FOR SERVICE TECHNICIAN'S USE ONLY

NOTE: This sheet contains important Technical Service Data.

W10543820B **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:
1.3 gal. (4.8 L) first fill (approximate), 1.1 gal. (4.3 L) other fills

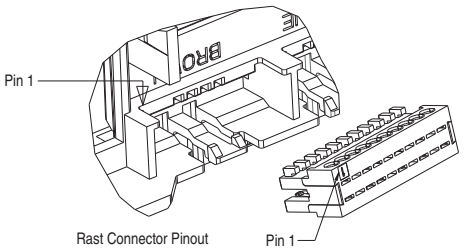
Lower Spray Arm Rotation:
25 to 40 rpm

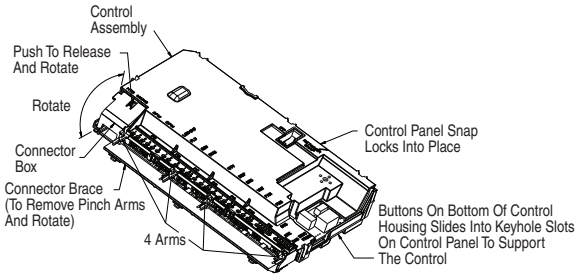
Upper Spray Arm Rotation:
25 to 35 rpm

REPAIR KITS

Vinyl Touch-up Kits:
675576 (Blue), 676453 (White), 676455 (Gray)

Control Assembly





Meter Check of Loads

Fuse Service and Diagnostic Checks:
For wash/drain motors fuse and triac load fuse.

- Verify harness connections to all loads and control are made.
- Check stored failure code and/or operation of loads during Service Diagnostics Cycle.

Triac Fuse Diagnostics:
Triac loads; Dispenser, Diverter Motor, Fill Valve, Lower Spray Arm (some models)

- If any of the triac loads work, then the triac fuse is OK. Diagnose and repair non-working triac loads.
- If all triac loads fail to operate, triac fuse may be open. Check the fuse and replace control if fuse is open. Inspect and check resistances of all loads on fuse. If any loads are open, shorted, or show evidence of overheating or pinched wires, replace loads and/or repair wires.

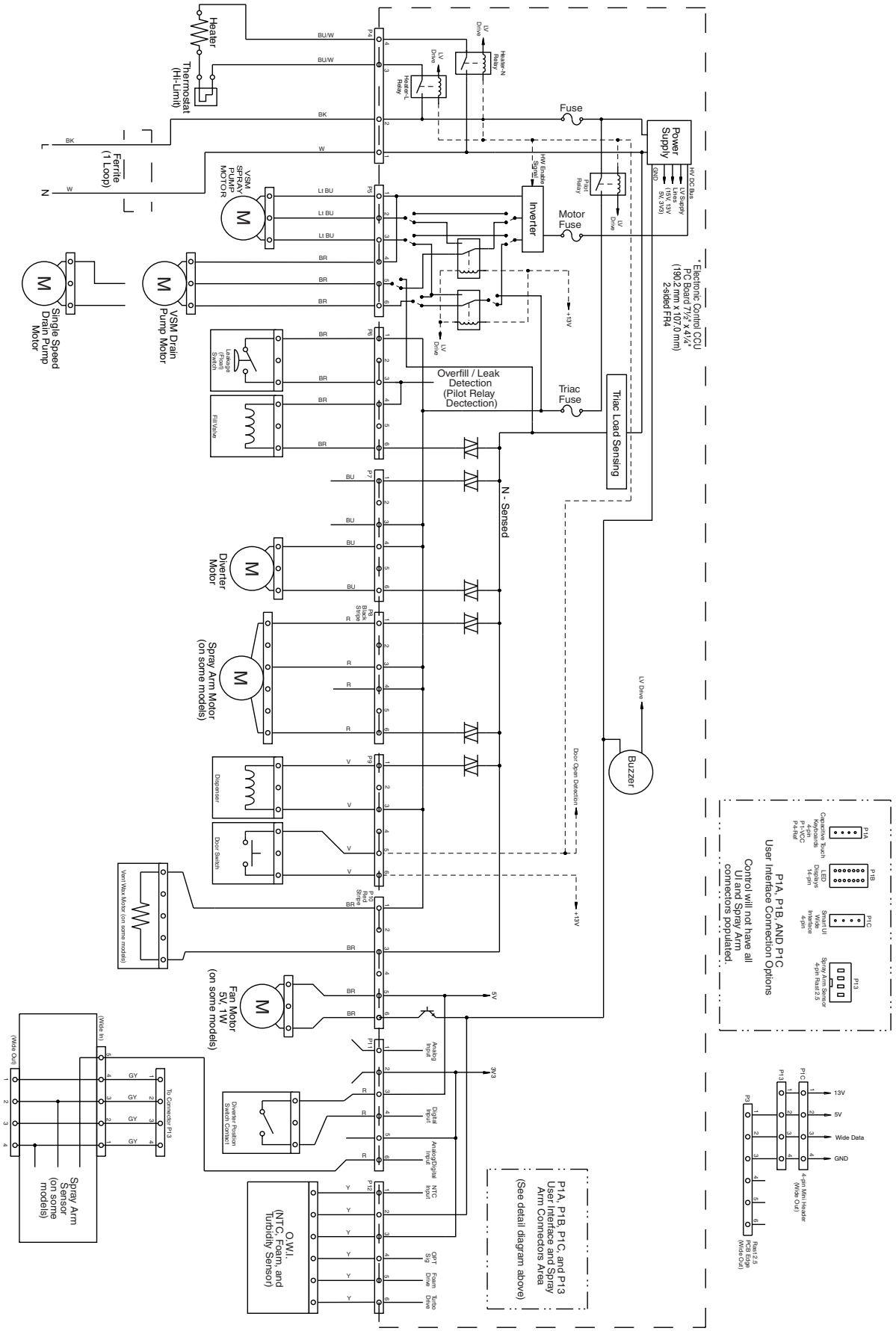
Wash/Drain Motor Fuse Diagnostics

- If both the wash and drain motors fail to operate, motor fuse may be open. Check the fuse and replace control if fuse is open. Inspect and check resistances of both motor loads. If either motor is open, shorted, or shows evidence of overheating or pinched wires, replace loads and/or repair wires.
- If only wash or drain motor operates, fuse is OK. Use meter to measure non-operational motor's (3) phase resistances.
- If a phase is open (> 1,000 Ω) or unequal to the others, motor is bad. Replace motor.
- If all phases are equal and within range (see wash/drain circuit), use meter to verify wiring harness continuity (< 3 Ω) from control connection to motor phase.
- If harness continuity is OK, control is bad. Replace control.
- If harness continuity is open or intermittent, harness is bad. Repair/ replace harness.

NOTE: If triac or motor fuse is open, inspect and check resistances of all loads on fuse. If any loads are open, shorted, or show evidence of overheating or pinched wires, replace loads and/or repair wires.

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	27	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	STANDBY
NORMAL	NRM		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	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		DRY		DRY		DRY	
SANITIZED NOTE 5	SAN										(SAN)																	
CLEAN NOTES 4,5,6	CLN		CLN	CLN	CLN	CLN					(CLN)		(CLN)			(CLN)		(CLN)						(CLN)		CLN	CLN	
ALL OTHER CYCLE, OPTION AND STATUS LEDS	ALL																											
INTERVAL TIME (min:sec) TOTAL TIME (MAX.): 23:10	0:06	0:01	1:21	1:21	1:21	1:21	0:10	0:40	0:05	0:02	0:13	0:05	1:00	2:00	0:30	1:00	0:30	4:00	0:05	0:02	0:05	0:02	1:52	0:06	2:30	1:21	1:21	
SOIL SENSING INTERVALS AND SENSOR CHECKS																												
THERMISTOR (TEMPERATURE SENSOR) CHECK INTERVAL NOTE 5									THR																			
OWI (SOIL SENSOR) CHECK INTERVALS NOTE 6												OWI			OWI								OWI					
(NOTE: OWI HAS THERMISTOR BUILT IN - SEE CHECK ABOVE)																												
DIVERTER POSITION SENSOR CHECK NOTE 3														DIV														
LOWER SPRAY ARM CHECK (IF PRESENT) NOTE 10																		LSA										
LOADS																												
PILOT RELAY			CUSTOMER ERROR 1	CUSTOMER ERROR 2	CUSTOMER ERROR 3	CUSTOMER ERROR 4	PLT	PLT	PLT	PLT	PLT	PLT	PLT	PLT	PLT	PLT	PLT	PLT	PLT	PLT	PLT	PLT	PLT	PLT	PLT	SERVICE ERROR 1	SERVICE ERROR 2	STANDBY
VENT							VNT	VNT	VNT	VNT	VNT	VNT	VNT	VNT	VNT	VNT	VNT	VNT	VNT	VNT	VNT	VNT	VNT	VNT	VNT			
FILL								FIL	FIL		FIL																	
WASH MOTOR									WSH		WSH		WSH	WSH		WSH	WSH	WSH										
DETERGENT/RINSE AID DISPENSER													DSP															
DIVERTER								(DIV)						DIV	(DIV)		(DIV)	(DIV)										
DIVERTER POSITION								UPR	UPR	UPR	UPR	UPR	ON	ON	UPR	UPR	TZ	LOW	LOW	LOW	LOW	LOW	LOW	LOW				
LOWER SPRAY ARM MOTOR (IF PRESENT) NOTE 10																		LSA										
DRAIN MOTOR																			DRN		DRN		DRN	DRN				
HEATER																		HTR							FAN			
DC FAN MOTOR (IF PRESENT) NOTE 7												FAN			FAN	FAN												
SERVICE DIAGNOSTICS CYCLE NOTES	2	8	1	1	1	1	4	3		9	5	6	6	3	3, 6		3	3, 10					6	6	7, 10	1	1	

Service Diagnostics Cycle Notes:

1 To invoke the Diagnostics Cyle, perform the following while in standby:

- Press Start key to wake up 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.
- 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 individual advance key.

- Invoking Service Diagnostics Cyle 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.

2 Turn on all LEDs immediately upon receiving entry sequence (even if door is open) and throughout this first interval as a display test.

3 Diverter will be on continuously in interval 14. In all other diverter intervals, diverter will only be on until it reaches the intended position for that interval.

4 Press Hi Temp key in this interval to clear customer error history.

- If Hi Temp key does not respond, the control panel is in "Sleep Mode." Open and close the door to wake up the control panel and then press Hi Temp to clear the customer error history.

5 Thermistor (temperature sensor) checks - turn clean LED on if thermistor is in its normal temperature range (32°F to 167°F [0°C to 75°C]). Turn sanitized LED on if fill temperature is above 85°F (30°C).

6 OWI (optical soil sensor) checks:

- Check OWI sensor for the presence of water during the 5-second pause in interval 16 and turn on the Clean LED in interval 15 if water is 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 is detected.
- Drain until OWI sensor sees the presence of air or a max. of 1:52 during interval 5 and turn on the Clean LED in interval 4 if air is detected.

7 DC Fan Motor is on during upper rack washing intervals.

8 Turn off all LEDs during pause prior to displaying error codes.

9 Pause to allow for cold first fill detection.

10

- Lower spray arm (LSA) models identified by finger-shaped sensor in tub protruding from bottom left side of sump.
- Check for LSA motor and sensor during interval 10 according to table below or look for error code F9E4 at end of service cycle.

Interval 10 (4 min lower wash): diagnostic details for LSA models			
Minute #1: LSA rotates CCW	Minute #2: LSA rotates CW	Minute #3: LSA rotates CCW	Minute #4: LSA rotates CW
LSA motor and sensor status indication given during 3rd and 4th minute of interval.		Clean LED lit to indicate LSA motor status good.	Clean LED lit to indicate LSA sensor status good.

NOTE: Inoperable LSA motor will also cause LSA sensor to indicate bad status. See 9-4 Error Code Table to diagnose.

- Interval 3: LSA moves to Home position after drain is completed. Home position = LSA approximately 5° clockwise from 12 o'clock.

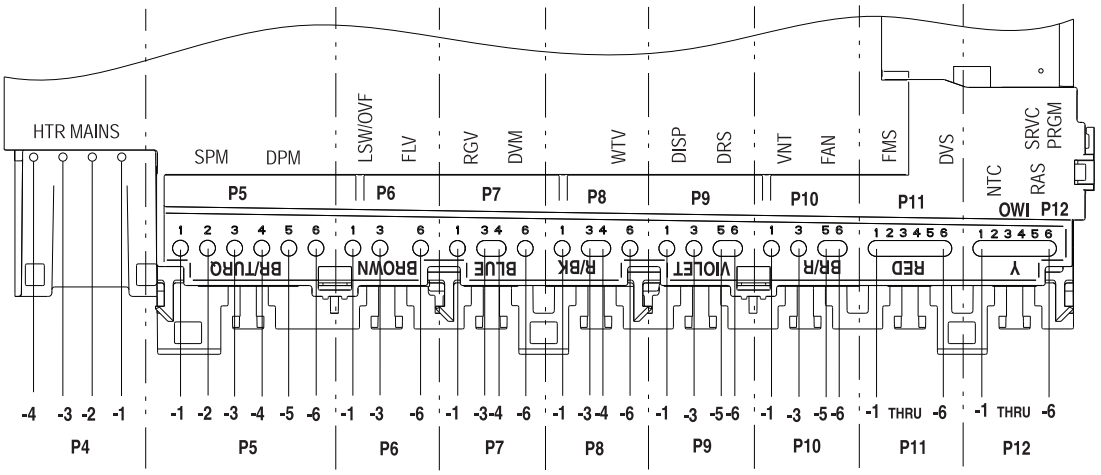
Customer Cycle Operation

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.

Control Pinout

Meter Check of Loads and Fuses.
Load must be connected for triac to operate correctly.
Meter checks are best made at the control.

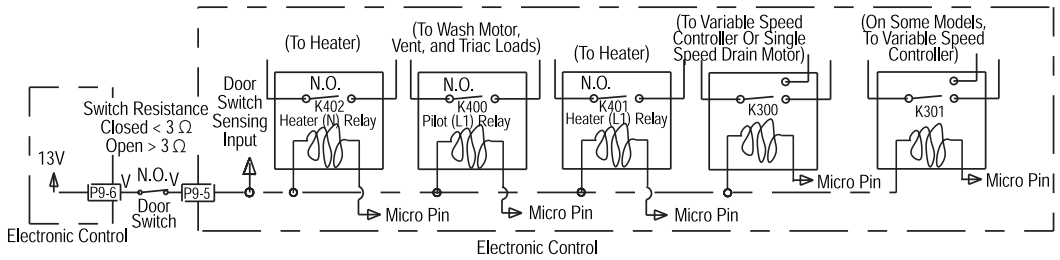


Dishwasher Strip Circuits

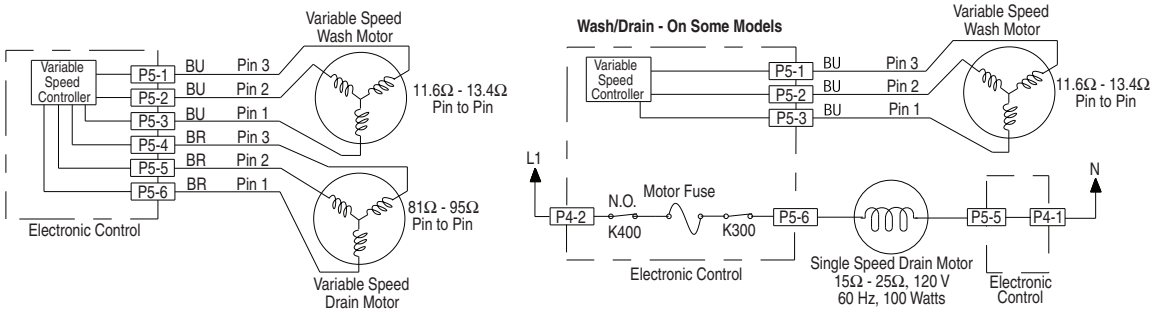
The following individual circuits are for use in diagnoses. Do not continue with the diagnosis of the appliance if a fuse is blown, a circuit breaker is tripped, or if there is less than a 120-volt power supply at the wall outlet.

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

Door Switch

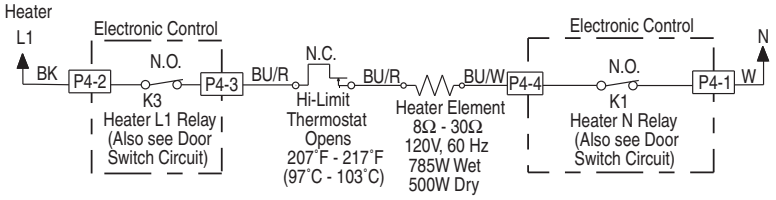


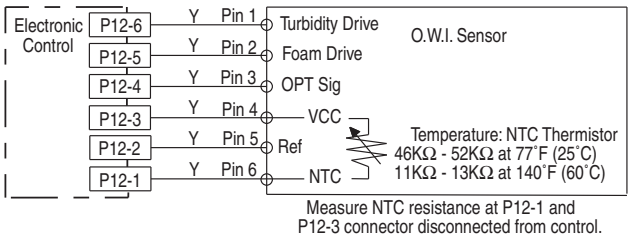
Wash/Drain



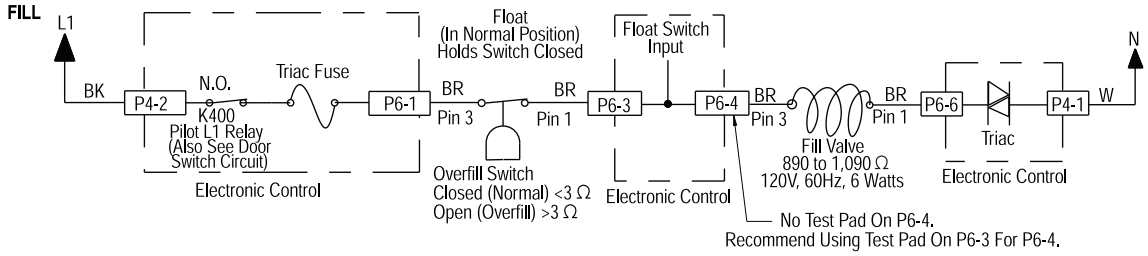
Water Heating/Heat Dry and Water Sensing with O.W.I. Sensor (Water/Air/Soil/Temperature)

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

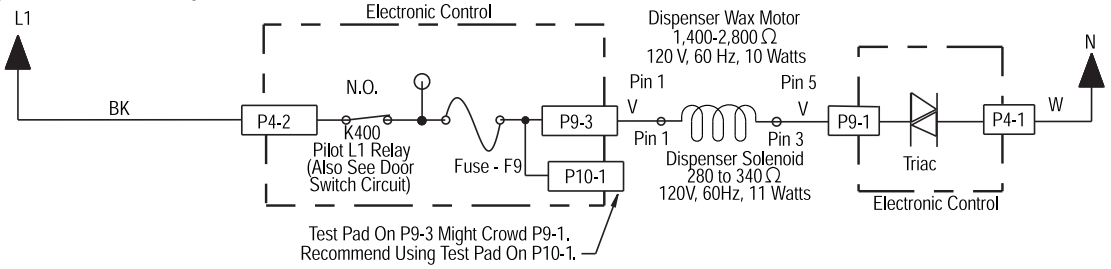




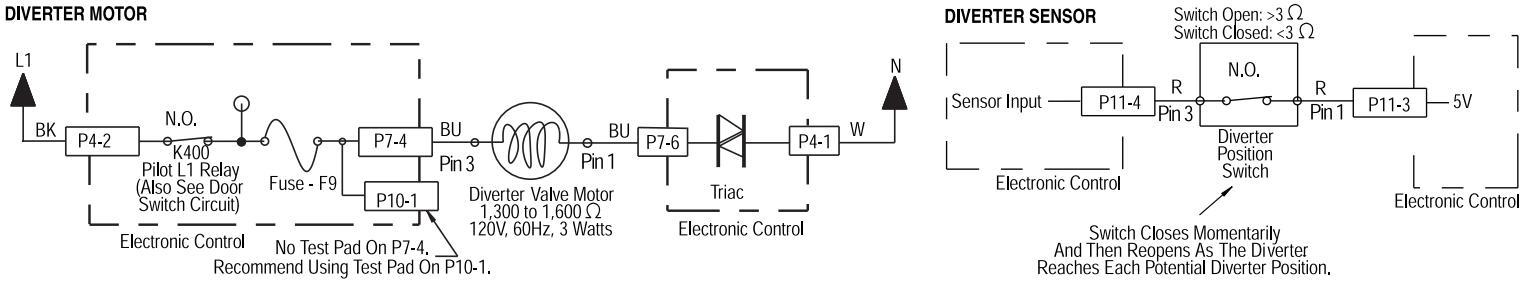
Fill



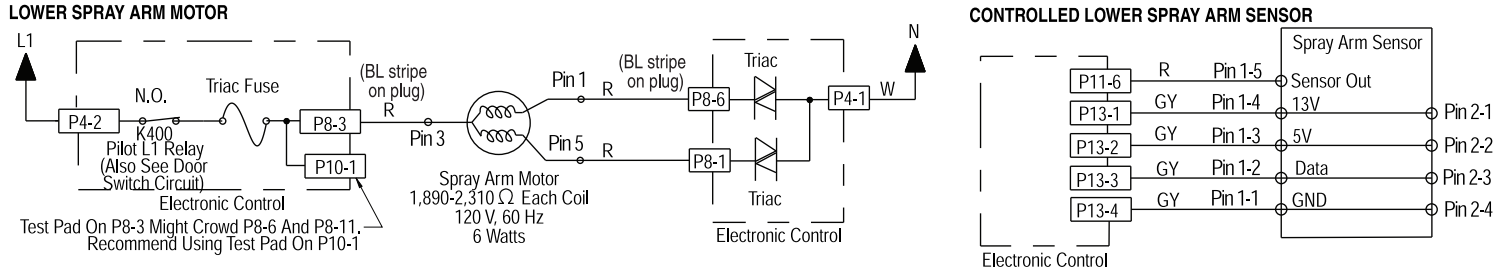
Dispenser (Detergent and Rinse Aid)



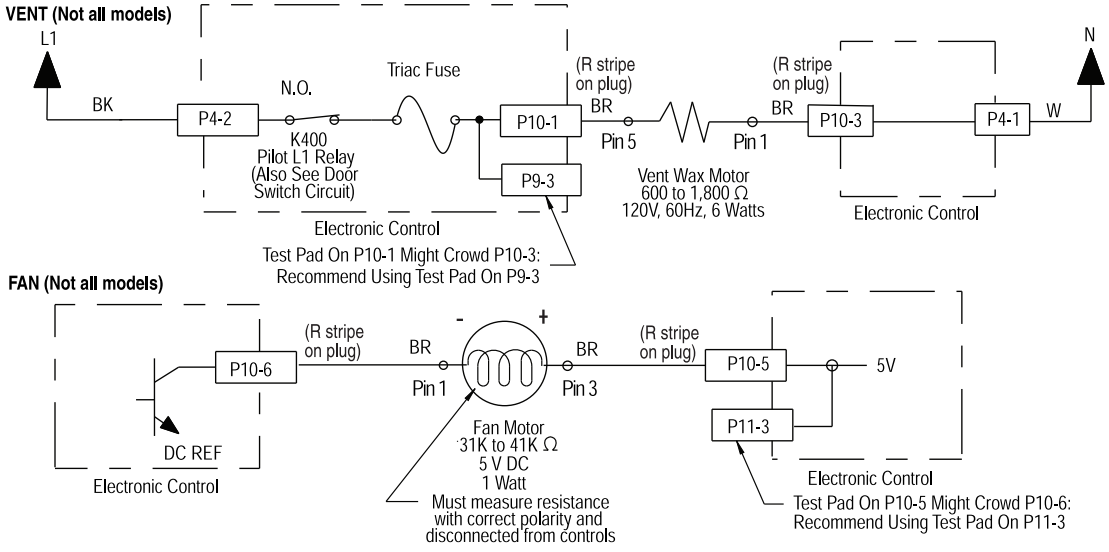
Diverter Valve



Controlled Lower Spray Arm (on some models)



Drying



Service Diagnostics with Error Codes

Entry sequence: Press START to wake up control panel and then 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 27
⬇			
1 SECOND PAUSE - ALL LEDS OFF			**INTERVAL 26**
⬇			
ERROR 1 - MOST RECENT			**INTERVAL 25**
CLEAN Clean LED will flash FUNCTION code. If no error, Clean LED will stay on solid for 5 seconds.	Pause 2 sec.	CLEAN Clean LED will flash PROBLEM code. If no error, Clean LED will stay on solid for 5 seconds.	Pause 5 sec. Repeat 3 times unless advanced by Start key.
⬇			
ERROR 2			**INTERVAL 24**
CLEAN Clean LED will flash FUNCTION code. If no error, Clean LED will stay on solid for 5 seconds.	Pause 2 sec.	CLEAN Clean LED will flash PROBLEM code. If no error, Clean LED will stay on solid for 5 seconds.	Pause 5 sec. Repeat 3 times unless advanced by Start key.
⬇			
ERROR 3			**INTERVAL 23**
CLEAN Clean LED will flash FUNCTION code. If no error, Clean LED will stay on solid for 5 seconds.	Pause 2 sec.	CLEAN Clean LED will flash PROBLEM code. If no error, Clean LED will stay on solid for 5 seconds.	Pause 5 sec. Repeat 3 times unless advanced by Start key.
⬇			
ERROR 4 - OLDEST			**INTERVAL 22**
CLEAN Clean LED will flash FUNCTION code. If no error, Clean LED will stay on solid for 5 seconds.	Pause 2 sec.	CLEAN Clean LED will flash PROBLEM code. If no error, Clean LED will stay on solid for 5 seconds.	Pause 5 sec. Repeat 3 times unless advanced by Start key.
⬇			
10 seconds pause		Hi Temp LED will blink	**INTERVAL 21**
Press Hi Temp key to clear errors. If Hi Temp key does not respond, the control panel is in “sleep Mode”, open and close the door to wake up the control panel and then press Hi Temp key to clear the customer error history.			
⬇			
Service Diagnostics Cycle Turns on loads and checks sensors.			**INTERVAL 20-3**
⬇			
SERVICE CYCLE ERROR 1			**INTERVAL 2**
CLEAN Clean LED will flash FUNCTION code. If no error, Clean LED will stay on solid for 5 seconds.	Pause 2 sec.	CLEAN Clean LED will flash PROBLEM code. If no error, Clean LED will stay on solid for 5 seconds.	Pause 5 sec. Repeat 3 times unless advanced by Start key.
⬇			
SERVICE CYCLE ERROR 2			**INTERVAL 1**
CLEAN Clean LED will flash FUNCTION code. If no error, Clean LED will stay on solid for 5 seconds.	Pause 2 sec.	CLEAN Clean LED will flash PROBLEM code. If no error, Clean LED will stay on solid for 5 seconds.	Pause 5 sec. Repeat 3 times unless advanced by Start key.

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

FOR SERVICE TECHNICIAN'S USE ONLY

Service Error Codes Table

Example: 6-1 means "Inlet Water" function, "Low Water/Air in Pump" problem.

Function Code	Problem Code	Causes	What to Check
1- Control	**1- Pilot Stuck On**	Control detected K400 relay stuck closed.	1. Unplug dishwasher or disconnect power. 2. Check all loads on K400 pilot relay for shorts. 3. Replace control and all shorted components.
	2- Control Software Issue	Damaged or corrupted memory on control board. Incompatible software components inside micro.	1. Unplug dishwasher or disconnect power. 2. Replace control board.
2- User Interface	**1- Stuck Key**	Control detected stuck key(s) in keypad or keypad connection. **NOTE:** If any keys are stuck, the stuck key(s) will be ignored and an error recorded to the 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 there is 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 is 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 Vent Error 10-2 and/ or Fan Error 10-3 as potential cause of condensation on user interface.
	2- No Response from UI	1. User Interface cannot communicate with main control. Loose User Interface connection.	1. Unplug dishwasher or disconnect power. 2. Check connections between LCD display module and P1C connector on the control: If connection(s) loose, then reconnect. 3. Check for 5 VDC from P1C-2 to P1C-4. If there is no voltage at control, disconnect power, replace main control board.
2- User Interface (cont.)	**2- No Response from UI (cont.)**	2. Wrong control installed.	Verify correct control is installed. Control should have no connector present at P1A. If wrong control, disconnect power and replace control.
3- Thermistor/ OWI	**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 Diagnostic 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 Diagnostic cycle. 3. Unplug dishwasher or disconnect power. 4. Check all components and connections in the Temperature Sensing Circuit with meter. Fix/ replace shorted wires/part. (See OWI Sensor strip circuit.)
	3- Failed Calibra - tion	1. OWI failure.	1. Unplug dishwasher or disconnect power. 2. Remove OWI and check lens surface. Lens should be clear and surface should be free of debris and scratches. Clean lens or replace OWI as needed. 3. Check all connections in Soil Sensing Circuit with meter. Fix/ replace bad connection/part. **NOTE:** Run Diagnostics Cycle after installing new OWI to force calibration on next regular wash cycle.
		2. Drain hose check valve not sealing.	Dirty water backs into dishwasher after draining. 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).
4- Wash Motor	**4- Motor Failure**	1. Loose connection in Wash Motor Circuit and/or open wash motor.	1. Unplug dishwasher or disconnect power. 2. Check all connections in Wash Motor Circuit with meter. Fix/ replace open connection/ part.
		2. Motor fuse on control open.	Refer to "Meter Check of Loads" section and "Control Pinout" diagram.
		3. Wash motor drive circuit on the control.	
		4. Wash motor.	
5- Door Switch	**1- Door Stuck Open**	1. Door was not latched within 3 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 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 is 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 (Mechani-cal Problem)**	1. No water to dishwasher.	Verify water supply is turned on and supply line adequate.
		2. Bowls or pots loaded or flipped upside down 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 to 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, 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 below.
		7. Fill valve electrical problem.	Check other error codes to see if 6-2 also occurred. See 6-2 Error Code below.
	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 connections in the Fill Circuit with meter. Fix/replace open connection/part.
6- Inlet Water (cont.)	**2- Fill Valve Electrical Problem (cont.)**	2. Open fuse on control to fill valve.	Refer to "Meter Check of Loads" section and "Control Pinout" diagram.
		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 upside down 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, turbo zone assembly, rear feedtube and outlet cover and verify whether the red diverter disk is installed.
	4- Float Switch Open	1. Overfill switch stuck in "Overfill" (open) position and/or dishwasher not level.	Remove any items stuck under float. Verify that the float moves freely and you hear the "click" of the switch contacts. Check levelness of dishwasher. Measure switch resistance (see Fill Strip Circuit diagram).
		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 it is still filling, then unplug dishwasher or disconnect power and replace control.
		4. Fill valve mechanically stuck open.	Confirm dishwasher fills while the door is open. If yes, then 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 to fill valve and other triac loads	Refer to "Meter Check of Loads" section and "Control Pinout" diagram.

Function Code	Problem Code	Causes	What to Check
6- Inlet Water (cont.)	**6- Cool Water**	Incoming water under 65°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- Heating	**1- No Heat**	1. Control programmed to disable heater, but continue running cycles, if it detects a water heating problem.	Running diagnostics clears the control, 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. Circuit problem: - Open in heater. - Open connection or component in Heater Circuit.	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.	Unplug dishwasher or disconnect power and replace control.
	2- Heater Stuck On	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.
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 or damaged.	1. Unplug dishwasher or disconnect power and replace drain motor.
	4- 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 the impeller.
		3. Open fuse on control to drain motor.	Refer to "Meter Check of Loads" section and "Control Pinout" diagram.
		4. Drain Motor Drive Circuit on the control.	
		5. Drain Motor.	
9- Diverter	**1- Diverter Can't Find Position**	1. Corroded or loose connection in diverter sensor/motor circuit.	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, then likely the sensor circuit. 2. Unplug dishwasher or disconnect power and check connections/parts in Diverter Sensor and Motor Circuit with meter. Fix/replace connections/parts. 3. Inspect diverter sensor for evidence of water or contaminants. If yes, replace.
9- Diverter (cont.)	**1- Diverter Can't Find Position (cont.)**	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, then replace diverter and seal.
		3. Open fuse on control to diverter motor.	Refer to "Meter Check of Loads" section and "Control Pinout" diagram.
		4. Diverter Motor Drive Circuit on the control.	
	2- Diverter 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- Diverter Disk Missing	Control detected diverter disk in sump is missing.	Remove lower spray arm, turbo zone assembly, rear feed tube and outlet cover; and verify the round diverter disk is installed.
	4- Lower Spray Arm Error	1. Mechanical binding or blocking of spray arm.	1. Check for and remove any blockage of lower spray arm (utensils, pot handles, etc.). 2. Run the Service Diagnostic cycle and check for the LSA operation/fault detection (Note 10). If failure still exists, then: 3. Disconnect power from the unit and check wiring connection for damage at controlled lower spray arm motor and sensor. 4. Check "Triac Fuse Diagnostic" near "Meter Check of Loads" (replace control if open). 5. Check for open or shorted LSA motor winding resistance (replace diverter module). 6. If LSA motor circuit and wiring connections check good, and spray arm rotates, replace LSA sensor. 7. Run the Service Diagnostics cycle again to confirm error-free operation.
		2. Corroded or loose connection in spray arm sensor or motor circuit.	
		3. Open fuse on control to spray arm motor.	
		4. Spray arm drive circuit on the control.	
		5. Spray arm motor or sensor.	
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 "Meter Check of Loads" section and "Control Pinout" diagram.
		3 Dispenser Drive Circuit on the control.	Unplug dishwasher or disconnect power and replace control.
	2- Vent Wax Motor Electrical Problem (not all models)	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 "Meter Check of Loads" section and "Control Pinout" diagram.
		3. Vent drive circuit on the control.	Unplug dishwasher or disconnect power and replace control.
	3- Drying Fan Error (on models with fan)	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
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.	
	3. Model has an LCD display and the control has been exchanged for one that is not compatible with the LCD display module.	Verify correct control is installed. Control should have no 4-pin user interface connector present at P1A if it is configured for an LCD model. 1. Unplug dishwasher or disconnect power and replace control.	**5-1**
	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**
Won’t run and LED for Start/ Resume key is Blinking Slowly	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**
Won’t run and LED above key is Flashing Rapidly and Continually	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**
Won’t Run and all LEDs on	Software or hardware incompatibility problem with control.	Refer to “Service Error Codes” table.	**1-2**
Won’t Start and Start/ Resume key LED Flashes 3 times when Start/Resume Key is Pressed	Control looks for switch to open between cycles. Customer didn’t open door between cycles. Door switch contacts stuck closed.	Refer to “Service Error Codes” table.	**5-2**
Won’t Accept Key Presses and Control Lock LED On	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).	
One or More Keys Won’t Respond or Unusual LED/ Display/Key behavior	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. Control panel is in “Sleep Mode” where keys are disabled (except START) after 30 seconds of no activity.	Press Start key or open and shut door to wake up control panel. 1. Press and verify all keys respond. Instruct customer regarding “Sleep mode.” 2. If keys still do not respond, replace keypad and console.	
	3. 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.	
	4. 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.	**2-2**
	5. Excessive condensation on user interface parts due to vent and/or fan problem	Check error history for 10-2 vent error or 10-3 fan error. Refer to “Service Error Codes” table.	**10-2** **10-3**
	6. Defective user interface.	1. Unplug dishwasher or disconnect power. 2. Replace user interface console assembly.	
Dishwasher Beeps Constantly (for models with beepers)	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).	
	3. Door not opened between the cycles.	Instruct customer control will beep if new cycle started and the dishwasher door was not opened since the last completed cycle.	**5-2**
Long Cycles and/or Stuck in certain part of cycle	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. Explain how today’s more energy efficient dishwashers run longer cycles but use less energy overall.	
	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.	

Customer Description	Potential Causes	Check	Related Error Code
Long Cycles and/or Stuck in certain part of cycle (cont.)	3. A water heating problem could cause long cycles but will typically cause a "water heating fault."	Refer to "Service Error Codes" table.	**7-1**
	4. Heater takes a long time to heat water with low voltage.	Check for at least 100 VAC at power source.	
	5. Incoming water too cold.	Refer to "Service Error Codes" table.	**6-6**
	6. Suds or air in pump requires repeated wash periods.	Refer to "Service Error Codes" table.	**6-3**
	7. OWI or NTC sensor problem.	Refer to "Service Error Codes" table.	**3-1** **3-3**
LEDs and/or Displays run for short time (but no loads running) and then shuts off	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 wash and drain motor fuse or triac fuse on the control.	Refer to "Meter Check of Loads" section and "Control Pinout" diagram.	
Can start a cycle, but only runs for a short time - cycle does not complete (clean LED or Completed may blink)	1. Control canceled cycle due to error detected with wash motor, drain motor, low water, or suds.	Refer to "Service Error Codes" table.	**4-4** **6-1** **6-3** **8-3** **8-4**
	2. Unit in Sales Demo mode.	Run Service Diagnostics cycle to clear Demo mode.	
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.	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).	
	2. Customer misunderstands water level after drain.	Instruct customer. Sump will normally have about 1" (2.4 cm) of water remaining after cycle.	
	3. Draining problem.	Refer to "Service Error Codes" table.	**8-1** **8-2**
Lower Spray Arm Blocking the Filter Cup Removal (controlled rotation lower spray arm models).	1. Door opened while lower spray arm moving.	Instruct customer power to lower spray arm is cut off when door is opened.	
	2. Corroded or loose connection in spray arm sensor or motor circuit causing LSA to stop somewhere other than home position (home position = LSA approximately 5° clockwise from 12 o'clock).	Disconnect power and check connection at controlled lower spray arm motor and sensor at the control. Inspect connectors for ware and contamination and replace as needed. Run the Service Diagnostics cycle and check for the LSA motor/sensor operation (Note 10). Refer to Service Error Codes Table.	**9-4**
Detergent or Rinse Aid not dispensing or detergent left in dispenser NOTE: Check error history. If no error codes for electrical problems, then problem is mechanical. Do not replace control.	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.	
Detergent or Rinse Aid not dispensing or detergent left in dispenser NOTE: Check error history. If no error codes for electrical problems, then problem is mechanical. Do not replace control. (cont.)	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, drain motor, low water or suds.	Refer to "Service Error Codes" table.	**4-4** **6-1** **6-3** **8-3** **8-4**
Poor Wash	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 the 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 at back tub wall. 2. Check nozzles. If plugged, clean nozzles and confirm filters installed properly. 3. Controlled lower spray arm motor failed. Check spray arm moving in both directions during diagnostics cycle.	**9-4**
	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, drain motor, low water or suds.	Refer to "Service Error Codes" table.	**4-4** **6-1** **6-3** **8-3** **8-4**
	6. Soil sensor problem.	Refer to "Service Error Codes" table. **NOTE:** Even if no error code is 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.	
	9. Heating problem.	Refer to "Service Error Codes" table.	**7-1**
Film or Spots on Glasses and/or Dishes	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 and 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 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**

Customer Description	Potential Causes	Check	Related Error Code
Film or Spots on Glasses and/or Dishes (cont.)	4. Detergent carryover or oversudsing.	Check water hardness. If below 10 grains, then instruct customer to use less detergent and recommend the 1 HR Wash cycle	
	5. Etching of glass from too much detergent at too high of temperature.	Check water hardness. If below 10 grains, then 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).	
Poor Dry	1. Customer not using rinse aid and/ or dispenser is 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 the 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 (not all models).	Refer to “Service Error Codes” table.	**1-1**
	5. Fan problem (on models with fan).	Refer to “Service Error Codes” table.	**10-3**
	6. Control canceled cycle due to error detected with wash motor, drain motor, low water or suds.	Refer to “Service Error Codes” table.	**4-4** **6-1** **6-3** **8-3** **8-4**
	7. Heating problem.	Refer to “Service Error Codes” table.	**7-1**
Sanitized LED Blinks or Incomplete Sanitization Message at the End of a Cycle (control could not confirm sanitization achieved)	1. Door opened during final rinse or dry.	Instruct customer.	
	2. Incoming water too cold.	Refer to “Service Error Codes” table.	**6-6**
	3. Heating problem.	Refer to “Service Error Codes” table.	**7-1**
	4. Thermistor/OWI sensor problem.	Refer to “Service Error Codes” table.	**3-1** **3-2**
	5. Intermittent door switch/ latch connection.	Refer to “Service Error Codes” table.	**5-1** **5-2**
	6. Line voltage too low to heat fast enough.	Check power source. Confirm at least 100 VAC.	
	7. 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.	**6-3**
Melted Dishware and/ or Spray Arm and/or Dishwasher Always Hot	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.	**3-1**
	3. Water heating problem. Heater stuck on.	Refer to “Service Error Codes” table.	**7-2**
Melted Dishware and/ or Spray Arm and/or Dishwasher Always Hot (cont.)	4. Water heater displaced from mounting clip and or pulled off center.	Inspect heater. Adjust back into position as needed.	
Noisy Operation	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 they are plugged, clean nozzles and confirm filters installed properly. Controlled lower spray arm motor failed. Check spray arm moving in both directions during diagnostics cycle.	**9-4**
	2. Diverter problem.	Refer to “Service Error Codes” table.	**9-1** **9-2** **9-3**
	3. Motor problems force cycle to start and stop repeatedly.	Refer to “Service Error Codes” table.	**4-2**
	4. No or low water.	Refer to “Service Error Codes” table.	**6-1** **6-2** **6-3** **6-4**
	5. Drains too long.	Slow drain problem - Refer to “Service Error Codes” table.	**8-1**
	6. Vent stuck open.	Refer to “Service Error Codes” table.	**10-2**
	7. 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.	
	8. 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.	
	9. Vent wax motor problem (not all models).	Refer to “Service Error Codes” table.	**10-2**
	10. Fan problem (on models with fan).	Refer to “Service Error Codes” table.	**10-3**
	11. Too many suds.	Refer to “Service Error Codes” table.	**6-3** **6-4**
Leaks or Drips on Cabinet or Floor	1. Leaking dishwasher.	Check door/tub gasket and all water connections under dishwasher. Refer to “Service Error Codes” table.	**6-1** **6-3**
	2. Unit not level (leaning forward) and water surges over front lip during cycle.	Check error history for Float Error 6-4. It is likely to occur if unit is significantly out of level and leaning forward. Refer to “Service Error Codes” table.	**6-4**
	3. 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.	

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