FRONT LOADING WASHING MACHINE
AWF60MD, WH60F60W1, WH70F60W1

479607

CONTENTS

SPECIFICATIONS

Electric Supply

Voltage	220 – 240V
Frequency	50Hz
Power Consumption	2.2kW – 2.6kW
Fuse Rating	10A

Capacity

Function	AWF60MD/WH60F60W1	WH70F60W1
Cotton	6kg	7kg
Daily	3.5kg	3.5kg
Synthetic	3kg	3kg
Quick wash	2.5kg	2.5kg
Delicates	2kg	2kg
Wool	1.5kg	1.5kg
Hand wash	1kg	1kg

Door Lock

Lock Time (Maximum)	6 seconds @20°C
Unlock Time After 600 Seconds on	60 –90 seconds @20°C
Nominal Voltage	230V
Nominal Current	10mA

Heating Element (Double thermosfuse)

Resistance	25Ω @ 25°C
Nominal Voltage	230V
Nominal Wattage	1950W
NTC Resistance	4.7kΩ

NTC

Resistance	4.7Ω @ 25°C

Water Valves

Pressure Range 30kPa (4.35PSI) – 1000kPa (145PSI)
Check for continuity (refer to flow chart for No Water)

Drain Pump

Nominal Voltage 230V
Nominal Wattage 35W
Flow Rate 15 litres/minute
Check for continuity (refer to flow chart for Not Draining)

Motor

Type Single Phase, UM/AC
Tacho Resistance 54Ω
Wash Wattage 720W
Spin Wattage 350W
Resistance (refer to flow chart for Machine Doesn't Work)

FUNCTIONAL TEST PROGRAM

All models of machines have a functional test program. Depending on the software version will depend on the type of functional test that can be carried out.

Functional Test Program 1 is valid for products, which were produced before August 2006 (serial numbers begin with 06-XXXXXX-08). The old and new tests order are:

Functional Test Program 1

To enter the test program follow the steps below.
Note: Remove any garments from the machine before commencing this test.

Step 1

Ensure that the machine is turned on at the power point, and off on the display, also ensure that the On/Off button is in the Off position.

Step 2

Using the program selector knob select Cotton 90oC.

Step 3

Press and hold the Start/Pause button, then press the On/Off button once keeping the Start/Pause button held down for an additional four seconds.

To confirm that the Test Program has been entered correctly "-- --" will be displayed.

Functional Test Sequence

To start the functional test press the Start/Pause button, to advance to the next step press the Start/Pause button. To exit or cancel from the test program press the On/Off button.

Note: If a particular function fails to activate it would indicate a failure in that area.

1.	LED check	All the LED's on the display will blink.
2.	Prewash (Cold)	Fills from the cold valve into the Prewash Compartment
3.	Main wash (Cold)	Fills from the cold valve into the Main wash Compartment
4.	Softener (Cold)	Fills from the cold valve into the Softener Compartment
5.	Main wash (Hot)	Fills from the hot valve into the prewash Compartment
6.	Heater Element	Turns the heater on. For heater testing refer to section on heater testing. Note: If the water level is not high enough then both the hot and cold water valve will turn on to fill to the correct level.
7.	Motor (CW)	Main wash motor rotates in a clockwise direction at a speed of 52 RPM.
8.	Motor (CCW)	Main wash motor rotates in an anti-clockwise direction at a speed of 52 RPM.
9.	Drain Pump	Turns the drain pump on.
10.	Spinning	Spins to the maximum speed of 1000RPM. Note: At this point we would recommend that the test sequence be terminated by pressing the On/Off button. If the Start/Pause button is pressed once more all the water valves will turn on and it will fill to the first lever of the pressure sensor, this is used for production testing only.

Functional Test Program 2

Note: The following information is applicable to software version 6038 and later.

To enter the test program follow the steps below.
Note: Remove any garments from the machine before commencing this test.

Step 1

Ensure that the machine is turned on at the power point, and off on the display, also ensure that the On/Off button is in the Off position.

Step 2

Using the program selector knob select Cotton 90oC.

Step 3

Press and hold the Start/Pause button, then press the On/Off button once keeping the
Start/Pause button held down for an additional four seconds.

To confirm that the Test Program has been entered correctly "----" will be displayed.
Note: At this stage the door lock will activate. If the test program is terminated early, you must wait until the door interlock has cooled sufficiently.

Functional Test Sequence

To start the functional test press the Start/Pause button, to advance to the next step press the
Start/Pause button. To exit or cancel from the test program press the On/Off button.
Note: If a particular function fails to activate it would indicate a failure in that area.

		On entering the functional test "----" will be displayed after the door is locked.
1.	Fault code	If a fault code has occurred the fault code will appear on the display.
2.	Software version	The software version of the Control Module will be displayed in the LED screen.
3.	LED check	All the LED's on the display will blink.
4.	Motor (CW)	The number '4'will be displayed on the seven segment display, if the water level is above flood level the drain pump is activated until a safe level is reached, then the main wash motor will rotate at 52 rpm in a clockwise direction.
5.	Motor (CCW)	The number '5' will be displayed on the seven segment display; the main wash motor will rotate at 52 rpm in a counter-clockwise direction.
6.	Motor (CW)	The number '6' will be displayed on the seven segment display; the main wash motor will spin up to 900rpm in a clockwise direction.
7.	Prewash (Cold)	The number '7' will be displayed. Water will fill from the cold valve into the Prewash Compartment while decelerating form 900rpm.
8.	Main Wash (Cold)	The number '8' will be displayed. Water will fill from the cold valve into the main wash Compartment.
9.	Softener (Cold)	The number '9' will be displayed. Water will fill from the cold valve into the softener Compartment.
10.	Main Wash (Hot)	The number '10' will be displayed. Water will fill from the hot valve into the Main wash Compartment.
11.	Heater Element	The number '11' will be displayed. The heater will turn on. For heater testing refer to section on heater testing. Note: If the water level is not high enough then both the hot and cold water valves will turn on to fill to the correct level.
12.	Spray pump test (not fitted to AU models)	'12' will be displayed on the seven segment display. • The heater turns on. • Spray pump is tested (if fitted) • The main wash motor will rotate at a speed of 52rpm
13.		'12' will be displayed and the drain pump will activate.

HEATER TESTING

During the above test program it is possible to test the heater element.

- Remove the tabletop.
- Start the test program.
- Place a clamp-on amp meter around either Grey or Red wire going to the element.

The heater will activate when the test program reaches Step 6.
The current draw will be approximately 8.5 amps.

Diagnostics

If a fault occurs in the product one of four LED's will start flashing. To determine the cause of the LED flashing follow the procedures as listed below.

Prewash LED flashing	This fault relates directly to the control module and it will require replacement.
Main Wash LED flashing	The most likely cause of the Main Wash LED flashing is due to a component
Rinse LED flashing	To rectify this fault refer to the flowchart "No Water"
Conditioner LED flashing	To rectify this fault refer to the flow chart "Unable to select a program"

Service Mode

To enter Service Mode follow the steps below.

(a). Ensure that the power to the machine is switched on.
(b). Press the On/Off button to switch the machine on (wait 5 seconds until the display turns on).
(c). Press and hold Prewash & Extra Rinse down for 2 seconds.
(d). If a fault code is present it will be displayed in the LED screen.
(e). If a fault code is present refer to section on fault codes.

FAULT CODES

Before replacing any components be sure to check the harness and connections.

Note: As soon as a failure is detected by the electronics, the fault code is written to memory. The fault code can only be viewed by entering the Service Mode.

The fault code will be erased from the memory at the commencement of the next cycle, therefore we would recommend accessing the Service Mode and checking for fault codes before starting another (test) cycle.

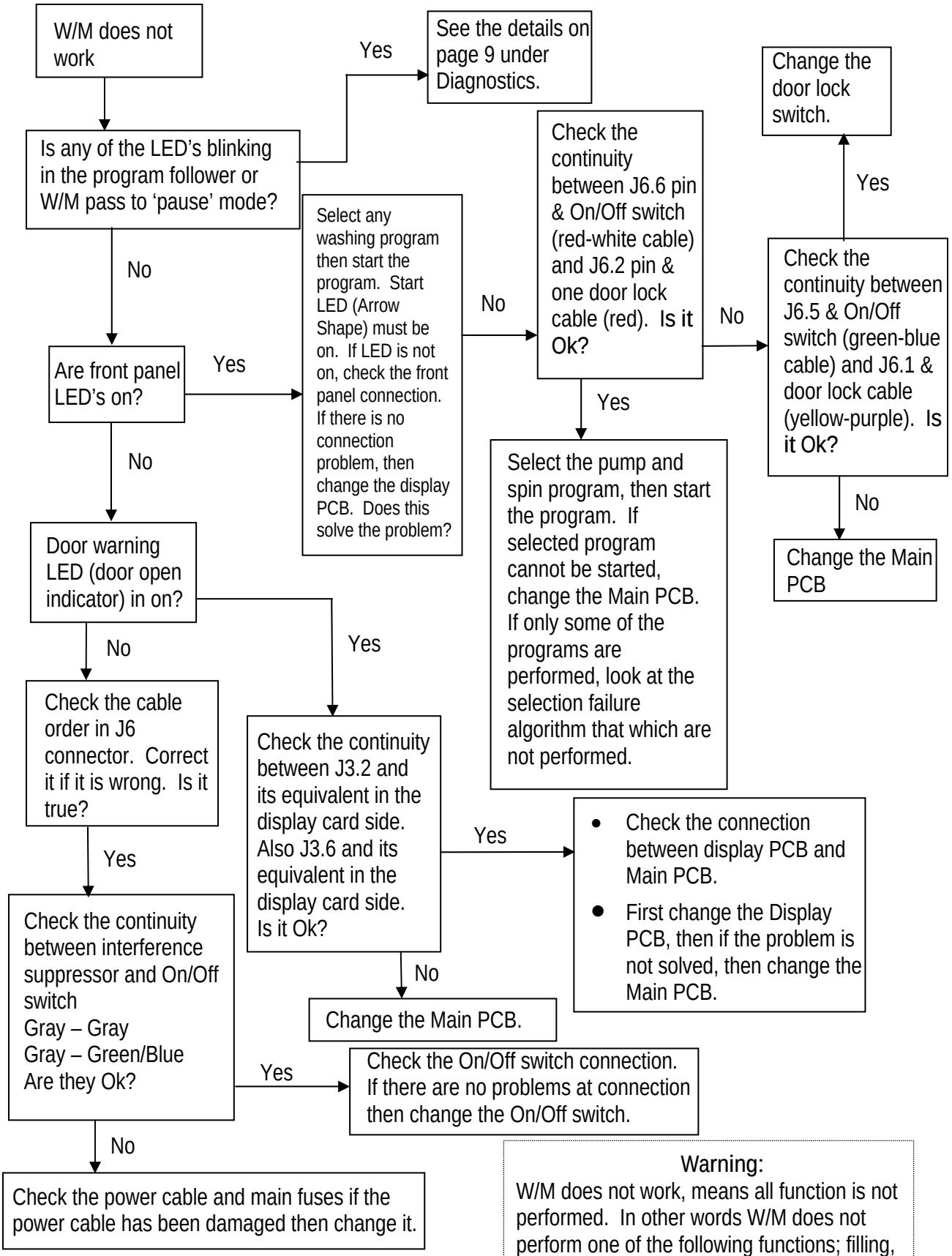
If the fault code is not viewed before the subsequent cycle has started, it will be necessary to put the machine through a cycle until fault re-occurs.

Fault Code	Short Description	Reason
H1	NTC Open or Short Circuit. (Refer to No Heat flow chart)	If the NTC sensor has failed, the program is completed without heating, then the error code occurs.
H2	Heater Open Circuit. (Refer to No Heat flow chart)	If the heater is open circuit the program is completed without heating, then the error code occurs.
H3	Heater Always On	Replace control module if fault is observed.
H4	Valve Triac Short Circuit	Replace control module if fault is observed.
H5	Pump Open Circuit / Blocked. (Refer to Not draining flow chart)	If the water level has not changed in 4 min the machine will pause for 2 min, it then will repeat this process a total of 8 times before displaying the fault.
H6	Wash Motor Triac Short Circuit. (Refer to Spinning When Washing flow chart)	If the Triac short circuits, the motor will spin up to high speed, it then checks 3 times for 3 seconds with a 30 second pause in between it then opens the relay in the motor the water drains and reverts back to the start position.
H7	Pressure Sensor Failure. (Refer to No Water flow chart)	
H11	Motor / Tacho Open Circuit. (Refer to Washing Machine Doesn't Work,	After filling, if the motor does not run or the electronics have not received a signal from the Tacho, the machine

	After Filling Step is Performed)	pauses for 120 seconds, it then will repeat this process a total of 8 times. If the machine is unable to correct the problem, the motor will not be energised again, the pump motor will turn on, and the error code occurs (Pre wash LED starts Flashing).

Flow Chart

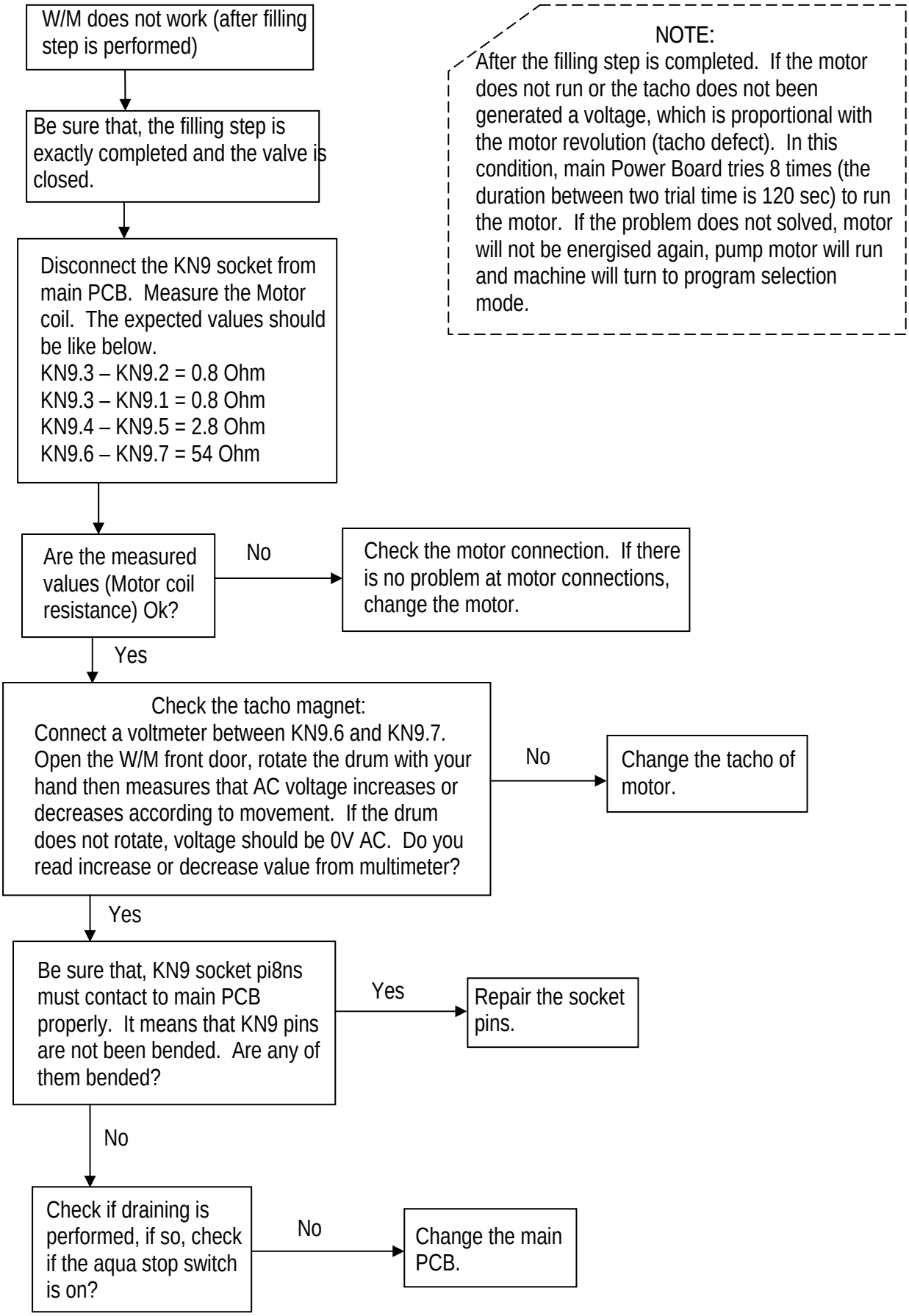
1. Washing Machine Does Not Work



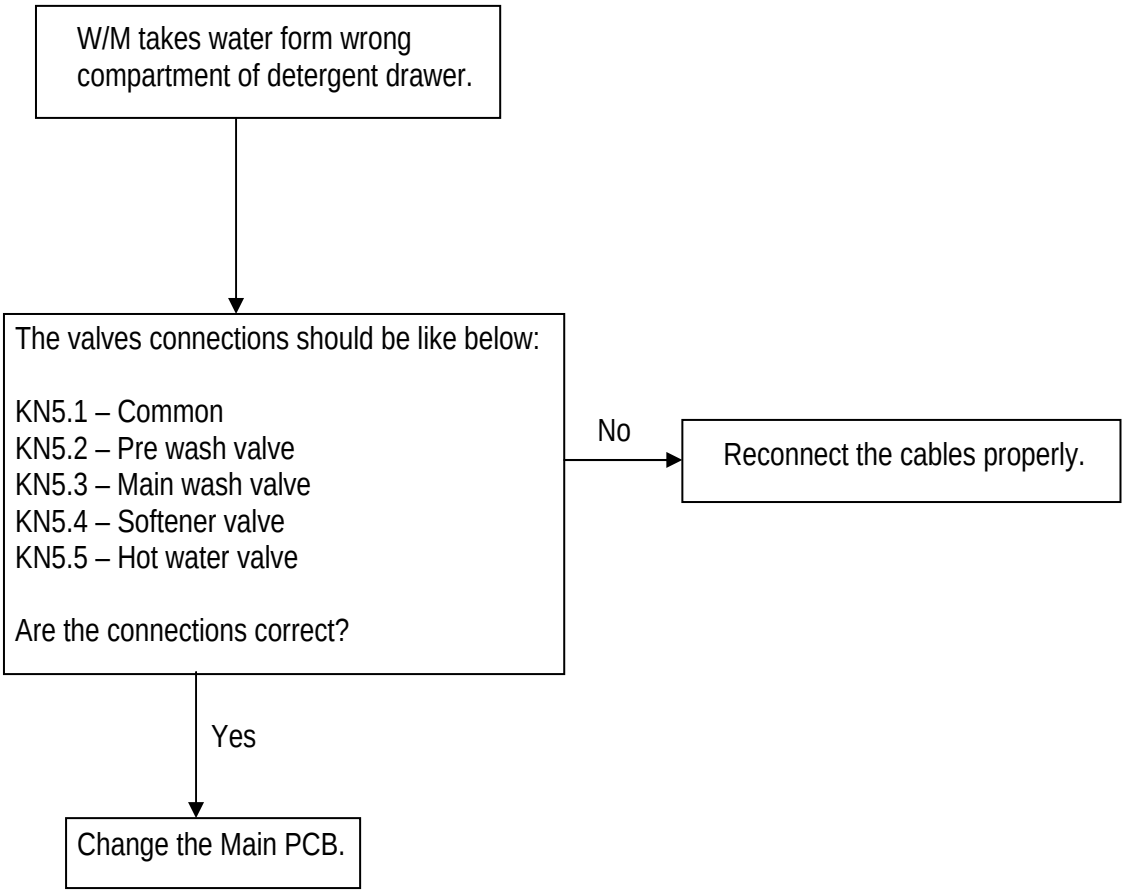
Warning:

W/M does not work, means all function is not performed. In other words W/M does not perform one of the following functions; filling, washing, spinning and draining.

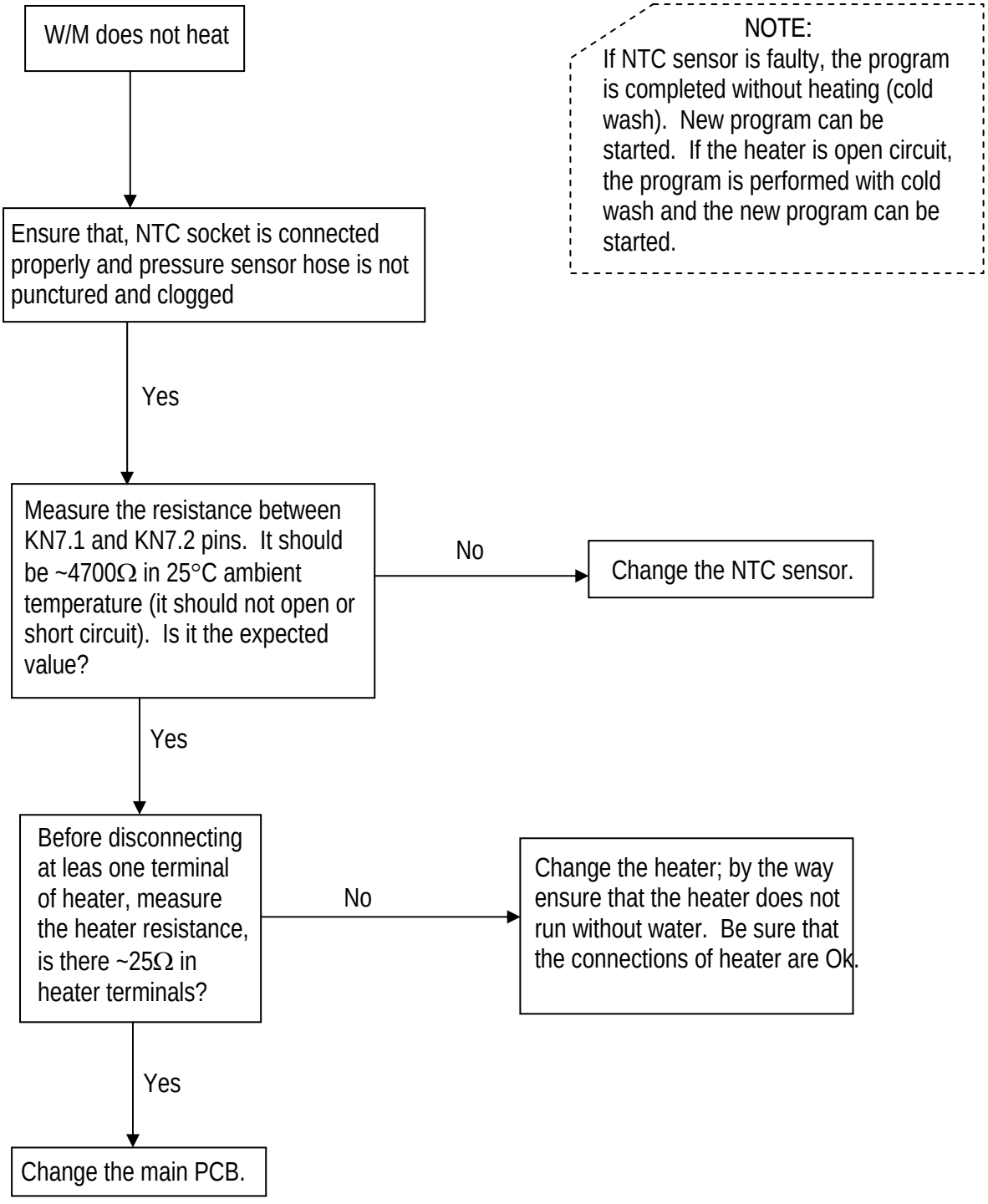
2. Washing Machine Doesn't Work (After Filling Step Is Performed)



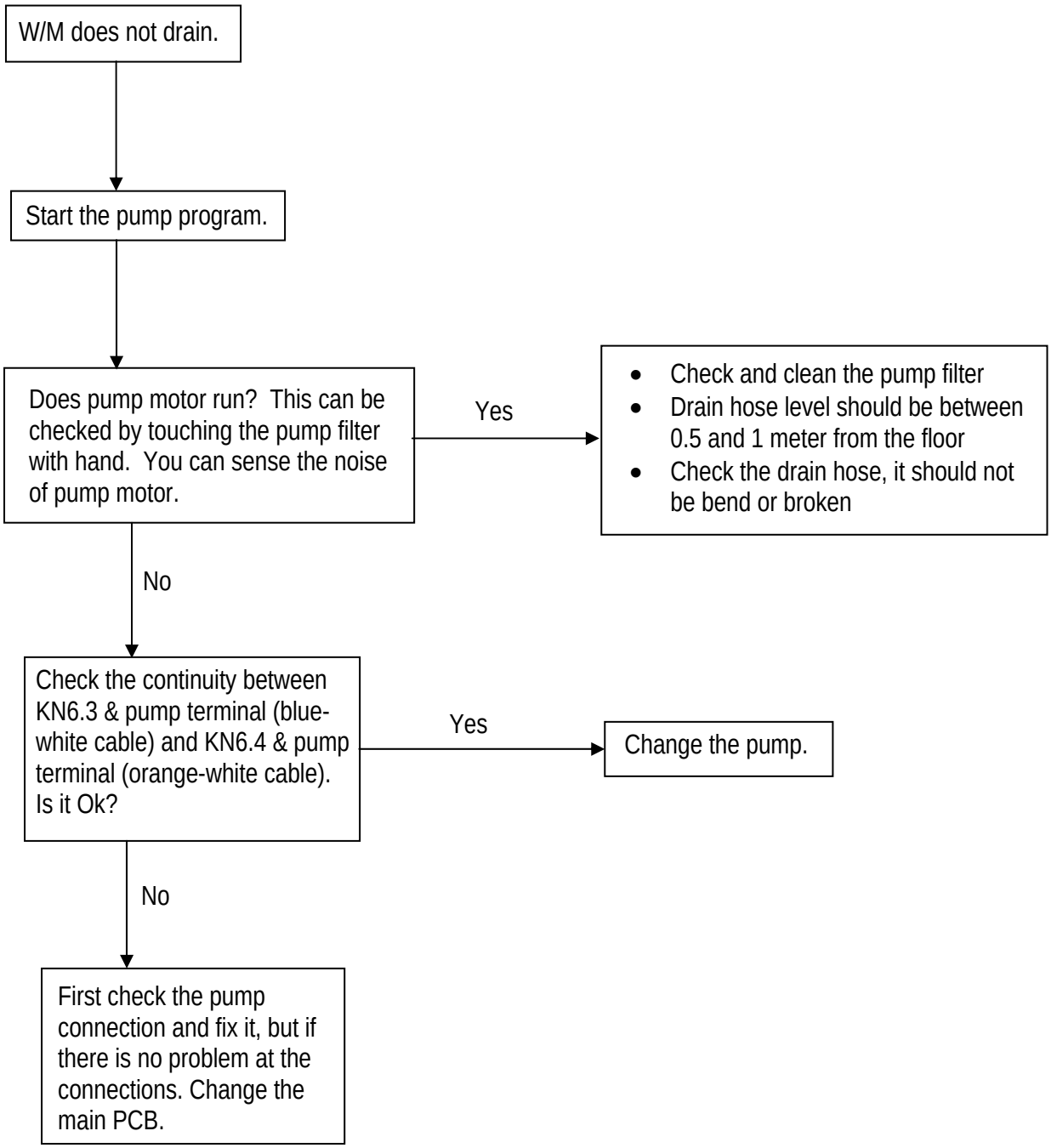
3. Washing Machine Takes Water from Wrong Compartment of Detergent Drawer



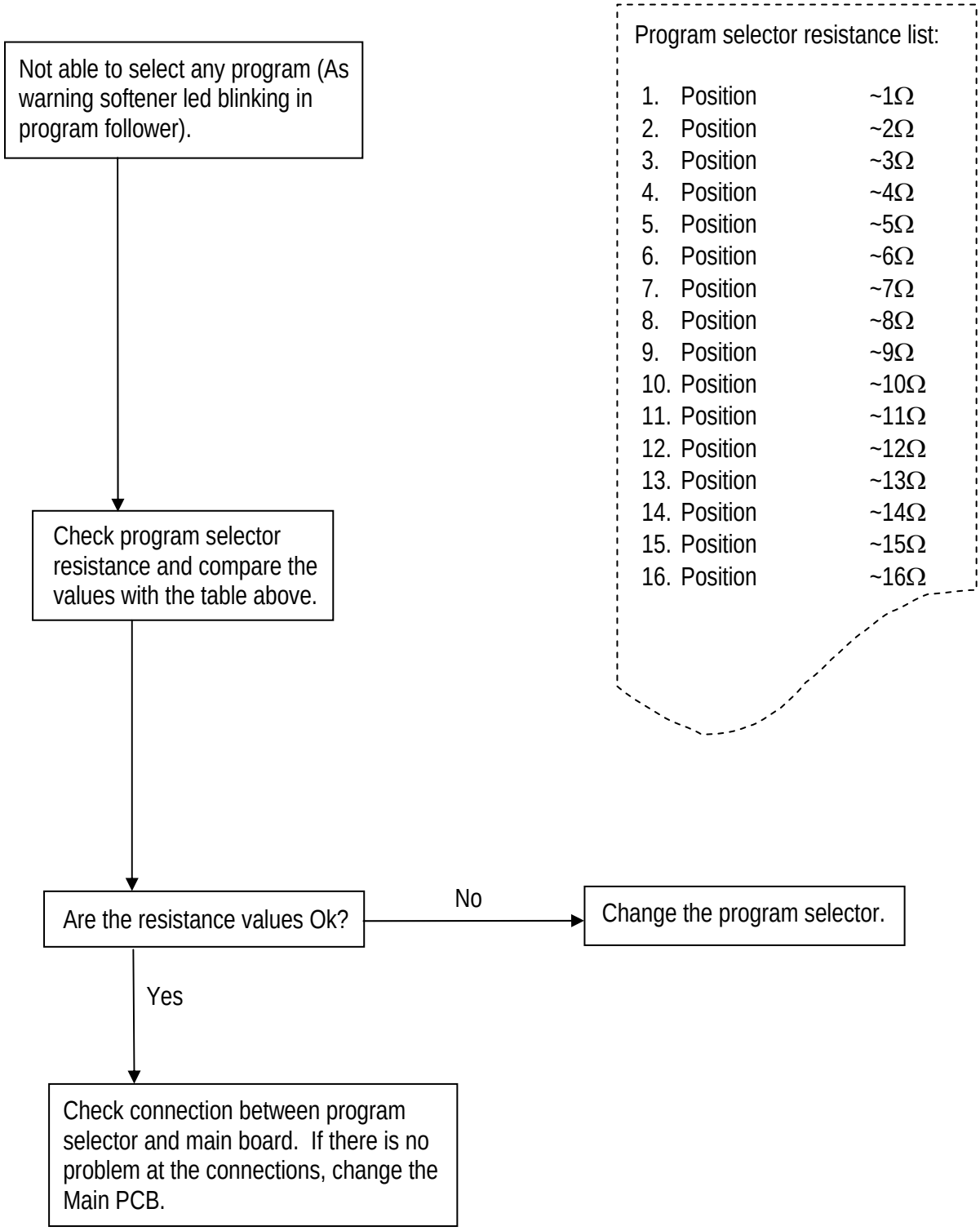
4. No Heat


W/M does not heat
NOTE:
If NTC sensor is faulty, the program is completed without heating (cold wash). New program can be started. If the heater is open circuit, the program is performed with cold wash and the new program can be started.
Ensure that, NTC socket is connected properly and pressure sensor hose is not punctured and clogged
Yes
Measure the resistance between KN7.1 and KN7.2 pins. It should be ~4700Ω in 25°C ambient temperature (it should not open or short circuit). Is it the expected value?
No
Change the NTC sensor.
Yes
Before disconnecting at leas one terminal of heater, measure the heater resistance, is there ~25Ω in heater terminals?
No
Change the heater; by the way ensure that the heater does not run without water. Be sure that the connections of heater are Ok.
Yes
Change the main PCB.

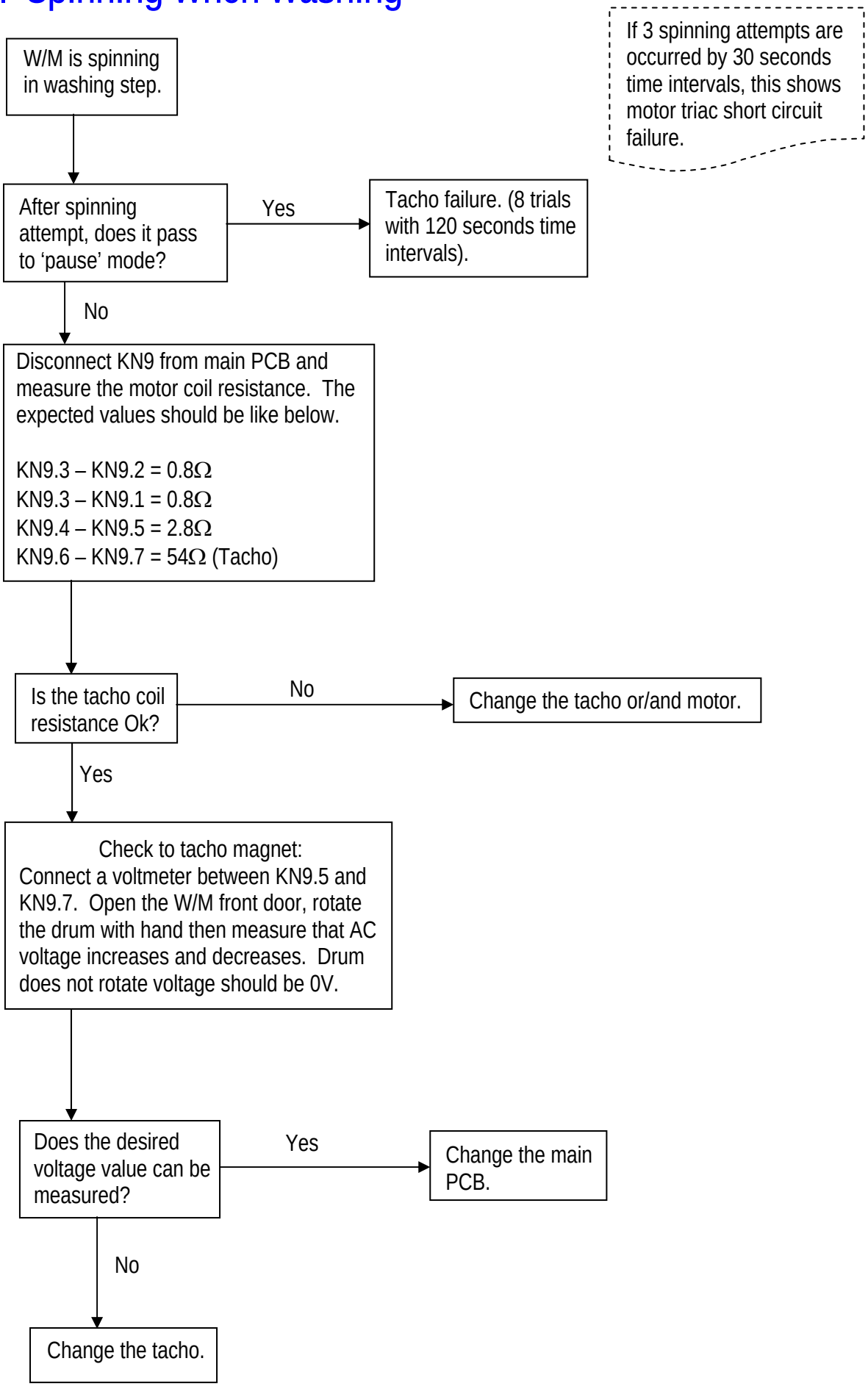
5. Not Draining



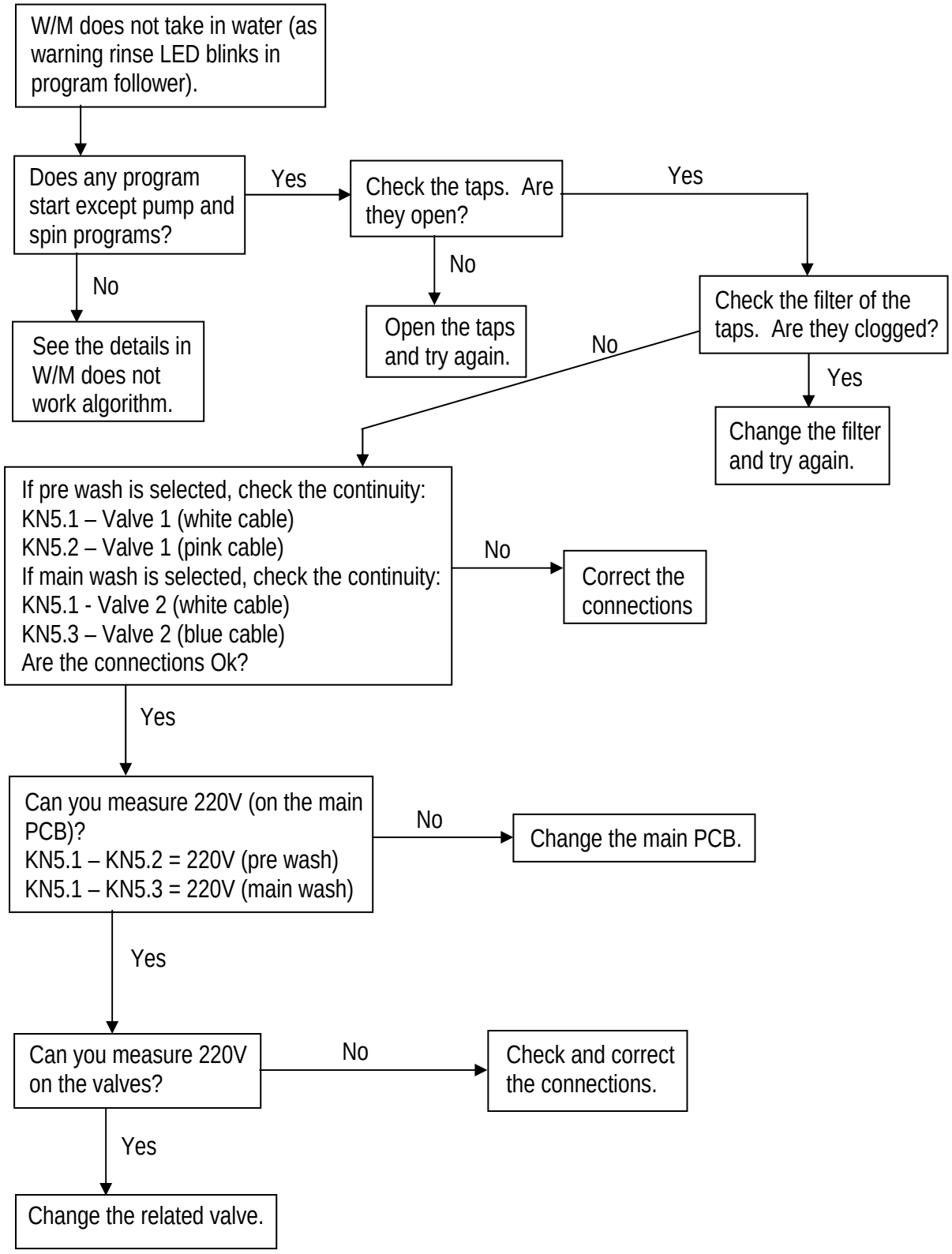
6. Unable to select a program



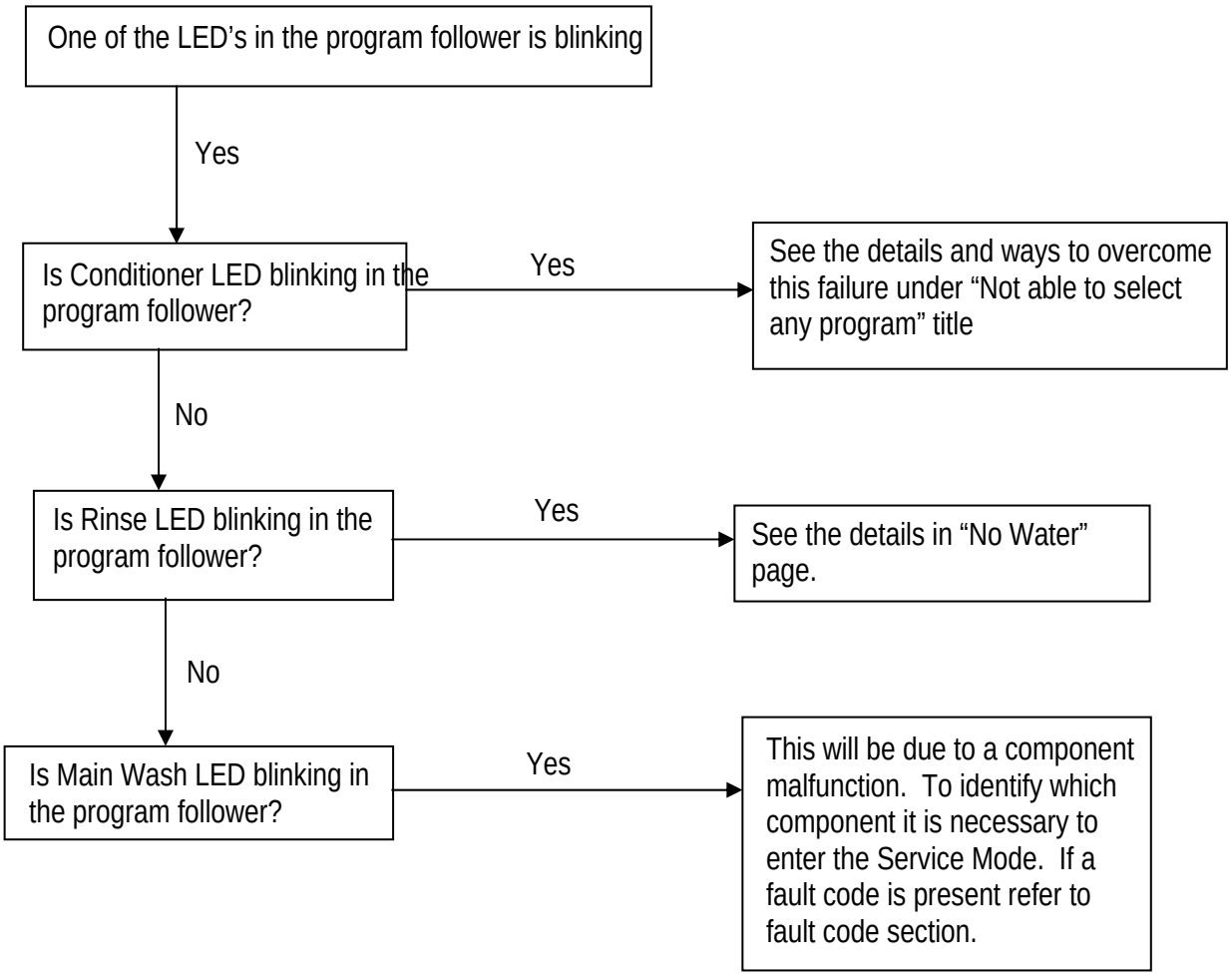
7. Spinning When Washing

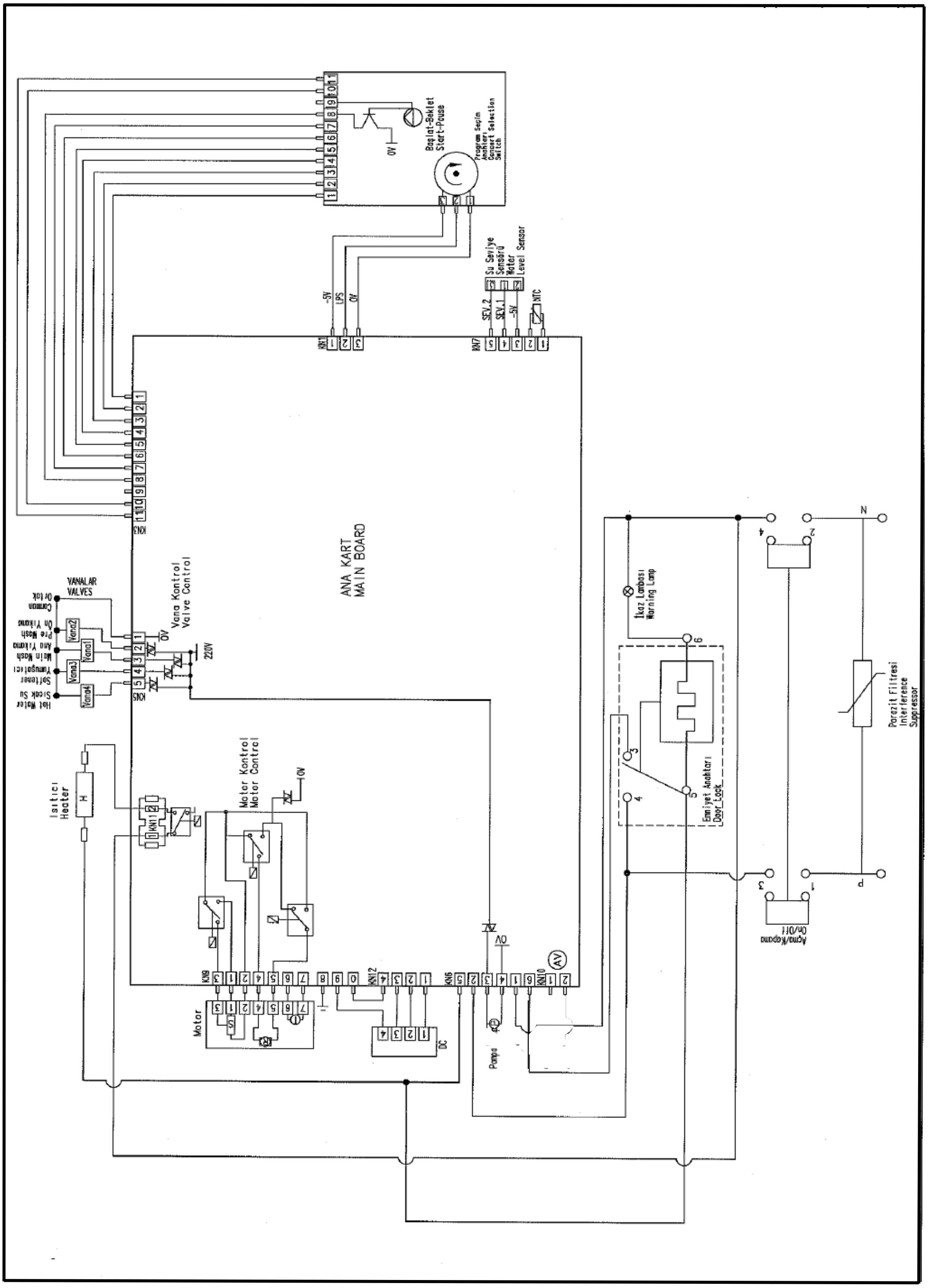


8. No Water


W/M does not take in water (as warning rinse LED blinks in program follower).
Does any program start except pump and spin programs?
Yes
Check the taps. Are they open?
Yes
No
See the details in W/M does not work algorithm.
No
Open the taps and try again.
Check the filter of the taps. Are they clogged?
No
Yes
Change the filter and try again.
If pre wash is selected, check the continuity:
KN5.1 – Valve 1 (white cable)
KN5.2 – Valve 1 (pink cable)
If main wash is selected, check the continuity:
KN5.1 - Valve 2 (white cable)
KN5.3 – Valve 2 (blue cable)
Are the connections Ok?
No
Correct the connections
Yes
Can you measure 220V (on the main PCB)?
KN5.1 – KN5.2 = 220V (pre wash)
KN5.1 – KN5.3 = 220V (main wash)
No
Change the main PCB.
Yes
Can you measure 220V on the valves?
No
Check and correct the connections.
Yes
Change the related valve.

9. LED Blinking




ANA KART
MAIN BOARD
Başlat-Beklet
Start-Pause
Program Seçim Anahtarı
Concert Selection Switch
Su Seviye Sensörü
Water Level Sensor
NTC
Vana Kontrol
Valve Control
VANALAR
VALVES
Vana1
Vana2
Vana3
Vana4
Ortak
Common
Ön Yıkama
Pre Wash
Ana Yıkama
Main Wash
Yumuşatıcı
Softener
Sıcak Su
Hot Water
220V
0V
-5V
LPS
SEV.1
SEV.2
Isıtıcı
Heater
Motor Kontrol
Motor Control
Motor
DC
Pompa
İkaz Lambası
Warning Lamp
Emniyet Anahtarı
Door Lock
Parazit Filtresi
Interference Suppressor
Açma/Kapama
On/Off
KN1
KN3
KN5
KN6
KN7
KN8
KN10
KN11
KN12
AV
N
P