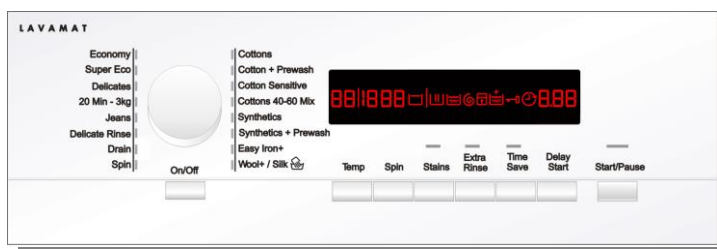
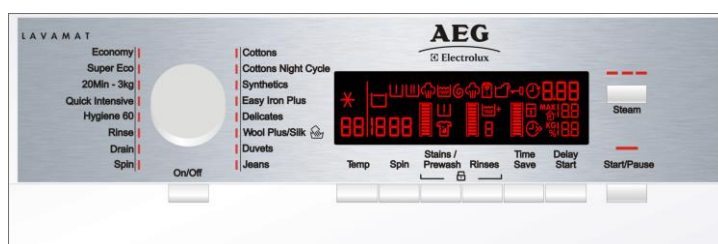




Series 7



Series 8



© ELECTROLUX HOME PRODUCTS
Customer Care - EMEA
Training and Operations Support
Technical Support

Publication
number

599 77 13-17

EN

**Top loading washing
machines
with electronic control
system**

EWX11831

**Technical and functional
characteristics**

**NEW
COLLECTION**

C4

INDEX

1	PURPOSE OF THIS MANUAL	6
1	WARNINGS	7
2	SERIES 7	8
2.1	General characteristics	8
2.2	Control panel.....	9
2.2.1	Styling	9
2.2.2	Control panel configuration.....	10
2.2.3	Programme selector (S1)	10
2.2.4	Programme configuration	10
2.2.5	Pushbuttons – LEDs and LCD.....	11
2.2.6	LCD series 7.....	13
2.2.7	Buzzer.....	15
3	SERIES 8	16
3.1	General characteristics	16
3.2	Control panel.....	17
3.2.1	Styling	17
3.2.2	Control panel configuration.....	18
3.2.3	Programme selector (S1)	18
3.2.4	Programme configuration	18
3.2.5	Pushbuttons – LEDs and LCD.....	19
3.2.6	LCD series 8.....	21
3.2.7	Buzzer.....	21
4	“DEMO” MODE	22
4.1	Demo mode settings	22
4.2	Exiting DEMO mode	22
5	DIAGNOSTICS SYSTEM	23
5.1	Accessing diagnostics	23
5.2	Quitting the diagnostics system	23
5.3	Phases of the diagnostics test	24
6	ALARMS	28
6.1	Displaying user alarms	28
6.2	Reading the alarms.....	29
6.3	Rapid reading of alarms.....	29
6.4	Deleting the last alarm	29
7	ALARM SUMMARY TABLE	30
8	OPERATING TIME COUNTER	39
8.1	Reading the operating time.....	39
8.2	Display of total operating time	39
9	OPTIONS	40
9.1	Compatibility between options	40
9.2	Description of options	41
9.3	Generating STEAM.....	42
10	TECHNICAL CHARACTERISTICS	43
10.1	Construction characteristics	43
10.2	Detergent dispenser	44
10.2.1	Detergent dispenser	44
10.2.2	Detergent tray for Powder/Liquid detergents.....	44
10.2.3	Working principle of water dispenser.	45
10.3	Washing unit	46
10.4	Water circuit	47
10.4.1	OKO version drain circuit.....	47
10.4.2	JET version drain circuit	47
10.4.3	JET circuit.....	47
10.4.4	ECO SPRAY Circuit	48
10.4.5	Stiwa new drain circuit (where featured)	49
10.5	Electronic control.....	50
10.5.1	Programming/Updating the main circuit board	51
10.5.2	Connecting electric parts	52
11	ELECTRICAL COMPONENTS	53
11.1	Noise filter	53
11.2	Display board	53
11.3	Drain pump – Aqua control	54
11.3.1	General characteristics.....	54
11.4	Aqua control (where featured).....	55
11.5	Circulation pump (where featured).....	56
11.6	Heating element	57

11.7	Temperature probe	58
11.8	Analogue pressure switch	59
11.8.1	General characteristics	59
11.9	Door safety interlock	60
11.9.1	Delayed opening safety device.	60
11.9.2	Instantaneous door safety interlock.....	61
11.10	Three-phase asynchronous motor - Inverter.....	65
11.10.1	General characteristics	65
11.10.2	Power supply to motor	65
11.11	Triple-phase synchronous motor with permanent magnets	66
11.11.1	General characteristics	66
11.11.2	Power supply to motor	66
11.11.3	Operating principle.....	67
11.12	Inverter (UIMC)	68
11.12.1	General characteristics	68
11.12.2	AGS.....	69
11.13	D.S.P. drum positioning device (Drum - Self- Position)	71
11.13.1	D.S.P. operating control.....	71
11.14	Solenoid valves	72
11.14.1	Operating principle.....	72
11.14.2	Problems relating to the solenoid valves	73
11.15	Flowmeter.....	73
11.15.1	Operating principle of the flowmeter	74
11.16	Drum light (where featured)	75
11.16.1	Internal drum lighting	75
12	DIAGRAMS	76
12.1	WM diagram with THREE-PHASE ASYNCHRONOUS MOTOR	76
12.1.1	Key to diagram	77
13	ACCESSIBILITY	78
13.1	Control panel	78
13.1.1	Dismantling	78
13.1.2	Assembly	78
13.2	Control circuit	79
13.3	Key spring and light diffuser	79
13.4	Programme selector dial	79
13.5	Stiwa coupling (where featured)	80
13.6	Blades	80
13.6.1	Small blade.....	80
13.6.2	Large blade.....	80
13.7	Cover.....	81
13.8	Water dispenser	81
13.9	Sides	82
13.10	Electronic pressure switch	82
13.11	Solenoid valves	83
13.12	Air break.....	83
13.13	Motor control board.....	84
13.14	Main board	85
13.15	Front panel	88
13.16	Door Lock.....	88
13.17	Drum Light (where featured)	89
13.18	Eco Spray Circuit	90
13.19	Base board	90
13.20	Transport roll	91
13.21	Bellow seal	91
13.22	Inlet.....	94
13.23	Counterweights	96
13.23.1	Right counterweight	96
13.23.2	Left counterweight.....	96
13.24	Shock absorbers	97
13.25	Pulley.....	98
13.26	Drum position sensor DSP.....	98
13.27	Heating element.....	99
13.28	Drum rotation motor	99
13.29	Water control sensor	99
13.30	Drain pump and circulation pump	100
13.30.1	Bottom lid	100
13.30.2	Drainage pump	100

13.30.3	Re-circulation pump	101
13.31	Bearings	102
13.31.1	Bearing support unit with seal ring.....	102
13.31.2	Bearing support unit with no seal ring.....	103
13.32	Remove the washing unit.....	104

1 PURPOSE OF THIS MANUAL

The purpose of this manual is to provide service engineers who are already familiar with the repair procedures for traditional washing machines with information regarding washing machines fitted with the EWX11831 electronic control system (SERIES 7/8).

Previous platforms (electronic/mechanical) used a safety pressure switch that checked the minimum water level in the tub, below which the supply to the heating element was interrupted.

The current electronic appliances manufactured use a heating element with thermal fuses (inside its branches) as safety, which interrupt if the water level drops below the minimum level permitted.

The incorporated NTC probe contacts have a 2.5 mm pitch.

The manual deals with the following topics:

- General characteristics
- Control panel and compatibility between washing programmes and options
- Settings: Demo, Diagnostics
- Alarms
- Technical and functional characteristics
- Access

Low consumption mode

In order to reduce electricity wastage when the cycle is not running, appliances in this platform offer two ways of enabling low consumption mode:

“Stand-Off” mode

When the appliance is switched off at the ON/OFF button, it is in the “Stand-Off” or “virtual” off status. The LEDs and the LCD screen are turned off and the buttons are disabled, although the main circuit board and certain electrical components are electrically powered.

“Auto-off” mode

If, after 5 minutes, during the programme selecting phase or after the end of the cycle, the appliance receives no further instructions, it is automatically turned off (for energy savings in conformity with the standards on energy consumption).

All the settings are stored so that when the appliance is turned back on, the programme is ready or if the auto-off mode was triggered after the end of the cycle, the user can see that the cycle ended normally, and can restart it if necessary.

You have to unplug the appliance to cut off the power supply

If an alarm goes off when a wash programme is running, the automatic turn off is disabled showing the alarm.

Mode with "Zero watt" circuit

Some appliances are fitted with a circuit (in the main circuit board) called Zero Watt (0 Watt with an actual consumption ~50 mW) which cuts off the power supply to the appliance:

- a. When you press the ON/OFF button to turn off the appliance, the Zero Watt circuit is triggered and cuts off the supply voltage after a few seconds, just long enough to secure the washing machine (motor off, door locked, etc.), the cycle and any options selected are reset, so that the next time the appliance is turned on, it is ready to perform the programme.
- b. If, after 5 minutes, during the programme selecting phase or after the end of the cycle, the appliance receives no further instructions, it is automatically turned off and the Zero Watt circuit which cuts off the supply voltage is triggered (for energy savings in conformity with the standards on energy consumption). All the settings are stored so that when the appliance is turned back on, the programme is ready or if the auto-off mode was triggered after the end of the cycle, the user can see that the cycle ended normally, and can restart it if necessary.

If an alarm goes off when a wash programme is running, the automatic turn off is disabled showing the alarm.

1 WARNINGS



- Any work on electrical appliances must only be carried out by qualified personnel.
- Before carrying out work on the appliance, use suitable instruments to check that the power supply system in the house is fully efficient. For example: refer to the indications provided/illustrated in the <<metrater>> course at the address (<http://electrolux.edvantage.net>) on the Electrolux Learning Gateway portal.
- On completing operations, check that the appliance has been restored to the same state of safety as when it came off the assembly line.
- If the circuit board has to be handled/replaced, use the ESD kit (Cod. 405 50 63-95/4) to avoid static electricity from damaging the circuit board, see S.B. No. 599 72 08-09 or consult the course <<Electrostatic charges>> at the address (<http://electrolux.edvantage.net>) on the Electrolux Learning Gateway portal.
- This platform is not fitted with an ON/OFF switch. Before you access internal components, take the plug out of the socket to cut the power supply.
- Make resistance measurements, rather than direct voltage and current measurements
- Warning the sensors located in the display board could be at a potential of 220 Volts.
- When replacing the heating element, replace it with one that has the same characteristics (2 thermal fuses) in order not to compromise the safety of the appliance. NEVER remove/switch the NTC sensors between heating elements.
- Always empty the appliance of all the water before laying it on its side (see the relevant paragraph).
- When replacing components, please refer to the code shown in the list of spare parts relating to the appliance.
- Do not place any kind of container under the appliance to catch any drips of water.



2 SERIES 7

2.1 General characteristics

The EWX11831 electronic control system consists of two circuit boards plus the motor control system (inverter).

The control/display circuit board, inserted in a plastic box, secured to the control panel.

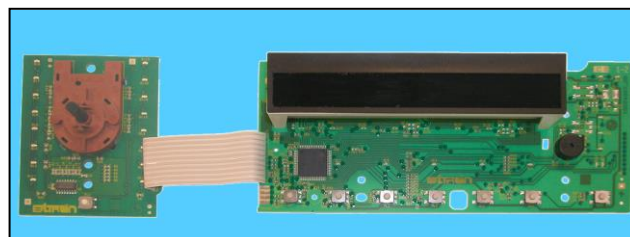
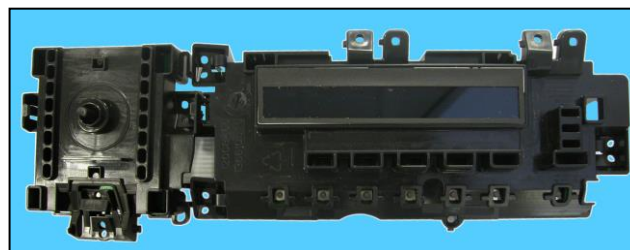
The figure shows:

The control/display circuit board and plastic container already assembled.

The display board.

The side header that the selector is fitted to.

The flat cable that connects the 2 circuit boards to one another.



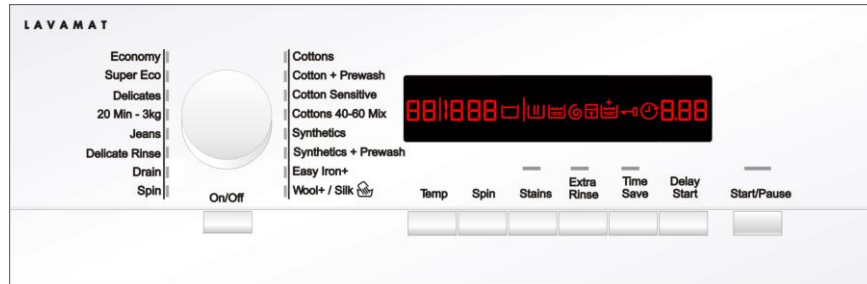
The main board is positioned to the rear of the equipment and receives commands from the display board and signals from various sensors located in the washing machine, powers the electric parts and communicates with the motor control board (Inverter).

No. buttons	<ul style="list-style-type: none"> ▪ maximum 8 (6 options + start/pause + ON/OFF)
No. LEDs	<ul style="list-style-type: none"> ▪ maximum 20 + LCD
Programme selector	<ul style="list-style-type: none"> ▪ 16 positions (incorporated in the circuit board)
Serial port	<ul style="list-style-type: none"> ▪ DAAS-EAP communication protocol up to 115,200 baud
Power supply voltage	<ul style="list-style-type: none"> ▪ 220/240 V ▪ 50/60 Hz (configurable)
Washing type	<ul style="list-style-type: none"> ▪ Traditional with "Eco-ball" sphere ▪ Jet-System
Rinsing system	<ul style="list-style-type: none"> ▪ Traditional with "Eco-ball" sphere ▪ Jet-System
Motor	<ul style="list-style-type: none"> ▪ Two-pole asynchronous (three-phase)
spin speed	<ul style="list-style-type: none"> ▪ 400 ÷ 1,500 rpm
Anti-unbalancing system	<ul style="list-style-type: none"> ▪ AGS
Cold water fill	<ul style="list-style-type: none"> ▪ 1 solenoid valve with 1 inlet – 2 or 3 outlets
Hot water filling	<ul style="list-style-type: none"> ▪ 1 solenoid valve with 1 inlet – 1 outlet
Detergent dispenser	<ul style="list-style-type: none"> ▪ 3 compartments: prewash/stains, wash, fabric softeners
Control of water level in the tub	<ul style="list-style-type: none"> ▪ Electronic/analogue pressure switch
Door safety interlock	<ul style="list-style-type: none"> ▪ Traditional (with PTC)/Instantaneous
Heating element heat output	<ul style="list-style-type: none"> ▪ 1950W with thermal fuses incorporated
Temperature check	<ul style="list-style-type: none"> ▪ NTC probe incorporated in the heating element
Buzzer	<ul style="list-style-type: none"> ▪ Traditional incorporated in the PCB
Sensors	<ul style="list-style-type: none"> ▪ Water fill gauge (2÷12 l/m flowmeter) ▪ Water control
Drum Light	<ul style="list-style-type: none"> ▪ LED Lamp

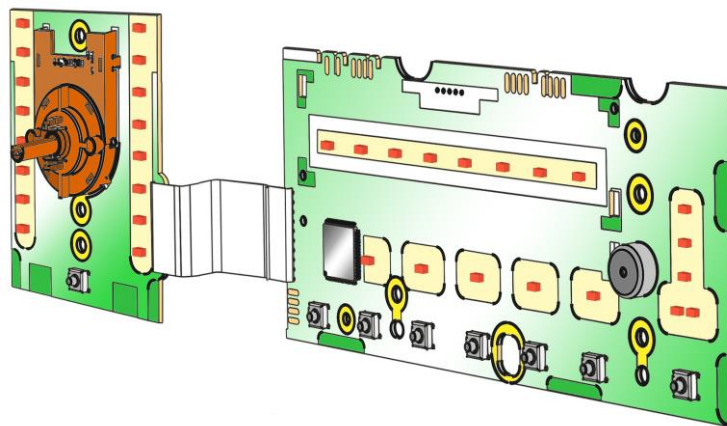
2.2 Control panel

2.2.1 Styling

- Max. 8 buttons
- Programme switch with 16 positions without the 0 position
- 20 LEDs
- LCD

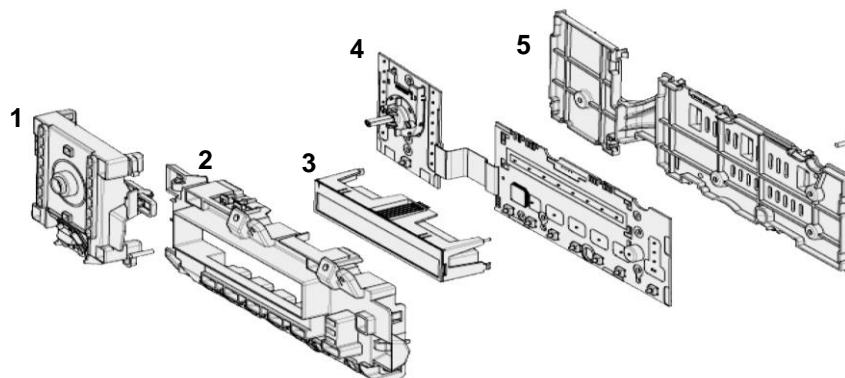


- Positioning of LEDs and buttons

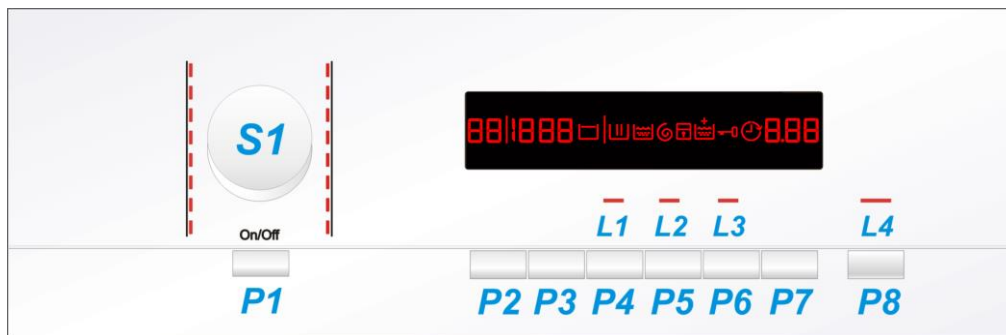


- Display board assembly, exploded view

1. Selector board protection
2. Display board protection
3. LCD screen
4. Display board and selector board
5. Rear protection



2.2.2 Control panel configuration



The washing programmes, the functions of the selector knob and the various buttons vary according to the model, since these are determined by the configuration of the appliance.

2.2.3 Programme selector (S1)

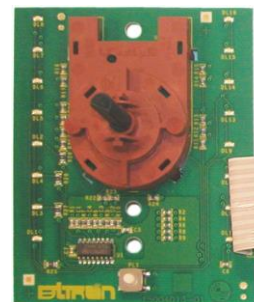
The selector used is a HI-FI type, that is, the knob has non index and no reset position, the programme selected is indicated by the lighting of the corresponding LED.

The number of positions cannot be configured. There are always 16 (in all stylings) and they are bound to the number of LEDs that indicate the washing programmes.

The programmes can be configured to perform different washing cycles (e.g.: water level, drum movement, no. of rinses and the washing temperature to be selected according to the type of garments).

The selector can be turned both clockwise and anti-clockwise.

For each programme, the compatible options and other parameters are defined.



2.2.4 Programme configuration

The table below lists the parameters that can be used to define the washing programmes.

Types of fabric	Cottons/linen, Synthetics, Delicates, Wool, Hand-wash, Shoes, Jeans, Duvet, Silk.
Special programmes	Soak, Miniprogramme, Easy-Iron, Conditioner, Rinses, Delicate rinses, Drain, Delicate spin, Spin,
Temperature	Normal, Maximum: the initial temperature is the one set for the washing programme selected.
Spin	Normal, Minimum, Maximum
Possible Options	Rinse Hold, Pre-wash, Stains, Extra Rinse, Normal, Daily, Super quick, Spin reduction, No spin.
Programme phases	Pre-wash, Wash, Rinses, Spin, Delayed start,

2.2.5 Pushbuttons – LEDs and LCD

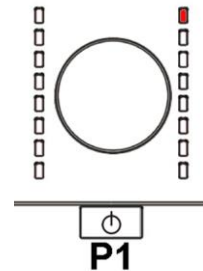
The functions of each button are defined by the configuration of the appliance.

• Button no. 1: ON/OFF

This button is always present, whatever the styling.

- Press it to turn the appliance on, at the same time the buzzer will sound a tone (if enabled) and the LCD display lights up (the lighted symbols are the ones for the programme).
- To switch the appliance off, press and hold the button for approximately 1 second, after which the buzzer will sound a tone (if enabled), the LCD display and the LEDs will switch off, all the options selected and any programme that is running will be cancelled.

The operation of the ON/OFF depends on the configuration of the main circuit board. It can cut the appliance off from the electricity mains completely (0 Watt circuit) or set the appliance to low energy consumption mode (without 0 Watt circuit) in which case you will need to take the plug out of the socket to cut off the electricity supply completely.



• Button no. 2: TEMPERATURE

This is related to the part of the LCD display in which the washing cycle temperature is shown.

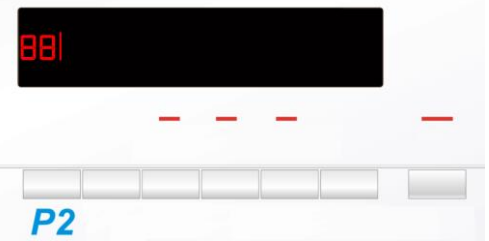
The starting temperature shown on the LCD display is the one set for the programme selected.

Press this button in sequence to lower the temperature, when the lowest temperature is reached the selection will start again from the highest one available for the programme.

The temperatures available (displayed in °C) are:

95°C, 60°C, 50°C, 40°C, 30°C, 20°C, cold cycle.


the cold cycle is displayed by two dashes. 



• Button no. 3: SPIN SPEED

This is related to the part of the LCD display in which the washing cycle spin speed is shown.

The starting speed shown on the LCD display is the one set for the programme selected.

Pressing the button in sequence will reduce the speed and once the lowest selection has been reached, the next one is “Rinse hold” and the relative symbol  lights up (if compatible with the the selected programme), this is lit even during the “Extra silent” programme.

Pressing this button again will take you back to the highest speed available for the selected programme.

The spin speeds are:

1600–1400–1200–1000–800–600–400– “Rinse Hold”.

When no speed is selected, or the “Rinse Hold” cycle is selected, the LCD display shows three dashes - - -



• **Button no. 4:** OPTION

This button is configurable and is related to LED (L1). Depending on the configuration of the appliance, it can perform the option of:

- Stains
- HOT & COLD water fill

Press this button to enable/disable the option related to it, with the respective lighting/turning off of LED L1. At the same time, the programme time is updated (via the three digits).



• **Button no. 5:** OPTION

This button is related to LED (L2), and performs the option of:

- Extra-rinse

Press this button to enable/disable the option related to it, with the respective lighting/turning off of the LED. At the same time, the programme time is updated (via the three digits).



• **Button no. 6:** OPTION

This button is related to LED (L3), and performs the option of:

- Time Save

Press this button to enable/disable the option associated with it and turn the LED on/off respectively, at the same time the programme time is updated (on the three digit display).



The following options can also be configured in appliances:

- Time Save: with two 2 levels, corresponding to: Daily and Super Quick. Press once for the Daily function, the relevant LED lights up, press twice for the Super Quick function, the relevant LED will remain on fixed and at the same time the three digit display will vary the cycle time.
- Stains and HOT and COLD Water are alternative options for the same button.
- When the hot water solenoid is present, the relevant option is also configured.

• **Button no. 7:** DELAYED START

This button is configurable and has the DELAYED START function. During the programme selection phase, a delayed start can be selected, from 30' to 20 hours (30' ↻ 60' ↻ 90' ↻ 2h ↻ 3h... ↻ 20h ↻ 0h) and the time is shown on the display; during the final hour the time shown decreases minute by minute.

To cancel the delayed start time after the cycle has been started, set the washing machine to pause using the START/PAUSE button and cancel the option.



• **Button no. 8:** START/PAUSE











This button is used to START the appliance or to PAUSE it.





It is related to LED L4 which flashes when the appliance is in pause, whereas it produces a fixed light when the appliance is performing a washing cycle.



2.2.6 LCD series 7

The information described below also appears on the LCD:

<p>• Programme phases:</p> <p>The three icons shown have the following meanings, respectively:</p> <ul style="list-style-type: none"> – Wash/Prewash/Steam  – Rinse  – Spin  <p>They are lit during the setting phase to display which phases are included in the programme.</p> <p>During the programme the icon for the phase in progress flashes, and when the phase has ended it remains lit continuously. The same applies when the machine is in pause during the cycle.</p>	
<p>• Padlock:</p> <p>The icon lights up when the “child lock” is on.</p> <p>It indicates that all the buttons are disabled to prevent children from modifying, starting or pausing the cycle; If any button is pressed while it is enabled the icons will flash.</p> <p>To enable/disable this function, a key combination needs to be pressed. It may be silk-screen printed on the control panel or described in the instruction manual.</p>	
<p>• Door closed sensor:</p> <p>Lights up when the safety device stops door opening and switches off when the door can be opened.</p> <p>Flashes when the device is about to unlock the door.</p>	
<p>• Washing programme time</p> <p>This appears after a washing programme has been selected. This time corresponds to the time required for the maximum wash load for each type of programme.</p> <p>After the programme has started, the time decreases (and is updated) minute by minute.</p>	
<p>• Delayed start</p> <p>Selected using the related button. After the START/PAUSE button is pressed, the countdown starts and the delay time decreases hour by hour, from a delay of 2 hours up to 20 hours</p> <p>(☞ 30' ☞ 60' ☞ 90' ☞ 2h ☞ 3h... ☞ 20h ☞ 0h).</p> <p>During the last 2 hours, it decreases by 30 mins at a time.</p> <p>During the delayed start, the icon  remains permanently lit.</p>	
<p>• Selection incorrect</p> <p>Displays the flashing message “Err”, for one second.</p> <p>Appears on selecting option that is incompatible with the programme selected, or when the selector is turned while a cycle is running.</p>	

<p>• End of cycle</p> <p>When the cycle ends and you can open the door, the display shows a permanently lit 0.</p> <p>Stopping the machine with water in the tub, at the end of programmes with the RINSE HOLD option, is displayed by a permanently lit zero.</p> <p>The LED indicating the door remains on and the LED of the START/PAUSE button is turned off. The washing machine continues to operate even though the cycle has finished, rotating the drum once every 2 minutes.</p>	
<p>• Alarm code</p> <p>Indicates an anomaly during operation of the machine. Simultaneously to the displaying of the code, the START/PAUSE button flashes.</p>	
<p>• Laundry load calculation</p> <p>After the washing programme has started, the dot starts to flash. The washing machine is now calculating the laundry load inside the drum thus establishing the amount of water to be loaded. When this phase is completed, the dot is lit continuously and the three digits display the programme time.</p>	
<p>• Extra-rinse</p> <p>Appliances which do not feature the button and related LED for the Extra rinse option can enable/disable this option by pressing a key combination (which may be silk-screen printed on the control panel or described in the instruction manual). This option is enabled/disabled during programme selection and is confirmed by the related symbol being turned on/off.</p> <p>The option remains enabled even after the appliance has been turned off (for subsequent programmes).</p>	

2.2.7 Buzzer

This comprises a multi-tone buzzer and sounds in the following cases:

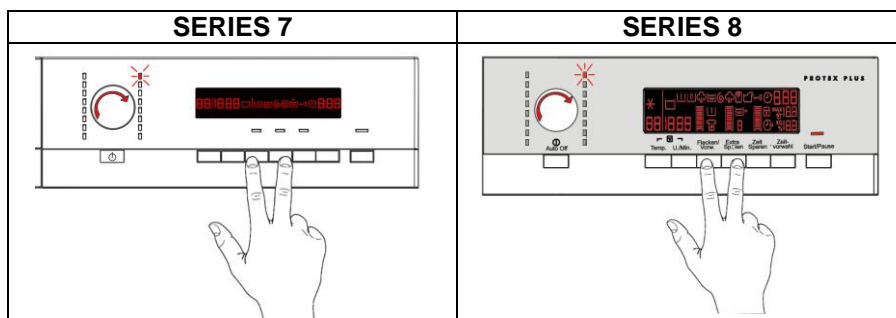
- When the machine is turned on and off it emits two different tunes.
- When a sensor is pressed it emits a short **“Click”**
- When the cycle ends this is indicated by a special sequence of **“three long beeps”** repeated at intervals of 15” for a total of 2 minutes. The sequence can only be stopped by opening the door in appliances where the instant door safety device with micro-switch is fitted.
- In the event of a malfunction in the machine this is indicated by a special sequence of **“three short beeps”** repeated 3 times at intervals of 15” for a total of 5 minutes.

All appliances are fitted with the buzzer, and leave the factory with the option enabled. To disable it use the combination of sensors.

The volume level is set in the factory and cannot be adjusted by the user.

When the buzzer is disabled (using the combination of sensors) it only emits the short **“Click”** and the sequence of **“three short beeps”** when an alarm is triggered.

During the programme selection phase, the buzzer can be enabled/disabled with a sensor combination (which may be silk-screen printed on the control panel or described in the instruction manual), but the alarm signalling remains enabled.



To enable it, touch the sensors simultaneously for 5 seconds. A short beep will confirm that it has been enabled, whereas two short beeps will confirm that it has been disabled.

3 SERIES 8

3.1 General characteristics

The EWX118311 electronic control system consists of two circuit boards plus the motor control system (inverter).

The control/display circuit board, inserted in a plastic box, secured to the control panel.

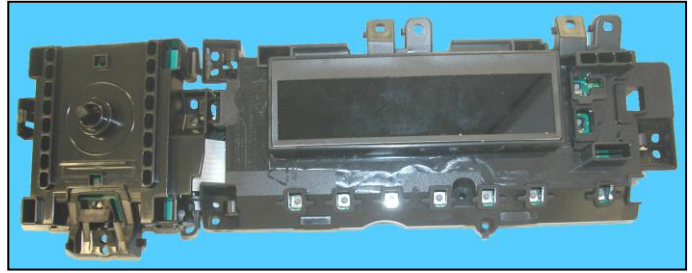
The figure shows:

The control/display circuit board and plastic container already assembled.

The display board.

The side header that the selector is fitted to.

The flat cable that connects the 2 circuit boards to one another.



The main board is positioned to the rear of the equipment and receives commands from the display board and signals from various sensors located in the washing machine, powers the electric parts and communicates with the motor control board (Inverter).

No. buttons	▪ maximum 9 (6 options + start/pause + ON/OFF)
No. LEDs	▪ maximum 20 + LCD
Programme selector	▪ 16 positions (incorporated in the circuit board)
Serial port	▪ DAAS-EAP communication protocol up to 115,200 baud
Power supply voltage	▪ 220/240 V ▪ 50/60 Hz (configurable)
Washing type	▪ Traditional with “Eco-ball” sphere ▪ Jet-System
Rinsing system	▪ Traditional with “Eco-ball” sphere ▪ Jet-System
Motor	▪ Two-pole asynchronous (three-phase)
spin speed	▪ 400 ÷ 1,500 rpm
Anti-unbalancing system	▪ AGS
Cold water fill	▪ 1 solenoid valve with 1 inlet – 2 or 3 outlets
Hot water filling	▪ 1 solenoid valve with 1 inlet – 1 outlet
Detergent dispenser	▪ 3 compartments: prewash/stains, wash, fabric softeners
Control of water level in the tub	▪ Electronic/analogue pressure switch
Door safety interlock	▪ Traditional (with PTC)/Instantaneous
Heating element heat output	▪ 1950 W with thermal fuses incorporated
Temperature check	▪ NTC probe incorporated in the heating element
Buzzer	▪ Traditional incorporated in the PCB
Sensors	▪ Water fill gauge (2÷12 l/m flowmeter) ▪ Water control
Drum light	▪ LED Lamp

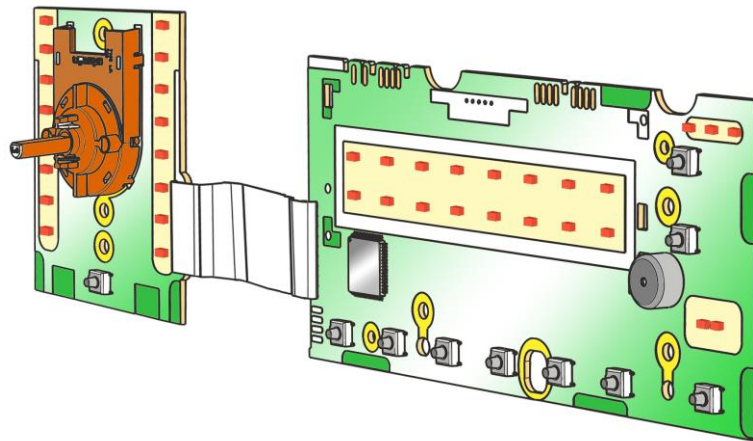
3.2 Control panel

3.2.1 Styling

- Max. 9 buttons
- 16 position programme selector
- 20 LEDs
- LCD

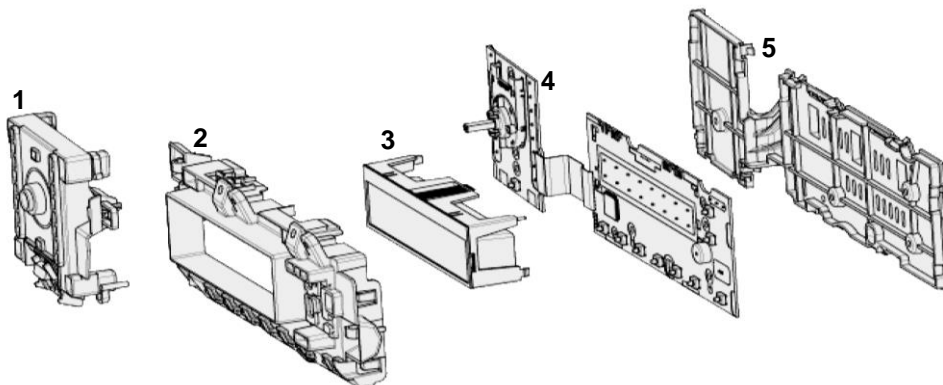


- Positioning of LEDs and buttons



- Display board assembly, exploded view

1. Selector board protection
2. Display board protection
3. LCD screen
4. Display board and selector board
5. Rear protection



3.2.2 Control panel configuration



The washing programmes, the functions of the selector knob and the various buttons vary according to the model, since these are determined by the configuration of the appliance.

3.2.3 Programme selector (S1)

The selector used is a HI-FI type, that is, the knob has non index and no reset position, the programme selected is indicated by the lighting of the corresponding LED.

The number of positions cannot be configured. There are always 16 (in all stylings) and they are bound to the number of LEDs that indicate the washing programmes.

The programmes can be configured to perform different washing cycles (e.g.: water level, drum movement, no. of rinses and the washing temperature to be selected according to the type of garments).

The selector can be turned both clockwise and anti-clockwise.

For each programme, the compatible options and other parameters are defined.



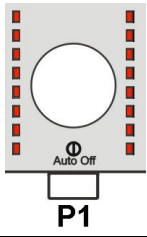






3.2.4 Programme configuration

The table below lists the parameters that can be used to define the washing programmes.

Types of fabric	Cottons/linen, Synthetics, Delicates, Wool, Hand-wash, Shoes, Jeans, Duvet, Silk.
Special programmes	Soak, Miniprogramme, Easy-Iron, Conditioner, Rinses, Delicate rinses, Drain, Delicate spin, Spin,
Temperature	Normal, Maximum: the initial temperature is the one set for the washing programme selected.
Spin	Normal, Minimum, Maximum
Possible Options	Rinse Hold, Pre-wash, Stains, Extra Rinse, Normal, Daily, Super quick, Spin reduction, No spin.
Programme phases	Pre-wash, Wash, Rinses, Spin, Delayed start,

3.2.5 Pushbuttons – LEDs and LCD

The functions of each button are defined by the configuration of the appliance.

<p>• Button no. 1: ON/OFF</p> <p>Description: see Button no. 1 on page 11</p>	 <p style="text-align: center;">P1</p>
<p>• Button no. 2: TEMPERATURE</p> <p>See description on page 11 The only difference with version 7 is the representation of the cold cycle, which is represented by the cold symbol  and by two dashes  “ - - ” to replace the Digits.</p>	 <p style="text-align: center;">P2</p>
<p>• Button no. 3: SPIN SPEED</p> <p>This is related to the part of the LCD display in which the washing cycle spin speed is shown.</p> <p>The starting speed shown on the LCD display is the one set for the programme selected.</p> <p>Pressing the button in sequence will reduce the speed and once the lowest selection has been reached, the next one is “Rinse hold” and the relating  symbol lights up (if compatible with the the selected programme), this is lit even during the “Extra silent” programme.</p> <p>Pressing this button again will take you back to the highest speed available for the selected programme.</p> <p>The spin speeds are: 1600–1400–1200–1000–800–600–400– “Rinse Hold” cycle.</p> <p>When no speed is selected, or the “Rinse Hold” cycle is selected, the LCD display shows three dashes - - -</p>	 <p style="text-align: center;">P3</p>
<p>• Button no. 4: OPTION</p> <p>It is related to the part of the LCD display (see figure) where the graphic bar and the symbols relating to the options are displayed, depending on the chosen programme.</p> <p>Press the button to light the graduated scale and the Stains symbol lights simultaneously. If you continue to press it, the Prewash symbol also lights up.</p> <p>The selection order is as follows:</p> <ul style="list-style-type: none"> – Stains. – Pre-wash. – Stains + Prewash. 	 <p style="text-align: center;">P4</p>

The settings described below not only have symbols, but they are also accompanied by a graphic bar within a frame. If it is illuminated, this indicates that the option is enabled for the chosen programme, otherwise it is off.

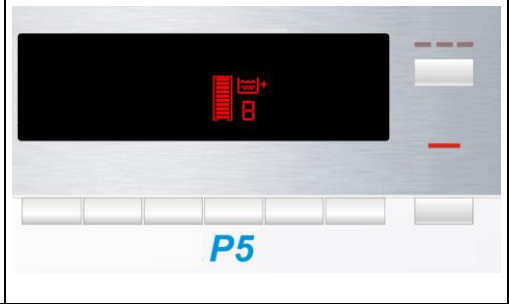
When all its segments are lit, it will start from scratch again the next time it is pressed.

• **Button no. 5: OPTION**

It is related to the part of the LCD display (see figure) showing: the graphic bar, a digit and the “Extra rinse” symbol.

Press the button to light the graduated scale. The symbol for the “Extra rinse” lights simultaneously, and the digit shows the number of additional rinses to combine with the programme.

The number of rinses depends on the programme configuration.

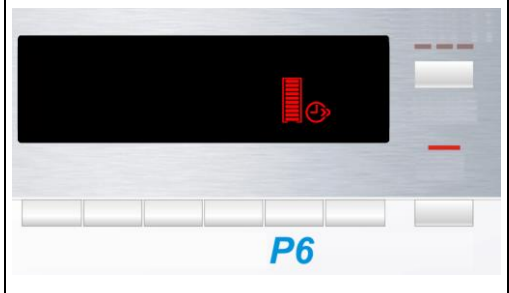


• **Button no. 6: OPTION**

It is related to the part of the LCD display (see figure) showing: the graphic bar and the “Time save” option.

Press the button and half or all of the graduated scale may light up, depending on the configuration of the button. The related symbol also lights up simultaneously.

- Press the button once and the chosen option is “Daily”.
- Press the button twice and the chosen option is “Super Quick”.



• **Button no. 7: DELAYED START**

It is related to the part of the LCD display (see figure) showing the related symbol and the three digits.

Press the button in sequence to increase the delay by 30' up to 2 hours, whereas from 2 hours to 20 hours, the increase is of 1 (one) hour every time the button is pressed.

The symbol lights and stays on for the entire delay phase.

During the programme setting phase, you can select a start delay spanning from 30' to 20 hours

30' ⤴ 60' ⤴ 90' ⤴ 2h ⤴ 3h... ⤴ 20h ⤴ 0h

and the time is displayed on the LCD screen.

During the last hour, the time decreases minute by minute.

To cancel the delayed start time, after the cycle has started, pause the washing machine using the related button and cancel the option.



• **Button no. 8: START/PAUSE**

This button is used to START the appliance or to PAUSE it.

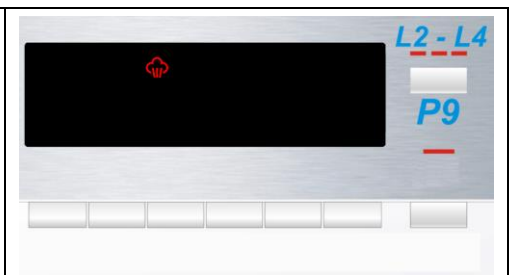
It is related to LED L1, which flashes when the appliance is on pause, whereas it is lit continuously during a washing cycle.



• **Button no. 9: STEAM (where featured)**

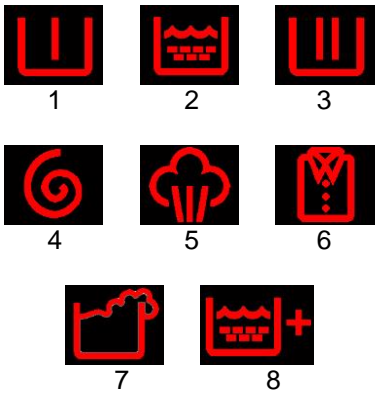








Press this button in sequence to select from three different steam intensity levels.

These are highlighted by the lighting of LEDs L2/L3/L4 and the related symbol lighting on the LCD display.



3.2.6 LCD series 8

The following information is also displayed on the LCD:

<p>• Programme phases:</p> <p>The icons represented respectively mean:</p> <ol style="list-style-type: none"> 1. Pre-wash 2. Wash 3. Risciacquo 4. Spin 5. Steam combined with the programme (where featured) 6. Rinse Hold 7. Detergent overdosing 8. Extra rinse (see page 14) <p>They light up during the programme setting where featured and during their performance.</p> <p>The icon representing the Overdosing lights up at the end of the cycle if during the performance of the programme an excess production of foam was detected.</p>	
<p>• Padlock:</p> <p>Description: see page 13</p>	
<p>• Door closed sensor:</p> <p>Description: see page 13</p>	
<p>• Washing programme time</p> <p>Description: see page 13</p>	
<p>• Delayed start</p> <p>Selected using the related button. After the START/PAUSE button is pressed, the countdown starts and the delay time decreases hour by hour until it reaches 2 hours.</p> <p>In the last 2 hours the time varies in 30-minute stages until it reaches the last hour, after which the time decreases minute by minute.</p> <p>To cancel the delayed start time, after the cycle has started, pause the washing machine using the related button and cancel the option.</p>	
<p>• Selection incorrect</p> <p>Description: see page 13</p>	
<p>• End of cycle</p> <p>Description: see page 14.</p>	
<p>• Alarm code</p> <p>Description: see page 14</p>	
<p>• Calculate amount of washing</p> <p>Description: see page 14</p>	

3.2.7 Buzzer

Description: see para. 2.2.7 on page 15

4 “DEMO” MODE

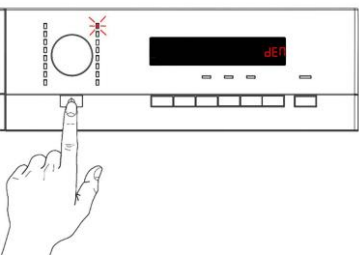
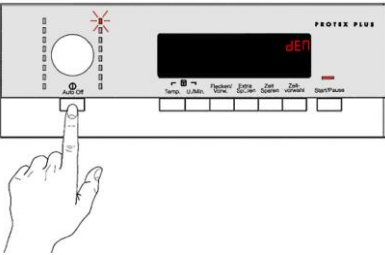

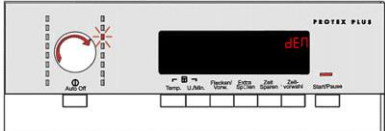
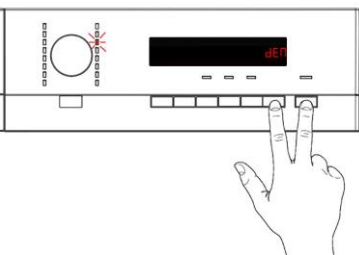
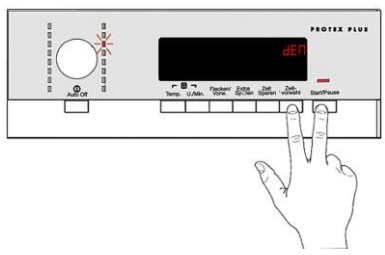
A special cycle is designed to demonstrate the operation of these appliances in shops, without connecting them to the water mains:

- The door closure device is activated normally.
- All motor's low speed movements, the pulses and spin are disabled.
- The water fill solenoid valves and the drain pump are disabled.
- The display only shows set-up stage.
- (START/PAUSE is disabled), because without the door the movement cannot be seen and is, therefore, useless.

4.1 Demo mode settings

Do not start the procedure with the buttons in the combination pressed

The operations listed below must be carried out within 7 seconds

	Series 7	Series 8
Switch on the appliance using the ON/OFF button		
Turn the selector dial until the third LED in the right-hand row is on.		
Press the START/PAUSE button and the nearest option button simultaneously (as shown in the figure). Hold the buttons down (approximately three or five seconds) until “dEM” flashes for a short time.		

4.2 Exiting DEMO mode

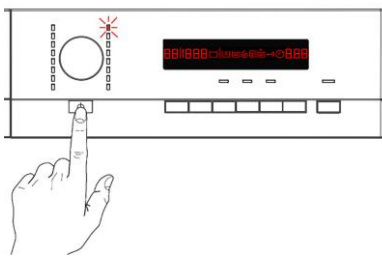
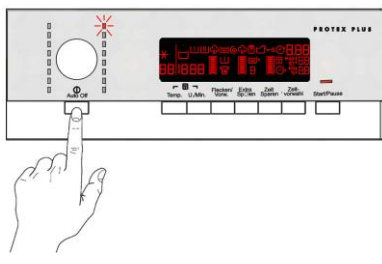
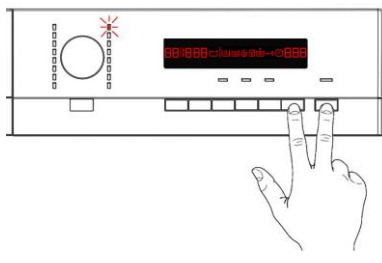
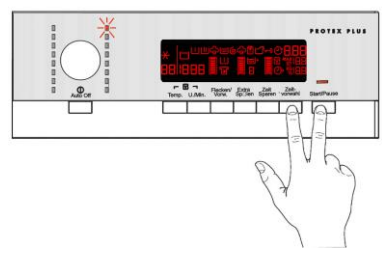
To quit the demo mode, unplug the appliance at the socket, because the ON/OFF button does not function.

5 DIAGNOSTICS SYSTEM

5.1 Accessing diagnostics

Do not start the procedure with the buttons in the combination pressed

The operations listed below must be carried out within 7 seconds

	Series 7	Series 8
Turn the appliance on at the ON/OFF switch and the first LED in the right-hand row is turned on.		
Press the START/PAUSE button and the nearest option button simultaneously (as shown in the figure). Hold the buttons/sensors down/pressed until the LEDs and symbols begin to flash in sequence (approximately 3 seconds).		

In the first position, the operation of the buttons, of the related LEDs and of the groups of symbols shown on the LCD screen is checked; turn the programme selector dial **clockwise** to run the diagnostic cycle for the operation of the various components and to read any alarms (see diagnostic test).

During this phase, if any combination of keys (except the one for diagnosis) is pressed, all the option combinations stored will be deleted (Extra rinse, Buzzer disable, etc.).

5.2 Quitting the diagnostics system

To exit the diagnostic cycle, switch the appliance off, then back on and then off again.

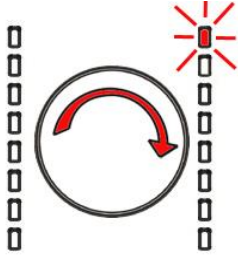

5.3 Phases of the diagnostics test

Irrespective of the type of circuit board and the configuration of the selector, after entering the diagnostic mode, turn the programme selector dial clockwise to perform the diagnostic cycle for the operation of the various components and to read any alarms.

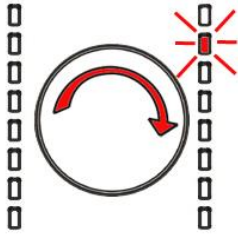

Concurrently, a selector control code is shown on the LCD display, which indicates for two seconds the description in the last column of the table below.

(All alarms are enabled in the diagnostic cycle).

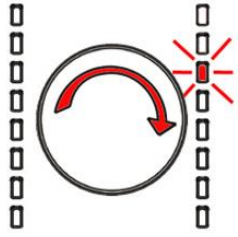

Position 1

User interface test	Purpose of the test:	To test operation of all the LEDs and switches.
	Components activated:	<ul style="list-style-type: none"> The LEDs are turned on in sequence, as are the symbol groups of the LCD display and its backlight.
	Behaviour:	<ul style="list-style-type: none"> All LEDs turn on in sequence. By pressing a key the corresponding icon unit lights up. The code is shown on the LCD and a beep sounds. All the icons on the LCD flash.
	Working conditions:	There is a control to run the test (always active).
	LCD screen	

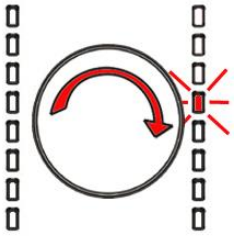

Position 2

Water fill to wash compartment	Purpose of the test:	To check the correct operation of the wash compartment water route.
	Components activated:	<ul style="list-style-type: none"> Door safety interlock Wash solenoid valve
	Working conditions:	<ul style="list-style-type: none"> Door closed Water level below anti-flooding level Maximum time 5 mins.
	LCD screen	 Water level in the tub is displayed (mm)

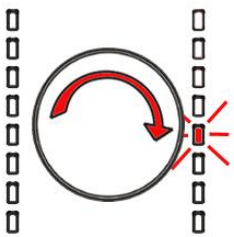

Position 3

Water fill to pre-wash compartment	Purpose of the test:	To check the correct operation of the pre-wash compartment water route.
	Components activated:	<ul style="list-style-type: none"> Door safety interlock Pre-wash solenoid valve
	Working conditions:	<ul style="list-style-type: none"> Door closed Water level below anti-flooding level Maximum time 5 mins.
	LCD screen	 Water level in the tub is displayed (mm)

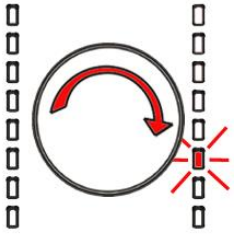

Position 4

Water fill to conditioner compartment	Purpose of the test:	To check the correct operation of the conditioner compartment water route.
	Components activated:	<ul style="list-style-type: none">• Door safety interlock• Pre-wash and wash solenoid valves
	Working conditions:	<ul style="list-style-type: none">• Door closed.• Water level below anti-flooding level• Maximum time 5 mins.
	LCD screen	 Water level in the tub is displayed (mm)

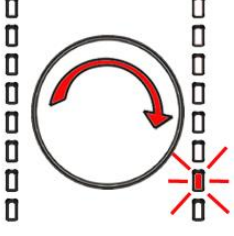

Position 5

Water filling to produce steam (only in some models)	Purpose of the test:	To check the correct operation of the steam production water fill solenoid valve (only in certain models).
	Components activated:	<ul style="list-style-type: none">• Door fastening device.• Third Solenoid valve
	Working conditions:	<ul style="list-style-type: none">• Door closed• Water level below anti-flooding level• Maximum time 5 mins.
	LCD screen	 Water level in the tub is displayed (mm)

Position 6

Hot water fill (only in certain models)	Purpose of the test:	To check the correct operation of the hot water fill fourth solenoid valve (only in certain models).
	Components activated:	<ul style="list-style-type: none">• Door safety interlock• Fourth solenoid valve (where featured)
	Working conditions:	<ul style="list-style-type: none">• Door closed• Water level below anti-flooding level• Maximum time 5
	LCD screen	 Water level in the tub is displayed (mm)

Position 7

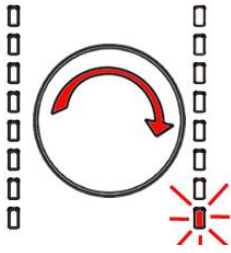
Reheating	Purpose of the test:	To check the correct operation of the heater unit.
	Components activated:	<ul style="list-style-type: none">• Door fastening device.• Wash solenoid, if the water in the tub is not enough to cover the heating element.• Heating element.
	Working conditions:	<ul style="list-style-type: none">• Door closed• Water level high enough to cover the heating element.• Maximum time 10 mins up to 90°C. (*)
	LCD screen	 Temperature in °C measured using the NTC probe.

Position 8

Leaks from the tub

Purpose of the test:

To check for any water leaks from the tub during operation.




Components activated:

- Door fastening device.
- Wash solenoid, if the water in the tub is not enough to cover the heating element.
- Motor (anticlockwise rpm, pulse at 250 rpm).

Working conditions:

- Door closed.
- Water level above.
- The heating element.

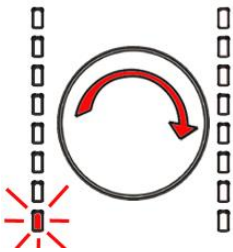
LCD screen

 Drum speed in rpm/10
Position 9

Drain, calibration of analogue pressure switch and spin.

Purpose of the test:

To check the correct operation of the spin cycle drain pump and calibrate the analogue pressure switch.




Components activated:

- Door safety interlock
- Drainage pump
- Motor up to 650 rpm then at maximum spin speed (**)

Working conditions:

- Door closed
- Water level lower than anti-boiling level for spinning

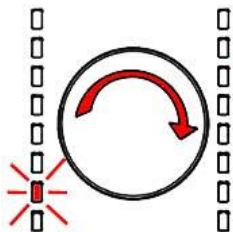
LCD screen

 Drum speed in rpm/10
Position 10

Drum position

Purpose of the test:

To check the correct position of the drum via DSP



Components activated:

- Drum rotation motor.
- Door fastening device.
- Drum position sensor DSP.

Working conditions:

- Door closed.

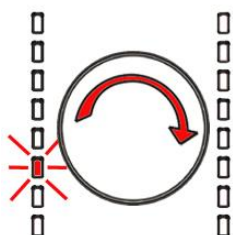
LCD screen


Position 11

Reading/Deleting the last alarm

Purpose of the test:


Reading/Deleting the last alarm



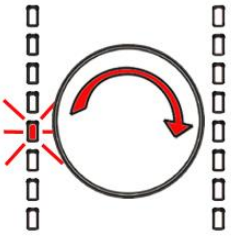

Components activated:

Working conditions:

LCD screen

 Displays any alarms present or stored

Position 12÷16

User interface test	Purpose of the test:	To test operation of all the LEDs and switches.
	Components activated:	<ul style="list-style-type: none"> The LEDs are turned on in sequence, as are the symbol groups of the LCD display and its backlight.
	Behaviour:	<ul style="list-style-type: none"> All LEDs turn on in sequence. By pressing a key the corresponding icon unit lights up. The code is shown on the LCD and a beep sounds. All the icons on the LCD flash.
	Working conditions:	There is a control to run the test (always active).
	LCD screen	

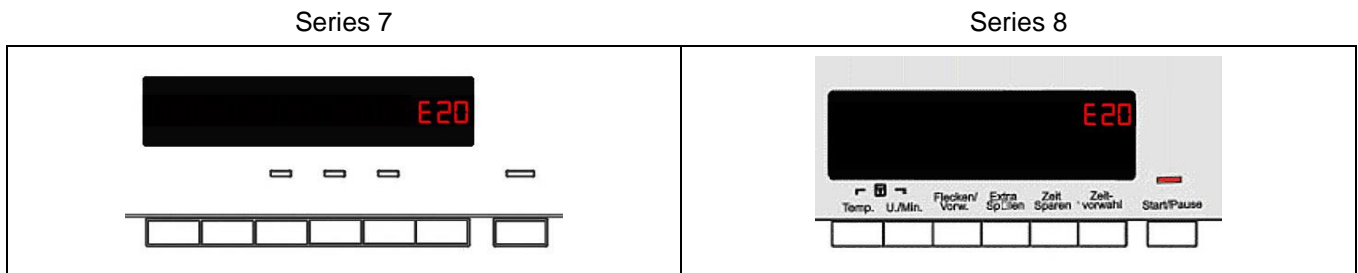
(*) In most cases, this time is sufficient to check the heating. However, the time can be increased by repeating the phase without draining the water: pass for a moment to a different phase of the diagnostic cycle and then back to the heating control phase (if the temperature is higher than 80°C, heating does not take place).

(**) The check at the maximum speed occurs without control of the A.G.S. (Unbalancing Control Algorithm) and no garments must be inside the appliance.

6 ALARMS

6.1 Displaying user alarms

When a problem occurs in the appliance and a "WARNING" or "ALARM" is triggered, this is shown in the three digit display (where the time left to the end of the cycle is shown), this information ceases to be displayed when the problem is repaired/solved. The buzzer then emits a sound for 5 minutes. This does not occur for alarm EH0.



The alarms displayed to the user are listed below:

- E10 – Water fill difficulty (tap closed)
- E20 – Drain difficulty (filter dirty)
- E40 – Door open

The alarms listed below:

- EF0 – Water leakage (Aqua Control System)

The intervention of a service engineer is required

For the alarm on the other hand:

- EH0 – Voltage or frequency outside normal values

It is necessary to wait for power supply voltage and/or frequency to restore normal conditions.

The alarms are enabled during the execution of the washing programme. With the exception of alarms associated with the configuration and the power supply voltage/frequency, which are also displayed during the programme selection phase.

The door can normally be opened (except where specified) when an alarm condition has occurred, on the condition that:

- The water in the tub is below a certain level.
- The water temperature is lower than 55°C.
- The motor has stopped.

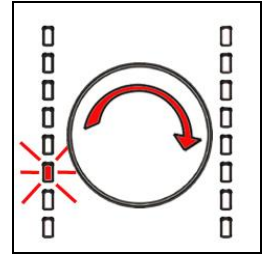
Certain alarm conditions require a drain phase to be performed before the door can be opened for safety reasons:

- Cooling water fill if the temperature is higher than 65°C
- Drain until the analogue pressure switch is on empty, during a max. 3-minute interval.

6.2 Reading the alarms

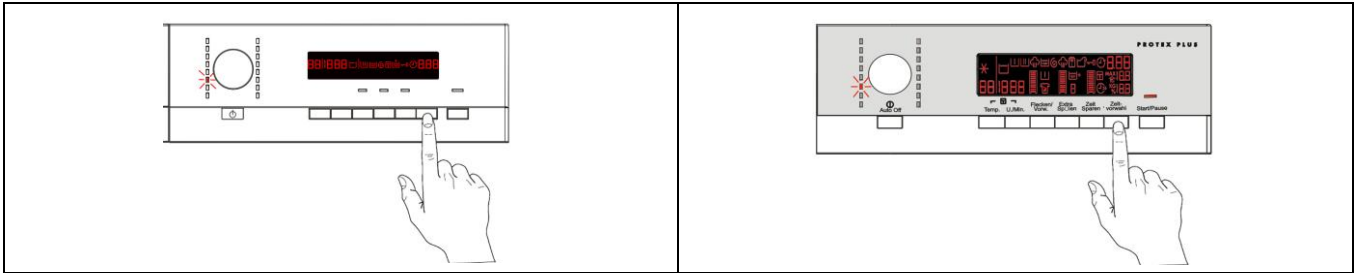
The last three alarms stored in the FLASH memory of the PCB can be displayed:

- Enter the diagnostic mode.
- Irrespective of the type of PCB and configuration, turn the programme selector knob **clockwise** to the **eleventh** position, the last alarm is displayed.
- To display previous alarms, press the button to the left of the START/PAUSE button in sequence (as shown in the figure)
- To return to the last alarm, press the START/PAUSE button.



SERIES 7

SERIES 8



6.3 Rapid reading of alarms

The last three alarms can be displayed even if the programme selector is not in the tenth position (diagnostics) or if the appliance is in normal operating mode (e.g. during the execution of the washing programme):

- Press the **START/PAUSE** button and the nearest **option button** simultaneously (as if you were entering DIAGNOSTIC mode) for at least 2 seconds: the LCD display shows the last alarm.
- The alarm is displayed until another key is pressed.
- While the alarm is being displayed, the appliance continues to perform the cycle or, if in the programme selection phase, it maintains the previously selected options in memory.

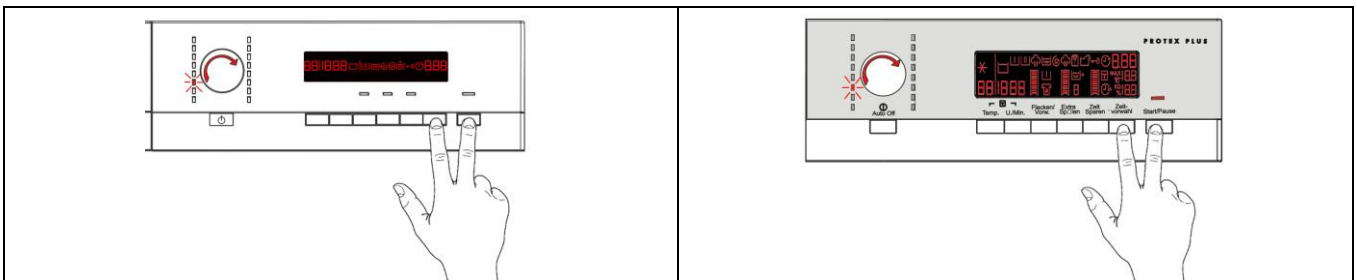
6.4 Deleting the last alarm

It is good practice to cancel the alarms stored:

- After reading the alarm codes, to check whether the alarm re-occurs during the diagnostic cycle
- After repairing the appliance, to check whether it re-occurs during testing

Series 7

Series 8



1. Enter the diagnostic mode.
2. Turn the selector dial clockwise until the eleventh LED is turned on (in the left-hand alarm reading row).
3. Press the **START/PAUSE** button and the nearest **option button** simultaneously (as shown in the figure).
4. Hold down the buttons until the LCD display shows "E00" (at least 5 seconds).

N.B. With this operation all the alarms stored are deleted.

7 ALARM SUMMARY TABLE

ALARM CODE	Description	Possible fault	Machine status/action	Reset
E11	Water fill difficulty during washing	<ul style="list-style-type: none"> • Tap closed. • Water pressure too low. • Drain pipe improperly positioned. • Water fill solenoid valve faulty. • Leaks from pressure switch water circuit. • Pressure switch faulty. • Faulty wiring. • Main circuit board faulty. 	Cycle is paused with door locked	START/RESET
E13	Water leaks	<ul style="list-style-type: none"> • Drain pipe improperly positioned. • Water pressure too low. • Water fill solenoid valve faulty. • Leaks/clogging of pressure switch water circuit. • Pressure switch faulty. 	Cycle is paused with door locked	START/RESET
E21	Drain difficulty during washing	<ul style="list-style-type: none"> • Drain pipe kinked/clogged/improperly positioned. • Drain filter clogged/dirty. • Faulty wiring. • Pressure switch faulty. • Drain pump rotor blocked. • Drain pump faulty. • Main circuit board faulty. 	Cycle is paused (after 2 attempts)	START ON/OFF RESET
E23	Faulty triac for drain pump	<ul style="list-style-type: none"> • Faulty wiring. • Drain pump faulty. • Main circuit board faulty. 	Safety drain cycle - Cycle stops with door open.	RESET
E24	Drain pump TRIAC "sensing" circuit faulty.	<ul style="list-style-type: none"> • Main circuit board faulty. 	Safety drain cycle - Cycle stops with door unlocked.	RESET

ALARM CODE	Description	Possible fault	Action Machine status	Reset
E31	Electronic pressure switch circuit faulty	<ul style="list-style-type: none"> • Wiring; Electronic pressure switch. • Main electronic circuit board. 	Cycle stops with door locked	RESET
E32	Calibration error of the electronic pressure switch	<ul style="list-style-type: none"> • Drain pipe kinked/clogged/improperly positioned. • Solenoid valve faulty. • Drain filter clogged/dirty. • Drain pump faulty. • Leaks from pressure switch water circuit. • Pressure switch defective; • Wiring; main circuit board. 	Cycle is paused	START/RESET
E35	Overflow	<ul style="list-style-type: none"> • Water fill solenoid valve faulty. • Leaks from pressure switch water circuit. • Faulty wiring. • Pressure switch faulty. • Main circuit board faulty. 	Cycle interrupted. Safety drain cycle. Drain pump continues to operate (5 min. on, then 5 min. off. etc.)	RESET
E38	Internal pressure chamber is clogged (water level does not change for at least 30 sec. of drum rotation)	<ul style="list-style-type: none"> • Motor belt broken. • Pressure switch hydraulic circuit clogged. 	Heating phase is skipped	RESET

ALARM CODE	Description	Possible fault	Action Machine status	Reset
E41	Door open	<ul style="list-style-type: none"> • Check whether the door is closed properly. • Faulty wiring. • Door safety interlock faulty. • Main circuit board faulty. 	Cycle is paused	CLOSE THE DOOR
E42	Problems with door lock	<ul style="list-style-type: none"> • Faulty wiring. • Door safety interlock faulty. • Electrical current leak between heating element and ground. • Main circuit board faulty. 	Cycle is paused	START/RESET
E43	Faulty triac supplying power to door delay system	<ul style="list-style-type: none"> • Faulty wiring. • Door safety interlock faulty. • Main circuit board faulty. 	Safety drain cycle. Cycle blocked	RESET
E44	Faulty "sensing" of door delay system	<ul style="list-style-type: none"> • Main circuit board faulty. 	Safety drain cycle. Cycle blocked	RESET
E45	Faulty sensing by door delay system triac	<ul style="list-style-type: none"> • Main circuit board faulty. 	Safety drain cycle. Cycle blocked	RESET

ALARM CODE	Description	Possible fault	Action Machine status	Reset
E57	Inverter is drawing too much current (>15 A)	<ul style="list-style-type: none"> • Motor-inverter wiring faulty. • Inverter board faulty. • Motor faulty. 	Cycle blocked with door locked after 5 attempts.	ON/OFF RESET
E58	Inverter is drawing too much current (>4.5 A)	<ul style="list-style-type: none"> • Abnormal motor operation (overload). • Motor-inverter wiring faulty. • Motor faulty. • Inverter board faulty. 	Cycle blocked with door locked after 5 attempts.	ON/OFF RESET
E59	No rotation of the motor	<ul style="list-style-type: none"> • Motor-inverter wiring faulty. • Inverter board faulty. • Motor faulty; 	Cycle blocked with door locked after 5 attempts.	ON/OFF RESET
E5A	Overheating on cooling dissipator for Inverter (>88°C)	<ul style="list-style-type: none"> • Overheating caused by continuous operation or ambient conditions. • Inverter board faulty. • NTC open (on the Inverter board) 	Cycle blocked with door locked after 5 attempts.	ON/OFF RESET
E5C	Input voltage is too high - greater than 430 V.	<ul style="list-style-type: none"> • Input voltage is too high (measure the grid voltage). • Inverter board faulty 	Cycle blocked with door locked after 5 attempts	ON/OFF RESET
E5d	Data transfer error between Inverter and main PCB	<ul style="list-style-type: none"> • Line interference. • Faulty wiring. • Main board or Inverter board faulty. 	-----	-----
E5E	Communication error between Inverter and main PCB	<ul style="list-style-type: none"> • Faulty wiring between main board and Inverter. • Inverter board faulty. • Main board faulty. 	Cycle blocked after 5 attempts.	ON/OFF RESET
E5F	Inverter PCB fails to start the motor	<ul style="list-style-type: none"> • Faulty wiring. • Inverter board faulty. • Main board faulty. 	Cycle blocked with door open after 5 attempts.	ON/OFF RESET
E5H	Input voltage is lower than 175 V.	<ul style="list-style-type: none"> • Faulty wiring. • Inverter board faulty; 	Cycle blocked with door locked after 5 attempts.	ON/OFF RESET

ALARM CODE	Description	Possible fault	Action Machine status	Reset
E61	Insufficient heating during the washing phase	<ul style="list-style-type: none"> Faulty wiring. NTC probe for wash cycle faulty. Heating element faulty. Main circuit board faulty. 	The heating phase is skipped	START/RESET
E62	Overheating during washing phase (temperature higher than 88°C for more than 5 min.)	<ul style="list-style-type: none"> Faulty wiring. NTC probe for wash cycle faulty. Heating element faulty. Main circuit board faulty. 	Safety drain cycle. Cycle stops with door open	RESET
E66	Heating element power relay faulty (inconsistency between sensing and relay status)	<ul style="list-style-type: none"> Main circuit board faulty. 	Safety water fill. Cycle stops with door closed.	ON/OFF RESET
E68	Earth leakage	<ul style="list-style-type: none"> Earth leakage between heating element and earth. 	The heating phase is skipped	START/RESET
E69	Heating element interrupted	<ul style="list-style-type: none"> Faulty wiring. Heating element for washing interrupted (thermal fuse open). Main circuit board faulty. 	-----	START ON/OFF RESET
E6A	Heating relay sensing faulty	<ul style="list-style-type: none"> Main circuit board faulty. 	Cycle stops with door locked	RESET
E6H	Heating element power relay faulty (inconsistency between sensing and relay status)	<ul style="list-style-type: none"> Faulty wiring. Earth leakage between heating element and earth. Main circuit board faulty. 	Safety water fill Cycle stops with door closed.	ON/OFF RESET

ALARM CODE	Description	Possible fault	Action Machine status	Reset
E71	NTC probe for wash cycle faulty (short-circuited or open)	<ul style="list-style-type: none"> • Faulty wiring. • NTC probe for wash cycle faulty. • Main circuit board faulty. 	The heating phase is skipped	START/RESET
E74	NTC probe for wash cycle improperly positioned	<ul style="list-style-type: none"> • Faulty wiring. • NTC probe for wash cycle improperly positioned. • NTC probe faulty. • Main circuit board faulty. 	The heating phase is skipped	RESET
E83	Error in reading selector	<ul style="list-style-type: none"> • Main circuit board faulty. • Incorrect configuration data. 	Cycle cancelled	START/RESET
E86	Selector configuration error	<ul style="list-style-type: none"> • Incorrect configuration of display board. 	-----	START ON/OFF RESET

ALARM CODE	Description	Possible fault	Action Machine status	Reset
E91	Communication error between main PCB and display board	<ul style="list-style-type: none"> Faulty wiring. Control/display circuit board faulty. Main circuit board faulty. 	-----	RESET
E92	Communication inconsistency between main PCB and display board. (incompatible versions)	<ul style="list-style-type: none"> Incorrect control/display board. Incorrect PCB (does not correspond to the model) 	Cycle blocked	ON/OFF
E93	Appliance configuration error	<ul style="list-style-type: none"> Main circuit board faulty. Incorrect configuration data. 	Cycle blocked	ON/OFF
E94	Incorrect configuration of washing cycle	<ul style="list-style-type: none"> Main circuit board faulty. Incorrect configuration data. 	Cycle blocked	ON/OFF
E97	Inconsistency between programme selector and cycle configuration	<ul style="list-style-type: none"> Main circuit board faulty. Incorrect configuration data. 	Cycle blocked	RESET
E98	Communication error between main PCB - Inverter	<ul style="list-style-type: none"> Incompatibility between main PCB and Inverter 	Cycle blocked	ON/OFF
E9C	Display board configuration error	<ul style="list-style-type: none"> Display board faulty 	-----	START ON/OFF RESET
E9E	Display board touch sensor faulty	<ul style="list-style-type: none"> Display board faulty 	-----	ON/OFF

ALARM CODE	Description	Possible fault	Action Machine status	Reset
EA1	No drum position signal made.	<ul style="list-style-type: none"> DSP sensor faulty. Transmission belt broken. Main circuit board faulty. Faulty wiring. 	Drum positioning cycle cancelled	START/RESET
EA6	No rotation of the motor at cycle start	<ul style="list-style-type: none"> Faulty wiring. Motor board Main circuit board faulty. 	Cycle paused.	START RESET
EC1	Electronically controlled valve blocked with operating flowmeter	<ul style="list-style-type: none"> Faulty wiring. Solenoid valve faulty/blocked. Circuit board faulty 	Cycle stops with door locked Drain pump continues to operate (5 min. on, then 5 min. off. etc.)	RESET
EF1	Drain filter clogged (drain phase too long)	<ul style="list-style-type: none"> Drain filter clogged/dirty. Drain hose blocked/kinked/too high. 	Warning displayed at the end of cycle.	START/RESET
EF2	Overdosing of detergent (too much foam during drain phases)	<ul style="list-style-type: none"> Excessive detergent dosing. Drain hose kinked/blocked. Drain filter clogged/dirty. 	Warning displayed after 5 attempts or by the specific LED.	RESET
EF3	Aqua control system intervention	<ul style="list-style-type: none"> Water leaks onto base frame. Aqua control device faulty. 	Appliance drain	ON/OFF RESET
EF4	Water fill pressure too low, no signal from flowmeter and electronically controlled valve is open	<ul style="list-style-type: none"> Tap closed. Water fill pressure too low. 	-----	RESET
EF5	Unbalanced load	<ul style="list-style-type: none"> Final spin phases skipped. 	-----	START/RESET
EF6	Reset	<ul style="list-style-type: none"> If it continues, replace the main board 	-----	-----

ALARM CODE	Description	Possible fault	Action Machine status	Reset
EH1	Appliance power supply frequency out of limits	<ul style="list-style-type: none"> Problem with the power supply network (incorrect/disturbed). Main circuit board faulty. 	Wait for nominal frequency conditions	ON/OFF
EH2	Supply voltage too high	<ul style="list-style-type: none"> Problem with the power supply network (incorrect/disturbed). Main circuit board faulty. 	Wait for nominal voltage conditions	ON/OFF
EH3	Supply voltage too low	<ul style="list-style-type: none"> Problem with the power supply network (incorrect/disturbed). Main circuit board faulty. 	Wait for nominal voltage conditions	ON/OFF
EH4	0Watt relay malfunction	<ul style="list-style-type: none"> Main circuit board faulty. 	-----	ON/OFF RESET
EHE	Inconsistency between FCV relay (in the main board) and safety "sensing" circuit	<ul style="list-style-type: none"> Faulty wiring. Main circuit board faulty. 	Safety drain cycle Cycle stops with door open	RESET
EHF	Safety sensing circuit faulty (wrong input voltage to microprocessor)	<ul style="list-style-type: none"> Main circuit board faulty. 	Safety drain cycle Cycle stops with door open	RESET

8 OPERATING TIME COUNTER

Using a specific procedure, the operator can display the total operating time for the appliance, which is counted from the moment it is first switched on.

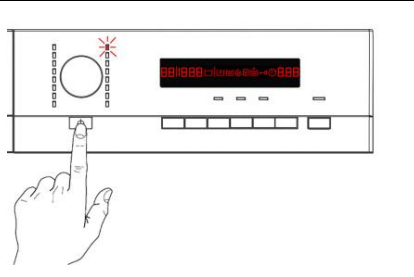
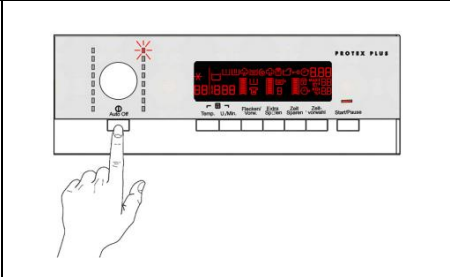
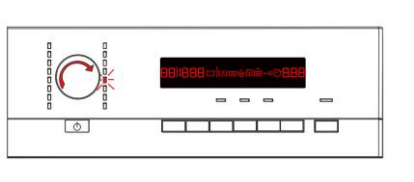
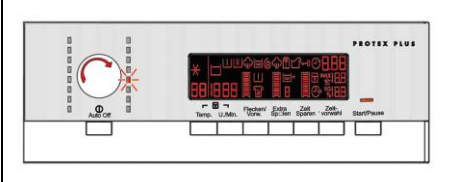
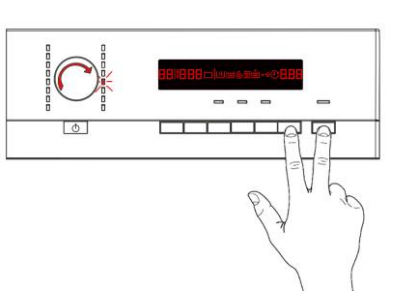
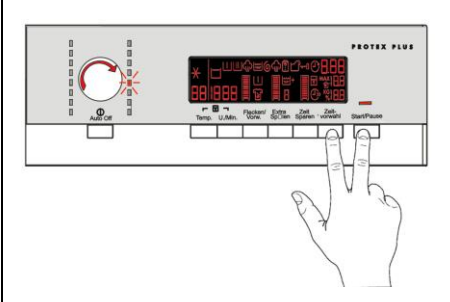
The unit can count up to a maximum of **6,550** hours of operating time.

- Only the operating time of normal programmes (and not diagnostic cycles) is counted
- The actual operating time for the cycle is counted (which does not include pauses, delayed start time, rinse hold time and soaking phases)
- The precision of the counter is 30 seconds per programme.
- Only whole hours of operation are counted (1 hr and 59 min = 1 hr)

8.1 Reading the operating time

Do not start the procedure with the buttons in the combination pressed

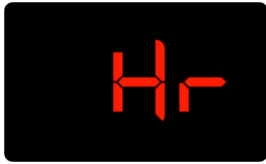


The operations listed below must be carried out within 7 seconds

	Series 7	Series 8
Switch on the appliance using the ON/OFF button		
Turn the selector dial clockwise until the fifth LED in the right-hand row is on		
Press the START/PAUSE button and the nearest option button simultaneously (as shown in the figure). Hold down the buttons until the hours of operation appear on the display (at least 5 seconds).		

8.2 Display of total operating time

This time is displayed with a sequence of two digits at a time: the first two digits indicate thousands and hundreds, the second two digits indicate tens and units.

For example, if the operating time is **6,550** hours, the display will show the following sequence:

Phase 1 →	Phase 2 →	Phase 3 →
For <u>two seconds</u> It displays: Hr	For <u>two seconds</u> , the following digits are displayed: ↙ thousands (6) ↙ hundreds (5)	For the next two seconds the following digits are displayed: ↙ tens (5) ↙ units (0)
		

At the end of phase three (after the tens and units are displayed), the cycle is repeated. To return to normal mode, either: switch the appliance off or press a button or turn the selector knob.

9 OPTIONS

9.1 Compatibility between options

		OPTIONS																
		Rinse hold	Night cycle	Pre-wash/Soak (*)	Stains	Extra-rinse	Easy-iron	Economy (*)	Cupboard Dry	Daily	Super Quick	Sensitive	Reduced spin speed	No spin	Aquasol	Max steam	Medium steam	Minimum steam
Compatibility with OPTIONS	Rinse hold			X	X	X	X	X	X	X	X	X			X	X	X	X
	Night cycle			X	X	X		X	X	X	X				X	X	X	X
	Pre-wash/Soak (*)	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Stains	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
	Super rinse	X	X	X	X		X	X	X	X	X		X	X	X	X	X	X
	Easy-iron	X		X	X	X		X	X	X	X		X	X	X	X	X	X
	Economy	X	X	X	X	X	X				X	X	X	X		X	X	X
	Cupboard Dry	X	X	X	X	X	X						X	X	X	X	X	X
	Daily	X	X	X	X	X	X					X	X	X	X	X	X	X
	Super Quick	X	X	X	X	X	X	X					X	X	X	X	X	X
	Sensitive	X		X	X			X	X	X			X	X	X	X	X	X
	Reduced spin speed			X	X	X	X	X	X	X	X	X			X	X	X	X
	No spin			X	X	X	X	X	X	X	X	X			X	X	X	X
	Aquasol	X	X	X	X	X	X		X	X	X	X	X	X				
	Max steam	X	X	X	X	X	X	X	X	X	X	X	X	X				
Medium steam	X	X	X	X	X	X	X	X	X	X	X	X	X					
Minimum steam	X	X	X	X	X	X	X	X	X	X	X	X	X					
Phases where selection/ modification is possible	Selection	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	
	Pre-wash	X	X			X	X						X	X	X	X	X	
	Wash	X	X			X	X						X	X	X	X	X	
	Rinses	X																
	Spin																	

(*) Pre-wash and Soak exclude each other

Pre-wash + Stains and Soak+Stains are compatible with one another depending on the detergent dispenser used

- The delayed start is compatible with all programmes; the maximum time selectable is 20 hours.
- The selection of the spin cycle is available for all programmes, except for Drain/Soak/Extra Silent.

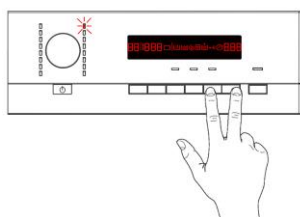
9.2 Description of options

- Rinse hold
 - During the cycle the intermediate rinses and spins are performed.
 - Stops the appliance with water in the tub before the final spin cycle.
 - Once the Rinse Hold has ended, the appliance rotates the drum every two minutes for up to a maximum of 18 hours, after which it stops.
 - To drain the water, simply press the START/PAUSE button to run the drain and spin cycles.
- Pre-wash
 - Adds a pre-wash phase at the start of the cycle with water heating to 30°C (or cold, if selected).
 - In COTTONS and SYNTHETICS cycles, performs a short spin before passing on to the washing phase.
 - This option cannot be selected for WOOL and HAND WASH cycles.
- Prewash
 - Adds a pre-wash phase with heating to 30°C (or cold, if selected) plus 30' hold with HAND WASH movement.
 - Completes the cycle
- Stains
 - Adds a 5-minute motor movement phase after heating to 40°C.
 - Water flow to the pre-wash/stains compartment to introduce the special stain-removal product.
 - This option cannot be selected for WOOL and HAND WASH cycles.
- Super rinse (SERIES 7)
 - Adds **two** rinses to the COTTON cycle, one to the SYNTHETIC FABRICS - DELICATES cycles.
 - Eliminates the spin at the end of washing.
- Super rinse (SERIES 8 key combination).
 - Adds two rinses to the COTTON cycle, one to the SYNTHETIC FABRICS - DELICATES cycles.
 - Eliminates the spin at the end of washing.
- EXTRA rinse (SERIES 8)
 - Adds up to five rinses in the COTTONS - SYNTHETICS - DELICATES cycles.
 - When the rinses are five or more, it eliminates the spins at the end of the washing.
 - Maximum of 8 rinses in total.

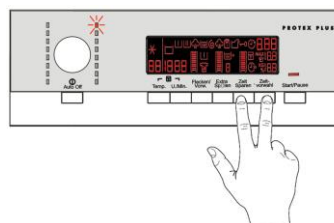
ENABLING/DISABLING SUPER RINSE USING A COMBINATION OF KEYS

Appliances which do not envisage the option SUPER RINSE combined with a button can enable it through a key combination.

Series 7



Series 8



During the selecting phase, press the two buttons shown in the figure simultaneously for a few seconds until the related icon lights up. This option also remains enabled during subsequent cycles. To disable it, repeat the same operation until the related icon is turned off.

- No spin
 - It eliminates all the spin phases.
 - It adds three rinses to the COTTON CYCLE and one to the SYNTHETIC FABRICS cycle.
- Daily
 - Modifies the structure of the COTTONS - SYNTHETICS - DELICATES cycles to obtain good washing performance in a short space of time.

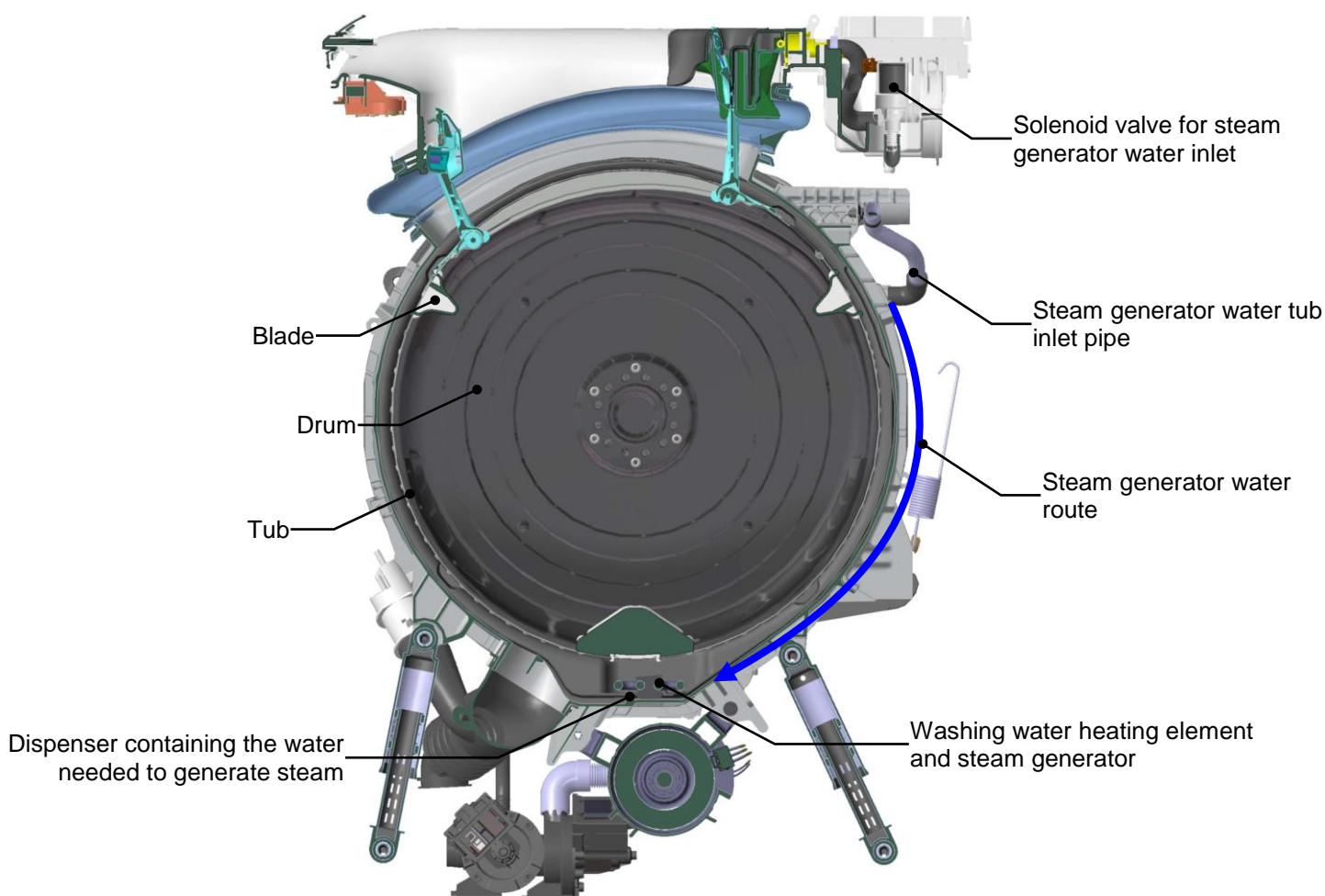
- Super quick
 - Modifies the structure of the wash phase of the COTTONS - SYNTHETICS - DELICATES cycles by half a load.
- Delayed start time
 - Adds a pause before the start of the programme. The delay time is shown on the three digit display
 - See page 12 series 7, page 20 series 8.
 - To start the cycle immediately after the countdown to the delayed start has already begun:
 - Press the Start/Pause button, cancel the delay time by pressing the relevant button, then press Start/Pause again.

9.3 Generating STEAM

In SERIES 8 certain programmes can be configured to generate steam, which is used to refresh the laundry or remove some creases and make ironing easier.

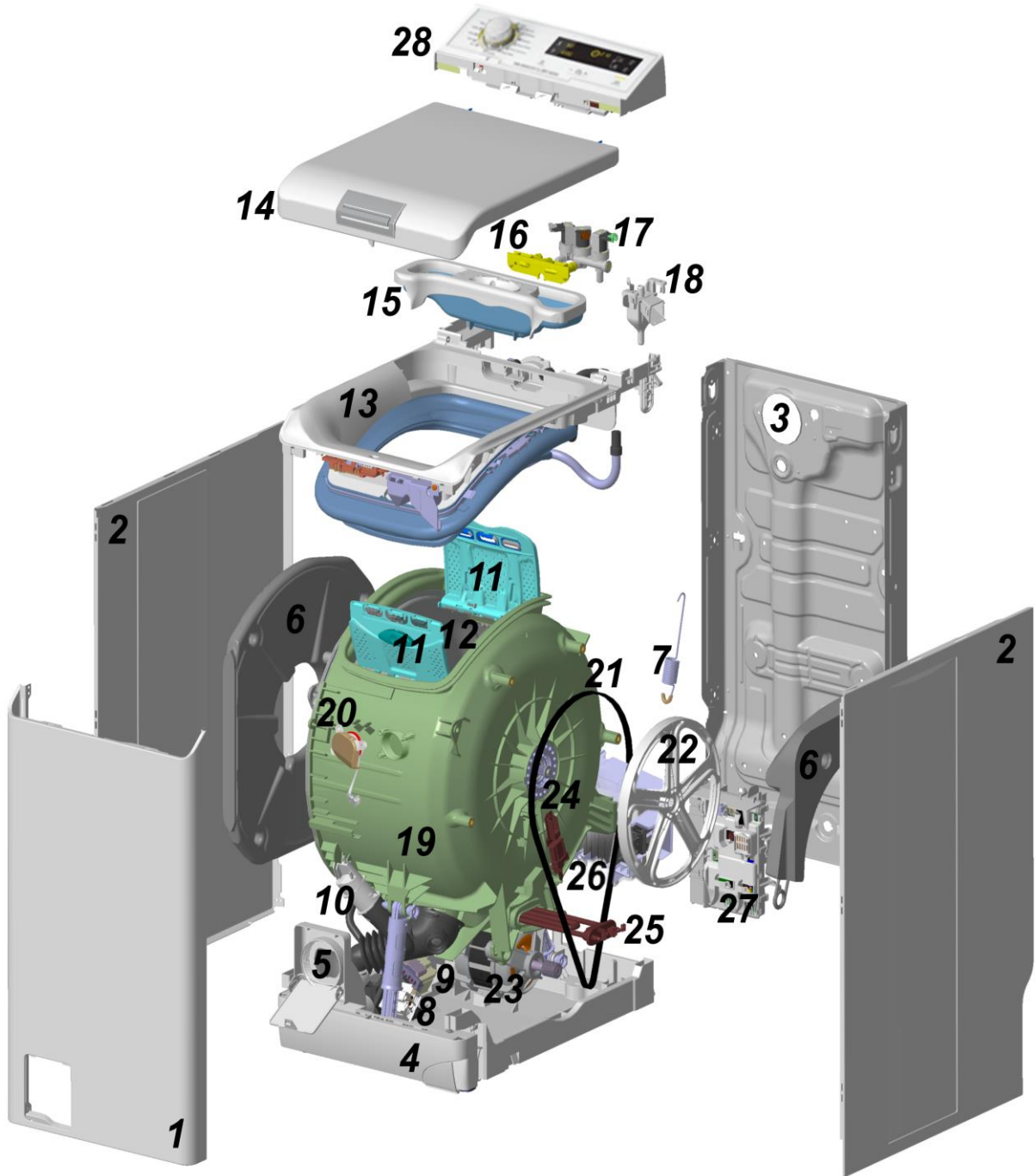
To obtain steam, during these programmes, the quantity of water filled in the tub must be enough to cover the heating element and the maximum temperature to reach is 60°C/75°C.

During the water filling and the movement of the drum, the laundry must not get wet.



10 TECHNICAL CHARACTERISTICS

10.1 Construction characteristics



- 1. Front panel
- 2. Sides
- 3. Back panel
- 4. Base
- 5. Filter
- 6. Right and Left counterweights
- 7. Washing unit suspension springs
- 8. Circulation pump
- 9. Drain pump

- 10. Pressure chamber
- 11. Lids
- 12. Drum
- 13. Inlet
- 14. Upper cover
- 15. Detergent dispenser
- 16. Water dispenser
- 17. Solenoid valves
- 18. Air Break

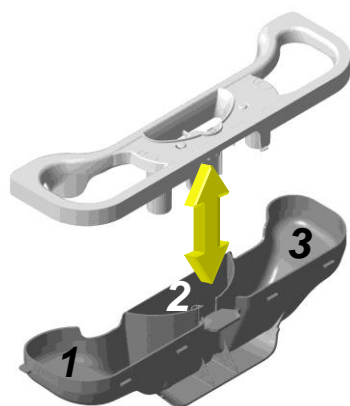
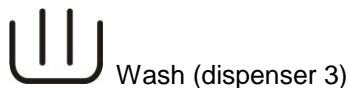
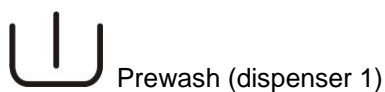
- 19. Washing unit
- 20. Drum light
- 21. Transmission belt
- 22. Pulley
- 23. Drum rotation motor
- 24. DSP
- 25. Heating element
- 26. UIMC motor control board
- 27. Main electronic circuit board
- 28. Control panel

10.2 Detergent dispenser

10.2.1 Detergent dispenser

Before entering the tub, the cold water passes through the detergent dispenser picking up the detergent inside it.

This dispenser is split into 3 compartments marked with the symbols:



1. Detergent dispenser.
2. Fabric softener dispenser.
3. Pre-wash detergent dispenser.

10.2.2 Detergent tray for Powder/Liquid detergents

In some washing machines the detergent tray configured to use both liquid and powder detergent can be used; the tray can be configured to the kind of detergent by moving the lever (1) in the centre of the tray.



Lever position when the appliance leaves the factory and for use with powder detergent.



Move the lever to the right to use liquid detergent.

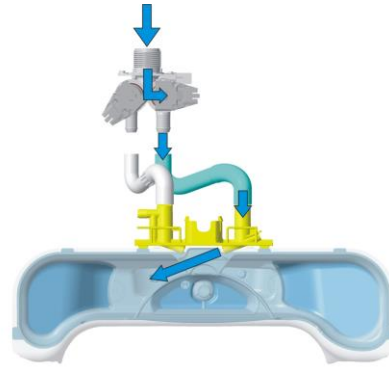


For further details, read the instruction manual.

10.2.3 Working principle of water dispenser.

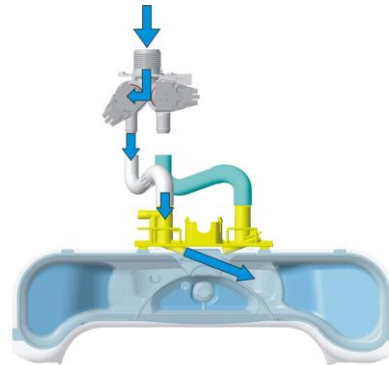
- Pre-wash

During the pre-wash phase the right solenoid valve is activated, the water coming from the load pipe passes through the pressure reducer and then to the water dispenser, which then sends the water into the left dispenser picking up, if there, the detergent needed for the pre-wash.



- Wash

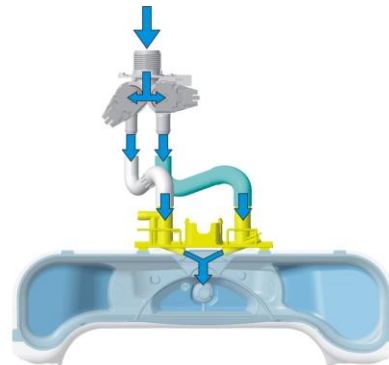
During the washing phase the left solenoid valve is activated, the water coming from the load pipe passes through the pressure reducer and then to the water dispenser, which then sends the water into the right dispenser picking up the detergent needed for washing.



- Fabric softener

In some programmes the fabric softener in the central dispenser is picked up.

In order to do this both solenoid valves are put into action, the water coming simultaneously out of the right and left side of the distributor is directed into the central dispenser containing the fabric softener.



10.3 Washing unit

WASHING UNIT		
Type	Load capacity (cottons)	Drum volume
	max.	
C4	7 kg	42 litres

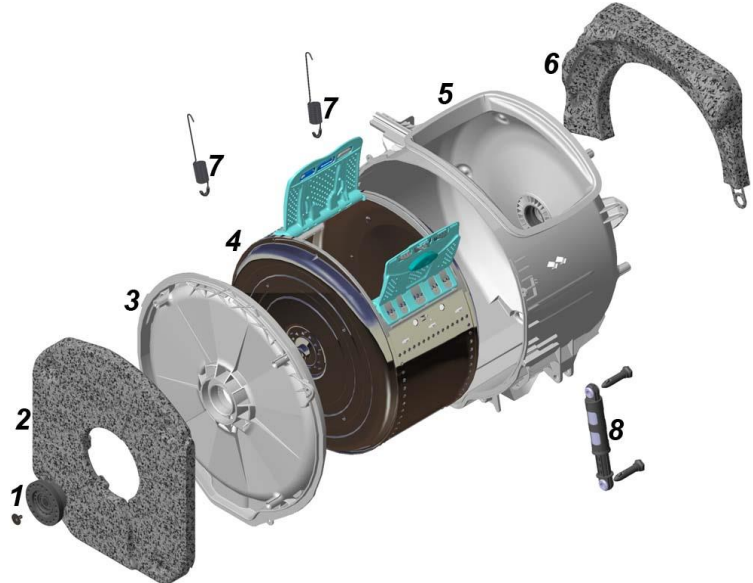
The washing unit is made up of:

A stainless steel drum (4) inserted inside a carboran tub (5) with a welded cover (3).

2 counterweights are positioned to the sides (2 and 6) needed to reduce the swinging caused by the clothes during washing.

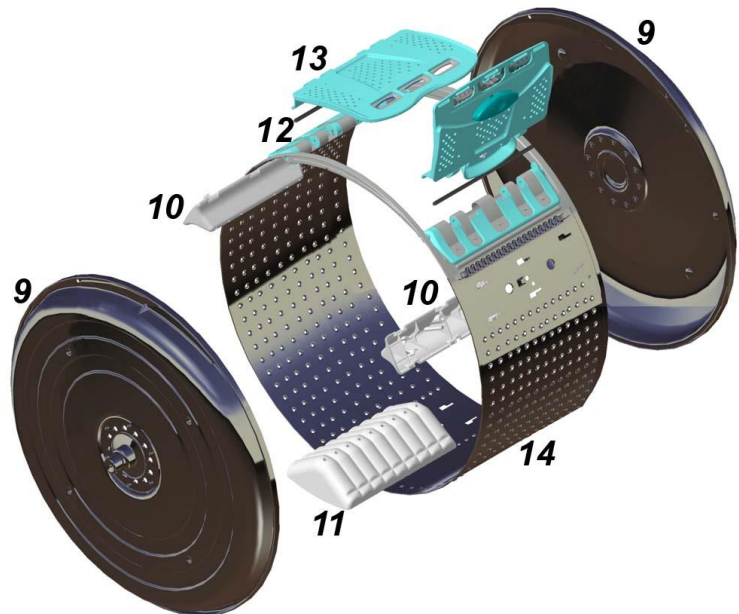
The drum is held in position by 4 bearings fitted to the tub and held by a support (1)

The washing unit is held suspended by two spiral springs (7) fitted to the back panel, the swinging is muffled by two shock absorbers (8) one to the front and one at the back of the tub and fitted to the base frame.



The drum inserted in the washing unit is made up of 2 flanges (9) clamped to a perforated cylinder (14) with an open part (inlet) and in correspondence with the inlet there are 2 tilted lids (13) fitted to this cylinder using 2 pivots (12).

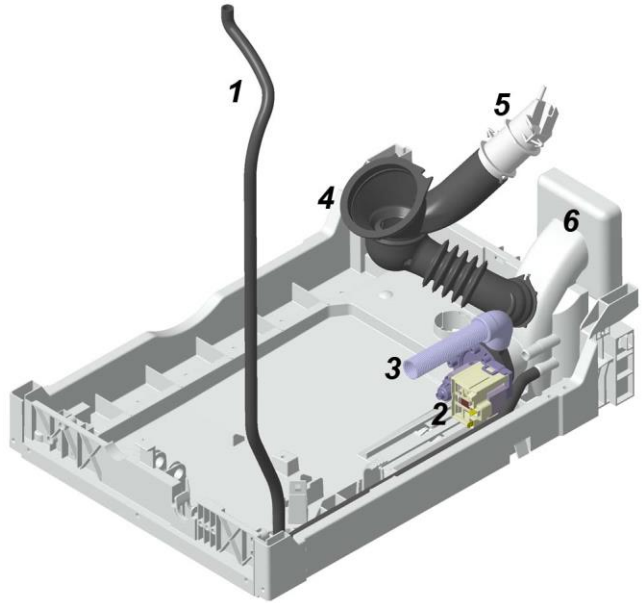
Inside the drum we can find 3 spokes 2 the same (10) and one bigger and heavier (11) positioned at 180° from the inlet, the latter serving to compensate the weight of the 2 lids.



10.4 Water circuit

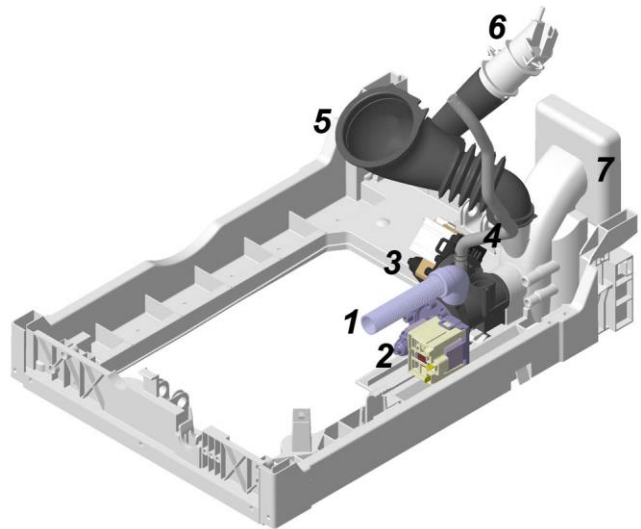
10.4.1 OKO version drain circuit

1. Prefilling pipe
2. Drain pump
3. Drain pipe
4. Filter unit tub pipe containing the sphere
5. Pressure chamber
6. Filter unit amassed in the base frame



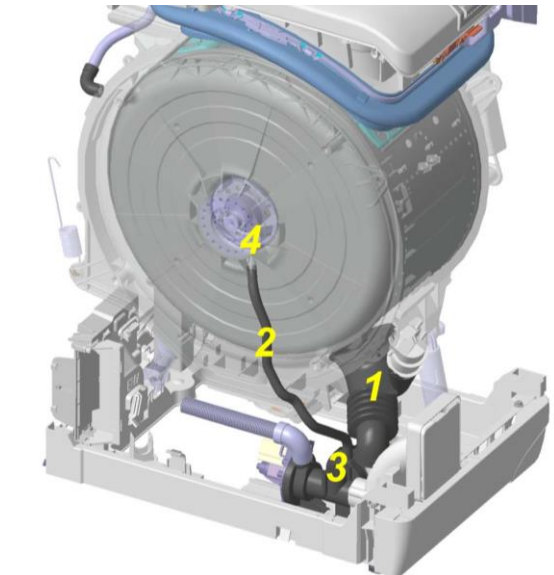
10.4.2 JET version drain circuit

1. Drain pipe
2. Drainage pump
3. Re-circulation pump
4. Jet pipe
5. Filter body tub pipe
6. Pressure chamber
7. Filter unit amassed in the base frame



10.4.3 JET circuit

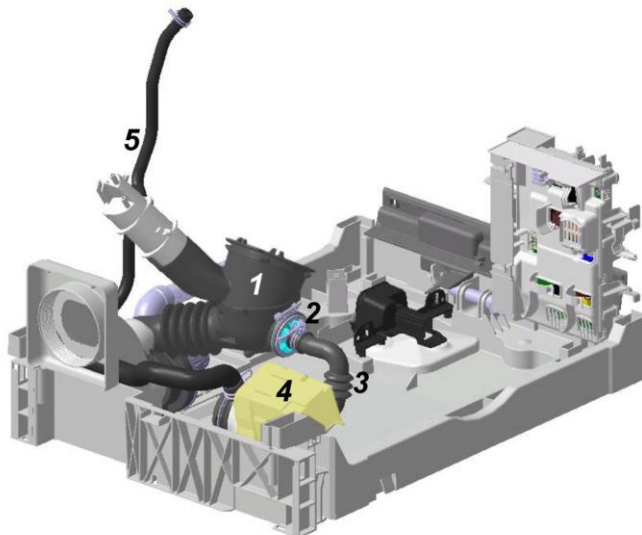
The water that circulates in the drain circuit (1) during washing through the pump (3) is put under pressure and going back up the pipe (2) and the nozzle (4) is once again pumped into the drum creating a continuous recycle of water.



10.4.4 ECO SPRAY Circuit

Complete Eco Spray Circuit

1. Assembly for Tub drain pipe
2. Filter
3. Re-circulation pump filter pipe
4. Re-circulation pump
5. Jet Pipe

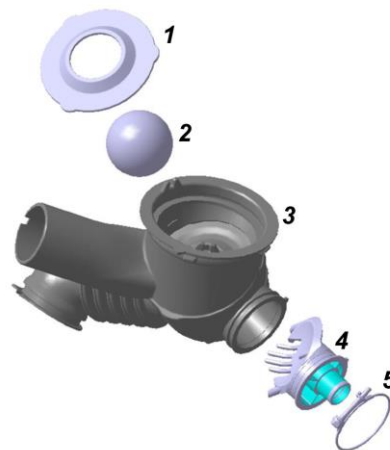


10.4.4.1 Tub drain pipe assembly



The tub drain pipe assembly is made up of:

1. Louver - stops the ball from getting in between the drum and tub.
2. Ball – as a result of the pressure from the drain circuit, it is pushed against the louver in order to separate the washing circuit from the drain circuit.
3. Pipe - Tub drain.
4. Filter - is an unusual shape and has two functions:
 - ↪ When the re-circulation pump is functioning, it acts as a filter and is cleaned automatically during the appliance's draining stage.
 - ↪ Thanks to its unusual shape, it keeps the ball in its exact position, because it does not block the drain pipe hole during drainage and even when the re-circulation pump is not powered.
5. Clamp



Operating principle

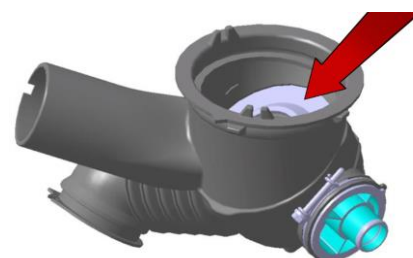
During the washing cycle the detergent is removed from: the prewash/wash/fabric softener trays. Unable to dissolve, a part of this deposits: on the bottom of the tub, above the ball and on the louver (shown by the arrow).

This part of the detergent would no longer be used and would end up in the drain the first time that the drain pipe starts functioning, at the expense of the washing cycle result.

A new hydraulic "Eco Spray" circuit is used to avoid this.

And its function is as follows:

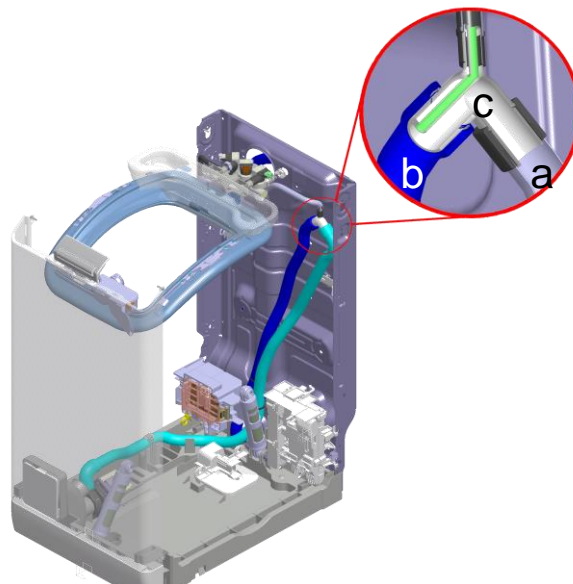
During the washing cycle, the electronic control powers the re-circulation pump at set intervals (4); when this starts functioning, it causes a depression inside the drain pipe resulting in the ball dropping (2); at this point the deposited detergent enters the drain pipe and via the re-circulation pump and the Jet pipe (5) once again enters in circulation inside the drum.



10.4.5 Stiwa new drain circuit (where featured)

The new drain circuit consists of:

- a general drain pipe assembly (a&b)
 - a) Part connected to the drain pump
 - b) Part connected to the domestic drain
- c) Coupling (with a printed arrow on one side indicating the direction in which the water flows and featuring a small green-coloured tube inside).



Operating principle

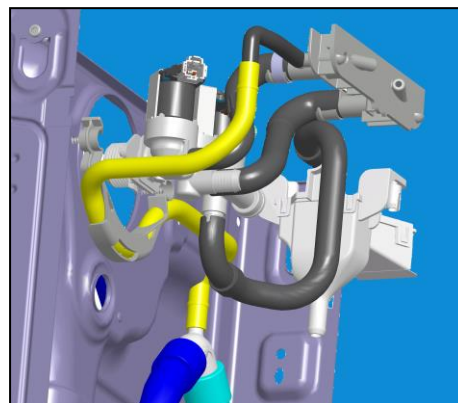
Normally the drain pipe assembly is a single component which is connected on the one side to the drain pump and on the other to the domestic drain, which may be designed specifically for the washing machine or in some instances is attached to the tap and the drain water flows directly into the sink.

The incorrect attachment to the sink could cause the drain pipe to fall onto the floor, with the ensuing emptying of the tub caused by the generation of the siphon effect; to avoid the onset of this effect, the new “Stiwa” drain circuit splits the general drain pipe in half and inserts a coupling, which only has one direction in which the water flows.

Inside, it features a small tube (see figure above in the cross-section, green) in which only air flows, and it is connected via a pipe (yellow/black) to the water dispenser (see figure opposite).

With this new circuit, if the drain pipe falls onto the floor, only the part of water found downstream of the coupling will flow out, because since air enters through the small tube, only the end of the pipe is emptied, thereby avoiding the siphon effect and the ensuing emptying of the tub.

The above only applies when the drain pipe is not powered.



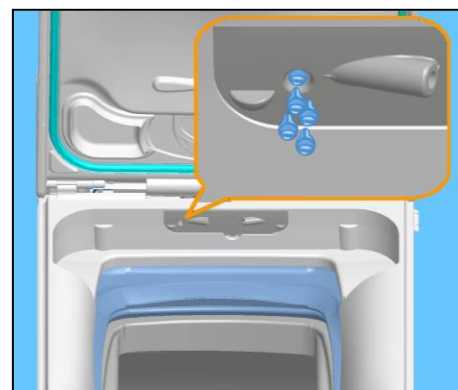
10.4.5.1 Stiwa circuit operating check

To check the operation of this circuit, simply:

- Lift the lid
- Remove the detergent dispenser



Check that the hole to the left of the water jet is wet; if it is dry, then the small tube is doubtless clogged.



10.5 Electronic control

The electronic control is made up of:

1. Control/display circuit board.
2. UIMC Inverter motor control board.
3. Main electronic circuit board.



The control/display PCB contains: the selector used to select the washing programme, the LCD display to show information on the programme, but buttons used to adjust the temperature, the spin speed and optionally to select an option, the Start/PAUSE button and finally the ON/OFF button.

The commands received by the display board (by turning the selector dial, selecting an option, etc...) are sent to the main circuit board, which powers all the electrical components (cold and hot water solenoid valve - where featured, motor control board - Inverter, drain pump, circulation pump - where featured, heating element, door safety interlock, drum light).

- It controls the level of water via the analogue pressure switch.
- It controls the state of the door.
- It controls the speed of the motor.
- It controls the temperature of the wash water via the NTC probe inserted in the heating element.
- It controls the voltage and frequency of the power supply and ensures they are close to the rated ones.
- It controls the position of the drum, via the DSP sensor.
- It controls the flow of water through the solenoid valve via the flowmeter.

It simultaneously controls their functioning to guarantee the correct performance of the washing cycle.

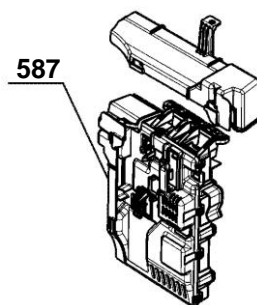
10.5.1 Programming/Updating the main circuit board



- Any programming/updating/diagnostics operation carried out with the board inserted in the machine and the mains plug disconnected from the socket.
- If one of these operations is accidentally carried out when plugged in to the socket, on completing the operation, the appliance will remain turned off when restarting; disconnect the plug from the socket and wait at least 40 minutes before starting up the appliance (any operation will only create further delay).

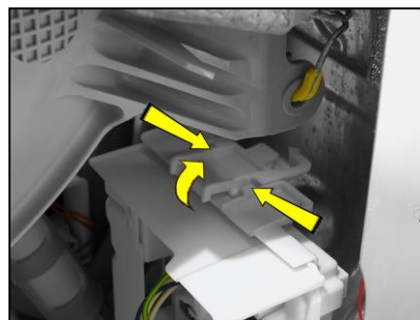
In the Service Notes the main circuit board (587) is identified with two spare parts codes:

- ↵ Code 973,913... identifies the pre-programmed board.
- ↵ Code 132... identifies the unprogrammed board.



The circuit board can be programmed/updated using the **Sidekick** application. For further information, please refer to the instructions provided/illustrated in the course entitled <<**Sidekick Guide**>> at the link (<http://electrolux.edvantage.net>) on the Electrolux Learning Gateway portal.

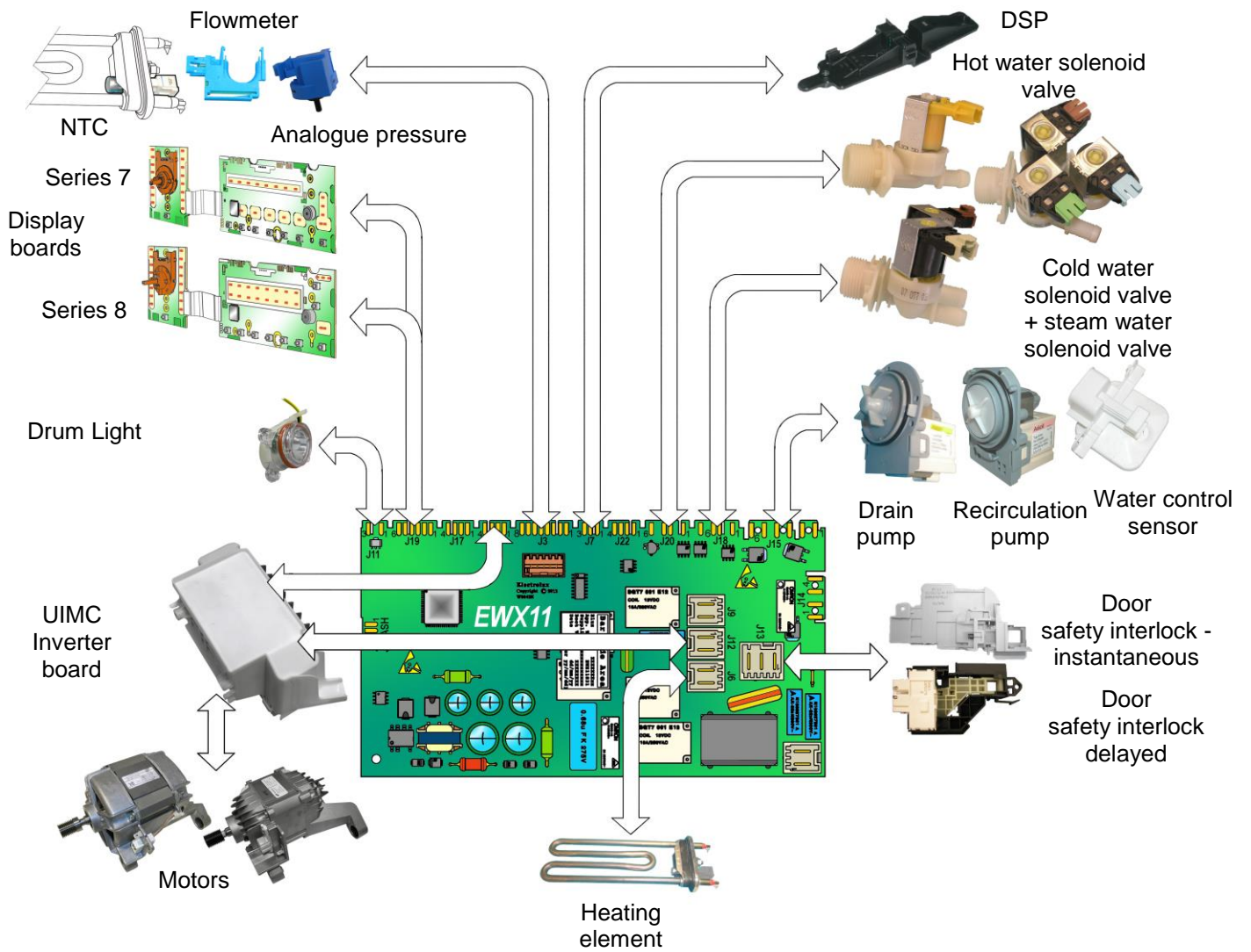
Release the two clips which secure the flap in place and lift it



To update/program the main board, insert the **Sidekick** connector in the position shown by the yellow arrow.



10.5.2 Connecting electric parts



11 ELECTRICAL COMPONENTS

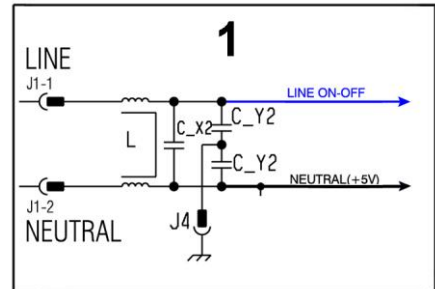


When replacing any of the components, please refer to the code shown in the list of spare parts relating to the appliance being repaired.

11.1 Noise filter

This device is connected to the electricity power line input of the appliance and avoids the emission of radio frequency disturbances in the power network. It is incorporated into the main board.

1. Main electronic circuit board



1. Main electronic circuit board

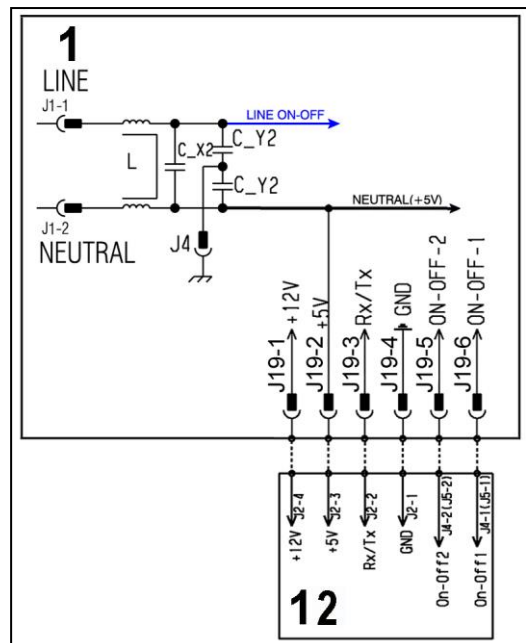
11.2 Display board

The main circuit board (1) supplies the power supply voltage to the control/display board (12).

It is possible to select the programmes by turning the selector. The options can be selected by pressing the buttons and the START/PAUSE button is used to start the machine or pause it.

The buzzer - where featured - is powered by the display board.

1. Main electronic circuit board
12. Display board



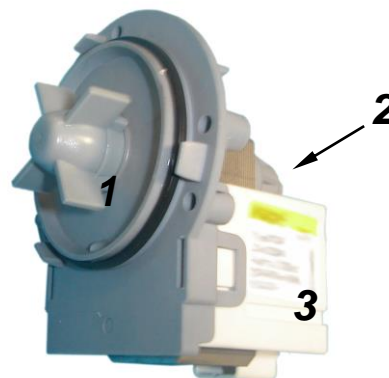
11.3 Drain pump – Aqua control



- **When replacing the pump, please refer to the code shown in the list of spare parts relating to the appliance.**

11.3.1 General characteristics

1. Wheel
2. Rotor
3. Stator



The pump, which drains the water at the end of the various washing cycle phases, is centrifugal and is activated by a synchronous motor.

The rotor consists of a permanent magnet and the direction of rotation can be either clockwise or anticlockwise.

It can turn by approximately a quarter of a revolution without turning the wheel. Consequently, if a foreign body is stuck in the wheel, the rotor can perform small movements clockwise and anticlockwise until the foreign body is released.

The flow rate of these pumps is approximately 18÷20 l/min, and the maximum head is 90 cm above ground level.

Fitted with overload cut-out.



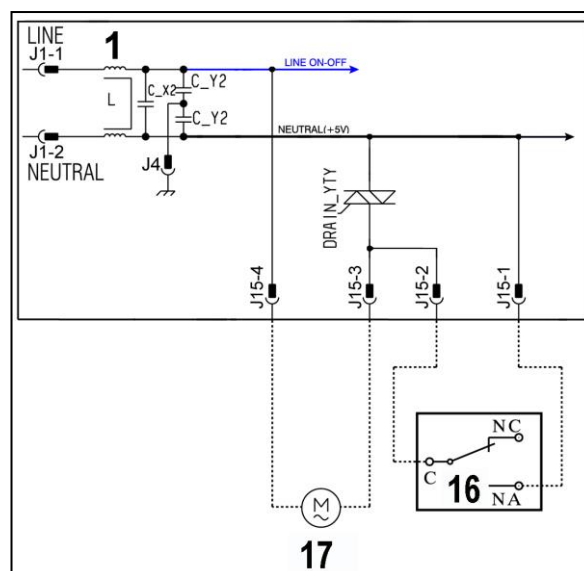
Synchronous pumps, when powered on empty (disconnected from the water circuit), may not start in some cases because their very construction makes them need an antagonist torque on the wheel to allow the rotor to move in one of the two directions.

The pumps should therefore only be tested once fitted to the appliance, after a little water has been filled.

The drain pump is powered by the main circuit board through a triac, as follows:

- ↳ For a pre-determined period (and an alarm might be displayed - see table of alarms).
- ↳ Until the electronic pressure switch closes on empty, after which the pump is actuated for a brief period or passes to the subsequent phase.

1. Main electronic circuit board
16. Aquacontrol sensor
17. Drainage pump



11.4 Aqua control (where featured)

The aqua control is a sensor positioned in contact with the bottom of the machine. It detects any water leakage from inside the washing machine and feeds the drain pump (not only during normal operation but also when the appliance is turned off with the plug inserted into the power socket).

In the bottom of the washing machine there is a plastic bottom that forms a container. This collects any water leakage (from the tub, from the pipes, etc.), which flows into the area in which the float is positioned (made of polystyrene). In the presence of water this lifts up and triggers the microswitch, which powers the drain pump.

When it is triggered, the LCD display shows an ALARM (if the machine is on). See table of alarms.



11.5 Circulation pump (where featured)

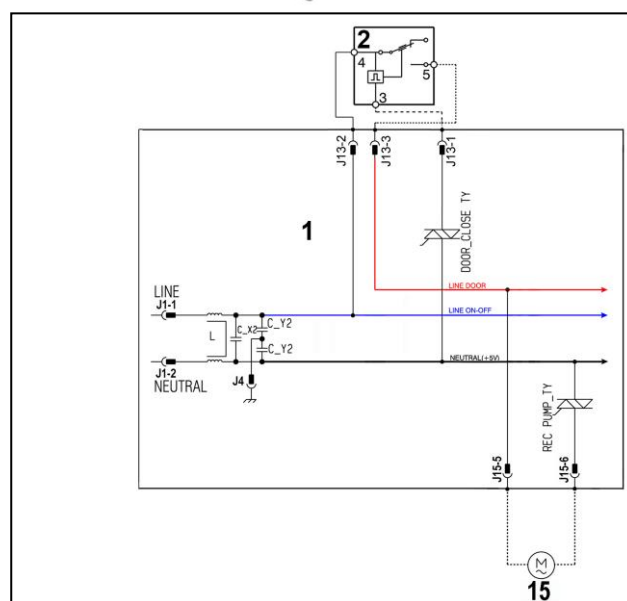
In models with Jetsystem washing, a synchronous circulation pump is fitted, which is designed to circulate water continuously, withdrawing it from the filter body and introducing it into the tub through the bellow seal.

It is powered directly by the main circuit board via a triac and is fitted with a thermal cut-out.

1. Wheel
2. Rotor
3. Stator



1. Main electronic circuit board
2. Door safety interlock - delayed/instantaneous
3. Re-circulation pump



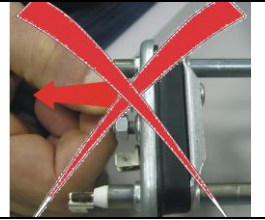
Synchronous pumps, when powered on empty (disconnected from the water circuit), may not start in some cases because their very construction makes them need an antagonist torque on the wheel to allow the rotor to move in one of the two directions.

The pumps should therefore only be tested once fitted to the appliance, after a little water has been filled.

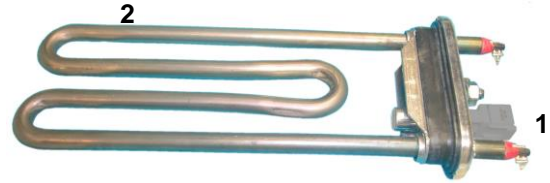
11.6 Heating element



- When replacing the heating element, please refer to the code shown in the list of spare parts relating to the appliance.
- It is strictly forbidden to tamper with the heating element in any way! (e.g. changing the NTC probe, etc...)



1. NTC probe
2. Heating element

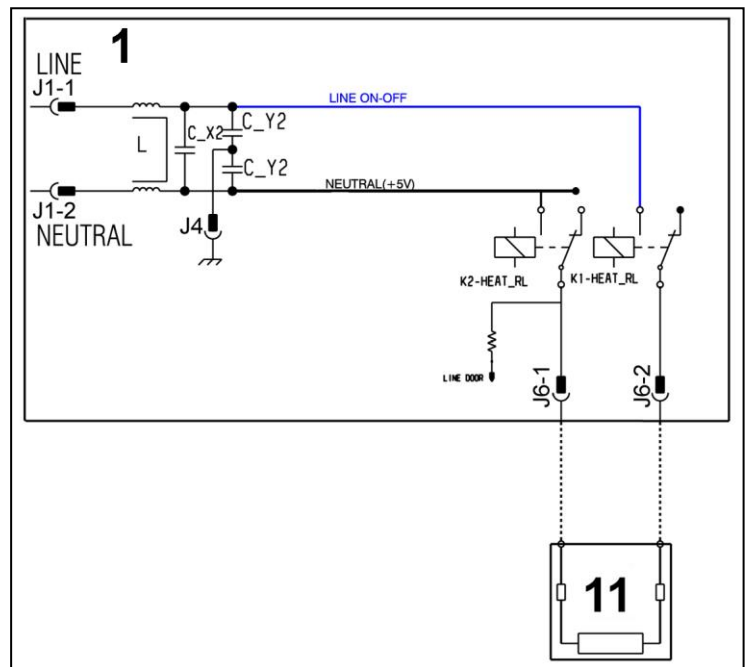


The heating element is hardened, that is, inserted into a stainless steel water proof tubular case.

It is powered by two relays (K1, K2) situated in the circuit board. It is fitted with two thermal fuses which trip if the temperature of the heating element exceeds the values for which they were calibrated.

(In the event of a fault an alarm will be displayed - see table of alarms).

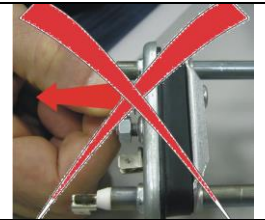
1. Main electronic circuit board
11. Heating element



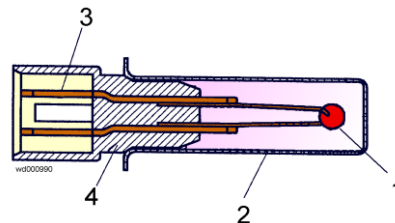
11.7 Temperature probe



- **When replacing the heating element, please refer to the code shown in the list of spare parts relating to the appliance.**
- **It is strictly forbidden to tamper with the heating element in any way!!! (e.g. changing the NTC probe, etc...)**



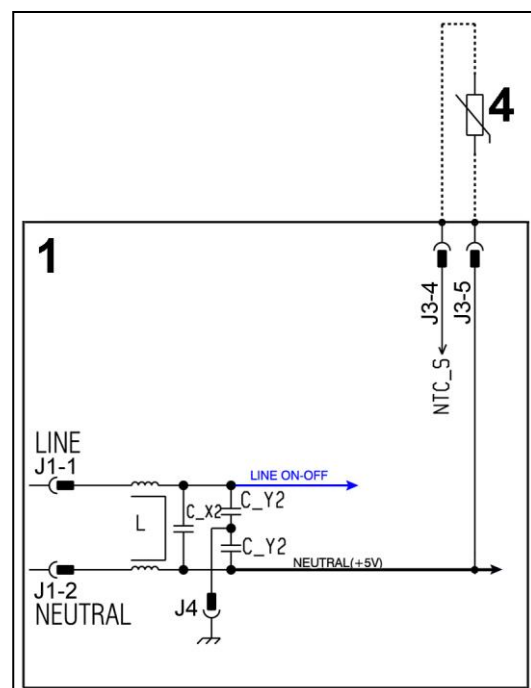
1. NTC heating element
2. Metal capsule
3. Terminals
4. Plastic casing



An NTC type probe is used to control the washing temperature: it is built in such a way that its internal resistance decreases as the temperature rises. This drop in resistance is detected by the electronic control which, when the desired temperature is reached, disconnects the heating element.

The temperature of the water is controlled by the circuit board by means of an NTC temperature probe incorporated in the heating element.

1. Main electronic circuit board
4. NTC probe



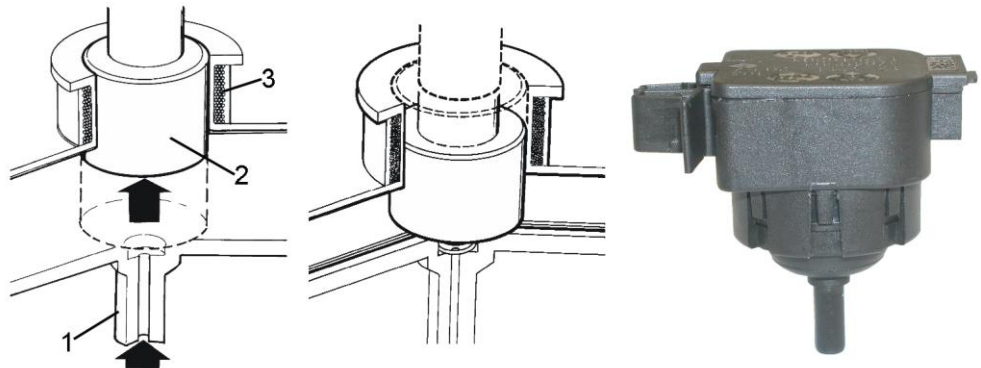
In the event of a fault (short-circuit or stoppage) an alarm will be displayed - see table of alarms.

11.8 Analogue pressure switch

11.8.1 General characteristics

The electronic pressure switch is an analogue device that controls the water level in the tub, used in models with electronic control system, and it is directly connected to the main PCB.

1. Small tube
2. Core
3. Oscillating coil

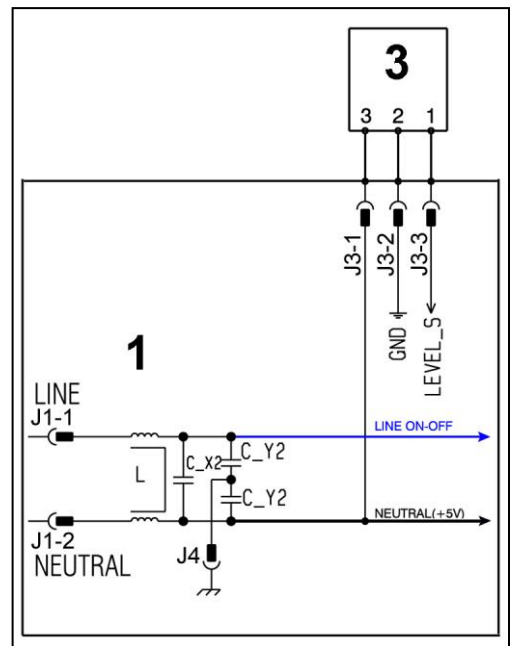


The pressure switch is connected via a small tube to the pressure chamber.

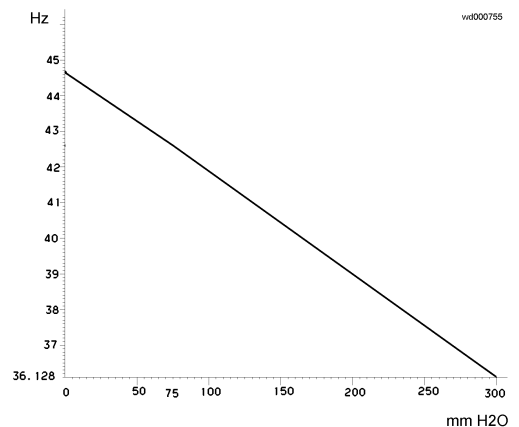
When water is introduced into the tub, this creates a pressure inside the hydraulic circuit that causes the membrane to change position. This in turn modifies the position of the core inside the coil, thus changing the inductance and the frequency of the oscillating circuit.

The PCB recognises how much water has been introduced into the tub according to the frequency.

1. Main electronic circuit board
3. Analogue pressure switch



Operating frequency variation according to the quantity of water in the tub.



In the event of a fault an alarm will be displayed - see table of alarms.

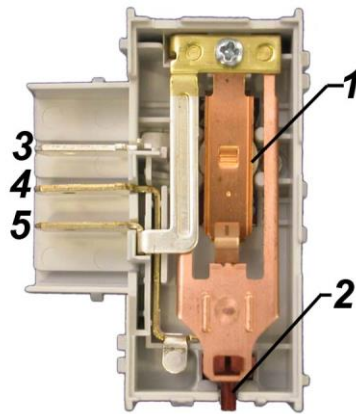
11.9 Door safety interlock

11.9.1 Delayed opening safety device.

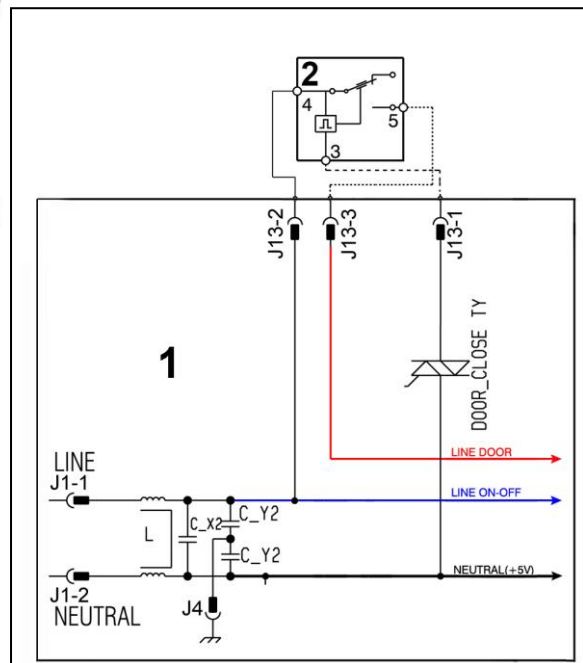
The door delay safety device ensures that while the appliance is working normally, it is impossible to open the door for safety reasons and ensures that at the end of the wash cycle the door can only be opened after a set time.



- 1. Bimetallic PTC
- 2. Lock lever



- 1 Main circuit board
- 2 Delayed door safety interlock

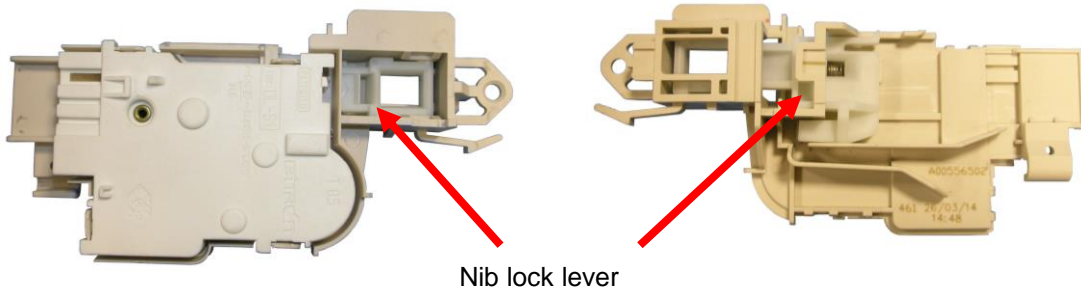


After pressing the START/PAUSE key a pre-established current passes through the bimetallic PTC (1) which becoming misshapen causes the lock lever (2) to move, stopping the nib lock runner from moving.

At the end of the programme when the power supply to the bimetallic PTC (1) is disconnected a certain amount of time is needed to allow it, previously misshapen, to return to its initial rest position thus unlocking the nib lock runner.

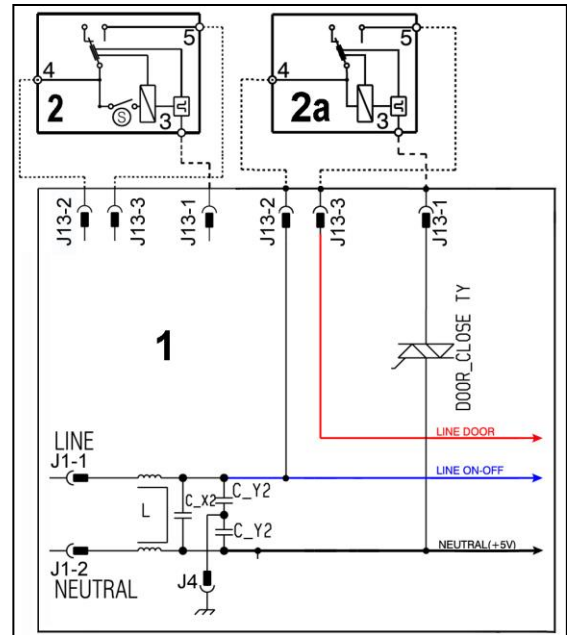
11.9.2 Instantaneous door safety interlock.

The instantaneous door interlock allows the lid to be opened as soon as the drum stops, if the conditions described further are met.



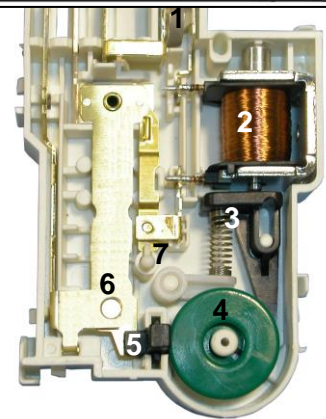
Nib lock lever

- 1 Main electronic circuit board
- 2 Door safety interlock (with Door sensing switch)
- 2a. Door safety interlock (without Door sensing switch)



11.9.2.1 Operating principle

1. Solenoid protection PTC
2. Solenoid
3. Lifting assembly
4. Cam (Labyrinth)
5. Locking pin
6. Electrical contacts (main switch)
7. Door sensing switch



- When the programme starts (start/pause button) the main circuit board sends a voltage pulse, lasting 20msec., to the valve (2) (at least 6 seconds should have passed since turning it on), which moves the cam (4) to a locking position; the blocking pin (5) is pushed locking the fastening latch lever, and simultaneously the main switch contacts are shut (6).
- When the programme ends or the Start/Pause button is pressed, the circuit board sends two additional 20 msec pulses (200 msec apart):
 - the first pulse moves the cam (4) by another position, without releasing the pin (5).
 - the second pulse (which is only sent if everything is in working order) moves the cam (4) to another position, which causes the pin (5) to return to its position and therefore release the interlock; the contacts of the main switch are simultaneously opened.

– Solenoid protection

A PTC is connected in series to the solenoid to limit the current (and therefore any overheating) in the following cases:

- main circuit board triac short circuit
- many consecutive pressings of the start/pause button (more than 5 times)

Lid open conditions

Before pulses are sent to release the lid, the PCB checks for the following conditions:

- the drum must be stationary.
- the temperature of the water must not be higher than 40° C.
- Manual release device

Previous instantaneous door safety interlocks released the lid automatically, in the following cases:

- Power failure
- The appliance being turned off at the ON/OFF button (before the wash cycle ended)

Whereas, in case of malfunction:

- of the solenoid valve
- of the main board

to release the lid, it was necessary to turn the appliance off at the ON/OFF key.

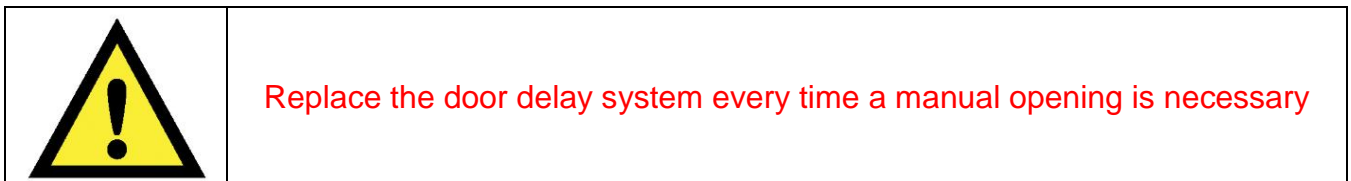
Because inside they had a PTC bi-metal which allowed the lid to be opened after cooling, between 55 seconds and 4 minutes.

The new device (since it does not have a PTC) in the case of the above malfunctions is fitted with a manual opening system, which allows the lid to be opened following the instructions below:

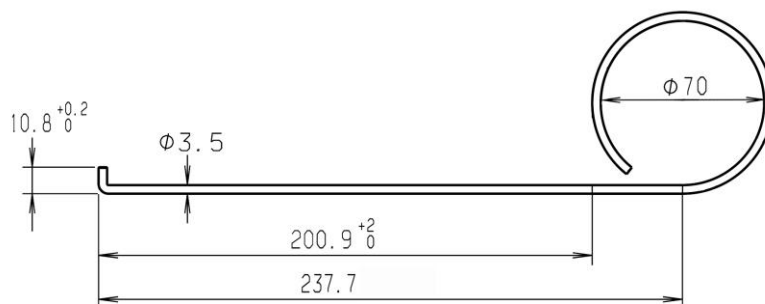
Before activating the manual opening of the lid:

- ✓ Unplug the appliance from the socket.
- ✓ Check that the drum is stationary.
- ✓ Activate the manual opening system (see next paragraph).

11.9.2.2 Manual opening



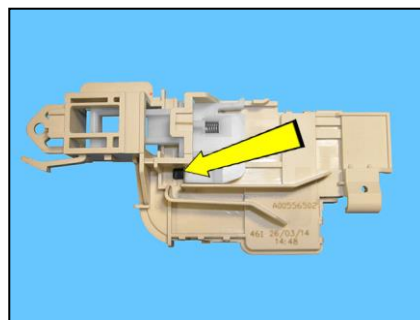
To perform the manual opening, you need to build yourself an iron/steel tool. See the diagram below for the correct shape and size (the dimensions are expressed in mm).



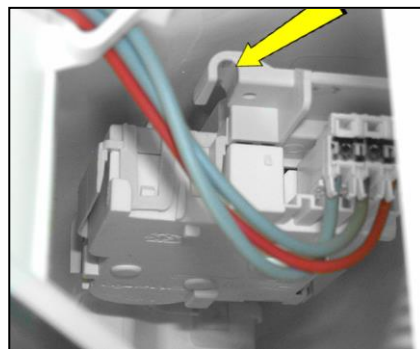
Proceed as follows:

Remove the left side panel (seen from the front)

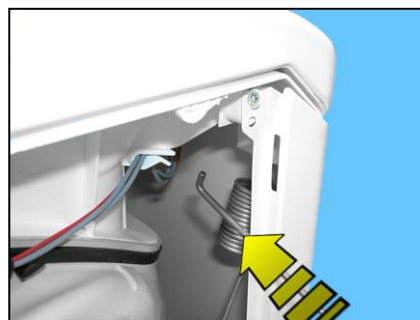
Instantaneous door safety interlock, the arrow indicates the position of the blocking pin that prevents the opening of the lid in the cases described above



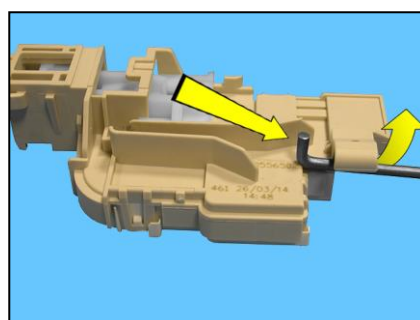
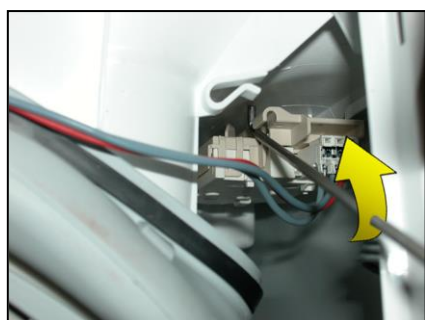
Seat in which the tool is to be introduced



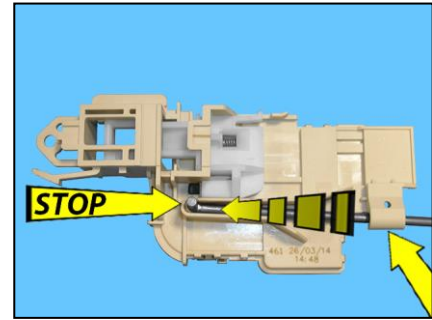
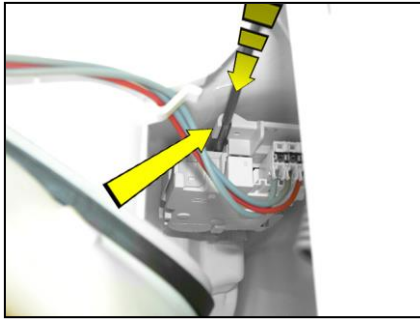
Introduce the tool



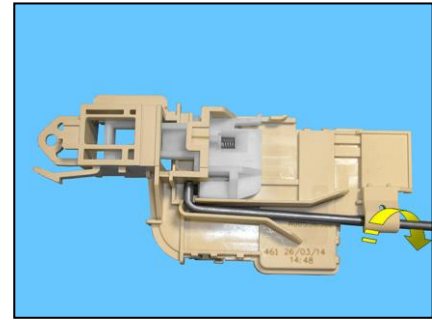
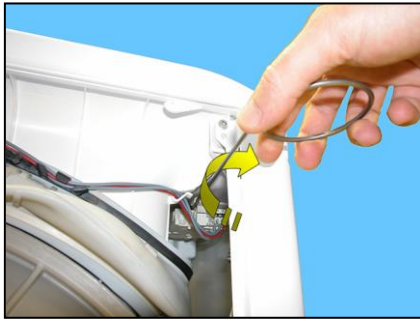
Below are illustrations of the various phases to release the door safety interlock and how to use the tool. On the left, the photos depict the steps to take inside the appliance; for some of these, they cannot be checked visually, so the photos on the right depict the same steps carried out on the component.



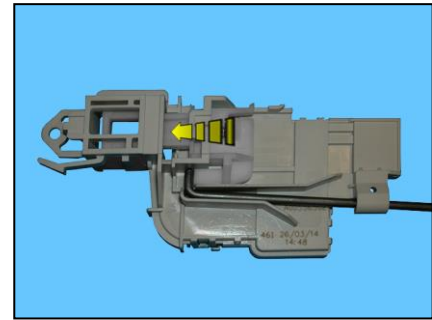
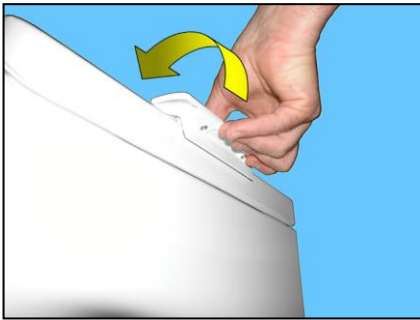
Introduce the tool and raise it as indicated by the arrow (in the photo).



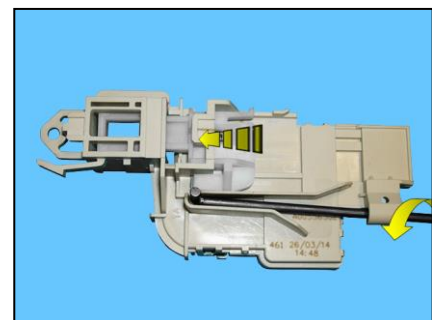
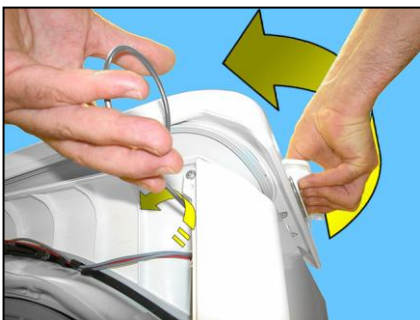
So that it is inserted into its seat, push it forward until it locks in place (STOP)



Turn it 90° clockwise in order to push the blocking pin towards the inside of the door micro-switch



While turning it, raise the lid handle and keep it in this position (as can be seen in the photo on the right, the fastening latch lever moves)



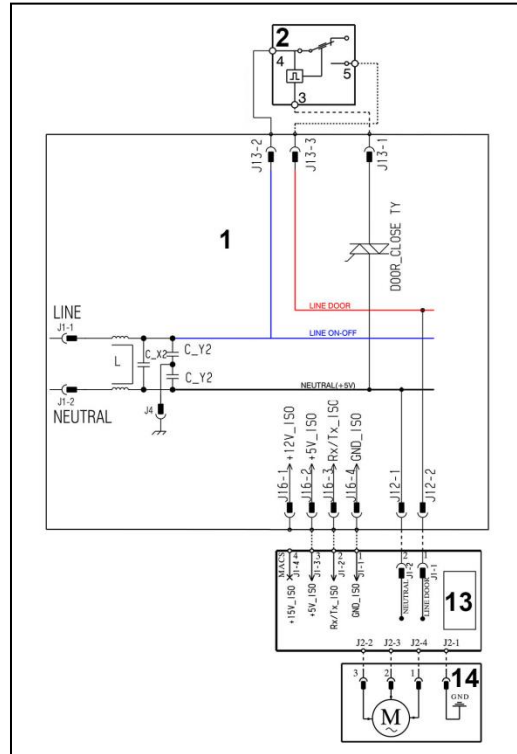
Turn the tool 90° anti-clockwise and at this stage the fastening latch lever should be free and allow the lid to open.

If the lid closes accidentally, you will need to repeat the above steps.

11.10 Three-phase asynchronous motor - Inverter

11.10.1 General characteristics

1. Main electronic circuit board
2. Door safety interlock - delayed/instantaneous
13. Inverter
14. Motor



11.10.2 Power supply to motor

Three-phase power is fed by the inverter (13), which sends through connectors J2-2 /J2-3/J2-4 the three phases to connectors 1-2-3 on the motor, where the windings are connected.

The phase shift between the phases is 120° and peak amplitude is 310 V.

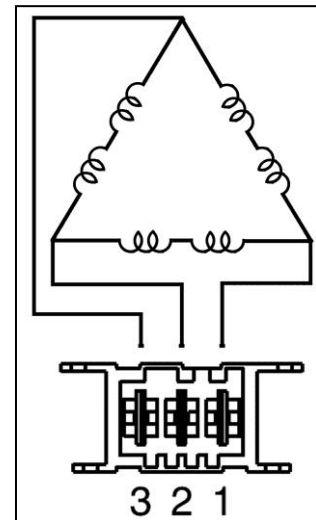
It is possible to get an idea of the efficiency of the motor by measuring the resistance of the coils:

Coil ohm $5.35 \sim \pm 7\%$ (contacts 2-3)

Coil ohm $5.35 \sim \pm 7\%$ (contacts 1-2)

Coil ohm $5.35 \sim \pm 7\%$ (contacts 1-3)

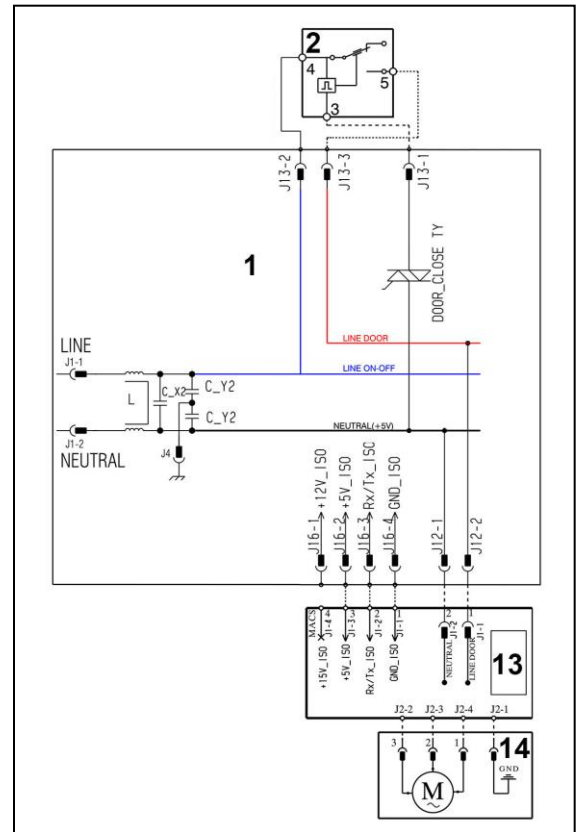
In the event of a fault an alarm will be displayed - see table of alarms.



11.11 Triple-phase synchronous motor with permanent magnets

11.11.1 General characteristics

1. Main electronic circuit board
2. Delayed door safety interlock- delayed/instantaneous
13. Inverter
14. Motor

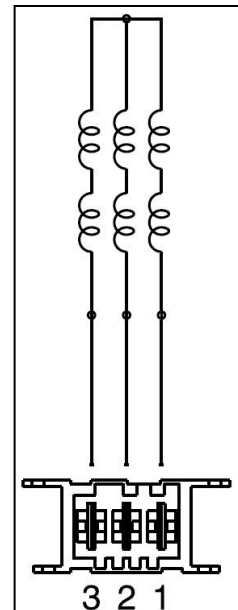


11.11.2 Power supply to motor

Three-phase power is fed by the inverter (13), which sends through connectors J2-2 /J2-3/J2-4 the three phases to connectors 1-2-3 on the motor, where the windings are connected. The phase shift between the phases is 120° and peak amplitude is 310 V. It is possible to get an idea of the efficiency of the motor by measuring the resistance of the coils:

- Coil ohm 4.94 ~ $\pm 7\%$ (contacts 2-3)
- Coil ohm 4.94 ~ $\pm 7\%$ (contacts 1-2)
- Coil ohm 4.94 ~ $\pm 7\%$ (contacts 1-3)

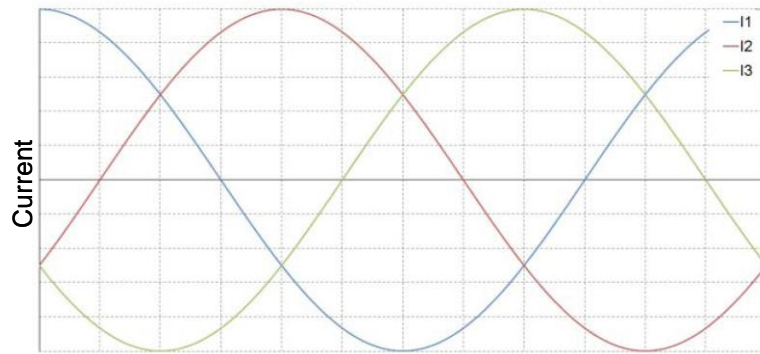
In the event of a fault an alarm will be displayed - see table of alarms.



11.11.3 Operating principle

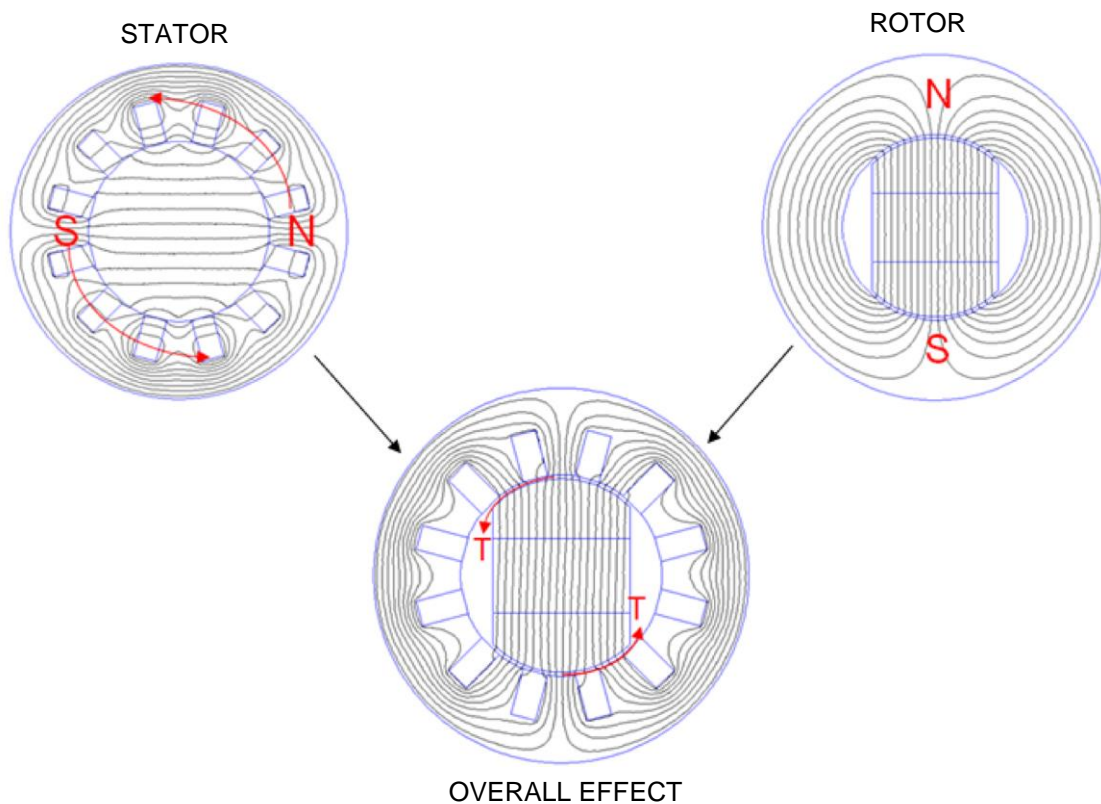
The alternating current permanent magnets motor is a synchronous electric motor: the speed of rotation when stationary only depends on the frequency of power supply and it is independent of the load (torque at the axis). Like all electric motors, the permanent magnets motor consists of a stator and a rotor: both these components contribute to the production of torque by interaction between the respective magnetic fields.

The magnetic field of the stator is produced, as in asynchronous motors, by the current that passes through the windings; if this current is three-phase alternating current, the magnetic field of the stator has a fixed intensity and variable direction (rotating): hence a rotating magnetic field is produced. The speed of rotation of the rotating magnetic field is proportional to the frequency and inversely proportional to the number of poles.



Laundry

The magnetic field of the rotor is generated by the permanent magnets which are positioned in the rotor. When current passes through the stator windings, these generate a magnetic field that tends to attract the magnets (the north poles of the stator attract the south poles of the rotor, and the south poles attract the north poles); since the magnetic field of the stator is rotating, the rotor (which is magnetised) tends to follow it, thereby causing the rotation of the rotor itself.



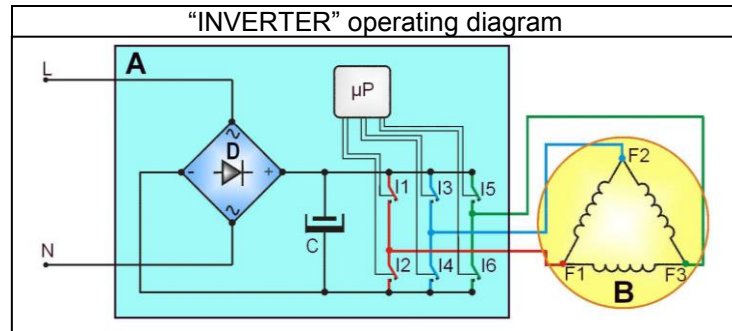
11.12 Inverter (UIMC)

11.12.1 General characteristics

The EWX11831 electronics use a new synchronous motor, with permanent magnets, three-phase power supply, with high performance and low noise levels.

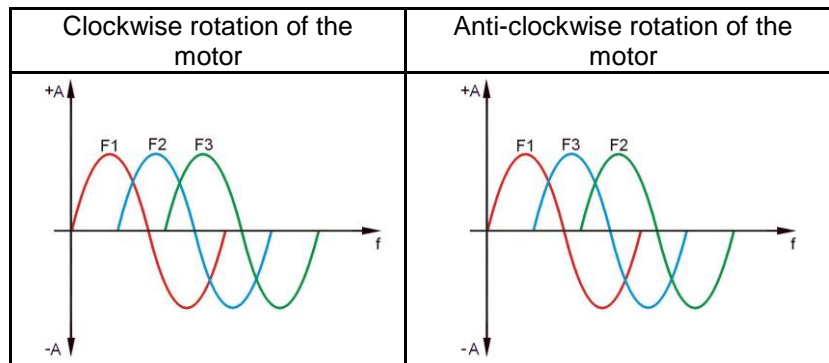


L = Phase
 N = Neutral
 T IT = UIMC "INVERTER" board
 B = Motor
 C = Condenser
 D = Diodes
 I1÷6 = Switches
 F1÷3 = Motor connectors
 μP = Micro Processor



To transform the single-phase electricity (available in our homes) into three-phase electricity, a new circuit board is used (A) to transform the energy from single-phase to three-phase, which can be modulated in breadth and frequency respectively to adjust the power and number of revolutions of the motor.

Single-phase electricity (applied to connectors L-N), is rectified by the diode jumper (D), so there is a direct voltage of 310 V at the ends of condenser C, which through the combination of the opening and closing of switches I1÷I6 (piloted by the μprocessor) determines the piloting voltage and frequency of the motor.



The motors powered by this inverter do not have tachometric winding.

The inverter can detect/adjust the motor speed via the current absorption.

During the spin phases, the microprocessor can perform, depending on the software configuration, the anti-foam check, where featured, and the anti-unbalancing check.



- **Any work on electrical appliances must only be carried out by qualified personnel.**
- **Unplug the appliance before accessing internal components.**
- **After disconnecting the plug from the socket, wait about 2 minutes before removing the "INVERTER" plastic cover, thus allowing any condensers to discharge and avoid an electric shock.**

In the event of a fault an alarm will be displayed - see table of alarms.

11.12.2 AGS

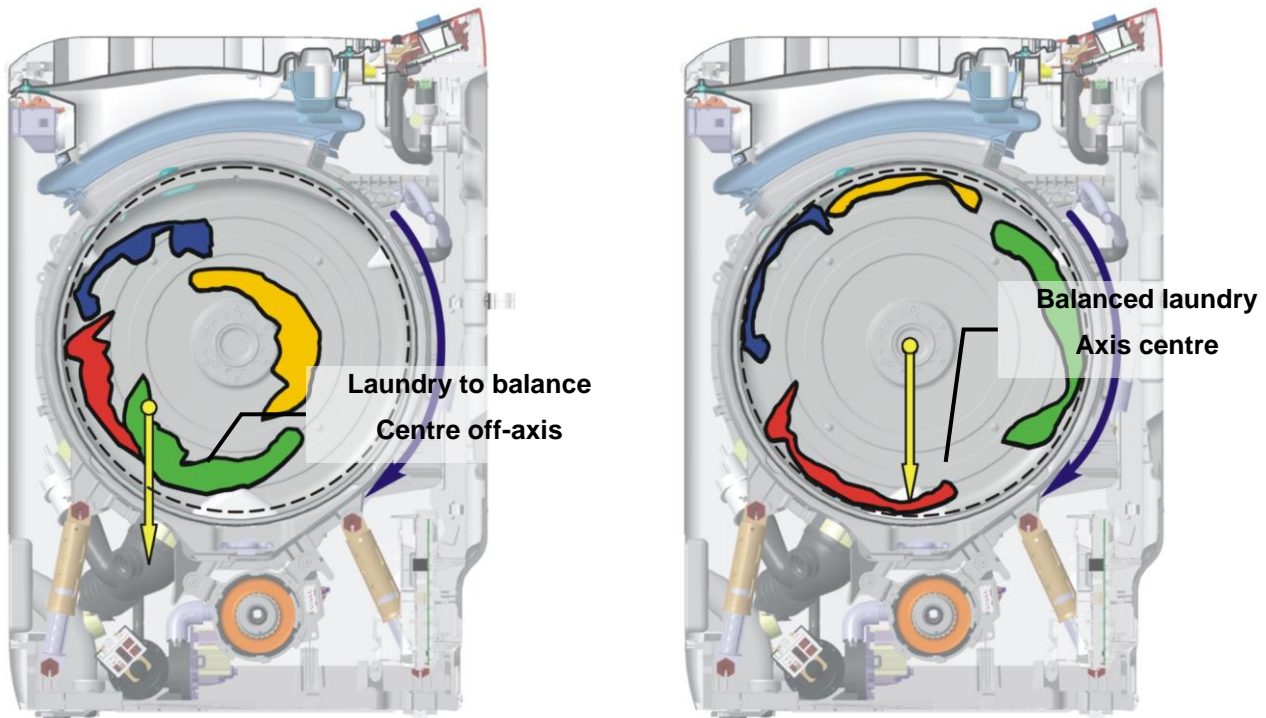
AGS is the abbreviation for the Italian words “**A**lgoritmo di **G**estione dello **S**bilanciamento” (Algorithm of Unbalance management).

It is a complete procedure for the balanced distribution of the laundry in the drum, limiting the residual unbalance and guaranteeing an effective spin phase avoiding vibrations and excess noise.

The residual unbalance is estimated through repeated measurements made on the motor during the balancing phase: fluctuations in these measurements are higher if there is an unbalance and smaller if the laundry is well distributed.

Low speed: Laundry arrangement

High speed: Spin phase



The AGS control is carried out before each spin.

Its aims are as follows:

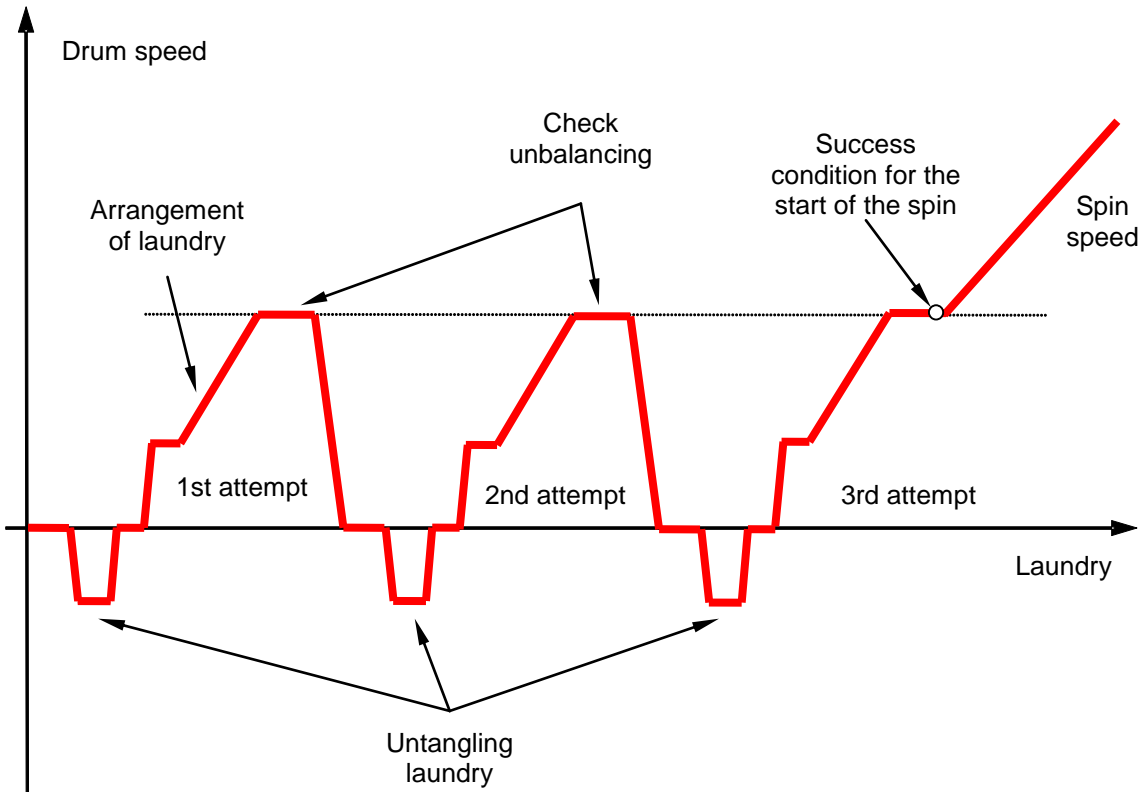
- To estimate the quantity of laundry.
- To measure the laundry unbalance.
- To control the distribution of the laundry load so that the level of unbalance is below a specific threshold.
- To reduce the wash unit swings to avoid knocks against the cabinet.

When the above conditions have been verified (low unbalance, reduced swings and sufficient drum speed for the laundry to remain still inside the drum), the spin cycle can begin.

AGS has a certain number of attempts (of a limited duration in time) to manage to distribute the laundry load correctly: if an attempt fails, a brief untangling phase takes place before the next attempt is made.

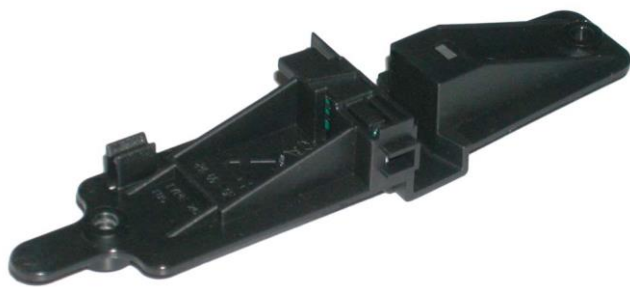
If the laundry is proving difficult to balance, several attempts may be made and a spin cycle will nonetheless be carried out with the laundry while accepting a higher unbalance (while remaining beneath the allowed threshold) and reducing the top drum speed.

The graph below illustrates a typical drum speed trend during preparation for the spin cycle: you can see there are some untangling phases in between the three attempts (example) used by AGS to manage to distribute the laundry load in a balanced way.



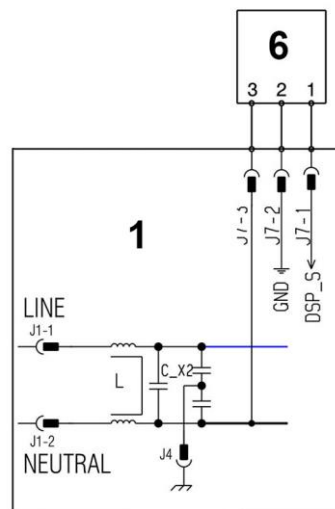
11.13 D.S.P. drum positioning device (Drum - Self- Position)

The D.S.P. or Drum Self Position is an electronic device for putting the drum in the right position so that once the wash cycle is finishes the 2 load lids are in the upper part of the washing machine so that the person operating it does not have to rotate the drum manually.



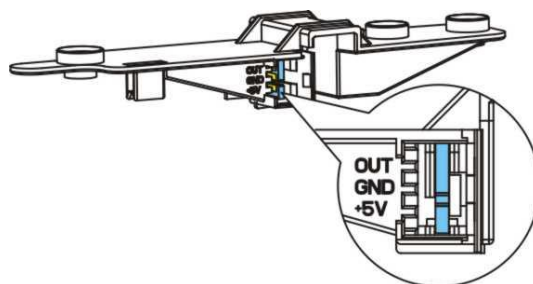
- R1 1 KΩ 5%
- C1 4.7 μF 50 V 10%

1. Main electronic circuit board.
6. Internal circuit D.S.P.

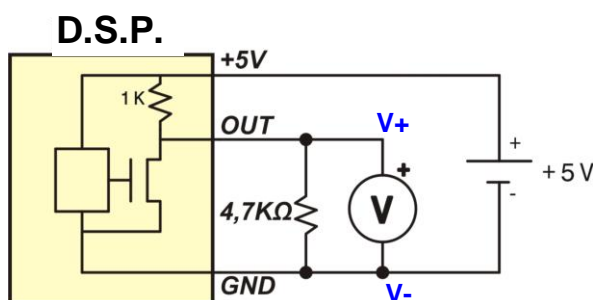


11.13.1 D.S.P. operating control

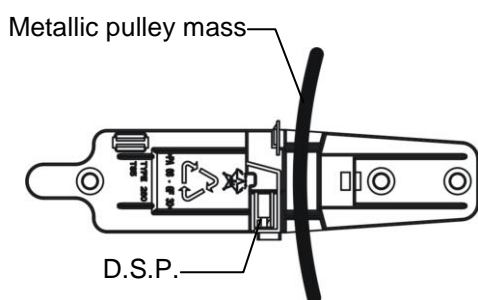
- Power the D.S.P. circuit between the points +5 V and Mass (GND) with a voltage of 5 V.
- Position a 4.7 KΩ element between the OUT points and the mass (GND).
- Use the voltmeter to measure the voltage in the element ends (V+ V- points)



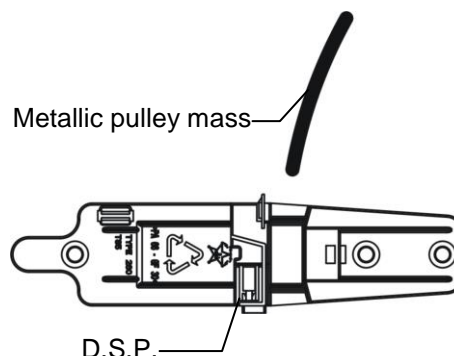
Test circuit



D.S.P. sensor with metallic mass inserted.
Voltage measured at the V+ V- < 1.5 V ends



D.S.P. sensor with no metallic mass inserted.
Voltage measured at the V+ V- > 3.8 V ends



11.14 Solenoid valves

SOLENOID VALVE
HOT WATER

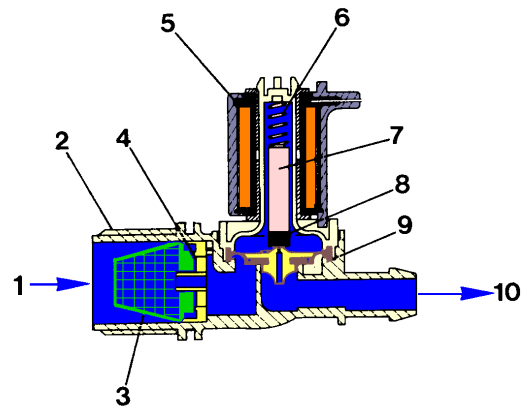
SOLENOID VALVE
TWO WAYS

SOLENOID VALVE
THREE WAYS



This component introduces water into the detergent dispenser and is controlled electrically by the main circuit board via Triac. The level of water in the tub is controlled by the analogue pressure switch.

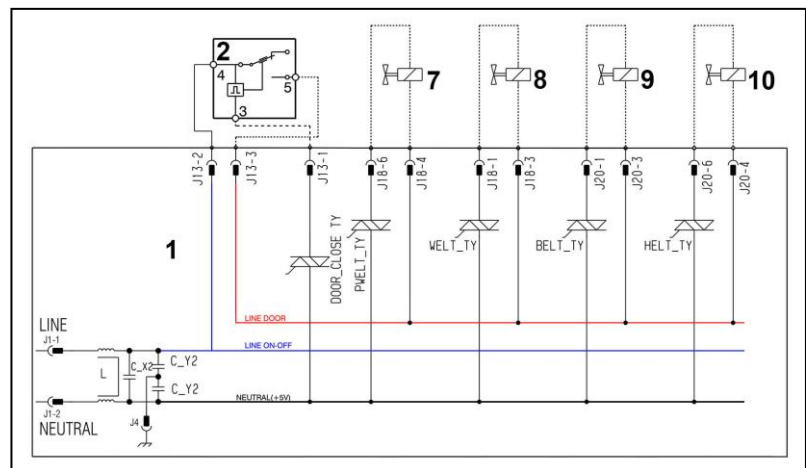
1. Water inlet
2. Solenoid valve body
3. Filter
4. Flow reducer
5. Coil
6. Spring
7. Moving core
8. Rubber
9. Membrane
10. Water outlet



11.14.1 Operating principle

When idle, the core, pushed by a spring, keeps the central hole of the membrane closed and so the latter hermetically seals access to the water inlet duct.

When the coil is powered, the core is attracted, releasing the central hole of the membrane. Consequently the valve opens.



1. Main electronic circuit board
2. Door safety interlock - delayed/instantaneous
7. Pre-wash solenoid valve
8. Wash solenoid valve
9. Steam solenoid valve
10. Hot water solenoid valve

11.14.2 Problems relating to the solenoid valves

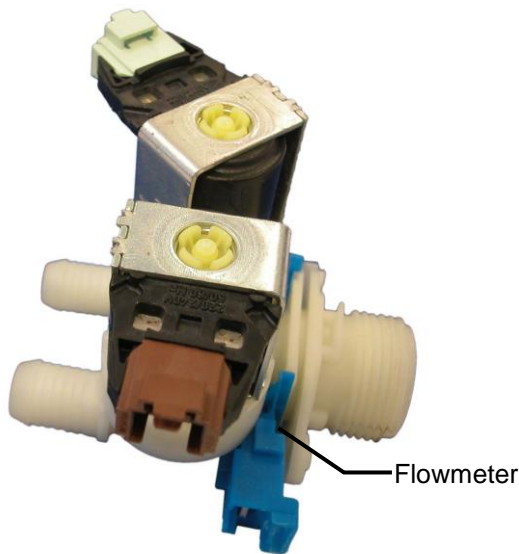
- **Mechanical jamming of the solenoid valve**

The solenoid valve may jam open without being actuated (which will cause flooding if the pressure switch controlling the water level does not trip). If this occurs, the electronic control system (which continuously monitors the flow sensor), starts the drain pump and simultaneously displays an ALARM.

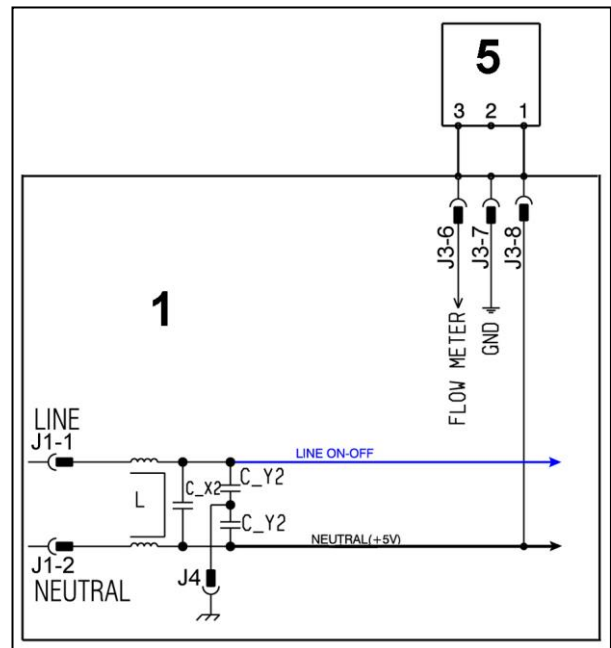
- **Low water pressure**

If the flow sensor does not generate a signal during the water fill phases, even though power is being supplied to the solenoid valve, the cause of this condition may be a closed water tap or clogged filter on the solenoid valve (with ensuing low water pressure). If this occurs, only a WARNING will be displayed and the cycle will continue for five minutes, after which time an ALARM will be signalled.

11.15 Flowmeter



- 1. Main electronic circuit board
- 5. Flowmeter



Some models of solenoid valves have a built-in flow sensor, which measures the quantity of water in litres that is loaded into the appliance.

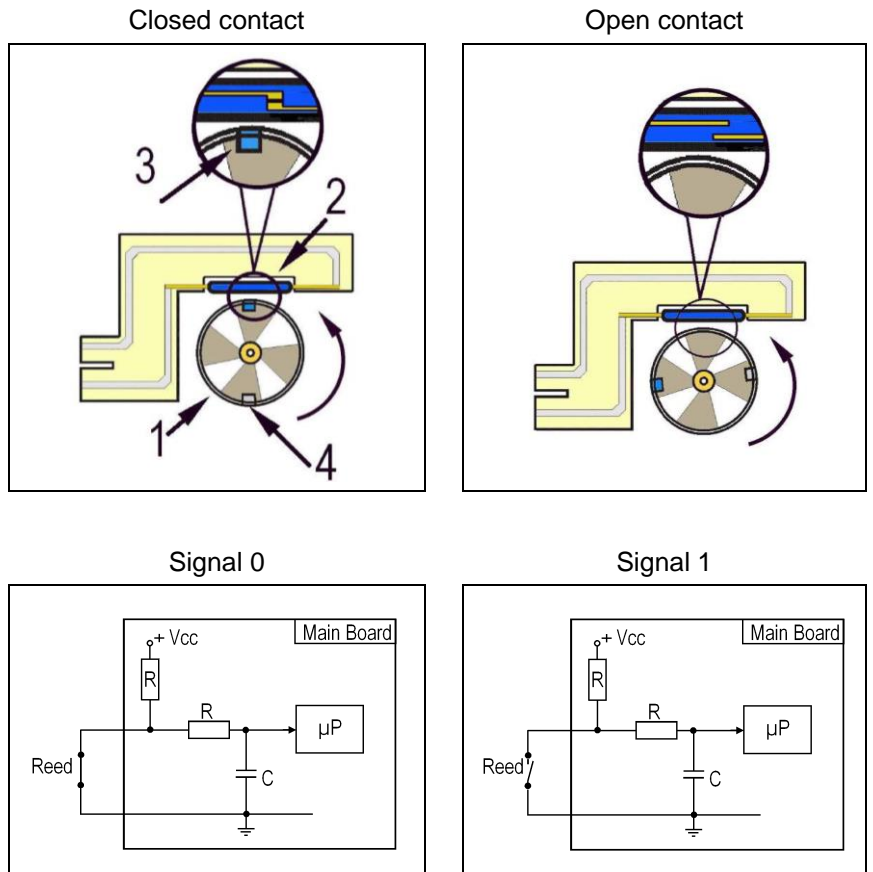
In the event of a sensor failure, the water level is controlled by the analogue pressure switch.

Electronically controlled valve, exploded view	PCB	Turbine
<ul style="list-style-type: none"> 1. PCB 2. Turbine 3. Deflector 4. Diffuser 5. Double filter 	<ul style="list-style-type: none"> 6. Reed Contact 	<ul style="list-style-type: none"> 7. Magnet 8. Counterweight

11.15.1 Operating principle of the flowmeter

The main components of the flowmeter are:

1. Turbine (with magnet and counterweight mounted on the outside)
2. Reed contact (normally open)
3. Magnet
4. Counterweight



Water entering the solenoid valve rotates the turbine (1) and magnet (3), which passes in front of the Reed contact (2), thus closing it. As this contact opens and closes, it generates pulses (at a frequency that depends on the water flow rate).

The turbine completes 230 revolutions for each litre of water. The operating range of the flow sensor is 0.2÷10 bar.

Using the signal it receives, the micro-processor can calculate the number of litres of water passing through the solenoid valve.

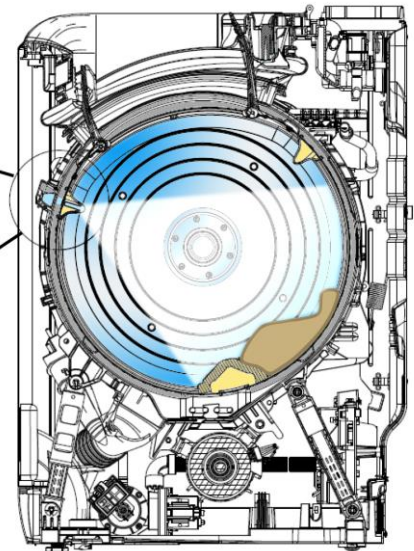
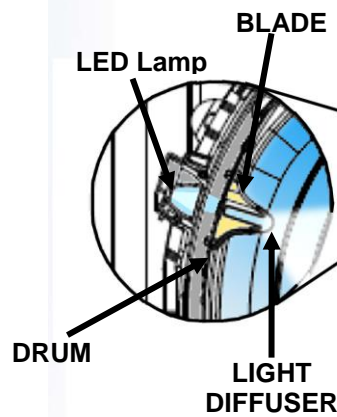
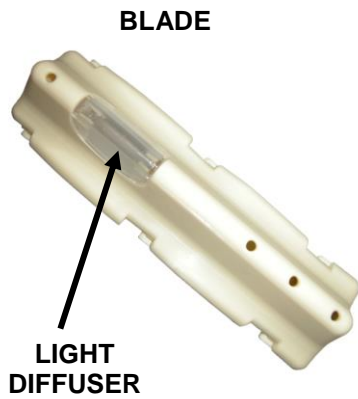
11.16 Drum light (where featured)

The drum light consists of a high luminosity LED. When the appliance is at the setting phase (START/PAUSE light flashing), on opening the laundry load lid the LED lamp comes on and lights the inside of the drum; vice versa on closing the laundry load lid, it turns off.



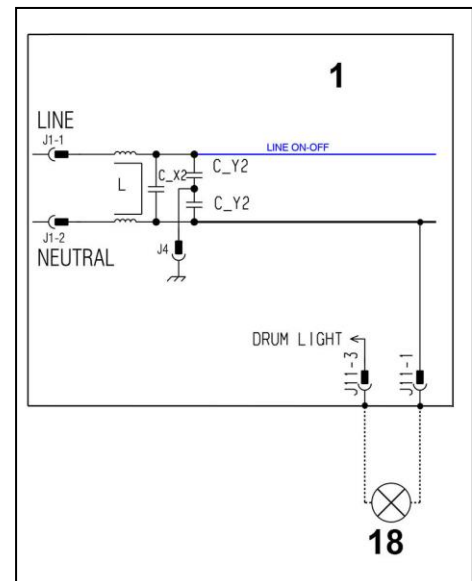
IMPORTANT: Do not look straight at the light beam emitted by the LED when it is on.

11.16.1 Internal drum lighting



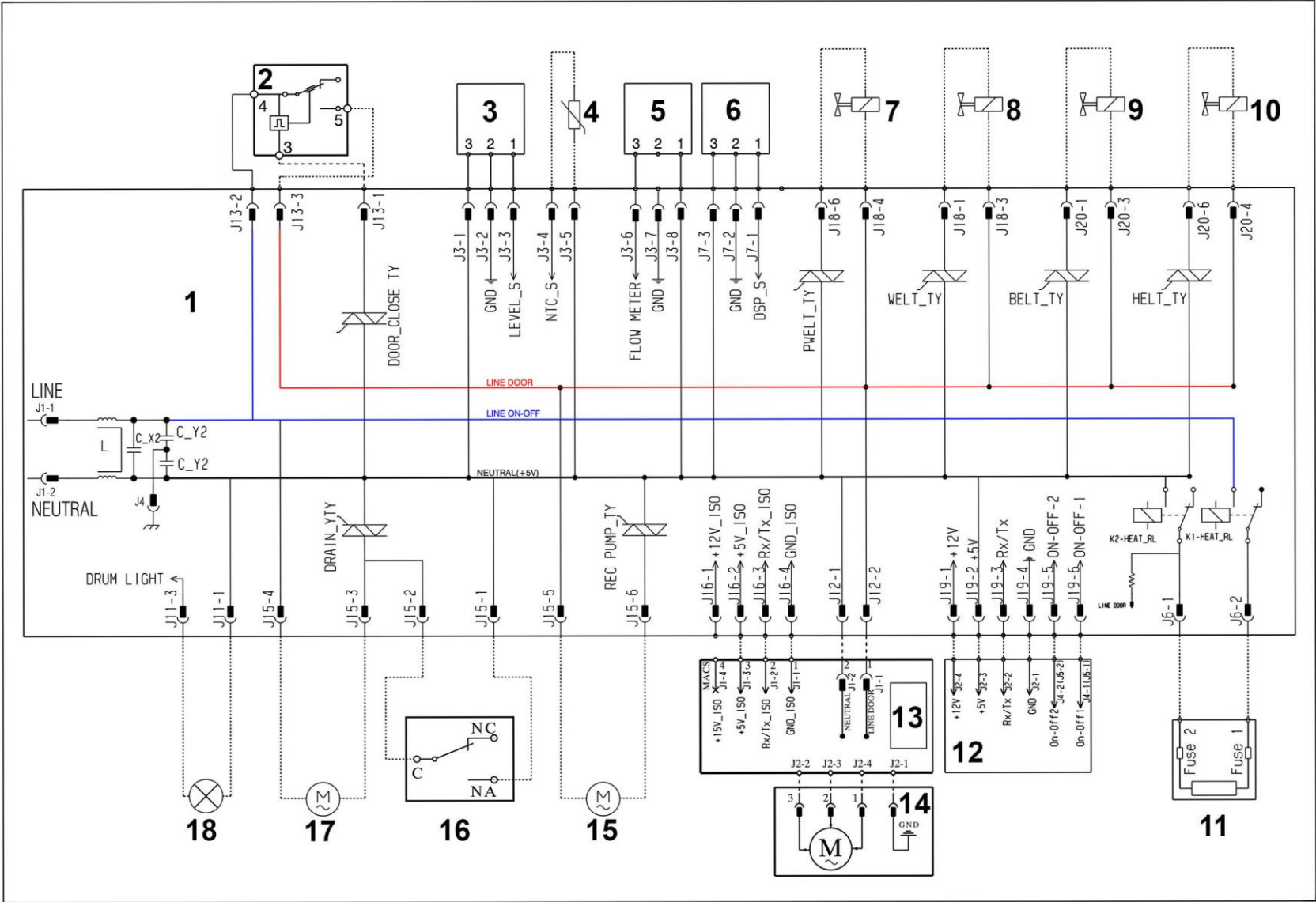
To check the efficiency of the LED, power it with constant direct current of 150 mA and a voltage of 3.3 V.

- 1. Main electronic circuit board
- 18. Drum light



12 DIAGRAMS

12.1 WM diagram with THREE-PHASE ASYNCHRONOUS MOTOR



12.1.1 Key to diagram

Appliance electrical components		PCB components	
1.	Main electronic circuit board.		
2.	Door safety interlock – delayed/instantaneous		
3.	Electronic pressure switch.		
4.	NTC (washing).		
5.	Flow sensor.		
6.	DSP		
7.	Pre-wash solenoid valve		
8.	Wash solenoid valve		
9.	Steam solenoid valve		
10.	Hot water solenoid valve		
11.	Heating element		
12.	Display board		
13.	Motor control board (UIMC Inverter)		
14.	Triple-phase motor		
15.	Re-circulation pump		
16.	Aqua control sensor		
17.	Drainage pump		
18.	Drum Light		
		DRAIN_YTY	Drain pump Triac
		DOOR_CLOSE_TY	Door interlock Triac
		REC PUMP_TY	Circulation pump TRIAC switch
		PWELT_TY	Pre-wash solenoid Triac
		WELT_TY	Wash solenoid Triac
		BELT_TY	Fabric softener solenoid valve Triac
		HELT_TY	Hot water solenoid triac
		K1	Heating element relay
		K2	Heating element relay

13 ACCESSIBILITY



Before intervening on the equipment place a protection above the drum in order to prevent small parts falling inside the tub.

13.1 Control panel

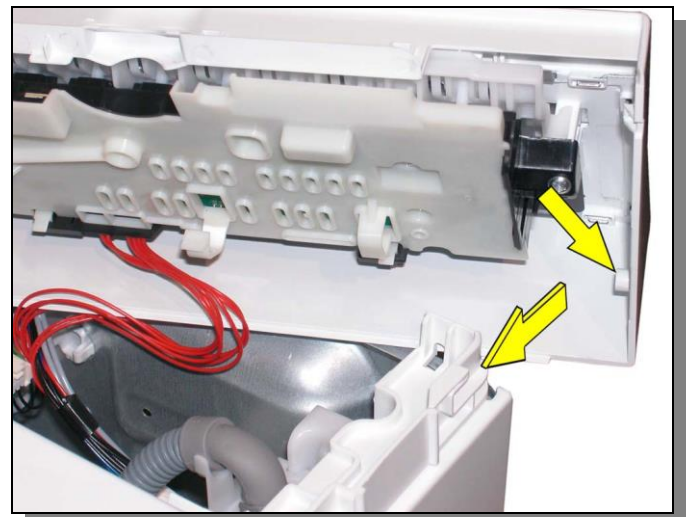
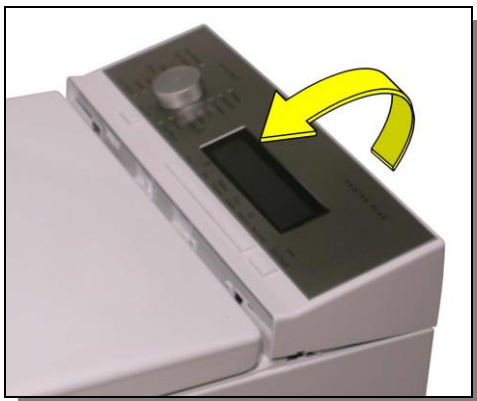
13.1.1 Dismantling

- Insert from one side then another, a screwdriver into the side slits as shown in the figure.
- Taking care not to ruin the paint work, lever downwards in order to slightly widen the control panel until you unfasten the clips that hold it on.
- Lift it up gently and move it towards the back.



13.1.2 Assembly

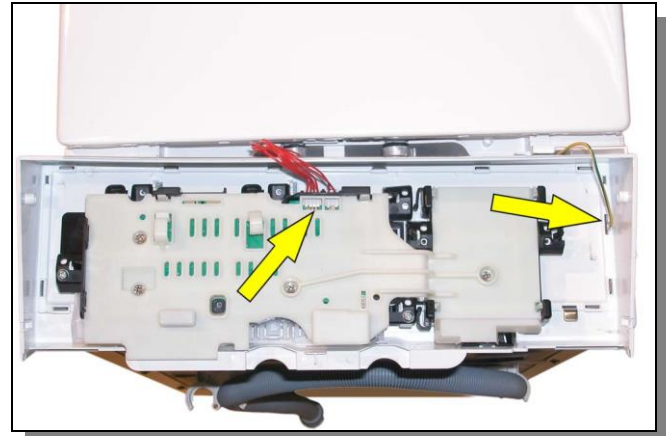
- Introduce the runner pivots located on the control panel into the rails found on the sides of the washing machine.
- Turn it forward.
- Press the control panel forwards until it is completely hooked on.



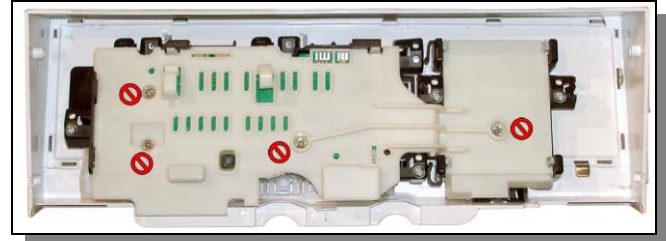
13.2 Control circuit

After opening the control panel, we can remove the control circuit board.

- Disconnect the connectors that link the control circuit board to the main board.
- In the models with stainless steel decorative panel we can also find a mass connection.



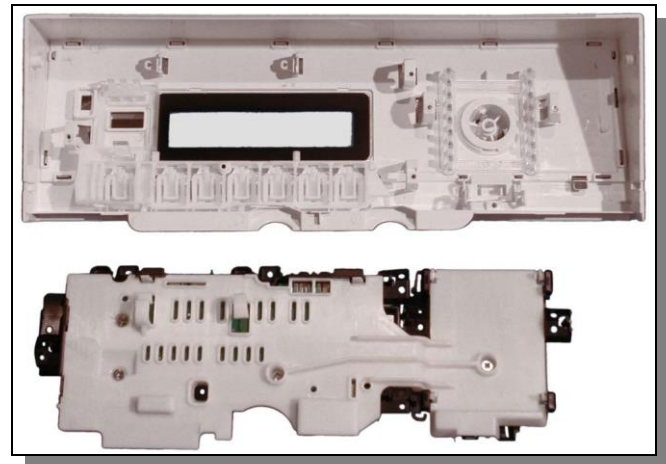
- Unscrew the screws holding on the control panel board.
- You do not need to remove the screws marked with a red circle with a diagonal slash that hold the cover on the board.



13.3 Key spring and light diffuser

Once the board has been removed we can reach the key spring and led light diffusers.

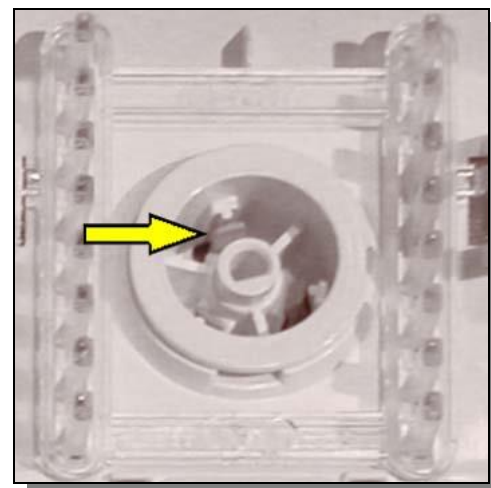
- Remove the key spring and led light diffuser releasing them from the clips that lock them on.



13.4 Programme selector dial

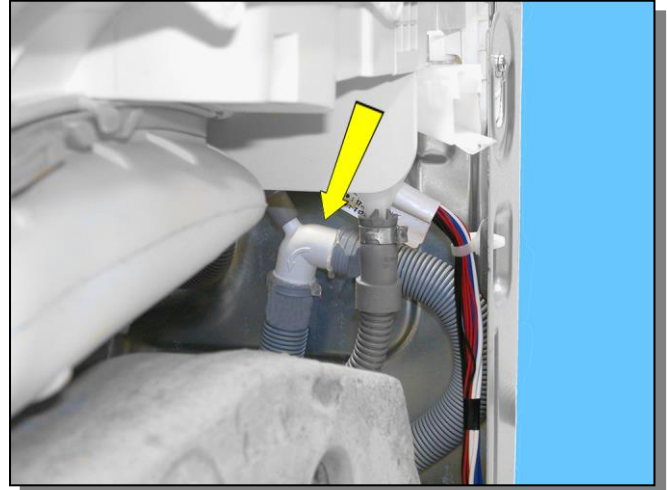
Before refitting the board we recommend you remove the knob to make it easier to insert the pivot.

- With the aid of a screwdriver press the three locking clips on the knob cover inwards.
- Simultaneously pull the knob cover until it is completely removed.



13.5 Stiwa coupling (where featured)

Remove the right side (see relevant paragraph)
Pull out the small tube connecting it to the water dispenser
Since the coupling is die-cast with the drain pipe (a single piece), in the event of a problem, the entire drain pipe has to be replaced entirely

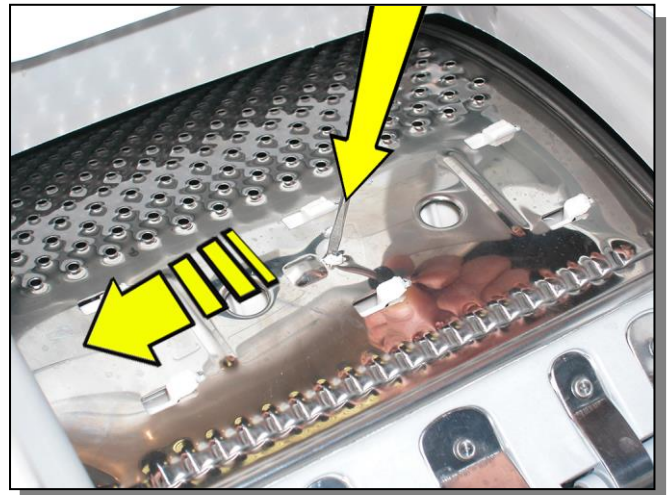


13.6 Blades

13.6.1 Small blade

Lift the lid

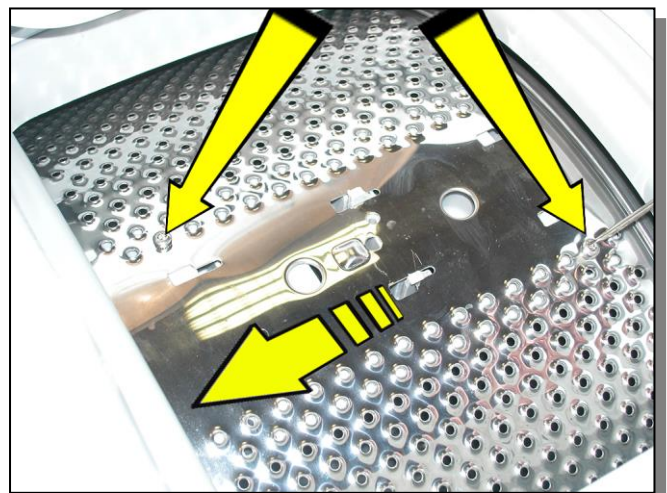
- Turn the drum until the blade in question is accessible from the top
- Using a screwdriver, push the hook securing the blade to the drum down.
- Push the blade in the direction shown by the arrow
- Turn the drum, open the doors and take the blade out



13.6.2 Large blade

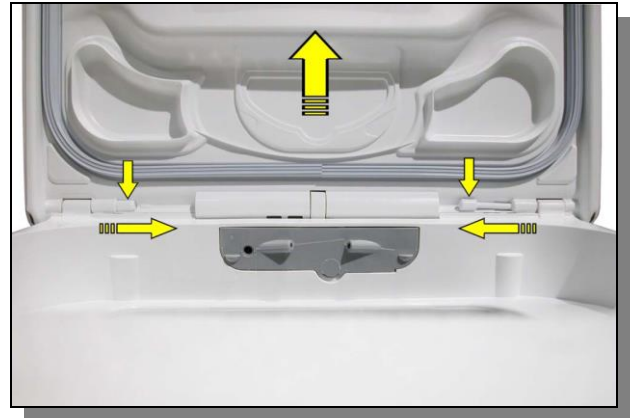
Lift the lid

- Turn the drum until the blade in question is accessible from the top.
- Using a screwdriver, unfasten the two screws securing it to the drum
- Push the blade in the direction shown by the arrow
- Turn the drum, open the doors and take the blade out



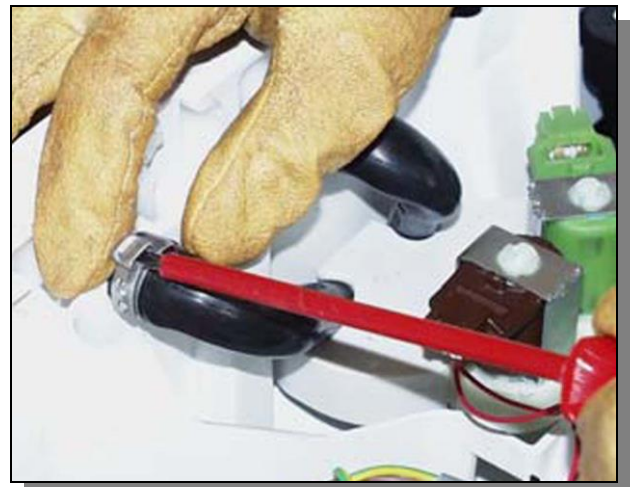
13.7 Cover

- Move the two hinge pivots inwards until they have been completely removed.
- Lift up the cover and remove.



13.8 Water dispenser

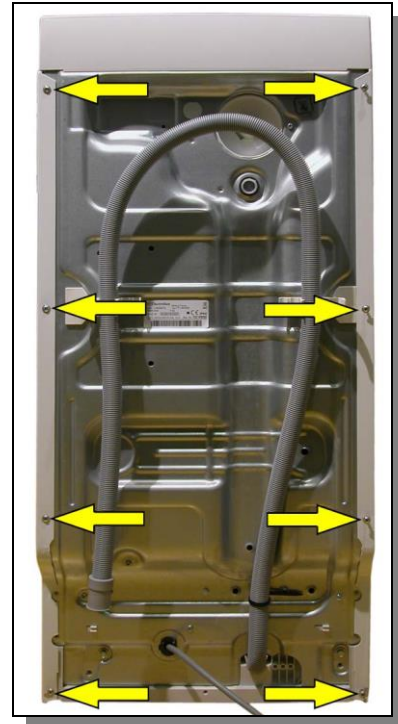
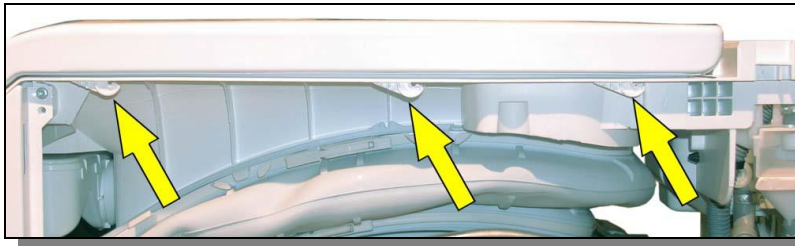
- Remove the detergent dispenser.
- Remove the control panel.
- Open the two clamps using a screwdriver, that block the pipes carrying water from the solenoid valves to the water dispenser.
- Disconnect the pipes that carry the water from the solenoid valves to the water dispenser and the small service tube if relevant.
- Release the water dispenser and remove it.



13.9 Sides

Removing the sides you can access all various parts of the washing machine.

- Loosen the screws that secure the sides to the back panel.
- Move the panels to the back of the washing machine in order to release them from the upper rails shown in the figure.

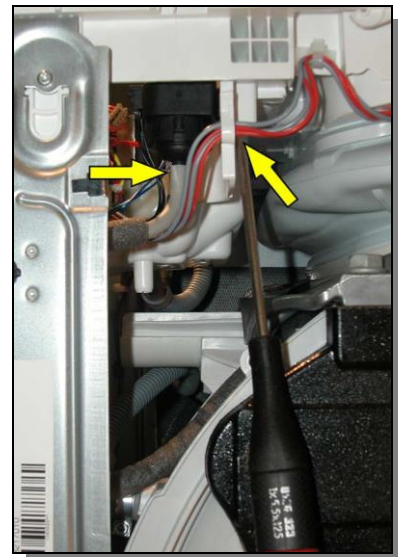


13.10 Electronic pressure switch

- Remove the left side panel.
- Release the pipe that connects the pressure chamber to the pressure switch.
- Use a screwdriver to release the pressure switch fastening clips and remove it.



When replacing anything, please refer to the code shown in the list of spare parts relating to the appliance being repaired.

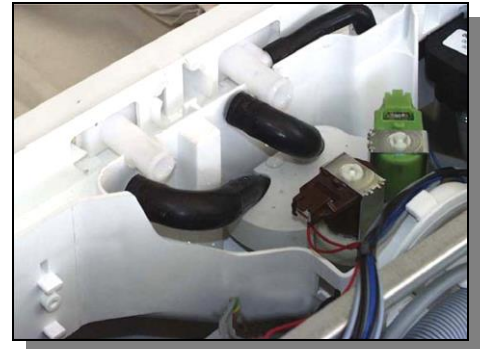


13.11 Solenoid valves

- Remove the flexible water flow pipe making sure firstly that you have closed the water low tap.
- Remove the control panel.
- Open the two clamps using a screwdriver, that block the pipes carrying water from the solenoid valves to the water dispenser.



- Disconnect the pipes that carry water from the solenoid valves to the water dispenser.

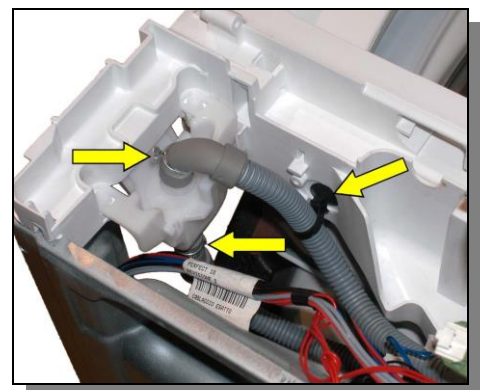


- Press the stop tabs with a screwdriver.
- Rotate the whole solenoid valve unit until it has been disconnected.



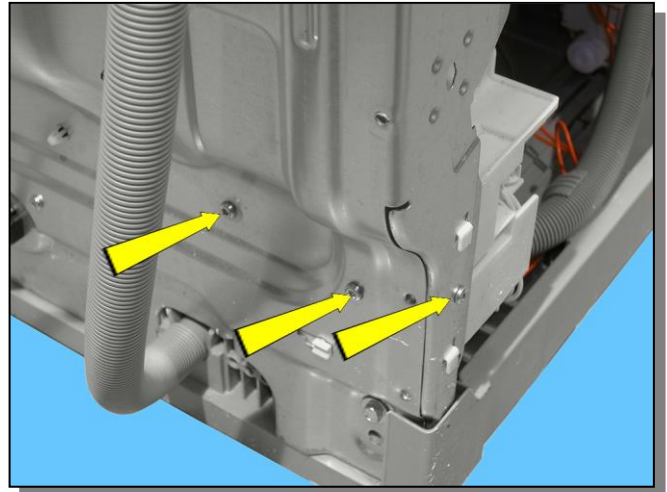
13.12 Air break

- With the help of a screwdriver, loosen the clamp locking the air break inlet pipe in position, and remove the pipe.
- Repeat the operation on the outlet pipe.
- Release the pipe fastening clamp from its base.
- Unfasten the pivots that fasten the air break to the structure.
- Remove the filter pulling it upwards.

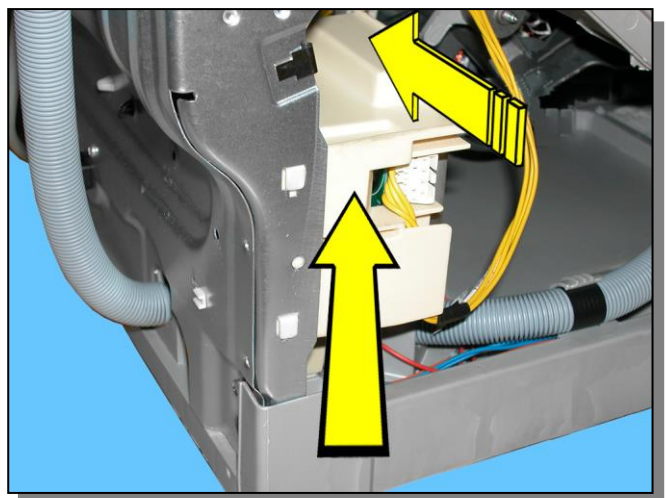


13.13 Motor control board

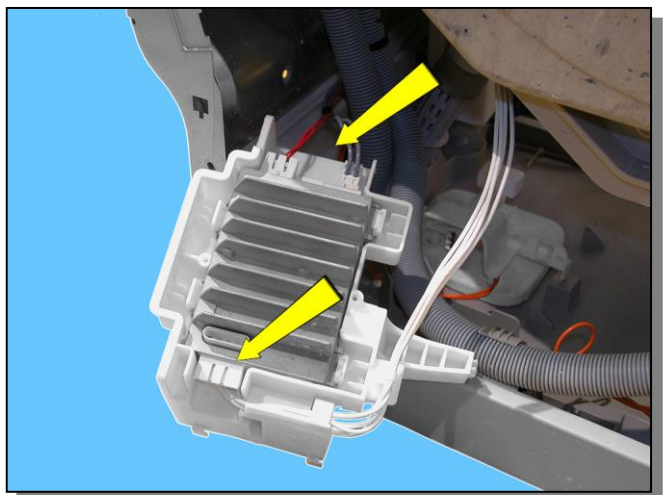
- Remove the left side panel.
- Unscrew the two screws on the back part of the equipment and the side screws that lock the board support to the back panel.



- Gently lift the whole board unit in order to release it
- Push it towards the inside of the appliance.



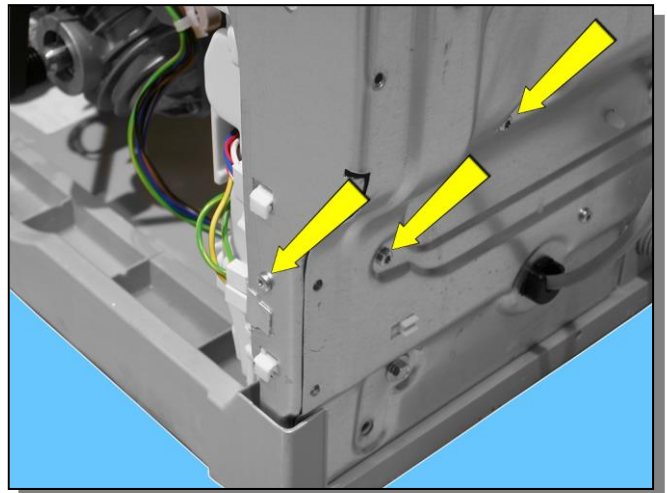
- Disconnect all the connectors and remove the board.



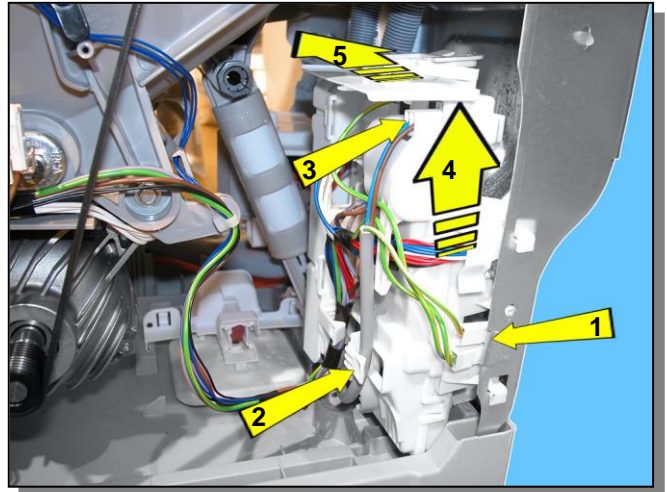
When replacing the board, please refer to the code shown in the list of spare parts relating to the appliance.

13.14 Main board

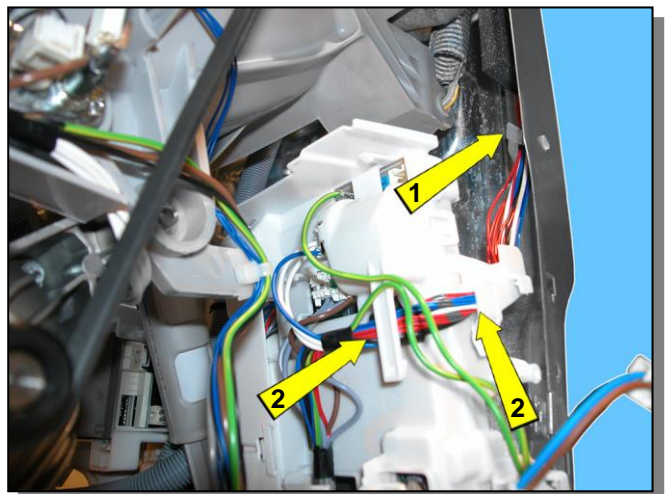
- Remove the right side panel.
- Unscrew the two screws on the back part of the equipment and the side screws that lock the board support to the back panel.



- Remove the earth fastons shown by the yellow arrow 1 (beware as they are fitted with an anti-removal latch)
- Pull the power supply cable out of the hook 2
- Pull the power supply connector 3 out
- Lift the main board assembly 4 slightly
- Remove it towards the inside of the appliance 5

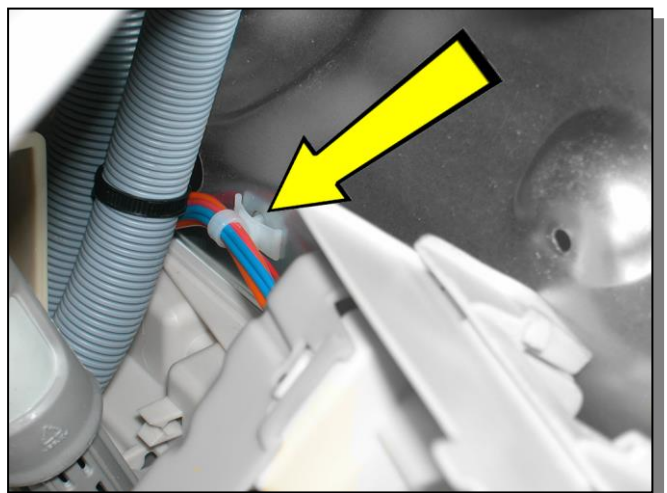


- Pull out the wiring from the cabling clamp secured to the inside of the back panel (1)
- Pull the wiring out of the two hooks that secure it to the board casing (2)

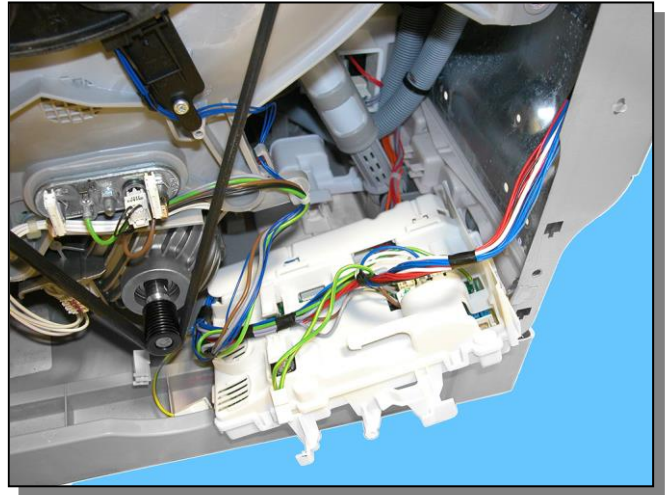


- Pull the cable clamp out of the back panel

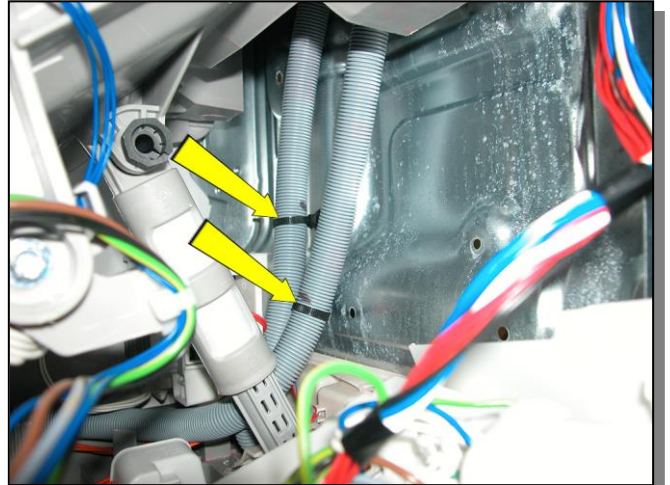
(During re-assembly, remember to ensure the wiring is secured to the back panel)



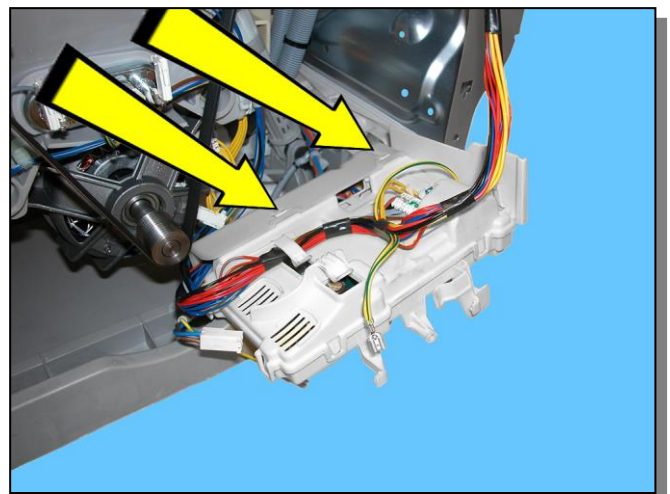
If it proves difficult to remove the protection from the connectors



Also pull out the clamps that secure the drain pipe to the back panel.
(During re-assembly, remember to ensure the pipe is secured to the back panel)



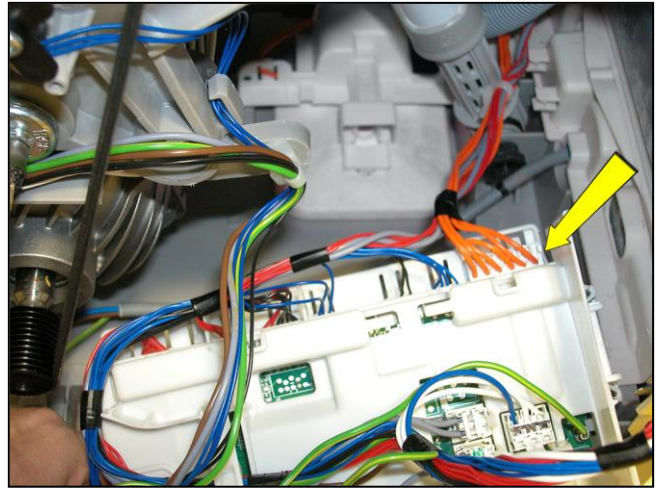
- Disconnect the hooks fixing the connector protection on one side



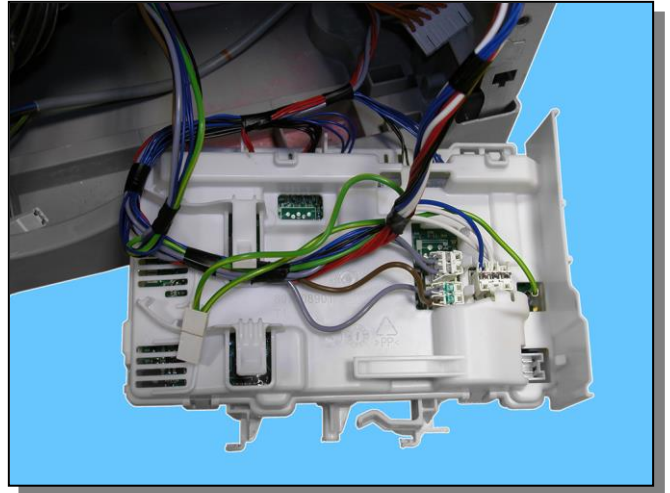
And on the other



First pull out the connector indicated by the arrow



Position the board so as to facilitate the extraction of the other connectors



When reassembling, repeat these steps in the reverse order



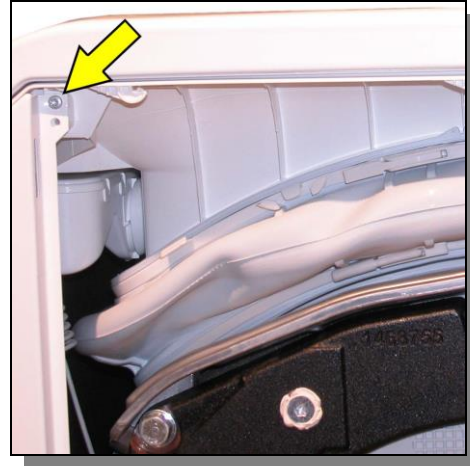
When replacing the board, please refer to the code shown in the list of spare parts relating to the appliance.

13.15 Front panel



Before removing the frontal piece place a support under the motor in order to make the operation easier.

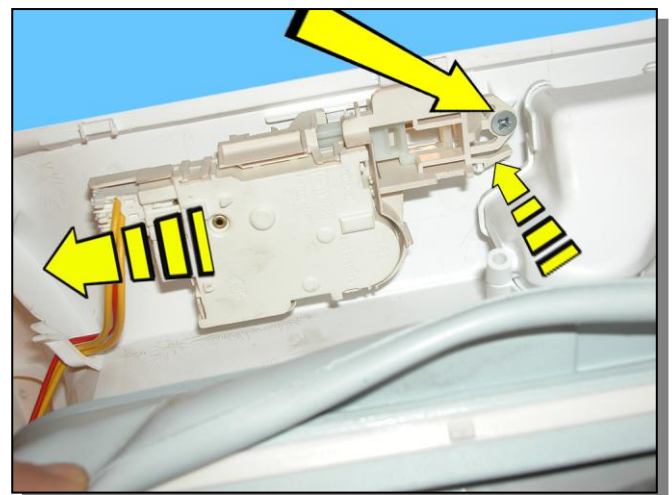
- Remove the two side screws that hold the frontal piece on to the inlet.
- Remove the two side screws that hold the frontal piece to the base frame.
- Remove the two internal screws that hold the frontal piece to the base frame.
- Gently lift the inlet and remove the frontal piece.



13.16 Door Lock

- Open the laundry loading cover.
- Remove the side panels.
- Remove the frontal piece.
- Release the wiring from the cable tray.
- Remove the door lock fastening screws.
- Push the hook securing it in place and at the same time move the entire door lock assembly towards the left until it is fully released.
- Disconnect the connector.

In order to re-assemble the door lock carry out the operations in reverse.



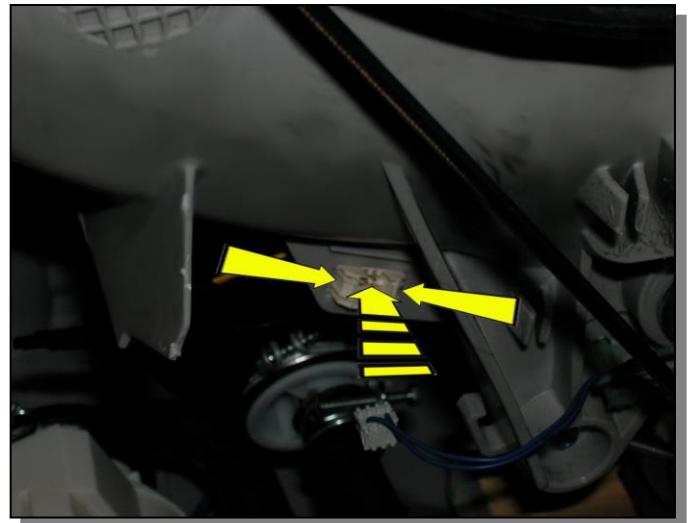
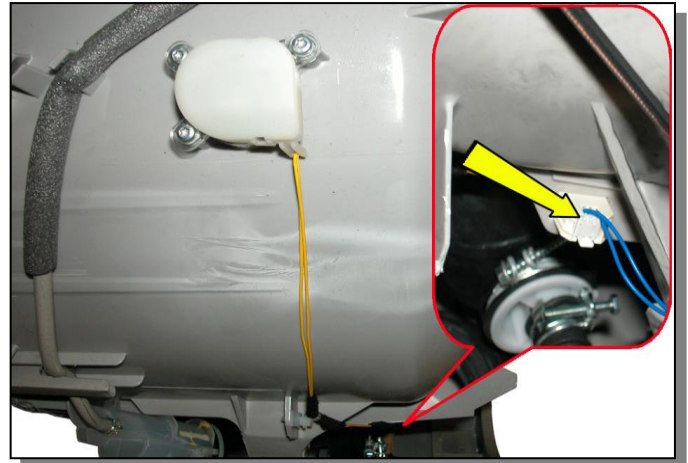
13.17 Drum Light (where featured)

- Open the laundry loading cover (optional).
- Remove the side panels.
- Remove the frontal piece.

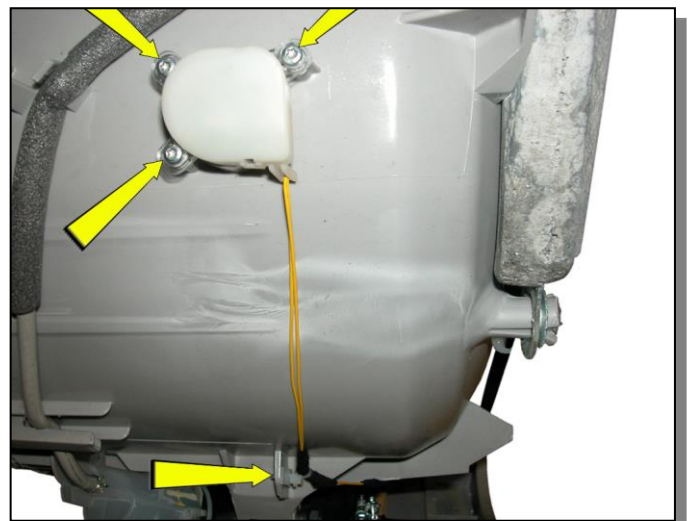


Before removing the frontal piece place a support under the motor in order to make the operation easier.

- Detach the connector (indicated by the arrow)
- Squeeze the tabs that hold the connector to the tub
- Push it towards the inside of the appliance to remove it from its hold.



- Slide the clip out of the support
- Unfasten the three screws that secure the light to the tub.
- Remove the light assembly.



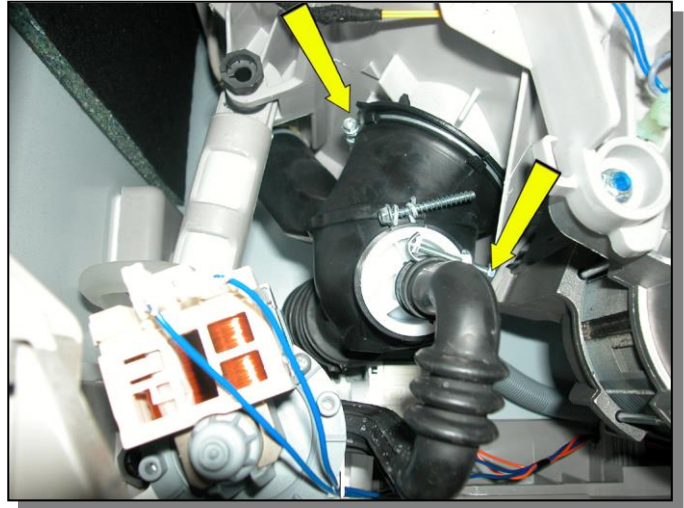
13.18 Eco Spray Circuit

- Drain off the water from the drain circuit
- Remove the side panels.
- Remove the frontal piece.

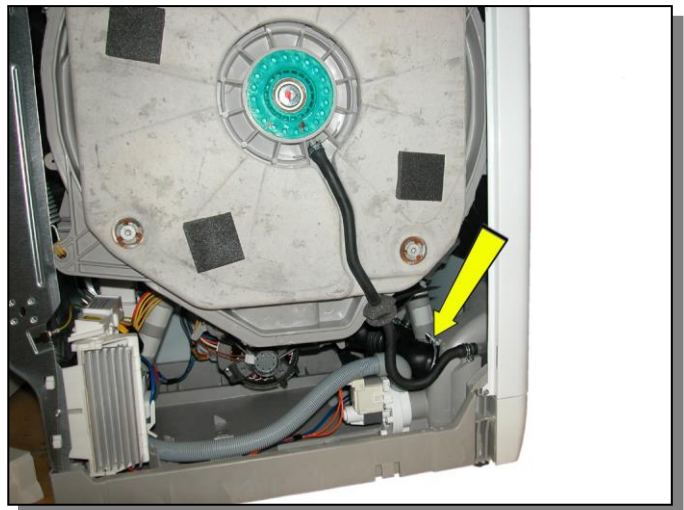


Before removing the frontal piece place a support under the motor in order to make the operation easier.

- From the right side (frontal view)
- Slacken the screws that hold the two clamps indicated by the yellow arrows.



- From the right side (frontal view)
- Remove the internal pressure chamber
- Slacken the screw that tightens the clamp indicated by the yellow arrow.

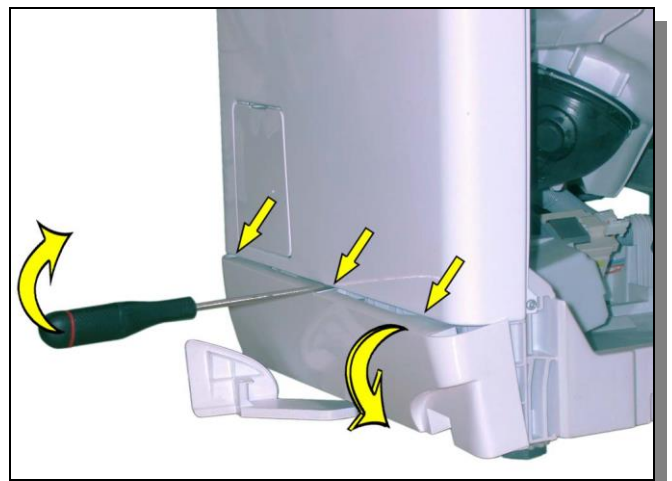


13.19 Base board

- Remove the left and right panels.
- Remove the transport roll.
- Insert a screwdriver into the points indicated by the arrows starting from a side one.
- Lever with the screwdriver and simultaneously rotate the base board downwards.
- Repeat this operation on all three points.

In order to refit the base board

- Insert the base and rotate the base board in order to fully insert the three fastening clips.



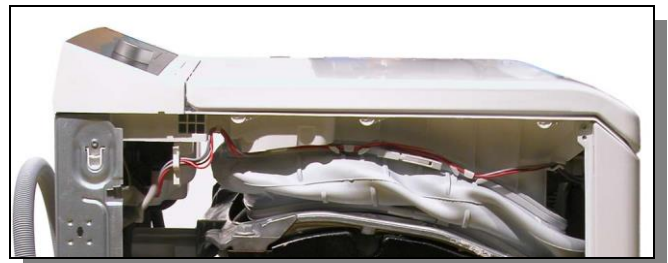
13.20 Transport roll

- Remove the right side.
- Slightly tilt the washing machine to the left.
- Release the transport roll using the screwdriver and remove it by pushing downwards.



13.21 Bellows seal

- Remove the left and right sides.
- Remove the support wiring.
- Cut the upper and lower cutting ring with a pair of pliers.



- Remove the bellow taking care not to ruin the 2 bases.
- Grease the bellow again in the fastening area to make assembly easier.



- Start re-assembling the bellow by inserting the lower part first.

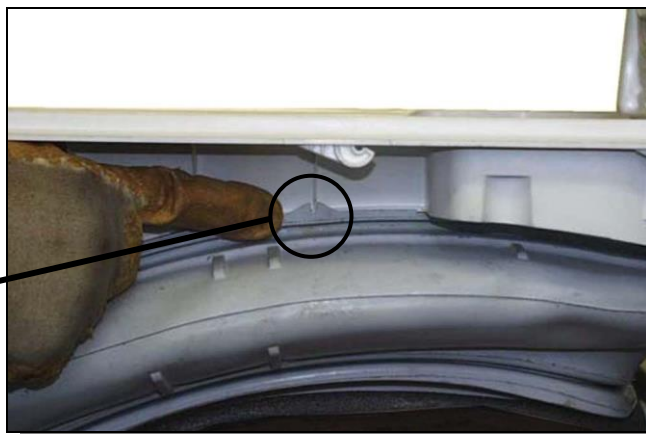


- Then insert the upper part.

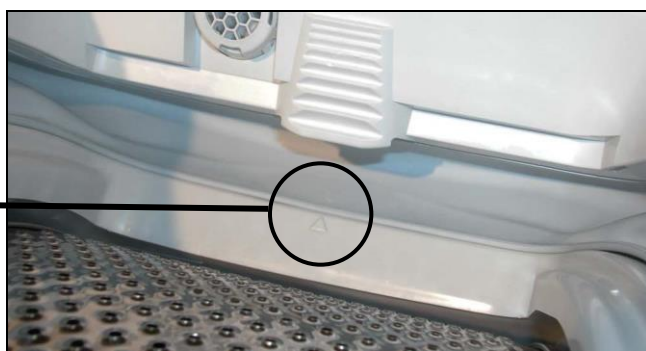


- Check that the bellow is inserted properly by checking that the reference notches are positioned properly.

External right and left sides.



Inside frontal zone.



- Insert the blocking rings.
- Tighten them initially with your hands then block them with the aid of a pair of pliers.

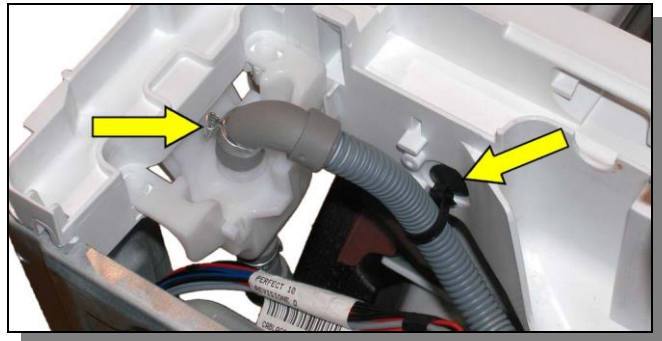


13.22 Inlet

- Removing the cover.
- Remove the detergent dispenser.
- Remove the control panel.
- Cut the upper cutting ring with a pair of pliers.
- Release the bellow from the upper side.



- Remove the water dispenser.
- Remove the electronic pressure switch.
- In the models with an air break, remove the pipe that connects it to the solenoid valves and the fastening clamp that holds the pipe to the outlet.
- Lift it up in order to release the air break unit with the output pipe connected.
- Remove the solenoid valve unit.

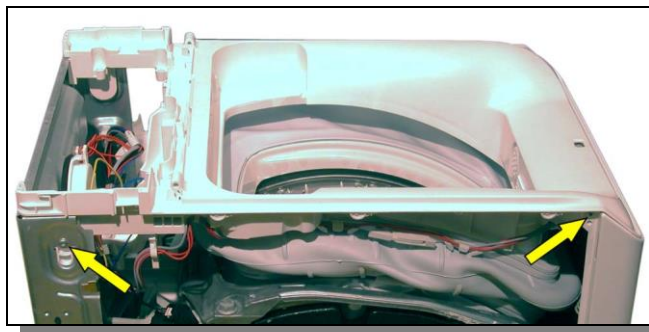


Before removing the front springs place a support under the motor to make the operation easier.

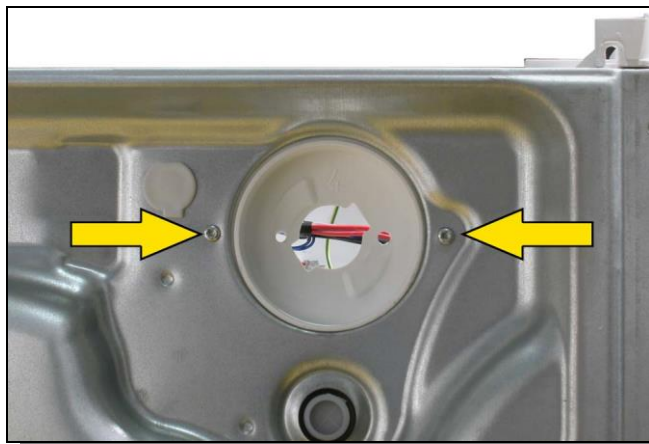
- Release the front right and left springs.



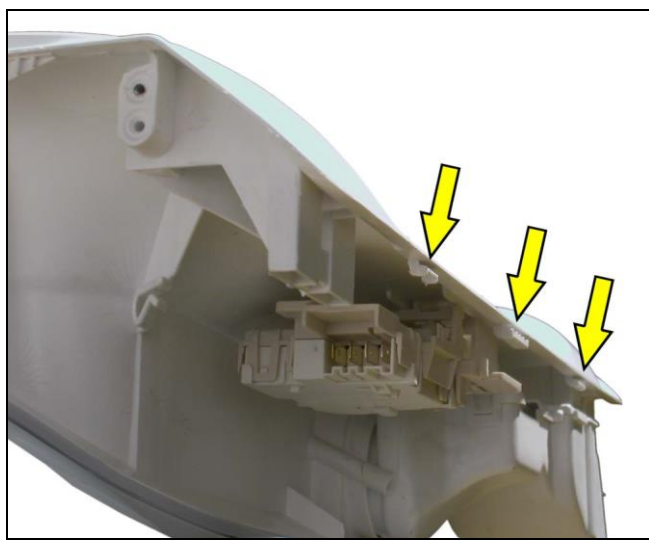
- Remove the 2 right screws and the 2 left screws that fasten the outlet to the column and back panel.



- Unscrew the 2 back screws.



- Gently lift the outlet from the back part.
- Push it towards the back panel to free the front part held to the base by the fasteners.
- Disconnect the door lock.



13.23 Counterweights

13.23.1 Right counterweight



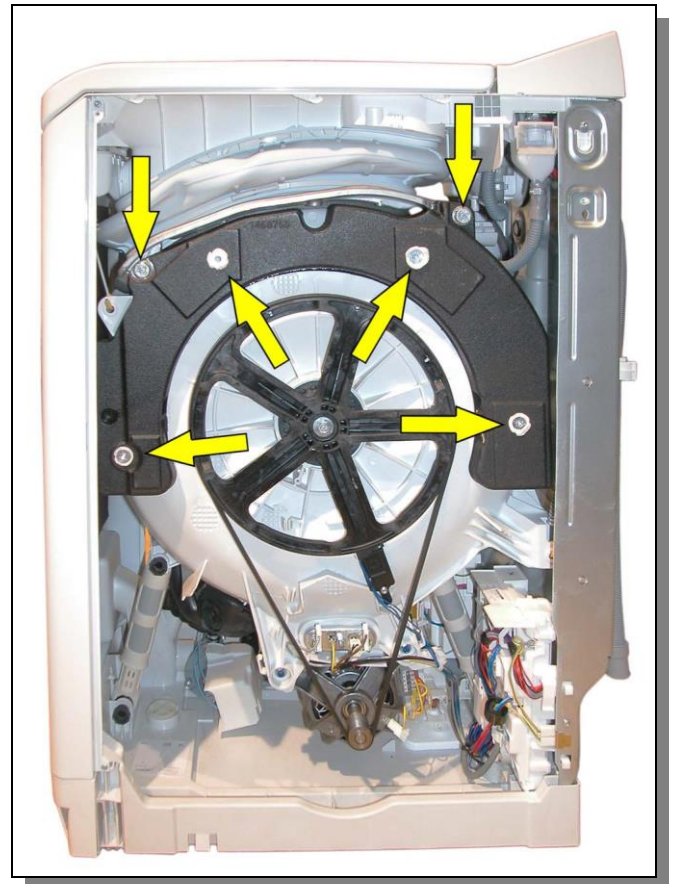
The right counterweight weighs around 10 kg so take care when removing it.

Dismantling.

- Remove the right side panel
- If there is an aluminium frame remove the 2 screws that hold the counterweight to it.
- Remove the 4 screws that hold the counterweight.

Re-fitting.

- Before re-fitting the counterweight clean out any old silicone from the screws and holes and reinsert the new silicone in the holes where the screws will be inserted.
- Place the counterweight and screw in the screws before the silicone has solidified.



13.23.2 Left counterweight



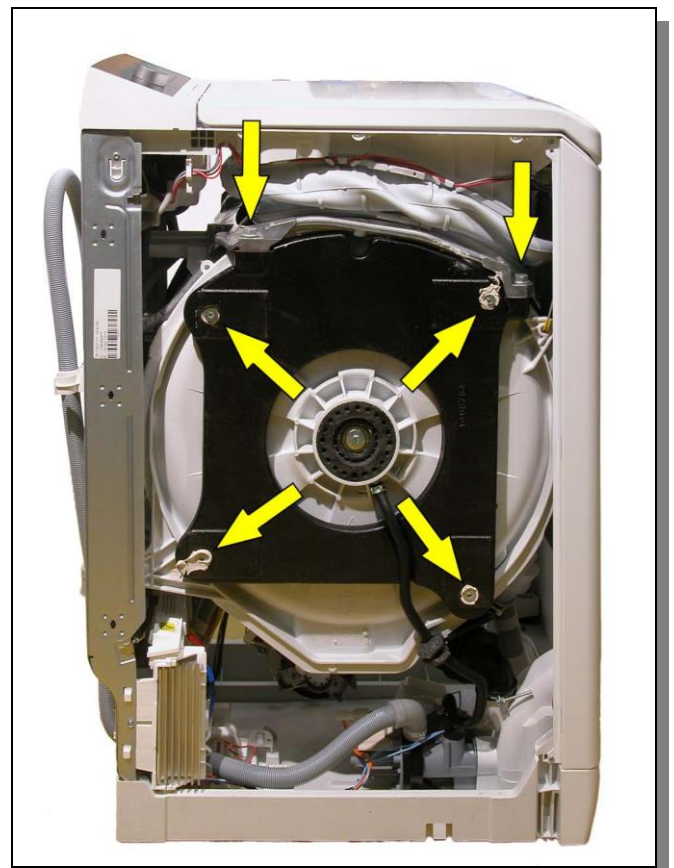
The left counterweight weighs around 13 kg so take care when removing it.

Dismantling.

- Remove the left side panel
- If there is a spray pipe, slacken the clamp and remove it.
- If there is an aluminium frame remove the 2 screws that hold the counterweight to it.
- Remove the 4 screws that hold the counterweight.

Re-fitting.

- Before re-fitting the counterweight clean out any old silicone from the screws and holes and reinsert the new silicone in the holes where the screws will be inserted.
- Place the counterweight and screw in the screws before the silicone has solidified.
- Reconnect the spray pipe if there is one.



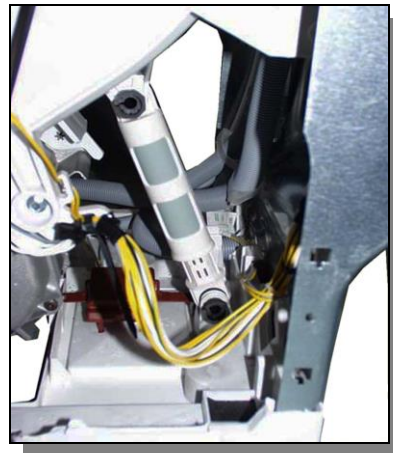
13.24 Shock absorbers

- Remove the left and right sides.

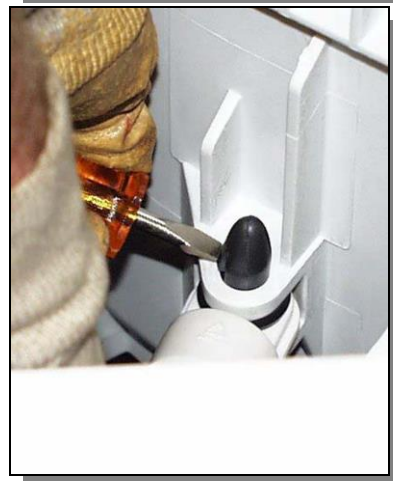
Front shock absorber



Rear shock absorber

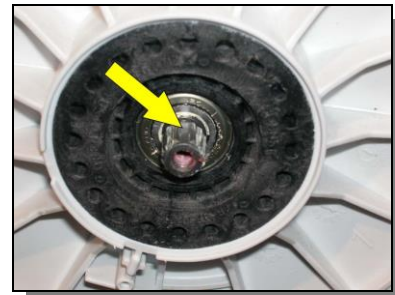
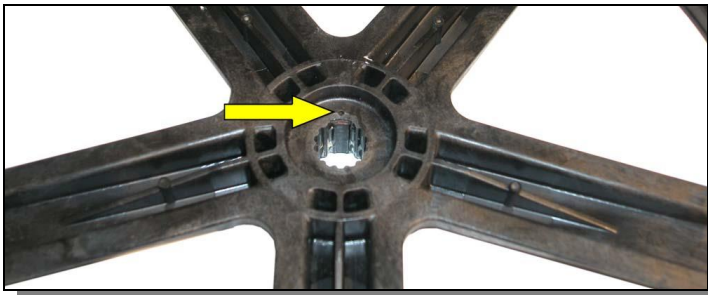


- Release the brass stop plugs positioned above and under each shock absorber.
- Remove the shock absorbers.



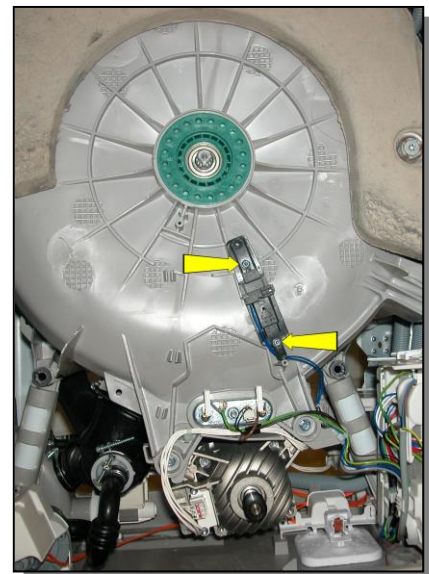
13.25 Pulley

- Remove the right side panel.
- Before removing the belt check and make note of the belt's position on the motor axis.
- Remove the central screws that hold the pulley.
- Extract the pulley by pulling it outwards.
- When refitting the pulley make sure that the notch on the pulley coincides with the part with no cogs on the drum axis.



13.26 Drum position sensor DSP

- Remove the right side panel.
- Before removing the belt check and make note of the belt's position on the motor axis.
- Remove the pulley.
- Unscrew the 2 screws that hold the DSP.



13.27 Heating element

- Remove the right side panel.
- Remove the electric connections.
- Slacken the central screws located on the heating element (*you don't have to remove the screw*).



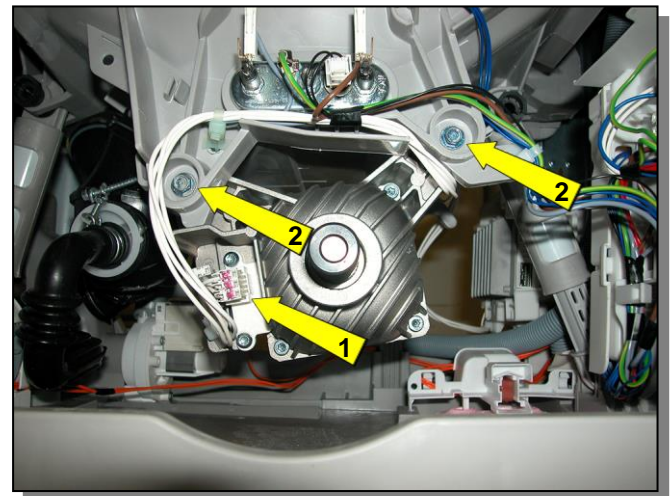
Residual water could overflow wetting the motor.

- Extract the heating element by pulling it outwards.



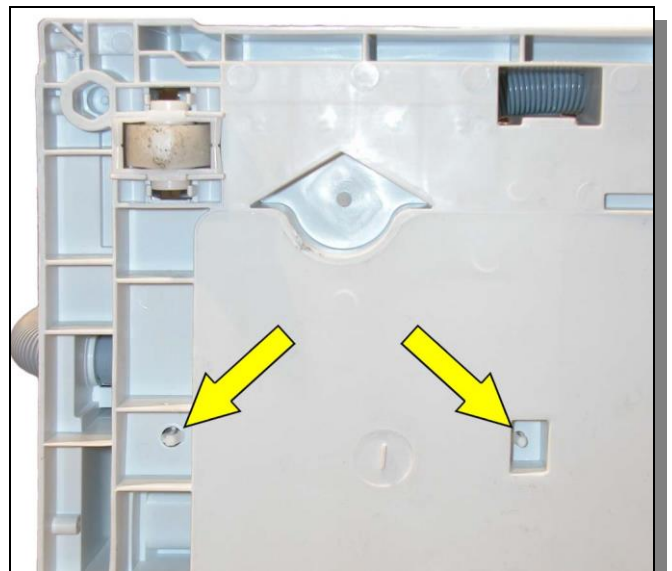
13.28 Drum rotation motor

- Remove the left and right panels.
- Remove the belt.
- Disconnect the mass connection and the motor power connector (1).
- Unscrew the screws that secure the motor in place (2).
- Remove the motor by extracting it from the left side of the appliance.



13.29 Water control sensor

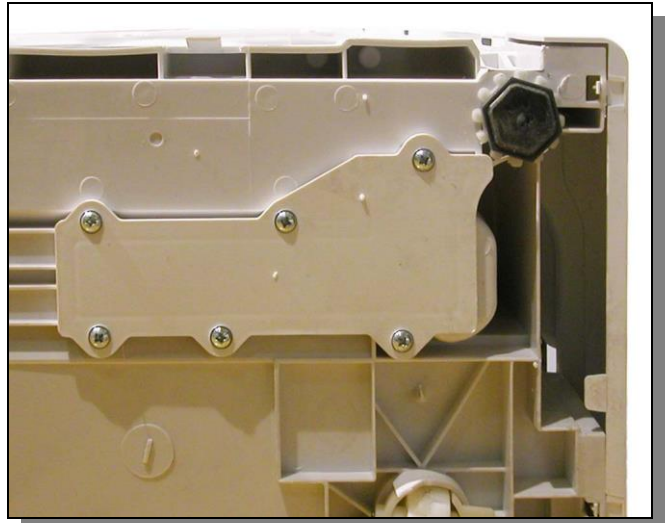
- Remove the left side panel.
- Lay the appliance on its right side.
- Remove the two sensor fastening hooks using a pair of pliers.
- Disconnect the sensor and remove it.



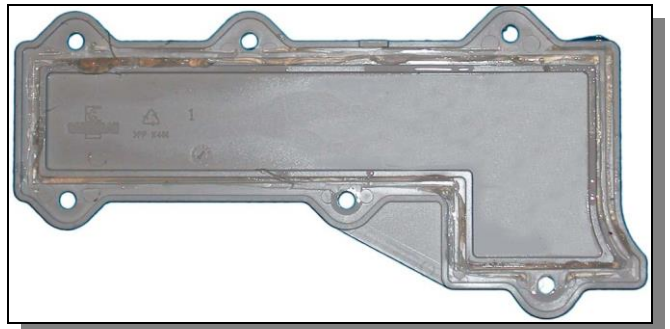
13.30 Drain pump and circulation pump

13.30.1 Bottom lid

- Remove the left side panel.
- Lay the appliance on its right side.
- Remove the 6 screws.
- Remove the bottom lid.



Before refitting the bottom lid clean the slot runner well on the bottom of the washing machine and the slot base of the lid and fill it with silicone in order to make it fully seal-proof again.

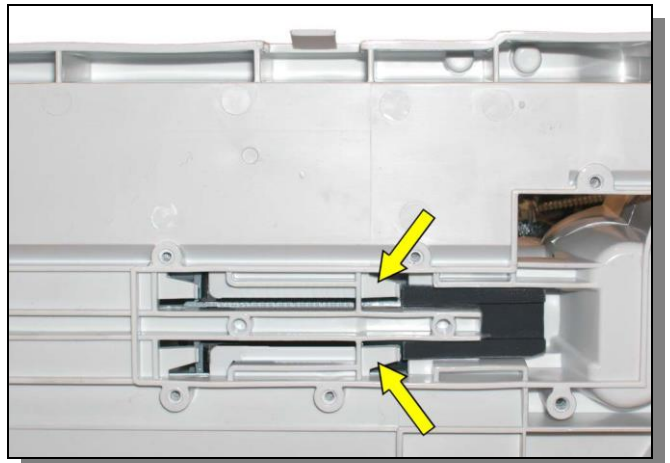


13.30.2 Drainage pump

The drain pipe is held in place by two runners and 2 clips that prevent it from withdrawing.

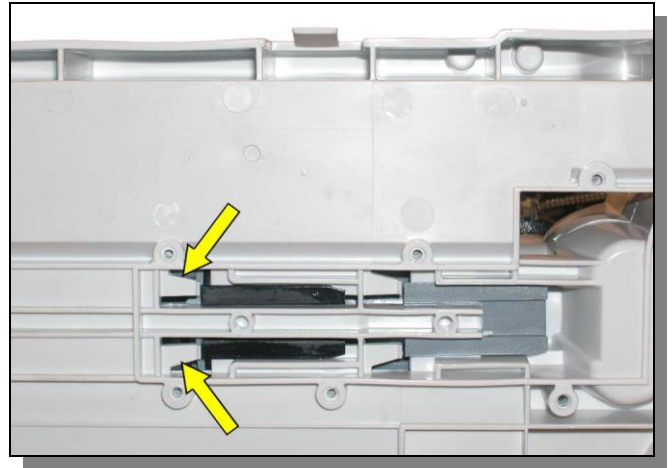
If the washing machine doesn't have a circulation system the drain pump will be directly inserted into the filter unit.

- Disconnect the pump connectors.
- Open the clamp that holds the pipe onto the pump outlet and remove it.
- Use a screwdriver to lower the clips that hold the pump.
- Move the pump towards the back of the machine and remove it.



If the washing machine has a circulation system the drain pump will be inserted in a specific duct where the circulation pump is also inserted.

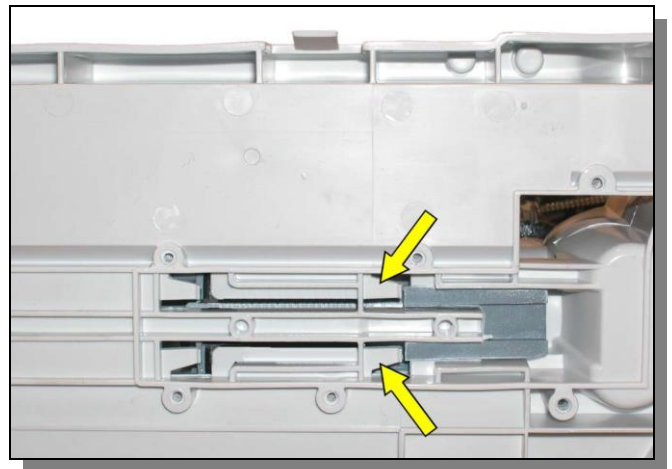
- Disconnect the pump connectors.
- Open the clamp that holds the pipe onto the pump outlet and remove it.
- Use a screwdriver to lower the clips that hold the pump.
- Move the pump towards the back of the machine and remove it.



13.30.3 Re-circulation pump

The circulation pump is inserted in a specific duct where the drain pump is also fastened and it held in place by two runners and 2 clips that prevent it from withdrawing.

- Disconnect the pump connectors.
- Open the clamp that holds the pipe onto the pump outlet and remove it.
- Remove the drain pump, there is no need to disconnect it electrically nor remove the pipe connected to the outlet.
- Use a screwdriver to lower the clips that hold the pump.
- Move the pump with the whole duct towards the back of the machine and remove it.



13.31 Bearings

- Remove the right and left sides according to the bearing that you are planning on dismantling.
- Remove the central screw located in the pivot drum.
- Also remove the belt and pulley from the pulley side.
- Insert the specific tool as shown in the figure.

code 8992980018485

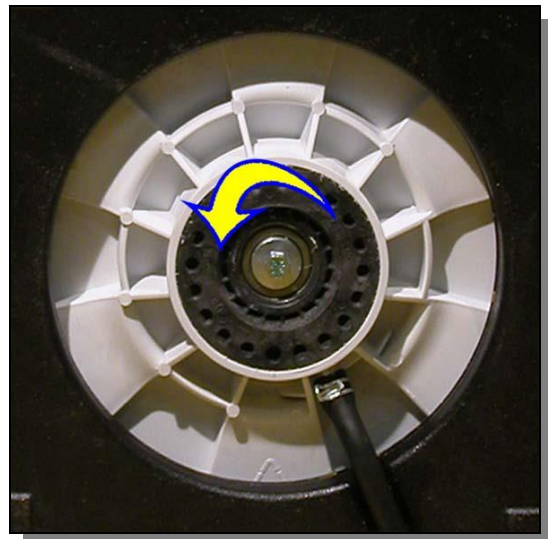
- Unscrew the bearing support paying attention to the threading direction and remove it.



Pay attention to the threading direction

Right side (pulley side) unscrew in a clockwise direction

Left side unscrew in an anti-clockwise direction



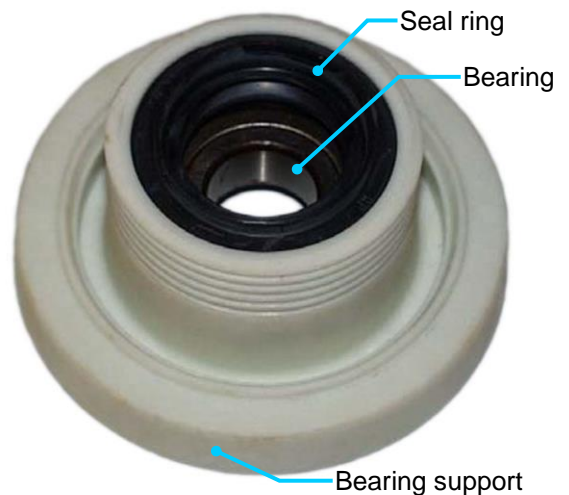
13.31.1 Bearing support unit with seal ring

Pay attention to the correct position of the seal ring during assembly.

Clean the axis and slightly grease the seal ring before inserting it in the bearing support.



The bearing unit is self-locking so do not tighten it excessively

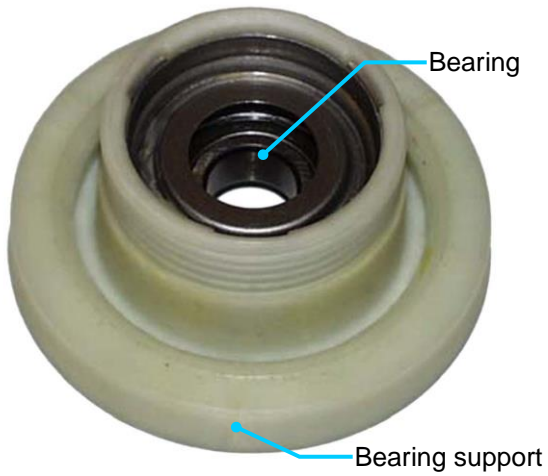


13.31.2 Bearing support unit with no seal ring

- Clean the axis and slightly grease the seal.
- Insert the seal making sure that the thin lip seal is positioned outwards.
- Push the seal as far as it can go.

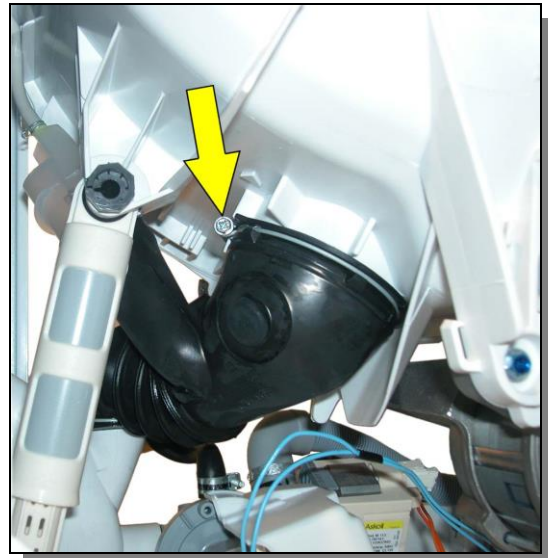


The bearing unit is self-locking so do not tighten it excessively



13.32 Remove the washing unit.

- Remove the 2 left and right sides.
- Cut and remove the lower cutting ring on the bellow.
- Release the bellow from the lower side.
- If there is a spray pipe, slacken the clamp, release the clamp that holds it to the tub and remove it.
- Slide off the belt and remove the pulley.
- Remove the DSP drum positioning device.
- Remove the two left and right counterweights.
- Remove the heating element.
- Remove the drum rotating motor.
- Slacken the pipe tightening clamp in the flexible pipe and remove it.
- Disconnect the pressure switch and release the pipe on its entire route.
- Release the shock absorber pivots from the washing unit side.
- Release all the washing unit's support springs.
- Rotate the washing unit and remove it by pulling it to one side of the equipment.



REVISION:

Revision	Date	Description	Written by	Approved by:
00	10/2013	Document creation	MDM	XX – 0X/201X
01	08/2014	Page 52 Diagram modified and “Instantaneous door safety interlock” description added Page 56 “/instantaneous” added and diagram modified Page 61-64 added Page 65 “/instantaneous” added and diagram modified Page 66 “/instantaneous” added and diagram modified Page 71 Corrected from to D.S.P. Page 72 “/instantaneous” added and diagram modified Page 76 Diagram modified Page 77 “/instantaneous” added	MDM	XX – 0X/201X