



SERIES 7	SERIES 8	SERIES 9

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

Publication
 number

599 74 98-60

EN

Edition: 02/2012 - Rev. 00

**Washing machines
 &
 Washer dryers**

**with electronic
 control system**

**EWM10931
 EWD10931**

**Technical and functional
 characteristics**

**NEW
 COLLECTION**

SERIES

7 / 8 / 9

INDEX

1	PURPOSE OF THIS MANUAL	7
2	WARNINGS	8
3	SERIES 7	9
3.1	General characteristics.....	9
3.1.1	General WM characteristics.....	9
3.1.2	General WD characteristics	10
3.2	Control panel	11
3.2.1	Styling.....	11
3.2.1.1	Version WM.....	11
3.2.1.2	Version WD	11
3.2.2	Control panel configuration.....	12
3.2.2.1	Programme selector (S1).....	12
3.2.2.2	Programme configuration.....	12
3.2.2.3	Pushbuttons – LEDs and LCD	13
3.2.2.4	Buzzer.....	18
4	SERIES 8	19
4.1	General characteristics.....	19
4.1.1	General WM characteristics.....	19
4.1.2	General WD characteristics	20
4.2	Control panel	21
4.2.1	Styling.....	21
4.2.1.1	Version WM.....	21
4.2.1.2	Version WD	21
4.2.1.3	Control panel configuration	22
4.2.1.4	Programme selector (S1).....	22
4.2.1.5	Programme configuration.....	22
4.2.1.6	Pushbuttons – LEDs and LCD	23
4.2.1.7	Buzzer.....	26
4.2.1.8	Weight sensor (where featured)	27
4.2.1.8.1	Enabling/Disabling the weight sensor	27
5	SERIES 9	28
5.1	General characteristics.....	28
5.2	Control panel	29
5.2.1	Styling.....	29
5.2.1.1	Control panel configuration	30
5.2.1.2	Initial Start up	30
5.2.1.2.1	Set Language.....	30
5.2.1.2.2	Setting the time of day.....	30
5.2.1.3	Programme selector (S1).....	30
5.2.1.4	Programme configuration.....	30
5.2.1.5	Pushbuttons – LEDs and LCD	31
5.2.1.6	Buzzer.....	35
5.2.1.7	Weight sensor (where featured)	35
5.2.1.7.1	Enabling/Disabling the weight sensor	35
6	DEMO MODE	36
6.1	Access to DEMO settings.....	36
6.2	Exiting DEMO mode.....	36
7	DIAGNOSTICS SYSTEM.....	37
7.1	Accessing diagnostics	37
7.2	Quitting the diagnostics system	37
7.3	Diagnostic test phases	38
8	ALARMS.....	40
8.1	Displaying the alarms to the user.....	40
8.2	Reading the alarms	40
8.3	Rapid reading of alarms	41
8.4	Deleting the last alarm.....	41
9	OPERATING TIME COUNTER	42
9.1	Reading the operating time	42
9.2	Display of total operating time	42
10	OPTIONS	43
10.1	Compatibility between options.....	43
10.2	Description of options.....	44
11	Generating STEAM.....	45

12	TECHNICAL CHARACTERISTICS.....	46
12.1	WM construction	46
12.2	WD construction.....	47
12.3	Detergent dispenser	48
12.3.1	Detergent dispenser with multi-way solenoid valves.....	48
12.3.2	Operating principle of 4-compartment conveyor.....	48
12.4	Detergent dispenser	49
12.4.1	Arranging the flap in the detergent dispenser.....	49
12.5	WM/WD washing unit.....	50
12.6	Water circuit.....	51
12.6.1	OKO version drain circuit.....	51
12.6.2	JET version drain circuit	51
12.6.3	JET circuit	51
12.6.4	New Filter dial	52
12.7	Electronic control	52
12.7.1	Programming/Updating the main circuit board	52
12.8	WM Electronic control	53
12.9	WD Electronic control.....	54
13	ELECTRICAL COMPONENTS.....	54
13.1	Anti-disturbance filter.....	55
13.1.1	General WM characteristics.....	55
13.1.2	General WD characteristics	55
13.2	WM display board	56
13.3	WD display board.....	56
13.4	Drain pump - Aqua control.....	57
13.4.1	General characteristics.....	57
13.5	Aqua control.....	58
13.5.1	General characteristics.....	58
13.6	Heating element.....	59
13.6.1	General characteristics.....	59
13.7	Temperature sensor	60
13.7.1	General characteristics.....	60
13.8	Analogue pressure switch	61
13.8.1	General characteristics.....	61
13.9	Shock absorber with weight sensor (where featured).....	62
13.9.1	General characteristics.....	62
13.9.1.1	WM version diagram.....	62
13.9.1.2	WD version diagram	62
13.9.2	Operating principle	63
13.10	Door safety interlock	64
13.10.1	General characteristics.....	64
13.10.2	Operating principle	64
13.11	Three-phase asynchronous motor - Inverter	66
13.11.1	General characteristics.....	66
13.11.2	Power supply to motor.....	66
13.12	Inverter	67
13.12.1	General characteristics.....	67
13.13	Circulation pump (where featured).....	68
13.13.1	General characteristics.....	68
13.14	Solenoid valves.....	69
13.14.1	General characteristics.....	69
13.14.1.1	Operating principle.....	69
13.14.1.2	Mechanical jamming of the solenoid valve	69
13.14.1.3	Low water pressure	69
13.14.1.4	WM version diagram.....	70
13.14.1.5	WD version diagram	70
13.15	Flowmeter.....	71
13.15.1	General characteristics.....	71
13.15.2	Operating principle of the flowmeter	72
13.16	Drum light (where featured).....	73
14	DRYING CIRCUIT	74
14.1	Technical characteristics	74
14.2	Capacitor	75
14.3	Principle of air circulation.....	75
14.4	Electric components.....	76

14.4.1	Three-phase power fan with permanent magnets	76
14.4.2	Heating element & Thermostats	77
14.4.3	Thermostats	77
14.5	Temperature and humidity control	78
15	ALARM SUMMARY TABLE	79
16	DIAGRAMS.....	84
16.1	WM diagram with THREE-PHASE ASYNCHRONOUS MOTOR	84
16.1.1	Key to diagram	85
16.2	WD diagram with THREE-PHASE ASYNCHRONOUS MOTOR	86
16.2.1	Key to diagram	87
17	WM ACCESSIBILITY	88
17.1	Worktop	88
17.2	From the worktop, you can access	88
17.2.1	Main board	88
17.2.2	Solenoid valve.....	90
17.2.3	Control panel.....	90
17.2.4	Display board/light diffuser/button springs/buttons assembly.....	92
17.2.5	Analogue pressure switch.....	94
17.2.6	Detergent dispenser	94
17.2.7	Detergent fill pipe	95
17.2.8	Upper counterweight	95
17.3	Accessing the front part.....	95
17.3.1	Door hinge - Door.....	95
17.3.2	Door safety interlock.....	96
17.3.3	Drum light	97
17.3.4	Bellow seal	97
17.3.5	Blade	98
17.3.6	Front panel.....	100
17.4	From the front panel, you can access	101
17.4.1	JET water jet	101
17.4.2	Front counterweight.....	102
17.4.3	Shock absorber with/without weight sensor	102
17.4.4	Drain water circuit.....	103
17.4.5	Pressure chamber	103
17.4.6	Tub suspension springs.....	105
17.4.7	Shock absorber pin	106
17.5	Accessing the rear part	107
17.5.1	Back panel	107
17.6	From the back panel, you can access.....	107
17.6.1	Belt	107
17.6.2	Plastic pulley	108
17.6.3	Inverter.....	108
17.6.4	Motor	109
17.6.5	Heating element	109
17.6.6	Aqua control.....	109
17.6.7	Rear shock absorber	109
17.6.8	Welded tub assembly	110
17.6.9	Drain pipe/cabling support.....	110
17.6.10	Main drain pipe.....	110
18	WD ACCESSIBILITY	111
18.1	Worktop	111
18.2	From the worktop, you can access	111
18.2.1	WD PCB	111
18.2.2	Solenoid valve.....	112
18.2.3	Control panel.....	112
18.2.4	Display board/light diffuser/button springs/buttons assembly.....	112
18.2.5	Analogue pressure switch.....	115
18.2.6	Detergent dispenser	115
18.2.7	Detergent fill pipe	116
18.2.8	Anti-disturbance filter.....	116
18.2.9	Power supply cabling sheath	116
18.2.10	Rear drain pipe fastener	117
18.2.11	Auto-reset thermostat	118
18.2.12	Safety thermostat	118
18.2.13	NTC probe (drying).....	119

18.2.14	Power fan.....	120
18.2.15	Drying heating element.....	123
18.2.16	Bottom of the conduit	124
18.3	Accessing the front part.....	126
18.3.1	Door and Door Hinge	126
18.3.2	Door safety interlock.....	126
18.3.3	Blade	126
18.3.4	Front panel.....	126
18.4	From the front panel, you can access	127
18.4.1	JET water jet.....	127
18.4.2	Bellow seal.....	128
18.4.3	Front counterweight.....	129
18.4.4	Shock absorbers	129
18.4.5	Drain water circuit.....	129
18.4.6	Pressure chamber	129
18.4.7	Welded tub suspension springs	129
18.5	Accessing the rear part	130
18.5.1	Back panel	130
18.6	From the back panel, you can access.....	130
18.6.1	Belt	130
18.6.2	Plastic pulley	131
18.6.3	NTC sensor (humidity control)	131
18.6.4	Inverter.....	131
18.6.5	Motor	133
18.6.6	Heating element	133
18.6.7	The main PCB.....	133
18.6.8	Aqua control (first version).....	135
18.6.9	Aqua control (second version)	135
18.6.10	Welded tub.....	136
18.6.11	Drain pipe/cabling support	136
18.6.12	Internal drain pipe	136

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 EWM/WD10931 electronic control system (SERIES 7/8/9).

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

The current electronic appliances manufactured (EWM/WD10931 platform), use a heating element with thermal fuses (inside its branches) for safety, which interrupt in case of temperature overload caused by the water level dropping 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
- Accessibility

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.

“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

“Zero Watt” mode

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

- a.) When you press the ON/OFF button to turn off the appliance, the Zero Watt circuit is triggered and cuts off the supply voltage after a few seconds, just long enough to secure the washing machine (motor off, door locked, etc...), the cycle and any options selected are reset, so that the next time the appliance is turned on, it is ready to perform the programme.
(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, 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 occurs during a washing programme, the auto off function is disabled, and an alarm is displayed.

2 WARNINGS



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

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

- If the circuit board has to be handled/replaced, use kit ESD (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
- When replacing the heating element, replace it with one that has the same characteristics (2 thermal fuses) in order not to compromise the safety of the appliance. Do not remove/switch the NTC sensors between heating elements.
- Always empty the appliance of all the water before laying it on its side (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.

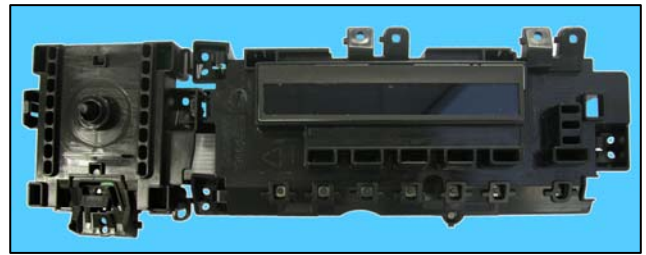
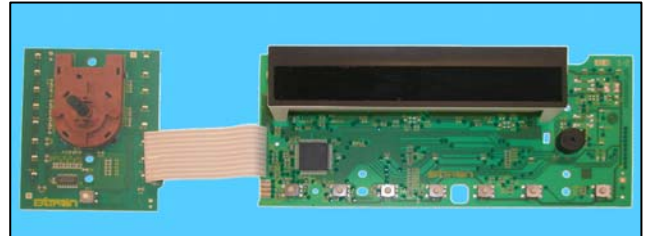


3 SERIES 7

3.1 General characteristics

The EWM/WD10931 electronic control system consists of two circuit boards plus the motor control (Inverter) for washing machines, whereas a further board is used in washer dryers for the part dedicated to drying.

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



- ↪ The main circuit board is positioned at the rear of the appliance, receives commands from the display board, powers the electrical components as well as communicating with the motor control board (Inverter) in washing machines, while it also communicates with the board which controls the drying phase in washer dryers.

3.1.1 General WM characteristics

No. buttons	<ul style="list-style-type: none"> ▪ Maximum 8 (6 options + START/PAUSE + ON/OFF)
No. LEDs	<ul style="list-style-type: none"> ▪ Maximum 20 + LCD
Programme selector	<ul style="list-style-type: none"> ▪ 16 positions (incorporated in the circuit board)
Serial port	<ul style="list-style-type: none"> ▪ DAAS-EAP communication protocol up to 115,200 baud
Power supply voltage	<ul style="list-style-type: none"> ▪ 220/240 V ▪ 50/60 Hz (configurable)
Washing type	<ul style="list-style-type: none"> ▪ Traditional with "Eco-ball" sphere ▪ Jet-System
Rinsing system	<ul style="list-style-type: none"> ▪ Traditional with "Eco-ball" sphere ▪ Jet-System
Motor	<ul style="list-style-type: none"> ▪ Two-pole asynchronous (three-phase), with tachometric generator
Spin speed	<ul style="list-style-type: none"> ▪ 400÷1,600 rpm
Anti-unbalancing system	<ul style="list-style-type: none"> ▪ AGS
Cold water fill	<ul style="list-style-type: none"> ▪ 1 solenoid valve with 1 inlet – 2 or 3 outlets
Hot water filling	<ul style="list-style-type: none"> ▪ 1 solenoid valve with 1 inlet – 1 outlet
Detergent dispenser	<ul style="list-style-type: none"> ▪ 3 compartments: prewash/stains, wash, fabric softeners ▪ 4 compartments: prewash, wash, stain remover and conditioners
Control of water level in the tub	<ul style="list-style-type: none"> ▪ Electronic/analogue pressure switch
Door safety interlock	<ul style="list-style-type: none"> ▪ Instantaneous
Heating element heat output	<ul style="list-style-type: none"> ▪ 1,950 W with thermal fuses incorporated
Temperature control	<ul style="list-style-type: none"> ▪ NTC probe incorporated in the heating element
Buzzer	<ul style="list-style-type: none"> ▪ Traditional incorporated in the PCB
Sensors	<ul style="list-style-type: none"> ▪ Water fill gauge (2÷12 l/m flowmeter) ▪ Aqua control
Drum light	<ul style="list-style-type: none"> ▪ LED

3.1.2 General WD characteristics

No. buttons	<ul style="list-style-type: none"> ▪ Maximum 8 (6 options + START/PAUSE + ON/OFF)
No. LEDs	<ul style="list-style-type: none"> ▪ Maximum 20 + LCD
Programme selector	<ul style="list-style-type: none"> ▪ 16 positions (incorporated in the circuit board)
Serial port	<ul style="list-style-type: none"> ▪ DAAS-EAP communication protocol up to 115,200 baud
Power supply voltage	<ul style="list-style-type: none"> ▪ 220/240 V ▪ 50/60 Hz (configurable)
Washing type	<ul style="list-style-type: none"> ▪ Traditional with "Eco-ball" sphere ▪ Jet-System
Rinsing system	<ul style="list-style-type: none"> ▪ Traditional with "Eco-ball" sphere ▪ Jet-System
Motor	<ul style="list-style-type: none"> ▪ Two-pole asynchronous (three-phase), with tachometric generator
Spin speed	<ul style="list-style-type: none"> ▪ 400÷1,600 rpm
Anti-unbalancing system	<ul style="list-style-type: none"> ▪ AGS
Cold water fill	<ul style="list-style-type: none"> ▪ 1 solenoid valve with 1 inlet – 2 or 3 outlets
Hot water filling	<ul style="list-style-type: none"> ▪ 1 solenoid valve with 1 inlet – 1 outlet
Detergent dispenser	<ul style="list-style-type: none"> ▪ 3 compartments: prewash/stains, wash, fabric softeners ▪ 4 compartments: prewash, wash, stain remover and conditioners
Control of water level in the tub	<ul style="list-style-type: none"> ▪ Electronic/analogue pressure switch
Door safety interlock	<ul style="list-style-type: none"> ▪ Instantaneous
Heating element heat output, washing	<ul style="list-style-type: none"> ▪ 1,950 W with thermal fuses incorporated
Heating element heat output, drying	<ul style="list-style-type: none"> ▪ 800 W + 800 W
Temperature control, washing	<ul style="list-style-type: none"> ▪ NTC probe incorporated in the heating element
Temperature control, drying	<ul style="list-style-type: none"> ▪ NTC
Buzzer	<ul style="list-style-type: none"> ▪ Traditional incorporated in the PCB
Sensors	<ul style="list-style-type: none"> ▪ Water fill gauge (2÷12 l/m flowmeter) ▪ Aqua control

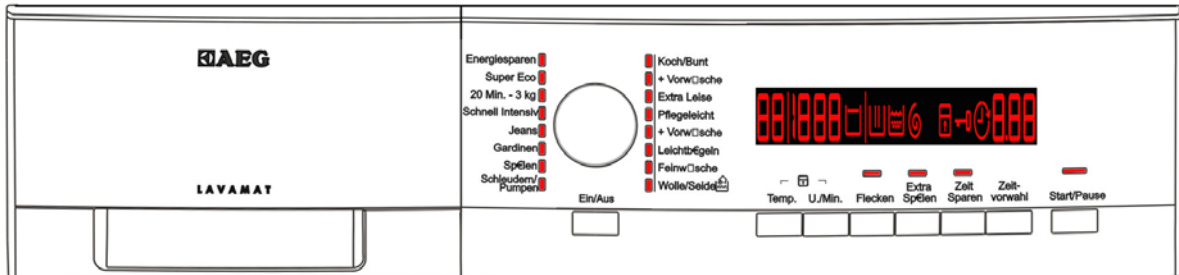
3.2 Control panel

3.2.1 Styling

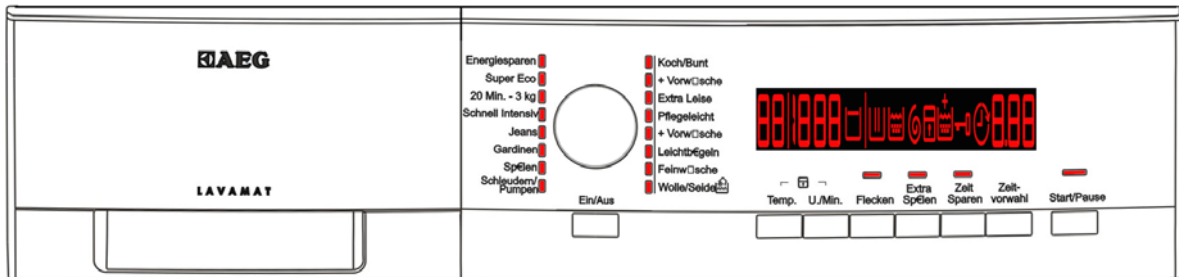
- Max. 8 buttons
- 16 position programme selector
- 20 LEDs
- LCD

3.2.1.1 Version WM

Initial LCD version



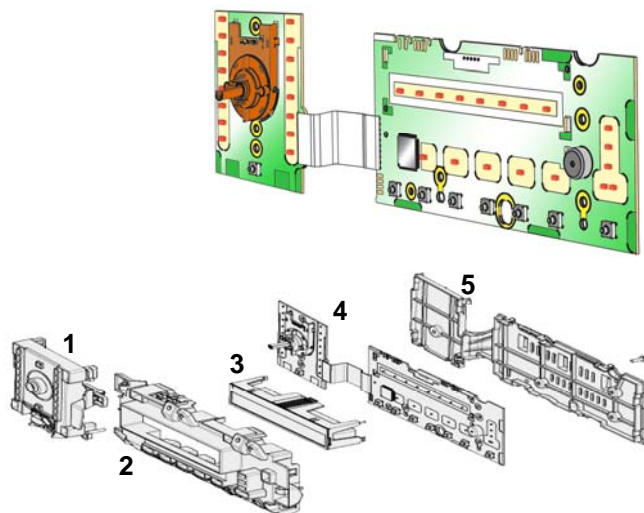
Current LCD version



3.2.1.2 Version WD

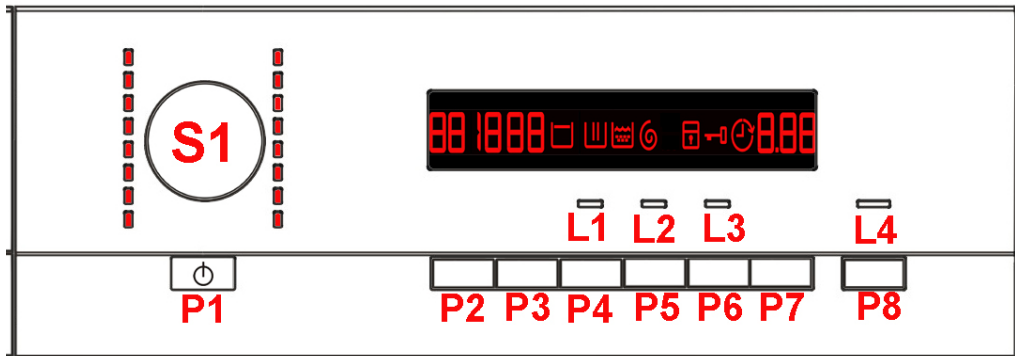


- Positioning of LEDs and buttons
 - Display board assembly, exploded view
1. Selector board protection
 2. Display board protection
 3. LCD display
 4. Display board and selector board
 5. Rear protection



3.2.2 Control panel configuration

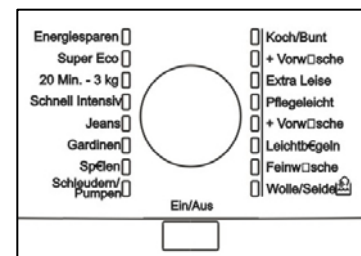
The description below applies to both versions (washing machines and washer dryers), unless specified with Washing machines or Washer Dryers.



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

3.2.2.1 Programme selector (S1)

The selector used is of the HI-FI type (the dial has no index and no reset position, the programme selected is indicated by the fact that the corresponding LED lights up). The number of positions cannot be configured. There are always 16 (in all three styling) and they are bound to the number of LEDs that indicate the washing programmes. The programmes can be configured to perform different washing cycles (e.g.: water level, drum movement, no. of rinses and the washing temperature to be selected according to the type of garments). The selector can be turned both clockwise and anti-clockwise. For each programme, the compatible options and other parameters are defined.



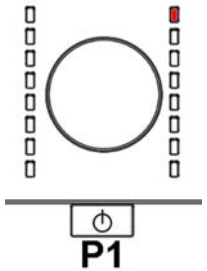

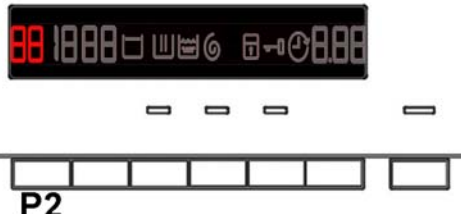

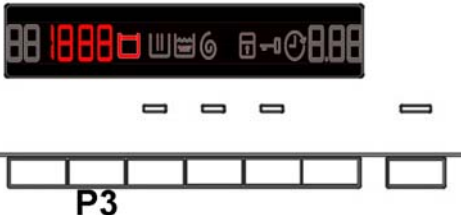
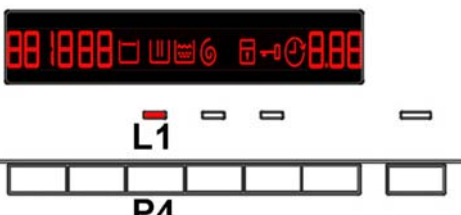
3.2.2.2 Programme configuration





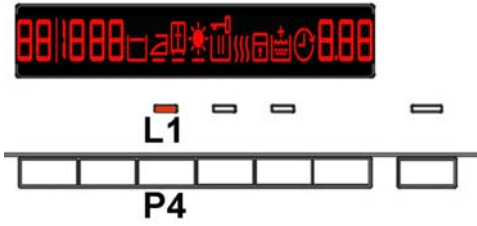
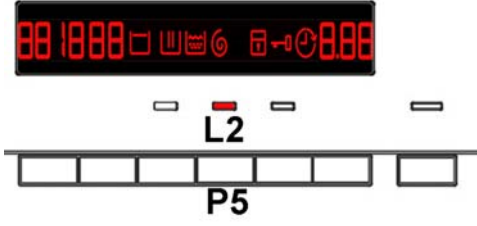

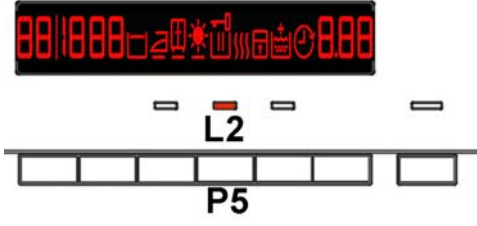
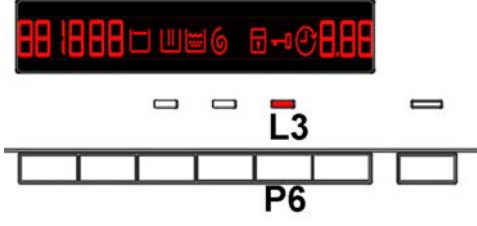
The table below lists the parameters that can be used to define the washing programmes.

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

3.2.2.3 Pushbuttons – LEDs and LCD

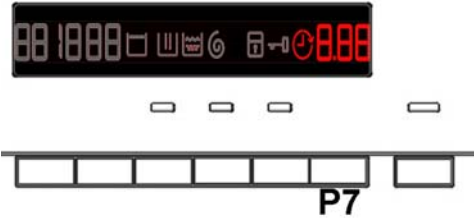
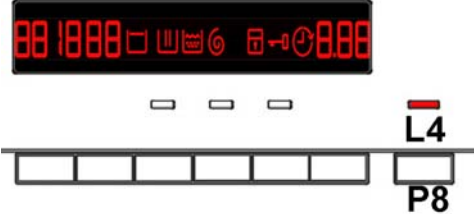
The functions of each button are defined by the configuration of the appliance.

<ul style="list-style-type: none"> Button no. 1: ON/OFF This button is always present, whatever the styling. – Press it to turn the appliance on, at the same time the buzzer will sound a tone (if enabled) and the LCD display lights up (the lighted symbols are the ones for the programme). – To switch the appliance off, press and hold the button for approximately 1 second, after which the buzzer will sound a tone (if enabled), the LCD display and the LEDs will switch off, all the options selected and any programme that is running will be cancelled. <p>The operation of the ON/OFF depends on the configuration of the main circuit board. It can cut the appliance off from the electricity mains completely (0 Watt circuit) or set the appliance to low energy consumption mode (without 0 Watt circuit) in which case you will need to take the plug out of the socket to cut off the electricity supply completely.</p>	
<ul style="list-style-type: none"> Button no. 2: TEMPERATURE This is related to the part of the LCD display in which the washing cycle temperature is shown. The starting temperature shown on the LCD display is the one set for the programme selected. Press this button in sequence to lower the temperature, when the lowest temperature is reached the selection will start again from the highest one available for the programme. <p>The temperatures available (displayed in °C) are: 95 °C, 60 °C, 50 °C, 40 °C, 30 °C, 20 °C, cold cycle. the cold cycle is displayed by two dashes. </p>	
<ul style="list-style-type: none"> Button no. 3: SPIN SPEED This is related to the part of the LCD display in which the washing cycle spin speed is shown. The starting speed shown on the LCD display is the one set for the programme selected. Press this button in sequence to lower the speed, when the lowest temperature is reached the next selection is “Rinse hold” and the relevant symbol will light up  (if compatible with the programme selected). This is also lit during the “Extra silent” programme. The next selection will be the highest speed available for the programme. <p>The spin speeds are: 1,600–1,400–1,200–1,000–800–600–400–“Rinse hold” cycle. When no speed is selected, or the “Rinse Hold” cycle is selected, the LCD display shows three dashes “ - - - ”.</p>	
<p>Washing machines</p> <ul style="list-style-type: none"> Button no. 4: OPTION This button is configurable and is related to LED (L1). Depending on the configuration of the appliance, it can perform the option of: <ul style="list-style-type: none"> – Stains – HOT & COLD water fill Press this button to enable/disable the option associated with it and turn LED L1 on/off respectively, at the same time the programme time is updated (on the three digit display). 	

<p>Washer dryer</p> <ul style="list-style-type: none"> • Button no. 4: OPTION This button is configurable and is related to LED (L1). Depending on the configuration of the appliance, it can perform the option of: <ul style="list-style-type: none"> – Automatic Drying In the cotton programmes, press this button to select from three different drying levels: <ul style="list-style-type: none"> “Iron dry”  “wardrobe dry”  and “Extra dry”  . Delicate programmes (synthetics) only envisage a single drying level: “wardrobe dry”.  <p>Concurrently, the related LED L1 lights up and the corresponding symbol is displayed on the LCD.</p> <p>When the automatic drying option is selected at the end of a wash cycle, the spin speed must not be less than 1,000 rpm. The maximum drying time is 300 minutes.</p>	
<p>Washing machines</p> <ul style="list-style-type: none"> • Button no. 5: OPTION This button is related to LED (L2), and performs the option of: <ul style="list-style-type: none"> – Extra rinse Press this button to enable/disable the option associated with it and turn the LED on/off respectively, at the same time the programme time is updated (on the three digit display). 	
<p>Washer dryer</p> <ul style="list-style-type: none"> • Button no. 5: OPTION This button is related to LED (L2), and performs the option of: <ul style="list-style-type: none"> – Time-controlled drying  Press this button to enable the drying phase, which initially lasts 10 minutes; every time it is pressed, the drying time is extended by 5 minutes for a maximum of 250 minutes for cotton cycles and 250 minutes for synthetic cycles. <p>When the time-controlled drying option is selected at the end of a wash cycle, the spin speed must not be less than 1,000 rpm in the cotton programmes and not less than 800 rpm in the synthetic programmes.</p>	
<ul style="list-style-type: none"> • Button no. 6: OPTION This button is related to LED (L3), and performs the option of: <ul style="list-style-type: none"> – Time Save Press this button to enable/disable the option associated with it and turn the LED on/off respectively, at the same time the programme time is updated (on the three digit display). 	

The following options can also be configured on the appliances:











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









<ul style="list-style-type: none"> • Button no. 7: DELAYED START This button is configurable and has the DELAYED START function. During the programme selection phase, a delayed start can be selected, from 30' to 20 hours (30' ↻ 60' ↻ 90' ↻ 2h ↻ 3h... ↻ 20h ↻ 0h) and the time is shown on the display; during the final hour the time shown decreases minute by minute. To cancel the delayed start time after the cycle has been started, set the washing machine to pause using the START/PAUSE button and cancel the option. 	
<ul style="list-style-type: none"> • Button no. 8: START/PAUSE This button is used to START the appliance or to PAUSE it. It is related to LED L4 which flashes when the appliance is in pause, whereas it produces a fixed light when the appliance is performing a washing cycle. 	



LCD

The information described below also appears on the LCD:

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

<ul style="list-style-type: none"> • End of cycle End of the programme is indicated by a permanently lit zero (when the door can be opened). • Appliance stopping with water in the tub, at the end of Programmes with the RINSE HOLD option, this is displayed by a permanently lit zero. The LED indicating the door remains on and the LED of the START/PAUSE button is turned off. The washing machine continues to operate, rotating the drum once every 2 minutes. 	
<ul style="list-style-type: none"> • Alarm code Indicates an anomaly during operation of the machine. Simultaneously to the displaying of the code, the START/PAUSE button flashes. 	
<ul style="list-style-type: none"> • Calculate amount of washing Only for appliances with PROPORTIONAL programmes After starting the washing programme the dot starts to flash. At this point the washing machine calculates the amount of washing inside the drum. When this phase ends the dot lights up fixed and the three digits display the programme time. 	
<p>Washer dryer</p> <ul style="list-style-type: none"> • Automatic drying Shown by three symbols with three drying levels Description: see Button no. 4 on page 15. 	
<p>Washer dryer</p> <ul style="list-style-type: none"> • Programme phases <ul style="list-style-type: none"> – Wash phase  – Drying phase  	
<ul style="list-style-type: none"> • Extra rinse Appliances which do not feature the button and related LED for the Extra rinse option can enable/disable this option by pressing a key combination (which may be silk-screen printed on the control panel or described in the instruction manual). This option is enabled/disabled during programme selection and is confirmed by the related symbol being turned on/off. The option remains enabled even after the appliance has been turned off (for subsequent programmes). 	

3.2.2.4 Buzzer

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

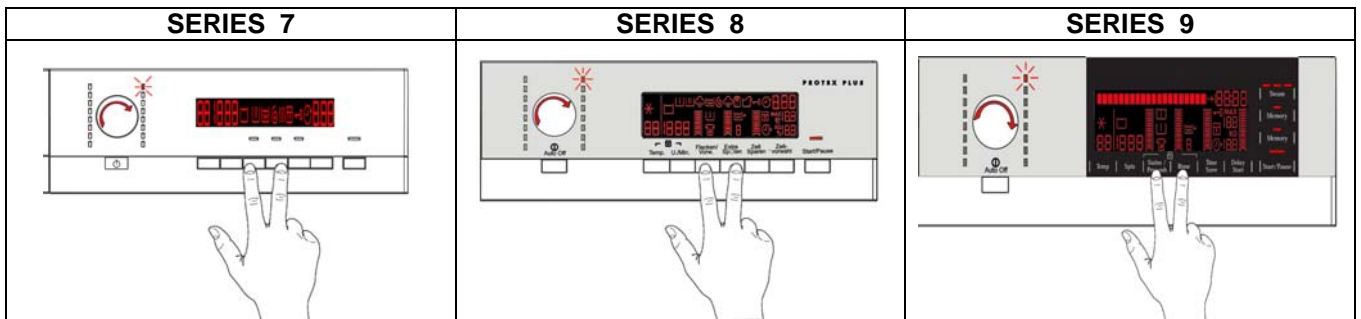
- When the machine is turned on and off it emits two different tunes.
- When a button is pressed it emits a short “**Click**”
- When the cycle ends this is indicated by a special sequence of “**three long beeps**” repeated at intervals of 15” for a total of 2 minutes.
- In the event of a malfunction in the machine this is indicated by a special sequence of “**three short beeps**” repeated 3 times at intervals of 15” for a total of 5 minutes.

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

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

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

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



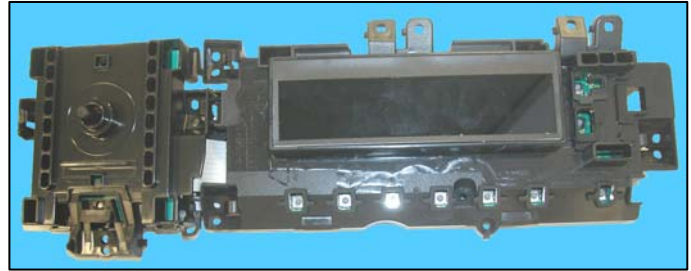
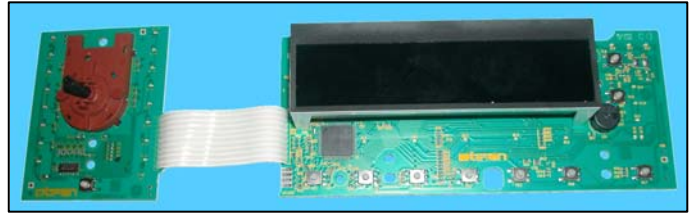
To enable it, press the buttons simultaneously for 5 seconds. A short beep will confirm that it has been enabled, whereas two short beeps will confirm that it has been disabled.

4 SERIES 8

4.1 General characteristics

The EWM/WD10931 electronic control system consists of two circuit boards plus the motor control (Inverter) for washing machines, whereas a further board is used in washer dryers for the part dedicated to drying.

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



- ↪ The main circuit board is positioned at the rear of the appliance, receives commands from the display board, powers the electrical components as well as communicating with the motor control board (Inverter) in washing machines, while it also communicates with the board which controls the drying phase in washer dryers.

4.1.1 General WM characteristics

No. buttons	<ul style="list-style-type: none"> ▪ Maximum 9 (6 options + START/PAUSE + ON/OFF)
No. LEDs	<ul style="list-style-type: none"> ▪ Maximum 20 + LCD
Programme selector	<ul style="list-style-type: none"> ▪ 16 positions (incorporated in the circuit board)
Serial port	<ul style="list-style-type: none"> ▪ DAAS-EAP communication protocol up to 115,200 baud
Power supply voltage	<ul style="list-style-type: none"> ▪ 220/240 V ▪ 50/60 Hz (configurable)
Washing type	<ul style="list-style-type: none"> ▪ Traditional with "Eco-ball" sphere ▪ Jet-System
Rinsing system	<ul style="list-style-type: none"> ▪ Traditional with "Eco-ball" sphere ▪ Jet-System
Motor	<ul style="list-style-type: none"> ▪ Two-pole asynchronous (three-phase), with tachometric generator
Spin speed	<ul style="list-style-type: none"> ▪ 400÷1,600 rpm
Anti-unbalancing system	<ul style="list-style-type: none"> ▪ AGS
Cold water fill	<ul style="list-style-type: none"> ▪ 1 solenoid valve with 1 inlet – 2 or 3 outlets
Hot water filling	<ul style="list-style-type: none"> ▪ 1 solenoid valve with 1 inlet – 1 outlet
Detergent dispenser	<ul style="list-style-type: none"> ▪ 3 compartments: prewash/stains, wash, fabric softeners ▪ 4 compartments: prewash, wash, stain remover, conditioners
Control of water level in the tub	<ul style="list-style-type: none"> ▪ Electronic/analogue pressure switch
Door safety interlock	<ul style="list-style-type: none"> ▪ Instantaneous
Heating element heat output	<ul style="list-style-type: none"> ▪ 1,950 W with thermal fuses incorporated
Temperature control	<ul style="list-style-type: none"> ▪ NTC probe incorporated in the heating element
Buzzer	<ul style="list-style-type: none"> ▪ Traditional incorporated in the PCB
Sensors	<ul style="list-style-type: none"> ▪ Water fill gauge (flowmeter from 2÷12 l/m) ▪ Aqua control ▪ Weight sensor
Drum light	<ul style="list-style-type: none"> ▪ LED

4.1.2 General WD characteristics

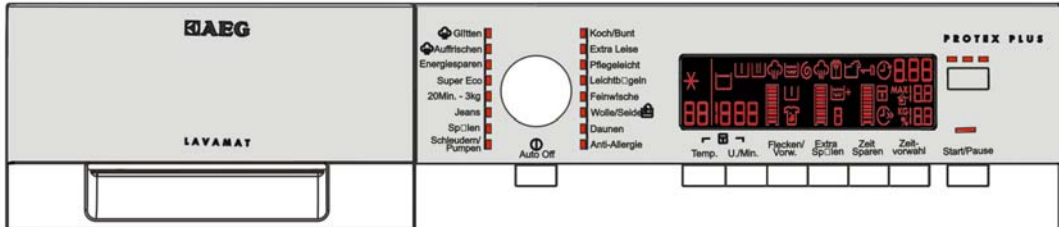
No. buttons	<ul style="list-style-type: none"> ▪ Maximum 9 (6 options + START/PAUSE + ON/OFF)
No. LEDs	<ul style="list-style-type: none"> ▪ Maximum 20 + LCD
Programme selector	<ul style="list-style-type: none"> ▪ 16 positions (incorporated in the circuit board)
Serial port	<ul style="list-style-type: none"> ▪ DAAS-EAP communication protocol up to 115,200 baud
Power supply voltage	<ul style="list-style-type: none"> ▪ 220/240 V ▪ 50/60 Hz (configurable)
Washing type	<ul style="list-style-type: none"> ▪ Traditional with "Eco-ball" sphere ▪ Jet-System
Rinsing system	<ul style="list-style-type: none"> ▪ Traditional with "Eco-ball" sphere ▪ Jet-System
Motor	<ul style="list-style-type: none"> ▪ Two-pole asynchronous (three-phase), with tachometric generator
Spin speed	<ul style="list-style-type: none"> ▪ 400÷1,600 rpm
Anti-unbalancing system	<ul style="list-style-type: none"> ▪ AGS
Cold water fill	<ul style="list-style-type: none"> ▪ 1 solenoid valve with 1 inlet – 2 or 3 outlets
Hot water filling	<ul style="list-style-type: none"> ▪ 1 solenoid valve with 1 inlet – 1 outlet
Detergent dispenser	<ul style="list-style-type: none"> ▪ 3 compartments: prewash/stains, wash, fabric softeners ▪ 4 compartments: prewash, wash, stain remover, conditioners
Control of water level in the tub	<ul style="list-style-type: none"> ▪ Electronic/analogue pressure switch
Door safety interlock	<ul style="list-style-type: none"> ▪ Instantaneous
Heating element heat output, washing	<ul style="list-style-type: none"> ▪ 1,950 W with thermal fuses incorporated
Heating element heat output, drying	<ul style="list-style-type: none"> ▪ 800 W + 800 W
Temperature control, washing	<ul style="list-style-type: none"> ▪ NTC probe incorporated in the heating element
Temperature control, drying	<ul style="list-style-type: none"> ▪ NTC
Buzzer	<ul style="list-style-type: none"> ▪ Traditional incorporated in the PCB
Sensors	<ul style="list-style-type: none"> ▪ Water fill gauge (2÷12 l/m flowmeter) ▪ Aqua control ▪ Weight sensor

4.2 Control panel

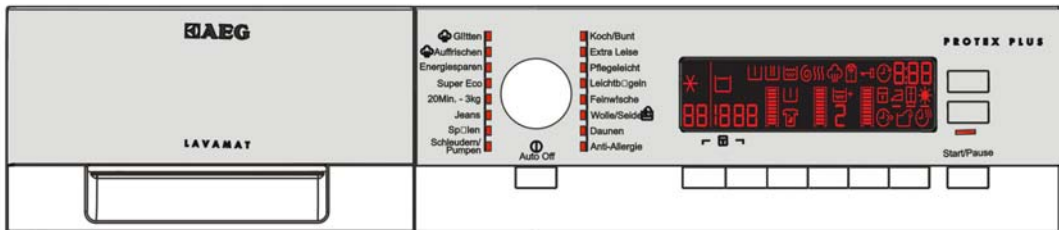
4.2.1 Styling

- Max. 9/10 buttons
- 16 position programme selector
- 20 LEDs
- LCD

4.2.1.1 Version WM



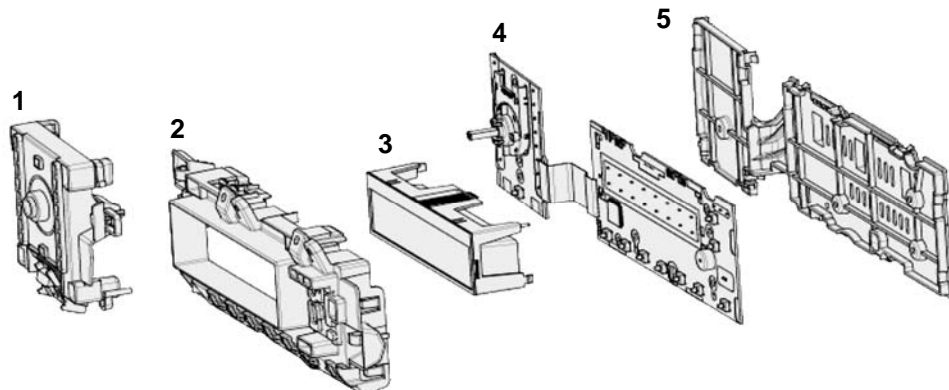
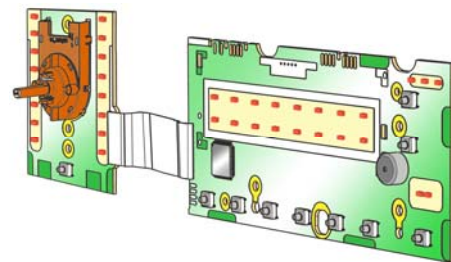
4.2.1.2 Version WD



- Positioning of LEDs and buttons

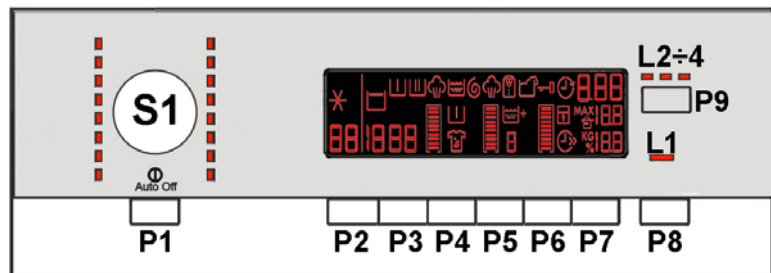
- Display board assembly, exploded view

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



4.2.1.3 Control panel configuration

The description below applies to both the Washing machine and the Washer dryer versions; if the description differs, this will be specified with Washing machine or Washer Dryer.



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

4.2.1.4 Programme selector (S1)

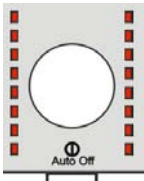


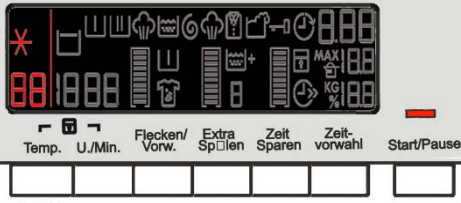

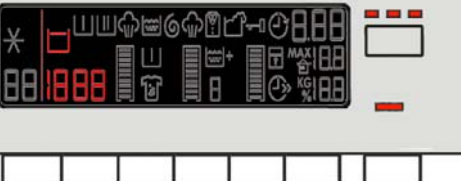
Description: see para. 3.2.2.1 on page 12

4.2.1.5 Programme configuration


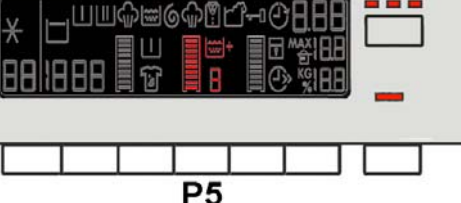
Description: see para. 3.2.2.2 on page 12

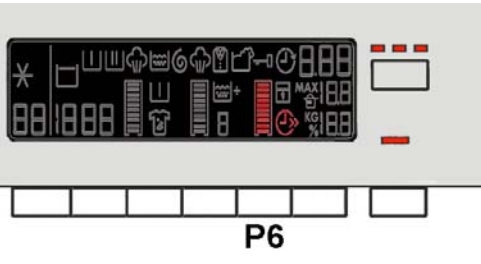
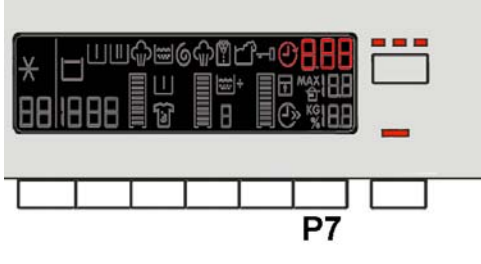

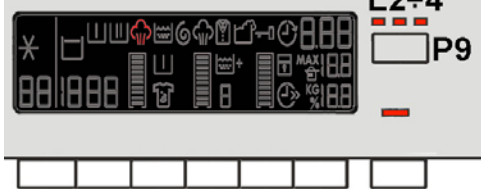


4.2.1.6 Pushbuttons – LEDs and LCD

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

<ul style="list-style-type: none"> • Button no. 1: ON/OFF <p>Description: see Button no. 1 on page 13</p>	 <p style="text-align: center;">P1</p>
<ul style="list-style-type: none"> • Button no. 2: TEMPERATURE <p>See description on page 11 The only difference with version 7 is the representation of the cold cycle, which is represented by the cold symbol  and by two dashes  to replace the Digits.</p>	 <p style="text-align: center;">P2</p>
<ul style="list-style-type: none"> • Button no. 3: SPIN SPEED <p>This is related to the part of the LCD display in which the washing cycle spin speed is shown. The spin speed displayed initially is that configured for the chosen programme. Press this button in sequence to lower the speed, when the lowest temperature is reached the next has been reached, the next one is “Rinse Hold” and the related light up  (if compatible with the programme selected). This is also lit during the “Extra silent” programme. The next selection will be the highest speed available for the programme. The spin speeds are: 1,600–1,400–1,200–1,000–800–600–400– “Rinse Hold” cycle. When no speed is selected, or the “Rinse Hold” cycle is selected, the LCD display shows three dashes “ - - - ”.</p>	 <p style="text-align: center;">P3</p>

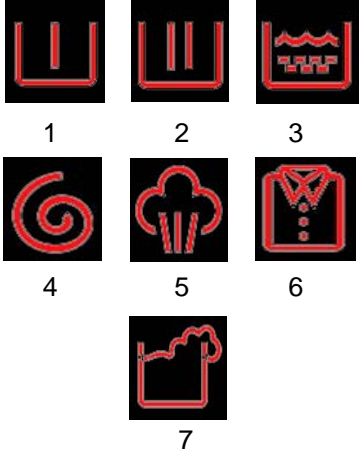





The settings described below not only have symbols, but they are also accompanied by a graphic bar within a frame. If it is illuminated, this indicates that the option is enabled for the chosen programme, otherwise it is off. When all its segments are lit, it will start from scratch again the next time it is pressed.









<ul style="list-style-type: none"> • Button no. 4: OPTION <p>It is related to the part of the LCD display (see figure) where the graphic bar and the symbols relating to the options are displayed, depending on the chosen programme. Press the button to light the graduated scale and the Stains symbol lights simultaneously. If you continue to press it, the Prewash symbol also lights up. The selection order is as follows:</p> <ol style="list-style-type: none"> 1. Stains 2. Pre-wash 3. Stains + Prewash 	 <p style="text-align: center;">P4</p>
<ul style="list-style-type: none"> • Button no. 5: OPTION <p>It is related to the part of the LCD display (see figure) showing: the graphic bar, a digit and the “Extra rinse” symbol. Press the button to light the graduated scale. The symbol for the “Extra rinse” lights simultaneously, and the digit shows the number of additional rinses to combine with the programme. The number of rinses depends on the programme configuration.</p>	 <p style="text-align: center;">P5</p>

<ul style="list-style-type: none"> • Button no. 6: OPTION <p>It is related to the part of the LCD display (see figure) showing: the graphic bar and the "Time save" option. Press the button and half or all of the graduated scale may light up, depending on the configuration of the button. The related symbol also lights up simultaneously.</p> <ul style="list-style-type: none"> – Press the button once and the chosen option is "Daily". – Press the button twice and the chosen option is "Super Quick". 	 <p style="text-align: center;">P6</p>
<ul style="list-style-type: none"> • Button no. 7: DELAYED START <p>It is related to the part of the LCD display (see figure) showing the related symbol and the three digits. Press the button in sequence to increase the delay by 30' up to 2 hours, whereas from 2 hours to 20 hours, the increase is of 1 (one) hour every time the button is pressed. The symbol lights and stays on for the entire delay phase. During the programme selection phase, a delayed start can be selected, from 30' to 20 hours (30' ↻ 60' ↻ 90' ↻ 2h ↻ 3h... ↻ 20h ↻ 0h) and the time is shown on the LCD display; During the last hour, the time decreases minute by minute. To cancel the delayed start time, after the cycle has started, pause the washing machine using the related button and cancel the option.</p>	 <p style="text-align: center;">P7</p>
<ul style="list-style-type: none"> • Button no. 8: START/PAUSE <p>This button is used to START the appliance or to PAUSE it.</p> <p>It is related to LED L1, which flashes when the appliance is on pause, whereas it is lit continuously during a washing cycle.</p>	 <p style="text-align: center;">P8</p>
<ul style="list-style-type: none"> • Button no. 9: STEAM (where featured) <p>Press this button in sequence to select from three different steam intensity levels. These are highlighted by the lighting of LEDs L2/L3/L4 and the related symbol lighting on the LCD display.</p>	 <p style="text-align: center;">L2÷4 P9</p>
<p>Washer dryer</p> <ul style="list-style-type: none"> • Button no. 9 <p>Description: see Button no. 4 on page 14</p>	 <p style="text-align: center;">P9</p>
<p>Washer dryer</p> <ul style="list-style-type: none"> • Button no. 10 <p>Description: see Button no. 5 on page 14</p>	 <p style="text-align: center;">P10</p>

- **LCD**

The information described below also appears on the LCD:

<ul style="list-style-type: none"> • Programme phases: <p>The icons represented respectively mean:</p> <ol style="list-style-type: none"> 1. Pre-wash 2. Wash 3. Rinse 4. Spin 5. Steam combined with the programme (where featured) 6. Rinse Hold 7. Detergent overdose <p>They light up during the programme setting where featured and during their performance.</p> <p>The icon representing the Overdose lights up at the end of the cycle if during the performance of the programme an excess production of foam was detected.</p>	
<ul style="list-style-type: none"> • Padlock: <p>The icon lights up when the “child lock” function is activated. It indicates that all the buttons are disabled to prevent children from modifying, starting or pausing the cycle;</p> <p>To enable/disable this function, a key combination needs to be pressed. It may be silk-screen printed on the control panel or described in the instruction manual.</p>	
<ul style="list-style-type: none"> • Door closed sensor: <p>Lights up when the safety device stops door opening and switches off when the door can be opened.</p> <p>Flashes when the device is about to unlock the door (with door interlock with PTC, which needs one/two minutes to open).</p>	
<ul style="list-style-type: none"> • Weight sensor: <p>Group of icons representing the weight information of the laundry inside the drum.</p> <p>Since they represent the maximum load possible, the actual weight of the laundry inside the drum and the ratio of these two factors suggest the quantity of detergent to pour into the detergent dispenser.</p> <p>Description: see para. 4.2.1.8 on page 27</p>	
<ul style="list-style-type: none"> • Washing programme time: <p>Description: see page 16</p>	
<ul style="list-style-type: none"> • Delay start <p>Selected using the related button. After the START/PAUSE button is pressed, the countdown starts and the delay time decreases hour by hour, from a delay of 2 hours up to 20 hours (30' 60' 90' 2h 3h... 20h 0h).</p> <p>During the last 2 hours, it decreases by 30 mins at a time.</p> <p>Press the button in sequence to increase the delay by 30' up to 10 hours, whereas from 10 hours to 20 hours, the increase is of 1 (one) hour every time the button is pressed.</p> <p>During the programme selection phase, a delayed start can be selected, from 30' to 20 hours (30' 60' 90' 10h 11h... 20h 0h) and the time is shown on the LCD display;</p> <p>during the last hour, the time decreases minute by minute.</p> <p>To cancel the delayed start time, after the cycle has started, pause the washing machine using the related button and cancel the option.</p>	

<ul style="list-style-type: none"> • Selection incorrect Description: see page 16 	
<ul style="list-style-type: none"> • End of cycle Description: see page 17 	
<ul style="list-style-type: none"> • Alarm code Description: see page 17 	
<p>Washer dryer</p> <ul style="list-style-type: none"> • Automatic drying Shown by three symbols with three drying levels Description: see button no. 4 on page 14 	
<p>Washer dryer</p> <ul style="list-style-type: none"> • Programme phases <ul style="list-style-type: none"> – Wash phase  – Drying phase  	
<ul style="list-style-type: none"> • Extra rinse Appliances which do not feature the button and related LED for the Extra rinse option can enable/disable this option by pressing a key combination (which may be silk-screen printed on the control panel or described in the instruction manual). This option is enabled/disabled during programme selection and is confirmed by the related symbol being turned ON/OFF. The option remains enabled even after the appliance has been turned off (for subsequent programmes). 	

4.2.1.7 Buzzer

Description: see para. 3.2.2.4. page 18

4.2.1.8 Weight sensor (where featured)

Appliances fitted with the weight sensor (inserted inside a shock absorber) are designed - thanks to the LCD display - to inform the user of the weight of the laundry inside the drum while at the same time suggesting the quantity of detergent to pour into the dispenser provided.

For it to operate, the appliance needs to be turned on and in selecting phase with the door open. When the laundry is being placed inside the drum, the LCD displays the weight in kg with an accuracy of half a kilogram. The exact sequence to have the correct weight information is as follows:

The appliance must be turned off and the drum must be empty.

Turn the washing machine on, select the programme, choose the options, and if the door was closed on starting, open it.

The LCD displays the maximum declared weight for the selected programme and 0.0 kg the weight of the laundry inside the drum (empty drum). At the same time the laundry is placed in the drum, the LCD display updates the digits relating to the time until the end of the programme.



In the event of an overload in a programme (Cottons), the LCD display will continue to show the maximum weight without warning that the load is excessive.

Whereas in other programmes (Synthetics, delicates, special programmes and in particular the drying programmes) if the weight exceeds by only 1 kg or more, the symbol "MAX" will begin to flash, together with the weight of the maximum load allowed.



In some cases, you will have to take some laundry out so that the symbol "MAX" and the maximum weight allowed stop flashing and to guarantee optimum washing performance.

Once the laundry has been loaded, close the door, the LCD display cancels all the weight details and displays the quantity of detergent to be poured into the dispenser.

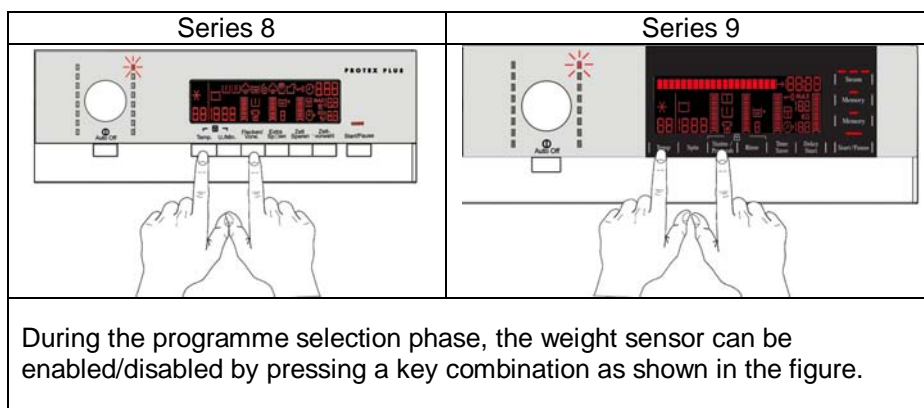
The representation consists of: a measuring cup, a number and the symbol for the percentage.

The number displayed represents the percentage detergent to pour into the dispenser, considering 100% to be the quantity required for the maximum load for the chosen programme (value that remains fixed even in the case of an overload).



Once the detergent has been poured in, and the START/PAUSE button has been pressed, the washing cycle will begin. The information about the weight of the laundry and the percentage detergent disappears and will not be displayed again.

4.2.1.8.1 Enabling/Disabling the weight sensor



5 SERIES 9

5.1 General characteristics

The SERIES 9 has a single ON/OFF button, all the other choices/adjustments are made by skimming your finger over the touch sensors, which replace the buttons used so far.

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

The EWM10931 electronic control system consists of two circuit boards plus the motor control system.

↪ The control/display circuit board, inserted in a plastic box, secured to the control panel (the figure illustrates: the display board with the side socket in which the selector is fixed, connected together by a flat cable, and the display board assembly).



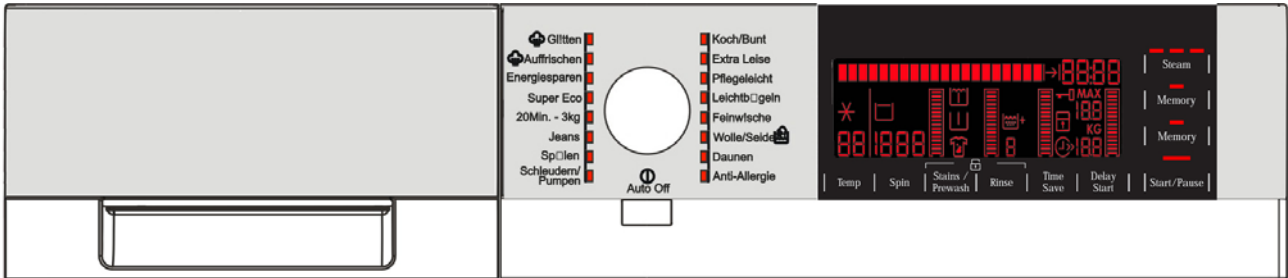
↪ The main circuit board is positioned at the rear of the appliance and powers the electrical components as well as communicating with the motor control board (Inverter) and receiving commands from the display board.

No. buttons	<ul style="list-style-type: none"> ▪ Max 1 (ON/OFF)
No. of sensors	<ul style="list-style-type: none"> ▪ Max 10 (options + START/PAUSE + memories)
No. LEDs	<ul style="list-style-type: none"> ▪ Maximum 22 + LCD
Programme selector	<ul style="list-style-type: none"> ▪ 16 positions (incorporated in the circuit board)
Serial port	<ul style="list-style-type: none"> ▪ DAAS-EAP communication protocol up to 115,200 baud
Power supply voltage	<ul style="list-style-type: none"> ▪ 220/240 V ▪ 50/60 Hz (configurable)
Washing type	<ul style="list-style-type: none"> ▪ Traditional with "Eco-ball" sphere ▪ Jet-System
Rinsing system	<ul style="list-style-type: none"> ▪ Traditional with "Eco-ball" sphere ▪ Jet-System
Motor	<ul style="list-style-type: none"> ▪ Two-pole asynchronous (three-phase), with tachometric generator
Spin speed	<ul style="list-style-type: none"> ▪ 400÷1,600 rpm
Anti-unbalancing system	<ul style="list-style-type: none"> ▪ AGS
Cold water fill	<ul style="list-style-type: none"> ▪ 1 solenoid valve with 1 inlet – 2 or 3 outlets
Hot water filling	<ul style="list-style-type: none"> ▪ 1 solenoid valve with 1 inlet – 1 outlet
Detergent dispenser	<ul style="list-style-type: none"> ▪ 3 compartments: prewash/stains, wash, fabric softeners ▪ 4 compartments: prewash, wash, stain remover, conditioners.
Control of water level in the tub	<ul style="list-style-type: none"> ▪ Electronic/analogue pressure switch
Door safety interlock	<ul style="list-style-type: none"> ▪ Instantaneous
Heating element heat output	<ul style="list-style-type: none"> ▪ 1,950 W with thermal fuses incorporated
Temperature control	<ul style="list-style-type: none"> ▪ NTC probe incorporated in the heating element
Buzzer	<ul style="list-style-type: none"> ▪ Traditional incorporated in the PCB
Sensors	<ul style="list-style-type: none"> ▪ Water fill gauge (2÷12 l/m flowmeter) ▪ Aqua control ▪ Weight sensor
Drum light	<ul style="list-style-type: none"> ▪ LED

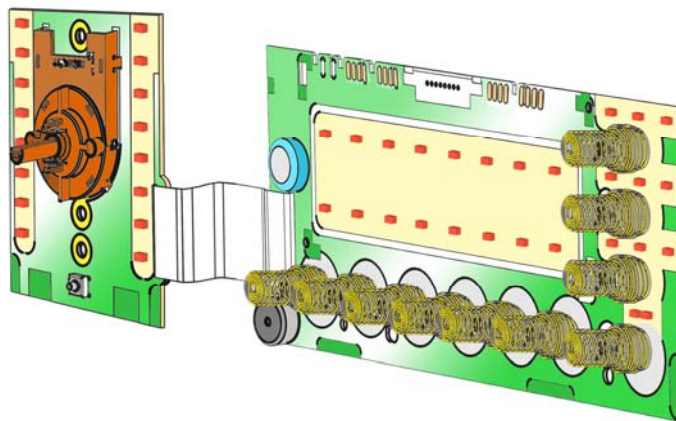
5.2 Control panel

5.2.1 Styling

- Max buttons 1
- Max sensors 10
- 16 position programme selector
- 22 LEDs
- LCD

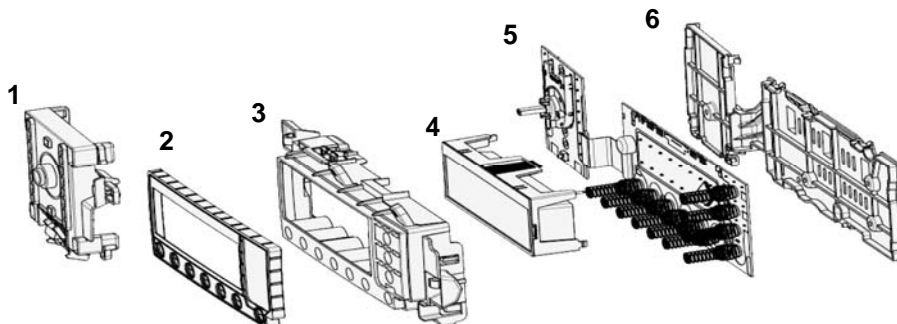


- Positioning of LEDs and buttons

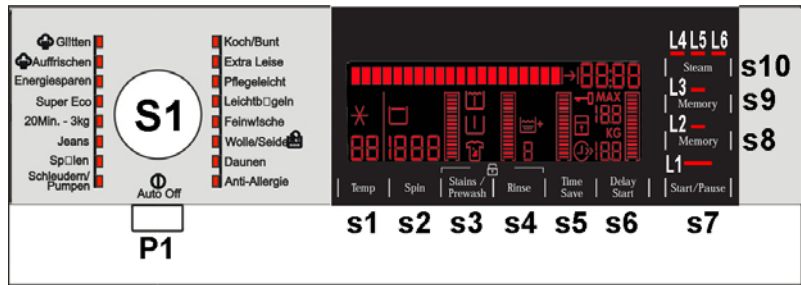


- Display board assembly

1. Selector board protection
2. Seal
3. Display board protection
4. LCD display
5. Display board and selector board
6. Rear protection



5.2.1.1 Control panel configuration



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

5.2.1.2 Initial Start up

The first time the appliance is turned on and after every diagnostic cycle, the language and time need to be set.

5.2.1.2.1 Set Language

The first time the appliance is turned on or after a diagnostic cycle, the text line prompts you to turn the selector to choose your language (the language displayed is the one of the silk screen printed control panel) for approximately 3 seconds. Once you have chosen your language, after another 3 seconds you will be prompted to touch the START/PAUSE sensor to confirm your choice.

If the appliance is turned off before you confirm your choice, the next time it is turned on, you will again be prompted to choose your language.

5.2.1.2.2 Setting the time of day

After the language has been selected, the text line shows "Time of day" prompting you to set the time. After approximately 3 seconds, you will be prompted to turn the selector, which will change the time by an hour (in the digits) every time it is moved. Once the correct time has been set, confirm by pressing the START/PAUSE sensor.

The digits relating to the minutes start to flash. Again, turn the selector dial to adjust them too and confirm with the START/PAUSE sensor. Now the time of day has also been set.

To change the language or time, see the key combination in the table below.

Language Configuration	Time Configuration
<p>Once the appliance has been turned on during the selecting phase you are given the opportunity to change language. Touch the sensors as shown in the figure, and for the next 3 seconds you can choose your new language.</p>	<p>Once the appliance has been turned on during the selecting phase you are given the opportunity to set the time. Touch the sensors as shown in the figure, and for the next 3 seconds you can modify the time.</p>

5.2.1.3 Programme selector (S1)

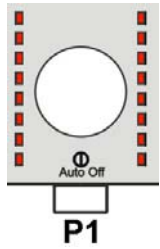


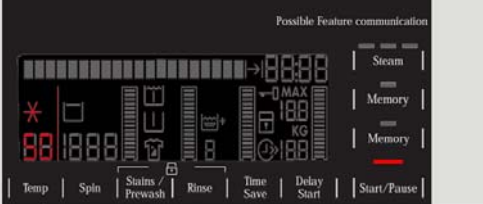

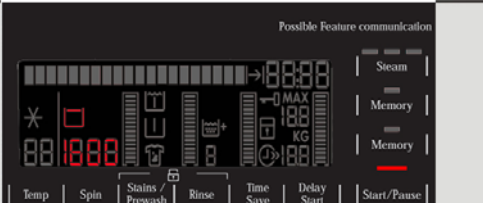
Description: see para. 3.2.2.1 on page 12

5.2.1.4 Programme configuration

Description: see para. 3.2.2.2 on page 12





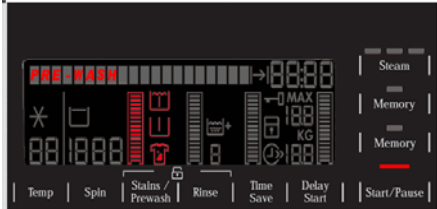
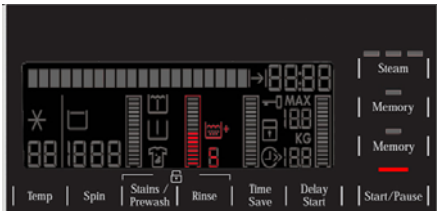
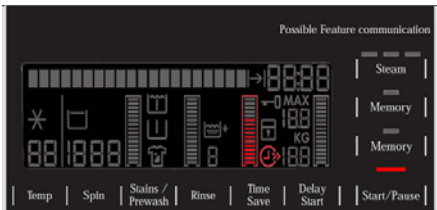
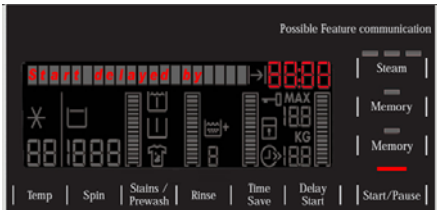
5.2.1.5 Pushbuttons – LEDs and LCD

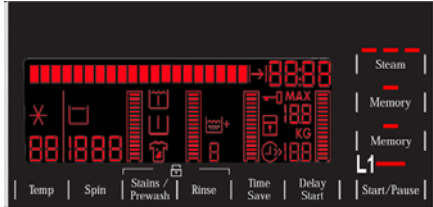
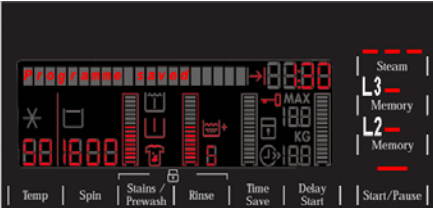
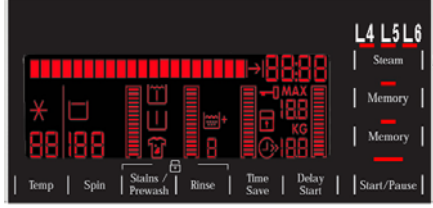
The functions of each button are defined by the configuration of the appliance.

<ul style="list-style-type: none"> • Button no. 1: ON/OFF <p>Description: see Button no. 1 on page 13</p> <p>Unlike the other versions, in the SERIES 9, after pressing the ON/OFF button the LCD displays the time of day (for two seconds to allow the user to check it and if necessary update it) followed by the programme information.</p>	 <p style="text-align: center;">P1</p>
<ul style="list-style-type: none"> • Sensor no. 1: TEMPERATURE <p>It is related to the part of the LCD display (see figure) where the temperature of the washing cycle is shown. The initial temperature displayed is that set for the chosen programme.</p> <p>Touch the sensor with your finger to lower it. Once you have reached the lowest one, the selection starts off again from the highest temperature.</p> <p>The cold cycle is represented by the cold symbol  and by two dashes  to replace the Digits.</p> <p>The temperatures available (displayed in °C) are: 95 °C, 60 °C, 50 °C, 40 °C, 30 °C, 20 °C, cold cycle.</p> <p>Concurrently with the display of the temperature in degrees, the name of the selected function appears at the top of the display in the text line.</p>	 <p style="text-align: center;">s1</p>
<ul style="list-style-type: none"> • Sensor no. 2: SPIN SPEED <p>It is related to the part of the LCD display (see figure) where the spin speed of the washing cycle is shown. The initial speed shown on the LCD display is that configured for the selected programme.</p> <p>Touch the sensor with your finger to lower the speed. Once the lowest speed has been reached, the next selection is “Rinse Hold” and the related symbol  lights up (where compatible with the chosen programme), which is also lit during the “Extra silent” programme.</p> <p>The next selection will be the speed configured for the programme.</p> <p>The spin speeds are: 1,600–1,400–1,200–1,000–800–600–400– “Rinse Hold” cycle.</p> <p>When no speed is selected, or the “Rinse Hold” cycle is selected, the LCD display shows three dashes “ - - - ”.</p> <p>Concurrently with the display of the spin speed in rpm, the name of the selected function appears at the top of the display (in the text line).</p>	 <p style="text-align: center;">s2</p>

The settings described below not only have the symbols of the options, but they are also accompanied by a graphic bar within a frame. If the latter is lit, this means the option is enabled for the chosen programme. Otherwise it remains off.





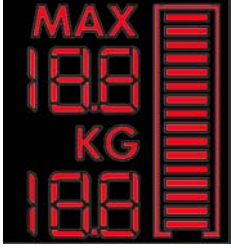

When all its segments are lit, it will start from scratch again the next time it is pressed.

<ul style="list-style-type: none"> Sensor no. 3: OPTION It is related to the part of the LCD display (see figure) where a graphic bar and the symbols relating to the options are displayed, depending on the chosen programme. Touch the sensor with a finger and the graphic bar starts to light up. The symbol for Stains is turned on at the same time. As you continue, the Prewash symbol lights up. The selection order is as follows: <ol style="list-style-type: none"> Stains  Pre-wash  Stains + Prewash  Stains + Soak  No Option It may happen that it is not possible to select the option(s) where the stains item is displayed, due to the washing temperature being too low, and consequently the options are skipped. Concurrently to the displaying of the symbol for the option, as the graphic bar is gradually illuminated, the name of the chosen option is displayed in the text line in the top left. 	 <p style="text-align: center;">s3</p>
<ul style="list-style-type: none"> Sensor no. 4: EXTRA RINSE It is related to the part of the LCD display (see figure) showing: the graphic bar, a digit and the symbol for the “Extra rinse” option. Touch the sensor with your finger and the graphic bar begins to light up. Concurrently, the symbol lights up and you can choose the number of rinses to add to the programme, which are displayed by the digit (depending on the programme). Concurrently to the displaying of the symbol for the option, as the graphic bar is gradually illuminated, the name of the option is displayed in the text line in the top left. 	 <p style="text-align: center;">s4</p>
<ul style="list-style-type: none"> Sensor no. 5: OPTION It is related to the part of the LCD display (see figure) showing: the graphic bar and the “Time save” option. Touch the sensor with your finger, half or all of the graduated scale may light up, depending on the configuration and the related symbol also lights simultaneously. Touch once <ul style="list-style-type: none"> – and the chosen option is “Daily”. touch again and the graduated scale lights up completely <ul style="list-style-type: none"> – The chosen option is “Super Quick”. Concurrently to the displaying of the symbol for the option, as the graphic bar is gradually illuminated, the name of the chosen option is displayed in the text line in the top left. 	 <p style="text-align: center;">s5</p>
<ul style="list-style-type: none"> Sensor no. 6: DELAYED START It is related to the part of the LCD display (see figure) showing: the four digits and the text bar. Touch the sensor with your finger. The LCD display is updated according to the status of the door: if the door is open, the words “Start delayed by” are displayed and the delay time is displayed in the digits for approximately 5 seconds, whereas if the door is closed, the words “Programme ending at” are displayed along with the programme end time. During the last hour, the time decreases minute by minute. To cancel the delayed start time, after the cycle has started, pause the washing machine using the related sensor (7) and cancel the option. 	 <p style="text-align: center;">s6</p>

<ul style="list-style-type: none"> Sensor no. 7: START/PAUSE Touch the sensor with your finger to START or PAUSE the appliance. It is related to LED (L1), which flashes when the appliance is on pause, whereas it is lit continuously when the appliance is performing a washing cycle. 	 <p>The image shows the control panel with sensor s7 (Start/Pause) lit. The LCD displays various settings: Temp, Spin, Stains/Prewash, Rinse, Time Save, Delay Start, and Start/Pause. The text line shows 'MAX 188 KG' and '188'. The sensor L1 is lit.</p>
<ul style="list-style-type: none"> Sensor no. 8/9: MEMORY Touch one of these sensors with your finger to store or recall a stored programme. When the selected programme has been optimised with the desired options, it can be saved in one of the two memories by touching the related sensor (s8/9) for approximately 3 seconds. The buzzer “beeps” once and the LED (L2/3) corresponding to the memory lights up and the words “Programme saved” are displayed in the text line to show that the operation was successful. To recall the stored programme, simply touch the sensor (s8/9) of the memory concerned, the corresponding LED (L2/3) lights up and the LCD displays the settings of the programme saved (selector LED, options, time left and the words “Memory programme” are displayed in the text line for approximately 3 seconds. If a sensor of the memory which contains no stored programmes is touched, the buzzer “beeps” once and the corresponding LED stays on and the words “Memory is empty” are displayed in the text line for approximately 3 seconds. 	 <p>The image shows the control panel with sensors s8 and s9 (Memory) lit. The LCD displays various settings: Temp, Spin, Stains/Prewash, Rinse, Time Save, Delay Start, and Start/Pause. The text line shows 'MAX 188 KG' and '188'. The sensors L2 and L3 are lit.</p>
<ul style="list-style-type: none"> Sensor no. 10: STEAM (where featured) Touch this sensor with your finger in sequence to select among the three steam intensity levels shown by the lighting of LEDs L4/L5/L6. The text line displays the status of the option. 	 <p>The image shows the control panel with sensor s10 (Steam) lit. The LCD displays various settings: Temp, Spin, Stains/Prewash, Rinse, Time Save, Delay Start, and Start/Pause. The text line shows 'MAX 188 KG' and '188'. The sensors L4, L5, and L6 are lit.</p>

- **LCD**

The information described below also appears on the LCD:

<ul style="list-style-type: none"> • Padlock: The icon lights up when the “child lock” function is activated. To indicate that all the sensors are disabled to prevent children from modifying, starting or pausing the cycle. A sensor combination needs to be pressed to activate/deactivate it. It may be silk-screen printed on the control panel or described in the instruction manual. 	
<ul style="list-style-type: none"> • Door closed sensor: Lights up when the safety device stops door opening and switches off when the door can be opened. It flashes when the device is about to unlock the door (it is noticed with PTC delaying devices, which need one or two minutes to open). 	
<ul style="list-style-type: none"> • Cycle time: It lights up to indicate the cycle time 	
<ul style="list-style-type: none"> • Time left: It lights up to indicate the time left until the end of the cycle. 	
<ul style="list-style-type: none"> • Weight sensor: Group of icons representing the weight information of the laundry inside the drum. Since they represent the maximum load possible, the actual weight of the laundry inside the drum and suggests the quantity of detergent to pour into the detergent dispenser. Description: see para. 5.2.1.7 on page 35 	
<ul style="list-style-type: none"> • Delay start Selected on the related sensor. After the START/PAUSE sensor has been touched, the countdown starts and the delay time decreases hour by hour, from a delay of 2 hours up to 20 hours (← 30' ← 60' ← 90' ← 2h ← 3h... ← 20h ← 0h). During the last 2 hours, it decreases by 30 mins at a time. Touch the sensor in sequence to increase the delay by 30' up to 10 hours, whereas from 10 hours to 20 hours, the increase is of 1 (one) hour every time the button is pressed. During the programme selection phase, a delayed start can be selected, from 30' to 20 hours (30' ← 60' ← 90' ← 10h ← 11h... ← 20h ← 0h) and the time is shown on the LCD display; during the last one, the time decreases one minute at a time. To cancel the delayed start time, after the cycle has started, pause the washing machine using the related button and cancel the option. 	
<ul style="list-style-type: none"> • Selection incorrect The words “Not possible” are displayed in the text line. 	

<ul style="list-style-type: none"> • End of cycle <p>Description: see page 17</p>	
<ul style="list-style-type: none"> • Alarm code <p>Description: see page 17</p>	

5.2.1.6 Buzzer

Description: see para. 3.2.2.4 on page 18

5.2.1.7 Weight sensor (where featured)

Appliances fitted with the weight sensor (inserted inside a shock absorber) are designed - thanks to the LCD display - to inform the user of the weight of the laundry inside the drum while at the same time suggesting the quantity of detergent to pour into the dispenser provided.

For it to operate, the appliance needs to be in selecting phase with the door open. When the laundry is being placed inside the drum, the LCD displays the weight in kg with a resolution of 0.5 kg.

The exact sequence to have the correct weight information is as follows:

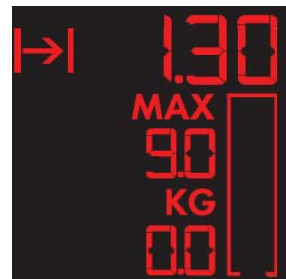
The appliance must be turned off and the drum must be empty.

Turn the washing machine on, select the programme, choose the options, and if the door was closed on starting, open it.

The LCD displays the maximum weight declared for the selected programme and 0.0 kg the weight of the laundry inside the drum (empty drum) and the words "Load laundry" are displayed in the text line.

The graduated scale lights up in proportion to the weight of the laundry inside the drum, the maximum weight displayed for the programme corresponds to the complete lighting of the graduated bar.

Concurrently to the loading of the laundry in the drum, the LCD display is updated for both the weight and time left until the end of the cycle.

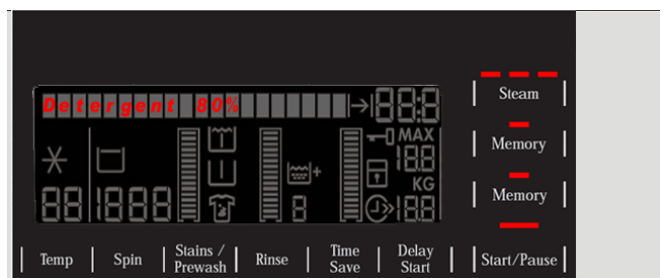


In the event of an overload in a programme (Cottons), the LCD display will continue to show the maximum weight without warning that the load is excessive.

Whereas in other programmes (Synthetics, delicates and special programmes) if the weight exceeds by just 0.5 kg, the words "Load laundry" in the text line change to "Loading completed", to indicate that loading must end. If the load exceeds by more than 1 kg, the graphic bar is completely lit, and the words "Max. load exceeded" are displayed in the text line. The word MAX and the maximum weight related to the appliance flash.

In some cases, you will have to take some of the laundry out to guarantee optimum washing performance.

Once the laundry has been loaded, close the door, the LCD display cancels all the weight details and the percentage detergent to be poured into the dispenser is shown in the text line, considering 100% to be the quantity of detergent required for the maximum load for the chosen programme (a value that remains fixed even in the case of an overload).



Once the detergent has been poured in, and the START/PAUSE button has been pressed, the washing cycle will begin. The information about the weight of the laundry and the percentage detergent disappears and will not be displayed again for the entire cycle.

5.2.1.7.1 Enabling/Disabling the weight sensor

Description: see para. 4.2.1.8.1 on page 27

6 DEMO MODE

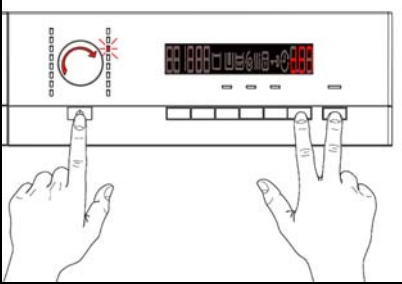
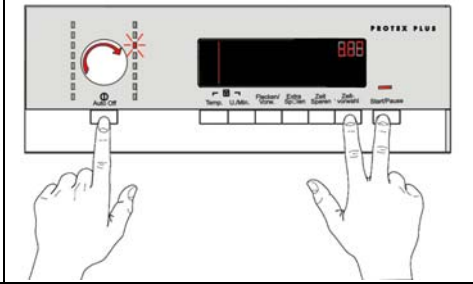
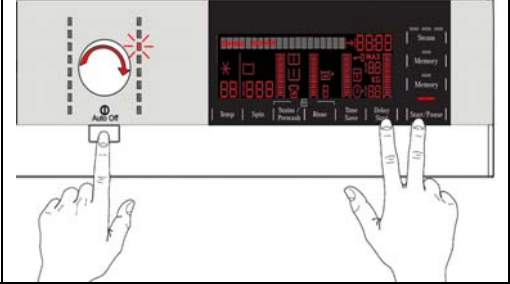
A special cycle is designed to demonstrate the operation of these appliances in shops, without connecting them to the water mains. This way, any one of the programmes can be selected and, once the start button/sensor has been pressed/touched (START/PAUSE), the appliance will only perform some of the phases of the programme, skipping those which cannot be performed (water fill, drain, heating).

The cycle takes place as follows:

- ☞ the door lock is enabled regularly (door locked during operation, possibility of opening it at the end of the cycle or when paused),
- ☞ Motor: all low speed movements are enabled, the pulses and spin are disabled,
- ☞ the water fill solenoid valves and the drain pump are disabled,
- ☞ display: as the cycle phases are very fast (one second in the demo cycle corresponds to approximately one minute in the actual cycle) the end time decreases by 1 unit per second. Bear in mind that the end time does not always correspond to the actual cycle time.

6.1 Access to DEMO settings

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

SERIES 7	SERIES 8	SERIES 9
		
<p style="text-align: center;"><u>Do not start the procedure with the combination buttons pressed</u></p> <ol style="list-style-type: none">1. Switch on the appliance using the ON/OFF button2. Turn the selector dial until the third LED in the right-hand row is on.3. Press the START/PAUSE button and the nearest option button simultaneously (as shown in the figure).4. Hold the buttons down (approximately three or five seconds) until “dEM” flashes for a short time.		

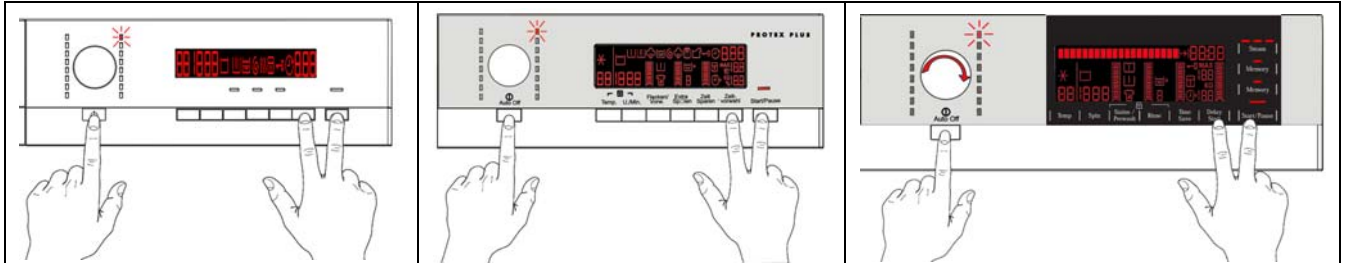
6.2 Exiting DEMO mode

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

7 DIAGNOSTICS SYSTEM

7.1 Accessing diagnostics

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



Do not start the procedure with the combination buttons pressed

1. Switch on the appliance using the ON/OFF button. The first LED in the right hand row will light up.
2. Press the **START/PAUSE** button and the nearest **option button** simultaneously (as shown in the figure).
3. Hold the buttons/sensors down/pressed until the LEDs and symbols begin to flash in sequence (approximately 3 seconds).

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

During this phase, if any key combination is pressed (except for the one relating to diagnostics), all the combinations of options stored are deleted (Extra rinse, No buzzer, etc..) whereas for SERIES 9, the memories with the customised programmes are also deleted.

7.2 Quitting the diagnostics system









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

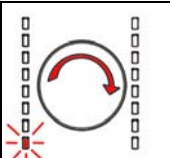

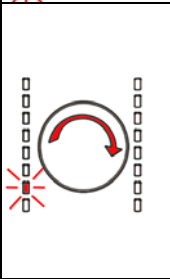

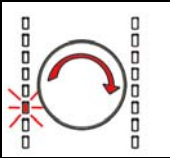

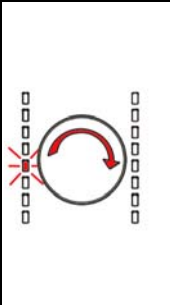

7.3 Diagnostic test phases

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

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

(all alarms are enabled in the diagnostic cycle).

Selector position	Components activated	Working conditions	Function tested	LCD display
1	<ul style="list-style-type: none"> - The LEDs, groups of symbols in the LCD screen and the backlight of the display are turned on in sequence - Press a button/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.	
2	<ul style="list-style-type: none"> - Door safety interlock - Wash solenoid 	Door closed. Water level below anti-flooding level. Maximum time 5 mins.	Water fill to wash compartment.	 Water level in the tub (mm)
3	<ul style="list-style-type: none"> - Door safety interlock - Pre-wash solenoid 	Door closed. Water level below anti-flooding level. Maximum time 5 mins.	Water fill to pre-wash compartment	 Water level in the tub (mm)
4	<ul style="list-style-type: none"> - Door safety interlock - Solenoid valve pre-wash and wash 	Door closed. Water level below anti-flooding level. Maximum time 5 mins.	Water fill to conditioner compartment.	 Water level in the tub (mm)
5	<ul style="list-style-type: none"> - 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)
6	<ul style="list-style-type: none"> - Door safety interlock - Fourth solenoid valve (hot water where featured) 	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)
7	<ul style="list-style-type: none"> - Door safety interlock - Wash solenoid, if the water in the tub is not enough to cover the heating element - Heating element - Weight sensor (if present, an extra litre of water is loaded) - Recirculation pump 	Door closed. Water level above the heating element. Maximum time 10 mins up to 90 °C. (*)	Heating. Circulation.	 Temperature in °C measured using the NTC probe
8	<ul style="list-style-type: none"> - 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

9		<ul style="list-style-type: none"> - Door safety interlock - Drain pump - Motor up to 650 rpm then at maximum spin speed (**) 	Door closed. Water level lower than anti-boiling level for spinning.	Drain, calibration of analogue pressure switch and spin.	 Drum speed in rpm/10
10		<ul style="list-style-type: none"> - Door safety interlock - Drain pump - Power fan - Condensation solenoid valve - Drying heating element 	Door closed. Water level below anti-boiling level. Maximum time 10 minutes.	Dryness.	 Displays the air temperature alternating that detected by the two NTC probes
11		<ul style="list-style-type: none"> - Reading/Deleting the last alarm 	-----	----	
12 ÷ 16		<ul style="list-style-type: none"> - The LEDs, groups of symbols in the LCD screen and the backlight of the display are turned on in sequence - Press a button/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.	

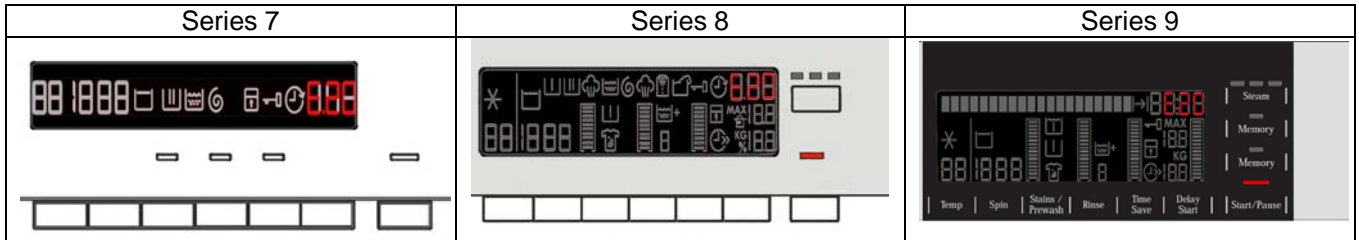
(*) In most cases, this time is sufficient to check the heating. However, the time can be increased by repeating the phase without draining the water: pass for a moment to a different phase of the diagnostic cycle and then back to the heating control phase (if the temperature is higher than 80 °C, heating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

8 ALARMS

8.1 Displaying the alarms to the user

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



The alarms displayed to the user are listed below:

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

The alarms listed below:

- ↪ EF0 – Water leakage (Aqua Control System)

The intervention of a service engineer is required

While for the alarm:

- ↪ EH0 – Voltage or frequency outside normal values

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

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

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

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

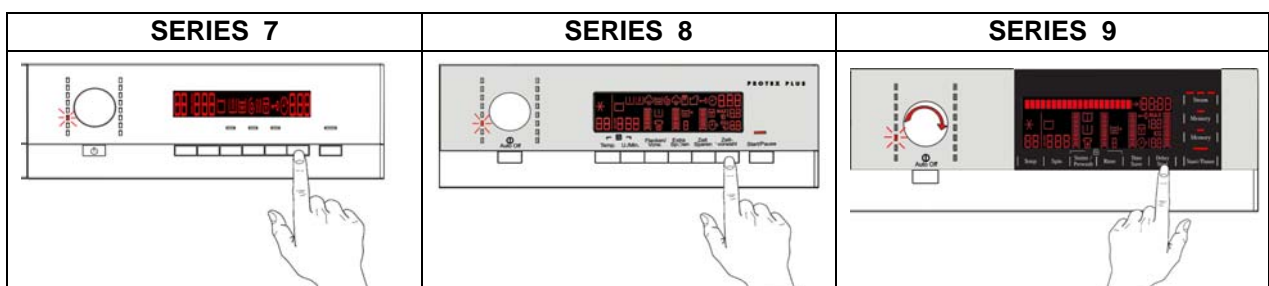
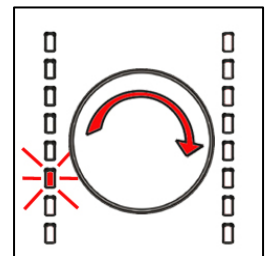
Certain alarm conditions require a drain phase to be performed before the door can be opened for safety reasons:

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

8.2 Reading the alarms

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

- enter the diagnostic mode (para. 7.1)
- Irrespective of the type of PCB and configuration, turn the programme selector knob **clockwise** to the **eleventh position** - the last alarm is then displayed.
- to display previous alarms, press/touch the button/sensor to the left of the START/PAUSE button in sequence (as shown in the figure).
- To return to the last alarm, press/touch the START/PAUSE button/sensor.



8.3 Rapid reading of alarms

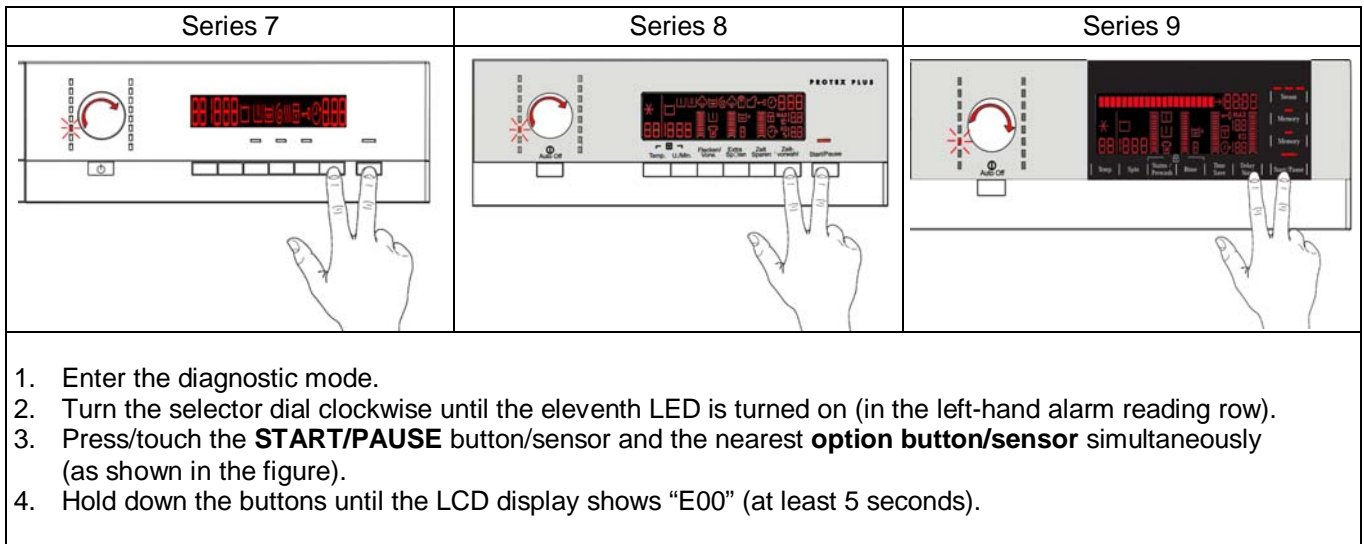
The last alarm can even be displayed if the selector is not in the tenth diagnostic position or if the appliance is in normal operating mode (for example when performing a wash programme):

- Press the **START/PAUSE** button and the nearest **option button** simultaneously (as if you were entering DIAGNOSTIC mode) for at least 2 seconds: the LCD display shows the last alarm.
- The alarm continues to be displayed until a button is pressed.
- The alarm reading system is as described in para. 8.2.
- During the time that the alarm is displayed, the appliance continues to perform the cycle or, if you are in the programme selection phase, it retains the options selected previously in memory.

8.4 Deleting the last alarm

It is good practice to cancel the alarms stored:

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



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

9 OPERATING TIME COUNTER

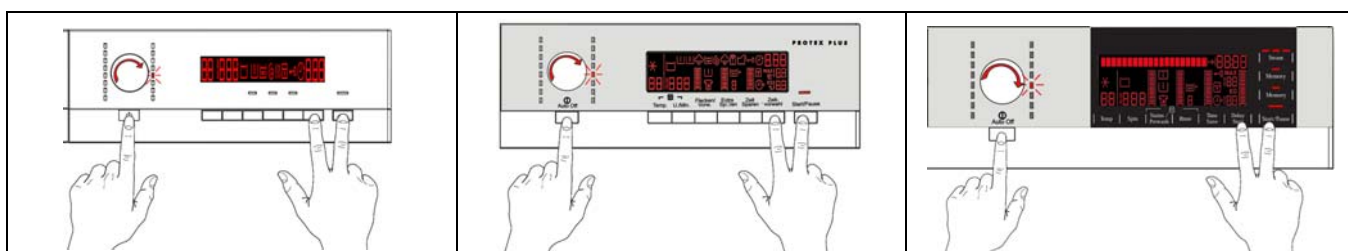
Using a specific procedure, the operator can display the total operating time for the appliance, which is counted from the moment it is first switched on.

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

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

9.1 Reading the operating time

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



Do not start the procedure with the combination buttons pressed

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

9.2 Display of total operating time

This time is displayed with a sequence of two digits at a time: the first two digits indicate thousands and hundreds, the second two digits indicate tens and units for the SERIES 7 and 8, while the time is displayed in a single sequence for SERIES 9.

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

	Phase 1	Phase 2	Phase 3
	For <u>two seconds</u> , the following is displayed: Hr	For <u>two seconds</u> , the following digits are displayed: ↙ thousands (6) ↙ hundreds (5)	For the next <u>two seconds</u> the following digits are displayed: ↙ tens (5) ↙ units (0).
<u>SERIES</u> 7/8			
<u>SERIES</u> 9	Phase 1 		Phase 2

At the end of phase three (after the tens and units are displayed), the cycle is repeated.

To return to normal mode, either: switch the appliance off or press a button or turn the selector knob.

10 OPTIONS

10.1 Compatibility between options

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

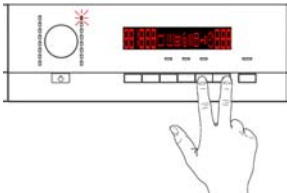
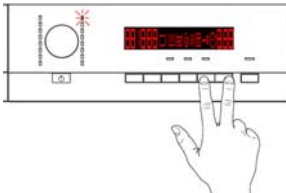
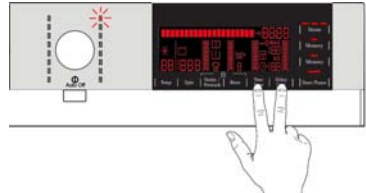
(*) Pre-wash and Soak exclude each other

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

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

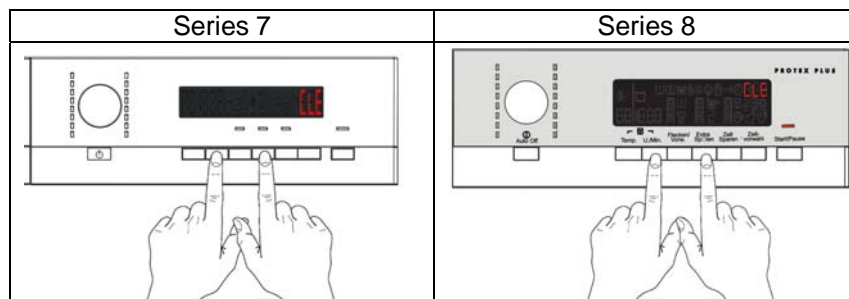
10.2 Description of options

- **Rinse hold**
 - During the cycle the intermediate rinses and spins are performed.
 - Stops the appliance with water in the tub before the final spin cycle.
 - To drain the water, simply press the START/PAUSE button to run the drain and spin cycles.
- **Pre-wash**
 - Adds a pre-wash phase at the start of the cycle with water heating to 30 °C (or cold, if selected).
 - In COTTON and SYNTHETICS cycles, performs a short spin before passing on to the washing phase.
 - This option cannot be selected for WOOL and HAND WASH cycles.
- **Soak**
 - Adds a pre-wash phase with heating to 30 °C (or cold, if selected) plus 30' hold with HAND WASH movement.
 - Completes the cycle.
- **Stains**
 - Adds a 5-minute motor movement phase after heating to 40 °C.
 - Water flow to the pre-wash/stains compartment to introduce the special stain-removal product.
 - This option cannot be selected for WOOL and HAND WASH cycles.
- **Super rinse (SERIES 7)**
 - Adds **two** rinses in the COTTONS - SYNTHETICS - DELICATES cycles.
 - Eliminates the spin at the end of washing.
- **Super rinse (SERIES 8/9 key combination).**
 - Adds **two** rinses in the COTTONS - SYNTHETICS - DELICATES cycles
 - Eliminates the spin at the end of washing.
- **EXTRA rinse (SERIES 8/9)**
 - Adds **up to five** rinses in the COTTONS - SYNTHETICS - DELICATES cycles.
 - When the rinses are five or more, it eliminates the spins at the end of the washing.
Maximum of 8 rinses in total.

ENABLING/DISABLING EXTRA RINSE USING A COMBINATION OF KEYS		
Appliances which do not envisage the option SUPER RINSE combined with a button can enable it through a key combination.		
Series 7	Series 8	Series 9
		
During the selecting phase, press the two buttons shown in the figure simultaneously for a few seconds until the related icon lights up. This option also remains enabled during subsequent cycles. To disable it, repeat the same operation until the related icon is turned off.		

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

- **Super quick**
 - Modifies the structure of the wash phase of the COTTON - SYNTHETIC FABRICS - DELICATES cycles by half a load.
- **Delayed start time**
 - Adds a pause before the start of the programme. The delay time is shown on the three digit display.
 - See page 15 series 7, page 24 series 8, page 32 series 9.
 - To start the cycle immediately after the countdown to the delayed start has already begun: press the Start/Pause button, cancel the delay time by pressing the relevant button, then press START/PAUSE again.
- **Automatic drying (WASHER-DRYERS – only certain models)**
 - You can choose from three different levels of automatic drying for COTTONS and one for SYNTHETIC FABRICS:
 - ↔ Iron dry (only for cotton)
 - ↔ Wardrobe dry (cotton and synthetic fabrics)
 - ↔ Extra dry (only for cotton)
 - The drying time is calculated automatically by the appliance.
 - The drying phase can be performed both as automatic drying (non-stop programme), if selected together with a washing cycle, or as a separate programme.
- **“Drying time” button**
 - Push this button to select from 10 to 250 minutes of drying for the COTTON cycles and from 10 to 210 minutes for the SYNTHETICS cycles, 5 minutes at a time.
 - The selected drying phase either in automatic drying or as a separate programme.
- ↔ **Removing fluff from the drum (washer dryer only)**
 - To remove fluff from the drum after a drying cycle, a drum cleaning cycle can be enabled by pressing a combination of keys. Select the rinse cycle by pressing the relevant key combination; the LCD screen displays “CLE” (where the wash or drying time is shown). At the end of the cleaning cycle, the LCD screen goes back to displaying the rinse cycle time.



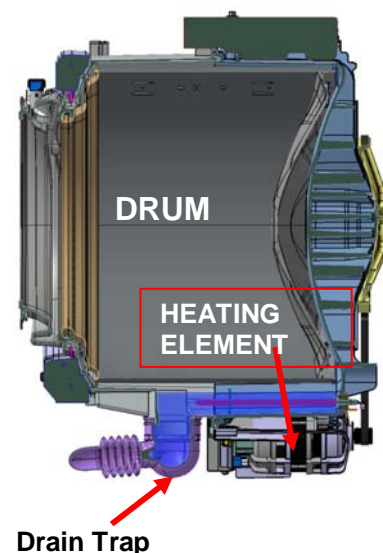
11 Generating STEAM

In SERIES 8 and 9 certain programmes can be configured to generate steam, which is used to refresh the laundry or to remove some creases and make ironing easier.

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

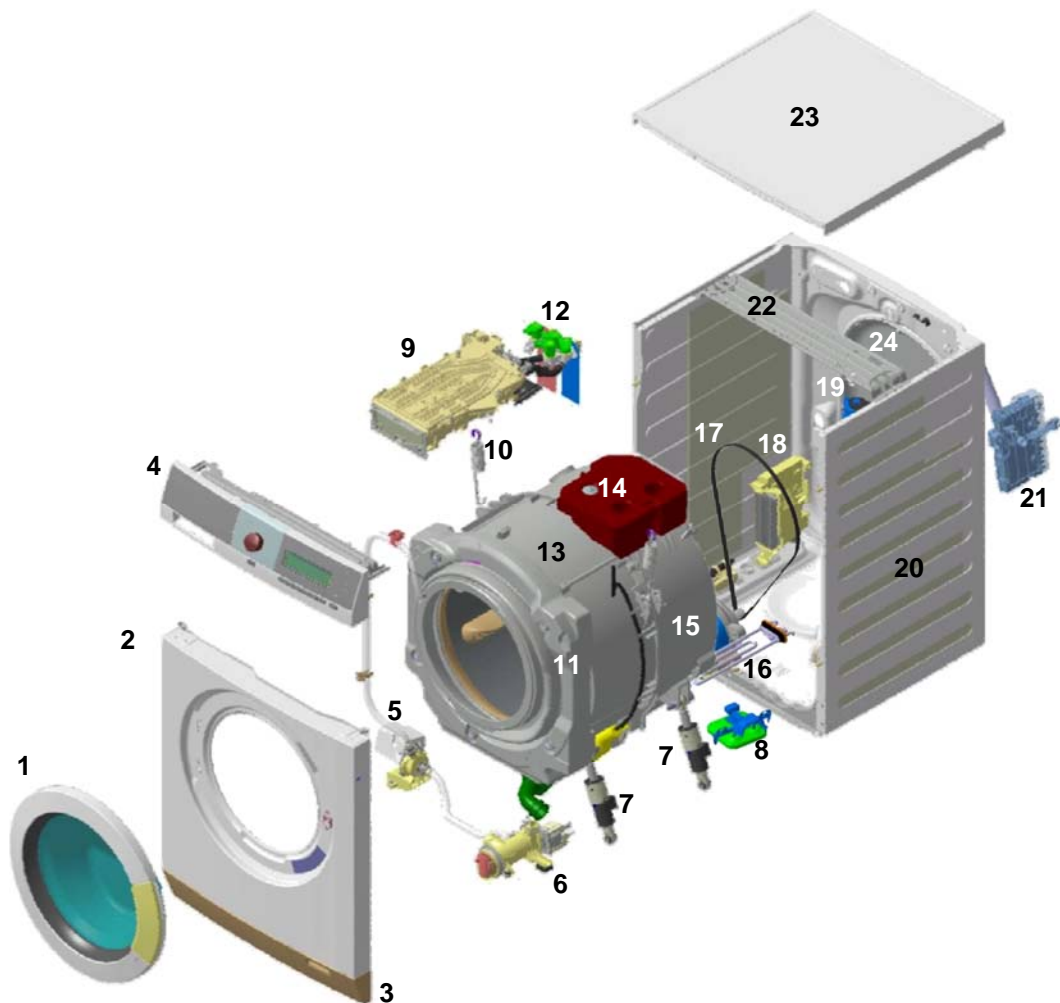
During the water filling and the movement of the drum, the laundry must not get wet.

The appliance must be levelled properly, because only a few degrees of difference in level are enough for water to enter the drum and get the laundry wet.



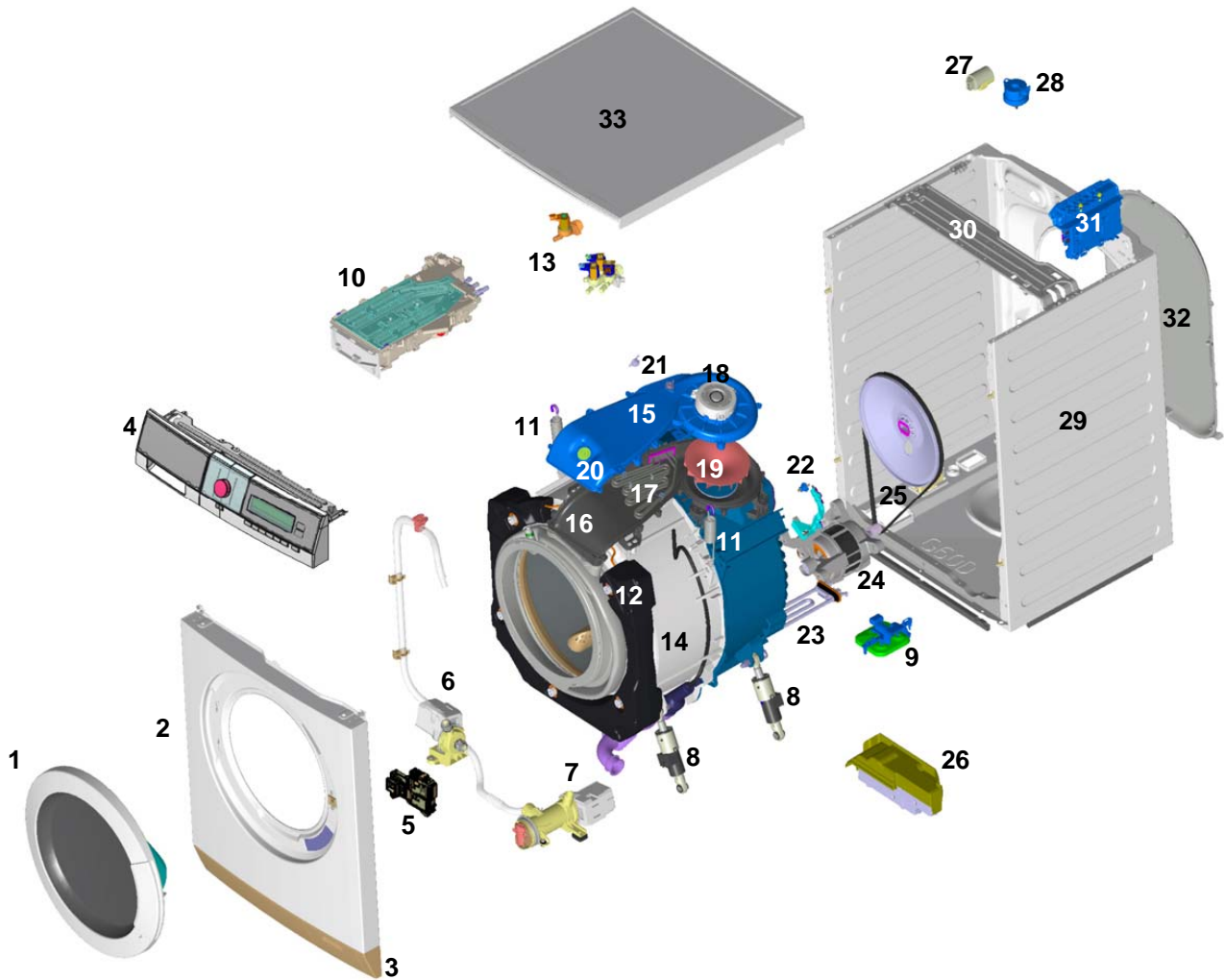
12 TECHNICAL CHARACTERISTICS

12.1 WM construction



- | | |
|-------------------------------------|----------------------------------|
| 1. Door | 13. Washing unit |
| 2. Front panel | 14. Upper counterweight |
| 3. Base board | 15. Motor |
| 4. Control panel | 16. Heating element |
| 5. Circulation pump | 17. Belt |
| 6. Drain pump | 18. Inverter motor control board |
| 7. Shock absorbers | 19. Analogue pressure switch |
| 8. Aqua control | 20. Back unit casing |
| 9. Detergent dispenser | 21. Main circuit board |
| 10. Washing unit suspension springs | 22. Crossbar |
| 11. Front counterweight | 23. Worktop |
| 12. Solenoid valves | 24. Back panel |

12.2 WD construction



1. Door	18. Fan motor
2. Front panel	19. Fan
3. Base board	20. NTC probe (drying)
4. Control panel	21. Thermostats
5. Door Lock	22. NTC probe (humidity)
6. Circulation pump	23. Washing heating element
7. Drain pump	24. Motor
8. Shock absorbers	25. Belt and pulley
9. Aqua control	26. Main circuit board with Inverter
10. Detergent dispenser	27. Anti-disturbance filter
11. Washing unit suspension springs	28. Analogue pressure switch
12. Front counterweight	29. Back unit casing
13. Solenoid valves	30. Crossbar
14. Washing unit	31. PCB - WD
15. Upper conduit	32. Back panel
16. Lower conduit	33. Worktop
17. Drying heating element	

12.3 Detergent dispenser

12.3.1 Detergent dispenser with multi-way solenoid valves

The water in the detergent dispenser is filled through a solenoid valve for cold water (with one inlet, and 2 or 3 outlets) and where featured one for the hot water (with one inlet and one outlet); The detergent dispenser has 4 compartments.

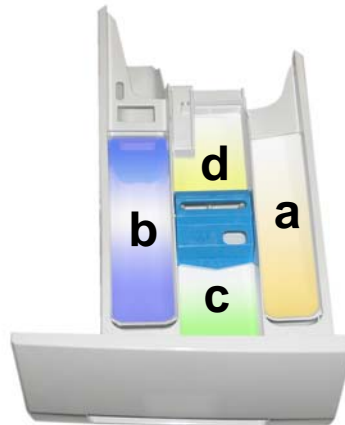
- Tray conveyor
- 4-way water inlet nozzle



12.3.2 Operating principle of 4-compartment conveyor

<p style="text-align: center;">Water fill to pre-wash compartment (pre-wash solenoid)</p> <ul style="list-style-type: none"> • This solution is used with the four compartment tray: the detergent in compartment "a" is loaded at the start of the pre-wash phase. 	
<p style="text-align: center;">Water fill to wash compartment (wash solenoid)</p> <ul style="list-style-type: none"> • In all models: compartment "b" is used to contain the detergent loaded at the start of the washing. 	
<p style="text-align: center;">Water fill to activating wash compartment</p> <ul style="list-style-type: none"> • In models with 4-compartment dispenser trays, the filling in tray "d" is performed by a purpose-provided solenoid valve during washing, when the water has reached 40 °C. • In models with 3-compartment dispenser trays, this section is not used. 	
<p style="text-align: center;">Water fill to conditioner compartment (pre-wash and wash solenoid valves)</p> <ul style="list-style-type: none"> • In all models: compartment "c" is used for the conditioner, which is loaded at the start of the final rinse. The prewash and wash solenoid valves are activated simultaneously. 	
<p style="text-align: center;">Hot water filling (hot water solenoid)</p> <ul style="list-style-type: none"> • In models with a hot water solenoid valve, the hot water solenoid valve is activated to fill water into the wash compartment. 	

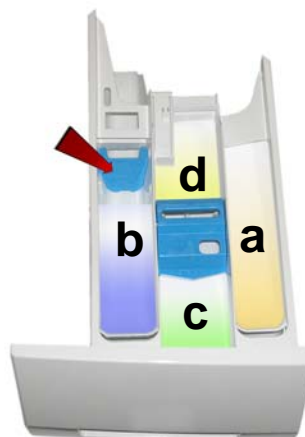
12.4 Detergent dispenser



12.4.1 Arranging the flap in the detergent dispenser

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

A flap (indicated by the arrow) has been fitted inside compartment “b” where the detergent is introduced, which can be flipped up or down.



With the flap flipped up, the appliance is ready for use with powder detergent (this is the factory setting) - see figure opposite.



To modify the position of the flap, pull the detergent dispenser out (see page 90).

With the flap flipped down, the appliance is ready for use with liquid detergent.



For further details, read the instruction manual.

12.5 WM/WD washing unit

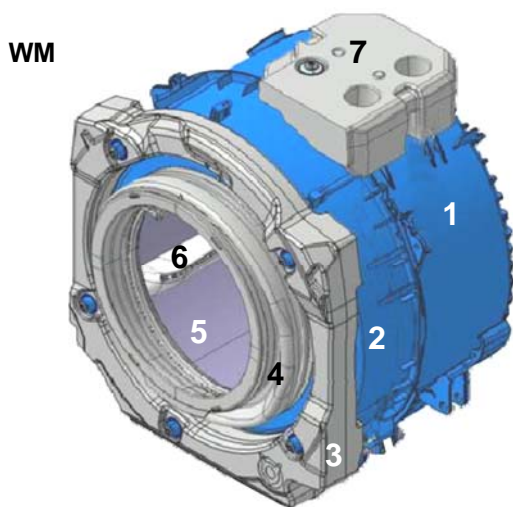
WASHING UNIT			
Type	Load capacity (cottons)	Load capacity (cottons)	Drum volume
	Wash	Drying	
	max.	max.	
G60	9 kg	See instruction manual	66 litres

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 (5) (made of stainless steel) with the three blades (6) (in carboran) snap-fastened to the drum.

To balance the unit during the washing movements and during the spin phases, the counterweights are secured in place with screws: one at the front (3) and one at the top (7) - the latter only in WMs.

The bellow seal (4) is fixed at the front.



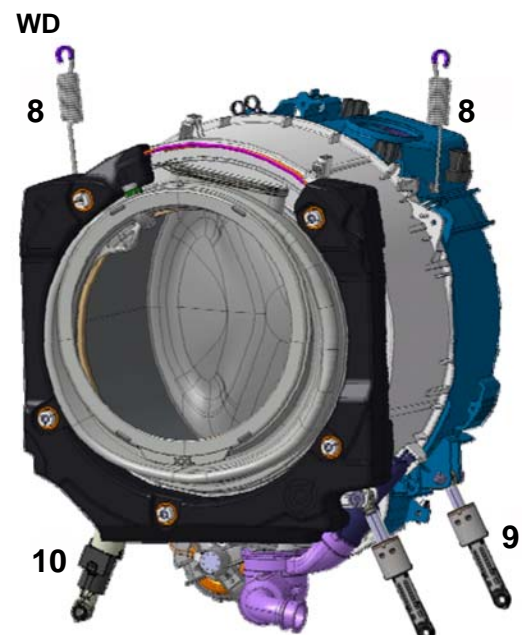
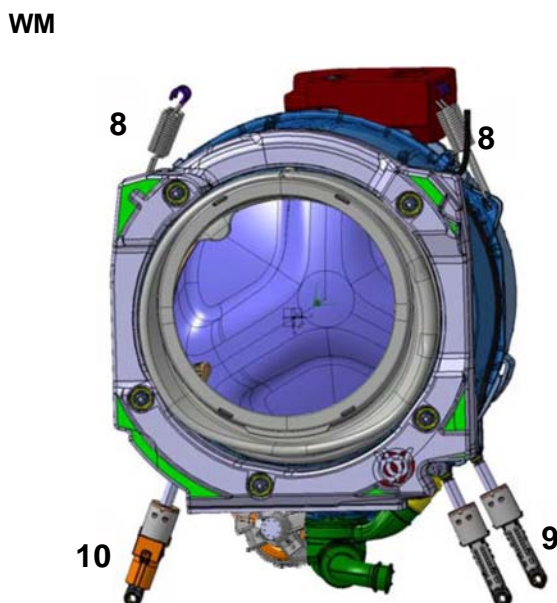
The washing unit is suspended by two coil springs (8) attached to the top crossbar, and the oscillations are dampened by three shock absorbers, two on the right (9) and one on the left (10) (looking straight at the front of the appliance).

In washing machines:

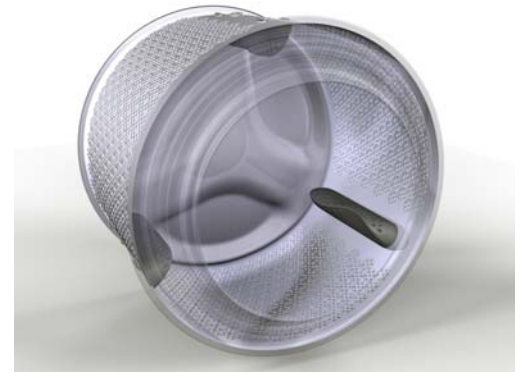
in the SERIES 7, all three shock absorbers are the same, whereas in the SERIES 8 and 9 the left one (10) has an incorporated weight sensor (for further details please read about the weight sensor on page 62).

In washer dryers:

in SERIES 7 and 8, the shock absorbers are the same (without the weight sensor).



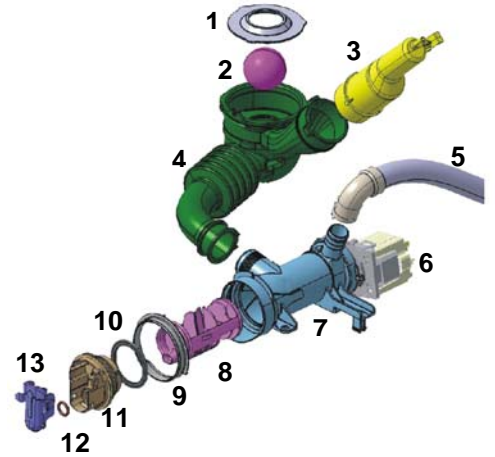
Drum with three blades inside.



12.6 Water circuit

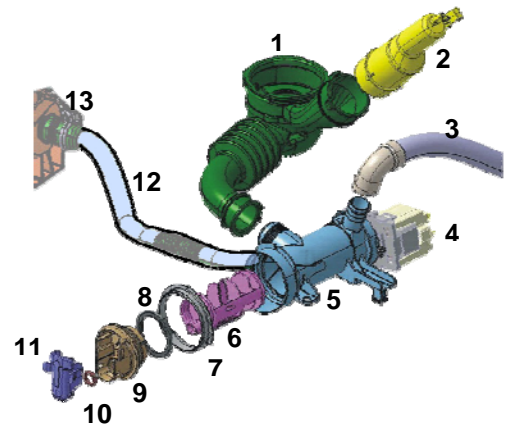
12.6.1 OKO version drain circuit

1. Ball lock ring
2. Ball
3. Pressure chamber
4. Filter body tub tube
5. Drain pipe
6. Drain pump
7. Filter body
8. Filter
9. Filter body seal
10. Filter dial seal
11. Filter dial
12. Locking lever seal
13. Locking lever



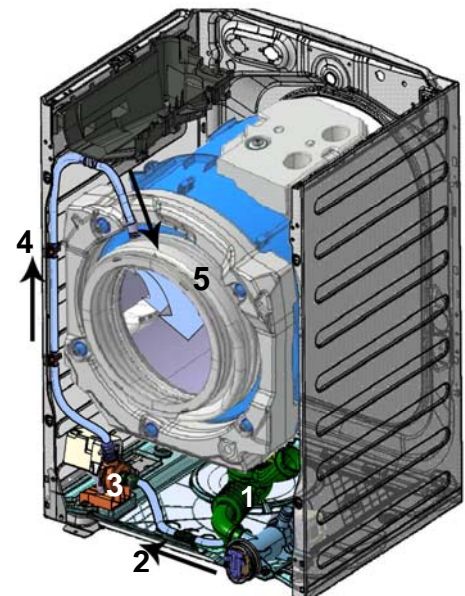
12.6.2 JET version drain circuit

1. Filter body tub tube
2. Pressure chamber
3. Drain pipe
4. Drain pump
5. Filter body
6. Filter
7. Filter body seal
8. Filter knob seal
9. Filter dial
10. Locking lever seal
11. Locking lever
12. Circulation pump suction tube
13. Circulation pump



12.6.3 JET circuit

The water circulating through the drain circuit (1) during the washing is suctioned along the tube (2) by the circulation pump (3) which conveys it through the tube (4) into the bellow seal (5) and from here into the laundry in the drum.



12.6.4 New Filter dial

Until now, the loading circuit was drained as described below:

- ↪ For some machines it is necessary to disconnect the drain pipe from the back panel, positioning it as low down as possible to drain any remaining water from the inside of the drain circuit.
- ↪ In other machines, there is a small hatch at the bottom of the front panel, from which it is possible to access the filter dial. Close to this is a small pipe that can be used to drain the water, after the plug has been removed from it.
- ↪ For machines manufactured with the new filter dial: open the flap at the bottom of the front panel. The filter knob is as shown in fig. 1.

To drain the water, simply:

- press the two tabs that lock the plug closing lever, fig. 2,
- simultaneously extract the top part of the lever as shown by the yellow arrow in fig. 3,
- position the closing lever as shown in fig. 4.

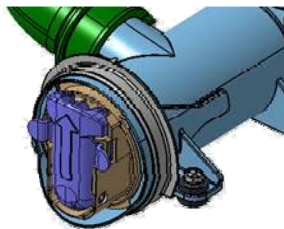


Fig. 1

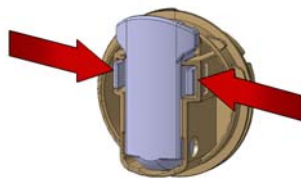


Fig. 2

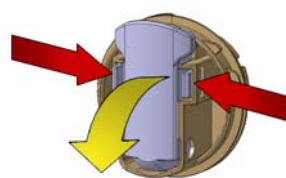


Fig. 3



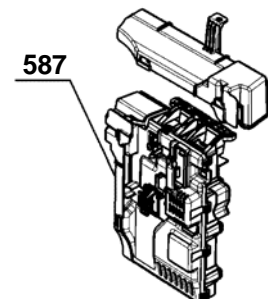
Fig. 4

12.7 Electronic control

12.7.1 Programming/Updating the main circuit board

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.



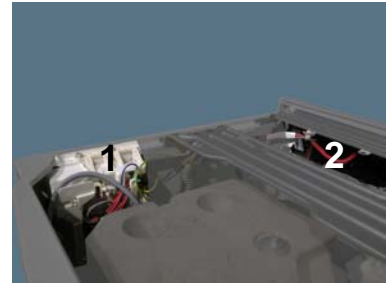
The circuit board can be programmed/updated using the **Sidekick** application.

For further information, please refer to the instructions provided/illustrated in the course entitled << **Guide to Sidekick** >> at the address (<http://electrolux.edvantage.net>) on the Electrolux Learning Gateway portal.

12.8 WM Electronic control

The electronic control is made up of:

1. Main circuit board.
2. Control/display circuit board.
3. INVERTER motor control board (not shown in the figure, positioned at the bottom right of the appliance seen from the rear).



The control/display PCB contains: the selector dial, to select the washing programme, the LCD display, to display the programme information; the buttons to adjust the temperature, the spin speed and possibly select an option, the Start/PAUSE button and lastly the ON/OFF button (in SERIES 9, there is only the ON/OFF button as the other buttons have been replaced by touch sensors).

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

It controls the level of water via the analogue pressure switch.

It controls the state of the door.

It controls the speed of the motor.

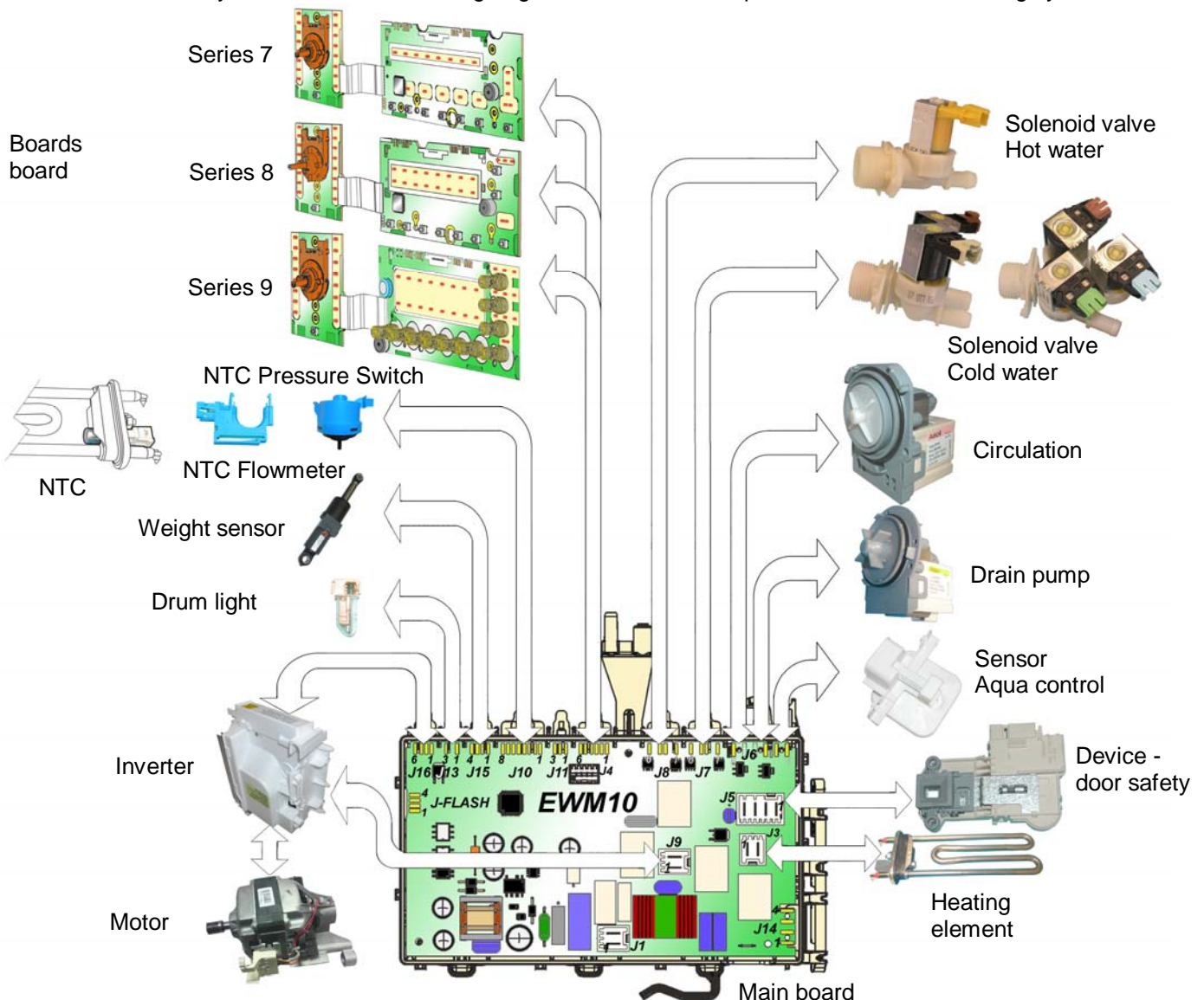
It controls the temperature of the washing water via the NTC probe inserted in the heating element.

It controls the voltage and frequency of the power supply and ensures they are close to the rated ones.

It controls the weight of the laundry in the drum, via the weight sensor.

It controls the flow of water through the solenoid using the flow meter.

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



12.9 WD Electronic control

The electronic control is made up of:

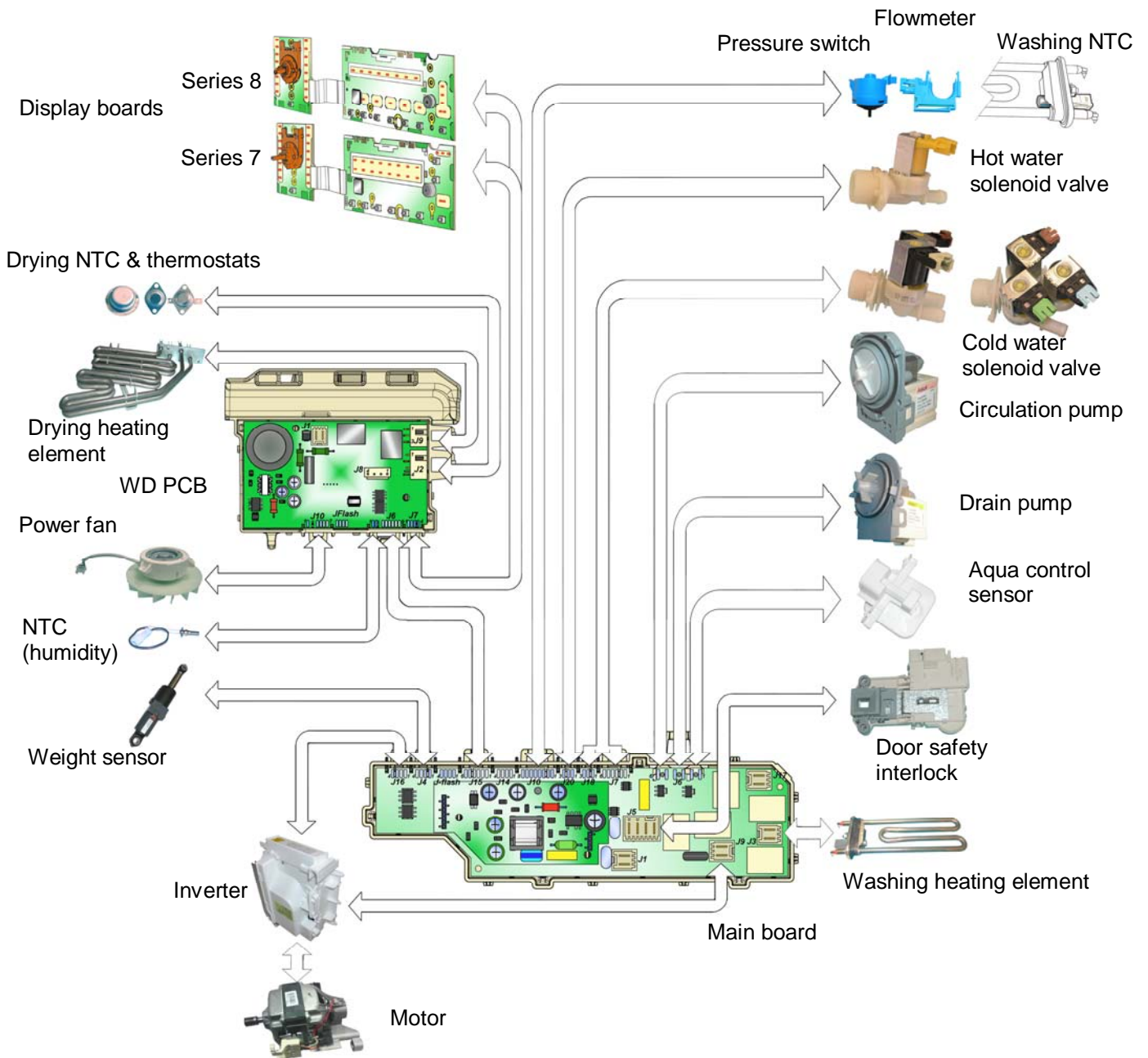
1. PCB - WD
2. Control/display circuit board
3. Main circuit board and INVERTER motor control board (not shown in the figure, positioned at the bottom of the appliance on the left and right respectively, seen from the rear).



The description provided in the previous page for the washing machine electronic control also applies to washer dryers, with the addition of the drying part, as follows:

Consisting of a WD board which liaises continuously with the main board and concurrently controls:

- The laundry drying temperature via the thermostats (positioned near the heating element) and the NTC probe (positioned on the conduit).
- The degree of humidity of the laundry via an NTC probe (positioned in the rear casing of the washing unit).
- Powers the drying heating elements.
- Powers the power fan.
- It conveys the data exchanged between the main board and the display board.





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

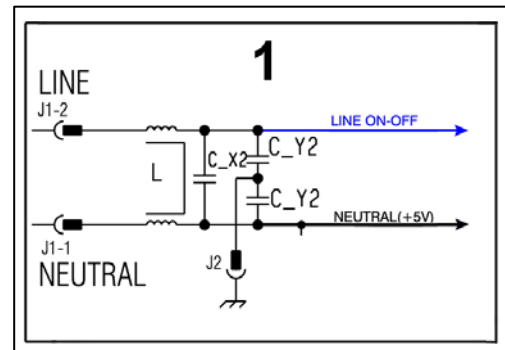
When the component connection references are the same for the two WM and WD versions, the diagram considered is the one for the WM. Otherwise, WM or WD is specified.

13.1 Anti-disturbance filter

13.1.1 General WM 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 circuit board

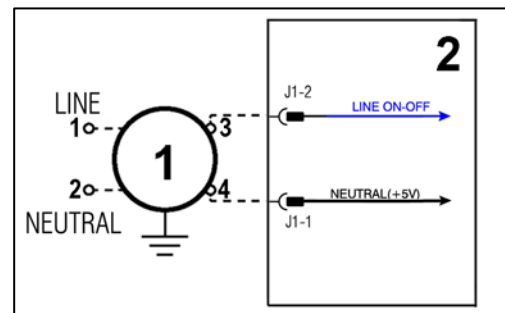


13.1.2 General WD characteristics

It has the same characteristics as those described above; the only difference being that it is not incorporated into the circuit board, but instead secured to the rear of the washing machine.



1. Anti-disturbance filter
2. Main circuit board

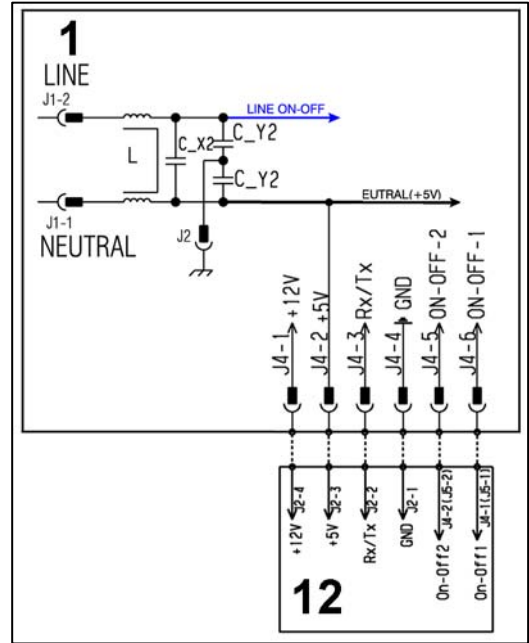


In the following pages, the operating diagrams shall refer to the washing machine reference diagram.

13.2 WM display board

The main circuit board (1) supplies the power supply voltage to the control/display board (12).
 It is possible to select the programmes by turning the selector.
 The options can be selected by pressing/touching the buttons/keys and the START/PAUSE button is used to start the machine or pause it.
 The buzzer - where featured - is powered by the display board.

- 1. Main circuit board
- 12. Display board



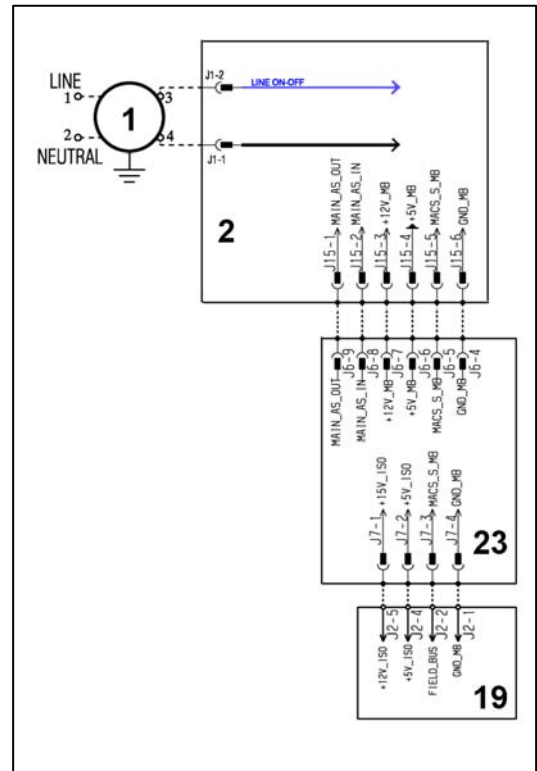
13.3 WD display board

The main circuit board (2) supplies the power supply voltage to the control/display board (19).
 It is possible to select the programmes by turning the selector.
 The options can be selected by pressing/touching the buttons and the START/PAUSE button is used to start the machine or pause it.
 The buzzer - where featured - is powered by the display board.

The communication data between the main board and the display board pass via the WD board (23)

The connector for programming/updating the main board is situated in the WD board (19)

- 1. Anti-disturbance filter
- 2. Main circuit board
- 23. WD PCB
- 19. Display board



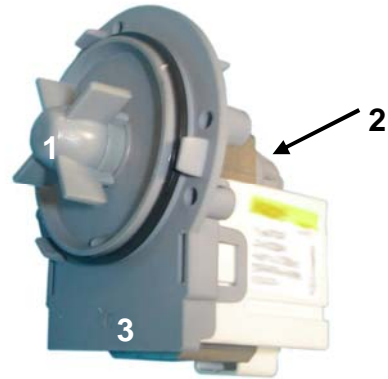
13.4 Drain pump - Aqua control



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

13.4.1 General characteristics

1. Wheel
2. Rotor
3. Stator



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

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

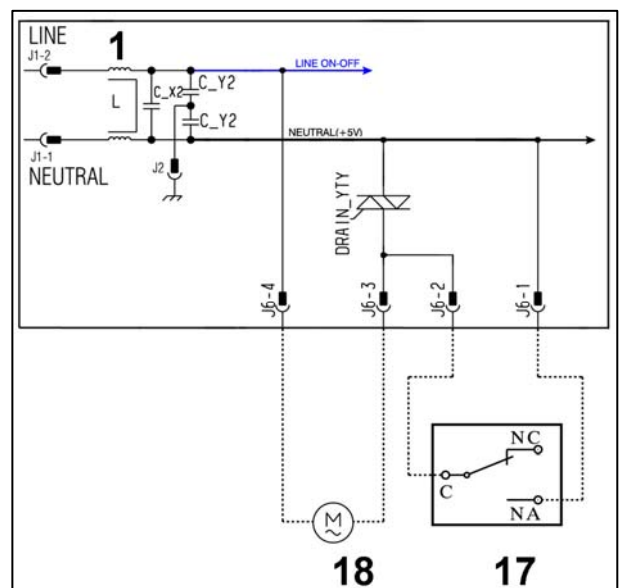
Synchronous pumps, when powered on empty (disconnected from the water circuit), may not start in some cases because their very construction makes them need an antagonist torque on the wheel to allow the rotor to move in one of the two directions.

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 circuit board
17. Aqua control sensor
18. Drain pump



13.5 Aqua control

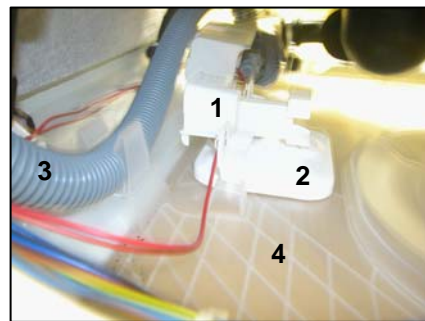
13.5.1 General characteristics




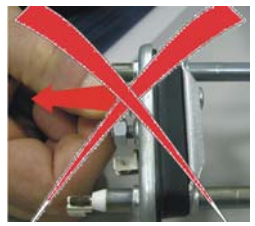
The aqua control is a sensor positioned in contact with the bottom of the machine. It detects any water leakage from inside the washing machine and feeds the drain pump (not only during normal operation but also when the appliance is turned off with the plug inserted into the power socket).

In the bottom of the washing machine there is a plastic bottom that forms a container. This collects any water leakage (from the tub, from the pipes, etc.), which flows into the area in which the float is positioned (made of polystyrene). In the presence of water this lifts up and triggers the microswitch, which powers the drain pump. When it is triggered, the LCD display shows an ALARM (if the machine is on). See table of alarms.

1. *Micro-switch*
2. *Float*
3. *Drain pipe*
4. *Aqua control bottom*

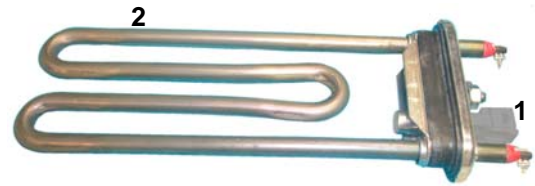


13.6 Heating element

	<ul style="list-style-type: none"> • When replacing the heating element, please refer to the code shown in the list of spare parts relating to the appliance. • It is strictly forbidden to tamper with the heating element in any way!!! (e.g. changing the NTC probe, etc...) <div style="text-align: right;">  </div>
---	---

13.6.1 General characteristics

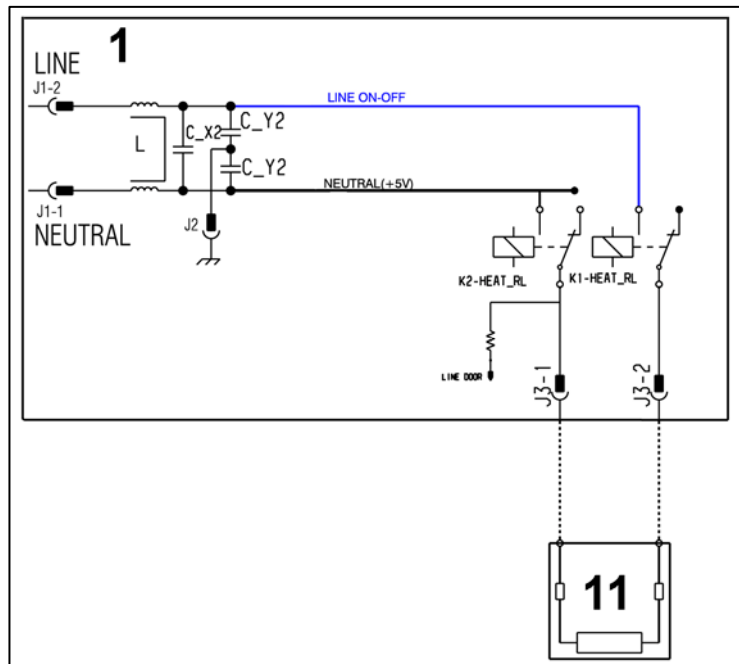
1. NTC probe
2. Heating element





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

It is powered by two relays (K1, K2) situated in the circuit board. It is fitted with two thermal fuses which trip if the temperature of the heating element exceeds the values for which they were calibrated. (In the event of a fault an alarm will be displayed - see table of alarms).

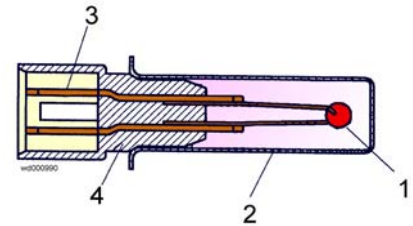
1. Main circuit board
11. Heating element



13.7 Temperature sensor

	<ul style="list-style-type: none"> • When replacing the heating element, please refer to the code shown in the list of spare parts relating to the appliance. • It is strictly forbidden to tamper with the heating element in any way!!! (e.g. changing the NTC probe, etc...) 	
---	---	---

13.7.1 General characteristics

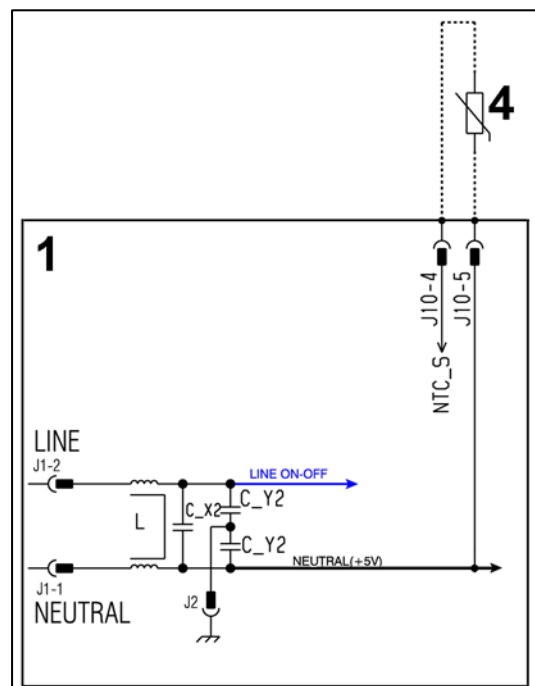


1. NTC heating element
2. Metal capsule
3. Terminals
4. Plastic casing

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 circuit board
4. NTC probe

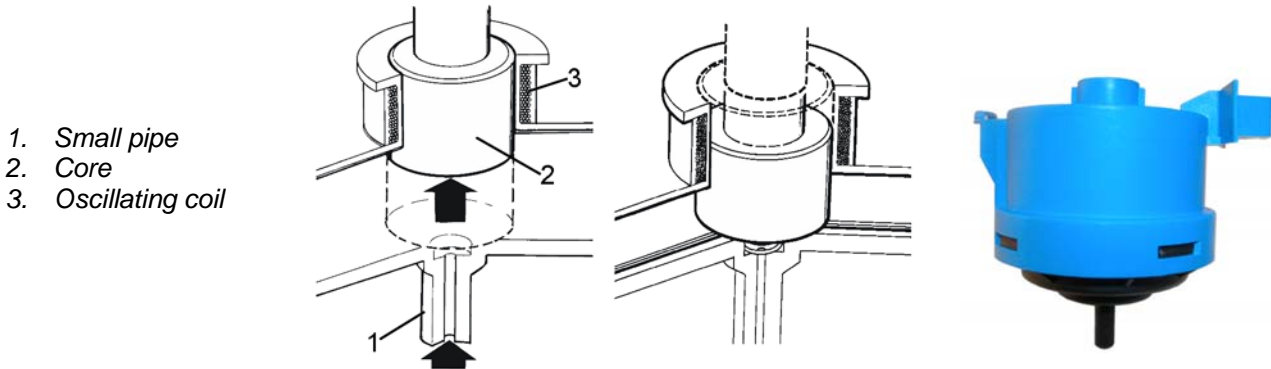


In the event of a fault (short-circuit or stoppage) an alarm will be displayed - see table of alarms.

13.8 Analogue pressure switch

13.8.1 General characteristics

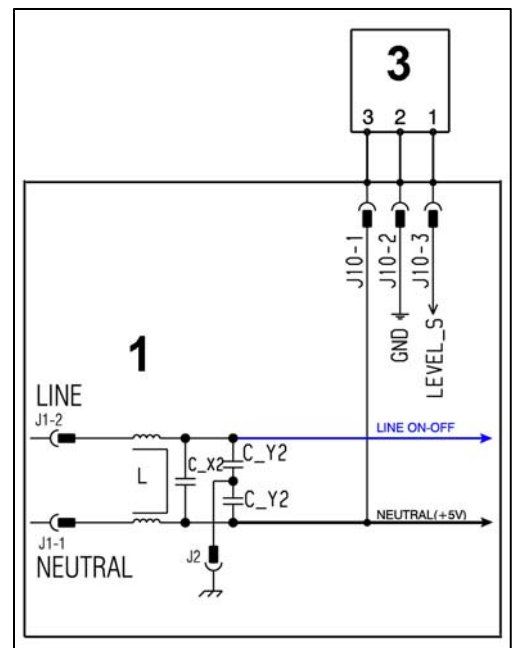
The electronic pressure switch is an analogue device that controls the water level in the tub, used in models with electronic control system, and it is directly connected to the main PCB.



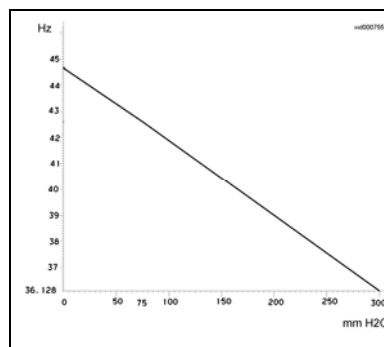
1. Small pipe
2. Core
3. Oscillating coil

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 circuit board
3. Analogue pressure switch



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

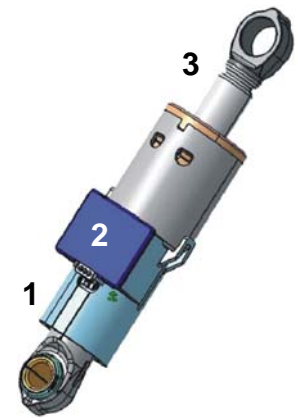


In the event of a fault an alarm will be displayed - see table of alarms.

13.9 Shock absorber with weight sensor (where featured)

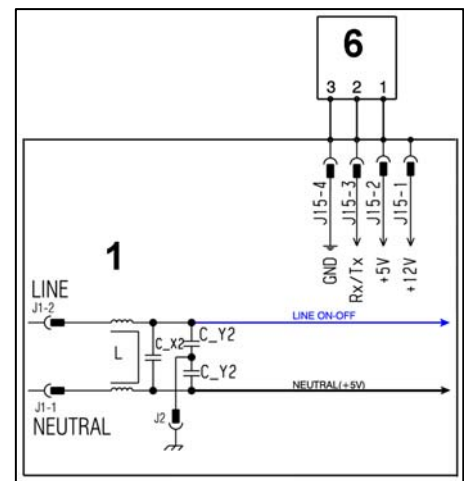
13.9.1 General characteristics

1. Plunger
2. Weight sensor
3. Piston



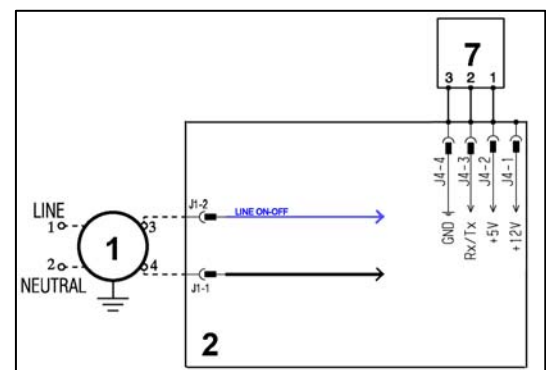
13.9.1.1 WM version diagram

1. Main circuit board
6. Weight sensor



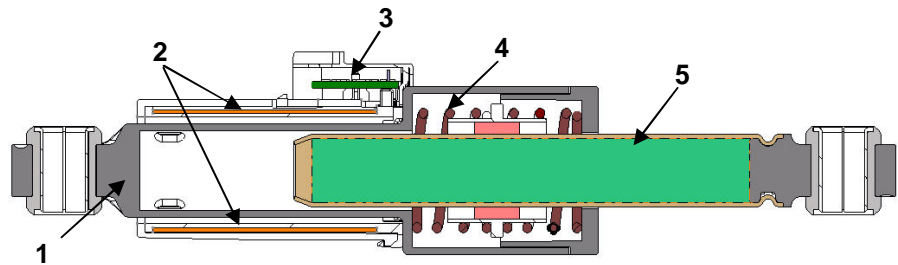
13.9.1.2 WD version diagram

1. Anti-disturbance filter
2. Main circuit board
7. Weight sensor



13.9.2 Operating principle

1. *Plunger*
2. *Oscillating Coil*
3. *PCB*
4. *Spring*
5. *Piston*

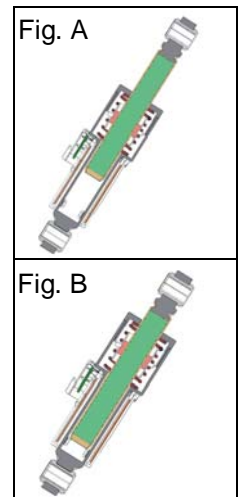


The weight sensor incorporated into the shock absorber is made up of an oscillator (which generates a frequency) consisting of the circuit board (3) and coil (2).

If there is no laundry in the drum when the appliance is turned on, the position of the piston compared to the plunger is considered as the zero value (fig. A).

When laundry is placed in the drum, this causes the washing unit to be lowered, with the consequent compression of the shock absorber (fig. B); the movement of the piston inside the plunger changes the inductance of the coil, and consequently changes the frequency, which is processed by the circuit board and communicated to the display board and the LCD displays the weight of the laundry in kg.

If there is laundry in the drum when the appliance is turned on, the position of the piston is different from when the drum is empty, moving the zero value and offsetting the final measurement.



Efficacy check

To check the efficacy of the weight sensor:

- Check that the inside of the drum is empty.
- Plug the appliance into the socket, press button P1 to turn it on and select the desired programme.
- Open the appliance door if shut.
- Place an item of known weight inside the drum (no more than the maximum weight for which the appliance is sold) and check that the value represented on the LCD display corresponds. (with an accuracy of ± 1 kg and ± 1.5 kg for heavy loads).

Diagnostics

During diagnostic mode, position 7 (see paragraph entitled "Diagnostics system" on page 38).

The appliance fills water until the first level to perform the heating function. Next, another litre of water is filled through the solenoid valve (measuring it with the flowmeter) if the weight sensor is efficient, the variation is recognised, otherwise the alarm EC3 is displayed on the LCD.

13.10 Door safety interlock

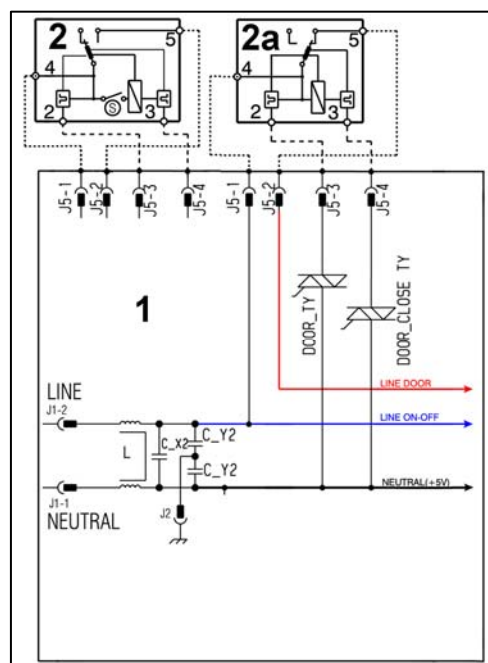
13.10.1 General characteristics



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

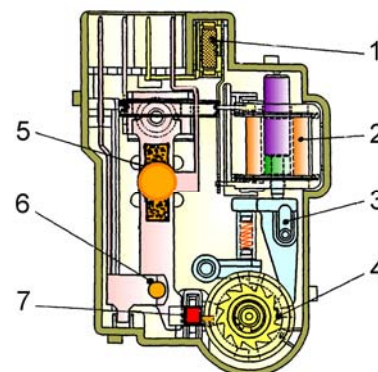
In appliances with a drum light, a door safety interlock is fitted with an integrated switch (piloted via a slide from the door latch). The information about the position of the switch is sent to the main circuit board and consequently powers the LED or not.

- 1 Main circuit board
- 2 Door safety interlock (with micro-switch)
- 2a Door safety interlock (without micro-switch)



13.10.2 Operating principle

- 1. Solenoid protection PTC
- 2. Solenoid
- 3. Lifting assembly
- 4. Cam
- 5. PTC - bi-metal
- 6. Electrical contacts (main switch)
- 7. Ratchet



- When the programme starts (start/pause button), the main circuit board sends a voltage pulse, lasting 20 msec, to the solenoid (at least 6 seconds must have passed since the appliance was turned on), which turns the position of the cam: the ratchet which locks the cursor of the door safety interlock is raised and simultaneously closes the contacts of the main switch, which powers all the appliance components.
- When the programme ends, the circuit board sends two additional 20 msec pulses (200 msec apart):
 - the first pulse moves the cam by another position, without releasing the ratchet.

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

Door open conditions

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

- the drum must be stationary (no signal from the tachometric generator)
- the water level must not be higher than the lower edge of the door
- the temperature of the water must not be higher than 40 °C.

– Automatic release device

In the event of a power failure, turn the appliance off at the ON/OFF button, solenoid fault, the bi-metal PTC cools in between 55 seconds and about 4 minutes (with temperature of 65 °C) and therefore releases the door.

– Solenoid protection

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

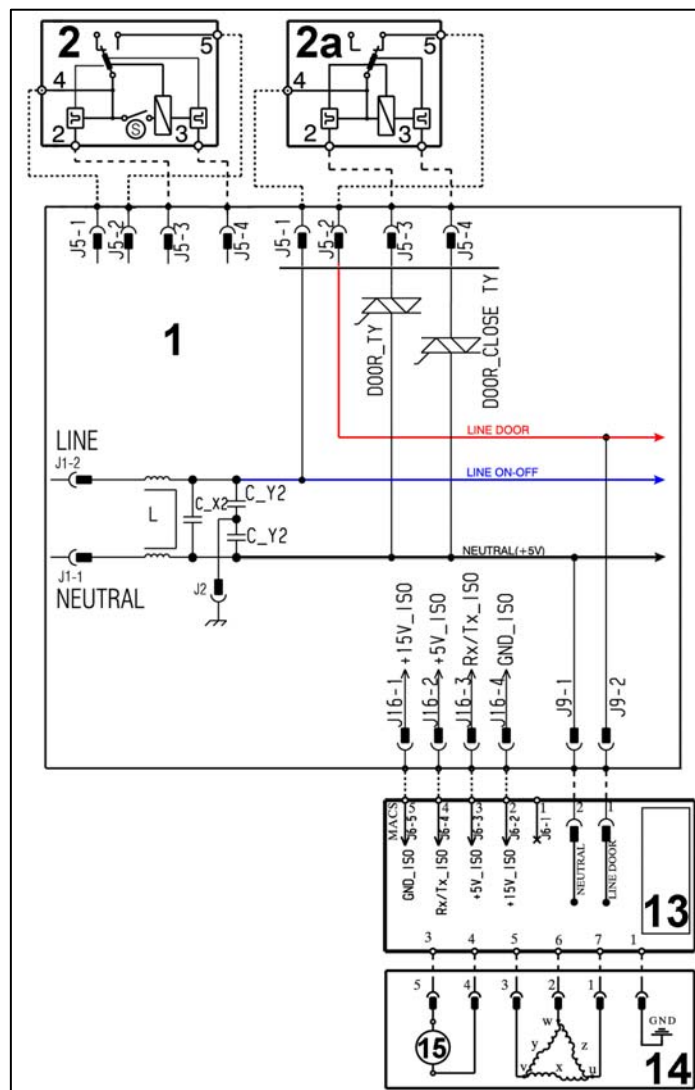
- main circuit board triac short circuit
- many consecutive pressings of the start/pause button (more than 10 times)

13.11 Three-phase asynchronous motor - Inverter

13.11.1 General characteristics

1. Main circuit board
2. Door safety interlock (with light micro-switch)
- 2a. Door safety interlock (without light micro-switch)
13. Inverter
14. Motor
15. Tachometric generator

X-Y-X = Motor windings



13.11.2 Power supply to motor

Three-phase power is fed by the inverter (13), which sends through the connectors 5-6-7 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.

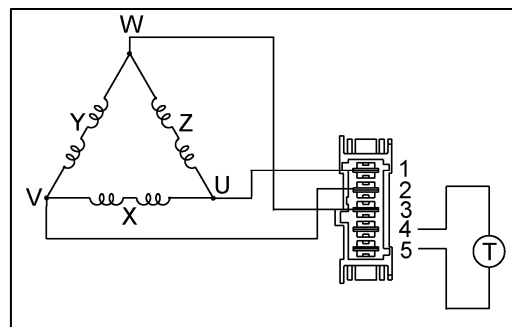
It is possible to get an idea of the efficiency of the motor by measuring the resistance of the coils:

Coil y ohm 5.8 ~ ±7% (contacts 2-3)

Coil x ohm 5.8 ~ ±7% (contacts 1-2)

Coil z ohm 5.8 ~ ±7% (contacts 1-3)

Coil T (tachometric) ohm 181.5 ~ ±7% (contacts 4-5)



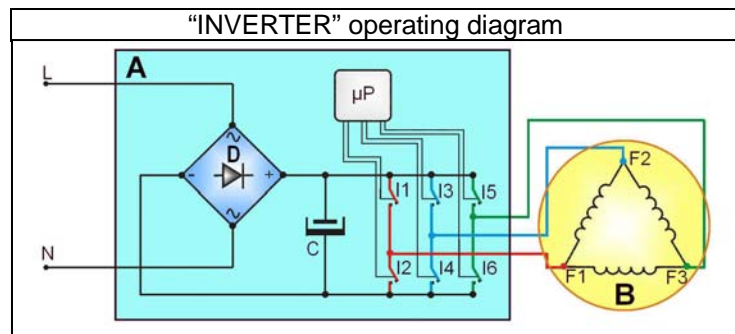
13.12 Inverter

13.12.1 General characteristics

The EWM10931 electronics use a new asynchronous motor, with 2 poles, three-phase, with high performance and low noise levels.

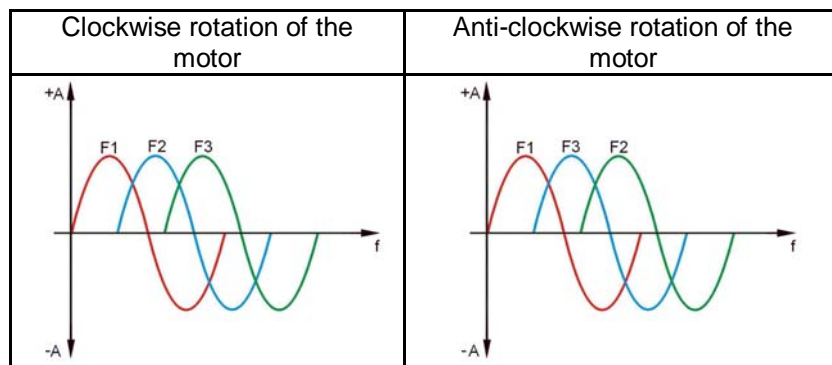


- L = Phase
- N = Neutral
- A = "INVERTER" board
- B = Motor
- C = Capacitor
- D = Diodes
- I1÷6 = Switches
- F1÷3 = Motor connectors
- μP = Micro Processor



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

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



The speed of rotation of the motor is determined by the signal received from the tachometric generator (T). During the spin phases, the microprocessor can perform, depending on the software configuration, the anti-foam check, where featured, and the anti-unbalancing check.



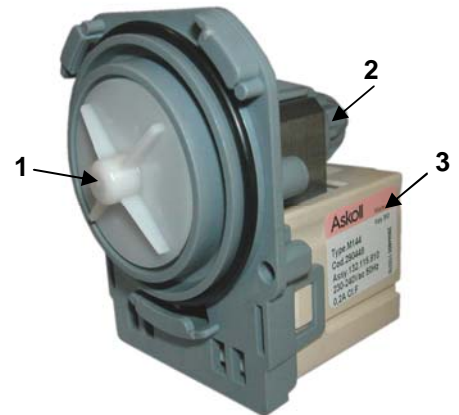
- **Any work on electrical appliances must only be carried out by qualified technicians.**
- **Unplug the appliance before accessing internal components.**
- **When replacing the "INVERTER" board, do not open the plastic casing, because some parts are subject to high voltage values and some condensers remain loaded for a long time at dangerous voltage levels even after being unplugged.**
- **Accidental physical contact may cause electric shocks.**

13.13 Circulation pump (where featured)

13.13.1 General characteristics

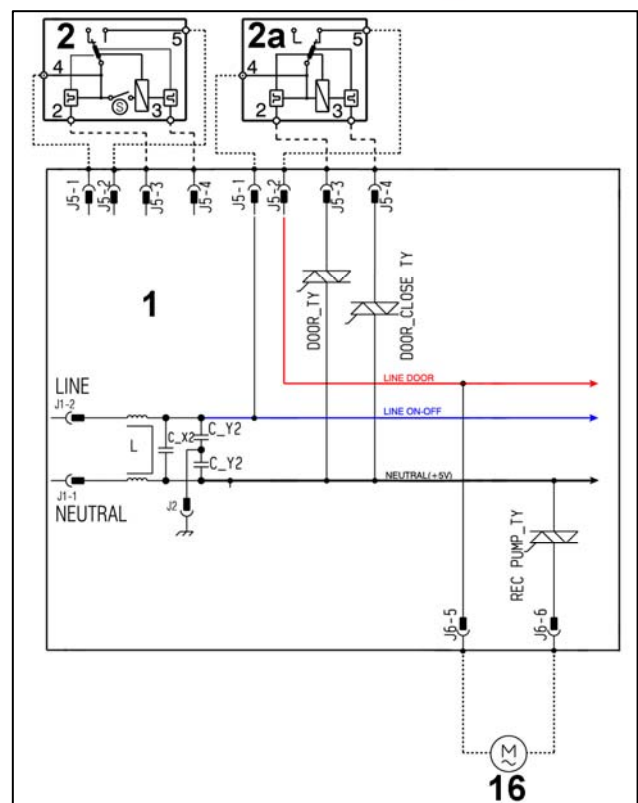
In models with Jetsystem washing, a synchronous circulation pump is fitted, which is designed to circulate water continuously, withdrawing it from the filter body and introducing it into the tub through the bellow seal.

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



1. Wheel
2. Rotor
3. Stator

1. Main circuit board
2. Door safety interlock (with light micro-switch)
- 2a. Door safety interlock (with without light)
16. Circulation pump





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.

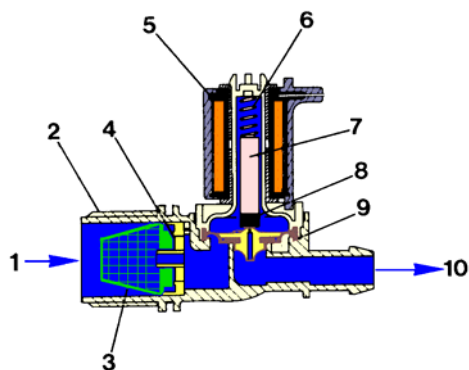
13.14 Solenoid valves

13.14.1 General characteristics

SOLENOID VALVE HOT WATER	SOLENOID VALVE TWO WAYS	SOLENOID VALVE THREE WAYS
		

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

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



13.14.1.1 Operating principle

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

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

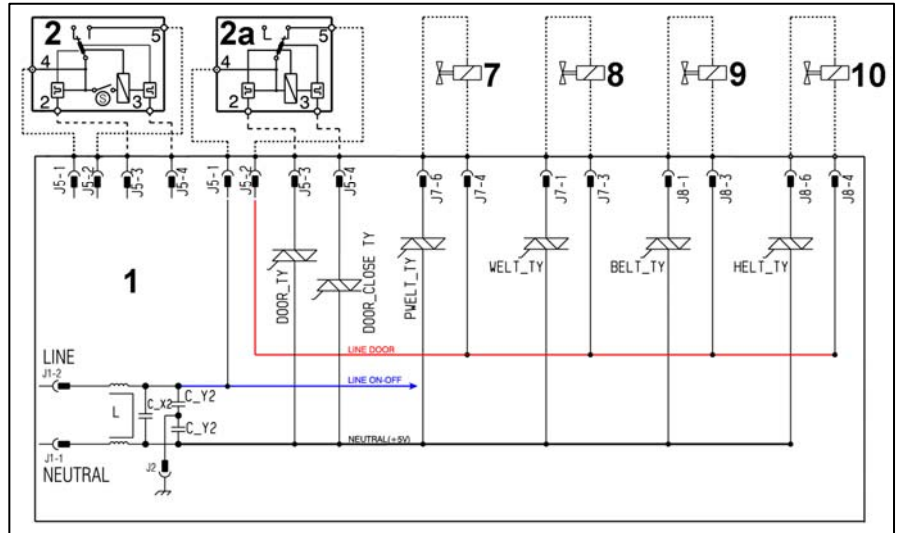
13.14.1.2 Mechanical jamming of the solenoid valve

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.

13.14.1.3 Low water pressure

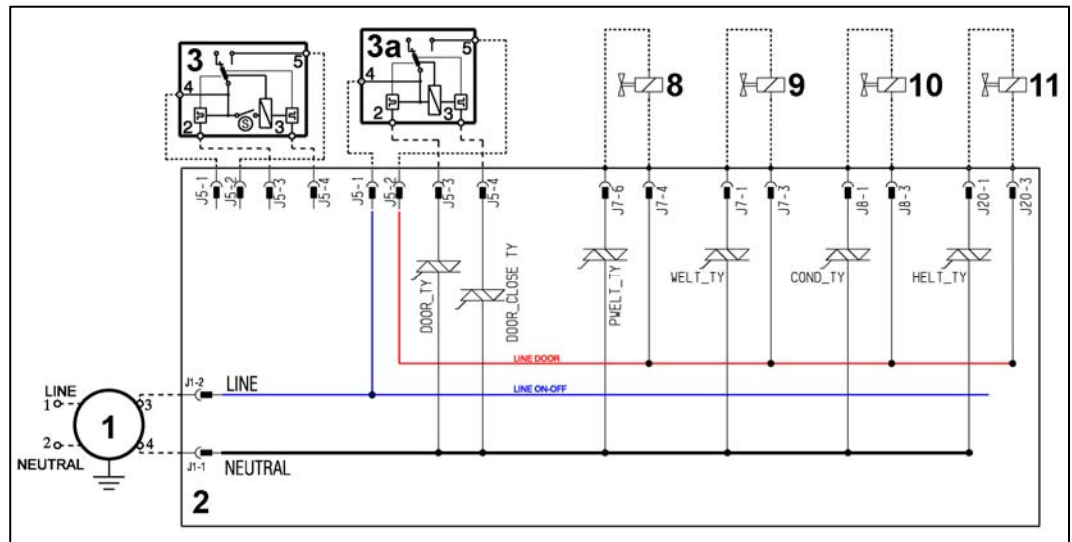
If the flow sensor does not generate a signal during the water fill phases, even though power is being supplied to the solenoid valve, the cause of this condition may be a closed water tap or clogged filter on the solenoid valve (with ensuing low water pressure). If this occurs, only a WARNING will be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

13.14.1.4 WM version diagram



1. Main circuit board
2. Door safety interlock (with micro-switch)
- 2a. Door safety interlock (without micro-switch)
7. Pre-wash solenoid
8. Wash solenoid
9. Condensation solenoid valve
10. Hot water solenoid

13.14.1.5 WD version diagram



1. Anti-disturbance filter
2. Main circuit board
3. Door safety interlock (with micro-switch)
- 3a. Door safety interlock (without micro-switch)
8. Pre-wash solenoid
9. Wash solenoid
10. Condensation solenoid valve
11. Hot water solenoid

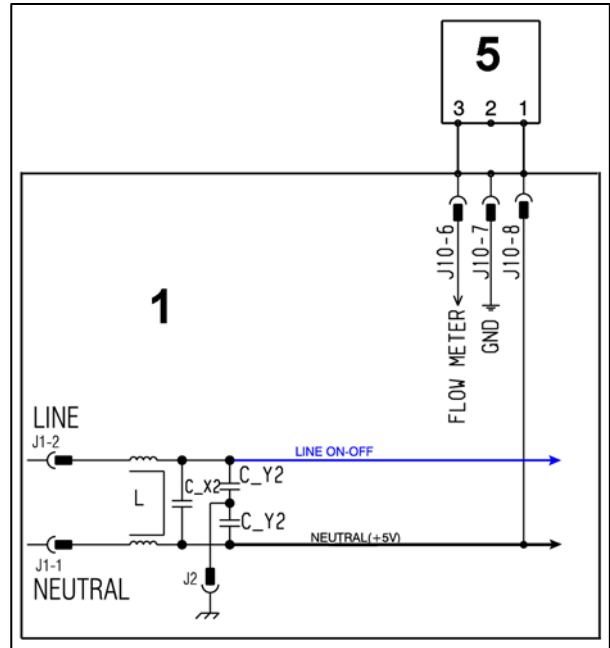
13.15 Flowmeter

13.15.1 General characteristics

Flowmeter



- 1. Main circuit board
- 5. Flow sensor



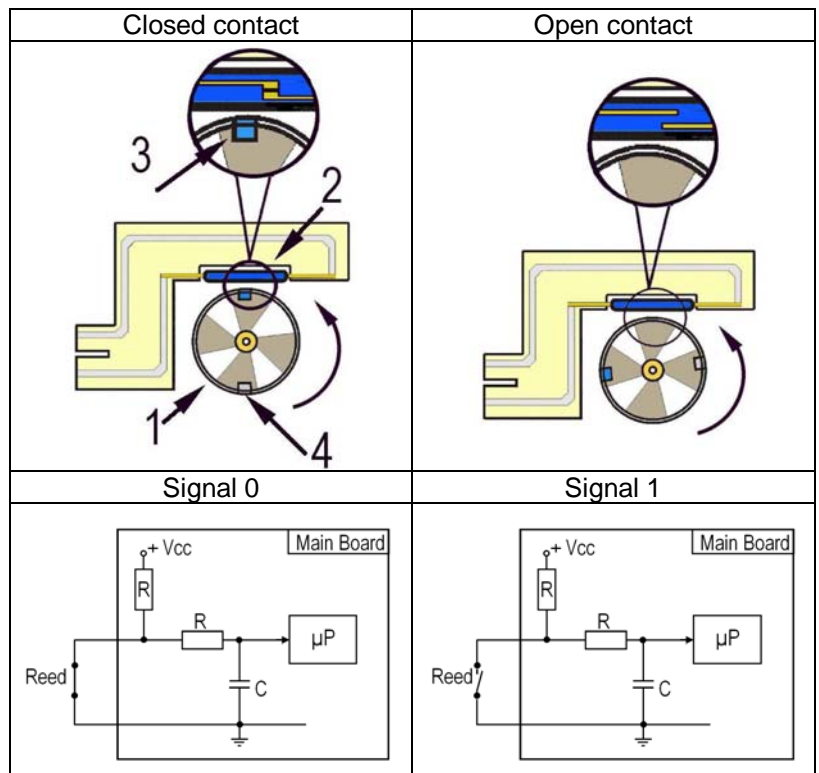
Some models of solenoid valves have a built-in flow sensor, which measures the quantity of water in litres that is loaded into the appliance. In the event of a sensor failure, the water level is controlled by the analogue pressure switch.

Electronically controlled valve, exploded view	PCB	Turbine
1-PCB 2-Turbine 3-Deflector 4-Diffuser 5-Double filter	6-Reed contact	7-Magnet

13.15.2 Operating principle of the flowmeter

The main components of the flowmeter are:

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



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

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

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

13.16 Drum light (where featured)

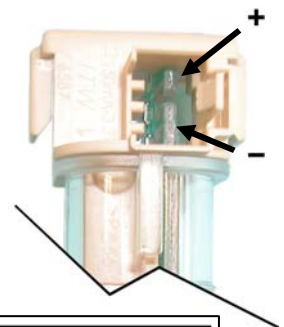
The drum light consists of a high luminosity LED. When the appliance is in the selecting phase (START/PAUSE LED flashing), if the door is opened, the LED lights up and illuminates the inside of the drum. Vice versa, when the door is closed the LED is turned off.



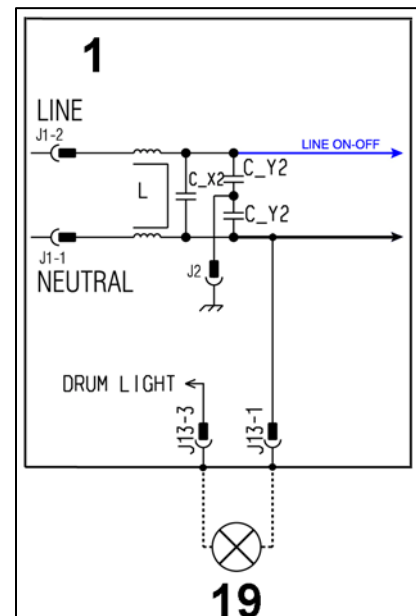
IMPORTANT: Do not look straight at the light beam emitted by the LED when it is on.

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

For the power supply, please refer to the polarities in the figure opposite.



- 1. Main circuit board
- 19. Drum light



14 DRYING CIRCUIT

In the cycles for synthetic fabrics as in the cotton cycles, the drying is performed with both heating elements in use (full power).

The drying cycles are split into:

- a. Automatic cycles:
The drying cycles can be performed at the end of the wash cycle or as a separate programme.
The calculation of the time required to reach the desired degree of drying is made by the NTC probe (9) positioned on the conduit, combined with the microprocessor.
Three types of drying can be selected:

- ↺ Iron dry
- ↺ Wardrobe dry
- ↺ Extra Dry

These automatic cycles last a maximum of 250 minutes.

- b. Time-controlled cycle:
The user selects the drying time (max. 250 minutes for COTTONS and max 210 minutes for SYNTHETICS)

In the COTTON cycles, during the automatic or time-controlled drying phase (more than 100 minutes), the appliance could perform a spin cycle at maximum speed if the temperature inside the drum is below 38 °C; if it is higher, the spin cycle is not performed.

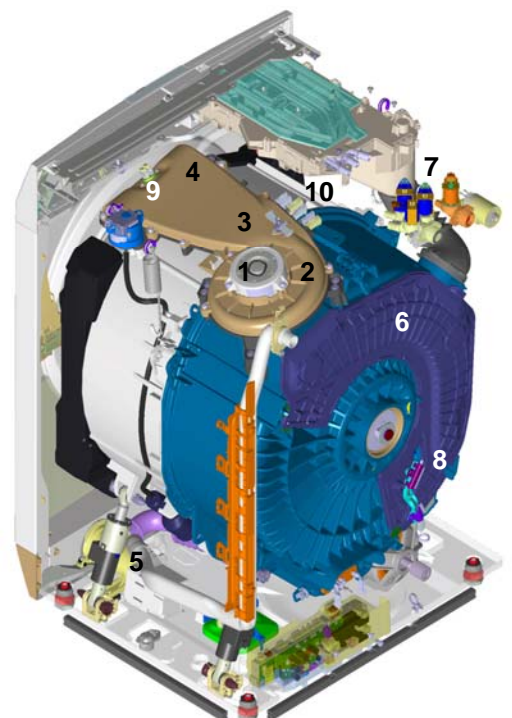
The end of each cycle is followed by a cooling phase, after which the 10-minute anti-crease phase is performed.

14.1 Technical characteristics

The power fan (1) is secured to the top of the conduit with screws, and the fan is secured to the shaft with a nut. The motor is powered by an Inverter circuit incorporated within it.

The conduit (4) consists of two half-casings, with a seal to avoid air leaks placed between the top one and the bottom one; the assembly is secured to the tub assembly with screws; the thermostats (10) are situated near the heating element, the NTC probe (9) is secured to the front of the conduit and checks the degree of drying of the laundry. The condenser (6) is obtained from part of the rear casing. The NTC probe (8) which controls the degree of humidity of the laundry is situated in the rear casing.

1. Fan motor
2. Fan
3. Heating element casing
4. Conduit
5. Drain pump
6. Drying condenser
7. Solenoid valves
8. NTC probe (humidity)
9. NTC probe (Drying)

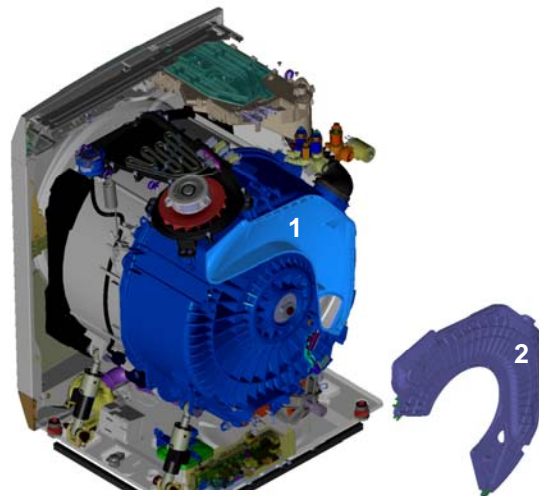


14.2 Capacitor

The condenser was obtained at the rear of the casing by lowering the ribbing without modifying the washing capacity. The volume achieved in this way was sealed with a cover (2) glued to mirror the rear of the casing.

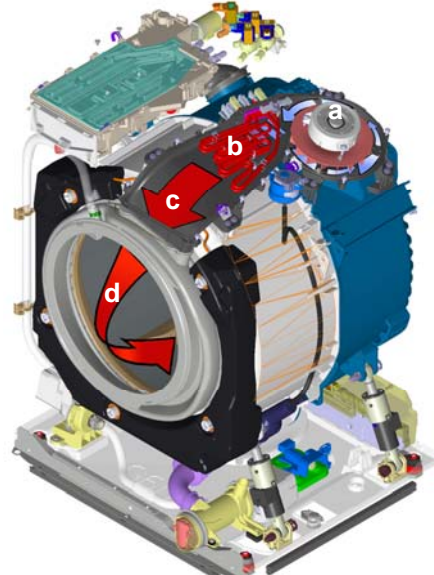
1. Condenser obtained in the rear casing
2. Condenser cover

The condenser cleaning occurs during the last rinse phase. Concurrently with the water entering the condenser, the circuit board powers the power fan, which reaches a speed of 4,200 rpm, causing turbulence inside the condenser.

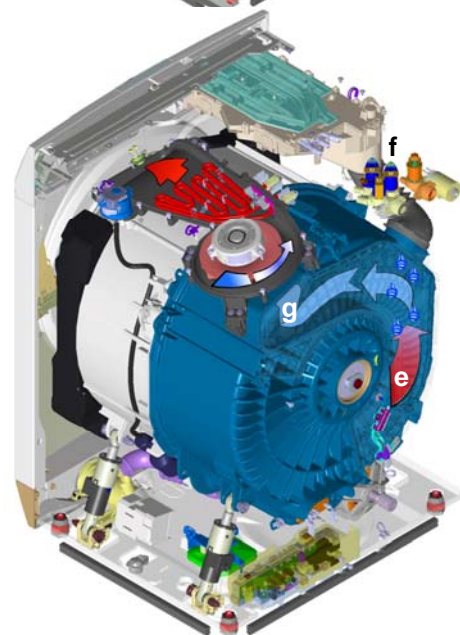


14.3 Principle of air circulation

The fan (a) conveys the air towards the heating unit (b), where it is heated, travels along the conduit (c), so it is warm and dry when it enters the drum (d). It crosses the laundry (which turns back and forth with the movement of the motor), removing its humidity.



After moving through the laundry, the air exits from the bottom (e) of the rear casing, where the air is warm/humid. Due to the action of the fan, the air is taken in through the condenser, where - by means of the condensation solenoid valve (f) - water arrives (for the entire drying cycle from the detergent loading pipe) and causes a heat exchange, removing the humidity from the air and cooling it. At the top of the condenser (g), the air is dry and cold, and it returns to the fan circulation, and the phase is repeated until the end of the drying cycle.



14.4 Electric components

14.4.1 Three-phase power fan with permanent magnets

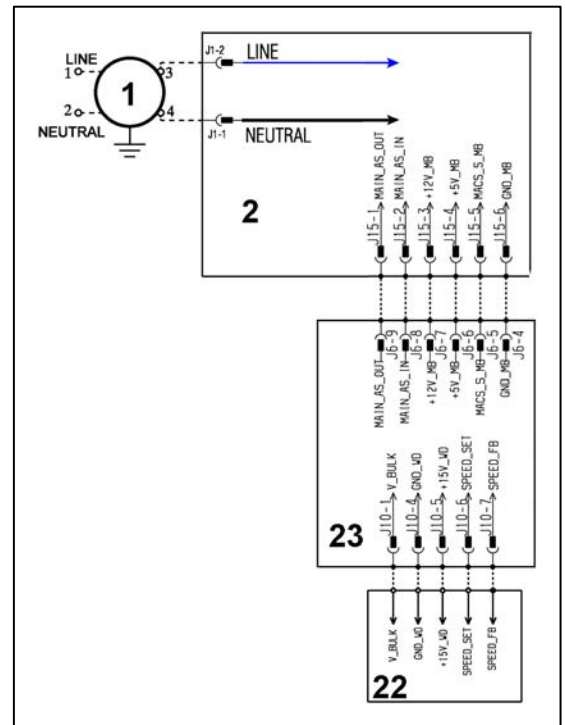
The motor that powers the air circulation fan for drying is three-phase with permanent magnets (making for high performance levels and low noise levels). To power it, an Inverter board was used, which is incorporated within the motor itself.

The fan is powered for the entire duration of the drying phase and revolves at a speed of 3,200 rpm, whereas the revolutions rise to 4,200 rpm during the condenser washing phase, causing turbulence within the condenser.



Its flow rate is approximately $90 \text{ m}^3 - \text{hour}$

1. Anti-disturbance filter
2. Main electronic circuit board.
22. Power fan with incorporated Inverter
23. WD PCB



	In case of repair requiring the disconnection of the power fan power supply connector, proceed as follows:			
	↖	Unplug the appliance from the electricity socket.		
	↖	Wait approximately two minutes to allow a high flow rate condenser (situated in the drying board) to discharge and avoid overvoltages which could damage the power fan.		
	↖	Disconnect the power fan power supply connector		

It is possible to get an indication of the efficiency of the power fan by checking certain resistance values between the connector terminals with a tester.

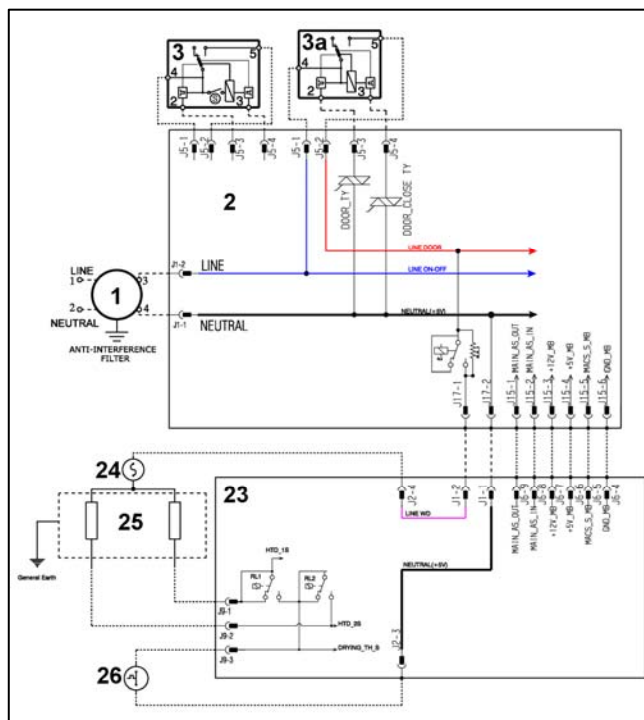
7 6 5 4 3 2 1				
Connector terminals	1-4	5-4	6-4	7-4
Heating element	∞	37.58 K Ω	226.8 K Ω	∞

14.4.2 Heating element & Thermostats

The drying heating element is hardened, it is inserted into a stainless steel water proof tubular case. It consists of two branches powered by two relays RL1 and RL2 situated in the WD board. During a drying cycle for sturdy fabrics such as cotton, for instance, the board powers both the heating element branches.



- 1. Anti-disturbance filter
- 2. Main electronic circuit board.
- 3. Door safety interlock (with micro-switch)
- 3a. Door safety interlock (without micro-switch)
- 23. WD PCB
- 24. Safety thermostat
- 25. Drying heating element
- 26. Auto-reset safety thermostat





Technical characteristics of the heating unit (drying)		
Heater unit	Power	800W+800W
	Power supply voltage	230 V
	Heating element	63,5Ω+63,5Ω ±5%

14.4.3 Thermostats

In the wiring diagram, the thermostats are positioned in series with the drying heating element, and if certain temperatures are exceeded, the auto-reset thermostat (26) is triggered, opening the power supply circuit, as the heating element cools, the temperature drops and the thermostat is automatically reset, powering the heating element again.

Any rise in the temperature could cause the safety thermostat (24) to be triggered, thereby opening the electric circuit, the heating element would cool down but not be repowered. To restore the power supply, it will need to be replaced, after checking whether the rise in temperature was due to a mechanical or an electrical problem.

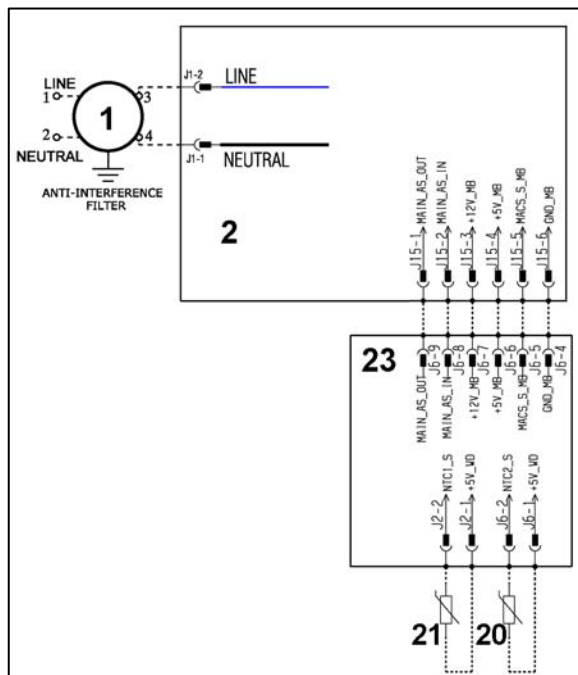
Technical characteristics of thermostats		
Safety thermostat	Normally closed, opens at 145°±3 °C	
Auto-reset safety thermostat	Normally closed Opens at 115°±3 °C Closes at 95°±3 °C	



14.5 Temperature and humidity control

When an automatic drying cycle is set, the degree of humidity and the temperature degree which the air inside the drum containing the laundry are established concurrently.

Two NTC probes are used to this end, situated: one in the conduit, which controls the temperature of the air, and the other in the rear casing of the unit near the condenser, to control the degree of humidity.

1. Anti-disturbance filter
2. Main electronic circuit board.
20. NTC probe (humidity)
21. NTC probe (Drying)
23. WD PCB



Technical characteristics of NTC probes		
	Resistor at 25°	
NTC probe (humidity)	5,000 Ω	
NTC probe (drying)	5,000 Ω	

15 ALARM SUMMARY TABLE

Alarm	Description	Possible fault	Machine status/action	Reset
E00				
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
E12	Water fill difficulty during drying	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 paused (after 2 attempts).	START ON/OFF RESET
E22	Drain difficulty during drying	Drain tube kinked/clogged/improperly positioned; Drain filter clogged/dirty; Wiring faulty; Drain pump faulty; Pressure switch faulty; Main PCB faulty.	Cycle paused.	START/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
E31	Malfunction in electronic pressure switch circuit	Wiring; Faulty pressure switch; Main PCB.	Cycle stops with door locked.	RESET
E32	Calibration error of the electronic pressure switch	Drain pipe kinked/clogged/improperly positioned; Solenoid valve faulty; Drain filter clogged/dirty; Drain pump faulty; Leaks from pressure switch hydraulic circuit; Pressure switch faulty; Wiring; main PCB.	Cycle 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 paused.	START/RESET

Alarm	Description	Possible fault	Machine status/action	Reset
E42	Problems with door lock	Wiring faulty; Door safety interlock faulty; Electrical current leak between heating element and ground; Main PCB faulty.	Cycle 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
E45	Faulty sensing by door delay system triac	Main circuit board faulty.	(Safety drain cycle) Cycle blocked.	RESET
E52	No signal from motor tachometric generator	Motor-inverter wiring faulty; Faulty motor; Inverter board faulty;	Cycle stops with door locked (after 5 attempts).	ON/OFF RESET
E57	Inverter is drawing too much current (>15 A)	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 A)	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 signal from tachometric generator for 3 seconds	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.	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	Wiring faulty; Control/display PCB faulty, Inverter board faulty, Weight sensor board faulty, ED 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 175 V	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	Current leak to the ground	Earth leakage between washing 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

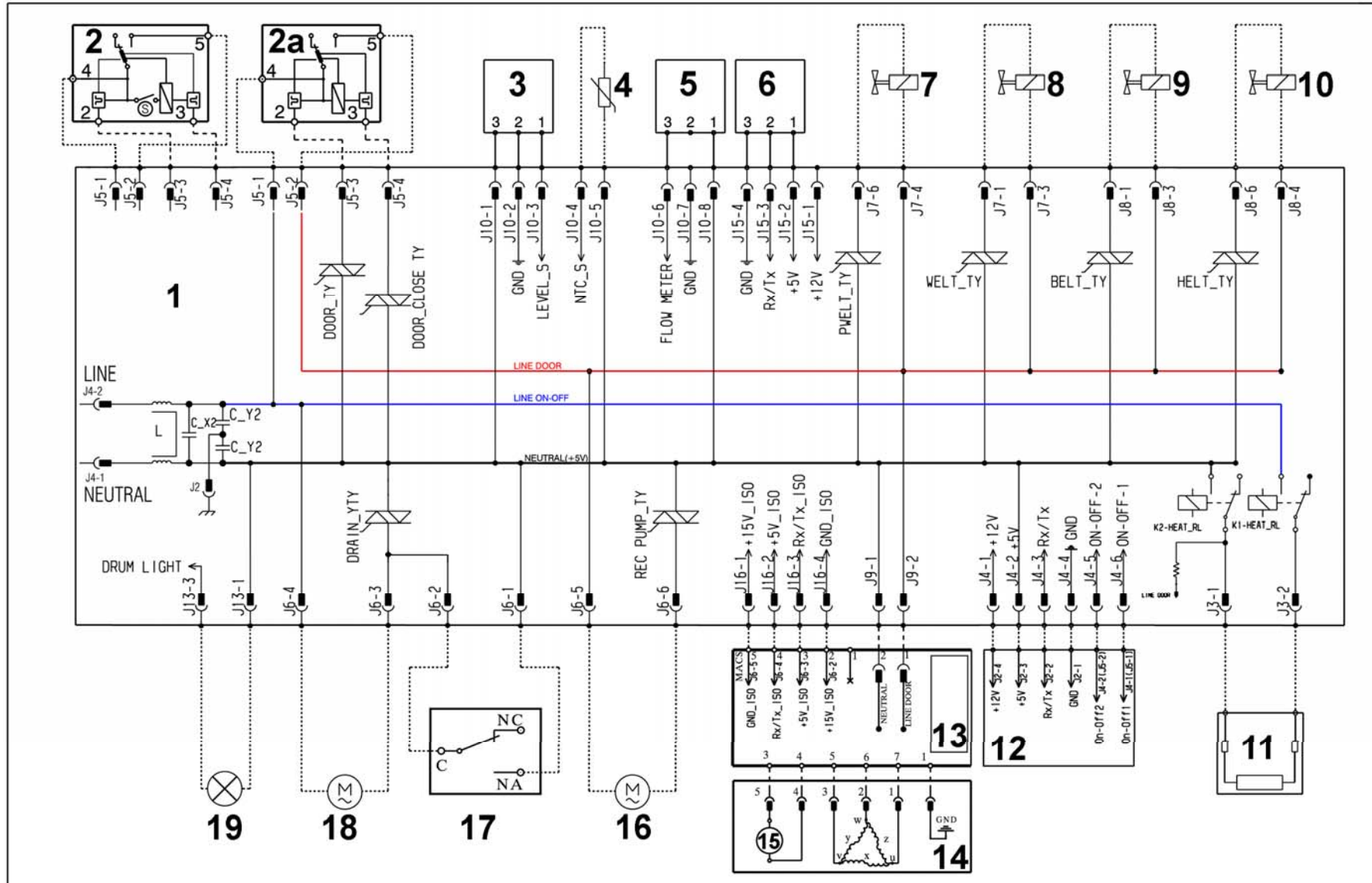
Alarm	Description	Possible fault	Machine status/action	Reset
E6H	Heating element power relay faulty (inconsistency between sensing and relay status)	Wiring faulty; Earth-leakage between washing heating element and earth; Main PCB faulty.	Safety water fill. Cycle stops with door closed.	ON/OFF RESET
E71	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
E72	Fault in NTC sensor on drying condenser (voltage out of range, short-circuit or open circuit)	Wiring faulty; Drying NTC sensor (condenser) improperly positioned or faulty; WD PCB faulty.	The heating and drying phase is skipped.	START/RESET
E73	Fault in NTC sensor on drying duct (voltage out of range, short-circuit or open circuit)	Wiring faulty; Drying NTC sensor (duct) improperly positioned or faulty; Main WD PCB faulty.	The heating and drying 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
E83	Error in reading selector	Main PCB faulty (Incorrect configuration data).	Cycle cancelled	START/RESET
E86	Selector configuration error	Display board.	-----	START ON/OFF RESET
E87	Display board microprocessor faulty	Display board.	No action to be performed, if continues, replace the display board.	START ON/OFF RESET
E91	Communication error between main PCB and display	Wiring faulty; Control/display PCB faulty; Inverter board faulty; Weight sensor board faulty, ED PCB faulty, Main PCB 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 cabling; Faulty/blocked solenoid, PCB faulty.	Cycle stops with door locked. Drain pump continues to operate (5 min. on, then 5 min. off. etc.).	RESET

Alarm	Description	Possible fault	Machine status/action	Reset
EC2	Data transfer error between Weight sensor and main PCB	Wiring faulty; Weight sensor faulty, PCB faulty.	-----	START/RESET
EC3	Problems with the weight sensor (communication error with the weight sensor, no signal or outside the limits)	Wiring faulty; Weight sensor faulty; Main PCB faulty.	-----	START/RESET
Ed1	Data transfer error between WD PCB and main PCB	Wiring faulty; Control/display PCB faulty, Inverter board faulty, Weight sensor board faulty, ED PCB faulty, Main PCB faulty.	Cycle blocked.	START ON/OFF RESET
Ed2	Drying heating element relay 1 faulty	Wiring between WD PCB and thermostats faulty; Thermostats faulty; WD PCB faulty; Main PCB faulty.	Drying phase skipped.	START ON/OFF RESET
Ed3	Drying heating element relay 1 sensing faulty	WD PCB faulty.	Drying phase skipped.	START ON/OFF RESET
Ed4	Drying heating element relay 2 faulty	Wiring between WD PCB and thermostats faulty; Thermostats faulty; WD PCB faulty; Main PCB faulty.	Drying phase skipped.	START ON/OFF RESET
Ed5	Drying heating element relay 2 sensing faulty	WD PCB faulty.	Drying phase skipped.	START ON/OFF RESET
Ed6	Thermostat sensing faulty	WD PCB faulty.	-----	START ON/OFF RESET
Ed7	Thermostats faulty	Wiring between WD PCB and thermostats faulty; thermostats faulty; WD PCB faulty.	-----	-----
Ed8	No tachometric signal from power fan	Wiring faulty; Power fan faulty; WD PCB faulty.	Drying phase skipped.	START ON/OFF RESET
Ed9	Inconsistency between the power fan status and the piloting sensing signal	WD PCB faulty.	Drying phase skipped.	START ON/OFF RESET
EdA	WD PCB power supply outside the limits	Problem with the power supply network (incorrect/disturbed); WD PCB faulty.	Wait for nominal frequency conditions.	START ON/OFF RESET
EdH	WD PCB microprocessor faulty	WD PCB faulty.	No action to be performed, if continues, replace the WD PCB.	START ON/OFF RESET
EdC	Drying heating elements interrupted	Drying heating elements disconnected; Wiring faulty; Drying heating elements interrupted.	-----	START ON/OFF RESET

Alarm	Description	Possible fault	Machine status/action	Reset
Edd	Current leak to the ground	Earth leakage between drying heating elements and earth.	Drying phase skipped.	START ON/OFF 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.	RESET
EF3	Aqua control system intervention	Water leaks onto base frame; Aqua control system faulty; Drain pump winding interruption/overheating.	Appliance drains.	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
EF5	Unbalanced load	Final spin phases skipped.	-----	START/RESET
EF6	Reset	If it continues, replace the main board.	No action to be taken.	-----
EH1	Supply frequency of appliance outside the 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
EH4	0Watt relay malfunction	Main circuit board faulty.	-----	ON/OFF RESET
EHC	WD line relay faulty (inconsistency between relay status and relay sensing)	Main circuit board faulty.	Safety drain cycle. Cycle stops with door open.	ON/OFF RESET
EHD	WD line relay sensing faulty	Main circuit board faulty.	Cycle stops with door locked.	RESET
EHE	Inconsistency between FCV relay (in the main board) and safety "sensing" circuit	Faulty cabling; 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

16 DIAGRAMS

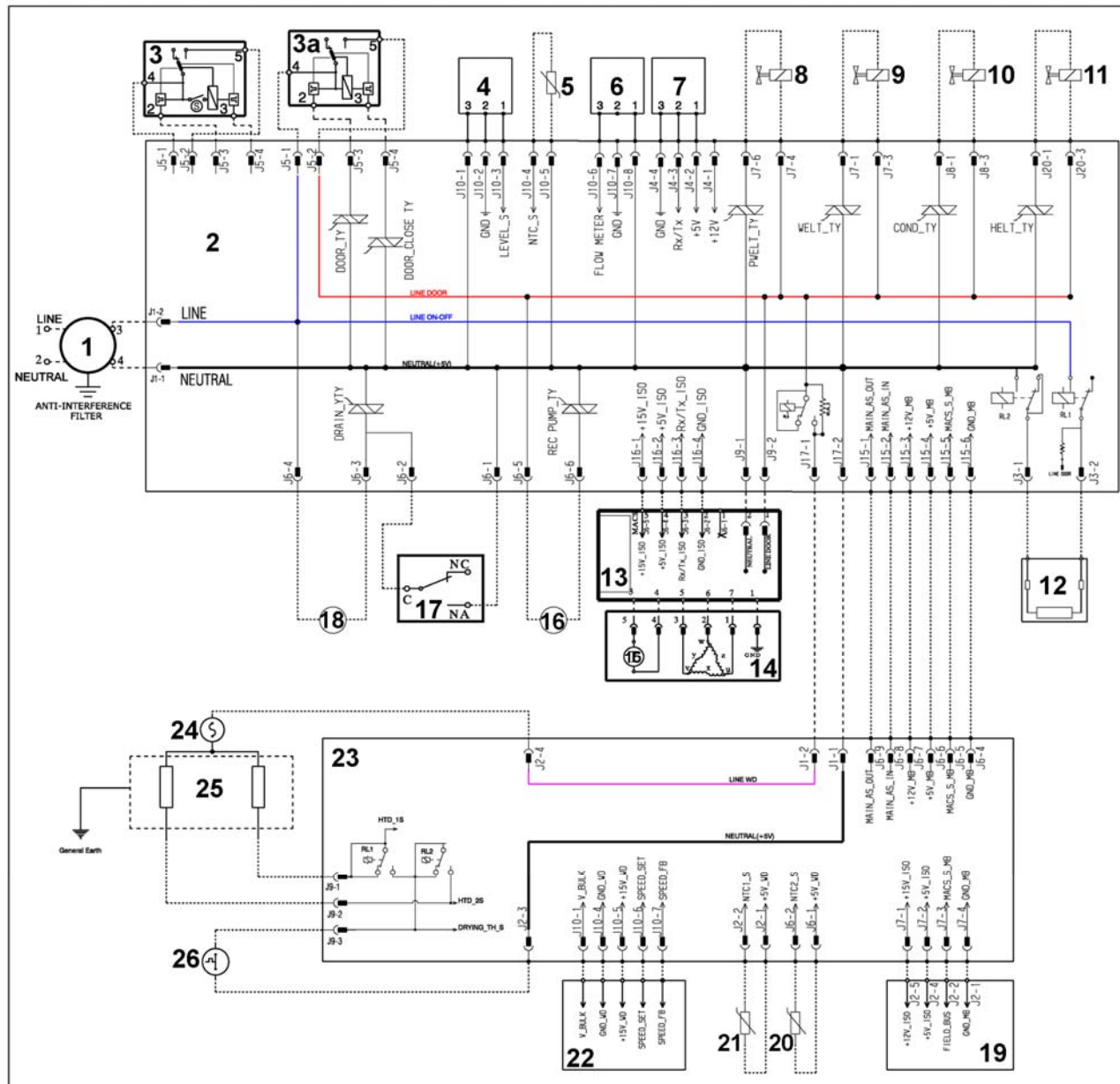
16.1 WM diagram with THREE-PHASE ASYNCHRONOUS MOTOR



16.1.1 Key to diagram

Appliance electrical components		PCB components	
1.	Main circuit board	DRAIN_YTY	Drain pump Triac
2.	Door safety interlock (with light micro-switch)	DOOR_TY	Door interlock Triac
2a	Door safety interlock (without light micro-switch)	DOOR_CLOSE_TY	Door interlock Triac
3.	Electronic pressure switch	REC PUMP_TY	Circulation pump TRIAC switch
4.	NTC (washing)	PWELT_TY	Pre-wash solenoid Triac
5.	Flow sensor	WELV_TY	Wash solenoid Triac
6.	Weight sensor	BELT_TY	Electronically controlled TRIAC bleach valve
7.	Pre-wash solenoid	HELT_TY	Hot water solenoid triac
8.	Wash solenoid	K1	Heating element relay
9.	Bleach solenoid valve	K2	Heating element relay
10.	Hot water solenoid		
11.	Heating element		
12.	Display board		
13.	Motor control board (Inverter)		
14.	Triple-phase motor		
15.	Tachometric generator (motor)		
16.	Circulation pump		
17.	Aqua control sensor		
18.	Drain pump		
19.	Drum light		

16.2 WD diagram with THREE-PHASE ASYNCHRONOUS MOTOR



16.2.1 Key to diagram

Appliance electrical components	PCB components	
<ol style="list-style-type: none"> 1. Anti-disturbance filter 2. Main circuit board 3. Door safety interlock (with micro-switch) 3a. Door safety interlock (without micro-switch) 4. Electronic pressure switch 5. NTC (washing) 6. Flow sensor 7. Weight sensor 8. Pre-wash solenoid 9. Wash solenoid 10. Condensation solenoid valve 11. Hot water solenoid 12. Heating element 13. Motor control board (Inverter) 14. Triple-phase motor 15. Tachometric generator (motor) 16. Circulation pump 17. Aqua control sensor 18. Drain pump 19. Display board 20. Humidity sensor NTC 21. Drying sensor NTC 22. Power fan 23. PCB - WD 24. Safety thermostat 25. Drying heating element 26. Auto-reset thermostat 	<p>DRAIN_TY DOOR_TY DOOR_CLOSE_TY REC PUMP_TY PWELT_TY WELT_TY COND_TY HELT_TY RL1 RL2 RL6</p>	<p>Drain pump Triac Door interlock Triac Door interlock Triac Circulation pump TRIAC switch Pre-wash solenoid Triac Wash solenoid Triac Condensation solenoid Triac Hot water solenoid triac Washing/drying heating element relay Washing/drying heating element relay WD PCB power supply</p>

17 WM ACCESSIBILITY

17.1 Worktop

Remove the screws that secure it to the back panel.

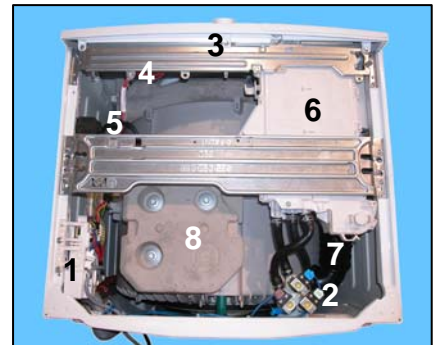


Pull it out from the back.



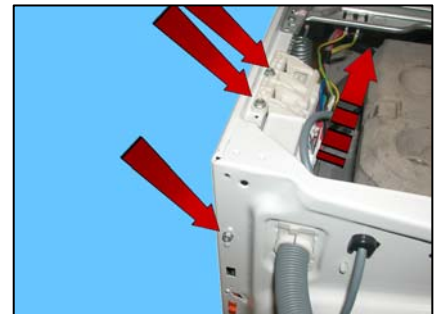
17.2 From the worktop, you can access

1. Main board
2. Solenoid valves
3. Control panel
4. Display board/light diffuser/buttons/buttons springs assembly
5. Electronic pressure switch
6. Detergent dispenser
7. Detergent fill pipe
8. Upper counterweight

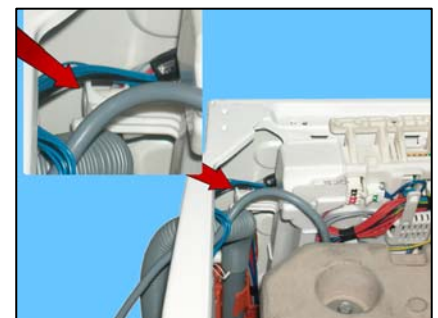


17.2.1 Main board

Remove the worktop (see relevant paragraph).
Unfasten the three screws securing it to the cabinet.
Move it in the direction of the dotted arrow.



Place the wiring behind the hook securing the board to the back panel.



Remove the wiring from the side hook of the board protection.



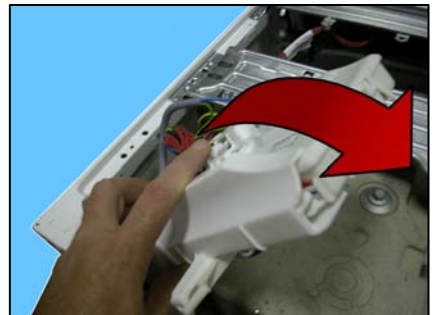
Remove the wiring from the central hook.



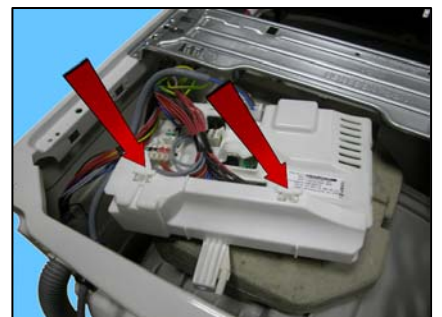
Remove the main board.



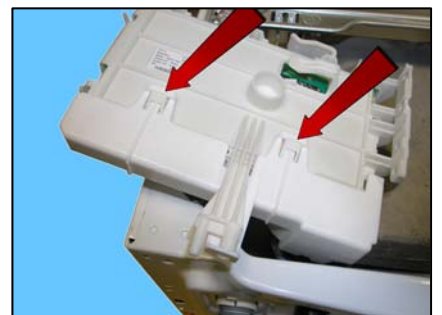
Turn it.



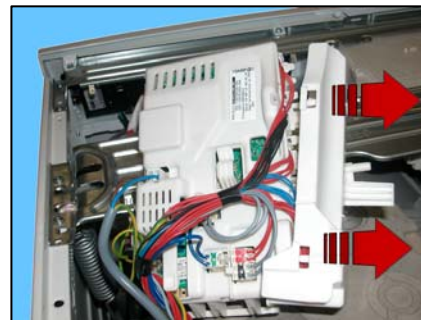
Disconnect the hooks fixing the connector protection on one side



then the other.



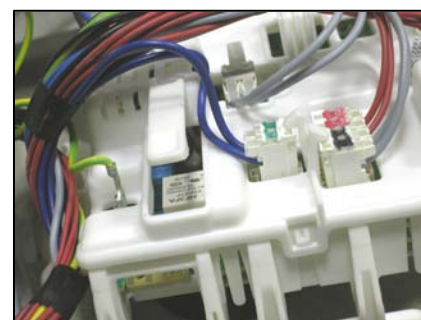
Remove the connectors protection.



Pull out the connectors positioned beside the board.



Pull out the other connectors, taking care as they are retained by hooks.

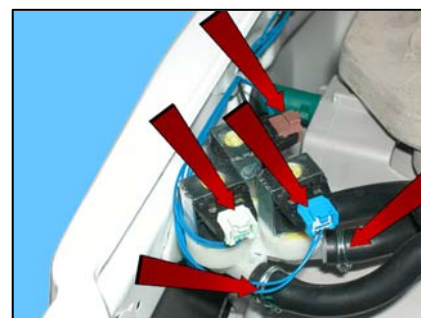


17.2.2 Solenoid valve

Remove the worktop (see relevant paragraph).

Disconnect the connectors.

Pull out the pipes 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.



17.2.3 Control panel

Remove the worktop (see relevant paragraph).



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



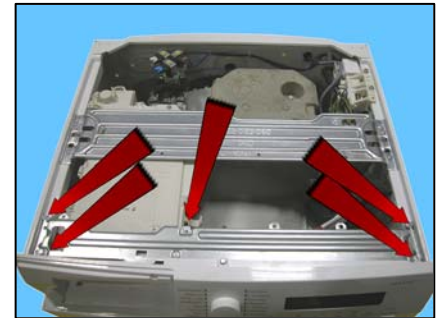
Loosen the screws that attach the control panel to the detergent tray.



Pull out the clamp from the crosspiece.



Remove the four screws which secure the crosspiece to the cabinet.
Remove the screws which secure the crosspiece to the detergent dispenser.



Release the anchor tab which secures the detergent dispenser to the crosspiece.



Raise both sides of the control panel so as to pull out the hooks which secure it to the front panel.



Remove the control panel and position it as shown in the figure, making sure you introduce a protection to prevent scratching it.

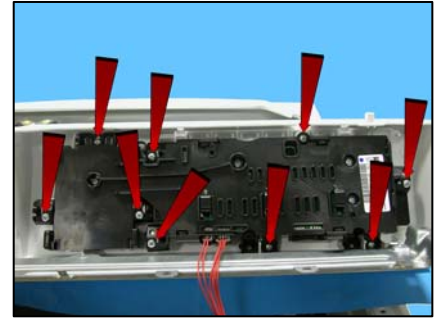


17.2.4 Display board/light diffuser/button springs/buttons assembly

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

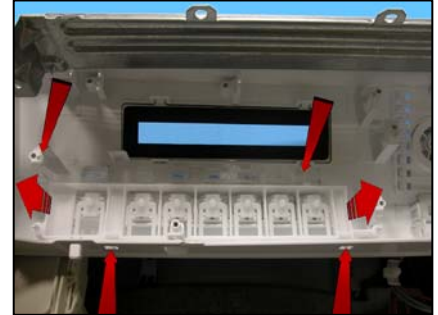
Remove the screws and release the hooks which secure the board assembly to the control panel.

The dial and the dial cover remain fixed to the control panel.



- Buttons spring

Disconnect it from the control panel and remove it from the two side pins.



- Light diffuser

Unhook the three hooks that fasten it to the control panel.



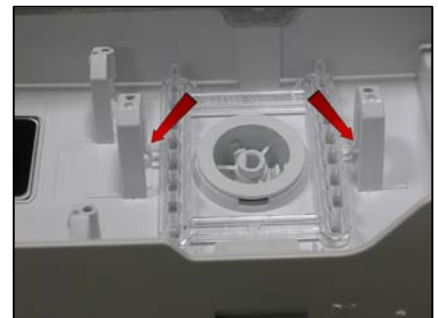
- Buttons

The buttons have a number printed on them. See the figure for numbers.



- Selector light diffuser

To remove, unhook the hooks that fasten it to the control panel.



When reassembling the display board assembly and the control panel.

Remove the dial from the dial cover.
Release the hooks that fasten them together, and fasten the whole to the control panel.

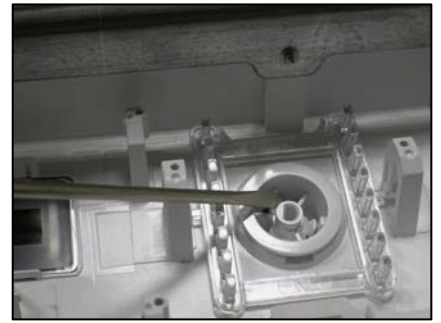
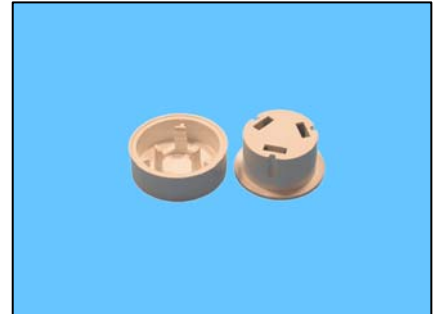
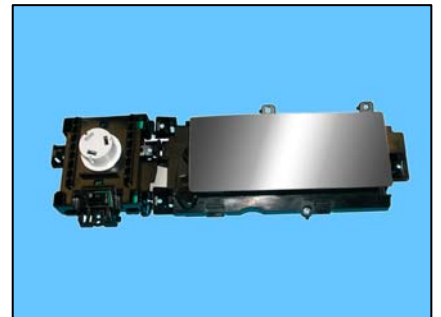


Illustration of the dial and the dial cover.



Thread the dial onto the selector pin.



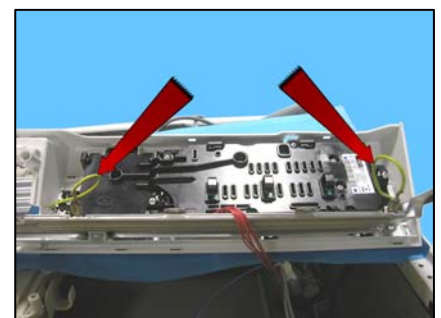
Insert the display board in its seat in the control panel.



Insert the dial cover.



SERIES 8 and 9 if the two earth wires connecting the front panel have been disconnected, reconnect them to the fasteners of the control panel crosspiece.

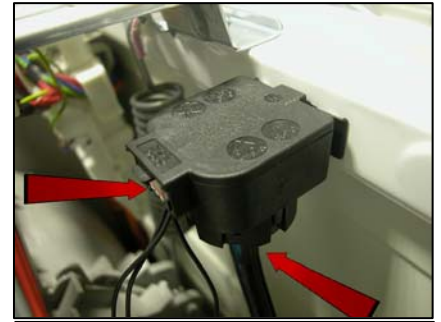


17.2.5 Analogue pressure switch

Remove the worktop (see relevant paragraph).

Remove the connector.

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



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

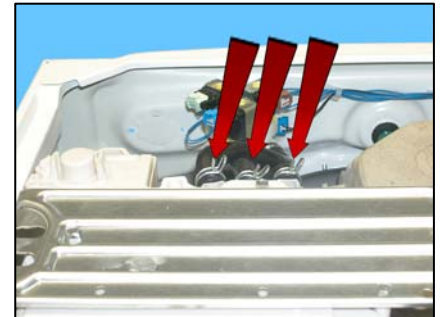


17.2.6 Detergent dispenser

Remove the worktop (see relevant paragraph).

Remove the control panel (see relevant paragraph).

Pull out the pipes that connect it to the solenoid valves (cold water and where featured hot water)



Unfasten the two screws securing it to the central crosspiece.



Unfasten the screw in the clamp that fixes the detergent loading pipe to the tray, and remove it from its housing.



If the appliance is a Jet System, pull out the pipe from the detergent dispenser hook.



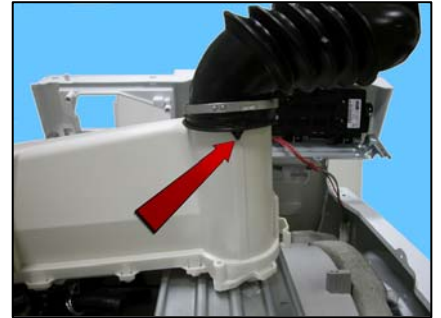
Remove the detergent dispenser.



17.2.7 Detergent fill pipe

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

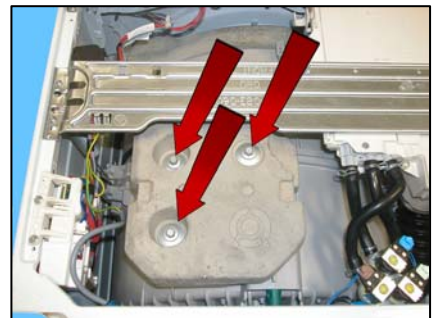
Pull out the pipe from the detergent dispenser after breaking/loosening the clamp between the detergent dispenser and the detergent loading pipe. When reassembling, use a new clamp with the same characteristics. The size of the clamp to use is 65.5 mm. When introducing the pipe into the dispenser, make sure the two references are aligned.



17.2.8 Upper counterweight

Remove the worktop (see relevant paragraph).
Remove the three screws that secure it to the welded tub.

When reassembling:
If the tub assembly is new, tighten the screws at a torque of 20 Nm.
If the tub assembly is not new, align with the existing thread and tighten the screws at a torque of 15 Nm.



17.3 Accessing the front part

From the front it is possible to access the following components:

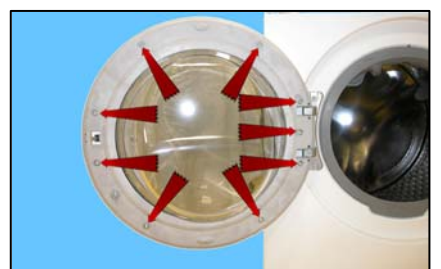
1. Door and Door Hinge
2. Door safety interlock
3. Drum light
4. Bellow seal
5. Blade
6. Front panel

17.3.1 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.

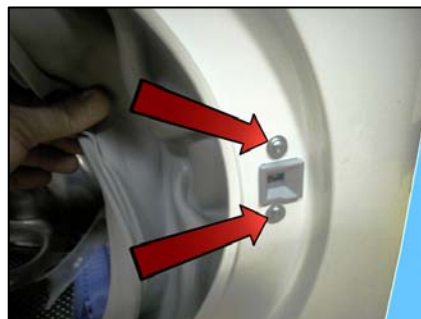


17.3.2 Door safety interlock

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



Unfasten the two screws securing the door safety interlock to the front panel.



Take the device and move it to the left.



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



Pull it out towards the right and remove it.



Pull out the wiring protection from the door safety interlock.
Disconnect the connector.



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

Before tightening the screws to secure the door safety interlock to the front panel, make sure the flange is positioned properly on the outside as indicated by the arrows.

Tighten the screws at a torque of 2.5 Nm.



17.3.3 Drum light

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

Remove the wiring from the lamp holder.



Take out the hook securing it to the bellow seal.



Take the lamp out of its seat.



17.3.4 Bellow seal

Remove the iron ring securing the bellow seal to the unit.
Release the bellows seal from the front panel.
Take the drum light out of its seat (see related paragraph).

Take the circulation pipe out of its seat in the bellow seal after breaking the clamp (when reassembling, use a new clamp with the same characteristics and size 20.5).

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.
Lubricate with liquid soap the part where the tub is inserted.
Make sure the references are aligned.
Reassemble the snap ring between the door bellow seal and the tub.
Where featured, reposition the Jet pipe and the lamp in their seats.
Reassemble the iron ring between the door bellow seal and the cabinet.



17.3.5 Blade

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

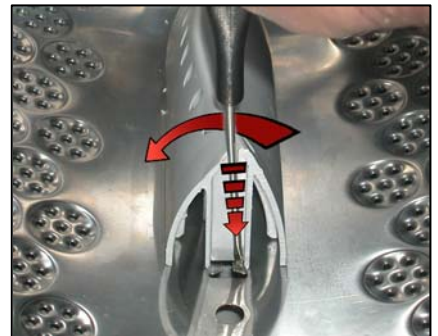
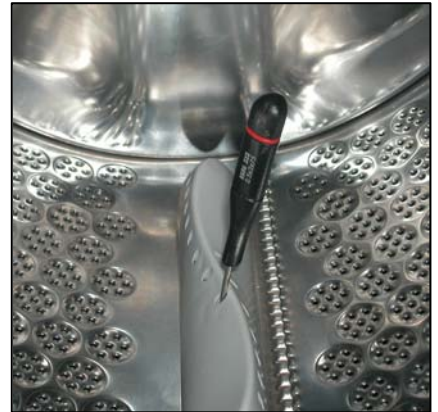
To remove it from the drum:

Insert a flat-tip screwdriver into the central slot of the left row.

The screwdriver with the handle tilted towards the right push the left-hand tab down.

The screwdriver with the handle tilted towards the left. Push the right-hand tab down.

When the two tabs are down. Move the blade towards the front of the drum, and if necessary squash the blade at the two ends.



Before securing the new blade insert a screwdriver beneath the tabs and raise them a little.



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



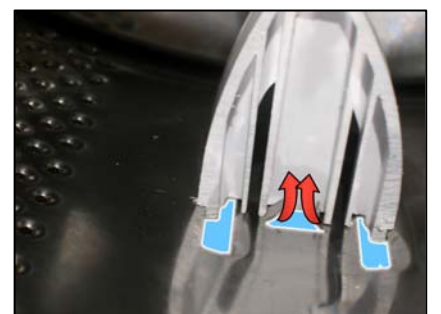
Insert the screwdriver (in the central slot of the left-hand row) at a right angle to the blade, so as to position it at the centre of the two drum tabs. Tilt it towards the right so that the left tab moves upwards.



With the screwdriver still inserted in the slot. Tilt it towards the left so that the right tab moves upwards.



With the tabs raised, the blade is secured to the drum.



17.3.6 Front panel

Remove the worktop (see relevant paragraph).
Remove the control panel (see relevant paragraph).
Remove the iron ring and remove the door bellow seal from the front panel.
Unfasten the screws securing the door safety interlock.

Open the filter flap and remove it.

Loosen the two screws that secure the plinth to the front.

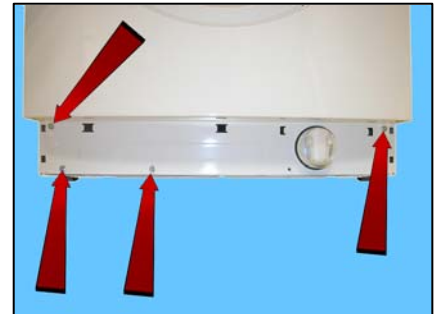
Release the two hooks that secure it to the front (indicated by the arrows).

Remove the plinth by turning it downwards in order to pull out the pins that secure it to the lower part of the front panel.

Loosen the screws that secure the lower part of the front panel to the cabinet casing.

Release the cable clamp secured to the centre of the front panel (where the lamp is featured).
Unfasten the four screws securing the front panel to the sides (indicated by the arrows).

Remove the front panel.



17.4 From the front panel, you can access

1. The JET water circuit
2. The front counterweight
3. The shock absorbers with/without weight sensor
4. The drain water circuit
5. The pressure chamber
6. The tub suspension springs
7. The shock absorber pins

17.4.1 JET water jet

Jet pipe (1).

Pull it out of the circulation pump, while you will have to break/widen the clamp from the bellow seal (when reassembling, use a new clamp with the same characteristics with size 20.5).

- Circulation pump

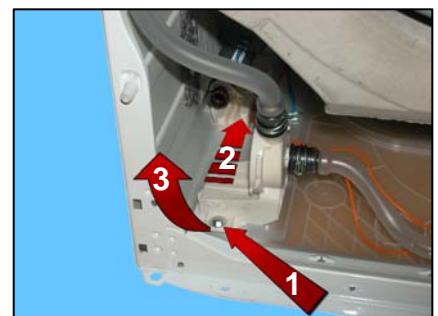
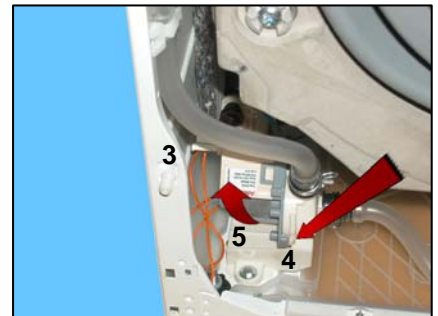
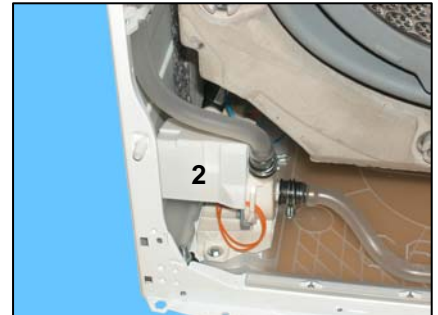
Remove the protection (2).

Disconnect the connectors (3).

Move the lock catch (4) with some pliers (take care not to break it).
Turn the pump in the direction shown by the arrow (5).

Remove the pump.

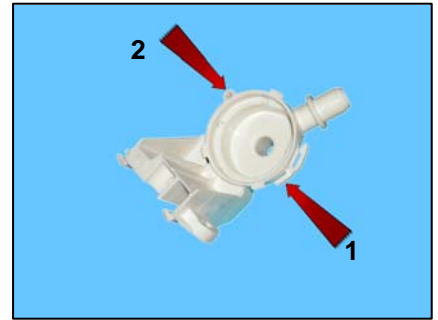
To remove the circulation pump screw: take out the pipes, loosen the screw (1) securing it to the crosspiece, push it towards the inside of the appliance (2) and lift it (3).



If the catch (1) securing the circulation pump to the screw accidentally breaks.

Secure the pump to the screw and secure the latter using a screw, screwing the latter into the slot (2).

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



When reassembling, make sure the seal is in its seat in order to avoid water leaks.



17.4.2 Front counterweight

Remove the worktop (see relevant paragraph).

Remove the control panel (see relevant paragraph).

Remove the iron ring securing the bellow seal to the front panel.

Unfasten the screws securing the door safety interlock (see related paragraph).

Remove the front panel (see relevant paragraph).

Pull out the Jet pipe (see related paragraph).

Pull out the lamp from its seat.

Unfasten the five screws securing the front counterweight to the welded tub assembly.

When tightening the screws, take care:

If the welded tub assembly is new, tighten the screws at a torque of 15 Nm.

If the welded tub assembly is not new, align with the existing thread and tighten the screws at a torque of 10÷12 Nm.



17.4.3 Shock absorber with/without weight sensor

Remove the worktop (see relevant paragraph).

Remove the control panel (see relevant paragraph).

Remove the iron ring securing the bellow seal to the front panel.

Unfasten the screws securing the door safety interlock (see related paragraph).

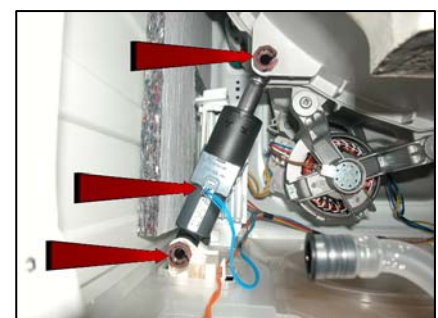
Remove the front panel (see relevant paragraph).

Remove the circulation pump with the screw (see related paragraph).

Remove the connector if the shock absorber is fitted with a weight sensor.

Pull out the pins securing it to the tub and crosspiece.

To reposition the pins, see para. 12.4.7 on page 106.



17.4.4 Drain water circuit

- Tub drain pipe

Remove the worktop (see relevant paragraph).
Remove the control panel (see relevant paragraph).
Remove the iron ring securing the bellow seal to the front panel.
Unfasten the screws securing the door safety interlock (see related paragraph).
Remove the front panel (see relevant paragraph).
Pull out the main drain pipe (1).
Loosen the screw of the clamp securing the tub drain pipe to the tub (2).
Pull out the pipe from the analogue pressure switch connecting the pressure chamber.
Release the pressure chamber (*See pressure chamber description*).
Pull out the tub drain pipe and pull out the pressure chamber (3).
Where clamps are present, you will need to open/break them. When reassembling, use clamps with the same characteristics.



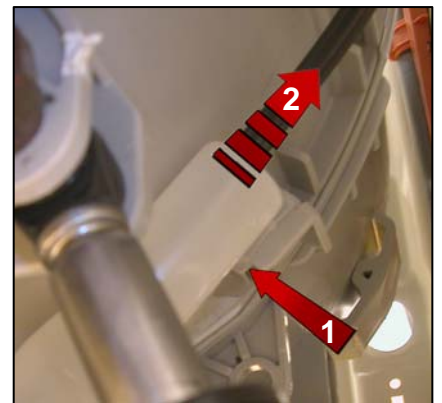
17.4.5 Pressure chamber

Remove the worktop (see relevant paragraph).
Remove the control panel (see relevant paragraph).
Remove the iron ring securing the bellow seal to the front panel.
Unfasten the screws securing the door safety interlock (see related paragraph).
Remove the front panel (see relevant paragraph).
Pull out the pipe from the analogue pressure switch and hooks securing it to the welded tub.

Unfasten the screw in the clamp that fixes the drain pipe to the welded tub and remove it from its position, pulling it out.



Push the hook (1) while at the same time lifting the chamber (2) from the support securing it to the tub.



Turn the chamber under the tub and pull it out.



Make a note of the latch and hook with which it is secured to the tub.

If the hook securing the chamber to the welded tub is broken. Use the eyelet (indicated by the red arrow).



Use a screw Code 405 50 33-52/8 (AF/2P 5x16 TE/SP must have a maximum length of 16 mm and without a tip to avoid perforating the tub), secure the chamber to the tub as shown by the arrow in the photo.



When repositioning the pressure chamber in the tub drain pipe, pay attention to the references.

The size of the clamp to use is 52.5 mm.



When reassembling the pressure chamber, reposition the pipe connecting the pressure switch so that it never actually touches the cabinet.

- Filter body

Remove the worktop (see relevant paragraph).
Remove the control panel (see relevant paragraph).
Remove the iron ring securing the bellow seal to the front panel.
Unfasten the screws securing the door safety interlock (see related paragraph).
Remove the front panel (see relevant paragraph).
Loosen the screws securing it to the front crossbar (1).
Pull out the main drain pipes (2) and circulation pump connection pipe.
Raise it to remove the support inserted in the side crossbar (3).
Remove the pump protection.



- Drain pump

Release the connectors.
Move the lock catch with some pliers (take care not to break it).
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 3.5x19 Code 5024 79 51- 00/2.



17.4.6 Tub suspension springs

- Left spring

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



- Right spring

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



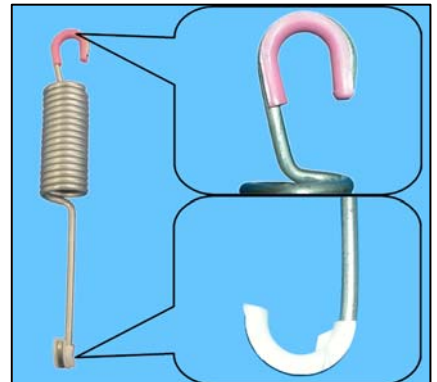
When reattaching the springs (after repair work which required their removal), make sure that the bushings shown in the figure are featured on both ends.

Pay attention to the differences between the bushings (see enlarged details).

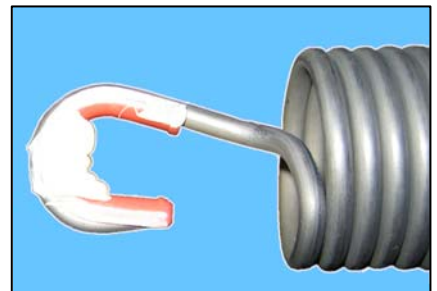
Spare bushings are available, under the following codes:

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

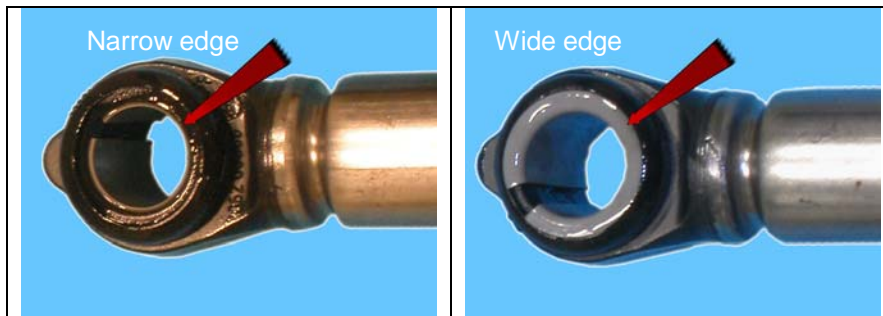


Attachment position of springs to top crosspiece.

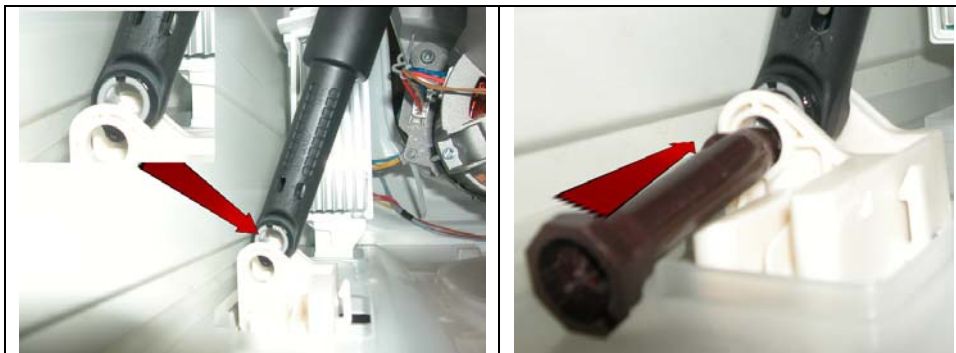


17.4.7 Shock absorber pin

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).

17.5 Accessing the rear part

17.5.1 Back panel

Loosen the screws that fix it to the cabinet.



17.6 From the back panel, you can access

1. Belt
2. Plastic pulley
3. Inverter
4. Motor
5. Heating element
6. Aqua control
7. Rear shock absorber
8. Welded tub assembly
9. Drain pipe/cabling support
10. Main drain pipe



17.6.1 Belt

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



When reassembling:

Position the belt and align it with the centre of the pulley (\varnothing 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.



17.6.2 Plastic pulley

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

Tighten the screw at a torque of 60 Nm.



17.6.3 Inverter

Remove the back panel (see relevant chapter).

Loosen the two screws that fix it to the cabinet.



Remove the wiring from the hook of the inverter casing and move it inwards.



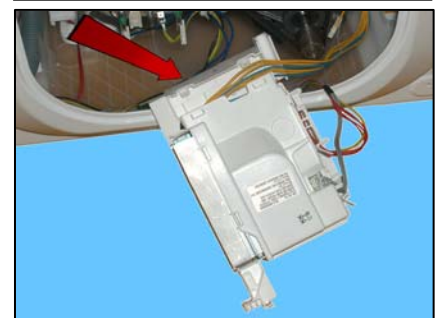
Turn it and position it as shown in the figure.



Push the washing unit towards the inside and remove the inverter.



Open the wiring protection and disconnect the connectors.



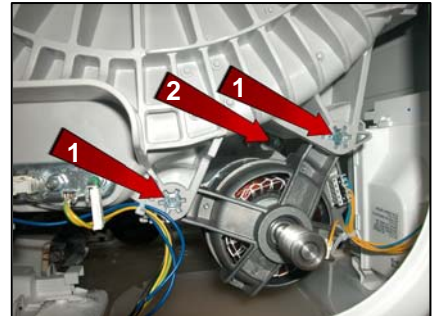
When repositioning the inverter in its seat, pay attention that the hook is inserted in its position in the crosspiece.



17.6.4 Motor

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

Disconnect the connectors: for the power supply and earthing.
Loosen the two front fastening screws (1) and the rear ones (2).



When reassembling, restore the connections.

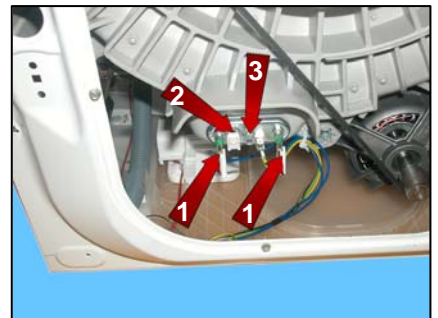
If the clamp securing the wiring to the motor breaks, replace it with a new one.

Tighten the screws at a torque of 5 Nm.

17.6.5 Heating element

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.



Tighten the nut at a torque of 4 Nm.

17.6.6 Aqua control

Remove the back panel (see relevant chapter).

Release the hooks securing it to the bottom and disconnect the connector.



17.6.7 Rear shock absorber

Remove the back panel (see relevant chapter).

To take the pins out of their seats, push the locking tooth and at the same time remove it with pliers.

Perform the same operations for the other pin.
Take the shock absorber out.



17.6.8 Welded tub assembly

Remove the worktop (see relevant paragraph).

Remove the control panel (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.

17.6.9 Drain pipe/cabling support

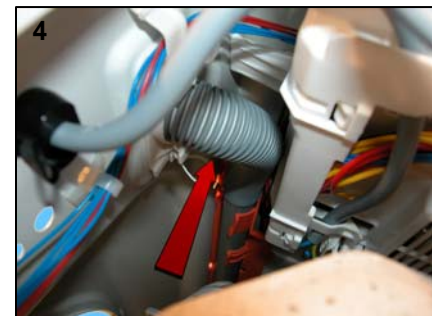
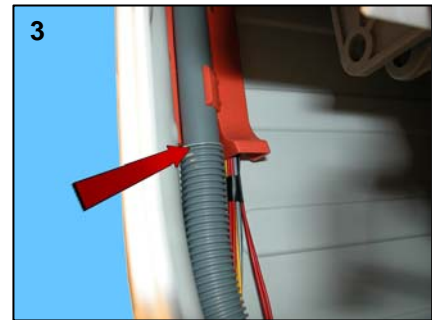
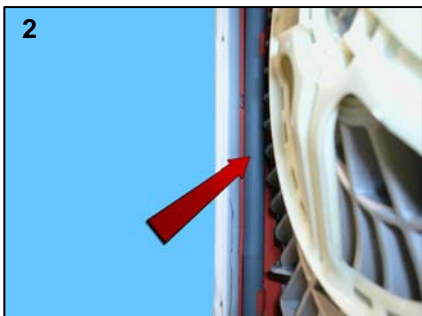
When fixing the drain pipe/cabling support make sure that the two stops (indicated by the red arrows) fit into their housings, locking the support to the unit.

If the fixing is not stable and there is a risk of it coming out of its position, fasten the support to the unit with a screw (6.5x 3.5 mm) screwed into the hole indicated by the blue arrow.



17.6.10 Main drain pipe

Arrange the drain pipe as shown in the figures.



18 WD ACCESSIBILITY

18.1 Worktop

See paragraph 17.1 on page 88

18.2 From the worktop, you can access

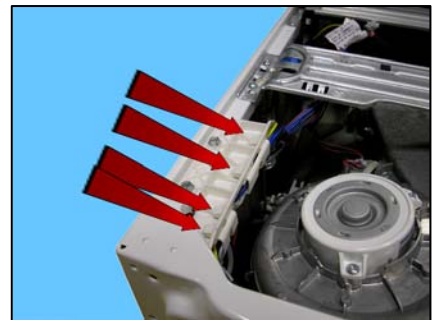
1. WD PCB
2. Solenoid valves
3. Control panel
4. Display board/light diffuser/buttons/buttons springs assembly
5. Electronic pressure switch
6. Detergent dispenser
7. Detergent fill pipe
8. Anti-disturbance filter
9. Power supply cabling sheath
10. Rear drain pipe fastener
11. Thermostats (auto-reset and safety)
12. NTC probe (drying)



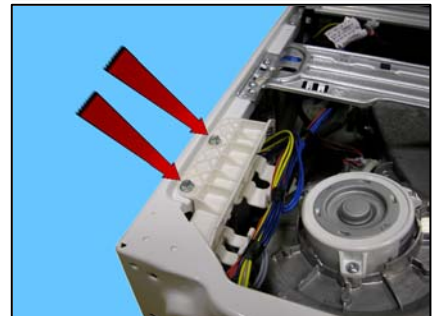
18.2.1 WD PCB

Remove the worktop (see relevant paragraph).

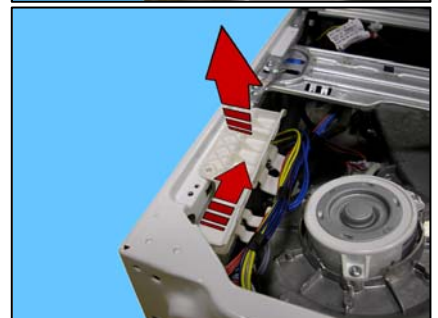
Release the hooks securing the wiring to the board and remove it.



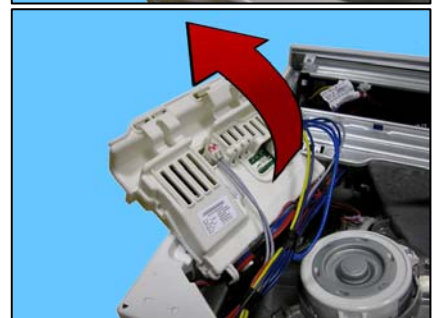
Unfasten the two screws securing it to the side panel.



Push the board forward and lift it.



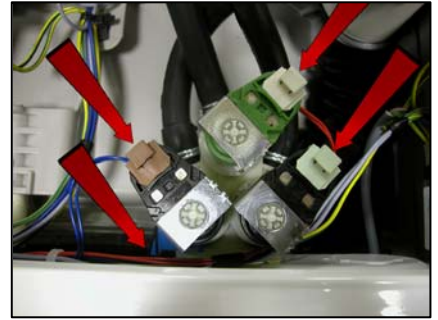
Turn it in the direction shown by the arrow and detach the connectors.



18.2.2 Solenoid valve

Remove the worktop (see relevant paragraph).

Detach the connectors, including the flowmeter one.



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 anti-clockwise to remove it.



Remove the pipes that connect the solenoid valve.



18.2.3 Control panel

See paragraph 17.2.3 on page 90

18.2.4 Display board/light diffuser/button springs/buttons assembly

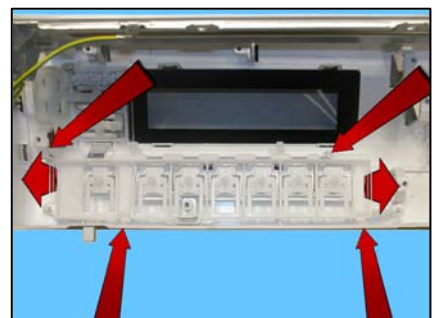
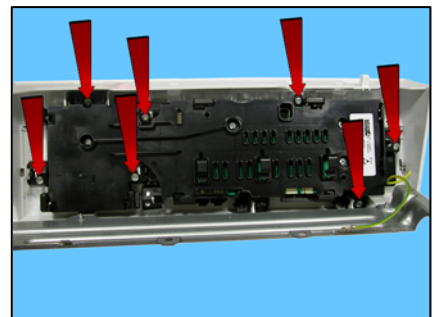
Remove the worktop (see relevant paragraph).
Remove the control panel (see relevant paragraph).

Remove the screws and release the hooks which secure the board assembly to the control panel.

The dial and the dial cover remain fixed to the control panel.

- Buttons spring

Disconnect it from the control panel and remove it from the two side pins.



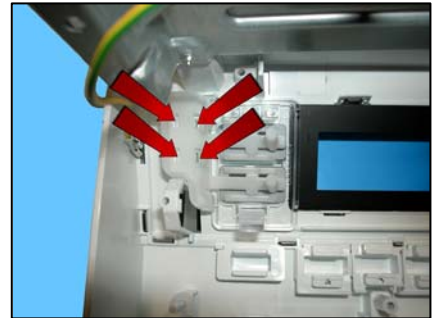
- Buttons

Every button has a number printed on it, to identify its position. The arrow in the figure indicates button number one.



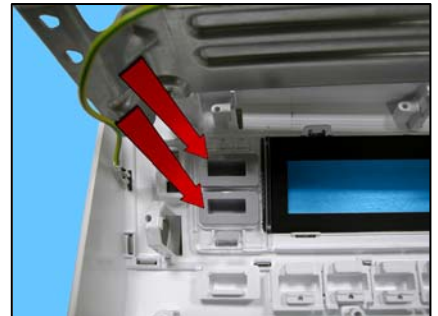
- Side button spring

To remove it, push the hooks shown by the arrows.



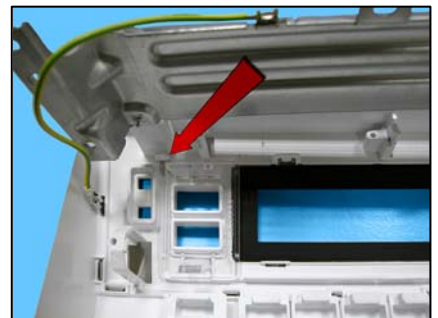
- Side buttons

Take them out of their seat. Make sure you position them correctly when you reposition them.



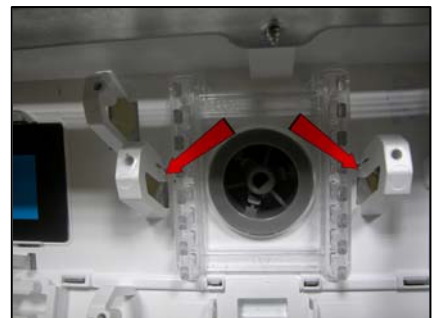
- Side button light diffuser

Release it from the hook securing it in place and take it out of its seat.



- Selector light diffuser

To remove, unhook the hooks that fasten it to the control panel.



When reassembling the display board assembly and the control panel:

Remove the dial cover from the hand dial.



If you are having difficulty

Use a flat-tip screwdriver. Release the hooks that fasten them together, and fasten the whole to the control panel.

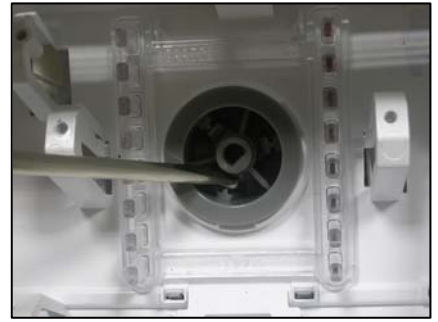
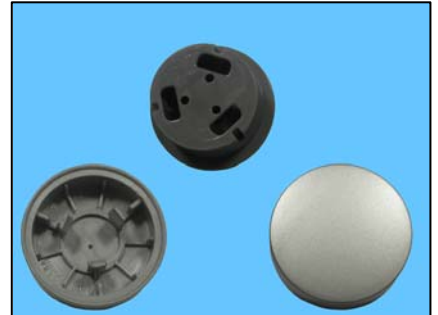


Illustration of the dial and the dial cover.



Thread the dial onto the selector pin.



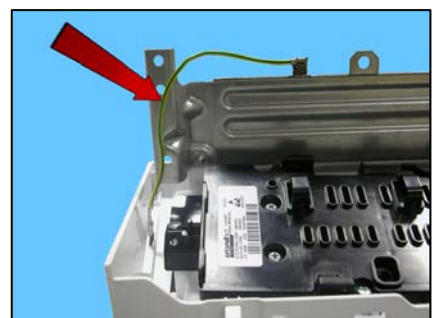
Insert the display board in its seat in the control panel.



Insert the dial cover.



If the earth wire that connects the front panel to the crosspiece was disconnected, reconnect it.



18.2.5 Analogue pressure switch

See paragraph 17.2.5 on page 94

18.2.6 Detergent dispenser

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

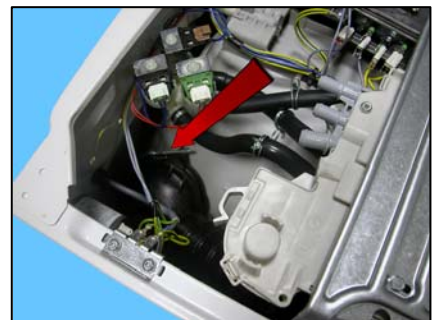
Pull out the pipes that connect it to the solenoid valves (cold water and where featured hot water).



Unfasten the two screws securing it to the central crosspiece.



Unfasten the screw (Torx T20) in the clamp that fixes the detergent loading pipe to the tray, and remove it from its housing.
Remove the solenoid valve if necessary.



If the appliance is a Jet System, pull out the pipe from the detergent dispenser hook.



Take the detergent dispenser out (if necessary, lower the washing unit).

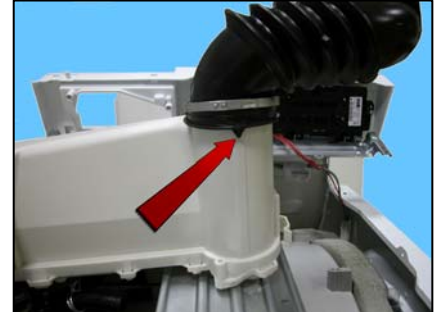


18.2.7 Detergent fill pipe

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

Pull out the pipe from the detergent dispenser after breaking/loosening the clamp between the detergent dispenser and the detergent loading pipe.

When reassembling, use a new clamp with the same characteristics.
The size of the clamp to use is 65.5 mm.
When introducing the pipe into the dispenser, make sure the two references are aligned.



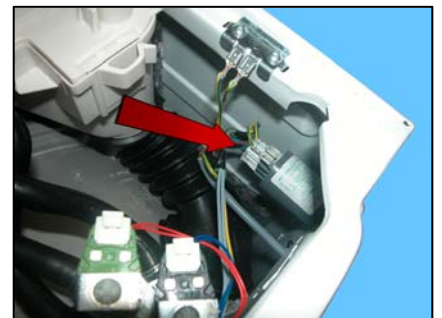
The references between the detergent loading pipe and tub must be aligned.



18.2.8 Anti-disturbance filter

Remove the worktop (see relevant paragraph).

Disconnect the connectors and fasteners.



Loosen the nut securing it to the rear of the cabinet.



18.2.9 Power supply cabling sheath

Remove the worktop (see relevant paragraph).
Using a pair of pliers, squeeze it and pull it out of the appliance.

N.B. Every time the cabling sheath is removed, you will need to replace it with a new one.



18.2.10 Rear drain pipe fastener

Remove the worktop (see relevant paragraph).

Unfasten the screw in the clamp that secures the external drain pipe with the internal one and remove it.



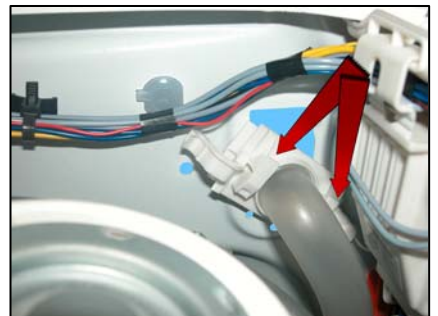
Loosen the screw securing the drain pipe fastener to the back.



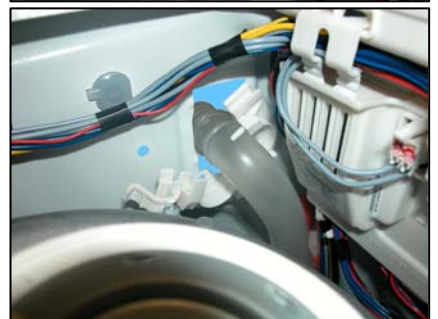
Push it into the appliance at the bottom and concurrently push it down.



Release the hooks that unite the two halves of the drain pipe fastener.



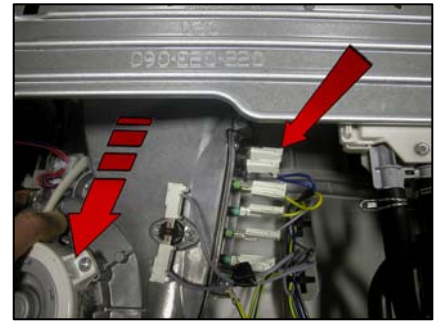
Open the drain pipe fastener.



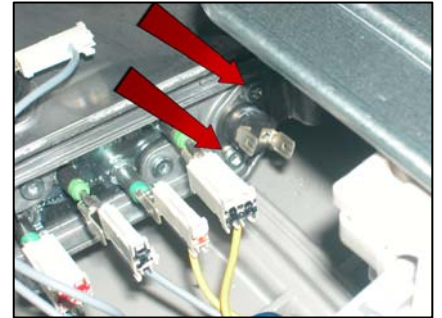
18.2.11 Auto-reset thermostat

Remove the worktop (see relevant paragraph).
Push the washing unit towards the rear of the appliance.

Remove the connectors.



Loosen the screws that secure it to the conduit.



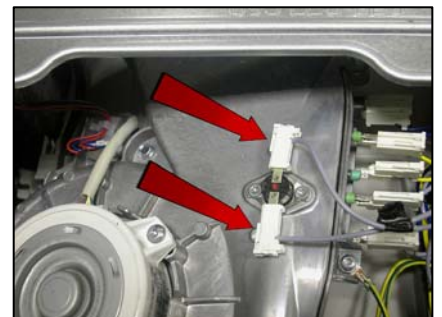
Replace the seal too.



18.2.12 Safety thermostat

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

Remove the connectors.



Loosen the two screws (Torx T20) that fix it to the conduit.



Replace the seal too.

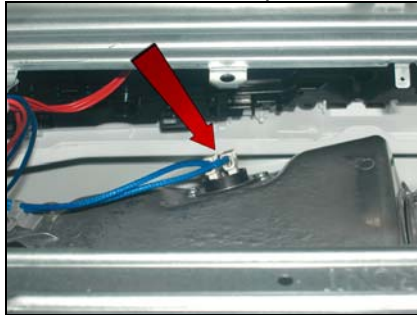


18.2.13 NTC probe (drying)

Remove the worktop (see relevant paragraph).
If necessary, remove the control panel (see relevant paragraph).

Remove the connectors.

With control panel



Without control panel



Loosen the screws (Torx T20) that fix it to the conduit.



Replace the seal too.

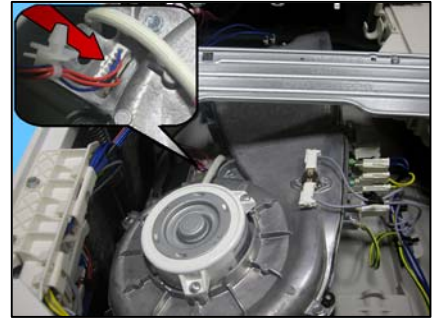


18.2.14 Power fan

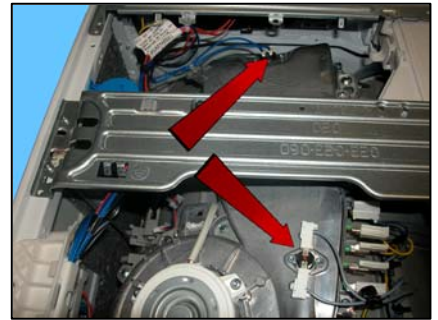
Remove the worktop (see relevant paragraph).

Remove/cut the clamp which secures the power fan wiring to the support. Push the safety hook of the connector in the direction shown by the arrow and remove it.

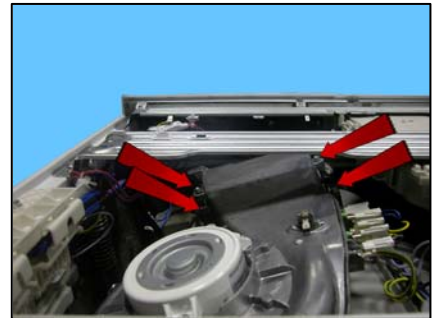
Replace with a new clamp if the old one was cut.



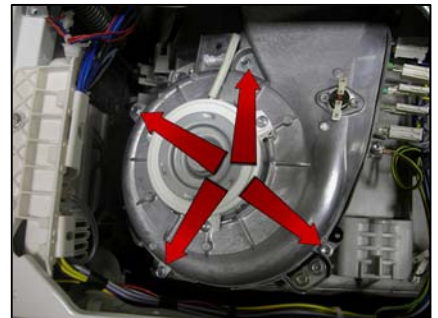
Remove the connectors from the safety thermostat. Remove the connectors from the NTC probe (drying).



Loosen the screws (hex cap) that secure the top central part of the conduit (move the washing unit if necessary).

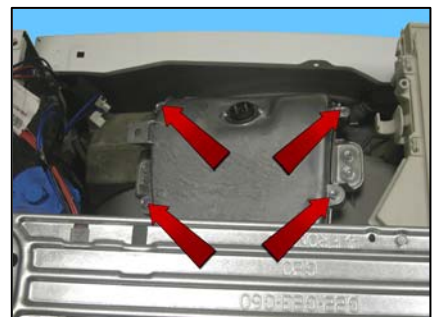


Loosen the screws (hex cap) that secure the top screw to the bottom part.

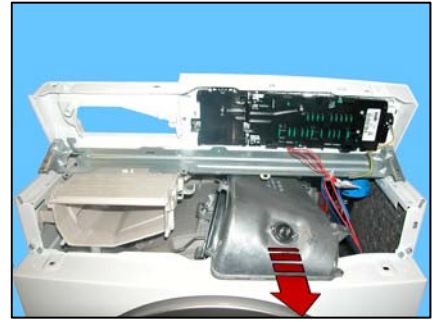


Remove the control panel (see relevant paragraph).

Loosen the screws (hex cap) that secure the front part of the conduit.



Raise the top of the conduit and remove it from the front, as shown in the figure.



External and internal view of the top half of the conduit.



Loosen the nut that secures the fan to the power fan shaft.
Position one washer above and one below when reassembling the fan.



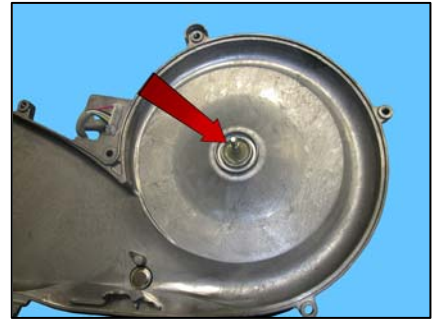
View of the fan on the blades side, notice that the hole is polarised.



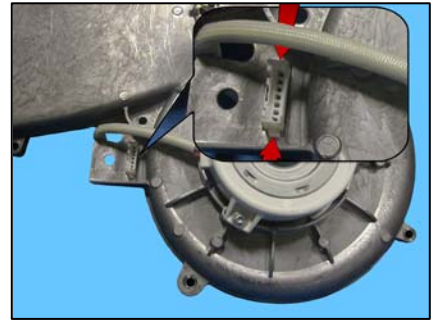
View of the other side of the fan.



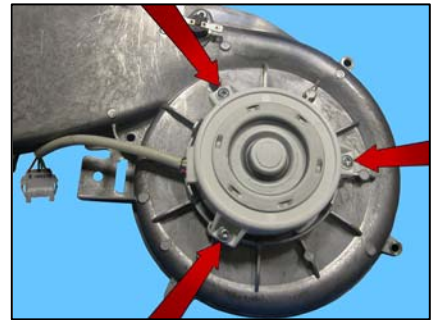
The power fan shaft is immersed in grease Code 5026 24 16-00/6. Indicated by the arrow.



Press the two tabs that secure the connector to its support and take it out of its position.



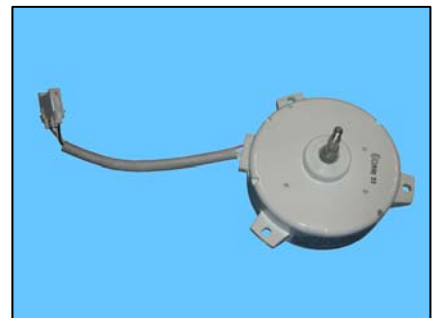
Loosen the three screws (torx T20) that secure the power fan to the screw.



Once the power fan has been removed, there is a seal in the centre of the screw immersed in grease Code 5026 24 16-00/6. When replacing the power fan, make sure this seal is in place.



Power fan.



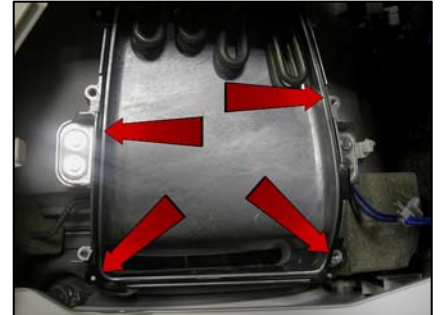
When reassembling, repeat these steps in the reverse order.

Before reposition the top of the conduit, make sure the seal that seals the two halves is correctly positioned in its seat.

Rear (screw)



Front



18.2.15 Drying heating element

Remove the worktop (see relevant paragraph).

Repeat the same steps performed for the power fan until the top of the conduit is removed from the front of the appliance.

Disconnect the connectors.



Loosen the two screws that secure the heating element beside the bottom of the conduit shown by the arrows.



Loosen the screw that secures the heating element support on the inside.



Take out the heating element.

When reassembling, repeat these steps in the reverse order.

When reassembling the top of the conduit to the bottom, follow the same steps as for the power fan.

18.2.16 Bottom of the conduit

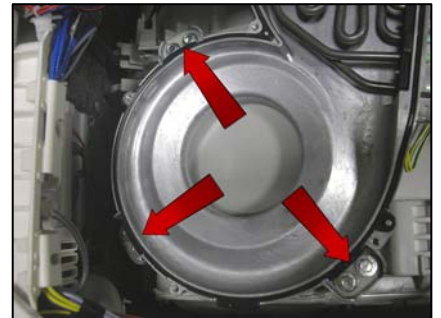
Remove the worktop (see relevant paragraph).

Repeat the same steps performed for the power fan until the top of the conduit is removed from the front of the appliance.

Loosen the two pairs of screws shown by the arrows which secure the front to the welded tub.
Open the clamp that secures the bellow seal to the conduit.



Loosen the three pairs of screws shown by the arrows which secure the screw to the welded tub.



Raise the bottom of the conduit, remove it from the bellow seal and pull it out of the front of the appliance, as shown in the figure.



When reassembling.

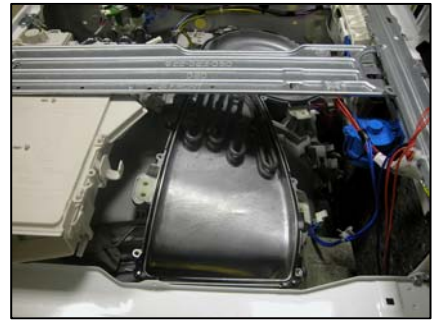
On the outside of the screw (the part which touches the tub), there is a seat which houses a seal; make sure it is positioned correctly during reassembly.



Position the clamp that secures the bellow seal to the conduit in its seat and lubricate the inside of the seal.



Position the bottom of the conduit temporarily, check that the screw seal has not been dislodged from its seat and that the related fixings correspond with the welded tub.



Check that the two surfaces of the screw and tub are touching, in order to guarantee proper seal.



Secure the bottom of the conduit temporarily.



Insert part of the conduit inside the bellow seal and check that it is correctly inserted.



Tighten all the screws that secure it to the tub, recheck that the bellow seal is positioned perfectly around the conduit.

Position the seal that seals the two parts of the conduit in its seat correctly.

Position the top of the conduit correctly.

Tighten all the screws that unite the two halves.

Restore the connections: to the thermostats, to the drying heating element, to the NTC probe (drying) and to the power fan.

18.3 Accessing the front part

From the front it is possible to access the following components:

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

18.3.1 Door and Door Hinge

See paragraph 17.3.1 on page 95

18.3.2 Door safety interlock

See paragraph 17.3.2 on page 96

18.3.3 Blade

See paragraph 17.3.5 on page 98

18.3.4 Front panel

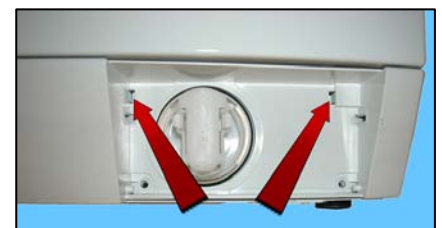
Remove the worktop (see relevant paragraph).
Remove the control panel (see relevant paragraph).
Remove the door safety interlock (see relevant paragraph).

Open the filter flap and remove it.

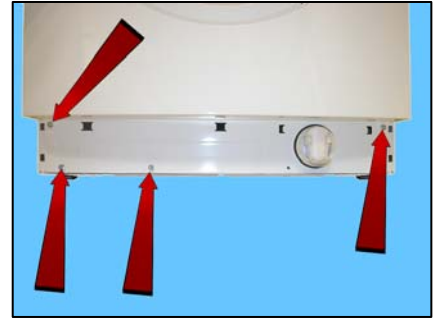
Loosen the two screws that secure the plinth to the front.

Release the two hooks that secure it to the front (indicated by the arrows).

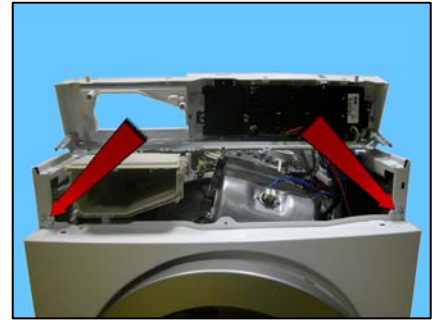
Remove the plinth by turning it downwards in order to pull out the pins that secure it to the lower part of the front panel.



Loosen the screws that secure the lower part of the front panel to the cabinet casing.



Unfasten the four screws securing the front panel to the sides (indicated by the arrows).



Remove the front panel



18.4 From the front panel, you can access

1. The JET water circuit
2. The bellow seal
3. The front counterweight
4. The shock absorbers
5. The drain water circuit
6. The pressure chamber
7. The welded tub suspension springs

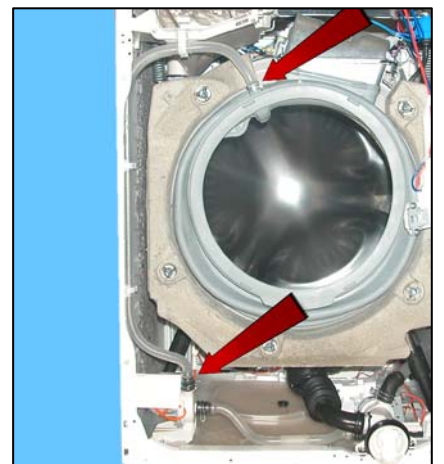
18.4.1 JET water jet

Remove the worktop (see relevant paragraph).
Remove the control panel (see relevant paragraph).
Remove the door safety interlock (see relevant paragraph).

Pull it out of the circulation pump.
Pull it out of the supports that secure it to the side panel and to the detergent dispenser.
Pull it out of the bellow seal, after breaking/widening the clamp (use a new clamp with the same characteristics with size 20.5 during reassembly).

- Circulation pump

Description: see page 101



18.4.2 Bellow seal

Remove the worktop (see relevant paragraph).
Remove the control panel (see relevant paragraph).
Remove the door safety interlock (see relevant paragraph).
Remove the front panel.

Release the spring that secures the bellow seal to the conduit.
Pull out the jet pipe (use a new clamp with the same characteristics with size 20.5 during reassembly).

Loosen all the screws that secure the conduit to the welded tub and lift it.

Take the bellow seal out of the welded tub.
(take care as the seal is secured to the tub by a snap ring).

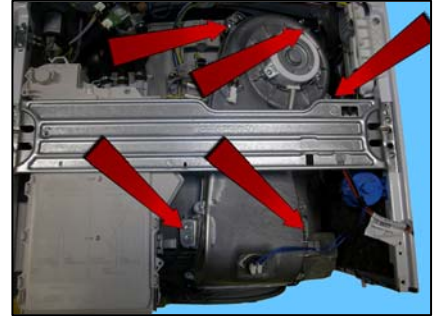
Before repositioning the bellow seal onto the tub, lubricate the welded tub seat which will house the seal with some liquid soap.

Use liquid soap to lubricate the seal seat too (indicated by the dotted red circle), which will be inserted in the welded tub seat.

Position the bellow seal reference on the reference mark printed on the tub.

Position the snap ring in its seat.

Position the clamp around the seat which will house the conduit (close it) and lubricate the inside.
Insert the conduit, check that it is perfectly in place.



18.4.3 Front counterweight

Remove the worktop (see relevant paragraph).
Remove the control panel (see relevant paragraph).
Remove the door safety interlock (see relevant paragraph).
Remove the front panel.
Loosen the screws that secure the conduit to the welded tub and remove it from the bellow seal.
Pull out the jet pipe (use a new clamp with the same characteristics with size 20.5 during reassembly).
Unfasten the five screws securing the counterweight to the welded tub.
If the welded tub assembly is new, tighten the screws at a torque of 15 Nm.
If the welded tub assembly is not new, align with the existing thread and tighten the screws at a torque of 10÷12 Nm.



18.4.4 Shock absorbers

Description: See paragraph 17.4.3 on page 102

18.4.5 Drain water circuit

Description: See paragraph 17.4.4 on page 103

18.4.6 Pressure chamber

Description: See paragraph 17.4.5 on page 103

18.4.7 Welded tub suspension springs

For further information, see para. 17.4.6 on page 105

- Left spring

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

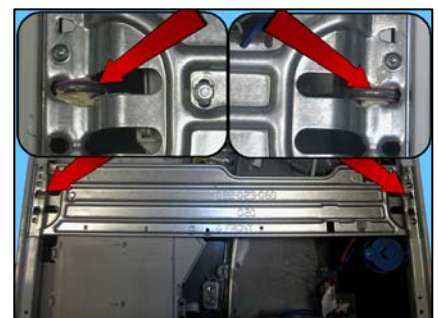


- Right spring

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



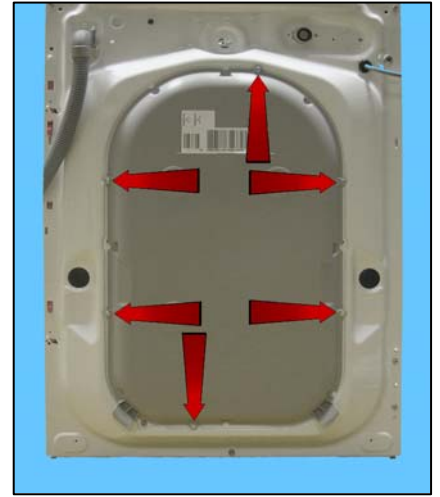
Attachment position of springs to central crosspiece.



18.5 Accessing the rear part

18.5.1 Back panel

Loosen the six screws that secure it to the cabinet.



18.6 From the back panel, you can access

1. The belt
2. The plastic pulley
3. The NTC probe (humidity control)
4. The Inverter
5. The motor
6. The heating element
7. The main PCB
8. The aqua control
9. The welded tub
10. The drain pipe/wiring support
11. The internal drain pipe



18.6.1 Belt

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

When reassembling:
Position the belt and align it with the centre of the pulley (\varnothing 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.



18.6.2 Plastic pulley

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

Tighten the screw at a torque of 60 Nm.



18.6.3 NTC sensor (humidity control)

Disconnect the connector.
Loosen the two screws that secure the sensory wiring support to the tub.

Remove the probe.

When reassembling the probe.

Insert the seal in its position and check that it is correctly in place.

Insert the probe.
Reposition the wire, tighten the two screws that secure it to the welded tub and insert the connector.



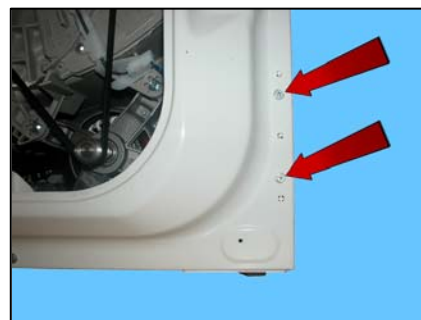
18.6.4 Inverter

Remove the back panel (see relevant chapter).

Disconnect the connectors: of the NTC probe, of the motor and of the earth fastener.



Loosen the two screws that fix it to the cabinet.



Remove the wiring from the hook.



Push the Inverter towards the inside of the appliance.



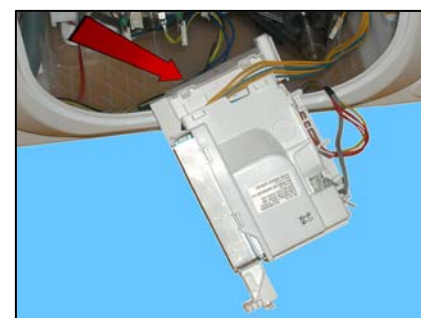
Turn it and position it as shown in the figure.



Push the washing unit towards the inside and remove the inverter.



Open the wiring protection and disconnect the connectors.



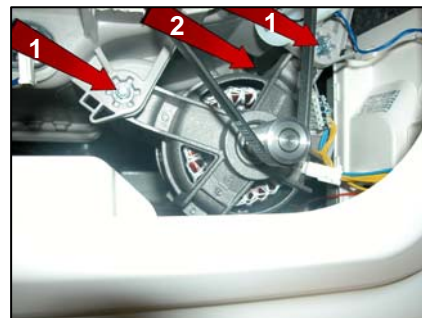
When repositioning the inverter in its seat, pay attention that the hook is inserted in its position in the crosspiece.



18.6.5 Motor

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

Disconnect the connectors: for the power supply and earthing
Loosen the two front fastening screws (1) and the rear ones (2).



When reassembling, restore the connections.

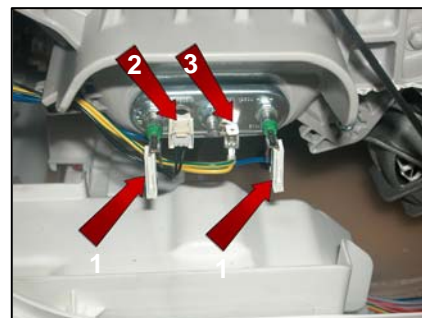
If the clamp securing the wiring to the motor breaks, replace it with a new one.

Tighten the screws at a torque of 5 Nm.

18.6.6 Heating element

Remove the back panel (see relevant chapter).

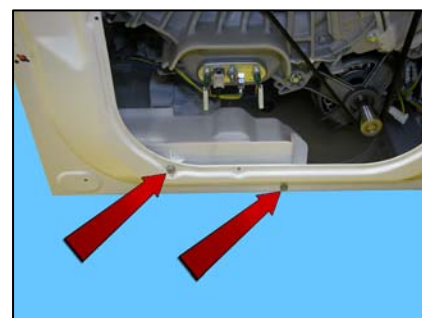
Disconnect the connectors: of the heating element (1), NTC probe (2) and earth (3).
Loosen the nut and pull it out.



Tighten the nut at a torque of 4 Nm.

18.6.7 The main PCB

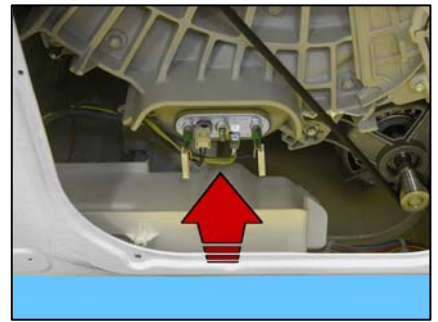
Remove the screws which secure the main board assembly to the cabinet.



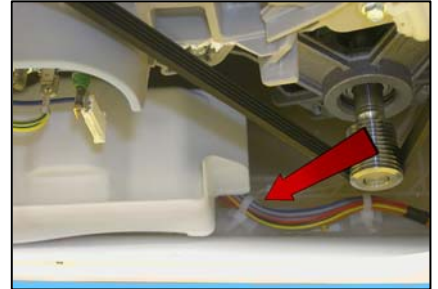
With a pair of pliers, squeeze the two hooks that secure the board assembly to the base.



Push the main board assembly towards the inside, so that the slots (where the screws are tightened) do not interfere with the edge of the cabinet.



Cut the clamp indicated by the arrow, to allow the board to move more freely.



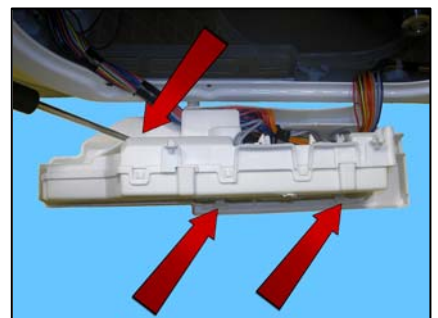
Disconnect the heating element connectors.



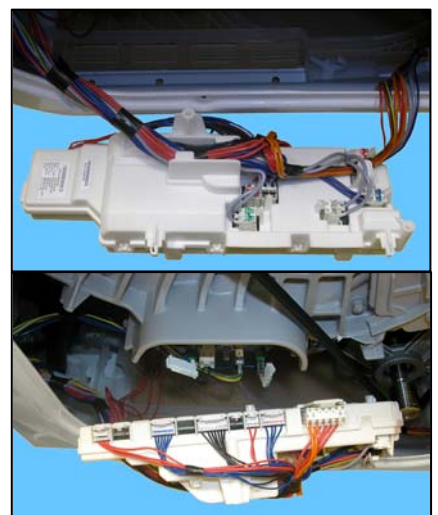
Move the main board assembly towards the left.
Push the washing unit towards the inside of the appliance.
Pull the board out as shown in the figure.



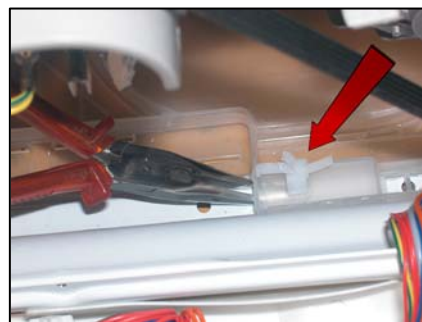
Remove the protection only after releasing it.



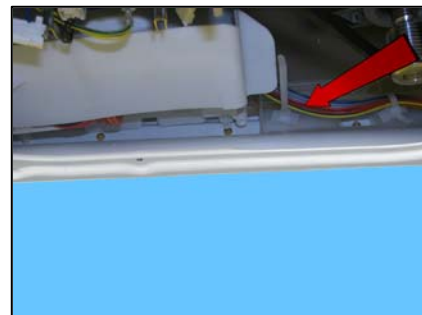
Disconnect the connectors on one side and on the other.



Insert a pair of pliers between the aqua control base and the cabinet, squeeze the two clamps that secure the remainder of the clamp to the base and remove it.



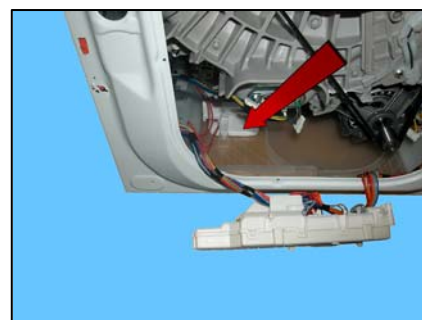
Insert a new clamp. Make sure the wiring is not in the way between the slot and cabinet during the securing of the board assembly to the cabinet.



18.6.8 Aqua control (first version)

Remove the back panel (see relevant chapter).
Remove the main board (see relevant chapter).

Release the hooks securing it to the base and disconnect the connector.



18.6.9 Aqua control (second version)

Remove the back panel (see relevant chapter).

Tilt the appliance towards the front.



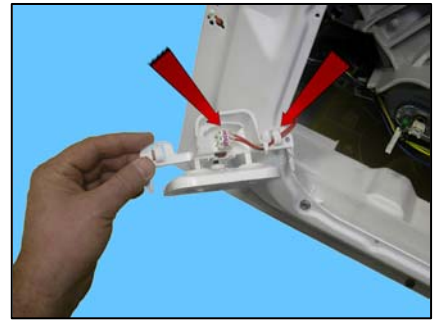
Release the two hooks that secure it to the base.



Take it out.



Remove the wiring from the hook, pull out the connector.



18.6.10 Welded tub

Remove the worktop (see relevant paragraph).
Remove the control panel (see relevant paragraph).
Remove the front panel (see relevant paragraph).
Remove the detergent tray (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 probes, 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).

Disconnect the tub suspension springs.

Release the shock absorbers.

Take the tub out of the washing machine.

18.6.11 Drain pipe/cabling support

Description: see para. 17.7.9 on page 110

18.6.12 Internal drain pipe

Internal drain pipe layout.

Between the side panel and the shock absorber.



The rear support.



Internal drain pipe fastening to the back panel.



Revision	Date	Description	Author	Approved by:
00	02/2012	Document creation	DMM	XX – 0X/201X