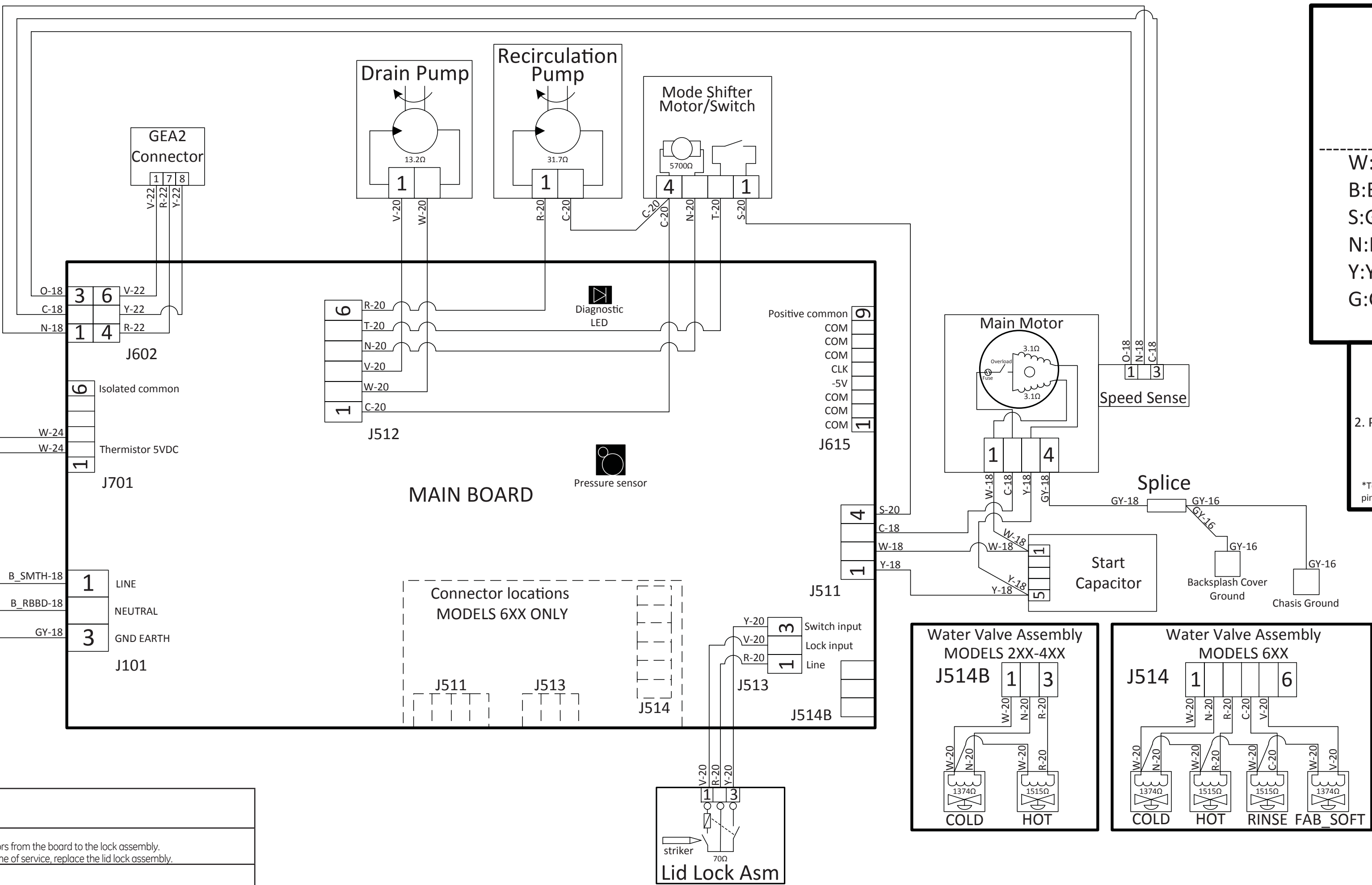


Binary Display Fault Chart		
Fault/Test # displayed on 7-segment display	When entered into service mode	Fault/Test # displayed in binary format using cycle status lights
Service Mode Tests		
0	All LEDs on	●●●●●●●
1	Fault Codes	○●●●●●●
2	Personality ID	○●●●●●●
3	UI Software Version (Critical)	○●●●●●●
4	UI Software Version (Non-critical)	○●●●●●○
5	XML Version (Non-critical)	○●●●●●○
6	Hot Water Valve	○●●●●●○
7	Cold Water Valve	○●●●●●○
8	Fabric Softener Dispenser	○●●●●●○
9	Spray Rinse Valve	○●●●●●○
10	Pressure Sensor	○●●●●●○
11	Recirculate Pump	○●●●●●○
12	Drain Pump	○●●●●●○
13	Lid Switch	○●●●●●○
14	Spin	○●●●●●○
15	Agitate	○●●●●●○
16	Clear all F Codes	○●●●●●○
17	Change Personality	○●●●●●○
18	Analog Knob	○●●●●●○
19		○●●●●●○
20		○●●●●●○
21		○●●●●●○
22		○●●●●●○
23		○●●●●●○
24		○●●●●●○
25		○●●●●●○

Personality Number	Model
0	GTW220
1	GTW490
2	GTW680
6	GTW460
7	GTW200
8	GTW210
9	GTW410
10	GTW485
12	GTW491

Fault Code (Hex)	Name	Description	Repair Action
1	Lock Monitor	Lid lock didn't occur or lid lock signal not seen by control due to lack of connection.	• Check the resistance of the lid lock assembly. • Check the harness for open wires and or connectors from the board to the lock assembly. • If lock assembly and harness prove good at the time of service, replace the lid lock assembly. • Replace control if this fault happens repeatedly.
2	Lid Monitor	Control did not get lid closed signal from switch while motor was moving. Could mean the switch didn't close or control didn't get the signal because of lack of connection.	• Physically check the washer for anything preventing motor movement. • Check harness and harness connectors from the control to the motor. • Verify hall sensor is connected to the main harness. Put washer in Service Mode and run TEST 13. Spin Test. If hall sensor is bad or disconnected, the basket will start to spin normally and then stop spinning after approximately 5 seconds. Ensure hall sensor is properly connected and positioned on the motor. If basket spins for approximately 15 seconds, the hall sensor is most likely NOT the cause. • TCO should reset in approximately 45 minute. If TCO is tripped, make sure motor moves freely and that nothing is jamming it. Replace motor if it does not.
3	Locked Rotor Monitor	For 5 straight seconds control not seeing signal changes indicating the motor is turning while trying to spin. Could mean the motor isn't rotating or control didn't get the signal because of lack of connection.	• Check for loose connections at the control. Reconnect if any. • Check for recommended house line voltage to the washer.
4	Reset Monitor	Control is resetting the software by itself due to criteria it believes could resolve itself upon reset.	• Check mode shifter coupler for damage and the ability to slide in and out freely. • Using an ohm meter, check to ensure mode shifter switch is in the open position. • Check resistance of mode shifter motor (approximately 5.7k ohms). • Check for 120VAC to the mode shifter motor at the control J512 connector. • If voltage is present, replace the mode shifter. • If voltage is not present at the control, replace control.
5	Mode Shifter	Control didn't see the transition from Agitate to Spin or vice-versa in the time required. Could mean the shift didn't occur or control didn't get the signal because of lack of connection.	• Check pressure tube for pinches where it goes through top cover grommet. • Check pressure tube for trapped water. • Check for any leaking water valves. • Check the output voltage from the pressure sensor to ensure it matches the water level in the basket according to the pressure sensor chart. If it does not, the control will need to be replaced as the pressure sensor is mounted directly to the control.
6	Critical Flood Level by Pressure. Pressure level exceeds 17.5 inches above pressure port.	Control received an extended period of pressure readings that is nearing over-flow levels. Pressure 17.5". Voltage Output must be present. Could mean water did get that high due to briefly stuck water valve. Voltage output of sensor too high for actual water level because of sensor or water in pressure tube increasing pressure.	• This can happen if a large wet load is placed in the washer. • Check pressure tube for pinches where it goes through top cover grommet. • Check pressure tube for trapped water. • Check for any leaking water valves. • Check the output voltage from the pressure sensor to ensure it matches the water level in the basket according to the pressure sensor chart. If it does not, the control will need to be replaced as the pressure sensor is mounted directly to the control.
7	Flood Warning Level by Pressure. Pressure level exceeds 16.5 inches above pressure port.	Main micro received and extended period of pressure readings that is greater than maximum allowable fill volume. Pressure 16.5". Voltage output must be present. Could mean water did get that high due to briefly stuck water valve. Voltage output of sensor too high for actual water level because of sensor or water in pressure tube increasing pressure.	• Check house water supply vales are turned on. • Check pressure tube for pinches where it goes through top cover grommet. • Check pressure tube for trapped water. • Check water valve operation. • Check the output voltage from the pressure sensor to ensure it matches the water level in the basket according to the pressure sensor chart. If it does not, the control will need to be replaced as the pressure sensor is mounted directly to the control.
8	Pressure Sensor Loss	This determines if there has been a too great of a difference in the pressure sensor reading and the expected pressure sensor reading for the amount of water the control calculated it has put in. It assumes there is a pressure leak, a clog in the pressure hose/system delaying the increase in pressure, or a significant amount water leaking out.	• Open and close the lid to clear the error. • Check harness and connectors that go to the lid switch. • If the error will not clear, replace the lid switch.
9	Lid Switch Redundancy	Start attempted for a 4th cycle when the previous 3 cycles have completed with backup micro seeing lid open. Could mean the switches didn't occur or backup processor didn't get the signal because of lack of connection. See Fault #2 as well.	• Check mode shifter coupler for damage and the ability to slide in and out freely. • Use ohm meter to ensure harness shows continuity to the mode shifter from the control. • Check resistance of mode shifter motor (approximately 5.7k ohms). • Check for 120VAC to the mode shifter motor at the control J512 connector. • If voltage is present and no operation, replace the mode shifter. • If voltage is not present at the control, replace control.
10	Mode Shift Feedback Monitor	Signal feedback state from the mode shifter (agitate or spin) and the state requested by the control are not the same and the basket or agitator is rotating faster than 3-4 RPM. Agitate mode feedback signal is no voltage.	• Check lid switch continuity at J513 on the control. • Check continuity of lid lock position. Opened or Closed. • Check for proper operation of lid lock. 120VAC while activating. • Check lid lock wiring harness from the control to lock assembly. • If lid lock assembly and harness are OK, replace control board.
11	Clock Monitor	1. AC power line frequency is not 60Hz. 2. Software failure.	1. Check the frequency of the AC power outlet. If it is more than a few Hz off of 60Hz, notify utility company. 2. If house frequency is good, update software.
12	Redundant Flood Condition	Backup Processor received an extended period of pressure readings that is nearing over-flow levels. Pressure 18.0" Voltage Output must be present. Could mean water did get that high due to briefly stuck water valve. Voltage output of sensor too high for actual water level because of sensor or water in Pressure tube increasing pressure.	• Check pressure tube for trapped water. • Check Each Valves Operation... (Replace Water Valve and send back to GE) • Check the output voltage from the pressure sensor to ensure it matches the water level in the basket according to the pressure sensor chart. If it does not, the control will need to be replaced as the pressure sensor is mounted directly to the control. Send Control back to GE. • If the pressure tube is intact, replace control and Send Control back to GE.
13	Redundant Lid Unlocked	In spin mode, the lid switch feedback has voltage (lid closed), for more than 5 seconds the motor speed feedback assumes the basket is spinning > 4-5RPM when the lid lock feedback has no voltage (lid unlocked). Lid Switch Feedback has no Voltage when the BRPM is > 4-5RPM.	• Check lid switch continuity at J513 on the control. • Check continuity of lid lock position. Opened or Closed. • Check for proper operation of lid lock. 120VAC while activating. • Check lid lock wiring harness from the control to lock assembly. • If lid lock assembly and harness are OK, update the software.
14	Lid Lock Failure	Signal received by control is indicating the lock will not lock or unlock when requested or the lid switch is indicating open when the signal received indicated locked.	• Verify that the lid lock is not blocked by any external debris. • Check lid switch continuity at J513 on the control. • Check continuity of lid lock position. Opened or Closed. • Check for proper operation of lid lock. 120VAC while activating. • Check lid lock wiring harness from the control to lock assembly. • If lid lock assembly and harness are OK, update the software.
15	Water Temp Sensor Invalid	1. Thermistor disconnected/not present. 2. Failed thermistor	• Check thermistor resistance from connector J701 on the control board. Validate the resistance matches the table in mini-manual. • Check wiring harness and connections. • Replace thermistor.



Wire Color Key

XX-YY
XX:Wire color
YY:Wire gauge

W:White
B:Black
S:Grey
N:Blue
Y:Yellow
G:Green

C:Brown
R:Red
P:Pink
V:Purple
O:Orange
T:Tan

GY:Green with Yellow

Pressure Sensor

1. Not usable
2. Power supply[+]
3. Ground
4. Output
5. Not usable
6. Not usable
7. Not usable
8. Not usable

*To measure output voltage, connect the probes between pin 4 and pin 3. Shorting pin 3 to pin 2 will cause the main board to shut down

Thermistor Resistance Table		
Temp(C)	Temp(F)	Resistance(Ω)
10	50	19901
15	59	15713
20	68	12493
28	82.4	8833
32	90	7446
38	100	5807
44	111	4558
50	122	3601
54	130	3108
66	150	2016
76	169	1435

Tub Water Level Pressure Sensor			
MODELS 200-491 ONLY		MODELS 680 ONLY	
Inches of Water	Voltage	Inches of Water	Voltage
Empty	0.4	Empty	0.4
1"	0.7	1"	0.8
2"	1.0	2"	1.0
3"	1.4	3"	1.2
4"	1.6	4"	1.4
5"	1.8	5"	1.6
6"	2.0	6"	1.8
7"	2.2	7"	2.0
8"	2.4	8"	2.2
9"	2.6	9"	2.4
10"	2.8	10"	2.6
11"	3.0	11"	2.8
12"	3.2	12"	3.0

Resistance Table

Component	Resistance(Ω)
Drain pump	13.2
Lid Lock	70
Mode Shifter Motor(1/2HP)	5700
Motor(1/3HP)	3.1
Recirculation pump	31.7
Water Valves(Cold,Fab_Soft)	1374
Water Valves(Hot, Rinse)	1515

*These values are read from the leads while disconnected from the control PCB
**The values are approximate
***Measure lid lock resistance between pins 2 and 3 and pins 1 and 3 while lid is closed

Fault Code (Hex)	Name	Description	Repair Action
16	Adaptive Drain/Slow Drain	The total number of times during machine life the actual amount of time the pressure sensor indicated the wash water had drained to empty exceeded the calculated time by the software.	• This fault is set when adaptive drain cycle occurs to try to remove the rest of water in tub. • If the adaptive drain cycle times out, the control will run a Drain Pump Clearing algorithm to free the pump impeller of debris. Then it will finish draining. If drain clearing algorithm fails look for fault 18. • If fault 16 is 100 and fault 18 never occurs there is no problem. If fault 16 and fault 18 equal each other in faults, then look for drain blockages including house standpipe.
17	Dry Load Sense Timeout	Dry load sense times out and moves to the next part of the cycle selected. This occurs when the washer is not reaching the target speed within a defined time limit for the load type selected.	1. Check for water in the bottom of the tub. If so drain and try cycle again 2. Check the basket for excessive friction. Basket should spin freely. If not, find source of friction and remove it.
18	Drain Pump Clearing algorithm failed.	While draining the pressure sensor value for water level did not indicate the washer was empty before the Max Continuous Drain ON time was reached.	• This fault is set and will be seen with fault 16 when Drain Pump Clearing Algorithm failed to remove the blockage and the rest of water in tub. • Check the drain pump for blockage. • Check installation instructions for proper standpipe height. • Check pressure tube for pinches where it goes through top cover grommet. • Check pressure tube for trapped water. • Check the output voltage from the pressure sensor to ensure it matches the water level in the basket according to the pressure sensor chart. If it does not, the control will need to be replaced as the pressure sensor is mounted directly to the control.
19	UI State Timeout	Washer was paused for over 12 hours	• This is normal operation. This will happen if the consumer and or control switched cycle to a paused state.
20	Critical Flood Level by Gallons	Water volume into the tub exceeded 41 gallons as calculated by the control. 1. Pressure tube is momentarily pinched, has water in it, partial blockage if Flood fault 6, 7, or 12 occurs. 2. Low water pressure/flow or permanent pressure system blockage if NO Flood fault 6, 7, or 12 occurs.	• Check pressure tube for pinches where it goes through top cover grommet. • Check pressure tube for trapped water. • Check for any leaking water valves. • Check the output voltage from the pressure sensor to ensure it matches the water level in the basket according to the pressure sensor chart. If it does not, the control will need to be replaced as the pressure sensor is mounted directly to the control.
21	Flood Warning Level by Gallons.	Water volume into the tub exceeded 36.3 gallons as calculated by the control. Stops filling 1. Pressure tube is momentarily pinched or has water in it, partial blockage if Flood fault 6, 7, or 12 occurs. 2. Low water pressure/flow or permanent pressure system blockage if NO Flood fault 6, 7, or 12 occurs.	• Check pressure tube for pinches where it goes through top cover grommet. • Check pressure tube for trapped water. • Check for any leaking water valves. • Check the output voltage from the pressure sensor to ensure it matches the water level in the basket according to the pressure sensor chart. If it does not, the control will need to be replaced as the pressure sensor is mounted directly to the control.
22	Out of Balance (OOB) during dry load sense.	Large wet/OOB load being washed. This is set if OOB condition is detected during dry load sense algorithm. Dry load sense will be abandoned and wet load sense will be started.	1. Check for excessively OOB load. Customer Education on how to distribute load. 2. Check the basket for excessive friction or for being excessively out of round. Basket should spin freely and without wobble. If friction is found, remove it. I basket is bad replace it.
23	Critical Lid Lock	1. Lock blockage 2. Lid Lock failure. Will not lock or unlock or is locked while lid is opened.	• Verify that the lid lock is not blocked by any external debris. • Check lid switch continuity at J513 on the control. • Check continuity of lid lock position. Opened or Closed. • Check for proper operation of lid lock. 120VAC while activating. • Check lid lock wiring harness from the control to lock assembly. • If lid lock assembly and harness are OK, replace control board.
24	Lid Logic Failure	Lid switch failure. This fault is set if the system perceives the lid to be both OPEN and LOCKED for 5 consecutive seconds	1. Check harness and connections from the control to the lid lock assembly for damage and continuity. 2. Run a spin cycle. Pull up on the lid during spin for more than 5 seconds and see if this fault occurs. Replace lid lock assembly. 3. If above does not correct the fault, replace the control.
25	Pressure Sensor Dropout	1. Disconnected pressure hose. 2. Pressure tube is pinched or has water in it. 3. Pressure sensor failure.	• Check pressure tube for pinches where it goes through top cover grommet. • Check pressure tube for trapped water. • Check for any leaking water valves. • Check the output voltage from the pressure sensor to ensure it matches the water level in the basket according to the pressure sensor chart. If it does not, the control will need to be replaced as the pressure sensor is mounted directly to the control.

Rotary Switch Resistance Table		
*Resistance values are read from the leads while disconnected from the control PCB		
Position	Resistance(kΩ)	Voltage
1	0.8	0.7
2	1.9	1.5
3	3.7	2.2
4	6.7	2.9
5	13.5	3.7
6	40.5	4.5

