

## Some Repairs.

Information that may help you do repairs in similar appliances and similar faults.

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### **Fisher & Paykel Front Loader (4/9/2014)**

Fault: Water leaks.

These are made in the EU (?) with a series motor, not a smart drive. These sometimes develop leaks with a large load. The leak is from the vent hose, a hose from the wash barrel to the soap-draw. It is made from flexible plastic and develops cracks in the ribs from the movement of the wash barrel. A Simpson tub-to-pump hose (SP017) is a suitable substitute, and a layer of tape on the soap-draw makes a good fit.

### **Miele Dishwasher Model G638 (23/3/2013)**

This dishwasher was not working; the initial test showed it was not filling. Putting water into the dishwasher with a bucket and testing showed that the wash pump, heating element, and drain pump operate, so the only problem was the filling.

This dishwasher had a “no burst hose/valve” with the valve at the tap, a low-pressure hose to the dishwasher, and two wires to the valve. Some people call them anti-flood hoses, but I have very few hoses burst, creating a flood; lots of slow leaks can create just as many problems. To remove the hose/valve for testing, the dishwasher needs to be removed from the cupboard, and half of the side panel needs to be removed. Connecting the hose to a tap and powering the valve using suicide leads produced a good flow of water. This blows the idea that the valve was faulty, the most likely cause and another fault had to be found. Since it was time to go home (beer o'clock), the dishwasher was loaded and brought back to the workshop.

Back at the workshop, the side panel was completely removed, and the hose/valve was reconnected. Again, no water flow. The water enters a complex channel in translucent plastic with a solenoid and a flow meter. It had 5 hose connections, including the water inlet. Since it would be very difficult to measure the voltage at the miniature plug and socket, I chose to remove the door front panel. The owners thought the dishwasher looked better if the front panel matched the rest of the cupboards, so it had a heavy wooden panel, making it very heavy. Looks before ease of service!!! Inside was a circuit diagram written in German, with many columns in different languages, including English. This helped locate the wires to the valve. Resistance measurements from the PVB plug to the valves showed that the wires through the flexing door were not broken, a common problem with dishwashers, particularly with the higher-current-carrying wires. This proved the wires and the coil in the valves were OK. Next, the dishwasher was powered up, and 240V was present on the water valve connectors; the Triac in the PCB was OK. Great care is needed in testing live equipment with covers removed!

Running out of ideas, next, I removed the inlet hose from the inlet chambers and tested again; this

time, water flowed onto the floor. Reconnecting the hose again, the dishwasher began filling as water could be seen flowing through the translucent plastic inlet chambers. It must have an “air lock” in the chambers. Tested and drained the water out several times without any fault. The machine was returned and tested in the kitchen without any problems. Frustrations of fixing dishwashers!

### **Pressure Pump Repair (23/3/2013)**

The customer brought in a Chinese pressure pump sold at hardware stores for repair. Plugging in showed the pump did not operate, and the error LED on the controller was on. Removing the controller cover revealed the PCB with a terminal block for the pump and the mains input. Removing the pump wires from the terminal block and connecting the suicide leads through my inline ammeter<sup>1</sup> caused the motor to run, drawing about 1.5A, which was reasonable for the capacitor-run pump motor<sup>2</sup>. The motor was tested for a very short time because the pump was running dry; the water cools and lubricates the pump seal. This proved that the pump was OK and that the problem was in the controller PVB.

I remember reading about a repair to a pressure pump controller in the Silicon Chip Serviceman's log (Vol. 25, No., May 2012, page 63). After hunting the magazine out and reading the article, I found the 1  $\mu\text{F}$  240V capacitor to be faulty. I measured its value in circuit and found it to be about 0.1  $\mu\text{F}$ , and it measures the same after being removed from the PCB. The faulty capacitor was replaced with two 0.47 $\mu\text{F}$  capacitors in parallel, which were the same physical size, making the replacement a little more difficult in the limited space. Putting it all together and plugging it in causes the pump to operate.

A little information and someone else's experience can make a repair job easier. This repair was much cheaper than replacing the pressure switch controller.

More information on this can be found in my book: “Australian Washing Machine Repairs”, Lindsay Alford:

1: Appendix A1

2: Section F7

### **LG Turbodrum Top Loader Model WF-T556 (28/12/2014)**

This washing machine was showing a 'dE' (lid error). Looking at the lid, I found the little magnet missing. This machine has the PCB controller at the front with a magnetic reed switch on the PCB. The magnet on the lid would operate the reed switch through the plastic cover. Simple repair: replace the magnet. Craft shops sell small magnets and have used them to repair similar Asian machines before. Doing this still produced the 'dE' error, even after adjusting the magnet's position, which is usually required. The machine would only work if the magnet was hard against the control panel's plastic cover. This was less than 1-2 mm different. The next step was to replace the reed switch on the PCB. Removing the top and looking under the PCB housing showed no access to it. A closer examination of the top revealed a joint in the plastic. No loss, as the front screw holds the cover and the housing together, and they are also held on by plastic clips. A screwdriver quickly separated it. Manufacturers like to make things difficult! The reed switch was visible on top of the board, and a new one from Jaycar Electronics was soldered back in place. This fixed the machine

### **Technika Dishwasher Model TDX20S (10/4/2015)**

This dishwasher was not working, testing found it filled, drained and washed but not heating. The inline ammeter, meter<sup>1</sup>, did not reach 8-10A for the heating current. This dishwasher has a flow-through (hidden) element and a mechanical timer at the bottom; the controls do not advance it. A check with an ohmmeter showed the element to be OK. Next, check the thermostat. It is not easy to make measurements with the concrete weight counterweight removed at the back. A quick call to a mate said the thermostat had a reset button on top. Upon careful inspection, the button was found and pressed, and the dishwasher began heating, as indicated by the ammeter.

The next problem was that the dishwasher was leaking water at the door. My mate also told me about

this. The plastic spray arm is glued together, and the glue has given way, leaving a crack. This crack sprays water directly at the bottom of the door, forcing it past the door seal. A new spray arm is longer available, so the old one had to be glued together.

A little help can make a job much easier.

More information on this can be found in my book: "Australian Washing Machine Repairs",

Lindsay Alford:

1: Append A1