



GVC-18000

GVC-36000

GVC-72000

# Troubleshooting Repair Guide 3Phase Machines



Read before operating.

CONTENTS:

MACHINE DOES NOT REACT WHEN PLUGGED INTO THE MAINS AND TURNED ON. .... 3

MACHINE REACTS TO VOLTAGE WHEN TURNED ON BUT DOES NOT FUNCTION AT ALL. .... 4

MACHINE BUILDS UP NO TEMPERATURE AND PRESSURE .....4-5

MACHINE BUILDS UP SOME PRESSURE BUT NOT AS IT SHOULD ..... 6

MACHINE REACHES THE CORRECT MAXIMUM PRESSURE BUT HAS NO STEAM OUTPUT ..... 7

MACHINE GOES OVER-PRESSURE..... 7

MACHINE LEAKS STEAM FROM UNDERNEATH..... 8

MACHINE LEAKS STEAM OR WATER ..... 8

BOILER PUMP RUNS CONTINUOUSLY OR NOT AT ALL..... 9

DETERGENT PUMP DOES NOT RUN ..... 10

WATER TANK LEVEL SENSOR GIVES NO SIGNAL..... 10

VACUUM RUNS CONTINUOUSLY OR NOT AT ALL..... 11

TABLE 1 ..... 11

This guide presumes a basic knowledge of how the machine functions. If this is not the case always read the instruction manual to better understand the correct function of the machine so that the actual malfunction becomes readily identifiable. Before attempting to repair a machine gather as much information from the customer as possible. Always ask for a clear and detailed description of what the machine does or does not do. Many problems can be resolved on the phone or by email. This avoids machine downtime and costs and helps to reach the best possible customer satisfaction!

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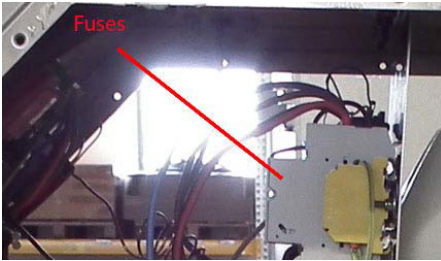
Always drain and flush the boiler when repairing or servicing the machine. Make sure that all limestone (calcium carbonates) deposits are removed. Limestone deposits can be responsible for faulty functioning. These instructions cannot warranty complete coverage of all issues, but will cover most. If you encounter a problem that is not listed below please inform us so that we can add it to our list and thus help others in the future!

**ATTENTION:** Item codes used below may change without notice, always refer to your machines serial number in order to request spare parts from GOODWAY TECHNOLOGIES.

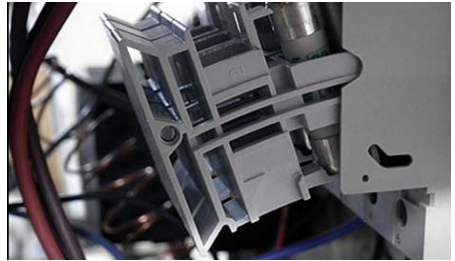
# MACHINE DOES NOT REACT WHEN PLUGGED IN AND TURNED ON OR CAUSES THE MAINS FUSES TO BLOW:

1. Inspect the mains voltage. Fuses could have blown due to a damaged heating element.
  - 1a. Reset or exchange the machines own main fuses. (see pictures 1 & 2)
  - 1b. Heating element is faulty, exchange. (A short circuited heating element can cause the mainsfuse/circuit breaker to blow)

Pic. 1



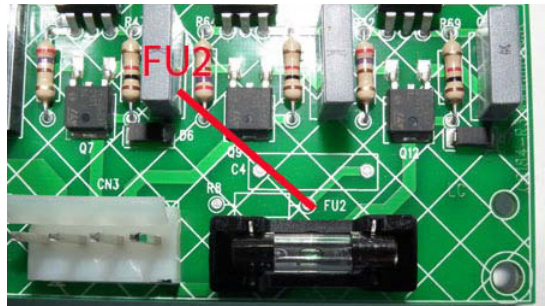
Pic. 2



2. Inspect the power cord and plug and check if voltage reaches MAP0129, the mains connector inside the machine. Make sure all cables are well connected.
  - 2a. Exchange the mains plug if faulty.
  - 2b. Exchange the cable if no voltage reaches the internal mains connector.
  - 2c. Fasten all loose cables/connections.
3. Inspect the front panel mains switch making sure that voltage passes when it is enabled. Make sure all connections fit tightly and that the cables are not damaged.
  - 3a. Exchange the cable, fast-on's or switch if no voltage passes through when enabled.
  - 3b. Exchange the switch if no voltage passes through and exchange damaged cables or fast-on's.

4. The PCB, MAP0450/SD could be faulty. Exchange the PCB and see if the new one fixes the problem. Always inspect the fuses on the PCB before exchanging the PCB, it may just be the fuse FU2, that is faulty. (see picture 3)
5. The EMERGENCY STOP switch on the front has been pressed and needs to be released.

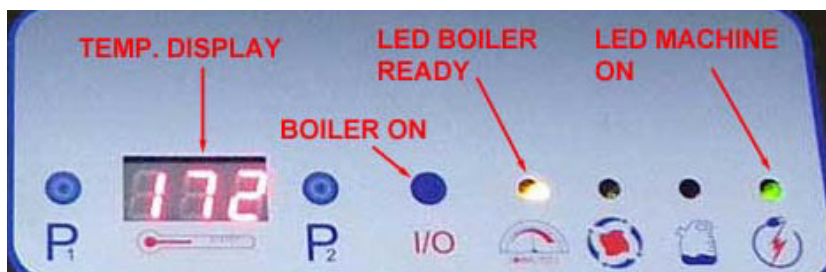
Pic. 3



## MACHINE REACTS TO VOLTAGE WHEN TURNED ON BUT DOES NOT REACT FUNCTIONALLY:

1. The machine receives voltage when turned ON, but nothing functions. (LED are alight)
  - 1a. Measure the voltage of the mains, it must be sufficient to run the machine. Low voltage though an overlong extension cord or insufficient mains voltage will cause the PCB to go into tilt with continued blinking and strange readouts on the temperature display. Same or worse with over-voltage.
  - 1b. The PCB could be faulty. Exchange the PCB and see if the new one fixes the problem.
  - 1c. If the machine uses a transformer to create a neutral and to deliver single phase voltage (230V~) to the PCB and pumps, check the transformer and substitute if faulty.

Pic. 4



## MACHINE BUILDS UP NO TEMPERATURE AND/OR PRESSURE:

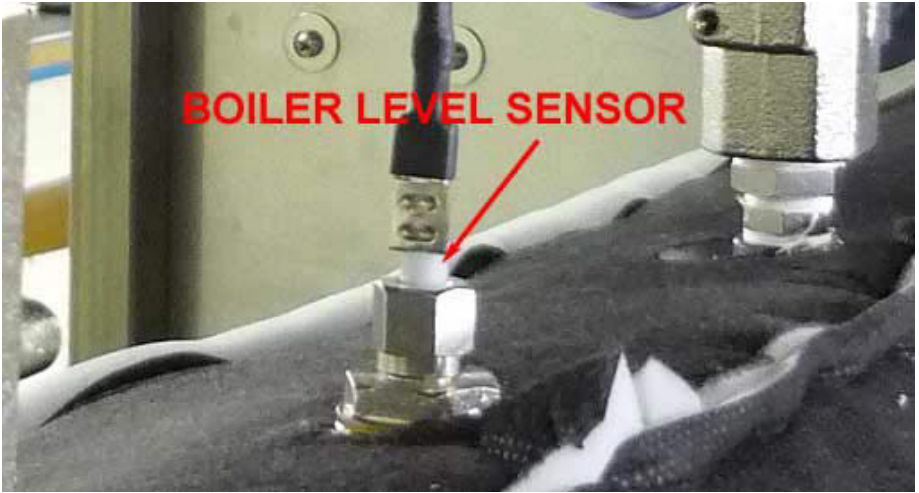
1. The pressure gauge MAP0027 shows no pressure.
  - 1a. Make sure that the boiler ON switch is enabled and the green boiler LED is blinking or steady ON (see picture 4) and the temperature display shows a temperature almost equivalent to what is declared in the instruction manual. Enable steam output on the hose and check if steam exits and if yes, then exchange the faulty pressure gauge. Otherwise see below.
  - 2b. Inspect the boiler safety thermostat, it may have been triggered. Try a reset or exchange. (see picture 5)



**ATTENTION:** The safety thermostat, MAP0206, sets off at around 210°C (410°F), cutting the power supply off. Causes can be boiler pump and/or level sensor failure or a failure of both pressure-stats! Identify the cause and exchange the faulty parts and set the new pressure-stats to the correct setting (see table 1 ).

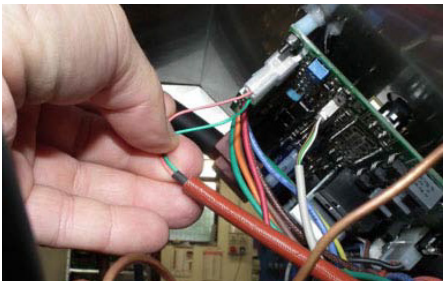
- 1c. The water level in the boiler is so low that not enough pressure builds up and the safety thermostat is triggered. This is caused by a failure of the water level sensor SEM0011/A (see picture 6) and possibly also a boiler pump failure. Clean or exchange the sensor. ATTENTION! Always exchange the 3/8" copper washer/seal ring MAP0006 if the sensor is removed for cleaning or substitution. Do not over-tighten the sensor or the protective Teflon sheath will be damaged causing a short circuit and signal failure. (See chapter 9 for boiler pump)

Pic. 6

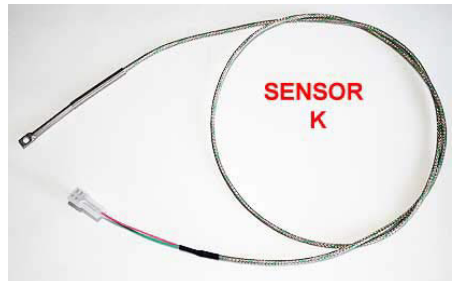


- 1d. If pressure is shown but no temperature, inspect the special temperature sensor for the temperature display. This sensor "K" MAP0451 (see pictures 7 & 8) may be disconnected or faulty, inspect and repair or exchange. (Check the Fast-on's with which sensor K connects to the PCB, sometimes these are crimped over the cables isolation sheath causing a faulty connection which comes and goes).

Pic. 7



Pic. 8



- 1e. The heating element could be faulty or the cables leading to it. Inspect and repair or exchange the heating element and/or cables.

- 1f. The big contactor relay that connects and disconnects the heating elements through the signal from the working pressure-stat could be faulty or have a loose wire. Inspect, repair or exchange. (see picture 9)
- 1g. The PCB could be faulty. Exchange the PCB and see if the new one fixes the problem. **ATTENTION!** Inspect the cooling fan on the protective cover of the PCB and exchange if faulty. This fan must work properly to keep the PCB sufficiently cooled!
- 1h. The safety pressure-stat interrupts the power supply in case of over-pressure. Inspect the safety pressure-stat and reset it if it has been triggered. Only the safety pressure-stat has a reset feature. **ATTENTION!** Inspect the complete machine to find and remove the cause for the over-pressure before using the machine again. (see picture 10)
- 1i. The working and or safety pressure-stat could be faulty. Check and if necessary exchange both.

Pic. 9



Pic. 10



## MACHINE BUILDS UP SOME PRESSURE BUT NOT AS IT SHOULD OR LOSES PRESSURE AFTER REACHING THE MAX.:

1. The machine takes too long to heat up or does not reach the correct temperature.
  - 1a. Limestone deposits inhibit heat up. Drain the boiler and if necessary descale. Exchange the limestone filter if limestone has become encrusted instead of just being a powdery deposit.
2. The working pressure-stat MAP0016 is set low. Set correctly or exchange.
 

**ATTENTION:** Do not regulate the pressure-stat while under maximum pressure, always relieve pressure by turning just the boiler OFF and then pressing the trigger on the hose until you reach 4Bar pressure.



3. The machine signals with the BOILER HEATING/READY LED (see picture 4), which remains steadily lit when maximum pressure is reached and the heating elements are cut off, to be in pressure, but temperature/pressure is continuously dropping.
- 3a. The working pressure-stat remains blocked after reaching the maximum pressure and once steam is released it does not re-enable the heating element. This causes pressure to drop continuously. The pressure-stat may start working again at a low pressure, but it is faulty. Exchange the pressure-stat. Drain the boiler and if necessary descale.

## **MACHINE REACHES THE CORRECT MAXIMUM PRESSURE BUT HAS NO STEAM OUTPUT:**

1. Make sure the steam output regulation valve is open. (turn anti-clockwise to open)
2. Inspect the solenoid MAP0635 and the electric connections and repair or exchange.
3. Check the steam (vac) socket for faulty electric connections or blockage through limestone in the brass coupling and repair or exchange faulty parts.
4. Check the hose (try with another identical hose) for faulty electric connections, faulty switches or limestone blockage and repair or exchange faulty parts.

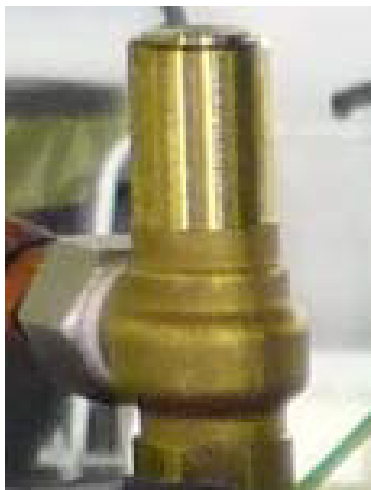
## **MACHINE GOES OVER-PRESSURE:**

1. The pressure-stat MAP0016 is set to high or faulty. Set lower or exchange. See 4.2 for instructions on regulation procedures. (See table 1 below for the correct pressure setting for the machine model being repaired or serviced)
2. The water level sensor SEM0011/A (or the cable connection) may be faulty and the pump does not stop pumping water into the boiler. The pump is capable of up to 15 - 16Bar (203 to 231 PSI) of pressure.
  - 1a. Turn off the boiler (not the machine) and let off pressure (water) with the trigger on the hose until 0Bar shows on the pressure gauge.
  - 1b. Drain the boiler and remove all limestone deposits. ATTENTION! Slowly open the boiler plug to relieve any remaining pressure. Wear protective gloves, clothing and glasses!
  - 1c. Clean or exchange the water level sensor SEM0016/A and the 3/8" copper washer MAP0006.
3. The PCB could be faulty. Inspect the fuses on the PCB and exchange if faulty. Exchange the PCB and see if the new one fixes the problem.

## MACHINE LEAKS STEAM FROM UNDERNEATH:

1. The pressure safety (relieve) valve MAP0636 has the function of rapidly responding to overpressure. If the valve starts to evacuate steam search for the cause. Sometimes limestone deposits can create small leaks or damage to the internal seal. **ATTENTION!** Pressure safety valves cannot be repaired but must be exchanged, always. Make sure that the cause for leakage has been removed and only then mount the new valve! (see picture 11)
2. The boiler has a plug for the drain with an integrated O-ring. After draining the boiler beware not to over-tighten the plug, otherwise the boiler will leak.
3. Newer machine versions may have a drain valve in place of the plug. If leaking, exchange the valve.

Pic. 11



## MACHINE LEAKS STEAM OR WATER:

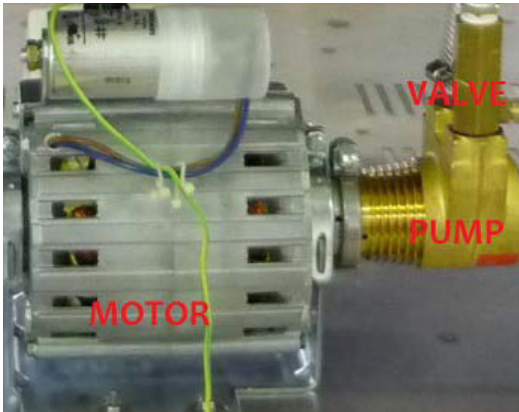
1. With the machine open for inspection, turn on and power up. When the boiler pump is running inspect the complete assembly closely to find an eventual leakage. Tighten loose fittings and exchange worn parts. Use Teflon tape to seal all fittings.
2. The water tank could be leaking. Check all connections, the level sensors etc. for leakage and repair.
3. Same for the assembly of the detergent section. Open steam output and enable detergent output and search for points of leakage. Fix leaks as above.
4. Steam leaks from the steam socket or from the hose even though steam output is not activated.
  - 4a. The solenoid no longer seals completely. Exchange the solenoid.
5. Steam continues to exit from the hose even though the trigger is not enabled.
  - 5a. The solenoid doesn't close correctly or the switch for the trigger is faulty. Exchange!
6. The solenoid for continuous refill of the water tank is leaking or faulty. Inspect and repair if necessary.



## BOILER PUMP RUNS CONTINUOUSLY OR NOT AT ALL.

1. When looking at the boiler feeding pump please always first inspect and exchange the following components at need:
  - 1a. Clean the water filter under the water tank. (Use the valve prior to the filter to close off the water supply, unscrew the filter and thoroughly rinse the fine mesh filter. Reassemble and re-open the valve)
  - 1b. Limestone filter MAP0457/34 (follow above instructions)
  - 1c. Pump d-aeration valve MAP0634.
  - 1d. Non-return valve MAP0001 (mounted at each water inlet on the boiler).
2. If the pump runs non-stop then or no water is reaching the pump from the water tank or no water is pumped into the boiler (except for case 6.2 above). (see picture 12)
  - 2a. Inspect the d-aeration valve for proper function. When pumping water into the boiler this valve bleeds the air back into the water tank. Inside this valve there is also a non-return valve. This valve can remain blocked so that the pump cannot get water into the boiler. Check with a separate pump to see if water goes through and that air bleeds back.
  - 2b. On the boiler there is a main non-return valve MAP0001, detach it from the boiler and check with a pump if water can be pumped through. This component is always stressed through the counter pressure and heat of the boiler and should be exchange regularly. Use Teflon tape to seal the NRV to the boiler. (see picture 13)

Pic. 12



Pic. 13



3. Check the pump, including wiring and connections and exchange if no water is getting pumped. ATTENTION! The pump has an integrated by-pass valve that can be set at different pressure settings. If the pump runs but can't get over the counter-pressure in the boiler this by-pass valve may be set to low. If the boiler is turned off and pressure relieved through the hose and the pump now runs and fills the boiler at a lower pressure it may be an incorrect setting of the by-pass valve or a partial jam of the rotary pump. If faulty exchange.

## WET STEAM AND/OR DETERGENT PUMP DOES NOT RUN:

1. Inspect if the command on the hose enables the wet steam or detergent pump or not (runs only when steam output is enabled). Test with an identical hose that is known to work.
- 1a. Check all electrical connections and the switch in the grip and repair or exchange.
2. Inspect the electric connection in the socket and repair if faulty.
3. Inspect the pump (the coil can blow or the pump can jam), hose and water filter.
  - 3a. Remove coagulated detergent from the detergent hose and pump and exchange parts if necessary.
4. Make sure the LED on the wet steam / detergent PCB light up correctly, otherwise it is faulty or wiring is.

**ATTENTION:** In case of a faulty wet steam/detergent PCB always first inspect the small pumps to exclude a short circuited pump coil before replacing the small PCB, otherwise the new circuit board will immediately blow due to overvoltage from the coil.

## WATER TANK LEVEL SENSOR GIVES NO SIGNAL

1. The water tank has two level sensors MAP0120/NEW, one for low level and one for tank full level. If you run out of water without the machine stopping steam output with an audible acoustic signal, then inspect this sensor and exchange if faulty. (see picture 14)
2. The sensor is electromechanical and may be jammed. Put you hand into the water tank and find both sensors. Move them gently to make sure they are free to move. If they are then check all cables and connections and if nothing is loose exchange the faulty sensor.

Pic. 14



Pic. 15



# VACUUM RUNS CONTINUOUSLY, POORLY OR NOT AT ALL.

- 1. The vacuum function uses a relay on the PCB which is enable by the operator on the grip. This relay may get stuck (the contacts in the relay can get sort of welded together after a prolonged and heavy use) so that the vacuum cannot be turned OFF on the grip, but must be turned OFF on the vacuum head.
  - 1a. Exchange the PCB.
- 2. The vacuum has only low or no suction power.
  - 2a. Clean or exchange the internal filter element KIT0003.
  - 2b. Check all hoses for blockage and leakage, including the vacuum hoses inside the machine. If a hose is damaged, exchange!
  - 2c. Make sure the short hose between vacuum and chassis is correctly connected and not damaged.
- 3. The vacuum doesn't run.
  - 3a. First make sure the electric socket at the rear of the machine receives the correct voltage. Turn ON at the vacuum head. If it runs, fine, if not exchange for a new vacuum head.
  - 3b. Inspect the 10 Ampere Fuse FU1 on the PCB and exchange if faulty. (see picture 15)
  - 3c. Inspect the grip and the electric connections in the socket and hose. Make sure that all electric connections are OK and that the micro-switch on the grip is working correctly.

TABLE 1

MODEL	BOILER GROUP	WORKING P-STAT	SAFETY P-STAT
GVC-9000	1.19 gal.	9.5Bar	10.5BAR
GVC-18000	2.38 gal.	9.5Bar	10.5BAR
GVC-35000	4.76 gal.	9.5Bar	10.5BAR
GVC-72000	7.66 gal.	8.5Bar	10.5BAR

\* The PCB may have a different suffix, please check your parts list for the complete parts number!

**ATTENTION:** Some parts are specific to a certain voltage and hertz, such as boilers, vacuum heads etc... ! Always check your parts list for the exact parts number.



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