

# INSTALLATION AND OPERATION GUIDE





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- **Before installation it is important to drain out any free water and “sludge” that might have settled in the bottom of your oil tank.**
  - **This is to prevent the filters from clogging up and prevents prematurely change of filters.**
  - **The unit might also not work properly if it gets filled by free water.**
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### 3 Safety

Do not use the TS5060PMH to clean fuel, petroleum, diesel or any flammable liquid that can catch fire on low heat.

The TS5060PMH is made for purifying oil and should not be used to filter other liquids.

Be cautious about running the machine for too long without oil. The unit will normally shut down by itself after 45 minutes if no oil is present. The pump will be unnecessarily worn if no oil is running through the system, and the heater top will thus reach a high temperature.

When changing the filters, use protective eye gear, and oilproof gloves (rubber gloves). Any spillage of oil on floor or surroundings must be cleaned up immediately to avoid accidents.

Make sure the datasheet for the oil in use is available.

If any severe allergic reaction, or critical situation occurs, the nearest hospital should be contacted immediately.

#### 3.1 Required action in case of:

##### 3.1.1 Inhalation of oil steam

Remove the person(s) from the area and let them have fresh air. Contact a doctor.

##### 3.1.2 Skin contact with oil

Rinse thoroughly with soap and water. Contact a doctor if any sign of an allergic reaction.

##### 3.1.3 Eye contact with oil

Rinse thoroughly with eyewash for 10 minutes, especially under the eyelids. Contact a doctor.

##### 3.1.4 Swallowing oil

Bring the person(s) to hospital and bring the datasheet for the oil with you.

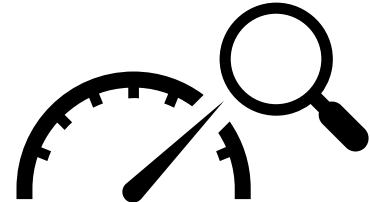


- Do not use the TS5060PMH to clean fuel oil, diesel, petroleum, or other types of flammable liquid or fuel.
  - Do not run the unit without oil. Prior to start-up, fill the pre-filter with oil so that the pump is not running dry.
  - Do not change or open any part of the unit while the unit is running.
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#### 4 Daily check of the TS5060PMH

1. Ensure the power is "ON" and that the unit is running.
2. Observe the inspection glass on the return tank, to see that oil fills up the tank and is then emptied.
3. Control that the pressure gauge is between 3-4 Bar (+/-0.25 bar)
4. Make sure no alarm signal is on, if so, see troubleshooter\*NOTE
5. Check for any visible oil leakage.



\*NOTE! Machines produced after 2011 will alert for filter change after 1800 hours of running. The time interval is based on experience for normal condition and contamination. This may be deviated from based on the actual oil condition of each situation.  
When installing on a new system, we recommend changing the first set of filters after 400-600 hours.  
To reset the counter, press and hold the "START" button for 10-20 seconds.

#### Thermostat settings for 2000W pre-heater From factory thermostat set at 65°C

The following table is only a guideline

Oil viscosity	Temperature
32-68	65°C
68-150	70°C
150-250	75°C
250-320	80°C



## 5 Introduction

This installation and operation guide provides the required information to install and maintain the unit under different circumstances.

The Purifier TS5060PMH is an oil purifier that can be used on both pressurized and pressure free systems. TS5060PMH utilizes a bypass filtration system that evaporates water and filters the oil. TS5060PMH removes particles down to between 1-3  $\mu\text{m}$  and water down to 100 PPM.

Purifier Technology Type TS is a by-pass oil maintenance system for use on pressurized hydraulic lube oil systems. The TS model can be mounted directly on the system or be switched from one system to another, however it is important to not mix different types of oil if switched.

The TS5060PMH will maintain hydraulic and lube oils to NAS4 by removing particles down to 1  $\mu\text{m}$ , it will also remove free and emulsified water, acids and corrosive gases in the oil. The filtration system is a long strand cotton filter that does not absorb water, the water passes through the filter and is evaporated in the evaporation chamber. As long as water is present in the oil, the unit will continuously remove water. For this system to work in the best way possible, a slow flow through the filter is required. The flow through the filter is approximately 600 liters per 24 hours (dependent on oil viscosity), whereupon optimal oil conditions is acquired when the unit runs continuously.

The TS5060PMH is built on a frame to make it compact and movable.

### 5.1 Oil flow path

Bypass from system  $\rightarrow$  Oil Inlet  $\rightarrow$  Pre-heater  $\rightarrow$  Pre-Filter  $\rightarrow$  Pump (Upper section)  $\rightarrow$  Main Filter  $\rightarrow$  Evaporation chamber  $\rightarrow$  Return tank  $\rightarrow$  Pump (Lower section)  $\rightarrow$  Oil Outlet.



- Large debris may block the flow into the unit if the oil is severely contaminated. The oil running through the system must not be so contaminated that it will block the intake.
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## 5.2 Parts description

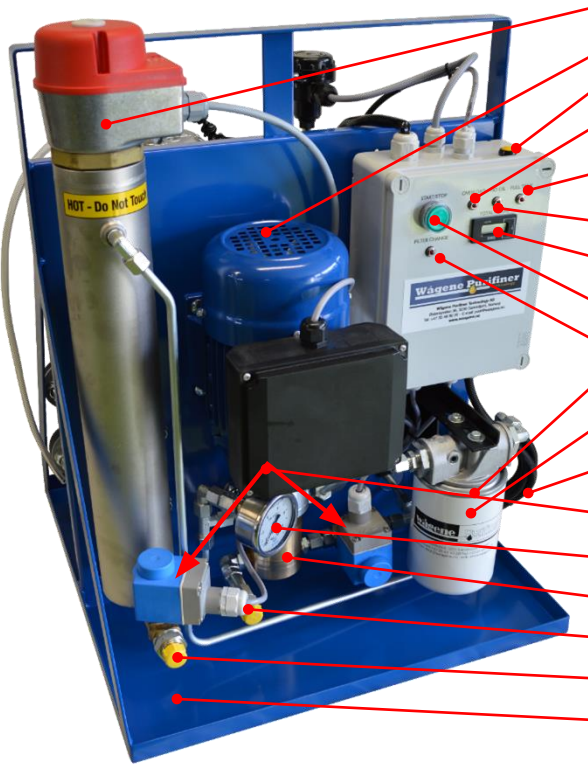
	1. Pre-Heater (2000w).
	2. Electric motor 250w.
	3. Drain return tank.
	4. Alarm – Overload.
	5. Alarm – Full tank.
	6. Alarm – No oil.
	7. Hour counter.
	8. Start/stop.
	9. Alarm – Filter change.
	10. Pre-filter (WP-110T60).
	11. Oil sample point (Behind filter).
	12. Power cord (230V 50/60Hz).
	13. Solenoid valve.
	14. Pressure gauge.
	15. Dual gear pump (90 Liters/ hour).
	16. Oil outlet 3/8” BSP.
	17. Oil inlet 3/8” BSP.
	18. Chassis.
<b>Length:450mm Height:580mm Width:470mm.</b>	
<b>Weight: 45 Kg.</b>	
1. The Pre-heater can be adjusted from 40°C to 90°C (104°F to 194°F) Ensure that you stay within the service temperature of the oil before you adjust this. Note! The heat chamber will raise the temperature further by approximately 10°C.	
2. Electric motor, single phase, 250watt, 50/60Hz, 230 Volt.	
3. Drain return tank. Detach inlet hose, hold the button while the unit is running to drain it.	
4. Alarm Overload, see troubleshooting.	
5. Alarm Full tank, see troubleshooting.	
6. Alarm No oil, see troubleshooting.	
7. Hour counter, keeps track of how many hours the unit has been running.	
8. “Start/stop” Push to start, and again to stop, hold for 10-20 second to reset filter change alarm.	
9. Alarm Filter change, highlights after 1800 hours. Reset with “Start/stop” Button.	
10. Pre-filter, filters down to 60µm. Main purpose is to protect the pump from unnecessary wear.	
11. Oil sample point, a location to take a sample from the oil that has been filtered.	
12. Powercord 3G 1.5 type H07RN with CEE7/4 plug.	
13. Solenoid valve: Inlet only open when the unit is “on”. Outlet only open when activated by float switch or “Drain return tank”.	
14. Pressure gauge, must stay between 3-4 bar. (+/- 0.25 bar) this is the required pressure for the main filter.	
15. Dual gear pump, upper and lower section with internal bypass.	
16. Oil outlet, will return some oil continuously. The pump capacity is 90 l/h. Main filter capacity is 25 l/h. Excessive oil returns via the pump’s internal bypass system.	
17. Oil inlet, suction should be from the lowest available point on the tank or system.	
18. Chassis, this can be strapped, lifted as needed. It has a drip pan to minimize spillage during filter change.	

Table 1/ Parts description TS5060PMH(1/2)




	<ul style="list-style-type: none"> <li>19. Float switch</li> <li>20. Safety switch high level</li> <li>21. Heater element</li> <li>22. Evaporation valve</li> <li>23. Outside of heat chamber</li> <li>24. Evaporation valve</li> <li>25. Main filter housing</li> <li>26. See glass</li> <li>27. Return tank</li> </ul>
<p>19. Float switch. Oil enters this tank by gravity from the evaporation chamber. Oil lifts the float which activates a level switch, which in turn activates the solenoid valve. The float has a low level to close the solenoid valve, and a high level to open it.</p> <p>20. Safety switch high level, in the unlikely event that the float should not work, the unit will shut down if the oil reaches the safety switch.</p> <p>21. Heater element, 150 watts. This continuously heats the evaporation chamber and raises the temperature of the oil by approximately 10°C.</p> <p>22. Evaporation valve, this has a small ball inside that will close the valve in the unlikely event that oil has filled the evaporation chamber. The evaporation valve releases vapor to the air, but because the vapor is below boiling temperature, you will only see this as condensation inside the transparent hose.</p> <p>23. Outside of heat chamber, when changing the filter inserts, remove the 4 bolts holding the heat chamber in place. Make sure the unit is turned off when doing so.</p> <p>24. Evaporation valve, this has the same function as the above mentioned valve, and is mounted on the return tank.</p> <p>25. Main filter housing, the filter insert is mounted inside this. The oil enters from the bottom of this canister and is pressed through the filter before it flows through the evaporation chamber.</p> <p>26. See glass, The first time the unit is started after filter change, it may take some time before the return tank is filled. Once the unit is running, inspect the see glass to ensure the return tank fills up and drains approximately every five minutes.</p> <p>27. Return tank. This part is required as a buffer tank for the TS-model. When the return tank is full the solenoid valve on the return line will open. The pump will then get enough oil to press the filtered oil back to the system.</p>	

Table 2 Parts description TS5060PMH (2/2)



### 5.3 TS5060PMH – Single

Type	TS5060PMH
Manufacturer	Purifier Technology
Applications	Pressurized interfaces up to 8 Bar
Weight	45 Kg
Dimensions	H: 640 mm W: 450 mm L: 470 mm
Pump	Dual pump Inlet: suction Outlet: pressure
Interface couplings	Male 3/8" BSP
Max pressure inlet	200 Bar with reduction valve 3 Bar without reduction valve
Max pressure outlet	8Bar or 0.8Mpa
Oil type	All oil types
Viscosity range	32 -320 cSt
Oil flow through filter	Dependent on viscosity, but normally 600 L/day.
Oil flow through by-pass	Dependent on viscosity, but normally 1560 L/ day
Water removal technique	Evaporation
Filter purification capacity	Between 1 and 3 $\mu$ m
Expected lifetime	> 10 years
Filter change cycle	Every 3-4 months dependent on contamination
Mechanical maintenance	5-7 years
Temperature adjustment	40-90°C on the pre-heater, no adjustment on the heat chamber.
Filter water absorption	None. The filter is a special type of cotton filter. During high water content in the oil, the water may be trapped between layers, but not permanently.
Voltage	230 V
Hertz	50-60 Hz
Power cord and plug	Power cord 3G 1.5 type H07RN with CEE7/4 plug
Required fuse	Minimum 16 Ampere fuses
Total energy consumption	2400watt
Effect of Heat chamber	150watt
Effect of Pre-Heater	2000watt
Effect of Electro motor	250watt

Table 3/Data sheet TS5060PMH Single



Picture 5:1/ TS5060PMH Single 1/2



Picture 5:2/ TS5060PMH Single 2/2



## 6 Datasheet TS series

### 6.1 TS5060PMH – Twin

Type	TS5060PMH-Twin
Manufacturer	Purifier Technology
Applications	Pressurized interfaces up to 8 Bar
Weight	60 Kg
Dimensions	H: 640 mm W: 760 mm L: 470 mm
Pump	Dual pump Inlet: suction Outlet: pressure
Interface couplings	Male 3/8" BSP
Max pressure inlet	200 Bar with reduction valve 3 Bar without reduction valve
Max pressure outlet	8Bar or 0.8Mpa
Oil type	All oil types
Viscosity range	32 -320 cSt
Oil flow through filter	Dependent on viscosity, but normally 1200 L/day.
Oil flow through by-pass	Dependent on viscosity, but normally 3120 L/ day
Water removal technique	Evaporation
Filter purification capacity	Between 1 and 3 µm
Expected lifetime	> 10 years
Filter change cycle	Every 3-4 months dependent on contamination
Mechanical maintenance	5-7 years
Temperature adjustment	40-90°C on the pre-heater, no adjustment on the heat chamber.
Filter water absorption	None. The filter is a special type of cotton filter. During high water content in the oil, the water may be trapped between layers, but not permanently.
Voltage	230 V
Hertz	50-60 Hz
Power cord and plug	Power cord 3G 1.5 type H07RN with CEE7/4 plug
Required fuse	Minimum 16 Ampere fuses
Total energy consumption	2550watt
Effect of Heat chamber	2 off 150watt
Effect of Pre-Heater	2000watt
Effect of Electro motor	250watt

Table 4/Data sheet TS5060PMH Twin



Picture 6:1/ TS5060PMH Twin



## 6.2 TS5060PMH - Triple

Type	TS5060PMH-Triple
Manufacturer	Purifier Technology
Applications	Pressurized interfaces up to 8 Bar
Weight	70 Kg
Dimensions	H: 640 mm W: 760 mm L: 470 mm
Pump	Dual pump Inlet: suction Outlet: pressure
Interface couplings	Male 3/8" BSP
Max pressure inlet	200 Bar with reduction valve 3 Bar without reduction valve
Max pressure outlet	8Bar or 0.8Mpa
Oil type	All oil types
Viscosity range	32 -320 cSt
Oil flow through filter	Dependent on viscosity, but normally 1800 L/day.
Oil flow through by-pass	Dependent on viscosity, but normally 360 L/ day
Water removal technique	Evaporation
Filter purification capacity	Between 1 and 3 $\mu$ m
Expected lifetime	> 10 years
Filter change cycle	Every 3-4 months dependent on contamination
Mechanical maintenance	5-7 years
Temperature adjustment	40-90°C on the pre-heater, no adjustment on the heat chamber.
Filter water absorption	None. The filter is a special type of cotton filter. During high water content in the oil, the water may be trapped between layers, but not permanently.
Voltage	230 V
Hertz	50-60 Hz
Power cord and plug	Power cord 3G 1.5 type H07RN with CEE7/4 plug
Required fuse	Minimum 16 Ampere fuses
Total energy consumption	2700watt
Effect of Heat chamber	3 off 150watt
Effect of Pre-Heater	2000watt
Effect of Electro motor	250watt

Table 5/Data sheet TS5060PMH Triple



Picture 6:2/ TS5060PMH Triple



## 7 Installation manual

1. Place or fasten the unit on a safe and secure spot \*<sup>1</sup>.
2. The unit is shipped with main filter and pre-filter installed.
3. Connect the oil inlet to the lowest area of the tank or system you want to purify. (This is the area water and particles accumulate).
4. Connect the oil outlet to the highest area of the tank or system you want to purify.
5. We recommend filling the pre-filter with oil before the unit is started, this is done to prime the pump at the first run after a filter change.
6. Connect to a power source (Minimum 16 ampere fuse for the course). Electrical interface must be: 220-240-volt, 50/60 Hz.
7. Push the start button, the motor and the pump will make a buzzing almost gargling sound, this is caused by air and oil entering the pump. This should quiet down a little after some minutes.
8. At first start-up, and after any main filter change it may take 20 to 40 minutes before oil starts flowing into the return tank. The time varies depending on the oil viscosity. The unit will stop after 1 hour and 5 minutes from the unit is started if there is no oil reaching the return tank. The unit can be restarted a maximum of 3 times like this. If the unit has run with oil for more than one hour and then stops receiving oil, it will take 15 minutes before the unit shuts down by itself.
9. When the oil has drained from the return tank a few times, the return tank will be warm, and should not be touched without protective gloves (The Purifier can be adjusted to reach 90-100°C).
10. Adjust the preheater according to the allowed oil operating temperature for the oil being purified. This can normally be found in the datasheet for the oil. The Pre-heater can be adjusted by removing the plastic cap screw on top, then adjust the level between 40-90°C. Be aware that the 150watts heater element on top of the main filter will lift the oil temperature by approximately 10°C.
11. Once oil has filled and drained from the return tank (Look for oil in the see glass), the pressure on the manometer must stay between 3-4 bar (+/- 0.25 bar). This is the required pressure for the unit to have optimal filtration.
12. On first time installations we recommend that you take a look at the unit after a couple of hours to ensure the pressure is stable, and that there is no oil leakage from any connections.



\*<sup>1</sup>The suction height of the pump is maximum 5 meters in free height. The interface to the oil tank is a 3/8" BSP threaded male connection alternatively a female connection if hydraulic hoses are used. The electrical interface is a power cord 3G 1.5 type H07RN with CEE7/4 plug. 230V, 50/60 Hz. Power consumption is 2400Watt

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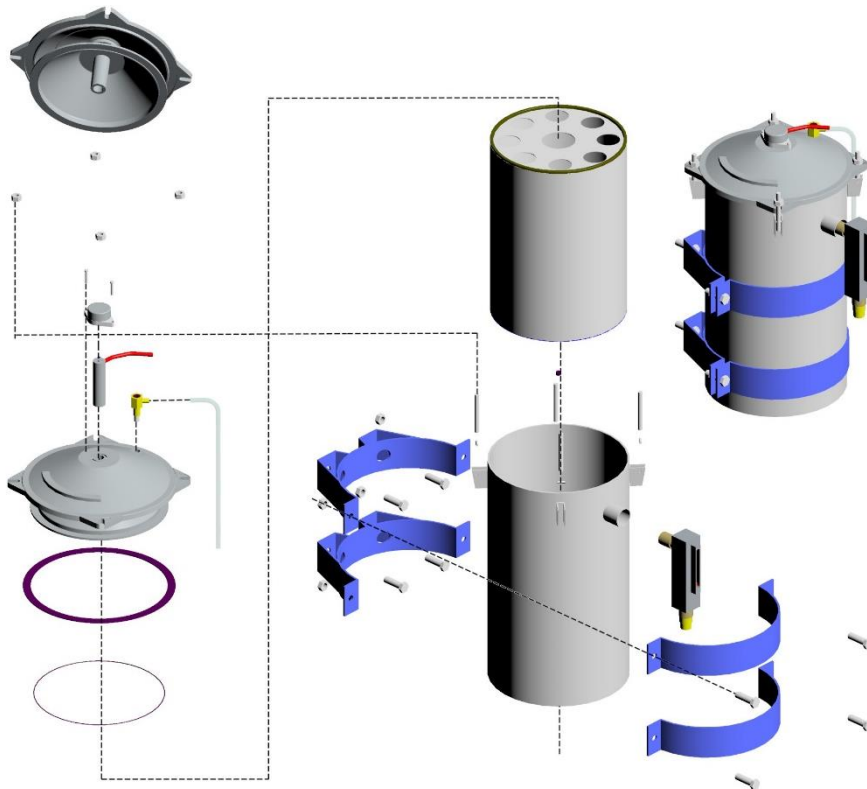


## 7.1 Instruction for Purifier filter change

1. Make sure the unit is turned off and unplugged when changing filters.
2. Use rubber gloves and keep an oil cloth nearby. Try not to spill oil when changing filters.
3. Loosen the 4 bolts that connects the heat chamber to the filter canister.
4. Lift the heat chamber off and remove the two gaskets. (Rubber O-ring, and flat rubber gasket).
5. Lift the filter insert, by the handle attached to it, straight out from the filter canister.
6. Take a new filter insert, and make sure there is a rubber socket on it (underneath the insert)
7. Install the filter so that the rubber socket fits the plug inside the canister.
8. Put the flat rubber gasket and the rubber O-ring underneath the heat chamber where it intersects with the canister.
9. Put the heat chamber back on the filter canister.
10. Tighten the 4 bolts.
11. Spin off the old Pre-filter.
12. Take a new Pre-filter, put some oil on the gasket.
13. Spin on the new filter, until firmly tightened.
14. Dispose of the oil filters through proper environmentally acceptable disposals.



- Filter Canister = Location where the main filter resides.
- Filter Insert = The main filter that is regularly changed, delivered with gaskets.



Picture 7:1 Main filter assembly



Pre-Filter  
(WP-110T60)



Main filter  
canister



Filter insert  
(WP-80FC)



Picture 7:2/ TS5060PMH Single Filter explained



## 8 Troubleshooting

Issue	Cause	Solution
<b>No oil [Alarm] (1/2)</b>	New filters	<ul style="list-style-type: none"> <li>If there are high viscosity on the oil, it may take some time before oil has filled the filters and activated the floater in the return tank when the filters are new. Turn the machine on again and see if the alarm happens again after 30 minutes. Do this maximum 3 times. If the alarm still goes off after some time, check for other causes.</li> </ul>
	Electro motor does not run	<ul style="list-style-type: none"> <li>Check power supply: 220-240V, 50/60 Hz, 16 Amp fuse.</li> <li>Check for continuity (To be done by technician, or other qualified personnel)</li> <li>Check the thermic relay.</li> </ul>
	Blocked oil intake	<ul style="list-style-type: none"> <li>Disconnect the intake and look for large debris blocking the oil intake.</li> </ul>
	The pump draws false air	<ul style="list-style-type: none"> <li>Check all fasteners, if the pump still draws false air; change gaskets and seals</li> </ul>
	The unit is not connected to oil	<ul style="list-style-type: none"> <li>Ensure the Purifier is connected to a location where there is oil.</li> <li>Make sure the relative suction height is no more than 5 meters (for highly viscous oils, it may need to be lowered additionally).</li> <li>Fill oil in the system or tank if the system or tank is empty.</li> </ul>
	Blocked nozzle inside Purifier canister	<ul style="list-style-type: none"> <li>The nozzle is made of brass and is found in the bottom of the filter canister. This can be unscrewed to inspect if there are debris or particles blocking it. The nozzle has a 0.8mm hole in it and can be cleaned by using a small needle. The nozzle must be screwed back in before the unit is started again, if not the filtering process will not work properly.</li> </ul>
	The unit is unable to build up pressure	<ul style="list-style-type: none"> <li>Check the pump. The pump has an internal bypass system, if this is too open, the oil will not pass through the filter, and will not build up pressure. Adjust the bypass at the side of the pump until the pressure reaches between 3 and 4 Bar. If the unit is still unable to build up pressure, change the seals and gaskets of the pump, and inspect the spring.</li> </ul>

Table 6 Troubleshooting [1/3]



Issue	Cause	Solution
<p style="text-align: center;"><b>No oil [Alarm] (2/2)</b></p>	Clogged filters	<ul style="list-style-type: none"> <li>• Replace the filters according to the instruction in chapter 7.1</li> </ul>
	Clogged or blocked Pre-heater	<ul style="list-style-type: none"> <li>• Check inlet and outlet of the Pre-heater. If the unit is old, then it may be blocked by charred oil accumulated over time. This require the Pre-heater to be replaced.</li> <li>• Check If the Pre-heater is filled with debris from contaminated oil. Detach the Pre-heater. Screw open the large brass nut near the pre-heater top and lift out the heat coil. Inspect the inside with a flashlight, and rinse if required.</li> </ul>
	Malfunctioning floater switch	<ul style="list-style-type: none"> <li>• Check the see glass if there is oil present. If oil is present, the floater switch is malfunctioning. Screw out the floater switch and inspect the floater to see if there is anything preventing the floater movement. If not, the floater is malfunctioning and must be replaced.</li> </ul>
	Open solenoid valve on return line	<ul style="list-style-type: none"> <li>• If the solenoid valve does not close and open normally, it is either damaged, blocked or malfunctioning. Detach the solenoid valve and inspect it. If no debris or particles is blocking the solenoid valve, it must be replaced.</li> </ul>
	Closed solenoid valve on the intake	<ul style="list-style-type: none"> <li>• Same operation as for the solenoid valve mentioned above</li> </ul>
<p style="text-align: center;"><b>Overload [Alarm]</b></p>	Too high pressure on the hydraulic system.	<ul style="list-style-type: none"> <li>• If the pressure in is too high, use a pressure reduction valve before the intake.               <ul style="list-style-type: none"> <li>○ Maximum pressure inn is 3 bar (200 bar with supplied reduction valve)</li> </ul> </li> <li>• If the pressure is to high on the return line, the oil must be returned to a separate tank.               <ul style="list-style-type: none"> <li>○ Maximum backpressure is 8 bar.</li> </ul> </li> </ul>
	Wrong setting on the thermal relay	<ul style="list-style-type: none"> <li>• Set the relay to 1.8 ampere</li> </ul>
	Defect thermal relay	<ul style="list-style-type: none"> <li>• Replace the relay</li> </ul>
	Wrong power supply	<ul style="list-style-type: none"> <li>• If the voltage is higher than what is recommended in this manual (220-240V) the thermal relay may signal overload due to the resulting ampere.</li> </ul>
	Defect electro motor	<ul style="list-style-type: none"> <li>• If the electro motor is defect the motor must be replaced by a new one.</li> </ul>

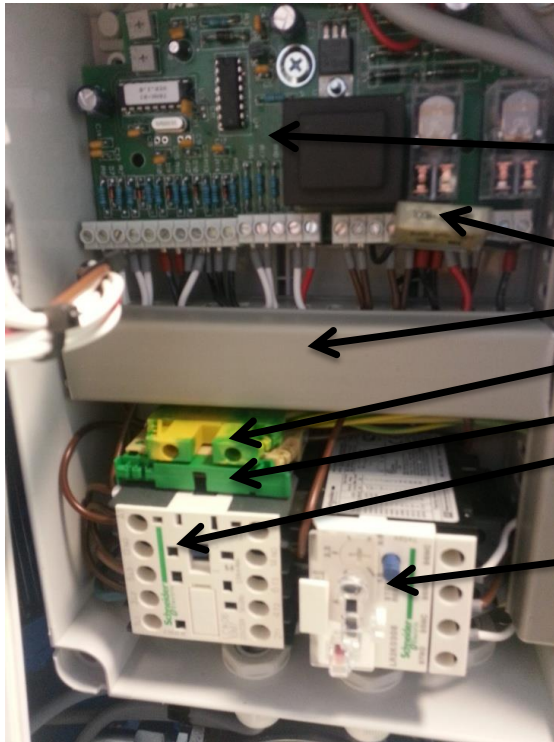
Table 7 Troubleshooting [2/3]



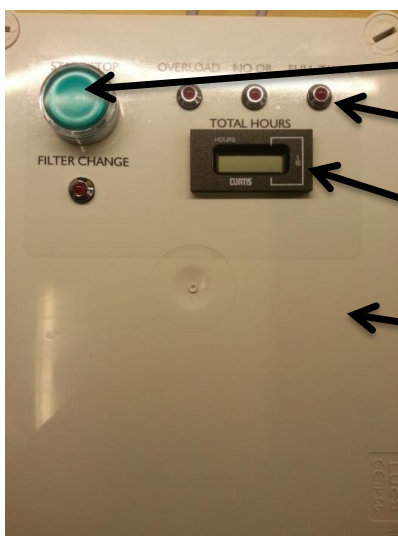
Issue	Cause	Solution
Full tank [Alarm]	Return tank is full	<ul style="list-style-type: none"> <li>Start the unit whilst holding in the yellow button (Drain return tank) until the tank is drained. If the return tank does not drain, ensure that the solenoid valve opens. If the solenoid is malfunctioning it must be replaced.</li> </ul>
	Oil has reached the level switch	<ul style="list-style-type: none"> <li>If the flow through the unit is too high, it may cause oil to reach the high-level switch. Check that the pressure is between 3-4 Bar on the pressure gauge when the unit is running. Ensure the main filter is fitted properly (when the unit is turned off). Control the nozzle below the filter for deformities (when the unit is turned off).</li> </ul>
	Faulty high-level switch	<ul style="list-style-type: none"> <li>The high-level switch should be checked, as it may be malfunctioning. If the high-level switch is not working properly, it needs to be replaced.</li> </ul>
Oil is not purified	Main filter is too contaminated	<ul style="list-style-type: none"> <li>If the oil that has been purified contains too much contamination the filter will be filled with particles faster than normal. Check the filter element and replace it if necessary.</li> </ul>
	No water removal	<ul style="list-style-type: none"> <li>Remove the evaporation valve and clean any oil residue that might prevent it from opening.</li> </ul>
	Oil does not pass through the filter	<ul style="list-style-type: none"> <li>If the nozzle is partially blocked the oil may not pass through the filter fast enough, thus almost all the oil will go by an internal by-pass in the pump and return unfiltered. The nozzle should be checked.</li> </ul>
	Out of viscosity range	<ul style="list-style-type: none"> <li>If the viscosity is outside 32-320 centistokes, the filter may not filter the oil properly.</li> </ul>
	Large external contamination	<ul style="list-style-type: none"> <li>If there is a leakage, or otherwise very large continuous external contamination, the source needs to be limited for the filter to purify the oil.</li> </ul>
Heater is not working	Pre-heater is not working	<ul style="list-style-type: none"> <li>Check the thermostat on the pre-heater. Check the heater element for any damage. Ensure the unit has sufficient power supply.</li> </ul>
	Heater element on filter top is not working.	<ul style="list-style-type: none"> <li>Check the heater element for external damage. Ensure the heater element is connected to a power supply.</li> </ul>
Unit does not start	No power	<ul style="list-style-type: none"> <li>Check power supply and check the power cord to the unit.</li> </ul>
	Blown fuse	<ul style="list-style-type: none"> <li>Try to identify the reason for the fuse to be blown, if the power supply is wrong it must be corrected before starting the unit again. Replace the fuse and restart the unit.</li> </ul>
Oil leakage	Loose connections	<ul style="list-style-type: none"> <li>Control the different connections and re-tighten as required.</li> </ul>
	Damaged goods	<ul style="list-style-type: none"> <li>If parts of the unit are damaged it must be replaced with working parts.</li> </ul>
	Broken seals	<ul style="list-style-type: none"> <li>Check the seals for damage and replace if required.</li> <li>Ensure the seals are installed correctly.</li> </ul>

Table 8 Troubleshooting [3/3]

## 9 Electrical wiring



- Printcard Elpro Ocl 18 ver 1.0
- 6563506 Condensator 0,1uf
- 1289700 Cable duct 25x40
- 1229421 Ground terminal
- 1229435 Fuseholder
- 4176025 Minicontactor 6A  
Schneider Electric
- 4176049 Overload protection 1,8-2,6A  
Schneider Electric



- 4303303 Pushbutton green led
- 3306610 Led lamp red 12V 8mm
- 3776036 Hour meter CD 701 DIN
- 2511103 Plastic enclosure 220x170x80

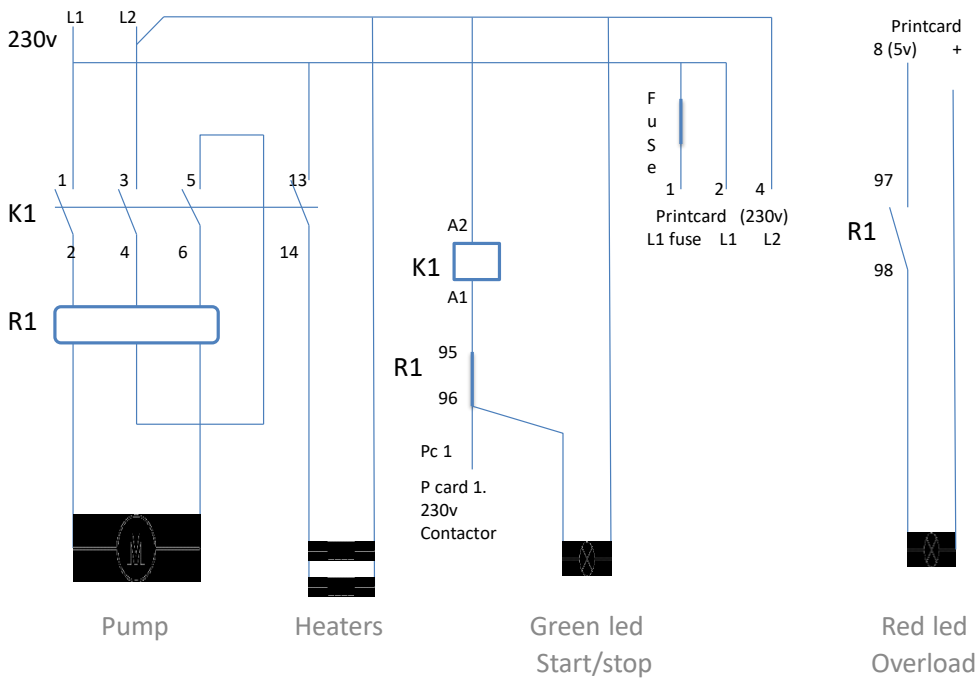
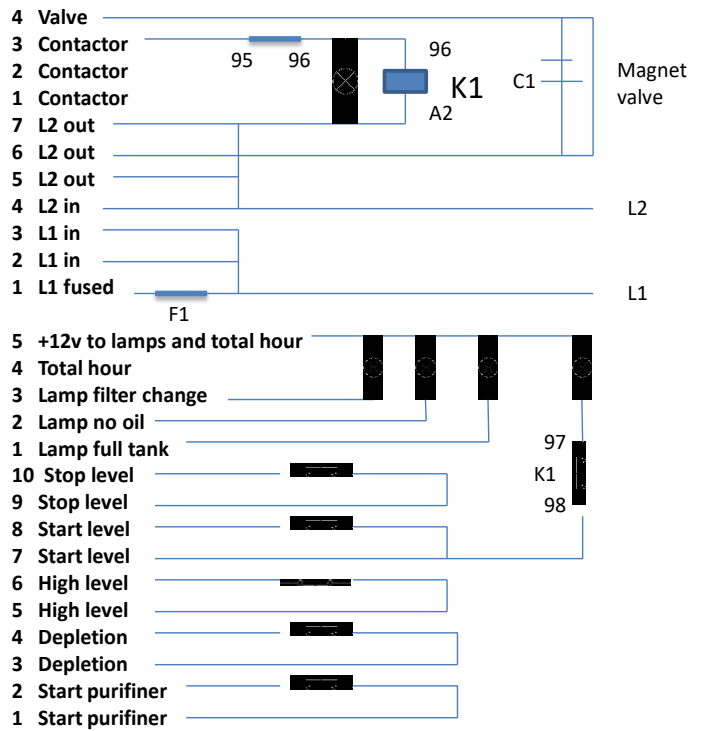
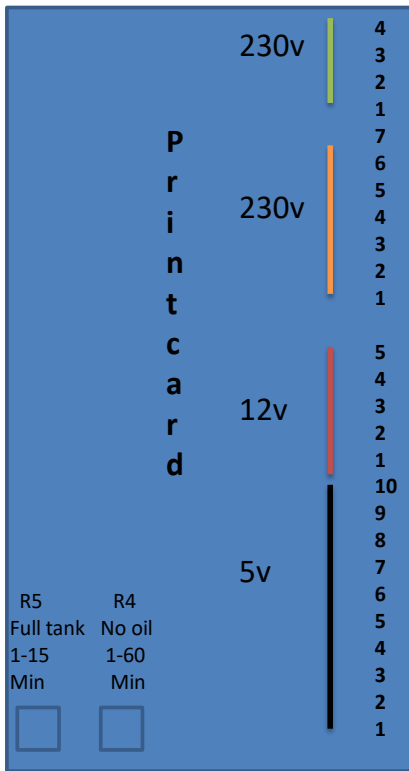
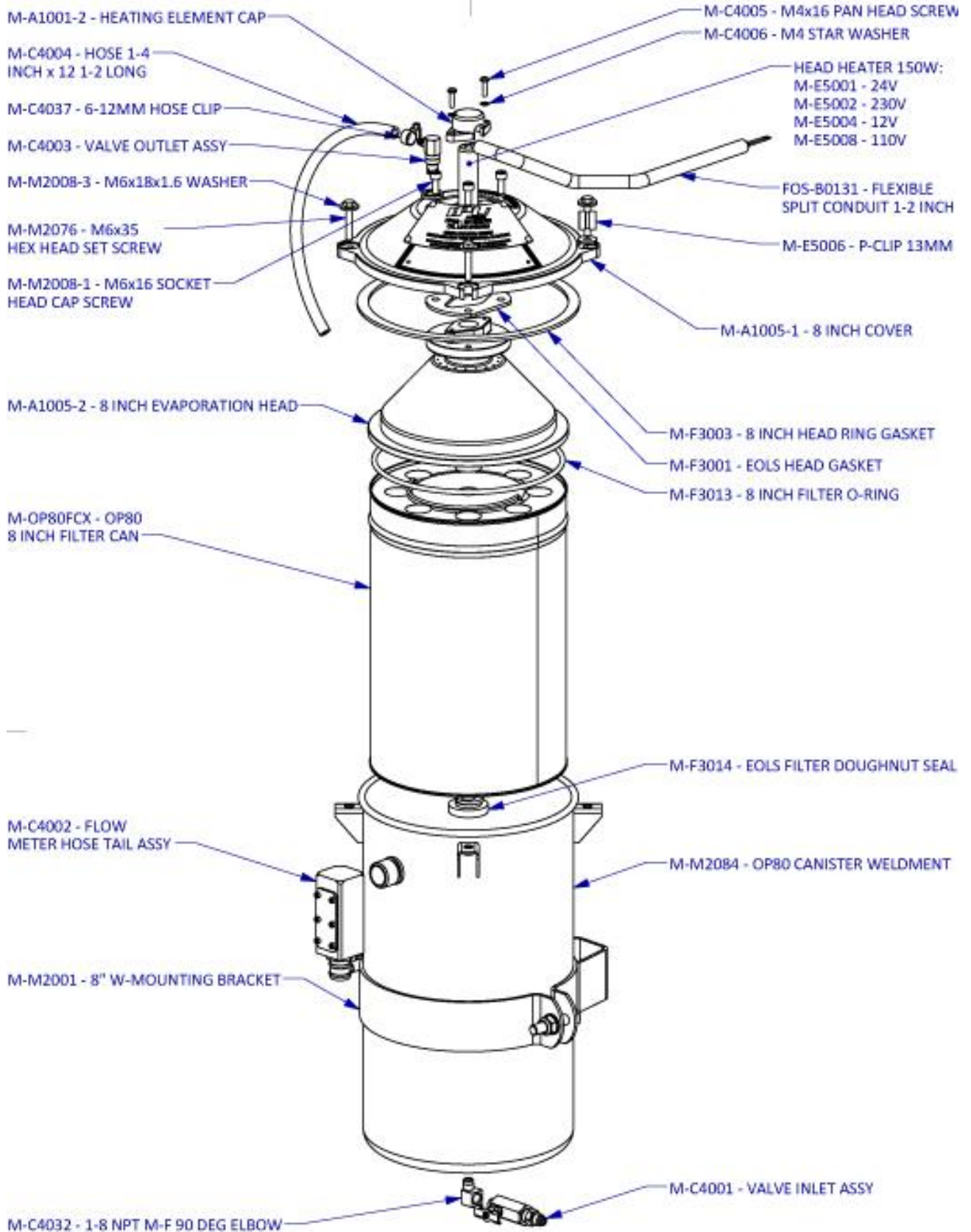


Diagram control box  
Kon 01  
EHJ 05.02.2013



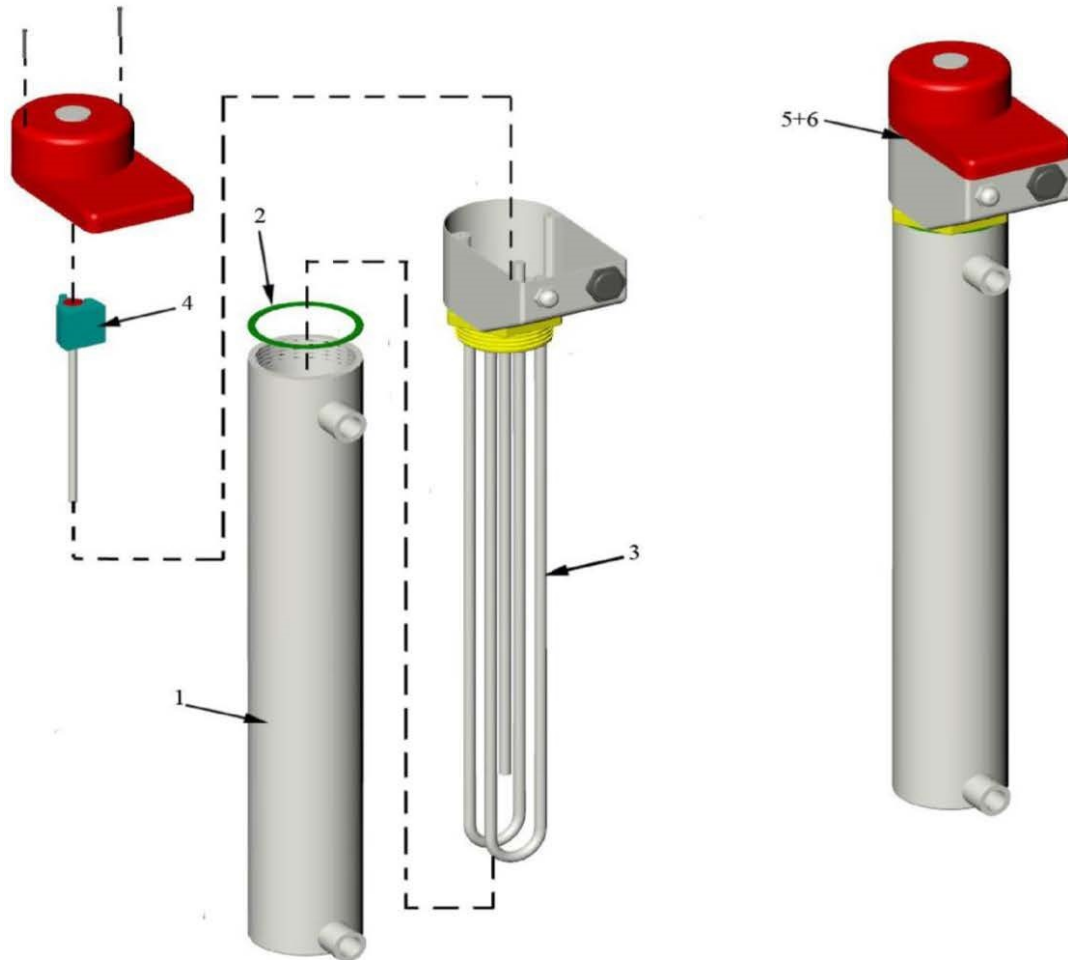
## 10 Main filter components







## 11 Pre-heater components



Ant	Pos Nr.	English Text Part Nr.	Norsk Tekst Dele Nr.	Ordre Nr. Part Nr.
1	5+6	Top/Box (Compl)	Topp Deksel	1130541102
1	4	Thermostat	Termostat	1160156703
1	3	Pre Heater Elem.	Heater Coil	2530341401
1	2	Gasket	Pakning	H1010
1	1	Heater Tank	Heater Hus	RT-001

Drawn by:  
Jan Aune  
Date:  
25/09-2014

Appr. by:

### Heater

## 12 Service

Service and repairs are seldom required on the Purifier TS system, and there is long time between the recommended service intervals. We recommend that a service is performed every 5-7 years. One should differentiate between the minor service as indicated by changing the filters and their corresponding gaskets [See chapter 7.1], and the major service.



- The unit must be disconnected from any power supply (electrical) during service or repair of the unit.
- The unit must not be connected to oil during service.
- Service and repair should only be done by qualified technicians.

### 12.1 Service checklist

1. Prior to service, check for bearing noises that indicate wear and tear in the motor or pump and measure that there is indeed temperature difference between the 150watts heater element and the top, this will indicate whether the heater element is working or not, if the heater element is not working, check the connections, if it is still not working, the element needs replacement.
2. Turn off the unit and disconnect the power cord, wait for 1 hour to let the unit cool down.
3. Detach the pump from the motor, and try to move the pump axle by hand, if the pump is worn this will be very difficult to do by hand and the pump would need replacement.



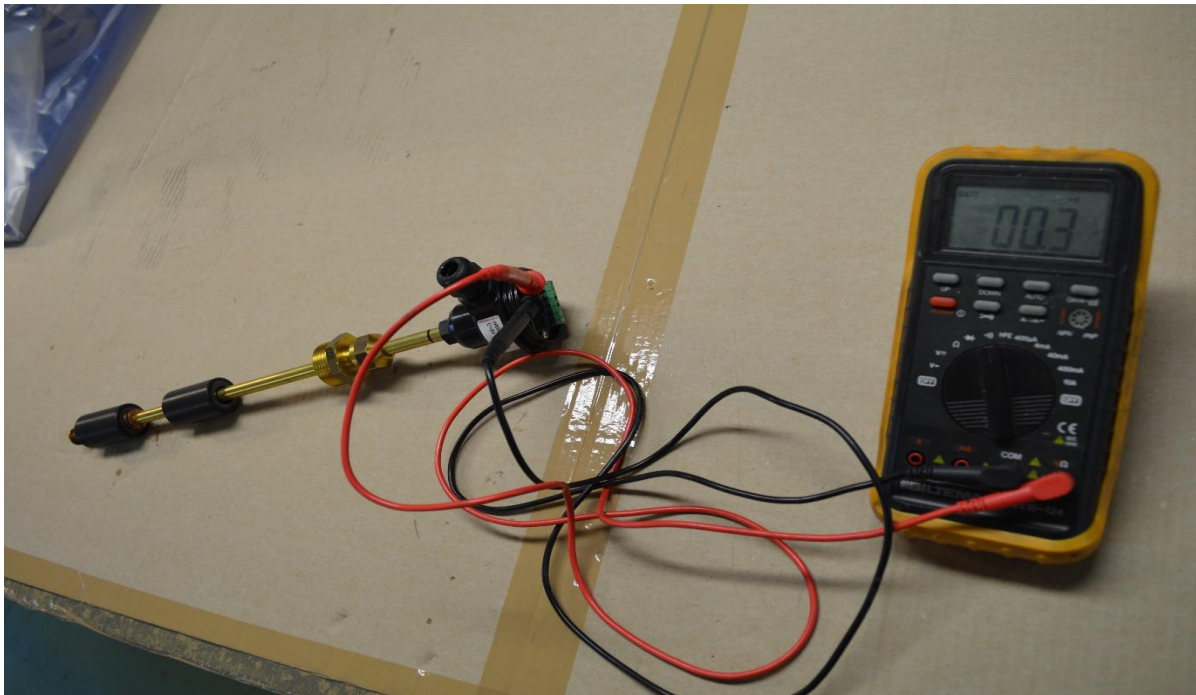
4. Check the motor, if there was a sound of worn bearings when the unit was operating, it is most likely related to the motor. The motor should be detached and replaced by a new one.
5. Change all filters and gaskets. Make sure the new gaskets are fitted properly.
6. Check the pre-heater. Control the heater element and look for tar or clogging inside the heater.



7. Adjust the thermostat to 40°C, add some hot water in a bucket (>60°C) put the brass part of the thermostat inside the hot water, wait for a minute and measure the continuity to see if the thermic switch is working properly. Re-connect the Pre-heater if everything is working properly, if not; that part needs to be replaced.



8. Open the control box and see if everything is properly connected as shown in [Chapter 10]
9. Check for continuity between the different connections according to the schematic in [Chapter 10]
10. Control the float switch inside the return tank.  
Ensure continuity (Less than 0.1Ω). 1 + 2 = bottom float, 5 + 6 = top float.  
Lift the floaters and record the change in continuity. If there are any problems with the switch it will need replacement.



11. Re-assemble the whole unit and check every coupling, to ensure everything is tightened properly.