

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

Publication
 number

599 75 58-67

EN

Edition: 05-2015 – Rev. 04

Washing machines

**with electronic
 control system**

EWM09311

EWM09312

EWX13611

EWX14931

Inverter UIMC

**Technical and functional
 characteristics**

TC5/TC4/TC3

Z3/Z6

Index

1	Purpose of this manual	6
2	WARNINGS	7
3	AESTHETICS TC5 / TC 4 / TC 3	8
4	TC 5	8
4.1	General characteristics	8
4.2	Control panels	9
4.2.1	Styling	9
4.2.2	Display board	9
4.2.3	Control panel configuration	10
4.2.3.1	Programme selector (S1)	10
4.2.3.2	Programme configuration	10
4.2.3.3	Sensor – LEDs and Display	11
4.2.3.4	Buzzer	14
5	TC 4	15
5.1	General characteristics	15
5.2	Control panels	16
5.2.1	Styling	16
5.2.2	Display board	16
5.2.3	Control panel configuration	17
5.2.3.1	Programme selector (S1)	17
5.2.3.2	Programme configuration	17
5.2.3.3	Sensor – LEDs and Display	17
5.2.3.4	Buzzer	20
5.3	Time manager	21
6	TC3	22
6.1	General characteristics	22
6.2	Control panels	23
6.2.1	Styling	23
6.2.2	Control panel configuration	24
6.2.2.1	Programme selector (S1)	24
6.2.2.2	Programme configuration	24
6.2.2.3	Sensors	25
6.2.2.4	Sensors – LEDs and LCD	26
6.2.2.5	Buzzer	29
6.2.3	Time Manager	30
6.2.3.1	Time Manager summary table	30
7	OPTIONS	31
7.1	Compatibility between options	31
7.2	Description of options	32
8	DEMO MODE SETTING	33
8.1	Access the DEMO setting for TC5 and TC4 styling	33
8.2	Access the DEMO setting for TC3 styling	33
8.3	Exiting DEMO mode	33
9	DIAGNOSTICS SYSTEM	34
9.1	Access diagnostics for TC5/TC4 styling	34
9.2	Access diagnostics for TC3 styling	34
9.3	Quitting the diagnostics system	34
9.4	Phases of the diagnostics test	35
10	ALARMS	38
10.1	Displaying the alarms to the user	38
10.1.1	Styling TC5	38
10.1.2	TC4/TC3 Styling	38
10.2	Reading the alarms	39
10.2.1	Viewing the TC5 aesthetic alarm	40
10.2.2	Example of alarm display	40
10.2.3	Behaviour of the alarms during diagnostic testing	40
10.3	Rapid reading of alarms	41
10.4	Deleting the last alarm	41
11	OPERATING TIME COUNTER	42
11.1	Reading the operating time	42
11.2	Display of total operating time	42
12	AESTHETICS Z3 / Z4	43
13	STYLING Z3	43
13.1	General characteristics	43

13.2	Control panels	44
13.2.1	Z3 Styling.....	44
13.2.2	Display board.....	44
13.3	Configuration of control panel Z3.....	45
13.3.1	Programme selector (S1)	45
13.3.2	Programme configuration	45
13.3.3	Buttons and LEDs.....	46
13.3.4	Display	47
14	Z6 STYLING.....	49
14.1	General characteristics	49
14.2	Control panels	50
14.2.1	Display board.....	50
14.2.2	Control panel configuration.....	50
14.2.3	Programme selector (S1)	50
14.2.4	Programme configuration	50
14.2.5	Buttons and LEDs.....	51
15	COMPATIBILITY BETWEEN WASH PROGRAMMES AND OPTIONS.....	53
15.1	Description of options.....	54
16	DEMO MODE SETTING	57
16.1	Exiting DEMO mode.....	57
17	DIAGNOSTICS SYSTEM.....	58
17.1	Accessing diagnostics.....	58
17.2	Quitting the diagnostics system	58
17.3	Phases of the diagnostics test	59
17.4	Selector efficiency check.....	60
17.4.1	Programme selector	60
18	ALARMS.....	61
18.1	Displaying the alarms to the user.....	61
18.1.1	Z3 Styling.....	61
18.1.2	Z6 Styling.....	61
18.2	Reading the alarms	62
18.2.1	Displaying the alarm	63
18.2.2	Example of alarm display	63
18.2.3	Behaviour of the alarms during diagnostic testing	63
18.2.4	Rapid reading of alarms	64
18.2.5	Deleting the last alarms.....	64
19	ALARM SUMMARY TABLE - EWM09311 / EWM09312 / EWX13611 / EWX14931	65
20	TECHNICAL CHARACTERISTICS.....	73
20.1	Electronic control.....	73
20.1.1	Programming/UPDATING THE MAIN CIRCUIT BOARD	73
20.1.2	EWM09312 Electrical characteristics with universal motor.....	74
20.1.3	EWM09311 Electrical features	75
20.1.4	EWX13611 Electrical characteristics.....	76
20.1.5	EWX14931 Electrical characteristics with three-phase motor and inverter.....	77
20.2	Washing unit	78
20.3	Welded tub assembly.....	78
20.4	Detergent dispenser	79
20.5	Detergent drawer	80
20.5.1	Arranging the flap in the detergent dispenser	80
21	ELECTRICAL COMPONENTS	81
21.1	Noise filter	81
21.2	Display board	81
21.3	Drain pump.....	82
21.3.1	General characteristics.....	82
21.4	Heating element.....	83
21.4.1	General characteristics.....	83
21.5	Temperature probe	84
21.5.1	General characteristics.....	84
21.6	Volt metric door safety device with PTC	85
21.6.1	General characteristics.....	85
21.7	Motor	86
21.7.1	General characteristics.....	86
21.7.2	Operating principle	86
21.7.2.1	Motor speed control.....	86
21.7.2.2	Direction of rotation of the motor.....	87
21.7.2.3	Tachometric generator	87
21.7.3	Power supply to motor.....	88

21.7.4	Three-phase asynchronous motor - inverter	89
21.7.4.1	General characteristics.....	89
21.7.5	Power supply to motor.....	89
21.8	Inverter	90
21.8.1	General characteristics.....	90
21.8.2	Anti-foam control system	90
21.9	Solenoid valves	91
21.9.1	General characteristics.....	91
21.10	Tub water level control analogue pressure switch.....	92
21.10.1	General characteristics	92
22	MAIN ELECTRICAL CIRCUIT DIAGRAM.....	93
22.1	EWM09311 & EWM09312 Diagram	93
22.2	Key to diagram	94
22.1	EWX13611 Operating circuit diagram.....	95
22.2	EWX14931 Operating circuit diagram (with three-phase motor)	96
23	ACCESSIBILITY.....	97
23.1	Worktop.....	97
23.2	From the worktop, you can access	97
23.2.1	Solenoid valve	97
23.2.2	Control panel	98
23.2.3	Display board/selector assembly TC5/TC4/TC3	99
23.2.4	Display board/spring and button assembly Z3/Z6	100
23.2.5	Analogue pressure switch	101
23.2.6	Detergent dispenser	102
23.2.7	Detergent/steam vent and fill pipe.....	103
23.2.8	Top counterweight	103
23.3	Accessing the front part	103
23.3.1	Bellow seal	103
23.3.2	Door hinge	104
23.3.2.1	Door hinge secured to cabinet with rivets	104
23.3.2.2	Door.....	104
23.3.2.3	Door hinge secured to cabinet with screws	104
23.3.2.4	Door.....	105
23.3.3	Door safety interlock.....	106
23.3.4	Blade.....	107
23.3.5	Accessing the rear part.....	110
23.3.6	Back panel.....	110
23.4	From the back panel, you can access	110
23.4.1	Belt.....	110
23.4.2	Pulley.....	111
23.4.3	Motor.....	111
23.4.4	Resistance	111
23.4.5	EWM09311 & EWM09312 Main circuit board	112
23.4.6	Main board EWX13611	114
23.4.7	EWX14931 Main board.....	116
23.4.8	Uimc.....	117
23.5	Bottom of the appliance	118
23.5.1	From the bottom of the appliance, you can access.....	118
23.5.2	Drain circuit.....	118
23.5.2.1	Drain pump.....	119
23.5.2.2	Tub drain pipe	120
23.5.3	Shock absorbers.....	120
23.5.4	Tub suspension springs.....	122
23.5.5	Welded tub assembly	122
23.5.6	Front counterweight.....	123

1 Purpose of this manual

The purpose of this manual is to provide service engineers who are already familiar with the repair procedures for household washing machines with information regarding washing machines fitted with the EWM09311, EWM09312, EWX13611 and EWX14931 and electronic control system.

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
- Setting: Demo, Diagnostics
- Alarms
- Technical and functional characteristics
- Accessing the various components

Please note:

The selector on this platform is not fitted with an ON/OFF switch; to cut off the power supply to the appliance, the plug must be removed from the power socket.

Low consumption mode

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

- Stand-By
- Stand-Off

Stand-By – Triggered after five minutes, during the programme selecting phase (since the washing machine does not receive any commands from the buttons or the selector dial) and at the end of the washing cycle. All LEDs are turned off (including the Display, if present), with the exception of the green LED on the START/PAUSE button, which flashes at a very low rate to signal that the appliance is powered, but is in low power consumption mode. The appliance exits Stand-By mode when any one of the buttons is pressed. The control panel lights up and displays the status of the appliance (last programme selected or end of programme) before Stand-By mode was entered.

Stand-Off – The appliance is in “Stand-Off” (virtual off) status when the selector dial or ON/OFF button is set to “OFF” or “0” (zero). Indeed this position leads to the cancelling of any programme that might have been selected, the LEDs being turned off, along with the Display, where featured. While the main board and the components upstream of the door safety interlock remain powered.

The plug must be removed from the mains socket to cut the power to the appliance.

To ensure the appliance is always **safe to operate**, even when you turn the selector dial to the OFF position (to cancel a programme in progress), with a high water level and the motor in motion, this will only translate to the user interface (control panel) being turned off, while the main board remains powered to keep the door safety interlock locked until the safety conditions are achieved.

2 WARNINGS

- Any work on electrical appliances must only be carried out by qualified technicians.
- Before servicing an appliance, check the efficiency of the electrical system in the home using appropriate instruments. For instance, please refer to the instructions provided/illustrated in the Electrolux Learning Gateway portal (<http://electrolux.edvantage.net>).

When the work is finished check that the equipment's safety conditions have been reinstated, as though it were straight 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 on 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. Do not remove/switch the NTC sensors between heating elements.



- Always empty the appliance of all the water before laying it on its side.

- Never place the appliance on its right side (electronic control system side): some of the water in the detergent dispenser could leak onto the electrical/electronic components and cause these to burn.

- Take care because some of the appliance parts may have sharp edges.

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



3 AESTHETICS TC5 / TC 4 / TC 3

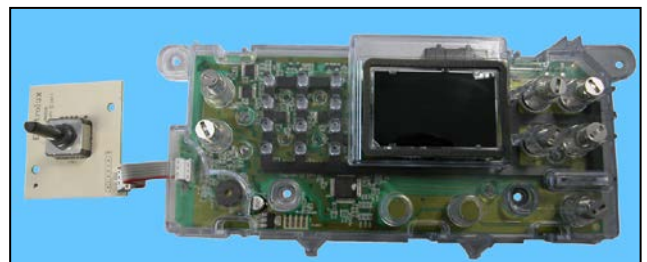
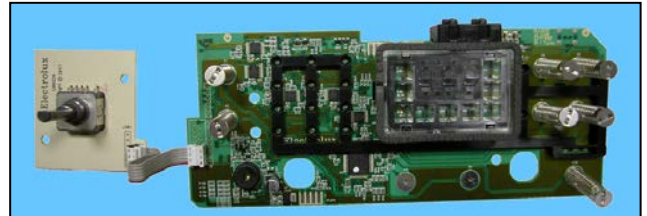
4 TC 5

4.1 General characteristics

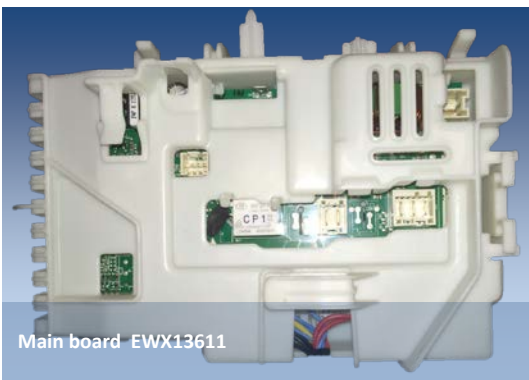
The EWM09312 / EWX13611 electronic control system consists of two circuit boards.

In the event of problems with the touch sensors (difficulty selecting/adjusting them), clean and dry the display and do not wear gloves when setting the chosen programme.

- ↪ The control/display circuit board, inserted in a plastic box, secured to the control panel (the figure illustrates: the display circuit board with the side support plate onto which the selector is secured, connected to one another by a flat cable and the display circuit board assembly).



- ↪ Main board, positioned in the bottom rear of the appliance. It powers the electrical components and receives commands from the display board.

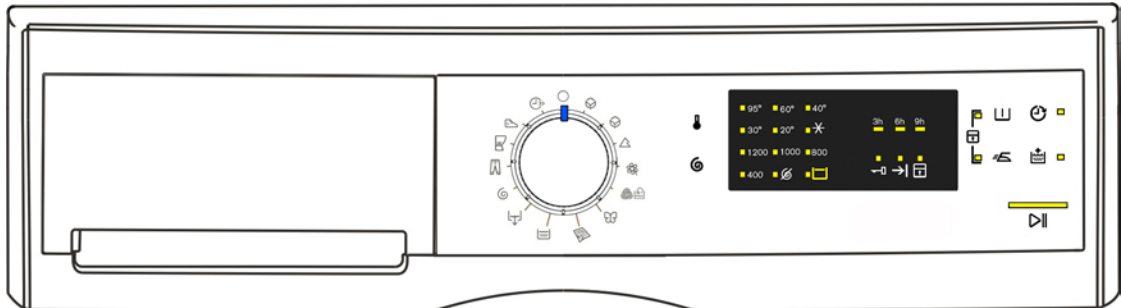


No. of touch-sensitive keys	▪ Maximum 7 (6 options + 1 start/pause)
No. LEDs	▪ Maximum 23 yellows + 1 red
Programme selector	▪ 15 positions (incorporated in the circuit board)
Power supply voltage	▪ 220/240 V ▪ 50/60 Hz (configurable)
Washing type	▪ Traditional with "Eco-ball"
Rinsing system	▪ Traditional with "Eco-ball"
Motor	▪ Collector, with tachometric generator (universal)
spin speed	▪ 800 ÷ 1,600 rpm
Anti-unbalancing system	▪ AGS
Cold water fill	▪ 1 solenoid valve with 1 inlet – 2 outlets
Detergent dispenser	▪ 2 compartments: pre-wash, wash and conditioners
Control of water level in the tub	▪ Electronic/analogue pressure switch
Door safety interlock	▪ Traditional (with PTC)
Heating element heat output	▪ 1,750 W with thermal fuses incorporated
Temperature check	▪ NTC probe incorporated in the heating element
Buzzer	▪ Traditional incorporated in the PCB

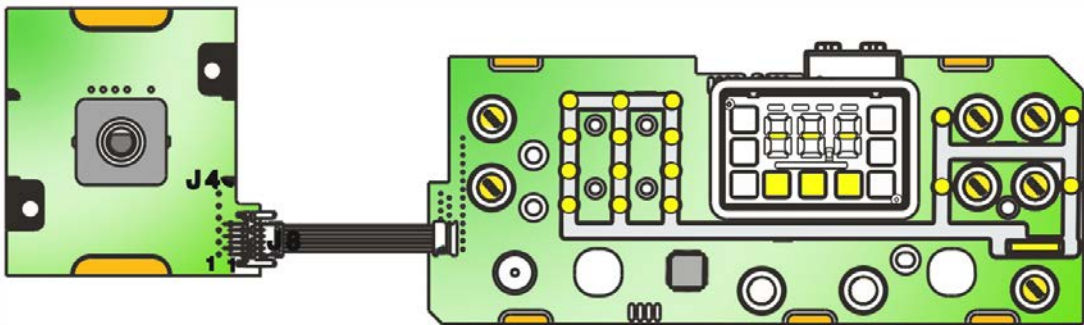
4.2 Control panels

4.2.1 Styling

- Max. 7 touch push buttons
- 15 position programme selector
- 24 LEDs

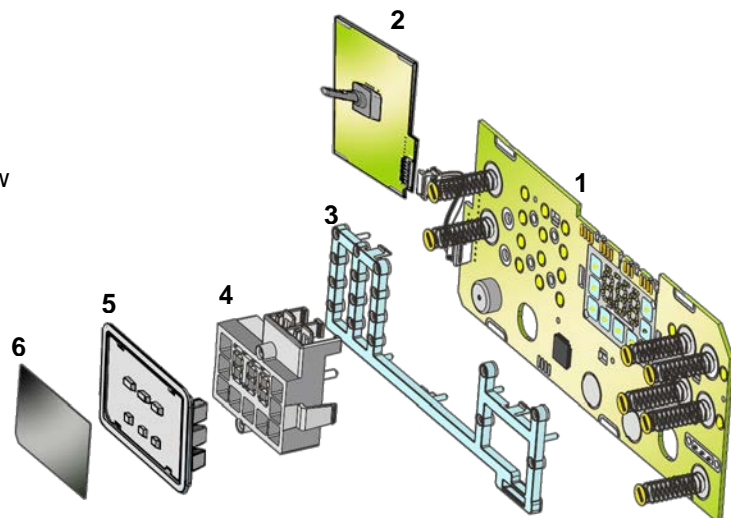


4.2.2 Display board

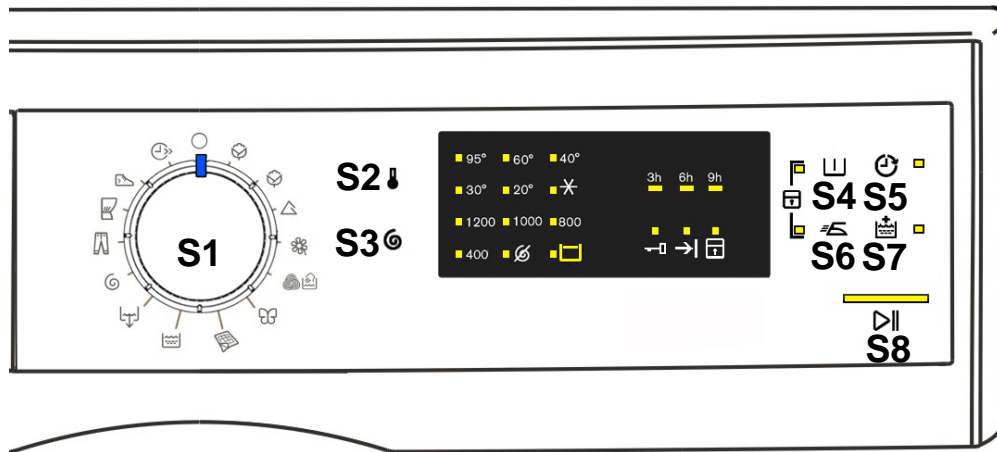


- Display board assembly, exploded view

1. Display board
2. Selector card with knob
3. Light divider
4. Digits light diffuser support
5. Digits light diffuser
6. Digital filter



4.2.3 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.

4.2.3.1 Programme selector (S1)

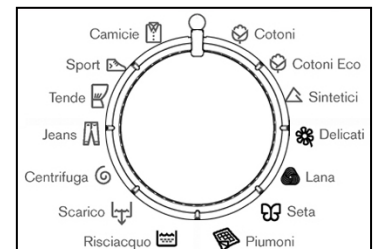
The knob has 15 non configurable positions.
There is no ON/OFF switch.

The 0 (zero) position is reserved for resetting the programme that is running and turn off all the LEDs on the display board.

The plug must be removed from the mains socket to cut the power to the appliance.

The various positions of the selector may be configured in order to perform the various washing programmes (e.g. water level, drum movement, No. of rinses and the washing temperature to be selected according to the type of laundry).

The selector can be turned both clockwise and anti-clockwise.
For each programme, the compatible options and other parameters are defined.
The programme temperature is selected using the relevant sensor.



4.2.3.2 Programme configuration

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

Types of fabric	Cotton/linen, Synthetic fabrics, Delicates, Wool, Hand-wash, Shoes, Jeans, Duvet, Silk.
Special programmes	Cotton/linen + pre-wash, Soak, Mini-programme, Easy-Iron, Conditioner, Rinse, Drain, Spin, Economy.
Temperature	Normal, Minimum, Maximum: the initial temperature is the one proposed for the washing programme.
Spin	Normal, Minimum, Maximum.
Options (Normal/Possible)	Rinse hold, Pre-wash, Extra rinse, Easy-Iron, Economy (energy label), Normal, Super quick, Reduced spin speed, No spin.
Programme phases	Pre-wash, Wash, Rinses, Spin, Delayed start.

4.2.3.3 Sensor – LEDs and Display

The function of each touch sensor is defined via the configuration of the appliance (the data and images are for guidance only).

The touch sensors are positioned under the silk-screen printed symbols on the control panel (circled here in red).



A light touch on the centre of the symbol is enough to activate/deactivate the function linked to the sensor with the switching on/off of the relative Led confirming that the enabling/disabling has taken place.

At the same time as the enabling/disabling, the cycle duration time is updated via the digits.

You need to keep your finger pressed down for a longer period of time with the Start/Pause sensor to confirm both the cycle's start and pause, in order to avoid unwanted starts or accidental pauses.

Every time you touch a sensor, you need to lift your finger up by a centimetre and half a second needs to elapse before touching it again, otherwise the electronic system does not recognise that the sensor has been touched for a second time.

The sensors used for adjusting the: temperature, spin and delayed start have a continued variation of values as long as your finger is in contact with the sensor.

- **Sensor no. 2: TEMPERATURE** (configurable)

The temperature is always associated with the first sensor, in combination with the six LEDs located in the top left hand corner of the display.

The initial temperature displayed is that set for the chosen programme.

By touching the sensor you can lower the temperature. Once this has been reached the selection starts again from the highest available one for the selected programme.

The selected temperature is shown by turning on the LEDs near the silk-screen printed value on the control panel.



The temperatures available (displayed in °C) are: **90°C, 60°C, 40°C, 30°C, 20°C cold cycle**.

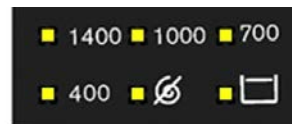
The cold cycle is indicated by the symbol .

The initial temperature set for each programme is configurable.


The temperature of 50°C is not envisaged.

- **Sensor no. 3: SPIN SPEED** (configurable)

The spin speed is always associated with the second sensor, in combination with the six LEDs located in the bottom left hand corner of the display.



The initial spin speed displayed is that set for the chosen programme.

Touching the sensor you can reduce the spin speed, indicated by the LED near the silk-screen printed value on the control panel coming on. Once the lowest speed has been reached you can, if you wish, select “No spin”, “Stop water in tub” lighting up the relative symbol , or “Night cycle” (if compatible with the selected programme).





The next selection will be the highest speed available for the selected programme.

The speeds that can be combined with the six LEDs are shown in the following table.

Max spin speed (rpm)	800	1,000	1,000	1,200	1,200-1,400	1,200-1,400	1,400-1,600	1,400-1,600	1,400-1,600	1,400-1,600
Intermediate	600	800	800	800	1,000	1,000	1,200	1,200	1,200	1,200
Intermediate	400	400	600	400	800	800	800	800	1,000	1,000
Intermediate	No speed	No speed	400	No speed	400	400	400	400	800	800
Intermediate	Rinse hold	Rinse hold	No speed	Rinse hold	Rinse hold	No speed	Rinse hold	No speed	Rinse hold	No speed
Last selection	Night cycle	Night cycle	Rinse hold	Night cycle	Night cycle	Rinse hold	Night cycle	Rinse hold	Night cycle	Rinse hold

- **Sensor no. 4-5-6-7** (configurable)

Each of the sensors located on the right hand side of the display can be combined with a LED and are used to choose one of the following four selected options:

-  Delayed start
-  Extra-rinse
-  Easy Iron
-  Pre-wash




Depending on the option/choices, the programme duration time is updated (via the three digits).


- **Sensor no. 8**

The function of this sensor is to START/PAUSE.

Touch this sensor to start a washing cycle, or to pause a washing cycle already under way.

It contains two LEDs:

 A **yellow** one which flashes when the appliance is in set-up, pause; it stays on when the cycle is under way and turns off when the cycle has ended.

 A **red** one that flashes (150 ms off, 150 ms on) in the event of an alarm or incorrect selection, such as: an incompatible option, an incorrect temperature for the chosen programme or the rotation of the programme selector dial or the selection of an option while a washing cycle is under way.



Display

The display is made with a black film (with transparent symbols), positioned above the yellow LEDs that allow light to filter through when they are activated with the display of the selected option symbol.



The display shows the following information.

🔑 - **The end of the programme**

The symbol lights up when the washing cycle ends and you can open the door.



🔑 - **Delayed start**

During the selection phase with the relative sensor, you can choose three possible delayed starts:

3 hrs-6 hrs-9 hrs

After start up the LEDs only stay on for the time period dedicated to them:

LED **3 hrs** stays on for the last 3hrs, before the washing cycle starts

LED **6 hrs** stays on for the period between 6 hrs and 3 hrs

LED **9 hrs** stays on for the period between 9 hrs and 6 hrs



🔑 - **Padlock:**

When lit, it indicates that all the sensors are disabled to prevent children from altering, starting or pausing the cycle.

To disable this function, a sensor combination needs to be pressed, which can be printed on the control panel or described in the instruction manual.



🔒 - Door closed

It lights up when the safety device prevents the door opening and switches off when it can be opened.
It flashes when the device is about to unlock the door (it should be noted with PTC delaying devices, which need one or two minutes to open).



4.2.3.4 Buzzer

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

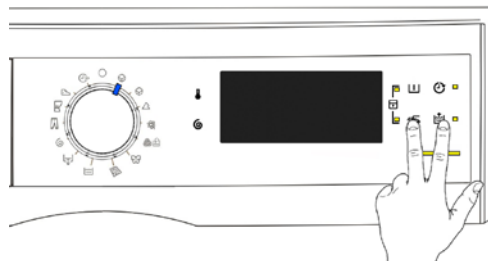
- When the appliance is turned on and off, it plays two different musical tunes.
- When a sensor is pressed it emits a short “**Click**”
- When the cycle ends this is indicated by a special sequence of “**three long beeps**” repeated at intervals of 15" for a total of 2 minutes. The sequence can only 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 has a factory setting which 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 3 seconds. A short beep will confirm that it has been enabled, whereas two short beeps will confirm that it has been disabled.

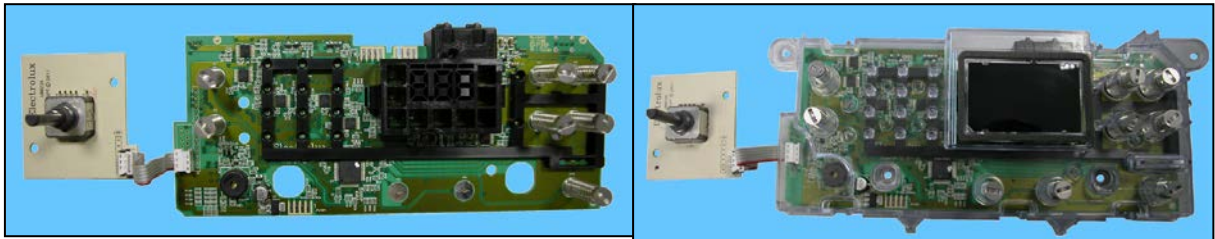
5 TC 4

5.1 General characteristics

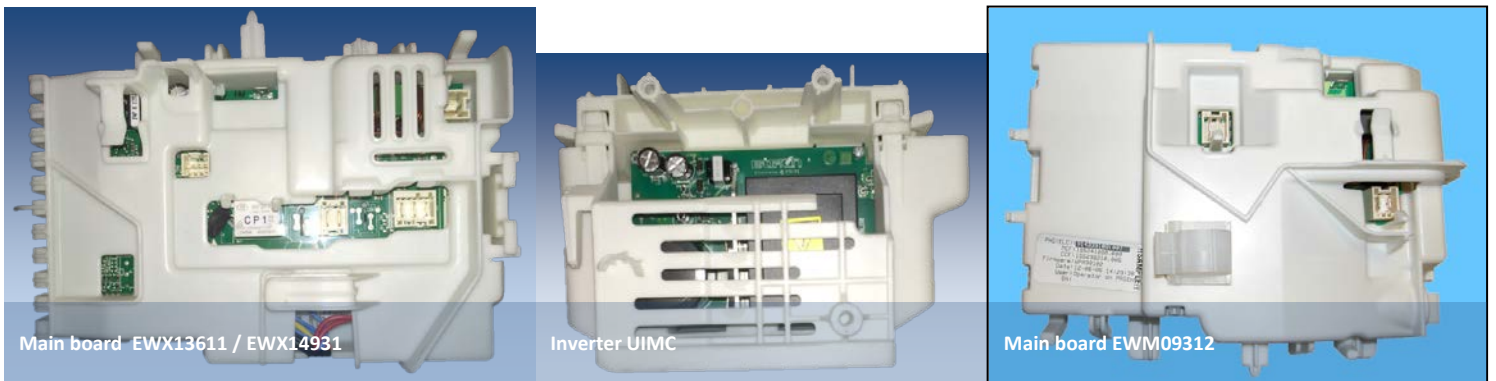
The EWM09312 / EWX13611 / EWX14931 electronic control system consists of two circuit boards plus the motor control (Inverter) for washing machines.

In the event of problems with the touch sensors (difficulty selecting/adjusting them), clean and dry the display and do not wear gloves when setting the chosen programme.

- ↪ The control/display circuit board, inserted in a plastic box, secured to the control panel (the figure illustrates: the display circuit board with the side support plate onto which the selector is secured, connected to one another by a flat cable and the display circuit board assembly).



- ↪ Main board, positioned in the bottom rear of the appliance. It powers the electrical components and receives commands from the display board as well as for EWX14931 communicating with the motor control board (Inverter UIMC).

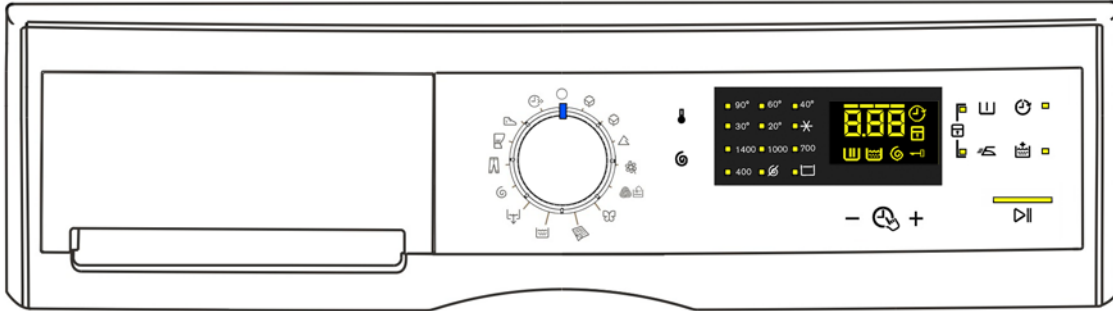


No. of touch-sensitive keys	<ul style="list-style-type: none"> ▪ Maximum 9 (8 options + start/pause)
No. LEDs	<ul style="list-style-type: none"> ▪ Maximum 27 yellow + 1 red LED + Digit (made up of 22 LEDs)
Programme selector	<ul style="list-style-type: none"> ▪ 15 positions (incorporated in the circuit board)
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"
Rinsing system	<ul style="list-style-type: none"> ▪ Traditional with "Eco-ball"
Motor	<ul style="list-style-type: none"> ▪ Collector, with tachometric generator (universal)
spin speed	<ul style="list-style-type: none"> ▪ 1,000 ÷ 1,600 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 outlets
Detergent dispenser	<ul style="list-style-type: none"> ▪ 2 compartments: pre-wash, wash and conditioners
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)
Heating element heat output	<ul style="list-style-type: none"> ▪ 1,750 W 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

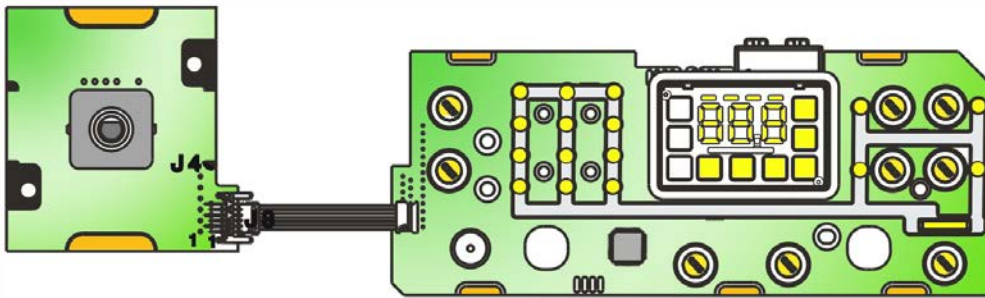
5.2 Control panels

5.2.1 Styling

- Max. 9 touch push buttons
- 15 position programme selector
- 27 yellow LEDs + 1 red LED
- Digits made up of 22 LEDs

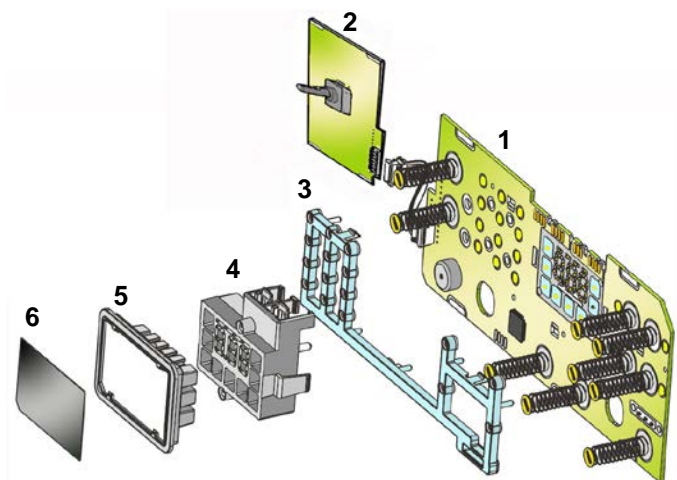


5.2.2 Display board

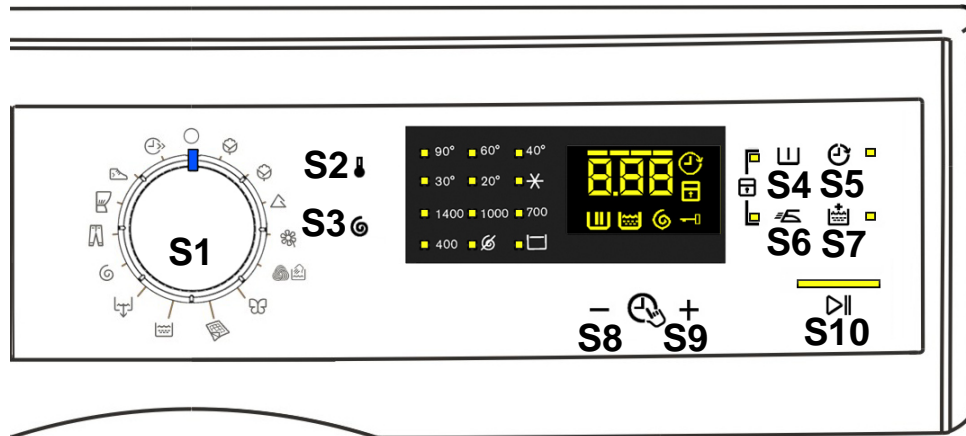


- Display board assembly, exploded view

1. Display board
2. Selector card with knob
3. Light divider
4. Digits light conveyor
5. Digits light diffuser
6. Silk-screen printed digital filter



5.2.3 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.

5.2.3.1 Programme selector (S1)

See sect. 4.2.3.1 Programme selector (S1) page 10

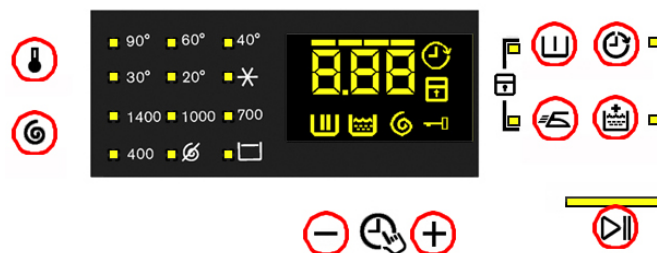
5.2.3.2 Programme configuration

See sect. 4.2.3.2 Programme configuration page 10

5.2.3.3 Sensor – LEDs and Display

The function of each touch sensor is defined via the configuration of the appliance (the data and images are for guidance only).

The touch sensors are positioned under the silk-screen printed symbols on the control panel (circled here in red).



A light touch on the centre of the symbol is enough to activate/deactivate the function linked to the sensor with the switching on/off of the relative Led confirming that the enabling/disabling has taken place.

Simultaneously to the enabling/disabling of the options, the cycle duration time is updated via the digits.

You need to keep your finger pressed down for a longer period of time with the Start/Pause sensor to confirm both the cycle's start and pause, in order to avoid unwanted starts or accidental pauses.

Every time you touch a sensor, you need to lift your finger up by a centimetre and half a second needs to elapse before touching it again, otherwise the electronic system does not recognise that the sensor has been touched for a second time.

The sensors used for adjusting the: Temperature, Spin, Delayed start and Time Manager have a continued variation of values as long as your finger is in contact with the sensor.

- **Sensor no. 2:** TEMPERATURE (configurable)

See sect. 4.2.3.3 Sensor – LEDs and Display page 11

- **Sensor no. 3:** SPIN SPEED (configurable)

See sect. 4.2.3.3 Sensor – LEDs and Display page 11

- **Sensor no. 4-5-6-7** (configurable)

See sect. 4.2.3.3 Sensor – LEDs and Display page 11

- **Sensor no. 8-9**

These two sensors are positioned under the display and act as:

↳ Time manager

Allowing the end user to lengthen or shorten the washing cycle duration, this adjustment should be done after setting the temperature value and the spin speed.



- **Sensor no. 10**

This sensor has the START/PAUSE function, used to start up a washing programme, after selecting the washing cycle and required options; it can also pause a cycle that has already started: to allow you to change selected option or open the door (if the temperature conditions or water level allow for this).

The cycle re-starts if you touch the sensor again.

The Led combined with this sensor flashes slowly: in the selection phase, during the pause and at the end of a cycle with water in the tub. It stays lit when a cycle is running and turns off when the cycle has ended and the door is unlocked.



While other sensors when touched immediately change from selected to de-selected, in the case of this sensor, more time is needed to avoid unwanted cycle start ups or pauses.

Display

The display is produced by a black film with transparent, silk-screen printed symbols, that are lit by yellow LEDs when activated.



The display shows the following information.

↖ - **Duration of the washing programme**, which appears after it has been selected. This time corresponds to the time required for the maximum wash load for each type of programme. If an option is selected/deselected, the time is automatically updated. After the programme has started, the time decreases (and is updated) minute by minute.



↖ - **End of the programme** is indicated by a **permanently lit zero** (when the door can be opened).



↖ - **Appliance stopped with water in the tub**, after programmes with the RINSE HOLD option. This is displayed by a **permanently lit zero**. The symbol indicating the door remains on and the LED of the START/PAUSE sensor is turned off. The washing machine continues to operate, rotating the drum once every 2 minutes.

↖ - **Delayed start:** selected using the relative sensor, every time the delayed time is pressed, it increases and is simultaneously shown on the display.


↖ Up to 90 minutes the increases are of 30 minutes (↻ 30 min. ↻ 60 min. ↻ 90 min.)

↖ From 2-20 hours the increases are of 1 hour(2 hrs. ↻ 3 hrs... ↻ 20 hrs. ↻ 0 hrs.).

In order to reset the delay time, reach the maximum delay time (20 hours) and the next time the sensor is pressed the delay time is cancelled.

Once the delay time has been set, after 3" of no sensor being touched, the display will once again show the programme's duration time. Press the sensor once to view the set delay time. After starting the cycle the display shows the delay time count down.



The icon  and LED near the silk-screen printed symbol stay on, for the entire selection and delay phase, to show that the function is active.

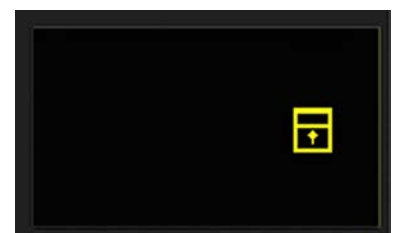
During the last hour, the time decreases minute by minute.

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

↖ - **Padlock:**

When lit, it indicates that all the sensors are disabled to prevent children from altering, starting or pausing the cycle.

To disable this function, a sensor combination needs to be pressed, which can be printed on the control panel or described in the instruction manual.



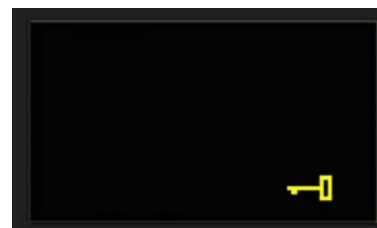
- ↶ - **Incorrect choice:**
Displayed by the message "Err", when a function that is not compatible with the chosen programme is selected.
The display duration is two seconds.



- ↶ - **Alarm code:**
Alarm code indicates an error in the appliance operation. The START/PAUSE sensor flashes when the code is displayed.



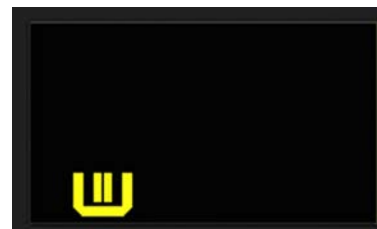
- ↶ - **Door closed:**
It lights up when the safety device prevents the door opening and switches off when it can be opened.
It flashes when the device is about to unlock the door (it should be noted with PTC delaying devices, which need one or two minutes to open).



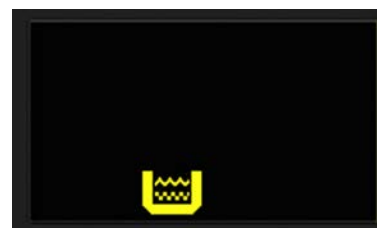
- ↶ - **Time manager:**
Represented by four segments positioned above the digits.
(See [sect. 5.3 Time manager page 21](#))



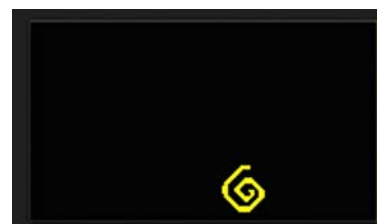
- ↶ - **Wash phase:**
It lights up during the washing phase.



- ↶ - **Rinse phase:**
It lights up during the rinse phase.



- ↶ - **Spin phase:**
It lights up during the drainage phase before and during the final spin.



5.2.3.4 Buzzer

See [sect. 4.2.3.4 Buzzer page 14](#)

5.3 Time manager

The time manager is an option available in programmes for Cotton, Synthetics, Delicates and Jeans.

During the selection of the washing cycle, four segments above the digits light up which show that the programme manages the "Time Manager" option.

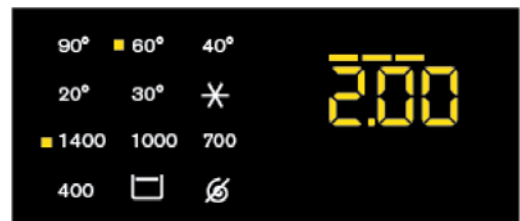
The final user can reduce the three level washing cycle duration, simultaneously with each selection: the display updates the washing cycle time and turns off a segment.

When a programme with "Time manager" is selected the four segments light up that correspond to the maximum duration time of the selected programme.

Touching the sensor with the "+" sign there is no variation. The four segments stay lit and the time shown by the digits does not vary.



Touching the sensor with the "-" sign once, one segment turns off and simultaneously the washing time shown by the digits decreases.



Touching the sensor with the "-" sign twice, two segments turn off and simultaneously the washing time shown by the digits decreases further.



Touching the sensor with the "-" sign three times, three segments turn off and simultaneously the washing time shown by the digits decreases further.

Only one segment that indicates the minimum level of the "Time manager" is still lit.



Continuing to touch the sensor with the "-" sign no other segment turns off and the time does not decrease any further.

Once the minimum level has been reached to obtain a variation, you need to touch the sensor with the "+" sign. An increase in time shown by the digits will be obtained with the respective increase in the number of segments lit, until they are all lit and the maximum time shown will be that of the programme.

There is no "Time manager" in the "Cotton Eco" programme, however the segments are lit. By pressing the "Time manager" sensor once to reduce the time two segments are deselected.

6 TC3

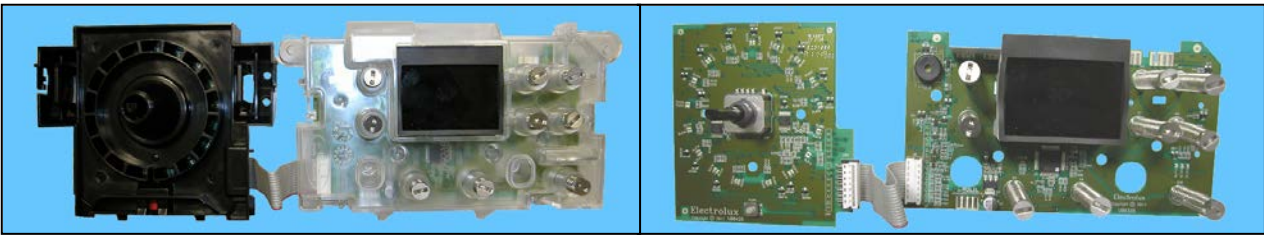
6.1 General characteristics

The EWM09312 / EWX13611 / EWX14931 electronic control system consists of two circuit boards plus the motor control (Inverter) for washing machines.

The TC3 styling has a single ON/OFF button, all the other choices/adjustments are made by skimming your finger over the touch sensors, which replace the buttons used so far.

In the event of problems with the touch sensors (difficulty selecting/adjusting them), clean and dry the display and do not wear gloves when setting the chosen programme.

- ↪ The control/display circuit board, inserted in a plastic box, secured to the control panel (the figure illustrates: the display circuit board with the side support plate onto which the selector is secured, connected to one another by a flat cable and the display circuit board assembly).



- ↪ Main board, positioned in the bottom rear of the appliance. It powers the electrical components and receives commands from the display board as well as for EWX14931 communicating with the motor control board (Inverter UIMC).

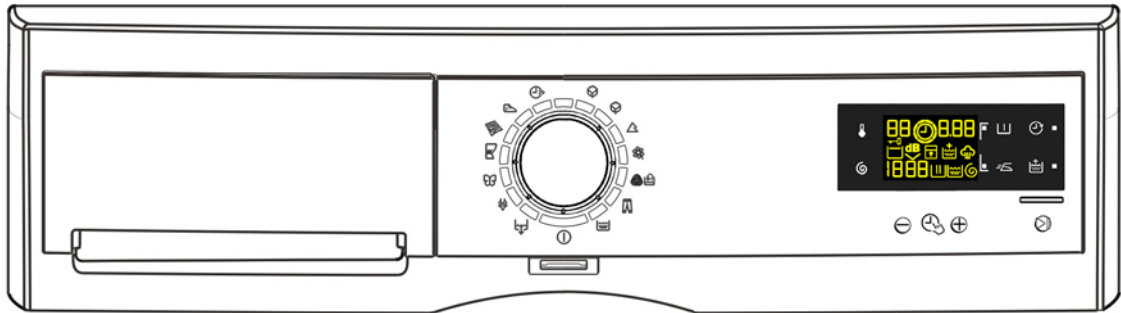


No. of buttons	▪ Maximum 1 (ON/OFF)
No. of sensors	▪ Maximum 9 (8 options + 1 start/pause)
No. LEDs	▪ Maximum 22 + LCD
Programme selector	▪ 14 positions (incorporated in the circuit board)
Serial port	▪ DAAS-EAP communication protocol up to 115,200 baud
Power supply voltage	▪ 220/240 V ▪ 50/60 Hz (configurable)
Washing type	▪ Traditional with "Eco-ball"
Rinsing system	▪ Traditional with "Eco-ball"
Motor	▪ Collector, with tachometric generator (universal)
spin speed	▪ 400 ÷ 1,600 rpm
Anti-unbalancing system	▪ AGS
Cold water fill	▪ 1 solenoid valve with 1 inlet – 2 outlets
Detergent dispenser	▪ 3 compartments: pre-wash, wash and conditioners.
Control of water level in the tub	▪ Electronic/analogue pressure switch
Door safety interlock	▪ Traditional (with PTC)
Heating element heat output	▪ 1,950 W with thermal fuses incorporated
Temperature check	▪ NTC probe incorporated in the heating element
Buzzer	▪ Traditional incorporated in the PCB

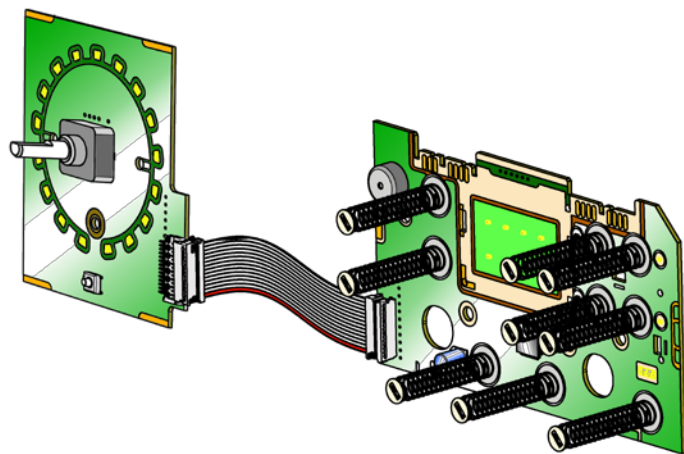
6.2 Control panels

6.2.1 Styling

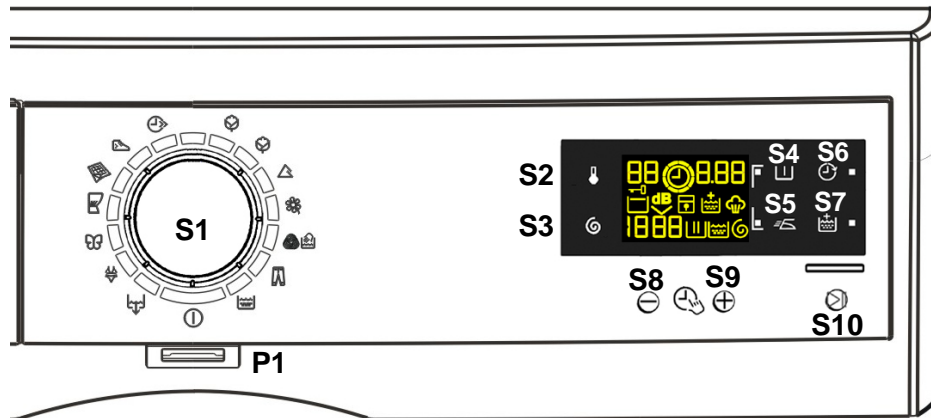
- Max. 1 Button
- Max. 9 sensors
- 14 position programme selector
- 22 LEDs
- LCD



- Positioning of LEDs and sensors



6.2.2 Control panel configuration



The washing programmes, the functions of the selector knob (where featured) and the various sensors vary according to the model, since these are determined by the configuration of the appliance.

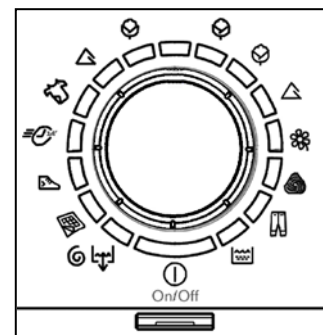
6.2.2.1 Programme selector (S1)

The selector used is of the HI-FI type (the dial has no index and no reset position, the programme selected is indicated by the fact that the corresponding LED lights up). The number of positions cannot be configured. There are always 14 (in all styling) 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.



6.2.2.2 Programme configuration

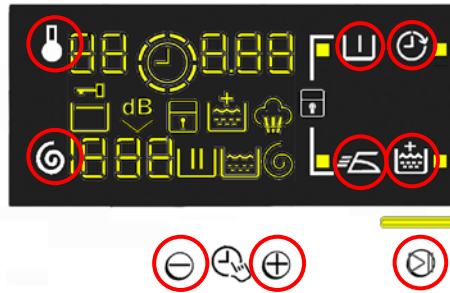
The table below lists the parameters that can be used to define the washing programmes.

Types of fabric	Cotton/linen, Synthetic fabrics, Delicates, Wool, Hand-wash, Shoes, Jeans, Duvet, Silk.
Special programmes	Soak, Mini-programme, 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.
Options (Normal/Possible)	Rinse hold, Night cycle, Pre-wash, Stains, Extra Rinse, Easy-Iron, Time Manager 1/2/3/4/5/6/7/8, Reduced spin speed, No spin.
Programme phases	Pre-wash, Wash, Rinses, Spin, Delayed start.

6.2.2.3 Sensors

The function of each touch sensor is defined via the configuration of the appliance (the data and images are for guidance only).

The touch sensors are positioned under the silk-screen printed symbols on the control panel (circled here in red).



A light touch on the centre of the symbol is enough to activate/deactivate the function linked to the sensor with the switching on/off of the relative Led confirming that the enabling/disabling has taken place.

Simultaneously to the enabling/disabling of the options, the cycle duration time is updated via the digits.

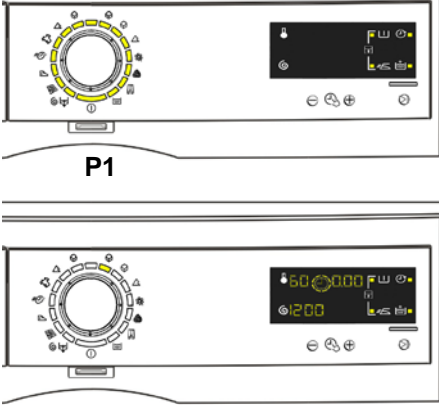
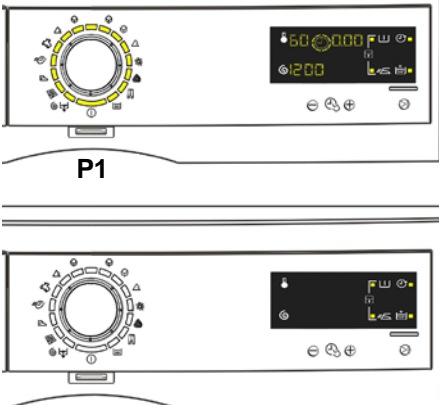


You need to keep your finger pressed down for a longer period of time with the Start/Pause sensor to confirm both the cycle's start and pause, in order to avoid unwanted starts or accidental pauses.

Every time you touch a sensor, you need to lift your finger up by a centimetre and half a second needs to elapse before touching it again, otherwise the electronic system does not recognise that the sensor has been touched for a second time.

The sensors used for adjusting the: Temperature, Spin, Delayed start and Time Manager have a continued variation of values as long as your finger is in contact with the sensor.



6.2.2.4 Sensors – LEDs and LCD

The function of each button is defined by the configuration of the appliance.

<ul style="list-style-type: none"> Button no. 1: ON/OFF - ON <p>Press it to turn the appliance on, at the same time the buzzer will sound a tone (if enabled), all the LEDs around the selector dial will light up for an instant and the LCD display stays off (figure above). When the initial phase has ended, only one LED remains lit and the LCD display shows the basic settings of a programme (figure below).</p> <p>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. Press the ON/OFF button to cancel the chosen programme.</p>	
<ul style="list-style-type: none"> Button no. 1: ON/OFF - OFF <p>To turn the appliance off, press this button and hold it down for approximately 1 second, after this time the buzzer will sound a tone (if enabled), all the LEDs around the selector dial will light up for an instant (figure above), the LCD display shows the programme settings, then the following switch off: the LEDs around the selector dial, the Start/Pause LED, the LCD display (figure below).</p>	
<ul style="list-style-type: none"> Sensor no. 2: TEMPERATURE <p>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. Touch the sensor (represented by the thermometer symbol) in sequence to lower the temperature. Once the lowest temperature has been reached, the selection starts off again from the highest one available for that particular programme.</p> <p>The temperatures available (displayed in °C) are: 90°C, 60°C, 50°C, 40°C, 30°C, 20°C, cold cycle.</p> <p>The cold cycle is displayed by two dashes .</p>	


• **Sensor 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.
 Touch the sensor (represented by the spin cycle symbol) in sequence to lower the speed; once the lowest speed has been reached, the next selections are:

- “Rinse hold” and the related symbol lights up  (where compatible with the chosen programme, and it also lights up during the “Extra silent” programme in the washer-dryer).
- “Night cycle” and the related symbol lights up  (not available in the washer-dryer).

The next selection will be the highest speed available for the programme.








The spin speeds are: 1,600–1,400–1,200–1,000–800–600–400–0
 “No spin”, “Rinse hold” and “Night cycle”

When no speed is selected, or one of the following cycles is selected: “No spin”, “Rinse hold” and “Night cycle”, the LCD display shows three dashes .

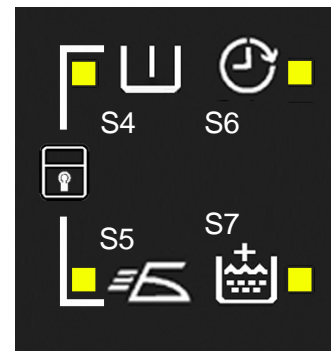


• **Sensor nos. 4-5-6-7: OPTION (configurable)**

Each of the sensors located on the right hand side of the LCD display can be combined with a LED and are used to choose one of the following options:


-  Delayed start
-  Super rinse
-  Easy Iron
-  Pre-wash
-  Hot and cold water (only TC3 WM where featured)
-  Automatic drying (washer-dryer only) (see options)
-  Time-controlled drying (washer-dryer only) (see options)

Depending on the option/choices, the programme duration time is updated (via the three digits).

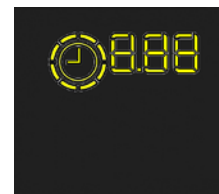


• **Sensor nos. 8-9**

These two sensors are positioned under the display and act as:

-  Time manager

Allowing the end user to lengthen or shorten the washing cycle duration, this adjustment should be done after setting the temperature value and the spin speed.



• **Sensor no. 10**

This sensor has the START/PAUSE function, used to start up a washing programme, after selecting the washing cycle and required options; it can also pause a cycle that has already started: to allow you to change selected option or open the door (if the temperature conditions or water level allow for this).

The cycle re-starts if you touch the sensor again.

The LED combined with this sensor flashes slowly: in the selection phase, during the pause and at the end of a cycle with water in the tub.

It stays lit when a cycle is running and turns off when the cycle has ended and the door is unlocked.





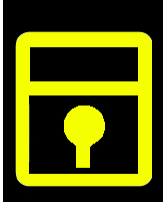





While other sensors when touched immediately change from selected to de-selected, in the case of this sensor, more time is needed to avoid unwanted cycle start ups or pauses.









LCD

The information described below also appears on the LCD:

<ul style="list-style-type: none"> • Programme phases The three icons shown have the following meanings, respectively: <ul style="list-style-type: none"> – Wash  – Rinse  – Spin  <p>They are lit during the selecting phase to display which phases the programme includes.</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>	
<ul style="list-style-type: none"> • Padlock The icon lights up when the “child lock” is on. To indicate that all the sensors are disabled to prevent children from modifying, starting or pausing the cycle. Touch any sensor or turn the selector dial during its activation and the icon will flash. <p>A sensor combination needs to be pressed to activate/deactivate it. It may be silk-screen printed on the control panel or described in the instruction manual.</p>	
<ul style="list-style-type: none"> • Door closed sensor Lights up when the safety device stops door opening and switches off when the door can be opened. It flashes when the device is about to unlock the door (it is noticed with PTC delaying devices, which need one or two minutes to open). 	
<ul style="list-style-type: none"> • Washing programme time 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. After the programme has started, the time decreases (and is updated) minute by minute. 	
<ul style="list-style-type: none"> • Delayed start Selected on the related sensor. After the START/PAUSE sensor has been touched, the countdown starts and the delay time decreases hour by hour, from a delay of 2 hours up to 20 hours (⌂ 30' ⌂ 60' ⌂ 90' ⌂ 2h ⌂ 3h ... ⌂ 20h ⌂ 0h). During the last 2 hours, it decreases by 30 min. at a time. During the delayed start, the LED beside the silk-screen printed symbol on the front panel  remains permanently lit. 	
<ul style="list-style-type: none"> • Selection incorrect Displays the flashing message “Err”, for one second. When a function not compatible with the chosen programme is selected, or if the selector is turned when a cycle is in progress. 	

<ul style="list-style-type: none"> • End of cycle End of the programme is indicated by a permanently lit zero (when the door can be opened). • Appliance stopping with water in the tub, at the end of Programmes with the RINSE HOLD option, this is displayed by a permanently lit zero. The LED indicating the door remains on and the LED of the START/PAUSE sensor is turned off. The washing machine continues to operate, rotating the drum once every 2 minutes. 	
<ul style="list-style-type: none"> • Alarm code Indicates an anomaly during operation of the machine. Simultaneously to the displaying of the code on the LCD display, the LED above the START/PAUSE sensor flashes. 	
<ul style="list-style-type: none"> • Calculate amount of washing Only for appliances with PROPORTIONAL programmes. After the washing programme has started, the dot starts to flash. The washing machine is now calculating the laundry load inside the drum. When this phase is completed, the dot is lit continuously and the three digits display the programme time. 	
<ul style="list-style-type: none"> • Extra-rinse Appliances which do not feature the button and related LED for the extra rinse option can enable/disable this option by pressing a sensor 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. The option remains enabled even after the appliance has been turned off (for subsequent programmes). 	

6.2.2.5 Buzzer

See sect. 4.2.3.4 Buzzer page 14

6.2.3 Time Manager

The Time Manager is an option available in programmes for Cotton, Synthetics, Delicates and Jeans.

The Time Manager is represented on the right-hand side of the LCD display, and it consists of: eight segments surrounding the clock and three digits, which indicate the duration of the washing cycle.




For the Cotton and Synthetics programmes, there are 8 Time Manager levels; level 6 is set by default by the appliance, so the end user can reduce it by 5 levels to achieve a shorter cycle or increase it by 2 levels to achieve a more economical but longer cycle.

There are 4 Time Manager levels for the Delicates programmes too, but the end user can only reduce it by 3 levels.

There is no Time Manager in the “Cotton Eco” programme (Energy Label), however all 8 segments are displayed when this programme is selected; four are turned off when the Time Manager sensor is pressed just once to reduce the time.

6.2.3.1 Time Manager summary table

This table shows: the Time Manager levels and the corresponding icon shown on the LCD display depending on the fabrics.

	TM index	8 Levels		8 Levels		4 Levels		4 Levels	
		COTTON		SYNTHETICS		DELICATES		ECONOMY	
		Option	Segments	Option	Segments	Option	Segments	Option	Segments
Shortest cycle	TM1	TM1		TM1		-----	-----	-----	-----
	TM2	TM2		TM2		TM2		-----	-----
	TM3	TM3		TM3		-----	-----	-----	-----
	TM4	TM4		TM4		TM4		TM4	
	TM5	TM5		TM5		-----	-----	-----	-----
	TM6	TM6		TM6		TM6		-----	-----
	TM7	TM7		TM7		-----	-----	-----	-----
Longest cycle	TM8	TM8		TM8		TM8		-----	-----

Cooling
Default Level
Eco Level

7 OPTIONS

7.1 Compatibility between options

		OPTIONS														
		Rinse hold	Night cycle	Pre-wash	Stains	Extra-rinse	Easy-iron	Economy	TM 8	TM 7	TM 6	TM 5	TM 4	TM 3	TM 2	TM 1
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	X
	Pre-wash	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
	Super rinse	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
	Economy	X	X	X	X	X	X						X			
	TM 8	X	X	X	X	X	X									
	TM 7	X	X	X	X	X	X									
	TM 6	X	X	X	X	X	X									
	TM 5	X	X	X	X	X	X									
	TM 4	X	X	X	X	X	X	X								
	TM 3	X	X	X	X	X	X									
	TM 2	X	X	X	X	X	X									
TM 1	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									
	Wash	X	X			X	X									
	Rinses	X														
	Spin															

The delayed start is compatible with all programmes except for drain; the maximum time selectable is 20 hours.
 The selection of the spin cycle is available for all programmes, except for drain/extra silent.

7.2 Description of options

- **Rinse hold**
 - Stops the appliance with water in the tub before the final spin cycle.
 - To drain the water, reset the programme and then select a drain or spin cycle.
- **Pre-wash**
 - Adds a pre-wash phase at the start of the cycle with water heating to 30°C (or cold, if selected).
 - Available in COTTON cycles, performs a short spin before advancing to the wash phase.
- **EXTRA-rinse**
 - Add **two** rinses to the cycles where featured.
 - Eliminates the spin at the end of washing.

ENABLING/DISABLING EXTRA RINSE USING A COMBINATION OF SENSORS		
Appliances which do not envisage the SUPER RINSE option combined with a button can enable it through a sensor combination.		
TC 5	TC 4	TC 3
During the selecting phase, touch the two sensors 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.
- **TM5-6-7-8**
 - Modifies the structure of the COTTON - SYNTHETIC FABRICS - DELICATES cycles to obtain good washing performance in a variable amount of time.
- **TM2-3-4**
 - Modifies the structure of the wash phase of the COTTON - SYNTHETIC FABRICS - DELICATES cycles by half a load.
- **TM1**
 - Modifies the structure of the wash phase of the COTTONS - SYNTHETICS - DELICATES cycles by 1 kg of laundry.
- **Delayed start time**
 - Adds a pause before the start of the programme. The delay time is displayed on the three digits
 - 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 last one, the time decreases one minute at a time.
 - 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.
- **Easy-iron**
 - In COTTON programmes:
 - adds **three** rinse cycles
 - eliminates intermediate spin cycles
 - performs a pulse spin phase before the final spin
 - adds an "untangling" phase after the spin cycle
 - In SYNTHETIC FABRICS programmes:
 - it reduces the heating temperature in 50/60°C cycles to 40°C
 - increases the wash time
 - prolongs the cooling phase at the end of the wash phase
 - adds **one** rinse cycle
 - adds an "untangling" phase after the pulse spin cycle

8 DEMO MODE SETTING

A special cycle allows demonstration of the operation of these appliances in shops, in a user interactive manner, without connecting them to the water mains:


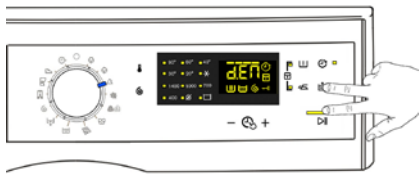
- ◆ The interactive mode consists of selecting one of the programmes, adding any options and, once the start button has been pressed, the appliance will only perform certain of the phases of the programme, skipping those that cannot be performed (water fill, drain, heating).

The cycle takes place as follows:

- ↪ The door lock is enabled as usual (door locked during operation, possibility of opening it at the end of the cycle or when paused).
- ↪ Motor: all low speed movements are enabled, the pulses and spin are disabled,
- ↪ The water fill solenoid valves and the drain pump are disabled.
- ↪ Display: displays all the phases of the programme very quickly.
- ↪ Alarms: for safety reasons, the E40 (door closed), E50 (motor) and E90 (communication between boards/configuration) families of alarms are enabled.

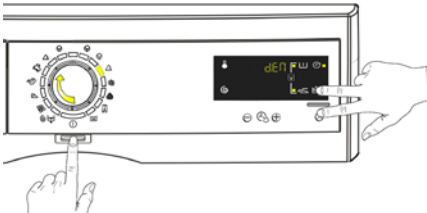
8.1 Access the DEMO setting for TC5 and TC4 styling

The operations listed below must be carried out within 7 seconds.

TC 5	TC 4
	
<p style="text-align: center;"><u>Do not start the procedure with your fingers over the combination sensors</u></p> <ol style="list-style-type: none">1. Set the selector dial to position 0 (zero).2. Turn the three position switch clockwise.3. Simultaneously press the START/PAUSE button and the nearest option sensor (as shown in the diagram).4. Keep your finger above the sensors until: The LEDs start flashing for the TC5 styling with the exception of the Start/Pause LED. The flashing wording "DEM" appears on the display for the TC4 styling	

8.2 Access the DEMO setting for TC3 styling

The operations listed below must be carried out within 7 seconds.

TC 3

<p style="text-align: center;"><u>Do not start the procedure with your fingers over the combination sensors</u></p> <ol style="list-style-type: none">1. Switch on the appliance using the ON/OFF button.2. Turn the selector clockwise until the third LED lights up.3. Simultaneously press the START/PAUSE button and the nearest option sensor (as shown in the diagram).4. Hold your fingers over the sensors (approximately three or five seconds) until "dEM" flashes for a short time.

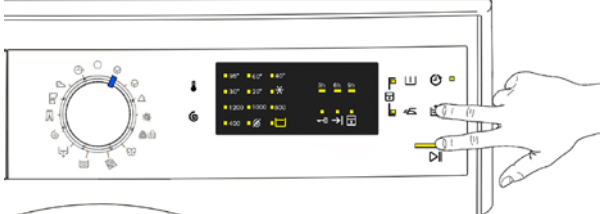
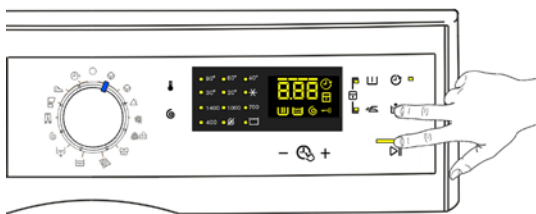
8.3 Exiting DEMO mode

To exit the demo mode, disconnect the plug from the power supply, because the ON/OFF pushbutton in the TC3 styling and the rotation of the selector knob to position 0 (zero) for the TC4/TC5 styling have no function.

9 DIAGNOSTICS SYSTEM

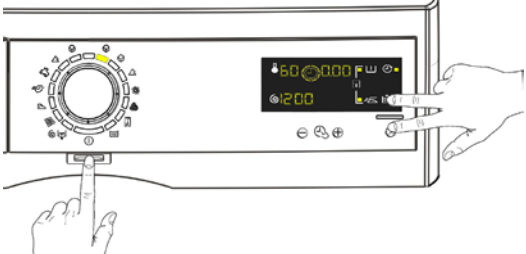
9.1 Access diagnostics for TC5/TC4 styling

The operations listed below must be carried out within 7 seconds.

TC5	TC4
	
<p style="text-align: center;"><u>Do not start the procedure with your fingers over the combination sensors</u></p> <ol style="list-style-type: none">1. Set the selector dial to position 0 (zero).2. Rotate the programme selector by one position clockwise.3. Simultaneously press the START/PAUSE button and the nearest option sensor (as shown in the diagram).4. Keep your fingers above the sensors until the LEDs and display symbols start flashing. <p>In the first position, the operation of the buttons and the related LEDs is checked; turning the programme selector dial clockwise runs the diagnostic cycle for the operation of the various components and reads any alarms.</p>	

9.2 Access diagnostics for TC3 styling

The operations listed below must be carried out within 7 seconds.

TC 3

<p style="text-align: center;"><u>Do not start the procedure with your fingers over the combination sensors</u></p> <ol style="list-style-type: none">1. Switch on the appliance using the ON/OFF button. The first LED lights up.2. Simultaneously press the START/PAUSE button and the nearest option sensor (as shown in the diagram).3. Hold your fingers over the sensors until the LEDs and symbols begin to flash in sequence (approximately 3 seconds). <p>In the first position, the operation of the sensors, the LEDs and the groups of symbols shown on the LCD display is checked.</p> <p>When the programme selector is turned in a clockwise direction, the operation of the various components is diagnosed and the alarms are read (see diagnostic test on the next page).</p>

9.3 Quitting the diagnostics system


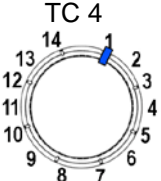


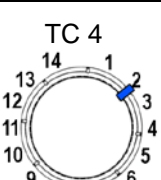


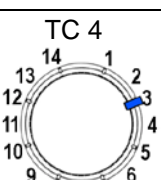


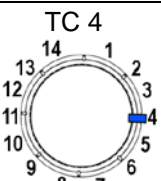

→ To exit the diagnostic cycle, switch the appliance off then back on:
For TC3 styling press the ON/OFF push button, while for TC4/TC5 styling rotate the knob to 0 (zero).
If "ELE" appears on the LCD screen when you turn the appliance on, repeat the operation of turning it on and off.



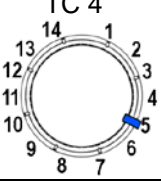


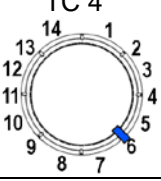


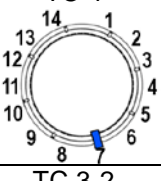
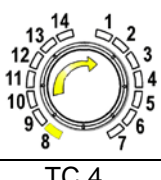

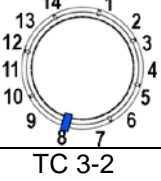
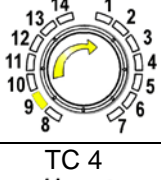

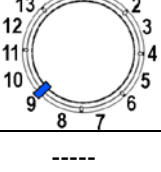
9.4 Phases of the diagnostics test


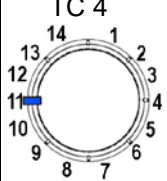

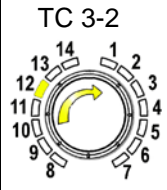
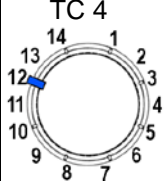
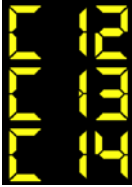
Irrespective of the type of PCB and the configuration of the programme selector, after entering the diagnostic mode, turn the programme selector dial **clockwise** to perform the diagnostic cycle for the operation of the various components and to read any alarms.

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).

Selector position	Components activated	Working conditions	Function tested	LCD display
<p>1</p>  	<ul style="list-style-type: none"> The LEDs, groups of symbols in the LCD screen and the backlight of the display are turned on in sequence Touch a sensor to turn on the group of icons in the LCD screen or the corresponding LED and the buzzer sounds at the same time 	Always active	User interface functioning	
<p>2</p>  	<ul style="list-style-type: none"> Door safety interlock Wash solenoid valve 	Door closed Water level below anti-flooding level Maximum time 5 min.	Water fill to wash compartment	 Water level in the tub (mm)
<p>3</p>  	<ul style="list-style-type: none"> Door safety interlock Pre-wash solenoid valve 	Door closed Water level below anti-flooding level Maximum time 5 min.	Water fill to pre-wash compartment	 Water level in the tub (mm)
<p>4</p>  	<ul style="list-style-type: none"> Door safety interlock Solenoid valve pre-wash and wash 	Door closed Water level below anti-flooding level Maximum time 5 min.	Water fill to conditioner compartment	 Water level in the tub (mm)

Selector position	Components activated	Working conditions	Function tested	LCD display	
5	 TC 3-2	Door safety interlock Third solenoid valve	Door closed Water level below anti-flooding level Maximum time 5 min.	Water fill to third solenoid valve compartment	 Water level in the tub is displayed (mm)
	 TC 4				Water level in the tub is displayed (mm)
6	 TC 3-2	Door safety interlock Fourth solenoid valve (hot water where featured)	Door closed Water level below anti-flooding level Maximum time 5 min.	Water fill to fourth solenoid valve compartment	 Water level in the tub is displayed (mm)
	 TC 4				Water level in the tub is displayed (mm)
7	 TC 3-2	Door safety interlock Wash solenoid valve, if the water in the tub is not enough to cover the heating element Heating element Weight sensor (if there is one, an extra litre of water is loaded) Circulation pump	Door closed Water level above the heating element Maximum time 10 min. up to 90°C (*)	Reheating Circulation	 Temperature in °C measured using the NTC probe
	 TC 4				Temperature in °C measured using the NTC probe
8	 TC 3-2	Door safety interlock Wash solenoid valve, if the water in the tub is not enough to cover the heating element Motor (55 rpm clockwise, 55 rpm anti-clockwise, 250 rpm pulse)	Door closed Water level above the heating element	Check for leaks from the tub	 Drum speed in rpm/10
	 TC 4				Drum speed in rpm/10
9	 TC 3-2	Door safety interlock Drain pump Motor up to 650 rpm then at maximum spin speed (**)	Door closed Water level lower than anti-boiling level for spinning	Drain, calibration of analogue pressure switch and spin	 Drum speed in rpm/10
	 TC 4				Drum speed in rpm/10
10	-----	-----	-----	-----	-----

Selector position	Components activated	Working conditions	Function tested	LCD display	
11	 	Reading/Deleting the last alarm	-----	----	
12 ÷ 14	 	<ul style="list-style-type: none"> - The LEDs, groups of symbols in the LCD screen and the backlight of the display are turned on in sequence - Touch a sensor to turn on the group of icons in the LCD screen or the corresponding LED and the buzzer sounds at the same time 	Always active	User interface functioning	

(*) 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. and no garments must be inside the appliance.

10 ALARMS

10.1 Displaying the alarms to the user

10.1.1 Styling TC5

The alarms are displayed by the flashing red LED of the START/PAUSE sensor and by one of the three LEDs in the lower right hand corner of the display.

As soon as a problem arises these LEDs start flashing (half a second on and half a second off), until the problem is resolved.

The table below illustrates the combinations of LED lightings.

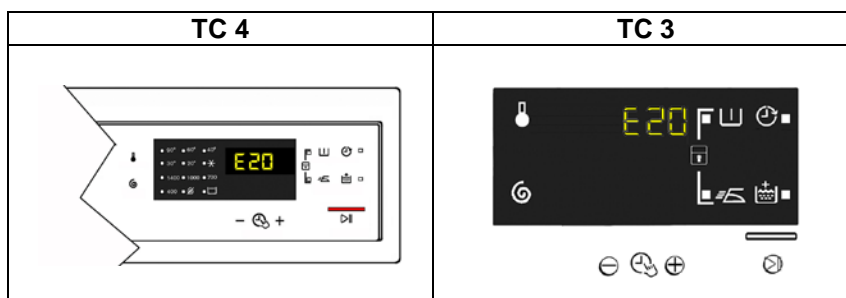
E10		E20		E40	
Water fill difficulty (tap closed)		Drain difficulty (filter fouled)		Door open	

10.1.2 TC4/TC3 Styling

When a problem arises with the appliance, "WARNING" appears on the LCD screen, represented by a code (three digits, indicating the time required for the cycle to end). At the same time the buzzer gives off three short "beeps" every 20" for a period of 5 minutes.

Once the fault has been repaired the buzzer does not give off any "beeps" and the selected programme appears on the LCD screen.

This does not occur for alarm EH0.



The alarms displayed to the user are listed below and can also be eliminated by the user:

TC4/TC3
E10 – Water fill difficulty (tap closed)
E20 – Drain difficulty (filter dirty)
E40 – Door open
EF0 – Excessive detergent

The alarm listed below:

TC5/TC4/TC3
EF0 – Water leakage (Aqua Control System)

The intervention of a service engineer is required.

For the alarm on the other hand:

TC5/TC4/TC3
EH0 – Voltage or frequency outside normal values

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

The other alarms are displayed by a code.

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 condition that:

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

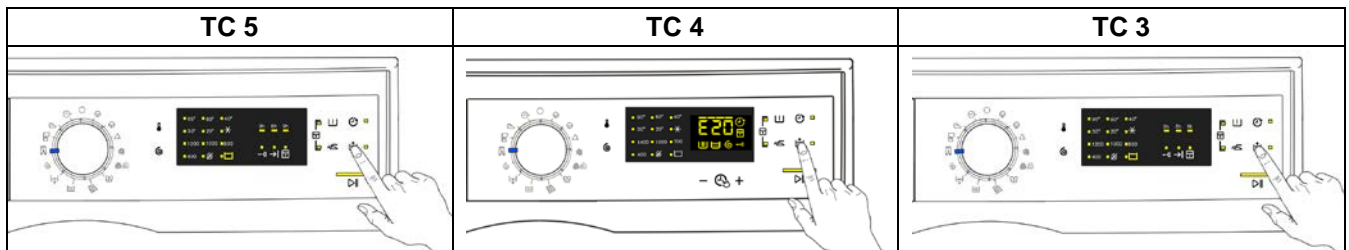
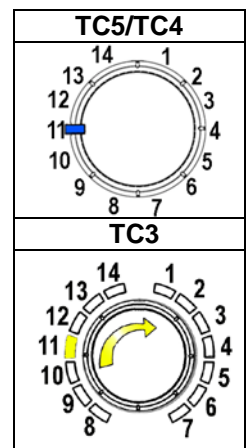
Certain alarm conditions require a drain phase to be performed before the door can be opened for safety reasons:

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

10.2 Reading the alarms

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

- Enter the diagnostic mode (para. 9.1 or para. 9.2).
- Irrespective of the type of PCB and configuration, turn the programme selector knob **clockwise** to the **eleventh position** and the last alarm is displayed.
- to display previous alarms, touch the sensor closest to the START/PAUSE sensor in sequence (as shown in the figure).
- To return to the last alarm, touch the START/PAUSE sensor.



10.2.1 Viewing the TC5 aesthetic alarm

The alarm is displayed by a repeated flashing sequence of the START/PAUSE sensor red and yellow lights (0.5 seconds on, 0.5 seconds off with a 2.5 second pause between sequences).

- START/PAUSE sensor indicator with red light → indicates the first digit of the alarm code (family)
- START/PAUSE sensor indicator with yellow light → indicates the second digit of the alarm code (number inside the family)

These two LEDs are present in all models.



Notes:

- The first letter of the alarm code “E” (Error) is not displayed, since this letter is common to all alarm codes.
- Alarm code families are expressed in hexadecimals; and therefore the letters:
 - **A** is represented by **10** flashes
 - **B** is represented by **11** flashes
 - ...
 - **F** is represented by **15** flashes
- Configuration errors are displayed by all LEDs flashing (user interface not configured).

10.2.2 Example of alarm display

Let us take alarm E43 (problem with the door safety TRIAC) as an example; the following will be displayed:

- A sequence of four flashes of the START/PAUSE sensor red light indicates the first number **E4**3.
- The sequence of three flashes of the START/PAUSE sensor with the yellow light indicates the second number **E4****3**.

START/PAUSE sensor with red light			START/PAUSE sensor with green light		
On/off	Time (Sec.)	Value	On/off	Time (Sec.)	Value
	0.5	1		0.5	1
	0.5			0.5	
	0.5	2		0.5	2
	0.5			0.5	
	0.5	3		0.5	3
	0.5			0.5	
	0.5	4		2.5	
	0.5				
	1.5	Pause			

10.2.3 Behaviour of the alarms during diagnostic testing

All alarms are enabled during diagnostic testing of the components.

10.3 Rapid reading of alarms

It is possible to display the last alarm even if the selector is not in the eleventh diagnostics position or if the appliance is in normal operating mode (for example when performing a wash programme):

→ 10 seconds after turning on the appliance, simultaneously touch the **START/PAUSE** sensor and the nearest **sensor option** (as if accessing DIAGNOSTICS) for at least 2 seconds:

In the TC4/TC3 aesthetics, the display shows the last alarm.

In the TC5 aesthetics, the LEDs initially switch off, and then display the flashing sequence indicating the last alarm.

→ The alarm continues to be displayed for the required time and then returns to its normal function or until a sensor is touched.

→ The alarm reading system is as described in para. 9.2.


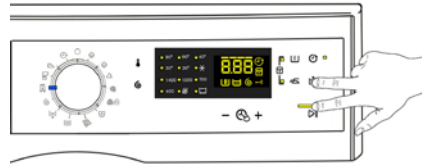
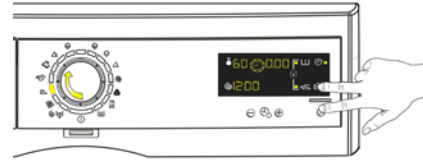
→ While the alarm is being displayed, the appliance continues to perform the cycle or, if in the programme selection phase, it stores the previously selected options.

10.4 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

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

TC 5	TC 4	TC 3
		
<ol style="list-style-type: none">1. Enter the diagnostic mode (para. 9.1 or para. 9.2).2. Turn the selector clockwise until the eleventh LED lights up.3. Simultaneously press the START/PAUSE sensor and the nearest option sensor (as shown in the diagram).4. Keep your fingers over the sensors until the LCD display shows "E00" (at least 5 seconds).		

11 OPERATING TIME COUNTER

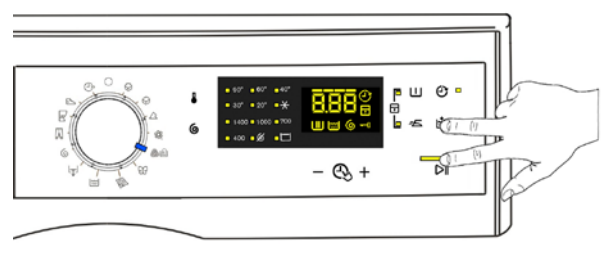
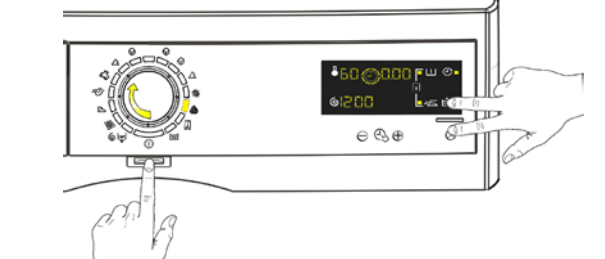
Using a specific procedure, the operator can display the total operating time for the appliance, which is counted from the moment it is first switched on.

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)

11.1 Reading the operating time




The operations listed below must be carried out within 7 seconds.

TC 4	TC 3
	
<p><u>Do not start the procedure with your fingers over the combination sensors</u></p>	
<ol style="list-style-type: none"> 1. Set the selector dial to position 0 (zero). 2. Rotate the programmes knob clockwise as far as position five. 3. Simultaneously press the START/PAUSE button and the nearest option sensor (as shown in the diagram). 4. Keep your fingers over the sensors until the hours of operation appear on the display (at least 5 seconds). 	<ol style="list-style-type: none"> 1. Switch on the appliance using the ON/OFF button. 2. Turn the selector clockwise until the fifth LED lights up. 3. Simultaneously press the START/PAUSE button and the nearest option sensor (as shown in the diagram). 4. Keep your fingers over the sensors until the hours of operation appear on the display (at least 5 seconds).

11.2 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 the TC4/TC3.

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

	Step 1	Step 2	Step 3
	For <u>two seconds</u> , the following is displayed: Hr	For <u>two seconds</u> , the following digits are displayed: ↙ thousands (6) ↘ hundreds (5)	For the next <u>two seconds</u> the following digits are displayed: ↙ tens (5) ↘ units (0)
TC 4/3			

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.

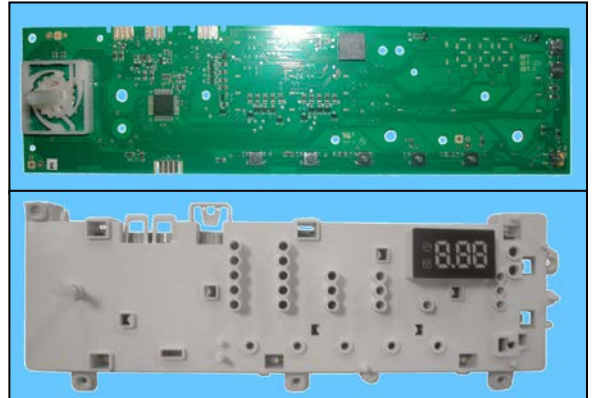
12 AESTHETICS Z3 / Z4

13 STYLING Z3

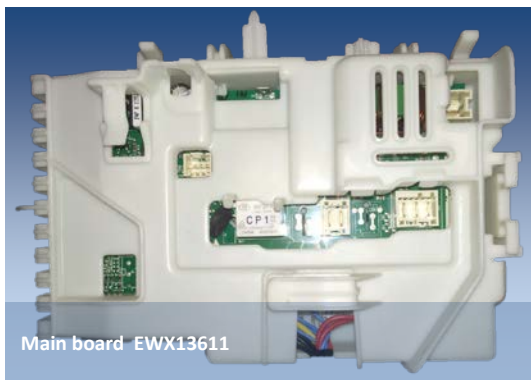
13.1 General characteristics

The EWM09311 / EWX13611 electronic control system consists of two circuit boards:

- ↪ Control/display board in a plastic casing fitted to the control panel (the figure illustrates the individual board and the board assembly consisting of board, casing and diffuser).



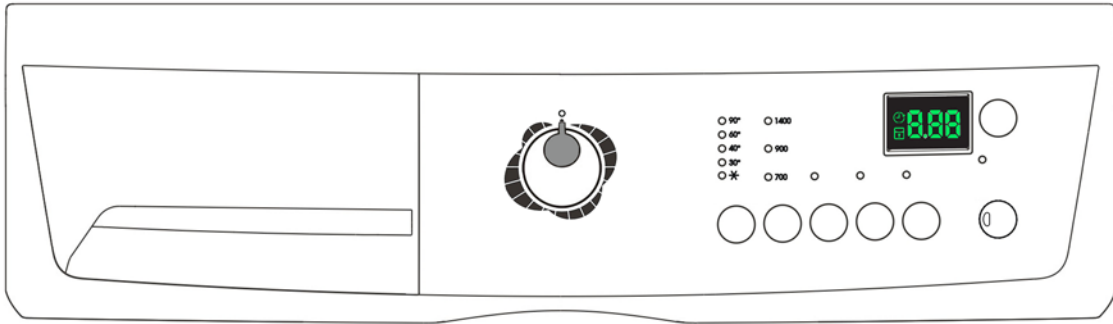
- ↪ Main board, positioned in the bottom rear of the appliance. It powers the electrical components and receives commands from the display board.



Programme selector	<ul style="list-style-type: none"> ▪ 15 positions without main switch (incorporated in the circuit board)
No. buttons	<ul style="list-style-type: none"> ▪ maximum 7 (3 options + 1 start/pause + 1 delayed start + 1 Spin + 1 Temperature)
No. LEDs	<ul style="list-style-type: none"> ▪ maximum 14 (13 green LEDs + 1 red LED)+ 1 display
Serial port	<ul style="list-style-type: none"> ▪ DAAS-EAP communication protocol up to 230400 baud
Power supply voltage	<ul style="list-style-type: none"> ▪ 220/240V ▪ 50/60 Hz (configurable)
Washing type	<ul style="list-style-type: none"> ▪ Traditional
Rinsing system	<ul style="list-style-type: none"> ▪ Traditional
Motor	<ul style="list-style-type: none"> ▪ Collector, with tachometric generator (Universal)
spin speed	<ul style="list-style-type: none"> ▪ 600 ÷ 1,400 rpm
Anti-unbalancing system	<ul style="list-style-type: none"> ▪ AGS
Water fill	<ul style="list-style-type: none"> ▪ 1 solenoid valve with 1 inlet – 2 outlets
Detergent dispenser	<ul style="list-style-type: none"> ▪ 2 compartments: wash, conditioners
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)
Heating element heat output	<ul style="list-style-type: none"> ▪ 1750W 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

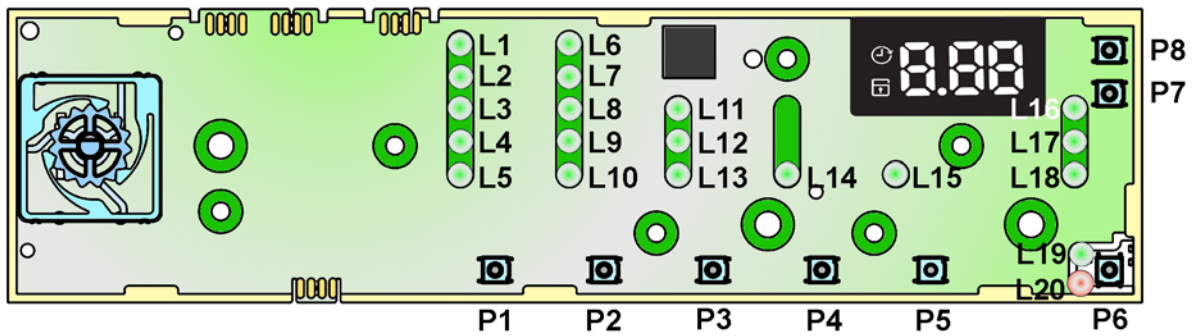
13.2 Control panels

13.2.1 Z3 Styling

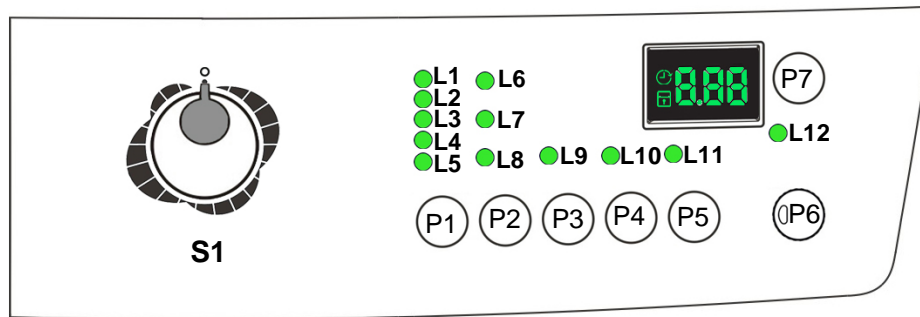


13.2.2 Display board

- Positioning of LEDs and buttons



13.3 Configuration of control panel Z3



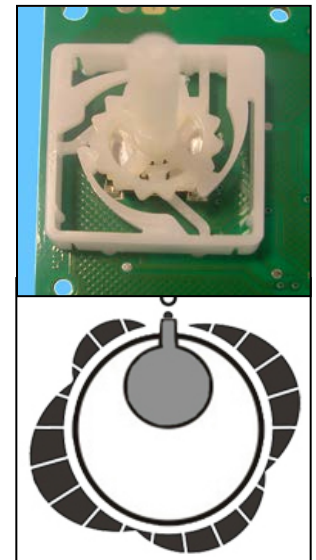
The wash programmes, the functions of the selector dial (where featured) and the individual buttons vary according to the model, since these are determined by the configuration of the appliance.

13.3.1 Programme selector (S1)

The selector is formed by a linear potentiometer. The fifteen positions are determined by a plastic structure that is secured around the potentiometer. There is no ON/OFF switch.

The first position is for the OFF function, where the current programme is cancelled and all the LEDs on the display board are turned off. The plug must be removed from the mains socket to cut the power to the appliance.

The various positions of the selector may be configured in order to perform the various washing programmes (e.g. water level, drum movement, No. of rinses and the washing temperature to be selected according to the type of laundry). The selector can be turned both clockwise and anti-clockwise. For each programme, the compatible options and other parameters are defined. The programme temperature is selected using the relevant button.



13.3.2 Programme configuration

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

Types of fabric	Cotton/linen, Synthetic fabrics, Delicates, Wool, Hand-wash, Shoes, Jeans, Duvet, Silk.
Special programmes	Cotton/linen + pre-wash, Soak, Miniprogramme, Easy-Iron, Conditioner, Rinse, Drain, Spin, Economy.
Temperature	Normal, Minimum, Maximum: the initial temperature is the one proposed for the washing programme.
Spin	Normal, Minimum, Maximum.
Options (Normal/Possible)	Rinse Hold, Pre-wash, Extra rinse, Easy-Iron, Economy (energy label), Normal, Super quick, Reduced spin speed, No spin.
Programme phases	Pre-wash, Wash, Rinses, Spin, Delayed start.

13.3.3 Buttons and LEDs

The function of each button is defined by the configuration of the appliance.

- **Button no. 1: TEMPERATURE CONTROL**
this button is configurable and is related to LEDs (L1÷L5).
Press it in sequence to choose the washing temperature among the values listed below: 90°C, 60°C, 40°C, 30°C, 20°C and Cold cycle.

The initial temperature set for each programme is configurable.
The temperature of 50°C is not envisaged.

- **Button no. 2: SPIN SPEED SETTING**
this button is configurable and is related to LEDs (L6÷L8).
By pressing it in sequence it is possible to select the desired spin speed or exclude it with the rinse hold option.

- **Button no. 3:** this button is configurable and is related to LED (L9). Depending on the configuration of the appliance, it can perform the function of:

super quick, easy-iron, super rinse, rinse hold.

- **Button no. 4:** this button is configurable and is related to LED (L10); depending on the configuration of the appliance, it can perform the function of:

super quick, easy-iron, super rinse, rinse hold.

- **Button no. 5:** this button is configurable and is related to LED (L11); depending on the configuration of the appliance, it can perform the function of:

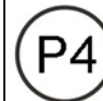
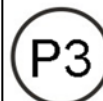
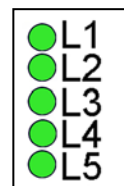
super quick, easy-iron, super rinse, rinse hold.

- **Button no. 6:** this button is configurable and has the function of START/PAUSE.

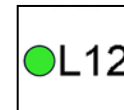
Pressing this button starts a washing cycle, or can pause a washing cycle already under way (there are two LEDs inside:

- ↳ a **green** one which flashes when the appliance is in set-up, pause; it stays on when the cycle is under way and turns off when the cycle has ended;

- ↳ a **red** one that flashes (150 ms off, 150 ms on) in the event of an alarm or incorrect selection, such as: an incompatible option, an incorrect temperature for the chosen programme or the rotation of the programme selector dial or the selection of an option while a washing cycle is under way.



- **L12 Door closed:** It lights up when the safety device prevents the door from opening and switches off when it can be opened. It flashes when the device is about to unlock the door (it should be noted with PTC delaying devices, which need one or two minutes to open).




- **Button no. 7:** 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 last hour, the time decreases minute by minute.



13.3.4 Display

The display shows the following information.

- ↵ - **Duration of the washing programme**, which appears after it has been selected. This time corresponds to the time required for the maximum wash load for each type of programme. If an option is selected/deselected, the time is automatically updated. After the programme has started, the time decreases (and is updated) minute by minute.
- ↵ - **End of the programme** is indicated by a **permanently lit zero** (when the door can be opened).
- ↵ - **Appliance stopped with water in the tub**, after programmes with the RINSE HOLD option. This is displayed by a **permanently lit zero**. The LED indicating the door remains on and the LED on the START/PAUSE button is turned off. The washing machine continues to operate, rotating the drum once every 2 minutes.
- ↵ - **Delayed start**, selected on 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 (⤴ 30' ⤴ 60' ⤴ 90' ⤴ 2h ⤴ 3h... ⤴ 20hrs. ⤴ 0hrs.).
- ↵ - During the last 2 hours, it decreases by 30 mins at a time.
During delayed start, the icon  remains permanently lit.
- ↵ - **Padlock:** when lit, it indicates that all the buttons are disabled to prevent children from altering, starting or pausing the cycle; To disable this function, a key combination needs to be pressed, which can be printed on the control panel or described in the instruction manual.
- ↵ - **Wrong choice of an option:** displayed by the message "Err", when a function that is not compatible with the chosen programme is selected. the display duration is two seconds.
- ↵ - **Alarm code** indicates an error in the appliance operation; the START/PAUSE button flashes when the code is displayed.



- **Buzzer**

The buzzer emits:

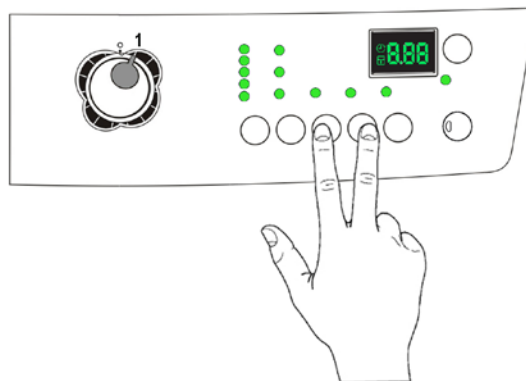
- One “**beep**” when: selecting programmes, selecting an option, when the START/PAUSE button is pressed to start or pause the cycle.
- Three “**beeps**” when: an option incompatible with the selected programme is chosen, or when a button is pressed or a dial is turned during a cycle.
- A particular sequence of “**beeps**” for a two-minute duration when the cycle has terminated.
- A particular sequence of three “**beeps**” to signal an appliance malfunction.

The Buzzer may be configured to sound:

- ☞ as in the aforementioned cases.
- ☞ only at the end of the cycle.
- ☞ only in the event of an alarm.

The volume has a factory preset level and cannot be changed by the user.

In models fitted with a buzzer, the buzzer can be enabled / disabled during programme selection, but alarm signalling remains enabled.



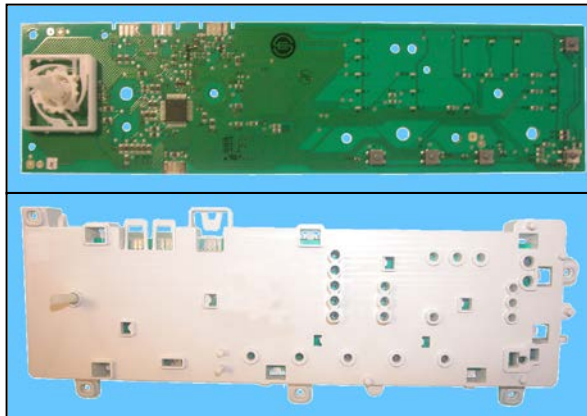
To enable/disable it, press the buttons simultaneously for 5 seconds. A short beep confirms that it has been enabled/disabled.

14 Z6 STYLING

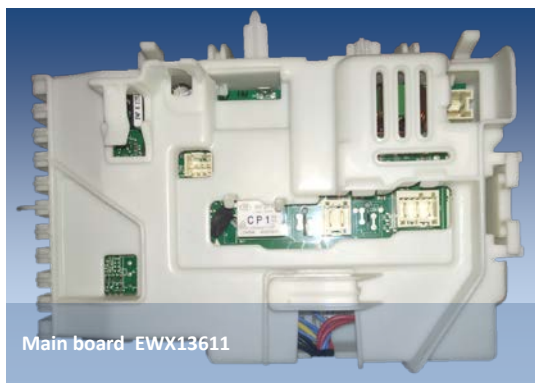
14.1 General characteristics

The EWM09311 / EWX13611 electronic control system consists of two circuit boards:

- ↪ Control/display board in a plastic casing fitted to the control panel (the figure illustrates the individual board and the board assembly consisting of board, casing and diffuser).
- ↪ Main board, located at the rear of the appliance. It powers the electrical components and receives commands from the display board.

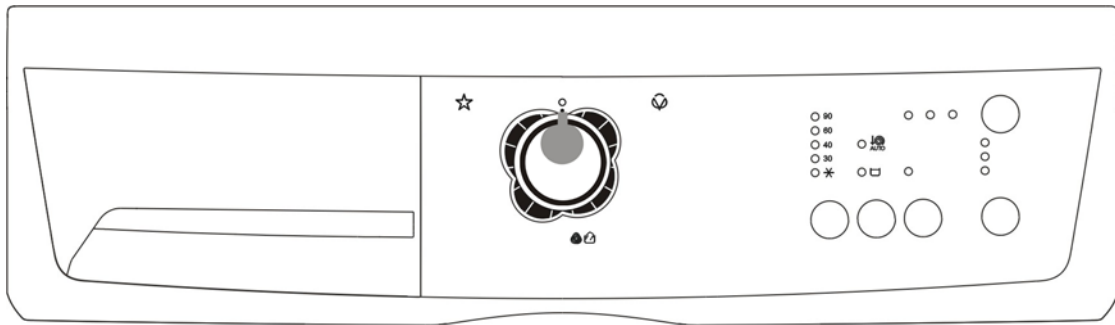


- ↪ Main board, positioned at the rear of the appliance. It powers the electrical components and receives commands from the display board.



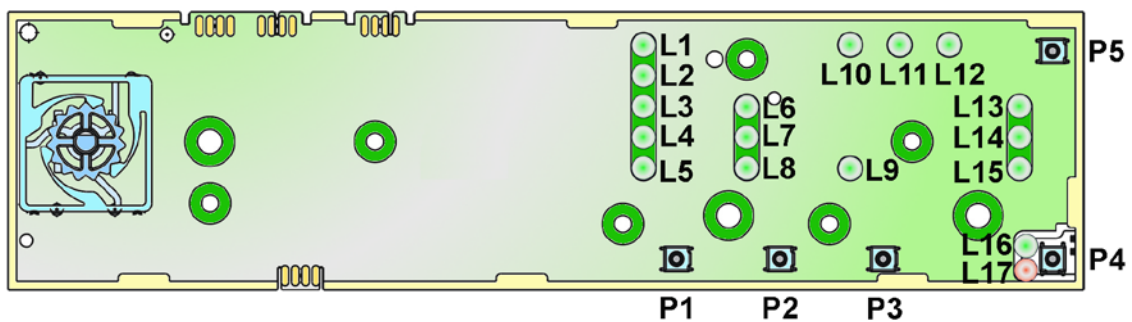
Programme selector	<ul style="list-style-type: none"> ▪ 15 positions without main switch (incorporated in the circuit board)
Secondary selector	<ul style="list-style-type: none"> ▪ 6 positions, only for version Z 5 (incorporated into the circuit board)
No. buttons	<ul style="list-style-type: none"> ▪ maximum 5 (1 Spin/Temperature + 2 options + 1 start/pause + 1 delayed start)
No. LEDs	<ul style="list-style-type: none"> ▪ Z5 Styling maximum 12 (11 green LEDs + 1 red LED). ▪ Z6 Styling maximum 16 (15 green LEDs + 1 red LED)
Serial port	<ul style="list-style-type: none"> ▪ DAAS-EAP communications protocol up to 230400 baud
Power supply voltage	<ul style="list-style-type: none"> ▪ 220/240V ▪ 50/60 Hz (configurable)
Washing type	<ul style="list-style-type: none"> ▪ traditional
Rinsing system	<ul style="list-style-type: none"> ▪ traditional
Motor	<ul style="list-style-type: none"> ▪ Collector, with tachometric generator (Universal)
spin speed	<ul style="list-style-type: none"> ▪ 600 ÷ 1,400 rpm
Anti-unbalancing system	<ul style="list-style-type: none"> ▪ AGS
Water fill	<ul style="list-style-type: none"> ▪ 1 solenoid valve with 1 inlet – 2 outlets
Detergent dispenser	<ul style="list-style-type: none"> ▪ 2 compartments: wash, conditioners
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)
Heating element heat output	<ul style="list-style-type: none"> ▪ 1750W with thermal fuse incorporated
Temperature check	<ul style="list-style-type: none"> ▪ NTC probe incorporated in the heating element

14.2 Control panels



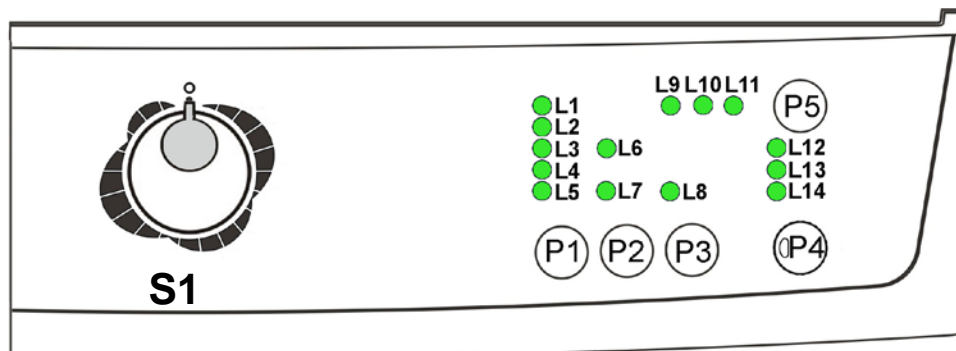
14.2.1 Display board

- Positioning of LEDs and buttons



14.2.2 Control panel configuration

Only one styling will be taken into consideration: the most complete one, since they are identical: both in terms of functions and button layout.



The wash programmes, the functions of the selector dial (where featured) and the individual buttons vary according to the model, since these are determined by the configuration of the appliance.

14.2.3 Programme selector (S1)

See sect. 13.3.1 Programme selector (S1) page 45

14.2.4 Programme configuration

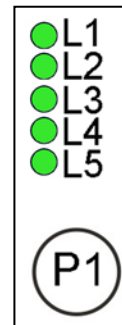
See sect. 13.3.2 Programme configuration page 45

14.2.5 Buttons and LEDs

The function of each button is defined by the configuration of the appliance.

- **Button no. 1:** this button is related to LEDs (L1-L5).

pressing the button in sequence alters the temperature of the washing cycle from 90°C to cold cycle.



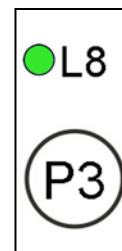
- **Button no. 2:** this button is configurable and is related to LEDs (L6 and L7). Depending on the configuration of the appliance, it can perform the function of:

super quick, easy-iron, super rinse, rinse hold, spin speed regulation.



- **Button no. 3:** this button is configurable and is related to LED (L8). Depending on the configuration of the appliance, it can perform the function of:

super quick, easy-iron, super rinse, rinse hold.

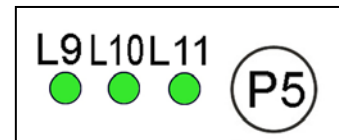


- **Button no. 4:** this button is configurable and has the function of START/PAUSE.
See sect. 3.3.3 Button 6 START/PAUSE on page 10



- **Button no. 5:**

this button is configurable and is related to LEDs (L9÷L11).
It performs the delayed start function.
Press it in sequence to choose from one of the three delayed start options: 3h-6h-9h with the related LED coming on.



- **Wash phase indicator LEDs:**

LEDs L12 L13 L14 are configurable and are used as wash phase indicators.



Three combinations are envisaged.

First combination: The phases of the washing cycle are displayed and the “Extra Rinse” option can be selected by pressing a button;

Second combination: The phases of the washing cycle are displayed along with the status of the “Extra Rinse” option, when the latter can be selected by a key combination;

Third combination: The washing cycle phases are displayed, along with the status of the door and the “Extra Rinse” option can be selected by pressing a button.

Summary table of the three combinations

LED position	First combination	Second combination	Third combination
● L12	Wash	Cycle in Progress	Cycle in Progress
● L13	Rinses / Spin	Extra Rinse	Carriage door
● L14	End of Cycle	End of Cycle	End of Cycle

The meaning of each LED function is described in the following table.

Possible indications	
Wash	Lights up in selection mode if the programme includes the wash phase and during the wash cycle.
Rinses / Spin	Lights up in selection mode if the programme includes rinses and spin and during the execution of these phases.
Extra Rinse	Lights up when this option has been memorised (if included in the cycle) and during rinses.
Cycle in progress	Lights up during execution of the cycle.
End of cycle	Lights up when the programme has completed and after the door has been unlocked.
Door closed	Lights up when the safety device prevents the door opening and switches off when the door can be opened. It flashes when the device is about to unlock the door (it is noticed with PTC delaying devices, which need one or two minutes to open).

15 COMPATIBILITY BETWEEN WASH PROGRAMMES AND OPTIONS

Programme	Temperature	Delayed Start	Super Quick	Extra-rinse	Easy Iron	Reduced spin speed	No Spin	Rinse hold
Cotton	95° ÷ 0° (40°)	√	√	√	√	√	√	√
Cotton + pre-wash	95° ÷ 0° (40°)	√	√	√	√	√	√	√
Cotton + economy	60°, 40° (60°)	√		√	√	√	√	√
Synthetic fabrics	60°, 0° (40°)	√	√	√	√	√	√	√
Delicates	40° ÷ 0° (40°)	√	√	√		√	√	√
Wool/Hand Wash	40°, 0° (30°)	√				√	√	√
Jeans	60°, 0° (40°)	√			√	√	√	√
Mini/Teddy Bear/Sport Light	30°	√				√	√	
Child	30°, 0° (30°)	√				√	√	
Shoes	30°, 0° (30°)	√				√	√	
Blanket	40°, 0° (40°)	√				√		
5 Shirts	30°	√				√	√	√
Mix. 40°	40°	√		√	√	√	√	√
Mix. 20° Oko	20°	√		√		√	√	√
Prewash	30°	√						
Rinses / Conditioner		√		√	√	√	√	√
Spin		√				√		
Scarico								
Phases during which an option can be selected								
Selection	√	√	√	√	√	√	√	√
Wash cycle pause				√	√	√	√	√
Rinse cycle pause								√

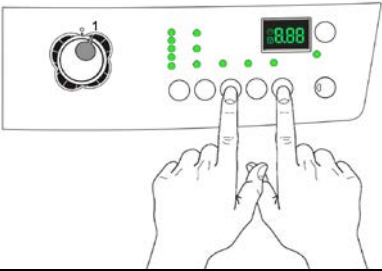
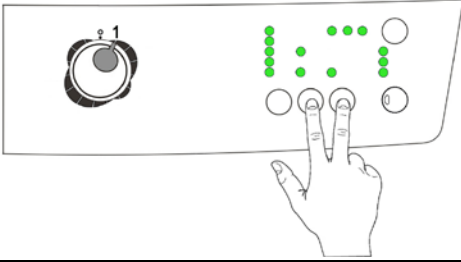
The information is purely indicative.

(T°) the default temperature (in parentheses) is displayed by the cycle temperature LED, when selected (Z6 Styling).

(*) the default set speed when a cycle is selected, limited to that declared for the specific model.

15.1 Description of options

- **Rinse hold**
 - Stops the appliance with water in the tub before the final spin cycle.
 - To drain the water, reset the programme and then select a drain or spin cycle.
- **Pre-wash**
 - Adds a pre-wash phase at the start of the cycle with water heating to 30°C (or cold, if selected).
 - Available in COTTON cycles, performs a short spin before advancing to the wash phase.
- **Economy / Energy label**
 - Modifies the structure of the COTTON 40÷90 - SYNTHETIC FABRICS 50/60 programmes to reduce energy consumption, guaranteeing washing performance levels.
 - Reduces the washing temperature
 - Increases the duration of the wash phase
- **Super rinse**
 - Adds **two** rinses in the COTTON cycle, adds **one** rinse in the SYNTHETIC FABRICS - DELICATES cycles
 - Cancels the end of wash spin and the first two intermediate spins.
 - The other intermediate spins are limited to 450 rpm with the final spin at maximum speed.

ENABLING SUPER RINSE	
Appliances that do not envisage this option associated with a button can enable it through a key combination (see instruction manual).	
Z3 Styling	Z6 Styling
	
<p>During the selection phase, press the two buttons shown in the figure simultaneously for at least 5 seconds until the related LED comes on. This option also remains enabled during subsequent cycles. To disable it, press the two buttons simultaneously for at least 5 seconds until the related LED is turned off.</p>	

- **Easy-iron**
 - In COTTON programmes:
 - adds **three** rinse cycles
 - eliminates intermediate spin cycles
 - performs a pulse spin phase before the final spin
 - adds an “untangling” phase after the spin cycle
 - In SYNTHETIC FABRICS programmes:
 - it reduces the heating temperature in 50/60°C cycles to 40°C
 - increases the wash time
 - prolongs the cooling phase at the end of the wash phase
 - adds **one** rinse cycle
 - adds an “untangling” phase after the pulse spin cycle
- **No spin**
 - It eliminates all the spin phases
 - It adds **three** rinses to the COTTON cycle and **one** to the SYNTHETIC FABRICS cycle.
- **Super quick**
 - Modifies the structure of the wash phase of the COTTON - SYNTHETIC FABRICS - DELICATES cycles by half a load.

- **Delayed Start**

- Adds a pause before the start of the programme. The delay time is indicated by LEDs or the Display (see page 12 or page 24 button 7/5, for Display or LED display, respectively).
- 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.

- **Reduced spin speed**

Z6 Styling

It can be linked to buttons with 2-5 LEDs, (the possible combinations are shown below):

- Maximum - Maximum declared spin speed.
- Reduction 1 - Reduction of the spin speed to between the maximum speed and the minimum speed (400 rpm).
- Reduction 2 - Reduction of the spin speed to between the speed of reduction 1 and the minimum speed (400 rpm).
- Automatic reduction – reduces the maximum speed for the programme by half, but not less than 400 rpm.
- No spin - excludes all spin cycles.
- Rinse hold - excludes only the final spin, but not the intermediate spins and ends the cycle with water in the tub.

A further spin reduction can be obtained by selecting the “Easy-Iron” option in cotton programmes when the selected programme envisages a spin speed of more than 900 rpm.

The following tables contain the possible configurations of the “Spin” button depending on the combination of LEDs.

Button with 5 LEDs						
Maximum spin speed (rpm)	600/700	800/900	1000÷1400	1000÷1400	1300÷1400	1400
Intermediate 1	500	700	900	900	1100	1200
Intermediate 2	400	500	700	700	900	900
Intermediate 3	No speed	No speed	No speed	500	700	700
Last selection	Rinse hold	Rinse hold	Rinse hold	No spin or Rinse hold	No spin or Rinse hold	No spin or Rinse hold

Button with 4 LEDs			
Maximum spin speed (rpm)	600/700	800/900	1000÷1400
Intermediate 1	500	700	900
Intermediate 2	400	500	700
Last selection	No spin or Rinse hold	No spin or Rinse hold	No spin or Rinse hold

Button with 3 LEDs			
Maximum spin speed (rpm)	600/700	800/900	1000÷1400
Intermediate 1	500	700	900
Intermediate 2	400	500	700

Button with 2 LEDs	
Intermediate 1	Automatic reduction
Intermediate 2	No spin or Rinse hold

Z3 Styling

It can be combined with buttons with 3 LEDs. The combination is the same as that described for the previous version.

The following tables contain the possible configurations of the "Spin" button depending on the combination of LEDs:

button with 3 LEDs and "Rinse hold" option combined with this button				
Maximum spin speed (rpm)	600	700	800	900÷1400
Intermediate 1	400	500	600	700
Intermediate 2	No spin or Rinse hold	No spin or Rinse hold	No spin or Rinse hold	No spin or Rinse hold

Button with 3 LEDs and "Rinse hold" option not combined with this button					
Maximum spin speed (rpm)	600/700	800	900÷1000	1000÷1400	1300÷1400
Intermediate 1	500	600	700	900	1100
Intermediate 2	400	400	500	700	700

When a programme is selected, the LED corresponding to the configured spin speed comes on.

If the "Rinse hold" option is combined with another button and it is selected, all the LEDs will be turned off.

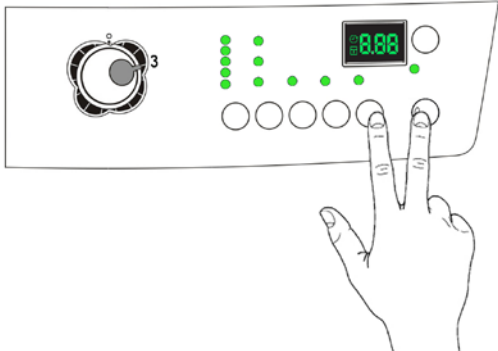
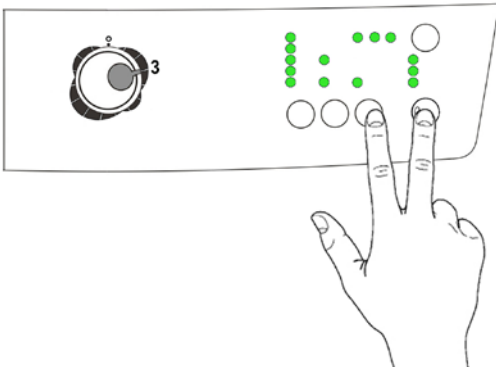
16 DEMO MODE SETTING

A special cycle allows demonstration of the operation of these appliances in shops, in a user interactive manner, without connecting them to the water mains:

- ◆ The interactive mode consists of selecting one of the programmes, adding any options and, once the start button has been pressed, the appliance will only perform certain of the phases of the programme, skipping those that cannot be performed (water fill, drain, heating).

The cycle takes place as follows:

- ↺ the door lock is enabled as usual (door locked during operation, possibility of opening it at the end of the cycle or when paused).
- ↺ Motor: all low speed movements are enabled, the pulses and spin are disabled,
- ↺ the water fill solenoid valves and the drain pump are disabled.
- ↺ Display: displays all the phases of the programme very quickly.
- ↺ Alarms: for safety reasons, the E40 (door closed), E50 (motor) and E90 (communication between boards/configuration) families of alarms are enabled.

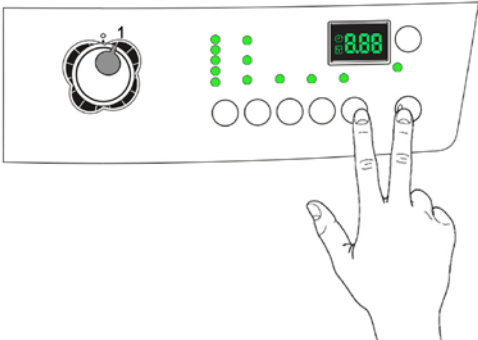
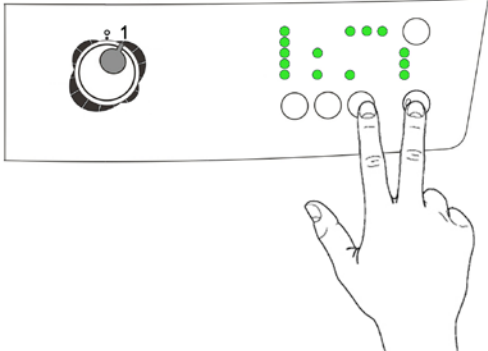
Z 3	Z 6
	
<p>5. Set the selector dial to position 0 (zero).</p> <p>6. Press the START/PAUSE button and the nearest option button simultaneously (as shown in the figure).</p> <p>7. Holding down the buttons, switch the appliance on by turning the programme selector three positions clockwise.</p> <p>8. Hold the buttons down until the LEDs start to flash (at least 3 seconds).</p> <p>Where a display is fitted, the message "DEM" is shown for 2 seconds.</p>	

16.1 Exiting DEMO mode

Unplug the appliance from the mains socket.

17 DIAGNOSTICS SYSTEM

17.1 Accessing diagnostics

Z3	Z6
	
<ol style="list-style-type: none">1. Set the selector dial to position 0 (zero).2. Press the START/PAUSE button and the nearest option button simultaneously (as shown in the figure).3. Holding down the buttons, switch the appliance on by turning the programme selector one position clockwise.4. Hold the buttons down until the LEDs start to flash (at least 2 seconds). <p>In the first position, the operation of the buttons and the related LEDs is checked; turning the programme selector dial clockwise runs the diagnostic cycle for the operation of the various components and reads any alarms.</p>	

17.2 Quitting the diagnostics system

- To exit the diagnostics system, turn the selector dial to position 0, turn the appliance back on and return the dial to position 0.
- If "ELE" (electricity trials) appears on the screen when you turn the appliance on, repeat the operation of turning it on and off.







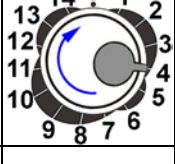





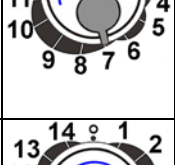

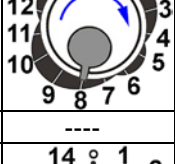
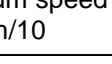
17.3 Phases of the diagnostics test

Irrespective of the type of electronic board and of the selector configuration, once the diagnostics system has been activated, turn the selector dial **clockwise** to run a check of the various components and read the alarms (as described in table 1).

Concurrently, a control code of the selector (or of the second selector, where envisaged) is shown: in Z3 stylings on the display for **two** seconds, before displaying the contents of the last column in the table below, whereas in Z6 stylings the code is displayed by the LEDs coming on for **three** seconds (see table 2).

All alarms are enabled in the diagnostic cycle.

TABLE 1

Selector position	Components activated	Working conditions	Function tested	When a Display is present
1 	All the LEDs come on in sequence. Pressing a button turns on the corresponding group or LED.	Always active	User interface functioning	
2 	Door safety interlock Wash solenoid valve	Door closed Water level below anti-flooding level Maximum time 5 mins.	Water fill to wash compartment	 Water level in the tub (mm)
3 	Door safety interlock Pre-wash solenoid valve	Door closed Water level below anti-flooding level Maximum time 5 mins.	Water fill directly to tub	 Water level in the tub (mm)
4 	Door safety interlock Solenoid valve pre-wash and wash	Door closed Water level below anti-flooding level Maximum time 5 mins.	Water fill to conditioner compartment	 Water level in the tub (mm)
6 	Door safety interlock Wash solenoid valve, if the water in the tub is not enough to cover the heating element Heating element	Door closed Water level above the heating element. Maximum time 10 mins up to 90°C. (*)	Reheating	 Temperature in °C measured using the NTC probe.
7 	Door safety interlock Wash solenoid valve if the water level in the tub does not cover the heating element Motor (55 rpm clockwise, 55 rpm anticlockwise, pulse at 250 rpm)	Door closed Water level above the heating element	Check for leaks from the tub.	 Drum speed in rpm/10
8 	Door safety interlock Drain pump Motor up to 650 rpm then at maximum spin speed. (**)	Door closed Water level lower than anti-boiling level for spinning	Drain, calibration of analogue pressure switch and spin	 Drum speed in rpm/10
9	----	----	----	
10 	Reading/Deleting the last alarm	----	----	

(*) 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 AGS (anti-unbalancing system) and no garments must be inside the appliance.

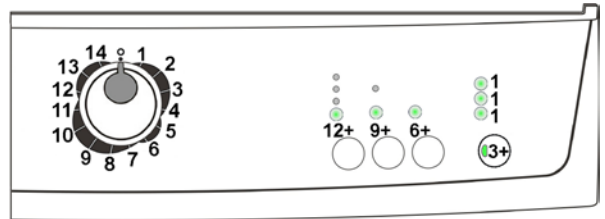
17.4 Selector efficiency check

Diagnostic testing also provides the opportunity to check the efficiency of the selectors.

17.4.1 Programme selector

In the control panel illustrated below, the LEDs (lit) are linked to values.

By turning the dial, some of the LEDs come on, and summing the values with which they are linked gives the position of the dial (if the selector dial is efficient).



The table below includes all the possible selector control combinations:

0		1	
2		3	
4		5	
6		7	
8		9	
10		11	
12		13	
14			

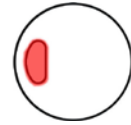
18 ALARMS

18.1 Displaying the alarms to the user

18.1.1 Z3 Styling

The alarms are displayed by the flashing red LED of the START/PAUSE button and simultaneously through the Display.

The alarms displayed to the user are listed below:



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

18.1.2 Z6 Styling

Alarms are displayed by the red LED on the START/PAUSE button flashing along with one of the three LEDs above the START/PAUSE button.

The table below illustrates the various combinations of LED lightings.

E10		E20		E40	
Water fill difficulty (tap closed)		Drain difficulty (filter fouled)		Door open	

The aforementioned alarms (for both versions) can be remedied directly by the end user.

While the alarms listed below (for both versions):

- ↪ **EF0 – Water leakage (Aqua Control System)**
It is displayed to the user, but technical assistance is required to repair it.
- ↪ **EH0 – Voltage or frequency outside normal values**
It is necessary to wait for power supply voltage and/or frequency to restore nominal 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 condition that:

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

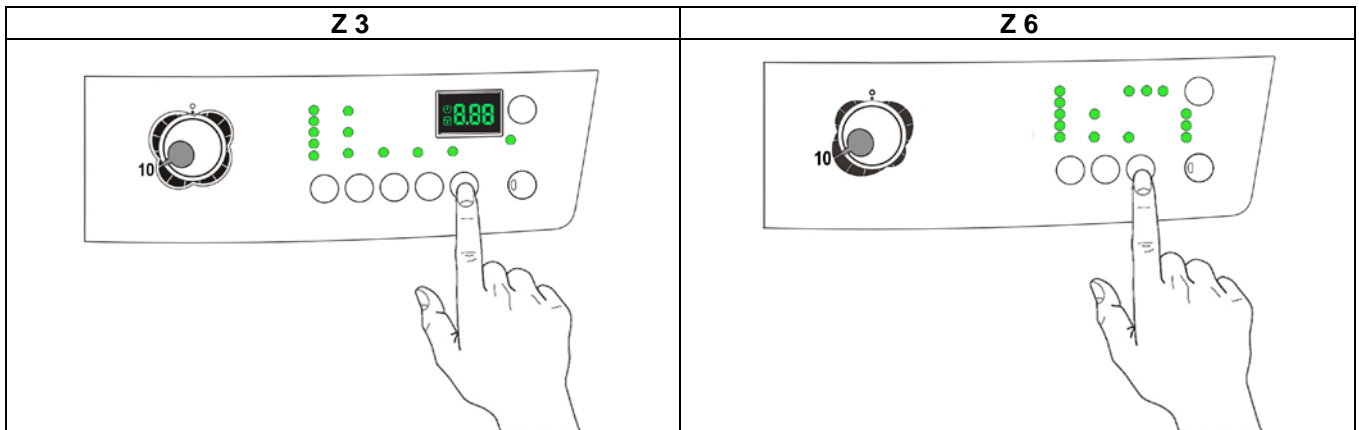
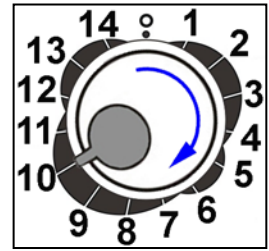
Certain alarm conditions require a drain phase to be performed before the door can be opened for safety reasons:

- 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.

18.2 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 the configuration, turn the programme selector dial **clockwise** to the **tenth position**.
- The last alarm is displayed.
- To display the previous alarms, press the button to the left of the START/PAUSE button in sequence (as shown in the figure).



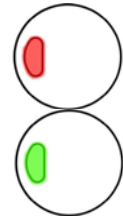
- To return to the last alarm, press the START/PAUSE button

18.2.1 Displaying the alarm

The alarm is displayed by a repeated flashing sequence of the START / PAUSE button red and green lights (0.5 seconds on, 0.5 seconds off with a 2.5 second pause between sequences).

- START / PAUSE button indicator with a red light → indicates the first digit of the alarm code (family)
- START / PAUSE button indicator with a green light → indicates the second digit of the alarm code (family internal number)

These two LEDs are present in all models.



















Notes:

- The first letter of the alarm code “E” (Error) is not displayed, since this letter is common to all alarm codes.
- Alarm code families are expressed in hexadecimals; and therefore the letters:
 - **A** is represented by **10** flashes
 - **B** is represented by **11** flashes
 - ...
 - **F** is represented by **15** flashes
- Configuration errors are displayed by all LEDs flashing (user interface not configured).

18.2.2 Example of alarm display

Let us take alarm E43 (problem with the door safety TRIAC) as an example; the following will be displayed:

- a sequence of four flashes of the START / PAUSE button red light indicates the first number **E43**;
- a sequence of three flashes of the START / PAUSE button green light indicates the second number **E43**.

START / PAUSE button red light			START / PAUSE button green light		
On/off	Time (Sec.)	Value	On/off	Time (Sec.)	Value
	0.5	1		0.5	1
	0.5			0.5	
	0.5	2		0.5	2
	0.5			0.5	
	0.5	3		0.5	3
	0.5			0.5	
	0.5	4		2.5	Pause
	0.5				
	1.5	Pause			

18.2.3 Behaviour of the alarms during diagnostic testing

All alarms are enabled during diagnostic testing of the components.

18.2.4 Rapid reading of alarms

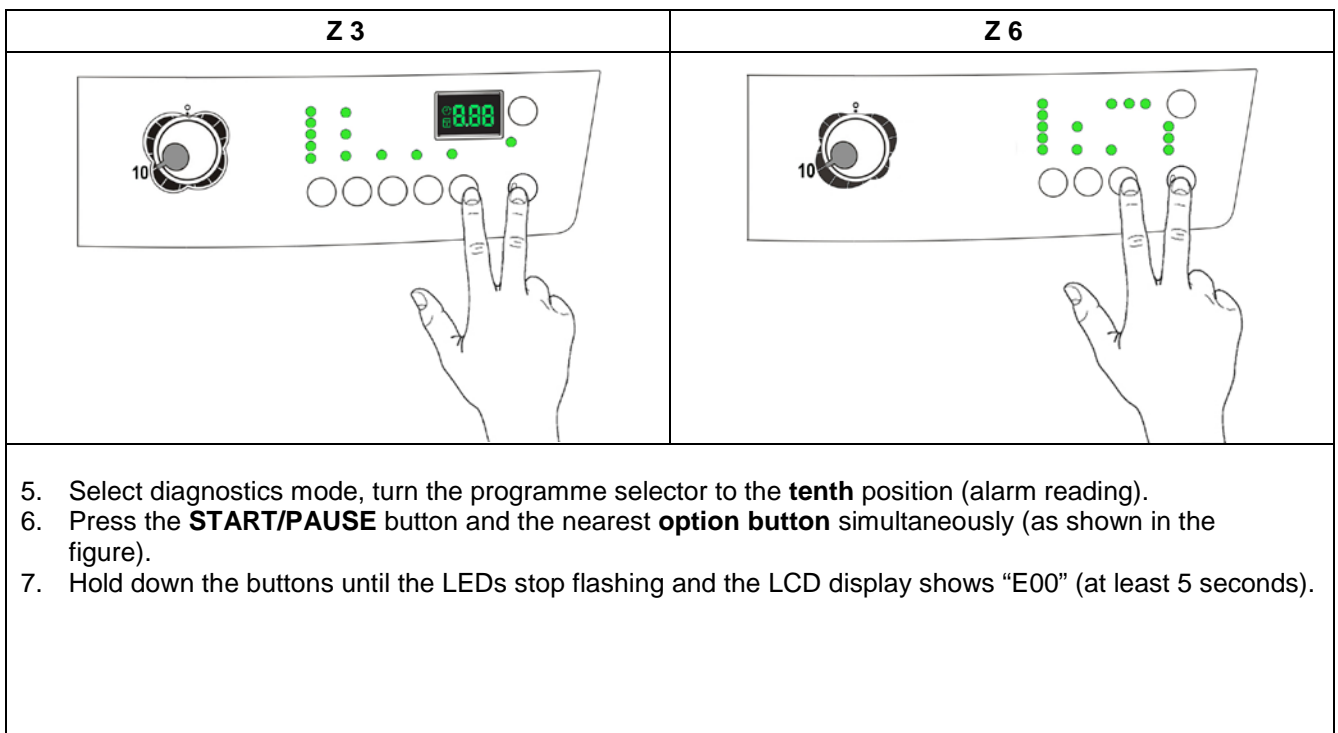
The last alarm can be displayed even if the programme selector is not in the tenth position (diagnostics) or if the appliance is in normal operating mode (e.g. during the execution of the washing programme):

- Press the **START/PAUSE** button and the nearest **option button** simultaneously (as if you were entering DIAGNOSTIC mode) for at least 2 seconds: the LEDs initially switch off, and then display the flashing sequence indicating the last alarm.
- The alarm continues to be displayed for the amount of time required, and then the display returns to its normal operation.
- The alarm reading system is as described in sect. 8.2.
- 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.

18.2.5 Deleting the last alarms

Before deleting any alarms, make a note of the last alarm on the “Service Order” form.

- Delete them after reading them, to check whether the alarms re-occur during the diagnostic cycle.
- Delete them after repairing the appliance, to check whether they re-occur during testing.



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

19 ALARM SUMMARY TABLE - EWM09311 / EWM09312 / EWX13611 / EWX14931

Remark: Some of the alarms are valid only for EWM09311 / EWM09312 / EWX13611 or EWX14931

Alarm Code	Alarm Description	Fault Condition	Possible Fault	Machine Action/Status	Reset Key
E00			-----		
E11	Difficulties in water fill for washing	Water load timeout expired (load timeout for water loads at level)	Tap closed or water flow too low Wrong drain pipe position Water inlet valve defective Air trap system leaking Pressure switch defective Wiring or main board defective	Cycle Paused with door locked	START RESET
E12	Water load problems during drying cycle	Water load timeout expired during fabric detach phase (5 minutes - closed tap test)	Water tap closed or water flow too low Wrong drain pipe position Water inlet valve defective Air trap system leaking Pressure switch defective Wiring or main board defective	Cycle Paused with door locked	START RESET
E13	Water leakage	Global water load timeout expired (maximum water quantity reached)	Wrong drain pipe position Water flow too low Water inlet valve defective Air trap system leaking Air trap systems clogged Pressure switch defective	Cycle Paused with door locked	START RESET
E21	Difficulties in draining for washing	Water drain timeout expired (measured for each drain phase of a washing cycle)	Drain pipe blocked up Blocked/dirty filter Drain pump defective Pressure switch defective Wiring or main Board defective Drain pump rotor locked	Cycle Paused (after 2 attempts)	START ON/OFF RESET
E22	Water drain problems during drying cycle	Virtual anti-boiler pressure switch ON during a drying cycle	Drain pipe blocked up Blocked/dirty filter Drain pump defective Pressure switch defective Wiring or main Board defective	Cycle Paused	START RESET
E23	Drain pump triac failure	Incongruence between drain pump triac sensing and triac status	Drain pump defective Wiring or main board defective	Safety Drain cycle. Cycle stops with door unlocked	RESET
E24	Drain pump triac sensing failure	Wrong input signal to microprocessor	Main board defective	Safety Drain cycle. Cycle stops with door unlocked	RESET
E25	Aqua control sensing failure	Wrong input signal to microprocessor	Main board defective	Safety Drain cycle. Cycle stops with door unlocked	RESET

Alarm Code	Alarm Description	Fault Condition	Possible Fault	Machine Action/Status	Reset Key
E31	Electronic pressure switch faulty	Frequency of electronic pressure switch out of limits	Pressure sensor defective Wiring or main Board defective	Cycle blocked with door locked	RESET
E32	Electronic pressure switch calibration problems	Frequency of electronic pressure switch not stable during draining phase	Water inlet valve defective Air trap system leaking Pressure switch/sensor defective Drain pipe blocked up Blocked/dirty filter Drain pump defective Wiring or main board defective	Cycle Paused	START RESET
E35	Water Overload	Overload pressure switch on full state for a time longer than 15 seconds	Water inlet valve defective Air trap systems leaking Pressure switch defective Wiring or main board defective	Cycle blocked Safety drain cycle. Drain pump always in operation (5 minutes ON, 5 minutes off, etc)	RESET
E38	Air trap system clogged	Water level doesn't change for at least 30 sec. during drum rotations	Air trap system clogged Pressure sensor pipe clogged Motor belt broken	Heating Phase skipped	RESET
E41	Door opened	Door lock timeout expired (20 seconds)	Door lock device defective Wiring or main board defective	Cycle Paused	START RESET
E42	Door lock device failure	Door still locked when opening (timeout of 4 minutes)	Door lock device defective Wiring or main board defective Current leakage between heater element and earth	Cycle Paused	START RESET
E43	Door lock device triac failure	Incongruence between door lock device triac sensing and triac status	Door lock device defective Wiring or main board defective	Safety Drain cycle activation. Cycle blocked	RESET
E44	Door closed sensing failure	Wrong input signal to microprocessor	Main board defective	Safety Drain cycle activation. Cycle blocked	RESET
E45	Door triac sensing failure	Wrong input signal to microprocessor	Main board defective	Safety Drain cycle activation. Cycle blocked	RESET
E51	Motor power triac short-circuited		Current leakage from motor or from wiring; Main PCB faulty;	Cycle stops with door open (after 5 attempts)	ON/OFF
E52	Tachometer faulty	Bad or no signal from tachometer	Motor defective Motor Wiring or Motor Control board defective	Cycle blocked after 5 attempts with door locked	ON/OFF RESET
E53	Motor triac "sensing" circuit faulty (incorrect microprocessor input voltage)		Main circuit board faulty.	Cycle blocked	RESET
E54	Motor relay contacts sticking (voltage level high when the relay switches to OFF)		Current leakage from motor or from wiring; Main PCB faulty;	Cycle blocked (after 5 attempts)	RESET

Alarm Code	Alarm Description	Fault Condition	Possible Fault	Machine Action/Status	Reset Key
E57	FCV Current trip	High current on inverter (>15A)	Motor defective Motor Wiring or Motor Control board defective	Cycle blocked after 5 trials with door locked	ON/OFF RESET
E58	FCV Over current	High current on motor phase (>4.5A)	Motor defective, Motor Wiring or Motor Control board defective, abnormal working condition	Cycle blocked after 5 trials with door locked	ON/OFF RESET
E59	FCV Not Following	No tacho signal from tachometer for 3 seconds	Motor defective Motor Wiring or Motor Control board defective	Cycle blocked after 5 trials with door locked	ON/OFF RESET
E5A	FCV Heating	High temperature on Heat Sink (>88°C) or NTC of FCV board open	Over load condition, Motor Control board defective	Cycle blocked after 5 trials with door locked	ON/OFF RESET
E5H	FCV Under Voltage	Dc bus voltage bellow the allowed value (175V)	FCV mains wiring Motor Control board defective	Cycle blocked after 5 trials with door locked	ON/OFF RESET
E5C	FCV Over Voltage	Dc bus voltage above the allowed value (430V)	Motor Control board defective Power line voltage too high	Cycle blocked after 5 trials with door locked	ON/OFF RESET
E5D	FCV Unknown Message	Message received by FCV is not correct	Transmission line noisy / FCV defective MB defective Communication wiring problems	---	ON/OFF RESET
E5E	FCV-MB Communication	Protocol communication between FCV and MB not aligned	Wiring defective FCV defective, WD defective, UI defective MB defective, Weight defective	Cycle blocked after 5 trials	ON/OFF RESET
E5F	FCV Fault	FCV control board is continuously in reset	FCV control board defective or communication wiring problems or main board defective	Cycle blocked after 5 trials with door unlocked	ON/OFF RESET
E61	Insufficient heating during washing cycle	Washing heating timeout expired	Washing NTC defective Washing heater element defective Wiring or main board defective	Heating phases skipped	START RESET
E62	Overheating during washing cycle	Water temperature higher than 88°C for a time longer than 5 minutes	Washing NTC defective Wash heater element defective Wiring or main board defective	Safety Drain cycle Cycle stopped with door unlocked	RESET
E66	Heater or drying relay failure	Incongruence between heater relay sensing and relay status	Main board defective Current leakage between Wash/drying heater element and earth	Safety load cycle. Stop of the cycle with door locked	ON/OFF RESET
E68	Ground current leakage	Voltage value on heater sensing (wash or dry) different from Vmains value	Current leakage between wash or dry heater element and earth	Cycle blocked with door opened	START RESET
E69	Washing heating element opened	Voltage value different from Vmains value when heating element is not powered during the cycle execution	Wash heating element faulty (thermo fuses opened) Wiring defective Main board defective	No actions	START ON/OFF RESET
E6A	Heating relay sensing failure	Wrong input signal to microprocessor	Main board defective	Cycle blocked with door locked	RESET

Alarm Code	Alarm Description	Fault Condition	Possible Fault	Machine Action/Status	Reset Key
E6H	Heating element power relay faulty (inconsistency between sensing and K1 relay status)		Current leakage between heating element and ground. Main circuit board faulty.	Safety water fill Cycle stops with door closed.	ON/OFF RESET
E71	Washing NTC failure	Wrong input signal to microprocessor (open circuit or short circuit)	Washing NTC defective Wiring or main board defective	Heating phases skipped	START RESET
E72	Output drying NTC failure	Voltage value out of limit (open circuit or short circuit)	Output drying NTC defective Wiring or WD board defective	Drying heating phases skipped	START RESET
E73	Input drying NTC failure	Voltage value out of limit (open circuit or short circuit)	Input drying NTC defective Wiring or WD board defective	Drying heating phases skipped	START RESET
E74	Washing NTC badly positioned	The washing temperature does not increase	Washing NTC sensor badly positioned, NTC sensor faulty, Wiring or main board defective	Heating phases skipped	RESET
E83	Wrong selector reading	Selector position code value not supported by the configuration data	Wrong configuration data on microprocessor Main board defective	Reset cycle	START RESET
E84	Recirculation pump triac sensing failure	Wrong input signal to microprocessor	Main board defective	Safety Drain cycle. Cycle stops with door unlocked	RESET
E85	Recirculation pump triac alarm	Incongruence between triac sensing and triac status	Recirculation pump defective Wiring or main board defective	Safety Drain cycle. Cycle stops with door unlocked	RESET
E86	Selector table configuration error	Incorrect configuration of the User Interface	Wrong or missing selector configuration data on UI microprocessor - User interface defective	---	START ON/OFF RESET
E87	User Interface microcontroller fault	User interface microcontroller damaged	User interface defective	No actions to be performed. If still present replace the User Interface Board	START ON/OFF RESET
E91	UI-MB communication error	Communication problem between UI and MB	Wiring defective, or UI, MB, Motor, WD , Weight board defective,	---	RESET
E92	UI-MB protocol incongruence error	Protocol communication between UI and MB not compatible	Main board incompatible with user interface board	Cycle blocked	OFF/ON
E93	Machine configuration error	Incorrect configuration of appliance	Incorrect configuration data Main board defective	Cycle blocked	OFF/ON
E94	Cycle Configuration error	Incorrect configuration of washing cycles	Incorrect configuration data Main board defective	Cycle blocked	OFF/ON

Alarm Code	Alarm Description	Fault Condition	Possible Fault	Machine Action/Status	Reset Key
E97	Incongruence between selector and cycles configuration	Incongruence between program selector and cycle configuration	Incorrect configuration data Main board defective	Cycle blocked	RESET
E98	FCV_MB protocol incong. Error	Protocol communication between FCV and MB not aligned	Main board incompatible with FCV control board	Cycle blocked	OFF/ON
E9C	User Interface Configuration fault	Configuration wrongly or not received	Display Board	No actions	ON/OFF START RESET
E9E	UI touch fault	Touch display not working	Display Board	No actions	OFF/ON
EA1	DSP system failure	Not drum position sensing during motor activation	Wiring or main board defective DSP sensor failure Main motor belt broken	Skip of the drum positioning phase	START RESET
EA6	DSP door open failure	Not sufficient number of tachometer impulses during motor activation	Wiring or main board defective Main motor belt broken Lid open	Cycle paused	START RESET
EB1 (EH1)	Power supply frequency out of limits	Power supply period lower/higher than configured values	Wrong or disturbed Power Supply line. Main board defective	Wait for nominal power supply conditions	OFF/ON
EB2 (EH2)	Power supply voltage too high	MAIN_V sensing input voltage value greater than configured value	Wrong or disturbed Power Supply line. Main board defective	Wait for nominal power supply conditions	OFF/ON
EB3 (EH3)	Power supply voltage too low	MAIN_V sensing input voltage value lower than configured value	Wrong or disturbed Power Supply line. Main board defective	Wait for nominal power supply conditions	OFF/ON
EBD (EHD)	Heater WD relay sensing alarm	Wrong input signal to microprocessor	Main board defective	Cycle blocked with door locked	RESET
EBE (EHE)	FCV Relay failure	Incongruence between safeties relay sensing and FCV relay status	FCV Relay defective FCV sensing circuit defective Wiring or main board defective	Safety Drain cycle activation, stop of the cycle with door opened	RESET
EC1	Electro valves blocked	Flow meter running with electro valves switched OFF	Electro valves defective/blocked Main board defective	Cycle blocked Water drain up to anti-boil level or max. 5 minutes with door locked. When O.L. blocked drain pump ON/OFF for 5/5 minutes continuously	RESET
EC2	Weight sensor communication error	Communication problem between Weight sensor and MB	Wiring defective Weight Sensor defective MB defective	No actions	START RESET

Alarm Code	Alarm Description	Fault Condition	Possible Fault	Machine Action/Status	Reset Key
EC3	Weight sensor fault	Signal coming from sensor out of limits	Weight sensor defective Main board defective Wiring	No actions	START RESET
EC4	AGS current sensor faulty.		Main board faulty.	Spin speed reduced to safety speed of 150 rpm	RESET
EC8	TY5 triac failure	Incongruence between TY5 triac sensing and triac status	TY5 triac load device defective (motor fan/hot valve/water softener board) Wiring or main board defective	Safety Drain cycle activation. Cycle blocked	RESET
EC9	TY5 triac sensing failure	Wrong input signal to microprocessor	Main board defective	Safety Drain cycle activation. Cycle blocked	RESET
ECA	WSD board communication alarm	No communication between motherboard and WSD board	WSD board defective Wiring between MB and WSD, Main Board defective, UI defective, Weight defective, FCV defective	Cycle blocked	START ON/OFF RESET
ECB	WSD board failure	WSD board defective : external sensor defective (level or density), diverter faulty, pump faulty, microcontroller damaged, power supply out of limits	WSD assembly defective	Cycle blocked	START ON/OFF RESET
ED1	WD board communication alarm	No communication between motherboard and WD board	WD board defective Wiring between MB and WD, Main Board defective, UI defective, Weight defective, FCV defective	Cycle blocked	START ON/OFF RESET
ED2	WD heating element1 relay failure	Incongruence between WD heating1 relay sensing and heating1 relay status	WD board defective wiring, thermostats defective, Main Board defective	Skip drying phase	START ON/OFF RESET
ED3	WD heating element1 sensing relay failure	Signal out of the limits	WD board defective	Skip drying phase	START ON/OFF RESET
ED4	WD heating element2 relay failure	Incongruence between WD heating2 relay sensing and heating1 relay status	WD board defective wiring, thermostats defective, Main Board defective	Skip drying phase	START ON/OFF RESET
ED5	WD heating element2 sensing relay failure	Signal out of the limits	WD board defective	Skip drying phase	START ON/OFF RESET

Alarm Code	Alarm Description	Fault Condition	Possible Fault	Machine Action/Status	Reset Key
ED6	WD thermostat sensing failure	Signal of thermostat sensing out of limits	WD board defective	No actions	START ON/OFF RESET
ED7	WD thermostat failure	With satellite board: Incongruence between WD heating 1 and 2 relay sensing or thermostat sensing out of limits. Without satellite: Incongruence between heater and drying relay sensing.	Manual or automatic thermostat opened, wiring , WD board defective, drying heater element,	No actions	START ON/OFF RESET
ED8	WD fan motor tachometer absent	Bad or no signal from tachometer	Fan Motor defective Fan Motor Wiring or WD board defective	Skip drying phase	ON/OFF RESET
ED9	WD fan motor driving circuit alarm	Incongruence between fan motor status and the driving circuit sensing signal	WD board defective	Skip drying phase	ON/OFF RESET
EDA	WD Power Supply alarm	Power supply period lower/higher than configured values or power supply values out of limits	Wrong or disturbed Power Supply line. WD board defective	Wait for nominal power supply conditions	START ON/OFF RESET
EDB (EDH)	WDM microcontroller fault	WDM microcontroller damaged	WDM board defective	No actions to be performed. If still present replace the WDM Board	START ON/OFF RESET
EDC	WDM heating element opened	Incongruence between WDM heating 1 and 2 relay sensing	Drying heating elements opened, unplugged, or wiring	No actions	START ON/OFF RESET
EF1	Filter clogged warning	Difficulties to drain. Virtual AB level remains in full state after an established time	Filter clogged or dirty Drain pipe clogged/kinked/too high	Warning displayed at the end of the cycle	START RESET
EF2	Foam warning	Virtual AB level in full state during spin phase at the end of the washing phase	Excessive detergent dosing Drain filter dirty or clogged Drain pipe kinked or clogged	Alarm displayed after 5 attempts (if specific LED configured)	RESET
EF3	Acqua Control warning	Acqua control sensing signal high (in appliance equipped with safety device)	Water on the basement Acqua Control defective	Drain pump activated	ON/OFF RESET
EF4	Water load low pressure	Flow meter stooped with electro valves switched on	Tap closed/low pressure of incoming water	No actions	RESET
EF5	Load too unbalanced	Final spin phase skipped due to a high unbalance load	Load unbalanced	No actions	START RESET

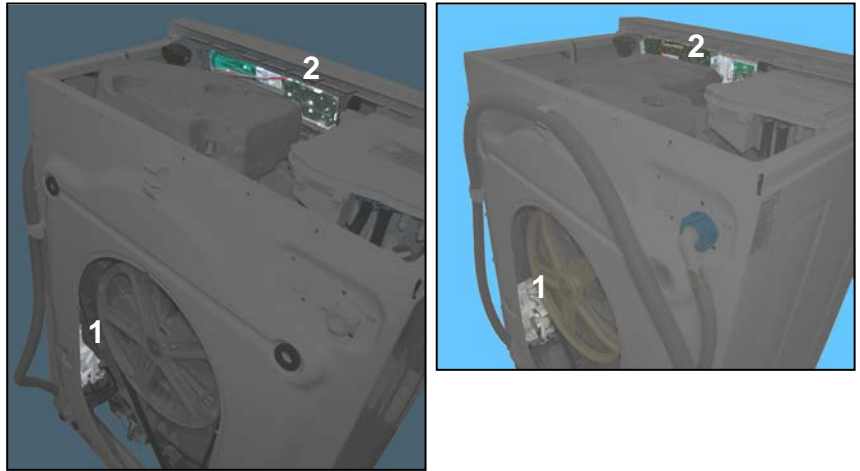
Alarm Code	Alarm Description	Fault Condition	Possible Fault	Machine Action/Status	Reset Key
EF6	Safety reset	MB microcontroller damaged	Main Board defective	No actions to be performed. If still present replace the Main Board	-
EB1 EH1	Appliance power supply frequency out of limits		Problem with the power supply network (incorrect/disturbed); Main PCB faulty.	Wait for nominal frequency	ON/OFF
EB2 EH2	Supply voltage too high		Problem with the power supply network (incorrect/disturbed); Main PCB faulty.	Wait for nominal voltage conditions.	ON/OFF
EB3 EH3	Supply voltage too low		Problem with the power supply network (incorrect/disturbed); Main PCB faulty.	Wait for nominal voltage conditions.	ON/OFF

20 TECHNICAL CHARACTERISTICS

20.1 Electronic control

The electronic control is made up of:

1. Main circuit board
2. Control/display circuit board



The control/display circuit board acquires the commands for cycle set-up. This board includes: buttons, LEDs, display (where featured), programme selector and temperature control (where featured). The commands acquired by the display board are sent to the main circuit board, which powers all the electrical components (solenoid valve, wash motor, drain pump, heating element and door safety device).

- It controls the temperature of the washing water via the NTC probe inserted in the heating element.
- It controls the motor rotation speed using the signal from the tachometric generator.
- It controls the level of water via the analogue pressure switch.

20.1.1 Programming/UPDATING THE MAIN CIRCUIT BOARD



Any programming/updating/diagnostics operation carried out with the board installed on the appliance 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).

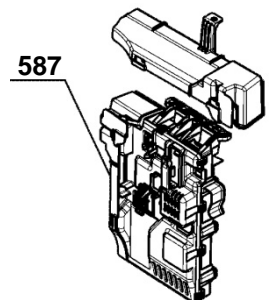
In the Service Notes the main circuit board (587) is identified with two spare parts codes:

- ↪ Code 973 914... identifies the pre-programmed board.
- ↪ Code 132... identifies the unprogrammed board.

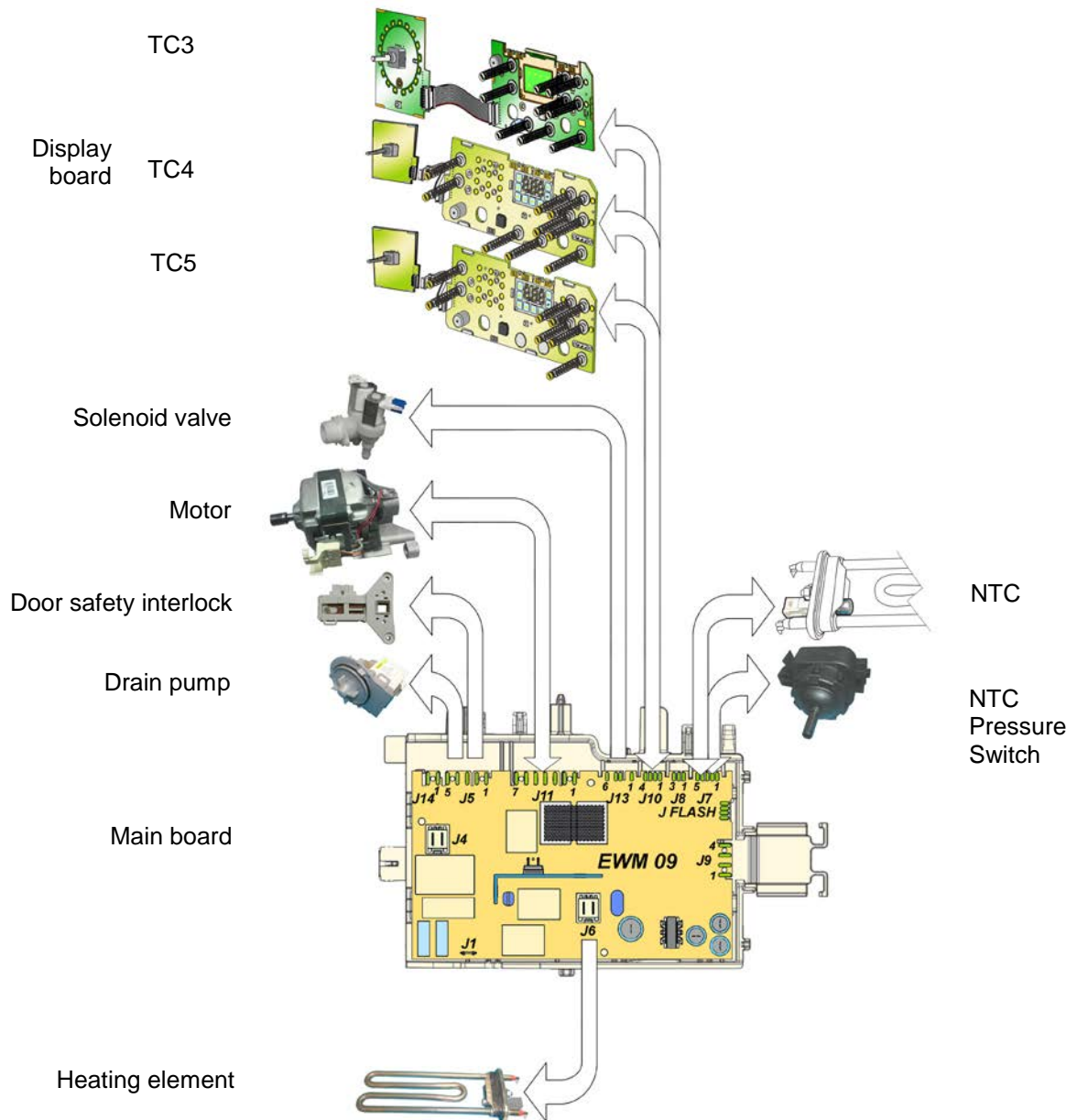
The circuit board can be programmed/updated using the **Sidekick** application.

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.

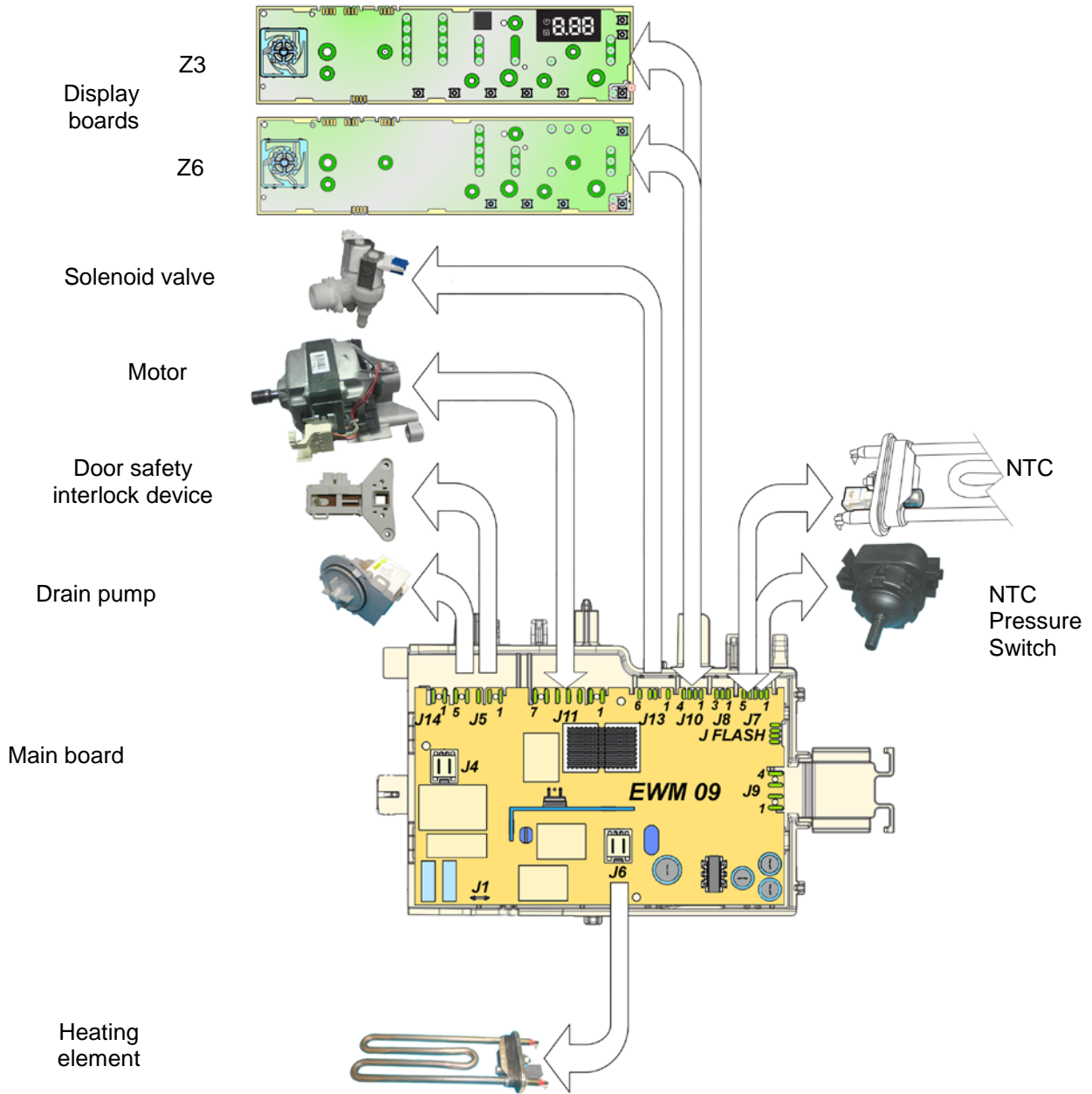
To update/program the main board, insert the **Sidekick** connector in the position shown by the red arrow:



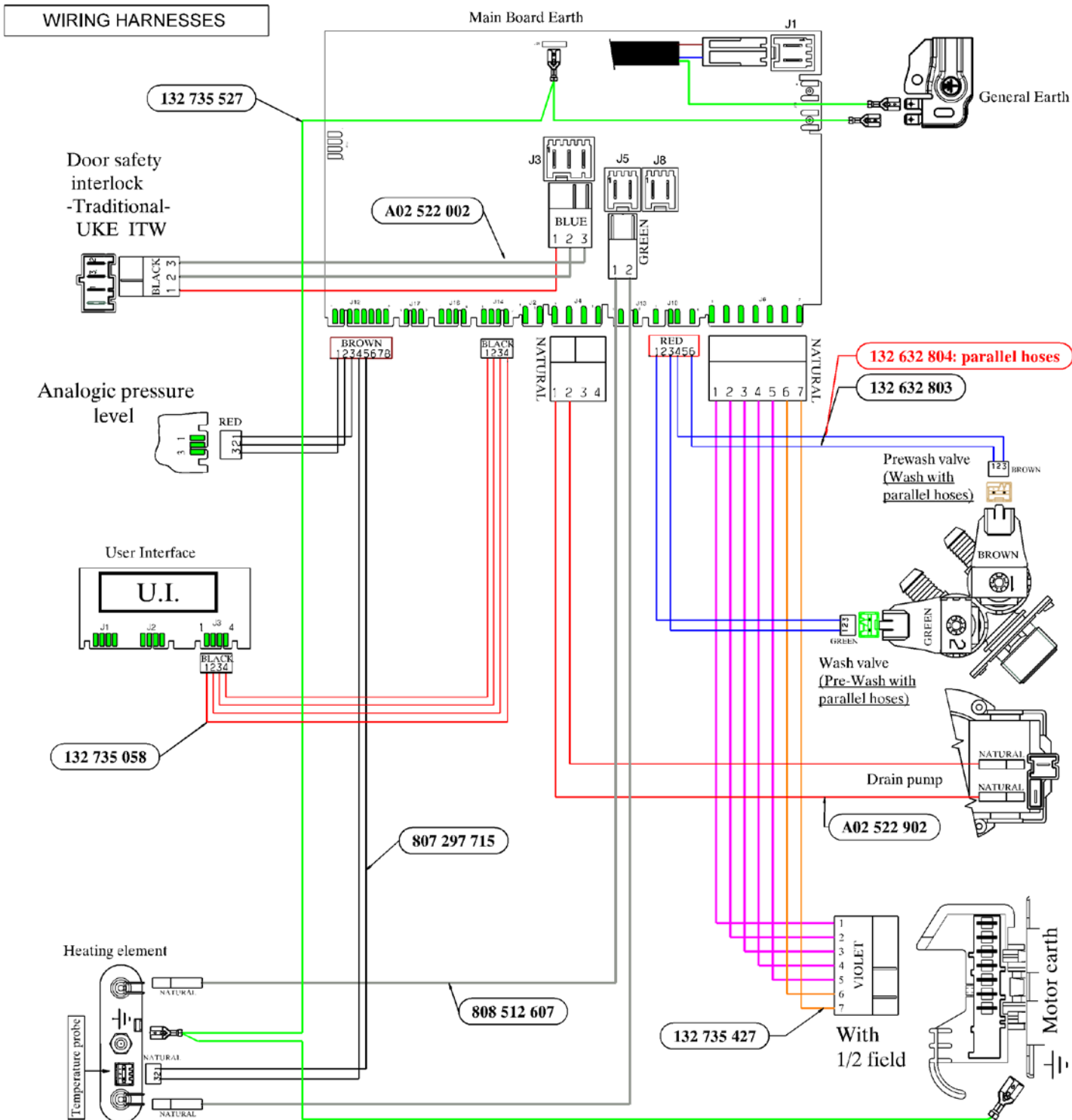
20.1.2 EWM09312 Electrical characteristics with universal motor



20.1.3 EWM09311 Electrical features

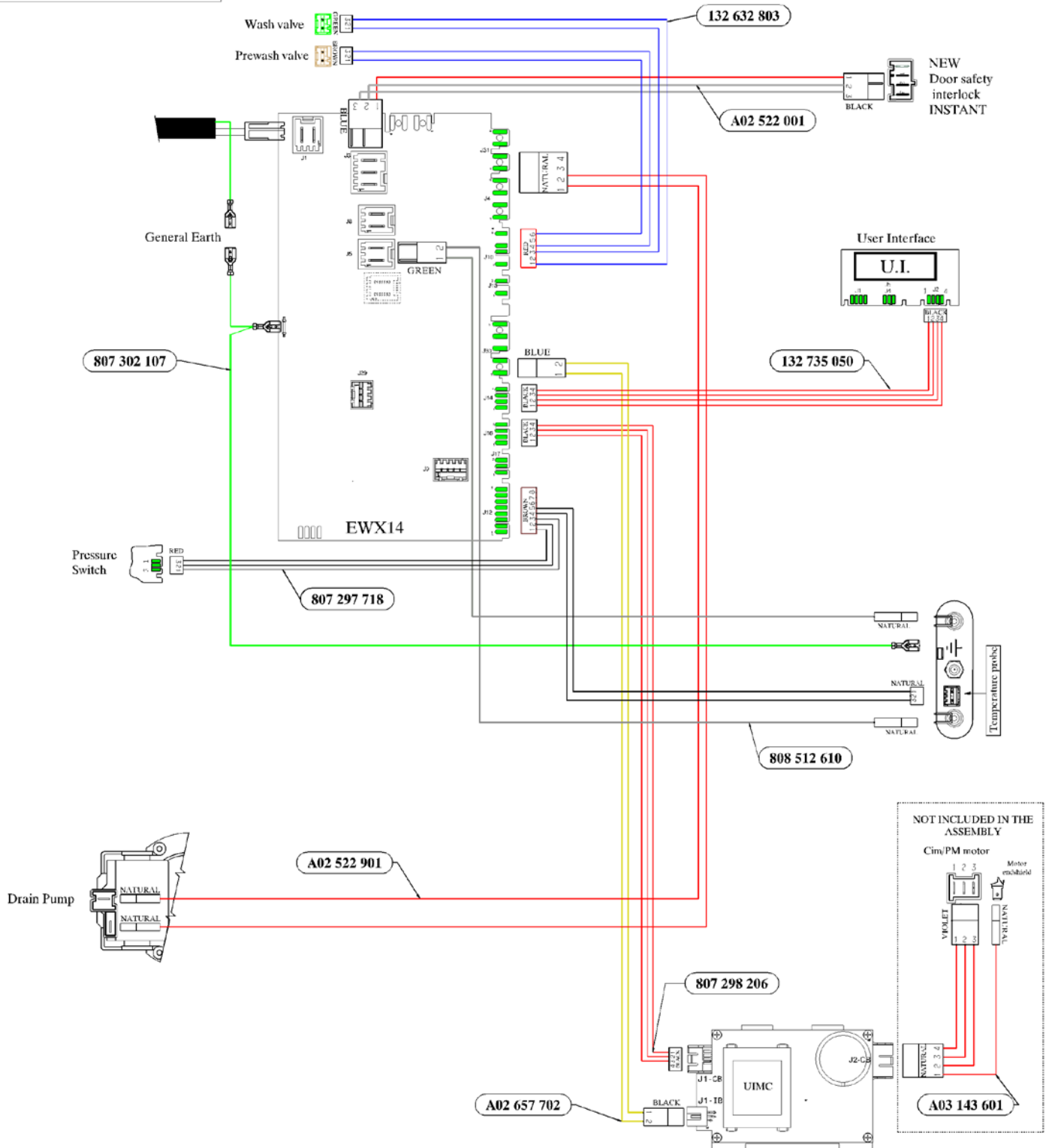


20.1.4 EWX13611 Electrical characteristics



20.1.5 EWX14931 Electrical characteristics with three-phase motor and inverter

WIRING HARNESSES



20.2 Washing unit

Styling	SUPER-SLIM 39.2 cm/33 l/3.5 Kg		SLIM 43.1 cm/40 l/5 Kg			FULL SIZE 51.2 cm/47 l/6 Kg			FULL SIZE 50.2 cm/50 l/7 Kg		
	800 rpm	1,000 rpm	800 rpm	1,000 rpm	1,200 rpm	800 rpm	1,000 rpm	1,200 rpm	1,000 rpm	1,200 rpm	1,400 rpm
TC5		X		X	X		X	X			
TC4		X		X	X		X	X	X	X	
TC3				X	X				X	X	X

This table is approximate.

20.3 Welded tub assembly

The welded tub consists of:

- ↙ a rear casing assembly
 - ↙ a front casing
- welded together.

The pressure chamber (a) is integrated into the tub assembly.
The supports to attach the respective counterweights can be found in the upper and frontal part.

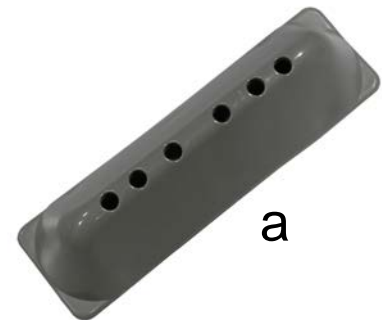


The tub interior contains the drum assembly consisting of a STAINLESS steel casing to which the two flanges are seamed.

There are three built-in blades inside the drum and blocked to the drum with fins:

In the Super Slim and Slim unit

The blade is small (fig. a)



In the Full size unit



The blade is large (fig. b)

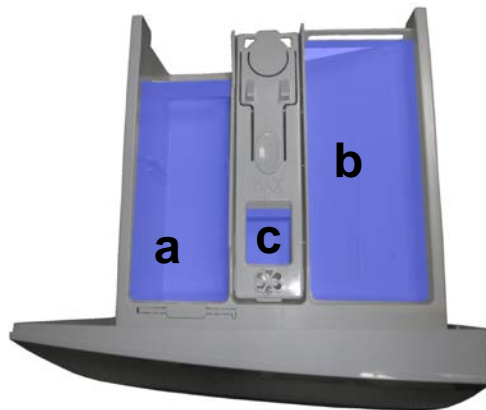
20.4 Detergent dispenser

Operating principle of the conveyor.



<p>Water fill to pre-wash compartment (pre-wash solenoid)</p> <ul style="list-style-type: none">• This solution is used with the three compartment tray models: the detergent in compartment “b” is loaded at the start of the pre-wash phase.	A top-down view of the detergent dispenser with blue lines indicating the water flow path. The water enters from the top right, moves down, and then turns left to fill the middle compartment (labeled 'b' in the text).
<p>Water fill to wash compartment (wash solenoid)</p> <ul style="list-style-type: none">• In all models: compartment “a” is used to hold the detergent loaded at the start of washing.• In the event of stains, mix stain removers with the washing detergent (for powder detergent).	A top-down view of the detergent dispenser with blue lines indicating the water flow path. The water enters from the top right, moves down, and then turns left to fill the left compartment (labeled 'a' in the text).
<p>Water fill to conditioner compartment (pre-wash and wash solenoid valves)</p> <ul style="list-style-type: none">• In all models: compartment “c” is used to contain the conditioner, which is removed with the water of the last rinse.	A top-down view of the detergent dispenser with blue lines indicating the water flow path. The water enters from the top right, moves down, and then turns left to fill the right compartment (labeled 'c' in the text).

20.5 Detergent drawer



20.5.1 Arranging the flap in the detergent dispenser

The detergent dispenser is designed for use with: powder detergent or liquid detergent.

The figure shows the detergent dispenser drawer for the use of powder detergent (and how it leaves the factory).

The arrow indicates the position in which the flap is inserted, which is used when using liquid detergent.



For the use of liquid detergent.

Take the flap out of its seat.



Insert it in the two rails at the centre of the washing tray.



21 ELECTRICAL COMPONENTS



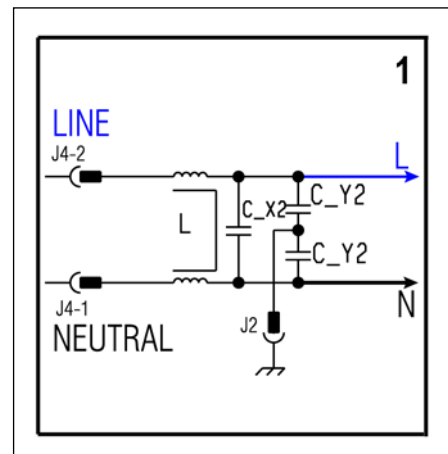
- **When replacing any of the components, please refer to the code shown in the list of spare parts relating to the appliance.**

21.1 Noise filter

General characteristics

This is a device that is connected to the electricity power line input of the appliance and prevents the emission of radio frequency noise. It is incorporated into the main board.

1. Main circuit board



21.2 Display board

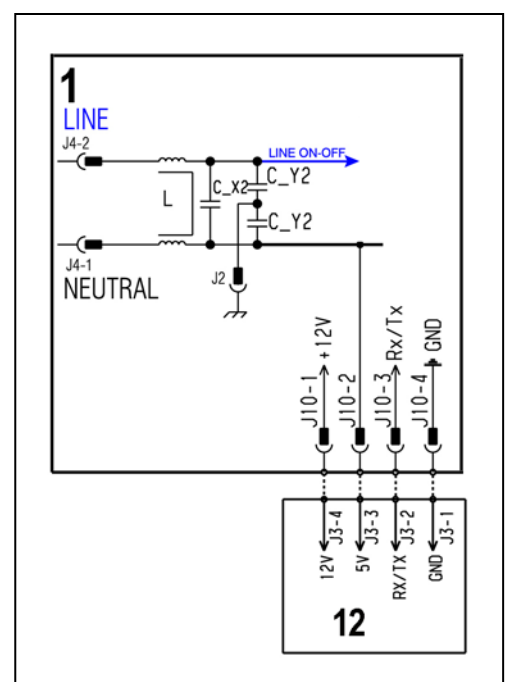
The main circuit board (1) supplies the power supply voltage to the control and display board (12).

The selector dial is used to select programmes.

Selection of the options or start/pause is achieved using the buttons on the board (12).

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

1. Main circuit board
12. Display board



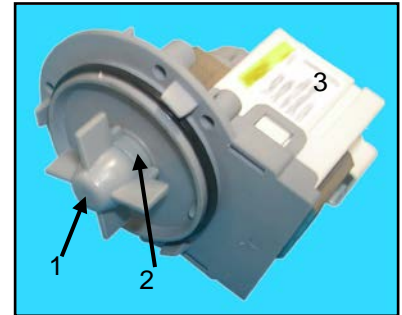
21.3 Drain pump



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

21.3.1 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 actuated by a synchronous motor.

The rotor consists of a permanent magnet and the direction of rotation can be either clockwise or anticlockwise. The rotor 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 22-25 l/min, and the maximum head is 90 cm.

Important!

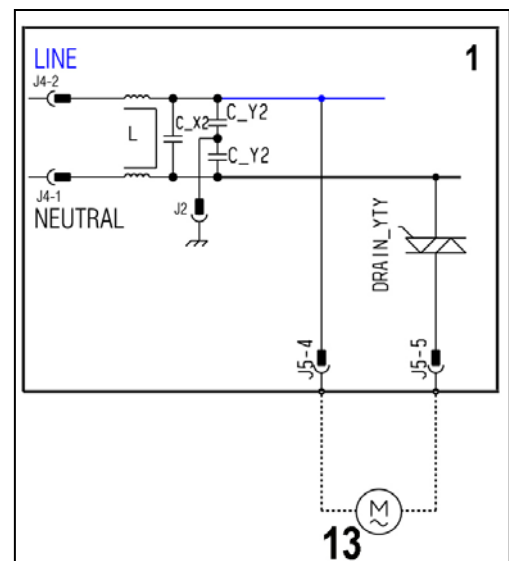
Synchronous pumps, when powered on empty (disconnected from the water circuit), may not start in some cases because their very construction makes them need an antagonist torque on the wheel to allow the rotor to move in one of the two directions.

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 maximum pre-determined period (and an alarm might be displayed).
- ↳ Until the electronic pressure switch closes on empty, after which the pump is activated for a brief period or moves on to the next phase.

1. PCB
13. Drain pump

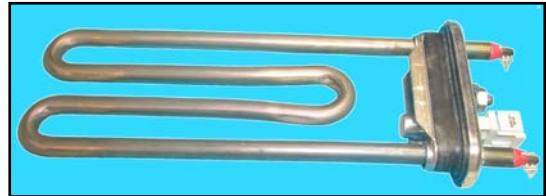


21.4 Heating element



- 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. replace the NTC probe, etc...)

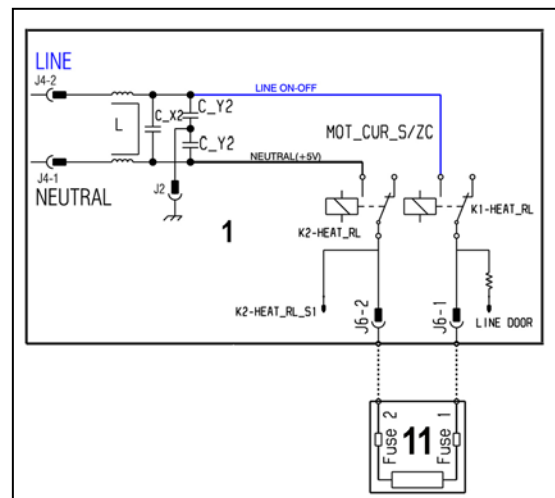
21.4.1 General characteristics



The heating element of the washing water is armoured, i.e. it is inserted in sealed tubular stainless steel casing.

It is powered by two relays (K1, K2) located on 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.

1. Main circuit board
11. Heating element



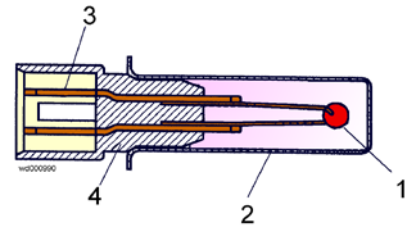
21.5 Temperature probe



- 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. replace the NTC probe, etc...)

21.5.1 General characteristics

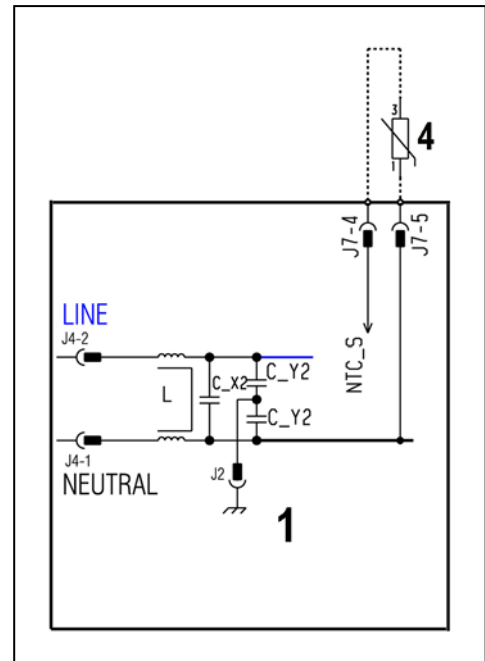
1. NTC heating element
2. Metal capsule
3. Terminals
4. Plastic casing



An NTC type probe is used to control the wash 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.

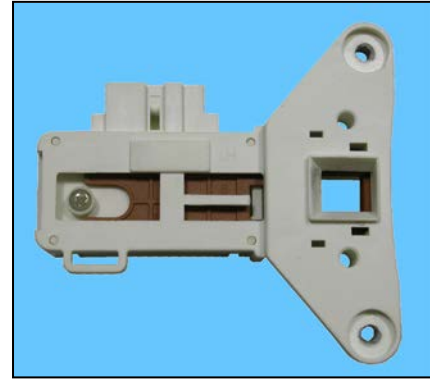
The temperature of the water is controlled by the circuit board by means of an NTC temperature probe incorporated in the heating element.

1. Main circuit board
4. NTC probe



21.6 Volt metric door safety device with PTC

21.6.1 General characteristics



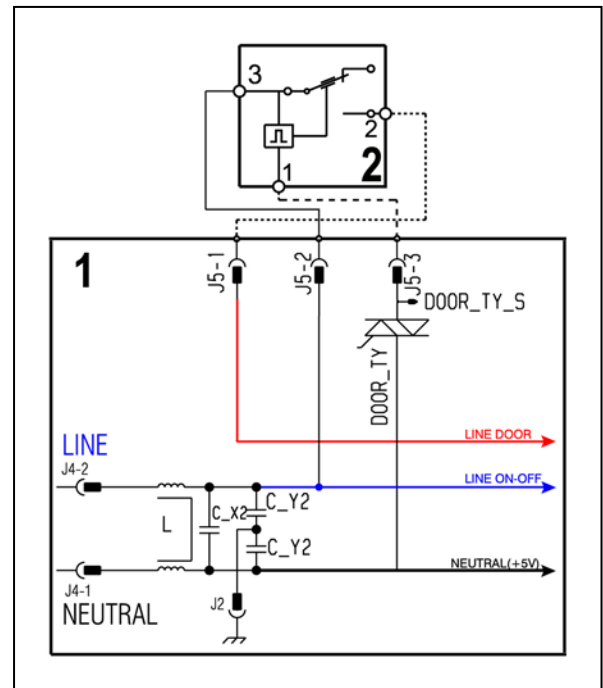
An electromechanical device is used as the door safety interlock, having the following functions:

- When powered, the volt metric device closes the main switch which powers certain electrical components of the washing machine (only if the door is closed).
- During operation, the cursor remains mechanically blocked, preventing the door from opening when the appliance is running. Once the power supply is cut off, the door remains locked for 1-2 minutes to ensure that the drum has stopped before opening it.

In the applications analysed to this point, the door safety device was positioned after the anti-noise filter. Consequently, it powered all the electrical components of the appliance; in this platform, it only powered the solenoid valves and the motor.

- Operating principle

↳ Once the wash programme is started by pressing the start/pause button, the bi-metal PTC (contact 1) is powered by the triac on the circuit board (J5-3): after 2-4 seconds, the switch (3-2) powering the electrical components of the washing machine is closed.



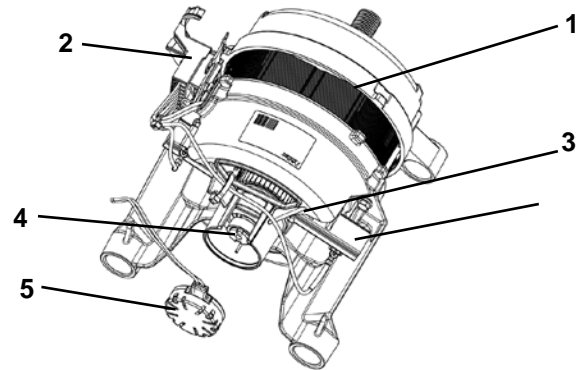
1. Main circuit board
2. Door safety device - Traditional

21.7 Motor

21.7.1 General characteristics

Collector motors are fitted on appliances with a spin speed of between 600 and 1,400 rpm.

1. Stator
2. Terminal board
3. Collector
4. Tachometric generator magnet
5. Tachometric generator coil
6. Brush



21.7.2 Operating principle

The stator winding is connected in series to the rotor winding (serial excitation).

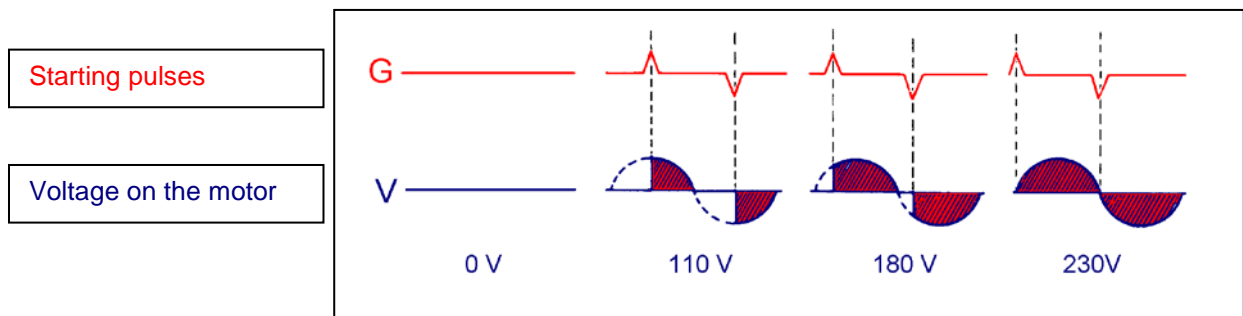
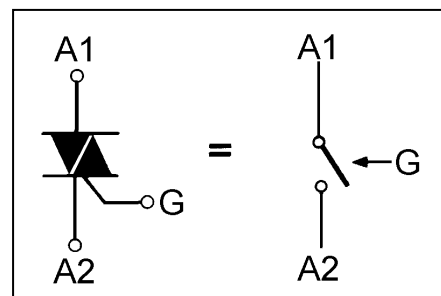
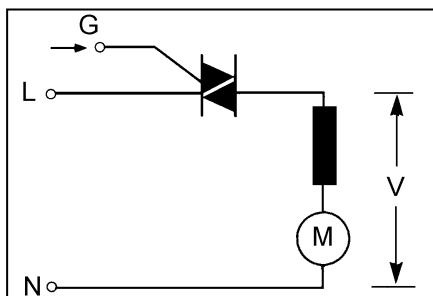
Every section of the rotor winding is connected to a pair of collector blades (also referred to as a switching device). The electrical contact between the collector and the fixed circuit is made by two static brushes on the collector blades.

The motor rotation speed is in proportion to the supply voltage, supplied by an electronic control.

This type of motor is also referred to as “universal” because it can be powered by either alternating or direct current.

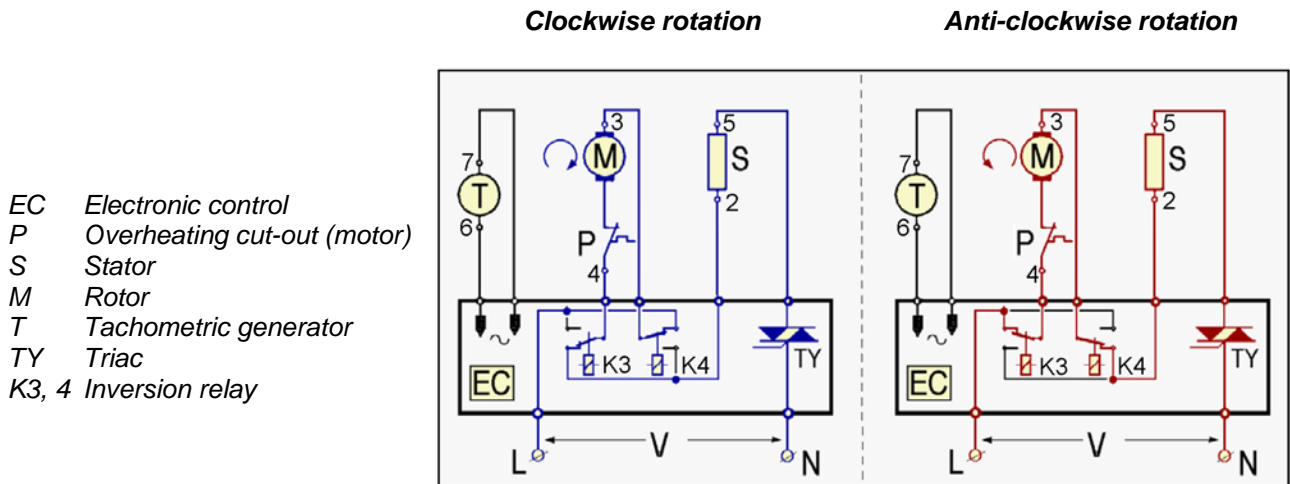
21.7.2.1 Motor speed control

- This is achieved by an electronic control varying the voltage (V) applied to the motor.
- The method adopted is the “phase partialization” command of the TRIAC. The TRIAC is an electronic bidirectional switch. Closing of the circuit between A1-A2 (anodes) occurs when there are appropriate starting pulses on gate (G).



21.7.2.2 Direction of rotation of the motor

The direction of rotation of the motor depends on how the windings of the stator and rotor are connected to one another. This connection is made by the circuit board relay contacts.



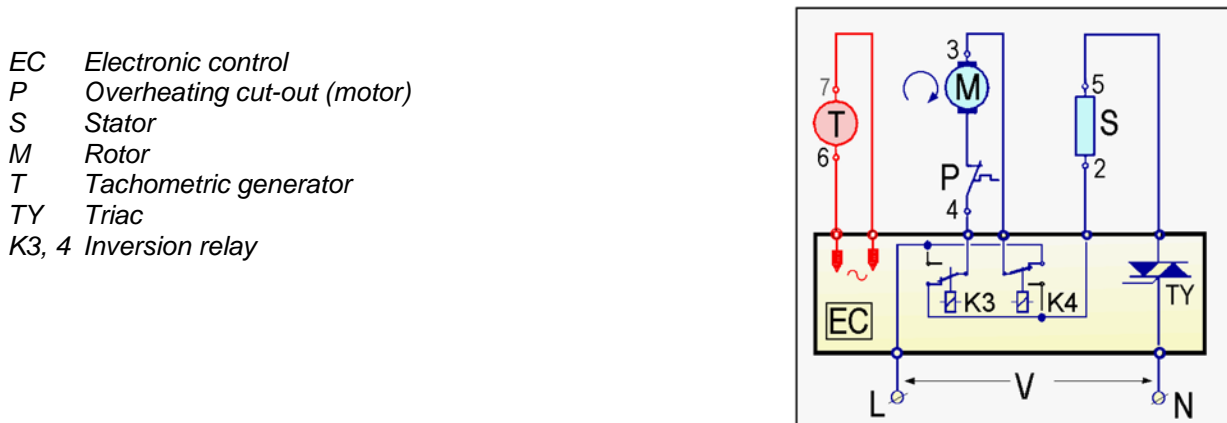
The drum rotates clockwise when spinning (seen through the door).

21.7.2.3 Tachometric generator

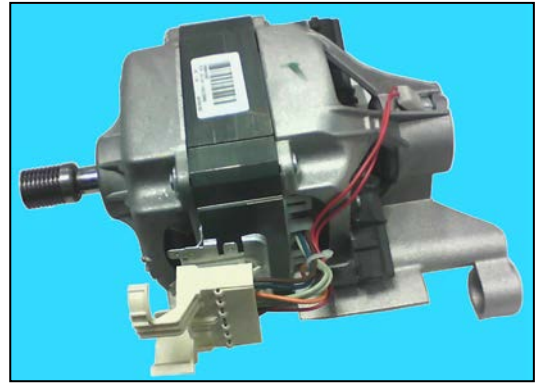
The speed of the collector motor, like all motors with serial excitation, depends on the load; so the speed decreases as the load increases. This makes it necessary for the power supply voltage to the motor, and therefore its speed, to be constantly controlled by an electronic speed control.

A tachometric generator, consisting of a magnet secured to the shaft and a coil, generates a voltage depending on the speed of the rotor, which is sent to the electronic control.

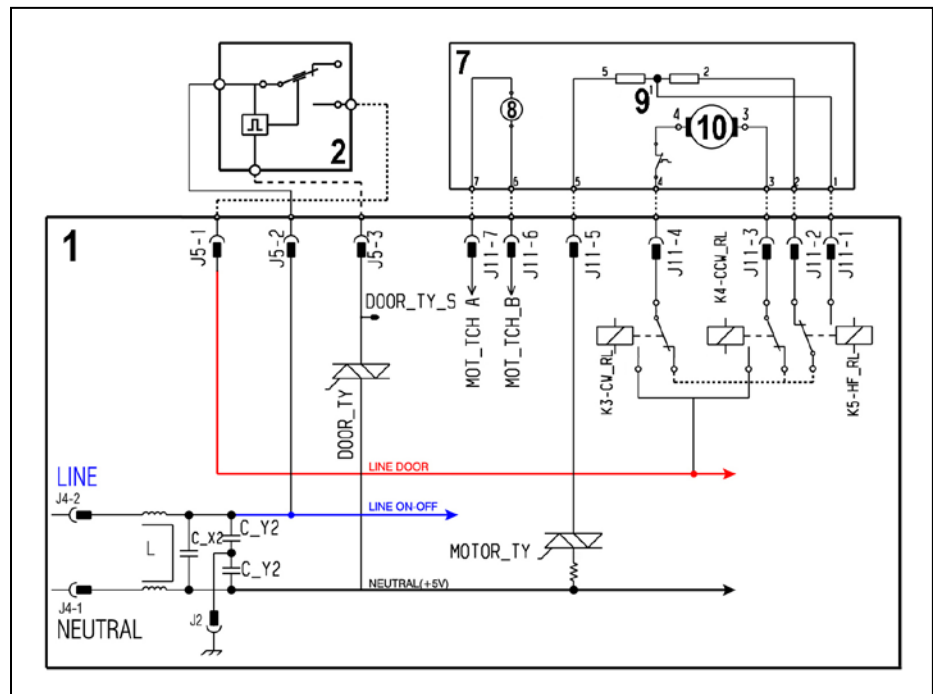
All the electronic controls have a protection system, which is more or less sophisticated, to avoid the operation of the motor in the event of a failure in the tachometric generator.



21.7.3 Power supply to motor



The PCB powers the motor via a triac; changes in the direction of rotation are achieved by switching the contacts on the two relays (K3-K4), which change the connection between the rotor and the stator. In certain models, a third relay (K5) is used to power the stator (full or half field) according to the spin speed. The motor speed is controlled by the signal from the tachometric generator. During the spin phases, the micro-processor performs the anti-foam and the anti-balancing check procedure.

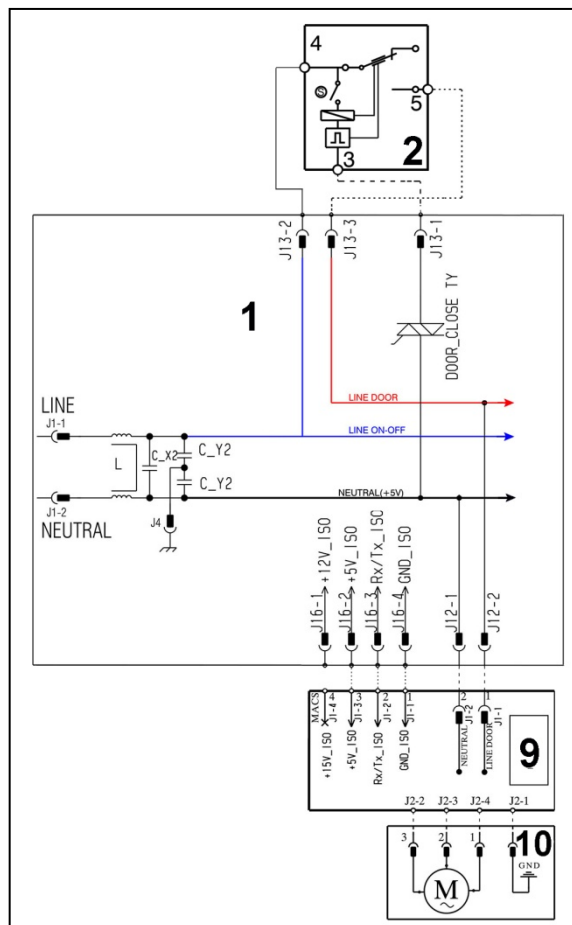
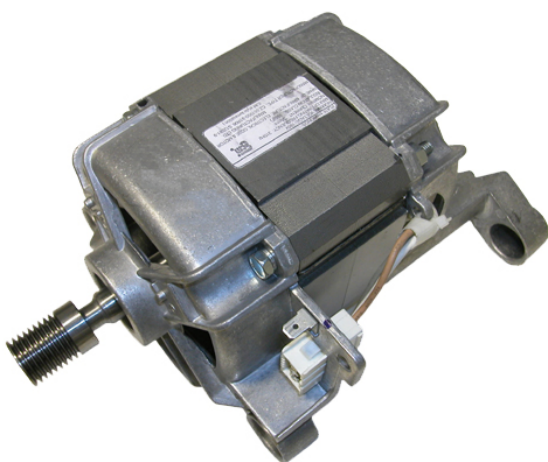


1. Main circuit board
2. Door safety interlock
7. Universal motor
8. Tachometric generator
9. Stator
10. Rotor

21.7.4 Three-phase asynchronous motor - inverter

21.7.4.1 General characteristics

1. Main electronic circuit board
2. Door safety interlock
9. Inverter
10. Motor



21.7.5 Power supply to motor

Three-phase power is fed by the inverter (10), which sends through the connectors J2-2 J2-3 J2-4 the three phases to connectors 1-2-3 on the motor (nodes U-W-V), where the windings (Y-X-Z) are connected.

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

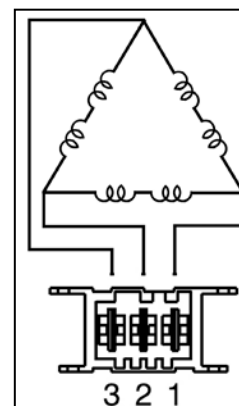
It is possible to get an idea of the efficiency of the motor by measuring the resistance of the coils:

Coil y ohm $6.43 \sim \pm 7\%$ (contacts 2-3)

Coil x ohm $6.43 \sim \pm 7\%$ (contacts 1-2)

Coil z ohm $6.43 \sim \pm 7\%$ (contacts 1-3)

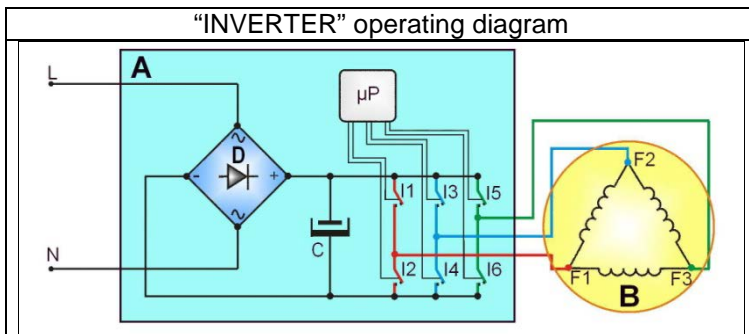
In the event of a fault an alarm will be displayed - see table of alarms.



21.8 Inverter

21.8.1 General characteristics

The EWX14931 electronics use a new asynchronous motor, with 2 poles, three-phase, with high performance and low noise levels.

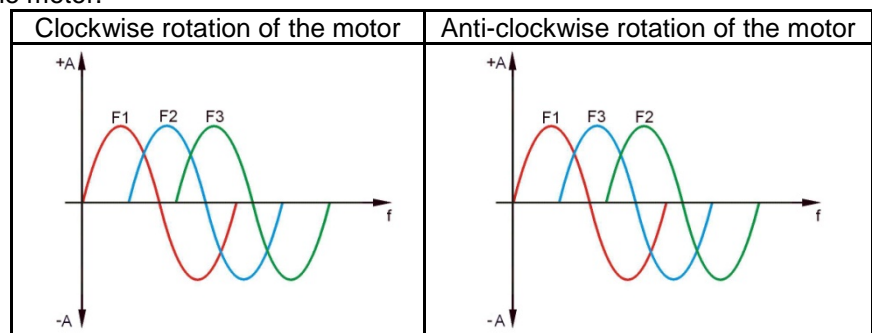


L = Phase
 N = Neutral
 A = "INVERTER" board
 B = Motor
 C = Condenser
 D = Diodes
 I1÷6 = Switches
 F1÷3 = Motor connectors
 µP = Micro Processor



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.**
- **When replacing the "INVERTER" board, do not open the plastic casing, because some parts are subject to high voltage values and some condensers remain loaded for a long time at dangerous voltage levels even after being unplugged.**
- **Accidental physical contact may cause electric shocks.**

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

21.8.2 Anti-foam control system

The anti-foam control procedure is performed using the electronic pressure switch.

- **Spin with little foam:** if the pressure switch senses a "full" level, the spin phase is interrupted, the drain pump continues to operate and, when the pressure switch senses "empty", the spin phase is resumed.
- **Spin with excess foam in the tub (critical situation):** this is recognised if the pressure switch senses full level on 5 occasions (five spin interruptions). If this occurs, the spin phase is skipped, and a one-minute drain cycle is performed with the motor stationary and, in the case of a washing phase, a supplementary rinse is added.

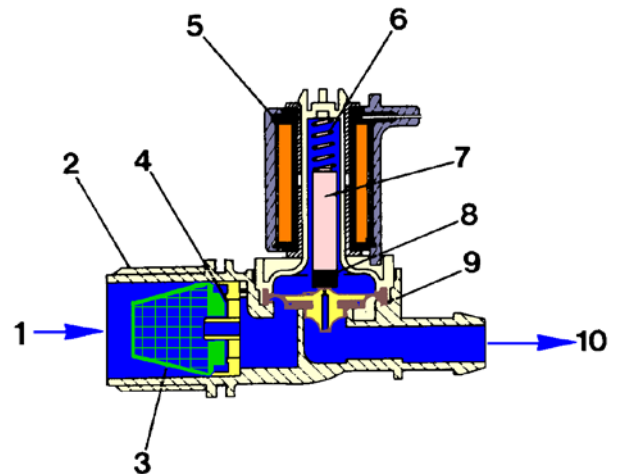
21.9 Solenoid valves

21.9.1 General characteristics

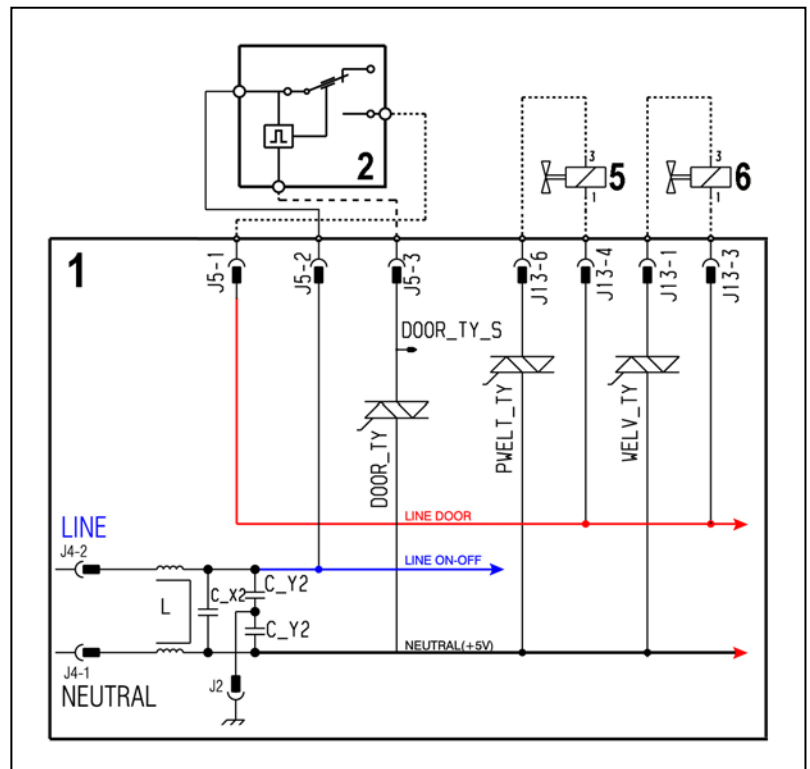
This component introduces water into the detergent dispenser and is controlled electrically by the main circuit board via Triac. The level of water in the tub is controlled by the analogue pressure switch.

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

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 circuit board
2. Door safety interlock
5. Pre-wash solenoid valve
6. Wash solenoid valve

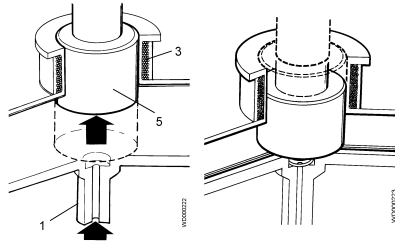


21.10 Tub water level control analogue pressure switch

21.10.1 General characteristics

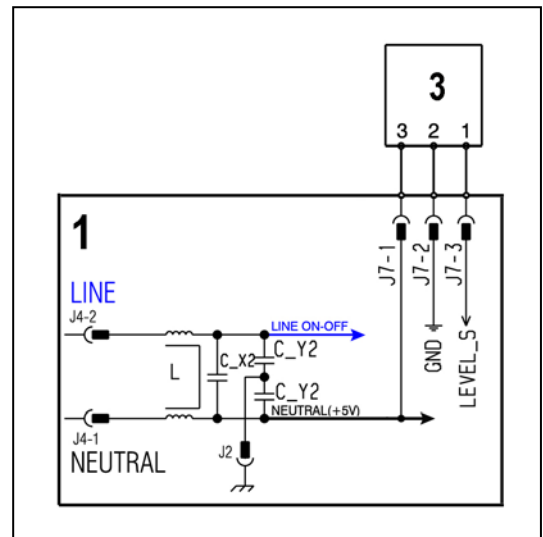
The electronic pressure switch is an analogue device that controls the water level in the tub, used in models with the electronic control system, and is connected directly to the main PCB.

- 1 Pipe
- 3 Oscillating coil
- 5 Core

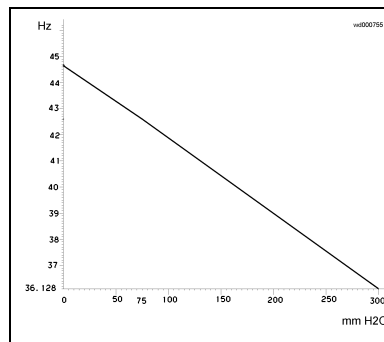


The pressure switch is connected via a pipe to the pressure chamber. When water is introduced into the tub, this creates a pressure inside the hydraulic circuit that causes the membrane to change position. This in turn modifies the position of the core inside the coil, thus changing the inductance and the frequency of the oscillating circuit. The PCB recognises how much water has been introduced into the tub according to the frequency.

- 1. Main circuit board
- 3. Analogue pressure switch

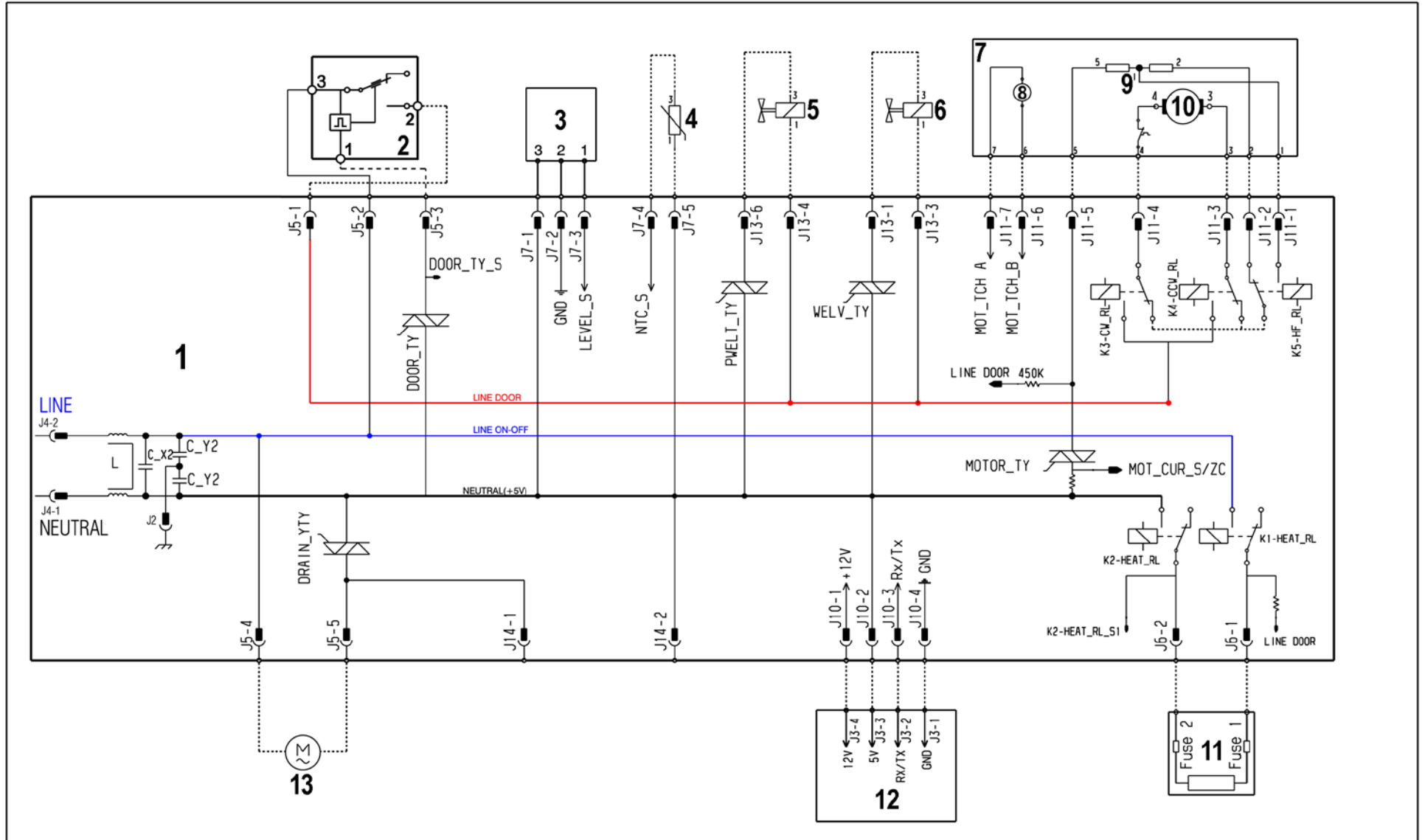


Operating frequency variation according to the quantity of water in the tub



22 MAIN ELECTRICAL CIRCUIT DIAGRAM

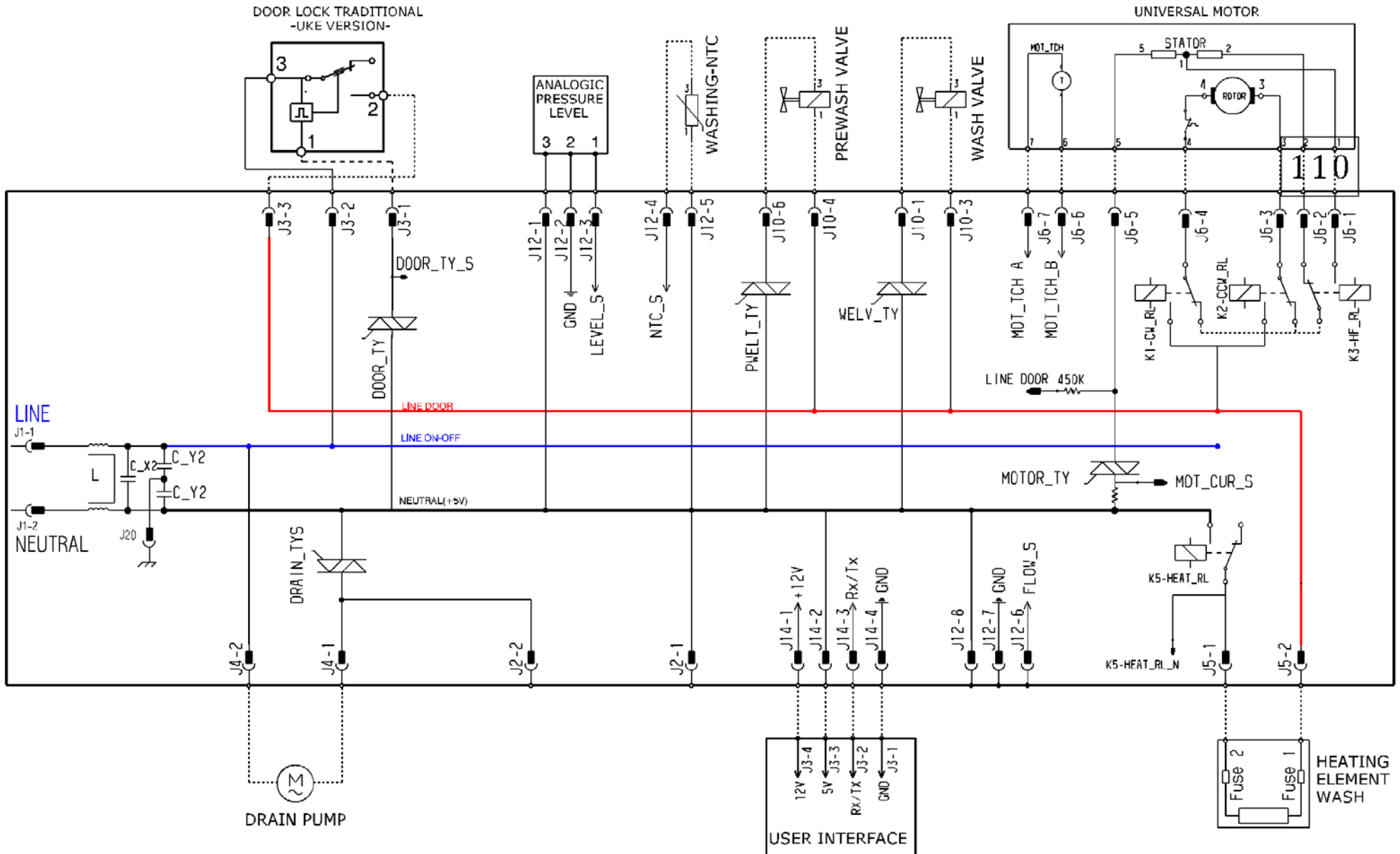
22.1 EWM09311 & EWM09312 Diagram



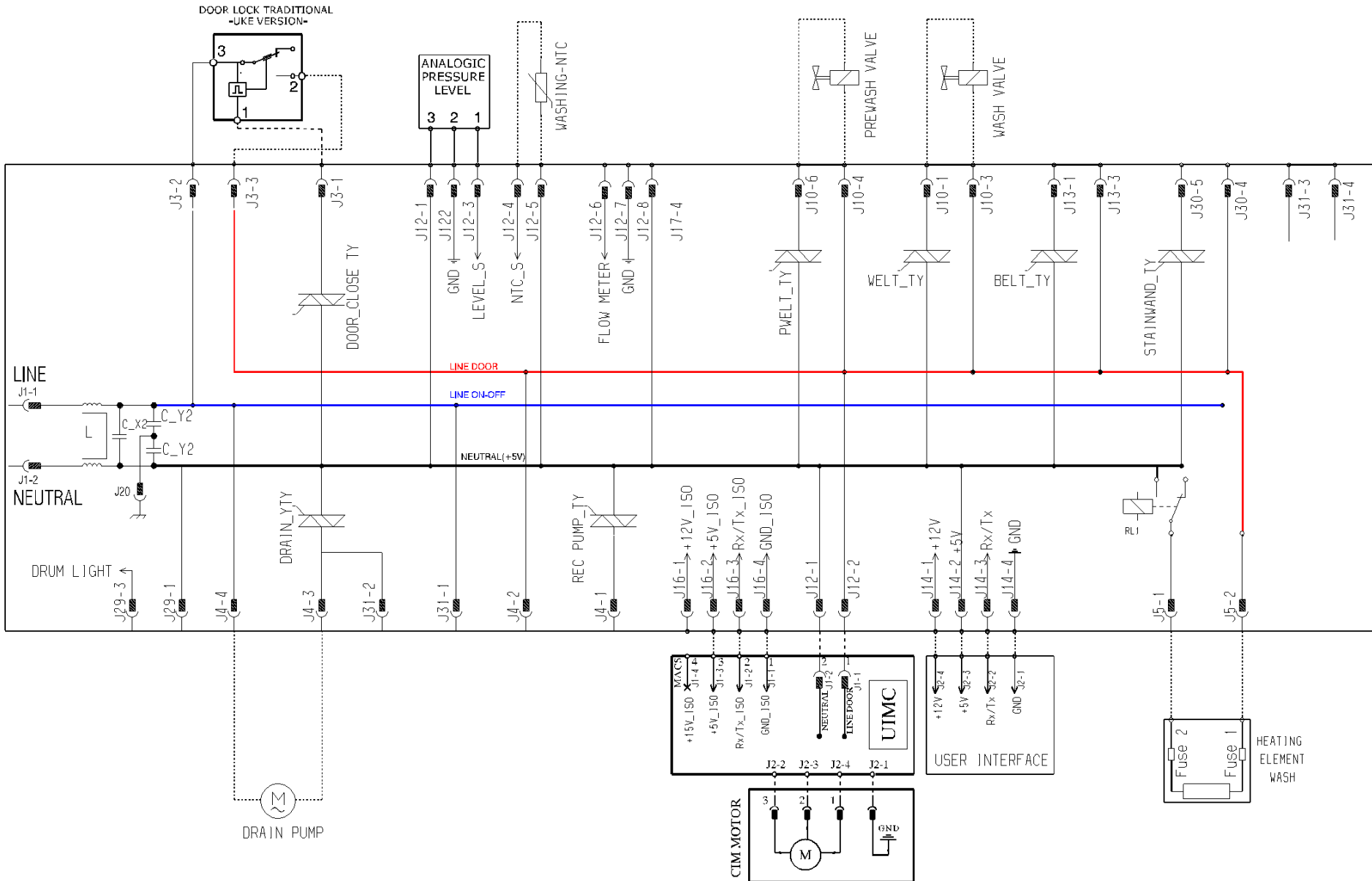
22.2 Key to diagram

Appliance electrical components	PCB components	
1. Main circuit board	DRAIN_YTY	Drain pump Triac
2. Door safety interlock	DOOR_TY	Door interlock Triac
3. Electronic pressure switch	PWELT_TY	Pre-wash solenoid Triac
4. NTC	WELV_TY	Wash solenoid Triac
5. Pre-wash solenoid valve	MOTOR_TY	Motor Triac
6. Wash solenoid valve	K1	Heating element relay
7. Universal motor	K2	Heating element relay
8. Tachometric (motor)	K3	Motor relay: clockwise rotation
9. Stator (motor)	K4	Motor relay: anti-clockwise rotation
10. Rotor (motor)	K5	Motor relay: half-field power supply
11. Heating element		
12. Display board		
13. Drain pump		

22.1 EWX13611 Operating circuit diagram



22.2 EWX14931 Operating circuit diagram (with three-phase motor)



23 ACCESSIBILITY



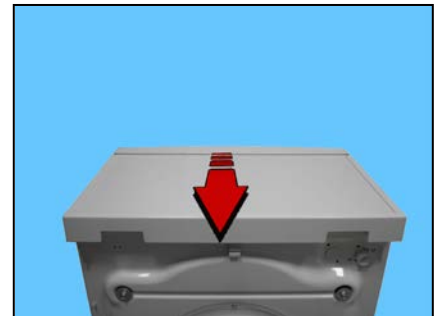
Take care because some of the appliance parts may have sharp edges.

23.1 Worktop

Remove the screws that secure it to the back panel.



Pull it out from the back.



23.2 From the worktop, you can access

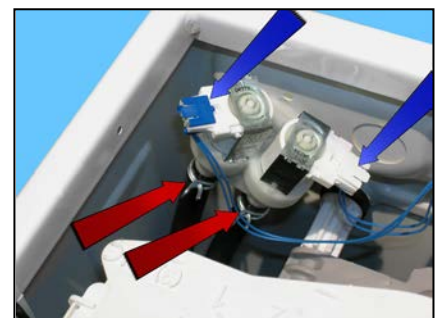
1. Solenoid valve
2. Detergent dispenser and conveyor
3. Control panel
4. Display board/light diffuser/buttons/buttons springs assembly
5. Electronic pressure switch
6. Detergent/steam vent fill pipe
7. Top counterweight



23.2.1 Solenoid valve

Remove the worktop (see relevant paragraph).

Detach the connectors indicated by the blue arrows.
Pull out the pipes indicated by the red arrows, which connect the solenoid valve to the detergent dispenser.



Unscrew the water fill pipe from the solenoid valve.
Push the two retainers indicated by the arrows towards the inside of the appliance.
At the same time, turn the solenoid valve clockwise to remove it.



23.2.2 Control panel

Remove the worktop (see relevant paragraph).

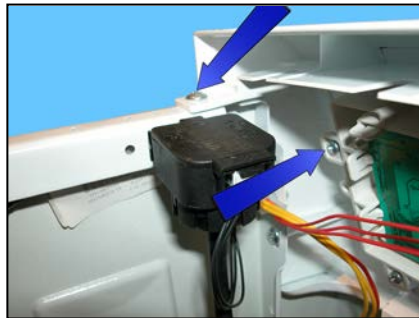
Pull the detergent dispenser out and at the same time press the stop locking it in place.



Loosen the screws that attach the control panel to the detergent tray.



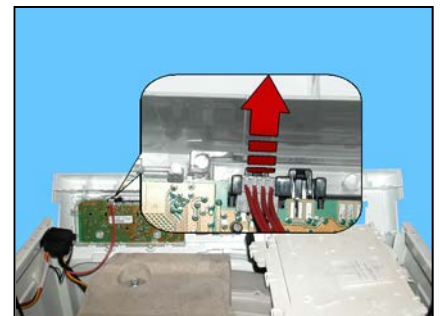
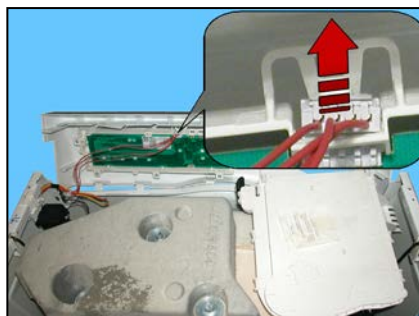
Unscrew the two screws that hold the control panel to the unit, blue arrows, left side (seen from behind).



Unscrew the two screws that hold the control panel to the unit, blue arrows, right side (seen from behind).



Move the control panel forwards and remove the connector.



23.2.3 Display board/selector assembly TC5/TC4/TC3

Remove the worktop (see relevant paragraph).
Remove the control panel (see relevant paragraph).

Pull out the flat cable connector from the selector socket.

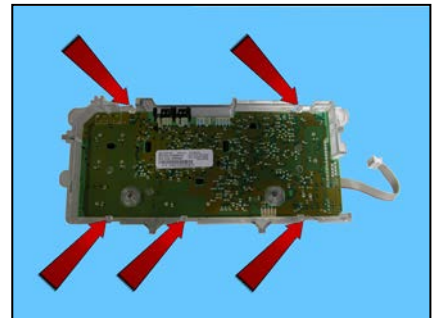


Release the tabs which secure the board to the control panel.

Firstly those shown by the blue arrows.
Then those shown by the red arrows.



Release the hooks indicated by the arrows to remove the board from its casing.



When putting the display board assembly back together on the control panel, position it parallel to the control panel with the tabs positioned above the stops.
Push the display board assembly so that the hooks slot into the respective tabs simultaneously.



Selector control.

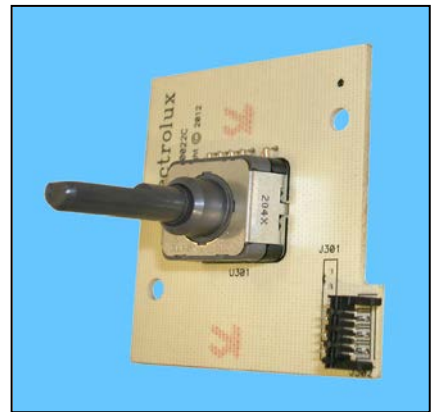
Pull out the flat cable connector from the socket.



Remove the two screws securing it to the control panel (red arrows).
Unhook the tabs that fix it to the control panel (blue arrow).



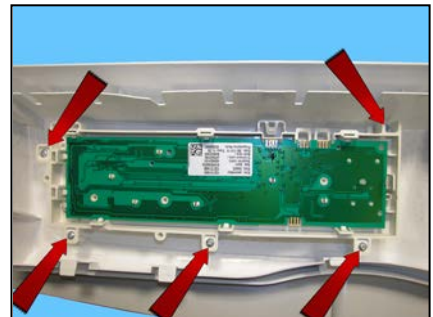
When putting it back together, ensure that the selector pin slots into the knob.



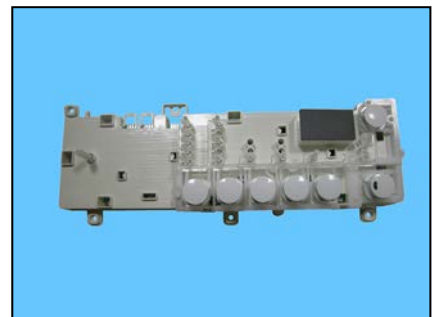
23.2.4 Display board/spring and button assembly Z3/Z6

Remove the worktop (see relevant paragraph).
Remove the control panel (see relevant paragraph).

Remove the screws which secure the board assembly to the control panel.

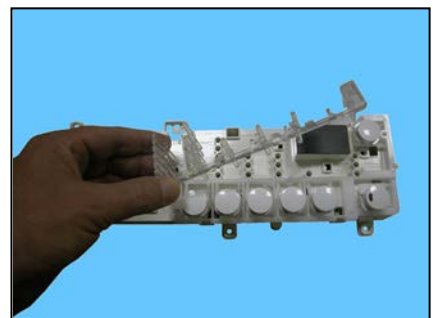


Display board with pushbuttons and light diffuser



- LED Light Diffuser

Remove it from its position

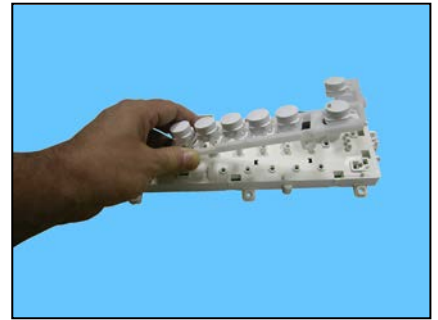


- Pushbutton support and Pushbuttons

Release the pushbutton support from the card casing



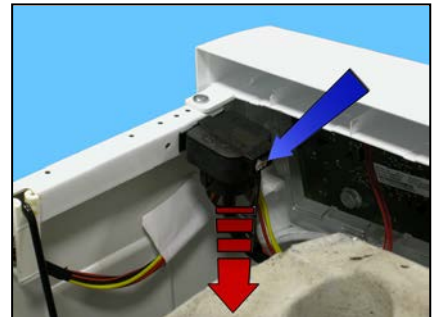
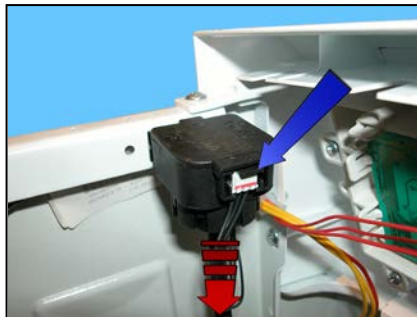
Remove the pushbutton support from its seat



23.2.5 Analogue pressure switch

Remove the worktop (see relevant paragraph).

Remove the connector (blue arrow).
Pull out the small pipe which connects it to the pressure chamber (red arrow).



Tighten the two tabs which secure it to the cabinet and remove it.



Analogue pressure.



When re-assembling the pressure switch, position the pipe in the appropriate stops around the tub as shown in the figure to the side.



23.2.6 Detergent dispenser

Remove the worktop (see relevant paragraph).
Remove the control panel (see relevant paragraph).

Remove the pipes that connect it to the solenoid valve.



Lift the hook upwards that holds the steam vent pipe to the detergent dispenser and remove the pipe.



Lift the detergent dispenser upwards.
Use pliers to slacken the clamp that holds the detergent loading pipe.
Remove the detergent loading pipe.

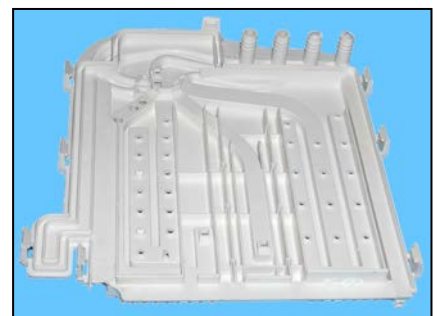


- Conveyor

Unhook all the hooks (shown by the arrows) that attach it to the detergent dispenser.



Conveyor.

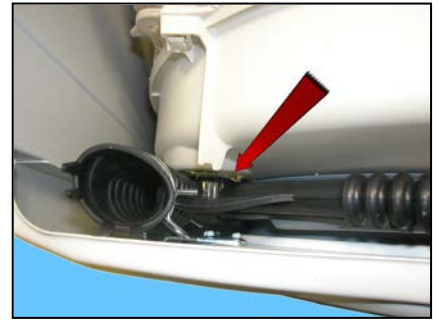


23.2.7 Detergent/steam vent and fill pipe

Remove the worktop (see relevant paragraph).
Remove the control panel.
Remove the detergent dispenser (see relevant paragraph).

Remove the sleeve from the tub.

When re-assembling the pipe to the dispenser apply a sealant like Bostik and make sure the reference points found on the dispenser and sleeve, correspond.



23.2.8 Top counterweight

Remove the worktop (see relevant paragraph).

Remove the three screws that secure it to the welded tub.

Re-assembly: tighten the screws at a torque of 25÷28 N.



23.3 Accessing the front part

1. Bellow seal
2. Door hinge
3. Door
4. Door safety interlock

23.3.1 Bellow seal

Remove the iron ring securing the bellow seal to the cabinet.
Remove the bellow seal from the welded tub.
(take care as the seal is held in position by a snap ring).
Remove the small outlet pipe located in the lower part of the outlet
(fitted to the tub with Bostik that is resistant to water and high temperatures).



When reassembling the seal.
Clean away the hardened sealant from the small outlet pipe's fixing hole of the bellow seal, before putting on new sealant.

Use liquid soap to lubricate the part traced in red where the tub is inserted.



23.3.2 Door hinge

23.3.2.1 Door hinge secured to cabinet with rivets

Loosen the three screws that hold the hinge to the frame of the washing machine door (red arrows).

Use a drill with a 4 mm Ø point to drill four rivets (blue arrows) that hold the hinge to the unit.

Take care not to damage the bellow seal.



23.3.2.2 Door

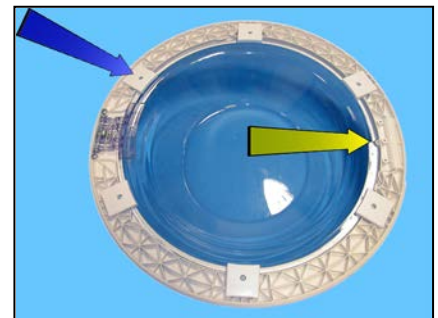
Angle out the two frames taking care not to break or scratch them.



Before intervening on the handle unit, make a careful note of the position of its various parts.



In order to remove the door glass, loosen the six screws and remove the respective plates (blue arrow) that hold it to the frame.



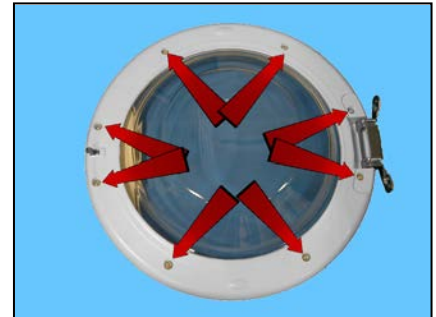
When repositioning the door pay attention to its right position by referring to the index indicated by the yellow arrow.

23.3.2.3 Door hinge secured to cabinet with screws

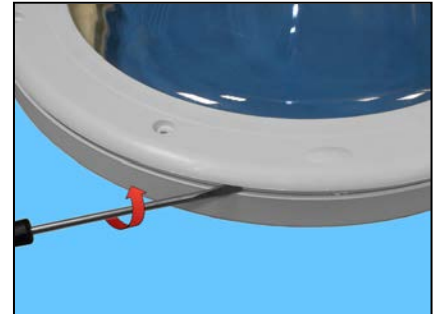
Loosen the two screws securing it to the cabinet



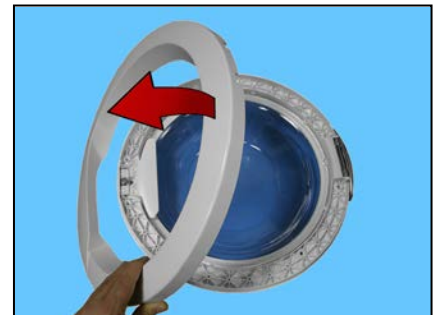
To access the door, loosen the screws joining the two front and rear door frames together



Insert the flat-tip screwdriver blade between the two frames to angle them out, taking care not to damage them.



Turn the door upside down and lift up the front frame

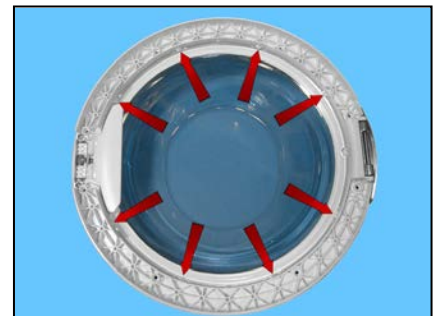


To remove the hinge, simply slide off the pin that secures it to the back frame



23.3.2.4 Door

In order to remove the door, release it from all the hooks that secure it to the back frame

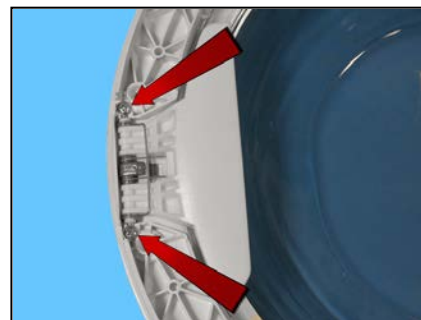


When repositioning the door pay attention to its right position by referring to the index indicated by the red arrow



Before intervening on the handle unit, make a careful note of the position of its various parts.

Loosen the screws that secure it to the back frame



23.3.3 Door safety interlock

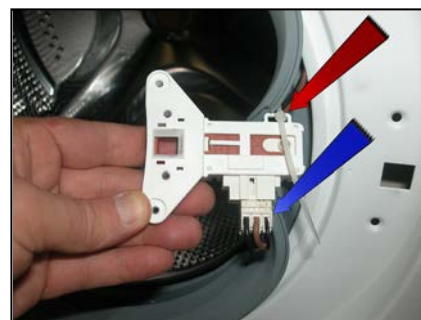
Remove the iron ring securing the bellow seal to the cabinet.

Remove the part of the bellow seal concerned from the unit.
Unfasten the two screws securing the door safety interlock to the front panel.



Cut the clamp (red arrow).
Remove the connector (blue arrow).

Recreate the initial conditions when re-assembling.

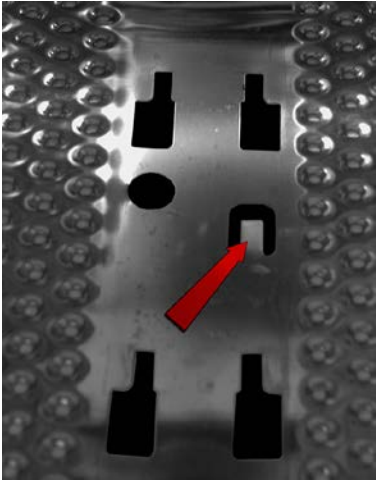
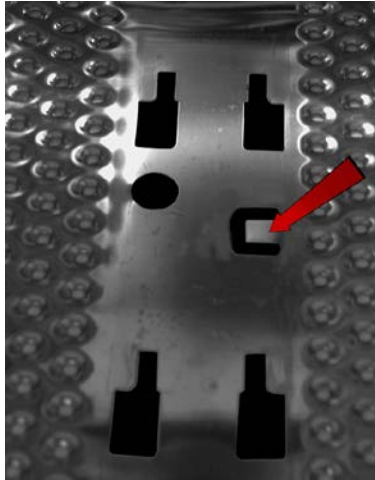


23.3.4 Blade

This blade is secured to the drum with slides and secured with a blade.



The appliances produced:

up to Serial Number 420xxxxx	From Serial Number 421xxxxx
 A diagram showing a cross-section of the blade assembly in the drum. A red arrow points to a tab that is bent at a right angle to the drum's surface, securing the blade.	 A diagram showing a cross-section of the blade assembly in the drum. A red arrow points to a tab that is bent in line with the drum's surface, securing the blade.
Are fitted with a tab which secures the blade in place, fitted at a right angle to the drum (see figure)	Are fitted with a tab which secures the blade in place, fitted in line with the drum (see figure)

To remove it from the drum:

Insert a flat-tip screwdriver (with a thin blade) into the blade hole as shown below:

For the small sized blade (hole 3)



For the normal sized blade (hole 5)



Same procedure for both blades (whether small or normal sized).

- Blades securing up to Serial Number 420xxxxx

To do that

After inserting the screwdriver in the relevant hole

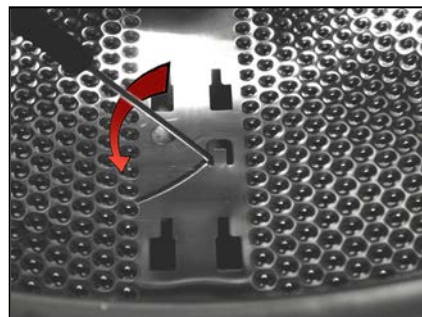
Tilt the screwdriver handle to the left.
Push the tab that secures the blade downwards.



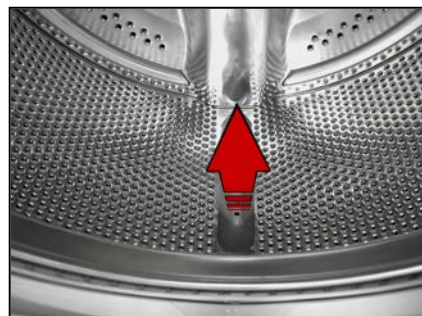
When the fin has been lowered.
Slide the blade towards the front flange of the drum



Before securing the new blade
Lift up the fin in order to block the blade.



Position the new blade inside the drum guides.
Push it towards the back flange of the drum and check that it is blocked.
If it does not block, repeat the previous operation of lifting up the fin.



- Blades securing from Serial Number 421xxxxx

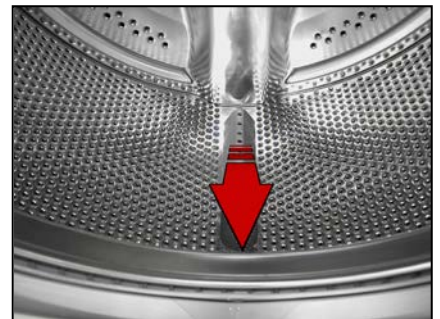
To do that

After inserting the screwdriver in the relevant hole

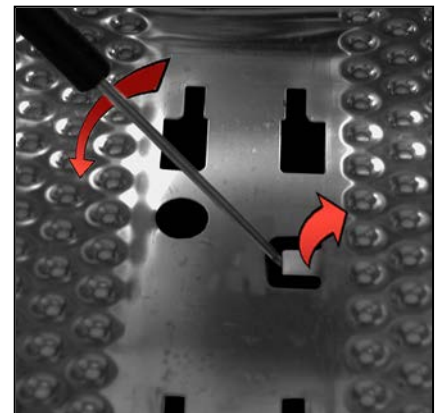
Tilt the screwdriver handle to the left.
Push the tab that secures the blade downwards.



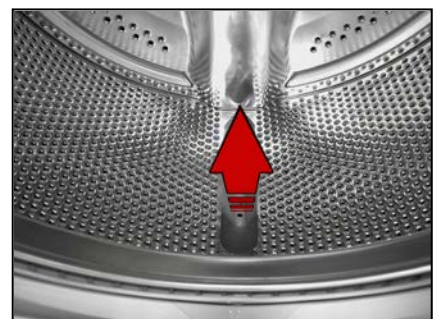
When the fin has been lowered.
Slide the blade towards the front flange of the drum



Before securing the new blade
Lift up the fin in order to block the blade.



Position the new blade inside the drum guides.
Push it towards the back flange of the drum and check that it is blocked.
If it does not block, repeat the previous operation of lifting up the fin.



23.3.5 Accessing the rear part

23.3.6 Back panel

Loosen the screws that fix the back panel to the unit.



23.4 From the back panel, you can access

1. Belt
2. Pulley
3. Motor
4. Resistance
5. Main circuit board



23.4.1 Belt

Remove the back panel (see relevant chapter).
Hold the belt, and by turning the pulley, remove it.

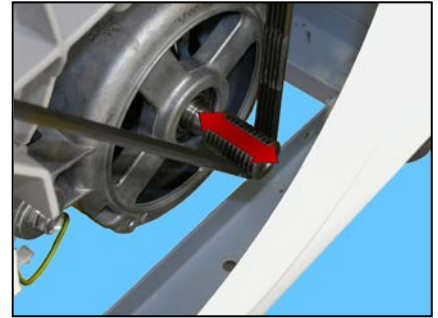


When reassembling:
position the belt and align it with the centre of the pulley as shown
in the figure.

Turning the pulley, check that the belt positions itself and remains
in the central part of the pulley.



If necessary, adjust the position of the belt on the drive pulley, so that it is correctly positioned.



23.4.2 Pulley

Remove the back panel (see relevant chapter).
Remove the belt (see relevant chapter).
Insert a retainer to secure the pulley in place.
Unfasten the screw securing the pulley to the drum shaft.

Tighten the screw at a torque of 25÷30 N.



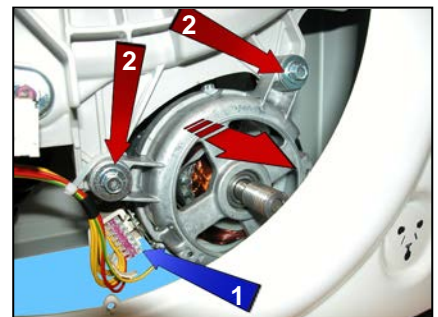
23.4.3 Motor

Remove the back panel (see relevant chapter).
Remove the belt (see relevant chapter).



Disconnect the connectors (1): for the power supply and earthing.
Loosen the two front fixing screws (2).
Remove the motor in the direction of the traced arrow.

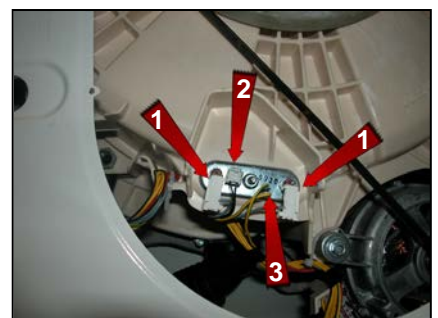
When reassembling, restore the connections.



23.4.4 Resistance

Remove the back panel (see relevant chapter).

Disconnect the connectors of the heating element (1), NTC probe (2) and earth (3).



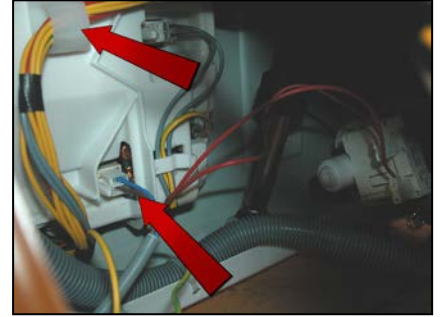
Unscrew the bolt to remove the heating element.



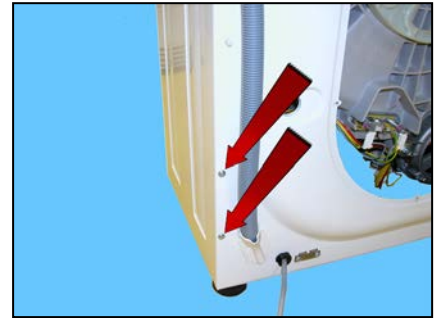
23.4.5 EWM09311 & EWM09312 Main circuit board

Remove the back panel (see relevant chapter).

Pull out the power supply cable connector.
Pull out the wiring from the fixing hook.



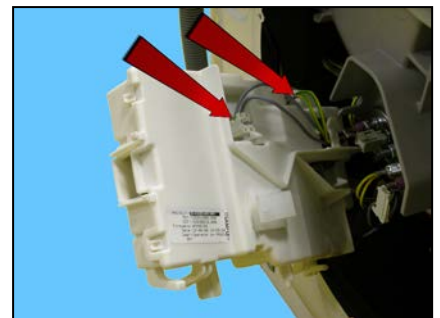
Remove the two screws which secure the main board assembly to the back.



Pull out the connector of the branch of the heating element.

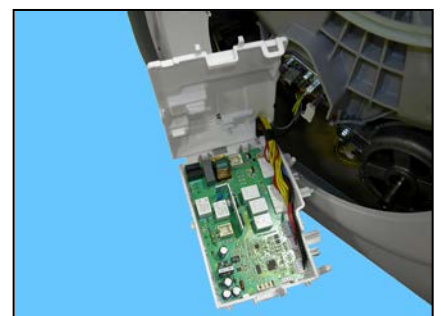


By pushing the washing unit of the appliance inwards, remove the main board assembly.
Detach the connectors indicated by the arrows.
Disconnect the drain pump power supply connectors.



When handling/replacing the electronic board, 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.

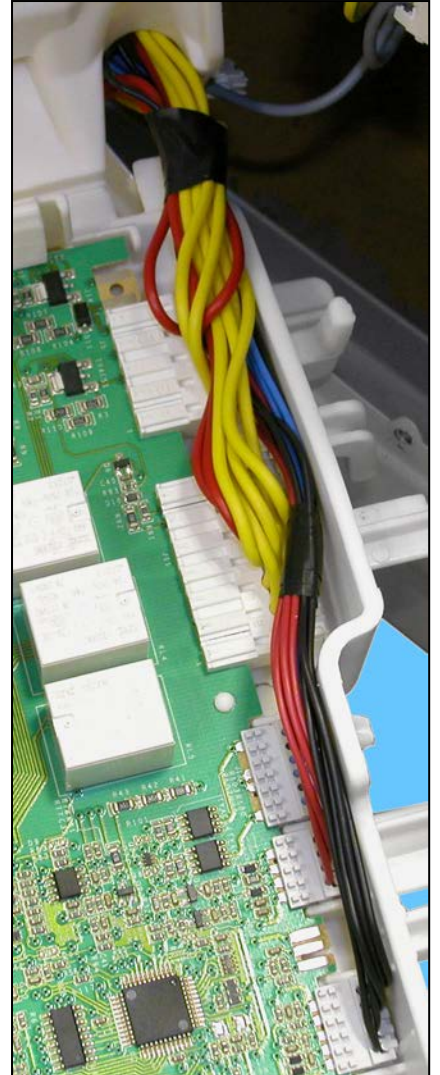
Open the main board assembly to remove the board and make note of the cabling layout.



Main board.



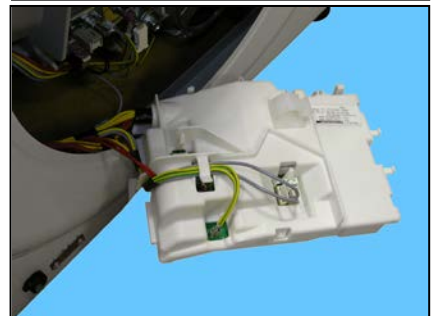
When re-assembling the main board, fit the connectors into their proper slots and arrange the cabling as shown in the figure ensuring that the various hooks block the board to the wrapping.



Close the lid.

Reconnect the various connectors, in particular, the drain pump and heating element ones.

Repeat the previous operations backwards in order to re-position the board in its place.



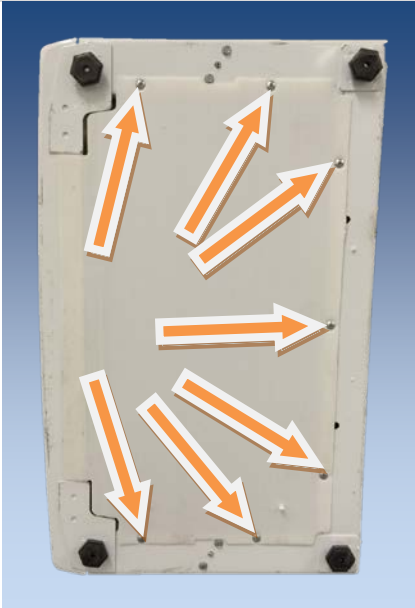
23.4.6 Main board EWX13611

To service the main board, use the antistatic kit a code 4055063-95/4.

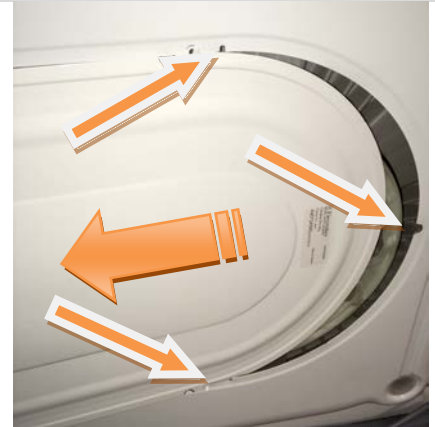
Empty the drain circuit

Lay the appliance onto its left side (the side where the detergent dispenser is)

Unfasten the screws fixing the bottom cover to the base (indicated by the arrows).



Unfasten screws securing it to the cabinet.



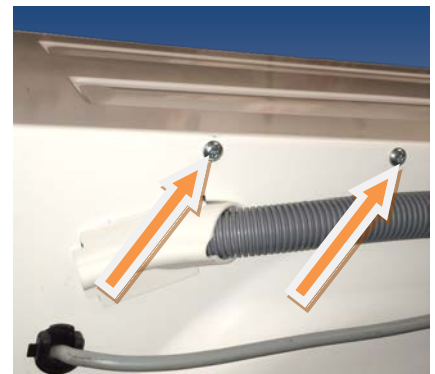
Unfasten screws securing the back cover and pull it towards the bottom of appliance.



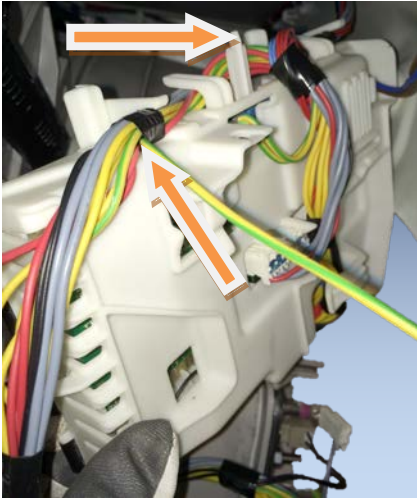
Remove the bundled cables from the hooks that hold them close to the washing group



Remove the power cable from the hooks that hold it close to the board



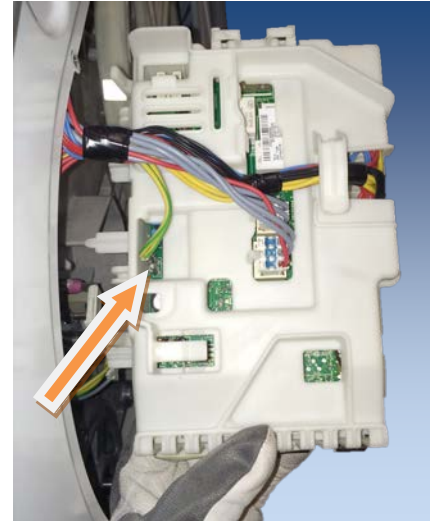
Unfasten screws securing the mainboard to the cabinet.



Remove the bundled cables from the hooks that hold them close to the board



Take out the board through the hole after removing the back cover of the washing machine. Remove the connectors of the power cable from main board.



Remove the connectors and the fastener that connects the earth (beware as it is fitted with an anti-sliding stop). Remember to use the anti-sliding kit.

See paragraph 23.4.7.EWX14931 Main board page 116

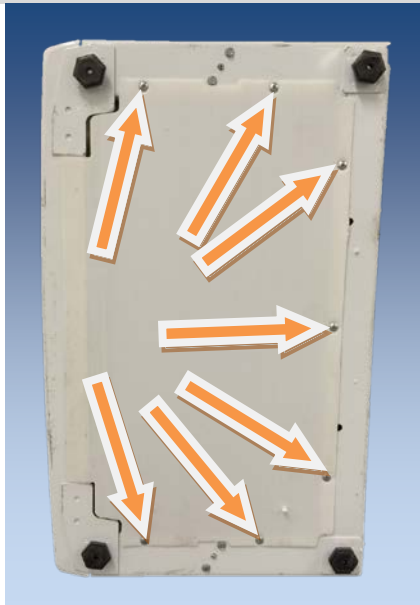
23.4.7 EWX14931 Main board

To service the main board, use the antistatic kit a code 4055063-95/4.

Empty the drain circuit

Lay the appliance onto its left side (the side where the detergent dispenser is)

Unfasten the screws fixing the bottom cover to the base (indicated by the arrows).



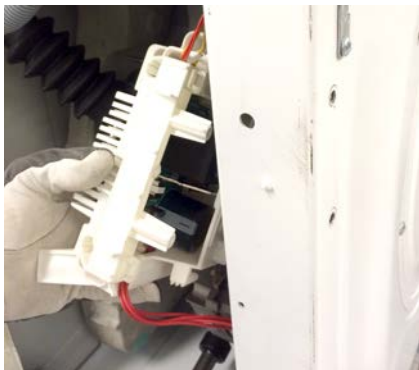
Unfasten screws securing it to the cabinet.



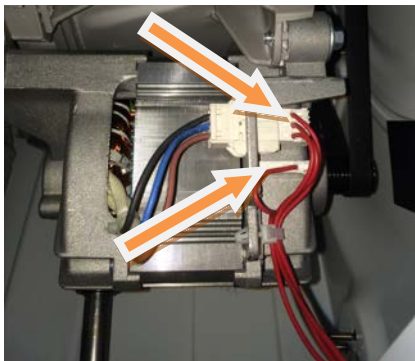
Remove UIMC



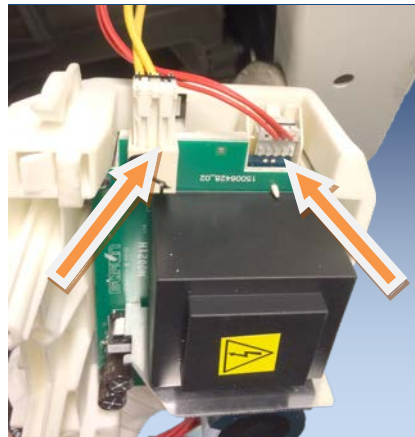
Unfasten screws securing UIMC board to the cabinet.



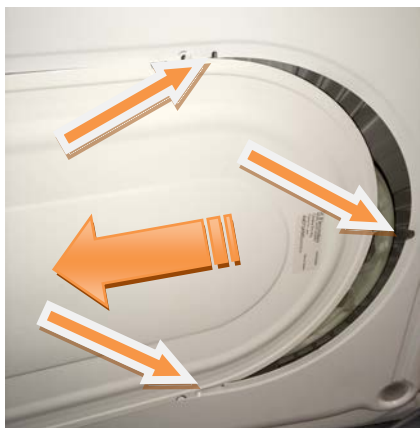
Carefully take out the UIMC from the appliance's cabinet.



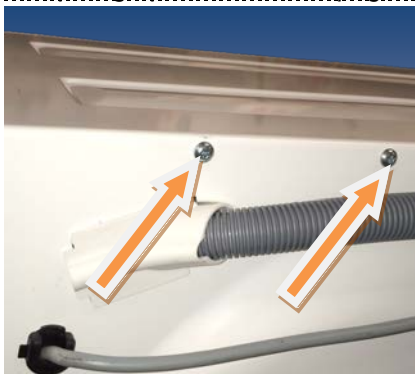
Remove the connectors and take out the UIMC.



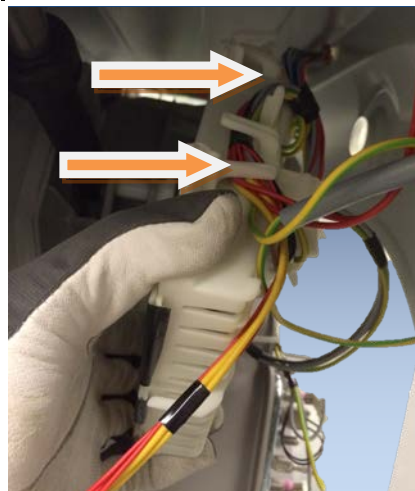
See paragraph 23.4.8 Uimc page 117



Unfasten screws securing the back cover and pull it towards the bottom of appliance.



Unfasten screws securing the mainboard to the cabinet.



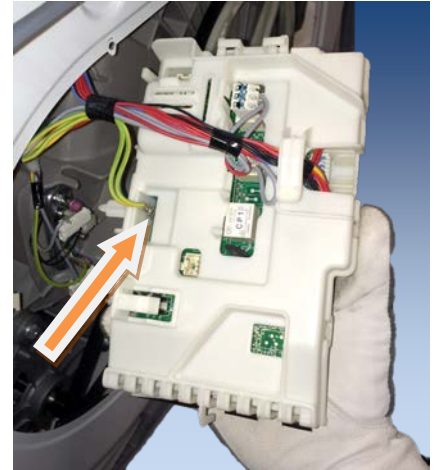
Remove the bundled cables from the hooks that hold them close to the board



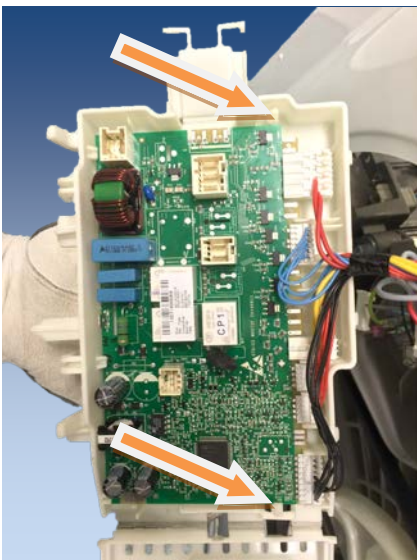
Remove the clamp that secures the wiring to the main electronic board box.



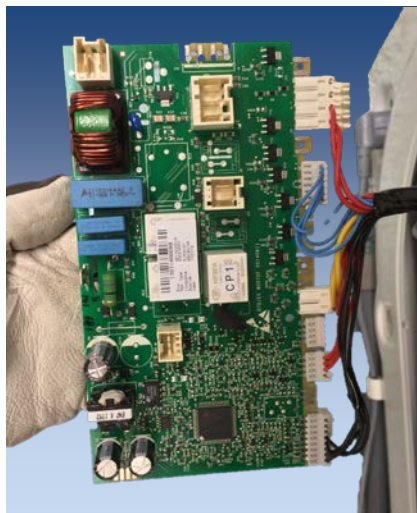
Take out the board through the hole after removing the back cover of the washing machine. Remove the connectors of the power cable from main board.



Remove the connectors and the faston that connects the earth (beware as it is fitted with an anti-sliding stop). Remember to use the anti-sliding kit.



Unhook the hooks that join the two casings on one side and lift the lid. Release the hooks that secure the board to the container and remove it (take care not to break the hooks).



Remove the connectors.

When reassembling.

Repeat these steps in the reverse order.

Once you have inserted the connectors, make sure the wiring is inside the box. So that when the lid is closed, the wiring is not crushed or cut by the two plastic parts.

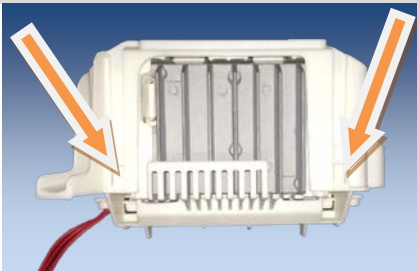
23.4.8 Uimc

Empty the drain circuit

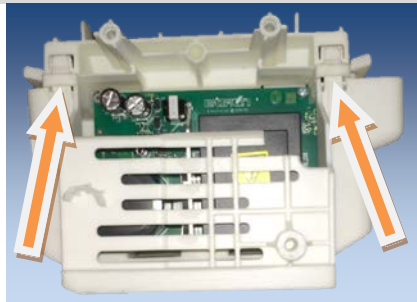
Lay the appliance onto its left side (the side where the detergent dispenser is)

Unfasten the screws fixing the bottom cover to the base.

See paragraph 23.4.7 EWX14931 Main board page 116



Release the two hooks securing the connectors protection on one side.



And on the other remove the connectors protection.



When reassembling

Repeat these steps in the reverse order.

23.5 Bottom of the appliance

Always empty the water out of the drain circuit.

Remove the fasteners that block the bottom of the unit.



23.5.1 From the bottom of the appliance, you can access

1. Drain circuit
2. Drain pump
3. Tub drain pipe
4. Shock absorbers

Set down the appliance in a horizontal position on a protected surface in order not to damage the unit.



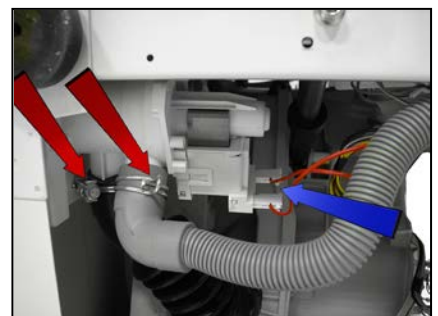
23.5.2 Drain circuit

Filter body.

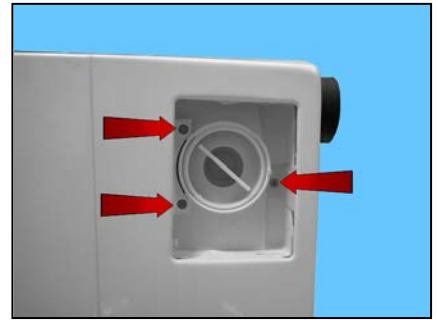
Remove the panel.



Disconnect the connectors from the discharge pump (blue arrow).
Slacken the clamps that hold the main drain pipe and drain pipe that connects the welded tub (red arrows).



Loosen the three screws that fix it to the front.



Move it downwards.
Remove it towards the inside of the appliance.



Filter unit and drain pump.

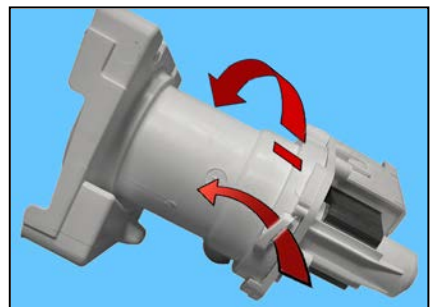


23.5.2.1 Drain pump

Remove the filter unit (see relevant paragraph).

In order to remove the pump from the filter unit:

Press the anti-rotation clip.
Rotate the filter body (as shown by the arrows in the figure).

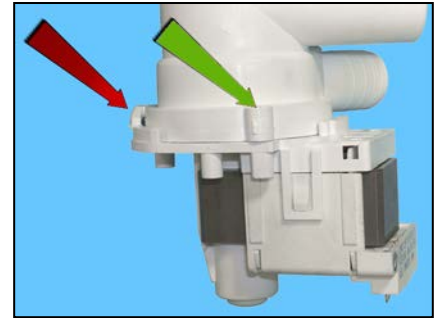


Drain pump.



If the lock catch securing the pump to the filter body breaks (indicated by the red arrow).
Attach the pump to the filter body, securing it in place using a screw, screwing the latter in the slot (indicated by the green arrow).

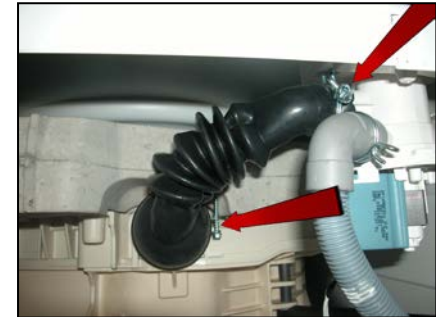
Size of the screw 3.5x19 Code 5024 79 51-00/2



23.5.2.2 Tub drain pipe

Set down the appliance in a horizontal position on a protected surface in order not to damage the unit.

Loosen the screws to slacken the two clamps and remove the pipe.



Tub drain pipe.



23.5.3 Shock absorbers

Set down the appliance in a horizontal position on a protected surface in order not to damage the unit.

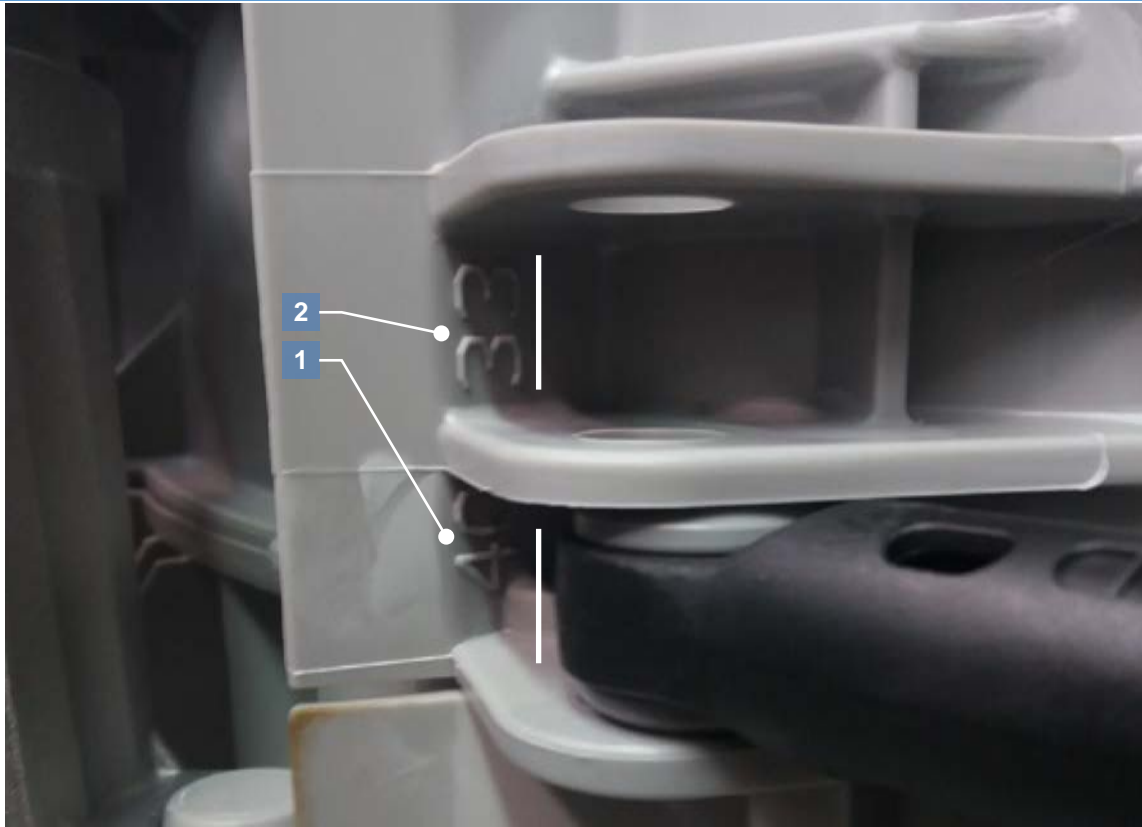
The operations described here are valid for both shock absorbers.

Remove the pin that holds the shock absorber to the welded tub.

Loosen the screw that fixes it to the crosspiece.



Shock absorbers



Shock absorbers position on tub:

WM 33liter(Super slim) - Position 2

WM 42liter(Slim) - Position 1

Shock absorbers



Shock absorbers position on tub:

WM 50liter(Full size) - Only one position on the tub

23.5.4 Tub suspension springs

- Left spring (seen from the back part)

Attach the spring as shown in the figure:
the shortest leg faces towards the tub, whereas the longest leg faces towards the side.



- Right spring (seen from the back part)

The instructions provided for the left spring also apply to the right spring.



WM 33liter(Super slim) / WM 42liter(Slim)

Spring (diameter 3,8mm; length 183mm)
maximum spring load: load 30kg±2 elongation spring



Spring position on tub:

WM 33liter(Super slim) - Position 2

WM 42liter(Slim) - Position 1

Spring (diameter 4mm; length 183mm)
maximum spring load: load 30kg±2 elongation spring



Spring position on tub:

WM 50liter(Full size) - Only one position on the tub

23.5.5 Welded tub assembly

Remove the back panel (see relevant paragraph).
 Remove the worktop (see relevant paragraph).
 Remove the detergent dispenser (see relevant paragraph).
 Remove the whole control panel (see relevant paragraph).
 Remove the bellow seal (see relevant paragraph).
 Remove the solenoid valve (see relevant paragraph).
 Remove the pressure switch including the small pipe (see relevant paragraph).
 Disconnect the heating element cabling from the NTC probe and motor.
 Set down the appliance in a horizontal position on a protected surface in order not to damage the unit.
 Remove the shock absorbers (see relevant paragraph).
 Remove the suspension springs.
 Slacken the clamp that holds the tub drain pipe to the filter unit assembly.
 Slide out the tub.

During re-assembly, take care when re-positioning the Bostik sealant in the right place and re-position the dot in the drain pipe.

23.5.6 Front counterweight

Follow the same steps described previously for the welded tub assembly, except the last paragraph where it talks about the sealant.

Screw in the retaining screws when re-assembling the counterweight onto the tub.

Revision	Date	Description	Author	Approved by:
00	07/2012	Document creation	DMM	XX – 0X/2012
02	03/2014	Page 69 Amended/added disassembling blades and photos	DMM	XX – 0X/201X
03	05/2015	Added information about EWX14 and UIMC board Added information about EWX13 Added aesthetics Z3 / Z6	MP	XX – 0X/201X
04	06/2017	Added information about springs and shock absorbers	MP	XX – 0X/201X