
Section 4: Trouble Shooting

Rapid Advance Mode

To enter the Rapid Advance mode, insert the key into the Rapid Advance/Run/Program lock and turn the key counter-clockwise (CCW). The Rapid Advance mode must be entered during the cycle. If the cycle has not yet started, press the **DOWN** button or the **UP** button to choose a cycle and then the **START** button to begin the cycle.

To advance to the next step in the cycle, push both the **UP** and **START** buttons at the same time. The display will show "Ad" (advance).

If advancing during a bath, all water valves will turn off and the drain will open until the "open drain" step is completed. The cycle will then continue to the next bath or to the spin of the current bath if the programming includes spin time.

If advancing during a chemical injection of a bath or after a chemical injection of the bath but before the low water level is reached, the injector will turn off and the hot and the cold water valves to the tub will turn on until the low water level is reached or for 30 seconds, whichever comes first. Then the drain will open and proceed to the next step after the open drain step is completed. If advancing before a chemical injection of the bath, the drain will open immediately and the cycle will proceed to the next step when the "open drain" step is completed.

If advancing during a spin, the tumbler will begin to decelerate immediately. However the cycle may proceed to the next bath before the tumbler comes to a complete stop. The cycle cannot be advanced further while the tumbler is decelerating.

If a temperature PCB is installed in the I/O PCB and the temperature programmed from 20 to 90 (Celsius), advancing will turn off the heater relay or steam valve immediately, if either is on, and open the drain after a three second delay. If the display shows a water temperature from 65 to 90 (may be displayed by pressing the **DOWN** and **START** buttons together), the drain will close again when the washer indicates empty and the hot and the cold water valves to the tub will turn on until the low water level is reached. The cycle will then continue to the next bath, or if programmed, to the spin of the current bath.

To exit the Rapid Advance mode during the cycle, turn the key to Run. The cycle will continue normally.

Notes:

- The cycle cannot be advanced during the open drain step of the bathes.
- The cycle cannot be advanced when the hot and cold water valves to the tub are on after advancing during or after a chemical injection.
- The cycle cannot be advanced again while the hot and cold water valves to the tub are on after advancing when the water temperature was 65 to 90.
- The Rapid Advance mode may only be entered after a cycle is started.
- The indicator lights will show which segment the cycle has been advanced.
- The Rapid Advance mode cannot skip the final three tumbles of the cycle. The door lock may remain activated for a couple minutes after the cycle has been completed.
- The chemical injection signals will not turn on if the Rapid Advance mode is entered before the injection.

To end the cycle without waiting for the time to count down, push and hold the STOP button for 5 seconds or more. The display will then show the cycle number and be ready to start the next cycle.

Diagnostic Test Cycle (#31)

There is a diagnostic test cycle to assist in both verifying correct operation and identifying functional problems. The test cycle is operated by following these steps:

1. Close the washer door
2. Turn the Run/Program Key to the Program Position. The program mode LED (bottom row right side) will light.
3. Select Test Cycle #31 by using the **Up** and **Down** Arrows on the touch pad. Read the Test Cycle number in the display.
4. Push the green **Start** button. All lights will be on and "00" will be in the display.
5. Push the **Up** arrow to select the following steps:
6. Injection signal can not be tested for output in this cycle

When the correct step is selected for the component that is to be tested, push the **Start** button to operate that component. Releasing the **Start** button removes power to the component being tested.

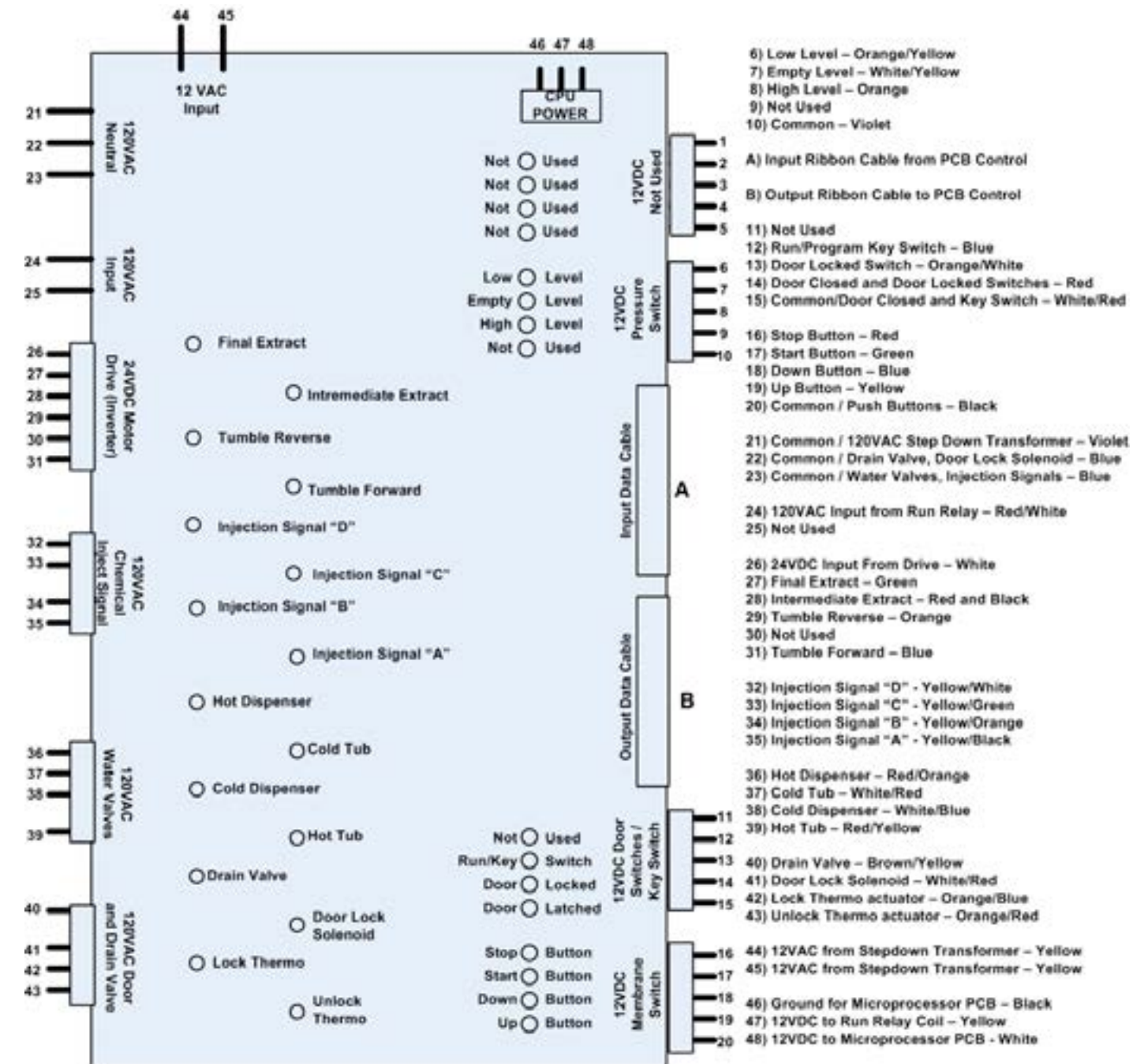
- Step 1: Door Locking Solenoid** (Door Sol.# 3 red output light will be lit. Green input #3 and #4 should be lit.)
- Step 2: Door Locking Thermoactuator** (Lock Thermo # 2 red output will be lit.)
- Step 3: Door Unlocking Thermoactuator** (Unlock Thermo # 1 red output will be lit.)
- Step 4: Close Drain Valve** (Drain Valve # 4 red output light will be lit.)
- Step 5: Cold Water Valve for the tub** (Cold Tub # 7 red output light will be lit.) The pressure switch low level setting can be tested at this point. The drain valve is closed and cold water is on for as long as the **START** button is pushed. When the water level reaches a low level, the water valve will turn off and no additional cold water can be added. (Green input LED #13 should now be lit.)
- Step 6: Cold Water Valve for the dispenser** (Cold Dispenser # 6 red output light will be lit.) The pressure switch low level setting can also be tested with this step. (See step 5)
- Step 7: Hot Water Valve for the tub** (Hot Tub #5 red output light will be lit.) The pressure switch high level setting can be tested at this point. The drain valve is closed and hot water on for as long as the **START** button is pushed. When the water level reaches a high level, the water valve will turn off and no additional hot water can be added. (Green input led #15 should now be lit.)
- Step 8: Hot Water Valve for the dispenser** (Hot Dispenser # 8 red output light will be lit.) The pressure switch high level setting can also be tested with this step. (See step 7)
- Step 9: Tumble clockwise** (FWD. #13 red output light will be lit)
- Step 10: Tumble counter clockwise** (REV. #14 red output light will be lit)
- Step 11: Open Drain Valve** (insures that drain valve is open before spin)
- Step 12: Intermediate Extract** (Rev.#13 and Speed1 #15 red output light will be lit.)
- Step 13: High Speed Extract** (Rev.#13 and Speed 1#15 and Speed 2 #16 red output light will be lit.)

Warning: If the washer has had any of the 30 cycles changed from the factory settings, do not use Step 14 unless you want to reset all 30 cycles back to the factory settings.
Step 14 will delete any changes made to all 30 cycles.

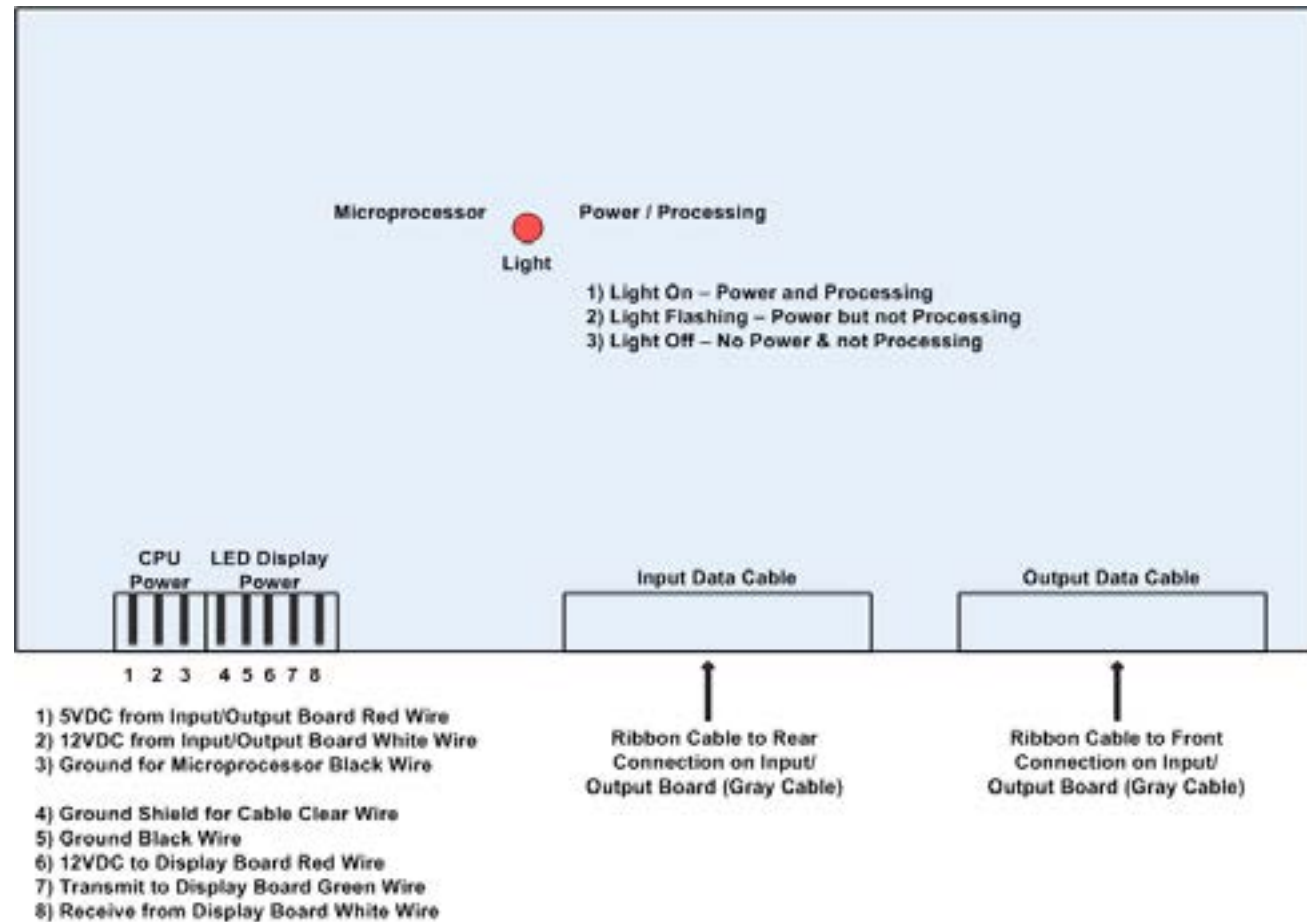
- Step 14: Reset all 30 Cycles to Factory Settings** (must push the **Start** Button and hold it, then push the Up Arrow button to reset to Factory Settings)

To Exit the Test mode, push the red **Stop** button and turn the Run/Program Key back to the Run position.

WN_____ Input/Output PCB Board



WN_____ Microprocessor PCB Board



Common Troubleshooting Solutions

Symptom	Probable Cause	Suggested Remedy
Machine does not start	Power Supply	Check these areas: Circuit breakers, Voltage, Power leads, Power connections
	Start Button	Check for green start button, light on Input/Output PCB # 6 when button is depressed. If no light check membrane switch assembly and ribbon cable
	Control Breaker or Fuse	Check 1.5 amp (T-1200 uses 2.5amp) breaker or fuse for continuity. If no continuity, replace breaker or fuse.
	Door Switch	Check for continuity through door switches when door is closed and locked. Check Input/Output PCB for green door closed light # 4 and green door locked light #3 showing that door switches are functioning correctly. If no continuity or green light on when door closed and start button pushed, check door switch and wiring assembly
	Control Transformer	Check voltage output from control transformer for 120VAC. If voltage is incorrect, replace transformer.
	Check PCB Board	Check all wire connections for sure contacts.
	CPU Board	Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red light. If on solid, all okay. If still flashing or not on, replace CPU board.
	Check Relay PCB	Check all wire connections for sure contact.
Machine starts then stops	Check Door Solenoid	Check that 120 VAC power is at solenoid after start button is pushed.
	Door Switch Ass'y	I/O PCB must have green input lights, DOOR LOCK 3, DOOR CLOSED #4, TUB EMPTY #14, RUN KEY #2. START #6 WILL BE ON WHEN pushed. If these are not on, check door switches and wiring to and from control panel.
Door does not lock	Door Locking Gear Motor	Check I/O PCB red output light DOOR SOL. #3 is on. 120 VAC to gear motor? Is linkage rod adjusted properly?
	CPU Board, Ribbon Cable or Input/Output Board	Check Input/Output PCB for green input door closed light #4 and green input door locked light . Check #3 single red light on CPU . Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset CPU. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and Input/Output PCB. (Check with factory for latest testing procedures for I/O PCB) If no voltage, replace I/O PCB.
	Door Locking Gear Motor	Check to insure that solenoid is receiving 120 VAC from Input/Output PCB. Is I/O PCB red output light #3 on? If 120 VAC and output light is lit, replace gear motor.
Door will not open	Door Switch	Check for continuity through door latch switch when door closed. If no continuity, adjust or replace door switch.
	Door Rod	Check to see if the mechanism is stuck or binding and not allowing the door lock motor to open.

Symptom	Probable Cause	Suggested Remedy
Door will not open	Thermoactuator	Check to see if thermoactuator(s) and/or its mechanism is stuck or binding and not allowing the door lock gear motor to open. Check to be sure that red light on Input/Output PCB for locking thermoactuator #2 is not illuminated and that Input/Output PCB is not sending 120VAC power to the locking thermoactuator during the last 70 seconds of the cycle. Check to be sure that red light on Input/Output PCB for unlocking thermoactuator #1 is illuminated and that Input/Output PCB is sending 120VAC to the unlocking thermoactuator during the last 30 seconds of the cycle.
	Door Lock gear motor	Check that door lock gear motor is not stuck closed. Check to be sure that Input/Output PCB is not sending 120VAC power to door locking gear motor. Be sure that red light on Input/Output PCB for door locking gear motor #3 is not illuminated. If door lock gear motor is receiving 120VAC, check CPU, Ribbon Cable and Input/Output PCB above.
	Input/Output Board	Check red door lock gear motor light #3 is on input/output board. If illuminated, remove power to washer for 2 minutes to reset CPU board. Reapply power to washer and check the door lock gear motor light #3. If no light, okay. If red light is still on, check the CPU board as described above under "Door does not lock". If CPU tests okay, change Ribbon Cables between CPU and input/output board. If red door lock gear motor output light on input/output board is illuminated, check that 120VAC is going from the input/output board to the door locking gear motor. If voltage, replace I/O PCB.
Machine starts but will not advance in the cycle	Water Valves	Check to insure that water valves are operating. If not, check to be sure that red light on Input/Output PCB for water valves is illuminated #5,6,7,8 and that input/output board is sending 120VAC to the water valve. If 120VAC, change water valve. If no voltage check Input/Output PCB.
	Drain Valve	Check to insure that drain valve is closing. If not, check for 120VAC to drain valve from Input/Output PCB red light #4. If 120VAC, change or clean drain valve. If no voltage, check CPU board, Ribbon Cable, and I/O PCB.
	Fill Hose Screens and Water Valve Screens	Check all screens for obstructions and clean.
	Water	Check to insure that water is turned on and operating.
	Pressure Switch Hose	Check hose for holes. Be sure the inlet end of the large part of the hose is lower than the rest of the hose and is free of debris.
	Pressure Switch	Pressure switch must be in the low or high position to close the circuit to the Input/Output board. Either the green low level or high level light on the input/output board must be lighted. Check pressure switch continuity between terminals #31 & #22 for low level and #31 and #32 for high level.

Symptom	Probable Cause	Suggested Remedy
Machine starts but will not advance in cycle (cont.)	CPU Board, Ribbon Cable, or Input/Output Board	Check Input/Output PCB for red output LED will not light for water valve and drain valve #4,5,6,7,8 .If no output lights illuminated, check single red light on CPU board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and input/output board. (Check GREEN input LED #14 tub empty has lit in a drain mode of formula.) (Make sure Green input #13 or #14 are lit if fill portion of formula is being called for.) If red drain valve or water valve output light on Input/Output PCB is lit, check to insure that 120VAC is going from the Input/Output PCB to the drain valve or water valve. If no voltage, replace I/O PCB.
Machine tumbles in only one direction	Variable Frequency Drive	Check blue and orange wires on variable frequency drive for alternating 0V to 24 VDC for forward and reverse direction from the Input/Output PCB. If no voltage, see CPU board, Ribbon Cable or Input/Output PCB below. Be sure to check wire connections at drive.
	CPU Board, Ribbon Cable, or Input/Output Board	Check Input/Output PCB for alternating or Input/Output PCB red output lights for forward #13 and reverse #14. If no red output lights illuminated, check single red light on CPU board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and Input/Output PCB. (If red forward #13 and reverse #14 output lights on the Input/Output PCB are illuminated, check to insure that 24VDC is going from the Input/Output PCB to the variable frequency drive. (SEE WASHER SCHEMATIC FOR TROUBLESHOOTING VFD.) If no voltage, replace I/O PCB.
Washes but does not give intermediate spin	Pressure Switch	Pressure switch must be in the empty position to give close the circuit to the Input/Output PCB. The green input tub empty light #14 on the Input/Output PCB must be lighted. Check pressure switch for continuity across terminals indicating pressure switch has reset to empty.
	Variable Frequency Drive	Check Variable Frequency Drive Check all wires on drive to insure a good connection. Check LED display at VFD before powering down 1) Disconnect power to washer for 2 minutes to reset motor drive. Reconnect to power and check for LED display on VFD 2) Check incoming power to washer for correct voltage. Line voltage out of the specified operating range will cause the drive to fault.

Symptom	Probable Cause	Suggested Remedy
Washes But does not give intermediate spin (cont.)	CPU board, Ribbon Cable Input/Output PCB	Check Input/Output PCB for illuminated red output light for intermediate spin (Speed 1) #15 and #14 FOR REVERSE. If no red output light illuminated, check single red light on CPU board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and Input/ Output PCB. (Check with factory for latest testing procedures for I/O PCB). If red speed 1# output light #15 on the Input/Output PCB is illuminated.
Machine starts and advances through cycle but motor does not operate	Variable Frequency Drive and Motor	Check small green, blue, orange, black, white, red wires (shielded cable) from the VFD to insure a good connection at each termination point at drive or at relays and including all molex connectors. 1. Disconnect power to washer for 2 minutes to reset motor drive. 2. Check incoming power to washer for correct voltage. Line voltage out of the specified operating range will cause the drive to fault, lighting the red fault light. 3. Check motor. Disconnect from power. Disconnect the three wires that operate the motor from terminals T-1, T-2, T-3 in the drive. Reconnect power to the washer.
	CPU board, Ribbon Cable Input/Output PCB	Check Input/Output PCB for illuminated red motor output lights. If no red output lights illuminated, check single red light on CPU board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and Input/Output PCB. (Check with factory for latest testing procedures for I/O PCB) If red motor output lights on Input/Output PCB are illuminated.
	Run Relay	Check to see if 12VDC to relay coil. If not check I/O PCB for 12VDC output. Check if 0VDC through contacts (white wire) to I/O PCB.

Symptom	Probable Cause	Suggested Remedy
Intermediate speed #1 works no high speed #2	Variable Frequency Drive and Motor	Check small green, black, white, red wires (shielded cable) from the VFD to insure a good connection at each termination point at drive or at relays and including all molex connectors. Check that green Hi speed wire at drive terminal is giving a 0 VDC reading between white and green and assure that signal is getting to drive. 1. Disconnect power to washer for 2 minutes to reset motor drive. Reconnect to power and check for run light. Run--okay. 2. Check incoming power to washer for correct voltage. Line voltage out of the specified operating range will cause the drive to fault. 3. Check motor. Disconnect from power. Disconnect the three gray wires that operate the motor from terminals T-1, T-2, and T-3 in the drive. Reconnect power to the washer.
	CPU Board, Ribbon Cable, Input/Output PCB	Check Input/Output PCB for illuminated red Speed 1 #15 and Speed 2 #16 output lights. If no red output lights illuminated, check single red light on CPU. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU. If CPU tests okay, change Ribbon Cables between CPU and input/output PCB. (Check with factory for latest testing procedures for I/O PCB) If red intermediate and high extract output lights on input/output board are illuminated.
Hot water does not enter the tub.	Water Valves	Check to insure that water valve is operating. If not, check for 120VAC to water valve from Input/Output PCB. If 120VAC, change water valve. If no voltage check Input/Output PCB as described below.
	Fill Hose Screens Water Valve Screens	Check all screens for obstructions and are clean.
	Water	Check to insure that water is turned on and operating.
	Pressure Switch Hose	Check hose for holes. Be sure the inlet end of the large part of the hose is lower than the rest of the hose and is free of debris.
	Pressure Switch	Pressure switch must be in the empty position to close the circuit to the Input/Output PCB. The green empty light #14 on the Input/Output PCB must be on. Check pressure switch for continuity across terminals #31 & #22 indicating pressure switch has reset to empty.
	CPU Board, Ribbon Cable Input/Output PCB	Check Input/Output PCB for illuminated red water or Input/Output PCB valve output light. If no red output light #5 illuminated, check single red light on CPU Board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red led.

Symptom	Probable Cause	Suggested Remedy
Hot water does not enter the tub (cont.)	CPU Board, Ribbon Cable, Input/Output PCB (cont.)	CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and Input/Output PCB. If red hot tub output light #5 on Input/Output PCB is illuminated, check to insure that 120VAC is going from the Input/Output PCB to the water valve. If no voltage, replace I/O PCB.
Cold water does not enter the tub	Water Valves	Check to insure that water valve is operating. If not, check for 120VAC to water valve from Input/Output PCB. If 120VAC, change water valve. If no voltage check Input/Output PCB.
	Fill Hose Screens Water Valve Screens	Check all screens for obstructions and are clean.
	Water	Check to insure that water is turned on and operating.
	Pressure Switch Hose	Check hose for holes. Be sure the inlet end of the large part of the hose is lower than the rest of the hose and is free of debris.
	Pressure Switch	Pressure switch must be in the empty position to close the circuit to the Input/Output PCB. The green empty led tub empty #14 on the Input/Output PCB must be on. Check pressure switch for continuity across terminals #31 & #22 indicating pressure switch has reset to empty.
	CPU board, Ribbon Cable, Input/Output PCB	Check Input/Output PCB for illuminated red or Input/Output PCB water valve output light. If no red output light #8 illuminated, check single red light on CPU board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and Input/Output PCB. (Check with factory for latest testing procedures for I/O PCB) If red water valve output light on input/output board is illuminated, check to insure that 120VAC is going from the Input/Output PCB to the water valve. If no voltage, replace I/O PCB.
No hot water in detergent dispenser	Water Valves	Check to insure that water valve is operating. If not, check for 120VAC to water valve from Input/Output PCB. If 120VAC, change water valve. If no voltage check Input/Output PCB.
	Fill Hose Screens Water Valve Screens	Check all screens for obstructions and are clean.
	Water	Check to insure that water is turned on and operating.
	CPU Board, Ribbon Cable, Input/Output PCB	Check Input/Output PCB for illuminated red or Input/Output PCB water valve output light. If no red output light #8 illuminated, check single red light on CPU board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and Input/Output PCB. If red output light #5 on input/output PCB is illuminated, check to insure that 120VAC is going from the Input/Output PCB to the water valve. If no voltage, replace I/O PCB.

Symptom	Probable Cause	Suggested Remedy
Water does not flush soft-ner compartment	Water Valves	Check to insure that water valve is operating. If not, check for 120VAC to water valve from Input/Output PCB. If 120VAC, change water valve. If no voltage check Input/Output PCB.
	Fill Hose Screens Water Valve Screens	Check all screens for obstructions and are clean.
	Water	Check to insure that water is turned on and operating.
Water level too high	Pressure Switch	Pressure switch must be in the low or high position to close the circuit to the Input/Output PCB. Either the green low level #13 or high level light #15 on the Input/Output PCB must be lighted. Check pressure switch continuity between terminals #31 & #22 for low level and #31 and #32 for high level.
	Pressure Switch Hose	Check hose for holes. Be sure the inlet end of the large part of the hose is lower than the rest of the hose and is free of debris.
	CPU Board, Ribbon Cable, Input/Output PCB	Check Input/Output PCB for illuminated green low #13 or high level input light #15. If green input light is illuminated, check single red light on CPU board. Single red light should be illuminated. If light is flashing or not on, remove power from washer for 2 minutes to reset board. Reapply power to washer and check red CPU light. If on solid, CPU okay. If still flashing or not on, replace CPU board. If CPU tests okay, change Ribbon Cables between CPU and Input/Output PCB. (Check with factory for latest testing procedures for I/O PCB) If still not corrected, change Input/Output PCB.
Water comes in but level does not rise	Drain Valve	Check these areas - Drain valve blockage - Drain valve motor and gear train. If power but drain valve does not close, replace valve. - Power to the drain valve. If no power to drain valve, check (brn/yel) circuit for power.
	Water Valves	Check or replace diaphragms
Water drains slowly	Drain System	Check hoses and drain valve for blockage. Clean if necessary. Check building drains for blockage or inadequate size.
Water leakage around loading door	Door Adjustment	Door may need adjustment due to abuse or wear around loading. Check tightness around perimeter using a dollar bill. Adjust left to right tightness by shims at door lock or hinge side. It is important to center gasket to tub opening before tightening door to hinge bolts. Chalk may be used on tub front to show point of contact with tub. If gasket is deformed, worn, or damaged, replace. Refer to parts section for door gasket expander kit.
Excessive vibration	Mounting System	Check these areas: Strength of mounting structure, concrete, or base. Mounting bolts may be loose and need tightening.
	Drive Belt	Worn drive belt can cause vibration and noise.
	Pulleys	Damaged pulleys.
	Underloading	NOTE: SMALL LOADS CONTRIBUTE TO OUT OF BALANCE LOADING AND INCREASE VIBRATION.!!!

Electrical Path Circuit Schematics

Start Circuit

Power is applied to the control trough on L1 & L2. 208-240 VAC is applied to the Control Transformer that steps the voltage down to 120 VAC. 120 VAC travels through the 1.5 amp Circuit Breaker and on to the Step Down Transformer. The Step Down Transformer steps 120 VAC down to 12 VAC for the Input/Output PCB. The Input/Output PCB regulates 12VAC to 12VDC to power the output relays and then down to 5VDC to power the Microprocessor.

The Variable Frequency Drive is powered by either L1 & L2 on single phase or L1, L2, & L3 on three phase. The DC ground is sent out of the Variable Frequency Drive from terminal DCM on the white wire to and through contacts on the R1 Run Relay. As soon as the door is locked, 12 VDC is supplied from the Input/Output PCB to the Run Relay coil and closes the relay. The R1 Run Relay supplies a DC ground, through contacts, to the Input/Output PCB. A 120 VAC signal powers most outputs on Input/Output PCB the DC ground signal is for the motor control. (See fill, wash, section for details)

After selecting a cycle, depressing the **Start** Button (green input light #6 on Input/Output Board will be lit while button is depressed) signals the Microprocessor to begin the cycle. All signals come into the Microprocessor through the Input/Output PCB.

The door is locked by sending 120VAC from the Input/Output PCB (red output light #3 on Input/Output PCB will be lit) on the white/red wire to the Door Lock Motor. With the door locked a 12VDC signal is sent back to the Input/Output PCB from the Door Locked Switch on the orange/white wire (green input light #3 on Input/Output PCB will be lit).

The Lock Thermoactuator is powered with 120VAC from the Input/Output PCB (red output light #2 on Input/Output PCB will be lit) on the orange/blue wire. The Lock Thermoactuator will be powered for 3 minutes and will then be cycled on for 40 seconds and off for 40 seconds until the last 70 seconds of the cycle at which time it is no longer powered.

The Drain Valve is powered closed with 120VAC from the Input/Output PCB (red output light #4 on Input/Output PCB will be lit) on the brown/yellow wire.

Fill - All Wash, Rinse & Empty Bathes

The selected Water Valves to fill the tub (hot, cold or both) are powered with 120VAC from the Input/Output PCB (red output light #5, or #7 or both on Input/Output PCB will be lit) on the white/red (cold) wire and/or the red/yellow (hot) wire. The two Water Valves to flush the Powder Dispenser are powered with 120VAC from the Input/Output PCB (red output light #6, #8 on Input/Output PCB will light) on the red/orange wire (Hot Water Flushes, #8 on I/O PCB, Detergent For 20 seconds In Wash Cycle) and on the white/blue wire (Cold Water Flushes, #6 on I/O PCB, Softener For 20 Seconds In Final Rinse).

As the washer fills the tub through the back of the machine with either one or both the C1 Cold and H1 Hot Water Valves, the Wash Basket will tumble one direction for 12 seconds, pause, and then reverse direction for 12 seconds. This tumbling process is controlled by the Microprocessor supplying a signal to the Input/Output PCB relays which in turn supply DCM ground, through contacts, to the Variable Frequency Drive DCM to FWD & REV to operate the Drive Motor.

Forward direction is supplied DCM ground from the Input/Output PCB (red output light #13 on Input/Output PCB will be lit) on the blue wire to the FWD terminal on the Variable Frequency Drive. Reverse direction is supplied with DCM ground from the Input/Output PCB (red output light # 14 on Input/Output PCB will be lit) on the orange wire to the REV terminal on the Variable Frequency Drive. The cycle time count down is stopped in each bath until low level is reached. The Input/Output PCB receives a 12VDC signal from the Pressure Switch (green input light #13 on Input/Output PCB will be lit) on the orange/yellow wire when low level is reached. The EMPTY bath may be chosen for any bath including the final rinse bath. If empty bath (EE) is chosen the timer will STOP for 40 seconds and then continue counting down as programmed. No chemical injections will be allowed because no water level reached.

Tumble - Variable Frequency Drive & Micro Test Procedure

The single red LED in the middle of the CPU PCB should be lit when the microprocessor has power and is processing data. Red light flashing means it has power but is NOT processing data. Remove power from machine for 2 minutes to reset board. If no red light, there is no power to the board.

This testing procedure should be followed. A DCM ground control circuit is used on this Variable Frequency Drive. The white wire supplies a DCM ground through the Run relay contacts. When testing this unit you will get a 24VDC reading when NOT calling for that action. A 0 VDC reading will show when that rotation direction is called for. You must take the VDC reading between either two points DCM and FWD or REV. (Remember - 0 Volts when calling for an extract or wash speed). The Variable Frequency Drive also uses two braking resistors to dissipate the voltage generated after motion has been signaled to stop. In these models they are both rated at 160 ohms. Please remember that when testing these that a 160 ohms reading does not always confirm a good resistor. The resistors could be breaking down under heat load. If these resistors are grounded or open they could possibly make this unit malfunction.

Liquid Chemical Signals

Chemical injections signals are available in all bathes. If programmed, the following numbers will provide 120 VAC signals to the designated terminals on the back of the washer. All Chemical injections signals are delayed until 30 seconds after the tub starts to fill with water. All signals are 6-10 seconds in duration.

Intermediate Extract Circuit

Intermediate Extract can be programmed after all bathes except the Final Rinse (see Final Extract). If programmed for Intermediate Extract, the Microprocessor will signal the Input/Output PCB to supply a DCM ground (red output light #14 on Input/Output PCB will be lit) on the orange wire to the REV terminal on the Variable Frequency Drive. This insures that the tub is turning the correct direction before starting into spin. Next, the Input/Output PCB supplies a DCM ground (red output light #15 on Input/Output PCB will be lit) on both the red M13 and black wires M12 to the (intermediate spin) terminals on the Variable Frequency Drive.

Final Extract Circuit

Same sequence as Intermediate Extract but adds the following. The Input/Output PCB supplies a DCM ground (red output light #16 on Input/Output PCB will be lit) on the green wire to the (final spin) terminal M11 on the Variable Frequency Drive. REV; M13; M12 ; M11 all 4 terminals are supplied a DCM ground for high spin.

End of Cycle

At the end of the cycle, the Display PCB will read 0 minutes, the Beeper will sound for 5 seconds in 1 second intervals and the End of Cycle Light will come on. The washer door must be opened before the display resets and allows a different cycle to be selected. You can run the same cycle again without opening the door BUT you must open to reset to another cycle.