

# FOR SERVICE TECHNICIAN'S USE ONLY

NOTE: This sheet contains important Technical Service Data.

W10610059B

Tech Sheet

Do Not Remove Or Destroy

## ⚠ DANGER



### Electrical Shock Hazard

Only authorized technicians should perform diagnostic voltage measurements.

After performing voltage measurements, disconnect power before servicing.

Failure to follow these instructions can result in death or electrical shock.

## ⚠ WARNING



### Electrical Shock Hazard

Disconnect power before servicing.

Replace all parts and panels before operating.

Failure to do so can result in death or electrical shock.

## Voltage Measurement Safety Information

When performing live voltage measurements, you must do the following:

- Verify the controls are in the off position so that the appliance does not start when energized.
- Allow enough space to perform the voltage measurements without obstructions.
- Keep other people a safe distance away from the appliance to prevent potential injury.
- Always use the proper testing equipment.
- After voltage measurements, always disconnect power before servicing.

## SPECIFICATIONS

### Electrical Supply:

(Under load) 60 Hz, 120 VAC

### Supply Water Flow Rate:

To fill 2 qt (1.9 L) in 27 seconds, 120 psi maximum, 20 psi minimum.

### Supply Water Temperature:

120°F (49°C) (Before starting a cycle, run water from sink faucet until hot.)

### Water Charge:

0.9 gal. (3.5 L) Approximate

### Lower Spray Arm Rotation:

12 to 40 rpm

### Upper Spray Arm Rotation:

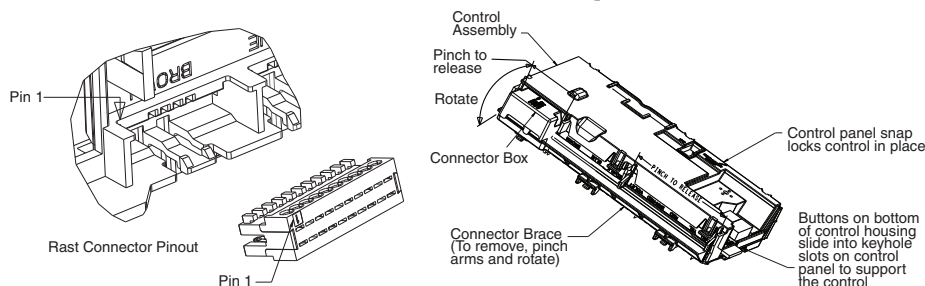
12 to 30 rpm

## REPAIR KITS

### Vinyl Touch-up Kits:

675576 (Blue), 676453 (White), 676455 (Gray)

## Control Assembly



## Meter Check of Loads and Fuses

### Fuse Service Check:

F8 = Motor Fuse.

F9 = Small-triac Load Fuse.

Check operation of loads during the Service Diagnostics cycle.

- If any of the triac loads work, F9 Fuse is OK.
- If all triac loads fail to work, F9 Fuse could be open. See "Fuse Resistance Check."
- If Wash Motor does not work, F8 Fuse could be open. See "Fuse Resistance Check."

### Fuse Resistance Check:

1. Unplug the dishwasher or disconnect power.
2. Measure resistance of F8 Fuse and/or F9 Fuse.

**NOTE:** Fuses are on the bottom of the Control Board but can be checked from the top side. See "Control Pinout" diagram.

- If resistance is  $<3 \Omega$ , then fuse is OK.
- If resistance is  $>3 \Omega$ , then fuse is open.

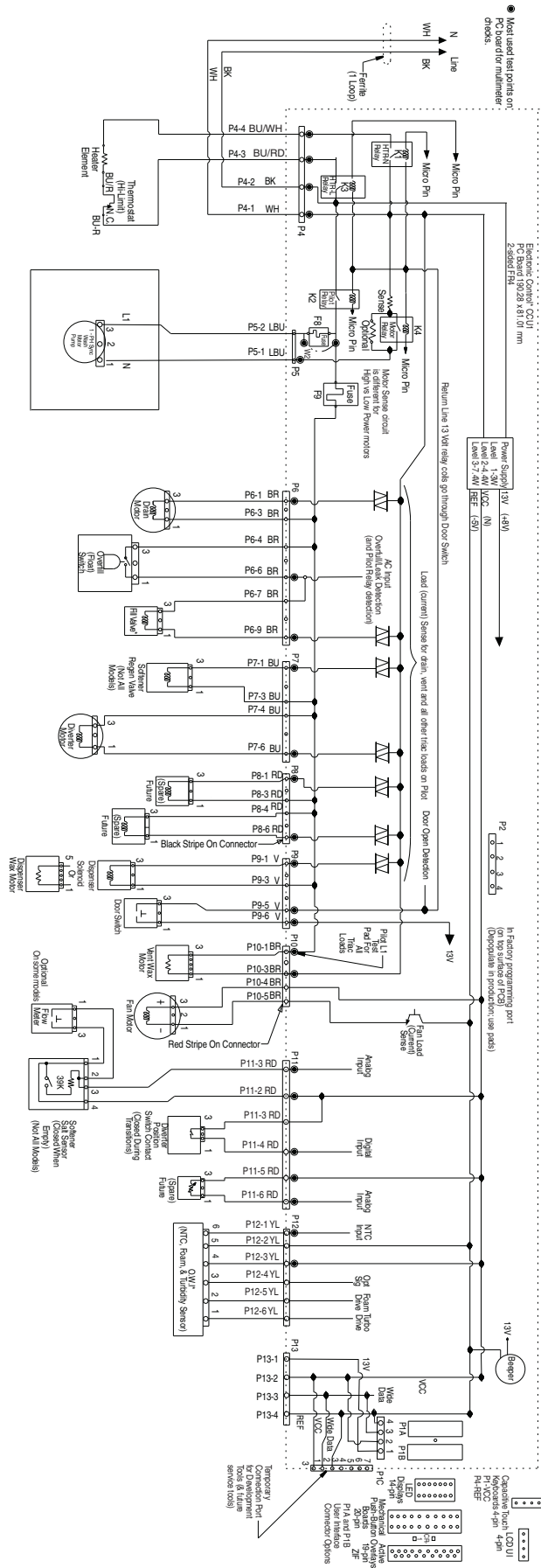
### What To Do If Fuse Open:

Inspect and check resistance of all loads on fuse. If any loads are open, shorted, or have evidence of overheating or pinched wires, replace them.

## Wiring Diagram

Schematic shown with door switch and all other normally-open contacts open.

\*Denotes energy-efficient components. Do not substitute.



## Service Diagnostics Cycle

INTERVAL	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
CYCLE, OPTION, AND STATUS LEDs																											
1 HR WASH	1HR		1HR		1HR		1HR		1HR		1HR		1HR		1HR		1HR		1HR		1HR		1HR		1HR		1HR
NORMAL	NRM	NRM		NRM		NRM		NRM		NRM		NRM		NRM		NRM		NRM		NRM		NRM		NRM		NRM	
START/RESUME	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	
RUNNING (Front Status light)	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	RUN	
HI TEMP	HIT		HIT		HIT		HIT		HIT		HIT		HIT		HIT		HIT		HIT		HIT		HIT		HIT		
DRY OPTION	DRY	DRY		DRY					DRY		DRY		DRY		DRY		DRY		DRY		DRY		DRY		DRY		
SANITIZED	SAN								(SAN)															(SAN)			
CLEAN/ 7-Seg	CLN	7-Seg	7-Seg	7-Seg	7-Seg		(CLN)		(CLN)		(CLN)				(CLN)								(CLN)		7-Seg	7-Seg	
ALL OTHER CYCLE, OPTION, AND STATUS LEDs																											
ALL																											
INTERVAL TIME (min:sec)																											
TOTAL TIME (MAX.): 22:57																											
0:06 0:08 0:08 0:08 0:08 0:10 0:01 0:44 0:05 0:23 0:05 1:00 2:00 0:30 1:00 0:30 4:00 0:01 0:01 0:01 0:01 1:52 0:06 2:30 0:08 0:08																											
SOIL SENSING INTERVALS AND SENSOR CHECKS																											
THERMISTOR (TEMPERATURE SENSOR) CHECK INTERVAL																											
OWI (SOIL SENSOR) CHECK INTERVALS																											
DIVERTER POSITION SENSOR CHECK																											
SALT LEVEL REED SWITCH/ FLOWMETER INPUT TEST																											
LOADS																											
PILOT RELAY																											
VENT																											
FILL																											
WASH MOTOR																											
DISPENSER (DETERGENT/RINSE AID)																											
DIVERTER																											
DIVERTER POSITION																											
DRAIN MOTOR																											
HEATER																											
DC FAN MOTOR (IF PRESENT)																											
REGEN (IF PRESENT)																											
CUSTOMER ERROR 1																											
CUSTOMER ERROR 2																											
CUSTOMER ERROR 3																											
CUSTOMER ERROR 4																											
SERVICE ERROR 1																											
SERVICE ERROR 2																											

### Service Diagnostics Cycle Notes:

- To invoke the Diagnostics Cycle, perform the following while in standby:
  - Press any 3 keys in the sequence 1-2-3-1-2-3-1-2-3 with no more than 1 second between key presses.
  - The Service Diagnostics Cycle will start when the door is closed.
  - To rapid advance 1 interval at a time, press the Start/Resume key. Rapid advance may skip sensor checks as some checks require 2 complete intervals.

**NOTE:** While you are in the Diagnostic Cycle, the Start/Resume feature is turned Off (for example, Auto Resume after door interrupts) and the Start/Resume key becomes an interval advance key.

- Invoking Service Diagnostics Cycle clears all status and last run information from memory and restores defaults. It also forces the next cycle to be a sensor calibration cycle.
- Drain and wash motors will pulsate on and off.
- Last run cycles and options returned to default.
- Last run delay returns to the lowest delay increment.
- Calibration cycle may force an extra rinse to occur prior to Final Rinse (to assure clear water), then calibrates the OWI and the fill amount during the final rinse.
- Operating state returns to Standby upon completing or terminating the Service Diagnostics Cycle.
- Reference the "Service Diagnostics with Error Codes" section for details.

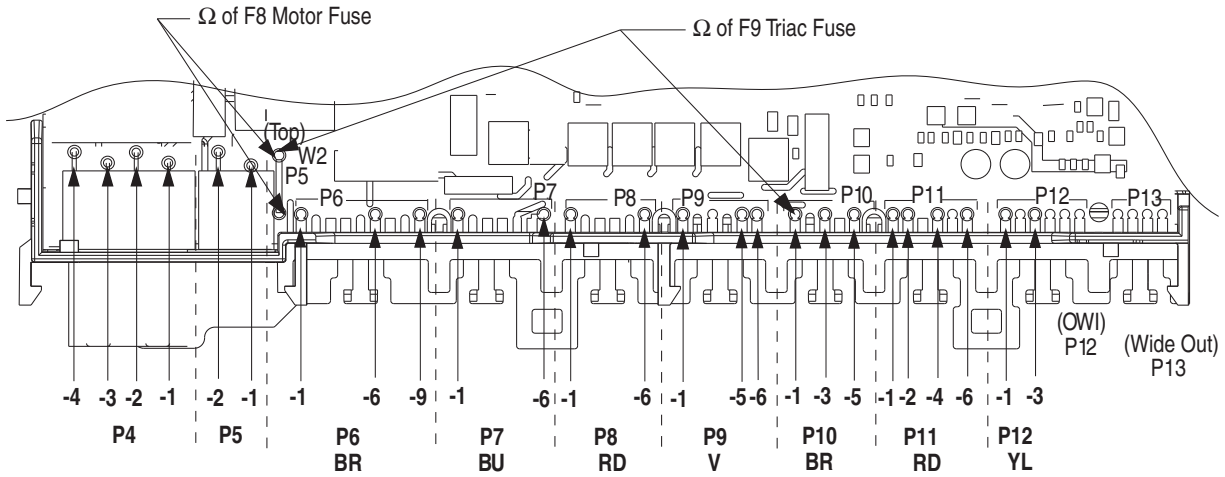
- Turn on all LEDs immediately upon receiving the entry sequence (even if the door is open) for 5 seconds as a display test. Turn off all LEDs for 1 second prior to reporting customer error history.
- Diverter will be on continuously in interval 14. In all other diverter intervals, diverter will be on only until it reaches the intended position for that interval.
- Press Hi Temp key in this interval to clear customer error history.
- Thermistor (temperature sensor) checks - turn clean LED on if thermistor is in its normal temperature range (32°F to 167°F). Turn sanitized LED on if fill temperature is above 65°F (18.3°C).
- OWI (optical soil sensor) checks:
  - Check OWI sensor for the presence of water during the 5 sec. pause in interval 16 and turn on the Clean LED in interval 15 if water detected.
  - Check OWI sensor for presence of bulk soil during pause interval 13 and turn on the Clean LED in interval 12 if bulk soil detected.
  - Drain until OWI sensor sees the presence of air or a maximum of 1:52 during interval 5 and turn on the Clean LED in interval 4 if air detected.
- DC Fan Motor is on during upper rack washing intervals.
- Turn on Sanitized LED in this interval to indicate that the salt level reed switch is closed.
- Turn on Clean LED in this interval to indicate that vent current is detected.

## Customer Cycle Operation

To quickly advance through customer cycles, invoke the Rapid Advance mode by pressing HIGH TEMP - HEATED DRY - HIGH TEMP - HEATED DRY, after starting the cycle. Then, press START/RESUME to advance through cycle intervals.

**NOTE:** Rapid Advance mode is automatically enabled in the Service Diagnostic cycle, but must be manually invoked in customer cycles.

## Meter Check of Loads and Fuses

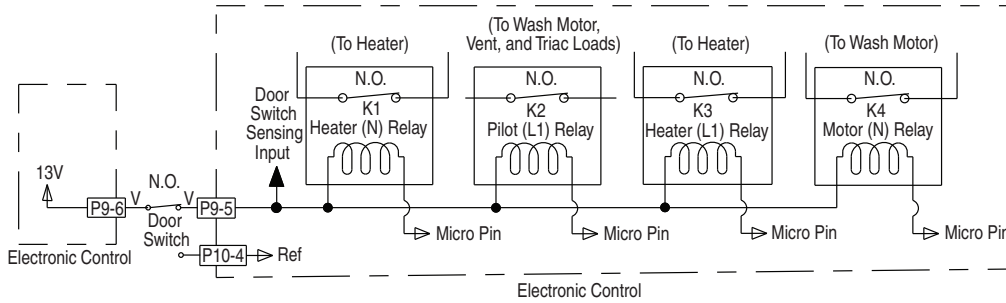


## Dishwasher Strip Circuits

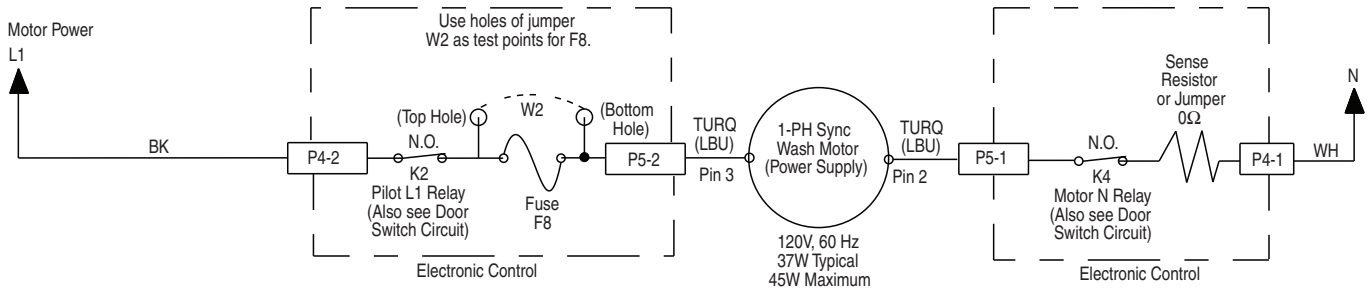
The following individual circuits are for use in diagnoses. Do not continue with the diagnosis of the appliance if a fuse is blown, a circuit breaker is tripped, or if there is less than a 120-volt power supply at the wall outlet.

- Unplug dishwasher or disconnect power.
- Perform resistance checks. To check resistance of a component, disconnect harness leads first.

### Door Switch

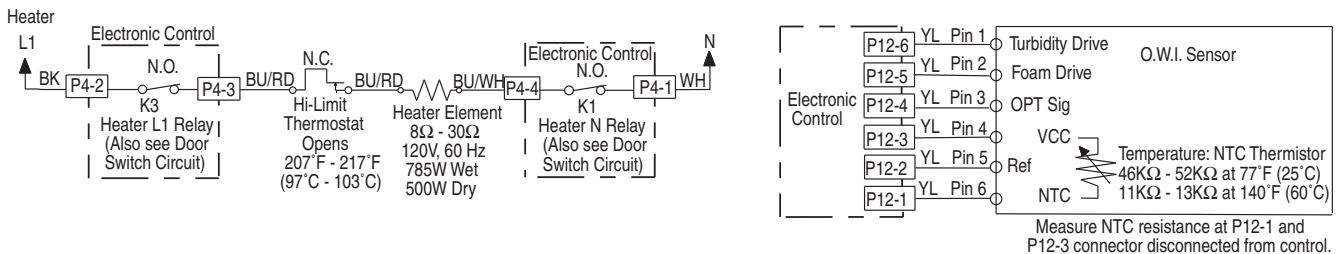


### Wash/Rinse

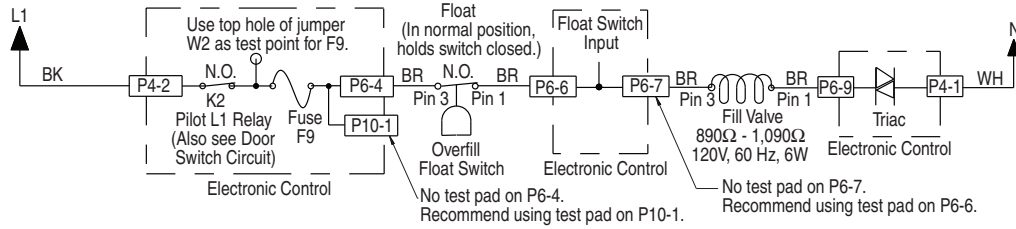


### Water Heating/Heat Dry and Water Sensing with O.W.I. Sensor (Water/Air/Soil/Temperature)

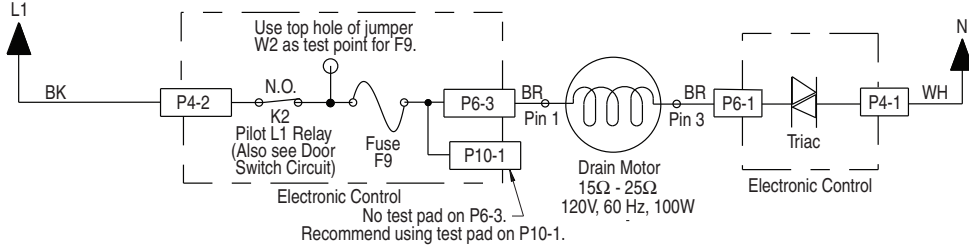
Pump is washing and control monitors temperature during water heating periods (see "Wash/Rinse" and "Water Sensing with O.W.I. Sensor[Water/Air/Soil/Temperature])" circuits).



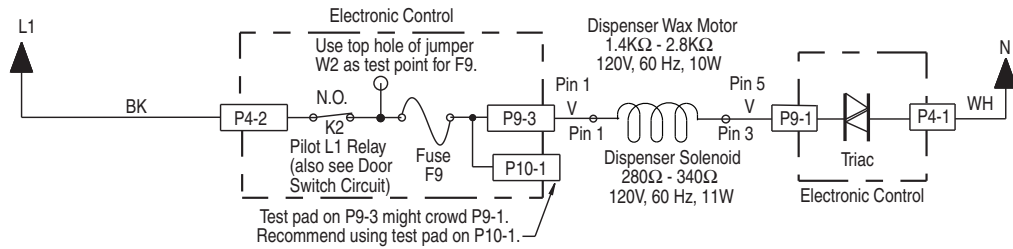
## Fill



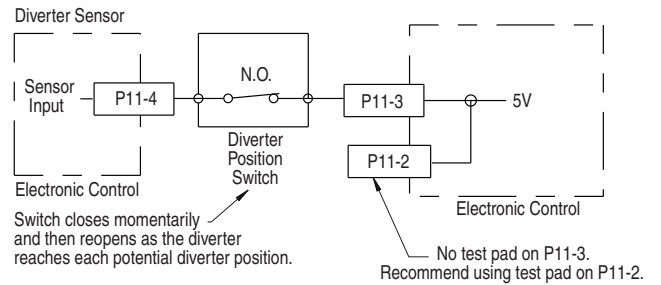
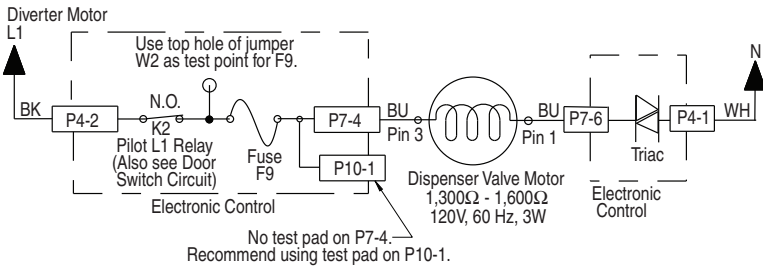
## Drain



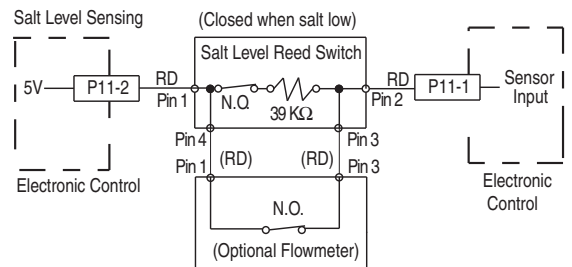
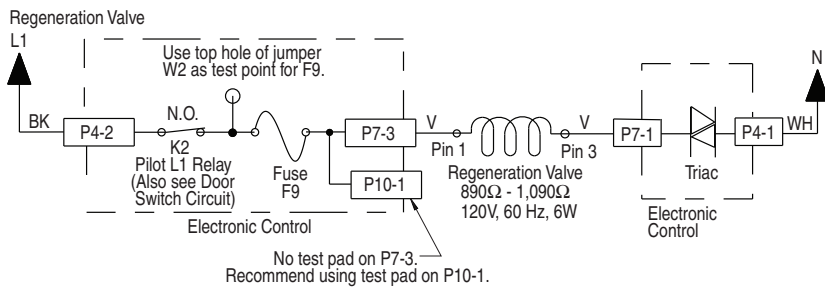
## Dispenser (Detergent and Rinse Aid)



## Diverter Valve

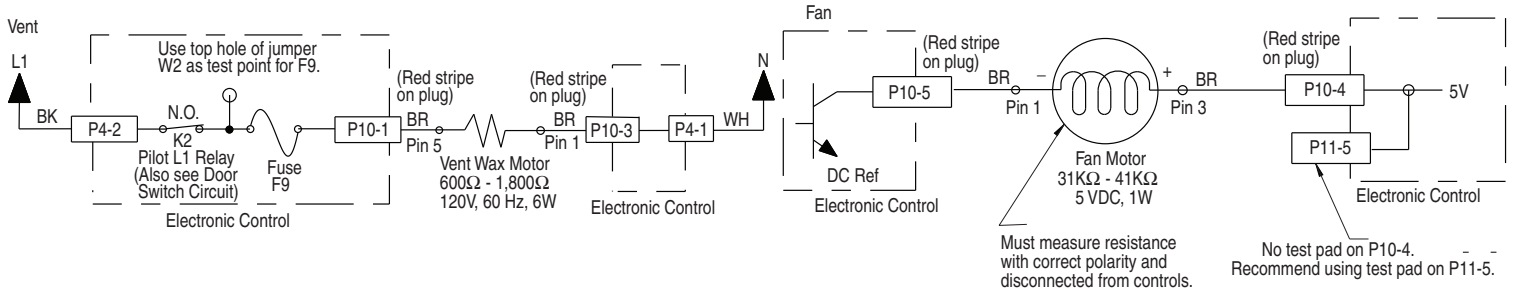


## Water Softener



## Drying

For Heated Dry, heater is also running. See "Heater" circuit under "Water Heating/Heat Dry and Water Sensing with O.W.I Sensor (Water/Air/Soil/Temperature)."



## Service Diagnostics with Error Codes

Entry sequence: Press Start key to wake up the control panel. Press any 3 keys in the sequence 1-2-3-1-2-3-1-2-3 with no more than 1 second between key presses.

**NOTE:** Some models have replaced the “Clean” LED with “Completed.”

DISPLAY TEST - ALL LEDs ON			INTERVAL 26	
↓				
ERROR 1 - MOST RECENT			INTERVAL 25	
7-Seg will flash FUNCTION code. (F#)	Pause 0.5 sec.	7-Seg will display PROBLEM code. (E#)	Pause 1 sec.	Repeat 3 times unless advanced by Start/Resume key.
If no error, 7-Seg will display “F-.”		If no error, 7-Seg will display “E -.”		
↓				
ERROR 2			INTERVAL 24	
7-Seg will flash FUNCTION code. (F#)	Pause 0.5 sec.	7-Seg will display PROBLEM code. (E#)	Pause 1 sec.	Repeat 3 times unless advanced by Start/Resume key.
If no error, 7-Seg will display “F -.”		If no error, 7-Seg will display “E -.”		
↓				
ERROR 3			INTERVAL 23	
7-Seg will flash FUNCTION code. (F#)	Pause 0.5 sec.	7-Seg will display PROBLEM code. (E#)	Pause 1 sec.	Repeat 3 times unless advanced by Start/Resume key.
If no error, 7-Seg will display “F -.”		If no error, 7-Seg will display “E -.”		
↓				
ERROR 4 - OLDEST			INTERVAL 22	
7-Seg will flash FUNCTION code. (F#)	Pause 0.5 sec.	7-Seg will display PROBLEM code. (E#)	Pause 1 sec.	Repeat 3 times unless advanced by Start/Resume key.
If no error, 7-Seg will display “F -.”		If no error, 7-Seg will display “E -.”		
↓				
10 seconds pause	Hi Temp LED will be on		INTERVAL 21	
Press Hi Temp key to clear errors. Hi Temp LED will blink twice to indicate errors have been cleared. If the Hi Temp key does not respond, open and close the door to wake up the control panel. Press Hi Temp key to clear errors.				
↓				
Service Diagnostics Cycle Turns on loads and checks sensors.			INTERVALS 20-3	
↓				
SERVICE CYCLE ERROR 1			INTERVAL 2	
7-Seg will flash FUNCTION code. (F#)	Pause 0.5 sec.	7-Seg will display PROBLEM code. (E#)	Pause 1 sec.	Repeat 3 times unless advanced by Start/Resume key.
If no error, 7-Seg will display “F -.”		If no error, 7-Seg will display “E -.”		
↓				
SERVICE CYCLE ERROR 2			INTERVAL 1	
7-Seg will flash FUNCTION code. (F#)	Pause 0.5 sec.	7-Seg will display PROBLEM code. (E#)	Pause 1 sec.	Repeat 3 times unless advanced by Start/Resume key.
If no error, 7-Seg will display “F -.”		If no error, 7-Seg will display “E -.”		

**NOTE:** Once error codes are extracted, refer to “Service Error Codes” table to diagnose and correctly resolve the root cause condition.

## Service Error Codes

Example: 6-1 means “Inlet Water” function, “Low/No Water” problem.

Function Code	Problem Code	Causes	What to Check
<b>1-Control</b>	<b>1-Pilot Stuck On</b>	Control detected K2 pilot relay stuck closed.	1. Unplug dishwasher or disconnect power. 2. Check all loads on K2 pilot relay for shorts. 3. Replace control and all shorted components.
	<b>2-Control Software Issue</b>	1. Damaged or corrupted memory or control board. incompatible software components inside micro.  2. All LED's are on.	1. Unplug dishwasher or disconnect power. 2. Replace control board.  1. Unplug dishwasher or disconnect power. 2. Replace UI (for numeric display models only).
<b>2-User Interface</b>	<b>1-Stuck Key</b>	Control detected stuck key(s) in keypad or keypad connection. <b>NOTE:</b> If any keys are stuck, the stuck key(s) will be ignored and an error recorded to service history, but no alert to customer.	Check responsiveness of each key. 1. If some keys do not respond, then: - Unplug dishwasher or disconnect power. - Disassemble door and disconnect keypad connection from control or LCD display module. - Verify all other connections to control are made. - Reassemble door but do not close door. - Plug in dishwasher or reconnect power. - Wait at least 7 seconds for control to power up completely. - Close dishwasher door and monitor control response: A. If control is OK (no longer sees stuck keys with keypad unplugged), it will respond by turning on the drain motor for 2 minutes. Replace keypad and console. B. If control is not OK (still sees stuck keys with keypad unplugged), it will not turn on drain motor. Wait for at least 10 seconds. If still no drain response, then replace control or LCD display module (whichever one the keypad was connected to). 2. If all keys appear OK or intermittent, and keypad is capacitive touch type, then: - Verify tub brackets are screwed to underside of countertop and not hanging over keys (if screw head too close, relocate screw to alternate hole). - Check for evidence of moisture or debris on the surface of the keys. If evident, clean and instruct customer about keeping surface clean. - Check error code history for Fan Error 10-3 as potential cause of condensation on user interface. - Verify presence of vent current if model has a vent wax motor. Refer to “Leaks or Drips On Cabinet or Floor” in the “Troubleshooting Guide” section.

# FOR SERVICE TECHNICIAN'S USE ONLY

Function Code	Problem Code	Causes	What to Check
2- User Interface (cont.)	2- No response from UI	User interface cannot communicate with main control. Loose user interface connection.	1. Unplug dishwasher or disconnect power. 2. Check the connection between the UI and the control P1C connector; if the connection(s) is loose or if wires are loose or damaged; reconnect, repair or replace as needed. 3. Check for 5VDC from P1C-2 to P1C-4, if there is no voltage at control, disconnect power, replace main control. If there is voltage at control, then disconnect power and replace console.
	1- Open	- Open connector or component in Temperature Sensing circuit. - Open or faulty temperature sensor. - Temperature sensor input on control.	1. Check operation of temperature sensor in Service Diagnostics cycle. 2. Unplug dishwasher or disconnect power. 3. Check all components and connections in the Temperature Sensing circuit with meter. Fix/replace open connection/part.
	2- Shorted	- Incoming water temperature above 167°F (75°C). - Shorted connection or component in Temperature Sensing circuit. - Shorted or faulty temperature sensor. - Temperature sensor input on control.	1. Check incoming water temperature. 2. Check operation of temperature sensor in Service Diagnostics cycle. 3. Unplug dishwasher or disconnect power. 4. Check all components and connections in the Temperature Sensing circuit with meter. Fix/replace shorted connection/part. (See OWI Sensor strip circuit.)
3- Ther-mistor/ OWI	3- Failed Calibration	1. OWI failure. 2. Drain hose check valve not sealing.	1. Run Service Diagnostics to check OWI operation. OWI should see low soil with clear water. 2. Check OWI lens surface. Clean if needed. 3. Unplug dishwasher or disconnect power. 4. Check all connections in Soil Sensing circuit with meter. Fix/replace bad connection/part. <b>NOTE:</b> Run Diagnostics after replacing new OWI to force calibration on next wash cycle. 1. Disconnect drain hose at plumbing connection. 2. Elevate hose above dishwasher and fill with water. If water flows into dishwasher, replace entire drain loop. Install as high as possible and attach to underside of countertop if possible.
	3- Motor Not Running	1. Loose connection in Motor circuit and/or faulty wash motor. 2. Control Motor Drive circuit or Sense circuit.	1. Check operation of wash motor during diagnostics. 2. Unplug dishwasher or disconnect power. 3. Check resistances of connections in the Wash circuit. - Check for loose connections or replace wash motor. 1. Unplug dishwasher or disconnect power. 2. If meter check of Wash Motor circuit shows normal resistance and still not getting power to the wash motor, replace control.
5- Door Switch	1- Door Stuck Open	1. Door was not latched within 4 seconds of pressing the Start/Resume key.	Instruct customer. Refer to Use and Care Guide.

Function Code	Problem Code	Causes	What to Check
5- Door Switch (cont.)	1- Door Stuck Open (cont.)	2. Loose connection in Door Switch circuit and/or door switch contacts stuck open and/or door switch not making contact: - Sloppy door latch assembly, which can be aggravated by high door closure force, keeping strike plate from fully seating. - Door switch (high resistance).	1. Check strike plate and door closure force. Verify door seal is seated properly. Check for interference between dish racks and door. Try bending strike plate down for better engagement. 2. Unplug dishwasher or disconnect power. 3. Check resistances of door switch contacts and all connections in the Door Switch circuit with meter while opening and closing the door latch. - If high resistance with door closed, check/fix loose connections. 4. Measure resistance of door switch contacts while checking mechanical operation of latch assembly. Check for broken plastic pieces on latch assembly. Replace latch if faulty.
		3. If none of the above.	1. With door open, verify 13 VDC present across P9-5 and P9-6. 2. If no voltage present, unplug dishwasher or disconnect power and replace control.
	2- Door Stuck Closed	Control programmed to not start if it suspects the door switch is stuck closed. Control looks for the door switch to open between cycles. - Customer didn't open the door between cycles or door switch contacts stuck closed.	1. Open and close door and then press Start/Resume key. If it works now, instruct customer to open door between cycles. 2. Unplug dishwasher or disconnect power. 3. Measure resistance of door switch contacts while checking mechanical operation of latch assembly.
6- Inlet Water	1- Low/No Water (Mechanical Problem)	1. No water to dishwasher.	Verify water supply is turned on and supply line adequate.
		2. Bowls or pots loaded or flipped and captured wash water.	Instruct customer on loading. Refer to Use and Care Guide.
		3. Drain loop detached from tub and/or improper drain connection.	Check for water siphoning out of unit: 1. Allow dishwasher to complete normal fill. 2. Drain for 5 - 10 seconds by pressing CANCEL/DRAIN. 3. Open door and confirm water does not siphon out of unit. If it does, confirm drain loop is attached to side of dishwasher and drain hose is connected to a drain at least 20" (50.8 cm) off the floor.
		4. Water leaking from dishwasher.	Check for leaks under dishwasher.
		5. Fill valve or water line plugged with debris.	Turn off water supply to dishwasher, disconnect water line to inlet valve, and inspect/clean the inlet screen of fill valve, and reconnect water.
		6. Overfill switch stuck in "Overfill" position and/or dishwasher not level.	Check other error codes to see if 6-4 also occurred. See 6-4 Error Code.
		7. Fill valve electrical problem.	Check other error codes to see if 6-2 also occurred. See 6-2 Error Code.



Function Code	Problem Code	Causes	What to Check
6- Inlet Water (cont.)	2- Fill Valve (Electrical Problem)	1. Loose connection in Fill Valve circuit and/or open Fill Valve Solenoid.	Unplug dishwasher or disconnect power and check resistances of fill valve solenoid and all connection in the Fill circuit with meter. -Fix/replace open connection/part.
		2. Open fuse on control to fill valve.	Refer to "Fuse Service Check" in "Meter Check of Loads and Fuses" section.
		3. Fill Valve Drive circuit on the control.	Unplug dishwasher or disconnect power and replace control.
	3- Suds/Air in Pump	1. Too many suds.	1. Allow unit to fill and wash for 1 minute. Open door and check for excessive sudsing. 2. Confirm using proper dishwasher detergent, not hand detergent. 3. Check for excessive rinse aid leakage.
		2. Bowls or pots loaded or flipped and captured wash water.	Instruct customer on loading. Refer to Use and Care Guide.
		3. Water leaking from dishwasher.	Check for leaks under dishwasher.
		4. Diverter disk in sump is missing.	Remove lower spray arm, TurboZone® assembly, rear feed tube and outlet cover and verify whether the red diverter disk is installed.
	4- Float Switch Open	1. Overfill switch stuck in "Overfill" position and/or dishwasher not level.	Remove any items stuck under the float. Verify that the float moves freely and you hear the "click" of the switch contacts. Check/adjust level of the dishwasher.
		2. Drain hose check valve not sealing.	Water backs into dishwasher after draining and elevates water level. 1. Disconnect drain hose at plumbing connection. 2. Elevate hose above dishwasher and fill with water. If water flows into dishwasher, replace entire drain loop. Install as high as possible and attach to underside of countertop if possible.
		3. Fill valve triac on control shorted.	If still filling while door is open, fill valve is mechanically stuck open (see below). If not filling with the door open, check operation in Service Diagnostics Test Cycle. Advance Service Cycle until detergent dispenser opens. Fill valve should be off. Listen to see if dishwasher is still filling. If still filling, unplug dishwasher or disconnect power and replace control.
		4. Fill valve mechanically stuck open.	Confirm dishwasher fills while the door is open. If yes, unplug dishwasher or disconnect power, turn off water to dishwasher, replace fill valve, and turn water back on.
		5. Too many suds.	1. Allow unit to fill and wash for 1 minute. Open door and check for excessive sudsing. 2. Instruct customer if using improper dishwasher detergent (hand detergent). 3. Disconnect power and replace dispenser if see excessive rinse aid leakage.
		6. Open fuse F9 to fill valve and other triac loads.	Refer to "Fuse Service Check" in "Meter Check of Loads and Fuses" section.

Function Code	Problem Code	Causes	What to Check
6- Inlet Water (cont.)	6- Cool Water	Incoming water under 84°F (29°C).	1. Be sure dishwasher is connected to the hot water supply. 2. Confirm temperature at sink (recommend 120°F [49°C]). Instruct customer to run water at sink before running dishwasher. 3. Unplug dishwasher or disconnect power and check all connections and measure resistance in Temperature Sensing circuit. Replace OWI if resistance is high.
	7- Flowmeter	Disconnected or damaged flowmeter.	1. Disconnect power or unplug unit. 2. Check connections at salt level sensor and at flowmeter. 3. Use meter to check for flowmeter switch closed. Use meter to check salt level sensor. Switch is open when salt reservoir is filled and closed when salt reservoir is low/empty. 4. Disconnect flowmeter and leave salt sensor connected. Apply a magnet to side of the salt tank near the sensor connection to force the switch closed. 5. With the magnet in place, run the complete service diagnostics cycle. If the sanitized LED turns on in interval 3, the control is good; replace the flowmeter assembly. If the sanitized LED does not turn on, the control input has failed; replace the control.
	8- Regen Valve Electrical Problem	1. Loose connection in Regen valve circuit, and/or open Regen valve solenoid.	Unplug dishwasher or disconnect power and check resistances of Regen valve solenoid and all connections in the Regen Valve circuit. Fix/replace open connection/part.
		2. Open fuse on control to Regen valve.	Refer to "Fuse Service Check" in "Meter Check of Loads and Fuses" section.
		3. Regen valve drive circuit on the control.	Unplug dishwasher or disconnect power and replace control.
	7- Heating	1- No Heat	Running diagnostics clears the control and allows the heater to turn on again. Water heating problem must be corrected, or the control will disable the heater again. See Heater circuit problem below.  2. Heater circuit problem: - Open in heater. - Open connection or component in heater circuit. 3. Heater Drive circuit on the control.
		2- Heater Stuck On	1. Unplug dishwasher or disconnect power. 2. Measure resistance of heater and all components and connections in Water Heating circuit/Heat Dry circuit. Fix/replace open connection/part. 3. Heater Drive circuit on the control.
			1. Unplug dishwasher or disconnect power and replace control. 2. Inspect heater and connections for overheating/shorting. If evidence of overheating or shorts exists, replace.



Function Code	Problem Code	Causes	What to Check
8- Draining	1- Slow Drain	1. Obstructed drain hose or path.	1. Unplug dishwasher or disconnect power. 2. Check for blockages from Sump Check Valve to customer's plumbing. Potential items: plugged garbage disposal or plug not knocked out, drain loop Check Valve stuck and/or plugged hoses.
		2. Drain Pump impeller fractured.	1. Unplug dishwasher or disconnect power. 2. Remove Drain Pump and check impeller (normally there is some uneven resistance). If it is stripped, replace Drain Pump.
	2- Drain Motor Electrical Problem	1. Loose connection in Drain Motor circuit and/or open Drain Motor winding.	Unplug dishwasher or disconnect power and check resistances of drain motor winding and all connections in the drain motor circuit. Fix/replace open connection/part.
		2. Debris stuck in drain motor impeller.	1. Unplug dishwasher or disconnect power. 2. Remove drain motor and dislodge debris from impeller.
		3. Open fuse on control to Drain Motor.	Refer to "Fuse Service Check" in "Meter Check of Loads and Fuses" section.
		4. Drain Motor Drive circuit on the control.	Unplug dishwasher or disconnect power and replace control.
	3- Drain Stuck On	5. Drain Motor Drive circuit on the control.	1. Unplug dishwasher or disconnect power and replace control. 2. Inspect Drain Motor and connections for overheating/shorting. If evidence of overheating/shorting exists, replace.
9- Diverter	1- Can't Find Position	1. Corroded or loose connection in diverter sensor/motor circuit, or open/shorted sensor/motor.	1. Check operation in Service Diagnostics Cycle. Listen for cam clicking as it rotates or inspect shaft with mirror to see if rotating during diverter interval. If rotating, it is likely the sensor circuit. 2. Unplug dishwasher or disconnect power and check connections in Diverter Sensor and Motor circuit with meter. Fix/replace open connections/parts. 3. Inspect diverter sensor for evidence of water or contaminants. If yes, replace.
		2. Mechanical binding of diverter shaft/disc.	Check operation of diverter motor during diagnostics. Inspect diverter shaft with mirror. If motor appears to be on (vibrates, hums), but you see limited rotation, replace diverter and seal.
		3. Open fuse on control to diverter motor.	Refer to "Fuse Service Check" in "Meter Check of Loads and Fuses" section.
		4. Diverter Motor Drive circuit on the control.	Unplug dishwasher or disconnect power and replace control.
	2- Stuck On	Diverter Drive Circuit on the control.	1. Unplug dishwasher or disconnect power and replace control. 2. Inspect diverter motor and connections for overheating/shorting. If evidence of overheating/shorting exists, replace.
	3- Disk Missing	Control detected diverter disk in sump is missing.	Remove lower spray arm, TurboZone® assembly, rear feed tube and outlet cover. Verify the round diverter disk is installed.

Function Code	Problem Code	Causes	What to Check
10- Other	1- Dispenser Electrical Problem	1. Loose connection in Dispenser circuit and/or open dispenser solenoid.	Unplug dishwasher or disconnect power and check resistances of dispenser solenoid and all connections in the Dispenser circuit. Fix/replace open connection/part.
		2. Open fuse on control to dispenser.	Refer to "Fuse Service Check" in "Meter Check of Loads and Fuses" section.
		3. Dispenser Drive circuit on the control.	Unplug dishwasher or disconnect power and replace control.
	3- Drying Fan Error	1. Loose connection in fan circuit, and/or open fan motor.	Unplug dishwasher or disconnect power and check resistances of fan motor and all connections in the fan circuit. Fix/replace open connections or fan.
		2. Fan drive circuit on the control.	Unplug dishwasher or disconnect power and replace control.

## Troubleshooting Guide

### NOTES:

- For resistance checks, refer to "Dishwasher Strip Circuits" section.
- For checking operation with diagnostics, refer to "Service Diagnostics Cycle" section.

Customer Description	Potential Causes	Check	Related Error Code(s)
Clean LED Flashes	Control programmed with self diagnostics.	Read error code from the dishwasher and refer to "Service Error Codes" table. Run service diagnostics test cycle to read full history of error codes.	
Won't Run or Power Up ("Dead" Keypad/ Console) - No operation - No keypad response - No LEDs or display	1. No power to unit or bad connection.	Check fuses, circuit breakers, and junction box connections.	
	2. Loose connections in dishwasher power-up circuit or between keypad(s) and control.	1. Unplug dishwasher or disconnect power. 2. Check continuity of power connections to control and connections between keypad(s) and control.	
	3. Model has an LCD display and the control has been exchanged for one that is not compatible with the LCD display module.	Unplug dishwasher or disconnect power. Verify correct control is installed. Control should have no 4-pin user interface connector present at P1B if it is configured for an LCD model. Replace control.	
	4. Control detected door switch problem	Refer to "Service Error Codes" table.	5-1
	5. User interface or control.	1. Unplug dishwasher or disconnect power. Disassemble door and inspect control power connector (P4) and adjacent PC board for damage. Replace as needed. 2. Refer to Service Error Codes table for stuck key (2-1). Run the diagnostic check, Item (1). - If drain motor turns on, control is OK. Replace the UI. - If drain motor does not turn on, replace control. 3. Inspect UI cable for loose or damaged wiring. Replace as needed. 4. Inspect UI assembly for damage or contamination. Replace UI as needed	2-1

Customer Description	Potential Causes	Check	Related Error Code(s)
<b>Won't Run and LED for Start/Resume Key is Blinking Slowly</b>	1. By design, if the door is opened for more than 5 seconds or power is interrupted during a cycle, the user must press the Start/Resume key to resume operation.	Instruct customer. Refer to Use and Care Guide.	
	2. Start/Resume key not responding.	See "One or More Keys Won't Respond."	
	3. Control detected door switch problem.	Refer to "Service Error Codes" table.	5-1
<b>Won't Run and All LEDs On</b>	Software or hardware incompatibility problem with control.	Refer to "Service Error Codes Table."	1-2
<b>Won't Start and Start/Resume Key LED Flashes 3 Times When Start/Resume Key is Pressed</b>	Control looks for door to open between cycles. - Customer has not opened door since last cycle. - Door switch contacts stuck closed.	Refer to "Service Error Codes" table.	5-2
<b>Won't Accept Key Presses and Control Lock LED On</b>	Control Lockout feature accidentally turned on by customer.	Instruct customer. Refer to Use and Care Guide. Press and hold Control Lock key 5 seconds to turn On/Off.	
<b>One or More Keys Won't Respond or Unusual LED/Display/Key Behavior</b>	1. Stuck key or short circuit(s) in keypad or in control's input lines that read the keys.	Refer to "Service Error Codes" table.	2-1
	2. Capacitive touch keypad adhesive coming loose from console.	1. Unplug dishwasher or disconnect power. 2. Inspect keypad board for separation from console. Replace keypad and console if separation is seen.	
	3. Loose connections between keypad and control and/or bent or contaminated connector pins.	1. Unplug dishwasher or disconnect power. 2. Inspect connections in user interface circuits. Reconnect loose connections. Replace part(s) if pins are damaged or contaminated.	
	4. Excessive condensation on user interface parts due to vent and/or fan problem.	Check error history for 10-3 fan error. Refer to "Service Error Codes" table. Verify presence of vent current if model has a vent wax motor. Refer to "Leaks or Drips Onto Cabinet or Floor."	10-3
	5. Defective user interface.	1. Unplug dishwasher or disconnect power. 2. Replace user interface console assembly.	
<b>Dishwasher Beeps Constantly (for Models with Beeper)</b>	1. User opened door during cycle and closed door without pressing Start/Resume to resume cycle.	Instruct customer. Dishwasher control is designed to beep if dishwasher is in "Cycle Interrupt" mode with door latched. Control will stop beeping when door is opened and/or Start/Resume key is pressed to resume cycle.	
	2. Normal beeper operation is excessive to customer	Instruct customer how to turn beeper off and on. Press and hold Hi Temp key for 3 seconds (tone sounds).	

Customer Description	Potential Causes	Check	Related Error Code(s)
<b>Long Cycles and/or Stuck in Certain Part of Cycle</b>	1. As part of normal operation, the dishwasher pauses 2 or 3 times during the cycle for thermal holds and advances once temperature is met.	Instruct customer. Explain thermal holds and how the cycle pauses when they occur.	
	2. OWI soil sensor picking high soil cycle too often.	1. Run Service Diagnostics cycle to check if OWI is showing high soil with clear water. 2. Check lens surface. Clean if needed. 3. Unplug dishwasher or disconnect power. 4. Replace OWI and run Diagnostics after installing new OWI to force calibration on next wash cycle.	
	3. Diverter problem prevented water from heating (plastic tub models only).	Refer to "Service Error Codes" table.	9-1 9-2
	4. A water heating problem could cause long cycles but will typically cause a "water heating fault."	Refer to "Service Error Codes" table.	7-1
	5. Heater takes a long time to heat water with low voltage.	Check for at least 100 VAC at power source.	
	6. Incoming water too cold.	Refer to "Service Error Codes" table.	6-6
	7. Suds or air in pump requires repeated wash periods.	Refer to "Service Error Codes" table.	6-3
	8. Motor problems force cycle to start and stop repeatedly.	Refer to "Service Error Codes" table.	
	9. OWI or NTC sensor problem.	Refer to "Service Error Codes" table.	3-1 3-3
<b>LEDs or Displays Run For Short Time (but No Loads Running) and then Shuts Off</b>	1. Unit is in Sales Demo mode.	Check operation of Cancel key. If there is no Cancel LED response to multiple Cancel key presses, the control is likely in Sales Demo Mode. Run Service Diagnostics Cycle to clear Demo mode.	
	2. Open F8 (Wash motor fuse) or F9 (Triac load fuse) on control disabled loads.	Refer to "Fuse Service and Resistance Checks" in "Meter Check of Loads and Fuses" section.	
<b>Can Start a Cycle, but Only Runs for a Short Time - Cycle Does Not Complete (Clean LED or Completed May Blink)</b>	1. Control canceled cycle due to error detected with wash motor. 2. Unit in Sales Demo mode.	Refer to "Service Error Codes" table. Run Service Diagnostics cycle to clear Demo mode.	4-3
<b>Will Not Drain, or Excess Water Left in Dishwasher. NOTE: Check error history. If no error codes for electrical problems, problem is mechanical. Do not replace control.</b>	1. Drain loop check valve not sealing.	1. Disconnect drain hose at plumbing connection. 2. Elevate hose above dishwasher and fill with water. If water flows into dishwasher, replace entire drain loop. Install as high as possible.	

# FOR SERVICE TECHNICIAN'S USE ONLY

Customer Description	Potential Causes	Check	Related Error Code(s)
<b>Will Not Drain, or Excess Water Left in Dishwasher.</b> <b>NOTE: Check error history. If no error codes for electrical problems, problem is mechanical. Do not replace control. (cont.)</b>	2. Customer misunderstands water level after drain.	Instruct customer. Sump will normally have about 1" (2.4 cm) of water remaining in filter cup hole after cycle.	
	3. Draining problem.	Refer to "Service Error Codes" table.	8-1 8-2
<b>Detergent Not Dispensing or Detergent Left In Dispenser</b> <b>NOTE: Check error history. If no error codes for electrical problems, problem is mechanical. Do not replace control.</b>	1. Item in lower rack blocked lid or blocked spray of water to dispenser.	Instruct customer on proper dish loading.	
	2. Mechanical binding of dispenser lid.	1. Unplug dishwasher or disconnect power. 2. Check/replace dispenser.	
	3. Lid latch binding due to excess detergent in mechanism.	Instruct customer on proper dispenser filling.	
	4. Dispenser electrical problem.	Refer to "Service Error Codes" table.	10-1
	5. Control canceled cycle before dispensing due to error detected with wash motor.	Refer to "Service Error Codes" table.	4-3
<b>Poor Wash</b>	1. Cycle selection of customer not appropriate for dish load.	Instruct customer on cycle selection. Recommend "High Temp" option for wash performance boost.	
	2. Plugged or damaged screens.	Inspect following 3 screens: - Filter cup coarse screen - Filter cup fine screen - Sump fine screen	
	3. Spray arms not rotating or plugged.	1. Check arm rotation. If arms are blocked by dish item, instruct customer. Also check for correct upper spray arm alignment with docking station located on feed tube back wall. 2. Check nozzles. If they are plugged, clean nozzles and confirm filters installed properly.	
	4. Poor wash due to draining, dispensing, and/or temperature problem.	See "Will Not Drain or Excess Water Left in Unit," or "Detergent Not Dispensing or Detergent Left in Dispenser," or details on temperature sensing in "Long Cycles and/or Stuck in Certain Part Of Cycle."	
	5. Control canceled cycle due to error detected with wash motor.	Refer to "Service Error Codes" table.	4-3
	6. Soil sensor problem.	Refer to "Service Error Codes" table. <b>NOTE:</b> Even if no error code recorded, confirm OWI passes all OWI checks in Service Diagnostics cycle and see checks for Error 3-3.	3-2 3-3
	7. Diverter problem.	Refer to "Service Error Codes" table.	9-1 9-2
	8. Diverter disk missing.	Remove outlet cover and inspect for red plastic disk through holes in outlet. Install new disk if missing.	

Customer Description	Potential Causes	Check	Related Error Code(s)
<b>Poor Wash (cont.)</b>	9. Heating problem.	Refer to "Service Error Codes" table.	7-1
	10. Softener problem (on some models).	Refer to "Service Error Codes" table.	6-8
<b>Film or Spots On Glasses and/or Dishes</b>	1. Customer not using rinse aid and/or heated dry.	Check rinse aid gauge level on dispenser. Instruct customer how to fill and monitor, add or use rinse aid.	
	2. Rinse aid dispenser problem.	Refer to "Service Error Codes" table.	10-1
	3. Hard water leaving film on dishes.	Check water hardness. If hard, instruct customer to use maximum detergent or try pouring ¼ cup (60 mL) of Glass Magic into bottom of dishwasher. Also recommend the 1 HR Wash cycle.  For models with water softener, check for "Add Salt" LED at the end of cycle. If on, add salt and instruct customer.	
		For models with water softener, Regen valve electrical problem. Refer to "Service Error Codes" table.	6-8
	4. Detergent carryover or oversudsing.	Check water hardness. If below 10 grains, instruct customer to use less detergent and recommend the 1 HR Wash cycle.	6-3
	5. Etching of glass from too much detergent at too high of temperature.	Check water hardness. If below 10 grains, instruct customer to use less detergent and recommend the 1 HR Wash cycle.	
	6. Diverter problems.	Refer to "Service Error Codes" table.	9-1 9-2
	7. Drain loop check valve not sealing.	1. Disconnect drain hose at plumbing connection. 2. Elevate hose above dishwasher and fill with water. If water flows into dishwasher, replace entire drain loop. Install as high as possible and attach to underside of countertop if possible.	
<b>Poor Dry</b>	1. Customer not using rinse aid and/or dispenser empty.	Check rinse aid gauge level on dispenser. Instruct customer how to fill and monitor, add or use rinse aid.	
	2. Customer not using Heated Dry option.	Recommend use of Heated Dry or Smart Dry to customer.	
	3. Rinse aid dispenser problem.	Refer to "Service Error Codes" table.	10-1
	4. Vent stuck closed due to pilot relay stuck on.	Refer to "Service Error Codes" table.	1-1
	5. Diverter problem kept water from heating in final rinse (plastic tub models only).	Refer to "Service Error Codes" table.	9-1 9-2
	6. Fan problem (on models with fan).	Refer to "Service Error Codes" table.	10-3
	7. Control canceled cycle due to error detected with wash motor.	Refer to "Service Error Codes" table.	4-3
	8. Heating problem.	Refer to "Service Error Codes" table.	7-1

Customer Description	Potential Causes	Check	Related Error Code(s)
<b>Sanitized LED Blinks or Incomplete Sanitization Message at End of Cycle (Control Could Not Confirm Sanitization Achieved)</b>	1. Door opened during final rinse or dry.	Instruct customer.	
	2. Incoming water too cold.	Refer to "Service Error Codes" table.	<b>6-6</b>
	3. Heating problem.	Refer to "Service Error Codes" table.	<b>7-1</b>
	4. Thermistor/OWI sensor problem.	Refer to "Service Error Codes" table.	<b>3-1</b> <b>3-2</b>
	5. Intermittent door switch/latch connection.	See same checks as for 5-1 Error. Refer to "Service Error Codes" table.	
	6. Diverter problem prevented water from heating in final rinse (plastic tub models only).	Refer to "Service Error Codes" table.	<b>9-1</b> <b>9-2</b>
	7. Line voltage too low to heat fast enough.	Check power source. Confirm at least 100 VAC.	
<b>Melted Dishware and/or Spray Arm and/or Dishwasher Always Hot</b>	8. Air pressure surges in dishwasher due to washing with high suds causes brief opening of door switch contacts during final rinse.	Refer to "Service Error Codes" table.	<b>6-3</b>
	1. Customer uses non-dishwasher safe dishes or loads plastic dishes directly over heater.	Instruct customer.	
	2. Temperature sensing problem.	Refer to "Service Error Codes" table.	<b>3-1</b>
	3. Water heating problem. Heater stuck on.	Refer to "Service Error Codes" table.	<b>7-2</b>
<b>Noisy Operation</b>	4. Water heater displaced from mounting clip and/or pulled off center.	Inspect heater. Adjust back into position if needed.	
	1. Spray arm stalled or blocked and spraying on the door.	- Instruct customer if blocked. - Check spray arm rotation and inspect for plugged nozzles. If plugged, clean nozzles and confirm filters are installed properly.	
	2. Diverter problem.	Refer to "Service Error Codes" table.	<b>9-1</b> <b>9-2</b> <b>9-3</b>
	3. Motor problems force cycle to start and stop repeatedly.	Refer to "Service Error Codes" table.	
	4. No or low water.	Refer to "Service Error Codes" table.	<b>6-1</b> <b>6-2</b> <b>6-3</b> <b>6-4</b>
	5. Drains too long.	1. Long drain due to OWI sensor problem. Refer to "Service Error Codes" table for 3-3. 2. Slow drain problem. Refer to "Service Error Codes" table for 8-1.	<b>3-3</b> <b>8-1</b>

Customer Description	Potential Causes	Check	Related Error Code(s)
<b>Noisy Operation (cont.)</b>	6. Loose connection in vent circuit and/or open vent wax motor.	Unplug dishwasher or disconnect power and check resistances of vent wax motor and all connections in the vent circuit. Fix/replace open connection/part.	
	7. Open fuse on control to vent.	Refer to "Fuse Service Check" in "Meter Check of Loads and Fuses" section.	
	8. Vent drive circuit on the control.	Unplug dishwasher or disconnect power and replace control.	
	9. Fan runs (makes noise) after cycle completed (on models with fan).	Dishwasher is designed to keep fan running after cycle to avoid moisture buildup in dishwasher. Fan will turn off if door is opened longer than 5 seconds. Instruct customer.	
	10. Excessive fan noise due to faulty fan (on models with fan).	1. Check fan operation during Service Diagnostics test cycle. 2. Unplug dishwasher or disconnect power. 3. Replace fan if fan does not spin freely.	
<b>Leaks or Drips Onto Cabinet or Floor</b>	1. Loose connection in vent circuit and/or open vent wax motor.	Unplug dishwasher or disconnect power and check resistances of vent wax motor and all connections in the vent circuit. Fix/replace open connection/part.	
	2. Open fuse on control to vent.	Refer to "Fuse Service Check" in "Meter Check of Loads and Fuses" section.	
	3. Vent drive circuit on the control.	Unplug dishwasher or disconnect power and replace control.	
	4. Fan problem (on models with fan).	Refer to "Service Error Codes1" table.	<b>10-3</b>
	5. Too many suds.	Refer to "Service Error Codes" table.	<b>6-3</b> <b>6-4</b>
	6. Leaking dishwasher.	Check door/tub gasket and all water connections under dishwasher. Refer to "Service Error Codes" table.	<b>6-1</b> <b>6-3</b>
	7. Unit not level (leaning forward) and water surges over front lip during cycle.	Check error history for Float Error 6-4. Error 6-4 is likely to occur if unit is significantly out of level and leaning forward. Refer to "Service Error Codes" table.	<b>6-4</b>
	8. Air pressure surge when door is opened and immediately closed while dishwasher is hot can force droplets out of the vent duct.	Instruct customer to leave door open a few minutes before re-closing, if opened while dishwasher is hot.	