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TEKVAC

Technical Support Service Manual

INDEX

APPENDICES

1. INTRODUCTION

1.1. Vacuum packer models

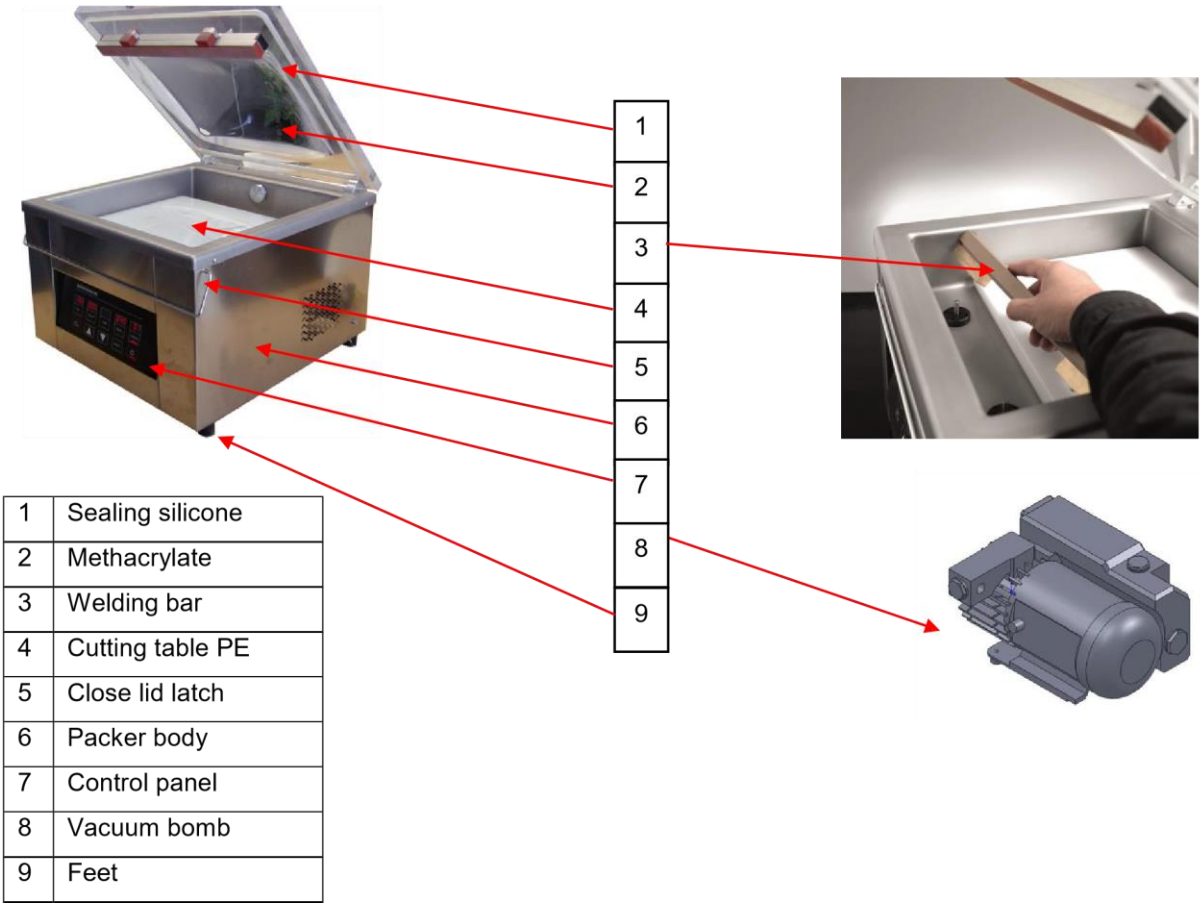
The following document has technical information to properly perform technical assistance services (TS) on the TekVac vacuum packers. TekVac is designed for vacuum packing food in plastic bags suitable for packaging.

TekVac packaging machines basically have two control panels. The panels by sensor and the panels by time.

Figure 1. TekVac sensor vacuum packaging machines range

Figure 2. TekVac time vacuum packaging machines range

The following image shows the main components of the vacuum packer.



1	Sealing silicone
2	Methacrylate
3	Welding bar
4	Cutting table PE
5	Close lid latch
6	Packer body
7	Control panel
8	Vacuum bomb
9	Feet

Figure 3. Vacuum packaging machine components

1.2. Keyboard (sensor)

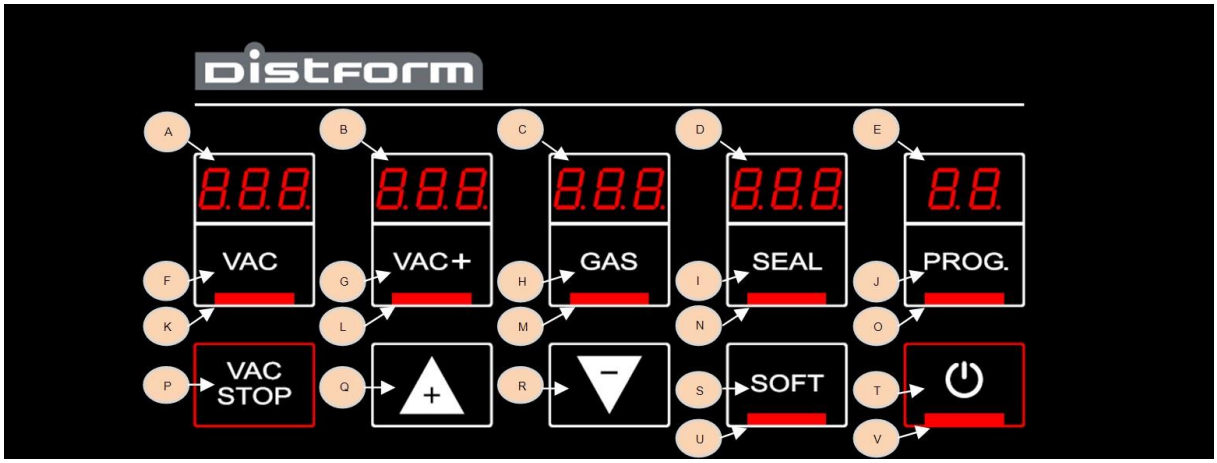


Figure 4. Keyboard description

	Function	Description
A	VAC Display	Indicates the vacuum level by %.
B	VAC+ Display	It is also used to indicate the number of machine hours, vacuum cycles and errors which may occur.
C	GAS Display	Indicates the vacuum plus level in seconds.
D	SEAL Display	It is also used to indicate the number of machine hours and vacuum cycles.
E	PROG Display	Indicates the gas level as a %. Only available in machines with gas.
F	VAC Button	Indicates the sealing time. It is also used to indicate the number of machine hours, vacuum cycles or calibration of the machine.
G	VAC+ Button	Indicates the programme number.
H	GAS Button	Vacuum level selection button.
I	SEAL Button	Vacuum plus level selection button.
J	PROG Button	Gas level selection button. Only available in machines with gas.
K	VAC Indicator	Sealing time selection button.
L	VAC+ Indicator	Programme selection button.
M	GAS Indicator	Indicates the selection of the vacuum level.
N	SEAL Indicator	Indicates selection of the vacuum plus level.
O	PROG Indicator	Indicates the selection of the gas level. Only available in machines with gas.
P	VACSTOP Button	Indicates sealing time selection.
Q	+ Button	Indicates programme selection.
R	- Button	Ends the vacuum cycle prematurely, stopping the engine and carrying out the remaining cycles (gas injection, sealing, entry of air)
S	SOFT Button	Only acts when the vacuum level is greater than 50%.
T	ON/OFF Button	Increases the selected indicator value.
U	SOFT Indicator	If the machine is off by pressing along with the – Button, this allows calibration to commence.
V	ON/OFF Indicator	Reduces the value of the selected indicator.

Table 1. Control panel indicators, displays and buttons

1.3. Keyboard (time)

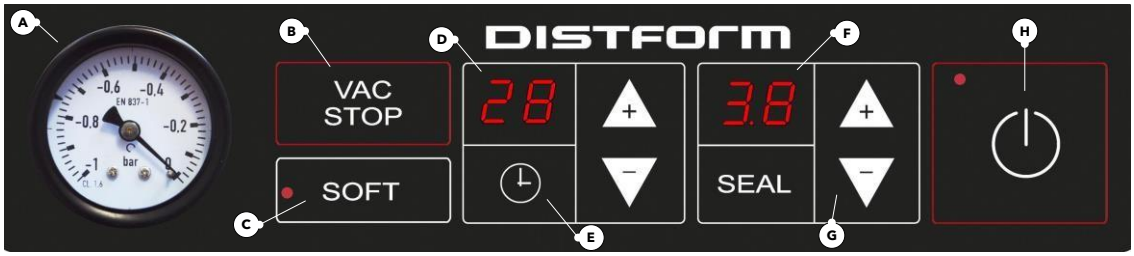


Figure 5. Control panel

Function		Description
A	Vacuum meter	Indicates the vacuum level between 0 y -1 bar. Maximum vacuum level is -1 bar.
B	VACSTOP button	Ends the vacuum cycle prematurely, stopping the motor and doing the rest of the cycles (sealing, air injection).
C	SOFT button	Activates/deactivates the progressive air entrance. When the mode is active, red led is on. To change the mode, keep the SOFT button pushed at least two seconds.
D	Display TIME	Indicates vacuum time. Maximum 99 seconds.
E	"+ & -" button	Increases or decreases vacuum time value.
F	Display SEAL	Indicates sealing time. Maximum 9, 9 seconds.
G	"+ & -" button	Increases or decreases sealing time value
H	ON/OFF button	Turns on or off the machine when it is pushed more than two second. Also cuts a vacuum cycle when it is pressed less than two seconds.
	AUTO-CLEAN OIL	With the vacuum packer turned off, press simultaneously "SOFT" + "-" (vacuum time). It avoids possible moisture leftovers that remain in the oil.

Table 2. Control panel functionality

1.4. Methodology

The technical assistance service will find in Solutions to common troubles, the most common troubles and incorrect uses of the packer that can provoke malfunction, as well as the possible solutions.

In case of failing the detection, the following chapters have information about accessing to the zones that have to be checked (see Disassemble to get service access), how to locate failures (see Troubleshooting) and how to repair them (see Breakdown repairs).

2. OPERATION

2.1. Sensor models

First, we must set up the packing parameters, the next values: VAC (% of vacuum), VAC+ (extra time of vacuum), GAS (% of inert gas), SEAL (seal time) and SOFT (progressive pressure recuperation). You can not select an extra vacuum level if the vacuum level is less than 100%. Nor can select a vacuum level lower than 50%. Difference between the vacuum level and the inert gas level must be upper than 50%.

After, for a correct packing you must put the packing bag correctly in the seal bar. Then you must get down the lid.

At this point the engine starts and the display shows the% VAC real vacuum in the chamber.

After VAC process will start the VAC+ time. The VAC+ process will last many seconds are shown in the VAC+ display.

If you choose the inert gas injection, the chamber is filled with it until it reaches the selected gas percentage.

The seal consists of two phases: the first phase is the resistance heating; in this phase the value of the display decreases progressively. The second phase (the duration is 5 seconds) is the cooling of the bag. The value of the SEAL display increases progressively.

The last phase is the atmosphere recuperation. This can be done abruptly or by pulses activating SOFT mode. This mode is useful for the bag to mold to the food. You can activate de SOFT mode only before to start the vacuum process.

If you would abort the vacuum process press the VACSTOP button. This action cancels the vacuum process, and the equipment will continue the next steps (inert gas inlet, seal, and atmosphere air recuperation).

You can abort the vacuum cycle at any time. If you press the ON/OFF button the vacuum packer cancels all process and recovers the atmosphere pressure.

We recommend rest periods between 3 minute cycles.

2.2. Time models

First, the packing parameters must be set up by adjusting the values VAC (time of vacuum), SEAL (sealing time) and SOFT (progressive pressure recuperation).

After that, for a correct packing, the bag must be placed correctly in the sealing bar. Then, get down the lid.

At this point, the pump starts running and the vacuum time display starts a countdown of the adjusted time.

The vacuum process extracts air from inside the chamber so that the pressure decrease.

This process is monitored by the vacuum gauge placed on the control panel.

The sealing process has two steps: the first step is the resistance heating; in this phase the value of the display decreases progressively. The second phase (which duration is 5 seconds) is a cooling down of the heating element. The value of the SEAL display increases progressively.

The last phase is the atmosphere recuperation. This can be done abruptly or by pulses activating SOFT mode. This mode is useful for the bag to mold to the food. You can activate de SOFT mode only before to start the vacuum process.

The vacuum process can be aborted by pressing the VACSTOP button. This action cancels the vacuum process, and the equipment will continue the next steps (seal and atmosphere air recuperation).

You can abort the vacuum cycle at any time. If you press the ON/OFF button the vacuum packer cancels all process and recovers the atmosphere pressure.

3 minutes resting periods between cycles are recommended.

3. SOLUTION TO COMMON PROBLEMS

3.1. Common problems

Description	Solution
The vacuum packer does not turn on	Check the connection wire to be correctly plugged. Press more than three seconds the ON/OFF button.
The vacuum packer does not reach 100% vacuum	Perform a machine calibration (sensor models). Check that the sealing silicone (on the cap) is correctly fitted. Check the entire vacuum circuit.
The vacuum packer does not seal	Check the sealing bar to be correctly placed in both elevator shafts and that there is not any food leftover that blocks the electric current flow.
The vacuum packer does not seal properly	Change the sealing time of the bag.
Faulty cover detector (switch). Make change.	Faulty lid detector (switch). Make change.

Table 3. Common problems

3.2. Automatic errors detection (only in sensor models)

The device has algorithms that detect irregular situations which can lead to a malfunction of the system. These situations are notified to the user via an error screen like the shown down below:

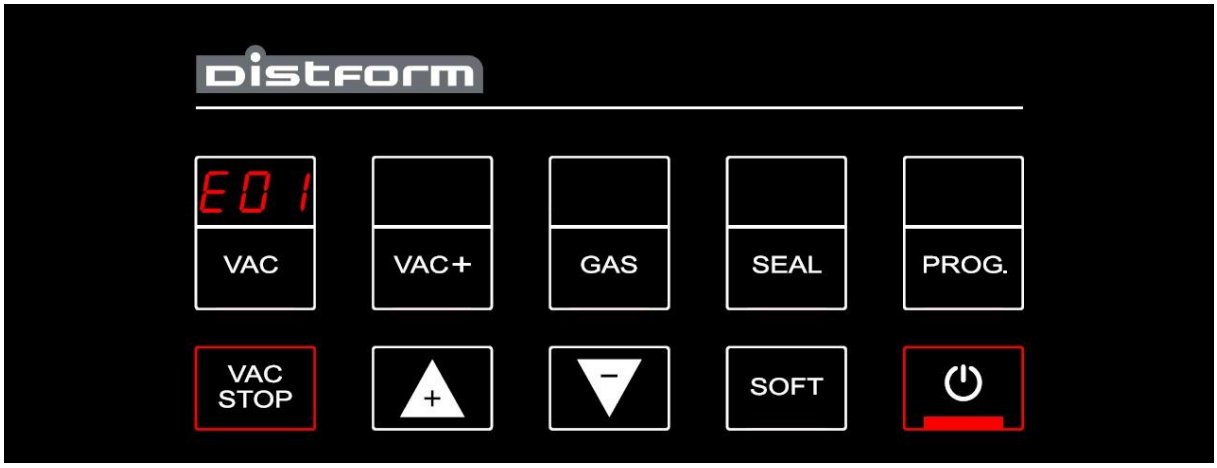


Figure 6. Error screen

The following table shows the possible errors and their solution:

Error	Description	Solution
E01	Lid down	Open the lid. If the error persists, call the technical service, and present the error code.
E02	Vacuum system failure	System has detected the motor had been working too much time to reach certain level of vacuum. Calibrate the system. If the calibration is performed properly, redo the process. If not, call the technical service.
E03	Vacuum sensor failure (minimum)	Check the vacuum sensor connection tube trying to find out if it has leaks or a bad connection. If it all seems to be correct, call the technical service presenting the error code and the value that VAC indicator was giving right before the error.
E04	Vacuum sensor failure (maximum)	Check the vacuum sensor connection tube trying to find out if it has leaks or a bad connection. If it all seems to be correct, call the technical service presenting the error code and the value that VAC+ indicator was giving right before the error.
E05	Internal error	Control board has detected an internal error. Call the technical service and expose the error code

Table 4. Errors and possible solutions

3.2.1. Error E01

Error E01 comes from the detection of the incorrect position of the lid. That can be due to:

- Deterioration of the lid switch
- Deterioration of the switch wiring
- Deterioration of the relay board
- Deterioration of the ribbon cable connecting the relay board and control board
- Deterioration of the control board

In front of that situation, it is recommended to go into Test Mode (see chapter 5.2) and perform the lid switch test (see 5.2.3) changing one by one the elements listed before.

3.2.2. Error E02

The system has detected that the vacuum bomb had worked too much time to reach a certain vacuum level. This may be due to:

- Atmospheric pressure change
- Deterioration of the pressure sensor
- Contamination of the oil
- Leaks on the vacuum circuit
- Deterioration of the vacuum pump

3.2.2.1. Calibration

Before the first use and when installing a packaging machine, it is necessary to perform a calibration of the equipment (only for sensor packaging machines), to adjust it to the local atmospheric pressure where it will be used.

To enter calibration mode, with the appliance off and the lid open, press the "+" and "–" buttons simultaneously. A screen will appear immediately like the one shown below.

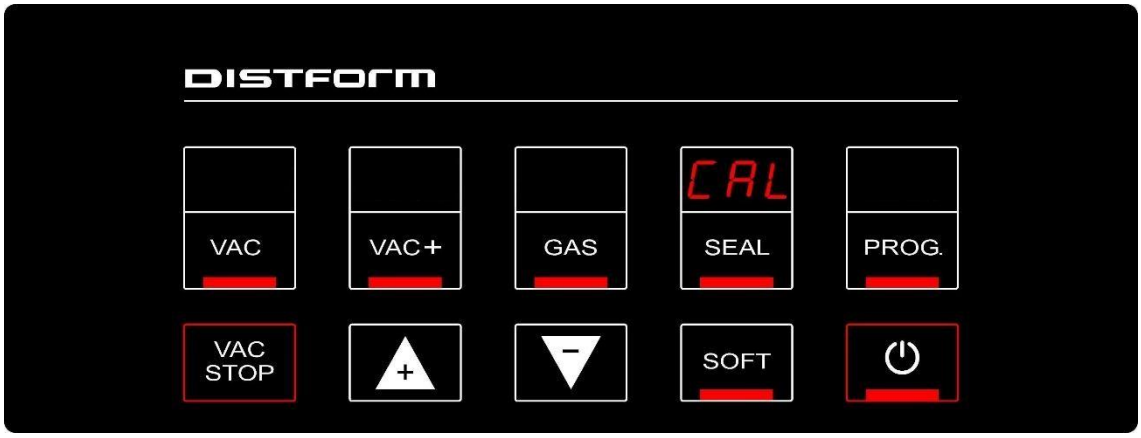


Figure 7. Initial calibration screen

Once in this status, lower the lid to automatically begin the calibration process. If you do not wish to calibrate, exit this status by pressing the ON/OFF button. The calibration process will last for around one minute and the VAC and VAC+ displays will show the minimum and maximum values provided by the vacuum sensor.

For normal atmospheric pressures, the minimum value will vary between 50 and 70, while the maximum value will vary between 400 and 650.

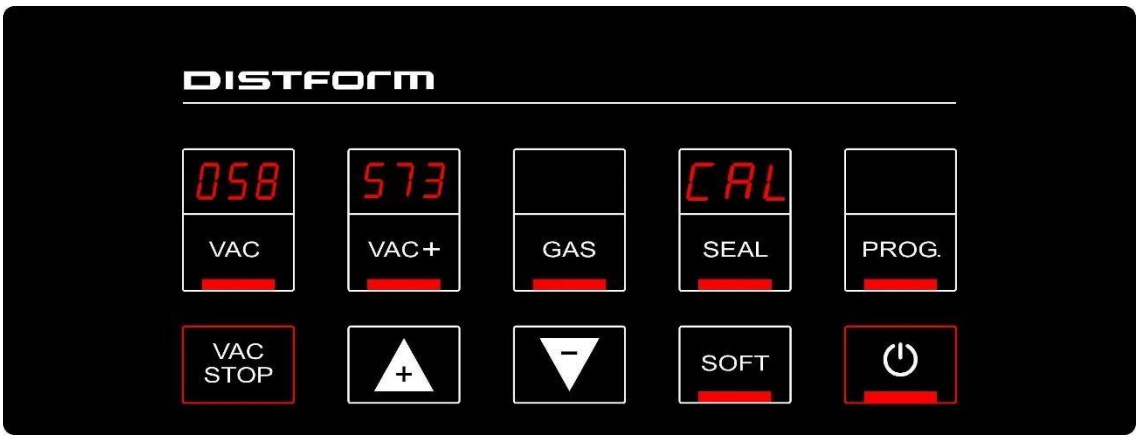


Figure 8. Calibration process

Upon finishing calibration, the appliance shows the number of completed hours and vacuum cycles.

3.2.2.2. Sensor test

You should do the tests specified in Error E03 (see chapter 3.2.3) and Error E04 (see chapter 3.2.4).

3.2.2.3. Oil change

If any of the previous steps have solved the problem, do an oil change of the motor. Afterwards redo the sensor calibration (see chapter 3.2.2.1).

3.2.2.4. Leaks in the vacuum circuit

There is not an effective way to check the vacuum circuit. To be able to check it, it is necessary to test one by one all the parts, starting at the vacuum bomb and moving on, mounting and dismounting all the components. Habitually, a union of fine Teflon fittings should not leak, so the most critical zones where the leaks can occur are:

- Weatherstrip. The union between ends in the rear part has not been done properly, so there are gaps between them.
- Motor-tub aspiration tube. It has some holes.
- Solenoid valves.
    - Solenoid valves have orientation (see chapter 6.9), so assembling them wrongly can lead to leaking.
    - Some dirtiness has been deposited in solenoid valves joints; therefore, it does not close completely.
- Vacuum circuit (pipes, etc.). Possible pores in pipes, bad connections of the pipes into fittings, etc.

A possible way to detect leaks in the circuit could be the usage of a flame. The method to check the system with this mode is doing the maximum vacuum possible with the packer and before it starts to restore the ambient pressure, unplug it. With all the registers removed, proceed to pass the flame though the vacuum circuit. The fact that a leak exists will make the flame to move in the direction of the leak. If this method is used, be careful to do not burn any component.

3.2.3. Error E03

Check the sensor by doing the process explained in section 5.2.4.

With the lid open, the VAC indicator should show a value between 50 and 70. If the value is 0, probably any of the vacuum sensor feet are broken. In some cases, it can be solved following the steps explained in vacuum sensor reparation (see chapter 6.10).

If it is not the case, the control board will have to be changed (see Replacing control board).

3.2.4. Error E04

Check the sensor by doing the process explained in Vacuum sensor test (see chapter 5.2.4).

With lid closed, start the engine pressing the VAC button for 120 seconds. The VAC indicator should go up gradually to show a value between 400 and 650. If the value is close, or it starts descending at the rate of several counts per second, probably there are leaks in the vacuum circuit.

If it does not reach the value expected, change the control board (see Replacing control board).

3.2.5. Error E05

Control board performs internal tests continuously. If any of them fails, some component of the board is malfunctioning.

Change the control board (see Replacing control board).

3.3. Vacuum pump

The following table shows the main defects that can have the rotary vane pumps, as well as the possible solutions:

Defect detected		Cause	Solution
The pump rotates with difficulty or generates considerable noise		Too much oil	Take out the leftover oil
		Wrong type of oil	Use approved oil
Power consumption too high		Ambient temperature too low	If the ambient temperature gets lower than 5°C use SAE-20 DIN51506 oil.
		Pump has been stopped too much time	Run the pump with the aspiration intake closed, until it warms up.
		The pump oil has not been changed for a long time	Change the oil and run the device for 15 mins. Change the oil again.
		Escape filter is obstructed	Change the filter.
Wrong vacuum		Lubricating oil is missing	Refill with approved oil up to the recommended level.
		Obturated filter	Replace filter.
Aspiration flow below the normal values		Aspiration sieve obturated	Disassemble the suction block and clean the sieve.
		Leaks in the suction pipe	Obture the leak and replace the pipe if it is necessary.
Pump oil leakage in the escape. Presence of oil mist.		Escape filter obturated, so it generates overpressure.	Replace filters and their toric joins if they are damaged.
		If it happens after refilling the oil, it is because the filters are accidentally wet of oil.	Run the pump with half aspiration tube open.
		Usage of non-approved oil	Empty and refill with approved oil.
Pump is blocked and the engine does not have enough torque to move it.		Pump has worked without oil	Contact with the repair facility or Mychef.
		Rotor vanes are blocked due to a presence of a strange object.	
		Retention valve of the intake port blocked	
Lubricating oil has colour	Black	It has not been replaced with the appropriate frequency or it is not approved	In any case, remove the oil, refill with approved oil, and rotate the pump for 10 cycles.
	Milky	Pump has sucked water	
	Viscosity too high or too low	Unsuitable oil used	

Table 5. Defects and solutions of vacuum pump

4. DISASSEMBLE TO GET SERVICE ACCESS

Caution: Before doing any disassemble, you must be sure that the device is unplugged from the electric network.

4.1. Frontal disassembly

The following picture shows how to disassemble the frontal of the vacuum packers.

Figure 9. Frontal disassembly (Step 1)

Step 1 → Unscrew the bolts with Allen head placed at the bottom part.

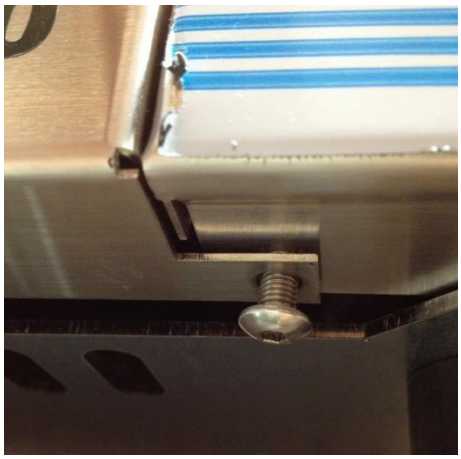


Figure 10. Frontal disassembly (Step 1) Current model

Step 2 → Push the bottom part of the frontal to the interior of the vacuum packer (old model).

Figure 11. Frontal disassembly (Step 2)

Step 3 → Move down the frontal, thus the locking teeth become free.

Figure 12. Frontal disassembly (Step 3)

Once these steps are done, the frontal becomes unlocked.

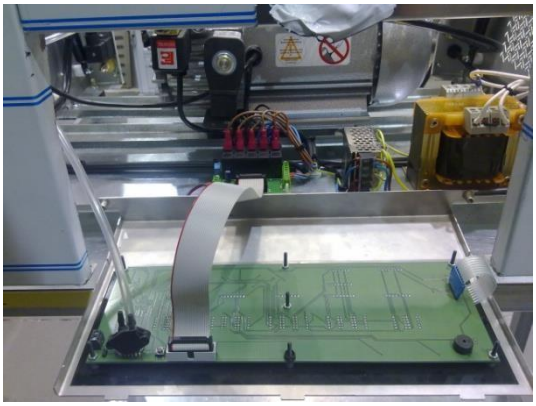


Figure 13. Unlocked frontal

Be careful not to stretch the frontal since the pipe of the vacuum sensor and the connection cable of the control are connected. To completely extract the frontal, pipe and plane wire must be removed.

To reassemble the board, follow the steps in the reverse order.

1 → Place the vacuum sensor pipe and the flat cable.

2 → With the inferior part of the frontal introduced into the packer, properly set the locking teeth.

3 → Picking the frontal by the bottom bringing it back, moving it to the appropriate position. Be careful since the frontal has 2 riveted nuts used to fix it with bolts. These nuts have to be above the lateral plate, as it is shown in the following picture (old model).

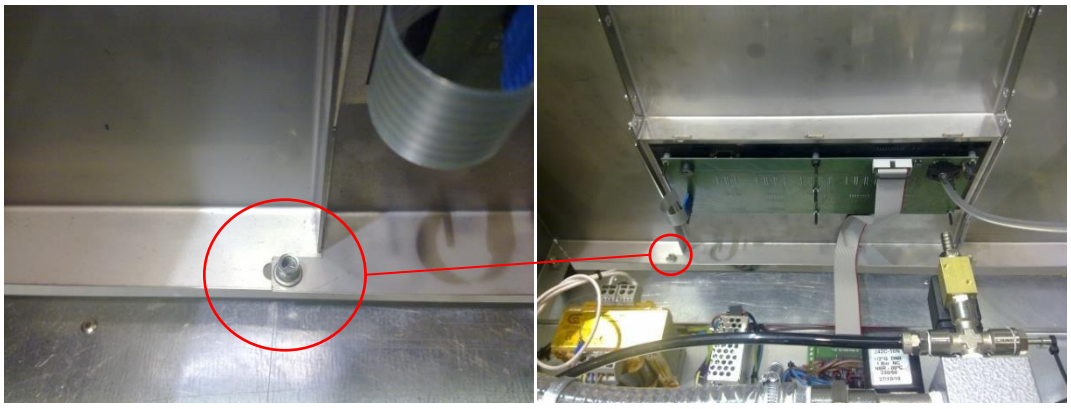


Figure 14. Fixing screws for the frontal

In the current model, the nuts are located on the sides, so the front flange is at the bottom, making it easier to assemble.

Finally screw the two screws.

4.2. Rear disassembly

To disassemble the rear part, follow the steps down below:

Step 1 → Unscrew the two bolts.

Figure 15. Rear disassembly (Step 1)

Step 2 → Take it out avoiding the external vacuum connector and the connection pin of inert gas.

Figure 16. Rear disassembly (Step 2)

Note that the piece is positioned behind the tray to position it. See next.

Figure 17. Rear disassembly (Step 3)

4.3. Lid disassembly

In order to disassemble the lid, remove the 4 screws located in the rear part.

Figure 18. Lid disassembly

Hold the lid from the inside because when unlocking the screws, it could get damaged.

4.4. Tub disassembly

To disassemble the stainless-steel tub, previously the lid has to be taken out as well as the rear part. Once they are out, follow the steps down below:

Step 1 → Disassemble the aluminium hinges. To do that, remove both screws that every hinge has.

Figure 19. Tub disassembly (Step 1)

Then move the hinge and gas spring set forwards, releasing them from the tub.

Step 2 → Remove the lateral screws.

Figure 20. Tub disassembly (Step 2)

Step 3 → To completely free the tub, elevation cylinders have to be removed, which is done untightening the plastic nut from the inside of the tub.

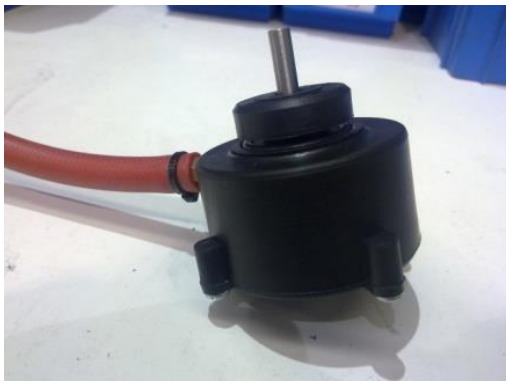


Figure 21. Tub disassembly (Step 3)

Caution, the elevation cylinder includes a toric joint to seal the assembly. Be careful not to lose it!

Figure 22. Toric joint from the elevation cylinders

5. TROUBLESHOOTING

Before starting a process of troubleshooting, verify that voltage arrives in a proper way at the power supply, relay board and control board.

5.1. Check the power supplies

5.1.1. Old model

Disassemble the frontal (see Frontal disassembly) to access the electronic.

With the power supply connected, first verify that the relay board LED lights when the packer is connected to the electric network.

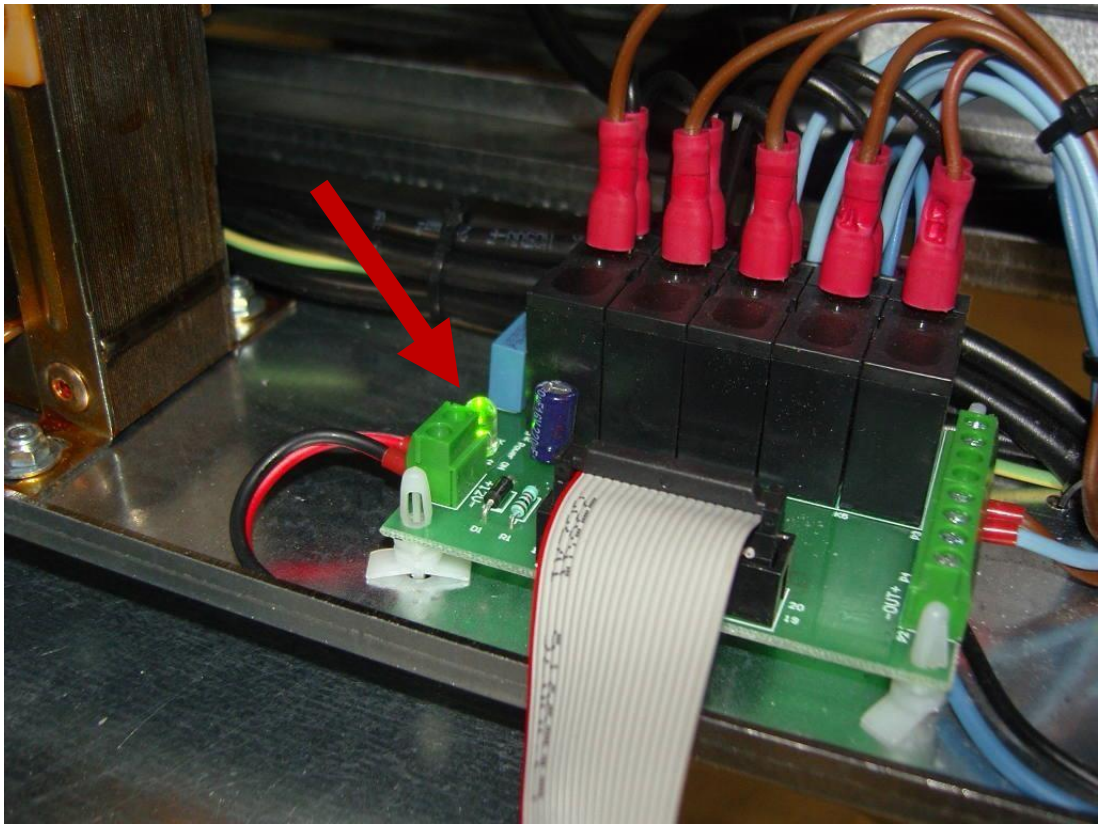


Figure 23. Power supply LED (correct)

If it is not the case, verify the wires of the power supply, check there are 230VAC at the entrance and 12VDC at the exit (see following picture).

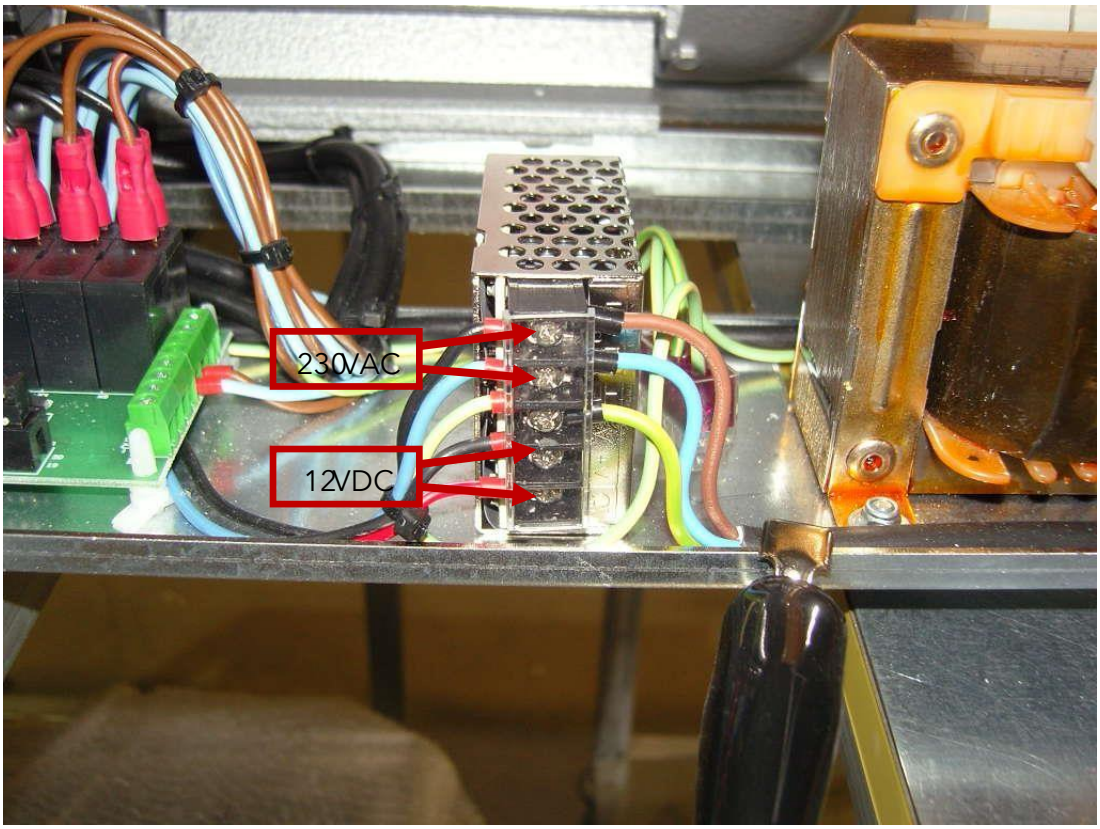


Figure 24. Power supply voltages

At this point, verify that DC voltage in the printed circuit (see following picture), is 3.3V ±0.25V.

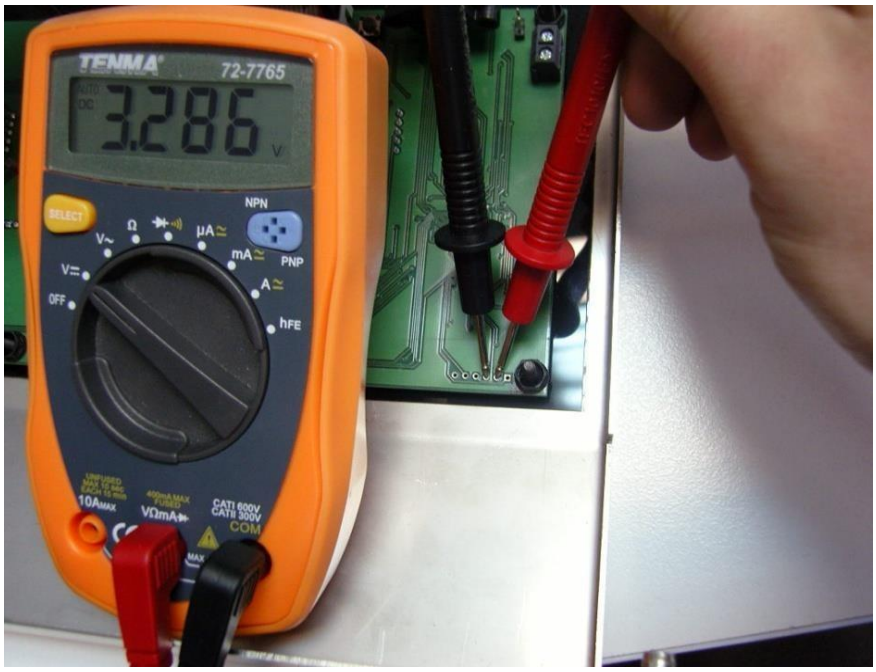


Figure 25. Voltage measurement in the printed circuit

5.1.2. Current model

Disassemble the frontal (see Frontal disassembly) to access the electronic.

With the power supply connected, first verify that the relay board LED lights when the packer is connected to the electric network.

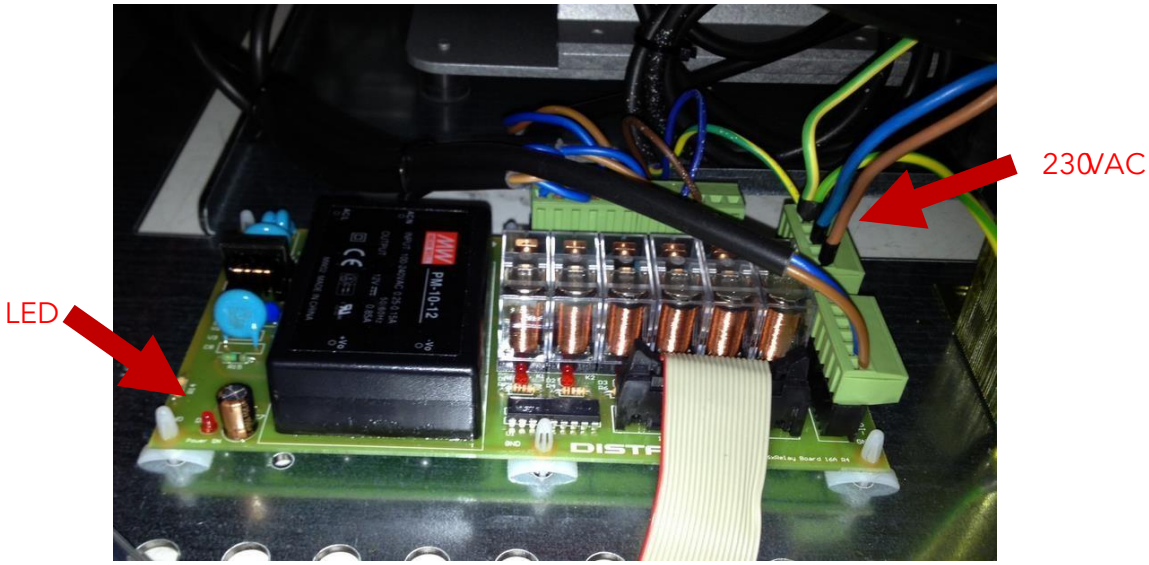


Figure 26. Power supply LED (correct)

If it is not the case, verify the wires to the relay board and check there are 230VAC at the entrance.

5.2. Modo de test

There is a test mode that allows you to check the correct connection of all electromechanical elements of the machine, switch lid, the vacuum sensor, buttons, and internal memory of the control board.

Sensor models:

To enter test mode, remove the front panel (see Frontal disassembly) to access the electronic and press the button located between the vacuum sensor and the connector to the relay board, while connecting the packer to the network. To exit, turn the power off.

Time models:

To enter the test mode (P1 sub mode), press the VAC STOP button for 10 seconds. If the P1 sub mode does not appear, press VAC STOP until it appears. To exit, hold down VAC STOP for 2 seconds.

5.2.1. Electromechanical elements test

To test the electromechanical elements, just press the button associated with every element listed in the following table.

Button (SENSOR)	Button (TIME)	Action
VAC	**SOFT**	Turns on the vacuum engine while it is pressed.
VAC+	**TIME+**	Turns on the elevation cylinders. They will only move if a difference of pressure between their ends exists.
GAS	**SEAL-**	Turns on the intake gas solenoid valve (only models with gas).
SEAL	**SEAL+**	Turns on the sealing bar.
PROG.	**TIME-**	Turns on the solenoid valve of atmospheric pressure recovery.

Table 6. Electromechanical elements/buttons association

Note that it is possible to verify leaks with this mode. To do so:

- Close the lid.
- Keep the VAC (sensor) or SOFT (time) button pressed until the vacuum level shown in the display stabilizes.
- Periodically check the vacuum level. If it drops drastically is because there are leaks.
- Press the PROG (sensor) or TIME- (time) button once the process is finished to restore atmospheric pressure.

If pressing any button, the associated element does not turn on, verify the wiring until finding the problem, as it is explained in the following chapters.

5.2.1.1. Vacuum pump

Press VAC (sensor) or SOFT (time) button. When doing it, the vacuum pump should run immediately.

If it is not the case, check the wiring from the relay board. If it is not correct, replace the relay board.

5.2.1.2. Elevation cylinder

To verify the properly running of the cylinders, they must be retracted, as it is shown down below:

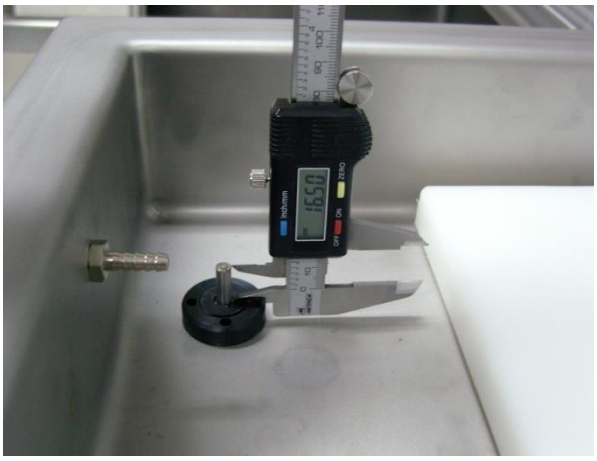


Figure 27. Retracted cylinder (Upper part)

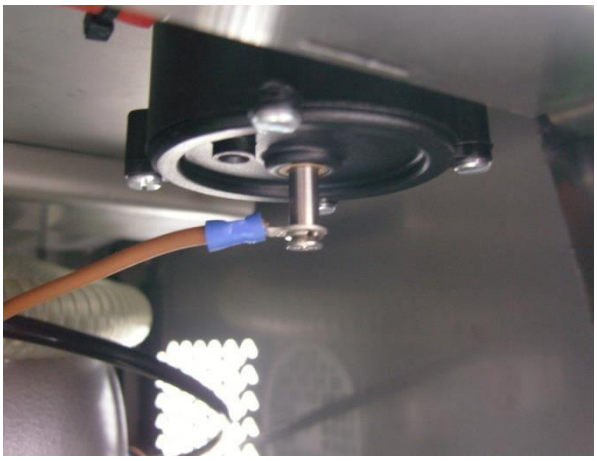


Figure 28.Retracted cylinder (lower part)

If the cylinders are not retracted, with the lid open and the engine stopped, press VAC+. If they do not retract immediately, there is a problem with the electropneumatic system (cylinders relay, cylinders solenoid valve).

Once retracted, close the lid and press VAC (sensor) or SOFT (time) button for 20 seconds.

During that time, we will see the vacuum value rise. Release it and press VAC+ (sensor) or TIME+ (time). When doing it, cylinders should elevate, as it is shown in the following picture:

Figure 29. Elevated cylinder (bottom part)

If this does not happen, verify the wiring from the relay board to the cylinder lifting solenoid valve.

Once the test is done, activate the solenoid valve of atmospheric pressure recovery (see Solenoid valve of atmospheric pressure recovery) and when the lid is open, press VAC+ (sensor) or TIME+ (time) to retract the cylinders.

5.2.1.3. Solenoid valve inert gas injection

With the lid closed, press VAC (sensor) or SOFT (time) button for 20 seconds. During that time, we will see the vacuum value rising. Release it and press the GAS (sensor) or TIME- (time) button. When doing it, we should hear the air entrance to the tub, while the vacuum value decreases gradually.

If that is not the case, check the wiring from the relay board to the gas intake solenoid valve. Also verify the vacuum circuit from the solenoid valve to the tub.

5.2.1.4. Sealing bar

Press SEAL (sensor) or SEAL+ (time) button and measure the AC voltage between lifting cylinders shafts. That voltage must be 24V AC approximately for all the models.

Figure 30. Voltage verification in the sealing bar connectors

If it is not the case, verify the wiring from the relay board to the transformer and from the transformer to the elevation cylinders.

5.2.1.5. Solenoid valve of atmospheric pressure recovery

With the lid closed, press VAC (sensor) or SOFT (time) button for 20 seconds. During that time, we will see the vacuum value rising. Release it and press the PROG (sensor) o TIME- (time) button. When doing it, we should hear the air entrance to the tub, while the vacuum value decreases gradually.

If that is not the case, check the wiring from the relay board to the solenoid valve. Also verify the vacuum circuit from the solenoid valve to the tub.

5.2.2. Keyboard test

Sensor models:

To test the keyboard, just press the button you want to verify and visualize the value indicated in the PROG display. It must be taken into account that some buttons trigger electromechanical elements, as it has been explained in the section before.

Button	Action
Non	Program display shows 00
VAC	Program display shows 01
VAC+	Program display shows 02
GAS	Program display shows 03
SEAL	Program display shows 04
PROG.	Program display shows 05
VACSTOP	Program display shows 06
+	Program display shows 07
-	Program display shows 08
SOFT	Program display shows 09
ON/OFF	Program display shows 10

Table 7. Program button/display association (sensor)

Time models:

To test the keyboard, while in P1 mode, we simply have to press the button to be checked and display the value indicated on the SEAL display. It should be taken into account that some buttons also activate electromechanical elements, as mentioned in the previous point.

Button	Action
None	Program display shows 00
VAC STOP	Program display shows 01. We must be careful, because when pressing this button, we will change the sub mode (P2) or we will exit the test mode.
TIME+	Program display shows 02
TIME-	Program display shows 04
SEAL+	Program display shows 08
SEAL-	Program display shows 16
SOFT	Program display shows 32
ON/OFF	Program display shows --. We must be careful, because when pressing this button, we will exit the test mode.

Table 8. Program button/display association (time)

5.2.3. Lid switch test

Sensor models:

All the visual indicators of the control board are powered when the lid is open. When lowering the lid, they should fade.

Figure 31: Visual indicators (sensor)

Time models:

The SOFT button LED should be on when the lid is open. When the lid is lowered, the indicator should go off.

Figure 32. Visual indicators (time)

5.2.4. Vacuum sensor test (sensor models only)

VAC indicator always shows the vacuum sensor lecture.

For normal atmospheric pressures, VAC value ranges from 50 to 70.

For vacuum conditions, VAC value ranges between 400 and 650.

5.2.5. Internal memory test (sensor models only)

Test is done automatically when powering the control board.

If the SEAL display shows 111, test has been properly done. In the other hand, the SEAL display will show 000.

6. BREAKDOWN REPAIRS

6.1. Replacing lid switch

Replacing the switch is done by removing the rear part (see chapter 4.2) and using a key, untighten the nut that fix the switch to the tub. Following picture shows the nut.

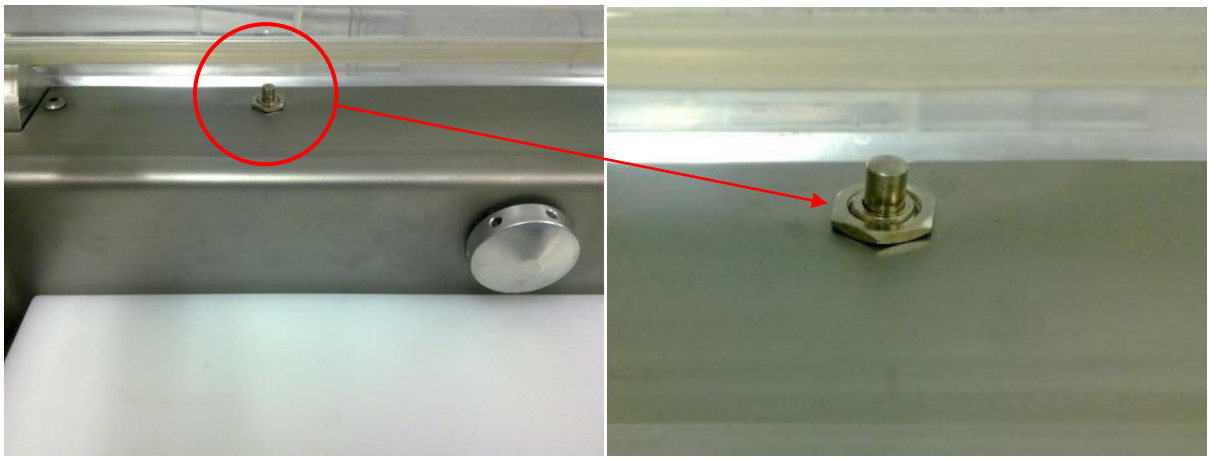


Figure 33. Lid switch

When reassembling, the nut must be flush with the last part of the switch thread.

Electrical connection has to be done to the NO (Normally Open) appropriate terminals; it is shown down below.

Figure 34. Lid switch (old model)

Figure 35. Lid switch (current model)

Wiring should be done like it is shown in the following picture:

Figure 36. Lid switch wiring (old model)

Figure 35. Lid switch wiring (new model)

6.2. Replacing the sealing profile

If the packaging machine has the two black Teflon washers mounted on the upper part of the profile, replace with the black silicone strip.

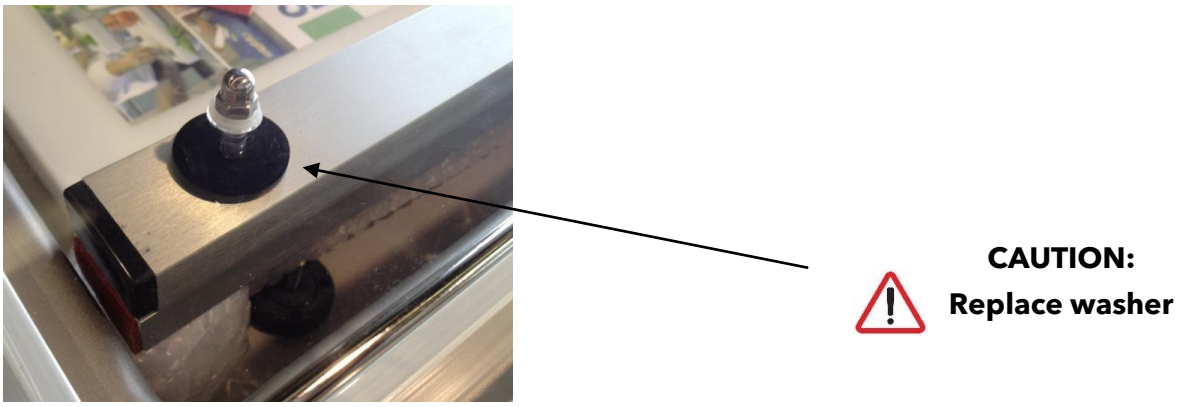


Figure 37. Teflon washer

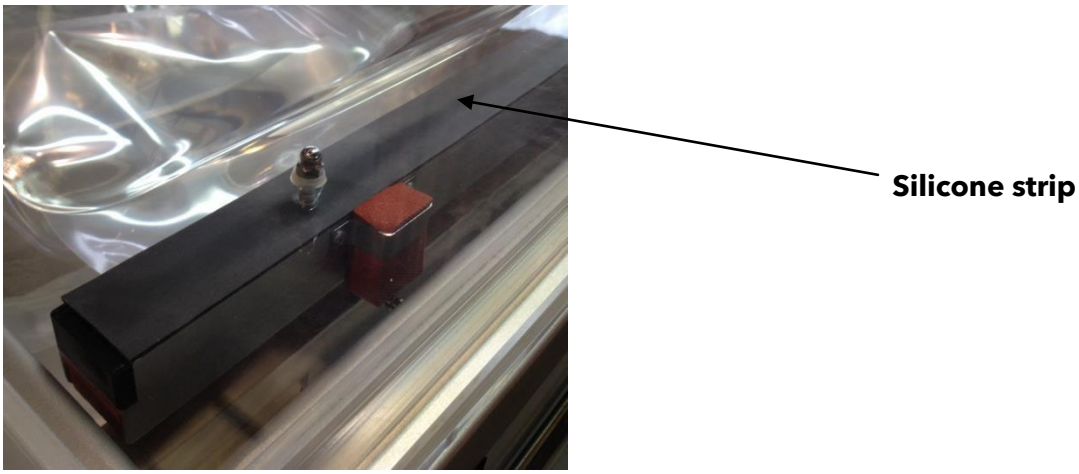


Figure 38. Black silicone strip

The upper sealing profile is replaced:

1. Remove the sponge silicone strip to gain access to the retaining screws.
2. Replace the black silicone washers with the strip. Also change the screws and washers that are on the outside of the lid.
3. Fix the screws again and fit the red silicone profile.

6.3. Replacing weatherstrip for the vacuum packer lid

The weatherstrip of the vacuum packer can wear out for various reasons.

To replace the transparent weatherstrip, a straight cut must be made at both ends of it, since otherwise it may leak and not make proper vacuum.

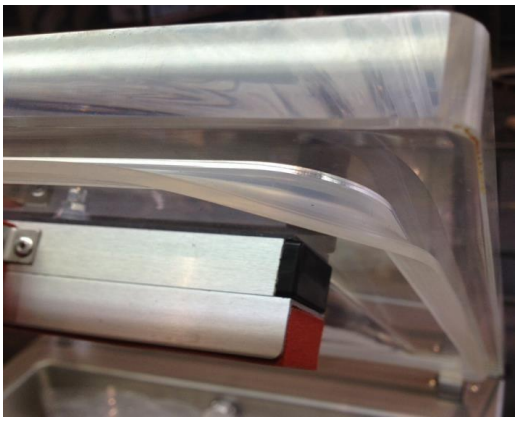


Figure 39. Weatherstrip corner position

The gasket of the weatherstrip must be located at the rear of the tub.

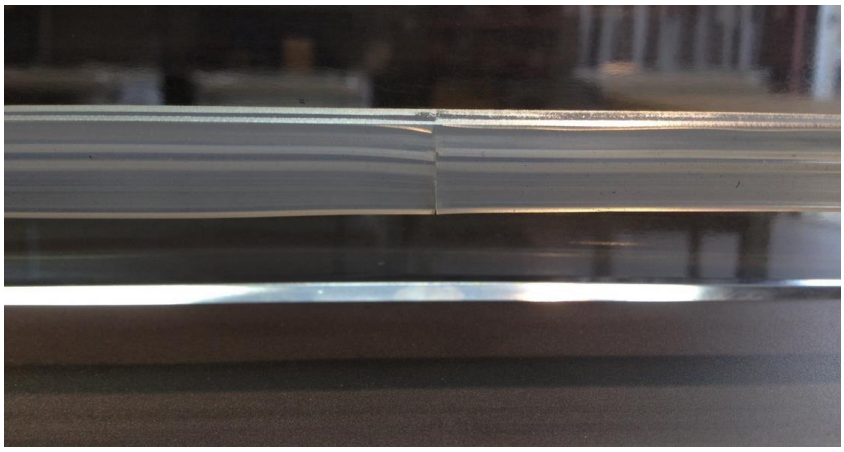


Figure 40. Weatherstrip cut

Do not use any type of sealant or silicone for the weatherstrip.

6.4. Replacing vacuum pump

In order to replace the pump, firstly we need to remove the rear part, the lid and the tub.

Also, we have to remove the suction block connected. That block is removed by untightening its screws (see following pictures).

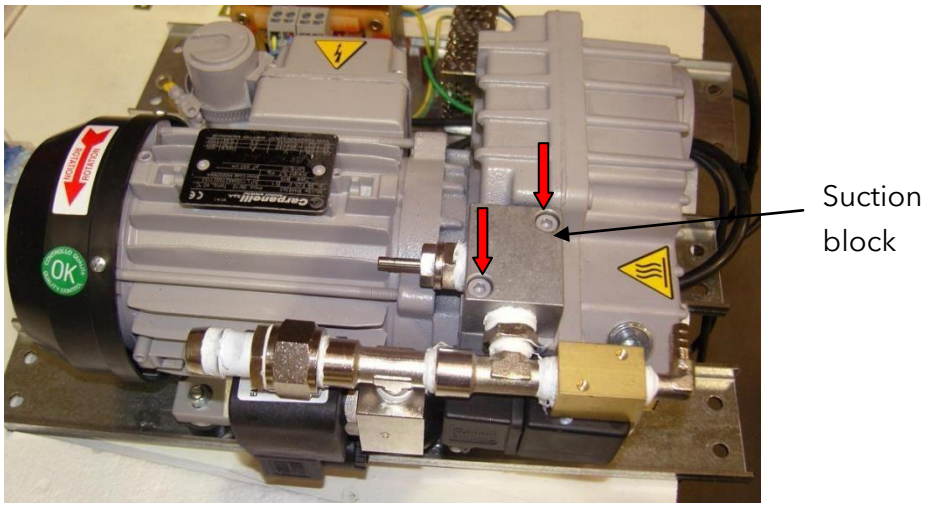


Figure 41. Pump models TVA410-430-432B2

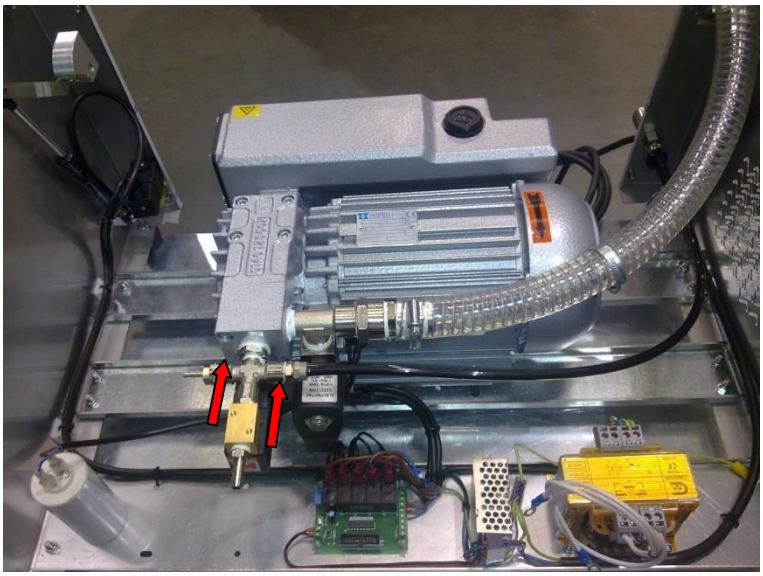


Figure 42. Pump model TVA310D2

Afterwards, remove the screws located under the pump, that fix it to the structure. See next image:

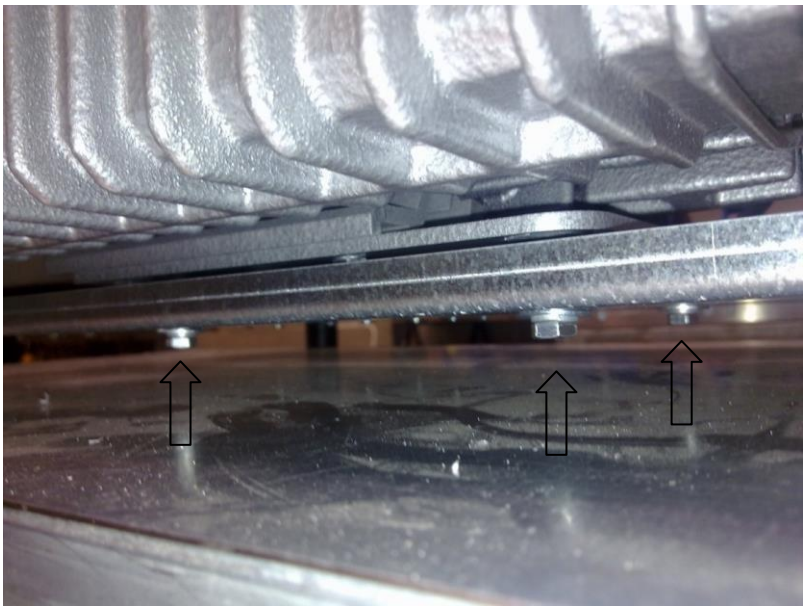


Figure 43. Fixing screws vacuum pump (old model)

It is only fixed by three points. When assembling it, be careful to put the ring and the grower ring. (Old model)

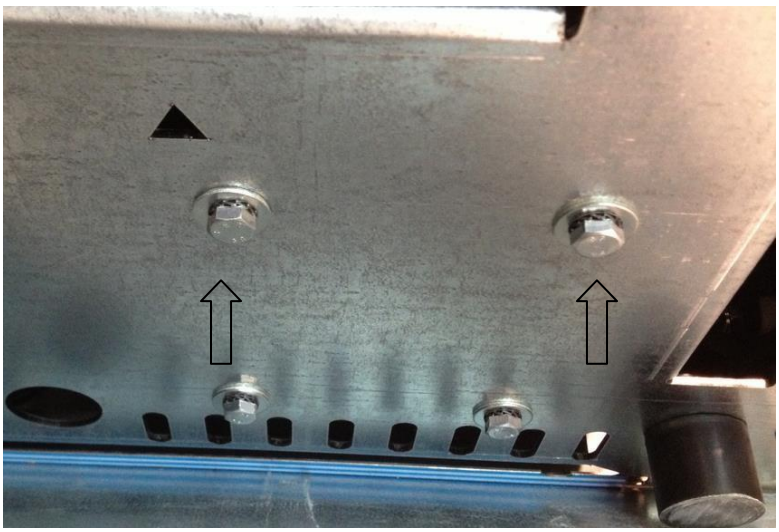


Figure 44. Fixing screws vacuum pump (new model)

In the new model, the pump is attached to the lower galvanized plate.

6.5. Replacing power supply

To replace the power supply, remove the screws located in the bottom part and that fix the power supply to the structure. Respect the position of the wiring. (Old model)

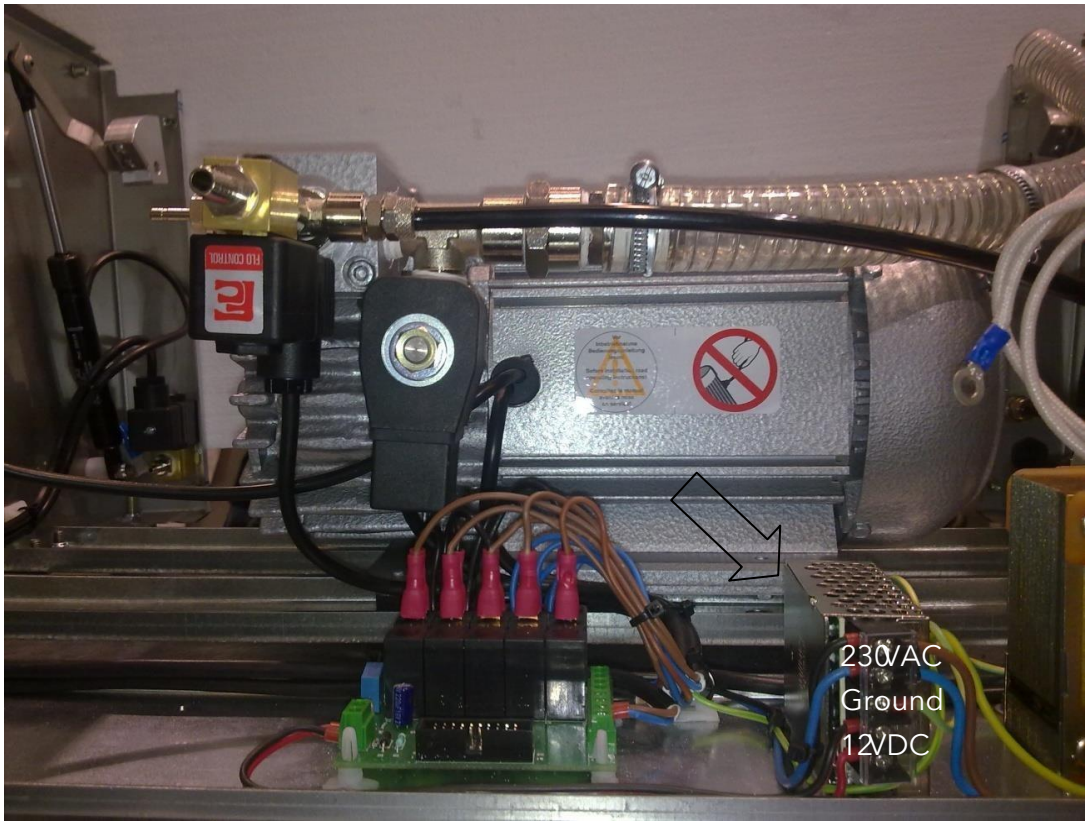


Figure 45. Power supply

In the current model, the power supply is built into the relay board.

6.6. Replacing relay board

Relay board is fixed to the structure via four quick connect white spacers. Simply pressing their ends, relay board will be freed.

To perform the electrical wiring, check the appropriate electrical scheme shown in Appendix 1.

6.7. Replacing control board

When replacing this element, remove the frontal as it is shown in section 4.1 and remove the flat cable and the vacuum sensor tube.

Afterwards, remove the keyboard connection strip and remove 7 screws.

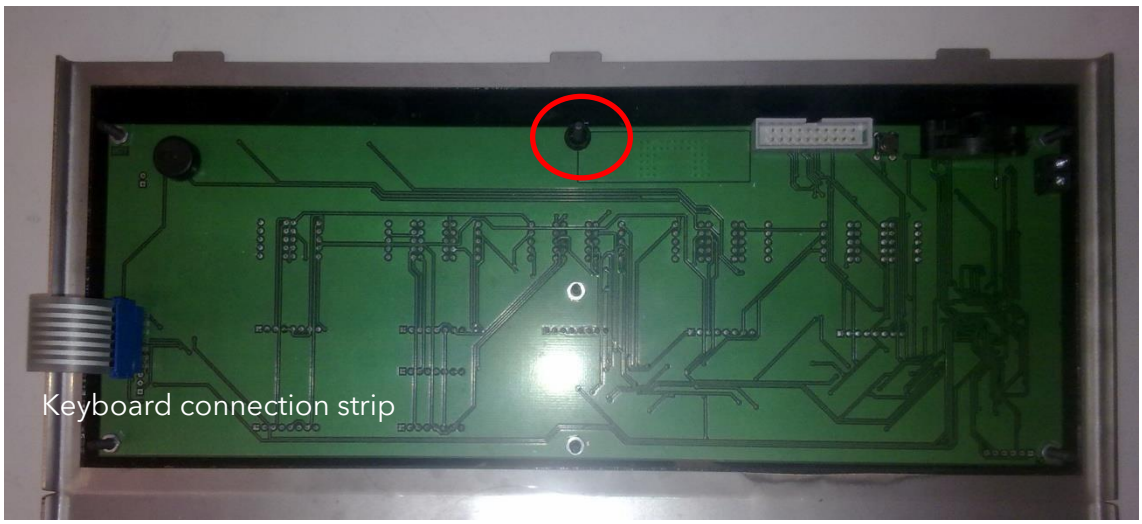


Figure 46. Control board

Caution, when reassembling bear in mind that the marked nut in the upper image with a red circle, has to be made of plastic because using a metallic nut could short circuit the board, provoking a control board malfunctioning.

The board is mounted with gray spacers; do not forget to put them when reassembling.

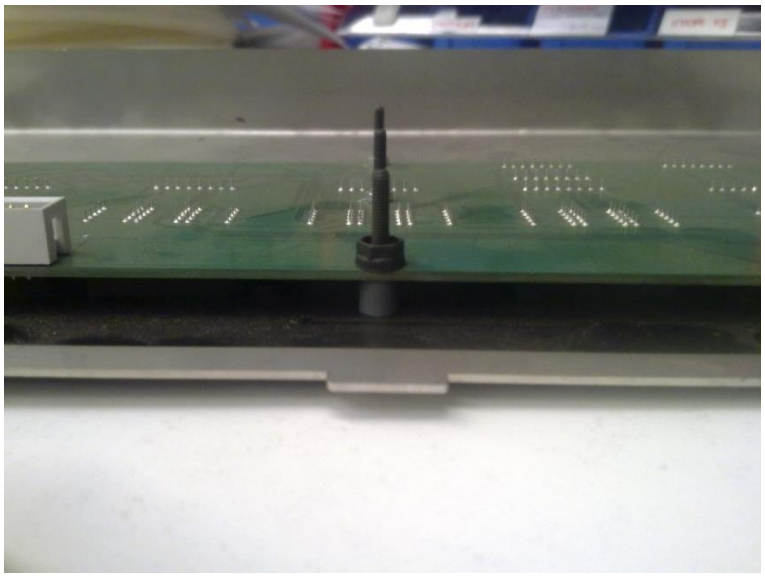


Figure 47. Control board spacers

6.8. Removing sealing transformer

Remove the frontal as it is shown in section 4.1.

Remove the screws fixing the transformer.

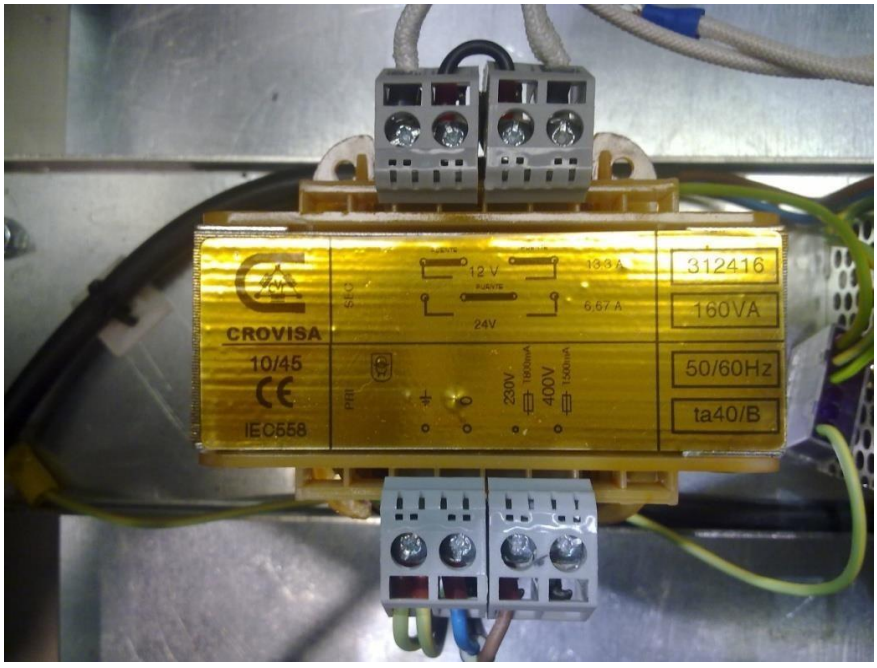


Figure 48. Sealing transformer

To make the electrical connection, check the electrical scheme shown in Appendix 1, corresponding to the transformer connection. Bear in mind that to obtain the 24VAC, you have to do a bridge as it is shown in the transformer label.

6.9. Replacing solenoid valve

To replace the solenoid valve, remove the coil and the electrical connector untightening the corresponding nut. Afterwards, unscrew from the connections. To work with ease, you can take out the suction block of the pump, as it is explained in section 6.4.

Always the block is removed; the pump intake must be covered to avoid contamination or the presence of any strange body in the inside of the pump.

When reassembling the solenoid valve, bear in mind that the valve block has position. Some solenoid valves are indicated with the numbers 1 and 2 (1 has higher pressure than 2) or with an arrow that shows the flux of the fluid (air).

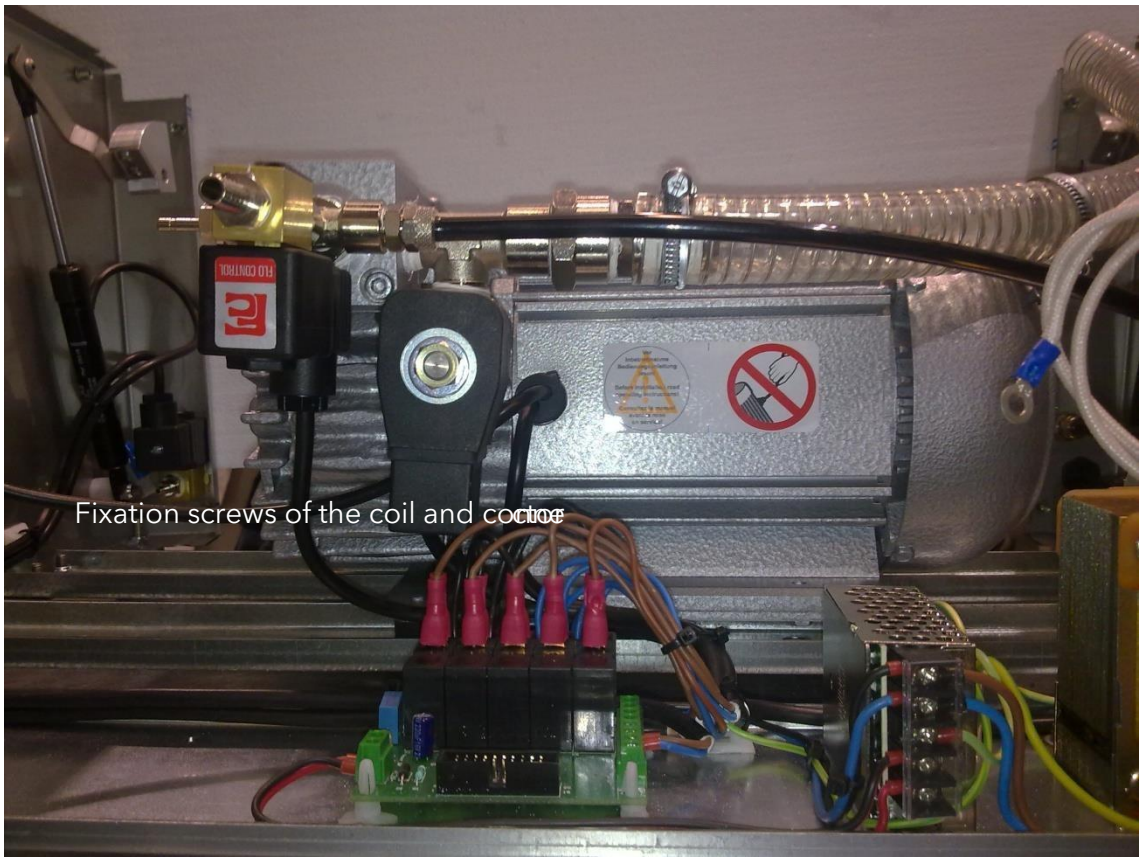


Figure 49. General view models TVA410-430-432B2

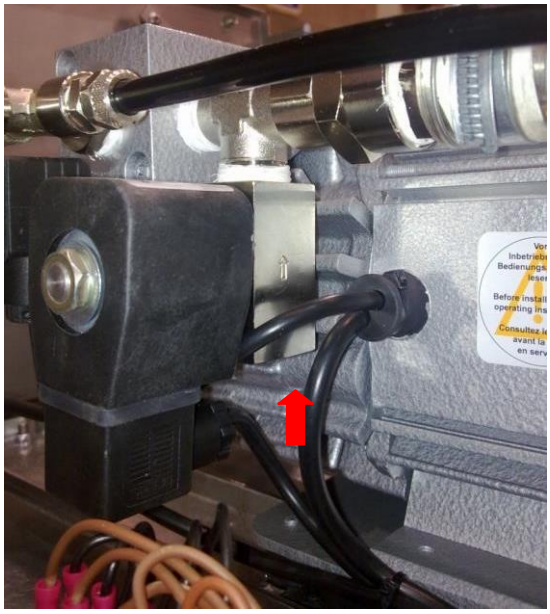


Figure 50. Solenoid valve of atmospheric pressure recovery models TVA410-430-432B2

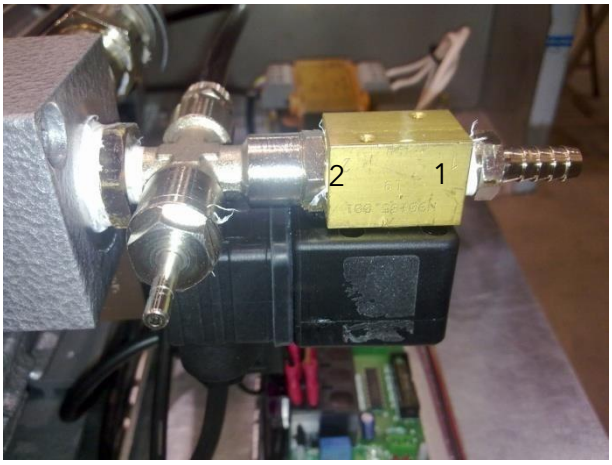


Figure 51. Solenoid valve of cylinders elevation models TVA410-430-432B2

Figure 52. Solenoid valve inert gas injection models TVA410-430-432B2

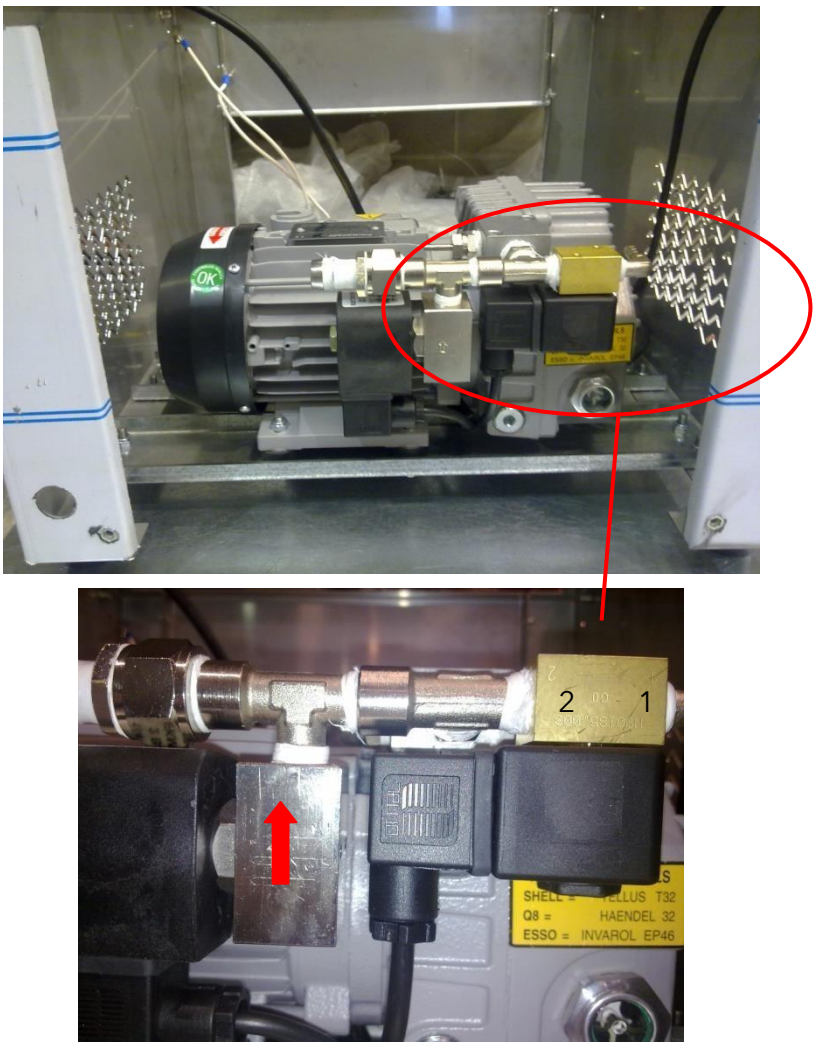


Figure 53. Solenoid valve model TVA310D2

6.10. Repairing vacuum sensor (sensor models)

Due to the incorrect manipulation of the control board, it is possible that the pins of the vacuum sensor break up in the contact zone with the printed circuit:

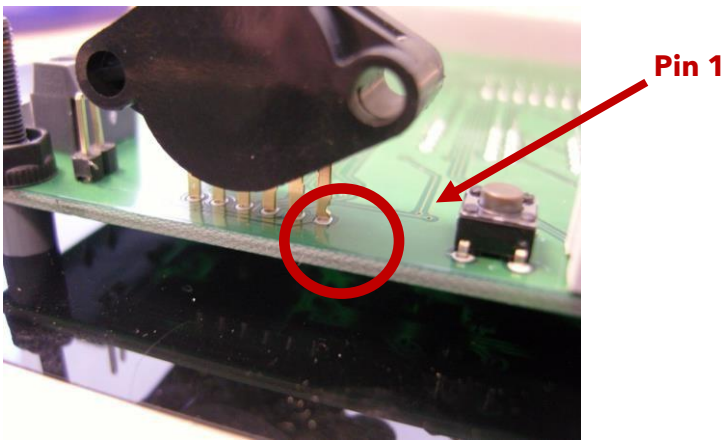


Figure 54. Pressure sensor

If the printed circuit has not been damaged, it is possible to rewelding the sensor from the superior part, as it is shown in the following picture. Pay attention to the position of the pin 1:

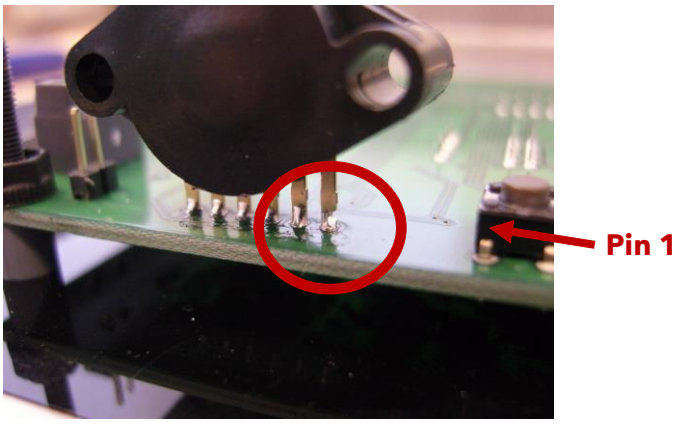


Figure 55. Pressure sensor rewelded

The current model has a plate that reinforces the pressure sensor.

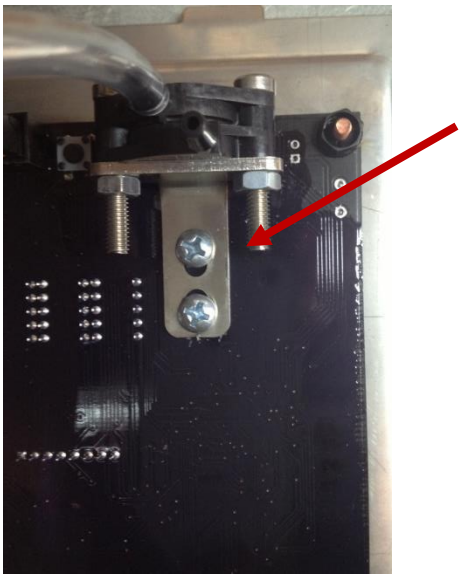


Figure 56. Pressure sensor plate

6.11. Repairing gas spring

The steps to follow for the replacement of the gas spring in the event that it is damaged are described below:

1. Remove the lid from the vacuum packer. This step should be done with the lid of the packers open to not force the mechanism while it is being disassembled.

Figure 57. Lid detail

In order to remove the lid, it is necessary to unscrew the 4 screws that connect the lid to the hinge from the back of the lid.

Hold the cover from the inside, as it could be damaged when the screws are loosened.

2. Remove the rear register. Loosen the two screws that hold the rear plate to the rest of the packaging machine to access to the interior.

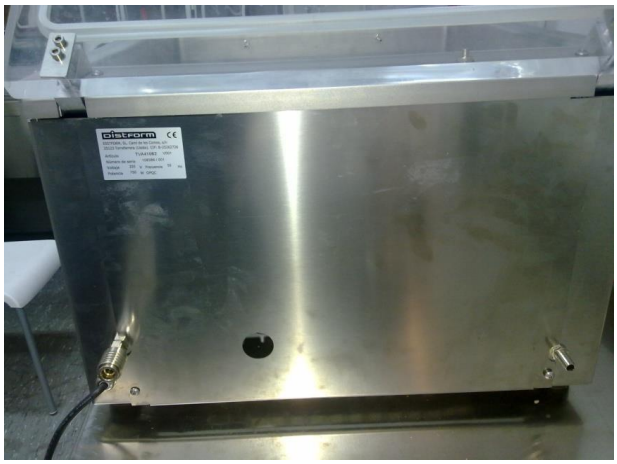


Figure 58. Rear register

3. Remove the hinge.

a. Remove the screws indicated below.

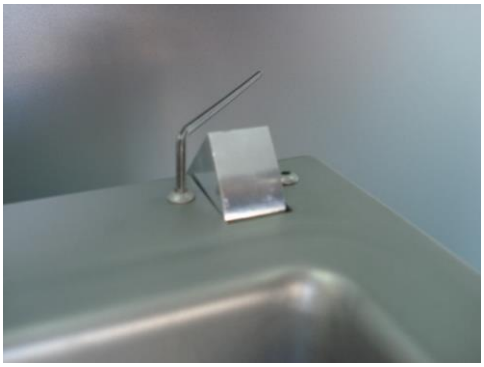


Figure 59. Vacuum packer hinge

b. When loosening the screws, hold the aluminium blocks of the hinge at the bottom.

Figure 60. Vacuum packer hinge

c. Once it has been released from the top, it has to be released from the side plate of the vacuum packaging machine.

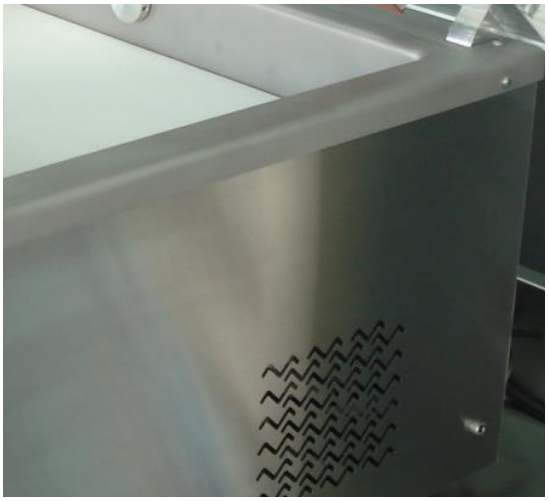


Figure 61. Side vacuum packaging machine

This screw is held by a self-locking nut so it must be loosened on both sides at the same time.

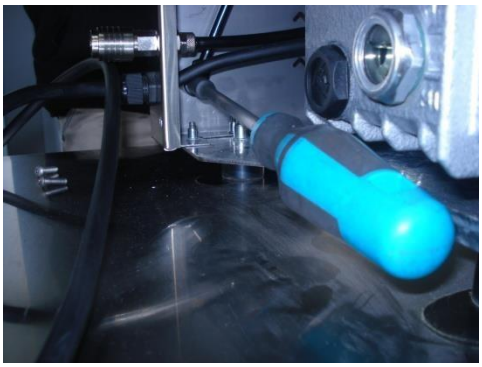


Figure 62. Side interior

Figure 63. Side exterior

d. Separate the old assembly from the aluminium part.
e. Assemble the new assembly back to the vacuum packaging machine, repeat the steps in reverse.

When reassembling the assembly and screwing it to the side with the self-locking nut. The assembly should be mounted so that the assembly rotates smoothly.

6.12. Repairing air inlet spigot

Next, the steps to follow are described to be able to change the pins that allow the entry of air into the chambers of the packaging machine.

The 1/8 "M tapered tube spigot code CHE00255 is needed for the repair.

Figure 64. Air inlet spigot

It is very important for the tightness of the chamber to use Teflon.

Step 1 → Remove the two screws that hold the rear register of vacuum packer.

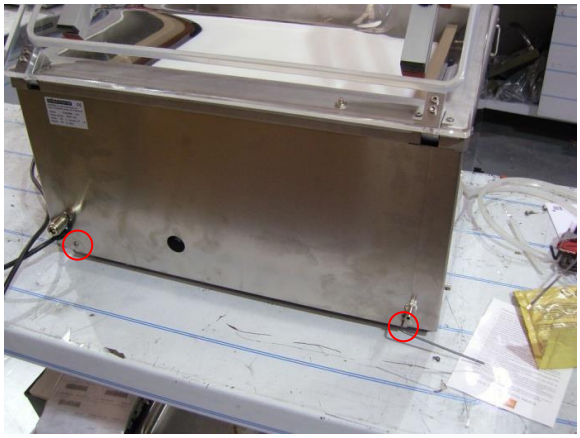


Figure 65. Remove rear lid

Step 2 → Once the rear part has been removed, it is now possible to access the inside of the packaging machine where the 90º elbow is housed and where the pin to be replaced is attached.

Figure 66. 90° connection

To extract the pin, you must hold this piece of the previous image with one hand and with the other hand loosen the pin using a wrench.

Figure 67. Wrench position

Step 3 → Once the pin has been removed, reattach the new, previously tefloned pin.

Step 4 → Replace the rear register.

APPENDIX 1. Wiring diagram (old model)

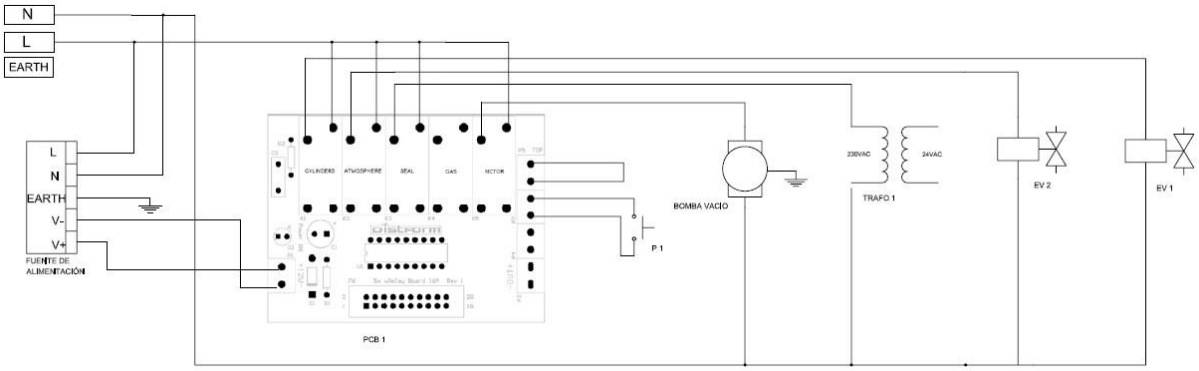


Figure 68. Relay board wiring TVA310D2

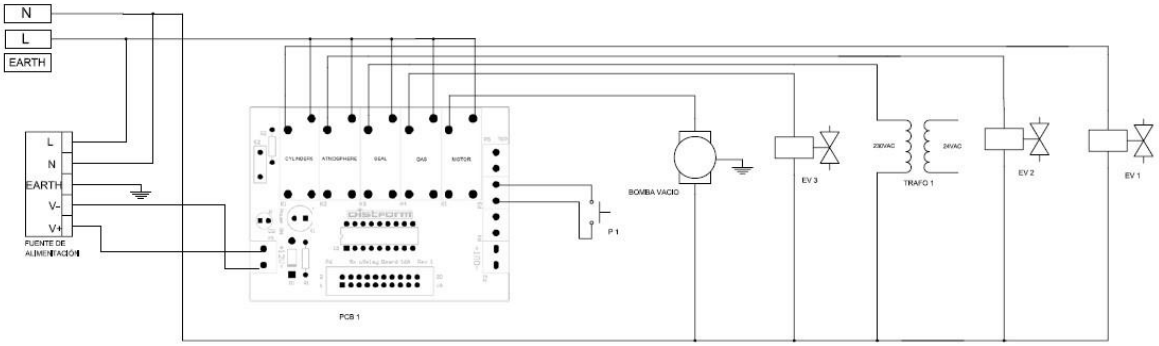


Figure 69. Relay board wiring TVA410-430-432B2

APPENDIX 2. Wiring diagram (current model)

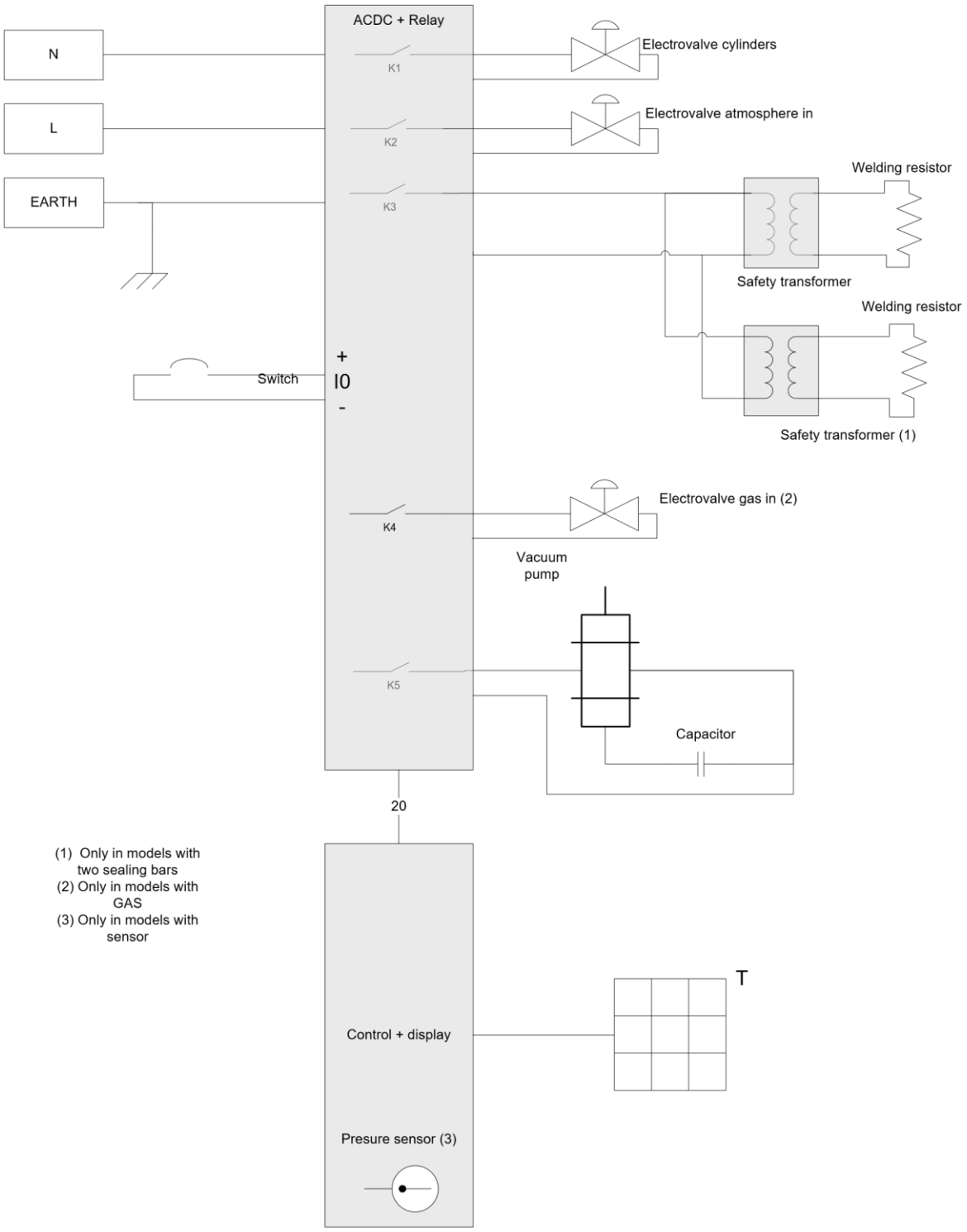


Figure 70. Wiring new models

APPENDIX 3. Relay assignation

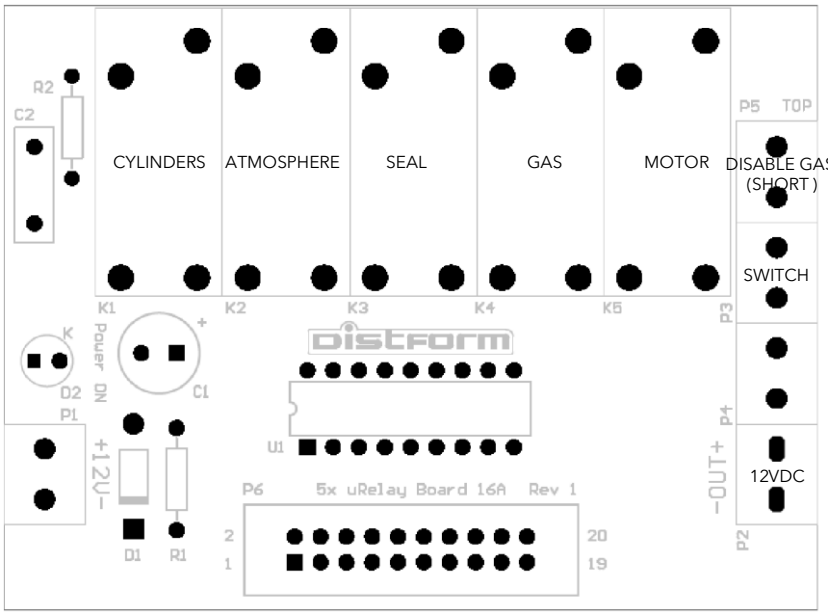


Figure 71. Relay assignation (R1)

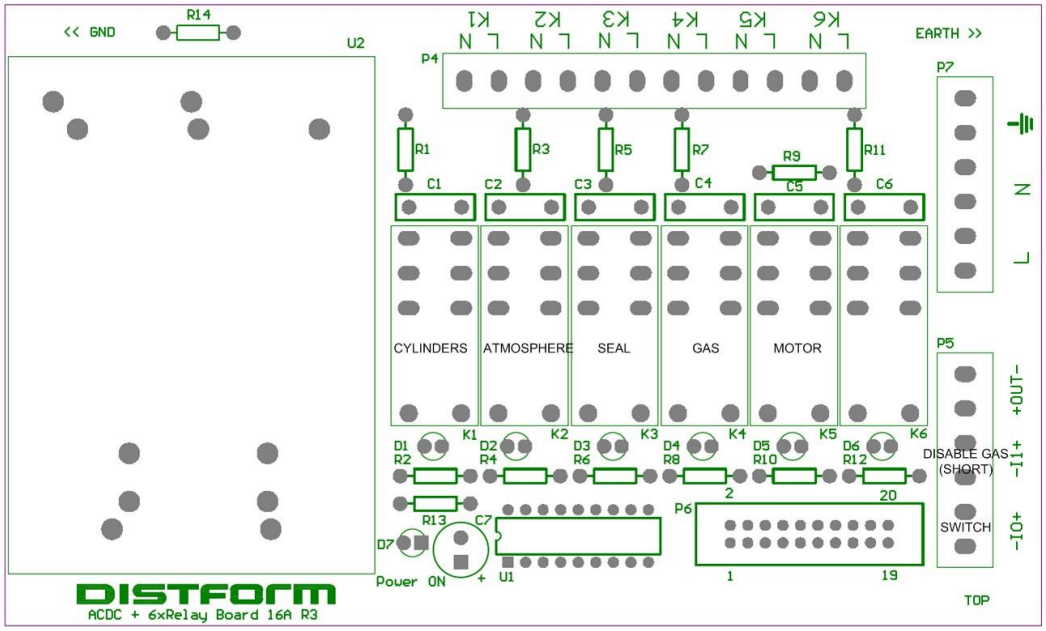


Figure 72. Relay assignation (R2 and R3)