FITTING INSTRUCTIONS

making everyday smoother

airsuspension

• Increased comfort • Better driveability • More safety

FORD TRANSIT V363

VB-FullAir 2C

Double air, rear wheel drive

REAR AXLE

FOR KIT: 105 06 20 2XX

What has changed ?

New revision:			Old revision:	
Release date (yyyy-mm-dd):				
Page (new):	Changes:			

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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 for 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.

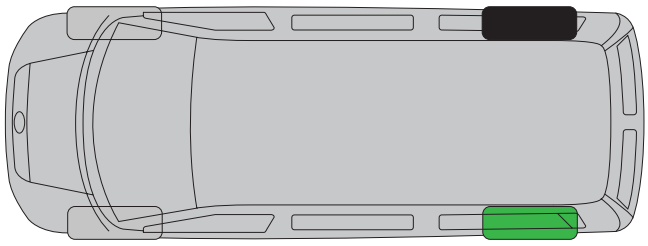
The warranty is only valid if installation is carried out by a specialist workshop. Installation may only be carried out by suitably authorised personnel.
Staff must be experienced in working on light commercial vehicles, particularly in relation to electrics/electronics, pneumatics and general vehicle 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 alterations are made to the original anti-corrosion system, this must be remedied immediately. Use spray wax or a protective coating for this purpose.
- Always refit removed pipes 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 that the correct calibration supports are available. The correct calibration supports to be used with this kit are:

Axle:	Calibration height:	Order number:
Rear axle	***X = 150mm***	***009 000 00 85***

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

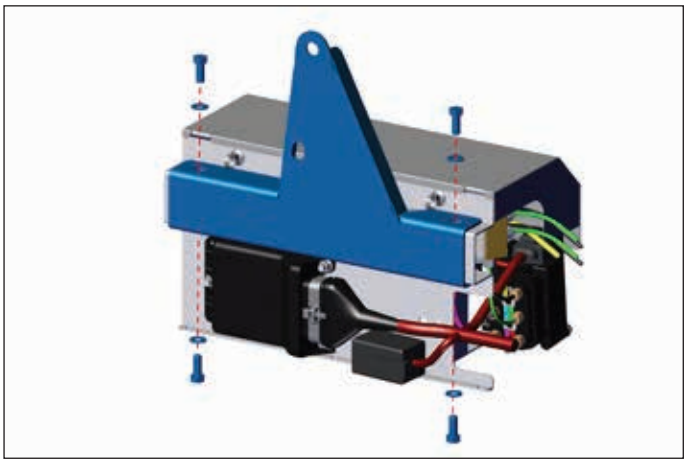
Colour	Description
Green	Rear left
Black	Rear right



3. Compressor box and wiring harness

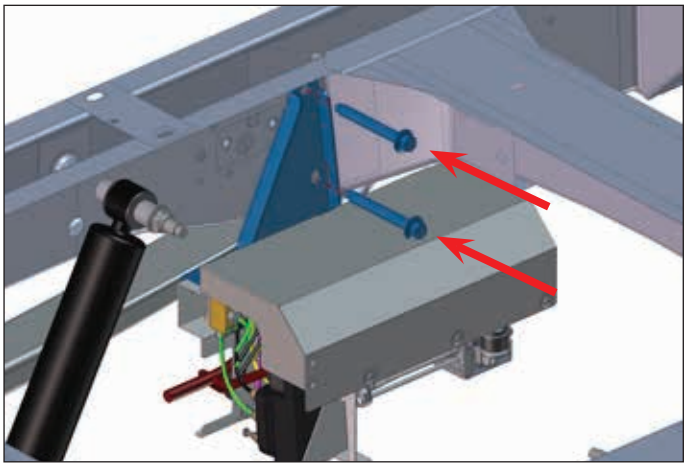
3.1 Compressor box

1. Fit the compressor box to the bracket.



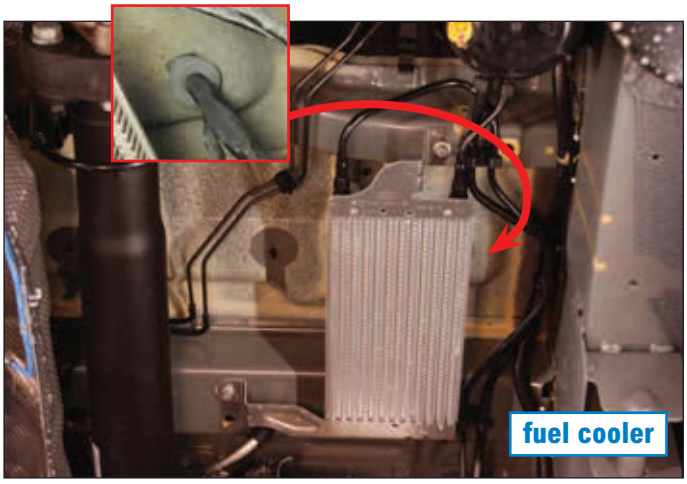
4 x bolt	*M8 x 20*
4 x washer	*M8*
Nm	*20 Nm*

2. Fit the compressor-box mounting bracket to the chassis.



Original fasteners	
Nm	*104 Nm*

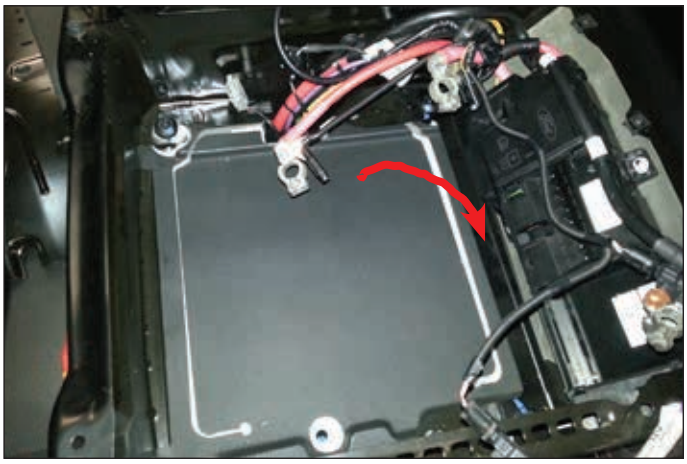
3. Route the wiring harness to the front of the vehicle.
4. Route the VB wiring harness through the indicated cable grommet to the inside.



	You may need to use a cable puller to feed the wiring harness through.
	Use sufficient tie-wraps to secure the wires!

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.



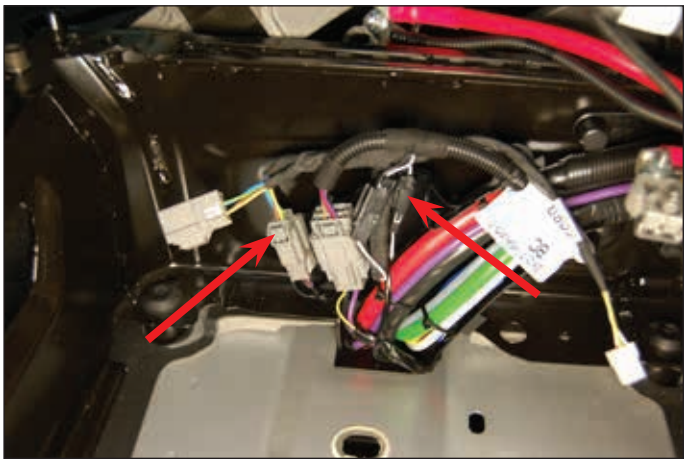
> ***Ensure that tubes or wires cannot be placed under tension or become damaged.***

5. Carefully pull the wire into the battery housing.

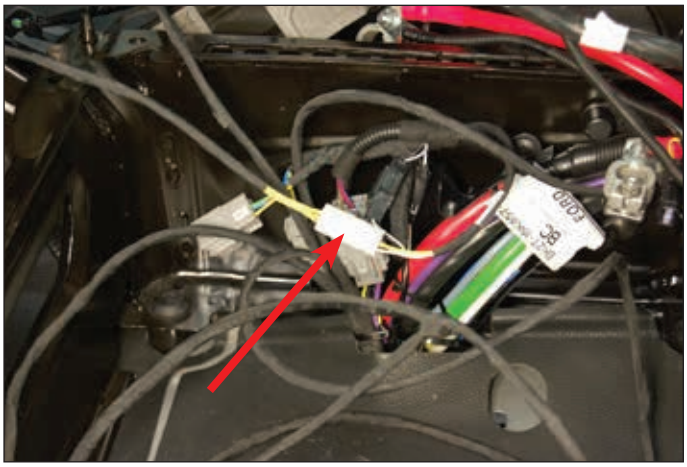
6. A black and grey connector can be found in the seat base.

7. Release the black connector from the mounting.
8. Release the grey connector from the mounting.

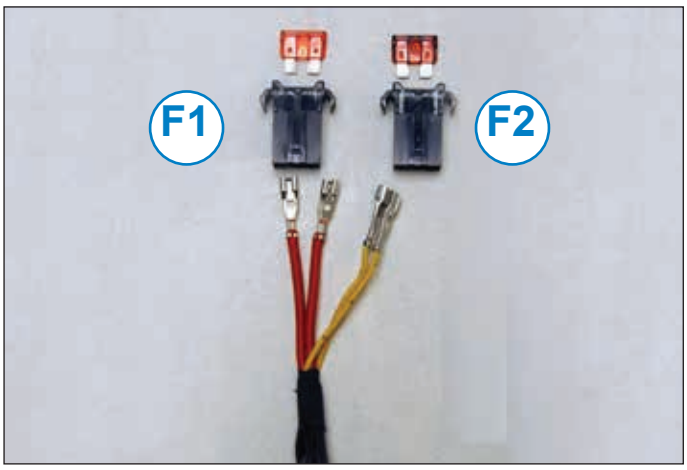
9. Connect the supply cable to these two connectors.



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.

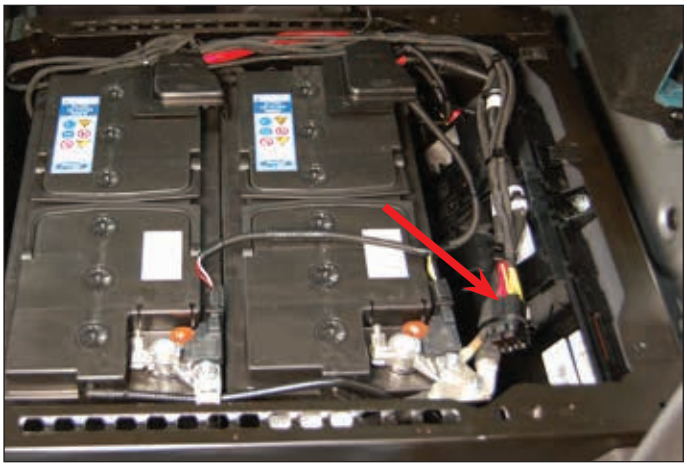


14. Connect the fuse block with the ***F3*** ***50A*** fuse to the end of the red wire.

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

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

18. Fit the fuse block to an accessible place on the seat frame.



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.

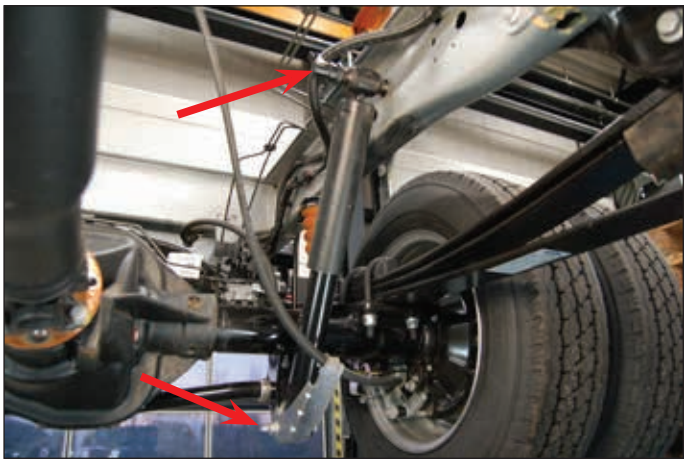
Ensure that the remote control is never in the way of the airbags.

5. Refit the interior components removed earlier.

4. Fitting the air suspension kit for the rear axle

4.1 Preparations

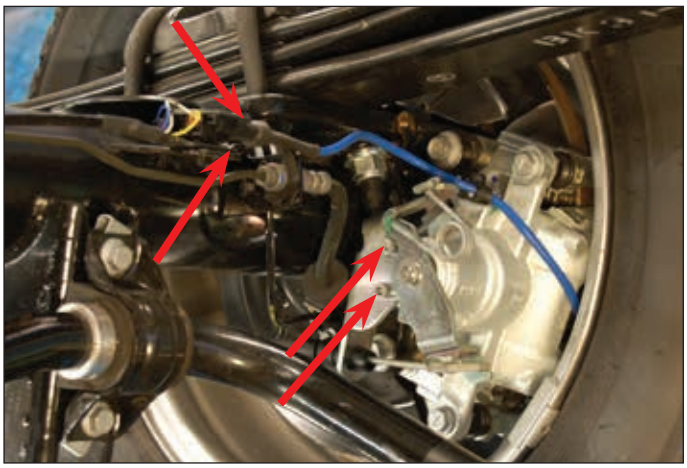
1. Ensure that the vehicle is properly supported.
2. Remove the spare wheel.
3. Remove the shock absorbers.
   Note: The nuts and bolts will be re-used.



4. Remove the spare wheel winch.
   Note: The nuts and bolts will be re-used.

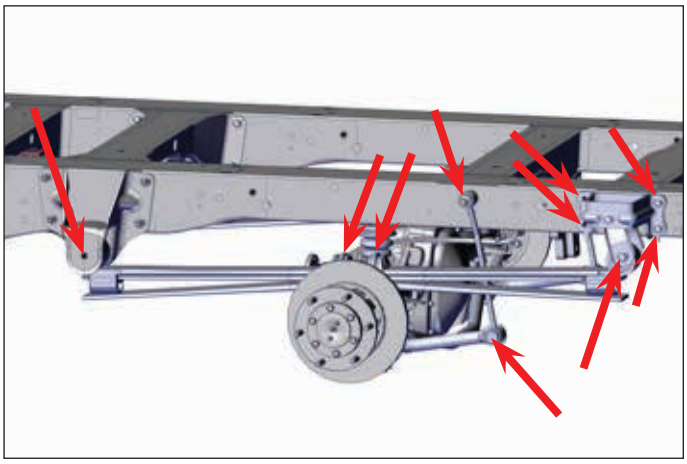
5. Remove the bump stops.
6. Remove the bump stop retainers.

7. Remove the handbrake cable from the brake calliper.
8. Take the ABS cable and brake wear indicator cable off their mounting.

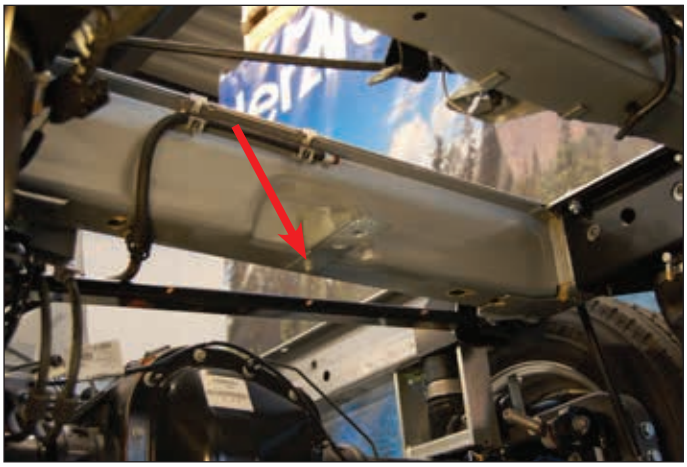


This step facilitates the removal of the U-bolts.

9. Remove the U-bolts.
   Note: The nuts and bolts will be re-used.
10. Remove the bolt from the frontmost leaf-spring bracket.
    Note: The nuts and bolts will be re-used.
11. Remove the rearmost leaf-spring bracket.
    Note: The nuts and bolts will be re-used.
12. Remove the leaf springs.
13. Remove the topmost bolt from the torque arm.
    Note: The nuts and bolts will be re-used.

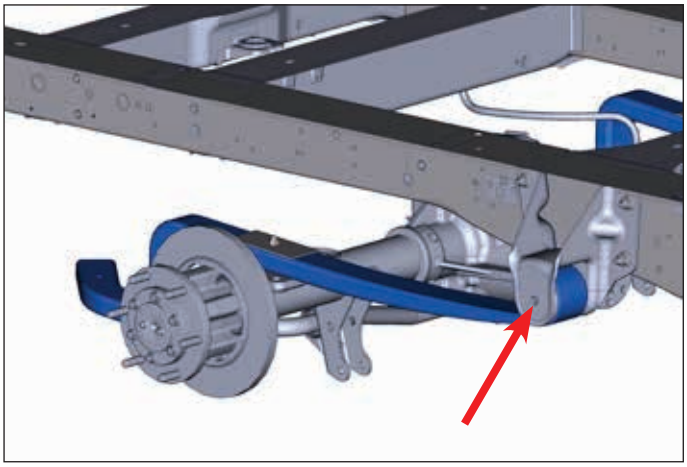


14. Remove the spare wheel bracket.



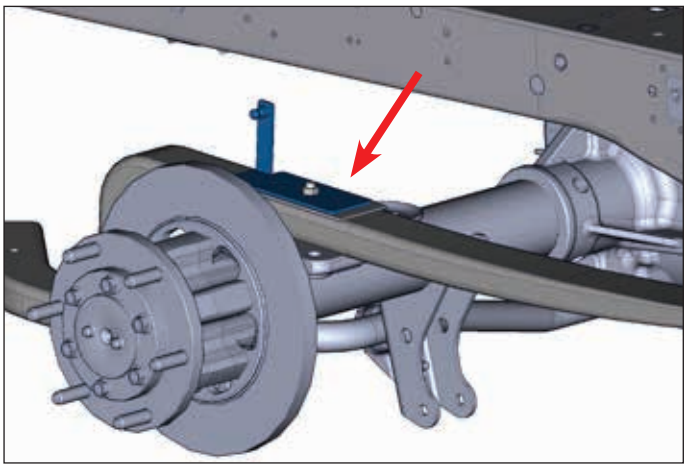
4.2 Main spring

1. Place the main springs on the spring seats. Ensure that 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. Tighten them once the vehicle is at the ride height.***

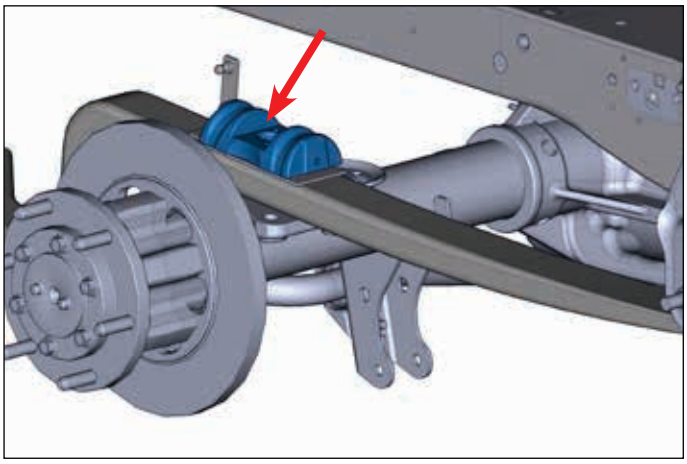


Original fasteners	
Nm	***275 Nm***

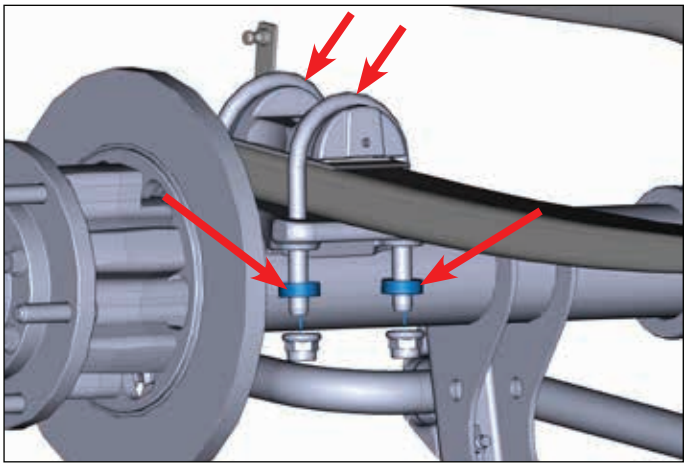
3. Place the ball-joint brackets on the main spring. The ball-joint on the ball-joint bracket must point towards the rear side and the inside of the vehicle.



4. Place the clamping block on the main spring.



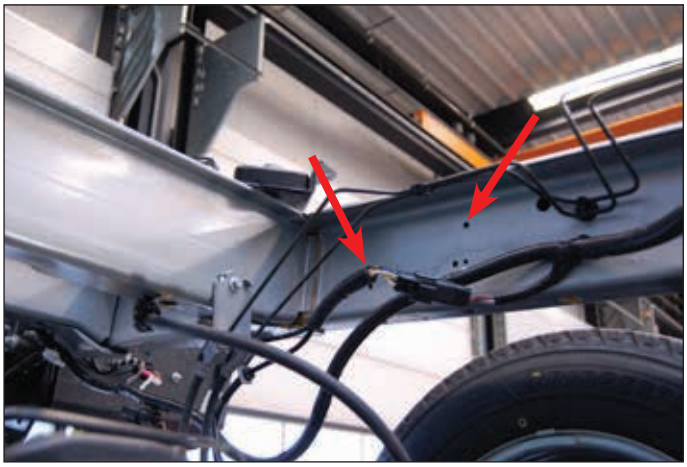
5. Place the original spring clamping plates on the main spring.
6. Fit the U-bolts with the original leaf-spring U-bolt nuts. Place the thick lock washers (Ø30x10) under the original nuts.
   Fit the U-bolts in steps of ***25***, ***50***, ***75***, ***100***, ***125***, ***150*** until ***175*** Nm is reached.
   ***** Do not tighten the nuts yet. Tighten them once the vehicle is at the ride height.***



Original fasteners	
Nm	***175 Nm***

4.3 Upper cross beam

1. Remove the wire harness mounting from the chassis.

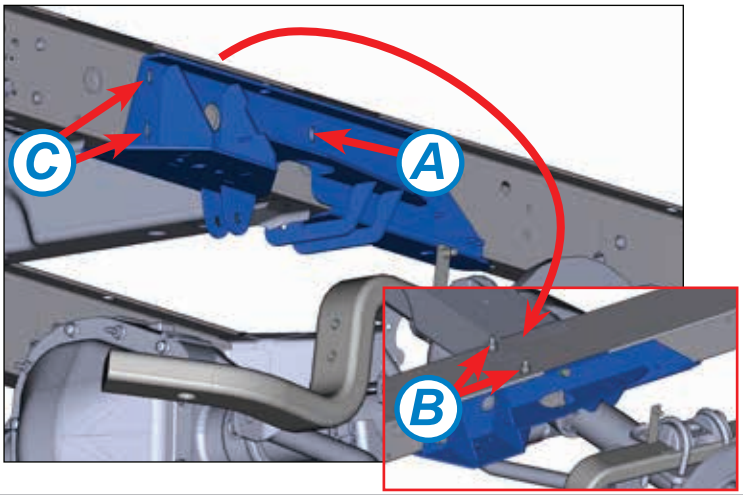


2. Fit the right upper spring plate.
   ***** Do not tighten the nuts yet***

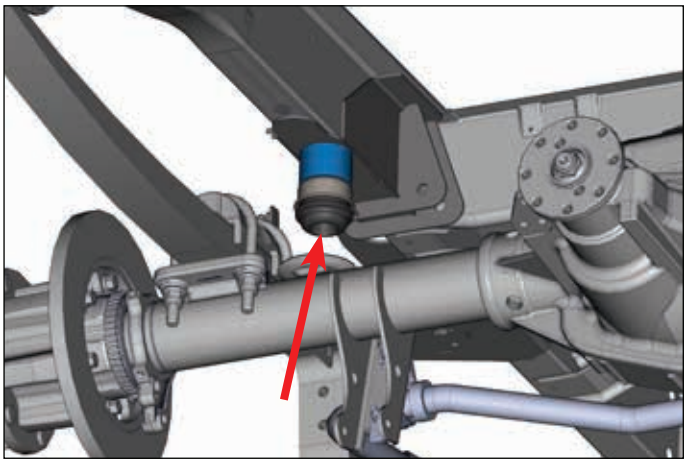
1 x bolt** (A)	***M12 x 35***
1 x sheet-metal ring	***M12 x 3***
Nm	***104 Nm***

2 x bolt** (B)	***M12 x 35***
2 x washer	***M12***
2 x sheet-metal ring	***M12 x 3***
2 x lock nut	***M12***
Nm	***104 Nm***

Original fasteners** (C)	
Nm	***74 Nm***

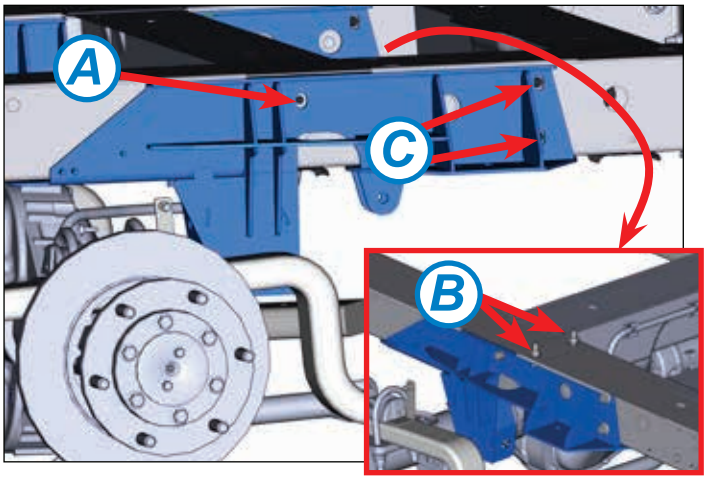


3. Mount the bump stop with the spacer block in the original position.
   ** Do not tighten the bolt yet



1 x bolt**	M10 x 80
1 x lock washer	M10
Nm	41 Nm

4. Fit the left upper spring plate.
   ** Do not tighten the nuts yet

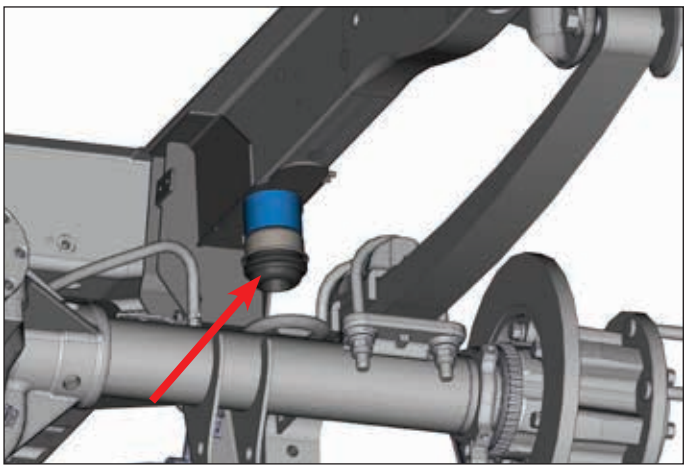


1 x bolt** (A)	M12 x 35
1 x sheet-metal ring	M12 x 3
Nm	104 Nm

2 x bolt** (B)	M12 x 35
2 x washer	M12
2 x sheet-metal ring	M12 x 3
2 x lock nut	M12
Nm	104 Nm

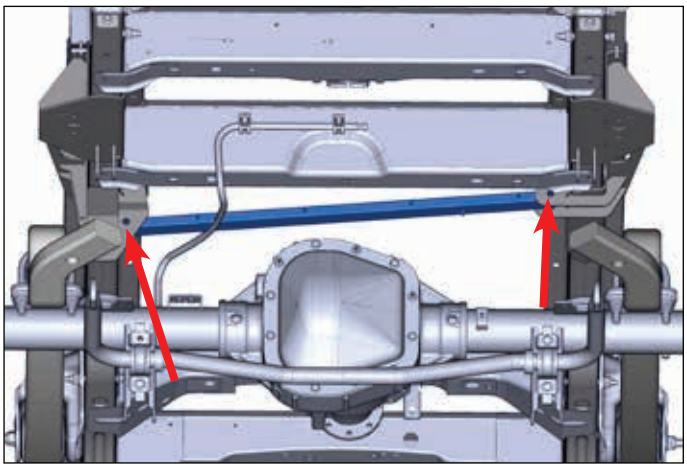
Original fasteners** (C)
Nm 74 Nm

5. Mount the bump stop with the spacer block in the original position.
   ** Do not tighten the bolt yet



1 x bolt	M10 x 80
1 x lock washer	M10
Nm	41 Nm

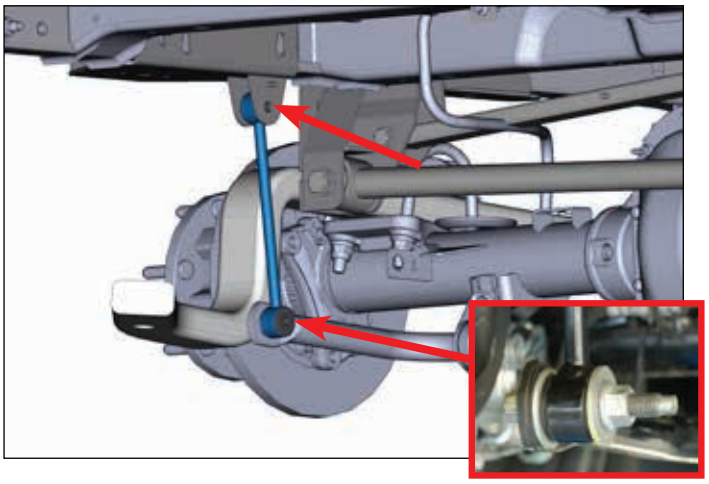
6. Fit the torque rod to the right upper spring plate.
7. Fit the other end of the torque rod to the left upper spring plate.



2 x bolt	M16 x 80
4 x lock washer	M16
2 x lock nut	M16
Nm	200 Nm

8. Fit the new torque rod to the chassis.

2 x	bolt	M12 x 55
4 x	washer	M12
2 x	lock nut	M12
Nm		104 Nm



9. Fit the new torque arms to the stabiliser arm.

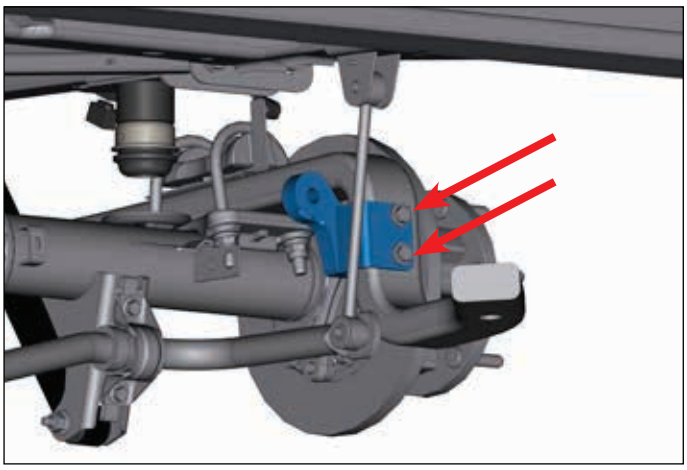
	Original fasteners	
4 x	large washers	
Nm		120 Nm

10. Lower the vehicle onto the calibration supports.

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

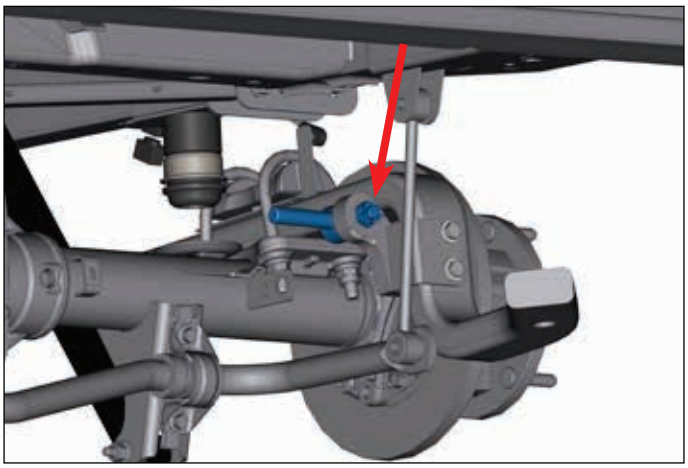
11. Secure the bolts from section ***4.2,*** steps ***2*** and ***5***.
12. Secure the bolts from section ***4.3,*** steps ***4, 6, 8*** and ***9***.

13. Fit the panhard rod ball-joint bracket to the right main spring.
The bolts must be fitted from the rear.



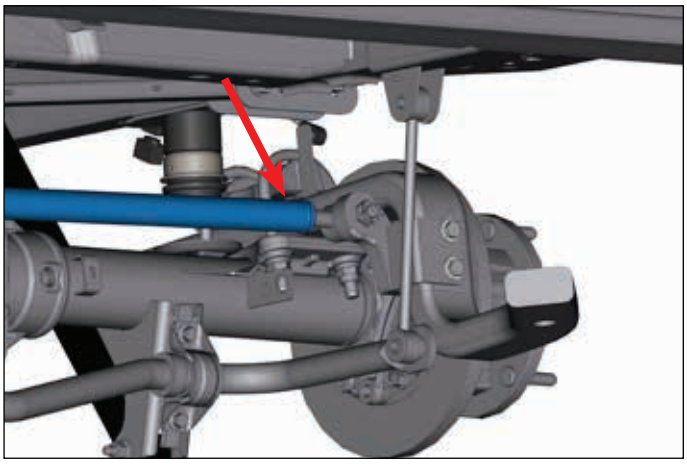
2 x	bolt**	M12 x 80 x 1,5
4 x	lock washer	M12
2 x	lock nut	M12
Nm		135 Nm

14. Fit the panhard rod ball-joint to the panhard rod bracket.



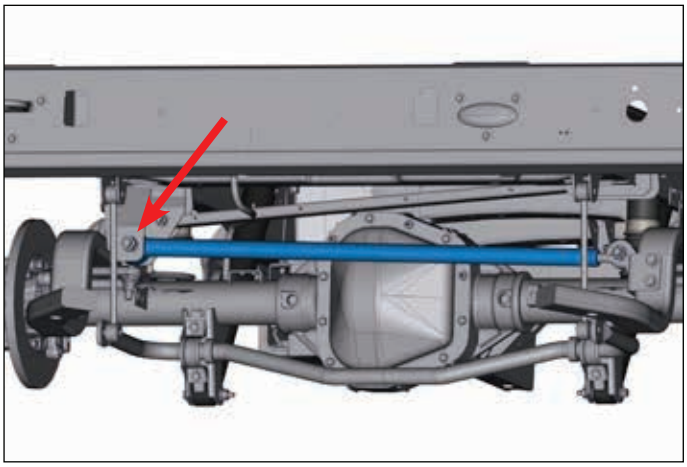
1 x	castellated nut	M14 x 1.5
1 x	lock washer	M14
1 x	split pin	M14
Nm		75-85 Nm Keep on tightening until the split pin fits.

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



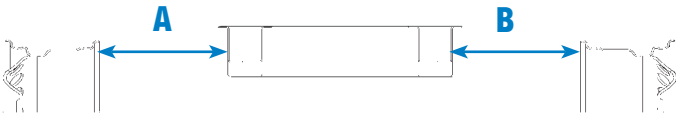
First secure the panhard rod on the left-hand side over the brake lines before the panhard rod is fitted to the ball-joint.

16. Fit the panhard rod to the panhard rod bracket.
***** Do not tighten the bolts yet.***



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

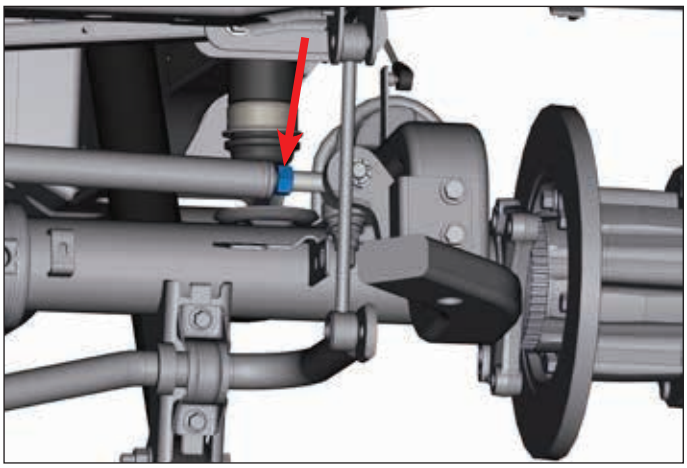
17. Measure the distance (***A***) between the chassis and rim edge on the left-hand side.
18. Measure the distance (***B***) between the chassis and rim edge on the right-hand side.
19. If there is a difference greater than 2 mm between the left and right measurements, remove the panhard rod bolt.
20.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



A = B ± 2 mm

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

22. Ensure the ball joint is straight relative to the bracket when you tighten the lock nut.
23. Tighten the lock nut.

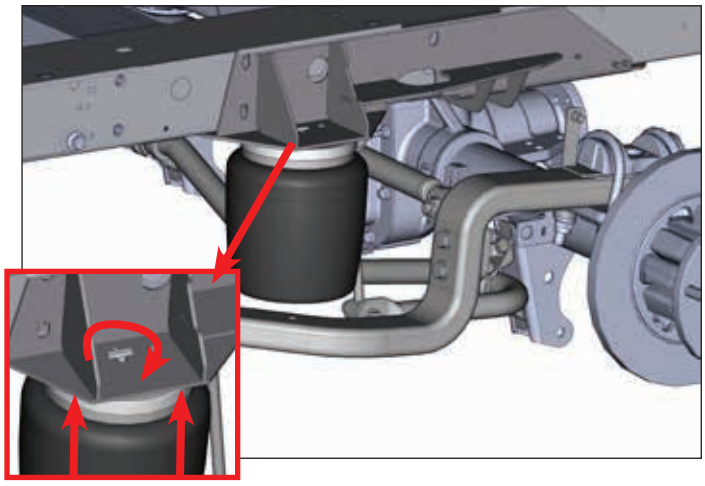


Nut supplied
Nm ***65 Nm***

4.4 Air spring

1. Fit the air couplings to the air springs.

2 x air coupling	
Nm	*3 Nm*

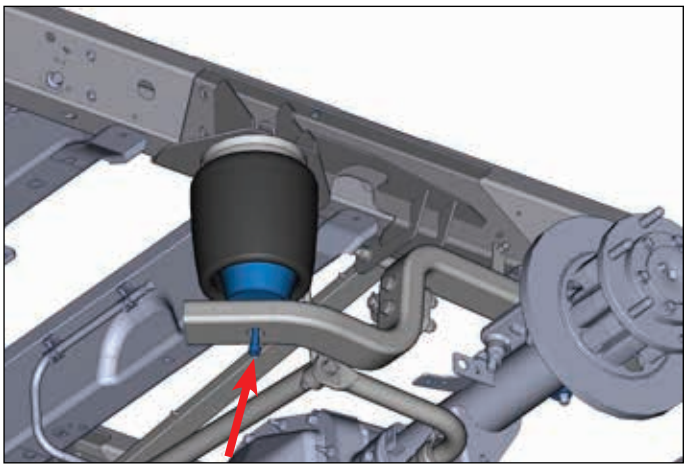


2. Fit the air springs to the upper spring plates.
   The air coupling must face towards the inside of the vehicle.

3. Fit the air spring to the main spring.
   *** Do not tighten the nuts yet.***

⚠	***Only tighten the bolts when the air springs are pressurised. This ensures that the air springs are not twisted.***

*2 x bolt****	*M10 x*	*50*
2 x lock washer	*M10*	
Nm	*20 Nm*	

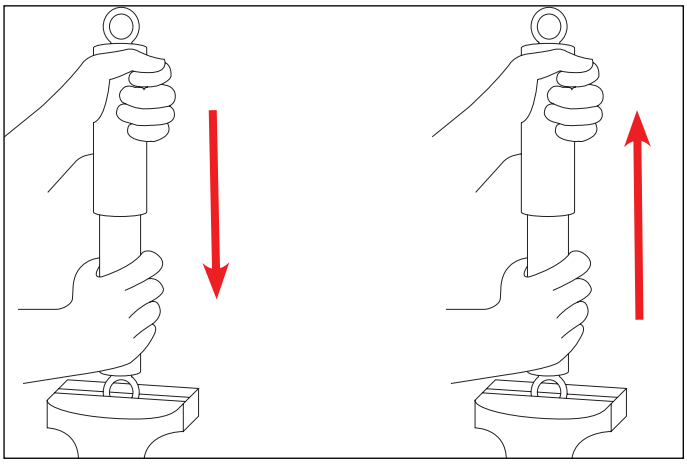


4.5 Shock absorber

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

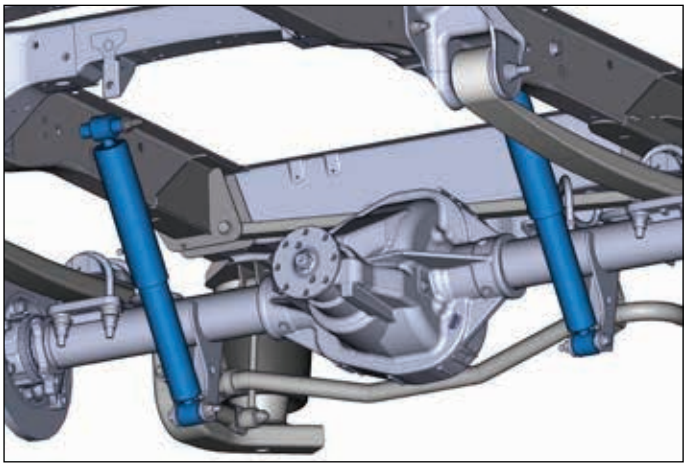
The wide end of the shock absorber is viewed as the top.

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.
6. Keep the shock absorbers vertical.



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

7. Fit the upper side of the shock absorbers.
   The bolt must be fitted from the outside to the inside.



Fit the distance bushes to the upper side as shown.

Original fasteners	
Nm	***175 Nm***

8. Fit the underside of the shock absorbers.

Fit the distance bushes to the underside.

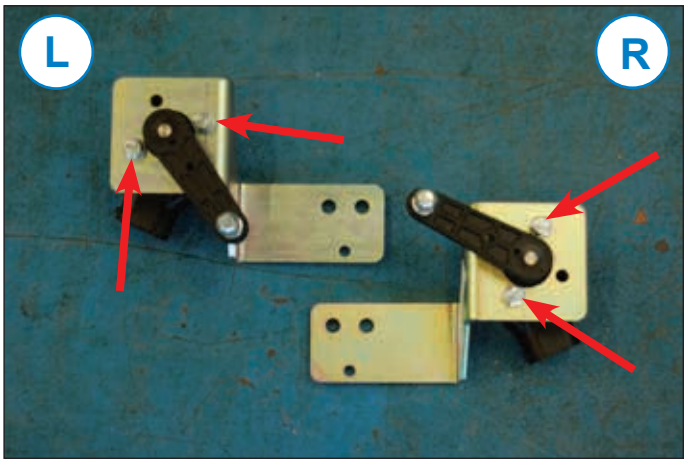
Place a lock washer as shown before the handbrake cable bracket is fitted.

9. Fit the handbrake cable bracket.

Original fasteners	
Nm	***110 Nm***

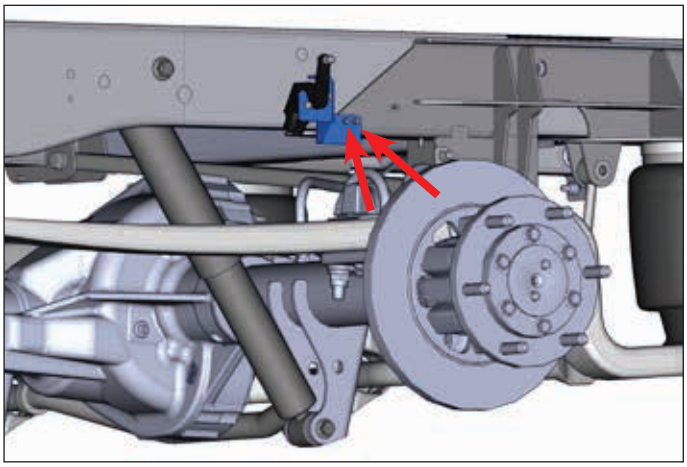
4.6 Height sensors

1. Mount the height sensors on the height sensor brackets.



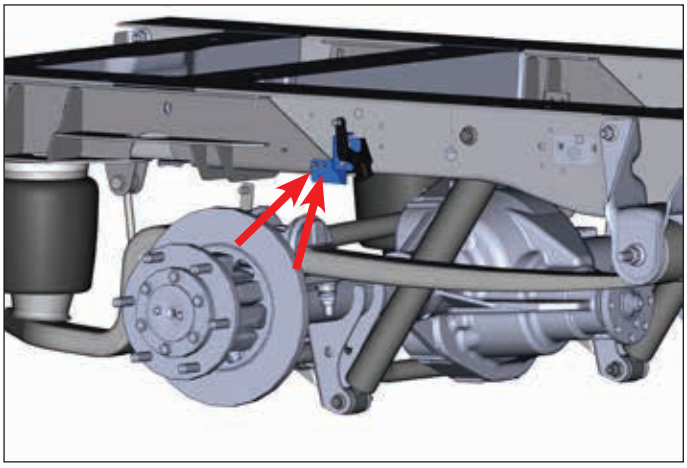
4 x bolt	*M5 x 10*
4 x lock washer	*M5*
Nm	*5 Nm*

2. Fit the left height sensor bracket in the position indicated.



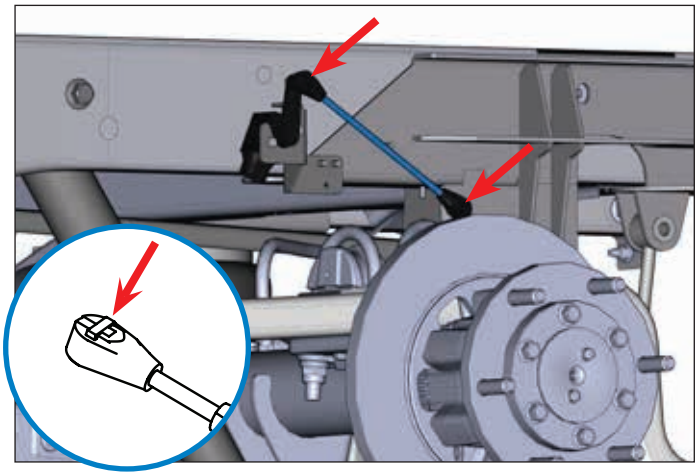
2 x lock nut	*M6*
2 x lock washer	*M6*
Nm	*8 Nm*

3. Fit the right height sensor bracket in the position indicated.



2 x lock nut	*M6*
2 x lock washer	*M6*
Nm	*8 Nm*

4. Check the length of the height sensor rods - ***200 mm*** - measured centre to centre.
5. Fit the height sensor rods to the height sensors.
6. Fit the height sensor rods to the ball-joint brackets.
7. Secure the height sensor rods by pushing in the clips.

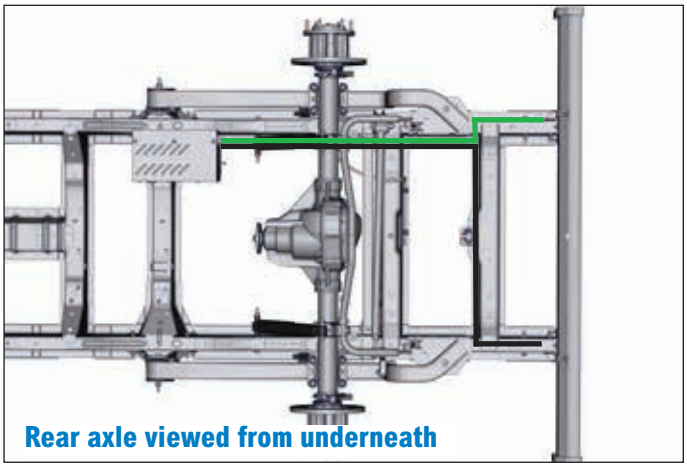


⚠	***The height sensor arms must point up.***

4.7 Air tubes

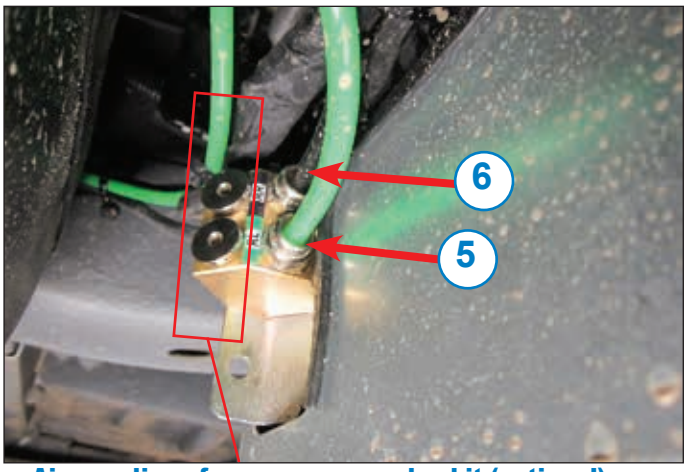
1. Connect the ***black*** air tube to the right air spring.
2. Route the air tube along the ***black*** line to the compressor box.
3. Connect the ***green*** air tube to the left air spring.
4. Route the air tube along the ***green*** line towards the compressor box.

⚠	***Use sufficient tie-wraps to secure the air tubes and wires!***
⚠	***Never attach tubes, wires or other parts to the vehicle's brake lines.***



Rear axle viewed from underneath

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

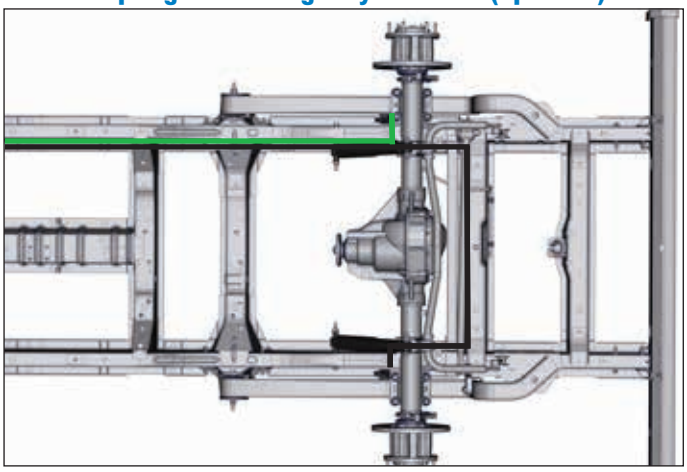


Air couplings for emergency valve kit (optional)

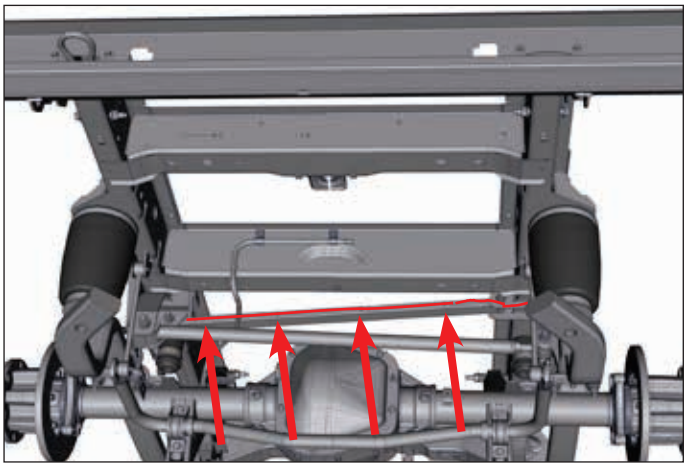
4.8 Height sensors wiring harness

1. Connect the height sensor cables on the rear axle to the connector with the white colour code(if supplied).
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.

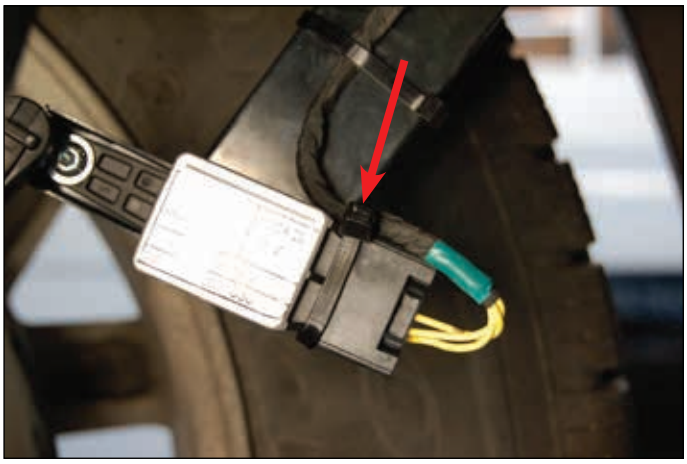
⚠	***Use sufficient tie-wraps to secure the wires!***



4. Push 30 cm of black corrugated pipe at the height sensor end over the right height sensor cable.
5. Route the right height sensor cable along the top of the torque rod. See the red line.

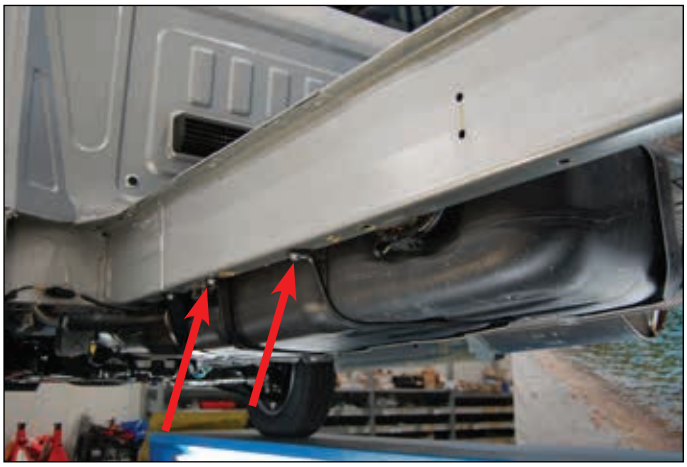


6. Connect the cables to the height sensors.
The photograph is for illustrative purposes only to show the height sensor cable mounting).

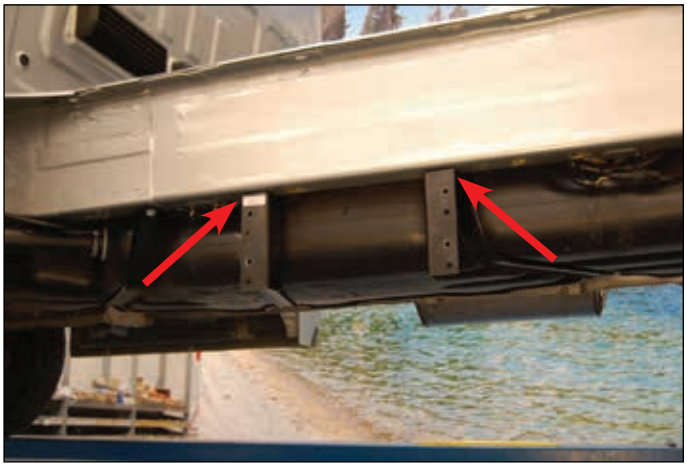


4.9 Air tank

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



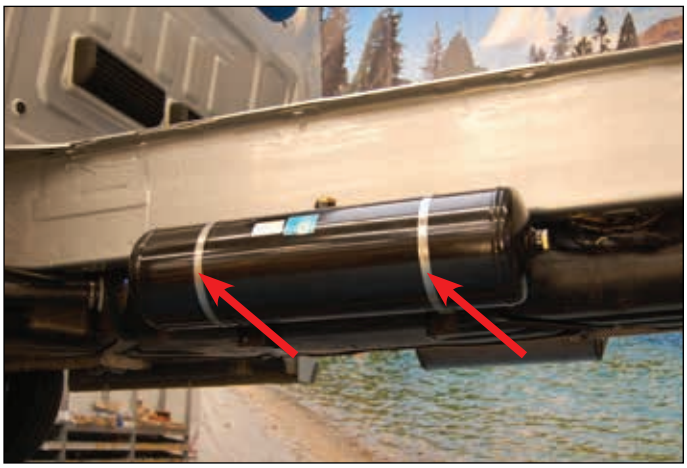
2. Slide the air tank mounting bracket under the bolts loosened in point 1 - the bracket must be pushed under the bolts.
3. Fit the bolts of the fuel tank.



	Original fasteners
Nm	***40 Nm***

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

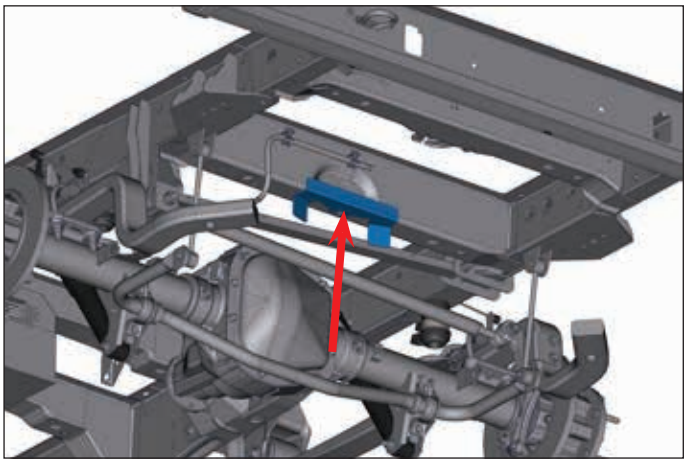
4 x lock nut	***M8***
4 x lock washer	***M8***
Nm	***20 Nm***



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

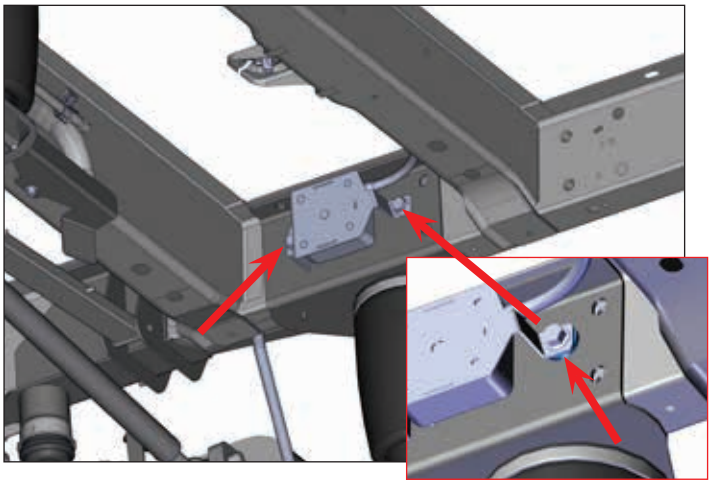
4.10 Spare wheel

1. Fit the spare wheel bracket.



Original fasteners
Nm 20 Nm

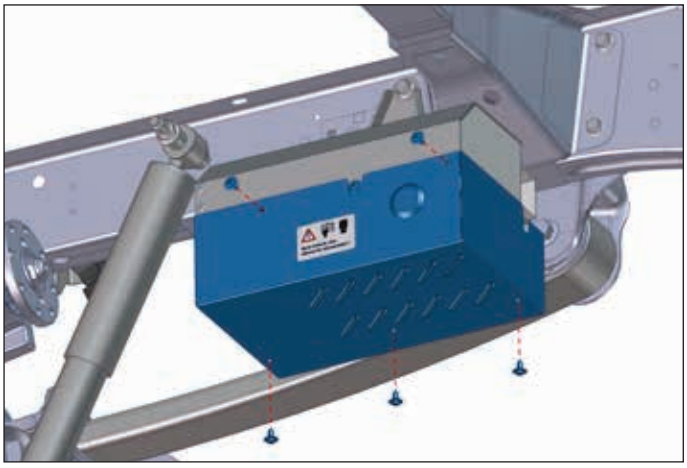
2. Fit the spare wheel winch.



Original fasteners
Nm 20 Nm

3. Fit the spare wheel.

4. Fit the cover to the compressor box.



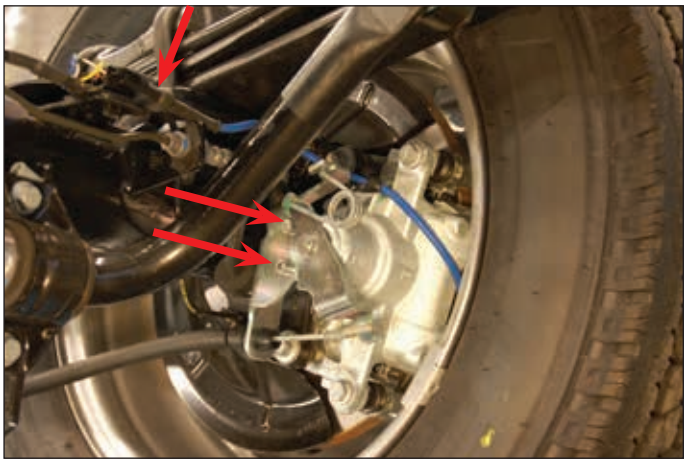
5 x plate screw

5. Cut off the end of the inlet line at a slant as shown.
6. Route the inlet line into the chassis.

⚠	***Allow for the maximum fording height of the vehicle and make sure moisture cannot be drawn in.***

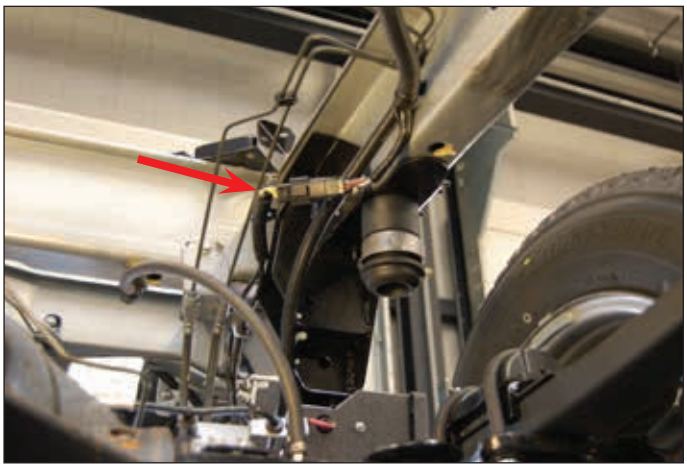
7. Fit the handbrake cable to the brake calliper.

Original fasteners	
Nm	***8 Nm***



8. Fit the ABS cable and brake wear indicator cable to their mounting.

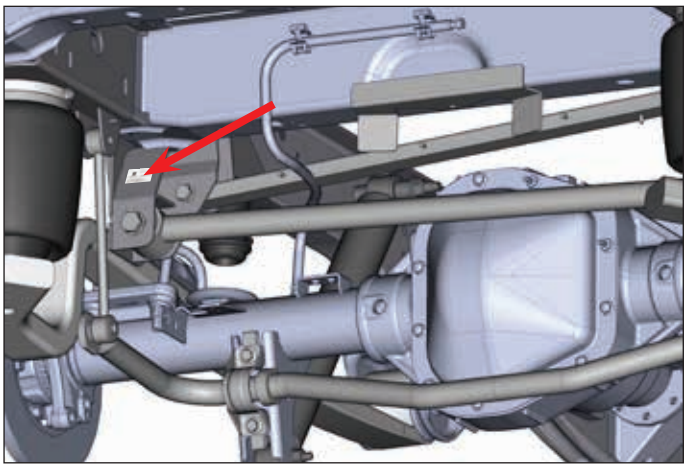
9. Secure the original wiring harness to the chassis.



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*** to the left upper spring plate.
3. Fit the spare wheel.



A

XXXXX XXXXX.XXX

VB airsuspension

B

VB airsuspension | XX – XXXX ABE XXXXXX

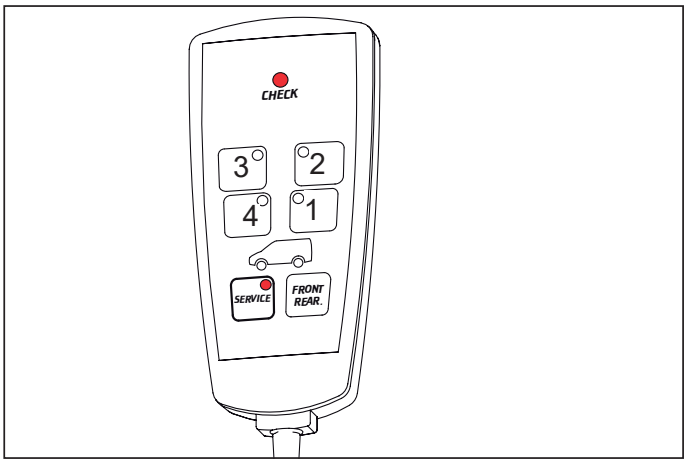
AIR SUSPENSION KIT

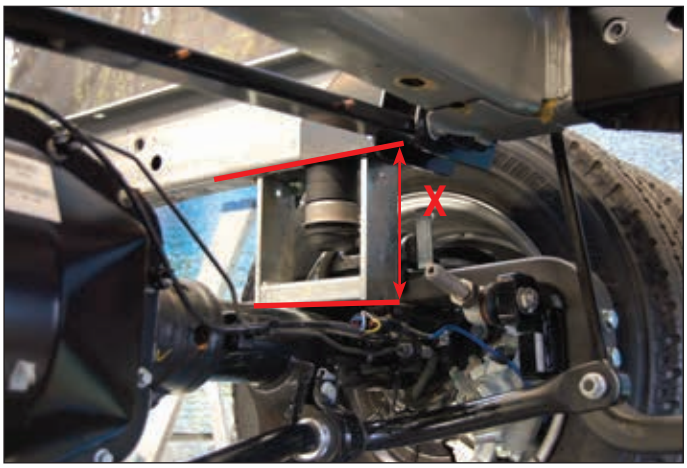
Part: XXXXXXXXXXXXX

5. Calibration

See document **730 105 000 001 "Fitting Instructions calibration VB-FA 2C 4C"** for the general calibration steps.

Vehicle-specific steps are detailed below.





6. Checklist

6.1 Final checks

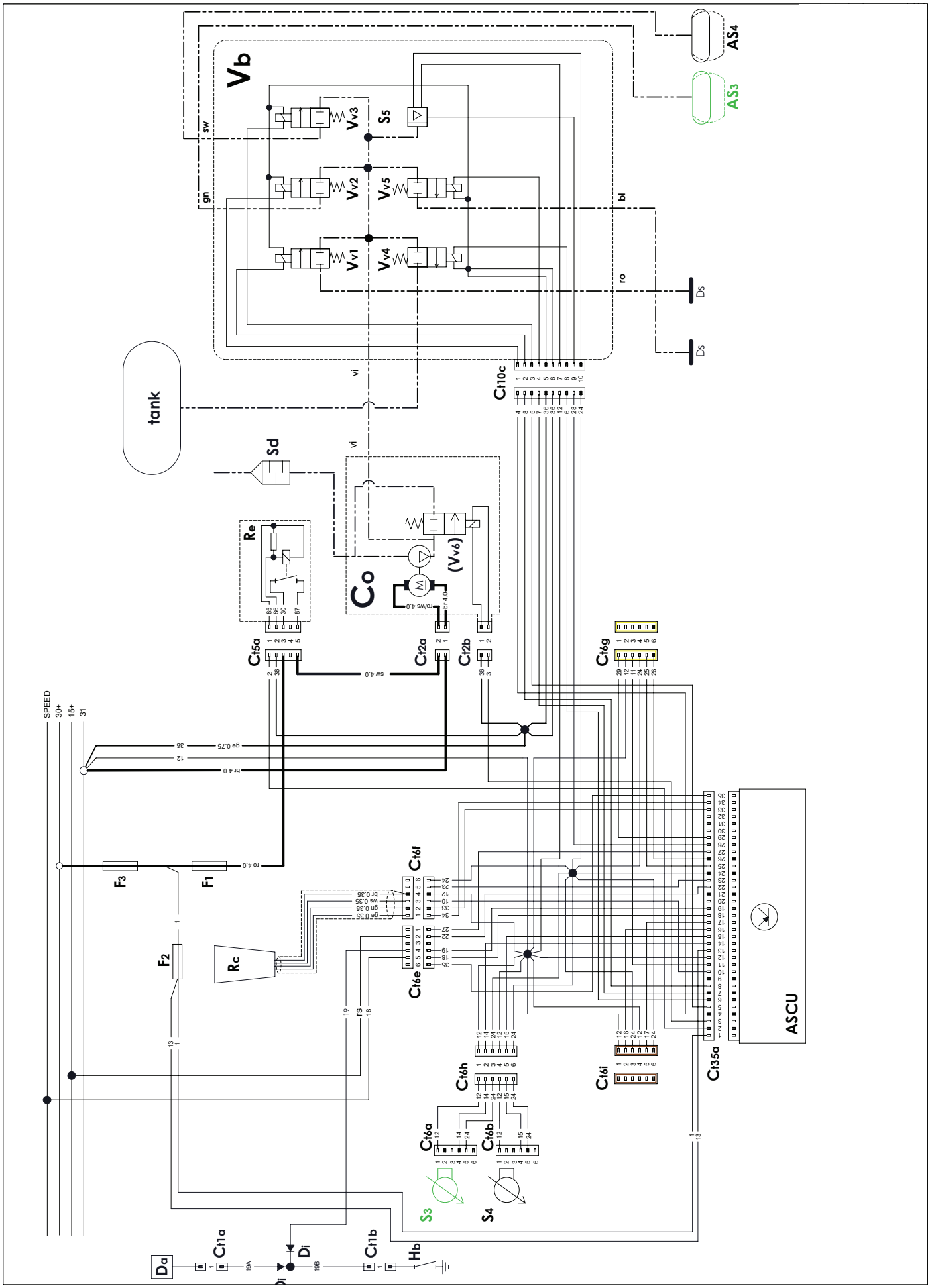
		OK
1.1	Ride height correctly calibrated.	☐
1.2	Front axle/rear axle aligned.	☐
1.3	Height sensors correctly fitted.	☐
1.4	Shock absorbers vented.	☐
1.5	Bolts tightened to correct torque and ticked off.	☐
1.6	Air tubes, wires and connectors properly secured.	☐
1.7	System checked for air tightness.	☐
1.8	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 carried out.	☐

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
Ct6c	Connector, 6-pin, height sensor left
Ct6d	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)
Ct6h	Connector, 6-pin, rear axle height sensors (white)
Ct6i	Connector, 6-pin, front axle height sensors (brown)
Ct10c	Connector, 10-pin, valve block
Ct35a	Connector, 35-pin, VB-ASCU
Co	Compressor
Ds	End plug
F1	Fuse, compressor, 40 A
F2	Fuse, VB-ASCU, 7.5 A
F3	Shunt fuse 50 A
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/filter
Tank	Air tank (option)
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

Name	Description
Colour codes (yellow with wire number is not indicated)	
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

VB-Airsuspension is one of the few European manufacturers producing a wide range of (air) suspension systems. From semi air suspension and reinforced coil springs to complete, comprehensive air suspension systems: we offer our customers solutions for various vehicles, such as emergency vehicles, car transporters, motorhomes etc. Now you can see why an increasing number of truck and body manufacturers are incorporating VB-Airsuspension's systems in their own ranges.

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