

General

VBG 575 V, part no.: 09-057500

VBG 590 V, part no.: 09-059000

The VBG 575 V and VBG 590 V couplings are designed for centre axle trailers, full trailers and dollies that use a Ø 50 mm drawbar eye as per the ISO standard.

The coupling should be mounted to a drawbeam which fulfils the requirements of ISO 3584 cat. 3. It is easiest to mount it to a VBG drawbeam, all of which meet these requirements.

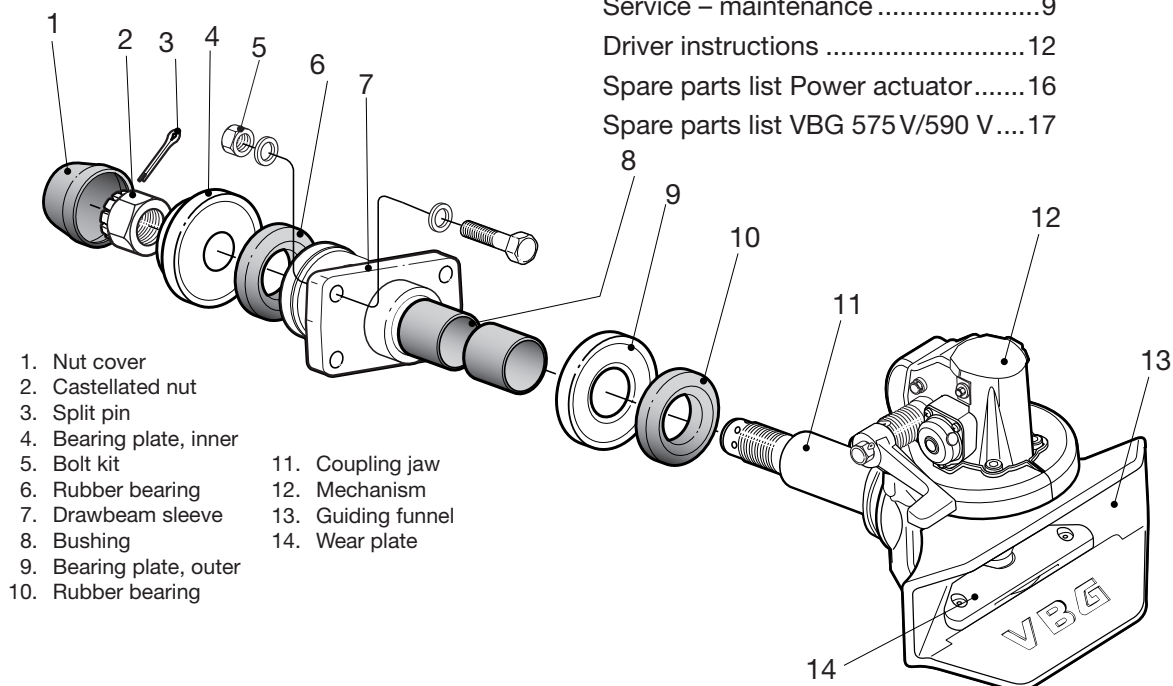
The coupling has a high-quality corrosion resistance through electrolytic pre-treatment and a top-coat with very high wear resistance. To maintain the high quality of the surface treatment, VBG recommend that no further paint is added to the coupling. If the coupling is over-painted, you run the risk of operational problems, a sticking signal/indicator pin or that important information is overpainted. Moving parts, plates and decals must all be thoroughly covered if the coupling is repainted.

Identify all parts before installation. Installation should be done in a proper and competent manner. Always follow the instructions.

All directives and instructions should be kept in the vehicle for future service and maintenance.

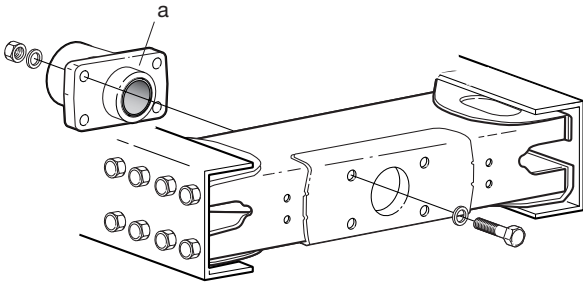
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- | | |
|-------------------------|--------------------|
| 1. Nut cover | 11. Coupling jaw |
| 2. Castellated nut | 12. Mechanism |
| 3. Split pin | 13. Guiding funnel |
| 4. Bearing plate, inner | 14. Wear plate |
| 5. Bolt kit | |
| 6. Rubber bearing | |
| 7. Drawbeam sleeve | |
| 8. Bushing | |
| 9. Bearing plate, outer | |
| 10. Rubber bearing | |

Mounting instruction

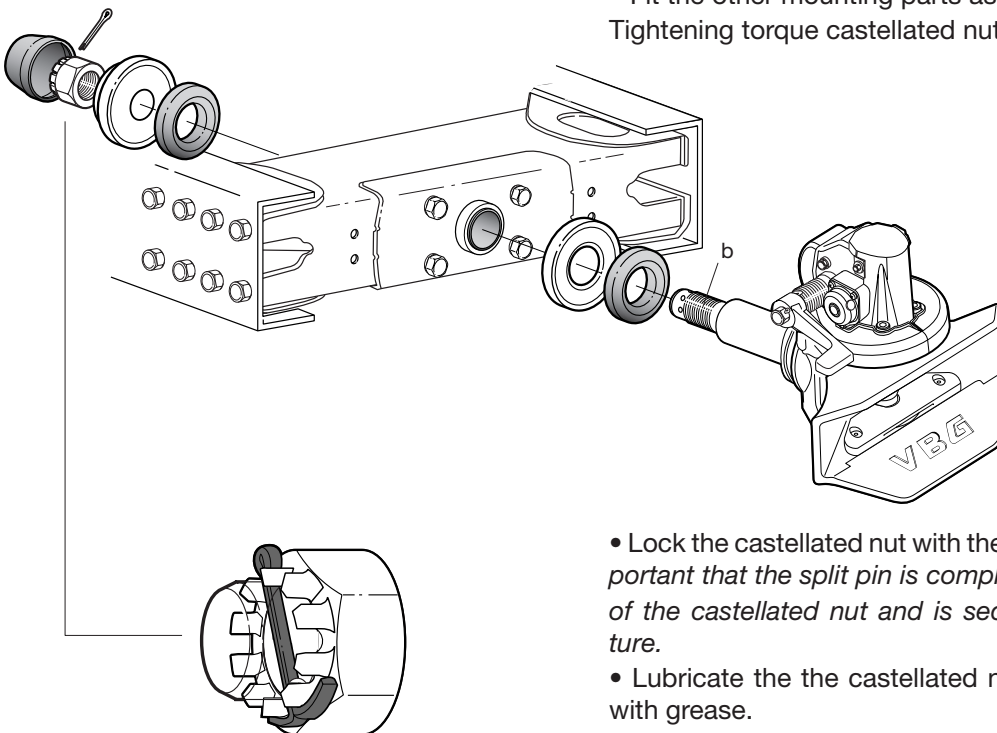


Mounting the drawbeam sleeve

- Mount the drawbeam sleeve (a) with four screws as per the drawing. Flat washers with a minimum hardness of 200 HB must be under both bolt head and nut.
- Tightening torque M20 quality 8.8 (dry): 370 Nm.

Mounting the coupling

- Lubricate the coupling jaw (b) and all its threads with grease. This prevents rust and makes future servicing easier.
 - Fit the other mounting parts as per the drawing.
- Tightening torque castellated nut 1500 – 2000 Nm.



- Lock the castellated nut with the split pin. *It is very important that the split pin is completely within the gates of the castellated nut and is secured as per the picture.*
- Lubricate the the castellated nut and the nut cover with grease.
- Mount the nut cover.
- When the coupling is reassembled after service, a new split pin must always be used.

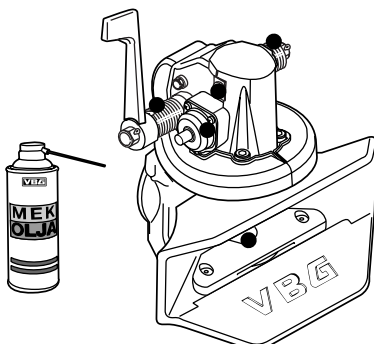
Lubrication

Lubricate the coupling weekly with VBG mechanism oil or similar thin oil. For the maximum effect, the coupling should be open when it is being lubricated. VBG do not recommend the use of central greasing systems.

- Lubrication points (see adjacent drawing).

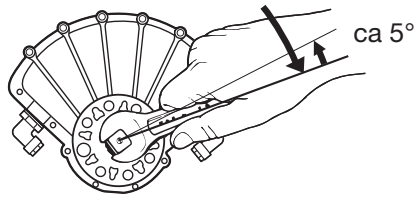
Function check

Carry out the function check on page 6.



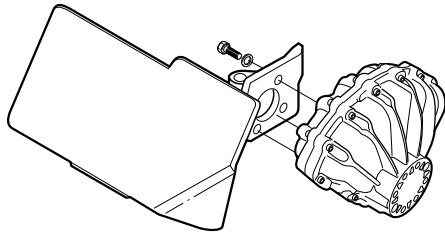
Mounting of a power actuator

If the coupling is to be equipped with a power actuator, follow the directions below.



Mounting of the actuator on the bracket

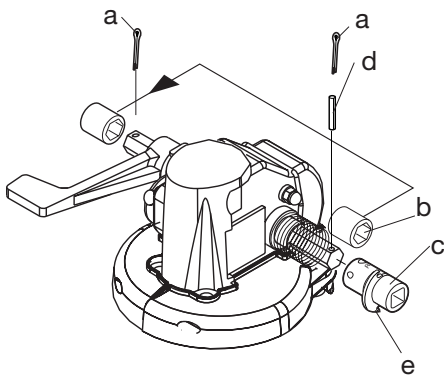
- Turn the shaft on the actuator clockwise until it can go no further and then turn it back approx. 5°.



- Bolt the actuator tightly onto the bracket with the four screws. Tightening torque M8 quality 8.8 (dry): 25 Nm.

Mounting the power actuator on the coupling

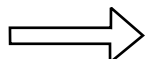
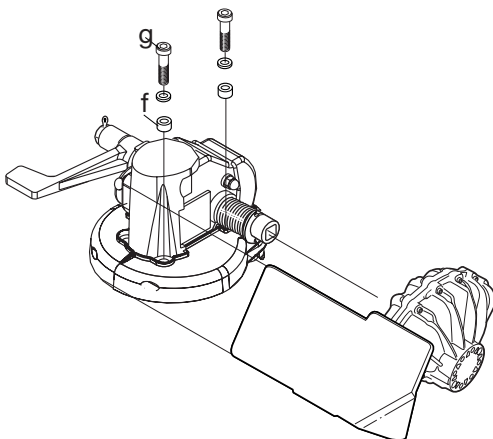
- Remove the two split pins (a) and the right hand bushing (b).
- Mount the adapter (c) on the hexagonal axle and secure with the tension pin (d) assembled in the hole "R" on the adapter.
- Tap the hexagon shaft to the left so that the adapter's hook (e) hooks into the spring's hook.
- Assemble the bushing (c) on the left side and reassemble the split pin.

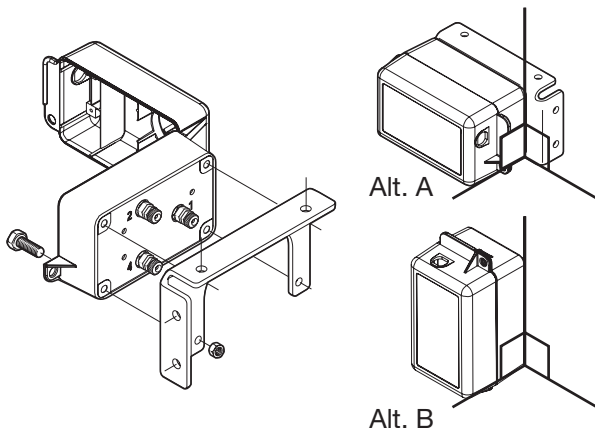


- Remove the two screws on the right side of the mechanism.

- Put the two spacers (f) between the coupling and the bracket. Lock the bracket securely with the two long M12 screws which accompanied the power actuator unit (g).

Tightening torque M12 quality 8.8 (dry): 90 Nm.





Mounting of the control box

- Mount the control box close to the coupling so that the operation of the coupling can be watched. The control box must be positioned so that it is well protected from vibration, impact, dirt and ice formation.

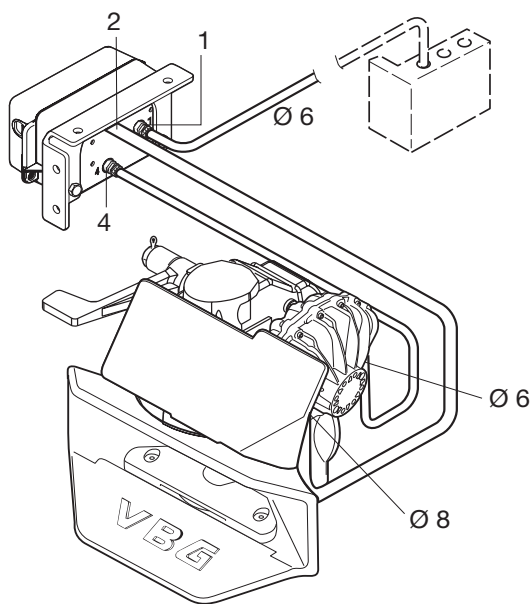
Mount the control box as shown in Alt. A or B.

NOTE! Electrically controlled control boxes are not permitted.



Warning!

Never put your fingers in the coupling mouth because of the danger of them being crushed.



Fitting the Pipes

- Turn the handle on the control box to service position according to “Service position control box” on page 6.

- Connect the supply line to the control box output (marked 1).

- Connect the other 2 pipes to the control box outputs (2 and 4). Fit the protective cover.

- Connect the pipe from output 4 on the control box to the front output of the actuator. The pipe from output 2 is connected to the rear output of the actuator.

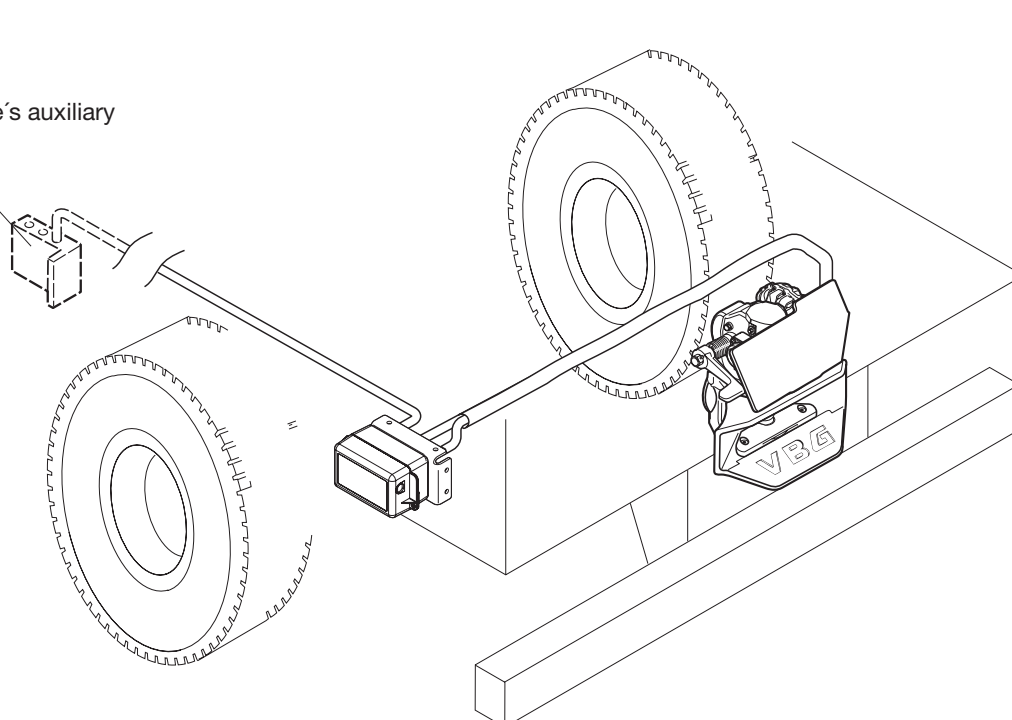
- Connect the supply line to the vehicle’s auxiliary air system. Working pressure 8 bar.

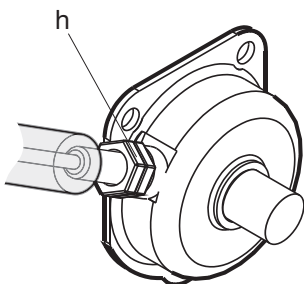
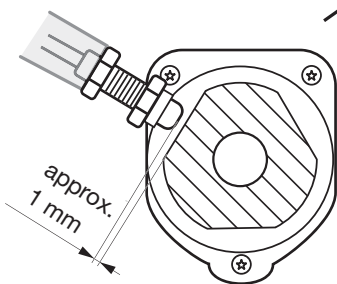
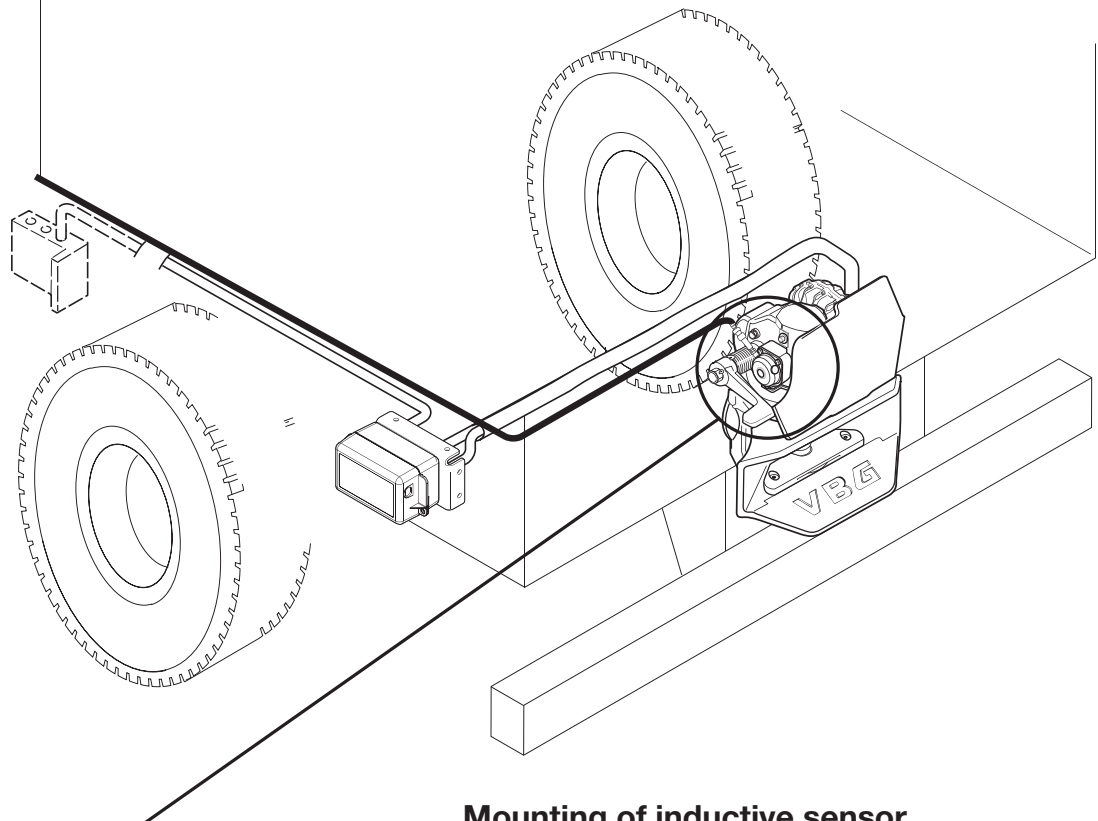
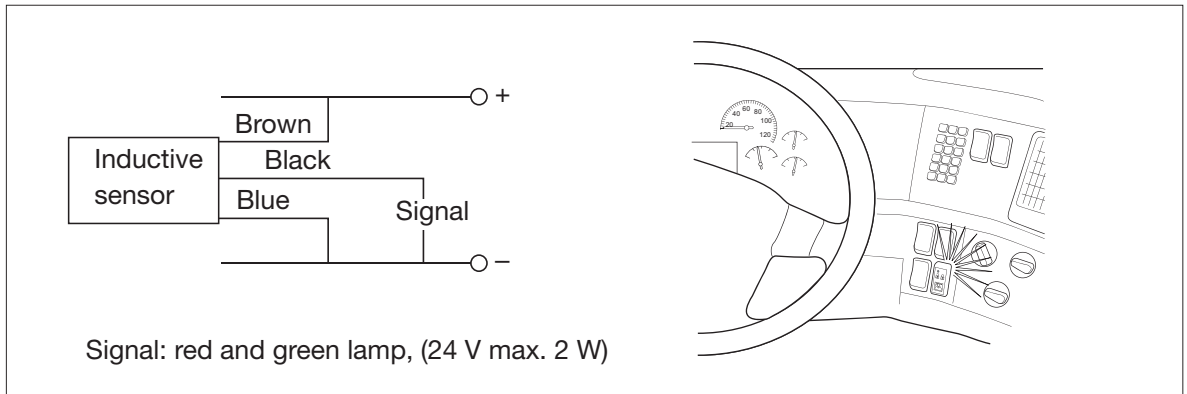
Maximum pressure 10 bar.

Always follow the truck manufacturer’s body building instructions.

NOTE! Do not connect to the braking system.

The vehicle’s auxiliary air system





Mounting of inductive sensor

- Change the cover of the original lock indicator for the cover modified for the inductive sensor. Open the coupling so that the indicator pin is out. Wind the inductive sensor in until it touches the indicator pin. Wind the inductive sensor back one turn (the distance between the indicator pin and the inductive sensor should now be approximately 1 mm).

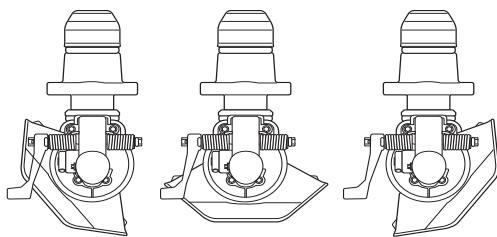
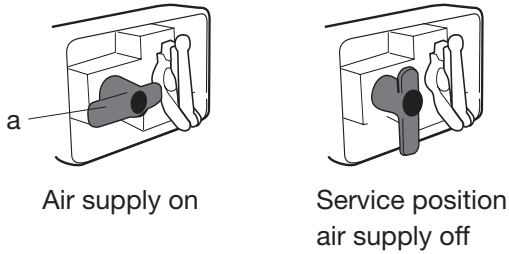
Tighten the nuts (h), tightening torque max. 2 Nm.

- If VBG's Indicator kit (part no. 09-099200) is used – connect the inductive sensor according to the mounting instructions. Otherwise connect the inductive sensor to the vehicle's electrical system (24 V). See wiring diagram above. Follow the truck manufacturer's instructions.
- When the coupling is closed and secured a green lamp in the cab should light up.
- When the coupling is open, a red lamp in the cab should light up. If the green lamp comes on when the coupling is open, adjust the gap between the sensor and lock pin so that the red lamp comes on.

Safety check

Carry out the safety check once a week. If the check shows that any of the wear limits have been exceeded or that the coupling's function is reduced, rectification must be carried out immediately.

Before any work or service is carried out on the coupling all air supply to the coupling must be cut off. Cut off the air supply by turning the control box' red handle (a) a quarter turn anti-clockwise to OFF.



If the coupling has been damaged as a result of jack-knifing, driving into a ditch, or being hit from behind, you must stop and replace the coupling.

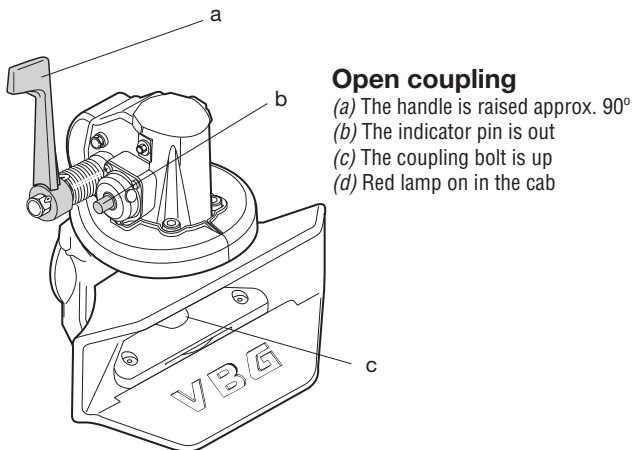


Never put your fingers in the coupling jaw because of the danger of them being crushed.

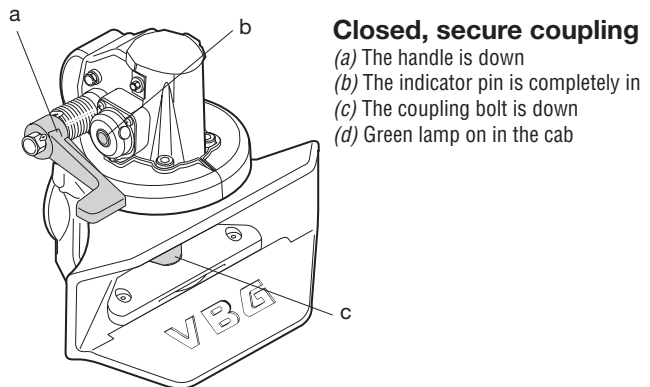
Function check

- The coupling can be opened when the coupling mouth is in its normal position or at either fully articulates position, see drawing to the left.
- Check that the coupling bolt can be raised easily and that the handle and coupling bolt remain in the up position.
- Open and close the coupling and check that it corresponds to the pictures below. If an inductive sensor is used, item (d) must be complied with.

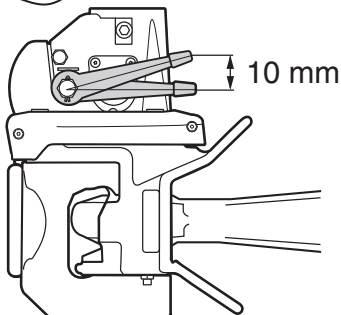
ALWAYS check that the coupling is closed and secure before driving. All the criteria for a closed coupling must be fulfilled before you start driving.



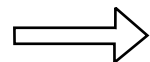
Open coupling
 (a) The handle is raised approx. 90°
 (b) The indicator pin is out
 (c) The coupling bolt is up
 (d) Red lamp on in the cab

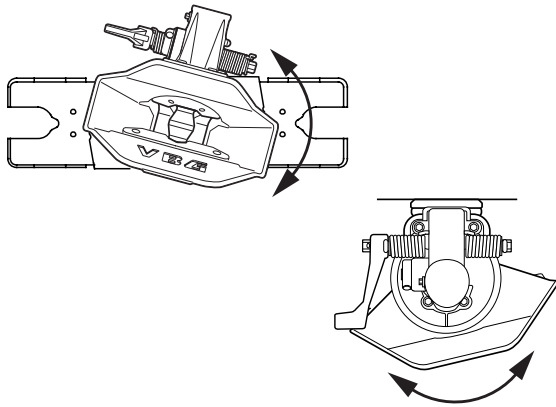


Closed, secure coupling
 (a) The handle is down
 (b) The indicator pin is completely in
 (c) The coupling bolt is down
 (d) Green lamp on in the cab



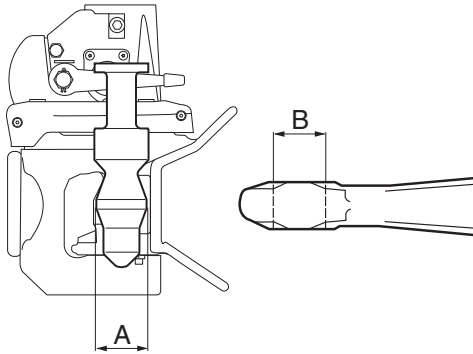
- When the coupling is closed, there must be approx. 10 mm clearance in the handle before the indicator / locking pin moves outwards.





Attachment

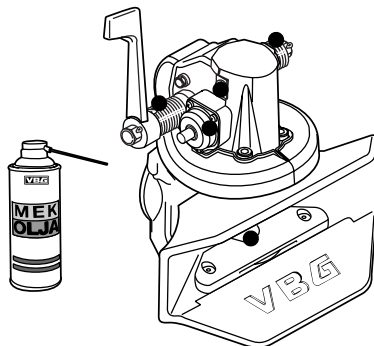
- Check that the coupling can be rotated in its mounting. The coupling must be closed when the rotation is carried out.
- Check it is possible to turn the coupling mouth.



Wear limits

A Coupling pin	min	47.0 mm
B Drawbar eye	max	52.0 mm
Vertical play in the coupling pin	max	5.0 mm

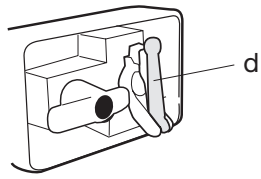
More wear limits on page 9.



Lubrication

Lubricate the coupling weekly with VBG mechanism oil or similar thin oil. For maximum effect, the coupling should be open when it is lubricated.

- Lubrication points (see drawing on the left)



Safety check contd.

Operation check - power actuator

- Fold out the yellow handle (d). Simultaneously press on the mark "Press" on the handle and turn the handle anti-clockwise to "OPEN". Then turn it back to "CLOSE".

The coupling pin should remain in the up/open position.

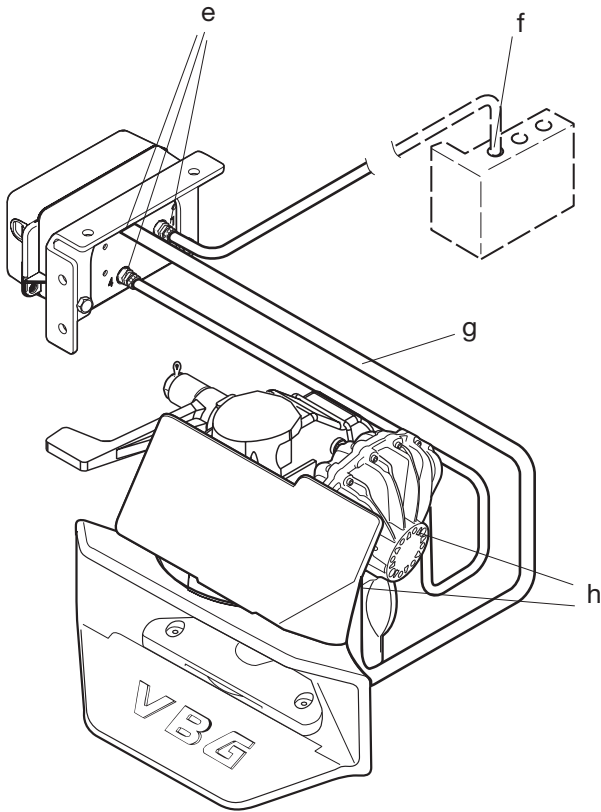
- Connect to the trailer according to the driver instructions on page 14-15.

Air leaks

- Check that there is no audible air leakage from the valve (e), the connection to the auxiliary air system (f), pipes (g) or actuator (h).

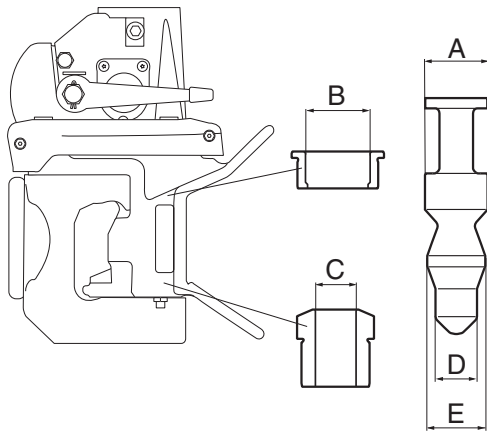
- In extreme cold, minor air leaks can occur. These can be eliminated by cutting off the air supply by turning the control box's red handle (d) a quarter of a turn anti-clockwise to OFF.

Contact the nearest workshop for corrective measures.



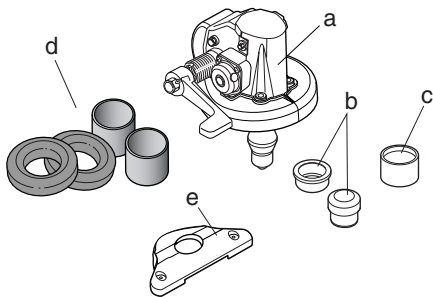
Service - maintenance

- It is important to remember that a coupling is a safety critical item and should be treated as such. Proper preventive maintenance, inspection and lubrication are essential for a long, safe and trouble-free service life.
- The length of service intervals depends on the type of trailer, load, road- and weather conditions etc. Servicing can best be carried out when other work or inspection of the vehicle is done, for example every 60 000 or 90 000 km.
- At least once a year the coupling must be dismantled and inspected for wear, corrosion, cracks or de-formation. Worn out or damaged parts must be replaced.
- If the daily overhaul or safety check show that any of the wear limits have been exceeded or that the coupling's function is reduced, repairs must be carried out immediately.
- The fact that one of the coupling's wear limits have been exceeded indicates that other parts need service as well. Therefore, always remove the coupling from the drawbeam when changing the mechanism and bushings. Check the mounting parts and the drawbeam and replace worn out rubber bearings and bushings.



Wear limits

A	outer diameter	min	51.0 mm
B	inner diameter	max	54.0 mm
C	inner diameter	max	36.5 mm
D	outer diameter	min	33.5 mm
E	outer diameter	min	47.0 mm
	Vertical play		
	in the coupling pin	max	5.0 mm



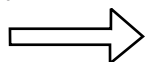
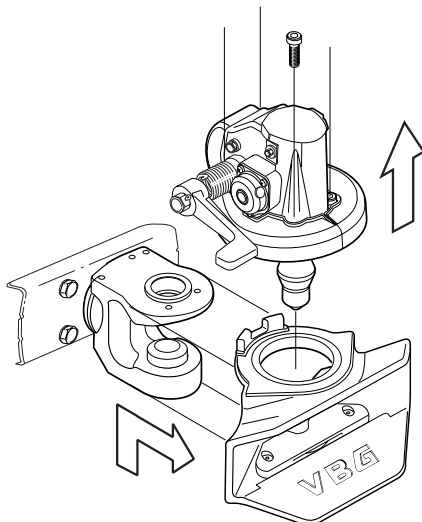
Wear parts

- Mechanism
- Upper and lower jaw bushings
- Drawbar eye wear ring
- Rubber bearings and drawbeam sleeve bushings
- Wear plate

Changing the mechanism and bushings

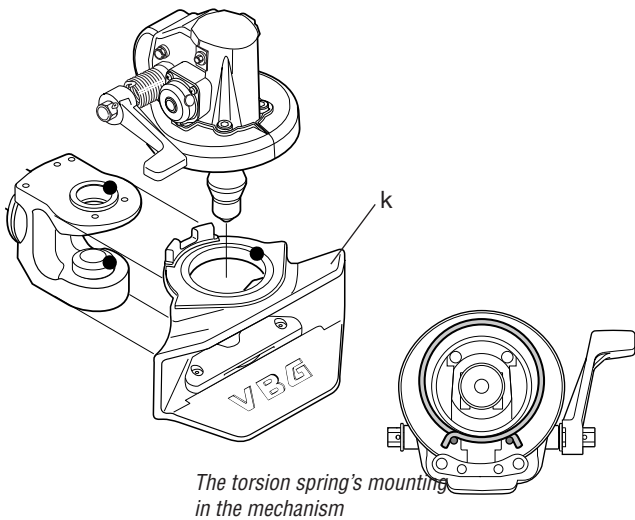
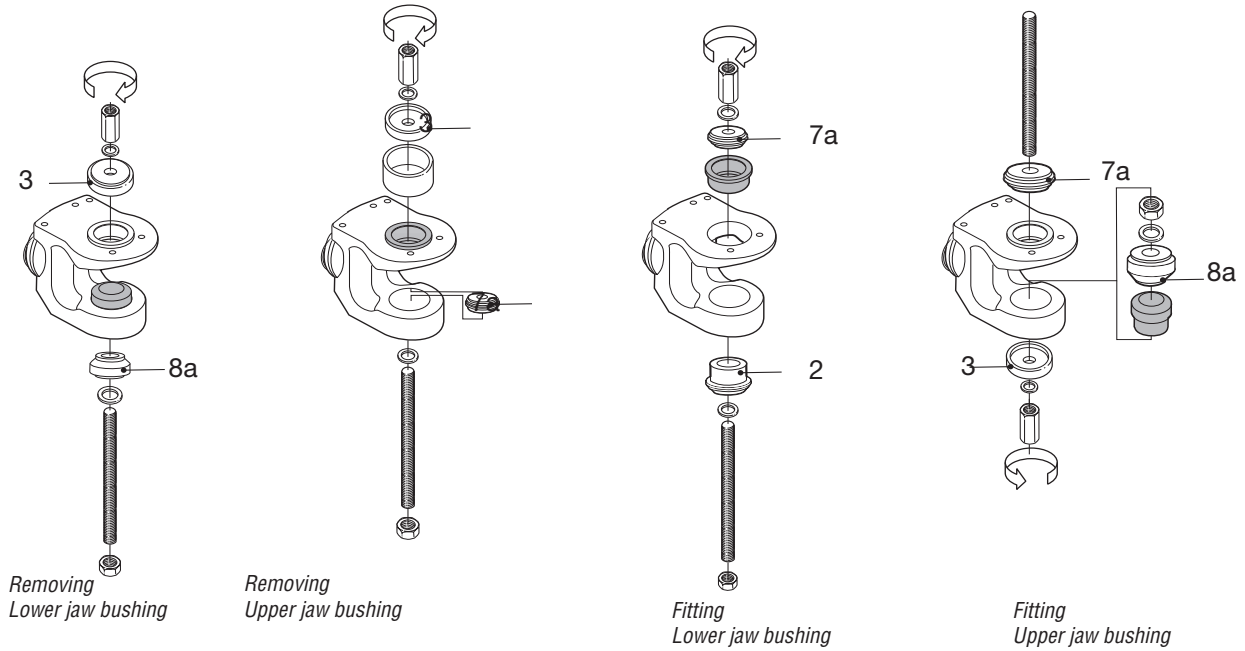
If the coupling is equipped with a power actuator, the air supply to the control box must be cut off before work on the coupling is started.

- Remove the mechanism by loosening the four screws and lift the mechanism from the coupling jaw.
- Remove the coupling mouth as per the picture.

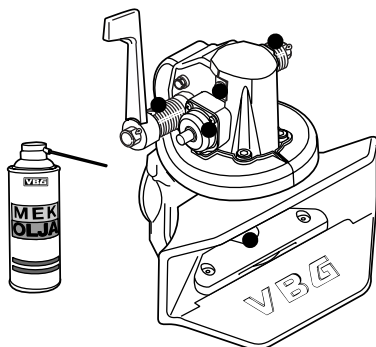


Service – maintenance contd.

- Change the bushings using the VBG service tools. Press out the old bushings from below and press in the new bushings from above as per the figure. The bushings must not be welded in.

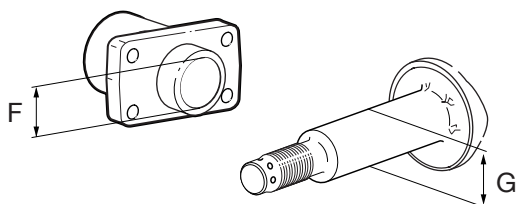


- Lubricate the bearing surfaces between the coupling jaw and the coupling mouth.
 - Lubrication points.
 - Place the coupling mouth (k) in the normal position on the coupling jaw.
 - Put the new mechanism on the coupling jaw and insert the screws, but do not tighten completely.
 - Carry out the function check on page 6.
 - Tighten the screws.
- Tightening torque M12 quality 8.8 (dry): 90 Nm.



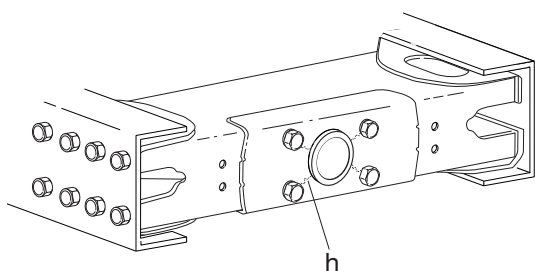
Lubricate the coupling with VBG mechanism oil. For maximum effect, the coupling must be open when it is being lubricated.

- Lubrication points (see drawing on left)



Attachment check

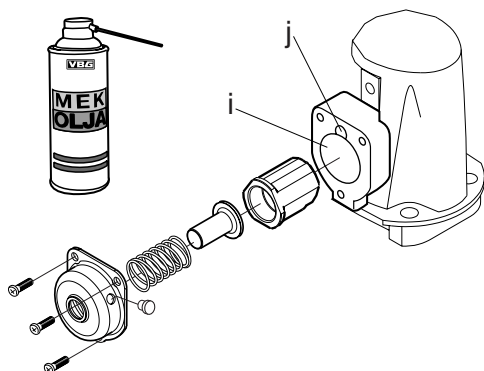
- Remove the coupling jaw and clean the shaft of rust and rubber residue.
- Check that the coupling jaw is neither bent, nor has cracks.
- Check the wear limits as below:
 - F max. $\text{Ø } 67.2 \text{ mm}$ (without bushings)
 - G min. $\text{Ø } 61.6 \text{ mm}$



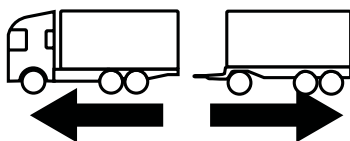
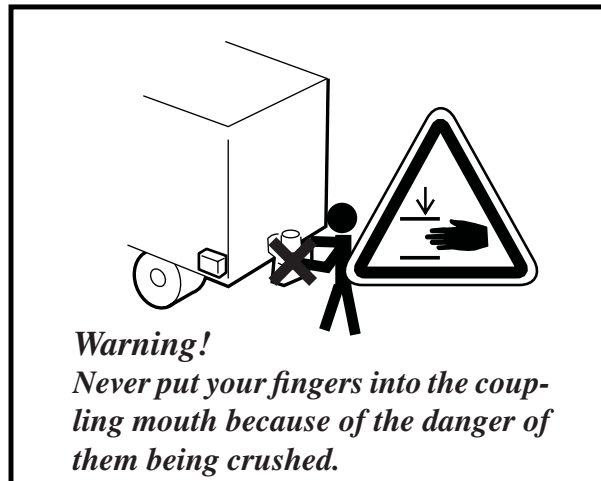
- Check that there are no cracks forming or that there is no deformation on the drawbeam (h) and that the drawbeam sleeve is properly attached.
- Tightening torque M20 quality 8.8 (dry): 370 Nm.

Changing the Indicator/locking pin

- Loosen the three bolts holding the cover.
- Remove the remaining parts.
- Clean the bearing surfaces of the locking pin (i) and lubricate with thin grease. Check that the centring pin (j) is correctly assembled.
- Replace the parts according to the drawing.

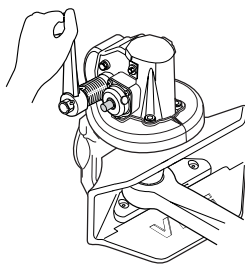
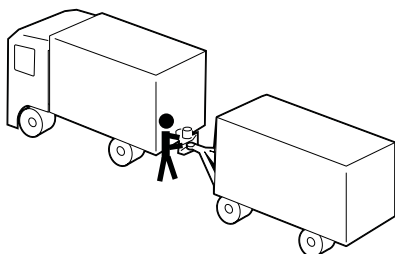


Driver instructions



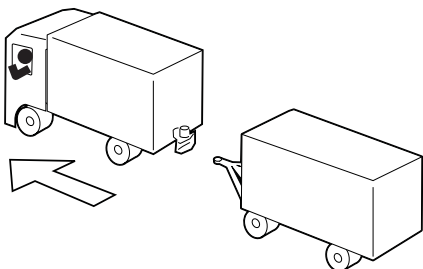
Uncoupling without power actuator

1



Stand by the operating handle.
Lift the handle 90°, the handle will lock. The coupling is now open.

2

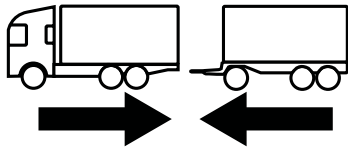


Uncouple the trailer.
The coupling is closed when the towing eye pushes up the coupling bolt and this releases the mechanism.



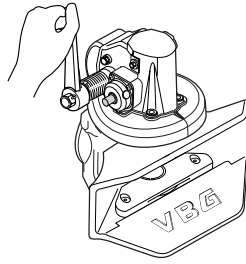
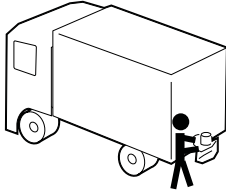
For functional and road safety reasons, only those steps described above may be carried out using the control box, power actuator, or air lines during coupling and uncoupling.

If the coupling does not go to locked position after repeated attempts at coupling, the power actuator must be uncoupled immediately. Contact the nearest workshop for fault detection and remedial measures.



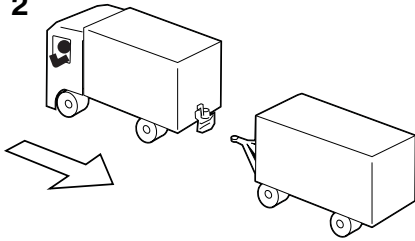
Coupling without power actuator

1



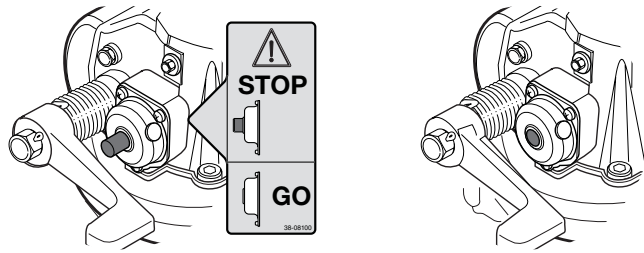
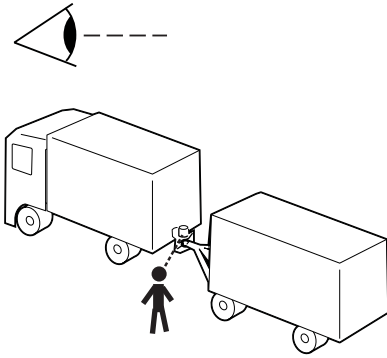
Stand by the operating handle.
Lift the handle 90°, the handle will lock. The coupling is now open.

2



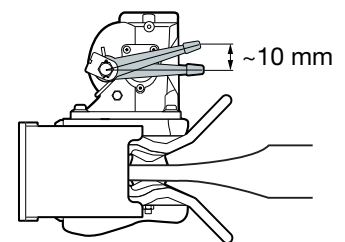
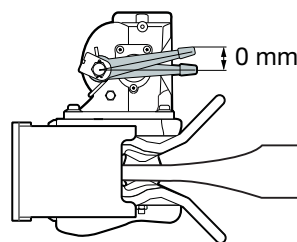
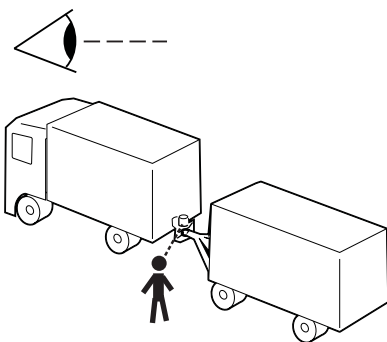
Couple to the trailer.

4



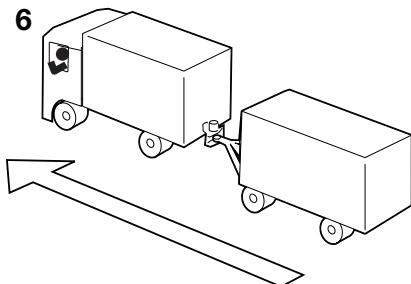
Check that the indicator pin is completely in.
If the indicator pin is not completely in, the coupling is open and driving is not, under any circumstances, permitted!
Contact nearest workshop for remedial measures.

5

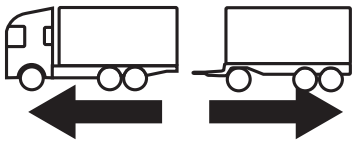
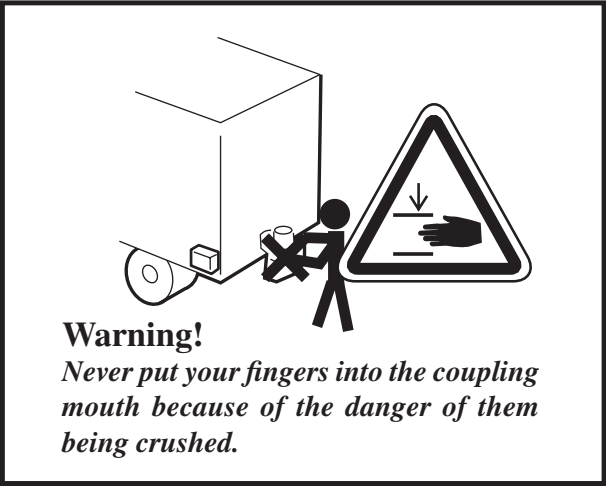


Check that there is approx. 10 mm movement of the handle before the indicator pin moves outwards. *If there is no free movement of the handle the coupling is open and driving is not, under any circumstances, permitted!* Contact nearest workshop for remedial measures.

6

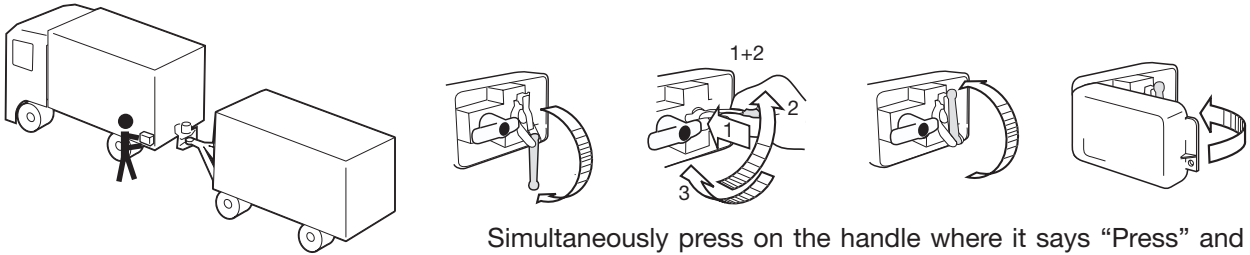


The trailer is secured and driving may begin.



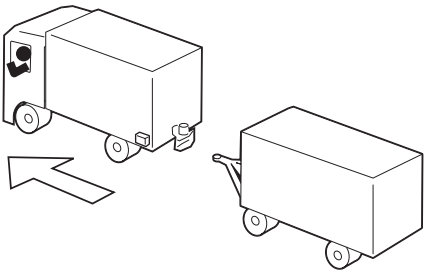
Uncoupling with power actuator

1

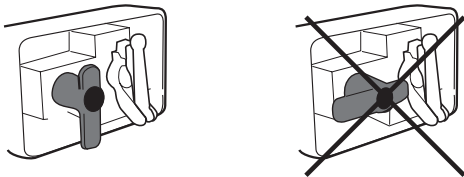


Simultaneously press on the handle where it says "Press" and turn the handle anti-clockwise to "OPEN". Then turn it back to "CLOSE".

2

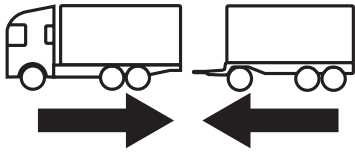


Uncouple the trailer.
 The coupling is closed when the towing eye pushes up the coupling bolt and this releases the mechanism.

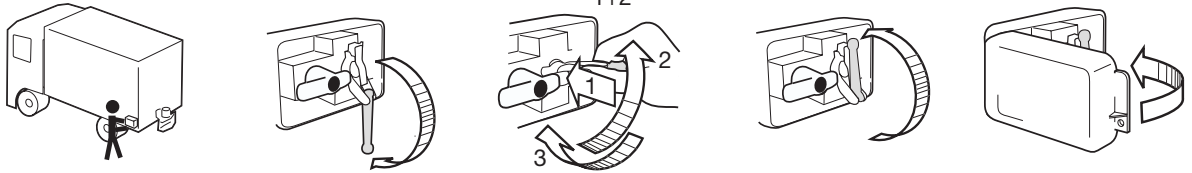


Before any work or service is carried out on the coupling all air supply to the coupling must be cut off. Cut off the air supply by turning the control box' red handle a quarter turn anti-clockwise to OFF.

Coupling with power actuator

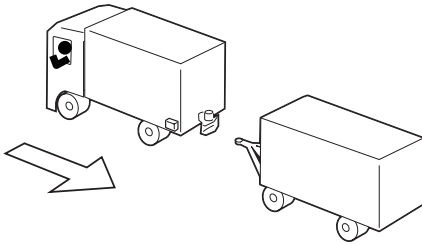


1



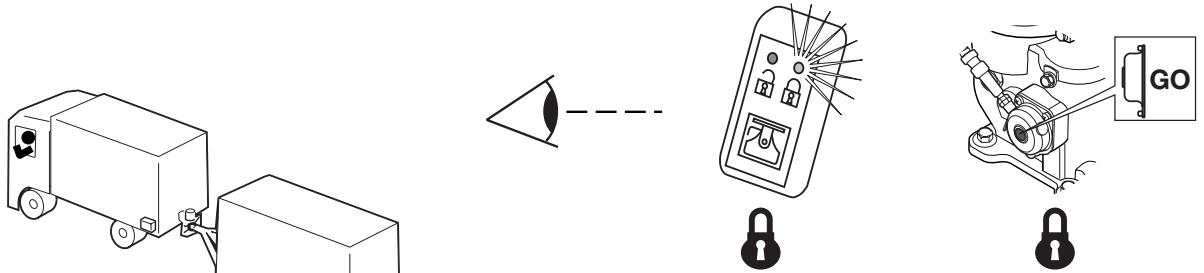
Simultaneously press on the handle where it says "Press" and turn the handle anti-clockwise to "OPEN". Then turn it back to "CLOSE".

2



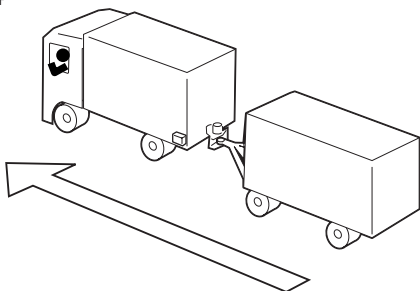
Couple to the trailer.

3



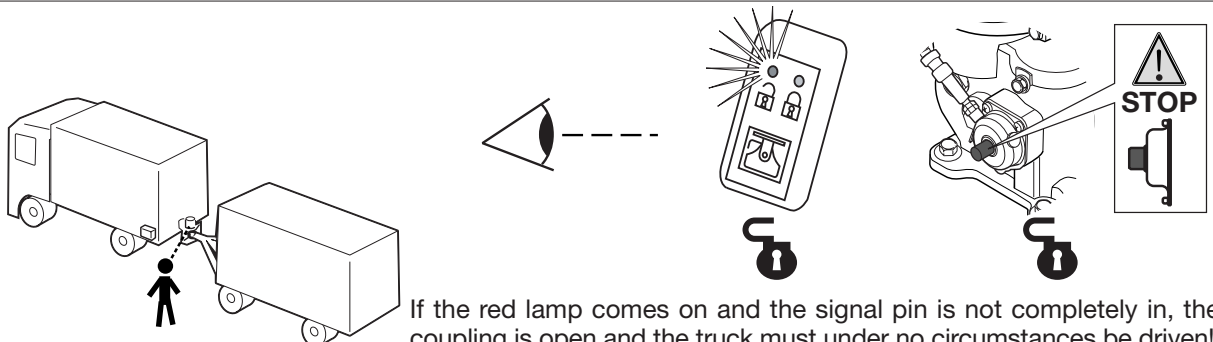
Check that the signal pin goes fully in, and that the green warning lamp in the cab is on. The coupling is closed and secured, and the truck can now be driven.

4



The trailer is secured and driving may begin.

5



If the red lamp comes on and the signal pin is not completely in, the coupling is open and the truck must under no circumstances be driven! Contact nearest workshop for remedial measures.

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