



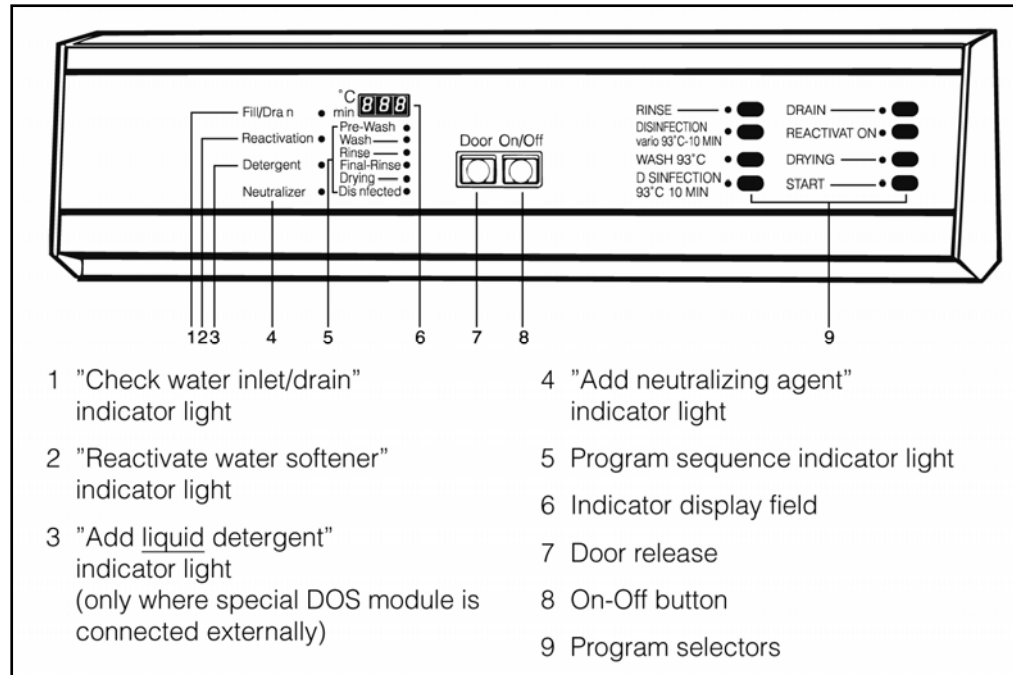
TECHNICAL INFORMATION
G7781 Dental Disinfector

Technical Information

1.0 Construction And Design

1.1 Appliance Overview

1.1.1 Control Panel

**Figure 1-1: Control Panel Overview**

1.1.2 Interior Layout Of Appliance

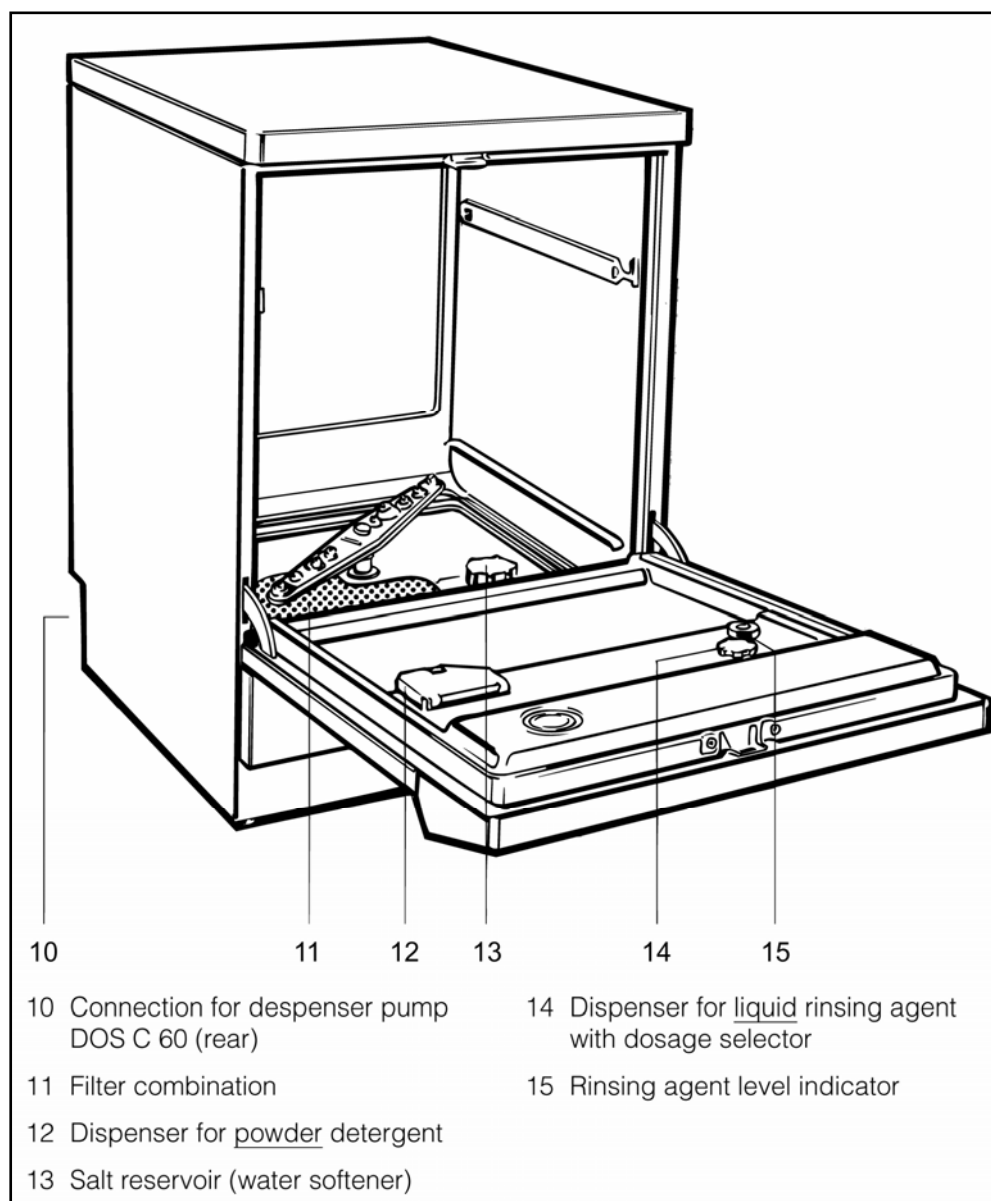


Figure 1-2: Interior Layout Of Appliance

Technical Information**1.2 Technical Specifications****1.2.1 Features**

A front loading cleaner-disinfector for dental instruments and equipment.

1.2.2 Weight

Gross approximately	176lb. (80kg.)
Net approximately	154lb. (70kg.)

1.2.3 Dimensions

	<i>Built-in without lid</i>	<i>Freestanding with lid</i>
Height	32 ¼ inches (82 cm)	33 ½ inches (85 cm)
Width	23 ½ inches (59.5 cm)	23 ½ inches (59.5 cm)
Depth	23 ⅝ inches (60 cm)	23 ⅝ inches (60 cm)

1.2.4 Casing

The UNIBODY casing is a double wall construction with an insulating and sound-absorbing material between the outer pre-coated casing and the inner stainless-steel cabinet.

1.2.5 Cabinet Material

Rear, top and side panels:

Stainless steel 18/9, Material code 1.4301

Cabinet base, inner door panel:

Stainless steel 18/14. Material code 1.4439

1.2.6 Front Panel

Décor panel sizes

Door	Height 17 ½ inches (44.4cm)
	Width 23 1/8 inches (58.9cm)

Service Panel	Height 4 ½ inches (11.5cm)
	Width 23 1/8 inches (58.9cm)

White frame to take the décor panels from .8 mm to 4 mm thick.

1.2.7 Baskets

Accessories, basket sets and special inserts are described in the appropriate brochures or operating instructions.

1.2.8 Spray System

Fresh water circulation system with one rotating spray arm (stainless steel 18/9) and direct injection for the upper basket.

1.2.9 Filters

Triple filter combination comprising of a coarse filter, a large surface area fine filter and a self cleaning microfine filter.

1.2.10 Water Intake Cold

The appliance requires a minimum flow pressure of 10psi. nominal 25psi to a maximum of 145psi. The connection hose is a 5½ ft. long waterproof hose with a ¾ inch female hose threaded fitting.

1.2.11 Water Intake Control

Water intake duration is set as standard to 60 seconds with an overriding level control. By programming, this can be extended to 120 seconds.

1.2.12 Water Quantities

Cold water intake	Approximately 10.5 liters/minute
Steam condenser intake	Approximately 2.0 liters/minute

1.2.13 Drainage

The appliance comes supplied with 5ft. flexible 7/8 inch inside diameter flexible drain hose. There is a separate drain hose and pump for the steam condenser. The appliance has a removable non-return valve. The drain height should not exceed 3ft. Floor drains are permissible and the drain hose may be lengthened to 13ft.

1.2.14 Drain Pumps

The G7781 has two drain pumps one for the appliance drain and one for the steam condenser. The G7781 uses separate drain hoses for steam condenser and appliance drain.

1.2.15 Circulation Pump

The circulation pump has integrated winding protection.

Voltage	AC 208 V 60Hz
Power rating	630 watts
Pump capacity	210 liters/minute, .7 bar pressure

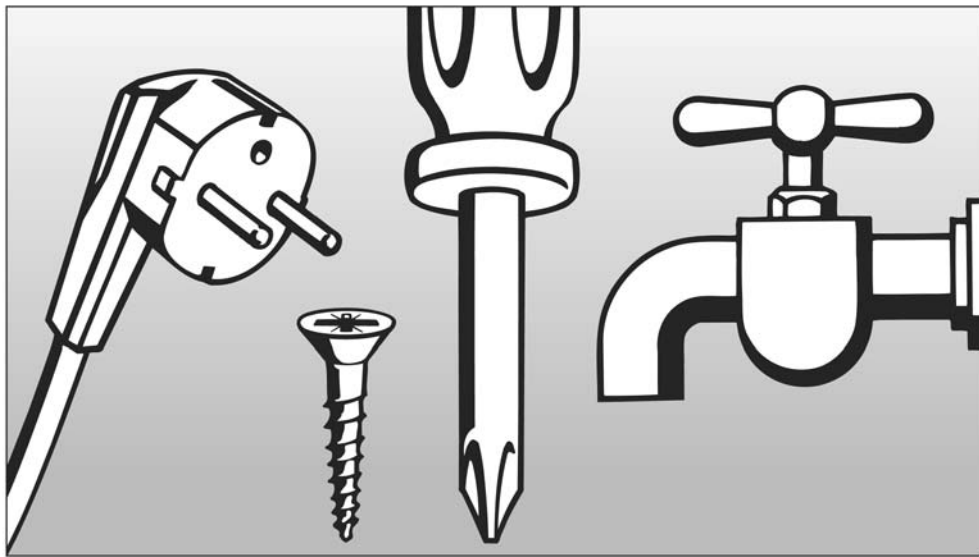
1.2.16 Electrical

The appliance is wired for single phase electrical installation, but it can be rewired for three phase electrical if necessary.

Single phase = 208V 30A with 10/3 AWG Wire.

3 Phase = 208V 20A with 12/4 AWG Wire.

2.0 Installation



INSTALLATION INSTRUCTIONS

2.1 Caring for the Environment

Disposal of Packing Material

The protective packing materials are environmentally safe and can be recycled.

Ensure that any plastic wrappings, bags, etc. are disposed of safely and kept out of the reach of children. Danger of suffocation!

Disposal of the Old Appliance

Appliances contain materials, which can be recycled. Please contact your local authorities about recycling in your area.

Ensure that the appliance presents no danger to children while being stored for disposal. See important safety instructions.

2.2 Installation

Please Refer to the Installation Diagram Supplied with the Appliance.

Note:

Furniture and fittings installed near the machine must be of a commercial standard, able to withstand the effects of steam.

Installation Options

- Free-standing
- Under counter

The appliance can be installed under a continuous counter or sink drain. The recess must be at least 24 inches wide, 24 inches deep, and 32 ¼ inches without lid and 33 ¾ inches with lid high.

Technical Information**2.2.1 Positioning and Securing the Appliance**

To ensure stability, the appliance must be aligned and screwed to the counter.

1. Open the door.
2. Secure the appliance to the front edge of the worktop using the screws to the left and right of the front trim.
3. When not mounted under counter, floor-mounting brackets must be used.

Warning!

Do not use silicone sealant to seal the gaps between the machine and any neighboring units. This will hinder ventilation to the

2.2.2 Steam Deflector (Protects the Countertop)

Depending on the requirements for an under counter installation, a steam deflector can be ordered from the Miele Technical Service Department.

The underside of the countertop is protected from steam damage by a stainless steel plate.

2.2.3 Removing the Lid (If Necessary)

If necessary, remove the lid from the appliance to make installation possible.

1. Open the door.
2. Remove the screws on the left and right sides using a Phillips screwdriver.
3. Pull the appliance lid approximately 5mm forwards, lift upwards and remove.

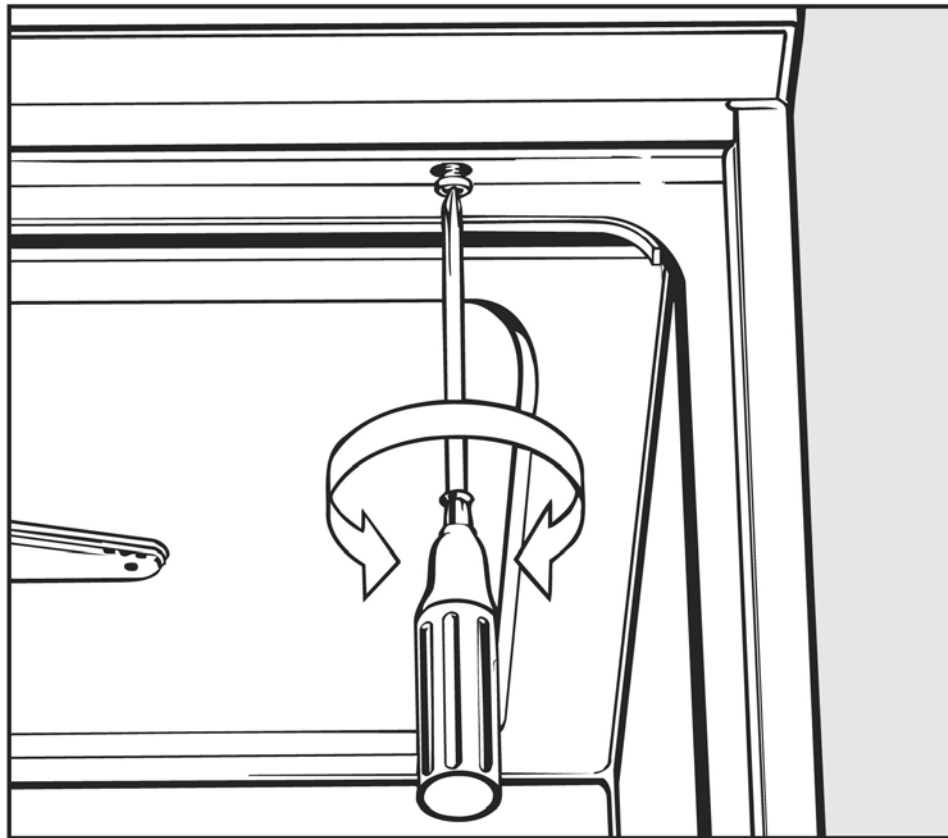


Fig 2-1: Removing the lid

2.2.4 Important for Appliances with Steam Condenser

To prevent countertop damage by steam, the supplied self-adhesive protective foil (25 x 58cm) must be placed underneath the countertop near the steam condenser.

2.3 Electrical Connection

Warning!

All electrical work must be performed by a qualified person in accordance with local and national safety regulations.

- Connection should be made via a suitable isolator, with an “On/Off” button easily accessible for servicing work.
- A damaged power cord must only be replaced with a genuine Miele cord by a Miele service technician.

Warning!

This appliance must be grounded.

2.3.1 Grounding Connection

The ground lead must be connected to the screw connection point (marked with the ground symbol) at the back of the appliance.

Warning!

The machine must only be operated with the voltage, frequency, and fusing shown on the data plate.

This machine can be converted to 3 phase in accordance with the conversion diagram and wiring diagram, located behind the

2.3.2 Removing the Service Panel

Warning!

Disconnect the machine from the main electrical supply.

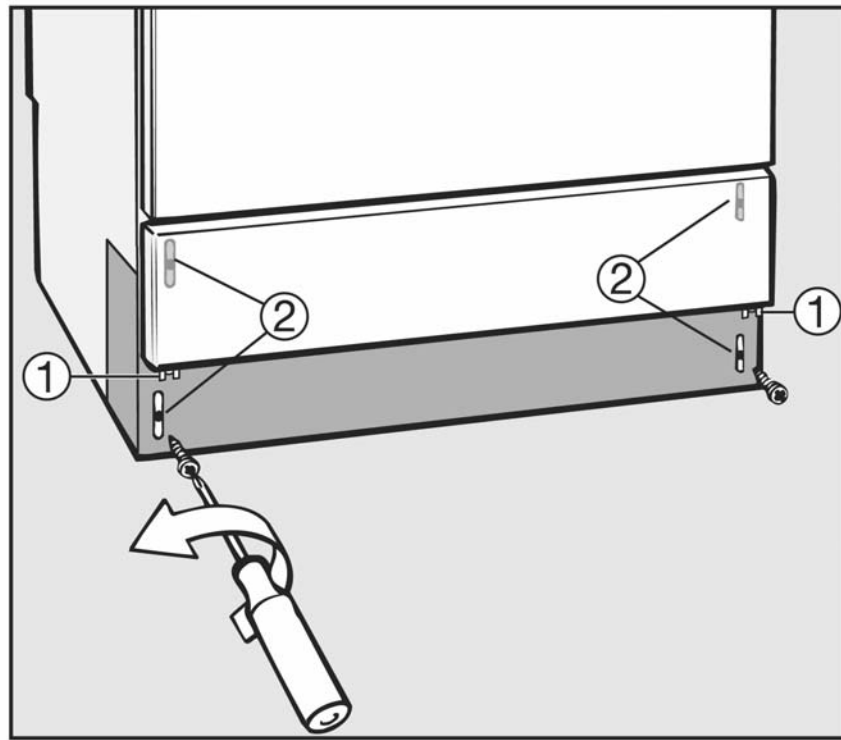


Fig 2-2: Removing service panel/plinth

1. Remove the screws, ① from the service panel.
2. To remove, hold the service panel at both sides and pull upwards.
3. Unscrew the facing, ② remove the plastic protective cap.
4. See the supplied installation diagram.

2.3.3 Re-assembling the Service Panel

Refit the plastic protective cap, facing and service panel in the reverse order to which they were removed.

2.4 Plumbing

Warning!

Water in the machine is not suitable for drinking.

- For technical application reasons, the appliance is supplied as standard for connection to cold water only. The inlet hoses (water inlet and steam condenser) must only be connected to the cold-water inlets.
- The appliance must be connected to the water supply in accordance with local and national regulations.
- The water pressure (flow rate) must be a minimum of 10psi. If the water pressure (flow rate) is below 29psi the fill time has to be extended, see 3.2.1, extending water intake. The maximum permitted static pressure is 145psi.
- If the water pressure is not in the range of 10 – 145psi, the “Fill/Drain” indicator may come on. If this occurs, contact the Miele Technical Service Department for advice.
- Inlets with $\frac{3}{4}$ MHT are to be provided on site. They should be easily accessible so that the water supply can be turned off when the appliance is not in use.
- The DN 10 inlet hose is approximately 5 feet long. Terminating in a $\frac{3}{4}$ inch female thread. Under no circumstances should the inlet filters be removed.
- Large surface area filters are enclosed with the appliance for installing between the inlet and the inlet hose. (see “Appliance care – Cleaning the filters in the water inlet”)

Warning!

The inlet hose must **not** be shortened or damaged in any way.

3.0 Commissioning and Operation

3.1 Commissioning

Commissioning should only be carried out by specially trained technicians from the Miele Service Department.

3.1.1 Commissioning Procedure

1. Check all utility supplies for correct connection and leaks as appropriate.
2. Check the hardness of the water supply and make the appropriate setting in the appliance, see 3.1.2.
3. Check the water supply flow pressure. If it is less than 2.5 bar (29psi.), programming should be carried out to extend the water fill time from 60 seconds to 120 seconds, see 3.2.1.
4. Fill the storage containers in accordance with their markings:

Blue container	Detergent, optional
Red container	Neutralizing agent

Table 3-1: Container Coding

5. Remove the screw/nut in the sump, see figure 3-10, if a C20 or C60 external DOS dispenser module is to be used.
6. Prime the neutralizing agent dispensing system, see 3.4.1.
7. Prime the C20 or C60 DOS dispenser module and set the quantity to be dispensed, see 3.4.3.
8. Optimize the programs as desired.
9. Carry out the appropriate electrical checks.
10. Explain how to operate the appliance to the customer.
11. Advise on the applications for which the baskets and inserts can be used.

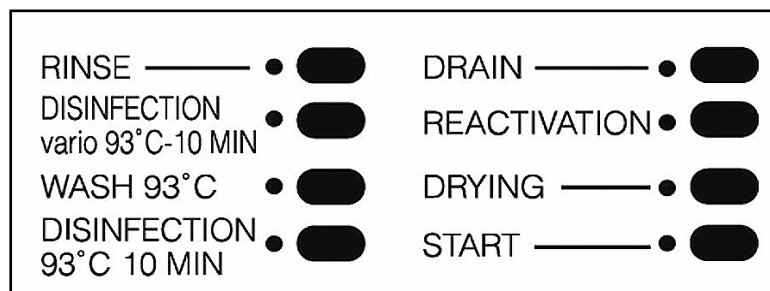


Figure 3-1: Program Indicators

Technical Information**3.1.2 Setting the Water Softener**

When commissioning a new appliance, a water hardness setting must be programmed depending on the hardness of the supply according to the table and the instructions below.

Hardness Setting	°d	mmol/l	°fH	°eH	ppm CaCO₃	gpg (Grains Per Gallon)
18	6	1.07	10.7	7.5	107	6
17	7	1.25	12.5	8.8	125	7
16	8	1.42	14.3	10	143	8
15	9	1.6	16	11.3	160	9
14	10	1.78	17.9	12.5	179	10
13	11	1.96	19.6	13.8	196	11
12	12	2.14	21.4	15	214	12
11	13	2.31	23.2	16.3	232	13
10	15	2.67	26.8	18.8	268	15
9	17	3.03	30.4	21.3	304	17
8	19	3.38	33.9	23.8	339	19
7	22	3.92	39.3	27.5	393	22
6	24	4.27	42.8	30	428	24
5	28	4.98	50	35	500	28
4	32	5.7	57.1	40	571	32
3	38	6.76	67.8	47.6	678	38
2	48	8.54	85.7	60.1	857	48
1	71	12.64	126.7	88.9	1267	71
0	Off	Off	Off	Off	Off	Off

Table 3-2: Water Hardness Settings

3.1.3 Setting The Water Hardness Range

1. Press and hold the **“Drying and Drain”** buttons together, see figure 3-1, and at the same time turn the appliance on. **“P0”** or **“0”** appears in the display. If **“P0”** appears, press the **“Reactivation”** button once so that **“0”** is displayed.
2. Press the **“Drying”** button as often as necessary to call up the required hardness range code taken from table 3-2. Acknowledge and store the selection by pressing the **“Start”** button twice.
3. Switch off the appliance.

3.1.4 Checking The Water Hardness Setting

1. Press and hold the **“Drying”** and **“Reactivation”** together and at the same time switch the appliance on. See figure 3-1.
2. Press and hold the **“Drying and Drain”** buttons together. The water hardness setting appears in the display.
3. Switch off the appliance.

3.2 Programmable Functions

3.2.1 Extending Water Intake Time From 60 Seconds To 120 Seconds

1. Press and hold the **“Drying”** and **“Drain”** together, see figure 3-1, and at the same time switch the appliance on. **“P0”** appears in the display.
2. When the button **(DESIN 93° C-10’)** is pressed, **“10”** appears in the display indicating a 60 second water intake. To extend the water intake time to 120 seconds, press the **“Drying”** button once. **“11”** appears in the display indicating an extended fill.
3. Press the **“Start”** button twice to save the selection.
4. Switch off the appliance.

Note:

Extended intake time (120 seconds) now applies to all cold water intake cycles in each wash program. Water intake in the reactivation program is extended from 7 seconds to 12 seconds.

Checking the water intake time setting

1. Press and hold the **“Drying”** and **“Drain”** together, see figure 3-1, and at the same time switch the appliance on.
2. Press the button **(DESIN 93° C-10’)**, see figure 3-1, a **“10”** or **“11”** appears in the display indicating 60 seconds or 120 seconds.
3. Switch off the appliance.

3.2.2 Adding Interim Rinse 1 with Neutralizing Agent Dispensing

1. Press and hold the **“Drying”** and **“Drain”** together, see figure 3-1, and at the same time switch the appliance on. **“P0”** appears in the display.
2. When the button **“Wash”**, see figure 3-1, is pressed, **“20”** appears in the display indicating that there is no additional interim rinse programmed. Press the **“Drying”** button once, see figure 3-1, to change **“20”** to **“21”** and activate the additional interim rinse function.
3. Press the **“Start”** button twice to save the selection.
4. Switch off the appliance.

Note:

In addition, the dispenser container must be filled and the dispenser pump primed.

Checking the interm rinse setting

1. Press and hold the **“Drying”** and **“Drain”** together, see figure 3-1, and at the same time switch the appliance on. **“P0”** appears in the display.
2. Press the button **“Wash”** a **“20”** or **“21”** appears in the display.
3. Switch off the appliance.

Technical Information**3.2.3 Changing Temperatures T1 and T2 in “Wash” Program**

The main wash “**T1**” and final rinse “**T2**” temperatures come set to 65°C. The temperatures can be changed to 70°C, 80°C or 90°C through the programming mode.

Note:

Different temperatures for each cycle, (ex. main wash 65°C and final rinse 80°C), cannot be set. The temperature that is set is for both T1 and T2.

1. Press the “**Drying**” + “**Drain**” buttons together, see figure 3-1, and at the same time turn the machine on. “**P0**” appears in the digital display.
 2. When the “**DESIN Vario**” button is pressed, figure 3-1, “**30**” appears in the display.
 3. Press the “**Drying**” button once, figure 3-1, to change “**30**” to “**31**”.
 4. When the “**Rinse**” button is pressed, figure 3-1, “**40**” appears in the display.
 5. Press the “**Drying**” button once, figure 3-1, to change “**40**” to “**41**”.
- The following combinations are possible:

	Main Wash	Final Rinse
30* - 40*	65°C	65°C
30 – 41	70°C	70°C
31 – 40	80°C	80°C
31 – 41	90°C	90°C

Table 3-3: T1 and T2 Combinations

*Standard Setting

6. To acknowledge and store the selection, press the “**Start**” button twice.

Checking the T1 and T2 settings

1. Press the “**Drying**” + “**Drain**” buttons together, figure 3-1, and at the same time turn the machine on.
2. Press the “**DESIN Vario**” button, figure 3-1. “**30**” or “**31**” appears in the display.
3. Press the “**Rinse**” button, figure 3-1 “**40**” or “**41**” appears in the display.
4. Check the number combination with table 3-3, then turn the machine off.

3.2.4 Changing the Parameters of Disinfection 93°C – 10' and Wash 93°C to 90°C – 25'

Note:

The fascia insert must be removed before this reprogramming can be carried out.

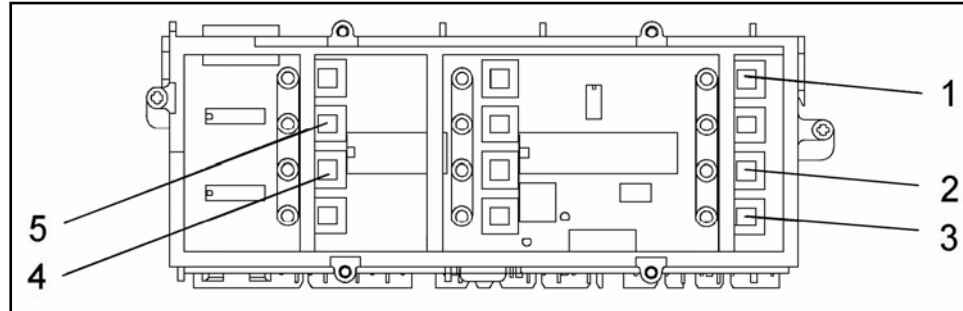


Figure 3-2: Electronic EPW561 With Fascia Removed

Modifying the program

1. Remove the Control Panel, see 5.4
2. Remove the Electronic unit (EPW561), see 5.21.1
3. Press buttons 1+2 together and at the same time turn the machine on. "P0" appears in the display.
4. When button 5 is pressed, "70" appears in the display. This figure corresponds to parameters 93°C – 10' or 93°C – 3' depending on the program selection.
5. To select the parameter 90°C – 25', press button 2 once. "71" appears in the display.
6. To acknowledge and store the selection, press button 3 twice.

Checking the program modification setting

1. Remove the Control Panel, see 5.4
2. Remove the Electronic unit (EPW5610, SEE 5.21.1
3. Press buttons 1+2 together and at the same time turn the machine on.
4. Press button 5. "70" or "71" appears in the display.
5. Turn the machine off.

Technical Information

3.3 Operation

3.3.1 Control Indicators (Figure 3-2)

3.3.2 Fault, reactivation and refill indicators

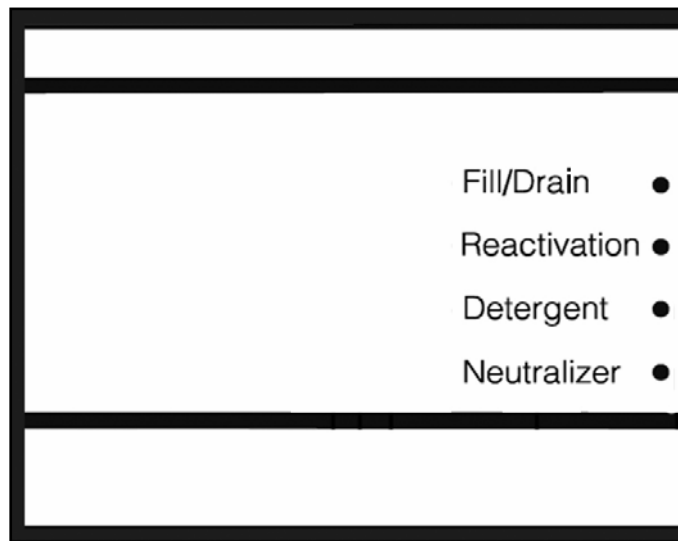


Figure 3-3: Fault Indicators

Flashing Indicator	Fault
Fill/Drain	Indicates too little water has been taken in or that the sump has not been drained completely
Reactivation	The water softener need reactivating
Detergent	The optional liquid detergent is low or is empty
Neutralizer	The optional liquid detergent is low or is empty

Table 3-4: Fault Indicators

3.3.3 Program Sequence Indicators

The LED's, see figure 3-4, indicate the stage a program is in. once a program stage has been completed, the corresponding LED goes off, see figure 3-4. The Disinfected LED lights up only after both the required disinfection parameters (temperature and hold time) have been completed. (93°C for 10')

Warning!

If the program has been modified to a 90°C – 25 for minute program, the Disinfected LED will light up. This is **not** an approved disinfection cycle.

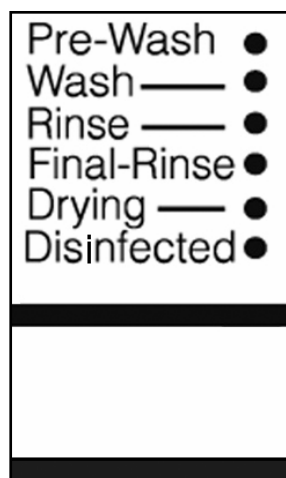


Figure 3-4: Program Sequence Indicators

3.3.4 Digital display

The digital display indicates the following:

- The required temperature in the heating cycle (wash and rinse cycles).
- Time already elapsed in the program.

A dash in the left-hand segment of the display points to the symbols “°C” when reading the temperature and “min” when reading time. See figure 3-5.



Figure 3-5: Digital Display

3.3.5 On/Off Switch

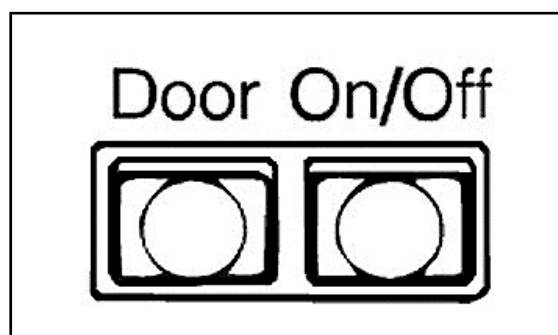


Figure 3-6: On/Off Switch

The “On/Off” switch disconnects the machine from the power supply, see figure 3-6.

Technical Information**3.3.6 Door switch**

To open the door, press the “**Door**” switch, figure 3-6, and pull the door open.

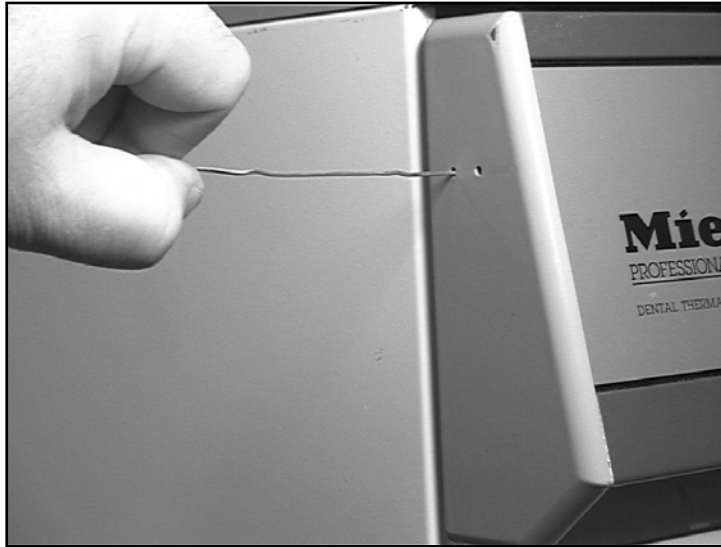
3.4 Dispenser System**3.4.1 Priming the integrated dispenser pump**

Figure 3-7: Internal DOS Prime

When first commissioning the machine, or if the dispenser container has completely emptied, the dispenser system will require priming as follows:

- Two microswitches are located on the left side of the fascia panel. With the machine turned on, push and hold in the rear microswitch with an appropriate probe (ex. a paper clip), figure 3-7, until the dispenser hose has been primed.
- The pump is primed successfully when the air bubble in the hose advances continuously. If the air bubble falls or retreats during pumping breaks, a leak in the system is indicated. In this case, the leak should be traced and repaired.
- The DOS 10 dispenser is used for a neutralizing agent.

3.4.2 The internal dispenser pump

Standard setting for each wash cycle: 10 ml of Neutralizing Agent for each 30 seconds.

It is possible to increase the quantity of neutralizing agent dispensed with the Dental Disinfector.

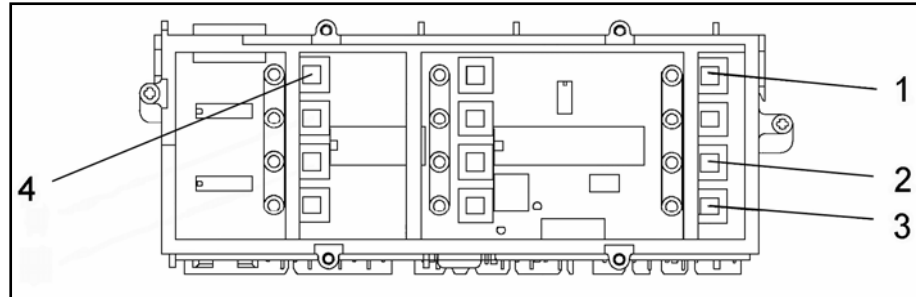


Figure 3-8: Increase Internal Dispensing Dosage

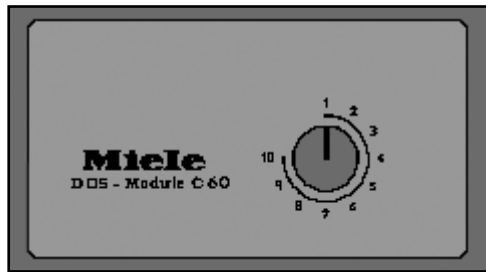
Setting the quantity dispensed by the internal dispenser pump

1. Remove Control Panel, see 5.4.
2. Remove the electronic unit, see 5.21.1.
3. Press and hold buttons **1** and **2** together, see figure 3-8, and at the same time turn the machine on. **"P0"** appears in the digital display.
4. When button **4** is pressed, see figure 3-8, **"80"** appears in the display. This indicates that the neutralizer dispenser pump operates for 30 seconds supplying 10 milliliters.
5. Press button **2**, figure 3-8, to change the display to **"81"**. This indicates that the neutralizer dispenser pump operates for 60 seconds, supplying 20 milliliters.
6. To acknowledge and store the selection, press button 3 twice, figure 3-8. **"SP"** is displayed briefly showing that the option has been saved.

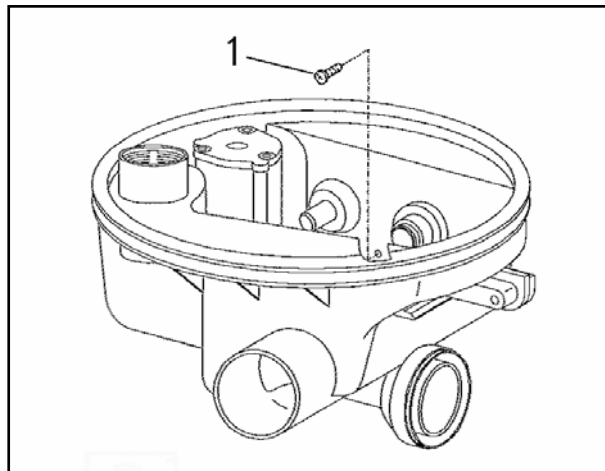
Checking the increased dosage setting.

1. Press and hold buttons **1** and **2** together, figure 3-8, and at the same time turn the machine on.
2. Press button **4**, figure 3-8. **"80"** or **"81"** is displayed.
3. Turn the machine off and reassemble the electronic unit and fascia panel.

Technical Information

3.4.3 C 60 dispenser for liquid detergent**Figure 3-9:** DOS-Module C 60 Face

After connecting the C 60 DOS dispenser, the blue storage container should be filled with detergent and the suction tube firmly inserted.

**Figure 3-10:** DOS C 60 Sump Screw

On some models, the DOS module connection points in the sump are closed off from the factory with a screw or a cap nut. See figure 3-10. Make sure that the screw or cap nut is removed before priming the external DOS module.

Priming the external liquid dispenser

Before priming the DOS C 60 set the selector switch, figure 3-9 to the maximum level (10).

When first commissioning the machine, or if the dispenser container has completely emptied, the dispenser system will require priming as follows:

- Two microswitches are located on the left side of the fascia panel. With the machine turned on, push and hold in the rear microswitch with an appropriate probe (ex. a paper clip), figure 3-11, until the dispenser hose has been primed.
- The pump is primed successfully when the air bubble in the hose advances continuously. If the air bubble falls or retreats during pumping breaks, a leak in the system is indicated. In this case, the leak should be traced and repaired.
- The DOS 60 dispenser is used for a detergent.

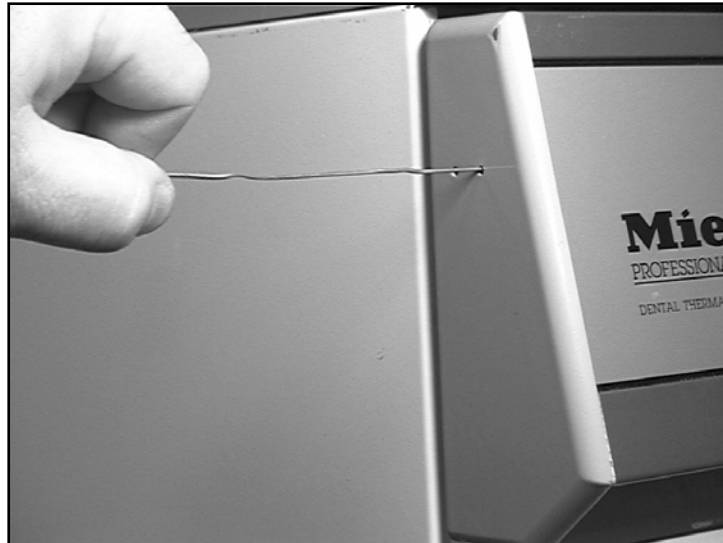


Figure 3-11: DOS C 60 Priming

3.4.4 Setting the DOS C 60 dispenser

The quantity to be dispensed should be set in accordance with the detergent manufacturer's recommendations. If these are not available, then generally 2-3 ml of detergent per liter of water should be dispensed. See table 3-5 for adjustment quantities.

Technical Information

Dial Setting	Quantity Dispensed In 30s (ml)
1	3
2	12
3	22
4	31
5	38
6	44
7	51
8	57
9	66
10	78

Table 3-5: DOS C 60 Pump Settings**3.5 Interrupting a Wash Program**

If a program is interrupted by opening the door, the following occurs when the door is closed again:

- A pause of 60 seconds is introduced. The digital display shows “**60**” and then counts down. When “**0**” is reached, the circulation pump commences operation with the gentle start feature and the wash program continues from the step already reached.
- If the program was interrupted during the disinfection cycle, then the “**Disinfected**” LED will not light at the end of the program.

4.0 Description of Function

4.1 Heater Elements

There are three heater elements R1, R2, and R3. They are used for heating the wash cabinet and drying.

Danger!

The connections from the heater elements R1, R2, and R3 to the two heating relays K1/1, K1/3 must not be interchanged.

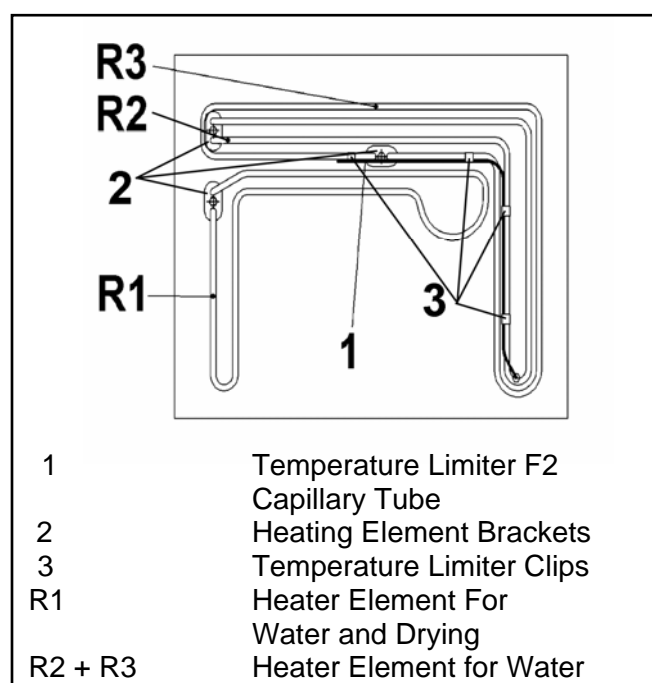


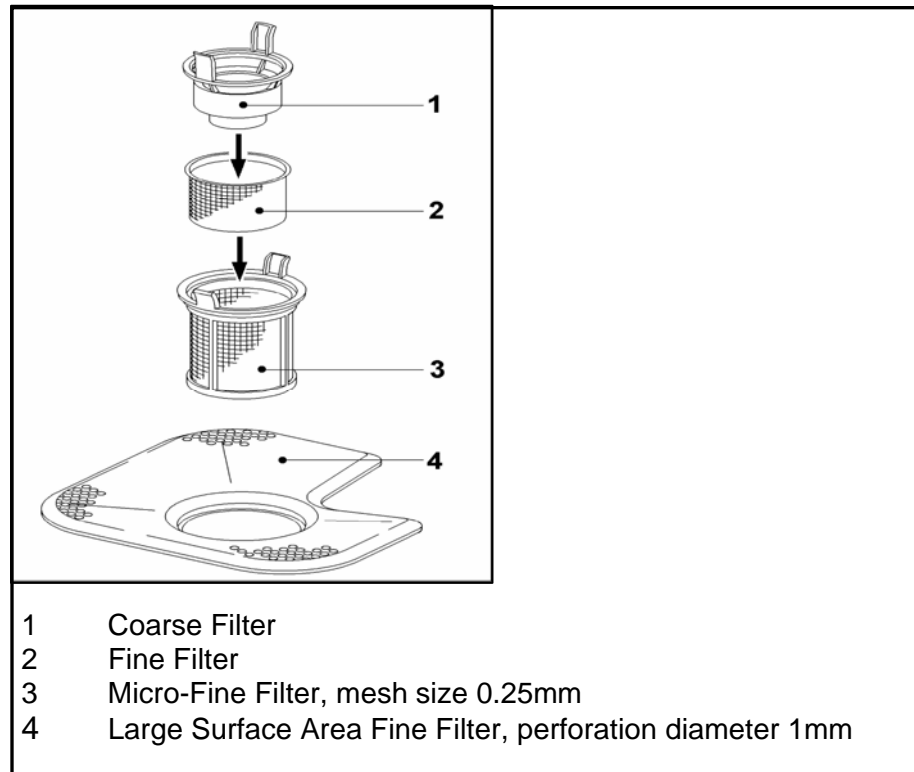
Figure 4-1: Heater element positions

4.2 Temperature Limiter F2 (Thermostat) 165°C

The temperature limiter F2 is connected electrically in series between the heating connection and the two heating relays K1/1 and K1/3. Its capillary tube is located in the cabinet on the heater elements R2 and R3. The temperature limiter cuts out when the heater element external temperature rises above 165°C. After the temperature has dropped, the limiter does not reset automatically. It must be manually reset.

Warning!

Before the temperature limiter is reset, it is essential to allow the heater elements to cool and to establish why it tripped.

Technical Information**4.3 Filter System****Figure 4-2: Filter combination**

The circulating water is filtered via 2 parallel paths. A portion of the water flows through the central opening of the coarse filter and then passes through the micro-fine filter. The remainder passes directly through the large surface area fine filter. All water is then mixed together again in the sump where it is taken in by the circulation pump and the process repeats. In this way some of the water passing through the filter system always passes through the micro-fine filter so the soil particles in the suds are continually being reduced. Soil that is retained by the micro-fine filter either collects there or falls onto the filter cap where it will eventually be removed by the drain pump. During the drainage a large portion of the suds passes through the micro-fine filter in reverse direction of flow (outside to inside) and thus cleans it.

4.4 Waterproof System

Two independently functioning solenoid valves in the intake hose are combined to form the WPS (Waterproof System) valve, ex. Y1 (cold water), and Y22 (condenser valve). The two valves located directly at the end of the hose are connected both electrically and for water flow in series. This ensures that if one valve fails (ex. due to blockage caused by a foreign body) the water flow can still be switched off by the other valve if necessary.

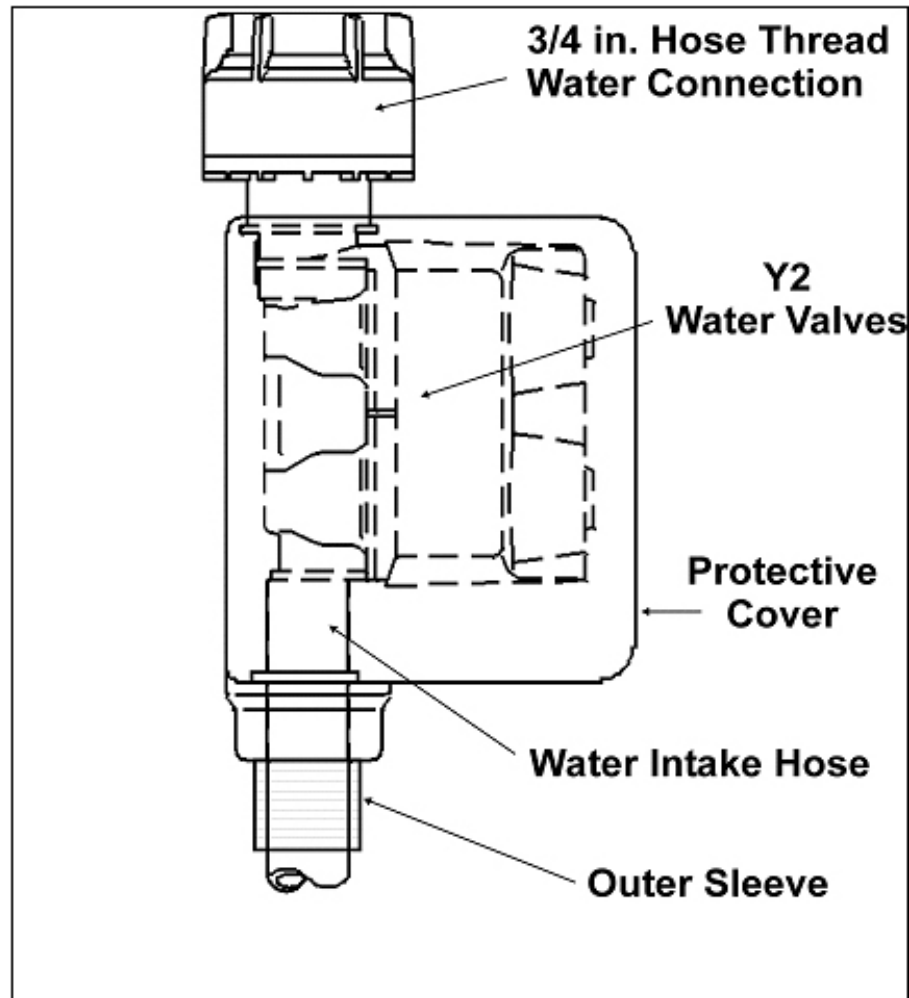
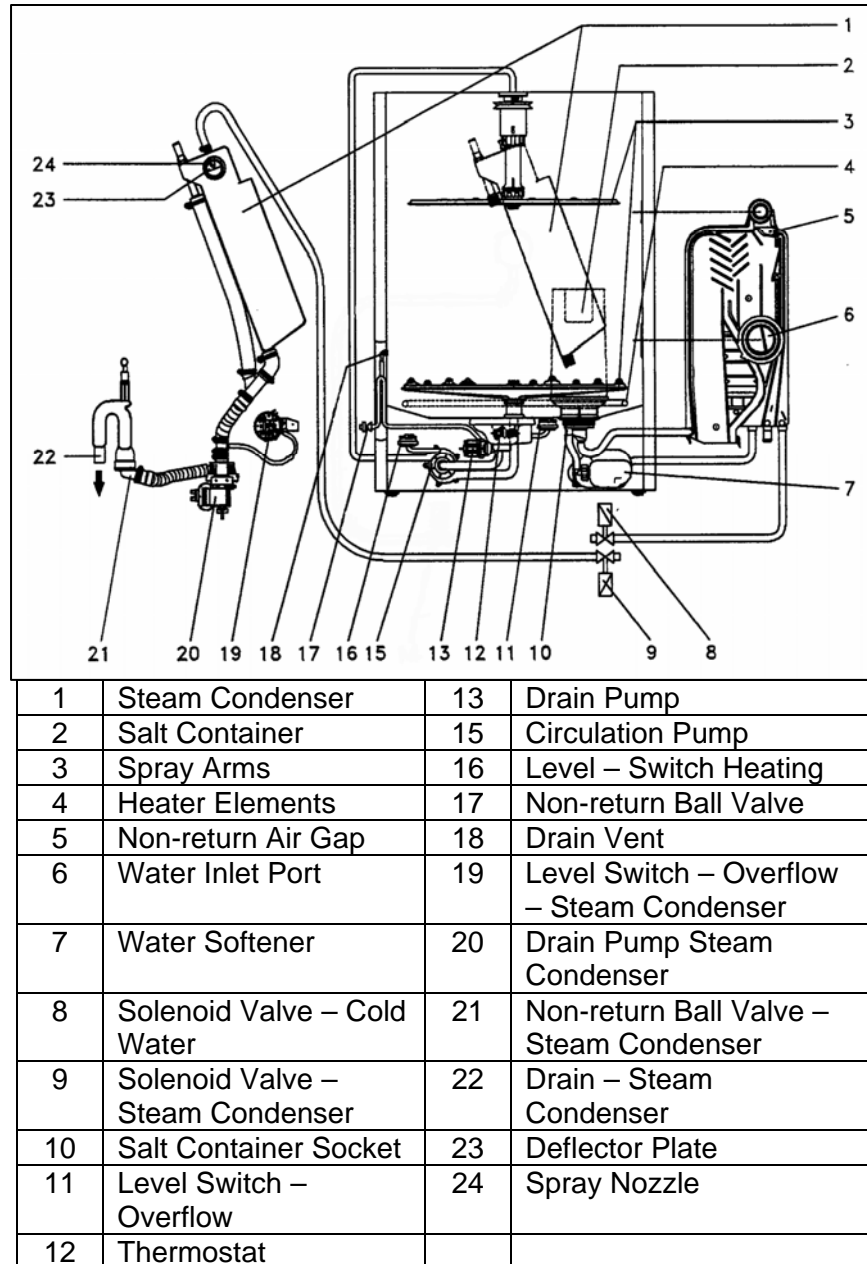


Figure 4-3: Waterproof system

Technical Information
4.5 Water Path

Figure 4-4: Typical Water Path

4.5.1 Cold water intake

Water is taken in via the solenoid valve, figure 4-4, item 8, past the air gap in the water inlet mixer, figure 4-4, item 5, to the salt container, figure 4-4, item 7, then enters the cabinet via the water inlet port, figure 4-4, item 6.

4.5.2 Water circulation

The circulation pump, figure 4-4, item 15, takes in water from the sump that has passed through the combination filter. The water is then pumped to the spray arms. The bottom spray arm has an adjustable jet so that the rotational speed of the arm can be modified.

4.5.3 Water heating

Three heater elements, figure 4-4, item 4, are located in the wash cabinet. When sufficient water is in the machine (at least 6 liters) and the circulation pump is operating, heater pressure switch, figure 4-4, item 16, switches on the heating.

4.5.4 Drainage

Water is drained from the lowest point in the sump by the drain pump, figure 4-4, item 13, and passed via the non-return ball valve, figure 4-4, item 17, to the drain system. An additional vent, figure 4-4, item 18, is provided at the drain valve to prevent the sump siphoning dry.

4.5.5 Overflow protection

If a technical defect allows too much water to enter the machine, the overflow level switch, figure 4-4, item 11, will act to close the solenoid valve, figure 4-4, item 8, and start the drain pump, figure 4-4, item 13, before an actual overflow can occur.

4.5.6 Softener reactivation

To reactivate the water softener, figure 4-4, item 7, the filled salt container, figure 4-4, item 2, must be screwed onto the salt container socket, figure 4-4, item 10. The water path is then as described in 4.5.1.

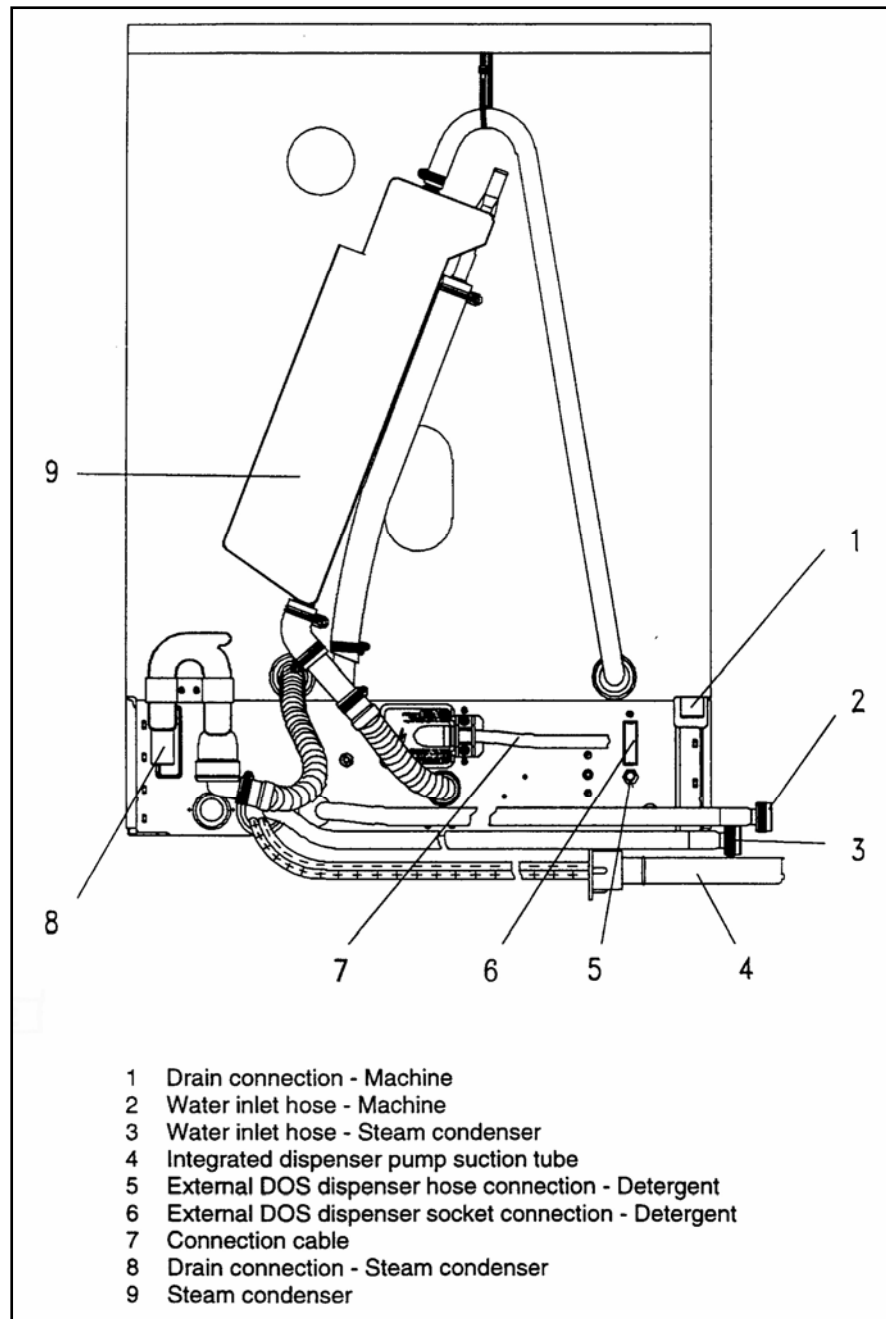
Technical Information**4.6 Steam Condenser**

Figure 4-5: G7781 Rear View With Steam Condenser

4.6.1 **Steam condenser principles of operation**

The purpose of the steam condenser, figure 4-5, Item 9, mounted on the rear of the Dental Disinfector is to prevent the excessive discharge of steam by serving as a vent for the wash cabinet.

At temperatures above 65°C, the thermostat, mounted in the sump activates the inlet valve, figure 4-5, item 3. This valve supplies 2 liters of water per minute to the nozzle which sprays a fan-shaped jet of water, cooling the surface so steam can condense. The deflector plate prevents cold water from entering the wash chamber and lowering the temperature of the washing solution.

The condenser drain pump, figure 4-4, item 20 is activated simultaneously with the inlet valve. An overflow level switch mounted in the front of the machine behind the service panel monitors the water level in the condenser from blocking the cabinet vent which in turn would cause pressure in the cabinet to rise, possibly allowing water to leak over the door ledge.

The non-return valve, figure 4-5, item 8, prevents water which has been drained from running back into the condenser. The steam condenser drain hose should be run separately from the main drain hose.

4.7 **Water Softener Capacity Curve**

The softener capacity is given in "hardness liters" (HI). This is defined as the softening of 1 liter of water by 1 degree of hardness (°dH). The figure varies depending on the relative hardness of the water supply as shown in the graph, figure 4-6.

When the hardness liter figure is divided by the hardness of the supply, the result is the number of liters, Q (l), that can be effectively softened to the level of 1°dH.

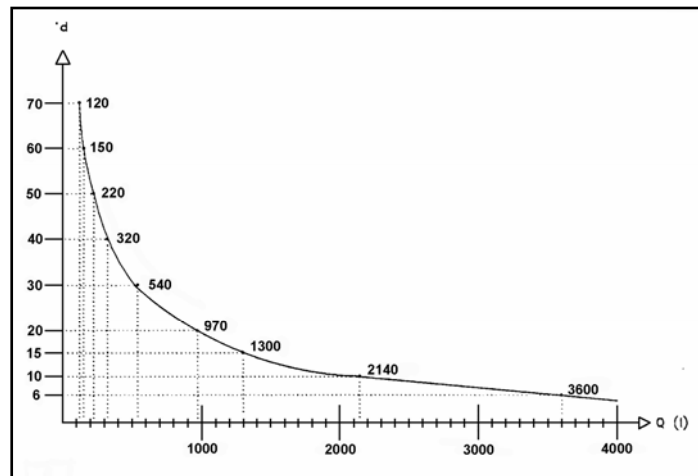
See table 3-2 to compare °dH with other hardness measuring units.

Example:

Water supply hardness level: 6°dH

Hardness liter figure (from figure 4-3): 21,600 HI

Quantity of water that can be reduced to 1°dH: $21,600/6 = 3,600$ liters

Technical Information**Figure 4-6: Water Softener Capacity Curve**

4.8 Layout of Electrical Components

4.8.1 Front of machine

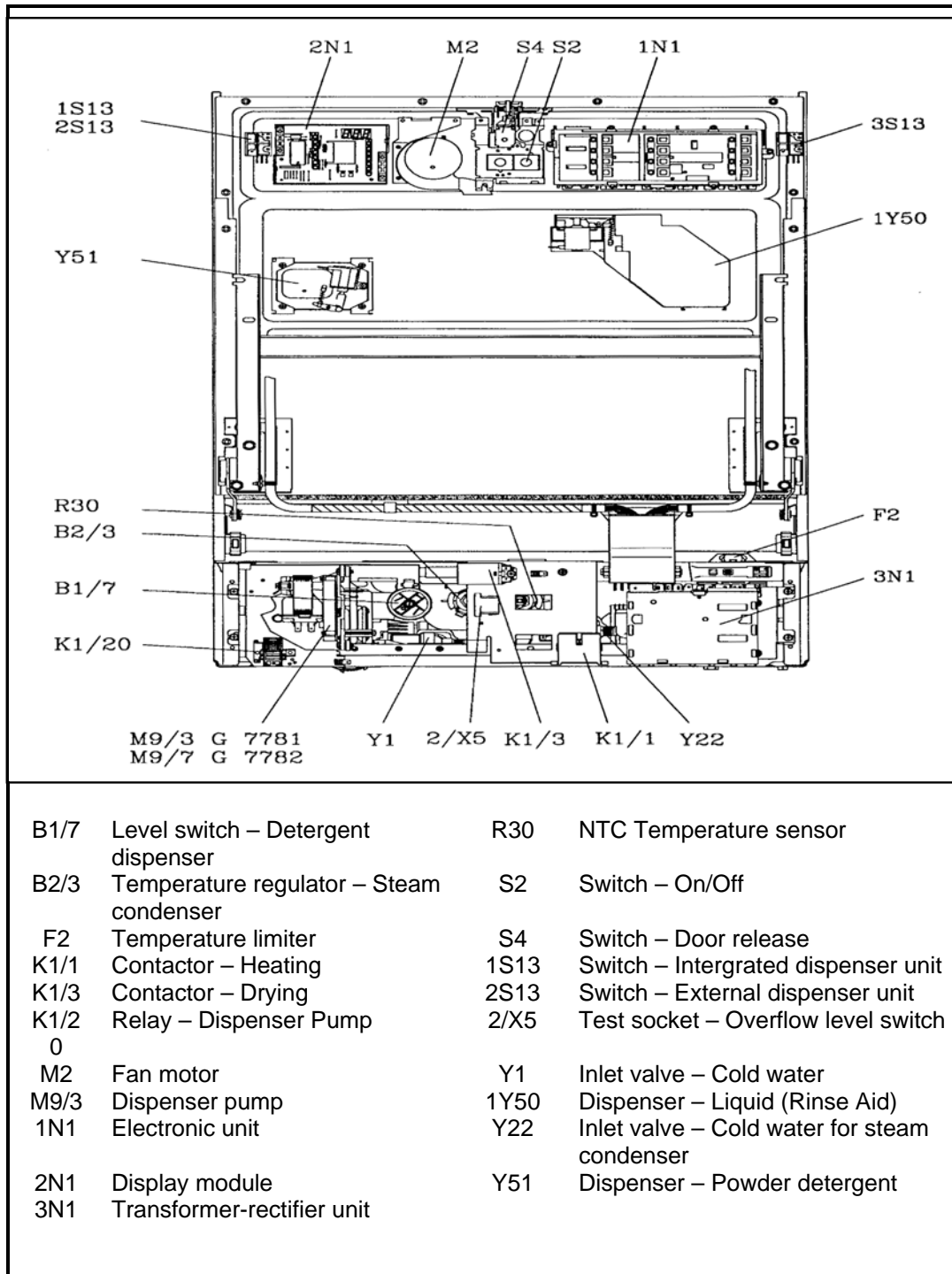
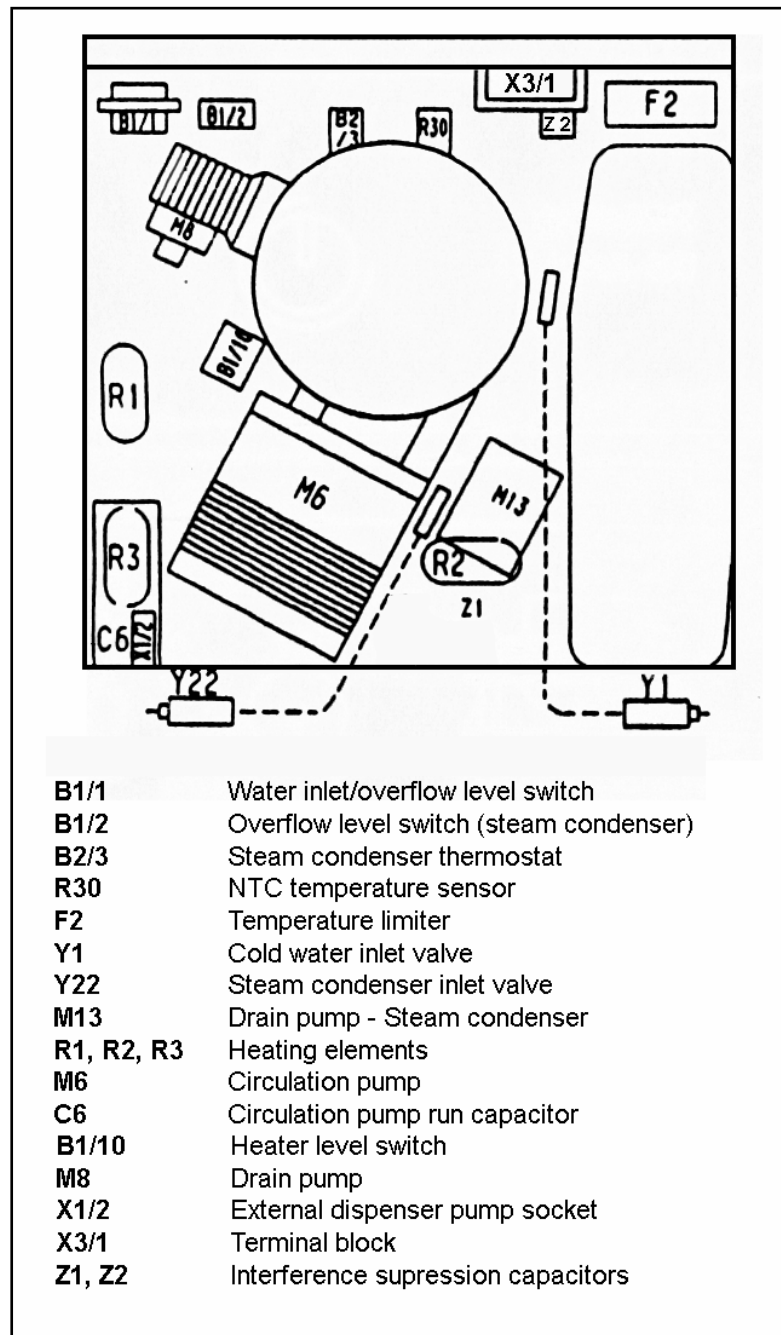


Figure 4-7: Electrical Layout

Technical Information**4.8.2 Below the cabinet****Figure 4-8: Below The Cabinet**

4.9 Principle Of Operation Of The EPW 561 Control System

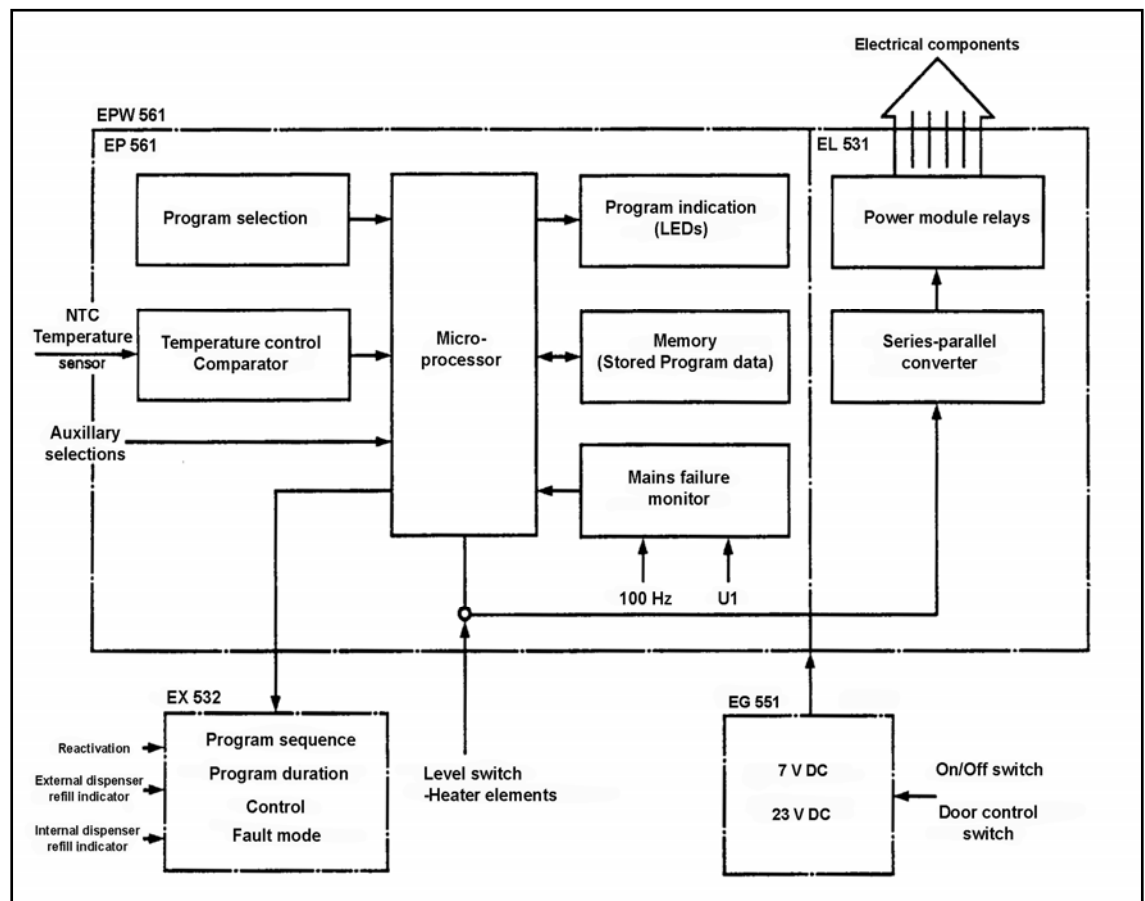


Figure 4-9: EPW 561 Control System

The Multitronic control system, figure 4-4, consists of 3 parts

- Electronic unit EPW 561
- Display module EX 532
- Transformer-rectifier unit EG 551

Technical Information**4.9.1 Electronic unit EPW 561**

The electronic unit EPW 561 consists of two circuit boards:

- Control module EP 561
- Power module EL 531

The control module EP 561 includes the following main parts:

- Microprocessor
- Program selection switches
- Program indicator LEDs
- Power source failure recognition circuit
- Operation amplifier for temperature monitoring circuit

The following components are located on the power module EL 531:

- 10 Relays
- 1 Voltage regulator
- 1 series-parallel converter

The relays control the following components:

Relay	Component
1	Circulation pump
2	Drain pump
4	Cold water intake
6	Dispenser unit – Detergent (door)
7	Dispenser unit – Rinse aid (door)
8	Dispenser unit – Neutralizing agent
9	Heating – Wash and rinse cycles
10	Heating – Drying cycle
3 & 5	Not-used

Table 4-1: EPW 561 Relay Component Control

4.9.2 Display module EX 532

An integrated circuit on the display module converts series data from the microprocessor into parallel data which is displayed in the following ways:

- a) Yellow LEDs:
 - Pre-wash
 - Wash
 - Rinse
 - Final rinse
 - Drying
 - Disinfected
- b) Red LEDs:
 - Fill/Drain - Water inlet/drainage fault indicator
 - Reactivation - Reactivation indicator
 - Detergent - Refill indicator – Optional DOS dispenser (Detergent)
 - Neutralizer - Refill indicator – Internal DOS dispenser (Neutralizer)
- c) Digital display
 - Program duration
 - Temperature display T1 + T2
 - Fault indication (F0, F1, F2, F3, F4, F5)

4.9.3 Transformer-rectifier unit EG 551

The transformer-rectifier unit provides 3 different low voltages:

- a) Approximately 17 V 60 Hz AC
From the transformer secondary winding
- b) Approximately 20 V unregulated DC
The secondary AC voltage delivered by the transformer (approximately 17 V) is rectified via a bridge rectifier and smoothed using capacitors. The approximately 20 V unregulated DC voltage is used as a control voltage for the recognition of a power failure.
- c) Approximately 7 V regulated DC
The regulated voltage is reduced to approximately 7 V by the voltage regulator on the power module EL 531. This supply is used to power the relays and the displays. The 6.7 V DC for the auxiliary contacts of S2 (On/Off switch) is also provided by the relay module.

Note:

See figure 6.3 for testing points in section 4.9.3.

5.0 Service And Maintenance

5.1 Support Roller Replacement

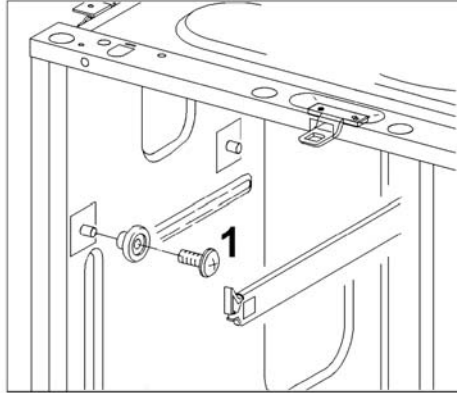


Figure 5-1: Fixing screw removal

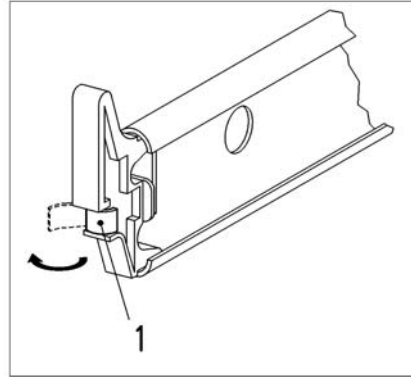


Figure 5-2: End stop removal step 1

1. Slide out the basket guide until the fixing screws are visible through the holes in the basket guide.
2. Remove the fixing screws. Remove the basket guide.

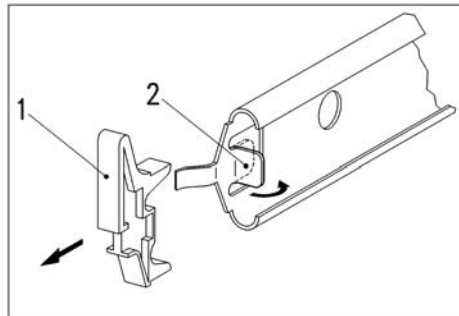


Figure 5-3: End stop removal step 2

1. Bend open the holder tag for the rear stopper in the direction of the arrow.
2. Remove the rear stopper in the direction of the arrow.
3. Bend the other holder tag in the direction of the arrow.
4. Remove the old support rollers.
5. Fit new support rollers in the basket guide.
6. Screw the basket guide with new rollers back into place.

5.2 Cabinet Seal-Replacement

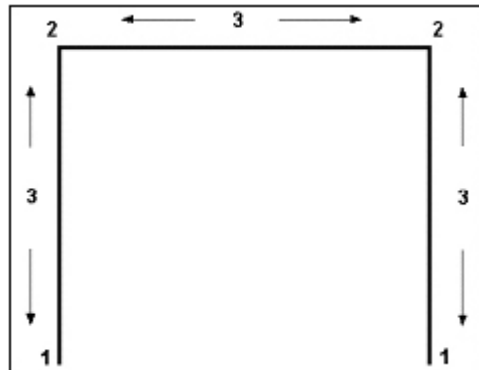


Figure 5-4: Door seal install guide

Refer to Fig. 5-4 for the following procedure.

1. Open the door.
2. Remove the old seal.
3. Clean the groove around the cabinet.
4. Press the appropriate sealing compound into the corners of the groove.
5. Fit the new seal in accordance with the plan. First press the **bottom** of the new seal (1) into the groove near the bottom of the door.
6. Then press the seal into the corners (2). The seal lip should point inwards.
7. Then working towards the middle (3) press the seal **evenly** into its groove.

5.3 Outer Door Panel Removal

1. Open the door.
2. Remove the 4 Phillips screws from the rear of the lower panel
3. Remove the lower door panel making sure to disconnect the ground.

5.4 Control Panel Removal

1. Open the door.
2. Remove the 6 Phillips screws from the inner door panel.
3. Remove the control panel.

Technical Information**5.5 Lower Door Seal Replacement**

Refer to figure 5-5 for the following procedure.

1. Open the door fully and remove the 4 Phillips screws (1) at the bottom of the door.
2. Remove the seal (2) and mounting plate (3).
3. Replace with a new seal by closing the door half way to allow access to the mounting plate.
4. Replace the 4 Phillips screws (1).

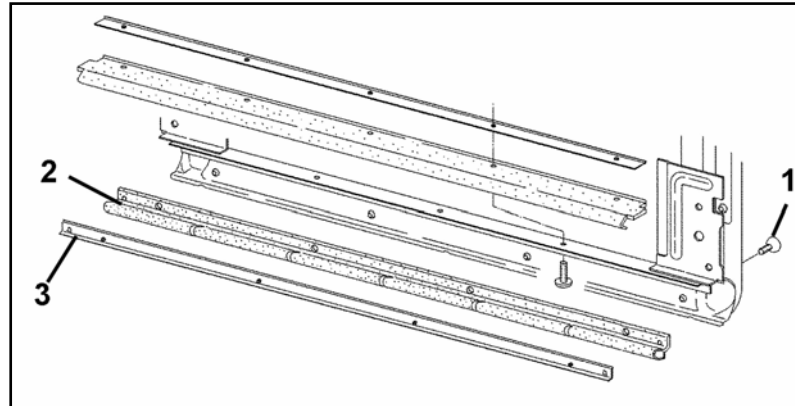


Figure 5-5: Lower door seal

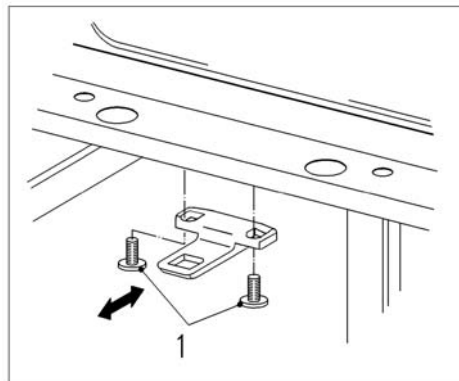
5.6 Locking Plate-Adjustment

Figure 5-6: Locking plate adjustment

1. Ensure the appliance is installed perfectly level. Adjust as necessary.
2. Loosen the screws, Fig. 5-6, Item 1.
3. Adjust the locking plate in the direction of the arrow as required keeping it straight. See Fig. 5-6.
4. Tighten the screws.

5.7 Plinth/Service Panel Removal

See figure 2-2:

1. Remove the two brass Phillips or hex screws below the toekick.
2. Pull the toekick forward until the upper clips release.
3. Remove the 4 Phillips screws holding the service panel to support brackets.
4. Remove the ground from the service panel.
5. Move the plastic sheet covering drip cover and then remove the drip cover.

5.8 Lid Removal

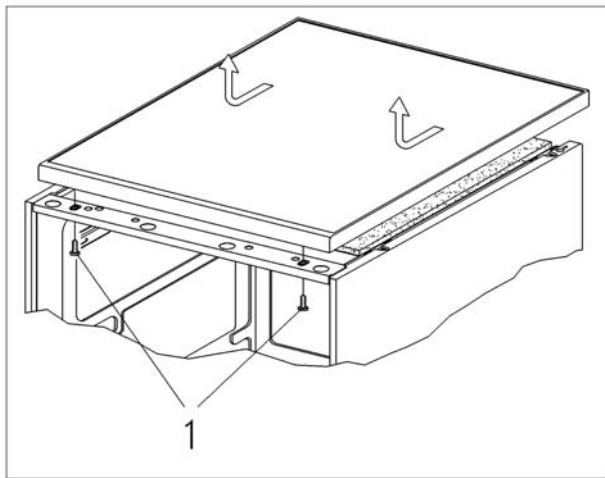


Figure 5-7: Lid Removal

1. Open the door.
2. Remove the screws, Fig 5-7, Item 1.
3. Slide the lid forwards slightly and lift it off.

5.9 Bottom Pan Removal

1. Remove the appliance from the installation.
2. Place the appliance on the left side.
3. Remove the 4 screws (one at each corner) from the bottom pan.
4. Remove the pan.

5.10 Heating Relay (K1/1) Removal

1. Remove the plinth/service panel, see 5.7.
2. The heating relay is located on the relay mounting plate see figure 4-7.
3. With power disconnected slide the relay K1/1 to the right to remove it from the mounting plate.

Technical Information**5.10.1 Drying relay (K1/3) Removal**

1. Remove the plinth/service panel see 5.7.
2. The drying relay is located on the relay mounting plate see figure 4-7.
3. Remove the screw holding the relay to the plate.
4. Remove the drying relay.

5.11 DOS 10/30 Neutralizer Pump Service and Replacement

For the location of the DOS 10/30 pump and its components (relay K1/20 and the level switch B1/7) use figure 4-7.

Service

PM service would include the replacement of the casing and hose of the DOS 10/30 pump. This also includes the external detergent dispensing pump (DOS C60). Refer to Fig. 5-8 for the following service steps:

1. Remove the DOS pump from its mounting bracket.
2. Remove the 4 Phillips screws (2) holding the casing to the pump motor (1).
3. Pull the casing (3) away from the motor (1) and disconnect the 2 hoses from the bottom of the pump casing.

Note: When replacing the DOS pump casing with a new one make sure you connect the hoses in the correct location (input and output). The pump runs in a clockwise direction so the left hose (looking at the casing side of the pump) is the input and the right hose connection is the output.

Install the new casing following these directions in reverse order.

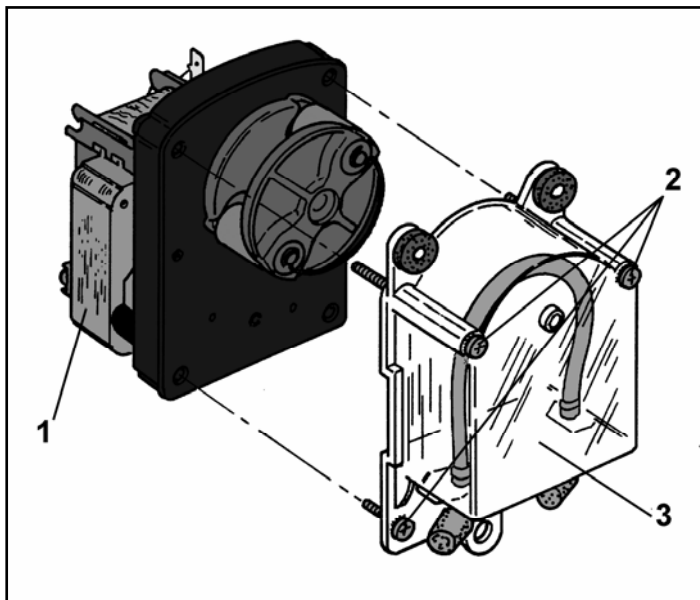


Figure 5-8: DOS pump casing

5.12 Steam Condenser Drain Pump (M13) Replacement

1. Place the appliance on the left side.
2. Remove the bottom pan, 5.9.
3. Remove the support bracket, 2 screws at the rear and one at the front that can be accessed after the rectifier electronic is removed.
4. Remove the two 10mm bolts from the drain pump bracket which is attached to the support bracket.
5. Remove the 2 hoses from the drain pump.
6. Disconnect the electrical connection.
7. Replace the drain pump by following the above directions.

5.13 Water Level Service and Replacement

1. Disconnect the power.
2. Remove the plinth/service panel.
3. Remove the DOS 10/30 pump bracket by loosening the 2 screws to the left of the pump.
4. The switch five wires attached with 7 connection points (including the ground). Pay attention as to where the wires were connected to replace them in the same position when replacing the water level switch.

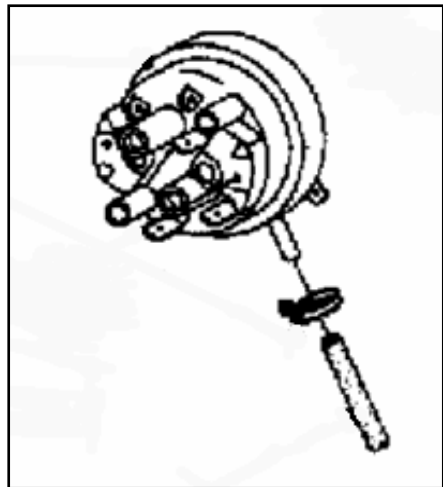


Figure 5-9: Water Level Switch (Overflow)

5.14 NTC Temperature Sensor (R30) Access and Removal

1. Remove the plinth/service panel see 5.7
2. Remove the relay board in the center behind the service panel.
3. The NTC connector is at the front of the sump, see figure 4-8, R30.
4. To remove the NTC turn the plastic lock housing counterclockwise until it releases from the sump.
5. Pull the NTC out of the sump.

Technical Information**5.15 Heater Element (R1, R2 and R3) Removal**

1. Open the door and loosen the appropriate heater element holder, see figure 4-1.
2. Remove the appropriate heater element central fixing screw, figure 4-1 item 2 in the cabinet.
3. Remove the heater element complete with rubber seal upwards.
4. Disconnect electrical leads to heater element.

Warning!

Care must be taken when removing the heating element from the dishwasher.

If resistance is felt, you must carefully cut away the heating element seal from the dishwasher cabinet.

5. When refitting, ensure that the heater element seal completely seals the heater element hole in the cabinet.

5.16 Drain Pump (M8) Removal

1. Remove the appliance from the installation site.
2. Remove the bottom pan, see 5.9.
3. Remove the hose from the right side of the drain pump.
4. Disconnect the electrical connection from the right side.
5. Remove the screw holding the drain pump bracket. The screw can be accessed using long flat tip screwdriver from the front of the appliance.
6. Pull the drain pump out carefully.
7. Remove the Phillips screw holding the level switch bracket onto the drain pump bracket.
8. If replacing the drain pump, the bracket from the old pump must be installed on the new drain pump.

5.17 Non-return Air Gap Replacement

1. Open the door and remove the air vent cap by turning the cap counter-clockwise, see figure 4-4, Item 18.
2. Remove the bottom pan, 5.9.
3. Disconnect the inside drain line and water line from the non-return air gap.
4. Disconnect the outside drain hose.
5. Route the non-return air gap to clear the output tube from the appliance housing.
6. Remove the non-return air gap.

Note:

When installing a new non-return air gap, insure the vent tube seal is secure to the air gap by using a silicone adhesive.

5.18 Circulation Pump (M6) Removal

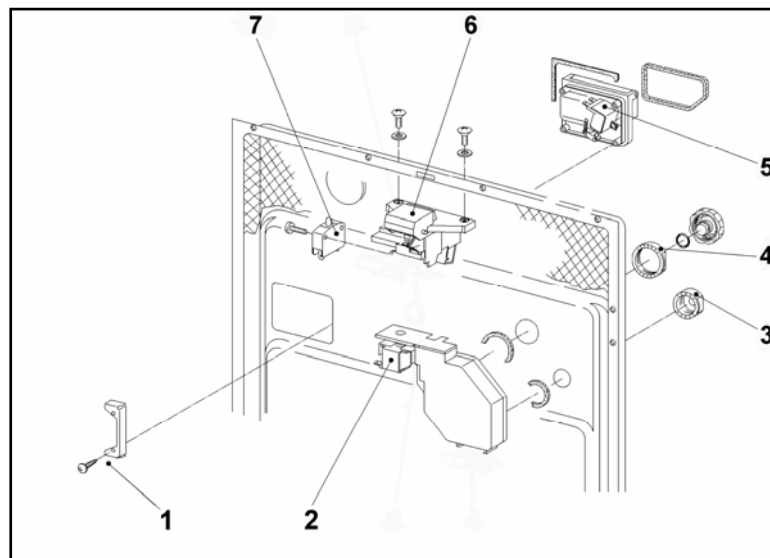
1. Remove the bottom pan, 5.9.
2. Disconnect the three hoses attached to the circulation pump.
3. Remove the 8mm hex head screw from the rear panel,
4. Disconnect the power and sensor connectors from the circulation pump.
5. Carefully pull the pump out of the appliance being careful not to break the speed sensor electronic.
6. For installation follow these directions in reverse order.

5.19 Heater Pressure Switch Replacement

1. Remove the bottom pan, 5.9.
2. Disconnect the connector from the heater pressure switch.
3. Remove the hose that connects the switch to the circulation pump.
4. Slide the heater pressure switch off of the mounting bracket.

5.20 Door Components**5.20.1 Powder detergent door dispenser (Y51) removal**

1. Disconnect power from the appliance.
2. Remove the outer door panel, 5.3.
3. Remove the electrical connections from the dispenser solenoid.
4. Remove the left and right side brackets held on by 4 Phillips screw 2 on each side.
5. Dispenser is removed by pressing the dispenser inward from the bottom.

**Figure 5-10:** Door components

Technical Information**5.20.2 Rinse agent dispenser (1Y50) removal**

1. Disconnect power from the appliance.
2. Remove the outer door see 5.3.
3. Remove the electrical connections from the dispenser solenoid.
4. From the was cavity side of the inner door panel remove the injector cap and the retaining nut as well as adjacent cap screw.

5.20.3 Door lock (S4) removal and replacement

1. Remove the control panel, see 5.4.
2. Disconnect the wires from the door lock switch, Fig. 5-10, Item 6.
3. Remove the 2 Phillips screws from the top of the inner door, Fig. 5-10.
4. Replace the door lock using these directions in reverse. The wires for the switch are not keyed but, can be connected on either terminal of the switch.

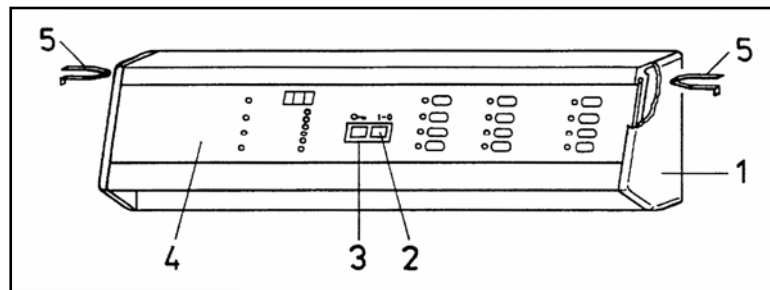
5.21 Electronic Unit EPW 561 Or Display Module EX 532 Removal

Figure 5-11: EPW 561 Or EX 532 Removal

5.21.1 Electronic Removal

1. Disconnect the machine from the power supply and unscrew the control panel from the inner door panel see 5.4.
2. Remove 2 screws from lower bracket of the electronic unit.
3. Lift out the electronic unit from the control panel.

5.22 Electronic Unit EG 551 Removal

1. Remove the plinth/service panel, see 5.7.
2. Loosen the screws holding the right leg support in place.
3. Slide the electronic to the left.

6.0 Fault Diagnosis

6.1 Fault-finding Mode

Two dashes in the digital display indicates a fault in the electronic unit. By accessing the fault-finding mode, a code can be displayed which indicates a possible location or cause of the fault. See table 6-1.

6.1.1 Accessing and using the fault finding mode

1. Press the “**Drain**” and “**Reactivation**” buttons together and at the same time turn the machine on. Fill/Drain Lt. will be on and the display is blank.
2. Press the “**Drying**” and “**Reactivation**” buttons together. While you hold the buttons in, one of the fault codes listed in table 6-1 will be displayed.
3. Turn the machine off and repair the fault.

Note:

Once a fault has been dealt with successfully, the fault code must be cancelled. See 6.1.2.

6.1.2 Cancelling a fault code

1. Press the “**Drying**” and “**Drain**” buttons together and at the same time turn the machine on. “**Px**” appears in the display, (x= 0, 1, 2, 3, 4 depending on the software version).
2. Press the “**Start**” button twice to cancel the displayed code.
3. Turn the machine off.

6.1.3 Accessing and using the service mode

Note:

The service mode allows individual steps within a program to be accessed and tested. In this way individual components can be checked for correct operation and measurements can be taken.

1. Press the “**Drain**” and “**Reactivation**” buttons together and at the same time turn the machine on.
2. Select a program that contains the function to be tested. (from the Timing Chart).
3. Press the “**Start**” button as many times as necessary to advance the machine to the step to be tested, (from the Timing Chart).

Caution:

When advancing through the stepping program, insure you monitor the length of time spent in each step. More than 2 sec. can cause a fault to occur.

Technical Information

Example: To test the detergent-door dispenser operation (DOS 1)
After entering Service Mode, pick program **“Wash”**.
Press start button until you reach step number 7, as read in the LED display.
The detergent door solenoid should now energize for the time allotted on the Timing Chart.

Fault Code	Symptom	Cause	Remedy
F0	No fault in electronic unit	-	-
F1	NTC Sensor	Connection lead open circuited, Plug connection open circuited, NTC sensor open circuited	Check connection leads from the Electronic Unit 1N1 at A25 and A26 at connector ST4 for an open circuit. Check plug for continuity. Check the NTC for continuity.
F2	NTC Sensor	Connection lead short circuited, Plug connection short circuited, NTC sensor short circuited	Check connection leads from the Electronic Unit 1N1 at A25 and A26 at connector ST4 for a short circuit. Check plug for short circuit. Check the NTC for short circuit.
F3	Thermostop	Temperature was not reached in the prescribed time (40 minutes).	Check if machine is heating. Check the F2 temperature limiter, if tripped reset and test the machine. If no heat then test the heating circuit for power.
F4	Microprocessor Pulse Failure	Faulty timer impulse system in the control unit.	Replace the 1N1 Electronic.
F5	Power Supply Frequency Pulse Failure	60 Hz frequency not present at the electronic 3N1 (EG 551)	Check for the correct power at ST3 of 3N1. If the power is not at 208VAC then check the incoming power.

Table 6-1: Fault Codes

6.2 Heater Pressure Switch (B1/10) Testing

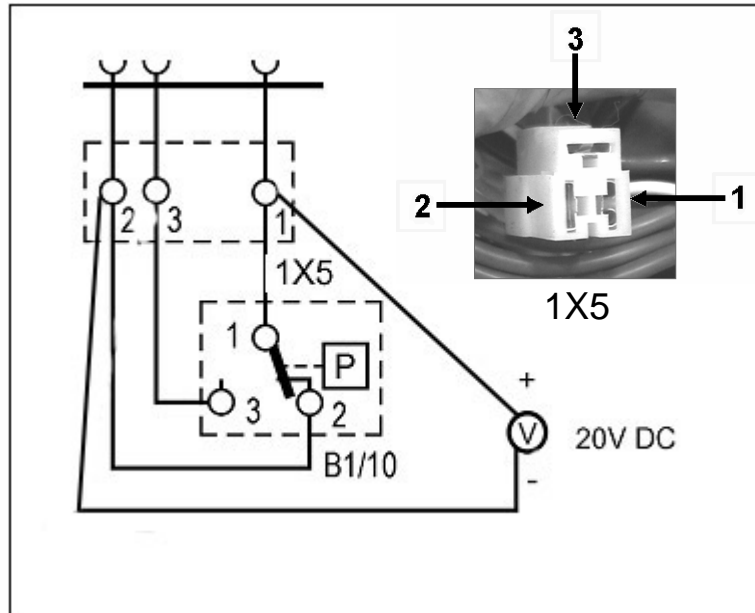


Figure 6-1: Heater pressure switch testing

Connector 1X5 Is Behind The Lower Service Panel

- Turn on meter to 20Vdc range.
- Test between pins 2 and 1 of 1X5.
- Select and start a cold pre-wash program.

With the machine filled with water you should read approximately 6.8Vdc.

Technical Information

6.3 Testing the Transformer-rectifier unit EG 551

1. Remove the plinth/service panel see 5.7.
2. Remove the electronic unit EG 551, see 5.22.
3. Test using figure 6-2.

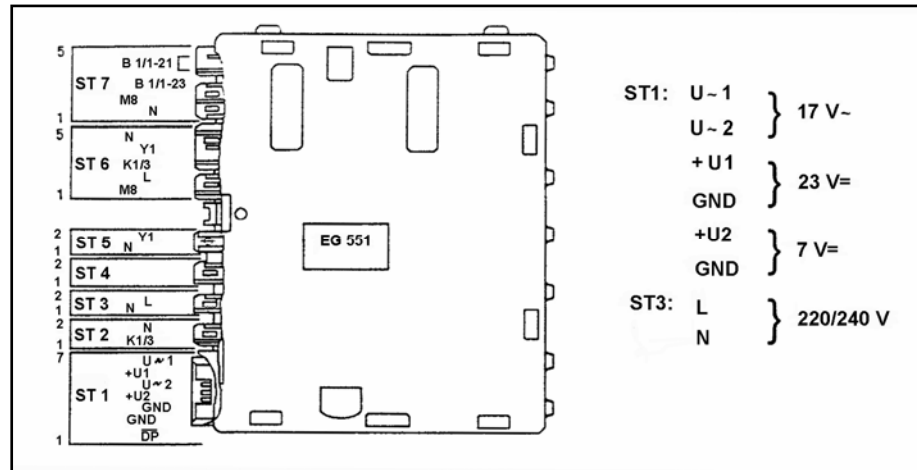


Figure 6-2: EG 551 Transformer Rectifier Electronic

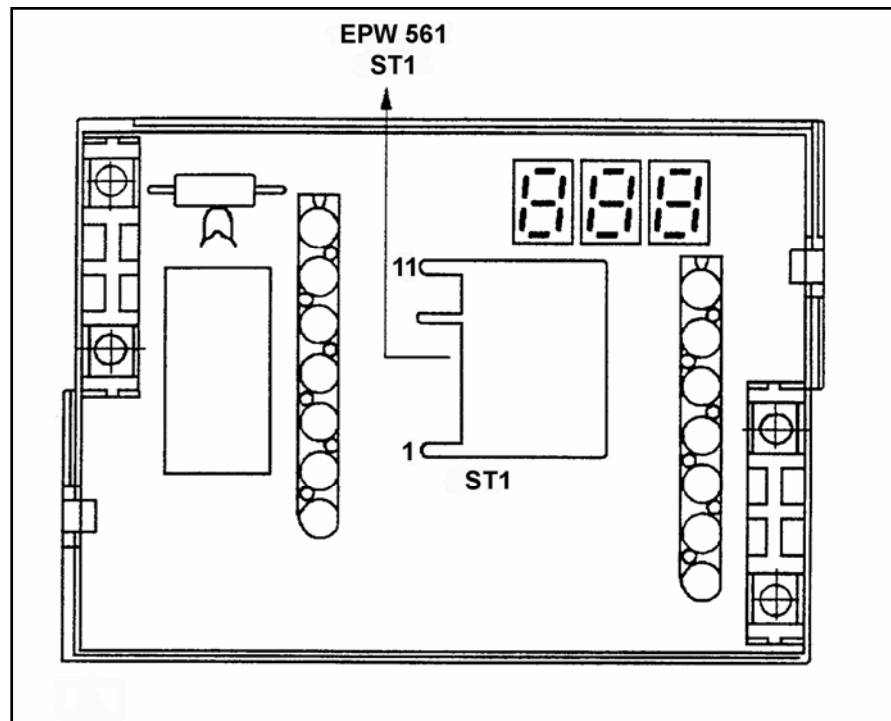


Figure 6-3: Display Board EX 532

6.4 Fault Repair

6.4.1 Door Seal Bulges

Cause

- Improper detergent use over time may cause damage to the seals in the appliance. Also the use of rinsing agents (when these contain paraffin oils) in the final rinse can cause the seal to swell after only a short period of time.

Remedy

- Use a different detergent.
- To protect seals, disinfecting, alkaline detergents with a high proportion of active chlorine should not be used at temperatures above 80°C.

6.4.2 Door Cannot Be Locked

Cause

- Door seal incorrectly fitted and protrudes forward.
- Locking plate not correctly adjusted.

Remedy

- Remove the door seal and fit correctly.
- Adjust locking plate.

6.4.3 Temperature Limiter F2 (Thermostat) Has Cut-out

Cause

- The heating relay contacts (K1/1 or K1/3) have fused together.
- Excessive foam developed in suds.

Remedy

- Check heating relay contacts for continuity when they are not activated.
- If continuity exists, exchange the appropriate relay.
- Check quantity of rinse aid dispensed.
- Use a different rinse aid.

Technical Information**6.4.4 Repetitive Heater Element Fault in Cabinet****Symptom**

- Short-circuit and/or body contact at heater elements.

Cause

- Over long periods excessively foaming suds may cause the heater elements to fail. May be caused by using non-Miele-approved detergent. A check can be made during washing by using the clear door.

Remedy

- Exchange the heater element.
- Use only detergents recommended by Miele.

6.4.5 No Water Intake**Symptom**

- Water intake only starts after rotation of the circulation pump has been registered.

Cause

- Circulation pump does not start.
- Waterproof system WPS valve does not open.

Remedy

- Check circulation pump for power or mechanical failure.
- Check the gentle start electronic.
- Check the speed sensor.

6.5 Test Program

This special program is available to test all electrical components and to ensure that the thermostop settings ("T1 - 65°C, and "T2" - 93°C) operate correctly.

6.5.1 Accessing and using the test program

1. Press the **"Drain"** and **"Reactivation"** buttons together and at the same time turn the machine on.
2. Press the **"Reactivation"** button. 60 C appears in the display.

When the "Start" button is pressed, the test program is run automatically