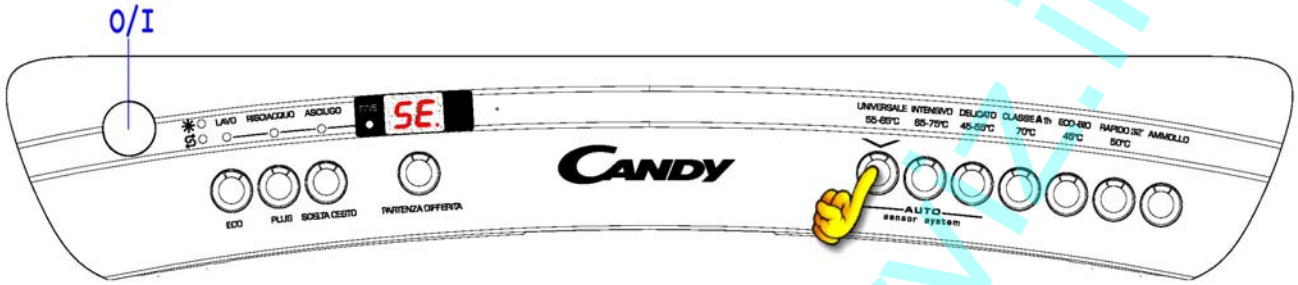
ELECTRONICALLY CONTROLLED DISHWASHERS WITH "DIGIT" MODULE.
PREPARATION AND CARRYING OUT OF THE AUTO-TEST CHECKING ROUTINE:

- Connect a 20 A – 2 decimals digital Amperometer in series to one phase of the current feeding the appliance.



- Open the door of the dishwasher.

- While pushing and holding pushed the 1st program's button from the left, power-on the dishwasher with the ON/OFF button.

- Release the 1st program's button and push it again 2 times in sequence, within 10 seconds.

The confirmation the auto-test was hooked is given by the displaying of the initials **SE** for 5 seconds and by the sound from the buzzer.

If present, it's also displayed flashing for 5 seconds the last error code which was stored in memory. The displaying is accompanied by a sound from the buzzer.

Even if it stays stored into the dedicated memory location, the error code is only displayed once. If the same error should be displayed again during the auto-test routine, this means that the error condition is still present.

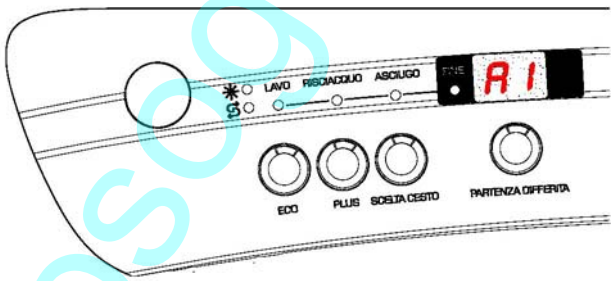
- The LCD display shows **88.** and all LEDs are switched on.

It's now possible to check the good functionality of all pushbuttons and related LEDs. Push each button once and the LED must switch OFF. Push again the same button and the LED must be switched ON again.

By pushing the START DELAY button, all LEDs for washing phase's displaying and the LEDs for salt and rinse aid exhaustion are switched OFF. By pushing again the same button, the LEDs are switched on again.

Each time a whichever button is pushed, a beeping sound is emitted by the buzzer.

- Close the door of the dishwasher. The display now shows: **SE**
- It's activated the drain pump, until it's reached the "empty tank" condition and for 15 seconds more.
- Pause of 2 seconds.
- It's activated the solenoid valve for water load, for 60 seconds (flow rate 3.75 liters per minute).
- The display shows the factory code of the appliance under test. It's a code made from a letter and number: the letter means the type of machine, and the number means the "model" (i.e.: **A1.** = free standing machine, model 1)



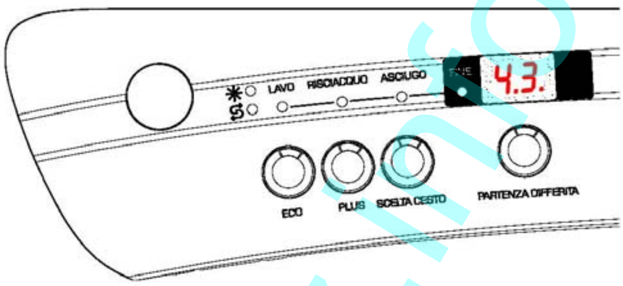
In the case the EEprom was not correctly programmed, the display shows **L0** and the auto-test sequence is halted. In such a case, if the SAT is owning the "CuoreMaster" programming interface unit, it's possible to re-program the Control Board through a very similar procedure, to the one already used for the "Core" Control Boards of the washing machines.

- If present, it's now checked the Turbidity Sensor, by reading it's output current that must be found within 3 and 4 Volt.

  The test is carried out being the motor pump not working, with clean water in tank and the result is displayed on the LCD.
  It will be a value within **1** and **99**, displayed while the LCD's dots are flashing.

Example in the picture aside:

In case the value of turbidity of water is found higher than **99**, the display shows the initials **E9**, while the buzzer is sounding..



**In case of error, the auto-test sequence is halted.
To exit this condition, it's necessary to power OFF and then re-start the machine.**

- When present, it's fed the vapor suction ventilator for 10 seconds.

- Are fed both the motor pump and the solenoid valve for water load, to carry out a "timed" water load of 2 liters of water (machines with liters counter), or for 30 second (machines without liters counter).

- When present, its checked the motor pump's tachometric dynamo (before feeding the motor pump). In case the tachometric's signal should be missing, the display shows **E7** and the buzzer sounds, to confirm the condition of error.

**In case of error, the auto-test sequence is halted.
To exit this condition, it's necessary to power OFF and then re-start the machine.**

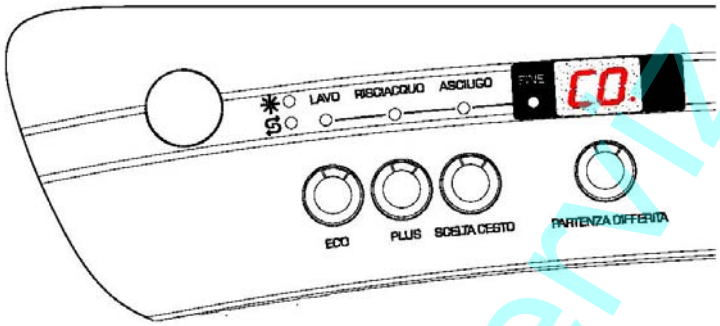
During this phase, if it's present the electromechanical device for the choice of the basket, this is set in the position for "upper and lower washing".

- It's now checked the level Pressostat: if it's found being correctly switched to the "full tank" condition, the auto-test continues. In case the Pressostat is still in the "empty tank" condition, the water load continues until it's tripping and for 45 seconds more. Once this time-out is reached, if the Pressostat is still on the "empty tank" condition, the display shows the error code **E2** and the buzzer sounds, to confirm the condition of error.

In case the Pressostat is correctly tripped into the "full tank" condition, but the liter counter had generated less than 50 impulses (100 impulses, in case of alternate washing system), the display shows the error code **EF** and the buzzer sounds, to confirm the condition of error.

**In case of error, the auto-test sequence is halted.
To exit this condition, it's necessary to power OFF and then re-start the machine.**

- being the motor pump still working, it's now displayed **CO** on the LCD and are checked the conditions of the NTC probe for the temperature of water.



- If the NTC is found being OK, it's now fed the water heating element for 2 seconds, otherwise the LCD display shows the error code **E8**, and the buzzer sounds, to confirm the condition of error.

In case of error, the auto-test sequence is halted.
To exit this condition, it's necessary to power OFF and then re-start the machine.

If the Pressostat is in the "full tank" condition and the amount of loaded water is correct, the Pressostatic safety device's contacts must be found being closed.

- Otherwise, it's immediately displayed the error code Ee, and the buzzer sounds, to confirm the condition of error.

In case of error, the auto-test sequence is halted.
To exit this condition, it's necessary to power OFF and then re-start the machine.

- Is fed the motor pump for washing for 15 seconds more.

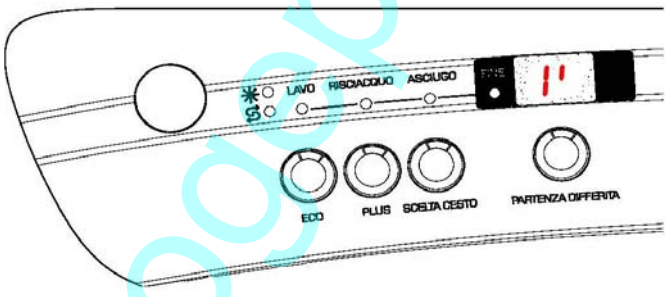
In case it's present the solenoid device for the basket's choice, this one is set to the “upper wash" position. After 5 seconds, the motor pump is fed for 8 seconds. During these 8 seconds, both the motor pump than the solenoid device for the basket's choice are fed simultaneously (duration of this phase: 13 seconds).

- Pause of 5 seconds: in this meanwhile, the dishwasher is totally powered OFF.

- Being the motor pump not working, are now fed simultaneously both the softener's solenoid valve for resin's regeneration, than the water heating element. In this phase, the water heating element cannot be fed, since the Pressostatic safety device is supposed being opened circuit (since it's missing the pressure of water). In case it's contacts should be found closed, it's displayed the error code **Eh** and the auto-test is halted.

In case of error, the auto-test sequence is halted.
To exit this condition, it's necessary to power OFF and then re-start the machine.

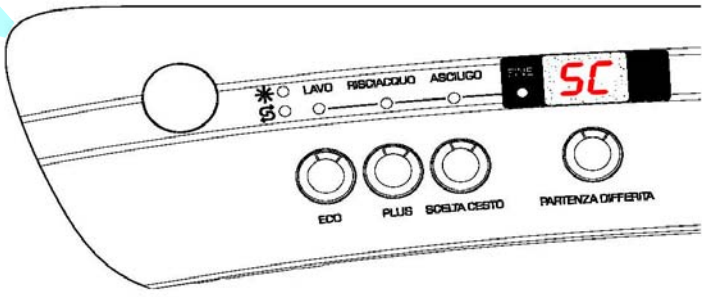
- It's now fed the dispenser of detergent and rinse aid liquid, for 55 seconds. The opening of the door of the dispenser (and the pouring of the rinse aid liquid) is now obtained through a thermal actuator, the mechanical levers working same as it was on the "single coil" type of dispensers. The thermal actuator contains a wax material, whose expansion is made by a heating element and pushes a piston, which releases the lock of detergent's door and rinse aid's valve (time of intervention: ~1 minute after being fed).
  At this moment, the display shows the number **1'**.



  Simultaneously, are fed both motor pump than heating element (if Pressostat's condition is found being OK, for 1 minute. During the first 30 seconds, it's checked the condition of the anti-flood Pressostat. In case of intervention by the same, it's displayed error code **E4**.

  It's now fed the solenoid valve for water load and (when present) the solenoid device for the basket's choice is set to the "wash all" position.

- It's now fed the drain pump, until the Pressostat trips to the "empty tank" condition, plus 15 seconds. The display now shows the initials **SC**.



The phase of drain must be completed within the designed limit time of 2 minutes.
In case the drain phase should last a longer time than 2 minutes, it's then displayed the error code ***E3***, and the buzzer sounds, to confirm the condition of error.

In case of error, the auto-test sequence is halted.
To exit this condition, it's necessary to power OFF and then re-start the machine.

Once the phase of drain is correctly ended within the designed limit time, the auto-test sequence is terminated and the dishwashers stands ready for the normal use.

LIST OF THE CODES OF ERROR AND RELATED HINTS FOR THE SERVICE:

The error codes hereunder listed, can be displayed both during the carrying out of a normal washing cycle, than during the auto-test sequence.

ERROR CODE	TYPE OF ERROR	DESCRIPTION OF THE ERROR		SUGGESTED CHECKS
		CAUSE	EFFECT	
E2	Error while creating the correct level of water in tank.	The load of water is not completed, within the designed limit time of 3 minutes.	The solenoid valve for water load is immediately powered off and it's fed the drain pump for 1 minute. The current washing cycle is halted. The error code is displayed on the LCD. The buzzer sounds.	Water faucet is closed. Not enough water pressure from the faucet. Defective liters counter, not emitting the correct number of impulses. Pressostat. Solenoid Valve. Connectors and wiring.
E3	Missing water drain.	The phase of drain was not completed, within the designed limit time of 3 minutes.	The current washing cycle is halted. The error code is displayed. The buzzer sounds.	Filters (clogged), Drain pump. Pressostat. Drain hose. Connectors and wiring.
E4	Intervention by the anti-flood pressure switch.	The solenoid valve for water load is powered off by the "MIPS" mechanic device (or anti-flood Pressostat). The error condition is effective, being the signal of the anti-flood device present for more than 15 seconds.	The drain pump is powered on for 1 minute. The error code is displayed on the LCD. The buzzer sounds. The washing cycle is halted.	Leaks of water. MIPS sensing device. Anti-flood Pressostat. Connectors and wiring.

ERROR CODE	TYPE OF ERROR	DESCRIPTION OF THE ERROR		SUGGESTED CHECKS
		CAUSE	EFFECT	
E5	NTC probe for the reading of temperature of water.	The temperature sensor (NTC) is short circuited, shorted to ground or is issuing a not correct value.	During the carrying out of a normal washing cycle with heating of water, the heater is powered off and the cycle is carried out without any heating of the water. The error is displayed at the end of the cycle.	NTC Probe Connectors and wiring.
E7	Tachometric Dynamo.	No signal is emitted by the motor pump's tachometric dynamo.	The washing cycle is carried out at the maximum pressure possible. The error code is stored into the Eprom and is displayed at the end of the cycle.	Tachometric dynamo. Connectors and wiring.
E8	Missing heating of the water.	After 20 minutes from the beginning of the phase of heating, the water is not yet at 26 °C. The temperature of the water is not increased of 10 °C after 20 minutes, having started the check from 26 °C.	The current washing cycle is halted. A drain phase is carried out and the error is then displayed on the LCD. The buzzer sounds.	Heating Element Pressostat. Pressostatic Safety Microswitch. Connectors and wiring.
E9	Turbidity Sensor.	No signal is emitted by the Turbidity Sensor. This check is being carried out during the very first water fill, at the beginning of the washing cycle.	During the auto-test, the error is immediately displayed. During a normal washing cycle, the error is stored in memory into the Eeprom, but it's not displayed. The washing cycle is not halted, but it's carried as a normal washing cycle, without the benefits by the Turbidity Sensor, i.e. reduction of time and energy consumption).	Turbidity Sensor. PLEASE CHECK FOR THE PRESENCE OF FOAM INTO THE LOWER CUP. In case some foam should be present, just carry out some rinses with cold pre-wash (program n. 7).

ERROR CODE	TYPE OF ERROR	DESCRIPTION OF THE ERROR		SUGGESTED CHECKS
		CAUSE	EFFECT	
Ee	The Pressostatic safety microswitch of the heating element is always OPEN CIRCUITED.	Error is displayed after 2 minutes from the beginning of the phase of heating.	During the carrying out of the sequence of auto-test, this error is immediately displayed. During the carrying out of whichever normal washing cycle, the error is stored into the Eeprom's memory, then it's displayed at the end of the washing cycle. The buzzer sounds too.	Pressostatic safety microswitch. Device for the choice of the basket. Connectors and wiring.
Eh	The Pressostatic safety microswitch of the heating element is always SHORT CIRCUITED.	The check is done in the beginning of the washing cycle (check is carried out during the first 18 seconds of the water load, being the Pressostat in the "full tank" condition.	During the carrying out of the sequence of auto-test, this error is immediately displayed. During the carrying out of whichever normal washing cycle, the error is stored into the Eeprom's memory, then it's displayed at the end of the washing cycle. The buzzer sounds too.	Pressostatic safety microswitch. Connectors and wiring.
E i	Water heating element is OPEN CIRCUITED. Faulty relay, for the feeding of the heating element.	The heating element is not working.	The currently carried out washing cycle is halted. The water which is present in tank, is drained. The error code is displayed on the LCD and the buzzer sounds.	Water heating element. Connectors and wiring.

Each error code is displayed on the LCD fixed (not flashing), together with 3 beeping sounds from the buzzer. To reset the error code, just power off the dishwasher.
All error codes are stored into the dedicated section of the Eeprom memory, therefore it's possible to read them, through the use of the CuoreMaster programming unit interface.
Every time the Auto-test software is started, the last error code which was stored in memory, is displayed for 10 second. Afterwards, it's erased.