Animo®

OPTIVEND

Choco
1
2
3
4
1 TS /TL
2 TS
3 TS
4 TS
HS

Software
V2.0
'easy cup volume adjustment'

GB Service enclosure

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PREFACE

Purpose of this document
This document serves as a service enclosure that enables **qualified service personnel** to safely install, program and maintain the appliance.

- '**Qualified service personnel'** are defined as people that can program the appliance, perform maintenance on it and can conduct repairs.

The majority of the settings, including the product settings, are secured with a PIN code. This PIN code ensures that users cannot gain access to the service menu. **We recommend that you do not leave this document with the user after installation and that you change the default factory PIN code.**

All chapters are paragraphs are numbered. The various diagrams referred to in the text can be found on the diagrams in the front of this booklet or adjacent to the relevant subjects.

Icons and symbols

NOTICE
General instructions for: IMPORTANT, NOTE or REMARK.

CAUTION !
Warning of possible damage to the appliance, the surroundings or the environment.

WARNING
Warning of possible serious damage to the appliance or physical injury.

WARNING
Warning of electricity hazard.

WARNING
Warning - electrostatic discharge (ESD) from electronic components.

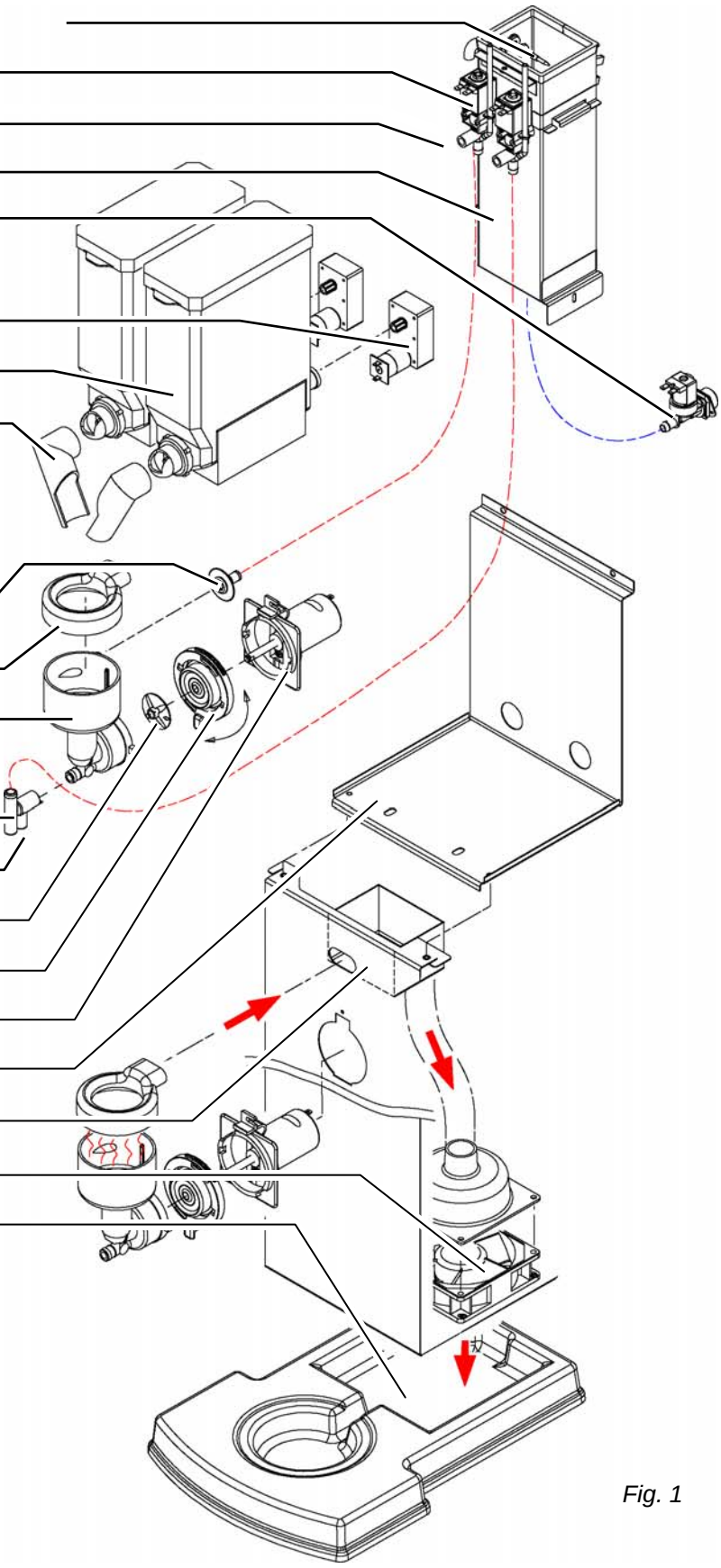

1. Max./min. levelprobes
2. Hot water valves
3. Temperature sensor
4. Heating element
5. Inlet valve
6. Gear moters
7. Ingredient holders
8. Outlet
9. Hot water connection
10. Evaparation extractor
11. Mixer housing
12. Hot water outlet / Drink outlet
13. Mixer impellor
14. Fastning ring
15. Mixer motor
16. Holder tableau
17. Evaparation box
18. Ventilator
19. Drip tray

Fig. 1

1. OPERATION

1.1 The operation of the hot water system

Switch the machine off with the ON/OFF switch. The display will light up. The magnetic valve (fig. 1-5) opens and the hot water reservoir is filled to the maximum electrode (fig. 1-1). The heating element (fig.1-4) is switched on. Now the display shows [*F3 filling]* followed by *[F2 Pre-heat]*. As soon as the temperature sensor (fig.1-3) has reached the set temperature the heating element (fig.1-4) is switched off.

When a drink is dispensed the water level drops and the max. electrode is released. The inlet valve opens and the reservoir is immediately refilled to the maximum level. If the water level drops below the minimum level during operation the control panel will block and [F3 fill] will be shown in the display. If the water supply is not re-established within approximately 3 minutes the error message [E3] is displayed and the inlet valve closes.

When a drink is dispensed the water temperature also drops. To prevent the temperature control from reacting too late the heating element switches on as soon as the inlet valve (fig. 1-5) opens and cold water is added. The heating element switches off as soon as the inlet valve closes. The software can be used to delay the deactivation of the heating element. Refer to item 2.2.0.4 in the service menu. The heating element always switches off when the set water temperature is reached.

1.2 Operation of the ingredient/mixer system

The ingredient canisters (fig.1-7) are each driven by a motor at 130 RPM (fig.1-6). The instant product (ingredients) is pushed out of the canister with a worm-wheel and falls through the dispensing knees (fig.1-8) into the mixing house (fig.1-11). Simultaneously, hot water is dosed through the hot water connection (fig.1-9) by means of the dosing valves (fig.1-2). The instant product and the water are mixed by the mixer impeller (fig.1-13) of the mixer motor (fig.1-15) at a speed of 10,700 rpm. The drink flows out through the drink spigot (fig. 1-12) into the cup. All the parts specified in this chapter can be separately controlled in sequence by means of adjustable parameters.

1.3 Operation of water vapour drainage system

The majority of the water vapour that is released is caught by the vapour drainage ring (fig.1-10) and sucked into the machine through the vapour suction tray (fig.1-17). The water vapour is drained by the ventilator (fig.1-18) in the drip tray (fig.1-19). The vapour suction tray is accessible (for cleaning purposes) by removing the canister tableau (fig.1-16).This prevents the majority of water vapour from settling in the canister outlet and making the ingredients wet.

1.4 Service moment de-scaling/filter

The machine is fitted with a service moment indicator. The hardness of the local water or the replacement moment for the water filter can be adjusted in the service menu.
Use the table in the service appendix to convert the water hardness to a certain water volume (unit: cups of 120 ml), after which the system must be de-scaled or the water filter must be replaced.
When the set volume of water has flowed through the system this is shown in the display with a (*) pictogram and the system can be de-scaled or the water filter can be replaced at an appropriate moment. The service menu displays (service counter) the period of time before the water system requires its next service.

1.5 Safety features

- **F1 Drip tray full** (option): the control panel is deactivated when the drip tray is full. Power to the dosing valves (fig. 1-2) is also cut off.
- **F2 Heating**: the control panel is deactivated when the hot water reservoir drops below the minimum temperature.
- **F3 Filling:** the control panel is deactivated when the hot water reservoir drops below the minimum level. If the minimum level has not been reached for approximately 3 minutes, the inlet valve switches off and the **F3 Filling** in the display is replaced by **E3**.
- The heating element is fitted with a boiling-dry protection feature that can be reset externally.

1.6 Water reservoir level monitoring

- Minimum water reservoir level. The heating element switches off when the minimum electrode does not detect water. If the minimum electrode has not been reached after approximately 3 minutes the inlet valve deactivates and the message **F3 Filling** changes to **E3**.
- Maximum water reservoir level. If the minimum electrode does not detect water, the inlet slowly opens until the maximum level is reached again.

1.7 Temperature adjustment

The heating element only switches on when the water temperature is under the set value and when the electrode ‘sees’ water. The temperature in the water reservoir is controlled by means of an NTC precision feeler mounted on the exterior wall of the reservoir.

1.8 Coin mechanism (optional)

The machine contains a connection cable (flat cable) for an electronic coin mechanism. The coin mechanism is powered from the control panel.

2. MENU STRUCTURE

2.1 The user menu

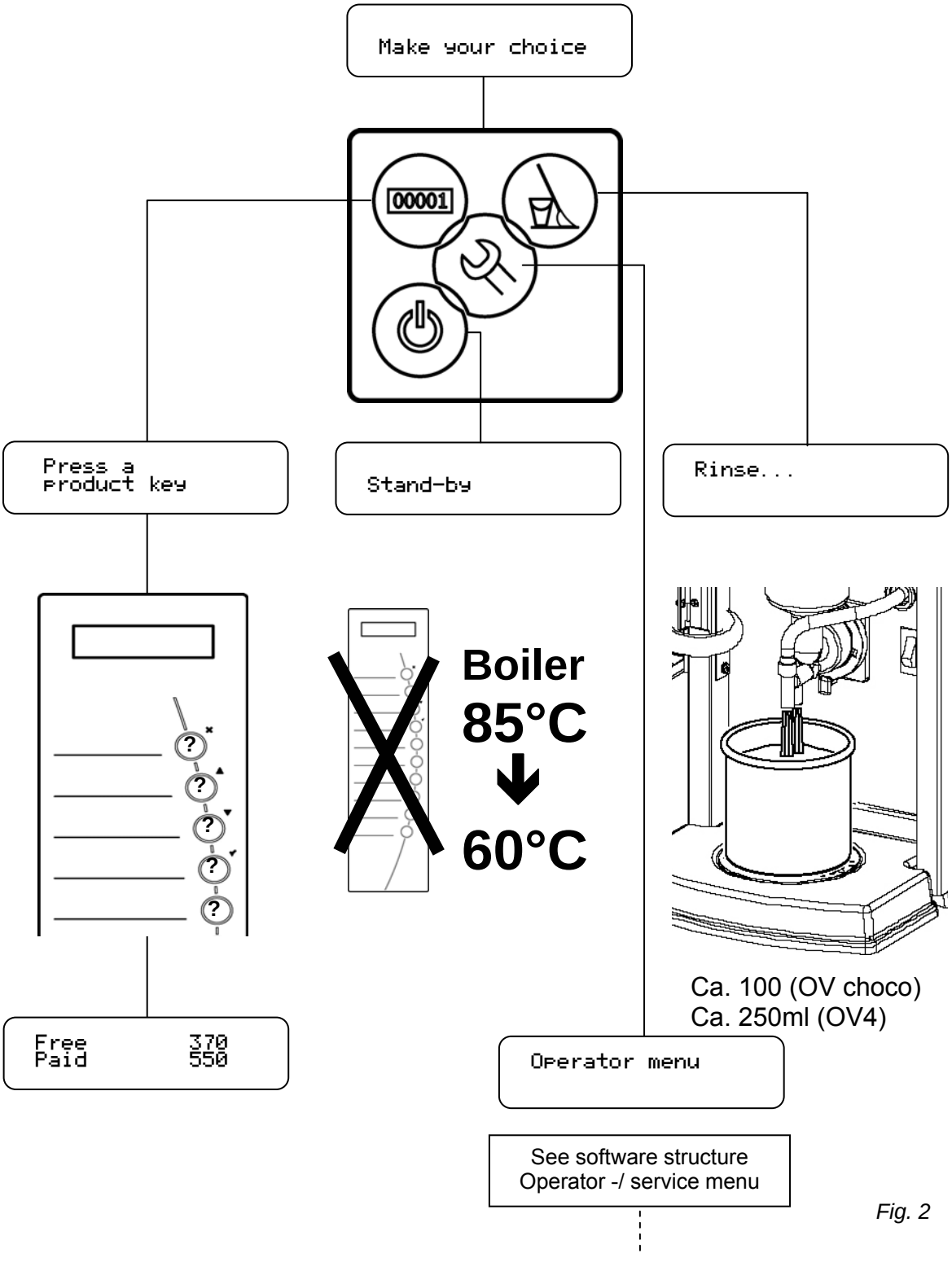
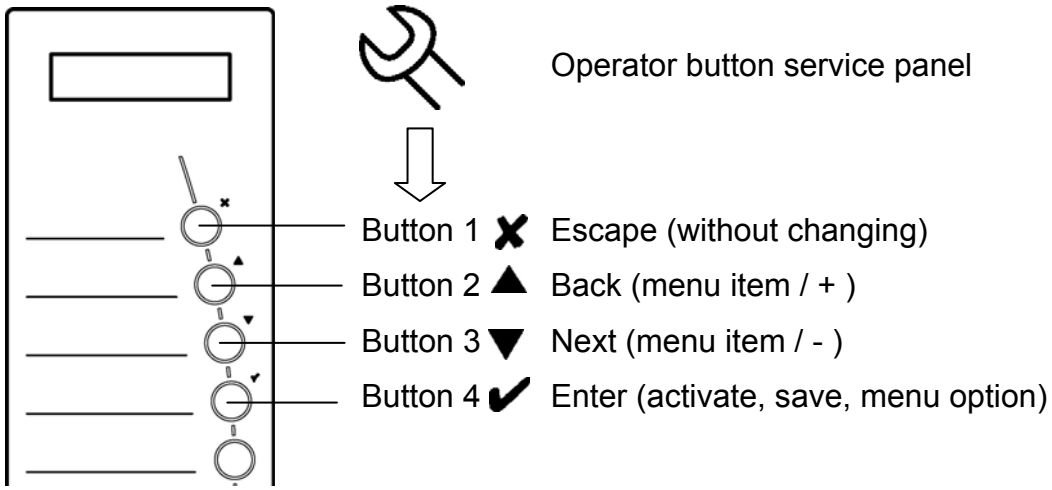


Fig. 2

2.2 The operator/service menu

The majority of the settings, including the product settings, are secured with a PIN code. This PIN code ensures that users cannot gain access to the service menu. **We recommend that you do not leave this document with the user after installation and that you change the default factory PIN code.**

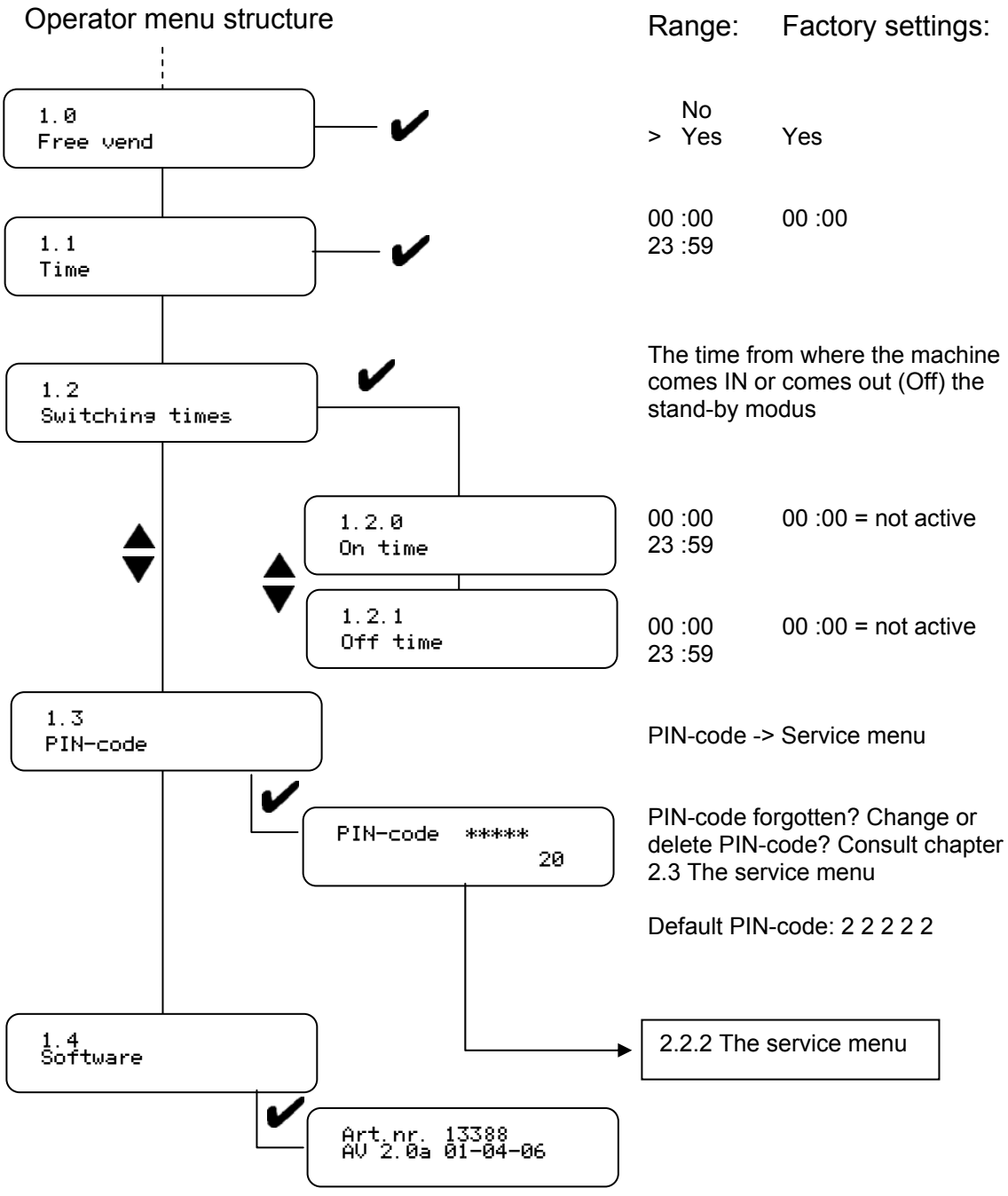
This chapter describes how the different settings can be changed by **specially trained and authorized service personnel.** The following is a description of how you access the service menu. Once in the **service menu**, the control panel has the following functions:



Menu overview:

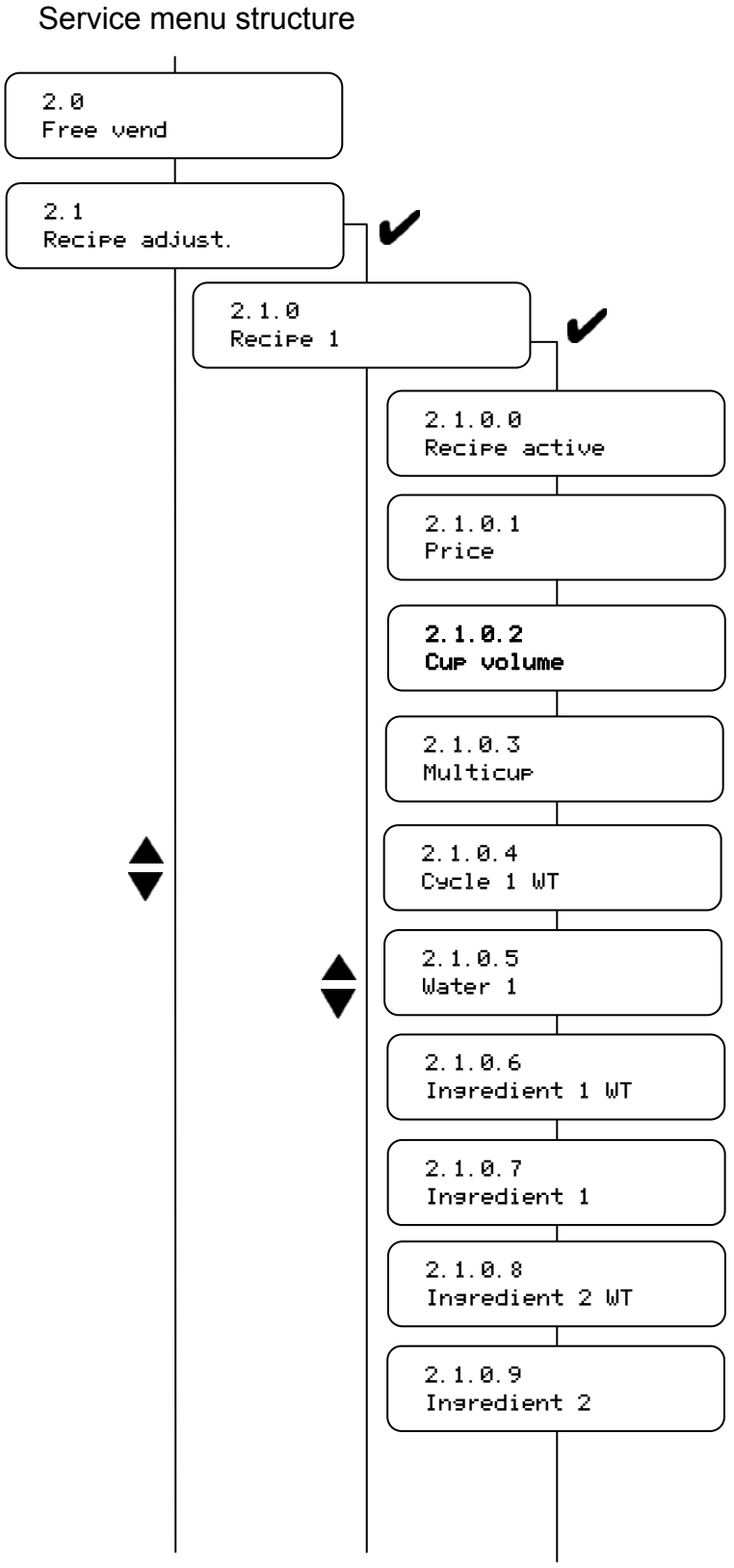
Operator menu		**Service menu**	
1.0	Free vend	2.0	Free vend
1.1	Time	2.1	Recipe adjust.
1.2	Switching times	2.2	Settings
1.3	PIN-code	2.3	Time
1.4	Software	2.4	Switching times
		2.5	Coins system
		2.6	Clear counter
		2.7	Clear all counters
		2.8	Descale/filter
		2.9	Read sensors
		2.10	Read log
		2.11	Clear log
		2.12	Load default
		2.13	Change PIN-code

2.2.1 The operator menu



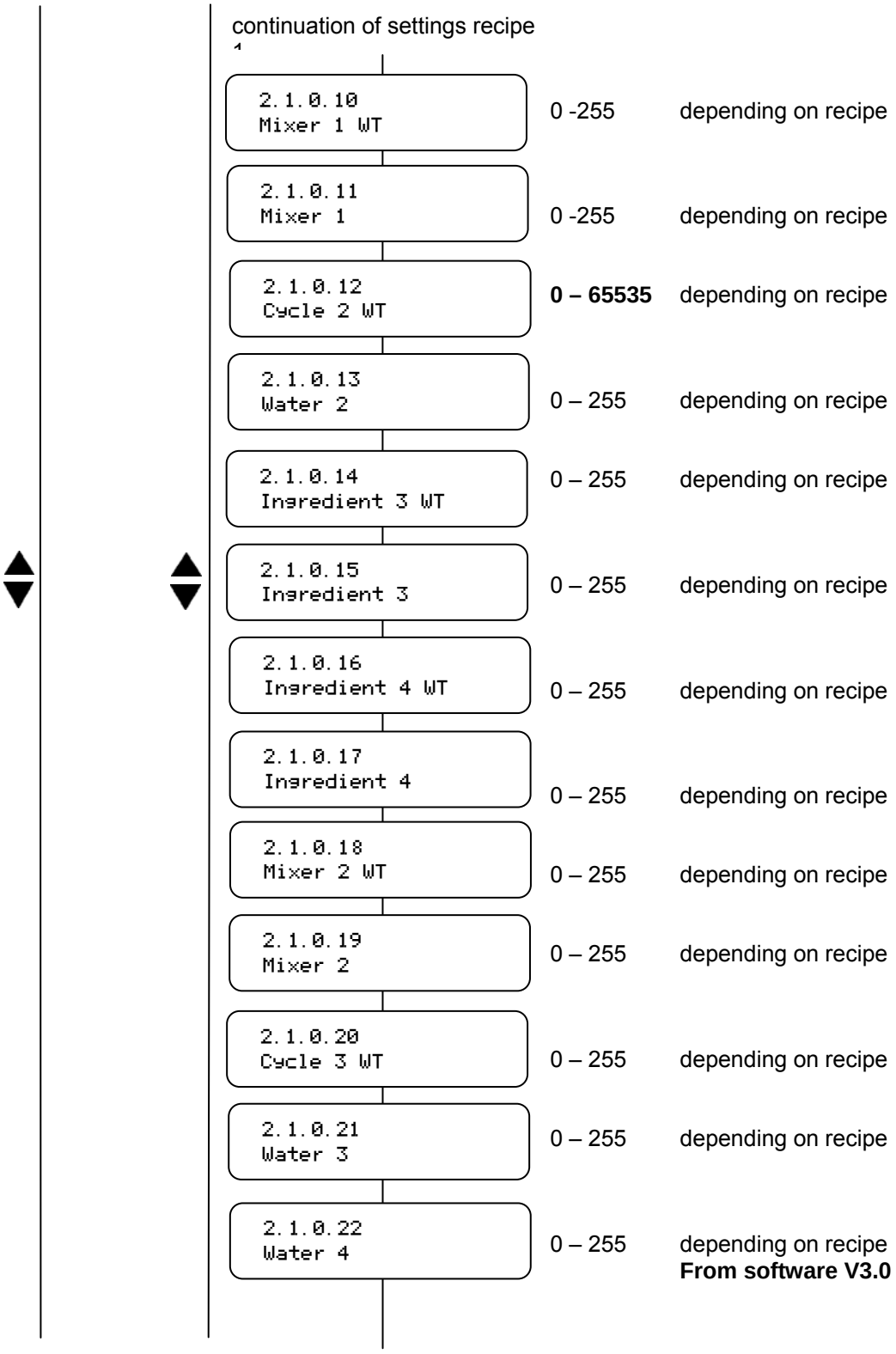
2.2.2 The service menu

Bold = added or changed from software V2.0



	Range:	Factory settings:
	No	
>	Yes	Yes
	Nee	
>	Ja	Ja
	0,00 – 2,00	0,10 0,00 = free product TOKEN = coin
	0-255	**120 ml**
	0 -255	0
	0 -65535	depending on recipe
	0 -255	depending on recipe
	0 -255	depending on recipe
	0 -255	depending on recipe
	0 -255	depending on recipe
	0 -255	depending on recipe

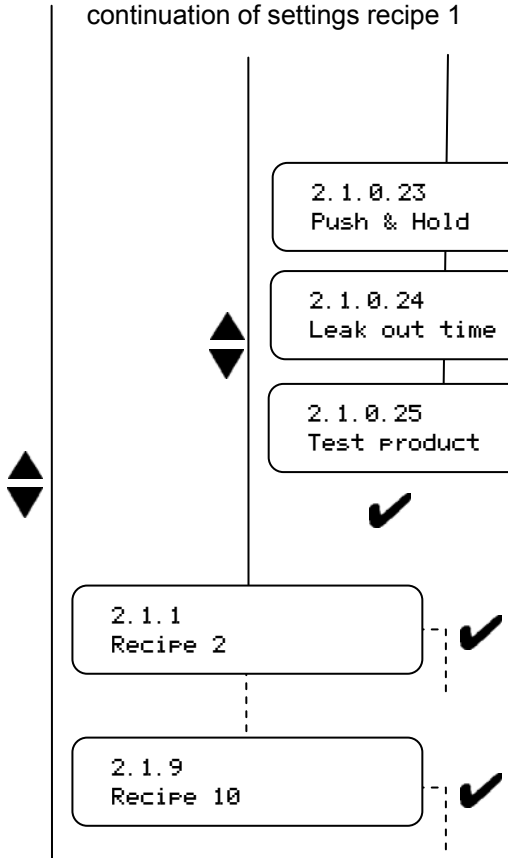
Service menu structure



Range: Factory settings:

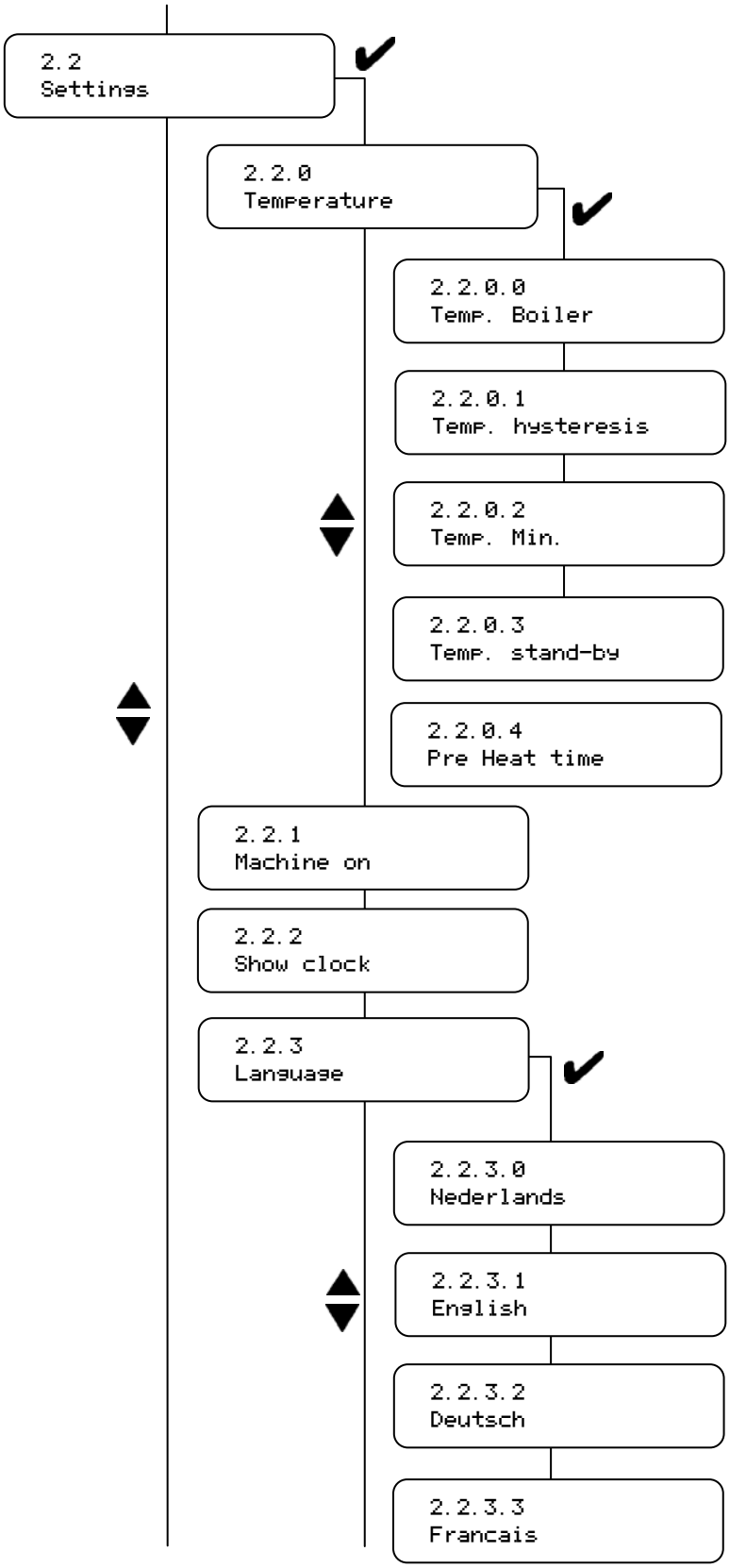
Service menu structure

Range: Factory settings:



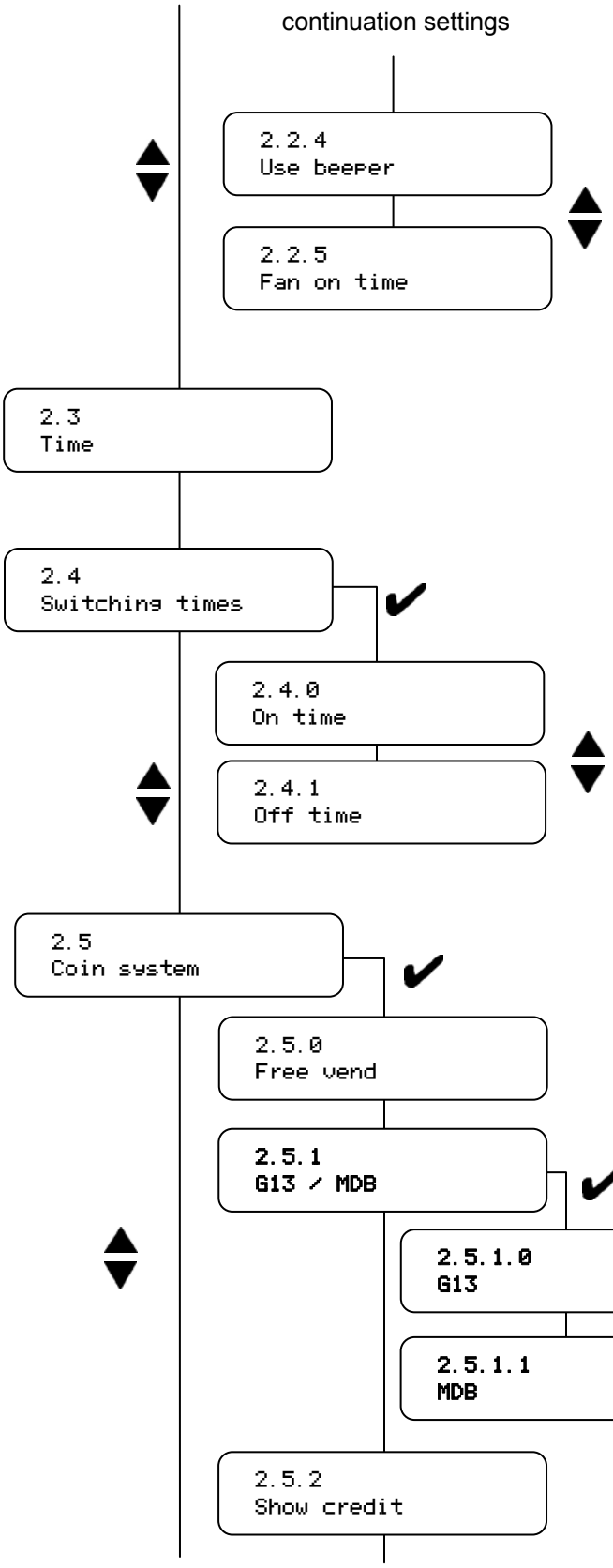
2.1.0.23 Push & Hold	> No Yes	No
2.1.0.24 Leak out time	0-255	40
2.1.0.25 Test product	Testing the product without leaving the menu.	

continuation of the service menu structure



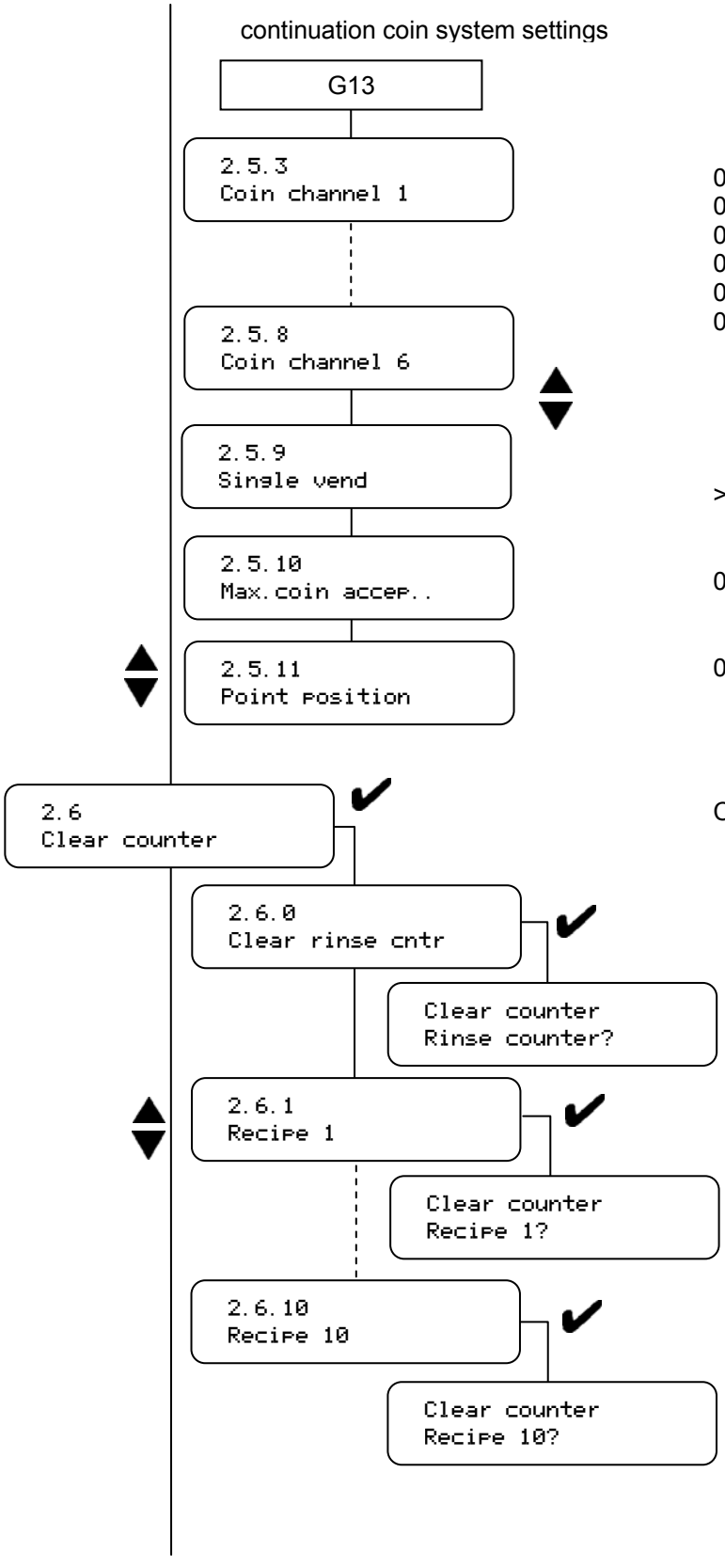
	Range:	Factory settings:	
2.2.0.0 Temp. Boiler	75-97	85 °C (TS/TL 90°C)	
2.2.0.1 Temp. hysteresis	0-10	1 °C	
2.2.0.2 Temp. Min.	70-95	78°C	
2.2.0.3 Temp. stand-by	60-95	60°C	
2.2.0.4 Pre Heat time	0-15	Choco-1-2 = 5 Sec. 3-4 = 0 Sec.	
2.2.1 Machine on	No > Yes	Yes	(= stand-by) (= in use)
2.2.2 Show clock	> No Yes	No	
2.2.3 Language			
2.2.3.0 Nederlands			
2.2.3.1 English		English	
2.2.3.2 Deutsch			
2.2.3.3 Francais			

continuation of the service menu structure



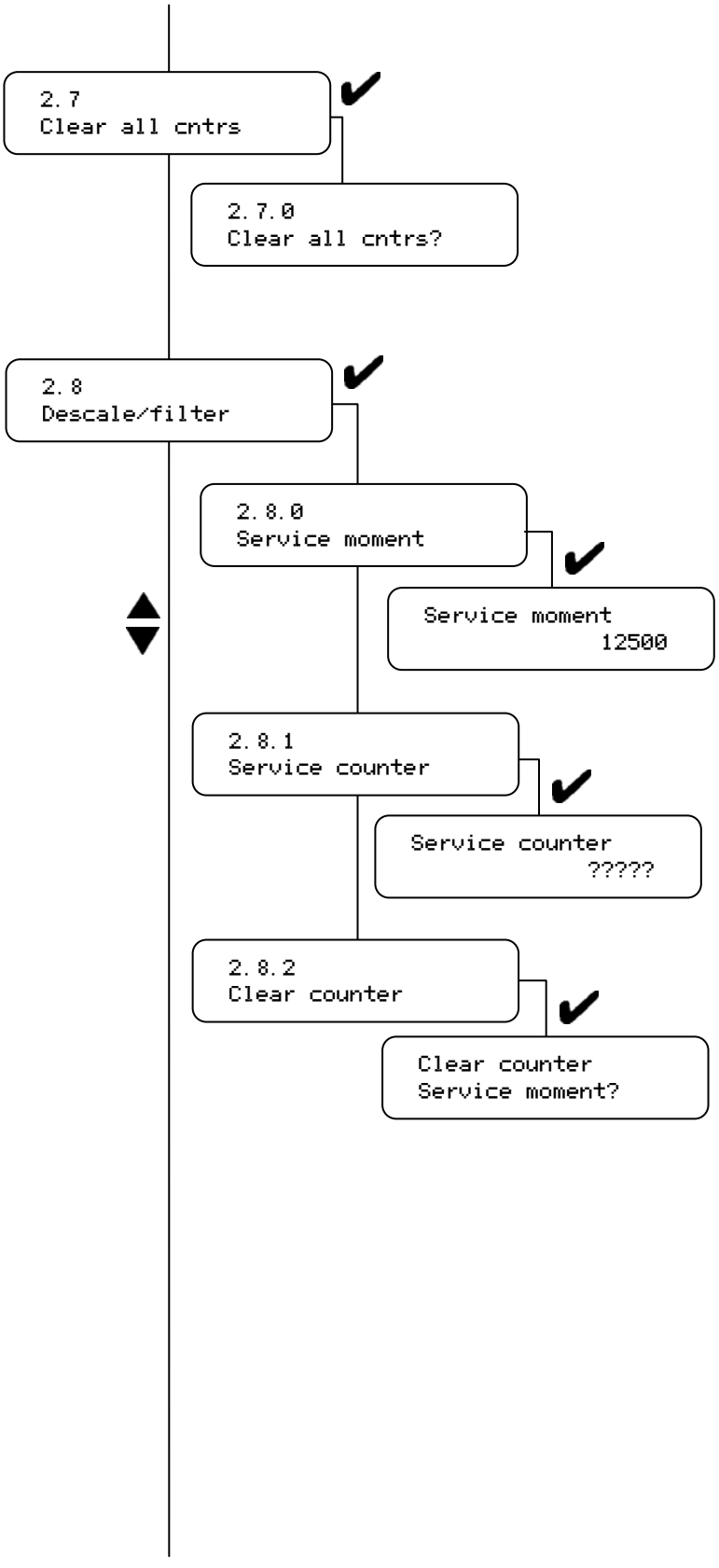
	Range:	Factory settings:
2.2.4 Use beeper	No > Yes	Yes
2.2.5 Fan on time	0-255	120 sec.
2.3 Time	00:00-23:59	
2.4 Switching times	The time from where the machine comes IN or comes out (Off) the stand-by modus	
2.4.0 On time	00 :00 23 :59	00 :00 = not active
2.4.1 Off time	00 :00 23 :59	00 :00 = not active
2.5 Coin system		
2.5.0 Free vend	> Yes No	
2.5.1 G13 / MDB		
2.5.1.0 G13	**G13 system**	
2.5.1.1 MDB	**MDB system**	
2.5.2 Show credit	> Yes No	Yes

continuation of the service menu structure:



	Range:	Factory settings:	
2.5.3 Coin channel 1	0-65535 + token	0,05	(€ 0,05)
	0-65535 + token	0,10	(€ 0,10)
	0-65535 + token	0,20	(€ 0,20)
	0-65535 + token	0,50	(€ 0,50)
	0-65535 + token	1,00	(€ 1,00)
2.5.8 Coin channel 6	0-65535 + token	2,00	(€ 2,00)
2.5.9 Single vend	No > Yes	Yes	
2.5.10 Max.coin accep..	0-65535	1,00	(€ 1,00)
2.5.11 Point position	0-255	2	(€0,00)
2.6 Clear counter	Clear counters separatly		

continuation of the service menu structure: Range: Factory settings:



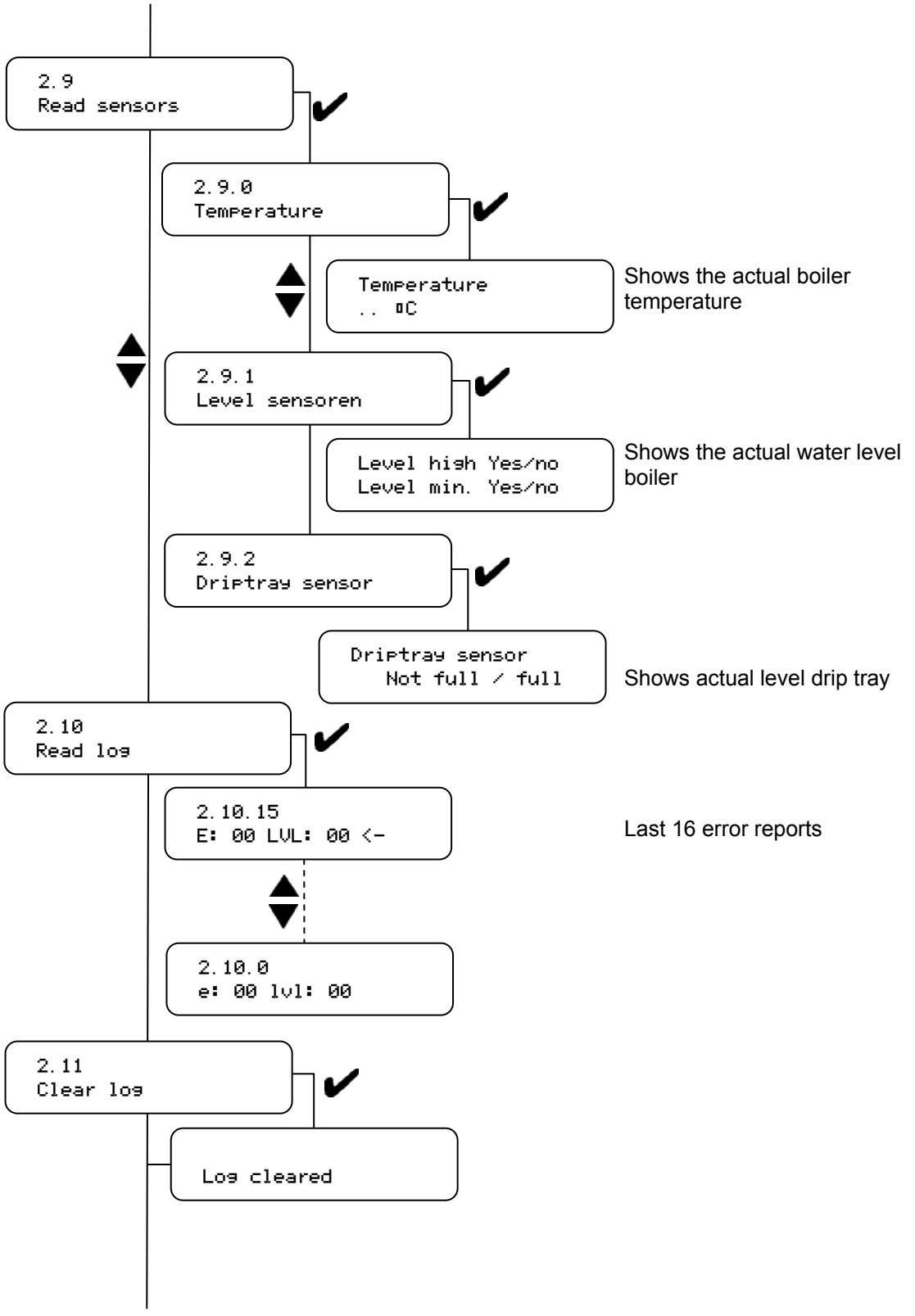
0-25000 12500 cups

Show the number of drawn cups

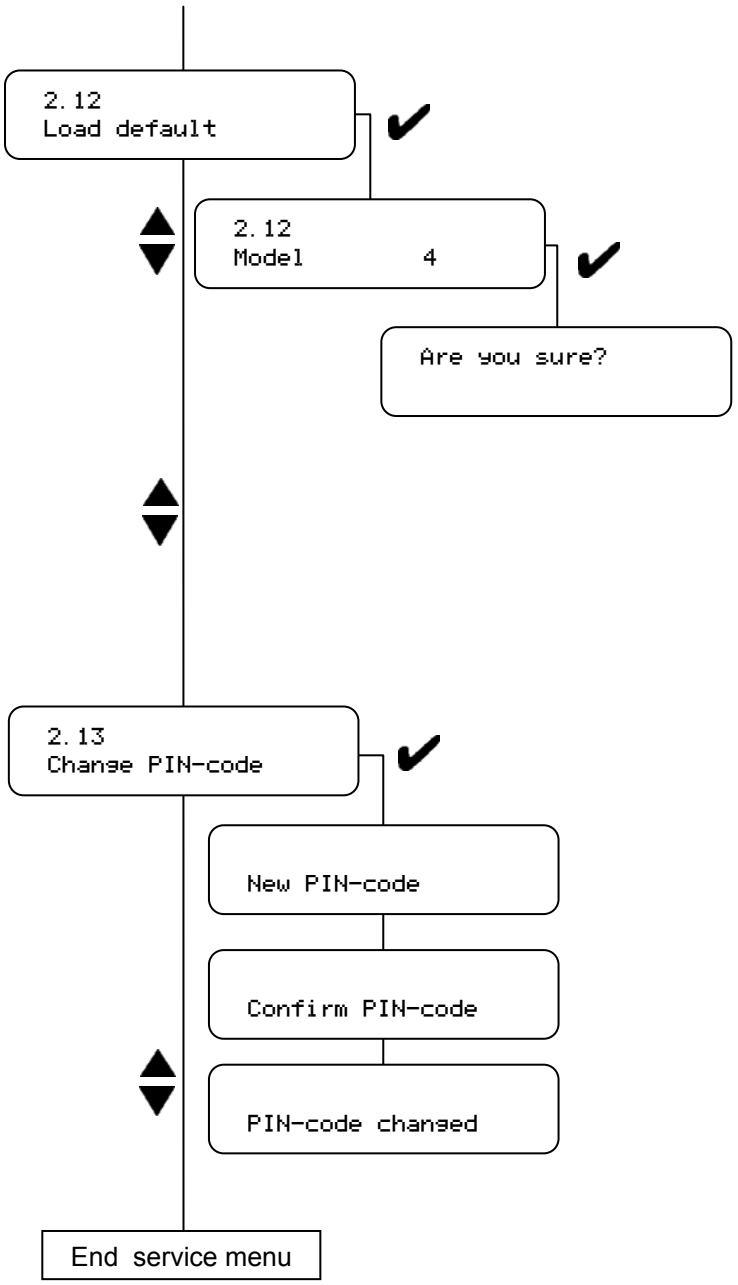
Cup counter wil be cleared

continuation of the service menu structure:

Range: Factory settings:



continuation of the service menu structure: Range: Factory settings:



After loading defaults the PIN-code will be again : 2-2-2-2-2

0 – 9 model 4

OptiVend	Model
Choco	0
1	1
2	2
3	3
4	4
1TS/TL	5
2 TS	**6**
3TS	7
4TS	8
HS	**9**

Use only key 1 - 4.
(key 5 - 10 are not availible)

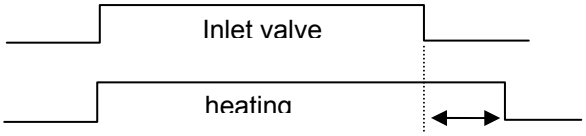
Enter new PIN-code

Repeat new PIN-code

If 2nd pincode is not the same as the 1st pincode [Display: NOT CHANGED]

2.2.3 Additional information operator-/ service menu items

Operator menu	
1.0 Free vend	Select paid dosing or free dosing.
1.1 Time	Set the actual time here.
1.2 Switching times	Set the times when the machine is to be activated here.
1.3 PIN-code	A PIN code is required to enter the service menu from the operator menu: • Default value of this PIN is (button) 2-2-2-2-2 • You can change the PIN code in service menu item (2.13 change PIN code)
1.4 Software	**From V1.1a read out software version**

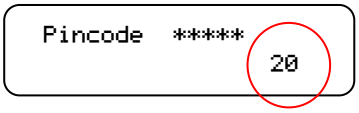
Service menu	
2.0 Free vend	This item is the same as operator menu item 1.0
2.1 Recipe adjust.	This is where you can adjust all the parameters for every product (button) if necessary. This sub-menu is so complex that a separate chapter is devoted to this item. See chapter 3 Receipt settings
2.2 Settings	
2.2.0 Temperature	
2.2.0.0 Temp. Boiler	Select the desired boiler temperature here. Recommended temperature for instant products is 85 °C.
2.2.0.1 Temp. Hysteresis	Select the boiler temperature from where the boiler must warm up (again).
2.2.0.2 Temp. Min.	Select the minimum boiler temperature from where the dosing will be blocked. Display reports: F2 Heating.
2.2.0.3 Temp. Stand-by	Select the boiler temperature in stand-by mode.
2.2.0.4 Pre Heat time.	To ensure an optimum boiler temperature, the heater will be switched on when the inlet valve is activated. Enter the time lapse (sec.) for which the heater must remain active after the inlet valve has been closed. See arrow. 

Continuation Service menu	
2.2 Settings	
2.2.1 Machine on	Is similar to the function of the stand-by button on the service panel.
2.2.2 Show clock	Clock in the upper left corner of the display activated.
2.2.3 Language	Language setting. The language will be English after loading defaults.
2.2.4 Use beeper	Beeper enable/disable.
2.2.5 Fan on time	Duration that the vapour ventilation remains switched on when the hot water dosing valves close.
2.3 Time	This item is similar to operator item 1.1.
2.4 Switching times	This item is similar to operator item 1.2.
2.5 Coin system	
2.5.0 Free vend	This item is the same as 1.1 and 2.0 of the operator menu.
2.5.1 G13 / MDB	**From software V2.0; setting of G13 coin system or MBD* protocol.** (* MDB connection is not standard on the PCB available)
2.5.1 Show credit	Shows money inserted in the display.
	Parameters below are only active when G13 coin system is set.
2.5.2 Coin channel 1 - 2.5.7 Coin channel 6	Setting of the coin value per channel. Respectively € 0.05 t/c 2.00 = free / TOKEN = coffee token.
2.5.8 Single vend	> yes: additional coins inserted are not used for the following drink > no: are used for the following drink.
2.5.9 Max.coin accep.	Amounts greater than e.g. € 1.00 are rejected and returned through the return slot of the coin mechanism. Always adjust on highest product price which ist programmed.
2.5.10 Point position	The position where the decimal point must be in the amount.

Continuation Service menu	
2.6 Clear counter	Here, the electronic counter for each separate recipe can be reset to zero. The number of activated rinsing cycles can also be reset to zero.
2.7 Clear all cntrs	After confirming this menu item, all electronic counters are reset to zero.
2.8 Descale/filter	
2.8.0 Service moment	When the set service moment has been reached, a * (star) appears in the top right of the display, See also chapter 4. Service.

Water quality	Hardness				Service moment after …. Cups
	°D	°F	mmol/l	mgCaCo3/l	
Very hard	18-30	32-55	3,2-5,3	321- 536	5000
Hard	12-18	22-32	2,2-3,2	214-321	8500
Normal	8-12	15-22	1,4-2,2	268-214	12.500*
Soft	4-8	7-15	0,7-1,4	72-268	20.500
Very soft	0-4	0-7	0- 0,7	0-72	0 = Off

2.8.1 Service counter	The number of drinks dispensed is counted here. This allows you to check how long before the next regular maintenance session (descale boiler or replace water filter).
2.8.2 Clear counter	When periodic maintenance has been conducted (descaling or replacement of the filter), the service counter must be reset to zero. The star (*) is displayed and then disappears.
2.9 Read sensors	
2.9.0 Temperature	Shows current boiler temperature.
2.9.1 Level sensors	Shows current boiler level status.
2.9.2 Drip tray sensor	Shows current drip tray status.

Continuation Service menu	
2.10 Read log	Shows last 16 error messages.
2.11 Clear log	Log is deleted.
2.12 Load defaults *OptiVend* — *Model* Choco — 0 1 — 1 2 — 2 3 — 3 4 — 4 1TS/TL — 5 **2 TS — 6** 3TS — 7 4TS — 8 **HS — 9**	Attention: when you confirm this setting, all the factory settings are loaded into the RAM memory of the controls and all changed programmed values are deleted. It is necessary to load defaults when a new EPROM or a new main print (PP34) is placed. When defaults are loaded, the type specified on the type plate must be set. The correct model settings are only loaded after you have confirmed after the question 'are you sure?'. Attention: After loading the defaults the PIN code returns to 2-2-2-2-2 and the language is reset to English. Change if necessary. **From software V2.0;** models 2TS (optional model) and HS (High Speed) added. See recipe book V2.0
2.13 Change PIN-code **Nr. — Pin code** 1 — 3 4 2 4 2 2 — 3 1 4 3 4 3 — 4 1 3 4 3 4 — 4 3 2 3 2 5 — 2 3 3 4 1 6 — 4 2 1 3 1 7 — 2 4 2 4 4 8 — 2 3 2 4 1 9 — 2 4 3 2 3 10 — 3 1 3 3 2 11 — 1 3 3 3 2 12 — 1 2 4 1 3 13 — 4 3 1 2 1 14 — 1 1 1 4 2 15 — 2 1 2 1 1 16 — 1 2 2 3 3 17 — 3 4 1 4 4 18 — 4 1 4 3 3 19 — 3 1 2 4 1 20 — 2 2 3 2 4	Change the PIN code with this menu item. Only use buttons 1 to 4 for this. The entire service menu is secured with this PIN code. This PIN code prevents unintentional changes to the machine settings by untrained personnel. The factor PIN code is (button) 2-2-2-2-2. Forgotten or deactivated the PIN code? A number is displayed in the right of the PIN code entry display (operator item 1.3). Enter the relevant PIN code from the adjacent list to access the service menu. The PIN is then deleted. The user then has access to the service menu without a PIN code - or enter a new PIN code (see menu 2.13 changing PIN). 

3. RECIPE SETTINGS

3.1 Introduction

The recipe settings can be changed in this menu. The term recipe settings refers to: waiting times, instant dosing, water dosing, mixer time, product price, etc. The values to be set are time units of 50 ms (milliseconds) = 0.05 sec.
Example: a time unit of 70 means 70 x 50 ms = 3500 ms (3.5 sec.).

It is not possible to dose an instant product (ingredients) longer than the time that the hot water dosing valves (water) are open. This would lead to a blockage in the mixer system during the following dosing. This means that water (Water) must first be dosed into the mixer system (Mixer) before an instant product (ingredient) can be added. The time difference between starting the water dosing and the product dosing is referred to as the waiting time (WT). We also recommend stopping the instant product dosing before stopping the water dosing.

Example (see fig. 3)
The following example illustrates the relationships between the different items. Suppose that 100 time units of hot water are dosed and the waiting time between water and ingredient dosing (e.g. Cacao) is 30 units. It is not possible to dose more than 100-30 = 70 units 😐. Even if 80 units of cacao are set the running time will remain 70 units ☹! The 10 time units (too many) lapse automatically. We recommend stopping the product dosing before the water dosing stops ☺. An additional advantage is that the mixer beaker is rinsed.

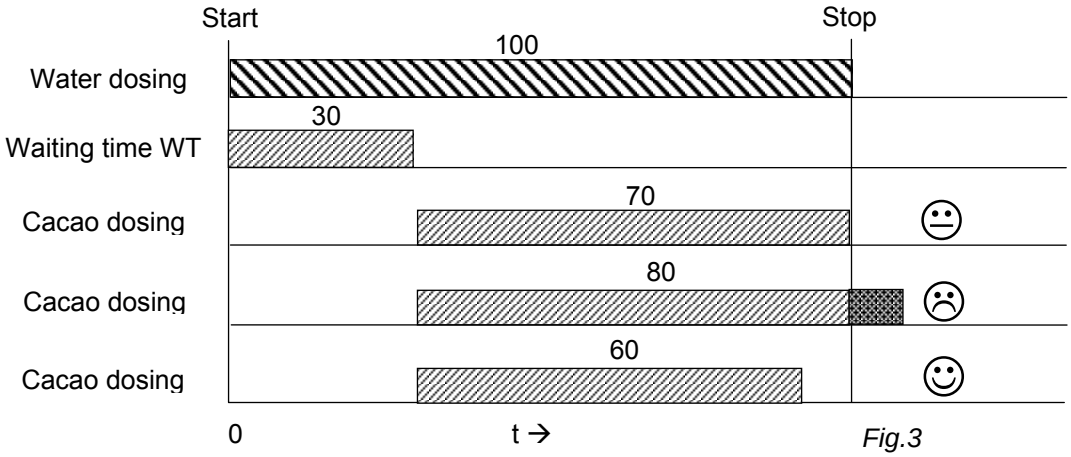


Fig.3

3.2 Time scale recipe adjustment

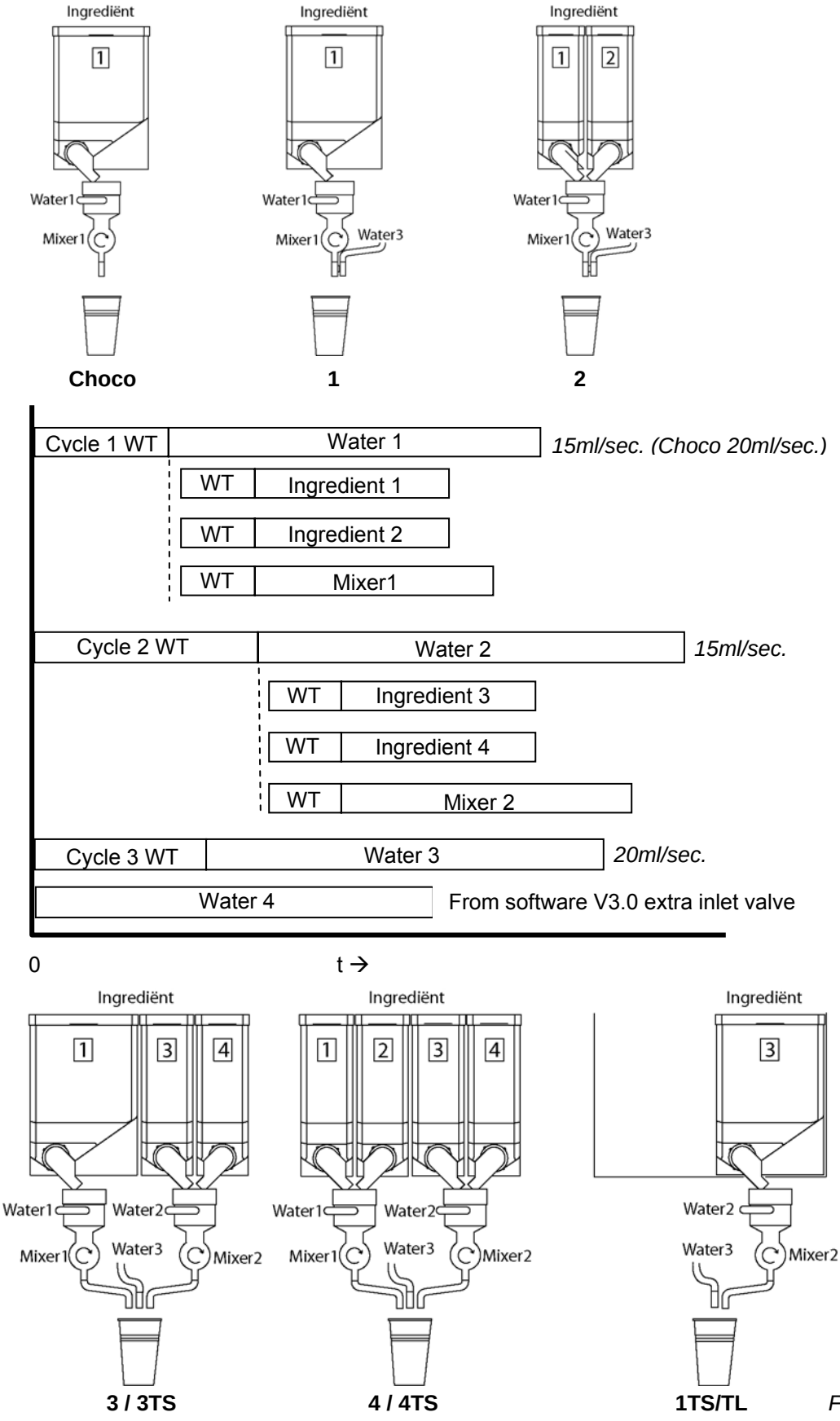


Fig. 4

3.3 Additional information recipe adjustment

Continuation Service menu	
2.1 Recipe adjust.	
2.1.0 Recipe 1	
2.1.0.0 Recipe active	Temporarily deactivates the relevant product button.
2.1.0.1 Price	A price per product button can be set with this item. Set to 0.00 = Free / set to TOKEN = coffee token.
2.1.0.2 Cup volume	**From software V2.0;** here you can set your cup volume. After the drink choice has been made all below mentioned receipt parameters (when >10) will be automatically (%) re-calculated to the set cup volume.
2.1.0.3 Multicup	Here you can set the number of cups that must be dosed (canister button). With a setting of more than 2 cups, the drip time between the dosings is automatically generated so that there is no waiting time between the dosings.
2.1.0.4 Cycle 1 WT	Waiting time before Water 1 may start. **From software V2.0;** extended WT units are possible (max. 65535), to make **Latte Macchiato** recipe are possible.
2.1.0.5 Water 1	Water dosing time of hot water dosing valve 1 -> mixer 1.
2.1.0.6 Ingredient 1 WT	Waiting time before Ingredient 1 may start.
2.1.0.7 Ingredient 1	Product dosing time of Ingredient 1.
2.1.0.8 Ingredient 2 WT	Waiting time before Ingredient 2 may start.
2.1.0.9 Ingredient 2	Product dosing time of Ingredient 2.
2.1.0.10 Mixer 1 WT	Waiting time before Mixer 1 can start.
2.1.0.11 Mixer 1	Mixing time of Mixer 1.
2.1.0.12 Cycle 2 WT	Waiting time before Water 2 may start. **From software V2.0;** extended WT units are possible (max. 65535), to make **Latte Macchiato** recipe possible.
2.1.0.13 Water 2	Water dosing time of hot water dosing valve 1 -> mixer 2.
2.1.0.14 Ingredient 3 WT	Waiting time before Ingredient 3 may start.
2.1.0.15 Ingredient 3	Product dosing time of Ingredient 3.
2.1.0.16 Ingredient 4 WT	Waiting time before Ingredient 4 may start.
2.1.0.17 Ingredient 4	Product dosing time of Ingredient 4.
2.1.0.18 Mixer 2 WT	Waiting time before Mixer 2 may start.
2.1.0.19 Mixer 2	Mixing time of Mixer 2.

Continuation Service menu	
2.1.0.20 Cycle 3 WT	Waiting time before Water 3 may start.
2.1.0.21 Water 3	Water dosing time of hot water (dump) valve 3.
2.1.0.22 Water 4	Water dosing time of a extra inlet valve (cooled water option). From software V3.0
2.1.0.23 Push & Hold	Only use this option with Water 3 in combination with a hot water recipe button. The hot water dosing starts when this button is pressed. Hot water dosing stops when this button is released.
2.1.0.24 Leak out time	The period during which the product continues to run out of the mixer. A new drink can only be selected when this period has expired.
2.1.0.25 Test product	Test changed product settings (such as volume and taste) without having to leave the menu.

3.4 Standard recipe settings

Mathematical example from the following tables (see recepy enclosure)

Menu No	Parameter		Calculation	Execution	
2.1.x.0	Recipe active	x		Unit	V = ml
2.1.x.1	price	0,10			
2.1.x.2	Cup volume	**120**			
2.1.x.3	Multicup	0			
2.1.x.4	Cycle 1 WT	0			
2.1.x.5	Water 1	68	x 50ms = 3,4 s x 15ml/sec. = **51ml**	81	**61**
2.1.x.6	Ingredient 1 WT	10	x 50ms = 0,5 s	10	
2.1.x.7	Ingredient 1	16	x 50ms = 0,8 s	19	
2.1.x.8	Ingredient 2 WT	0			
2.1.x.9	Ingredient 2	0			
2.1.x.10	Mixer 1 WT	10	x 50ms = 0,5 s	10	
2.1.x.11	Mixer 1	73	x 50ms = 3,65 s	87	
2.1.x.12	Cycle 2 WT	0			
2.1.x.13	Water 2	0			
2.1.x.14	Ingredient 3 WT	0			
2.1.x.15	Ingredient 3	0			
2.1.x.16	Ingredient 4 WT	0			
2.1.x.17	Ingredient 4	0			
2.1.x.18	Mixer 2 WT	0			
2.1.x.19	Mixer 2	0			
2.1.x.20	Cycle 3 WT	10	x 50ms = 0,5 s	10	
2.1.x.21	Water 3	49	x 50ms = 2,45 s x 20ml/sec. = **49ml**	59	**59**
2.1.x.22	Push & Hold	Nee			
2.1.x.23	Leak out time	40	40 x 50ms = 2 s		
2.1.x.24	Test product	√	Test recipe without leaving the menu!		
			Volume		**120**

WARNING

- The appliance must be opened to descale the water reservoir. This exposes live parts that can easily be touched. This can lead to life-threatening situations!

WARNING

- The machine must not be submerged or sprayed.
- Stay with the machine while maintenance work is being carried out.

4. SERVICE

4.1 Setting the service moment

Set a service moment during the installation of the machine. See service menu item 2.8 De-scaling/filter. Use the following table to set the correct service moment.

Service moment reached?
All the drinks dispensed while the machine is in use are counted. A star symbol (fig. 5) appears in the top right of the display when the set service moment has been reached.

Reaching the service moment indicates that the machine must be de-scaled. If a water filter has been fitted (recommended), this is the signal that the filter must be replaced.

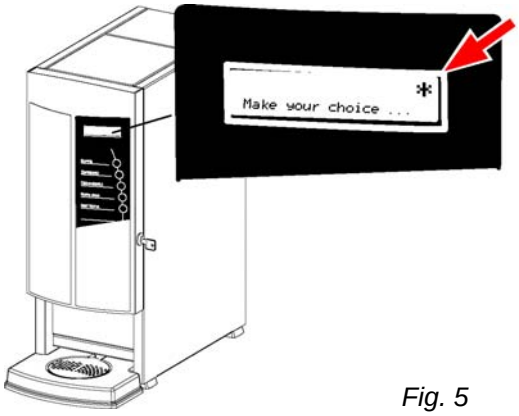


Fig. 5

Water quality	Hardness				Service moment after …. Cups
	°D	°F	mmol/l	mgCaCo3/l	
Very hard	18-30	32-55	3,2-5,3	321- 536	5000
Hard	12-18	22-32	2,2-3,2	214-321	8500
Normal	8-12	15-22	1,4-2,2	268-214	12.500 #
Soft	4-8	7-15	0,7-1,4	72-268	20.500
Very soft	0-4	0-7	0- 0,7	0-72	0 = Off

= factory setting

WARNING

- Do not leave the unit during maintenance.
- Always follow the prescriptions, that are delivered with the used descaling solvent.
- It is advisable to wear protecting glasses and gloves during descaling.
- After descaling, run the appliance through at least three cycles.
- Wash hands after descaling.
- Do not submerge or spray the unit.
- Have all repairs carried out by a qualified technician.

4.2 Decaling instructions

Animo supplies Scale remover in the following quantities:

- Scale remover per box (48 sachets of 50 gram) art. no. 49007
- Scale remover can of 1 kg art. no. 00009

Time, equipment and tools required:

- Time: 45 minutes
- Animo scale remover, 2 sachets or 8 - 10 tablespoons.
- Measuring cup 1l.
- Screwdriver
- Bucket or basin nearby.

1. Switch on the machine and leave it to heat up. This has the advantage that the reservoir is properly preheated so that a better and quicker result is obtained during the descaling process.
2. Switch off the machine and pull the plug out of the socket.
3. Remove the rear panel and take off the reservoir lid by removing the screws. **Warning: HOT!**
4. Tap one litre of hot water out of the water reservoir using the drain hose (fig.6-2) located at the back of the machine.
5. First read the warnings and directions for use on the sachets of Animo scale remover and dissolve 2 sachets of 50 grams of Animo scale remover in the measuring cup (8 - 10 tablespoons).
6. Pour the acid solution into the reservoir (fig.7-1). The acid solution will now react with the lime.
7. Leave this solution to penetrate for at least 10 minutes, until it stops fizzing.
8. During the penetration time use a brush to spread the acid over the level electrodes (fig. 7-2).

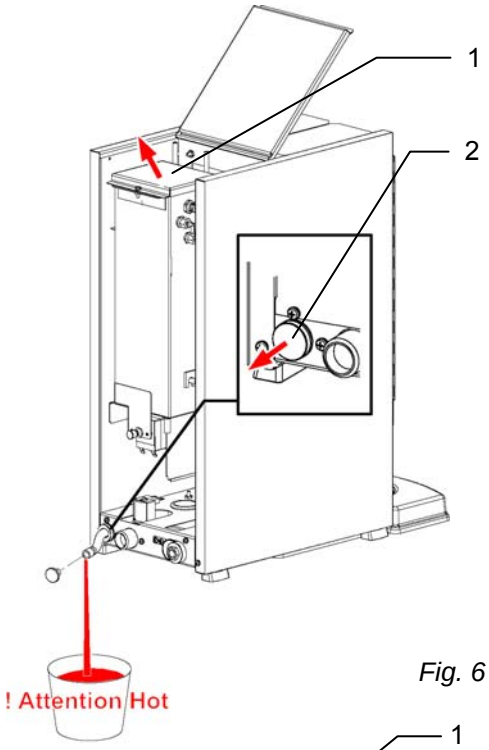


Fig. 6

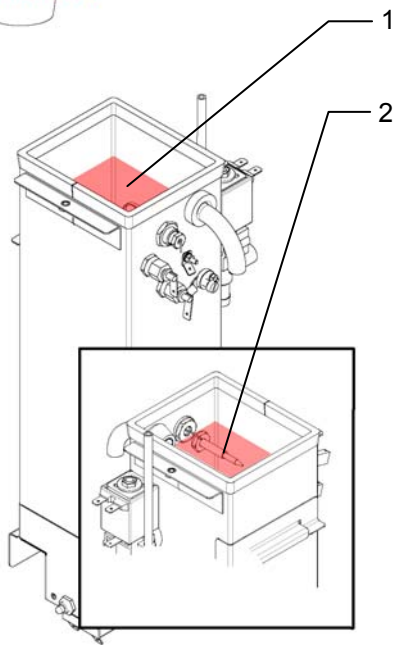


Fig. 7

9. Put the plug back in the socket and switch the machine back on. The reservoir will now heat up. Place the measuring cup under the outlet (fig. 8-2) and activate the cleaning program at least 3x (fig.8-1) so that the acid solution is discharged from the water reservoir via the valves. Don't forget to empty the measuring cup!
10. Switch off the machine and allow the reservoir to empty completely via the drain hose (fig.6-2).
11. Switch the machine back on. The reservoir will refill with clean water. Repeat point 10 once more to rinse any remaining acid out of the water reservoir.
12. Switch the machine back on. The reservoir will refill with clean water. Allow the water reservoir to heat up.
13. Place the measuring cup under the outlet (fig. 8-2) and activate the cleaning program (fig. 8-1) at least 3 x so that the valves and pipelines are rinsed clean. Don't forget to empty the measuring cup!
14. Repeat the above descaling procedure if there are still lime deposits in the reservoir.
15. Replace the lid on the reservoir and replace the rear partition.
16. Delete the service moment counter in the service menu.
17. The machine is now ready for use.

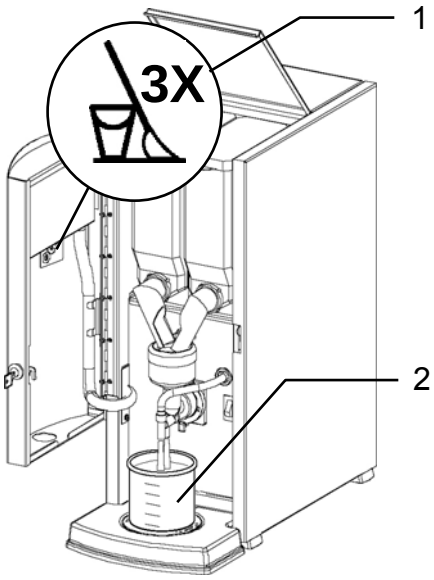


Fig. 8

4.3 Cleaning the evaporation system

1. After removing the canister plateau (fig. 9-1), the evaporation box (fig. 9-2) can be cleaned easily.
2. The ventilation hose (fig. 9-3) and ventilator (fig. 9-4) are easy to remove through the right side wall.

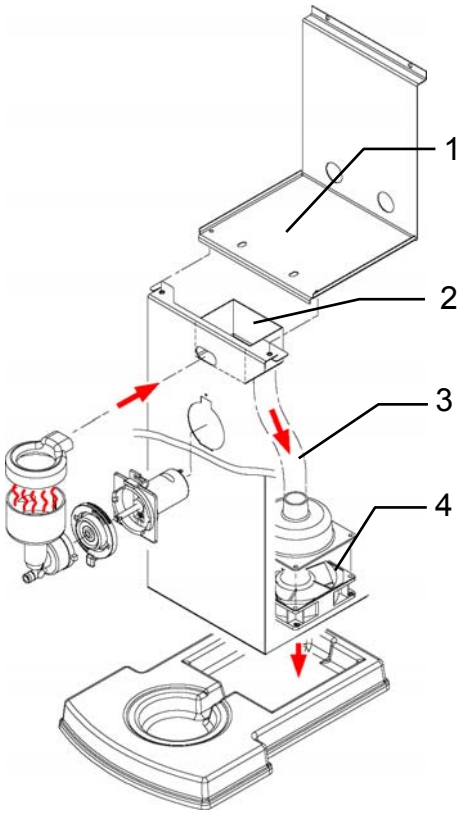
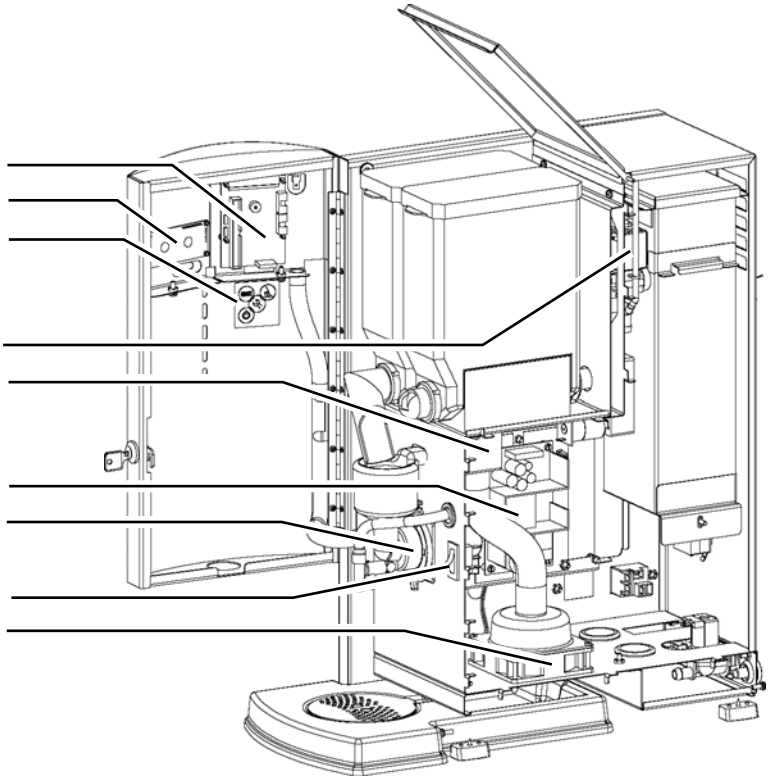


Fig. 9

5. ACCESSIBILITY OF THE VARIOUS COMPONENTS



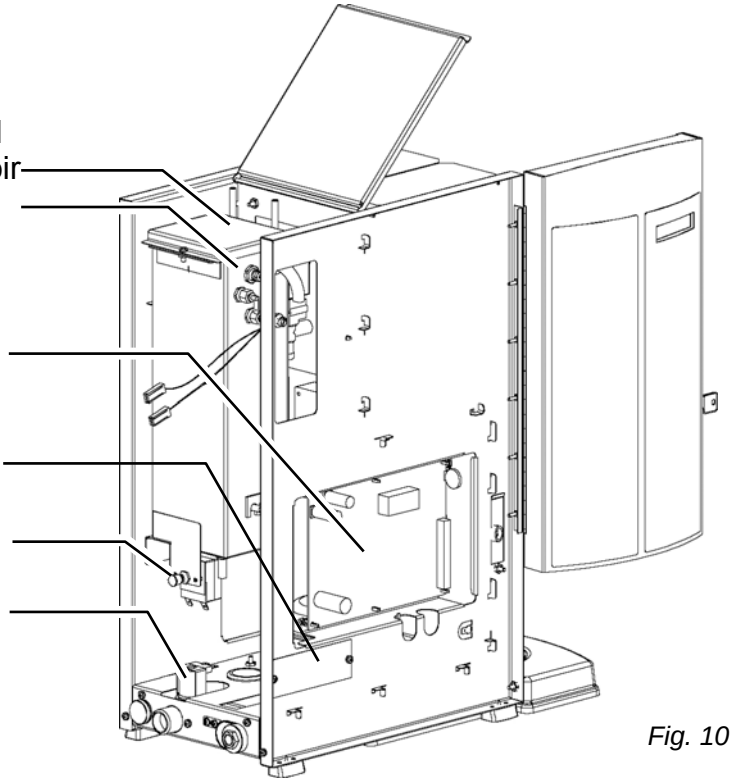


Fig. 10

5.1 Electronics overview

WARNING
Avoid electrostatic discharges onto the (ESD) controls during repairs or maintenance work.

- Main controls PP34a 5.1.1
- Power supply 230 Vac: 24V 65W 5.1.2
- Interface PP42 5.1.3
  Display

5.1.1 Main controls

The PP34a (fig. 1) controls are the main controls of the machine. The controls can be reached by removing the left side panel. The following important parts (fig. 12) are located in the control panel (fig. 12):

- Replaceable EPROM: this contains the control program of the machine.
- Fuse: (315 mA T): to ensure the safety of the power supply to the controls.
- Fuse: (4A T) is not used.
- Battery: for the maintenance of the personal and model settings and the clock function when the machine is not connected to the power supply.

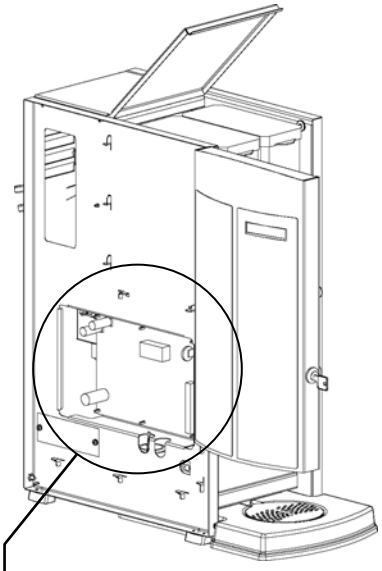


Fig. 11

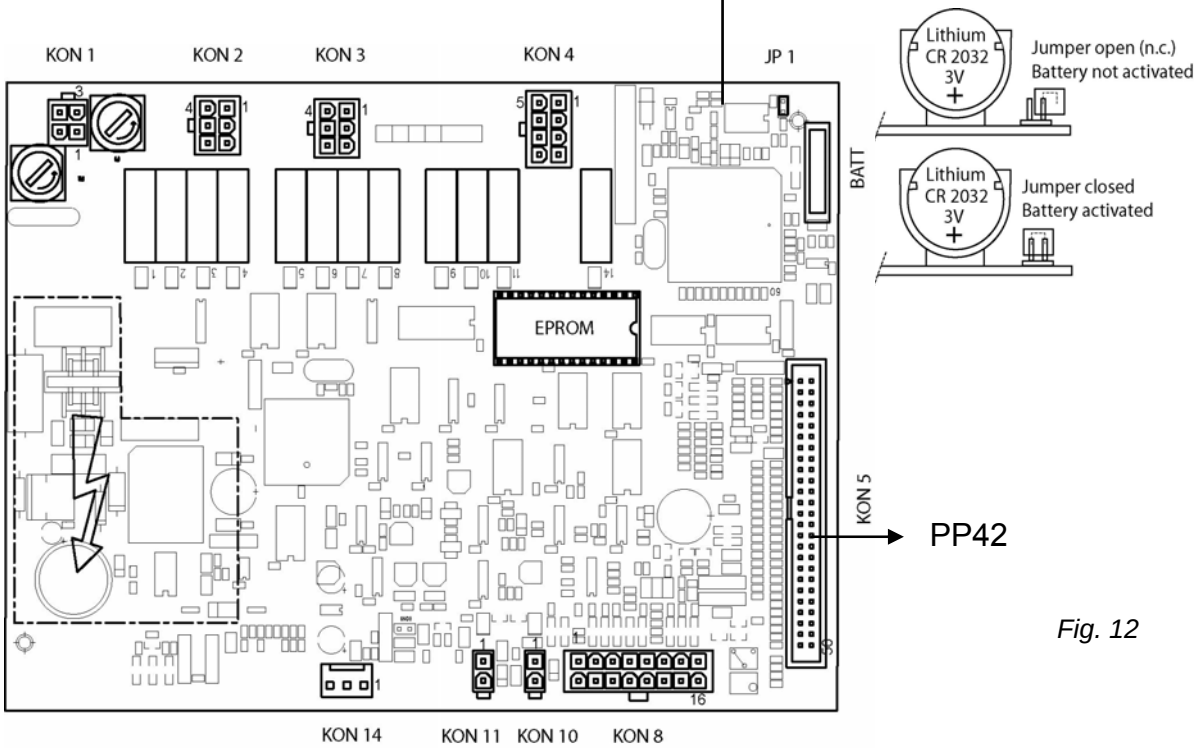


Fig. 12

5.1.2 Power supply

The 24 Vdc power supply (fig. 13) consists of a 24 Vdc – 65 W linked power supply unit and can be accessed by removing the rear wall. The power supply is located against the back of the main controls.

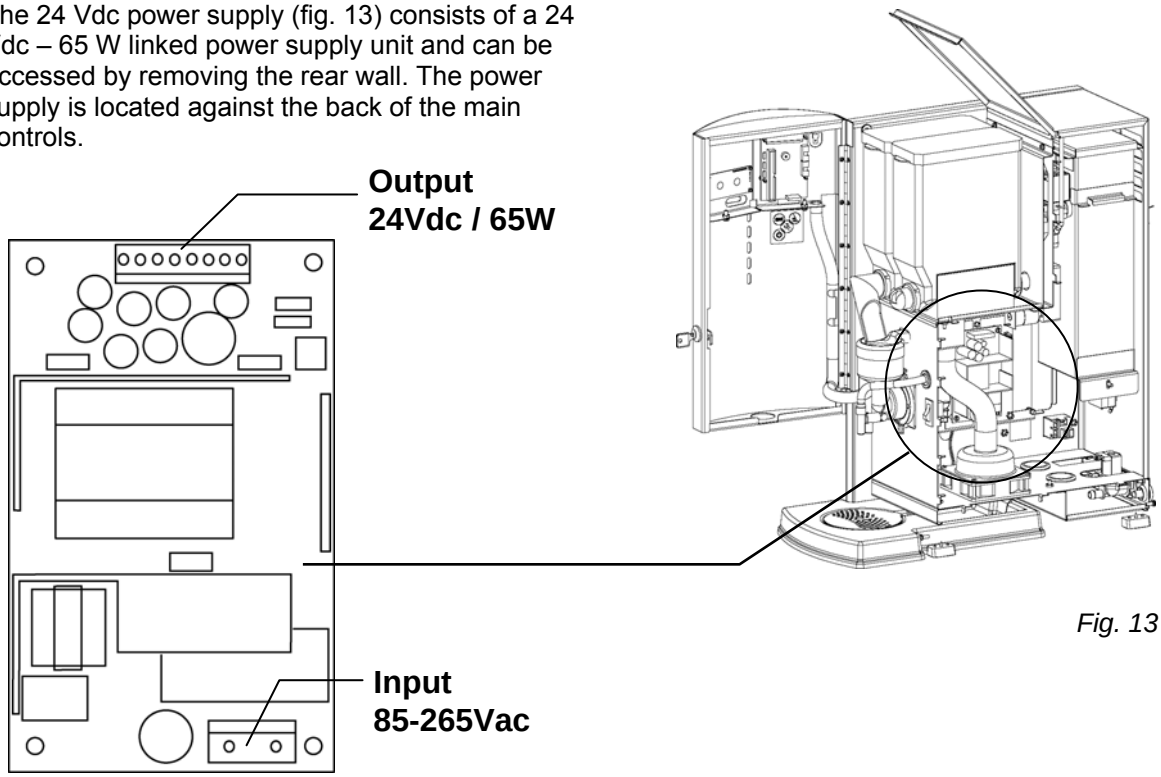


Fig. 13

5.1.3 Interface / Display

The PP42 interface connects all components in and on the door and is linked to the main control PP34a with a flat cable. The contrast of the display can be measured with the potentiometer.

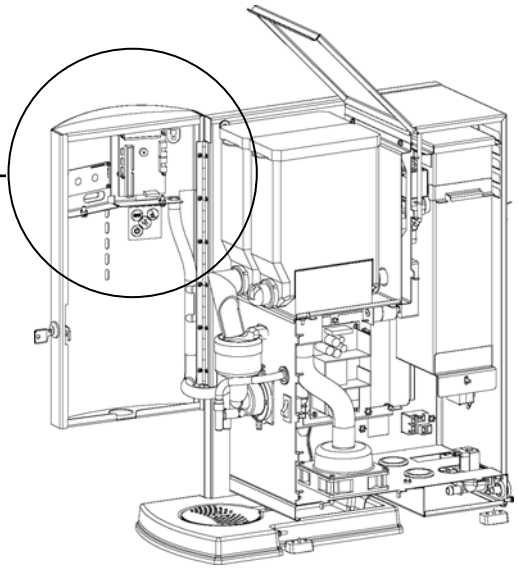


Fig. 14

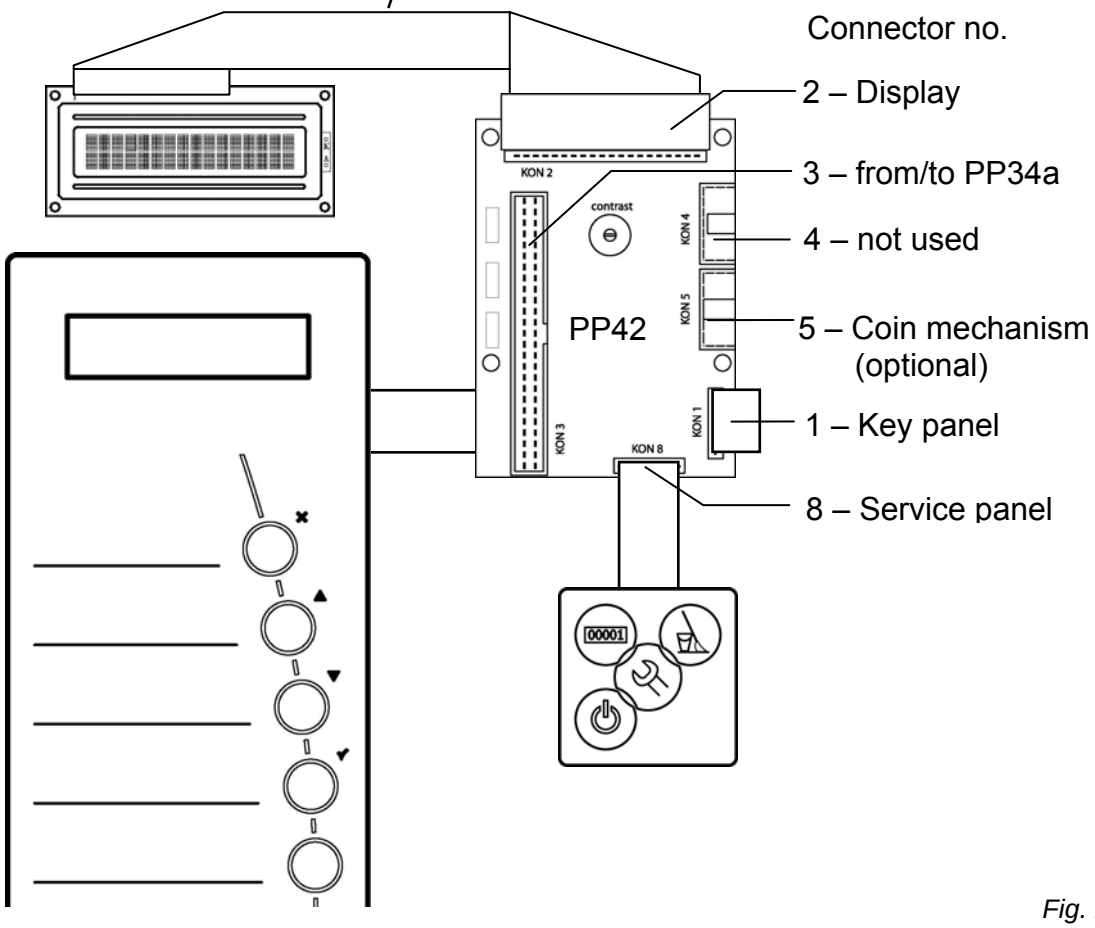


Fig. 15

5.2 Adjusting the hot water dosing valves

Dosingspeed	15ml/sec.	15ml/sec.	20ml/sec.
choco	x	x	Water 1
1-2	Water 1	x	Water 3
3-4	Water 1	Water 2	Water 3
1TS/TL	x	Water 2	Water 3
2TS	Water 1	Water 2	Water 3
3TS-4TS	Water 1	Water 2	Water 3
HS	Water 1	Water 2	Water 3

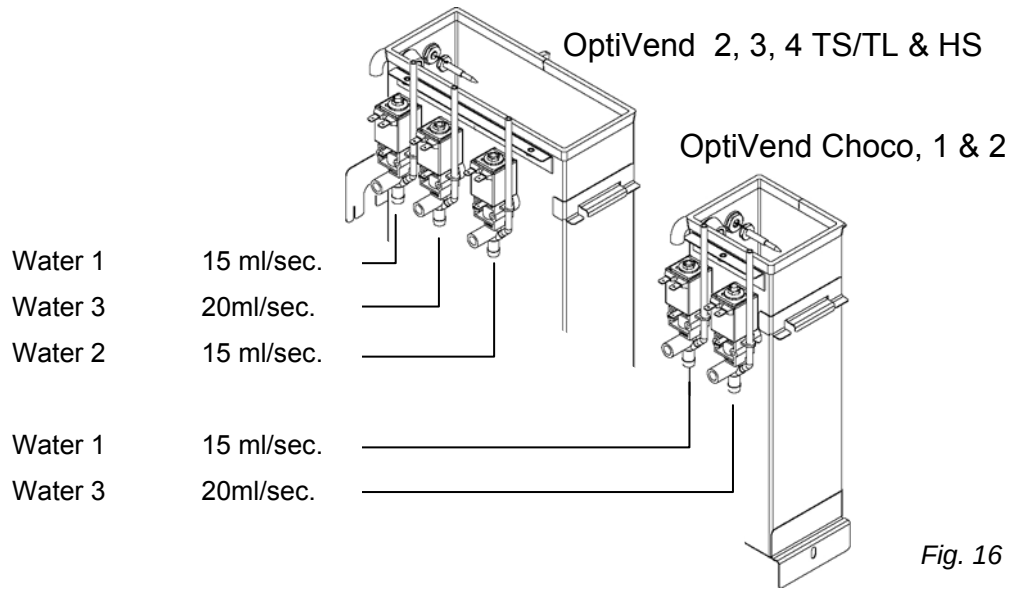


Fig. 16

The hot water dosing valves can be accessed by removing the service hatch behind the ingredient holders. Water can be supplied to the mixer beakers with the aid of the ‘water 1’and ‘water 2’ dosing valves. The ‘water 3’ valve also called the 'dump valve', either doses the water or supplements the total dose in a cup. If a valve has to be replaced, it has to be set to the following dosing speed after being fitted.

Proceed as follows to replace an ingredient valve (water 1 and/or water 2):

1. Adjust recipe hot water ‘water 3’ to 200 time units, and cup volume to 100 ml (V2.0). With this quantity the valve will remain open for 10 sec.
2. Place the connection for the hot water valve on the ingredient valve being adjusted.
3. Place a measuring cup and Go to ‘Test product’ and activate, the valve will open for 10 seconds.
4. Adjust the valve to 150ml (15 ml / sec.) using the adjustment screw.
5. After adjusting return the connections to their original situation.
6. Readjust the hot water recipe to the former quantity.

Proceed as follows to replace a hot water (or dump) valve (water 3):

1. Adjust recipe hot water ‘water 3’ to 200 time units, and cup volume to 100ml (V2.0). With this quantity the valve will remain open for 10 sec.
2. Place a measuring cup and Go to ‘Test product’ and activate, the valve will open for 10 seconds.
3. Adjust the valve to 200ml (20 ml / sec.) using the adjustment screw.
4. Readjust the hot water recipe to the former quantity.

5.3 Coin mechanism (optional)

The OptiVend is optionally available with a coin mechanism suitable for Euros (€ 0.05 to 2.00)

It is also easy to program the coin mechanism for tokens.

It is also possible to subsequently fit a machine with a coin mechanism. The right side wall is replaced by a wide side wall where the coin mechanism and money drawer are built in. The coin mechanism can then be simply connected with a cable connection that is already present in the machine.

1. Coin insert
2. Return button
3. Return slot
4. Money drawer
5. Door lock (also locks the money drawer)
6. Fastening of coin mechanism to the side wall

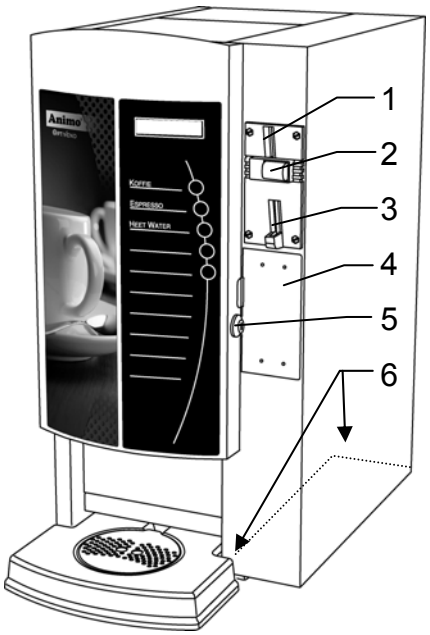


Fig.17

5.3.1 Standard configuration

Fig. 18 shows the default configuration of the DIL switches. S1-10 ON
The coin mechanism is linked to the machine with a connector (fig. 18A).

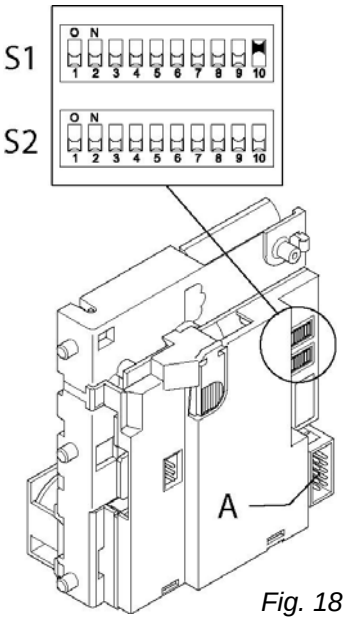


Fig. 18

5.3.2 Blocking coins

If desired, certain Euro coins can be blocked with a DIL switch block S1 + S2 (fig. 19)

Coin	DIL	+	DIL
€ 0,05	S1-1		S1-7
€ 0,10	S1-2		S1-8
€ 0,20	S1-3		S2-1
€ 0,50	S1-4		S2-2
€ 1,00	S1-5		S2-3
€ 2,00	S1-6		S2-4
Token *607*	-		S2-5
Token E*agle*	-		S2-6
Token *new*	-		S2-7
Token *new*	-		S2-8

ON = blocked / OFF = free

Example Block € 1,00 and € 2,00 coin piece (fig. 19)

- S1-5, S2-3 -> ON (€ 1,00 blocked)
- S1-6, S2-4 -> ON (€ 2,00 blocked)

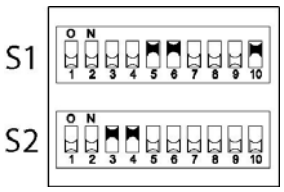


Fig. 19

5.3.3 How to activate a existing token

The following tokens pictured on the right (fig 20) are already programmed in the coin mechanism.

Set the service menu as written in chapter below, starting from point 4.

Fig. 20

5.3.4 How to programming a new token

- Required: 10 tokens.
- Attention: remember the DIL switch settings of any blocked coins. Keep DIL switch S1-10 ON!

1. Switch the following DIL switches on switch block S2 to the ON position. (fig. 21.
   a) first set S2-9 Teach mode to the ON position
   b) secondly set S2-7 coin channel 6 to the ON position.

2. Insert at least 10 tokens (fig. 22) (not 10x the same coin). After the 10 coins have been inserted the blocker coil pulls tight (internally).

3. End the programming by pushing DIL switch S2-9 down to the OFF position. If saving was successful the blocker coil will pull tight again. Secondly push DIL switch S2-7 down to the OFF position.
   (To end programming move S2-7 and then S2-9 to the OFF position).

4. **Service menu;** Change coin channel 6 (menu item 2.5 payment system) from € 2.00 into "TOKEN" (fig. 23).

5. The tokens are now accepted as payment by the coin mechanism.

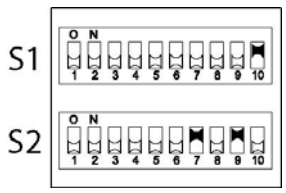


Fig. 21

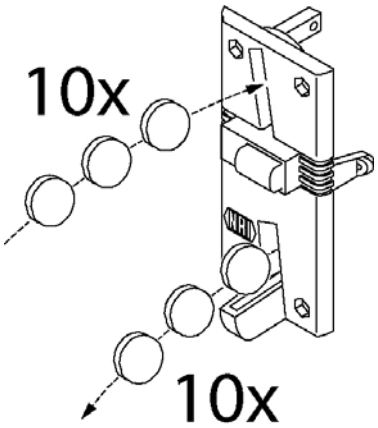


Fig. 22

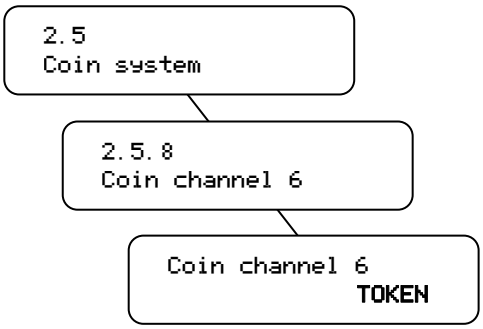


Fig. 23

5.3.5 How to accept Euros & Tokens

- Set a the price (fig. 24) at menu item 2.1.0.1 until 2.1.9.1
- The recipe keys are unlocked after inserting enough money or a token is inserted.

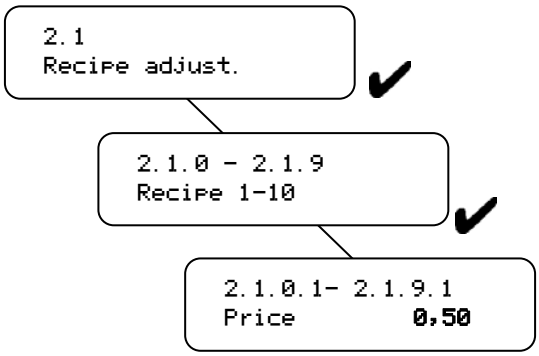


Fig. 24

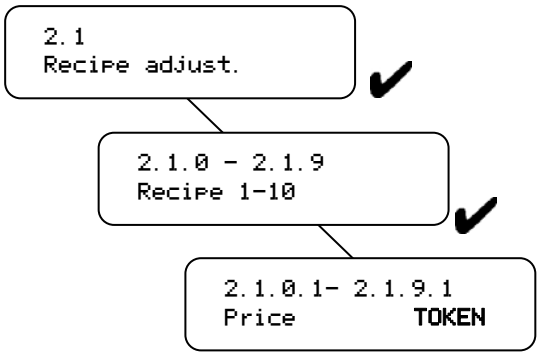


Fig. 25

5.3.6 How to accept tokens only (no Euros)

- Set price (fig. 25) for TOKEN in menu item 2.1.0.1 untill 2.1.9.1 en block the € 0,05 untill € 2,00 with the help of the DIL-switches on the coin mechanism and use table below.
- The recipe keys now only unlock when a token is inserted.

Munt	DIL +	DIL
€ 0,05	S1-1	S1-7
€ 0,10	S1-2	S1-8
€ 0,20	S1-3	S2-1
€ 0,50	S1-4	S2-2
€ 1,00	S1-5	S2-3
€ 2,00	S1-6	S2-4

ON = blocked / OFF = free

5.3.7 Cleaning

The coin mechanism must be cleaned with a slightly damp (lukewarm water with a mild detergent) cloth from time to time. No further maintenance is necessary.

ATTENTION ⚠

- The cloth may never be so wet that liquid runs into the system
  as this may damage the printed circuit.
- Do not use solvents or abrasives that can damage the plastic.

1. Switch the machine off.
2. Remove the coin mechanism from the side wall.
3. Carefully open the coin slot flap (fig. 26A) and hold it open.
4. Clean the coin slot with a cloth.
5. Close the coin slot.
6. Switch the machine on again.

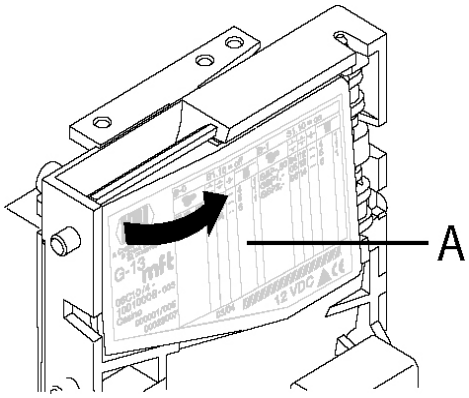


Fig. 26

6. TROUBLESHOOTING

WARNING
- The plug must be taken out of the socket if the appliance has to be opened for cleaning or repairs.

Introduction
Before attempting to locate the defect, check that all parts are still in place. For this purpose, remove the rear partition of the appliance and check that all printed circuit boards, connectors, wiring groups and hoses are still properly fitted. After carrying out a genera! inspection of the parts, look for the possible cause of the problem on the basis of the defect analysis below.
#) If the 'Action' column advises replacing the relevant part, there is always the chance that the defect is being caused by another problem. You will therefore need to check the function of the appliance carefully to ensure that the defect does not recur.

6.1 Read log
During use the last 16 error reports are registered and recorded. To read these error reports activate the Read log menu (menu 2.10). The first registration is always the most recent error report.

- The same fault codes appear in the first column as shown in the fault analysis table (see chapter 6.4).
- In most cases this is a letter/digit combination. The level codes appear in the second column.

LVL	problem level
01	Problem solved, disturbance removed
02	Operator menu
04	Service menu
10	Hardware (NTC/flowmeter/valve)
20	Software
FF	Software registers a fault on pc board

6.2 Clear log
Use this function to erase the log menu.

6.3 Troubleshooting table

Display text	Possible cause	Action
F1 *Drip tray full*	Drip tray is full.	Empty the drip tray, message disappears.
F2 Heating	Boiler is warming up or has reached the min. boiler temperature.	The message disappears when the boiler has reached the set temperature.
	Boiler is not heating up. Temperature safety feature is switched off.	Reset the temperature safety feature on the back. Check whether the boiler must be de-scaled, de-scale if necessary.
F3 Filling	During start-up – boiler is empty and being filled.	No action required. When the boiler has reached the correct level this is followed by F2 Heating.
	During use - boiler is filling too slowly. After approximately 3 minutes F3 changes to E3.	No action required. When the boiler has reached the correct level this is followed by F2 Warm up.
Engineer →	Minimum electrode does not detect water.	See error E3.

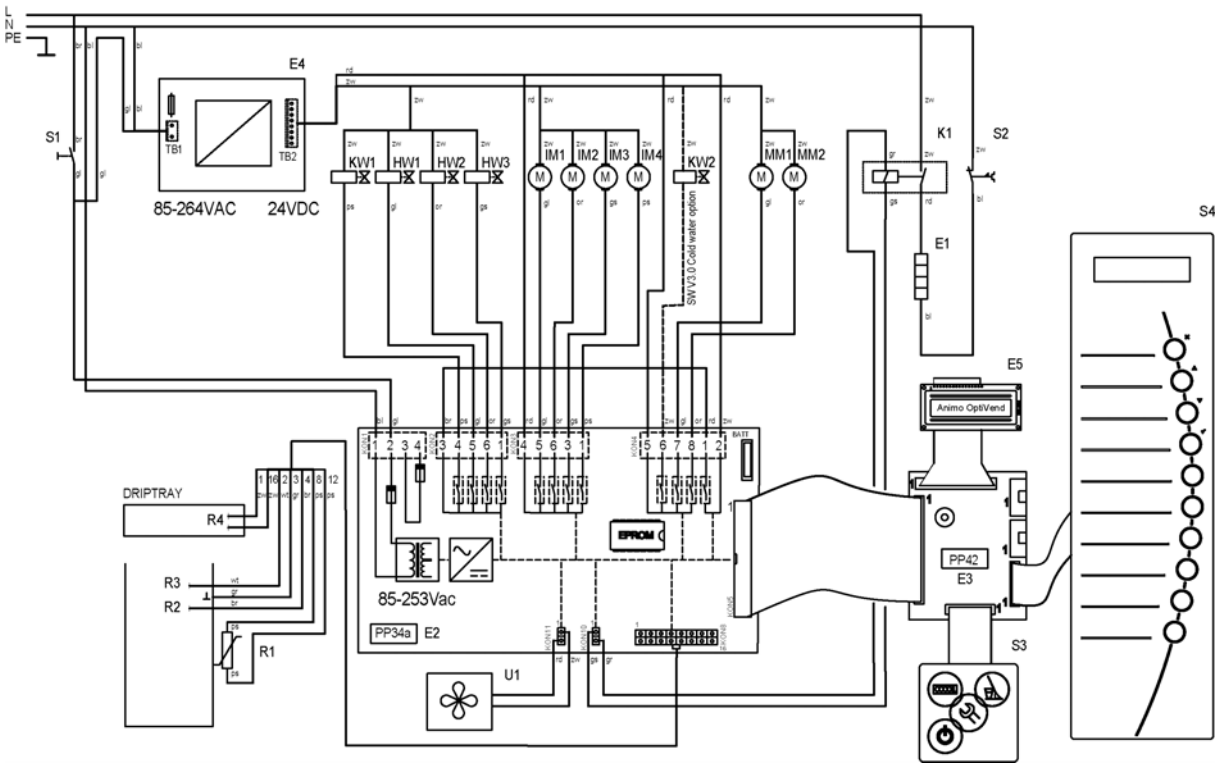
Display Error	Possible cause	Action
B0	Temperature sensor problem in the hot water system.	Call the dealer or service engineer.
Engineer →	Temperature error – NTC sensor detects a temperature lower than 0°C.	Check the NTC sensor. Tip: check the function of the NTC sensor with service menu 2.9.0.
B1	Temperature sensor problem in the hot water system.	Call the dealer or service engineer
Engineer →	Temperature error – NTC sensor detects a temperature higher than 108°C.	Check the NTC sensor. Tip: check the function of the NTC sensor with service menu 2.9.0.
E0	Problem with temperature regulation in the hot water system.	Call the dealer or service engineer.
Engineer →	No NTC sensor is detected.	Check the NTC sensor. Tip: check the function of the NTC sensor with service menu 2.9.0.
E1	Problem with temperature regulation in the hot water system.	Call the dealer or service engineer.
Engineer →	NTC sensor has short-circuited.	Check the NTC sensor. Tip: check the function of the NTC sensor with service menu 2.9.0.
E3	Hot water system fills too slowly. The inlet valve is closed for safety.	Check the water pressure. Open the water supply valve completely and check the connection hose for kinks. Switch the machine off and then on again.
Engineer →	Filling time error. Max. electrode is not reached within approximately 3 minutes. Inlet valve of the hot water system closes.	Check the water circuit of the inlet valve to the reservoir for blockages. Check the inlet valve. Replace if necessary.

E7	Minimum electrode error.	Call the dealer or service engineer.
Engineer →	Minimum electrode error. Min. electrode does not see water but the max. electrode does.	Check the electrode. Tip: check the functioning of the level sensors with service menu 2.9.1.

Problem	**Possible cause**	**Action**
1. The machine does nothing, display is switched off.	Main switch not on.	Test the switch. Switch the switch on or replace the switch.
	No voltage. Fusing safety feature of the relevant group has been activated.	Test the voltage and check the group for overloads.
		Test the fuses. Replace fusing safety feature if necessary.
	The 24 Vdc power supply has been switched off by the overload.	Switch the machine on/off for a short period of time (#).
	The fuse of the 24 Vdc power supply is faulty.	Test the fuses. Replace the fuses if necessary (#).
	The 24 Vdc power supply is faulty.	Test the voltage of the power supply to the controls. Replace the power supply unit.
	The internal fuse (F 315mA) on the main control PP34 is faulty.	Test the fuses. Replace fuses if necessary (#).
	The main controls are faulty.	Replace if necessary (#).
	The wire tree is faulty.	Test the connection with the aid of the circuit diagram. Repair any faulty connections.
2. The machine does not respond. Display is difficult to read.	The machine is in stand-by mode.	Press the stand-by button on the service panel.
3. The machine does not respond. 1st line of display blocks are visible.	Battery not activated after interchanging the main board.	Position jumper next the battery.
4. The machine does not respond. Display works but no drinks are dispensed.	Mixer- or ingredient motor is blocked. 24V power supply board max currend protection is activated.	First remove blocking (clean mixer system or ingredient canister) and reset the machine.
5. Hot water and steam escape from the bottom of the machine.	The temperature sensor is loose or not firmly attached to the wall of the boiler.	Check the fastening of the temperature sensor. Fasten the temperature firmly to the boiler wall or replace the sensor.
	The power relay is faulty.	Replace the power relay.

6. Cold or hot water is leaking from the bottom of the machine.	The electrodes are dirty.	Check the electrodes. Clean the electrodes.
	The magnetic valve does not close.	Switch the machine off. Replace the magnetic valve if it does not close.
	The main controls are faulty.	Test the controls. Replace the I/O control (#).
	The hose leaks.	Replace the hose.
7. Water is dripping out of the drink spigot.	The hot water valve does not close properly.	Initiate the cleaning program or replace the valve if necessary.
		De-scale the boiler and magnetic valves. Follow the de-scaling instructions (service manual).
8. Mixing house leak	O-ring in green fastening ring is dirty, defective or has disappeared.	Check the O-ring seal. Replace the green fastening ring if necessary.
9. No ingredient come out of the canister outlet. (gear motot turns normally).	Gear motor ax does not drive the canister worm. Gear motor ax is damaged or canister is wrong positioned.	Replace gear motor ax or reposition canister.
10. No ingredients dosed. Mixer motor is not working.	The dosing motor or mixer motor are broken.	Check the voltage (DC) to the motor during dosing or mixing. If there is voltage, the motor is defective. Replace the motor.
	24 Vdc power supply unit is not supplying voltage.	Check the fuse and power supply.
	Wire tree faulty.	Test the connection with the aid of the circuit diagram. Repair any faulty connections.
11. Mixer motor does not stop working.	Relay on the main controls remains switched on. Output defective.	Replace the main controls.
12. Lumps in the ingredient canister outlet.	The ventilator does not work.	Measure the voltage (DC) on the ventilator during drink preparation. If there is power, the ventilator is defective. Replace the ventilator.
		No voltage connector 11 main controls. Replace the controls.
13. Drink drips out of the ventilation opening (bottom of the machine).	The mixer beakers or their outlets are blocked.	Remove the mixers and drain hoses. Thoroughly clean the mixers and hoses.

6.4 Circuit diagram (OptiVend 4)



S1	Main switch
S2	Dry boil protection
S3	Service panel
S4	Key panel
E1	Heating element
E2	Main control board PP34
E3	Interface PP42
E4	Power supply
E5	Display
K1	Power relay
KW1	Inlet valve 1
HW1	Hot water dosing valve 1
HW2	Hot water dosing valve 2
HW3	Hot water dosing valve 3
IM1	Ingredient motor 1
IM2	Ingredient motor 2
IM3	Ingredient motor 3
IM4	Ingredient motor 4
KW 2*	Inlet valve 2 (kold water option)
MM1	Mixer motor 1
MM2	Mixer motor 2
R1	NTC temperature sensor
R2	Min. level probe
R3	Max. level probe
R4	Drip tray level probe
U1	Ventilator

* from software V3.0

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