

WITTENBORG

# Drink Vending Machine FB 7600



## Service Manual

75514800

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# 1 Preface and safety instructions

## 1.1 Preface / how to use this manual

### 1.1.1 General

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#### Introduction

This service manual is intended for trained service technicians, who have gone through the product training courses of this vending machine.

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#### Purpose

The purpose of this service manual is to learn about the technical details of the machine.

It can be considered and used as a reference manual.

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## 1.1.2 Set-up of the manual

Sections	The service manual has been divided into nine sections, numbered from 1 to 10.
Subsections	Sections can be divided into subsections. Section 5 has been divided into nine subsections, each representing a specific function in the vending machine.
Paragraph	Each subsection has the same paragraph build up.
Example	The Brewing system serves as an example and it can be found under:

<b>Section</b>	<b>5 Functions</b>
<b>Subsection</b>	<b>B Brewing system</b>
<b>Paragraph</b>	<b>1 Adjustments</b> <ul style="list-style-type: none"> <li>- This paragraph describes all possible adjustments for this subsection, regarding timing, calibration, etc.</li> </ul>
	<b>2 (Dis-)assemblies</b> <ul style="list-style-type: none"> <li>- This paragraph explains in detail how a certain part, belonging to this subsection, has to be assembled, disassembled or replaced.</li> </ul>
	<b>3 Functional description</b> <ul style="list-style-type: none"> <li>- This paragraph explains in detail how a certain system in the vending machine works and how the different parts in the system interact.</li> </ul>
	<b>4 Electrical diagrams</b> <ul style="list-style-type: none"> <li>- Here you can find a description of electrical inputs and outputs of the dosing system.</li> </ul>
	<b>5 Technical specifications</b> <ul style="list-style-type: none"> <li>- The technical specifications for the dosing system, described in this subsection are given here.</li> </ul>
	<b>6 Overview of vending unit options</b> <ul style="list-style-type: none"> <li>- Available options, specially for the dosing system.</li> </ul>
	<b>7 Accessories</b> <ul style="list-style-type: none"> <li>- Accessories to the dosing system.</li> </ul>

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**Service information**

As the vending machine is subject to changes, consecutively numbered service messages (named 'technical information') will inform you on these changes. The service messages are to be filed as chapter 8 in this service manual.

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**General note**

The concept of this manual is designed in such a way that it is valid for different types of devices. If a device is not equipped with a certain component, the corresponding section is mentioned, but will be blank. The complete numbering has not been changed. Some of the paragraphs, e.g. the one on '\*External Options', can be completed by the service technician with respect to specific countries if required.

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### 1.1.3 Definitions of options and accessories

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**Definition**

Options and accessories are also described in this manual. They are defined as follows:

Definition	Description	Described in
Device options	Different device options result in different device versions, types or models.	Functions integrated in device functions
Accessories	Parts, which can be added to the device in order to obtain other facilities or a different design.	Functions integrated in device functions
External options	Options which are not integrated in the device. They have a separate function in relation to the device.	

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## 1.2 Safety instructions

### Introduction

This subsection is intended as an overview of the instructions and warnings used in this manual, and which you must observe.

The following general safety precautions apply to the operation and maintenance of the coffee machine and must be observed. Non-compliance with these instructions and other notes on safety which appear elsewhere in the manual could impair the safety standard of the coffee machine in its intended application.

### Hazard intensity level

There are three levels of hazard intensity identified by signal words - **Danger**, **Warning** and **Caution**. The level of hazard is determined by the following definitions:

Danger	-	Immediate hazard <b>will</b> result in severe personal injury or death.
Warning	-	Hazards of unsafe practices which <b>could</b> result in severe personal injury or death.
Caution	-	Hazards of unsafe practices which could result in minor personal injury or product or property damage.

### General instructions

The instructions given in this service manual must always be followed. Failure to comply with these instructions can lead to unsafe working situations and the manufacturer will accept no liability in the event of damage.

Installation engineers / service technicians must read this service manual and the associated user manual carefully and must have understood these completely before installing and commissioning the vending machine. After commissioning, hand the user manual over to the customer and explain it.

Only specially trained service engineers are authorised to install, to commission and, if necessary, to repair the vending machine.

When the customer sells the vending machine to another party, he must also hand over the complete documentation.

## 1.2.4 Various safety instructions

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### Introduction

Below is listed the instructions divided into the hazard intensity levels

- Danger
  - Warning
  - Caution
- 

### Danger

- Never insert the power supply plug of the vending machine in a wet or damp socket. The plug itself must not be wet or damp either. Also never insert or remove the plug from the socket with wet hands.
  - Safety devices must not be bridged or put out of function.
  - The drinks dispensed by the vending machine are hot! To prevent scalding, hands (and/or other parts of the body) must be kept away from the outlets while hot liquids are dispensed.
  - Before cleaning the vending machine, ensure that it is switched off.
- 

### Warning

- The vending machine must be connected to the mains in accordance with all official regulations and local regulations laid down by the electricity and water companies.
  - Ensure that the supply voltage corresponds to the voltage indicated on the rating plate which is located on the rear wall of the vending machine.
  - The vending machine must be connected to an electric circuit which is secured by an extra fuse. We recommend the connection to a supply with an integrated fault current safety switch or to install a fault current safety switch.
  - Check the drinking water quality prior to installation.
  - The vending machine is suitable for indoor use only.
  - Use only genuine spare parts when replacing components and / or carrying out work on the coffee machine, otherwise the manufacturer will accept no liability in the event of damage.
- 

### Caution

- For hygienic reasons, and in order to guarantee proper functioning of the vending machine, it must be cleaned regularly. Watch out for possible sharp edges when cleaning the unit.
- Clean the vending machine on the inside and the outside by using a damp cloth. Do not use aggressive and / or abrasive cleaning agents. Never use a high pressure spray to clean the vending machine.





## 2 Installation

### 2.1 Transport / Handling

#### 2.1.1 Dimensions and general transport instructions

##### Dimensions

The following table states the dimensions of the machine

Topic	Measurement
Height	1834 mm - 1855 mm
Width	700 mm
Depth	620 mm (cabinet), 662 mm (cabinet+door)

##### Weight

Approx. 190 kg (without ingredients)

##### General transport instructions

Observe the following instructions / cautions:

- Transport the machine carefully
- Only transport the machine in upright position
- Do not turn the vending machine upside down
- Do not lift the vending machine from the side
- Do not lift the vending machine with whatever sling or rope
- Do not place one packed machine on top of another
- When storing machine, ensure that it is only stored indoors and take precautions against parasites
- Keep the machine away from unusual odours.

## 2.1.2 Transport and storage conditions


### General Note

In order not to cause damages to the vending machine, the loading and unloading handling have to be performed with particular care.

It is possible to lift the vending machine, both with a motor operated or hand lift truck placing the forks in the front or rear side of the pallet.

### Precautions before transportation and storage

Before storing or transporting a used vending machine to a new location the following steps must be taken

Step	Action
1.	Switch the main switch off and disconnect the power supply plug
2.	Disconnect the vending machine from the water supply.
3.	Empty the ingredient canisters.
4.	Drain the boiler completely.  Danger of being scalded by hot water.
5.	Loosen and remove possible wall securing brackets. (Special parts).
6.	Pack the vending machine in such a manner that a safe transport is guaranteed. Use the original packaging, if possible.
7.	Secure the transit brackets at the levellers of the machine to the pallet by means of two screws (4 each).
8.	Screw the support leg down firmly attached to the pallet to act as a transit securing for the door.
9.	Ensure that the water system is drained completely of water when machine is to be stored for a longer period of time or to be stored in a room with temperatures exceeding below 0°C. Possibly disassemble individual parts of water system to empty system completely.

### Ambient temperature

Min. 4°C - max. 36°C.

## 2.2 Installation requirements

### 2.2.1 Prerequisites to water supply

#### Customer's site

- Water supply line with stop valve and non return valve.
- Connection to cold water line only with suitable supply lines.
- Supply system requirements:

Description	Data
Water flow:	25 ml/sec.
Min. back pressure (dynamic):	0.8 bar (hot machines, only) 1.5 bar (hot and cold machines)
Max. pressure (static):	10 bar (hot machines, only) 8 bar (hot and cold machines)

#### Machine

**The hose connection of the supply hose to be ordered especially considering the connection facility of the installation site.**

#### Special conditions to be observed

- If the mains pressure is higher (even temporarily), install a pressure reducer in the water supply line.
- Check the drinking water quality. A drinking water filter is recommended.
- When selecting the supply hoses, the local regulations must be observed. Only material which is neutral in taste must be used.
- Safety precautions and local regulations must be observed.
- If machine is provided with a water purifying filter:  
Always observe the data stated by supplier in question.

## 2.2.2 Prerequisites to electricity supply

### Customer's site

Recommended:

- Fault current safety switch and an all poles controlling contact breaking device.

Requirements:

- The mains connection must match the machine output (socket), refer to the rating plate of the machine. The machine must be protected individually by means of fuses.
- The power supply voltage must be 230 V (UK: 240 V).
- The connection must be earthed.

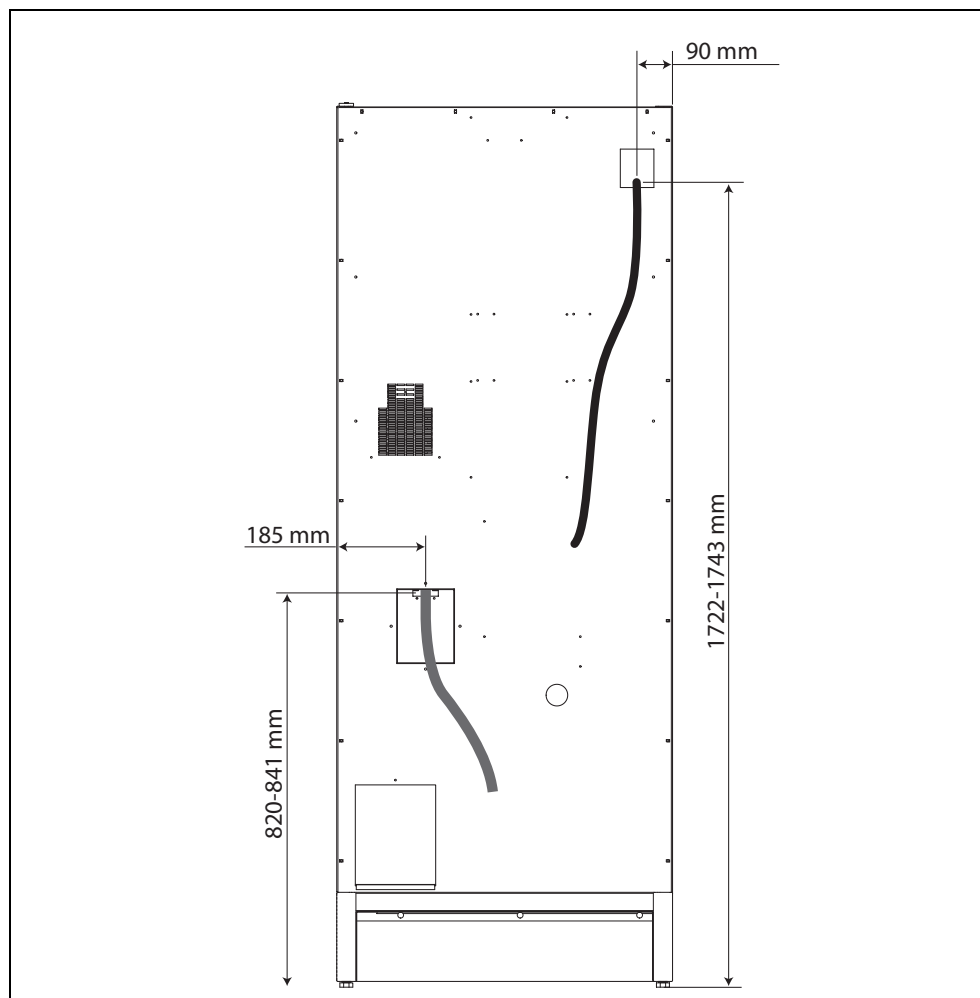
NB! The machine housing will be carrying voltage if no earthed conductor is connected! (mains filter).

### Machine

- National plug on power supply cable.
- Length of the power supply cable approx. 3500 mm.

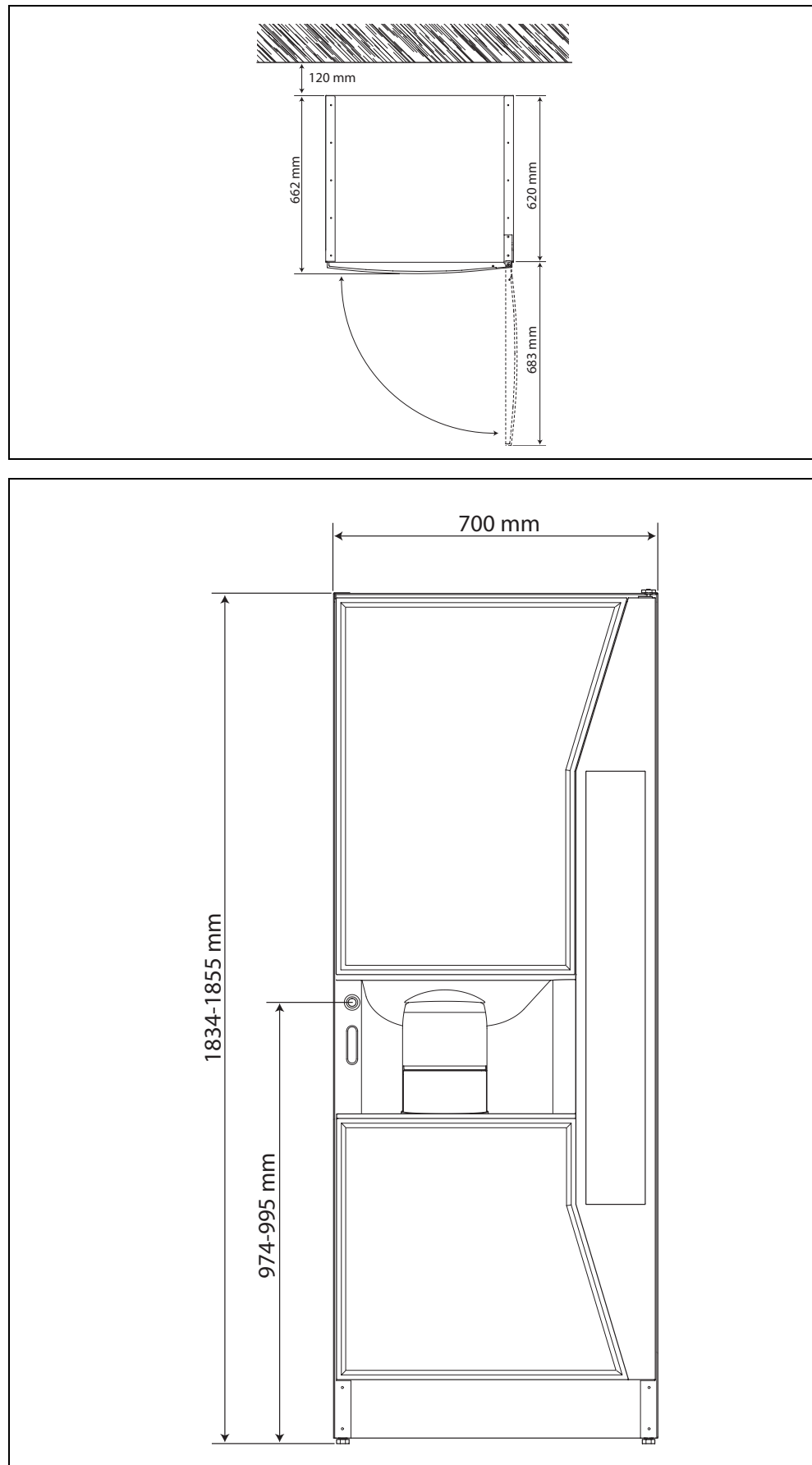
### Diagram

The below diagram illustrates the dimensions of the electrical inlet and water inlet to machine in relation to rear side of machine:



### 2.2.3 Physical dimensions of required space

Diagram



## 2.2.4 External options

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## 2.3 Unpacking

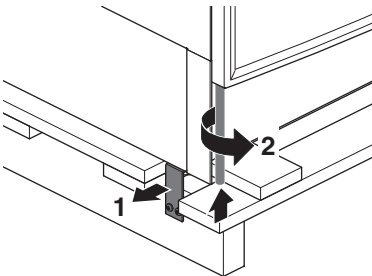
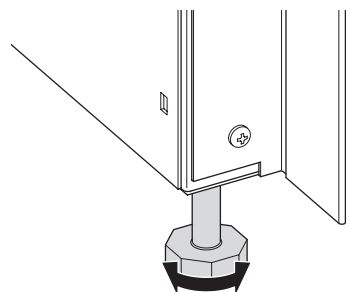
### 2.3.1 How to unpack the vending machine

#### Note

Do not use any sharp utensils in order to avoid scratches on the machine.

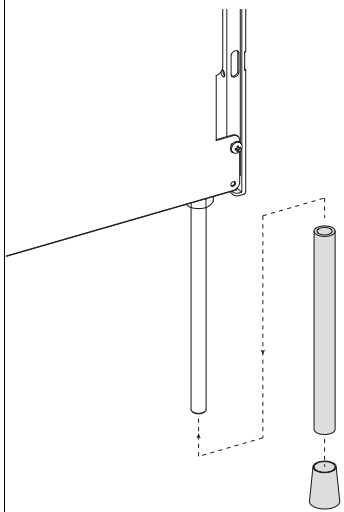
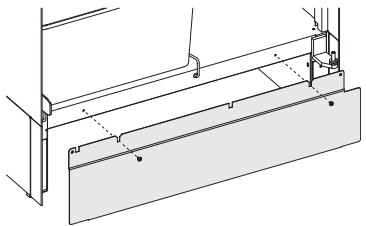
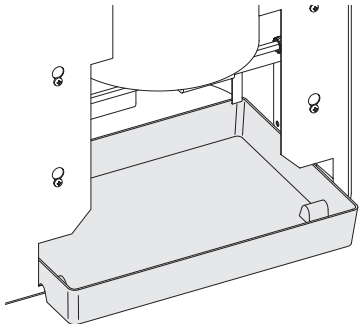
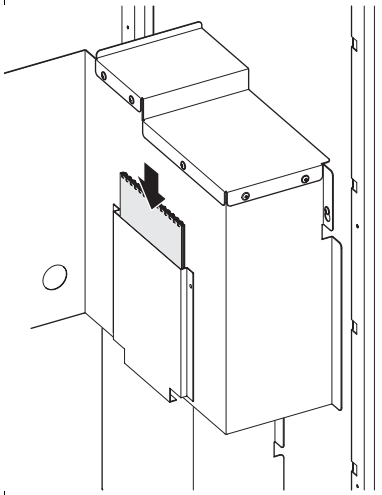
#### Procedure

Follow these steps to unpack the machine:

Step	Action	
1.	Ensure that the machine has not been damaged during transit.	
2.	Loosen screws and remove transit brackets (4 each) from pallet and levellers of machine (1)	
3.	Screw support leg up before opening door (2).	
4.	Remove pallet from machine and position the machine on proper site.	
5.	Level the machine by adjusting the feet. It is essential that the machine is completely level.	
6.	Remove the transit protections located inside the machine.	
7.	Check the list of all items delivered with the machine. Cf. 2.3.2 <i>List of all items, delivered with the vending machine on page 2-10</i>	
8.	Position all parts delivered with machine. Cf. Positioning parts delivered with machine.	

Positioning parts  
delivered with  
machine

Follow these steps to locate the parts delivered with the machine:

Step	Action	
1.	Place the plastic sleeving and finally the plastic cap on the support leg.	
2.	Unpack and attach the kick plate to the door.	
3.	Place the drip tray in door.	
4.	Place the quick reference card and the operator manual in manual holder on cover for water tank	



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**Wall securing  
brackets**

The rear wall of the machine is provided with holes to allow wall securing brackets to be fitted to the machine. The wall securing brackets have to be ordered separately.

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### 2.3.2 List of all items, delivered with the vending machine

List

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The items listed with the machine are:

- Plastic sleeving for support leg
  - Plastic cap for support leg
  - Bag of cleansing agent, 10 g
  - Drip tray
  - Quick reference card
  - Operator manual
-

### 2.3.3 Disposal of packaging and vending machine at the end of the lifetime.

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General note	Disposal of material must always be done in accordance with <ul style="list-style-type: none"><li>• national</li><li>• legal</li><li>• safety, and</li><li>• environmental requirements.</li></ul>
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Packing materials used	The packing material for the vending machine consist in <ul style="list-style-type: none"><li>• Cardboard</li><li>• Polyethylene</li><li>• Wood</li></ul>
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## 2.4 Installation notes

### Prerequisite for installation

Before starting the installation:

- Check for adequate space for correct ventilation.  
A distance of 120 mm is required from the rear side of the machine to the wall.
- Check for clear space of 683 mm in front of the machine to allow the door to be fully opened.
- Observe the information given on the rating plate (at the rear of the machine).
- Check the connections and make sure that the national voltages and tolerances are provided.  
The machine must be earthed.
- Ensure that the fuse of the group to which the machine is connected is in accordance with the national regulations.
- If required, ask for detailed information on voltage and tolerance values at the local energy supply companies.

## 2.5 Installing the vending machine

### Introduction

The installation instructions can be divided into the below topics:

- Connecting machine to mains and putting into operation
- Attaching loose parts
- Adjusting manual price indication
- Adjusting electronic price indication
- Checking valve settings
- Preparing machine for vend

### Putting machine into operation

Follow these steps to put machine into operation:

Step	Action
1.	Follow the instructions of section "How to unpack the vending machine".
2.	Connect the water supply and open the water stop valve.
3.	Insert the power supply plug and switch on power.
4.	Open door of machine.
5.	Remove ingredient canisters.
6.	Switch on main switch. - Water should now flow into the boiler.
7.	Check for leakages.

### Attaching loose parts

- Attach stickers to the machine.
- Unpack and relocate possible parts located in the waste bucket.

### Adjusting manual price indication (Direct selection)

Follow instructions in Chapter 5,G, Housing / Cabinet:

- Cf. Removing the coin mechanism on page 5G 3.
- Cf. Removing the coin chutes on page 5G 3.
- Cf. Replacing the selection signs (Direct selection) on page 5G 3.

### Adjusting electronic price indication

**Not yet implemented.**

### Checking valve settings

When boiler is full, check valve settings and possibly manufacturer's settings.

### Preparing machine for vend

- Rinse entire dispensing system twice.
- Fill ingredient canisters and insert on proper place.
- Close door and test all drink dispensings.

## 2.6 Checklist of customer instructions

## 2.7 Technical specifications (total overview)

### Dimensions and Weight

Table of dimensions of machine with and without packing:

Description	Dimensions with packing	Dimensions without packing
Height)	155 mm	1834 mm - 1855 mm
Width	80 mm	700 mm
Depth	75 mm	620 mm (Cabinet) 662 mm (Cabinet+door)
Weight	250 kg	190 kg (without ingredients)

### Water supply

Connect the vending machine to a cold water supply (potable water).

Type of pressure	Hot machine, only	Hot and cold machine
Min. back pressure (dynamic)	0.8 bar	1.5 bar
Max. pressure (static)	10 bar	8 bar

### Power consumption

Power (stand-by):	
Machine without cold unit	2000 - 2200W
- Heating element	1800W or 2000W
- Power consumption	152Wh/l

### Power Supply

Power supply:	230V AC+6%/-15% (UK: 240V AC+6%/-15%)
Fuses:	Transformer: 2A VMC: 8A Phase: 10A Neutral: 10 A
Frequency:	50 Hz/60 Hz
Outlet valves (solenoid valves)	24V DC
Inlet valve (solenoid valve)	24V DC
Whipper motors	24V DC
Ingredient motors	12V DC

### Phases

Single phase+neutral+ground (IEC-standard)	
Black:	Phase
Blue:	Neutral
Yellow/green:	Ground
The vending machine must be earthed! In addition, it is recommended to install a fault current safety switch.	

Connecting cable	Mains cable:	Approximately 3500 mm
Temperature	Hot water temperature: Cold water temperature:	95°C-97°C max. 25°C
Requirements	Table of requirements to installation and environment	
	<b>Installation</b>	Up to 2000 m above MSL, when using the machine in greater heights it must be changed over by the service.
	<b>Environment</b>	The machine may only be used indoors (IP 20).
Storing temperature		-20°C to 36°C.
Ambient temperature		5°C to 36°C.
Boiler	Capacity:	4.5 l
Boil over sensor	Triggering temperature	80°C
Boiler temperature sensor	Adjustable:	<b>Default value: 85°C</b>
Dry running protection	Triggering temperature	120°C
Relative humidity	Max. 80% RH (relative humidity) at 36°C (-2/+0)	
Capacities	<b>Waste containers:</b> Coffee waste bucket: 20 l Waste bucket: 12 l  <b>Freshbrew ingredient canisters:</b> - Standard freshbrew product canister 13 l  <b>Instant ingredient canisters:</b> - standard: 4 l - large: 6 l <i>Standard machine: 3 x standard size, and 2 x large size canisters            (Max. six instant ingredient canisters standard size)</i>  <b>Cup dispenser:</b> Cup magazine 600 cups (180 ml)	



Cash box:  
(Operator cover not included).

2.34 litres.

### Cup and jug dimensions

Dimensions of dropped cups, own cup or jug:

	Dropped cup	Own cup	Jug
<b>Min. height</b>	60 mm	60 mm	-
<b>Max. height</b>	115 mm	140 mm	240 mm
<b>Min. int. diameter</b>	70 mm	60 mm	60 mm
<b>Max. ext. diameter</b>	78 mm	80 mm	175 mm
<b>Min. jug hole diameter</b>	-	-	60 mm



### Payment interface

Coin mechanism (Protocol A, MdB, BDV)

Card system (Protocol A, MdB, BDV)

Key system

Note validator

Electronic purse (Chipper/Chipknip, Proton, Geldcarte)

Ability to communicate with or prepared for

MK-3.5 card reader

Card systems (with or without coinage)	Card systems (without coinage)
Mars Smartcard	NRI Globocard
Coges	GiroVend Elite / Sapphire
Fage	Digcard
Conpas	Geldcarte
U Key	Absecc

### Data Communication

RS232 connection  
Infrared (option)

### Data exchange protocols

Industry standard and PC standard protocols

### Approvals

CE.  
(The machine is marked with the CE label. (Directive about electrical equipment of low voltage, directive about electromagnetic compatibility)  
Subject to changes)

### Noise level

Max. 45dB(A) at a distance of one meter in stand by

### Lock system

Standard 3 point lock.

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Options

- Multibrew facility (with key)
  - Dosed or undosed hot water
  - Keypad
  - Chiller unit
  - Double brewer
  - Split canister
  - 7C or 7H cup ring
  - Rielda lock
- 

## Accessories

- Different photographic panels
  - Hygiene kit
  - Water filter (Brita, Everpure, Cuno)
- 

## Note

Different adjustments for individual customers were not considered.

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## 3 Faults

### 3.1 Errors indicated in the display

#### Introduction

This section describes error indications, possible causes and corrective action.

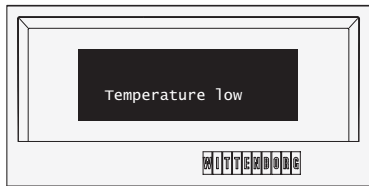
#### Error indications

Errors in the machine are shown in the credit display for as long as they interrupt normal operation of the machine. **They can be considered as active errors.** Subsequently, they are listed in the Event log book found in the Operator menu.

The Event log book registers the date and time of the first and last occurrence of each error and the number of times it has occurred.

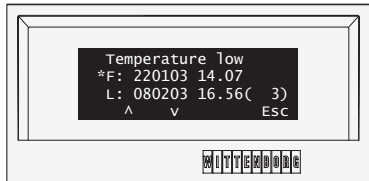
#### Example: Error indication in the credit display

**Active** errors are shown in the credit display in the following way:

Error message in credit display	Explanation
 <p>The screenshot shows a rectangular display with a black background and white text. The text reads 'Temperature low'. Below the text is a row of small, square icons.</p>	<p>This error indicates a water temperature problem.</p> <p>The message stays in the display for as long as the machine is not operable.</p> <p>If two errors are present at the same time, the last occurred error will be shown.</p>

#### Example: Error indication in the event log book

**Event book errors** are stored in the Event log book and are shown in the display in the following way:

Error message in Event log book	Explanation
 <p>The screenshot shows a rectangular display with a black background and white text. The text reads: 'Temperature low', '*F: 220103 14.07', 'L: 080203 16.56( 3)', 'A V Esc'. Below the text is a row of small, square icons.</p>	<p>F: = First time of occurrence (date+time)</p> <p>L: = Latest occurrence (date+time)</p> <p>(xxx): = number of times of occurrence</p>

### 3.1.1 Event log book error messages on credit display

**Branch pipe error** This message indicates a time-out error on the branch pipe which causes the machine to stop operation.

Turn the machine off and on. If the error remains, investigate the possibilities in the table below.

Possible cause	Remedy
Defective branch pipe switch or switches	Check, replace if necessary.
Defective branch pipe motor	Check, replace if necessary.
Cable connection defective	Check, replace if necessary.
Defective harness to motor	Check, replace if necessary.
Cup blocking the movement of the branch pipe	Remove cup.
Grease or dirt blocking or obstructing the movement of the branch pipes	Clean cup catcher and cup slide areas.

**Cup elevator error** This message indicates a problem with the cup elevator.

Possible cause	Remedy
Elevator top switch or safety switch pressed due to cup or other foreign body blocking the elevator	Remove blocking body.  If the elevator is stuck in its top position, open the door and turn the machine off and on. Close the door. The elevator will lower to home position. Remove blocking body.
Defective motor	Check, replace if necessary. <i>Refer to section 5.D.2.25.</i>
Defective switch or switches	Check, replace if necessary. <i>Refer to section 5.D.2.21.</i>
Foreign body stuck between elevator and base	Remove blocking body.
Cup on elevator when the machine is turned on	Remove cup.

**Cup not delivered** This message indicates that the machine has not been able to dispense a cup, causing the machine to stop operating.

Possible cause	Remedy
No more cups	Refill cup magazine.
Dirt or grease blocking cup slide	Clean cup slide.
Defective cup slide	Change cup slide.
Defective cup drop ring	Replace cup drop ring. <i>Refer to section 5.D.2.1.</i>

Possible cause	Remedy
Incorrect cup size	Replace with cups that fit ring size.

**Cup storage error** This message indicates that the machine is not able to dispense a cup due to problems in the cup storage area.

Possible cause	Remedy
Cup pile blocked	Remove blocking cup.
Switch incorrectly mounted	Dismount and mount correctly. <i>Refer to section 5.D.2.7.</i>
Defective switch	Check, replace if necessary. <i>Refer to section 5.D.2.7.</i>
Defective motor	Check, replace if necessary. <i>Refer to section 5.D.2.5.</i>

**Cup transport error** This message indicates that the machine has not been able to dispense a cup due to problem in the cup catcher or cup slide area.

Possible cause	Remedy
Cup slide blocked	Remove blocking cup.
Defective switch	Check, replace if necessary. <i>Refer to section 5.D.2.3.</i>
Defective motor	Check, replace if necessary.

**Door open** This message indicates that the machine is not able to deliver drinks due to a problem with the door.

Possible cause	Remedy
Door not closed properly	Close door properly.
Door switch defective	Check, replace if necessary.
Door harness defective	Check, replace if necessary.

**FB waste bucket full** This message indicates that the FB (coffee grounds) waste bucket is full or an other problem related to the FB waste bucket. The machine is not able to deliver freshbrew coffee.

Possible cause	Remedy
FB waste bucket full	Switch machine off, empty waste bucket and wipe dry the sensor.
FB waste bucket sensor soiled	Clean and wipe dry sensor.
FB waste bucket sensor defective	Check and replace if necessary.
Harness for waste bucket sensor defective	Check, replace if necessary.

Fetch pos not found

Possible cause	Remedy
Elevator top switch pressed due to blocking cup or other foreign body	Remove blocking body
Defective upper cup sensor (opto sensor)	Check, replace if necessary. <i>Refer to section 5.D.2.16.</i>

No cups

This message indicates that the machine has not been able to deliver drinks due to a cup dispensing problem.  
The message is followed by the message "Use own cup".

Possible cause	Remedy
No cups in cup magazine	Use own cup / fill cups in cup magazine.
Defective cup sensor	Check, replace if necessary. <i>Refer to section 5.D.2.6.</i>

No payment comm.

This message appears if a coin mechanism has been selected in the menu system, (4.3.8.2 Set payment type) but the connection between the coin mechanism and the machine is missing.

Possible cause	Remedy
The coin mechanism has not been connected to the machine.	Connect the coin mechanism cable to the coin mechanism switch inside the machine door. <i>Refer to section 5.P.2.1.</i>
Defect on connecting cable or circuit board.	Check cable and circuit board, replace if necessary. <i>Refer to section 5.P.2.1.</i>

Temperature low

This message indicates that the machine is not able to deliver hot drinks due to the water temperature being too low.

Possible cause	Remedy
The machine has been turned on recently	Wait until the water is heated sufficiently (maximum 13 minutes).  The display is automatically cleared when the water in the boiler reaches the correct temperature.
Heating element defective	Check the heating element, replace if necessary. <i>Refer to section 5.A.2.10.</i>
Harness for heating element defective	Check harness, replace if necessary. <i>Refer to section 5.A.2.10.</i>
Temperature sensor or harness for temperature sensor defective	Check sensor and harness, replace if necessary. <i>Refer to section 5.A.2.6.</i>

Possible cause	Remedy
Dry boiling thermostat has triggered	Press the reset button. <i>Refer to section 5.A.2.11.</i> If the heating element is not heating again or dry boiling thermostat triggers repeatedly, check for other types of errors or check temperature setting. <i>Refer to section 4.3.5.2.</i>

**Water level low**

This message appears if the boiler has not filled within three minutes after the machine has been switched on.

Switch the machine off, open the water cock, check water connection and hoses. If the error remains, investigate the possibilities in the table below.

Possible cause	Remedy
Inlet valve defective or blocked by limescale build-up.	Check, descale or replace if necessary.
Blocked water filter	Remove impurities and clean, replace if necessary.
Water supply connection blocked	Remove impurities.

**Water tank overboil**

This message indicates that the water temperature has reached boiling point, causing the machine to stop operating.

Possible cause	Remedy
Overboil thermostat has triggered	Press the reset button. <i>Refer to section 5.A.2.8.</i>
Overboil thermostat is defective	Check the overboil thermostat, replace if necessary. <i>Refer to section 5.A.2.7.</i>
Harness for overboil thermostat is defective	Check, replace if necessary. <i>Refer to section 5.A.2.7.</i>
Temperature sensor is defective	Check, replace if necessary. <i>Refer to section 5.A.2.6.</i>
Harness for temperature sensor is defective	Check, replace if necessary. <i>Refer to section 5.A.2.6.</i>

**Waste bucket full**

This message indicates that the waste bucket is full or that a problem related to the waste bucket has caused the machine to stop operating.

Possible cause	Remedy
Waste bucket full	Switch machine off, empty waste bucket and dry the sensor.
Waste bucket sensor soiled	Clean and wipe dry sensor.
Waste bucket sensor defective	Check, replace if necessary.

Possible cause	Remedy
Harness for waste bucket sensor defective	Check, replace if necessary.



## 3.2 Errors not shown in display

### Introduction

This section describes errors that are *not* indicated in the credit display and Event log book, and suggestions for remedy.

### Machine is out of function no display

Possible cause	Remedy
Power supply interrupted	Check the power supply.
Main switch defective	Check the main switch, replace if necessary.
Power supply cable defective	Check, replace if necessary. <i>Refer to section 5.K.2.2.</i>
Electronic control defective	Check, replace if necessary. <i>Refer to section 5.K.2.5-12.</i>
Plug contact fault	Check contacts, replace if necessary.
Fuse defective	Check the power supply, replace the fuse if necessary. <i>Refer to section 5.K.2.4.</i>

### Freshbrewer unit does not operate

Possible cause	Remedy
Electrical supply lines interrupted	Check the connections and connect them properly if required. <i>Refer to section 5.B.3.2.</i>
Control system defective	Replace brewer print circuit board. <i>Refer to section 5.K.2.12.</i>
Fuse defective	Replace fuse of VMC board <i>Refer to section 5.K.2.9.</i>
Harnesses incorrectly connected	Check the cable harnesses and connect them correctly,
Freshbrewer incorrectly assembled	Reassemble.

### No drinks delivered

Possible cause	Remedy
Harness or sensor for water level control blocked by limescale build-up or incorrectly mounted	Check, descale or replace if necessary. <i>Refer to section 5.A.2.9.</i>
Water in hose between bottom of boiler and overflow thermostat	Empty hose into waste bucket. <i>Refer to section 5.A.2.14.</i>

## Water system overflows

*Note: It is important that the possible causes be checked in the order listed in the table.*



Open the machine, leave the power supply on and the water cock open.

Remove cover at boiler (*see section 5.A.2.1*) and check for the following types of errors:

Possible cause	Remedy
Inlet valve defective	<p>Check valve by removing one of the terminals from the inlet valve.</p> <ul style="list-style-type: none"> <li>If the problem persists, replace the inlet valve. <i>Refer to section 5.A.2.13.</i></li> <li>If the water stops running, the valve is ok.</li> </ul> <p>Proceed to next step of this table.</p>
Harness or sensor for water level control blocked by limescale build-up or incorrectly mounted	<p>Check, descale or replace if necessary. <i>Refer to section 5.A.2.9.</i></p> <p>If the problem persists, proceed to the next step of this table.</p>
Short-circuit on print board	<p>Using a voltmeter, measure voltage across inlet valve terminal.</p> <ul style="list-style-type: none"> <li>If there is a constant voltage (of 24 V DC), it indicates a controller fault.</li> <li>Change the VMC. <i>Refer to section 5.K.2.9.</i></li> </ul>

## Coins stuck

Possible cause	Remedy
Coin may be stuck in the coin mechanism	Press the coin return button.
Coin track dirty or greasy	Open coin rejector and clean coin track. <i>Refer to manual for coin mechanism.</i>
Foreign body stuck in coin track	Open coin rejector and remove foreign body. <i>Refer to manual for coin mechanism.</i>

## Drinks are too cold

Possible cause	Remedy
Wrong temperature setting	Readjust temperature setting either via the Technician menu, ( <i>refer to section 4.3.5.2</i> ) or from a pc.

The water quantity delivered is too low or irregular

Possible cause	Remedy
Boiler blocked by limescale build-up or defect.	Check boiler and descale if required or replace. <i>Refer to section 5.A.2.4.</i>
Water supply lines are blocked	Check the water supply lines and clean them if required.
Water valves are incorrectly calibrated	Calibrate the water valves either via the Technician menu ( <i>refer to section 4.3.5.1</i> ) or from a pc.

No water is dispensed

Possible cause	Remedy
Water supply lines are blocked	Check the water supply lines and clean them if required.

Only water is dispensed

Possible cause	Remedy
Canister is empty	Refill
Canister dislocated	Relocate canister
Blocked up mixing funnels	Check, and clean if necessary.

Quantity of drink is inadequate

Possible cause	Remedy
Ingredient residue clogging funnel/whipper housing/delivery tube	Clean/replace clogged component(s)
Dispensing hose has a kink	Check hoses. Install hose of correct length.

Delivered coffee is not whipped

Possible cause	Remedy
Mixing unit dirty	Clean the mixing unit
Whipper motor defective	Check the motor and replace if necessary. <i>Refer to section 5.C.2.1.</i>
Control system defective	Replace the controller. <i>Refer to section 5.K.2.9.</i>

Flavour of drink unsatisfactory

Possible cause	Remedy
Wrong ingredients	Use correct ingredients, i.e. correct whitener for coffee and tea.
Dispensing system dirty	Clean/replace components.

Possible cause	Remedy
Expiry date overdue	Replace ingredients.

Ingredients are moist and become lumpy in canisters

Possible cause	Remedy
Steam rising from mixing funnel	Working from outside, remove dust from the grille at rear of machine or from inside remove dust from fan. <i>Refer to section 5.G.2.1.</i>
Powder traps or suction hoses blocked	Check powder traps and their suction hoses. Clean if necessary.

Mixing system overflows

Possible cause	Remedy
Blockage in mixing unit	<ul style="list-style-type: none"> <li>• Clean or replace blocked part or parts. Check if they are positioned correctly.</li> <li>• Check powder traps and corresponding extraction tubes.</li> </ul>

Leak in mixing system

Possible cause	Remedy
Funnel/Whipper housing not correctly connected	Reinstall and reconnect components.
Seal for whipper housing leaking or not installed	Replace seal.

Waste bucket or coffee waste bucket filled with water

Possible cause	Remedy
Water dripping from hot water hoses	Descale or replace boiler, or replace valves.
Customers pour liquid into machine	Request customers to desist.

Machine does not block when bucket is full

Possible cause	Remedy
Foreign body clogging sensors for buckets	Clean sensors.
Sensors not in buckets	Reposition sensors (sensor must be in bucket).
Sensor defective	Replace sensor.

Liquid escaping  
from vending  
machine

Possible cause	Remedy
Bucket/canister/whipper housing/mixing funnels/delivery hoses not correctly installed	Install component or components correctly.
Sensors not in buckets	Reposition sensors (sensor must be in bucket).



## 4 Programming

### 4.1 Menu navigation

#### Introduction

In this section the menu system and the way to find your way through it is introduced.

The following topics are covered:

- Presentation of the navigation buttons and the display, see 4.1.1.
- Description of the various functions of the four navigation buttons in the menu system, see 4.1.2.

#### 4.1.1 Navigation buttons and display

#### Navigation buttons

When the machine is in Menu selection mode, the four pre-selection buttons in the top row of the selection panel are used for retrieval of data and for settings, (see illustration below).

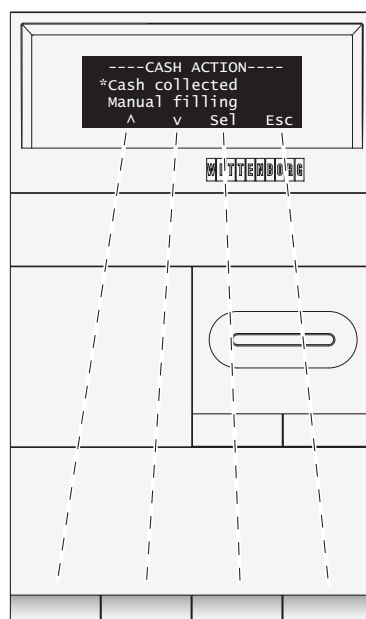
#### Display

The display shows the current menu in the first line, and lists the available sub-menus below.

The bottom line indicates the functions of the four navigation buttons, e.g., '∧' 'V' 'Sel' 'Esc'. The functions of the buttons depend on which action is needed.

A selection marker '\*' in front of a menu or sub menu shows which menu item will be selected when 'Sel' is pressed.

#### Illustration

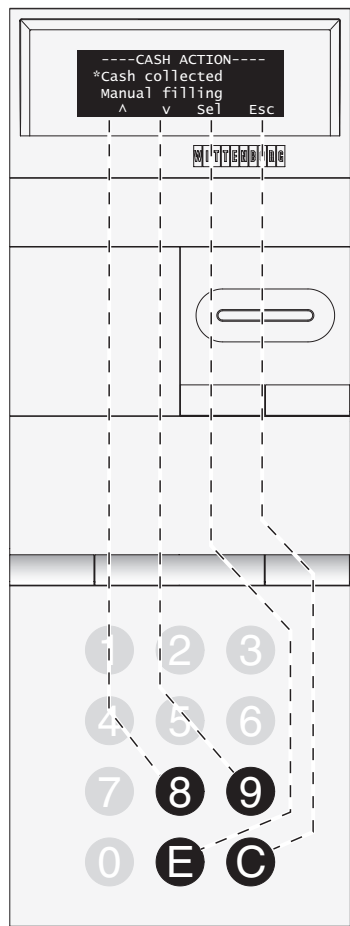


The display shows the current functions of the navigation buttons.

**Keypad alternative**    If the vending machine is equipped with a keypad instead of a selection panel, the four keypad buttons ‘8’, ‘9’, ‘E’ and ‘C’ can be used as alternative menu navigation and programming buttons.

The four keypad buttons function in exactly the same way as the pre-selection buttons and can be used instead of or in a combination with these.

Illustration



Alternative menu navigation buttons on machines with keypad.

**Table 1**                      This table shows the correspondence between the four pre-selection buttons and the keypad buttons.

Keypad navigation buttons			
<div><div></div><div>89</div><div>EC</div></div>		<div><div></div><div>89</div><div>EC</div></div>	
<div><div></div><div>89</div><div>EC</div></div>		<div><div></div><div>89</div><div>EC</div></div>	



## 4.1.2 Button functions

### Introduction

The two tables below show the functions of the navigation buttons. The functions vary according to which part of the menu system you are in and which options are at hand.

The bottom line of the display always indicates the current functions of the keys.

Table 1

This table describes how the four pre-selection buttons are used for navigation in the menu system.




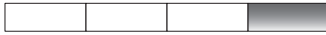
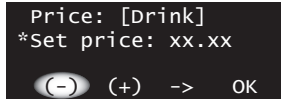

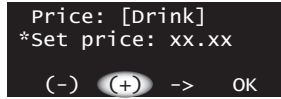

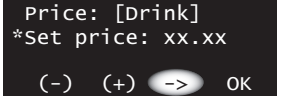

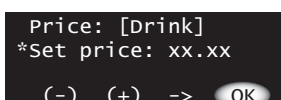

Display	Button	Function
<pre> -----SALES AUDIT----- *Total number Total turnover ^  v  Sel  Esc           </pre>		<p>'Up' button.</p> <p>The button is used to move from one menu item to the one above within a menu (e.g. from "Total turnover" to "Total number" in the Sales audit menu.)</p>
<pre> -----SALES AUDIT----- *Total number Total turnover ^  v  Sel  Esc           </pre>		<p>'Down' button.</p> <p>The button is used to move from one menu item to the one below within a menu (e.g. from "Total number" to "Total turnover" in the Sales audit menu.)</p>
<pre> -----SALES AUDIT----- *Total number Total turnover ^  v  Sel  Esc           </pre>		<p>'Select' button.</p> <p>With this button you select the menu item indicated by the selection marker *, i.e. you either move one level further into the menu system or activate a function.</p>
<pre> -----SALES AUDIT----- *Total number Total turnover ^  v  Sel  Esc           </pre>		<p>'Esc' button.</p> <p>The button is used to move back one level in the menu system, i.e. opposite of the 'Select' button.</p>

Table 2

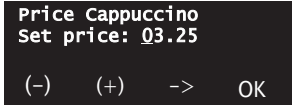
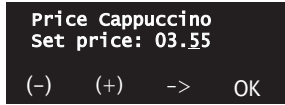
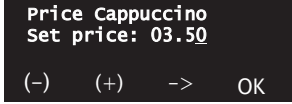
This table describes how the buttons are used to enter or change numbers, e.g., price or quantity settings.

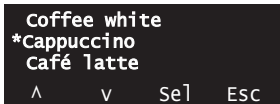
Display	Button	Function
		'Minus' button. The button is used to decrease a numeric value in increments of one.
		'Plus' button. The button is used to increase a numeric value in increments of one.
		'Next' button The button is used to continue to the next letter or digit, e.g., in price setting menus.
		'OK' button Pressing the button will save changes to settings in the system.

## Example

This table illustrates how you change a price setting in the machine.

Example: Change price of a drink from 3.25 to 3.50.

Step	Action	Display
1.	Navigate to "Price per drink" in the Basic operations menu and press 'Sel'. Press 'v' one or more times to find the name of the drink, and press 'Sel'.	
2.	Press '->' twice to move the cursor to the digit 2. Press '(+)' three times. The display now reads 3.55	
3.	Press '->' once to move to the next digit. Press '(-)' five times to decrease the number by 5. The display now reads 3.50.	

Step	Action	Display
4.	Press 'OK' to save the new price in the system	



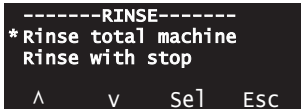
### 4.1.3 Short cuts

#### Introduction

Some functions of the menu system can be reached quickly through short cuts.

#### Example

This table shows how the Rinse functions are reached via the short cut menu.

Step	Action	Display
1.	Unlock and open the door. The display will show the short cut selection window.	
2.	Press "1"   and close the door to go directly to the Rinse menu.  From here you can select one of the available rinse functions.	

## 4.2 Operator menu

### 4.2.1 Purpose of the Operator menu

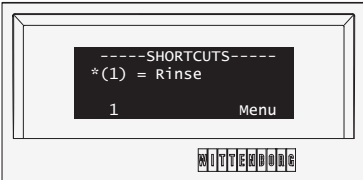
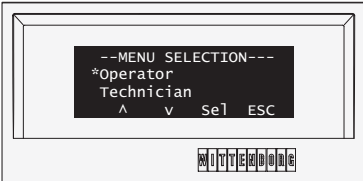
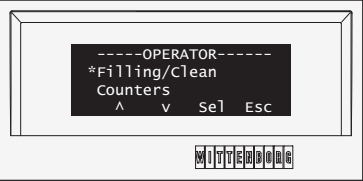
#### Purpose

The Operator menu is intended for persons with a daily responsibility for the running and maintenance of the machine e.g., cleaning, setting up prices, managing sales turnover and performing light adjustments to ensure a faultless operation.

### 4.2.2 How to access the Operator menu

#### Accessing the Operator menu

Follow the steps below to access the Operator menu.

Step	Action	
1.	Unlock and open the door.  The display now shows a short cut selection window.	
2.	Press 'Menu' to proceed to the "MENU SELECTION" window.  The selection marker '*', by default, is placed next to "Operator". 1	
3.	Press 'Sel' to enter the Operator menu.	

<sup>1</sup>. Applies to the default setting. Local settings may bring the user to a different starting position in the menu system.

#### Returning to vend mode

- 1 Close the door.
- 2 Press 'Esc' once. Wait for approximately 30 seconds till the machine is back in vend mode.

### 4.2.3 Sub menus of the Operator menu

#### Presentation

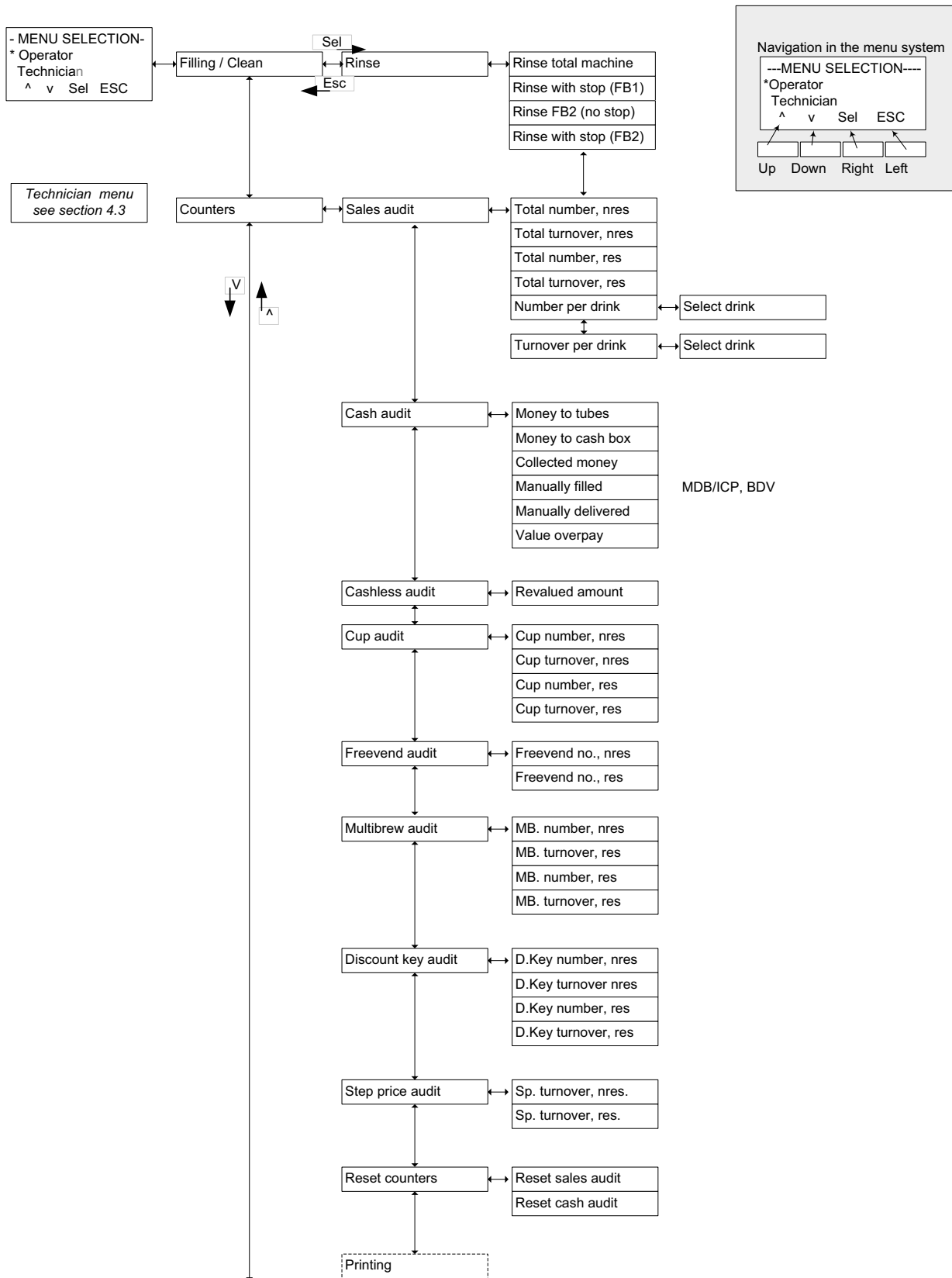
This table gives a short presentation of the main contents of the Operator menu.

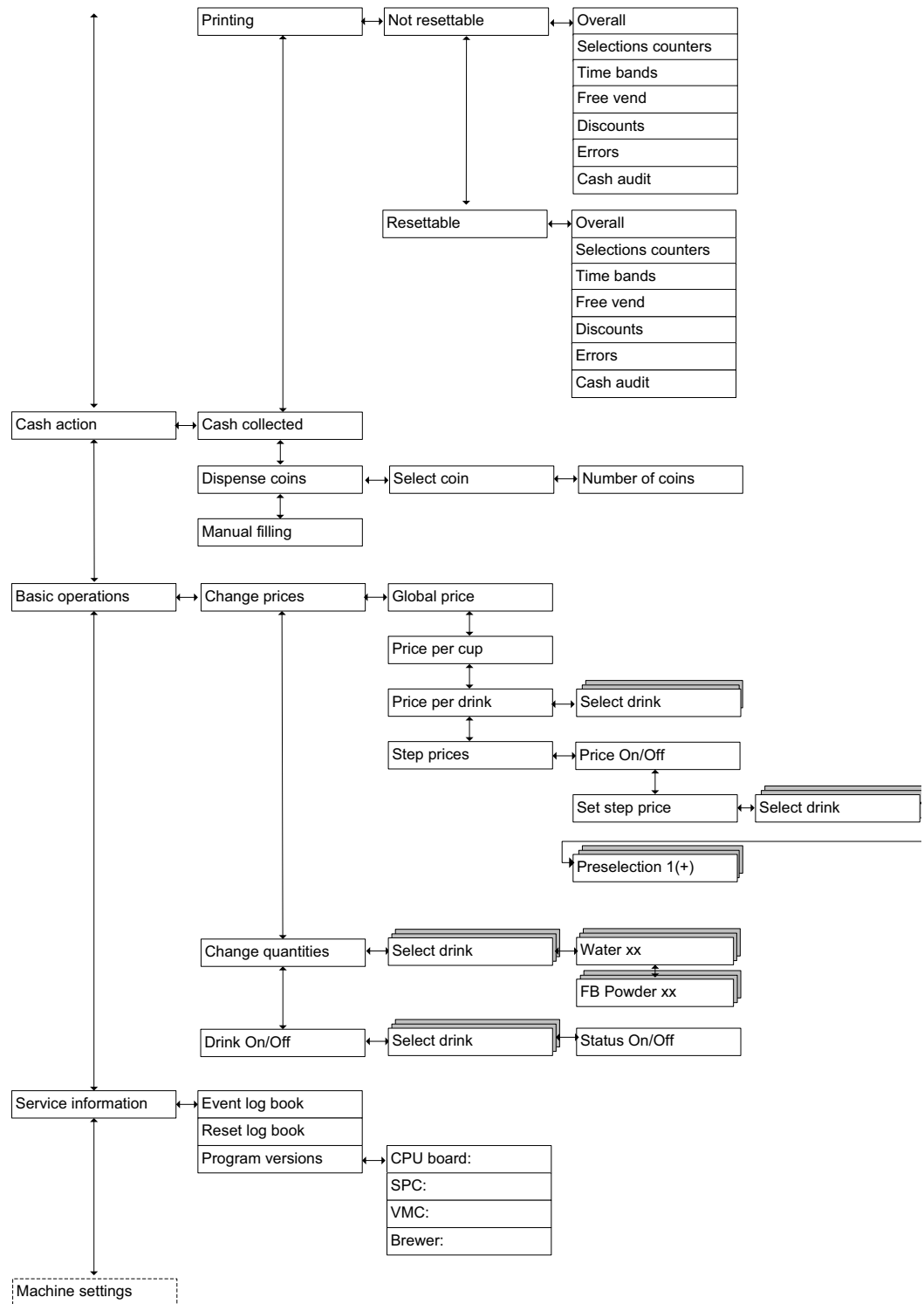
The Operator menu can be accessed by all users.

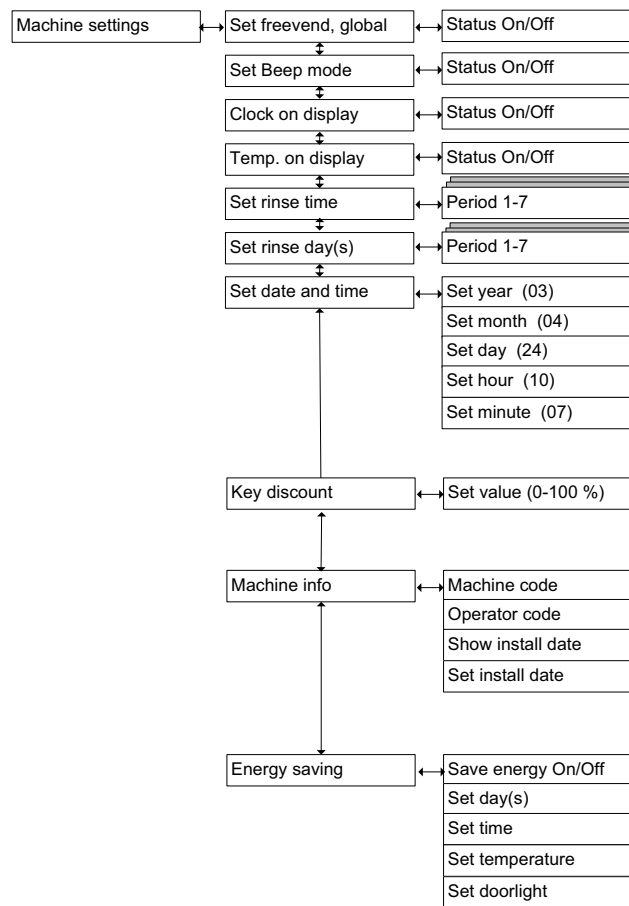
Menu	Purpose
Filling / Clean	Assists in filling the machine or rinsing either the brewer or the entire machine.
Counters	Displays recorded data regarding <ul style="list-style-type: none"><li>• the number of drinks dispensed</li><li>• turnover</li><li>• cash balance</li></ul> and enables resetting of those counters.
Cash action	Assists in emptying and refilling coin tubes.
Basic Operations	Assists in price and quantity settings for the individual drinks.
Service Information	Contains error reports and machine data.
Machine settings	Allows for setting the machine according to individual preferences.

## 4.2.4 Operator menu flow

This diagram displays the full flow of the Operator menu.



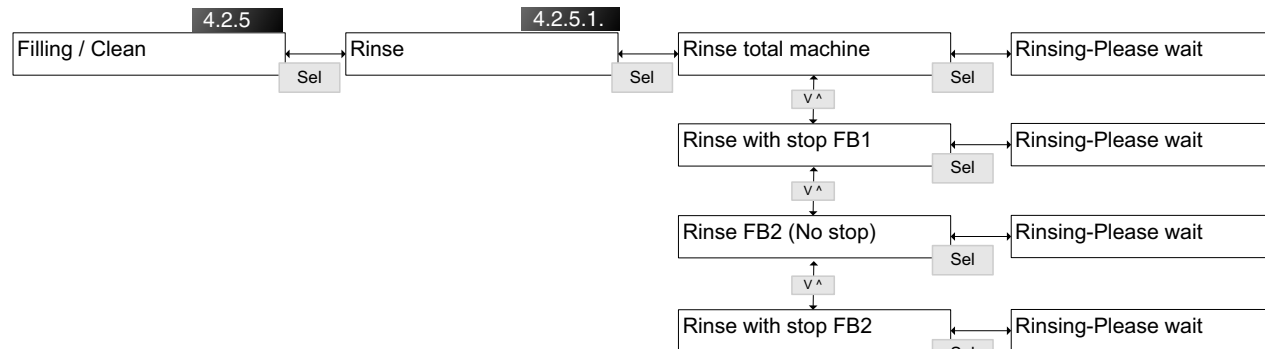






The following pages contain the individual sub menus of the Operator menu. For further information about the menus, please refer to sections indicated by numbers in black boxes.

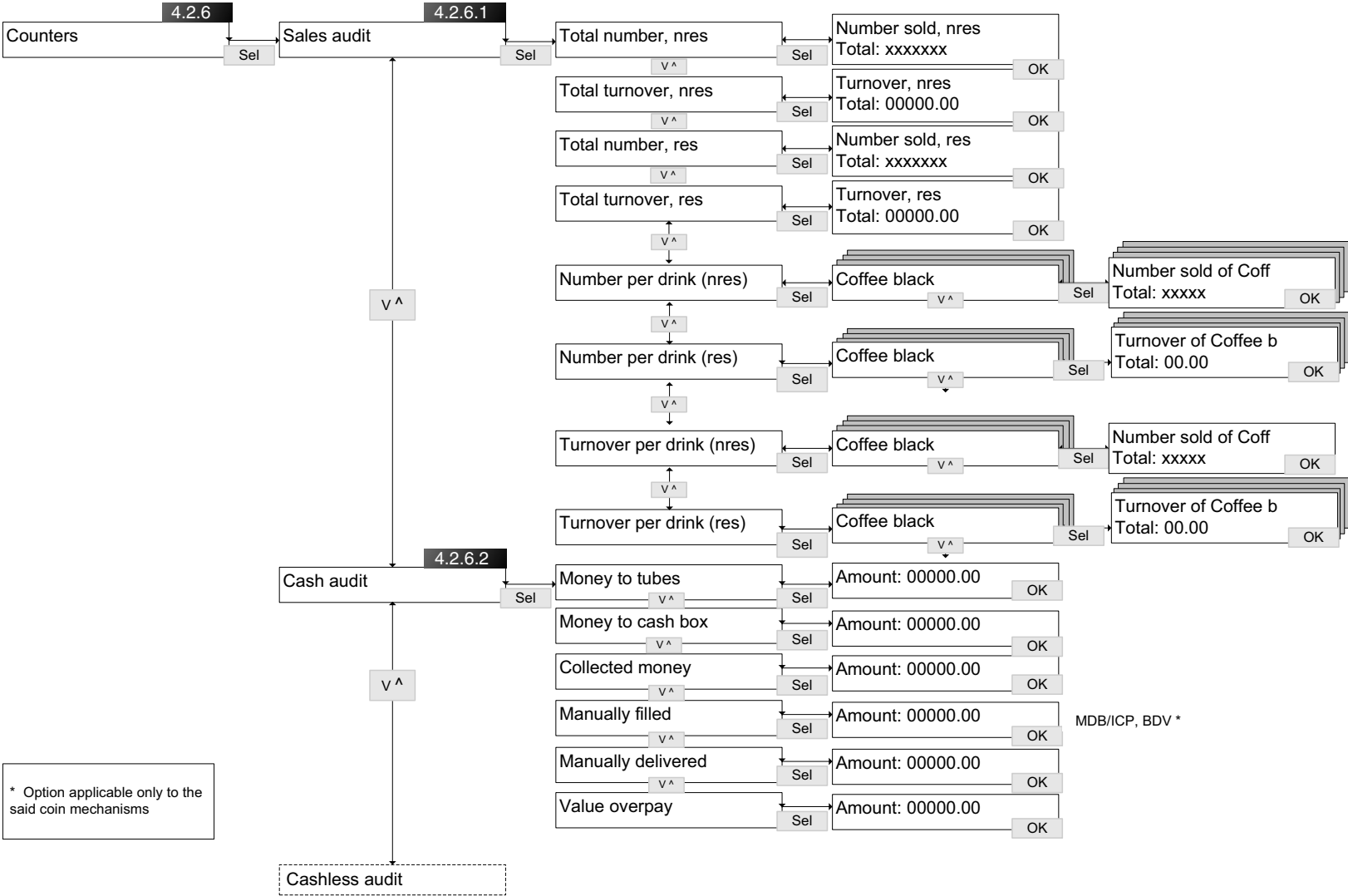
## Filling / Clean menu

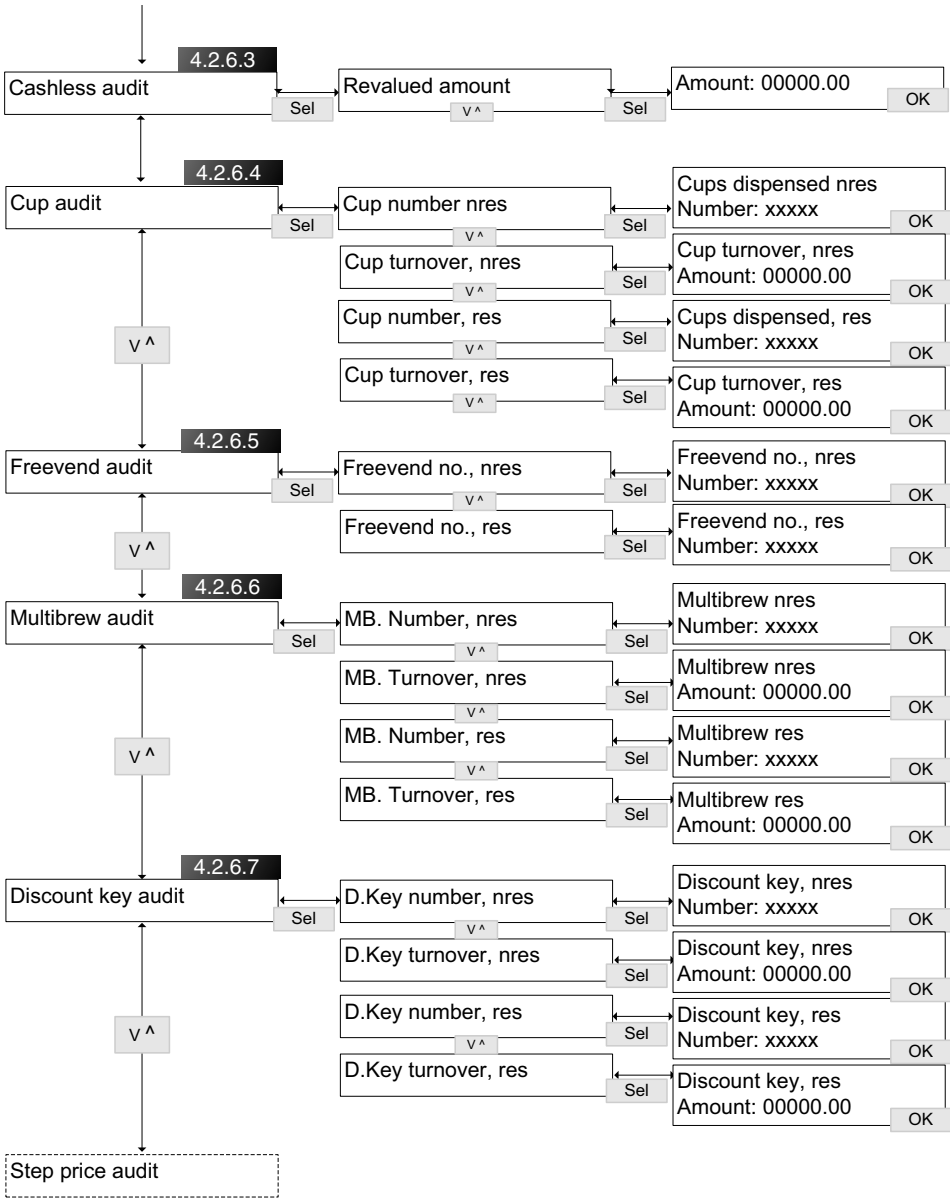


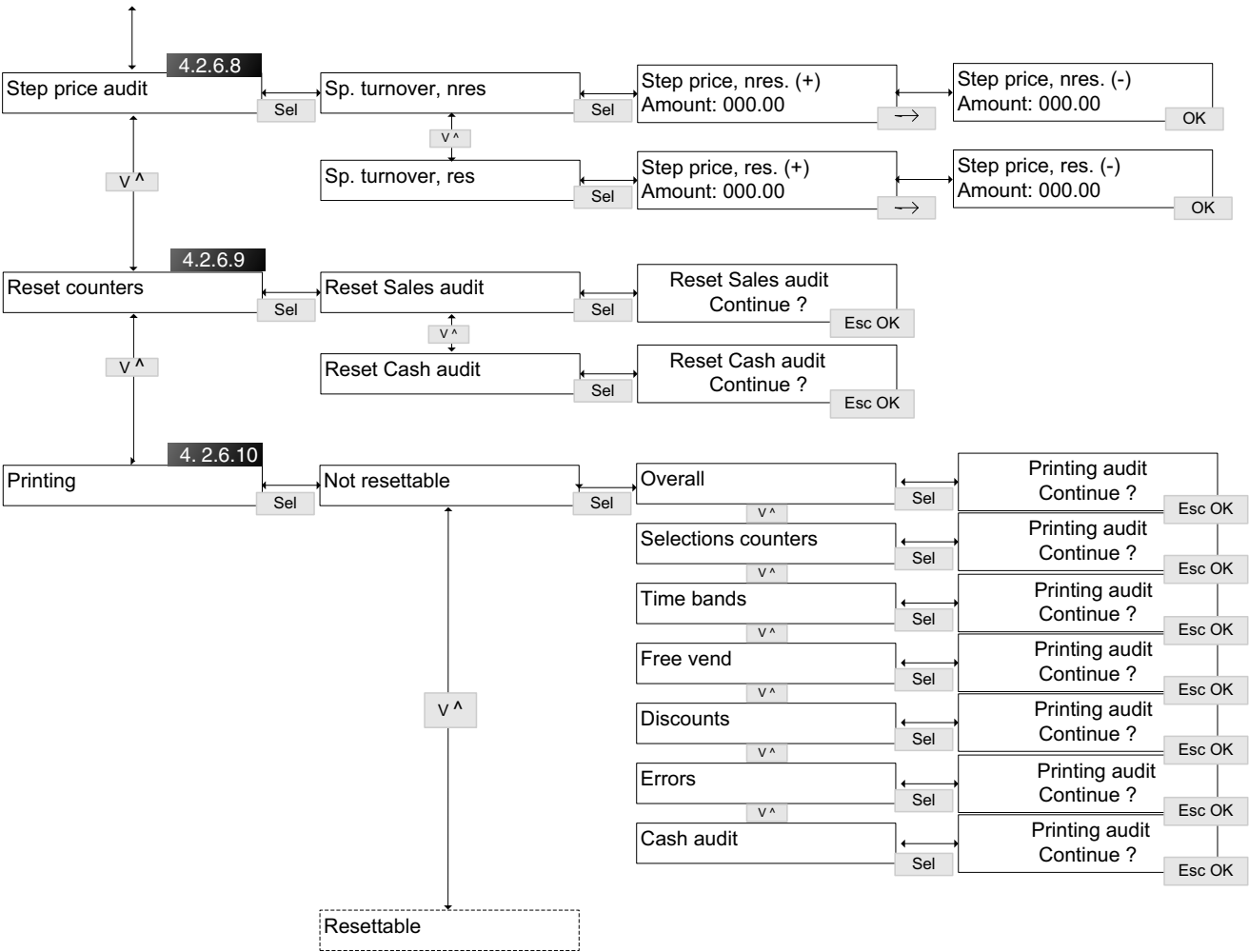
### Short cuts for pc users

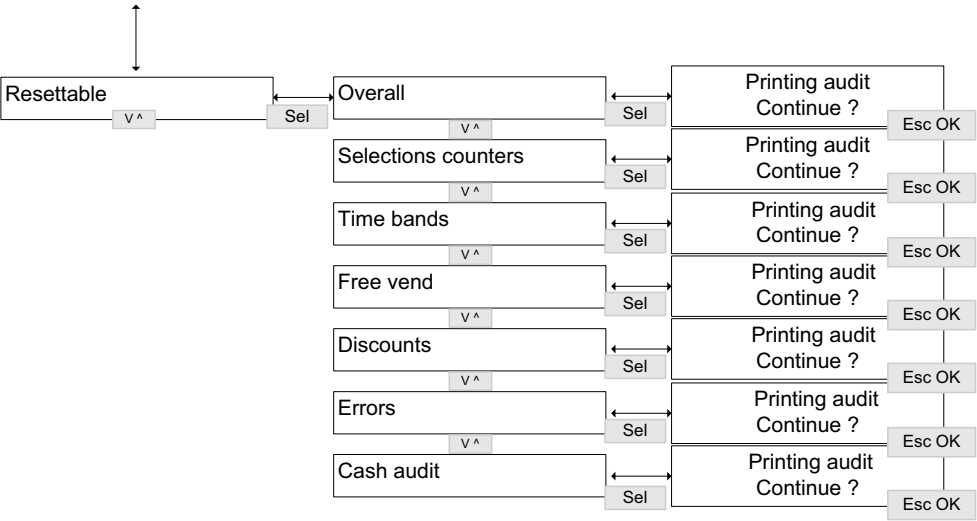
If viewing the manual on-screen in a pc version, simply click on one of the numbers in black boxes to go directly to the section that describes the menu in question.

Counters menu

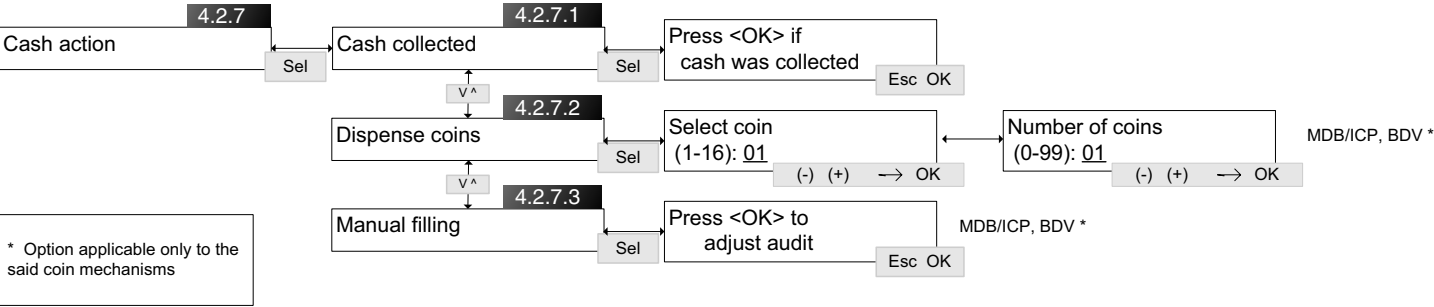




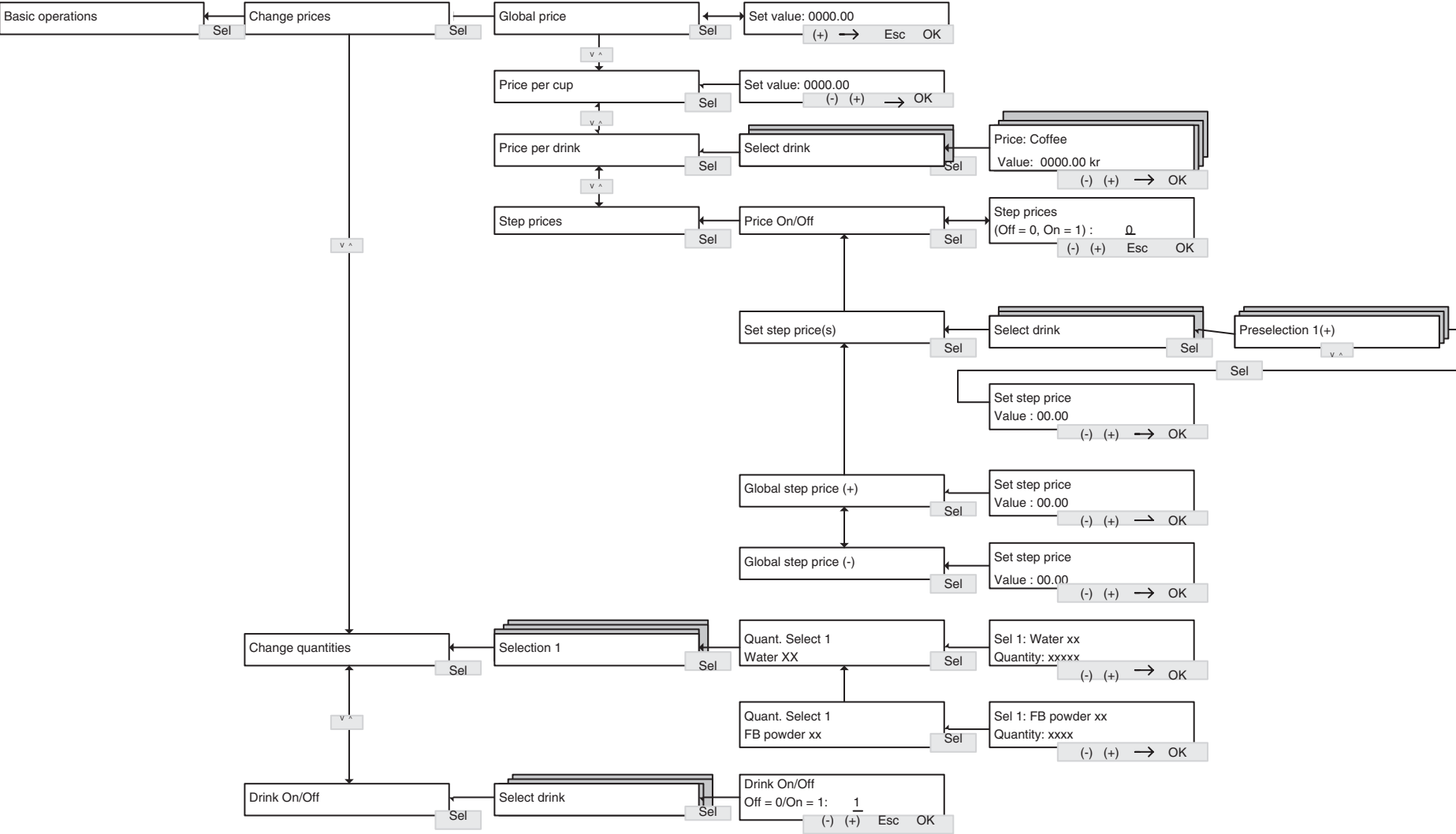




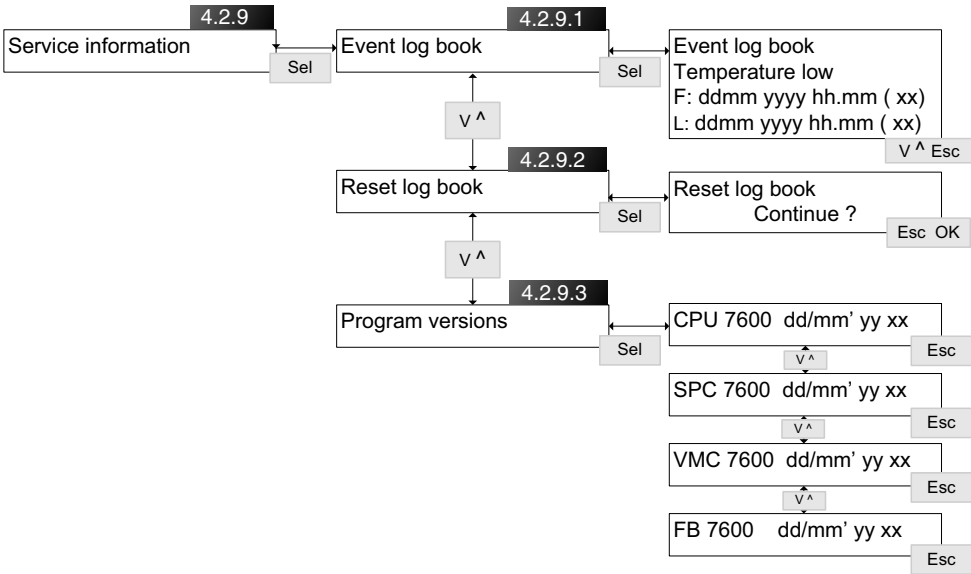
Cash action menu



Basic operations menu

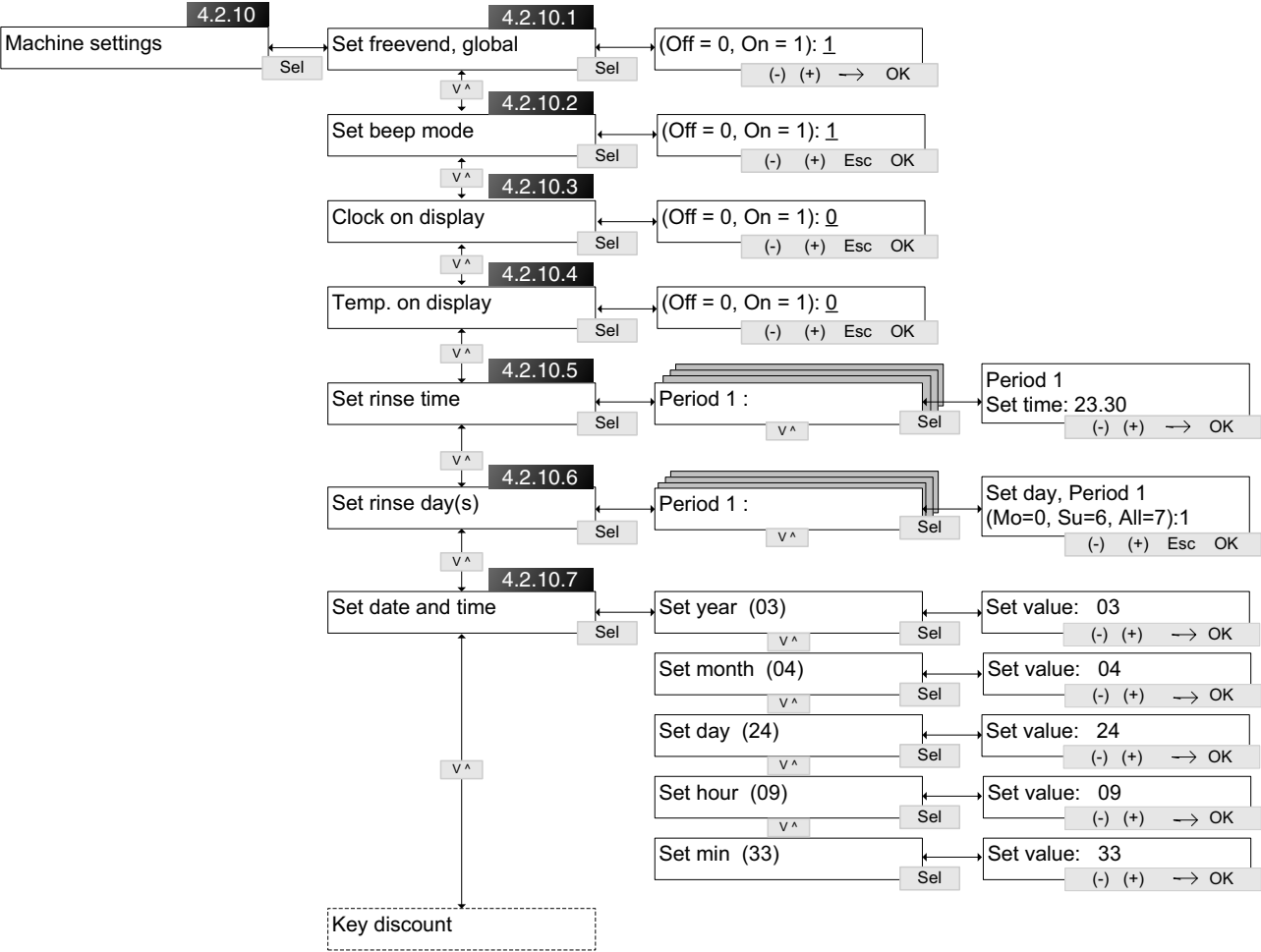


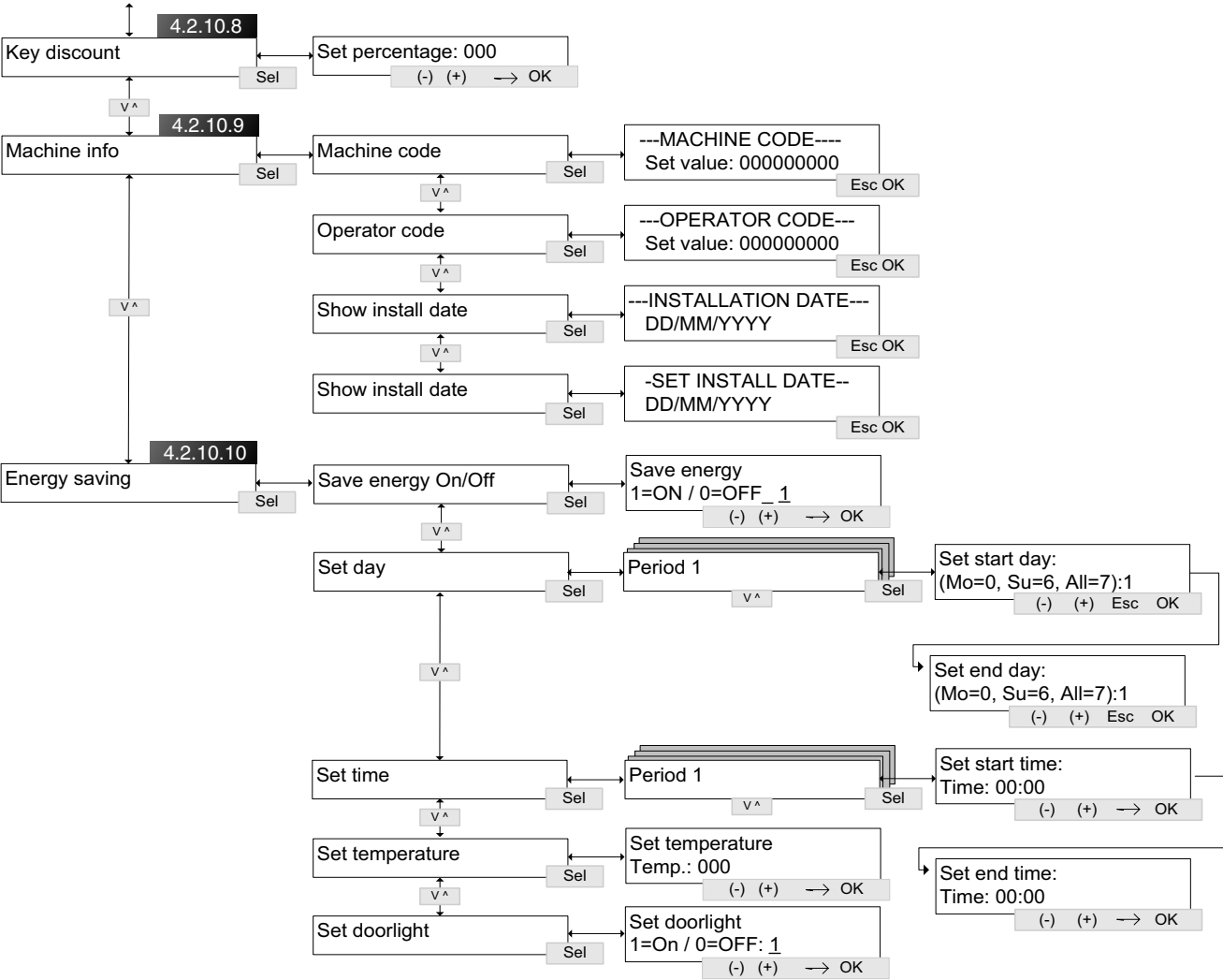
Service information menu





Machine settings menu





## 4.2.5 Filling / Clean

### Introduction

The Filling / Clean options assist in filling the ingredient canisters and in rinsing the machine.

### Options

The Filling / Clean menu includes the following option:

- Rinse, see 4.2.5.1.

### 4.2.5.1 Rinse

The Rinse menu assists in rinsing the machine.

```

-----RINSE-----
*Rinse total machine
Rinse with stop
^      v      Sel  Esc
  
```

Sub menu	Description
Rinse total machine	To be activated when a complete rinse of the machine's dispensing system is required, i.e. both the IN and FB dispensing systems.
Rinse with stop FB1	To be activated when a rinse or descaling of brewer 1 is required (only FB machines).  Cleaning or descaling agent can be added to brewer 1 during this rinse procedure.
Rinse FB2 (no stop)	To be activated when a rinse of brewer 2 is required (only FB machines with two brewers).  Cleaning or descaling agent <i>cannot</i> be added during this rinse procedure.
Rinse with stop FB2	To be activated when a rinse or descaling of brewer 2 is required (only FB machines with two brewers).  Cleaning or descaling agent can be added to brewer 2 during this rinse procedure.

Please refer to the Operator manual for a detailed explanation of the rinsing procedures.

## 4.2.6 Counters menu

### Introduction

The Counters menu stores detailed information regarding the number of drinks dispensed and the turnover. The information is held in two categories, a sales counter and a cash handling counter.

Furthermore, the Counters menu enables resetting of the individual counters.

### Options

The Counters menu includes the following options:

- Sales audit, see 4.2.6.1
- Cash audit, see 4.2.6.2
- Cashless audit, see 4.2.6.3
- Cup audit, see 4.2.6.4
- Freevend audit, see 4.2.6.5
- Multibrew audit, see 4.2.6.6
- Discount key audit, see 4.2.6.7
- Step prices counter, see Figure 4.2.6.8
- Reset counters, see 4.2.6.9
- Printing, see 4. 2.6.10

### 4.2.6.1 Sales audit

The options of the Sales audit menu are described in this table

```

-----COUNTERS-----
*Sales audit
Cash audit
^      v      Sel  Esc

```

Sub menu	Description
Total number, nres	Shows the total number of drinks dispensed since the machine was put into operation. (Non resettable counter.)
Total turnover, nres	Shows the total amount sold for since the machine was put into operation. (Non resettable counters)
Total number, res	Shows the total number of drinks dispensed since the last Sales audit resetting
Total turnover, res	Shows the total amount sold for since the last Sales audit resetting.
Number per drink, nres	Shows the number of drinks sold per type of drink since the machine was put into operation. (Non resettable counter)
Number per drink, res	Shows the number of drinks sold per type of drink since the last Sales audit resetting.
Turnover per drink, nres	Shows the turnover per type of drink since the machine was put into operation. (Non resettable counter)
Turnover per drink, res	Shows the turnover per type of drink since the last Sales audit resetting.

### 4.2.6.2 Cash audit

The options of the Cash audit menu are described in this table.

```
Sales audit
* Cash audit
Reset counters
^   v   Sel   Esc
```

Sub menu	Description
Money to tubes	Shows the total amount of money routed to the coin tubes since the last Cash audit resetting.
Money to cash box	Shows the total amount of money routed to the cash box since the last Cash audit resetting.  Coins are dropped into the cash box when the matching coin tubes are full or if there is no coin tube for the coin type inserted.
Collected money	Shows the amount of money removed from the cash box since the last Cash audit resetting.  Precondition: The amount is registered only if the removal of the cash has been electronically recorded in the Cash collected menu, 4.2.7.1).
Manually filled (Applicable only if the machine is equipped with BDV or MDB/ICO coin mechanism.)	Shows the amount of money which has been inserted and registered as manually inserted change in the Manual filling menu, 4.2.7.3
Manually delivered	Shows the amount of money which has been paid out from the coin tubes when operators have pressed the coin dispense button on the coin unit inside the machine.
Value overpay	Shows the amount of money which could not be returned due to lack of coins in coin unit, i.e. when one or more coin tubes have run low and the display shows "Use exact change".

### 4.2.6.3 Cashless audit

The Cashless audit option is described in this table.

```
Cash audit
* Cashless audit
Cup audit
^   v   Sel   Esc
```

Sub menu	Description
Revalued amount	Shows the total amount which has been inserted in the machine to add value to cards.

#### 4.2.6.4 Cup audit

```
Cashless audit
* Cup audit
Freevend audit
^      v      Sel  Esc
```

The Cup audit menu gives an overview of the number and value of cups dispensed from the machine.

The turnover is based on the cup price which is defined in the sub menu “Price per cup” under “Basic operations”, see 4.2.8.

The menu consists of both resettable and non resettable counters.

Sub menu	Description
Cup number, nres	Shows the total number of cups dispensed from the machine since it was put into operation. (non resettable counter)
Cup turnover, nres	Shows the total turnover on cups dispensed from the machine since it was put into operation. (non resettable counter)
Cup number, res	Shows the number of cups dispensed from the machine since the last Sales audit resetting.
Cup turnover, res	Shows the turnover on cups dispensed from the machine since the last Sales audit resetting.

#### 4.2.6.5 Freevend audit

```
Cup audit
* Freevend audit
Multibrew audit
^      v      Sel  Esc
```

The Freevend audit option keeps track of the number of drinks dispensed for free when the machine is in Freevend mode.

Freevend is turned on or off in the sub menu “Freevend” under Machine settings, see 4.2.10.

The menu consists of both resettable and non resettable counters

Sub menu	Description
Freevend no., nres	Shows the total number of free drinks dispensed since the machine was put into operation. (non resettable counter).
Freevend no., res	Shows the total number of free drinks dispensed since the last Sales audit resetting.

#### 4.2.6.6 Multibrew audit

```
Freevend audit
*Multibrew audit
Discount key audit
^      v    Sel  Esc
```

The Multibrew audit option makes it possible to view the number of drinks dispensed as multibrew and the total discount amount given on multibrew vends.

Sub menu	Description
MB. number, nres	Shows the total number of portions dispensed as multibrew since the machine was put into operation. (non resettable counter)
MB. turnover, nres	Shows the total amount of discount granted on multibrew vends since the machine was put into operation. (non resettable counter)
MB. number, res	Shows the total number of portions dispensed as multibrew since the last Sales audit resetting.
MB. turnover, res	Shows the total amount of discount granted on multibrew vends since the last Sales audit resetting.

#### 4.2.6.7 Discount key audit

```
Multibrew audit
*Discount key audit
Step prices audit
^      v    Sel  Esc
```

The Discount key audit option makes it possible to view the number of drinks dispensed and the amount given as discount on discount key vends.

Key discount is defined in the sub menu “Key discount” under Machine settings, see 4.2.10

Sub menu	Description
D. key number, nres	Shows the total number of drinks dispensed at a key discount since the machine was put into operation. (non resettable counter)
D. key turnover, nres	Shows the total key discount amount granted since the machine was put into operation. (non resettable counter)
D. key number, res	Shows the total number of drinks dispensed at a key discount since the last Sales audit resetting.
D. key turnover, res	Shows the total key discount amount granted since the last Sales audit resetting.

### 4.2.6.8 Step price audit

```
Discount key audit
* Step price counter
Reset counters
^      v      Sel  Esc
```

The Step price audit functions show the amounts that have been added to and deducted from the standard drink prices due to pre-selections.

Sub menu	Description
Sp turnover, nres (non-resettable counters)	<p>The first window "Step price, nres. (+)" shows the total amount that has been <i>added to</i> standard drink prices when customers have used a pre-selection button to increase strength, amount of sugar, whitener etc.</p> <p>The second window "Step price, nres. (-)" shows the total amount that has been <i>deducted from</i> standard drink prices when customers have used a preselection button to decrease strength, amount of sugar, whitener etc.</p>
Sp turnover, res (resettable counters).	Same as above, but resettable counters.

The the positive and negative amounts from the step price audit are balanced against the total turnover , see 4.2.6.1 Sales audit

### 4.2.6.9 Reset counters

```
Step prices counter
* Reset counters
Printing
^      v      Sel  Esc
```

The options of the Reset counters menu are described in this table.

Sub menu	Description
Reset sales audit	Resets the counters from the Sales audit, Cashless audit, Cup audit, Freevend audit, Multibrew audit, Discount key audit and Step price audit menus.
Reset Cash audit	Resets the registrations from the Cash audit menu, i.e. the amounts of money inserted into coin tubes and cash box plus the amount removed from the cash box if a such has been registered under Manual filling.

### 4. 2.6.10 Printing

```
Reset counters
* Printing
^      v      Sel  Esc
```

The Printing menu provides a number of different reports on turnover data and errors to print out on a printer connected to the machine.

The Printing menu is divided into two groups of counters, non-resettable and resettable, respectively:



- All reports printed from the sub menu “Not resettable” show the current status of the selected counters in totals summed up from the day the vending machine was taken into operation.
- All reports printed from the sub menu “Resettable” show the current status of the selected counters in totals summed up from the last time the counters were reset.

### Non resettable and Resettable counters

This table shows the options of the Printing menu. The sub menus Resettable and Not resettable are identical and are therefore described in the same table.

Sub menu	Description
Overall	Prints a report that includes all of the categories mentioned below.
Selections counters	Prints a report on a selection of counters including <ul style="list-style-type: none"> <li>• total number of drinks dispensed.</li> <li>• total number of drinks dispensed per type of drink.</li> </ul>
Time bands (this function still remains to be implemented)	Prints a report that corresponds to the “Selections counters” report (above) but divided into time bands.
Free vend	Prints a report on the number of free drinks dispensed.
Discounts	Prints a report on the total number of drinks sold at a discount and the total discount amount granted.
Errors	Prints a report on error messages registered in the Event book.  (Registrations in the Event book that are not considered errors are omitted from this report.)

Sub menu	Description
Cash audit	<p>Prints a report with details on the flow of cash in and out of the vending machine:</p> <ul style="list-style-type: none"> <li>• Money to tubes: See Cash audit 4.2.6.2.</li> <li>• Money to cash box: See Cash audit 4.2.6.2.</li> <li>• Collected money: See Cash audit 4.2.6.2.</li> <li>• Manually filled: See Cash audit 4.2.6.2</li> <li>• Manually delivered: See Cash audit 4.2.6.2.</li> <li>• Value overpay: See Cash audit 4.2.6.2</li> <li>• Dispensed change: Amount of change paid out to customers.</li> <li>• Value of bill in: Total amount of money inserted in the form of notes.</li> <li>• Revalued amount: See Cashless audit 4.2.6.3</li> <li>• Number of slugs: Number of false coins detected in the coin mechanism (applies to MDB coin mechanisms)</li> <li>• Number of token: Number of free drinks dispensed on tokens.</li> </ul>

All printed reports, furthermore, state the program versions, machine code, operator code and the date of installation. (See *Machine info 4.2.10.9* for further information.)

## 4.2.7 Cash action menu

### Introduction

The Cash action menu is used to set handling of coins:

### Options

The Cash action menu includes the following options:

- Cash collected, see 4.2.7.1
- Dispense coins, see 4.2.7.2
- Manual filling, see 4.2.7.3

### 4.2.7.1 Cash collected

The function of the Cash collected menu is described in this table.

```

----CASH ACTION----
* Cash collected
Dispense coins
A      V      Sel  ESC
  
```

Sub menu	Description
Cash collected	<p>The Cash collected option is used to electronically confirm the amount of money which is removed manually from the cash box.</p> <p>The cash amount removed is registered in the Cash audit menu under "Collected money", and, subsequently, the "Money to cash box" counter is reset to zero (4.2.6.2).</p>

### 4.2.7.2 Dispense coins

```

Cash collected
*Dispense coins
Manual filling
A      V      Sel  ESC
  
```

The Dispense coins option is used to manually pay out a number of coins from the coin tubes of the coin unit.

Note: The function is applicable if the vending machine is equipped with a BDV or an MDB/ICP coin mechanism. If the machine is equipped with an Executive coin unit, coins can be paid out from the coin tubes by pressing the coin dispense button on the coin unit.

Sub menu	Description
Dispense coins	<ol style="list-style-type: none"> <li>1. Select a coin number (1-16)</li> <li>2. Enter the number of coins (1-99) to be paid out. The coins are paid out into the coin return cup.</li> </ol>

### 4.2.7.3 Manual filling

The Manual filling function is described in this table.

Dispense coins  
\* Manual filling  
^ v Sel Esc

Note: The function is applicable only if the vending machine is equipped with a BDV or an MDB/ICP coin mechanism.

Sub menu	Description
Manual filling	<p>This function converts a cash sum inserted from normal credit to cash for change. The coins inserted are distributed to the appropriate tubes in the coin unit. If the tubes in question are full, the coins are routed into the cash box.</p> <p>The inserted cash amount is recorded under "Manually filled" in the Cash Audit menu (4.2.6.2).</p>

## 4.2.8 Basic operations menu

### Introduction

The Basic operations menu is used for price settings.

### Options

The Basic operations menu includes the following options:

- Change prices, see 4.2.8.1
- Change quantities, see 4.2.8.2
- **Drink On/Off**, see 4.2.8.3

### 4.2.8.1 Change prices

Settings of global and individual prices of drinks and cup prices are described in this table.

```

-BASIC OPERATIONS--
* Change prices
  Change quantities
  A      V    Sel  ESC
  
```

Sub menu	Description
Global price	<p>This function makes it possible to set one price which will apply to all drinks.</p> <p>Subsequently, prices of individual drinks can be changed if required. See "Price per drink" below.</p> <p>If individual prices have been set prior to the setting of the Global price, the price of the first drink will be suggested when you enter the "Global price" function.</p> <p><b>Note:</b> All individual price settings will be overwritten when you set a global price.</p>
Price per cup	<p>A separate price for dispensed cups can be set in this menu.</p> <p>The cup price will be added to the total drink price when customers buy a drink not using own cup.</p>
Price per drink	<p>Prices for each of the drinks available in the machine are set or changed in this menu.</p>

Sub menu	Description
Step prices	<p>A step price will be added to or subtracted from the standard price every time a customer presses a pre-selection button one or more times to increase or decrease the default setting of strength, amount of whitener or sugar, etc.</p> <p>Step prices can be set for individual drinks and pre-selections or as global step prices applying to all drinks and pre-selections.</p> <p>The step prices function is divided into four sub menus:</p> <ol style="list-style-type: none"> <li><i>1. Price On/Off:</i> If 'On' is selected, selling of drinks at graduated prices according to pre-selections, e.g. strength, is enabled.</li> <li><i>2. Set step price</i> Setting of step prices for individual drinks and pre-selections. <ol style="list-style-type: none"> <li>1. Select a drink.</li> <li>2. Select pre-selection group, 1-4 (+) or 1-4 (-), where 1(+) and 1(-) corresponds to the leftmost pre-selection button on the payment panel. Select a group number with a '+' to define a price to be <i>added</i> to the standard price, and select a group number with a '-' to define a price to be <i>subtracted</i> from the standard price.</li> <li>3. Enter a step price for the selected group.</li> </ol> </li> <li><i>3. Global step price (+)</i> Enter a common step price that will be <i>added</i> to the standard prices of all available drinks no matter which pre-selection button is pressed.</li> <li><i>4. Global step price (-)</i> Enter a common step price that will be <i>subtracted</i> from the standard prices of all available drinks no matter which pre-selection button is pressed.</li> </ol> <p><i>Note: Setting of global step prices will overwrite all step prices that may have been set for individual drinks.</i></p>

## How to set a price

The way prices are entered or changed is explained on page 3 in the section 4.1.2 Button functions.

### 4.2.8.2 Change quantities

The function of the Change quantities menu is described in this table.

```
Change prices
* Change quantities
Drink On/Off
^      v    Sel  Esc
```

Sub menu	Description
Change quantities	Quantities of water and ingredient powder for each drink available can be adjusted in this menu.

### 4.2.8.3 Drink On/Off

The function of the Drink On/Off menu is described in this table.

```
Change quantities
* Drink On/Off
^      v    Sel  Esc
```

Sub menu	Description
Drink On/Off	<p>By setting individual drinks to 'Off' they are made temporarily unavailable.</p> <p>If a user presses the button of a drink which has been turned off, the display will read "Product not available."</p>

4.2.9 Service information menu

Introduction Detailed information about operation errors and events is registered in the Service information menu.

Furthermore, information about the machine’s software program versions is found in this menu.

- Options The Service information menu includes the following options:
- Event log book, see 4.2.9.1.
  - Reset log book, see 4.2.9.2.
  - Program versions, see 4.2.9.3.

4.2.9.1 Event log book

The structure of the Event log book is explained in this table.



Sub menu	Description
Event log book	<p>Each operation error or unexpected event is registered in the event log.</p> <div><p>Temperature low*</p><p>F:DDMMYY HH.MM</p><p>L:DDMMYY HH.MM (XX)</p><p>^ v Sel Esc</p></div> <p>F = First time of occurrence L = Last time of occurrence DDMMYY = Day month year HH.MM = Time (XX) = Number of times the error has occurred.</p> <p>Please refer to Chapter 3 “Faults” for an explanation of the messages that may occur in the Event log book and suggestions for remedy.</p>



### 4.2.9.2 Reset log book

The function of the Reset log book menu is described in this table.

```
SERVICE INFORMATION
*Reset log book
Program versions
A      V    Sel  Esc
```

Sub menu	Description
Reset log book	Deletes all errors and events registered in the Event log book.  Note: Errors that are still active will not be deleted from the log book.

### 4.2.9.3 Program versions

The sub menu available in the Program versions menu is described in this table.

```
SERVICE INFORMATION
*Program versions
A      V    Sel  Esc
```

Sub menu	Description
Program versions	Shows the program versions of the software installed in the machine, i.e., CPU, SPC, VMC and FB (fresh brewer.)

## 4.2.10 Machine settings menu

**Introduction** The Machine settings menu allows for setting the machine according to individual preferences.

**Options** The Machine settings menu includes the following options:

- Set freevend, global, see 4.2.10.1
- Set beep mode, see 4.2.10.2
- Clock on display, see 4.2.10.3
- Temp. on display, see 4.2.10.4
- Set rinse time, see 4.2.10.5
- Set rinse day(s), see 4.2.10.6
- Set date and time, see 4.2.10.7
- Set key discount, see 4.2.10.8
- Machine info, see 4.2.10.9
- **Energy saving periods, see 4.2.10.10**

### 4.2.10.1 Set freevend, global

The Set freevend, global option is explained in this table.

```
-MACHINE SETTINGS--
*Set freevend, global
Set beep mode
^      v      Sel  Esc
```

Sub menu	Description
Set freevend, global	By selecting 'On', the machine is set to dispense all drinks for free.

### 4.2.10.2 Set beep mode

The Set beep mode option is explained in this table.

```
Set freevend, global
*Set beep mode
Clock on display
^      v      Sel  Esc
```

Sub menu	Description
Set beep mode	By selecting 'On', the machine is set to give a beep signal <ul style="list-style-type: none"> <li>• every time a button is pressed in the menu system</li> <li>• when the machine has finished dispensing a drink.</li> </ul>

### 4.2.10.3 Clock on display

The Clock on display option is explained in this table.

```
Set beep mode
*Clock on display
Temp. on display
^      v      Sel  Esc
```

Sub menu	Description
Clock on display	Select 'On', to have the display show the time (hour and minute) when the machine is in vend mode.  <i>(To set the time, please refer to section 4.2.10.7 "Set date and time".)</i>

#### 4.2.10.4 Temp. on display

The Temp. on display option is explained in this table.

```

Clock on display
*Temp. on display
Set rinse time
^      v    Sel  Esc

```

Sub menu	Description
Temp. on display	Select 'On', to have the display show the current water temperature when the machine is in vend mode.

#### 4.2.10.5 Set rinse time

The Set rinse time option is described in this table.

```

Set beep mode
*Set rinse time
Set rinse day(s)
^      v    Sel  Esc

```

Sub menu	Description
Period 1 - Period 7	Up to seven automatic rinse periods can be set in the machine. In this menu time (hours and minutes) for each period is defined. The time is set in 24-hour format. Note: The setting 00.00 means that the period in question will be inactive.  The weekday to be connected with the time set for the corresponding period is set in the menu "Set rinse day(s)" 4.2.10.6.  <i>See also explanation in the section "Automatic rinse periods" below".</i>

### 4.2.10.6 Set rinse day(s)

The Set rinse day(s) option is described in this table.

```
Set rinse time
*Set rinse day(s)
Set date and time
^      v      Sel  Esc
```

Sub menu	Description
Period 1 - Period 7	<p>Up to seven automatic rinse periods can be set in the machine.</p> <p>In this menu days are defined:</p> <p>0 = Monday 1 = Tuesday etc. 7 = All (every day of the week).</p> <p>The time (hours and minutes) to be connected with the weekday of the corresponding period is set in the menu "Set rinse time" 4.2.10.5.</p> <p><i>See also explanation in the section "Automatic rinse periods" below".</i></p>

#### Automatic rinse periods

The machine can be set to perform automatic rinse procedures at fixed intervals. Up to seven periods can be defined.

Setting a period means scheduling the machine to run an automatic rinse procedure at a specific time on a given day of the week. The time and days are set in separate functions.

The time is set in the menu "Set rinse time", see 4.2.10.5 above.  
The days are set in the menu "Set rinse day(s)", see 4.2.10.6 above.

#### Example

Period 1 is set to 23.00 hours in "Set rinse time" and to Monday in "Set rinse day".

Result: Automatic rinse for Period 1 will be performed on Mondays at 23:00 hours.

Period 2 is set to 23.00 hours in "Set rinse time" and to Thursday in "Set rinse day".

Result: Automatic rinse for Period 2 will be performed on Thursdays at 23:00 hours.

If rinsing is required at the same hour every day of the week, it is enough to define one period and set days to "All".

### 4.2.10.7 Set date and time

The Set date and time option is described in this table.

```
Set rinse day(s)
*Set date and time
Set key discount
^      v    Sel  Esc
```

Sub menu	Description
Set year	Setting of year (two digits), e.g. 03
Set month	Setting of month, e.g. 04
Set day	Setting of day, e.g. 12
Set hour	Setting of hour, e.g. 11
Set minute	Setting of minute, e.g. 42

### 4.2.10.8 Set key discount

The key discount option is described in this table.

```
Set date and time
*Set key discount
Machine info
^      v    Sel  Esc
```

Sub menu	Description
Set key discount	<p>The key discount option makes it possible to set a percentage rate which is given as a discount on all drinks when the discount key is used during a vend.</p> <p>Example: A setting of 20 results in a discount of 20% when the key discount is activated.</p> <p>A setting of 100 means free vend.</p> <p><i>(See also "Key discount and Multibrew settings" on page 65.)</i></p>

### 4.2.10.9 Machine info

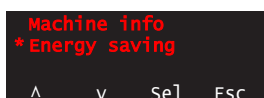
The Machine info option is described in this table.

```
Set key discount
*Machine info
Energy saving
^      v    Sel  Esc
```

Sub menu	Description
Machine code	<p>A machine code can be entered to give the machine a unique number for identification when retrieving data electronically.</p> <p>The number will be written on printed reports (see section 4. 2.6.10 Printing).</p>
Operator code	<p>A number identifying the operator can be entered for identification when retrieving data electronically.</p> <p>The number will be written on printed reports (see section 4. 2.6.10 Printing).</p>
Show install date	<p>Shows the date of installation of the machine as recorded under "Set install date", see below.</p> <p>The number will be written on printed reports (see section 4. 2.6.10 Printing).</p>

Sub menu	Description
Set install date	This option makes it possible to record the date of installation. Pressing 'OK' will enter today's date in the system.

#### 4.2.10.10 Energy saving periods



To save energy, the machine can be set to lower the water temperature over a certain time period at fixed intervals. Up to seven energy saving periods can be set in the machine.

The following table describes the options of the Energy saving function.

See also explanation in the section “Setting energy saving periods” below.

Sub menu	Description
Save energy On/Off	If Save energy is set to “Off”, no energy saving periods will be active. If Save energy is set to “On”, the energy saving function will be active in the defined periods.
Set day(s)	Up to seven automatic rinse periods can be set in the machine. In this menu days are defined:  The setting of day(s) is carried out in two steps: 1. Select a period (1-7). 2. Set the start day and end day for the selected period. 0 = Monday 1 = Tuesday etc. 7 = All (every day of the week).
Set time	In this menu time (hours and minutes) for each period is defined.  The setting of time is carried out in two steps: 1. Select a period (1-7). 2. Set the start time and end time for the selected period. The time is set in 24-hour format.
Set temperature	In this menu the required low temperature is set, e.g 65° C. The water temperature will lower to this temperature during the defined periods.

Sub menu	Description
Set doorlight	If this option is set to "On", the light in the machine door will be turned off during the energy saving periods. If the option is set to "Off", the light will stay on during the energy saving periods.

### Setting energy saving periods

- Seven energy saving periods can be programmed on a weekly basis: the week days are identified by progressive numbers: (0=Monday, 1=Tuesday, etc.) and all weekdays (ALL=7).
- The same time period cannot include days from different weeks, i.e. a period cannot be set from Monday to Monday.
- A period cannot have a 'start time' later than the 'end time', see Non Example 2.
- If the periods are set overlapping, the energy saving will be active for as long as it is covered by one of these periods, cf. Example: Period 3.
- Two energy savings in a period require two period settings, cf. Example: Period 1 and 2.
- Non Examples 1 and 2 describe settings which will give unintended results.

### Example

The vending machine is to run Monday to Friday from 07:00 till 22:00. The remaining time of the week and during the weekend the machine is set to energy saving. Three periods have to be set as follows:

<b>Period 1</b>			
Set start day	ALL=7	Set start time	22:00
Set end day	ALL=7	Set end time	23:59
Result: The machine is 'shut down' from Midnight 00:00 till 07:00 in the morning the same day.			
<b>Period 2</b>			
Set start day	ALL=7	Set start time	00:00
Set end day	ALL=7	Set end time	07:00
Result: The machine is 'shut down' every day from 22:00 till Midnight the same day.			
<b>Period 3</b>			
Set start day	Fr=4	Set start time	22:00
Set end day	Su=6	Set end time	23:59
Result: The machine is shut down from Friday evening at 22:00 till Sunday evening at 23:59.			

## Non example 1

Period 1			
Set start day	Mo=0	Set start time	22:00
Set end day	Fr=4	Set end time	07:00
Result: The machine will be 'shut down' Monday at 22:00 till Friday at 07:00 which was not the intention.			

## Non example 2

Period 1			
Set start day	All=7	Set start time	22:00
Set end day	All=7	Set end time	07:00
Result: The machine is not 'shut down' as the <i>end time</i> must not be earlier than the <i>start time</i> for the same 'day' or 'ALL'.			

## Note

If a selection button is activated during an energy saving period, the machine leaves the energy saving mode and returns to vend mode. As soon as the temperature in the water tank has reached the 'nominal temperature', the selected drink is dispensed.

When the selection buttons have been left untouched for more than 10 minutes after the last drinks dispensing, and an energy saving period is still in force, the machine returns to the energy saving mode.



## 4.3 Technician menu

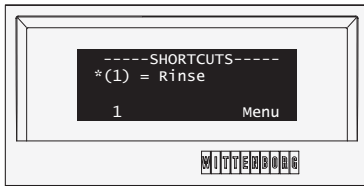
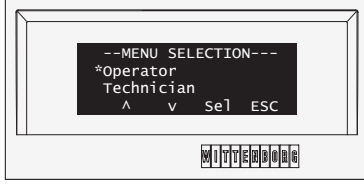
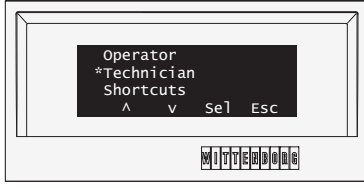
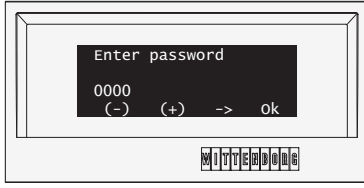
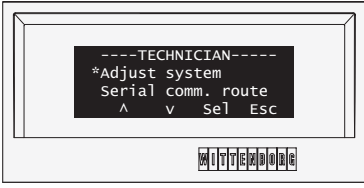
### 4.3.1 Purpose of the Technician menu

**Purpose** The Technician menu is intended for trained service technicians who have gone through the product training courses of this vending machine.

### 4.3.2 How to access the Technician menu

**Accessing the Technician menu**

Follow the steps below to access the Technician menu.

Step	Action	
1.	Unlock and open the door.  The display now shows a short cut selection window.	
2.	Press 'Menu' to proceed to the "MENU SELECTION" window.  The selection marker "*", by default, is placed next to "Operator".	
3.	In the "MENU SELECTION" window, press "v" once to move to "Technician".	
4.	Enter password, and press 'OK'.	
5.	Press 'Sel' to enter the Technician menu.	

Returning to vend  
mode

- 
- 1 Close the door. Turn the key anticlockwise to lock the door
  - 2 Press 'Esc' once. Wait for approximately 30 seconds till the machine is back in vend mode.

### 4.3.3 Sub menus of the Technician menu

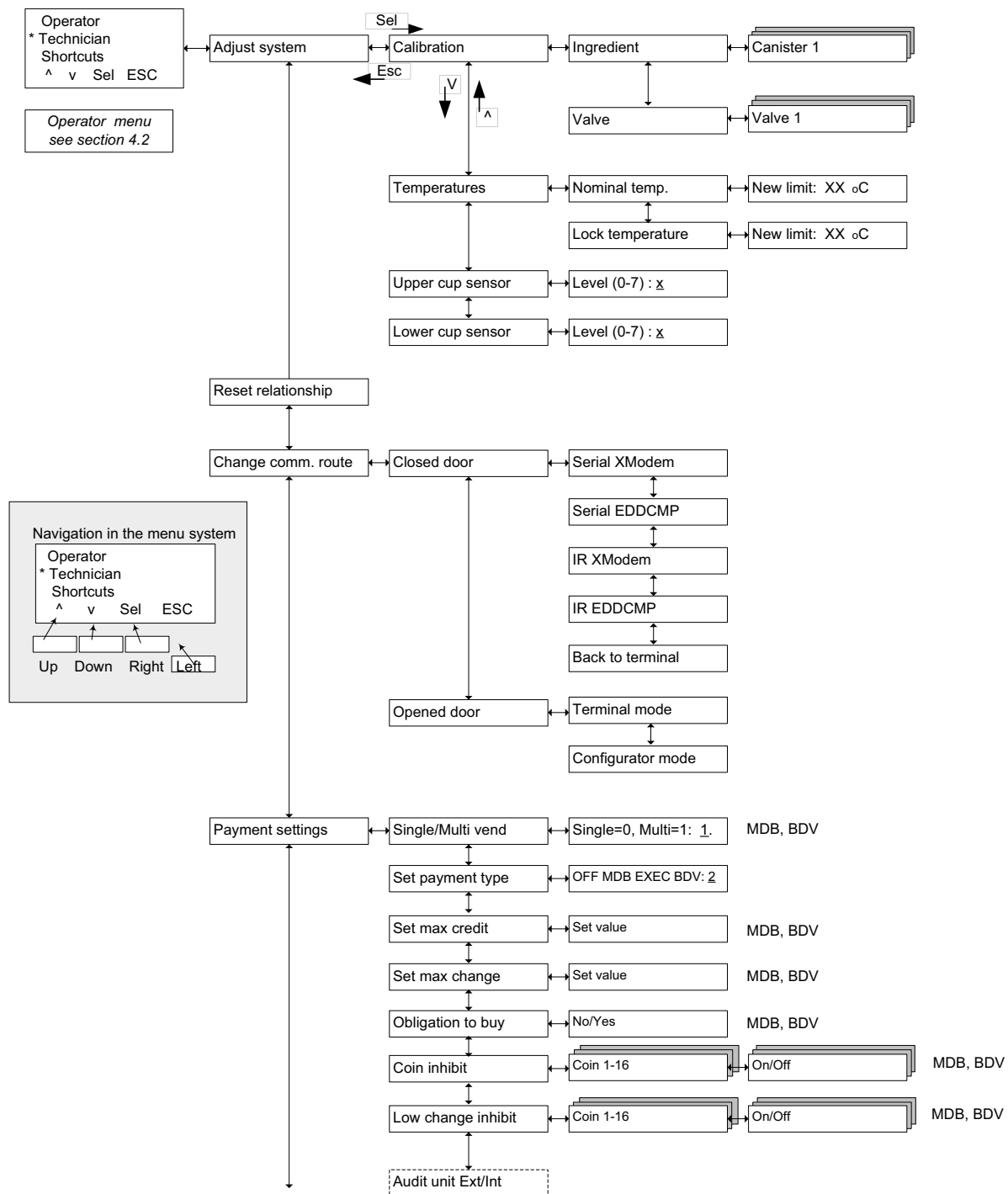
#### Presentation

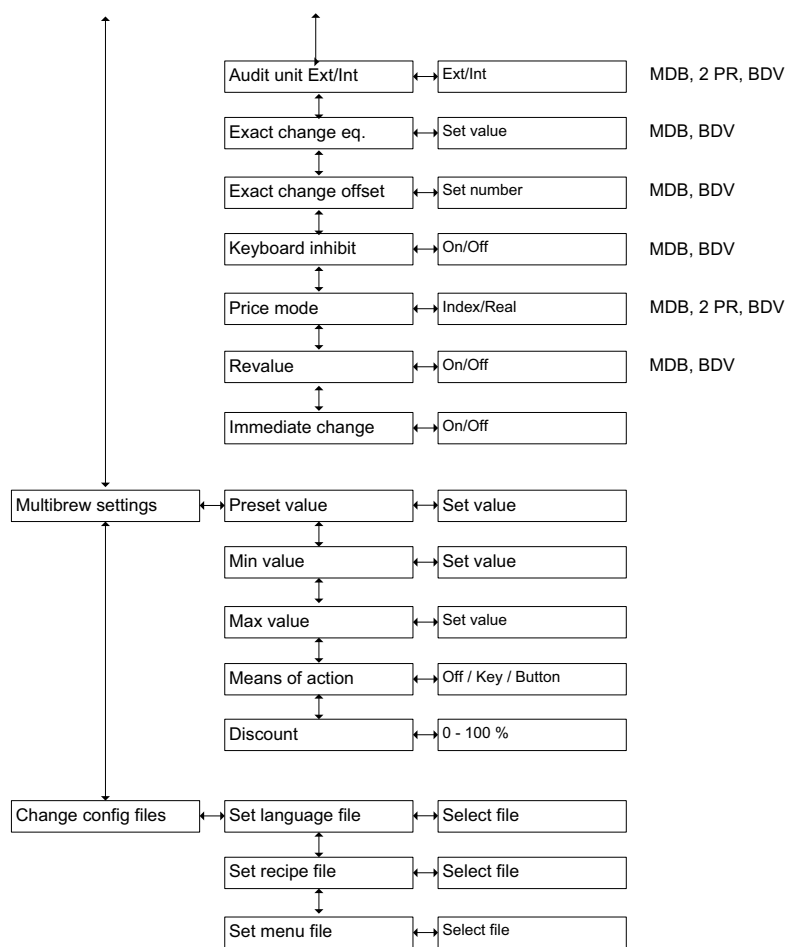
This table gives a short presentation of the main contents of the Technician menu.

Menu	Description
Adjust system	<ul style="list-style-type: none"><li>• For calibration of valves and ingredients.</li><li>• Water temperature settings</li></ul>
Reset relationship	Removal of electronic lock between vending machine and portable data collector.
Change comm. route	To define the mode of data read-out to a pc or a hand-held terminal (via infrared or cable).
Payment settings	Handling of payment, e.g. coin mechanisms and multi vend/single vend.
Multibrew settings	Setting of the multibrew function (number of portions, means of activation, and discount).
Change config. files	Changing of language, recipe and menu files.

### 4.3.4 Technician menu flow

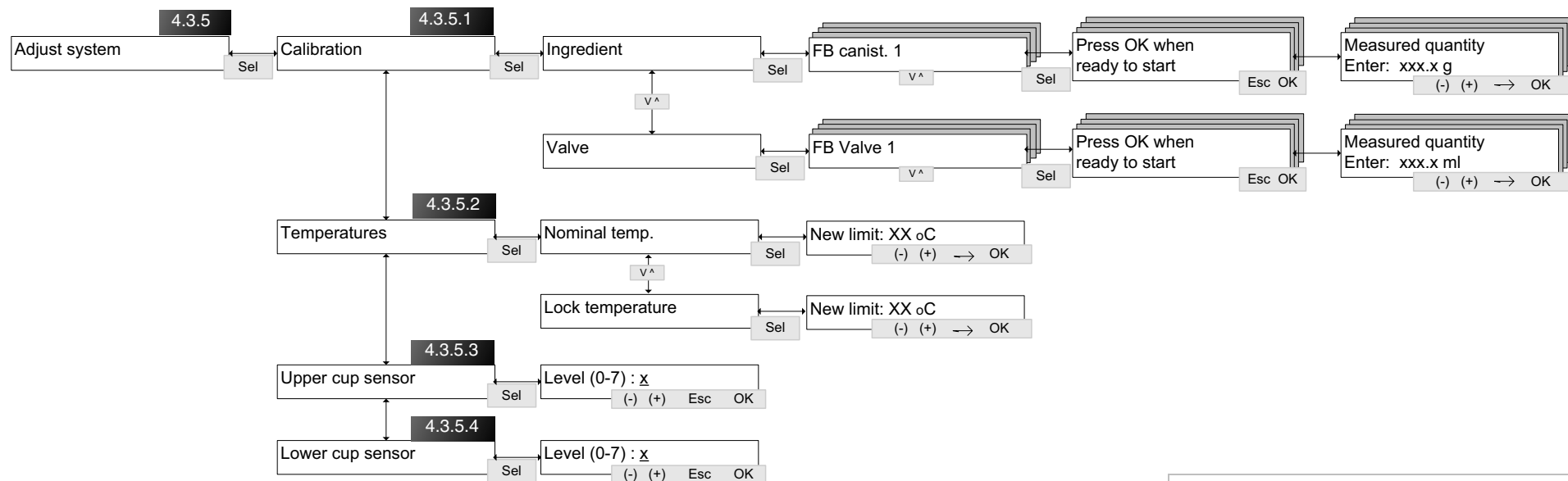
This diagram displays the full flow of the Technician menu.





The page shows the full layout of the of Adjust system options in the Technician menu. For further information about the menus, please refer to sections indicated by numbers in black boxes.

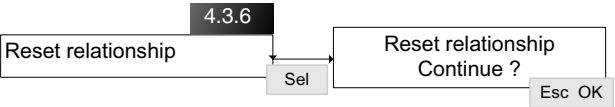
## Adjust system menu



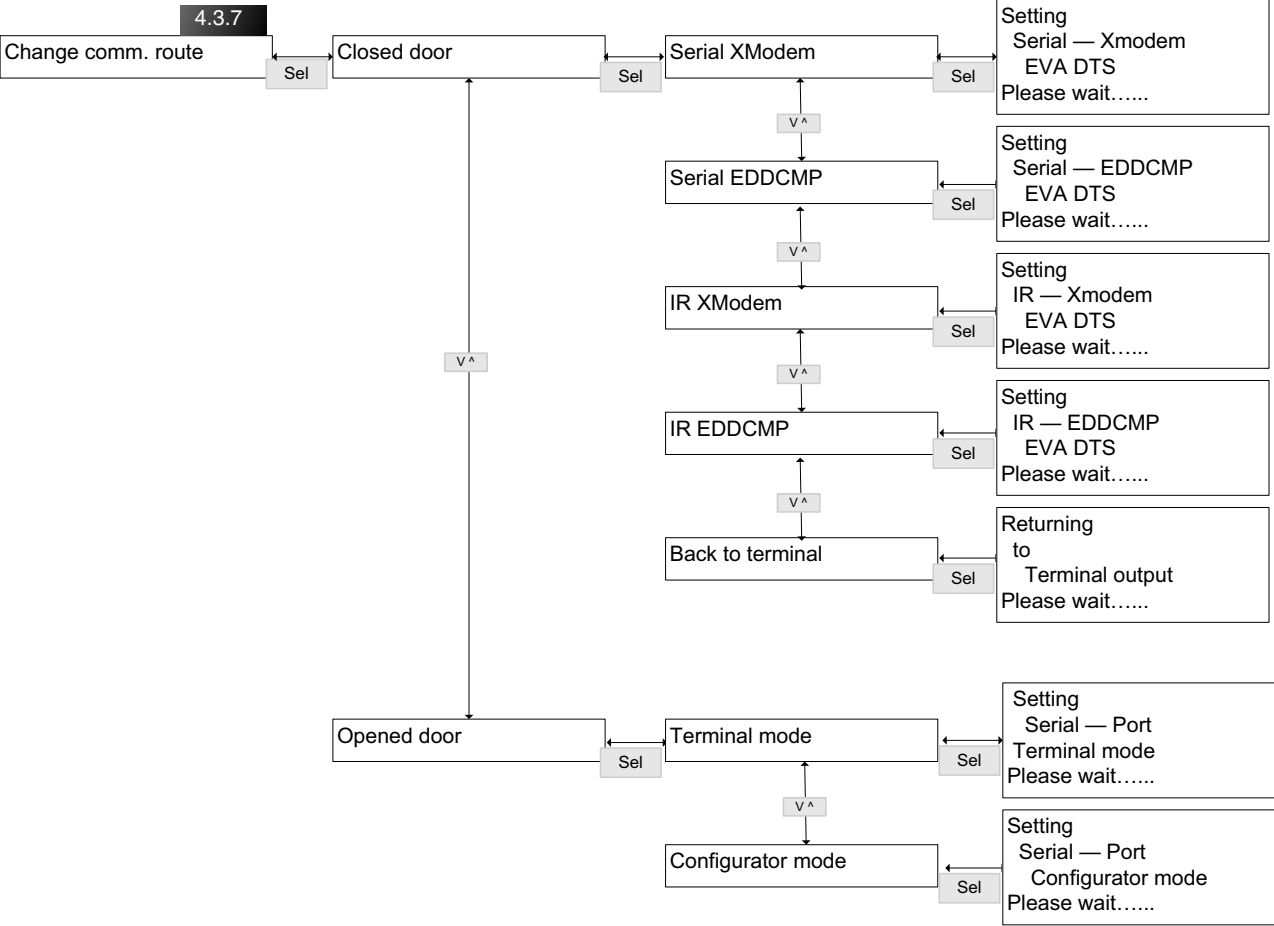
### Short cuts for pc users

If viewing the manual on-screen in a pc version, simply click on one of the numbers in black boxes to go directly to the section that describes the menu in question.

Reset relationship menu

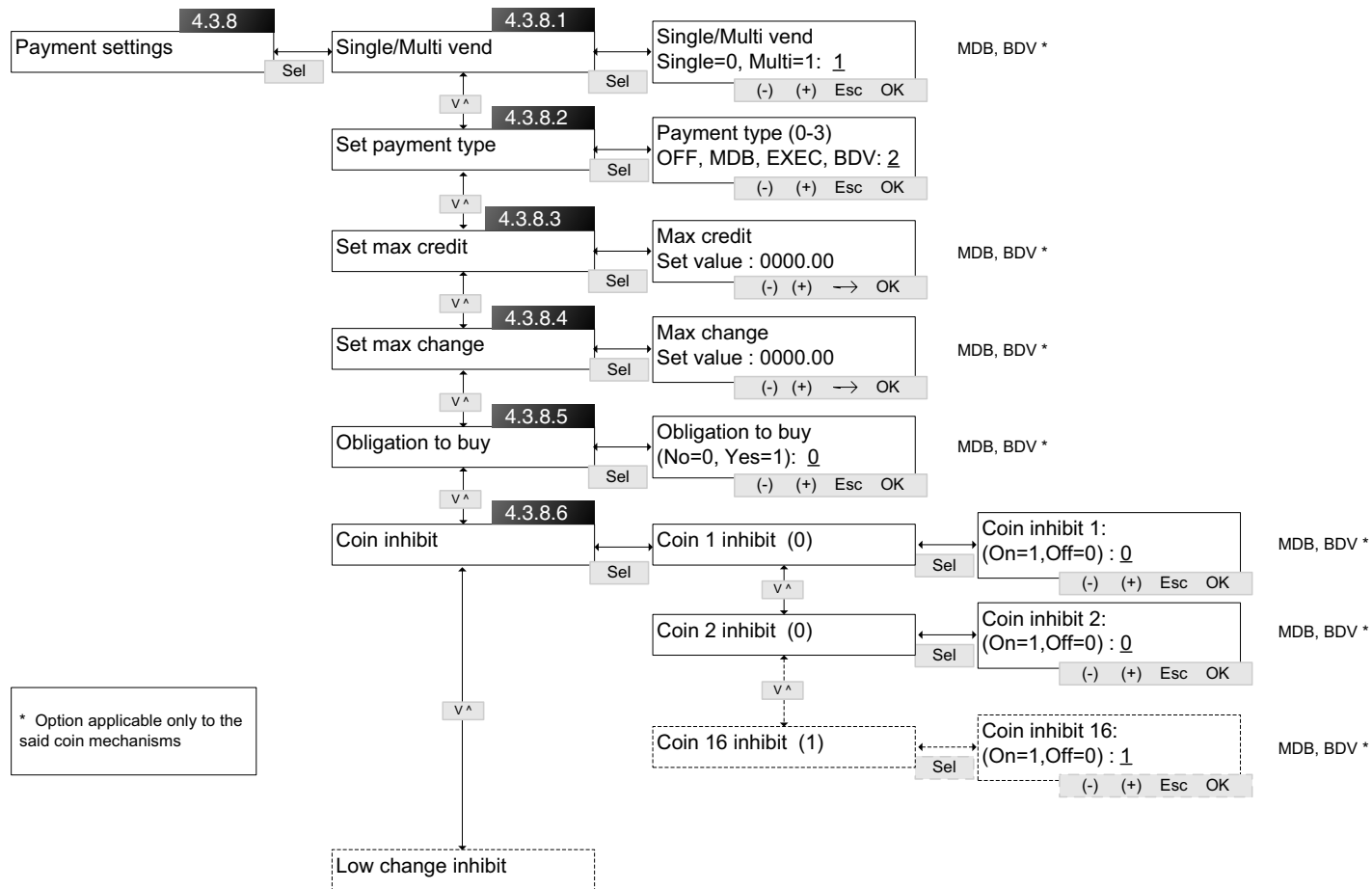


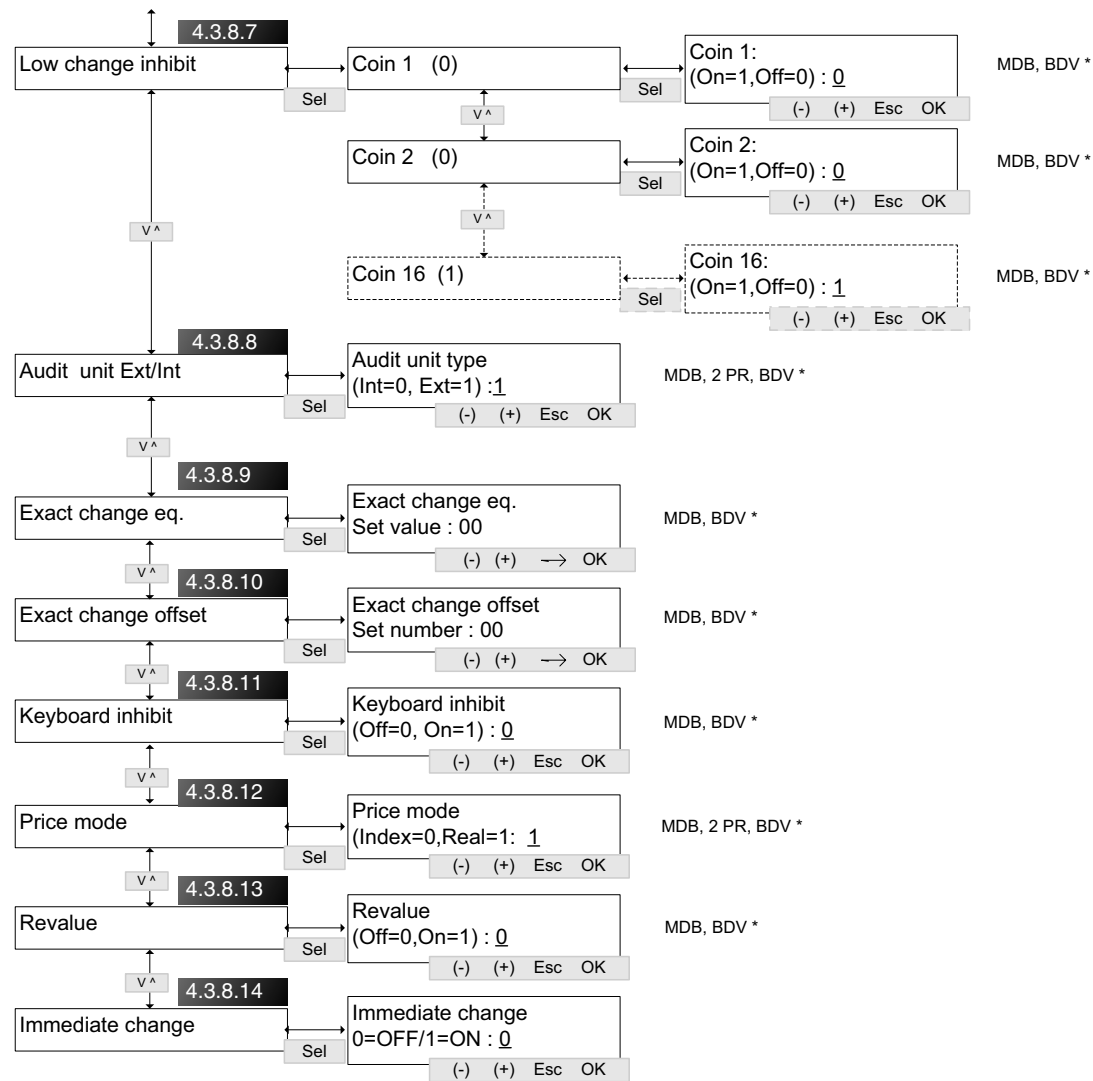
Change comm. route menu





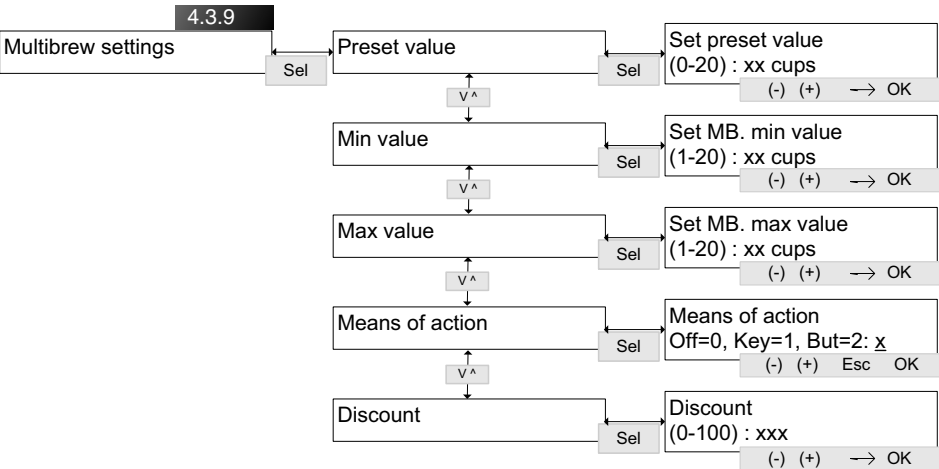
## Payment settings menu



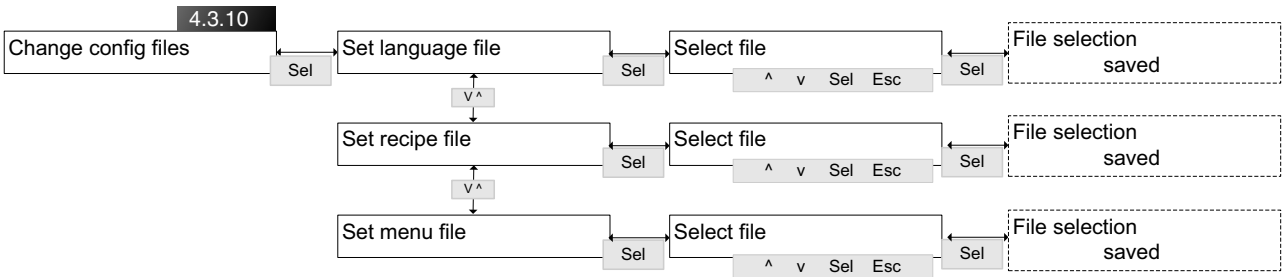


\* Option applicable only to the said coin mechanisms

Multibrew settings menu



Change config files menu



## 4.3.5 Adjust system menu

**Introduction** The Adjust system menu makes it possible to calibrate the valves and canisters.

**Options** The Adjust system menu includes the following options:

- Calibration, see 4.3.5.1
- Temperatures, see 4.3.5.2
- Upper cup sensor, see 4.3.5.3
- Lower cup sensor, see 4.3.5.4

### 4.3.5.1 Calibration

```

---ADJUST SYSTEM---
* Calibration
Temperatures
^   v   Sel   Esc
  
```

This table describes the options of the Calibration menu.

Sub menu	Description
Ingredient	Calibration of the amounts of ingredients delivered from the canisters. The amounts are measured in mg per second.
Valve	Calibration of the amounts of water delivered through the FB valve, the IN valves and the hot and cold water valves. The amounts are measured in ml per second.

- Have beaker graduated in ml ready for calibration of valves.
- Have cup and a pair of scales ready for calibration of ingredients.
- Press 'Sel' to select a valve or canister.
- Press 'OK' to start the calibration
- Adjust value if the shown amount deviates from the measuring.

### 4.3.5.2 Temperatures

```

Calibration
* Temperatures
Upper cup sensor
^   v   Sel   Esc
  
```

This table describes the options of the Temperatures menu.

Sub menu	Description
Nominal temp.	Setting of maximum water temperature in the boiler. Default settings are: For freshbrew machines: 95 °C. For instant machines: 84°

Sub menu	Description
Lock temperature	<p>Setting of low temperature limit, e.g. 85 °C. If the water temperature reaches the low temperature limit or falls below it, dispensing of drinks is blocked until the water is sufficiently heated again.</p> <p>(The message "Temperature low" is shown in the display for as long as the machine is not operable.)</p>

#### 4.3.5.3 Upper cup sensor

```

Temperatures
*Upper cup sensor
Lower cup sensor
^ v Sel Esc

```

This table describes the Upper cup sensor option.

Sub menu	Description
Upper cup sensor	<p>The sensitivity of the infrared upper cup sensor can be adjusted to fit the transparency of the cups used.</p> <p>The sensitivity strengths go from 0 to 7. The higher the value, the harder it is to detect a transparent cup or a cup made of a thin material. Default setting is 3.</p> <p><i>The upper cup sensor is used to control the stop level of the cup elevator according to the height of an inserted or dispensed cup.</i></p>

#### 4.3.5.4 Lower cup sensor

```

Upper cup sensor
*Lower cup sensor
^ v Sel Esc

```

This table describes the Lower cup sensor option.

Sub menu	Description
Lower cup sensor	<p>The sensitivity of the infrared lower cup sensor can be adjusted to fit the transparency of the cups used.</p> <p>The sensitivity strengths go from 0 to 7. The higher the value, the harder it is to detect a transparent cup or a cup made of a thin material. Default setting is 3.</p> <p><i>The lower cup sensor detects whether the customer inserts own cup or jug or the machine should dispense a cup.</i></p>

### 4.3.6 Reset relationship menu

Introduction

The Reset relationship menu is used to unlock a specific portable data carrier from the vending machine.

*The first time a data carrier is used with the vending machine, it is electronically locked to the machine in order to protect data from being retrieved and reset by other data carriers.*



Sub menu	Description
Reset relationship Continue?	Press 'OK' to remove the electronic lock between vending machine and data carrier.

### 4.3.7 Change comm. route menu

#### Introduction

The Change comm. route menu is used to set the mode of data read-out to a pc or a hand held terminal. Data can be retrieved via infrared connection or via a serial data cable

#### 4.3.7.1 Change comm. route



This table describes the options of the Change comm. route menu.

First, select 'Closed door' or 'Opened door' depending on the type of data retrieval device.

Secondly, select the communication route.

Sub menu	Description
Closed door (key switch activated)	<p>Serial XModem For data retrieval via a serial data cable and XModem protocol.</p> <p>Serial EDDCMP: For data retrieval via a serial data cable and EDDCMP.</p> <p>IR XModem: For data retrieval via infrared connection and XModem protocol.</p> <p>IR EDDCMP: For data retrieval via infrared connection and EDDCMP.</p> <p>Back to terminal: This option is used to enable communication between the vending machine and a pc, e.g. to change the setup of data in the machine.</p>
Opened door (key switch deactivated)	<p>Terminal mode: This option is used to enable communication between the vending machine and a pc, e.g. to change the setup of data in the machine.</p> <p>Configurator mode For data retrieval via a PSION handheld terminal or configurator tool.</p>

## 4.3.8 Payment settings menu

### Introduction

The Payment system menu allows for handling of payment, e.g. coin mechanisms and multi vend/single vend.

### Options

The Payment system menu includes the following options:

- Single/Multi vend, see 4.3.8.1
- Set payment type, see 4.3.8.2
- Set max credit, see 4.3.8.3
- Set max change, see 4.3.8.4
- Obligation to buy, see 4.3.8.5
- Coin inhibit, see 4.3.8.6
- Low change inhibit, see 4.3.8.7
- Audit unit Int/Ext, see 4.3.8.8
- Exact change eq., see 4.3.8.9
- Exact change offset, see 4.3.8.10
- Keyboard inhibit, see 4.3.8.11
- Price mode, see 4.3.8.12
- Revalue, see 4.3.8.13
- Immediate change, see 4.3.8.14

### 4.3.8.1 Single/Multi vend

This option is used to switch between the two options Single and Multi vend.

```
-PAYMENT SETTINGS--
*Single/Multi vend
Set payment type
^      v    Sel  Esc
```

Sub menu	Description
Single/Multi vend	<p>The machine can be set for either single or multi vend:</p> <p><i>Single vend:</i> Possible change is returned or the card released after each vend.</p> <p><i>Multi vend:</i> Several drinks may be purchased one after the other from one cash or card payment as long as sufficient credit is available.</p>



### 4.3.8.2 Set payment type

```

Single/Multi vend
*Set payment type
Set max credit
^      V    Sel  Esc

```

This option is used to define the payment type, ie the type of coin mechanism in the vending machine.

Sub menu	Description
Payment type (0-3)	Setting of the coin mechanism type available in the machine. Options: 0 = OFF (no coin mechanism) 1 = MDB 2 = EXEC (Executive) 3 = BDV

### 4.3.8.3 Set max credit

```

Set payment type
*Set max credit
Set max change
^      V    Sel  Esc

```

This option is used to set an amount for the maximum allowed credit.

Sub menu	Description
Set max credit	Definition of the maximum amount which can be inserted in one vend when the system is set to multi-vend.

### 4.3.8.4 Set max change

```

Set max credit
*Set max change
Obligation to buy
^      V    Sel  Esc

```

This option is used to set an amount for the maximum allowed change.

Sub menu	Description
Set max change	Definition of the maximum amount which the coin mechanism can return after a vend when the system is set to multi-vend.  If the coin credit remaining following a multi-vend is greater than the programmed max change value, no change will be paid out. The full credit will be retained until further purchases are made reducing the credit below the maximum change level.

#### 4.3.8.5 Obligation to buy

```

Set max change
*Obligation to buy
Coin inhibit
^      v    Sel  Esc

```

This option is used to set the Obligation to buy option on or off.

Sub menu	Description
Obligation to buy	If this option is set to "On", the customers have to make at least one vend before the coin mechanism will return the change. The purpose of the function is to prevent that the vending machine be used as a change giver.

#### 4.3.8.6 Coin inhibit

```

Obligation to buy
*Coin inhibit
Low change inhibit
^      v    Sel  Esc

```

This option is used to set the Coin inhibit status for the individual coin values in the coin unit.

Sub menu	Description
Coin inhibit (1-16)	The coin inhibit option makes it possible to set the coin unit to reject coins that are normally accepted in the coin unit. "Coin 1" is the lowest-value coin. Status for up to 16 coin values can be defined.

#### 4.3.8.7 Low change inhibit

```

Coin inhibit
*Low change inhibit
Audit unit install.
^      v    Sel  Esc

```

This option is used to set the Low change inhibit status for individual coins.

Sub menu	Description
Low change inhibit (1-16)	The Low change inhibit option makes it possible to set the coin unit to reject coins that are normally accepted when the stock of coins in the coin tubes run low. "Coin 1" is the lowest-value coin. Status for up to 16 coin values can be defined.

#### 4.3.8.8 Audit unit Ext/Int

```
Audit unit install.
* Audit unit Ext/Int.
Exact change eq.
^      v      Sel  Esc
```

This option is used to shift between the activation of an internal and an external audit unit.

Sub menu	Description
Audit unit Ext/Int	<p>If an external audit unit has been installed, it must be activated through this option.</p> <p>Once activated, the external unit will take over all handling of audit data sent from the coin mechanism, and at the same time the standard internal unit will be deactivated.</p> <p>Select "Ext" to activate the external audit unit. Select "Int" if you want to deactivate the external audit unit and go back to using the machine's internal audit unit.</p>

#### 4.3.8.9 Exact change eq.

```
Audit unit Ext/Int
* Exact change eq.
Exact change offset
^      v      Sel  Esc
```

This option is used to set parameters for the exact change equation.

Sub menu	Description
Exact change eq.	<p>The purpose of the Exact change equation option is to specify the preconditions for when the coin unit should switch to "Coin tubes empty" mode and the vending machine displays "Use exact change".</p> <p>Choose a value between 0 and 15 according to the combinations of tube empty states as defined in the manual of the coin unit.</p>

#### 4.3.8.10 Exact change offset

```
Exact change eq.
* Exact change offset
Keyboard inhibit
^      v      Sel  Esc
```

This option is used to set parameters for the exact change offset.

Sub menu	Description
Exact change offs.	<p>The “Exact change offset” option renders the possibility of adding a number of coins to the preprogrammed empty numbers in the coin tubes in order that the customer is requested to insert the exact amount before the coin unit switches to “Coin tubes empty” mode. (See 4.3.8.9 “Exact change equation”).</p> <p>Example: The Exact change offset is set to 10. The Exact change equation (4.3.8.9) is set to ‘A and B only’, (i.e. when the coin tubes A and B run low, the machine will assume a “Coin tubes empty” state).</p> <p>Result: When the amount of coins in the tubes A or B is down to 10 above the empty mark, the customer will be requested to insert exact change.</p>

#### 4.3.8.11 Keyboard inhibit.

```
Exact change offs.
*Keyboard inhibit
Price mode
^      v      Sel  Esc
```

The Keyboard inhibit option is used to activate or deactivate the keyboard of the coin unit

Sub menu	Description
Keyboard inhibit.	<p>If the coin unit is equipped with a keypad, it is possible to deactivate it.</p> <p>Select “On” to deactivate the keyboard.</p>

#### 4.3.8.12 Price mode

```
Keyboard inhibit
*Price mode
Revalue
^      v      Sel  Esc
```

This option is used to select one of the price setting modes, Index or Real.

Sub menu	Description
Price mode	<p>The choice of Price mode depends on whether prices are set in the coin unit or directly in the price settings menu, “Change prices”:</p> <p><i>Index:</i> Prices for each drink are defined in the coin unit and only the numbers to which each drink is relating in the coin unit are defined in the price settings menu.</p> <p><i>Real:</i> The actual prices for each drink are entered in the price settings menu “Change prices”.</p>

### 4.3.8.13 Revalue

```
Price mode
* Revalue
Immediate change
^  v  Sel  Esc
```

This option is used to activate or deactivate the card revaluation option.

Sub menu	Description
Revalue	<p>The Revalue option makes it possible to let customers add value to the credit amount on their cards.</p> <p>Select "On" to enable the Revalue option.</p>

### 4.3.8.14 Immediate change

```
Revalue
* Immediate change
^  v  Sel  Esc
```

With the Immediate change option the system can be set to claim credit and return possible change right after a vend has been initiated. The Immediate change option reduces vend time.

If something goes wrong during delivery of the drink, the system will not return the inserted amount when Immediate change is activated.

Sub menu	Description
Immediate change	<p>'On': The amount of credit inserted is claimed before the drink is dispensed, i.e., right after the drink selection has been made.</p> <p>Note: If 'Singlevend' is set to 'On', possible change will be paid out immediately.</p> <p>'Off': The credit will be claimed after the dispensing of the drink.</p>

### 4.3.9 Multibrew settings menu

#### Introduction

The Multibrew settings menu is used to set parameters for the multibrew function.

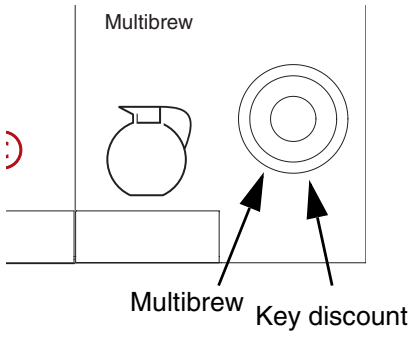
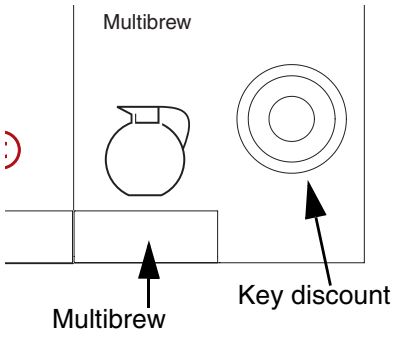
This table describes the options of the Multibrew settings menu.

```
MULTIBREW SETTINGS
*Preset value
Min value
^      v      Sel  Esc
```

Sub menu	Description
Preset value	<p>The function is used to define a preset number of portions between 0 and 20 to be dispensed when the multibrew function is activated.</p> <p>Example: A setting of 6 results in an automatic dispensing of six portions when the multibrew function is activated provided that this number is not changed by the user prior to activating.)</p>
Min value	<p>A number can be set to define a minimum of portions to be dispensed during a multibrew vend.</p> <p>The minimum possible number of portions is 1.</p>
Max value	<p>A number can be set to define a maximum of portions to be dispensed during a multibrew vend.</p> <p>The maximum possible number of portions is 20.</p>
Means of action	<p>This function is used to define how multibrew vends should be activated. The options are:</p> <p>Off: Multibrew is not possible</p> <p>Key: Multibrew is activated by a key.</p> <p>But: Multibrew is activated by pressing the Multibrew button.</p> <p>(See also section "Key discount and Multibrew settings" below)</p>
Discount	<p>The discount option makes it possible to set a discount rate which is given on multibrew vends.</p> <p>Example: A setting of 20 results in a discount of 20% when the multibrew function is activated.</p> <p>A setting of 100 means free vend.</p>

Key discount and  
Multibrew settings

This table describes how the Key discount function (4.2.10.8) works together with different settings of the Multibrew function.

 <p>Both key discount and multibrew activated by key</p>	 <p>Multibrew activated by multibrew button and key discount activated by key.</p>
<p><b>Key discount:</b> Key discount on drinks dispensed in cups is not possible</p>	<p><b>Key discount:</b> Key discount on drinks dispensed in cups is possible</p>
<p><b>Multibrew:</b> Multibrew is possible.</p> <p>If a discount has been defined for both key discount and multibrew, the higher discount rate will be granted.</p>	<p><b>Multibrew:</b> Multibrew is possible.</p> <p>If a higher discount has been defined for key discount than for multibrew, the higher discount is obtained when the discount key is inserted during the multibrew.</p>

### 4.3.10 Change config. files menu

#### Introduction

The Change config. files menu is used to choose menu language, recipe settings and menu configurations.

This table describes the options of the Change config files menu.

```
CHANGE CONFIG. FILES
*Set language file
Set recipe file
^      v      Sel  Esc
```

Sub menu	Description
Set language file	The function is used to select the required language file for the texts used in display and logbook.
Set recipe file	<p>The function is used to select the required recipe file.</p> <p><i>Note: When changing the recipe file, please be aware that the existing drink counters will be overwritten by the new one with new text labels, giving the impression that the present figures in the non resettable counters apply to the new text labels.</i></p> <p><i>To avoid erroneous information about the number sold and turnover of individual drinks it may therefore be recommended to read out the status of the non resettable counters before switching to a new recipe file.</i></p>
Set menu file	The function is used to select the required menu file.



## 5 Functions

### 5.1 Total Overview - Components of FB 7600

- Refer to Spare Parts List, chapter 10.

### 5.2 General safety instructions

<b>DANGER:</b>	The work described in this chapter must only be carried out by trained service technicians.	<b>CAUTION</b>	When the work has been finished, always carry out a functional test.
<b>DANGER:</b>	Safety devices must not be changed or bridged.	<b>CAUTION</b>	Make sure that all earthed conductor connections are connected and fastened tightly.
<b>DANGER</b>	Before starting the work, disconnect the dispenser from the electrical mains supply and close the water tap.		There is an increased risk of injuries when the main switch is activated. The white cables carry 230V.
<b>DANGER</b>	When carrying out disassemblies at the boiler, there is the danger of being scalded by hot water (see chap. "Disassembly of the boiler").		Be careful when the boiler cover has been dismounted. There is an increased risk of being scalded.
<b>DANGER</b>	After the repair work ensure that the waste buckets, their sensors, and the overflow hoses are mounted correctly.		When working on the boiler or pump there is no protection against unintentionally pulling out a component and spilling hot water as a result.
<b>DANGER</b>	When carrying out any kind of work, ensure that the earth connectors are mounted correctly in order to guarantee faultfree ground connection.		Replace cable harnesses only as complete original spare parts!
<b>DANGER</b>	All metal parts must be connected with metal screws. Beneath the screw head there must be a lock washer. Fasten the screws tightly (ground connection).		Never repair the cable harness of the heating system. There is a risk of a fire!
<b>WARNING</b>	The manufacturer cannot be held liable or responsible when other than original spare parts are used for repair work.		For safety reasons the heating element and the cable harness of the heating system may only be replaced completely and together with the assembly group boiler or spare part boiler cover.
<b>WARNING</b>	Cable harnesses must not be repaired, but must be replaced completely.		When disconnecting electrical connections hold the components to avoid draining the boiler. There is a risk of being scalded!
<b>CAUTION</b>	In any case, observe the safety instruction of each chapter.		



# A Water System

## A.1 Adjustments

General adjustments

---

Water temperature	Adjustable via software, see Chap. 4 "Programming"
Recirculation valve	Close the adjusting screw on the valve loosely. Then unscrew 3 rotations using an Allen key (wrench size 5 mm).
Boiler temperature sensor	Adjustable via software, see Chap. 4 "Programming"  Recommended value for boiler temperature sensor is 85°C

## A.2.(Dis-)assemblies

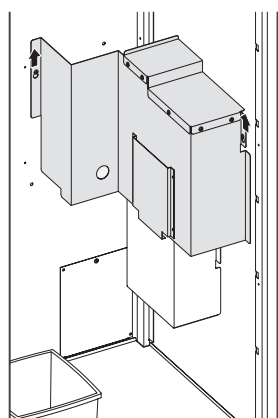
### A.2.1 Removing of the cover at boiler

#### Preparation

- Open the door.
- Switch off the main switch, disconnect the power supply, and close the water cock.

#### Removal

Follow these steps to remove cover:

Step	Action	Illustration
1.	Loosen two screws.	
2.	Lift off cover.	

#### Assembly

Assembly is done in reverse order.

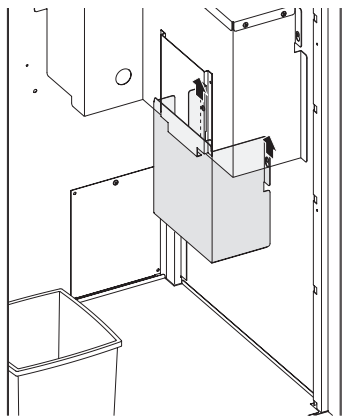
## A.2.2 Removing the cover at pump

### Preparation

- Open the door.
- Switch off the main switch, disconnect the power supply, and close the water cock.
- If necessary, remove cover at boiler

### Removal

Follow these steps to remove cover:

Step	Action	Illustration
1.	Loosen two screws.	
2.	Lift off cover.	

### Assembly

Assembly is done in reverse order.

## A.2.3 Draining water from the boiler

### Preparation

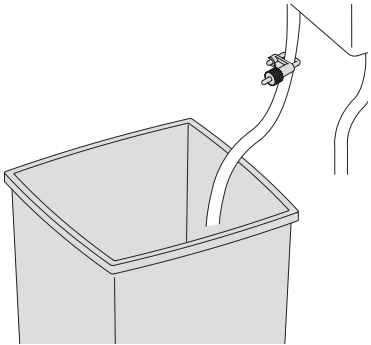
Before draining water from the boiler

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove cover at pump



There is the danger of being scalded by hot water.

Draining the boiler      Follow these steps to drain water from the boiler:

Step	Action	Illustration
1.	Empty the waste bucket	
2.	Withdraw the outlet drain from boiler and place the outlet of the drainage hose in the empty waste bucket	
3.	Loosen the screw of the hose clamp located on the drainage hose and let the water drain completely from the boiler.	

## Installation

Installation is done in reverse order.



- Remember to tighten screw of hose clamp after draining.

## A.2.4 Removing the boiler

### Preparation

Before removing the boiler

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove cover at boiler.
- Remove cover at pump
- Drain the boiler completely.



There is the danger of being scalded by hot water.

### Removal

Follow these steps to remove the boiler after having drained the water from it:

Step	Action	Illustration
1	Remove the hoses from outlet spouts at the bottom of boiler	
2	Lift release arm and unclip boiler in both sides. Remove the boiler in a downward movement.	

### Installation

Installation is done in reverse order.



There is the risk of being scalded.

## A.2.5 Removing the lid for boiler from its suspension bracket

### Preparation

Before removing the lid for boiler

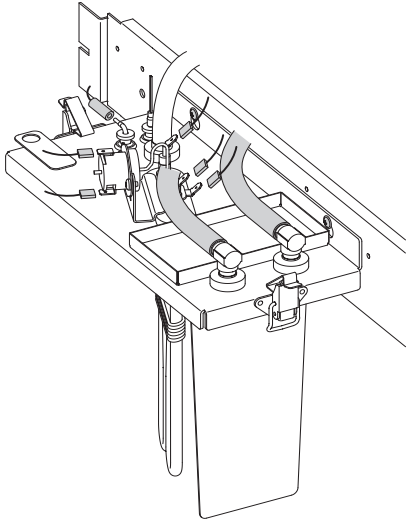
- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove cover at boiler.
- Remove cover at pump
- Drain the boiler completely.
- Remove the boiler.



There is the danger of being scalded by hot water.

### Removal of the lid for boiler

Follow these steps to remove the lid for boiler

Step	Action	Illustration
1	Unhook the lid for boiler (if necessary, loosen screws)	
2	Remove all electrical connections from lid.	
3	Remove all hoses from hose connections in lid.	

### Installation

Installation is done in reverse order.



## A.2.6 Removing the temperature sensor (thermal feeler)

### Preparation

Before removing the temperature sensor

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove cover at boiler.



There is the danger of being scalded by hot water.

### Removal

Follow these steps to remove the temperature sensor after having drained the boiler for water:

Step	Action	Illustration
1	Pull off the electrical connection.	
2	Pull the temperature sensor out of the boiler	

### Installation

Installation is done in reverse order.



When the temperature sensor has been removed, a new sensor rubber bushing probably has to be used, as the old rubber bushing tends to be damaged on removal of the sensor.



If the temperature sensor is not connected properly electrically, the heating element will not be switched off as long as the machine is switched on (boiling over).

## A.2.7 Removing of the overboil thermostat

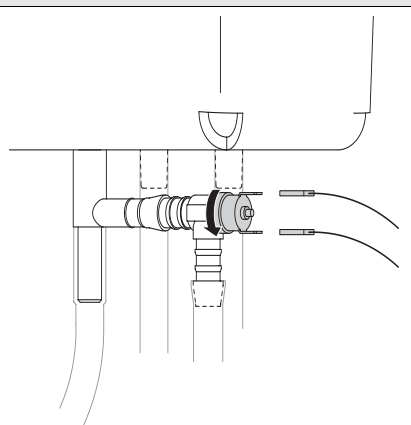
### Preparation

Before removing the safety cut-out thermostat

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove cover at boiler.

### Removal

Follow these steps to remove the safety cut-out:

Step	Action	Illustration
1	Unscrew the boil over sensor from the overflow pipe at the bottom of the boiler.	
2	Pull off the electrical connection	

### Installation

Installation is done in reverse order.

## A.2.8 Resetting the overboil thermostat

### Preparation

Before resetting the overboil thermostat

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove cover at pump.

### Resetting

Press the reset button of the overboil thermostat (see illustration below).

### Illustration

The overboil thermostat is located under the boiler as illustrated below:

---

Assembly Assembly is done in reverse order.

---

## A.2.9 Removing the the water level sensor (electrode)

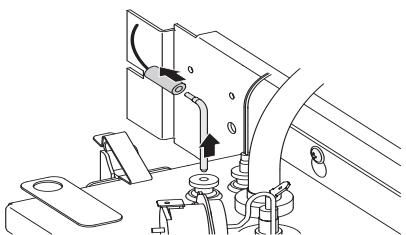
---

Preparation Before removing the water level sensor

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove cover at boiler.

---

Removal Follow these steps to remove the water level sensor:

Step	Action	Illustration
1	Pull off the electrical connection.	
2	Pull the water level sensor out of its holder.	

---

Installation Installation is done in reverse order.

---



Check the sensor bushing for tear and brittleness, replace it if necessary.

---

## A.2.10 Disassembling the heating element and dry-boiling thermostat

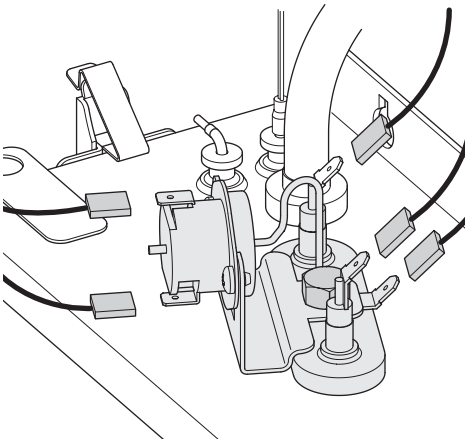
---

Preparation Before disassembling the heating element and the dry-boiling thermostat

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove cover at boiler.
- Drain the boiler completely.
- Remove the boiler
- Remove the lid for boiler

## Removal

Follow these steps to disassemble the heating element:

Step	Action	Illustration
1	<ul style="list-style-type: none"> <li>Withdraw the insulating hoses from the heating element contacts and those of the dry-boiling thermostat.</li> <li>Disconnect the electrical connections as well as the earth wire.</li> </ul>	
2	Loosen the nut at the heating element, and remove the heating element with the dry-boiling thermostat.	

## Installation

Installation is done in reverse order.

## A.2.11 Resetting the dry-boiling thermostat

## Preparation

Before resetting the dry-boiling thermostat

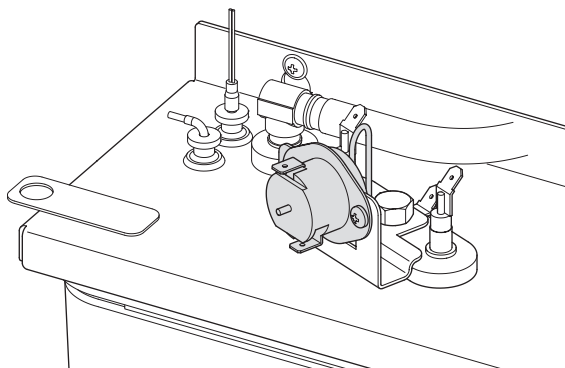
- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove cover at boiler.

## Resetting

Press the reset button of the dry-boiling thermostat (see illustration below).

## Illustration

The dry-running thermostat is located at the heating element on lid for boiler as illustrated below:



## Assembly

Assembly is done in reverse order.

## A.2.12 Disassembling the water inlet filter with reflux valve and the supply hose

### Preparation

Before disassembling the water inlet parts

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove cover at boiler.
- Drain the boiler completely.



If the water is not drained from the boiler, it will flow out of the hose as soon as the hose is taken off. There is the risk of being scalded.

### Disassembly

Follow these steps to disassemble the water inlet parts:

Step	Action	Illustration
1	Unscrew two screws of holder for water inlet filter and take out holder.	
2	Loosen the swivel nut and take off the supply hose from the mains supply.	
3	Remove hose to inlet valve / water purifying filter from water inlet filter.	
4	Unscrew filter lids.	
5	Check filter and rinse as necessary.	
6	Remove reflux valve from water inlet in filter and check	

### Assembly

Assembly is done in reverse order.

## A.2.13 Disassembling the inlet valve

### Preparation

Before removing the inlet valve

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove cover at boiler.
- Drain the boiler completely.



If the water is not drained from the boiler, it will flow out of the hose as soon as the hose is taken off the connection hose on the inlet valve. There is the risk of being scalded.

### Disassembly

Follow these steps to disassemble the inlet valve and connecting hose:

Step	Action	Illustration
1	Disconnect the electrical plug connections of the inlet valve.	
2	Remove hoses from the inlet valve. 1) Hose from water inlet filter / water purifying filter. 2) Hose from lid of boiler 3) Hose from bottom of boiler	
3	Loosen two screws of holder for inlet valve and lift off holder from screws.	
4	Loosen and remove two screws to remove inlet valve.	

### Assembly

Assembly is done in reverse order.

## A.2.14 Resetting the overflow thermostat of the inlet valve

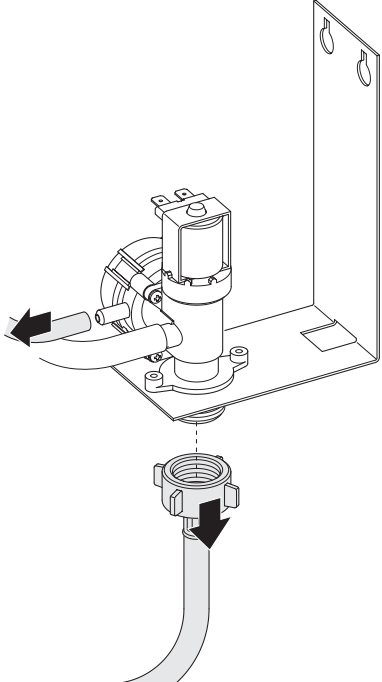
### Preparation

Before removing the inlet valve

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove cover at boiler.

### Resetting

Follow these steps to reset the overflow thermostat

Step	Action	Illustration
1	Disconnect hose at overflow thermostat.	
2	Empty water from the hose into waste bucket.	
3	Unscrew hose connection to hose from water inlet filter / water purifying filter to release the pressure in inlet valve.	

### Assembly

Assembly is done in reverse order.

## A.2.15 Disassembling the recirculation valve

### Preparation

Before removing the recirculation valve

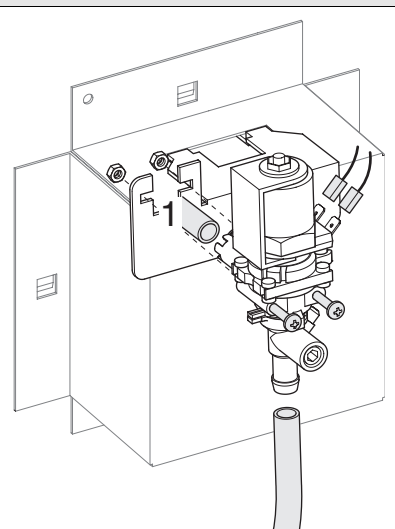
- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove cover at boiler.
- Drain the boiler completely.



If the water is not drained from the boiler, it will flow out of the hose as soon as the hose is taken off the connection hose on the inlet valve. There is the risk of being scalded.

### Disassembly

Follow these steps to disassemble the recirculation valve:

Step	Action	Illustration
1	Disconnect the electrical plug connections of the valve	
2	Remove hoses from the outlet spouts of the valve. 1) Hose from lid of boiler 2) Hose to leftmost valve of the dispensing system	
3	Loosen two screws and withdraw the valve from bracket.	

### Assembly

Installation is done in reverse order.

## A.2.16 Disassembling the water pump

### Preparation

Before disassembling the water pump:

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove cover at boiler.
- Remove cover at pump
- Drain the boiler completely.

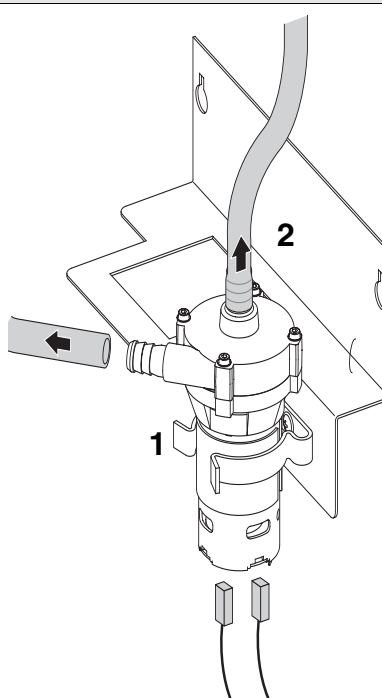


If the water is not drained from the boiler, it will flow out of the hose as soon as the hose is taken off the pump. There is the risk of being scalded.



## Disassembly

Follow these steps to disassemble the water pump:

Step	Action	Illustration
1	Pull off the electrical plug connections from the pump	
2	Remove the hose from the dispensing system to pump (1).	
3	Remove the hose between pump and boiler (2).	
4	Remove pump from its holder brace.	
5	Disassemble pump parts	

## Assembly

Assembly is done in reverse order.



Ensure that the pump impeller runs in the same direction as before replacement, i.e. clockwise.

## A.2.17 Rearranging/replacing the water tubes for instant ingredients

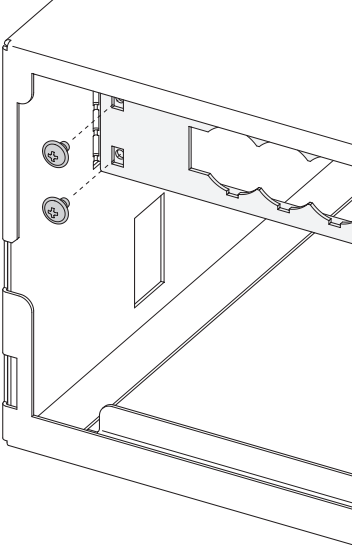
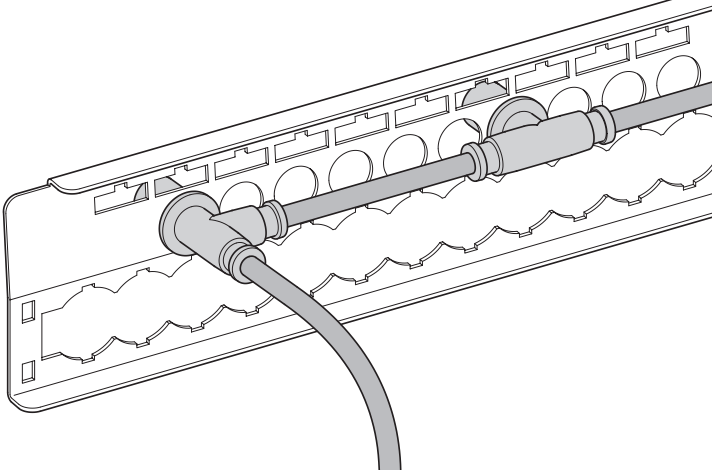
## Preparation

Before rearranging the location of water tubes for instant ingredient

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove cover at boiler.
- Remove the instant ingredient mixing units

## Rearrangement

Follow these steps to rearrange/replace the water hoses:

Step	Action	Illustration
1	Loosen one screw in either side of connecting rail and remove the connecting rail	
2	Withdraw the tubes from the rubber T-piece or L-pieces in question.	
3	Rearrange the rubber T-pieces or L-pieces in question	
4	Rearrange the tubes to the proper locations of the T-pieces or L-pieces. <b>Note:</b> four different sizes available	

## Tube lengths

The tubes are available in lengths as follows:

- 60 mm
- 70 mm
- 80 mm
- 100 mm

## Installation

Installation is done in reverse order.

---

## A.2.18 Disassembling a dispensing valve for instant ingredients

---

### Preparation

Before disassembling a dispensing valve

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove cover at boiler.
- Remove the instant ingredient mixing unit in question.

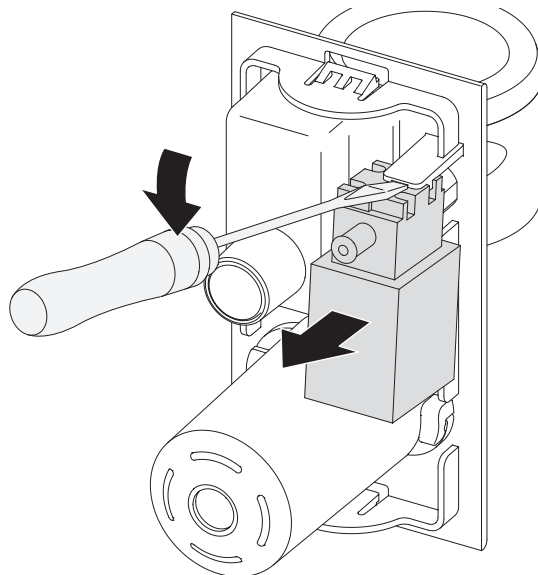
---

### Disassembly

Lift the locking tab by pressing eg. the flat end of a slotted tip screw driver between the locking tab and the valve; simultaneously pull out dispensing valve of outlet tube in module plate.

---

### Illustration



---

### Installation

Installation is done in reverse order.

---



Ensure that valve is properly seated in the outlet tube, which is simultaneously acting as a seal.

---

## A.2.19 Disassembling the dispensing valve for freshbrewer unit

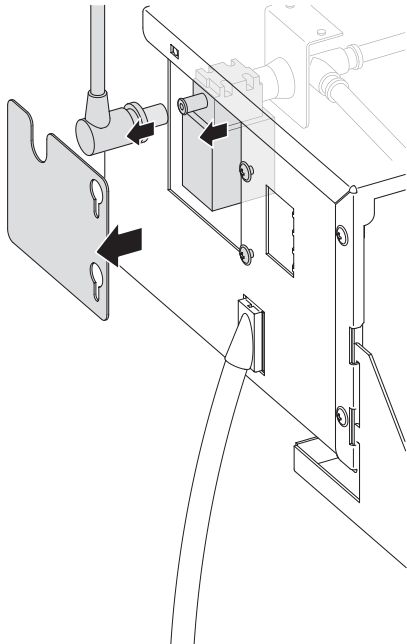
### Preparation

Before removing the lid for boiler

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove filter plate from brewer

### Dissassembly

Follow these steps to rearrange/replace the water hoses:

Step	Action	Illustration
1	Loosen two screws and detach cover at left side of ingredient shelf next to the sensor for coffee waste bucket.	
2	Disconnect the electrical plug connections of the valve.	
3	Disconnect the dispensing valve for the freshbrewer unit from its hose connections.	

### Installation

Installation is done in reverse order.

## A.2.20 Replacing the water purifying filter

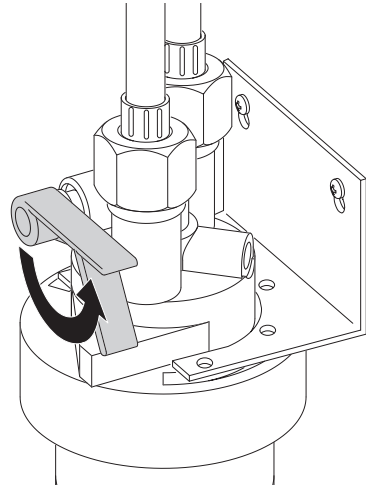
### Preparation

Before disassembling the water pump:

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove cover at boiler.
- Drain the boiler completely.

## Replacement

Follow these steps to replace the water purifying filter::

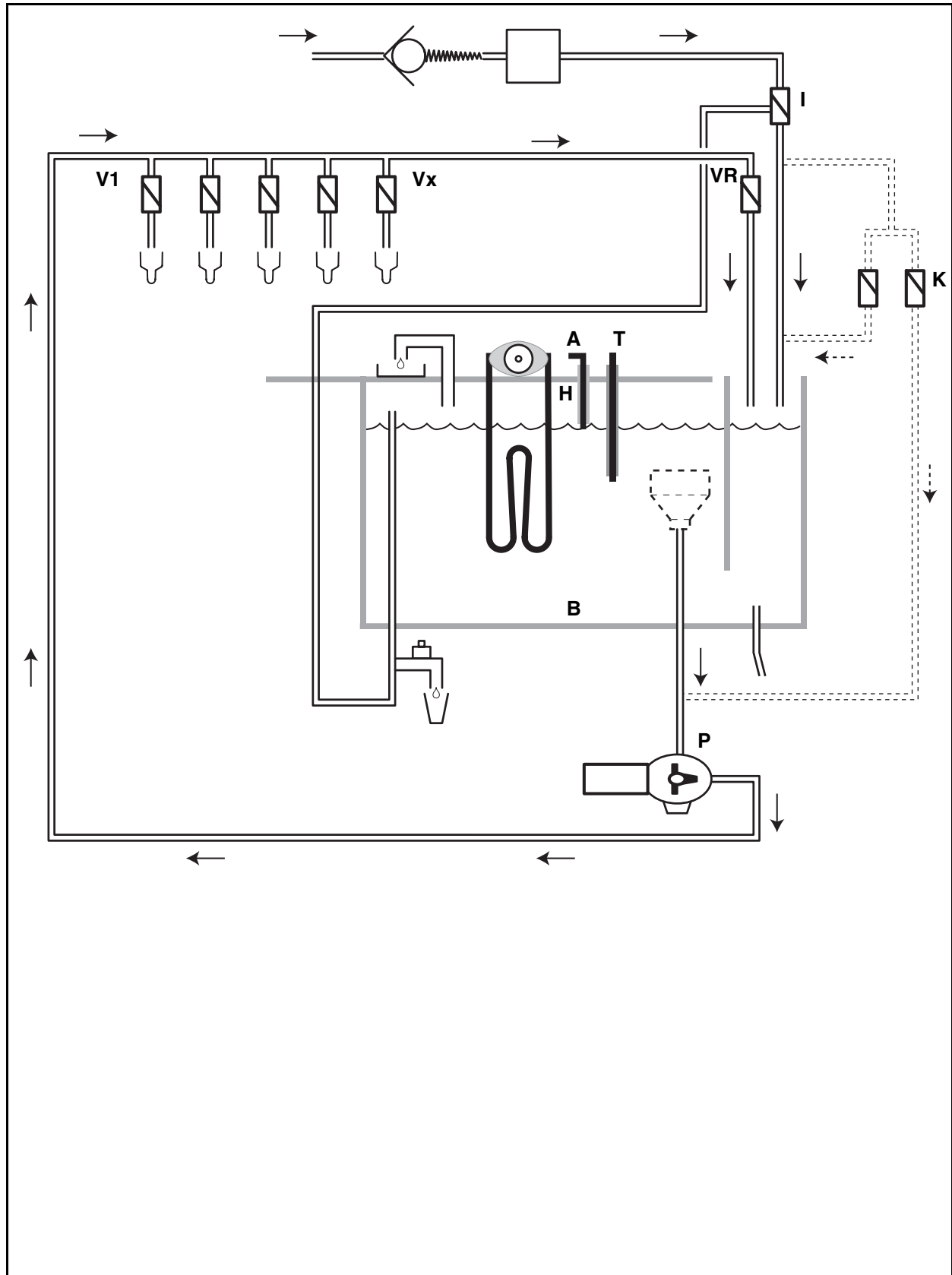
Step	Action	Illustration
1	Lift up lever and turn up towards the back of the machine.	
2	Make a test vend to release the pressure.	
3	Remove filter.	
4	Install new filter in reverse order.	
5	Flush filter with approximately 10 litres of water.	



Replace filter every three to four months (approximately 20,000 vends).  
See further specifications on filter.

## A.3. Functional descriptions

### A.3.1 Total overview



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## A.3.2 Function: Inlet valve and water inlet into the boiler

---

### Description

- The inlet valve 'I' is opened until the water level sensor 'A' recognizes that the boiler 'B' is filled.
- When the correct filling level in the boiler is reached, the water inlet valve is closed.



If the correct filling level has not been reached within 3 minutes after the inlet valve has been opened, an error message is given.

If the boiler 'B' is filled for the first time, an error message is given if the correct water level has not been reached within 3 minutes.

---

## A.3.3 Function: heating and temperature regulation

---

### Description

- The heating element 'H' is switched on as soon as the water level reaches the water level sensor 'A'.
- The temperature sensor measures the temperature in the boiler and controls the switching on/off of the heating element according to the value set in technician mode, cf. Chapter 4, Programming.
- The dry running protection triggers and switches off the heating element, if the temperature rises above 100°C. When the dry running protection has triggered, the reset button has to be actuated manually before the heating element is switched on again.
- The boil over sensor which is located in the overflow hose triggers and switches off the heating element, if steam is produced or the water boils over. When the boil over sensor has triggered, its tap must be pushed in and the machine restarted manually. The tap must be pushed in before the machine can be restarted.
- Water from the overflow hose is led into recipient at the end of the overflow hose, e.g. a cup.
- If water is continuously running through the overboil hose, the water is led back to the inlet valve. When the water pressure in the mechanical overflow thermostat of the inlet valve reaches a certain level, the overflow thermostat triggers and closes the inlet valve. The hoses to the inlet valve has to be disconnected and reconnected to release the pressure in the inlet valve and to empty the water from the overflow thermostat.

---

### A.3.4 Function: water outlet system and outlet valves

---

Description	<p data-bbox="446 376 1412 481">When hot water with a high temperature is required for a drink, the pump 'P' starts simultaneously as the valve 'VR' opens. The valve 'K' and 'Vx' remain closed.</p> <p data-bbox="446 526 1412 705">The water of high temperature now runs from the boiler and circulates through the entire hose system and back into the boiler through the valve 'VR' for approximately 2 seconds, thus ensuring that the hottest temperature is obtained and that possible air bobbles are removed from the hose system.</p> <p data-bbox="446 750 1412 929">After this circulation the required water quantity is supplied by closing the valve 'VR' and opening one or more of the valves from 'V1' through 'Vx'. When the required water quantity is obtained (measured in time or by counting the impulses from the pump) the dispensing valve/s in question 'V1' through 'Vx' close, and the pump 'P' stops.</p> <p data-bbox="446 974 1412 1086">As the water flow and the pump have now stopped, the dispensing valve/s in question open/s shortly (&lt;1 second) whereby the dispensing valve/s in question will be completely drained from water.</p> <p data-bbox="446 1131 1412 1308">When hot water with a lower temperature is required for a drink, the dispensing is performed in the same way as for high temperature, but in this instance the valve 'K' is open simultaneously as the pump is running. In this way the water of lower temperature is mixed with the water of hotter temperature in relation 1:1.</p>
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## A.4. Electrical diagrams

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## A.5. Technical specifications

## A.6. Options

## A.7.Accessories

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## B Brewer System

### B.1 Adjustments

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#### General adjustments

Water volume, minimum + maximum (depending on the flow and the corresponding valve adjustments (l/min.))

- Machine adjustments min. 60 ml - max. 80 ml
- Programming max. 240 ml

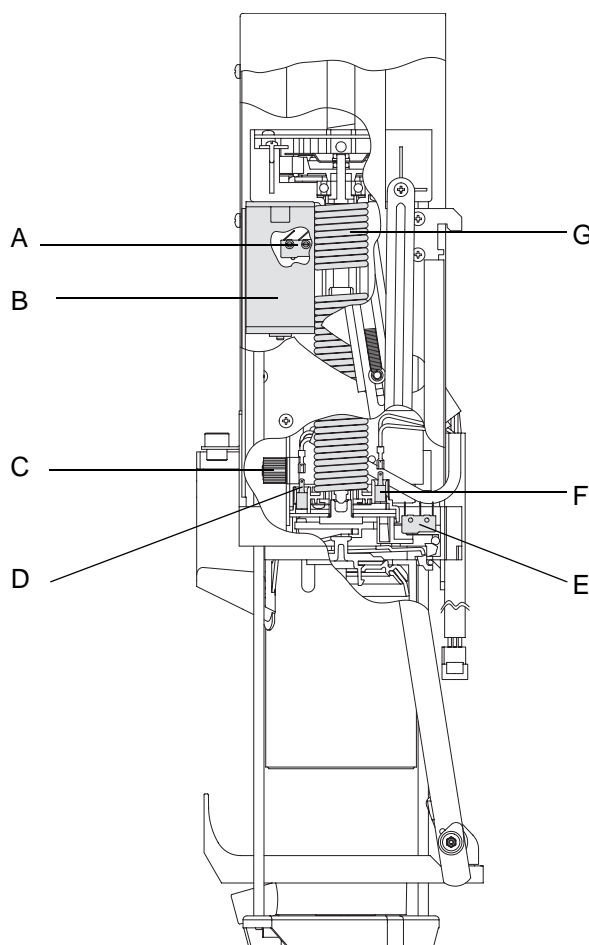
Scraper position (adjustable via programming)

- Front
- Rear

## B.2 Adjustments

Parts and functions

This illustration shows the location of the Brewer components



Legend for figure:

Part		Function
A	Safety Switch	switches as soon as the brewer moves beyond the closing position. E.g. seal of the filter plate, filter plate, or brewer cylinder not installed.
B	Brewer (Actuator) Motor	drives the actuator, controls the brewing process.
C	Ingredient Motor	drives the dosing unit, controls the ingredient quantity.
D	Brewer Closed Switch	switches as soon as the brewer cylinder and the filter plate form a chamber.
E	Brewer Cylinder Position Switch	ensures correct position of cylinder.
F	Brewer at End Switch	switches on both end positions of the brewer, e.g. scraper in end position or lower plunger position.
G	Actuator	controls the movements of the filter plate, the plunger and the scraper during the brewing process.

## B.3 (Dis-)assemblies

### B.3.1 Safety instructions



Installation and repair works on the machine may only be carried out by trained service technicians.

### General Mounting Instructions

#### Scraper guide

Follow this instruction to assemble the scraper guide:

Instruction	
<ul style="list-style-type: none"><li>The guiding lugs (1) have to point towards the brewer's fastening holes (rear side) and the cable harness (2).</li></ul>	

#### Support

Follow this instruction to assemble the support:

Instruction	
<ul style="list-style-type: none"><li>The screw. (1) has to be fastened by means of Locktite.</li></ul>	

## B.3.2 Dismounting the Brewer Unit



**When repairing the Brewer Unit, these safety rules must be observed:**

- Beware of sharp edges
- Beware of spring loaded Actuator, if defective

Tools needed:

Clamp (if Actuator is taken out of the Brewer Unit)

Preparation

Follow these steps to prepare the Brewer Unit for removal:

Step	Action
1	Remove the coffee canister.
2	Detach the filter roll bracket from its location peg. (if applied)
3	Pull off coffee outlet hose
4	Place a piece of eg. corrugated paper on the filter plate and bring the brewer cylinder into transport position.  Warning! Keep hands and loose objects away from the Brewer!  Warning! If the cylinder is not closed you must be careful when proceeding with the removal. If nut, plunger holder or spindle are defective the actuator spring load may be released causing danger of injury!
5	Switch off the mains switch, disconnect the power supply, and close the water cock.
6	Pull of the hot water hose.
7	Remove the water inlet elbow tube from the brewer, and push it to the side.

Warning

**If it was not possible to move the brewer into transport position, only touch the brewer on its outside. Do not reach underneath the brewer cylinder, as there is a risk of injuries if the actuator is defective.**

*Continued ...*



## Removal

---

Follow these steps to remove the Brewer Unit

Step	Action
1	If necessary, remove the filter plate, the scraper, and the brewer cylinder.
2	Unscrew 2 screws and lift out brewer.  Warning! If brewer cylinder is not closed, lift out brewer by the sides. Do not touch underneath the unit!
3	Disconnect the 15-pole plug of the harness at the back of the brewer.
4	If necessary, assemble the filter plate, the scraper, and the brewer cylinder.

## Installation

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Installation is done in reverse order.

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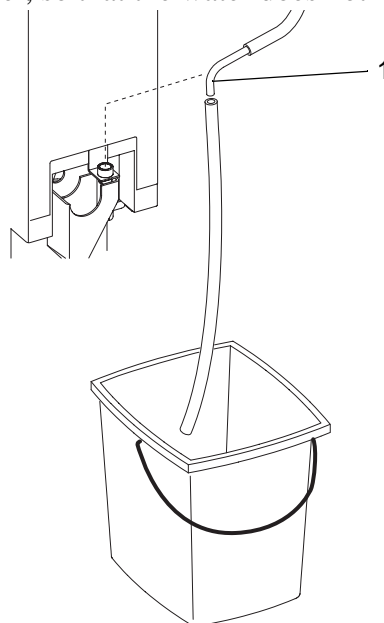
### B.3.3 Testing the Brewer Unit next to the machine



There is an increased risk of injuries. Keep parts of your body and loose clothing away from the brewer.

#### Preparation

- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the brewer.
- Connect a hose to the water inlet elbow tube (1), and put the end of the tube into a container, so that the water does not run into the machine.



#### Initiating Test

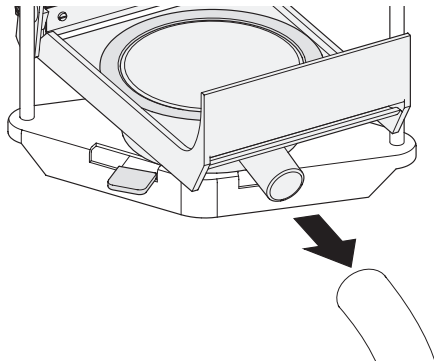
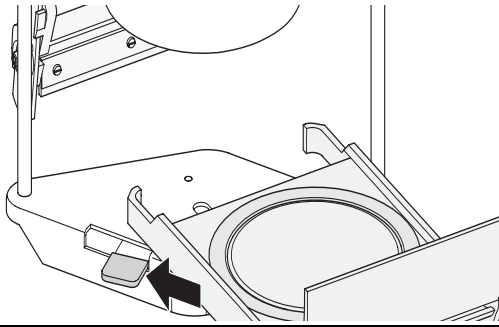
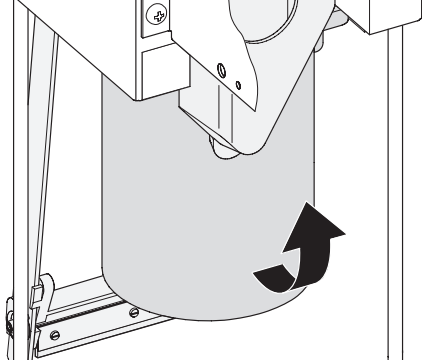
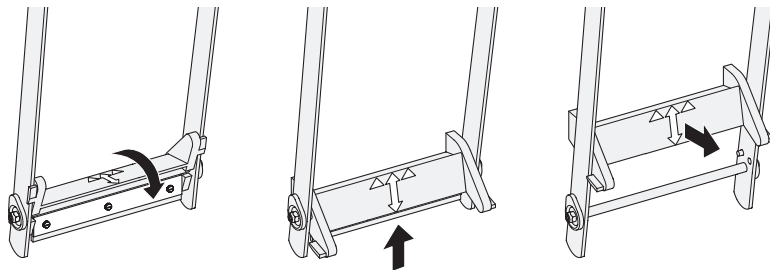
Follow these steps to initiate test of the Brewer Unit outside the machine.

Step	Action	
1	<p>Plug the adapter cable harness (1) between the 15-pole plug of the brewer unit and the connection socket of the brewer unit in the machine.</p> <p>Note: For service parts refer to the spare parts list)</p>	
2	Reconnect the power supply, switch on the mains switch, and open the water cock.	
3	Actuate the safety switch.	

## B.3.4 Removing the Brewer Cylinder, Filter Plate holder and Scraper

### Removal

Follow these steps to remove the parts:

Step	Action	
1	Remove the outlet pipe from the filter plate.	
2	Press lock at the filter plate support backwards and withdraw filter plate holder with filter plate.	
3	Take hold of the brewer cylinder by placing your thumb on the outside and the rest of your fingers inside the "brewing chamber", tilt the cylinder smoothly and remove cylinder.	
4	Remove scraper by turning and lifting it straight up.	

### Assembly

Assembly is done in reverse order.

## B.3.5 Removing the Brewer Housing

### Preparation

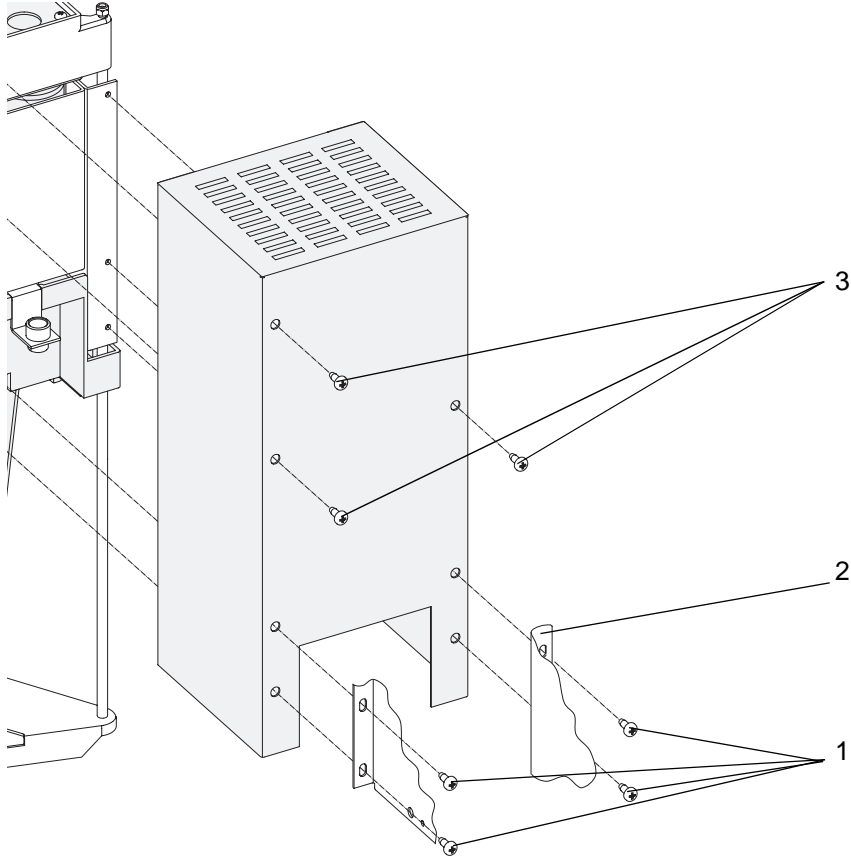
Before removing the Brewer Housing

- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the brewer
- Remove the brewer cylinder, the filter plate holder, and the scraper.

### Removal

Follow these steps to remove the Brewer Housing:

Step	Action
1	Remove the four screws (1).
2	Remove the coffee canister bracket (2).
3	Remove the three screws (3).
4	Remove the brewer housing.



### Assembly

Assembly is done in reverse order.

Note: Consider screws of different lengths!

## B.3.6 Disassembling the Tie Rods

### Preparation

Before disassembling the Tie Rods:

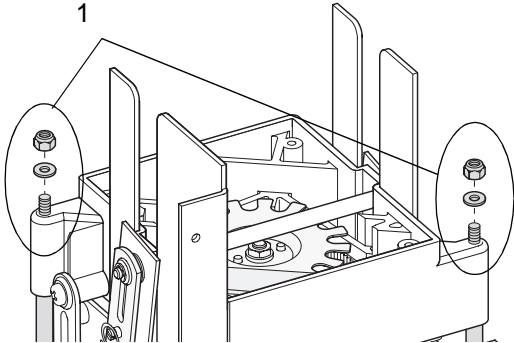
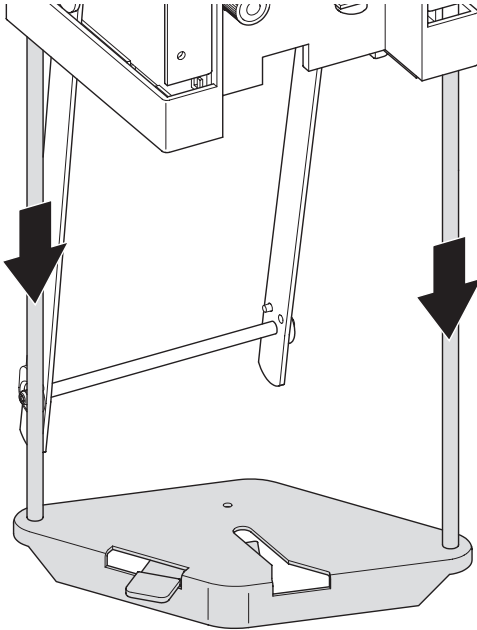
- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the brewer.
- Remove the brewer cylinder, the filter plate holder, and the scraper.
- Remove the brewer housing.



The actuator of the brewer is provided with a heavy spring under tension. Always turn the top and bottom of brewer away from any person before removing the scraper, as a defective actuator could expand suddenly. There is an increased risk of injuries.

### Disassembly

Follow these steps to disassemble the Tie Rods:

Step	Action	
1	Loosen the tie rods (1) (2 self-locking nuts with washers).	
2	Pull out the tie rods together with the filter plate support.	

### Assembly

Assembly is done in reverse order.

*Continued on next page..*



- 
- The self-locking nuts must be exchanged.
  - Do not retighten the self-locking nuts too tight when reassembling the tie rods.
-

## B.3.7 Disassembling the ingredient motor

### Preparation

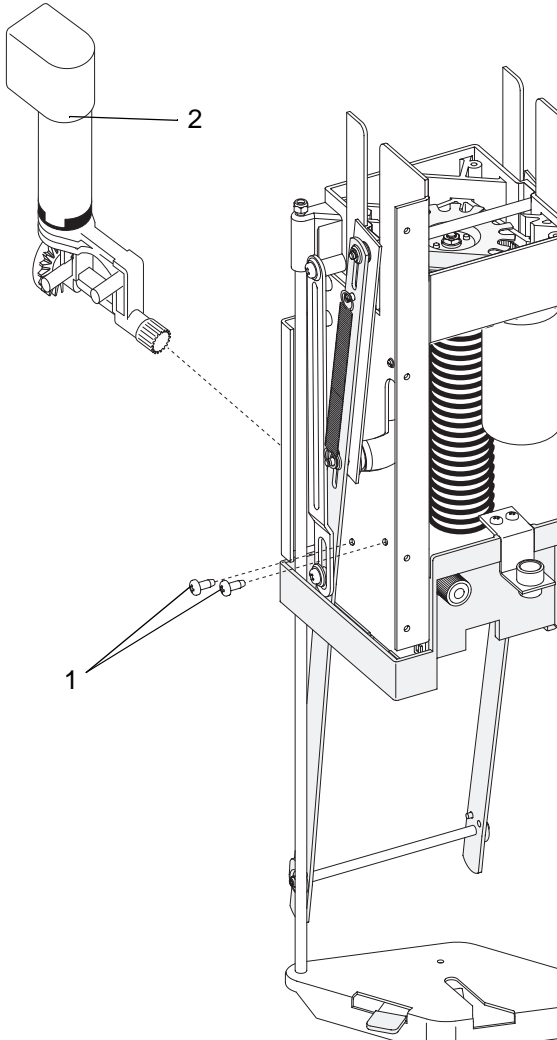
- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the brewer.
- Remove the brewer cylinder, the filter plate holder and the scraper
- Remove the brewer housing.

### Note

When disassembling the dosing motor, the scraper has to be in the rear position. If not remove scraper arm before proceeding.

### Disassembly

Follow these steps to disassemble the ingredient motor:

Step	Action	
1	Remove the two screws (1).	
2	Pull the ingredient motor backwards (2).	
3	Disconnect the plug connection.	
4	Remove the ingredient motor.	

### Assembly

Assembly is done in reverse order.

*Continued on next page...*



---

When the ingredient motor sticks, check whether the fastening of the base console to the brewer base is defective. In this case, press the actuator against the brewer base. There is the possibility that the fastening domes were broken so that the actuator slid from the brewer base towards the top.

---



## B.3.8 Disassembling the Scraper Arms

### Preparation

Before disassembling the Scraper:

- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the brewer.
- Remove the brewer cylinder, the filter plate holder and the scraper
- Remove the brewer housing.



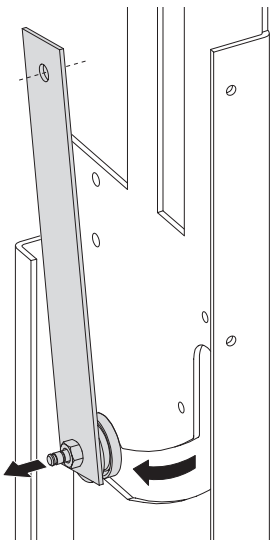
The actuator of the brewer is provided with a heavy spring under tension. Always turn the top and bottom of brewer away from any person before removing the scraper, as a defective actuator could expand suddenly. There is an increased risk of injuries.

### Disassembly

Follow these steps to disassemble the Scraper:

Step	Action	Illustration
1	Follow next steps to both right and left side of brewer	
2	Unhinge the spring (1) on the outer scraper arm (2).	
3	Remove the retaining rings (3) and the washers in front of the outer scraper arm (2).	
4	Remove the fastening screws (4) and the collar bushes (5) of the lever arms (6) on the bearing housing (8).	
5	Pull the outer scraper arm (2) from the axle (7), remove the retaining ring (9) (above the inner scraper arm) on one side of the axle, then pull the axle (7) out of the other side of the bearing housing (8).	

Continued on next page ..

Step	Action	Illustration
6	If necessary, remove the inner scraper arm through the lower bore in the side plate.	 A technical line drawing of a mechanical assembly. It shows a vertical side plate with two circular bores. An inner scraper arm is positioned vertically, with its lower end passing through the lower bore. A curved arrow indicates the arm being rotated or moved. A dashed line with a circle at its end points to the upper part of the arm, indicating its removal path.

Assembly

Assembly is done in reverse order.

## B.3.9 Removing the Actuator

### Preparation

Before removing the Actuator:

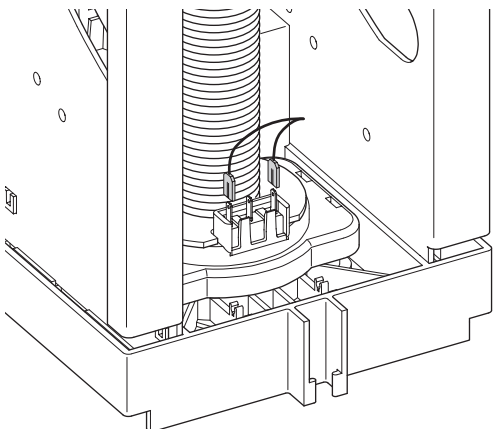
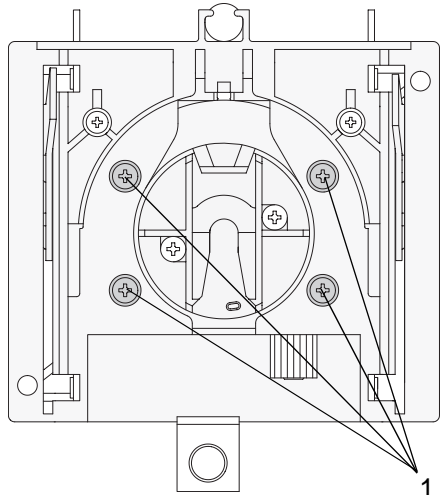
- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the brewer.
- Remove the brewer cylinder, the filter plate holder and the scraper
- Remove the brewer housing.
- Disassemble the tie rods with the filter plate support
- Disassemble the ingredient motor
- Disassembling the Scraper Arms



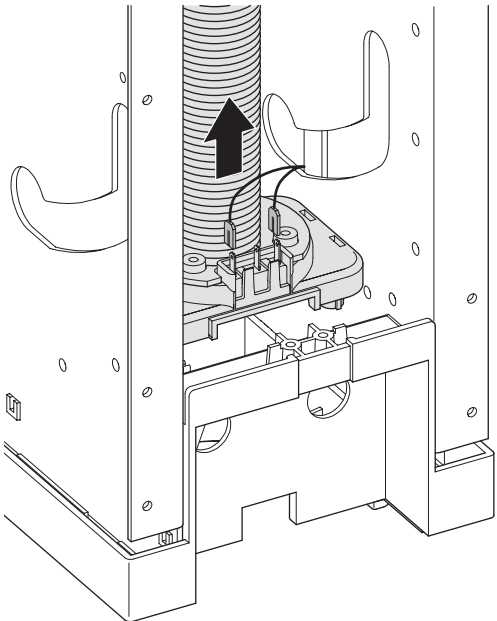
The actuator of the brewer is provided with a heavy spring under tension. Always turn the top and bottom of brewer away from any person before removing the scraper, as a defective actuator could expand suddenly. There is an increased risk of injuries.

### Removal

Follow these steps to remove the Actuator from the brewer unit:

Step	Action	Illustration
1	Unplug the cable of the Brewer at End Switch	
2	Remove the four screws (1) from the base of the brewer	

Continued on next page ..

Step	Action	Illustration
3	Carefully pull out the actuator, and simultaneously unplug the cable of the Brewer Closed Switch	

Installation

Installation is done in reverse order.

## B.3.10 Disassembling the Tachoboard

### Preparation

Before disassembling the Tachoboard:

- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the brewer.
- Remove the brewer housing.

### Disassembly

Follow these steps to disassemble the Tachoboard:

Step	Action	Illustration
1	Remove the two screws (1).	
2	Disconnect the 6-pole plug connection console/ Tachoboard	
3	Pull off the two cable plug connections (2) from the actuator motor.	
4	Remove the Tachoboard (3) together with the cable harness.	

### Assembly

Assembly is done in reverse order.



---

**When reassembling:**

- **Observe the correct polarity.**  
**The higher number (irrespectively of roman numbers or multiple-digit numbers) on the stranded wire connections represents the negative pole.**
- **When using a new Tachoboard, ensure that rubber sleeves are applied to the plug connections for the actuator motor.**



---

If the toothing of the Tachodisc is bent, there is danger of a short circuit on the Tachoboard. Observe the correct installation position of the Tachoboard. Cables and sound indicator have to point towards the magnet, i.e. towards the inside.

---

## B.3.11 Removing the Actuator Motor

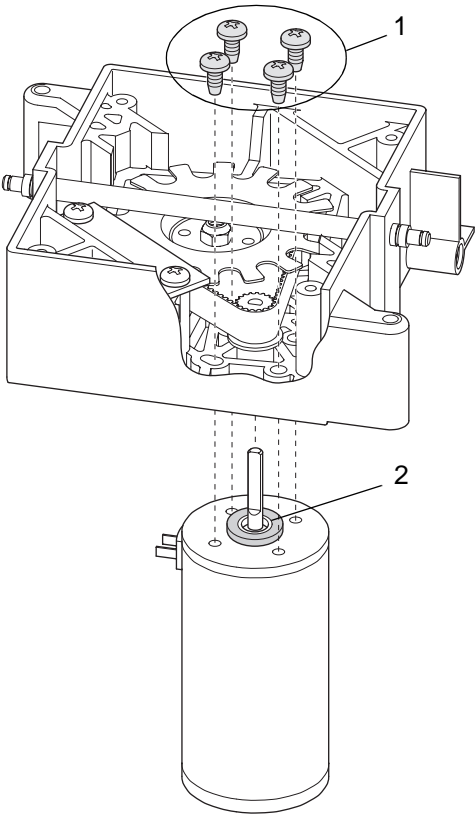
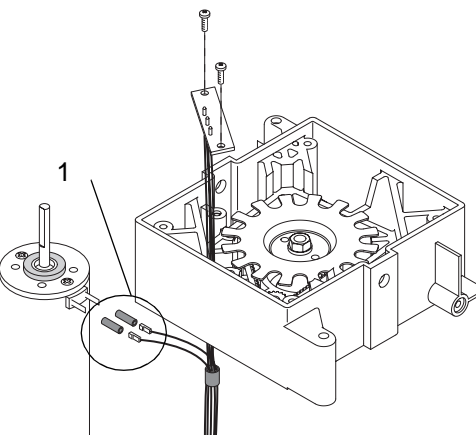
### Preparation

Before removing the Actuator Motor:

- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the brewer.
- Remove the brewer housing.

### Disassembly

Follow these steps to disassemble the Actuator Motor:

Step	Action	Illustration
1	Remove the four screws (1).  <b>Note!</b> Do not remove the loose spacer ring (2).	
2	Pull off the two cable plug connections (1) to the tachoboard.	
3	Remove the motor	

### Assembly

Assembly is done in reverse order.



---

**When reassembling:**

- **Observe the correct polarity.**  
The higher number (irrespectively of roman numbers or multiple-digit numbers) on the stranded wire connections represents the negative pole.
- **When using a new tachoboard, ensure that rubber sleeves are applied to the plug connections for the actuator motor.**



---

If the tothing of the tachodisc is bent, there is danger of a short circuit on the tachoboard.

---



## B.3.12 Disassembling the Actuator and its Driving Parts

### Preparation

Before disassembling the Actuator and the Driving Parts:

- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the brewer.
- Remove the brewer cylinder, the filter plate holder and the scraper
- Remove the brewer housing.
- Disassemble the tie rods with the filter plate support
- Disassemble the ingredient motor
- Disassembling the Scraper Arms
- Remove the actuator from the brewer unit
- Disassemble the tachoboard
- Disassemble the actuator motor

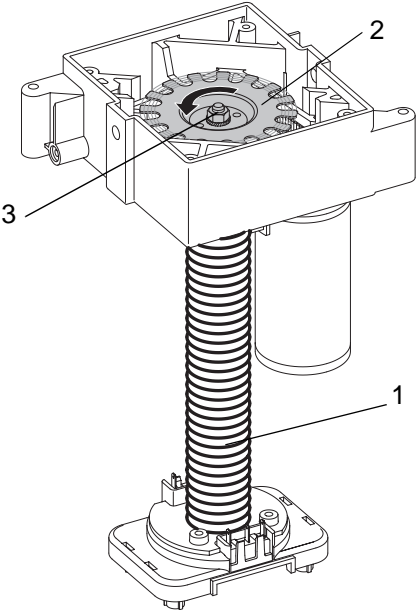


**When disassembling the actuator do never disassemble the driving parts first! When rotating the tachodisc the nut must rotate together with it and must not loosen.**

The actuator of the brewer is provided with a heavy spring under tension. Always turn the top and bottom of actuator away from any person before handling, as a defective actuator could expand suddenly. There is an increased risk of injuries.

### Disassembly

Follow these steps to disassemble the Actuator and the Driving Parts:

Step	Action	Illustration
1	Release the actuator spring (1) by turning the Tachodisc (2) anti-clockwise, or by turning the nut (3) of the Tachodisc anti-clockwise. <b>Caution:</b> nut must not loosen.	

*Continued on next page ..*

Step	Action	Illustration
2	Remove the bearing housing (1) and the spring (2).	
3	Fix the Tachodisc by means of eg. a screwdriver while unscrewing the nut.	
4	Hold the large gear wheel tightly and remove the nut (1).	
5	Remove the large gear wheel with toothed belt and small gear consecutively.	

Assembly

Assembly is done in reverse order.

## B.3.13 Disassembling Driving Parts of Actuator without removing actuator

### Preparation

Before disassembling the Driving Parts of the Actuator:

- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the brewer.
- Remove the brewer cylinder, the filter plate holder and the scraper
- Remove the brewer housing.
- Disassembling the Scraper Arms
- Disassemble the Tachoboard
- Disassemble the actuator motor

### Disassembly

Follow these steps to disassemble the Driving Parts:

Step	Action	Illustration
1	Remove the hexagon nut and the washer (1)	
2	Remove the tachogenerator disc (2).	
3	Remove the toothed belt (3).	
4	Remove nut and washer (4).	
5	Pull off the large toothed wheel (5), teeth = 72.	
6	Pull the small toothed wheel (6), teeth = 18, off the actuator motor.	

### Note:

Both toothed wheels and the toothed belt should only be replaced together.

During re-installation make sure that under all circumstances the scraper arms are in the correct position.

## B.3.14 Replacing the Microswitch BSSW

### Definition

BSSW is an abbreviation of Brewer Safety Switch.



### Preparation

Before replacing the Brewer Safety Switch:

- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the brewer.
- Remove the brewer cylinder, the filter plate holder and the scraper
- Remove the brewer housing.
- Disassembling the Scraper Arms

### Replacement

Follow these steps to replace the Brewer Safety Switch:

Step	Action	Illustration
1	Remove the fastening screws (1) with washers (2) and nuts (4) to replace microswitch (3) with new switch.	
2	Unplug the cable lugs from the defective microswitch, and connect them to the new microswitch on the outer contact pins (5).  Make sure that the insulation hose is positioned correctly.	
3	Fasten the new microswitch as illustrated on drawing.  Observe that the screws are not fastened too tight.	
4	Check the function of the microswitch.	



Horizontally place the microswitch into the 3 mm holes in the highest position possible.

## B.3.15 Replacing the Ejector Spring

### Preparation

- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the brewer.
- Remove the brewer cylinder, the filter plate holder and the scraper.

### Disassembly

Follow these steps to remove the Ejector Spring:

Step	Action	Illustration
1	Remove the four screws (1) of the brewer cylinder support (2)	
2	Press the spring (3) towards the back by means of a screwdriver, and remove it to the side.	

### Assembly

Assembly is done in reverse order.



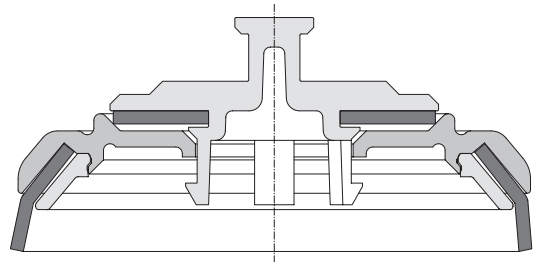
When reassembling:

- The spring has to be placed between the fastening domes and the spring guide, see illustration above.

### B.3.16 Replacing the Gaskets of the Plunger



The Gaskets of the Plunger is contained in a valve, located in the centre of the plunger:



**Preparation**

- Before replacing the gaskets:
- Remove the brewer cylinder
  - Remove the plunger from the brewer cylinder

**Disassembly**

Follow these steps to replace the Gaskets of the plunger

Step	Action	Illustration
1	Press the 4 supports of the valve together and pull it out.	
2	Remove the gaskets by pulling the seal lips.	
3	Replace gaskets and reassemble plunger in reverse order.	

**Assembly**

Assembly is done in reverse order.

## B.3.17 Removing and decalcifying the Filter Plate



The filter plate has to be decalcified on a regular bases after approx. 1000 dispensings (depending on the hardness of the water and the coffee type (oil)).

### Preparation

Before disassembling the Filter Plate

- Remove the filter plate roll holder (if fitted)

### Disassembly

Follow these steps to remove and decalcify the Filter Plate

Step	Action	Illustration
1	Press the lock at the support backwards and pull out the filter plate holder.	
	Press out the sealing ring (2) and the filter plate (3) by means of the ejector pin (A) of the filter plate holder (1).	
2	Remove the tension plate (5) from the filter plate.	
3	Decalcify all metal parts of the filter plate (3)	
4	Clean the rubber sealing (4), the sealing ring (2) and the filter plate holder (1) in hot water.	

---

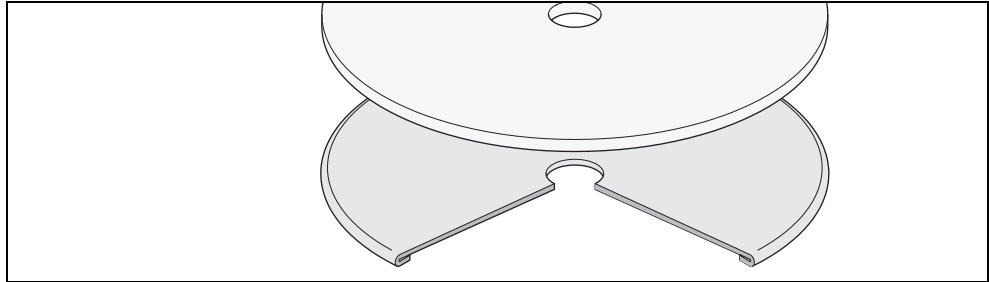
Assembly

Assembly is done in reverse order.

---



- Make sure that the disc is positioned correctly, i.e. the smooth side must face the rubber sealing (see ill.)
- Avoid damage of the fine-pore filter.





## B.3.18 General Notes



All actuators/brewers as well as recycled actuators/brewers are equipped with an additional Label for Brewer (Part-no. 35207300):

Label for brewer

The label looks like this:

<b>MACH.TYPE</b>		INSTAL.DATE.....
FB50...	<input type="text"/>	COUNTER.....
FB55...	<input type="text"/>	
5500....	<input type="text"/>	REMOVE DATE.....
5100....	<input type="text"/>	COUNTER.....
.....	<input type="text"/>	

How to complete the label

The table below explains which fields of the label to complete given the type of procedure performed:

IF Brewer/Actuator is to be ...	THEN fields to be filled in ...	by ... and how
Installed	<ul style="list-style-type: none"> <li>• MACH.TYPE (1)</li> <li>• INSTAL.DATE (2)</li> <li>• COUNTER (3)</li> </ul>	Manufacturer  From factory
Replaced	<ul style="list-style-type: none"> <li>• MACH.TYPE (1)</li> <li>• INSTAL.DATE (2)</li> <li>• COUNTER (3)</li> </ul>	Service technician  On site
Removed	<ul style="list-style-type: none"> <li>• REMOVE DATE (4)</li> <li>• COUNTER (5)</li> </ul>	Service technician  On site

## B.3.19 Function of the Brewer

### Introduction

Through an electronically controlled brewing process the brewer takes in coffee and water and dispenses freshly brewed coffee.

The principle of the brewing process is that a plunger moves down inside a cylinder pressing the freshly brewed coffee through a filter plate.

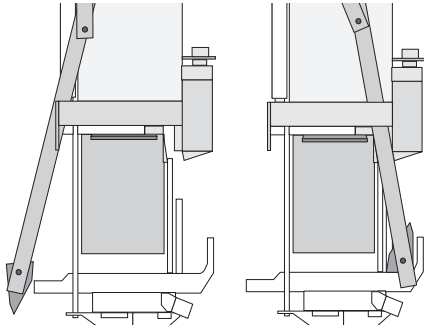
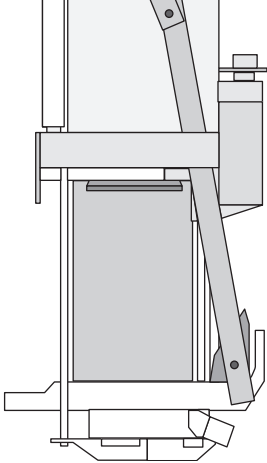
### Brewing process

The brewing process can be divided into the following phases:

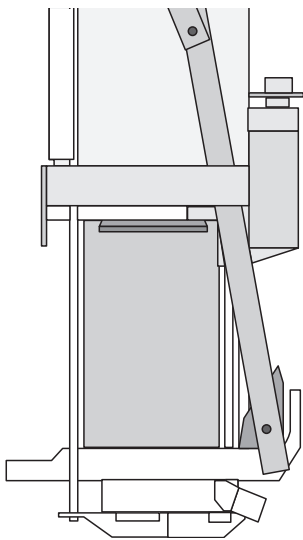
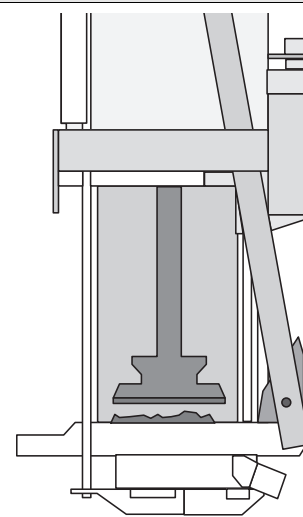
- Brewer preparing a brewing chamber
- Dosing of ingredients
- Extraction time
- Dispensing of drink
- Brewer returning to start position

### Table brewing process

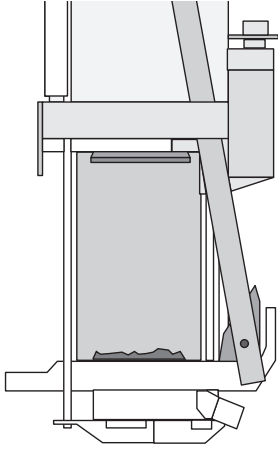
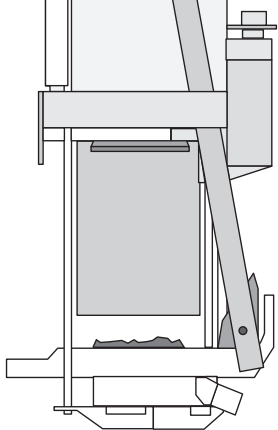
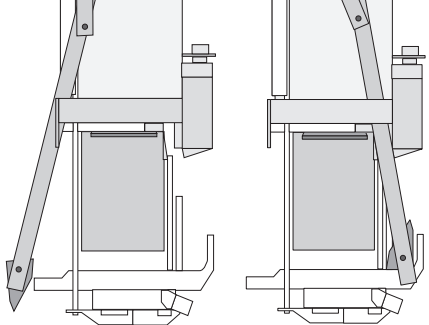
This table shows the various phases of the brewing process and the stages in each phase”:

Phases		
• Brewer preparing a brewing chamber		
Stage	Description of function	Illustration
1	Control switches actuator motor on to drive actuator/spindle.	
2	Actuator spring winds up Spindle: <ul style="list-style-type: none"> <li>• opens the switch BAE (Brewer at end), and</li> <li>• presses down the plunger.</li> </ul>	
3	Scraper moves forward (if set to starting position at rear) Filter Plate closes the brewer cylinder. <b>Note:</b> Counterpressure of brewer cylinder prevents the filter plate and the actuator from further ascending	
4	Control stops the actuator motor when the pin on the plunger holder does not operate the microswitch BC (Brewer closed) any longer (illustration).	

Continued...

Phases		
Continued from previous page..		
• Dosing of ingredients		
Stage	Description of function	Illustration
1	The dosing motor is driven and the outlet valve dispenses water.	
2	The water flushes the coffee powder into the brewing chamber.	
• Extraction time		
<b>Note:</b> The extraction time corresponds to the top-stop time set in the programming.		
• Dispensing of a drink		
Stage	Description of function	Illustration
1	The actuator motor descends the plunger in the brewer cylinder via the spindle.	
2	The beverage is filtered through the filter plate (1) and dispensed into the cup via the outlet spout (2).	

*Continued...*

Phases		
Continued from previous page..		
• Brewer returning to start position		
Stage	Description of function	Illustration
1	The actuator motor stops as soon as the guiding nut closes the microswitch BAE (Brewer at End). The plunger is now in lower end position.	
2	The control switches the actuator motor to reverse motion, whereby the plunger ascends.	
3	The pin on the plunge holder operates the microswitch BC (Brewer Closed - opener), when the plunge holder reaches its upper position.	
4	The brewer cylinder opens, and the scraper is guided in such a way that the dried coffee grounds as well as the filter paper <sup>a</sup> are pushed into the coffee grounds container.	
5	The filter papera is rolled off the paper roll and aligned into position.	
6	The microswitch BAE (Brewer at End) is actuated, when the scraper is in its rear or front position (depends on programmed setting).	
7	The control stops the actuator motor	
a. Optional for coffee filling.		

## **C Dosing System**

### **C.1 Adjustments**

---

## C.2 (Dis-)assemblies

### C.2.1 Removal of the instant ingredient mixing units

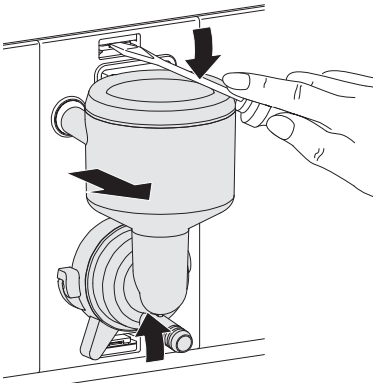
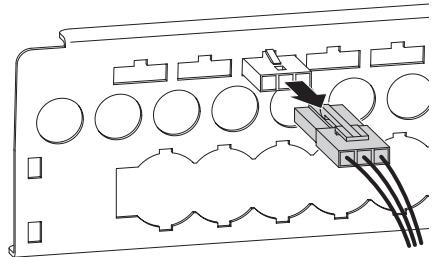
#### Preparation

Before removing the mixing units

- Open the door
- Switch off the mains switch, disconnect the power supply, and close the water cock.

#### Removal

Follow these steps to remove the mixing units:

Step	Action	Illustration
1	Detach the mixing unit by pressing the flat end of a slotted tip screw driver against the upper and lower click tab, and pull out the mixing unit from the main bracket for mixing units.	
2	Disconnect the plug connection from the connection rail.	

#### Installation

Installation is done in reverse order.



- Ensure that mixing unit connects properly to extraction tube coupling and valve connection when reinstalling into main bracket.
- The main bracket for mixing units is provided with holes to facilitate correct location of mixing units.

## C.2.2 Disassembly of a dispensing valve for instant ingredients

---

### Preparation

Before disassembling a dispensing valve

- Open the door
- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the instant ingredient mixing unit in question.

---

### Disassembly

Lift the locking tab by pressing eg. the flat end of a slotted tip screw driver between the locking tab and the valve; simultaneously pull out dispensing valve of outlet tube in module plate.

---

### Installation

Installation is done in reverse order.



Ensure that valve is properly seated in the outlet tube, which is simultaneously acting as a seal.

---

## C.2.3 Replacement of a whipper motor

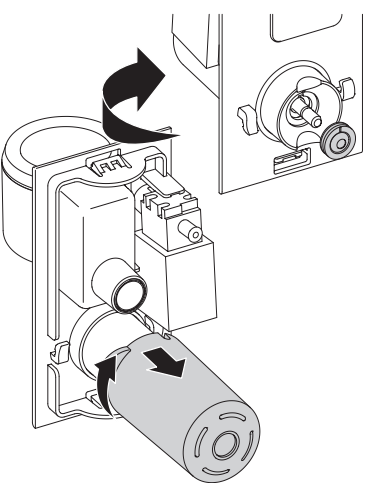
### Preparation

Before replacing a whipper motor

- Open the door
- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the instant ingredient mixing unit in question.

### Replacement

Follow these steps to replace a whipper motor:

Step	Action	Illustration
1	Hold the mixing unit in one hand and with the other turn the locking cover for whipper motor clockwise to release motor	
2	Remove motor from cover and replace with new one, if necessary	
3	Check axle seal for motor and replace, if necessary.	

### Installation

Installation is done in reverse order.

### Rearrangement

In case the configuration of instant ingredient canisters or mixing funnels is changed, the whipper motors must be rearranged as well. Blanks of 20 mm and or 40 mm clicked on between motors eliminate free space.



## C.2.4 Rearrangement of the extraction tube couplings

### Preparation

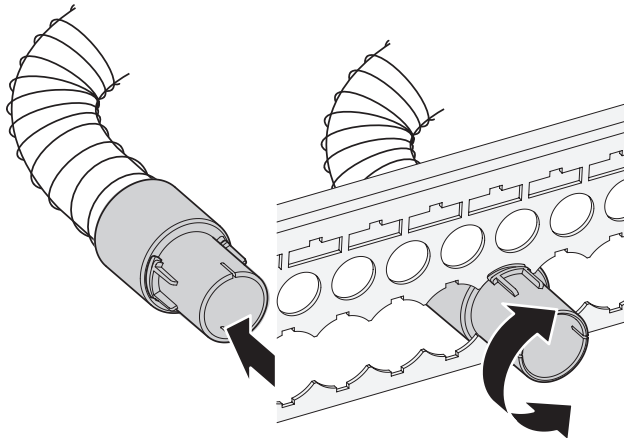
Before repositioning an extraction tube coupling

- Open the door
- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the instant ingredient mixing units in question.

### Rearrangement

- Turn the appropriate coupling a quarter revolution to either side and remove from the rear of the connection rail.
- Reposition the coupling to the proper hole in the connection rail and relock it by turning a quarter revolution.

### Illustration



## C.2.5 Disassembly of an instant ingredient motor

### Preparation

Before disassembling an instant ingredient motor

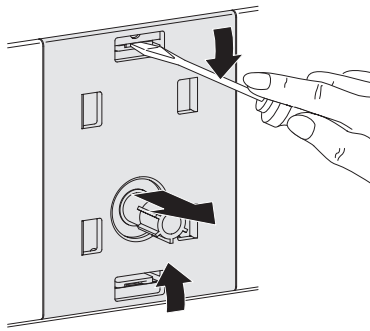
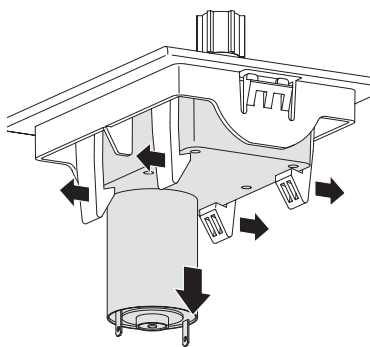
- Open the door
- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the appropriate instant ingredient canisters.



Remember to close the outlet spouts of instant ingredient canisters before removing canisters.

### Disassembly

Follow these steps to disassemble an instant ingredient motor:

Step	Action	Illustration
1	Detach the ingredient motor module by pressing the flat end of a slotted tip screw driver against the upper and lower click tab, and pull out the ingredient motor module from the connection rail.	
2	Disconnect the electrical connections.	
3	Detach the ingredient motor from the motor module plate as follows: <ul style="list-style-type: none"> <li>• Turn motor module plate front up, motor pointing downwards over eg. a table</li> <li>• Place your thumbs on front side of plate and place other fingers on retaining tabs on rear side.</li> <li>• Press retaining tabs aside till motor is released from the tabs and falls down on table.</li> </ul>	

### Installation

Installation is done in reverse order. Module will click into position.

### Rearrangement

In case the configuration of instant ingredient canisters is changed, the ingredient motors must be rearranged as well. Blanks of 20 mm and or 40 mm clicked on between motors eliminate free space.



- Ensure that the ingredient motor module is installed in place in mounting rail in correct relation to ingredient canister.

- Ensure that the corresponding ingredient canister is gearing correctly into the motor coupling.
  - Remember to open the outlet spout of canister after reinstallation of canister.
-

## C.2.6 Disassembly of the drive assembly for branch pipe

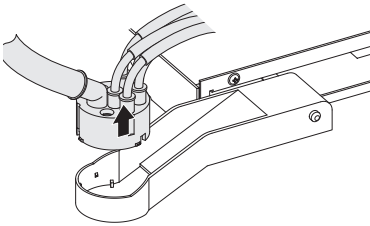
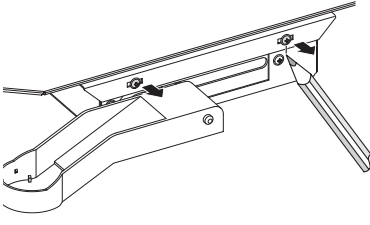
### Preparation

Before disassembling the drive assembly for branch pipe

- Open the door
- Switch off the mains switch, disconnect the power supply, and close the water cock.

### Removal

Follow these steps to disassemble the distributor head holder:

Step	Action	Illustration
1	Remove the distributor head from its holder.	
2	Withdraw electrical plug connections for the drive assembly at rear of assembly.	
3	Note position of the mounting screws of the driver assembly in the adjusting slots, and mark the position with a pen or equal.	
4	Unscrew the mounting screws and remove the drive assembly from the drip tray under mixing units..	

### Installation

Assembly is done in reverse order considering the markings for correct positioning of the drive assembly.

## C.2.7 Removal and adjustment of shaft for distributor head holder

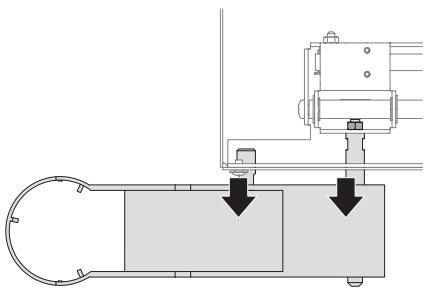
### Preparation

Before removing the shaft for the distributor head holder

- Open the door
- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the drive assembly for branch pipe

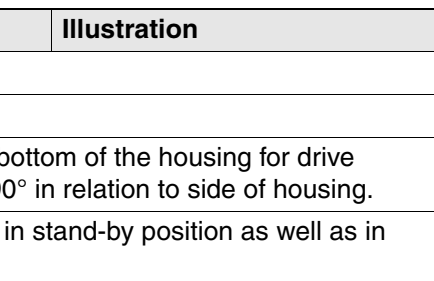
## Removal

Follow these steps to remove the shaft:

Step	Action	Illustration
1	Untighten nut by holding counter on shaft using eg. an adjustable spanner.	
2	Remove drive shaft.	

## Installation and adjustment

Installation is done in reverse order considering the correct position of the shaft as follows:

Step	Action	Illustration
1	Relocate shaft in reverse order.	
2	Fasten nut of drive shaft.	
3	Check that the shaft is parallel to the bottom of the housing for drive assembly or alternatively positioned 90° in relation to side of housing.	
4	Check that the switches are activated in stand-by position as well as in operating position.	

## C.2.8 Rearrangement of suspension for ingredient canisters

### Preparation

Before rearranging the suspension for the instant ingredient canisters

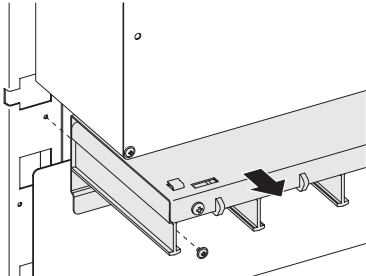
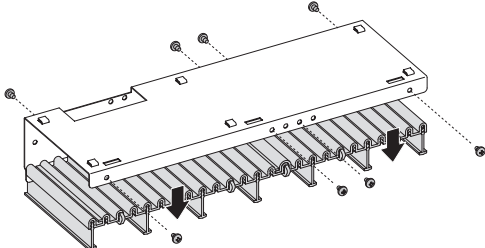
- Open the door
- Switch off the mains switch, disconnect the power supply, and close the water cock.
- Remove the instant ingredient canisters



Remember to close the outlet spouts of instant ingredient canisters before removing canisters.

### Disassembly of suspension rails

Follow these steps to disassemble the suspension rails for the instant ingredient canisters:

Step	Action	Illustration
1	Loosen and remove the two screws retaining the support channel for suspension rails.	
2	Unhook support channel from holders by pulling forwards	
3	Loosen and remove four screws in the front and in the rear of the support channel	
4	Take out suspension rails from support channel.	

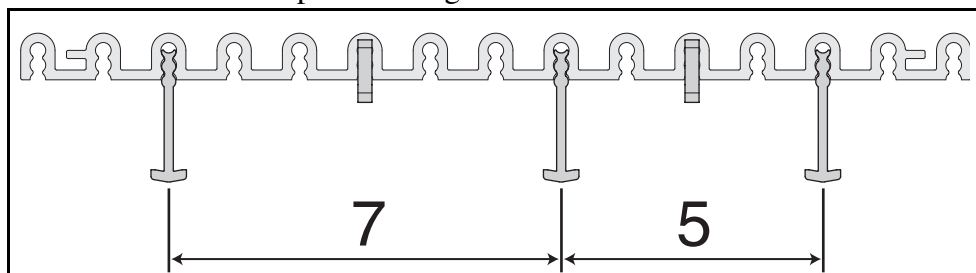
### Prerequisites to rearrangement

Before starting the rearrangements not only the order and position of the canisters must be considered, but also the size of the canisters.

Standard canisters requires 5 tracks, large canisters 7 tracks, see illustration:

## Illustration

Illustration of example of configurations



## Rearrangement

Follow these steps to rearrange the suspension for the ingredient canisters::

Step	Action	Illustration
1	Slide out the location guides for the ingredient canisters	
2	Remove spiral pins and holder guides for instant ingredient canisters by sliding holder guides out.	
3	If necessary, disassemble suspension rails, and replace by new one. Note: Two types available, one with 10 tracks and one with 15 tracks.	
4	Place holder guides and fix with spiral pins in the wanted tracks of the suspension rail	
5	Place the location guides for the ingredient canisters in proper tracks.	
6	Check if canisters are properly located in relation to ingredient motors and mixing units.	

## C.2.9 Removal of spring in lid for ingredient canister

## Preparation

Before removing the spring in lid for instant ingredient canisters

- Open the door
- Remove the instant ingredient canister



Remember to close the outlet spouts of instant ingredient canisters before removing canisters.

---

**Removal of spring  
in lid**

Follow these steps to remove the spring in lid::

Step	Action	Illustration
1	Take hold at top of canister with one hand and push sides together while pulling lid off with the other, see illustration	
2	Turn lid upside down and ensure that the spring loaded side turns against you	
3	Press the opposite side of lid off the hinge tab and disassemble lid	
4	Take out spring	

---

**Assembly of lid**

Put one hinge tab in its holder on the other part of the lid and let the other hinge tap click in place as well.

---

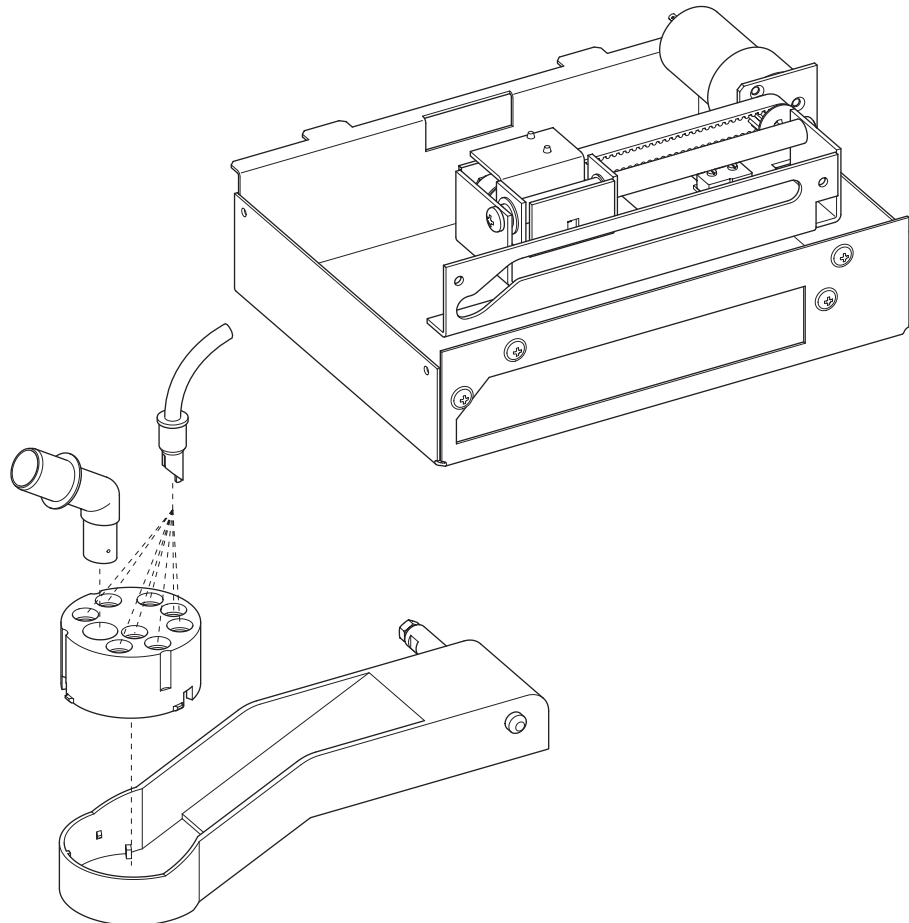


## C.3 Functional descriptions

### C.3.1 Total overview

Parts and functions

This illustration shows the location of the distributor head components



Legend for figure:

Part		Function
A		
B		
C		
D		
E		

Part		Function
F		
G		

## C.4 Electrical diagrams

## C.5 Technical specifications

## C.6 Options

## C.7 Accessories

.

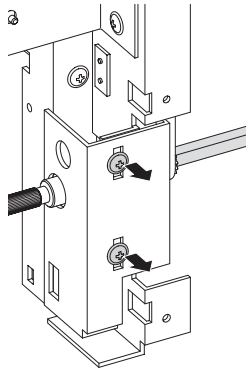
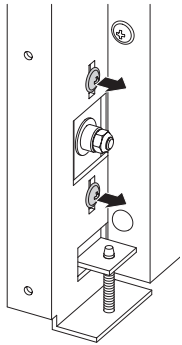
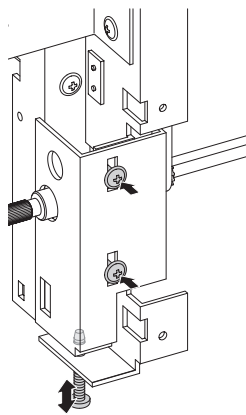
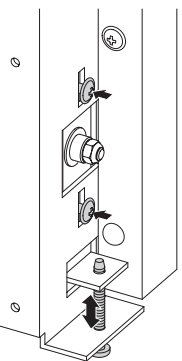
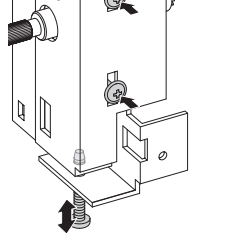
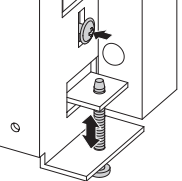
## D Product Delivery

### D.1 Adjustments

#### D.1.1 Adjusting the toothed belts for cup elevator

Adjustment

Follow these steps to adjust the toothed belts for cup elevator:

Step	Action		
1	Loosen locking screws of adjustable fixation plates in both sides.		
2	Level the tension of the toothed belts using the adjusting screws in each side of sliding rails ensuring that the shaft of cup elevator motor is in a horizontal position.		
3	Re-tighten locking screws of adjustable fixation plates		

## D.2.(Dis-)assemblies

### D.2.1 Replacing the cup drop ring

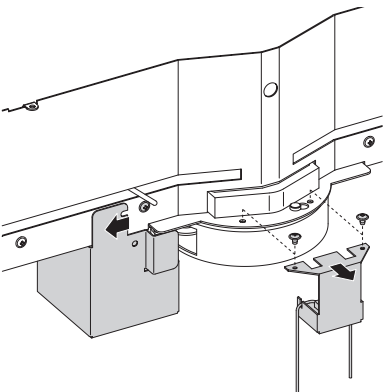
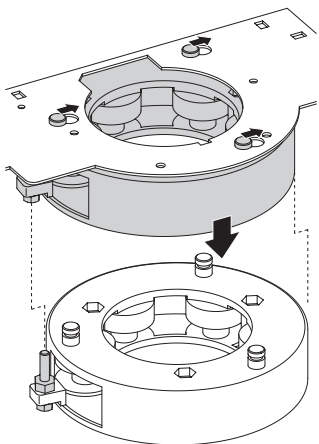
#### Preparation

Before replacing the cup drop ring

- Switch off the main switch, disconnect the power supply.
- Open door of cup magazine
- Remove all cups from the cup magazine.

#### Replacement

Follow these steps to replace the cup drop ring:

Step	Action	Illustration
1.	Remove the cover plate in front of the cup drop ring motor loosening one screw.	
2.	Remove the holder for cup brake loosening two screws.	
3.	Remove cup drop ring by <ul style="list-style-type: none"> <li>• releasing suspension screws from the key holes by pushing the cup drop ring right</li> <li>• removing the tap of the cup drop ring from the tension rod</li> </ul>	
4.	Replace cup drop ring.	

#### Installation

Installation is done in reverse order.



The cup ring is available in two sizes:

- 7C
- 7H



## D.2.2 Replacing the cup drop ring motor

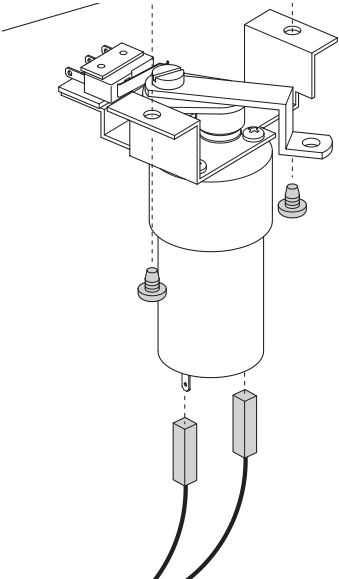
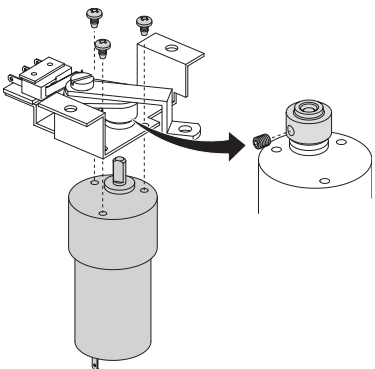
### Preparation

Before replacing the cup ring motor

- Switch off the main switch, disconnect the power supply.
- Open door of cup magazine
- Remove all cups from cup magazine.
- Remove cup drop ring

### Replacement

Follow these steps to replace the cup ring motor:

Step	Action	Illustration
1	Remove the bracket for cup drop ring motor loosening two screws.	
2	Remove electrical connections from the cup drop ring motor	
3	Unscrew the grub screw from crank	
4	Remove motor loosening three screws.	
5	Replace motor.	

### Installation

Installation is done in reverse order.



.....

## D.2.3 Replacing the switch for cup drop ring motor

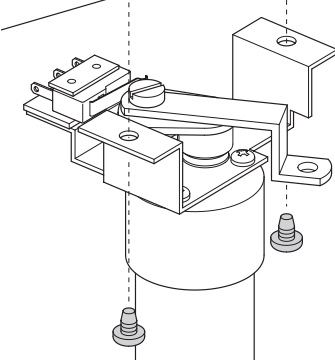
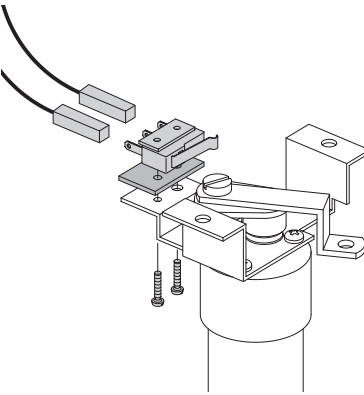
### Preparation

Before replacing the switch for cup ring motor

- Switch off the main switch, disconnect the power supply.
- Open door of cup magazine
- Remove all cups from cup magazine.
- Remove cup drop ring

### Replacement

Follow these steps to replace the switch for cup ring motor:

Step	Action	Illustration
1	Remove the bracket for cup drop ring motor loosening two screws.	
2	Retrieve electrical connections from the switch	
3	Withdraw switch and insulation loosening two screws.	
4	Replace switch.	

### Installation

Installation is done in reverse order.



Remember to relocate insulation between switch and bracket when re-installing switch.

## D.2.4 Removal of the cup dispenser

### Preparation

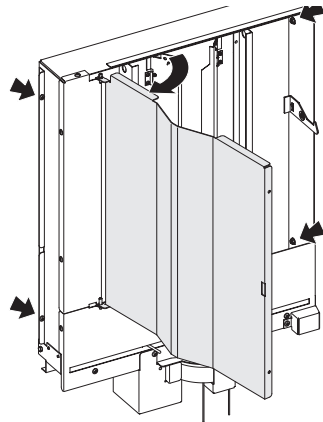
Before removing the cup dispenser

- Switch off the main switch, disconnect the power supply.

- Open door of cup magazine
- Remove all cups from cup magazine.

## Removal

Follow these steps to remove the cup dispenser:

Step	Action	Illustration
1	Withdraw the electrical connection plugs of the electric components on the cup dispenser from the SPC	
2	Open door of cup magazine.	
3	Loosen and remove the two nuts from the spacer studs at the right side of cup magazine.	
4	Unscrew the two screws in the left side of cup dispenser	
5	Withdraw cup dispenser from door of machine.	

## Installation

Installation is done in reverse order.

## D.2.5 Replacement of the cup conveyor motor

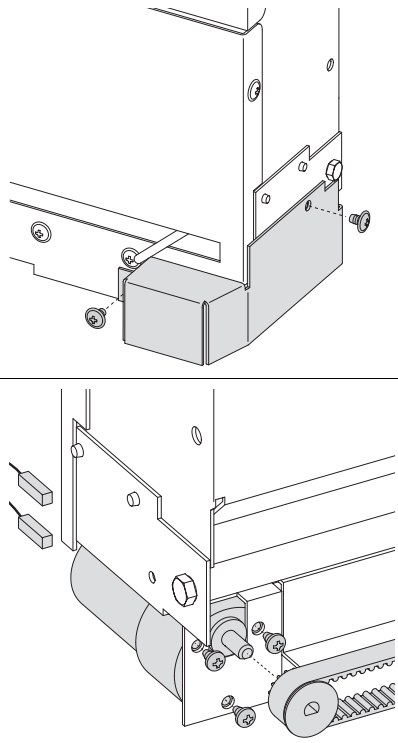
### Preparation

Before replacing the cup conveyor motor

- Switch off the main switch, disconnect the power supply.
- Remove all cups from cup magazine.
- Remove the cup dispenser

## Replacement

Follow these steps to replace the cup conveyor motor:

Step	Action	Illustration
1	Remove the cover for motor loosening two screws.	
2	Withdraw electrical connections from the motor	
3	Withdraw the fast pulley from the motor axle	
4	Remove motor loosening three screws.	
5	Replace motor.	

## Installation

Installation is done in reverse order.

## D.2.6 Replacing the cup pile guide with sensor

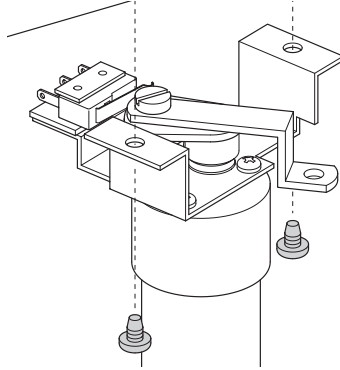
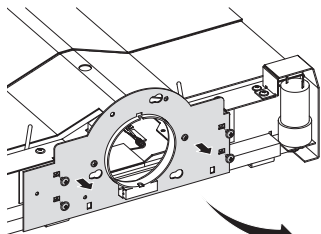
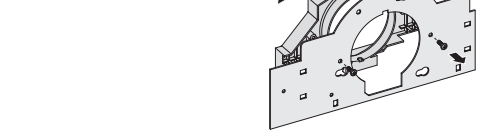
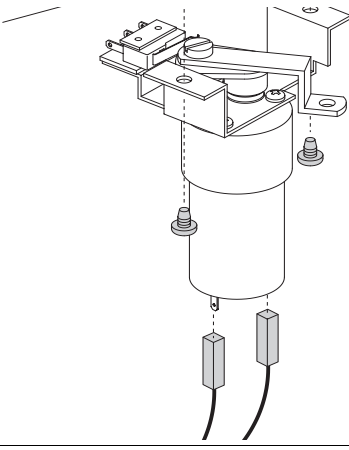
## Preparation

Before replacing the cup ring motor

- Switch off the main switch, disconnect the power supply
- Open door of cup magazine
- Remove all cups from cup magazine
- Remove cup drop ring.

## Replacement

Follow these steps to replace the cup sensor:

Step	Action	Illustration
1	Remove the bracket for cup drop ring motor and switch loosening two screws.	
2	Remove base plate for cup dispenser loosening four screws.	
3	Remove cup pile guide with sensors loosening two screws.	
4	Withdraw electrical cables from cup drop ring motor and switch.	
5	Replace cup pile guide with sensor.	

## Installation

Installation is done in reverse order.

## D.2.7 Removing the magazine empty switches of cup magazine

## Preparation

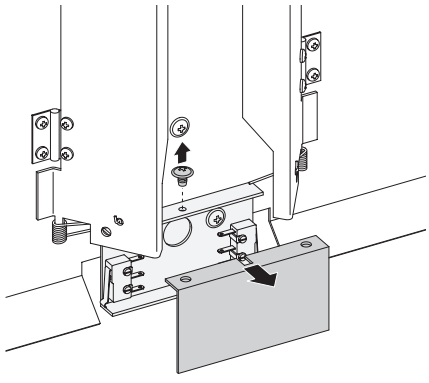
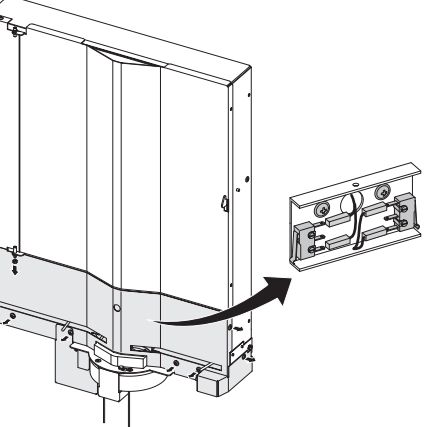
Before removing the magazine empty switches

- Switch off the main switch, disconnect the power supply
- Open door of cup magazine

- Remove all cups from cup magazine

## Removal

Follow these steps to replace the cup sensor:

Step	Action	Illustration
1	Remove cover for switches from inside of cup magazine loosening one screw.	
2	Withdraw cover	
3	Unscrew one screw from cover for cup conveyor motor below at the right side rail of the cup magazine.	
4	Remove lower hinge pin of door for cup magazine loosening nut	
5	Remove bottom plate for cup dispenser loosening four screws on front and two screws from either side.	
6	Remove bracket for switches loosening two screws.	
7	Withdraw electrical connections from switches.	
8	Remove a switch loosening two screws.	

## Installation

Installation is done in reverse order.

## D.2.8 Removing the cover at the shutter mechanism

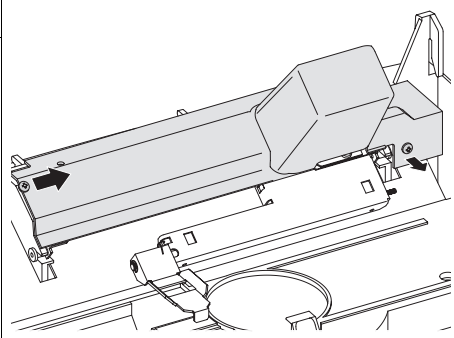
### Preparation

Before removing the cover at the shutter mechanism:

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the drip guide
- Remove the cup slide with shutter

### Removal

Follow these steps to remove the cover at the shutter mechanism:

Step	Action	
1	Loosen left screw	
2	Remove the cover unscrewing the right screw and lifting off the cover towards the right	

### Installation

Installation is done in reverse order.

## D.2.9 Replacing the position switches for cup catcher / shutter mechanism

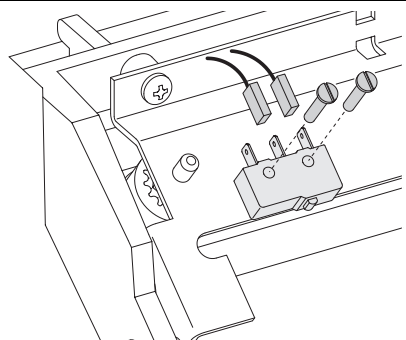
### Preparation

Before replacing one or more of the three position switches:

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the drip guide
- Remove the cup slide with shutter
- Remove the cover at the shutter mechanism

### Replacement

Follow these steps to replace one or more of the position switches:

Step	Action	
1	Disconnect electrical connections from the switch in question.	
2	Remove switch loosening two screws.	

---

Installation                      Installation is done in reverse order.

---

## D.2.10 Removing the motor for cup catcher / shutter mechanism

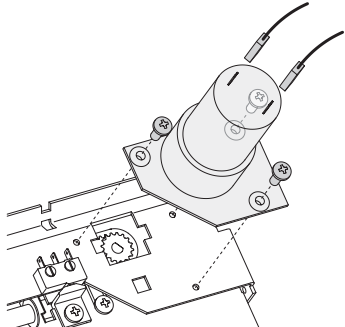
---

Preparation                      Before removing the motor for cup catcher / shutter mechanism:

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the drip guide
- Remove the cup slide with shutter
- Remove the cover at the shutter mechanism

---

Removal                          Follow these steps to remove the motor:

Step	Action	
1	Disconnect electrical connections.	
2	Remove the motor with bracket loosening three screws.	

---

Installation                      Installation is done in reverse order considering that the electrical plug connection turning to the side with the motor label must be connected to wire P16-2 and the electrical plug connection on the opposite side connected to wire P16-1.

---

## D.2.11 Removing the bracket for cup catcher / shutter mechanism

---

Preparation                      Before removing the bracket for cup catcher / shutter mechanism:

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the drip guide
- Remove the cup slide with shutter
- Remove the cover at the shutter mechanism

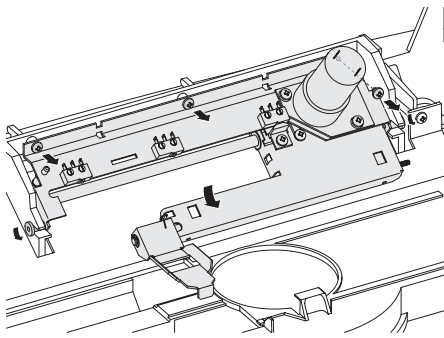
---

Removal                          Follow these steps to remove the bracket::

Step	Action
1	Withdraw the electrical plug connection from the SPC circuit board.

---



Step	Action	
2	Remove three screws.	
3	Tilt bracket out of its holders and lift it off.	

## D.2.12 Removing the toothed belt for cup catcher / shutter mechanism

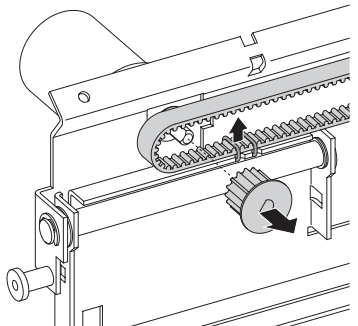
### Preparation

Before removing the toothed belt for cup catcher / shutter mechanism

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the drip guide
- Remove the cup slide with shutter
- Remove the cover at the shutter mechanism
- Remove the bracket for cup catcher / shutter mechanism

### Removal

Follow these steps to remove the toothed belt:

Step	Action	
1	Remove fast pulley from the motor shaft.	
2	Remove one screw retaining the belt holder.	
3	Remove belt holder	
4	Remove toothed belt from loose pulley.	

### Installation

Installation is done in reverse order.

## D.2.13 Removing the fast pulley from motor for cup catcher / shutter mechanism

### Preparation

Before removing the motor for cup catcher / shutter mechanism:

- Switch off the main switch, disconnect the power supply, and close the water cock

- Remove the drip guide
- Remove the cup slide with shutter
- Remove the cover at the shutter mechanism
- Remove the motor for cup catcher / shutter mechanism

Removal Pull off fast pulley from motor shaft.

Installation Installation is done in reverse order.

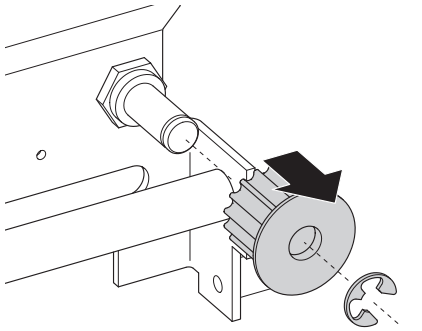
## D.2.14 Removing the loose pulley from toothed belt for cup catcher / shutter mechanism

Preparation Before removing the loose pulley from toothed belt for cup catcher / shutter mechanism:

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the drip guide
- Remove the cup slide with shutter
- Remove the cover at the shutter mechanism
- Remove the bracket for cup catcher / shutter mechanism
- Remove the toothed belt.

Removal

Follow these steps to remove the loose pulley:

Step	Action	
1	Remove the retaining ring.	
2	Lift off the loose pulley from its shaft.	

Installation Installation is done in reverse order.

## D.2.15 Removing the cover for cup station

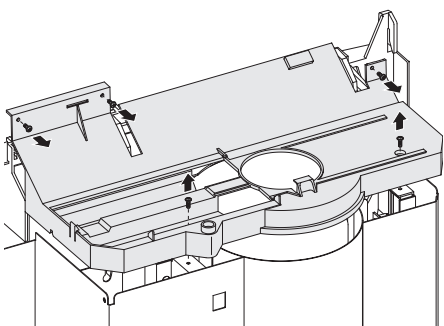
Preparation Before removing the cover for cup station:

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the drip guide

- Remove the cup slide with shutter
- Remove the cup catcher
- Remove the cover at the shutter mechanism
- Remove the bracket for cup catcher / shutter mechanism

## Removal

Follow these steps to remove the cover for cup station:

Step	Action	
1	Loosen and remove remaining 5 screws in cover.	
2	Lift off cover for cup station.	

## Installation

Installation is done in reverse order.

## D.2.16 Replacing the opto-sensor glasses for upper cup sensors

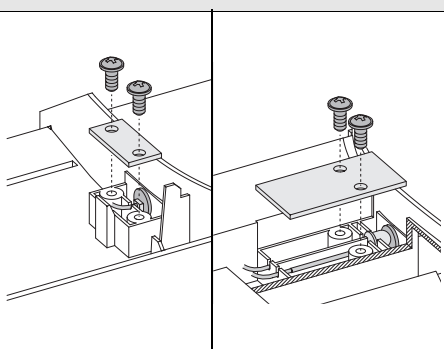
## Preparation

Before replacing the opto sensor glasses for upper cup sensors:

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the drip guide
- Remove the cup slide with shutter
- Remove the cup catcher
- Remove the cover at the shutter mechanism
- Remove the bracket for cup catcher / shutter mechanism
- Remove the cover for cup station

## Replacement

Follow these steps to replace the opto-sensor glasses:

Step	Action	
1	Turn cover for cup station upside down.	
2	Unscrew two screws of the holder for opto-diode and of the holder for opto-transmitter, respectively.	
3	Remove opto-diode and opto-transmitter from their holders, respectively.	
4	Replace the glasses for opto-diode and opto-transmitter, respectively.	

## Installation

Installation is done in reverse order.

## D.2.17 Replacing the safety switch for cup catcher / shutter mechanism

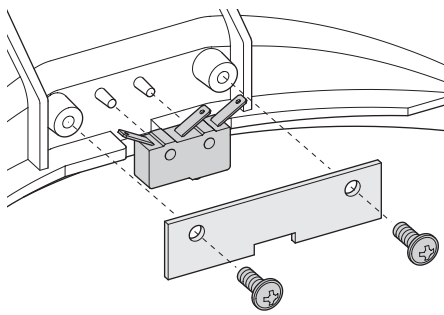
### Preparation

Before replacing the safety switch for cup catcher / shutter mechanism

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the drip guide
- Remove the cup slide with shutter
- Remove the cup catcher
- Remove the cover at the shutter mechanism
- Remove the bracket for cup catcher / shutter mechanism
- Remove the cover for cup station

### Replacement

Follow these steps to replace the safety switch:

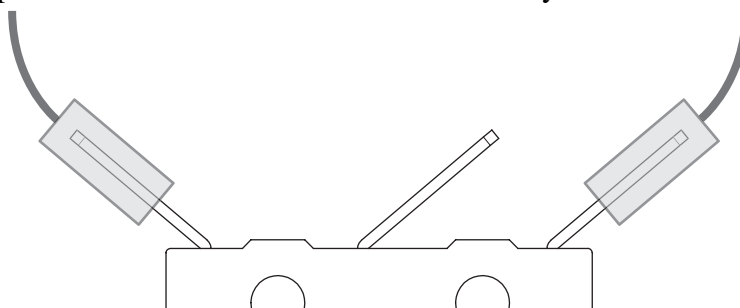
Step	Action	
1	Remove holder plate for switch loosening two screws.	
2	Disconnect electrical connections from switch.	
3	Lift off switch from retaining pins	

### Installation

Installation is done in reverse order.

### Illustration

The pins of the switch are connected electrically as illustrated below:



## D.2.18 Removing the left / right cover for cup elevator

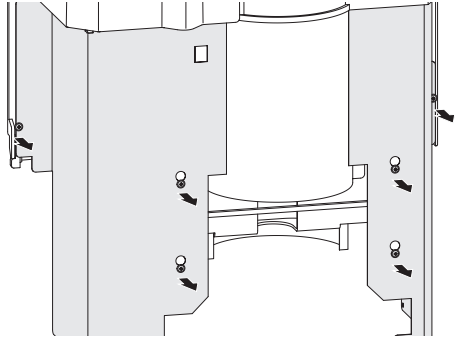
### Preparation

Before removing the left and right covering for cup elevator:

- Switch off the main switch, disconnect the power supply, and close the water cock

## Removal

Follow these steps to remove the left and right covering for cup elevator

Step	Action	
1	Loosen two screws in front and one screw at the side of left / right cover for cup elevator, respectively.	
2	Lift off left / right cover, respectively.	

## Installation

Installation is done in reverse order.

## D.2.19 Removing the shield around the cup station

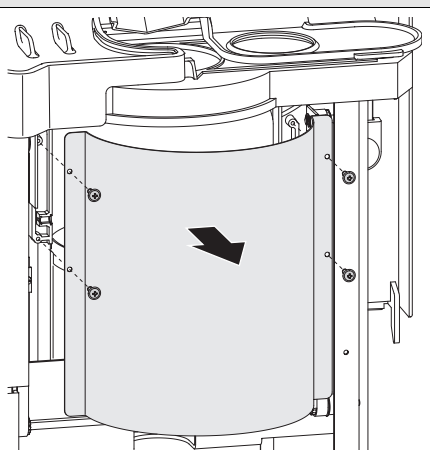
## Preparation:

Before removing the shield around the cup station:

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the drip guide
- Remove the cup slide with shutter
- Remove the cup catcher
- Remove the cover at the shutter mechanism
- Remove the bracket for cup catcher / shutter mechanism
- Remove the cover for cup station
- Remove the left / right cover for cup elevator

## Removal

Follow these steps to remove the shield around the cup station:

Step	Action	
1	Unscrew four screws.	
2	Remove shield around cup station.	

## Installation

Installation is done in reverse order.

---

## D.2.20 Replacing the glasses of the cup sensors

---

Preparation	<p>Before removing the shield around the cup station:</p> <ul style="list-style-type: none"><li>• Switch off the main switch, disconnect the power supply, and close the water cock</li><li>• Remove the drip guide</li><li>• Remove the cup slide with shutter</li><li>• Remove the cup catcher</li><li>• Remove the cover at the shutter mechanism</li><li>• Remove the bracket for cup catcher / shutter mechanism</li><li>• Remove the cover for cup station</li><li>• Remove the left / right cover for cup elevator</li><li>• Remove the shield around the cup station</li></ul>
Replacement	Replace glass for opto-diode and glass for opto-transmitter, respectively.
Installation	Installation is done in reverse order.

---

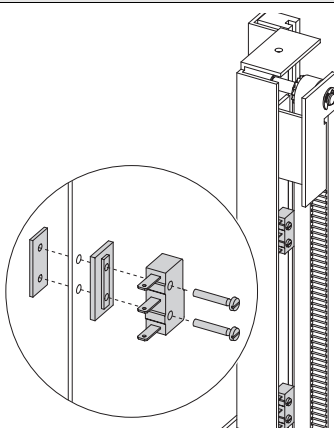
## D.2.21 Replacing the position switches for cup elevator

---

Preparation	<p>Before replacing one or more of the three position switches:</p> <ul style="list-style-type: none"><li>• Switch off the main switch, disconnect the power supply, and close the water cock</li><li>• Remove the drip guide</li><li>• Remove the cup slide with shutter</li><li>• Remove the cup catcher</li><li>• Remove the cover at the shutter mechanism</li><li>• Remove the bracket for cup catcher / shutter mechanism</li><li>• Remove the cover for cup station</li><li>• Remove the left / right cover for cup elevator</li><li>• Remove the shield around the cup station</li></ul>
-------------	--

## Replacement

Follow these steps to replace one or more of the position switches:

Step	Action	
1	Disconnect electrical connections from switch in question.	
2	Remove switch loosening two screws and threaded plate.	

## D.2.22 Removing the leftside sliding rail

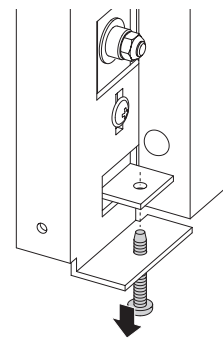
## Preparation

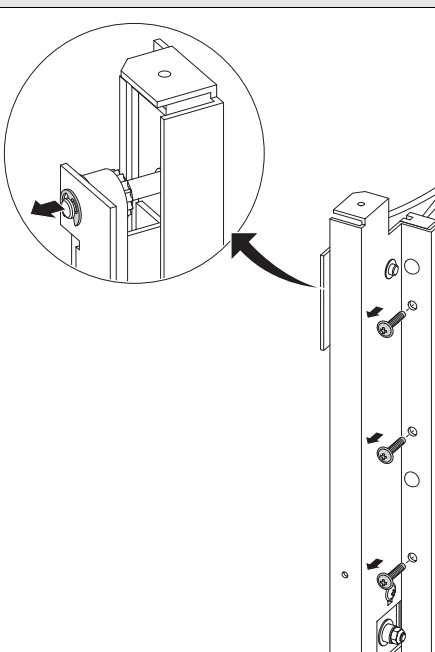
Before removing the left sliding rail:

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the drip guide
- Remove the cup slide with shutter
- Remove the cup catcher
- Remove the cover at the shutter mechanism
- Remove the bracket for cup catcher / shutter mechanism
- Remove the cover for cup station
- Remove the left / right cover for cup elevator

## Removal

Follow these steps to remove the left sliding rail:

Step	Action	
1	Loosen and remove adjusting screw.	

Step	Action	
2	Remove retaining ring from slide bearing of upper pulley.	
3	Loosen and remove three screws with washers.	
4	Lift off toothed belt.	

Assembly

Assembly is done in reverse order.

## D.2.23 Removing the upper pulley for leftside toothed belt for cup elevator

Preparation

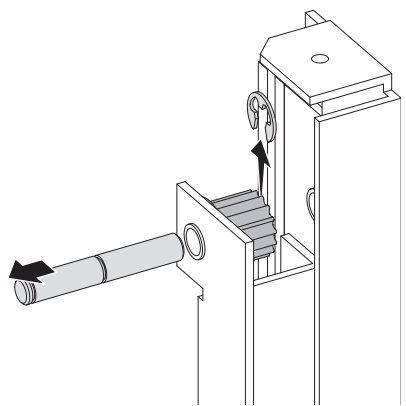
Before removing the upper pulley for leftside toothed belt:

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the drip guide
- Remove the cup slide with shutter
- Remove the cup catcher
- Remove the cover at the shutter mechanism
- Remove the bracket for cup catcher / shutter mechanism
- Remove the cover for cup station
- Remove the left / right cover for cup elevator
- Remove the left sliding rail



## Removal

Follow these steps to remove the upper pulley:

Step	Action	
1	Remove retaining ring from slide bearing at inner side of pulley.	
2	Pull sliding bearing to either side of sliding rail.	

## Installation

Installation is done in reverse order.

## D.2.24 Removing the leftside toothed belt for cup elevator

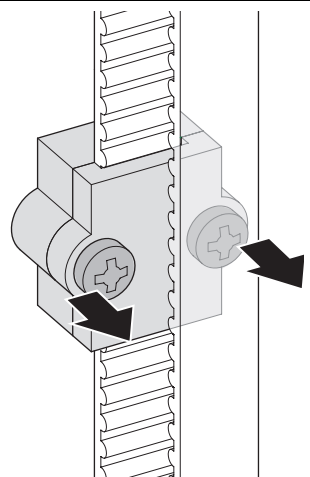
## Preparation

Before removing the leftside toothed belt for cup elevator:

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the drip guide
- Remove the cup slide with shutter
- Remove the cup catcher
- Remove the cover at the shutter mechanism
- Remove the bracket for cup catcher / shutter mechanism
- Remove the cover for cup station
- Remove the left / right cover for cup elevator
- Remove the left sliding rail

## Removal

Follow these steps to remove the toothed belt:

Step	Action	
1	Remove holder for toothed belt loosening two screws.	
2	Remove toothed belt.	

## D.2.25 Removing the motor for cup elevator

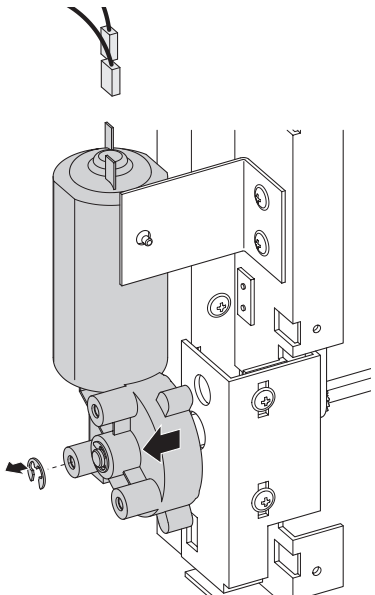
### Preparation

Before removing the motor for cup elevator:

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the left / right cover for cup elevator

### Removal

Follow these steps to remove the motor for cup elevator:

Step	Action	
1	Withdraw electrical connections from motor lugs	
2	Remove retaining ring from shaft for cup elevator	
3	Pull motor off the shaft.	

### Installation

Installation is done in reverse order considering that the electrical lug on the motor turning away from the cup station must be connected to wire P25-1, and the electrical lug on the motor turning against the cup station must be connected to wire P25-2.

## D.2.26 Removing the upper pulley for rightside toothed belt for cup elevator

### Preparation

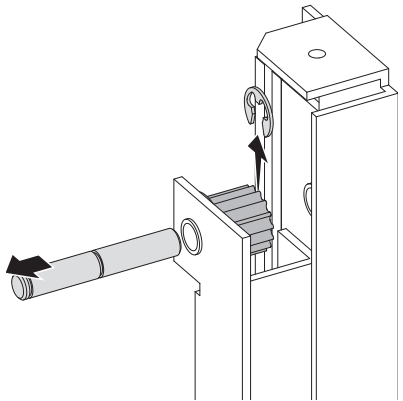
Before removing the upper pulley for rightside toothed belt:

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the drip guide
- Remove the cup slide with shutter
- Remove the cup catcher
- Remove the cover at the shutter mechanism
- Remove the bracket for cup catcher / shutter mechanism

- Remove the cover for cup station
- Remove the left / right cover for cup elevator
- Remove the motor for cup elevator
- Remove the rightside sliding rail

## Removal

Follow these steps to remove the upper pulley:

Step	Action	
1	Remove retaining ring from slide bearing at inner side of pulley.	
2	Pull sliding bearing to either side of sliding rail.	

## Installation

Installation is done in reverse order.

## D.2.27 Removing the lower pulleys for toothed belt for cup elevator

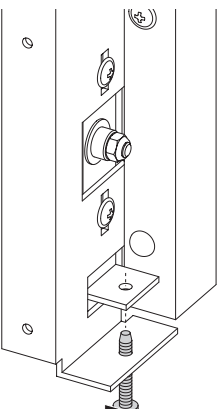
## Preparation

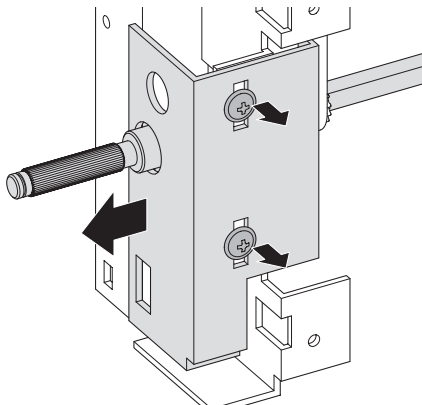
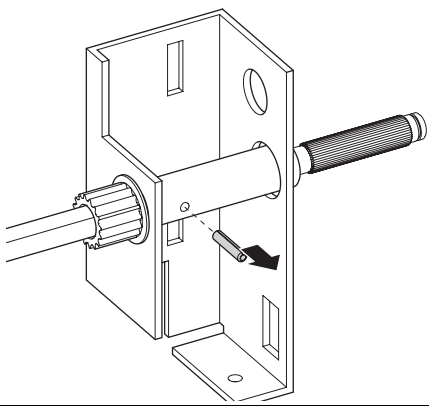
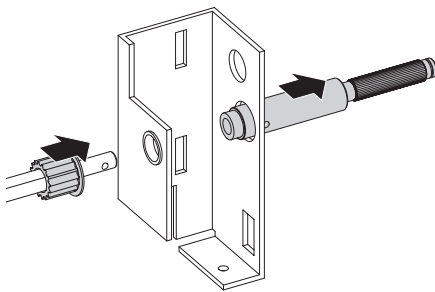
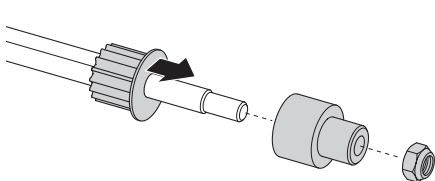
Before removing the lower pulley for rightside toothed belt:

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the left / right cover for cup elevator
- Remove motor for cup elevator

## Removal

Follow these steps to remove the lower pulley:

Step	Action	
1	Unscrew adjusting screws in both sides.	

Step	Action	
2	Unscrew two screws of motor bracket.	
3	Lift off motor bracket and pull the complete motor bracket to the left.	
4	Tap pin out of motor coupling.	
5	Take motor coupling and shaft for cup elevator apart.	
6	Withdraw right pulley from shaft.	
7	Loosen lock nut of shaft for cup elevator.	
8	Remove bearing bushing from shaft	
9	Remove left pulley.	

## Installation

Installation is done in reverse order.

## D.2.28 Removing the rightside sliding rail

## Preparation

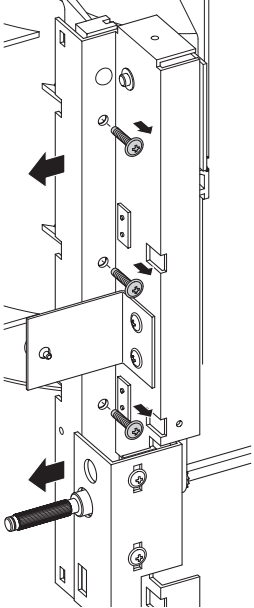
Before removing the leftside sliding rail:

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the drip guide

- Remove the cup slide with shutter
- Remove the cup catcher
- Remove the cover at the shutter mechanism
- Remove the bracket for cup catcher / shutter mechanism
- Remove the cover for cup station
- Remove the left / right cover for cup elevator
- Remove the motor for cup elevator

## Removal

Follow these steps to remove the sliding rail:

Step	Action	
1	Unscrew three screws.	
2	Lift off toothed belt from pulleys	
3	Lift off sliding rail.	

## Installation

Installation is done in reverse order.

## D.2.29 Removing the rightside toothed belt for cup elevator

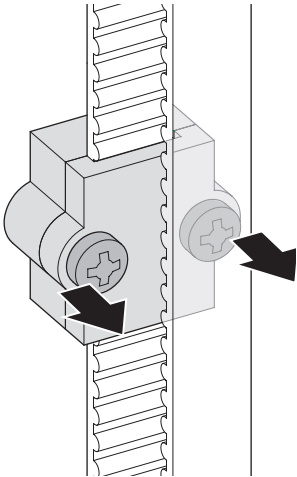
## Preparation

Before removing the leftside sliding rail:

- Switch off the main switch, disconnect the power supply, and close the water cock
- Remove the drip guide
- Remove the cup slide with shutter
- Remove the cup catcher
- Remove the cover at the shutter mechanism
- Remove the bracket for cup catcher / shutter mechanism
- Remove the cover for cup station
- Remove the left / right cover for cup elevator
- Remove the motor for cup elevator
- Remove the rightside sliding rail

Removal

Follow these steps to remove the toothed belt:

Step	Action	
1	Loosen two screw from holder for toothed belt.	
2	Lift off toothed belt.	

Installation

Installation is done in reverse order.

## D.3. Functional descriptions

### D.3.1 Total overview

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- Ensure .....
-

## D.4. Electrical diagrams

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-



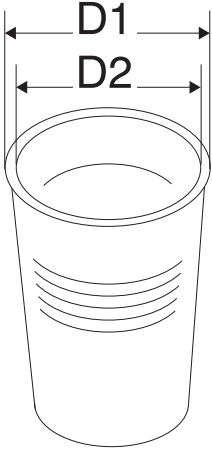
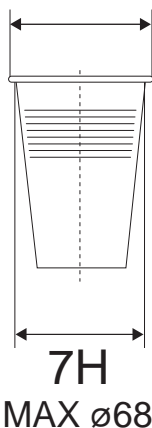
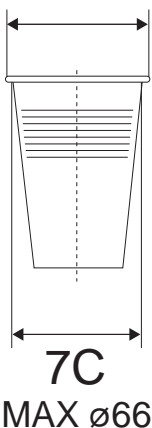
## D.5. Technical specifications

D.6. Options

D.6.1 Choice of cup ring

Cup drop ring

If a new cup type is used it may be necessary to replace the cup ring, observing the below considerations:

Action		
The choice of cup ring depends on the diameter of the cup used, considering diameters D1 and D2		
The cup ring is available in two sizes: <ul style="list-style-type: none"><li>• 7C</li><li>• 7H</li></ul>	 <p>MAX ø74 7H MAX ø68</p>	 <p>MAX ø73 7C MAX ø66</p>

## D.7.Accessories

.



## F Cooling



# Product Manual



**NEW xxx**

Products covered by this manual

NEW001  
NEW002  
NEW003  
NEW005  
NEW006

## Contents

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### Safety

The unit should be isolated from the electricity supply before removal of the covers.

Great care must be employed when working with high pressure carbon dioxide, and in no cases should the normal operating pressure of 2.3 bar be exceeded.

### Description

The NEWXXX is a range of chillers providing either still only or still and carbonated water outputs. These can include two syrups, and the still water units can include up to three individual still water dispense nozzles.

The units all incorporate an ice bath to provide the capacity for extended drinks performance, and share the same fridge, bath and control components.

The schematic on Page 4 shows the layout of the two carbonator models, NEW001 and NEW003.

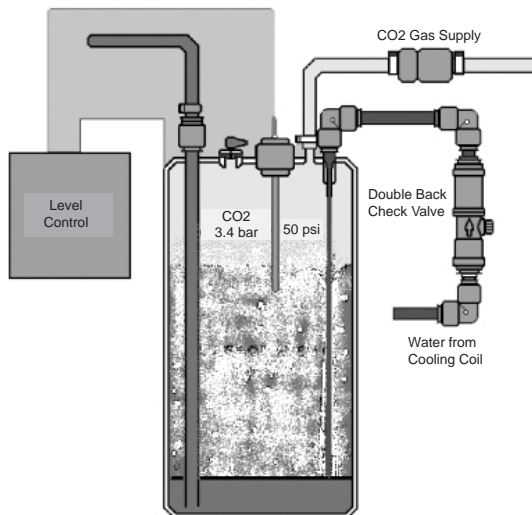
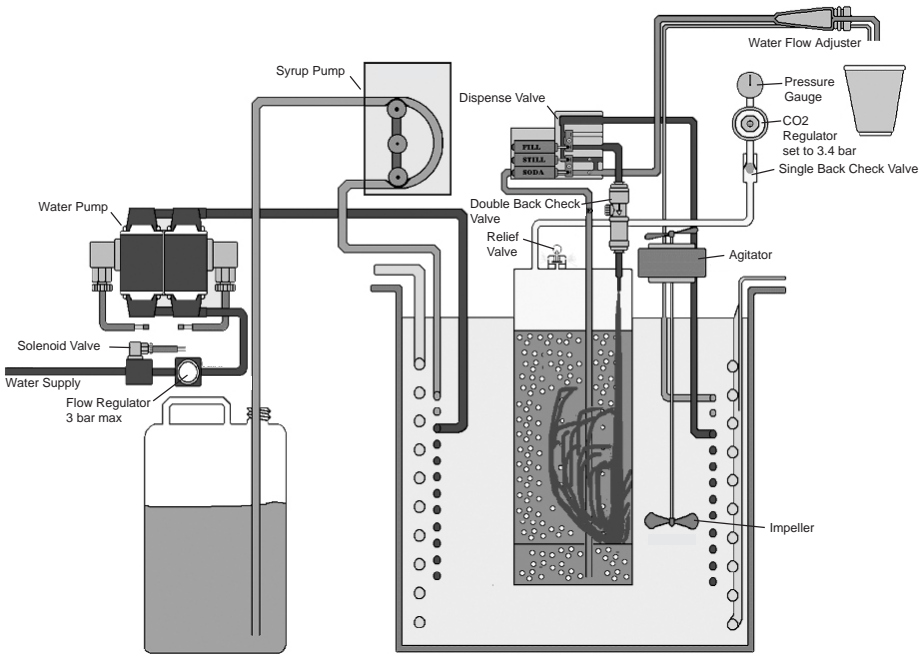
Carbonated water is generated in the carbonator can and is dispensed directly via the valve block to the outlet harness, under the pressure generated within the can. The can is replenished by a water pump which is controlled by the pcb and level probe within the can.

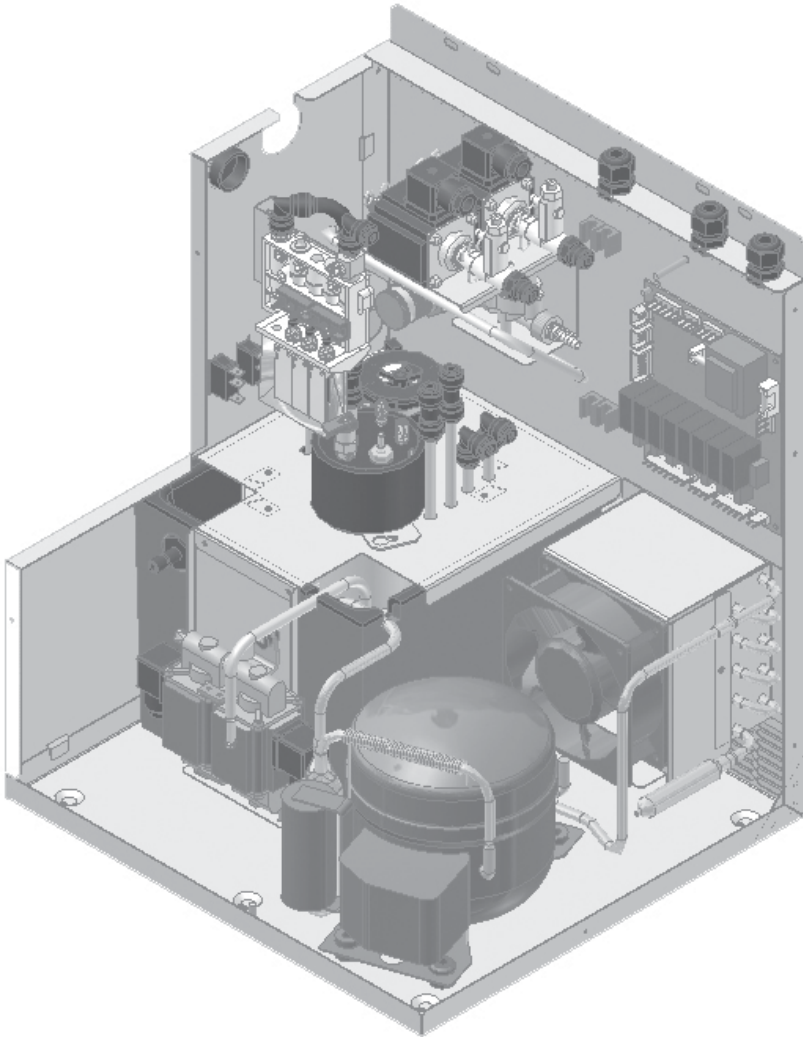
For a still drink, water is pumped through the stainless steel water coil in the ice bath to the dispense harness via the valve block. Both carbonator models include two syrups which are chilled via stainless steel coils in the bath, and dispensed via individual syrup pumps, with incorporated flow adjusters.

The still only models do not include a water pump, and water is chilled via the same water coil within the ice bath as the carbonators, but is dispensed via one, two or three way solenoid valves. No syrup cooling is provided on the still only models, the syrup merely being dispensed via the syrup pumps.

# Introduction

## Flow Schematic





1. Secure the unit through the side and top tabs to the host machine.
2. Connect the grey water inlet pipe to the host machine.
3. *If syrup pumps are fitted:* Connect the syrup tubes (marked 1 & 2) to the syrup either by inserting dip tubes in containers or connecting via bag in box connectors.
4. Place the overflow pipe into suitable container.
5. Connect the dispense python to the dispense nozzle on the host machine.
6. Connect the data harness and mains plug to the host machine.

## Commissioning

1. Remove the top and front covers.
  2. Slide back the plastic cover and fill bath with cold water up to the slot in the coil support bracket. Ensure that any overflow will not exceed the capacity of the overflow container.
  3. *Carbonator Only:* Ensure the gas bottle regulator it is set at 35 p.s.i. and connect the braided CO<sup>2</sup> pipe to it.
  4. *Carbonator Only:* Using the pressure relief valve, vent the CO<sup>2</sup> for approximately 5 seconds.
  5. Turn on mains water supply to unit.
  6. Turn on mains electrical supply to unit by overriding the door interlock on the host machine (refer to the host machine instructions for this procedure).
  7. With mains power and water on the following will happen.  
The agitator will start to turn.  
The compressor and fan will start.  
*Carbonator Only:* The water pump will start and fill the carbonator can. After a short period of time the pump will stop when the carbonator can is full.
  8. *If Syrup pumps are fitted:* Prime the syrup pumps using the switches (marked 1 & 2) on the side of the unit. Operate them until all air is purged from tubes and clean syrup is being dispensed.
  9. *If Syrup pumps are fitted:* Set the syrup flow rates, refer to the host machine instructions.
- Important:** Correct carbonation will not occur until ice has started to form in the bath and the water temperature has fallen below 5 °C.
- Note:** If the bath has been filled to the point of overflow, approximately half a litre of water will be displaced as ice forms in the bath.
10. Refit outer front and top panels.
  11. Test both still and carbonated drinks for correct operation.

**Important:** Warm water should be no higher than 45 °C

**Important:** After any cleaning dispense 3 drinks from each flavour to ensure all cleaning fluid residue is flushed out.

**Daily Clean** - Use the appropriate methods below for parts in contact with food products

**Multi Purpose Disposable Cloth.**

Use the cloth to apply the cleaning agent. Submerge a clean cloth into the cleaning agent (concentration recommended by manufacturer's instructions). Remove the cloth and remove excess water. Clean the dispense components wiping the cloth over the entire area resubmerging the cloth as necessary. Rinse the cloth in clean warm water and wipe off excess cleaning agent residue and soil. Dry using disposable paper towels, replace dispense components.

**Spraying on Cleaning Agent.**

Remove all dispense components. Liberally spray the cleaning agent at the concentration recommended by the manufacturer onto the dispense component ensuring that the whole area has been covered. Finish the clean by exchanging the cleaning agent for warm water, remove the soil with a multi purpose disposable cleaning cloth and dry the component with disposable paper towels.

**Food Grade Antibacterial Wipe.**

Remove the dispense components, wipe the dispense component with the food grade antibacterial wipe, remove all visible soil. Replace dispense component.

**Soaking Post Mix Dispense Nozzle & Diffuser.**

If removable, remove and submerge the dispense components into the cleaning agent solution. Leave the dispense components submerged for the desired contact time (2 to 10 minutes). After the contact time is over remove the dispense components, rinse in warm water and dry using disposable paper towels.

If not removable, clean using cleaning agent solution and brush.

## Cleaning

### **Deep Clean** - Parts in contact with food products

**Important:** This is to be carried out monthly or more frequently if host machine is heavily used.

Remove dispense components, pre clean using a damp multi purpose disposable cleaning cloth soaked in warm water.

Soak cloth in cleaning agent solution, remove excess water and clean dispense components. Using a brush, brush dispense head to dislodge any dried on soil. Remove soil with the cloth.

Rinse dispense head with a new multi purpose disposable cleaning cloth soaked in warm water until all soil and cleaning agent residues have been removed.

Soak multi purpose disposable cleaning cloth in disinfectant solution, apply to dispense component, ensure that the whole area is wiped. Leave for 10 minutes. Rinse off disinfectant using multi purpose disposable cleaning cloth that has been soaked in clean warm water. Dry dispense component with disposable paper towels.

Refit all dispense components.

### **General Cleaning** - Parts not in contact with food products

**Condenser.** Thoroughly clean at least once a month with a small stiff brush and /or vacuum cleaner. Do not use screwdrivers or other sharp implements which may puncture the fins.

**Warning:** Failure to clean the condenser can shorten the life of the compressor causing premature failure of the unit.

**Outer Panels.** Clean the outside panels, pay particular attention to the edges of the panels where spillage from ingredients could have ingressed and the area around the base of the unit. If necessary, remove the unit and thoroughly clean around the base and floor.

**Important:** If ingredients are present inside the unit, the cause must be found and rectified.

### **3 Month Sanitization**

#### **Prepare the Unit**

1. Remove the top and front panels.
2. Ensure that the waste bucket is in place .
3. Lift syrup dip tubes above liquid level in product container & press primer switches to empty lines, then place in a container of clean water and prime through to dispense nozzle then lift out of water & continue until empty.
4. Disconnect the electrical power to the unit & open the carbonated water dispense valve manually until gas comes from the dispense nozzle.
5. Drain bath by siphoning the water into a bucket. Flush out with warm (max. 45 °C) water ensuring all ice is melted and drained.
6. Carefully follow the manufacturers instructions and prepare a solution of proprietary sanitizing fluid such as DIVERSAL BX4A. A 5 litre syrup container is ideal for this operation.

#### **Sanitize the Water System**

7. Where a filter is fitted remove the cartridge, put sanitizer into the chamber & and flush through. Where a complete filter is fitted, dummy filters are available for this purpose.

or alternatively

7. Disconnect flexible water inlet tube from the water supply and place the end into a container of sanitizing fluid.
8. Switch on power & manually operate the still water solenoid to clear any air locks. Release & allow the carbonator chamber to fill.
9. Draw 1 cup of carbonated water followed by 1 cup of still water to ensure all tubes are full of sanitizer.
10. Fill water bath with sanitizer solution until water appears at overflow.
11. Switch off power & leave to stand for period recommended by sanitizer manufacturer.
12. Follow Daily Clean routine to clean dispense nozzles.

## **Cleaning**

### **Sanitize the Syrup Lines**

13. Switch on the main power.
14. Place dip tubes into the container of sanitizing fluid & operate the syrup priming switches until the fluid pours from the dispense nozzle.
15. Leave to stand for the period recommended by the sanitizer manufacturer.
16. Switch off power.

### **Recommission the Unit**

17. Switch on power supply.
18. Place syrup dip tubes into a 5 litre container of clean cold water and flush 1 litre through each syrup line .
19. Reconnect inlet water supply tube to machine supply & vend 3 litres of still water.
20. Vend 3 litres of carbonated water.
21. Siphon off water bath and refill with cold water.

The ice bank is controlled by ice probes sensing resistance, any sanitizer fluid left in the water bath could cause the unit to freeze up.  
It is recommended that the bath is siphoned off a second time and refilled with cold water.

22. Re connect syrup tubes to the appropriate syrup containers and refit all covers.
23. Prime waters and syrups through to dispense nozzle & check drink strength with a brix cup.
24. Close vending machine door & test vend all cold drinks.



Prior to any fault finding, please ensure all water connections to the chiller are sound and that the incoming water supply is turned on. Also ensure that all electrical connections to the chiller are secure and that any syrup containers are not empty and the syrup pumps are primed, and that the chiller has had adequate time to build ice in the ice bath.

Symptom	Possible Cause	Corrective Action
No Still Water	Dispense solenoid not opening	Check supply to solenoid (230Vac)
		If voltage present, replace solenoid
	Inlet solenoid not opening	If voltage not present, check pcb connections
		If connections secure, replace pcb
	Water pressure regulator failed	Check supply to solenoid (230Vac)
		If voltage present, replace solenoid
	Ice bath frozen up	If voltage not present, check pcb connections
		If connections secure, replace pcb
		Replace
		Check ice probe assembly and connections and replace if necessary
		Check for ice bath contamination, melt ice, drain bath and refill. If contaminated, identify and cure source of contamination.
		If problem persists, replace pcb.

## Fault Finding

Symptom	Possible Cause	Corrective Action
No Carbonated Water	No CO2 pressure, check by operating pressure relief valve on carbonator can.	Check CO2 bottle, regulator and non-return valve. Supply pressure should be 2.3 bar, adjust or replace as necessary
	Carbonated water dispense solenoid not opening	Check supply to solenoid (230Vac0)  If voltage present, replace solenoid  If voltage not present, check pcb connections If connections secure, replace pcb
	Carbonator can not filling	Check probe connections Check supply to water pump, if present and pump inoperative, replace pump Check supply to can fill solenoid, if present and solenoid not opening, replace solenoid If voltage not present, check pcb connections If connections secure, replace pcb
No Syrup	Syrup pump inoperative	Check supply to pump, if present replace pump If voltage not present, check pcb connections If connections secure, replace pcb
Poor Levels of Carbonation in drinks	Wrong CO2 pressure	Check CO2 bottle, regulator and non-return valve. Supply pressure should be 2.3 bar

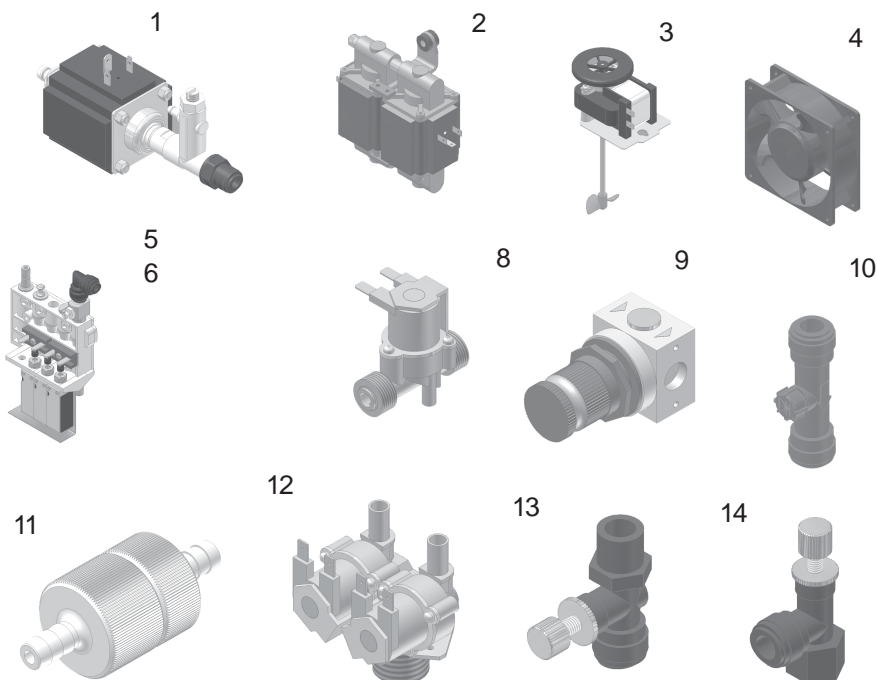


Symptom	Possible Cause	Corrective Action
Warm Drinks	Air in carbonation can	With the machine electrically isolated, empty can by manually operating the carbonated water dispense valve until gas escapes from the nozzle for 3 seconds Reconnect the power and allow can to fill
	Residue in carbonation can	After prolonged use, a surface film can develop within the can preventing good carbonation. This can be removed by flushing the system using a solution of citric acid, refer to cleaning and sanitising instructions
	Carbonation can is overfilled	If pump runs continuously, check connections to can level probe If problem persists, replace pcb.
	Insufficient water in the bath preventing the compressor from operating	Check connections to the ice probes and that the probes are submerged If problem persists, replace pcb
	Insufficient cooling air flow through the fridge	Check that the condenser is not blocked by debris Check that the fan is running, if not and supply present, replace fan
	Fridge failure	Check if compressor and fan are running, if they are and there is no cooling, replace the chiller Check supply to compressor and fan If voltage not present, check pcb connections If connections secure, replace pcb

## Replacement of Parts

Item No	Description	Part No	Used on models
1	Syrup pump	1A3886	NEW001,2,3
2	Water pump	1B2471	NEW001,3
3	Agitator Assembly	1A3880	All
4	Fan	1B5514	All
5	Valve block assembly	1A3888	NEW001,3
6	Valve block solenoid	1B1014	NEW001,3
7	Control board	3B1625	All
8	Single solenoid	1A3973	All
9	Water pressure regulator	1B5965	All
10	Double back-check valve	3B1566	NEW001,3
11	C02 non-return valve	1A3176	NEW001,3
12	Double outlet solenoid valve	3B1607	NEW005
13	Straight flow adjuster	3B1639	NEW002
14	Angled flow adjuster	3B1652	NEW005

Spare parts are available from the host machine manufacturer



**Important:** Ensure the unit can be transported comfortably and in a hygienic manner without leaving ingredients residue at the customers premises as well as in the vehicle used.

### To Remove from Host Machine

1. Place syrup dip tubes into a container of clean water and prime through until the water is coming from the nozzle. Whilst still priming, lift the dip tubes above the level of the water until all tubes are empty.
2. Switch off main power & manually open the carbonated water valve until gas only splutters from the dispense nozzle.
3. Syphon all water from the Ice bath.
4. Disconnect water supply, Co2 supply, & unplug the data harness and mains plug.

### Disposal of Scrap Units

It is illegal to simply scrap a refrigeration unit. Before a unit can be scrapped it must first have the gas removed by a specialist using specialist equipment. Contact your local refrigeration repair company for advice.

### Transportation

**Important:** This unit must be transported in an upright position

As with all refrigeration systems, irreparable damage can be caused by laying the unit on its side or even transporting upside down. Where the unit is transported by a carrier, the carton should always be marked in a conspicuous manner, the correct upright position in which it must be handled.

If a unit has been transported incorrectly it should be placed in the correct upright position and left for 24 hours before attempting to run the system.

Failure to observe the above precautions could seriously damage the system.



## **G Housing / Cabinet**

### **G.1 Adjustments**

#### **G.1.1**

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## G.2 (Dis-)assemblies

### G.2.1 Removal of the fan

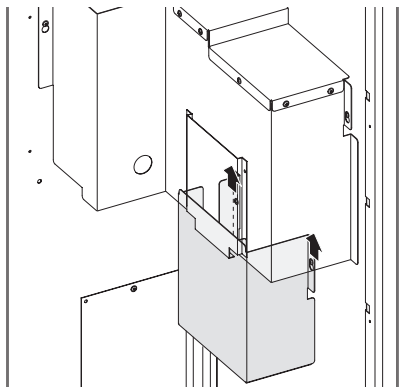
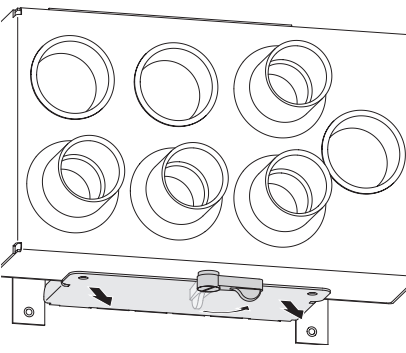
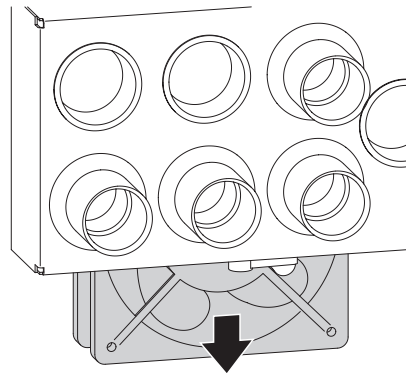
#### Preparation

Before removing the fan:

- Open the door
- Switch off the mains switch and disconnect the power supply.

#### Removal

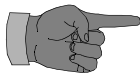
Follow these steps to remove the fan:

Step	Action	Illustration
1	Remove cover at boiler.	
2	Turn the turnbuckle at the bottom cover for fan housing to the side.	
3	Remove the bottom cover for fan housing.	
4	Withdraw the fan from below.	
5	Disconnect the electrical connection to the fan.	

#### Installation

Installation is done in reverse order.





• .....

## G.2.2 Replacing the selection signs (Direct selection)

### Preparation

Before replacing the selection signs:

- Open the door
- Switch off the main switch and disconnect the power supply.

### Replacement

The procedure for replacing the selection signs is as follows:

Step	Action	
1	Open the cover for the payment system.	
2	Loosen the four wing nuts at the back of the selection panel.	
3	Push the Panel out of the Frame	

Step	Action	
4	Change the labels/price tickets: <ul style="list-style-type: none"> <li>• Pull off cover of selection module and replace old label / price ticket with new ones.</li> </ul>	

### Assembly

Assembly is done in reverse order.

## G.2.3 Removal of upper advertising poster frame

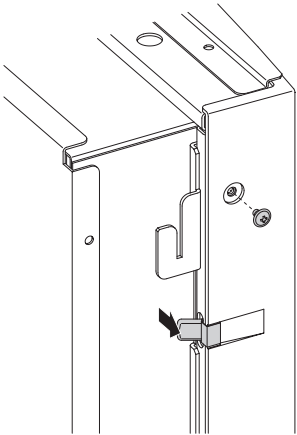
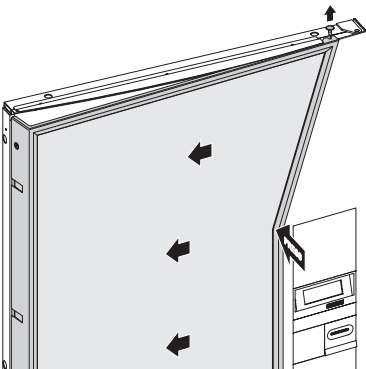
### Preparation

Before removing the upper advertising poster frame

- Open the door
- Switch off the main switch.

### Removal

The procedure for removing the upper advertising poster is as follows:

Step	Action	
1	Remove three clips at lock side of door.	
2	Remove two screws at lock side of door.	
3	Remove stop pin at top of the hinge side of door	
4	Press at point indicated on illustration and remove advertising poster frame by pulling carefully leftwards out of the wing.	

---

Installation      Installation is done in reverse order.

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## G.2.4 Replacement of upper advertising poster

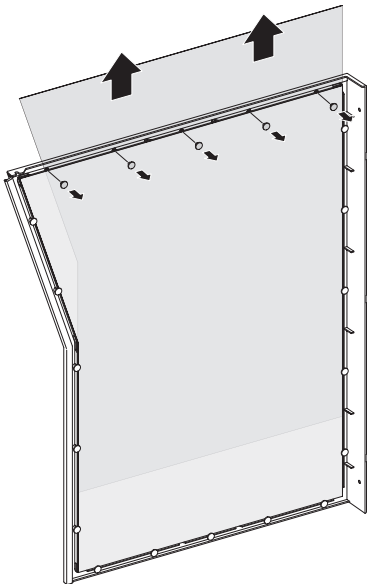
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Preparation      Before replacing the upper advertising poster:

- Open the door
- Switch off the main switch
- Remove the upper advertising poster frame

---

Replacement      The procedure for replacing the upper advertising poster is as follows

1	Remove upper row of plugs retaining the opaque diffuser plate.	
2	Pull outwards opaque diffuser plate.	
3	Replace old poster by new one.	

---

Installation      Installation is done in reverse order, considering that the poster and the diffuser are placed carefully in the frame, in order that no light is penetrating the edges when poster frame is repositioned.

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## G.2.5 Replacement of upper fluorescent tube

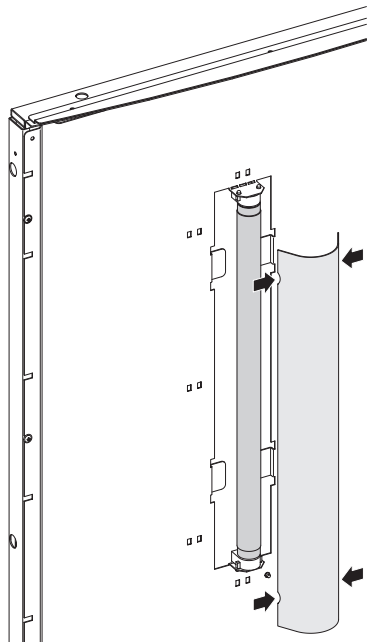
### Preparation

Before replacing the upper fluorescent tube:

- Open the door
- Switch off the main switch
- Remove the upper advertising poster frame

### Replacement

The procedure for replacing the upper fluorescent tube is as follows

1	Remove cover for fluorescent tube.	
2	Replace old fluorescent tube by new one.	

### Installation

Installation is done in reverse order.

## G.2.6 Removal of lower advertising poster frame

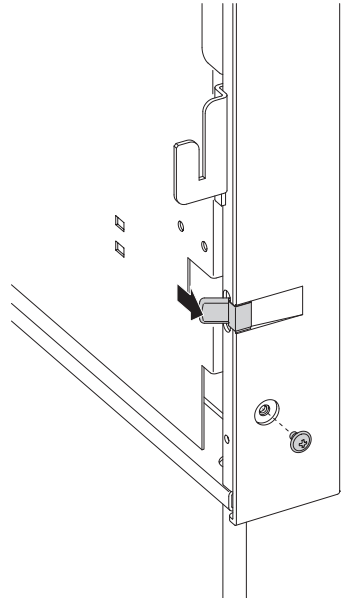
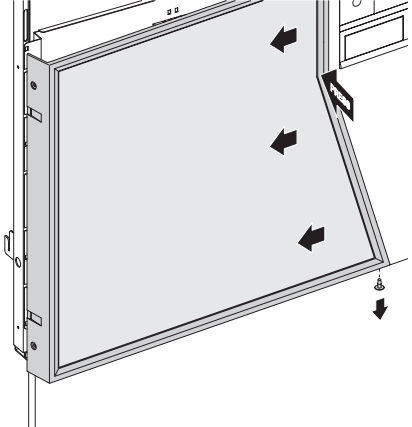
### Preparation

Before removing the lower advertising poster frame

- Open the door
- Switch off the main switch.

## Removal

The procedure for removing the lower advertising poster is as follows:

Step	Action	
1	Remove two clips at lock side of door.	
2	Remove two screws at lock side of door.	
3	Remove stop pin at bottom of the hinge side of door	
4	Press at point indicated on illustration and remove advertising poster frame by pulling carefully leftwards out of the wing.	

## Installation

Installation is done in reverse order.

## G.2.7 Replacement of lower advertising poster

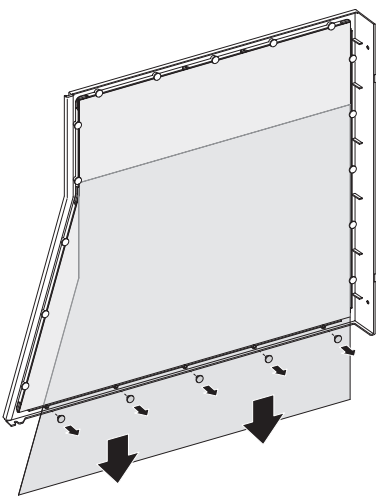
## Preparation

Before replacing the lower advertising poster:

- Open the door
- Switch off the main switch
- Remove the lower advertising poster frame

## Replacement

The procedure for replacing the lower advertising poster is as follows

Step	Action	
1	Remove lower row of plugs retaining the opaque diffuser plate.	
2	Pull outwards opaque diffuser plate.	
3	Replace old poster by new one.	

## Installation

Installation is done in reverse order, considering that the poster and the diffuser are placed carefully in the frame, in order that no light is penetrating the edges when poster frame is repositioned.

## G.2.8 Replacement of the choke coils / Starters of the fluorescent tubes

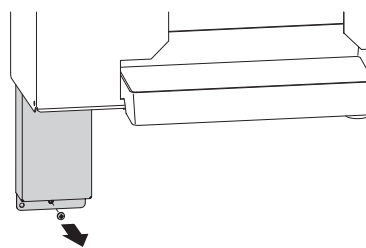
## Preparation

Before replacing the choke coils / starters of the fluorescent tubes:

- Open the door
- Switch off the main switch and disconnect the power supply.

## Removal

The procedure for removing the choke coils / starters is as follows:

Step	Action	
1	Remove cover for choke coils by loosening one screw at the bottom of cover	

Step	Action	
2	<b>If you want to replace</b>	<b>then go to step</b>
	the choke coils	3
	the starters	4
3	Loosen two screws and remove choke coil in question.	
4	Pull out starter in question from its socket.	

---

InstallationInstallation is done in reverse order.

---

## G.2.9 Replacement of lower fluorescent tube

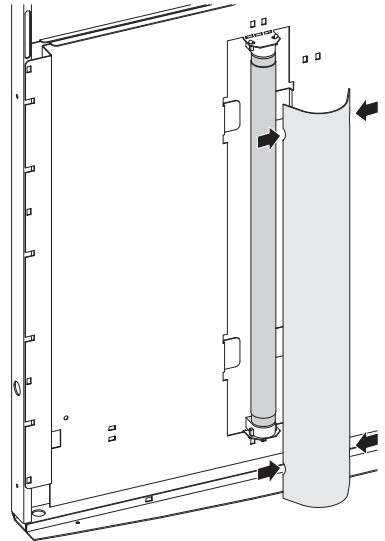
### Preparation

Before replacing the lower fluorescent tube:

- Open the door
- Switch off the main switch
- Remove the lower advertising poster frame

### Replacement

The procedure for replacing the lower fluorescent tube is as follows

Step	Action	
1	Remove cover for fluorescent tube.	
2	Replace old fluorescent tube by new one.	

### Installation

Installation is done in reverse order.





## G.3 Functional descriptions

### G.3.1 Total overview



- 
- Ensure .....
  -

## G.4 Electrical diagrams

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## G.5 Technical specifications

## G.6 Options

## G.7 Accessories

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## **K Power Supply Unit and Control**

### **K.1 Adjustments**

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## K.2 (Dis-)assemblies

### K.2.1 Safety instructions



Installation and repair works on the machine may only be carried out by trained service technicians.



Be extremely careful, your life can be endangered!  
The vending machine controllers and power supply box parts are carrying the mains voltage if the machine is connected to the power supply. Make sure that no splashes of the product or water get onto the vending machine controllers.



Observe precautions for handling electrostatic discharge sensitive devices:

To protect the PCBs, VMC, SPC, etc. and sensitive devices against damage from static electricity, you have to make sure that you are discharged, before touching sensitive devices.

Always remember to touch one of your hands to the cabinet and hold the device with the other hand.



## K.2.2 Disassembling the power supply cord

### Preparation

Before disassembling the power supply cable:

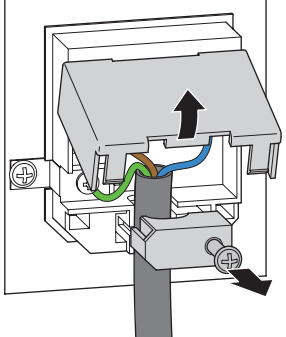
- Open the door.
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Close the door.



Ensure that the machine is disconnected from the mains electrical supply! The machine is only isolated from the mains supply when the plug has been pulled out.

### Disassembly

From rear side of machine follow these steps to disassemble the power supply cable:

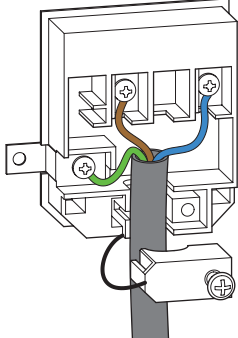
Step	Action	Illustration
1	Remove cord unloader loosening one screw.	
2	Release the snap pins at both sides at the bottom of cover and tilt up the cover	
3	Disconnect the cable connection at the terminal strip.	
4	Remove the power supply cord.	

### Assembly

Assembly is done in reverse order.



Make sure the reconnection is made correctly, see table below:

1	blue / neutral	
2	brown / live	
3	yellow / green (protective earth)	

## K.2.3 Removal of cover plate for power supply box

### Preparation

Before removing the cover plate for power supply box:

- Open the door.
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove the fresh brew canister



Ensure that the machine is disconnected from the mains electrical supply! The machine is only isolated from the mains supply when the plug has been pulled out.

### Removal

Follow these steps to remove the cover plate for power supply box:

Step	Action	Illustration
1	Loosen three screws.	
2	Lift off cover.	

### Installation

Installation is done in reverse order.

## K.2.4 Disassembling of power supply box

### Preparation

Before disassembling the power supply box:

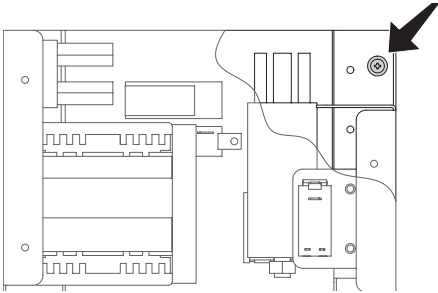
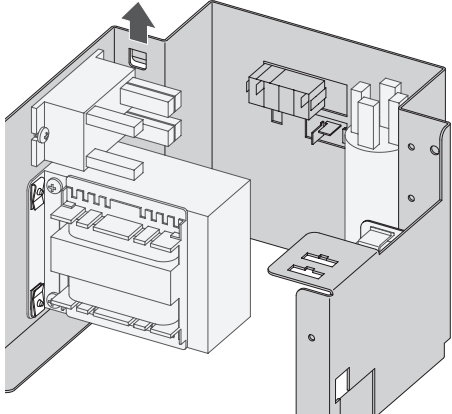
- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove the fresh brew canister
- Remove cover plate for power supply box



Ensure that the machine is disconnected from the mains electrical supply!  
The machine is only isolated from the mains supply when the plug has been pulled out.

### Disassembly

Follow these steps to disassemble the power supply box:

Step	Action	Illustration
1	Withdraw the electrical connection plugs of the electrical components in power supply box	
2	Remove the fixing screw to the right side in rear of power supply box	
3	Lift up 2 cm to detach supply box from mounting rail. Note : The supply box is held in place by hooks.	

### Assembly

Assembly is done in reverse order



Ensure that connectors are correctly fitted.

## K.2.5 Removing the transformer

### Preparation

Before removing the transformer:

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove the fresh brew canister
- Remove cover plate for power supply box
- Detach the power supply box



Ensure that the machine is disconnected from the mains electrical supply! The machine is only isolated from the mains supply when the plug has been pulled out.

### Removal

Follow these steps to remove the transformer:

Step	Action	Illustration
1	Remove four screws.	
2	Lift off transformer.	

### Assembly

Assembly is done in reverse order.

## K.2.6 Removing the relay for heating element

### Preparation

Before removing the relay for heating element

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove the fresh brew canister
- Remove cover plate for power supply box
- Detach the power supply box



Ensure that the machine is disconnected from the mains electrical supply!  
The machine is only isolated from the mains supply when the plug has been pulled out.

## Removal

Follow these steps to remove the relay for heating element

Step	Action	Illustration
1	Loosen two screws.	
2	Remove relay.	

## Assembly

Assembly is done in reverse order.

## K.2.7 Removing the noise capacitor

### Preparation

Before removing the noise capacitor:

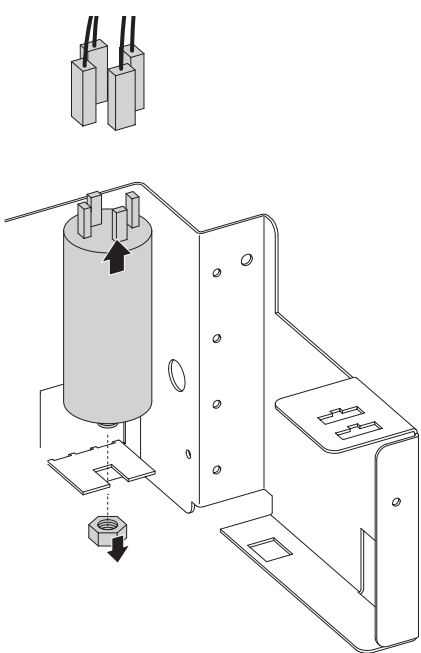
- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove the fresh brew canister
- Remove cover plate for power supply box



Ensure that the machine is disconnected from the mains electrical supply!  
The machine is only isolated from the mains supply when the plug has been pulled out.

Removal

Follow these steps to remove the noise capacitor:

Step	Action	Illustration
1	Withdraw electrical connections from capacitor.	
2	Loosen nut	
3	Detach noise capacitor from its bracket.	

Assembly

Assembly is done in reverse order.



Ensure that connectors are correctly fitted.

## K.2.8 Removing the cover for electronic box

### Preparation

Before removing the cover for electronic box:

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.



Ensure that the machine is disconnected from the mains electrical supply! The machine is only isolated from the mains supply when the plug has been pulled out.

### Removal

Follow these steps to remove the cover for electronic box:

Step	Action	
1	Loosen two screws	
1	Remove cover plate	

### Assembly

Assembly is done in reverse order.

## K.2.9 Disassembling the vending machine controller (VMC)

### Preparation

Before disassembling the vending machine controller:

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove the cover for electronic box



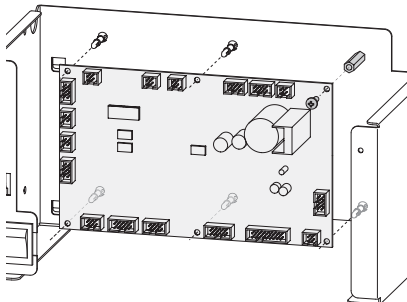
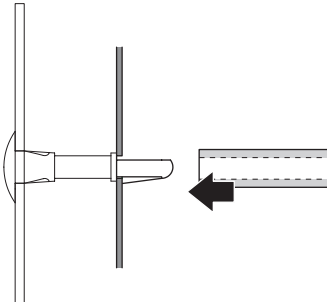
Ensure that the machine is disconnected from the mains electrical supply!  
The machine is only isolated from the mains supply when the plug has been pulled out.



Ensure that the machine is disconnected from the mains electrical supply!  
The machine is only isolated from the mains supply when the plug has been pulled out.

### Disassembly

Follow these steps to disassemble the printed circuit board:

Step	Action	
1	Disconnect all board connectors	
2	Remove screw at right upper corner of printed circuit board	
3	Squeeze the five fastening clips with an appropriate tool Tip : Use a piece of hard hose/tube with internal diameter of 4 mm.	
4	Gently pull off the printed circuit board.	

### Assembly

Assembly is done in reverse order.



## K.2.10 Disassembling the ICB / CPU

### Preparation

Before disassembling the printed circuit board:

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove the cover for electronic box



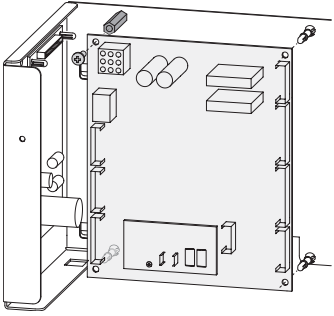
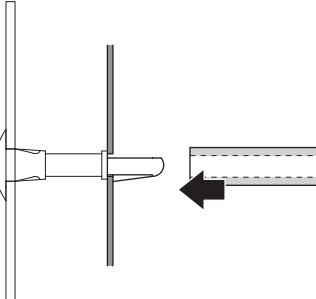
Ensure that the machine is disconnected from the mains electrical supply!  
The machine is only isolated from the mains supply when the plug has been pulled out.



Ensure that the machine is disconnected from the mains electrical supply!  
The machine is only isolated from the mains supply when the plug has been pulled out.

### Disassembly

Follow these steps to disassemble the printed circuit board:

Step	Action	
1	Disconnect all board connectors	
2	Remove screw at left upper corner of printed circuit board	
3	Squeeze the three fastening clips with an appropriate tool Tip : Use a piece of hard hose/tube with internal diameter of 4 mm.	
4	Gently pull off the printed circuit board.	

### Assembly

Assembly is done in reverse order.

## K.2.11 Disassembling the expansion board of the ICB / CPU

### Preparation

Before disassembling the printed circuit board:

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove the cover for electronic box



Ensure that the machine is disconnected from the mains electrical supply!  
The machine is only isolated from the mains supply when the plug has been pulled out.



Ensure that the machine is disconnected from the mains electrical supply!  
The machine is only isolated from the mains supply when the plug has been pulled out.

### Disassembly

Follow these steps to disassemble the printed circuit board:

Step	Action	
1	Disconnect board connection.	
2	Remove screw of printed circuit board.	
3	Remove expansion printed circuit board.	

### Assembly

Assembly is done in reverse order.

## K.2.12 Disassembling the brewer printed circuit board

### Preparation

Before disassembling the printed circuit board:

- Open the door
- Switch off the main switch, disconnect the power supply, and close the water cock.
- Remove the cover for electronic box



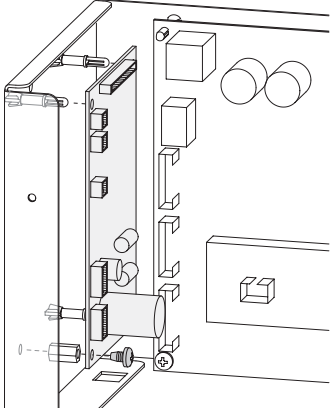
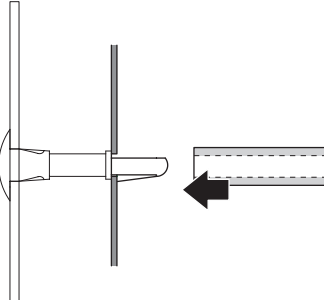
Ensure that the machine is disconnected from the mains electrical supply!  
The machine is only isolated from the mains supply when the plug has been pulled out.



Ensure that the machine is disconnected from the mains electrical supply!  
The machine is only isolated from the mains supply when the plug has been pulled out.

### Disassembly

Follow these steps to disassemble the printed circuit board:

Step	Action	
1	Disconnect all board connectors	
2	Remove screw at left lower corner of printed circuit board	
3	Squeeze the three fastening clips with an appropriate tool Tip : Use a piece of hard hose/tube with internal diameter of 4 mm.	
4	Gently pull off the printed circuit board.	

### Assembly

Assembly is done in reverse order.



## K.3 Functional descriptions

### K.3.13 Total overview



- Ensure .....
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## K.4 Electrical diagrams

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## K.5 Technical specifications

## K.6 Options



## K.7 Accessories

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## **L External Options**

### **L.1 Adjustments**

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## L.2 (Dis-)assemblies

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## L.3 Functional descriptions

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## L.4 Electrical diagrams

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## L.5 Technical specifications

## L.6 Options



## L.7 Accessories

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## P Payment systems

### P.1 Adjustments

Unit	Setting
Card reader (Wittenborg Cater Card system)	<p>All settings related to the card system are made via the MasterModule.</p> <p>The following setting options exist:</p> <ul style="list-style-type: none"> <li>- Blacklist setting</li> <li>- User gr. setting</li> <li>- ID code setting</li> <li>- Terminal setting</li> <li>- Security setting</li> </ul> <p>Please refer to the Programming Unit manual.</p>
BDV coins mechanism	<p>All settings related to the coin mechanism are made via the Menu System, Service Settings, Technician Mode.</p> <p>The following setting options exist:</p> <ul style="list-style-type: none"> <li>- Max credit</li> <li>- Max change</li> <li>- Obligation to buy</li> <li>- Coin inhibit</li> <li>- Low change inhib</li> <li>- Coinmech keypad</li> <li>- Exact change</li> </ul> <p>Please refer to chapter 4.</p>
MDB/ICP coin mechanism	<p>All settings related to the coin mechanism are made via the Menu System, Service Settings, Technician Mode.</p> <p>The following setting options exist:</p> <ul style="list-style-type: none"> <li>- Max credit</li> <li>- Max change</li> <li>- Obligation to buy</li> <li>- Coin inhibit</li> <li>- Low change inhib</li> <li>- Exact change</li> </ul> <p>- Please refer to chapter 4.</p>
Executive	<p>All settings related to the coin mechanism are made directly on the coin mechanism itself:</p> <p>AddressesDescription</p> <ul style="list-style-type: none"> <li>-11 Maximum change</li> <li>-14 Exact change coin accept group</li> <li>-15 Single/multi vend</li> <li>-16 Escrow return inhibit</li> <li>-19 Peripheral &amp; clear check sum flag</li> <li>-20-22 Coin line inhibit</li> </ul> <p>Please refer to the coin mechanism manual concerning the use of these functions.</p>

## P.2 (Dis-)assemblies

### P.2.1 Disassembly of the coin mechanism

#### Preparation

Before disassembling the coin mechanism

- Open the door
- Switch of the mains switch and disconnect the power supply.

#### Disassembly

Follow these steps to disassemble the coin mechanism:

Step	Action	Illustration
1	Dismount the door cover by removing ? screw/s.	
2	Disconnect the electrical connection to the coin mechanism	
3	Lift the coin mechanism and remove it.	

#### Assembly

Assembly is done in reverse order.



For more information concerning the coin mechanism refer to the information of the manufacturer.



Never adjust the coin mechanism or disconnect the connecting cable to the vending machine while the machine is carrying voltage.

## P.2.2 Disassembly of the card reader (Wittenborg CaterCard system)

### Preparation

Before disassembling the Card reader

- Open the door
- Switch of the mains switch and disconnect the power supply.

### Disassembly

Follow these steps to disassemble the card reader:

Step	Action	Illustration
1	Dismount the door cover by removing ? screw/s.	
2	Disconnect the electrical connection to the coin mechanism	
3	Remove three screws and remove the card readert.	

### Assembly

Assembly is done in reverse order.



For more information concerning the coin mechanism refer to the information of the manufacturer.



Never adjust the coin mechanism or disconnect the connecting cable to the vending machine while the machine is carrying voltage.

## P.2.3 Disassembly of the card reader (Proton = Chipper/Chipknip)

### Preparation

Before disassembling the Card reader

- Open the door
- Switch of the mains switch and disconnect the power supply.

### Disassembly

Follow these steps to disassemble the card reader:

Step	Action	Illustration
1	Dismount the door cover by removing ? screw/s.	
2	Disconnect the electrical connection to the coin mechanism	
3	Remove four screws and remove the card readert.	
4	Remove four screws to disassemble the frame from the card reader.	

### Assembly

Assembly is done in reverse order.




For more information concerning the coin mechanism refer to the information of the manufacturer.





Never adjust the coin mechanism or disconnect the connecting cable to the vending machine while the machine is carrying voltage.

## P.3 Functional descriptions

### P.3.1 Function of the CaterCard system Wittenborg

Description	The payment card system consists of a card reader and a card return button connected to the card reader.
Error codes related to card system	<ul style="list-style-type: none"> <li>• A number of error codes related to the card system may appear in the "Event book".</li> <li>• Error codes related to the card system start with 66-xx.</li> </ul> <div>  <p>Please refer to "Trouble shooting" for a description of the individual errors and their possible causes.</p> </div>

### P.3.2 Function of the BDV or the MDB/ICB coin mechanism

Standard	The BDV coin mechanism operates in accordance with a standard prepared by 'Bundesverband der Dienstleistungsunternehmen für Verpflegungssysteme e.V.'.
Change amount	<p>The coin tubes can be filled manually with change money.</p> <ul style="list-style-type: none"> <li>• Insert the coins in the usual way.</li> <li>• Change the credit amount into a change amount via .....</li> </ul> <div>  <p>Please refer to chapter 'Programming'.</p> </div>
Manual repayment	<p>It is possible to manually pay out coins from each tube via ....</p> <div>  <p>Please refer to chapter 'Programming'.</p> </div>
Coin rejection?	If coins have difficulty getting accepted, it is usually due to impurities in the coin track of the validator in the coin mechanism.

### P.3.3 Function of the Executive coin mechanism

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Standard	The executive coin mechanism operates in accordance with a standard prepared by 'Mars Electronics'.
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Change amount	<ul style="list-style-type: none"><li>When the changegiver of the coin mechanism is idle (no vends made or coins inserted) it is possible to enter coins via the acceptor after having put the coin mechanism in a special 'filling mode'.</li></ul>
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Please refer to chapter 'Programming'.

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Manual repayment	When the changegiver of the coin mechanism is idle (no vends made or coins inserted) it is possible to manually pay out coins from each change tube by depressing the relevant key on the coin mechanism.
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Please refer to chapter 'Programming'.

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Coin rejection?	If coins have difficulty getting accepted, it is usually due to impurities in the coin track of the validator in the coin mechanism.
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Cf. manual of producer.

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## P.4 Electrical diagrams

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## P.5 Technical specifications

Payment System	How
BDV	Voltage from power subbly print board: between 24V - 36V DC.
MDB/ICP	Voltage from power subbly print board: between 24V - 36V DC.
Executive / Price line	Voltage from power subbly print board: 24V AC (+10% / -15%).

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## P.6 Options

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## P.7 Accessories

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## 6 Preventive maintenance

### 6.1 Preventive maintenance for the Service

Item	Action	Interval (Months)				Remarks
		3	6	12	24	
1. Scraper arms	lubricate					approximately every 50,000 dispensings
2. Water stop valve	rinse					after approx. 50,000 dispensings
3. Boiler	decalcify					Depending on the local hardness of water
4. Fan, air chute	remove dust					Depending on the ambient conditions at the location of the machine.
5. Mixer seal	replace			X		

Danger

Warning

## **6.2 Additional preventive maintenance instructions by the distributors**

## 7 Service procedures





## 8 Technical Information

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## 9 Modification Instructions

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## 10 Spare parts list

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