FITTING INSTRUCTIONS

making everyday smoother

airsuspension

• Increased comfort • Better driveability • More safety

FORD TRANSIT CUSTOM V362

VB-FullAir 2C

REARAXLE

FOR SET: **10506162XX**

What has changed?

New version number:	V1.2
Release date:	12-05-2015
Changed compared to	V1.1

Page: (New version)	Changes
10	Fitting step for “Sport Van” added
19	Fitting instruction for air tank added
20	Fitting step for mounting air inlet line added

Contents

1. Safety instructions

Personal safety instructions

- Always wear suitable protective clothing and safety boots.
- Do not wear rings, watches or loose clothing.
- Never carry loose items in pockets.
- Tie back long hair.
- Never use broken tools. Only use tools for their intended purpose.
- Wear safety goggles.

General safety instructions

- If possible, always use a hydraulic ramp when carrying out the activities.
- If applicable, ensure that the vehicle is properly supported.
- Ensure that the vehicle cannot roll away.
- Improperly carried out installation can result in hazardous situations.

Symbols used

Caution

	***When the warning symbol is shown, information is provided that is extremely important or the safety and/or health of those involved.*** ***This symbol is also used for procedures that are critical for the correct installation of the air suspension kit.***

Tip

	***When the tip symbol is shown, information is provided that will help make installation of the air suspension kit simpler.***

Torque

 ***xx Nm***	***In this manual there is a check box next to each bolted joint showing the torque to be used when tightening the bolted joint.***

2. Fitting instructions

This manual has been put together with great care and describes the steps for installing the air suspension indicated on the front page. However, the content of this manual is a snapshot view of the situation as at the time it was written.

VB-Airsuspension reserves the right to introduce technical changes at any time without warning.

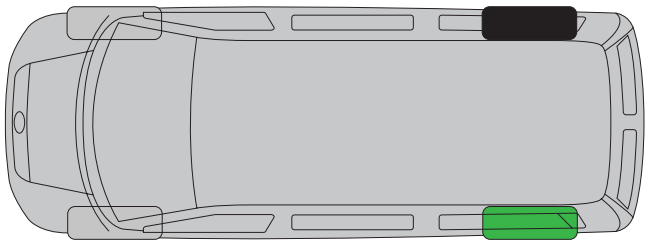
The warranty is only valid if installation is carried out by a specialist workshop. Installation may only be carried out by suitably authorised personnel.
Staff must be experienced in working on light commercial vehicles, particularly in relation to electrics/electronics, pneumatics and general vehicle mechanics.

- Use vehicle workshop manuals where necessary.
- Always follow the vehicle manufacturer's conversion instructions, unless expressly stated otherwise in this manual.
- Keep workplace clean and tidy.
- Always tighten nuts and bolts to the specified torque.
- If modifications have been made to the original anti-corrosion system, this must be rectified immediately. Use spray wax or a protective coating for this purpose.
- Always refit removed tubes and wires in the same way they were originally fitted.
- Secure pipes and wires with a sufficient number of tie-wraps. Ensure that the wires cannot be placed under tension.
- The supply cable must be at least 100 mm away from the ABS/ESP block, the sensors and other control equipment.
- Ensure that there are no tight bends in air tubes and that they cannot be kinked or chafe against other parts.
- Never attach air tubes, wires or other parts to the vehicle's brake lines.
- Do not leave any tools, cleaning cloths or other materials behind after completing work.
- Use the checklist to check the air suspension system after fitting.
- Check the system for air tightness after fitting.
- Take the vehicle for a test drive after fitting.
- Ensure the correct calibration supports are available. The correct calibration supports to be used with this kit are:

Axle:	Calibration height:	Ordernumber:
Rearaxle	**X = 127mm**	009 000 00 65

- The air suspension kit is supplied for two corners. If a part is specifically for one corner, it is identified with a coloured sticker.

Colour	Description
Green	Rear left
Black	Rear right

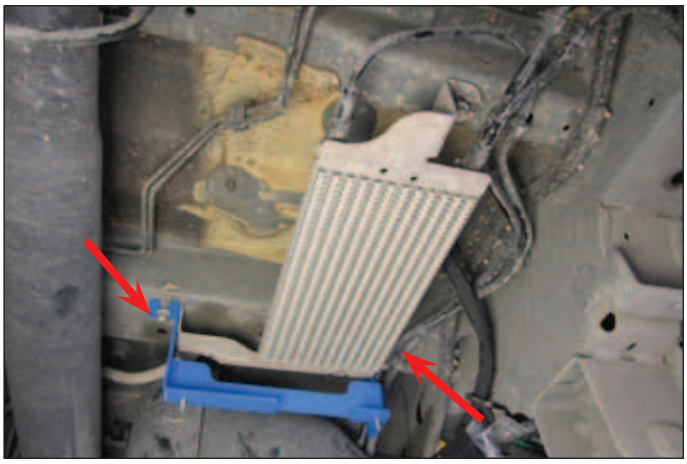


3. Compressor box and wiring harness

3.1 Compressor box

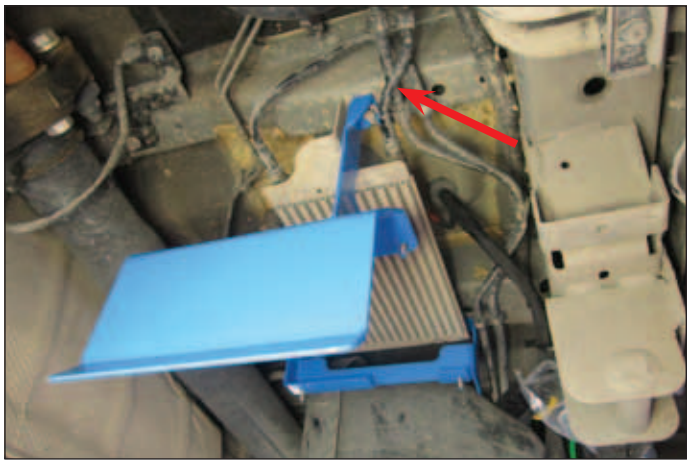
If no fuel cooler is installed, fit the compressor suspension supports from point 2 and point 4 in the position indicated using the supplied self-tapping flange bolts (M6x25).

1. Loosen the rear bolts of the fuel cooler. Do not remove them.
2. Push the rear compressor mounting bracket under the bolts loosened in point 1, pushing the bracket under the bolts from the rear.



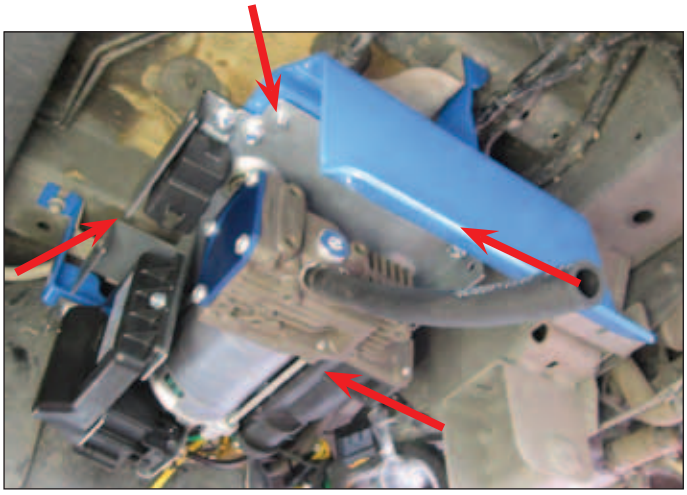
Original fasteners
8 Nm

3. Loosen the front bolt of the fuel cooler. Do not remove it.
4. Push the front compressor mounting bracket under the bolt loosened in point 3, pushing the bracket under the bolt from the rear.



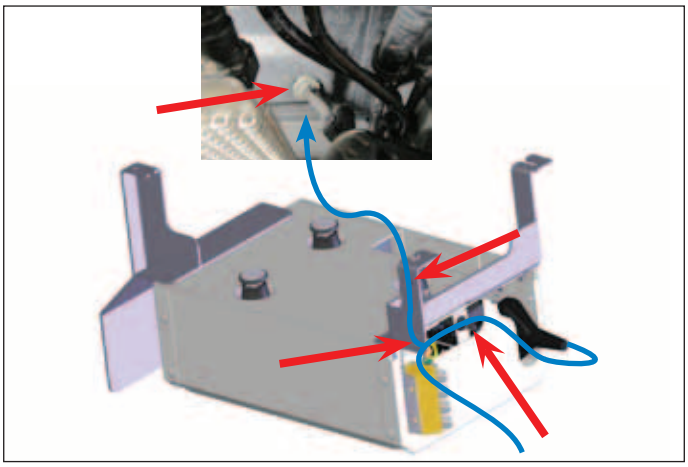
Original fasteners
8 Nm

5. Fit the compressor box on the bracket.
6. Tighten the bolts.



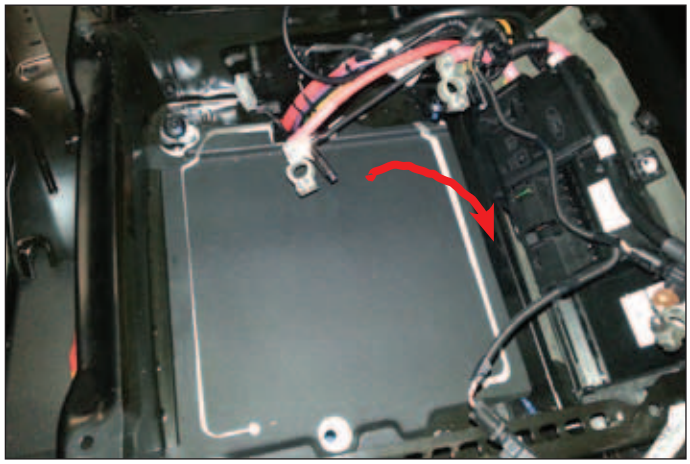
4 x flange lock nut	***M6***
8 Nm	

7. Attach the VB wiring harness with all connectors to the compressor support as indicated by the blue line.
8. Route the VB wiring harness to the inside through the hole above the fuel cooler.



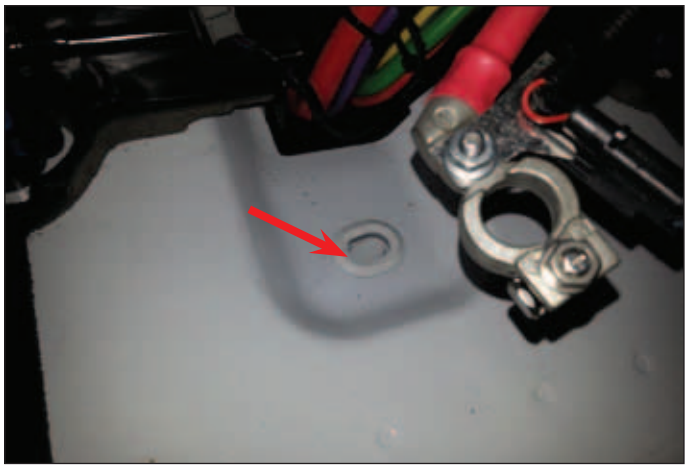
3.2 Wiring harness

1. Remove the driver's seat.
2. Remove the battery(ies)
3. Remove the battery housing.
4. Lift up the trim.

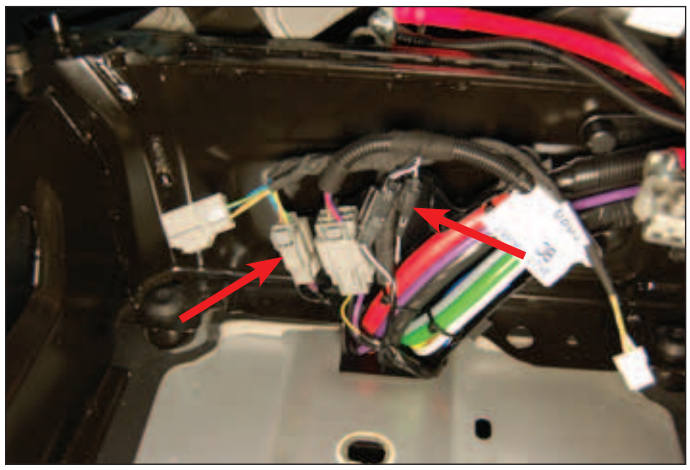


Ensure that tubes or wires cannot be placed under tension or become damaged.

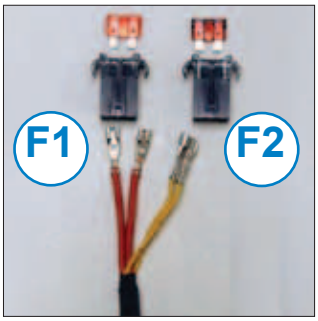
5. Carefully pull the wire into the vehicle.



6. A black and grey connector can be found in the seat base.
7. Release the black connector from the mounting.
8. Release the grey connector from the mounting.
9. Connect the supply cable to these two connectors.
10. Connect the supply cable to the white connector.



11. Connect the two red wires to the fuse block to which the ***F1*** ***40A*** fuse will later be connected.
12. Connect the two yellow wires to the fuse block to which the ***F2*** ***7.5A*** fuse will later be connected.
13. Do not fit the fuses yet.
14. Fit the fuse block on the seat frame in an easily accessible place.



15. Install the battery(ies).
16. Connect the yellow and brown wire to the negative battery terminal of the rear battery (-).
17. Connect the red wire to the marked connection of the positive battery terminal of the rear battery (+).

If there are 2 batteries, always use the accessories battery and not the original starter battery.

3.3 Remote control

1. Connect the remote control wire to the VB wiring harness that has already been installed under the seat.
2. Identify a suitable location to install the remote control. VB-Airsuspension recommends the position shown in the photograph.
3. Place the remote control in the holder.
4. Ensure the connector is not under tension. Secure the end of the wire with a tie-wrap, as shown in the example.

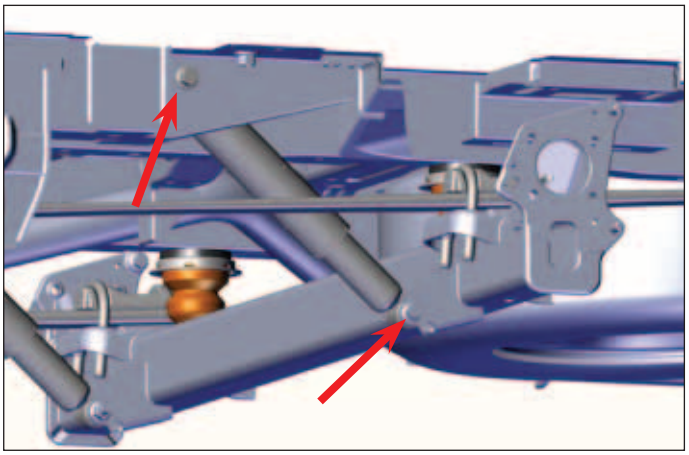
Ensure that the remote control is never in the way of the airbags.

5. Refit the interior components removed earlier.

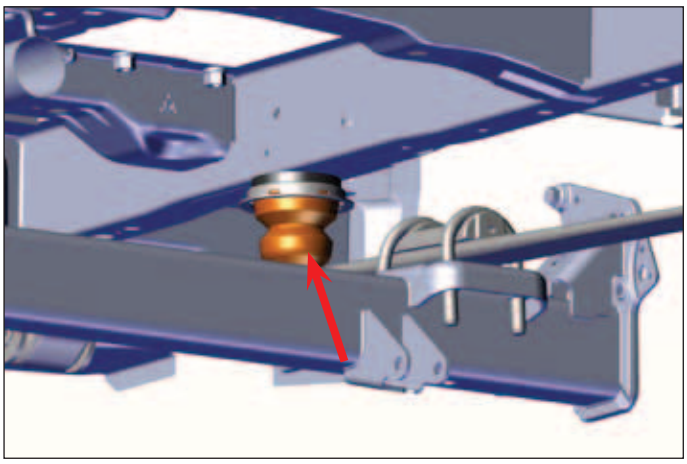
4. Fitting the air suspension kit for the rear axle

4.1 Preparations

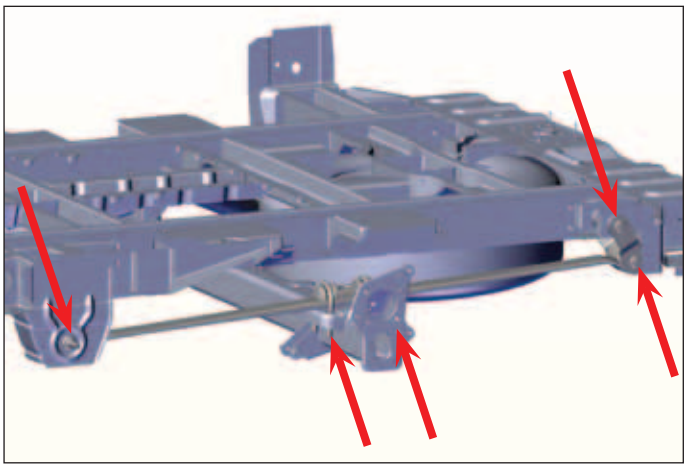
1. Ensure that the vehicle and the axle are properly supported.
2. Remove the shock absorbers
   Note: The nuts and bolts will be re-used.



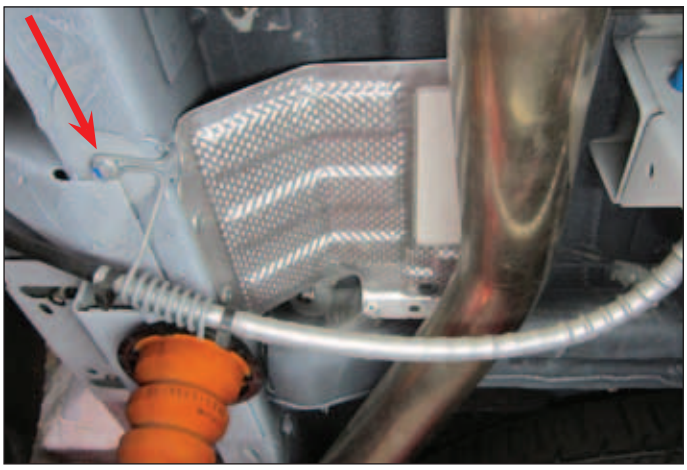
3. Remove the bump stops.
4. Remove the bump stop retainers.



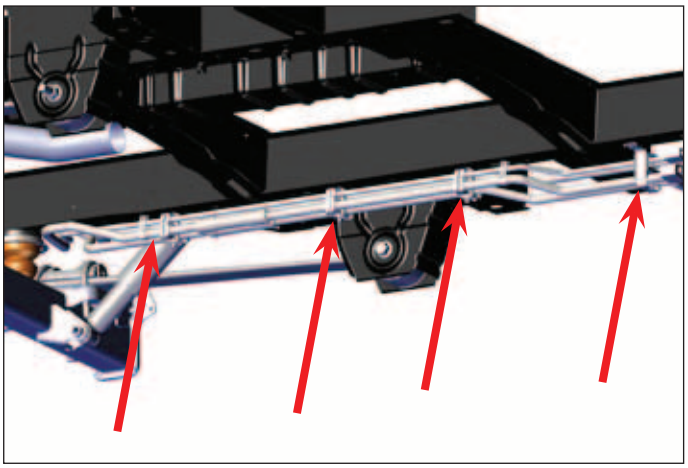
5. Remove the U-bolts.
6. Remove the topmost bolt from the spring shackle.
7. Remove the bolt from the frontmost leaf-spring bracket.
8. Remove the leaf springs.
9. Remove the rearmost leaf-spring bracket.



10. Remove the bolt from the handbrake cable.
11. Use this bolt to tap the screw thread in the same hole on the other side of the vehicle.

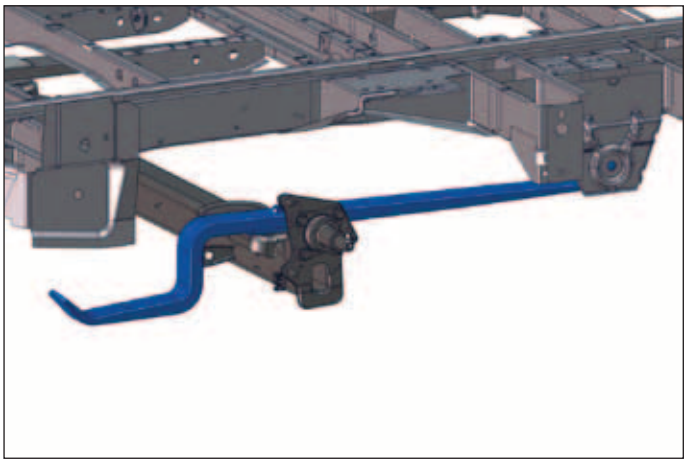


12. If the vehicle is equipped with air conditioning in the rear compartment, loosen the indicated mounting brackets so that the panhard torque rod bracket can be fitted.



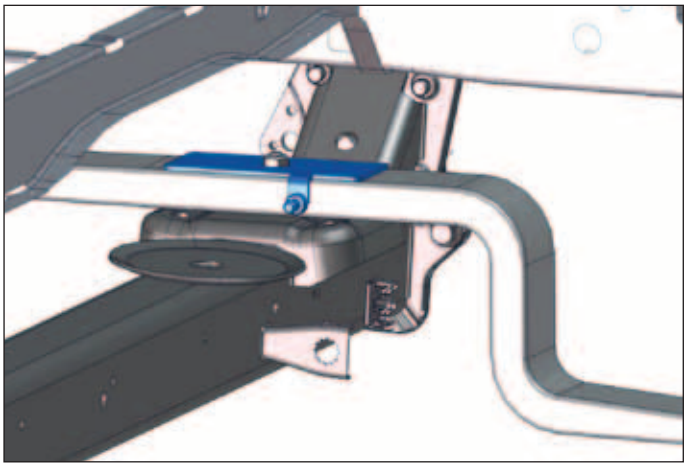
4.2 Main spring

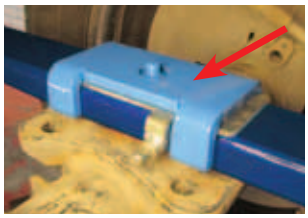
1. Place the main springs on the spring seats. Ensure the centre bolt falls in the hole of the spring seat.
2. Fit the main spring in the frontmost leaf-spring bracket.
   ** ***Do not tighten the bolts yet; this can only be done when the vehicle is at ride height.***



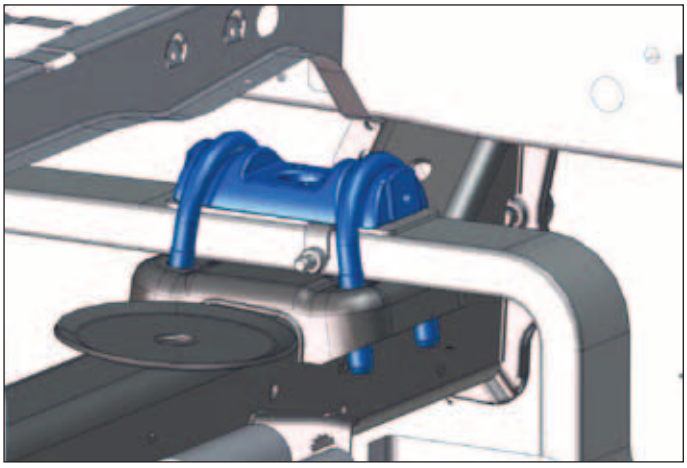
Original fasteners
180 Nm

3. Place the ball-joint brackets on the main spring. The ball-joint holes must face towards the inside and to the rear.



	If the vehicle is a Sport van, place the clamping block on the main spring.	

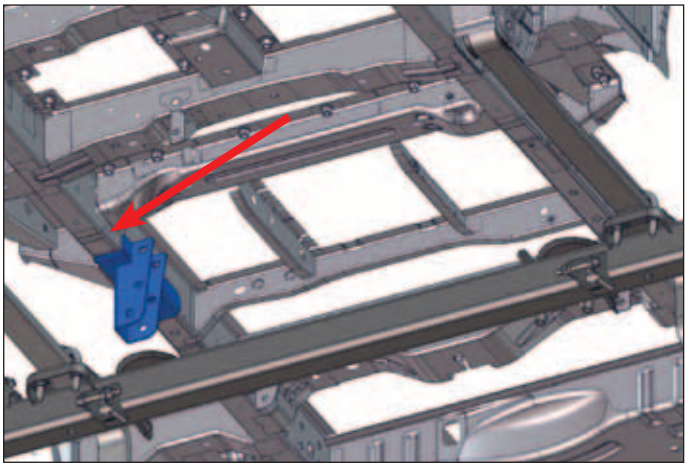
4. Place the original spring clamping plates on the main spring.
5. Fit the new U-bolts with the original leaf-spring U-bolt nuts.
   ** ***Do not tighten the nuts yet; this can only be done when the vehicle is at ride height.***



Original fasteners
180 Nm

4.3 Panhard rod

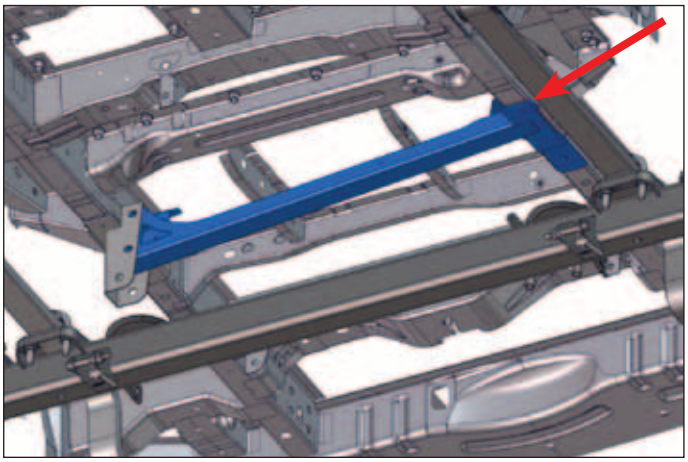
1. Fit the panhard torque rod bracket to the chassis with the frontmost hole.



1 x bolt	***M8 x 30***
1 x lock washer	***M8***
	20 Nm

2. Fit the panhard torque rod to the chassis with the frontmost hole.

1 x bolt	***M8 x 30***
1 x lock washer	***M8***
20 Nm	



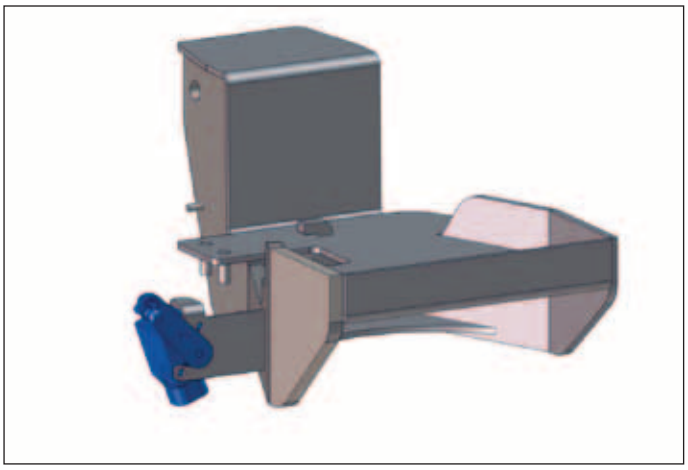
3. Fit the panhard torque rod to the panhard rod bracket.

2 x bolt	***M12 x 80***
2 x lock washer	***M12***
2 x lock nut	***M12***
70 Nm	

4. Fit the height sensor on the right upper springplate as shown in the illustration.

If the vehicle is a Sport van, the ball-joint is rotated through 180° and fitted on the height sensor arm.

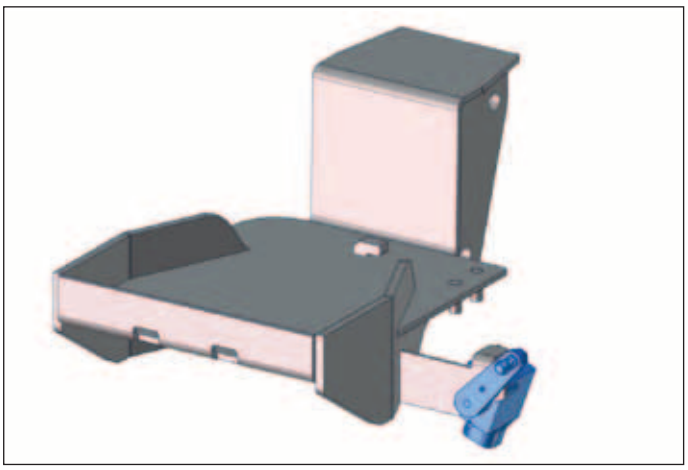
2 x bolt	***M5 x 10***
2 x lock washer	***M5***
5 Nm	



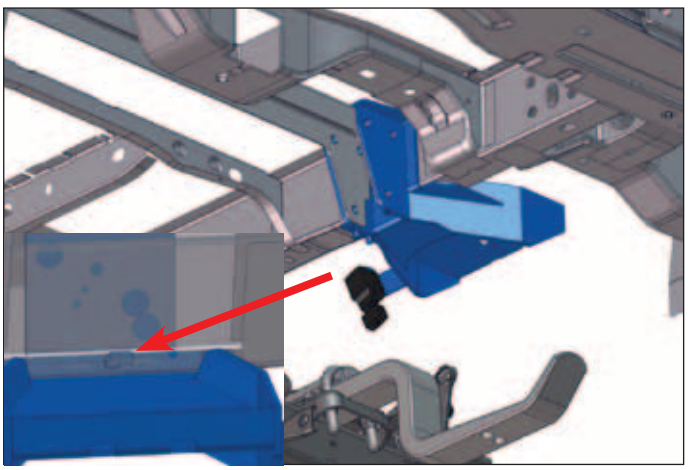
5. Fit the height sensor on the left upper spring plate as shown in the illustration.

If the vehicle is a Sport van, the ball-joint is rotated through 180° and fitted on the height sensor arm.

2 x bolt	***M5 x 10***
2 x lock washer	***M5***
5 Nm	

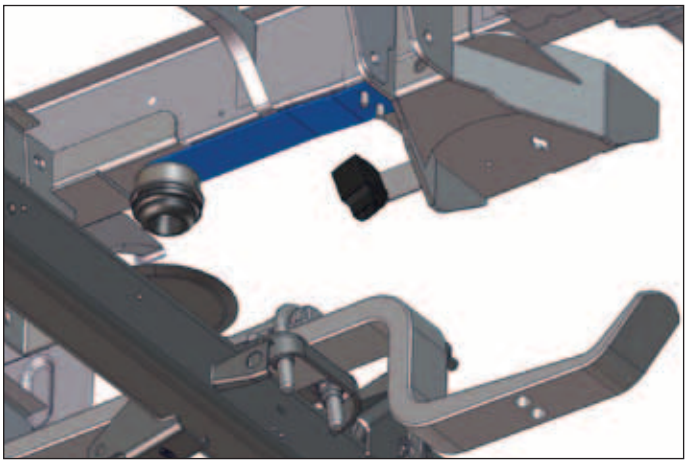


6. Fit the upper spring plates on the chassis. To do this, push the lip in the hole of the chassis (see inset).



7. Fit the mounting strip on the upper spring plate.

4 x bolt	***M8***
4 x lock nut	***M8***
Nm	***14 Nm***

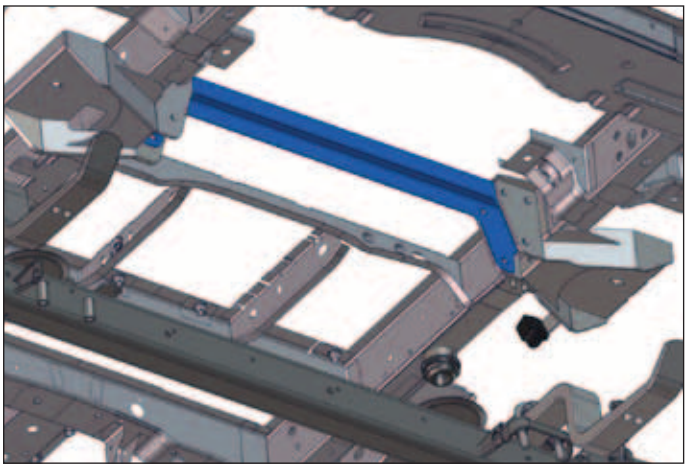


8. Mount the bump stop in the original position.

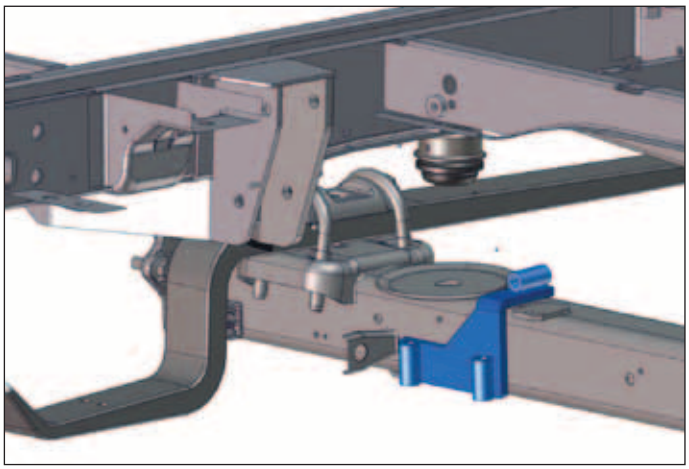
2 x bolt	***M10 x 40***
2 x lock washer	***M10***
Nm	***40 Nm***

9. Fit the upper cross beam on the upper spring plates. Fit the 3 longer bolts in the front left holes.

3 x bolt	***M12 x 35***
9 x bolt	***M12 x 30***
24 x lock washer	***M12***
12 x lock nut	***M12***
Nm	***70 Nm***

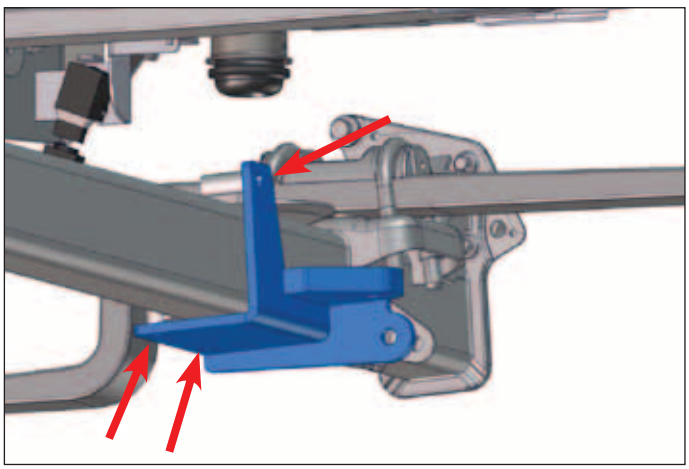


10. Place the panhard rod bracket on the rear axle.

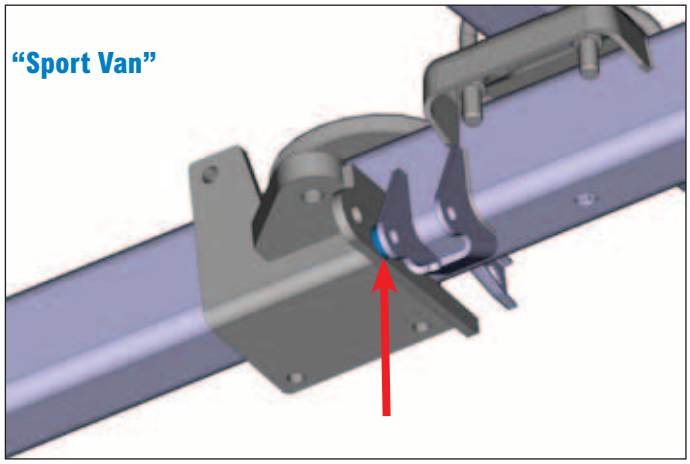


11. Fit the panhard rod bracket on the rear axle.
***** Do not tighten the bolts yet.***

3 x bolt**	***M12 x 70***
6 x lock washer	***M12***
3 x lock nut	***M12***
Nm	***40 Nm***

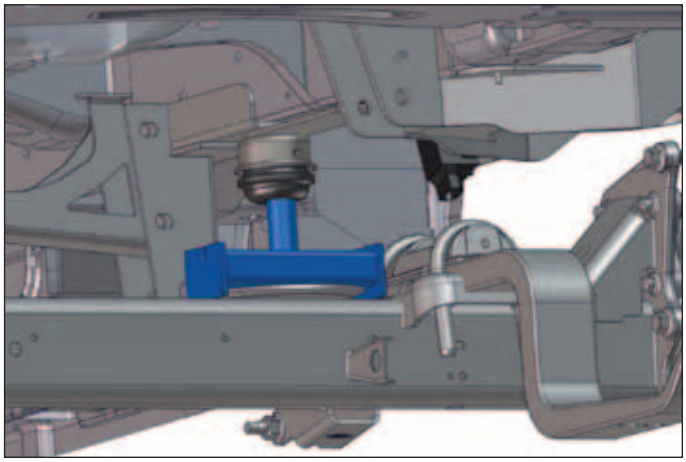


12. If the vehicle is a Sport van, fit a thick lock washer (M12x6) between the shock absorber bracket and the panhard rod bracket.



Fit a temporary bolt (M12x90) to ensure that the thick lock washer remains in place.

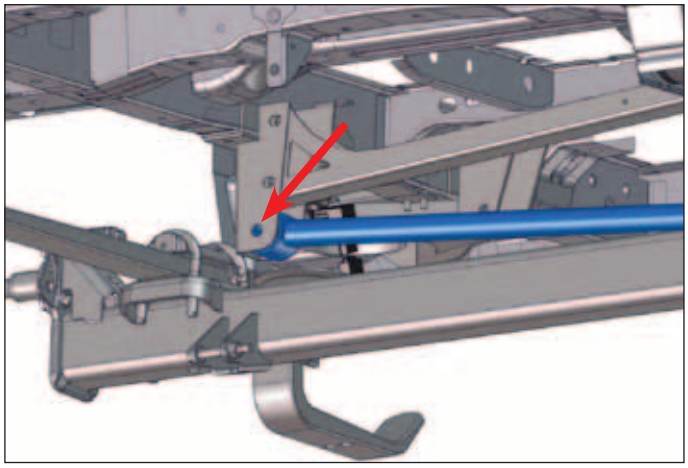
The following step can only be carried out when the vehicle is at the ride height.



13. Lower the vehicle onto the calibration supports.

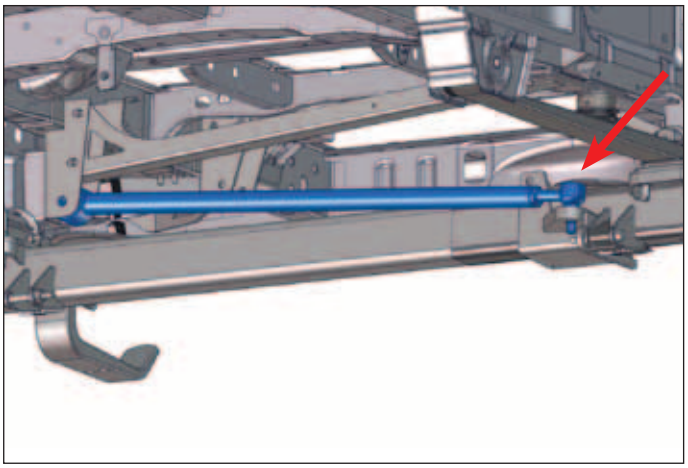
Go to section 2 for details of the correct calibration supports for this kit.

14. Screw the panhard rod onto the ball joint. Apply grease to the thread.
    ** ***Do not tighten the nut yet.***
15. Fit the panhard rod to the panhard rod bracket.
    ** ***Do not tighten the bolt yet.***



1 x bolt*	***M16 x 90***
2 x lock washer	***M16***
1 x lock nut	***M16***
Nm	***200 Nm***

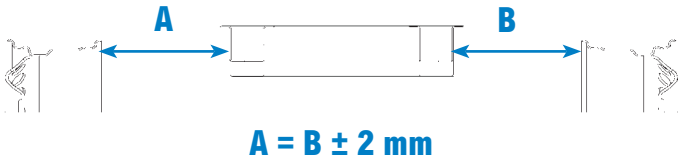
16. Fit the panhard rod ball-joint to the panhard rod bracket on the rear axle.



1 x castellated nut	***M14 x 1,5***
1 x lock nut	***M14***
1 x split pin	***M14***
Nm	***75-85 Nm*** ***Then tighten until split pin fits***

17. Secure the bolts from section ***4.2***, step ***2***.
18. Secure the bolts from section ***4.3***, step ***11***.

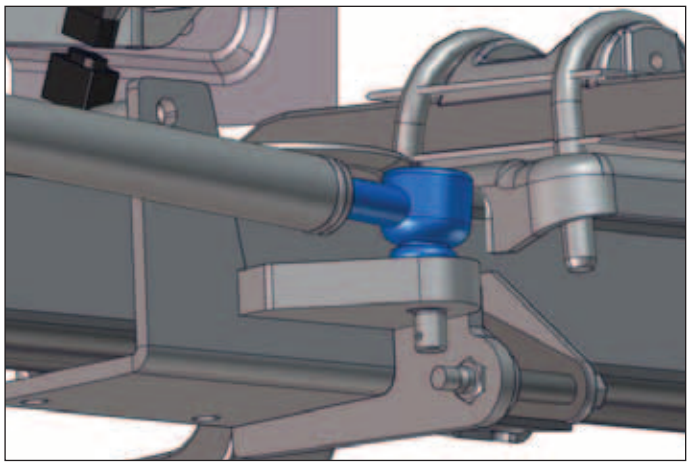
19. Measure the distance (***A***) between the chassis and rim edge on the left-hand side.
20. Measure the distance (***B***) between the chassis and rim edge on the right-hand side.
21. If there is a difference greater than 2mm between the left and right measurements, remove the pan hard rod bolt.
22. Turn the panhard rod:
    Anti-clockwise: when ***A*** > ***B***
    Clockwise: when ***A*** < ***B***
23. Fit the bolt.
    Size difference > 2mm, adjust!
    Size difference < 2mm, continue!



A = B ± 2 mm

When making adjustments: 1 turn is equivalent to 1.5 mm of movement.

24. Ensure the ball joint is fitted straight relative to the bracket.
25. Tighten the lock nut.

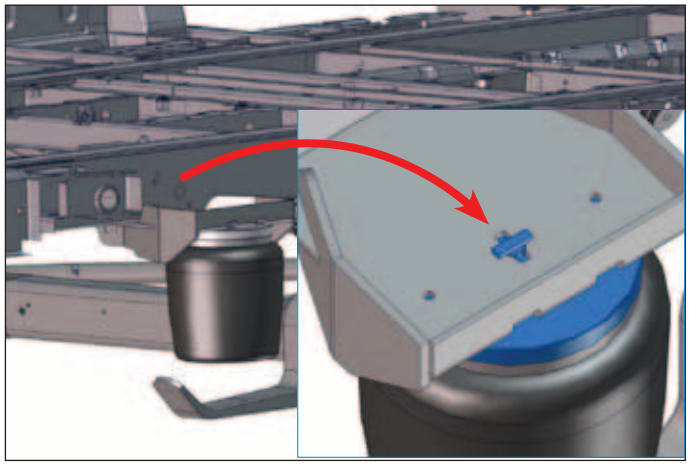


Nut supplied
65 Nm

4.4 Air spring

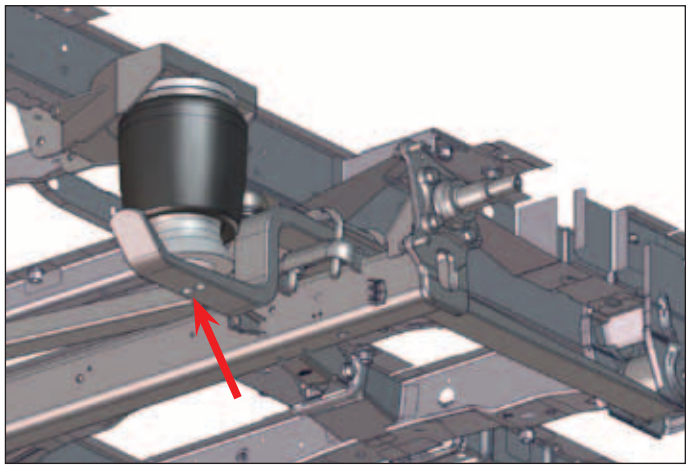
1. Fit the air couplings to the air springs.

2 x air couplings
5 Nm



2. Fit the air springs to the lower spring plates with the quick fastener. The air coupling must face towards the inside of the vehicle.

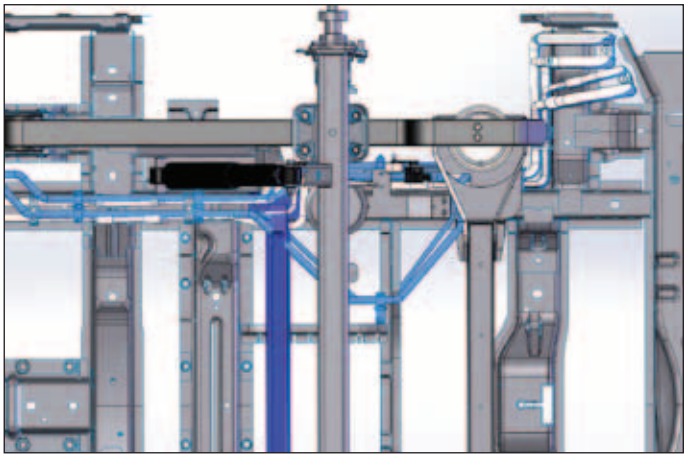
3. Fit the air spring to the main spring with the inner hole.
   ** ***Do not tighten the bolts yet.***



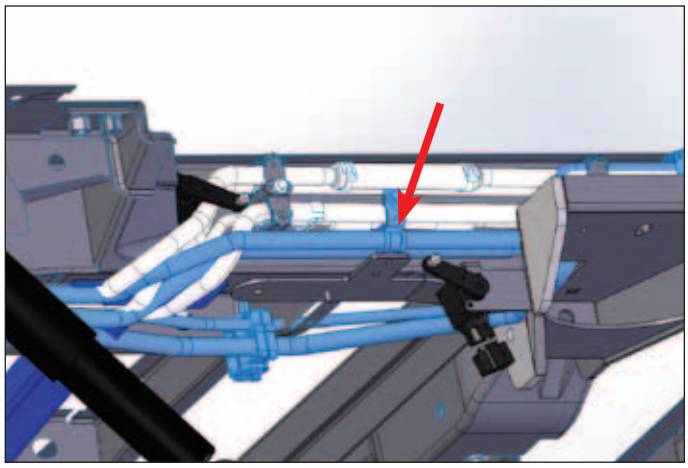
Only tighten the bolts when the air springs are pressurised, so that the air springs are not twisted.

2 x bolt*	***M10 x 40***
2 x lock washer	***M10***
20 Nm	

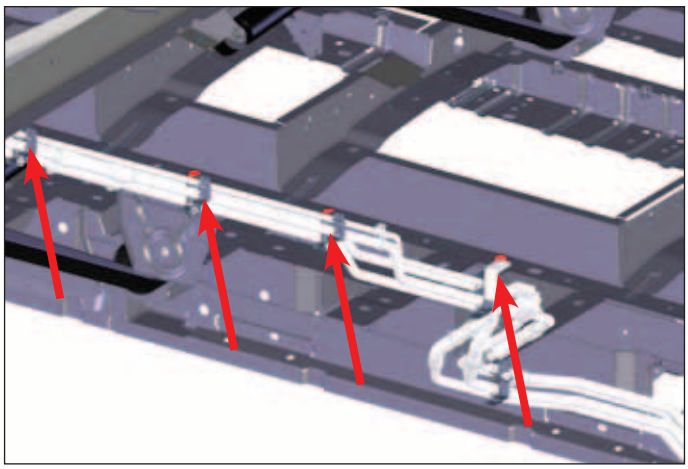
4. shown in the image is how the airco pipes run in a short wheelbase chassis (blue) and in a long wheelbase chassis (white)
5. Fit the distance bush so the brackets can be mounted.



6. In case of a short wheelbase chassis, the marked bracket needs to be removed.
7. Attach the airco pipe to the chassis using a tie-wrap.



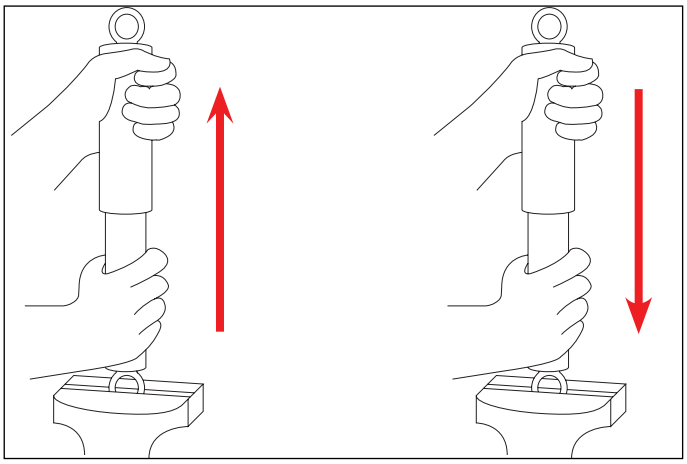
8. Fit the air conditioning pipe mounting brackets to the chassis using the supplied skiffy washers.



4.5 Shock absorbers

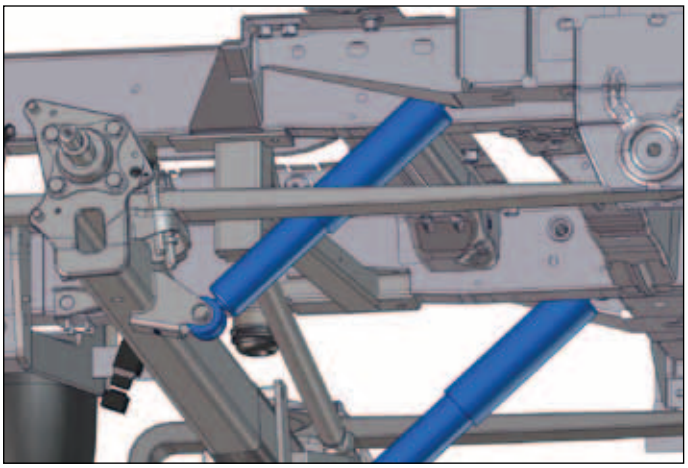
1. Shock absorbers must be vented before they are fitted.
2. Clamp the shock absorbers vertically in a bench vice.

The wide end of the shock absorber is viewed as the top.



3. Gently push the top down and then slowly pull it up again.
4. A slurping noise can be heard at the end of the turn; this indicates the presence of air.
5. Continue this pumping action until the slurping noise is no longer heard.

Always hold the shock absorber with the top pointing up. If you don't do this, air will enter the shock absorber again.

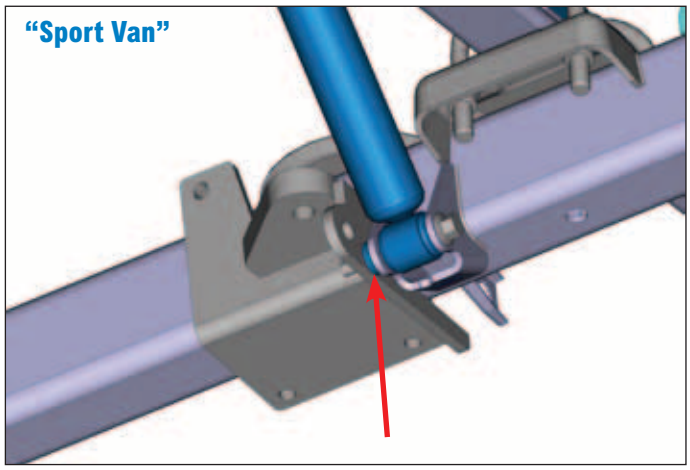


6. Keep the shock absorbers vertical.
7. Fit the new right shock absorbers.

Original fasteners
Top: 150 Nm   ***Bottom: 80 Nm***

8. Fit the new left shock absorbers.
9. Use the original nuts and bolts at the top end.
10. Use the supplied nuts and bolts for the bottom end.

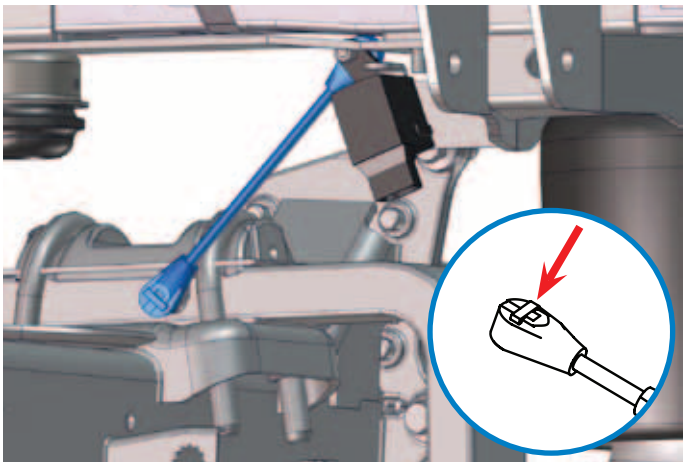
If the vehicle is a Sport van, fit a thick lock washer (M12x6) between the shock absorber bracket and the panhard rod bracket.



original fasteners	
1 x bolt	***M12 x 80***
2 x lock washer	***M12***
1 x lock nut	***M12***
Top: 150 Nm ***Bottom: 80 Nm***	

4.6 Height sensors

1. Check the length of the height sensor rods - ***170mm*** - measured centre to centre.
2. Fit the height sensor rods to the height sensors.
3. Fit the height sensor rods to the ball-joint brackets.
4. Secure the height sensor rods by pushing in the clips.



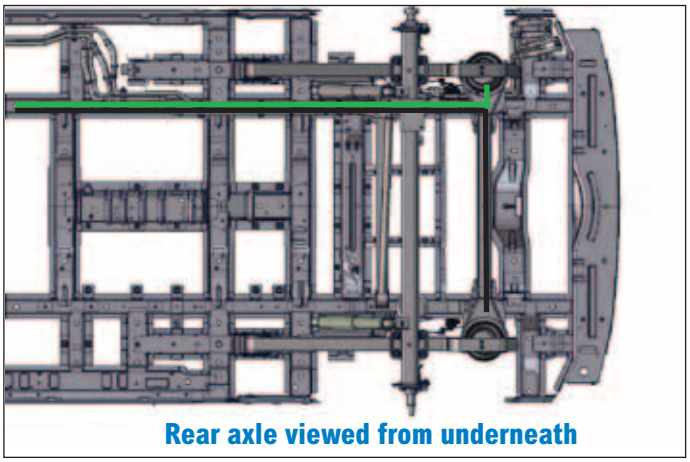
4.7 Air tubes

1. Connect the ***black*** air tube to the right air spring.
2. Push 20cm of black corrugated pipe over the ***black*** air tube as far as the air coupling.
3. Route the air tube along the ***black*** line to the compressor box.
4. Connect the ***green*** air tube to the left air spring.
5. Push 20cm of black corrugated pipe over the ***green*** air tube as far as the air coupling.
6. Route the air tube along the ***green*** line towards the compressor box.

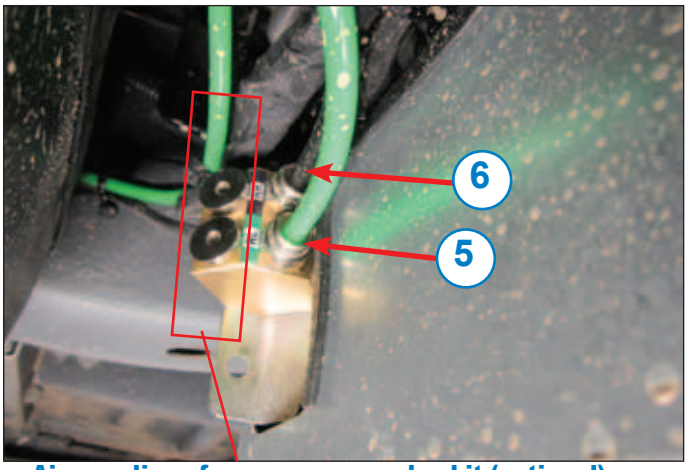
⚠	***Use sufficient tie-wraps to secure the air tubes and wires!***

⚠	***Never attach tubes, wires or other parts to the vehicle's brake lines.***

7. Fit the ***green*** air tube to the air coupling on the junction block on the outside of the compressor box.
8. Fit the ***black*** air tube to the air coupling on the junction block on the outside of the compressor box.
9. Ensure that the colour markings match.
10. Seal the unused air couplings with the supplied end plugs.



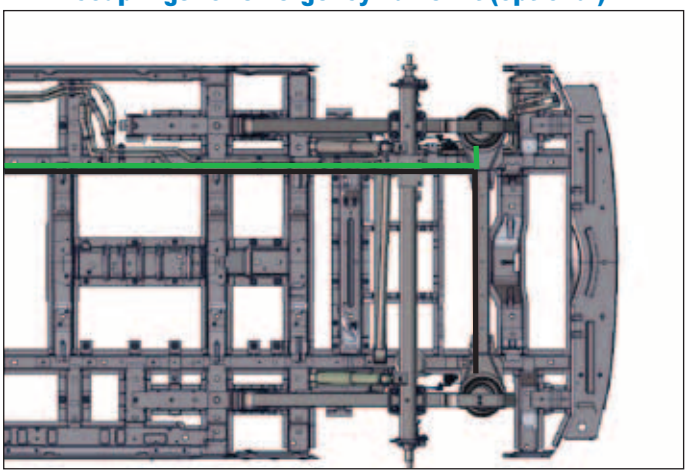
Rear axle viewed from underneath



Air couplings for emergency valve kit (optional)

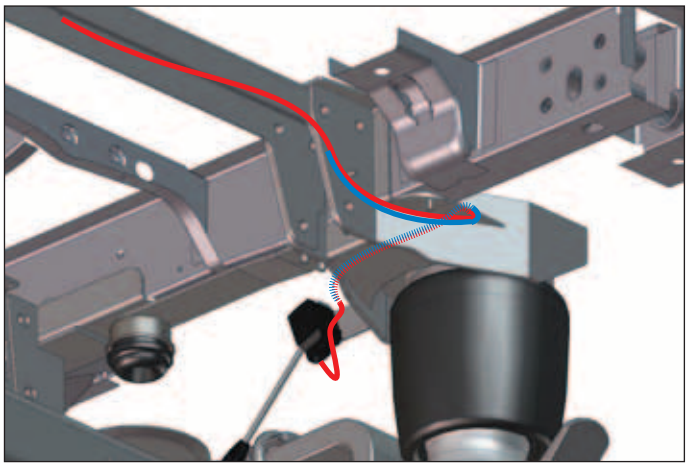
4.8 Height sensors wiring harness

1. Connect the height sensor cables on the rear axle to the connector with the white colour code.
2. Route the right height sensor cable along the ***black*** air tube to the rear right height sensor.
3. Route the left height sensor cable along the ***green*** air tube to the rear left height sensor.



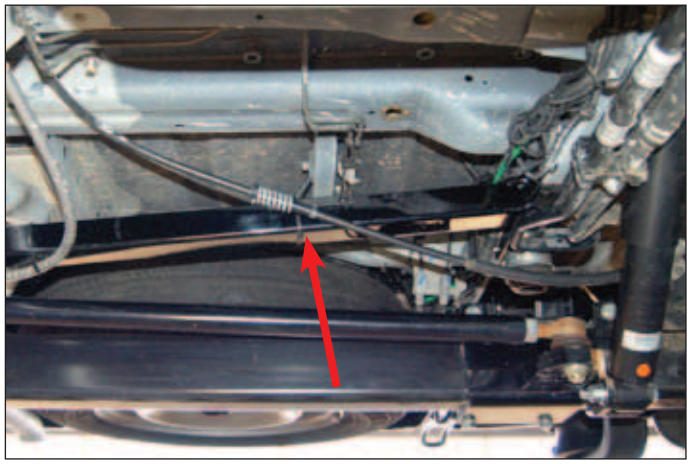
⚠	***Use sufficient tie-wraps to secure the wires and cables!***

4. Push 30cm of black corrugated pipe at the height sensor end over the right height sensor cable (marked in blue).
5. Connect the cables to the height sensors.
6. Route the right height sensor cable along the top of the upper spring plate. See the red line.



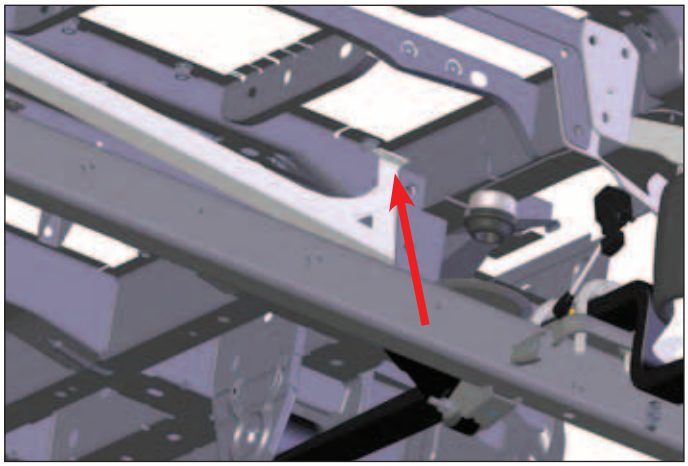
4.9 Handbrake cable fastening

1. Fix the handbrake cable guide to the panhard torque rod over the rear axle with a tie-wrap.



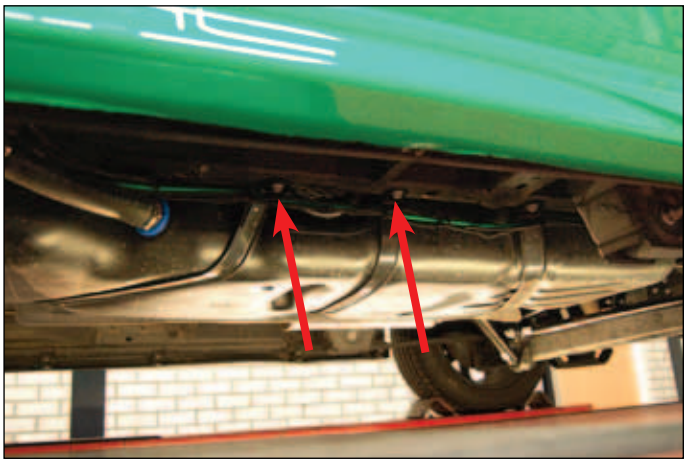
2. Fit the handbrake cable bracket (removed in paragraph ***4.1*** step ***10)*** to the panhard torque rod bracket.

1 x bolt	***M6 x 20***
1 x lock nut	***M6***
Nm	***8 Nm***

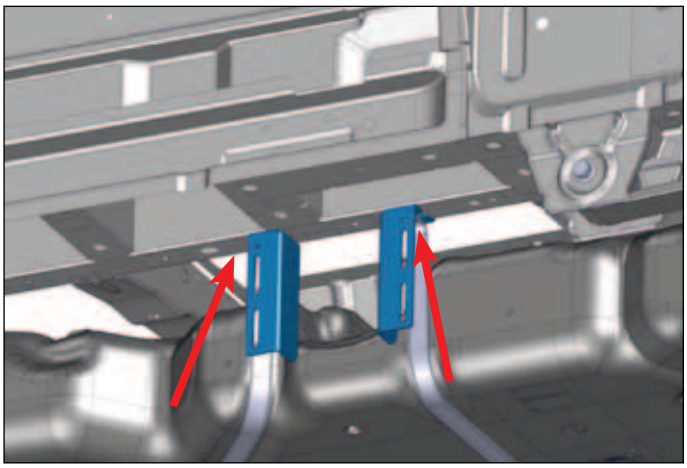


4.10 Air tank

1. Loosen the two front left bolts of the fuel tank. Do not remove them.

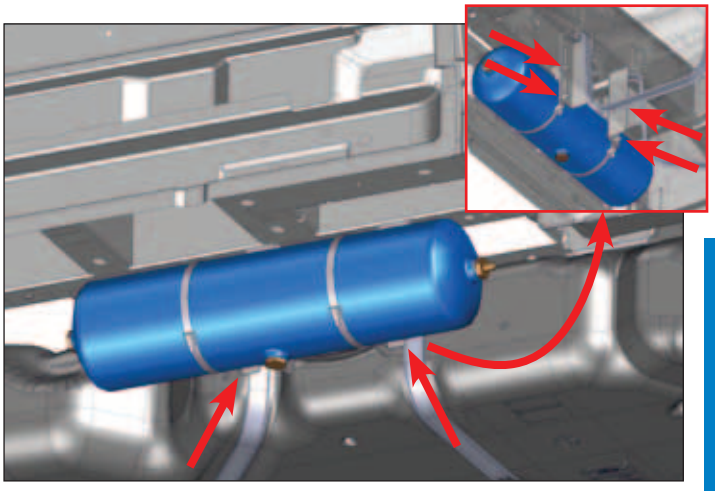


2. Slide the air tank mounting bracket under the bolts loosened in point 1 - the bracket must be pushed under the bolts.
3. Fit the bolts of the fuel tank.



Original fasteners	
Nm	***40 Nm***

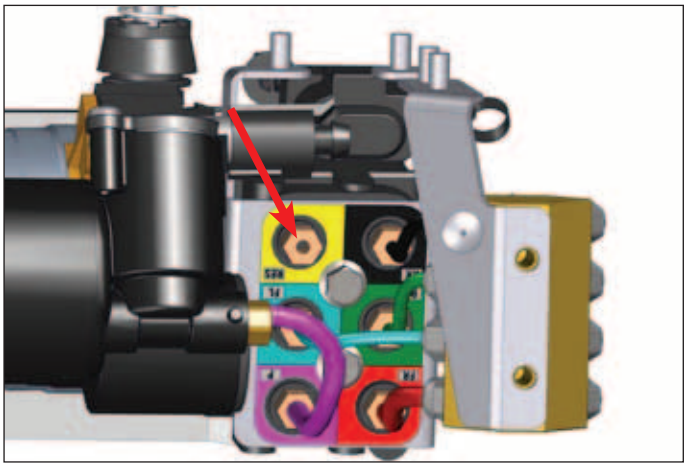
4. Fit the air tank to the air tank bracket.



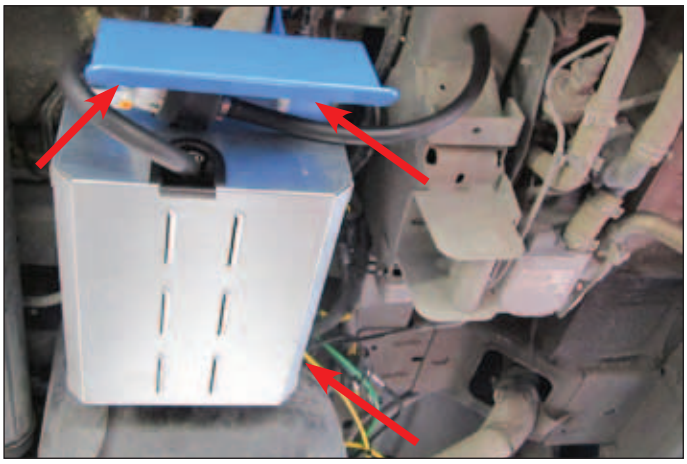
4 x lock nut	***M8***
4 x lock washer	***M8***
Nm	***20 Nm***

5. Make sure the sealing plug is positioned on the underside.
6. Fit the yellow air tube to the air tank.

7. Route the yellow air tube to the compressor box.
8. Fit the yellow air tube to the valve block.
9. Ensure that the colour markings match.

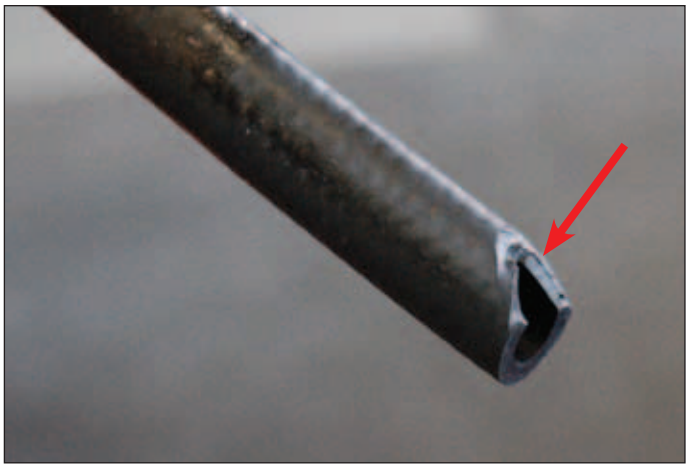


10. Fit the cover to the compressor box.

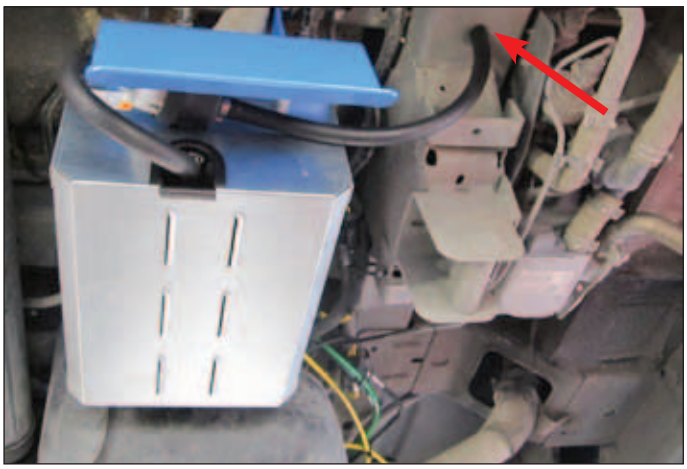


3 x flange lock nut	***M6***
Nm	***5 Nm***

11. Cut off the end of the inlet line at a slant as shown.



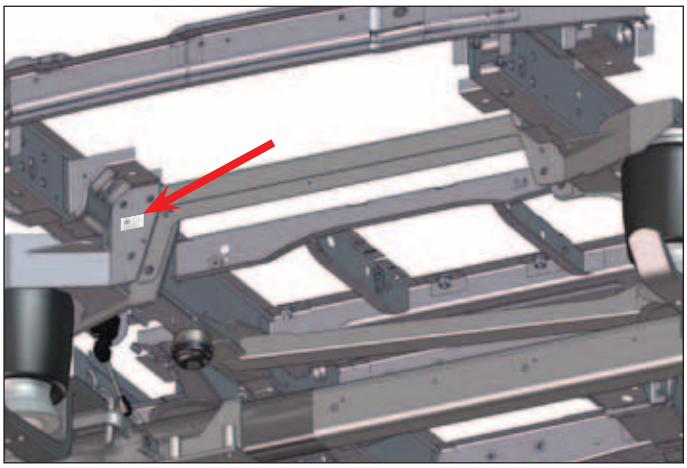
12. Route the inlet line into the chassis.



4.11 Warranty stickers

1. Affix the supplied warranty stickers ***A + B*** to the B-pillar on the passenger's side.

2. Affix sticker ***B*** on the panhard rod bracket.



A

XXXXX XXXXX.XXX

airsuspension

B

airsuspension

XX – XXXX

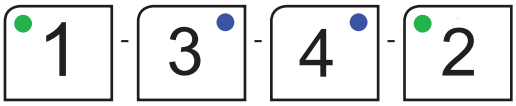
ABE XXXXXX

AIR SUSPENSION KIT

Part: XXXXXXXXXXXXXX

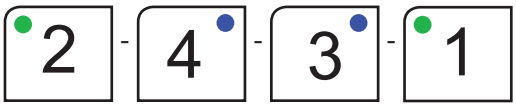
5. Calibration

1. Place the fuses in the fuse blocks. (***F1***=40A + ***F2*** = 7.5A).
2. Switch on the ignition.
3. Ensure the vehicle is resting on the wheels, on a flat surface.
4. Briefly press the ***SERVICE*** button once (LED lights up) and enter the following code within 10 seconds:



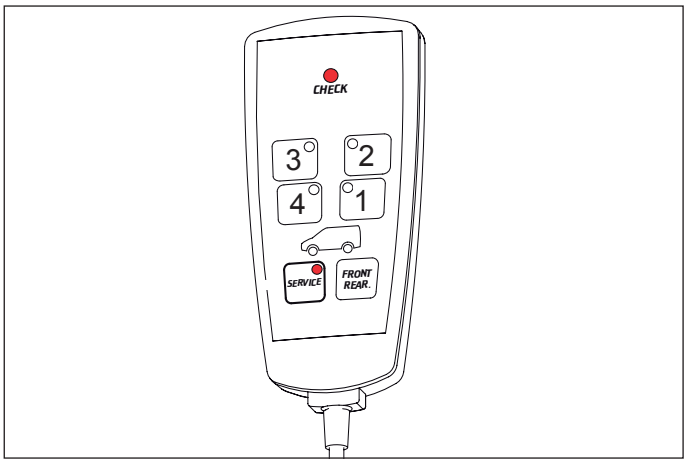
A long tone is heard and the system restarts.

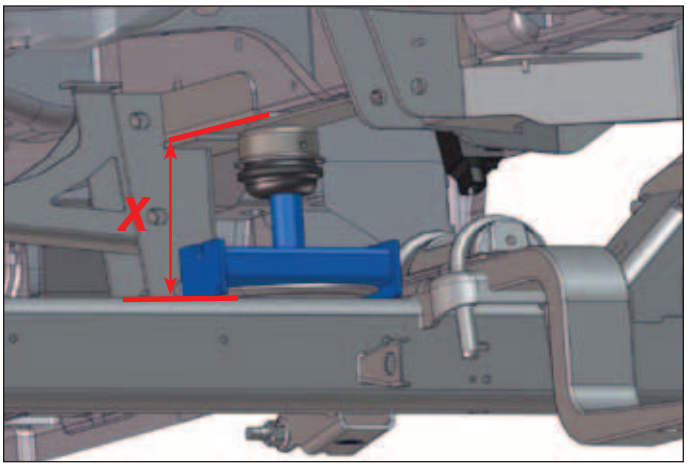
5. Keep the ***SERVICE*** button held down while this long tone sounds, until a second long tone is heard. Enter the following code within 10 seconds:



Calibration mode is now activated. The rear axle LED and the ***CHECK*** LED will start to flash.

6. Use the arrow buttons to raise the vehicle high enough to put the calibration supports in place.
7. Lower the vehicle onto the calibration supports.





> ***Go to section 2 for details of the correct calibration supports for this kit.***

8. Use the arrow buttons to allow all the air to vent from the air springs, until a hissing sound can no longer be heard.
9. Once the correct height has been set, hold down the ***SERVICE*** button until the remote control emits a long tone again. The ride height is now stored.
10. Then briefly press the ***SERVICE*** button. Calibration mode is closed. The system will restart again.
11. Then switch service mode off by briefly pressing the ***SERVICE*** button again.
12. Use the arrow buttons to raise the vehicle high enough to remove the calibration supports.
13. Remove the calibration supports.
14. Set the vehicle to the ride height.
15. Switch off the ignition.
16. Tighten all nuts and bolts indicated in the manual with **.
17. Headlamp height adjustment should be checked by a dealer.
18. Check the vehicle using the checklist in this manual.

6. Checklist

6.1 Final checks

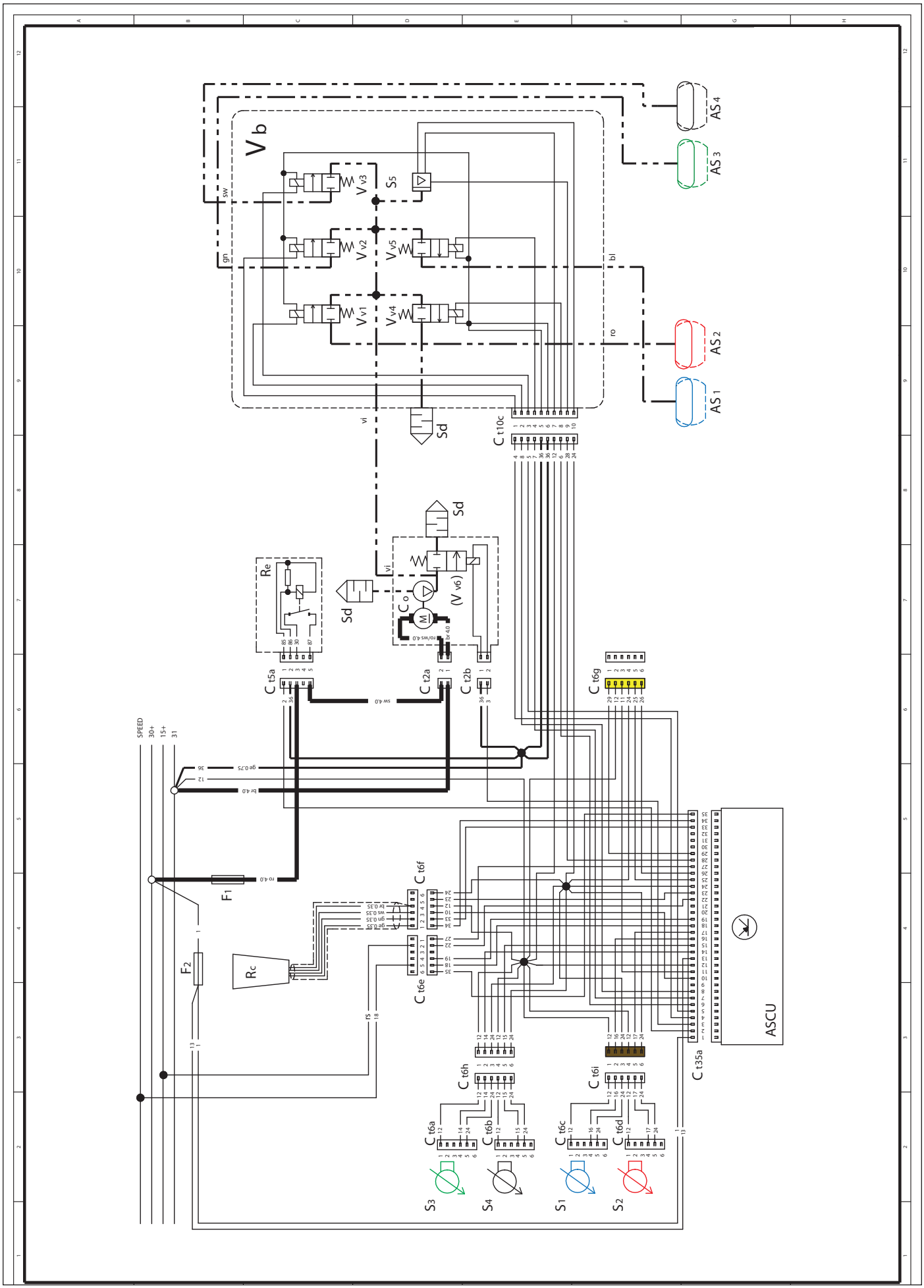
		OK
1.1	Ride height correctly calibrated.	☐
1.2	Front axle/rear axle aligned.	☐
1.3	Height sensors correctly fitted.	☐
1.4	Shock absorbers vented.	☐
1.5	Bolts tightened to correct torque and ticked off.	☐
1.6	Air tubes, wires and connectors properly secured.	☐
1.7	System checked for air tightness.	☐
1.8	Clearance around air springs checked.	☐
1.9	Headlamp adjustment checked.	☐
1.10	Documentation present.	☐
1.11	Warranty form completed and identification stickers affixed to vehicle.	☐

6.2 System functions

		OK
2.1	Raise manually.	☐
2.2	Lower automatically.	☐
2.3	Lower manually.	☐
2.4	Raise automatically.	☐
2.5	Test drive passed.	☐

SYSTEM OK ☐

7. Electrical diagram



Name	Description
ASCU	VB-ASCU (electronic control unit)
AS3	Air spring, rear left
AS4	Air spring, rear right
Ct2a	Connector, 2-pin, compressor power supply
Ct2b	Connector, 2-pin, dump valve on compressor
Ct5a	Connector, 5-pin, compressor relay
Ct6a	Connector, 6-pin, height sensor left
Ct6b	Connector, 6-pin, height sensor right
Ct6e	Connector, 6-pin, VB supply cable
Ct6f	Connector, 6-pin, remote control
Ct6g	Connector, 6-pin, connector option (yellow)
Ct10c	Connector, 10-pin, valve block
Ct35a	Connector, 35-pin, VB-ASCU
Co1	Compressor
Ds	End plug
F1	Fuse, compressor, 40 A (amps)
F2	Fuse, VB-ASCU, 7.5 A (amps)
Re	Compressor relay
Rc	Remote control
S3	Height sensor, rear left
S4	Height sensor, rear right
S5	Pressure sensor on valve block
Sd	Air silencer
Speed	Speed signal
Vb	Valve block
Vv1	Valve for front right air spring on valve block
Vv2	Valve for rear left air spring on valve block
Vv3	Valve for rear right air spring on valve block
Vv4	Dump valve to vent air on valve block
Vv5	Valve for front left air spring on valve block
Vv6	Dump valve on compressor
Colour codes (yellow is not indicated with wire number)	
bl	blue
br	brown
ge	yellow
gn	green
ro	red
ro/ws	red/white
rs	pink
sw	black
vi	purple
ws	white
_____	0.50 mm²
_____	0.75 mm²
_____	4.00 mm²
- - - - -	Air tube

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