Training Manual
Trouble Shooting

SelfCookingCenter® (SCC)
CombiMaster® Plus (CM_P)
CombiMaster (CM)

General hints:

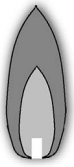
Only technicians, who are trained on Rational units, shall execute any service.

All maintenance work must be done according to the valid laws and regulations applicable. The unit must be tested to electrical safety (and gas safety if applicable) and manufacturer specifications after every repair or maintenance work.

Isolate the appliance from mains supply before opening the appliance

When working with chemicals, i.e. aggressive cleaning materials
always wear protective clothing, goggles and gloves!

After maintenance / repair the appliance must be checked for electrical
safety in accordance with your national, state and local requirements!



Whenever working on any gas component like:
Gas valve, gas blower and / or changing connected type of gas a detailed flue gas analysis MUST be done using adequate CO and CO_2 measuring equipment! This shall ONLY be done by trained technicians!
Always check appliance for possible gas leakages!

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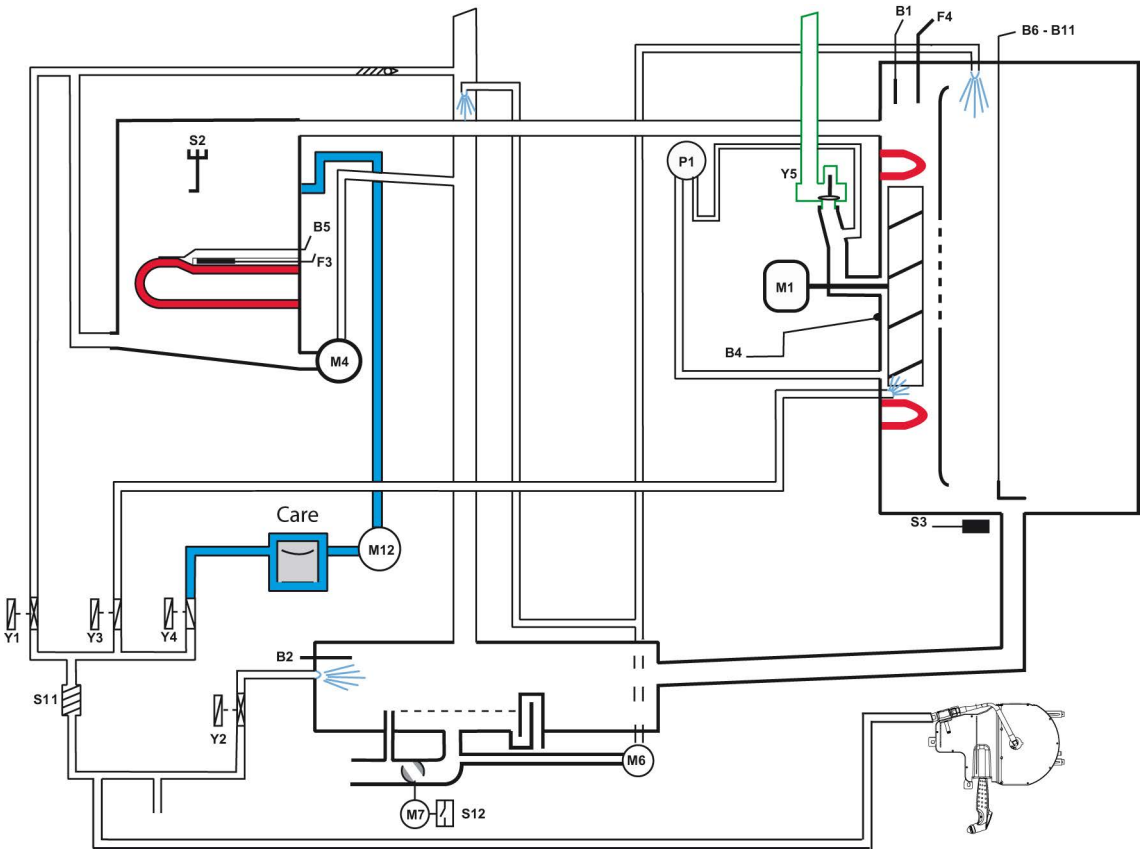
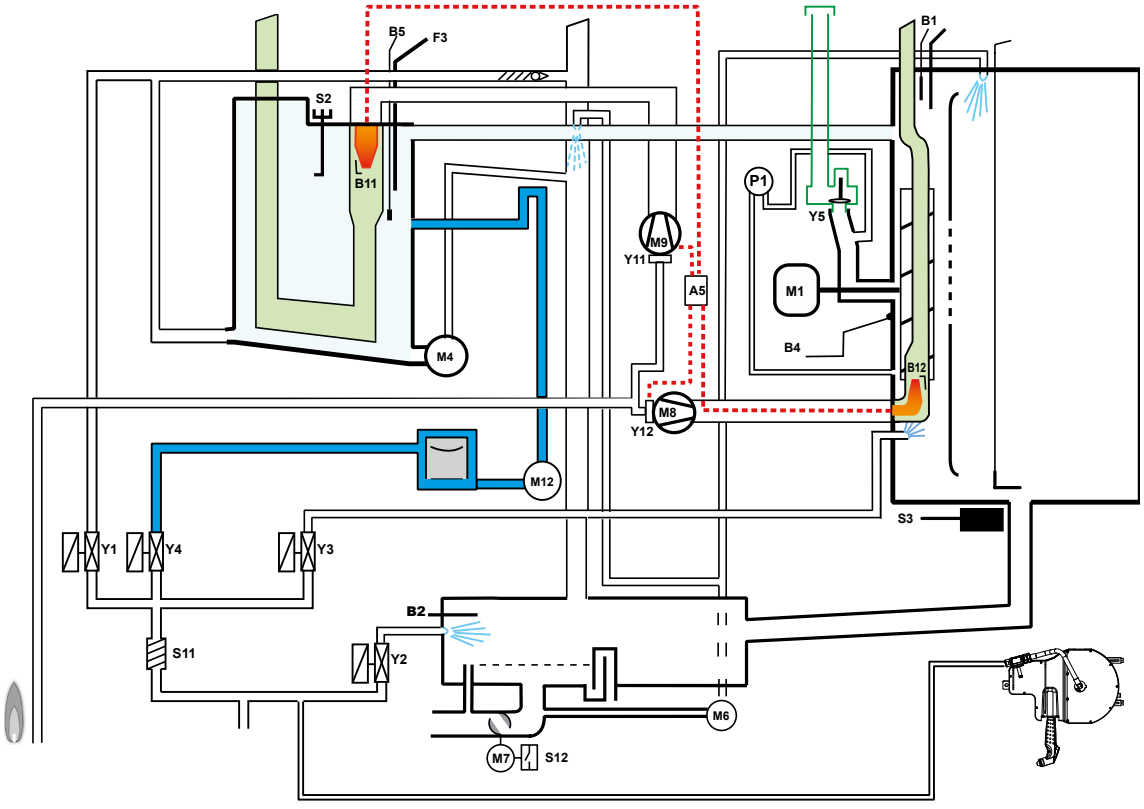
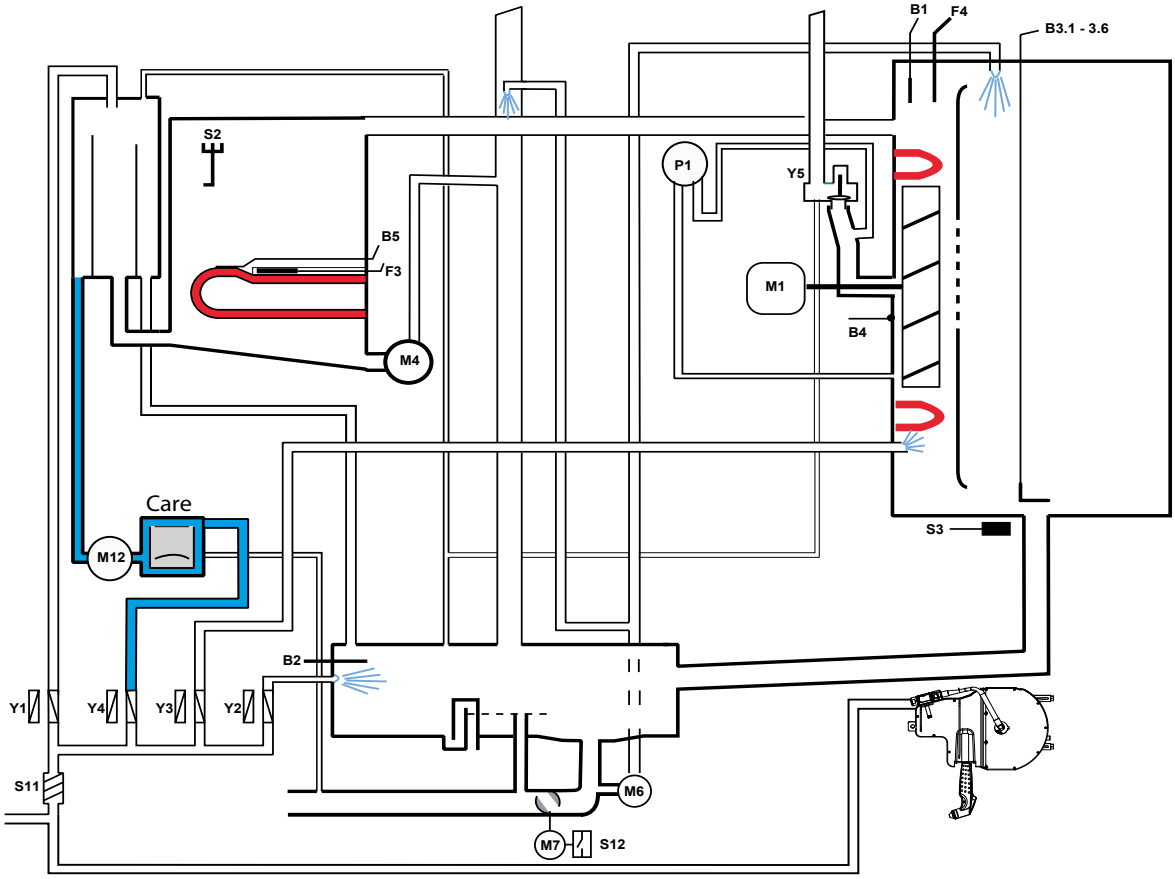
Block diagram SCC WE/5S, SCC, Gas





Block diagram SCC XS

SCC_XS



SCC / CM_P - When to do which action?

1. Self test
2. Manual calibration
3. Flue gas analysis (gas units)
4. Descaling and Setting volume steam generator (after descaling)
5. Software update
6. Checking / setting gas type

	SCC_WE	CM_P
After unit installation	Self test Software update Gas units: Check gas type Gas units: flue gas analysis	Self test Software update Gas units: Check gas type Gas units: flue gas analysis
After Self test	Gas units: flue gas analysis	Gas units: flue gas analysis
After PCB change	Software update	Software update without EEPROM Self test Flue gas analysis
After SD recovery	Self test Gas units: flue gas analysis	
After EEPROM repair		Self test Gas units: flue gas analysis
During customer visit	Software update	Software update
During maintenance	Gas units: flue gas analysis	Gas units: flue gas analysis
After changing gas type After changing gas burner After changing gas valve	Gas units: flue gas analysis	Gas units: flue gas analysis
After changing P1 After changing B4 After changing air baffle After disassembly motor / fan wheel / gasket After installation of UltraVent at a later time After removing UltraVent Customer complaints because of uneven cooking results	Manual calibration	Manual calibration
After installation or removal of an UltraVent at a later time	Gas units: flue gas analysis	Gas units: flue gas analysis
After a second Self test (e.g. after SD repair) and following manually descaling of the steam generator. (Basic Settings)	Manual descaling of steam generator	Manual descaling of steam generator

Software update - USB sticks

Only the following USB sticks can be used for software update:

Unit type	Colour	Format	Part number
SCC from 2004 until 08 - 2011 index E-G (update program: webupdate.exe)	Silver (from SW 01-07-11) for units with older software contact Rational	FAT or 16	87.00.010
CM index E-G (update using MEGA Loader directly to PCB)			87.00.037 no longer available
SCC_WE / 5 Senses and CM_P from 09 - 2011 Combined USB stick (update program: RATIONAL Loader)	White	FAT 32	87.01.275
SCC_WE from 09-2011	White	FAT 32	87.01.084 no longer available
CM_P from 09 - 2011	White	FAT 32	87.01.085 no longer available

Connect USB stick with latest software to the unit.

SCC_WE:

- Switch the unit ON.
- Software update starts automatically.
- The duration of a complete software update of SCC_WE can last a few minutes
- Only when the start display shows disconnect the USB stick.

SCC_WE Chain account:

Software of units with chain accounts shall only be updated when approved by the store owner or Rational.

In most cases chain account are based on an older software version.
Therefore the existing software on the spare part PCB must be reset to accept an older software version.

- Connect "RESET" USB stick to USB interface
- Switch unit ON
- When SCC_WE display shows, remove USB stick
- Connect key account " ALL in ONE" USB stick to USB interface
- Switch unit ON
- When SCC_WE display shows, remove USB stick

CM_P:

- Switch the unit ON.
- The actual software of the unit is shown on the Timer display.
- The existing software on the USB stick is shown on the temperature display.
- The Prog/Start key is blinking. Pressing the Prog/Start key will start the software update.
- After the software update the identical software will be shown in both displays.
- Now switch unit off and remove the USB stick.

Humidity control, Uneven cooking

1 Steam is controlled in two different ways.

At temperatures up to boiling point it is controlled by the thermocouple B1 in the cabinet
At temperatures above boiling point we measure the differential pressure applied to P1.

2 Possible problems humidity control

The most important value to identify a humidity measurment problem is the output of P1

Switch on the unit in hot air mode, 40°C/104°F and standart fan speed.
Activate the diagnostic program, real time data, clima, (CM_P dp15)

The value given in „Clima output P1" should correspond with the grey high-lighted value.
The values might be different by 0,4V depending on left or right turning fan wheel.

61, 101, 201 (60)	500 rpm (SCC_XS 60)	1000 rpm (SCC_XS 60)	1450 rpm (SCC_XS 60)	1550 rpm (SCC_XS 60)
Cold and dry	1,1V (0,7)	2,2V (1,3)	3,1V (2,3)	3,5V (2,5)
Warm and humid - Steam 100°C (212°F)	0,7V (0,6)	1,7V (1,0)	2,0V (1,5)	2,2V (1,7)
Hot and humid - Combination 180°C	0,6V (0,6)	1,5V (1,0)	1,7V (1,4)	1,9V 1,6)
62, 102, 202	500 rpm	1250 rpm	1750 rpm	1850 rpm
Cold and dry	0,9V	2,7V	4,6V	4.9V
Warm and humid - Steam 100°C (212°F)	0,7V	1,8V	2,8V	3,1V
Hot and humid - Combination 180°C	0,7V	1,6V	2,7V	3.0V

If the value (grey) at standard speed and in cold condition (below 60°C, 140°F) is below 2V, check the P1 hoses for blockage behind the fan wheel and proper positioning at the sensor. (possible error Service 37)

Checking P1 performance:
Cool down the cabinet to 40°C
Set unit in steam mode,
Select data window
Close the cabinet door
P1 value must be corresponding with the value in the gray field above (+/-0,4V).
P1 value must drop according to the table as the unit is warming up by the incoming steam to 100°C (212°F)

The P1 sensor must be installed horizontally!
Handle the P1 sensor with care. it is very sensitive for mechanical shock.

When the hose connections to P1 are blocked, please clean. Do not blow into direction to P1 sensor!

Advise the customer in the correct cleaning procedure for the equiment.
This applies especially to units CM_P. Advise the customer to open the air baffle and spray also behind the fan wheel .

The vent pipe of the quenching box discharges steam which often condensates at the kitchen ceiling or vent hood.
This pipe shall only be extended using a condensation breaker.
Therefore we are offering the following condensation breaker for electric and gas units:

SCC and CMP XS	60.74.037
SCC_WE and CM_P 61, 62 and 101:	60.72.591
SCC_WE and CM_P 102:	60.72.592
SCC_WE and CM_P 201 and 202:	60.72.593
CPC and SCC Line 61, 62, 101	60.73.029
CPC and SCC Line 102, 201, 202	60.72.592

Too high steam escape can also be limited by lowering the quenching temperature (note: higher water consumption)

Unit is permanently quenching when in any steam mode, customer complaint poor steaming results and uneven cooking:

Check clima valve for proper closed status.
Check the motor shaft gasket for possible leakage.
Check the door gasket for possible damage/leakage.

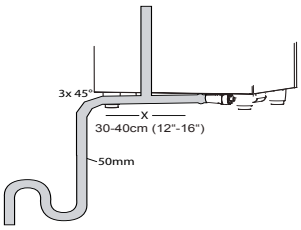
Customer complains about steam not being visible inside the cabinet

Check if temperature is above 110°C (230°F). At this temperature steam is invisible.
Caution: Danger of scalding if door is opened.
In an empty cabinet at 100°C/212°F steam will disappear because there will be no surface to condense on.

When changing Thermocouple B4 (# 87.00.470) make sure the insulation is covering the mounting position again properly.

Uneven cooking results

Uneven cooking results are a directly caused by insufficient de-humidification.
Either not enough fresh and dry air is sucked into the cabinet (low motor rpm) or the humid air can not escape from the cabinet in time because or area restrictions from the drain sieve up to the vent pipe of the control box.



Possible reasons are blocked drain sieve, collapsed silicone rubber connection frrom control box to vent pipe or blocked vent pipe (grease, carbon)

A second venting pipe in the drain connection might assist in dehumidification specially for units index E-G.

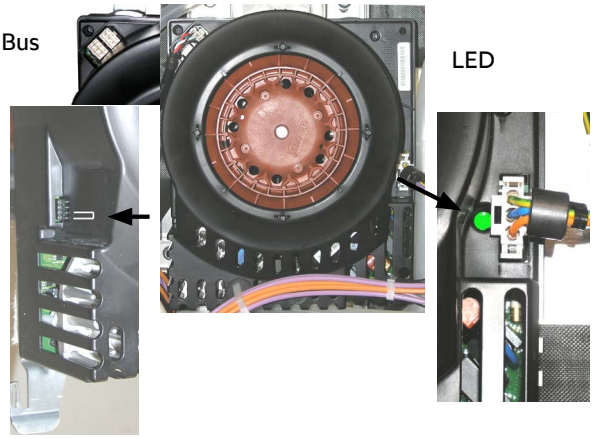
Customer with baking application complains about uneven browning result

Calibrate the unit manually.
Make sure customer does not use grids while baking; only flat trays (aluminum baking tray) should be used to achieve proper results;
Check if the customer is using the SCC baking process.
Baking in manual mode (hot air without humidity control) does not achieve good results!

Drain connection is extended over several meters before ending in an open floor drain or connected directly via P-trap
Venting the drain pipe within 0,5 meter/20" from drain connection might help the humidity control to maintain a set level.

The drain of multiple units (also Combi Duo) must not be combined without the use of an open tundish or p-trap (syphon) in each unit drain line.

Fan Motor, Bus



Fan motor SCC_WE, CM_P 61-202

Fan motor SCC_XS 60 (40.04.689)

Unit size	61 - 101 - 201 Electric and Gas rpm: 500, 1000, 1450, 1550	62 - 102 - 202 Electric and Gas rpm: 500, 1250, 1750, 1850
Motor 40.03.378, **Rotor black**, 550W **1NAC 100 - 250V**	x	---
Motor 40.03.513, **Rotor brown**, 700W **1NAC200 - 250V, 2AC 200-240V**	---	x
Motor 40.03.514, **Rotor brown**, 700W **3AC 400-480V**	x	x

Fan motor SCC_XS 60 (40.04.689)

The frequency inverter (42.00.265) of the fan motor SCC_XS 60 (40.04.689) can be changed individually.

Function / spare part

The motor is shipped with mounting support for gasket flange, motor shaft gasket and flange for motor shaft gasket. When changing the motor a new motor shaft gasket MUST be used.

In floor models 201 and 202 two motors of the same kind are used. In these units the bottom motor must be equipped with a jumper on the two top pins. This jumper is part of the wiring harness.

Caution: There is a voltage of 127V on the jumper pins.

We recommend to apply contract grease 9003.0219 to the bus connection.

Using the motor 40.03.378 in a unit 62, 102 or 202 will lead to a motor failure.

Motor LED is blinking (blink code with 4 seconds interval):
Internal error on motor pcb.

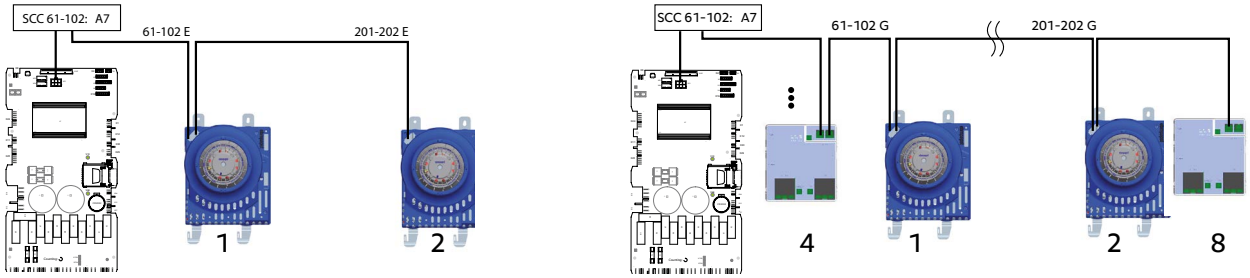
In case the motor develops an internal error, the LED will start blinking (ref: table blink code). After 10 seconds the motor will try to start again.
An error 55. x (number of blink code) will be locked in the service download. (error 56.x bottom motor) if the error exists for longer than 1 minute.

Motor defective:

In case the motor pcb is defective, the LED is off although voltage is present at the motor power input plug.
Service 34.1 or 2 will be indicated.

Blink code Motor	Reason	Remedy
No Service 34.x error! - Motor doesn't turn, hot air heating is blocked		
1x	Starting error	check if fan wheel is not blocked and can turn freely, change motor
2x, 4x, 7x, 10x,	Motor defective	change motor
3x,	internal error	SCC_WE: flash software to 05.00.11.4 or higher
5x, 11x	temperature	wrong motor mounted? change motor
6x,	voltage error	check voltage supply, change motor
8x	only with 3AC motor 40.03.514	phase is missing
9x	communication error	check bus cable, apply contact grease (9003.0219) to bus cable plug

BUS error:



SCC_WE: Display: Service 34.1 (CM_P: E34.1) **Motor top or E34.2** (CM_P: E34.2) **Motor bottom:**

In case any bus error is indicated please make sure that the green LED is active.
Should all the green LEDs be active, change the bus cable one by one. If the indicated error changes, the BUS cable (40.03.996) is defective.

Service 34.1 or 2:

Green LED not active.
Check power supply from main contactor to component. If ok, change motor. In case the power supply plug is defective it can be ordered as a spare part. 40.02.611 (plug 3-pol) oder 40.02.612 (plug 4-pol)

Green LED active - follow error tree.
Check bus cable, apply contract grease 9003.0219 to the bus connection.
The bus error code 34.x relates to the index x. Also any combination of 1, 2, 4 and 8 is possible, e.g. Service 34.12, BUS error on ignition box top and bottom. (4+8=12)

Service 34.2 and 34.3 alternating - follow error tree:
Jumper on the lower 2 pins of the bottom motor not recognized.

Gas units with draft diverter type B 13BS with high limit thermostat show a bus error when high limit has tripped. Reason is the missing power supply to the ignition box.

Note: Avoid any contact of the BUS cable with hot surfaces, e.g. the steam heating element flange.
The individual BUS wires can get damaged and cause a short circuit.

Note: A short circuit on the BUS cable can destroy the PCB, fan motor and ignition box.

Solid State Relais - SSR

1 Mounting of SSR

When mounting the SSR please make sure:
A stainless steel (silver) colour heat transfer foil is attached to the rear side of the SSR. Do not damage this foil during storage or mounting. The 2 fixing screws must be tightened adequately to ensure equal pressure of the SSR base foil to the supporting surface.

A2 connects always to Steam elements, B2 connects always to Hot Air elements.

2 Measuring SSR

Voltage measurement: Use Voltage measurement to check the performance of the SSR itself.
Current measurement: Use the current measurement to check the performance of the heating elements.

Solid state relay can NOT be tested with an Ohm meter!
Solid state relay are either tested using a clamp meter or Volt meter!

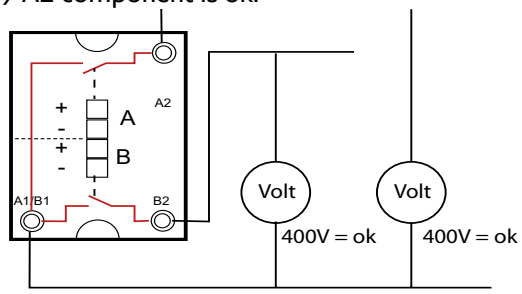
To test a SSR power must be supplied to your equipment.
Open the cabinet door to avoid control voltage supply from the main PCB.

SSR are normally failing in closed position

Open cabinet door
Voltage test: when line voltage (L1-L2) is measured across A1/A2 or B1/B2, the SSR is ok.

Close cabinet door.
Select hot air. When less than 1.5V is measured across the SSR B1/B2 component is ok.

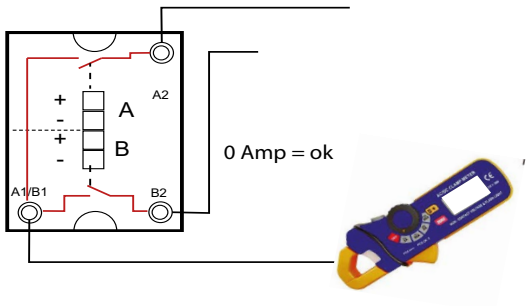
Select steam. When less than 1.5V is measured across the SSR A1/A2 component is ok.
open cabinet door



To check a heating elements for correct operation:
Switch unit on, open the cabinet door
Current test at A1/B1: when no current (below 1 amp) is measured, SSR is ok.)

Close the cabinet door and selct hot air mode 300°C, set time;

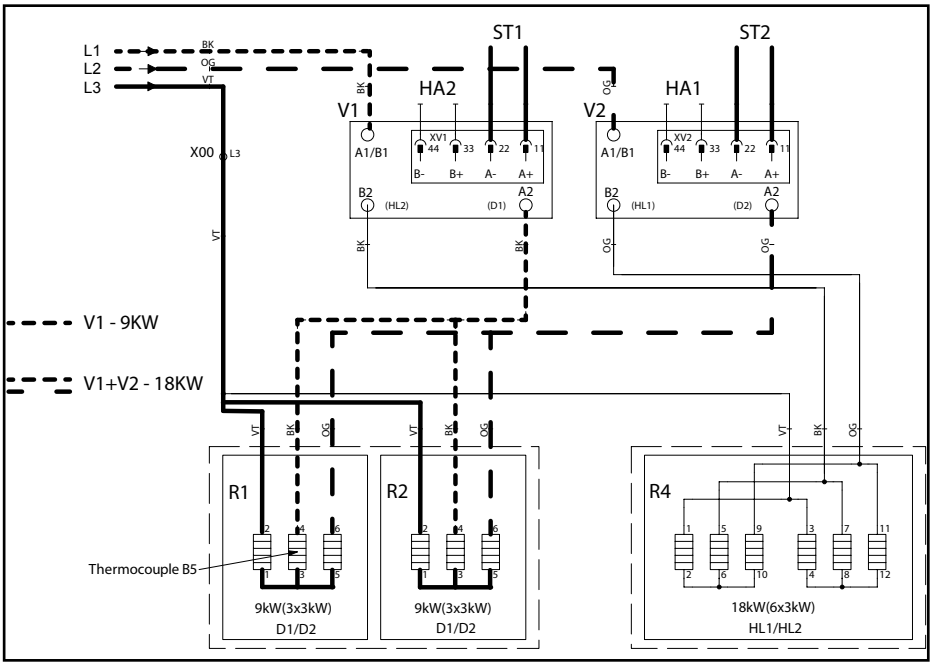
Compare the amp draw with the table in the installation manual or basic manual.
Calculate the nominal amp draw by:
Total power of the unit divided by (system voltage *1.73)
e.g. 18000 (18KW) divided by (400V*1.73 =692) =26A



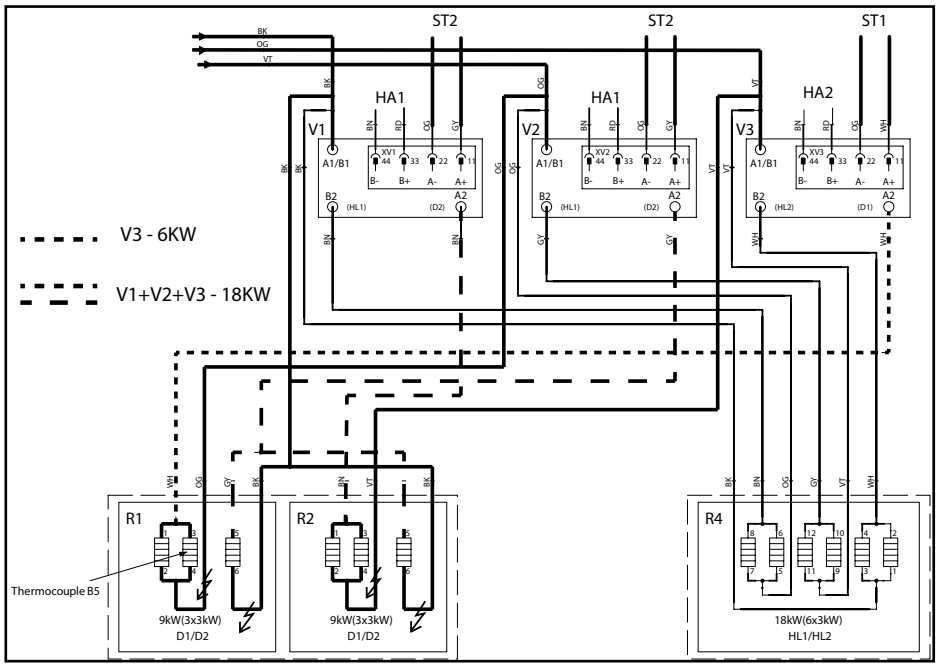
3 Typical SSR connections to heating elements

NOTE: The violet wire (L3) is connected directly to the main contactor and is NOT switched by SSR!
Below you find some samples of SSR circuits connecting to Steam elements (A2).
Note: If only 1 SSR is switched on, the unit is operating on partial load as not all elements are in the circuit.

101, 3(N)AC 400-480V



101, 3AC 200-240V



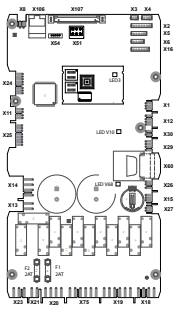
SCC - Main PCB (spare part number: 42.00.261P)

1 Function

The SCC_WE main PCB 42.00.080 controls the SCC_WE together with the MMI 42.00.081 and the TFT display with Touch 42.00.112 in the control panel.
The power supply for the PCB (18V AC) is coming directly from the control transformer T1.

A SD Card is located on the main PCB. All unit specific data are stored also on this SD card in order to act as a back up memory in case the PCB must be changed.

Should the SD card be defective, a PCB change will not be successful as the back up memory is not available. In such case the original unit data must be retrieved through Rational and flashed back via USB stick.
You get these recovery data from Rational by quoting the serial number of the unit.



In order have access to the service level you need the password: TECLEVEL.
(For additional information to the service mode please refer to the Training Manual.)

2 Booting of the PCB, Voltage failure:

In case of power failure or switching ON and OFF for less than 15 minutes the unit will continue where it was interrupted during cooking. A power plug icon is shown.

Should the power failure be longer than 15 minutes, the unit will come back with the general SCC_WE display and the previously running process is terminated.

3 Software update SCC_WE:

- Connect USB Stick 87.01.275 to unit interface
- Switch the unit ON.
- Software update starts automatically.
- The duration of a complete software update of SCC_WE can last a few minutes
- Only when the start display shows disconnect the USB stick.

4 Changing PCB: Follow error tree

When changing the PCB all HACCP data of the past are lost as they are only stored on the main PCB. All other unit specific data are available on both the PCB and the SD card and must be copied from the original SD card to the new PCB.

5 Fault finding SCC PCB:

USB stick is not recognised by the PCB, Software update is not functioning.
Open the control panel and connect the USB stick with an auxiliary interface cable 40.00.470 directly at PCB connector X54.
If the USB Stick is now recognised change the original USB cable.

Changing PCB: Follow instruction

Strange display, coloured, instable: Follow error tree

Display Service 17: Follow error tree

PCB without function: Follow error tree

Battery
The battery (CR 2032) is responsible for the HACCP data and time setting.
NOTE: Removing of the battery does not reset any unit error, but will erase HACCP data and time and date setting!

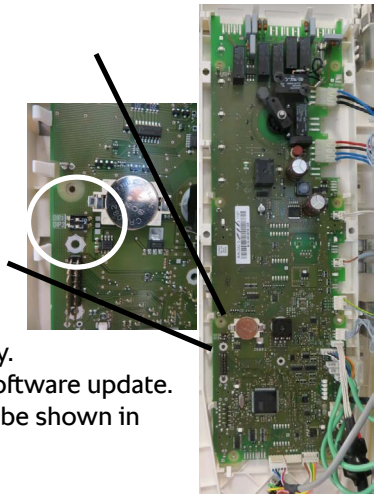
CM_P - PCB (spare part number: 42.00.090P)

1 Function

An external EEPROM is connected to the main PCB. All unit specific data (unit size, energy type, serial number, gas specific settings) are stored on this EERPROM. Without this EEPROM the unit will not operate and “E 19” will be shown.

Left side of the battery you find 2 DIP switches.
A change in DIP switch position is only recognised when the unit is switched on.
The top DIP switch (DIP1) gives access to the following service packages:
Diagnostic (dp)
Error history (ER)
Running times (rt)
Basic settings (SE)

The bottom DIP switch (DIP2) gives access to the following service packages:
Manual calibration (CALI)
Function test (F)
(For further details to the service mode please refer to the training manual.)



2 Software update:

- Switch the unit ON.
- The actual software of the unit is shown on the Timer display.
- The existing software on the USB stick is shown on the temperature display.
- The Prog/Start key is blinking. Pressing the Prog/Start key will start the software update.
- SW until C 02-00-15: After the software update the identical software will be shown in both displays.
- Now switch unit off and remove the USB stick.

3 Changing the PCB: Follow error tree

Ethernet connection

Using the modification kit 87.01.189 the CM_P can be upgraded for Ethernet connectivity for downloading HACCP data. Part of this kit a small PCB which is mounted on top of the main PCB. The default IP address is 0.0.0.0.

Energy optimizing

If a CM_P is ordered as standard (without the option “**Energy optimizing**”) the PCB 42.00.161 with 4 relais over the mode switch is located in the unit. This PCB is not capable to send or receive data from an energy optimizing system. In this case service error E2 is displayed.
To retrofit a CM_P to this option the original PCB must be replaced by the spare part PCB 42.00.090P.
This PCB is having 5 relais and a plug with wire link on terminal X20 and is always shipped as standard spare part.

Battery

The back up battery is storing all HACCP data, the HACCP time setting and all changes up the the next time when data are copied onto the external EEPROM.
Removing the battery erases the HACCP data and time and date .

Indication E 17: Follow error tree

Important unit data (e.g. unit size, energy) was lost.
Report the serial number to Rational. You will receive a repair software package. Load this onto your white USB stick and flash software.
Note gas units: Gas type will default back to G20, Natural gas H

Indication E 19

The pcb can not read data from the external EERPOM. Check EEPROM connection.

1 2 3

3 different chemicals are used:

1) Cleaner Tabs: 56.00.210 - for SCC index E, G, H and index I units
- for CM_P index I units

2) Rinse Tabs: 56.00.211 - only for SCC index E and CM_P index I units

2) Care Tabs: 56.00.562 - only for SCC index G - I units

The use of Rinse tab 56.00.211 in a SCC unit index G - I will lead to a blocked Cleanjet pump and Service 40 error.

Excessive foam development can be reduced by setting the unit to soft water and using de-foaming tabs 56.00.598 together with the cleaner tabs.

White sticky substance in the door drip collector, water does not drain off.

The unit is loosing water and chemical through the door gasket during Cleanjet +Care. Door setting to gasket must be done correctly so no water is lost during CleanJet+Care.
Clean out substance from drip collector drain pipe to the unit drain.
Instruct customer to insert care chemical only before Cleaning process is started.

Service 25

The motor does not detect water; possible reasons:
Water tap is closed;
Cleanjet pump is defective;
Dirt is blocking the outlet sieve of the cabinet.
Foreign particles (dirt) in the Cleanjet pipe blocks the water flow;
Foreign particles (dirt) at the outlet of the Cleanjet pipe deflects the water spray; Water must hit the third or fourth rack level.
Drain valve does not close correctly;
Check closing and opening time of the drain valve in Basic Settings, Times should be appr. 9 / 27 (6/18) seconds (Ratio 1.3). If needed re initialise the drain valve.
Eliminate problem and reset error by running a Cleanjet program.
From SW version 07-00-08: Reset error by starting Function test CleanJet in service level

Service 40 (only SCC)

Care pump does not fill enough care solution into the steam generator. (The CDS sensor detects that the following filling volume by Y1 up to the level electrode is too high.)
Care pump defective or blocked, hose from care pump to steam generator might be kinked.
Eliminate problem and reset error by running a rinse program.
From SW version 07-00-08: Reset error by starting Function test CleanJet in service level

Service 41 (only SCC)

At the beginning of the Cleanjet +Care process the moistening valve is tested automatically (CDS Sensor)
Solenoid valve Y3 is defective or the moistening nozzle is blocked. Change triple solenoid valve (50.01.050) and/or descale the moistening nozzle (15 mm spanner). Use retrofit kit 87.00.651.
Eliminate problem and reset error by running a rinse program.
From SW version 07-00-08: Reset error by starting Function test CleanJet in service level

Service 42 (only SCC)

At the beginning of the Cleanjet +Care process the CARE valve is tested automatically (CDS Sensor)
Solenoid valve Y4 defective; change triple solenoid valve (50.01.050)
Eliminate problem and reset error by running a rinse program.
From SW version 07-00-08: Reset error by starting Function test CleanJet in service level

Service 44

During heating of the cabinet at the beginning of the Cleanjet process thermocouple B1 does not detect enough temperature increase.
Most likely unit is set to half energy E/2 which is causing the error.
Check steam inlet port to the cabinet, B1, SSR and steam elements.
Eliminate problem and reset error by running a rinse program.
From SW version 07-00-08: Reset error by starting Function test CleanJet in service level

Service 110 (only SCC)

SC pump did not work while care solution was inside the steam generator
check / change SC pump (44.00.207P)
Eliminate problem and reset error by running an ABORT program.
From SW version 07-00-08: Reset error by starting Function test CleanJet in service level

Service 120 (only SCC)

The level electrode did not detect water while Care solution was inside the steam generator.
Check water supply volume and pressure
Check wiring and function of filling solenoid and level electrode.
Eliminate problem and reset error by running an ABORT program.
From SW version 07-00-08: Reset error by starting Function test CleanJet in service level

Service Level can not be accessed (only SCC)

In case the service key is not visible, force a Service 34 error by disconnecting the bus cable from the pcb or motor. Now the service key is visible and the service level can be accessed. Reconnect the bus cable again.

Function test - some functions can not be activated (only SCC)

This problem was reported in conjunction with Service 120. Set the unit to show mode and run a 1 minute Clean-Jet demo cycle. Return to operator mode. Now all components can be started in function test.

Follow error trees 25, 40-44, 110-120.

Gas

The ignition box controls Gas valve, Blower motor , ignition and flame current (5-5.75µA).

Gas error 20 (HA),30 (ST)
When the blower motor doesn't reach a stable start speed, ignition will not start and no error is indicated.

Gas error 22 (HA),32 (ST)
When after ignition the flame current is not established (e.g. gas valve closed) reset is indicated.
Ignition took place but no flame was established. Ignition might have happened outside of the heat exchanger (check insulation of ignition electrode), Gas supply, Gas stop valve at the point of gas connection, Gas pressure, Gas valve.
To check the gas valve for opening observe the static and dynamic gas pressure. If the gas pressure does not change after the blower has started, the gas valve is not opening.

Gas error 19 (HA), 29(ST)
When the flame current is too low (below 2-3µA, blocked burner, bend ignition electrode), the unit will show reset.
The flame was existing but died down due to insufficient gas volume, wrong gas-air ratio or blocked burner (specially units 2004-2011)

Clean burner (index E-G).
Remove burner from heat exchanger
Disassemble ignition electrode
Spray inside of burner with cleaning liquid
Allow cleaning liquid to react for 20 minutes
Clean burner inside dish washer
Blow burner dry
Assemble ignition electrode and check distances
Reassemble burner
Allow burner to heat for 5 minutes
Perform flue gas analysis

Make sure at all times, that the gas compensation hose is not kinked and connected properly to its terminals.
Danger: Incorrect connection of the compensation hose leads to extremely hight CO values and risk of CO poisoning.

Flue gas analysis SCC_WE

Note: Most flue gas analysers have have an integrated condensation trap. Should this trap not be closed properly, the analyser will indicate very high CO and too low CO2 levels!

Flue gas is adjusted in MAX blower speed to given values plus/minus 0.2%. Adjusting is done via the CO2 screw on the gas valve.
NO further adjustment in MIN speed! CO2 values shall be at given value minus 0.2% / plus "up to CO2 max value"

In case the values in MIN speed are out of range, the gas valve must be changed.

Flue gas analysis CM_P in Function test:

F21	Steam burner MAX	Adjust values
F19	Steam burner MIN	do NOT adjust values, only check
F24	Hot air burner top MAX	Adjust values
F22	Hot air burner top MIN	do NOT adjust values, only check
F27	Hot air burner top MAX	Adjust values
F25	Hot air burner top MIN	do NOT adjust values, only check

Flue gas venting

Gas units shall be installed under an extraction hood. a minimum space of 400mm is required between the gas pipes and the fat filters in the extraction hood.
External Gas discharge pipes shall ONLY be connected with the original draft diverter.

Fault finding Gas

Unit shows RESET (CM - rES): Follow error tree: Display „RESET“ gas (rES)

Gas volume, gas pressure:

The gas pipe must be dimensioned for the entire gas load in the kitchen. The connected diameter to the Rational unit is 3/4".
The maximum gas volume is depending on the diameter of the gas pipe and the capacity of the pressure relief valve.
The required dynamic gas pressure is depending on the diameter, length and number of elbows in the gas pipe.

Dynamic gas pressure:
Dynamic gas pressure is measured in manual mode hot air on the top hot air gas valve input test nozzle. During this test all gas consumers on the same line shall be on high flame.

Note 102, 202 Gas only, natural gas:
202: Internal dynamic gas pressure drop (P_{drop}) in hot air mode of 202G unit natural gas is appr. P_{drop}: 10 mbar (4"wc) at the upper hot air gas valve and 6mbar (2,4"wc) at the lower hot air gas valve.
102: Internal dynamic gas pressure drop (P_{drop}) in hot air mode of 102G unit natural gas is appr. P_{drop}: 4mbar (1.6"wc).
When using LPG the internal pressure drop is appr. 60% lower compared with naural gas.
To judge sufficient piping diameter this pressure drop must be added to the measured dynamic

Replacing gas valve
When replacing the gas valve you need first to set the length of the CO2 screw to the value given in the table. To do this first set it 1mm longer and then reduce it to the given length. This first setting may vary by 0,3 – 0,5 mm. It will be changed anyway when adjusting the CO2 value.

Gas error codes:

A)

1-15, 21, 23, 31:	more than 5x: change ignition box
33, 36, 37	and additional Service 32: change ignition box

B)
The following gas errors have most likely a reason in electrode distances, ignition wire or soiled burner head:

17, 18, 27, 27	for more than 5x: change only ignition box if the above components are ok.
19 (HA), 29 (ST)	for more than 5x: clean burner, perform flue gas analysis, if error still occurs more than 5x change ignition box
20 (HA), 30 (ST):	Check 3 wire control cable from ignition box to gas blower for continuity. Change ignition box, if no result, re-install ignition box and change blower. In case an unrealistic height is shown under RPM correction (above 5000m), restart Selftest.
22 (HA), 32 (ST):	check for gas supply and function of gas valve (22), check electrode distances, ignition wire or soiled burner head
39, 42	for more than 5x: change only ignition box if the above components are ok.
34:	L1 – N was changed
35:	check voltage and frequency, only important when Service 32 was recorded
38:	only important when Service 60 was recorded, contact Rational for software repair.

Observe error tree Service 32, Service 33, Flue Gas Analysis, Reset, No gas flame, Gas burner noises

Changing PCB SCC_WE

All calibration and self test data are located on both the PCB and the SD card Only the user manual and the HACCP data are only on the PCB.
For this reason a software update must be done after changing the PCB.

Changing pcb (pcb defective)

↓

Isolate unit from power supply

↓

Removed SD card for usage in new PCB.
Remove faulty PCB

↓

Replace pcb

↓

Insert SD card into new PCB

↓

Connect USB stick with latest software to USB port.

↓

Reconnect unit to power supply and switch unit ON

↓

Software update to latest version

↓

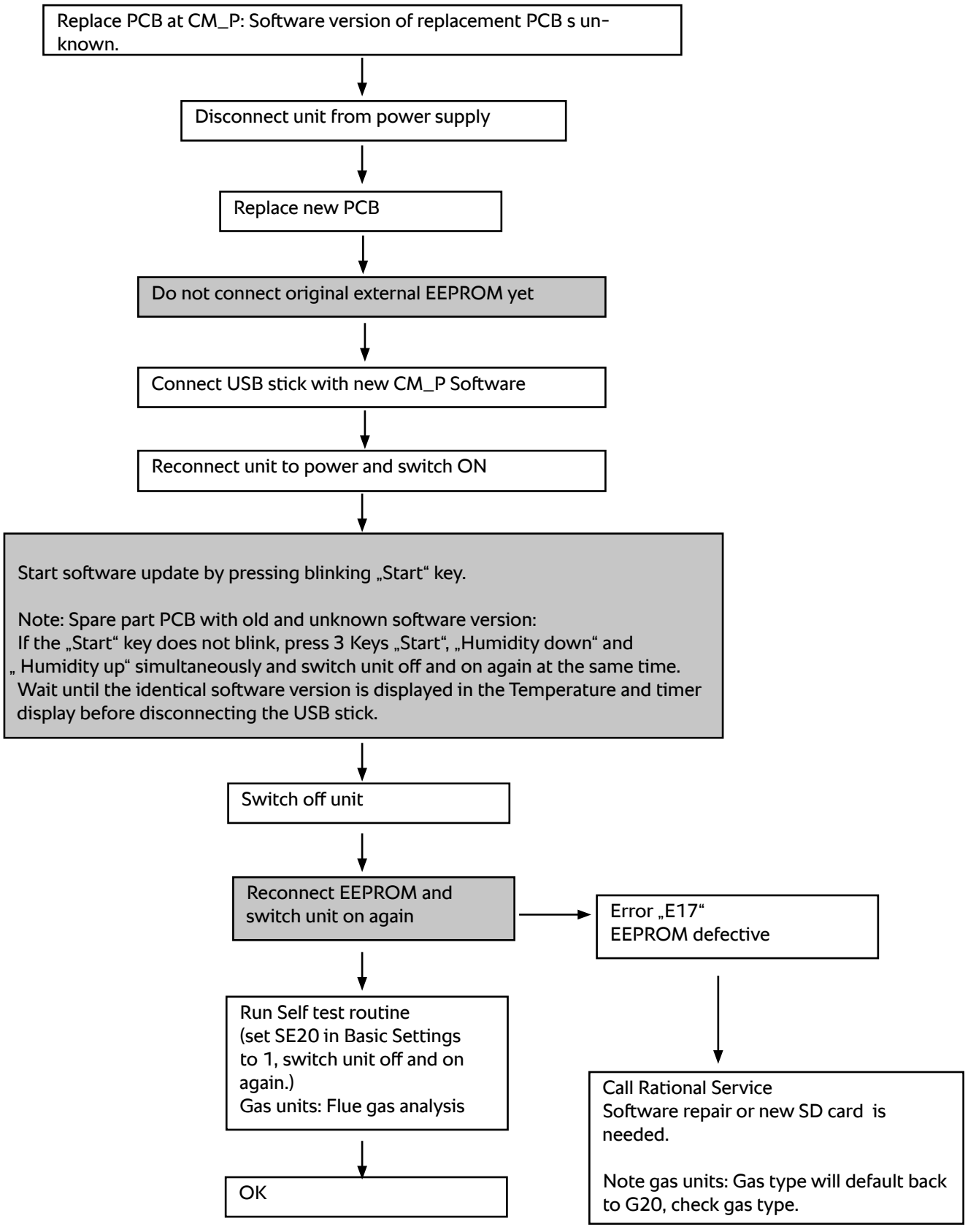
Only disconnect Software update stick when basic SCC display is shown.

↓

Copy data from SD card to PCB (press key 10 seconds)

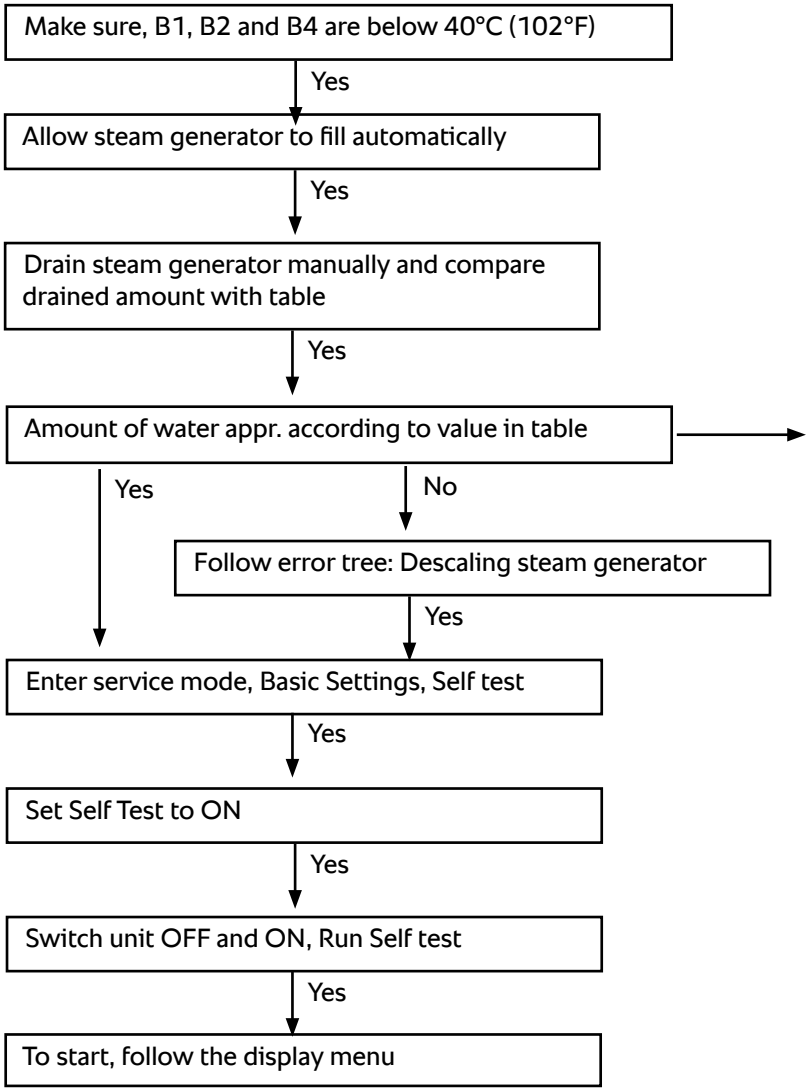
Changing PCB CM_P

All calibration and self test data are only located on the PCB.
For this reason a new self test must be started after changing the PCB!
Please refer to Basic Settings SE20!
With gas units a flue gas analysis must be done after self test.



SCC: Start second Self Test

A second self test shall only be done when the installation location is changed by at least 300m (900ft).
A new volume for the steam generator will be determined.
As the steam generator might be scaled, this volume is must be reset.
To do do so the steam generator must be first descaled and the volume must be reset either before or after the selftest



Volume of clean steam generator

SCC/CMP Electric units	60	1,7 l
	61	3,6 l
	62	6,0 l
	101	6,2 l
	102	8,5 l
	201	9,0 l
	202	11,6 l
SCC/CMP Gas units	61 Gas	4,0 l
	62 Gas	6,0 l
	101 Gas	7,0 l
	102 Gas	9,0 l
	201 Gas	8,0 l
	202 Gas	11,0 l

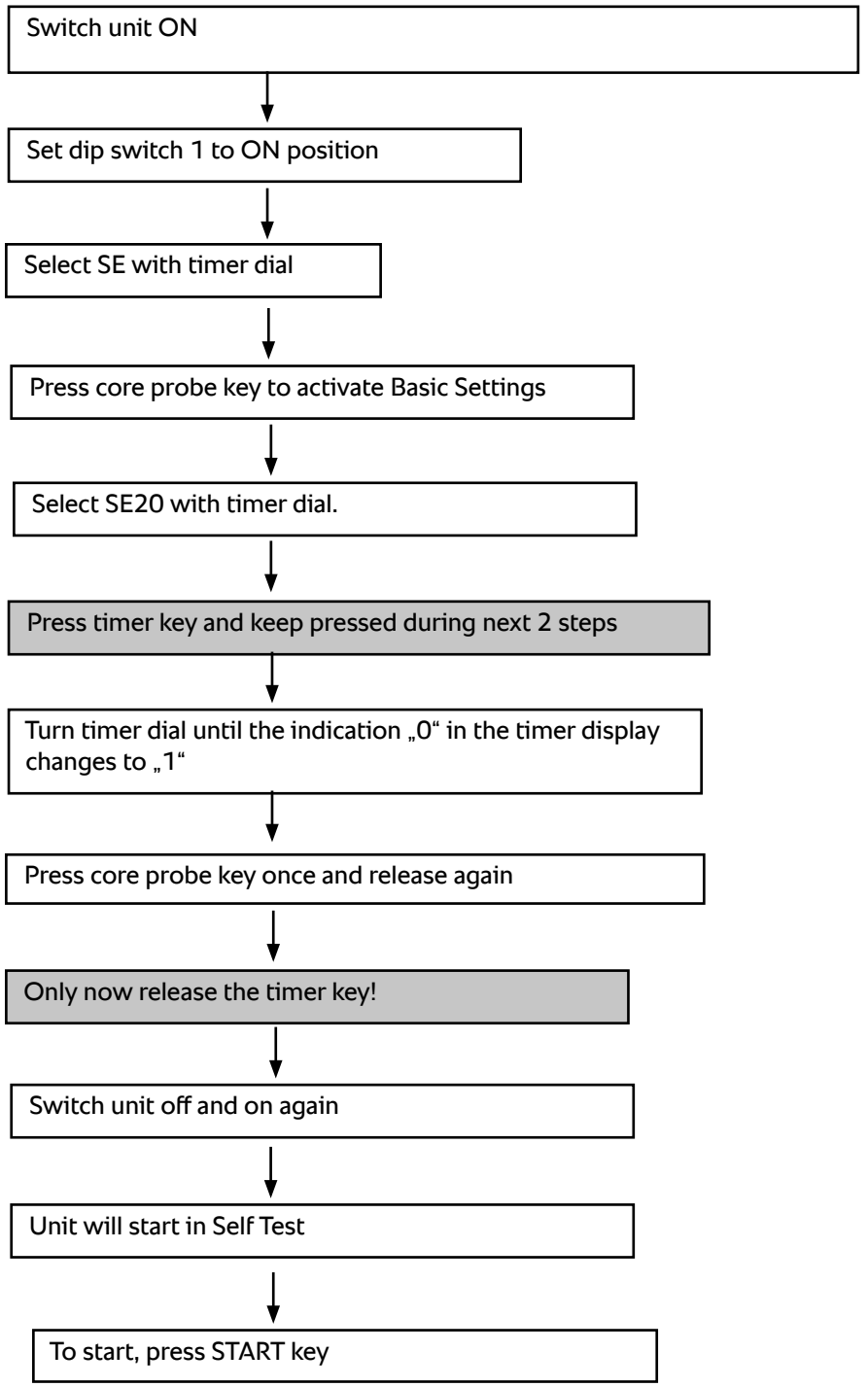
In case the self test was started before the steam generator volume was checked follow below procedure:

Check amount of scale inside the steam generator. If needed, descale the steam generator and reset the volume by:

Basic settings: Reset volume steam generator after changing steam generator.
Follow error tree: Descaling steam generator

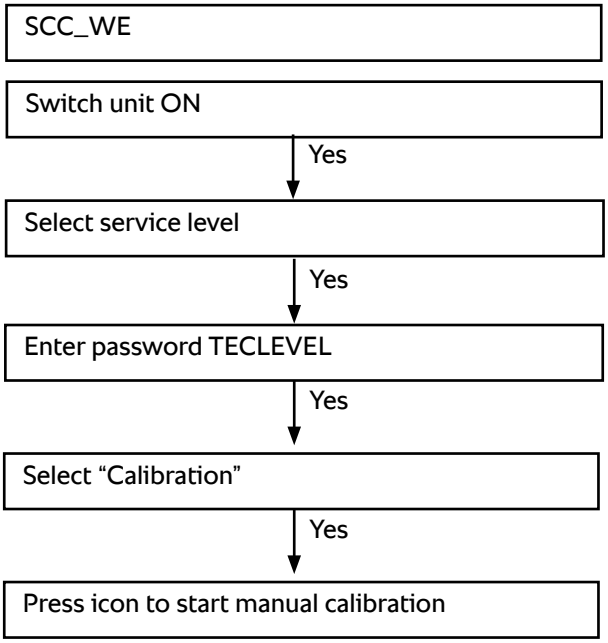
CM_P: Start second Self Test

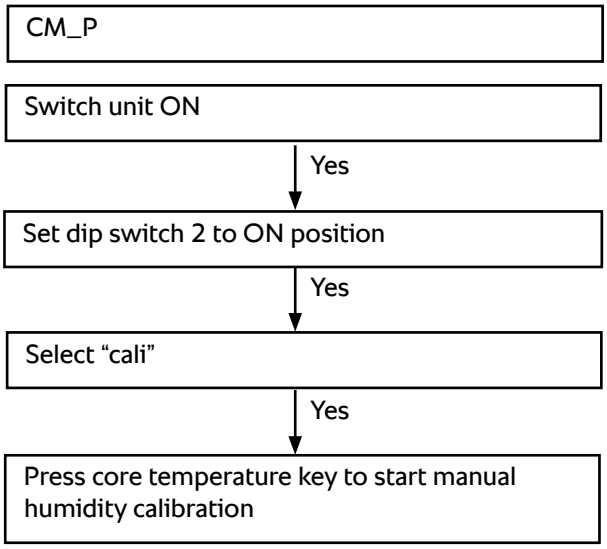
All calibration and self test data are only located on the PCB.
For this reason a new self test must be started after changing the PCB or after EERPOM repair!
With gas units a flue gas analysis must be done after self test.



Manual humidity calibration

Manual humidity calibration shall be done after the following service work has been executed:
Changing or removing of:
Fan motor,
Fan wheel,
P1 sensor,
B4 thermocouple
Changing to another type of air baffle, e.g baking type air baffle
Later installation of a Ultravent on top of the unit
After removing of the Ultravent
After customer complaint because of uneven cooking result

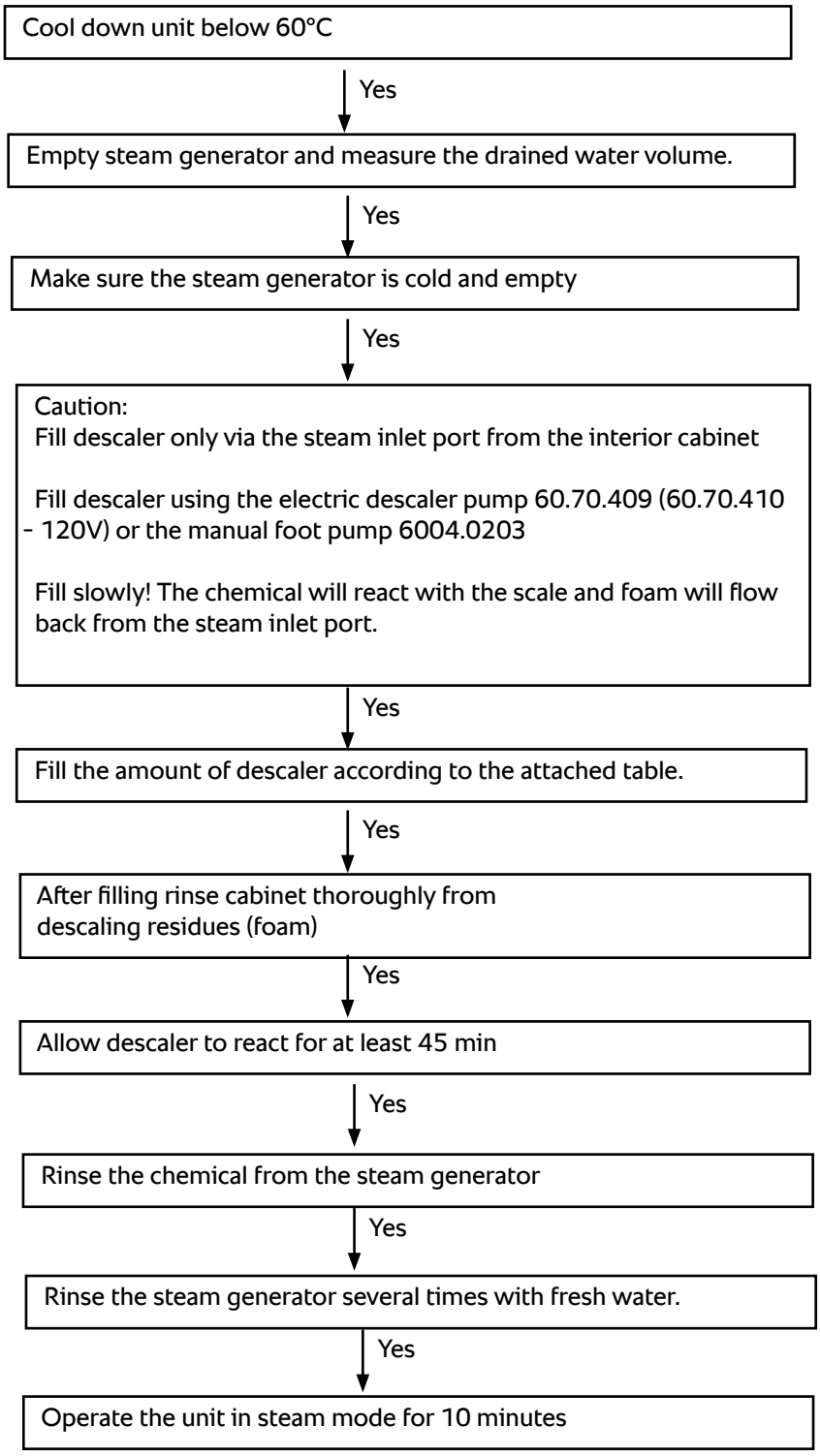




Descaling steam generator

Descaling shall only be done by trained technicians!

Danger! You are handling an aggressive chemical!
Danger! Protective work clothing and tightly sealed safety glasses have to be worn.
Do not store or deposit chemical container over head level. Secure container from falling / tipping.



SCC/CMP Electric units	60	2,0 l
	61	4,0 l
	62	8,0 l
	101	8,0 l
	102	11,5 l
	201	12,0 l
	202	14,6 l
SCC/CMP Gas units	61 Gas	4,0 l
	62 Gas	8,0 l
	101 Gas	8,0 l
	102 Gas	11,5 l
	201 Gas	12,0 l
	202 Gas	14,6 l

Changing gas type

Changing the type of gas is only allowed for technicians having attended a RATIONAL technical gas training!

Confirm the correct type of gas existing in the kitchen with the owner.

Make sure you are having the following measuring instruments available in working order:
Flue gas analyser, Gas pressure meter, Gas leakage detector.
Without these instruments any work, installation or adjustment on gas units is not allowed!

SCC

Select Service mode, Basic settings, Gas system
Press the “Gas Type” and select the new type of gas with the timer dial. Switch unit off and on again.

↓ Yes

Once again select Service mode, Basic settings, Gas system
Confirm the new type of gas. is shown under “Gas Type”

↓ Yes

Copy all shown gas parameters (take a photo)

↓ Yes

Adjust the CO2 screw of each gas valve to the length shown in the gas parameters (+/- 0.3mm).

↓ Yes

Check static and dynamic gas pressure. After pressure measurement perform gas leakage test.

↓ Yes

Perform flue gas analysis -
Follow instruction Flue gas analysis

CM_P

Switch unit ON and set dip switch 1 to ON

↓ Yes

Select Basic Settings SE8, Press core probe key,

↓ Yes

Keep timer key pressed and select desired gas type with timer dial, press core temperature key once before releasing timer key.

↓ Yes

Switch the unit OFF and ON again to store the new settings. Set dip switch 1 to ON again

↓ Yes

Select SE9 for indication of CO2 screw length. Press core probe key,
Change from St (steam) to HI (hot air) by timer dial;
e.g. 52 means 5,2mm

↓ Yes

Adjust the CO2 screw of each gas valve to the length shown in the gas parameters (+/- 0.3mm).

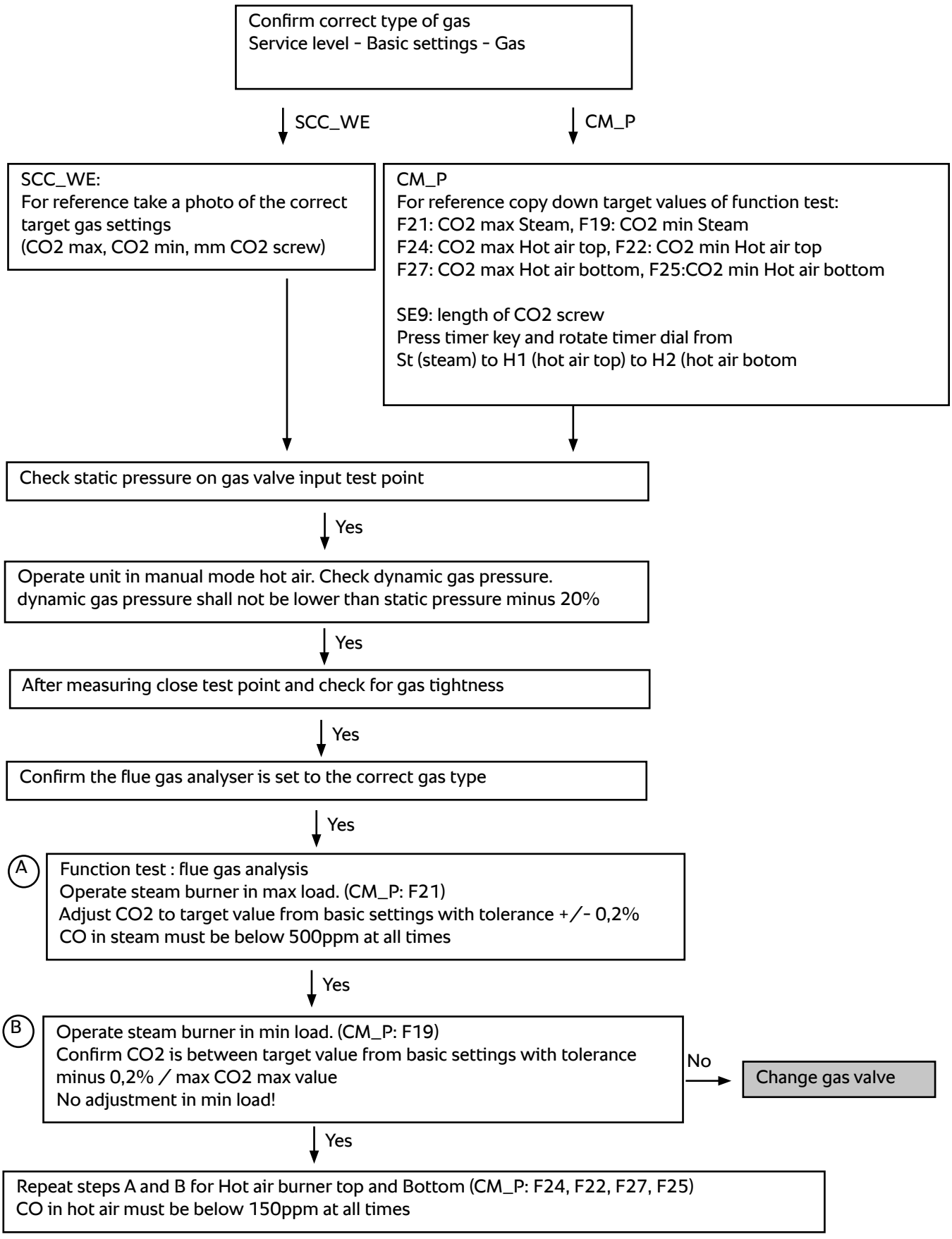
↓ Yes

Set dip switch 1 to OFF and dip switch 2 to ON

↓ Yes

Perform flue gas analysis in function test F19-F27
All target values are shown in the individual function test steps
Follow instruction Flue gas analysis

Flue Gas Analysis



Problem registering ConnectedCooking

For detailed description please also refer to the RATIONAL portal.
(Service / technical documentation / ConnectedCooking)

Different problems can be the cause for problems with ConnectedCooking.
RATIONAL can only test the connection from the customers unit up to the router (ping test in network settings).
In case the ping test is successful please ask the customer to consult his local IT specialist for further help connecting his router to the cloud.

How can a customer register?	Please use the registration form at: ConnectedCooking.com
Is a mobile application available for ConnectedCooking?	Yes. ConnectedCooking is available for iOS (App store) and Android (Google play).
How is ConnectedCooking enabled on my SCC / VCC?	The function can be activated in the MySCC or MyVCC area in the submenu ConnectedCooking
How do I connect my unit to ConnectedCooking?	After switching on the "ConnectedCooking" function on the device and when the internet connection is active, a so-called registration code is displayed. After switching on the "ConnectedCooking" function on the device and when the Internet connection is active, a so-called registration code is displayed. Enter the 9-digit registration code under ADD Device, Activation code (in your browser or mobile device). Or scan the QR code with your mobile device (with Connected-Cooing app installed).
Which basic software is needed?	SCC: 07.00.07 VCC: 01.01.03
Can a CMP be connected (for HACCP logging)?	Yes. A special software is needed which can be downloaded from the ConnenctedCooking website
No registration code / QR code is displayed	1. Is ConnectedCooking activated? 2. Verify ethernet connection. (LAN cable / wifi module connected?) 3. Verify general network settings. (Customer router and unit - DHCP or static IP address) 4. Start "ping gateway" test under "network settings". 5. In case ping test was not successful, switch unit off and on again and repeat ping gateway test. Consult your local IT specialist (cable, router, cable connections)

Error messages

3 different error types are existing in the system:

1 Service error
2 Calibration error
3 Gas error

Service error

Service error, e.g. Service 10 (CM_P = E10) are visible to the customer and relate to a malfunction of the system.
The following service errors can only be seen in the service mode or service download.

Service 13	Automatic steam generator refill failed - extremely rare case
Service 19.1	SD card can not be accessed, change SD card
Service 30	Humidity control not working since 60 minutes, check P1 values, B4, rpm
Service 55	internal error of fan motor top
Service 56	internal error of fan motor bottom

If a „Back Arrow“ is shown when a service error is indicated, the errors can be suppressed and cooking can continue.
For all other errors a service call, maintenance or repair is mandatory.
(please refer to the error list in the training manual)

Calibration error

Calibration errors occur either during self test or manual calibration.
The error number relates to the calibration step where the error ocured.
CM_P: If an error occurs, „FAIL“ will be displayed. When pressing the core temperature key the related error number is shown.
Likely calibration errors are:

10	Unit too warm: B1, B2 or B4 above 40°C (104°F)
20	Differential pressure sensor defect
100	RPM recognition of the fan motor not working - change motor
200	Steam heating not working, (check voltage supply, SSR, Gas supply, X20), heating up needs too long time; (Install p-trap in drain and fill with water.

Gas error

Gas errors occur when ignition is not successful or a different error is existing in the ignition box. These gas errors are generated by the ignition box and are only shown in the service history - Service Report or in the Service dowload. (Please refer to chapter gas)

The most common gas errors are:

19(HL), 29(D)	Ignition electrode distance, burner blocked from inside (2004-2011), gas pipe diameter,
22(HL), 32(D)	Gas supply, Gas stop valve, Gas pressure, Gas valve

Service Error message 2 - 19

SCC and - CM_P use the same error number logic, SCC wiht prefix Service, CM_P with prefix E

CM_P error: Reset error by pressing the blinking timer key (may be 2x necessary)

The following errors are existing additionally in CM_P

Display	Definition	Reason - Remedy
OPEn H2O	No water supply to steam generator	open Water tap, check solenoid Y1
PoL CHnG (Only gas units)	Gas units wrong polarity of power supply	Change phase and neutral
rES	Reset gas	press timer key to reset (follow error tree)
FiLt CHnG	PCB is too warm Cooling not effective	Check air filter, cooling fan and control panel gasket Check for external heat sources
CALI UUET (Service 63)	Unit had done a self test without water; Now water is detected and a full self test must be done.	Cool down unit, make sure B1, B2 and B4 is below 40°C, Set Selftest to „1“ in SE20 and switch unit off and on again. Run Self test
E2	Unit is connected to energy optimizing system	If sticker over PCB relais is reading 42.00.090 the plug with wire link 40.04.180 must be installed on terminal X20
E11	B1 Cabinet sensor above 340°C	Check SSR
E38	Mode switch	defective
E39	Temperature potentiometer	defective
E40	Timer / core probe potentiometer	defective
E50	real time clock CPU (rtc) not initialised	Reset rtc (ref. to additional functions CM_P)
E51	Battery voltage below 1,5V	Check if side battery pole is not bent down, change battery, Type CR 2032
E70	PCB memory error during self test	Change PCB
Common errors to SCC_WE and CM_P		
Service 10	water is not pumped off during SC-Automatic	SC pump defective or blocked (44.00.207) Drain hose of SC pump blocked Check SC pump and hose
Service 11 SCC_WE only	CDS sensor sends too many pulses during refilling steam generator	CDS sensor not set to 1000 pulses / liter Air brake valve above steam generator not closing during filling Check level electrode and water path to steam generator for leakage
Service 12 SCC only	CDS sensor without signal	CDS sensor defective, but level electrode senses water Check water pressure, replace CDS sensor
Service 13	Steam generator is not refilled during steam mode	Steam generator is not refilled during steam mode => foced filling check 0-1 signal of level electrode to PCB
Service 14 SCC only	Level electrode doesn`t recognise water;	CDS sensor measured enough pulses but level electrode does not sense water Check water conductivity possibly too low, osmosis water treatment
Service 16	Conflict with external memory SD card	After PCB change a different software structure is on PCB and SD card. Software update on PCB needed
Service 17	Conflict with external memory SD card	essential unit data are missing (energy, size, etc) Run recovery software
Service 18	Conflict with external memory SD card	SD card defective Change SD card
Service 19.1	Conflict with external memory SD card	Data can not be written successfully onto SD card Change SD card

Service Error message 20 - 36

Display	Definition	Reason - Remedy
Service 20 -x- E20 - x	Thermocouple defective	thermocouple defective. 20.1=cabinet B1 ; 20.2=quenching B2 ; 20.4= humidity B4 ; 20.8= steam generator B5; (e.g. 20.12 = B4 + B5)
Service 21 (only error history)	Voltage and current monitoring on PCB	1- 18V from T1, 2 - 12V on PCB, 4 - high current MMI, 8 - high current Drain valve M12, 9 - high current humidity valve Y5
Service 25 SCC only	No water flow detected during CleanJet	During CleanJet+Care the fan motor does not an increase in power demand when water hits the fan wheel. - check drain sieve cabinet, water pressure, water supply, cleanjet pump, moistening valve and nozzle and CDS sensor. GN racks or trolley properly inserted.
Service 26 SCC only	Drain valve does not find the open position	Micro switch drain valve not working properly Initialise drain valve in basic settings, water, Cleanjet/Care, drain valve time ration should be 1 : 3, e.g 9:27sec. test drain valve in function test if drain valve not working change drain valve assembly (56.00.618)
Service 27 SCC only	Drain valve does not find the closed position	Micro switch drain valve not working properly Initialise drain valve in basic settings, water, Cleanjet/Care, drain valve time ration should be 1/4 : 3/4, e.g 9:27sec. test drain valve in function test if drain valve not working change drain valve assembly (56.00.618)
Service 28	Thermocouple B5 above 180°C	Indication goes off when temperature below 110°C (230°F) check if steam element is covered in scale.
Service 29	PCB temperature above 85°C (185°F)	Check air filter, cooling fan and control panel gasket Check for external heat sources
Service 30 (only error history)	humidity control not working properly	humidity control via P1 not working. no humidity control above boiling point Steam is controlled via B2 sensor (bypass control) Check P1 and B4 in diagnostic mode
Service 31.xx	Core probe faulty	Most cooking processes do not work with defective core probe! 31.1: shaft probe 31.2- 5th probe (close to shaft) 31.4: 4th probe 31.8: 3rd probe 31.16: 2nd probe 31.32: 1st probe in tip - Combination of faults possible i.e.: 10 -->2+8) Change core probe (61-102: 40.00.606P, 201-202: 40.02.100P)
Service 32.0-1-2	no flame detection after ignition	0 - top, 1 - bottom, 2 - both Only change ignition box when gas error 33, 36, 39 or 42 happened more often than 5x (74.00.883) refer to gas error list
Service 33.0-1-2	no flame detection after ignition	- Appears after 3x Reset command without positive result - 0 - top, 1 - bottom, 2 - both - Check ignition wire, ignition box, gas valve and gas supply. refer to gas error list
Service 34.xx	Bus signal does not respond to PCB	Bus cable, bus component or power supply to bus component faulty 34.1: Motor top 34.2: Motor bottom 34.4: Ignition module top 34.8: Ignition module bottom Combination of faults possible i.e.: 10 -->2+8 Check power supply and LED ON Check jumper on floor unit bottom motor and ignition box Change bus connection sequence if error message changes bus cable is defective if error message remains the same, component is defective
Service 35	Ultravent does not process bus signal	UltraVent PCB not processing bus signal Check power supply to UV Blinking LED means power supply and PCB ok.
Service 36	Differential pressure sensor P1 defective	No offset signal (0.5V) P1 must be installed horizontally! Check 12Vdc power supply to P1, plug, Change P1 (3017.1011)

Service Error message 37 - 120, blink code motor

Display	Definition	Reason and remedy
Service 37	Differential pressure sensor P1 out of range	Differential pressure sensor P1 not in expected range, check connection / blocking of P1 hoses.
Service 40 SCC only	Care pump doesn`t pump enough volume into steam generator	Care pump blocked or defective or hose from care pump to steam generator (partially) blocked (56.00.153) Check care pump in function test - Caution: Y4 is active at the same time, care container might overflow when activating too long. Check if the hose from the care pump outlet is not kinked; Reset error by successful completing rinse program;
Service 41 SCC only	no water flow when Y3 is active during CJ+C	Solenoid valve Y3 (50.01.050) defective or moistening nozzle and connecting pipe is blocked; CDS does not send any pulses; Check Y3 in function test, Remove nozzle (15mm), decale nozzle and clean pipe from scale deposit. Rinse pipe in function test Y3 before mounting nozzle back. Reset error by successful completing rinse program;
Service 42 SCC only	no water flow when Y4 is active during CJ+C	Solenoid Y4 (50.01.050) Care defective or hose to care container blocked or kinked; CDS does not send any pulses; Check Y4 in function test, Reset error by successful completing rinse program;
Service 44 SCC only	No steam heating during CJ+C	No temperature raise above 60°C(158°F) recognised by B1 Check SSR Reset error by successfully completing rinse program;
Service 52	Bus error at pcb A8 (only units with LED level indication	check 12V power supply from A2:X13 to A8, Check bus cable
Service 55 (only error history)	internal error of fan motor top	No Service 34.x error! top motor doesn't turn, hot air heating is blocked software tries to reset error every 10 seconds, see list below
Service 56 (only error history)	internal error of fan motor bottom	No Service 34.x error! bottom motor doesn't turn, hot air heating is blocked software tries to reset error every 10 seconds, see list below
Service 60	No gas blower rpm information available	PCB does not send rpm information for gas blower Switch unit off and on again, run SD Repair program
Service 63	Unit had done a self test without water;	Now water was detected by the level electrode. Cool down unit, make sure B1, B2 and B4 is below 40°C, In basic settings - Self test set Self test to ON and switch unit off and on again. Run Self test
Service 110 SCC only	SC Pumpe not working while care solution is inside steam generator.	Malfunction of SC pump during the time when Care solution was inside the steam generator, Follow error tree Service 10 Reset error by successful completing ABORT program;
Service 120 SCC only	Level electrode without signal while care solution is inside steam generator.	Water the level electrode does not recognise water during the time when Care solution was inside the steam generator, Solenoid valve Y1 or level electrode defective (50.01.050); Reset error by successful completing ABORT program;

The error messages can be seen under Diagnostic, Service history.

LED blink code Motor error	Reason	Remedy
No Service 34.x error! - Motor doesn't turn, hot air heating is blocked Sub error: e.g. 55.1 will only be shown when error is existing longer than 1 minute		
1x	Starting error	check if fan wheel is not blocked and can turn freely, change motor
2x, 4x, 7x, 10x	Motor defective	change motor
3x,	internal error	SCC: flash software to 05.00.11.4 or higher, change motor
5x, 11x	Motor defective, temperature	wrong motor mounted? change motor
6x,	voltage error	check voltage supply, change motor
8x	only with 3-phase motor	phase is missing
9x	communication error	check bus cable, apply contact grease (9003.0219) to bus cable plug

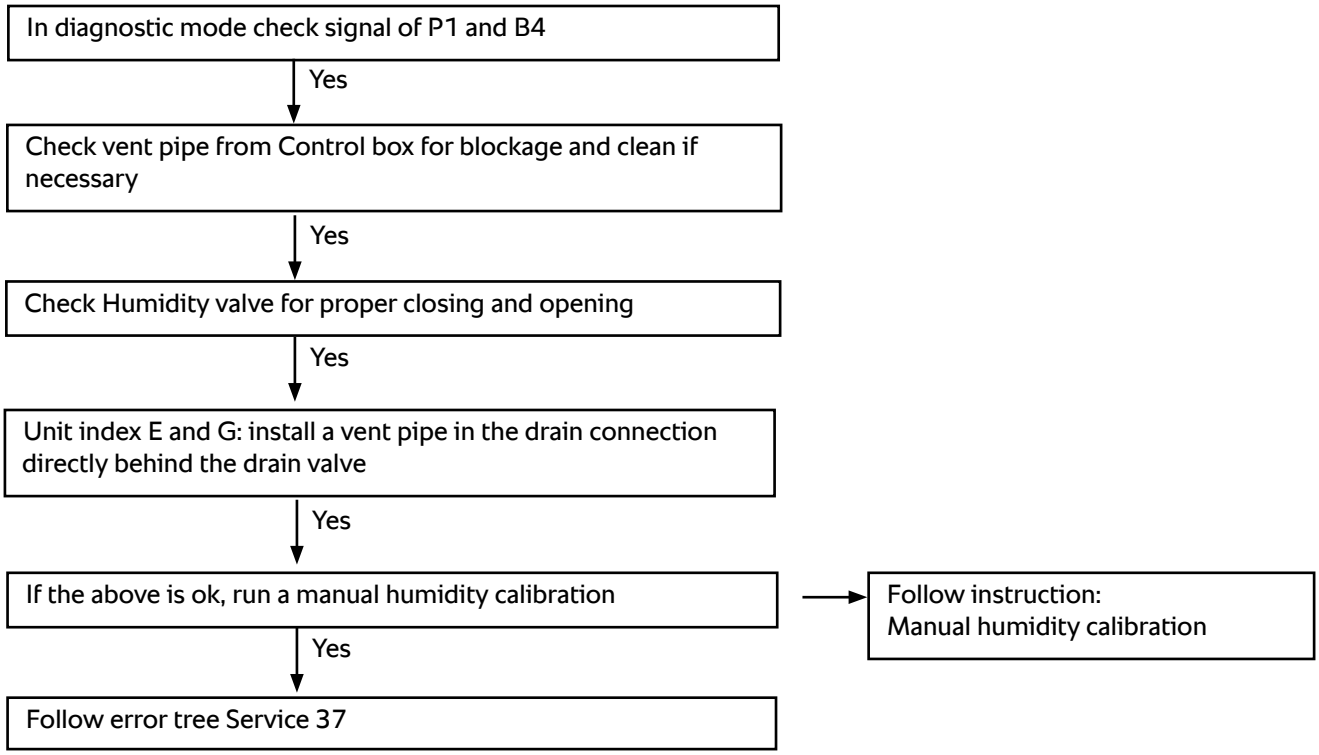
Humidity problem, uneven cooking result

Uneven cooking result can have multiple reasons:

Application reasons can be amongst others:
No preheating of the cooking cabinet
Wrong accessories
Raw product is not of the same size , quality or temperature

Technical reasons can be amongst others:
Insufficient de-humidification
Problems with humidity valve Y5
Check service report for recent motor error Service 55/56

Please also follow error tree Service 37.



Unit not heating

Electric unit is running but no steam or hot air production

Sticker over row of 12 relais
42.00.260
fully equipped PCB

Yes

Plug with wire link on X20 existing?
Electric units only!

Yes

No

Connect plug 40.04.180 to X20

Check fuses on pcb
(2A slow - 3019.0120)

Yes

Check connections 12V DC to SSR

Sticker over row of 11 relais
42.00.261
partially equipped PCB
(Plug X20 is not needed)

Yes

Check connections 12V DC to SSR

Electric or Gas unit is running, steam ok but no hot air production

Check if fan motor LED is blinking

Yes

Refer to LED blink code motor error
Change motor if required

Gas unit is running but no steam or hot air production

Follow error tree:
No gas flame
Gas reset

SCC_WE display, coloured, instable

Display is frozen, does not react to touch pad input

Yes

Remove SD card.

Yes

Display is reacting again

Yes

Change SD card (data are copied automatically)

PCB is booting automatically, unit is switching off and on automatically

Yes

Remove SD card.

Yes

Display is reacting again

Yes

Change SD card (data are copied automatically)

Display is frozen, Service level can not be accessed

Yes

Remove bus cable from Motor or PCB

Yes

Service 34 is indicated

Yes

Enter service level

Yes

Trouble shooting

Display is flickering or has stripes

Yes

Change 30 pol cable 40.03.516
Display ok?

No

Change 30 pol cable back and change Interface Board A1 42.00.081

No

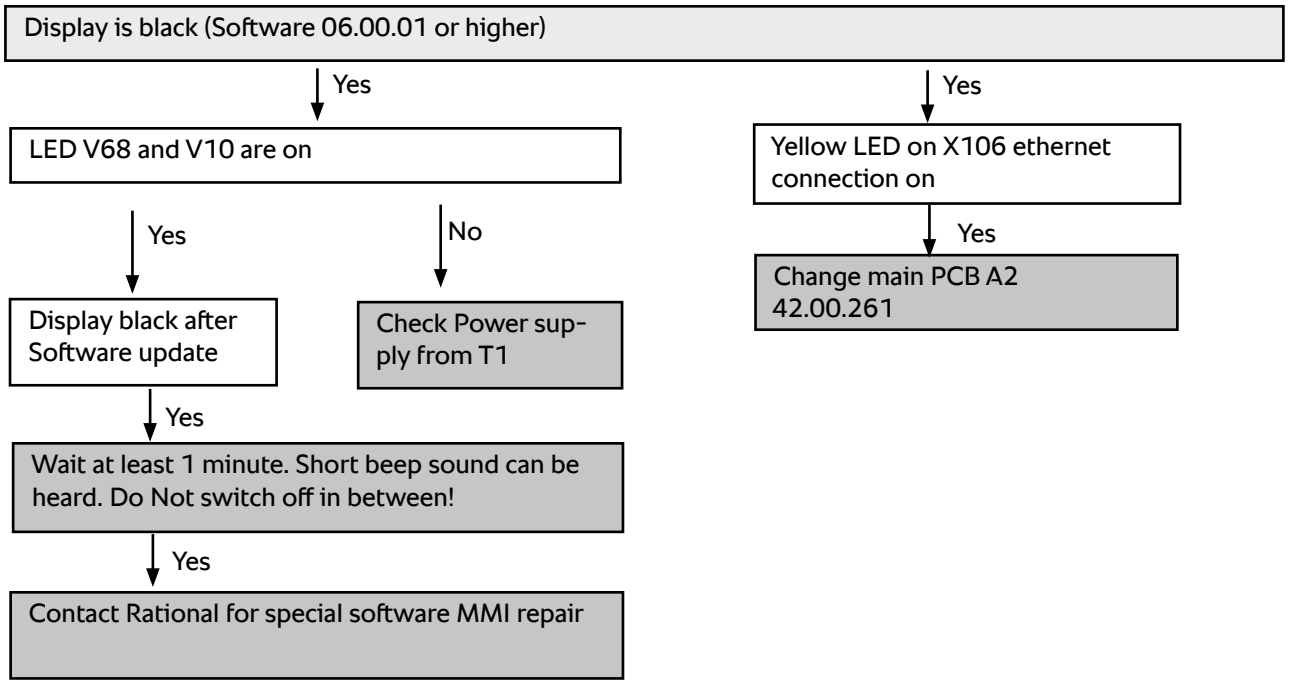
Change Interface Board A1 back and change main PCB A2 42.00.261

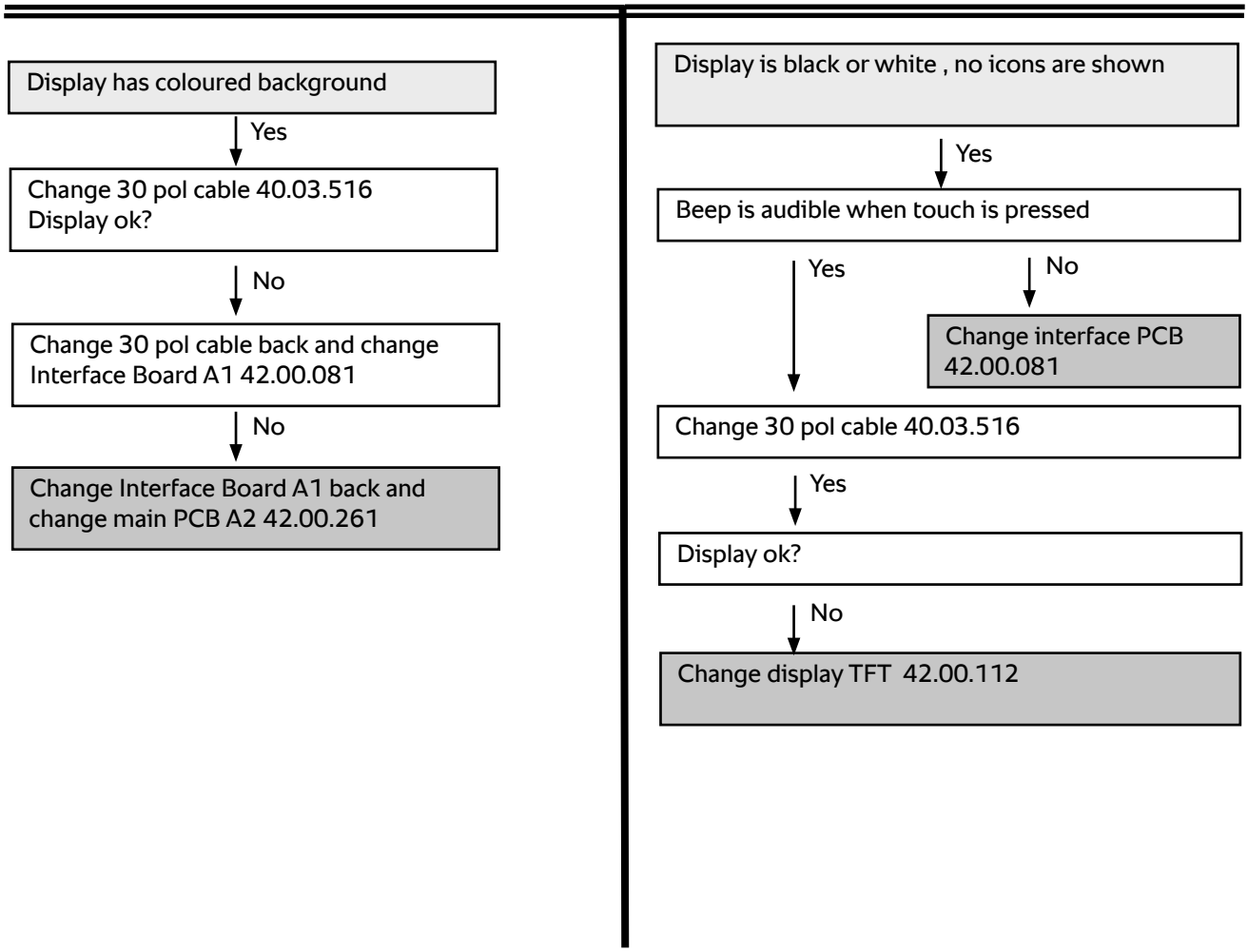
Display is flickering when Y5 is actuated

Yes

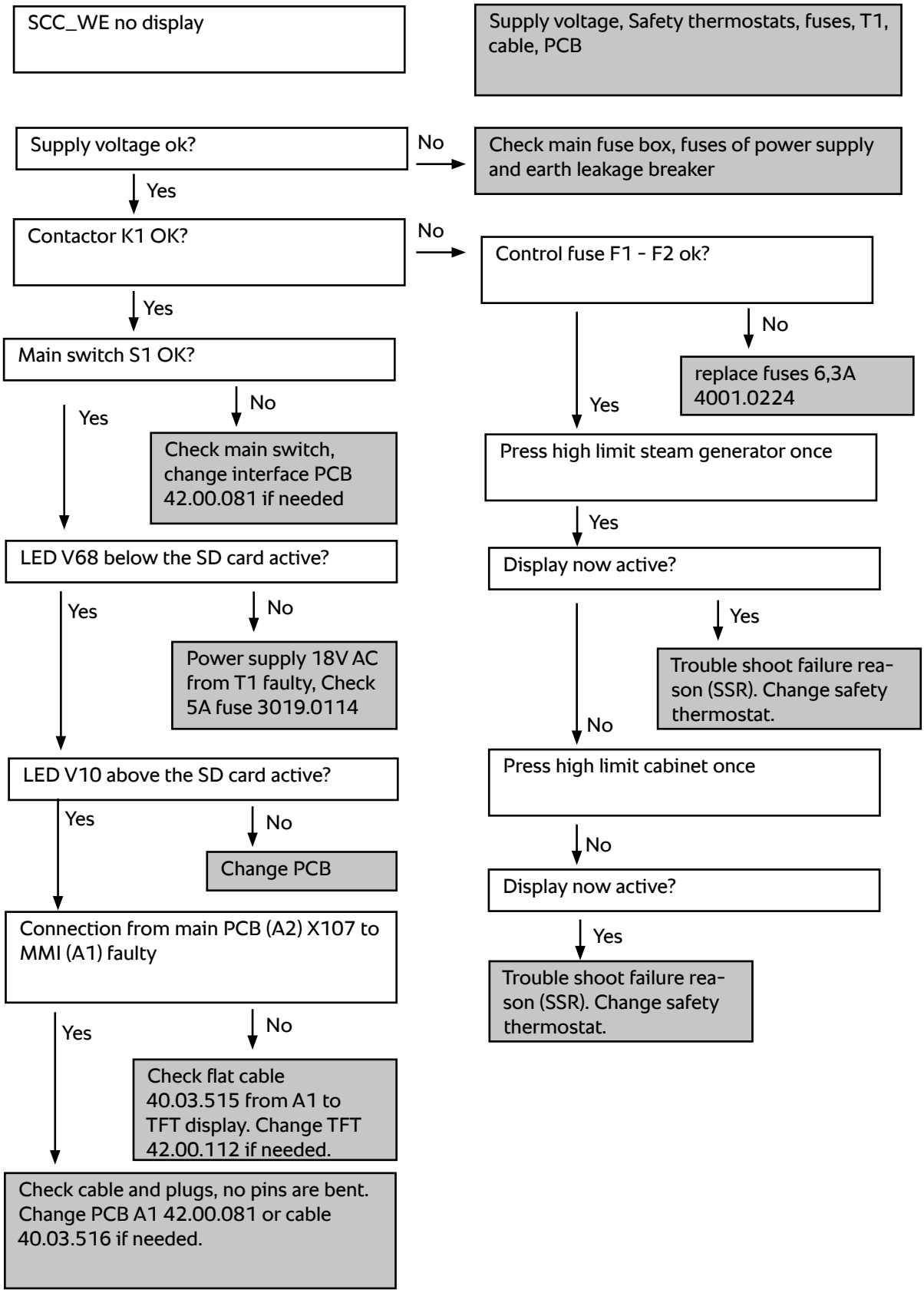
Check 18V power from T1 to terminal X14, Cable and plug

SCC_WE display, coloured, instable

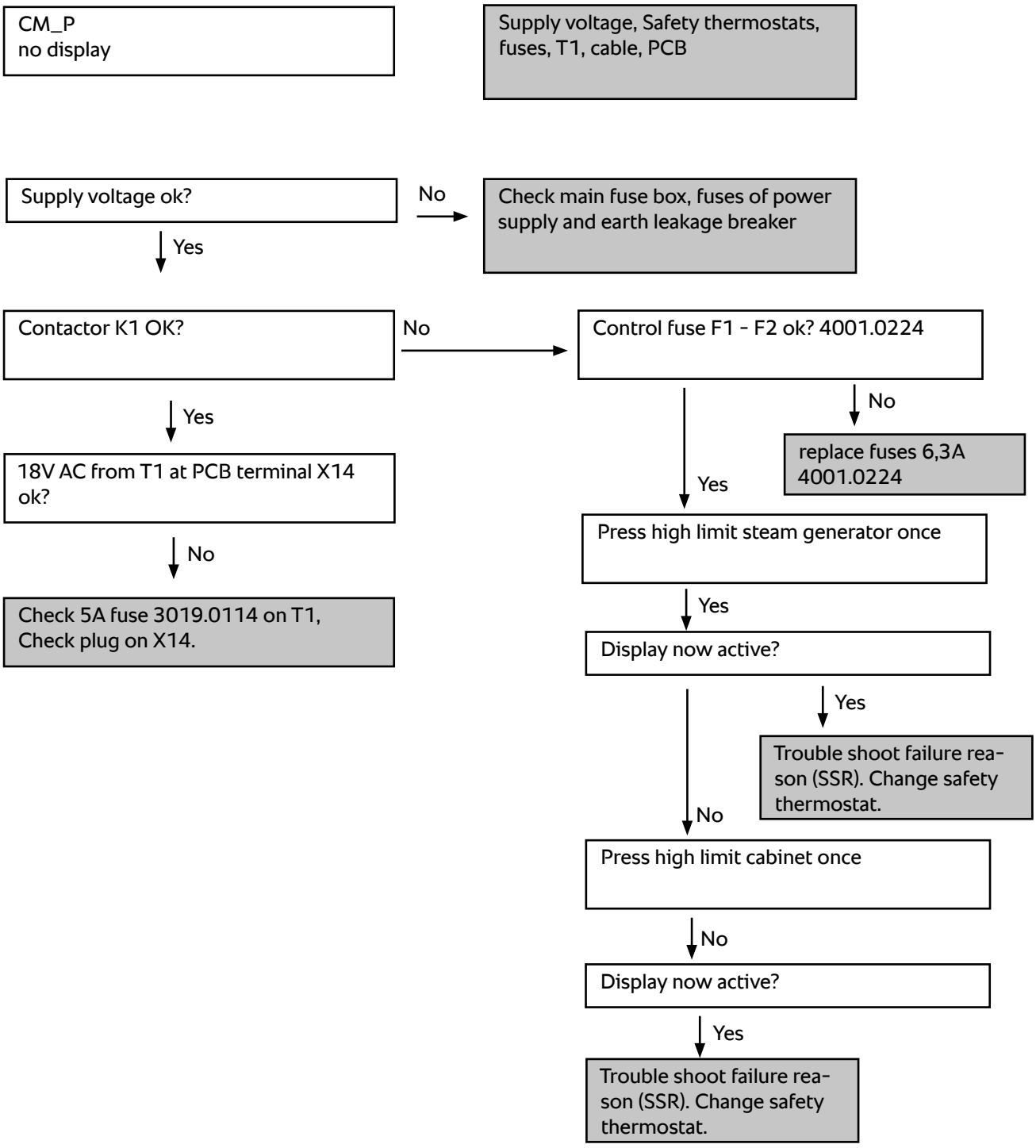




SCC_WE no display



CM_P no display



Water leakage from unit

When water is dripping from the unit check the following positions:
After correction check if corrective measure was sufficient!

Door adjustment too loose for Cleanjet operation.	Yes →	White sticky substance is found in unit drip collector tray. Adjust door closer to the cabinet. Door gasket must be leak tight when CleanJet is running.
Water hose connections of solenoid valves and nozzles.	Yes →	Wrap kitchen paper around the hose connection positions and activate all solenoids in function test. Inspecting the paper for water will indicate the leakage point. For standard water connections use hose clamp 2066.0205.
Steam hose between steam generator and interior cabinet	Yes →	Check hose for deterioration during preventive maintenance. Replace hose whenever the steam generator is moved. Make sure the hose clamps are tightened properly.
Connections to SC pump M4 and SC hose.	Yes →	Check hose clamps of pump connection to steam generator and SC hose. Press SC hose to detect internal thinning effect by permanent pumping of solid scale particles.
Control box - emergency drain	Yes →	If water is coming from the emergency drain when door is closed please check if vent pipe from quenching box is free of scale / grease deposits and connection form piece from quenching box is not squeezed.
Connection control box to vent pipe	Yes →	Silicone form piece must be sitting properly on the pipes and hose clamp does not damage the silicone material
Motor shaft gasket (22.00.985)	Yes →	A leaking motor shaft gasket can cause longer steaming time and uneven cooking results. Water marks can be seen on cabinet insulation under motor shaft. Replace motor shaft gasket and run humidity calibration.
CombiDuo installation Water marks on lower unit	Yes →	Vent pipe extension of the lower unit: Remove the red flat gasket and replace with the identical gasket which is in the top of the vent pipe extension 61-102 index E-G: 60.73.811 61-101 from index H: 16.01.748 62-102 from index H: 16.01.434
SCC_XS is loosing water from the care drawer	Yes →	Water leakage during SC Automatic: Make sure the unit is installed horizontal and the connected drain has a permanent slope; Water leakage during Cleanjet+Care: Solenoid Y3 is passing too much water. Replace 4-solenoid 50.01.733

Display Self test

Display Self test

After initial installation the SCC_WE and CM_P will run a Self test to determine the unit specific humidity data at the place of installation.

Self test is displayed, but the start key does not show.

Yes

Initialisation of the drain valve not yet complete (only SCC_WE)

Yes

Wait until initialisation is completed

Yes

Thermocouple B1, B2 or B4 in the unit is too hot (temperature must be below 40°C (104°F))

Yes

Cool down unit with the function test.

Yes

Door contact closed?

Yes

Check door contact

Display of Service 63 (SCC_WE) or CALI WET (CM_P)

Yes

Initial Self test was done without water Now water was detected.

Yes

SCC_WE: In Basic settings set Self test to „ON“;
CM_P: In SE20 set Self test from 0 to 1;
Switch unit OFF and ON again.

Yes

Now Self test will run with water and boiling point calculation.

Self test interrupts with a indicated fault number.

Yes

Related the indicated fault number to the calibration table (chapter Self test) and eliminate the reason.

Yes

Restart Self test.

Display Service 10, E10

Display Service 10

SC pump does not work during automatic pump off, level electrode has permanent water contact

Activate function test

Yes

Select SC pump M4 and press „START“

Yes

Pump active, water is discharged

Yes → Short circuit level electrode; check drain system, quenching box for blockage and clean drain if needed.

No

Check pump for scale deposits or other foreign matter which might block the pump

Yes

Clean pump housing, check pump hose for thinning and replace if needed, descale steam generator and / or change SC pump.

No

230V signal at PCB X18 1/2 during function test?

Yes → Check cable, pump and plugs. Change defective parts.

No

Auxiliary contact 13/14 of main contactor K1 ok?

No → Change auxiliary contact of main contactor

Yes

Fuses F1/F2 on main PCB OK?

Yes → Change PCB

No

Check cable and pump for short circuit, change fuses

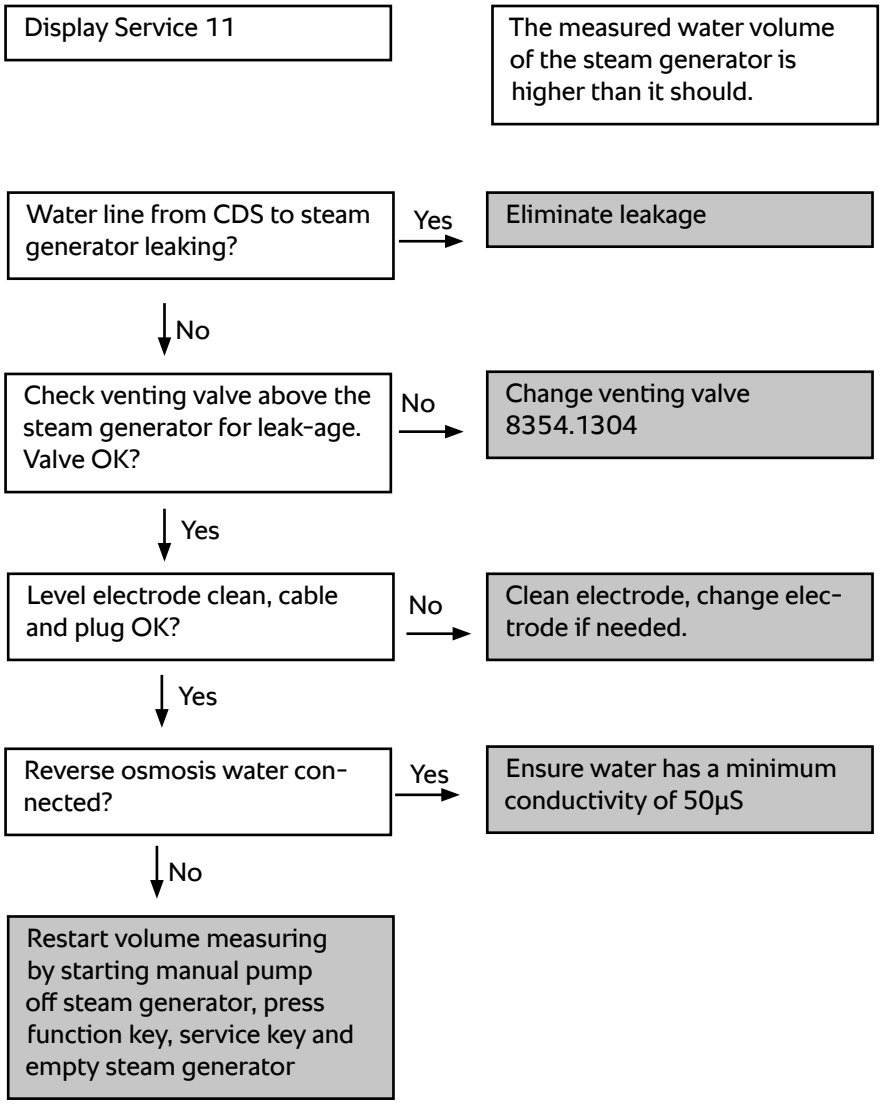
Yes

Reset Service 10 by manual flushing the steam generator.
(open cabinet door)
CM_P: ESG

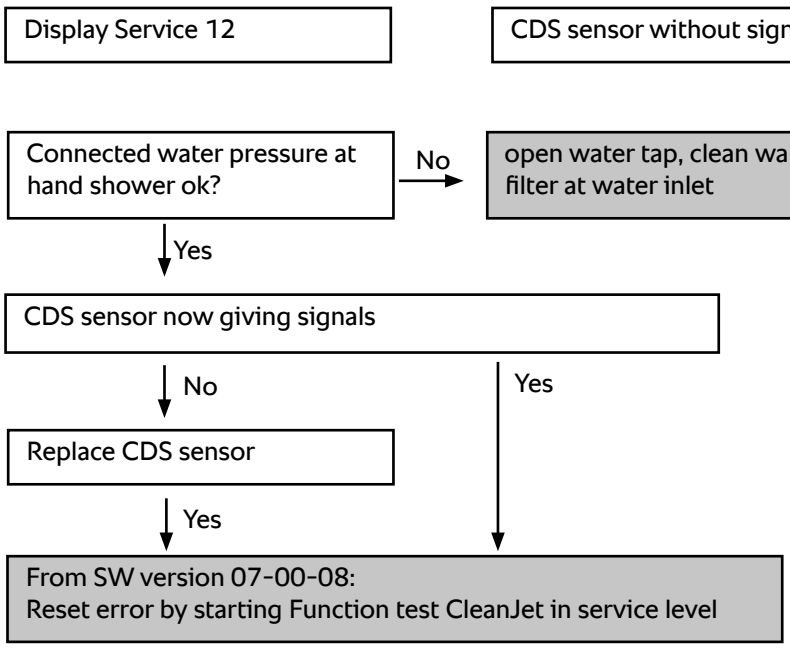
Yes

From SW version 07-00-08:
Reset error by starting Function test CleanJet in service level

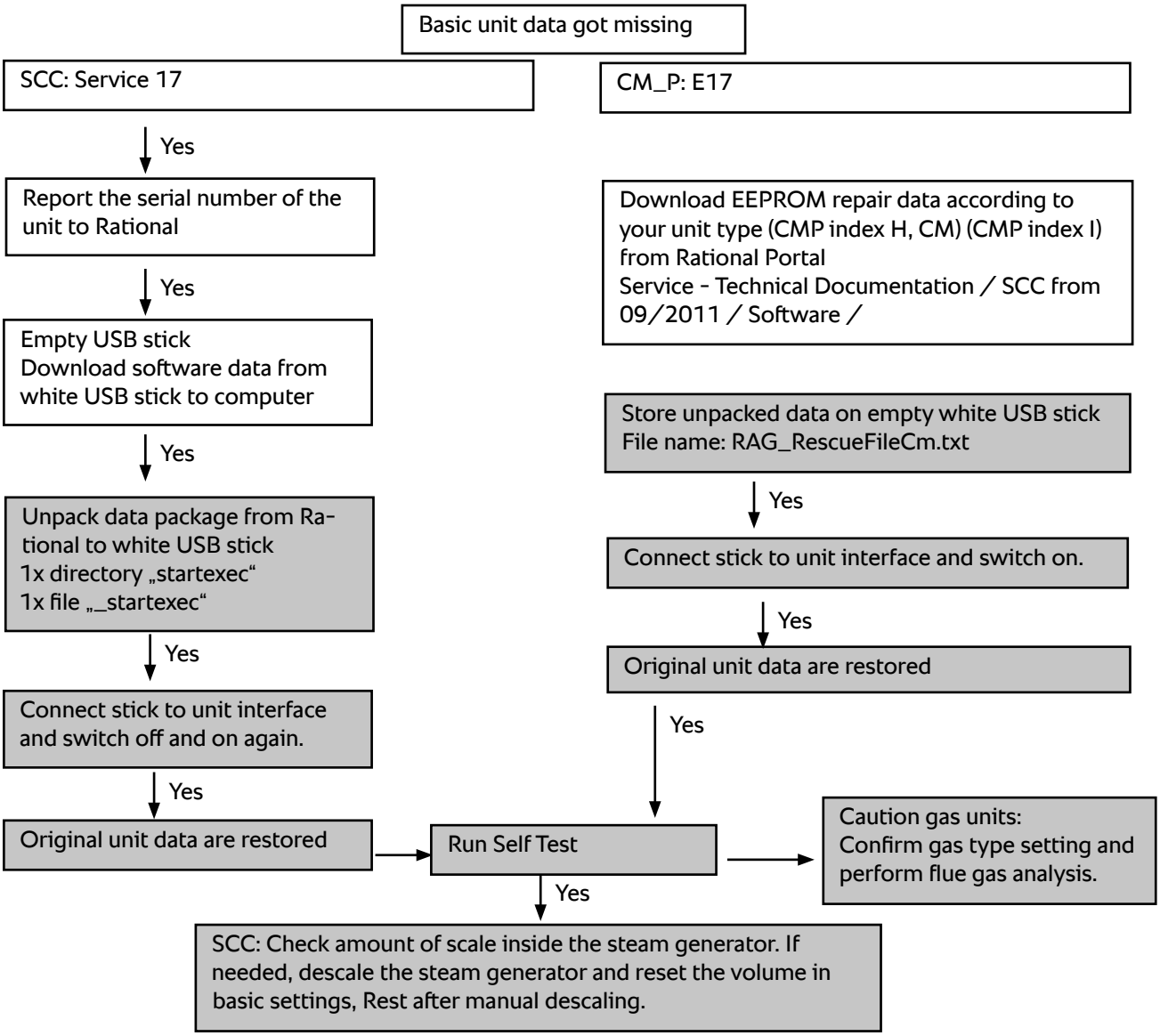
Display Service 11



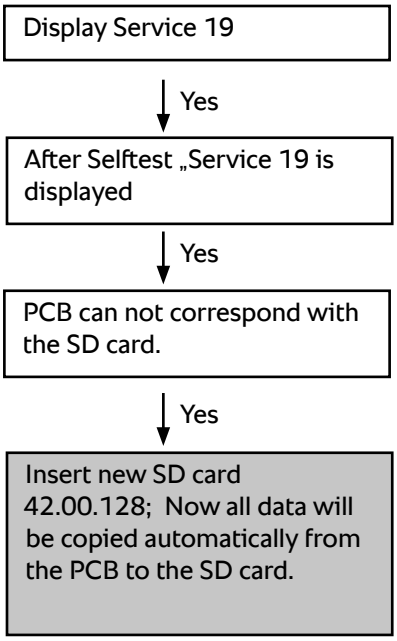
Display Service 12



Display Service 17, E17



Display Service 19, 19.1, E19



During Self Test PCB can not copy calibration data to the SD card.

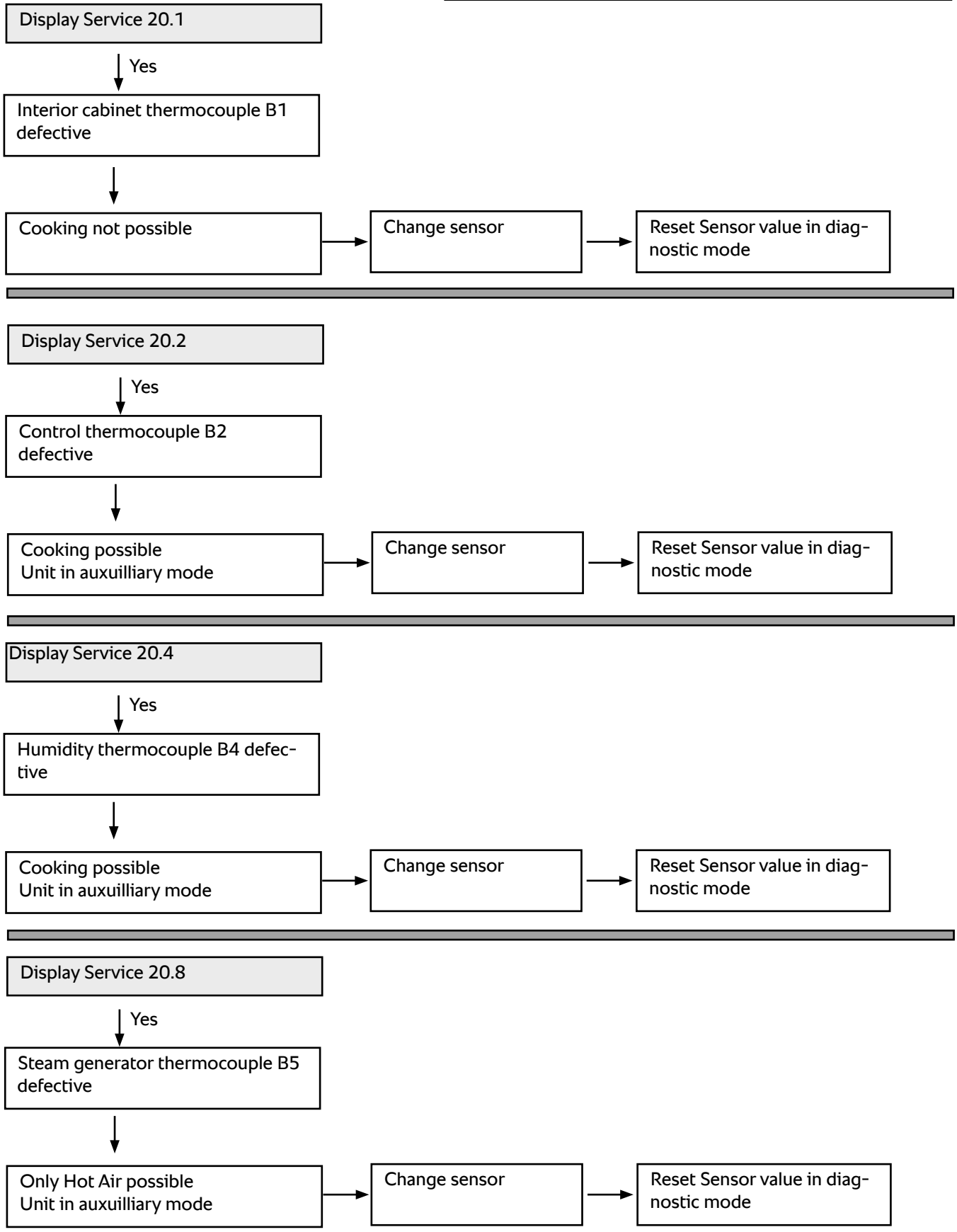
Display19.1: only visible in the service history - Service Report or in the Service download.
SD card can not be accessed anymore. Change SD card (42.00.128)

E19 (CM_P)
Unit without function.
After switch on of CM_P data can not be copied from external EEPROM to PCB.

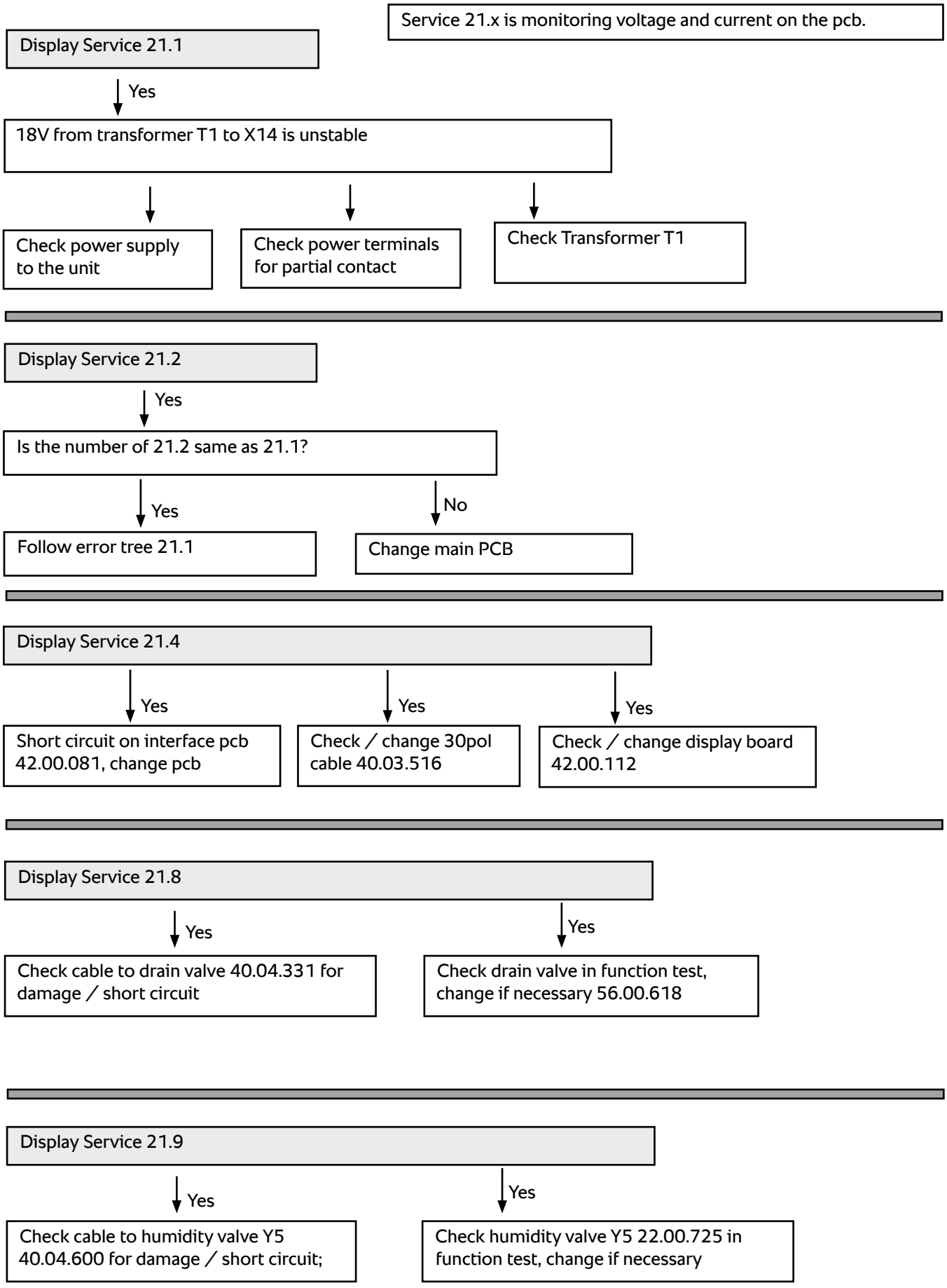
Reconnect EEPROM or run EEPROM recovery

Display Service 20, E20

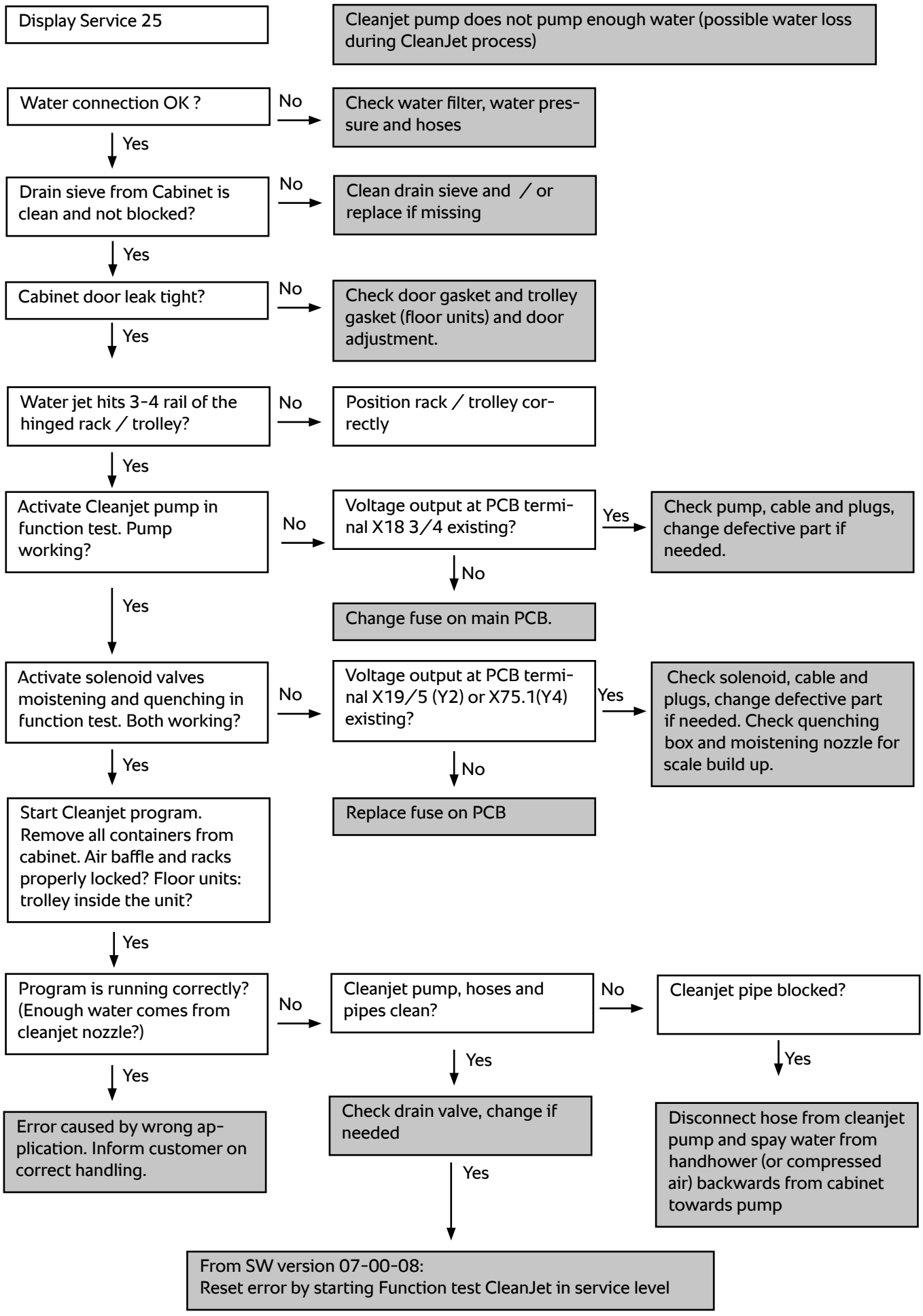
Service 20.x is shown when a thermocouple is defective.
20.1 Interior cabinet thermocouple B1
20.2 Control thermocouple B2
20.4 Humidity thermocouple B4
20.8 Steam generator thermocouple B5



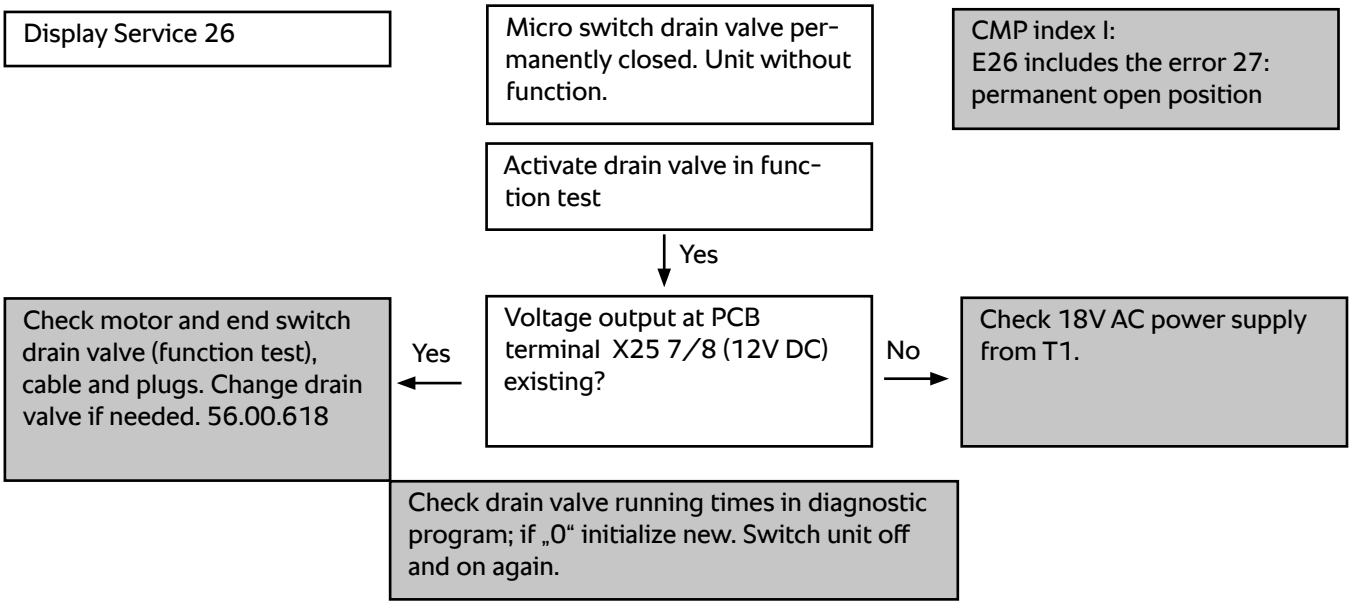
Display Service 21.1 - 21.9



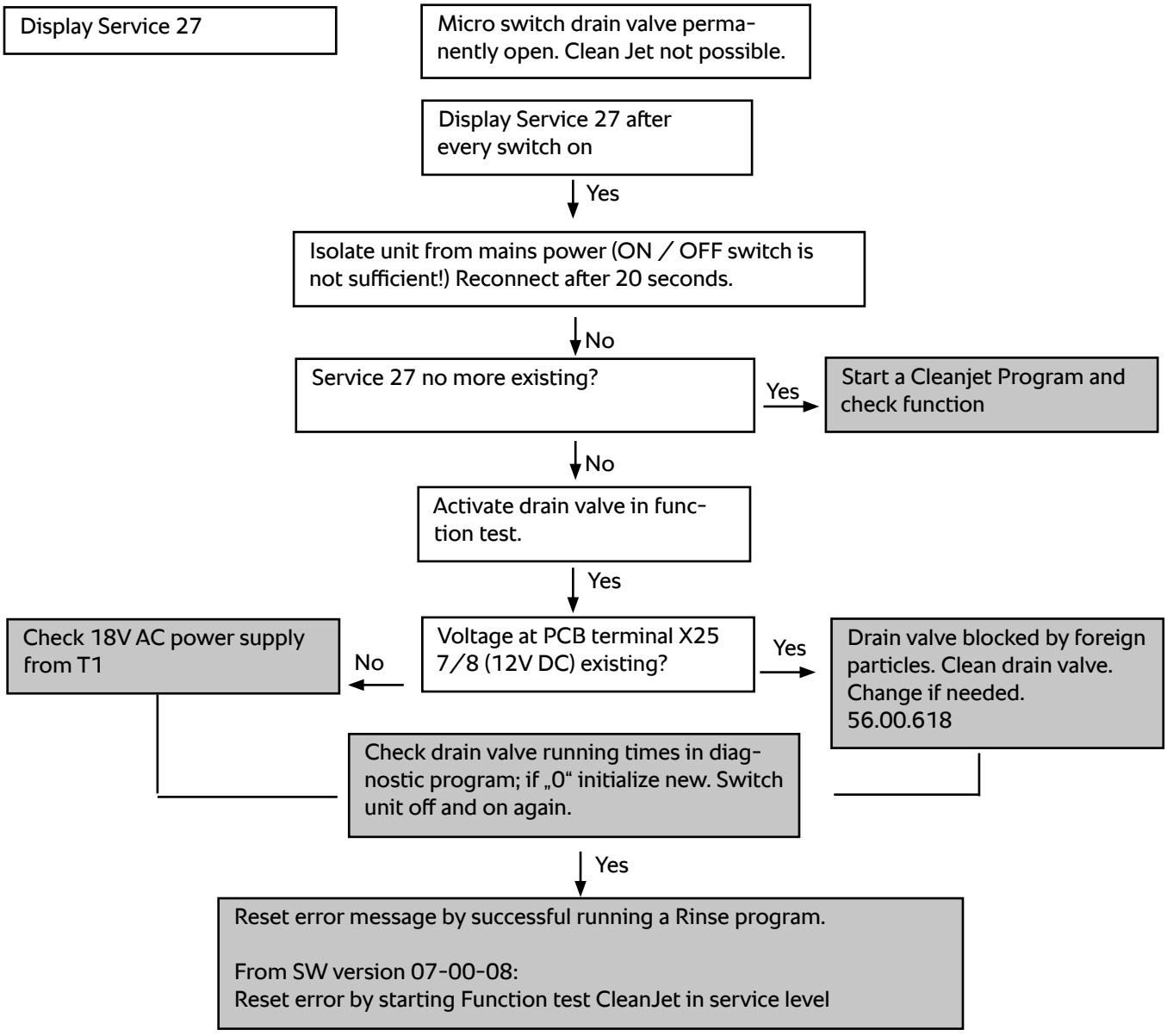
Display Service 25 / E25



Display Service 26 / E26



Display Service 27



Display Service 28, E28

Thermocouple B5 inside steam generator is above 180°C (356°F)
Steam element is covered in scale

Display Service 28

Check maximum temperature of B5 in diagnostic mode

↓

Max temperature of B5 above 140°C (285°F) → Yes → Descale steam generator

↓ Yes

Reset max temperature value in diagnostic mode

Display Service 29, E29

Cooling circuit is not working properly. Temperature of PCB has reached 80°C (176°F)

Display Service 29

Check maximum temperature of PCB in diagnostic mode

↓

Max temperature of PCB above 80°C

↓ Yes

Check cooling fan

↓ Yes

Cooling fan runs freely when cooking mode is selected and door is closed. → Yes → Check and clean / replace air filter

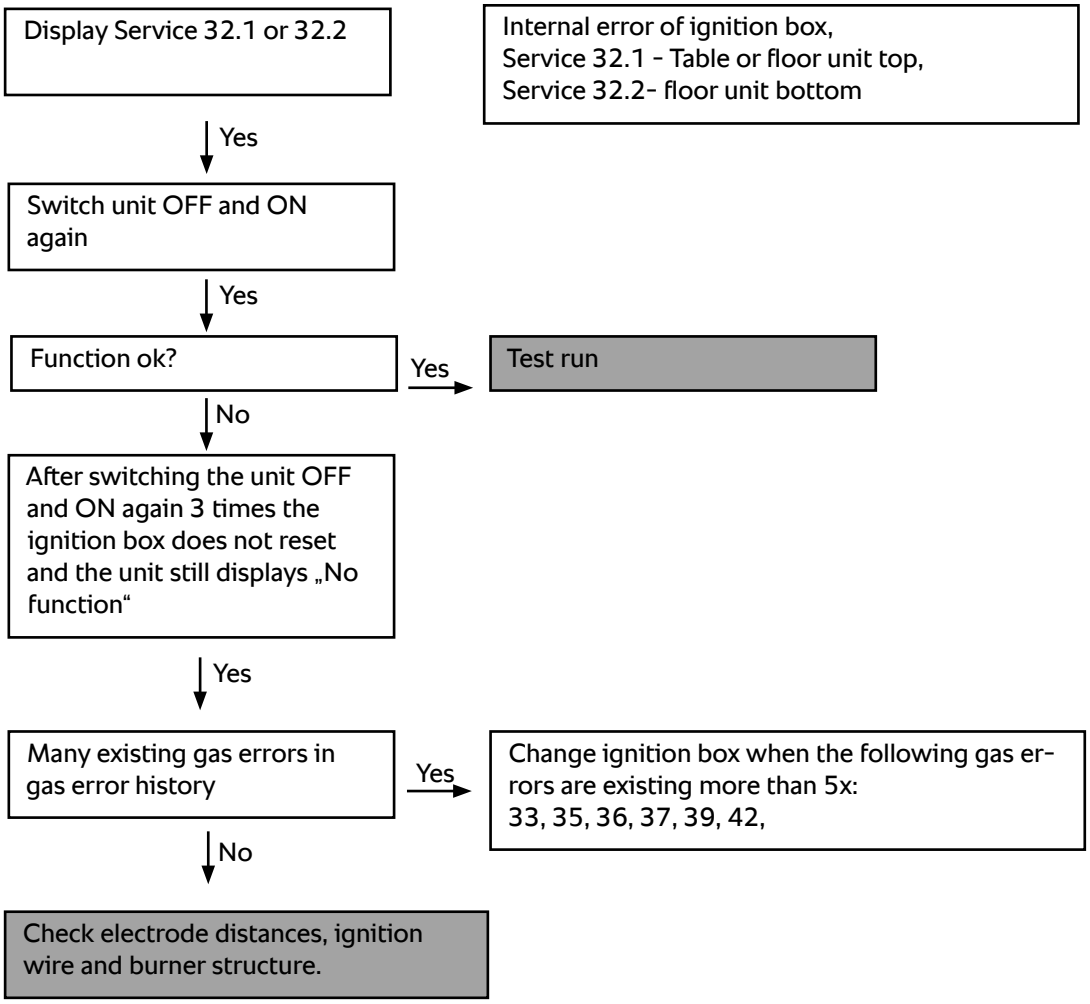
↓ No

Check DC power supply from converter
61-102: 24V dc, 201-202: 12V dc
Konverter 60-102: 40.03.257
Konverter 201-202:40.03.772 → Yes → Change cooling fan
61-102: 40.03.428
201-202: 40.03.985

Display Service 32, E32

Service 32 is triggered by pushing the RESET key 5x after a gas error 22 (hot air) or 32 (steam)

Flame failure during or after ignition,



Display Service 33, E33

Reason for Service 33:
There was no flame detection after ignition.
Gas blower must be working as without feedback signal of blower speed the ignition box will not ignite.
Gas supply might be closed
Gas valve might be defective and does not open
Electric ground signal not on same potential as neutral line
Blower speed wrong causing no proper air / gas mixture
Broken ignition wire causing spark outside gas area
Permanent ignition to ground connection at ignition electrode

Display Service 33

Gas error 17, 18, 27 or 28 more than 5x
Yes → Change ignition box
No ↓

Gas error 22 (hot air) or 32 (steam) in error history
Yes → No gas supply during ignition, check gas valve and gas supply interlock.
No ↓

Gas error 19 (hot air) or 29 (steam) in error history
Yes → Burner blocked, clean burner and check for reasons of polluted air intake
No ↓

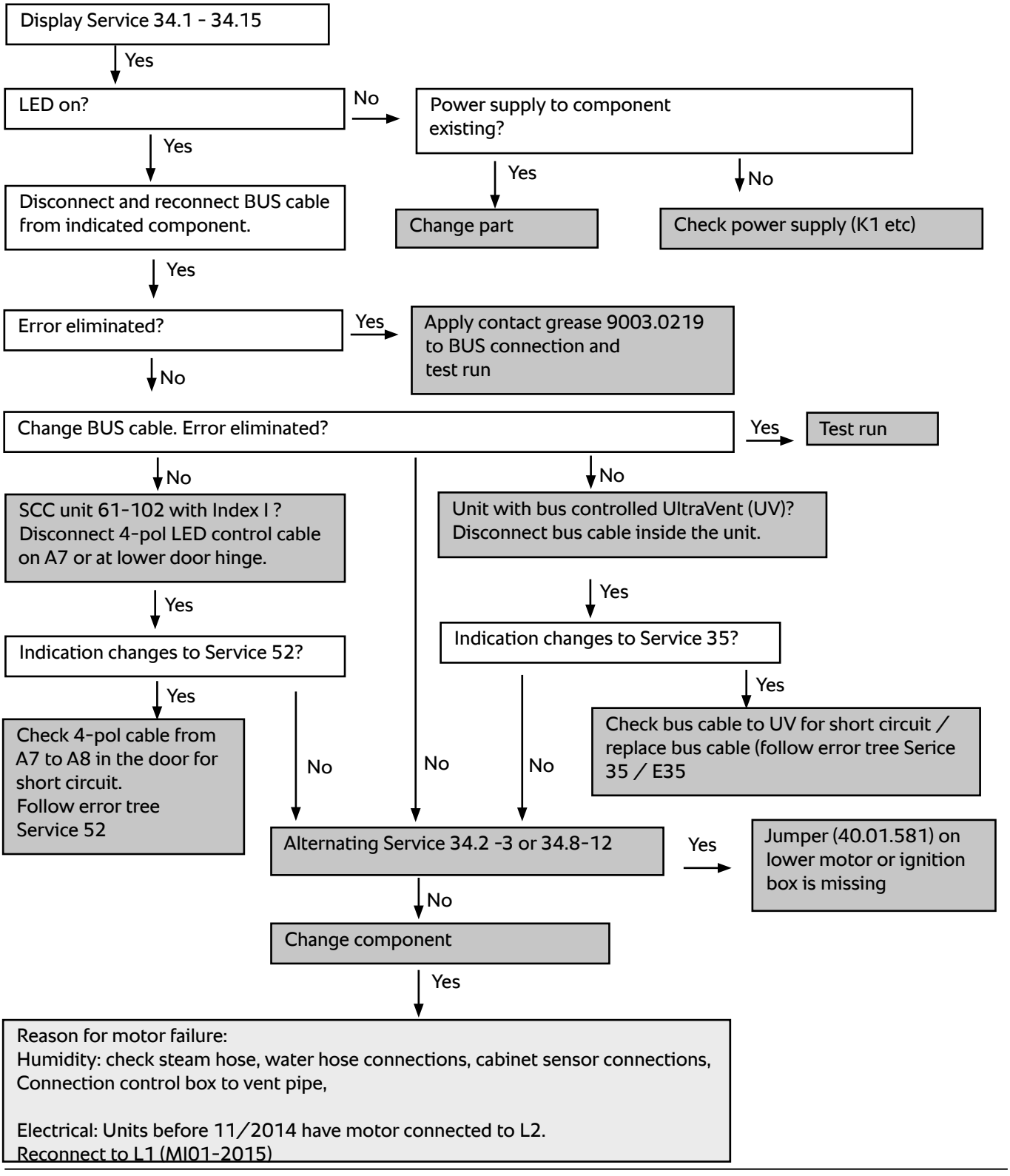
Check static and dynamic gas pressure on hot air gas valve top and bottom when gas error 22/32 is existing
Yes ↓

Pressure drop on gas valve
No → Change gas valve
Yes ↓

Check potential of ground and neutral (commmon) wire.
Potential difference existing?
No → Check power supply / (Units 2AC - wiring and ground connection of transformer T3

Display Service 34.1 - 15 (BUS), E34.1 - 15

BUS error Index H-I:	BUS error Index E-G:
Combinations of different errors are possible (e.g. 34.5 = 34.1 + 34.4).	
- 1: Motor top	- 1: I/O PCB
- 2: Motor bottom (Jumper)	- 2: Motor top (Jumper)
- 4: Ignition box top	- 4: Motor bottom
- 8: Ignition box bottom (Jumper)	- 8: Ignition box top
	- 16:Ignition box bottom (Jumper)
Use contact grease 9003.0219 on BUS connections. Check for failure reason!	



Display Service 35, E35,

Display Service 35, E35

Only possible on units with bus controlled UltraVent

Power supply to UltraVent (UV) existing
LED on UV pcb is blinking when pcb is OK.

No → Check power supply to UltraVent (UV)

Yes ↓

Disconnect bus cable from point of connection inside the unit and reconnect again. Use contact grease 9003.0219 on bus connection

Yes → Display Service 35, E35 still existing

Yes ↓

Change bus cable to UV
40.04.148 (3,6m)
40.04.146 (4,3m, DUO)

Display Service 37, E37,

Display Service 37

Humidity control via P1 is not working properly

Check P1 output values in diagnostic mode under cold condition. Compare with P1 value table in training manual

Output values of pressure sensor P1 appr. 0,5 V

Yes → Pressure sensor P1 defective,
Change sensor,
Note sensor must be installed horizontal

No ↓

Output values of pressure sensor P1 appr. 1 - 2 V

Yes → Connection hoses to sensor P1 blocked,

Yes ↓

No ↓

Pull fan wheel and clean pressure hoses
Do NOT apply pressure in direction to Pressure sensor

Output values of pressure sensor P1 appr. 2,7 - 4,7V
(XS 60: 2 - 2,5V)

Yes ↓

Yes ↓

After re-assembly of Fan wheel perform manual humidity calibration

Check temperature of thermocouple B4 while unit is on steam mode at 93°C

SCC:
TECLEVEL - Calibration

CM_P
Dip2, Cali

Yes ↓

Temperature B4 reaches at least 90°C (194°F)

Yes → Follow error tree:
Humidity problem, Uneven cooking result

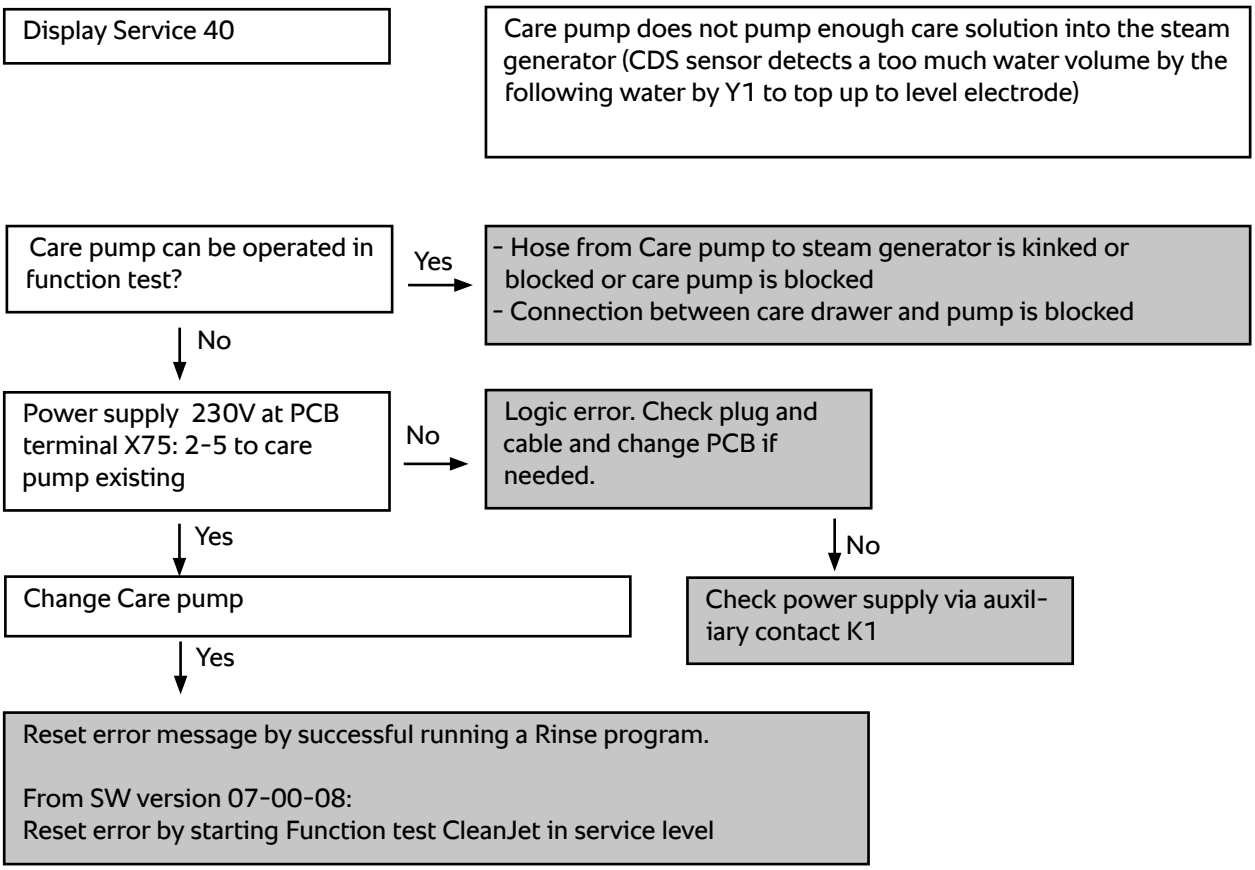
No ↓

Yes ↓

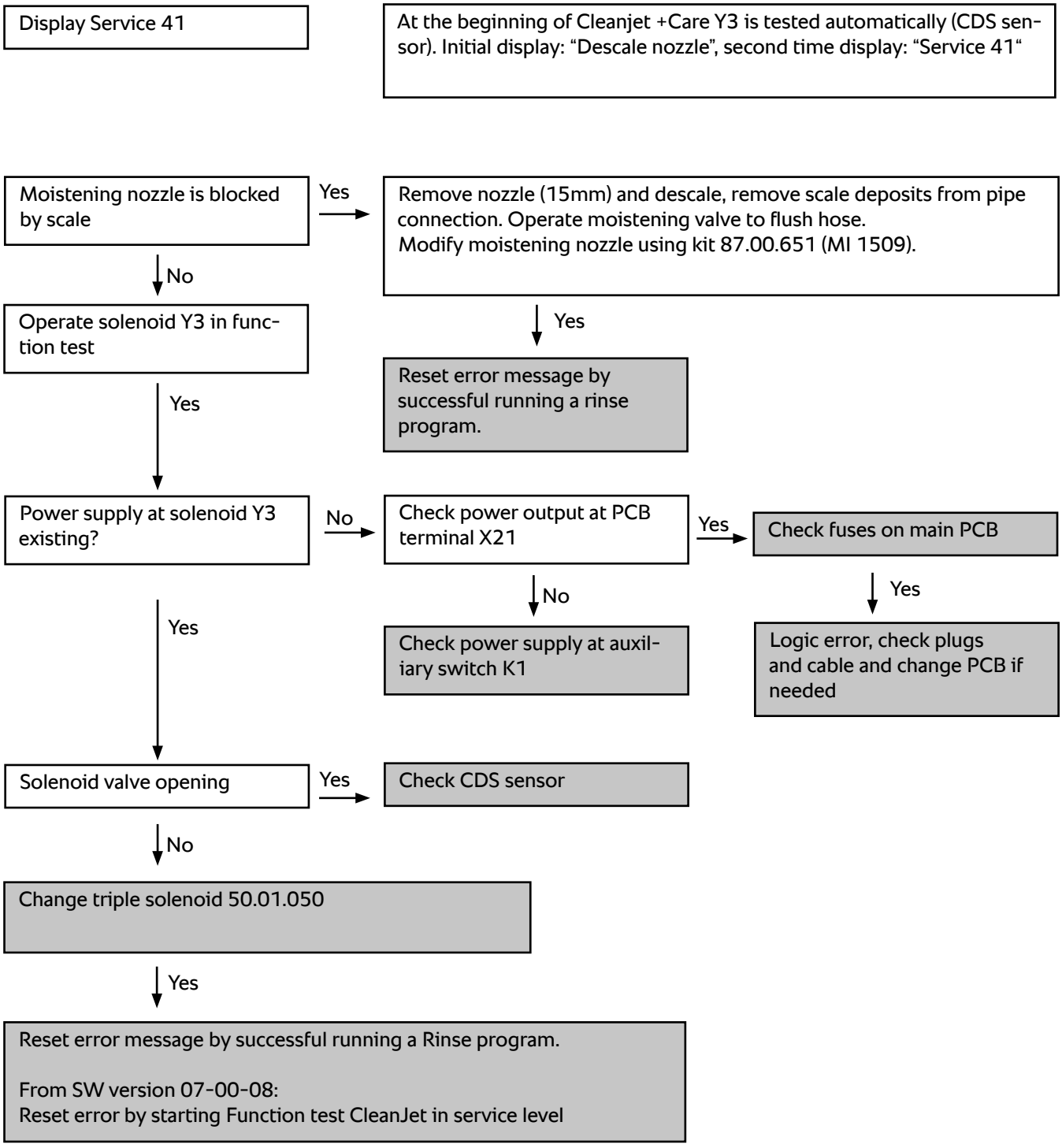
Check thermal insulation of B4 thermocouple behind fan motor

Check service report error history for motor errors 55 or 56,

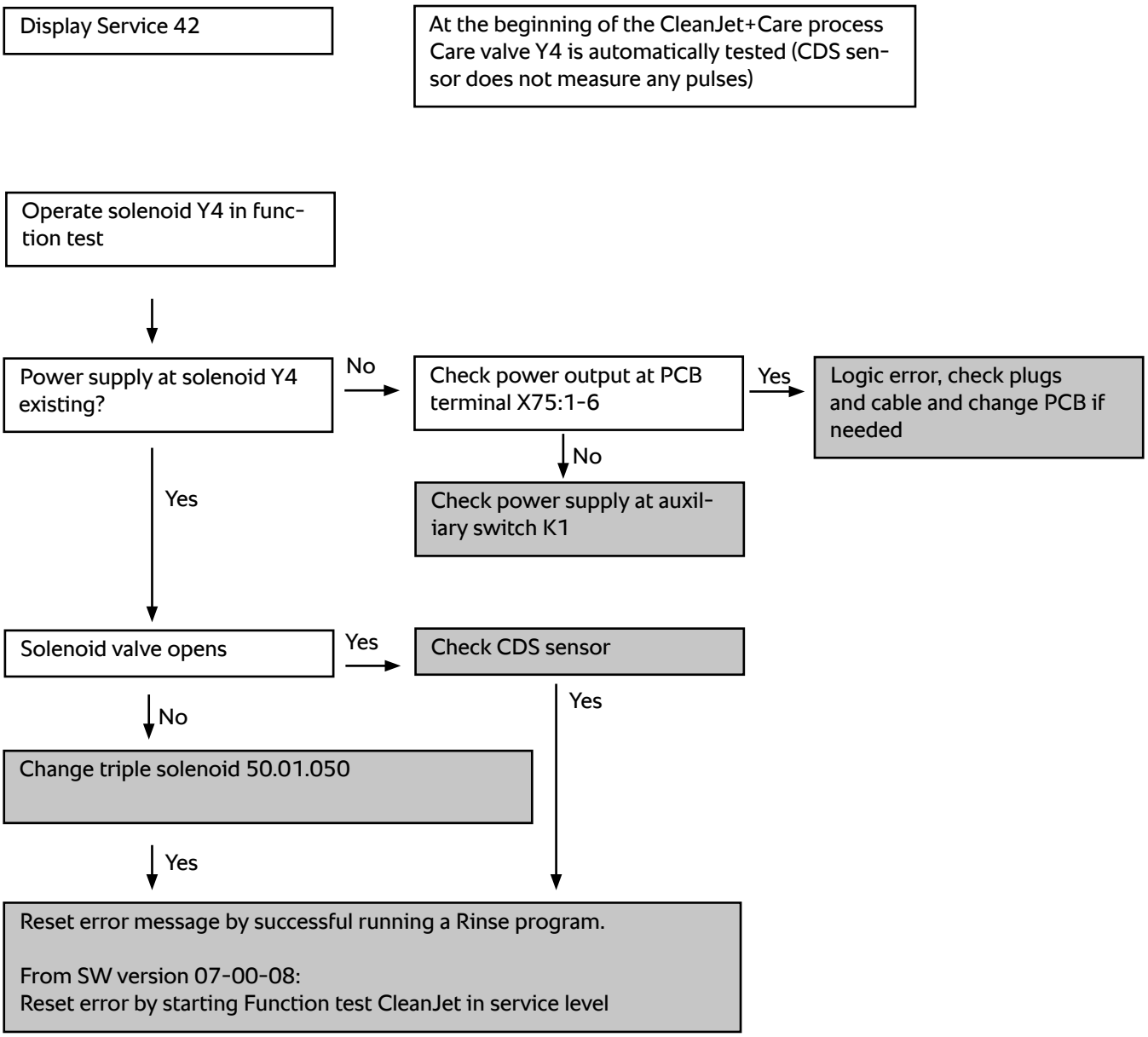
Display Service 40, E40



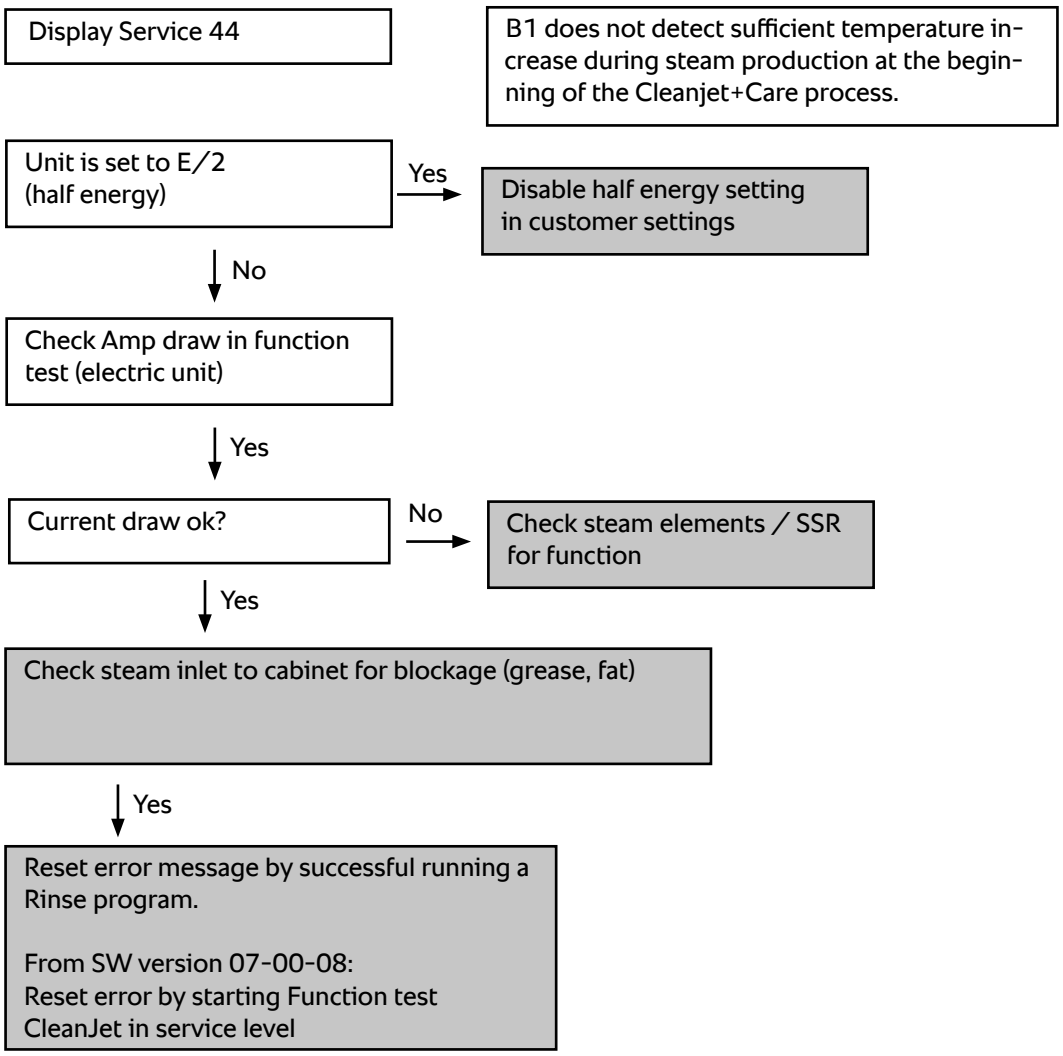
Display Service 41



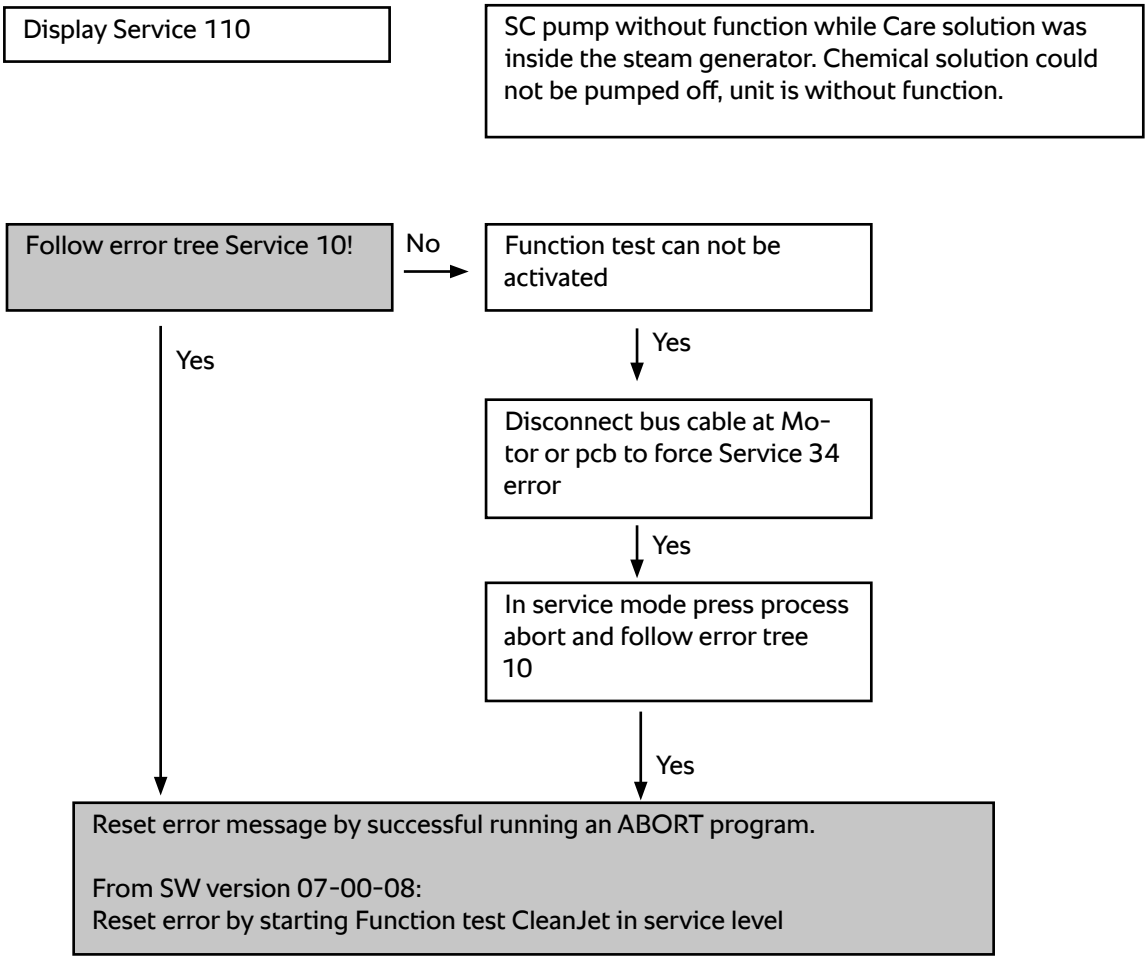
Display Service 42



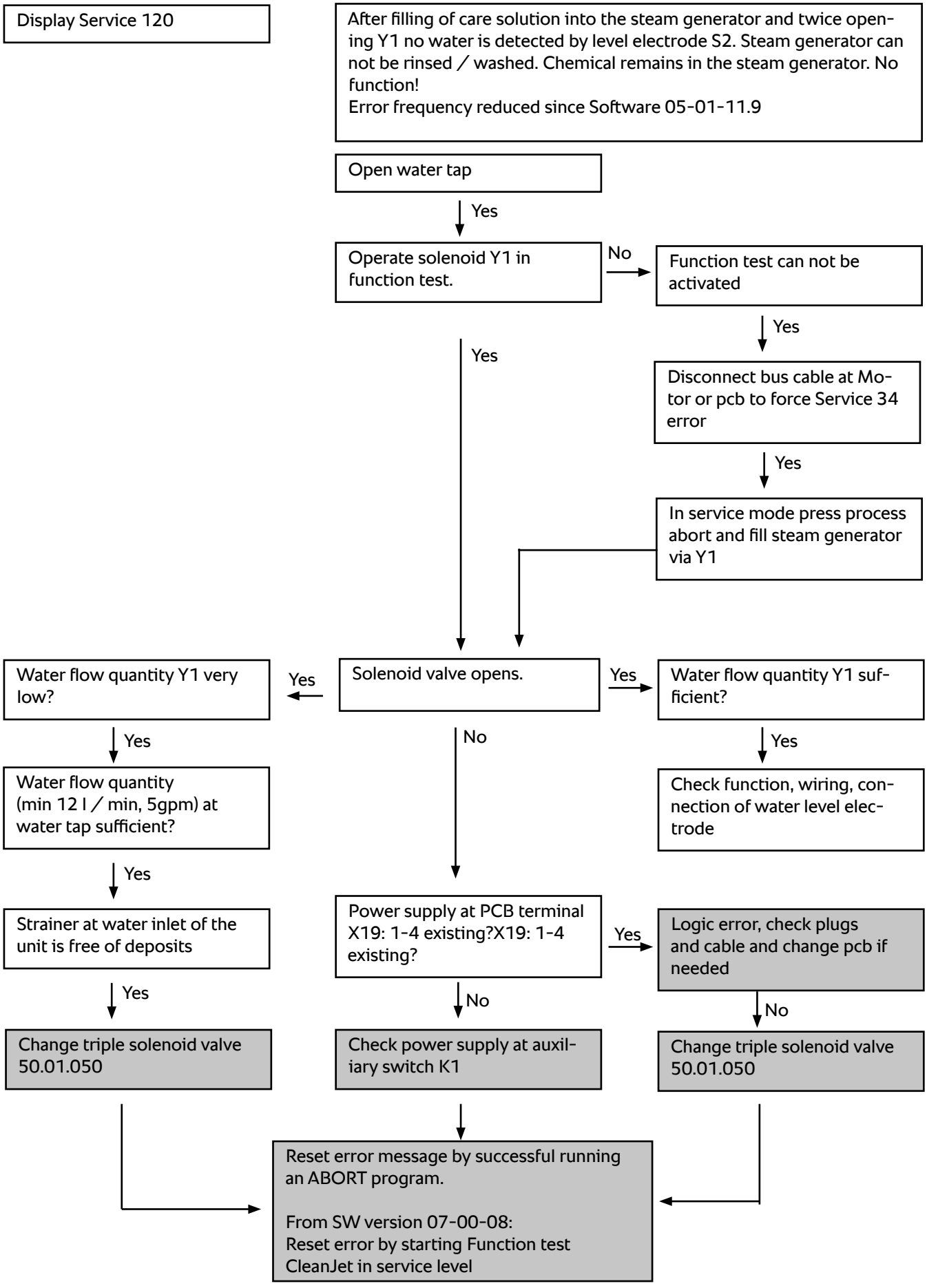
Display Service 44, E44



Display Service 110



Display Service 120



Display Service 52

Only SCC Index I 61-102:
The bus knot (pcb A8) in the door is not responding

Display Service 52

Check cable connection at pcb A7 for proper connection

Yes

Service 52 still existing?

Yes

Check cable connection at the lower door hinge for proper connection

Yes

Service 52 still existing?

Yes

Check cable connection at LED bars for proper connection

Yes

Service 52 still existing?

Yes

Change A8 bus knot pcb inside the door drip tray. 42.00.242 (1/1), 42.00.242 (2/1)

Display Service 60, E60

Only gas units:
The ignition box does not send speed signal to the gas blower.

SCC Service 60

↓

Note set gas type from Basic settings, gas system

↓

Select a different gas type. and switch unit OFF and ON again

↓

Select the original gas type again and switch unit OFF and ON

↓

Unit with software 06-00-05 or later has re-established the speed signal.

Apply recovery software

CMP: E60

↓

Apply EEPROM repair software

Display Service 63, CMP: Cali UUET

Original self test was done without water connection. Now the level electrode has detected water. A new self test has to be started

SCC

↓

Follow error tree
SCC: Start second Self Test

CMP

↓

Follow error tree
CM_P: Start second Self Test

Gas errors

In case the ignition box detects an error during the combustion cycle, it will generate an error message. This error is only visible in the service history - Service Report or in the Service dowload.

The most common gas errors are:
19(HL), 29(D) The flame was existing but died down due to insufficient gas volume, wrong gas-air ratio or blocked burner (specially units 2004-2011)
Check dynamic gas pressure, make sure the air intake is free of dust and fat, on units 2004-2011 clean burner. Follow error tree “RESET Gas” (CMP: “reS”)

22(HL), 32(D) Ignition took place but no flame was established. Ignition might have happened outside of the heat exchanger (check insulation of ignition electrode), Gas supply, Gas stop valve at the point of gas connection, Gas pressure, Gas valve.
To check the gas valve for opening observe the static and dynamic gas pressure. If the gas pressure does not change after the blower has started, the gas valve is not opening.

Gas error 20 (HA),30 (ST)
When the blower motor doesn’t reach a stable start speed, ignition will not start and no error is indicated. Connection ignition box to gas blower faulty. Follow error tree “No gas flame, Gas error 20/30”

Gas error codes:

A)

1-15, 21, 23, 31:	more than 5x: change ignition box
33, 36, 37	and additional Service 32: change ignition box

B)

The following gas errors have most likely a reason in electrode distances, ignition wire or soiled burner head:

17, 18, 27, 27	for more than 5x: change only ignition box if the above components are ok.
19 (HA), 29 (ST)	for more than 5x: check dynamic gas pressure, clean burner, perform flue gas analysis, if error still occurs more than 5x change ignition box
20 (HA), 30 (ST):	Check 3 wire control cable from ignition box to gas blower for continuity. Change ignition box, if no result, re-install ignition box and change blower. In case an unrealistic height is shown under RPM correction (above 5000m), restart Selftest.
22 (HA), 32 (ST):	check for gas supply and function of gas valve (22), check electrode distances, ignition wire or soiled burner head
39, 42	for more than 5x: change only ignition box if the above components are ok.
34:	L1 – N was changed
35:	check voltage and frequency, only important when Service 32 was recorded
38:	only important when Service 60 was recorded, contact Rational for software repair.

Observe error tree Service 32, Service 33, Flue Gas Analysis, Reset, No gas flame, Gas burner noises

Display „RESET“ gas (rES)

Display „RESET“

Reset can only be generated when the gas blower is working properly and ignition took place.
Reason: No flame detected after 5 ignition cycles

Connected type of gas is corresponding with unit gas setting (Data plate)?

No → Change unit setting to connected gas type. Refer to training manual for changing gas type. NOTE: Run Flue gas analysis

Yes ↓

Check gas error history

Yes ↓

Gas error 19/29

Yes ↓

Yes ↓

Gas error 22/32

Yes ↓

Gas supply open and exhaust hood switched on?

Yes ↓

When measuring static and dynamic gas pressure can you deetct a pressure drop?

Yes → Check wire to ignition box for ignition spark outside of heat exchanger.

No ↓

Change gas valve

Yes ↓

Gas error 1-15, 21, 23, 31 33, 36, 37 more than 5x, Service 32

No ↓

Change gas valve

Gas supply open and exhaust hood switched on?

No → Open gas supply and switch exhaust hood on

Yes ↓

Reset only happens when all other gas consumers in the kitchen are switched on?

Yes → Diameter of gas pipe too small. Dynamic gas pressure insufficient. Dynamic gas pressure in manual mode hot air shall not be more than 20% below the static gas pressure.
Note 102, 202 Gas only, natural gas:
202: Internal dynamic gas pressure drop (P_{drop}) in hot air mode of 202G unit natural gas is appr. P_{drop}: 10 mbar (4”wc) at the upper hot air gas valve and 6mbar (2,4”wc) at the lower hot air gas valve.
102: Internal dynamic gas pressure drop (P_{drop}) in hot air mode of 102G unit natural gas is appr. P_{drop}: 4mbar (1.6”wc).
When using LPG the internal pressure drop is appr. 60% lower compared with natural gas.
To judge sufficient piping diameter this pressure drop must be added to the measured dynamic pressure
.

No ↓

Press Reset key several times? (CM_P: Timer key)
Service 33 when Reset was triggered 4 times. Service 33 display is cancelled by switching unit OFF and ON

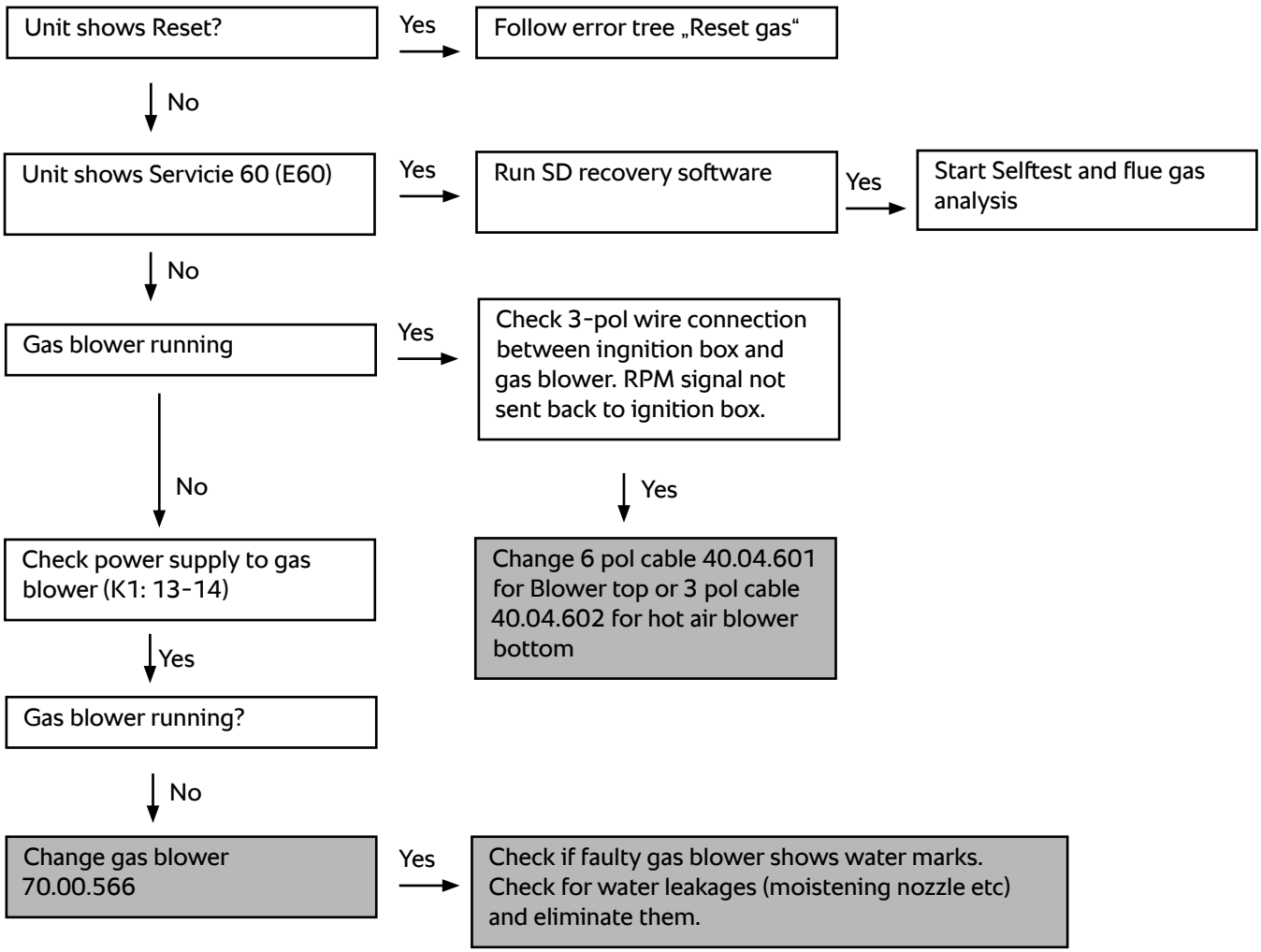
Yes ↓

Check: ignition electrode, ignition wire, ignition box and gas valve

No ↓

Have gas pipe diameter corrected and / or increase gas pressure. Check capacity of pressure regulator.

No gas flame, Gas error 20/30



Gas burner noises

Different reasons can be responsible for burner noises like howling, whistling or explosion type noises.
Follow the instructions below step by step.

Static and dynamic gas pressure are in range with all gas units on the same line on full flame

↓

CO_2 and CO values are according to manufacturer specifications

↓

All air intake parts, air hose, air premix chamber and premix disc are free of dust/grease deposits and are not deformed.
Air hoses are properly connected to the premix chamber and free of defect / holes. Only fresh air is taken in as combustion air.

↓

Gas heat exchanger path is unblocked, proper air flow from gas exhaust detectable, (if not: steam heat exchanger full of water, foreign objects inside hot air heat exchanger)

↓

Ignition electrode wire insulation not damaged, no visible spark outside of burner chamber.
Ignition electrode distances correct (4mm to ground electrode, 9mm to hot air burner surface and 6 mm to steam burner surface.
102 – 202: ceramic sleeve of the ground electrode is only 47 mm long, Part number 74.01.039, (old: 57mm), TI 1608

↓

Burner surface has uniform structure and is clean

↓

102, 202: Hot air heat exchanger not damaged (without holes)

↓

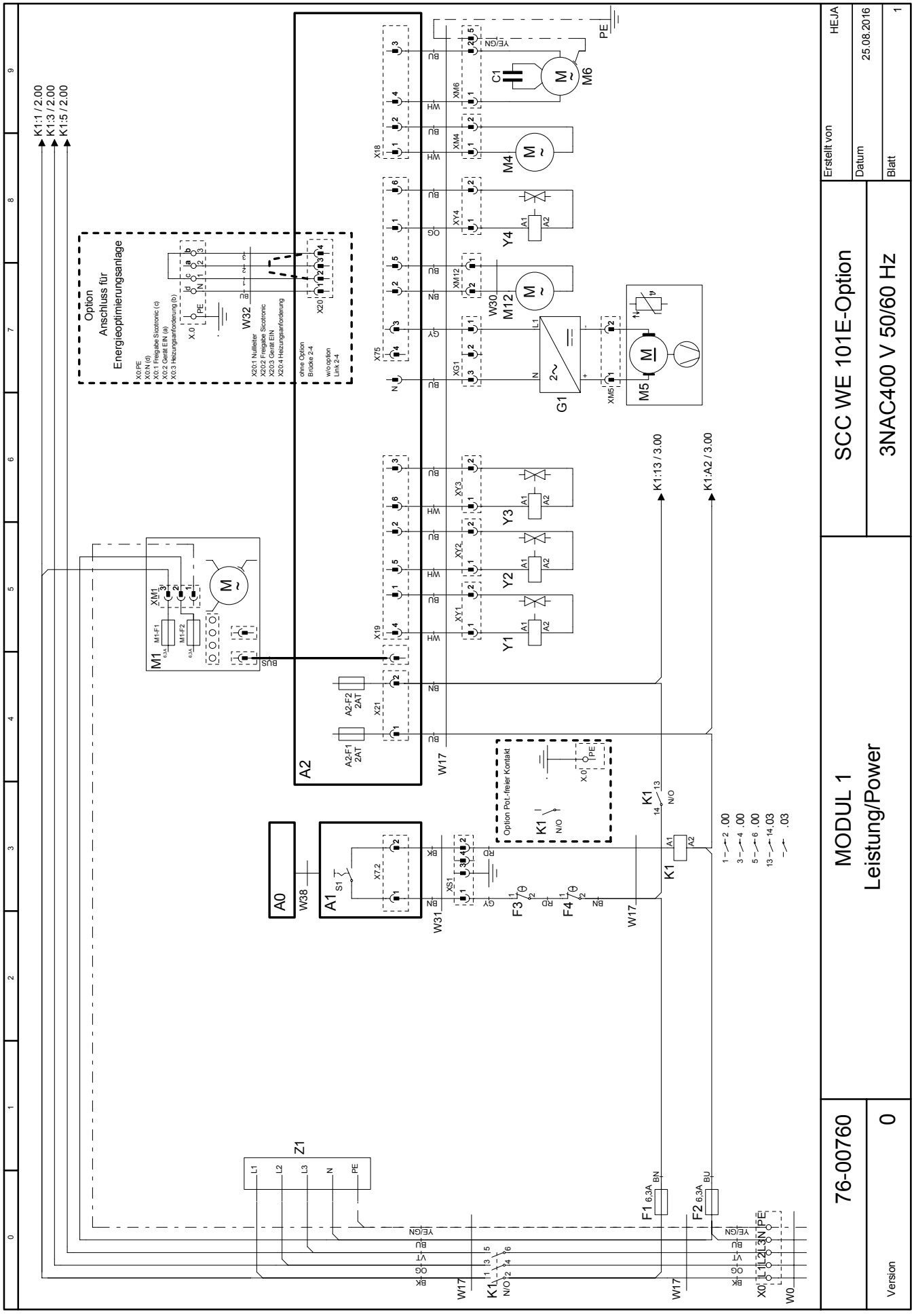
Explosion noises: Change gas valve and ignition electrode (art. nr. 74.01.039) plus L-isolator 74.00.913 (102/202) at the same time, not one after the other.

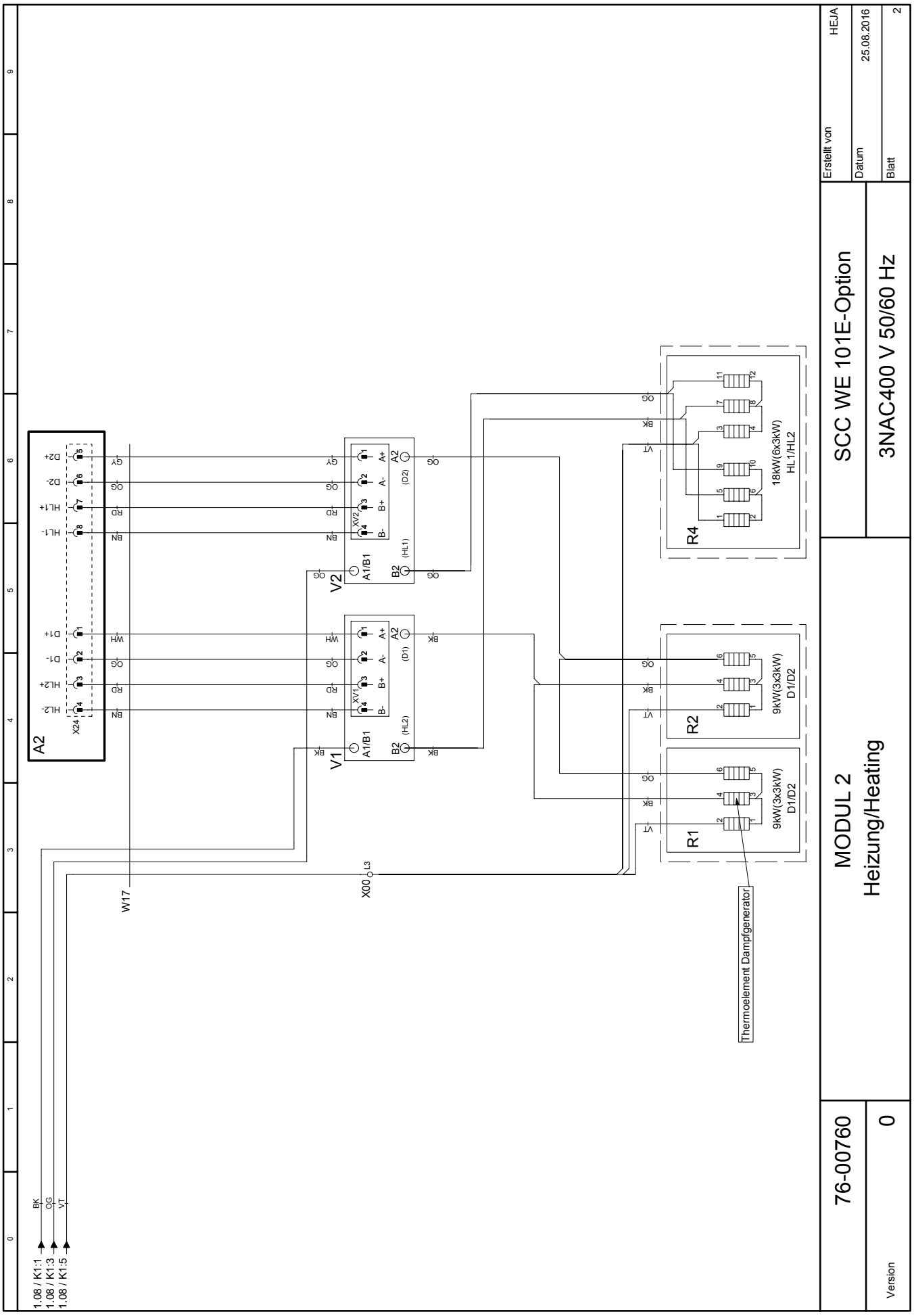
↓

62, 102, 201 or 202 Howling noise: Draft diverter with silencer can be used.
62: 70.00.768
102: 70.00.769
201: 70.00.770
202: 70.00.771

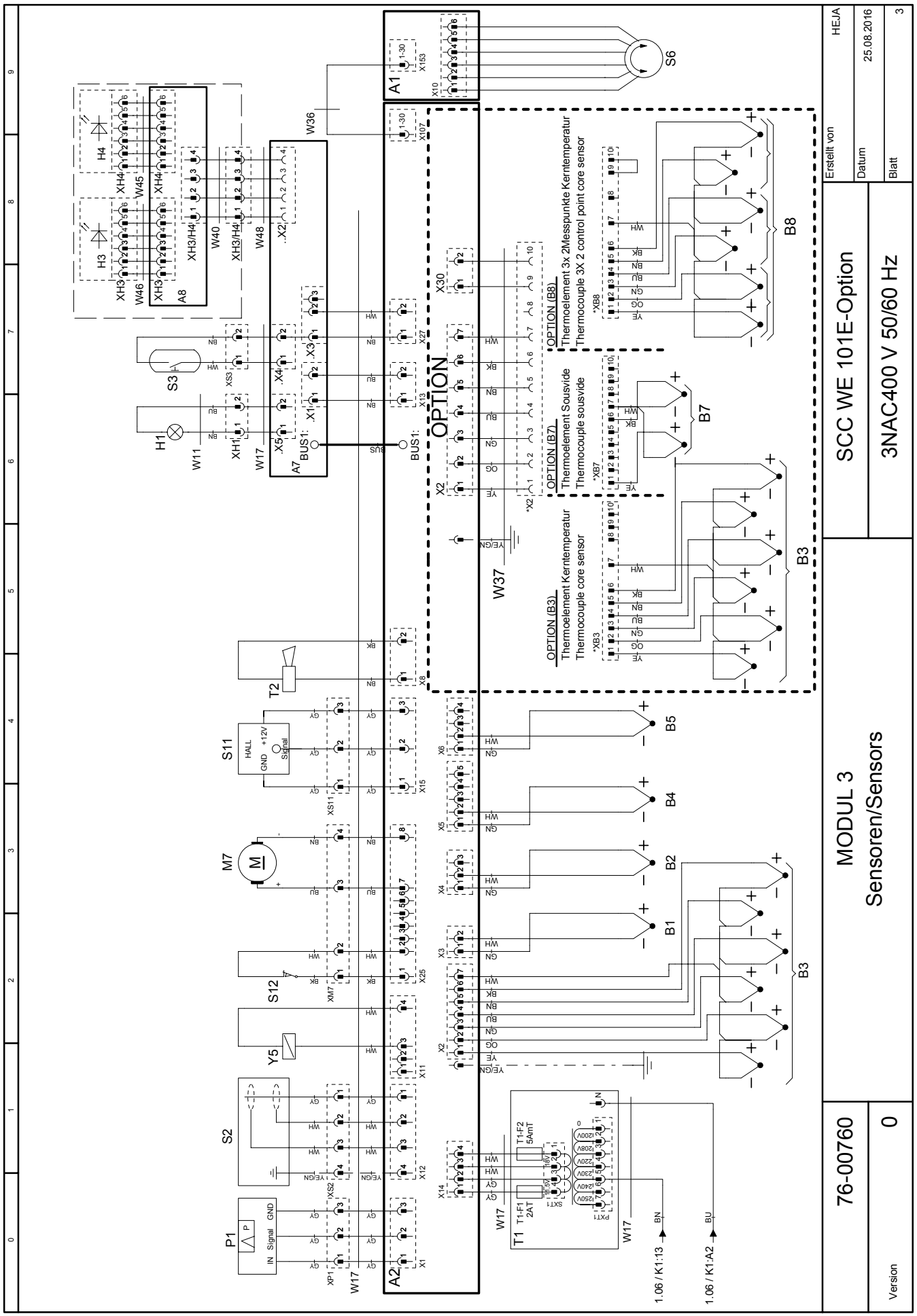
↓

Free space above the exhaust pipes of min 40cm (16")


K1:1 / 2.00
K1:3 / 2.00
K1:5 / 2.00
Option
Anschluss für
Energieoptimierungsanlage
X0:PE
X0:N (d)
X0:1 Freigabe Sicotronic (c)
X0:2 Gerät EIN (a)
X0:3 Heizungsanforderung (b)
X0:4 Heizungsanforderung
X20:1 Nullleiter
X20:2 Freigabe Sicotronic
X20:3 Gerät EIN
X20:4 Heizungsanforderung
ohne Option
Brücke 2-4
w/o option
Link 2-4
A2
A0
A1
M1
M4
M5
M6
M12
G1
Y1
Y2
Y3
Y4
Z1
K1
F1 6,3A
F2 6,3A
F3
F4
C1
Option Pot.-freier Kontakt
K1:13 / 3.00
K1:A2 / 3.00
PE
L1
L2
L3
N
BUS
W17
W31
W32
W38
W0
MODUL 1
Leistung/Power
SCC WE 101E-Option
3NAC400 V 50/60 Hz
76-00760
0
Version
Erstellt von
HEJA
Datum
25.08.2016
Blatt
1


SCC WE 101E-Option
3NAC400 V 50/60 Hz
MODUL 2
Heizung/Heating
76-00760
Version 0
Erstellt von HEJA
Datum 25.08.2016
Blatt 2
A2
V1
V2
R1
R2
R4
9kW(3x3kW) D1/D2
18kW(6x3kW) HL1/HL2
Thermoelement Dampfgenerator
W17
X00
1.08 / K1:1
1.08 / K1:3
1.08 / K1:5
BK
OG
VT

Circuit diagram 101 Sensor



Positionsliste
Bill of material

Name Name	Artikelnr. Item number	Artikelbezeichnung	Item description
-A0	42.00.112	TFT Touch	TFT Touch
-A1	42.00.081	Interface Platine	Interface PCB
-A2	42.00.261	CPU SCC WE	CPU SCC WE
-A2-F1/F2	3019.0120	Sicherung A2 - 2AT	Fuse A2 - 2AT
-A7	42.00.224	Netzteil Beleuchtung	Power supply lighting
-A8	42.00.193	Busknoten Tür	Network board door
-B1	40.04.096	Thermoelement Garraum	Thermocouple interior cabinet
-B2	54.01.148	Thermoelement Steuerventil	Thermocouple control valve
-B3	40.01.604	Thermoelement Kerntemperatur	Thermocouple core sensor
-B4	40.00.290	Thermoelement Feuchte	Thermocouple humidity
-B5	40.04.106	Thermoelement Dampfgenerator	Thermocouple steam generator
-F1/F2	4001.0224	Steuersicherung	Control fuse
-F3	40.01.329	Sicherheitstemperaturbegrenzer DG	Safety thermostat steam generator SG
-F4	40.01.482	Sicherheitstemperaturbegrenzer 360°C/680°F	Safety thermostat interior cabinet 360°C/680°F
-G1	40.03.257	Gleichrichter Kühllüfter	DC converter cooling fan
-H1	3024.0201	Garraumbeleuchtung	Interior cabinet light
-H3/H4	42.00.202	Türbeleuchtung LED-Platine	Door lighting LED board
-K1	40.03.696	Hauptschütz	Main contactor
-M1	40.03.378	Lüftermotor	Fan motor
-M12	56.00.451	Pumpe Pflegemittel	Care pump
-M4	44.00.207	SC-Pumpe	SC-pump
-M5	40.03.428	Kühllüfter	Cooling fan
-M6	56.00.153	CleanJet Pumpe SCC WE	CleanJet pump SCC WE
-M7	56.00.618	Kugelhahn Ablauf	Drain valve
-P1	3017.1011	Differenzdrucksensor	Differential pressure sensor
-R1	44.01.332	Dampfheizkörper	Heating element steam
-R2	44.01.337	Dampfheizkörper	Heating element steam
-R4	40.03.294	Heißluftheizkörper	Heating element hot air
-S1	TEXT	Ein/Aus Schalter	ON/OFF switch
-S11	50.01.640	CDS-Sensor	CDS-sensor
-S2	44.01.417	Niveauelektrode	Water level electrode

Änderungsdatum	**21.06.2016**	Name	**SCC WE 101E-Option**	Dokument-Nr.	**78-01497**
Erzeuger	**HEJA**	Spannung	**3NAC400 V 50/60 Hz**	Version	**0**

Positionsliste
Bill of material

Name **Name**	**Artikelnr.** **Item number**	**Artikelbezeichnung**	**Item description**
-S3	40.04.343	Türkontaktschalter	Door contact switch
-S6	40.00.404	Zentrales Einstellrad	Central dial
-T1	40.03.348	Steuertrafo	Control transformer
-T1-F1	3019.0120	Sicherung Steuertrafo T1 2AT	Fuse control transformer T1 2AT
-T1-F2	3019.0114	Sicherung Steuertrafo T1 5AmT	Fuse control transformer T1 5AmT
-T2	40.03.928	SCC WE: Lautsprecher / CMP: Alarmsummer	SCC WE: Speaker / CMP: Buzzer
-V1-V12	40.01.589	Leistungshalbleiter	Solid state relais
-W0	8801.0136	Anschlusskabel	Cable: power supply
-W11	40.04.362	Kabel: Garraumbeleuchtung	Cable: interior cabinet light
-W17	40.04.955	Kabel: Steuerstamm	Cable: control harness
-W30	40.02.965	Kabel: Adapterkabel Pumpe Pflegemittel 61-102	Cable: adapter care pump 61-102
-W31	40.03.467	Kabel: Ein/Aus Schalter	Cable: ON/OFF switch
-W36	40.03.516	Kabel: Interface Platine - CPU SCC WE	Cable: Interface PCB - CPU SCC WE
-W38	40.03.515	Kabel: Interface Platine-TFT Touch	Cable: Interface PCB-TFT Touch
-W40	40.05.301	Kabel: Türbeleuchtung	Cable: door lighting
-W45	40.05.300	Kabel: Option Türbeleuchtung griffseitig	Cable: Option door lighting handle sided
-W46	40.05.299	Kabel: Option Türbeleuchtung scharnierseitig	Cable: Option door lighting hinge sided
-W48	40.05.297	Kabel: Verbindung Platine A7-Tür	Cable: Connection board A7 to door
-Y1/Y3/Y4	50.01.050	Y1: Magnetventil Füllen / SCC WE Y3: Beschwadung / Y4: Pflegemittel	Y1: Solenoid valve filling / SCC WE Y3: moistening / Y4: care
-Y2	50.01.146	Magnetventil Steuerventil	Solenoid valve control valve
-Y5	22.00.725	Klimaventil	Clima valve
-Z1	40.02.424	Entstörfilter/Varistor	Electronic noise filter

Änderungsdatum	**21.06.2016**	Name	**SCC WE 101E-Option**	Dokument-Nr.	**78-01497**
Erzeuger	**HEJA**	Spannung	**3NAC400 V 50/60 Hz**	Version	**0**

Preventive maintenance (Check list)

Customer name:		Company:	
Street:		Town/Country:	
Telephone:		E-Mail:	
Serial number unit/UltraVent		Software version:	

Regular maintenance*	**Complaint? Yes:**	**No:**	**Comment, in case of a complaint:**
Maintenance preparation: - Service data and HACCP data copied to USB stick - Unit software is up-to-date - There are no service or gas errors in the service history - No grease / no dirt in the water drain			
Cabinet door maintenance: - Cabinet door, door glas and door settings are ok - Door gasket and gasket for mobile oven rack are without damage			
Interior cabinet check: - All parts of the interior cabinet are undamaged, correctly installed and working			
Water supply / drain maintenance: - Water distribution is leak tight, water entrance filter is clean and valves are working - Pumps and add-on pieces are working and leak tight - Every component of the control box is working and clean			
Steam generator maintenance: - Steam generator and every associated part is working - Steam pipe from SG to exhaust hose is functional and tight			
Electrical maintenance: - Electrical wiring faultless (clamps fixed and isolation faultless) - Steam heating and hot air heating are working - Maximum pcb temperature entered **to comment field**			
- Amp draw hot air (at 100%) in case of electrical units:			L1: A / L2: A / L3: A
- Amp draw steam (at 100%) in case of electrical units:			L1: A / L2: A / L3: A
Control panel maintenance: - Control panel is working and tight - All control elements are undamaged and working			
Exhaust hood / UltraVent maintenance: - Air filter installed and clean - UltraVent is working and filter clean (if UltraVent installed) - Distance between unit top edge and exhaust hood lower edge / ceiling entered **to comment field**			
Unit care instruction: - Instruction CleanJet / Care - Care and Cleaning of unit parts and unit components			
Instruction of company technicians: - Replacement of filter and door gasket - Descale of the moistening valve			

Only in case of gas units

Gas component maintenance: - Gas components / gas connections are working and tight - Flue gas analysis done and values in the permitted range - External exhaust hood checked			

*„Light“ User 1x per year / „Medium“ User 1-2x per year / „Intensive“ User 2-3x per year (for details see detail list)

Electrical security check

	Done:	Comment:
Electrical security checked (leakage current, isolation and grounding) according to local standards and laws		

Gas component maintenance*

	Values:			Documents:
Dynamic connection pressure at manual operation mode hot air (all units are in operation)	mbar (wc)			Training manual gas
CO_2 max steam - flame current - CO ppm	%	µA	ppm	
CO_2 min steam - flame current - CO ppm	%	µA	ppm	
CO_2 max HA top - flame current - CO ppm	%	µA	ppm	
CO_2 min HA top - flame current - CO ppm	%	µA	ppm	
CO_2 max HA bottom - flame current - CO ppm	%	µA	ppm	
CO_2 min HA bottom - flame current - CO ppm	%	µA	ppm	
Length CO^2 screw of the gas ventil - mm (inch)	Steam:	HA top:	HA bottom:	

*„Light“ User 1x per year / „Medium“ User 1-2x per year / „Intensive“ User 2-3x per year (for details see detail list)

Additional maintenance**

	Complaint? Yes:	No:	Comment, in case of a complaint:
Steam generator maintenance: - Steam generator dismounted and non-visible areas optically tested			
Water supply / drain maintenance: - Hand shower dismounted and checked for functioning and tightness			
Check of the installation: - Installation is in accordance with installation instructions - Connections are in accordance to local regulations			
If a water treatment is used, indicate the manufacturer and if applicable the measured values: Caution: The use of sodium ion exchangers is not recommended			

Only in case of gas units

Additional maintenance of gas units: - Burner dismounted and cleaned - Ignition electrode, dismounted, checked and cleaned			

** Additionally during regular maintenance every 10,000 hours of operation or after 3 years

Overview User classification (Light - Medium - Intensive)

Operating hours per day	Focus of use			
	Steaming & baking	Mixed use (Restaurant)	High temperatures > 220 °C (428 °F) or ILC usage	High temperatures and high-grease products
12 h - 24 h	Medium ☐	Medium ☐	Intensive ☐	Intensive ☐
4 h - 12 h	Light ☐	Medium ☐	Medium ☐	Intensive ☐
< 4 h	Light ☐	Light ☐	Medium ☐	Medium ☐

Recommendation: *„Light“ User 1x per year / „Medium“ User 1-2x per year / „Intensive“ User 2-3x per year

The activities associated with the customer's maintenance package were executed correctly and the corresponding fields of the overview list were filled out completely and correctly.

Date _____ Signature service partner _____ Signature customer _____

Preventive maintenance (Detailed list)

Maintenance preparation

	Documents:
Service data and HACCP data copied to USB stick	Training manual SCC-WE
Is the current software version available on unit, if not do an update	
Open diagnostics program, read out service history, test the affected components, if the tested components are fault-free or have been replaced due to an error, delete the fault entry	Training manual SCC-WE
Check water drain for grease / dirt, clean it if necessary	

Cabinet door maintenance

	Documents:
Door lock: no scratch noise, easy to move, in case of floor units check if door handle remains in locking position	MI 04-2014
Door catch correctly adjusted and without wear	TI 17-2013
Door mounting / screws tightened	
Mounting of inner glass pane is working, buffer existing	
Door gasket is without damage and steam and water tight	TI 18-2014
Door setting is correct and door contact switch is working (checking at hot air, steam and during cleaning mode)	TI 17-2013 / TI 19-2013
Door drip tray clean, tight at the connection point, liquid runs into the unit drip tray	
Door lighting is working	
Gasket for mobile oven rack (201-202) is without damage, pre heat flap is working, height adjustment mobile oven rack to unit is correct (see installation instructions)	MI 07-2015
Mobile oven rack rolls (201-202) are without wear and working, mobile oven racks for floor units are equipped with teflon plate or sleeve	MI 02-2008 / MI 08-2015

Interior cabinet check

	Documents:
Cabinet light functional, light glas and gasket without damage, reflector not blind (replace halogen lamp and lighting gasket every 1,500 hours)	MI 05-2015
Core probe isolation is available and working (heat up unit and observe temperature rise at the probe)	
Cabinet probe is working (heat up unit and observe temperature rise at the probe)	
Clima flap / valve is clean, tight and working	
Air baffle, fixing hooks and bolts are undamaged	
Racks are correctly hooked in, holding bolts ok, support rails undamaged	
Moistening valve is without scale, plastic pipe is installed	MI 09-2015
Drain sieve is mounted correctly, drain is clean	
No corrosion at the unit or the accessories	
Fan wheel fits firmly on the motor shaft, blades are undamaged	
Heating element is undamaged	
Motor is working, motor shaft gasket is tight (no dirt traces visible in the electrical cabinet and on the cabinet wall)	MI 11-2012 / MI 01-2015 MI 06-2015 / MI 05-2014 TI 19-2014

Water supply / drain maintenance

	Documents:
Water pressure is sufficient: min. 150 kPa (600 inch/wa), max. 600 kPa (2,400 inch/wa)	Installation manual
All water connections are tight, water entry sieve is clean	
Hand shower is working and tight, the automatic retraction function of the roll guide is working, connections are tight, dismount the roll guide every 3 years or every 10,000 operating hours and check for tightness	MI 06-2009
Control box is clean (dirt-free, lime-free), control valves are scale-free and working, control sensor is working	Training manual Basic
The drain valve opens and closes correctly, there are no deposits and it is tight, drain valve initialized (right / left run times)	Training manual SCC-WE
Pumps for cleanjet and care: All pumps and attachments are working and tight	Training manual SCC-WE

Steam generator maintenance

	Documents:
Steam generator is tight (check insulation for moisture), dismount steam generator every 3 years or every 10,000 hours and check also the non-visible areas	
SC-pump: Activate „rinse“, check operation and tightness of the connections	Training manual SCC-WE
Descale the steam generator if necessary	Training manual basic
If descaled, filling volume is re-determined?	
Level electrode is clean	
Steam hose SG / interior cabinet and exhaust hose are tight, non-porous and hose clamps are correctly fixed	TI 03-2016

Electrical maintenance

	Documents:
Cable isolation is undamaged	
All electrical connections are fixed	
All main contactor contacts are free	
Maximum temperature of pcb is tested: ▪ Checked at temperatures above 60 °C (140 °F), air filter tested for contamination ▪ Checked at temperatures above 80 °C (176 °F), air filter and cooling fan tested ▪ Amp draw steam (at 100%) in case of electrical units ▪ Amp draw hot air (at 100%) in case of electrical units	

Control panel maintenance

	Documents:
Closing mechanism works well, gasket is tight and in good condition	
Control panel foil is undamaged and does not detach itself. Touch screen works at all operating positions	
Locking plug of the control panel is available	
Central dial undamged, does not scratch the foil and push function of the dial is working	
Operating mode switch (CM): selection of functions ok, end stop available.	Training manual CMP
CM: Cabinet temperature setting is ok, end stop is available	Training manual CMP
CM: Time setting and core temperature setting switchover are available, values can be set, end stop is available	Training manual CMP
All indicators (display and or LED) are OK	
Optical inspection of the electrical components for moisture and dirt, if necessary search for reason	
Air filter is clean and cooling fan is working	Training manual SCC-WE

Exhaust hood / UltraVent maintenance

	Documents:
Exhaust hood or UltraVent is installed	
Hood and lightning are working	
Distance between unit top edge and exhaust hood lower edge / ceiling entered to check list	

Function test / instruction

	Documents:
All max. Values of the sensors are reseted	Training manual SCC_WE
Service phone number is entered	Training manual SCC_WE
Chef Line phone number is entered	Training manual SCC_WE

Unit care instruction

	Documents:
CleanJet/Care and cleaning levels	see p. 4
Care products and loading of them into the cabinet and the care drawer	see p. 4
Note that no accessories may be left in the unit during cleaning; explain the care of the accessories	see p. 4
Note that existing grease or sugar residues are removed with interim cleaning before running the unit with high temperatures	see p. 4
Cleaning of the inner glass panes and the door / unit tray	see p. 4
Cleaning of the unit outside	see p. 4
Door gasket care	see p. 4

Instruction of company technicians

	Documents:
Cleaning / replacement of the air filter	see p. 4
Replacement of the door gasket	see p. 4
Descale of the moistening valve	see p. 4
Note that nothing should be left on the device	see p. 4

Check of the installation**

	Documents:
Make sure that the unit is level, at 201/202 also check the mobile oven rack in the device for level	Installation manual
Minimum distance to the side and to the ceiling is in accordance to the installation manual	Installation manual
201-202 units: device is mounted to the floor	Installation manual
Movable units are secured against moving	Installation manual
Electric connection is in accordance to local regulations	Installation manual
Unit integrated in potential equalization	Installation manual
Unit drainage is equipped with a steam-temperature resistant tube	Installation manual
Gas connection is in accordance to local regulations	Installation manual
Exhaust routing is in accordance to local regulations	Installation manual
Water connection is in accordance to local regulations	Installation manual

If a water treatment is used, indicate the manufacturer and if applicable the measured values in the check list:
Caution: The use of sodium ion exchangers is not recommended

* * Additionally during regular maintenance every 10,000 hours of operation or after 3 years

Additional maintenance of gas units**

	Documents:
Remove burner, burner head is clean and undamaged?	TI12-2012 / TI 17-2014
Dismount the ignition electrode, check and clean it	TI14-2017 / Training manual gas
Gas blower works without deposits	
If necessary, replace the gas blower gaskets	

** Additionally during regular maintenance every 10,000 hours of operation or after 3 years

Care, inspection, maintenance and repair

In order to retain the high quality of the stainless steel, for hygienic reasons and to avoid interferences to operation, the unit must be cleaned daily or when prompted to clean. Follow the instructions in the "Efficient CareControl" section. Constant operation at high cooking chamber temperatures (≥ 260 °C / 500 °F), the use of high browning levels (browning 4/5) and preparation of food with high fat and gelatin content can subject the cooking chamber seal to faster wear. Cleaning the cooking chamber seal daily with a non-abrasive rinsing agent will prolong the service life.

Danger
If the unit is not cleaned or is not cleaned well enough, deposits of grease or food residues in the cooking chamber may catch fire, Risk of fire.
- If fat deposits and/or food waste in the cooking chamber ignite, shut down the unit immediately and keep the cooking chamber door closed to put out the fire! If further extinguishing is required, disconnect the unit from the mains and use a fire extinguisher (do not use water to extinguish a fat fire!).
- To avoid corrosion in the cooking chamber, your unit must be cleaned every day, even if it is only operated in “Moist Heat” (steaming) mode.
- Apply vegetable oil or grease to the inside of the cooking chamber at regular intervals (every 2 weeks or so) to prevent corrosion.
- Do not use a high pressure cleaner, steam cleaner or a direct water jet to clean the unit. Observe the protection class IPx5.
- Do not treat the unit with acids or expose to acid fumes – this will damage the passivated coating of the nickel-chromium steel and the units might discolour.
- To clean the exterior panelling, only use mild household cleaning agents such as washingup liquid on a damp soft cloth. Corrosive or irritating substances must not be used.
- Only use cleaning agents from the unit manufacturer. Cleaning agents from other manufacturers can damage the unit. Damage to a device that has been caused by using different cleaning and care products than those recommended by the manufacturer is not covered under warranty.
- Do not use scouring products or abrasive cleaning agents.

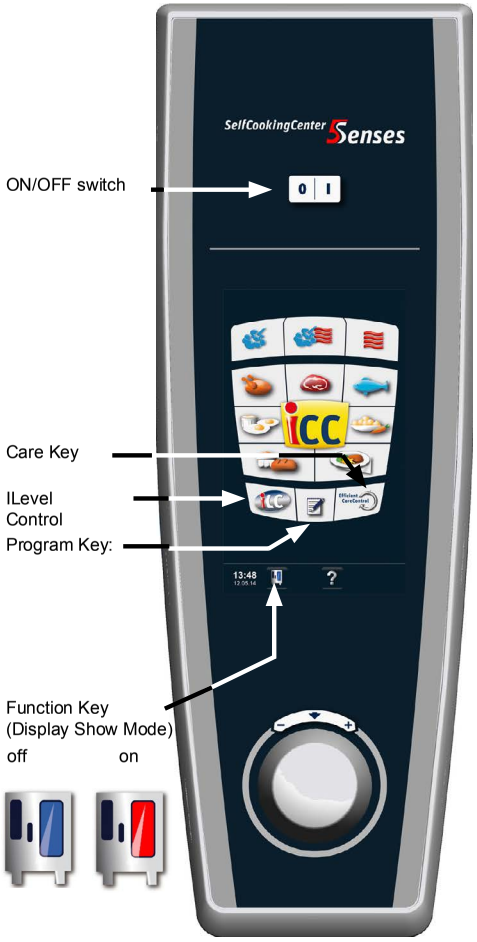
Warning
Inlet filter maintenance The device automatically detects if the air filter is dirty. You will receive a service message and prompt to clean or replace the air filter when it is dirty. The unit may only be operated without an air filter. When replacing the air filter, please take into account the following specifications:

Unit size 6 x 2/3 GN, 6 x 1/1 GN, 6 x 2/1 GN, 10 x 1/1 GN and 10 x 2/1 GN
Air filter article number 6 x 2/3 GN: 40.04.771
Air filter article number 6 x 1/1 GN, 6 x 2/1 GN, 10 x 1/1 GN, 10 x 2/1 GN: 40.03.461
This air filter may only be removed and cleaned by the user. When replacing the filter, make sure that the air filter carefully locks into the correct position. To replace the air filter, please follow the instructions in the "Domestic technology" section.

Unit size 20 x 1/1 GN and 20 x 2/1 GN
This air filter may only be replaced by an authorised service partner.

Caution: The unit is only guaranteed protection against sprayed water if the filter and cover are assembled correctly.

Service Reference SCC 5Senses



https://portal.rational-online.com

5Senses

Function Key

Favourites

Settings
Time, language, °C/°F,Acoustics, plate weight, etc.

Acoustics
Master volume, Keypead sound, etc.

System administration
USB Stick, IP Address, customer programs

MyEnergy
Half energy, cooking cabinet lighting, etc.

Expert settings
Start time preselec., recording mode, forced cleaning

MyDisplay- Password RAdmin

Service
Unit Data, Service package, Hotline numbers,
Self test, Calibration, Show Mode (press 10 sec),
Service level - Password **TECLEVEL**

Service level

Diagnostic	Real time data	All sensors and actuators are checked for their actual values.
	Running times	All times of actuators, cooking modes and switches are recorded.
Basic setting	Water General Settings Ultravent Self test Phones Gas system	All unit specific data according to unit size, energy and connections are set. In order to store any changes made the unit must be switched off and on again.
Function test		All components can be operated individually to test function and electrical connections. Flue Gas Analysis
Calibration		Start calibration

Change PCB:
- Isolate unit from power supply
- Remove SD card for usage in new PCB.
- Change PCB
- Insert SD card
- Connect white USB stick with latest software to USB interface
- Reconnect unit to power supply and swich unit on
- Software update to latest version
- SCC display is shown
- Remove USB stick
- Proof calibration data

87.01.275

42.00.128

Calibration / Self test

This basic information is evaluated during „selftest“ after installation or during manual calibration and stored on the PCB and SD Card.

Manual calibration has to be done when:
1 changing differential pressure sensor P1,
2 changing thermocouple B4,
3 removing of fan wheel / motor
4 changing PCB if no calibration data
5 Usage of a different standard rack, replacing the air baffle or divider plate of a floor model
6 Installation of a Ultravent or extraction hood on top of the unit, Installation as Combi Duo
7 Customer complaint for uneven cooking results

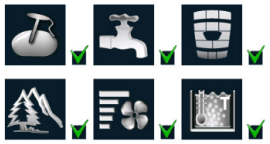
A Self test has to be done when:
1 new installation
2 change of location

Basic conditions:

Cabinet sensor	B1 < 40°C
Quench. sensor	B2 < 40°C
Humidity sensor	B4 < 40°C

Side panel closed; Unit must be clean, if possible dry, control panel closed.To achieve best calibration values insert a closed 20mm GN container with opening facing down onto the rail closest to the center of the fan wheel.

During Self Test all functions of the unit will be checked and the unit will establish its own specific data and the installation altitude.
If the individual functionsare completed successfully they will be marked with an √.



A flue gas analysis must be done after successfuly selftest on gas units!

Service	
10	SC-pump, level electrode, hose
11	Level electrode
12	CDS sensor
13	change water level electrode
14	Level electrode, conductivity water
16	Flash new software
17 !	Inform Rational, flash SD card or change
18	change SD card
19	change SD card
20-x	Thermocouple defective, x= sensor 1= cabinet B1 2= quenching B2 4= humidity B4 8= steam generator B5
23	SSR Steam short circuit
24	SSR Hot air short circuit
25	No water flow detected during CleanJet. Pump or circulation blocked by foreign particles, rack/trolley not in cabinet
26	Drain valve permanently closed; at Show Mode switch unit off - on
27	Drain valve doesn't close during initialisation, CleanJet without function
28	Thermocouple B5 above 180°C (356°F), discale steam generator
29	Change air filter, proof cooling fan / converter
30	humidity control failure,differential pressure sensor P1
31.X	Core probe B3
32.X	Ignition box: 0-top; 1-bottom; 2-both; see trainings manual up to V 03
33.X	open gas supply, ignition box: 0-top; 1-bottom; 2-both; see trainings manual up to V 03
34.X	BUS Signal error - 1: Motor top - 2: Motor bottom - 4: Ignition box top - 8: Ignition box bottom when installed as a gas unit B13 (with exhaust through chimney) check safety thermostat in draft diverter

Service	
35	Connect Ultravent
36	Differential pressure sensor P1 defective
37	Differential pressure sensor P1 not in expected range, check connection of hoses.
40	Care hose snapped off, Care pump defective
41	Solenoid valve Y3 defective or moistening valve blocked
42	Solenoid Y4 Care defective or hose to care container blocked or kinked
43	Y1, Y3 or Y4 do not close CDS sensor sends always pulses;
44	heating elements or SRR defective
55	no action if motor running
56	no action if motor running
60	Initialisation of ignition box incorrect Check gas settings
63	Start Selftest
110	SC pump defective or level electrode calcified
120	Y1 or level electrode defective

Blink code motor	Reason	Remedy
1x	Starting error	check if fan wheel is not blocked and can turn freely, change motor
2x, 4x, 7x, 10x	Motor defective	change motor
3x,	internal error	SCC_WE: flash software to 05.00.11.4 or higher, change motor
5x, 11x	Motor defective, temperature	change motor
6x,	voltage error	check voltage supply, change motor
8x	only with 3-phase motor	phase is missing
9x	communication error	check bus cable, apply contact grease (9003.0219) to bus cable plug

Calibration error

Calibration errors occur either during self test or manual calibration.
The error number relates to the calibration step where the error ocured.
CM_P: If an error occurs, „FAIL“ will be displayed. When pressing the core temperature key the related error number is shown.
Likely calibration errors are:

10 Unit too warm: B1, B2 or B4 above 40°C (104°F)
20 Differential pressure sensor defect
100 RPM recognition of the fan motor not working - change motor
200 Steam heating not working, (check voltage supply, SSR, Gas supply, X20), heating up needs too long time; (Install p-trap in drain and fill with water.

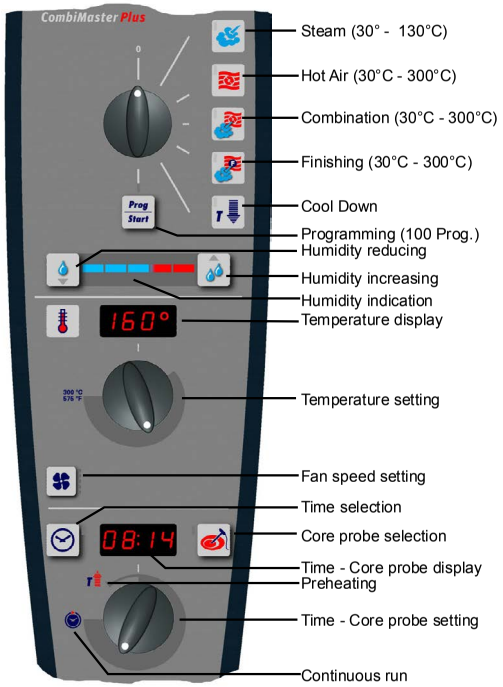
Gas error

Gas errors occur when ignition is not successfull or a different error is existing in the ignition box. These gas errors are generated by the ignition box and are only shown in service level or service download.
(Please refer to chapter gas)

The most common gas errors are:

19(HL), 29(D) Ignition electrode distance, burner blocked from inside (2004-2011)
22(HL), 32(D) Gas supply, Gas stop valve, Gas pressure, Gas valve

Service Reference CMP



Additional functions:

1. Select Prog / Start
2. Select additional program with temperature dial:

P In	upload program from stick
Pout	download program to stick
Hout	download HACCP to stick
Sout	download Service Data to stick
rtc	Setting of date and time (real time clock)
°C °F	set temperature from °C - °F
IP	set IP address
ESG	Empty steam generator
CALC	Descale steam generator
CLES	Cleaning program (light pollution)
CLE	Cleaning program (increased pollution)

Prog / Start 3. Start selected Programm by pressing button

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Calibration / Self test

This basic information is evaluated during „selftest“ after installation or during manual calibration and stored on the PCB.

Manual calibration has to be done when:

1 changing differential pressure sensor P1,
2 changing thermocouple B4,
3 removing of fan wheel / motor
4 Usage of a different standard rack, replacing the air baffle or divider plate of a floor model
5 Installation of a Ultravent or extraction hood on top of the unit, Installation as Combi Duo
6 Customer complaint for uneven cooking results

A Self test has to be done when:

1 new installation
2 change of location
3 changing PCB

Basic conditions:

Cabinet sensor	B1 < 40°C
Quench. sensor	B2 < 40°C
Humidity sensor	B4 < 40°C

Side panel must be fitted; Unit must be clean, if possible dry, control panel closed.

To achieve best calibration values insert a closed 20mm GN container with opening facing down onto the rail closest to the center of the fan wheel.

Start calibration: On operator PCB set DIP switch 2 to „ON“ position and select CALI .

Start self test: On operator PCB set DIP switch 1 to „ON“ position- select SE with time dial, activate with , select SE20 with time dial, during pressing change from 0 to 1 with time dial, activate with and switch unit off and on.
During Self Test all functions of the unit will be checked and the unit will establish its own specific data and the installation altitude.

A **flue gas analysis** must be done after successfuly selftest on gas units!

Error code		
Timer display	Cabinet display	Description / Remedy
OPEn	H2o	Open water tap
PoL	CHnG	Phase / Neutral (only gas units)
rES		Flame detection after ignition faulty
FILt	CHnG	Temperature at PCB to high. Change air filter
CALI	UUEt	Unit had done a selftest without water; Now water is detected and a full selftest must be done.
CHnG	bAtt	Low battery; change soon, Type CR 2032
E 2		Energy optimizing system; 230V input missing; If sticker over PCB relais is reading 42.00.090 the plug with wire link 40.04.180 must be installed on terminal X20

E 10		M4 SC pump
E 16		Flash new software without EEPROM
E 17		Switch unit off and on. Apply EEPROM repair
E 18		EEPROM defective
E 19		EEPROM not inserted
E 20	1,2,4,8	Thermocouple defective, 1= cabinet B1; 2= quenching B2; 4= humidity B4; 8= steam generator B5
E 23		SSR Steam short circuit
E 24		SSR hot air short circuit
E 28	1,2	1: temp. B5 below -5°C (23°F); 2: temp. B5 above 150°C (302°F) steam heating switched off, error message is sur-pressed for 30 sec.
E 29		PCB temperature to high. Change air filter.
E 30		Emergency humidity control active for longer than 15min
E 31		Core probe defective
E 32	0,1,2	Ignition error; Ignition box defective; 0 = top; 1 = bottom; 2 = both
E 33	0,1,2	Flame signal not recognized; Ignition box defective: 0 = top; 1 = bottom; 2 = both
E 34	1,2,4,8	BUS Signal error - 1: Motor top - 2: Motor bottom - 4: Ignition box top - 8: Ignition box bottom when installed as a gas unit B13 (with exhaust through chim-ney) check safety thermostat in draft diverter
E 35		Bus connection UltraVent not recognised, Bus connec-tion defective or UV not connected to mains supply.
E 36		Differential pressure sensor defective (P1)
E 37		Differential pressure sensor signal out of range (P1)
E 38		Mode switch defective
E 39		Temperature potentiometer defective
E 40		Timer / core probe potentiometer defective
E 50		real time clock CPU (rtc) not initialised
E 51		change battery, Type CR 2032
E 55		no action if motor running
E 56		no action if motor running
E 60		Initialisation of ignition box incorrect. Check gas settings
E 70		change PCB

Activation Service Level (diagnostic, basic settings, running times)

Switch unit ON,
On operator PCB set DIP switch 1 to „ON“ position

Activation function test, calibration

Switch unit ON,
On operator PCB set DIP switch 2 to „ON“ position

Diagnostic		
dP 1	Software Version	actual Software Version:
dP 2	B1 thermocouple cabinet	actual value
dP 3	B2 thermocouple quenching	actual value
dP 4	B3 thermocouple core probe	actual value
dP 5	B4 thermocouple humidity	actual value
dP 6	B5 thermocouple steam generator	actual value
dP 7	PCB temperature	actual value
dP 8	S2 level electrode	S2: 0 - 1
dP 9	S3 door contact	S3: 1 - 0
dP 10	Steam heating 0 = off; 50; 100	Act. Temp. B5
dP 11	Hot air heating 0 = off; 50; 100	Act. Temp. B1
dP 12	rpm fan motor table unit / floor unit top	Set rpm
dP 13	rpm fan motor floor unit bottom	Set rpm
dP 14	Voltage signal P1	Offset
dP 15	humidity in % clima valve	actual value
dP 16	calibration value fan speed 1	Possible display: T dry, N wet, C Combi T11 = dry (T) top motor (1) direction 1 T12 = dry, (T) top motor (1) direction 2 N21 = wet, (N) bottom motor (2) direction 1 C22 = combi, (C) bottom motor (2) direction 2 Time display: Shown figures x 1000
dP 17	calibration value fan speed 2	
dP 18	calibration value fan speed 3	
dP 19	calibration value fan speed 4	
dP20	SC Automatic	Steam SSR time since last SC automatic in min.
dP21	Unit size / energy	61 - 202 E/G
dP22	flame current steam	[µA]
dP23	flame current hot air table unit / floor unit top	[µA]
dP24	flame current hot air floor unit bottom	[µA]
dP25	Installation height (boiling point)	n ts [m]
dP26	Installation height (P1 cold)	n dd [m]
dP27	Installation height (factory)	dLL [m]

SE - Basic settings	
SE 1	Steam heating time since last SC-Automatic
SE 2	Preset Steam heating time until SC-Automatic (default 60min)
SE 3	Flushing time SC-Automatic (default 45 seconds)
SE 4	Operation SC pump (oFF - continuous or on - pulsing)
SE 5	Show mode (on - oFF)
SE 6	Setting of quenching temperature hot air
SE 7	Setting of quenching temperature wet modes (Steam, Combi, Finishing)
SE 8	Setting new gas type (G20, G25, G30, G31, 13A)
SE 9	Presetting of CO2 screw in mm on gas valve after gas type modification / changing gas valve
SE 10	Adjusting speed of blower motor steam MIN
SE 11	Adjusting speed of blower motor steam START
SE 12	Adjusting speed of blower motor steam MAX
SE 13	Adjusting speed of blower motor hot air top MIN
SE 14	Adjusting speed of blower motor hot air top START
SE 15	Adjusting speed of blower motor hot air top MAX
SE 16	Adjusting speed of blower motor hot air bottom MIN
SE 17	Adjusting speed of blower motor hot air bottom START
SE 18	Adjusting speed of blower motor hot air bottom MAX
SE 19	Deactivation of Ultravent; calibration needed; NOTE: Gas units: A flue gas analysis must be done after deactivation
SE20	Start Self test

Software Update:

- Switch unit off
- connect white USB stick with latest software to USB interface
- Switch unit on
- In the upper display must be the higher SW version
- The Prog/Start key is blinking. Pressing the Prog/Start key will start the software update; wait until key is blinking again
- Switch unit off
- Remove USB stick

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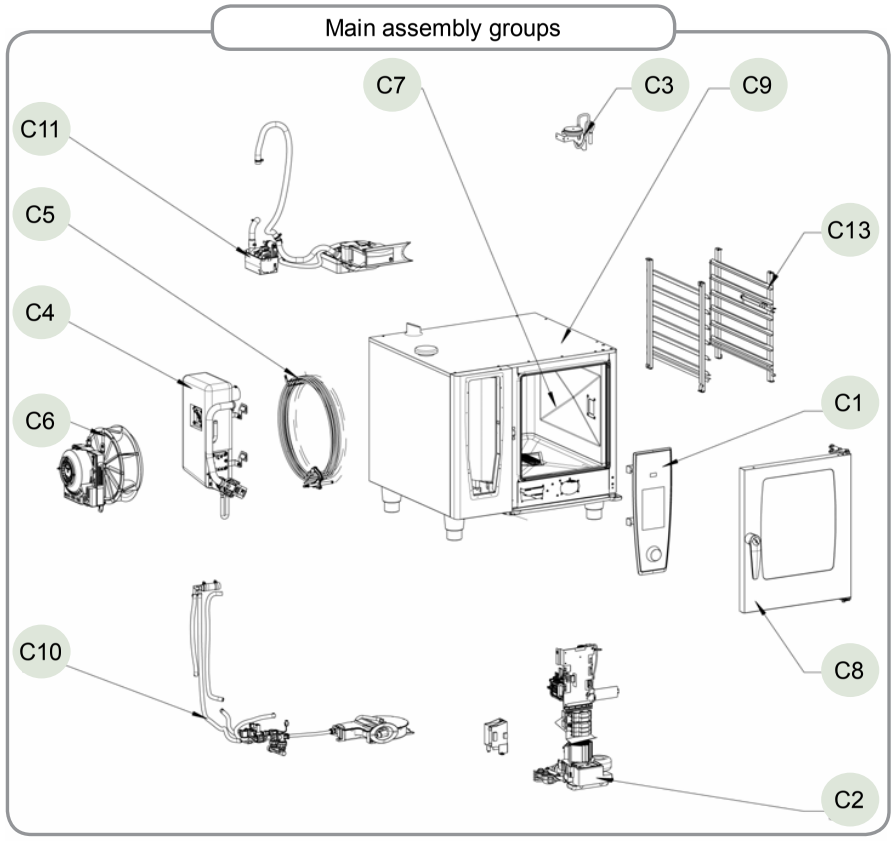
Note: In function test components are NOT protected against overload!

Function test		Cabinet display	Time display
F 1	Steam 50%, Electric unit	actual temp.B5 steam generator	0 - 50
F 2	Steam 100%, Electric unit	actual temp.B5 steam generator	0 - 100
F 3	Hot air 50%, Electric unit	actual temp.B1 cabinet	0 - 50
F 4	Hot air 100%, Electric unit	actual temp.B1 cabinet	0 - 100
F 5	Steam Gas unit	actual temp.B5 B5 steam generator	0 = off 100 = on
F 6	Hot air Gas unit table / floor top	actual temp.B1 cabinet	0 = off 100 = on
F 7	Hot air Gas floor unit bottom	actual temp.B1 cabinet	0 = off 100 = on
F 8r	Motor top MAX rpm Table and floor models	Set rpm	Act. rpm
F 8L	Motor top MAX rpm Table and floor models	Set rpm	Act. rpm
F 9r	Motor top MIN rpm Table and floor models	Set rpm	Act. rpm
F 9L	Motor top MIN rpm Table and floor models	Set rpm	Act. rpm
F 10r	Motor bottom MAX rpm floor models only	Set rpm	Act. rpm
F 10L	Motor bottom MAX rpm floor models only	Set rpm	Act. rpm
F 11r	Motor bottom MIN rpm floor models only	Set rpm	Act. rpm
F 11L	Motor bottom MIN rpm floor models only	Set rpm	Act. rpm
F 12	Solenoid valve quenching	actual temp. B2 quenching	Y2 1 / 0
F 13	Solenoid valve filling	Level electrode S2 1 / 0	Y1 1 / 0
F 14	SC Pump	Level electrode S2 1 / 0	M4 1 / 0
F 15	Buzzer		1 / 0
F 16	All Displays / LED		
F 17	Relays Ultravent / extraction hood		0 / 2
F 18	Y5 Clima valve		1/0
F 19	Gas blower Steam MIN rpm	actual rpm	Set CO_2
F 20	Gas blower Steam Start rpm	actual rpm	
F 21	Gas blower Steam MAX rpm	actual rpm	Set CO_2
F 22	Gas blower HA top MIN rpm table units / floor units top	actual rpm	Set CO_2
F 23	Gas blower HA top Start rpm table units / floor units top	actual rpm	
F 24	Gas blower HA top MAX rpm table units / floor units top	actual rpm	Set CO_2
F 25	Gas blower Hot air bottom MIN rpm floor units bottom	actual rpm	Set CO_2
F 26	Gas blower Hot air bottom Start rpm floor units bottom	actual rpm	
F 27	Gas blower Hot air bottom MAX rpm floor units bottom	actual rpm	Set CO_2

Error code overview for usage in ServiceCall



A **Error Description Customer:**

Control panel / cabinet light defective	A1	☐
Low water	A2	☐
CleanJet Abort / insufficient cleaning	A3	☐
Insufficient cooking result	A4	☐
Unit leaking	A5	☐
Gas reset / gas supply interrupted	A6	☐
Noise (banging/missing acoustic signal)	A7	☐
Corrosion	A8	☐
Unit without function	A9	☐
Unit shows service message	A10	☐

B **Error Description RSP:**

No error found	B0	☐
Control panel / cabinet light defective	B1	☐
Low water	B2	☐
CleanJet Abort / insufficient cleaning	B3	☐
Insufficient cooking result	B4	☐
Unit leaking	B5	☐
Gas reset / gas supply interrupted	B6	☐
Noise (banging/missing acoustic signal)	B7	☐
Corrosion	B8	☐
Unit without function	B9	☐
Unit shows service message	B10	☐

Restored electrical contact	E1	Cleaned	E4
Restarted unit?	E2	Fixed mechanically	E5
Sealed	E3	Adjusted	E6

Activities with no use of materials:

C	Main assembly groups	D	Sub-assemblies	E	Possible activities:					
				E1	E2	E3	E4	E5	E6
C1	Control panel	D1	Electrical component	☐	☐				
		D2	Mechanical parts			☐			
C2	Electrical installation	D3	Power group incl. cooling	☐			☐	☐	
		D4	Power supply	☐				☐	
		D5	Control pcb	☐				☐	
		D6	Signaling device: acoustic, visual	☐			☐	☐	
		D7	Safety devices	☐				☐	
C3	ClimaPlus	D8	Humidity valve	☐			☐	☐	
		D9	Pressure measuring device	☐			☐	☐	
C4	Steam generator	D10	Emptying Steam Genearator	☐		☐	☐		
		D11	Sealing Steam Generator			☐	☐		
		D12	Water Level detection			☐	☐		
		D13	Descaling Steam Generator			☐	☐		
C5	Hot air heating	D14				☐			
C6	Motor and fan wheel	D15		☐		☐		☐	
C7	Interior cabinet	D16	Lighting	☐		☐			
		D17	Door gasket			☐	☐		
		D18	Interior cabinet				☐		
C8	Door	D19	Door mounting bottom						☐
		D20	Door mounting top						☐
		D21	Door lock						☐
		D22	Door contact switch						☐
C9	Exterior cabinet	D23				☐		☐	
C10	Water	D24	Freshwater Distribution	☐		☐	☐		
		D25	Moistening			☐	☐		
		D26	Control drain box			☐	☐		
		D27	Hand shower roll guide			☐	☐		
		D28	Filling Steam Generator			☐			
C11	CleanJet ® + Care	D29	Care function control	☐		☐	☐		
		D30	Cleaning function control	☐		☐	☐		
C12	Gas parts	D31	Blower for burner		☐	☐	☐		☐
		D32	Burner / Ignition electrode			☐	☐		☐
		D33	Gas hoses			☐		☐	
		D34	Gas valve	☐		☐			☐
		D35	Ignition box	☐					
		D36	Air supply				☐	☐	
C13	Standard accessories	D37	Hinging Rack				☐		☐
		D38	Mobile oven rack				☐	☐	☐

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F **Activities with use of materials** (Error codes when replacing the service part)**:**

Logic function group	Example service parts	Error	Code
Heatings	Heating assembly steam, Heating assembly hot air, Heating assembly VarioSmoker	Leaking	F2
		Corrosion	F3
		Connection defective / charred	F4
		Short circuit / Ground fault	F5
		Interruption	F7
Electronics	Control pcb SCC , Control pcb *TFT*, Relay-I/O pcb, Control pcb CMP, SD-memory card, EEPROM	Damaged (Mechanically)	F1
		Short circuit / Ground fault	F5
		Damaged by humidity / water	F6
		Update not possible	F15
		not starting	F19
		Display setting not correct	F21
Other electronic devices	on-off switch, Contactor, Safety temperature limiter, Solid state relais, Fuse	Damaged (Mechanically)	F1
		Connection defective / charred	F4
		Short circuit / Ground fault	F5
		Damaged by humidity / water	F6
		Interruption	F7
		Noises / humming	F8
Cable, plugs, connections	Cable MMI, Cable Harness	Damaged (Mechanically)	F1
		Corrosion	F3
		Connection defective / charred	F4
		Short circuit / Ground fault	F5
		Damaged by humidity / water	F6
		Interruption	F7
Pumps and motors	SC pump, Pump f. cleaning, Ball valve drain, Fan motor, Cooling fan	Damaged (Mechanically)	F1
		Leaking	F2
		Corrosion	F3
		Connection defective / charred	F4
		Short circuit / Ground fault	F5
		Damaged by humidity / water	F6
		Interruption	F7
		Noises / humming	F8
		Power insufficient	F23
Door	Door, Door lock, Door catch, Inner door glas	Damaged (Mechanically)	F1
Wheels	Wheels, custers	Damaged (Mechanically)	F1
		Corrosion	F3
Valves	Solenoid valve	Leaking	F2
Probes and sensors	Thermocouple, Core sensor, Pressure sensor, Filling level electrode	Damaged (Mechanically)	F1
		Connection defective / charred	F4
		Interruption	F7
		Damaged by heat	F10
Panels	Exterior cabinet, Front panel etc.	Damaged (Mechanically)	F1
		Corrosion	F3
Welded parts	Heat exchanger, Fan wheel	Damaged (Mechanically)	F1
		Leaking	F2
		Corrosion	F3
		Broken weld	F9
		warped	F20
Gas burning system	Burner, Blower for burner, Gas valve, Ignition electrode, ignition box	Leaking	F2
		Damaged by humidity / water	F6
		Noises / humming	F8
		Adjustment not possible	F12
		Soiled / dirty	F13
		No ignition / Reset	F22
Hoses, Gaskets, Hand shower roll guide + Hand shower	Bushing drip collector, Silicon hose, hand shower roll guide, hand shower, Hose clamp, Moistening	Damaged (Mechanically)	F1
		Leaking	F2
		Connection defective / charred	F4
Overlay Service	Overlay	Damaged (Mechanically)	F1
		peels off	F18
Plastic parts Service	Cover for pump	Damaged (Mechanically)	F1
		Damaged by heat	F10
Accessories	UltraVent® exhaust hood, Grid, Tray, Roasting and grilling tray, Mobile oven racks, VarioSmoker, Support table	Broken weld	F9
		Coating peels off	F14
		Sharp edges	F16
Chemicals	Cleaning / Rinsing Liquid, Cleaning / Rinsing Tab , Starterkits	Damaged (Mechanically)	F1
		Leaking	F2
		Cleaning result insufficient	F11
		Broken	F17

Follow Up Action:

Type of Follow Up Action	Description / Example
Calibration	Manual calibration of unit (e.g. after changing fan motor)
Cleaning process	Running CleanJet® process (e.g. checking components)
Instruction	Instruction of customer (e.g. user error)
Re- Installation	Servicing of enclosed / blocked off units
Electrical safety test	After repair of electrical components
Flue gas analysis	After repair of gas components
Software update	When updating the software

Example:

Problem:
Customer reports door leakage. RSP confirms the leakage, finds root cause (bad door setting top),and does the repair by correcting the door setting. In addition he changes the worn door catch.

This results in below error code.

Fault description customer:	Fault description RSP:	Main assembly group:	Sub-assembly:	Activity:
A5 Unit leaking	**B5 Unit leaking**	**C8 Door**	**D20 Door mounting top**	**E6 Adjusted**

Service part:

Art. Nr.	Description:	Error code:
24.00.142	**Door catch**	**F1 Damaged (Mechanically)**

Follow Up Action: **Cleaning process**

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