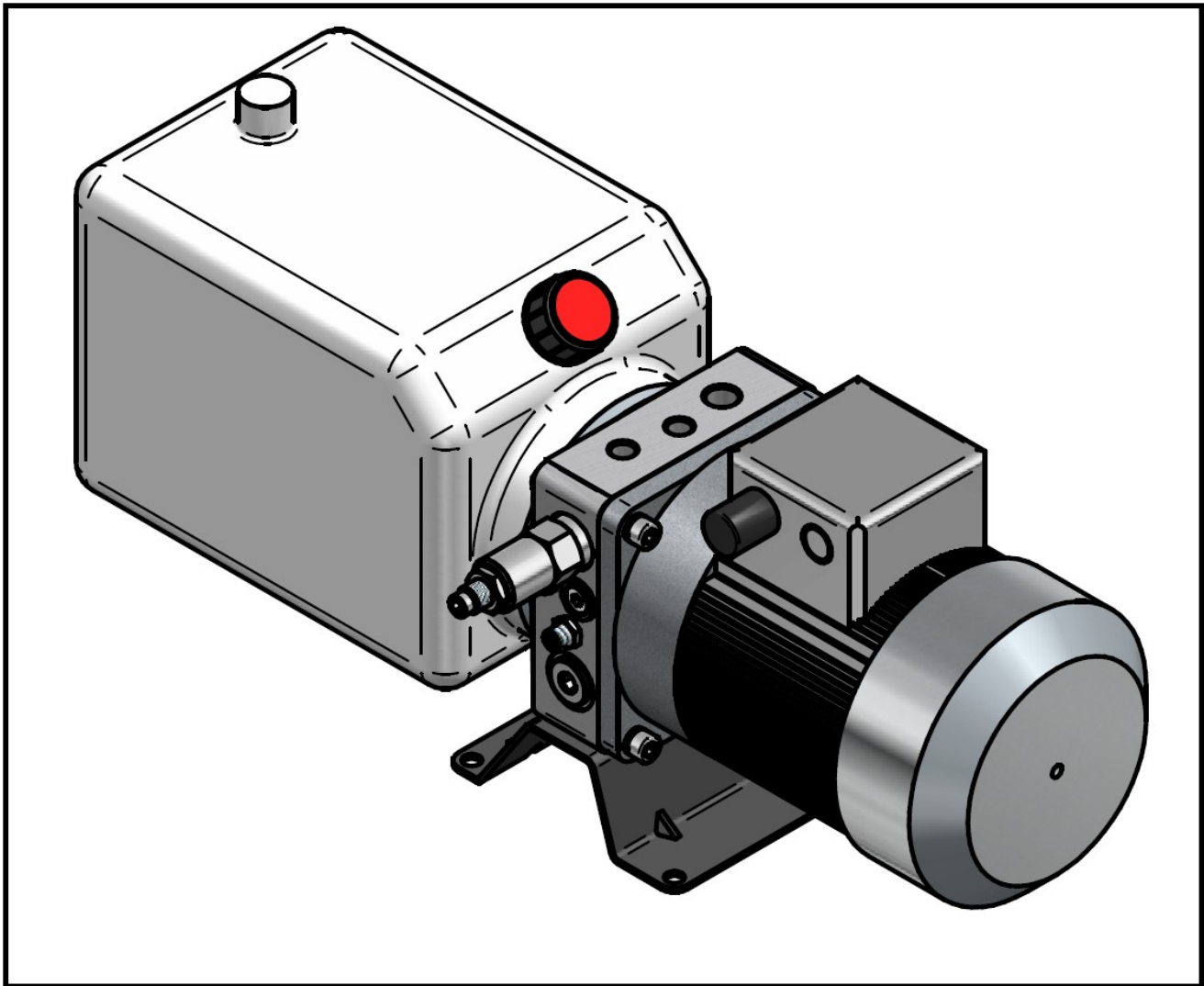
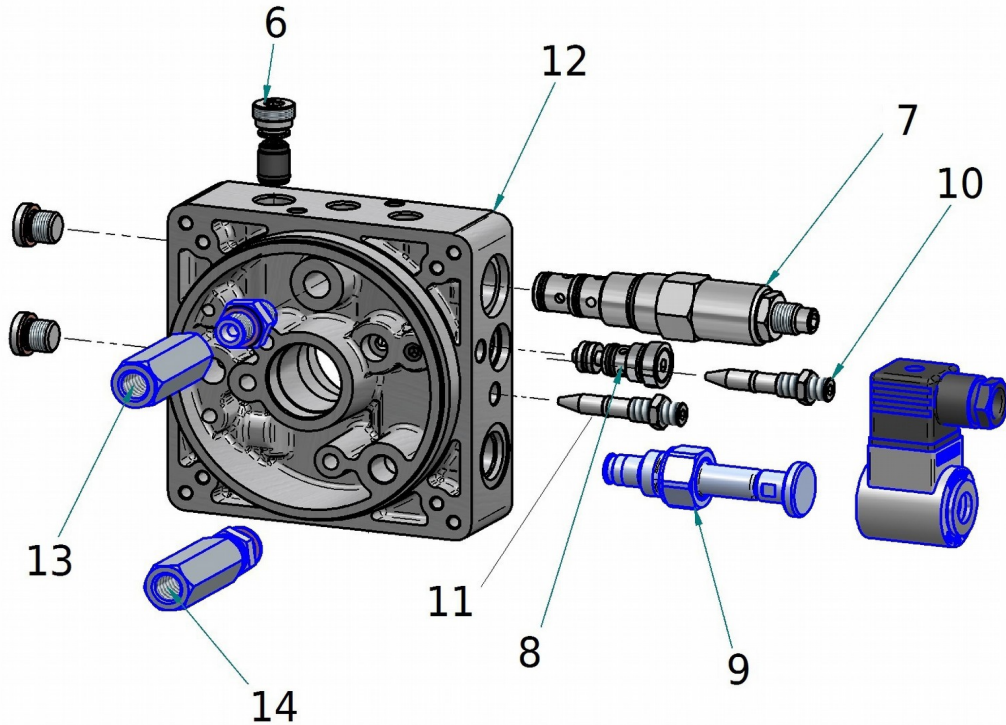


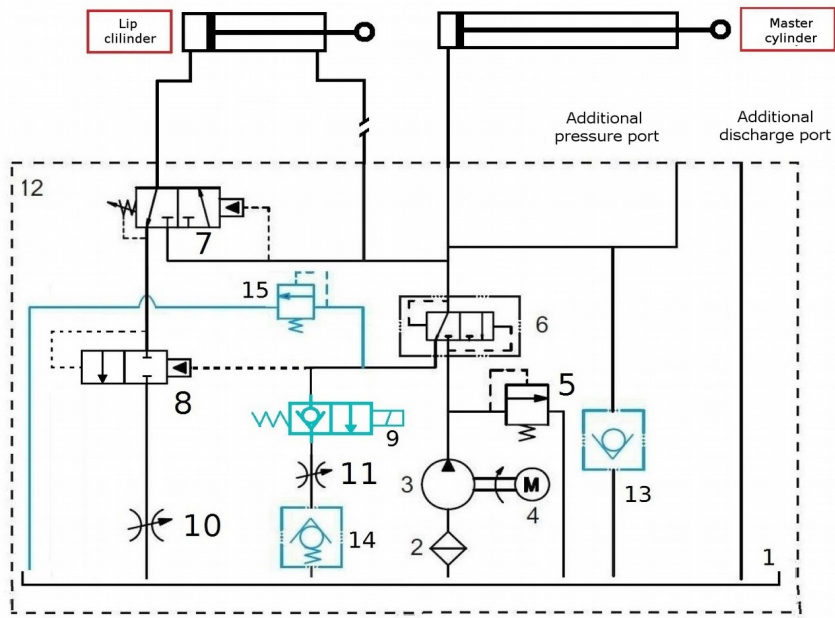


User Manual of the PPL Power Pack for load platforms





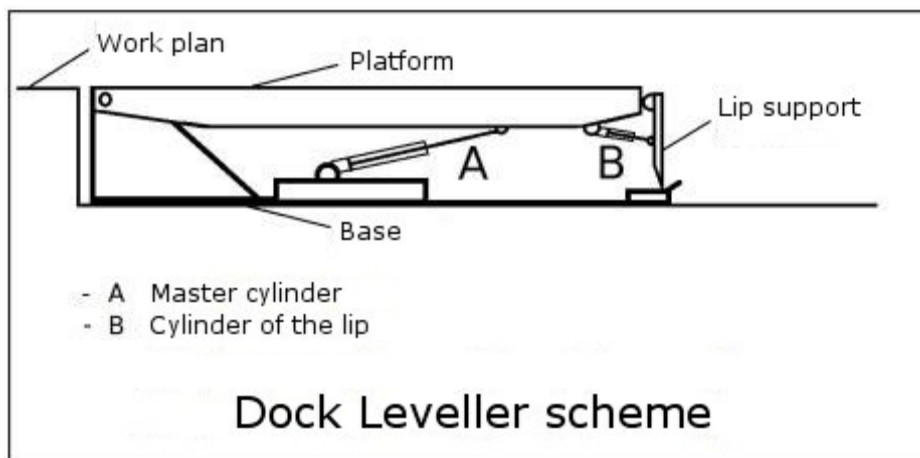
Exploded view of the PPL functional body with its valves



Hydraulic circuit

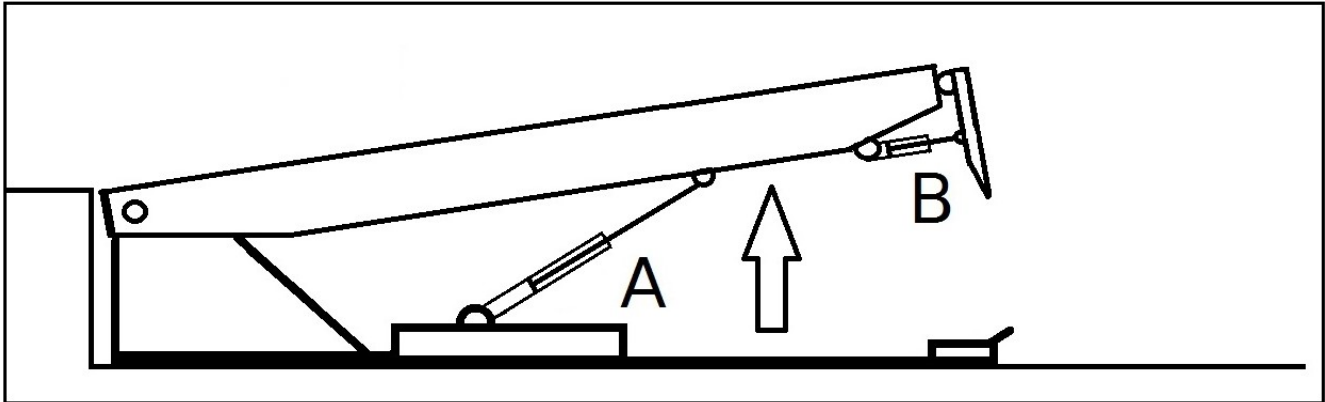
Numero	Componente
1	Tank
2	Filter
3	Pump
4	Motor
5	Pressure relief valve VMDC20
6	Shuttle Valve 3/2 SHV01
7	Sequence valve LPS
8	Logical valve 2/2 LCV5818
9	Valve NC MSV30E (Option)
10	Flow control valve VRS03 (speed lip)
11	Flow control valve VRS03 (speed main and backpressure)
12	Central manifold PPL
13	Anticavitation valve (option–alternatively PLUG 1/4”)
14	Always full valve (option)
15	Antishock valve (option)

The PPL unit is designed specifically for load platforms (dock leveller). Their operation is based on two hydraulic cylinders: the main cylinder (A) which provides for the lifting of the whole platform and the cylinder of the lip (B), which actuates the lip for resting on the truck body, which can be double or single effect.



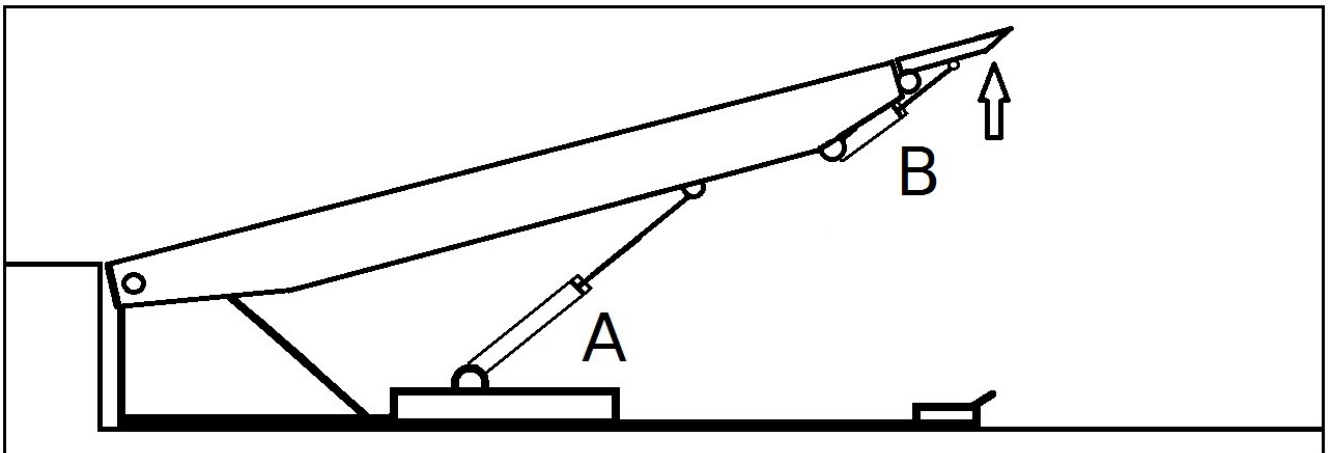
Operation

Step 1: Start



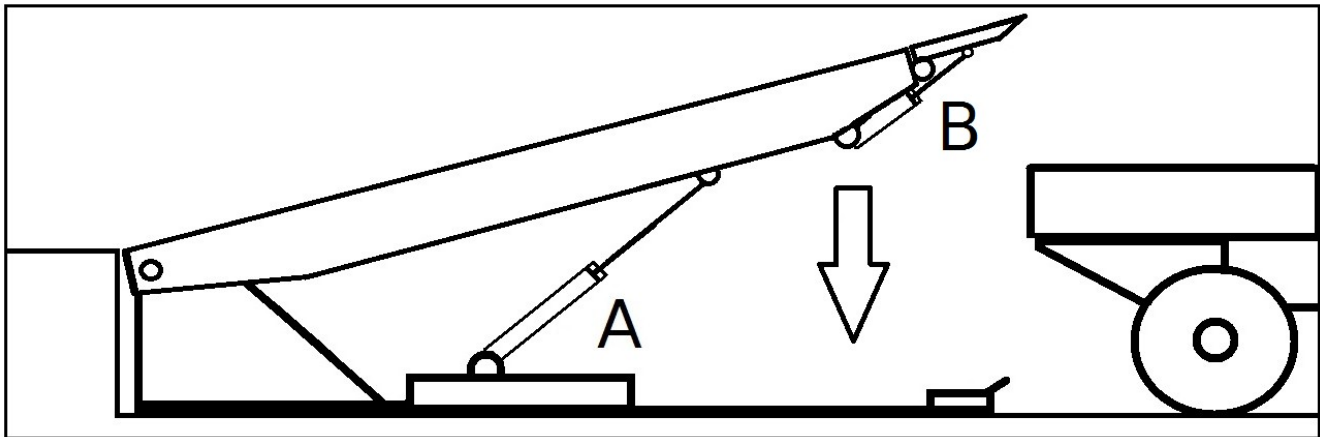
When the motor of the PPL starts, the platform starts to lift up. In this phase the lip remains closed.

Step 2: Opening the lip



As soon as the main cylinder (A) arrives at end of stroke, the pressure in the circuit increases suddenly and brings the sequence valve (7) to switch its position, after which the pressurized oil flows into the cylinder of the lip (B), and the lip opens up completely.

Step 3: Support the truck body

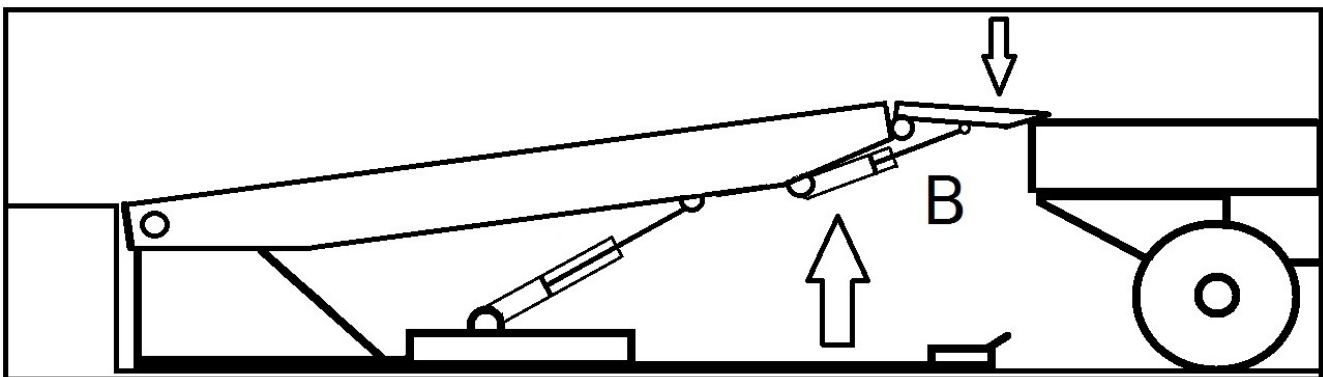


When the lip is completely open, turning off the motor, you can get the lowering of the platform. At this stage the lip remains open and it leans on the body of the truck placed in front of the ramp.

Step 4: Loading and unloading of the truck

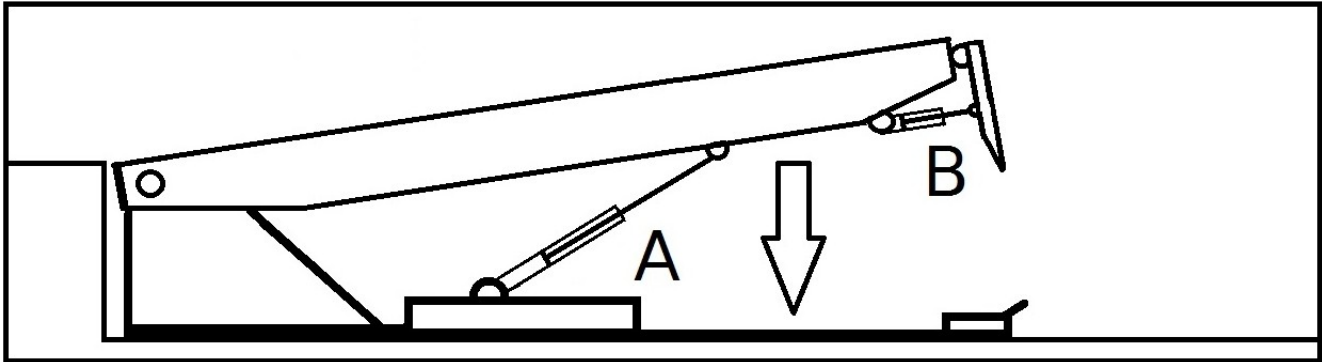
During the loading and unloading phases, the ramp raises and lowers (the motor is off), following the movements of the floor of the truck. In this cases to avoid cavitation phenomena in the main cylinder, there is the possibility to mount an anti-cavitation valve. The Hydronit control units are equipped with a device that prevents the violent fall of the ramp, in the case in which the truck moves from that before making the next step 5.

Step 5a: Closure of the lip and return to the rest position



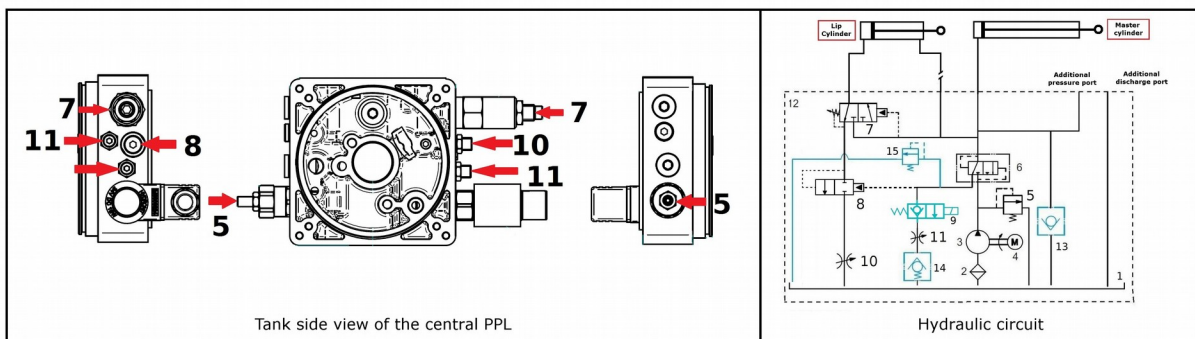
After the loading phase of the truck, the engine starts again getting the lifting up of the platform, so it moves away from the truck floor and simultaneously the lip closes, to bring the dock leveller in the rest position.

Step 5b: Return to the rest position



When the lip is completely closed, the motor turns off and you can get the return of the platform in the rest position.

Guide to the PPL correct setting



1. Before starting the motor, using a 4 mm hex wrench you have to:
 - a) loosen the adjustment screw of the pressure relief valve VMDC20 (shown in the picture as number 5);
 - b) tighten fully the flow control valve VRS03A (11);
 - c) loosen completely the flow control valve VRS03B (10).

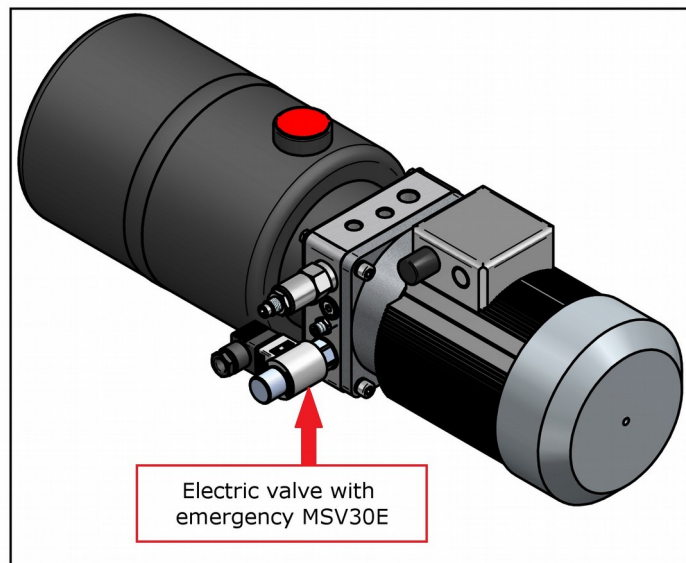
2. Turn on the motor, then clamp the grub screw to adjust the relief pressure valve (5) to obtain the lifting up of the platform. The pressure generated by its lifting is approximately 50 bar (this pressure depends on the weight of the platform and the diameter of the cylinder).
3. Once the platform arrives at stroke end, tighten again the adjustment screw of the pressure relief valve to achieve the switching of the sequence valve and the consequent opening of the lip (7), which by default takes place at 80 bar; tightening the adjusting screw of the sequence valve the pressure value, necessary to obtain the sequence grows.
4. Taken place the sequence, to obtain the opening of the lip, tighten slowly the adjustment screw of the pressure relief valve (5), stopping only at the moment in which the lip starts to move, which occurs at the indicative pressure of about 120 bar. To obtain the complete opening of the lip, go on to tighten the adjustment screw of the relief valve. Finish tightening when the lip is fully open. If the tightening would be excessive, upon arrival at the end of the race you'll have a very violent impact against the lip of the platform. If the lip tends to open before the platform reaches the stroke end, it must be torqued the sequence valve (7).
5. Turning off the motor, loosen slowly the flow control valve VRS03A (11); the ramp will slowly begin to lift down. To avoid that the lip closes during the way down, which would cause the lack of support of the platform on the body of truck, you have to tighten the flow control valve if necessary VRS03A (11). In this way, on the discharge branch of the main cylinder, you get a back pressure such as to switch the piloted valve 2/2 LCV5818 (8) in the closed position; this prevents the lip from closing. Continue to tighten the flow control valve VRS03A is then useful to decrease the speed of descent of the platform, depending on the need. NB: you must find the right balance between the speed of the descent and maintain lip open.
6. At the time of restarting the motor, the platform is lifted up and the backpressure that holds the valve pilot switched 2/2 LCV5818 in the closed position goes down; consequently the lip closes. To a proper adjustment of the speed at which the lip closes, tighten the choke VRS03B.

Electrical connections

- **Electric valve**

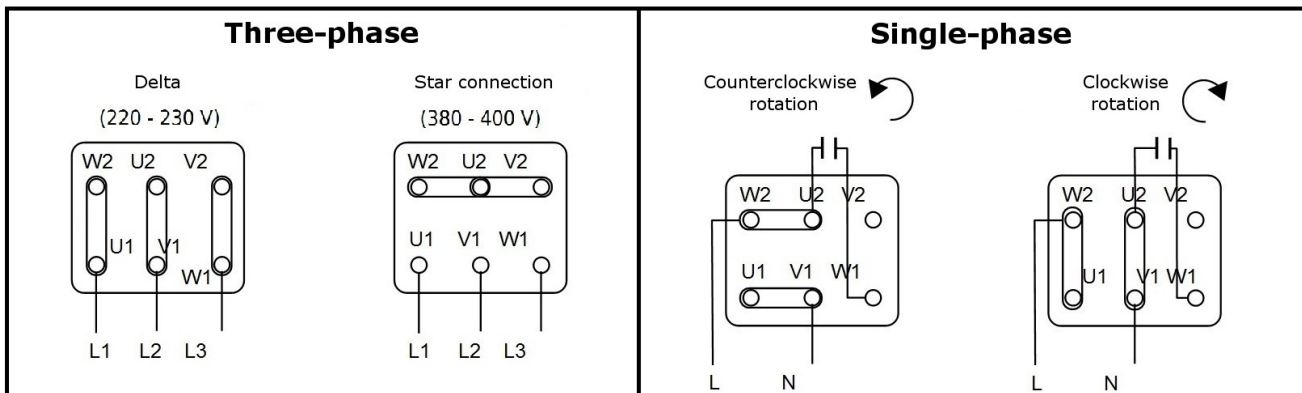
The safety valve MSV30E (indicated in the figure by 9) in option, needs to lock the platform in case of emergency.

- Connect the electric valve MSV30E to the general electric box so that it is always powered, both during handling and during the stand-by. In case of emergency (red button pressed or sudden lack of current), the valve closes preventing the fall down of the platform. The following picture shows the valve and its position on the body.



- **Motor**

- Connect the motor so that it is controlled by the starter button.



- Depending on whether a three-phase or single-phase AC motor, follow the provisions on the links in the electrical box shown in the following pictures.

Troubleshooting guide

Malfunction	Solution
<p>The platform does not rise</p>	<p>The problem is probably due to the lock of the logic SHV01 (indicated with n.6 in the draw on page 1). To correct the malfunction, proceed as follows:</p> <ol style="list-style-type: none"> 1. Unscrew the hose leading to the master cylinder discovering the door 3/8". 2. Insert an Allen hexagon key 7 inside the cavity and unscrew the ferrule on the end of the hole. 3. Once extracted the ferrule, insert an Allen hexagon key 2 inside the hole, until you can insert within the pilot; In the center this has a hole hexagonal 2. 4. Using the Allen key and turning it, you unlock the pilot. 5. Unlocked the pilot, continue to rotate, so as to impregnate well with oil the o-ring seal on the cartridge. 6. At this point, once extracted the pilot, clean the cavity with air. 7. Reassemble everything, in the described sequence.

<p>The lip slams violently against the platform</p>	<p>The problem is due to a false calibration of the pressure relief valve. In this case, the problem is easily solved by following the requirements described in the section 4 of the guide of the correct setting of the PPL.</p>
<p>The lip is opened before the platform arrives at switch</p>	<p>The problem is attributable to a false calibration of the sequence valve. In this case, the problem is easily solved by following the requirements described in the section 4 of the guide of the correct setting of the PPL.</p>
<p>When the engine turn off, the lip closes</p>	<p>The problem is due to inadequate pressure on this side pilot valve 2/2 LCV5818. The problem is easily solved by following the requirements described in the section 4 of the guide of the correct setting of the PPL.</p>
<p>The descent of the platform is too slow or too fast</p>	<p>The descent of the platform is adjusted by the throttle VRS03A. By acting on it you obtain a speed regulation; you must be very careful in regulating this restrictor because, as previously described, through the back pressure induced by its partial closure it is responsible of the retention of the lip open during the phase of descent of the platform above the truck floor. For this it is recommended to start the adjustment of the throttle only when you are sure that the lip remains open.</p>
<p>The unit makes noise</p>	<p>If during the first cycle of operation, the unit makes noise at the opening of the lip and on the lift down, you may want to make it work repeatedly for several cycles.</p>

Warnings

A hydraulic equipment, where the installation, assembly and testing steps has been performed correctly, will have a long life without problems and does not require special maintenance.

You have to routinely check the quality and the condition of the hydraulic fluid and make sure there are no impurities in the circuit; the proper operation of any hydraulic machine depends on that.

It is now proved that the main cause of failure in hydraulic systems is due to dirt and impurities existing in the hydraulic fluid with consequent loss of its chemical-physical characteristics, and the presence of particles and micro-particles that circulate continuously in the oil causing wear and tear.

These particles, when free to circulate inside the circuit, produce an abrasive action on the surface and produce further contamination in the circuit; of course, the more sophisticated are the equipments, the greater are the incidence of these phenomena on the functioning of the system.

From the moment you start the equipment, maintenance consists of small operations that had to be done regularly in order to be really effective.

It's extremely important to schedule maintenance operations and report on the cards of the machines; they must always follow the control units or any section of the system.

Terms of Service

- Mineral hydraulic oil ISO6743/4 (DIN 51519).
- The viscosity of the hydraulic fluid must be in accordance with standard ISO 3448:
 1. Viscosity min.: 22 mm²/S;
 2. Viscosity max.: 100 mm²/S;
 3. Advised viscosity: 46 mm²/S.
- The degree of contamination should not be higher than the class 18/14 ISO 4406;
- Minimum temperature of the hydraulic fluid: -15°C;
- Maximum temperature of the hydraulic fluid: +70°C;
- Optimum temperature of the hydraulic fluid: +30°C ~ +50°C;
- Minimum ambient temperature: -15°C;
- Maximum ambient temperature: +50°C;

- Use new and filtered oil (25 μ o più);
- Never mix hydraulic oils of different suppliers because they can cause dangerous sediments.

Warranty

All products by Hydronit Srl are covered by a warranty of one year after their delivery. The warranty covers repair or replacement of defective parts and components.

Warranty is void in the following cases:

1. the product is altered or tampered with respect to its original condition when leaving the factory;
2. the product is defective and has previously been installed incorrectly, used above its operating specifications;
3. the product is not working and has not been subjected to proper maintenance as recommended by Hydronit Srl.