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Edition: 2010-03

Publication  
number

**599 72 81-38**

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**STEAM PROGRAMME ON  
TOP LOADING WASHING  
MACHINE**

**ENV 06  
Styling  
TC2 – TC3**



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# 1 Purpose of the manual

This part of the manual is separate from the main booklet, and deals with the steam generator system and everything else that varies with respect to a washing machine that does not present this new function.

For further information on other washing machine components, please see the SERVICE MANUAL.

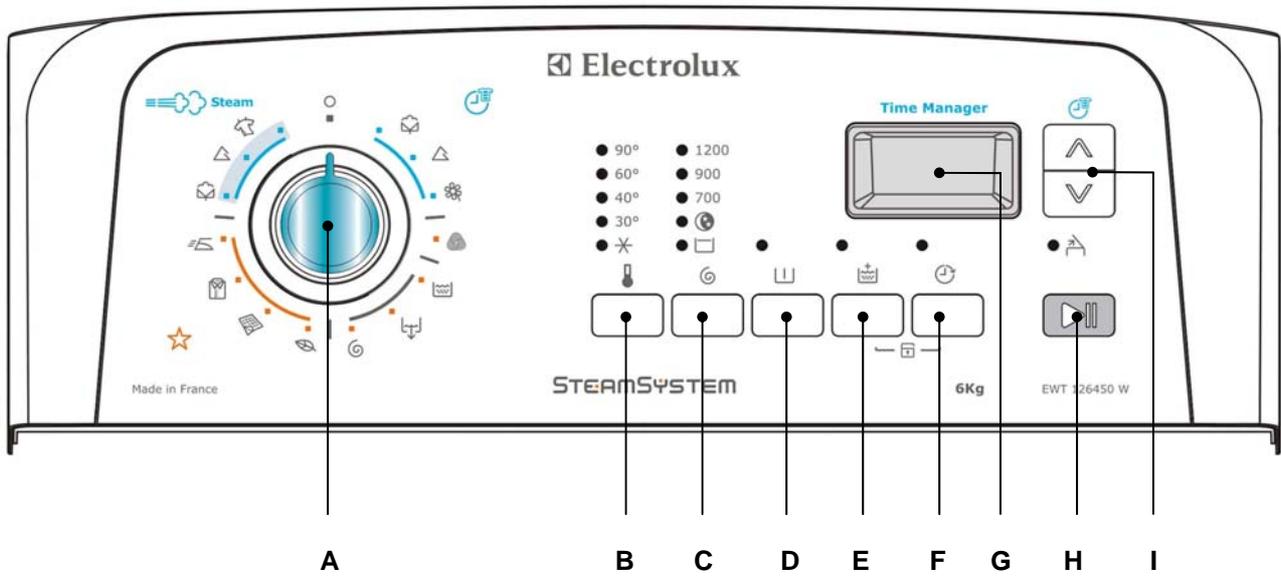
## 1.1 Warnings



- Any work on electrical appliances must only be carried out by qualified technicians.
- Before accessing internal parts of the appliance, always make sure the plug has been removed from the power socket.
- No assembly or dismantling operations must be carried out with the plug connected to the power socket.
- Never tamper with the electrical system or use replacement parts that do not comply or are not indicated in the spare parts catalogue.

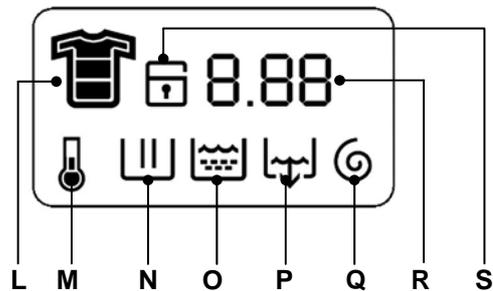
## 2 Control panel

### 2.1 Version TC3



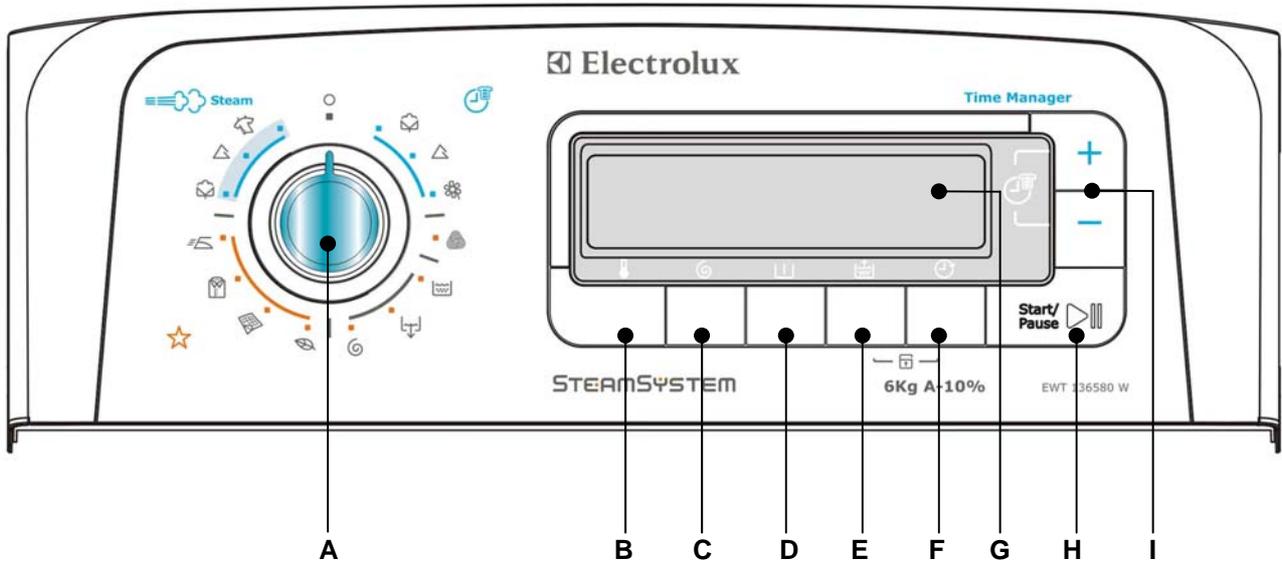
- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>A. Programme selector.</li> <li>B. Washing temperature.</li> <li>C. Spin speed.</li> <li>D. Pre-wash.</li> <li>E. Extra rinse.</li> </ul> | <ul style="list-style-type: none"> <li>F. Delay start.</li> <li>G. LCD</li> <li>H. Start / Pause</li> <li>I. Time manager.</li> </ul> |
|--|---|

#### 2.1.1 LCD version TC3 high



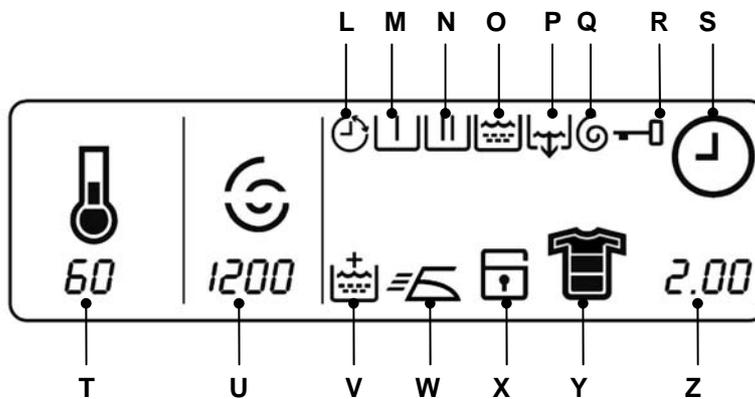
- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>L. Washing level</li> <li>M. Temperature</li> <li>N. Wash.</li> <li>O. Rinse.</li> </ul> | <ul style="list-style-type: none"> <li>P. Drain.</li> <li>Q. Spin.</li> <li>R. Multifunction display.</li> <li>S. Child lock.</li> </ul> |
|---|--|

## 2.2 Version TC2



- |                                |                         |
|--------------------------------|-------------------------|
| <b>A.</b> Programme selector.  | <b>F.</b> Delay start.  |
| <b>B.</b> Washing temperature. | <b>G.</b> LCD           |
| <b>C.</b> Spin speed.          | <b>H.</b> Start / Pause |
| <b>D.</b> Pre-wash.            | <b>I.</b> Time manager. |
| <b>E.</b> Extra rinse.         |                         |

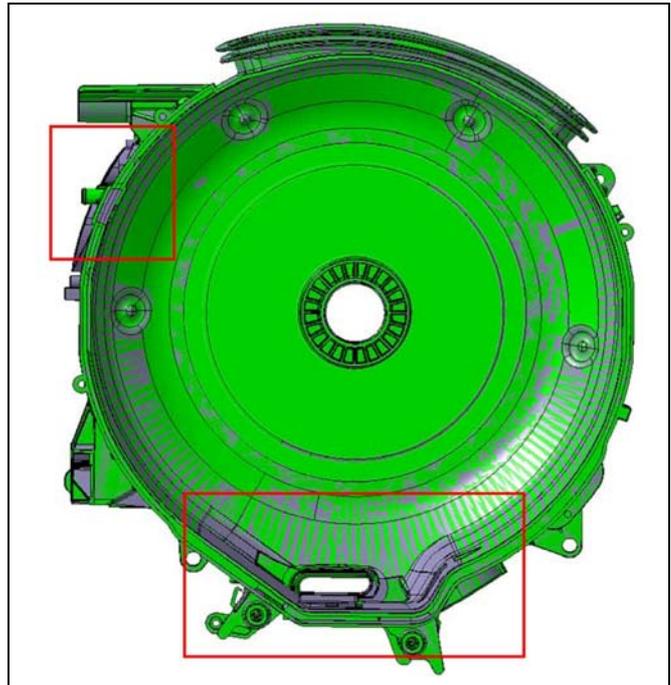
### 2.2.1 LCD version TC2



- |                         |                                  |
|-------------------------|----------------------------------|
| <b>L.</b> Delay start.  | <b>T.</b> Temperature.           |
| <b>M.</b> Pre-wash.     | <b>U.</b> Spin speed             |
| <b>N.</b> Wash.         | <b>V.</b> Extra rinse.           |
| <b>O.</b> Rinse.        | <b>W.</b> Easy iron.             |
| <b>P.</b> Drain.        | <b>X.</b> Child lock.            |
| <b>Q.</b> Spin.         | <b>Y.</b> Time manager.          |
| <b>R.</b> Door lock.    | <b>Z.</b> Multifunction display. |
| <b>S.</b> Time manager. |                                  |

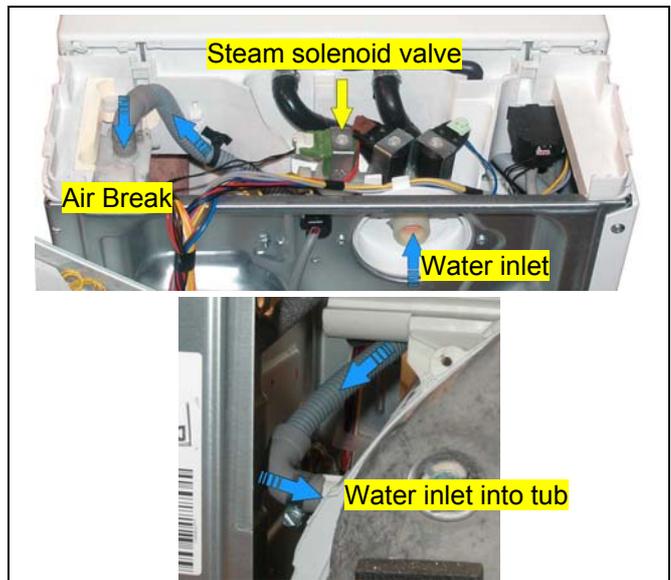
### 3 Principle of Steam Function operation

In order to use the steam programmes it has been necessary to modify the tub so that the tray containing the heating element is a little deeper and there is a new inlet specifically made for the water required to create the steam.



When a steam programme is selected a small amount of water sufficient to cover the heating element by approximately 3 / 4 mm is let into the machine.

The water enters the solenoid group, passes through the specific solenoid valve, enters the AIR BREAK and passes through the pipe into the tub, reaching the lower tray where the heating element is located.



The heating element has a nickel-coated surface so that the limescale released by the water does not deposit on it.

This heating element heats the water to a temperature below boiling point ( $\cong 90^{\circ}\text{C}$ ) but creates around itself a thin film that just exceeds the temperature required to transform water into steam.



## 4 Steam programmes

The three programmes that use the steam generator are marked by the symbol,  and they are:

-  cotton items
-  synthetic items
-  refresh



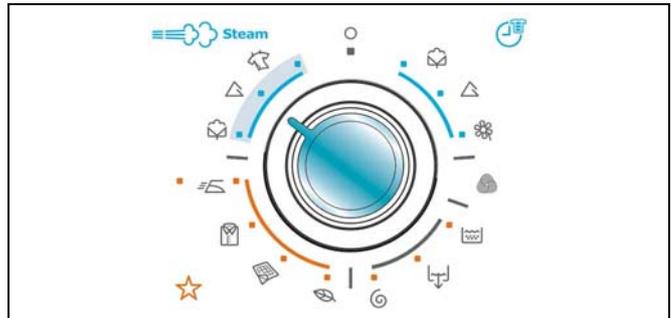
### 4.1 Cotton programme

The COTTON programme  runs for 30 minutes.



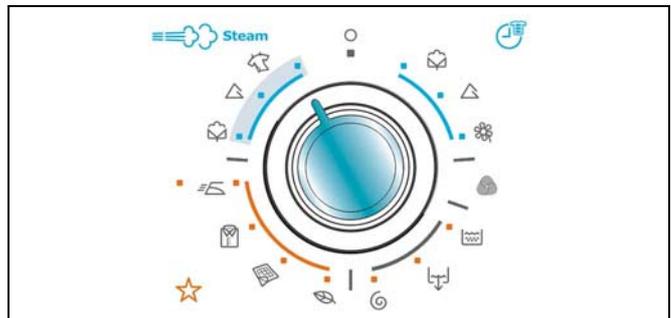
### 4.2 Synthetics programme

The SYNTHETICS programme  runs for 20 minutes.



### 4.3 Refresh programme

The REFRESH programme  runs for 25 minutes.



In all these 3 programmes clothes are placed in the drum perfectly dry.

## 5 Electric components

### 5.1 Solenoid group

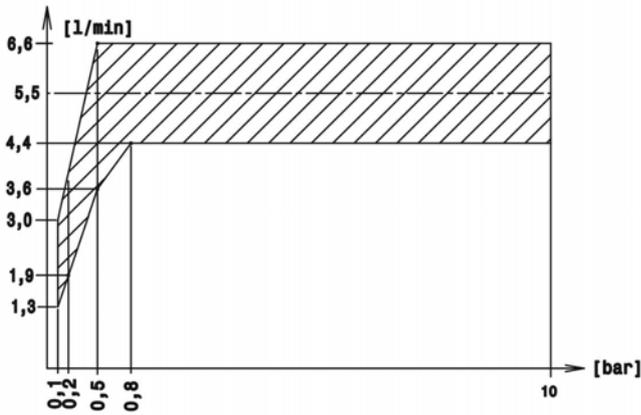
The solenoid group is made up of 3 solenoids, a pre-wash solenoid, a wash solenoid and specific low capacity solenoid required for the steam programmes.

Water pressures higher than 1 bar are limited by the pressure regulator to 5.5 l/min.  $\pm 15\%$



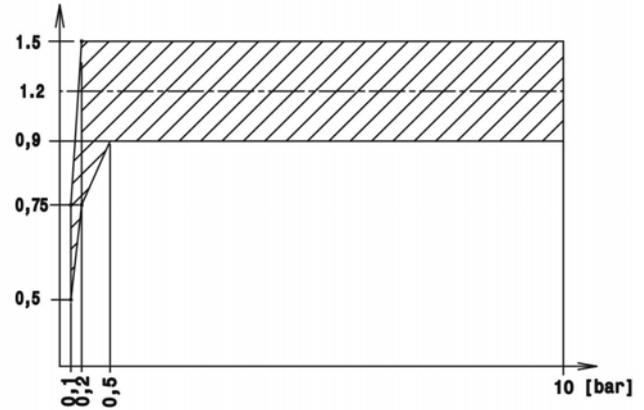
Solenoids flow diagram  
Pre-wash and wash

Rated flow 5.5 l/min.



Solenoid flow diagram  
Steam generator water inlet

Rated flow 1.2 l/min.

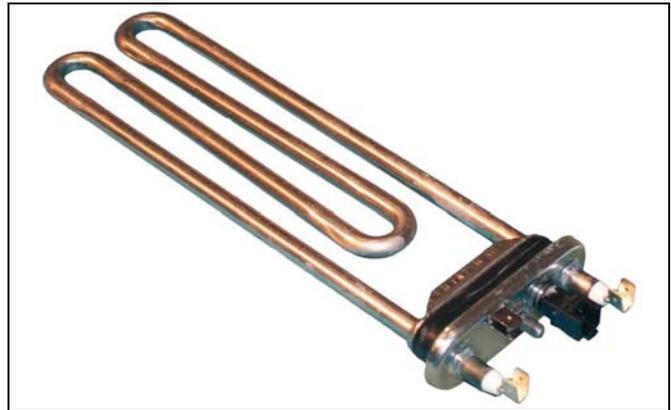


## 5.2 Heating element

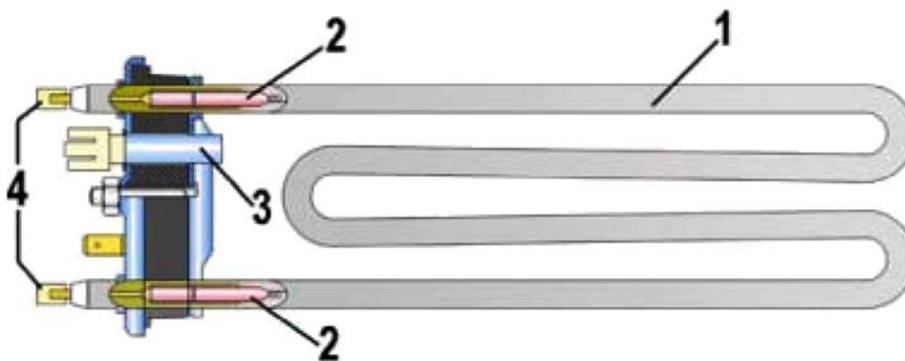
The heating element is directly powered by the control electronics using a low power relay.

For safety reasons 2 of the pressure switch electric contacts are connected in series.

The contact positions are controlled by two cables from the control electronics.



1. Heating element.
2. Thermal fuses.
3. NTC probe.
4. Connectors.



### 5.2.1 Checking electrical insulation of the heating element.

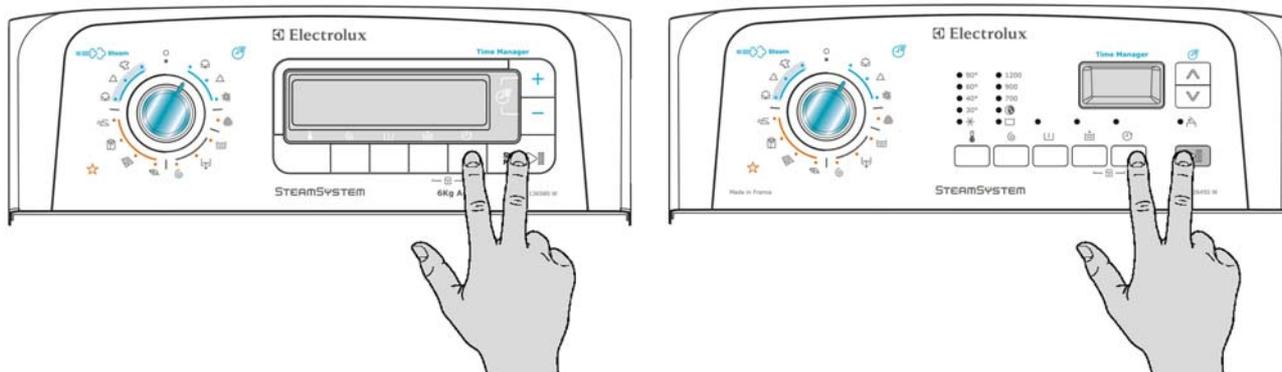
- Run the washing programme for approximately 10 minutes. Turn the appliance off, remove the plug and take off the side panel.
- Disconnect the heating system connection cables.
- Measure the resistance between the heating element (each connector) and the earth.
- Resistance  $>200 \text{ k}\Omega$   $\rightarrow$  heating ok.
- Resistance  $<168 \text{ k}\Omega$   $\rightarrow$  error E68

## 6 Service programme

This mode allows to check appliance operations and to read alarms.

### 6.1 Accessing the programme

- The appliance must be turned off.
- Turn the appliance on, turning the programme selector by one position in a clockwise direction.
- Wait until the LEDs light up and the buzzer sounds, then press the START/PAUSE button and the first button to the left of it simultaneously.
- Keep pressing the buttons until the LEDs start to flash and the buzzer sounds.



Warning: this operation must be carried out within 5 seconds!

### Quitting the diagnostics system

To quit the diagnostics system, turn the programme selector to zero, turn the machine on again to perform a general reset of the electronic components, and then turn the appliance off.



WARNING!

- The alarms are active during diagnostic testing of components.  
If an alarm appears, move the selector to position ten to exit the alarm status and optionally continue the test (if the alarm is not triggered again).

### Position 1

User interface test	Purpose of the test:	to test operation of all the LEDs and switches.
	Components activated:	all LEDs and the LCD.
	Behaviour	<p>All LEDs turn on in sequence.</p> <p>When any button is pressed the corresponding icon lights up.</p> <p>The code is shown on the LCD and a beep sounds.</p> <p>All the icons on the LCD flash.</p>
	Working conditions:	there is a control to run the test (always active).

### Position 2

Wash solenoid	Purpose of the test:	to test operation of the wash solenoid.
	Components activated:	<p>door lock device.</p> <p>Wash solenoid.</p>
	Behaviour:	the water level is displayed on the LCD.
	Working conditions:	<p>door closed.</p> <p>Water level below the overflow.</p> <p>Maximum time 5 min</p>

### Position 3

Pre-wash solenoid	Purpose of the test:	to test operation of the pre-wash solenoid.
	Components activated:	<p>door fastening device.</p> <p>Pre-wash solenoid.</p>
	Behaviour:	the water level is displayed on the LCD.
	Working conditions:	<p>door closed.</p> <p>Water level below the overflow.</p> <p>Maximum time 5 min</p>

### Position 4

Wash and pre-wash solenoids.	Purpose of the test:	to check that water loads into softner compartment.
	Components activated:	<p>door fastening device.</p> <p>Pre-wash solenoid.</p> <p>Wash solenoid.</p>
	Behaviour:	the water level is displayed on the LCD.
	Working conditions:	<p>door closed.</p> <p>Water level below the overflow.</p> <p>Maximum time 5 min</p>

**Position 5**

Steam water solenoid	Purpose of the test:	test operation of steam programme water inlet solenoid.
	Components activated:	door fastening device. Steam programme water solenoid.
	Behaviour:	the water level is displayed on the LCD.
	Working conditions:	door closed. Water level below the overflow. Maximum time 5 min.

**Position 6**

Heating element. Recirculation pump.	Purpose of the test:	to test operation of the heating element and of the recirculation pump.
	Components activated:	door fastening device.  Wash solenoid, if the water in the tub is not enough to cover the heating element.  Heating element.  Recirculation pump.
	Behaviour:	if the water level is insufficient to cover the heating element, the wash solenoid starts operating, after which the heating element and the recirculation pump are activated.  Water temperature in the tub is displayed on the ELC.
	Working conditions:	door closed. Water level high enough to cover the heating element. Maximum time 10 min. or until a temperature of 90°C is reached.

**Position 7**

Motor turning	Purpose of the test:	to test operation of the direction relay and to check that the motor turns in both directions. Check for any leaks.
	Components activated:	door fastening device. Wash solenoid, if the water in the tub is not enough to cover the heating element. Motor.
	Behaviour:	the drum motor turns slowly in a clockwise direction (approx. 3 sec.), then pauses and starts to turn anticlockwise until reaching maximum speed. The rotation speed is shown on the LCD.
	Working conditions:	door closed. Water level high enough to cover the heating element.

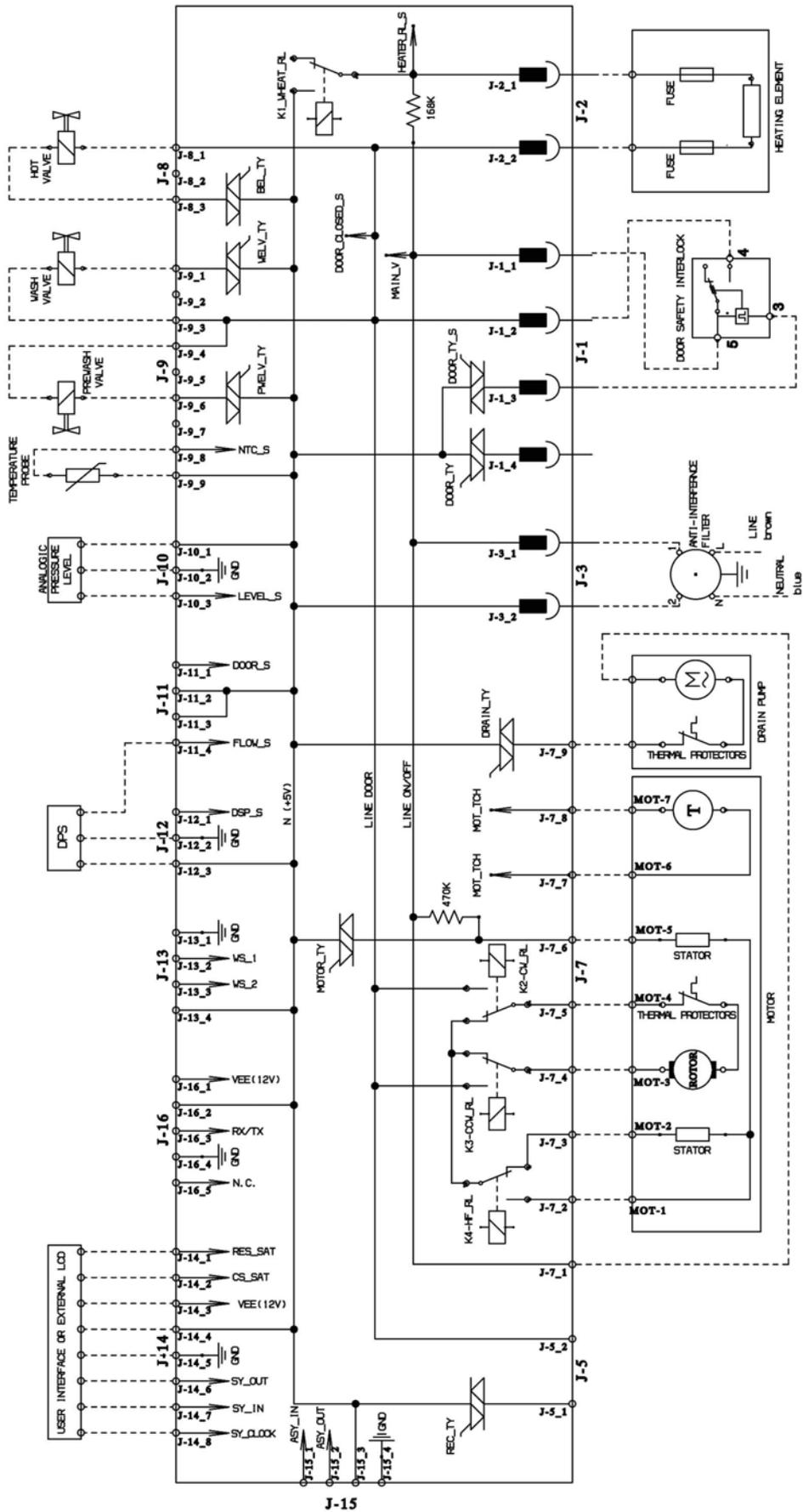
<b>Position 8</b>			
	Water drain pump Spin	Purpose of the test:	to test operation of the water drain pump and operation of the motor at maximum speed.
	Components activated:	door fastening device. Drain pump. Motor at maximum spin speed. (*)	
	Behaviour:	a water drain phase is activated and continues throughout the test. After a few seconds the drum motor starts the spin phase. On reaching a speed of 650 rpm it steadies for a short time and then accelerates up to maximum speed. The rotation speed is shown on the display. (**)	
	Working conditions:	door closed.	
	Notes	(*) At maximum speed the test is performed without testing the FUCS and there does not have to be any washing inside the appliance. (**) The display shows the speed divided by 10. Example: 650 rpm is shown on the display as 65.	

<b>Position 9</b>			
	Water drain pump Drum position	Purpose of the test:	to calibrate the pressure switch to 0 (empty drum) and test operation of the drum position sensor (DSP).
	Components activated:	door fastening device. Drain pump. Motor. Drum position sensor (DSP).	
	Behaviour:	a water drain phase is performed and the pressure switch is calibrated simultaneously. During this phase, if the drum is not in the open position the motor turns at low speed until it reaches the right position.	
	Working conditions:	door closed. Water level high enough to cover the heating element.	

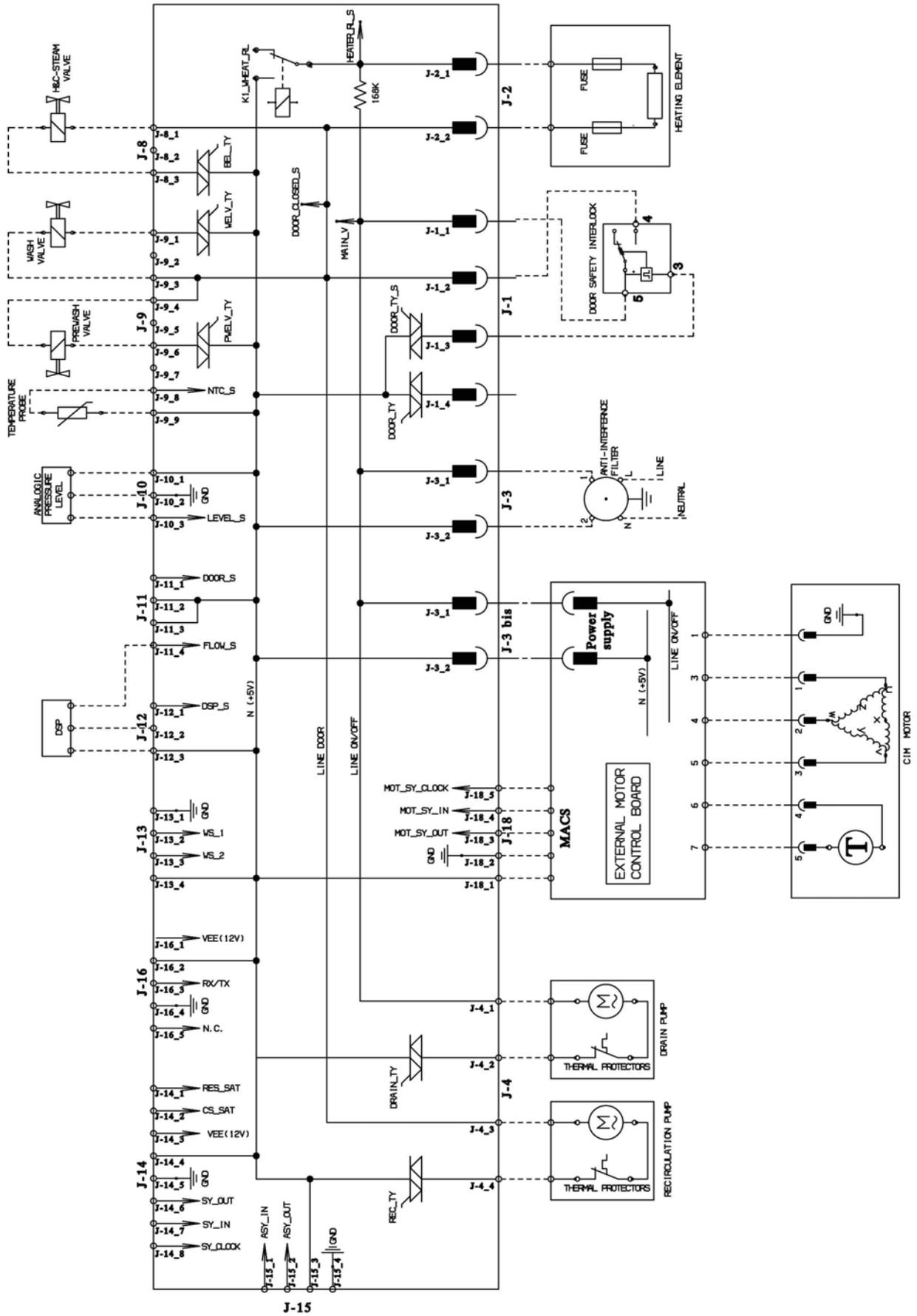
<b>Position 10</b>			
	Alarm readings	Purpose of the test:	to check and cancel any alarms present.
	Behaviour:	:	the alarm or alarms present are shown on the display.

# 7 Wiring diagram

## 7.1 EWM 2100



# 7.2 EWM 2500



## 8 Access to components

### 8.1 Solenoid group

- Unscrew the flexible water inlet pipe.
- Disconnect the control panel on one side, using a screwdriver as a lever.
- Lift it up slightly.
- Repeat the operation on the other side.



- Move the whole control panel backwards.



- Lift up the whole control panel.
- Unfasten the connectors and remove the control panel completely.



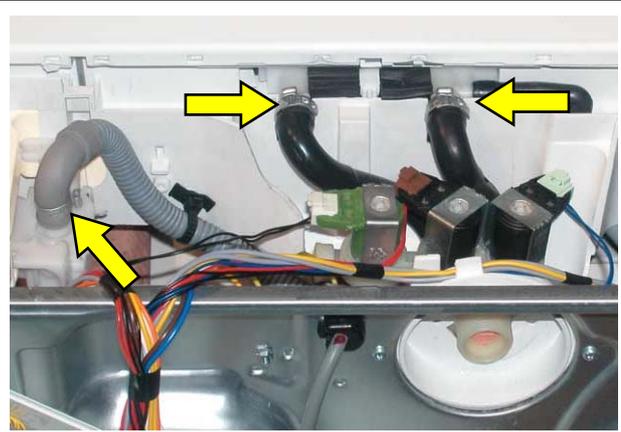
#### **WARNING**

Take note of the positions of connectors to ensure you reassemble the board properly.

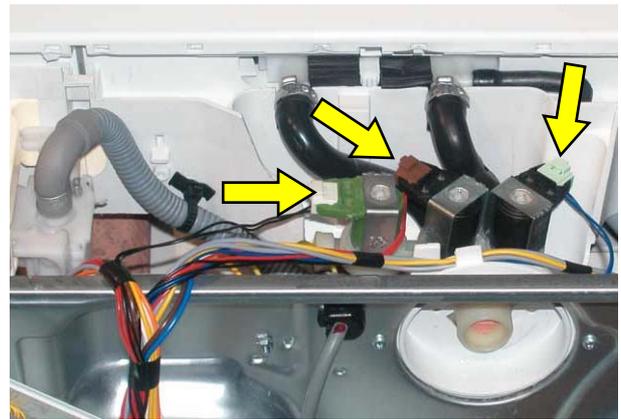


For reassembly, see the instructions provided in the service manual.

- Use a screwdriver to loosen the fixing clamps that fasten the pre-wash, wash and air break water inlet pipes.



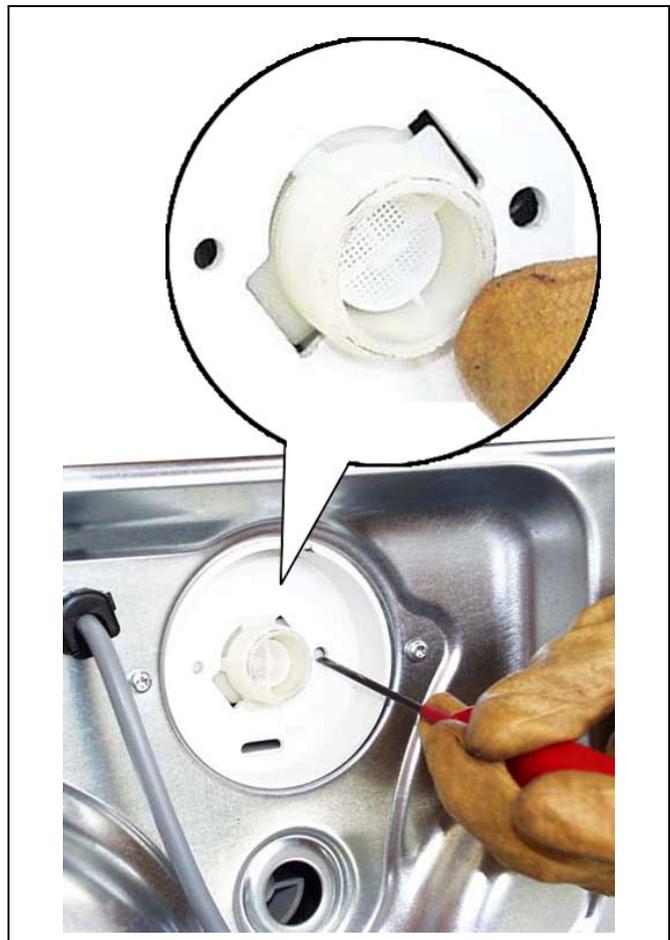
- Slightly lower the clip fixing the solenoid power connectors, and remove them.



**WARNING**

Take note of the positions of connectors to ensure you reassemble them properly.

- Use a screwdriver to press the tabs locking the solenoid group.
- Turn the whole group.
- Remove it, taking care not to wet any of the electrical components with the water left inside.



## 8.2 Heating element

- Unfasten the 4 screws fixing the right side panel to the back.
- Move the panel towards the back of the machine and remove it.



- Disconnect the power cables, the earth cable and disconnect the NTC probe.
- Unfasten the lock screw (it need not be removed).
- Take out the heating element.

