Legras industries®

KIT FMA® CF500 SL2

OPERATION AND MAINTENANCE MANUAL

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Purpose of this manual :

This operating and maintenance manual contains the information needed to fully understand and properly use the CF 500 hydraulic kit. This manual describes the operation of the kit, two commands are described in this manual the command 'E' is the standard the other is an option. The information contained herein are intended for qualified personnel (1). If in doubt about the correct interpretation of the instructions, contact the manufacturer to obtain the necessary explanations.
This manual is part of the trailer and should be kept intact in an easily accessible location for future reference.
In case of transfer of ownership, give it to the new user.
For ease of reference, the manual has been divided into chapters identify key concepts.
For a quick search of the subjects discussed, consult the descriptive index.

Liability exclusion :

The manufacturer considers discharged from liability in case of:

- Improper installation or not satisfied with current legislation;
- Use of the machine by untrained / authorization;
- Total or partial non-observance of instructions;
- Lack of maintenance;
- Modifications or unauthorized intervention;
- Not admitted uses;
- Use of non-original spare parts or not specific to the model;
- Ambient exceptional events.

Instructions for calling a service technician assistance :

In case of operating anomaly, breakdowns that would require the intervention of skilled technicians and requests for spare parts,please fax, email or phone directly to SAV LEGRAS.

S.A.V. LEGRAS
Tél.: 03 26 53 32 60
Fax: 03 26 51 87 33
E-mail
sav@legras.fr

Disclosure manual :

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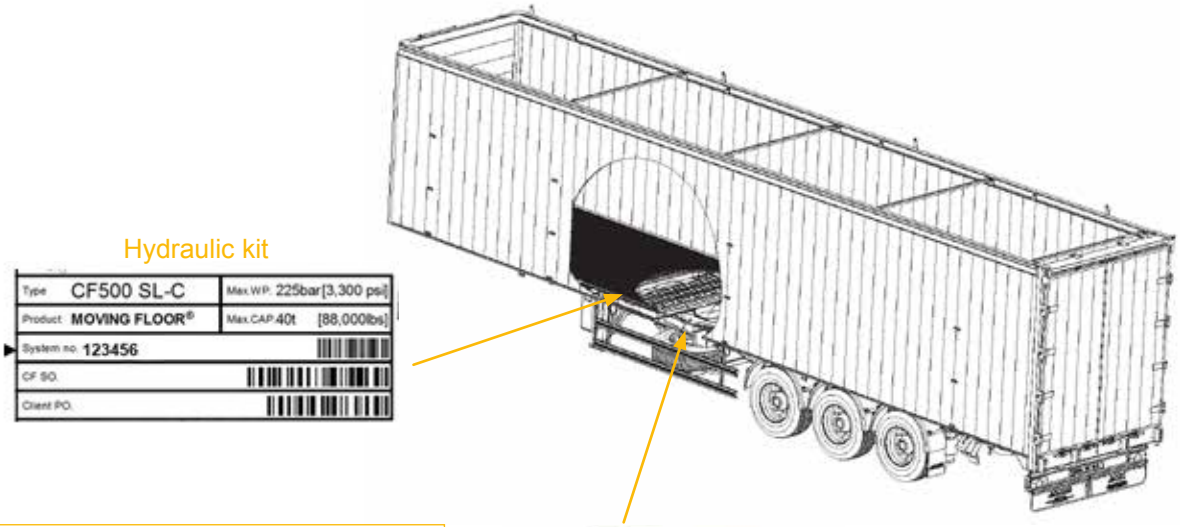
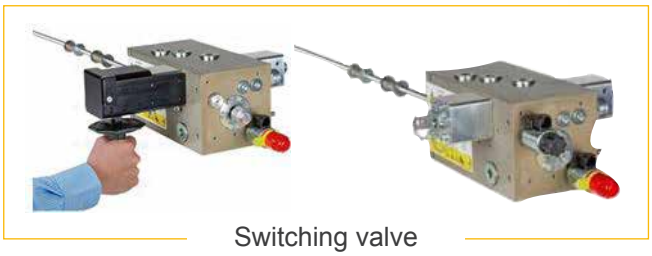
The use of this instruction manual for purposes not provided is prohibited without the written permission of the manufacturer.
Any violation will be prosecuted in terms of the law.

(1) These are the people who have the experience, technical preparation, knowledge of norms and laws for performing necessary operations, to recognize and avoid possible danger during handling, installation, use and maintenance of the machine.

B) Presentation of hydraulic kit FMA

B.1) Location

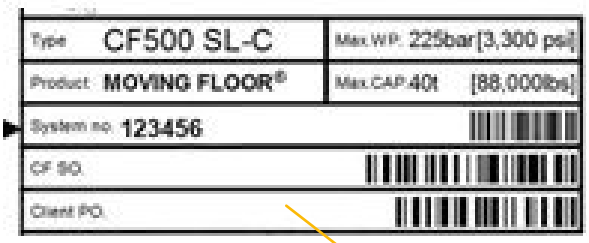




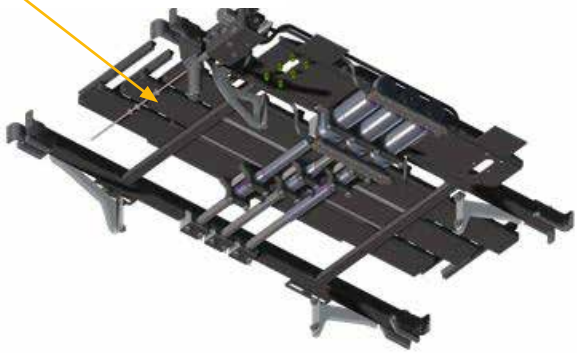
Switching valve

Control kit

B.2) Identification



TYPE : System type
SYST. NR. : Sérial number
PROD NR. : Production number
MAX.WP. : Maximum workload
MAX. CAP. : Maximum load
PROD. YR. : Production year



Control E with load/stop/unload via a switch. Fitted as standard with a manual control in the form of a single red «Cargo» rotary selector. (Option: radio remote control)

B.3) Technical data
B.3.1) Technical specifications

System operation: Completely hydraulic, with there double-action cylinders.
System control: Completely hydraulic mechanical.
Operation control: Fully automatic loading, stop unloading
Or manually loading, unloading electrically (on/off)
(Optional remote control)

Bore (mm): **100 [4"]**
Piston rod diameter (mm): **45 [1.77"]**
Stroke (mm): **200 [8"]**
Cylinder volume (ltr.): **2.82 [0.75 gal]**

Oil volume per cycle (ltr.): **8.46 [2.25 gal]**

Pressure relief valve setting max (bar): **225 [3,300 psi]**

Strokes per minute with advised pump capacity : **13**
Speed (mtr. / min) with advised pump capacity : **2.6[8.5 ft./min]**

Advised pump capacity :
Flow (ltr./min): **110 [29 gpm]**
Pressure (bar): **250 [3,625 psi]**

Max. pump capacity :
Flow (ltr./min) : **130 [34.5 gpm]**
Pressure (bar) : **250 [3,625 psi]**

Speed at maximum pump capacity (mtr. / min.) **3.1 [10 ft./min]**

Control valves : 24V DC (Applies only to E and B control.) (12 V DC Option)
Throughput variation : Completely variable speed by use of oil flow determined by the revs of the motor or by various pumps. Pay attention to the diameter of the choke.
Drive : Use of the PTO/pump on the truck, an electro-hydraulic aggregate or an hydraulic aggregate with an external combustion engine.
Filter : Pressure filter type : high-pressure 10 micron

Pressure piping : Ø 20 x 2 feed through 16 mm [Ø 0.79" x 0.08 feed through 0.63"]
Return piping : Ø 25 x 2,5 feed through20 mm [Ø 1" x 0.08" feed through 0.79"]
Oil ISO VG 32 : Shell Tellus T32 or ESSO Univis 32 (or equivalent).
Only use biological oil after agreement by Legras Industries.
Biological oil : A biological oil of the type synthetic ester (HEES) can be used as standard with the hydraulic kit system.
We advise you not to use other types of biological oil.
Oil temperature : max. 70 ° C [158 °F]

Estimated unloading table de chargement:

Engine	Pump output	Speed*	Unloading time
550 tr/m	60 l/m	1.4 M/min	9-10 minutes
750 tr/m	80 l/m	1.9 M/min	7-8 minutes
1000 tr/m	110 l/m	2.6 M/min	5-6 minutes

*Above specifications are for a Cargo Floor CF500 drive unit with 100 mm [3.9»] bore cylinders. These only are approximate meters per minute and should strictly be used as a reference.

B. 3.2) Pump specifications

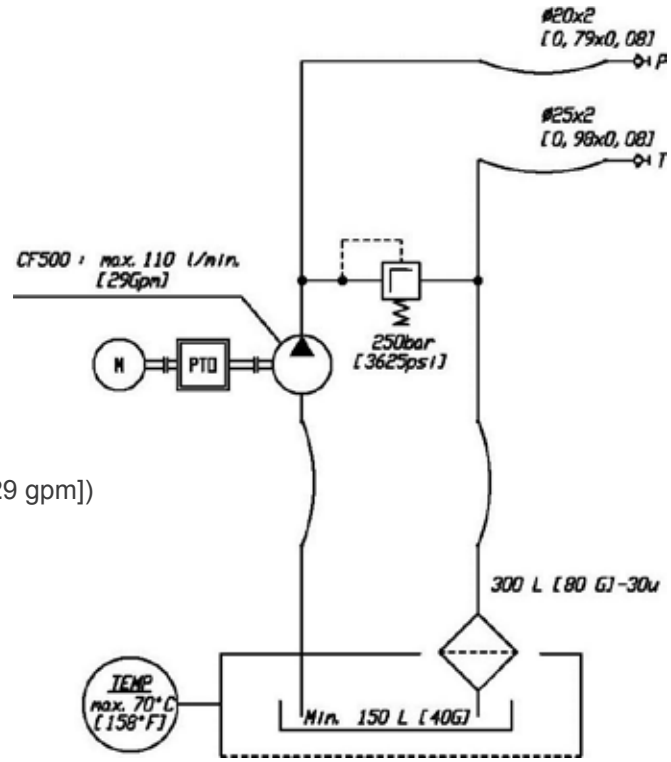
The pump unit used to power the hydraulic Kit FMA system must comply with the following specifications:

WARNING ! Verify which unit is fitted !

Pump capacity (in ltr./min) : **110 [29 gpm]**
Max pressure (bar) : **250 [3,625 psi]**

Oil tank, contents of min. 150 ltr:[40 gallons], provided with:

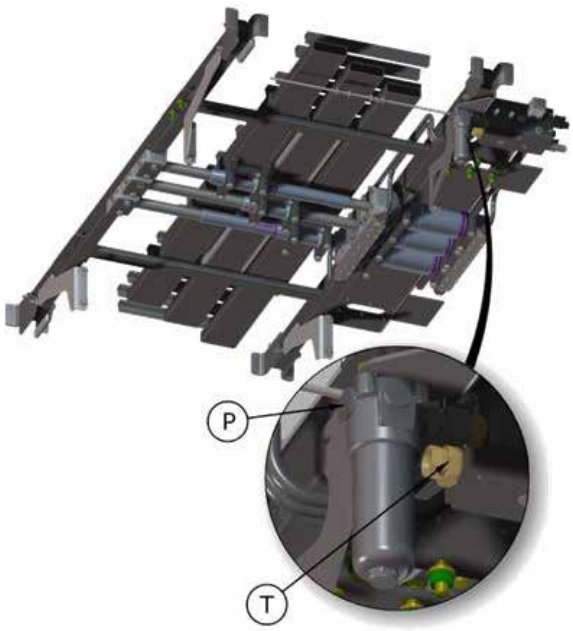
- return filter (30 microns) 300 litres/min. [79 gallons].
- tank cover
- oil level glass
- draining tap
- filling cap



Pipes complying with the following requirements :

- Pressure line min. 20 x 2 mm. [0.79” x 0.08”]
- Return line min. 25 x 2 mm. [1” x 0.08”]
- Quick detachable couplings (suitable for 110 l/min. [29 gpm])

The pump volume determines the transport speed ;
The pressure determines the force applied to the system.



C) Safety instructions

Importance guidance and advice for the commissioning of the loading / unloading system

Before putting the Kit FMA loading and unloading system into operation, follow the recommendations provided below and check the specified checkpoints to avoid damage to the Kit FMA® system and the vehicle.

Please review the important instructions before operating the Kit FMA system and loading cargo into the vehicle. Likewise, before loading cargo, check the operation of the various control switches/valves to familiarise yourself with how the system works. We strongly recommend that you perform these checks when picking up the vehicle from the dealer so that your skilled supplier can answer your questions and provide you with any necessary advice or guidance you may require.

IMPORTANT:

- Always check that the selected loading or unloading direction is actually activated and occurring.
- If the system fails to start, turn off the Kit FMA 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 Kit FMA system and/or vehicle.
- After use, turn off the Kit FMA 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 Kit FMA system comes standard with an operating manual, but is this has not been supplied, please contact your dealer or download it from the official Legras industries website: www.legras.fr.

1) Always open the vehicle's doors before turning on the hydraulic pump.
WARNING: Build-up of pressure against the doors can open them with force. Also some of the cargo can fall out of the vehicle by itself after opening the doors, therefore KEEP CLEAR AT ALL TIMES, product could fall on top of you! Both could result in damages and/or injuries! It is always advisable to use the pneumatic door lock, if provided.

2) 1. Check that the vehicle's (quick-detachable) couplings are properly connected to the P (Pressure line) and the T (tank/return line). 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).

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

3) The vehicle (pump) must be fitted with a pressure relief valve that is set at the maximum pressure according to the system, see the technical specs. Pressure may not exceed the maximum adjusted and allowable operating pressure of the Kit FMA system. An incorrectly adjusted pressure relief valve can cause damage to the Kit FMA system and the vehicle.

4) 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.

5) 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 Kit FMA system and the vehicle.

6) During operation of the Kit FMA system, all existing STOP and control knobs/levers must be freely accessible.

7) The pressure filter element needs to be replaced at least once a year. If the couplings between the vehicle and the Kit FMA 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. Failure to replace a filter element on time may cause damage to or malfunctions in the Kit FMA system and the vehicle.

8) Moving parts must be shielded. Always maintain at least 10 meter [30'] distance from the Kit FMA system when it is in operation.

9) In the event of malfunctions/maintenance work, you may approach the Kit FMA® system only if all equipment, including the hydraulic pump, have been shut off, and the Cargo Floor system and the electro-hydraulic aggregate have been disconnected from the power supply and pump.

10) Regularly check and, if necessary, tighten any loose bolts that secure the aluminium floor profiles to the Kit FMA system. All such checks can simply be performed inside the vehicle itself by qualified personnel. The Kit FMA 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 Kit FMA® system. During this check, a second person must also be present to switch off the Kit FMA® system

11) Check that the minimum required amount of oil is present 150 liter [40 US gallon]. Too little oil in the hydraulic tank will cause damage to both the pump and the Kit FMA® system.

12) Do not allow the number of strokes to exceed the maximum allowable 16 power strokes per minute. A higher number of power strokes can cause damage to the Kit FMA® system and the vehicle.

13) Hydraulic lines, couplings and hoses with very small diameters will cause damage.

14) If the Kit FMA® system fails to start or operates incorrectly, the Kit FMA® system and the hydraulic pump must be shut down immediately. Subsequently, check all the checkpoints before switching the pump and the Kit FMA® 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 !

15) The cause of failure or malfunctioning of the Kit FMA® system may also be due to other hydraulic components that may or may not be connected to the same hydraulic circuit of the Kit FMA® system.

16) 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 Kit FMA® 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.

17) Because the electrical power supply of the Kit FMA® 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.

18) Maintenance and repairs to the Kit FMA® system may be only performed by qualified personnel. Use only original Cargo Floor components to ensure maximum reliability and long service life.

19) 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 Kit FMA® system and the vehicle.

20) Check that the correct type and quality of hydraulic oil is used. The use of incorrect oil type may cause damage to the Kit FMA® system and the pump.

21) Check the vehicle for correct voltage. Make sure there are no open electrical connections. A faulty electrical system can cause damage to the Kit FMA® system and the vehicle.

22) 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.

23) Use of the Kit FMA® system by unqualified personnel can cause damage to the Kit FMA® system and the vehicle.

24) Excessively high oil temperatures will cause damage to the Kit FMA® system and other hydraulic components, such as the pump.

25) 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 Kit FMA® system.

26) To prevent damage to the floor profiles, exercise caution and limit the dump height as much as possible. The transport of unauthorised goods, such as aggressive, corrosive, hot, hard, sharp and viscous materials may cause damage to the Kit FMA® 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.

Forklift trafficable. In principle, the floors are completely trafficable and can be driven over by forklifts, always check to see what we are allowed loads on your trailer.
Overloading will cause damage to the Kit FMA® system and the trailer.

Always return emergency control(s) to their original non-activated position after use.

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 Kit FMA® system and the other hydraulic components.

WARNING: TOUCHING OVERHEATED OIL AND COMPONENTS CAN CAUSE BURNS AND INJURIES !!

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.

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 you supplier about the optimizing possibilities or in order to prevent problems occurring.

In an EMERGENCY, the kit can be stopped as follows:

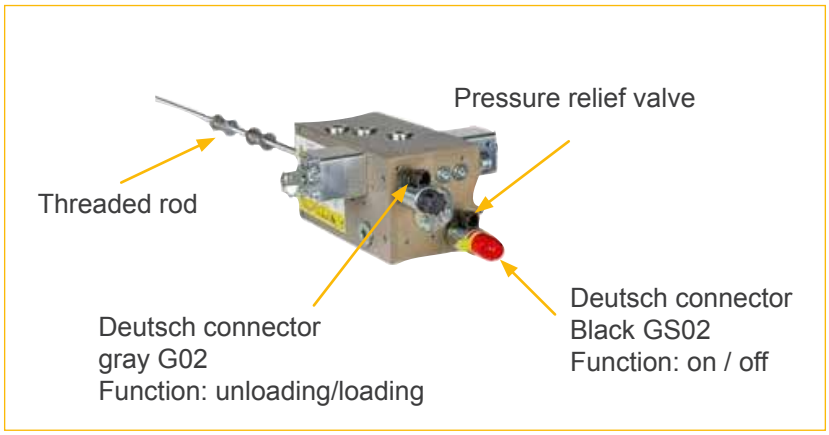
- Press the stop button on the wired remote control.
- Turn all switches to «0».
- Place the control valve lever in the middle position (controls B and A only);
- Switch off the pump;
- Switch off the main power switch;
- Switch off the electro-hydraulic unit.

D) To put the system into operation

The system is modular and can be presented in the following Models :

“E“ Control valve :
Control with loading / stop / unloading over a switch. As a standard provided with a manual override by means of a unique red “Cargo” rotary switch. (Optional: radio remote control.)

“E” Switching valve



Wired control
Mounting in the compartment

L1E Switch
Main control

Manual control using a single red rotary switch.

L1E Switch
Emergency control

Remote control (option)
Mounting in the compartment

Remote control L3E

Switch L1E bis
Emergency control

Option

Wired control

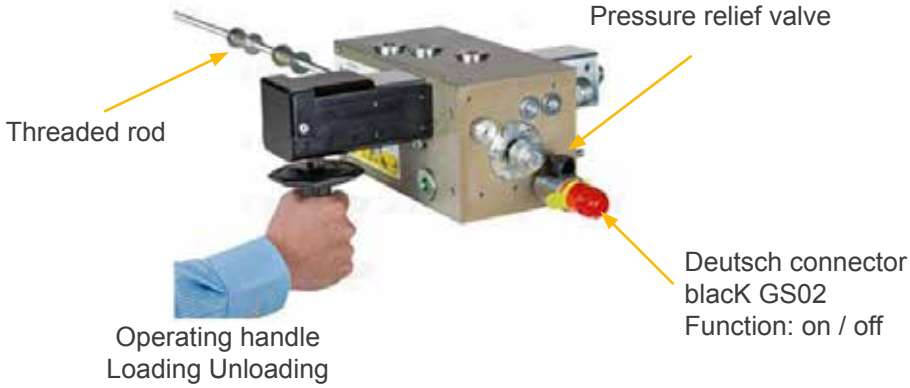
Unit socket

Control valve B :
Control with loading / stop / unloading over a manual handle, with unique «S» detent mechanism in order to determine loading / stop / unloading position. On / off switching over a switch.
As a standard provided with a manual override by means of a unique red rotary switch

L4E Switch

L5B Switch
Main control

“B” Switching valve



D.1) Description of the command “E” (without manual control handle)

Switch on the pump in order to obtain pressure in the floor system. Now the system can be started (Selec the right system of operation).

1 : L1 E switch (Emergency control)
2 : L2 E switch (Main)
3 : Commande à distance Radio commande L3 E remote control (option)

Make sure the lamp is illuminated! (If the FMA® system is powered by pilot lights).

D.1.1) Control stickers “E”

L1E Switch

L2E Switch
Main control

L1E Switch
Emergency control

D.1.2) L1E Switch **(Emergency control)**

The L1E switch is the permanent switch which is mounted in the control box and has 3 switch positions :

(Pos 1) = Loading
is activated when you turn the rotary switch to the left.

(Pos 0) = stop
the rotary switch automatically returns to this position when the switch is released.

(Pos 2) = Unloading
is activated when you turn the rotary switch to the right.

Red button: On the receiver a red stop button is mounted, by pushing this button you can stop the system in case of emergency. By pulling it the system will be activated again. Do take care, with reference to the accessibility, that when using a remote control, the door of the control box is opened so the red stop button can be operated.

In the interest of safety this switch is fitted with an automatic spring-back for positions 1 and 2, so that it always returns to the central “0” position. This is necessary to prevent conflict situations arising when using the L2E remote control.

Mounted below the L1E switch, is a connector to which the L2E switch or the remote control can be connected without the need for any adjustments.
Normally, the L1E switch should only be used if the L2E switch is defective.

If, after the initial assembly, the switch does not work it is probably because the connections for the + (brown) and the – (blue) have been swapped around. The supply cable contains a blocking diode which prevents damages arising from the + and - from being connected in reverse

Reminder :
A 2 Amp fuse has been mounted in the LE1 switch. Never mount a fuse over 3A, this can cause damage to the electrical installation.

D.1.3) L2E Switch (Main control)

The standard supplied remote control L2E, with 10 meter [30'] of cable, is used for the day-to-day control of the system.

The L2E switch is fitted with the following control buttons :

Switch button (rotary). C'est un bouton rotatif à trois positions.

(Pos 1) = Loading

is activated when you turn the rotary switch to the left. The button will automatically go back to the middle position when the button is released.

(Pos 0) = Stop

(Pos 2) = Unloading

is activated when you turn the rotary switch to the right to the stop position. This position is provided with a position lock.

Red button: the stop button. Press the button to activate it, and deactivate it by turning it to the right, the button will go back by itself.

Before you can activate another selection function, you must first cancel the previous selection function.
The **L1E** switch has a plug connector, which can be inserted into the connector of the **L2E** switch and screwed tight.
To disconnect this, the duct must be unscrewed, after which the plug can be pulled out. Normally, this plug should always be connected to the connector.

D.1.4) Remote control option

A radio controlled remote control is available as an option This incorporates
From a receiver which has a plug connector which can be inserted into the connector of the L1E switch and screwed tight.To disconnect this the duct must be unscrewed, after which the plug can be pulled out. Normally, this plug should always be connected to the connector.

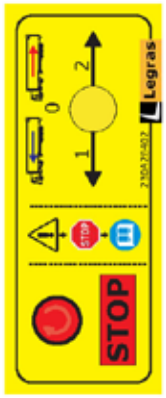
Remote control L3E

Option

Wired control

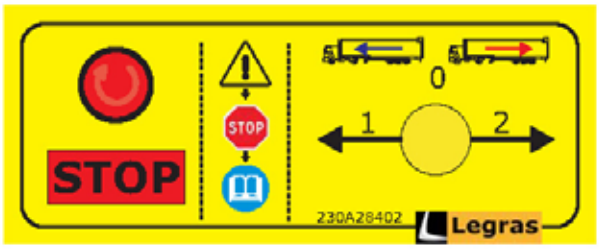
Unit socket

Switch L1E bis
Emergency control



The receiver has a red button and a lever switch used to raise the kit in the compartment.
It has three control positions with the following functions:

Red button: the stop button. Press the button to activate it, and deactivate it by turning it to the right, the button will go back by itself.



(Pos 1) = Loading
Is activated when the lever switch going left.

Pos 0 = stop
The knob automatically returns to this position when you release the button.

(Pos 2) = Unloading
is activated when the lever switch are going to the right.

Remote control L3E, This has three buttons which operate as follows :

Button n°1 (load). pushing this button the system will load, by releasing it the system will stop. (or you push the red marked stop button).

Button n°2 (Unload). By pushing this button the system will unload, by pushing it again the system will stop (or you push the red marked stop button).

Button On Off (On Off) With this button you stop the system.

In positions 1-0-2 (applies to all switches), the following magnet coils are activated (as long as the connection has been made according to the correct procedure):

Position 2 (unload): Only coil A (GS02) is activated. The coil receives 24 V DC (12 V DC).
Position 1 (load): Coil A (GS02) and valve coil B (G02) are both activated. Both coils receive 24 V DC (12 V DC).
Position 0: is off; there is no power to the coils.

The red LED of the handheld remote flashes while the button is pressed.

Configuring a transmitter

Clear All transmitters in the receiver

1. In the receiver , press the F button The LED 7 red lights.
2. Press and hold the button S. All relay LEDs light up.
3. Hold down until the relay LEDs light.

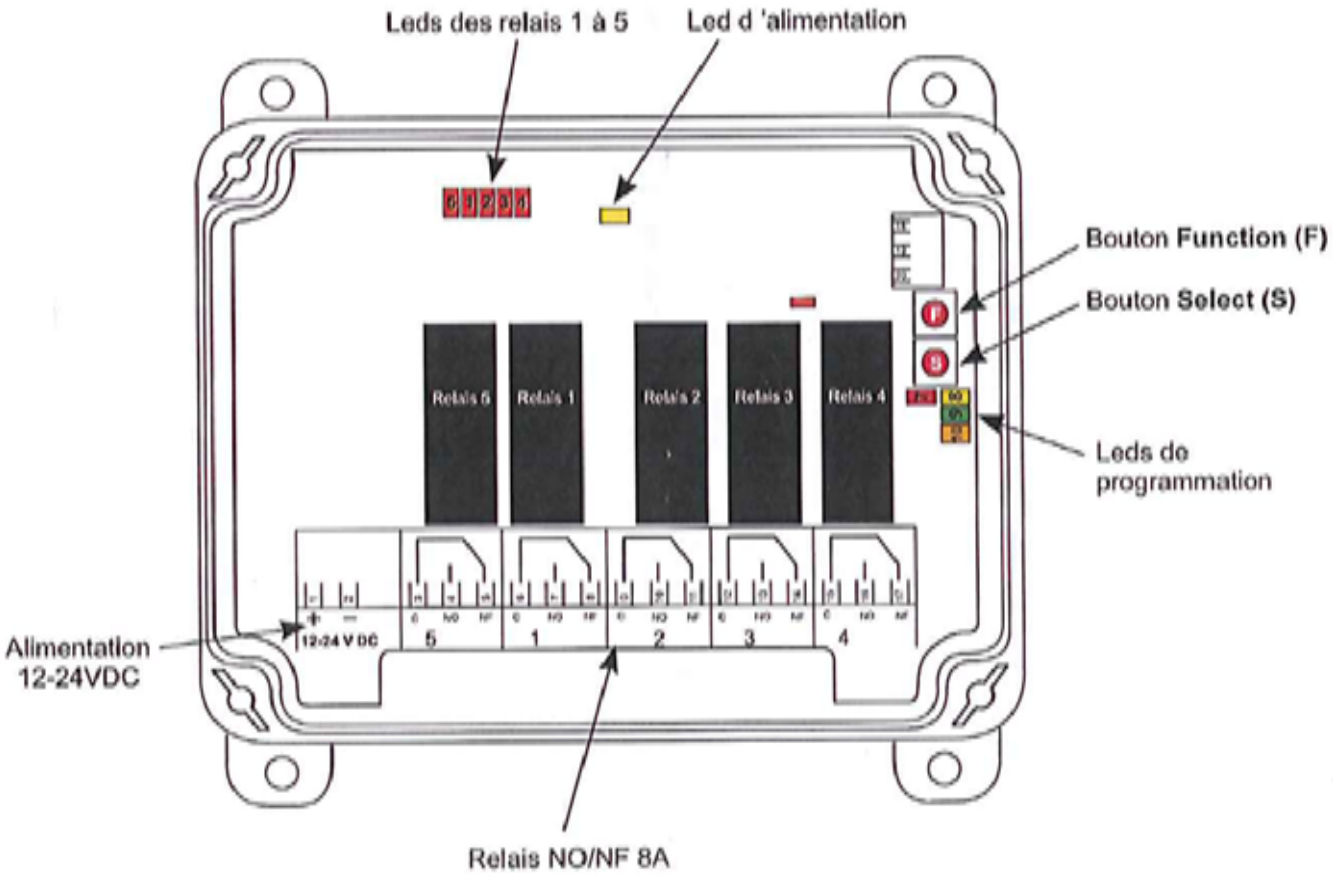
Register the transmitter in the receiver

1. In the receiver , press the **F** button The LED 7 red lights.
2. Press and hold the button **S**. All relay LEDs light up.
3. On the transmitter, press and hold buttons 1 and 2 until the relay LEDs flash 3 times.

Set the relay in bistable mode / flash

After registration, all relays are instantaneous fashion (like buttons)
To set a bistable relay (latched) follow the following method :

1. In the receiver , press 2 times the button **F**. The 8 LED lights yellow
2. Then press the **S** button The LED flashes relay 1
3. Press the **F** button to change the state of the relay (8 Yellow Led on = Bistable)
4. Press the **S** button to move to the next relay (relay Skip all out)



D.1.5) Manual override (Emergency control)

In the event of a malfunction in the electrical system the electric valve can still be operated by activating the manual control fitted for that purpose.

MAKE SURE THAT THE DOORS ARE OPEN !
When using this manual override you must always ensure that it switched back to the original, NON-ACTIVATED condition after use.

Manual override On/Off of kit FMA®.

Activation of the manual override: ON
Remove the yellow security clip and turn in (clockwise) the red button on top of the on/off GS02 solenoid till the stop.
Deactivation of the manual override: ON
Turn out (counter clockwise) the red button on top of the GS02 solenoid until the click and place back the yellow security clip. The system switch “off”.

On/Off solenoid/coil

Not activated

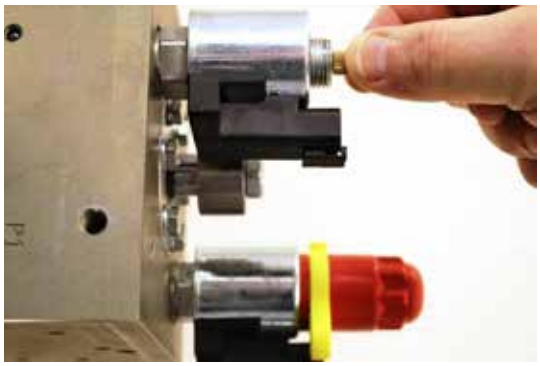
Activated Activated

Manual override Loading/Unloading of kit FMA®.

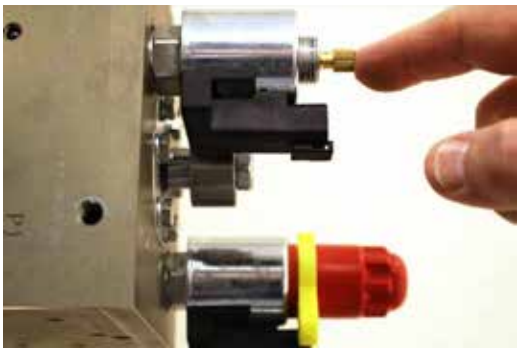
Activation of the manual override control loading (floor will only be able to load):
Screw the black cap off (pay attention to the O ring).
Turn out (counter clockwise) the screw under the cap of the load / unload G02 till the stop

Deactivation of the manual override loading:
Turn in (clockwise) the screw under the cap of the load / unload G02 till the stop. Screw the black cap back on (pay attention to mounting the O ring).

Load/Unloading solenoid/coil

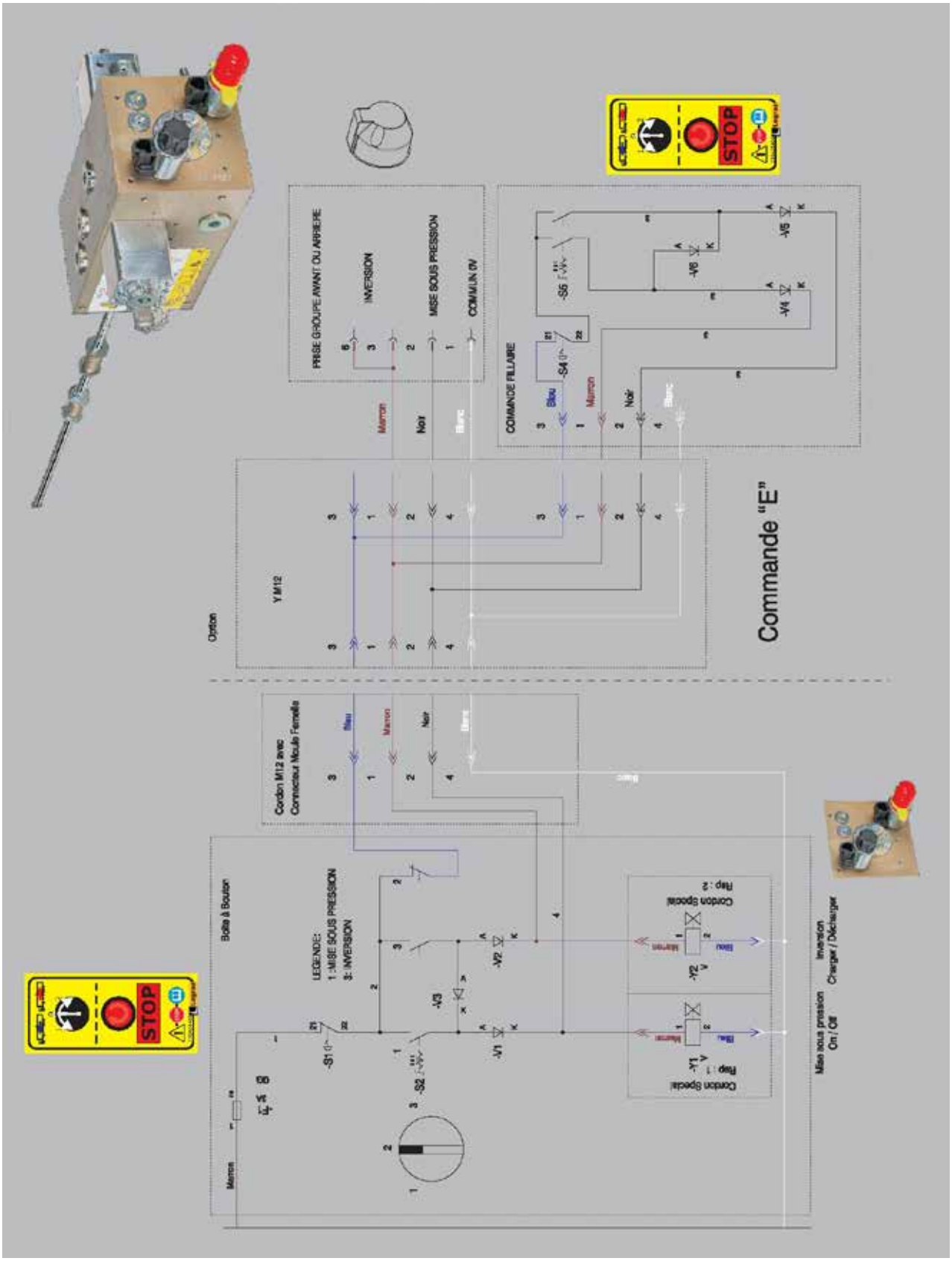


Function Unloading



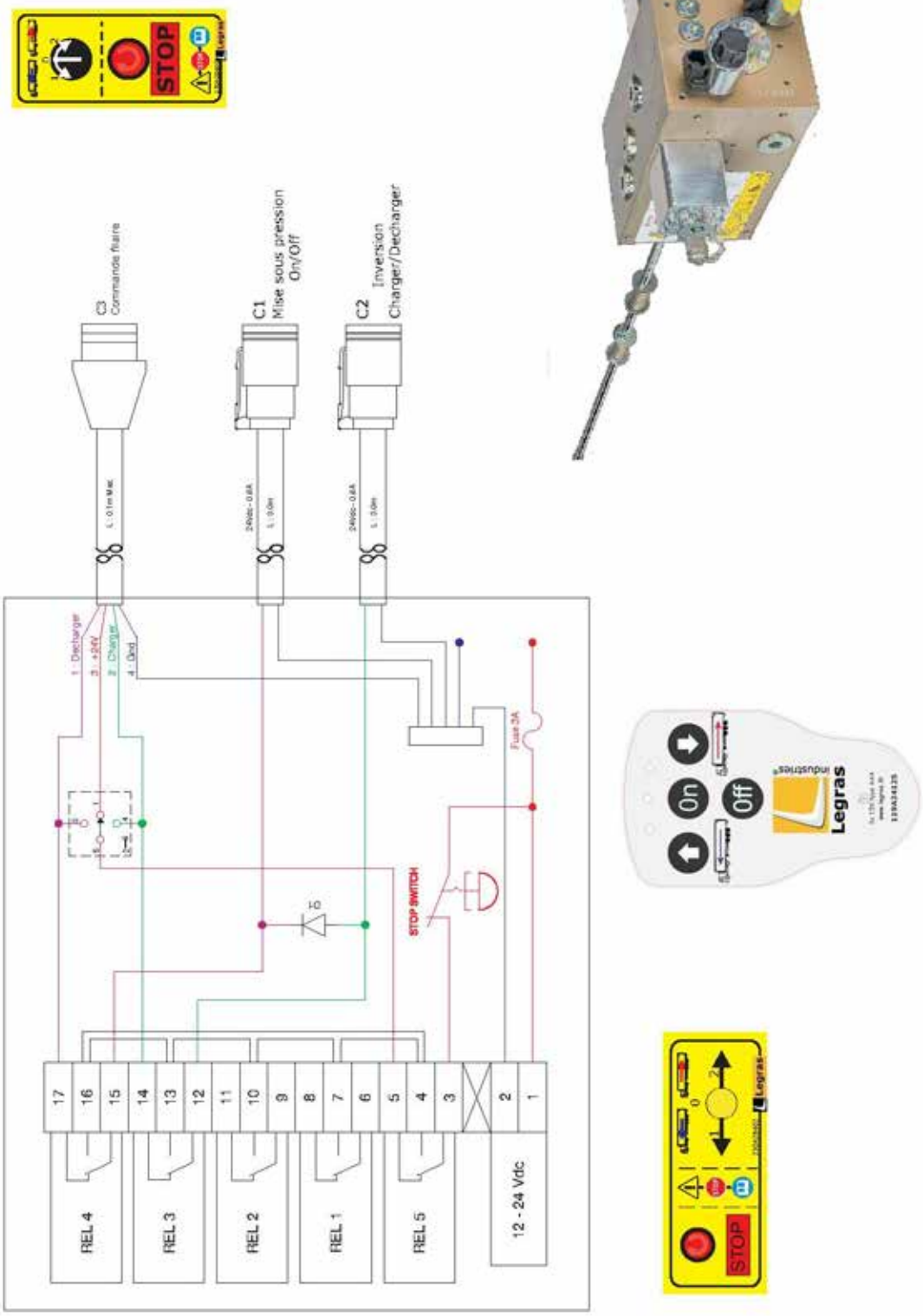
Function Loading

D.1.6) Electrical circuit diagram “E”control

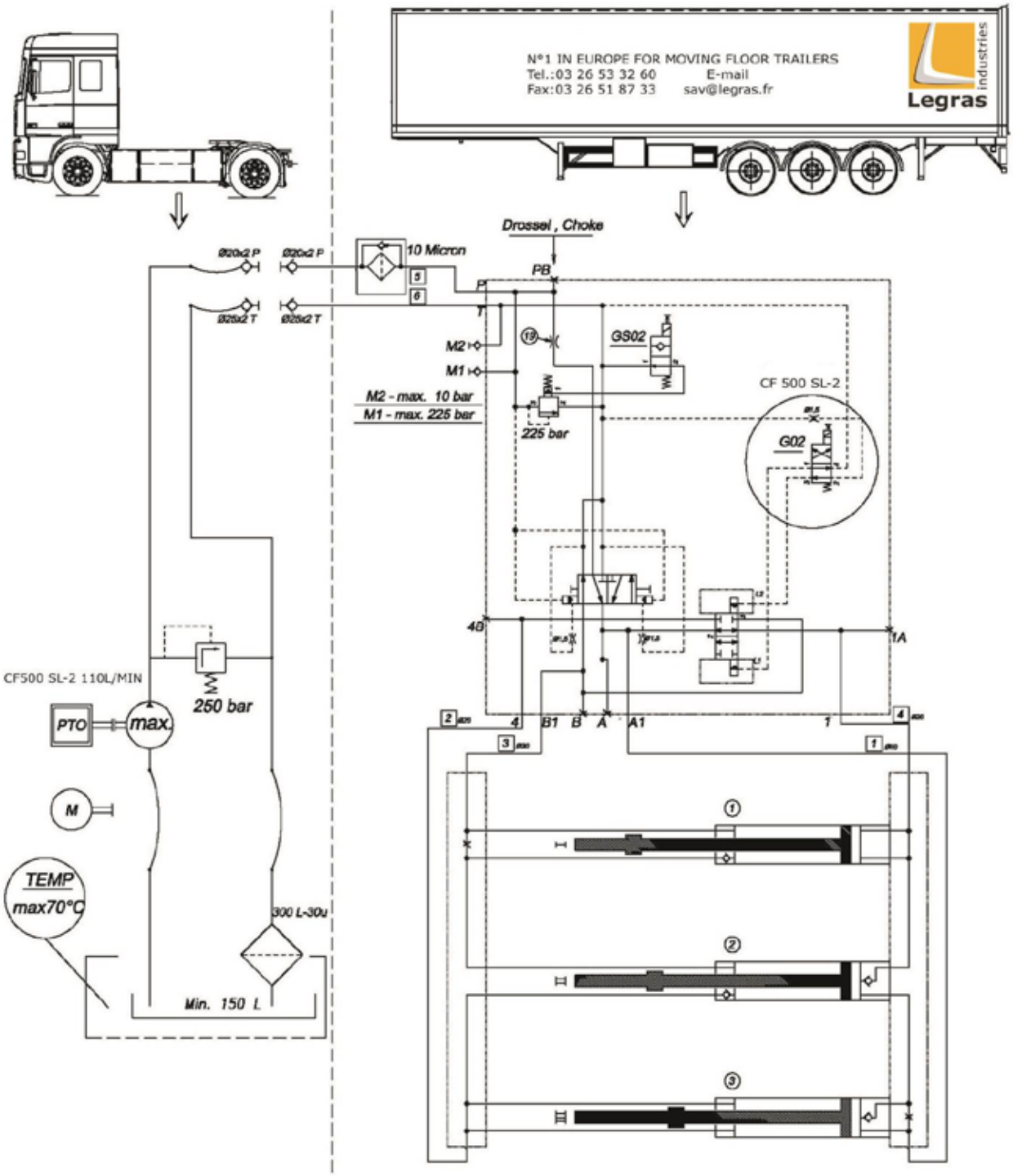


D.1.7) Electrical diagram circuit of “E”

Remote control option



D.1.8) Hydraulic circuit diagram “E” control



D.2) Description of the command ’‘B” (with manual control handle).

Once the pump is activated, there is pressure in the system. The system can then be started up (select the desired control method).
Make sure that the side marker lights are on! (If the FMA system is powered by the side marker lights).

D.2.1) Control stickers ’‘B”

Switch L4B

Switch L5B
Main control

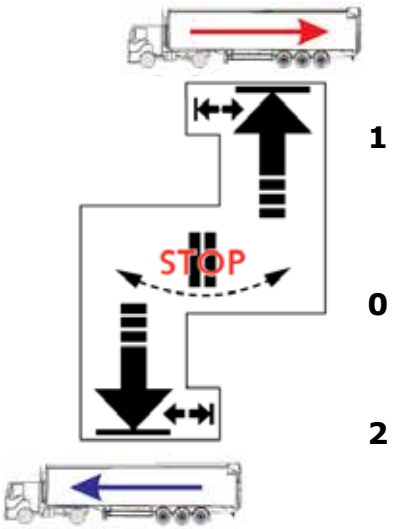
Operating handle
Loading/Unloading

Deutsch connector
noir GS02
Function: on / off

D.2.2) Loading – Unloading function

The loading or unloading modes can be selected using the handle located on the control valve (see the illustration).

The position of the handle
1) handle pushed in; floor will unload
0) handle in the middle position; floor stops
2) handle pulled out; floor will load



D.2.3) Switch L4B

The L4B switch is the permanent switch which is mounted in the control box and has 3 switch positions with the following functions :

Middle position = STOP
The rotary switch automatically returns to this position when the switch is released.

= ← ON
From this position the switch will go back to the stop position when released.
= → ON
From this position the switch will go back to the stop position when released.

Red button: is the stop button. This is activated by pushing it in and deactivated by turning it

In the interest of safety this switch is fitted with an automatic spring-back for position 1 and 2 , so that it always returns to “0” position. This is necessary to prevent conflict situations arising when using the L5B switch.
Mounted below the L4B switch, is a connector to which the L5B switch can be connected without the need for any adjustments.
If, after the initial assembly, the switch does not work it is probably because the connections for the + (brown) and the – (blue) have been swapped around. The supply cable contains a blocking diode which prevents damages arising from the + and - from being connected in reverse

Reminder :
Never mount a fuse over 3A, this can cause damage to the electrical installation.

D.2.4) Switch L5B (main control)

The standard supplied remote control L5B, with 10 meter [30’] of cable, is used for the day-to-day control of the system.
The L5B switch has the following buttons:

Switch (rotary). This is a rotary switch with three positions. Activating this switch the system will, depending on the position of the operational lever, start loading or unloading. When this switch is deactivated the system stops.

Middle position STOP

The switch will go back to the stop position ← ON / → ON

Red button: is the stop button. This is activated by pushing it in and deactivated by turning it

From this position, the switch returns to the 0 position if you release it.

The L5B switch has a plug connector, which can be inserted into the connector of the L4B switch and screwed tight. To disconnect this, the duct must be unscrewed, after which the plug can be pulled out. Normally, this plug should always be connected to the connector.

D.2.5) Manual override (emergency control)

In the event of a malfunction in the electrical system the electric valve can still be operated by activating the manual override fitted for that purpose.

MAKE SURE THAT THE DOORS ARE OPEN !
When using this manual override you must always ensure that it is after use always deactivated to the original non-activated position.

Manual override On/Off of kit FMA®.

Activation of the manual override: ON
Remove the yellow security clip and turn in (clockwise) the red button on top of the on/off GS02 solenoid till the stop. The system will switch “on” when the operation handle is in the load or unload position.

On / off solenoid/coil

Not activated

Deactivation of the manual override: ON
Turn out (counter clockwise) the red button on top of the GS02 solenoid until the click and place back the yellow security clip. The system switches “off”.

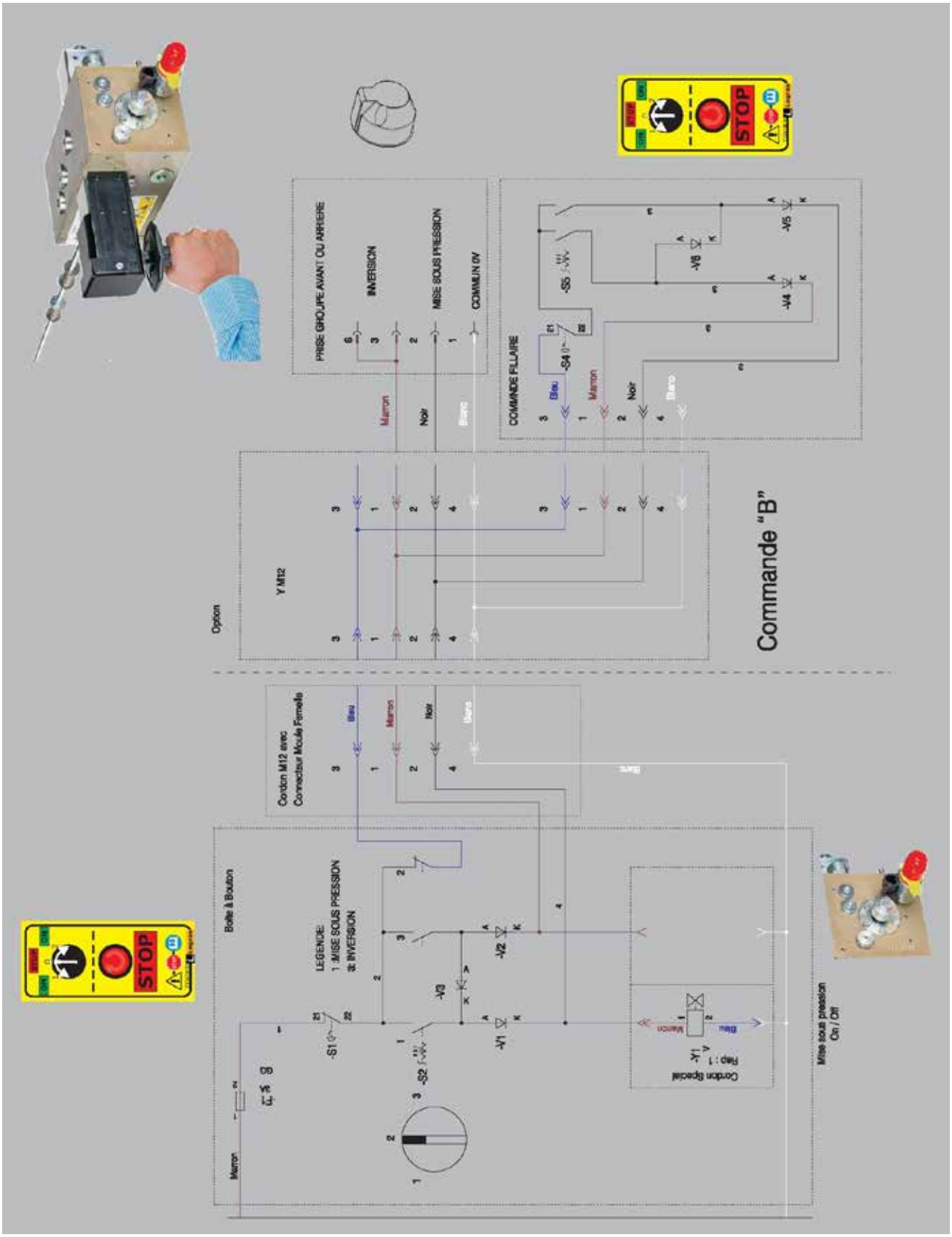
On / off solenoid/coil

Activated

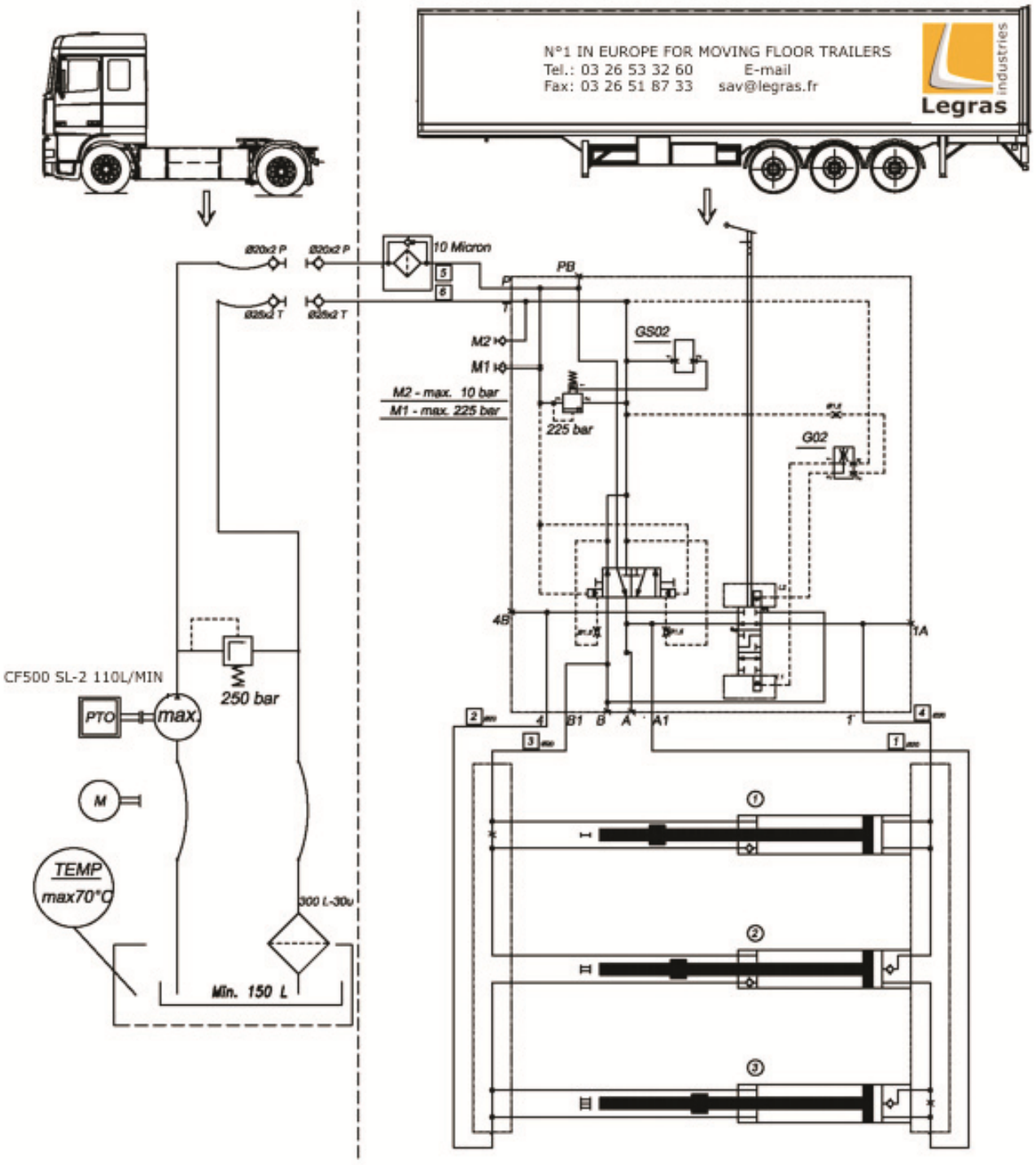
Not activated

activated

D.2.6) Electrical circuit diagram “B” control



D.2.7) Hydraulic circuit diagram “B” control



E) Maintenance

E.1) Maintenance instructions

When works require turning on the floor you should take care of that the floor can be shut down immediately at any time. Places where clamping/clasping of body parts is possible may not be approached when the system is moving. Please contact us for more details about performing the work.

Check for the end user / owner after receipt of the new trailer :

Check a couple of days after receipt of the new trailer and / or after 10 loads / unloads and after one month the connection between the aluminium floor profiles and the Kit FMA system. You do this by placing your finger half on the screw and half on the floor profile when the floor is operating.
Important: if you feel a difference in movement between the screw and the floor profile it means the floor profile is not fastened enough. The screw connection of the whole profile group this concerns needs to be renewed with new screws in accordance to the fastenings guidelines mentioned in the assembly instructions. Also the countersunk hole needs to be cleaned properly. Do not check the screw connections with the help of a allen key and do not simply just tighten the screws, the Loctite connection will be broken.
Specifications of the screws: M12 x 30 countersunk screws with hexagon socket, class 10.9, galvanized. DIN 7991 (dacromet). The torque is 100 – 140 Nm [72 – 105 lbf.ft.]

Regular checks :

To ensure that your Cargo Floor system operates reliably and has a long life, it is important that you regularly perform careful checks on the following aspects:

- Qualité de l'huile, nettoyage régulier nécessaire (tous les 6 mois);
- Replace the filter element every year, or more often if needed;
- Change the oil every 2 years, or more frequently if required;
- The level of oil in the tank. To prevent any heat release, the tank must contain at least 100 litres [26 gallons] of oil. In our experience (high flow rate, frequent loading and unloading), it is recommended that there be at least 150 litres [40 gallons] of oil. Use top quality hydraulic oil that complies with standard ISO VG 32 [directives].

Regular checks and preventive maintenance:

- Floor profiles: are they still fixed, replace screws if necessary
- Check the coupling nuts and couplings of all hydraulic components, and adjust if necessary
- Oil tank: by taking the lid off the tank, you can remove any remains (condensation, dirt etc.) from the bottom
- Return/pressure filter: by removing the filter lid/chamber you can check the filter element, or after about one year replace it
- Check the seal between the two fixated floor profiles and the moving profiles. If a margin exist in between, then adjust the fixated floor profiles, in order for the sealing to be optimal and leakage via the side walls is prevented.
  This is all necessary to avoid internal wear (of the pump/cylinders etc., for example).
  Des pièces de filtre sont disponibles dans notre catalogue pièces détachés. Pour connaître le type adéquat, nous vous conseillons de le parcourir.

We want to emphasize that the minimal costs of replacing dirty parts or oil do not match the costs and discomfort that can arise

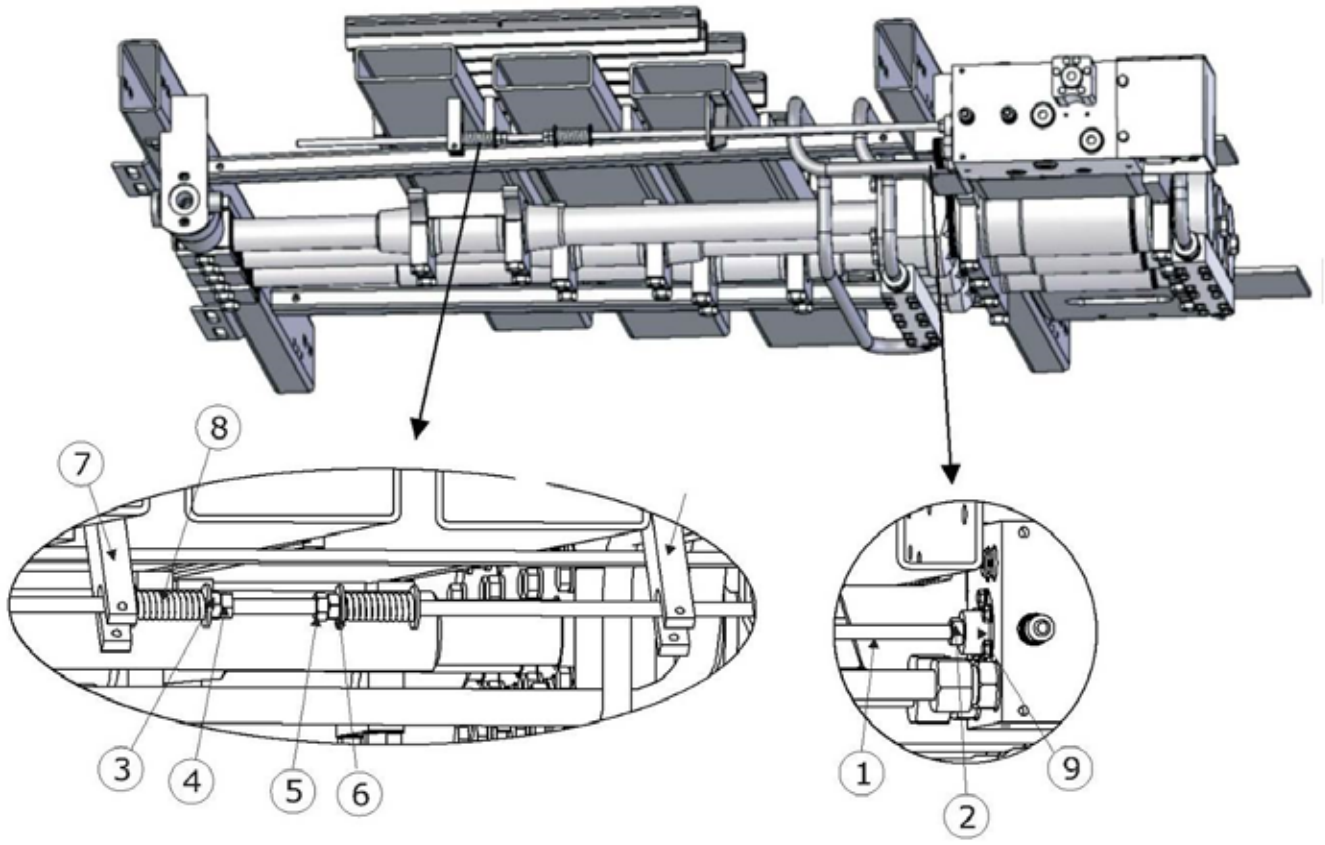
- Adjusting the threaded rod of the control valve:
  It is important that the steering valve is correctly adjusted and that the switchover moment occurs according to the procedures.

Oil grade, regular cleaning necessary (every 6 months).
Filter parts are available in our spare parts catalogue. Please check the catalogue to identify the correct type.
Regular preventive maintenance is necessary for optimum conveyor operation.

E.2) Adjustment of the threaded rods of the control valve

All Kit FMA systems have the threaded rod set and are fully tested. You therefore do not need to adjust the threaded rod, but in certain circumstances (f.e. certain repairs) it may be necessary to check or adjust the setting of the threaded rod. If switching spontaneously doesn't go normally anymore, then please make a good assessment first why this has happened.
The pump and electrical installation must always be switched-off when working on the system; in addition, the hoses and/or pipelines between the pump and the kit FMA should also be disconnected.If not the risk of entrapment arises.

Necessary tools :
2x spanner 17;
High viscosity oil;
Copper grease;
Steel brush.



Check that the threaded rod (1) is fastened securely to the switching valve, with pressing and pulling the stroke is exactly 12 mm. [0.5"].
If not, then screw the threaded rod (1) as far as possible into the plunger and secure this with the contra nut (2) (spanner size 17). Loosen nuts (3 and 4, spanner size 17) and move these about 3 cm [1.25"] in the direction of the rear of the trailer.
Now switch the pump on while you are at a safe distance. The system will start to move and stops automatically at the point where the command lip (7) no longer operates the switching valve, because the spring (8) is no longer pushed. Switch off the pump immediately.
Now push the threaded rod (1) in the direction of the rear of the trailer until the spacer ring (9) touches the control valve. Tighten nuts (3 and 4) so far in the direction of the front side of the trailer that the spring is fully pushed in, and secure them by tightening them against one another. Repeat this procedure for the other side (nuts 5 and 6) by doing everything in opposite directions

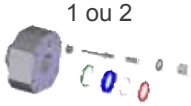
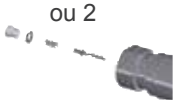
N.B. It is worthwhile spreading some copper grease on the threaded rod (1).

E.3) Troubleshooting E control

In the event of the failure of the kit hydraulic system to operate (in the correct manner) when used in accordance with the operating instruction carry out the following checks.

Malfunction system	Concerns part	Cause	Solution
1. Does not operate There iso il flow control valve	PTO	Not switched on	Switch on PTO
	Quick coupling	Blockage	Check couplings/mount cor-recity
	Remote control	Manual override operated	De-activate manual override
	Solenoid valve On/Off	Interruption wiring Interruption in coil	Activate manual override tem-porarily and/or repair power supply
	Pressure control valve	Polluted	Clean/replace pressure control valve, attention : do not open the pressure control valve in parts
	Operation plunjer in the middle position	Flow <60 l/m See chapter : choke	Increase pump rpm install another pump Adjust choke
		Hoses connected reversd	Check filter first, then connect pressure and return correctly
		Plunjer moves with difficulty due to molten seal	Replace seals operation plunjer
2. Starts immediately after switching on the PTO	Switch L1E	Switch movement blocked in the on position	Remove blockade
	Switch On/Off	Manual override activated	De-activate manual override, put yellow security clip back in place
	Hose connected reversed	Pressure and return hoses are swapped	Check filter first, then connect pressure and return correctly
3.Individual movement is difficult and/or incorrect with a full trailer	Pressure control valve	Tipper valve	Turn tipper valve in correct position
		Pressure control valve pulling vehicle max. Pressure to low	Measure max. pressure/adjust pulling vehicle
		Return oil has restrictions	Measure pressure M2, renove restrictions

After troubleshooting E control

Malfunction system	Concerns part	Cause	Solution
3. Individual movement is difficult and/or incorrect with a full trailer	Capacity of the system is insufficient	To much load	Unload part of load with crane
		Pollution between the profiles	Clean
		Frost	Thaw
4. Individual movement is incorrect when unloading with a full and empty trailer	Valve in cylinder head 1 ou 2 	Pollution prevents a good closure	Remove pollution
		Broken valve sping	replacespring
	Valve seat in cylinder head 1 ou 2 	Valve seat has loosened	Replace /fasten valve seat
	Common rail cylinder rod side	Stop in the common rail has loosened	Fasten stop/replace common rail
		Common rail mounted the wrong way around	Mount common rail correctly
5. Switching is difficult or goes not at all. 3 cylinders are fully retracted or fully out.	a. Threades rod	Adjustment incorrect	Adjust correctly, attention determine cause. See : b and c.
		Switching spring broken	Replace spring, attention : determine cause. See : b and c.
	b. Piston de commutation	Stroke > 12 mm. -> thereaded rod looser, spacer loose	Screw in Threaded rod/bolt fully.
	c. Moving cross member	Slanting caused by loose profiles	Replace screws and provide them with a thread locking product and check the rod bearing.
6. Floor unloads/loads when choosing loading and unloading	Solenoid valve loading/unloading	Interruption wiring Interruption in oil	Activate manual override temporarily and/or repair power supply
		Manual override a activated	De-activate emergency control
7. Other malfunctions	Please contact our customer service by providing you the serial number of the FMA® kit.		

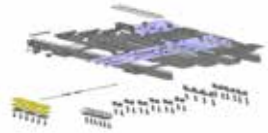
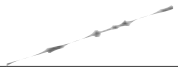
WARNING: Contact us for the right repair advice.

E.4) Troubleshooting B control

In the event of the failure of the kit hydraulic system to operate (in the correct manner) when used in accordance with the operating instruction carry out the following checks.

Malfunction system	Concerns part	Cause	Solution
1. Does not operate There iso il flow control valve 	PTO	Not switched on	Switch on PTO
	Quick coupling	Blocage	Check couplings/mount correctly
	Solenoid valve on/off 	Interruption wiring Interruption in coil 	Activate override temporarily and/or repair power supply
	Pressure control valve 	Polluted	Clean/ replace the pressure control vavle.Attention : do not open the pressure control valve in parts.
	Operating handle 	Is in the middle position“0”	Move the handle in the direction of loading/unloading
2. Starts immediately after switching on the PTO	Switch L4B 	Switch movement blocked in the on position «**On**»	Remove blockade
	Solenoid valve on/off 	Manual override activated	De-activate manual override, put yellow security clip back in place
	Hoses connected reversed.	Pressure and return hoses where swapped	Check filter first, then connect pressure and return correctly

After troubleshooting B control

Malfunction system	Concerns part	Cause	Solution
3. Individual movement is difficult and/or incorrect with a full trailer	Pressure control valve	Tipper valve	Turn tipper valve in correct position
		Pressure control valve pulling vehicle max. Pressure to low	Measure max. pressure/adjust pulling vehicle
		Return oil has restrictions	Measure pressure M2, renove restrictions
	La capacité du système est insuffisante	To much load	Unload part of load with crane
		Pollution between the profiles	Clean
		Frost	Thaw
4. Individual movement is incorrect when unloading with a full and empty trailer	Valve in cylinder head 1 ou 2	Pollution prevents a good closure	Remove pollution
		Broken valve sping	replacespring
	Valve seat in cylinder head 1 ou 2	Valve seat has loosened	Replace /fasten valve seat
	Common rail cylinder rod side	Stop in the common rail has loosened	Fasten stop/replace common rail
		Common rail mounted the wrong way around	Mount common rail correctly
5. Switching is difficult or goes not at all. 3 cylinders are fully retracted or fully out. 	a. Threades rod 	Adjustment incorrect	Adjust correctly, attention determine cause. See : b and c.
		Switching spring broken	Replace spring, attention : determine cause. See : b and c.
	b. Switching plunjer	Stroke > 12 mm. -> thereaded rod looser, spacer loose	Screw in Threaded rod/bolt fully.
	c. Moving cross member	Slanting caused by loose profiles	Replace screws and provide them with a thread locking product and check the rod bearing.
6.Other malfunctions	Please contact our customer service by providing you the serial number of the FMA® kit		

WARNING: Contact us for the right repair advice

NOTES

A English Network
at your service !

ALL OF OUR ADDRESSES CAN BE FOUND AT :

http://legras-industries.com/service-centers-and-partners

WARRANTY

It is expressly agreed between the purchaser and LEGRAS Industries that:

1) New equipment sold by LEGRAS Industries is guaranteed against all material defects and faulty construction for a period of 12 months with effect from the date of delivery

2) This warranty covers, for a period of 12 months only, the replacement of parts acknowledged as being defective by LEGRAS Industries or their repair, at the convenience of LEGRAS Industries, with the express exclusion of all incidental expenses.
The purchaser undertakes to return any parts that have been acknowledged as being defective and replaced by new parts.

3) The warranty does not cover normal wear and tear as a result of use, or damage that may have been caused by excessive or incorrect use of the equipment.

4) The warranty will be withdrawn from any equipment that has been modified without prior written agreement, or from any equipment on which original LEGRAS Industries spare parts have been replaced with parts from another source.

5) The warranty does not cover the consequences of work, such as assembly or fitting of components on its products, carried out by third parties.

6) Exchanges or repairs of parts carried out under the terms of the warranty will not have the effect of extending the warranty and must be carried out in the LEGRAS Industries workshops.

7) The application of the warranty is dependent on the purchaser ensuring that the servicing and instructions concerning maintenance or work on the equipment, as set out in the maintenance documentation provided on delivery, are carried out.

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