





**Replacement instructions
CF500 SL-2 / CF500 SL-C cylinder**

Replacing a cylinder CF500 SL-2 / CF500 SL-C

- You have received a cylinder to replace a defective one. Please follow the instructions given below carefully to exchange the cylinder correctly and as quickly as possible.
- The total de / installation time of the old / new cylinder will take a maximum of 4 hours, where for every extra cylinder 1 extra labour hour extra is needed.
 (this means for a complete set of cylinders, = 3 pieces, maximum 6 hours.)


Before replacing the cylinder check the system number, if it is a CF500 SL-C that it has a different measurement than the CF500 SL-2.

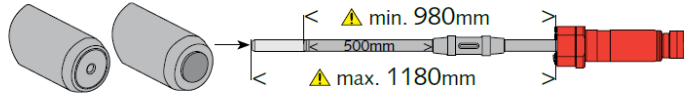
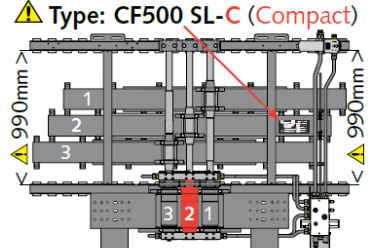




Important: please check before mounting!
Wichtig: bitte Kontrollieren für Montage!
Belangrijk: svp controleren voor montage!


Cylinder **2** CF500 SL-C (Compact)

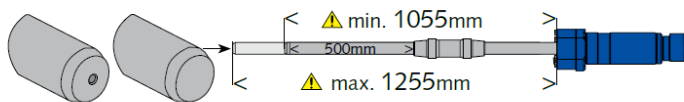
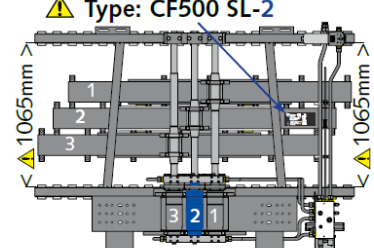
 UNIQUE MARKER

Type: CF500 SL-C (Compact)


Cylinder **2** CF500 SL-2 & SL

 UNIQUE MARKER

Type: CF500 SL-2

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S. 034.05/13

The cylinder is supplied in a sturdy crate with all the seals and fastening materials.

Parts number	parts	supplied
	Cylinder CF500	1
4105007	Guide block for piston rod	1
500216090.9	Hexagon bolt M16x90	6
500216100.9	Hexagon bolt M16x100	6
500916.9	Tob washer with long tab M16 steel	12
9309021	Instructions "important information"	1
7376001	CF500 seals for common rail	13
500208060.9	Hexagon bolt M8x60	24
5002008.9	Spring washer M8	24

Required tools:

- | | |
|--|-------------------------|
| Ring/open-end spanners 10, 13, 17, 24, 32, 36; | |
| Air wrench with caps; | Torque wrench 0-50 Nm; |
| Crowbar or tire iron; | Torque wrench 0-200 Nm; |
| Steel brush; | Copper grease; |
| Hammer; | Chisel. |

Important information:

- If possible pull the cylinders fully inside to avoid damage to the piston rod;
- **Guarantee** shall only be given with prior acceptance of Cargo Floor BV! With guarantee always state the system number with any communication. You can simply fill in a request for guarantee on our website www.cargofloor.nl .
- **Think constantly about safety and the environment.** At the moment when it is possible switch off the pump and system and the hoses and/or pipes between the pump and the Cargo Floor drive unit must be uncoupled and also unplug the electrical connection. Use enough oil drip trays and dispose the oil in a responsible manner.
- Work as clean as possible. Preferably seal all pipes and hydraulic openings during the repair, so that no pollution of the oil will occur.
- Always replace, when exchanging a cylinder, the supplied rod guiding set;
- When the cylinders are being installed the floor must be **empty!** In the event that this is impossible, the bolts have to be checked with a torque wrench immediately after running empty;
- Check the oil level after assembly;
- Check/replace the pressure filter!
- When sending back the cylinder, please follow the instructions given!

Always try to determine the reason why the cylinder had be replaced. When the reason was found and the cause can be taken away, then a similar problem in the future could be avoided.

IMPORTANT:

- Always check that the selected loading or unloading direction is actually activated and occurring!!
- If the system fails to start, turn off the Cargo Floor system and the hydraulic pump and follow the recommendations and guidelines provided below. Do not repeatedly try to start the system as this may result in damage to your Cargo Floor system and/or vehicle.
- After use, turn off the Cargo Floor system and hydraulic pump. Set switches to the "0" position and the lever in neutral.

In case of doubt or uncertainty about these recommendations and guidelines, always contact your dealer or an official workshop.

The Cargo Floor system comes standard with an operating manual, but if this has not been supplied, please contact your dealer or download it from the official Cargo Floor website: WWW.CARGOFLOOR.COM


- A) Always open the vehicle's doors before turning on the hydraulic pump. Note! Build-up of pressure against the doors can force them open, which may cause some of the cargo to fall out of the vehicle. That is why it is always advisable to use the pneumatic lock, if provided.
- B) 1. Check that the vehicle's (quick-detachable) couplings are properly connected to the P (Pressure line, min. 20mm [3/4"]) and the T (tank/return line, min. 25mm [1"]). Also check that the couplings are fully tightened or slid completely into each other.

⚠ IMPORTANT: the pressure and return line connectors may not be reversed or exchanged to prevent dirt or water from entering the lines when connecting them!

2. Before connecting, check that the non-return valves can open easily (check: the non-return valves should open easily when pressed with the finger, if not, potential pressure build-up in the hydraulic lines may be preventing the system from starting).

NOTE: Incorrectly connected or unopened hydraulic couplings will cause serious damage to the Cargo Floor system and the vehicle.

- C) The vehicle (pump) must be fitted with a pressure relief valve that is set to 250 bar [3,625 psi]. If fitted, check that the dual-function lever (function: tipper/Cargo Floor) is in the Cargo Floor position. Pressure may not exceed the maximum adjusted and allowable operating pressure of the Cargo Floor system. An incorrectly adjusted pressure relief valve can cause damage to the Cargo Floor system and the vehicle.
- D) During operation, the (hand)brake of the vehicle must always be applied. You must, however, move the vehicle forward on time to unload it quickly in order to prevent unnecessary strain and wear to the floor and the vehicle.
- E) Use of a wireless remote control is permitted only if it is fully tested before the start of each loading or unloading operation. Always check if the function you have selected is actually activated and taking place. If, for example, you have accidentally pressed the load function when you actually meant to press the unload function, irreversible damage may occur to the Cargo Floor system and the vehicle.
- F) During operation of the Cargo Floor system, all existing STOP and control knobs/levers must be freely accessible.
- G) The pressure filter element needs to be replaced at least once a year. If the couplings between the vehicle and the Cargo Floor system are regularly removed, it is advisable to check the pressure filter for dirt build-up and replace the pressure filter element more often, if necessary. If provided, also check the return filter (not supplied with the Cargo Floor). Failure to replace a filter element on time may cause damage to or malfunctions in the Cargo Floor system and the vehicle.
- H) Moving parts must be shielded. Always maintain at least 10m [30'] distance from the Cargo Floor system when it is in operation.
- I) In the event of malfunctions/maintenance work, you may approach the Cargo Floor system only if all equipment, including the hydraulic pump, has been shut off, and the Cargo Floor system and the electro-hydraulic aggregate have been disconnected from the power supply and pump.
- J) Regularly check and, if necessary, tighten any loose bolts that secure the aluminium floor profiles to the Cargo Floor system. All such checks can simply be performed inside the vehicle itself by qualified personnel. The Cargo Floor system must, however, be turned on in unloaded condition and the person performing the check must place his finger half on the floor profile and half on the bolt. There should be no appreciable movement/space between the floor profile and bolt. Failure to check these bolts may lead to damage to the Cargo Floor system. During this check, a second person must also be present to switch off the Cargo Floor system.
- K) Check that the minimum required amount of oil is present (150 ltr. [40 gallon]) Too little oil in the hydraulic tank will cause damage to both the pump and the Cargo Floor system.
- L) Do not allow the number of strokes to exceed the maximum allowable 16 power strokes per minute. Only a Power speed Cargo Floor system may deliver up to 23 beats per minute. A higher number of power strokes can cause damage to the Cargo Floor system and the vehicle.
- M) Hydraulic lines, couplings and hoses with very small diameters will cause damage.
- N) If the Cargo Floor system fails to start or operates incorrectly, the Cargo Floor system and the hydraulic pump must be shut down immediately. Subsequently, check all the checkpoints before switching the pump and the Cargo Floor system back on. To prevent the oil from overheating, regularly check the oil temperature by CAREFULLY and CAUTIOUSLY touching the line and or oil tank. If either is too hot to the touch, stop touching them right away. **WARNING: TOUCHING OVERHEATED OIL AND COMPONENTS CAN CAUSE BURNS!**
- O) The cause of failure or malfunctioning of the Cargo Floor system may also be due to other hydraulic components that may or may not be connected to the same hydraulic circuit of the Cargo Floor system.
- P) Jamming of the floor profiles caused by the transport of abnormal loads and or the freezing of the floor or of the product to the floor may result in damage to the Cargo Floor system and the vehicle. Recommendation: in the event of freezing, stop the system and try to find a hall (heated area) to allow the product to thaw.
- Q) Because the electrical power supply of the Cargo Floor system is often connected to the lighting circuit of the vehicle, it is advisable to turn on the lighting throughout the operation of the system.
- R) Maintenance and repairs to the Cargo Floor system may be only performed by qualified personnel. Use only original Cargo Floor components to ensure maximum reliability and long service life.
- S) Maximum cargo weight is subject to the limits set by law and applicable regulations. Even if the system can transport heavier loads, the law determines the maximum limit. Excessively heavy cargo can cause damage to the Cargo Floor system and the vehicle.

- T) Check that the correct type and quality of hydraulic oil is used. The use of incorrect oil type may cause damage to the Cargo Floor system and the pump.
- U) Check the vehicle for correct voltage. Make sure there are no open electrical connections. A faulty electrical system can cause damage to the Cargo Floor system and the vehicle.
- V) Check that the bulkhead, if present, is functioning smoothly and properly. A properly functioning bulkhead ensures that the product is unloaded in a clean and quick fashion. A malfunctioning bulkhead may extend the unloading time and cause damage to the vehicle.
- W) Use of the Cargo Floor system by unqualified personnel can cause damage to the Cargo Floor system and the vehicle.
- X) Excessively high oil temperatures will cause damage to the Cargo Floor system and other hydraulic components, such as the pump.
- Y) It is at all times advisable to stop the Cargo Floor system when all the piston rods are retracted. This is usually the case when the floor profiles are positioned towards the unloading end (vehicle doors). Unretracted piston rods may cause damage to the Cargo Floor system.
- Z) To prevent damage to the floor profiles, exercise caution and limit the dump height as much as possible. The transport of unauthorized goods, such as aggressive, corrosive, hot, hard, sharp and viscous materials may cause damage to the Cargo Floor system and the vehicle. Avoid loading and unloading sharp objects. Loads that are softer than the hardness of the floor profiles will extend the service life of your system; if in doubt, use a protective cloth or consult your dealer.
- AA) Forklift trafficable. In principle, the floors are completely trafficable and can be driven over by forklifts, but always consult your dealer for advice on the maximum loads allowed on your vehicle. Overloading will cause damage to the Cargo Floor system and the vehicle.
- BB) Always return emergency control(s) to their original non-activated position after use.
- CC) During the operation of the system, test the temperature of the oil by touching the side of the tank. If the oil is so hot that you cannot continue to touch the tank, switch off the pump to allow the oil to cool off and determine what is causing the overheating. Stop loading or unloading if the oil is too hot, as this will irreversibly cause damage to the Cargo Floor system and the other hydraulic components.
-  **WARNING: TOUCHING OVERHEATED OIL AND COMPONENTS CAN CAUSE BURNS AND INJURIES!**
- DD) During loading and unloading operations, the load should be spread to give an even weight distribution over the floor area, otherwise the load may stall. Tip: when transporting pallets, place softwood boards of 300 x 18 x 2350 mm [12" x 0.75" x 92.5"] to distribute the pressure more evenly.
- EE) The constant pressing of the load against the head board or the doors can lead to extra wear of the complete system. Also the construction can be damaged. Please consult your supplier about the optimizing possibilities or in order to prevent problems occurring.
- FF) The user/operator/driver that is operating the Cargo Floor system is compelled to remain a safe distance from the Cargo Floor system at all times, from the time of switching on the hydraulic pump until turning it off. He should ensure that no dangerous situations can occur. When the process malfunctions or if other people are present he should shut down the Cargo Floor system, or hydraulic pump, immediately.

WARRANTY:

Warranty is subject to prior approval by Cargo Floor B.V.! To request warranty coverage, visit www.cargofloor.com to fill out and submit the warranty application form provided there; do not forget to include your Cargo Floor system number on the form.

In the event of an EMERGENCY, operation of the Cargo Floor system can be halted as follows:

- ◆ By pressing the stop button on the wired remote control unit;
- ◆ By turning all switches to position "0";
- ◆ By putting the handle of the control valve in the middle position (only B and A control);
- ◆ Turning off the pump;
- ◆ Turning off the main switch of the power supply;
- ◆ Turning off the motor of the electro-hydraulic aggregate;

Pull in the cylinders

To prevent the piston rod getting damaged in the stroke area during the repair the all the cylinders should be pulled in fully before starting (fig. 2). In order to achieve this it is necessary to block the switching of the control valve. Let cylinder 1 (left cylinder) run out to the front and switch off the system. Then take out the roll pin or bolt in the bottom of the front command lip. Next, the threaded rod can be bent slightly downwards and the steel spring on the threaded rod can be removed from the end of the threaded rod (fig.1). Turn the system back on and the cylinders will eventually pull in fully and at the end of the ingoing stroke the pressure relieve valve will be activated. At that time the system must be turned off. For your safety it will be advisable to disconnect the hoses between pump and system and disconnect the electrical connections.



Fig. 1

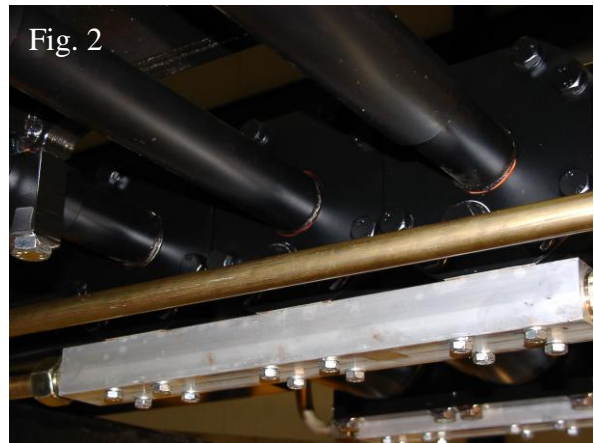


Fig. 2

Demounting the pipes

Place a drip tray under the coupling that should be loosened and collect the leaking oil. Unscrew the coupling screws of all 4 the pipes of the two common rails, with an open-end spanner 36 mm (fig. 3 t/m 6). If the screw-in coupling is also turning, this can be prevented with an open-end spanner 32 mm. Put marks on the common rails, so you know how the common rail must be re-assembled. The common rails are identical but are mounted mirrored!!!!



Fig. 3

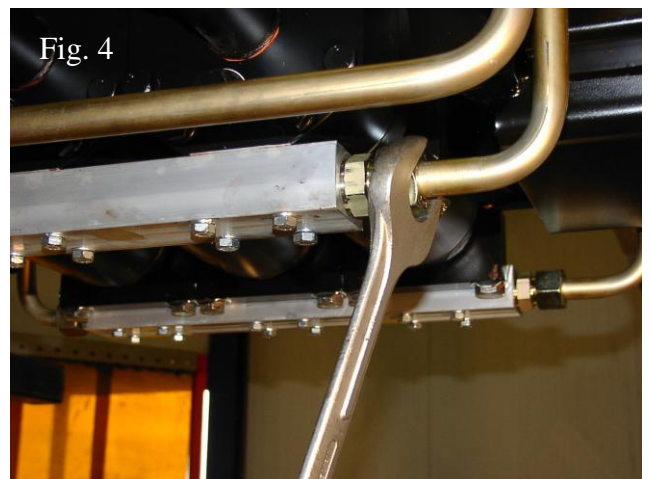
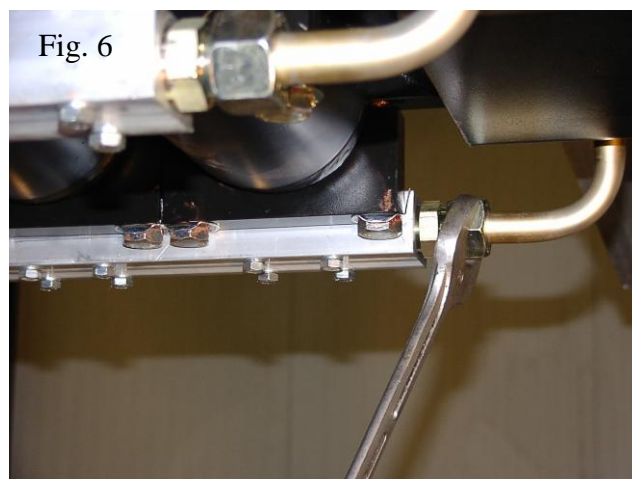
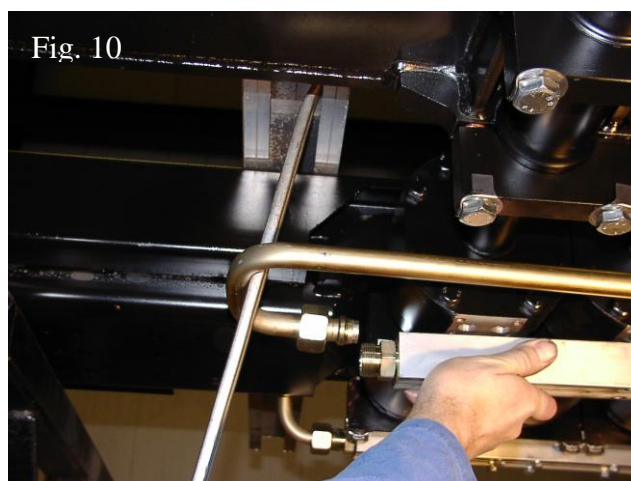
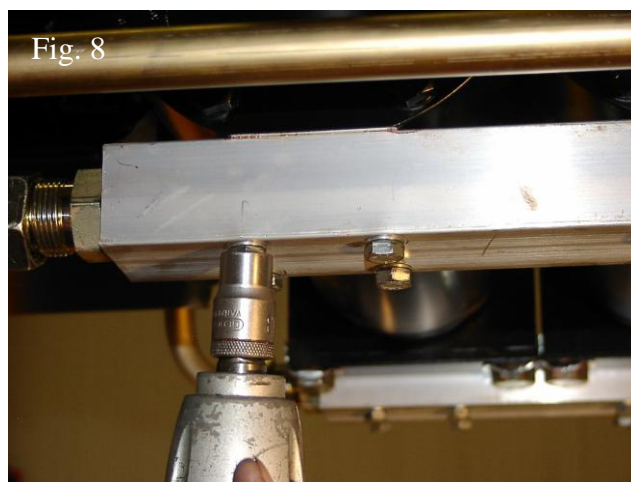
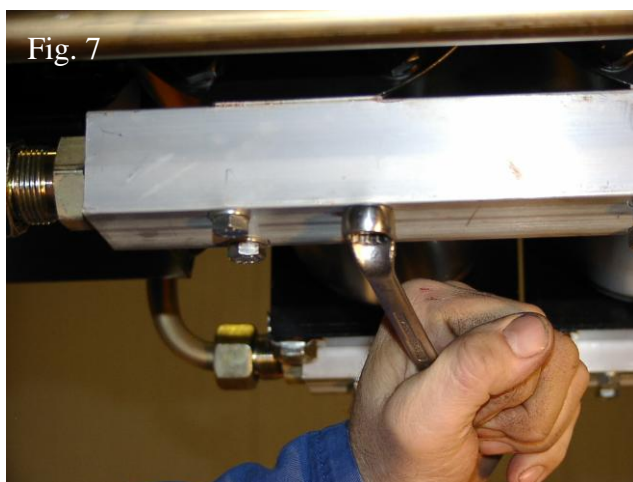


Fig. 4



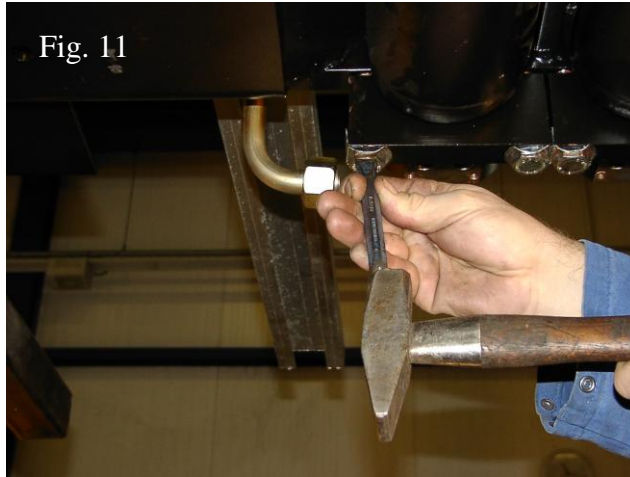
Disassemble the common rails

Unscrew all the bolts with which the common rails are attached to the cylinders, by using a spanner /wrench 13 mm. or a tacker with cap 13 mm. (fig. 7 en 8). These common rails can be removed by pushing away the pipes that are fitted into the screw in couplings. If this is not successful by hand, then can alternatively a tire iron or crowbar be used (fig. 9 en 10).

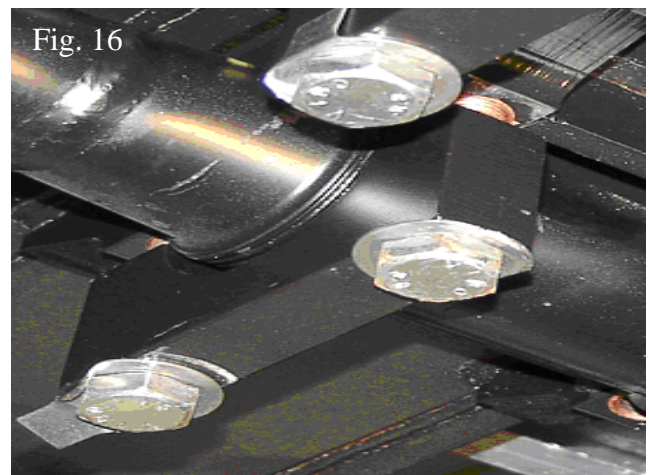


Removing the cylinder(s)

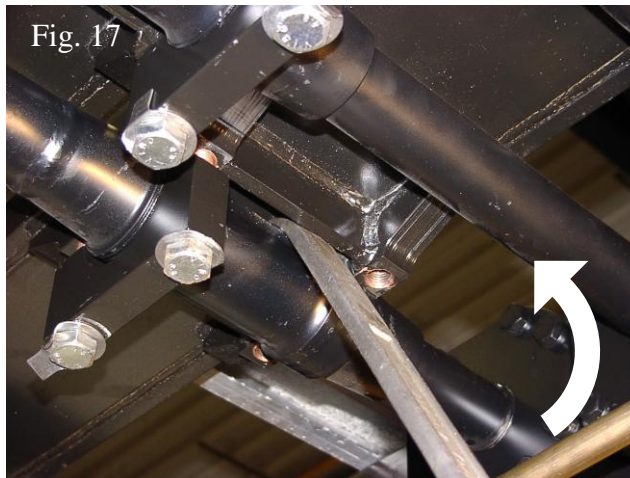
All the tabs of the washer with long tab M16 that secure the hexagonal bolts of the clamping plate (fig. 11) and the guide block (fig.12) of the cylinder that needs to be replaced need to be beaten flat. All the 4 washer with long tab of the triple clamping plate need be beaten flat



The M16 bolts can be removed (fig. 13) after this with a open-end spanner 24 mm. (or air wrench with cap 24 mm.). Now the clamping plates (fig. 14) can be removed, but **one clamp of the moving cross members has to remain!** This is so that the cylinder can stay in it's place for a short while longer. The two bolts of clamping plate that remains in place must be loosened till so far that the clamping plate still remains firmly attached (fig 16). (**Watch out for your safety!!!! These 2 bolts still have to be 5 half turns in the thread. Do this carefully and by hand (fig. 15).** The weight of the cylinder will be resting on this clamp during further disassembly.)



The cylinder will generally remain hanging in the fixed clamping plate. To release the cylinder, you can use a tire iron or crow bar and push the cylinder loose out the clamp (fig. 17).



2 persons need to support the cylinder when removing it. When supporting the cylinder the last clamping plate can be removed. Then the cylinder can be lowered and removed. A sideways movement needs to be made to pass the hydraulic pipes, that run underneath the cylinders (fig. 18).



Mounting the new cylinder

Prior to assembly, all the clamping plates must be cleaned with a steel brush and, in particular, the wire in the clamping plates. The tread on the bottom of the cylinder and the thread on the piston rod must be cleaned also with a steel brush before mounting the cylinder. Now grease all the clamping plates with copper grease. Also grease the thread of all the M16x100 bolts beforehand. Equip all new bolts M16x100 of the clamping plates and the bolts M16x90 of the piston rod bearing with a top washer with long tab (fig. 19 en 20).



With the help of two people the new cylinder can be hung on his place now. Again you will have to make a sideways movement to get past the hydraulic pipes that run underneath the cylinders. First mount the clamping plate that has been left to the last at demounting by hand. The cylinder can hang now.

Think of your safety: make sure that these two bolts are screwed in deep enough into the threaded hole, so the cylinder is hanging safely!!

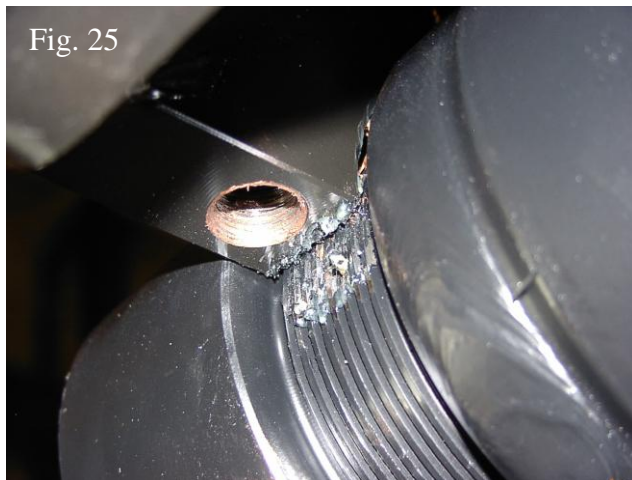
This clamping plate must not yet be firmly tightened (fig. 21 en 22).



Place all the clamping plates back and tighten them with hand. Mount the guide block with the new M16x90 bolts and this also must be tightened by hand (fig. 23 en 24).

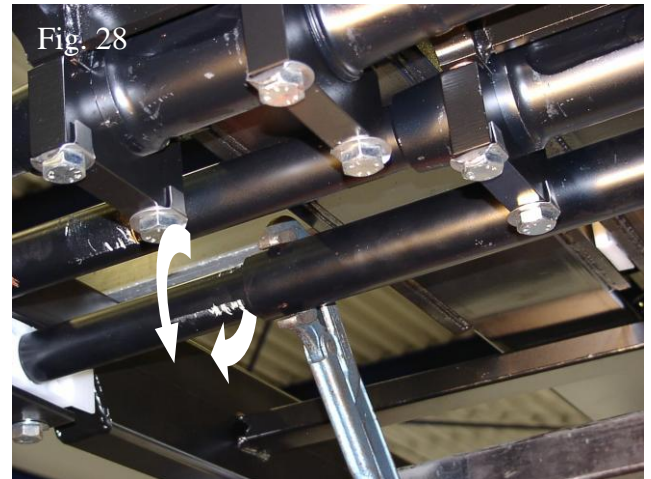


Now the cylinder should be given its proper place in the clamping plates. The cylinder itself should be in about the same place as the cylinder next to it. Compare for this the front surfaces of the cylinder lids (fig. 26). If all cylinders are replaced they should line up, but the first cylinder should in the first place be situated in about the middle of the thread of the cylinder. If the cylinders have the correct position, the clamping plates can be slightly further being tightened. But still not completely be fastened (fig. 25 en 26).



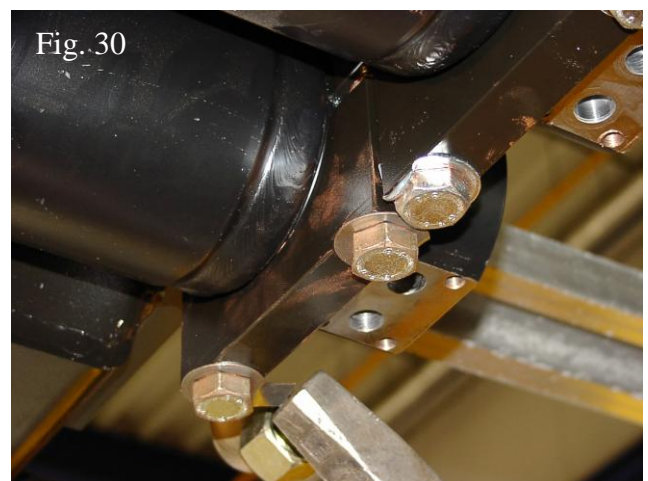
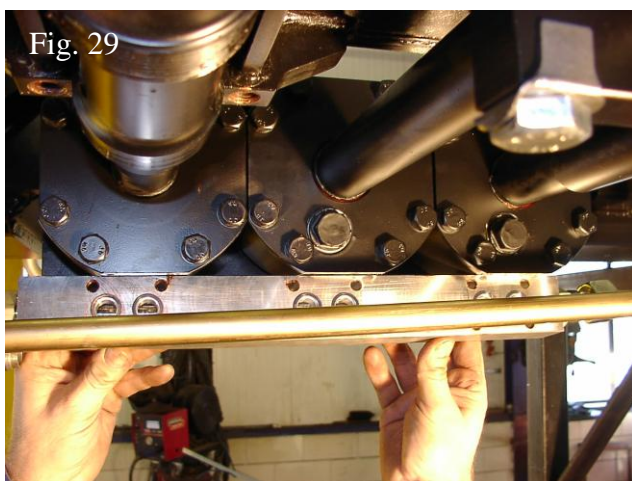
The rod of the cylinder will have to come in the correct position. That means that the tread of the piston rod is more or less in the middle of the fixed clamping plate of moving cross member. Also, the welding of the sleeve must be horizontal (fig. 27). With a pipe wrench the piston rod can be turned so you can move the piston rod with the help of the thread.

Put the pipe wrench not on the piston rod itself, but on the sleeve or the strengthened tube fitted around the piston rod (fig. 28). If the thread is in the right place you can move the sleeve back and forward so the thread falls into the thread of the fixed clamping plates in the right order (fig. 28). The securing is done later.

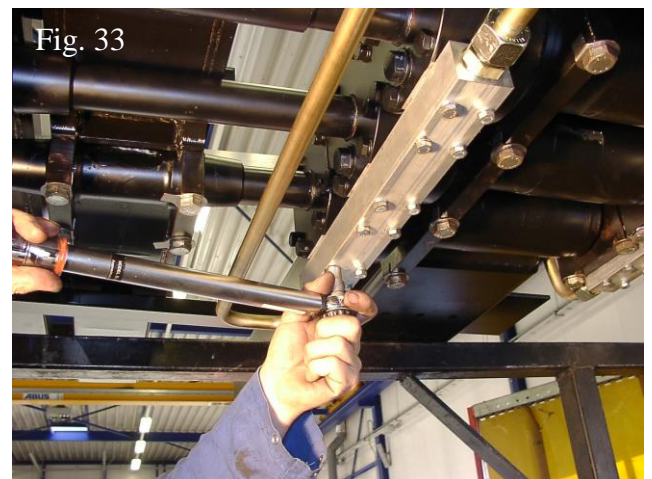
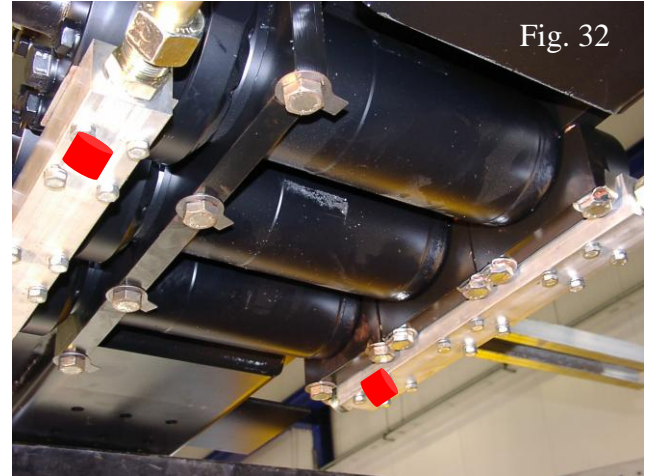
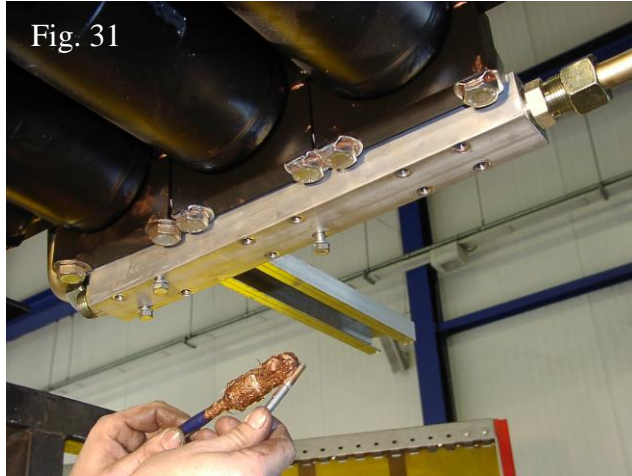


Now the surfaces of the cylinders to which the common rail is mounted need to be aligned. You can use the common rail itself. When the surfaces are not aligned, the cylinder can be rotated with the help of wrench 24 mm. on the plug of the valve until the cylinder is aligned (fig. 29).

The clamping plates of the cylinder(s) can now be fixed with a air tacker and afterwards the bolts must be tightened with a torque wrench at 150 Nm. With a hammer turn over the top washer with long tab of the rear clamping plate before mounting the common rail, this can not be done anymore when the common rail has been mounted. (fig. 30).



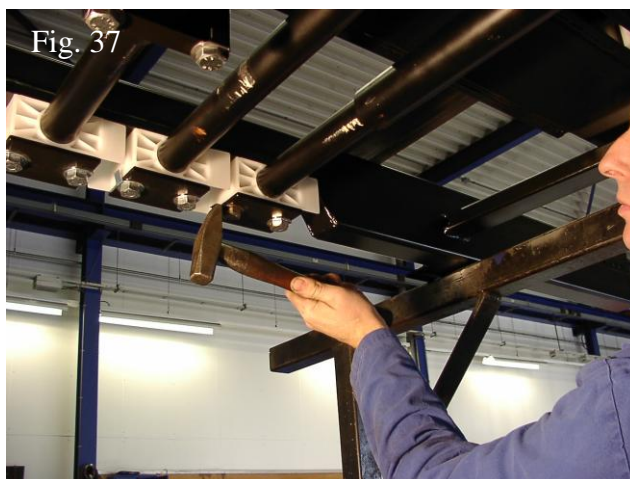
Now the common rails can be mounted with the new seals. Pay attention to that the plugs in the common rail are at the right spot (fig. 32). (The common rails are also asymmetrical of shape). Put the spring washers on the bolts of the common rail and grease these a little with copper grease. The bolts (24x) of the both common rail must now being tightened at 30 Nm (torque wrench 13, fig. 33).



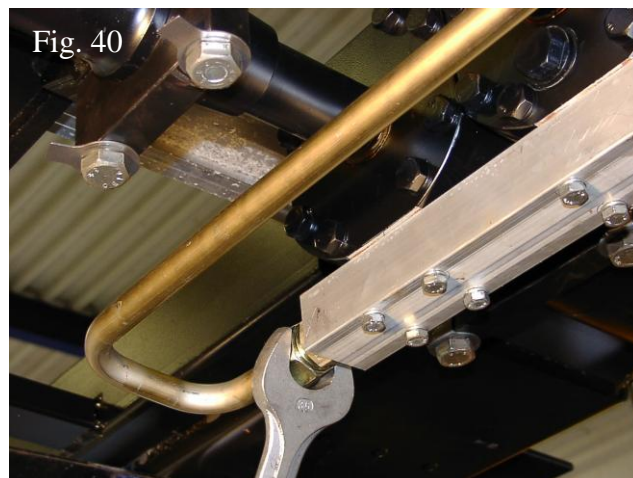
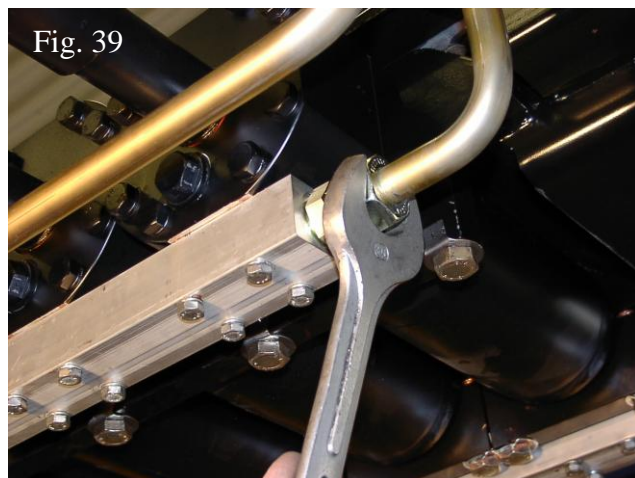
Now all the remaining clamping plates can definitively be fastened. Make sure that the clamping plates are positioned about horizontal. After the bolts are being fastened with a air tacker these need to be fastened with a torque wrench. The bolts of the clamping plates at 150 Nm (fig. 34 en 35) and the bolts of the guide block with a torque of 100 Nm (fig. 36).



To prevent the M16 bolts loosening the other tab washers with long tab also need folded over with the help of a hammer. The long side of the tab washer needs to be bend over the “fixed base” by hitting it with a hammer. The edge of the tab washer must be bent over with the help of a chisel and hammer and turned against the head of the bolt (fig. 37 en 38).



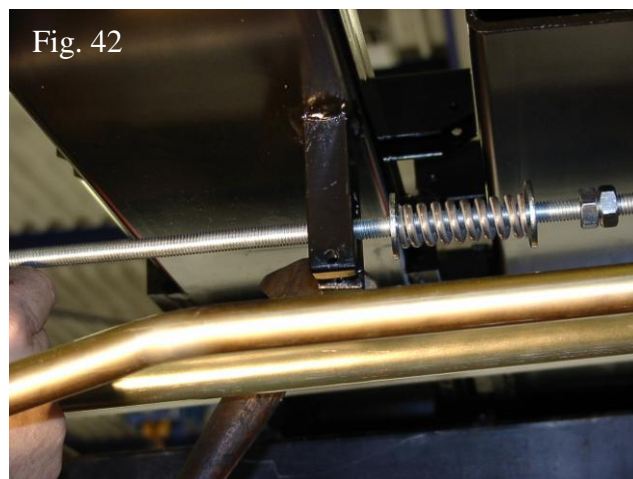
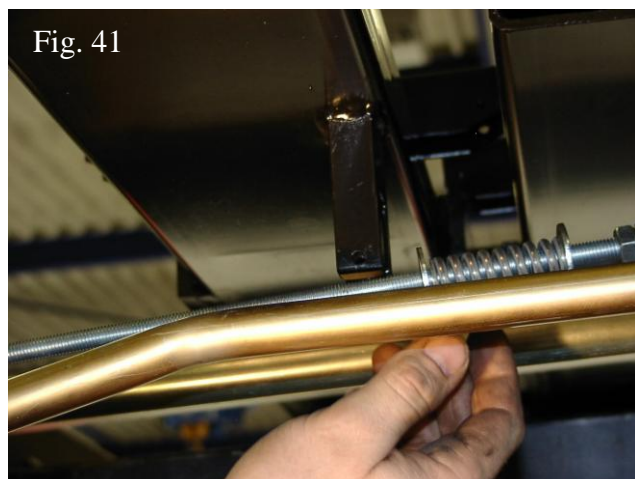
Now the pipes can be placed back and the coupling screws must be sufficiently tightened to prevent leakage (fig. 39 en 40).



If the reason for replacing the cylinder were damaged seals, then it is advisable to check the filter element and if necessary replace it.

After this the spring can be placed back onto the threaded rod of the control valve.

This is easy to do, push the threaded rod in by hand. Connect the hydraulic hoses and electric wiring between truck and system. Start the pump and system. The command lip around the threaded rod will move directly towards the headboard. If the command lip is far enough stop the system and place the steel spring on the threaded rod. Then place back the roll pin (or bolt) in the command lip to keep the threaded rod on his place (fig. 41 en 42).



After this a full function test can be done. That means test unloading and loading. If the reason for replacing the cylinder(s) were damaged seals, then it is advisable to check the filter element and if necessary replace it.

If everything is connected, then test whether the system is running well. Test both functions, loading and unloading for several strokes and check if there are no leakages.

Guarantee

If you are of the opinion that the replacement in question is guarantee, then you must comply with a number of conditions. The defective component must be returned to us by prepaid post. A copy of the Cargo Floor packing slip for the new component must be included in the package. This packing slip must include the following information: the Cargo Floor system number, the number of articles which are being returned with their associated article numbers and a description of the nature of the failure. In addition you must include the name and the telephone number of the contact person within your company. If these conditions have not been met within one month of receipt, then we can no longer process your guarantee application