand side of the vehicle!**

6. Mount the third and last bolt and secure all bolts.



**10 Nm**

**2 x Bolt M6x20  
4 x Washer M6  
2 x Lock nut M6**



7. Continue on page 23 with page 8.



## 13. Cable connecting when option UF1 is not available

**Not all VW Transporters are equipped with the option UF1, so sometimes it is necessary to connect the wiring harness from VB to the vehicle on a different way.**

1. Remove the driver seat. If the vehicle is equipped with a secondary battery, remove the secondary battery. Remove the frame of the driver seat to pull the wiring harness easier to the cabin.

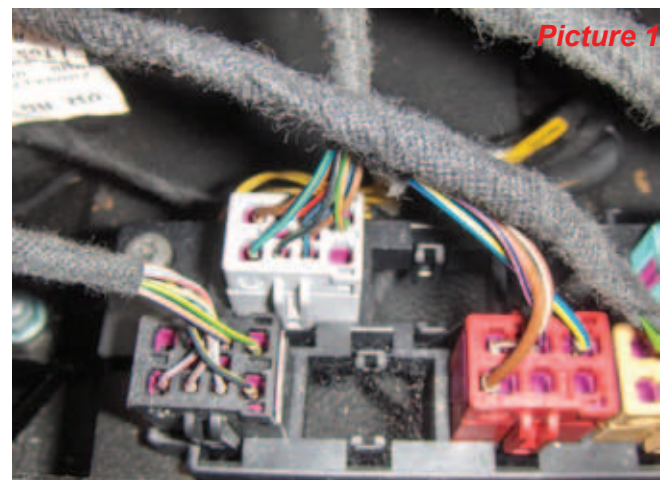


**Cut the wire at 50 mm from the relay. Strip the wires at 5 mm from the end. Connect the wire with an isolated cable terminal. An example is shown.**

2. The cable has three wires:
  - Wire 27 – brake signal
  - Wire 22 – contact + (15+)
  - Wire 18 – speed signal



3. Brake signal – wire 27 (Picture 1)
  - On the **blue** connector
  - Wire **black/red** of the vehicle
  - To connect with wire 27 **yellow** of the UF0 cable from VB



Picture 1

4. Signal contact+ - wire 22 (Picture 2)
  - On the **black** connector



**Not always present, when not: get the contact plus by the light switch. (only when the vehicle doesn't have a CAN-BUS light switch)**

- Wire **grey/brown** of the vehicle
- To connect with wire 22 **yellow** of the UF0 cable from VB



Picture 2

5. Speed signal – wire 18 (Picture 3)
- On the back of the instrument cluster
  - The wire ~~white~~ **Violet** of the vehicle
  - To connect with wire 18 **yellow** of the UF0 cable from VB



Picture 3



***Always use the isolated cable terminals supplied by VB-Airsuspension. The cable terminals have to be double clamped and heated to isolate the wires. Before you put back the connector, protect the wires with tape. (Picture 4)***



Picture 4

## 14. Notes

[illegible]







VB-Airsuspension is producing, as one of the few European manufacturers, a very broad range of different (air-) suspension systems. From reinforced coil springs, semi-air suspension systems, up to complete full air-suspension systems, we provide solutions for customers with different vehicle types, like ambulances, minibuses, car transporters, motorhomes, etc. Now you can see why more and more commercial vehicle body manufacturers specify VB-Airsuspension on their vehicles.



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