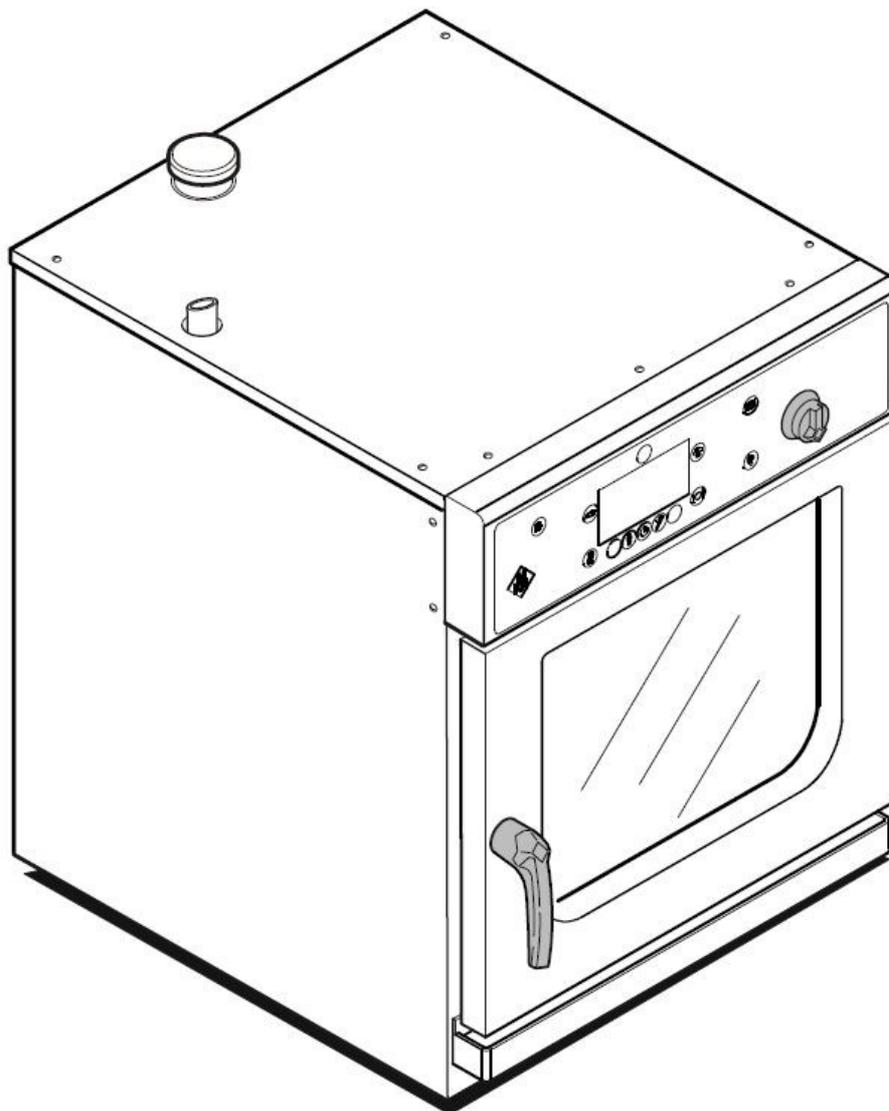


Service & Troubleshooting manual

CE & UL Version

*Space\$aver™ Smart**Combi**™*
*Space\$aver™ Plus Smart**Combi**™*



| Model | Serial-No. / date | |
|------------------|-------------------|------|
| | from | thru |
| Electric: | | |
| ESC 605 | - | |
| ESC 610 | - | |

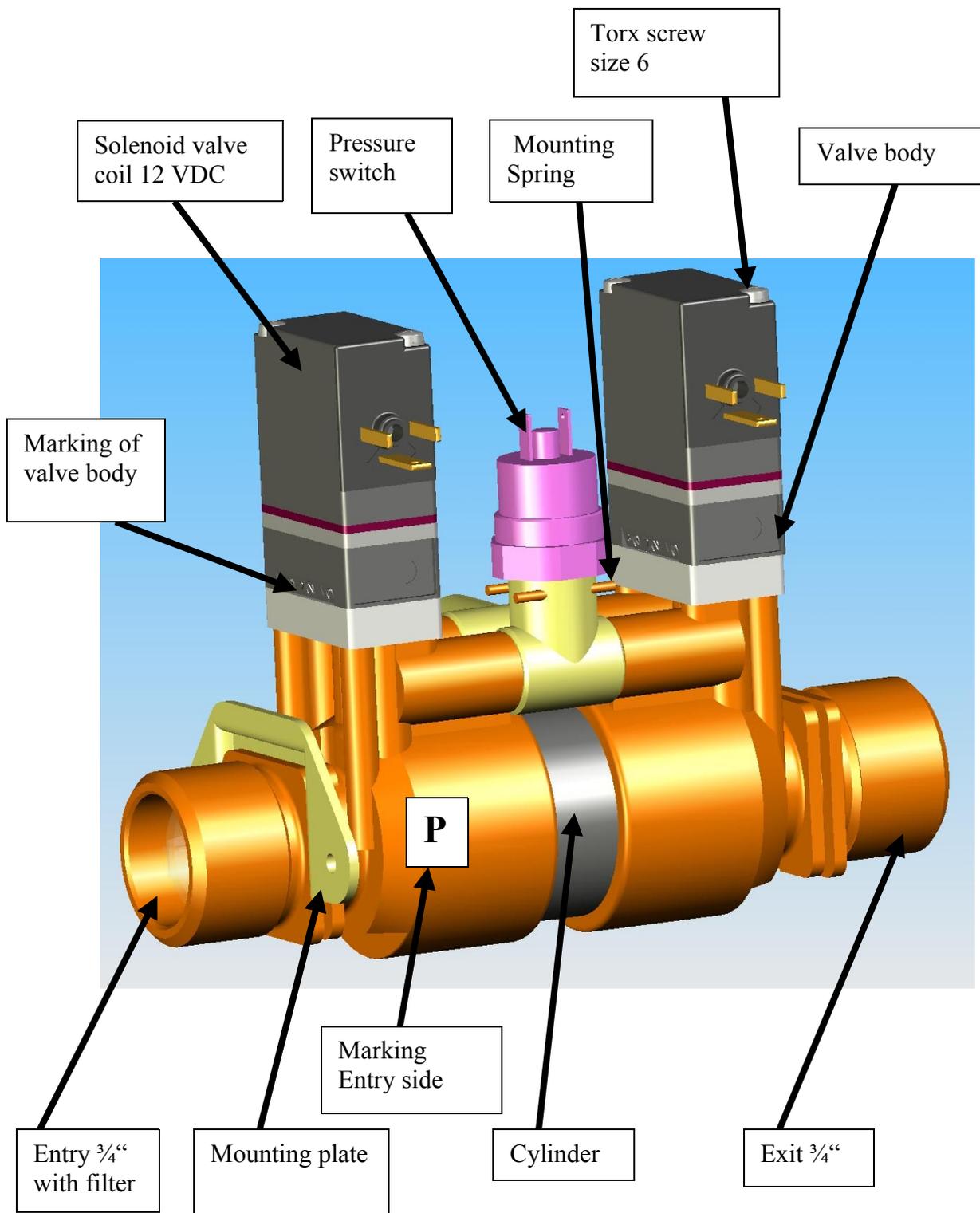
From software 3.07

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Service manual

DynaSteam unit documentation



Description

The unit is a volumetric proportion system for liquid substances. The unit produces a constant flow rate, independent from the incoming water pressure. The flowrate only depends on the frequency applied to the solenoids. The unit can have a water pressure switch to detect water pressure. The software of the machine determines the flow rate by adapting the frequency of the solenoids. A calibration is not needed nor possible. This technology has been engineered and patents applied by MKN.

Function

The unit consists of a cylinder with a double sided piston. The incoming water pressure drives the piston to one or the other side, depending which valve is active. The piston drives a specific volume of water to the outlet. Directly before the water enters the cooking chamber there is a orifice mounted inside the tube and held with a clamp. Do not operate the unit without that orifice.

Due to the transparent cylinder the piston (seals) can be seen in motion.

The solenoids are supplied with 24V DC.

The pressure switch is set for a pressure of 1 bar (14.5 psi). Operation of the unit is guaranteed up to 6 bar (87 psi) entry pressure. Higher entry pressure requires a pressure reducing valve in front of the unit.

Technical data

Normal Pressure Range: 1.5 – 6 bar (21.8 – 87 psi)

burst pressure: >20 bar (>290 psi)

Maximum flow rate: 28l/h

Volume of cylinder: 3 ml

Electrical supply: 24V DC

Functioning Test

This setting starts a unit functioning test. In the menu “water calibration”, a defined volume flow of water is emitted. The authorised volume is shown in the main display, the actual flow must be determined by a measuring jug. To increase the water volume for better a measurement, this procedure may be repeated several times.

The actual flow may deviate of the authorised flow by +/- 8% (e.g. for an authorised volume of 60ml, the minimum and maximum volumes are 55ml and 65ml respectively).

The Summary information mask indicates the power supply of the unit by the signs B1 (energized) And B0 (not energized).

Dual chamber units incorporate two units, which are parallel energized.

Tip:

During the cooking process, the volume flow cannot be determined because it frequently changes during the process.

At delivery of the combi-steamer the water system is empty. This may warrant more time until water reaches the cooking chamber. During this time, multiple calibration cycles may be initiated.

Functional Troubles

Notice:

This unit allows the replacement of the pressure switch, the filter and the solenoid valves. Any further dismantling is not allowed (possible water damage, guarantee). After each replacement, a water proof test is obligatory.

Replacement Of Solenoid Valves

Shut off water supply. Release pressure in the entry lines. Unscrew the solenoid valves. Pay attention to the three O-rings mounted to the valve body. Take apart the valve body and clean the valve socket and openings. Carefully clean the valve membrane of sediments. Reassemble the valve unit (it fits only in easily the correct way). Check the correct location of the three O-rings. The valve unit must be assembled with the script heading towards the entry opening. Mount the valve body with a torque of 0.6 +/- 0.1Nm. Assemble the solenoid with the electric connector at the side of the decal P with a torque of 0.1 – 0.2Nm. Connect the electric supply to the solenoid valve. Mixing up the electrical valve connections is without consequences. Open the water supply and check the unit water proof.

Fault Indication “No Water”

Units with a pressure switch display the fault “No Water” in case the pressure switch is still open. Check entry water pressure. Check electrical connections. The pressure switch opens at 1bar. The switch point is adjusted by the inner hexagonal nut incorporated in the pressure switch.

Replacement Of Pressure Switch

Shut off water supply. Release pressure in the entry line. Depending of type, disassemble metering unit. Turn the pressure switch to allow access to the mounting spring. Remove mounting spring with a small screw driver. Now the pressure switch can be removed. Lightly lubricate the O-ring of the replacement switch and insert it into the socket. Reconnect the mounting spring by pushing slightly on the pressure switch. The open side of the mounting spring points toward the entry side of the unit. The mounting spring must be completely inserted. Reconnect electric power and reassemble the metering unit if necessary. Open the water supply and test water proof.

The automatic cleaning system WaveClean II

Operational sequence of the cleaning system

At the fully automatic cleaning WaveClean the following cleaning programmes can be chosen:

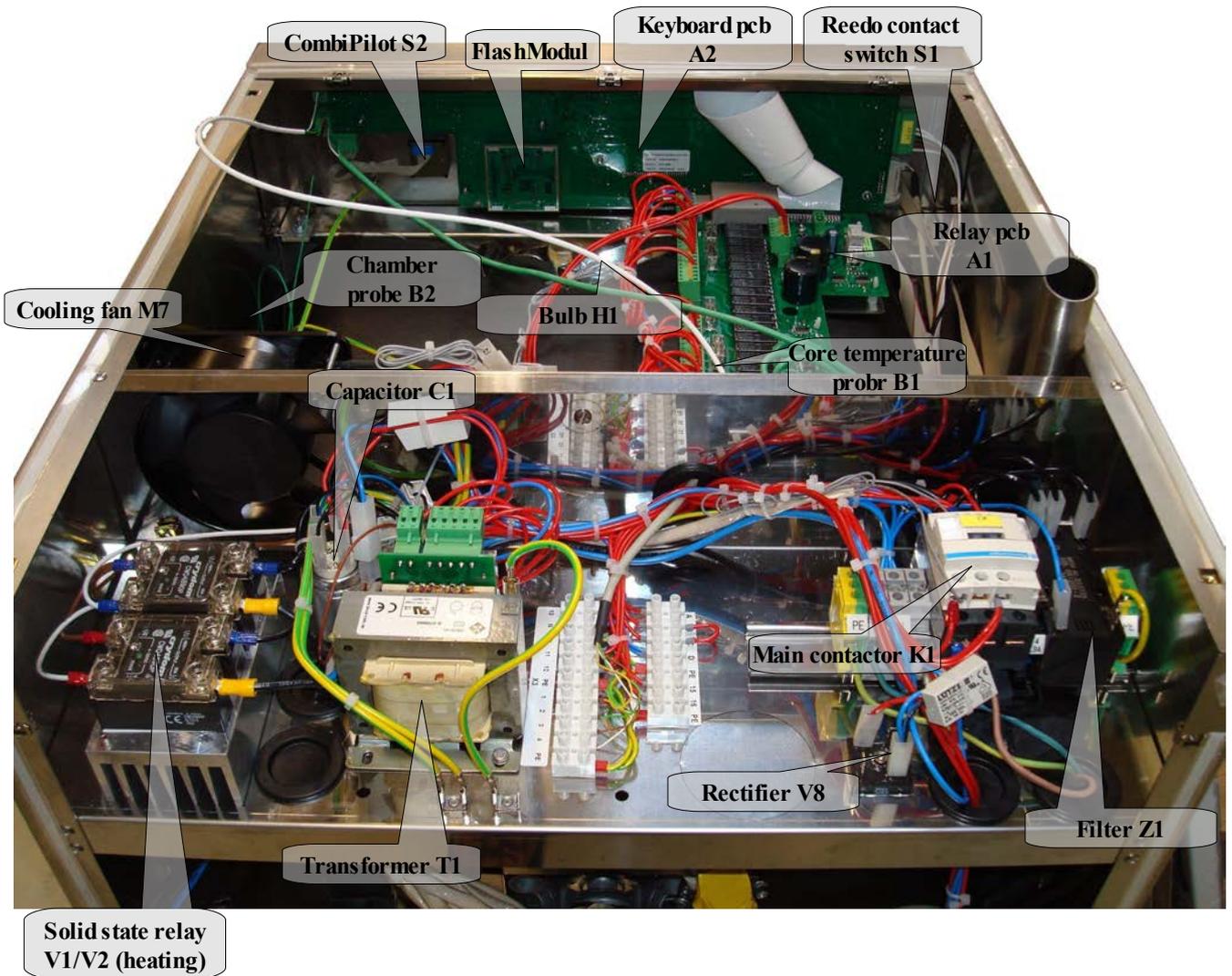
- Short: Last approx. 1 hour
- Normal: Last approx. 2 hours
- Extra: Last approx. 3 hours

| Step | Description |
|------|--|
| 01 | - Depending on exit temperature the chamber cooling down to 55°C (131°F) |
| 02 | - Cleaning of the siphon by water exchange. The pump M24 pumps out the water from the siphon. The siphon gets filled with water about the solenoid valve Y12. This process recurs repeatedly. This process serves for cleaning the siphon. |
| 03 | - Double pre-cleaning of the chamber by changing the water radically above pump M16. |
| 04 | - Cleaning starts after a time of 6 minutes. The chamber heated at the same time. The cleaner activates at a temperature of 70°C (158°F). A cancellation of the cleaning process is not possible in this phase! |
| 05 | - Execution of cleaning. The fan runs in a right/left direction. The pump M16 permanently changes the water radically. The running time depends on the chosen cleaning program. |
| 06 | - Cleaning of the siphon by water exchange. The pump M24 pumps out the water from the siphon. The siphon gets filled with water about the solenoid valve Y12. The process recurs repeatedly. This process serves for cleaning the siphon. Fresh water is changed radically over the pump M16 to rinse the chamber. The fan runs in a right/left direction of rotation as well as in a slow/fast speed. |
| 07 | - The chamber heats up to 92°C (198°F). The rinse wax layer smelting now. The rinse granulate falls into the chamber now. A cancellation of the cleaning process is not possible in this phase! |
| 08 | - The rinsing program starts. The fan runs in a right/left direction. The pump M16 permanently changes the water radically. The running time depends on the chosen cleaning program. |
| 09 | - Cleaning of the siphon by water exchange. The pump M24 pumps out the water from the siphon. The siphon gets filled with water about the solenoid valve Y12. This process recurs repeatedly. This process serves for cleaning the siphon. Fresh water is changed radically over the pump M16 to rinse the chamber. The fan runs in a right/left direction. |
| 10 | - The oven starts in steam mode for four minutes to prepare final rinsing. After this the final rinsing starts. |
| 11 | - The chamber dried with hot air for 10 minutes. Thereby the chamber heats up to 105°C (221°F). <i>When cleaning with "short-program" this step is skipped.</i> |
| 12 | - The device turns off itself now. Cleaning is finished. |

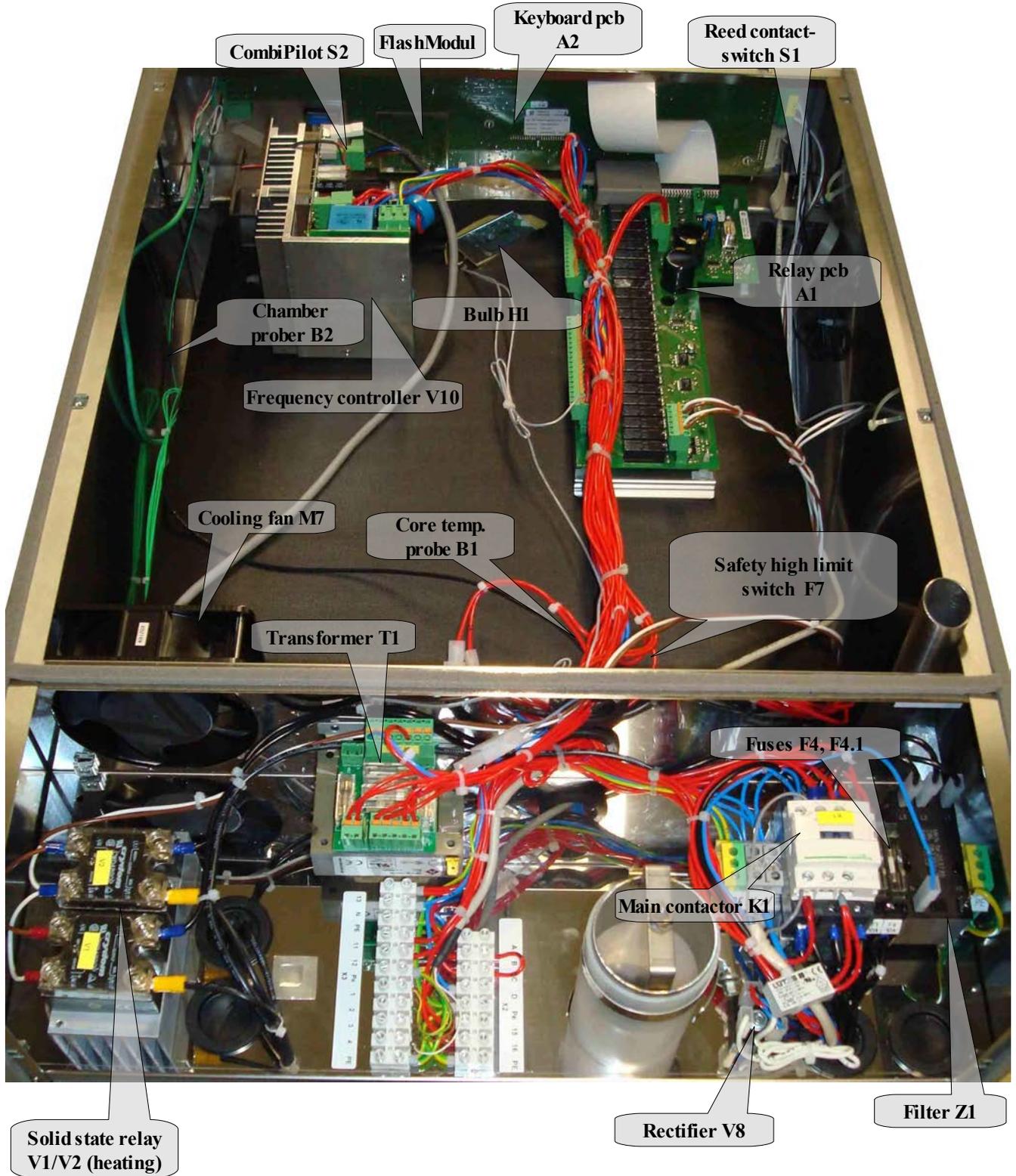
During cleaning approx. 3 litres of water are led by the soft water assembly group to rinse out possible cleaner delays.

At an interruption of the power supply the cleaning process stopped automatically. A "cancellation program" which rinses out the cooked room is started with a duration of 12 minutes. This program is carried out also at a manual cancellation. An entry is written down in the diagnostic and HACCP memory.

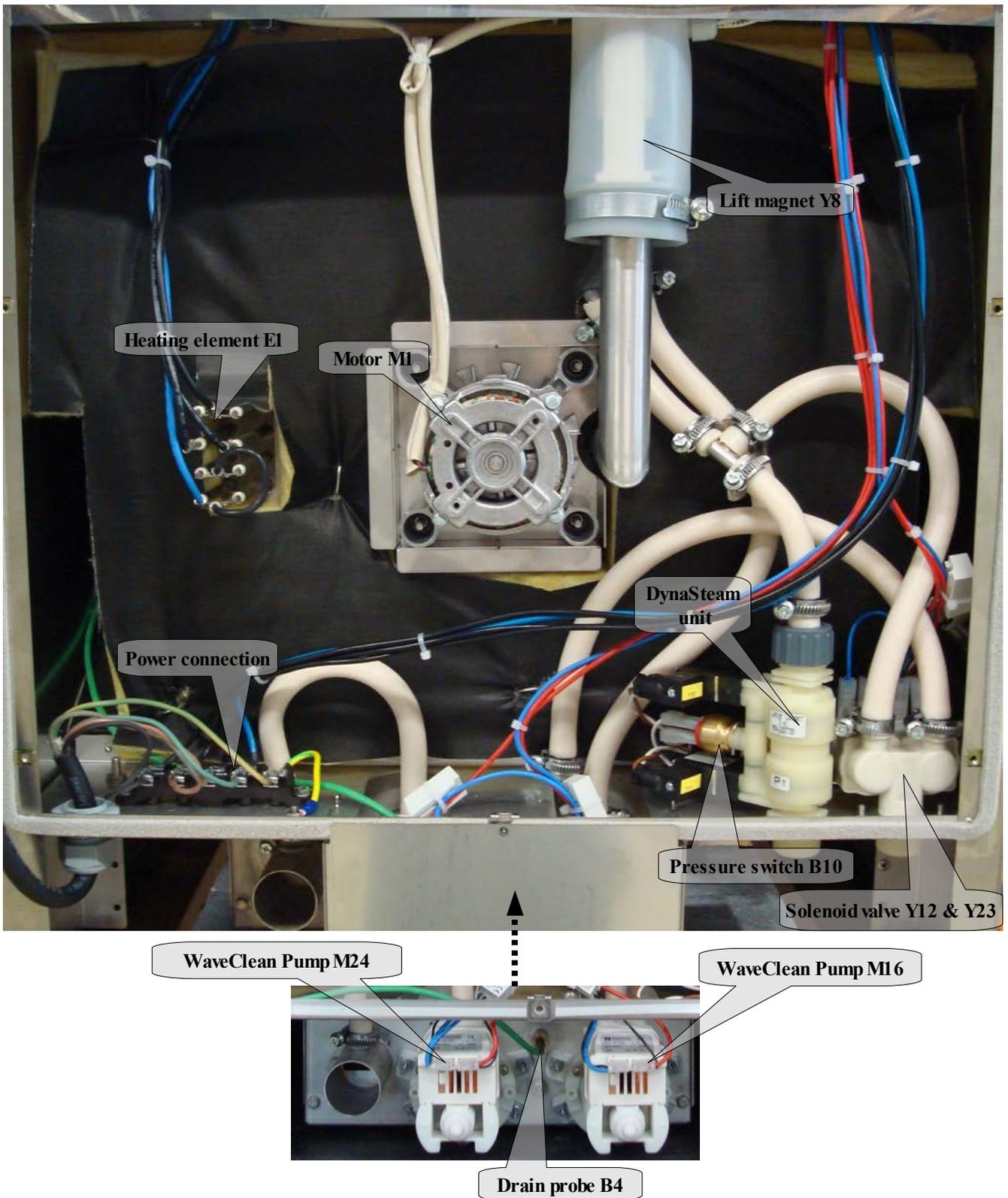
Parts location Space\$aver™ & Space\$aver™ Plus (top view)
CE-Version (up to S/N 09021751 (08 / 2009))



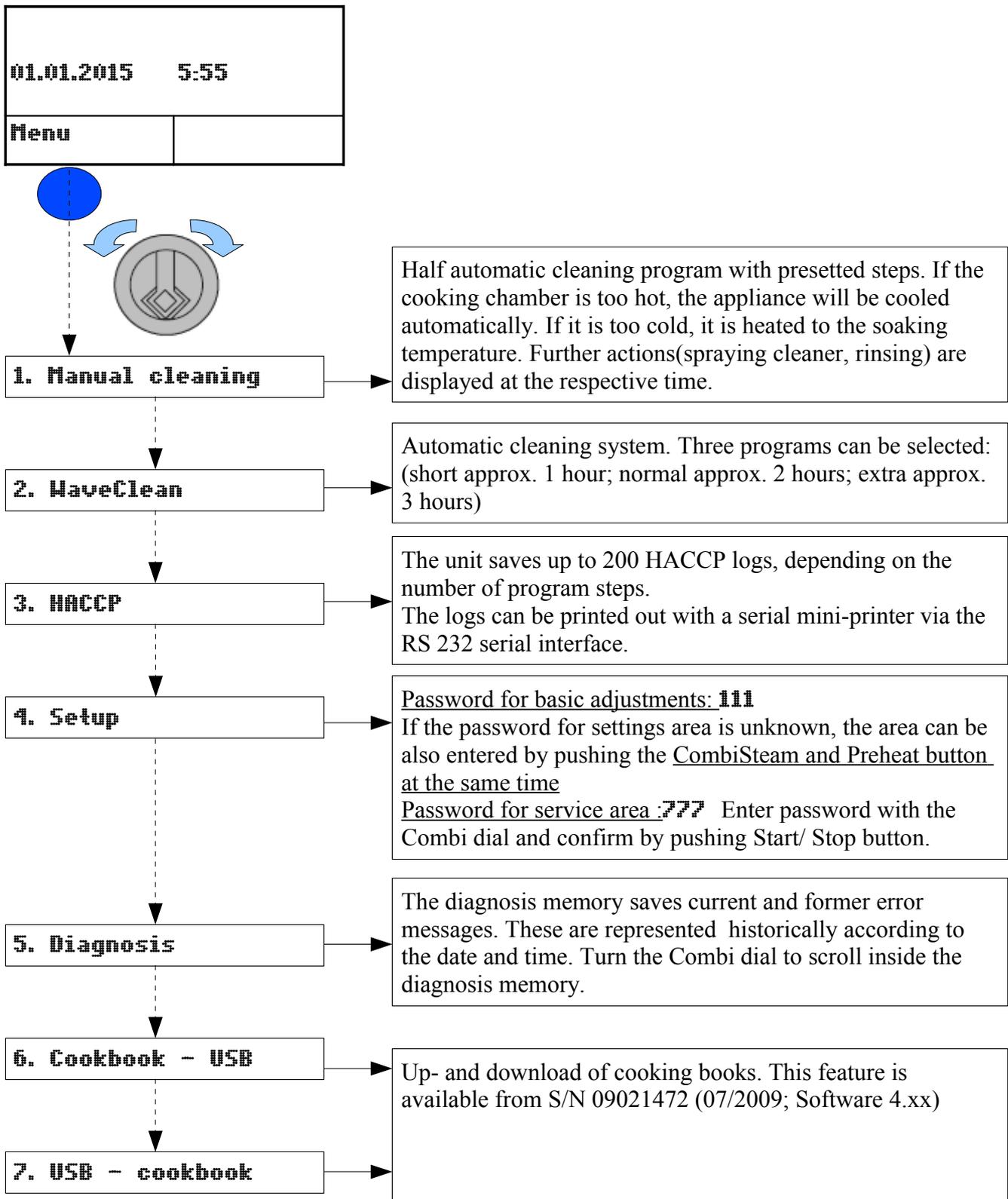
Parts location Space\$aver™ Plus (top view)
From S/N 09021752 (08 / 2009) with frequency motor controller



Parts location Space\$aver™ & Space\$aver™ Plus (backside view)
CE-Version



The main menu (Password overview & diagnosis memory)



Service menu of the electronic (Configuration menu)

The service menu (configuration menu) serves for the check and analysis of all electronic components. These can be test one by one or by summarized test programs.

If once the flash module should be exchanged, then this must be configured completely. In this case all steps must be carried out as well as a petition of equipment specific information is necessary.

A module preprogrammed by the manufacturer can alternatively be installed. In this case the serial number must be announced with the order.

Access the configuration menu as follows:

- Select **menu** on the left select button
- Select **adjust** with the Combi dial
- Push combi-pilot
- Enter password 777 with the Combi dial (enter number, push Combi dial, enter next number) and confirm with “start/stop”
- Select test step and confirm with the Combi dial.



Tabular overview of the service level (configuration I):

| Name of step | Short description/function |
|------------------------|--|
| 1 Software-Status | Shows the installed software version and text version . |
| 2 Display-Test | Display functional test of all dots. |
| 3 LED-Test | Individual check of the LED's on the keyboard pcb. |
| 4 Button-Test | Individual check of all keyboard buttons and the Combi dial button. |
| 5 Relay-Test | Separate check of the relays on the relay pcb. Electrical components as well as the relays can be checked on function. Display of counter readings, such as operation hours. |
| 6 Unit configuration | Input area for all unit details, such as the size of unit. |
| 7 HaveClean-Test | Test run of the automatic cleaning system for component as well functional test. |
| 8 Fan-Test | Check of all fan modes. |
| 10 Water test | Functional test for the DynaSteam unit. |
| 11 Drain cooling Test | Functional test of the the solenoid valve and drain probe from the drain cooling system. |
| 12 100°C+CT Calib. | Calibration step for chamber and core temperature probe. |
| 14 Empty watersystem | Water emptying function if the water connections are connected to compressed air. Made for internal use. |
| 15 Delete error | Deletes the complete diagnosis memory (not the current Error message -> see reset of electronic!). |
| 16 Delete HACCP | Deletes the complete HACCP memory |
| 17 Delete cooking book | Deletes ALL recipes from the cooking book (incl. the default recipes!). |
| 18 Upload cooking book | Coming soon. |
| 19 Service Tel. | This is shown by push the Smart Menu button while the unit is off. |
| 20 Print counters | Print out of all counter readings of relay test by the HACCP port. |

In context of the technical further development test steps can be added or renamed.

State: Software version 3.07

Detailed description of the service area

1 Software-Status

The software versions of the

- Booter
- Application (software version)
- Text list

are displayed.

The application version is important for equipment functionality.

Application = software

2 Display-Test

Test patterns appear in the following cycle:

- Fully activated
- Chess board 1
- Chess board 2
- Fully de-activated

Pressing the Combi dial button allows the individual steps to be accessed. When completed **finished** appears on the display.

3 LED-Test

The “ON” LED does not need to be tested, because it is already switched on. The remaining 5 LED’s (4 cooking modes and start/stop) are tested by repeated pressing of the Combi-pilot.

When completed **finished** appears on the display.

4 Button-Test

In the button test all buttons are pressed one after the other (including the select-buttons and the Combi dial). CAUTION: Do not start with the “ON/OFF” button. Only after all buttons have pressed once it is possible to return to the configuration menu. When completed **finished** appears on the display.

Every button is confirmed by the accompanying number on the display.

If a button should be faulty the power supply must be switched off, because a return from this test is not possible anymore.

5 Relay Test + Counter readings

A menu is offered with all relays of the relay pcb (K01 - K24). By pushing the Combi dialen the current condition of the chosen relay is switched over.

This can be checked with the LED next to each relay. The LED signals the status on the input side of the relay (LED on = energized, LED off = not energized).

The load side (output) can be controlled by measuring the outcoming voltages on terminal X5 and X6. Caution! During this test the reed contact-switch for the door is out of order!

By a configuration of a new flash module a test of all relays is not required.

After the relay has selected, it can be checked by pressing the Combi dial. A counter of each relay (down on the right) is shown on the display in addition. A reset of the counter is not possible.

| Actor | Name of step | Description/ function if pushing the Combi dial button |
|-------|------------------------|---|
| K01 | Main contactor | The relay is switched on about X6.2 and can not be switched over (the unit would switches off itself). |
| K02 | Fan | SpaceSaver™ Plus up to S/N 09021751 and all SpaceSaver™: Fan Motor M1 becomes a 230V signal by X.5.3. The fan starts in right direction. |
| K02 | FC D0 / Fan 1 | Only SpaceSaver™ Plus from S/N 09021752: Input D0 on the frequency converter becomes a 230V signal about X5.3. The fan motor starts on the left direction in fast speed mode. |
| K03 | n.u. | Only SpaceSaver™ Plus from S/N 09021752: Input D1 on the frequency converter becomes a 230V signal about X5.5. The fan motor starts on the right direction in fast speed mode. |
| K04 | Fan l/r | SpaceSaver™ Plus up to S/N 09021751 and all SpaceSaver™: Switchover for the left/ right fan direction. <u>The fan does not run!</u> |
| K05 | n.u. | Only SpaceSaver™ Plus from S/N 09021752: Input D2 on the frequency converter becomes a 230V signal about X5.9. The fan motor starts on the left direction in slow speed mode. |
| K06 | n.u. | |
| K07 | Cooling fan | The relay switches the cooling fan on/off by X5.10. |
| K08 | Fresh air pipe | The relay energizes the lift-magnet (fresh air flap) by X6.3 (via rectifiers V8). |
| K09 | Ext. Hood | Contact for an external hood (Contact closes for 60 seconds after opening the door). |
| K10 | Solenoid steam 1 | Energizing of the DynaSteam unit by X8 (not from a relay) |
| K11 | Solenoid steam 2 | Energizing of the DynaSteam unit by X8 (not from a relay) |
| K12 | Solenoid drain cooling | The relay switches on the solenoid valve Y12 by X6.6 for drain cooling. |
| K13 | Signal | The relay switches on the buzzer H13 by X5.13. |
| K14 | n.u. | |
| K15 | n.u. | |
| K16 | Pump MoveClean | The relay switches on the pump M16 by X6.12. The water is pumped out of the trap into the chamber. Caution! Only carry out this step if the chamber cooled down! |
| K17 | Reserve Relay | --> see documentation reserve relay (switched by X6.13) |
| K18 | n.u. | - not in use - |
| K19 | n.u. | - not in use - |

Continuation relay test

| Actor | Name of step | Description/ function if pushing the Combi dial button |
|--------------|---------------------|---|
| K20 | LOA B | Output for the connection of an energy optimization system (terminal X2/B). |
| K21 | Pot. free. LOA | Potential free contact for an energy optimizing system (terminal X2.15 and X2.16) |
| K22 | Illumination | The relay turns the chamber illumination off/on by X5.17. |
| K23 | Rinse WaveClean | The relay energizes the solenoid valve Y23 by X6.8 for the rinsing nozzle. Caution! Only perform test at a cooled down chamber! |
| K24 | Pump Siphon (trap) | The relay switches on the pump M24 by X6.9. The water is pumped out of the trap into to drainage. |

Counter readings in the relay test:

| | |
|------------------|--|
| Hours electronic | Connected hours on the power supply. |
| Hours unit on | Hours which the device was in standby. |
| Hours cooking | Hours of operating |
| Powerfail | Number of powerfails (longer than 10 sec.) during operation. |

6 Unit configuration

The following steps must be adjusted by the service engineer only at a new configuration of the flash modul.

| Step | Parameter | Value range | Comment |
|------|-------------------|--|---|
| 6-1 | Unit size/type | 6.1;6.2;10.1;10.2;20.1; 20.2;6.23; 6.1 compact | Adjustment of the unit size SpaceSaver™ = 6.23 SpaceSaver™ Plus = 6.1 compact |
| 6-2 | Heating source | electric, gas | Adjustment of the heating source |
| 6-3 | M.-Nr. (unit no.) | each 0-9 | Enter the no. by turning the Combi dial; Confirmation of each number by pushing the Combi dial. Finally confirmation by pressing the start/stop button.. |
| 6-4 | WaveClean | On / Off | Activation / deactivation WaveClean. Default setting „on“ |
| 6-5 | CT 4x | On / Off | Multi-point core temperature probe On / Off. “Off” = single-point Default setting „on“ |
| 6 | PID-Parameter | - | Not in use |
| 6 | Fan motor type | Contactor 2 speed (6.1;10.1;20.1 contactors controlled) Contactor 1 speed (SpaceSafer, SpaceSafer PLUS) FC 2 speeds (all units with 2 speed frequency fan controller) FC 3 speeds (all units with 3 speed frequency fan controller) | Adjustment of the fan motor type. Default setting „Contactor 1 speed“. Default setting up to S/N 09021751: „Contactor 1 speed“. Default setting from S/N 09021752: „FC 3 speeds“ |
| | PHI DynaSteam | On / Off | On = soft water assembly with steaming unit Off = soft water assembly with pressure reducer and solenoid valve. Default setting „on“ |
| 6-6 | Function code | - | Not in use |

7 WaveClean Test

Press start appears on the display. Push the Start/ Stop button or the Combi dial to start the WaveClean test. The pump M24 pumps out the water from the trap. The trap gets filled with water by the solenoid valve Y12. This process repeats two times. The pump M16 and also fan M1 switches on and cycles the water from the trap permanently. The test can be interrupt by **cancel** any time. At the end of the test the trap is pumped out and filled again twice.

8 Fan Test(SpaceSaver™ Plus up to S/N 09021751 and all SpaceSaver™)

A menu with the following fan modes is offered:

- **Right fast**
- **Left fast**

Push the Combi dial to start with **right fast**. The fan speed and direction is shown on the display during the fan runs. To change **left fast** fan mode turn the Combi dial and push the Combi dial to confirm. Push left select button **configuration menu** to go back in the service area. Please note that the fan motor is not equipped with a hall sensor. No information about fan speed and direction will be shown on the display.

8 Fan Test (SpaceSaver™ Plus with frequency controller from S/N 09021752)

A menu with the following fan modes is offered:

- Right slow
- Right medium
- Right fast
- Left slow
- Left medium
- Left fast

Push the CombiPilot to start with **right slow**. To change an other fan mode, turn the CombiPilot and push the CombiPilot to confirm. Push left select button **configuration menu** to go back in the service area.

10 Water test

Push the Combi dial to start. 60 ml of water coming through the water supply pipe into the chamber now. This steps allows to check the function of the DynaSteam unit. The amount of water can be control with a measuring box. A deviation of +-8% is within the possible tolerance. A calibration is not possible/necessary because this component is complete controlled by the electronic.

If the Combi dial is pushed once more, 60 ml are added up on the value on the display and another 60 ml run through the water water supply pipe.

11 Drain cooling test

The display shows the current drain temperature. Push the Combi dial to start test. Push and hold right select button **Drain cooling**. The manually cooling function starts and the drain temperature drops down.

12. 100°C + CT probe calibration

Caution! The CT probe and an external sensor (from temperature measuring meter) must be located in the centre of the cooking chamber.

We recommend that the sensor is hung on the grill grid. The sensor tip must point upwards in order to avoid drops forming on the sensor tip.

The following values are shown on the display:



For one and two-chamber units:

Pressing the Combi-Plot starts the 100 °C (212°F) calibration. Before setting the offset factor for the first time, wait at least 30 minutes. When the current probe temperature shows 100 °C ($\pm 1^\circ\text{C}$) on the display and the external temperature sensor indicates a value of between 99 °C and 99.5 °C, the unit is correctly calibrated. If the external device does not reach the temperature range specified, the temperature offset should be adjusted accordingly by turning the Combi dial.

Caution! After any change to the offset setting, always wait approx. 10 minutes to allow the change to affect the cooking chamber temperature (temperature on external temperature sensor should remain stable).

When the actual temperature is at $100\text{ °C} \pm 1\text{ K}$, the core temperature sensor is automatically also calibrated when the calibration is finalised. If the actual temperature is outside of the specified tolerance, the following message appears: **KT sensor not calibrated**. For finishing the calibration press the left select button **cancel**.

14 Empty water system

This step serves to empty the water inside (like valves and hoses) the system. The unit has connected to air pressure at both water connections. Now the program has to be started.

This program step was conceived to avoid frost damages while transportation and is basically made for internal use.

15 Delete error

Push the right select button **delete** to delete the complete diagnosis memory. Press the left select key **config menu** to return to the configuration menu. This step should be just executed at a change of ownership of the device to hold a history of all error messages from the past. This program step does not delete current faults but only the diagnostic memory! Current error messages are deleted by a reset of the electronic.

16 Delete HACCP

On the display appears **delete**. Press the right select button to delete. Press the left select button **config menu** to return to the configuration menu. This step should be only done at a change of ownership of the device to delete the whole HACCP documentation.

17 Delete cooking book

On the display appears **delete**. Press the right select button to delete. Press the left select button **config menu** to return to the configuration menu. This step should be only done at a change of ownership of the device to delete the complete cooking book including all preprogrammed recipes!

18 Upload cooking book

At present, this program step is for the internal use only.

19 Service Tel.

This function allows to enter a service phone number.

Later on the number is shown on the display by push the Smart Menu button while the unit is off.

20 Print counters

All counter readings are (below the front panel) distributed by pressing the Combi dial at the serial interface.

Settings area (basic settings)

The HansDampf electronics are set to standard parameters on delivery. These standard parameters can be changed individually within defined limits.

To enter the settings area the following steps have to be carried out:

- Turn on the unit.
- Push the left soft button **Menu**.
- Select **4 Setup** by turning the Combi dial.
- Confirm by pushing the Combi dial.
- Enter password 111 with the Combi dial (enter number, push Combi dial, enter next number)
- and confirm with “start/stop”.
- You are now in the settings area. With the Combi dial the desired step can be chosen. By pushing the Combi dial this is selected.



| Description | No. | Setting range | Explanation / function |
|--------------------------------|-----|---|--|
| Time / Date | 000 | Time and date | Push Combi dial button to change time & date. Push Combi dial = selection Turn Combi dial = Change value |
| Temperature reading in | 006 | °C / °F | Adjustment between temperature readings in °C or °F |
| Illumination blinking | 023 | On / Off (default = On) | Illumination flashes at the end of a program (in addition with the buzzer) |
| Preheat factor % | 082 | 0 – 30 % (default =15 %) | Preheat factor if using “ready2cook“. The factor will added to the selected temperature (example: 100°C adjusted = preheating up to 115°C). This happens under consideration of the maximum temperature values. |
| Water maintenance liter | 076 | 0 – 90000 liter in 100 liter-steps (default = 0 (Off)) | Attitude of the water softener capacity. Only the following situations possible: – Separate water softener for the unit – Only the soft water connection is connected at the filter. After the adjusted water quantity has flowed through the DynaSteam unit, a maintenance request appears on the display. |
| Format of date | 144 | Change of the shown format of date | TT = day MM = month JJJJ = year |
| Cookbook | 097 | Open / Locked / Fully locked (default = open) | Open: Saving, changing & deleting of recepis in cooking book possible. Locked: Saving, changing & deleting of recepis in cooking book not possible. However, changes are possible after selecting recipe (before operation). Fully locked: Similar to „locked“, but no changes possible after selecting recipe (before operation). |

| Description | No. | Setting range | Explanation / function |
|-------------------------|-----|---|---|
| Time delay fan | 032 | Off / On (default = off) | <p>Push Combi dial button to change setting. Push Combi dial = selection Turn Combi dial = Change value When "On", the fan runs during the time delay to cool the oven chamber with a block of ice in the bottom drawer. For this purpose, place the perforated container in the closed container, fill with approximately 4 litres of water and allow to freeze. Insert the ice block into the perforated container at the lowest level. This allows a temperature of 14°C to be maintained for up to 6 hours.</p> |
| Cooling water | 024 | Minimal / Normal / Maximal (default = normal) | <p>Setting minimal: Less water consumption but higher drain temperature and more steam from the exhaust pipe. Setting maximal: More water consumption but lower drain temperature and less steam from the exhaust pipe.</p> |
| Time ext. hood | 083 | 0 – 600 seconds (default = 60 seconds) | Time where the external condensation hood runs to maximum performance after the chamber door was opened. |
| Time signal (s) | 084 | 0 – 180 seconds (default = 20 seconds) | Time of the buzzer/ flashing illumination at the end of a program. 0= buzzer off. In addition to the buzzer the flashing illumination can deactivated / activated. See also parameter 023. |
| Altitude | 015 | 0-500 m; 501 – 1000 m; 1001 – 1500 m; > 1500 m (default = 0) | Altitude adjustment (above sea level). |
| Password | 096 | 000 – 500 (default = 111) | Individual passwords can be set up in this here. |
| Scroll direction | 225 | Normal / Clockwise (default = normal=) | The direction of the Combi dial can be adjusted as required in the menus and cookbook. |

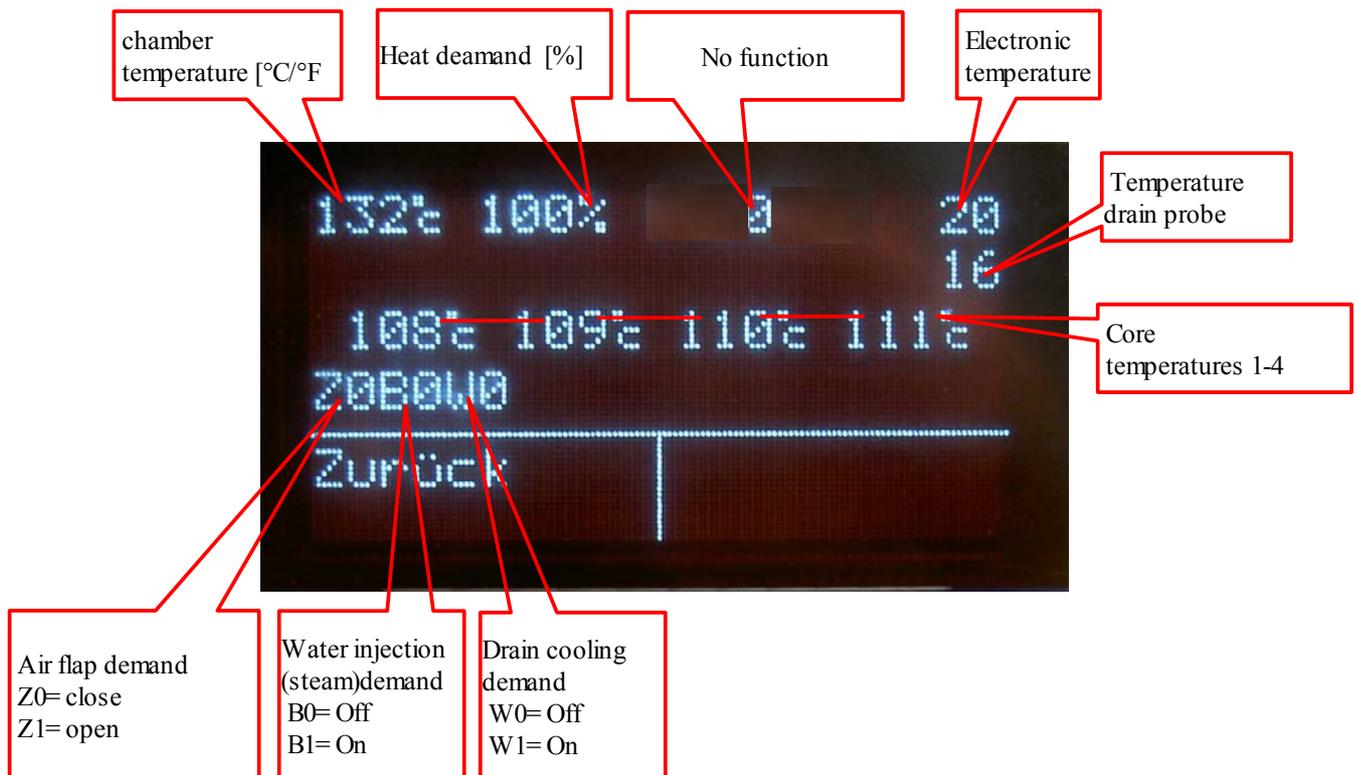
| Description | No. | Setting range | Explanation / function |
|----------------------|-----|---|--|
| Temp. Steam | 235 | 30 – 130 °C (86 - 266°F) (default = 100°C, 212°F) | The default temperatures can be individually set up for the cooking process within the limits shown here |
| Temp. Combi | 236 | 30 – 250 °C (86 - 482°F) (default = 130°C, 266°F) | |
| Temp. Convection | 237 | 30 – 300 °C (86 - 482°F) (default = 180°C, 358°F) | |
| Temp. Perfection | 238 | 30 – 180 °C (86 - 356°F) (default = 120°C, 248°F) | |
| Temp. LTC | 239 | 60 – 100 °C (140 - 212°F) (default = 60°C, 140°F) | |
| Temp. Delta | 240 | 1 – 100 °C (34 - 212°F) (default = 20°C, 68°F) | |
| Temp. DT-Core | 241 | 30 – 99 °C (86 - 210°F) (default = 60°C, 140°F) | |
| Cooking book history | 242 | 0 – 10 (default = 10) | With the history function the last used programmes from the cooking book memory can be displayed (Push Smart Menu -> history) |
| Default category | 397 | Cooking book; Meat, Poultry, Fish, Vegetables, Side dishes, Bakery products, Overnight cooking, MyChef – Special; Perfection (default = Cooking book) | |
| Cooking book no. | 403 | 0: Only your own recipes 1: German 2: English GB 3: Italian 4: French 5: Dutch 6: Spanish 7: Polish 8: Danish 9: Russian 10: Czech 11: Lithuanian 12: Latvian 22: Turkish 100: HennyPenny english | Different country-specific cookbooks can be loaded via cookbook switching. Deleted Auto-Chef cooking programs can also be restored here. For this purpose, select cookbook number and then save. Press "Save" after switching the cookbook. "analysis" appears for up to 5 minutes. Cooking programs created on the appliance remain when the cookbook is changed. For further information and languages see also operation manual! |

Finally push the select button **save** to save changes or push **back** to leave the settings area without saving any changes.

Generally measurement mask

This mask shows you a summary of measurement information during preheating and cooking process.

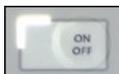
By press and hold the Combi dial during operation for a short time, you can see the following information until pushing the left soft button „back“.



How to activate and disable the demo mode

Activate demo mode:

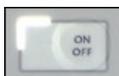
→ Press the



ON / OFF button for 16 seconds during the combi steamer is off. The appliance is in the demo mode now.

Disable demo mode:

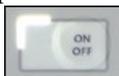
→ Press the



ON / OFF button for 16 seconds during the combi steamer is off. The appliance is back in the normal mode now.

Reset of the electronic

→ press the



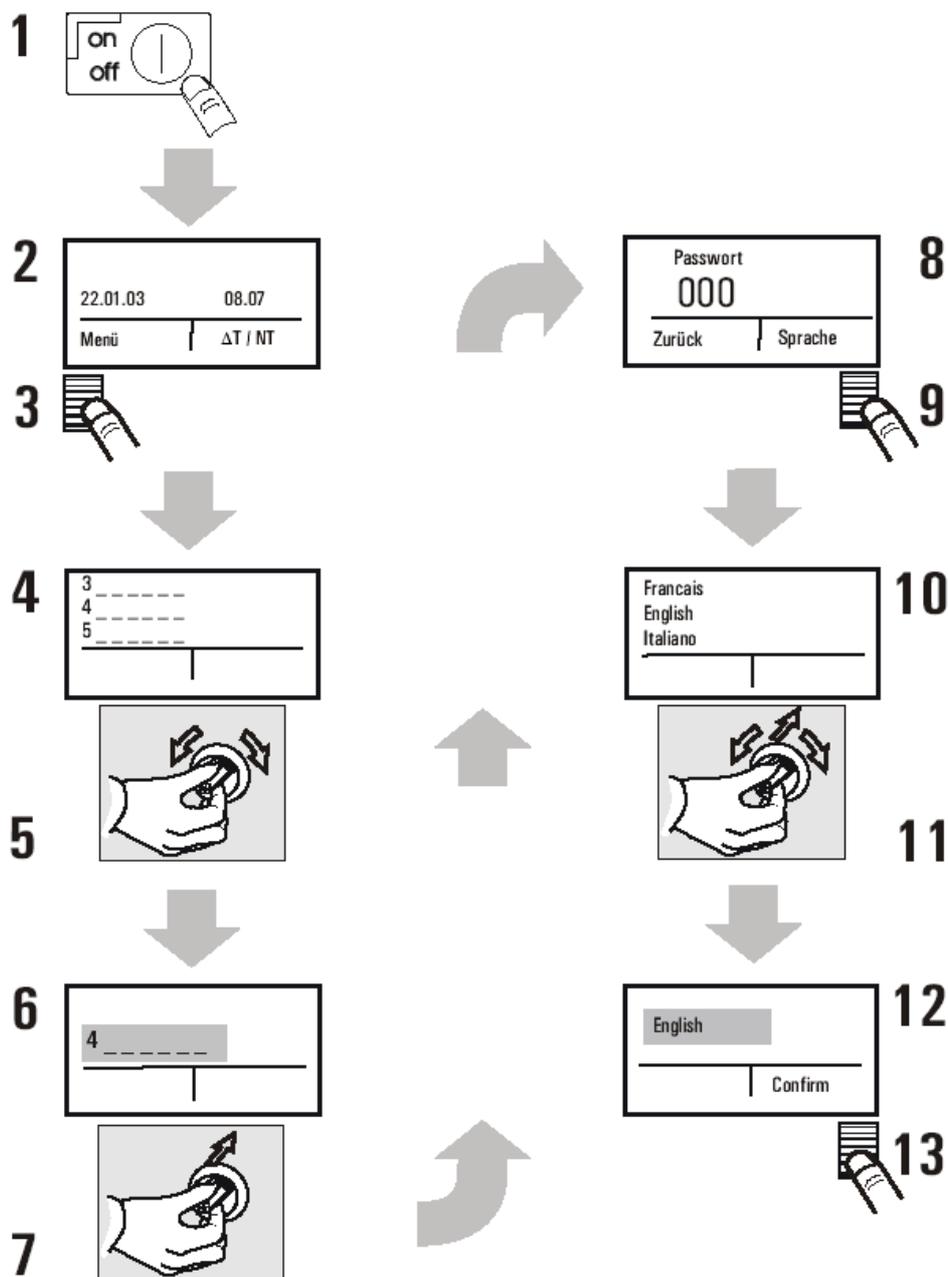
ON / OFF button for 8 seconds during the combi steamer is on. The electronic will be reset now. After 8 second the notice "loading Flash data" will be on the display. It means that the electronic loads the data's from the flash-module to the RAM.

How to change the display language

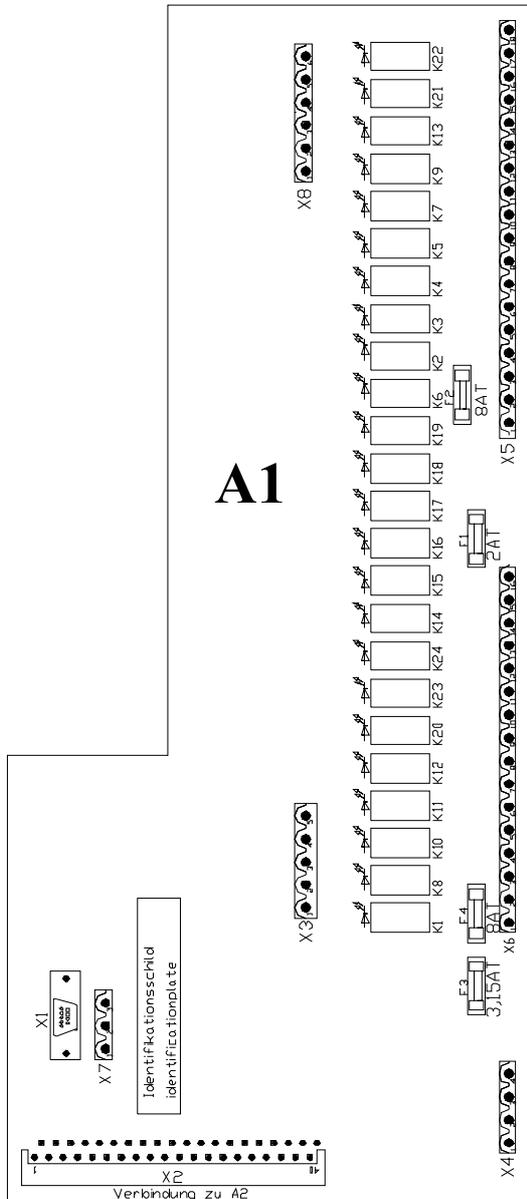
For changing the display language, please do the following steps:

- Switch the unit on by pressing the “ON/Off” button.
- Press the left soft key “Menu”
- Then select step 4 “settings” with the combi pilot.
- If you press the right soft key “Language” you can change the display language with the combi pilot.
- Please confirm the requested language by pressing the right soft key “save”.
- Then press the right soft key twice.

Now you are back in the main menu



Layout of relay pcb UL-Version



X1:
Serial RS232 port for software updates.

X3:

| No. | description |
|-----|---------------------------------|
| 1 | Input 21 Volt Electronic supply |
| 2 | Input 21 Volt Electronic supply |
| 3 | |
| 4 | Input 4,2 Volt Display supply |
| 5 | Input 4,2 Volt Display supply |

X4:

| No. | description |
|-----|--|
| 1 | - |
| 2 | Monitoring „safety cut off“ (230V) |
| 3 | Monitoring „LOA C“ (230V)(optimisation system) |
| 4 | Input neutral (N) |

X5:

| No. | Description | Fuse on board |
|-----|--|---------------|
| 1 | Input 230 Volt | |
| 2 | - | |
| 3 | <i>SpaceSafer Plus up to S/N 09021751 and all SpaceSafer:</i> Bridge to X5.8 <i>Only SpaceSafer Plus from S/N 09021752:</i> Output to frequency controller D0 | F2 |
| 4 | - | |
| 5 | <i>Only SpaceSafer Plus from S/N 09021752:</i> Output to frequency controller D1 | F2 |
| 6 | <i>SpaceSafer Plus up to S/N 09021751 and all SpaceSafer:</i> Output to motor M1 | F2 |

X5 (continuation):

| No. | Description | Fuse on board |
|-----|---|---------------|
| 7 | <i>SpaceSafer Plus up to S/N 09021751 and all SpaceSafer:</i> Output to motor M1 | F2 |
| 8 | <i>SpaceSafer Plus up to S/N 09021751 and all SpaceSafer:</i> Bridge to X5.3 | F2 |
| 9 | <i>Only SpaceSafer Plus from S/N 09021752:</i> Output to frequency controller D2 | F2 |
| 10 | Output to cooling fan M7 | F2 |
| 11 | Connection for external exhaust hood (signal contact) | |
| 12 | Connection for external exhaust hood (signal contact) | |
| 13 | Output to buzzer H13 | |
| 14 | Input 24 Volt (buzzer supply) | |
| 15 | Potential free contact | |
| 16 | Potential free contact | |
| 17 | Output to chamber illumination | |
| 18 | Input 10,7V for chamber illumination | |

X6:

| No. | Description | Fuse on board |
|-----|--|---------------|
| 1 | Input 230 Volt | |
| 2 | Output to F7 limit switch /main contactor | F3 |
| 3 | Output to V8 rectifier / Y8 lift magnet | F4 |
| 4 | - | F4 |
| 5 | - | F4 |
| 6 | Output to solenoid valve Y12 (drain cooling) | F4 |
| 7 | Output for Energy optimisation system | |
| 8 | Output to solenoid valve Y23 (AutoShower) | F4 |
| 9 | Output to cleaning pump M24 | F4 |
| 10 | - | |
| 11 | - | |
| 12 | Output to cleaning pump M16 | F4 |
| 13 | Output to reserve relay K17 | |
| 14 | - | |
| 15 | - | |
| 16 | - | |

X7:

| No. | Description |
|-----|--------------------------------|
| 1 | Buzzer supply voltage to X5.14 |
| 2 | Buzzer supply voltage |

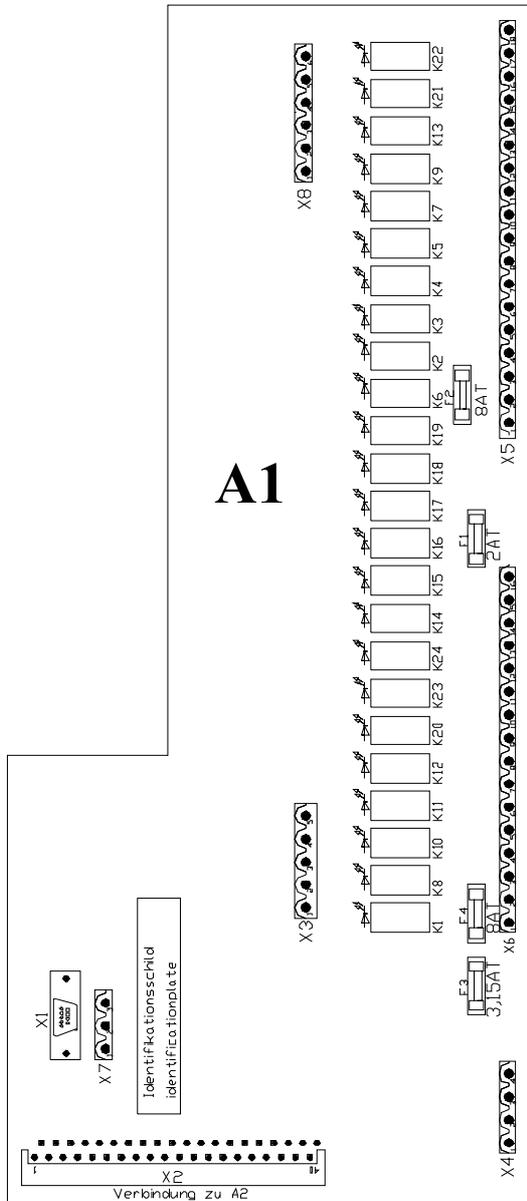
X8:

| No. | Description |
|-----|--|
| 1 | Output signal DynaSteam unit Y10 / Y20 (Y20 only 20.x) |
| 2 | Output signal DynaSteam unit Y10 / Y20 (Y20 only 20.x) |
| 3 | - |
| 4 | Output signal DynaSteam unit Y11 / Y21 (Y21 only 20.x) |
| 5 | Output signal DynaSteam unit Y11 / Y21 (Y21 only 20.x) |
| 9 | - |

Fuses: F1: 2A Slow blow #203474; F2,F4: 8A Slow blow #203741; F3: 3,15A Slow blow #203742

Layout of relay pcb CE-Version

CE-Version



X1:
Serial RS232 port for software update.

X3:

| No. | description |
|-----|---------------------------------|
| 1 | Input 21 Volt Electronic supply |
| 2 | Input 21 Volt Electronic supply |
| 3 | |
| 4 | Input 4,2 Volt Display supply |
| 5 | Input 4,2 Volt Display supply |

X4:

| No. | description |
|-----|--|
| 1 | - |
| 2 | Monitoring „safety cut off“ (230V) |
| 3 | Monitoring „LOA C“ (230V)(optimisation system) |
| 4 | Input neutral (N) |

X5:

| No. | Description | Fuse on board |
|-----|--|---------------|
| 1 | Input 230 Volt | |
| 2 | - | |
| 3 | <i>SpaceSafer Plus up to S/N 09021751 and all SpaceSafer:</i> Bridge to X5.8 <i>Only SpaceSafer Plus from S/N 09021752:</i> Output to frequency controller D0 | F2 |
| 4 | - | |
| 5 | <i>Only SpaceSafer Plus from S/N 09021752:</i> Output to frequency controller D1 | F2 |
| 6 | <i>SpaceSafer Plus up to S/N 09021751 and all SpaceSafer:</i> Output to motor M1 | F2 |

X5 (continuation):

| No. | Description | Fuse on board |
|-----|---|---------------|
| 7 | <i>SpaceSafer Plus up to S/N 09021751 and all SpaceSafer:</i> Output to motor M1 | F2 |
| 8 | <i>SpaceSafer Plus up to S/N 09021751 and all SpaceSafer:</i> Bridge to X5.3 | F2 |
| 9 | <i>Only SpaceSafer Plus from S/N 09021752:</i> Output to frequency controller D2 | F2 |
| 10 | Output to cooling fan M7 | F2 |
| 11 | Connection for external exhaust hood (signal contact) | |
| 12 | Connection for external exhaust hood (signal contact) | |
| 13 | Output to buzzer H13 | |
| 14 | Input 230 Volt (buzzer supply) | |
| 15 | Potential free contact | |
| 16 | Potential free contact | |
| 17 | Output to chamber illumination | |
| 18 | Input 10,7V for chamber illumination | |

X6:

| No. | Description | fuse on board |
|-----|--|---------------|
| 1 | Input 230 Volt | |
| 2 | Output to F7 limit switch /main contactor | F3 |
| 3 | Output to V8 rectifier / Y8 lift magnet | F4 |
| 4 | - | F4 |
| 5 | - | F4 |
| 6 | Output to solenoid valve Y12 (drain cooling) | F4 |
| 7 | Output for Energy optimisation system | |
| 8 | Output to solenoid valve Y23 (AutoShower) | F4 |
| 9 | Output to cleaning pump M24 | F4 |
| 10 | - | |
| 11 | - | |
| 12 | Output to cleaning pump M16 | F4 |
| 13 | Output to reserve relay K17 | |
| 14 | - | |
| 15 | - | |
| 16 | - | |

X7:

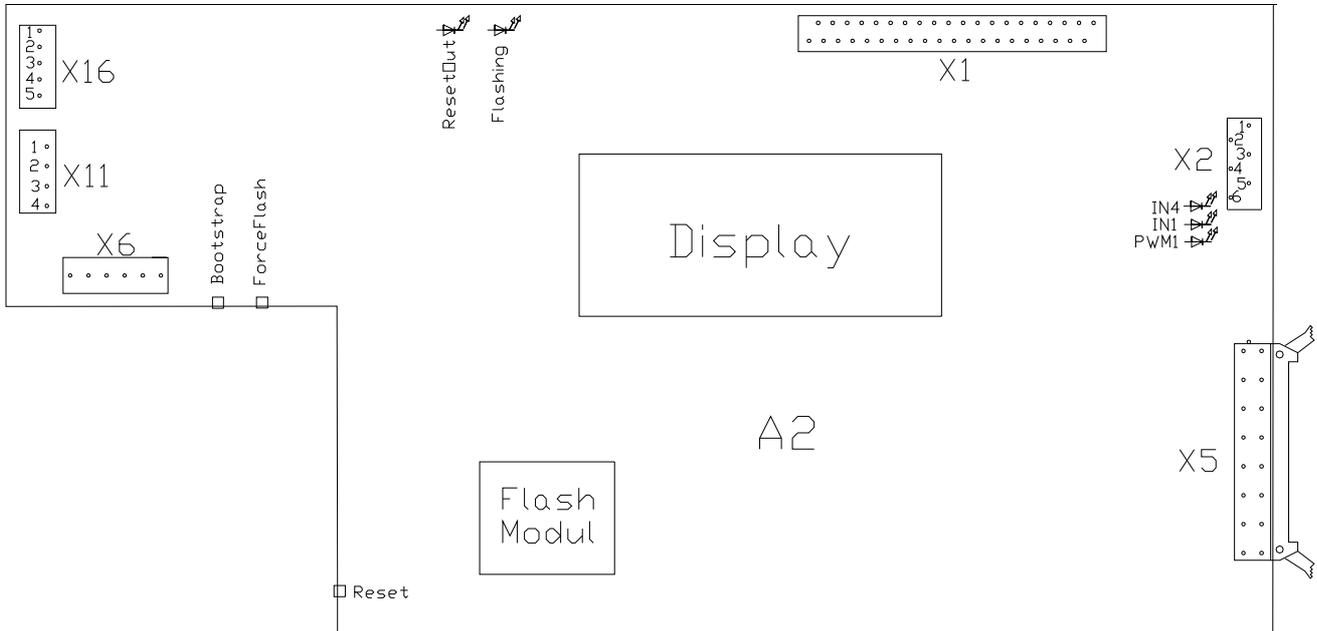
| No. | Description |
|-----|-------------|
| 1 | Not in use |
| 2 | Not in use |

X8:

| No. | Description |
|-----|--|
| 1 | Output signal DynaSteam unit Y10 / Y20 (Y20 only 20.x) |
| 2 | Output signal DynaSteam unit Y10 / Y20 (Y20 only 20.x) |
| 3 | - |
| 4 | Output signal DynaSteam unit Y11 / Y21 (Y21 only 20.x) |
| 5 | Output signal DynaSteam unit Y11 / Y21 (Y21 only 20.x) |
| 9 | - |

Fuses: F1: 2A Slow blow #203474; F2,F4: 8A Slow blow #203741; F3: 3,15A Slow blow #203742

Layout of keyboard pcb



X1:
Connection to relay pcb A1

X5:
HACCP connection

X2:

| No. | Description | LED on board |
|-----|---------------------------------------|--------------|
| 1 | Solid state relay (SSR) V1 (brown) | PWM1 |
| 2 | Solid state relay (SSR) V1 (white) | |
| 3 | Reed contact (door) switch S1 (black) | IN 1 |
| 4 | Reed contact (door) switch S1 (black) | |
| 5 | Pressure switch B10 (white) | IN 4 |
| 6 | Pressure switch B10 (white) | |

X11:

| No. | Description |
|-----|--------------------------|
| 1 | Chamber probe B2 (black) |
| 2 | Chamber probe B2 (brown) |
| 3 | Drain probe B4 (white) |
| 4 | Drain probe B4 (green) |

X6:
Combi dial connection

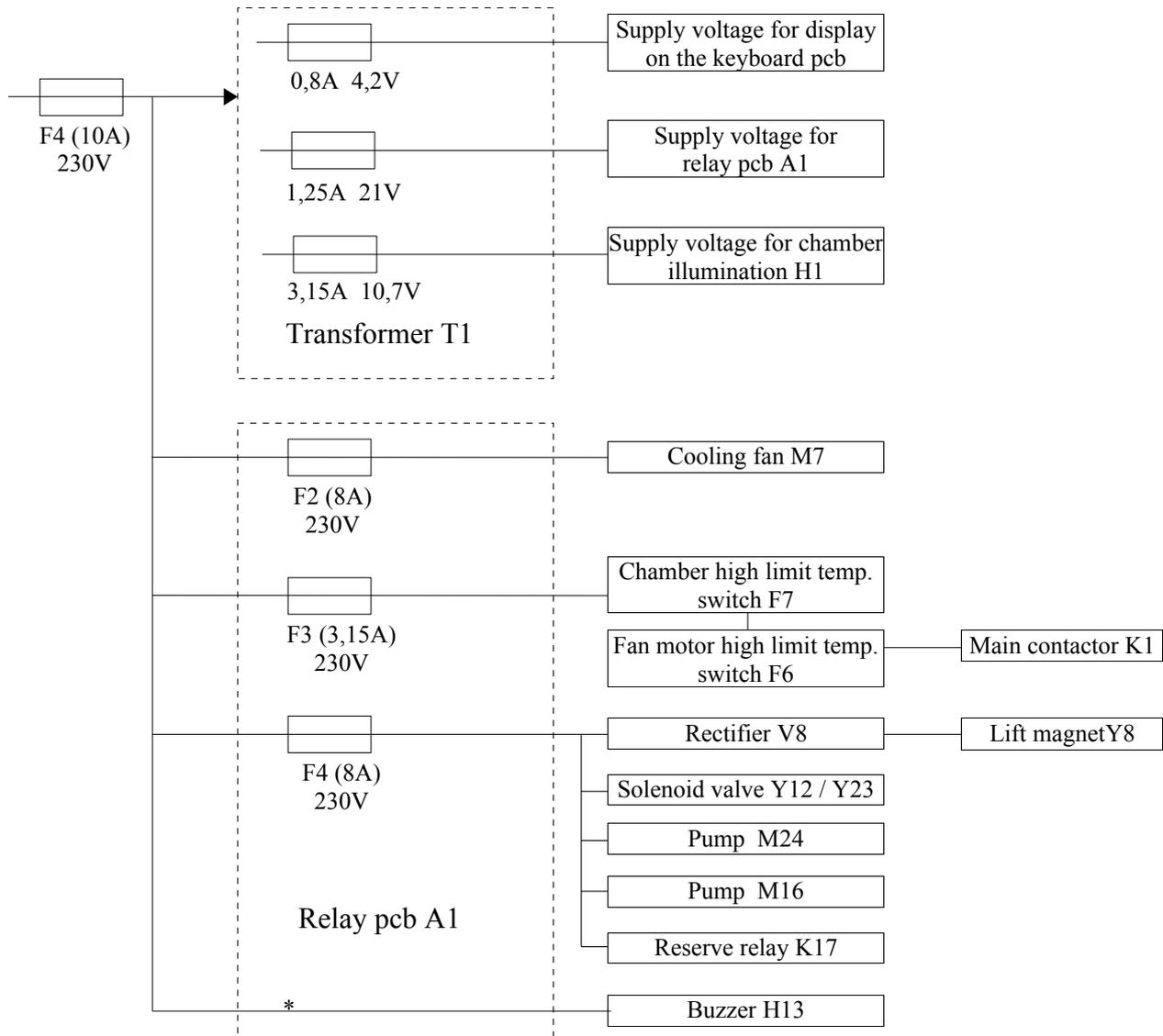
X16:

| No. | Description |
|-----|--|
| 1 | Core temperature probe B1 (white) |
| 2 | Core temperature probe B1 (green/red) |
| 3 | Core temperature probe B1 (green/blue) |
| 4 | Core temperature probe B1 (green/yellow) |
| 5 | Core temperature probe B1 (green) |

| | | | | |
|---|-----------------|----------------|-----------------|----------------|
| Flashing LED: | 1 | 0 | 1 | 0 |
| ResetOut LED: | 1 | 0 | 0 | 1 |
| | Booter activ | no software | Booter activ | no software |
| If the flashing LED flashes equally (in 1 Hz-time) the processor runs. | | | | |
| If the flashing LED has a higher flash frequency, reset the electronic. | | | | |

Fuse protection schematic

Valid for all SpaceSaver™ and SpaceSaver™ Plus up to S/N 0902xxxx



*= Only at CE units (The UL version has a low voltage buzzer)

Part numbers of fuses:

Fuse on the electric assembly:
F4, 10A slow blow = #203996

Fuses on the transformer:

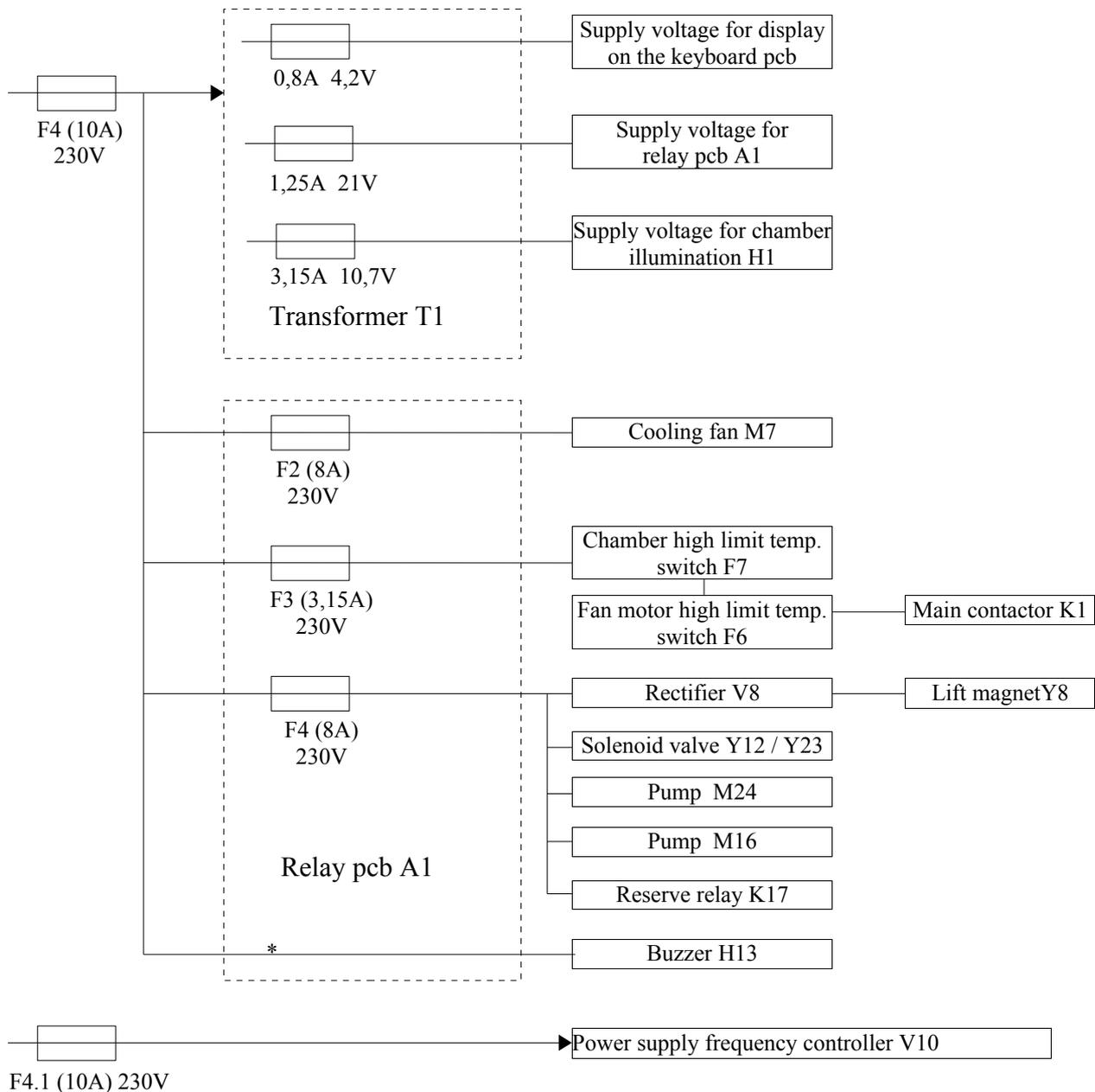
0,8A slow blow = #203720
1,25A slow blow = #203722

Fuses on the relay pcb:

F2, F4 8A slow blow = #203741
F3 3,15A slow blow = #203742

Fuse protection schematic

Valid for SpaceSaver™ Plus from S/N 0902xxxx



*= Only at CE units (The UL version has a low voltage buzzer)

Part numbers of fuses:

Fuse on the electric assembly:

F4, F4.1 10A slow blow = #203996

Fuses on the transformer:

0,8A slow blow = #203720

1,25A slow blow = #203722

Fuses on the relay pcb:

F2, F4 8A slow blow = #203741

F3 3,15A slow blow = #203742

Rewiring instructions for reserve relay K 17

The power board is equipped with a reserve relay which can be covered at a relay failure. This concerns only closing contacts these are not potential-free. The assignment happens in the relay test of the configuration menu. It is to proceed as follows:

- Identifying faulty relay by using the relay test.
- Assigning the reserve relay by pressing the **reserve** button.
- Leaving the relay test by pressing the **Config menu** button.
- Press **save** button and leave the configuration menu with the **back** button and rewire in accordance with table.

Please, after the cable became rewired in accordance with table, write on it !!

| Terminal connection | Contact type | Protected by | Actor name | Actor | Comments / rewiring instructions |
|---------------------|--------------|----------------|---|------------|--|
| X5.1 | Input | F4 | 230V input on F11 and F2 | | Protection by fuse F4 on electric assembly |
| X5.3 | N. O. | F2 | Fan / FC D0 | K2 | Rewire cable from X5.3 to X6.13 and assign reserve relay. |
| X5.5 | N.O. | F2 | FC D01 | K3 | Rewire cable from X5.5 to X6.13 and assign reserve relay. |
| X5.6 | N.C. | Potential-free | Fan left / right | K4 | Not possible for reserve relay assignment |
| X5.7 | N.O. | | | | |
| X5.8 | Input | | | | |
| X5.9 | N. O. | F2 | FC D2 | K5 | Rewire cable from X5.10 to X6.13 and assign reserve relay. |
| X5.10 | N. O. | F2 | Cooling fan | K7 | Rewire cable from X5.10 to X6.13 and assign reserve relay. |
| X5.11 | N. O. | Potential-free | External hood | K9 | Not possible for reserve relay assignment |
| X5.12 | Input | | | | |
| X5.13 | N. O. | Potential-free | Buzzer | K13 | Not possible for reserve relay assignment |
| X5.14 | | | | | |
| X5.15 | N. O. | Potential-free | For external energy optimisation system | K21 | Not possible for reserve relay assignment |
| X5.16 | Input | | | | |
| X5.17 | N. O. | Potential-free | Illumination | K22 | Not possible for reserve relay assignment |
| X5.18 | Input | | | | |
| X6.1 | Input | F4 | 230V input on F3 and F4 | | Protection by fuse F4 on electric assembly |
| X6.2 | N. O. | F3 | Main contactor | K1 | Rewire cable from X6.2 to X6.13 and assign reserve relay. |
| X6.3 | N. O. | F4 | Lift magnet (fresh air flap) | K8 | Rewire cable from X6.3 to X6.13 and assign reserve relay. |
| X6.6 | N. O. | F4 | Solenoid valve drain cooling | K12 | Rewire cable from X6.6 to X6.13 and assign reserve relay. |
| X6.7 | N. O. | F4 | Energy optimisation system (B) | K20 | Rewire cable from X6.7 to X6.13 and assign reserve relay. |
| X6.8 | N.O. | F4 | Rinse WaveClean | K23 | Rewire cable from X6.7 to X6.13 and assign reserve relay. |
| X6.9 | N. O. | F4 | Siphon pump (trap pump) | K24 | Rewire cable from X6.9 to X6.13 and assign reserve relay. |
| X6.12 | N. O. | F4 | WaveClean pump | K16 | Rewire cable from X6.12 to X6.13 and assign reserve relay. |
| X6.13 | N. O. | F4 | Reserve relay | K17 | Reserve relay |

N. C. = normally closed contact N. O. = Normally open contact

Reorganisation and reprogramming into the default situation

To „charge“ the reserve relay not unnecessary, an exchange of the relay circuit board to the default situation should be established again. Procedure:

- Establish original state of the wiring (from X6.13 back to X ...) .
- Select **relay test** in the configuration menu.
- Select relay K17 and push the **reserve** button.
- Leave the relay test by pushing the **config-menu** button.
- Push save and leave the configuration menu with back.

Error messages

Overview of the emergency programs

In case of an error the electronic switches in a emergency mode automatically This function ensures, that the unit works at least in the main modes.

„Emergency program“ is shown on display in the main mask.

Every program arises from a previous temperature sensor error message.

The message "emergency program" can be deleted by a reset of electronic only.

Overview

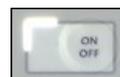
| Error message in the diagnosis | Consequence |
|---|---|
| Core temp. probe defect CT1-probe defect CT2-probe defect CT3-probe defect CT4-probe defect | The core temperature probe function is not available. |
| Temp. probe chamber 1 defect | The core temp. probe is used as a chamber probe now. The core temperature probe function is not available. Due the position of the core temp. probe easy temperature differences of the chamber temperature measurement are possible. |
| Drain temp. probe defect | The drain cooling changes in an emergency program (Controlled by the pcb). An increased water consumption arises from it. |

The diagnosis memory

The diagnosis memory offers a very easy possibility to demand current and former error messages. These are represented historically according to the date and time.

Enter the diagnosis area as follows:

- ➔ Press the ON/OFF button.



- ➔ Press left select button **menu**

| | |
|---------------|----------------|
| | |
| Date | Time |
| | |
| Menu | |
| Soft-key left | Soft-key right |

- ➔ Select **5 diagnosis** with the CombiPilot (knob). Enter diagnosis area by pressing the right select button **confirm** or the CombiPilot.

| | |
|--------------------------------|----------------|
| Menu | |
| 5 Diagnosis (<i>flashes</i>) | |
| Menu | |
| Soft-key left | Soft-key right |

Temperature probe chamber 1 defect

Consequence:

The electronic changes in an emergency program automatically. The core temp. probe takes over the function of the chamber probe. The core temp. probe function is not available.

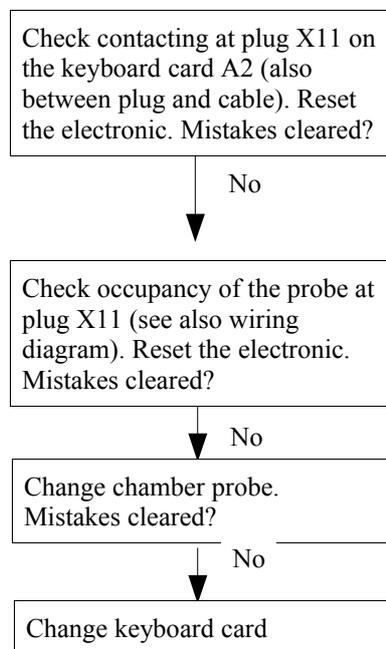
Position of the chamber probe:

Upper chamber area, on the right

Designation of the component(s) in the wiring diagram:

B2

Troubleshooting:



Functional test:

The measurements values can be demand with the service status mask.

Finally receipt the error message by a reset of the electronic!

Core temperature probe defect

CT1 probe defect

CT2 probe defect

CT3 probe defect

CT4 probe defect

Consequence:

The electronic changes in an emergency program automatically. The function of the probe is deactivated.

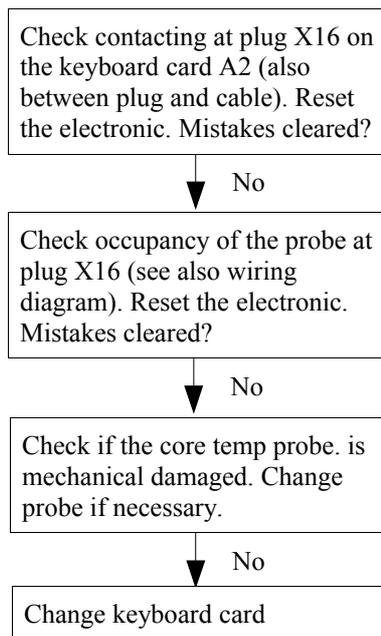
Position of the core temp. probe:

In the front of the chamber.

Designation of the component in the wiring diagram:

B1

Troubleshooting:



Functional test:

The measurements values can be demand with the service status mask.

Finally receipt the error message by a reset of the electronic!

Drain temperature probe defect

Consequence:

The electronic changes automatically in an emergency program. The drain cooling switches on and off controlled by the electronic (During operation).

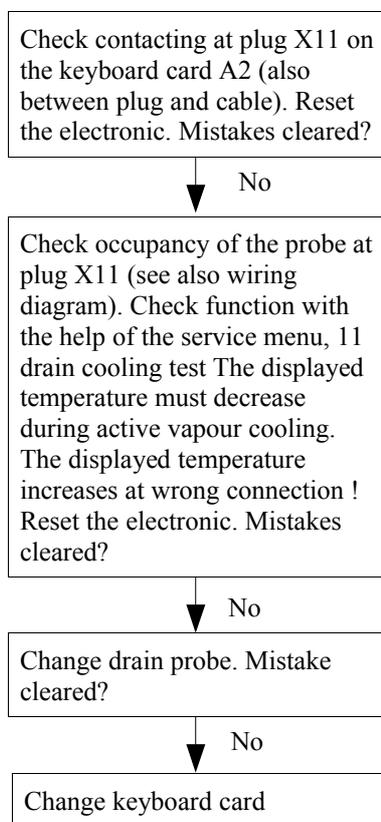
Position of the drain temperature probe:

The probe is located at the syphon.

Designation of the component in the wiring diagram:

B4

Troubleshooting:



Functional test:

Enter the service menu and select „11 Drain cooling test“.

Finally receipt the error message by a reset of the electronic!

Over temperature cooking chamber

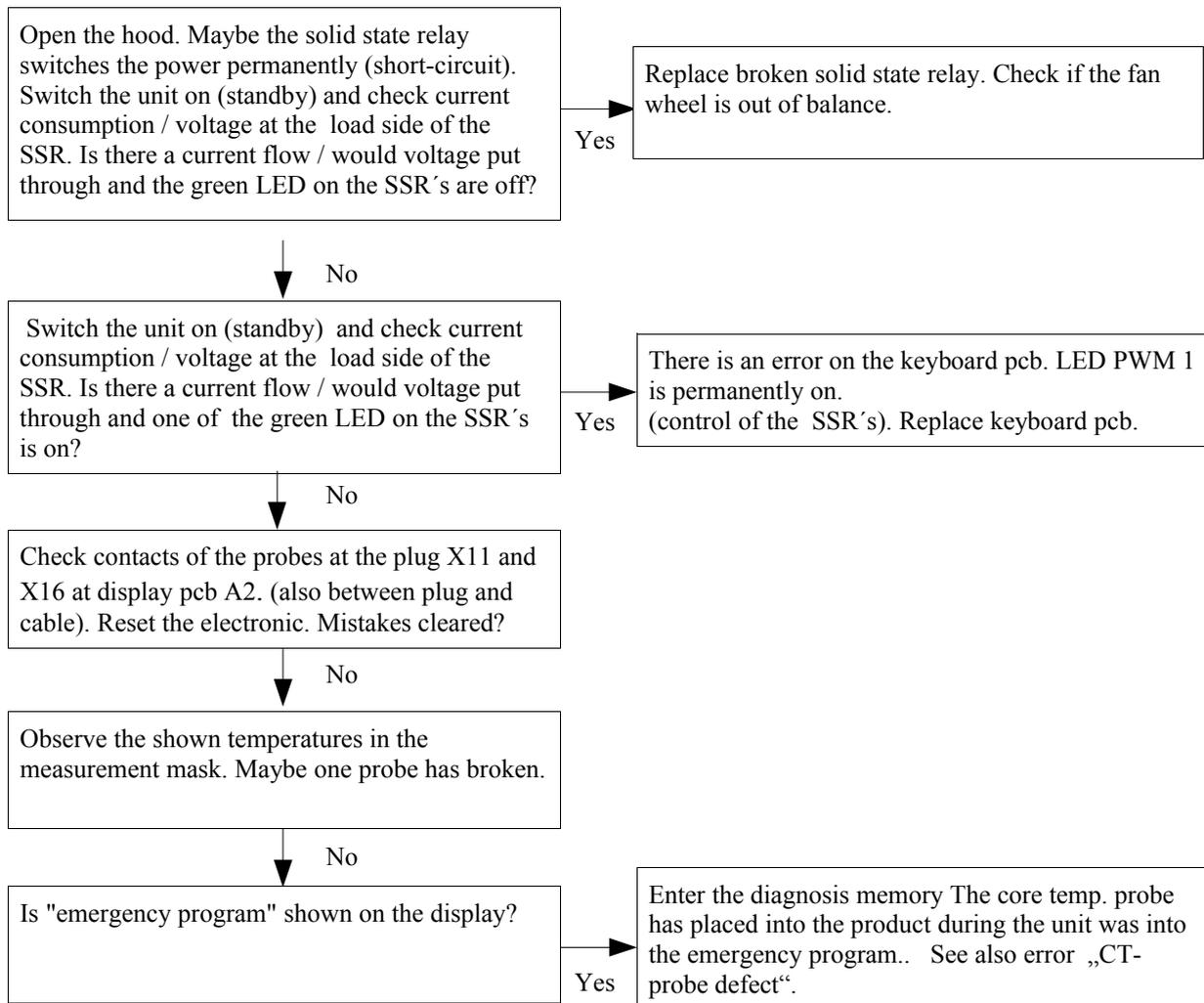
Consequence:

The unit is not ready for operating until the unit has cooled down.

Error description:

A temperature of >310°C (590°F) were measured in the chamber by the Core temp. probe or camber probe.

Troubleshooting:



Electronic too hot Electronic overheated

Consequence / description:

Error: “Electronic too hot:

The measured temperature of electronics amounts to at least 70°C (158°F). The cooked program is stopped.

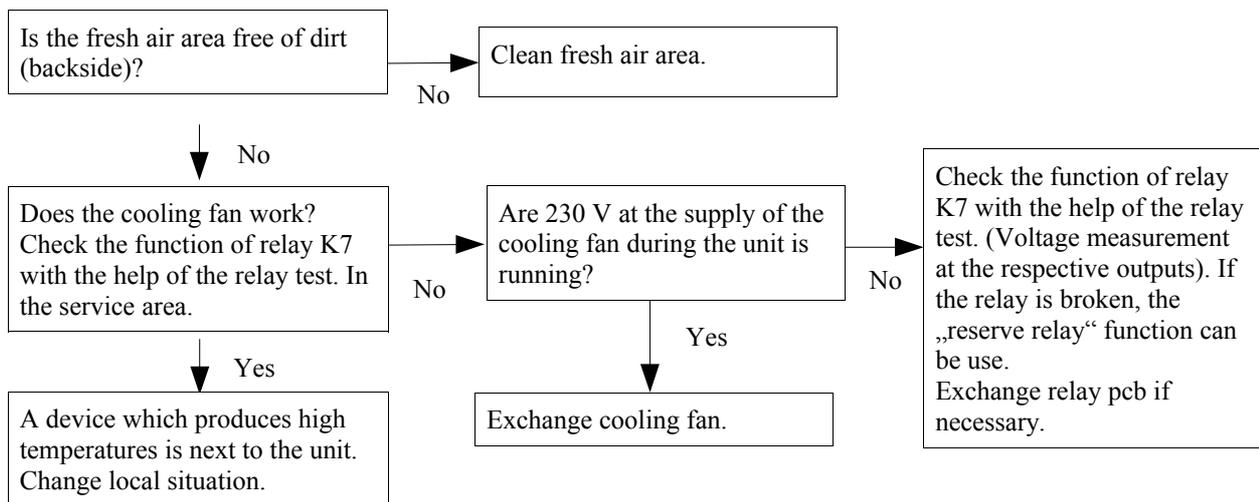
Error “Electronic overheated”:

The measured temperature of electronics amounts to at least 80°C (176°F). The oven switches off itself. After cooling down the device is operational again.

Position of the temperature probe:

The probe is located on the keyboard pcb on board. This cannot be exchanged one by one.

Troubleshooting:



Reference temperature probe defect

Consequence:

The unit is out of order. The reference temp. probe on the keyboard card has broken.

Troubleshooting:

Change keyboard card

Ice damage risk

Consequence:

The unit is out of order. A temperature of $< 0^{\circ}\text{C}$ (32°F) has measured on the keyboard pcb.

Position of the temperature probe:

The probe is located .

Troubleshooting:

Ensure that the temperature next to the unit is not less than $< 0^{\circ}\text{C}$ (32°F). Perhaps change oven location.

Caution! There is a high risk that water pressurized components were damaged.

Battery empty

Consequence / description:

The battery on the display card is empty. The battery is located on the display side of the electronic. The oven can be operated but the following functions are not available:

- If the unit is not connected at the power supply (power failure) the date and time get lost.
- Furthermore the adjustments of the autostart function get lost.

WaveClean interrupted

Consequence / description:

The cleaning program was stopped by the user manually.

If another error message turns up in the diagnosis loft at the same time, this is the cause of the interruption (such as error "no water").

Chamber high limit

Consequence:

The unit is out of order.

Error description:

A temperature of >315°C (599°F) electric unit or 275°C (527°F) were in the chamber. The safety limit switch has triggered and must be reset manually. The reason must be identified in addition.

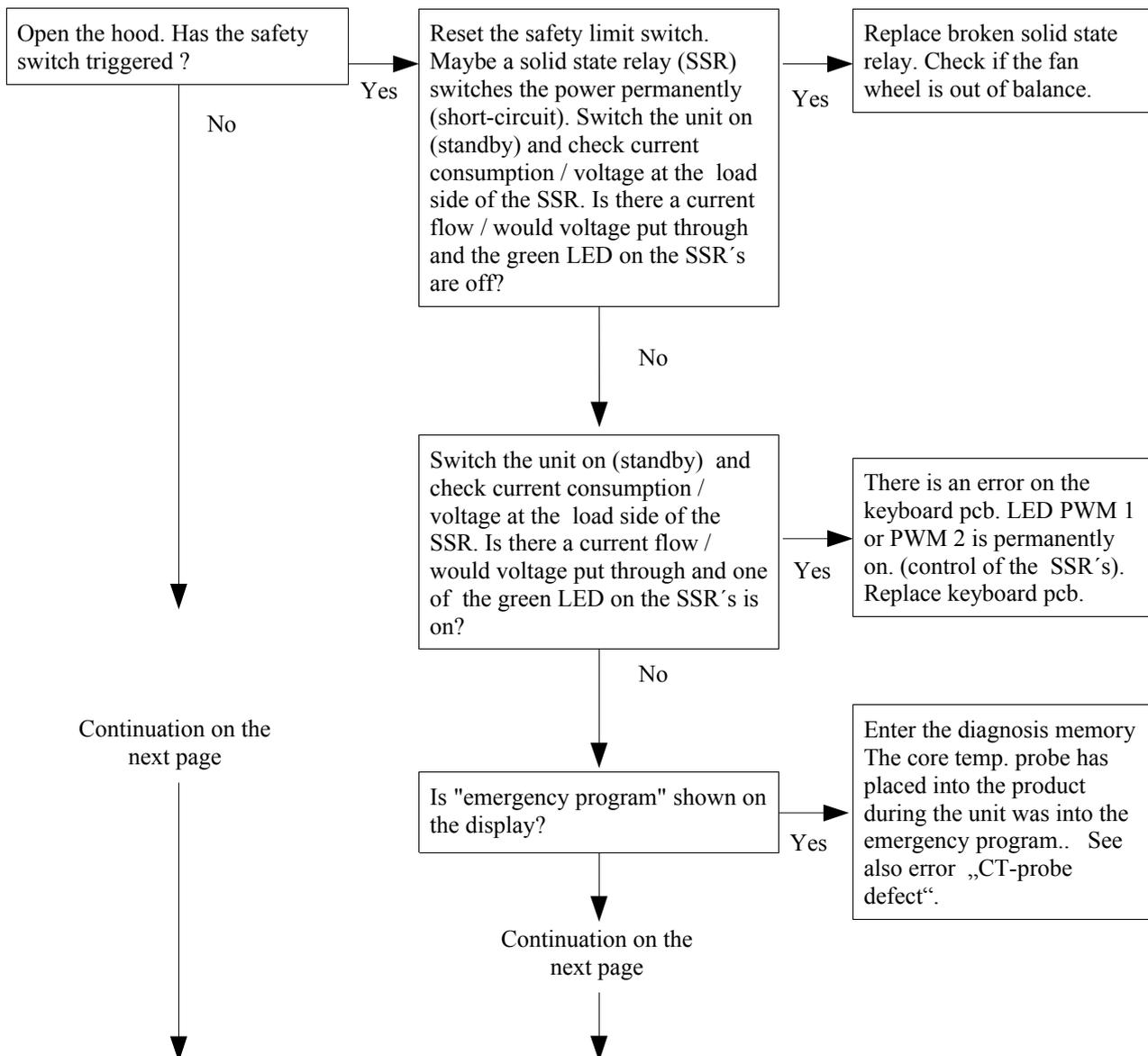
Position of the safety limit switch:

The part is located at the upper outer wall of chamber (behind the chamber isolation).

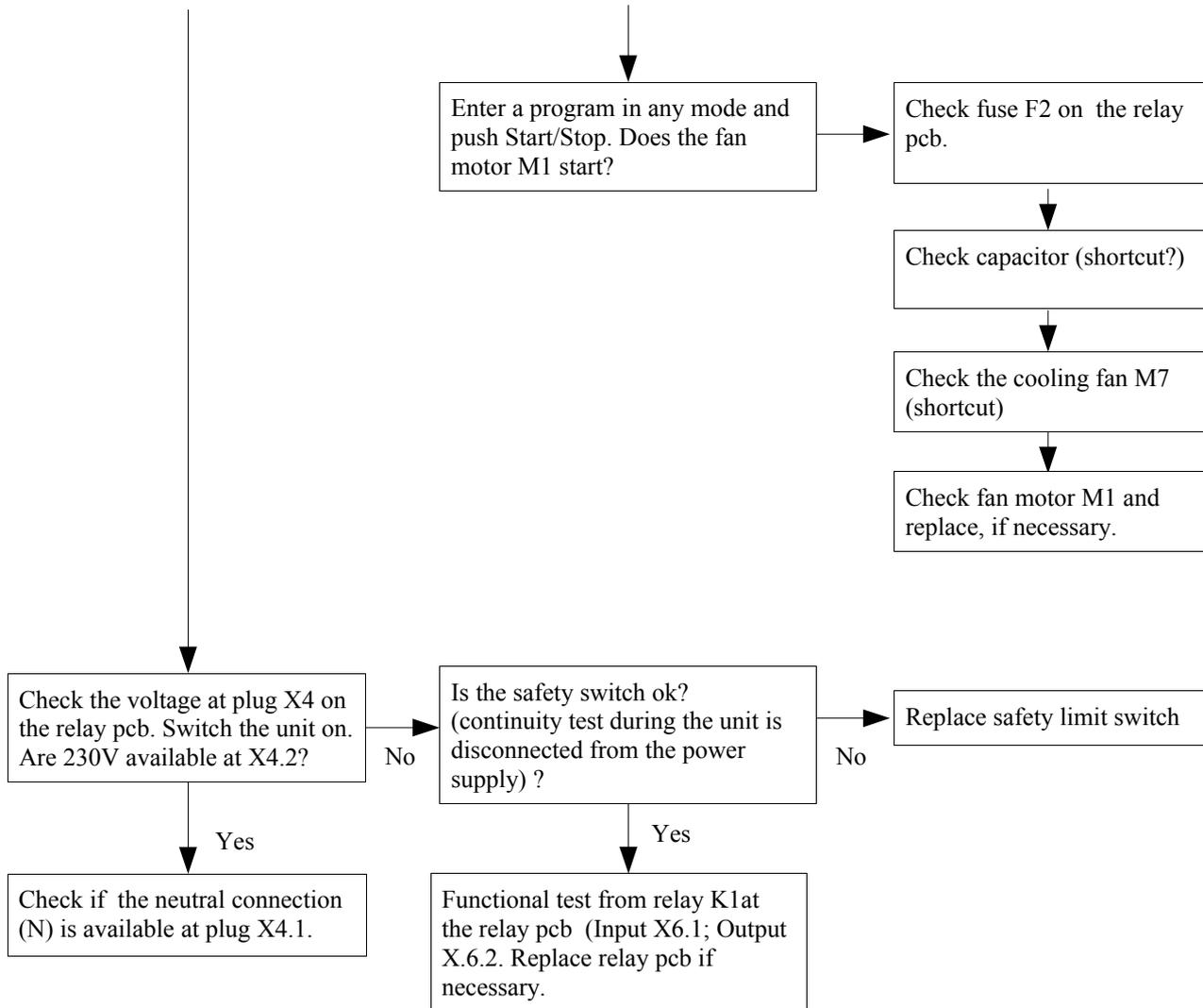
Designation of the component in the wiring diagram:

F7

Troubleshooting:



Continuation error chamber high limit



No water

Description:

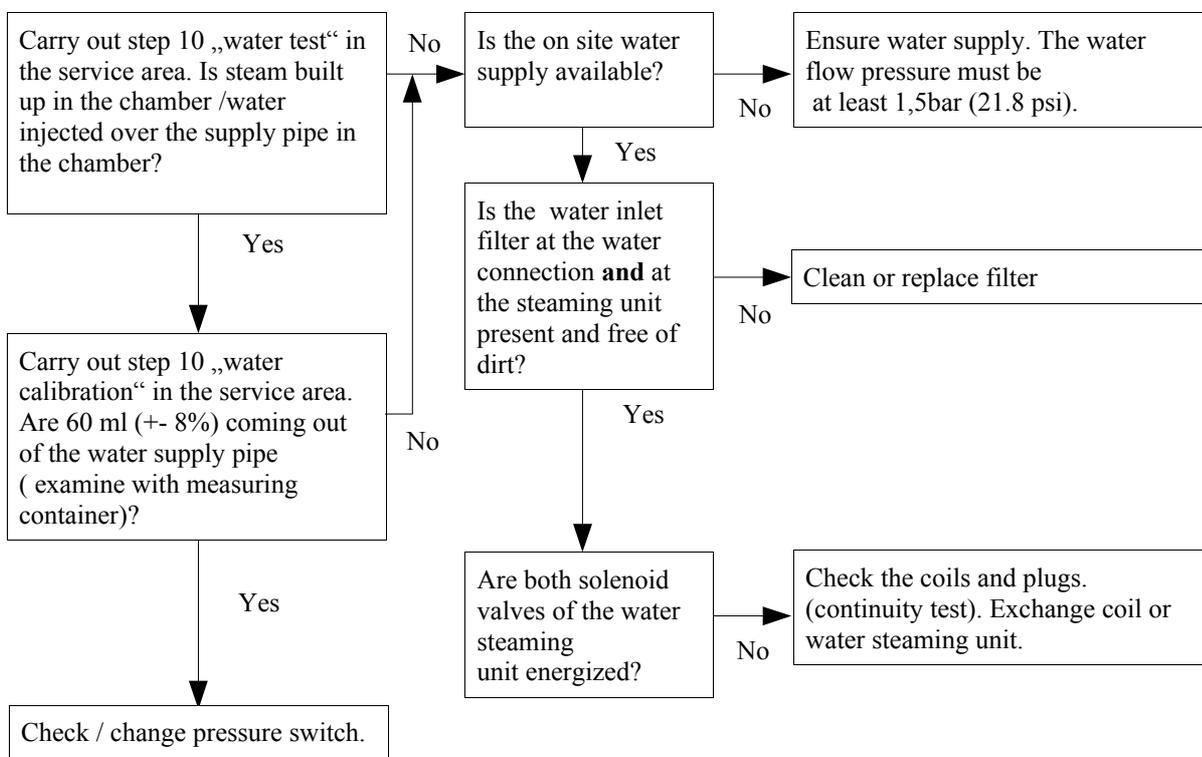
The error message appears only during steaming and WaveClean mode. The error only appears if the pressure switch realised a water pressure less than 1bar (14.5 psi). The contact opens and the error message appears on the display.

Consequence:

„Steaming“ mode: After confirmation of the error message the program can be continued.

„WaveClean“ mode: Cleaning process is stopped and „WaveClean interrupted“ is displayed.. An cancellation program starts automatically.

Troubleshooting:



HW-Fail Temp UREF0 to high

Error description:

The error signalled, that the supply line is disturbed on the circuit board and/or from sensors. A sensor has a very low resistor or direct chassis ground contact with the frame.

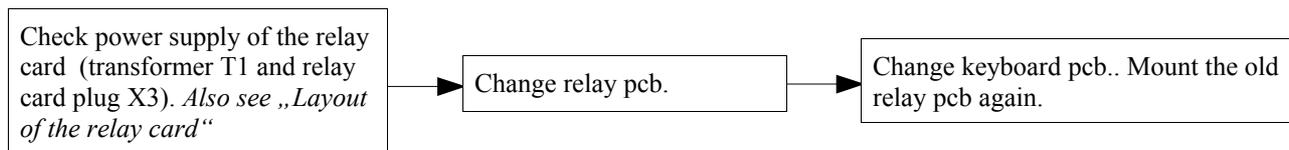
The first possibility is likely if the fault occurs during WaveClean or in steaming mode. Explanation: The water gets into the probe and builds up an electric connection between the probe itself and the chassis. Through this connection a voltage potential from the chassis reaches the temperature inputs of the keyboard pcb and causes the malfunction.

Troubleshooting:

Disconnect the following components one by one to identify the faulty component:

- Pressure switch B10 at the steaming unit
- Core temperature probe B1
- Drain probe B4
- Chamber probe B2

If the fault appears only at the automatic cleaning WaveClean, the drain probe B4 is probably the cause.

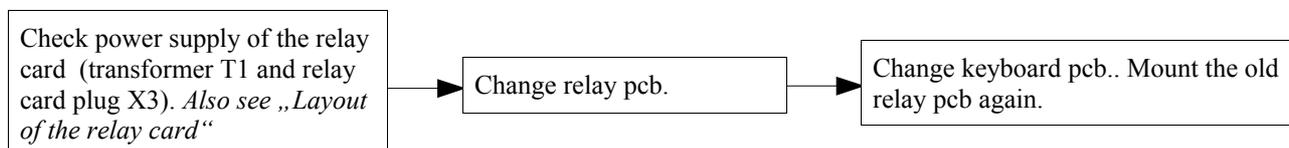


Error Power board

Description:

There is a communication error between keyboard and relay pcb.

Troubleshooting:



Waterfilter maintenance

The water quantity maintenance was activated in the user level (password 111). The adjusted water quantity has flown by the soft water assembly.

Change water softener and enter the capacity in the corresponding level (password 111, water limit maintenance).

