



Dishwasher

COMPACT

EDW 503

© AEG Hausgeräte GmbH
Muggenhofer Straße 135
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Germany

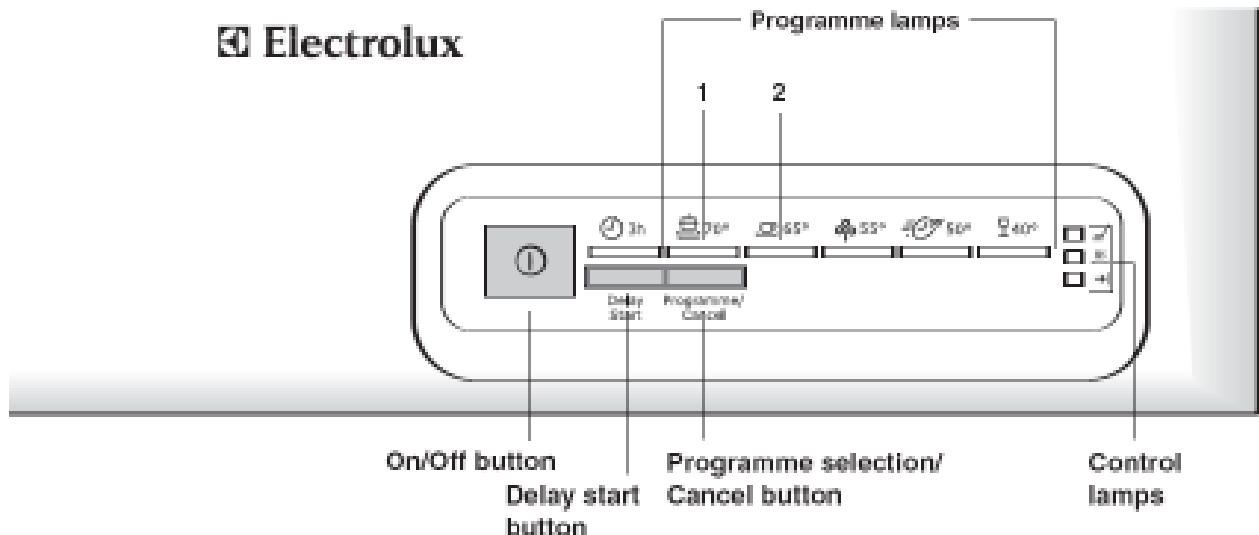
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

1. Programme selection / cancel button

is used to:

- select the programme
- deactivate/activate the audible signal
- cancel a dishwashing cycle

Control lamps:

Shows that:

- Wash cycle in progress 
- Drying in progress 
- Programme cycle ended 






The programme cycle ended lamp has also other functions of visual signalling:

- when deactivating/activating the audible signal
- with malfunction of the machine

2. Technical specifications

Capacity:	5 place settings accordance EN 50242	
Dimensions:	Height	460 mm
	Width	450 mm
	Depth	480 mm
Weight:	Net	17 kg
Water pressures:	Minimum	50 kPa (0,5 bar)
	Maximum	1000 kPa (10 bar)
Water temperature:	Maximum	65° C
Electrical data:	Power supply	230 V - 50 Hz
	Fuse	10 A
	Heating element	1200 W
	Power rating	1280 W

3. Programme chart

Type of dishes	Plates and cooking pots	All types of dishes			Coffee cups, delicate items
Type of soil:	<ul style="list-style-type: none"> heavily soiled dried-on food remnants especially egg-white and starch 	<ul style="list-style-type: none"> normally soiled dried-on food remnants 	<ul style="list-style-type: none"> normally soiled 	<ul style="list-style-type: none"> lightly soiled 	<ul style="list-style-type: none"> lightly soiled
Suitable programme:	↓	↓	↓	↓	↓
	 INTENSIVE 70° C	 NORMAL 65° C	 ENERGY SAVE 55° C 2)	 QUICK 50° C	 GLASS 40° C
Programme-cycle:	Washing 2 x rinses Final rinse Drying	Washing Rinse Final rinse Drying	Washing Rinse Final rinse Drying	Washing Rinse Final rinse -	Washing Rinse Final rinse -
Consumption figures: 1)	↓	↓	↓	↓	↓
Washing time with drying:	107 minutes	85 minutes	152 minutes	30 minutes	28 minutes
Drying time:	15 minutes	15 minutes	69 minutes	—	—
Energy:	1,0 kWh	0,80 kWh	0,57 kWh	0,48 kWh	0,43 kWh
Water:	10 litres	8 litres	8 litres	8 litres	8 litres

1) Consumption figures have been calculated for nominal conditions. The figures can vary depending on inlet water temperature and how full the main and cutlery basket are.

2) Consumption figures and performance is according to the Energy Save programme cycle.



All programmes begin with a drain.



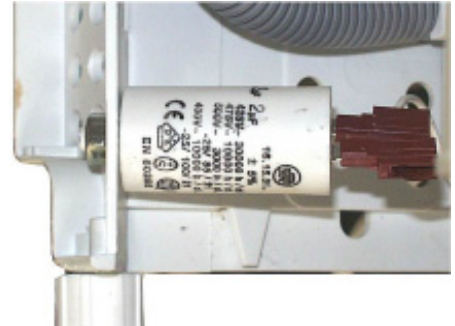
Dishwashing detergent in tablet form is not suitable for use in the Quick- and Glass programme cycles because some tablets cannot develop their full cleaning power during short programmes.

4. Components

Capacitor

The circulation pump is connected to a capacitor.

2,0 μF for UK
2,5 μF for Europe



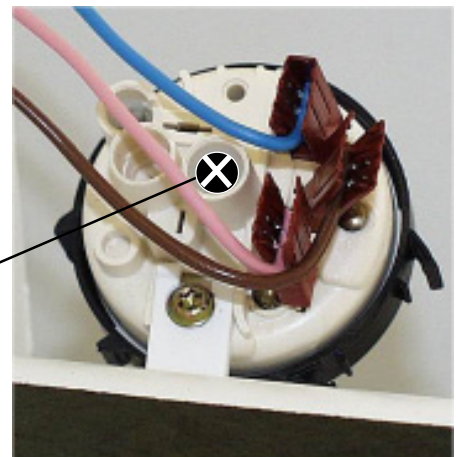
Pressure Switch

The pressure switch controls the water level.
Without water, contact is closed.

Adjusting:

Turning the marked screw clockwise **+** level

Turning the marked screw anti clockwise **-** level



Heating element

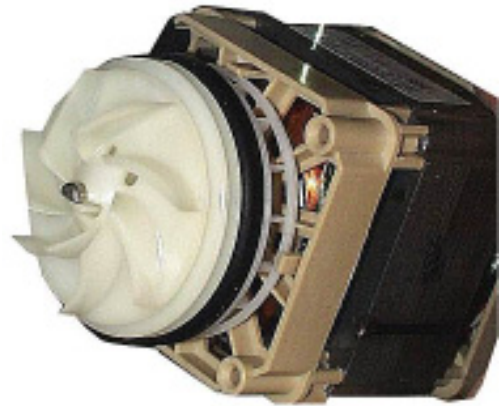
Power output 1200 W
Resistance approx 42 Ω



Circulation Pump

The circulation pump is driven by an asynchronous motor with an starting winding. The starting winding is in circuit with a 2,5 μ F (Euro) capacitor. (2 μ F UK)

Rating:	60/80 W
Main winding resistance	158 Ohm
Starting winding resistance	158 Ohm



Drain Pump

The drain pump is driven by a synchronous motor.

Power output	21/19 W.
Pump rate	10-12 l/min.
Main winding resistance	200 Ohm



Thermostats (normally open)

45°C closes at 41°C
opens at 33°C

55°C closes at 50°C
opens at 42°C

65°C closes at 61°C
opens at 53°C



Overheating protection (normally closed)
opens at 83°C
closes at 0°C

Electronic EDW 503

On electronic models, a micro processor controls all components, this is done using triacs. The electronic also memorizes all programme data.

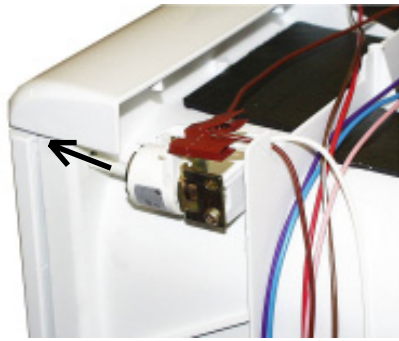
The heating is switched by a relay on the electronic board.



Detergent dispenser

Coil resistance

3000 Ohm



Rinse aid dispenser

Rinse agency capacity 140 ccm

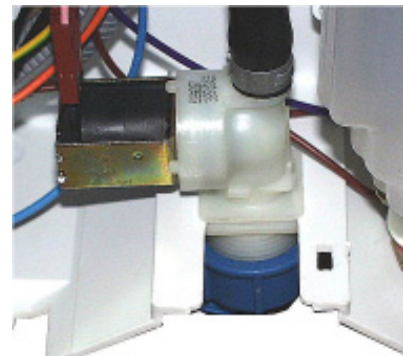
Solenoid coil resistance 1900 Ohm



Inlet valve

Capacity, max, 4 l/min

Resistance 4800 Ohm



Anti flood switch

If the anti flood switch in the base tray is activated, all components are switched off except the drain pump



Water softening system

Operation of the water softening system

When water is admitted, the inlet valve (1) opens and the hard water flows down into the ion exchanger (5), through which it flows and is softened before flowing through the water inlet (6) and then being sprayed into the Washing chamber.

In the meantime, the container for the regeneration water (2) is also filled with water.

If the rubber plug (3) at the rear of the machine is in place as shown in the illustration, the machine can handle water with a hardness of up to 20°dH. If the rubber plug is removed. The regeneration water volume will be increased, and the machine can then handle water with a hardness of up to 35°dH.

During the dishwashing programme, the ion exchanger will gradually be filled with lime and, to be able to soften the water during the next dishwashing cycle, the ion exchanger must be restored to its original condition. This is done by a process known as regeneration, which takes place according to the actual programmer diagram.

The solenoid valve (7) between the salt container and the ion exchanger will then open, and regeneration water will flow into the salt container (4).

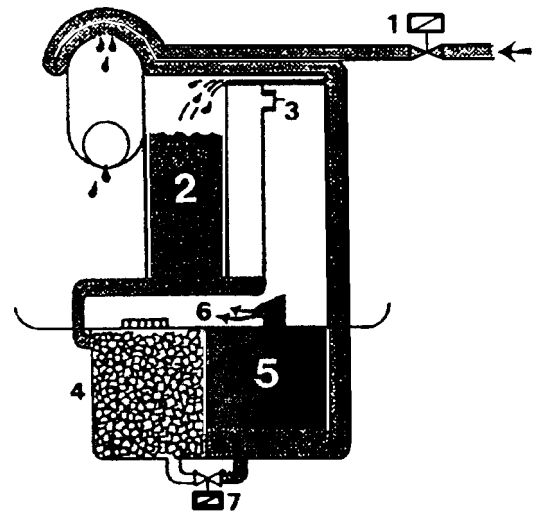
A corresponding amount of water saturated with salt is thus forced into the ion exchanger. The salt solution is present in the ion exchanger during the last rinse, and the small plastic balls will be recharged with sodium ions. According to the actual programmer diagram, the inlet valve will open and will allow about 2 litres of water to flow through the ion exchanger to flush away the now dissolved lime residues. The lime-rich water is then flushed immediately out to drain, and the machine is reset and ready for the next water fill.

The whole of this process is integrated into the programme of a machine with water softening, and thus takes place fully automatically.

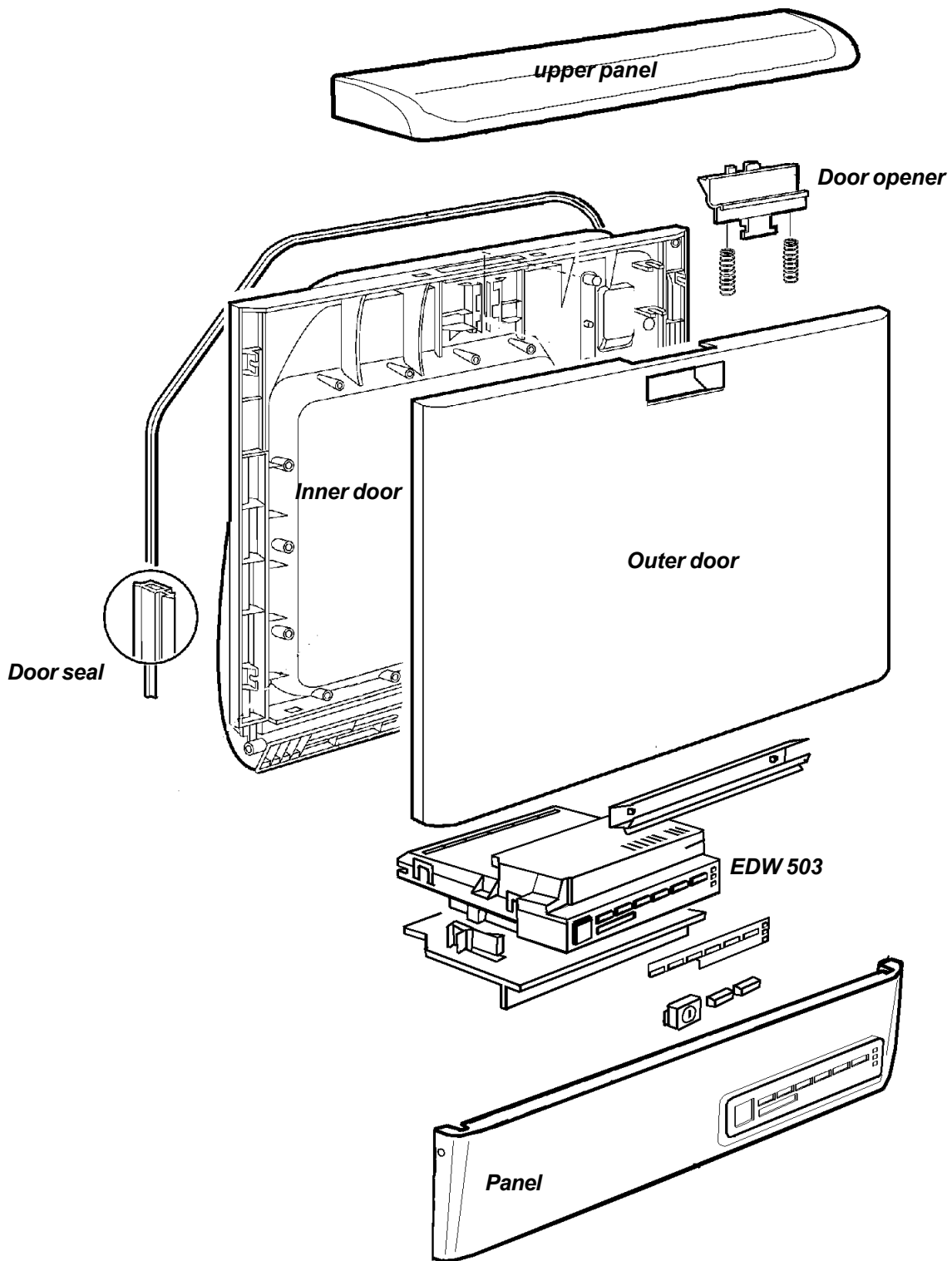
It should also be noted that it is important to use only coarse salt, since fine-grained salt would form lumps.

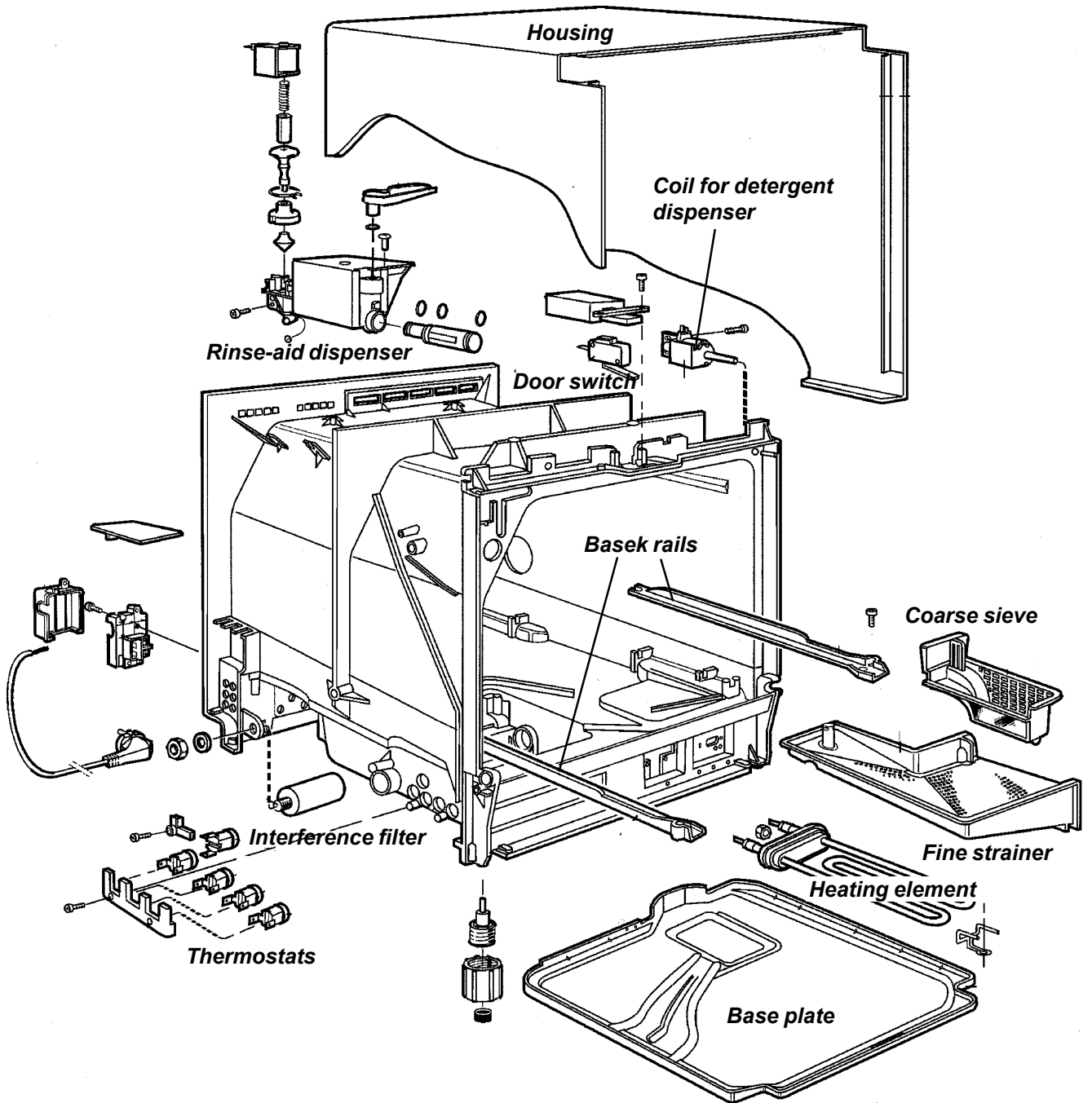
Water which is rich in lime is said to be "hard". Water hardness is measured in German degrees of hardness (dH). Water up to 10dH is normally regarded as soft, and above this value, it is regarded as hard.

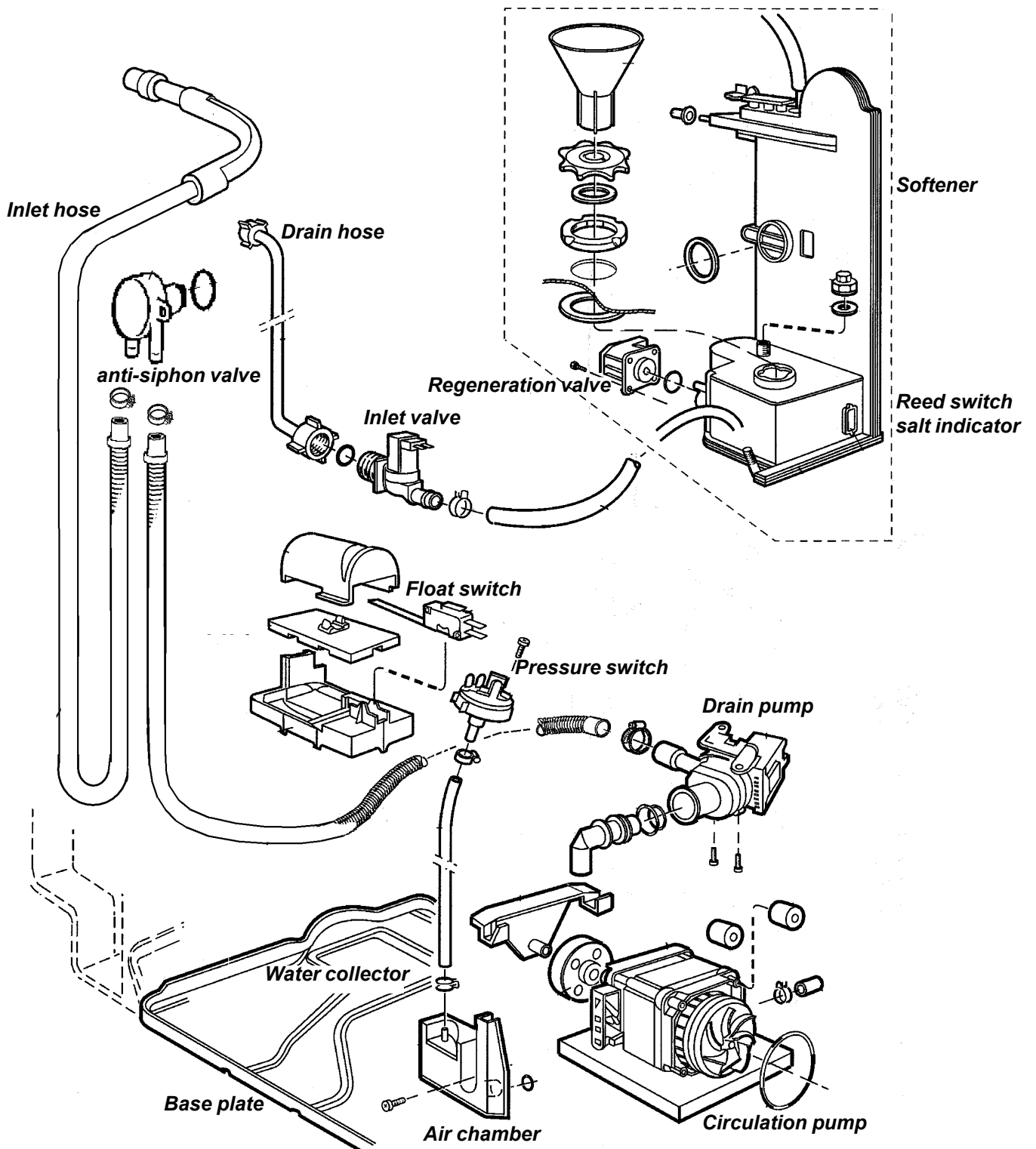
The phosphates in the detergent can handle the hardness in soft water. But if the water is hard, precipitations will occur, i.e. lime will be deposited on the dishes and in the dishwasher.

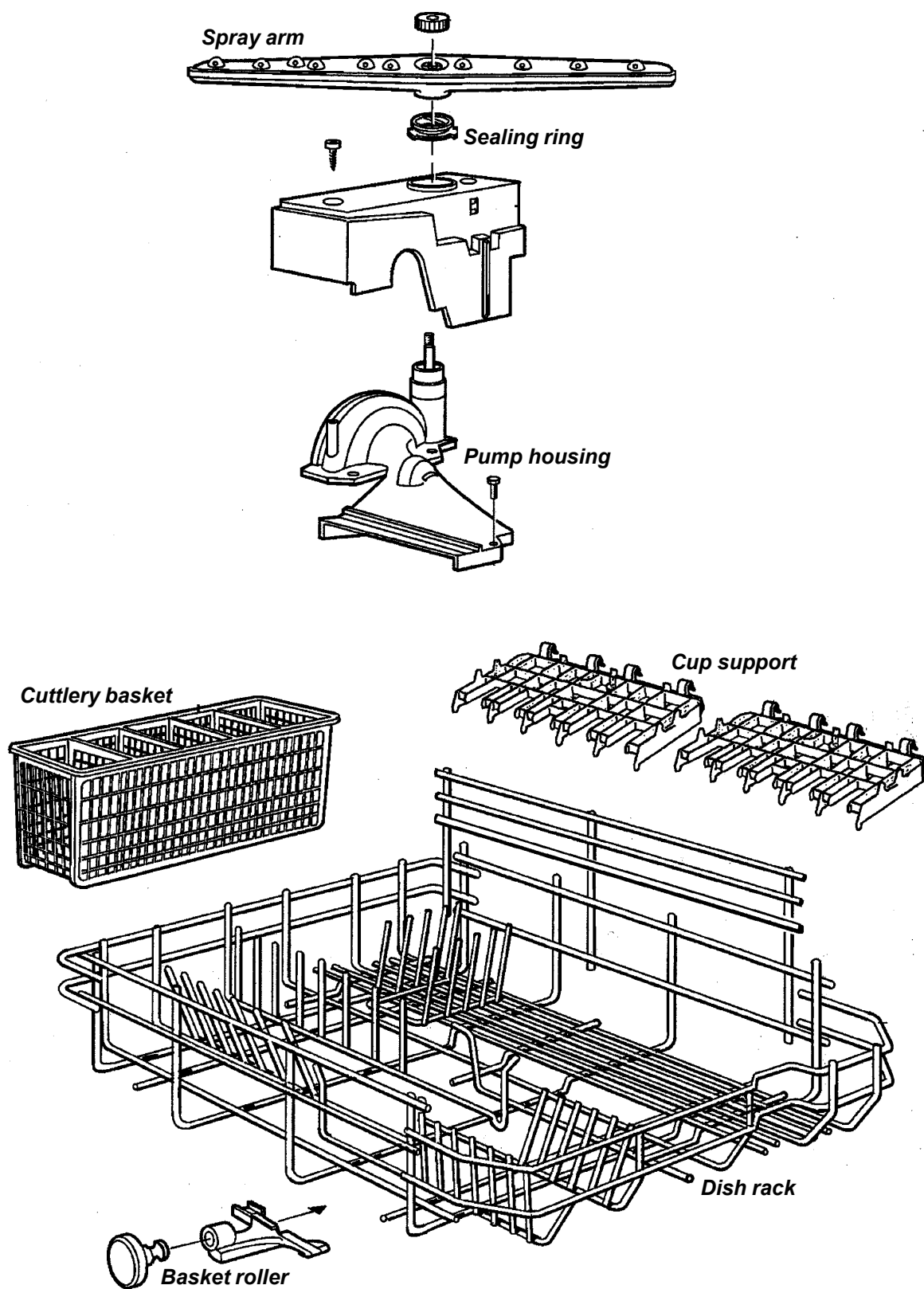


5. Position of components

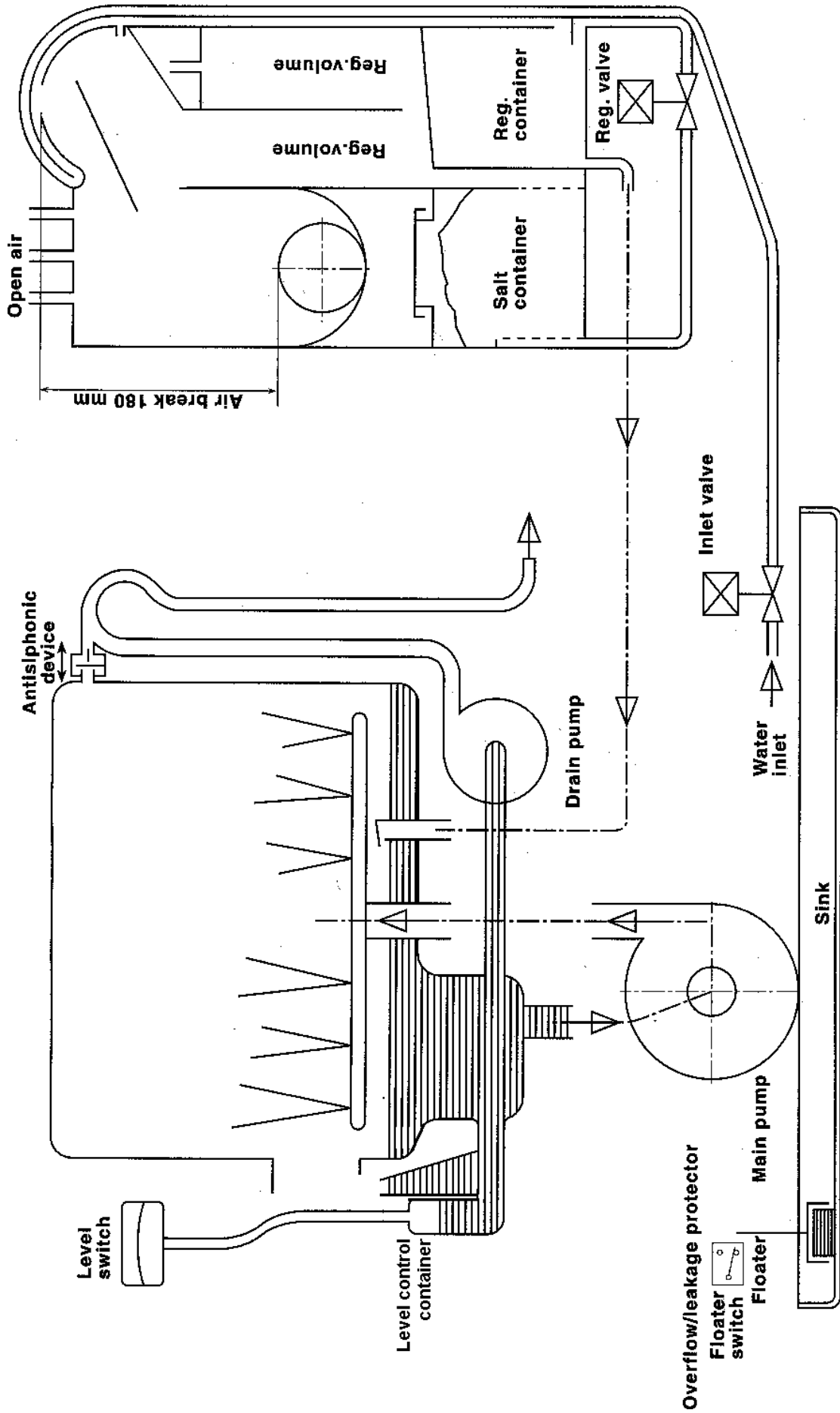








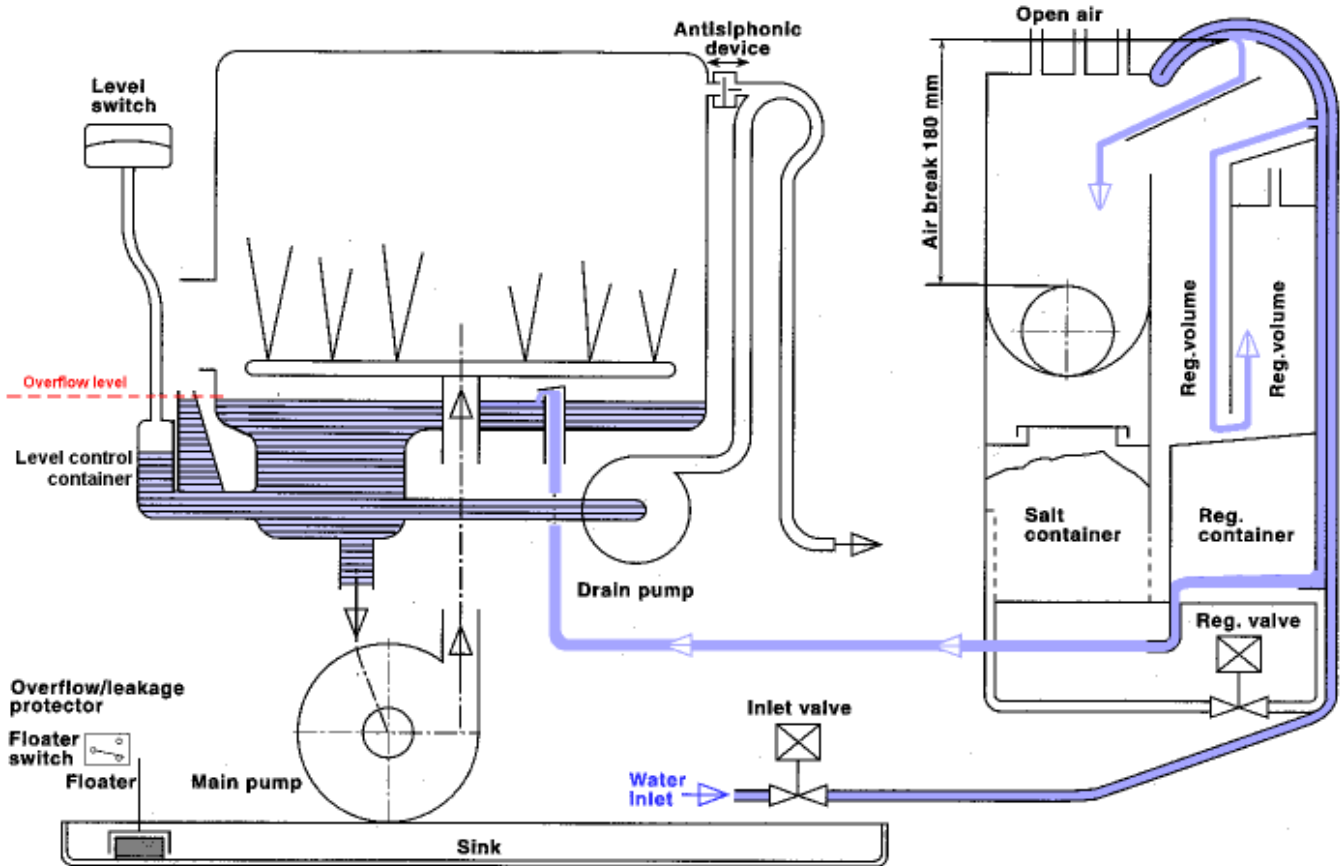
6. Water Course Scheme



7. Water Inlet

The water flows into the regeneration dosage chamber via inlet valve, over air break, into regeneration dosage chambers and into softener

The level control container operates the pressure switch.



8. Rinsing system

The function of the rinsing system is to wet the dishes loaded into the machine.

The electric motor of the circulation pump is delivered with the impeller fitted to it. Half the pump casing forms part of the plastic chassis, and the other half is bolted in position inside the washing chamber.

This arrangement ensures, that the joint between the two halves of the pump casing is inside the washing chamber.

An O-ring provides the seal between the motor assembly and the chassis.

The rating of the electric motor is 60 watts(50 Hz) or 80 watts(60 Hz) and the pump circulates around 30 litres per minute.

The electric motor needs assistance at the instant of starting, which is provided by a starting capacitor.

The motor mounting is very important to the sound level. Since the movements of the motor are a minimum at the centre, the motor is secured to a rubber mounting in the centre, at the rear end of the motor.

To ensure that no vibrations will be transmitted from the motor to the base plate, a plastic foam spacer strip is fitted to the bottom of the chassis. The pump casing half which is inside the washing chamber also contains the spray tube bearing with a stainless steel shaft.

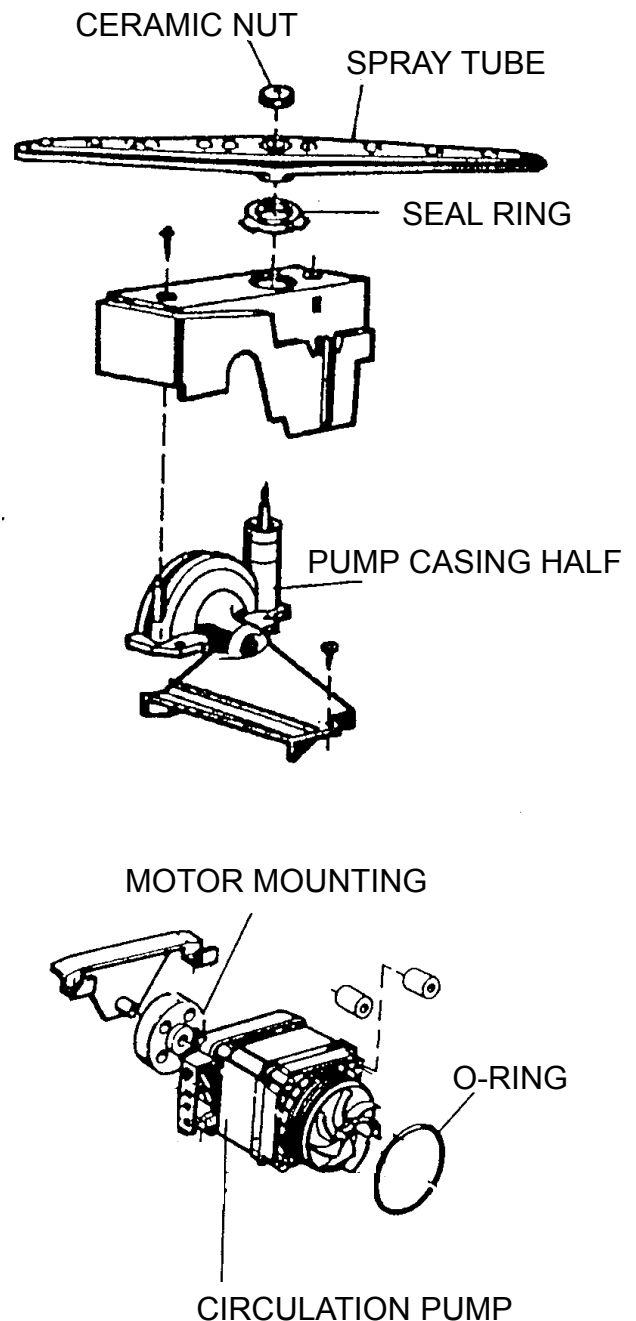
The underside of the spray tube is fitted with a seal ring to minimize leakage.

The shape and orientation of the holes in the spray tube are such that the dishes furthest away in the corners of the machine will also be effectively washed.

The spray tube rotates anti-clockwise at a speed of 10 - 20 1/min.

If the speed is too high, the dishwashing results will be poor, and if the speed is too low, the spray tube may stop al-together.

The pressure in the spray tube is just over 0.2 kg/cm². The spray tube is retained by a ceramic nut with a left-hand thread, to en-sure that the rotation of the spray tube will not cause the nut to unscrew itself. This means that the nut must be un-screwed in the „wrong“ direction.



9. Strainer system

The strainer system is one of the systems which are most important to the performance of the dishwasher.

The design of this system is largely decisive to whether the dishwasher will be able to perform its most fundamental task: to wash the dishes clean.

The strainer system must trap particles of food, etc. and ensure that these particles will not be recirculated and deposited back on the dishes.

Another consumer requirement is that the strainer system must be self-cleaning, so that it will not be necessary to wash the strainers by hand every time or every other time the dishwasher is used.

The strainer system consists of two parts which jointly contain three different strainers, each of which with its own particular task.

The fine strainer consists of a shaped stainless steel plate which is perforated with 0.5 mm diameter holes and is retained in a plastic frame. The dishwashing water passes through this strainer about 420 times during a normal dishwashing programme.

The bottom of the chassis is designed in such a manner that particles will continually be flushed away to the coarse strainer. All particles larger than 0.5 mm will be trapped, and the water flowing through the strainer will thus be virtually clean.

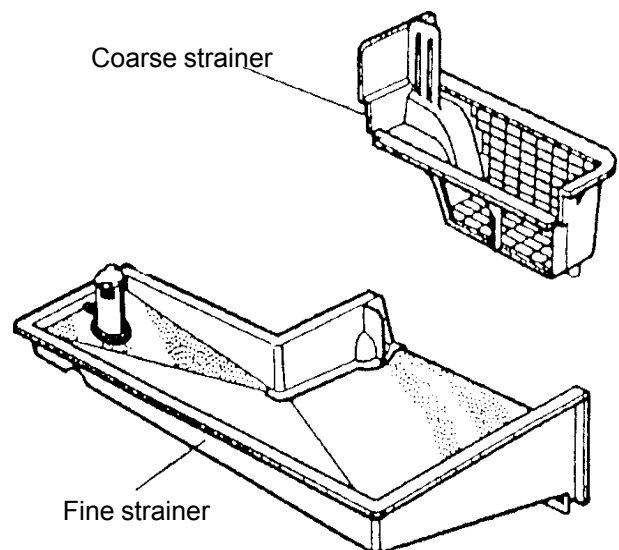
The performance of the strainer is highly dependent on the suction of the circulation pump being equally distributed over the entire strainer area. If the suction is higher at any one point, particles will be drawn through the fine strainer at that point, and they would then disintegrate and would be very difficult to trap.

It is also very important for the plastic frame of the fine strainer to seal well against the chassis, so that particles will not by-pass the strainer and be deposited back on the dishes.

The fine strainer also includes a small plastic boss. This is designed to prevent the build-up of pressure and air cushions under the strainer. An air cushion under the fine strainer would otherwise prevent the water from flowing through the fine strainer, and insufficient water would then be supplied to the circulation pump.

Particles are thus flushed continuously down into the coarse strainer, where they are retained until the water is pumped out to drain. The coarse strainer is also designed to trap larger particles, such as pieces of meat, toothpicks, etc.

To retain the good dishwashing properties of the machine, the consumer must empty and rinse the strainers as soon as they show signs of clogging.



10. Level control system

There are two basic ways of metering the right amount of water into a dish-washer. The first is to open the inlet valve for a certain predetermined period of time, while the other is to use some means for measuring the water level in the machine.

The major disadvantage of the first method is that if the mains water pressure is low (which is very common in Europe), the time allowed will be too short to fill the machine with a sufficient amount of water. A time-controlled machine needs a water pressure of at least 1.0 - 1.5 kg/cm². The Compact dishwasher is level-controlled and will perform satisfactorily at mains water pressures down to 0,5 kg/cm².

Operation of the level control system of the Compact dishwasher

As the machine is being filled with water, the water level in a level control container located on the side, outside the chassis will also rise. The container is connected to a pressure switch by means of a hose.

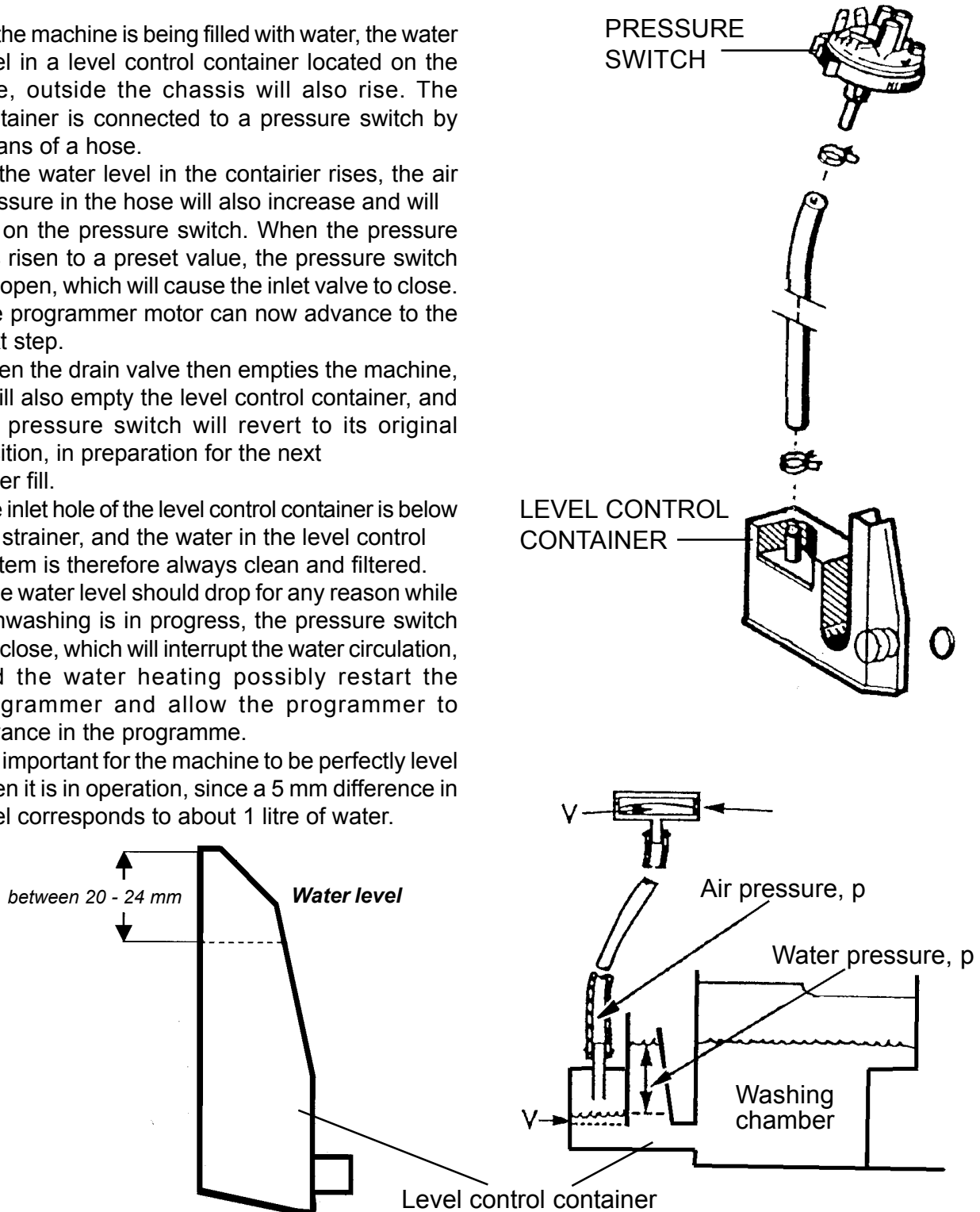
As the water level in the container rises, the air pressure in the hose will also increase and will act on the pressure switch. When the pressure has risen to a preset value, the pressure switch will open, which will cause the inlet valve to close. The programmer motor can now advance to the next step.

When the drain valve then empties the machine, it will also empty the level control container, and the pressure switch will revert to its original position, in preparation for the next water fill.

The inlet hole of the level control container is below the strainer, and the water in the level control system is therefore always clean and filtered.

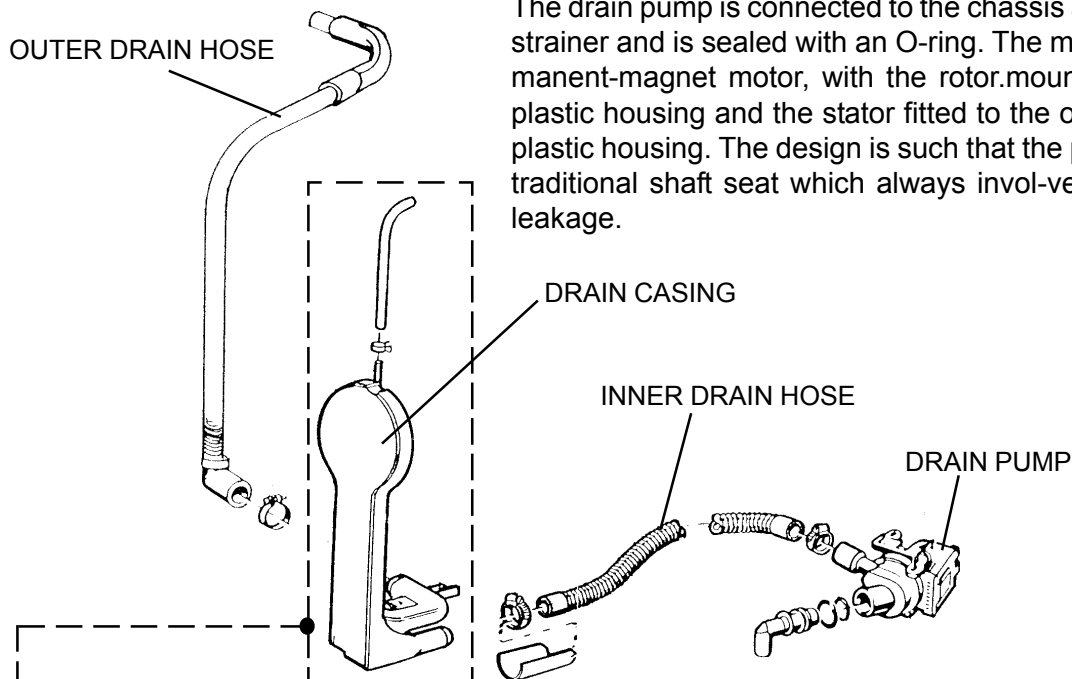
If the water level should drop for any reason while dishwashing is in progress, the pressure switch will close, which will interrupt the water circulation, and the water heating possibly restart the programmer and allow the programmer to advance in the programme.

It is important for the machine to be perfectly level when it is in operation, since a 5 mm difference in level corresponds to about 1 litre of water.



11. Drain system

The system consists of inner and outer drain hoses and a drain pump, and its function is to transport the contaminated water as efficiently as possible from the machine to the waste water system of the building.

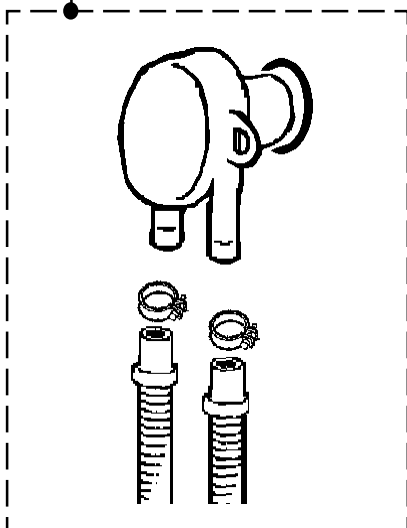


The drain pump is connected to the chassis at the coarse strainer and is sealed with an O-ring. The motor is a permanent-magnet motor, with the rotor mounted inside a plastic housing and the stator fitted to the outside of the plastic housing. The design is such that the pump has no traditional shaft seat which always involves the risk of leakage.

The pump performs equally well in both directions of rotation, and the direction in which it rotates is a matter of pure chance. This also means that the pump is virtually proof against jamming. If some object should enter the pump casing and jam the impeller, the motor will immediately make a new starting attempt in the opposite direction. Even if the impeller is seriously jammed (e.g. by a toothpick), the motor will most probably release the impeller within about a second. The power consumption of the motor is 23 watt, and the pump capacity is about 10 l/min.

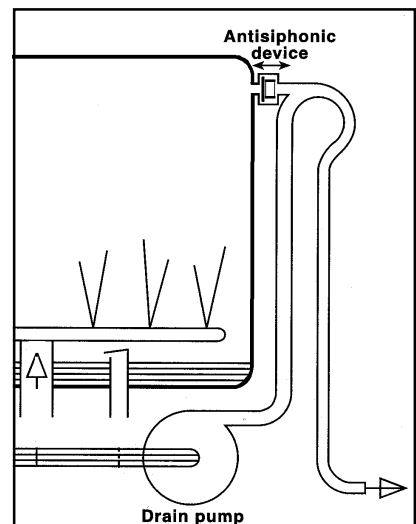
The internal drain hose is connected to the drain pump. To prevent the risk of the machine being emptied by siphon action, the hose routes the drain water through a loop running up to the top of the chassis and then through the outlet at the bottom of the machine, to the outer (visible) drain hose. A hole is provided at the highest point of the inner drain hose for venting the system.

If the drain hose is permanently connected to a water trap, it is very important that the inside diameter of the drain system should not be less than 13 mm at any point.



Anti siphonic device

If the end of the take-off hose is below the level of the water in the wash space, a siphon effect is possible, that is, the machine runs empty. This is avoided by the ventilation through the anti-siphon valve.

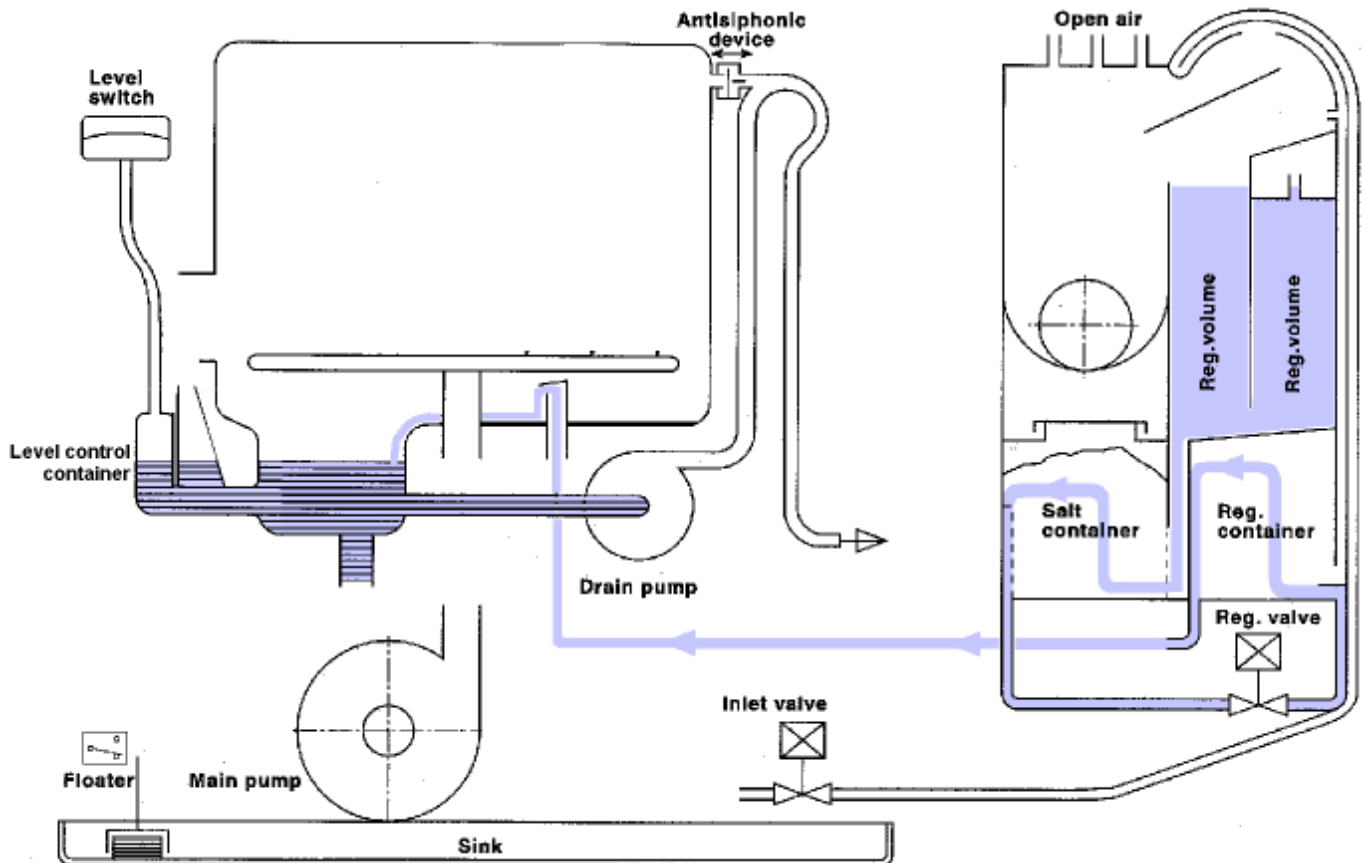


12. Regeneration

The water chamber for regeneration contains 350 ml water. During regeneration, the regeneration valve is energized. The 350 ml water runs into the salt container and mixes with the salt to form a brine solution.

In the top of the salt container there is an opening with a small filter, from here the brine solution enters the softener where the resins are regenerated.

The softener has 5 settings and can be adjusted to suit the degree of water hardness.



13. Thermostats

The thermostats are pressed into the tubular mountings in the plastic chassis. They measure the temperature on the outside of the plastic wall, which leads to a certain difference between the water temperature and the thermostat temperature.

However, the specifications of the thermostats take this into account. (In one particular case, the same thermostat is used for two different temperatures.

This is possible because the thickness of the chassis is different at the two thermostat mountings.

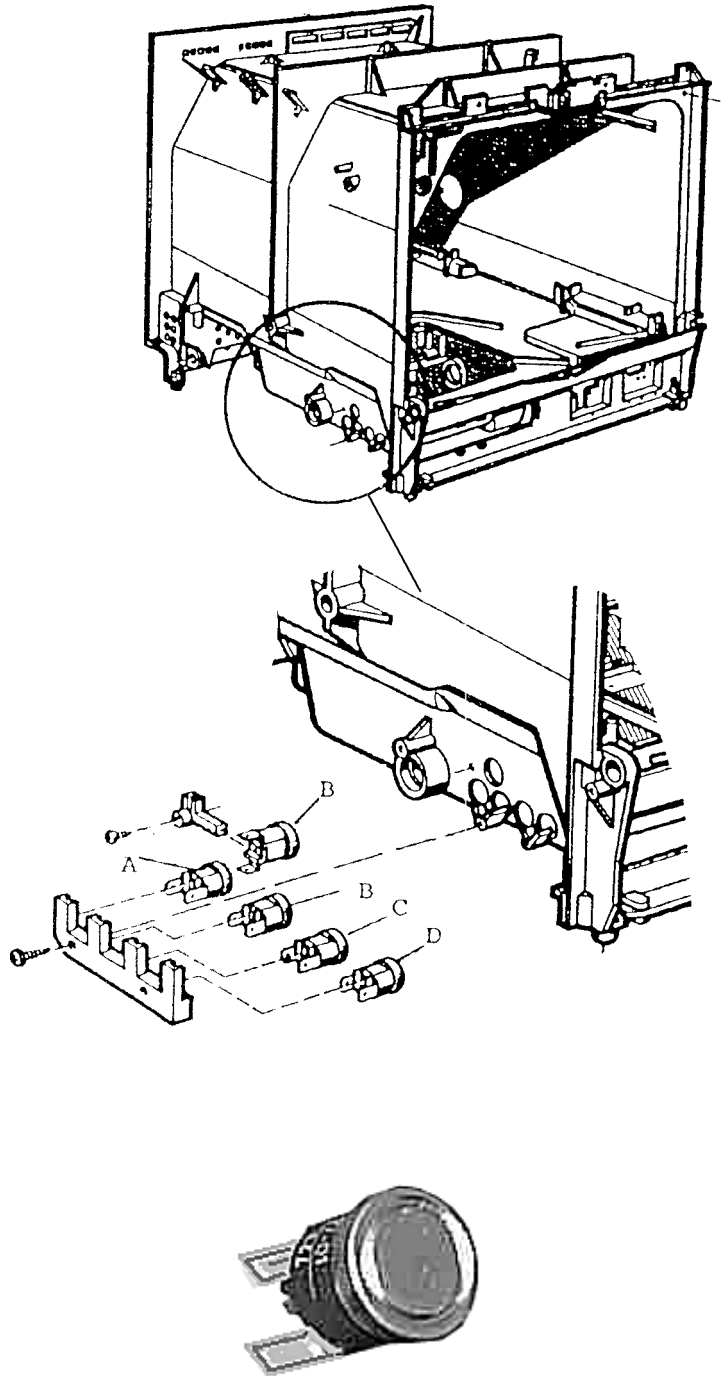
The thicker the wall, the greater the temperature difference and the higher the water temperature.)

Depending on the Programme selected, the thermostats will be switched in, and will interrupt the power supply to the heater element via the programmer when the water has been heated to the required temperature.

As in the case of all other components, there is a certain amount of tolerance on the nominal temperature of the thermostats.

For the breaking temperatures, the tolerance is $\pm 3^\circ$. There is also a "differential", i.e. a difference between the temperature at which the thermostat opens the circuit and the temperature at which it returns to the original position. This differential is 8°C .

The breaking values are adjusted to give the following water temperatures: 45, 55, 65 and 72°C .



Colours coding of the thermostats

A = brown	83°C	(anti boiling protection)
B = black	65°C	(two)
C = grey	55°C	
D = white	40°C	

14. Temperature control and safety Systems

The dishwashing detergents available on the market today require a certain water temperature before they can dissolve the food residues in a satisfactory way.

A **temperature control system** consisting of a heater element and thermostats ensures that the water will be heated to the correct temperature.

Heater elements is 1200 watt.

In addition, the machine includes a **safety system**, the function of which is to protect the temperature control System against accidental overheating.

The overheating safety system is very important. Several components and systems are involved in different ways.

The following conditions must be satisfied before the element can be switched in:

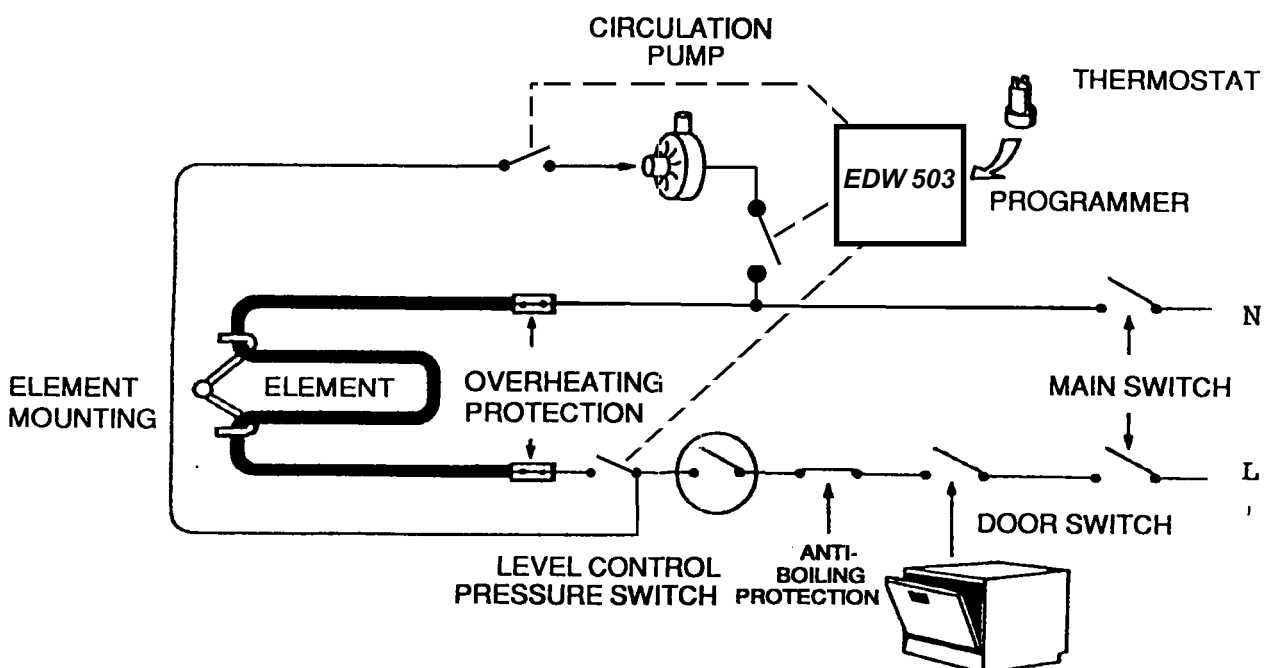
- The main switch must be closed, the door must be closed so that the door switch is closed, and a Programme must have started.
- The machine must contain the correct amount of water (as determined by the level control pressure switch).

The safety system will trip if

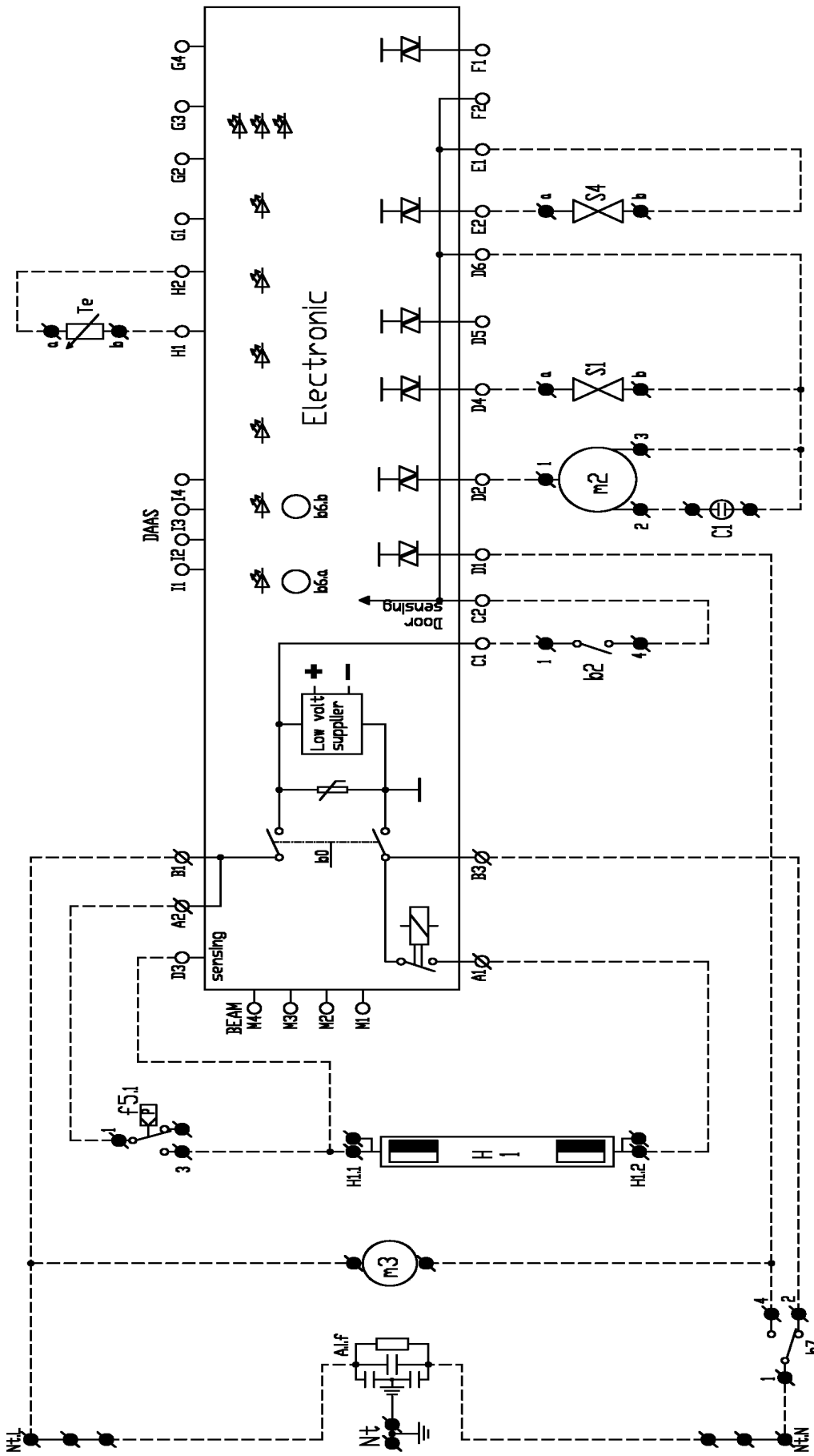
- The quantity of water is insufficient.
- The water temperature has risen to about 85°C without the thermostat tripping.

In addition, two overheating protections are incorporated into the element, i.e. one at each connection end.

These are designed so that they will burn off if the element is switched on but has no cooling water around it.



15.1. Wiring without softener



- Alf = Anti-Interference filter
- b0 = Line switch
- b6a-b = Prog. switch
- b2 = Door switch
- b7 = Floater switch
- f5.1 = Level pressostat
- H1 = Heater with protectors
- C1 = Start capacitor
- m2 = Main pump
- m3 = Drain pump
- Nt = Net terminal
- Te = Termistor NTC
- S1 = Inlet valve
- S4 = Rinse aid coil
- ∅ = 6.3mm connection on component
- ∅ = 6.3mm connection on electronic
- = PCB connection on electronic-or component
- = Internal connection on electronic-or component
- - - = Connection with wire

16. Service Informations



Coarse filter

The purpose of the coarse filter is to catch large objects. Make sure that the filter is always clean.



Fine filter

It is just important to keep this filter clean. The fine filter can easily be lifted out for cleaning when the coarse filter is removed at first.



Spray arm

The spray arm is to be removed by unscrewing the nut clockwise (it has a left-handed thread) and lift of the spray arm.



Sealing ring

To clip out the sealing ring a screwdriver gives support.



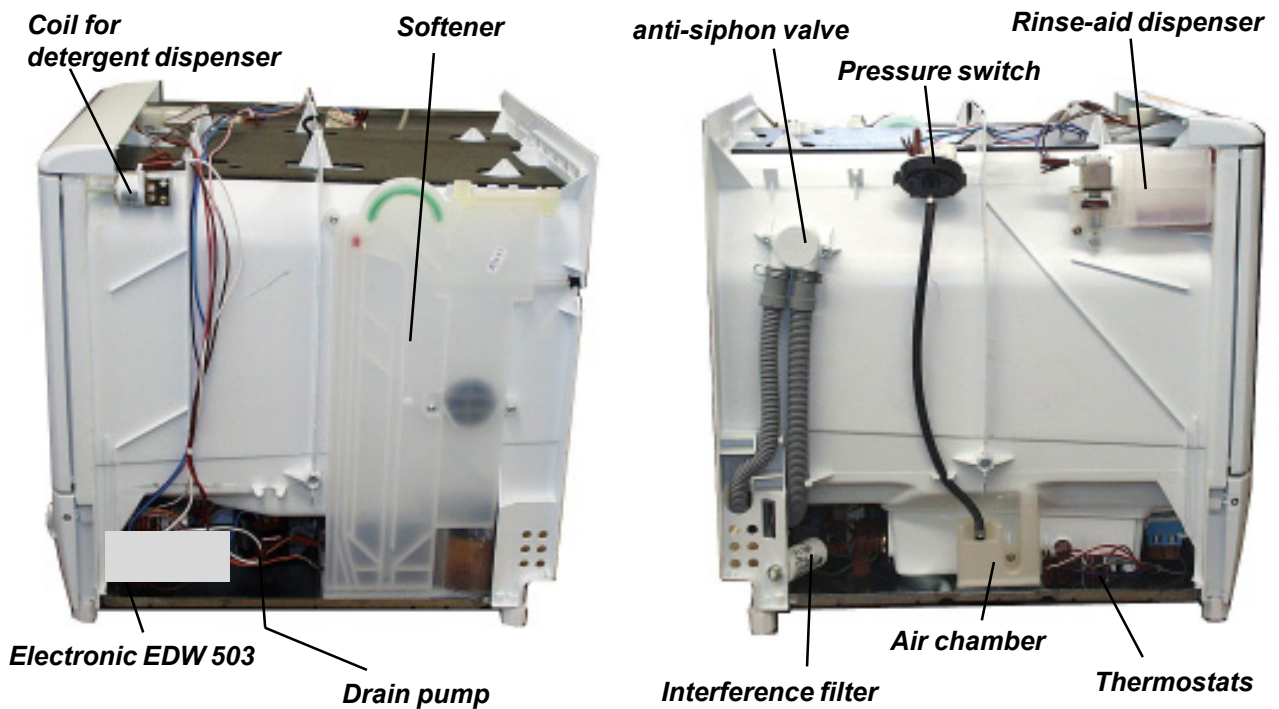
You need
screwdriver
Torx TX20



Housing

After removing the housing screws (lay the machine on its side) from the bottom of the machine, the housing is unclipped front and back from the catches and can be removed.

All components from the left and right side are now accessible.



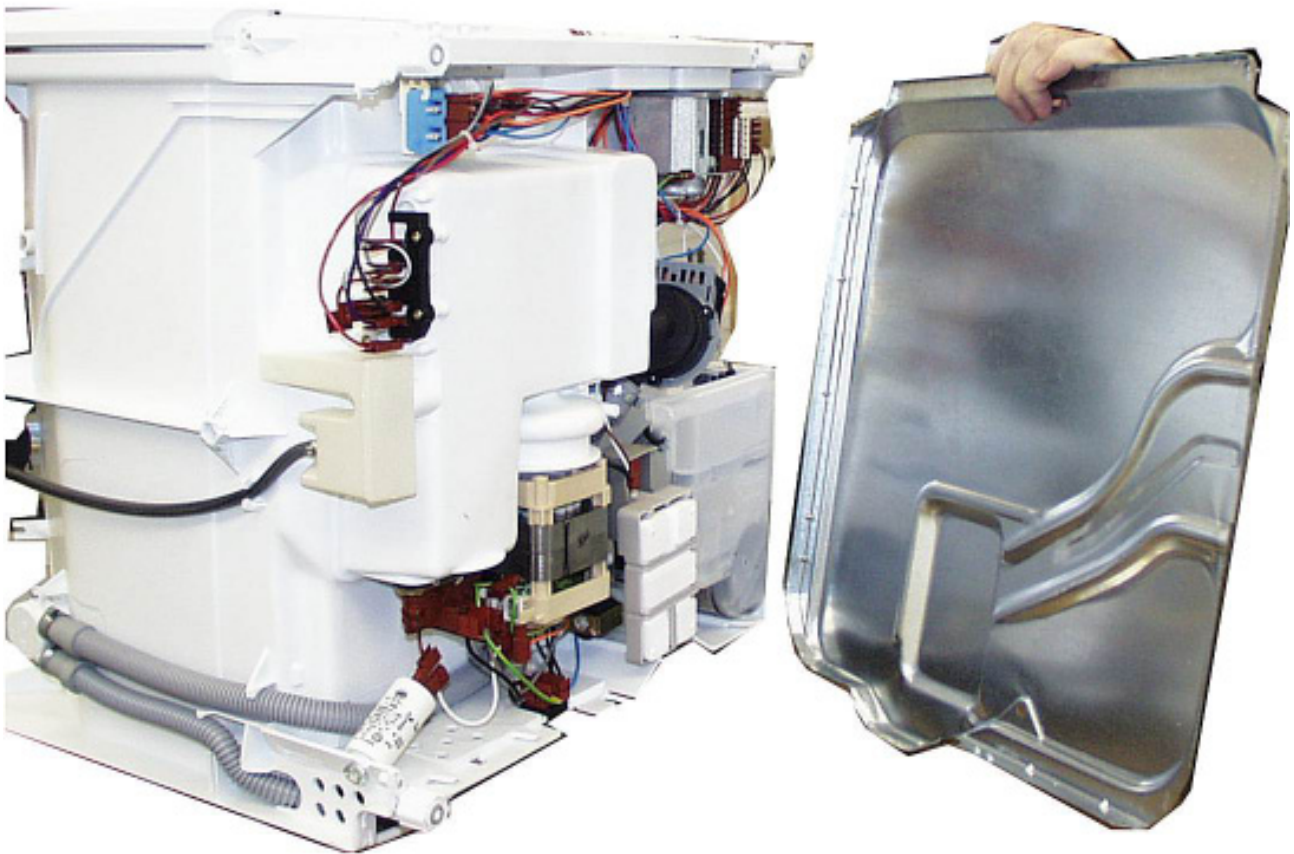
Remove the base plate

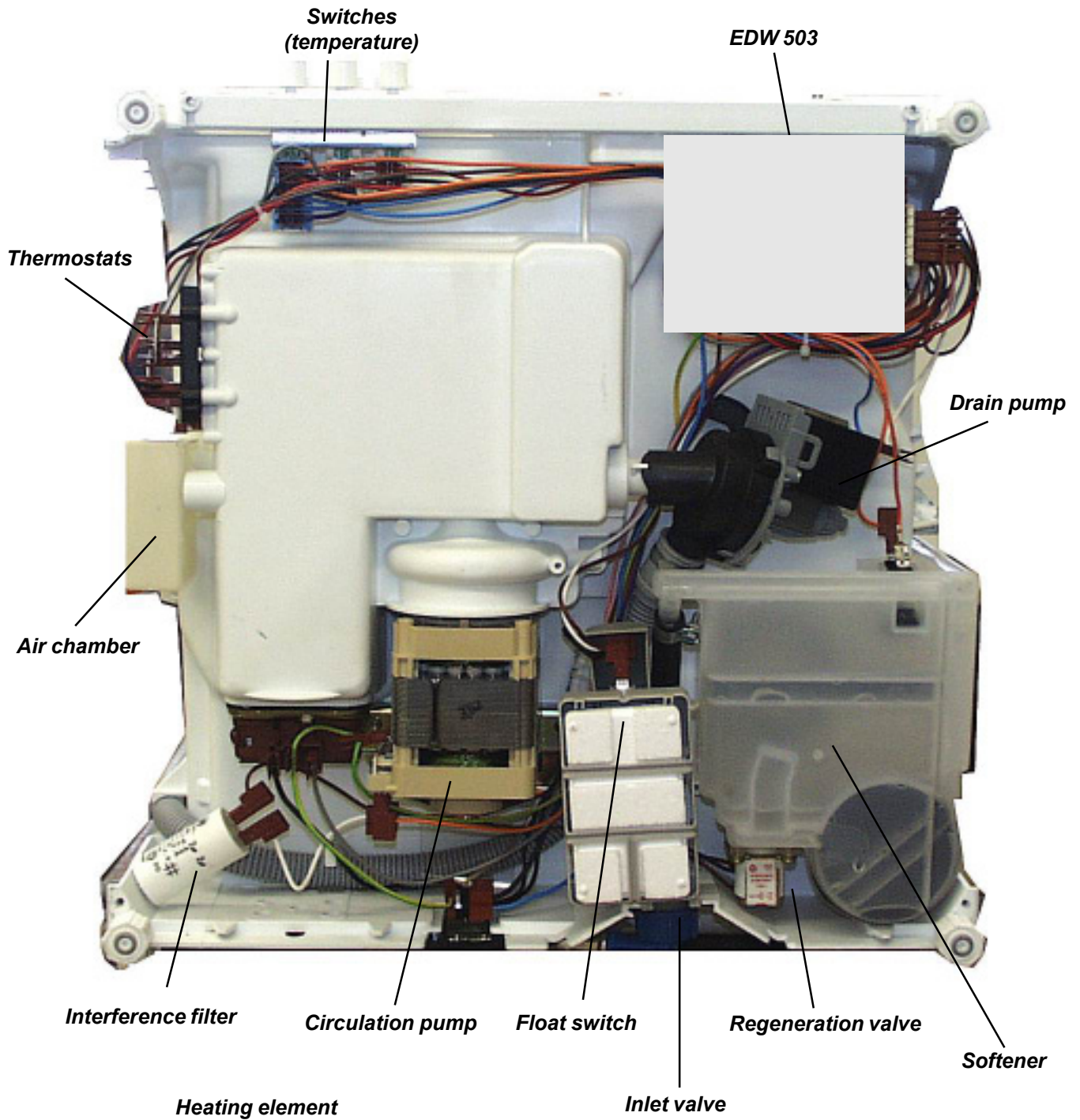
The base plate of the machine is held with screws on the lower panel and at the bottom.

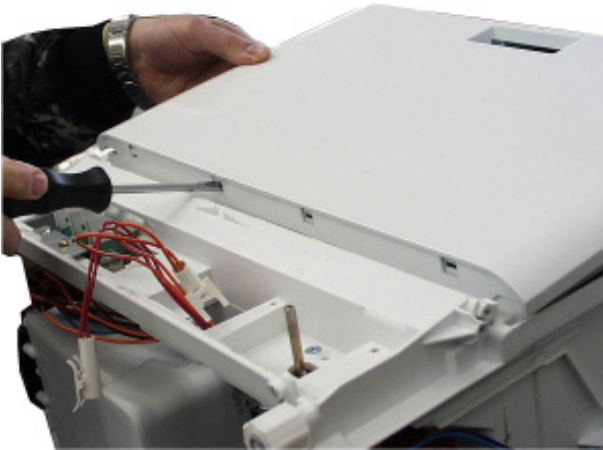
Lay the machine on its back and lift off the base plate.

It contains the bosses for the overflow water and the flooding switch.

After removal you come to the most important functional components.







Outer and inner door

They snap together and are held by plastic latches, on the under side. They can easily be unsnapped

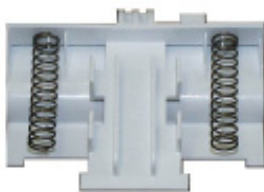


Replacement of the components within the door.

After removing these screws, the door handle and detergent dispenser flap can be removed from the inner door.



After removing the spring, the door-opener can be removed from its hinges.



The seal is easily be clipped in the inner door frame.



Re-assembly is carried out in the reverse order.

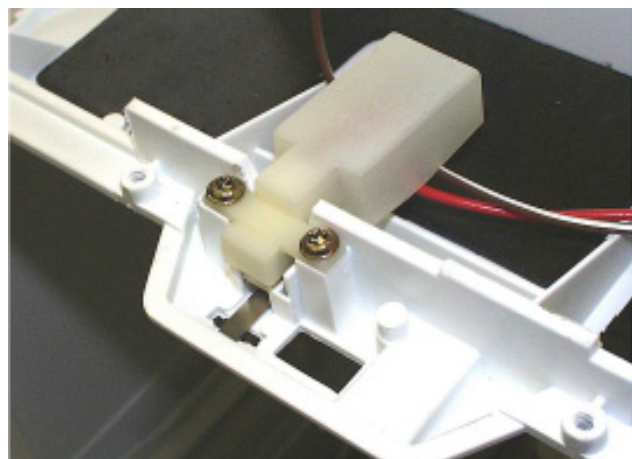
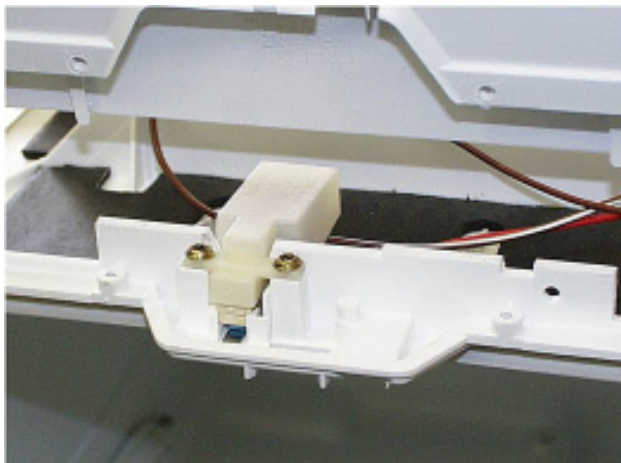
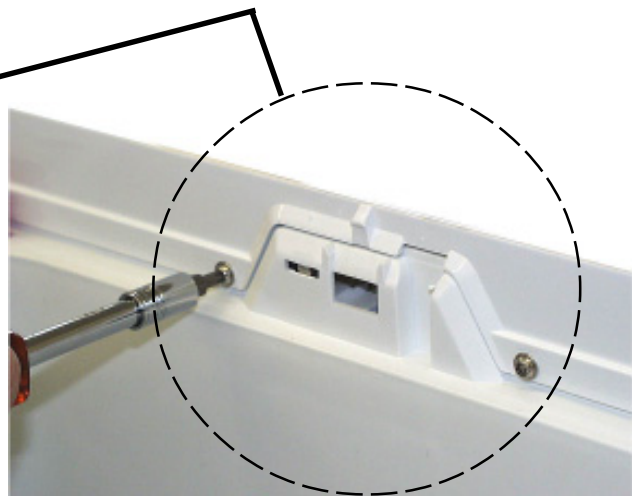


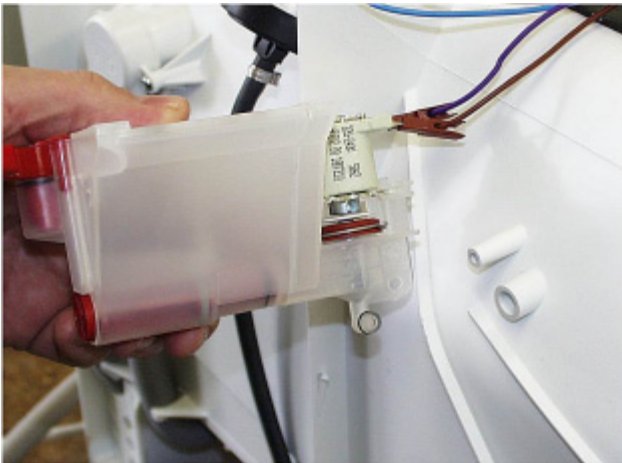
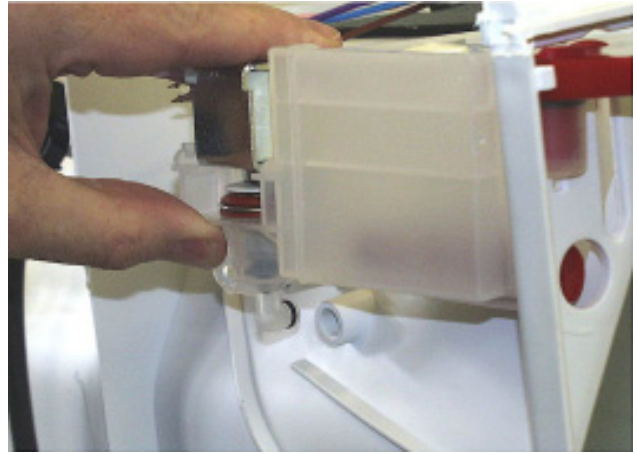
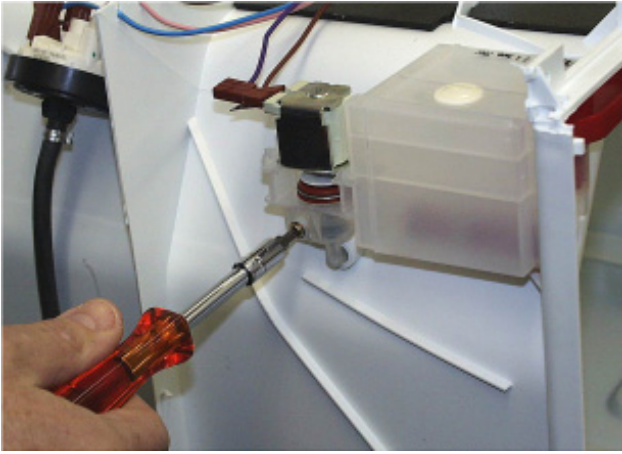
To remove the inner door

Remove the lower panel and the outer door. Open the door and remove the four screws (two on each side) securing the rack rails. Open the door to an angle of about 130° and carefully release the hinge pin on the right hand side. On the left hand side, the hinge pin is inserted in a hole without slot.

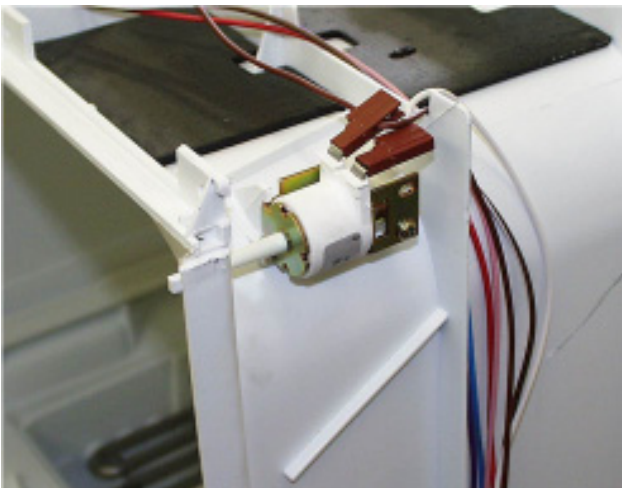
Door switch

Remove the the screws on the under side of the upper panel. Lift off the upper panel. The door switch is easily be screwed.

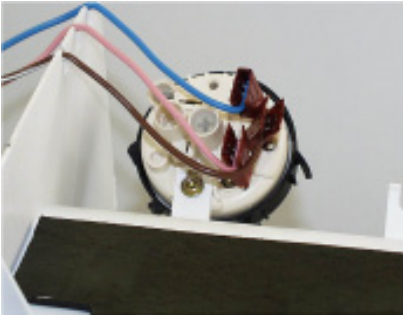




Remove this screw to dismount the rinse aid dispenser unit



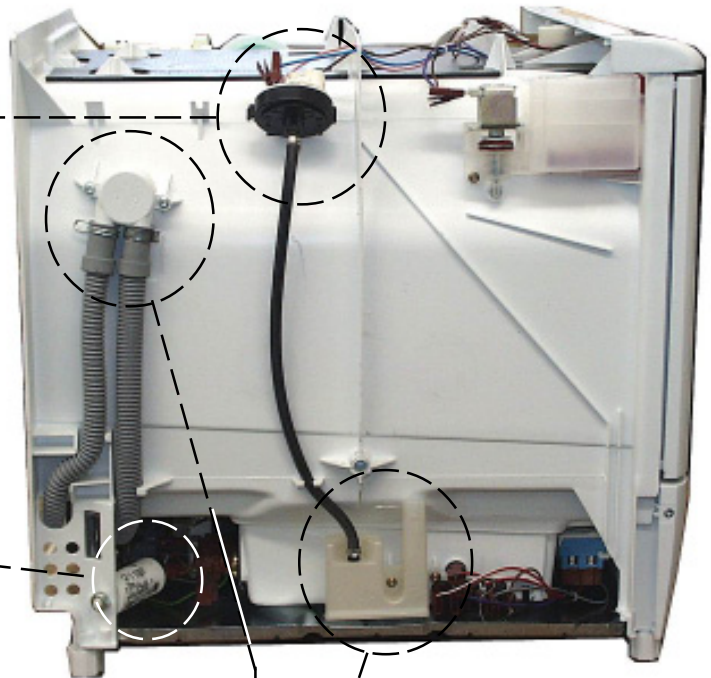
The coil with tappet as support for the detergent dispenser is held by two screws.



The **pressure monitor** is simply screwed.



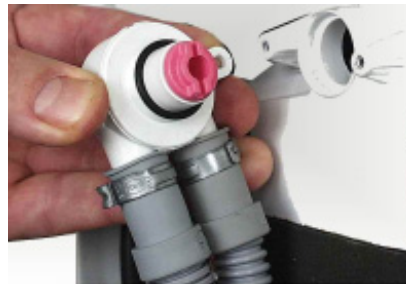
The **motor capacitor** is screwed by a nut.



Anti-siphon valve

The air should be able to enter the hose from the holder - not the other way around!

The take-off hose ventilation can be unscrewed for cleaning when necessary, in case these rubber parts in the interior of this valve become dirty or stuck because of residues.



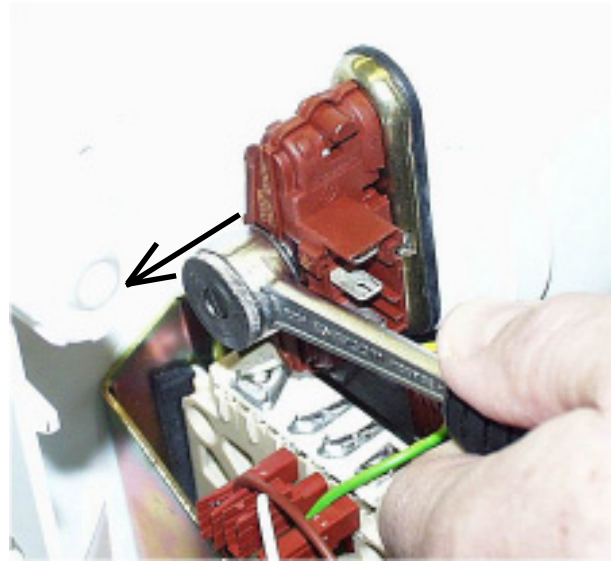
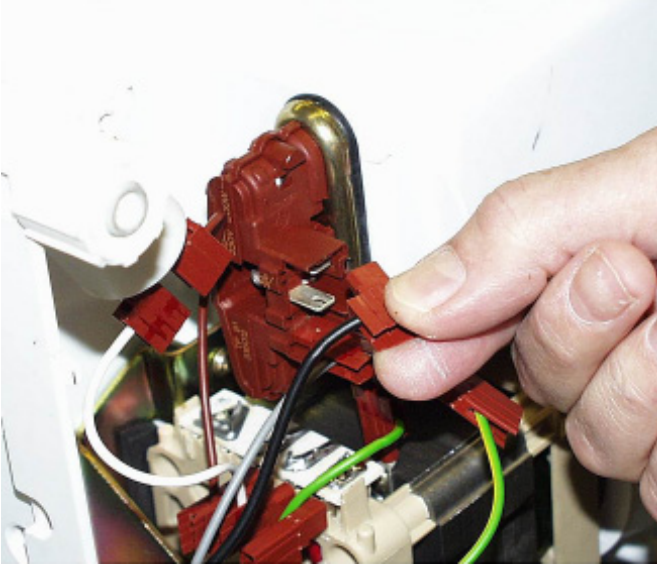
Level control container (Air chamber)

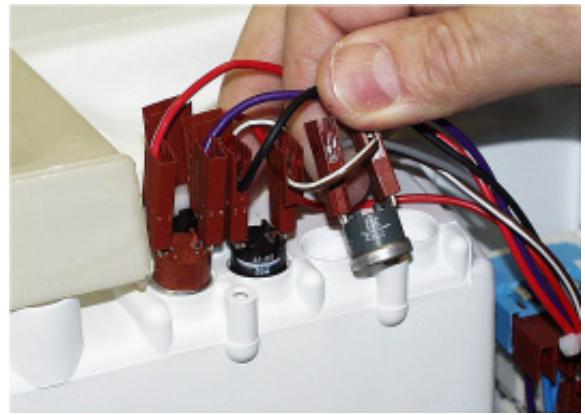
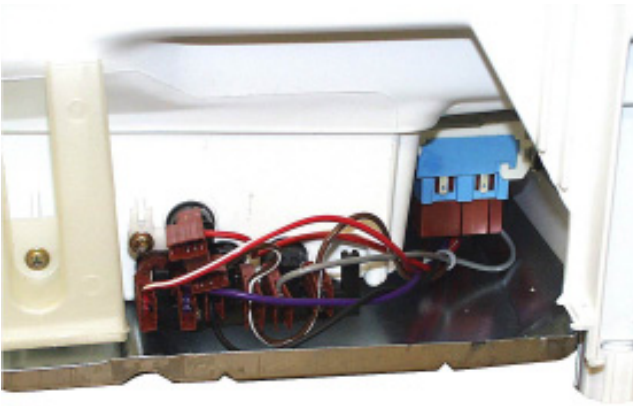
Remove the screw to lift off the level control container for cleaning.



Heater element

After the removal of the nut and the heater clip in the sump under the fine strainer, the heater element can be drawn forward through the chassis opening to remove..





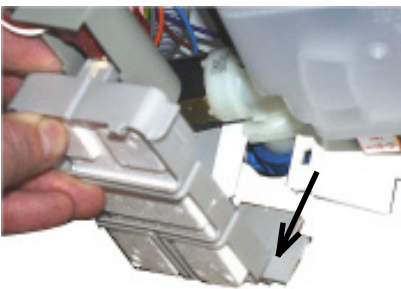
Thermostats

The mounting for the thermostats is screwed at the right side of the air chamber. After its release, the thermostats can be removed.



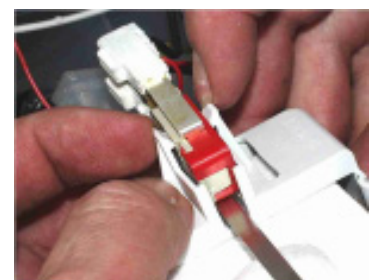
Switch unit

The switch unit is secured by means of screws and easily to remove.



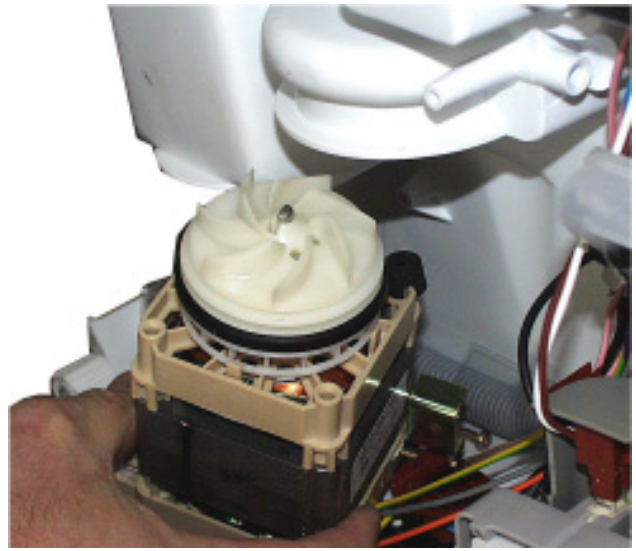
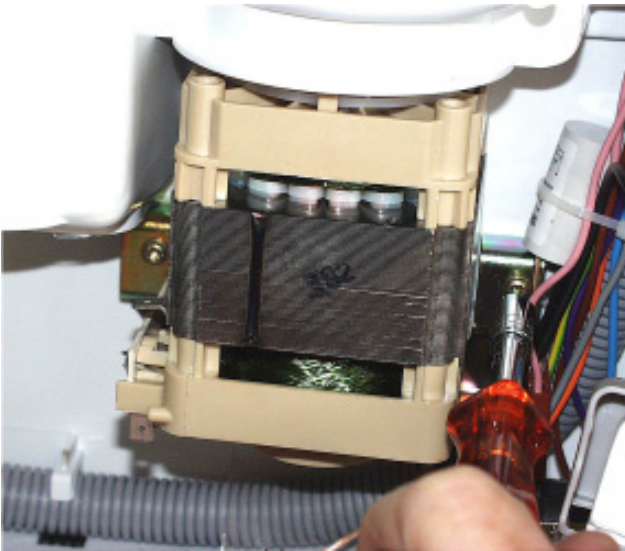
Float switch

The float switch is snapped out with a small screwdriver and can be taken out of its mounting. After removing the protective cap, the microswitch can be snapped out.



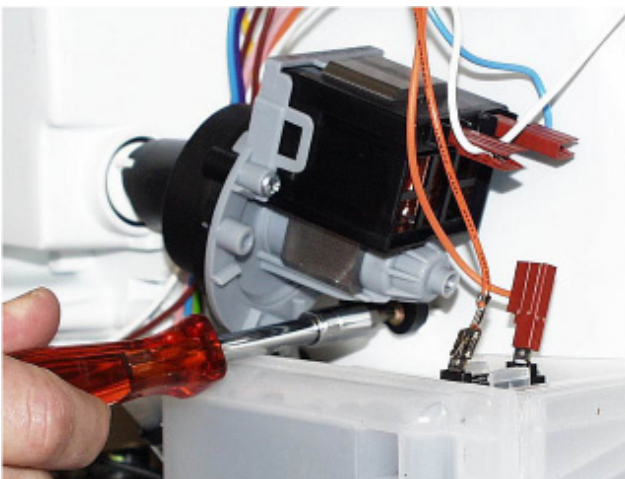
Inlet valve

The inlet valve is mounted in the same place as the float switch. After the removal of the hose, the valve can be drawn out of the chassis with suitable pliers.



Circulation pump

After loosening the screws of the holder, the circulation pump can be taken out of the pump chamber.



Drain pump

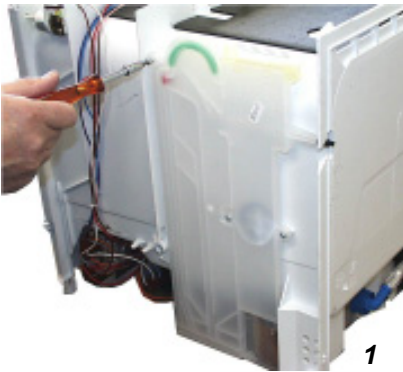
To dismantle the drain pump, the hose clamps are released and the screws removed.



Here you can see how the hose clamps can be re-tensioned with wire cutting pliers.



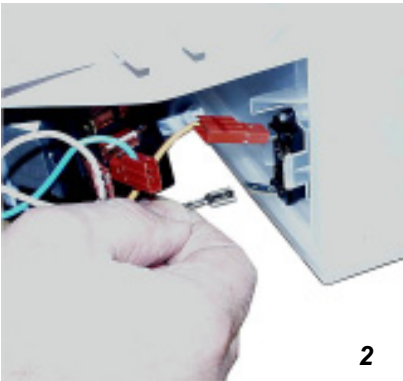
After removing the drain pump the tubing-bow with seals, fitted in the pump chamber, is accessible.



Softener

1 To dismount the water softener, these attachment screws are removed.

2 The connections on the reed switch are removed.



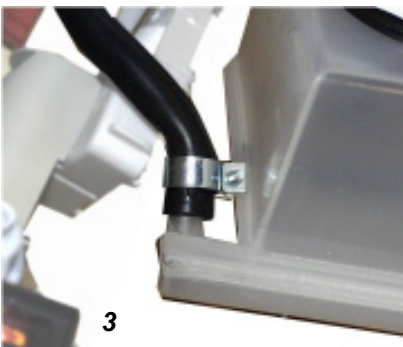
3 The hose connections are detached.

4 The large nut of the salt holder must be released .



5 A spanner is useful in removing the recycling inlet nut.

6 Now the complete unit can be removed.



Regeneration valve

After undoing the screws of the recycling valve, this can be removed.



Leakages.

Service solutions:

Take of the cover to be able to see the Container on the left hand side.

Let the dishwasher take in water and check the level.

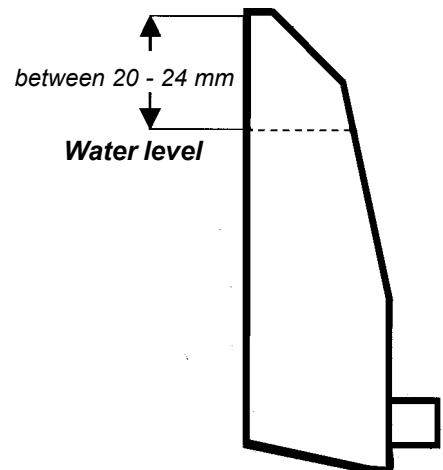
If the level is too high (leakage through the top of the Container)

- adjust the pressure level switch
- check assembling of the Container to tub, misaligned oring or screw not tightened.
- Check the Container it self (leakages between the welded base and the Container walls)

Low water level.

Check if the Container is clogged. Clean it with hot water (after disassembly it from the pressure level switch hose and the tub) under a tap.

If the water level is to low, adjust the pressure level switch.



The drain pump is always running if the water prot device is activated.

If there is a leaking point and the water prot device is activated the d-pump is running continuously.

There are no possibilities for the drain system to evacuate water from the bottom tray, so when the d-pump has emptied the tub it will still drain but without draining any water out: Customer complaint, not draining?!

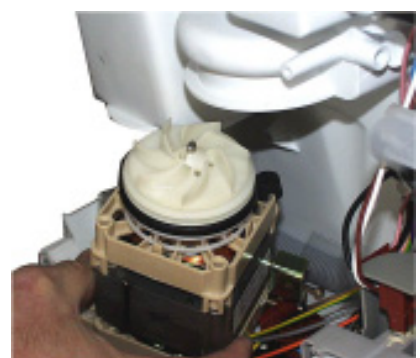
Even in this case the Service tech have to locate the leaking point
Leakages:

If the leakage point is located to the d-pump check:

- the two screws holding the d-pump on to the tub.
- the oring between the d-pump / tub (misaligned, distorted) ??
- the housing three screws on the d-pump.

If the leakage point is located to the d-pump check:

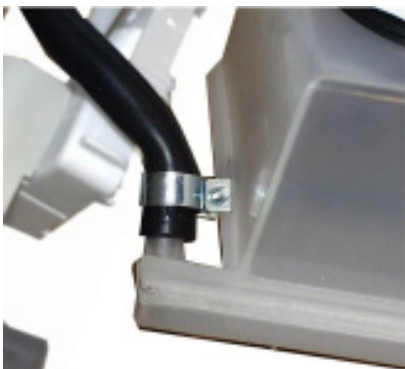
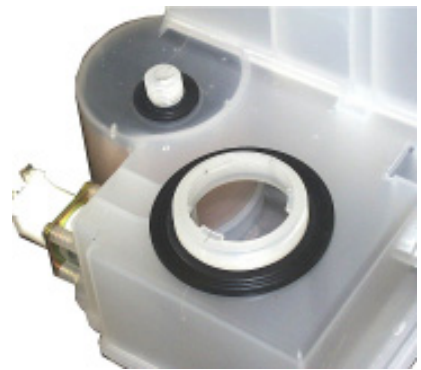
- the two screws holding the bracket / circulation pump in place.
- disassemble the circulation pump from the tup and check for „plastic burr“ in the tub / oring connection.





Check the locknut under the salt cap to ensure it is fully tightened.

It should not be possible to unscrew by hand.



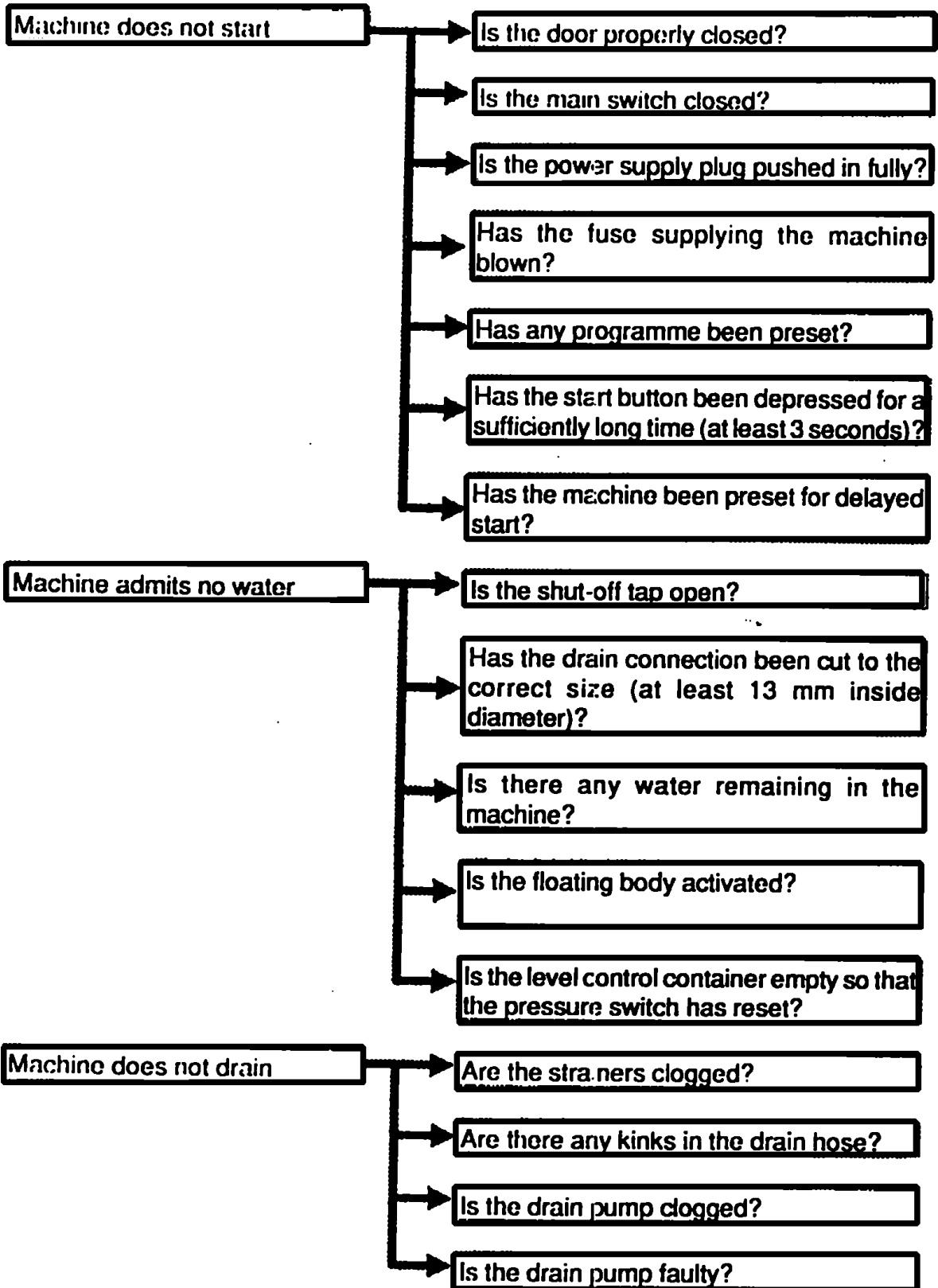
In the case of leakage, here more checkpoints



16. Fault tracing

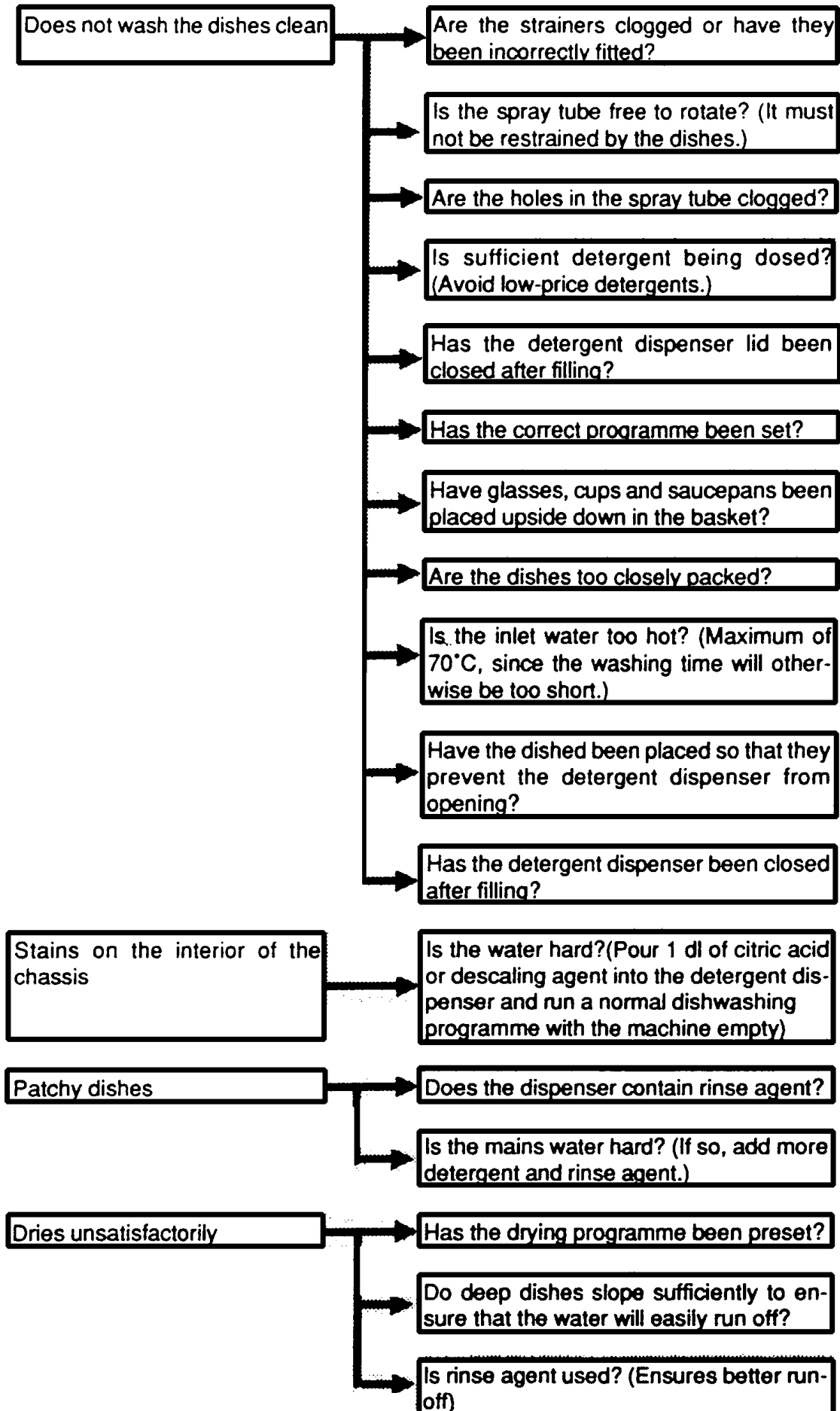
Symptom

Check



Symptom

Check



Symptom

Check

