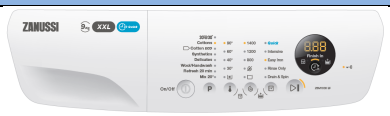
SERVICE MANUAL

WASHING

ENTRY TC5	CORE TC4	PERFORMANCE TC2
		

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Front-Loading Washing Machines with electronic control system

EWX11831

Technical and functional characteristics

PILOT 2

Styling

TC5 TC4 TC2

P69

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1. PURPOSE OF THIS MANUAL

The purpose of this manual is to provide service engineers who are already familiar with the repair procedures for traditional washing machines with information regarding washing machines fitted with the EWX11831 (TC5 TC4 TC2) electronic control system.

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

The current electronic appliances manufactured use a heating element with thermal fuses (inside its branches) as safety, which interrupt if the water level drops below the minimum level permitted.
The incorporated NTC probe contacts have a 2.5 mm pitch.

The manual deals with the following topics:

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

1.1. Low consumption mode

In order to reduce electricity waste when the cycle is not running, the appliances on this platform are designed to enter consumption reduction mode.

"Stand-Off" mode

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

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

"Auto-off" mode

If, after 5 minutes, during the programme selecting phase or after the end of the cycle, the appliance receives no further instructions, it is automatically turned off (for energy savings in conformity with the standards on energy consumption).
All the settings are stored so that when the appliance is turned back on, the programme is ready or if the auto-off mode was triggered after the end of the cycle, the user can see that the cycle ended normally, and can restart it if necessary.

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

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

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

When you press the ON/OFF button to turn off the appliance, the Zero Watt circuit is triggered and cuts off the supply voltage after a few seconds, just long enough to secure the washing machine (motor off, door locked, etc…), the cycle and any options selected are reset, so that the next time the appliance is turned on, it is ready to perform the programme.
(To open the door, you will have to wait one or two minutes for the door safety lock to be released).

b. If, after 5 minutes, during the programme selecting phase or after the end of the cycle, the appliance receives no further instructions, it is automatically turned off and the Zero Watt circuit which cuts off the supply voltage is triggered (for energy savings in conformity with the standards on energy consumption).
All the settings are stored so that when the appliance is turned back on, the programme is ready or if the auto-off mode was triggered after the end of the cycle, the user can see that the cycle ended normally, and can restart it if necessary.

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

2. WARNINGS

Any work on electrical appliances must only be carried out by qualified personnel.

Before carrying out work on the appliance, use suitable instruments to check that the power supply system in the house is fully efficient. For example: refer to the indications provided/illustrated in the <<metratester>> course at the address (http://electrolux.edvantage.net) on the Electrolux Learning Gateway portal.

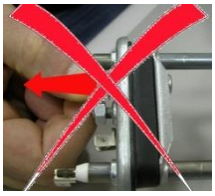
On completing operations, check that the appliance has been restored to the same state of safety as when it came off the assembly line.

If the circuit board has to be handled/replaced, use the ESD kit (Cod. 405 50 63-95/4) to avoid static electricity from damaging the circuit board, see S.B. No. 599 72 08-09 or consult the course <<Electrostatic charges>> at the address (http://electrolux.edvantage.net) on the Electrolux Learning Gateway portal.

This platform is not fitted with an ON/OFF switch. Before you access internal components, take the plug out of the socket to cut the power supply.

Make resistance measurements, rather than direct voltage and current measurements

Warning the sensors located in the display board could be at a potential of 220 Volts.



When replacing the heating element, replace it with one that has the same characteristics (2 thermal fuses) in order not to compromise the safety of the appliance. NEVER remove/switch the NTC sensors between heating elements.

Always empty the appliance of all the water before laying it on its side (see the relevant paragraph).

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.

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

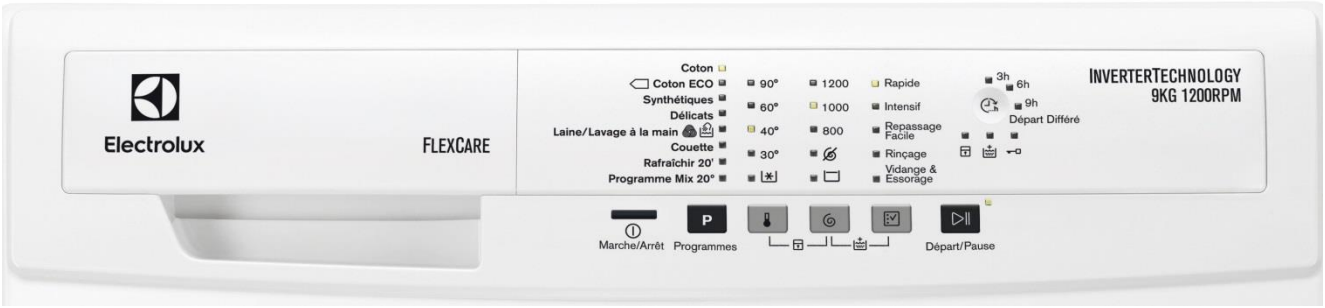
Do not place any kind of container under the appliance to catch any drips of water.

Make sure you wear gloves, because parts of the cabinet are sharp.

3. ENTRY TC5 LEVEL

3.1. General Characteristics and Control Panel

Here the application picture[1]:



The main characteristics are:

- On/Off mechanical tact-switch button always present
- Up to 6 functional touch buttons:
  - Program button with 8 associated LEDs
  - Temperature button with 5 associated LEDs
  - Spin button with 5 associated LEDs
  - Options button with 5 associated LEDs
  - Delay Start button with 3 associated LEDs
  - Start/Pause button with 1 associated LED
- Dedicated LEDs for Child Lock, Extra Rinse, Door status indication
- All the LEDs are yellow colour
- Supplementary LED for alarms indication, red colour
- Buzzer for simple sounds/jingles

3.2. On/off button

This button is used to switch on and off the machine. The selected program/running cycle is cancelled when switching the machine off.
Refer to 6.1 On/Off Button page 15 for a detailed description.

3.3. Selection keys

All selection buttons are touch-sensitive keypads.
Refer to 6.6 Touch Sensitive keys page 17 for a detailed description of touch usage.

[1] Remark: the above picture is only demonstrative, not in the final graphical release.

3.3.1. Program selection key

This button is used to select the desired washing program. The number of positions is 8 in all UI levels, due to LEDs layout constraints. Selection order is described below.

	At machine switching-on the program in 1st position (top LED) is selected; there has to be configured the most important program requested by default. The illuminated LED indicator at the right side of the program name indicates the currently selected program. When the key is pressed the program below the currently selected program is indicated meaning you loop from top to bottom. If the last program is the current program then the next press will indicated the first program in the list. Keep pressed the button for a fast scroll of washing programs.

3.3.2. Start/Pause key

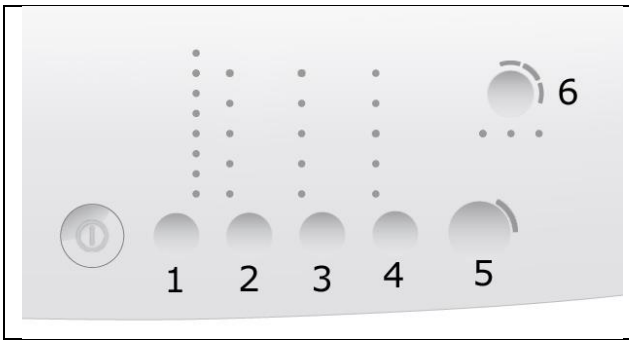
This button is used to start the washing program and if needed to pause the cycle during the running phases to allow changing options or possibly open the door porthole (if necessary conditions of temperature and water level are met).
Remark: since a light touch on the button area is sufficient to detect the key, to avoid unwanted starting or pausing of the cycle, it is necessary to keep pressed the button for a bit longer time than other ones.

The related LED next to it indicates the different states of the machine as described below:

	Program setup When the machine is switched on and during the set up of the program the start pause LED will fade in and out to indicate that the user can start the program
	Running During the running of the program the LED will be switched on steadily until cycle end or program pause
	Program paused During the program pause and during rinse hold phase after the cycle ends with with water into the tub, the LED will flash to indicate the pause state and advice the user to press the key again to continue the program
	Cycle end The LED is lighted off when the cycle is ended with the door unlocked

3.4. Key Combinations

Supplementary functions and use modes are provided using key combinations.
The following key combinations are available in this user interface:



Function	Button 1	Button 2
Child lock	3	2
Extra Rinse	4	3
Buzzer enable/disable	2	1
Demo mode	5	4
Diagnostic mode	5	4

The *Child Lock* and *Extra Rinse* combinations are highlighted on the control panel graphics.

For the usage and the behaviour of these functions please refer to their description under 6.7 Key Combinations page 17.

3.5. Status LEDs

The three LEDs under Delay Start key are dedicated to the functions described below. No other indications about machine status are supported.

Symbol	Meaning
	Child lock: lighted on when Child Lock mode is active; pressing any key the LED blinks 3 times to remind that the user interface is locked to prevent children to operate the machine
	Extra Rinse: lighted on when Extra Rinse option is active by default for selected program (showed in washing and rinse programs, not in Drain&Spin cycle)
	Door lock: lighted on when door is locked; it blinks while door is unlocking if traditional PTC device is mounted; it is off when door is released. In case of Top Loader machine, if the automatic drum positioning system (DSP) is configured, the LED flashes also during the drum positioning phase.

In case a machine fault occurs, the status LEDs are also used to show specific warnings to the customer. Refer to next paragraph for a detailed description.

3.6. Wrong selection indication

The wrong selections done by customer, such as trying to select an option not compatible with the selected program or after cycle start, are noticed by three quick flashings of a dedicated red-colour LED integrated on Start/Pause light. The same LED is also used for machine faults/warnings, see next paragraph.
The buzzer doesn't sound any specific melody.

3.7. Machine faults indication

The machine faults detected by the electronic sensors are noticed to customer using a dedicated red-colour LED integrated on Start/Pause light.
In case the faults are considered temporary faults due to carelessness of the user, and that he is able to manage by him without the attendance of after sales service personnel, also the three status LEDs are used in combination with red LED to give some specific warnings.
Such warnings are:

- door porthole not properly closed
- clogged water draining filter
- water tap closed

All foreseen warnings are showed by the flashing of alarm red LED (the yellow Start/Pause LED is kept off): it starts flashing when the alarm occurs and blinks continuously as long as the fault condition is present.
The blinking times for the LED are: half second lighted on, half second lighted off.

The warnings of faults that can be solved by final user are highlighted by using status LEDs to facilitate recognizing the fault type: the status LED associated to warning code blinks together with red alarm LED.

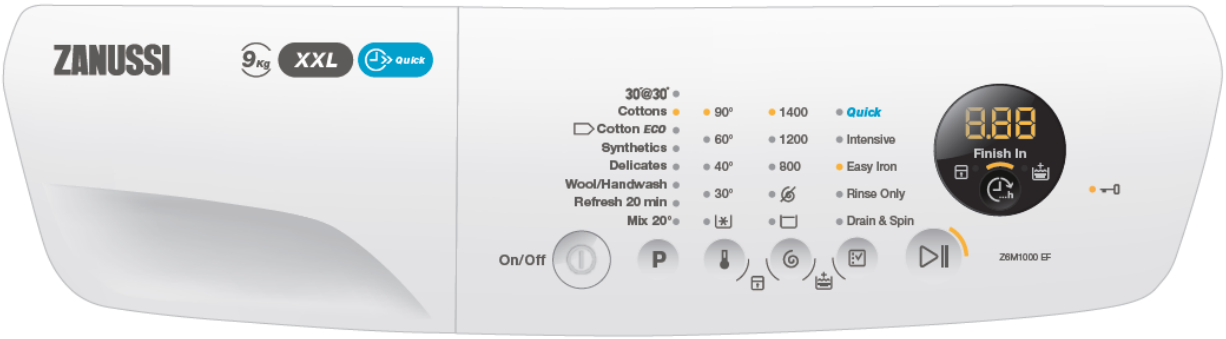
Warning code E10 Water loading timeout, tap closed: blink child lock LED plus alarm red LED	Warning code E20 Water draining timeout, draining filter clogged: blink extra rinse LED plus alarm red LED	Warning code E40 Door locking timeout, door not properly closed: blink door LED plus alarm red LED

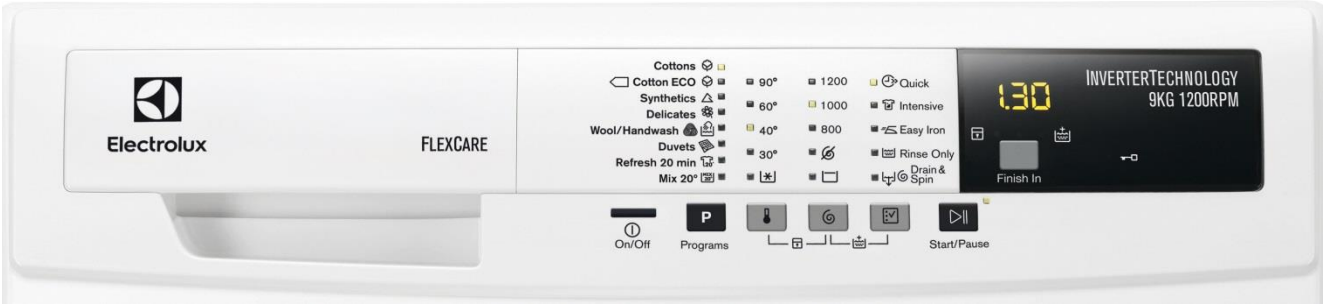
After the problem has been solved, pressing Start/Pause button the warning is not showed anymore, alarm LED is lighted off, status LEDs go back to normal function and Start/Pause button yellow LED goes on again.

4. CORE TC4 LEVEL

4.1. General Characteristics and Control Panel

Here the application picture[2]:





The main characteristics are:

- On/Off mechanical tact-switch button always present
- Up to 6 functional touch buttons in washer, 7 in washer & dryer:
  - Program button with 8 associated LEDs
  - Temperature button with 5 associated LEDs
  - Spin button with 5 associated LEDs
  - Options button with 5 associated LEDs
  - Finish-In/Delay Start button with 1 associated LED
  - Start/Pause button with 1 associated LED
  - Drying button with 3 associated LEDs (washer & dryer)
- Dedicated LEDs for Child Lock, Extra Rinse, Door status indication
- Digits display for cycle time indication
- All the LEDs are yellow colour
- Buzzer for simple sounds/jingles

4.2. On/off button

The same behaviour as Entry TC5 level.
For a detailed description refer to 3.2 On/off button on page 8.

4.3. Selection keys

All selection buttons are touch-sensitive keypads.
Refer to 6.6 Touch Sensitive keys page 17 for a detailed description of touch usage.

From the functional point of view, all keys from Program selection to Start/Pause have the same behaviour as Entry TC5 level; refer to related paragraphs for a detailed description.

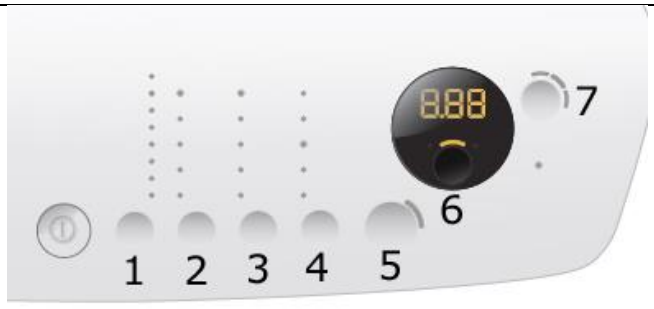
The buttons with supplementary functions compared to TC5 level are:

- Options key in the washer & dryer, that includes the drying phase selection;
- Finish-In key available only for washer, Delay Start available only in washer & dryer;
- Drying key available only for washer & dryer.

[2] Remark: the above picture is only demonstrative, not in the final graphical release.

4.4. Key Combinations

Supplementary functions and use modes are provided using key combinations.
The following key combinations are available in this user interface:



Function	Button 1	Button 2
Child lock	3	2
Extra Rinse	4	3
Buzzer enable/disable	2	1
Demo mode	5	4
Diagnostic mode	5	4
Fluff Clean (WD)	7	6

The *Child Lock* and *Extra Rinse* combinations are highlighted on the control panel graphics.
For the usage and the behaviour of these functions please refer to their description under 6.7 Key Combinations page 17.

4.5. Status LEDs

The TC4 level has three status LEDs with the same functions as TC5 level: Child Lock, Extra Rinse and Door Lock indications. Refer to related paragraph for a description.
They are positioned close to Finish In key as shown in the picture aside.

4.6. Display

The display window includes three 7-segments digits with yellow icons on a black background used to show:

- *cycle duration* (TTE) in "h.mm" format, TTE decreases by steps of one minute; below 1 hour the leading zeros are not shown (e.g. “59”, “5”, “0”);
- *finish in/delay time* in the format described in related previous paragraphs;
- *cycle end* when displaying zero in the format “0” steady
- *selection errors* with a blinking "Err" message;
- *warnings/alarms* with specific codes in “E*xx*” format, e.g. “E10”, “E20” …

4.7. Wrong selection indication

The wrong selections done by customer, such as trying to select an option not compatible with the selected program or pressing keys after cycle start without pausing machine first, are noticed by three quick flashings of “Err” text displayed on time digits as shown in the picture aside.

4.8. Machine faults indication

The machine faults are noticed to customer by means of digits display used to show the cycle time.
A specific warning code appears on digits while the buzzer sounds (also if deactivated by customer via buttons combination) with a specific sequence of three short beeps about every 20 seconds for maximum 5 minutes.

Warnings codes to be described on instruction booklet, with related actions to perform, are the following:

Displayed code	Warning condition
E10	Water loading timeout. Check if water inlet tap is open
E20	Water draining timeout. Check if draining filter is clogged
E40	Door locking timeout. Check if door porthole is properly closed
E91	No communication between User Interface and Main boards. Switch off and on
EH0	Low mains voltage or irregular mains frequency (out of standard working range). Wait for stable mains supply conditions.

After the problem has been solved, pressing Start/Pause button the warning code is not showed anymore, cycle time is displayed again, buzzer stops sequence and cycle restarts.

5. PERFORMANCE TC2 LEVEL

5.1. General Characteristics and Control Panel

Here the application picture[3]:

The main characteristics are:

- On/Off mechanical tact-switch button always present
- Up to 6 functional touch buttons:
  - Program button with 8 associated LEDs
  - Temperature button with associated digits on display
  - Spin button with associated digits on display
  - Options button with 5 associated LED
  - Finish-At button with feedback on display
  - Start/Pause button with 1 associated LED
- Dedicated icons on display for Child Lock, Extra Rinse, Door status indication
- All the LEDs are yellow colour
- Custom LCD display
- Buzzer for simple sounds/jingles

5.2. On/off button

The same behaviour as Entry TC5 level.
Refer to paragraph 3.2 On/off button page 8 for a detailed description.

5.3. Selection keys

As for previous TC5 and TC4 levels, all selection buttons are touch-sensitive keypads.
From the functional point of view, all keys from Program selection to Start/Pause have basically the same behaviour as TC5/TC4 levels with different visible feedback given on LCD display rather than LEDs; refer to related paragraphs for a detailed description.

5.4. Key Combinations

Supplementary functions and use modes are provided using key combinations.
The following key combinations are available in this user interface:

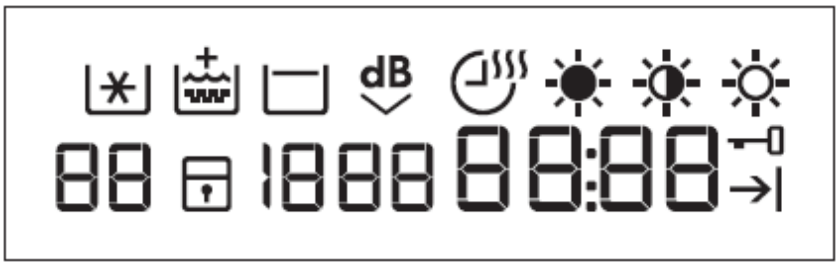
Function	Button 1	Button 2
Child lock	3	2
Extra Rinse	4	3
Buzzer enable/disable	2	1
Clock adjust	4	2
Demo mode	5	4
Diagnostic mode	5	4

The *Child Lock* and *Extra Rinse* combinations are highlighted on the control panel graphics.
For the usage and the behaviour of these functions please refer to their description under 6.7 Key Combinations page 17.

[3] Remark: the above picture is only demonstrative, not in the final graphical release.

5.5. Display

The display is a custom LCD with yellow icons on a black background.
There is only one display type available for TC2 aesthetic level.



The four 7-segments digits are used to show:

- *cycle duration* (TTE) in "h.mm" format; during the cycle the TTE decreases by steps of one minute, below 1 hour the leading zeros are not shown (e.g. “59”, “5”, “0”);
- *time of cycle end* (TOE) in "hh:mm" format, when the Finish At feature is selected;
- *time of day* (TOD) in "hh:mm" format, just for 2 seconds when the machine is switched on or during the clock adjust mode;
- *cycle end* when displaying zero, in the format “0” steady;
- *warnings/alarms* with specific codes in “E*xx*” format, e.g. “E10”, “E20” …
- *laundry quantity estimation phase*, only in case of proportional cycles, with the digital point blinking at the rate of once per second after cycle start until the machine has estimated the actual amount of laundry and therefore the correct cycle time; after this phase the dot becomes permanently steady and TTE is updated accordingly;

In the next page table a description of the different icons.

Symbol	Meaning
88:88	**Cycle Time digits**: used to show information about cycle duration, Finish At time, selection error, warning codes
→|	**Finish At**: lighted on when the Finish At option is selected
88	**Temperature digits**: the selected temperature is showed in °C, from 20 to 90°C, while cold temperature is showed with “--”
✳	**Cold Cycle**: lighted on when cold temperature is selected
1888	**Spin digits**: the selected spin is showed in rpm, while for No Spin, Rinse Hold or Night Cycle options it is shown “- - -“ in place of zero
▭	**Rinse Hold**: lighted on when the Rinse Hold option is selected
dB	**Night Cycle**: lighted on when the Night Cycle option is selected
🔒	**Child lock**: lighted on when child lock is active; pressing any key the icon blinks 3 times to remind the user interface is locked
🔑	**Door lock**: lighted on when door is locked; it blinks while door is unlocking if traditional PTC device is mounted; it is off when door is released. In case of Top Loader machine, if the automatic drum positioning system (DSP) is configured, the icon flashes also during the drum positioning phase
≋+	**Extra Rinse**: lighted on when Extra Rinse option is selected in permanent mode via buttons combination (showed in washing and rinse programs, not in Drain&Spin cycle)
≋	**Time Drying**: lighted on when time drying is selected. **Reserved for future use in case of washer & dryer**
☀	**Extra Dry:** lighted on when Extra automatic-drying level is selected **Reserved for future use in case of washer & dryer**
◑	**Cupboard Dry:** lighted on when Cupboard automatic-drying level is selected **Reserved for future use in case of washer & dryer**
☼	**Iron Dry:** lighted on when Iron automatic-drying level is selected **Reserved for future use in case of washer & dryer**

5.6. Wrong selection indication

The wrong selections done by customer, such as trying to select an option not compatible with the selected program or pressing any key without pausing the machine after cycle start, are noticed by three quick flashings of “Err” text displayed on time digits as shown in the picture below.

5.7. Machine faults indication

The machine faults are noticed to customer by means of digits display used to show the cycle time.
A specific warning code appears on digits while the buzzer sounds (also if deactivated by customer via buttons combination) with a specific sequence of three short beeps about every 20 seconds for maximum 5 minutes.

Warnings codes to be described on instruction booklet, with related actions to perform, are the following:

Displayed code	Warning condition
E10	Water loading timeout. Check if water inlet tap is open
E20	Water draining timeout. Check if draining filter is clogged
E40	Door locking timeout. Check if door porthole is properly closed
E91	No communication between User Interface and Main boards. Switch off and on
EH0	Low mains voltage or irregular mains frequency (out of standard working range). Wait for stable mains supply conditions.

After the problem has been solved, pressing Start/Pause button the warning code is not showed anymore, cycle time is displayed again, buzzer stops sequence and cycle restarts.

6. Common functionalities

6.1. On/Off Button

All Pilot 2 aesthetics levels have a dedicated On/Off mechanical switch button always present.
Depending on the main board features of the machine, this button could completely disconnect the machine from the mains supply, or alternatively put the machine in a special low power consumption mode. When the main board mounts the 0 Watt power consumption circuit the machine is automatically and completely disconnected from the mains; without 0 Watt circuit, the user has to unplug machine to disconnect mains power. In any case the user interface behaviour is the same.

To switch on the appliance, simply press shortly the button. The user interface plays the dedicated jingle (if buzzer is enabled), performs the start up animation and then switches the lights and display on according to default programme.

To switch off the appliance, press and hold the button for about 1 second. After this time, the user interface plays the dedicated jingle (if buzzer is enabled) and all lights and display are switched off. All selected options and the possible programme in progress are reset.

6.2. Low power consumption modes

The machine is put in low power consumption mode to avoid wasting energy when the cycle is not running, in accordance with international standards in terms of energetic consumption normative.

The appliance enters automatically in Stand-off mode acting as follows:
- during program setting up or cycle ended phases, after 5 minutes that the user does not press any button the mode is automatically set;
- all LEDs and display are lighted off;
- Door lock device and all electric/electronic devices that can be switched off are not supplied.

The appliance exits Stand-off mode when the user presses the On/Off button.

The Stand-off mode cannot be set in following cases:

- during the Delay Start phase, because it is considered as cycle running, hence the door is kept locked;
- if the Door has to be kept closed due to any safety condition, such as high water level or Child Lock mode active, or in case of alarm presence.

6.2.1. Stand-Off mode behavior

When the machine is switched off via On/Off button, the appliance goes in Stand-Off mode where it is “virtually switched off”: all LEDs and display are lighted off and buttons are disabled, but the electronic boards are supplied anyway.
To cut out mains supply the appliance needs to be unplugged or mount the so called Zero-Watt circuit to provide the auto-off feature.

The auto-off feature combined with Zero-Watt circuit works in two ways:

- **when pushing the Off button**, the electronics cuts out mains supply after some seconds, after having set machine in safety conditions (motor stops, door is kept locked). Cycle is reset, previously selected options are cleared so that next machine switching on the default programme is prompt;

- **after 5 minutes without interaction with the customer**, the electronics cuts out mains supply automatically for energy saving purposes in accordance with power consumption norms. The selected programme and options are kept so that the next machine switching on the same programme is prompt. In this way, if auto-off occurs in cycle end phase, the customer is aware the cycle finished normally and can restart it if desired. If auto-off occurs during programme setup, the cycle and options are kept in case customer takes more than 5 minutes to load and start the cycle. Automatic auto-off is disabled in case an alarm is displayed.

In the former case, switching machine off when door is locked, it is necessary waiting about 1-2 minutes before the door lock device is released.

6.3. Cycle start / pause / change

When a programme is selected and the door porthole is closed, to start the cycle simply press the Start/Pause button: related LED stops flashing and becomes steady while the display updates accordingly. Pressing Start/Pause button during the cycle the machine is paused: if door unlocks it means there are the conditions to open it and add laundry, usually during the first minutes after water load. In pause it is allowed changing options, but not programmes: in this case a reset via On/Off button is needed.

When the cycle ends with water into the tub (Rinse Hold or Night Cycle options selected), Start/Pause LED flashes to invite customer to press start button to continue the cycle.

The possible actions to drain water are:

- pressing Start/Pause button, the cycle continues performing the drain and spin profile with maximum speed according to the fabric;
- pressing Spin button first, the speed can be changed to desired value and then pressing Start/Pause the cycle continues; selecting no spin the Drain cycle is performed.

In all cases the display updates switching from cycle end indication to pause or execution state: time digits (TC4-TC2) show updated TTE, Rinse Hold LED (TC5-TC4) or LCD icon (TC2) is switched off while spin LEDs (TC5-TC4) or digits (TC2) show selected speed.

6.4. Cycle running

Once the user has pressed start to begin the washing process, the feedback about the progress of the washing program is given on display digits (TC5 level apart) by cycle duration time decreasing.
When the cycle is finished the time digits show “0”.

The TC5 level, without display and dedicated phase LEDs, can give only the following indications:

- the cycle is not running (program setup or pause), when Start/Pause LED is blinking;
- the cycle is running, when Start/Pause LED is lighted on steadily;
- the cycle is finished, when Start/Pause LED is lighted off.

6.5. Cycle end

When the cycle is finished and the door is unlocked, the cycle end status is showed. Within 5 minutes, before entering Stand-off mode, the user is allowed to recall and start again the just finished program, changing any option if desired, or select a new program without necessarily switching off and on the machine.
The possible actions to exit the cycle end phase are:

- pressing any button (On/Off excluded) the user interface goes in setup phase keeping and showing the previously selected program and options; pressing then the Start/Pause button the previous cycle is repeated;
- pressing On/Off button the user interface switches off and machine goes in Stand-off mode.

6.6. Touch Sensitive keys

All the keys (On/Off button excluded) are touch sensitive type.
A lightly touch on the center of button area is sufficient to detect the key and recall the associated function, but for the Start/Pause button it is necessary to keep pressed the key for a bit longer time than other ones in order to avoid unwanted starting or pausing of the cycle.

Once a button is pressed, to repeat the function it is necessary to lift the finger at least by 1 centimeter for at least half a second before touching again the same button, otherwise the key is not able to detect that it has been released and pressed a second time. Most of the keys have a repetitive type function, that is the selected value continues to change as long as the button is kept pressed.

6.7. Key Combinations

Some additional extra functions can be set using “key combinations”, that is keeping pressed together for about 3 seconds specific couples of buttons.
Key combinations can be configured for following functions:

Function	Meaning
Default Extra Rinse	Used to set and store Extra Rinse option. This function keeps its last selected status (set or deselect) also after machine switching off. Settable only during the programme setup for those cycles where the option is available; the feedback is given on dedicated Extra Rinse LED or LCD icon. The option button LED shall light on automatically when setting feature or selecting a washing program for which the extra rinse option is compatible (and set).
Buzzer on/off	Activates/deactivates the buzzer according to machine configuration (MCF). This function keeps its last selected status (set or deselect) also after machine switching off. Settable during the programme setup; the feedback is given by 2 short beeps when deactivating sounds, by 1 click when re-activating sounds.
Child Lock mode	Locks the user interface to prevent children changing program setup or starting the cycle. This function keeps its last selected status (set or deselect) also after machine switching off. Always settable; the feedback is given on Child Lock LED or icon inside the display.
Demo mode	Demonstration mode, to show to customers in the sales shop how the machine works by simulating the washing cycle. Settable within 10 seconds from machine switching on. The feedback is given by “dEM” text flashing on cycle time digits for 3 seconds for TC2, TC4 levels, by all option buttons LEDs (Start button excluded) blinking for a while for TC5 level. Demo mode remains active also after machine switching off via On/Off button; switching on again the feedback is given as above described. Unplug machine to exit mode.
Diagnostic mode	Factory/Service mode for machine testing. To exit mode simply switch machine off. Settable within 10 seconds from machine switching on; the feedback is given by all LEDs or LCD icons flashing in sequence.
Clock Adjust	Available only in TC2 level to adjust the Real Time Clock. Settable during the programme setup; the feedback is given by current time of day showed on time digits while all other info is off.

Diagnostic and Demo modes can be set only within 10 seconds from machine switching on, provided that selected programme position is the first for Diagnostic mode and the third for Demo mode.

The first position is selected by default at machine switching on, hence to enter in Diagnostic mode just press the buttons combination. While to enter Demo mode, the program key has to be pressed to reach the third position and wait for related LED feedback before pressing keys combination.

Further info for some of such functions is provided following.

6.7.1. Child Lock mode

Child Lock is a function that allows the user to leave the appliance unsupervised with the door closed, without having to worry that children might be injured by, or cause damage to the appliance.

The basic points are:

- all push buttons are disabled (except On/Off);
- program cancelling after start not allowed when switching machine off and on;
- door is kept closed as long as child lock is active, but not during programme setup and cycle end phases;
- a clear indication of Child Lock, such as a dedicated LED/Icon has to be provided.

Push buttons
All push buttons are disabled as long as Child Lock is active. Only On/Off and buttons combination to unlock machine and to enter in diagnostic mode are always enabled.

Cancelling the program
To cancel a running program after cycle start, Child Lock has to be deactivated first pressing the foreseen buttons combination and then the machine has to be switched-off.
If the machine is switched-off and on during cycle execution without unlocking it, cycle automatically continues like after a power failure situation.

Door status
After cycle start, the door is kept locked as far as the cycle end is reached. To open it if needed before cycle end, Child Lock has to be deactivated first pressing the foreseen buttons combination and then pausing the machine pressing Start/Pause button: if the machine is in safety conditions (low water level and low temperature) the door device unlocks.
If the machine is switched-off during cycle execution for more than one minute (door lock device unlocks in the meantime), when it is switched-on again the door is automatically locked, unless it has been manually opened in the meantime: in this second case machine wakes up in pause and waits for user confirmation to go on with cycle execution (pressing Start button after that Child Lock has been deactivated).
Child Lock buttons combination can be printed on control panel serigraphy to highlight the function and related configured buttons.

6.7.2. Demo mode

Demonstration mode is used to show to customers in the sales shop how to interact with user interface panel and how the machine works by simulating the washing cycle.
The appliance works and can be operated in the same way as in normal user mode, allowing to select any program with washing options in order to see cycle time (if display present) and how options can affect it.
The difference in Demo Mode is that, once the cycle is started, only the motor moves: actions such as water loading, water draining and heating are not performed since they cannot be managed in the shop.

6.7.3. Diagnostic mode

Diagnostic mode is used by factory or service people to test the machine and check for possible faults by reading the alarms status history.

6.8. Buzzer

A multi-tone buzzer is provided to sound in following cases:

- switching machine on and off, with 2 different short jingles;
- pressing a button, with a very short “click” sound;
- when the cycle is finished, for about 2 minutes with a specific sequence of three long beeps (1sec on - 1 sec off - 1sec on - 1 sec off - 1sec on) repeated every 15 seconds; the sequence is stopped when the door porthole is opened only in case the instant door lock device with micro-switch is mounted;
- when alarms/warnings occur, for about 5 minutes with a specific sequence of three short beeps repeated 3 times every 15.

The buzzer can be active or not by configuration; anyway the **default factory setting has to be active** to meet the norms regarding eyesight handicap people. To deactivate it the specific push buttons combination has to be used (see “Buttons Combinations” paragraph).
When deactivated the buzzer doesn’t play the on/off jingles and cycle end melody, while sounds anyway in case of button “click” and alarm/warnings occurrence.
Volume level is pre-fixed and can’t be changed by user. The behaviour is the same for all UI level.

6.9. Warnings

When a machine fault is detected, a warning is displayed as described in previous chapters.
The main faults that are noticed to customer are:

- E10 : tap closed, due to water loading timeout
- E20 : clogged filter, due to water draining timeout
- E40 : door not properly closed, due to device locking timeout
- EF0 : water leakage, due to Aqua control sensor occurrence
- EH0: mains supply problems, due to voltage/frequency out of standard working range

Warning code/message is displayed as long as the fault condition is present. The buzzer sounds (see par.6.8) for about 5 minutes, but not in case of EH0.
For the first three codes, once the problem has been solved, pressing Start/Pause button the warning is not shown anymore and buzzer stops sequence.

In some rare cases other warning codes could be displayed to the customer, such as E91 – communication failure between electronic boards; in this case if failure repeats after unplugging/plugging machine, after sales service needs to be contacted.

In the instruction booklet the sequence of actions to be performed to try to detect and solve the problem needs to be described.

7. Alarms Management Specification

In normal functioning mode, **to final user are showed only those warnings that he is able to manage by him** without the attendance of after sales service personnel.
These warnings are not considered permanent machine faults, but normally temporary faults due to carelessness of the user. Such warnings are:

- **door porthole not properly closed**
- **clogged draining filter**
- **water tap closed**
- **detergent over dosing**

There are also other alarms that stop machine and cannot be managed by the final user, that are requested to be shown as warnings:

- **water leakage (managed by Aqua Control System)**
- **low mains voltage/irregular mains frequency**
- **software configuration**
- **no communication between User Interface board and Main board**

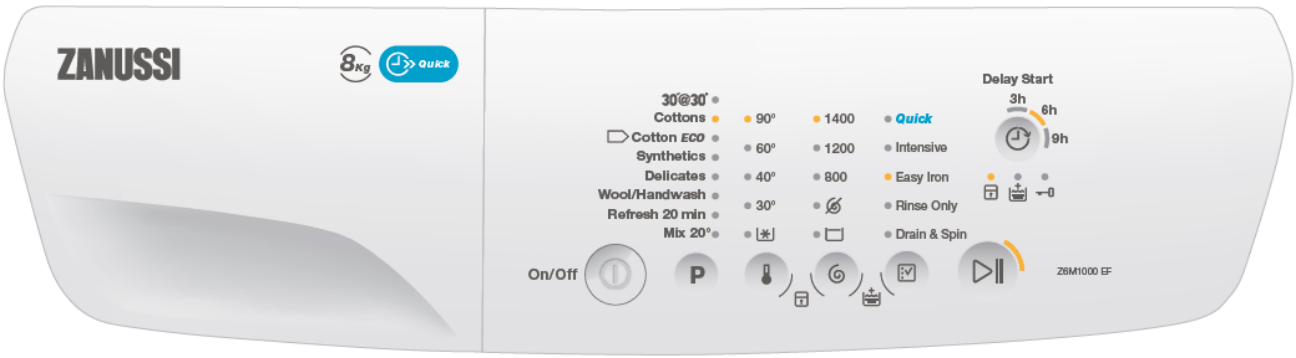
All the other warnings are not showed to final user because in many cases they are “false alarms” due to temporary abnormal conditions that the user sometimes neither notices and that could be simply solved switching off the machine. The main target is to avoid increasing the Service Call Rate.
The complete set of alarms is showed only in diagnostic mode for final test in factory assembly line or for after sales service personnel.

In Pilot 2 range the alarms are shown on display digits in the UI levels where they are present (Core TC4 and Performance TC2), by means of a dedicated alarm LED, red colour, integrated on Start/Pause button in case of Entry TC5 level.

The final user needs to go through instruction booklet to recognise a machine fault condition and try to solve it following the suggested sequence of actions.

Next chapters describe the warnings displaying policy for final user only.

7.1. Entry TC5 Level



Remark: the above picture is only demonstrative, not in the final graphical release.

All foreseen warnings are showed by flashing of **alarm red LED** integrated on Start/Pause push button (the yellow Start/Pause LED is kept off): **it starts flashing when the alarm occurs and blinks continuously as long as the fault condition is present.**
The blinking times for the LED are: **half second** lighted **on**, **half second** lighted **off.**

The warnings of faults that can be solved by final user are highlighted by using also status LEDs to facilitate recognizing the fault type: the **status LED associated to warning code blinks together with red alarm LED**.

Warning code E10 Water loading timeout, tap closed: blink child lock LED plus alarm red LED	Warning code E20 Water draining timeout, draining filter clogged: blink extra rinse LED plus alarm red LED	Warning code E40 Door locking timeout, door not properly closed: blink door LED plus alarm red LED

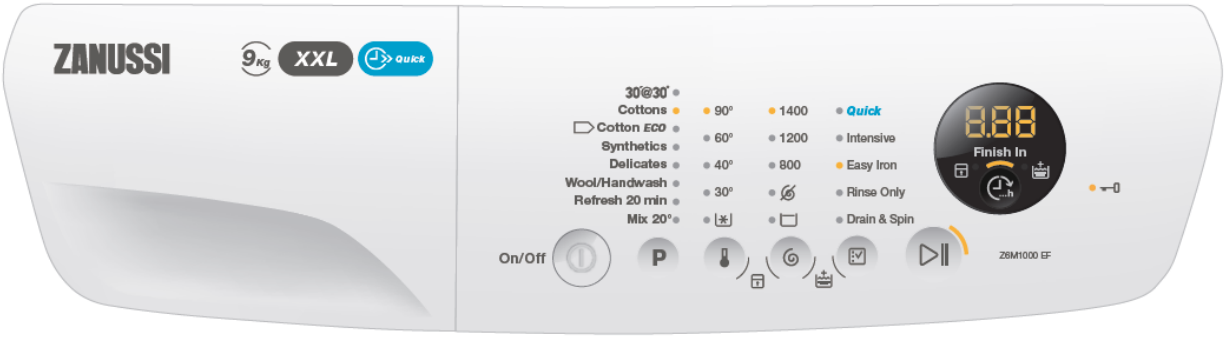
The alarms belonging to the “Software Configuration” family, that includes also “Boards Communication” alarm, and “Mains Supply” family are shown with alarm complete code: *see 7.4.1 Normal user mode page 21 for details.*

After the problem has been solved, pressing Start/Pause push button the warning is not showed anymore, alarm LED is lighted off, status LEDs go back to normal function and Start/Pause button yellow LED goes on again.

In the instruction booklet the sequence of actions to be performed to try to detect and solve the problem needs to be described.

7.2. Core TC4 and Performance TC2 Levels

TC4



TC2

Remark: the above pictures are only demonstrative, not in the final graphical release.

Warnings are displayed on the **7-segments digits** display used to show the cycle time.
A specific code appears on digits while the buzzer sounds (also if deactivated by customer via buttons combination) with a specific sequence of three short beeps about every 20 seconds for maximum 5 minutes.
After the problem has been solved, pressing Start/Pause push button the warning code is not showed anymore, buzzer stops sequence and cycle restarts.

Standard warnings codes that can be showed to final user, with related actions to perform, are the following:

Displayed code	Warning condition
E10	Water loading timeout. Check if water inlet tap is open
E20	Water draining timeout. Check if draining filter is clogged
E40	Door locking timeout. Check if door porthole is properly closed
E91	No communication between User Interface and Main boards. Switch off and on
E92 / E93 / E94	Software configuration. Main board has not been correctly programmed.
EF0	Aqua Control sensor active: water leakages (if configured)
EH0	Low mains voltage or irregular mains frequency (out of standard working range). Wait for stable mains supply conditions.

7.3. ALARMS MANAGEMENT

7.4. Alarms

One of the main requirements of the diagnostic system is to be transparent to the final user except for some most common warnings.
To increase the flexibility of the system it was introduced the possibility to enable/disable the alarms display by the machine configuration in order to cover requirement as field test context, particular countries requirement …

All alarms display is enabled during diagnostic test/cycles.
They are displayed on the TTE digits of the display (if available) and on the red/yellow LEDs mounted beside the START key.

Please note that when showing an alarm code on the display digits, all occurrences of “b” are replaced by “H” in order to avoid mistaking the “6” symbol, so for instance “Eb3” is shown like “EH3”.

7.4.1. Normal user mode

If the machine is in normal mode and an alarm must be displayed, the START Led (yellow or red) blinks regularly with a cadence of 0.5 s on – 0.5 s off. If a display is present the error code is drawn in the TTE digits using the format “E” + alarm family digit + “0”.

1. Buzzer sounds (regardless of configuration) on alarm presence only for warnings that are showed to final user (E10, E20, E40, E90, EF0), mains supply alarms excluded (EH0).
2. Buzzer sequence: 3 short beeps every about 20 seconds for maximum 5 minutes.
3. Stand-by mode is disabled on alarm presence only for warnings that are showed to customer.
4. For TC2, TC4 levels the Start/Pause key yellow LED blinks continuously (0.5 seconds ON, 0.5 seconds OFF) in case the warning puts the machine in pause state;
   For TC5 level the yellow LED is off, while the alarm red LED under Start/Pause button blinks continuously (0.5 seconds ON, 0.5 seconds OFF) for almost all warnings, except for “Software Configuration”, “Boards Communication” and “Mains Supply” alarms.
5. Alarm complete code is shown if the alarm belongs to the “Software Configuration” family, that includes also “Boards Communication” alarm, and “Mains Supply” family; this is in order to give the final user a valid indication of the alarm even if the configuration itself (needed to operate LEDs and Display) is damaged or missing.
   In case of TC5 level, red and yellow LEDs under Start/Pause button blink alternated according to alarm code:
   - **Red** LED : 9 blinks - that is “Configuration” family standard number
   - **Yellow** LED : many times as alarm number (E 9 **1** → one time, E 9 **3** → three times)

7.4.2. Diagnostic mode

If the machine is in diagnostic mode and an alarm is raised, its code is always shown regardless of the configuration. On TC5 Pilot 2 the indication is given by blinks of both yellow and red START Leds. The cadence is led on for 0.5 s – led off for 0.5 s; the sequences on the two leds are separated by a short pause. On platforms provided with a LCD the “Exx” (E20, E30, etc) indication is shown as well in the TTE digits area.

1. Buzzer sounds with the sequence above specified only when an alarm occurs, regardless of buzzer configuration. Does not sound when last alarm code is displayed in diagnostic specific cycle or when related key combination is pressed, unless it has just occurred.
2. Alarm complete code is showed in the format **E**xx (E 4 2) on cycle time digits in case of TC2, TC4 levels, while for TC5 level the red and yellow LEDs under Start/Pause button blink alternated according to alarm code:
   - **Red** LED : many times as alarm family code (E **4** 2 → four times)
   - **Yellow** LED : many times as alarm number (E 4 **2** → two times)
3. Alarms can be cleared by means of specific diagnostic push buttons combination pressed in the last alarm display position. After alarm has been reset, “E00” code appears on display digits in case of TC2, TC4 levels, while for TC5 level red-yellow LEDs sequence stops.

7.4.3. Last alarm mode

The LAST ALARM mode is used to read the three most recent alarms stored in memory, starting from the latest.

1. To enter this mode, two ways are provided:
   - the diagnostic push buttons combination must be pressed for at least 2 seconds while the board is in normal mode, after 10 seconds from UI switching on; in this case only the last alarm can be read;
   - the 11th diagnostic cycle must be set while the machine is already in diagnostic mode; in this case all the three last alarms can be read.
2. Each time the leftmost button of the “diagnostic combination” is pressed, the following alarm code is selected and shown. So, if the leftmost key is pressed once while the displaying of the last alarm is in progress, the last but one alarm is displayed instead; pressing again the key, the last but two alarm code is shown.
3. Pressing at any time the rightmost button of the “diagnostic combination”, the view is put back to the initial state, that is the code of the most recent alarm.
4. In case the LAST ALARM mode was engaged by the “diagnostic combination”, only the last alarm is showed and pressing any button the mode is exited and the UI goes back to normal view.

   It’s possible to reset last alarms codes by pressing the diagnostic key combination (START/PAUSE and the closest one for every UI) when in Diagnostic mode with selector in 11th position.

8. Service Mode Setting

The machine can work in several functional modes:
- User mode
- Demo mode
- Electric test mode
- Special function mode
- Diagnostic mode
- Remote controlled mode

The last one can be set only by serial port using specific SW tools.
All the other modes are available using the machine itself operating via control panel.

User mode is the normal way to use the machine to execute normal cycles (used by the end customer).

Demo mode is used in the shops to show to the customer how to setup and execute a cycle without loading/draining water, heating...

Special function mode is used to show special parameters of the machine (for example the cycles/working hours counter – pay per work architecture).

Electric test mode is used, on assembly line, to perform the electric safety tests according the International Standards.

Diagnostic mode is used by service/lab people to test the machine, read/reset alarms.

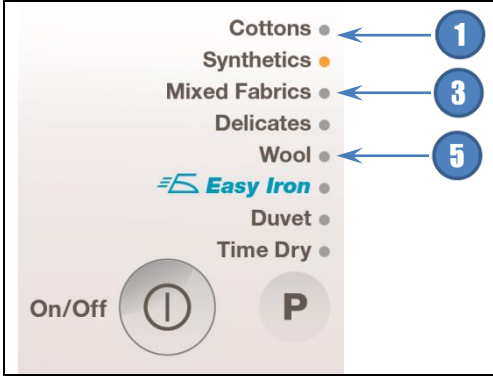
Remote control mode to let the machine work interfaced and controlled by a computer.

Remote control mode apart, the other functional modes can be set by configurable buttons combinations that change according to control panel layout of each aesthetic range.

Following chapter describes the general rules to access the diagnostic modes.

9. Enter different modes

If the key combination is recognised within 10 seconds since the machine was switched on (via On/Off button), a specific mode is entered according to the program selected in case Pilot 2 levels (the positions are highlighted in the pictures below):



Position 1: is selected by default at machine switching on, hence to enter in **Diagnostic mode** just press the diagnostic buttons combination.
Position 3: to enter **Demo mode**, press the Program button in Pilot 2 and wait for related LED feedback before pressing diagnostic key combination.
Position 5: to enter **Working Hours Display** mode, press the Program button in Pilot 2 and wait for related LED feedback before pressing diagnostic key combination.

In case of Pilot 2 levels, to select the factory test cycles press Program button (above picture) to increase from 1 to 11 (10 for dryers), press Temperature button for washing-machine to decrease 11 (10 for dryers) to 1.

9.1. DEMO MODE

In the shops and exhibitions sometime it could be necessary to show to the customer the machine behaviour in set-up condition and also during cycle execution. The duration of a cycle execution is in any case too long for a brief show.

9.1.1. Demo mode principles

The Demo works in two ways: one interactive mode and one automatic loop.
The interactive mode enables the user to try the interface without activating the appliance.
If no one has interacted with the interface for 3 minutes, or Start button hasn't been pushed, it proceeds to display an automatic loop instead, simulating the cycle execution only on display.

DEMO mode alters the execution of a cycle in such a way that water and heating management are avoided:
- In set-up state the machine behaviour is the same of the user mode one.
- During cycle execution all times are shorter.
- All the user interface functionality is shown as in the normal condition (time to end …).
- **Washing-machines**: no water load/drain and heating is executed: it means that if it's necessary to show machine running with water inside the drum, it's loaded by hand and never drained (no spin phases are executed in this case).
  For Top-loader appliances, while DEMO mode is active, only set-up phase is available (START/PAUSE button is disabled), since without the transparent door porthole the motor moving can't be seen and so it is useless.

9.1.2. Entering Demo mode

As described before, to enter in this mode the procedure is the following:
- Switch on the machine via On/Off button and **do not press any other button**;
- Turn the selector in the 3rd position CW
  Pilot 2 levels: the program in position 3 has to be set and wait for related LED feedback.
- Press and hold for some seconds the defined key combination (START/PAUSE and the closest one).
  - Within about 3 seconds the acknowledge of the operation is given by:
    - the text "dEM" blinking 3 times on cycle time digits (except TC5)
    - all option LEDs flashing in TC5 levels.
- In no acknowledge, switch machine off and repeat sequence from the beginning.

- After each machine switching on DEMO mode is automatically recalled; this occurrence is signalled after some seconds from the start-up by text "dEM" flashing 3 times (TC2, TC4) or by all option LEDs flashing in TC5 levels.
- To exit the DEMO mode the machine has to be unplugged from mains net.

9.2. DIAGNOSTIC MODES SETTING

9.2.1. Entering diagnostic mode

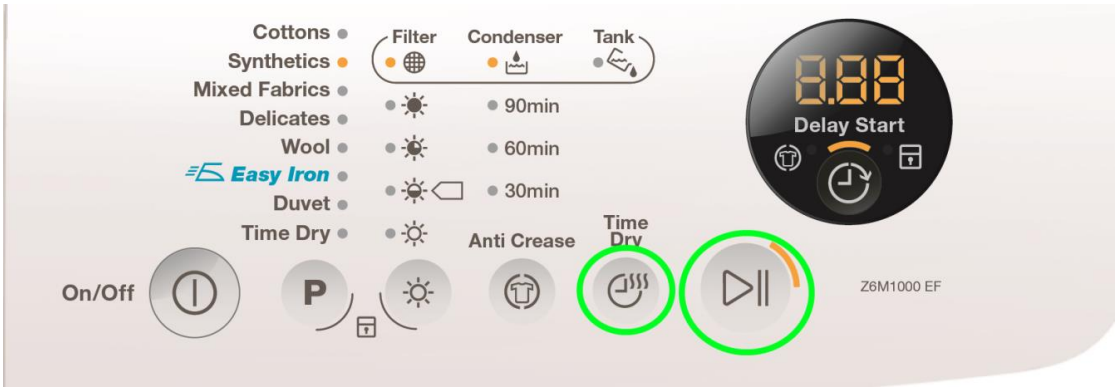
- Switch on the machine via On/Off button and **do not press any other button**.
  Pilot 2 levels: the program in position 1 is selected by default at machine switching on.

- Press and hold for about 3 seconds the defined key combination (START/PAUSE and the closest one).
  Within about 3 seconds the UI shall enter the diagnostic mode; the acknowledge of the operation is given by all LEDs and groups of display icons switching on sequentially; otherwise, switch machine off and repeat sequence from the beginning.

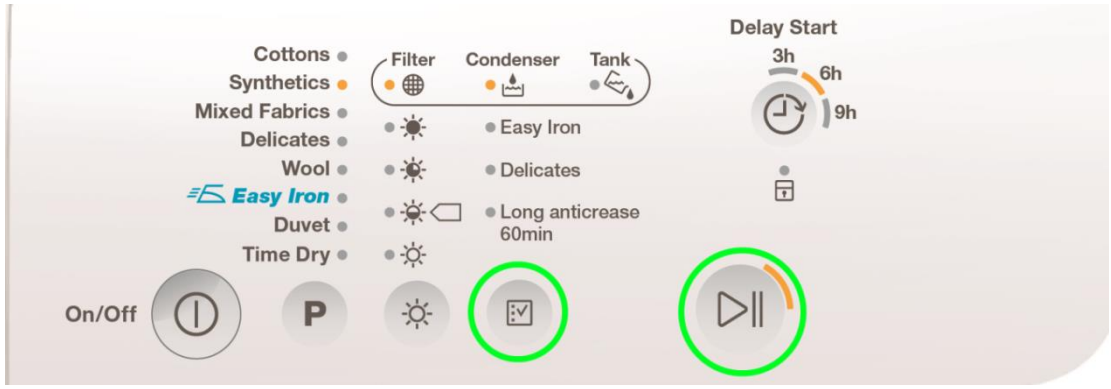
Following the user-interface control panels for Pilot 2 with diagnostic key combination highlighted in green, valid for both washing-machines and tumble dryers:

TC2

TC4



TC5



- Diagnostic can be set only within 10 seconds from machine switching on, provided that selected programme position is the first! The feedback is given by all LEDs or LCD icons flashing in sequence.

- After the diagnostic mode is entered, the following actions can be performed:
  1) press the same buttons combination to set one of the following functions:
     - In “last alarm display” selector position (the 11th counting clockwise in washing machines) it clears the last saved alarms.
     - In all other positions it sets the “electric test” mode at the next machine switching-on.
  2) press any single button to test the user interface I/O
  3) turn programs knob to select the factory test cycles

- To exit from DIAGNOSTIC mode it’s sufficient to switch off the machine.
  According to the machine configuration, at the next machine switching on the electric test cycle may be activated. To stop it, switch off again the machine.

9.2.2. Diagnostic program definition

In the 1st selector or program position (TC1 or Pilot 2) the User Interface test is performed; all LEDs or LCD symbols are lighted on sequentially to allow checking the outputs. For each LCD display a specific sequence of screens is performed in order to test all icons and backlight LEDs.

Pressing any button the associated LEDs and display icons are lighted on and the related position number is shown on cycle time (TTE) digits if present, till button is released; besides, the buzzer plays a single “beep” sound (mechanical switch) or “click” sound (touch sensor).

When the selector knob is moved (not present in Blue Fire TC1 or Pilot 2) the TTE digits show the “C” letter followed by the knob position code for about 2 seconds; Series 9 level shows also “Knob position” on text row while Series 5 / TC5 levels displays it with LEDs “weight” (see description below).

in clockwise direction, for any position there is a different test	
Position 1	User Interface Test
Position 2	Water load from wash compartment.
Position 3	Water load from prewash compartment.
Position 4	Water load from softener compartment.
Position 5	Water load from third electrovalve.
Position 6	Water load from fourth electrovalve (hot electrovalve if present).
Position 7	Wash heater activation and weight sensor test (if present).
Position 8	Spin phase at 250 rpm with water in the tub (leakage test).
Position 9	Drain, level sensor calibration and spin phase at maximum spin speed.
Position 10	Drying loads for Washer-dryers / drum positioning for Top-loaders.
Position 11	Last alarm display and possible reset.

In case of Pilot 2 levels, to select the factory test cycles press Program button to increase position from 1 to 10, press Temperature (WM) button to decrease position from 10 to 1.

The test cycles are working only if:

- There is no communication error between main board and user interface.
- The machine is configured with a valid configuration (no configuration alarm).

In case of MB-UI communication alarm, the only test available is the user interface test, because the user interface can be tested alone only supplying the +5/+12 Volts.

Pressing the diagnostic key combination in the last alarm display position (11 if WM, 10 if TD), the alarm codes that were stored in memory will be reset.

Pressing the diagnostic key combination during one of the diagnostic cycles (from position 2 to 10 if WM or 9 if TD) the machine will set in electric test mode at the next power on.
Pressing another valid key combination (the ones configured for Child Lock, Buzzer …) during one of the diagnostic cycles the factory default settings are restored, that is:

- disable permanent modes/options such as Child Lock, Buzzer, ...;
- clear memories for Series 9 level or TC1/TC2 levels.

During the test the display will show some data concerning the cycle being performed. The details are explained in the following tables. In Series 5 / Pilot 2 TC5 levels the time digits are not present, so some information may not be displayed.

User interface test

Selector-test position:	Position 1 in clockwise direction or in test sequence (TC1).
Purpose of test:	To test the functionality of all lights, switches and buzzer.
Activated components:	All LEDs, LCD display (if present) and buzzer
UI behaviour	See the descriptions below
Working conditions:	There isn’t any control to run the test (always active).

Test of outputs

If no key is pressed, all visible LEDs are switched on singularly and sequentially for about 300 milliseconds. In the same way also the 7 segments of the three digits of LED displays, such as Series 6 or TC4, are lighted on sequentially and then all together to have “8.88”.

The icons of LCD displays (not TC5) instead are grouped in 5 pre-defined screens switched on sequentially for about 2 seconds; dividing vertically the LCD in 3 areas, the sequence is:

Screen	LCD icons	Associated buttons
1	left side icons on	1 - 6
2	central icons on	2 - 7 (where present)
3	right side icons on	3 - 8 (where present)
4	all icons on	4 - 9 (where present)
5	all icons off	5 - 10 (where present)

This procedure allows testing the LCD glass, but also the backlight LEDs under the display.

Test of inputs

The buzzer plays a “beep” sound each time a button is pressed.

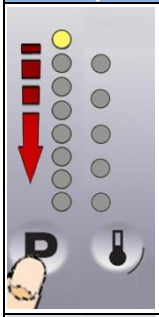
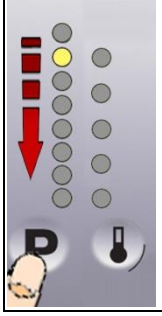
Pressing a button the LEDs/LCD icons sequence stops, the associated button LEDs are lighted on, the associated LCD screen is displayed (see table above), the button position is displayed on time digits if screens 1 and 2 (not in TC5)

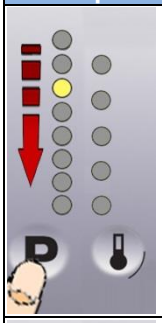
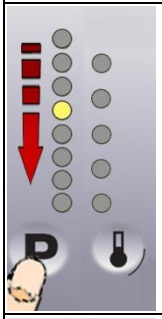
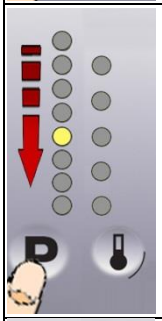
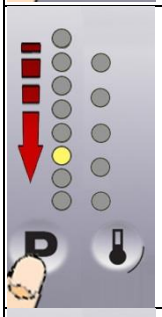
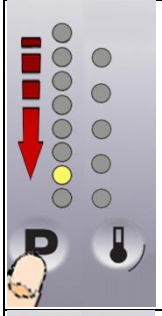
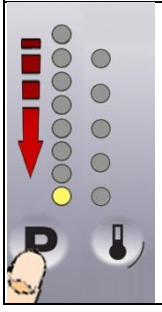
After the key is released, the LEDs/LCD icons test sequence starts again.

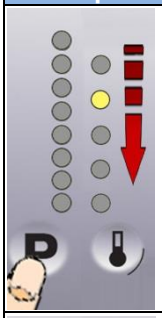
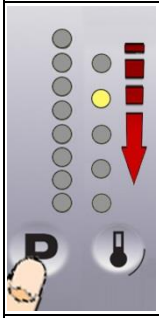
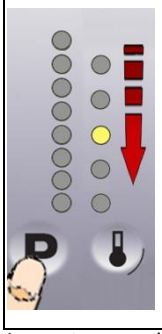
9.2.3. Phases of the diagnostics test

Irrespective of the type of electronic board and of the configuration, once the diagnostics system has been activated, touch sensor S1 to run a diagnostic check of the various components and the alarm reading (touch sensor S1 (**P**rogramme) to progress in sequence from the top down, or touch sensor S2 (**T**emperature) to go back.

Where featured, the Display (P3.0) indicates the description provided in the last column of the table below. (All alarms are enabled in the diagnostic cycle).

LED Lamp lit up	Components activated	Working conditions	Function tested	Display
	- 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)
	- Door safety interlock - Pre-wash solenoid valve	Door closed Water level below anti-flooding level Maximum time 5 mins.	Water fill to pre-wash compartment	Water level in the tub (mm)

LED Lamp lit up	Components activated	Working conditions	Function tested	Display
	- Door safety interlock - Pre-wash and wash solenoid valves	Door closed Water level below anti-flooding level Maximum time 5 mins.	Water fill to conditioner compartment	Water level in the tub (mm)
	- Door safety interlock - Third Solenoid valve	Door closed Water level below anti-flooding level Maximum time 5 mins.	Water fill to Third solenoid valve compartment	Water level in the tub is displayed (mm)
	- Door safety interlock - Fourth solenoid (hot water, if present)	Door closed Water level below anti-flooding level Maximum time 5 mins.	Water fill to Fourth solenoid valve compartment	Water level in the tub is displayed (mm)
	- Door safety interlock - Wash solenoid, if the water in the tub is not enough to cover the heating element - Heating element - Recirculation pump	Door closed Water level above the heating element. Maximum time 10 mins up to 90°C. **(*)**	Warming up Circulation	Temperature in °C measured using the NTC probe.
	- Door safety interlock - Wash solenoid, 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
	- Door safety interlock - Drainage 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

LED Lamp lit up	Components activated	Working conditions	Function tested	Display
	-----	-----	-----	-----
	Reading/Deleting the last alarm	-----	-----	-----
	- The LEDs light up in sequence, the symbols on the LCD display light up in in groups and the backlighting comes on, - 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 functions	

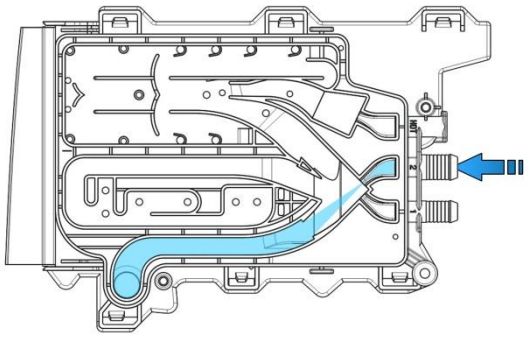
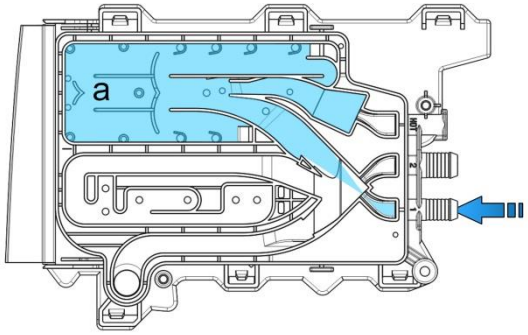
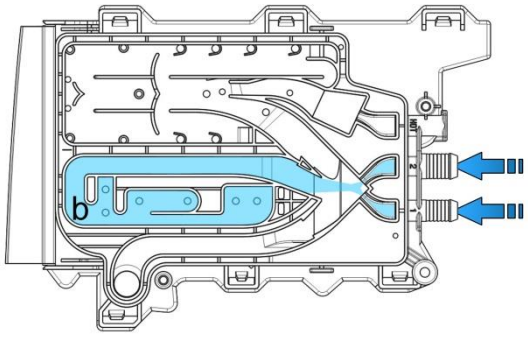
(*) In most cases, this time is sufficient to check the heating. However, the time can be increased by repeating the phase without draining the water: pass for a moment to a different phase of the diagnostic cycle and then back to the heating control phase (if the temperature is higher than 80°C, heating 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. TECHNICAL CHARACTERISTICS

10.1. Detergent dispenser

New detergent drawer assembly, with a dispenser assembly incorporated at the front, which is inserted into the detergent inlet pocket of the porthole bellows seal.

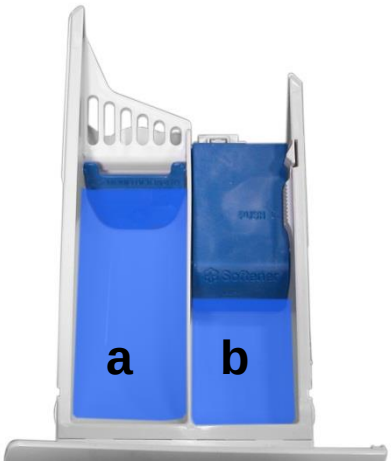
Operating principle of the conveyor.

Water fill directly to tub (pre-wash solenoid) There is no pre-wash compartment. If necessary, the detergent must be introduced directly into the drum.	
Water fill to wash compartment (wash solenoid) 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).	
Water fill to conditioner compartment (pre-wash and wash solenoid valves) In all models: compartment “b” is used to contain the conditioner, which is removed with the water of the last rinse.	

10.1. Detergent drawer

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

A flap has been fitted inside compartment “**a**” where the detergent is introduced, which can be flipped up or down.



Flip it up to use powder detergent.

Position of the flap when the appliance leaves the factory (see figure).

To modify the position of the flap, pull the detergent dispenser out (see relevant paragraph).

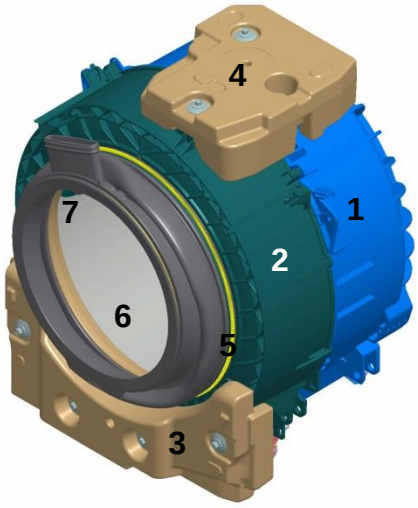
Flip the flap down to use liquid detergent.

For further details, read the instruction manual.

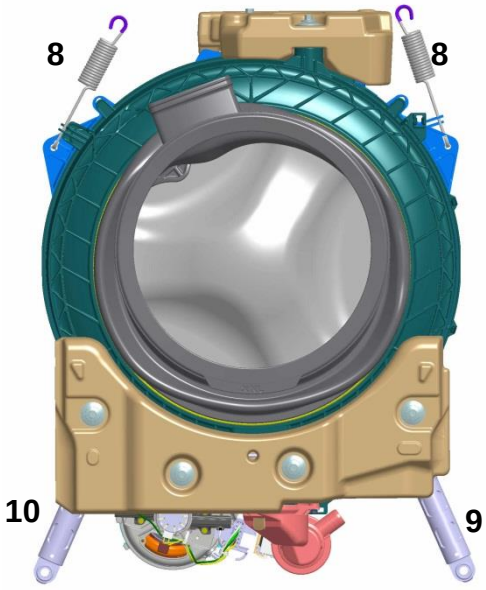
10.2. Washing unit

WASHING UNIT		
Type	Load capacity (cottons) max.	Drum volume
P69	10 Kg	69 litres

The washing unit is made up of:
A back casing (1) and a front casing (2), welded together to form the welded tub. Inside this is the drum (6) (made of stainless steel) with the three blades (7) (in carboran) snap-fastened to the drum.
To balance the unit during the washing movements and during the spin phases, the two counterweights are secured in place with screws: one at the front (3) and one at the top (4).
The bellow seal (5) is fixed at the front.



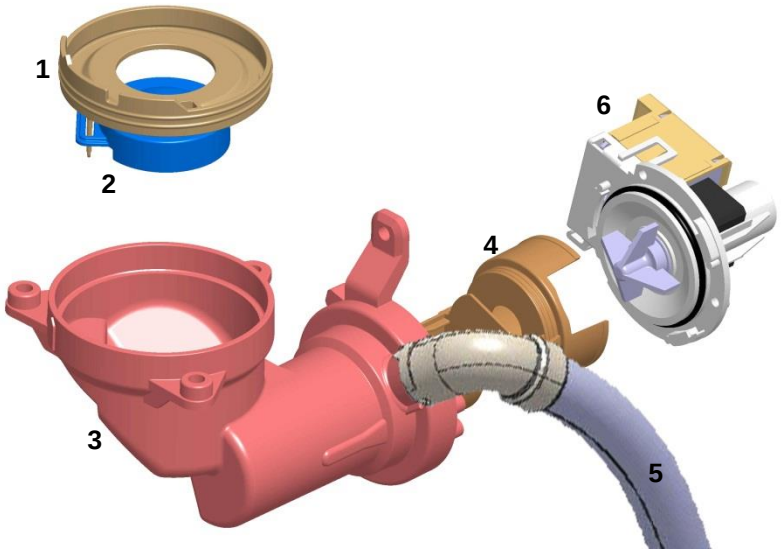
The washing unit is suspended by two coil springs (8) attached to the top crossbar, and the oscillations are dampened by three shock absorbers, two on the right (9) and one on the left (10) (looking straight at the front of the appliance).



10.3. Water circuit

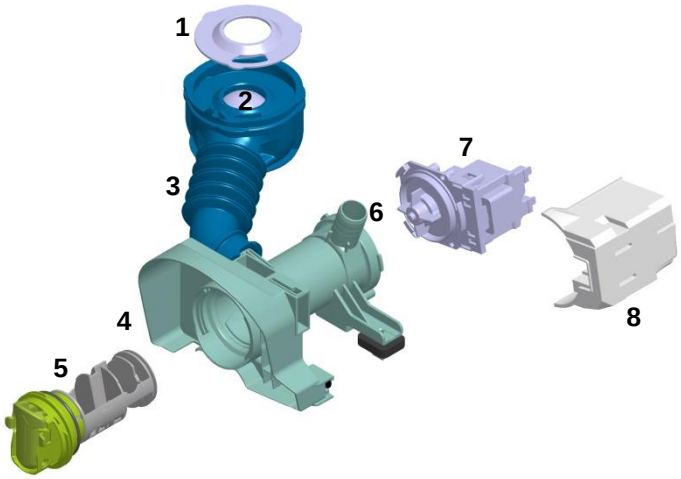
10.3.1. OKO/IDB version drain circuit (with drain filter not removable from the outside)

1. Diaphragm ring
2. Floating valve
3. IDB (Integrated Drain Body)
4. Filter or needle trap
5. Drain pipe
6. Drainage pump

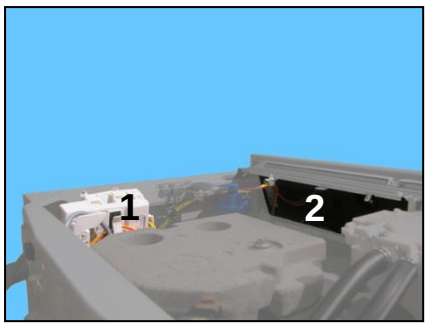


10.3.2. Traditional OKO version drain circuit (with drain filter removable from the outside)

1. Diaphragm ring
2. Ball
3. Filter body-tub drain pipe
4. Filter body assembly
5. Filter or needle trap
6. Drainage
7. Drainage pump
8. Drain pump protection



10.4. Electronic control



The electronic control is made up of:

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

The control/display PCB contains: the display (where featured), to display the programme information; the touch sensors, to adjust the temperature, the spin speed and possibly select an option, the START/PAUSE button, the ON/OFF button and lastly the LEDs which (when lit) indicate the selections made.
The commands acquired by the display board are sent to the main circuit board, which powers all the electrical components (cold water solenoid valve, drain pump, heating element and door safety device, etc.) and concurrently:

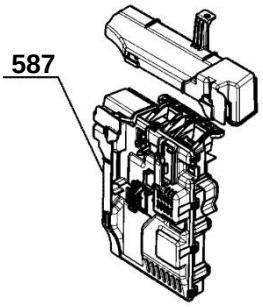
It controls the level of water via the analogue pressure switch.
It controls the state of the door.
It controls the speed of the motor.
It controls the temperature of the wash water via the NTC probe inserted in the heating element.
It controls the voltage and frequency of the power supply and ensures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

To guarantee proper performance of the washing cycle.

10.4.1. 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).**

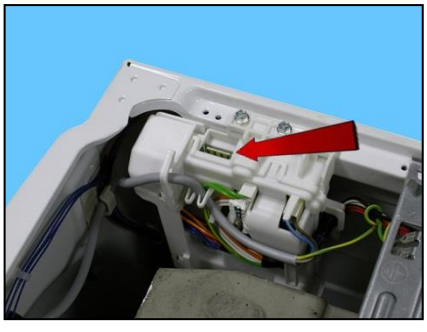
In the Service Notes the main circuit board (587) is identified with two spare parts codes:



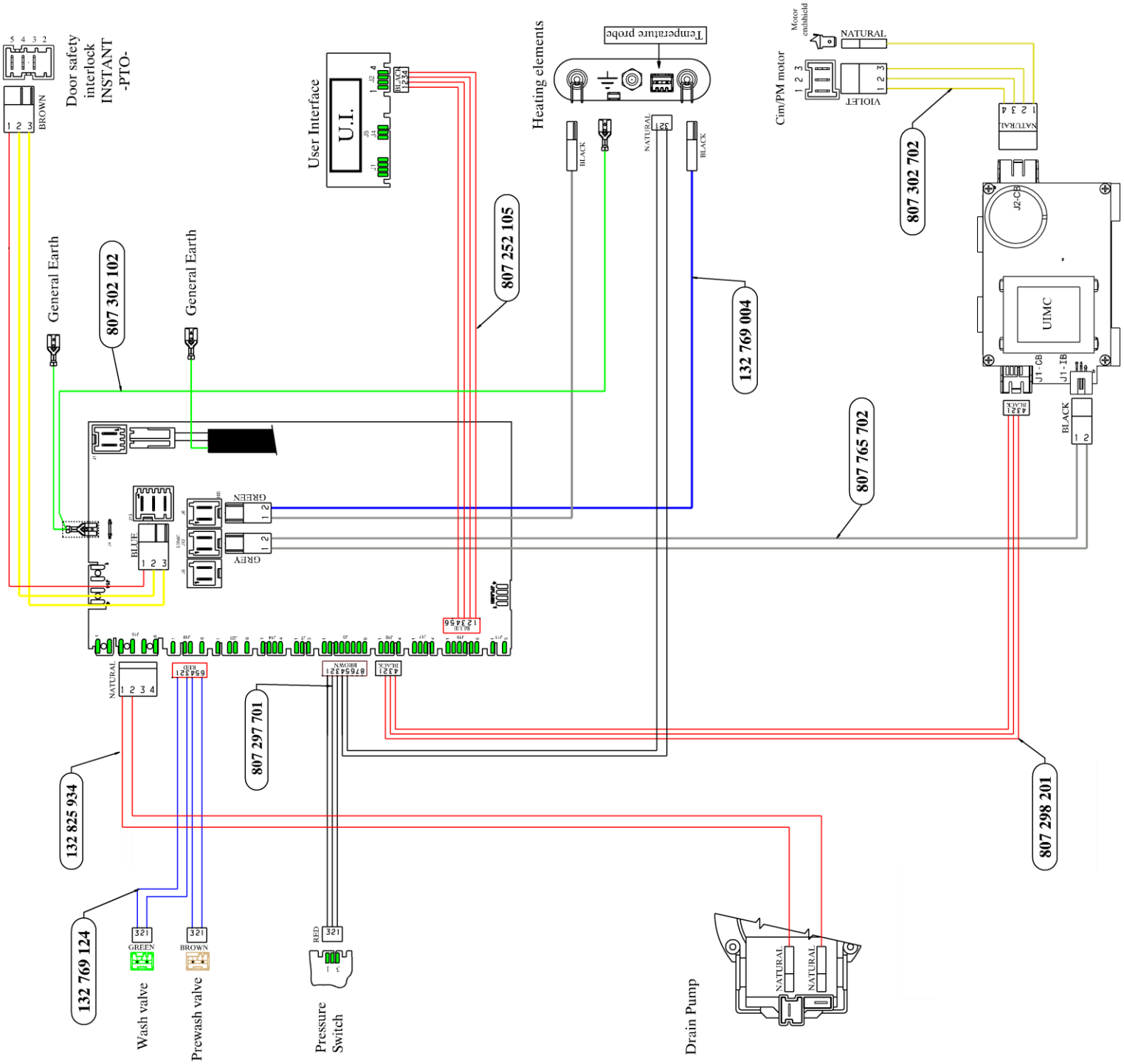
- Code 973 914… identifies the pre-programmed board.
- Code 132… identifies the unprogrammed board.

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:



10.4.2. Electrical characteristics with three-phase motor and Inverter



11. ELECTRICAL COMPONENTS

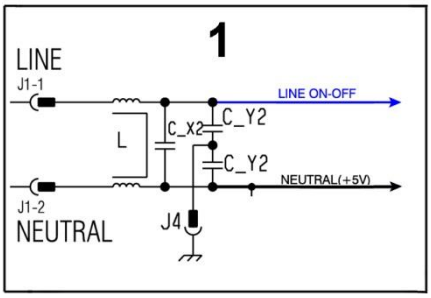
- **When replacing any of the components, please refer to the code shown in the list of spare parts relating to the appliance being repaired.**

11.1. Noise filter

11.1.1. General characteristics

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

1. Main electronic circuit board



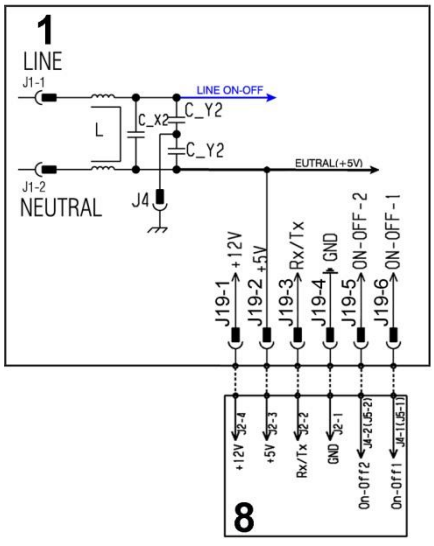
11.2. Display board

- **Warning the sensors located in the display boards could be at a potential of 220 Volts.**

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

The programmes can be selected by touching the related touch sensor, which can also be used to: select options, start or pause the appliance.
The buzzer - where featured - is powered by the display board.

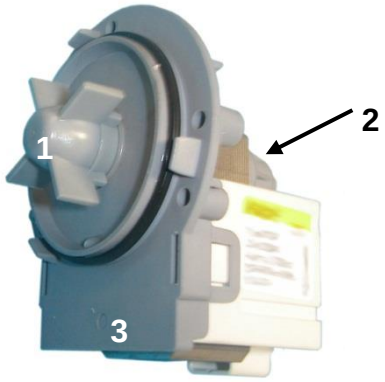
1 Main electronic circuit board
8 Display board



11.3. Drainage pump

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

11.3.1. General characteristics



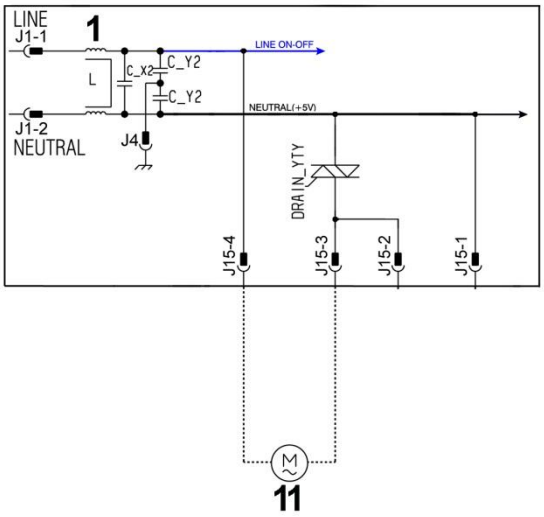
1 Wheel
2 Rotor
3 Stator

The pump, which drains the water at the end of the various washing cycle phases, is centrifugal and is activated by a synchronous motor.
The rotor consists of a permanent magnet and the direction of rotation can be either clockwise or anticlockwise. It can turn by approximately a quarter of a revolution without turning the wheel. Consequently, if a foreign body is stuck in the wheel, the rotor can perform small movements clockwise and anticlockwise until the foreign body is released.
The flow rate of these pumps is approximately 18÷20 l/min, and the maximum head is 90 cm. above ground level.
Fitted with overload cut-out.

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.

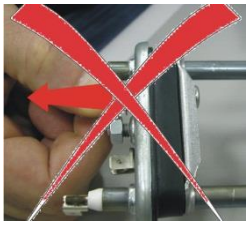
The drain pump is powered by the main circuit board through a triac, as follows:
- For a pre-determined period (and an alarm might be displayed - see table of alarms).
- Until the electronic pressure switch closes on empty, after which the pump is actuated for a brief period or passes to the subsequent phase.

1 Main electronic circuit board
11 Drainage pump



11.4. 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...)



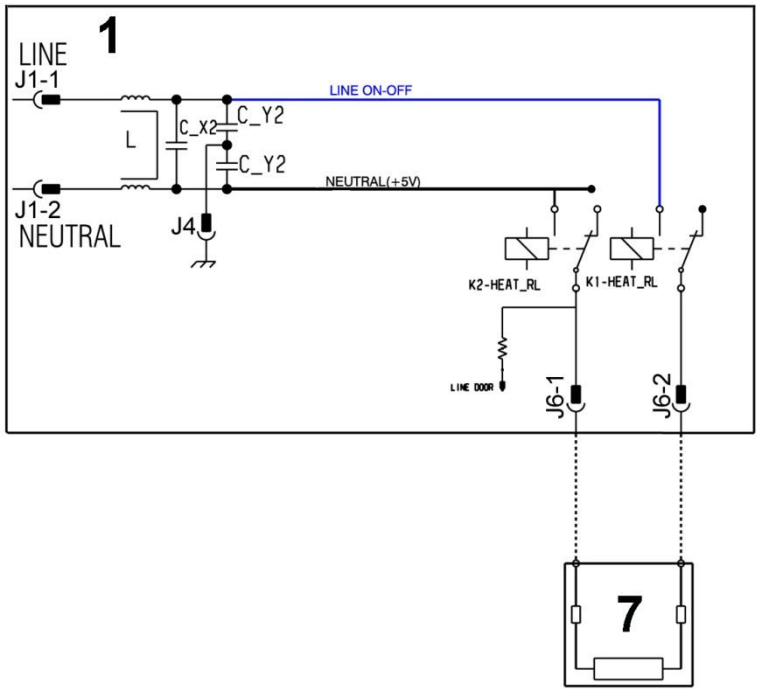
11.4.1. General characteristics

1. *NTC probe*
2. *Heating element*

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

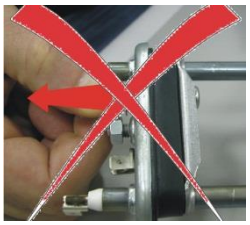
It is powered by the relays located on the circuit board. It is fitted with two thermal fuses which trip if the temperature of the heating element exceeds the values for which they were calibrated.
(In the event of a fault an alarm will be displayed - see table of alarms).

1. *Main electronic circuit board*
7. *Heating element*

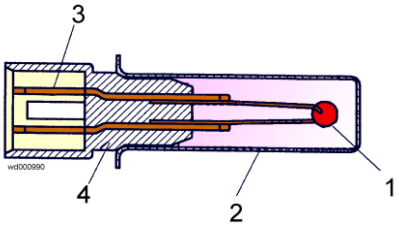


11.5. Temperature probe

- **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...)



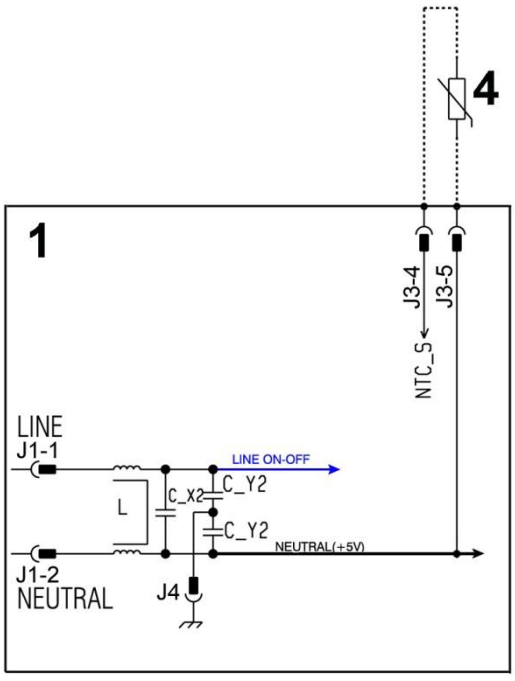
11.5.1. General characteristics



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

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

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



1. *Main electronic circuit board*
4. *NTC probe*

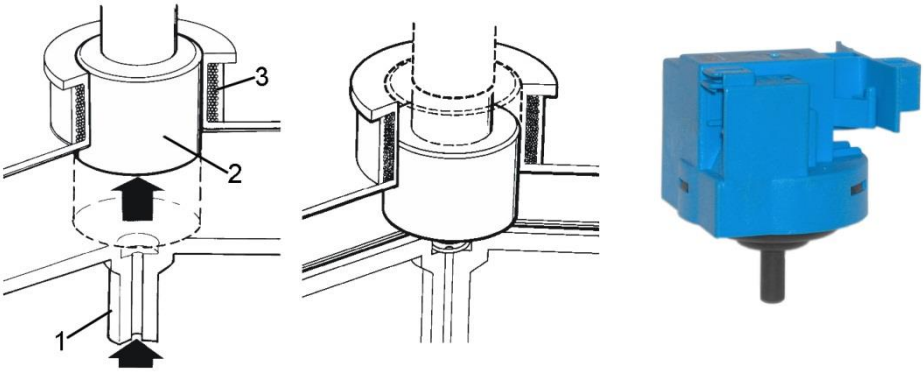
In the event of a fault (short-circuit or stoppage) an alarm will be displayed - see table of alarms.

11.6. Analogue pressure switch

11.6.1. General characteristics

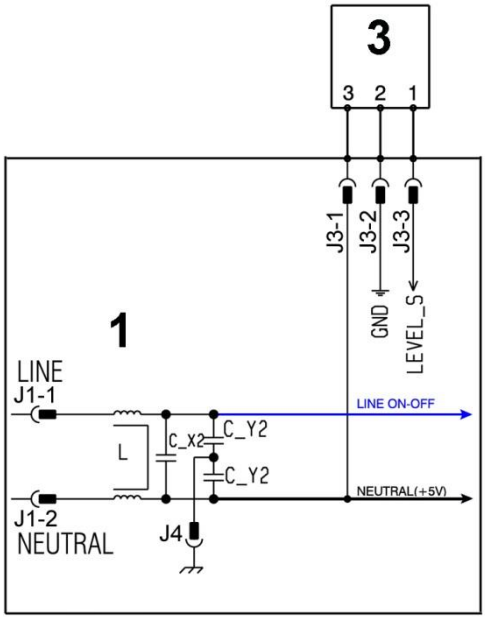
The electronic pressure switch is an analogue device that controls the water level in the tub, used in models with electronic control system, and it is directly connected to the main PCB.

1. *Small pipe*
2. *Core*
3. *Oscillating coil*

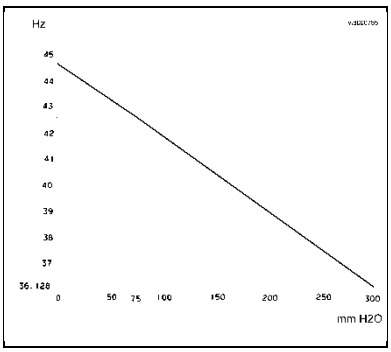


The pressure switch is connected via a pipe to the pressure chamber.
When water is introduced into the tub, this creates a pressure inside the hydraulic circuit that causes the membrane to change position. This in turn modifies the position of the core inside the coil, thus changing the inductance and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

1. *Main electronic circuit board*
3. *Analogue pressure switch*



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

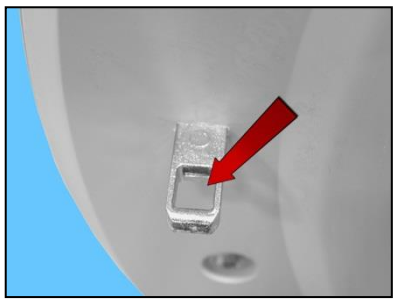


In the event of a fault an alarm will be displayed - see table of alarms.

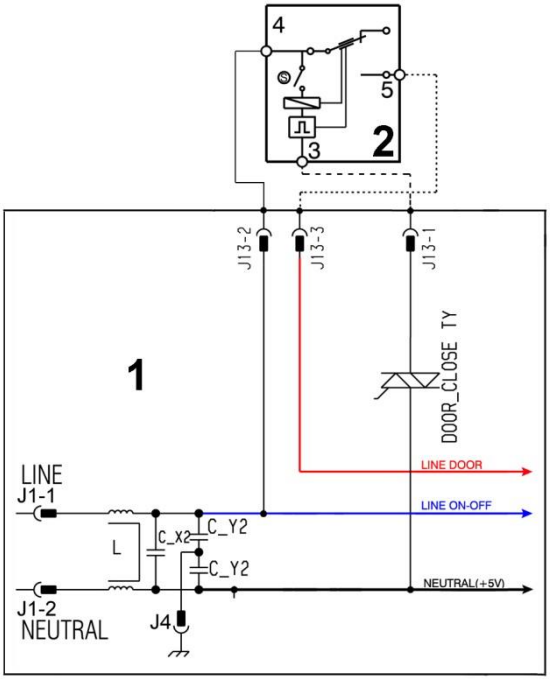
11.7. Door safety interlock PTO (Pull To Open)

11.7.1. General characteristics

This appliance is not fitted with a safety device featuring the traditional fastening latch which necessitated the removal of the handle to open the appliance door.
The new safety device uses a new latch version with a hole in the middle, shown by the arrow (see figure) and you pull the handle to open the appliance door.

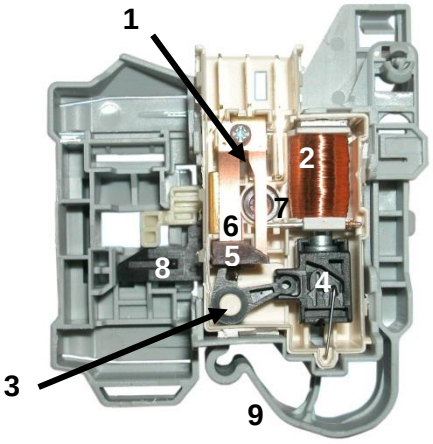


The instantaneous door interlock allows the door to be opened as soon as the drum stops, if the conditions described hereafter are met.



1. *Main electronic circuit board*
2. *Door safety interlock*

11.7.2. Operating principle



1. *Solenoid protection PTC*
2. *Solenoid*
3. *Lifting assembly*
4. *Cam (with Labyrinth)*
5. *Locking pin*
6. *Electrical contacts (main switch)*
7. *Door sensing switch*
8. *Cursor*
9. *Manual opening*

↳ When the programme starts (start/pause button) the main circuit board sends a voltage pulse, lasting 20msec., to the solenoid valve (2) (at least 6 seconds should have passed since turning it on), which moves the cam (4) to a locking position; the blocking pin (5) is pushed, locking the cursor (8), which moves behind the ratchet (2) to prevent it from turning, locking the latch inside the lock (see subsequent figures); simultaneously the main switch contacts are shut (6).

↳ When the programme ends or the Start/Pause button is pressed, the circuit board sends two additional 20 msec pulses (200 msec apart):

4. The first pulse moves the cam (4) by another position, without releasing the pin (5).

5. The second pulse (which is only sent if everything is in working order) moves the cam (4)to another position, which causes the pin (5) to return to its position and therefore release the interlock; the contacts of the main switch are simultaneously opened.

Solenoid protection

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

main circuit board triac short circuit.

many consecutive pressings of the start/pause button (more than 5 times).

Appliance door/door open conditions

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

the drum must be stationary.

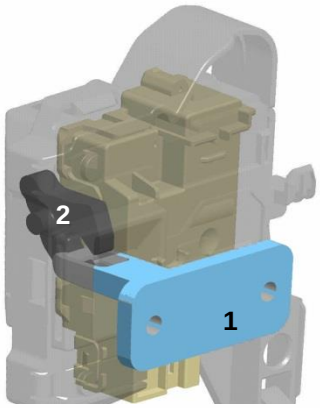
the water level must not be higher than the lower edge of the door.

the temperature of the water must not be higher than 40ºC.

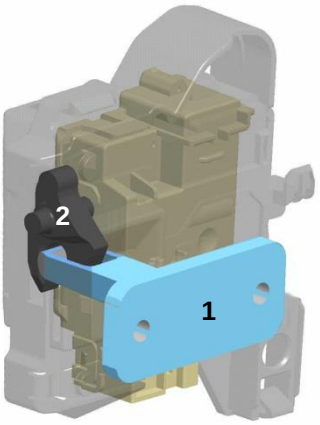
11.7.2.1. Mechanical operation

1 Hake

2 Ratchet



When the appliance door closes, the latch (1) fits inside the ratchet (2).



Which, turning on itself, hooks onto and locks the ratchet in place.

If the appliance is switched off or paused and the appliance handle is pulled, the latch is released from the ratchet (2), effortlessly, whereas if the START/PAUSE button has been pressed, the cursor (8) - being locked - does not allow the ratchet to turn (2) so the fastening latch is locked for the entire wash cycle.

11.7.3. Manual opening of the appliance door:

Previous door safety devices released the door automatically, in the following cases: power failure, the appliance being turned off with the ON/OFF button (before the wash cycle ended, solenoid valve malfunction or faulty main board, because inside they had a PTC bi-metal which allowed the door to be opened after cooling, between 55 seconds and 4 minutes.

With the new safety device (PTO) the appliance door remains closed and necessitates manual door opening, according to the instructions provided below:

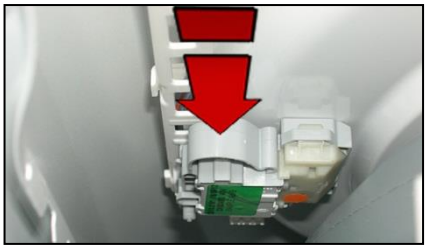
Before proceeding with the manual opening of the appliance door, check:

1. That the drum is stationary.
2. If the water is above the lower level of the appliance door, drain off the water; if possible set a drainage programme (see point 4) or unplug the appliance from the mains socket, disconnect the main drain pipe, lay it on the ground and drain off the water (see point 5).
3. If the water is not above the lower level of the door, then it can be opened manually.
4. Unplug the appliance from the socket.
5. Activate the manual opening system.

To access the manual opening, proceed as follows:

Remove the worktop (see para. 56).

Press the plastic arch placed above the door safety device twice (shown by the dotted arrow) in order to trigger the cam which leverages and releases the cursor to allow the latch to be removed from the ratchet.

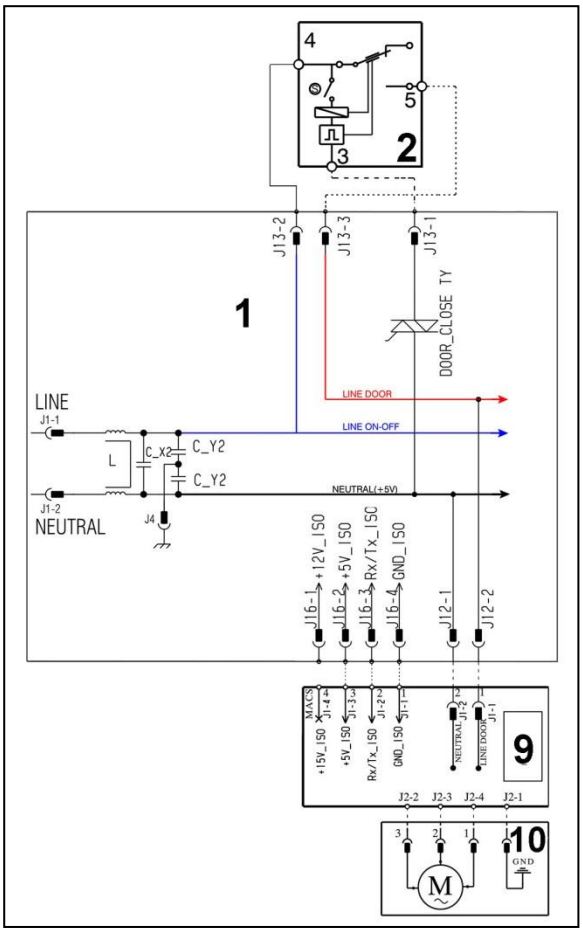


Pull the handle

11.8. Three-phase asynchronous motor – Inverter

11.8.1. General characteristics

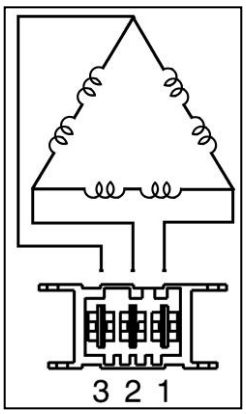
1 Main electronic circuit board
2 Door safety interlock
9. Inverter
10. Motor



11.8.2. 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 ~ ±7% (contacts 2-3)

Coil x ohm 6.43 ~ ±7% (contacts 1-2)

Coil z ohm 6.43 ~ ±7% (contacts 1-3)

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

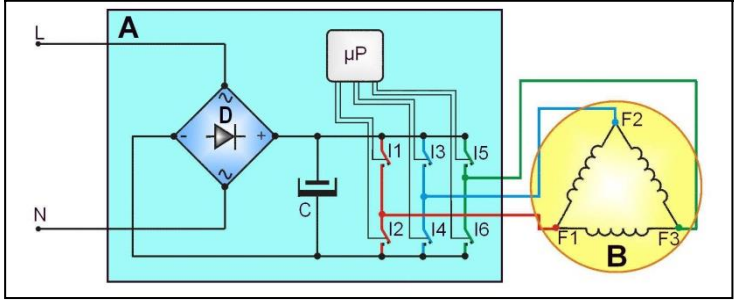
11.9. Inverter

11.9.1. General characteristics

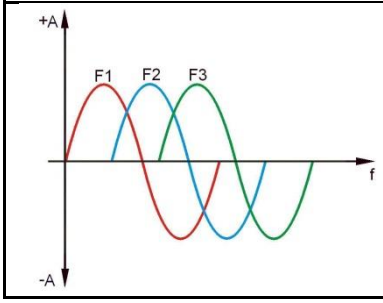
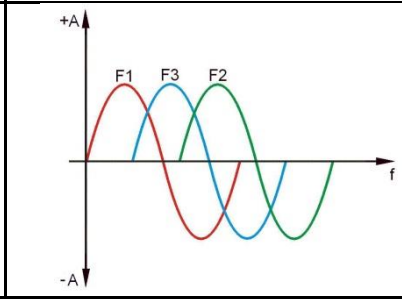
The EWX11831 electronics use a new asynchronous motor, with 2 poles, three-phase, with high performance and low noise levels.

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

“INVERTER” operating diagram



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.

Clockwise rotation of the motor	Anti-clockwise rotation 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.

11.10. 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.

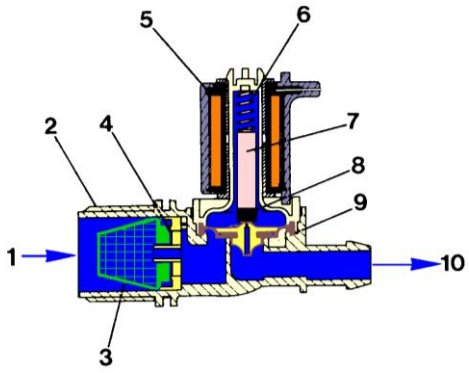
- **Spin with excess foam in the tub (critical situation):** the control system detects whether the electronic pressure switch switches 5 times to full (five spin interruptions). If this occurs, the spin phase is skipped, and a one-minute drain cycle is performed with the motor stationary and, in the case of a washing phase, a supplementary rinse is added.

11.11. Solenoid valves

11.11.1. 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.

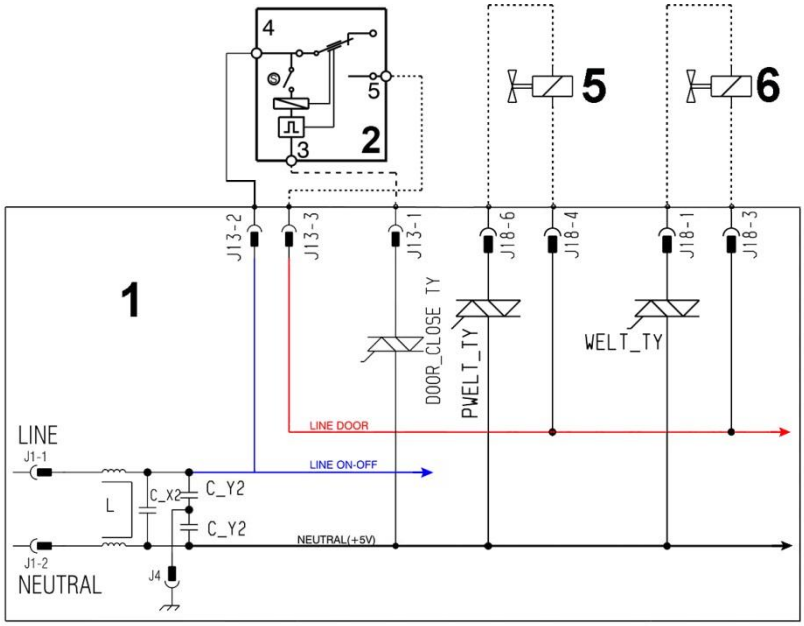
1. *Water inlet*
2. *Solenoid valve body*
3. *Filter or needle trap*
4. *Flow reducer*
5. *Coil*
6. *Spring*
7. *Moving core*
8. *Rubber*
1. *Membrane*
2. *Water outlet*



11.11.2. Operating principle

When idle, the core, pushed by a spring, keeps the central hole of the membrane closed and so the latter hermetically seals access to the water inlet duct. When the coil is powered, the core is attracted, releasing the central hole of the membrane. Consequently the valve opens.

1. *Main electronic circuit board*
2. *Door safety interlock*
5. *Pre-wash solenoid valve*
6. *Wash solenoid valve*



11.11.3. Mechanical jamming of the solenoid valve

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

11.11.4. Low water pressure

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

12. ALARM SUMMARY TABLE

Alarm	Description	Possible fault	Machine status/action	Reset
E00	No alarm			
E11	**Water fill difficulty during washing**	Tap closed or water pressure too low; Drain pipe improperly positioned; Water fill solenoid valve faulty; Leaks from water circuit on pressure switch; Pressure switch faulty; Wiring faulty; Main PCB faulty.	Cycle is paused with door locked	START/RESET
E13	**Water leaks**	Drain pipe improperly positioned; Water pressure too low Water fill solenoid valve faulty; Water circuit on pressure switch is leaking/clogged; Pressure switch faulty.	Cycle is paused with door locked	START/RESET
E21	**Drain difficulty during washing**	Drain pipe kinked/clogged/improperly positioned; Drain filter clogged/dirty; Wiring faulty; Pressure switch faulty; Drain pump rotor blocked; Drain pump faulty; Main PCB faulty.	Cycle is paused (after 2 attempts)	START ON/OFF RESET
E23	**Faulty triac for drain pump**	Wiring faulty; Drain pump faulty; Main PCB faulty.	Safety drain cycle - Cycle stops with door open.	RESET
E24	**Drain pump TRIAC "sensing" circuit faulty.**	Main circuit board faulty.	Safety drain cycle - Cycle stops with door unlocked.	RESET
E25	**Aqua Control "sensing" circuit faulty**	Main circuit board faulty.	Safety drain cycle - Cycle stops with door unlocked.	RESET
E31	**Electronic pressure switch circuit faulty**	Wiring; Electronic pressure switch; Main PCB;	Cycle stops with door locked	RESET
E32	**Calibration error of the electronic pressure switch**	Drain tube kinked/clogged/improperly positioned; Faulty solenoid; Drain filter clogged/dirty; Drain pump faulty; Leaks in the pressure switch hydraulic circuit; Pressure switch faulty; Wiring; Main PCB;	Cycle is paused	START/RESET
E35	**Overflow**	Water fill solenoid valve faulty; Leaks from water circuit on pressure switch; Wiring faulty; Pressure switch faulty; Main PCB faulty.	Cycle interrupted. Safety drain cycle. Drain pump continues to operate (5 min. on, then 5 min. off. etc.)	RESET
E38	**Internal pressure chamber is clogged (water level does not change for at least 30 sec. of drum rotation)**	Motor belt broken; Water circuit on pressure switch clogged.	Heating phase is skipped	RESET
E41	**Door open**	Check whether the door is closed properly; Wiring faulty; Door safety interlock faulty; Main circuit board faulty.	Cycle is paused	START/RESET
E42	**Problems with door lock**	Wiring faulty; Door safety interlock faulty; Electrical current leak between heating element and ground; Main PCB faulty.	Cycle is paused	START/RESET
E43	**Faulty triac supplying power to door delay system**	Wiring faulty; Door safety interlock faulty; Main circuit board faulty.	(Safety drain cycle) Cycle blocked	RESET
E44	**Faulty sensing by door delay system**	Main circuit board faulty.	(Safety drain cycle) Cycle blocked	RESET

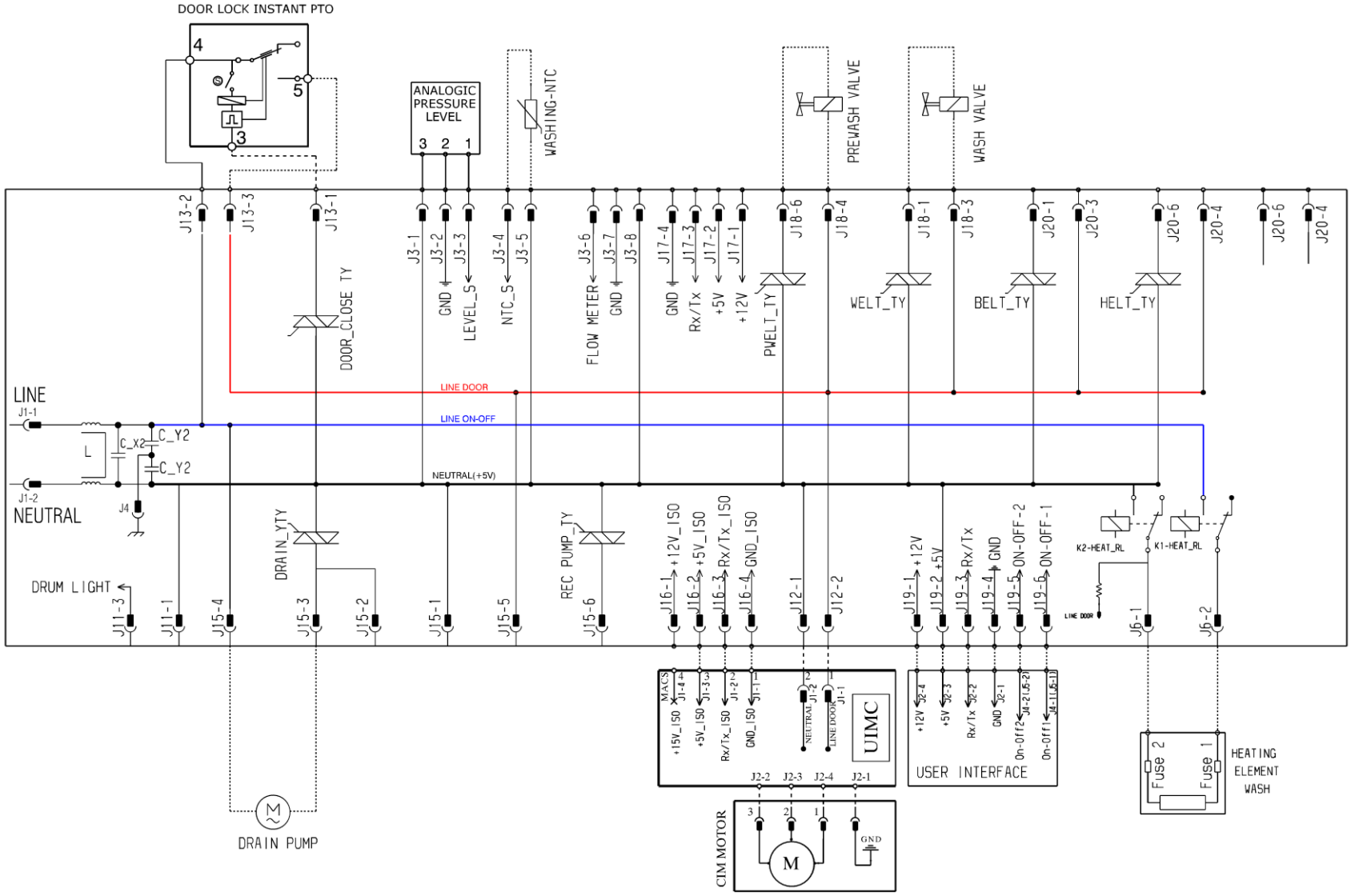
Alarm	Description	Possible fault	Machine status/action	Reset
E45	**Faulty sensing by door delay system triac**	Main circuit board faulty.	(Safety drain cycle) Cycle blocked	RESET
E51	**Motor power triac short-circuited**	Current leakage from motor or from wiring; Main PCB faulty;	Cycle stops with door open (after 5 attempts)	ON/OFF
E53	**Faulty sensing by motor triac**	Main circuit board faulty.	Cycle blocked	RESET
E54	**Motor relay contacts sticking**	Current leakage from motor or from wiring; Main PCB faulty;	Cycle blocked (after 5 attempts)	RESET
E57	**Inverter is drawing too much current (>15°)**	Wiring faulty on inverter for motor; Inverter PCB faulty; Motor faulty.	Cycle stops with door locked (after 5 attempts)	ON/OFF RESET
E58	**Inverter is drawing too much current (>4.5°)**	Motor malfunction (overload); Wiring faulty on inverter faulty; Motor faulty; Inverter PCB faulty	Cycle stops with door locked (after 5 attempts)	ON/OFF RESET
E59	**No rotation of the motor**	Wiring faulty on inverter for motor; Inverter PCB faulty; Motor faulty;	Cycle stops with door locked (after 5 attempts)	ON/OFF RESET
E5A	**Overheating on heat dissipator for Inverter**	Overheating caused by continuous operation or ambient conditions (let appliance cool down); Inverter PCB faulty. NTC open (on the Inverter PCB)	Cycle stops with door locked (after 5 attempts)	ON/OFF RESET
E5C	**Input voltage is too high**	Input voltage is too high (measure the grid voltage); Inverter PCB faulty	Cycle stops with door locked (after 5 attempts)	ON/OFF RESET
E5d	**Data transfer error between Inverter and main PCB**	Line interference; Wiring faulty; Faulty main PCB or inverter PCB.	----------	ON/OFF RESET
E5E	**Communication error between Inverter and main PCB**	Faulty wiring between main PCB and inverter PCB; Inverter PCB faulty; Main PCB faulty;	Cycle blocked (after 5 attempts)	ON/OFF RESET
E5F	**Inverter PCB fails to start the motor**	Wiring faulty; Inverter PCB faulty; Main PCB faulty;	Cycle stops with door open (after 5 attempts)	ON/OFF RESET
E5H	**Input voltage is lower than 175V**	Wiring faulty; Inverter PCB faulty;	Cycle stops with door locked (after 5 attempts)	ON/OFF RESET
E61	**Insufficient heating during washing**	Wiring faulty; NTC probe for wash cycle faulty; Heating element faulty; Main PCB faulty.	The heating phase is skipped	START/RESET
E62	**Overheating during washing (temperature higher than 88°C for more than 5 min.)**	Wiring faulty; NTC probe for wash cycle faulty; Heating element faulty; Main PCB faulty.	Safety drain cycle Cycle stops with door open	RESET
E66	**Heating element power relay faulty (inconsistency between sensing and relay status)**	Earth leakage between heating element and earth. Main PCB faulty;	Safety water fill Cycle stops with door closed.	ON/OFF RESET
E68	**Earth leakage**	Earth leakage between heating element and earth.	The heating phase is skipped	START/RESET
E69	**Heating element interrupted**	Wiring faulty; Heating element for washing interrupted (thermal fuse open); Main PCB faulty.	----------	START ON/OFF RESET
E6A	**Heating relay sensing faulty**	Main circuit board faulty.	Cycle stops with door locked	RESET
E6H	**Heating element power relay faulty (inconsistency between sensing and relay status)**	Wiring faulty; Earth leakage between heating element and earth; Main PCB faulty.	Safety water fill Cycle stops with door closed.	ON/OFF RESET

Alarm	Description	Possible fault	Machine status/action	Reset
E71	**NTC probe for wash cycle faulty (short-circuited or open)**	Wiring faulty; NTC probe for wash cycle faulty; Main circuit board faulty.	The heating phase is skipped	START/RESET
E74	**NTC probe for wash cycle improperly positioned**	Wiring faulty; NTC probe for wash cycle improperly positioned; NTC probe faulty; Main PCB faulty.	The heating phase is skipped	RESET
E87	**Display board microprocessor faulty**	If this continues, replace the display board	No action to be taken	START ON/OFF RESET
E91	**Communication error between main PCB and display**	Wiring faulty; Control/display circuit board faulty, Inverter Board faulty; Main circuit board faulty.	----------	RESET
E92	**Communication inconsistency between main PCB and display (incompatible versions)**	Incorrect control/display PCB Incorrect PCB (does not correspond to the model).	Cycle blocked	ON/OFF
E93	**Appliance configuration error**	Main PCB faulty (incorrect configuration data)	Cycle blocked	ON/OFF
E94	**Incorrect configuration of washing cycle**	Main PCB faulty (incorrect configuration data)	Cycle blocked	ON/OFF
E97	**Inconsistency between programme selector and cycle configuration**	Main PCB faulty (incorrect configuration data).	Cycle blocked	RESET
E98	**Communication error between main PCB - Inverter**	Incompatibility between main PCB and Inverter	Cycle blocked	ON/OFF
E9C	**Display board configuration error**	Display board faulty	----------	START ON/OFF RESET
E9E	**Display board sensor/touch key faulty**	Display board faulty	----------	ON/OFF
EC1	**Electronically controlled valve blocked with operating flowmeter**	Faulty wiring; Faulty/blocked solenoid, PCB faulty,	Cycle stops with door locked Drain pump continues to operate (5 min. on, then 5 min. off. etc.)	RESET
EC4	**AGS current sensor faulty.**	Main board faulty.	Spin speed reduced to safety speed of 150 rpm	RESET
EF1	**Drain filter clogged (drain phase too long)**	Drain filter clogged/dirty. Drain hose blocked/kinked/too high.	Warning displayed at the end of cycle.	START/RESET
EF2	**Overdosing of detergent (too much foam during drain phases)**	Excessive detergent dosing; Drain hose kinked/blocked; Drain filter clogged/dirty.	Warning displayed after 5 attempts or by the specific LED.	RESET
EF3	**Aqua control system intervention**	Water leaks onto base frame; Aqua control system faulty; Drain pump coil overheating/broken.	Appliance drain	ON/OFF RESET
EF4	**Water fill pressure too low, no signal from flowmeter and electronically controlled valve is open**	Tap closed, water fill pressure too low	----------	RESET

Alarm	Description	Possible fault	Machine status/action	Reset
EF5	**Unbalanced load**	Final spin phases skipped.	----------	START/RESET
EF6	**Reset**	If it continues, replace the main board.	No action to be taken	----------
EH1	**Appliance power supply frequency out of limits**	Problem with the power supply network (incorrect/disturbed); Main PCB faulty.	Wait for nominal frequency conditions	ON/OFF
EH2	**Supply voltage too high**	Problem with the power supply network (incorrect/disturbed); Main PCB faulty.	Wait for nominal voltage conditions.	ON/OFF
EH3	**Supply voltage too low**	Problem with the power supply network (incorrect/disturbed); Main PCB faulty.	Wait for nominal voltage conditions.	ON/OFF
EHE	**Inconsistency between FCV relay (in the main board) and safety "sensing" circuit**	Faulty wiring; Main circuit board faulty	Safety drain cycle Cycle stops with door open	RESET
EHF	**Safety sensing circuit faulty (wrong input voltage to microprocessor)**	Main circuit board faulty.	Safety drain cycle Cycle stops with door open	RESET

13. DIAGRAMS

13.1. Operating Circuit Diagram EWX11831 (with three-phase motor)

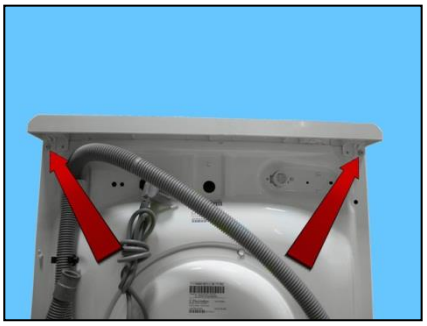


14. ACCESS

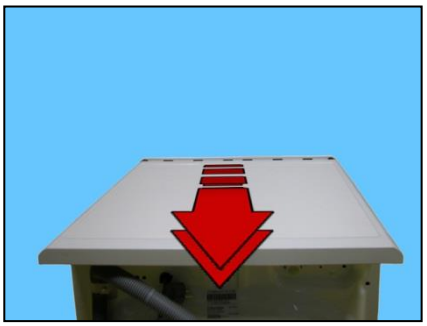
Make sure you wear gloves, because parts of the cabinet are sharp

14.1. Worktop

Remove the screws that secure it to the back panel.

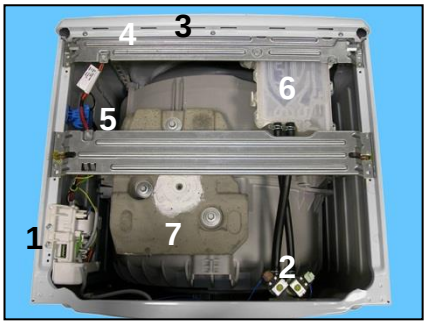


Pull it out from the back.



14.2. From the worktop, you can access

1 Main board
2. Solenoid valve
3. Display board/light diffuser/buttons/buttons springs assembly
4. Control panel
5. Analogue pressure switch
6. Detergent dispenser
7. Upper counterweight

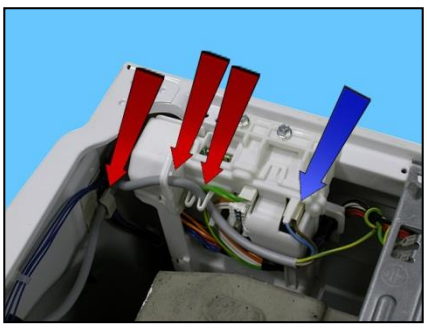


14.2.1. Main board

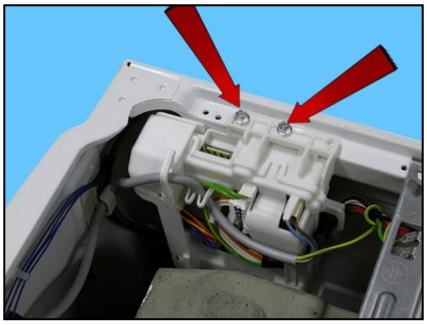
To service the main board, use kit a code 4055063-95/4.

Remove the worktop (see relevant paragraph).

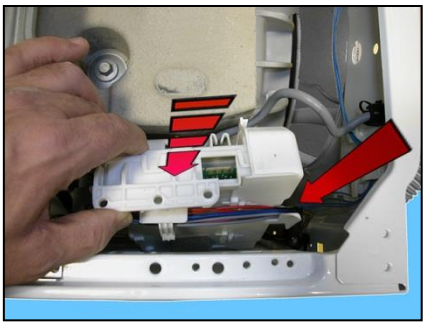
Remove the power cable from the hooks that hold it close to the board (indicated by the red arrows).
Remove the connector (indicated by the blue arrow).



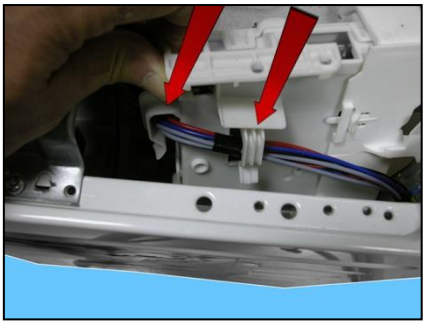
Unfasten the two screws securing it to the cabinet.



Pull the wiring out of the latch (indicated by the red arrow) while lowering the board.



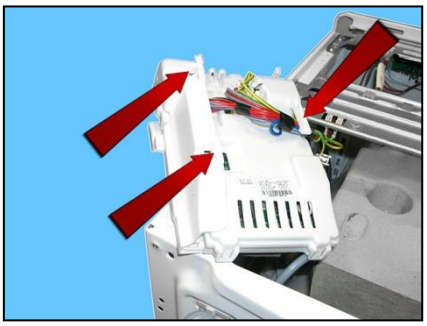
Raise the board so that the wiring is removed from the other two hooks (indicated by the arrows).



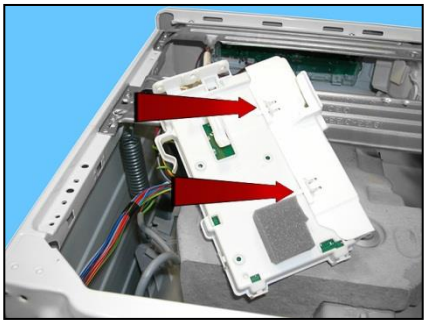
Remove the wiring from the hook.

Release the two hooks securing the connectors protection.

on one side

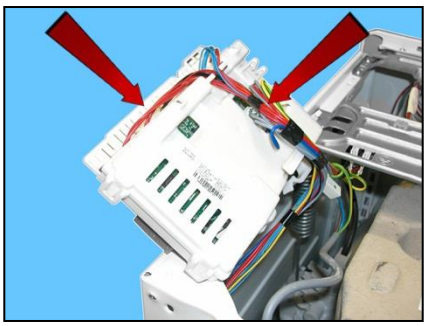


and on the other.



Remember to use the anti-sliding kit.

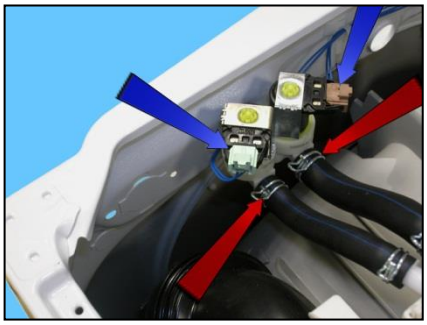
Remove the connectors.



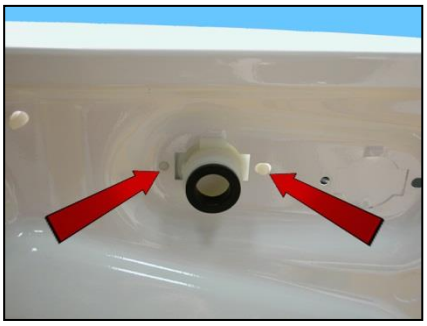
When reassembling, repeat these steps in the reverse order.

14.2.2. Solenoid valve

Remove the worktop (see relevant paragraph).



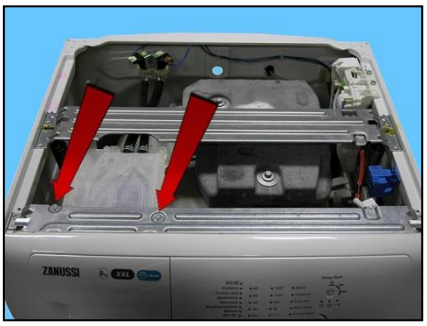
Detach the connectors indicated by the blue arrows.
Pull out the pipes indicated by the red arrows, which connect the solenoid valve to the detergent dispenser.



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 to remove it.

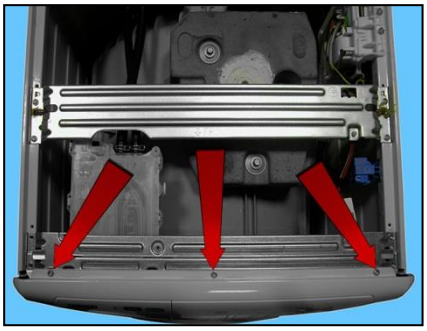
14.2.3. Display board assembly

Remove the worktop (see relevant paragraph).



Remove the two screws securing the detergent drawer to the control crosspiece.

Loosen the screws which secure the control crosspiece to the cabinet.

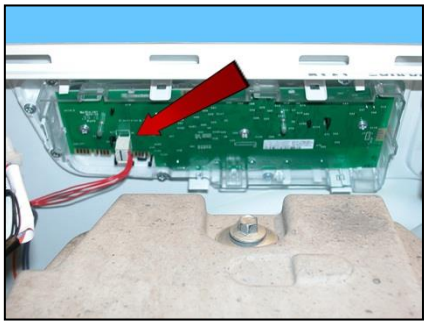


Loosen the screws which secure the front panel to the control crosspiece.

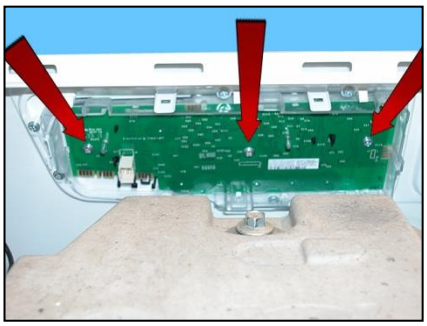
Remove the clamp that secures the wiring.

Remove the crosspiece.

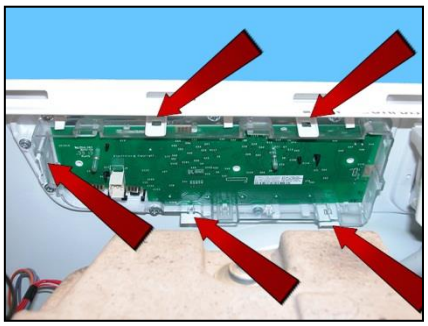
Disconnect the connector.



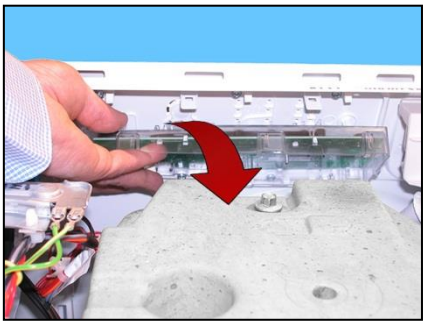
Using a small cross-head screwdriver, loosen the three screws (shown by the arrows) securing the display board assembly to the control panel.



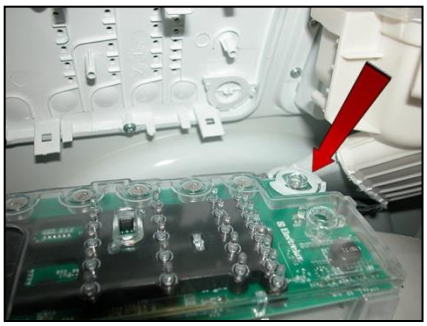
Delicately release the hooks which secure the display board to the control panel, taking care not to break them.
Start with the top ones and work anti-clockwise, continuing with the side one and lastly the bottom ones.



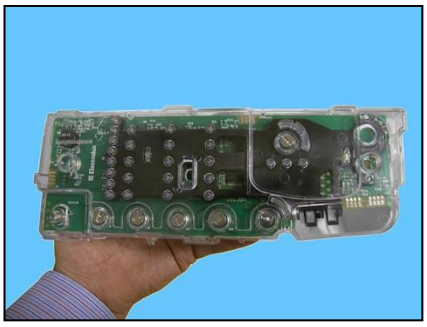
Turn the display board assembly to remove it.



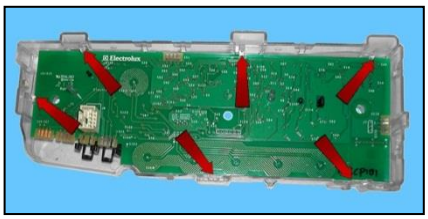
Make sure the ON/OFF button spring (shown by the arrow) does not fall into the appliance.



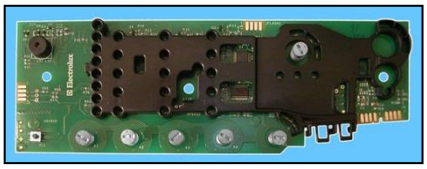
Display board assembly.



To remove the display board from its protection, pull it out of the hooks shown by the arrows in the figure.



Display board.



14.2.4. Control panel

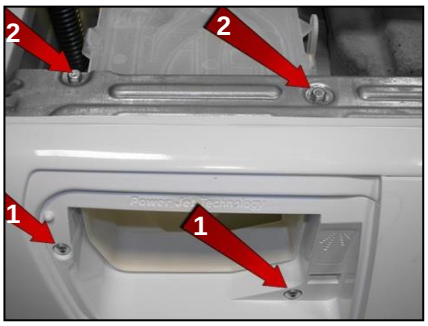
Remove the worktop (see relevant paragraph).

Take out the detergent dispenser while at the same time pressing on its sides to pull it out (otherwise pull sharply).

Unfasten the two screws securing it to the control panel (1).
Unfasten the two screws securing it to the crosspiece (2).

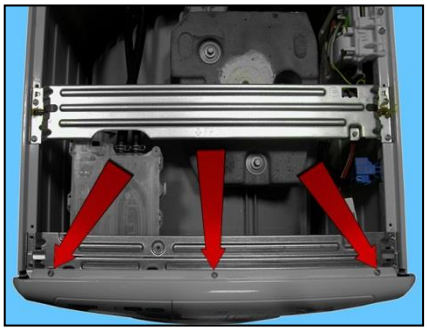
When reassembling, repeat these steps in the reverse order.
Tighten the screws that secure it to the control panel at a torque of 2.5 Nm.

Move the detergent dispenser towards the inside of the appliance.



Loosen the screws which secure the control crosspiece to the cabinet.

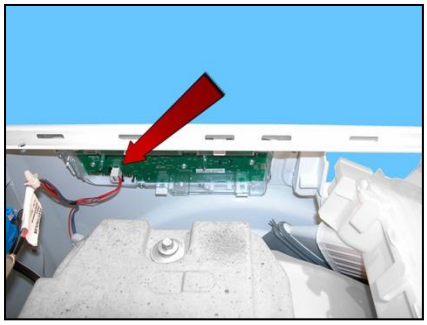
Loosen the screws which secure the front panel to the control crosspiece.



Remove the clamp that secures the wiring.

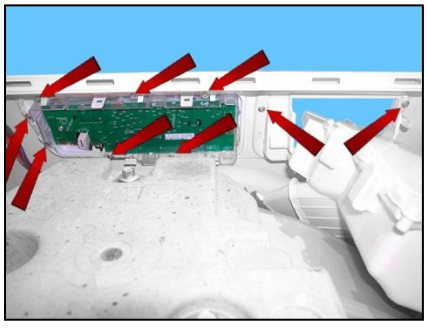
Remove the crosspiece.

Disconnect the connector.

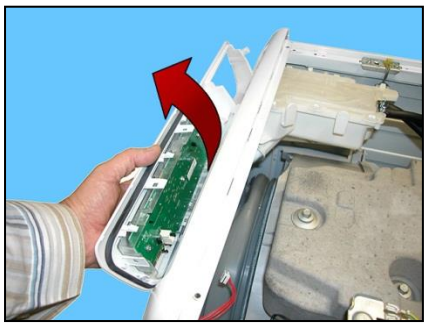


Using a small cross-head screwdriver, loosen the screws (shown by the arrows) securing the control panel to the front panel.

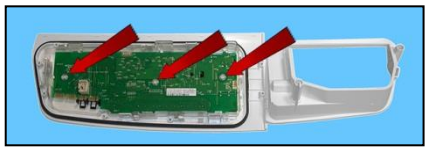
Release the hooks that secure the control panel to the front panel, which are situated beside the screw seats (except for the screws beside the detergent dispenser).



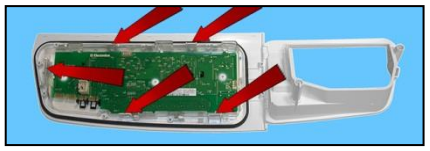
Remove the control panel, pull the connector out of the display board assembly.



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



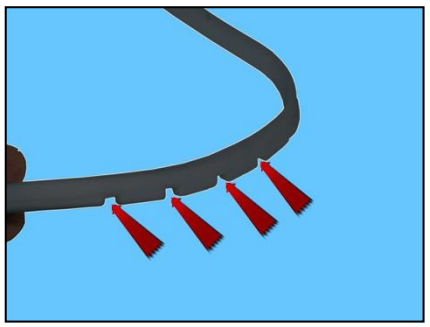
Release the hooks securing the display board assembly to the control panel.



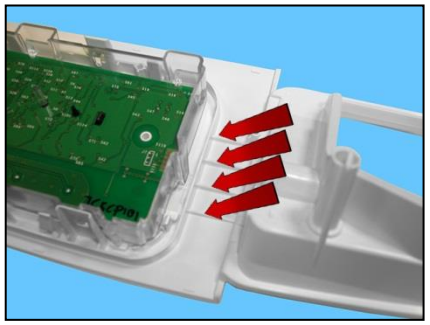
On the control panel, a small wall has been created around the display board seat, which is surrounded by a seal, which prevents any water seepage from coming into contact with the display board itself.

When reassembling:

Place the four reference marks featured in the seal (shown by the arrows).

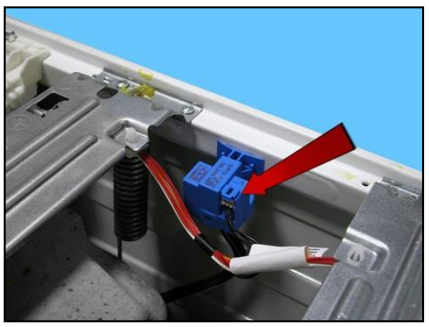


Against the four reference marks featured on the control panel.

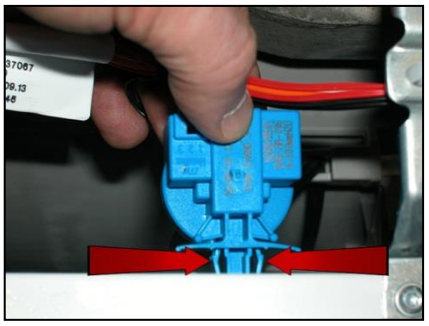


14.2.5. Analogue pressure switch

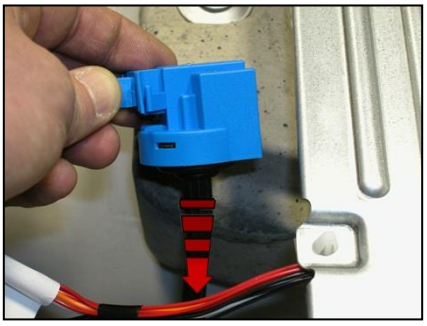
Remove the worktop (see relevant paragraph).



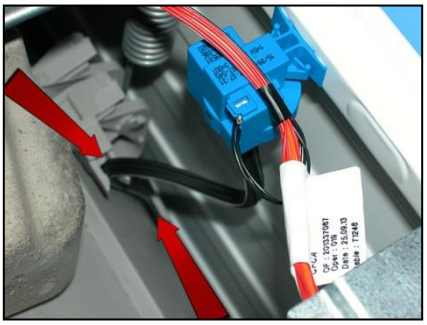
Remove the connector (red arrow).



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



Pull out the small tube which connects it to the pressure chamber.



When reassembling the pressure switch, repeat these steps in the reverse order and arrange the pipe as shown in the figure.
Make sure it does not touch the counterweight and position it in the purpose-provided seats incorporated into the welded tub (indicated by the arrows). To prevent the pipe from coming into contact with the unit while the appliance is in operation.

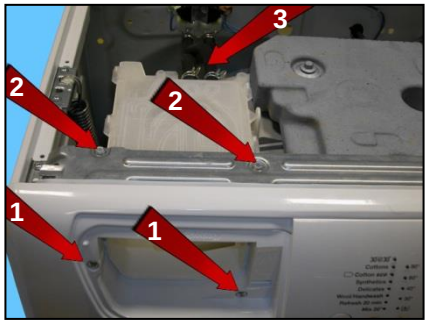
14.2.6. Detergent dispenser

Remove the worktop (see relevant paragraph).

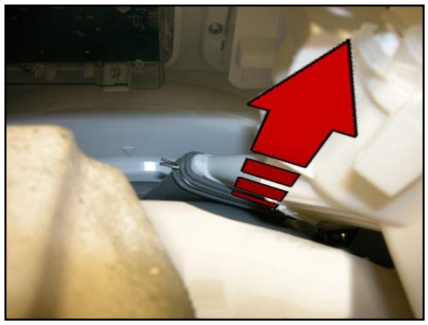
Take out the detergent dispenser while at the same time pressing on its sides to pull it out.

Unfasten the two screws securing it to the control panel (1).
Unfasten the two screws securing it to the crosspiece (2).
Remove the pipes that connect it to the solenoid valve (3).

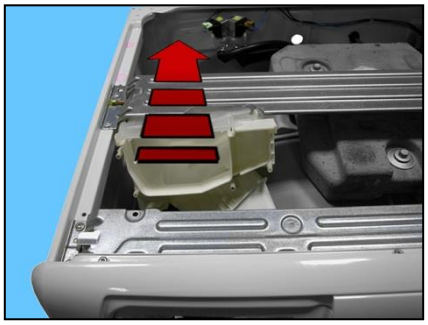
When reassembling, repeat the same steps in the reverse order and tighten the screws that secure it to the control panel at a torque of 2.5 Nm.



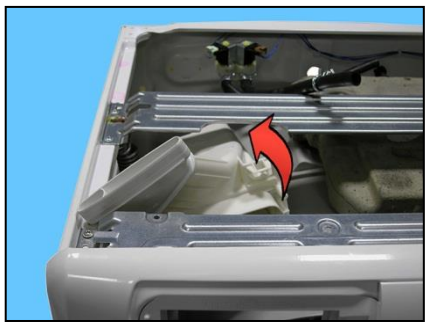
Pull out the detergent dispenser from the bellows seal detergent inlet pocket.



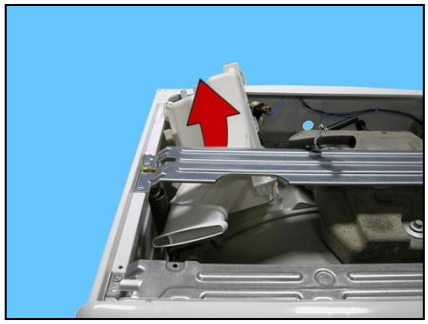
Move the detergent dispenser towards the rear as shown in the figure.



Lower the washing unit, turn the detergent dispenser anti-clockwise and position it as shown in the figure.

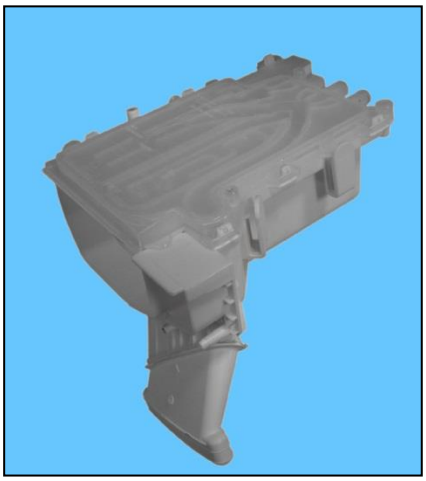


Keeping the washing unit lowered, pull out the detergent dispenser towards the rear of the appliance (see figure).



Again, keeping the washing unit lowered, pull out the detergent dispenser while turning it around the central crosspiece.

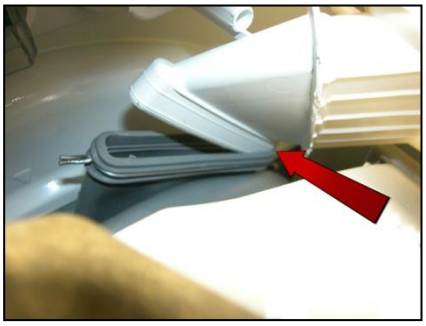
Detergent dispenser



When reassembling, repeat the same steps in the reverse order and tighten the screws that secure it to the control panel at a torque of 2.5 Nm.

If the clamp was removed, reposition it in its seat (shown by the arrow) in the bellow seal detergent inlet pocket.

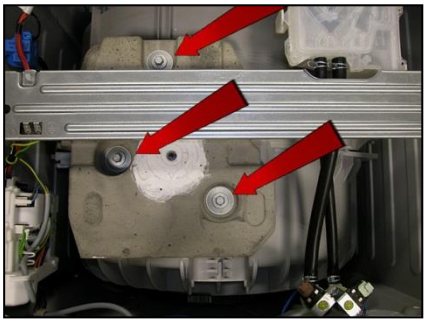
Lubricate the outside of the detergent dispenser.
Lubricate the inside of the bellow seal detergent inlet pocket.



First task to perform:
Gently insert the part of the detergent dispenser indicated by the arrow into the detergent inlet pocket of the bellows seal.

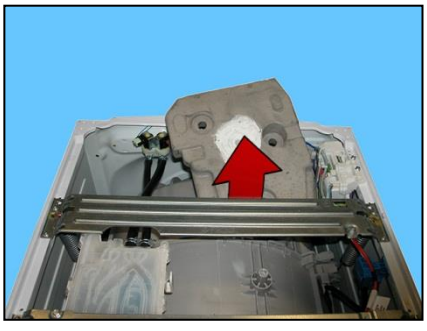
Second task:
With one hand inside the appliance door, hold the bellow seal detergent inlet pocket still and gently insert the rest of the detergent dispenser.

14.2.7. Upper counterweight



Remove the worktop (see relevant paragraph).

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



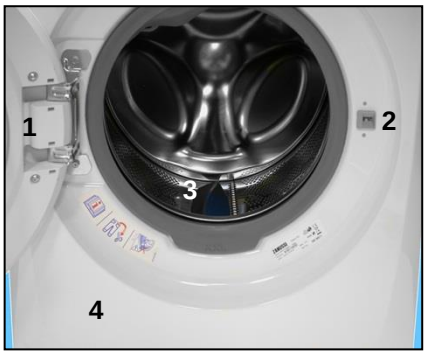
Lower the washing unit.

Pull out the counterweight.

When reassembling:
If the tub assembly is new, tighten the screws at a torque of 20 Nm.
If the tub assembly is new, tighten the screws at a torque of 15 Nm.

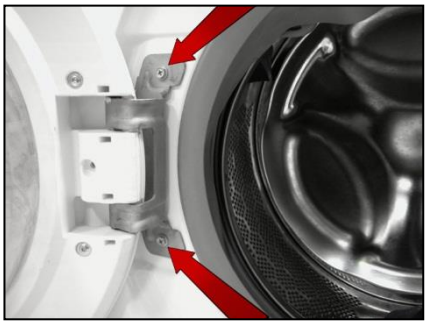
14.3. Accessing the front part

1. Door and Door Hinge
2. Door safety interlock
3. Blade
4. Front panel

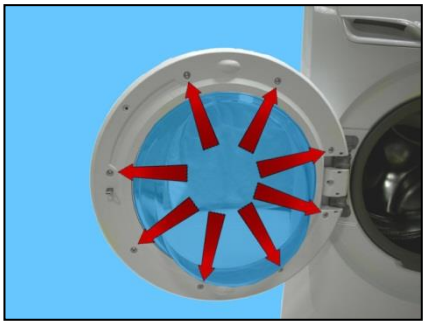


14.3.1. Door hinge – Door

To replace the hinge, loosen the screws securing it to the cabinet.



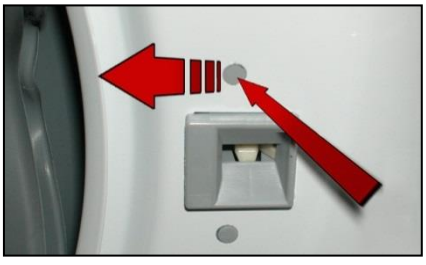
To access the door, loosen the screws joining the two front and rear door frames together.



14.3.2. Door safety interlock

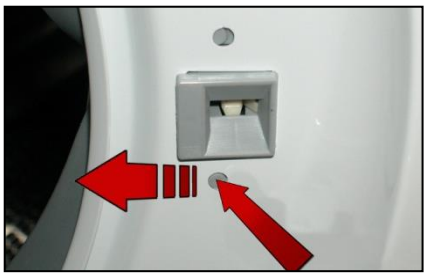
Remove the iron ring securing the bellow seal to the unit.
Remove the part of the bellow seal concerned from the unit.

Take care not to scratch the cabinet.



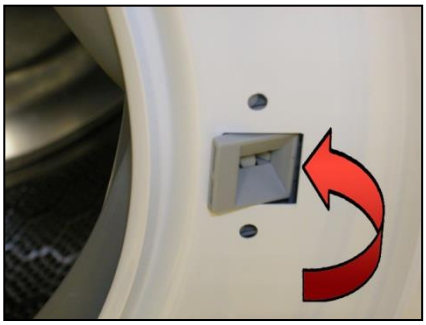
Push the pin at the top inwards and at the same time move the door safety device towards the left.

Holding the top still.

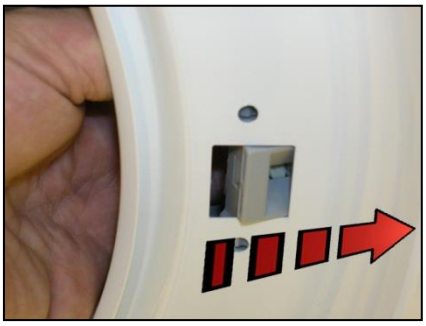


Push the pin at the bottom inwards and at the same time move the door safety device towards the left.

Turn it towards the inside (right-hand side of the flange).

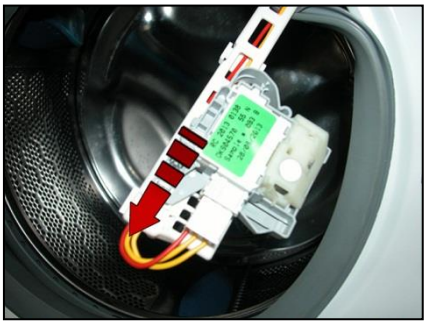


Pull it out and remove it.

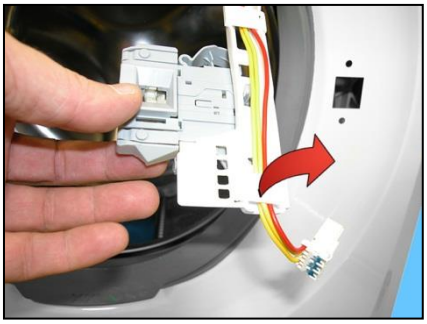


Remove it.

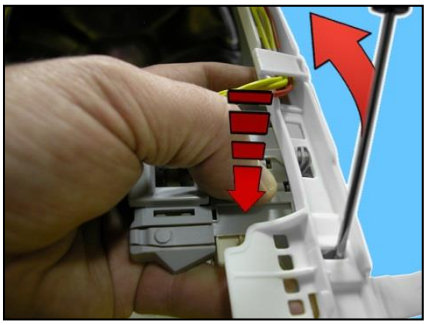
Pull a little of the wiring out of the protection and remove the connector.



Release the hook, remove the wiring and move it.



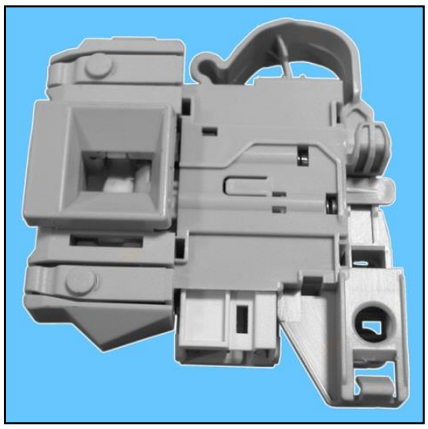
Insert a flat-tip screwdriver into the slot near the hook.
Tilt it in the direction of the arrow so as to release it from the latch, while at the same time pushing the micro-switch with your thumb in the direction shown by the arrow.



After releasing it from the latch which secured it to the protection.

Move it in the direction shown by the dotted arrow and turn it in order to remove it.

Safety device.



To reassemble the door safety interlock, repeat the same tasks in reverse order.

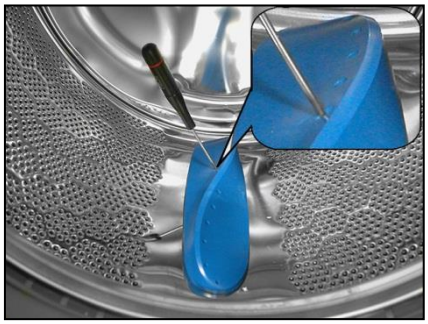
After inserting the door device in its seat, make sure the flange is positioned properly on the outside as shown by the arrows.

14.3.3. Blade

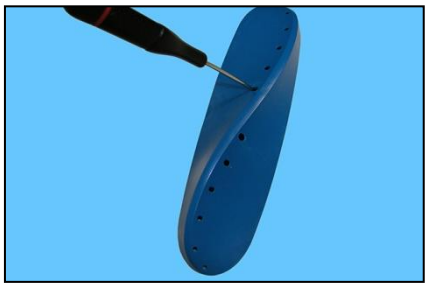
The blade is secured to the drum with slides and secured with blades carved into the drum.

The blades are secured in place by six slides (as can be seen in the picture) which fit into purpose-provided runners in the drum strip.

To release the blade from the drum:

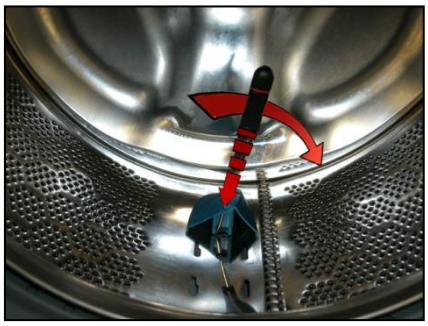


Insert a flat-tip screwdriver into the hole (as shown in the figure).



The hole is the first in the second series towards the rear of the blade.

With the screwdriver tilted towards the left.
Push the right-hand tab down.

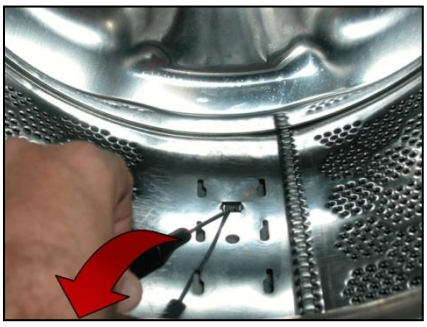


With the screwdriver tilted towards the right.
Push the left-hand tab downwards.

When the two tabs are down.
Push the blade towards the front of the drum.

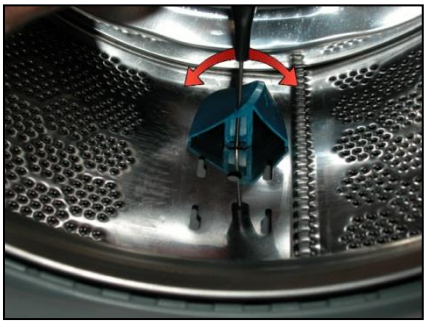
Reassembling the blade onto the drum.

Before securing the new blade.
Insert a flat-tip screwdriver beneath the lock tabs and raise them a little.

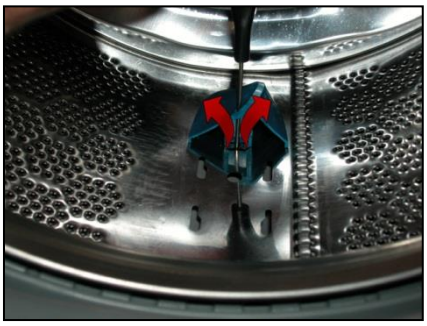


Position the new blade inside the drum guides.
Push it towards the back.

Insert the screwdriver (in the fourth slot) at a right angle to the blade, so as to position it at the centre of the two lock tabs.
Move to the left and right.



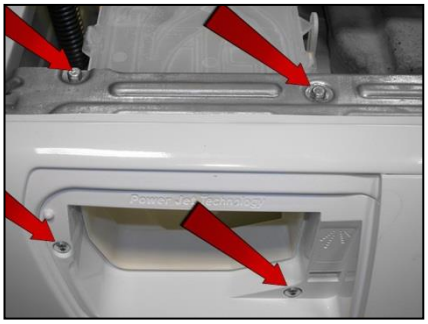
To move the tabs up (as shown by the arrows) and insert them inside the blade, securing it to the drum (as shown in the figure).



14.3.4. Front panel

Remove the worktop (see relevant paragraph).
Remove the iron ring, remove the door bellow seal from the front panel.
Release the door safety device (see relevant paragraph).

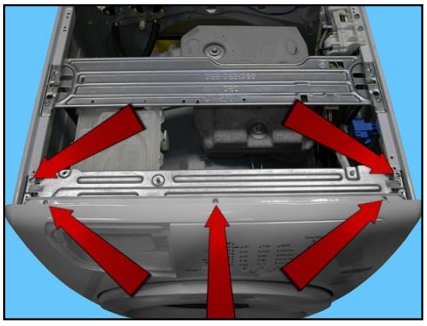
Tilt the washing machine towards the back.
Unfasten the three screws securing the front panel at the bottom.
Raise the lower part a little without removing it entirely.



Extract the detergent dispenser.

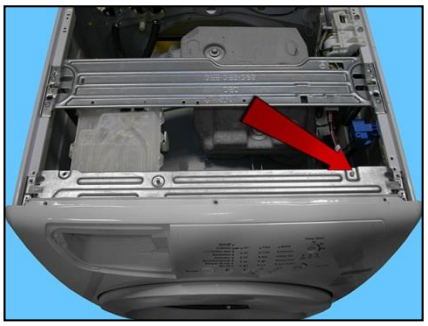
Remove the two screws securing the detergent dispenser to the control panel.
Loosen the screws which secure the dispenser to the crosspiece.

The tightening torques for these screws have already been covered earlier.



Loosen the screws which secure the front panel to the crosspiece.
Remove the four screws which secure the crosspiece to the rear cabinet.

The tightening torques for these screws have already been covered earlier.



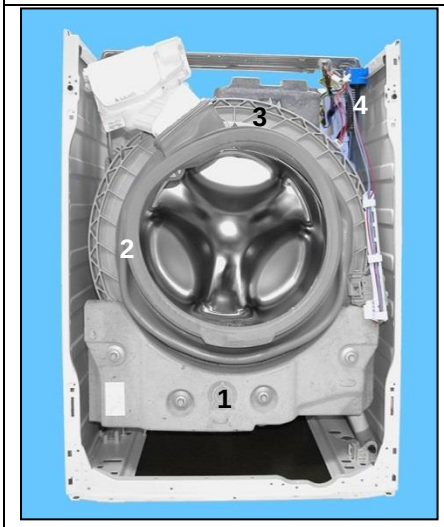
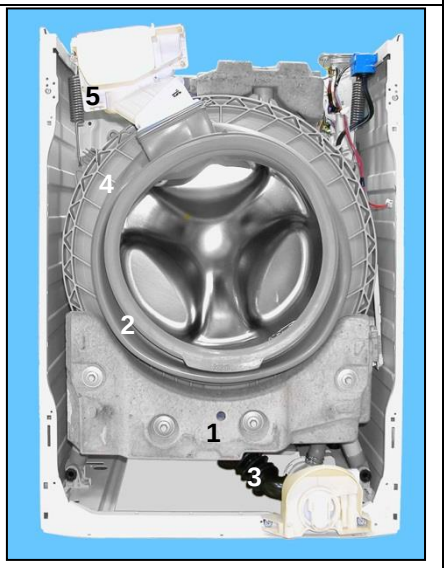
Remove the clamp that secures the wiring.

Remove the wiring connector connecting the display board.

Remove the crosspiece.

To remove the front panel, first lift it up and then pull it out of its supports.
Take care not to warp the screw seats, because reassembly and front panel/side panel alignment will be difficult if they are warped.

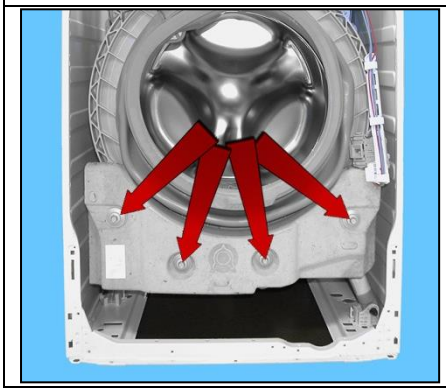
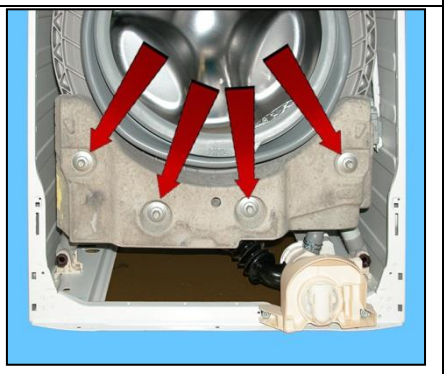
14.4. From the front panel, you can access

Drain filter not removable from the outside	Drain filter removable from the outside
	
1. The front counterweight 2. Bellow seal 3. The welded tub assembly 4. The tub suspension springs	1. The front counterweight 2. Bellow seal 3. The drain water circuit 4. The welded tub assembly 5. The tub suspension springs

14.4.1. Front counterweight

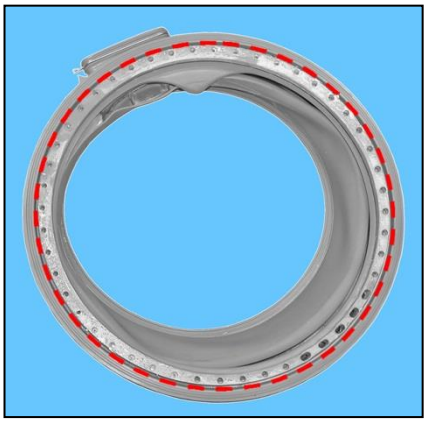
Remove the worktop (see relevant paragraph).
Remove the iron ring securing the bellow seal to the front panel.
Release the door safety device (see relevant paragraph).
Remove the front panel (see relevant paragraph).
Loosen the four screws securing the front counterweight to the welded tub assembly.

When reassembling, repeat these steps in the reverse order. Tighten the screws at a torque of 20 Nm if the unit is new. If the tub assembly is new, tighten the screws at a torque of 15 Nm.

14.4.2. Bellow seal

Remove the worktop (see relevant paragraph).
Remove the iron ring securing the bellow seal to the front panel.
Release the door safety device (see relevant paragraph).
Remove the front panel (see relevant paragraph).
Pull out the detergent dispenser from the bellow seal detergent inlet pocket.
Take the seal out of the welded tub.
(take care as the seal is held in position by a snap ring)

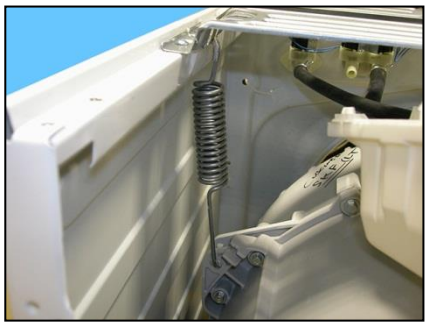


When reassembling the seal:
Use liquid soap to lubricate the part where the tub is inserted (indicated by the red circle).
Make sure the references are aligned.
Reassemble the snap ring between the door bellow seal and the tub.
Reassemble the iron ring between the door bellow seal and the cabinet.

14.4.3. Welded tub assembly

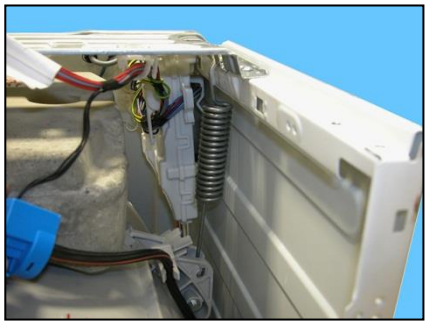
Remove the worktop (see relevant paragraph).
Remove the front panel (see relevant paragraph).
Remove the detergent tray (see relevant paragraph).
Remove the upper counterweight (see relevant paragraph).
Remove the front counterweight (see relevant paragraph).
Remove the back panel (see relevant paragraph).
To remove the washing unit assembly, disconnect:
All the tub pipes, the wiring connectors that connect the heating element, the NTC probe, remove the belt and the motor (to lighten the tub).
Lay the appliance on its back (making sure you place a polystyrene or cardboard layer on the floor to prevent damaging the cabinet).
Take the tub out of the washing machine.
When reassembling, repeat these steps in the reverse order.

14.4.4. Tub suspension springs



- Left spring

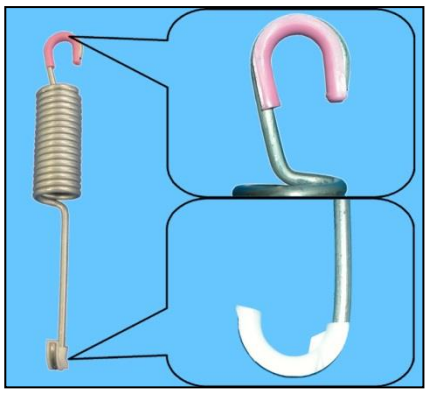
Attach the spring as shown in the figure: the shortest leg faces towards the side, whereas the longest leg faces towards the welded tub.



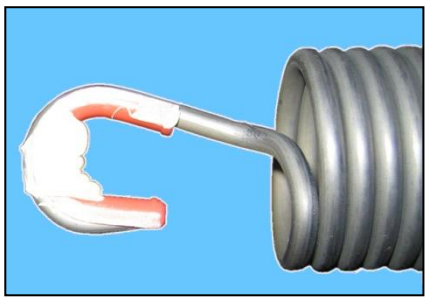
- Right spring

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

When reattaching the springs (after repair work which required their removal), make sure that the bushings shown in the figure are featured on both ends (the colour of the bushings in the photos below may vary).
Pay attention to the differences between the bushings (see enlarged details).
Spare bushings are available, under the following codes:



Upper bushing Code 405 50 62-51/9
Lower bushing Code 405 50 62-52/7



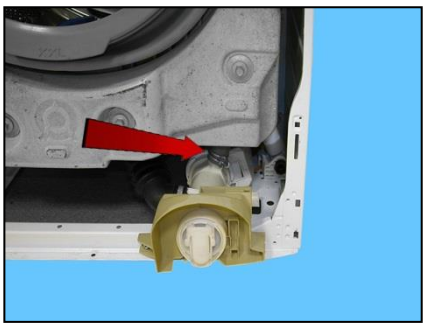
Apply some grease on either end of the spring. Use grease Code 5026 24 16-00/6

14.4.5. Drain water circuit - For appliances with drain filter removable from the outside

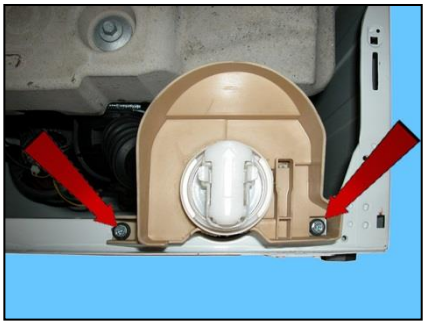
14.4.5.1. Filter body

Remove the worktop (see relevant paragraph).
Remove the iron ring securing the bellow seal to the front panel.
Release the door safety device (see relevant paragraph).
Remove the front panel (see relevant paragraph).

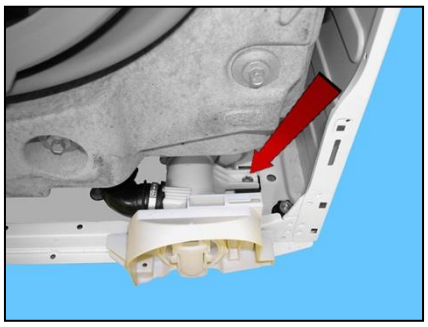
Pull out the main drain pipe



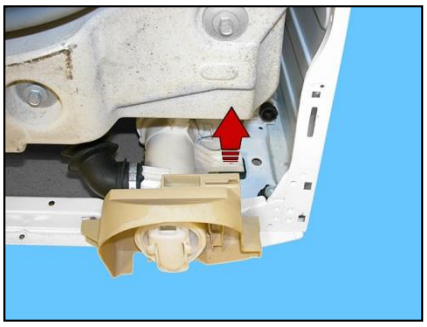
Loosen the screws securing it to the front crossbar.



Loosen the screw fixing the support to the side crosspiece

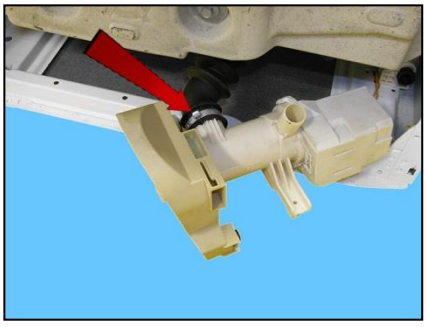


Lift the filter body to extract the support inserted on the side crossbar.



Break/widen the clamp
When reassembling, make sure the references are positioned correctly.

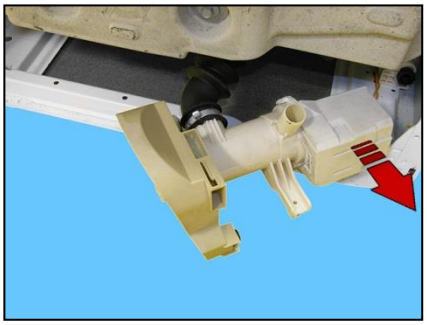
The size of the clamp to use is 40.5 mm.



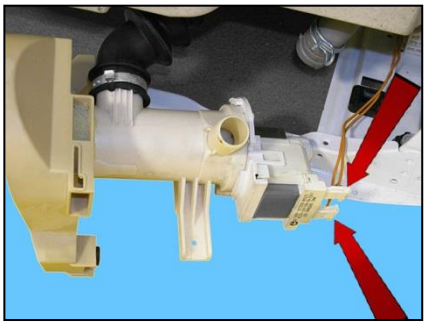
14.4.5.2. Drain pump

Remove the worktop (see relevant paragraph).
Remove the iron ring securing the bellow seal to the front panel.
Release the door safety device (see relevant paragraph).
Remove the front panel (see relevant paragraph).
Remove the filter body

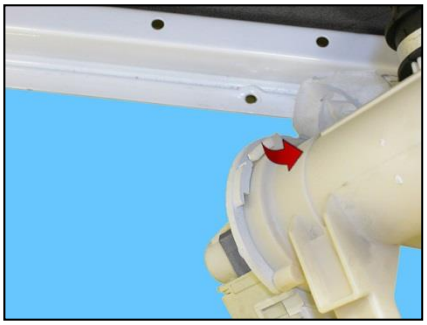
Remove the pump protection



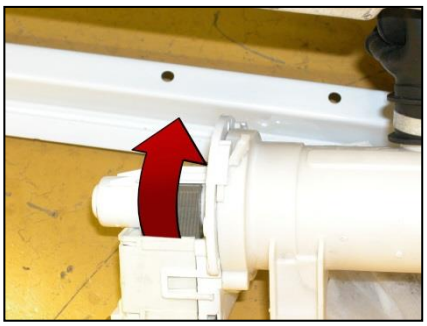
Remove the connectors



Using a pair of pliers, raise the anchor tab to release the pump

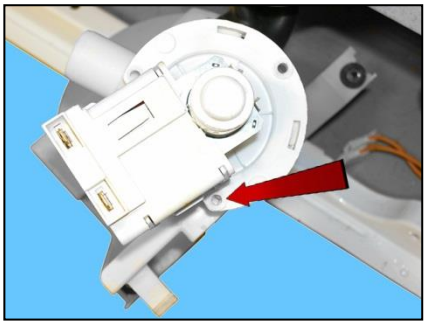


Turn and pull out the pump



If the lock catch securing the pump to the filter body breaks.
Secure the pump to the filter body, securing it in place using a screw, screwing the latter in the slot shown by the arrow.

Size of the screw 3.5 x 19 Code 5024 79 51- 00/2



14.5. Accessing the rear part

Make sure you wear gloves, because parts of the cabinet are sharp

14.5.1. Back panel

Loosen the screws that fix it to the cabinet.

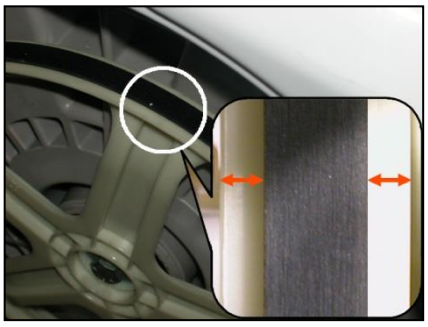
Do not fully unscrew the screw marked with the number 1.

14.6. From the back panel, you can access

1. Belt
2. Plastic pulley (∅ 273 mm)
3. Motor
4. Resistance
5. UIMC
6. Drainage pump
7. Fluff filter

14.6.1. 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 (∅ 273 mm) as shown in the figure.

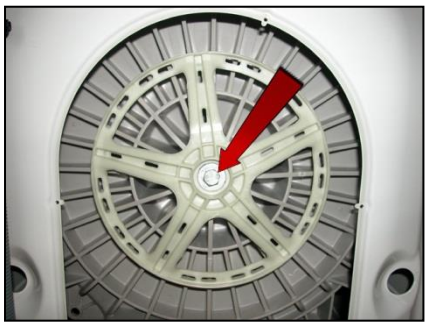
Turning the pulley, check that the belt positions itself and remains in the central part of the pulley.

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

14.6.2. Plastic pulley (∅ 273 mm)

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.

When reassembling, repeat these steps in the reverse order and tighten the screw at a torque of 60 Nm.

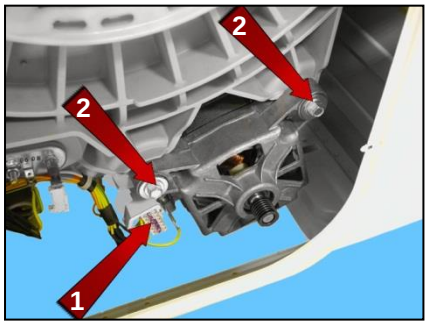


14.6.3. Motor

Remove the back panel (see relevant chapter).
Remove the belt (see relevant chapter).
Disconnect the power supply connector (1) and the earth faston (beware as it is fitted with an anti-sliding stop).
Loosen the two front fastening screws (2) as there are no rear ones.

If the clamp securing the wiring to the motor breaks, replace it with a new one.

When reassembling, repeat these steps in the reverse order and tighten the screws at a torque of 11.5 Nm.

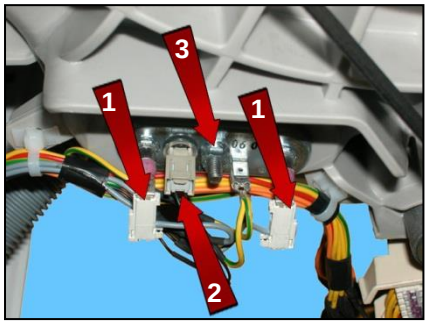


14.6.4. Resistance

Remove the back panel (see relevant chapter).

Disconnect the connectors of the heating element (1) and NTC probe (2).
Loosen the nut (3) and pull it out.
Disconnect the earth faston (beware as it is fitted with an anti-sliding stop)

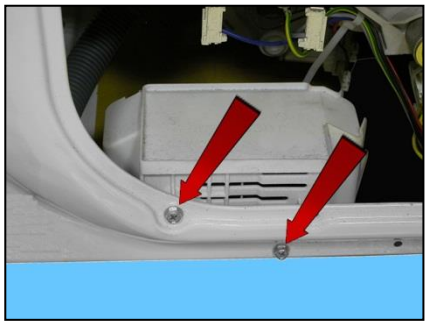
When reassembling, repeat these steps in the reverse order and tighten the screws at a torque of 4 Nm.



14.6.5. UIMC

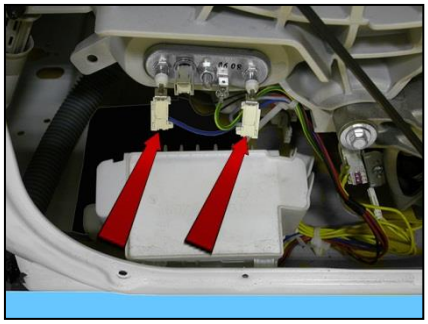
Remove the back panel (see relevant chapter).

Loosen the two screws that fix it to the rear cabinet.

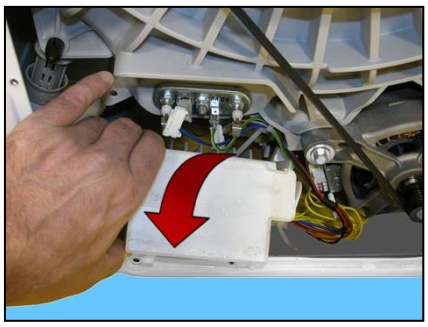


Remove the clamp (shown by the arrow) from the crosspiece, taking care not to break it.

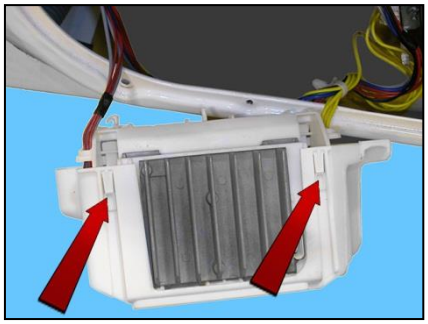
Remove the heating element connectors.



Pushing the washing unit towards the inside of the appliance remove the UIMC.

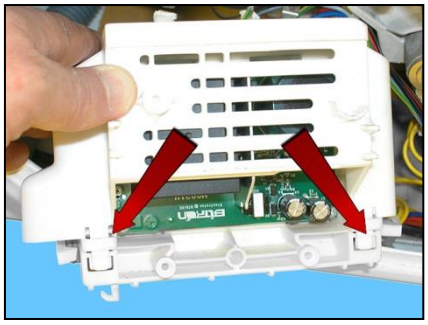


Release the two hooks securing the connectors protection on one side

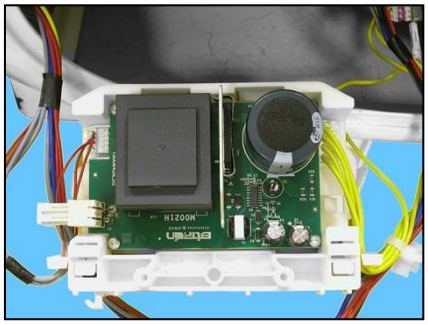


and on the other.

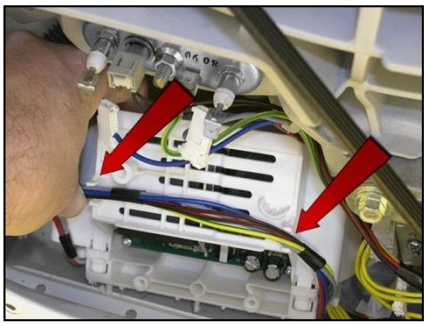
Remove the connectors protection.



Remove the connectors.



When reassembling, repeat these steps in the reverse order.



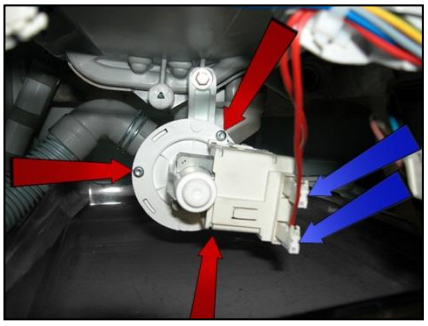
Making sure the wiring is positioned inside the UIMC runners to avoid damaging it.

14.6.6. Drainage pump

Empty the drain circuit

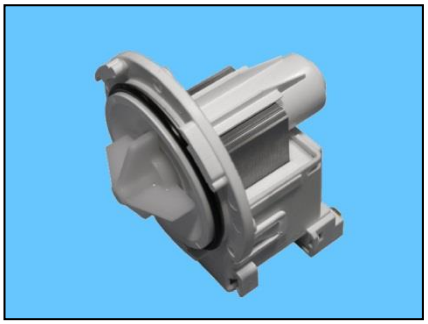
Remove the back panel (see relevant chapter).
Remove the UIMC (see relevant chapter).

Place cloths or a receptacle under the pump.

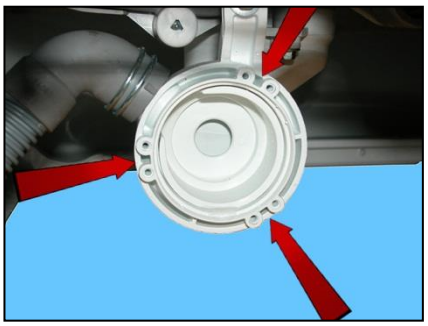


Remove the connectors (blue arrows).
Remove the three screws securing it to the IDB (red arrows).

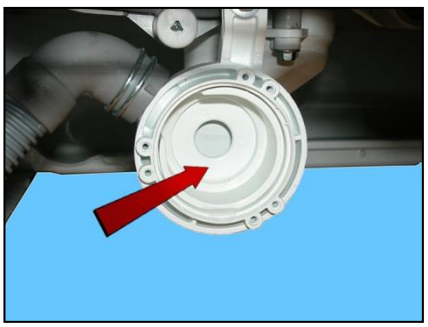
When reassembling, repeat the same steps in the reverse order and tighten the screws at a torque of 1.5 Nm.



Drainage pump.



Once you have removed the pump, you will see that the IDB features double slots; if three of the slots are damaged, you can use the other three.



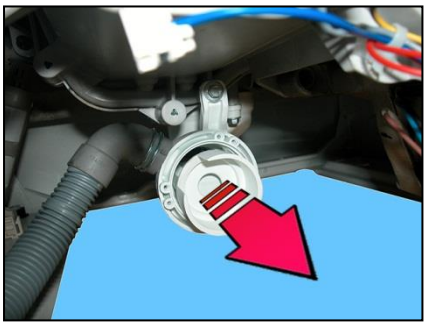
And the fluff filter is in the centre of the IDB.

When reassembling, repeat the same steps in the reverse order, tightening the screws at a torque of 1.5 Nm.

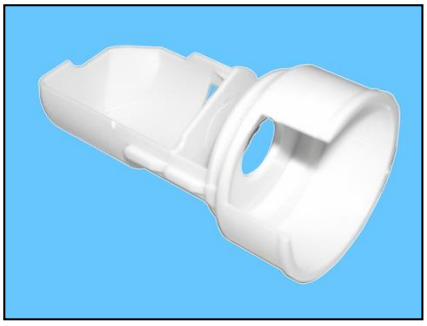
14.6.7. Fluff Filter

Remove the back panel (see relevant chapter).
Remove the UIMC (see relevant chapter).
Remove the drain pump (see relevant chapter).

Remove the fluff filter (in some cases this may be difficult).

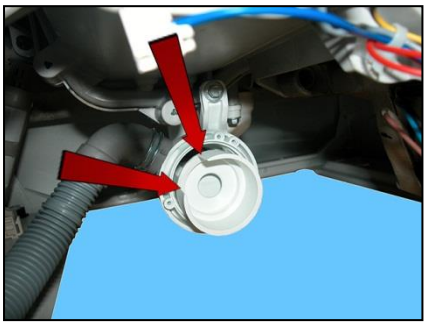


Filter or needle trap.



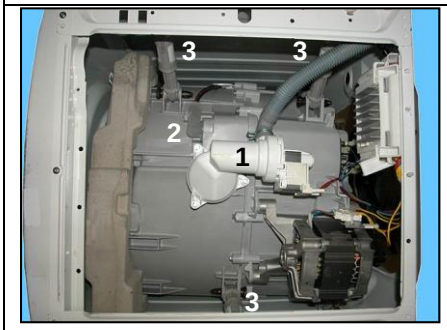
When inserting the filter, make sure the part shown by the arrows is facing towards the drain pipe.

If inserted incorrectly, it will be difficult to insert the filter completely in its seat.



If the filter has not been inserted or if it has been positioned incorrectly, the appliance will report the alarm E21.

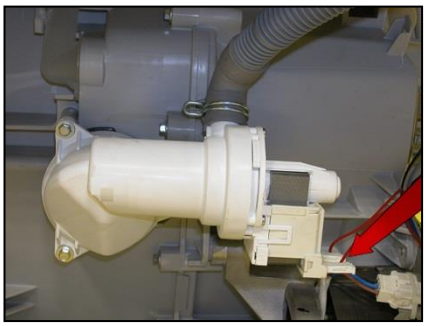
14.7. Accessing the base of the appliance

Drain filter not removable from the outside		Drain filter removable from the outside	
	1. Drain water circuit 2. Pressure chamber 3. Shock absorbers	1. Drain water circuit 2. Pressure chamber 3. Shock absorbers	

14.7.1. Drain water circuit - Drain filter not removable from the outside

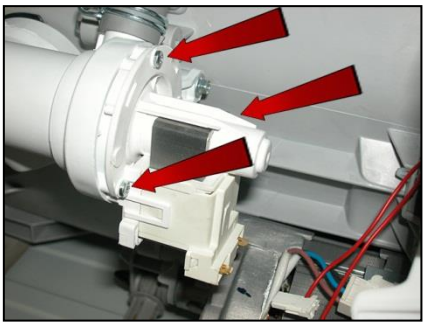
14.7.1.1. Drainage pump

Remove the back panel to make certain operations easier.
Empty the drain circuit.
Lay the appliance onto its left side (the side where the detergent dispenser is).



Disconnect the connectors.

Before removing the pump, make sure the drain circuit is empty.
Place a protection over the motor to avoid any water drops from falling into it.

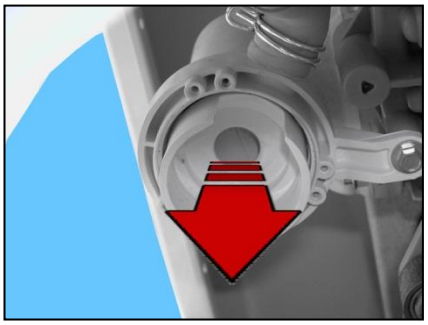


Loosen the three screws which secure it to the new drain circuit (IDB).

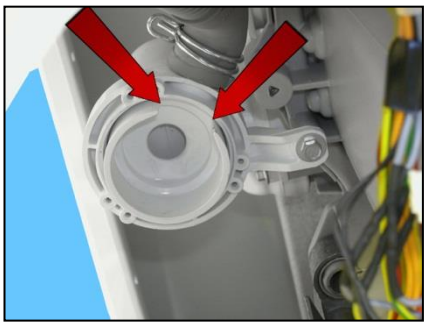
When reassembling, repeat the same steps in the reverse order and tighten the screws at a torque of 1.5 Nm.

14.7.1.2. Drainage filter

Remove the back panel to make certain operations easier.
Empty the drain circuit.
Lay the appliance onto its left side (the side where the detergent dispenser is).
Remove the pump (see relevant paragraph).



Take the filter out of its seat (IDB).



When inserting the filter in its seat, make sure the part indicated by the arrows is facing towards the drain pipe.

If inserted incorrectly, it will be difficult to insert the filter completely in its seat.

If the filter has not been inserted or if it has been positioned incorrectly, the appliance will report the alarm E21.

14.7.1.3.

14.7.1.4. IDB (Integrated Drain Body)

Remove the drain pump (see relevant paragraph).

Pull out the main drain pipe.
Remove the screws that secure it to the welded tub.

Once you have removed the outside of the IDB.
Attached to the welded tub, the diaphragm assembly with the floating valve remains.

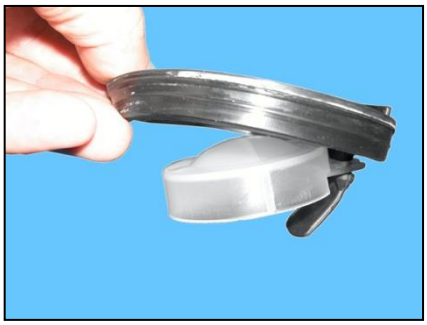
Remove the diaphragm assembly.

IDB complete with diaphragm assembly.

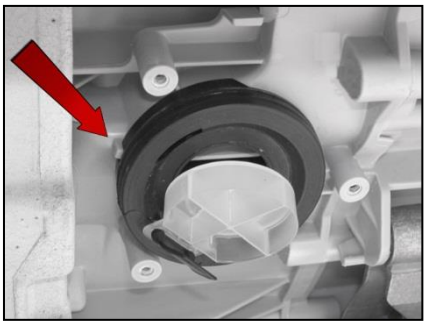
Diaphragm assembly seen from the welded tub part.

The side window - referred to as the “vent” (shown by the arrow) allows you to keep the drain circuit balanced to achieve good performance.

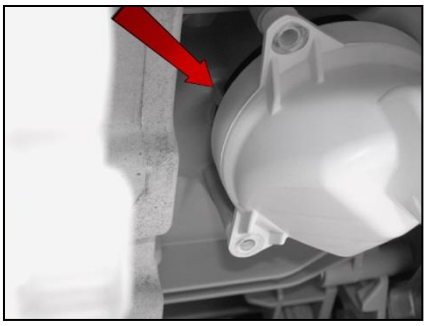
Diaphragm assembly seen from the IDB side.



When reassembling,



place the diaphragm assembly and floating valve in the drain hole of the welded tub.
Make sure the reference mark is positioned correctly in the seal diaphragm assembly seat.



When positioning the IDB lid, make sure it fits as far as it can go against the reference point.

When reassembling,

repeat the same steps in the reverse order, tightening the screws at a torque of 5 Nm.

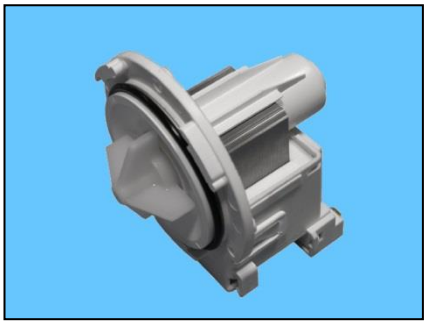
14.7.2. Drain water circuit - drain filter removable from the outside

14.7.2.1. Drainage pump

Remove the back panel to make certain operations easier.
Empty the drain circuit
Lay the appliance onto its left side (the side where the detergent dispenser is)

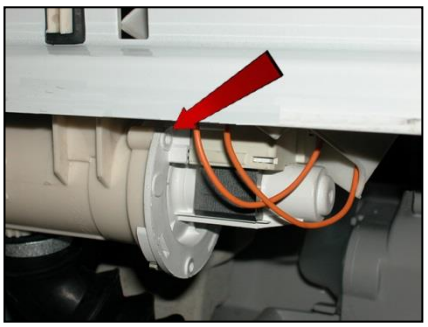
Using a pair of pliers, raise the anchor tab to release the pump
At the same time
Turn the pump and pull it out of the filter body

Remove the protection and disconnect the connectors



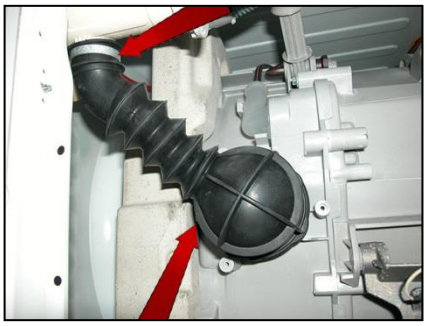
Pump

If the lock catch securing the pump to the filter body breaks.
Secure the pump to the filter body, securing it in place using a screw, screwing the latter in the slot shown by the arrow.



Size of the screw 3.5 x 19 Code 5024 79 51- 00/2

14.7.2.2. Tub drain pipe

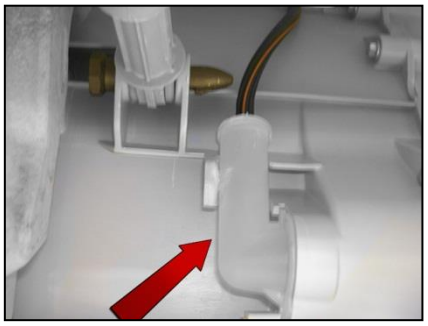


Empty the drain circuit
Lay the appliance onto its left side (the side where the detergent dispenser is)

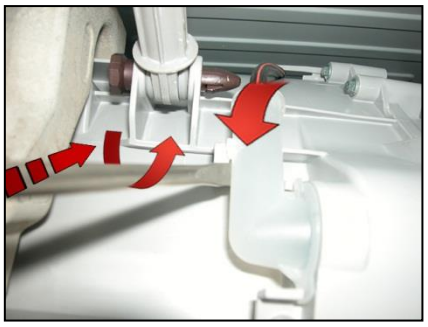
Loosen the screw that tightens the clamp (on the tub side)
Widen/break the clamp (on the filter body side)

When reassembling, replace the clamp with one with identical characteristics and with a diameter of 40.5 mm

14.7.3. Pressure chamber

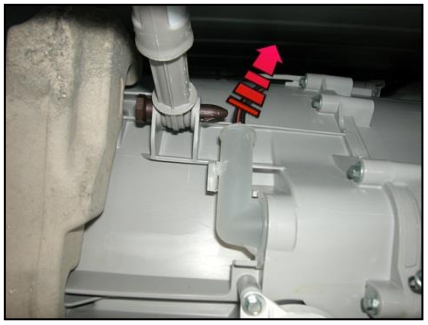


Empty the drain circuit.
Lay the appliance onto its left side (the side where the detergent dispenser is).

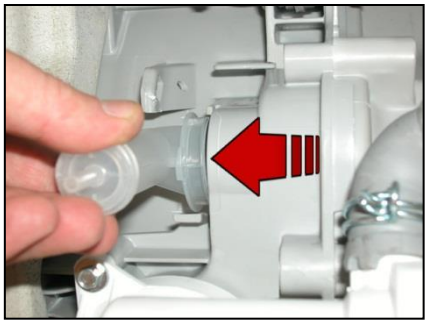


Insert a flat-tip screwdriver between the pressure chamber and the hook securing it to the welded tub.
Turn it anti-clockwise while at the same time removing the chamber.

Take care not to damage it.

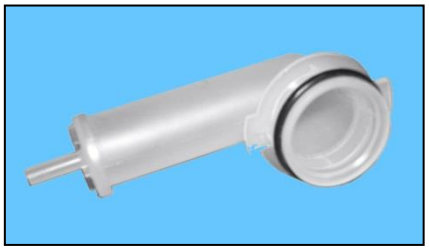


Remove the pipe connecting to the analogue pressure switch.



Turn it until you reach the position shown in the figure.

Remove it.

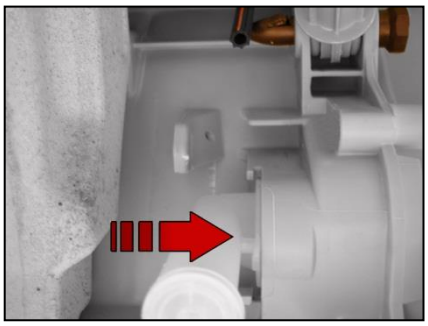


Pressure chamber.

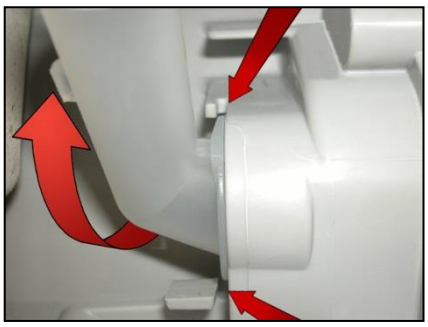
Detail of the pressure chamber set into the welded tub.

When reassembling, make sure that the seal is not damaged/warped, otherwise replace it.

Insert the pressure chamber in its seat in the welded tub.

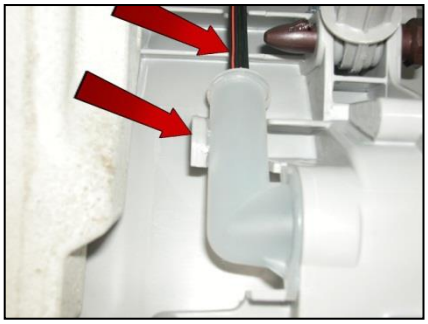


Turn it and make sure that the two tabs slot into the purpose-provided runners (shown by the arrows).



As shown in this picture,

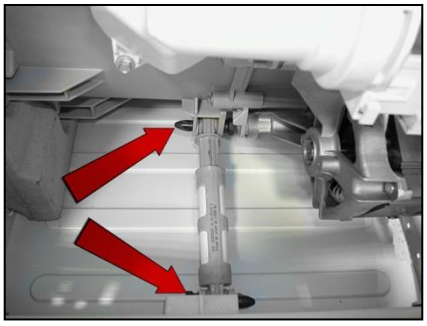
insert the pipe and secure the pressure chamber.



14.7.4. Shock absorbers

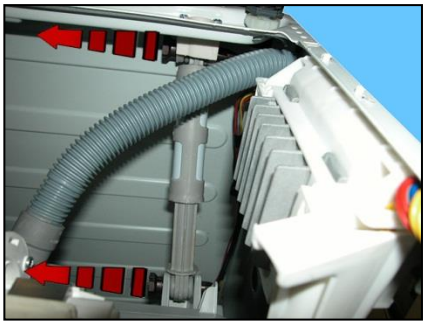
Empty the drain circuit.
Lay the appliance onto its left side (the side where the detergent dispenser is).

14.7.4.1. Right-hand shock absorber.



(seen from the rear)
Pull out the pins and consult paragraph 14.7.4.4

14.7.4.2. Left-hand rear shock absorber

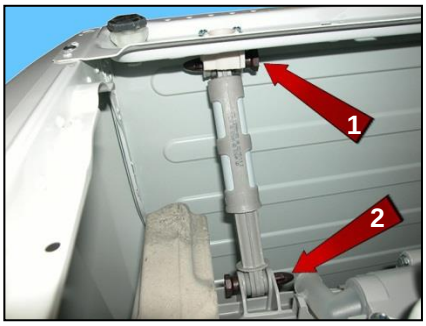


(seen from the rear)

Pull out the pins and consult paragraph 14.7.4.4

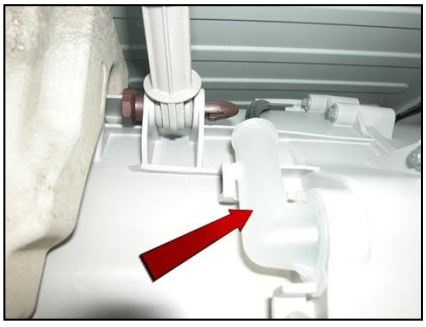
14.7.4.3. Left-hand front shock absorber

(seen from the base of the appliance)



The two pins securing this shock absorber are inserted one opposite the other; removing the one indicated by the arrow (1) from its seat does not cause any hindrance.
Removing the other pin indicated by the arrow (2) on the other hand requires cutting it and inserting the new one from the opposite side.

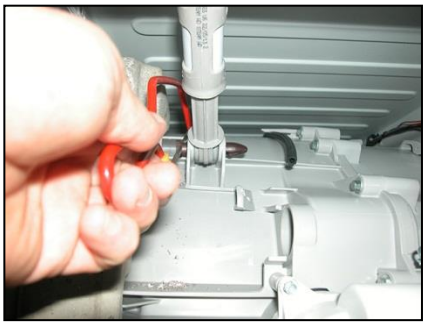
To do that,



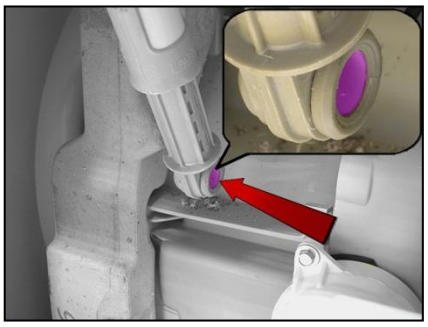
remove the internal pressure chamber (see relevant paragraph).

Close-up of the pin.

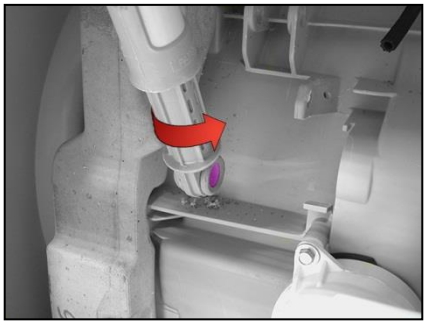
Cut the pin and remove it.



Take the shock absorber out of its seat.
As you can see, the edge of the bushing is narrow.

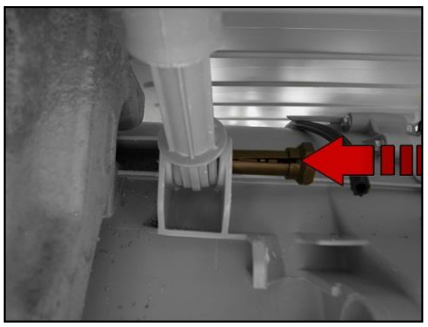


Turn the shock absorber stem,



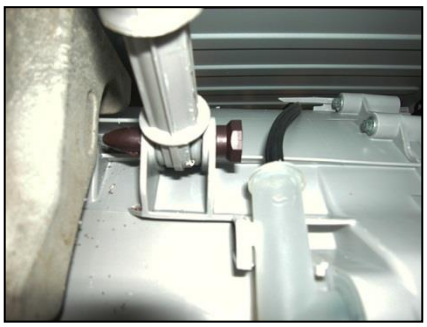
so as to position the wide edge of the bushing on the opposite side to its initial position.

Reposition the shock absorber in its seat and insert the new pin.



Reposition the internal pressure chamber in its seat, insert the pipe connecting the pressure gauge and make sure that it is positioned correctly in its seat around the welded tub.

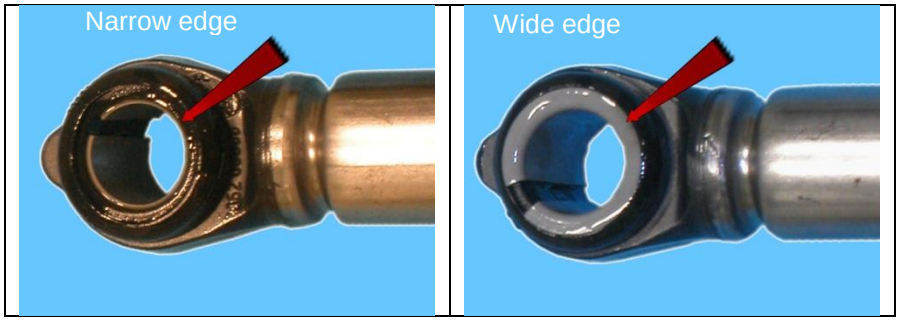
The photo shows the end result.



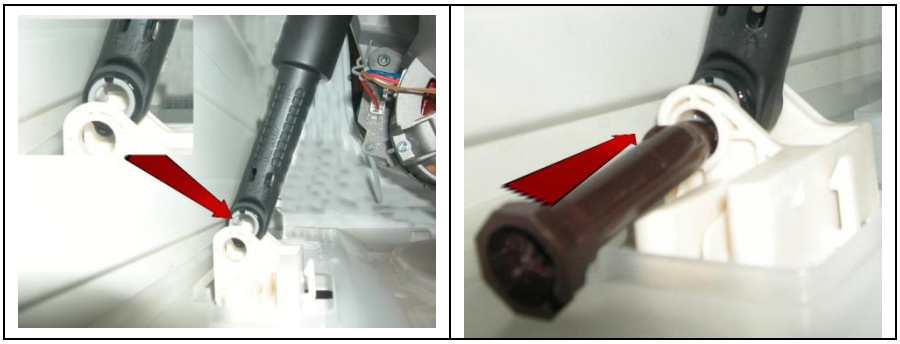
14.7.4.4. Shock absorber pin

The principle is still the same, even if the photographs show different components and situations.

There is a bushing on either end of the shock absorber. It has a wider profile on one end to avoid it becoming dislodged when the pin is inserted (see the two figures below).



When positioning the shock absorber inside the fastening (situated at the bottom of the cabinet or in the tub), take care when positioning the bushing, so as to insert the pin from the part of the bushing with the widest profile.
The spare bushing is supplied under Code 344 91 25-30/5.

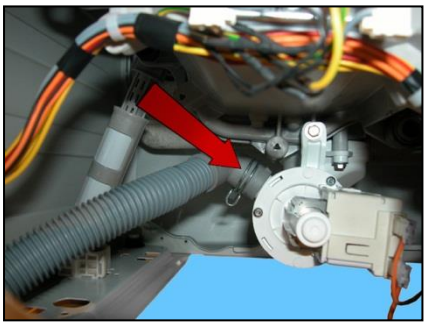


If you are having difficulty inserting the pin, grease it a little (Code 5026 24 16-00/6).

14.8. Main drain pipe

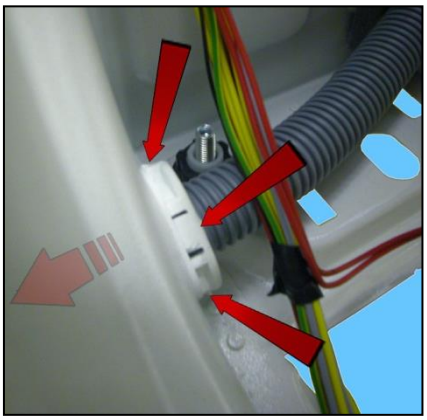
Loosen the screw which fastens the pipe fastener at the top of the appliance. Straighten out the pipe to drain the water into a container.

Remove the back panel (see relevant chapter).

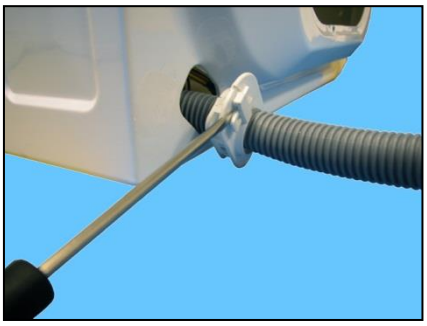


Remove the clamp (shown by the arrow) which secures the drain pipe to the IDB.

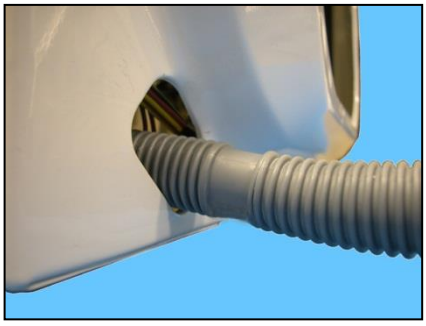
If the clamp breaks, replace it with one featuring the same characteristics.



Remove the pipe fastener that secures it to the cabinet by pressing the three hooks (indicated by the arrows) and pull it out at the same time.

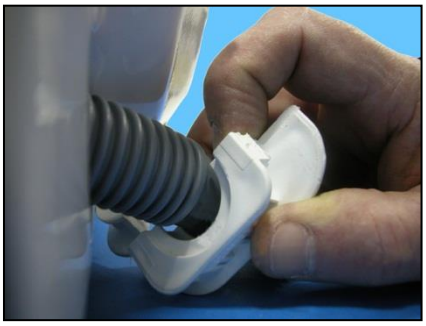


Insert a screwdriver to open up the cabinet pipe fastener.

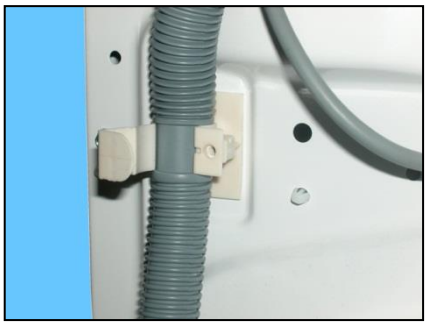


When refitting the pipe, make sure that the non-corrugated part

is inserted in the seat of the pipe fastener.



The other uncorrugated part of the pipe must be positioned in the pipe fastener at the top of the appliance.



When reassembling, repeat all these steps in the reverse order.

REVISION:

Revision	Date	Description	Written by	Approved by:
00	02/2014	Document creation	MM	XX – 0X/201X
01	06/2015	Added TC2 and rearanged UI Functional Specification chapters Added information regarding appliances with drain filter removable from the outside	MP	XX – 0X/201X