SERVICE MANUAL
MSWM15043 EN

(updated 26/03/2020)

SPA WASHING MACHINES (TKD)

Contents

1. General description

This document includes some technical documentation of the related models (diagrams, features for the mainly components…), how the error codes are displayed and their meaning and also the procedure to enter the auto-test with a complete description of their phases.

There are three different types of appliances:

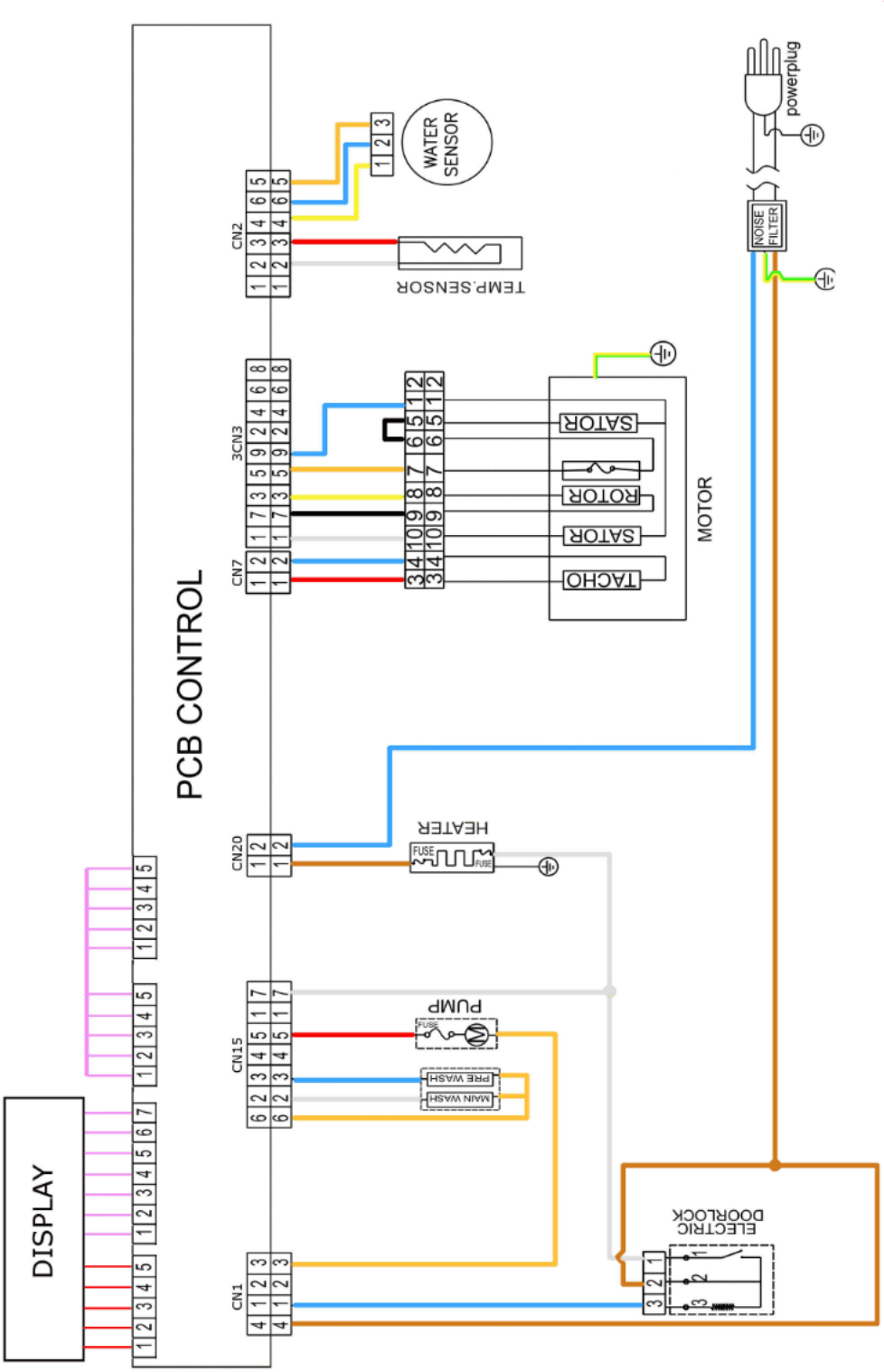
- TKD 1270 – TKD 1280 – TKD 1480: washing machine with standard motor.

- TKD 1490: washing machine with “inverter” motor and brushes, improving efficiency and durability.

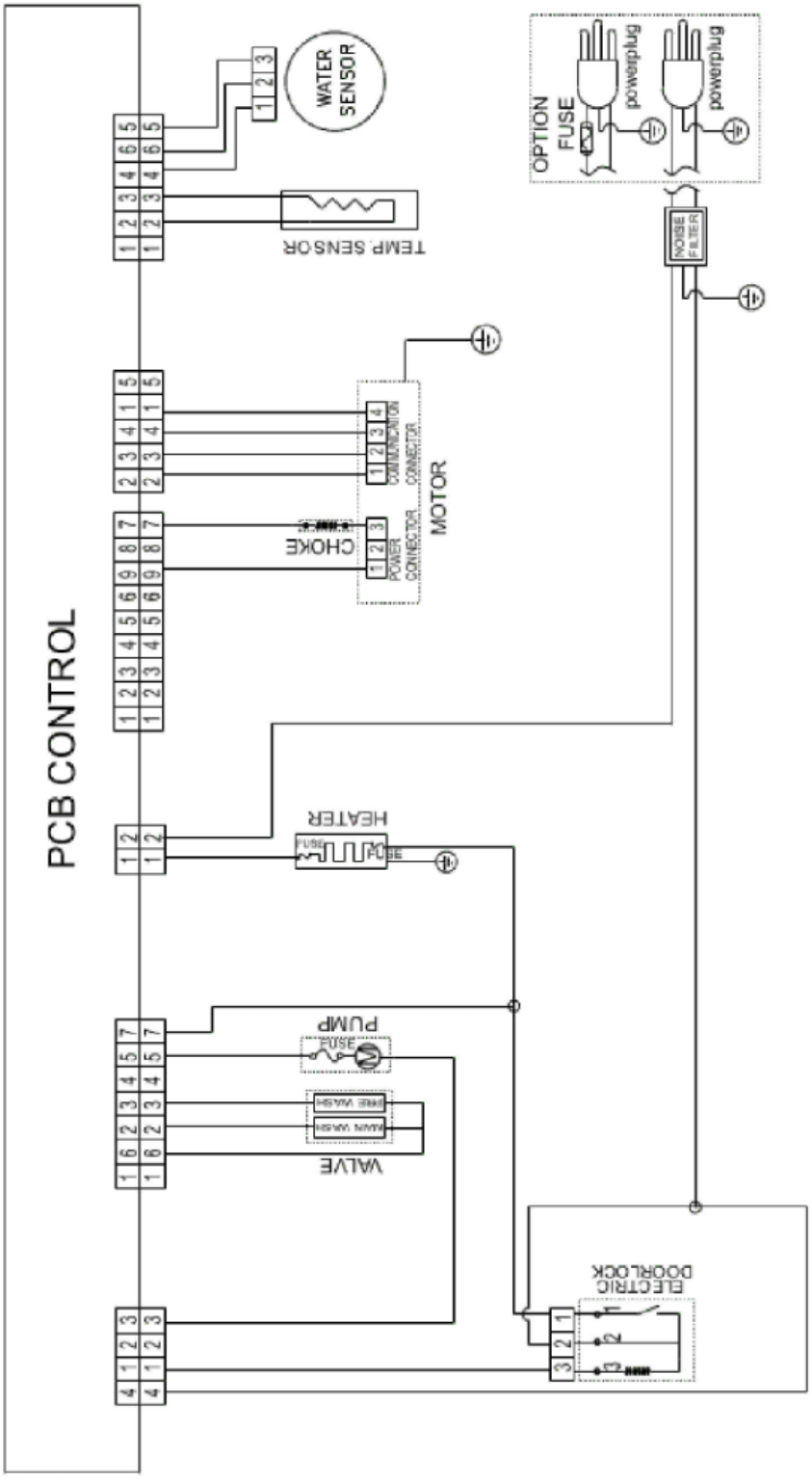
- TKD 1610 WD: washer-dryer with “inverter” motor, without brushes decreasing the noise in the motor.

2. Wiring diagrams.

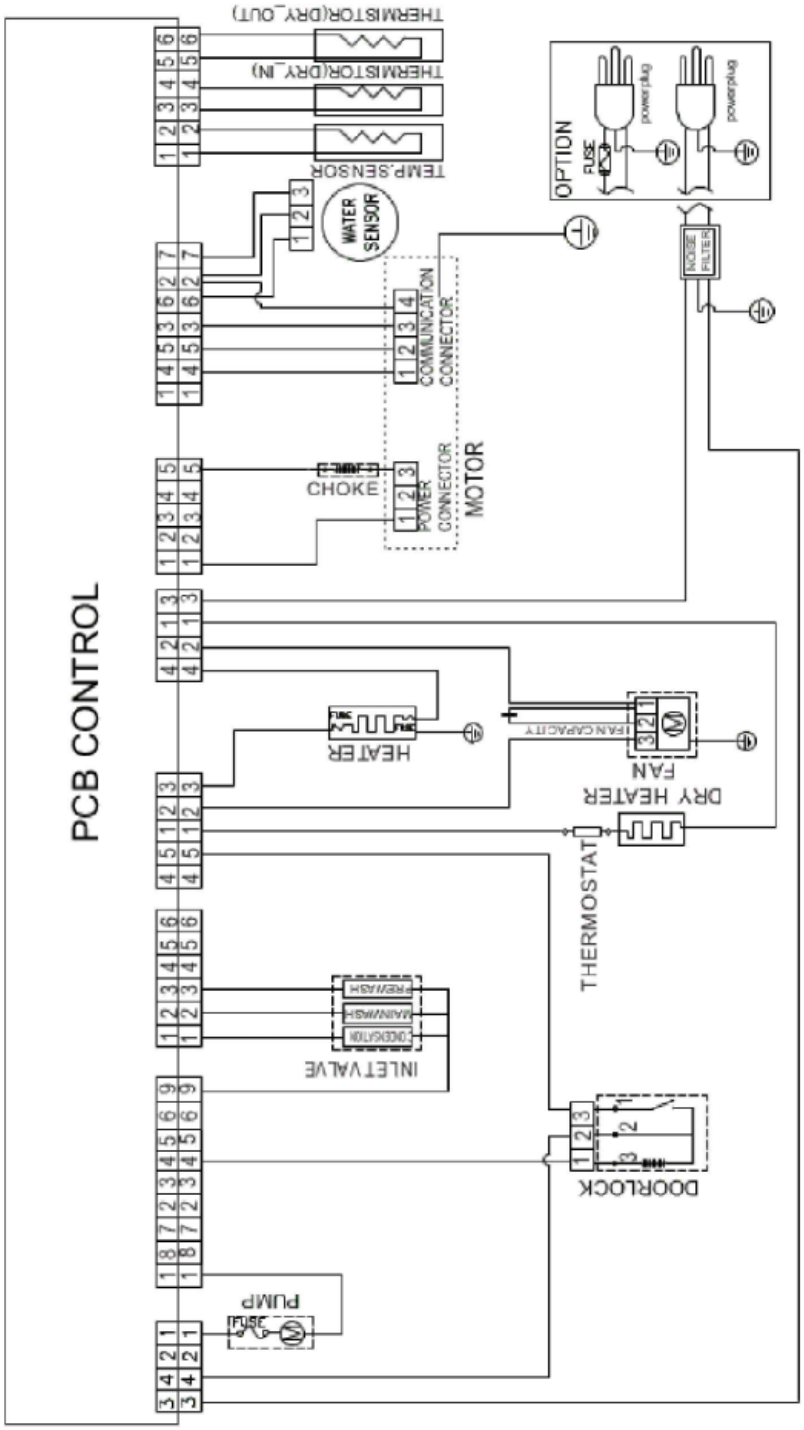
2.1 TKD 1270 – TKD 1280 – TKD 1480



2.2 TKD 1490


PCB CONTROL
WATER SENSOR
TEMP. SENSOR
OPTION FUSE
powerplug
powerplug
NOISE FILTER
MOTOR
COMMUTATION CONNECTOR
POWER CONNECTOR
CHOKE
HEATER
FUSE
PUMP
VALVE
FREE WASH
MAIN WASH
ELECTRIC DOORLOCK

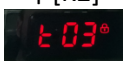
2.3 TKD 1610 WD



3. Service Test.

There are two possibilities to run the service test: Manual check up component by component or running the automatic sequence.

Once entering the service menu (see related page depending on the model), we can find all available options, which are defined below:

 ↓[K1]	**PCB configuration** - Pressing [K8], display will show "xx", where "xx" is the existing configuration code. - Pressing [K2], you can modify the version. - Pressing [K3], version is modified in the display. - Pressing and holding [K2] for 3 seconds, changes will be saved. - Pressing [K8], we will exit this point and display will show "t01".
↑[K2]  ↓[K1]	**Stored errors** - Pressing [K8], display will show "Err" and pressing once more [K8], it will show "Exx", where "xx" is the error code. - With keys [K2] and [K3], we move into the stored error list. We have access to the last 10 errors registered by the PCB, taking into account that each error will be stored only once (although more than once has occurred). - If there are not any errors, display will show E00. - To delete the stored errors, you must press simultaneously [K5] and [K6] for 3 seconds. A beep will be heard confirming the action. - Pressing [K8] we will exit this point and display will show "t02".
↑[K2]  ↓[K1]	**Software version** - Pressing [K8], display will show "Cod". - Pressing [K8] once more, it will show "xx", where "xx" is the software version. - Pressing [K8], it turns back to the service menu, showing in the display "t03".
↑[K2]  ↓[K1]	**Display test** - Pressing [K8], display will show "LEd". - Pressing once more [K8], display test will be performed showing different codes and activating all their segments. Display test will end screening "000". - At this moment, it is possible to check the right performance for the buttons and program knob, showing the display the corresponding numbers. Once checked, display will show "End". - Pressing [K8], it turns back to the service menu, showing in the display "t04".
↑[K2] 	**Drain pump** - Pressing [K8] display will show "PPt". - Pressing once more [K8], drain pump is activated showing the display "PUP". If there is no water inside the tank, display will show "EP" after a few seconds.

↓[K1]	If after 6 minutes there is water inside the tank, display will show “FP”. - Pressing [K8], it turns back to the service menu
↑[K2]  ↓[K1]	**Pressure switch** - Pressing [K8] display will show “LL”. - Pressing once more [K8], inlet valve will be activated until reaching the washing level. Display will show the pressure switch value. - Pressing [K1], inlet valve will be activated for a few seconds. In the 4th pulsation, water will be loaded until safety level condition. At this time, drain pump is activated until the tank is emptied Pressure switch values: - Empty tank ≈ 600 - Wash level ≈ 400 - Overlevel ≈ 100
↑[K2]  ↓[K1]	**Temperature sensor and heating process** - Pressing [K8], display will show “HEA”. - Pressing once more [K8], inlet valve is activated until reaching the washing level. Heating element is also activated for 5 minutes, display will show the temperature that the sensor is measuring. - Pressing [K8], it turns back to the service menu
↑[K2]  ↓[K1]	**Inlet valve** - Pressing [K8], display will show “UU”. - Pressing once more [K8], display will show “U1” and pre-wash valve will be activated for 3 seconds. - Pressing [K1], display will show “U2” and main valve will be activated for 3 seconds - Pressing once more[K1], display will show “U12” and both valves will be activated for a few seconds. Then, only the main valve will be activated and after this, both of them will be activated until reach the washing level. Then, the drain pump is activated. - Pressing [K8], it turns back to the service menu
↑[K2]  ↓[K1]	**Motor turning** - Pressing [K8], display will show “tUB”. - Pressing [K8] motor turns anticlockwise sense at 45 rpm for 15 seconds, stops for 10 seconds and starts to turn clockwise sense for 15 seconds. This sequence is repeated indefinitely. - Pressing [K8], it turns back to the service menu
↑[K2]  ↓[K1]	**Spin cycle** - Pressing [K8], display will show “spn”. - Pressing once more[K8], display will show real spin speed. Motor starts to spin until 400 rpm. - Pressing [K1], increases the speed until 1000 rpm. - Pressing [K2], increases the speed until 1100 rpm. - Pressing once more [K2], increases the speed until 1300 rpm.

	- Pressing [K8], it turns back to the service menu
↑[K2]  ↓[K1]	**Dryer (only washer-dryer appliance)** - Pressing [K8], display will show “dry”. - Pressing once more [K8], dryer fan and dryer heating element are activated and display will show alternately “In” (dryer sensor temperature) y “Out” (temperature for the sensor located in the exit). NOTE: in case of failure with one of the dryer sensors, the appliance does not show any error.
↑[K2]  ↓[K1]	Non applicable.
↑[K2] 	**Autotest (see section 4)** - Pressing [K8], display will show “LSt”. Pressing once more [K8], a complete auto-test is running. It tests the display, load water for both valves, heating process, drain pump and spin motor (low speed and spin cycle). For the washer-dryer, this test also checks the dryer components (fan, heating element…)

4. Autotest

Auto test performs automatically the below sequence. It can be launched in two ways:

- With the appliance off, push and press [K1] y [K2] buttons and then press ON/OFF button [K7]. Display will show “LSt”. The test sequence starts when [K8] button will be pressed.

- Through “t15” from the service menu (see section 3).

Washer - Dryer	
Step	**Action**
1	Display shows Firmware version
2	Display shows dryer sensor temperature – “In”
3	Display shows the sensor located in the exit – “Out”
4	Activates dryer fan (0,22 A.) – “FAn”
5	Activates dryer heater (5.4 A.) – “DrY”
6	Activates dryer circuit valve – “U4”
7	Shows temperature (water sensor)
8	Shows pressure switch value
9	Activates sequence for inlet valves “U1” – “U2” – “U12”
10	Activates heating element – “HEA”
11	Activates drain pump “PUP”
12	Activates motor (50 rpm)
13	Display & knobs test

Washing machine	
Step	**Action**
1	If the tank is not empty of water, it drains and starts the motor until 1000 rpm.
2	Loads water for 5 seconds with the main valve, loads 5 seconds more with prewash valve and finally loads 5 seconds with both valves. Display shows the temperature of the sensor.
3	Loads water with the main valve until reach the wash level. Display shows the temperature of the sensor.
4	Once reached the washing level, motor turns 5 seconds clockwise sense.
5	Loads water with the main valve until reaching the safety level.
6	Once reached safety level condition, the washing machine remains in pause

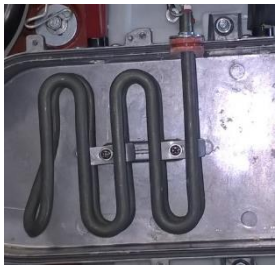
5. Errors

Find below the error codes, their meaning and the cause that could generate them.

Error	Description	Cause
E10	Excess of water load (7 min.)	Closed tap Defective inlet hose Low water pressure Inlet valve damaged.
E12	Over-level	Inlet valve does not close correctly.
E20	Drain pump failure	Check the pump winding
E21	Excess of drain process (3 min.)	Defective drain pipe Drain pump blocked.
E30	Door does not lock	Door not closed. Lock door damaged
E31	Door does not unlock	Lock door damaged. (*)
E33	Pressure switch failure	Pressure switch damaged
E34	Sensor failure	Short-circuit sensor (*)
E35	Sensor failure	Open circuit sensor. (*)
E36	Heating element error	Heating element damaged. (*)
E37	*Failure related to the sensor of the outlet dryer duct*	*Check sensor value, wiring and connectors.*
E38	*Failure related to the sensor of the inlet dryer duct*	*Check sensor value, wiring and connectors.*
E60	Failure related with the motor start (5 attempts)	Wiring / connectors of the motor. Damaged motor Damaged PCB
E61	PCB does not detect the start of the motor	Wiring / connectors of the motor. Damaged motor Damaged PCB
E62	Motor triac failure	Wiring / connectors of the motor. Damaged motor Damaged PCB
E70	ON/OFF button blocked	Check the assembly between button - panel
E80	Communication error between PCB / Display	Check the connection between electronics Damaged electronics
E3A	*Failure related to the dryer heating element*	*Check dryer heater, safety thermostat, wiring and connectors.*

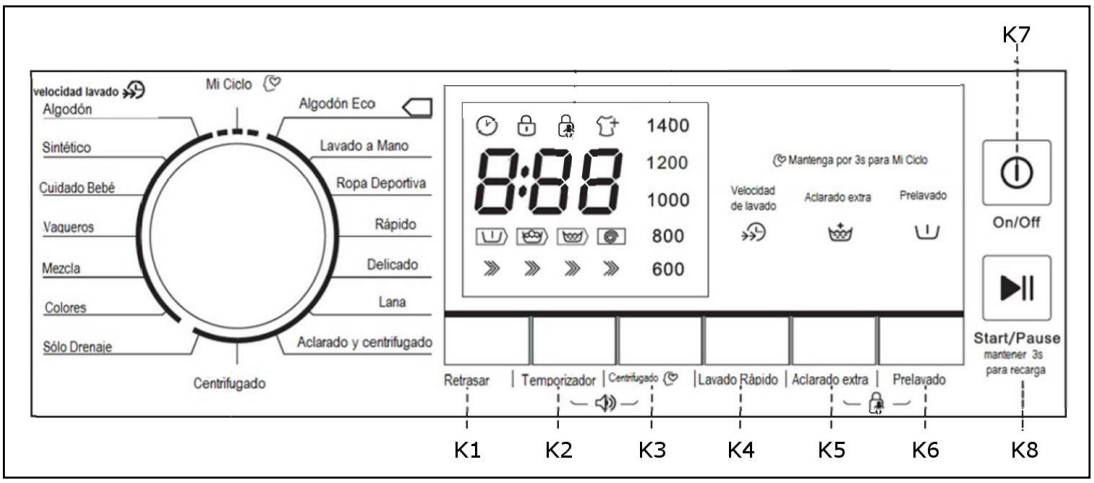
(*) These errors are only registered in option “t02” into the service menu (are not shown along the program)

6. Main components

 	**Inlet valves** Supply voltage: 230 V. Impedance: ≈ 3 - 6 KΩ.
	**Drain pump** Supply voltage: 230 V Impedance: ≈ 150 - 250 Ω.
	**Heating element** Supply voltage: 230 V Rated power: 1800W Resistance: ≈ 20-35 Ω.
	**Dryer heating element** Supply voltage: 230 V Rated power: 1200W Resistance: ≈ 40-55 Ω.
	**Temperature sensors** Resistance: ≈4'8 KΩ at 25ºC

	**Motor (not inverter)** Check the next: Terminals 5-10: 1.3 ohm. Terminals 8-9: 3.15 ohm. Terminals 6-7: 0.25 ohm. Terminals 3-4: 48 ohm.
	**Motor (inverter)** Cannot be checked
 	**Pressure switch** This is an electronic one so it cannot be directly checked directly. It is possible to check its performance in option “t06” into the service menu.

7. TKD 1270 – TKD 1280 – TKD 1480 – TKD 1490

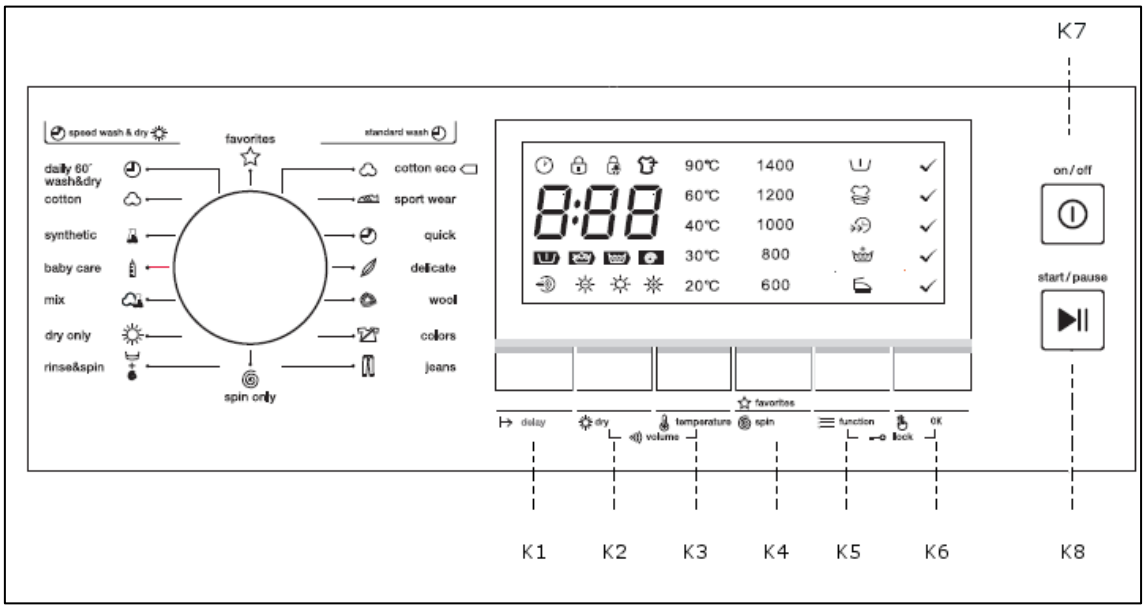


Tank must be emptied. If necessary, drain program must be selected before launching the test

To launch it, switch on the appliance and press one by one [K3][K5][K3][K5] buttons. This operation must be done in the first 30 seconds after switching on the washing machine.

[K1] y [K2] buttons let us move between the different options existing into the service menu. To enter the option, [K8] button must be pressed. In case we need to turn back the previous menu, we must press [K8] button.

8. TKD 1610 WD



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