COMBI OVENS

TCM Series

GAS & ELECTRIC

MANUFACTURERS INSTRUCTIONS

Part D: Maintenance manual

- WARRANTY -

To ensure the guarantee on this equipment, you should comply with the MANUFACTURER'S INSTRUCTIONS in this manual.
However if you cannot undertake the required maintenance operations, our installation and service network is available to provide you with a personalized contract.

- WARNING -

- The product delivered to you complies with current standards. If any modifications are made the manufacturer cannot accept any responsibility whatsoever. The manufacturer cannot be held responsible in the event of an incorrect use of the appliance.
- Keep your documents.
- Translation of the original manual

3V-490058EM / F49547 *Ed: 01/2024*

“FastPAD”
GAS & ELECTRIC

1. ELECTRICAL DIAGRAMS

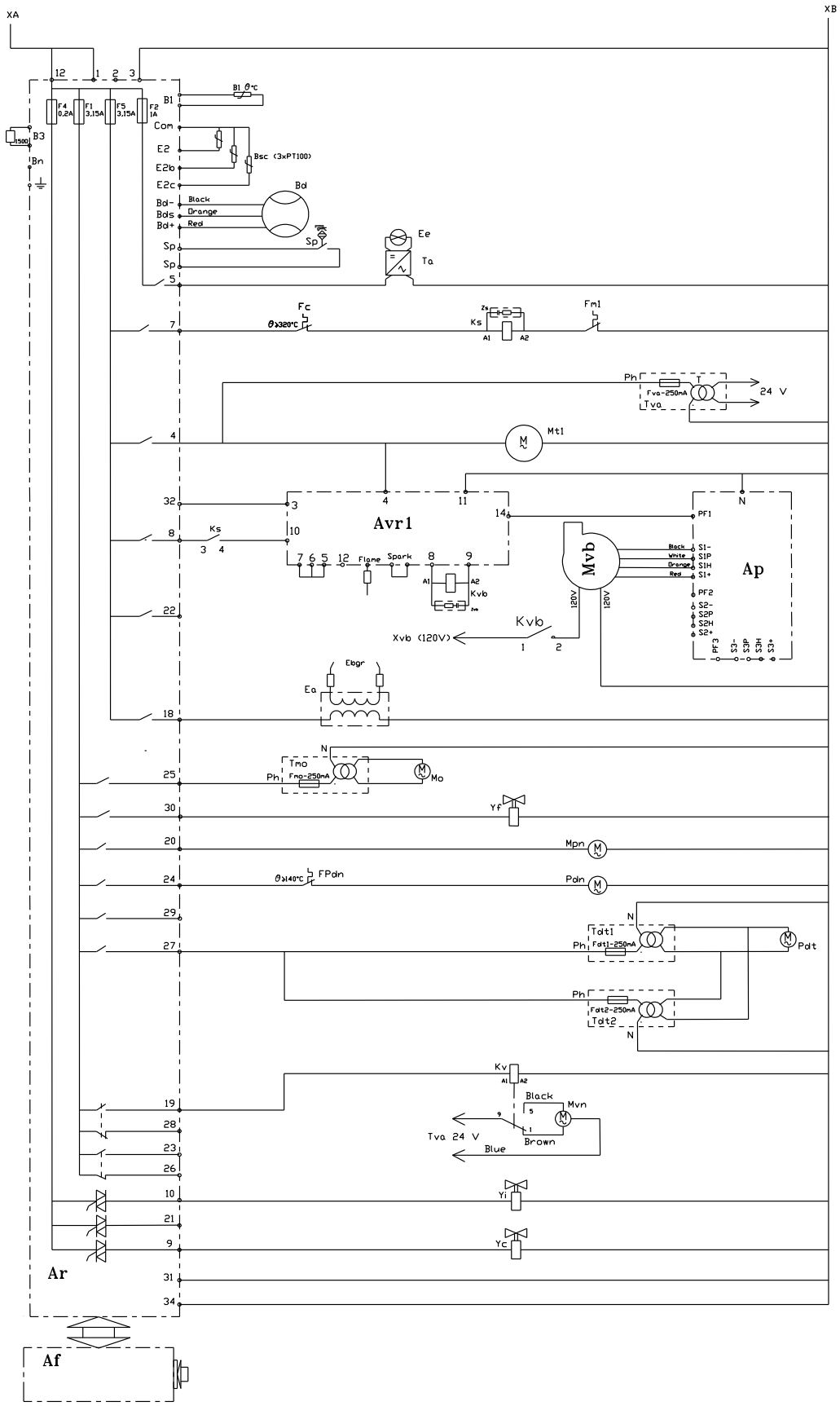
1.1 GAS OVENS

LISTS OF ELECTRICAL PARTS

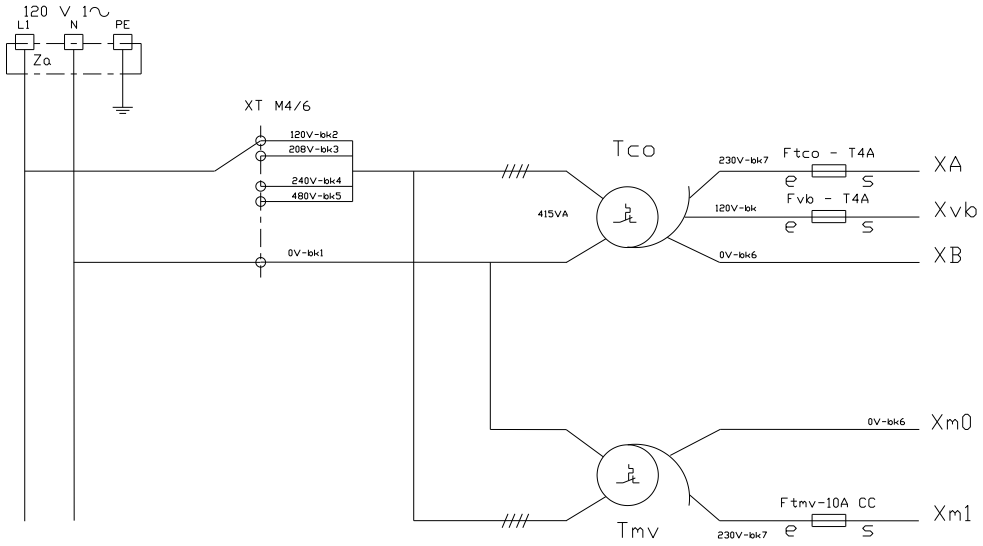
REF.	DESIGNATION	CHARACTERISTICS	QUANTITY	CODE
Af	FastPAD 2 screen card		1	309 634
Ar	FastPAD 2 maxi power assembly		1	309 665
-	Coder		1	309 644
B1	Cavity probe PT 100		1	301 485
Bd	Flow meter		1	314 404
Bsc	Core probe	Delicate product 2.5 ∅ x 100mm	1	301 476
	Core probe	Rotisserie 4.5 ∅ x 100mm	1	301 474
	Core probe terminal strip		1	401 477
	Silicone cover		1	366 554
Ea	Gas ignition		1	408 402
Ebgr	Electrode	Curved (ignition)	1	408 400
		Straight (ignition/ionisation)		408 401
Ee	LED band		1	309 638
F1 – F5	Fuse 3.15 Amps		1	309 407
F2	Fuse 1 Amp		1	300 789
F3	Fuse 10 Amps		1	300 788
F4	Ultra fast 0.2 Amp fuse		1	300 787
Fc	320° reset thermostat		1	301 066
FPdn	+140°C thermostat	Cleaning product pump	1	-
Ftco	4 Amp time delay fuse	Control	1	300 801
Fvb	4 Amp time delay fuse	Control	1	300 801
Ftmv	10 Amp fuse ATDR10	Fan motor	1	300 793
Ks	Safety contactor	Gas ovens (all models)	1	300 697
Kvb	Burner contacter	Gas ovens (all models)	1	300 697
Kv	Wastewater drainage relay valve		1	300 282
Mpn	Cleaning pump		1	314 396
	Cleaning pump condenser		1	304 311
Mo	Motorised vent valve motor		1	305 110
Mt1	Technical cooling fan		1	304 297
Mvn	Drain valve		1	314 395
Pdn	Dosing pump	Cleaning product	1	314 379
Pdt	Dosing pump	Descaling product	1	304 312
Sp	Reed switch bulb (Flexible blade switch)	Door closing safety system	1	300 676
Ta	Supply interrupter	Lighting	1	308 350
Tco	415VA Auto transformer	Control	1	308 499
Tmo	Motorised damper transformer		1	308 492
Tdt1 – Tdt2	Descaler pump transformer		2	308 492
Tva	Drainage valve transformer		1	308 492
Xa + Za	Supply terminals and interference suppressor		1	309 608
Yc	Condenser solenoid valve		1	314 397
Yf - Yi	2 ways 2 x 10 L/min solenoid valve		1	314 398
Zs	Anti-parasitic filter for contacter		1	300 769

REF.	DESIGNATION	7 GN1/1	10 GN1/1	10 GN2/1	CODE
Ap	Burner control card	1	1	1	309 704
Avr1	Flame control card	1	1	1	310 356
Cm	Condenser 20 µF	-	-	1	304 310
	Condenser 12.5 µF	1	1	-	304 296
Fm1	Fan motor sensor	1	1	1	-
M1	Ventilation motor	1	1	-	304 295
		-	-	1	304 308
Mv1 - Mvb	Centrifugal fan 120V	1	1	1	304 313
Tmv	Fan motor transformer	1	1	-	308 499
		-	-	1	408 403

WIRING DIAGRAM



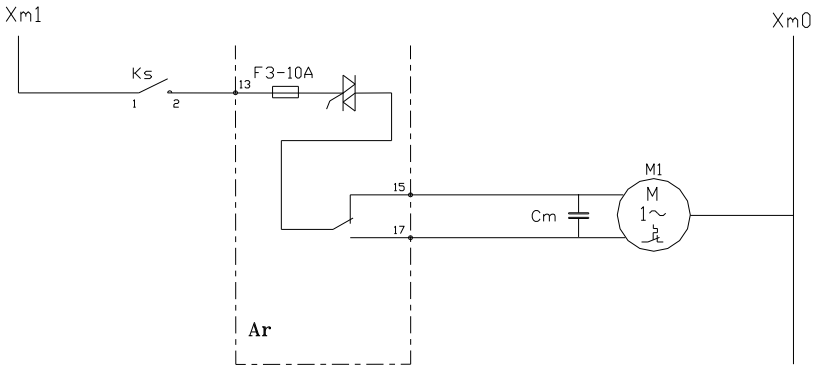
POWER DIAGRAM



Control autotransformer

Cavity fan motor autotransformer

CAVITY VENTILATION DIAGRAM



Safety contactor

Cavity ventilation motor

VULCAN
A division of ITW Food Equipment Group LLC
P.O. Box 696
Louisville, KY 40201

1.2 ELECTRIC OVENS

LISTS OF ELECTRICAL PARTS

Designation of common parts

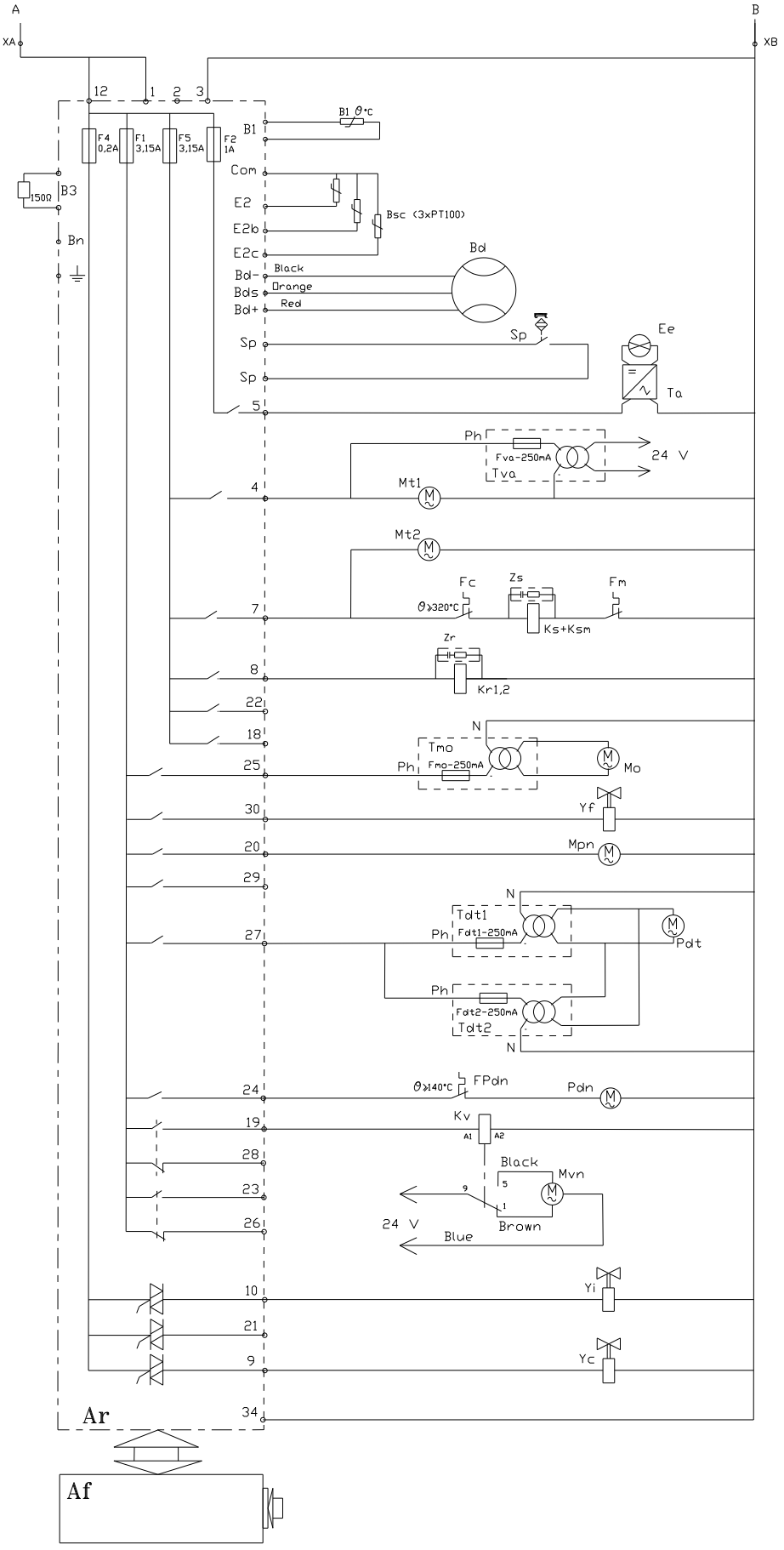
REF.	DESIGNATION	CHARACTERISTICS	QUANTITY	CODE
Af	FastPAD 2 screen card		1	309 634
Ar	FastPAD 2 maxi power assembly		1	309 665
-	Coder		1	309 644
B1	Cavity probe PT 100		1	301 485
Bd	Flow meter		1	314 404
Bsc	Core probe	Delicate product 2.5 ∅ x 100mm	1	301 476
	Core probe	Rotisserie 4.5 ∅ x 100mm	1	301 474
	Core probe terminal strip		1	401 477
	Capot silicone		1	366 554
Ee	LED strip		1	309 638
F1 – F5	Fuse 3.15 Amps		1	309 407
F2	1 Amp time delay fuse		1	300 789
F3	Fuse 10 Amps		1	300 788
F4	Ultra fast 0.2 Amp fuse		1	300 787
Fc	320° reset thermostat		1	301 066
FPdn	+140°C thermostat	Cleaning product pump	1	-
Ftco	4 Amp time delay fuse	Control	1	300 801
Ftmv	10 Amp Fuse ATDR10	Ventilation motor	1	300 793
Kv	Wastewater drainage relay valve		1	300 282
Mpn	Cleaning pump		1	314 396
	Cleaning pump condenser		1	304 311
Mo	Motorised vent valve motor		1	305 110
Mt1	Technical cooling fan	(1st technical fan)	1	304 297
Mt2	Technical cooling fan	(2nd technical fan)	1	304 297
Mvn	Drain valve		1	314 395
Pdn	Dosing pump	Cleaning product	1	314 379
Pdt	Dosing pump	Descaling product	1	304 312
Sp	Reed switch bulb (Flexible blade switch)	Door closing safety system	1	300 676
Ta	Supply interrupter	Lighting	1	308 350
Tco	415VA Autotransformer	Control	1	308 499
Tmo	Motorised damper transformer		1	308 492
Tdt1 – Tdt2	Descaler pump transformer		2	308 492
Tva	Drainage valve transformer		1	308 492
Yc	Condenser solenoid valve		1	314 397
Yf - Yi	2 ways 2 x 10 L/min solenoid valve		1	314 398
Za	Supply Interference suppressor		**1**	**309 639**

REF.	DESIGNATION	7 GN1/1	10 GN1/1	10 GN2/1	CODE
Cm	Condenser 20 µF	-	-	1	304 310
	Condenser 12.5 µF	1	1	-	304 296
Fm	Ventilator motor sensor	1	1		-
M1	Fan motor	1	1	-	304 295
		-	-	1	304 308
Rc1, Rc2	Resistors 11.43 kW 208/240V	-	-	1 (240V)	148 096
	Resistors 11.43 kW 208/240V	1 (208/240V)	-	-	147 960
	Resistors 11 kW 480V	-	-	1 (480V)	148 098
	Resistors 19.6 kW 208/240V	-	1 (208/240V)	1 (208/240V)	147 961
	Resistors 19.3 kW 208V	-	-	1 (208V)	147 962
	Resistors 22 kW 480V	-	-	1 (480V)	147 097
Tmv	828VA fan motor transformer	-	-	1	408 403

List of contactors

REP.	DESIGNATION	7 GN1/1	10 GN1/1	10 GN2/1	CODE
Ks	Safety contactor	-	-	1 (480V)	300 700
		-	-	1 (208/240V)	300 798
		1 (208/240V)	1 (208/240V)	-	300 702
Ksm	Motor safety switch	1	1	1	300 697
Kr1, Kr2	Cavity heating contactor	-	-	2 (208V) / 1 (480V)	300 700
		1 (208/240V)	1 (208/240V)	2 (240V)	300 702
Zs	Interference suppressor	1	1	1 / 1 (480V)	300 769
		-	-	1 (208/240V)	300 799
		1	1	-	407 002
Zr	Interference suppressor	-	-	2 (208V) / 1 (480V)	300 769
		1	1	2 (240V)	407 002

WIRING DIAGRAM



Cavity sensor

Core probe sensor

Flow meter

Door sensor

Lighting

Drainage valve transformer

Technical fan

Technical fan

Safety contactor

Heating contactor

Motorised Vent valve

Coolong solenoid valve

Wash pump

Descaling dosing pump

Detergent dosing pump

Main drain valve

Water injection solenoid valve

Condenser solenoid valve

Coder

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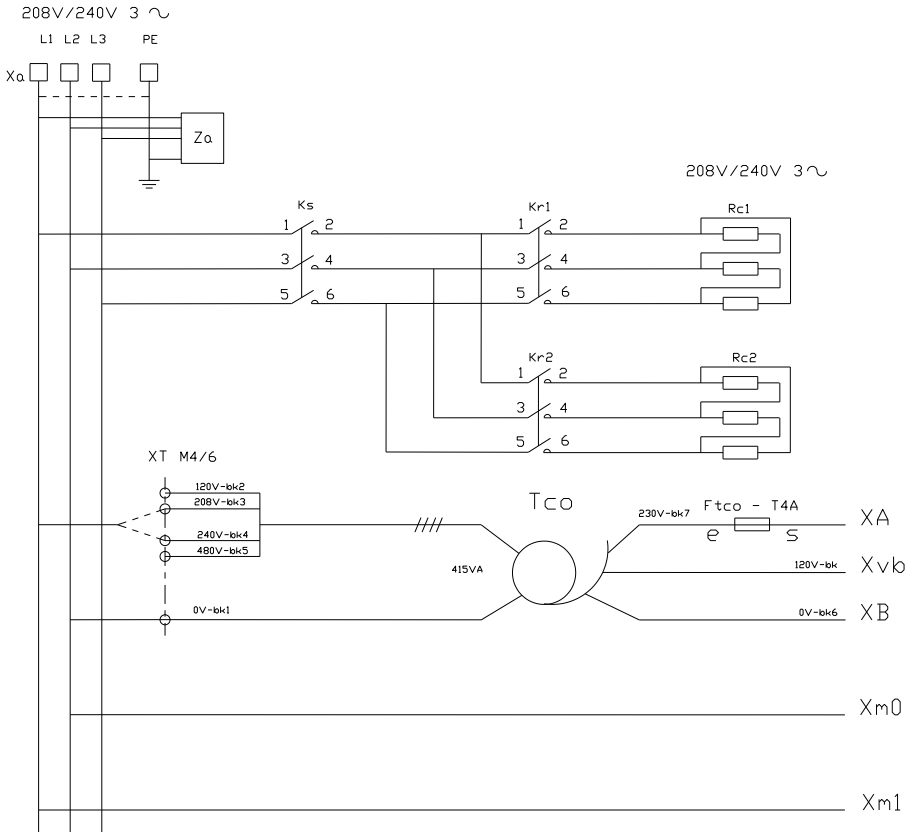
POWER DIAGRAM THREE PHASE

208V & 240V

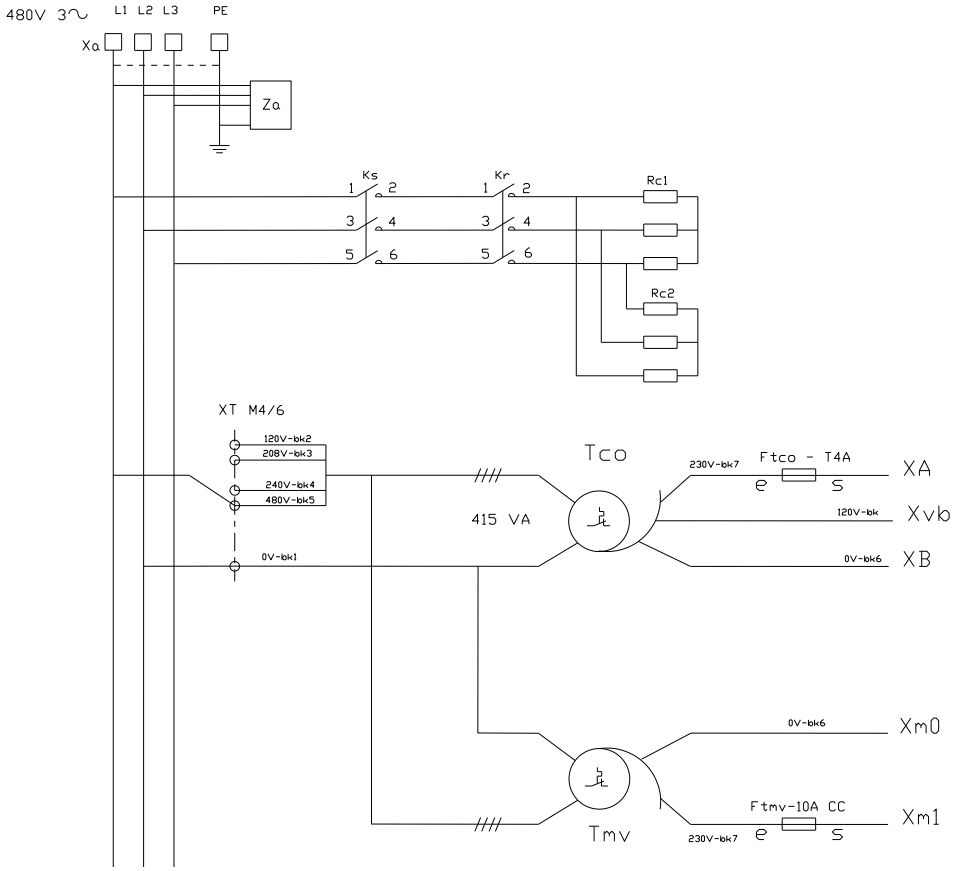


Cavity heating element
(from 1 to 2 depending on the model)

Cavity heating element
(from 1 to 2 depending on the model)

Control autotransformer

480V



Cavity heating element
(from 1 to 2 depending on the model)

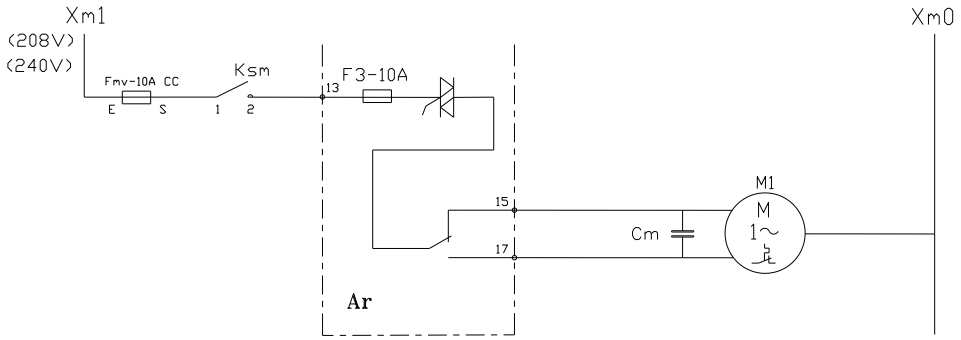
Cavity heating element
(from 1 to 2 depending on the model)

Control autotransformer

Cavity ventilation motor transformer

CAVITY VENTILATION

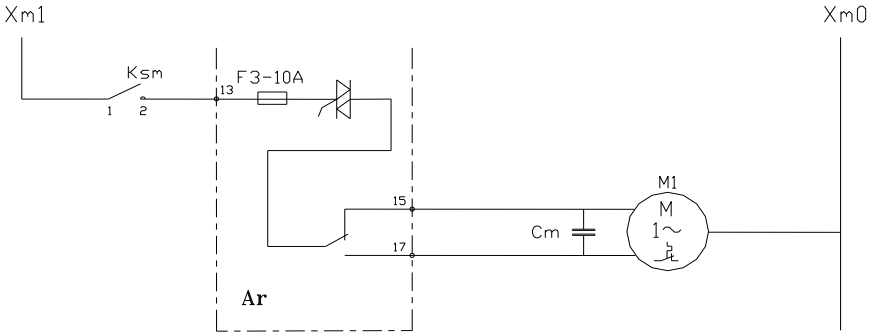
208V & 240V



Safety contactor

Cavity ventilation motor

480V

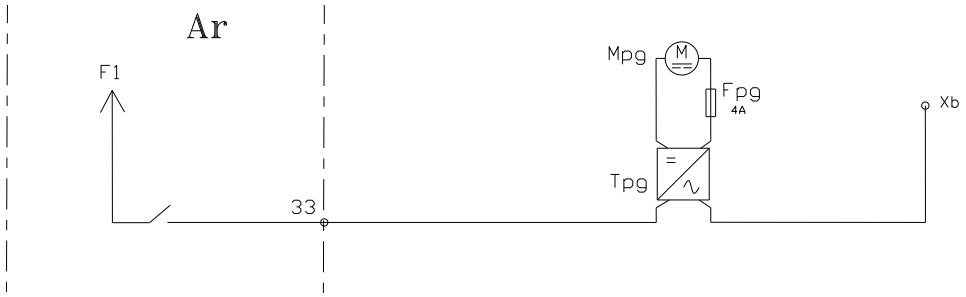


Safety contactor

Cavity ventilation motor

1.3 COOKING GREASE COLLECTION OPTION

REF.	DESIGNATION	CHARACTERISTICS	QUANTITY	CODE
Fpg	4A fuse	5x20mm temporised	1	300 801
Mpg	Grease pump		1	304 314
Tpg	Integrated switching power supply	24V – 75W	1	300 802



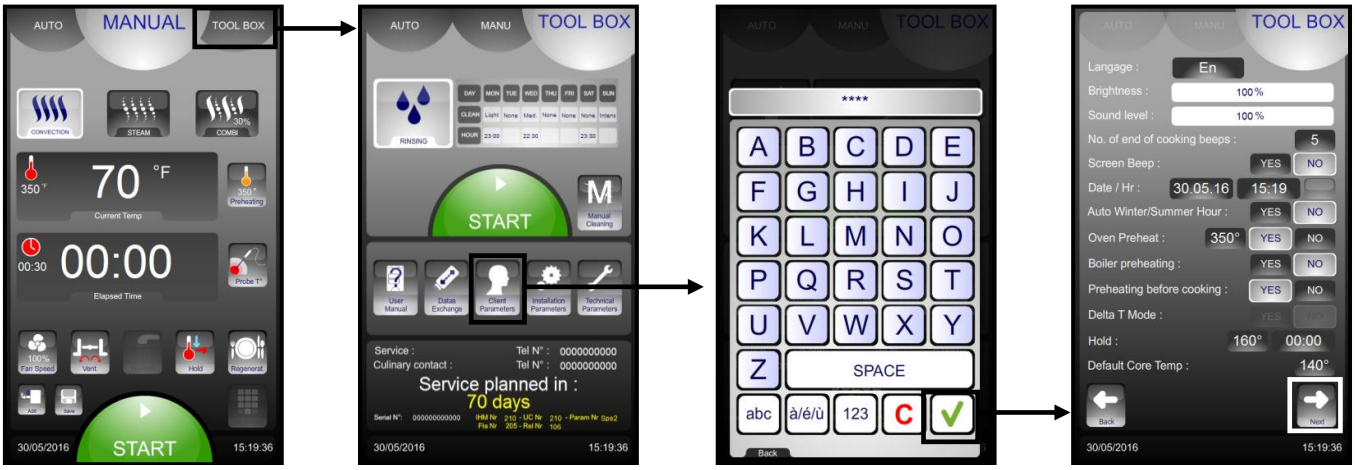
Grease pump

2. PROGRAMME SETTINGS

This operation is required if there a change of either the power assembly, the screen card or a change of FastPad software.
Before programming check the software is in the local language and change if necessary.

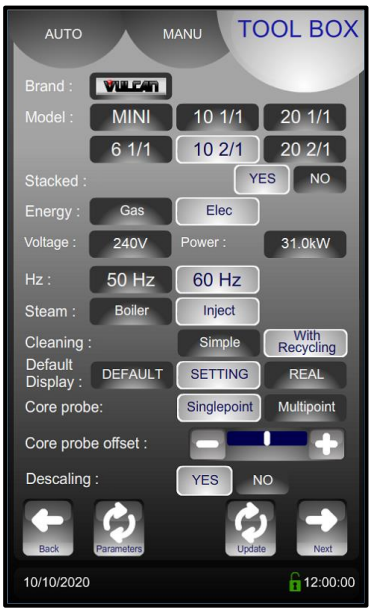
2.1 SETTING THE SOFTWARE LANGUAGE

- Select the "TOOL BOX" menu
- Select the "Client parameters" screen
- Enter the password « CHEF » : Permanent password (lower or uppercase)
- Validate “V” : When finished, if the code is correct access the menu in not re-enter the PIN number.
- Modify the programme language if necessary (En : English by default)
    * Select the zone of the value to be changed
    * Adjust the value using the coder knob



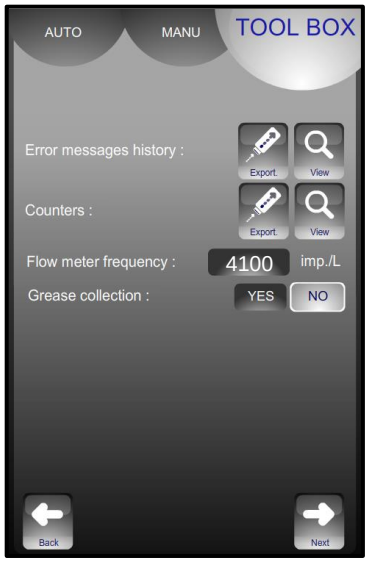
2.2 OVEN SETTINGS

- Select the "TOOL BOX" menu
- Select the "Technician parameters" screen
- Enter the password : « SAVB »
- Validate “V” : When finished, if the code is correct access the menu in not re-enter the PIN number.
- Reconfigure the oven
    * Select the zone of the value to be changed
    * Adjust the value using the coder knob



➔ Commercial brand of the oven

➔ Model : number of levels and size



Export historic error messages to USB stick (Excel compatible format) ➔

Export historic counter data to USB stick (Excel compatible format) ➔

Flowmeter frequency equal to 4100 Imp/L ➔

Cooking Grease collection option ➔

Error message history

➔ Displays the list of error messages in the order they appeared

Counters

Counter listing ➔

➔ Communication signal quality screen card/power card
For a QOS < 85% see error E46

➔ Pressing « Return» takes you back to the previous screen

Counters

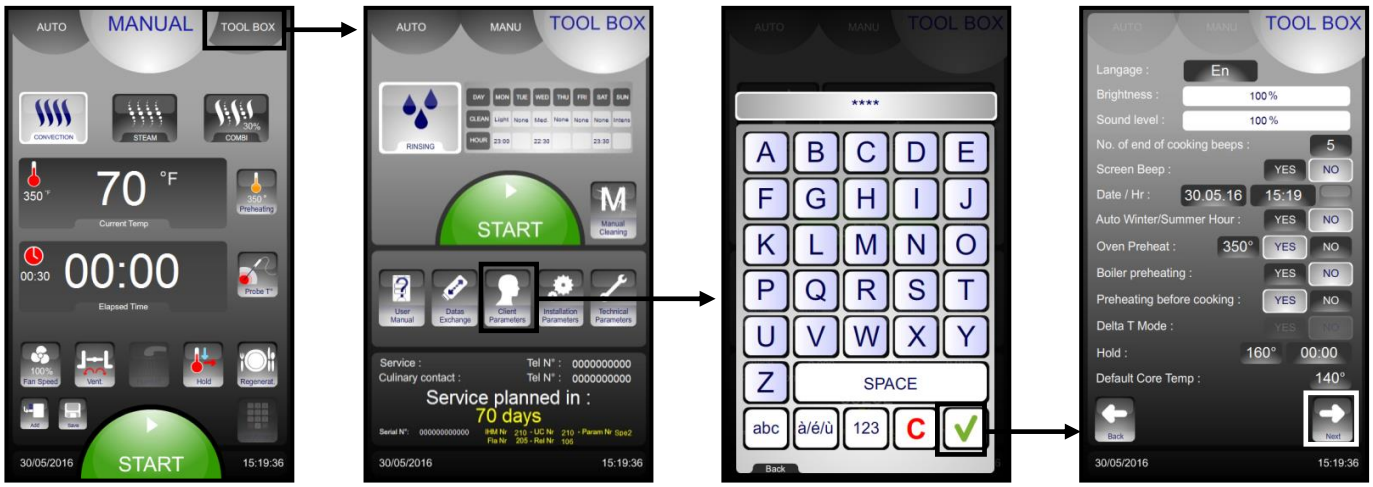
CPT00:	Total hours of operation
CPT01:	Hours in convection mode
CPT02:	Hours in steam mode
CPT03:	Hours in combination mode
CPT04:	Number of door openings
CPT05:	Number of gas safety activations (when error E67 appeared)

CPT06:	Time that the electronics have operated at over 70°C in hours
CPT07:	Time output S21 has operated in hours
CPT08:	Time output S10 has operated in hours
CPT09:	Time output S30 has operated in hours
CPT10:	Total operating time cooling + cleaning
CPT11:	Number of litres remaining in the water treatment system

2.3 WATER TREATMENT COUNTER

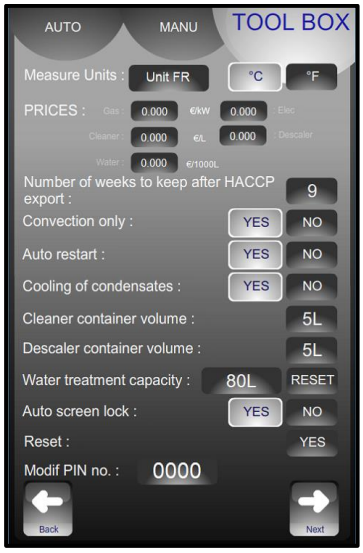
This only function if there are 2 separate supplies to the oven.

- Select the "TOOL BOX" menu
- Select the "Client parameters" screen
- Enter the password « CHEF »: Permanent password (lower or uppercase)
- Validate “V”: When finished, if the code is correct access the menu in not re-enter the PIN number.



Water treatment capacity

- To modify or enter the value for the capacity of the water treatment system (in litres). Set to zero by default (if the oven does not have a dedicated water treatment system).
  * Select the zone to be changed
  * Adjust with the coder knob.
- After any regeneration of the water treatment, reset the counter as required.
  * Press « RESET »
  * Confirm by pressing « YES ».



➔ The water treatment system’s capacity in litres. Reset.
By default, set to zero (if there isn’t dedicated treated water supply to the oven)

If the water treatment capacity meter is equal to or less than 0, error code i8 will be displayed.

2.4 SCREEN CARD SETTINGS

These screens are common to several types of unit. After sales provide a non-product specific unit but it will be configured automatically when connected to the equipment in question.

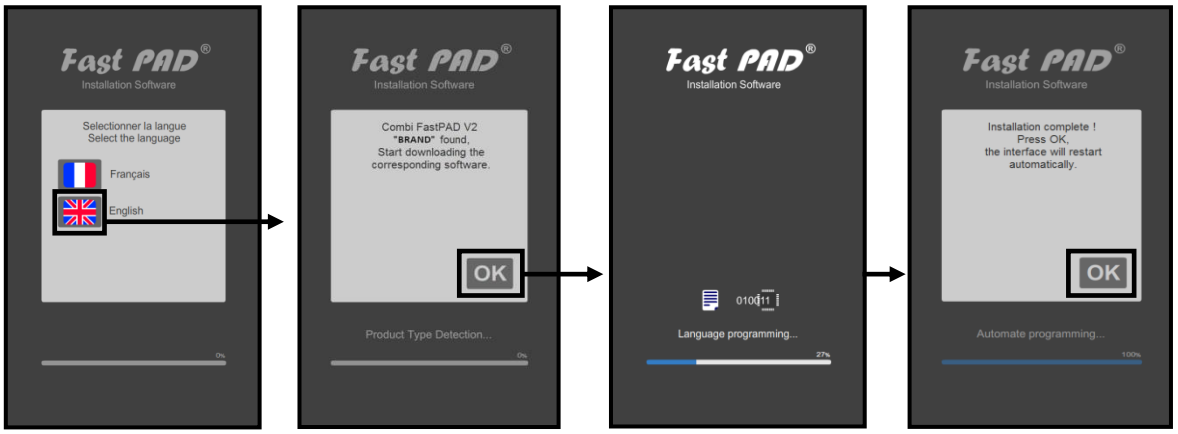
This configuration is irreversible. Once a screen has been programmed to control an oven it cannot be fitted to any other type of equipment. If necessary it must be returned to the factory for re-initialisation.

Required for configuration: a **blank FastPad USB stick**, or **blank USB stick** with the following characteristics:

- **Max capacity = 32 Gb – Formatted for FAT32 (Default unit allocation size = 4096 bytes) or formatted for FAT (Default size = 32 Kb).**
- The stick need not be empty but a minimum of 5 Mb of free space is required; Files already on the USB stick will not be erased (But always back up your personal data). Temporary files will be written but they can be erased afterwards.

Follow these steps after installing the new screen on the appliance by following the instructions in the paragraph “Screen board”, and chapter “Component change procedure”:

- Connect a USB stick (as defined above) to the USB port of the oven.
- Turn the appliance on.
- Select the language on the installation screens (2 available versions: French or English).
- Select which type of appliance the screen will be configured for and confirm by pressing “OK”.
  * If the appliance does not match, or no configuration is found, turn off the power and check the position of the “micro switches” located on the FastPAD 2 power unit (see “Position of the micro-switches” in the “Maintenance program” chapter).
  * If necessary, ensure that the power assembly and/or the communication between the various circuit boards is working properly (see “Maintenance program” chapter).
- Wait for the configuration phases to automatically run through.
- When the message « Installation complete” is displayed, press “OK” to start the interface.
- Remove the USB stick
- Follow the “Setting the oven” instructions to configure the interface.



3. MAINTENANCE PROGRAMMES

3.1 ELECTRONIC CARDS

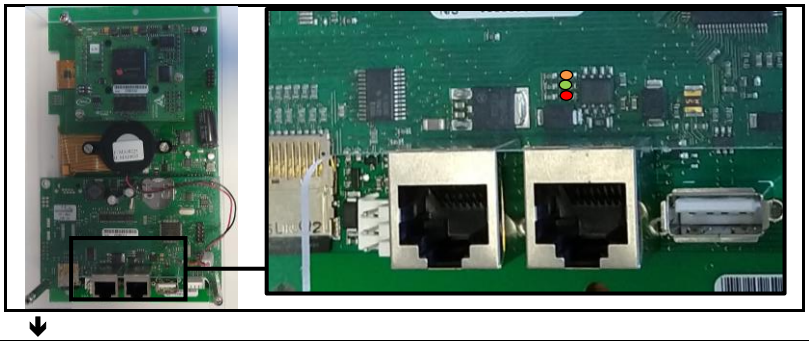
The state of the LEDs represent the communication between the electronic cards and helps with diagnostics in the event of a breakdown

Significance of the LEDs on the FastPAD 2 power assembly and the FastPAD screen card:

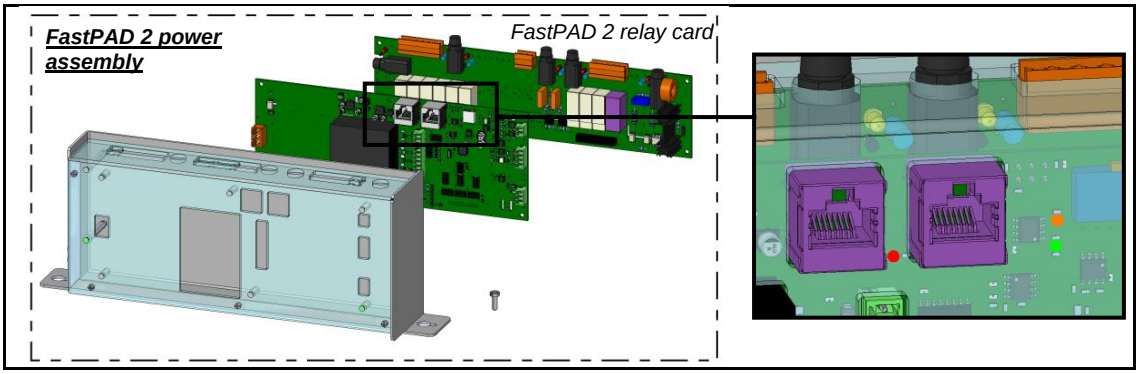
LED Red ➔ ➔ ➔	Power on	LED steady
LED Yellow/Orange ➔	Emitting	LED steady or flashing
LED Green ➔ ➔ ➔	Receiving	

A flashing LED is considered active as is a steady one.

Diagnostic of electronic faults:

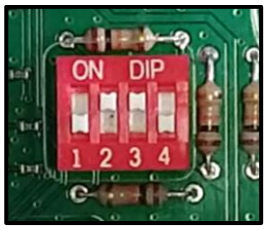


FastPAD 2 screen card	Ensemble puissance FastPAD 2	Diagnostic	Actions
R J V	R J V	- FastPad 2 Power assembly OK - FastPad screen OK	- Fonctioning normally
		- Supply fault	- Check the voltage between terminals 1 and 3 on the relay card
	R	- Problem communicating with the FastPAD screen	- Replace the FastPAD screen card and or the interconnecting cable
R V	R V	- FastPad 2 UC power card defective	- Replace FastPAD 2 power assembly
R	R	- Screen non function	- Replace the FastPAD screen
R V	R	- Interconnecting Cable between the screen and power assembly faulty	- Replace the interconnecting cable



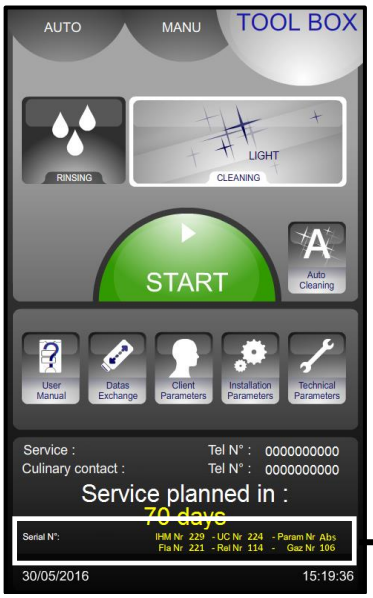
3.2 POSITION OF THE MICRO SWITCHES ON A FASTPAD 2 POWER UNIT

The position of these micro-switches ensure the automatic recognition by the interface of the type of unit so appropriate software is installed (after sales or initialization)

Micro-switch position	*Oven model*
	**Vulcan** FastPAD

3.3 CHECKING THE SOFWARE VERSION

The version of software can be seen in the “TOOLBOX” tab next to the serial number of the unit. Each card is identified by its assigned software number :

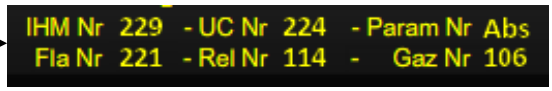


Screen card sub assembly
- **IHM - Fla**: IHM – Flash card
- **UC**: UC card
- Screen support card

Power carte
- Rel : Ensemble de puissance

Check the following numbers according to their corresponding update file numbers:

Standard update file labels :
MAJ_FPV2_IHMwww_UCxxx_FLAyyy_RELzzz_GTvvv
- IHM Nr www
- UC Nr xxx
- Fla Nr yyy
- Rel Nr zzz



3.4 UPDATING THE SOFTWARE

Regular software updates ensure that the customer and/or technician can access the latest product developments and improvements. The technician will be alerted when an update is available via the “WebAstech” software, or through distribution of “software info”.

Before updating, check that the software is in the appropriate language and change if necessary.

Attention:
It is vital that the electrical supply is not switched off whilst loading software.
The USB stick must not be removed whilst loading software
The oven cannot be used whilst loading software

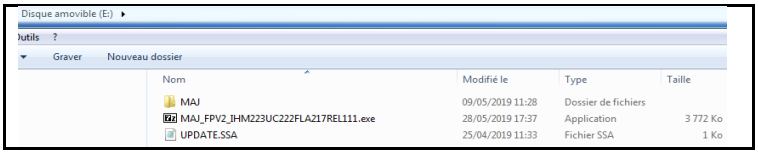
3.4.1 USB STICK

Required for configuration: a **blank FastPad USB stick, or blank USB stick** with the following characteristics :

Max capacity = 32 GB -Formatted in FAT32 (Default allocation size = 4096 bytes) or formatted in FAT (Default allocation unit size = 32 kilobytes).

3.4.2 SOTWARE FILE UPDATE

Download the software update file “CVxxx-SW.zip” from the WebAstech Vulcan maintenance site. Unzip the file.
Copy the file to the USB stick and run it:
ex : "MAJ_FPV2_IHM229_UC224b_FLA221_REL114_GTW016.exe"
The files will be created automatically on the USB stick. The USB stick must only contain:

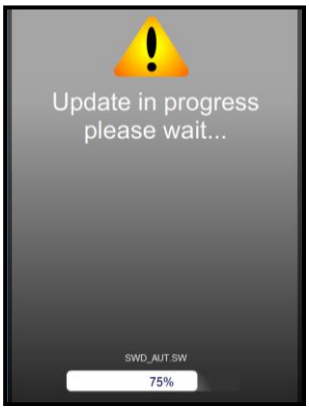


3.4.3 PROCEDURE

Switch the appliance on. If necessary, stop preheating.
Put the USB stick (with the new software version) into the USB port.
The USB port has a protective silicone cover.
It is located under the control panel

Attention !
Refit the protective cover if the socket is not being used.

When connecting the USB stick the “UPDATE” request window will appear
If no window appears it means that the appliance is already running the same software version as the USB stick.
Validate the update by pressing “YES” and the software will begin to load.
Your appliance may restart one or more times during the update. Depending on the settings of your oven, one or more updates may be installed. Answer yes to each update request,



Wait for the update to complete.
The update is complete when the screen returns to the standard display.

Remove the USB stick from the USB port.

Run the software control procedure to check that the new software has loaded correctly, refer to the previous chapter “Software version control”.

4. MAINTENANCE SCREENS

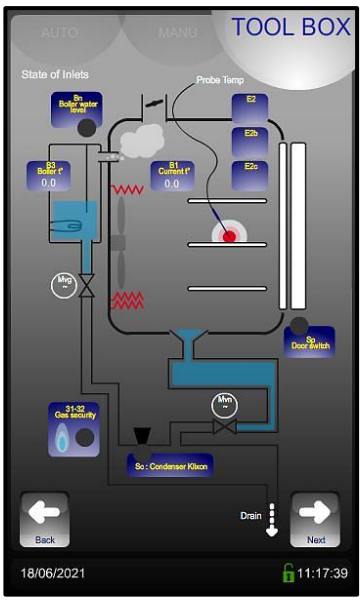
Once you are sure the 2 electronic cards are functioning and with information from the client and the error messages displayed activate the diagnostic assistance module which consists of 3 screens.

This will allow you to control the input and output appliances and peripherals feeding the cards:
- Screen 1 gives control of temperature, door, water level.
- Screen 2 gives control of outputs to ventilation, heating, lighting, safety contactor, the vent outlet ….
- Screen 3 gives control of the hydraulics outputs, solenoids, wash pump and wash tank.

4.1 ACCESS TO THE MAINTENANCE SCREENS

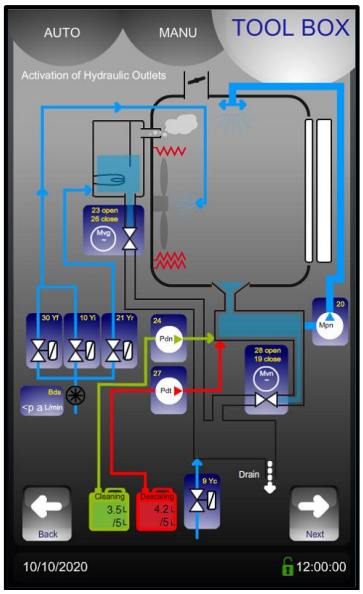
- Go into the "TOOL BOX" screen
- Select the "Technical parameters" screen
- Enter the password “SAVB” password
- Validate “V”: if the code is correct the menu can be accessed if not return to inputting the PIN
- Press "Next". Scroll through the different screens using the “Next” button

4.1.1 ENTRY SCREEN



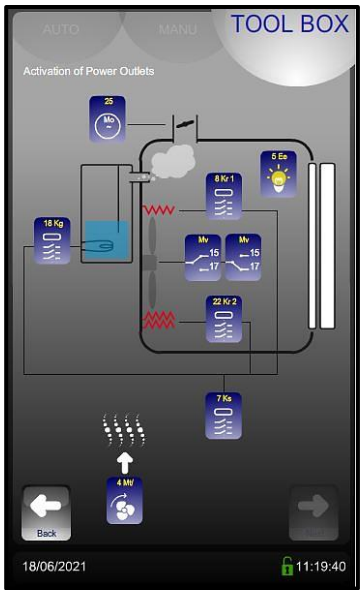
Entries	Normal state	Remarks
B1	Cavity temperature	-
B3	Boiler temperature (availability depending on model)	-
Sp	0 = door open 1 = door closed	-
31-32	0 = normal operation	
	1 = gas safety activated	

4.1.2 HYDRAULIC OUTPUT ACTIVATION SCREEN



Touch	Power card output no.	Components	Function
Pdn	24	Detergent pump	one press= 0.5s of operation
Pdt	27	Descaling pump	one press= 0.5s of operation
Yf	30	Cooling solenoid	one press= 1min of operation
Yi	10	Water injection solenoid	one press= 1min of operation
Bds	Bds	Flow meter	Indicates actual flow rate
Yc	9	Condenser solenoid	one press= 1min of operation
Mvg	23-26	Boiler solenoid (availability depending on model)	-
Mpn	20	Wash pump	one press= 0.5s of operation

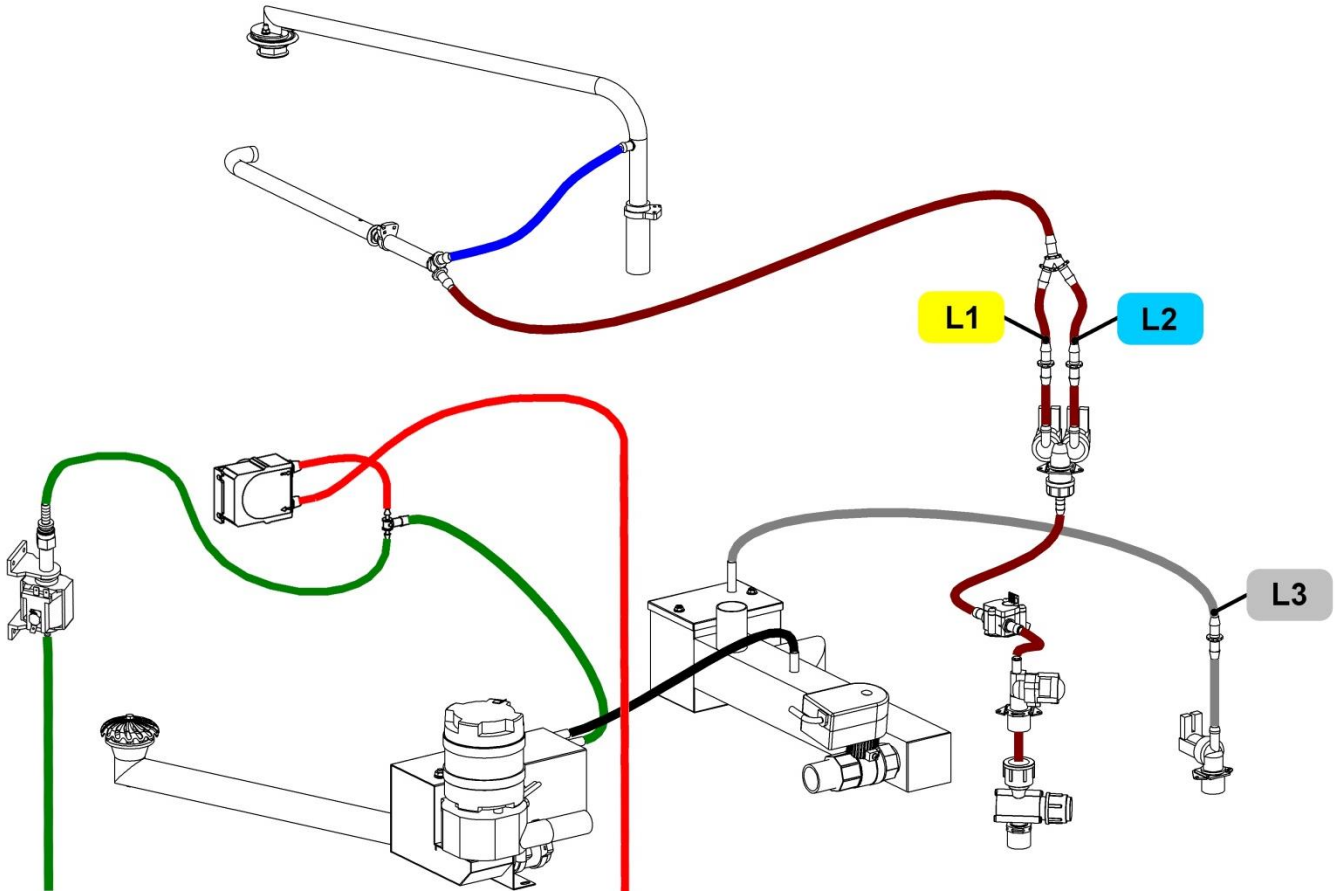
4.1.3 ELECTRIC OUTPUT ACTIVATION SCREEN



Touch	Power card output no.	Components	Function
Mo	25	Vent motor	
Ee	5	Lighting	one press= start / one press= stop
Kr1	8	Contactor	one press= 0.5s of operation
Kr2	22		
Mv	15	Fan	one press= 0.5s clockwise
Mv	17	Fan	one press= 0.5s anti clockwise
Kg	18	Boiler (availability depending on model)	-
Ks	7	Safety contactor + technical ventilation 2	one press= 0.5s of operation
Mt	4	Technical ventilation	one press= start / one press= stop

5. HYDRAULIC DIAGRAMS

5.1 6 AND 10 LEVELS OVENS



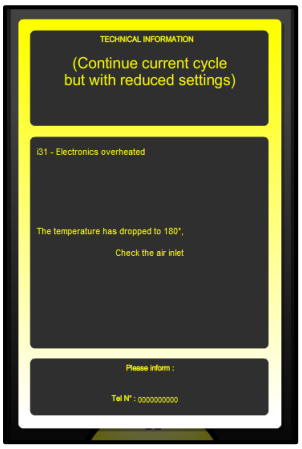
Flow restrictors		6 GN 1/1 électrique	6 GN 1/1 gaz	10 GN 1/1 électrique	10 GN 1/1 gaz	10 GN 2/1 électrique	10 GN 2/1 gaz
Injection	L1	0.25 l/min	0.25 l/min	0.5 l/min	0.5 l/min	0.8 l/min	0.8 l/min
Cooling	L2	1.2 l/min	1.2 l/min	1.2 l/min	1.2 l/min	1.2 l/min	1.2 l/min
Condenser	L3	1.2 l/min	1.2 l/min	1.2 l/min	1.2 l/min	1.2 l/min	1.2 l/min

6. ERROR MESSAGES

6.1 IDENTIFICATION MESSAGES D'ERREURS

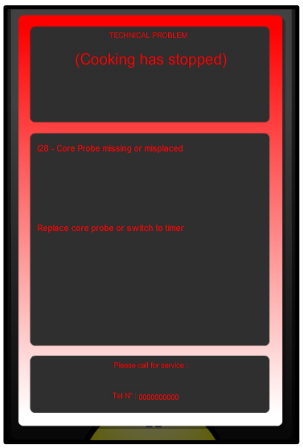
*Client error information: **i**xx*

Yellow screen : Alternative operation



Non-blocking message: reduced functionality
Touching the screen anywhere will clear the message

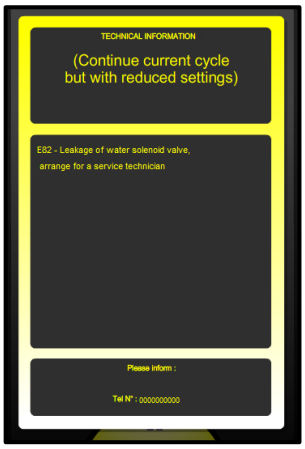
Red screen : Cooking stopped (pause)



Blocking message
Cooking stops

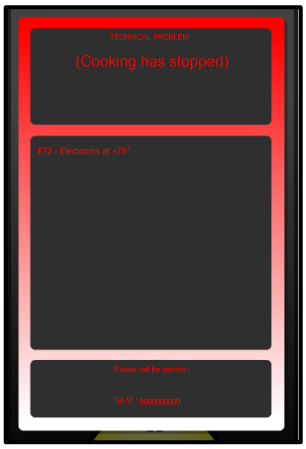
*After sales error information: **E**xx*

Yellow screen : Alternative operation



Non-blocking message: reduced functionality
Touching the screen anywhere will clear the message

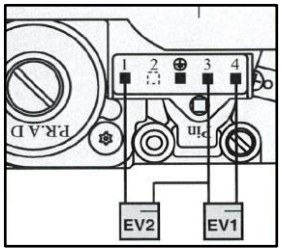
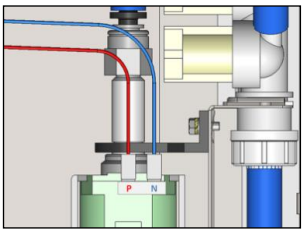
Red screen : Cooking stopped (pause)



Blocking message
Cooking stops

Message on the screen Consequences	Probable cause	What to do?
I28 / i33 : Core probe non function or not plugged		
Cooking stops Waiting for a Core probe to be connected or to switch to timer mode	Core probe missing or disconnected during cooking.	Check the connection of the probe.
	Faulty core probe	Connect the probe and check the value of E2 using the input screen. Si "--", disconnect E" from the card. Check the values of the PT 100 probe on the terminal screws (see corresponding table and details). If the values are incorrect change the probe. If not check the connections or change FastPAD 2 power assembly
E30 : Electronics overheating		
Electronics overheating, cooking continues	Drawing in hot air	Installation problem: check for heated units nearby (Solid top, open burners, …)
	Air inlet obstructed	Clean the air vents at the front and rear of the oven
	Technical cooling fan clogged or not functioning	In (TECH parameters) screen for outputs activate No 4 (Mt). Check that there is power to the fan using a multi tester. If there is power replace the fan. If not replace FastPAD 2 power assembly
E32 : Core prode : 2 faulty measurement points		
Cooking continues	Probe disconnected during cooking	Check the connection of the probe.
	Defective core probe	Connect the probe and check the values of E2 – E2b – E2c on the input screen. If "-" is shown, disconnect the connector (E2) from the card. . Check the values of the PT 100 probe (on the terminal block screws). If the value is incorrect, change the probe. If not check the connections or replace the FastPAD 2 power unit.
i31 : Electronics overheating: Temperature reduced to 356°F		
Electronics overheating: Temperature reduced to 356°F	Exactly as error E30	Exactly as error E30
E46 : Electronic communication fault (Bus RS485)		
Cooking stops	Loss of communication between the FastPAD 2 power assembly and the facia	Check the connection and state of the Ethernet cable between the FastPAD 2 power assembly and the screen. Replace the cable if necessary. Check the status of the communication LEDs on the two cards. => See the page detailing the significance of the LEDs on the FastPAD 2 power assembly and graphic facia card In case of failure refer to the instructions paragraph. If it is not possible to fix the issue, WARN the client and switch the oven to downgraded mode limited to convection only at 175°. To do this, stop and restart the oven and open and shut the door quickly 3 times (triggering the door catch) within the 8 seconds of the interface loading time,

Message on the screen Consequences	Probable cause	What to do?
E53 : Short circuit of coil or motor or ventilation non function		
Arrêt de la cuisson	**F5 blown**	
	Short circuit or fault in the technical ventilation fan	Check the state of the LED near to the fuse. If it is not on check outputs S4, S7 and S8 on the card using an ohmmeter to find the short circuit. If this is the case replace the defective component (technical fan or contactor). Replace fuse F5 and check the fault has cleared by activating the outputs in (Technician parameters).
	F3 blown	
	Fan motor defective	Check the state of the LED near to the fuse. If it is not on check the motor, measure the resistance and coil insulation. Replace if necessary and change fuse F3.
	F5 and F3 not blown and E53 permanently displayed	
	Contactor Ks **does not hold in** during the oven initialisation when the door is closed	Motor klixon disengaged: Test the klixon with an ohmmeter when the fault appears, replace the motor if necessary. Check for power to the coil on contactor Ks. If there is power replace the contactor or the FastPAD 2 power assembly
	Contactor Ks **holds in** during the oven initialisation when the door is closed	Check for power to terminal 13 on the relay card: If there is power connect wires 13 and 15 restart the oven, the motor should start when the oven is switched on. If so, change the FastPAD 2 power assembly if not check all connections to the motor or change the motor.
	Safety thermostat tripped	
	Safety thermostat tripped	Check the safety thermostat
	E53 appears after a certain time operating	
	Motor klixon opens when hot (Defective motor)	Check that the motor turns freely (no rubbing or abnormal noise). Check current and resistance to the coils. Replace the motor if necessary. Motor klixon disengaged: Test the klixon with an ohmmeter when the fault appears, replace the motor if necessary.
E61 : Ambient probe short circuit		
Cooking stop	Probe short circuited	Check what temperature the probe is reading in the inputs screen (Technician parameters) Disconnect (B1) from the card. Check the value of the PT 100 probe on the terminal screws (see the table for corresponding values). If incorrect change the probe, if the probe is functioning replace the FastPAD 2 power assembly Oven restart required to clear the fault.
E62 : Ambient probe faulty or poorly connected		
Arrêt de la cuisson	Cavity temperature probe poorly connected (connection the FastPAD 2 power assembly)	Check what temperature the probe is reading in the inputs screen (Technician parameters) Check the wires are tightened on connection B1 on the FastPAD 2 power assembly
	Probe wiring broken	Check what temperature the probe is reading in the inputs screen (TECH parameters) Disconnect (B1) from the card. Check the value of the PT 100 probe on the terminal screws (see the table for corresponding values). If incorrect change the probe, if the probe is functioning replace the FastPAD 2 power assembly Oven restart required to clear the fault.
E67 : Gas safety activated		
Cooking stops	Gas safety inlet to the power assembly incorrect	Check the gas valve and the inlet pressure with the whole kitchen operational (low pressure?).
	Gas safety inlet to the power assembly incorrect	Check the ionisation probe circuit in the inlet screen (TECH parameters). Disconnect the wire from terminal 32 on the power assembly: the screen continues to display Gas safety = 0. Reconnect 32 to a control phase (connection, 12 for example): Gas safety = 1. If not change the FastPad 2 relay card.
	Gas ignition problem	Check gas ignition
	Ionisation flame control problem	Check the ionisation at ignition probe. Burner ventilation. Change the control box.
	Gas fan not working	Ensure the fan is powered (voltage on the power supply terminals -3-point terminal block) => If powered but not spinning, change the fan. => If not powered, check the 120V power supply chain (connections, contactor, transformer fuse etc.)
	Ignition not working	Check the ignition function: Disconnect the ignition electrode wire and activate output “18” of the power card from the technician menu: you should see a spark at the igniter outlet. If not, check the 230V voltage on output 18. If there’s no voltage, check the 230V electrical circuit.

Message on the screen Consequences	Probable cause	What to do?
E67 : Gas safety activated (contd.)		
Cooking stops	No gas, or gas flow/pressure too low	Check that gas is present at the inlet of the device
	Gas valve not working	Check the resistance of coils Ev1 (≈623 Ω) and Ev2 (≈3994 Ω).  => For values other than 0, check that the gas pressure at the valve inlet is correct when the burner is ignited, if the burner does not ignite, the valve is out of order. => If the value is 0, the valve is out of order.
	The ionization electrode does not detect the flame	Check the electrode (adjustment, connection, wires)
	Flame control unit not working	At the end of the ignition sequence. Cut the gas supply, start cooking: => If the oven shows “Gas error”, the flame control unit is working, check the other components. => If there is no error message, the flame control unit is out of order.
E68 : Cavity at +554°F or +239°F in cleaning mode		
Cooking stop	Heating contactor welded shut	Power off, check if Kr is permanently engaged. If so replace it. If not check the output from the FastPAD 2 power assembly car dis working using the output activation in (Technician parameters) If Kr remains engaged replace the FastPAD 2 power assembly.
E72 : Electronics at over + 167°F		
Cooking stop	Exactly as error E30	Exactly as error E30
E73: Detergent pump faulty or on permanently		
Cooking stop	**Pump is on when a cleaning cycle is not running**	
	the FastPAD 2 power assembly is stuck on or detection electronics not working	Check if the pump is running all the time after the oven is turned on. If so replace the FastPAD 2 power assembly.
	Circuit ouvert	
	the FastPAD 2 power assembly is stuck on or detection electronics not working	Check if the pump is running all the time after the oven is turned on. If so replace the FastPAD 2 power assembly.
	Pompe fonctionnelle	
	Pump badly connected	Check the connections for Phase and Neutral to the pump. 
i81 : Water flow problem		
Cooking will be degraded. The interface is locked in wash mode if a rinse cycle is not possible (risk of chemicals remaining in the cooking cavity)	In the event of a i81 error during a cleaning cycle with detergent in the cooking cavity, it isn’t possible to stop the cycle directly. To force a cycle to stop press « Cleaning/tools » and enter the PIN code « RSTC ». Manually undertake a thorough rinse of the cooking cavity so as to remove all traces of chemicals and then find the original cause of the problem.	
	Fuse F1 blown	Use an ohmmeter to check whether outputs S24, S25, S27, S29, S30 of the card have short circuited. If so, replace the defective component(s). Check the outputs from the output activation screen (technician parameters). If necessary, replace the FastPAD 2 power assembly output control board.
	Fuse F4 blown	Use an ohmmeter to check whether the S10 output of the card has short-circuited. If so, replace the solenoid valve. Check output S10 from the output activation screen (technician parameters). If necessary, replace the FastPAD 2 power assembly output control board.

Message on the screen Consequences	Probable cause	What to do?
i81 : Water flow problem (continued)		
Cooking will be degraded.	Water supply problem	Check the water supply to the unit: minimum flow 5 litres/minute and minimum pressure 1.5 bars. Check that the filter is not clogged and the state of the pressure limiter. Check the state of the flow limiters
	Solenoid has failed	Check solenoids Yi, Yf, and Yn S10, S30 and S27 from the output activation screen in (Technician parameters) Measure the volume of water recovered in 1 minute.
	Flow meter non function	Check the amount being recorded by the flow meter in the input status screen in (Technician parameters). Replace it if necessary.
	Flowmeter frequency incorrectly configured	Check in the Technician parameters that the frequency is correctly set to 4100 pulses per litre.
E82 : Solenoid letting by		
Cooking will be degraded	Solenoid letting by	Check solenoids Yi S10, Yf, S30, and Yn S27, replace them if necessary.
	Flow meter non function	Check the amount being recorded by the flow meter in the input status screen in (TECH parameters). Replace it if necessary.
	FastPAD 2 power assembly not working	Check the voltage on outputs S10, S27 and S30. If voltage is detected outside the cooking cycle, replace the relay strip of the FastPAD 2 power unit.
i83 : Water treatment capacity reached 0		
Risk of damaging the oven	The capacity of the water treatment system has been reached or exceeded	The water treatment system meter has reached 0L. Check the water treatment system and replace/recharge if required, then reset the meter in customer settings. See paragraph 2.3.
i84 : Number of maintenance days at 0		
Risk of damaging the oven	The countdown to the next service has been reached and exceeded	Carry out the planned preventative maintenance operations (see paragraph 8) then reset the counter in the installation parameters (§ 8.4)
i97 : Connectivity error		
Connectivity not working	Identification data incorrect (the data contained in the GATEWAY configuration doesn't match the data on the screen)	If the GATEWAY was previously configured on another oven: follow the GATEWAY configuration procedure and scan the QR code which corresponds to the oven. If the screen has been changed and it is necessary to fill in the oven's technical data.
i98 : Connectivity error		
No consequence	Connected appliance: technical parameters cannot be changed	The Pop-Up will simply inform the technician why they cannot change the parameters.

6.2 INSTRUCTIONS IN CASE OF SOFTWARE ANOMOLY

6.2.1 SOFTWARE PROBLEM OR SOFTWARE UPDATE FAILURE

The devise is showing malfunctions such as:
=> The system doesn't start
=> Random malfunctions
=> Difficulty updating…

↓

RESET the system:
At the start of the program loading, open and close the door 6 times (triggering the closing switch) within 8 seconds.

CAUTION: This "reset" will erase all the data of the current process but does not affect:
=> Customer data
=> Installation data
=> Factory settings

↓

If the problem is not resolved

↓

Is the screen usable ?

Yes → Perform a "RESET" on the Service/Customer parameters screen

No

CAUTION: The RESET function will reset the memory (HACCP reset to factory default parameters, recipes deleted, initialisation of consumption). Photos and the configuration of the braising pan will be preserved.

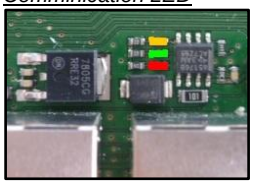
↓

If the problem is not resolved

↓

Check the condition of the communication LEDs between the interface assembly and the power assembly (see Maintenance instructions).

Comminication LED



↓

Depending on the condition of the LEDs

↓

Change the defective board: either:
=> the FastPad 2 interface assembly
=> the FastPad 2 power set
(see Maintenance instructions)

6.2.2 CONNECTIVITY PROBLEM: DATA ON SMARTCONNECT365.COM ABSENT

The client is no longer receiving data from smartconnect356.com: check the technician's "ITW COOKING APP" for the possible causes in "Connection states" (Application downloadable from WebAstech)

- ⇨ **Connection to the client's network "Disconnected"**:
  Ensure that the line to the customer's "box" is operational; check that the passwords, SSID have not changed.
  - If the Gateway is connected via WiFi, make sure the signal strength is good (The intensity received by the module should be between -30dBm and -67dBm, Below this level [-70dBm and under] the WiFi connection is not reliable).
  - If the Gateway is connected via ethernet, Ensure that there are no interruptions on the wire link between the oven and the client's "box".

- ⇨ **Cloud connection "Disconnected" :**
  The issue lies between the customer's "box" and the internet. Refer to the customer's network administrator.

- ⇨ **Connection to the equipment "Disconnected" :**
  Check that the "orange" and "green" communication LEDs are flashing:

If not :
- Check that the cable connecting the module to the appliance is fully inserted.
- Switch the oven off and on again at the power supply.

6.3 INSTRUCTIONS FOR GAS BURNER ANOMALIES

It is mandatory to carry out the burnt gas analysis procedure after changing one or more components of the gas circuit such as: burner, valve, motor, jets and exchanger (See chapter: Gas combustion procedure)

Issue	Probable causes	What to do
The burner does not light	The gas fan does not work	Ensure the fan is powered (voltage on the power supply terminals -3-point terminal block) => If powered but not spinning, change the fan. => If not powered, check the 120V power supply chain (connections, contactor, transformer fuse etc.)
	Ignition not working	Check the ignition function: Disconnect the ignition electrode wire and activate output “18” of the power card from the technician menu: you should see a spark at the igniter outlet. If not, check the 230V voltage on output 18. If there’s no voltage, check the 230V electrical circuit.
	No gas, or gas flow/pressure too low	Check that gas is present at the inlet of the device
	Gas valve not working	Check the resistance of coils Ev1 and Ev2. => For values other than 0, check that the gas pressure at the valve inlet is correct when the burner is ignited, if the burner does not ignite, the valve is out of order. => If the value is 0, the valve is out of order.
	The ionization electrode does not detect the flame	Check the electrode (adjustment, connection, wires)
	Flame control unit not working	At the end of the ignition sequence. Cut the gas supply, start cooking : => If the oven shows “Gas error”, the flame control unit is working, check the other components. => If there is no error message, the flame control unit is out of order.
Burner makes a detonation at ignition	Ignition spark fault. The electrode is adjusted incorrectly.	Check the adjustment of the electrodes: Insulation of the earth wires (parasitic sparks), ensure that the electrode soapstone is not broken. See chapter « Control of the electrodes »
Burner makes a humming noise	Problem with air supply	Check that the air inlet tube is connected correctly to the venturi inlet. Ensure that that the tube’s air inlet is not blocked.
	Incorrect valve setting	Check the CO2 level -For adjustment refer to the paragraph: “changing/adjusting the gas valve”
	Incorrect oven settings (model, gas type)	Check the technician parameters (oven configuration)
	Incorrect gas type supplied to the oven	Ensure that the gas type supplied to the appliance complies with the furnace plate -if not, refer to chapter “Adapting the appliance from one gas to another”
	Silicone tube connecting venturi/valve disconnected or defective	Reconnect or change the silicone tube.
The burner emits an intermittent whistle	When the burner first lights, especially when cold, it may make a slight hissing noise for a few seconds.	This is not a malfunction. It should quickly disappear when the burner heats up.
The burner pollutes	Incorrect gas valve setting	Check the CO2 level -For adjustment refer to the paragraph: “changing/adjusting the gas valve”
	Incorrect gas type supplied to the oven	Ensure that the gas type supplied to the appliance complies with the furnace plate -if not, refer to chapter “Adapting the appliance from one gas to another”
	Incorrect gas type setting	Check the gas type in the technical parameters.
The motor of the burner operate at high speed	The FastPAD 2 power card has stopped communicating with the gas card	Check the LEDs on the gas card. If the LEDs are off, check the Ethernet cable and replace if necessary, otherwise replace the gas card. If the LEDs are lit or flashing on the gas card, check the electrical connection (wires and terminal tightening) from the gas card to the fan.
Ignition firing continuously	The flame does not stay lit	Gas unit/gas card connection fault: check the wires and terminal tightening. Gas card/FastPAD power card link fault: check the LEDs on the gas card: If the LEDs are off, check the Ethernet cable and replace it if necessary, otherwise replace the gas card.
		Relays on the FastPAD 2 power board stuck: disconnect the RJ45 Ethernet cable from the gas board, check the voltage between output 33 and a neutral terminal.
The burner only operates at low power	The fan remains at low speed.	Gas card incorrectly configured : check the position of the switches on the gas card. Refer to the paragraph “Position of the FastPAD2 power assembly micro-switches”.

7. CHANGING THE EQUIPMENT FROM ONE GAS TO ANOTHER

The change of gas type can only be carried out by a technician authorised and trained by Vulcan, or by our local representative.

Before any intervention, check with the owner which gas is currently in use in the kitchen.

Ensure that you are equipped with suitable measuring instruments (product analysis, gas water column pressure gauge, gas leak detector etc.) and that they are in full working order. Without these instruments it is prohibited to carry out any gas-related maintenance or adjustment.

NB : Connection/disconnection of the gas supply, as well as any maintenance or interventions are subject to the local legislation in force.

General :

In the following chapters, the different gases are designated by their international codification:

Gas A	NATURAL GAS
Gas E	PROPAN (G31)

7.1 GAS FLOW RATES AND POWERS

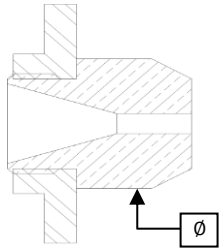
CODE	Designation	Energy	U	Lib	KwE	Imax (A)	BTU/h	Gas flow Gas A ft3/h	Gas flow Gas E lb/h	Weight (kg)	Dimensions (inch) Depth	Width	High
VPJ071G	vulcan:Combi Max 6/7 levels GN1/1 (Gas)	Gas	120	a.c.	0.4	3.30	55959	55.09	-	146	33.30"	36.22"	35.40"
VPJ071G	vulcan:Combi Max 6/7 levels GN1/1 (Gas)	Gas	208	a.c.	0.4	1.90	55959	55.09	-	146	33.30"	36.22"	35.40"
VPJ071G	vulcan:Combi Max 6/7 levels GN1/1 (Gas)	Gas	240	a.c.	0.4	1.70	55959	55.09	-	146	33.30"	36.22"	35.40"
VPJ071G	vulcan:Combi Max 6/7 levels GN1/1 (Gas)	Gas	120	a.c.	0.4	3.30	54253	-	2.58	146	33.30"	36.22"	35.40"
VPJ071G	vulcan:Combi Max 6/7 levels GN1/1 (Gas)	Gas	208	a.c.	0.4	1.90	54253	-	2.58	146	33.30"	36.22"	35.40"
VPJ071G	vulcan:Combi Max 6/7 levels GN1/1 (Gas)	Gas	240	a.c.	0.4	1.70	54253	-	2.58	146	33.30"	36.22"	35.40"
VPJ101G	vulcan:Combi Max 10 Levels GN1/1 (Gas)	Gas	120	a.c.	0.4	3.30	93151	91.57	-	161	33.30"	36.22"	42.08"
VPJ101G	vulcan:Combi Max 10 Levels GN1/1 (Gas)	Gas	208	a.c.	0.4	1.90	93151	91.57	-	161	33.30"	36.22"	42.08"
VPJ101G	vulcan:Combi Max 10 Levels GN1/1 (Gas)	Gas	240	a.c.	0.4	1.70	93151	91.57	-	161	33.30"	36.22"	42.08"
VPJ101G	vulcan:Combi Max 10 Levels GN1/1 (Gas)	Gas	120	a.c.	0.4	3.30	90080	-	4.27	161	33.30"	36.22"	42.08"
VPJ101G	vulcan:Combi Max 10 Levels GN1/1 (Gas)	Gas	208	a.c.	0.4	1.90	90080	-	4.27	161	33.30"	36.22"	42.08"
VPJ101G	vulcan:Combi Max 10 Levels GN1/1 (Gas)	Gas	240	a.c.	0.4	1.70	90080	-	4.27	161	33.30"	36.22"	42.08"
VPJ102G	vulcan:Combi Max 10 Levels GN2/1 (Gas)	Gas	120	a.c.	0.60	5.00	155594	152.91	-	191	46.10"	36.22"	42.08"
VPJ102G	vulcan:Combi Max 10 Levels GN2/1 (Gas)	Gas	208	a.c.	0.60	2.90	155594	152.91	-	191	46.10"	36.22"	42.08"
VPJ102G	vulcan:Combi Max 10 Levels GN2/1 (Gas)	Gas	240	a.c.	0.60	2.50	155594	152.91	-	191	46.10"	36.22"	42.08"
VPJ102G	vulcan:Combi Max 10 Levels GN2/1 (Gas)	Gas	120	a.c.	0.60	5.00	150810	-	7.16	191	46.10"	36.22"	42.08"
VPJ102G	vulcan:Combi Max 10 Levels GN2/1 (Gas)	Gas	208	a.c.	0.60	2.90	150810	-	7.16	191	46.10"	36.22"	42.08"
VPJ102G	vulcan:Combi Max 10 Levels GN2/1 (Gas)	Gas	240	a.c.	0.60	2.50	150810	-	7.16	191	46.10"	36.22"	42.08"

7.2 CHART OF GAS JETS

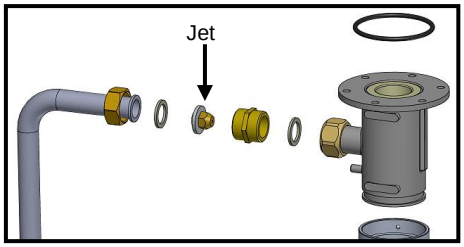
7 and 10 levels ovens

	GAS			JETS		
	Designation		Pressure	Qty	Ø	Code
	Family	Type	(mbar) / (inch w.c.)		(1/100thmm)	
Burner	Natural gas	A	16 - 25 / 6.5 - 10	1	580	148 798
	Propan	E (G31)	25 - 38 / 10 - 15	1	390	148 799

Identification of jets



Position of jet



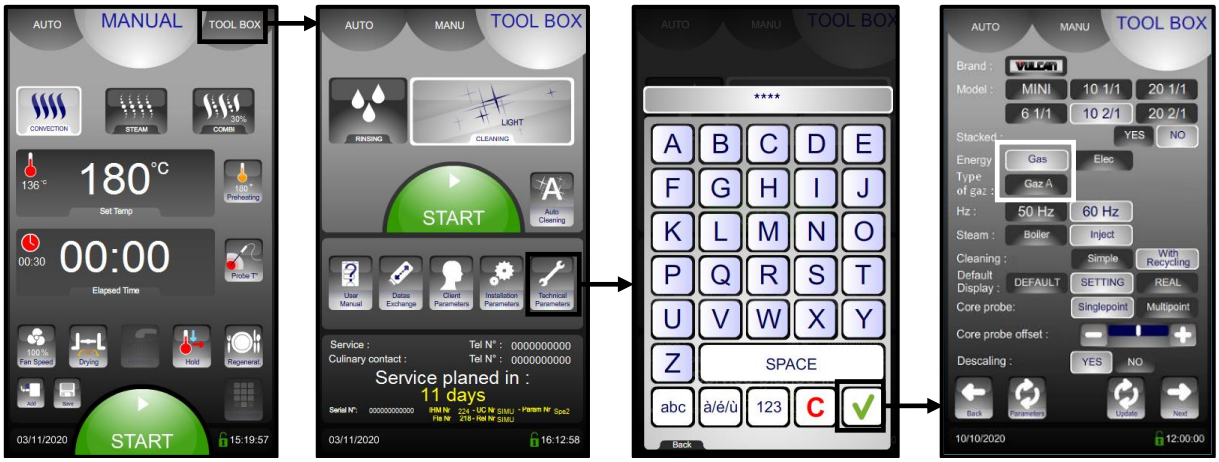
7.3 CHANGEOVER FROM ONE GAS TO ANOTHER:

PROCEDURE :

1) Check which gas is used/present in the kitchen

2) Configure the oven with the new gas.
   - Switch the oven on and turn on the control screen without heating
   - Select the "TOOL BOX" menu
   - Select the "Technician parameters" screen

- Enter the password: « SAVB »
- Validate “V”: When finished, if the code is correct access the menu in not re-enter the PIN number..
- Changing the type of the gas
  - Select the zone of the value to be changed
  - Adjust the gas type with the coder knob (Gas A or Gas E)
  - Validate the value

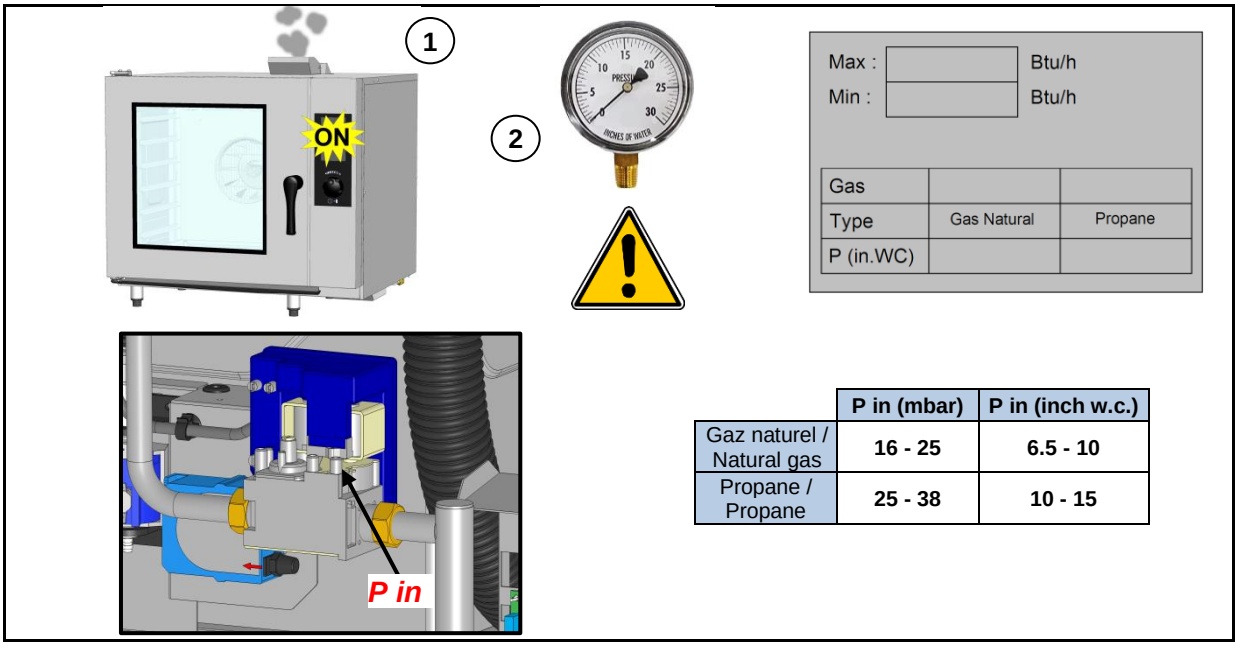


- Switch the equipment off and on again and check that the setting has saved correctly

3) Change the gas injector with the correct injector for the new gas, see the above “Table of injectors”

4) Connect the oven to the gas pipe
   - Tightly connect the appliance to the gas supply pipe by interposing a shut-off valve to isolate the appliance from the rest of the installation.
   - Check for leaks: This is essential and is the responsibility of the installer. Gas leak = danger for the user.
     - Using leak/spray detectors, check the gas lines to ensure there are no leaks.
   - Pressure test point on the gas valve -supply side:
     - Loosen the pressure screw by 2 to 3 turns, open the gas valve
     - Connect the water column pipe to the pressure outlet, close the gas valve
     - Check the water column level for 1 minute. Reading unchanged at -1mbar

5) Check the pressure :
   - Static pressure (appliance not in operation)
     - Control the pressure using a water column
     - The measurement taken must be equal to or greater than the correct pressure for this gas
   - Connection pressure/dynamic (appliance in operation)
     - Connect a water column manometer to the pressure tap with the burner operating (oven is heating). (All gas appliances in operation, burners on).
     - The gas pressure recorded from this test must be within the correct range for the gas used.

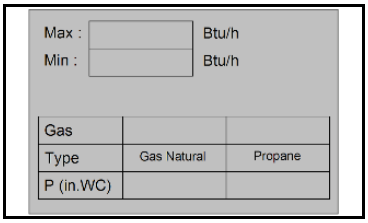


	P in (mbar)	P in (inch w.c.)
Gaz naturel / Natural gas	16 - 25	6.5 - 10
Propane / Propane	25 - 38	10 - 15

6) MANDATORY carry out a burnt gas analysis (see chapter “Gas combustion procedure”) and if necessary, adjust the CO2 screw of the gas valve
The evacuation of combustion gases must comply with local regulations.

7) Ensure that the CO rate is less than 150ppm

8) Stick the new gas plate in place with the corresponding gas for which the appliance has been adjusted.



7.4 CHANGING/ADJUSTING GAS VALVE

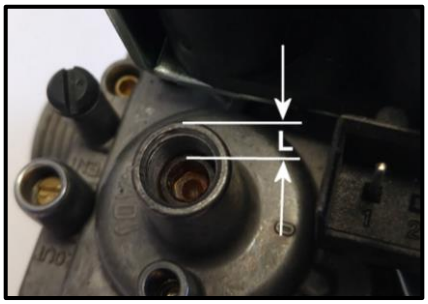
When replacing a gas valve, the length of the CO2 screw must first be pre-set (see values in the table). To do this position the screw 1mm beyond the required value, then reduce it to the desired length.
This first setting can change from + OR – 0.5mm. It will be modified further when adjusting the combustions.

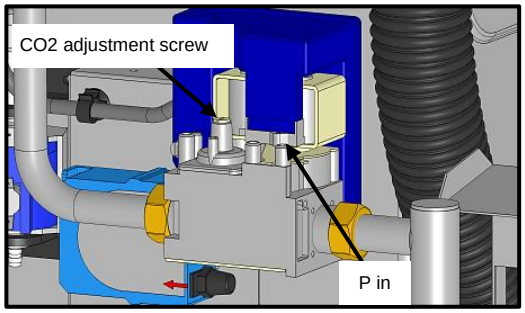
Valve adjustment

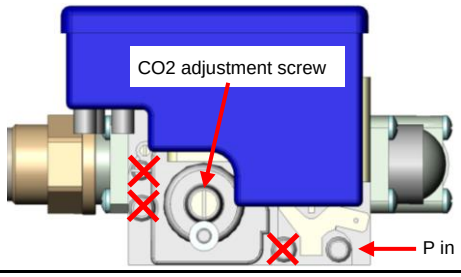
Adjust the length of the CO2 adjustment valve on the gas valve to the correct length for the supply gas
- Remove the protective cap from the adjustment screw
- Adjust the setting by tightening/loosening the screw to obtain the correct setting value for the type of gas and the capacity of oven.

MANDATORY carry out a burnt gas analysis (see chapter “Gas combustion procedure”) and adjust the CO2 screw of the gas valve if necessary, for a CO<150ppm. (refer to point 6 in the paragraph "switching from one gas to another")
The evacuation of combustion gases must comply with local legislation.

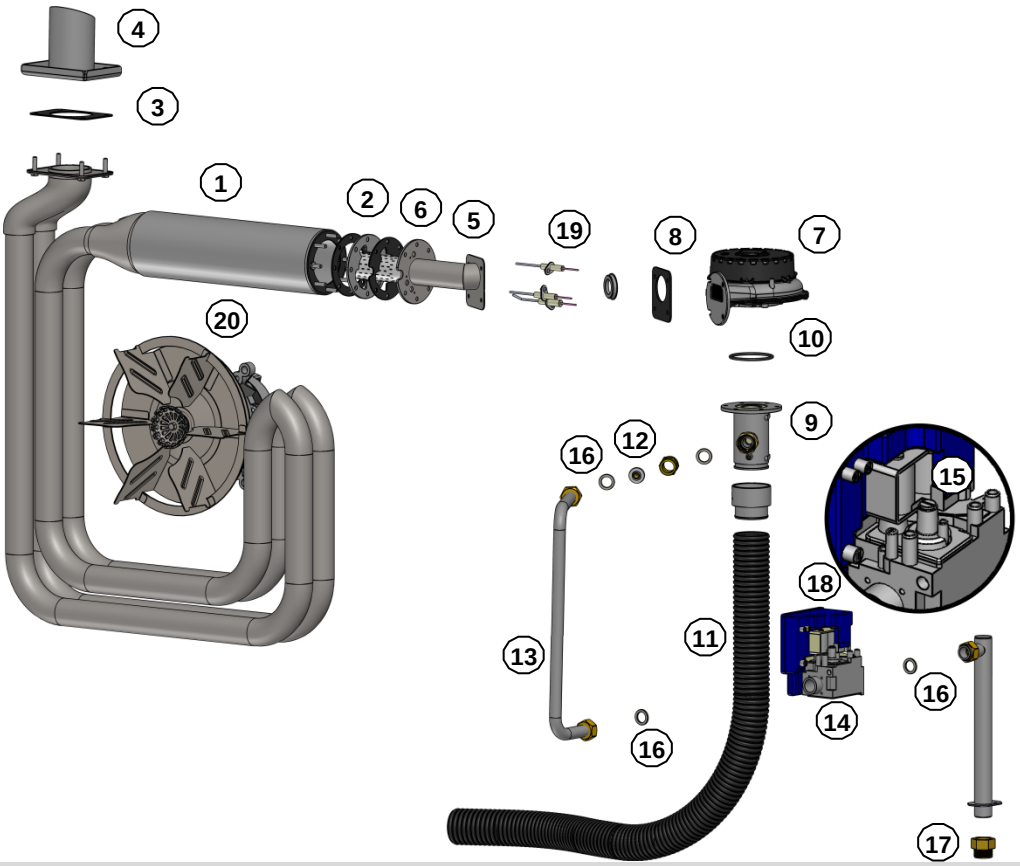
	L (mm)	L (Inch)
Natural gas	6 (GN1/1) / 3 (GN2/1)	15/64 (GN1/1) / 1/8 (GN2/1)
Propan	6 (GN1/1) / 3 (GN2/1)	15/64 (GN1/1) / 1/8 (GN2/1)







7.5 GAS COMPONENTS IDENTIFICATION DIAGRAM



1	*Gas exchanger*
2	*Gas exchanger inlet gasket*
3	*Gas exchanger outlet gasket*
4	*Flue gas evacuation chimney*
5	*Gas burner*
6	*Gas burner gasket*
7	*Gas fan*
8	*Gas fan gasket*
9	*Venturi*
10	*Venturi gasket*
11	*Air inlet hose*
12	*Gas injector*
13	*Gas piping*
14	*Gas valve*
15	*CO2 screw*
16	*20/27 gas valve gasket*
17	*¾" NPT gas inlet adapter*
18	*Valve protection box*
19	*Ignition electrodes*
20	*Turbine*

8. GAS COMBUSTION PROCEDURE

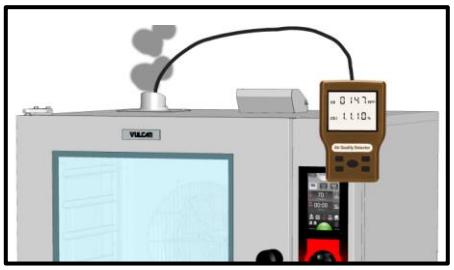
WHO (can carry out this procedure):
Expert Technician (Trained on Combis – Trained for this Procedure)

EQUIPMENT (tool required):
Combustion Analyzer, complying with the local regulations, and:
- Analyzer technology should be with onboard CO2 sensor (direct measure)
- If analyzer technology doesn't have a CO2 sensor (%CO2 = calculation), check that the correct gas has been set in the analyzer, for the measure (mandatory for correct calculation)

WHEN (to do this procedure):
To switch from one gas to another
After changing Key Gas components as: Burner, Valve, Motor, Jet and exchanger

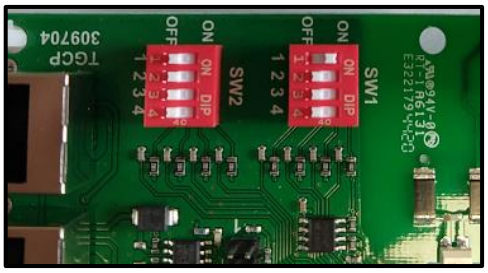
- Procedure:

- Set the gas combustion testing appliance to show "CO2 rate in %"
- Place the probe of the gas testing aplliance in the oven chimney



The probe must be inserted into the gas chimney for valid combustion values

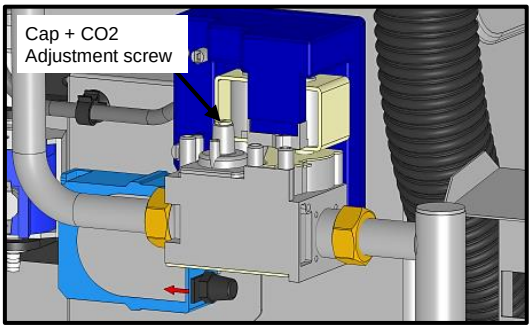
- Put switch SW1 of the gas card to adjustment mode: put switch 1 of switch SW1 to "ON"

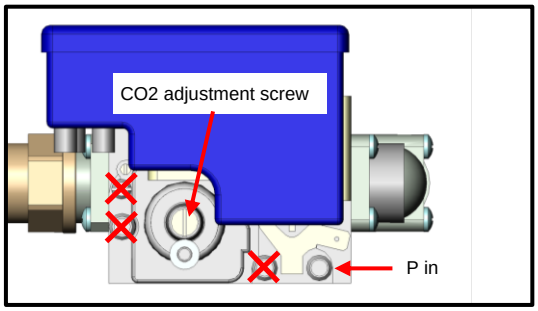


- Switch the oven on :
  - Set the oven to "Dry Mode", "Temperature 480°F" and press "Start"
- Take the sample (always take the sample with the oven burner in operation). The percentage of CO2 measured must correspond within +/- 0.2% to the required value for the gas type in the table below.

	CO2 (%)
Natural Gas A	11.1 ±0.2
Propan E	11.4 ±0.2

- If the percentage of CO2 measured does not correspond to the required value for the gas type in the table shown, adjust the CO2 adjustment screw on the gas valve:
  - Remove the protective cap from the adjustment screw
  - Adjust the setting by screwing/unscrewing the screw a maximum of a quarter turn at a time.
  - After adjustment replace the protective cap.





- Switch off the oven and allow it to cool down.
- Take a second sample of the combustion gases by following the above procedure and checking that the CO2 % value is within +/- 0.2% of the level required in the above table for the corresponding gas type. Repeat the adjustment procedure as many times as necessary to obtain the required value.
- If the CO2 level is correct, put switch SW1 of the gas card back to operating mode: put switch 1 of switch SW1 to “OFF”

- Ensure that the CO rate is less than 150ppm

9. CONTROL OF THE ELECTRODES (GAS BURNER)

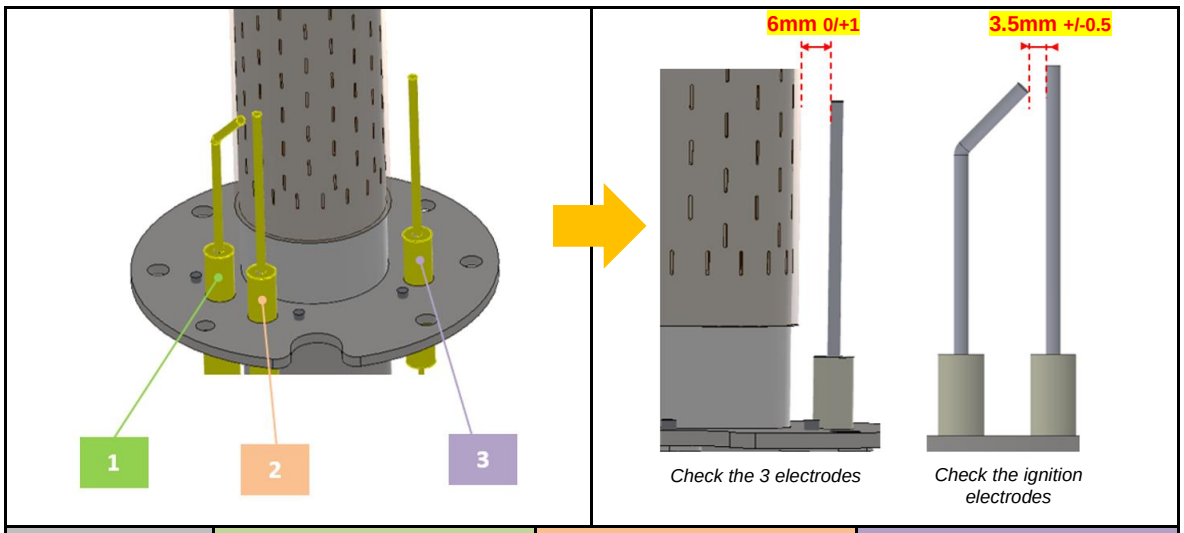
WHO (can carry out this procedure):
Expert Technician (Trained on Combis – Trained for this Procedure)

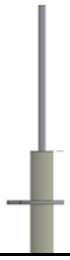
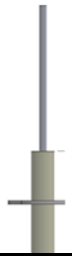
EQUIPMENT (tool required):
- A rod / gauge by 6mm diameter for the 3 electrodes (detection and flame detection).
- A rod / gauge by 3mm (passes) and 4mm (doesn't pass) diameters for ignition electrodes

WHEN (to do this procedure):
In case of unusual noise from burners (loud ignition, detonation, etc.),

Procedure:

- Record the noise,
- Pick up the Serial Number (see data plate),
- Remove the burner and control the position of ignition and flame detection electrodes (see drawing below):
  - A wrong electrodes' adjustment is the main reason to have abnormal noise
  - No need to check the combustion (except after changing some gas circuit components) or, worse, change the combustion settings (screw …)
- Before changing anything in the Electrodes positions/ adjustments, take picture and measure the related positions (2 dimensions in the drawing bellow), and note any potential visible issue (deposits? …)
- Proceed to the setting / adjustment of the electrodes if out of the tolerances (see drawing). Change the electrodes if needed.



N°	1	2	3
Type	Ignition	Ignition	Flame detection
Code	**468400**	**468401**	**468401**
Visual			

- Reassemble the burner / gas circuit and validate that the noise problem is resolved
- Send all information to TECHNICAL SUPPORT: Serial Number, Gaz & pressure, Noise record, setting before any change, settings after change if needed … and global validation.

10. PREVENTIVE MAINTENANCE

To ensure the proper, long-lasting and safe functioning of the equipment, it should be serviced by qualified personnel from our company.
The customer will be automatically informed when service is needed. The service counter is a calculated function of the frequency of use and of the number of hours between 2 services.
These values must be entered by the technician when installing the oven and must be verified after every maintenance operation.

10.1 LIST OF ACTIONS

Caution: The appliance must be isolated electrically during cleaning or maintenance and when replacing parts.

Subject	Recommendations (Every year or Every 3000 h)
Preparing for maintenance	
Software version errors	Is the equipment running the latest software version? If not, update.
Errors	Establish the error history. If the recorded electronics temperatures are too high (E30; i21; E37), check that the air inlet vents and technical fan are clean -ensure that the technical fan is working. If there are water flow errors (E82, i81), check the water solenoid valves, the flowmeter and the water inlets.
General	
Electrical connection	Complies with local standards
Earthing	Check earth continuity
Levelling	Levelling - Height of the loading threshold
Floor fixing	If fixing to the ground is required, check that it is functional.
Facia / Screen	
Control facia seal	No trace of water leakage or humidity inside the control facia and on electronic card protections; Replace the control facia seal if necessary
Electronics screen	No dirt or dust deposit on components
screen connections	No oxidation on USB / RJ45 plug terminals
Coder	No trace of water leakage or oxidation - Check correct operation
Technical compartment	
Ventilation openings / Technical fan	Cleaning the openings - Cleaning the fan blades
Supply terminals	No trace of overheating - Tighten connections
Fuse-holders (if any)	No trace of overheating - Tighten connections
Contactors	No trace of overheating - Tighten connections
The FastPad Power assembly	General dusting - No oxidation on outlet contacts - Check Fuse condition (Visual inspection of LEDs status)
Vent	General sealing - Check gasket - Cleaning - Operation
Heating	
Ventilation Motor	Systematic replacement of drive shaft gasket - Check tightness of fixings - Lubrication of shaft (High temperature lubricant)
Direction of rotation	Check that the motor changes direction of rotation every 4 min in convection mode
Heating elements	No trace of overheating on connections - Tightening electric connections - Measurement of intensities
Steam generator / cavity connection	The silicone pipe should be in good condition (watertight, non-porous) -clamps correctly positioned.
Hydraulics	
Water connection	Complies with local standards
Water quality	Check the water quality according to our recommendations (see installation manual)
Water treatment appliance	Check the level, regenerate the appliance or change the filter cartridge if necessary
General sealing	Visual inspection
Drainage	Check the wastewater drainage, ensure that there are no grease/dirt plugs and clean if necessary
Water inlet	Cleaning of the filter
Spray (Accessory)	The spray head is working and is watertight; the automatic return is working.
Flow sensor	No trace of leakage - No oxidation on electrical harness contacts - If necessary, thighten the hydraulic clamps and clean the electrical contacts.
Solenoid valves	No indication of overheating on coils (Possible colour change) - Check its operation
Cleaning product circuit	Check the condition of the different components: container base valve, pump fitting, pump, cleaning of the container base valve - Replace the product suction PVC hose and other components if necessary.
Descaler circuit	Check the condition of the different components: container base valve, pump fitting, pump, cleaning of the container base valve - Replace the product suction PVC hose and other components if necessary.
Cavity	
General condition	No rust stain - Cleaning efficiency - Descaling
Seal	Cleaning - General condition - Replacement if necessary
Core probre	General condition (tip, cable) - Check the tightness of the bulkhead grip and its seal
Damper valve	Check that the valve flaps freely. Check the condition of the seal and change it if necessary.
Ventilation turbines	General cleanliness -no limescale or corrosion -fins in good condition
Heating resistors	General cleanliness -no limescale
Sprinkler / Wash arm	Operation; free rotation of the arm; cleaning the nozzles; mechanical fixation
Water injection nozzle	Internal cleaning - Possible descaling - Replacement of the gasket - Mechanical fixation
Drain	Cleanliness - Fixation of grid - Sealing; Replace the seal if necessary
Collection channel under door	Sealing - Cleanliness of the drain
Cavity drain valve	Good operation - Internal sealing
Door	
General	Door assembly / door adjustment / screw tightness
Lighting	Lighting functioning
Top and bottom hinges	Check general condition (Wear…); Lubrication
Inner door	Condition and presence of inner door stops (Complete if necessary); Check good rotation and efficiency of locking spring (Adjust if necessary)
Lighting strip label	Check condition of the label (it must ensure water tightness) - Cleaning - Replace if necessary
Door closing mechanism	Check gaps and general fastening - Wear status of parts subject to friction
Charging trolley	Charging trolley is in good condition -adjustment of the stacking height/floor is correct -check the casters (wear/swivelling movement)

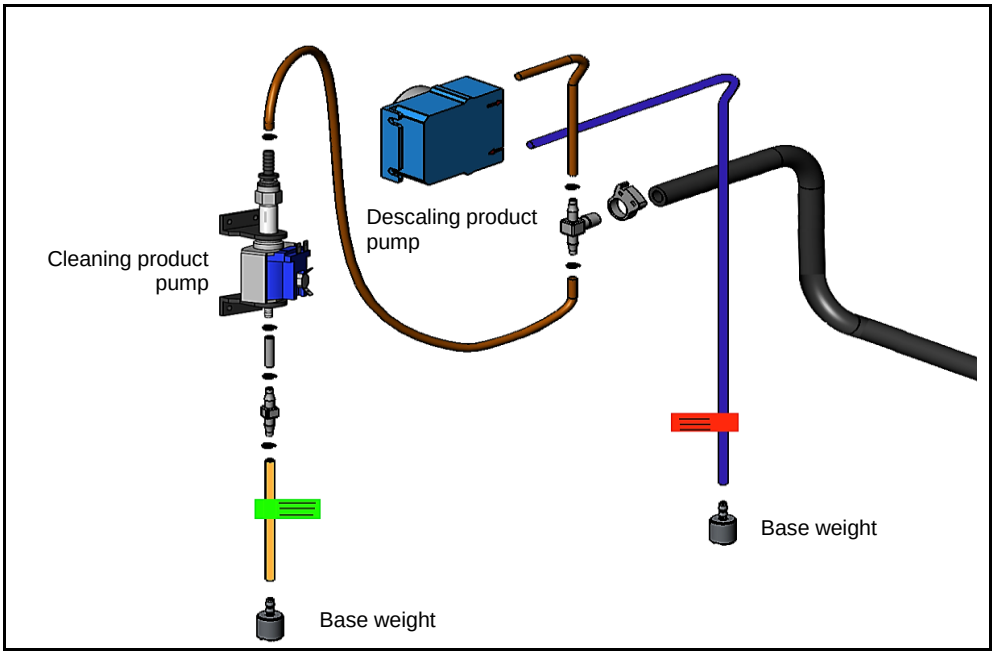
Only gas oven	
Gas connection	The gas connection complies with local standards -If connected via a flexible hose, ensure its suitability for use (date, condition etc.)
Air replacement	The air replacement in the room complies with local standards -the air inlets are not obstructed
Gas connection	If the connection is made with a hose, check it suitability for use (Date, condition, ...)
Gas pressure	Checking the "static" and "dynamic" pressures at the appliance inlet
Burners	Disassemble - Condition of metal fibre - Cleanliness of jet - Condition and position of electrodes - Sealing of the assembly
Heating exchangers	Visual inspection of the general condition - Sealing of the flanges with technical compartment - Check fastening points
Flame security control	Dusting - Visual inspection of connections
Gas circuit sealing	During burner operation, check the seal of the circuit at every fitting
Control of safeties	During burner operation, turn off gas supply - The burner safety must activate
Combustion hygiene check	Measure the CO/CO2 level (following the instructions in “Switching from one gas to another”.
Cooking Grease collection option	
Grease collection circuit	Check the condition of the different components: Pump connection - Pump - Change the grease suction pipe and other components if necessary

10.2 WORKING ON THE DETERGENT PUMPS

- ♦ Danger of eye and skin irritation or acid burns.
  Detergents and descaler will cause irritation and possible burns if in direct contact with the skin or eyes.
  - Do not inhale the mist or spray
  - Avoid direct contact with these products
  - Never open the oven door during the automatic cleaning cycle
  - Wear protective clothing, gloves and hermetic protective goggles in accordance with the safety data sheet.
- ♦ Remember the dangers identified on the safety data sheet for detergent and descaler
  - Harmful if swallowed.
  - Can result in serious burns.
  - Irritates the eyes.
  - Irritates the respiratory tracts.
- ♦ - Remember the safety advice provided by the safety data sheet for each detergent and descaler
  - Do not each or drink when using these products.
  - Do not inhale their vapours.
  - If case of contact with eyes rinse immediately with plenty of water and seek medical advice.
  - Wear appropriate protective clothing, gloves and face and eye protective gear.
  - In the event of an accident or sickness seek immediate medical attention
  - Dispose of the product and its container as hazardous waste.

10.2.1 CLEANING AND DESCALING PRODUCTS PUMPS

The internal pipe of the descaling pump must be changed at least once a year (Voir paragraphe « Pompe de produit détartrant » dans le chapitre « Procédures de changement des composant s ».



10.3 ADJUSTING FREQUENCY INTERVENTION MAINTENANCE, USAGE RATE PER DAY

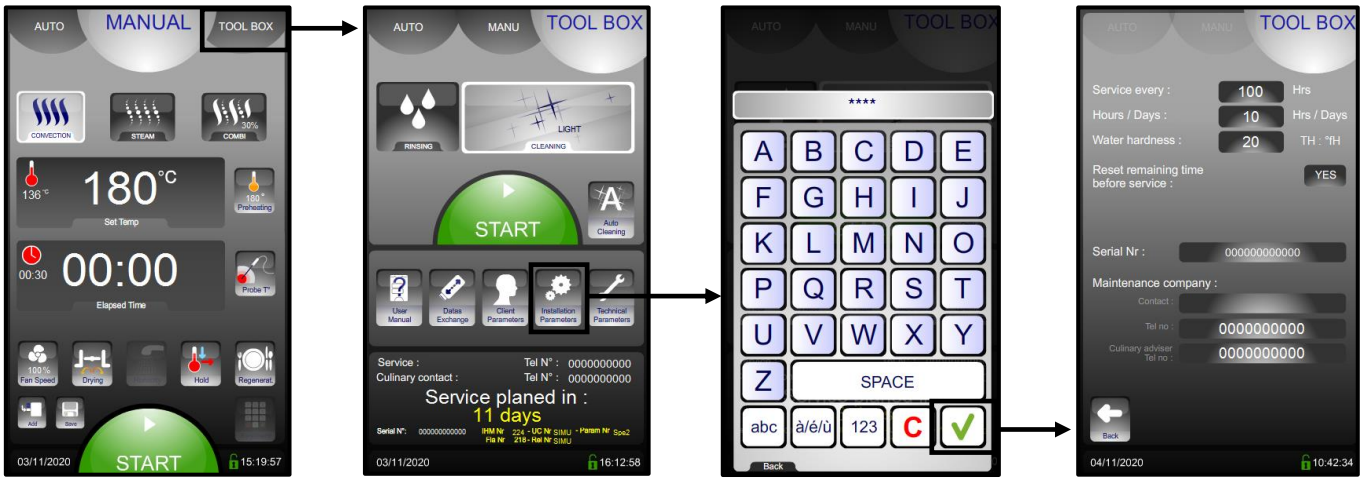
REMINDER : The frequency between two maintenance visits and the rate of use per day have been entered according to information (number of hours per day/type of cooking) provided by the customer during installation.

During maintenance it is the responsibility of the technician to check these settings against the actual use of the oven and modify them if necessary (according to the table below) :

			Adjusting the installation parameters (To be entered in Installation Parameters)	
Type of use (Client information)	**Hours of use/day (Customer information)**		**Maintenance regularity (in hours)**	**Hours per day (in hours)**
NORMAL USE (General Restaurant…)	LIGHT	**< 7 h**	**2000**	**6**
	STANDARD	**7-12 h**	**3000**	**8**
	INTENSIVE	**12-17 h**	**3000**	**16**
	VERY INTENSIVE	**17-24 h**	**3000**	**24**
COOKING >220°C and / or COOKING FATTY PRODUCTS (e.g. : rotisserie chicken)	STANDARD	**< 7 h**	**3000**	**8**
	INTENSIVE	**7-12 h**	**3000**	**16**
	VERY INTENSIVE	**12-17 h**	**3000**	**24**
	VERY INTENSIVE	**17-24 h**	**3000**	**24**

Procedure :

- Go into the service screen
- Press the “installation parameter” button
- Enter the PIN code for the installer “INSB”
- Validate “V”: when all the code has been entered and it is correct access the menu or start on the PIN number again.



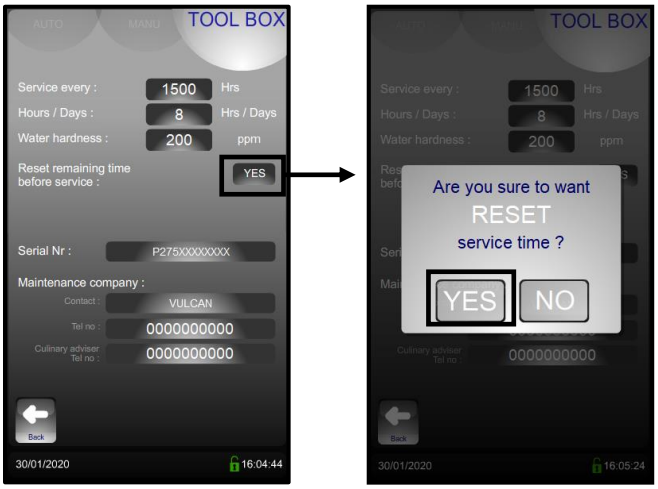
- Enter the number of hours before the next service visit: « HSr ». Adjustable from 100 to 5000 hours. Allow at least one service per year.
  * Select the value to be modified
  * Adjust the value using the coder
- Enter the average hours per day that the unit is likely to operate: « H-d ». Adjustable from 1 to 24 hours.
  * Select the value to be modified
  * Adjust the value using the coder

➔ Frequency of maintenance
➔ Level of use per day

10.4 RE-INITIALISATION OF THE MAINTENANCE COUNTER

- Go into the service screen
- Press the “installation parameter” button
- Enter the PIN code for the installer “INSB”
- Validate “V”: when all the code has been entered and it is correct access the menu or start on the PIN number again.

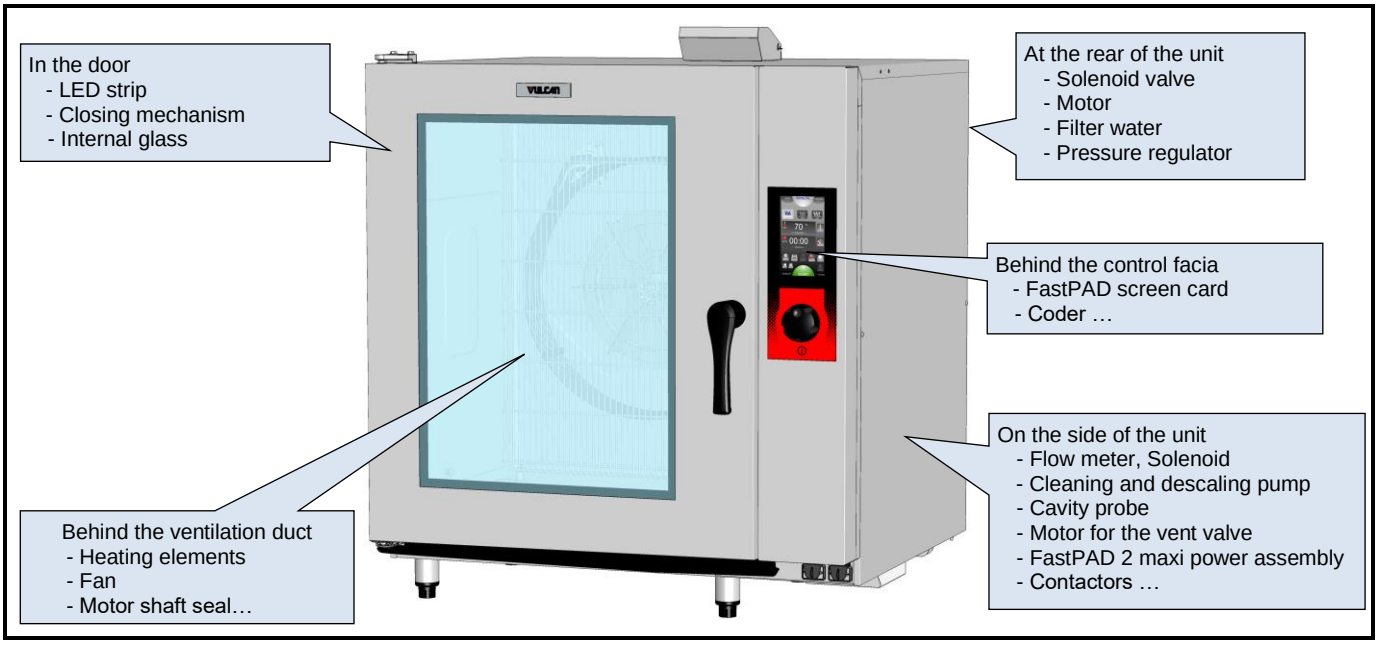
- Re-initialise the remaining time before the next service.



N.B. : If the time remaining before the next maintenance is less than or equal to 0, error code i84 will be displayed in error codes

11. PROCEDURE FOR CHANGING COMPONENTS

11.1 LOCATION OF TECHNICAL COMPONENTS

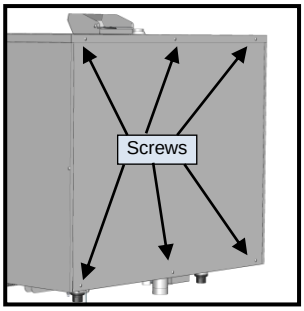


11.2 ACCESS TO COMPONENTS

Caution: The appliance must be isolated electrically during cleaning or maintenance and when replacing parts.

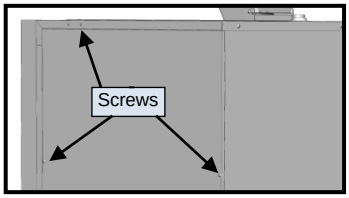
11.2.1 BEHIND THE OVEN

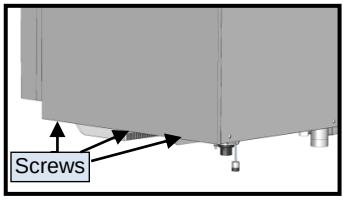
- Unscrew the various fixing screws
- Remove the side



11.2.2 THE RIGHT SIDE OF THE OVEN

- Unscrew the various fixing screws on the side of the oven
- Unscrew the 3 fixing screws under the side of the oven
- Remove the rear panel





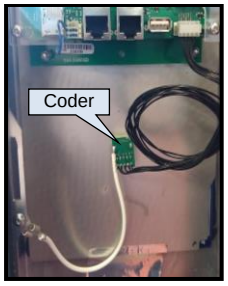
11.2.3 BEHIND THE CONTROL FACIA

- Remove the screw under the control of façade
- Open the hinged front
  - Push the front panel upwards and open it to the right

11.3 CODER

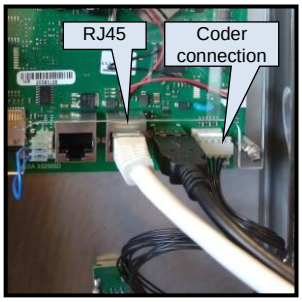
- Remove the coder knob
- Open the facia
  - See the section on access to components «Behind the control facia»
- Undo the code fixing nut (12mm spanner)
- Removing the coder
  - Disconnect the coder from the screen card
  - Disconnect the earth wire from the coder on the control panel
  - Remove the coder and change it

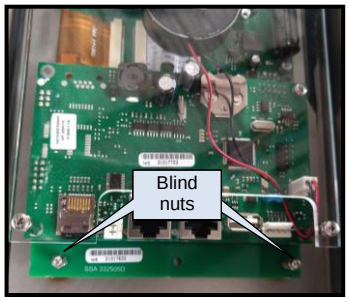


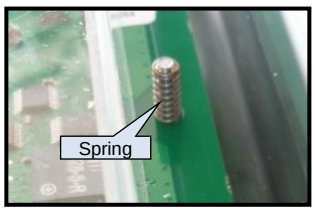


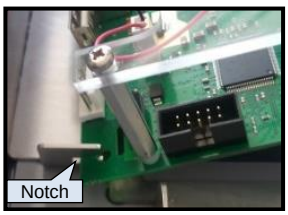
11.4 SCREEN CARD

- Removing the facia
  - See the section on access to components «Behind the control facia»
- Disconnect the screen card:
  - Le câble de la prise RJ45
  - The cable from USB port if the oven has one
  - The coder
- Removing the screen card
  - Undo the blind nut (thin 5.5mm spanner)
  - Remove the spring
  - Tilt the card towards you and lift it out of its notches
- Change the screen card
- Reassamble the new screen card and reconnect it.
- Configure the new screen card
  - Switch the oven on
  - Follow the instructions on screen card parameter setting (see section: “Parameter setting of the screen card” in the “Parameter setting program” chapter)









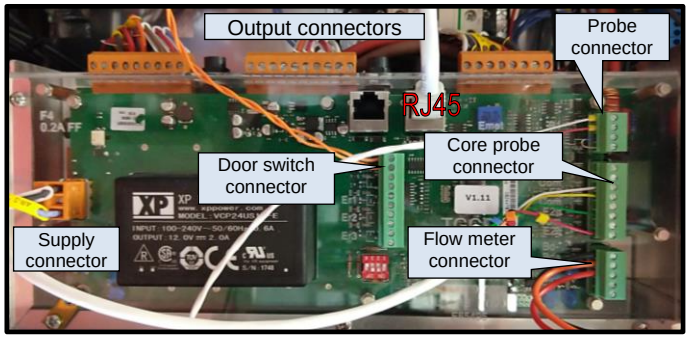
11.4.1 BUZZER ON THE SCREEN CARD

- Disconnect the Buzzer from the screen card
-
- Removing the buzzer
  - Undo the 3 screws holding the cover
  - Lift the cover off
  - Undo the two screws holding the buzzer
  -
- Change the buzzer
  When refitting the buzzer to the cover it will function best if you do not tighten the fixing screws too much.
  The buzzer can be left “floating”

11.5 FASTPAD 2 MAXI POWER ASSEMBLY (complete assembly with box)

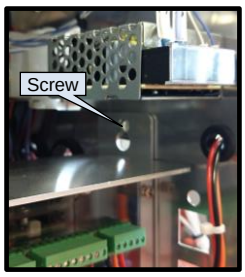
To access the Motor fuses, … except for the triac solenoid, the FastPAD 2 maxi power assembly must be removed.

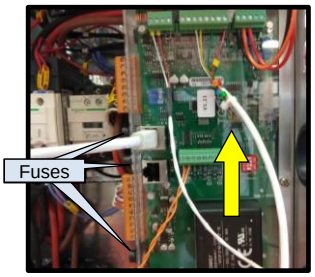
- Access to power assemblies
  - See the section on access to components «On the side of the oven»
- Remove the defective FastPAD 2 maxi power unit
  - Disconnect from the card
    - The 3 output connectors
    - Probe connector
    - The flow meter connector
    - The core probe connector (green on the right) if the oven is fitted with a core probe socket
    - The RJ45 socket
    - Supply connector
    - The door switch connector



- Slightly unscrew the Phillips screw PH2 at the top of the box
- Move the power unit box upwards, then pull it to the left

- Change the FastPAD 2 maximum power assembly
  Before reassembling the new FastPAD 2 maximum power unit, configure the card by correctly positioning the microswitches (see section on "Position of the microswitches" in the "Maintenance program" chapter).

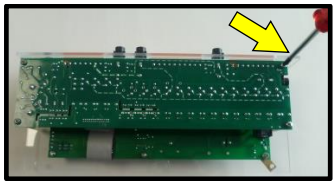


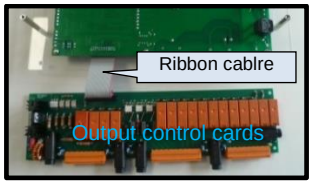


11.5.1 FASTPAD 2 MAXI UL RELAY BOARD

- Removing the complete power unit box
  - See the section on «FastPAD 2 mini power unit»
- Undo the 4 cross head screws holding the clear protective cover on the box
- Remove the cards from the metal support
- Place the box on a table (transparent face down)
- Removing the FastPAD 2 maxi UL relay board
  - Undo the 4 screws holding the card onto the stubs.
  - Place the card nearby

  - Disconnect the ribbon cable between the output control card and the main card
  - Change the FastPAD 2 maxi UL relay board
- Removing the complete power unit box

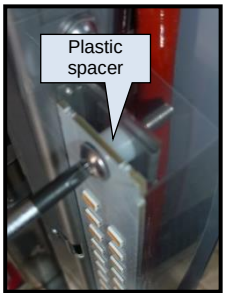


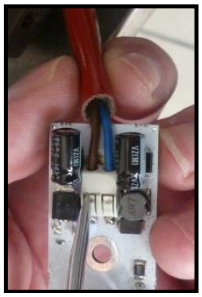


11.6 LED STRIP (IN THE DOOR)

- Ouvrir la porte
- Open the inner window
  - Press lightly on the upper bracket to unclip the window
- Removing the door trim
  - Unscrew the 3 screws on the side of the door
  - Unscrew the 5 screws of the casing
  - Remove the cover and the bracket from the interior glass
- Removal of the LED strip
  - Unscrew the 2 fixing screws of the strip

  Be careful not to lose the 2 plastic spacers placed behind the strip
  - Remove the strip
  - Disconnect the power wire using a small screwdriver
- Change the LED strip
  Do not press down on the connector when connecting the power wire to the LED strip, this could break the connector. When reassembling, remember to put the plastic spacers back in place behind the LED strip.



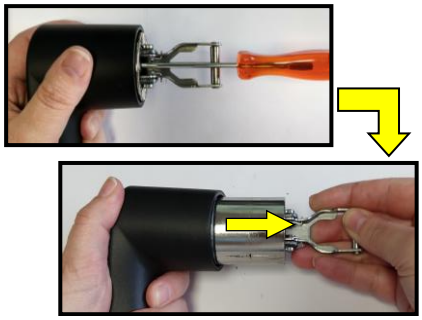


11.7 CLOSING MECHANISM

- Open the door
- Open the inner window
  - See the section on access to components «On the side of the oven»
- Removing the door trim
  - Unscrew the 3 screws on the side of the door
  - Unscrew the 5 screws of the casing
  - Remove the cover and the hook from the interior window

- Removing the door handle
  - Unscrew the 3 CHC M4 fixing screws of the door handle
  - Remove the door handle
- Removal of the closing mechanism
  - Unscrew the central fixing screw of the mechanism on the handle
  - Remove the mechanism
- Changing the closing mechanism

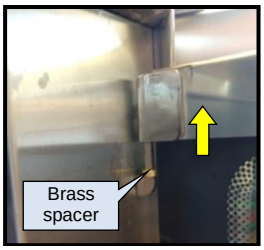
When reassembling the mechanism, fit the screw with the medium thread lock



11.8 INTERNAL GLASS

- Open the door
- To open the internal glass
  - Press lightly on the upper hook to unclip the window
- Removing the glass
  - Lift the glass to release it from its brackets

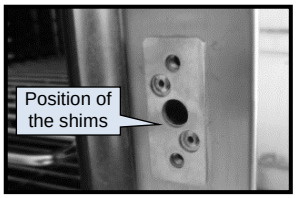
Be careful not to lose the two brass spacers on the hinges



11.9 DOOR CATCH

- Open the door
- Undo the 2 M6 Allen screws
- Remove the catch and its 2 packing shims
- Change the catch

When refitting ensure the shims are the right way round



11.10 DOOR

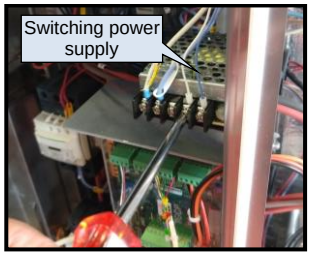
- Open door
- Removing the inner glass
  - See Chapter "Interior Glass"
- Open the right side of the oven
  - See the section on access to components «On the side of the oven»
- Disconnection of the LED strip
  - Disconnect the wires of the LED strip from the lighting switching power supply
- Removing the shutter from the hinge
  - Unscrew the front screw and the rear 2 hinges
  - Remove the shutter
- Remove the power wires from the oven LED strip and from the hinge
- Loosen the hinge fixing screw a few turns
- Removing the door
  - Lift the door to remove it from the lower hinge then release it from the upper hinge
- Changing the door

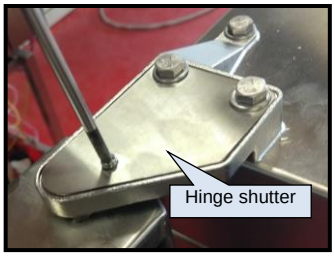
When reassembling, recover the 2 brass spacers from the old door for use on the hinges of the interior glass

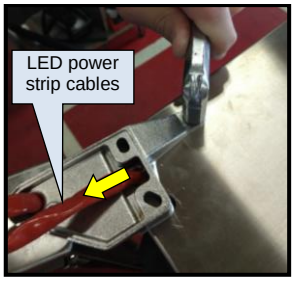
- Reattach the new door and connect the LED strip
- Adjusting the door
  - Check that the cavity is level, otherwise refer to the installation instructions

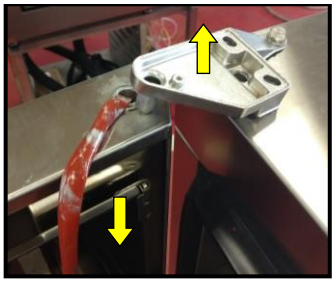
Pay attention to the different loading sill heights according to the oven.

  - Upgrading the left/right door
    - ♦ Loosen the 3 fixing screws on the hinge
    - ♦ Position a level on the top of the door
    - ♦ Lift the door to level it
    - ♦ Tighten the 3 screws







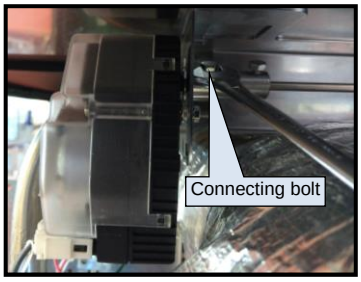


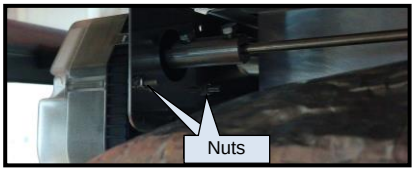
11.11 VENT VALVE MOTOR

- Open the right-hand side of the oven:
  - See the section on access to components «On the side of the oven»
- Disconnect the electrical supply to the motor
- To remove the motor
  - Slacken the bolt connecting the short shaft to the motor several turns

  It is advisable not to remove the bolt without supporting the short shaft
  - Undo the 2 nuts holding the motor to its support
  - Remove the motor
- Change the motor

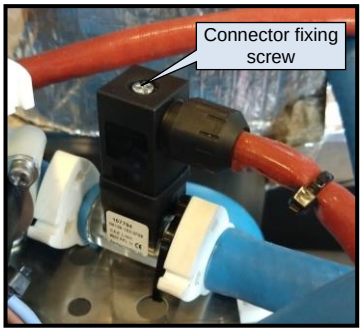
  When refitting remember to retighten the connecting bolt between the short shaft and the motor

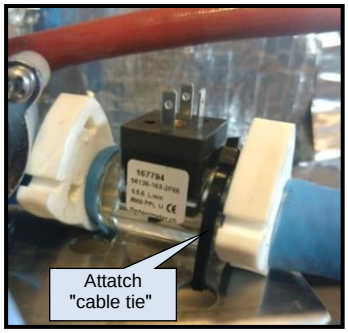




11.12 FLOW METER

- Access to flow meter(s)
  - Open the right-hand side of the oven:
    - ♦ See the section on access to components «On the side of the oven»
- Disconnect the electrical supply to the flow meter
  - Unscrew the connector fixing screw and disconnect it from the flowmeter
- To remove the flow meter
  - Cut the flowmeter fixing collar on the stainless-steel plate
  - Disconnect hydraulically
    - ♦ Slacken the two clamps and pull the hoses off the flow meter
- Change the flow meter

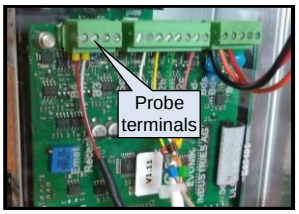


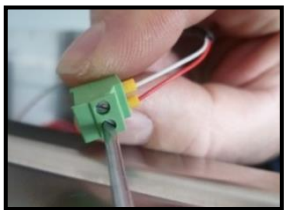


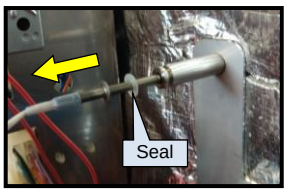
11.13 TEMPERATURE PROBE

- Access to temperature probe
  - Open the right hand side of the oven:
    - ♦ See the section on access to components «On the side of the oven»
- Déconnecter électriquement la sonde
  - Unclip the terminal block from the FastPAD power assembly
  - Disconnect the two wires from the terminal
- To remove the probe
  - Remove the holding clip
  - Remove the probe and its seal
- Change the probe and seal

  The probe seal must always be changed if the probe is changed or removed for any reason (replaced or simply checked)



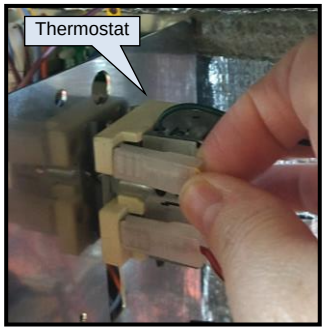


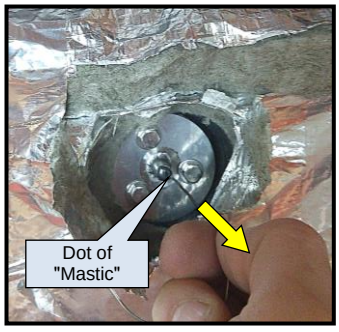


11.14 SAFETY THERMOSTAT

- Access to the thermostat
  - Open the right side of the oven :
    - ♦ See the chapter on access to components "on the side of the oven"
- Electrically disconnect the thermostat
  - Disconnect the two power terminals
- Removing the bulb
  - Pull the bulb towards you
- Removing the thermostat
  - Unscrew the fixing nut behind the plate
  - Remove the thermostat and change it

  When fitting the new bulb,,apply a dot of "mastic" at the base of the thermowell.

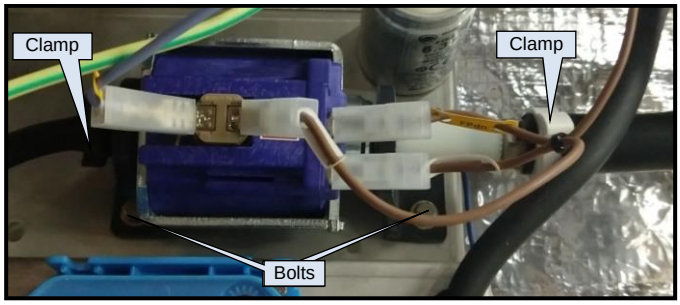




11.15 CLEANING PRODUCT PUMP

Before any work on the descaling product pump, refer to the “Preventative Maintenance” chapter: “Intervention on the cleaning and descaling product pumps” to ensure that the safety instructions are followed.

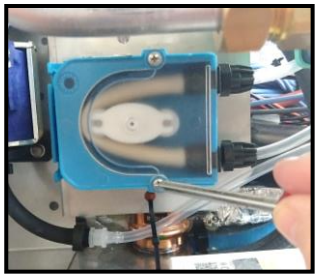
- Access to cleaning product pump(s)
  - Open the right hand side of the oven
    - ♦ See the section on access to components « On the side of the oven»
- Disconnect of pump
  - Disconnect the electrical supply
  - Use clamps on the inlet and outlet pipes of the pump
  - Cut the clamps holding the hoses
  - Pull the entry and exit hose off the pump
- To remove the pump
  - Undo the 4 M4 bolts
  - Remove the pump

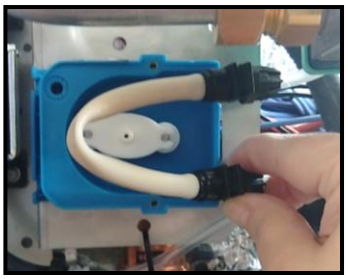


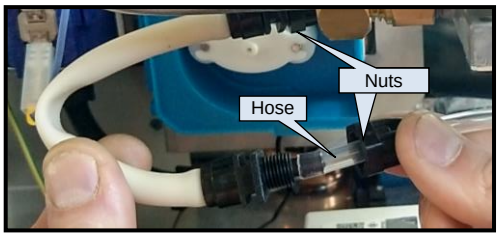
11.16 DESCALING PRODUCT PUMP : INTERNAL HOSE KIT

Before any work on the descaling product pump, refer to the “Preventative Maintenance” chapter: “Intervention on the cleaning and descaling product pumps” to ensure that the safety instructions are followed

- Access to the descaling product pump
  - Open the right-hand side of the oven
    - ♦ See the section on access to components « On the side of the oven»
- Access to the internal hose kit
  - Unscrew the 2 fixing screws on the protective cover
  - Remove the protective cover
- Removing the hose kit from the pump
  - Remove the kit from its base
  - Use clamps on the inlet and outlet pipes of the pump
  - Unscrew the 2 product inlet and outlet nuts
  - Disconnect the product inlet and outlet hose
- Change the internal hose kit

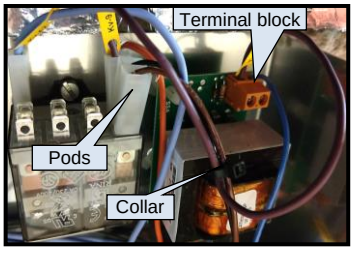


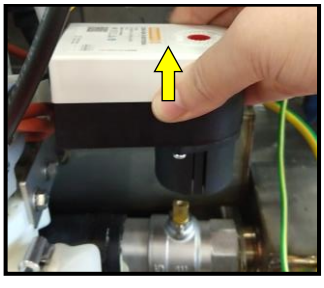




11.17 DRAIN VALVE MOTOR

- Access to the drain valve
  - Open the right-hand side of the oven
    - ♦ See the section on access to components « On the side of the oven»
- Disconnection of the valve motor
  - Cut the cable tie
  - Disconnect the wire from the terminal block of the transformer board
  - Disconnect the two terminals of the relay
- Removal of the valve motor
  - Remove the black cap
  - Unscrew the motor fixing screw on the valve
  - Remove the motor from the valve
- Changing the motor
  When reassembling, remember to replace the black cap on the motor fixing screw on the valve.





11.18 HEATING ELEMENT

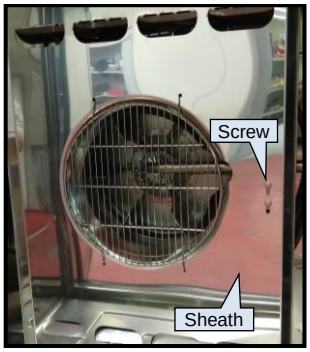
- Open the oven door
- Remove the shelves from the oven
- Remove the ventilation duct
  - Unscrew the two fixing screws of the sheath
  - Lift the sheath and pull it towards you

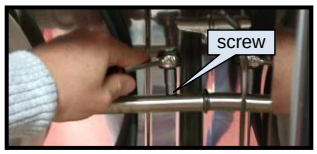
  Put some cardboard in the bottom of the oven to protect it in case of a tool being dropped during removal.

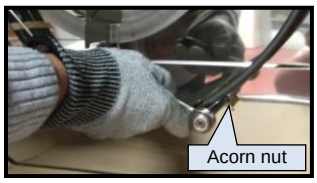
- Unscrew the fixing screw on the injection tube
- Remove the injection tube
- Unscrew the low acorn nut and the 3 high HM6 screws of the resistor

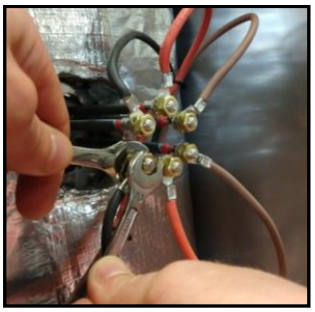
- Opening the back of the oven :
  - See the chapter on access to the “rear of the oven” components.
- Use two open-ended wrenches to disconnect the resistor electrically
- Remove the resistor from inside the oven

- Change the resistor and its seal without forgetting to replace it with the same.
  We recommend regularly changing the seal when changing a resistor and during the annual maintenance.



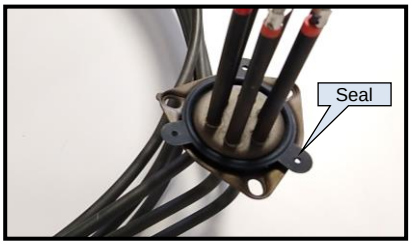






11.18.1 HEATING ELEMENT SEAL

- Open the oven door
- Resistor removal
  - See the chapter "Resistor"
- Remove the seal and change it
  We recommend regularly changing the seal when changing a resistor and during the annual maintenance.



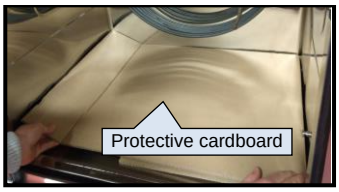
11.19 FAN

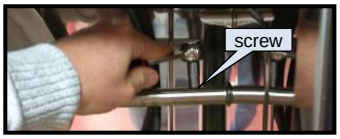
- Open the oven door
- Remove the shelves or trolley from the oven
- Remove the ventilation duct
  - Unscrew the two fixing screws of the sheath
  - Lift the sheath and pull it towards you

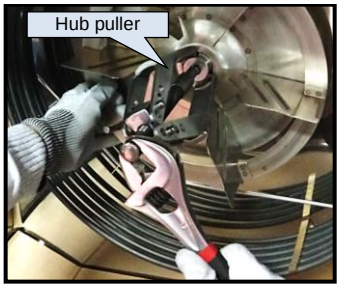
  Put some cardboard in the bottom of the oven to protect it in case of a tool being dropped during removal.

- Access to the turbine
  - Unscrew the fixing screw of the injection tube
  - Remove the injection tube
  - Unscrew the injection washer fixing screw
  - Remove the injection washer and the flat washer
  - Replace the injection washer fixing screw to avoid marking the thread of the motor shaft

- Removing the turbine
  - Put the hub puller in place
  - Use one hand to hold the turbine and the other to turn the screw of the hub puller using an adjustable wrench until the turbine is released
  - Remove the hub puller and the turbine
- Change the turbine

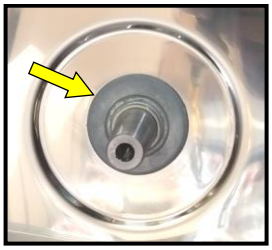






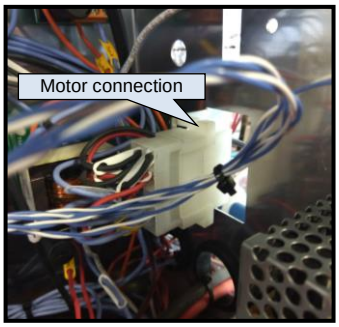
11.20 MOTOR SHAFT SEAL

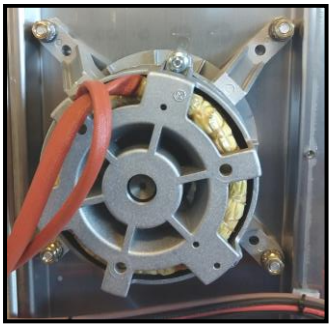
- Remove the heating element
  - See section on «heating element»
- Remove the motor shaft seal and its wear ring
  When replacing a motor seal always remember to change the wear ring
- Lubricate the motor shaft with high temperature food quality grease such as BIOLUB
  When refitting: Fit the assembly onto the motor shaft and rotate the shaft before fitting the fan, to ensure the seal and wear ring are correctly located (they should not rotate with the shaft)



11.21 MOTOR

- Remove the fan, the motor shaft seal and its wear ring
  - See section on « Fan » and « Motor shaft seal »
  Systematically replace the seal and wear ring when changing a motor
- Open the rear and the right-hand side of the oven:
  - See the sections on access to components «Behind the oven » et «On the side of the oven »
- Disconnect the motor electrically
- To remove the motor
  - Undo the 4 brass nuts and washers holding the motor.
  - Remove the motor by pulling it gently downwards then towards you





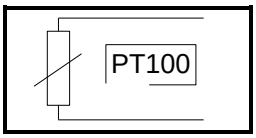
11.22 CAVITY SEAL

- Open the door
- Pinch the seal in one of the corners and pull it towards you
- Unclip the seal all the way round and pull it off
- Change the seal

12. CHECKING THE TEMPERATURE SENSORS

12.1 PT100 PROBE

PT100 probe components



Temperature sensor comprises a resistance sensor with the value of 100 ohms for a temperature of 32°F and 138.5 ohms for a temperature of 212°F. The variation of the resistance to temperature relationship is linear. The resistance reading is directly proportional to the measured temperature. The sensor is not polarised. The sensor can be extended using copper wire.

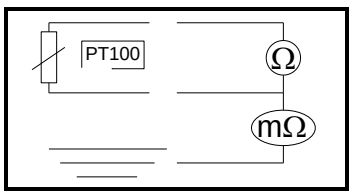
Temperature in °F relative to Resistance in Ω for PT100 sensor										
°F	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
30			100.00	100.22	10043	100.65	100.87	101.08	101.30	101.52
40	101.73	101.95	102.17	102.39	102.60	102.82	103.04	103.25	103.47	103.69
50	103.90	104.12	104.33	104.55	104.77	104.98	105.20	105.42	105.63	105.85
60	106.06	106.28	106.50	106.71	106.93	107.14	107.36	107.58	107.79	108.01
70	108.22	108.44	108.66	108.87	109.09	109.30	109.52	109.73	109.95	110.16
80	110.38	110.60	110.81	111.03	111.24	111.46	111.67	111.89	112.10	112.32
90	112.53	112.75	112.96	113.18	113.39	113.61	113.82	114.04	114.25	114.47
100	114.68	114.90	115.11	115.33	115.54	115.75	115.97	116.18	116.40	116.61
110	116.83	117.04	117.26	117.47	117.68	117.90	118.11	118.33	118.54	118.75
120	118.97	119.18	119.40	119.61	119.82	120.04	120.25	120.47	120.68	120.89
130	121.11	121.32	121.53	121.75	121.96	122.17	122.39	122.60	122.81	123.03
140	123.24	123.45	123.67	123.88	124.09	124.31	124.52	124.73	124.94	125.16
150	125.37	125.58	125.80	126.01	126.22	126.44	126.65	126.86	127.07	127.29
160	127.50	127.71	127.92	128.14	128.35	128.56	128.77	128.99	129.20	129.41
170	129.62	129.84	130.05	130.26	130.47	130.68	130.90	131.11	131.32	131.53
180	131.74	131.96	132.17	132.38	132.59	132.80	133.01	133.23	133.44	133.65
190	133.86	134.07	134.28	134.49	134.71	134.92	135.13	135.34	135.55	135.76
200	135.97	136.18	136.40	136.61	136.82	137.03	137.24	137.45	137.66	137.87
210	138.08	138.29	138.50	138.72	138.93	139.14	139.35	139.56	139.77	139.98
220	140.19	140.40	140.61	140.82	141.03	141.24	141.45	141.66	141.87	142.08
230	142.29	142.50	142.71	142.92	143.13	143.34	143.55	143.76	143.97	144.18
240	144.39	144.60	144.81	145.02	145.23	145.44	145.65	145.86	146.07	146.28
250	146.49	146.70	146.90	147.11	147.32	147.53	147.74	147.95	148.16	148.37
260	148.58	148.79	149.00	149.20	149.41	149.62	149.83	150.04	150.25	150.46
270	150.67	150.87	151.08	151.29	151.50	151.71	151.92	152.13	152.33	152.54
280	152.75	152.96	153.17	153.38	153.58	153.79	154.00	154.21	154.42	154.62
290	154.83	155.04	155.25	155.46	155.66	155.87	156.08	156.29	156.49	156.70
300	156.91	157.12	157.32	157.53	157.74	157.95	158.15	158.36	158.57	158.78
310	158.98	159.19	159.40	159.60	159.81	160.02	160.23	160.43	160.64	160.85
320	161.05	161.26	161.47	161.67	161.88	162.09	162.29	162.50	162.71	162.91
330	163.12	163.33	163.53	163.74	163.95	164.15	164.36	164.56	164.77	164.98
340	165.18	165.39	165.60	165.80	166.01	166.21	166.42	166.63	166.83	167.04
350	167.24	167.45	167.65	167.86	168.07	168.27	168.48	168.68	168.89	169.09
360	169.30	169.50	169.71	169.92	170.12	170.33	170.53	170.74	170.94	171.15
370	171.35	171.56	171.76	171.97	172.17	172.38	172.58	172.79	172.99	173.20
380	173.40	173.61	173.81	174.01	174.22	174.42	174.63	174.83	175.04	175.24
390	175.45	175.65	175.86	176.06	176.26	176.47	176.67	176.88	177.08	177.28
400	177.49	177.69	177.90	178.10	178.30	178.51	178.71	178.92	179.12	179.32
410	179.53	179.73	179.93	180.14	180.34	180.54	180.75	180.95	181.15	181.36
420	181.56	181.76	181.97	182.17	182.37	182.58	182.78	182.98	183.19	183.39
430	183.59	183.80	184.00	184.20	184.41	184.61	184.81	185.01	185.21	185.42
440	185.62	185.82	186.03	186.23	186.43	186.63	186.83	187.04	187.24	187.44

How to read the chart:

To find the resistance corresponding to a temperature of 235°F.

- Find the intersection of the line 230°F and the column 5°F.
- The reading shows 143.34 Ohms.

Check



Check sensor resistance with an ohmmeter set to 200 ohms (less than 107 ohms for 20°).

Check the sensor insulation between one of the leads and the metal part with the ohmmeter set at 20 mega ohms (a value over 15 mega ohms).

Check the continuity between the feed and the metal part of the sensor.

13. FRONT LINE PARTS

Designation	Codes
Drive shaft gasket + wear ring	145587
120W UL Motor service kit	147147
UL drainage valve	147861
Resistance service kit 11.43 KW 240V + gasket (outer flange)	147960
Resistance service kit 19.6 Kw 240V + gasket	147961
Resistance service kit 16.3kw 208V + gasket	147962
Regulation probe service kit 1PT100	148071
250W Motor service kit + ring + gasket	148095
Resistance service kit 11.43 Kw 240V + gasket	148096
Resistance service kit 22KW 277V + gasket	148097
Resistance service kit 11KW 277V	148098
40 diameter burner service kit 15-24 kW	148246
40 diameter burner service kit	148247
Gas fan service kit	148257
One-way UL solenoid valve 1 x 10L/min	148597
Two-way UL solenoid valve 2 x 10L/min	148598
After sales kit facia seal	148755
Motor relay with fixation bracket	300282
Reed switch	300676
Three-pole 25A 230V 50/60 Hz contactor	300697
Three-pole 50A 230V 50/60 Hz contactor	300700
Tree-pole 80A 230V 50/60 HZ contactor	300702
Anti-interference relay	300769
Ultra fast fuse 0.2A 250V 5 x 20	300787
10amp 5 x 20 fuse	300788
5 x 20 fast fuse 1amp	300789
600VAC fuse 10A 10.3 x 38.1	300793
Contactor LC1D80P7	300798
Glass fuse	300801
Integrated switching power supply	300802
Manual reseting 320°C thermostat + nut	301066
Peristaltic pump 3 litres/h	304312
Condenser 12.5µf	304296
Ventilation fan 120 x 120 x 38 230/50/60 UL	304297
24V Motor/gearbox	305110
Switching regulator 15V 15W RS 15-15	308350
Transformer 230V/24 UL	308492
830 VA Transformer	308498
415 VA Transformer	308499
Fuse 3.15 Amps	309407
Inter card cable	309581
Filter with connection for gas oven	309608
FastPAD 2 interface assembly	309634
LED strip	309638
VISIOPAD coder	309644
FastPAD 2 Screen	309646
FastPAD 2 Max UL relay connection	309663
Gas burner control card	309704
848 Sigma 60Hz gas valve	310355
Security box	310356
LED strip label	311356
CP2A pump	314379
Base weight	318060
Heating element + immersion heater gasket	366461
27 x 3 EPDM 70 shores O ring	366485
Capacity drainage gasket	366556
Capacity gasket for oven	366561
Capacity gasket to 1035 and 1056	366562
Door stop	366572
4 x 6 PVC hose per meter	366601
Inlet flange gasket exchanger	366680
Outlet seal exchanger 6/10 levels	366683
Heat exchanger inlet seal	366684
Gas fan gasket	366685
Door closure mechanism	384187
Anti-parasite module	407002
Gas ignition	408402
Arched ignition electrode	408400
Straight Ionisation electrode	408401