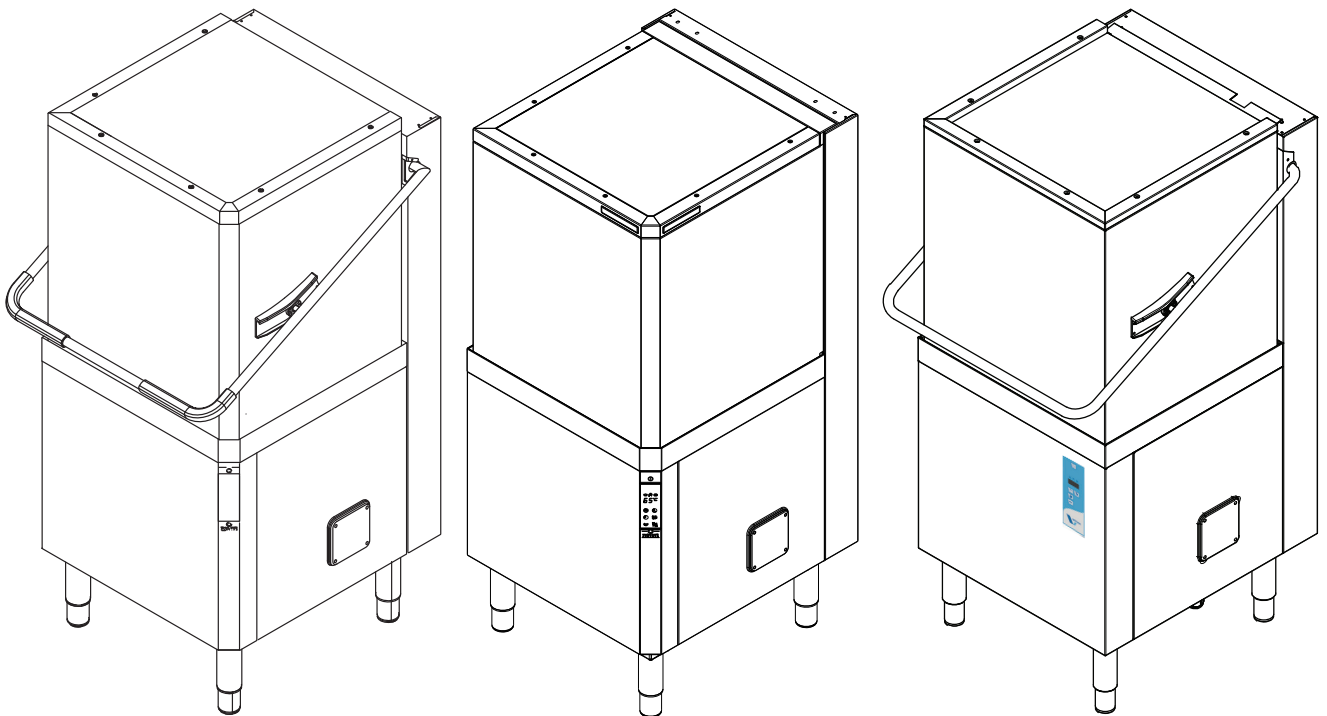# Electrolux PROFESSIONAL

SERVICE MANUAL

CONTENTS: This document contains the instructions to set electronic board parameters via user interface for following dishwashers:

EDITION: 02.2024

Updated to firmware version: 0.30.

All the safety regulations and procedures to be followed by the Specialised Technician/Technical Assistance performing electrical, mechanical or electronic maintenance operations are contained in the instruction manual supplied with the machine: refer to this document before operating. This applies for anyone carrying out operations using these documents. The specialised technician must wear personal protection equipment suitable for the work being performed (e.g. gloves, safety glasses and shoes, suitable clothing, etc.) and use appropriate tools, equipment and auxiliary means.
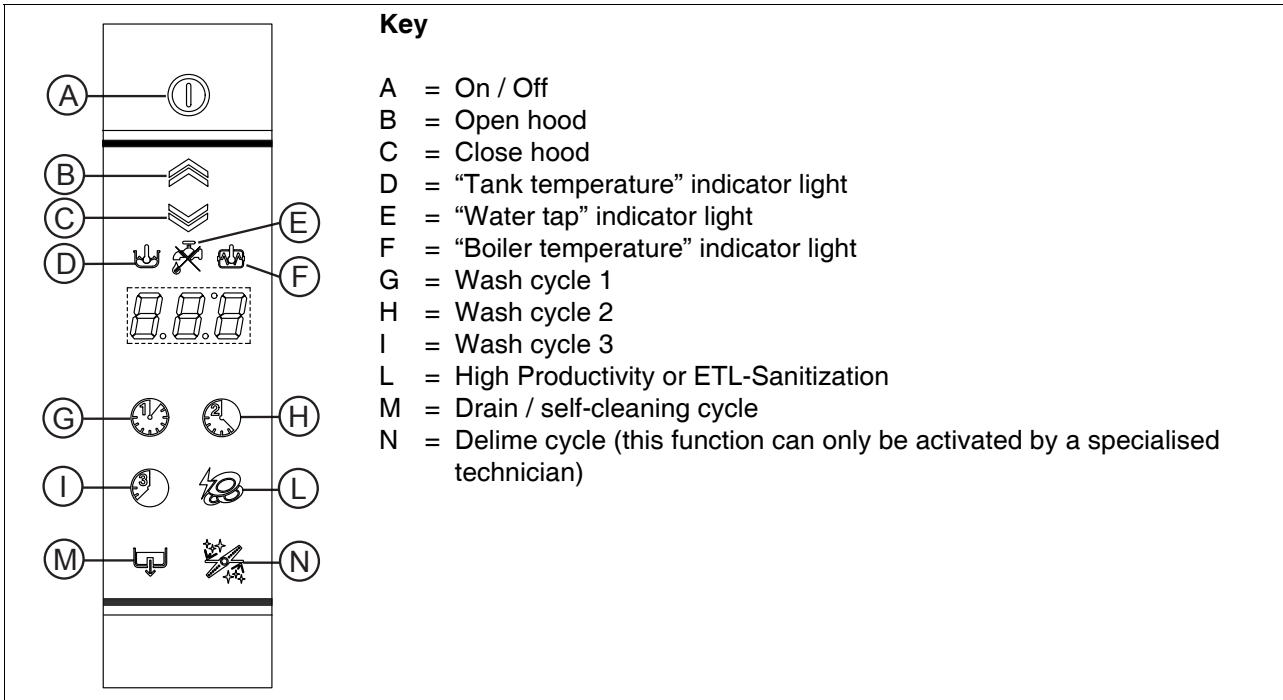
INDEX

INDEX OF FIGURES AND TABLES

1 KEYBOARDS

1.1 DESCRIPTION OF CONTROL PANEL

Key

A = On / Off
B = Open hood
C = Close hood
D = "Tank temperature" indicator light
E = "Water tap" indicator light
F = "Boiler temperature" indicator light
G = Wash cycle 1
H = Wash cycle 2
I = Wash cycle 3
L = High Productivity or ETL-Sanitization
M = Drain / self-cleaning cycle
N = Delime cycle (this function can only be activated by a specialised technician)

1.2 SERVICE/ MAINTENANCE COMMANDS

Fig. 1 User Interface check [§ 2]
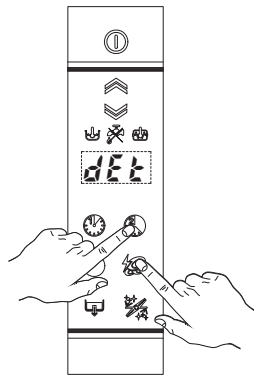
Fig. 2 Detergent dispenser Manual Activation [§ 3.1]
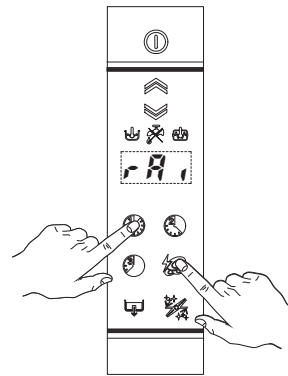
Fig. 3 Rinse Aid Dispenser Manual Activation [§ 3.2]
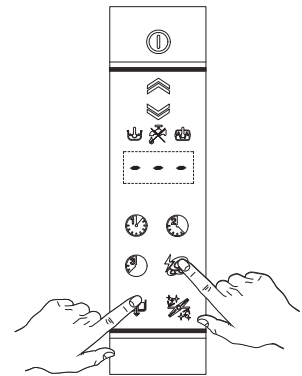
Fig. 4 Rinse Pump Manual Activation (used to EMPTY BOILER) [§ 4]
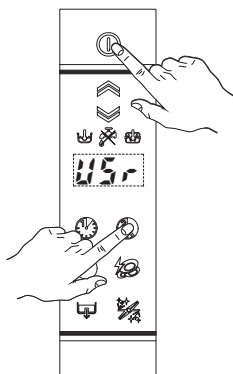
Fig. 5 Accessing the parameters menu [§ 5]
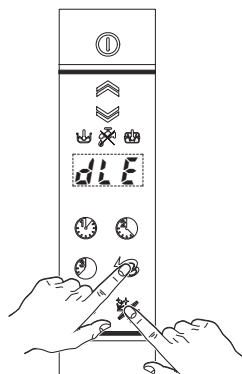
Fig. 6 Delime Activation [§ 7.4.6]

2   USER INTERFACE CHECK

This check allows you to verify if the USER INTERFACE board works properly.
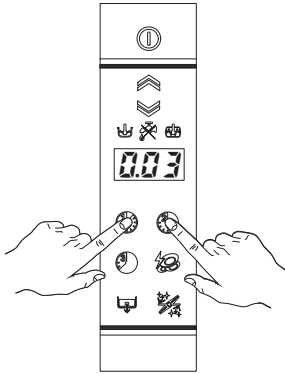
1. Activate the dishwasher
2. Press at the same time the washing cycle 1 and the washing cycle 2 ("G" - "H" Par. 1.1 DESCRIPTION OF CONTROL PANEL), the display shows the firmware version of the user interface board (example: *0.03*)
3. To check if the display works properly, press at the same time the washing cycle 1 and the washing cycle 2, the display shows all the elements that are on (*8.8.8*).
4. To check if the buttons and pilot light work properly, press at the same time washing cycle 1 and washing cycle 2. Press the buttons one by one to check them. An acoustic signal confirms that the button work properly.

3   MANUAL ACTIVATION OF DETERGENT AND RINSE AID DISPENSERS

When replacing detergents may be necessary activate the dispensers to fill hoses.

3.1   DETERGENT DISPENSER ACTIVATION (depending on the model)
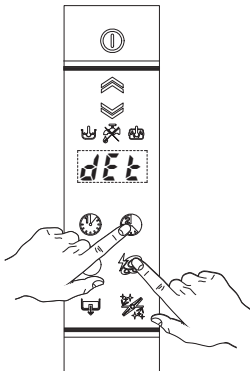
Switch on the dishwasher.

Press and hold down wash cycle 2 ("H" - Par. 1.1 DESCRIPTION OF CONTROL PANEL) and "L" key (Par. 1.1 DESCRIPTION OF CONTROL PANEL), after two 'beep' the detergent dispenser starts work for 20 sec.

3.2   RINSE AID DISPENSER ACTIVATION (depending on the model)
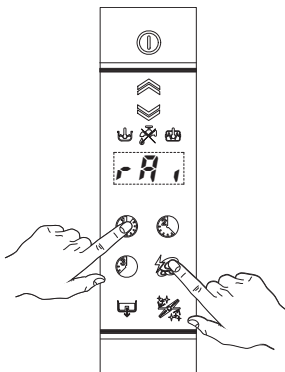
Switch on the dishwasher.

Press and hold down wash cycle 1 ("G" - Par. 1.1 DESCRIPTION OF CONTROL PANEL) and "L" key (Par. 1.1 DESCRIPTION OF CONTROL PANEL), after two 'beep' the rinse aid dispenser starts work for 40 sec.

4   RINSE PUMP MANUAL ACTIVATION

Use this function to empty the boiler (if the dishwasher is not to be used for a long time, for maintenance operation: ex. before replacing main board).
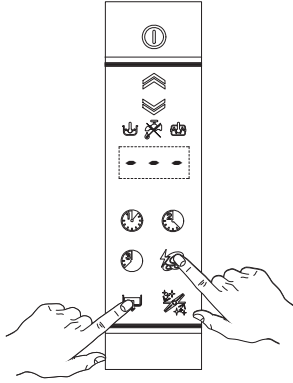
Switch on the dishwasher.

Close the door and press and hold down Drain / self-cleaning cycle ("M" - Par. 1.1 DESCRIPTION OF CONTROL PANEL) and "L" key (Par. 1.1 DESCRIPTION OF CONTROL PANEL). A buzzer signal indicates the rinse pump activation and the display shows three blinking lines. Three beeps indicate the cycle end.

5   ACCESSING THE PARAMETERS MENU

The parameters are divided into two families: $U5r$ user parameters and FAC factory parameters.

In the $U5r$ family there are parameters for adjusting the detergent and rinse aid dispensers and the counters (wash cycles, drain/cleaning cycles, etc.).

In the FAC family there are all parameters that determine dishwasher operation: boiler and tank working temperature, duration of the phases of each cycle, etc.

To access the parameters menu, the unit must be in standby mode: switch on the unit and check that no cycles are selected. In the programming phase it is advisable to keep the hood open to avoid starting a cycle if the two buttons are not pressed together (see point 2 in the following example).

Example:

With reference to Table 1 ACCESSING THE PARAMETERS MENU assuming the boiler temperature parameter btC is to be modified.

1. Switch the dishwasher off and then on again;
2. Enter the parameter mode by pressing and holding down the ON/OFF buttons ("A" - Par. 1.1 DESCRIPTION OF CONTROL PANEL) and wash cycle 2 ("H" - 1.1 DESCRIPTION OF CONTROL PANEL) for approx. 5 sec. The display shows the message $U5r$;
3. Press the wash cycle 2 ("H" - Par. 1.1 DESCRIPTION OF CONTROL PANEL) button to go to the FAC family;
4. Press the button ("L" - 1.1 DESCRIPTION OF CONTROL PANEL) to access the boiler parameters bo family;
5. Press the button ("L" - Par. 1.1 DESCRIPTION OF CONTROL PANEL) again to display the boiler temperature parameter btC;
6. Press the button ("L" - Par. 1.1 DESCRIPTION OF CONTROL PANEL) again to display the boiler temperature parameter value;
7. Use wash cycle 1 ("G" - Par. 1.1 DESCRIPTION OF CONTROL PANEL) and wash cycle 2 ("H" - Par. 1.1 DESCRIPTION OF CONTROL PANEL) to modify the parameter value; use the wash cycle 1 button to decrease the value and the wash cycle 2 button to increase it;
    NOTE: If the tank LED is on, the parameter value corresponds to the factory-set value.
8. Press the button ("L" - Par. 1.1 DESCRIPTION OF CONTROL PANEL) to confirm the value and return to the display of parameters.
    NOTE: To exit the parameter mode and return to the display of the families, press wash cycle 3 ("I" - Par. 1.1 DESCRIPTION OF CONTROL PANEL).

Similarly it is possible to change the other values; afterwards, switch the machine off and then on again.

Table 1 ACCESSING THE PARAMETERS MENU

(keep the buttons pressed for approx. 5 sec.) **User parameters** **Factory parameters**

Dispensers parameters **Counters** **Boiler parameters** **Tank parameters**
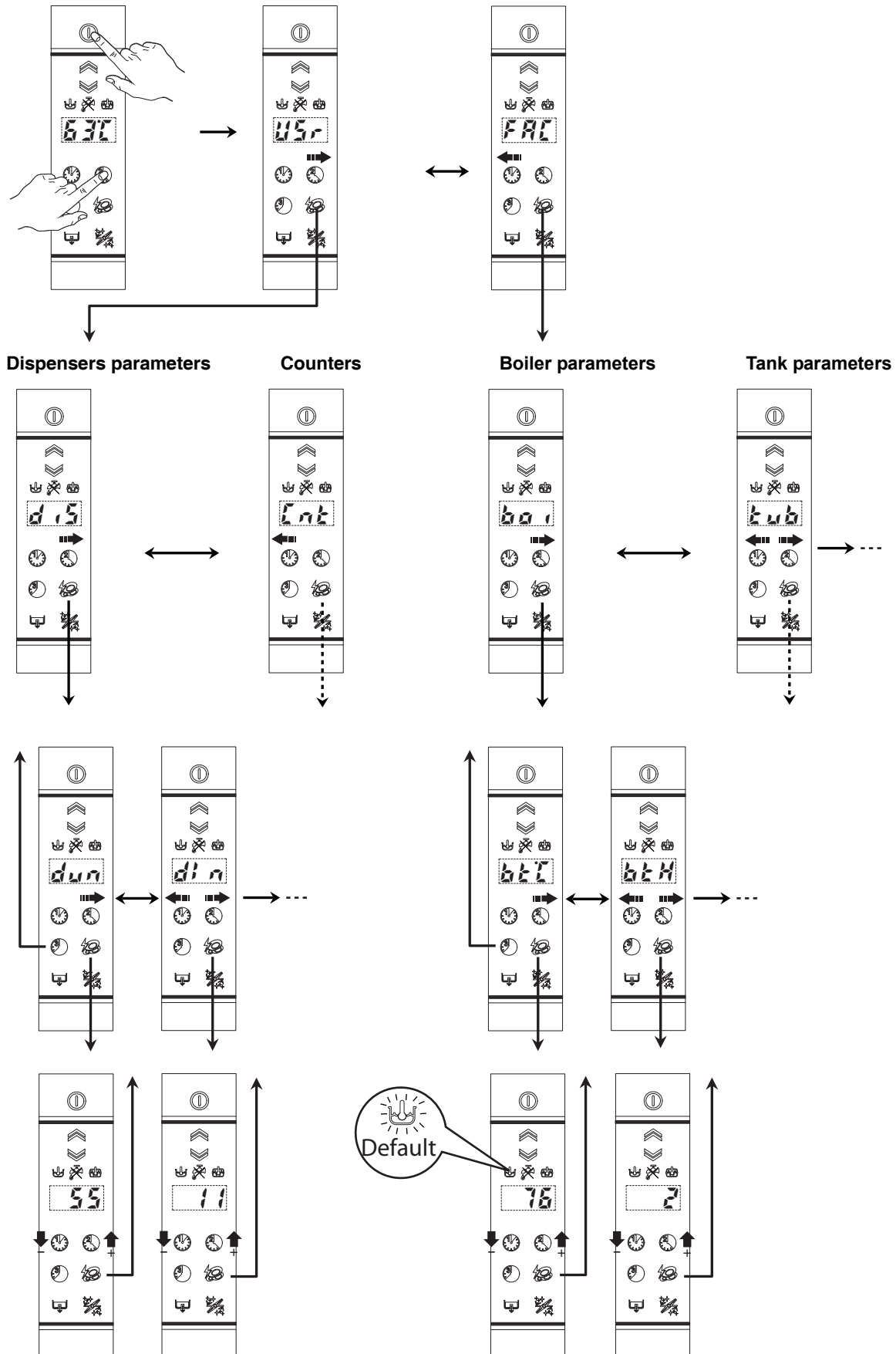
6 _USr_ USER PARAMETERS

6.1 _d ı5_ DISPENSERS PARAMETERS - DETERGENT AND RINSE AID DOSAGE

In this paragraph is explained how to set the dosage for the detergent and rinse aid dispensers. For each dispenser there are two parameters: the initial dosage and the dosage during cycle execution.

By changing the _dun_ parameter is possible to set the desiered unit of measure (_G-L_ =g/l or _SEC_ =seconds). If _dun_ = _G-L_ need to set he parameters on the concentration in g/l, while if _dun_ = _SEC_ parameters correspond to the activation times in seconds.

Sym.	Parameter Description	Unit	Min	Max	Factory Default
dun	Dispensers unit of measure (_G-L_ =g/l or _SEC_ =seconds)	-	-	-	_G-L_
_d ln_	Initial Detergent Dosage (during filling tank)	[g/l]	0	4,00	2,00
		[s]	0	240	55
_r ln_	Initial Rinse Aid Dosage (starts when tank filled)	[g/l]	0	1,00	0,12
		[s]	0	180	11
dEt	Detergent Dosage During Cycle Execution (during wash phase)	[g/l]	0	4,00	2,00
		[s]	0	182 (*)	5
_rA ı_	Rinse Aid Dosage During Cycle Execution (when refilling boiler)	[g/l]	0	1,00	0,12
		[s]	0	62 (*)	2

(*) Note for external dispensers (if: _dun_ = _SEC_):

- if _dEt_ = _181_ the **detergent dispenser** works when **WASHING PUMP** is being activated; at the same time voltage is supplied between connectors **L1$_7$–L1$_9$** (main terminal box);
- if _dEt_ = _182_ the **detergent dispenser** works when **LOADING EV** is being activated to re-fill boiler level; at the same time voltage is supplied between connectors **L1$_7$–L1$_9$** (main terminal box);
- if _rA ı_ = _61_ the **rinse aid dispenser** works when **LOADING EV** is being activated to re-fill boiler level; at the same time voltage is supplied between connectors **L1$_8$–L1$_9$** (main terminal box);
- if _rA ı_ = _62_ the **rinse aid dispenser** works when **WASHING PUMP** is being activated; at the same time voltage is supplied between connectors **L1$_8$–L1$_9$** (main terminal box).

- For electrical connections refer to electric diagram
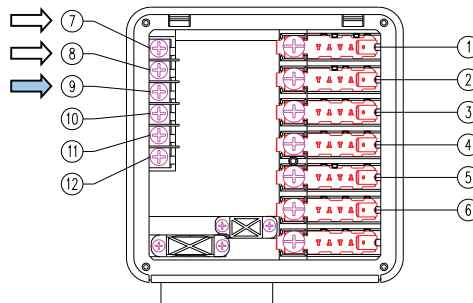
Example

Suppose there is connected an **external detergent dispenser** with a probe into the tank.
A typical setting could be:

- _d ln_ = _0_ the dispenser is not activated during filling tank;
- _dEt_ = _181_ the dispenser is supplied during washing phase and the probe automatically dose the right detergent amount.

Table 2   ACCESSING THE DISPENSERS PARAMETERS
(keep the buttons pressed for approx. 5 sec.)

Dispensers parameters
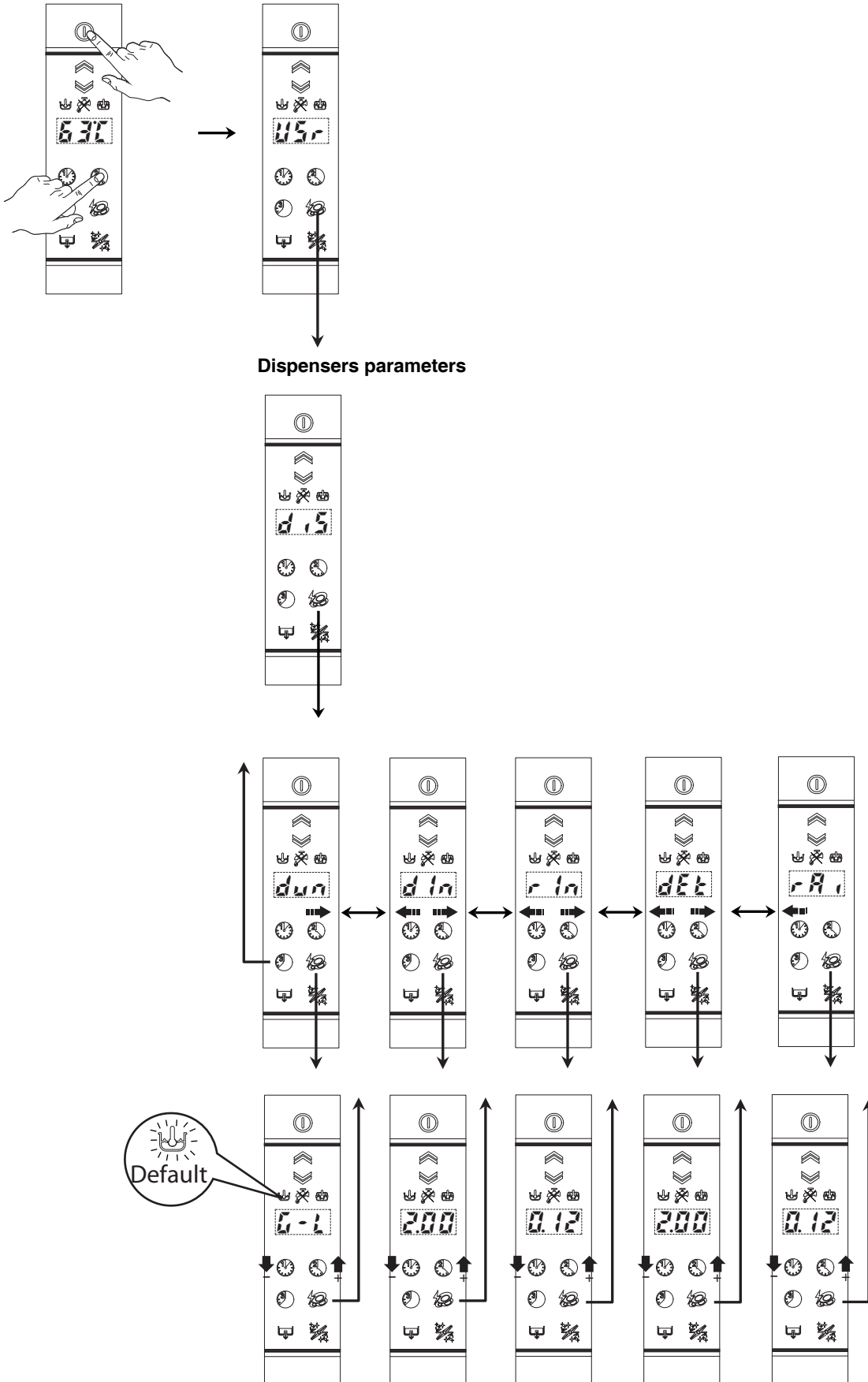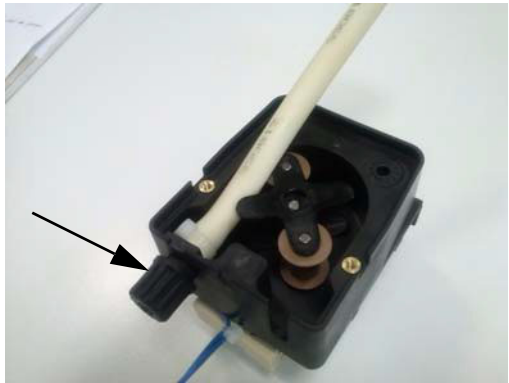
6.1.1 Peristaltic tube fitting and replacement instructions

Described below is the procedure for inserting and removing the tubes from the peristaltic pumps, in case of tube replacement.

An exploded view of the parts involved in the tube fitting and removal operations is given below.

	Tube
	Roller
	Front box
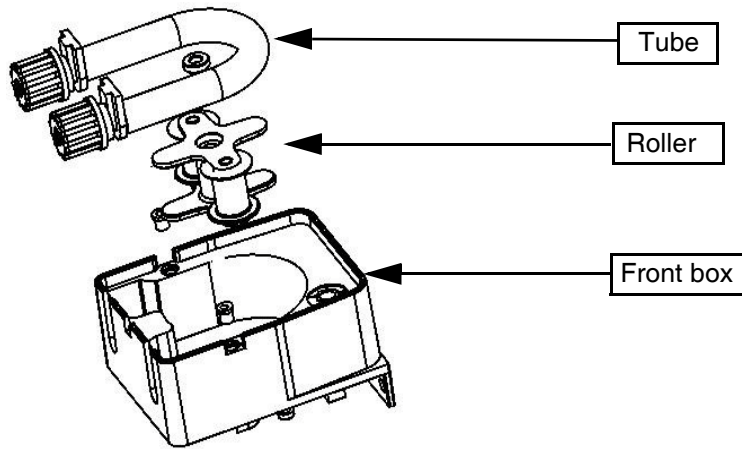
STEP 1 - FITTING THE TUBE

1. Position the roller.	2. Insert the tube of the suction part, turning the roller clockwise.
3. Keep the tube in the seat in the housing and continue turning the roller clockwise, <u>being careful not to damage the tube.</u>	4. Keep the tube in the seat in the housing and continue turning the roller clockwise.

5. Turn the roller a full 360°.	6. Make sure to fit the union in the special seat (delivery).
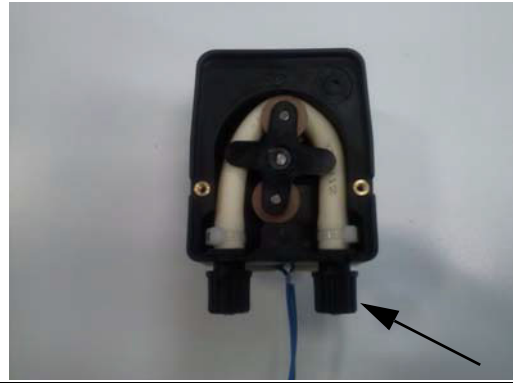
STEP 2 - REMOVING THE TUBE

1. Position the roller as shown in the figure.	2. Lift the tube at the suction part and turn the roller at the same time. Guide the tube, keeping it raised, and turn the roller.
3. Remove the tube.	
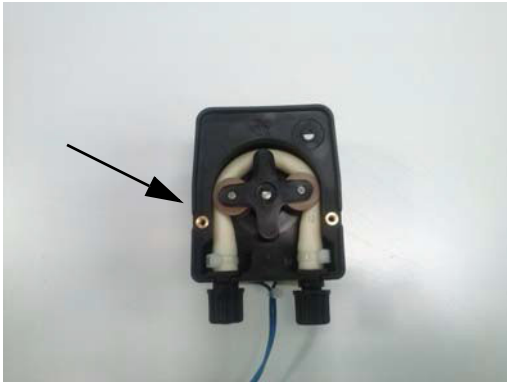
6.2 Cnt COUNTERS

This Parameter Family collects cycle counters and water consumption counters.

For water consumption counters a flow meter must be installed. See PPL (calibration parameter) into dPA section (7.4 OTHER PARAMETERS).

| Sym.	Parameter Description	Unit	Min	Max	Factory Default
CYC	Performed total cycles (counter is NOT resettable by the user).	-	-	-	-
cYc	Performed cycles (partial counter is resettable by user via the "rSt" parameter).	-	-	-	-
nnc	Counts m³ of water consumption (counter is NOT resettable by the user). Works only if the flow meter is installed (integrated in the air gap for machines with watersoftener).	-	-	-	-
L	Counts liters of water consumption (counter is NOT resettable by the user). Works only if the flow meter is installed (integrated in the air gap for machines with watersoftener). Together with "nnc" parameter (m³), This parameter gives the total water consumption of the machine.	[l]	-	-	-
Lit	Litres counters Counts the litres of water and is resettable by user (see rSt parameter below). Works only if the flow meter is installed (integrated in the air gap for machines with water softener).	[l]	-	-	-
rSt	Parameter to reset together counters: cYc and Lit . To reset put 1 this parameter, switch off and then on again: cYc and Lit will show zero.	-	-	-	-
drn	Drain/Cleaning cycles performed. Similar to CYC but counts Cleaning Cycles.	-	-	-	-
dLC	Delime cycles counter.	-	-	-	-
cLd	Number of executed washing cycles after last Delime cycle. This counter is reset after each Delime cycle.	-	-	-	-

Table 3 ACCESSING THE COUNTERS

(keep the buttons pressed for approx. 5 sec.)

Dispensers parameters   **Counters**
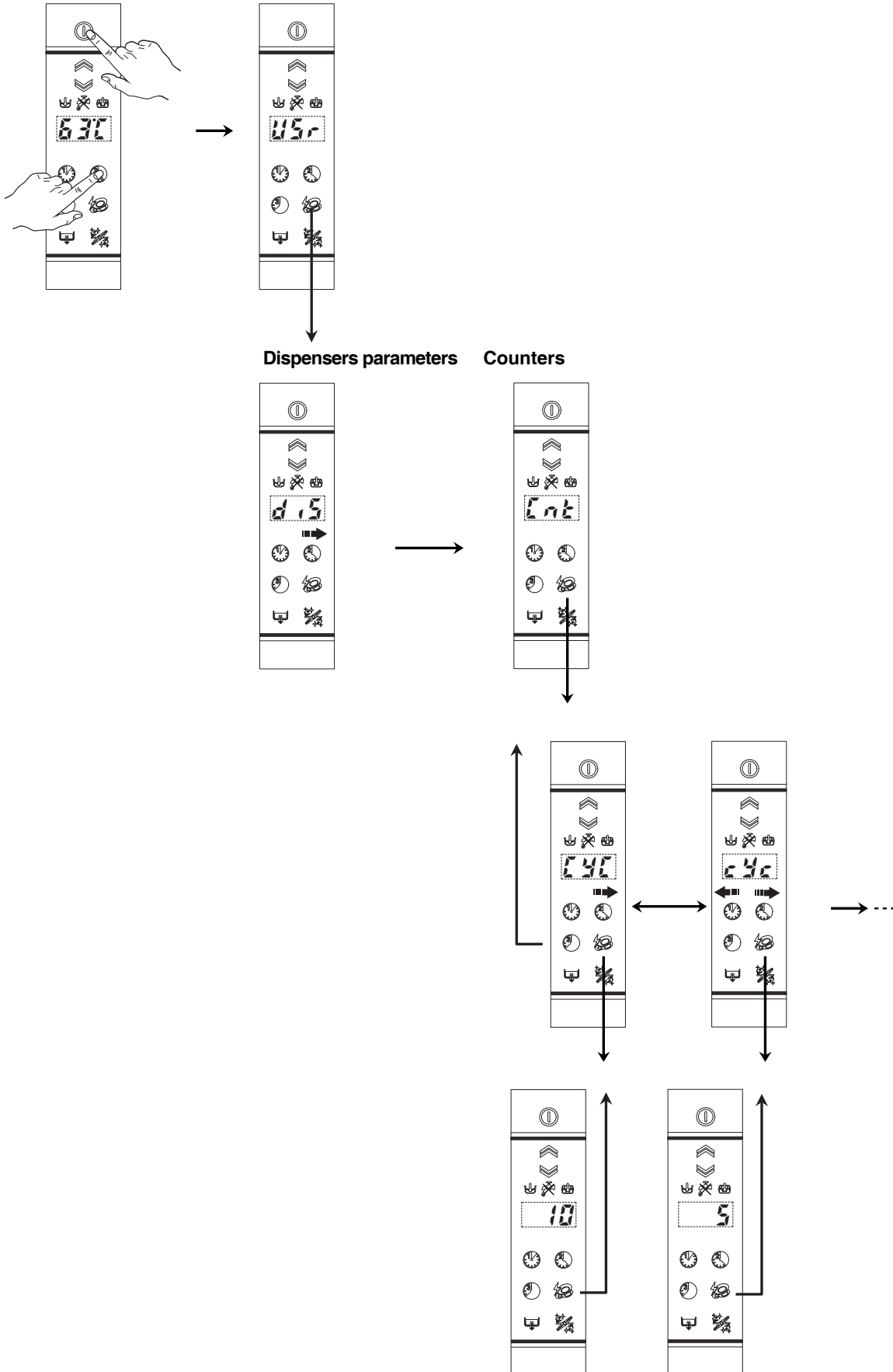
7 ⨍⨯⨍ FACTORY PARAMETERS

In this paragraph is explained how to change temperature thresholds and all parameters related to boiler and tank.

7.1 𝑏𝑜ᵢ BOILER PARAMETERS

Sym.	Parameter Description	Unit	Min	Max	Factory Default
𝑏𝑡𝐶	Boiler Temperature: THRESHOLD. When boiler temperature reaches this value, heaters switch off. If the threshold value is set to the minimum value (44) the heaters of the boiler are off and the thermo-stating is not active.	[°C]	44	95	78
𝑏𝑡𝐻	Boiler Temperature HISTERESIS, (represent dead band). Heater switch on if boiler temperature is below: 𝑏𝑡𝐶 - 𝑏𝑡𝐻	[°C]	2	10	2
𝑏𝐻ᵢ	Boiler Temperature: HIGH LIMIT. When boiler temperature reaches this value 𝐶 2 alarm appears. Put 0 to disable 𝐶 2 alarm.	[°C]	0	98	96
𝑏𝐿𝑜	Boiler Temperature: LOW LIMIT. During boiler warm-up, temperature must increase at least 𝑏𝐿𝑜 °C otherwise 𝐸 3 warning appears. Put 0 to disable 𝐸 3 warning.	[°C]	0	10	1
𝑏𝐹𝐿	Boiler Filling Timeout. If filling time is longer than 𝑏𝐹𝐿, 𝐴 1 alarm appears. Put 0 to disable 𝐴 1 alarm.	[min]	0	42	5
𝑏𝐴𝑑	Boiler Temperature Adjust.	[°C]	0	7	4
𝑏𝑃	Boiler Priority (enable boiler wait function) 0= 𝑛𝑜 = disabled 1= 𝑌𝐸𝑆 = enabled	-	𝑛𝑜	𝑌𝐸𝑆	𝑌𝐸𝑆
𝑏𝑆𝑡	Boiler Function Overheat gap over Boiler Temperature Threshold	[°C]	0	15	2
𝑏𝑡𝑑	Boiler temperature negative differential: when the dishwasher is in standby, boiler threshold becomes: 𝑏𝑡𝐶 - 𝑏𝑡𝑑 (Used to save energy during machine inactivity by keeping boiler water at a lower temperature).	[°C]	0	20	0
𝑏𝑃𝑜	Boiler heating control. Defines the max. permissible temperature difference during boiler heating in a time interval of 2 minutes and 30 seconds. If in this period of time, the temperature increases over 𝑏𝑃𝑜 appears the alarm 𝐶 1.	[°C]	25	80	50
𝑏𝑃𝑤	Boiler power: 0 = 𝐿𝑜 = Low power (only two branches of the three-phase heating element are used for boiler heating) 1 = 𝐻ᵢ = Maximum power (all branches of the three-phase heating element are used for boiler heating)	-	𝐿𝑜	𝐻ᵢ	𝐻ᵢ
𝑏𝑡𝐿	Boiler temperature in mode Thermal Label.	[°C]	45	97	86

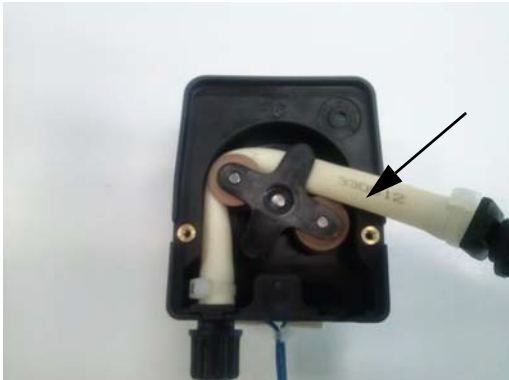**Table 4**   ACCESSING THE BOILER PARAMETERS

(keep the buttons pressed for approx. 5 sec.)

Boiler parameters   **Tank parameters**
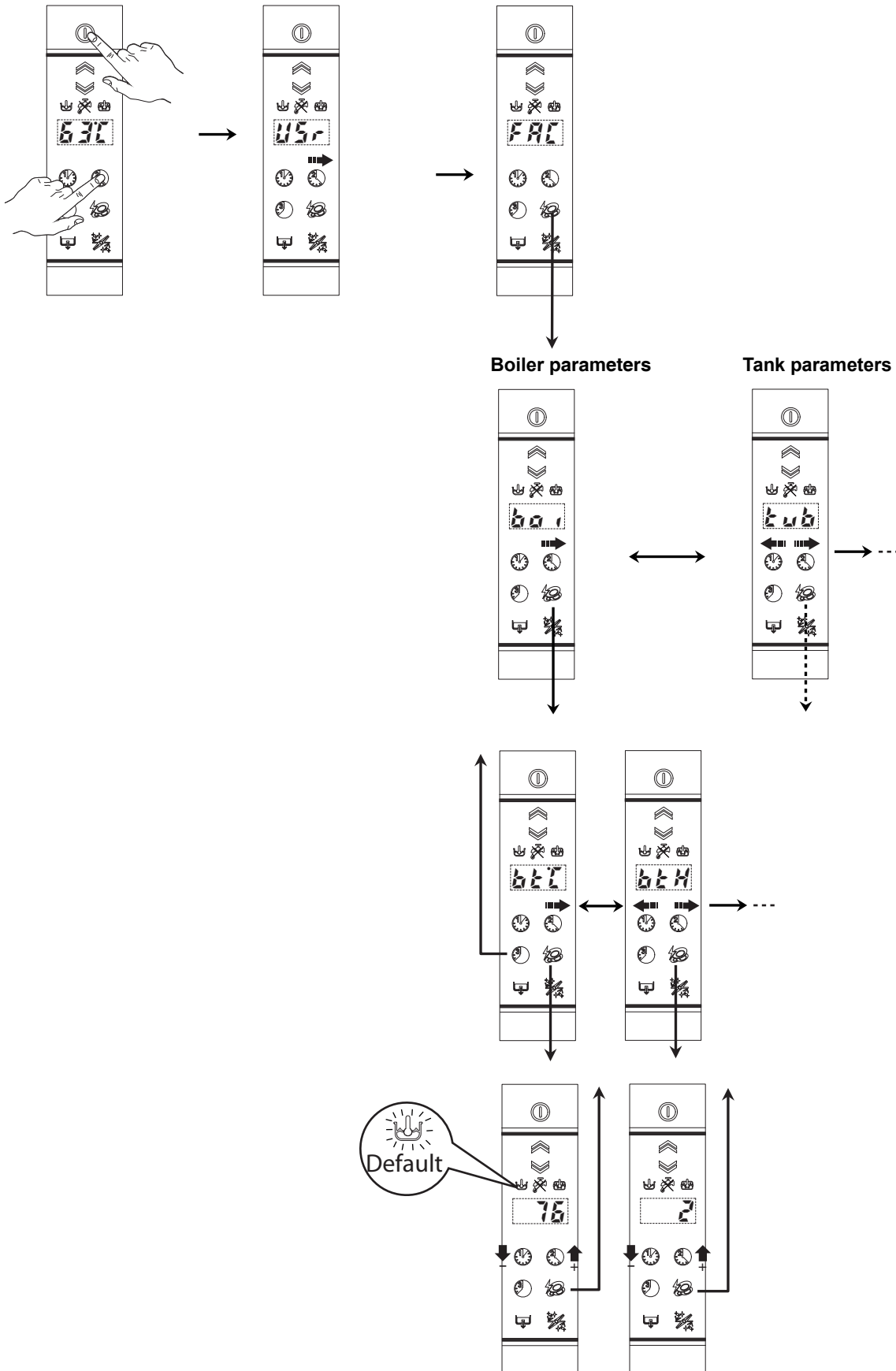
7.2 tub TANK PARAMETERS

Sym.	Parameter Description	Unit	Min	Max	Factory Default
ttC	Tub Temperature: THRESHOLD When tank temperature reaches this value, heater switch off. If the threshold value is set to the minimum value (39) the heater of the tank is off and the thermo-stating is not active.	[°C]	39	85	63
ttH	Tub Temperature: HISTERESIS, (represent dead band). Heater switch on if tank temperature is below: $ttC - ttH$	[°C]	2	30	5
tHi	Tank Temperature: HIGH LIMIT. When tank temperature reaches this value $C\ 3$ alarm appears. Put 0 to disable $C\ 3$ alarm.	[°C]	0	95	85
tLo	Tank Temperature: LOW LIMIT. During tank warm-up, temperature must increase at least tLo °C otherwise $E\ 2$ warning appears. Put 0 to disable $E\ 2$ warning.	[°C]	0	10	1
tFL	Tank Filling Timeout. If filling time is longer than tFL, $A\ 1$ alarm appears. Put 0 to disable $A\ 1$ alarm.	[min]	0	42	20
$L1$	Tank filling level.	[mmH20]	50	200	100
$L1H$	Hysteresis relevant to the filling level.	[mmH20]	10	100	65
$L2$	Overflow.	[mmH20]	50	200	180
$L2H$	Hysteresis relevant to the overflow level.	[mmH20]	10	100	60
Ldr	Level (relevant to filling level $L1$) used in the drain phase during the cycle, that occurs after the wash phase.	[mmH20]	2	20	8
cYd	Cycles to perform before a tank partial drain. If cYd is 0, the function is disable. If the function is enabled, the partial drain is performed in according with LPd and PPd parameters (described below).	-	0	50	0
LPd	Tank partial drain level	[mmH2O]	0	40	20
PPd	Increase the pause (between wash and rinse) when there is a tank partial drain.	[s]	0	16	6
ttL	Tank temperature in mode Thermal Label.	[°C]	40	90	75
tHL	Tank temperature hysteresis in mode Thermal Label.	[°C]	0	30	2

Table 5 ACCESSING THE TANK PARAMETERS
(keep the buttons pressed for approx. 5 sec.)

Tank parameters

Default
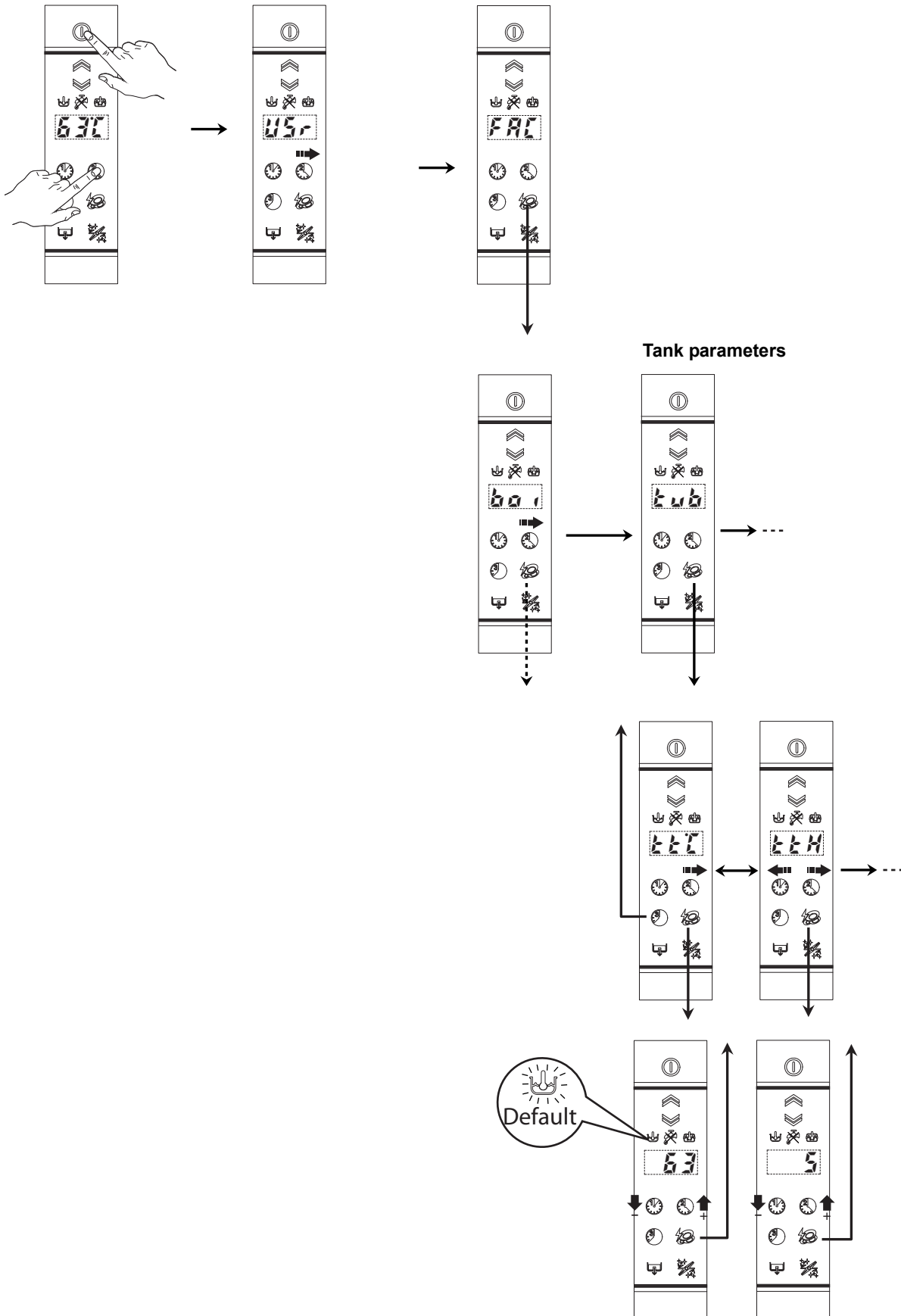
7.3 CYCLE SETTING

7.3.1 Wash cycle diagram

CYCLE TIME

KEY:
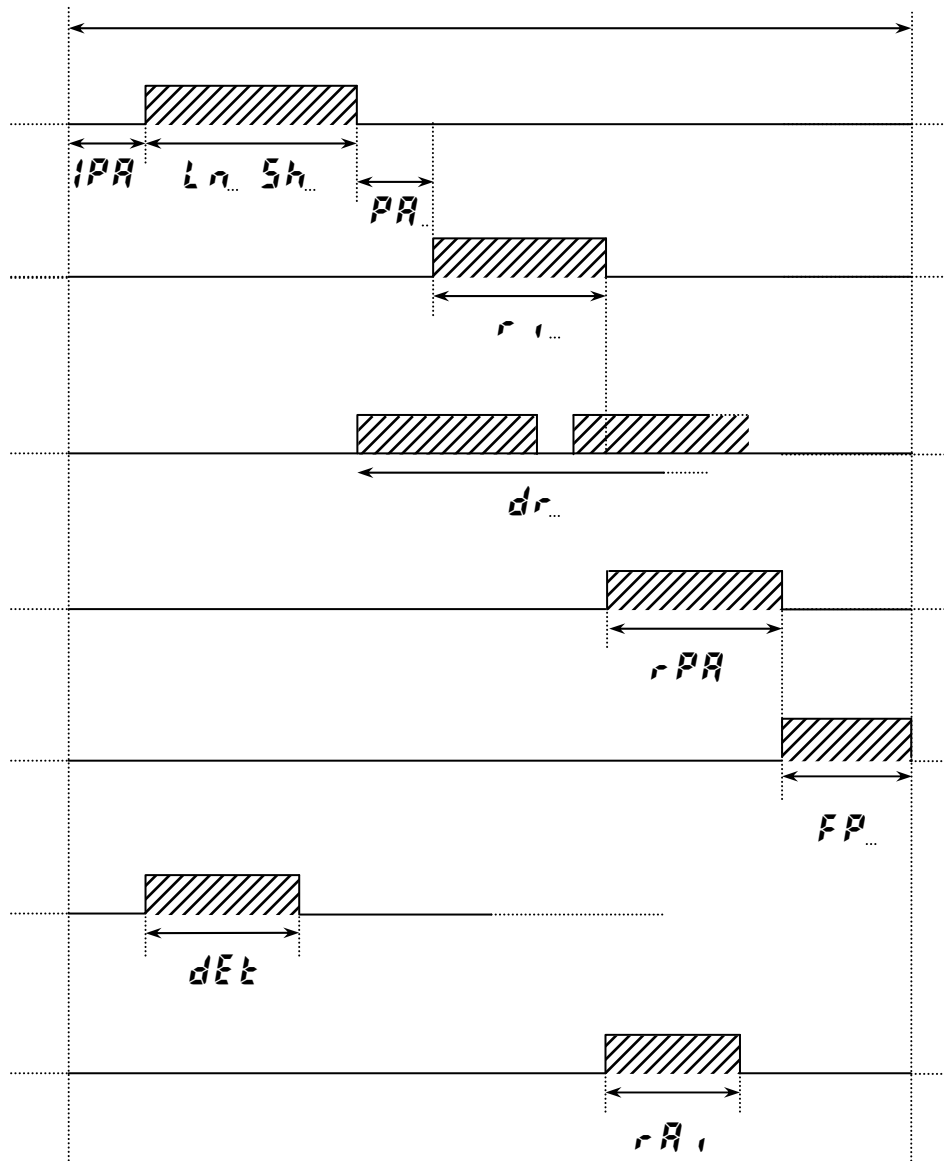
IPA = initial pause

Ln Sh = wash [the duration is given by the sum of the two parameters *Ln* (min) and *Sh* (sec)].

FP = final pause

ri = rinse

dr = drain

Attention: It does not necessarily correspond to activation of the drain pump; activation of this pump is a function of the tank level.

rPA = rinse pause

dEt = detergent

rAi = rinse aid

7.3.2 *CY1* Cycle 1 parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
Ln1	Wash Phase Long	[min]	0	20	0
Sh1	Wash Phase Short	[s]	1	60	33
PA1	Pause	[s]	0	20	4
ri1	Rinse Phase Duration	[s]	5	25	8
dr1	Drain	[s]	0	40	12
FP1	Final Pause at End of Cycle	[s]	0	60	0
tL1	Long wash time in mode Thermal Label	[min]	0	60	0
tS1	Short wash time in mode Thermal Label	[s]	0	60	45

7.3.3 *CY2* Cycle 2 parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
Ln2	Wash Phase Long	[min]	0	20	1
Sh2	Wash Phase Short	[s]	1	60	12
PA2	Pause	[s]	0	20	4
ri2	Rinse Phase Duration	[s]	5	25	8
dr2	Drain	[s]	0	40	12
FP2	Final Pause at End of Cycle	[s]	0	60	0
tL2	Long wash time in mode Thermal Label	[min]	0	60	1
tS2	Short wash time in mode Thermal Label	[s]	0	60	12

7.3.4 *CY3* Cycle 3 parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
Ln3	Wash Phase Long	[min]	0	20	2
Sh3	Wash Phase Short	[s]	1	60	18
PA3	Pause	[s]	0	20	4
ri3	Rinse Phase Duration	[s]	5	25	8
dr3	Drain	[s]	0	40	12
FP3	Final Pause at End of Cycle	[s]	0	60	0
tL3	Long wash time in mode Thermal Label	[min]	0	60	2
tS3	Short wash time in mode Thermal Label	[s]	0	60	18
bt3	Boiler Temperature Threshold: only for Cycle 3. This parameter allows having a different rinsing temperature for the third cycle. Only values above 45°C are allowed.	[°C]	0	95	0

7.3.5 *drn* Drain/Cleaning cycle parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
Idr	Initial Drain Phase Duration	[s]	0	240	40
Fdr	Final Drain Phase Duration	[s]	0	240	80
drt	Drain without cleaning cycle	-	0	1	0

Table 6 ACCESSING THE CYCLE PARAMETERS
(keep the buttons pressed for approx. 5 sec.)
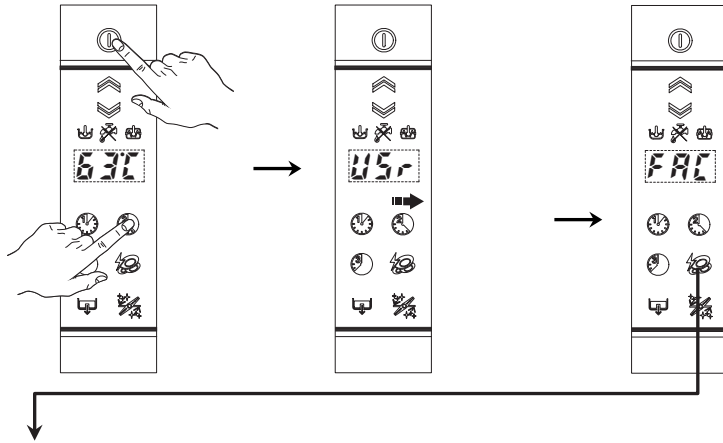
Cycle 1 parameters   Cycle 2 parameters   Cycle 3 parameters Drain parameters

Default
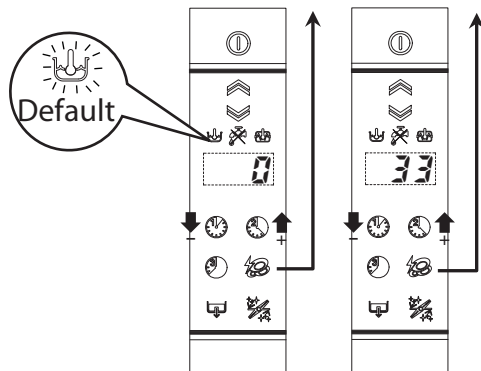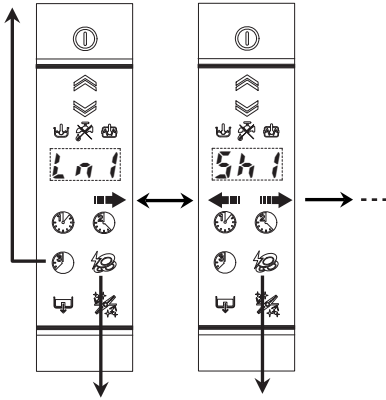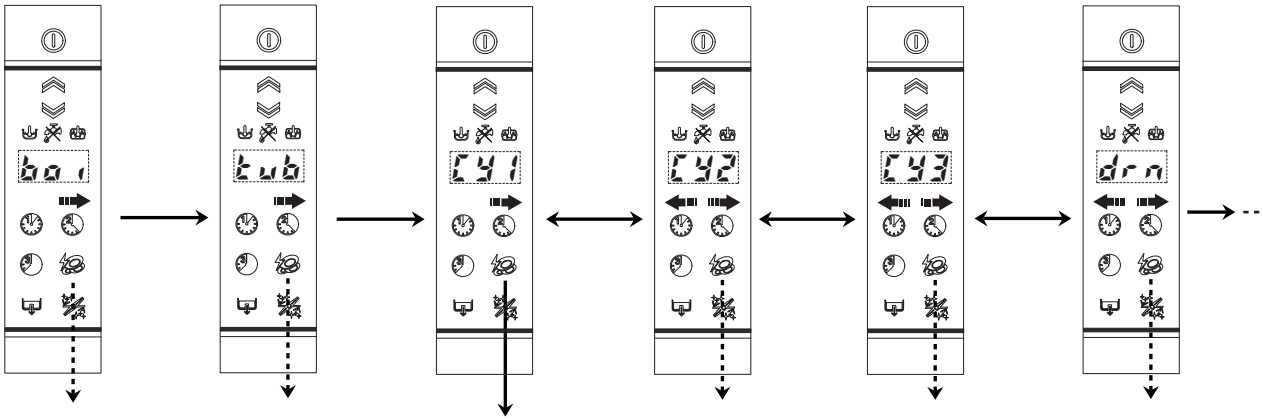
7.4 OTHER PARAMETERS

You can find the parameters families listed in the below table after the cycle parameters.

Table 7 ACCESSING OTHER PARAMETERS
(keep the buttons pressed for at least 5 sec.)
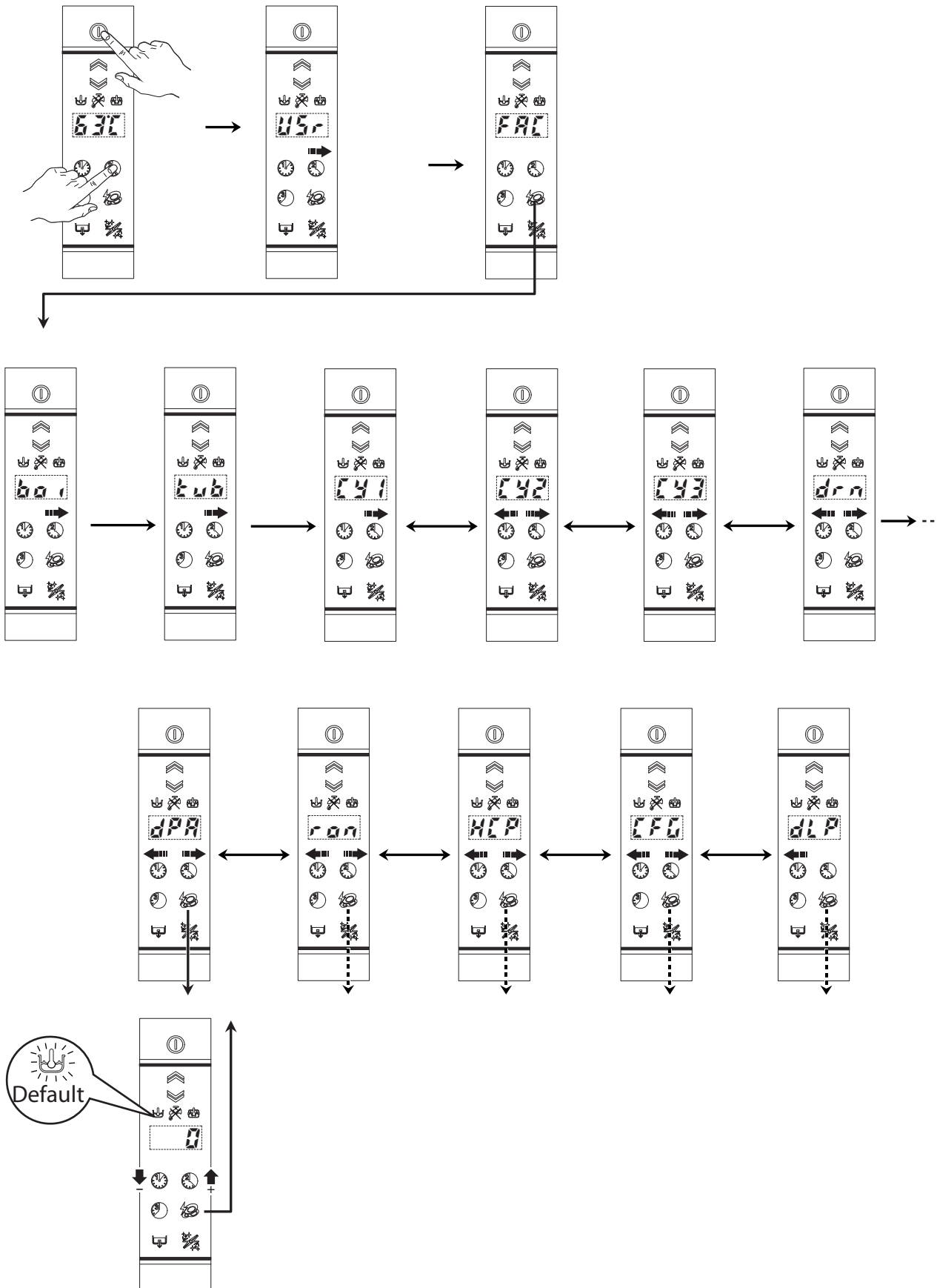
7.4.1 𝑑𝑃𝐴 Dishwashing parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
𝐼𝑃𝐴	Initial Pause before start washing (for ALL cycles)	[s]	0	10	**0**
𝑃𝑑𝑟	Active a drain phase at the end of washing phase.	[s]	0	40	**0**
𝑟𝑃𝐴	Duration of pause after rinse cycle (valid for dishwashers with door/hood lock device).	[s]	0	60	**0**
𝐶 𝐹	Celsius/Fahrenheit selection 𝐶 = Celsius 𝐹 = Fahrenheit	-	𝐶	𝐹	𝐶
𝑟𝑖𝑡	Rinse Temperature Display. Enable rinse temperature probe (if installed). 0 = no = during rinse phase the display shows boiler temperature; 1 = YES = during rinse phase the display shows rinse temperature.	-	𝑛𝑜	𝑌𝐸𝑆	𝑛𝑜

7.4.2 𝑟𝑜𝑛 Read Only parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
𝐶𝐴𝑙𝑙	When 𝐶𝐴𝑙𝑙 message appears, the parameter value becomes 3. After maintenance, to clear 𝐶𝐴𝑙𝑙 message, insert 0.	-	-	-	**0**
𝐶 𝑔	This parameter indicates the alarm code of an automatic hood-type dishwasher. See the complete list of alarm codes in par. 11.2 ALARMS THAT STOP THE DISHWASHER.	-	-	-	**0**
𝑀𝑑𝐿	A read-only parameter and displays the modules installed in the machine. 1 = Left LED bar installed 2 = Right LED bar installed 4 = Water softener / automatic hood-type feeder Example: 7= Left led bar: OK 7= Right led bar: OK 7= Power supply unit: OK	-	-	-	-

7.4.3 𝐻𝐶𝑃 Communication and HACCP parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
𝑆𝐸𝑟	Serial Device 0 = 8N1 1 = PC connection (DAAS 8E1) 7 = HACCP network (ECAP 8E1+LK485) (LK485 board is necessary) 3 = Connection PC (DAAS 8E1) on the RS485 communication port 7 = Network HACCP available only for board with RS485 communication port	-	0	63	**1**

Sym.						
Adr	Address. This parameter specifies the address of the appliance into the 'HACCP_network'. Works only if 'HACCP network' is selected (see above parameter).	-	0	255	**1**	

7.4.4 CFG Configuration parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
typ	Dishwasher Model: 0 = HOOD TYPE	-	0	3	**0**
boi	Boiler type: 0 = ATMOSPHERIC BOILER 1 = PRESSURE BOILER (next versions) 2 = EXTERNAL BOILER (next versions)	-	0	2	**0**
dFL	Default model (see Default tables): 1 = HOOD TYPE	-	0	3	**-**
trc	Solid State Relay (TRIAC). 0 = not enabled; 1 = **SOFT START** enabled; 3 = **SLOW SOFT START** enabled.	-	0	3	**0**
b_t*	** Depending on the model this parameter may not be available.* Boiler/Tank heating swap: 0 = boiler heaters and tank heater can work simultaneously; 1 = swap enabled: tank heating starts only boiler temperature is reached; (Note: disabling this function changes the global electrical power of appliance; before enabling this function check available power, supply cable section, fuses in according to User Manual).	-	0	1	**1**
btF	Tank Filling Mode Enable filling tank by means of rinsing cycles. Ex: btF = 75 means that boiler water is heated at 75°C, then follows a rinse phase and so on until tank is full. If btF = 0 the tank is filled by solenoid valve in the traditional way (On machines with incorporated continuous water softener, even if btF is set to 0, filling occurs through subsequent rinses).	[°C]	0	85	**75**
UI	USER INTERFACE MODEL 9 = hood type	-	0	27	**9**
HiP	Lock button for HIGH PRODUCTIVITY no (the button is not active, the Thermal Label is always active) SEL (the button is active) LOC (the button is not active, the High Productivity is always active)	-	no	LOC	SEL

7.4.5 $dL P$ Delime cycle parameters (Delime)

Sym.	Parameter Description	Unit	Min	Max	Factory Default
$dL E$	Delime function enabled	-	no	YES	YES
dAO	Delime Auto OFF 1 = YES = at the end of the Delime cycle, the dishwasher switches off automatically 0 = no = at the end of the Delime cycle, the dishwasher remains on.	-	no	YES	YES
$dL N$	Select the desired mode Delime: 0 = GAr = with vinegar 1 = Acd = with acid	-	-	-	GAr

How to do a Delime cycle (ordinary maintenance)

Proceed as follows:

<u>Delime cycle with vinegar:</u> insert the Delime tube present in the machine, identified by an appropriate label, in a container with at least 2l of wine vinegar 6% (2l is the minimum amount of vinegar needed for a correct Delime cycle).

It is advisable to run this cycle according to that given in the table:

Water hardness			The Delime cycle should be run approximately every (*):	Using cycle 2 for 30 cycles/day, the Delime cycle should be run approximately every (*):
°f	°d	°e	Cycles	Days
5	2,8	3,5	1500	50
10	5,6	7,0	750	25
15	8,4	10,5	510	17
20	11,2	14	380	13
25	14	17,5	300	10
30	16,8	21,1	250	8
(*) Considering a rinse time according to the factory settings.				

WARNING:

Only use wine vinegar and not other descaling substances. Descaling with the use of chemical substances other than vinegar must only be done by a specialized technician.

<u>Delime cycle with acid</u> **(can only be activated by a specialised technician)**

1. In order to avoid accidental contact with the acid by the end user, get a tube "D" (spare part code: 0L1163) to perform the cycle delime.
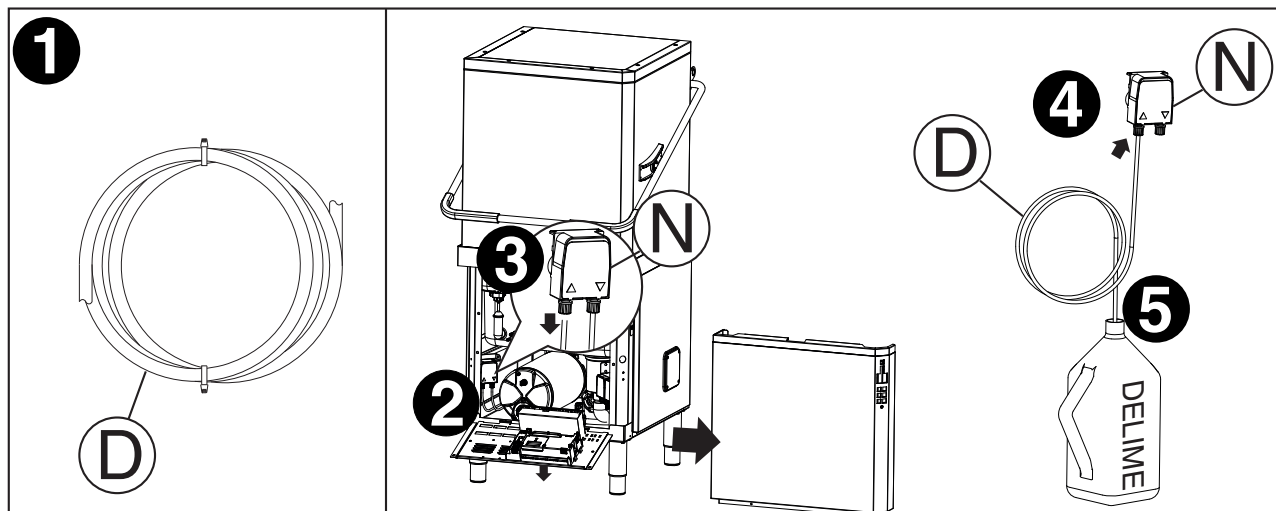
2. Access to the pump delime, in the machine, removing the front panel and lowering the control panel.

3. Disconnect the inlet pipe of pump "N".
4. Connect the pipe "D" at the inlet connection of pump "N".
5. Introduce the end part of delime pipe "D" in a container with acid (to ensure an adequate descaling, it is recommended to use a solution of phosphoric acid between 30% to 50%).

WARNING:

Use appropriate safety measures during descaling operations with acid. Refer to safety data sheets and to labels of the used product.

WARNING:

Make sure that the drain is properly installed according to the hydraulic circuit diagrams and installation diagrams as described in the instruction manual.

• Lift the hood and take out the rack and eventual dishes.
• In versions with supplementary filtering system (FS), remove the basket filter "1", the flat filter "2", the tank filter "3" and the pump suction filter "4" ("A" - see below).
• In versions without supplementary filtering system (FS), remove the flat filter "1" and the pump suction filter "2" ("B" - see below).
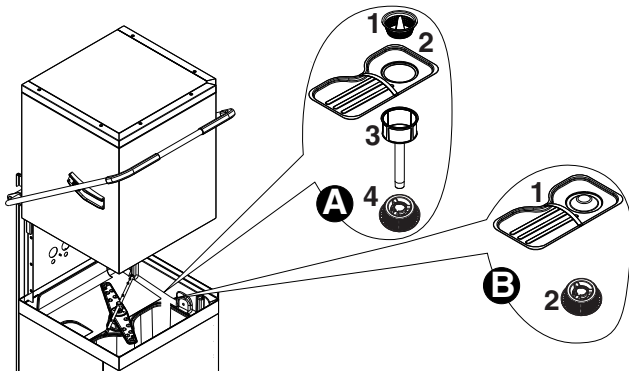
Close the hood.

Press the button "N" (see Par. 1.1 DESCRIPTION OF CONTROL PANEL),for at least 5 seconds,

to run a machine water circuit delime cycle.

WARNING:

The delime cycle lasts about 1h 30 sec; during this phase the hood must not be opened and no other command can be activated until completion of the cycle in progress. If the machine is turned off during the delime cycle, at the next restart the cycle will resume exactly from where it was interrupted, until its completion.
To cancel the cycle DELIME, if accidentally activated, press at the same time the On/Off and Delime buttons for 5 seconds. The cycle is canceled.

At the end of Delime cycle, the dishwasher sounds a series of beeps and "END" will flash on the display.
Refit the previously removed overflow.
If you have performed a delime cycle with acid, do the following operations:

6. Remove the pipe "D".
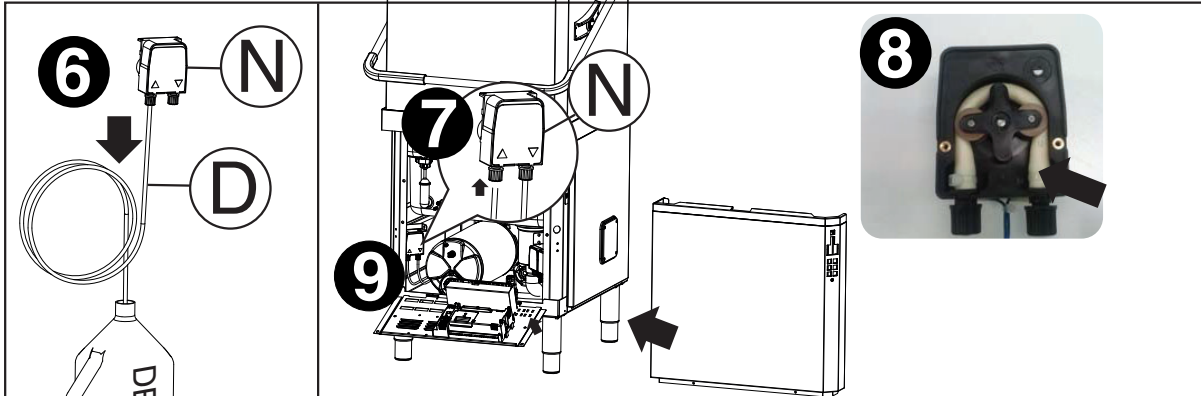
7. Reconnect the inlet hose to the pump "N".
8. Replace the delime pump pipe as described in par. 6.1.1 Peristaltic tube fitting and replacement instructions.
9. Reclose the previously removed panels.

WARNING:

Make sure that at the end of descaling, the container with acid is removed.

7.4.6 DELIME DISPENSER ACTIVATION
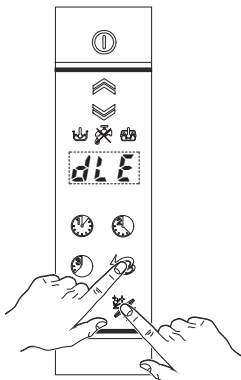
1. Switch on the dishwasher.
2. Press at the same time the Delime cycle and the High Productivity button ("L" -"N" Par. 1.1 DESCRIPTION OF CONTROL PANEL). You can hear 2 acoustic signal and the Delime dispenser starts working for 20 seconds.
3. If you press again the buttons "L" e "N" the Delime dispenser stop working.

7.4.7 ESd Energy saving device parameters (ESD)

Sym.	Parameter Description	Unit	Min	Max	Factory Default
Fdy	Energy recovery fan operation time at the end of the wash cycle.	s	0	20	10

7.4.8 ASo Water softener parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
Hd	Water hardness [1 °f = 1 French degree = 10 mg/l or ppm of CaCo3] [1 °d =1 German degree = 1.78 French degrees (1 °d = 1.78 °f)] If zero it means that the water softener is not installed.	°f	0	60	0
nrE	Regeneration cycles done (counter not resettable).	-	-	-	-
CnS	Wash cycles done with depleted resins (counter not resettable).	-	-	-	-
FrG	Forced start of a resin regeneration cycle.	-	no	YES	no

7.4.9 SYS System parameters

Sym.	Parameter Description	Unit	Min	Max	Factory Default
tL	Show the tank level. (Check if the tank level sensor work properly)	mmH$_2$O	-	-	-
CYS	Set cycle. (Show the set cycle.)	-	-	-	-

8 DEFAULT VALUES

Default 1 - HOOD TYPE

USr ↔ FAC

d15 ↔	Cnt	bo1 ↔	tub ↔	CY1 ↔	CY2 ↔	CY3 ↔	drn ↔	dPA ↔	ron ↔	HCP ↔	CFG ↔	dLP ↔	ESd ↔	ASo	SYS
dun=G-L	CYC	bEC=78	ttC=63	Ln1=0	Ln2=1	Ln3=2	1dr=40	1PA=0	CA11	SEr=1	tYP=0	dLE=YES	Fdy=10	Hd=0	tL
d1n=2.00	cYc	bEH=2	ttH=5	Sh1=33	Sh2=12	Sh3=18	Fdr=80	Pdr=0	C9	Adr=1	bo1=0	dLA=GAr		nrE	CYS
r1n=0.12	L	bH1=98	tH1=85	PA1=4	PA2=4	PA3=4	drt=0	rPA=0	NdL		dFL=0			CnS	
dEt=2.00	L1t	bLo=1	tLo=1	r11=85	r12=85	r13=85		CF=C			trc=1			FrG=no	
rA1=0.12	rSt	bFL=5	tFL=20	dr1=12	dr2=12	dr3=12		r1t=no			b.t=1*				
	drn	bAJ=4	L1=100	FP1=0	FP2=0	FP3=0					btF=75				
	dLC	bP=YES	L1H=65	tL1=0	tL2=1	tL3=2					U1=9				
		bSt=2	L2=180	tS1=45	tS2=12	tS3=18					H.P=SEL				
		btd=0	L2H=60			bt3=0									
		bPo=50	Ldr=8												
		bPu=H1	cYd=0												
		btL=86	LPd=20												
			PPd=6												
			ttL=75												
			tHL=2												

- * Depending on the model this parameter may not be available.

9 MAIN BOARD CONFIGURATION

When receiving an electronic board (spare part) may be necessary to configure it in according to the machine where has to be replaced

1. With the machine **CODE** enter into the following table and read the corresponding **Prog.** number
2. Follow the instructions reported into the corresponding **Prog.XXX** sheet (next pages).
3. With the machine **CODE** find the **Layout** number in Par. 9.3.1 Connectors layout.

9.1 CODE -> Prog. TABLE

MODEL	CODE	Prog.	Layout
EHT8IROWM	504067	220	1
EHT8IROW6M	504068	220	1
EHT8IGM	504069	218	1
EHT8IG6M	504070	218	1
EHT8IELGM	504073	219	1
EHT8IELG6M	504074	219	1
EHT8IELGJM	504075	221	1
EHT8IELGJ6M	504076	221	1
XHT8IG	504082	201	1
VHT7IG	504130	217	1
EHTA060	504149	225	1
ZHTA060	504150	226	1
VHTA060	504154	227	1
XHT8I	504246	201	1
EHT8TIEL	504250	202	1
EHT8TIL	504251	203	1
EHT8TIELG4	504252	210	1
EHT8TIELG8	504253	210	1
EHT8IELG	504254	202	1
EHT8IEWSG	504255	205	1
EHT8ILG	504256	207	1
EHT8IWSG	504257	204	1
EHT8IG	504258	201	1
EHT8I	504259	201	1
EHT8IROW	504260	212	1
EHT8IROW6	504261	212	1
EHT8ILG4	504262	209	1
EHT8ILG8	504263	209	1
EHT8IUSPH5	504264	213	1
EHT8IUSPH6	504265	213	1
ET12SD	504266	206	1
EHT8IS	504267	201	1
EHT8IELGJ	504268	216	1
EHT8IELGJ6	504269	216	1
ZHT8TIEL	504270	202	1
ZHT8TIL	504271	203	1
ZHT8IELG	504272	202	1
ZHT8ILG	504273	207	1
ZHT8IWSG	504274	204	1
ZHT8IG	504275	201	1
ZHT8I	504276	201	1

MODEL	CODE	Prog.	Layout
ZHT8IROW	504277	212	1
ZHT8IROW6	504278	212	1
EHT8IELG4	504279	210	1
EHT8IELG8	504280	210	1
NHT8ILG	504283	207	1
NHT8IWSG	504284	204	1
NHT8IG	504285	201	1
NHT8IELG	504286	202	1
NHT8IEWSG	504287	205	1
EHT8IELG6	504288	202	1
HHT8I	504290	201	1
EHT8TILG	504292	203	1
EHT8TIELG	504293	202	1
ET12SD	504295	222	1
EHT8E	504296	208	1
EHT8EG	504297	208	1
ZHT8E	504298	208	1
ZHT8EG	504299	208	1
VHT8EG	504300	224	1
NHT8IS	504302	201	1
NHT8ROW	505066	212	1
NHT8O	505067	201	1
NHT8ROW6	505068	212	1
NHT8O6	505069	201	1
NHT8G	505070	201	1
NHT8	505071	201	1
NHT8WSG	505072	204	1
EHT8ROW	505073	212	1
EHT8O	505074	201	1
EHT8ROW6	505075	212	1
EHT8O6	505076	201	1
EHT8J	505077	214	1
EHT8J6	505078	214	1
EHT8M	505079	211	1
EHT8M6	505080	211	1
KHT8	505081	201	1
NHT8GUK	505083	201	1
NHT8DD	505084	201	1
NHT8WSGUK	505085	204	1
NHT8LGUK	505086	207	1
NHT8P	505089	201	1

MODEL	CODE	Prog.	Layout
HHT8	505090	201	1
XHT8G	505091	201	1
NHT8S	505096	201	1
EHT8	505100	201	1
EHT8S	505101	201	1
EHT8DD	505102	201	1
EHT8G	505103	201	1
EHT8LGUK	505104	207	1
EHT8WSG	505105	204	1
ZHT8	505106	201	1
ZHT8S	505107	201	1
ZHT8DD	505108	201	1
ZHT8G	505109	201	1
ZHT8LGUK	505110	207	1
ZHT8WSG	505111	204	1
ZHT8ROW	505112	212	1
ZHT8ROW6	505113	212	1
ZHT8O	505114	201	1
ZHT8O6	505115	201	1
VHT7G	505117	217	1
EHT8M46	506060	211	1
NHT8GRUK	506069	201	1
NHT8LGRUK	506070	207	1
EHT80ROW	520500	001	1
EHT80ROW6	520501	001	1
EHT80EROW	520502	002	1
EHT80EROW6	520503	002	1
VHT65	520504	003	1
NHT65	520505	003	1
NHT656	520506	003	1
NHT65R	520507	003	1
NHT65RD6	520508	003	1
DH-60ST	520509	005	1
EHT60XLG	520519	006	1
AHT8IWSG	698066	204	1
AHT8IG	698067	201	1
AHT8I	698068	201	1

9.2 PROGRAMMING SHEETS

MANUAL HT			**PROG 201**
1. Switch OFF and then switch ON the machine.			
2. CFG	Enter into FAC parameter family, choose CFG parameter family and set the following parameters:		
	tYP	0	Hood Type.
	$bo\iota$	0	Atmospheric boiler.
	dFL	1	Default values for Hood type models.
	trc	1	SOFT START enabled.
	b_t	1	Tank heater works only if boiler temperature reached.
	btF	75	Enable filling tank by means of rinsing cycles.
	$U1$	9	Select user interface hood type model.
3. Switch OFF and then switch ON the machine.			

MANUAL HT + Delime + Energy Saving Device AUTOMATIC HT + Delime + Energy Saving Device			**PROG 202**
1. Switch OFF and then switch ON the machine.			
2. CFG	Enter into FAC parameter family, choose CFG parameter family and set the following parameters:		
	tYP	0	Hood Type.
	$bo\iota$	0	Atmospheric boiler.
	dFL	1	Default values for Hood type models.
	trc	1	SOFT START enabled.
	b_t	1	Tank heater works only if boiler temperature reached.
	btF	75	Enable filling tank by means of rinsing cycles.
	$U1$	9	Select user interface hood type model.
3. Switch OFF and then switch ON the machine.			
4. Parameters setting for ESD.			
$CY1$	Enter into FAC parameter family, choose $CY1$ parameter family and set the following parameter:		
	$FP1$	12	Final pause.
$CY2$	Choose $CY2$ parameter family and set the following parameter:		
	$FP2$	12	Final pause.
$CY3$	Choose $CY3$ parameter family and set the following parameter:		
	$FP3$	12	Final pause.
5. Activation Delime function			
6. dLP	Choose dLP parameter family and modify the following parameter:		
	dLE	YES	Delime function activated.
7. Switch OFF and then switch ON the machine.			

AUTOMATIC HT + Delime   PROG 203

1.	Switch OFF and then switch ON the machine.			
2.	*CFG*	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:		
		tYP	*0*	Hood Type.
		boi	*0*	Atmospheric boiler.
		dFL	*1*	Default values for Hood type models.
		trc	*1*	SOFT START enabled.
		b.t	*1*	Tank heater works only if boiler temperature reached.
		btF	*75*	Enable filling tank by means of rinsing cycles.
		U1	*9*	Select user interface hood type model.
3.	Switch OFF and then switch ON the machine.			
4.	Parameters setting.			
	CY1	Enter into *FAC* parameter family, choose *CY1* parameter family and set the following parameter:		
		FP1	*2*	Final pause.
	CY2	Choose *CY2* parameter family and set the following parameter:		
		FP2	*2*	Final pause.
	CY3	Choose *CY3* parameter family and set the following parameter:		
		FP3	*2*	Final pause.
5.	Activation Delime function			
6.	*dLP*	Choose *dLP* parameter family and modify the following parameter:		
		dLE	*YES*	Delime function activated.
7.	Switch OFF and then switch ON the machine.			

MANUAL HT + Water Softener   PROG 204

1.	Switch OFF and then switch ON the machine.			
2.	*CFG*	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:		
		tYP	*0*	Hood Type.
		boi	*0*	Atmospheric boiler.
		dFL	*1*	Default values for Hood type models.
		trc	*1*	SOFT START enabled.
		b.t	*1*	Tank heater works only if boiler temperature reached.
		btF	*75*	Enable filling tank by means of rinsing cycles.
		U1	*9*	Select user interface hood type model.
3.	Switch OFF and then switch ON the machine.			
4.	Water Softner activation device:			
	ASo	Enter into *FAC* parameter family, choose *ASo* and modify the following parameter:		
		Hd		Set the value of the water supply hardness French degrees (°f).
				[Contact your local water authority, to know the water hardness degree.]
5.	Switch OFF and then switch ON the machine.			

1.	Switch OFF and then switch ON the machine.			
2.	*CFG*	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:		
		typ	*0*	Hood Type.
		boi	*0*	Atmospheric boiler.
		dFL	*1*	Default values for Hood type models.
		trc	*1*	SOFT START enabled.
		b.t	*1*	Tank heater works only if boiler temperature reached.
		btF	*75*	Enable filling tank by means of rinsing cycles.
		U1	*9*	Select user interface hood type model.
3.	Switch OFF and then switch ON the machine.			
4.	Parameters setting for ESD.			
	Cy1	Enter into *FAC* parameter family, choose *Cy1* parameter family and set the following parameter:		
		FP1	*12*	Final pause.
	Cy2	Choose *Cy2* parameter family and set the following parameter:		
		FP2	*12*	Final pause.
	Cy3	Choose *Cy3* parameter family and set the following parameter:		
		FP3	*12*	Final pause.
5.	Water Softner activation device:			
	ASo	Enter into *FAC* parameter family, choose *ASo* and modify the following parameter:		
		Hd		Set the value of the water supply hardness French degrees (°f). [Contact your local water authority, to know the water hardness degree.]
6.	Switch OFF and then switch ON the machine.			

1.	Switch OFF and then switch ON the machine.			
2.	*CFG*	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:		
		typ	*0*	Hood Type.
		boi	*0*	Atmospheric boiler.
		dFL	*1*	Default values for Hood type models.
		trc	*1*	SOFT START enabled.
		b.t	*1*	Tank heater works only if boiler temperature reached.
		btF	*75*	Enable filling tank by means of rinsing cycles.
		U1	*9*	Select user interface hood type model.
		HiP	*no*	«High Productivity» function disabled.
3.	Switch OFF and then switch ON the machine.			
4.	Dispenser parameters configuration.			
5.	*diS*	Enter in *USr* parameter family, choose *diS* and modify the following parameters.		
		dun	*SEC*	Measurement units in seconds.
		dIn	*55*	Initial Detergent Dosage in seconds.
		rIn	*5*	Initial Rinse Aid Dosage in seconds.
		dEt	*181*	The detergent dispenser works when WASHING PUMP is being activated. (See §5).
		rAi	*61*	The Rinse Aid dispenser works when LOADING EV is being activated (See §5).
6.	Activation Delime function			
7.	*dLP*	Choose *dLP* parameter family and modify the following parameter:		
		dLE	*YES*	Delime function activated.
8.	Switch OFF and then switch ON the machine.			

MANUAL HT + Delime   PROG 207

1.	Switch OFF and then switch ON the machine.		
2.	CFG	Enter into FAC parameter family, choose CFG parameter family and set the following parameters:	
	typ	0	Hood Type.
	boi	0	Atmospheric boiler.
	dFL	1	Default values for Hood type models.
	trc	1	SOFT START enabled.
	$b.t$	1	Tank heater works only if boiler temperature reached.
	btF	75	Enable filling tank by means of rinsing cycles.
	$U1$	9	Select user interface hood type model.
3.	Switch OFF and then switch ON the machine.		
4.	Activation Delime function		
5.	dLP	Choose dLP parameter family and modify the following parameter:	
	dLE	YES	Delime function activated.
6.	Switch OFF and then switch ON the machine.		

MANUAL HT + Energy Saving Device
AUTOMATIC HT + Energy Saving Device   PROG 208

1.	Switch OFF and then switch ON the machine.		
2.	CFG	Enter into FAC parameter family, choose CFG parameter family and set the following parameters:	
	typ	0	Hood Type.
	boi	0	Atmospheric boiler.
	dFL	1	Default values for Hood type models.
	trc	1	SOFT START enabled.
	$b.t$	1	Tank heater works only if boiler temperature reached.
	btF	75	Enable filling tank by means of rinsing cycles.
	$U1$	9	Select user interface hood type model.
3.	Switch OFF and then switch ON the machine.		
4.	Parameters setting for ESD.		
	$CY1$	Enter into FAC parameter family, choose $CY1$ parameter family and set the following parameter:	
		$FP1$	12 Final pause.
	$CY2$	Choose $CY2$ parameter family and set the following parameter:	
		$FP2$	12 Final pause.
	$CY3$	Choose $CY3$ parameter family and set the following parameter:	
		$FP3$	12 Final pause.
5.	Switch OFF and then switch ON the machine.		

1.	Switch OFF and then switch ON the machine.			
2.	*CFG*	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:		
		typ	*0*	Hood Type.
		boi	*0*	Atmospheric boiler.
		dFL	*1*	Default values for Hood type models.
		trc	*1*	SOFT START enabled.
		b.t	*1*	Tank heater works only if boiler temperature reached.
		btF	*75*	Enable filling tank by means of rinsing cycles.
		U1	*9*	Select user interface hood type model.
		HiP	*no*	«High Productivity» function disabled.
3.	Switch OFF and then switch ON the machine.			
4.	*boi*	Enter into *FAC* parameter family, choose *boi* parameter family and set the following parameters:		
		bAJ	*2*	Boiler Temperature Adjust.
		btL	*80*	Boiler temperature in mode Thermal Label.
5.	*tub*	Enter into *FAC* parameter family, choose *tub* parameter family and set the following parameters:		
		ttC	*77*	Tub Temperature: Threshold.
		ttH	*2*	Tub Temperature HISTERESIS.
6.	*CY1*	Enter into *FAC* parameter family, choose *CY1* parameter family and set the following parameter:		
		tS1	*60*	Short wash time in mode Thermal Label.
7.	Activation Delime function			
8.	*dLP*	Choose *dLP* parameter family and modify the following parameter:		
		dLE	*YES*	Delime function activated.
9.	Switch OFF and then switch ON the machine.			

MANUAL HT+ Delime + Energy Saving Device - USA AUTOMATIC HT+ Delime + Energy Saving Device - USA	**PROG 210**

1.	Switch OFF and then switch ON the machine.		
2.	**CFG**	Enter into **FAC** parameter family, choose **CFG** parameter family and set the following parameters:	
		tYP	**0**	Hood Type.
		boi	**0**	Atmospheric boiler.
		dFL	**1**	Default values for Hood type models.
		trc	**1**	SOFT START enabled.
		b.t	**1**	Tank heater works only if boiler temperature reached.
		btF	**75**	Enable filling tank by means of rinsing cycles.
		U1	**9**	Select user interface hood type model.
		HiP	**no**	«High Productivity» function disabled.
3.	Switch OFF and then switch ON the machine.		
4.	**boi**	Enter into **FAC** parameter family, choose **boi** parameter family and set the following parameters:	
		bAJ	**2**	Boiler Temperature Adjust.
		btL	**80**	Boiler temperature in mode Thermal Label.
5.	**tub**	Enter into **FAC** parameter family, choose **tub** parameter family and set the following parameters:	
		ttC	**77**	Tub Temperature: Threshold.
		ttH	**2**	Tub Temperature HISTERESIS.
6.	Parameters setting for ESD.		
	CY1	Enter into **FAC** parameter family, choose **CY1** parameter family and set the following parameter:	
		FP1	**12**	Final pause.
		tS1	**60**	Short wash time in mode Thermal Label.
	CY2	Choose **CY2** parameter family and set the following parameter:	
		FP2	**12**	Final pause.
	CY3	Choose **CY3** parameter family and set the following parameter:	
		FP3	**12**	Final pause.
7.	Set the measurement units.		
8.	**dPA**	Enter in **FAC** parameter family, choose **dPA** and modify the following parameters.	
		C F	**F**	Setting temperature in Fahrenheit.
9.	Activation Delime function		
10.	**dLP**	Choose **dLP** parameter family and modify the following parameter:	
		dLE	**YES**	Delime function activated.
11.	Switch OFF and then switch ON the machine.		

MANUAL HT - MARINE   PROG 211

1.	Switch OFF and then switch ON the machine.			
2.	**CFG**	Enter into **FAC** parameter family, choose **CFG** parameter family and set the following parameters:		
		typ	**0**	Hood Type.
		boi	**0**	Atmospheric boiler.
		dFL	**1**	Default values for Hood type models.
		trc	**0**	SOFT START enabled.
		b_t	**1**	Tank heater works only if boiler temperature reached.
		btF	**75**	Enable filling tank by means of rinsing cycles.
		U1	**9**	Select user interface hood type model.
3.	Switch OFF and then switch ON the machine.			

HT MANUAL - ASIA   PROG 212

1.	Switch OFF and then switch ON the machine.			
2.	**CFG**	Enter into **FAC** parameter family, choose **CFG** parameter family and set the following parameters:		
		typ	**0**	Hood Type.
		boi	**0**	Atmospheric boiler.
		dFL	**1**	Default values for Hood type models.
		trc	**1**	SOFT START enabled.
		b_t	**1**	Tank heater works only if boiler temperature reached.
		btF	**75**	Enable filling tank by means of rinsing cycles.
		U1	**9**	Select user interface hood type model.
		HiP	**SEL**	«High Productivity» function enabled.
3.	Switch OFF and then switch ON the machine.			

HT MANUAL - USPH   PROG 213

1.	Switch OFF and then switch ON the machine.			
2.	**CFG**	Enter into **FAC** parameter family, choose **CFG** parameter family and set the following parameters:		
		typ	**0**	Hood Type.
		boi	**0**	Atmospheric boiler.
		dFL	**1**	Default values for Hood type models.
		trc	**0**	SOFT START enabled.
		b_t	**1**	Tank heater works only if boiler temperature reached.
		btF	**75**	Enable filling tank by means of rinsing cycles.
		U1	**9**	Select user interface hood type model.
3.	Switch OFF and then switch ON the machine.			
4.	Set the measurement units.			
5.	**dPA**	Enter in **FAC** parameter family, choose **dPA** and modify the following parameters.		
		C F	**F**	Setting temperature in Fahrenheit.
6.	Switch OFF and then switch ON the machine.			

HT MANUAL - Japan   PROG 214

1.	Switch OFF and then switch ON the machine.		
2.	**CFG**	Enter into **FAC** parameter family, choose **CFG** parameter family and set the following parameters:	
		typ	**0**	Hood Type.
		boi	**0**	Atmospheric boiler.
		dFL	**1**	Default values for Hood type models.
		trc	**1**	SOFT START enabled.
		b.t	**0**	Tank heater and boiler ones works together.
		btF	**75**	Enable filling tank by means of rinsing cycles.
		U1	**9**	Select user interface hood type model.
3.	Switch OFF and then switch ON the machine.		

HT MANUAL + Delime + Energy Saving Device - Japan   PROG 216

1.	Switch OFF and then switch ON the machine.		
2.	**CFG**	Enter into **FAC** parameter family, choose **CFG** parameter family and set the following parameters:	
		typ	**0**	Hood Type.
		boi	**0**	Atmospheric boiler.
		dFL	**1**	Default values for Hood type models.
		trc	**1**	SOFT START enabled.
		b.t	**0**	Tank heater and boiler ones works together.
		btF	**75**	Enable filling tank by means of rinsing cycles.
		U1	**9**	Select user interface hood type model.
3.	Switch OFF and then switch ON the machine.		
4.	Parameters setting for ESD.		
	CY1	Enter into **FAC** parameter family, choose **CY1** parameter family and set the following parameter:	
		FP1	**12**	Final pause.
	CY2	Choose **CY2** parameter family and set the following parameter:	
		FP2	**12**	Final pause.
	CY3	Choose **CY3** parameter family and set the following parameter:	
		FP3	**12**	Final pause.
5.	Activation Delime function		
6.	**dLP**	Choose **dLP** parameter family and modify the following parameter:	
		dLE	**YES**	Delime function activated.
7.	Switch OFF and then switch ON the machine.		

MANUAL HT VEETSAN   PROG 217

1.	Switch OFF and then switch ON the machine.			
2.	*CFG*	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:		
		tYP	*0*	Hood Type.
		boi	*0*	Atmospheric boiler.
		dFL	*1*	Default values for Hood type models.
		trc	*1*	SOFT START enabled.
		b_t	*1*	Tank heater works only if boiler temperature reached.
		btF	*75*	Enable filling tank by means of rinsing cycles.
		U1	*9*	Select user interface hood type model.
		HiP	*LOC*	«High Productivity» is always active.
3.	Switch OFF and then switch ON the machine.			
4.	*CY1*	Enter into *FAC* parameter family, choose *CY1* parameter family and set the following parameter:		
		Sh1	*36*	Wash Phase Short.
		ri1	*9.8*	Rinse Phase Duration.
	CY2	Enter into *FAC* parameter family, choose *CY2* parameter family and set the following parameter:		
		Sh2	*9*	Wash Phase Short.
		ri2	*9.8*	Rinse Phase Duration.
	CY3	Enter into *FAC* parameter family, choose *CY3* parameter family and set the following parameter:		
		Sh3	*15*	Wash Phase Short.
		ri3	*9.8*	Rinse Phase Duration.
5.	Switch OFF and then switch ON the machine.			

1.	Switch OFF and then switch ON the machine.			
2.	*CFG*	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:		
		typ	*0*	Hood Type.
		boi	*0*	Atmospheric boiler.
		dFL	*1*	Default values for Hood type models.
		trc	*1*	SOFT START enabled.
		b_t	*1*	Tank heater works only if boiler temperature reached.
		btF	*75*	Enable filling tank by means of rinsing cycles.
		UI	*9*	Select user interface hood type model.
		HiP	*no*	«High Productivity» function disabled.
3.	Switch OFF and then switch ON the machine.			
4.	*boi*	Enter into *FAC* parameter family, choose *boi* parameter family and set the following parameters:		
		btL	*87*	Boiler temperature in mode Thermal Label.
5.	*CY1*	Enter into *FAC* parameter family, choose *CY1* parameter family and set the following parameters:		
		Sh1	*56*	Wash Phase Short.
		FP1	*4*	Final Pause at End of Cycle.
		tS1	*56*	Short wash time in mode Thermal Label.
6.	*CY2*	Enter into *FAC* parameter family, choose *CY2* parameter family and set the following parameters:		
		Sh2	*46*	Wash Phase Short.
		ri2	*120*	Rinse Phase Duration.
		FP2	*4*	Final Pause at End of Cycle.
		tS2	*46*	Short wash time in mode Thermal Label.
7.	*CY3*	Enter into *FAC* parameter family, choose *CY3* parameter family and set the following parameters:		
		Sh3	*36*	Wash Phase Short.
		ri3	*160*	Rinse Phase Duration.
		dr3	*16*	Drain
		FP3	*4*	Final Pause at End of Cycle.
		tS3	*36*	Short wash time in mode Thermal Label.
8.	Switch OFF and then switch ON the machine.			

MANUAL HT+ Delime + Energy Saving Device - MARRIOTT AUTOMATIC HT+ Delime + Energy Saving Device - MARRIOTT	**PROG 219**

1.	Switch OFF and then switch ON the machine.		
2.	*CFG*		Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:

	tYP	*0*	Hood Type.
	boi	*0*	Atmospheric boiler.
	dFL	*1*	Default values for Hood type models.
	trc	*1*	SOFT START enabled.
	b_t	*1*	Tank heater works only if boiler temperature reached.
	btF	*75*	Enable filling tank by means of rinsing cycles.
	U1	*9*	Select user interface hood type model.
	HiP	*no*	«High Productivity» function disabled.

3.	Switch OFF and then switch ON the machine.		
4.	*boi*		Enter into *FAC* parameter family, choose *boi* parameter family and set the following parameters:
	btL	*87*	Boiler temperature in mode Thermal Label.
5.	*CY1*		Enter into *FAC* parameter family, choose *CY1* parameter family and set the following parameters:
	FP1	*12*	Final pause.
	tL1	*1*	Long wash time in mode Thermal Label.
	tS1	*8*	Short wash time in mode Thermal Label.
6.	*CY2*		Enter into *FAC* parameter family, choose *CY2* parameter family and set the following parameters:
	ri2	*120*	Rinse Phase Duration.
	FP2	*12*	Final pause.
	tS2	*58*	Short wash time in mode Thermal Label.
7.	*CY3*		Enter into *FAC* parameter family, choose *CY3* parameter family and set the following parameters:
	ri3	*160*	Rinse Phase Duration.
	FP3	*12*	Final pause.
	tS3	*48*	Short wash time in mode Thermal Label.
8.	Activation Delime function		
	dLP		Choose *dLP* parameter family and modify the following parameter:
	dLE	*YES*	Delime function activated.
9.	Switch OFF and then switch ON the machine.		

1.	Switch OFF and then switch ON the machine.			
2.	*CFG*	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:		
		tYP	*0*	Hood Type.
		boi	*0*	Atmospheric boiler.
		dFL	*1*	Default values for Hood type models.
		trc	*1*	SOFT START enabled.
		b.t	*1*	Tank heater works only if boiler temperature reached.
		btF	*75*	Enable filling tank by means of rinsing cycles.
		U1	*9*	Select user interface hood type model.
		H.P	*no*	«High Productivity» function disabled.
3.	Switch OFF and then switch ON the machine.			
4.	*boi*	Enter into *FAC* parameter family, choose *boi* parameter family and set the following parameters:		
		btL	*87*	Boiler temperature in mode Thermal Label.
5.	*CY1*	Enter into *FAC* parameter family, choose *CY1* parameter family and set the following parameters:		
		FP1	*4*	Final Pause at End of Cycle.
		tS1	*56*	Short wash time in mode Thermal Label.
6.	*CY2*	Enter into *FAC* parameter family, choose *CY2* parameter family and set the following parameters:		
		ri2	*120*	Rinse Phase Duration.
		FP2	*4*	Final Pause at End of Cycle.
		tS2	*46*	Short wash time in mode Thermal Label.
7.	*CY3*	Enter into *FAC* parameter family, choose *CY3* parameter family and set the following parameters:		
		ri3	*160*	Rinse Phase Duration.
		dr3	*16*	Drain
		FP3	*4*	Final Pause at End of Cycle.
		tS3	*36*	Short wash time in mode Thermal Label.
8.	Switch OFF and then switch ON the machine.			

MANUAL HTJAP + Delime + Energy Saving Device - MARRIOTT **AUTOMATIC JAP HT+ Delime + Energy Saving Device - MARRIOTT**	**PROG 221**

1.	Switch OFF and then switch ON the machine.			
2.	**CFG**	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:		
		tYP	**0**	Hood Type.
		bo i	**0**	Atmospheric boiler.
		dFL	**1**	Default values for Hood type models.
		trc	**1**	SOFT START enabled.
		b.t	**0**	boiler heaters and tank heater can work simultaneously.
		btF	**75**	Enable filling tank by means of rinsing cycles.
		U 1	**9**	Select user interface hood type model.
		H iP	**no**	«High Productivity» function disabled.
3.	Switch OFF and then switch ON the machine.			
4.	**bo i**	Enter into *FAC* parameter family, choose *bo i* parameter family and set the following parameters:		
		btL	**87**	Boiler temperature in mode Thermal Label.
5.	**CY 1**	Enter into *FAC* parameter family, choose *CY 1* parameter family and set the following parameters:		
		FP 1	**12**	Final pause.
		tL 1	**1**	Long wash time in mode Thermal Label.
		tS 1	**8**	Short wash time in mode Thermal Label.
6.	**CY2**	Enter into *FAC* parameter family, choose *CY2* parameter family and set the following parameters:		
		r i2	**120**	Rinse Phase Duration.
		FP2	**12**	Final pause.
		tS2	**58**	Short wash time in mode Thermal Label.
7.	**CY3**	Enter into *FAC* parameter family, choose *CY3* parameter family and set the following parameters:		
		r i3	**160**	Rinse Phase Duration.
		FP3	**12**	Final pause.
		tS3	**48**	Short wash time in mode Thermal Label.
8.	Activation Delime function			
	dLP	Choose **dLP** parameter family and modify the following parameter:		
		dLE	**YES**	Delime function activated.
9.	Switch OFF and then switch ON the machine.			

1.	Switch OFF and then switch ON the machine.			
2.	*CFG*	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:		
		typ	*0*	Hood Type.
		bo i	*0*	Atmospheric boiler.
		dFL	*1*	Default values for Hood type models.
		trc	*1*	SOFT START enabled.
		b.t	*1*	Tank heater works only if boiler temperature reached.
		btF	*75*	Enable filling tank by means of rinsing cycles.
		U1	*9*	Select user interface hood type model.
		H iP	*no*	«High Productivity» function disabled.
3.	Switch OFF and then switch ON the machine.			
4.	*CY1*	Enter into *FAC* parameter family, choose *CY1* parameter family and set the following parameters:		
		Ln1	*0*	Wash Phase Long.
		Sh1	*44*	Wash Phase Short.
		r i1	*12*	Rinse Phase Duration.
		dr1	*13*	Drain.
5.	*CY2*	Enter into *FAC* parameter family, choose *CY2* parameter family and set the following parameters:		
		Ln2	*1*	Wash Phase Long.
		Sh2	*44*	Wash Phase Short.
		r i2	*12*	Rinse Phase Duration.
		dr2	*13*	Drain.
6.	*CY3*	Enter into *FAC* parameter family, choose *CY3* parameter family and set the following parameters:		
		Ln3	*2*	Wash Phase Long.
		Sh3	*8*	Wash Phase Short.
		PA3	*10*	Final Pause at End of Cycle.
		r i3	*12*	Rinse Phase Duration.
		dr3	*13*	Drain.
7.	Dispenser parameters configuration.			
8.	*d iS*	Enter in *USr* parameter family, choose *d iS* and modify the following parameters.		
		dun	*SEC*	Measurement units in seconds.
		d In	*55*	Initial Detergent Dosage in seconds.
		r In	*5*	Initial Rinse Aid Dosage in seconds.
		dEt	*181*	The detergent dispenser works when WASHING PUMP is being activated. (See §5).
		rA i	*61*	The Rinse Aid dispenser works when LOADING EV is being activated (See §5).
9.	Activation Delime function			
10.	*dLP*	Choose *dLP* parameter family and modify the following parameter:		
		dLE	*YES*	Delime function activated.
11.	Switch OFF and then switch ON the machine.			

1.	Switch OFF and then switch ON the machine.			
2.	*CFG*	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:		
		typ	*0*	Hood Type.
		boi	*0*	Atmospheric boiler.
		dFL	*1*	Default values for Hood type models.
		trc	*1*	SOFT START enabled.
		b_t	*1*	Tank heater works only if boiler temperature reached.
		btF	*75*	Enable filling tank by means of rinsing cycles.
		U1	*9*	Select user interface hood type model.
		HiP	*LOC*	«High Productivity» is always active.
3.	Switch OFF and then switch ON the machine.			
4.	*CY1*	Enter into *FAC* parameter family, choose *CY1* parameter family and set the following parameter:		
		Sh1	*36*	Wash Phase Short.
		ri1	*9.8*	Rinse Phase Duration.
		FP1	*12*	Final pause.
	CY2	Enter into *FAC* parameter family, choose *CY2* parameter family and set the following parameter:		
		Sh2	*9*	Wash Phase Short.
		ri2	*9.8*	Rinse Phase Duration.
		FP2	*12*	Final pause.
	CY3	Enter into *FAC* parameter family, choose *CY3* parameter family and set the following parameter:		
		Sh3	*15*	Wash Phase Short.
		ri3	*9.8*	Rinse Phase Duration.
		FP3	*12*	Final pause.
5.	Switch OFF and then switch ON the machine.			

AUTOMATIC HT + Delime A060 MEDICAL GRADE — PROG 225

1.	Switch OFF and then switch ON the machine.			
2.	**CFG**	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:		
		tYP	**0**	Hood Type.
		boi	**0**	Atmospheric boiler.
		dFL	**1**	Default values for Hood type models.
		trc	**1**	SOFT START enabled.
		b.t	**1**	Tank heater works only if boiler temperature reached.
		btF	**75**	Enable filling tank by means of rinsing cycles.
		U1	**9**	Select user interface hood type model.
		HiP	**LOC**	«High Productivity» is always active.
3.	Switch OFF and then switch ON the machine.			
4.	Parameters setting.			
	boi	Enter into *FAC* parameter family, choose *boi* parameter family and set the following parameters:		
		btC	**90**	Boiler temperature.
		btH	**3**	Boiler Temperature HISTERESIS.
5.	**tub**	Enter into *FAC* parameter family, choose *tub* parameter family and set the following parameters:		
		ttC	**77**	Tub Temperature: Threshold.
	CY1	Enter into *FAC* parameter family, choose *CY1* parameter family and set the following parameter:		
		FP1	**2**	Final pause.
	CY2	Choose *CY2* parameter family and set the following parameter:		
		FP2	**2**	Final pause.
	CY3	Choose *CY3* parameter family and set the following parameter:		
		Ln3	**4**	Wash Phase Long.
		Sh3	**1**	Wash Phase Short.
		ri3	**18**	Rinse Phase Duration.
		dr3	**12**	Drain.
		FP3	**60**	Final pause.
6.	Activation Delime function			
7.	**dLP**	Choose *dLP* parameter family and modify the following parameter:		
		dLE	**YES**	Delime function activated.
8.	Switch OFF and then switch ON the machine.			

1.	Switch OFF and then switch ON the machine.		
2.	*CFG*	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:	

typ	*0*	Hood Type.
boi	*0*	Atmospheric boiler.
dFL	*1*	Default values for Hood type models.
trc	*1*	SOFT START enabled.
b_t	*1*	Tank heater works only if boiler temperature reached.
btF	*75*	Enable filling tank by means of rinsing cycles.
U1	*9*	Select user interface hood type model.
HiP	*LOC*	«High Productivity» is always active.

3.	Switch OFF and then switch ON the machine.
4.	Parameters setting.

boi	Enter into *FAC* parameter family, choose *boi* parameter family and set the following parameters:	
btC	*90*	Boiler temperature.
btH	*3*	Boiler Temperature HISTERESIS.

5.	*tub*	Enter into *FAC* parameter family, choose *tub* parameter family and set the following parameters:

ttC	*77*	Tub Temperature: Threshold.

CY3	Choose *CY3* parameter family and set the following parameter:	
Ln3	*4*	Wash Phase Long.
Sh3	*1*	Wash Phase Short.
ri3	*18*	Rinse Phase Duration.
dr3	*12*	Drain.
FP3	*60*	Final pause.

6.	Switch OFF and then switch ON the machine.

1.	Switch OFF and then switch ON the machine.		
2.	*CFG*		Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:

	typ	*0*	Hood Type.
	boi	*0*	Atmospheric boiler.
	dFL	*1*	Default values for Hood type models.
	trc	*1*	SOFT START enabled.
	b_t	*1*	Tank heater works only if boiler temperature reached.
	btF	*75*	Enable filling tank by means of rinsing cycles.
	U1	*9*	Select user interface hood type model.
	H.P	*LOC*	«High Productivity» is always active.

3.	Switch OFF and then switch ON the machine.		
4.	Parameters setting.		
	boi		Enter into *FAC* parameter family, choose *boi* parameter family and set the following parameters:

	btC	*90*	Boiler temperature.
	btH	*3*	Boiler Temperature HISTERESIS.

5.	*tub*		Enter into *FAC* parameter family, choose *tub* parameter family and set the following parameters:

	ttC	*77*	Tub Temperature: Threshold.

6.	*CY1*		Enter into *FAC* parameter family, choose *CY1* parameter family and set the following parameter:

	Sh1	*36*	Wash Phase Short.
	ri1	*9.8*	Rinse Phase Duration.

	CY2		Enter into *FAC* parameter family, choose *CY2* parameter family and set the following parameter:

	Sh2	*9*	Wash Phase Short.
	ri2	*9.8*	Rinse Phase Duration.

	CY3		Enter into *FAC* parameter family, choose *CY3* parameter family and set the following parameter:

	Ln3	*4*	Wash Phase Long.
	Sh3	*1*	Wash Phase Short.
	ri3	*18*	Rinse Phase Duration.
	dr3	*12*	Drain.
	FP3	*60*	Final pause.

7.	Switch OFF and then switch ON the machine.		

HT ROW ELUX	**PROG 001**

1.	Switch OFF and then switch ON the machine.
2. *CFG*	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:

	typ	*0*	Hood Type.
	boi	*0*	Atmospheric boiler.
	dFL	*1*	Default values for Hood type models.
	trc	*1*	SOFT START enabled.
	b_t	*1*	Tank heater works only if boiler temperature reached.
	btF	*75*	Enable filling tank by means of rinsing cycles.
	U1	*9*	Select user interface hood type model.

3.	Switch OFF and then switch ON the machine.

HT ROW ESD ELUX	**PROG 002**

1.	Switch OFF and then switch ON the machine.
2. *CFG*	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:

	typ	*0*	Hood Type.
	boi	*0*	Atmospheric boiler.
	dFL	*1*	Default values for Hood type models.
	trc	*1*	SOFT START enabled.
	b_t	*1*	Tank heater works only if boiler temperature reached.
	btF	*75*	Enable filling tank by means of rinsing cycles.
	U1	*9*	Select user interface hood type model.

3.	Switch OFF and then switch ON the machine.
4.	Parameters setting for ESD.

CY1	Enter into *FAC* parameter family, choose *CY1* parameter family and set the following parameter:		
	FP1	*12*	Final pause.
CY2	Choose *CY2* parameter family and set the following parameter:		
	FP2	*12*	Final pause.
CY3	Choose *CY3* parameter family and set the following parameter:		
	FP3	*12*	Final pause.

5.	Switch OFF and then switch ON the machine.

HT ROW   PROG 003

1.	Switch OFF and then switch ON the machine.			
2.	*CFG*	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:		
		tYP	*0*	Hood Type.
		boi	*0*	Atmospheric boiler.
		dFL	*1*	Default values for Hood type models.
		trc	*1*	SOFT START enabled.
		b_t	*0*	Boiler heaters and tank heater can work simultaneously.
		btF	*75*	Enable filling tank by means of rinsing cycles.
		UI	*9*	Select user interface hood type model.
		HiP	*LOC*	«High Productivity» is always active.
3.	Switch OFF and then switch ON the machine.			
4.	*CY1*	Enter into *FAC* parameter family, choose *CY1* parameter family and set the following parameter:		
		Sh1	*41*	Wash Phase Short.
		ri1	*10.0*	Rinse Phase Duration.
	CY2	Enter into *FAC* parameter family, choose *CY2* parameter family and set the following parameter:		
		Sh2	*10*	Wash Phase Short.
		ri2	*10.0*	Rinse Phase Duration.
	CY3	Enter into *FAC* parameter family, choose *CY3* parameter family and set the following parameter:		
		Sh3	*16*	Wash Phase Short.
		ri3	*10.0*	Rinse Phase Duration.
5.	Switch OFF and then switch ON the machine.			

HT ESD DIVERSEY   PROG 005

1.	Switch OFF and then switch ON the machine.			
2.	*CFG*	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:		
		tYP	*0*	Hood Type.
		boi	*0*	Atmospheric boiler.
		dFL	*1*	Default values for Hood type models.
		trc	*1*	SOFT START enabled.
		b_t	*0*	Boiler heaters and tank heater can work simultaneously.
		btF	*75*	Enable filling tank by means of rinsing cycles.
		UI	*9*	Select user interface hood type model.
		HiP	*LOC*	«High Productivity» is always active.
3.	Switch OFF and then switch ON the machine.			
4.	Parameters setting for ESD.			
	CY1	Enter into *FAC* parameter family, choose *CY1* parameter family and set the following parameter:		
		Sh1	*43*	Wash Phase Short.
		ri1	*13.0*	Rinse Phase Duration.
		FP1	*12*	Final Pause.
	CY2	Choose *CY2* parameter family and set the following parameter:		
		Sh2	*13*	Wash Phase Short.
		ri2	*13.0*	Rinse Phase Duration.
		FP2	*12*	Final Pause.
	CY3	Choose *CY3* parameter family and set the following parameter:		
		Sh3	*16*	Wash Phase Short.
		ri3	*10.0*	Rinse Phase Duration.
		FP3	*12*	Final Pause.
5.	Switch OFF and then switch ON the machine.			

1.	Switch OFF and then switch ON the machine.		
2.	*CFG*	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:	

	tYP	*0*	Hood Type.
	boi	*0*	Atmospheric boiler.
	dFL	*1*	Default values for Hood type models.
	trc	*2*	SLOW SOFT START enabled.
	b_t	*1*	Tank heater works only if boiler temperature reached.
	btF	*75*	Enable filling tank by means of rinsing cycles.
	U1	*9*	Select user interface hood type model.
	HiP	*LOC*	«High Productivity» is always active.

3.	Switch OFF and then switch ON the machine.		
4.	Parameters setting.		
	boi	Enter into *FAC* parameter family, choose *boi* parameter family and set the following parameters:	

	btC	*80*	Boiler temperature.
	btd	*20*	Save energy during machine inactivity by keeping boiler water at a lower temperature.

5.	*tub*	Enter into *FAC* parameter family, choose *tub* parameter family and set the following parameters:	

	L1	*120*	Tank filling level.
	L1H	*85*	Hysteresis relevant to the filling level.

CY1	Enter into *FAC* parameter family, choose *CY1* parameter family and set the following parameter:		

	Sh1	*39*	Wash Phase Short.
	PA1	*10*	Pause.
	ri1	*11.0*	Rinse Phase Duration.
	tS1	*39*	Short wash time in mode Thermal Label.

CY2	Choose *CY2* parameter family and set the following parameter:		

	Sh2	*9*	Wash Phase Short.
	PA2	*10*	Pause.
	ri2	*11.0*	Rinse Phase Duration.
	tS2	*9*	Short wash time in mode Thermal Label.

CY3	Choose *CY3* parameter family and set the following parameter:		

	Sh3	*9*	Wash Phase Short.
	PA3	*10*	Pause.
	ri3	*11.0*	Rinse Phase Duration.
	tS3	*9*	Short wash time in mode Thermal Label.

6.	Switch OFF and then switch ON the machine.		

9.3 USER INTERFACE AND MAIN BOARD CONNECTORS

9.3.1 Connectors layout

LAYOUT 1
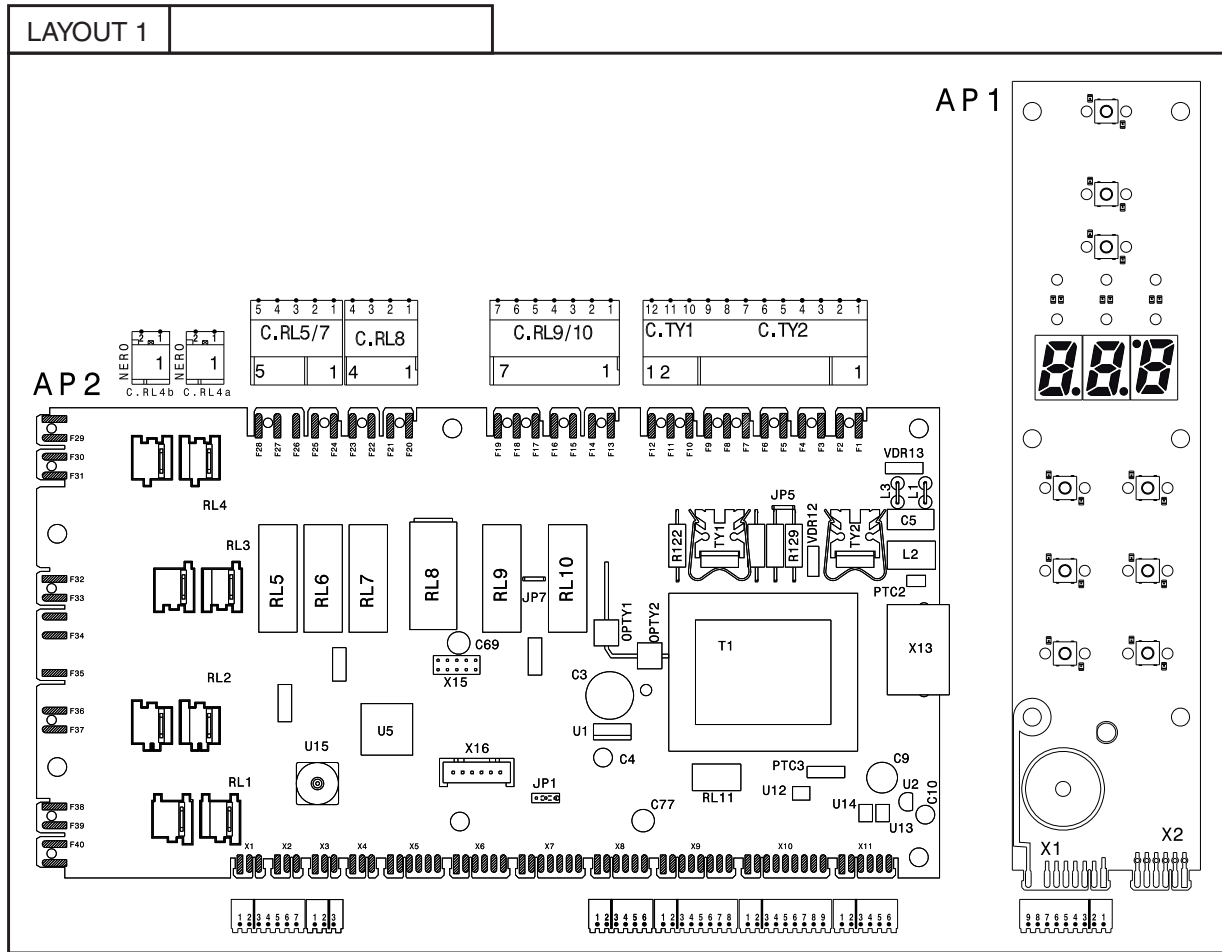
KEY

C.TY1/C.TY2	Board power supply input
	Wash pump/rinse pump outputs
C.RL1a/b	Boiler heating element and boiler heating element contactor input/output
C.RL2a/b	Boiler heating element input/output
C.RL3a/b	Boiler heating element input/output
C.RL4a/b	Tank heating element and tank heating element relay input/output
C.RL5/7	ESD fans and drain pump/solenoid valve outputs
C.RL8	Door microswitch
C.RL9/10	Detergent/rinse aid dispenser outputs
C.X1/X2	Temperature sensor inputs
C.X3	Pick control input
C.X8/X9	Pressure sensor inputs
C.X10	User interface inputs/outputs
C.X11	Main and user interface communication
C.API.X1	Hood sensor input and user interface inputs/outputs

10   DISHWASHER SETTING IN PREWASH MODE

Use ONLY the washing cycle 3 ("I" - Par. 1.1 DESCRIPTION OF CONTROL PANEL) and set the appliance as you can see in the table below.

1.	Switch OFF and then switch ON the machine.			
2.	Enter into *FAC* parameter family, choose *CFG* parameter family and set the following parameters:			
	boi			
		btC	*44*	Boiler heating deactivated
	tub			
		ttC	*39*	Tank heating deactivated
	CY3			
		PA3	*0*	Pause.
		ri3	*0*	Rinse phase duration
1.	Switch OFF and then switch ON the machine.			

11   ALARM MESSAGES AND TROUBLESHOOTING

11.1   MAIN MALFUNCTIONS NOT DUE TO THE MAIN BOARD

DESCRIPTION	POSSIBLE CAUSE
The display shows *CLOSE* with door/hood closed	Check door/hood micro/sensor
No cycle starts	Check the user interface buttons (have they remained pressed? etc.)
A cycle fails to start	Is a user interface button extension missing?
Cycle time longer than that foreseen	Do boiler heating elements work properly? Is the feed water at 50°C?

11.2   ALARMS THAT STOP THE DISHWASHER

A 1	Missing water
	Is the water tap open? Does the water load solenoid valve work? Is the water feed flow a min. of 5 l/min? Is the water inlet filter clean? Is the load solenoid valve filter clean? Is the overflow inserted? Do the tank/boiler pressure switches work properly?

C 9	Automatic hood out of order
	Alarm codes for automatic hood type dishwasher (see paragraph 11.2.1 Alarm codes for automatic hood type dishwashers).

$C\ 12$	Tank level sensor out of order

Are the connectors correctly connected? Are connector contacts cleaned? Does the air trap of the tank work correctly? Is the level sensor broken (replace it with a new one)?

11.2.1 Alarm codes for automatic hood type dishwashers

When the alarm $C\ 9$ appears, to facilitate fault-finding a parameter providing a more detailed indication has been introduced.

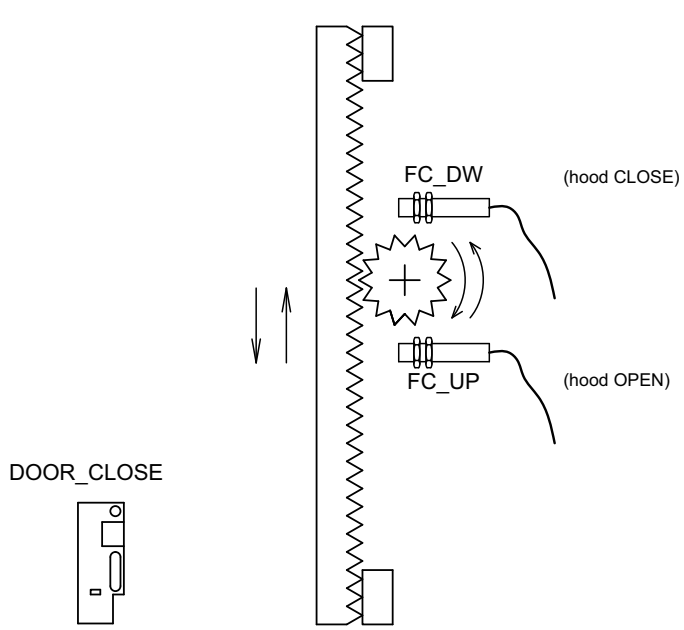The parameter is $C\ 9$ and is found in the ron family.

The possible cause of the anomaly can be found (see next table) according to the value of the parameter $C\ 9$.

E.g.: With an automatic hood type the alarm $C\ \ 9$ appears.

Access the parameter $C\ 9$ in the ron family.

Assuming the value displayed is:

$20 \Rightarrow$ During lifting, the current absorbed by the lifting motor has exceeded the threshold. This can happen if a rack or other heavy material was placed on the hood.

Automatic Hood	
$C\ 9$	FC_DW (hood CLOSE) FC_UP (hood OPEN) DOOR_CLOSE
1	Hood is closed but the upper end limit switch (FC_UP) is active.
2	Hood is opening (starting from completely close position), but the lower end limit switch has not been released.
4	During hood opening the lower end limit switch (FC_DW) has been activated.
5	Hood opening timeout: hood opening duration must be less than 18s (fixed value). Check if the motor works properly.
6	Hood is open but the lower end limit switch is active (FC_DW).
8	Hood is closing (starting from completely open position) but the upper end limit switch has not been released.
10	During hood closing the upper end limit switch (FC_UP) has been activated.

11	Hood closing timeout: hood closing duration must be less than 18s (fixed value). Check if the motor works properly.
14	Combination not allowed: upper end limit switch (FC_UP) and lower end limit switch(FC_DW) are both activated.
20	Overcurrent during hood opening phase.
22	Overcurrent during hood closing phase.
30	On board motor driver overtemperature.

11.3 ALARMS THAT DON'T STOP THE DISHWASHER

(SHOWN ON THE USER INTERFACE AT REGULAR INTERVALS)

b 1	Drain not efficient

Has the overflow been removed?
Is the water drain blocked?
Is the drain pump blocked?
Are the air trap and tank pressure switch clean?
Is there a constriction in the drain tube?
Is the pump breather pipe returning to the tank clogged or constricted?
Does the tank pressure switch work properly?
Is there a hole in the drain tube (only for versions with drain pump)?

b 2	Overflow alarm

Is the water drain blocked?
Are the air trap and tank pressure switch clean?
Does the tank pressure switch work properly?
Is the load solenoid valve blocked? (see electrical wiring diagram - YV1 Filling solenoid valve)
Is the load solenoid valve relay stuck? (see electrical wiring diagram - RL5 relay of AP2 board)

C 1	Boiler temperature rise too fast

Does the boiler level sensor work properly? The boiler could be empty.
Are no-original power resistances installed?

C 2	Boiler temperature too high

Has the boiler temperature been changed (*btC* - increased above 90°C)?
Has the software alarm value been modified (*bH1*)?
Does the boiler level sensor work properly?
Boiler relay/relays sticked (see electrical wiring diagram - RL1/ RL2/ RL3 relays of AP2 board)?

C 3	Tank temperature too high

Is the feed water above 60°C?
Has the software alarm value been modified (*tH1*)?
Is the rinse water temperature too high?
Is the tank relay stuck (see electrical wiring diagram - RL4 relay of AP2 board)?

C 4	Tank temperature sensor out of order

Is the temperature sensor broken or disconnected (see electrical wiring diagram - ST1 Tank probe)?
Is the temperature sensor connector correctly inserted?

C 5	Tank temperature sensor out of order

		Is the temperature sensor short-circuited (see electrical wiring diagram - ST1 Tank probe)?
C 6	Boiler temperature sensor out of order	
		Is the temperature sensor broken or disconnected (see electrical wiring diagram - ST2 Boiler probe)? Is the temperature sensor connector correctly inserted?
C 7	Boiler temperature sensor out of order	
		Is the temperature sensor short-circuited (see electrical wiring diagram - ST2 boiler probe)?
C 10	Rinse temperature sensor out of order (only on machines with temperature sensor on the rinse circuit)	
		Is the temperature sensor broken or disconnected? Is the temperature sensor connector correctly inserted?
C 11	Rinse temperature sensor out of order (only on machines with temperature sensor on the rinse circuit)	
		Is the temperature sensor short-circuited?
C 13	Rinse pump out of order (the water level of the boiler does not decrease)	
		Does the rinse pump work correctly? Is there any bottleneck in the hose, that connect the air trap and the board sensor?

WARNING:

Alarms C $2, C$ 6 and C 7 lock the boiler temperature control.

Alarms C $3, C$ 4 and C 5 lock the tank temperature control.

In the case of alarms C 6 and C 7, the boiler waiting phase is not executed (the rinse may be performed with cold water) and, during the initial warm-up and subsequent rinses (btF $>$ 0), the boiler heating phase is not executed.

In the case of an open probe error (C $4, C$ 6 e C 10), the displayed temperature is 10°C

In the case of a shorted probe error (C $5, C$ 7 e C 11), the displayed temperature is 99°C.

E 1	Communication error
	Is the connection between main board and control panel correct? Are the connectors correctly connected? Are connector contacts clean?
E 2	Tank temperature low
	Does the tank heating element work properly? Are the connectors correctly connected? Are the dishwasher feed voltage and current correct? Is the relay RL4 (see electrical wiring diagram - RL4 relay of AP2 board) on the board disconnected or faulty? Safety thermostat FR1 (see wiring diagram) activated or faulty?

E 3	Boiler temperature low

Does/do the boiler heating element/s work properly?

Are the connectors correctly connected?

Does the possible remote control switch connected to the heating element work correctly?

Is there power at the remote control switch input terminals?

Do boiler relays (see electrical wiring diagram - RL1/ RL2/ RL3 relays of AP2 board) work properly?

CAUTION: IF THERE IS A MALFUNCTION ON RELAY RL1 AND THE BOILER HEATING ELEMENTS ARE FED BY MEANS OF A REMOTE CONTROL SWITCH, THE BOARD DOES NOT HAVE TO BE REPLACED; JUST MOVE THE BOILER HEATING ELEMENT CONNECTOR TO ONE OF THE TWO FREE POSITIONS ON THE BOARD.

CAUTION: WHEN ONE BRANCH OF THE HEATING ELEMENT DOES NOT WORK AND THE OTHER TWO CONTINUE TO FUNCTION, ON REACHING THE SET TEMPERATURE VALUE, ALARM 3 DISAPPEARS AND REAPPEARS IN THE SUBSEQUENT RINSE PHASE. THIS ALSO OCCURS WHEN A PHASE IS MISSING.