Instructions Manual for
TECHNICAL ASSISTANCE
CONTROL SELECTION
SETUP - CONFIGURATION
TEST PROGRAM

LOGI control
LOGI PRO control
COIN control
INTELI control

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ATS

Logi - Logi Pro
Coin - Inteli

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TRANSLATION OF ORIGINAL MANUAL

INDEX

WARNING!

- The actions described in these instructions are strictly reserved for contractually **AUTHORISED TECHNICAL SERVICES (ATS)** and personnel who have successfully completed training by Girbau SA.
- The company responsible for the Authorised Technical Service accepts full liability for the work done and any possible consequences that may derive from it.
- Any actions carried out by personnel who are not authorised by the manufacturer will be considered to be improper and will result in the automatic voiding of the machine's warranty.
- The manufacturer will not accept responsibility for any physical and/or material damage caused by actions performed on the machine taken by unauthorized personnel.
- Once the corresponding operation has been performed, the ATS staff must perform the final machine inspection.
- Avoid carrying out any action on the machine without having first read the machine's Installation and Operating Manuals carefully, paying special attention to the Safety Instructions.
- In any action that modifies the values of the machine's specifications plate, it should be borne in mind that:
  - It is the responsibility of the ATS to check that the external installation for the machine has been modified and adapted to the new requirements, particularly to those regarding ducting and electrical protection.
  - It is the responsibility of the ATS to update the specifications plate, in accordance with the new operation conditions, once the final machine inspection has been performed.
- Carrying out inspection routines, adjustments, maintenance, repairs, cleaning or any work on the machines without applying safety measures or having the necessary technical know-how can lead to **ELECTRICAL SHOCK OR SERIOUS ACCIDENTS.**
- When tools designed for specific maintenance and repair routines are available, their use is compulsory in order to avoid unnecessary risks.
- Before carrying out any procedures on machines fitted with pneumatic or hydraulic circuits:
  -Make the machines COMPLETELY SAFE by following the instructions set out in the corresponding Manuals or by wedging them with wooden blocks where necessary.
  - Bear in mind that working on a component without having previously understood the role that it performs in the circuit as a whole involves a high risk of suffering a **SERIOUS ACCIDENT**.
- **BEFORE CARRYING OUT ANY** inspection routine, adjustment, maintenance, repairs, cleaning or any work on the machine, DISCONNECT IT FROM ALL THE ENERGY SOURCES.
  - **COMPLETELY** disconnect the machine from the power supply and prevent the possibility of accidental reconnection by mechanically locking the automatic external switch and/or the switch breaker. Stopping the machine with the NORMAL STOP key or push-button is not enough.
  - Disconnect the electrical connection of any circuit external to the machine; for example external dosing equipment, folders or ironer feeders. These circuits are independent of the supply to the machine.
  - Before beginning any procedure on machines equipped with an inverter or equipment with capacitative loads, wait for at least five minutes (10 minutes on equipment with a power rating greater than 25Kw) after the electrical disconnection, to eliminate risk of residual voltage.
  - Close and mechanically lock the manual WATER, GAS, STEAM, THERMAL OIL, COMPRESSED AIR supply valves.
  - Check that the water bath has **COMPLETELY** drained, that no part of the machine is at an excessively high temperature and that no parts are in movement through inertia.
- **DANGER!** Some fault localisation procedures require checking at different points of the electric circuit with the machine connected to the power supply and other supply sources. When carrying out these procedures, respect the following instructions:
  - The appropriate checks must be carried out by ONLY ONE PERSON.
  - During these procedures, ONLY remove the protective covers from the electric circuit and/or the inverter. Never remove the covers protecting the moving parts of the machine.

1. TECHNICAL AREA. DESCRIPTION

The **TECHNICAL AREA** is identified as the set of specific actions, menus, and operating modes intended for the Authorised Technical Service.

1.1 TECHNICAL AREA. OPTIONS AND MENUS

Selecting the washer model
Different washer models use the same control circuit. To identify each model, use the configuration parameters or connectors included in the washer installation. (See section 1.3.)

Selecting controls. LOGI and COIN CONTROLS
Washers with LOGI and COIN controls use the same microprocessor board. The operation controls (LOGI CONTROL or COIN CONTROL) are selected using a jumper (switch) installed on the board. (See section 1.4.)

CONFIGURATION - SETUP Menus
These can adapt the washer controls to the machine's various built-in options and the facility characteristics.
They can also carry out the GENERAL INITIALIZATION OF THE WASHER MEMORY. This action erases all modifications and programming made by the user and resets the washer memory parameters to their DEFAULT VALUES. (Refer to section 1.5, 1.6 and chapters 2, 3 and 9)

TEST operating mode. This mode makes checks on the safety and control mechanism operations as well as a complete practice run of washer functions. (Refer to section 1.5, 1.6 and chapters 4 and 6)

Operations and incident counters (only INTELI CONTROL). These counters record the principal operations and incidents occurring in the washer. (See chapter 8)

Inverter menu
Inverter initialisation and verification operations.

- Specific menu for models MS-6 and EM6 of load equal or superior than 13kg (33lb) with **VLT** type Danfoss inverter (STANDARD inverter).
  HS-6023 and EH055 models
  Consult Chapter 5 for the configuration and verification of the inverter.
- Specific menu for models HS-6 and EH6 of load equal or superior than 23kg (55lb). Consult Chapter 9 for the configuration and verification of the inverter.

1.2 ACCESS TO THE TECHNICAL AREA

DANGER!
To access the Technical Area options or operating modes, components located on the microprocessor board, inside the washing machine, must be handled. To access the components, the top cover of the washer or the front cover (depending on models) must be removed.

Before the removal of any cover:

- **COMPLETELY** disconnect the washer from the power source and prevent accidental reconnection. The disconnection of the **START** switch on the INTELI, LOGI CONTROL and LOGI PRO CONTROL machines is not sufficient.
- Wait at least five minutes after disconnecting the machine until beginning work on it. The washer's electrical circuit contains high charges which can cause serious electrical shocks even when the machine has been electrically disconnected.

NOT COMPLYING WITH THESE WARNINGS CAN CAUSE A SERIOUS ACCIDENT.

Steps to access the TECHNICAL AREA

- The washer must not be running any programs.
- Open the washing machine door.
- Disconnect the general on/off switch located in the back of the washer or the exterior shutoff switch and wait five minutes.
- Open the locks or remove the screws holding the cover that allows access to the microprocessor. If necessary, remove the cover.
- Once the task has been completed, correctly fit and fix all the washing machine's safety guards back in place.

1.3 SELECTING THE WASHER MODEL

Adapting the control board operations to the different washer models is done in various ways:
HS-6008/EH020 and MS-610/EM030 models: use the corresponding parameters from the CONFIGURATION menu. (Chapters 2 and 3 of this manual)
Other models: Selection differs according to the washer controls.

- LOGI / LOGI PRO and COIN controls: by connecting the X18 and X19 connectors. These connectors form part of the washer electrical installation. The connector bridge circuits are shown on the washer's electrical scheme.
  The **INFO** menu displays the microprocessor report that corresponds to the washer model.
  Consult information on the **INFO** Menu in the corresponding chapter of the ADVANCED MODE of the washer's Instructions Manual.
- INTELI control: by connecting the X7 connector. This connector forms part of the washer electrical installation. The X7 connector is shown on the washer's electrical schematics.
  The **General Information (SYSTEM TOOLS)** menu displays the microprocessor report that corresponds to the washer model.
  Consult the INTELI CONTROL Operations Manual.

1.4 LOGI, COIN and LOGI PRO CONTROLS. SELECTING THE CONTROLS

Remove the plastic guard from the microprocessor, locate the set of two switches (jumpers) identified as **S3** (Fig.**1**).
The position of the second switch (marked **B** in Figure **1**) defines the control system the washer will operate with.
This operation is only done when a new board is installed on a machine that is already in use.
In this case, check the position of the **B** jumper on the new board and adapt it to the type of washer.

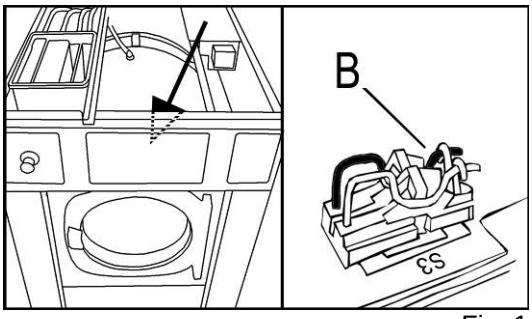


Fig. 1

COIN CONTROL operation: Switch **CLOSED**. (Position of the Figure)
LOGI CONTROL operation**:** Switch **OPEN**.
LOGI PRO CONTROL operation: Switch **OPEN**. Never modify the position of the switch on this control.

Once the control type is selected, correctly fit and fix the washing machine's safety guards back in place.
Connect the power and check that the control type corresponding to the washer model is displayed on the **INFO** menu.
Consult information on the **INFO** Menu in the corresponding chapter of the ADVANCED MODE of the washer's Instructions Manual.

1.5 LOGI, LOGI PRO and COIN CONTROLS. TECHNICAL AREA MENUS

1.5.1 Contents

The Technical Area contains the menus for:

- CONFIGURATION menu
- TEST operating mode
- NET menu: non operational
- InV menu: Initialisation and verification of the inverter.

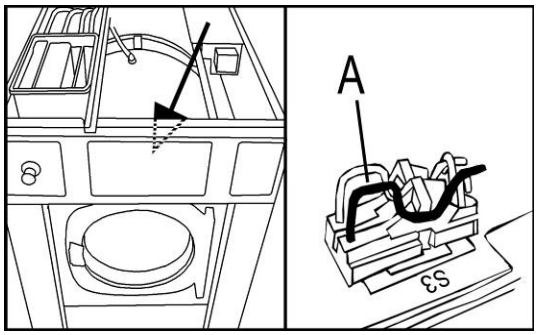


Fig. 2

1.5.2 Accessing the menus

Follow the steps in sections 1.2 and 1.3 to access the set of **S3** switches.
Access **Technical Area menu access switch A** and disconnect it (Fig. **2**).
Put the top cover on and fasten it with the locks.
Connect the power to the washer and press the START switch (LOGI control).
The washer display will show the **CONF** report. To access and use the different menus, refer to the index of this manual.

1.6 CONTROL INTELI. TECHNICAL AREA MENUS

1.6.1 Contents

The Technical Area contains the menus for:

- SETUP
- TEST operating mode
- Operations and incident counters
- Inverter menu: Programming and verification of FUJI inverter

Information on the different technical area menus is always shown in text format.

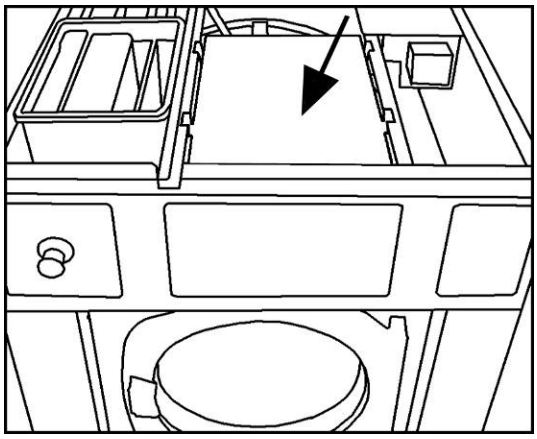


Fig. 3

1.6.2 Accessing the menus (models with display on the washing machine's front panel)

Open the top cover of the washer.
Disassemble the metal guard on the electrical box (Fig. **3**) and access the set of **SW1** switches (Fig. 4).
Access the **menu access switch** and disconnect it (switch **A** Figure **4**).
Put the top cover on and fasten it with the locks.
Connect the power to the washer and press the START switch.

- The initial TECHNICAL AREA screen will display several menus.

To access and use the different menus, refer to the corresponding sections.

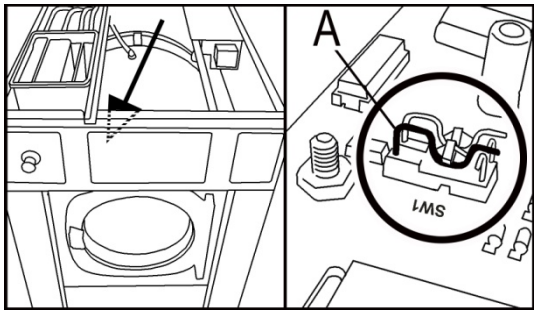


Fig. 4

1.6.3 Accessing the menus (models with display on the washing machine's side panel)

Open the cover that allows access to the microprocessor on the washing machine side panel.
Access the **menu access switch** and disconnect it (switch **A** Figure **5**).
Close the cover that allows access to the microprocessor and lock it.
Connect the power to the washer and press the START switch.

- The initial TECHNICAL AREA screen will display several menus.

To access and use the different menus, refer to the corresponding sections.

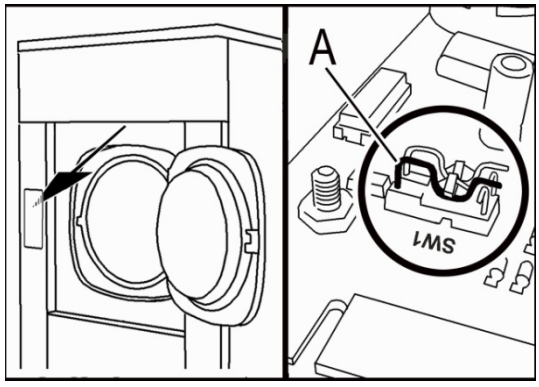


Fig. 5

2. LOGI CONTROL, LOGI PRO CONTROL. CONFIGURATION MENU

Function of the CONFIGURATION menu. Adapts the washer controls to the different options built into the washer and the facility features.
This adaptation is done by selecting the appropriate values for each parameter with the keypad.

Actions when the washer is started-up
When it leaves the factory, several parameters are pre-programmed according to the machine features. However, it is recommended to check the values of these parameters.

Default CONFIGURATION values
Options marked with the **x** symbol are default options programmed in the washer control memory.

Keep in mind that these values do not always coincide with the factory-set washer values as they may have been modified according to the machine itself or its destination.
However, the default values will appear when a GENERAL INITIALIZATION is made or when a new control board is installed in the washer.

Parameters configuration
Access the TECHNICAL AREA and on the displayed **CONF** report, press the **MOD/Pro** key to access the CONFIGURATION menu.
The table below specifies the functions of the washer keypad in the CONFIGURATION menu.

key	key function
MOD PRO	Accesses the next stage The next stage step validates the selected option
▲ ▼	Activates or deactivates the selected function
ACCEL	Special functions

CONFIGURATION stages

configuration of	MACHINE MODEL	
HS-6008 / EH020 and M610 / EM025 models. Selects washer models where the control is installed.		
def.	**options**	**option definition**
x	**H-08 / H 20**	HS-6008 / EH020 models (high-speed washer)
	M-10 / M 25	M-610 / EM025 models (medium-speed washer)

Other models: this stage is merely informative. The machine model is automatically programmed to connect the control board to the washer electrical system.		
	H-13 / H 30	HS-6013 / EH030 models (high-speed washer)
	H-17 / H 40	HS-6017 / EH040 models (high-speed washer)
	H-23 / H 55	HS-6023 / EH055 models (high-speed washer)
	M-13 / M 30	M-613 / EM030 models (medium-speed washer)
	M-17 / M 40	M-617 / EM040 models (medium-speed washer)
	M-23 / M 50	M-623 / EM050 models (medium-speed washer)

configuration of	HEATING SYSTEM	
Enables the heating system		
def.	**options**	**option definition**
x	**Ht-0**	Machines without heating
	Ht-1	Machines with heating

configuration of	DRAIN	
Select the drain system		
def.	**options**	**option definition**
x	**E-No**	Drain by valve opened without power supply
	E-Nc	Drain by valve closed without power supply (only available on HS-6008, EH020, HS-6023 and EH055 models)
	E-Pu	Pump draining (only available on HS-6008, EH020 models)

configuration of	**BUZZER** (for LOGI CONTROL models only)	
Adapts the operation of the microprocessor to different buzzer models		
def.	**options**	**option definition**
	br-0	Option indicated mainly in machines with software version prior to version 27.
x	**br-1**	Option indicated mainly in machines with software version 27 or higher.
remarks		
When a poor operation of the buzzer occurs, we recommend to select the option that bests suits the buzzer mounted on the board.		

configuration of	**DOUBLE DRAIN KIT** (available on some models only)**:**	
The double drain kit is an assembly attached to the outside of the machine, at the drain outlet after the main drain. The double drain kit is designed for installations with recovery or bath selective treatment systems.		
def.	**options**	**option definition**
x	**E- - -**	No double drain kit
	E-uu	Kit made up by two valves: • normally open valve • normally closed valve
	E-uP	Kit made up by valve + pump • normally open valve • pump drain

configuration of	FIELD OF USAGE	
Adapts the washer programs and operating parameters to the specific area of use.		
def.	**options**	**option definition**
x	**CE**	General area of use
	USA	USA/Canada area of use
	G br	United Kingdom area of use
	JPN	Japan area of use
remarks		
Depending on the area of use selected, some program contents and operating parameters are automatically modified. See the content of the program in the corresponding Advanced Instructions Manual.		

configuration of	Water inlet and dosing circuit operation

Option available on HS-6013, HS-6017, MS-613, MS-617, MS-623, EH030, EH040, EM030, EM040, EM055, Logi Control models.
The **hh-0** option must be selected when a microprocessor with 25 software version or higher is installed in a machine with a microprocessor with a software version prior to version 25.

def.	options	option definition
	hh-0	Machines without hot and cold water mixture in soak and pre-wash phases (software version prior to version 25)
x	**hh-I**	Machines with hot and cold water mixture in soak and pre-wash phases (software version prior to version 25)

remarks

For more information on this option, **see BT-372/2009 technical bulletin**.

configuration of	Ho-o (OPTION NOT USED)

Only in **HS-6008 / EH020 and M610 / EM025 models**

def.	options	option definition
x	**Ho-o**	Do not modify this option.

remarks

Modifying this option will lead to malfunction of the washer.

action	GENERAL INITIALIZATION

SETUP option that erases all the programs and modifications made in the washer and resets all parameters to their default values.

procedure

CLR report displayed. Press the ▲key.
SURE will appear on screen: erase order confirmation requested.
Press **ACCL** key to confirm general erasing.
Press **STOP** key to quit general erasing.
CONF report displayed: the SETUP sequence has finished.

remarks

ATTENTION. Once INITIALIZATION is complete, the default values do not always coincide with the factory-set washer parameters.
Main menus affected by general initialization:
- **SETUP**. Resets to default parameters.
- **Operational parameters (Mod Menu)**. Resets to default parameters.
- **PROGRAM CONTENTS (Pro Menu).** Resets all program contents to their original value.

3. COIN CONTROL. CONFIGURATION MENU

Function of the CONFIGURATION menu. Adapts the washer controls to the different options built into the washer and the facility features.
This adaptation is done by selecting the appropriate values for each parameter with the keypad.

Actions when the washer is started-up
When it leaves the factory, several parameters are pre-programmed according to the machine features. However, it is recommended to check the values of these parameters.

Default CONFIGURATION values
Options marked with the **X** symbol are default options programmed in the washer control memory.

Keep in mind that these values do not always coincide with the factory-set washer values as they may have been modified according to the machine itself or its destination.
However, the default values will appear when a GENERAL INITIALIZATION is made or when a new control board is installed in the washer.

Parameters configuration
Access the TECHNICAL AREA and on the displayed CONF report, press the 1 key to access the CONFIGURATION menu.
The table below specifies the functions of the washer keypad in the CONFIGURATION menu.

key	key function
1	Accesses the next stage The next stage step validates the selected option
2 4	Activates or deactivates the selected function
3	Special functions

CONFIGURATION stages

configuration of	MACHINE MODEL	
HS-6008 / EH020 and M610 / EM025 models. Selects washer models where the control is installed. On other models, this stage is merely informative. The machine model is automatically programmed when the control board is connected to the washer electrical system.		
def.	**options**	**option definition**
X	**H-08 / H 20**	HS-6008 / E6020 models (high-speed suspended washer)
	M-10 / M 25	M-610 / M6025 models (medium-speed fixed washer)
remarks		
General erasing does not modify the machine model configuration.		
	H-13 / H 30	HS-6013 / EH030 models (high-speed washer)
	H-17 / H 40	HS-6017 / EH040 models (high-speed washer)
	H-23 / H 55	HS-6023 / EH055 models (high-speed washer)
	M-13 / M 30	M-613 / EM030 models (medium-speed washer)
	M-17 / M 40	M-617 / EM040 models (medium-speed washer)
	M-23 / M 50	M-623 / EM050 models (medium-speed washer)

configuration of	HEATING SYSTEM	
Enables the heating system		
def.	**options**	**option definition**
x	**Ht-0**	Machines without heating
	Ht-1	Machines with heating

configuration of	DOOR LOCK	
Determines the door lock type. Option available on HS-6023 & EH055 models only		
def.	**options**	**option definition**
	dr-o	Door isn't locked without power supply
x	**dr-c**	Door is locked without power supply

configuration of	DRAIN	
Select the drain system		
def.	**options**	**option definition**
x	**E-No**	Drain by valve opened without power supply
	E-Nc	Drain by valve closed without power supply (only available on HS-6008, EH020, HS-6023 and EH055 models)
	E-Pu	Pump draining (only available on HS-6008, EH020 models)

configuration of	BUZZER	
Adapts the operation of the microprocessor to different buzzer models		
def.	**options**	**option definition**
	br-0	Option indicated mainly in machines with software version prior to version 27.
x	**br-1**	Option indicated mainly in machines with software version 27 or higher.
remarks		
When a poor operation of the buzzer occurs, we recommend to select the option that bests suits the buzzer mounted on the board.		

configuration of	FIELD OF USAGE	
Adapts the washer programs and operating parameters to the specific area of use.		
def.	**options**	**option definition**
x	**CE**	General area of use
	USA	USA/Canada area of use
	G br	United Kingdom area of use
	JPN	Japan area of use
remarks		
Depending on the area of use selected, some program contents and operating parameters are automatically modified.		

configuration of	Water inlet and dosing circuit operation	
Option available on EM055CC model. The **hh-l** option must be selected when a microprocessor with 25 or after 25 software version is installed in a machine with a microprocessor with a software version prior to version 25.		
def.	**options**	**option definition**
x	**hh-0**	Machines with hot and cold water mixture in the wash phase.
	hh-l	Machines with hot water on wash phase
remarks		
For more information on this option, **see BT-372/2009 technical bulletin**.		

configuration of	Ho-o (OPTION NOT USED)

Only in **HS-6008 / EH020 and M610 / EM025** models

def.	options	option definition
x	Ho-o	Do not modify this option.

remarks

Modifying this option will lead to malfunction of the washer.

configuration of	TOKEN / COIN COUNTER ACTIVATION TYPES

Determines the coin acceptor type

def.	options	option definition
x	P-to	Acceptor activated by tokens
	P-Mo	Acceptor activated by coins

configuration of	NUMBER OF COIN ACCEPTOR SLOTS

This stage is only displayed if the coin acceptor activated by coins (**P-Mo**) has been programmed.
Determines the coin acceptor type

def.	options	option definition
x	Mo-1	Single slot coin acceptor
	Mo-2	Double slot coin acceptor

configuration of	SLOT VALUE Mo-1

This stage is only displayed if the counter acceptor activated by coins (**P-Mo**) has been programmed.
Determines the value of the coin accepted by the counter.
In a single-slot counter that **accepts multiple value coins,** the value of the coin with the least value accepted by the counter should be programmed.
In a **two-slot coin acceptor**, the value is determined by the coin with the least value (left slot).

Programming the coin value

The **U-I** report appears on display.

1. Press the **1** key to display the programmed coin value. Display format: **00.00.**
2. The first digit on the right flashes.
3. Press the **2** or **4** keys to increase or decrease the value of the first digit.
4. Press the **3** key to move on to the second digit.
5. Repeat steps 3 and 4 until all four digits have the desired value.
6. Press the **3** key to activate the decimal point.
7. Press the **2** or **4** keys to change the position of the decimal point.
8. Press the 1 key to save the value and access to following step

configuration of	SLOT VALUE Mo-2

This stage is only displayed if the counter acceptor activated by coins (**P-Mo**) with two slots (**Mo-2**) has been programmed.
Determines the value of the coin accepted by the counter with the highest value (right slot).

programming the coin value

The **U-2** report appears on display.

1. Press the **1** key to display the programmed coin value. The decimal point is in the position programmed in the previous stage.
2. The first digit on the right flashes.
3. Press the **2** or **4** keys to increase or decrease the value of the first digit.
4. Press the **3** key to move on to the second digit.
5. Repeat steps 3 and 4 until all four digits have the desired value.
6. Press the 1 key to save the value and access to following step.

action	GENERAL INITIALIZATION

SETUP option that erases all the programs and modifications made in the washer and resets all parameters to their default values.

Procedure

CLR report displayed. Press **2** key.
SURE will appear on screen: erase order confirmation requested.
Press **3** key to confirm general erasing.
Press **STOP** key to quit general erasing.
CONF report displayed: the SETUP sequence has finished.

Remarks

ATTENTION. Once INITIALIZATION is complete, the default values do not always coincide with the factory-set washer parameters.
Main menus affected by general initialization:
- **SETUP**. Resets to default parameters.
- **Operational parameters (Mod Menu)**. Resets to default parameters.
- **PROGRAM CONTENTS (Pro Menu).** Resets all program contents to their original value.

4. LOGI and COIN CONTROLS. TEST PROGRAM

The TEST program is a washer operational mode designed for checking the safety and control mechanism operations and a complete run-through of the washer operation.
Its use must be accompanied with the machine's corresponding electrical schematics.
It consists of a set of stages which are run sequentially.
For better understanding, the different stages have been numbered, detailed, and grouped into three areas according to their contents:

Checking SAFETY MECHANISMS (from stage 1 on)
Checking BATH CONTROL (from stage 20 on)
Checking MOTOR CONTROL MECHANISM (from stage 40 on)

Some stages are merely informative; for example: the unbalance level value.
Other stages require a washer intervention to check the proper functioning of a control mechanism or how a function is running; for example: the operation of keys or a dosing operation.

Stage presentation

Different steps have been outlined in the explanation of each stage. Carefully read the ENTIRE contents of each stage presentation before carrying it out.

stage	Each step included in the **TEST** program. The stage numeration is a way used in the Manual to easily identify the different actions, but it does not appear on the washer screen
check	Mechanism or function to be verified
remarks	Warning to be aware of to correctly carry out and understand the check
intervention	Action to be carried out to check the stage
status	Status of the device
display report	Report emitted by the washer control system according to the status of the checked devices

Running the TEST PROGRAM
Access the TECHNICAL AREA and when the **CONF** report is displayed **OPEN THE WASHER DOOR**.
- **COIN Control**: press the **2** key
- **LOGI Control**: press the key ▼

The **TEST** report will be displayed on screen.

Key functions while running the TEST program.
During the TEST program instructions, only the COIN (CC) control keys will be referred to. The equivalent LOGI (LC) control key functions are indicated on the table below.

CC	L C	LP	key function
1	MOD	PRO	Accesses the next stage. If advancing to the following stage is bound to a certain condition, stage advance will not be permitted until the condition is met. (See **remarks** section for each stage)
2	▲	▲	Activates or deactivates the selected function
4	▼	▼	
3	ACCEL	ACCEL	Special functions

4.1 RUNNING THE TEST PROGRAM

SAFETY WARNING

THE EXECUTION OF THE TEST PROGRAM MUST BE DONE WITH ALL COVERS CORRECTLY ASSEMBLED AND FASTENED.
ONLY WHEN IT IS NECESSARY TO RUN ELECTRICALLY-RELATED CHECKS WITH MACHINE UNDER OPERATION, CAN THE TOP COVER OF THE MACHINE OR THE REAR PANEL CONNECTION BOX COVER BE REMOVED.
NEVER REMOVE THE SAFETY GUARD FROM MOVING PARTS OF THE WASHER.

INFORMATION, SAFETY and CONTROL DEVICES verification stages

stage	**0**	TEST PROGRAM START

remarks

SCRUPULOUSLY RESPECT ALL THE PREVIOUSLY MENTIONED SAFETY MEASURES

intervention

Access the TEST program according to the aforementioned procedure. The washer door must be OPEN.

status	**display report**
The washer is connected to the electrical power	**CONF**
Press the **2** key.	**TEST**

stage	**1**	**check**	MACHINE MODEL

remarks

Displays the washer model detected by the microprocessor.

intervention

No intervention

display report
Displays the washer model. **M**: hard-mount washer: **H**: soft-mount washer: **** 88**: the numbers correspond to the last two digits of the washer model

stage	**2**	**check**	EMERGENCY STOP

remarks

This stage only appears in models with Emergency Stop.
It will only be possible to continue running the TEST if the emergency stop operates correctly.

intervention

Press and unlock the Emergency Stop switch.

status	**display report**
While the emergency stop stays pressed, the microprocessor will sound a buzzer.	**EMEr**

stage	**3**	**check**	CLOCK OPTION

remarks

Checks and reports the existence of the clock option in the microprocessor board.

intervention

No intervention

status	**display report**
No clock option	**CLc 0**
Built-in clock option	**CLc 1**

stage 4	check	CLOCK DISPLAY AND SETTING

remarks

This stage will only appear if a clock has been detected.
Intervention done only to change the clock.
Leaving the stage records the new time of the clock.

display report

System time.
Format: **88.88** (24 hours . sixty minutes)

intervention

Intervention done only to change the clock time.
Press the 3 key: accesses minute modification (minutes will be flashing).
Press 2/4 keys: changes the minutes.
Press the 3 key: accesses hour modification (hours will be flashing).
Press the 2/4 keys: changes the hour (format: 24 hours).

stage 5	check	DAY OF THE WEEK DISPLAY AND SETTING

remarks

This stage will only appear in COIN CONTROL washers if a clock has been detected.
Intervention is done only to change the day of the week.
The first day is Monday.
Leaving the stage records the new day of the week programmed.

display report

day of the week.
format: *** - **** (number – day of the week)

intervention

Intervention is done only to change the day of the week.
Press the 3 key: accesses day of the week change.
Press the 2/4 keys: changes the day of the week

stage 6	check	LEDS ON CONTROL PANEL

remarks

Checks the different LEDs on the control panel.
Advancing the stage switches OFF all LEDs.

display

LedS

intervention

Press 2 key: switches ON LEDs sequentially.
Press 4 key: switches OFF LEDs in the reverse order that they were ON.

stage 7	check	DISPLAY

remarks

Checks the different segments on the display.
Advancing the stage switches OFF all segments.

intervention

Press 2 key: switches ON segments sequentially.
Press 4 key: switches OFF segments in the reverse order that they were ON.

stage 8	check	BAL CIRCUIT

remarks

Checks the unbalance control on the micro-switch circuit.

HS / EH models: when the micro-switch is **NOT** activated, the micro-switch circuit must be closed (**bAL I**).

MS / EM models. There is no micro-switch. The circuit is always open (**bAL 0).**

intervention

No intervention

status	display report
Circuit closed	**bAL I**
Circuit open	**bAL 0**

stage 9	check	COIN ACCEPTOR LOCKED

remarks

This stage will only appear in COIN CONTROL washers.
If coins or tokens are inserted in this stage, the number of insertions is shown on the following stage.

intervention

2 key: activates the coin acceptor control coil. Permits insertion of coins or tokens.
4 key: deactivates the coin acceptor control coil. Prevents insertion of coins or tokens.

status	display report
Coil OFF. Does not permit insertion of coins or tokens.	**MLc 0**
Coil ON. Permits insertion of coins or tokens.	**MLc 1**

stage 10	check	Coin acceptor admission control

remarks

This stage will only appear in COIN CONTROL washers.
The display shows the number of insertions for each slot.
Electronic coin acceptor: the display shows the multiple of the base coin value programmed in SETUP. Counting will begin at zero for each insertion. Example:

- programmed value in SETUP: 0.05€.
- coin inserted in TEST: 0.05€ .....: display: 1
- coin inserted in TEST: 0.1€ .....: display: 2
- coin inserted in TEST: 0.5€ .....: display: 10
- coin inserted in TEST: 1.0€ .....: display: 20

intervention

Insert coins or tokens in the corresponding slots according to the type of coin acceptor
Key 2: selects the slot controlled in two-slot coin acceptors.

status	display report
Token counter; number of tokens inserted	**to****
Single counter: number of coins inserted Electronic counter: see example Double counter: number of coins inserted in left slot	**1-****
Double counter: number of coins inserted in right slot	**2-****

stage 11	check	DOOR (door opening and closing)

remarks

The next TEST stage can not be accessed if the door is not closed.

intervention

Close the door

status	display report
Door open	**dr-0**
Door closed	**dr-I**

stage 12	check	DOOR LOCKED

remarks

To access the next stage of the TEST program it is essential that the door is locked.
In some models, from the locking order to the display report change there is a delay between 5 and 10 seconds. During this time the letters **Un** will be flashing.

intervention

2 key: activates door lock
4 key: deactivates door lock

status	display report
Door unlocked	**UnLc**
Door locked	**Lc**

BATH, TEMPERATURE AND DOSING CONTROL verification stages

	**CAUTION!** In machines with software version prior to version 25, the order to activate the water inlets can be different from the described sequence.

	**CAUTION**. **Very important in machines with pump drain or normally closed valve.** While running the TEST program, the bath level may be higher than the level of the machine door. Do not try to open the door until the bath has been completely drained. Never access these stages, if the door has not been locked.

stage	**20**	**check**	DRAIN VALVE / PUMP

remarks

Checks the drain valve /drain pump operation.

intervention

2 key: switches on the drain valve / starts the drain pump
4 key: switches off the drain valve / stops the drain pump

status	display report
Drain valve in standby / pump stopped	**E –0**
Drain valve switched on / pump in operation	**E -1**

stage	**21**	**check**	LEVEL SENSOR

remarks

Checks the level sensor operation with the machine empty.
The displayed value corresponds to DC Volts (output value of the level sensor).
When empty, the level sensor value must be at 0.50 (+/- 0.05)

intervention

No intervention

status	display report
Machine empty	**00.50 (+/- 0.03)**

stage	**22**	**check**	PRE-WASH AND RINSES WATER INLET VALVE (This step appears on some models only)

remarks

When this step is accessed the drain valve closes and it remains closed until the distribution step.
The solenoid valve disconnects automatically when the preset level is reached, equivalent to 1.30 V.DC. (+/- 0.05).

intervention

2 key: opens solenoid valve
4 key: closes solenoid valve
1 key: accesses the next stage
3 key: accesses stage 30 directly

status	display report
Solenoid valve closed	**A5 –0**
Solenoid valve open	**A5 –1**

stage 23	check	COLD WATER INLET VALVE (In some models: COLD WATER INLET VALVE IN WASH DISPENSER)

remarks

Keep in mind the observations in stage 22.

intervention

2 key: opens solenoid valve
4 key: closes solenoid valve
1 key: accesses the next stage
3 key: accesses stage 30 directly

status	display report
Solenoid valve closed	**A1 –0**
Solenoid valve open	**A1 –1**

stage 24	check	HOT WATER INLET VALVE

remarks

Keep in mind the observations in stage 22.

intervention

2 key: opens solenoid valve
4 key: closes solenoid valve
1 key: accesses the next stage
3 key: accesses stage 30 directly

status	display report
Solenoid valve closed	**A2 –0**
Solenoid valve open	**A2 –1**

CAUTION. **Very important in machines connected to an external dosing system.**
At the dosing valves check stages, the corresponding external dosing signal is activated. It is recommended to stop the dosing unit and to take the maximum precautions in view of a chemical products inlet.

stage 25	check	BLEACH DOSING VALVE

remarks

Simultaneously the external bleach dosing relay is connected.
Keep in mind the observations in stage 22.

intervention

2 key: opens solenoid valve and activates the external dosing relay
4 key: closes solenoid valve and deactivates the external dosing relay
1 key: accesses the next stage
3 key: accesses stage 30 directly

status	display report
Solenoid valve closed; relay deactivated	**d3 –0**
Solenoid valve open; relay activated	**d3 –1**

stage 26	check	SOFTENER DOSING VALVE

remarks

Simultaneously the external softener dosing relay is connected.
Keep in mind the observations in stage 22.

intervention

2 key: opens solenoid valve and activates the external dosing relay
4 key: closes solenoid valve and deactivates the external dosing relay
1 key: accesses the next stage
3 key: accesses stage 30 directly

status	display report
Solenoid valve closed; relay deactivated	**d4 –0**
Solenoid valve open; relay activated	**d4 –1**

stage 27	check	PREWASH DOSING VALVE (In some models: external PREWASH dosing signal)

remarks

Simultaneously connects the external pre-wash dosing relay.
Keep in mind the observations in stage 22.

intervention

2 key: activates external dosing relay
4 key: deactivates external dosing relay
1 key: accesses the next stage
3 key: accesses stage 30 directly

status	display report
Relay deactivated	**d1-0**
Relay activated	**d1-1**

stage 28	check	WASH DOSING VALVE (In some models: external WASH dosing signal)

remarks

Simultaneously the external wash dosing relay is connected.
Keep in mind the observations in stage 22.

intervention

2 key: activates external dosing relay
4 key: deactivates external dosing relay
1 key: accesses stage 22
1 key: machines with third water inlet, accesses to next stage
3 key: accesses stage 30 directly

status	display report
Relay deactivated	**d2-0**
Relay activated	**d2-1**

stage 29	check	RECOVERY WATER INLET.

remarks

This step only appears in machines with active drain kit.
Keep in mind the observations in stage 22.

intervention

2 key: activates external dosing relay
4 key: deactivates external dosing relay
1 key: accesses stage 22 or 23 depending on the machine model
3 key: accesses stage 30 directly.

status	display report
Solenoid valve closed	**A3-0**
Solenoid valve open	**A3-1**

stage 30	check	LEVEL SENSOR

remarks

Displays the value of the bath level sensor after the solenoid valve checks.
The displayed value corresponds to DC Volts (output value of the level sensor).
The maximum bath level that can be reached in the TEST is 1.30 V.DC. (+/- 0.05).
Check the bath level amounts inside the washer in section 4.2.

intervention

No intervention

status	display report
According to water inlets	**88.88**

stage 31	check	TEMPERATURE SENSOR

remarks

Displays the temperature value detected inside the washer.
The displayed value corresponds to the internal temperature in degrees Celsius or Fahrenheit.

intervention

No intervention

status	display report
Value in Centigrade degrees	**C-****
Value in Fahrenheit degrees	**F*****

stage 32	check	HEATING

remarks

This stage only appears if the heating option has been activated in the corresponding CONFIGURATION stage.
Activates the heating system (if the bath level inside the washer is lower than the safety level, the cold water valve opens).
The maximum heating temperature is 40ºC / 104F.
After a few seconds from the heating connection, Ht-1 changes to the bath water temperature.

intervention

2 key: activates heating
4 key: deactivates heating

status	display report
Heating deactivated	**Ht-0**
Heating activated	**Ht-1**

stage	33	check	DRAIN KIT VALVE IN PROGRAMMING En-o DRAIN KIT VALVE IN PROGRAMMING En-u

remarks

This stage only appears if the DOUBLE DRAIN KIT option has been activated in the corresponding CONFIGURATION stage.
Checks the operation of the drain kit normally open valve.
(The report displayed may vary according to models and control)

intervention

2 key: switches the drain valve on
4 key: switches the drain valve off
1 key: accesses stage 34
3 key: accesses stage 40 directly

status	display report	
Drain valve closed	**Eo–0**	**Eu-0**
Drain valve opened	**Eo–1**	**Eu-1**

stage	34	check	DRAIN KIT VALVE IN PROGRAMMING En-c DRAIN KIT PUMP IN PROGRAMMING EN-P

remarks

This stage only appears if the DOUBLE DRAIN KIT option has been activated in the corresponding CONFIGURATION stage.
Checks the operation of the drain kit normally closed valve / drain pump.
(The report displayed may vary according to models and control)

intervention

2 key: switches on the drain valve / starts the drain pump
4 key: switches off the drain valve / stops the drain pump
1 key: accesses stage 33
3 key: accesses stage 40 directly

status	display report	
Drain valve in standby / pump stopped	**Ec–0**	**EP–0**
Drain valve switched on / pump in operation	**Ec–1**	**EP–1**

MOTOR CONTROL MECHANISM verification stages

stage	40	check	INVERTER

remarks

The inverter check has various steps:

- checks the communication between the inverter and microprocessor
- activates the motor (turning at distribution speed)
- calculates the unbalance value

intervention

No intervention. Changing the stage connects the inverter.
The set of checks is run automatically.

status	display report
Inverter connection	**VAr**
Access to distribution speed	**SPd2**
Unbalance value	**8888**

stage	41	check	EXTRACT

remarks

Speeds above SP-2 can only be reached if unbalance value is below the chart value in section 4.2.
During the acceleration and deceleration time intervals, the set extract value will be flashing.
To access an extract value, it is necessary for the lowest extract speed to be reached.
The maximum extract time is 9 minutes.

intervention

2 key: accesses a higher extract speed. Maximum speed: SP-8.
4 key: accesses a lower extract speed. Minimum speed: SP-2.
Check the RPM for each speed according to the model in the SPEED table in section 4.2.
STOP key: stops the drum turning and starts the unlocking process on the door lock.
End report displayed: door opened. The STOP key ends the TEST program.

status	display report
Speed value when the TEST program is being executed	**SPd***
Safety delay in opening the door	**StOP**
Door unlocked	**End**
End of TEST program	**CONF**

4.2 ADDITIONAL INFORMATION on the TEST program

Bath level control
The maximum level reached in the TEST program corresponds to the electrical value of 130V.DC. (+/- 0.05)
The attached table details the inside drum bath levels according to the washer model.

MODEL	level 1 mm (inch)	level 2 mm (inch)	remarks
HS-6008 EH020	140 (5.51)	128 (5.04)	**Level 1:** distance from the drum base to the bath level **Level 2:** distance from the drum centre to the bath level
MS-610 EM025	140 (5.51)	128 (5.04)	
HS-6013 EH030	140 (5.51)	170 (6.69)	
MS-613 MS-617 EM030 EM040	140 (5.51)	170 (6.69)	The bath level reached in the test program approximately corresponds to the level on the lower part of the glass in the door.
HS-6017 EH040	145 (5.71)	210 (8.27)	
MS-623 EM050	145 (5.71)	210 (8.27)	A variation of +/- 10% in the level values is acceptable.
HS-6023 EH055	190 (3.48)	180 (7.09)	

Unbalance limit and drum speed in RPM in the TEST program

	MS-610 EM025	MS-613 EM030	MS-617 EM040	MS-623 EM050	HS-6008 EH020	HS-6013 EH030	HS-6017 EH040	HS-6023 EH040
Unbalance	1600	16	10	16	1600	6	7	7
Spd 2	100	100	100	100	100	100	100	87
Spd 3	151	175	175	175	153	150	150	191
Spd 4	255	250	250	250	525	350	335	310
Spd 5	300	300	300	300	590	400	575	330
Spd 6	400	400	400	400	690	600	675	525
Spd 7	500	500	500	500	790	800	765	725
Spd 8	600	600	600	600	980	1005	943	920

4.3 LOGI CONTROL, LOGI PRO and COIN CONTROL ALARMS

GENERAL OPERATION CONTROL ALARMS

DISPLAY REPORT	DESCRIPTION
Hot	Interruption of the program by STOP key with bath at high temperature
door	Accidental opening of the door at start of the cycle
ALM / A-*	Faulty water supply
ALM / BAL	Failure in unbalance sensor switch or circuit
ALM / C	Anomaly in the heating system
ALM / door	Door lock failure
ALM / E	Drain failure
ALM / HOT	Excessive temperature when machine is stopped
ALM / L	Level sensor or circuit error in bath level control
ALM / Prob	Temperature probe failure
ALM / SL	Bath level exceeded
Err / 000	Error in machine model identification. (Check X18 and X19 connectors in electrical schematics)

ALARMS RELATED THE OPERATION OF THE INVERTER

DISPLAY REPORT	INVERTER (*1)		DESCRIPTION
	DANF.	FUJI	
ALM / VAR 0	**x**	**x**	Communication failure between inverter and microprocessor
ALM / VAR 1	**x**	**- - - - -**	Inverter disconnected for safety purposes
ALM / VAR 2	**x**	**- - - - -**	Communication failure detected by inverter
ALM / VAR 3	**x**	**x**	Inverter over-current
ALM / VAR 4	**x**	**x**	Motor thermal safety disconnected (klixon)
ALM / VAR 5	**x**	**x**	Over-voltage in DC bus inverter
ALM / VAR 6	**x**	**x**	Inverter overheating
ALM / VAR 7	**x**	**x**	General inverter failure
ALM / VAR 8	**x**	**x**	Unidentified inverter failure Unbalance control failure
ALM / VAR 9	**x**	**x**	Agreement error between washer model and inverter configuration.
ALM / V-10	**- - - - -**	**x**	Inverter supply phase failure
ALM / V-11	**- - - - -**	**x**	Unbalanced consumption at the inverter output
ALM / V-12	**- - - - -**	**x**	Failure in the inverter configuration parameters
ALM / V-13	**- - - - -**	**x**	Inverter thermal relay alarm
ALM / V-14	**- - - - -**	**x**	Unbalanced consumption at the inverter output Failure in the inverter output phase
ALM / V-15	**- - - - -**	**x**	Voltage lower than inverter nominal value

*1	**DANFOSS Inverter**: models MS-***, EM***, HS-6008, HS-6013, HS-6017, EH020, EH030, EH040
	FUJI Inverter: models HS-6023, HS-6040, HS-6057, HS-6110, EH055, EH090, EH130, EH255

5. INVERTER MENU

Specific menu for:
- Models MS-6 and EM6 of load equal or superior than 13kg (33lb) with VLT type Danfoss inverter (STANDARD inverter)
- HS-6023 and EH055 models

The configuration menu allows dumping the inverter operation specific parameters from the microprocessor memory to the inverter memory.
This operation should not be repeated unless accidental corruption or inverter replacement.
Should you have any doubt on the inverter operation, you can compare the content of the inverter memory with the microprocessor parameters. In that case the configuration verification can be executed.

Access to inverter menu
With the **CONF** message on the display after accessing the TECHNICAL AREA:
- **LOGI, LOGI PRO Control**: press the ▼ key successively.
- **COIN Control**: press **2** key successively.

The message **InV** will be displayed.

Menu utilities

CLOSE THE WASHER DOOR.
Press the **MOD / PRO / 1** key to access the utilities menu.

Dumping of parameters
The message **LOAd** will be displayed.
Now, the microprocessor connects the inverter power supply.

Press the **ACCEL / 3** key.
The washer's microprocessor modifies the inverter parameters according to the washing machine operation pattern.
During this process the buzzer sounds.
Once this operation is satisfactorily over, **- - -Y** is displayed on the screen. Otherwise, an alarm message appears.

Verification of configuration parameters
When **LOAd** is displayed.
Press the ▼ / **2** key. The message **VerF** will be displayed.
Press the **ACCEL / 3** key.
Now, the washing machine microprocessor compares the parameters of the inverter memory with its own operation pattern.
During this process the buzzer sounds.
Once this operation is satisfactorily over, **- - -Y** is displayed on the screen. Otherwise, an alarm message appears.

Access the upper menu by pressing the **STOP** key.

6. INTELI CONTROL. SETUP Menu

Function of the SETUP menu. Adapts the washer controls to the different options built into the washer and the facility features.
This adaptation is done by selecting the appropriate values for each parameter with the keypad.

Actions when the washer is started-up
The parameters which are dependent on the washer features (such as HEATING) come pre-programmed from the factory according to the machine.
The parameters which are dependent on the facility (such as the A2 water inlet connection) must be programmed when putting the washer into service.

Default SETUP values
Options marked with the **X** symbol are default options programmed in the washer control memory.

Keep in mind that these values do not always coincide with the factory-set washer values as they may have been modified according to the machine itself or its destination.
However, the default values will appear when a GENERAL INITIALIZATION is made or when a new control board is installed in the washer.

Parameters configuration
Access the TECHNICAL AREA and select the **SETUP** menu with the multifunction keypad.
Confirm with the **SEL** key. The different configuration parameters will then appear.

To select options and modify the different parameter values, use the keys on the multifunction keypad.

▲ ▼ Selects parameters. Validates the option or programmed value.

MOD Modifies the parameter values or the programmable options.

↵ Accesses the previous menu. Validates the option or programmed value.

configuration of	A2 WATER INLET	
Selects the type of water connected in this inlet: hot or cold water		
def.	**options**	**option definition**
X	**HOT**	Supplies water inlet 2 with hot water
	COLD	Supplies water inlet 2 with cold water
remarks		
ATTENTION When configuring **A2** as **COLD**, the inlet does not mix with the other water inlets and is not bound to the temperature controls. **An incorrect configuration in this stage can cause serious fabric damage.**		

configuration of	A3 WATER INLET (third water inlet)	
Enables the third inlet option and selects its planned usage		
def.	**options**	**option definition**
X	**NO**	There is no third inlet option or the third inlet is disabled
	A1	Third inlet enabled. Opening is simultaneous with inlet 1
	A2	Third inlet enabled. Opening is simultaneous with inlet 2
	INDEPENDENT	Third inlet enabled. Opening programmed independently

configuration of	HEATING

Enables the type of heating system

def.	options	option definition
x	**NO**	Heating system disabled
	ELECTRIC	Heating system via electric resistors
	STEAM	Heating system via steam injection

configuration of	DRAIN

This option permits the use of different drain configurations

def.	options	option definition
x	**VALV. NA**	Normally open single valve drain
	VALV. NC	Normally closed single valve drain
	V.NA+V.NC	Double drain: normally open valve and normally closed valve
	V.NC+V.NC	Double drain: two normally closed valves
	V.NA+BOMB	Double drain: normally open valve and pump drain
	V.NC+BOMB	Double drain: normally closed valve and pump drain

remarks

Double drain systems are designed for installations with recovery or bath selective treatment systems.

configuration of	ENABLING A6 (I/O2) BOARD

Activates the use of an additional input/output board

def.	options	option definition
x	**NO**	Washer without A6 (I/O2) board or option inactive
	YES	A6 (I/O2) board activated

remarks

It is only possible to activate the A6 (I/O2) board if it has been previously installed and detected by the central washer control.

configuration of	ENABLING A10 (TILT) BOARD

Activates the use of the board

def.	options	option definition
x	**NO**	Washer without A10 (TILT) board or TILT o EASY-LOAD option inactive.
	EASY-LOAD	A10 board activated. Option indicated in machines adapted with TILT control but without the tilting supplement. It allows the drum rotation during the loading and unloading operations.
	TILT	A10 board activated. Option indicated in machines adapted with TILT control and with tilting supplement

remarks

It is only possible to activate the A10 (TILT) board if it has been previously installed and detected by the central washer control.

action	GENERAL INITIALIZATION

SETUP option that erases all the programs and modifications made in the washer and resets all parameters to their default values.
Once the GENERAL INITIALIZATION parameter is selected, the initialization operation will begin when the **MOD** key is pressed.

remarks

ATTENTION. Once INITIALIZATION is complete, the default values do not always coincide with the factory-set washer parameters.
Main menus affected by general initialization:
- **SETUP**. Resets to default parameters.
- **CONFIGURATION**. Resets to default parameters.
- **PROGRAMS** programmed by the user. Erases the contents of all programs starting from number 21.

action	COUNTER INITIALIZATION

SETUP option that sets the values of the various counters in the **Consult** menu in **SYSTEM TOOLS** to zero.
Once the COUNTERS INITIALIZATION parameter is selected, the initialization operation will begin when the **MOD** key is pressed.

remarks

The operational and incident counters in the Technical Area are not erasable.

action	ACCESS CODE INITIALIZATION

SETUP option that resets the access code for the protected menus to its original value.
Once the ACCESS CODE INITIALIZATION parameter is selected, the initialization operation will begin when the **MOD** key is pressed.

remarks

Remember that the default access code is **1 2 3 4**.

7. INTELI CONTROL. TEST PROGRAM

The TEST program is a washer operational mode designed to check the operation of safety and control mechanisms and for a complete run-through of the washer operation.
Its use must be accompanied with the machine's corresponding electrical schematics.
It consists of a set of stages which are run sequentially.
For better understanding, the different stages have been numbered, detailed, and grouped into three areas according to their contents:

Checking SAFETY MECHANISMS (stages 1 to 19)
Checking BATH CONTROL (stages 20 to 39)
Checking MOTOR CONTROL MECHANISM (stages 40 to 60)

Some stages are merely informative; for example: the unbalance level value.
Other stages require a washer intervention to check the proper functioning of a control mechanism or how a function is running; for example: the operation of keys or a dosing operation.

7.1 Previous information

Stage presentation

Different steps have been outlined in the explanation of each stage. Carefully read the ENTIRE contents of each stage presentation before carrying it out.

stage	Each step included in the **TEST** program. The stage numeration of the checking steps is a way used in the Manual to easily identify the different actions, but it does not appear on the washer screen.
check	Mechanism or function to be verified.
remarks	Warning to be aware of to correctly carry out and understand the check.
intervention	Action to be carried out to check the stage.
status	Status of the device.
display report	Report emitted by the washer control system according to the status of the checked devices.
LED	Location and status of the different LEDs which monitor each input and output of the washer. (This information must be complemented by the input and output schematic supplied with the washer).

Running the TEST program
From the main screen in the TECHNICAL AREA

- open the washer door
- select the TEST menu using the multifunction keypad.

Confirm with the **SEL** key. The first stages of the TEST program will be displayed.
Each check stage is indicated on the screen using an arrow. The direction of the arrow indicates the origin of the intervention:

→ This arrow direction indicates the activation of a washer control input after intervening on one of its peripheral parts. Example: activation of the Emergency Stop.

← This arrow direction indicates the activation of a washer mechanism device after an order from the control. Example: opening and closing a solenoid valve.

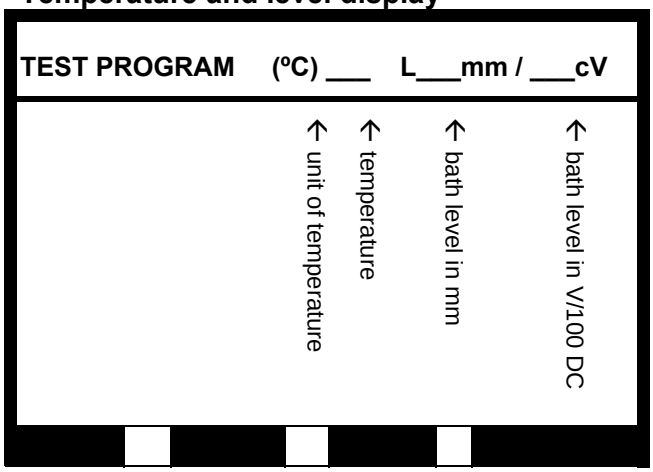
Function of keys on the multifunction keypad when running the TEST program.

▲ ▼ Moves between stages.
When advancing to the next stage is bound to some condition, the move key will disappear until this condition has been completed (see **remarks** section in each stage).

MOD Activates or deactivates the selected function.

↵ Finalizes the TEST program. Accesses the next usage level.

Temperature and level display



When running the TEST program, a box at the top of the screen will constantly display the temperature inside of the washer and the bath level in millimetres and hundredths of Volts DC.
If the machine is empty, the level sensor value must be at 0.5 DC (+/- 0.05V).

7.2 Running the TEST PROGRAM

THE EXECUTION OF THE TEST PROGRAM MUST BE DONE WITH ALL COVERS CORRECTLY ASSEMBLED AND FASTENED.
ONLY WHEN IT IS NECESSARY TO RUN CHECKS WHILE THE MACHINE IS OPERATING CAN THE TOP COVER OF THE MACHINE, THE INTELI CONTROL INPUT AND OUTPUT BOARD SAFETY COVER, OR THE REAR PANEL CONNECTION BOX COVER BE REMOVED.
NEVER REMOVE THE SAFETY GUARD FROM MOVING PARTS OF THE WASHER.

SAFETY MECHANISM verification stages

stage	**1**	**check**	230V CIRCUIT EMERGENCY STOP

remarks
Stage for checking the emergency stop that controls the washer's 230V AC control circuit.
Pressing the EMERGENCY STOP button simultaneously checks the washer control inputs in stages 1 & 2.
Checking the proper functioning of the EMERGENCY STOP is essential for continuing the TEST.

intervention
Manually press the EMERGENCY STOP.

status	display report	LED	
Button not pressed	NOT PRESSED	H3 A5 - I/O1	on
Button pressed	PRESSED		off

stage 2	check	12V DC CIRCUIT EMERGENCY STOP

remarks

Stage for checking the emergency stop that controls the washer's 12V DC control circuit.
Pressing the EMERGENCY STOP button simultaneously checks the washer control inputs in stages 1 & 2.
Checking the proper functioning of the EMERGENCY STOP is essential for continuing the TEST.

intervention

Manually press the EMERGENCY STOP.

status	display report	LED	
Button not pressed	NOT PRESSED	H26 A5 - I/O1	on
Button pressed	PRESSED		off

stage 3	check	NUMERICAL KEYBOARD

remarks

Stage for checking the numerical keyboard. The display will show the key pressed.

intervention

Press and hold each key on the keyboard.

stage 4	check	BAL CIRCUIT

remarks

Checks the unbalance micro-switch control. When the micro-switch is not activated, the micro-switch circuit must be **CLOSED**.

intervention

No intervention

status	display report	LED	
Circuit closed	CLOSED	H28 A5 - I/O1	on
Circuit open	OPEN		off

stage 5	check	EXTERNAL DOSING ALARM (only in washers with optional A6 (I/O2) board)

remarks

The washer controls will sound the dosing alarm signal if it detects a voltage value between 5 and 35V.DC. in terminals X2-2(+) and X2-1(-) on the A6 board. (Consult electrical schematics)

intervention

Activate the alarm using the dosing equipment.

status	display report	LED	
No alarm	OFF	H8 A6 - I/O2	off
Yes alarm	ON		on

stage 6	check	EXTERNAL ALARM (only in washers with optional A6 (I/O2) board activated)

remarks

When running a program, the external alarm will activate simultaneously with the washer buzzer.

intervention

Activate the alarm with the **MOD** key.

status	display report	LED	
Alarm not activated	OFF	H1 A6 - I/O2	off
Alarm activated	ON		on

stage 7	check	DOOR (door opening and closing)

remarks

The next TEST stage can not be accessed if the door is not closed.

intervention

Open and close the door

status	display report	LED	
Door open	OPEN	H11 A5 - I/O1	off
Door closed	CLOSED		on

stage 8	check	DOOR LOCKED

remarks

A few seconds pass from activating the safety lock in stage 9 until LOCKED is displayed indicating the door's locked status

intervention

No intervention. Displays the detection of the locked door after the locking order is given in stage 9. Access the next stage directly to activate the locking of the door lock.

status	display report	LED	
Door lock is unlocked	UNLOCKED	H6 A5 - I/O1	off
Door lock is locked	LOCKED		on

stage 9	check	SAFETY DOOR LOCK

remarks

The order to activate the locking of the door lock activates two mechanisms:

- PTC: activated instantly by pressing **MOD** (LED H12)
- Impulse coil: activation is delayed a few seconds (LED H10)

To continue the TEST program it is essential to detect a locked door; LOCKED report in stage 8.

intervention

Activate and deactivate the door lock by pressing the **MOD** key.

status	display report	LED	
Safety lock is unlocked	UNLOCKED	H10 – H12 A5 - I/O1	off
Safety lock is locked	LOCKED		on

BATH, TEMPERATURE AND DOSING CONTROL verification stages

stage 20	check	MAIN DRAIN (washers with a single drain valve and washers with a drain kit)

remarks

If accessing the next stage with the drain CLOSED, the drain valve will automatically open upon activating the distribution speed on its corresponding stage.

In washers with a drain kit, it is necessary to open the main drain and one of the two drains in the kit to empty the machine bath.

intervention

Open or close the drain valve with the **MOD** key.

status	display report	LED	
Drain open	OPEN	H7 A5 - I/O1	off
Drain closed	CLOSED		on

stage	21	check	DRAIN 1 (only in washers with optional drain kit)

remarks

If accessing the next stage with the drain CLOSED, the drain valve will automatically open upon activating the distribution speed on its corresponding stage.
In washers with a drain kit, it is necessary to open the main drain and one of the two drains in the kit to empty the machine bath.

intervention

Open or close the drain valve with the **MOD** key.

status	display report	LED	
Drain open	OPEN	H4 A5 - I/O1	off
Drain closed	CLOSED		on

stage	22	check	DRAIN 2 (only in washers with optional drain kit)

remarks

In washers with a drain kit, it is necessary to open the main drain and one of the two drains in the kit to empty the machine bath.

intervention

Open or close the drain valve with the **MOD** key.

status	display report	LED	
Drain closed	CLOSED	H5 A5 - I/O1	off
Drain open	OPEN		on

stage	23	check	WATER SOLENOID VALVE 1 (COLD)

remarks

The solenoid valve will close when the bath level reaches approximately the level of the glass in the door.
To check the heating system in the corresponding stage, the water level in the machine must surpass a height of 100mm.
Check the bath level amounts inside the washer in section 7.3.

intervention

Activate and deactivate the solenoid valve with the **MOD** key.

status	display report	LED	
Solenoid valve closed	OFF	H16 A5 - I/O1	off
Solenoid valve open	ON		on

stage	24	check	WATER SOLENOID VALVE 2 (HOT or COLD 2)

remarks

The solenoid valve will close when the bath level reaches a value of 130mm/130cV.DC. (±10)
To check the heating system in stages 28 and 29, the water level in the machine must surpass a height of 100mm.
Check the bath level amounts inside the washer in section 4.2.

intervention

Activate and deactivate the solenoid valve with the **MOD** key.

status	display report	LED	
Solenoid valve closed	OFF	H14 A5 - I/O1	off
Solenoid valve open	ON		on

stage 25	check	WATER SOLENOID VALVE 3 (OPTIONAL)

remarks

The solenoid valve will close when the bath level reaches a value of 130mm/130cV.DC. (±10)
To check the heating system in stages 28 and 29, the water level in the machine must surpass a height of 100mm.
Check the bath level amounts inside the washer in section 4.2.

intervention

Activate and deactivate the solenoid valve with the **MOD** key.

status	display report	LED	
Solenoid valve closed	OFF	H30 A5 - I/O1	off
Solenoid valve open	ON		on

stage 26	check	INTERNAL DOSING

remarks

The duration of each dose is limited by time.

intervention

Sequentially activate the different dosing valves successively with the **MOD** key.

status	display report	LED	
No dosing	OFF		off
Dosing solenoid valve 1	1 INT	H22; A5-I/O1	on
Dosing solenoid valve 2 cold	2F INT	H20; A5-I/O1	on
Dosing solenoid valve 2 hot	2C INT	H18; A5-I/O1	on
Dosing solenoid valve 3	3 INT	H24; A5-I/O1	on
Dosing solenoid valve 4	4 INT	H25; A5-I/O1	on

stage 27	check	EXTERNAL DOSING

remarks

The duration of each dose is limited by time.

intervention

Sequentially activate the different dosing valves successively with the **MOD** key.

status	display report	LED	
Solenoid valve closed	OFF		off
External dosing 1	1 EXT	H13; A5-I/O1	on
External dosing 2	2 EXT	H15; A5-I/O1	on
External dosing 3	3 EXT	H17; A5-I/O1	on
External dosing 4	4 EXT	H19; A5-I/O1	on

stage 28	check	EXTERNAL DOSING A6 (I/O2) BOARD (only in washers with THIS option)

remarks

The duration of each dose is limited by time.

intervention

Sequentially activate the different dosing valves successively with the **MOD** key.

status	display report	LED	
Solenoid valve closed	OFF		off
External dosing solenoid valve 5	5 EXT	H9; A6-I/O2	on
External dosing solenoid valve 6	6 EXT	H10; A6-I/O2	on
External dosing solenoid valve 7	7 EXT	H11; A6-I/O2	on
External dosing solenoid valve 8	8 EXT	H12; A6-I/O2	on
External dosing solenoid valve 9	9 EXT	H13; A6-I/O2	on
External dosing solenoid valve 10	10 EXT	H14; A6-I/O2	on
External dosing solenoid valve 11	11 EXT	H15; A6-I/O2	on
External dosing solenoid valve 12	12 EXT	H16; A6-I/O2	on

stage 29	check	HEATING 1

remarks

This step is only displayed in washers with an activated heating system.
The display at this stage and the connection of the heating system requires a bath level inside the washer.
The heating system will disconnect automatically when the bath temperature reaches 60ºC/140F.

intervention

Connect or disconnect the heating system by pressing the **MOD** key.

status	display report	LED	
Heating system disconnected	OFF	H8 A5 - I/O1	off
Heating system connected	ON		on

stage 30	check	HEATING 2 (washers with twin heating circuits)

remarks

This step is only displayed in washers with an activated heating system.
The display at this stage and the connection of the heating system requires a bath level inside the washer.
The heating system will disconnect automatically when the bath temperature reaches 60ºC/140F

intervention

Connect or disconnect the heating system by pressing the **MOD** key.

status	display report	LED	
Heating system disconnected	OFF	H9 A5 - I/O1	off
Heating system connected	ON		on

MOTOR CONTROL MECHANISM verification stages

stage 40	check	INVERTER ON

remarks

The relay powers the inverter and fan simultaneously.
It is essential to activate the inverter to continue the TEST program.

intervention

Connect or disconnect the inverter power relay by pressing the **MOD** key

status	display report	led / board	
Inverter disconnected	OFF	H27 A5 - I/O1	off
Inverter connected	ON		on

stage 41	check	MOTOR POWER

remarks

The value shown is a relative value. It can not be translated into any conventional unit.
During the first moments of connection, the value displayed is high. This is not an irregularity.

intervention

No intervention. Displays the detection of the power absorbed by the motor in the rotation, distribution and extract stages.
Access directly the following stages.

stage 42	check	ROTATIONS

remarks

The ON / OFF times of the inversion sequence correspond to the values of **rotation 5**. The rotation speed corresponds to the value of **speed 4 of the wash**.

intervention

Activate and deactivate the motor rotation by pressing the **MOD** key.

status	display report	
Rotation not activated	OFF	
Rotation activated	ON	

stage 43	check	UNBALANCE VALUE

remarks

No intervention. Displays the unbalance value detected during the distribution speed in stage 44.
Access the next stage directly to activate the distribution speed.
The unbalance value appears when the drum has reached the distribution speed.
The value shown is a relative value. It can not be translated into any conventional unit.

display report

No intervention. Displays the unbalance value detected when running the distribution speed.
Values displayed:
NO: not unbalance
LOW (allows access to the extract stage)
MEDIUM (allows access to the extract stage)
HIGH (does not allow access to the next stage).
Access stage 44 directly.

stage 44	check	DISTRIBUTION SPEED

remarks

When accessing the distribution speed, the reverse sequence automatically disconnects.
Access to the distribution speed automatically opens the drain valve (or valves).
Stopping the distribution speed does not close the drain valve.
Access the EXTRACT stage by pressing the ▼ key without stopping the distribution speed.
Access to the extract stage is not permitted if the value detected in the distribution speed is **HIGH**.

intervention

Activate and deactivate the motor rotation by pressing the **MOD** key.

status	display report	
Distribution speed not activated	OFF	
Distribution speed activated	ON	

stage 45	check	EXTRACT

remarks

The speed of each extract corresponds to the default values. Check speeds in section 6.2.
The maximum duration of the extract is 6 minutes; after this time the motor will stop and the TEST program will automatically finish.
The **STOP** and ↵ keys stop the extraction and end the TEST program.
After deceleration, the security lock will unlock and the door can open.

intervention

Access the different speed by pressing the corresponding key for the extract number on the **numerical keyboard**.

status	display report	
Extract speed not activated	OFF	
Extract speed 2 (distribution)	EXTRACT 2	
Extract speed 3	EXTRACT 3	
Extract speed 4	EXTRACT 4	
Extract speed 5	EXTRACT 5	
Extract speed 6	EXTRACT 6	

7.3 ADDITIONAL INFORMATION on the TEST program

Bath level control

The table below details the bath levels inside the drum according to the washer model.

MODEL	value in mm	level 1 mm (inch)	level 2 mm (inch)	remarks
HS-6013 EH030	130	140 (5.51)	170 (6.69)	**Value in mm**: value on the washer display. It corresponds to the maximum permitted level in TEST program. **Level 1:** distance from the base of the drum to the bath level. **Level 2:** distance from the centre of the drum to the bath level. The bath level reached in the **TEST** mode approximately corresponds to the level on the lower part of the glass in the door. A variation of +/- 10% in the level values is acceptable.
HS-6017 EH040	130	145 (5.71)	210 (8.27)	
HS-6023 EH055	130	197 (7.76)	173 (6.81)	
HS-6040 EH090	160	202 (7.95)	248 (976)	
HS-6057 EH130	198	292 (11.50)	248 (976)	
HS-6110 EH255	215	344 (13.54)	311 (12.24)	

Drum rotation speed in RPM for each speed in the TEST program

Spd	HS-6013 EH030	HS-6017 EH040	HS-6023 EH055	HS-6040 EH090	HS-6057 EH130	HS-6110 EH255
2	100	97	87	79	72	66
3	400	350	330	300	275	250
4	600	550	525	490	450	405
5	800	750	725	680	625	565
6	1000	950	920	870	800	725

7.4 INTELI CONTROL ALARMS

(Consult more about INTELI control alarms in the user manual)

No.	ALARM	DESCRIPTION	HS-6013; EH030 HS-6017; EH040	HS-6023; EH040 HS-6040; EH055 HS-6057; EH130 HS-6110; EH155
1	EMERGENCY STOP	Emergency Stop button pushed	x	x
2	INVERTER COMMUNICATION FAILURE	Communication failure between inverter and microprocessor	x	x
3	INVERTER AUTO-BLOCKED	Inverter disconnected for safety purposes	x	- - - - - -
4	INVERTER SEQUENCE FAILURE	Communication failure between inverter and microprocessor	x	- - - - - -
5	INVERTER OVER-CURRENT	Excessive motor consumption	x	- - - - - -
6	MOTOR OVERHEATING	Motor thermal safety disconnected (klixon)	x	x
7	INVERTER OVER-VOLTAGE	Over-voltage in DC bus inverter	x	x
8	INVERTER OVERHEATING	Excessive temperature in inverter	x	x
9	GENERAL INVERTER FAILURE	Failure report sent by inverter	- - - - - -	x
10	UNIDENTIFIED INVERTER FAILURE	Failure report sent by inverter	x	x
11	UNBALANCE CONTROL FAILURE	Failure in unbalance control by inverter	x	x
12	INVERTER IDENTIFICATION ERROR	Agreement error between washer model and inverter configuration. (Check MK10 connector in electrical schematics)	x	x
13	DOOR LOCK FAILURE	Door is not being locked	x	x
15	A5 (I/O1) BOARD DETECTION ERROR	A5 (I/O1) Input/output board is not detected	x	x
16	A6 (I/O2) BOARD DETECTION ERROR	A6 (I/O2) Input/output board is not detected	x	x
17	A10 (TILT) BOARD DETECTION ERROR	A10 (TILT) Input/output board is not detected		x
18	A5 (I/O1) BOARD COMMUNIC.FAILURE	Communication between microprocessor and A5 (I/O1) input/ output board is not possible	x	x
19	A6 (I/O2) BOARD COMMUNIC. FAILURE	Communication between microprocessor and A6 (I/O2) input/ output board is not possible	x	x
20	A10 (TILT) BOARD COMMUNIC. FAILURE	Communication between microprocessor and A10 (TILT) input/ output board is not possible	- - - - - -	x

No.	ALARM	DESCRIPTION	HS-6013; EH030 HS-6017; EH040	HS-6023; EH040 HS-6040; EH055 HS-6057; EH130 HS-6110; EH155
21	BATH LEVEL EXCEEDED	Bath level has been exceeded	x	x
22	BATH LEVEL CONTROL FAILURE	Bath level sensor or control circuit failure	x	x
23	BATH OVER-TEMPERATURE	Bath overtemperature detected	x	x
24	DRAIN FAILURE	Irregularity when draining the bath	x	x
25	LACK OF WATER	Irregularity in water filling	x	x
26	FAULTY HEAT SYSTEM	Anomaly in the heating system	x	x
27	TEMPERATURE PROBE FAILURE	Temperature probe failure	x	x
28	UNBALANCE SWITCH FAILURE.	Failure in unbalance sensor switch or circuit	x	x
29	OVER TEMPERATURE	High temperature when machine is stopped	x	x
30	ACCEL INVERT. OVER-CURRENT	Motor excessive consumption during acceleration	- - - - - -	x
31	DECEL. INVERT, OVER-CURRENT	Motor excessive consumption during deceleration	- - - - - -	x
32	INVERTER OVER-CURRENT	Excessive motor consumption	- - - - - -	x
33	GENERAL INVERTER FAILURE	Activation of the inverter protections	- - - - - -	x
34	INVERTER DISCONNECT. FAILURE	Non controlled inverter disconnection	- - - - - -	x
35	INVERTER CONFIGURATION FAILURE	Faulty inverter configuration values	- - - - - -	x
36	INVERTER LOW VOLTAGE	Inverter voltage lower than operation nominal value	- - - - - -	x
37	INVERTER PHASE FAILURE	Inverter supply phase failure	- - - - - -	x
38	INVERTER DISCONNECT. RELAY FAILURE	Inverter control relay disconnection	- - - - - -	x
39	INV. THERMAL RELAY OVERLOAD	Inverter current above programmed value	- - - - - -	x
40	INVERTER OVERLOAD	Inverter current above programmed value	- - - - - -	x
41	INVERTER DETECTION RELAY FAILURE	Inverter not detected by the control of the washing machine	- - - - - -	x
128	INVERTER PARAMETERS FAILURE	Concordance failure between inverter parameters and washing machine memory	- - - - - -	x

8. INTELI CONTROL. OPERATIONS AND INCIDENT COUNTERS

These counters record the main operations of the washer and the incidents detected as alarms.
The recorded data is stored in the washer memory and is unerasable.

8.1 List of functions counter

- Operating time
- Programs executed
- E2 spin cycles executed
- E3 spin cycles executed
- E4 spin cycles executed
- E5 spin cycles executed
- E6 spin cycles executed
- Unbalances detected by the microswitch
- Low-level unbalances
- Medium-level unbalances
- High-level unbalances

8.2 List of alarms counter

ALARM COUNTERS	HS-6013; EH030 HS-6017; EH040	HS-6023; EH040 HS-6040; EH055 HS-6057; EH130 HS-6110; EH155
Inverter communication failure	x	x
Inverter auto-blocked	x	- - - - - -
Inverter sequence failure	x	- - - - - -
Accel invert. over-current	- - - - - -	x
Decel. invert over-current	- - - - - -	x
Inverter over-current	x	x
Motor overheating	x	x
Inverter over-voltage	x	x
Low inverter voltage	- - - - - -	x
Inverter phase failure	- - - - - -	x
Overheated inverter	x	x
Inverter thermal relay overload	- - - - - -	x
Inverter overload	- - - - - -	x
General inverter failure	x	x
Non-identified inverter failure	x	x
Inverter configuration failure	- - - - - -	x
Inverter relay disconnection failure	- - - - - -	x
Inverter relay detection failure	- - - - - -	x
Communication failure A5 (I/O1) board	x	x
Communication failure A6 (I/O2) board	x	x
Communication failure A10 (TILT) board	- - - - - -	x
Unbalance control failure	x	x
Microswitch failure. Unbalance	x	x
Bath level control failure	x	x
Temperature control failure	x	x
Door lock failure	x	x
Lack of water	x	x
Bath overlevel	x	x
Bath heating failure	x	x
Bath overtemperature	x	x
Drain failure	x	x

9. INTELI CONTROL. FUJI INVERTER MENUS

The configuration menu allows dumping the inverter operation specific parameters from the microprocessor memory to the inverter memory.
This operation should not be repeated unless accidental corruption or inverter replacement.
Should you have any doubt on the inverter operation, you can compare the content of the inverter memory with the microprocessor parameters.
In that case the configuration verification can be executed.

Access to FUJI inverter menu
From the main screen in the TECHNICAL AREA,
- close the washing machine door
- select **Inverter FUJI** menu by the multi-function keyboard.

Confirm by **SEL** key.
Menu utilities are displayed.

Menu utilities

Verifying parameters
Close the washer door.
Select the function by the ▼ / ▲ keys.
Press the **SEL** key.
Now, the microprocessor connects the inverter power supply and compares the parameters of the inverter memory with its own operation pattern.
Once this operation is over, **OK** is displayed on the screen.
If during the verification the microprocessor detects an anomaly, the buzzer will be permanently connected.

Programming parameters
Close the washer door.
Select the function by the ▼ / ▲.
Press the **SEL** key.
Now, the microprocessor connects the inverter power supply and modifies the inverter operation parameters according to the washing machine operation pattern.
Once this operation is over, **OK** is displayed on the screen.
If the initialising of the inverter has not been properly executed, the buzzer will be permanently connected.

Access to the upper menu by pressing the ↵ key.