SERVICE INFORMATION — DO NOT REMOVE

⚠ WARNING ⚠ ADVERTENCIA

Electrical Shock Hazard/Riesgo de Descarga Eléctrica

Death or serious injury can result from failure to follow these instructions.
- Service by a qualified service technician only.
- Disconnect power before servicing this product.
- Reconnect all grounding devices after service.
- Replace all parts and panels before operating.

Usted puede morir o sufrir lesiones graves si no siguen estas instrucciones.
- El servicio técnico sólo debe ser realizado por un técnico calificado.
- Desconecte el suministro de corriente antes de realizar el servicio técnico.
- Luego del servicio técnico, vuelva a conectar todos los dispositivos de conexión a tierra.
- Reemplace todas las piezas y paneles antes de utilizar.

⚠ WARNING ⚠ ADVERTENCIA

Electrical Shock Hazard/Riesgo de Descarga Eléctrica

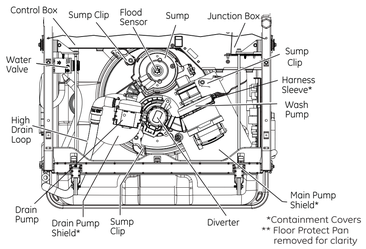
Certain internal parts are intentionally not grounded and may present a risk of electric shock only during servicing. Service personnel – **DO NOT** contact the following parts while the appliance is energized: ***water valve, main pump, drain pump and active vent motor (if present).***

Ciertas piezas internas no tienen conexión a tierra en forma intencional y pueden presentar un riesgo de descarga eléctrica sólo durante la reparación. Personal de reparación – **NO** toque las siguientes piezas cuando el aparato esté recibiendo energía: ***Válvula de agua, bomba principal, bomba de drenaje y motor de ventilación activo (si lo hubiera).***

WASHABILITY COMPLAINTS

1. Level dishwasher left to right and front to back.
2. Verify presence of air gap or high drain loop.
3. Confirm spray arms turn freely.
4. Confirm spray arm jets are clear.
5. Confirm ultra fine filter (consumer removable) has no tears and is not clogged (clean as needed).
6. Confirm fine filter is not warped, and vent caps are secured and open.
7. Clean sump if needed.
8. Check for error codes.
9. Verify thermistor is within specs (see Chart).
10. Confirm detergent cup operation (use Service Mode).
11. Inlet water temp should be 120 degrees F.
12. Check for proper water fill level (use Service Mode).
13. Test water hardness with WD01X10295 or WX5X370 test strip. Adjust detergent use accordingly, check Owner's Manual or detergent use instructions.
14. Use high rated detergents, tablets or packs work best. Refer to Owner's Manual.
15. Use a rinse agent.
16. Load dishwasher per Owner's Manual.
17. Select proper cycle, refer to Owner's Manual.
18. Confirm side wall fill jets are clear.

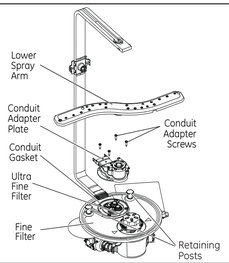
BOTTOM VIEW **



⚠CAUTION: Containment covers will need to be reinstalle d.

⚠PRECAUCIÓN : Las tapas de contención deberán ser reinstaladas.

INSIDE VIEW



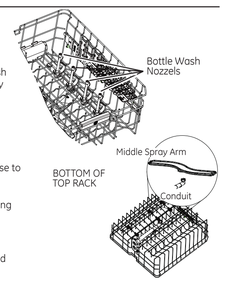
To Remove Sump Pump Module
1. Remove toe-kick, insulation, and pre-toekick (on some models).
2. Remove door.
3. Remove high drain loop hose from drain pump (there may be a small amount of water).
4. Remove the Floor Protect pan.
5. Disconnect flood switch and turbidity sensor wiring.
6. Remove lower rack.
7. Remove lower spray arm. See "**To Disassemble Lower Spray Arm**" .
8. Remove ultra fine filter, vent caps, and fine filter.
9. Remove conduit adapter plate.
10. Unlatch sump clips.
11. Push sump from bottom into tub.
12. Grasp sump from inside, lift and tilt. **Do not grasp flood switch!**
13. Remove containment covers and wiring from drain and wash motors, and heater.
14. Remove sump from tub.

SERVICE INFORMATION — DO NOT REMOVE

To Service Wash Arm Assemblies & Bottle Wash Assemblies:
1. Check Bottle Wash nozzles for debris. The Bottle Wash nozzles operate at the same time as the middle spray arm.
2. Check holes in spray arm for foreign matter.
3. Check spray arms for rotation.

To Disassemble Mid-Level Arm:
1. Pull upper rack all the way out and remove.
2. Rotate hub on top side of spray arm counter-clockwise to remove.
3. To remove conduit, depress clip on the top rear of conduit. Push conduit away from rack while depressing clip to remove.
4. To reinstall arm, reverse procedure.

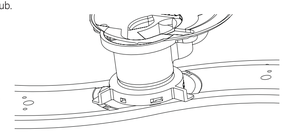
NOTE: Mid arm to be installed with spray jets facing the upper rack. Bearing to be placed between nut and bottom of mid arm.



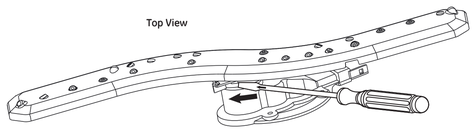
To Disassemble Lower Spray Arm:

There are 3 locking tabs on the locking hub. There are 4 locking tab receivers on the bottom of the wash arm. Only one tab is locked at any given time.
1. Locate the tab which is locked, the locking hub "wing" will be flush with the spray arm.
2. Insert a small screwdriver to release pressure on the tab.
3. Turn the hub clockwise to release.

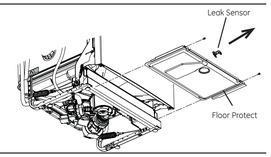
Bottom View of Spray Arm and hub "wings"



Top View

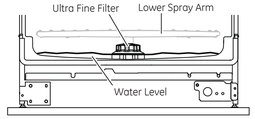


To Remove Floor Protect Pan:
1. Remove leak sensor (on some models). Remove screw from leak sensor on the front of the Floor Protect with a 1/4" driver.
2. Remove 2 screws .
3. Rotate Floor Protect outward and lift out of the mounting tabs.

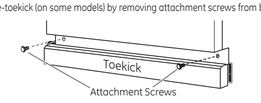


Water Level

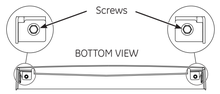
After the first fill, water should pool in the area shown.



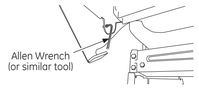
To Remove the Door:
1. Remove toekick and pre-toekick (on some models) by removing attachment screws from both sides.



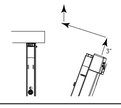
2. Unclip door wiring harness from bottom edge of tub, and disconnect from control box. Remove 2 screws at the bottom of the door (outside corners).



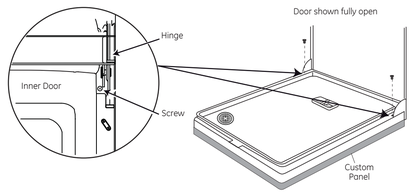
3. To remove tension from springs/cables insert a 5/32" Allen wrench (or similar tool) at the bottom of the hinges. Door will be open appx. 15 degrees. This will trap the door in the removal position.

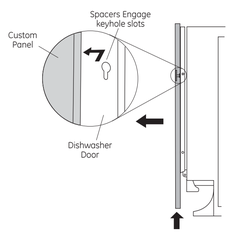


4. With door open, lift door appx. 3" upward, tip door inward and remove by pulling straight up and off.



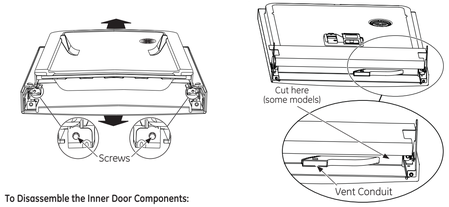
To Separate the Door:
1. Remove two screws one on each side.
2. For models with a Custom Door Panel, the Custom Door Panel will need to be removed to separate the door. Remove 2 screws inside by hinges. Lift up on the custom panel to disengage panel from door, and remove front 2 screws near the handle on the outer door





3. Some models have a sound barrier attached to the outer door. Extend the existing slit or opening in sound barrier on right side of vent conduit, peel it off, and slide it down conduit. Fold protruding portion of sound barrier and tape to outside of outer door panel.
4. Slide outer panel down.

Note: The sound barrier is attached to the outer door and power vent conduit.



To Disassemble the Inner Door Components:

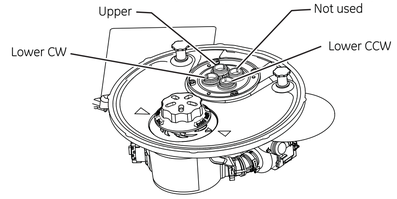
Top Control Models: Remove 4 screws to release the button controls.

Powered Diverter :

The operation of the reversing lower spray arm is only used in the main wash section of the cycle. Normal rotation is clockwise, reversing is counter clockwise. Operation times will vary depending on cycle selected. During Service Mode the lower spray arm rotates clockwise for 30 seconds, reverse for only a few seconds before switching to upper for 30 seconds.

The powered diverter has 4 outlets. The diverter is rated at 12 VAC, and 26 ohms. 1 full rotation is approximately 14 seconds long. Positioning of diverter and feedback is accomplished with a cam and locator feedback switch inside the diverter.

To check operation of powered diverter, drop the main control board down to service position and place the unit into service mode, circulation test. Locate connector J711 on the main board. Diverter motor activation; Check for cycling 12 – 15 VAC pin 19 (yellow/white) to pin 20 (silver/red). If there is no voltage, replace the main control. If voltage is present check the diverter switch by looking for cycling 5 – 13 VDC at pin 17 (tan/yellow) to pin 18 (white/green). If the motor is operating there should be a voltage fluctuation of 5 - 13 VDC between Pins 19 & 20. If this voltage is missing, the powered divert should be replaced.



ERROR MODE

When the dishwasher is in Standby Mode (Cycle Selection Mode), press and hold the ***Cycle Select*** and ***Start*** pads simultaneously for 5 seconds. The LCD should remain off for this test.

Door Status Check:

LEDs Solid	Control is interpreting door as closed
LEDs Flashing	Control is interpreting door as open

Active error codes shall be displayed on the LCD as a horizontally scrolling list. On entry into the Error Mode, the control reports the door status for 10 seconds.

Error Code Display Mode:

LCD	Error Type	Error Causes
F2	Communication Failed	User interface control unable to communicate with machine control.
F3	Configuration Error (inverter not found)	Inverter not detected on inverter equiped model
F5	Inverter Found On Incorrect MC Personality	MC personality has not been configured correctly
F16	High Water Temperature	High water temperature detected.
F33	Door Switch Error	The two inputs from the door latch do not match. (Failure in latch)
F34	Leak Pan Detected Error	Water present or detected in the drain pan.
F35	Diverter Feedback Error	Feedback communication from diverter is not present or not correct.
F36	CSM Tripped	CSM has tripped, see section on Current Sense Module
F48	Turbidity Sensor High	Turbidity sensor reading high. (possible open on sensor)
F49	Turbidity Sensor Low	Turbidity sensor reading low. (possible short on sensor)
F50	Temperature Sensor High	Temperature sensing or stuck at a high reading.
F51	Temperature Sensor Low	Temperature sensing or stuck at a low reading.
F52	Turbidity Sensor Calibration Failure	Turbidity sensor did not successfully calibrate.
F64	Inverter Error Received	Inverter specific error detected.
F65	Inverter No Water Detected	Inverter did not detect water. Will not allow heater to turn on.(Failsafe)
F80	Absent Water Flow (turbidity based)	Water flow not detected in unit.
F96	No Water In Tub (turbidity based)	Water not detected by turbidity sensor.
F97	Absent Heat Source	Calrod (heater) not detected by machine control.
F98	Non-draining Sump (turbidity based)	Unit not draining or not being detected by turbidity sensor
F99	Minimum Wash Temp Not Met	Minimum wash temperature of 120°F was not reached in 3 of the past 5 wash cycles.
F112	Key Stuck	Key detected as being stuck on the user interface.
F128	Low Rinse Aid	Low Rinse aid is detected in the unit.

After door check, control will enter mode to display any error codes currently detected by the control.Error displays cannot be cleared manually. They will be automatically cleared when error condition is no longer present. LCD will scroll any active failure codes.

To exit the *Error Code Display Mode*, press any key.

SERVICE MODE (can only be entered during Error Code Display Mode):

Press and hold the ***Cycle Select*** pad for 5 seconds.
Press: ***Cycle Select*** = *Selects/Increments* Test
Start = *Starts/Stops* Test

Load To Control	Timeout / Notes
Drain Pump	Attempts to automatically empty tub. Takes appx. 75 seconds from normal level.
Water Valve	Attempts to automatically fill tub to normal volume. Takes appx. 1 minute to the normal level.
Circulation Pump*	Changes spray arms (via changing diverter) 30 seconds lower CW, 2-3 seconds lower CCW, upper 30 seconds, repeats. 2 minute test
Heater*	Turns heater on for maximum of 2 minutes.
Detergent Module	Turns soap dispense solenoid on for maximum of 2 minutes.
Fan	Actuates fan for 2 minutes.

SERVICE MODE (CONTINUED)

The powered diverter may run for up to 30 seconds before the control recognizes it is in the proper position.
* For units with a hidden heater, water must be in the tub to actuate heater. Circ pump will be energized with heater.

The *Service Mode* can be entered by pressing and holding the ***Cycle Select*** pad for 5 seconds from the *Error Code Display Mode*. To activate the test, press the ***Start*** pad. Press the ***Start*** pad to cancel the test, or press the ***Cycle Select*** pad to cancel the current test and proceed to the next test. If the Start light flashes, the control will begin the test when the door is closed. The LCD will provide a readout of the load to be energized, as well as prompt to close door if a load tries to energize with the door open.

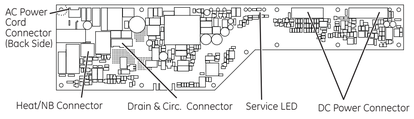
Exiting Service Mode:

Press ***Cycle Select*** and ***Start*** pads together momentarily
To exit the *Service Mode* from *Load Control Mode*, press and hold ***Cycle Select*** and ***Start*** together momentarily. Both *Error* and *Service Modes* will time-out after appx. 5 minutes.

Diagnosing the Controls:

To validate whether the controls are working properly or not, conduct the following checks:

Machine Control Diagram



1) Voltage Check – The on-board power supply of the machine control outputs 12-15VDC, and 4.25-5.25VDC.

2) Service LED – There is a green LED on the machine control board that indicates the status of the control board.

Service LED on Machine Control Board

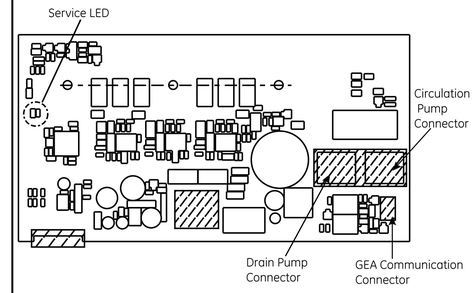
The Service LED on the machine control board provides the status of all control boards in the system and indicates which mode the dishwasher is running in.

Blink Pattern	Meaning
1x per 3 seconds	Unit is not running a cycle. Select a cycle and press Start.
2x per 3 seconds	Unit is in delay start and is waiting to start a cycle. The cycle will begin once the delay expires.
3x per 3 seconds	Unit is in the process of running a cycle.
4x per 3 seconds	Unit is paused. Close the door and press the start key to resume cycle.
5x per 3 seconds	Unit has completed a cycle mode. Clean light on.
6x per 3 seconds	Control is in demo mode. Press demo key sequence to exit. (Hold Start and Heated Dry for appx. 5 sec.)
7x per 3 seconds	CSM has tripped, see section on Current Sense Module
Flashing (1x per second)	Communications lost between control boards. Check connections, replace UI board if necessary.
Flashing rapidly (4x per second) or steady on	Software error. Replace machine control board. "Steady on" can represent an absence of communication from the last time the unit was powered on.
Steady off	Unit is not powered. Check that power is available at unit. Power supply failed. Check control voltages and replace machine control board.

Current Sense Module (CSM):

If the CSM has tripped, the cause of tripping is likely to be external to the board itself. The board should only be replaced after all other diagnostic tests have been completed and all other potential causes have been ruled out. Placing the unit in service mode will reset the CSM and allow for diagnostic testing to be performed. In service mode, with the door closed, fill the dishwasher with water before running each component. Potential causes of current leakage to ground could be due to water leaking onto a live component, a component malfunction, or a fault within the wiring harness. If the issue is a leak, the dishwasher may run until a leak causes the trip to re-occur. Resetting the CSM without fixing the underlying issue can result in subsequent tripping of the CSM, and a risk of personal injury and property damage.

Inverter LED on Inverter Board



FRONT VIEW

Service LED on Inverter Board

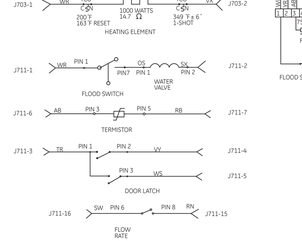
The Inverter has a service LED which flashes normal and errors.

0.5 second on – 0.5 second off	Normal Run flash pattern (this means a motor is running).
1 second on – 1 second off	Normal Standby flash pattern (power on – motor not running).
1 flash with 2 second pause	Inverter has detected house voltage below 103 VAC.
2 flashes with 2 second pause	Inverter has detected house voltage above 132 VAC.
3 flashes with 2 second pause*	Check for shorted motor: Circulation; Inverter connection J101 pin 4 white – pin 5 black – pin 6 red, each should be 11-12 ohms. Shorted or open, replace motor, check connectors, if OK, replace inverter. Drain; Inverter connection J102 pin 4 white – pin 5 black – pin 6 red, each should be ~88 ohms. Shorted or open, replace motor, check connectors, if above are OK, replace inverter.
4 flashes with 2 second pause*	Open TCO in Motor (circulation or drain) – check for continuity Inverter connector J101 pin 1 brown / orange to pin 3 blue, confirming an open TCO. TCO's are in series, check each TCO at each motor (circ NX-SX, drain CO-SX), replace motor with open TCO, closed check connections, replace inverter.
6 flashes with 2 second pause*	LRA detected (motor specific, detected when motor is activated in service model), check for 1. Loose connectors 2. motor ** (if OK, replace inverter) 3. inverter (if both motors show a 6 flash error, replace inverter) **Perform same resistance checks as 3 flash error.
7 flashes with 2 second pause	Communication error. 1. Check for 5VDC at MB J711 pins 12-22 (AX – CW). If 5V isn't measured - replace main board. 2. Check for 5VDC at inverter pins 1-3 (CW – AX). If 5V is measured, replace inverter. If 5V isn't measured, replace the DC harness. If 5 VDC is measured the inverter is powered with no communication between MB and inverter, replace MB.
8 flashes with 2 second pause	Relay fault in inverter = replace inverter.

*** These errors may be the circulation or drain motor; both will need to be checked.**

Machine Control Wiring Diagram

STRIP CIRCUITS



COLOR CODE

LETTERS	COLOR	LETTERS	COLOR
AB	AQUA & BLACK	RX	RED
AK	AQUA	RY	RED & YELLOW
BG	BLACK & GREEN	SR	SILVER & RED
BO	BLACK & ORANGE	SW	SILVER & WHITE
BW	BLACK & WHITE	SX	SILVER
BX	BLACK	TW	TAN & WHITE
BY	BLACK & YELLOW	TY	TAN & YELLOW
CO	BROWN & ORANGE	VS	VIOLET & SILVER
CP	BROWN & PURPLE	VW	VIOLET & WHITE
CR	BROWN & RED	VX	VIOLET
CW	BROWN & WHITE	VY	VIOLET & YELLOW
CY	BROWN & YELLOW	WG	WHITE & GREEN
GB	GREEN & BLACK	WR	WHITE & RED
GX	GREEN	WS	WHITE & SILVER
NB	BLUE & BLACK	WT	WHITE & TAN
NR	BLUE & RED	WV	WHITE & VIOLET
NX	BLUE	WX	WHITE
OK	ORANGE & BLUE	YB	YELLOW & BLACK
OS	ORANGE & SILVER	YN	YELLOW & BLUE
OX	ORANGE	YR	YELLOW & RED
PX	PURPLE	YW	YELLOW & WHITE
RB	RED & BLACK		
RN	RED & BLUE		

THE 'X' INDICATES ONE SOLID COLOR - NO TRACER WIRES
WITH TRACER SHOW BOTH COLORS, EXAMPLE-WR IS WHITE WITH RED TRACER

DOTTED LINE INDICATES THE FEATURE IS NOT ON ALL MODELS.

VOLTAGE	RESSTANCE	TEMPERATURE
95	20066	50
1.56	10450	75
2.25	5824	100
2.91	3411	125
3.48	2081	150
3.91	1330	175

When servicing the control boards, set the jumper configuration on the replacement control board as pictured below.

MODEL NUMBER*	USER INTERFACE BOARD JUMPER CONFIGURATION	MACHINE CONTROL JUMPER CONFIGURATION
ZDT800	12 – PERSONALITY	3 – PERSONALITY
ZDT870	11 – PERSONALITY	3 – PERSONALITY