COMPONENTS

Mechanical Parts

All tubs are made of a highly resistant special plastic material that drops the noise volume and that has not any corrosion problem. The tub door used in Large series machines is also plastic and it is permanently fixed to the back of the drum by means of vibration welding. There is one counterweight at the upper and lower parts of the tub. Motors are fixed by connecting them with two bolts on Large series.There are transportation safety bolts on the back side of the drum. The tub assembly is suspended from the body from its sides by means of two springs and it is connected on to the lower surface of the body by means of two friction horizontal suspensions. The tub is made of stainless steel.

Suspension System

The tub is attached on to the body by means of 2 springs. Moreover, the tub is fixed to the body from its lower part by means of 2 friction suspensions. The springs and the suspensions prevent moving and noisily operating of the machine by transferring the vibrations that are created in the tub to the body. Suspensions are connected to the tub by means of plastic pins instead of bolts.

Electronic Control and Display Card

With the aid of the control and view card designed as single-face and produced by Arçelik, washing programs written on the microprocessor, washing and spinning motor profiles, protection algorithms and components (motor, heater, pump, valves, door safety lock, ntc, water level selection key, spin/temperature potentiometer) are controlled.

While on the front face of the card are the feeding circuit (smps), motor and other component control circuits – triac and relays – and component connection terminals, there are the microprocessor, function and time delay buttons and leds as well as the program follow up leds on its back surface.

The required washing program is run in accordance with the program selection key (rotary switch) connected on to the card, spin/temperature adjustment potentiometer, and the data read on auxiliary function and time delay switches. Auxilliary functions, spin speed/temperature and delayed time options and functions can be selected via this card.

Door Safety Lock

A PTC door safety lock is used. When any washing program is started after the door is closed, the PTC disk heats up to lock the door and prevent its opening while the program is running. The PTC cools down and the door is unlocked within 70 seconds after the program comes to an end. Currents of all components pass through the door safety lock. In case it is defective, the machine does not operate.

Nominal Operating Voltage	250V 50-60Hz
Operating Current	10-50 mA
PTC Resistance	Min. >=50 ohm
Time of Contact Lock	<=8sec
Time of Contact Unlock	35...70sec

Motor:
Brushless motor is used. The motor is composed of stator and rotor. The stator includes windings, whereas the rotor has permanent magnets. The stator windings are energized via an inverter according to the rotor placement/angle. There is a separate electronic card for the motor speed control. The main card and the motor control card communicate with each other. The main card is the master unit; it gives the reference speed to run the motor. However, all other speed control algorithms are accomplished by the motor control card. Hall sensor is used for speed measurement of the motor. There is a thermal protector on the motor winding to prevent damage because of excessive temperature in abnormal cases (continuous operation-locked rotor). Locked rotor case is also protected with software measures.

Emission Filter:
It is a bobbin which consists of a coil and a several number of turns winding and it is used for the regulations regarding the electromagnetic compatibility of the machine. The emission filter is fixed between the earth connection of the motor and the earth connection of the heater. Since the filter is fixed between the earth connections, no current is carried on the emission filter (another word used for emission filter is earth coil) As the name of the component states, it is being used for the emission tests of EMC regulations

Heater
There are two thermofuses on heater inlets as the appliance is an electronically controlled machine.

In the models with one thermofuse, the heater terminal which do not belong to the side without a thermofuse is driven over the water level key. Therefore, colors of plastic insulators around the heater terminals are different from each other (to distinguish the part where a thermofuse is used). For this reason, during heater replacements, which terminal should be mounted to which color side is an issue to be taken into consideration.

When the heater runs as dry, the thermic element heats up excessively and short circuits the heater. A short circuited heater cannot be reused. In order to prevent working of the heater without water "during heating", a heater safety water level has been defined at the microprocessor (P_{heater}). In case the water level which has been defined by the water level sensor drops below the P_{heater} level, the heater is deactivated. As soon as the water temperature that is read by NTC reaches the "selected temperature", the heater is deactivated by the microprocessor.

Nominal Voltage	230V 50-60Hz
Nominal Power	1950 W (±5%)

Valve

There is a double valve in single water-inlet models while there is an additional single valve besides the double valve in machines with hot water inlet. Valves are driven with the triacs on the electronic card; both valves are driven at the softener step by using the collision water direction system to send the water towards the middle compartment of the detergent drawer.

Nominal Voltage	220-240 V 50/60 Hz
Nominal Power	5-8 W
Coil Resistance	3400-4500 ohm
Flow Rate	10 l/min

Discharge Pump

It is a single-phase, double-pole synchronous motor with magnet rotor. It is driven by the triac on the electronic control card in the discharging step. It is protected with a thermal protector against cases of continuous operation and blocked rotor.

Nominal Voltage	220-240 V 50Hz
Resistance	167,5 ohm

Jet Pump

It is a single-phase, double-pole synchronous motor with magnet rotor. It is driven by the triac on the electronic control card in the jet step. It is protected with a thermal protector against cases of continuous operation and blocked rotor.

Nominal Voltage	220-240 V 50Hz
Resistance	167,5 ohm

NTC

This component is used to measure the water temperature in the drum, which reduces the resistance against temperature increase. In some models the temperature is defined on the program while in some the temperature can be selected via "temperature selection button."

When the water temperature reaches the set temperature, the heater is deactivated by means of the heater relay on the card.

Resistance (25 °C)	4773 ohm (±4.2%, Siemens)-4837 ohm (±3.2, Elth)
Operating Temperature	-10°C...+100°C
Thermal time constant	18 ±2 sec

Water Level Sensor

An analogue water level sensor fed by 5V voltage is being employed. This sensor allows instantaneous determination of the water level by means of the frequency values it creates against the water pressure formed. There are frequency values corresponding to all pressure values. Infinite number of levels can be defined with the analogue water level sensor. The water level varies according to the designed program's washing criteria subject to the selected program, temperature and auxiliary function.

DISASSEMBLY PROCESES

1- PROGRAM SELECTION KEY

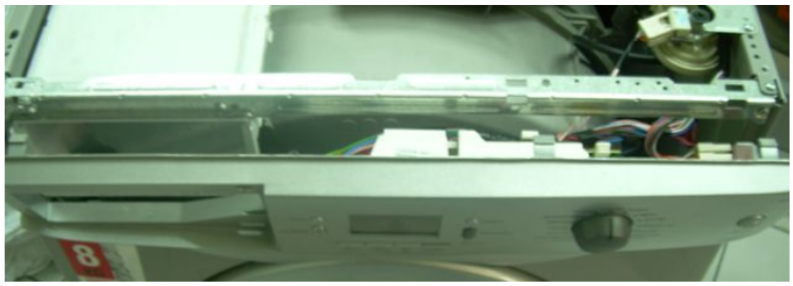
- Button tabs are pushed inwards from behind the panel to take out the button from its housing.

2- DRAWER PANEL

- The Drawer is pulled forward out of the Detergent Box.
- The Drawer is taken out by pressing on the area pointed out by an arrow on the Siphon inside the Drawer.
- The Drawer is turned upside down and released from Drawer Panel tabs.

3- PANEL

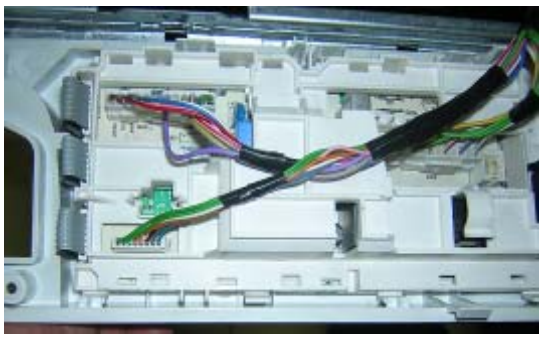
- The Drawer is taken out.
- 1 pt screw connecting the detergent box with the panel is removed. The one tab that connects the panel on to the reinforcement sheet are taken out to release the panel from the reinforcement sheet.



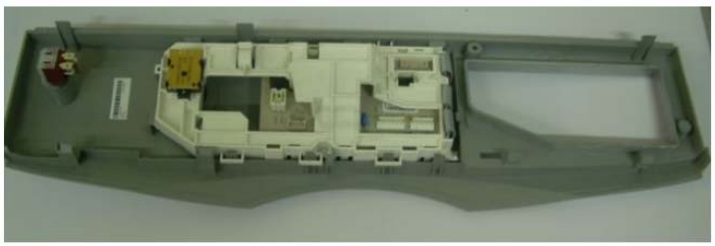
1. The cable is taken out off the cable holder on the view assembly.

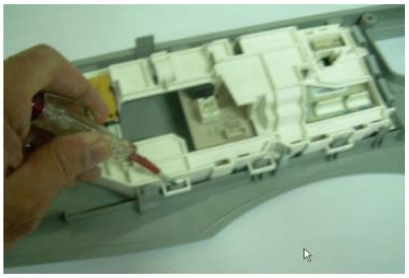
2. It is taken out from the reinforcement sheet by pressing the tabs of the view assembly.

3. The sockets in the drawing are taken out by pressing the tabs.



4. The card assembly is taken out off the view assembly by pressing the tabs on the card holder.

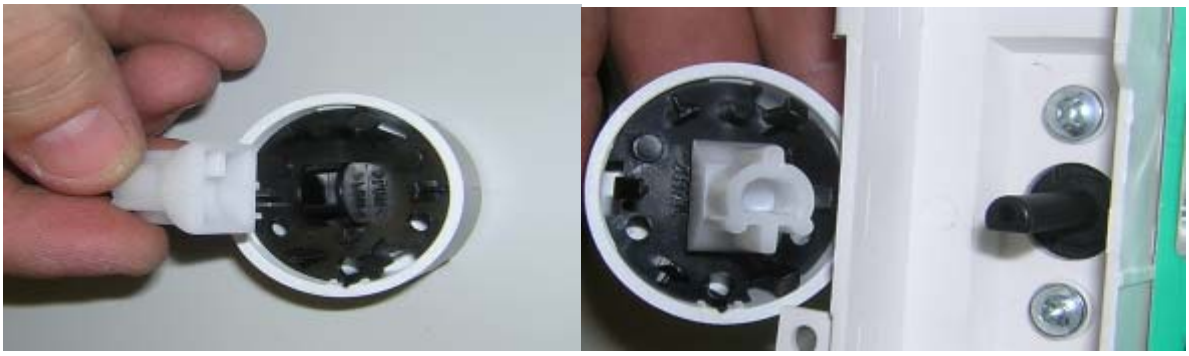




5. Before the new mainboard assembly is attached to the view assembly, the program button is switched to upper position, that is, to COTTONS Program mode.

6. In this case, the program button shall be as in the drawing.

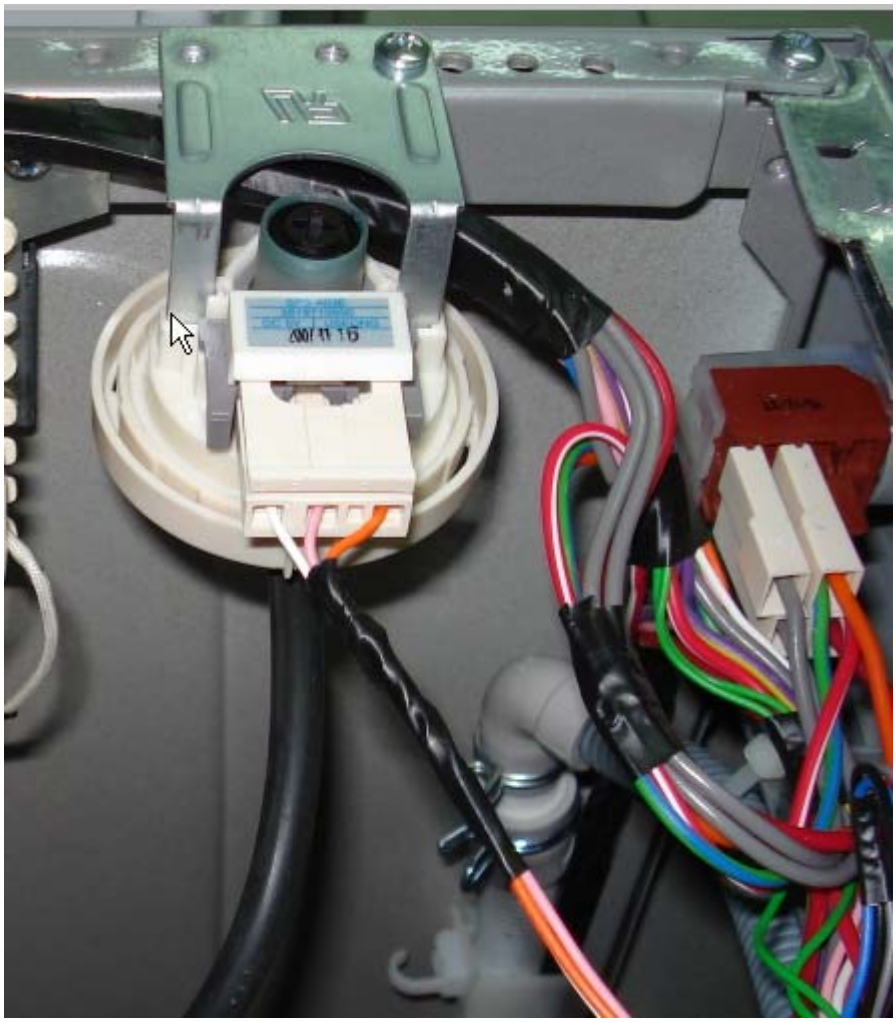
7. Position of the white adaptor attached to the potentiometer shall be as shown in the drawing and it will be seated on to the program button adaptor in this manner.



8. Mainboard assembly is seated on the view assembly as shown in the figure (that all the tabs are seated on their places must be ensured).

4- WATER LEVEL SENSOR

- The water level sensor is released from the side wall to which it is connected, by removing 1 self-tapping screw.
- Water level hose and cables are taken out.



5- PUMP

- Left over water in the machine is drained.
- Kick plate is taken out.
- Front Wall is removed.
- Pump Cable ends are taken out.
- Drum Filter hose is taken out from the Pump.
- Pump Gasket Connection and Drain Hose are taken out from the Pump.
- 2 screws that attach the Pump on to the Body are removed.
- Pump is turned to release it from the Body.