Fisher&Paykel appliances

Service Diagnostics

SOFT TOUCH DISHWASHER

MODELS

813E 913T

599123

Reprinted July 2003

GENERAL SPECIFICATIONS

Dimensions
Width 590mm
Depth 555mm
Height 840mm
Door Open 590mm

Electrical
230/240V AC 50Hz 10 amp max.

Heating Element
Calrod type 230/240V AC 50Hz
230V AC - 1500 watt
240V AC - 1625 watt
DC Resistance reading 33.4 ohms

Combined Rinse Aid / Detergent Dispenser
Rinse Aid
Elbi 230-240V 50Hz
Rinse Aid Volume 130-140cc
Dosage 1-6cc
Detergent
Intermittent Duty Coil
Detergent Capacity
Maximum Capacity 30 grams

Pressure Switch
Controls Co.
230/240V AC 10 amp max.
Fill Trip 50mm ± 7.5mm
Reset 12mm ± 5mm
Flood Trip 95mm ± 7.5mm
Reset 22mm ± 5mm

Temperature Sensor (Ptc)
2000 ohms at 25°C (room temperature)

Console & Power Board Assy - 813 & 913

Manufactured by Fisher & Paykel Electronics

Water Inlet Valve

ELBI - EATON 230/240V AC 50Hz Coil

Electrically actuated diaphragm type with built-in filter supplied with 10 litres/min flow regulator

DC resistance readings: 3.6 - 3.7K ohms

Drain Pump

Pump 20 litres/min at Head = 1m

DC resistance reading: 41 - 46 ohms

Microswitch

Single Pole double throw 250V AC 50Hz 10 amp

Thermostat

230/240V AC 50Hz 25 amp

Overheat Thermostat : Open 69 - 76°C

Wash Pump

Hanning 230/240V AC 50Hz 220 watt

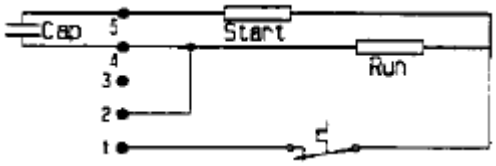
Pump 110litres/min

Head 4m

DC Resistance Reading

Run 21 - 24 ohms

Start 56 - 60 ohms



To test:

1. Measure run windings between terminal 1 (neutral) and 2 or 4.
2. Measure start windings between points 1 (neutral) and 5.

Capacitor

5uF, 400v AC

Finish

Tub, column, inner door - stainless steel.

Baskets - nylon coated wire rod.

Cabinet, outer door, front panels pre-painted white hi-bake acrylic over zinc-coated steel.

TEST PROCEDURES

FAULT DIAGNOSTIC CHART FOR 913 AND 813

The fault diagnostics consists of 4 types of tests as follows:

1. Display Test (LED test).
2. Input Test (internal switches, pressure switch and door microswitch).
3. Output Test (individual components test, e.g. hot and cold water valves, element, wash pump, etc).
4. Temperature measurement test.

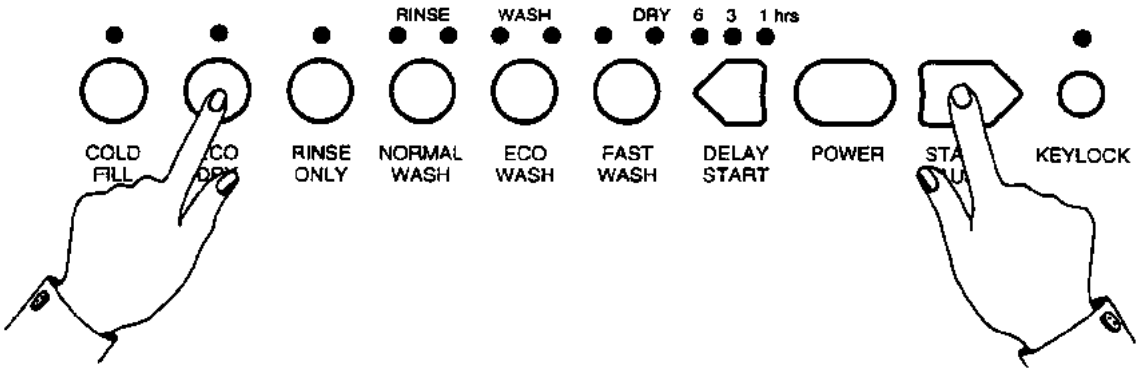
To Start The Test

Power on at wall socket. No LED's displayed.

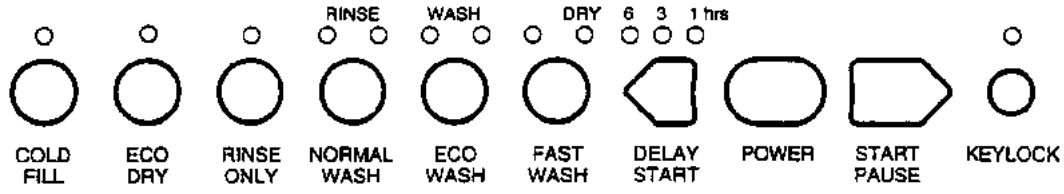
Note:
a. To carry out the diagnostic test procedure, all tests must be done in the following pre-determined sequence.
b. To cancel the programme at any time, press **POWER** button.

Display Test (Tests All LEDs Functioning)

Press **START/PAUSE** and **ECO DRY** simultaneously (a beep will sound). Hold for 4 seconds until a second beep is heard.

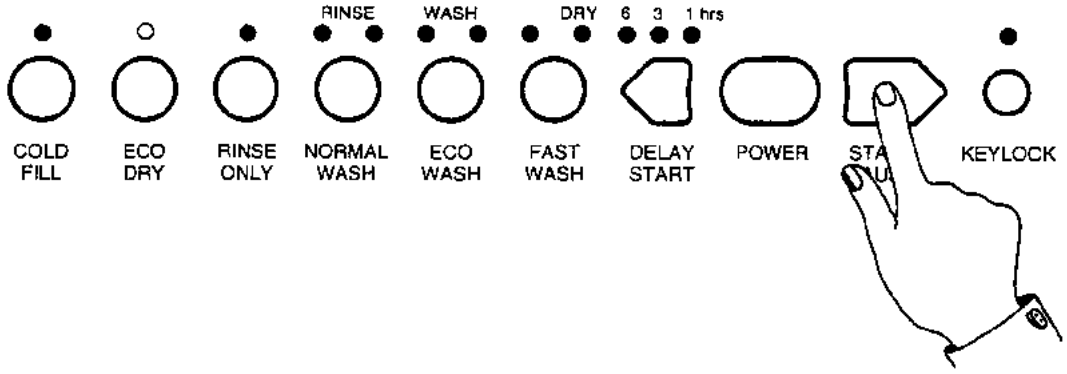


All LED's should be on. Should any fail at this stage it will indicate a faulty LED. A replacement console assembly must be fitted. To exit, press **POWER** button.



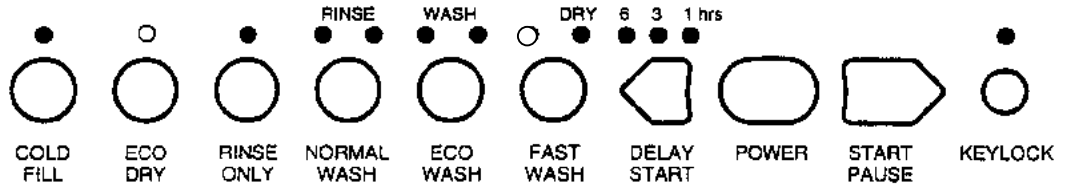
Input Test (Internal Switches - Pressure Switch and Door Microswitch)

Press **START/PAUSE** button to progress from ‘Display Test' to 'Input Test'. The Eco Dry LED will turn on.



Pressure Test

Turns the Post Rinse LED on when the tub is full and extinguishes it when the tub has been emptied.

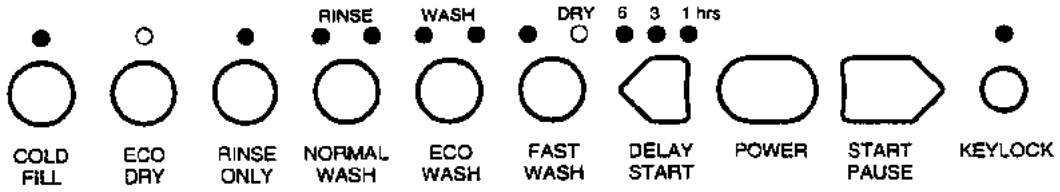


Dry Test

Remove the pressure switch tube and fit a spare tube. Blow gently until the pressure switch activates the first level. The Post Rinse LED will turn on. Continue to blow gently to activate the second level which will activate the drain pump. Release air to deactivate the pressure switch. The Post Rinse LED will turn off. **Note:** Blow up existing pressure switch tube before refitting to the pressure switch to ensure no water is in the tube.

Door Switch Test

Will turn on the Dry LED when the door is open and will extinguish it when the door is closed.



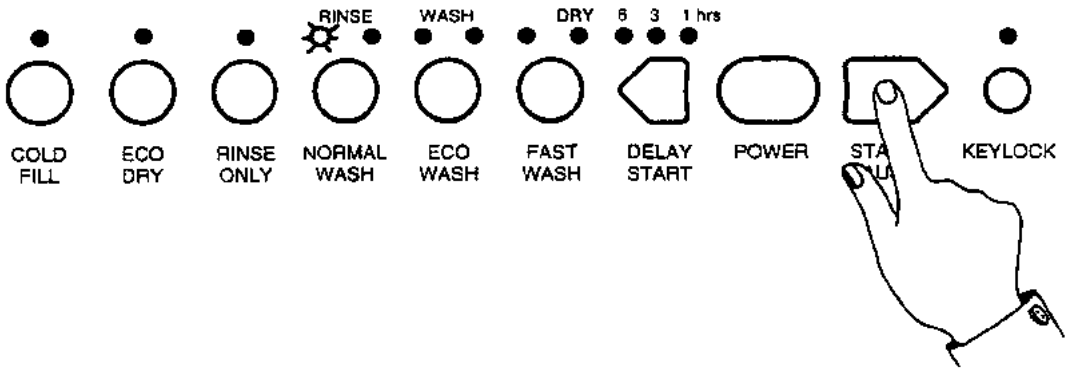
Output Test (Individual Components Test e.g. hot and cold water valves, element, wash pumps etc)

To stop during any part of the following, press the **POWER** button. Ensure the door is closed during the output test. If the door is open/opened while in the output test, the testing of the component will cease and the LED will return to blinking. The water valves will not operate if the machine is full of water.

The **NORMAL WASH** button, when pressed in this mode, activates the components. Press again to deactivate. The **ECO WASH** button is used to advance on to next component test function.

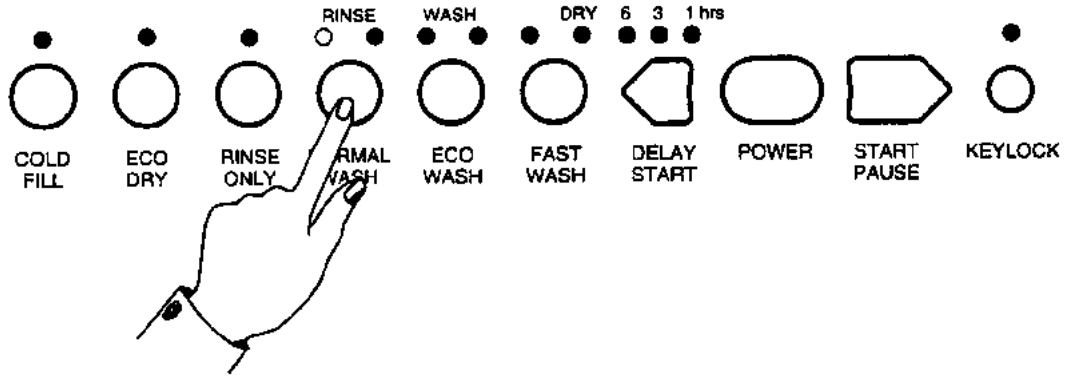
Cold Water Valve Test

Press the **START/PAUSE** button. The First Rinse LED will start blinking.



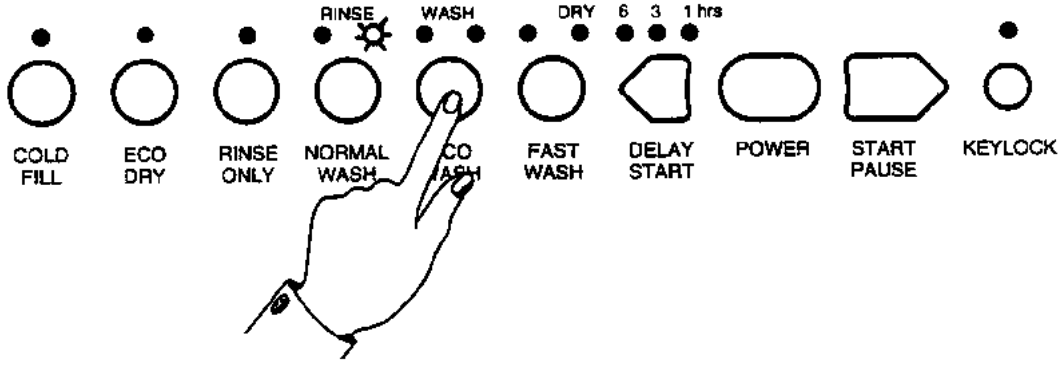
Note: To return to the previous tests, press the **START/PAUSE** button once for temperature test, twice for LED display, three times for input test. The water valves will not operate if the machine is full of water.

Press **NORMAL WASH**. The First Rinse LED will cease to blink but remain on. The cold water valve will be energized. **Note:** Should the tub be full of water, the water valve will not energize due to the pressure switch having already been activated.

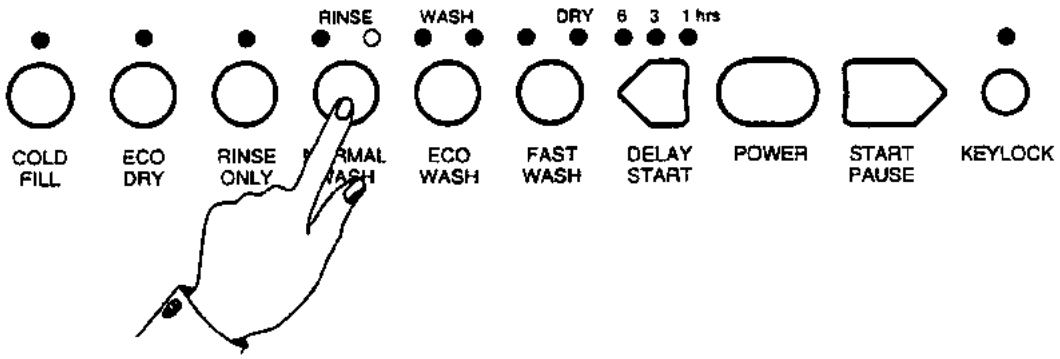


Element Test

Press the **ECO WASH** button to advance. The Second Rinse LED blinks.

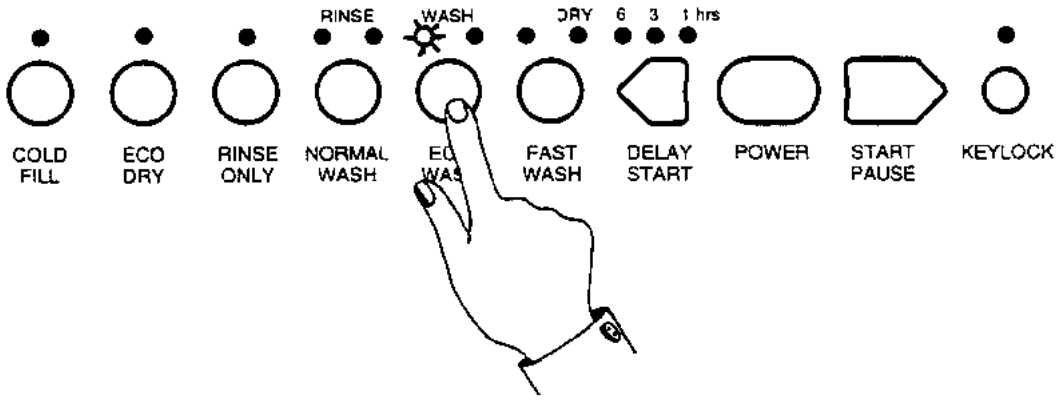


Press the **NORMAL WASH** button. This activates the element. The Second Rinse LED ceases to blink but remains on.

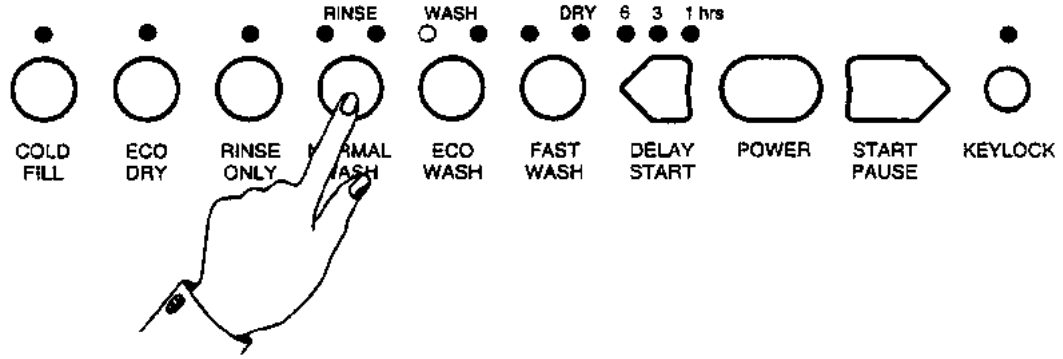


Hot Water Valve Test

Press the **ECO WASH** button to advance. The First ECO Wash LED blinks.

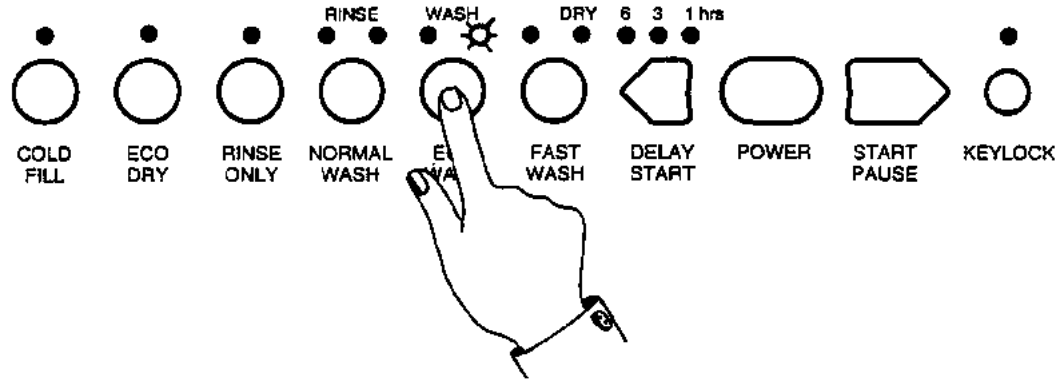


Press **NORMAL WASH** button. This activates hot water valve. First ECO Wash LED ceases to blink but remains on. **Note:** Should tub be full of water, the water valve will not energize due to the pressure switch having already been activated.

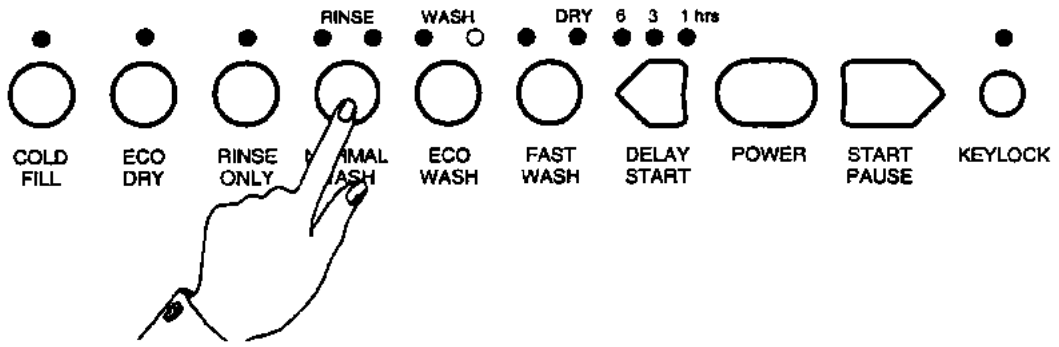


Wash Pump Test

Press the **ECO WASH** button to advance. The Second Normal Wash LED blinks.

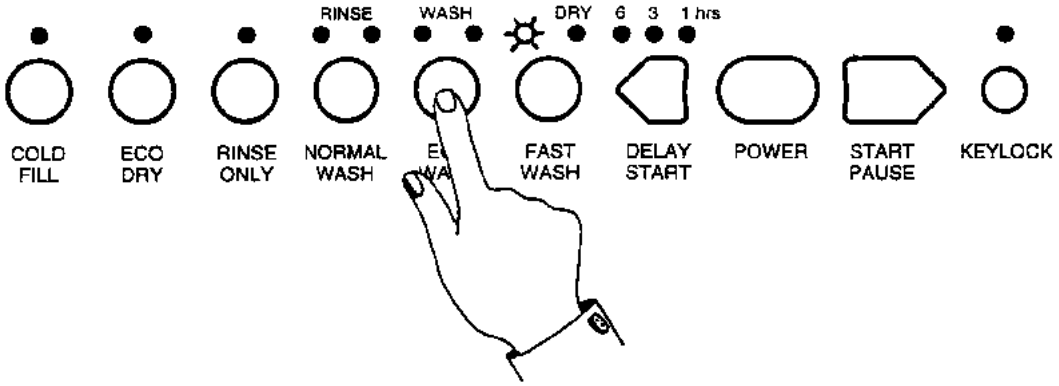


Press the **NORMAL WASH** button. This activates the wash pump. TheSecond Normal Wash LED ceases to blink but remains on. Use an amp meter to check current draw.

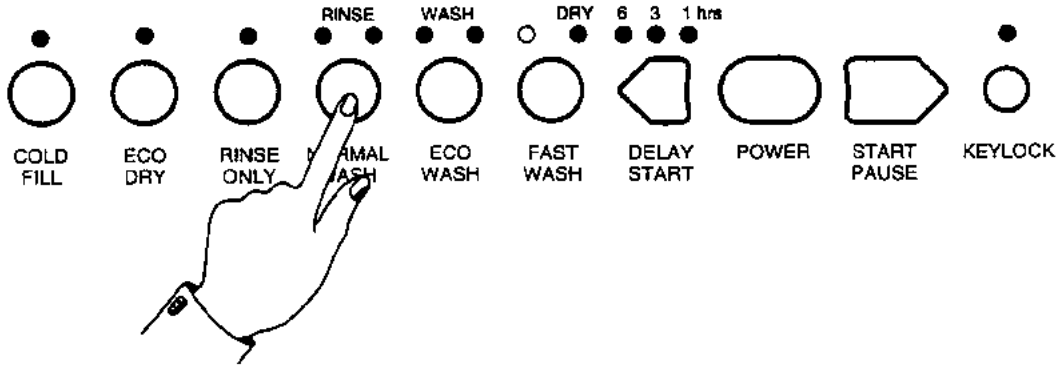


Detergent Test

Press the **ECO WASH** button to advance. The First Fast Wash LED will blink.

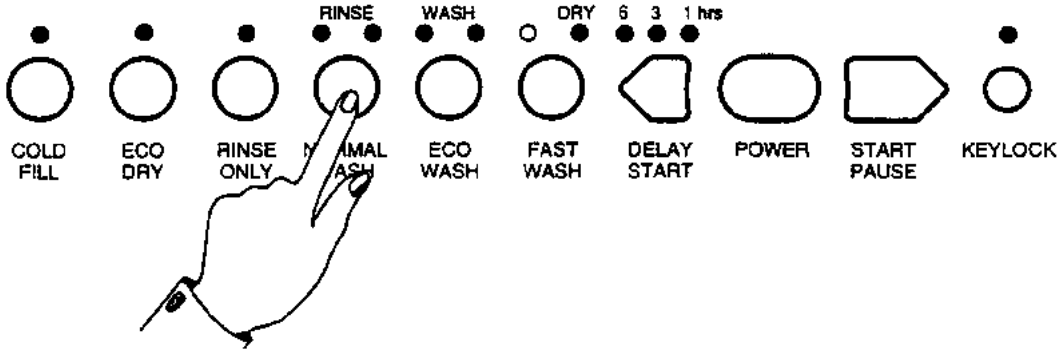


Press the **NORMAL WASH** button. This will activate the detergent dispenser. The First Fast Wash LED ceases to blink but remains on.



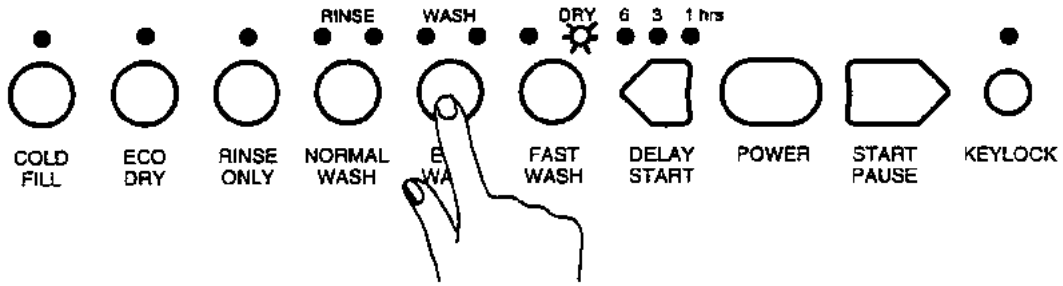
Rinse Aid Dispenser Test

Press the **NORMAL WASH** button. This will activate the Rinse Aid Dispenser. The First Fast Wash LED ceases to blink but remains on. **Note:** The Normal Wash button needs to be pressed four times. Firstly to activate the Detergent Dispenser, secondly to turn off the Detergent Dispenser, thirdly to activate the Rinse Aid Dispenser, finally to turn off the Rinse Aid Dispenser.

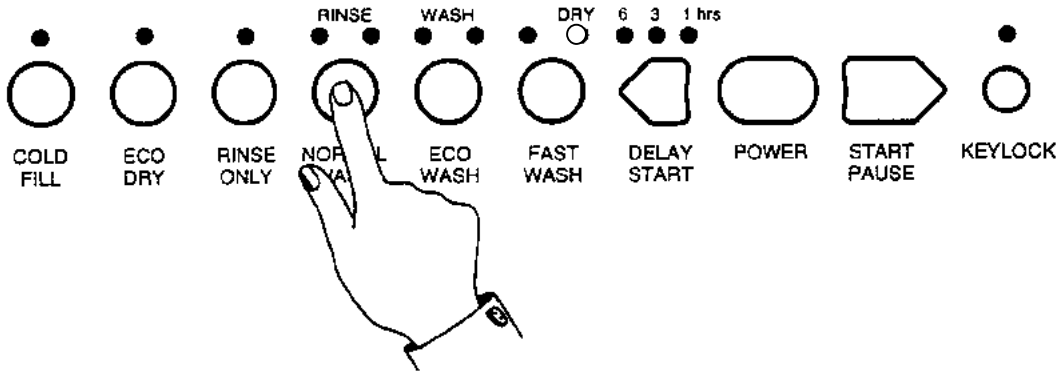


Drain Pump Test

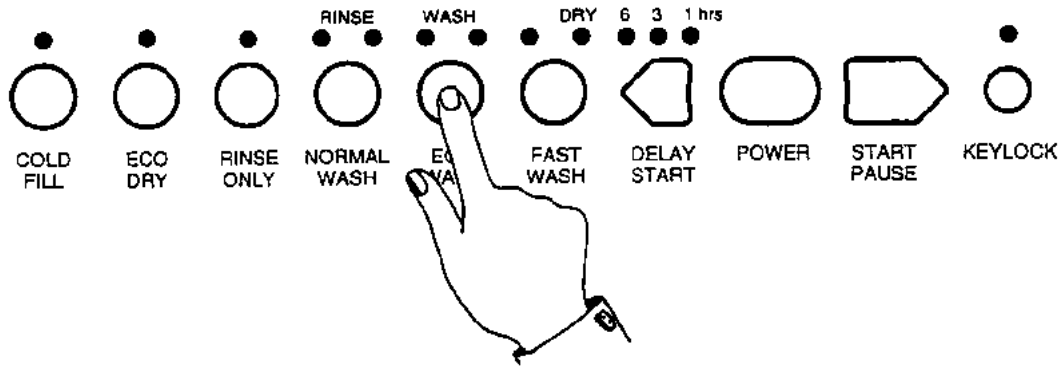
Press the **ECO WASH** button to advance. The Second Fast Wash LED blinks.



Press the **NORMAL WASH** button. This will activate the drain pump. The Second Fast Wash LED ceases to blink but remains on.

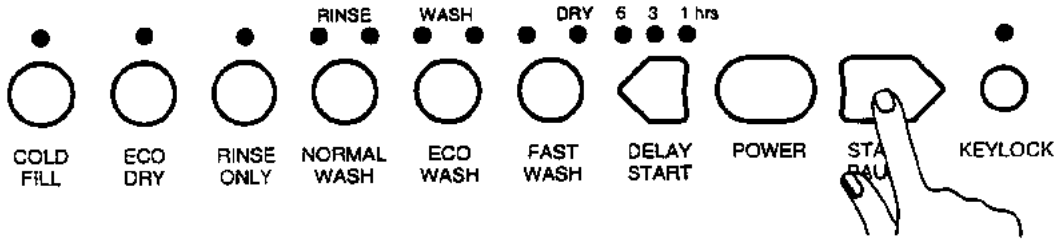


Note: ECO WASH can be pressed if you want to return to the beginning of the output test.



Temperature Test

To advance to the temperature test at completion of the output test, press the **START/PAUSE** button. This will register the temperature of the tub in a binary coded form.



Show off Mode

Enter the Display test mode, then push Keylock. This will show a random selection of flashing LEDs. To deactivate this mode, turn the machine off at the supply, then back on for normal operation.

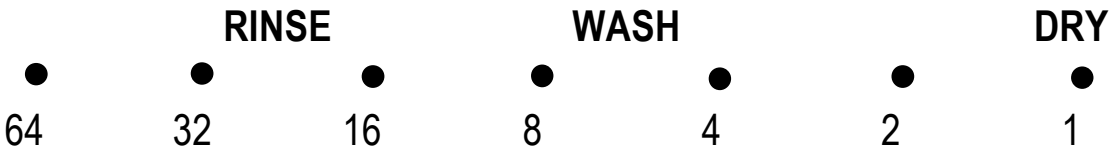
Temperature Test

Reading Temperature Display

The temperature is displayed using the binary code on the last 7 LEDs on the control panel i.e. Rinse, Wash and Dry LEDs.

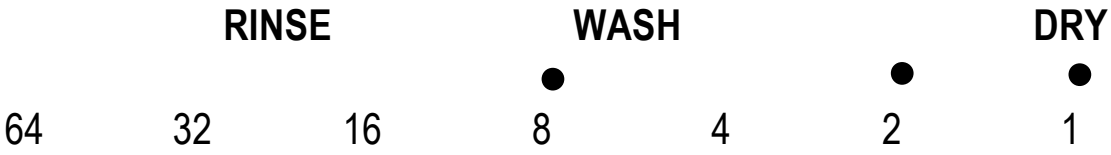
Each LED represents a certain temperature. For each LED that is turned on, its corresponding temperature is added together to give a total. This total is the temperature (in degrees C) that the sensor is reading.

The temperatures corresponding to each LED is as follows:



Example One

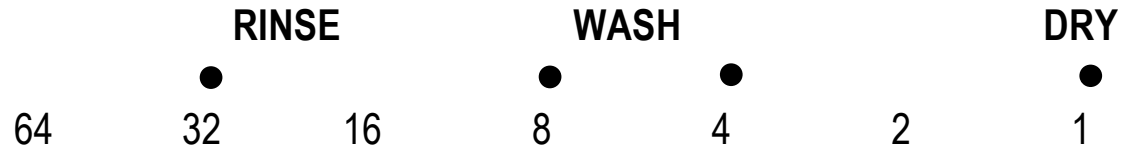
After selecting the temperature test the following is displayed:



Add the temperatures corresponding to each LED which is on - 8 + 2 + 1 = 11, hence the temperature is 11°C.

Example Two

After selecting the temperature test the following is displayed:



Add the temperatures corresponding to each LED which is on - 32 + 8 + 4 + 1 = 45, hence the temperature is 45°C.

Note: If temperature sensor is not connected to the top board, only one LED will illuminate.

REMEMBER TO END THE DIAGNOSTIC TEST. Press the **POWER** button and this will terminate the diagnostic test.

PROBLEM SOLVING CHART

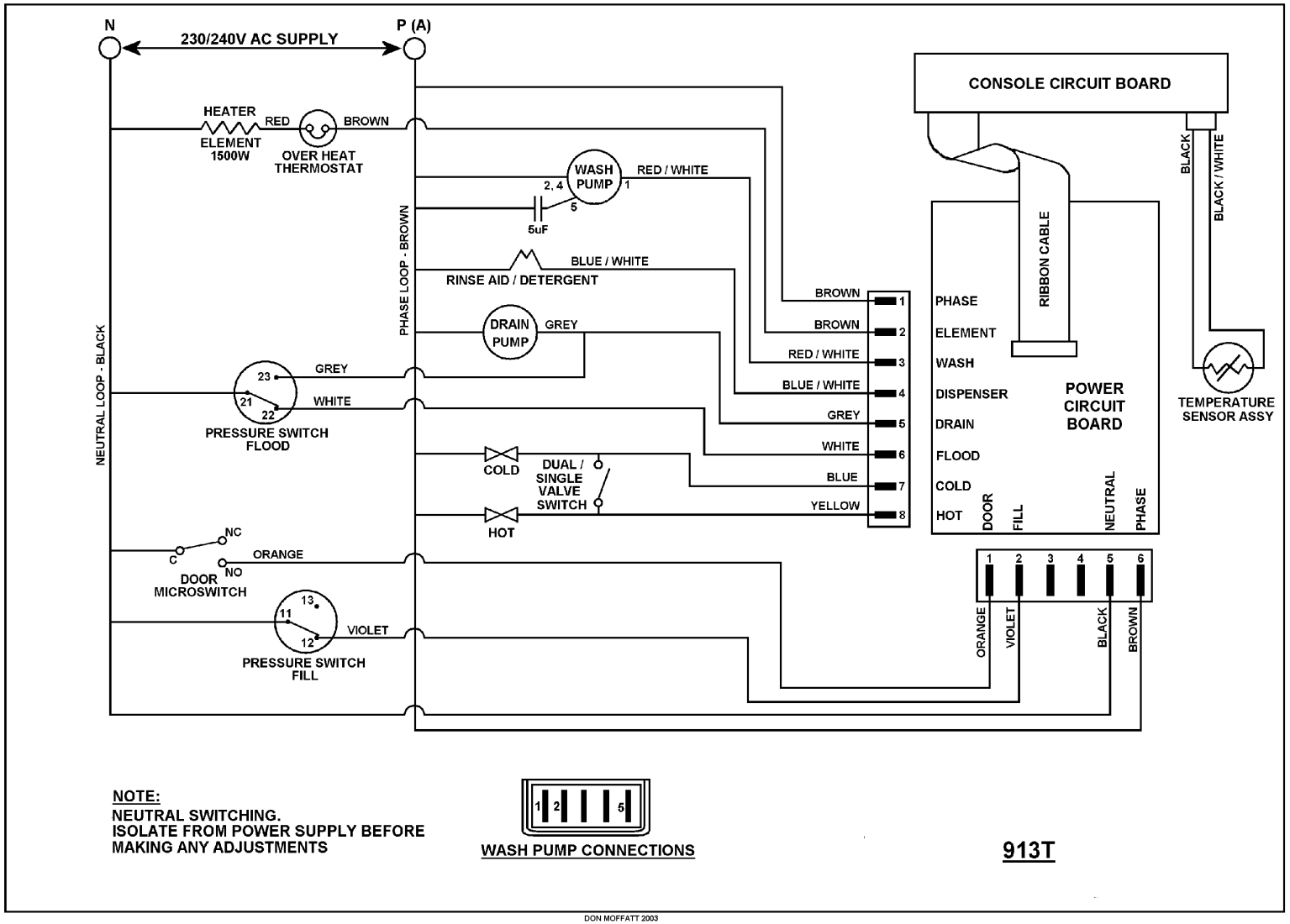
FAULT	POSSIBLE CAUSES	REMEDY
Machine Won't Start	Power failure. No water	Check if power socket on. Turn taps on.
Overfilling of Water.	Blocked bleed hole in fill vent or hose dislodged from weir / pressure chamber. During servicing; water may have entered the pressure switch. Faulty pressure switch. Inlet solenoid valve with foreign matter on valve seat Faulty weir / pressure chamber	Unblock bleed hole, refit hose. Disconnect hose from pressure switch and blow down tube to clear. Replace pressure switch. Replace valve. Replace weir / pressure chamber.
Underfilling of Water.	Machine not level. Faulty pressure switch. Faulty weir / pressure chamber Weir / drain hose obstructed	Level machine. Replace pressure switch. Replace weir / pressure chamber Clear hose and check bleed hole on fill vent.

Washing Continuously.	Faulty temperature sensor. Fault heating element. Overheat thermostat open circuited. Faulty electronics.	Change sensor. Change element. Change overheat thermostat. Replace electronic board.
No Water entering Machine - Power On.	Foreign matter blocking inlet filter. Inlet valve faulty. Kinked fill hose.	Clean filter. Change inlet valve. Straighten hose.
Machine not Draining	Fault drain pump. Kinked drain hose. Drain fuse / blown. Faulty non return valve.	Change drain pump or repair. Ensure drain hose is straight and not kinked. Replace power board and test pump. Repair or replace.

FAULT	POSSIBLE CAUSES	REMEDY
Machine not Washing Properly. Wash Pump Operating.	Spray Arms not rotating	Free spray arms. Check drive holes in spray arms. Ensure baskets are loaded correctly.
	Spray arms incorrectly fitted.	Ensure large holes are facing upwards. Top spray arm has four holes facing down.
	Blocked holes in spray arms.	Remove and clear spray arm holes.
	Under filling.	See underfilling.
	Blocked wash filters.	Clean filters.
Machine Filling during Washing	Incorrectly located filter funnel.	Correctly locate filter funnel.
	Blocked filter funnel or filter plate.	Clean filter funnel or filter plate

WIRING DIAGRAM

SOFT-TOUCH MODEL 813E -913T



NOTE:
NEUTRAL SWITCHING.
ISOLATE FROM POWER SUPPLY BEFORE MAKING ANY ADJUSTMENTS

WASH PUMP CONNECTIONS

913T