HYBRID WASHING MACHINE


Modello ibrido 1000rpm


Modello ibrido 800rpm

# SERVICE MANUAL

## WASHING

**Hybrid washing machine**
**Technical functional characteristics**

ITW42XXI
ITW53XXI
ITW58XXI

## Index

## 1 Scope

The scope of this manual is to furnish to service technicians, who already possess the basic knowledge necessary to execute repairs of domestic washing machine and information on the washing machine with hybrid controller.

The topics treated are:

- General characteristics
- Control panel and washing programmes
- Technical and functional characteristics
- Accessibility to controller

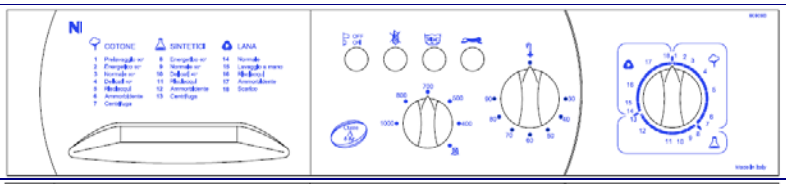
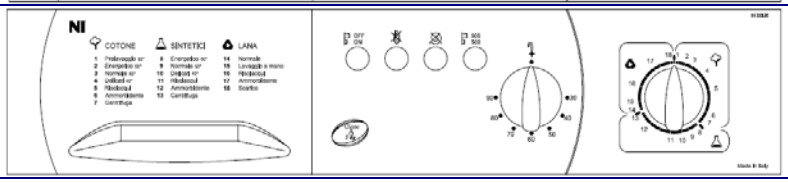
## 2 WARNINGS

- The intervention on electrical device must done only by a qualified person.
- Remove the power plug from the power supply before touching the internal parts of the device
- In case of substitution of the heating element, it must be substituted with one having the same characteristics in order not to compromise the safety of the device.

## 3 GENERAL CHARACTERESTICS

The control system of ITWXXXXI is composited of a hybrid timer (controller).

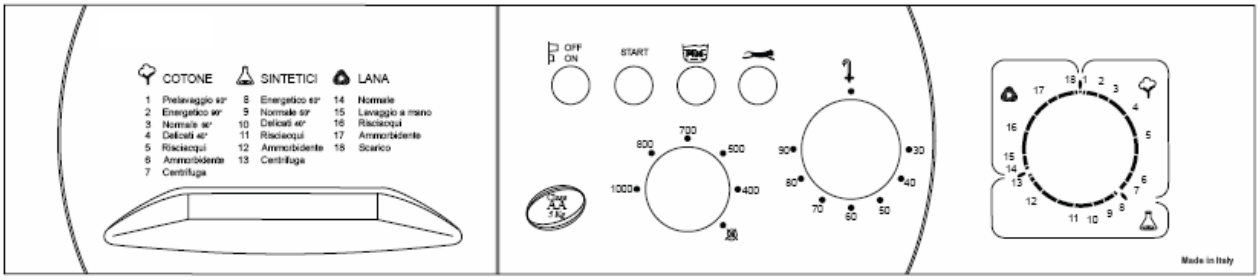

The AKO hybrid timer is installed on all the models of the washing machines:

| | |
|---|---|
| 1000/1200 r.p.m. version with potentiometer for spin regulation |  |
| 600/800 r.p.m version |  |
| N° of Buttons | Massimo 4 |
| N° of pilot lamps | Massimo 1 |
| Timer | Ibrido con 18 programmi |
| Power | 220/240V<br>50 Hz |
| Type of washing | With eco-ball sphere |
| Risning system | Tradistional |
| Motor | Universal with tachometric generator |
| Spin | 600 -1200 r.p.m |
| Stability control | FUCS |
| Water filling | Only cold water model: one way electro-valve |
| Detergent drawer | 3 comparts: pre-wash, main wash and softener |
| First level filling control | 3 level mechanical pressure switch (fill, drain and overflow) |
| Door safety system | Traditional (PTC) |
| Heating element power | 1700W with intergrated fuse |
| Temperature regulation | Thermostat with with probe inserted into heating element |

# 4 CONTROL PANEL

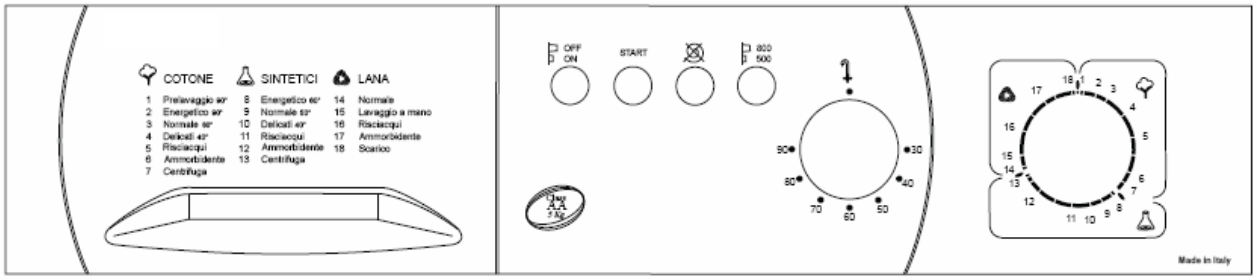
## 4.1 1000/1200 r.p.m. aesthetic

- 3 switches
- 1 button
- A 18 programme selector
- 1 pilot lamp



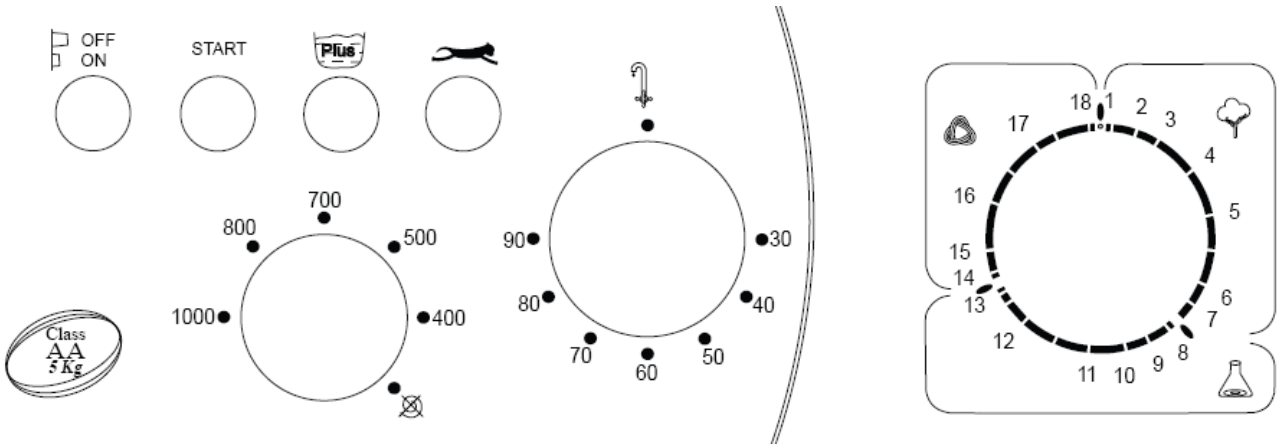

## 4.2 600/800 r.p.m. aesthetic

- 3 switches
- 1 button
- A 18 programme selector
- 1 pilot lamp

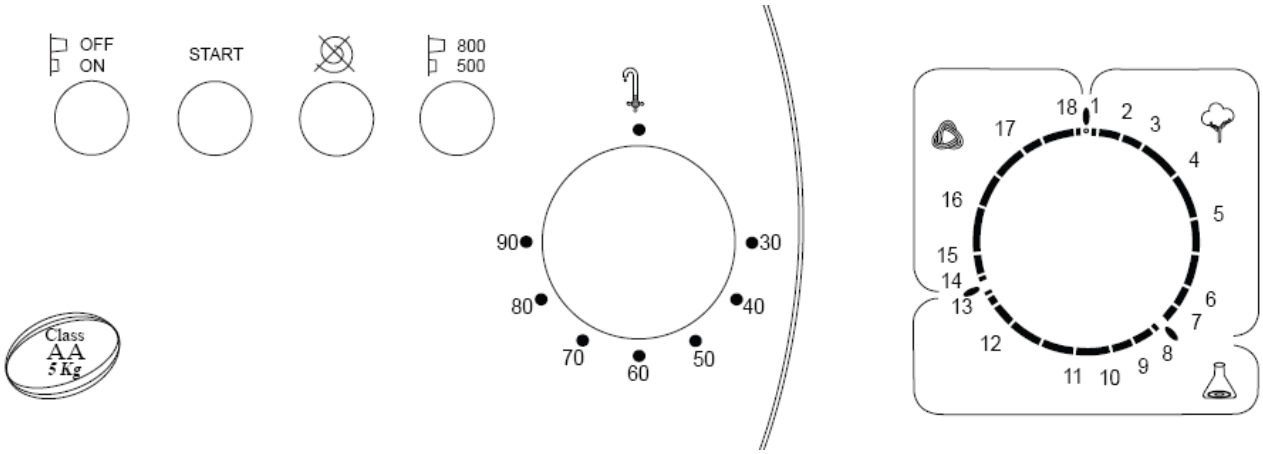



## 4.3 Panel configuration

**1000/1200 r.p.m. panel**



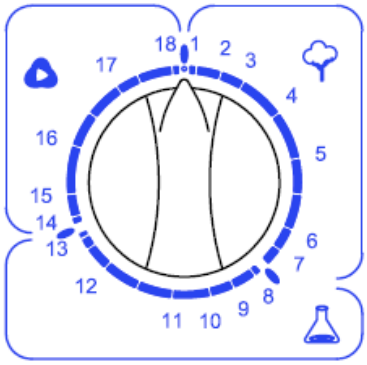

**600/800 r.p.m. panel**



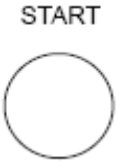

The function of each switch can vary according to the different models as they are determined by the option configuration of the device.

### 4.3.1 Programme selector

The controller selector has 18 programmes in 60 steps. The programmes has three main division (cotton. Synthetics and wool). In positions 60, 41 and 23 the machine is turned off and the programme in progress is annulled.




Timer knob

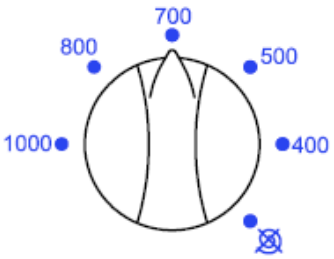



Start button

Il pulsante start serve per avviare il programma di lavaggio selezionato. Deve essere premuto per circa 4 secondi, sino all'accensione della lampada spia.

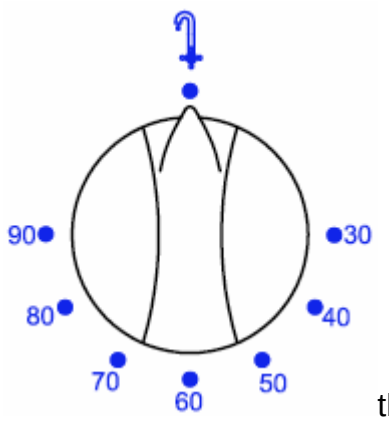
Each model can have the following options:

- Rapid
- Water plus




Spin potentiometer is on 1000 and 1200 model

On all the models it is possible to reduce maximum washing temperature defined for a specific programme with a thermostat knob. Taking the knob to the zero postion, a cold water washing is performed.




thermostat knob

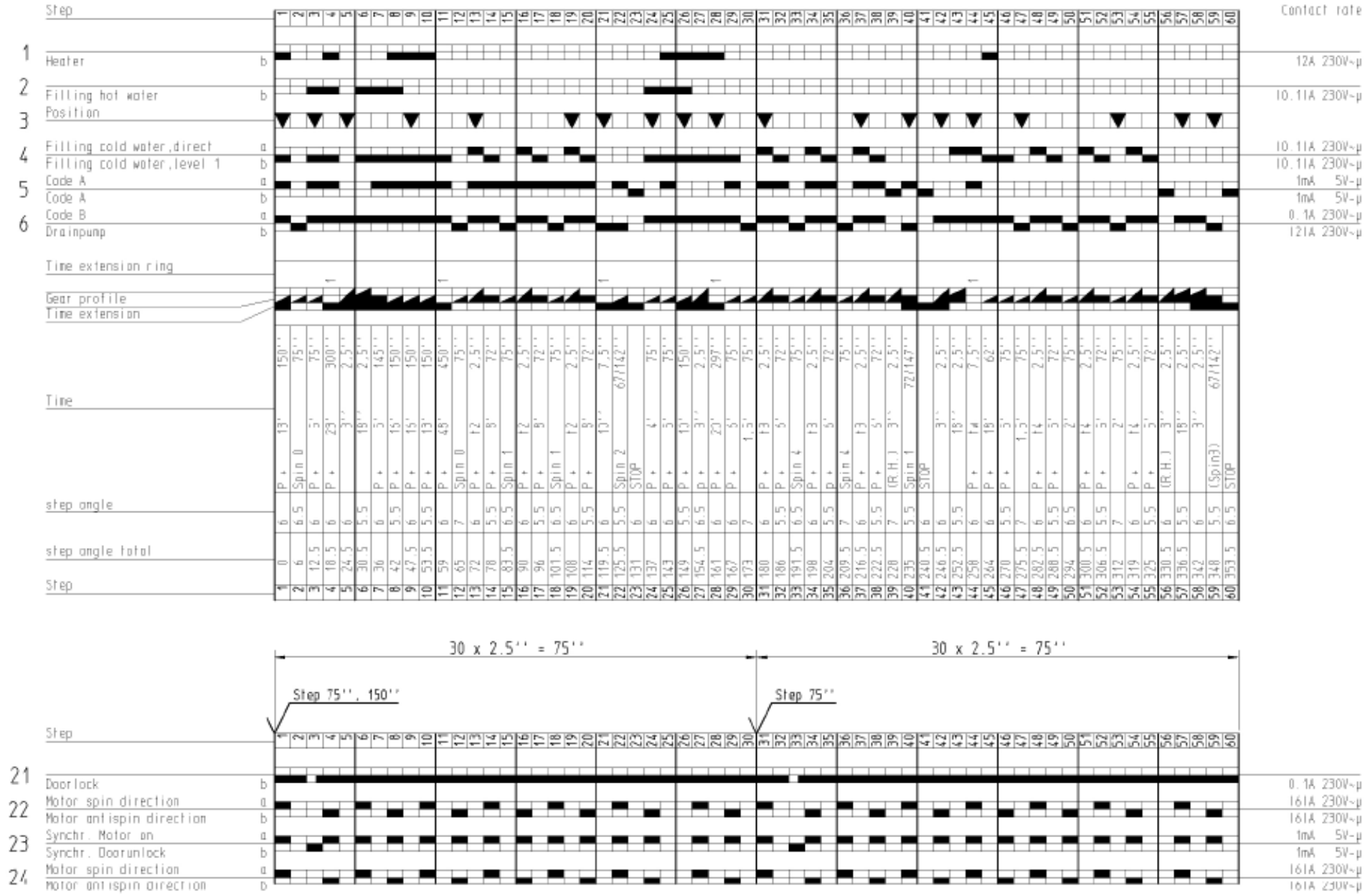
## 5 WASHING PROGRAMMES AND OPTIONS

### 5.1 Programmes

The programmes are selectable by rotatine the knob clockwise. To annull the programme already in execution, drain first the machine by positioning the selector on progrmme 18 and wait until the pilot lamp turns off.
To set the programme again, the selector should be rotated manually with the power switch in the OFF position.

| | | | Temp. (°C) | Mean time (min) | No. Rinse | Final spin (r.p.m.) |
|---|---|---|---|---|---|---|
| PROGRAMMES | Cotton | Pre-wash 90° | 90 | 192 | 3 | 600, 800 e 1000/1200 according the machine |
| | | Energetic 90° | 90 | 178 | | |
| | | Normal 60° | 60 | 145 | | |
| | | Delicates 40° | 40 | 106 | | |
| | | Rinse | -- | 36 | | |
| | | Softener | -- | 14 | 1 | |
| | | Spin | -- | 8 | -- | |
| | Sythetics | Energetic 60° | 60 | 102 | 3 | 600, 800 e 1000/1200 according the machine |
| | | Normal 50° | 50 | 90 | | |
| | | Delicates 40° | 40 | 81 | | |
| | | Rinse | -- | 46 | | |
| | | Softener | -- | 19 | 1 | |
| | | Spin | -- | 9 | -- | |
| | Wool | Normal | 40 | 70 | 3 | 600 e 760 |
| | | Hand wash | 40 | 70 | | |
| | | Rinse | -- | 38 | | |
| | | Softener | -- | 17 | 1 | |
| | | Spin | -- | 3 | -- | |

## Programme steps



## 5.2 OPTIONS

### Super rinse

The option adds more water to all the rinsing cycle to guarantee the elimination of all detergent residue from the fabrics.
It is activated by pressing the corresponding key before starting the programme.

### Rapid

This function reduces only the time of the main wasah step.
It is activate via pressing the corresponding key prior to the starting of the programme.

### Spin reduction (only 800 r.p.m. model)

Questo funzione riduce la velocità di centrifuga intermedia e finale da 800 a 500 giri.
Si attiva premendo il tasto corrispondente prima o durante l'esecuzione della centrifuga.

### Spin exclusion

This function exclude the all spins in the intermediate and final step. It is activated pressing the corresponding button before or in the excusion.

### Spin regulation (only in 10001200 r.p.m.)

The spin speed can be reduced or eliminated, in the intermediat of final fase, with the aid of a potentiometer.

### Regulation of washing temperature

With the aid of this knob the maximum temperature predefined in the selected washing programme can be reduced. Positioning the knob on "0" a cold washing is effectuated.

## 5.1 Compatibility between options and programmes

In the following table there are indicated the possible options of the programmes and their compatibilità.

The options can be activate by pressing the button in the corresponding icon position before the staritng of the programme.

The available options vary according to the model of the washing machine as indicated in the table below.

| | | | **OPTIONS** | | | | |
|---|---|---|---|---|---|---|---|
| | | | **Spin regulation** | **Spin exclusion** | **Spin reduction** | **Rapid** | **Water plus** |
| **PROGRAMMES** | **Cotton** | Pre-wash 90° | 1000/1200 r.p.m. model | 600/800 r.p.m. Model | 800 r.p.m. model | 1000/1200 r.p.m. model | 1000/1200 r.p.m. model |
| | | Energetic 90° | | | | | |
| | | Normal 60° | | | | | |
| | | Delicates 40° | | | | | |
| | | Rinse | | | | | |
| | | Softener | | | | | |
| | | Spin | | | | | |
| | **Synthetics** | Energetic 60° | 1000/1200 r.p.m. model | 600/800 r.p.m. Model | 800 r.p.m. model | NA | 1000/1200 r.p.m. model |
| | | Normal 50° | | | | | |
| | | Delicates 40° | | | | | |
| | | Rinse | | | | | |
| | | Softener | | | | | |
| | | Spin | | | | | |
| | **Wool** | Normal | 1000/1200 r.p.m. model | 600/800 r.p.m. Model | 800 r.p.m. model | NA | NA |
| | | Hand wash | | | | | |
| | | Rinse | | | | | |
| | | Softener | | | | | |
| | | Spin | | | | | |

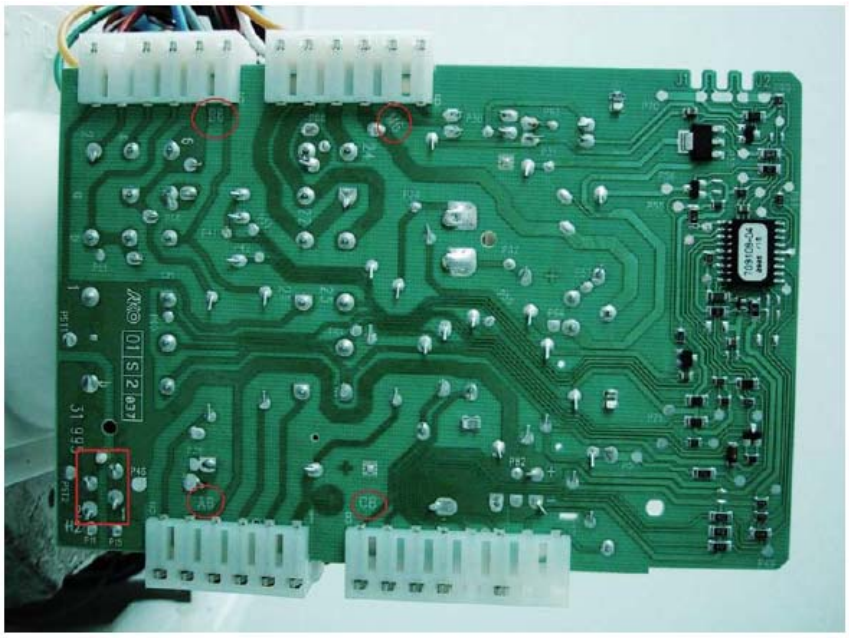
*Note:*
*NA → not applicable*

# 6 Technical characteristics

### 6.1.1 Timer

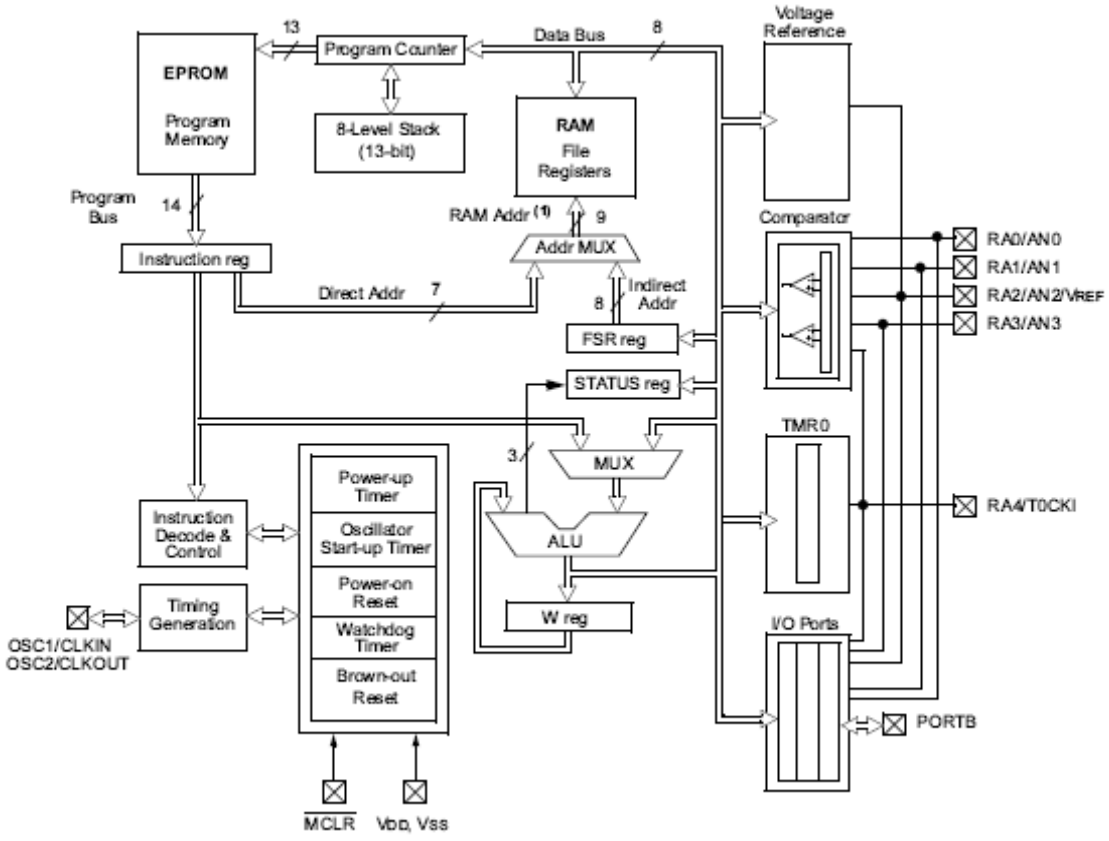
The modern hybrid timer is a mixed technology between a mechanical and electronic timer from a functional point of view it retains the mechanical timer characteristics but has an electronic management. This management improves the performance of washing (Class A), manages a variety of special features (rapid washing, rinse hold, extra rinse and adjustment of the centrifuge) and the use of very powerful and accurate universal motors.

The timer has 5 connectors section: M6 motor connector, C8 options and settings connector, P46 thermostat and resistance connector, A6 pump and locker connector, B6 pressure switch levels-electro-valve.



### 6.1.2 Il micro-controller

The washing programme is loaded in a collection of the PIC 16C analogical microcontroller memory, that is installed in the timer on the soldered side of the electronic board.

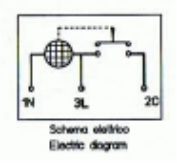


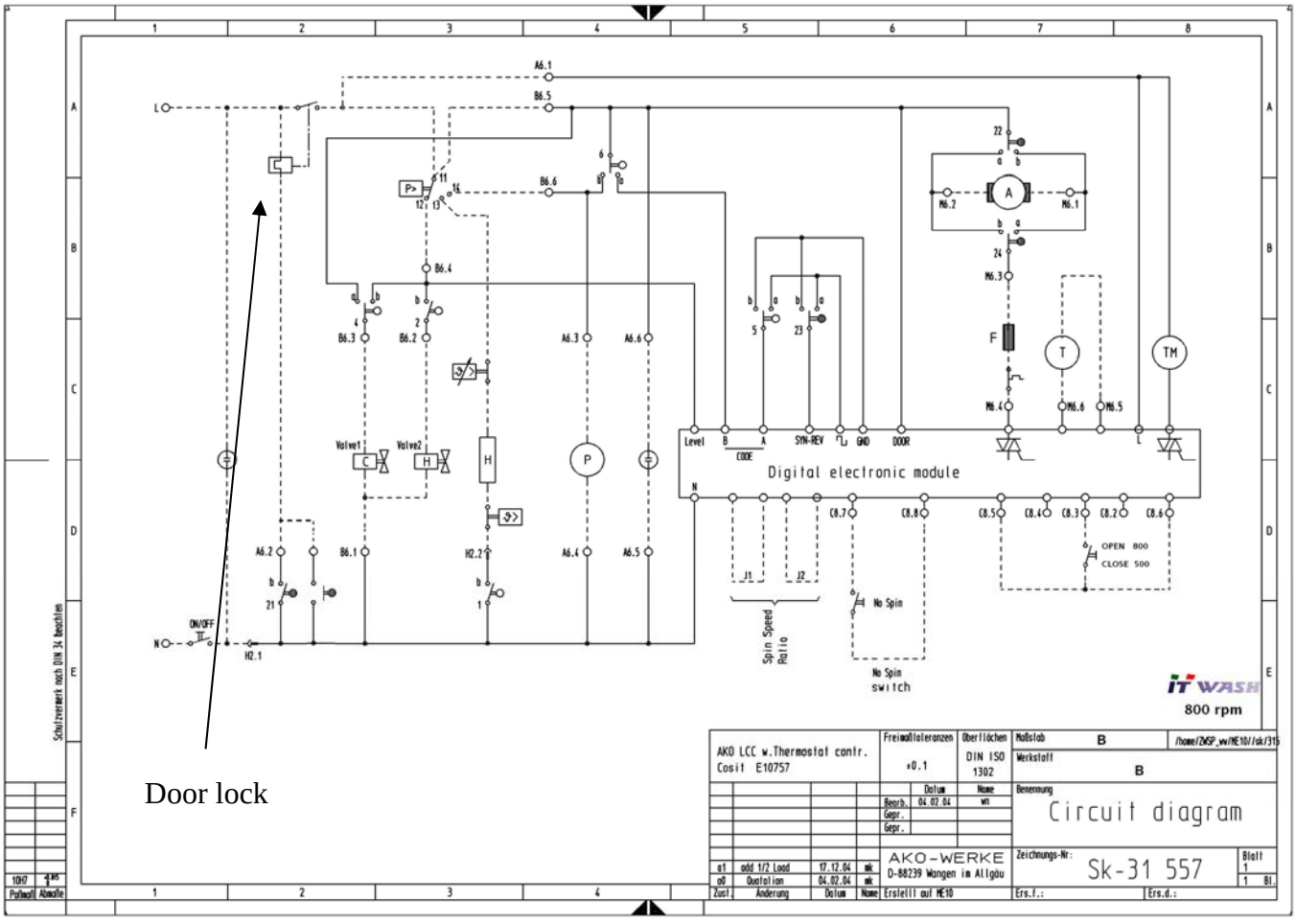
The programme manages the entire washing cycle and the options and all the eventual faults that emerge during the normal washing cycle.
Internally in the microcontroller the following data are also loaded:

- Data of the unbalance for comparism during the initial step of spinning;
- The routine for calculating rinsing filling time;
- The intermediate, final and delicate spin profile values;
- The action routine in case of fault.

## 6.2 Door safety device

The PTC volumetric device uses about 1 to 3 minutes to unlock the door at the end of the cycle.



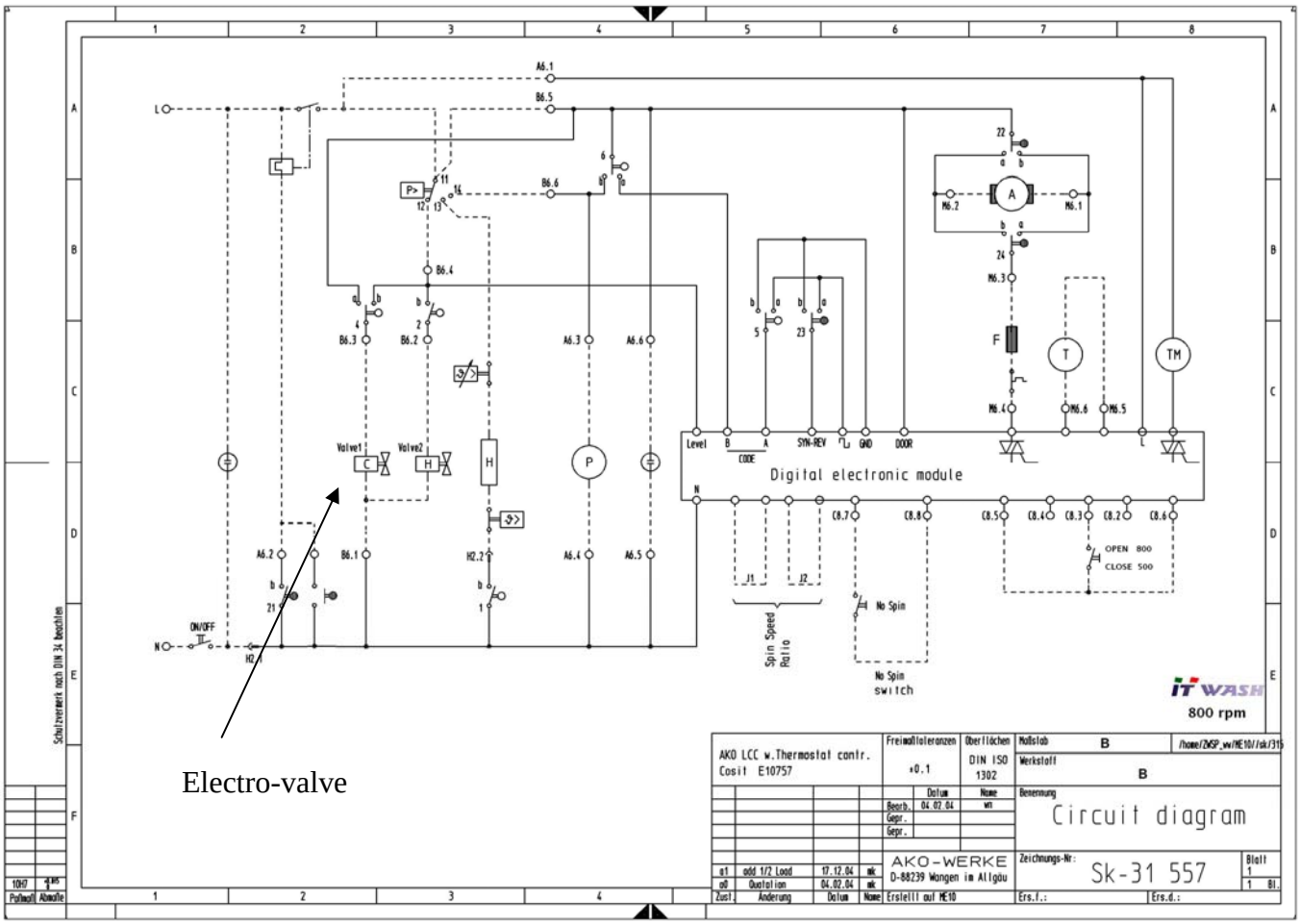

## Functional principle

Once the washing programme is activated by pressing the ON/OFF button, the bimetallic PTC (contacts 1 and 3) is powered by the electronic board. After 2 – 4 seconds the switch contacts (3 – 2) close to power the electric components of the washing machine (only if the door is closed).

The device hinders the opening of the door in the functioning state.
At the end of the washing programme, the electronic board take power off the device, but the door still remains closed for 1 – 2 minutes (the PTC cooling time).

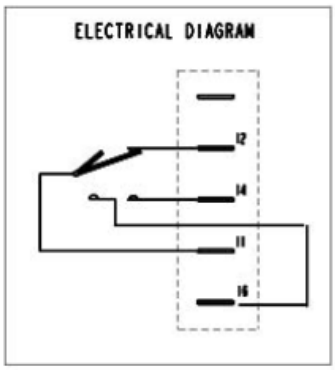
## 6.3 Water filling system

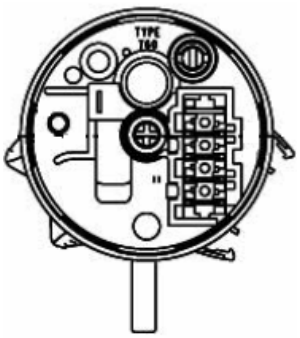
The electro-valves are powered by the electronic board through triac. The control of water in the drum is effectuated by the mechanical pressure switch.




## 6.4 MECHANICA PRESSURE SWITCH FOR WATER FIRST LEVEL FILLING CONTROL

The mechanical pressure switch is a mechanical device that has the function to control the level of water in the tub.

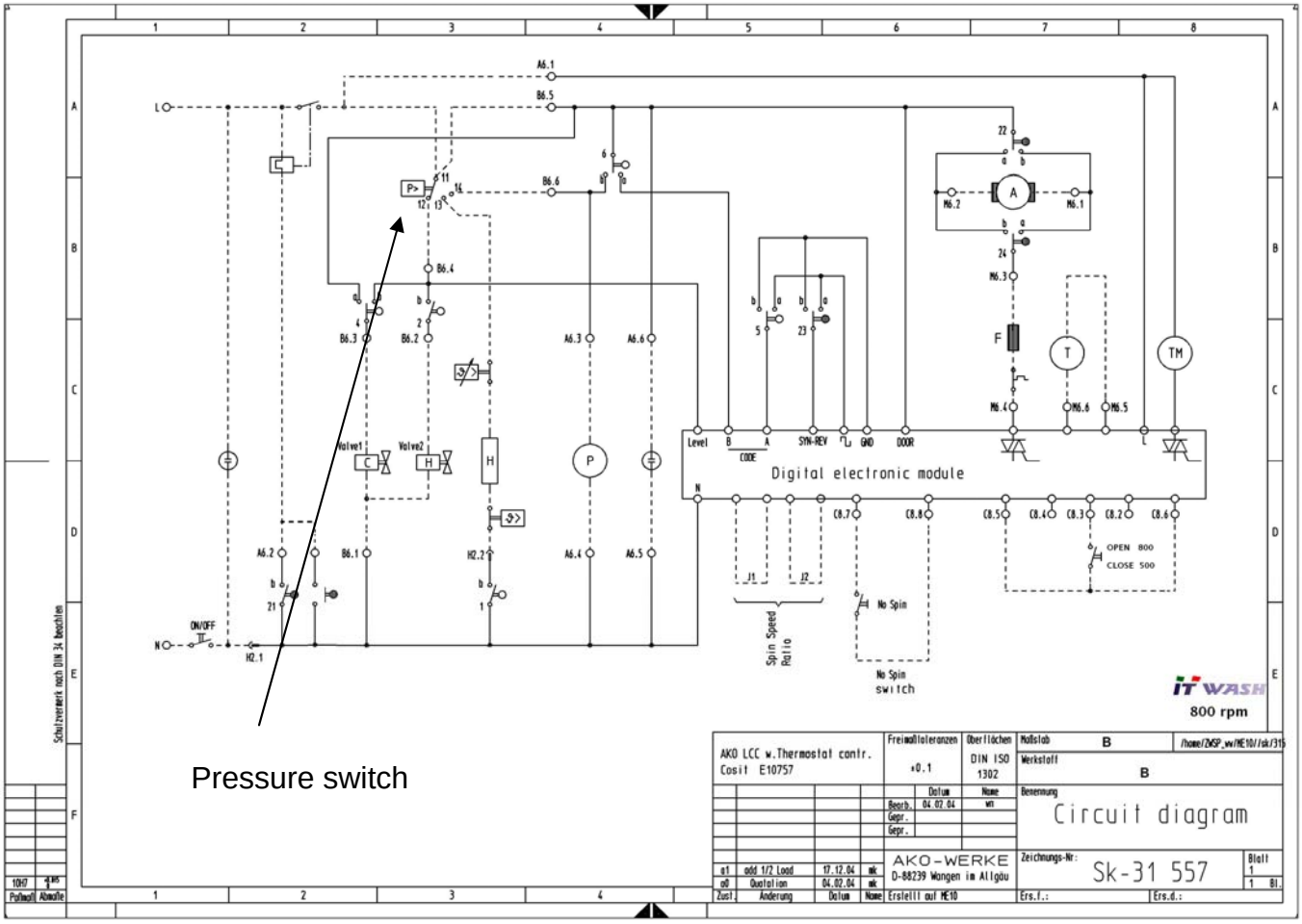


| Calibration level | | |
|---|---|---|
| **5 – 6 – 7kg** | | |
| Full<br>95±3 | Empty<br>70±3 | Refill<br>320±3 |

The pressure switch is connected to the pressure bell jar by a hose.

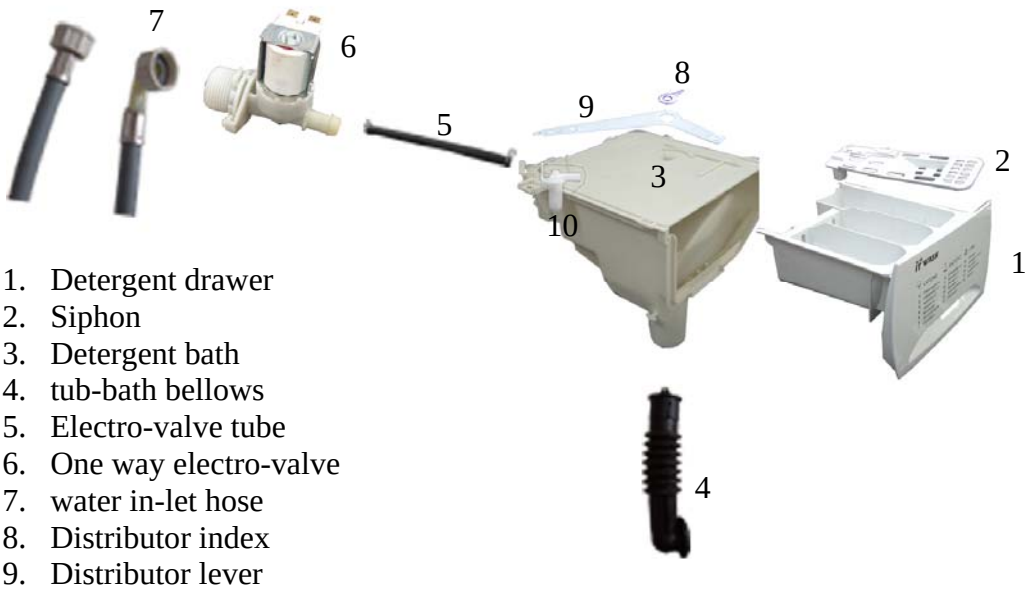
When water is taken into the drum an internal pressure is created in the hydraulic system which triggers the movement of the membrane. This movement modifies the position of the internal contact of the pressure switch from 11 – 12 to position 11 – 14. The power board at the point receives impulse from pin 14 and it identifies the quantity of water in the drum.




## 6.5 DISPENSER

The ITW dispenser has three compartments (pre-wash, main wash and softener)

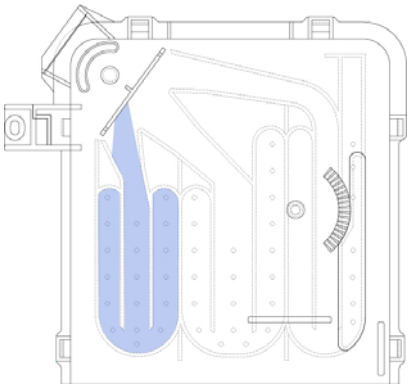
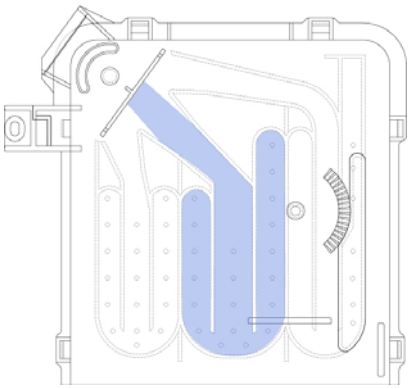
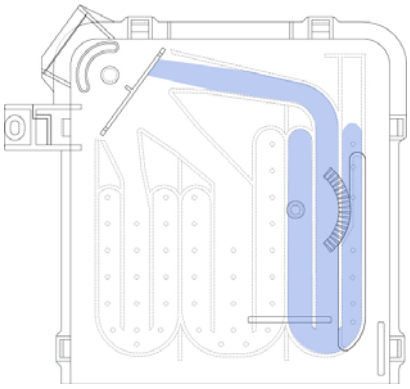
### 6.5.1 ITW drawer



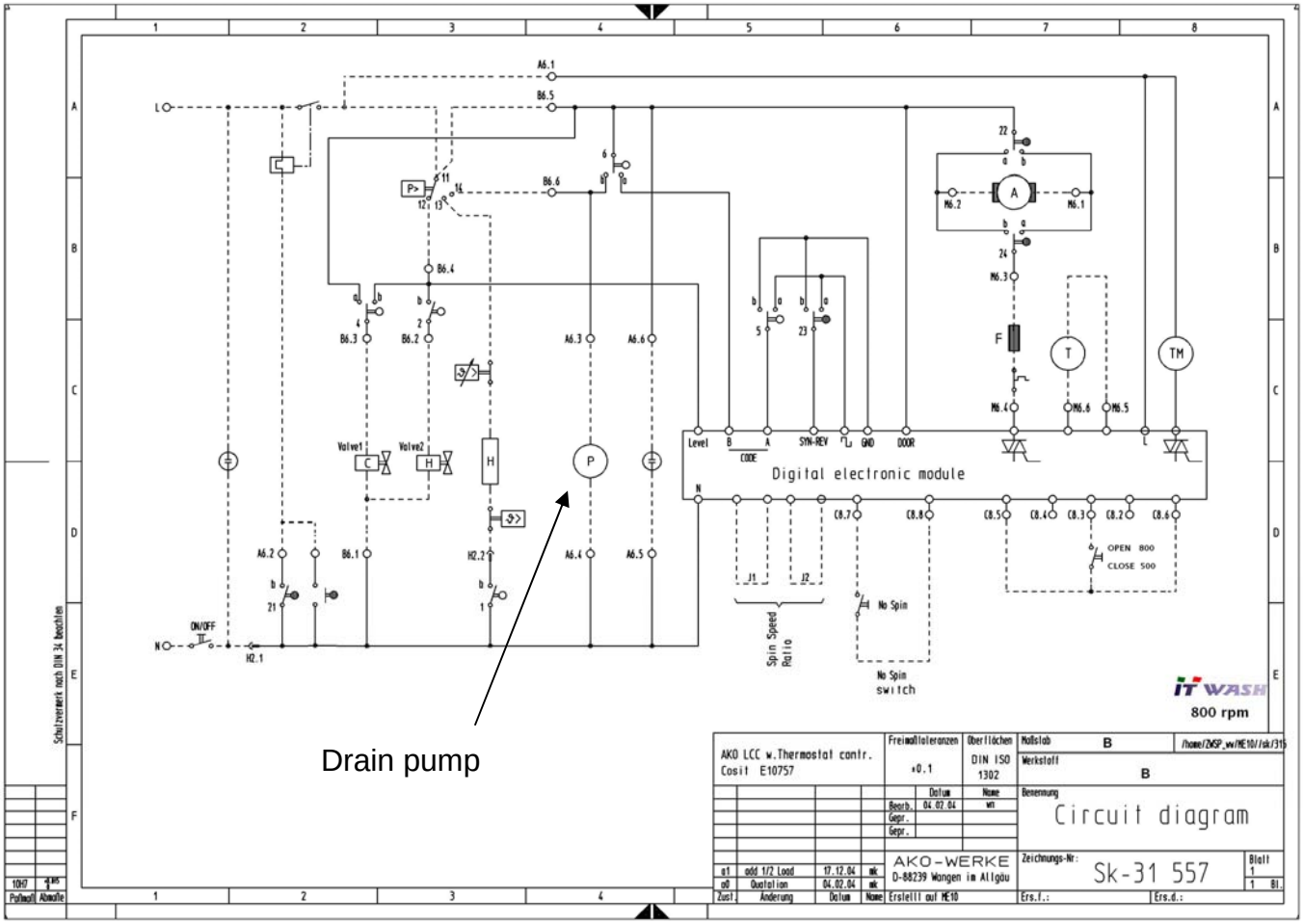

1. Detergent drawer
2. Siphon
3. Detergent bath
4. tub-bath bellows
5. Electro-valve tube
6. One way electro-valve
7. water in-let hose
8. Distributor index
9. Distributor lever
10. Distributor

### 6.5.2 Functional principle

**ITW (hybrid) principle**

| | |
|---|---|
| **Water in-take in pre-wash compartment (Positioning of spout in the pre-wash compartment)**<br><br>The detergent in the pre-wash compartment is washed away at the beginning of pre-wash. |  |
| **Water in-take in main wash compartment (Positioning of spout in the main wash compartment)**<br><br>For all the washing programmes the main wash, compartment is used to hold detergent which is washed away at the beginning of washing. |  |
| **Water in-take softener compartment (Positioning of spout in the softener compartment)**<br><br>For all the washing, the softener compartment is used hold the softener which is washed away at the beginning of the last rinse. |  |

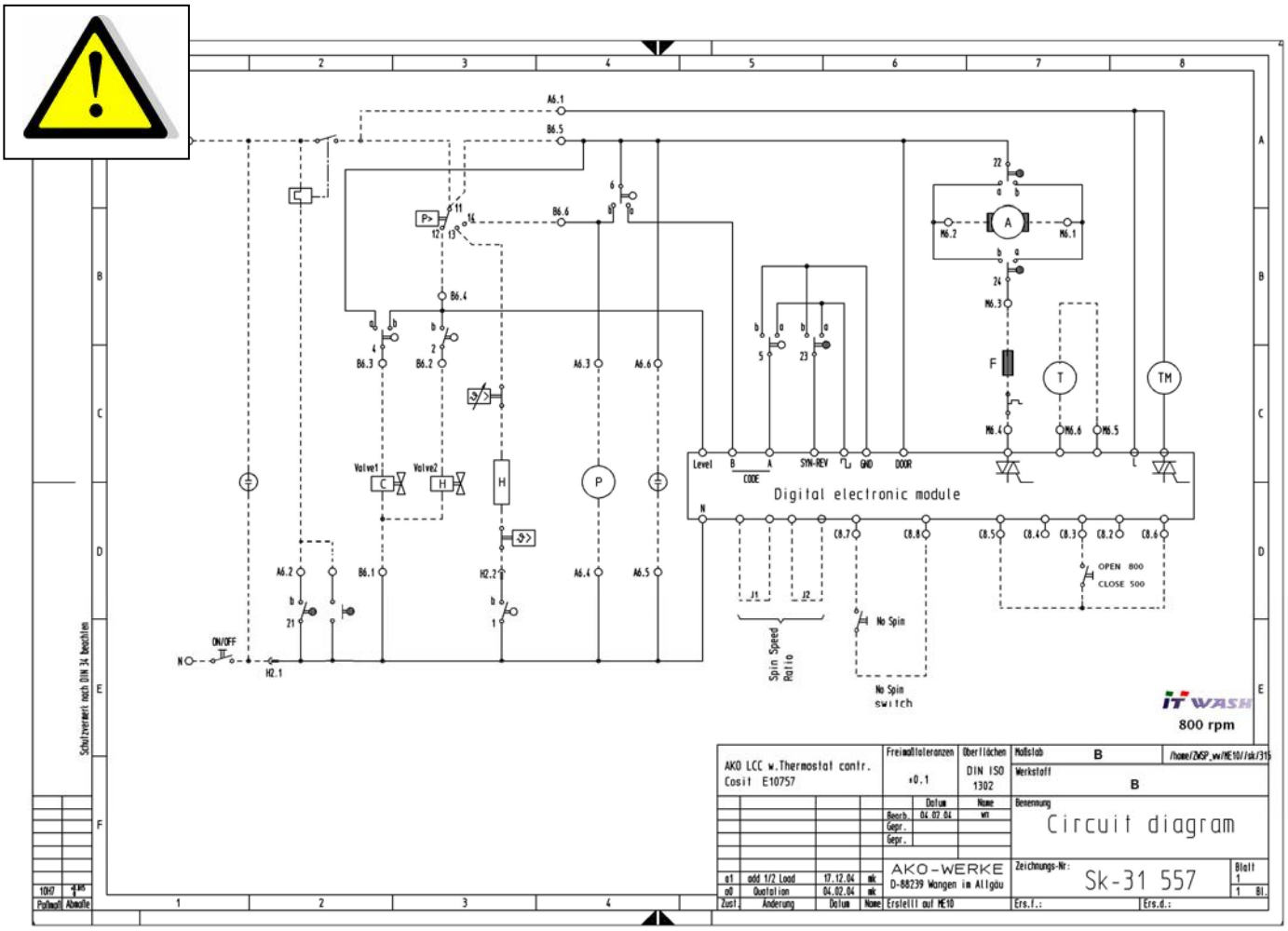
## 6.6 Drain pump

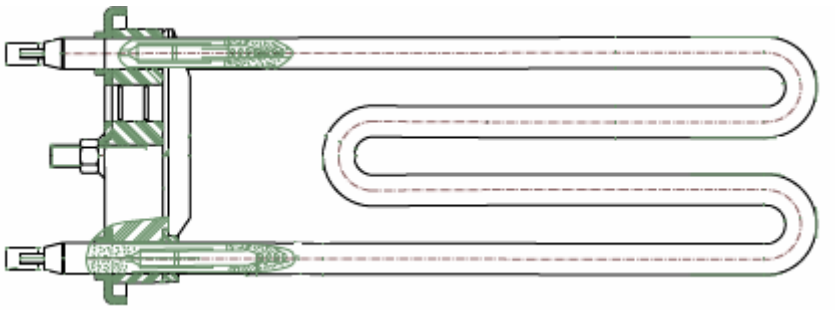



The drain pump is powered directly from the timer contact.

| Resistance (Ω) | Wire thickness | Number of turns |
|---|---|---|
| 160 +/-7% | 0.21 mm | 1800 (x2) |

## 6.7 Heating element



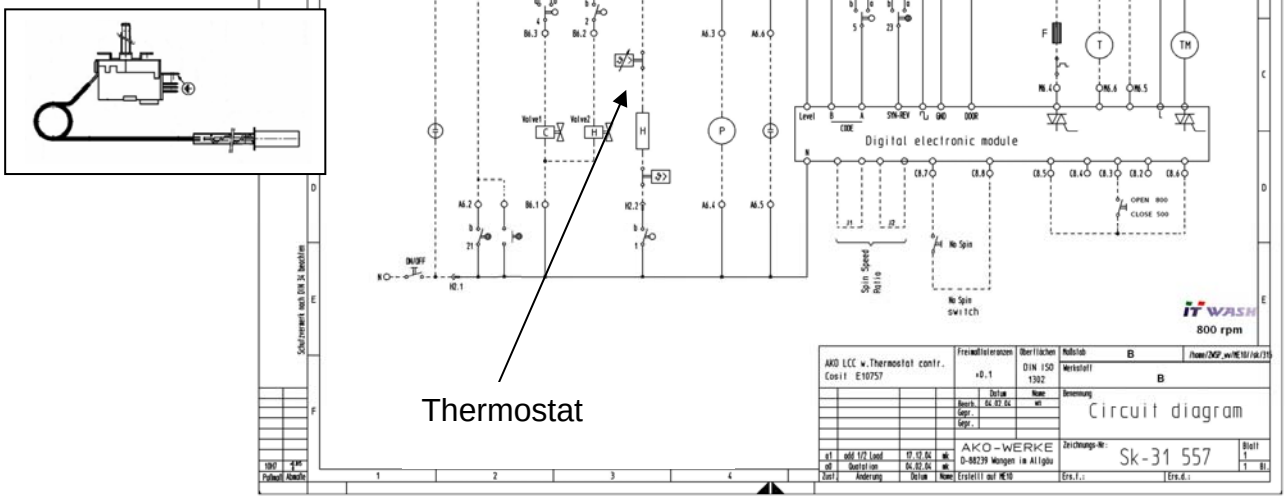



The heating element is powered from the timer contact and equipped with two fuses. In the heating level is higher than the values for which it is calibrated, the fuse will blow.

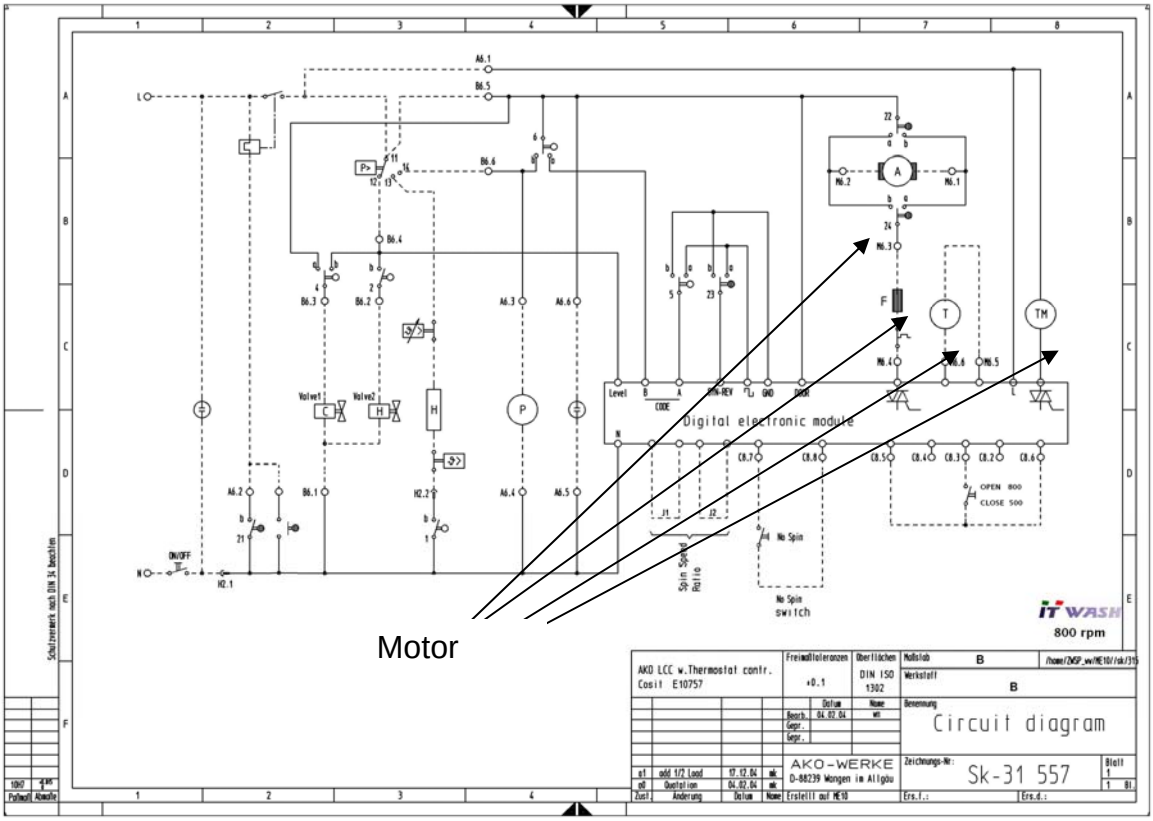
**In case of substitution of the heating element, it must be replaced with one with same characteristics in order not to compromise the safety of the device.**

## 6.8 Thermostat

The temperature is controlled by the thermostat placed in series with the heating element. Via the probe placed at the heating element the temperature is measured. The probe is connected to a membrane, through a capillary tube, on which the thermostat contacts are placed. The increase in temperature generates an expansion in the air present in the capillary which then exert a pressure on the membrane causing a drift both of the membrane and the thermostat. The contacts are connect in series to a resistance that regulates the activation of the temperature function.




## 6.9 Motor



## 6.10 Motor power supply

The motor is powered through a triac. The reversing of the rotation direction is obtained through the commutation of the contact points C22 – C24, they vary the connection between the rotor and the stator.
The speed of the motor is controlled through the signal of the tachometric generator
In the spin step the micro-controller effectuates the control of anti-foam and unbalance.

600/800 rpm motor resistance values

| | | Widerstand (Ω) (Resistance) | | Drahtdicke (mm) (Wire-diam./ -insulation) | | Windungszahl (number of turns) |
|---|---|---|---|---|---|---|
| Wicklung | | | | | | |
| Polpaket | (Stator) | 2,85 | ± 8 % | 0,8 | L | 2x185 Wdg. |
| Läufer | (Rotor) | 2,85 | ± 8 % | 0,5 | 2L | 18 Wdg./coil |
| Generator | (Gen.) | 135 | ± 10 % | 0,09 | L | 620 Wdg |

1000 rpm motor resistance values

| | | RESISTANCE ± 7% (OHM) | WIRE DIAMETER (mm.) | COILS |
|---|---|---|---|---|
| WINDING: | FIELD | 1,47 | 0,95 | 112 + 112 |
| | ARMATURE | 2,06 | 0,56 | 36 x 13 |
| | TACHOGENERATOR | 184 | 0,09 | 760 |

## 6.11 Unbalance control

The unbalance control is in a dynamic fashion through an electronic system - **F**ast **U**nbalance **C**ontrol **S**ystem – **FUCS**. The unbalance is control is carried out at about 106 r.p.m. at the beginning of the spinning for an estimated time of 12 seconds. The value of the unbalance detected is compared to the limits pre-defined.
There two levels defined for the unbalance threshold. At the first level the value pre-defined is 500g while the second is 1200g.

If the unbalance is less than the limit pre-set for the first level, the normal spinning will be carried out (figure 1).

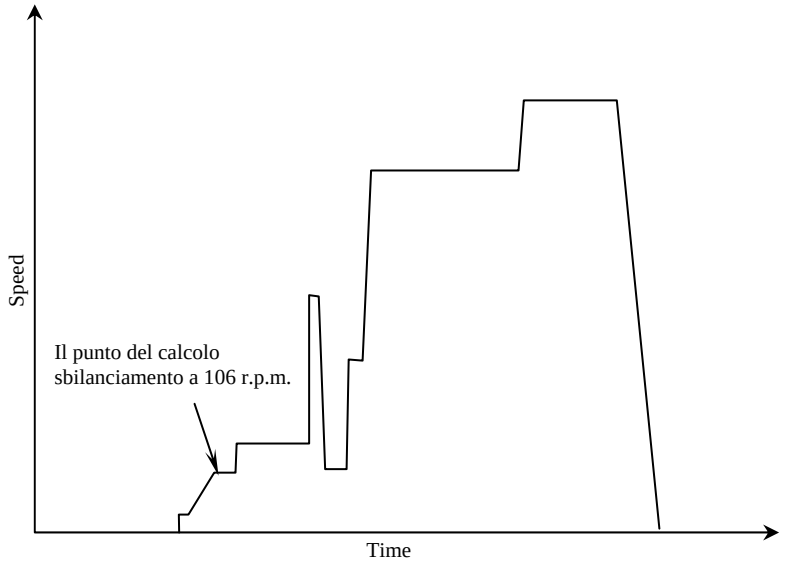



Figure 1

During the four trials the machine compares the calculate unbalance weight with the value to the first threshold. At the fifth attempt the machine compares the calculated weight with the value of the second threshold pre-defined; if the value of the calculated unbalance is between 500 and 1200g the machine make a reduced spin of 500 r.p.m. (see figure 2).

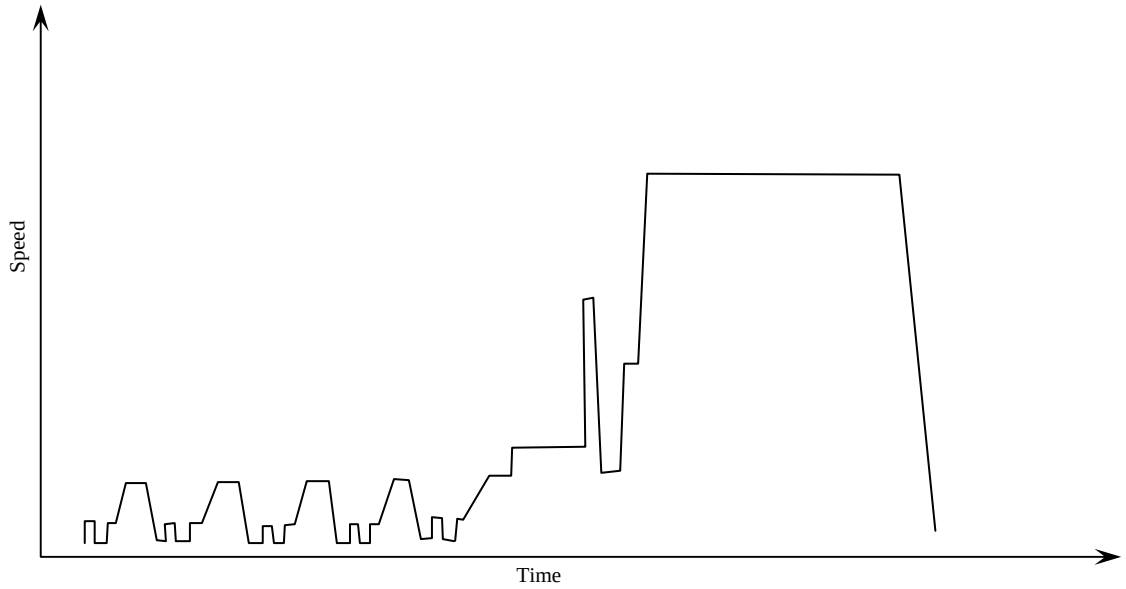
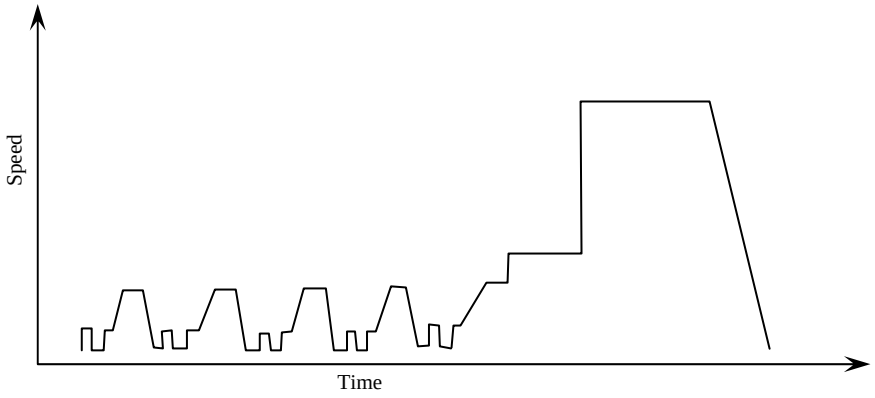



Figure 2

If the value of the calculated unbalance surpasses the pre-defined of 1200g the machine make a highly reduced spin of 160 r.p.m. per 60 seconds, the 400 r.p.m for 120 seconds (see figure 3).



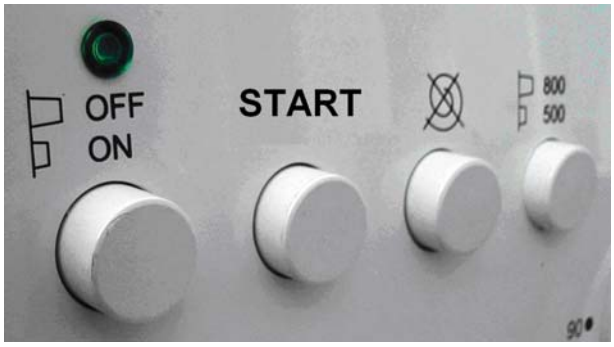
# 7 Functional test

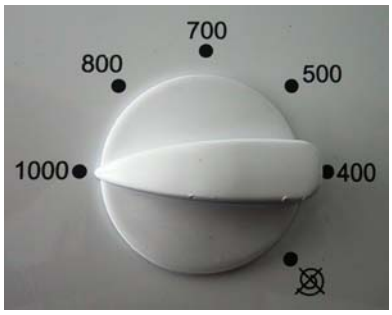
## 7.1 Water filling, draining and spinning test without load (duration about 2 minutes)

To carry out this test, two steps are necessary. The operation are:

- Make sure the machine is empty;
- Release all buttons and position the spin regulator at maximum speed as in figure 1.

**Figure 1** **Spin regulation**




Select the pre-wash programme (programme 1) as in figure 2, with the programme knob;

**Figure 2**


Turn on the machine by pressing the ON/OFF key, check that the machine take water and the drum rotates;
Turn off the machine.
Position the knob on programme 18 as shown in figure 3;

**Figure 3**


Verify the that machine drains water and if it spins.
If the machine should not drain refer to the check list at the end of the document.
If the machine drains water but should not spin refer to the check list at the end of the document.

**Machine test with load (duration about 10 minutes)**

A similar test can be carried out, but with wash load.
To effectuate a test proceed as follows:

- Make sure the machine is turned off;
- Release all the buttons as in figure 4.

Load the machine with a substantial wash load.

**Figure 4**



Position the programme knob on delicate (programme 1) as shown in figure 5;

**Figure 5**


- Turn on the machine by pressing the ON/OFF button and verify that the machine takes water;

- Await the conclusion of the of the operation and turn off the machine.
- Position the programme knob on softener (programme 6) as shown in figure 6.

**Figure 6**


- Turn on the machine a check that machine is still taking water.
At the end of the programme, it will automatically pass to spin programme to drain all the water and start spinning.

Al termine il programma passerà automaticamente sul programma centrifuga che scaricherà tutta l'acqua ed avvierà la centrifuga.
If the machine should not drain refer to the check list at the end of the document.
If the machine drains water but should not spin refer to the check list at the end of the document.

## 7.3 Substitution of timer

When ever it is necessary to substitute the timer, note that the timer used on this type of machines is the same for all, but can be configured according to the spin speed of the machine as indicated below:

Configuration table

**TABLE A: Maximum spin speed , connection options, Drum pulley : 265mm diametre**

| J1 | J2 | Maximum spin speed | Naminale ratio | Maximun spin regurested | Ratio correction | Motor pulley [mm] | Moto spedd at 50 r.p.m. | Motor speed at spin [rpm] | version |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | **800** | **18.3 : 1** | 750 | 17,2 : 1 | 19 | 665 | 9980 | 0 |
| 0 | 1 | **1000** | **14 : 1** | 950 | 12,9 : 1 | 19 | 665 | 12640 | 1 |
| 1 | 0 | **1200** | **14 : 1** | 1105 | 12,9 : 1 | 19 | 665 | 14700 | 2 |

N.B. 0 means the circuit si closet and indicates the presence of a bridge, 1 stands for open circuit and that is a broken bridge.

Upon reception of the timer, it is delivered in the 800 r.p.m. spin configurartion (seed foto N.1)

Photo N° 1

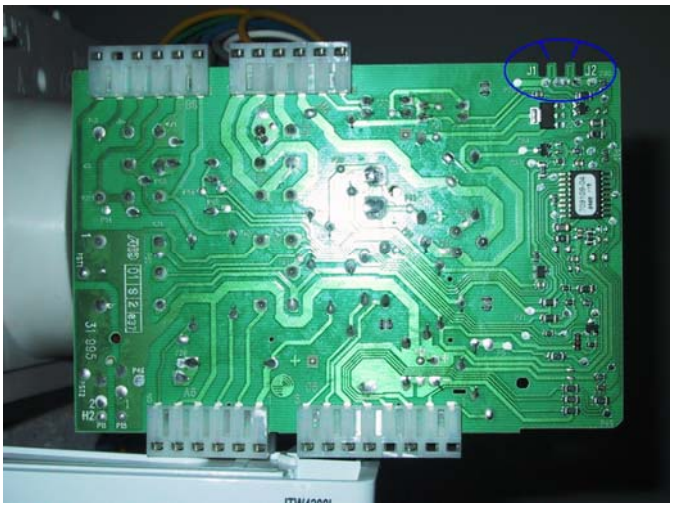
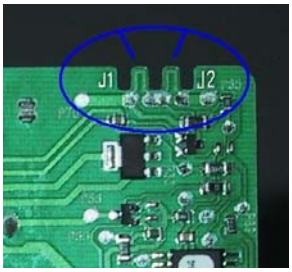
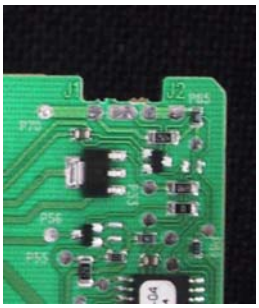



Photo N° 2



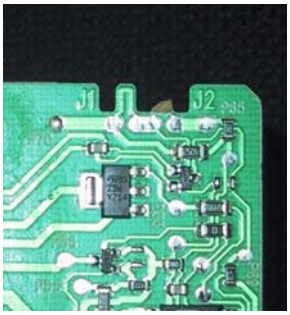

To use the timer on the 600 r.p.m. machines both teeth (J1 and J2) must removed. (see photo N° 3)

Photo N° 3



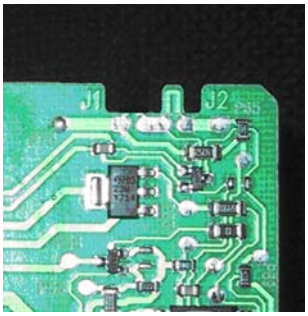
To use the timer on the 1000 r.p.m. machines the J2 tooth must be removed as shown in photo N° 4.

Photo N° 4



To utilise the timer on 1200 r.p.m machines the only J1 tooth must be removed as shown in photo N° 5.

Photo N° 5




## 7.4 Substitution of tub-pump bellows

The tub-pump bellows utilized in the ITW machines is the polarised type.
The polarisation is necessary for a correct functioning of the machine. A wrong fixing can cause a malfunctioning of the machine in the drain step.

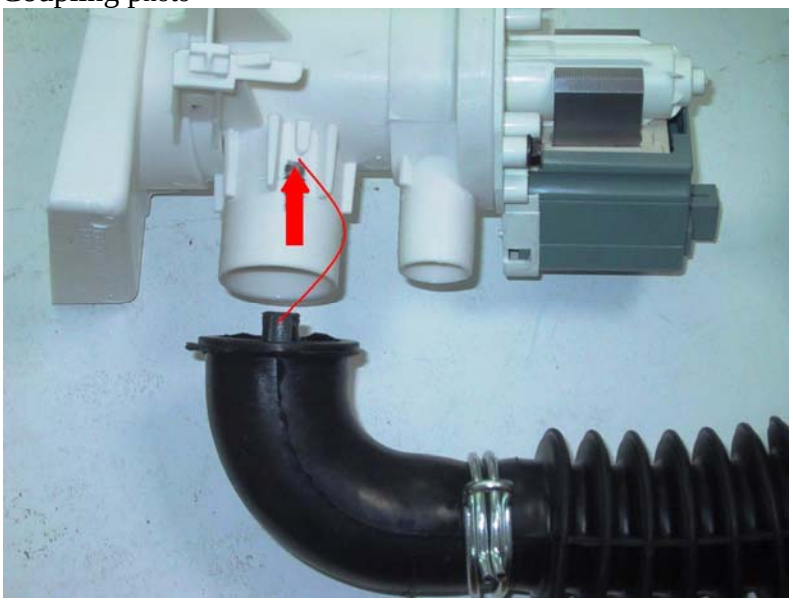
Below are the photos of the bellow showing the polarisation.

Photo of bellows pump side

Photo of bellows tub side

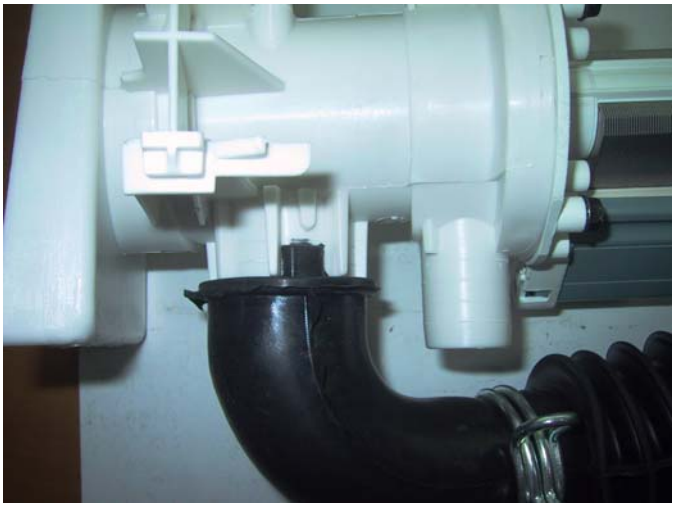
For the assembly of pump housing, position the bellow as shown in the photo below.

Coupling photo



Push in the direction of the arrow until a perfect alignment is obtained as indicated below.

Photo of assembled bellows



For the tub part, it is necessary to proceed in a similar manner as show in the photo below.

Photo of bellows assembly

Then push in the direction of the arrow until an alignment is obtained as shown in following photo.

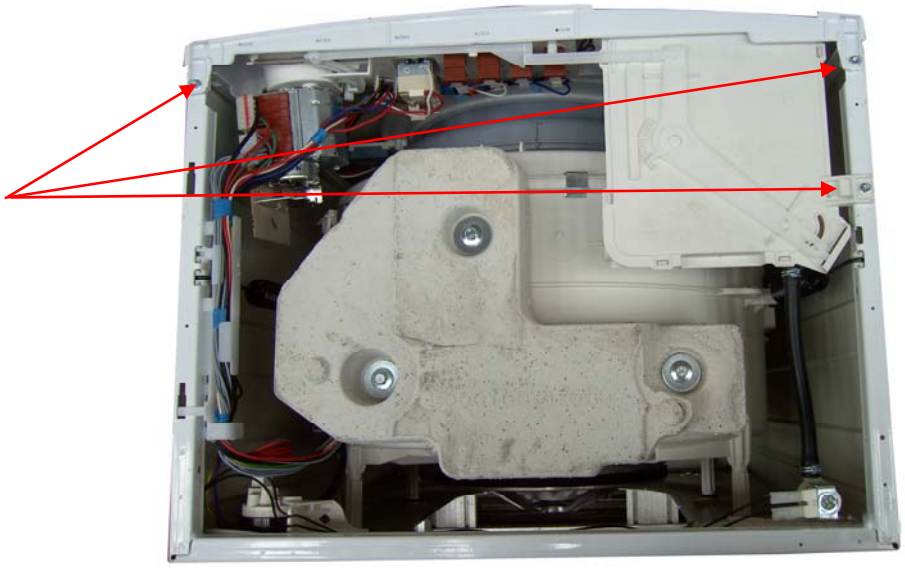
Photo of assembled bellows

As a general information, note that the pump utilised in the washing machines do not have aspiration force but have rotating blades that accompany the liquids with a slight force towards the drain tube. A wrong fixing of the bellows can cause problems in draining.

### 7.5 Tub maintainace

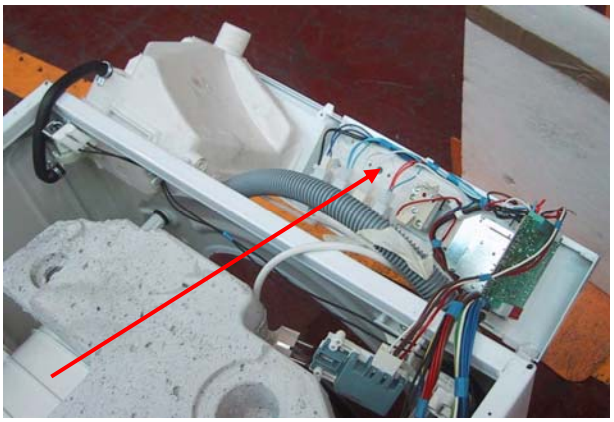
The hybrid washing machines can be produced with a family of tubs which could be welled or locked together by clamps.
For the former there is no possibility of repair as the whole bath (washing group) must be changed. For the latter there is the possibility of intervening to replace bearings, drum and front or rear tub.
To remove either the welled washing group or that locked together with clamps, the procedure is as follows:

- The first step is to remove the top as indicated in chapter 10.
- Remove the control panel by unfastening the screws as shown in the photo.



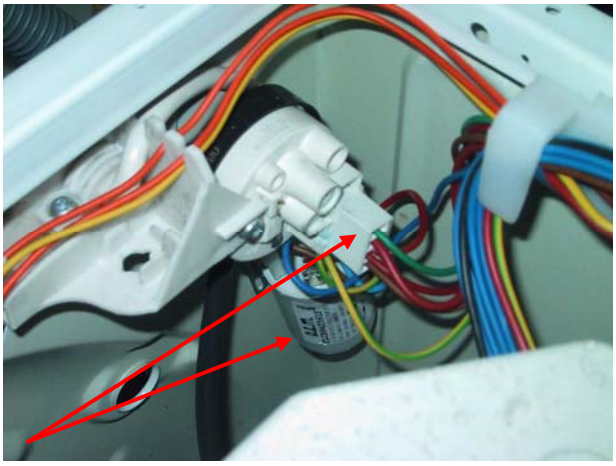
- Lift the control panel on the left hand side and unhook the bellows connecting the detergent bath to the tub at the anterior. Unfasten the door lock fixing screws.

- Overturn the control panel to the back of the washing machine as indicated in below.



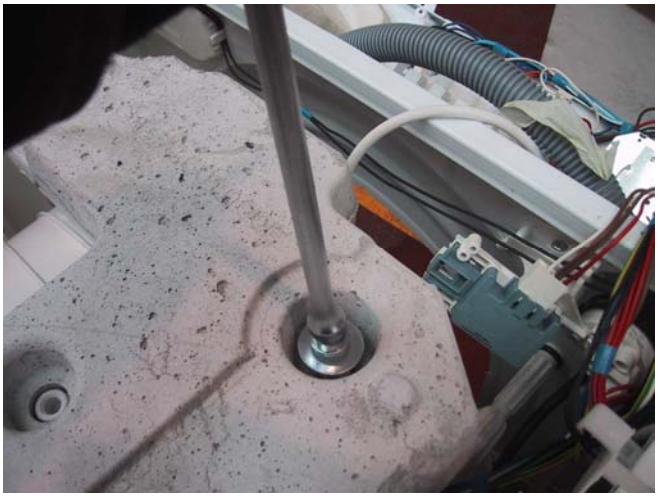
- Access the rear components as indicated in chapter 10. Disassemble the wiring by first disconnecting the motor connector, the heating element and drain pump, then slack the temperature probe to pull. Proceed to remove the wiring from the hooks on the tub.

- Disconnect the wiring from the pressure switch and the filter.



- Remove the door gasket.

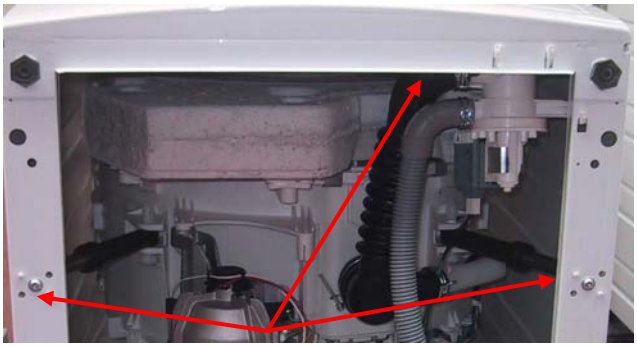
- Get rid of the wiring, remove the superior counterweight blots as indicated in the figure below.

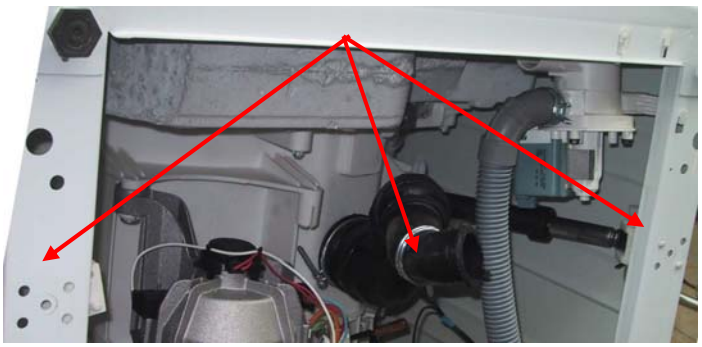


- **Lift out the counterweight. At the end the machine should present as indicated in the photo.**

- Overturn the machine to lie on its back on the floor to have access to inferior components. Remove the splash proof protection by pulling outward first the superior part then the inferior U-shape part.

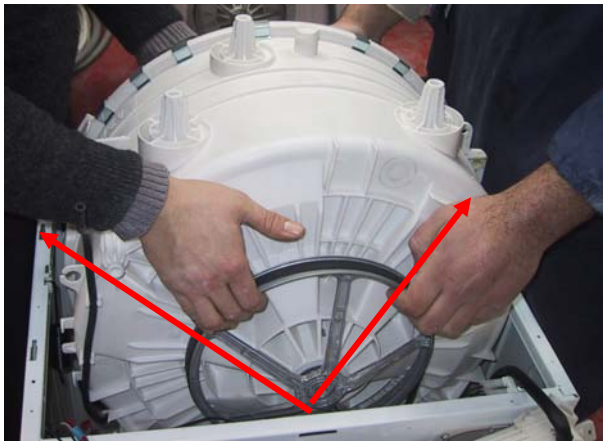
- Unfasten the shock absorber fixing screws; remove the sleeve (bellows) connecting the tub to the to the pump from the pump side.





- At this point take the machine to its vertical status to takeout the washing (oscillating) group.

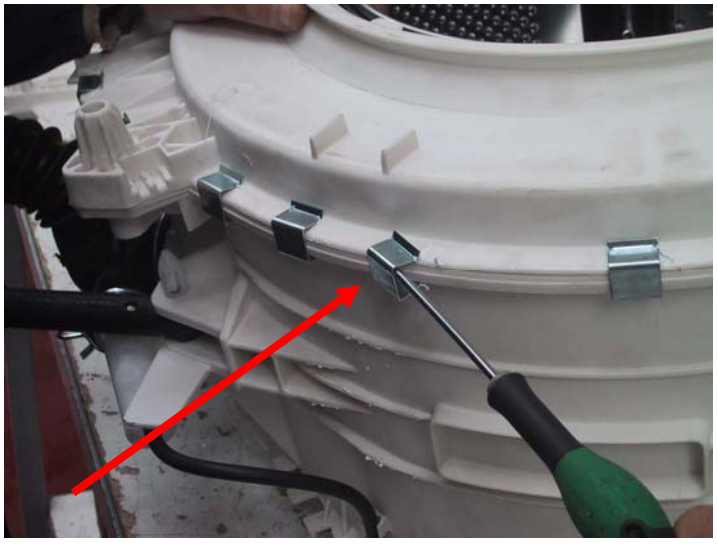
- It is necessary to use small sized crane or two people to takeout the washing group as indicated in the photo. Where crane is used, the hook slots placed in the vicinity of the suspension spring slots are utilized for hanging.



At this point, if the tubs are welled the group will be entirely substituted, while if group is the type grafted with clamps, proceed to open as follows:

- Position the group on its back on a bench.
- Remove the inferior counterweight as shown in the photo.

- Takeaway the 23 clamps. This operation can be carried out with medium sized screw driver as shown in the photo.



- At this point the anterior tub is lifted to gain access to the drum.

- It must be recalled that it necessary to first remove the drum pulley before taking out the drum.
  It is recommended to always change the tub seal after this operation.
  The clamps can be reused but it is advised to change the position by about 5mm from the previous.
  The use of medium sized plastic headed hammer is recommended for their insertion.

## 8 Alarms

The timer is equipped with a software programme where in case of fault in the motor (e.g. lack of tachometric in-put or short circuit of the triac), it isolates the motor from the power supply to avoid damage. The routine of the programme function in the following way:

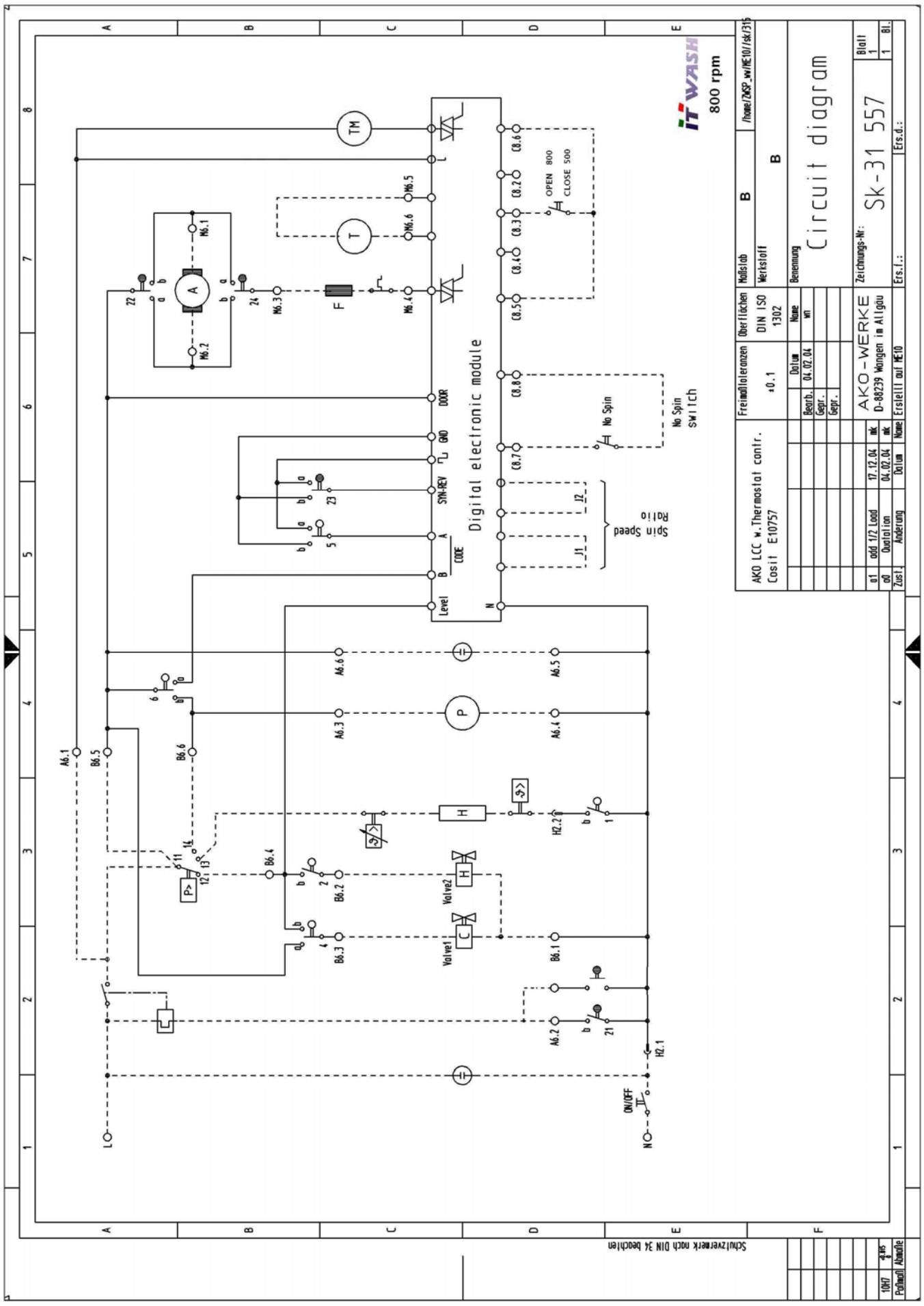
- **Triac short circuit**
- - timer turns off the motor and starts the verification of reactivation for a duration of 1.5 after 60 seconds. After three attempts the time goes to the OFF position.

- **Lack of tachometric signal**:
- - timer turns off the motor and starts the verification of reactivation for a duration of 1.5 every 60 seconds.

- **Lack of pressure switch signal at empty state**

- - the timer turns off the pump after three minutes of waiting and it goes to next step. If the fault is in the proximity of last spin, the programme will be terminated.

## 9 Washing machine main circuit



## 9.1 Table of summary for faults

| Description of faults | Possible remedies |
|---|---|
| The machine stops washing position, takes in water and drain continuously | 1) Check the height of the drain tube to be higher than 60 cm and lower than 90 cm. |
| Does not spin | 1) Check the drain pump<br>2) Carry out several rinse and trial<br>3) Check pressure switch hose<br>4) Check the tub-pump bellows and the eco-ball<br>5) Check the air trap bell jar<br>6) Substitute the pressure switch |
| The machine start with spinning | 1) Check the motor connection and in particular the bridge between pin 7 and 8. |
| The machine heat continuously till the maximum temperature | 1) Check the thermostat probe that it is not damaged<br>2) Check the correction functioning of the thermostat by turning the knob to verify the opening of the contacts.<br>3) Substitute the thermostat. |
| It does heat | 1) Check the connection on the heating element.<br>2) Verify the presence of main power supply.<br>3) Verify the continuity of the heating element and eventually substitute it in case of open or short circuit.<br>4) Verify the correct functioning of the by turning the knob to check the closing of the two contacts.<br>5) Substitute the timer |
| It does not drain | 1) Verify the efficiency of the drainage (height, fluidity of drain, clog or bottle neck)<br>2) Verify the pump connection<br>3) Verify the resistivity of the pump as indicated in the table and substitute in the case of short or open circuit.<br>4) Verify the connections on the timer.<br>5) Substitute the timer |
| The motor does not rotate | 1) Verify the connection on the motor.<br>2) Verify the connection on the timer.<br>3) Substitute the timer<br>4) Substitute the motor |
| The drum is full of water and the pump is always active (overflow) | 1) Check the pressure switch hose.<br>2) Check the pressure switch connection.<br>3) Check the timer connection.<br>4) Check the pressure switch and eventually substitute it. |
| The timer knob stops with machine on | 1) Check the connection on motor.<br>2) Check the connection on timer.<br>3) Check the resistance value of the tachometer as indicated in the table. In case of error substitute the motor. |
| The machine does not start after a programme is selected and the door is closed | 1) Check the connection on the door lock.<br>2) Check the connection of on the timer.<br>3) Substitute the door lock. |
| The knob is at OFF position after starting of washing | 1) Check the connection on the motor.<br>2) Check the connection on the timer.<br>3) Check the resistance value of the tachometer as in the table, in case of error substitute the motor.<br>4) Substitute the timer. |

## 10 ACCESSIBLITY OF COMPONENTS

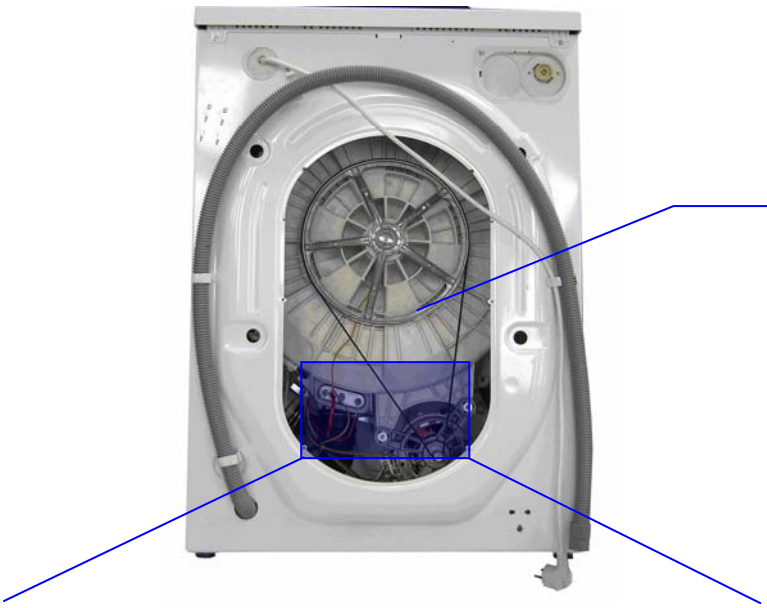
The components are easily accessible either form the back, removing the cover, or from the top removing the top cover.

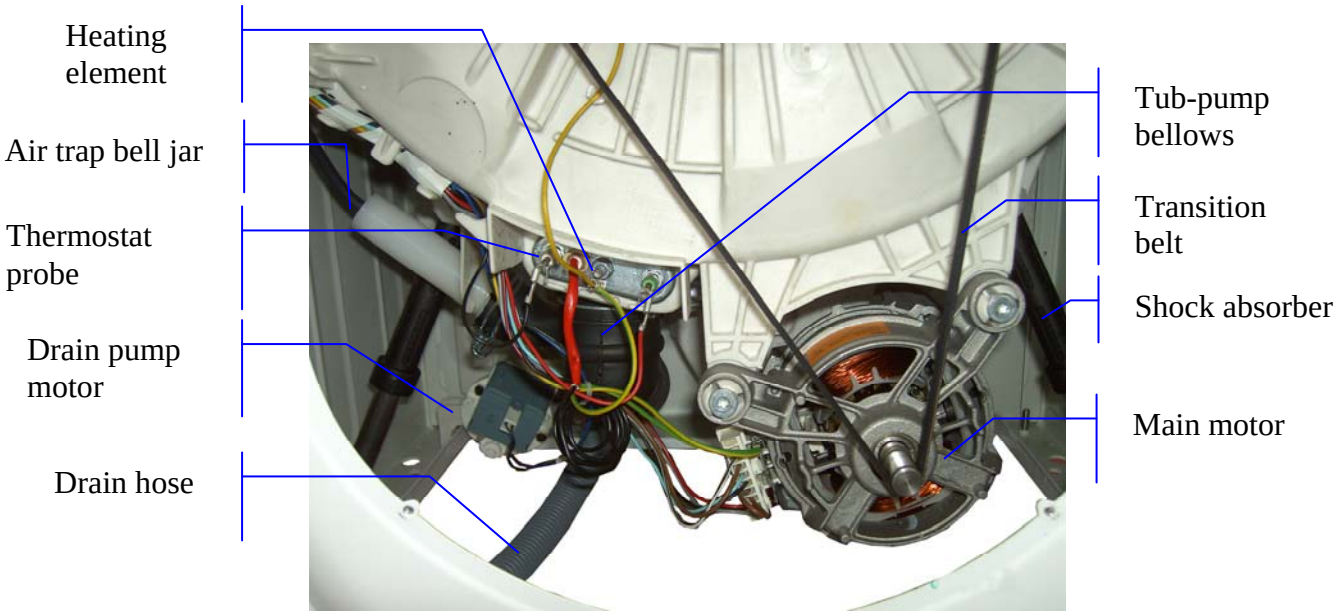
- Position the washing machine as indicate in the photo.

It is possible accessing the following components:

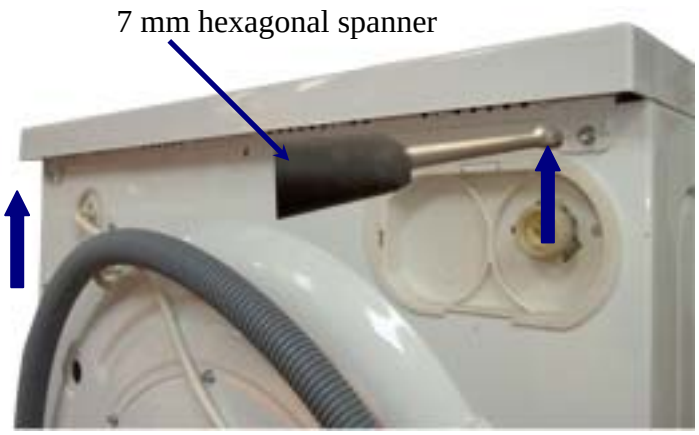
a – main motor
b – drain pump motor
c – heating element
d – thermostat probe
e – drain hose grafting
f – shock absorbers
g – air trap bell jar
h – tub-pump bellows
i – drum pulley

- Unscrew the screws that hold the back cover



- Unscrew the two screw placed behind the machine

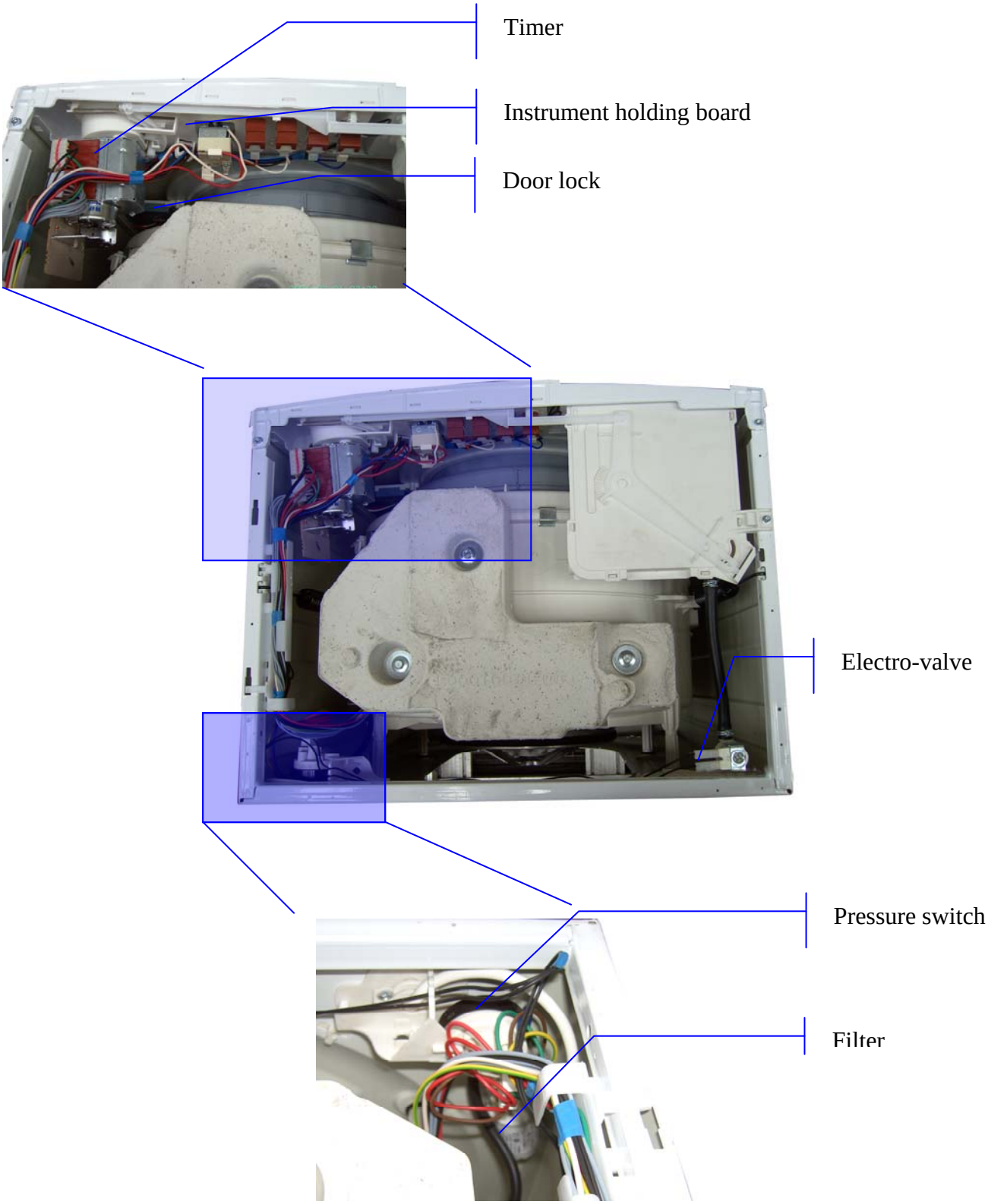



- Give a quick rap on the "top" side of the detergent bath and lift from the rear side.


After these two operations it is possible to access the following components:

a – timer
b – instrument holding board
c – pressure switch
d – filter
e – electro-valve
f – door lock

### 10.1.1 Internal view of ITW model (HYBRID)



### 10.1.2 Disassembly of components on the control panel

After the removal of the top,  it is necessary to extract the instrument holding board by applying a leverage with a screw driver on the hooks
 Dopo la rimozione del top, occorre estrarre il porta strumenti, facendo leva con un cacciavite sui ganci del porta strumento (modello ITW) partendo dall'estremità di sinistra.

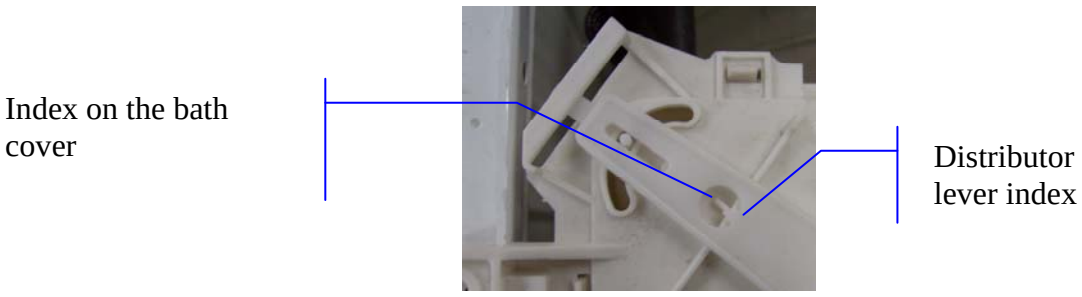
ITW model

### 10.1.3 Distributor regulation (only for the ITW model)

When the timer is disassembled or the pivot system is manipulated, it will be necessary to regulate the distributor. This guarantees a correct distribution of water in all the steps of washing.
The steps for the regulation are as follows:

- Position the programme selection knob on 14


- The index on the bath cover must coincide with the index of the distribution lever. In they are no aligned proceed as in the next step.




- The correct alignment is obtained rotating the distribution index.