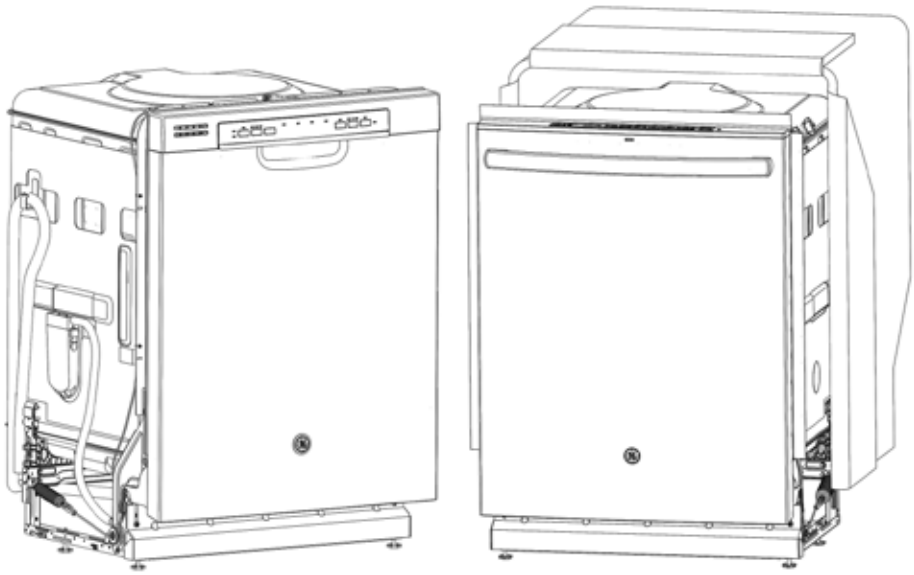
GE APPLIANCES
a Haier company

Technical Service Guide

November 2019

2019 Stainless Steel Tub Dishwasher



CDT800P2NS1
CDT805M5NS5
CDT805P2NS1
CDT845M5NS5
CDT845P2NS1
CDT845P3ND1
CDT845P4NW2
DDT700SxN0xx
GDF565SxN0xx
GDT565SxN0xx
GDF645SxN0xx
GDP645SxN0xx
GDT645SxN0xx
GDP665SxN0xx
GDT665SxN0xx
PDP715SxN0xx
PDT715SxN0xx
QDP555SBN0TS
QDP555SYN0FS

31-9311

Safety Information

IMPORTANT SAFETY NOTICE

The information in this service guide is intended for use by individuals possessing adequate backgrounds of electrical, electronic, and mechanical experience. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

WARNING

To avoid personal injury, disconnect power before servicing this product. If electrical power is required for diagnosis or test purposes, disconnect the power immediately after performing the necessary checks.

RECONNECT ALL GROUNDING DEVICES

If grounding wires, screws, straps, clips, nuts, or washers used to complete a path to ground are removed for service, they must be returned to their original position and properly fastened.

Warranty

For Warranty Information:

1. Go to http://products.geappliances.com
2. Search the model number.
3. Click on the Literature tab.
4. Click on Use and Care Manual.
5. Locate the Warranty page.

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Safety Requirements

GE Factory Service Employees are required to use safety glasses with side shields, safety gloves and steel toe shoes for all repairs.

Brazing Glasses

Prescription Safety Glasses

Safety Glasses must be ANSI Z87.1-2003 compliant

Plano Type Safety Glasses

Dyneema®Cut Resistant Glove

Cut Resistant Sleeve(s)

Electrically Rated Glove and Dyneema® Cut Resistant Glove Keeper

Steel Toed Work Boot

⚠ WARNING

Prior to disassembly of the dishwasher to access components, GE Factory Service technicians are REQUIRED to follow the Lockout / Tagout (LOTO) 6 Step Process:

Step 1 Plan and Prepare	**Step 4** Apply LOTO device and lock
Step 2 Shut down the appliance	**Step 5** Control (discharge) stored energy
Step 3 Isolate the appliance	**Step 6** “Try It” verify that the appliance is locked out

Nomenclature

Model Number

G D T 6 7 5 S S N 0 S S

Brand
H: Hotpoint
G: GE
P: Profile
C: Cafe
Z: Monogram
H: Haier
D: Adora

Configuration
D: Built-In
P: Portable

Control Appearance
F: Front Control
T: Top Control
P: Top Control with Pocket Handle

Wash System
3: Low
5: Mid
6: Mid/Bottle Wash
7: Mid/Silverware Wash
8: High
9: Monogram

Feature Pack
0 - 99

Interior Material:
H: Hybrid (Plastic Tub/SS Inner Door)
P: Plastic Tub/Inner Door
S: Stainless Tub/Inner Door

Exterior Finish:
B: Black SS
F: Black Slate
G: Generic Color (Gloss)
I: Panel Ready
M: Metallic
P: Pro
S: Stainless

Model Year:
K: 2016

Engineering Digit
0 - 99

Color
CC: Bisque
BB: Black
DS: Black Slate
ES: Slate
FS: Finger Print Free Stainless
II: Panel Ready
SA: Silver Metallic
SS: Stainless
TS: Black SS
WW: White

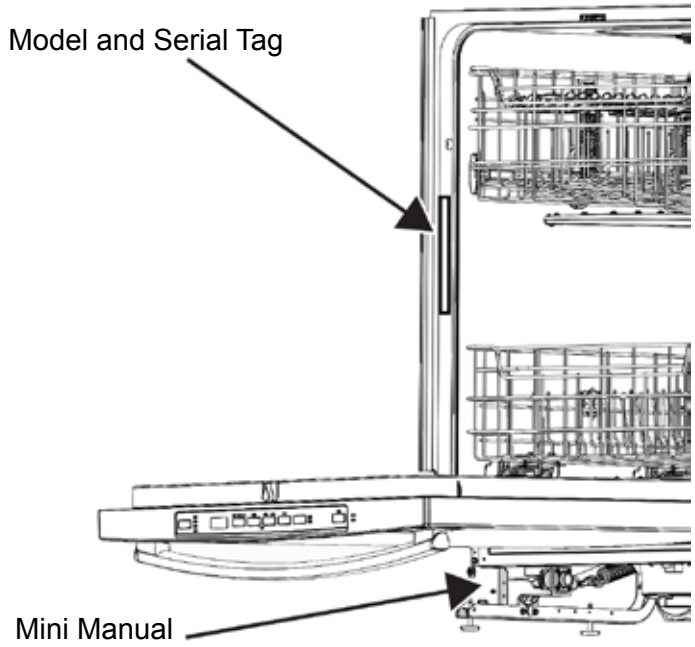
The nomenclature breaks down and explains what the letters and numbers mean in the model number.

Serial Number

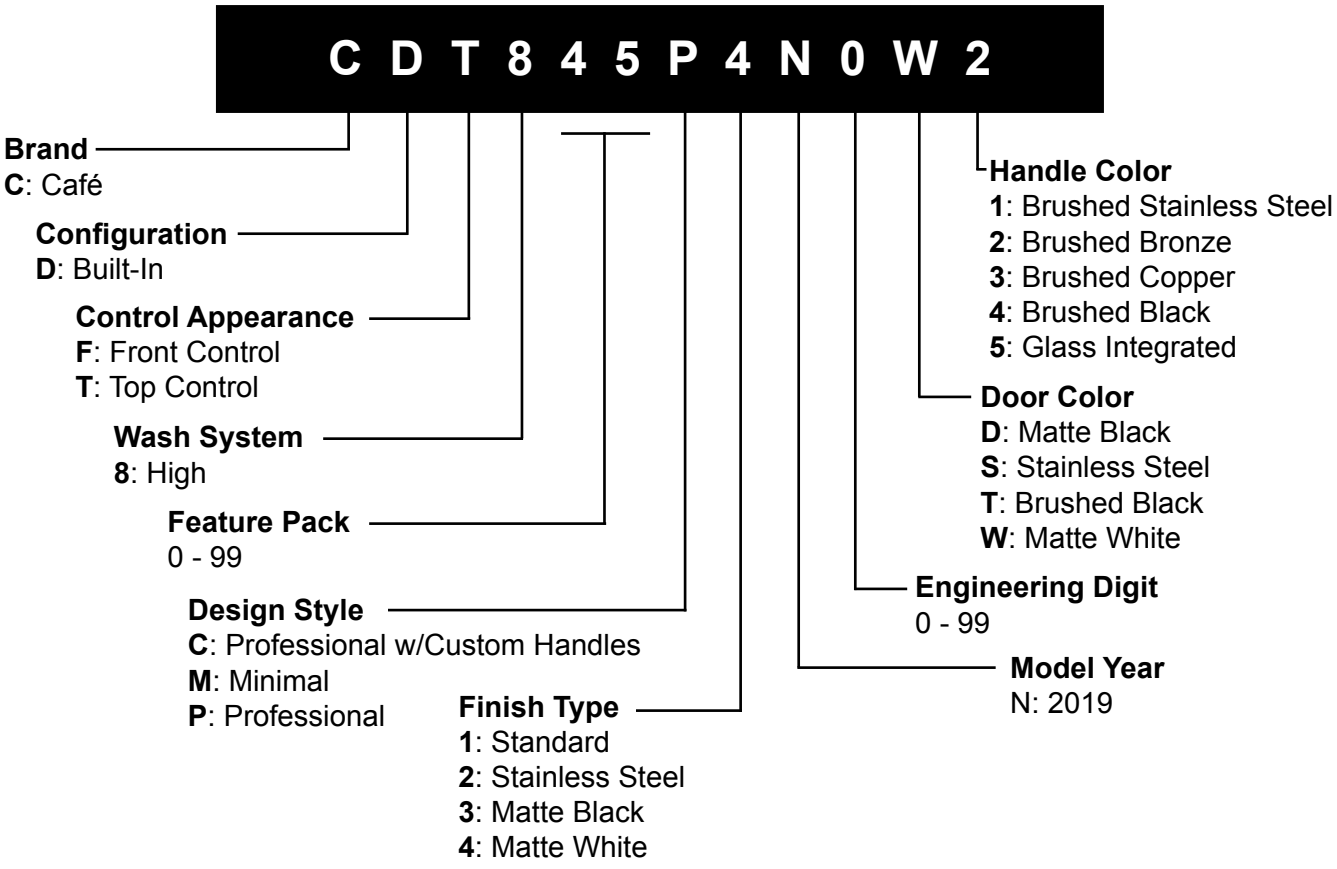
The first two characters of the serial number identify the month and year of manufacture. The letter designating the year repeats every 12 years.

Example: GM123456S = April, 2019

A: JAN	2024: Z
D: FEB	2023: V
F: MAR	2022: T
G: APR	2021: S
H: MAY	2020: R
L: JUN	2019: M
M: JUL	2018: L
R: AUG	2017: H
S: SEP	2016: G
T: OCT	2015: F
V: NOV	2014: D
Z: DEC	2013: A



Café Model Number



Tools Needed

The nomenclature breaks down and explains what the letters and numbers mean in the model number.

- 1/4-in. and 5/16-in. nut driver
- R2 Robertson / Carpenters bit
- #15 and #20 Torx bits
- #2 Phillips-head screw-driver
- Adjustable wrench
- Two pocket-type screw-drivers
- Pliers and needle-nose pliers
- Volt / Ohm meter (AC, DC, and ohms) with "Needle" Type Probes (**Part #**: WX05X10013)
- **Optional**: Clear door (**Part #**: WX05X20002)

Electrical Specifications

AC Voltage

- **Circulation Pump**: 120 VAC, .8 amps – 3.8 LRA (Locked Rotor Amps), 8GPM @ 5PSI
- **Drain Pump**: 120 VAC, .3-5 ohms, .65 amps, ~70 second cycle
- **Tub TCO**: 120 VAC, 210°F +/- 10°F Manual Reset
- **Main Control**: Input 120 VAC, Output 120 VAC, and Output 5 and 13.5 VDC
- **Heater**

Heater 120 VAC			
	Wet	**Dry**	
Watts	800	500	+/- 5%
Ohms	18	26.8 (hot) 14.5 (Room Temp)	+/- 5%
Amps	6.67	4.17	+/- 5%

DC Voltage

- **Turbidity Sensor**: 5 VDC to LED, 10k ohms

Thermistor Specifications (in Turbidity Sensor)	
Resistance	**Temperature**
20k	50°F
11k	75°F
5.8k	100°F
3.4k	125°F
2.1k	150°F
1.3k	175°F

DC Voltage (continued)

- **Door Switch**: 13.5 VDC
- **Water Valve**: 13.5 VDC, 32 ohms, .83 GPM, ~1-minute cycle time
- **User Interface (UI) Control**: 13.5 VDC (some models have 13.5 VDC output to detergent module)
- **Power Dry Fan:** 12 - 13.5 VDC, 6,000 RPM
- **Detergent Cup**: 13.5 VDC, 25 ohms, 1 second to release detergent cup
- **Rinse Aid Dispenser:** 15 seconds to release rinse aid, capacity 100 ml
- **Pressure Switch**:

0 - 5VDC Freq. Output (Hz)	Internal Water Level Description
44.27 - 43.94	Dry
40.77 - 40.44	Typical Fill
40.11 - 39.69	Flood Trip Point - Drain Pump Runs
39.61 - 39.12	Water Over Tub Lip

Operation and Cycle Information

This section of the guide provides details on segments of cycles, timing of cycles, temperature expectations, and cycling of the heater during the dry portion of a cycle.

Auto Hot Start

At the beginning of the main wash, the dishwasher checks the temperature of the water, and if it is below 90°F, then it will add up to 10 minutes of time to heat the water to 90°F by circulating the water while the heater is on. Similarly, at the beginning of final rinse, the dishwasher will check the water temperature, and if it is below 105°F, then it will add up to 15 minutes of time to heat the water to 105. Once it reaches the target temperature, any remaining hot start time will be truncated and will continue on with the cycle.

The cycle chart below explains the segments of a cycle (cycles for all models included, not all models contain the same cycles). It details fill and drain times which depend on either a full or partial drain. It provides the circulation time in each segment, but does not include turbidity or temperature adjustments or dry cycles (see the **Dry System** section in this guide). Times will vary depending on turbidity response and incoming water temperature.

Cycle Algorithm Comparisons

Segment	Description	Diverter Position	Zonal Use	Light	1-Hour/ Express	Normal		AutoSense		Heavy
						Light Soil	Heavy Soil	Light Soil	Heavy Soil	
PW1	Fill (sec) Circ (min) Heat Drain	30 sec ea LSA/ USA	No	60 3 None No	60 4 No Empty	60 10 No Empty	60 7 No Empty	60 10 No Empty	60 7 No Empty	60 7 No Empty
PW2	Fill (sec) Circ (min) Heat Drain	LSA with Pulsing	No		60 4 No Empty		60 10 No Empty		60 10 No Empty	60 10 No Empty
PW3	Fill (sec) Circ (min) Heat Drain	60 sec ea LSA/ USA	No				60 5 No Empty		60 5 No Empty	60 5 No Empty
PW4	Fill (sec) Circ (min) Heat Drain	60 sec ea LSA/ USA	Yes will Shorten ~30%							60 15 Yes Empty
Main Wash	Fill (sec) Circ (min) Heat Drain	180 sec ea LSA/ USA	Yes will Shorten ~30%	0 20 Yes Empty	60 17 Yes Empty	60 40 Yes Empty	60 40 Yes Empty	60 45 Yes Empty	60 45 Yes Empty	60 45 Yes Empty
PR1	Fill (sec) Circ (min) Heat Drain	180 sec ea LSA/ USA	Yes will Shorten ~30%		60 4 No Empty		60 12 No Empty	60 12 No Empty	60 12 No Empty	60 12 Yes Empty
PR2	Fill (sec) Circ (min) Heat Drain	60 sec ea LSA/ USA	Yes will Shorten ~30%	60 4 Yes Empty	60 4 No Empty	60 4 No Empty	60 4 No Empty	60 5 No Empty	60 5 No Empty	0.8 4 No Empty
Final Rinse	Fill (sec) Circ (min) Heat Drain	60 sec ea LSA/ USA	No	60 15 Yes Empty	60 9 Yes Empty	60 15 Empty	60 15 Empty	60 30 Empty	60 30 Empty	60 30 Empty

Cycle Times (Estimated)

NOTES:
Cycle times will vary depending on options selected, incoming water temperature, and soil level (some models).

- Incoming water temperature of 120°F to 140°F is recommended.
- Circulation has built-in pauses (see **Two Port Diverter** and **Pressure Diverter (Four Port)** in the **Circulation System** section of this guide).
- **USA** (Upper Spray Arm): When a number is placed before the USA, it indicates the approximate time in seconds of operation.
- **LSA** (Lower Spray Arm): When a number is placed before LSA, it indicates the approximate time in seconds of operation.
- **PW**: Pre Wash
- **PR**: Post Rinse
- **FR**: Final Rinse

Cycle Option Selected						Light	1-Hour	Normal Sensor	Auto	Heavy
All Zones	No Options					51	60	80	107	143
					Boost Dry	155	164	184	211	247
				Heated Dry		115	124	128	127	207
			Bottle Wash			74	83	103	130	166
		Temp Boost						111	129	156
	Sani-Steam							155	171	176
			Bottle Wash		Boost Dry	178	187	207	234	260
		Temp Boost			Boost Dry			215	233	260
	Sani-Steam				Boost Dry			259	275	280
			Bottle Wash	Heated Dry		138	147	151	150	230
		Temp Boost		Heated Dry				175	149	220
	Sani-Steam			Heated Dry				219	235	240
		Temp Boost	Bottle Wash		Boost Dry			238	256	283
	Sani-Steam		Bottle Wash		Boost Dry			282	298	303
	Sani-Steam	Temp Boost			Boost Dry			259	275	280
		Temp Boost	Bottle Wash	Heated Dry				198	172	243
	Sani-Steam		Bottle Wash	Heated Dry				242	258	263
	Sani-Steam	Temp Boost		Heated Dry				219	235	240
	Sani-Steam	Temp Boost	Bottle Wash		Boost Dry			282	298	303
	Sani-Steam	Temp Boost	Bottle Wash	Heated Dry				242	258	263

Target / Max Temperature Limits				
Cycle	**PW4**	**MW**	**Rinse**	**FR**
Light		125		140
Normal		125		140
Auto		130	130	145
Heavy	130	130	130	145
1-Hour		135		140

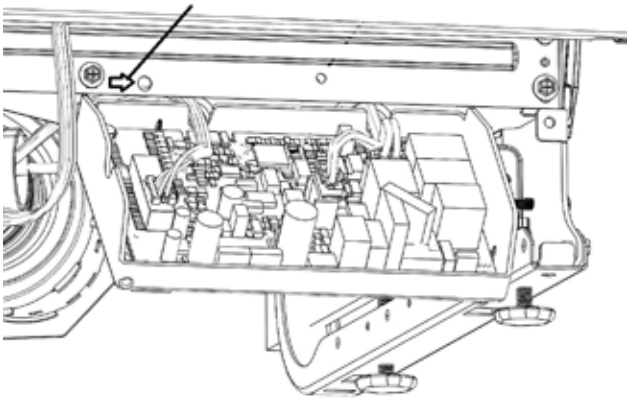
Heater Algorithm, Dry Cycle	
Normal with Heated Dry	
Time (minutes)	**Calrod Description**
7	Calrod on
27	Calrod Pulse - 2 minute on/1 minute off
14	Calrod off - Cool Down
Normal with Temp Boost or Steam/Sani Selected	
7	Calrod on
57	Calrod Pulse - 1 minute on/1 minute off
Normal with Boost Dry	
7	Calrod on
57	Calrod Pulse - 2 minute on/1 minute off
15	Calrod off - Cool Down

Troubleshooting

This troubleshooting section is an overview of diagnostic capabilities of the electronic control. The control features also allow retrieval of fault codes when Consumer Error Mode is initiated; operation of loads is achieved in Service Mode.

Details on Consumer Error Mode and Service Mode, as well as Service LED are located in the **Electronic Controls** section of this service guide.

Single mounting screw



Flashing Lights

If the control beeps and some LED's flash, this indicates the dishwasher door may be in the open position. If the User Interface (UI) is flashing all the LED's or the Display (some models) is flashing, this is an indication of a tripped CSM and the dishwasher is non-responsive, all the LED's will flash until the CSM is reset. CSM diagnostics are covered in this service guide.

Will Not Start

- Check voltage input to the dishwasher.
- Verify door switch operation, consult **Consumer Error Mode**, in the **Electronic Controls** section of this service guide.
- Door must be closed within 5 seconds of pressing Start Pad (Safety Feature).
- Check the main board Service LED (see **Main Control Diagnostics** in **Electronic Controls**).
- Verify that the dishwasher is not in **Demo Mode**, in the **Owner's Manual**.
- CSM (Current Sense Module) tripped. Please refer to **On the Main Control Board CSM** in the **Electronic Controls** section of this guide.

Symptom: If the dishwasher is “dead”, no LED operation, no button operation or beeping occurs.

Diagnosis: Attempt placing the dishwasher in Consumer Error Mode.

Cure: The CSM (Current Sense Module) is tripped and must be fully diagnosed. Refer to **On the Main Control Board CSM** section of this guide.

Symptom: If the start button *either* does not respond or it makes a triple beep sound *every time it's pressed* **AND** all other buttons respond as normal.

Diagnosis: The dishwasher may be in Demo Mode.

Cure: To exit Demo Mode, hold “SELECT CYCLE” and “HEATED DRY” at the same time for 5 seconds.

Critical Errors

Critical errors will turn a cycle off and show a display alerting the consumer of a fault which will not allow the dishwasher to function or cause an undesirable condition.

No Water Detected

In the event the internal water level does not change, the cycle will be cancelled and the user interface will display the following:

- **Models with SSD (Seven Segment Display) Screens**: H20 will be displayed on the SSD screen.
- **Models without SSD Screens**: Wash Temp LED will blink continuously.

The water may be turned off. The consumer is directed to verify the water supply line is connected properly, the supply line valve is turned on, and then restart the cycle. If this fails, the consumer is directed to call for service.

Pressure Sensor Errors

In the event that the pressure sensor signal is undetectable or irrational, the cycle will be canceled and the user interface will display the following:

- **Models with SSD**: PrS or PrF will be displayed.
- **Models without SSD**: Dry LED or Wash Temp+Dry LEDs will blink.

The control does not see a change in pressure during fill. Verify pressure sensor harness, then replace the pressure sensor if needed.

Continuous Fill Error

In the event that consecutive signals from the pressure sensor detect high water level, the drain pump will run and the User Interface (UI) will display the following:

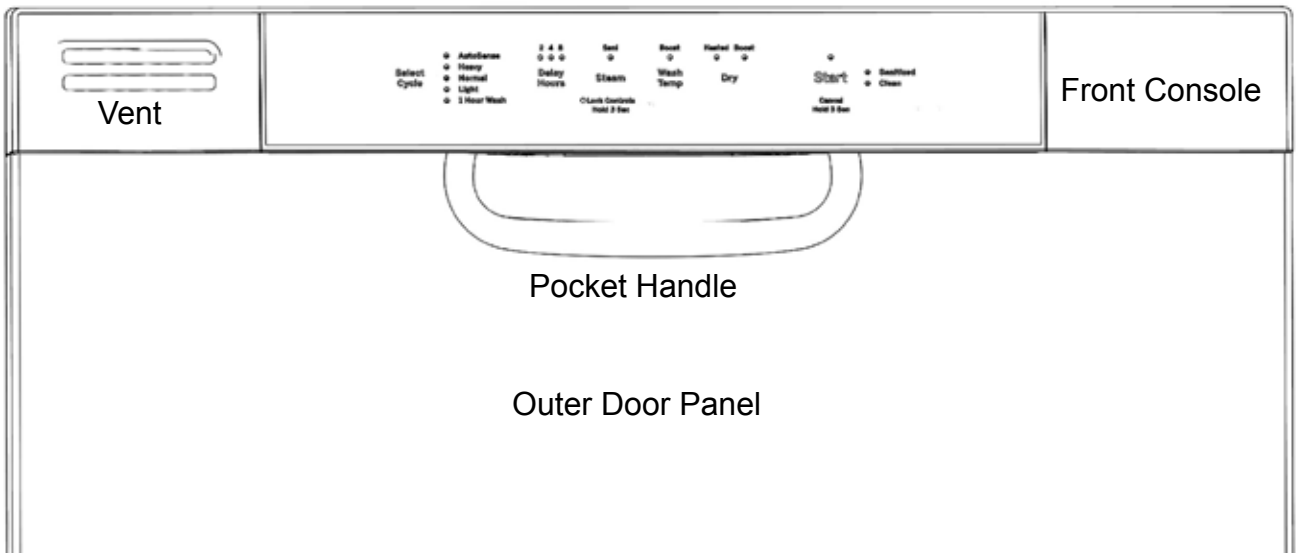
- **Models with SSD Screens**: CFE will be displayed on the SSD screen.
- **Models without SSD Screens**: Cycle Indication LEDs will blink continuously.

The consumer is directed to turn off the water supply. Diagnose reasons for the water valve not shutting off.

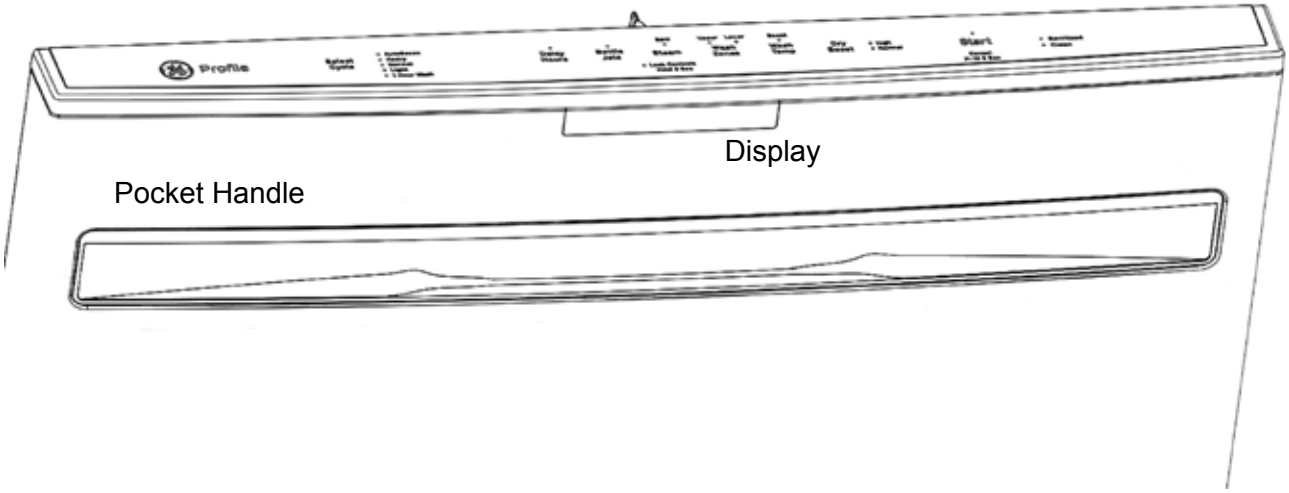
Component Locator Views

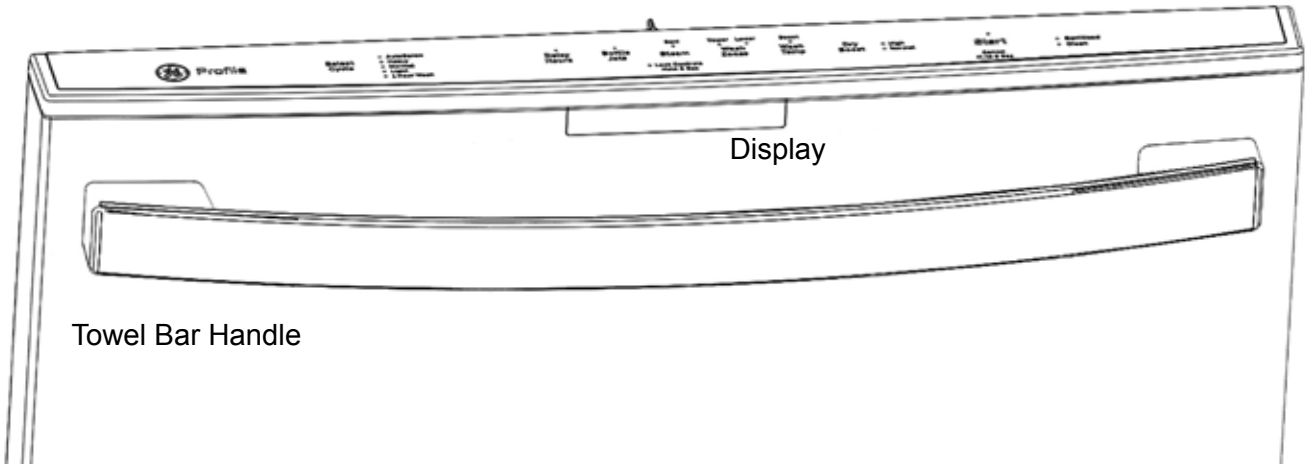
Appearances may vary throughout this service guide. Some models do not have all features shown or may be different depending the model number.

Front Control

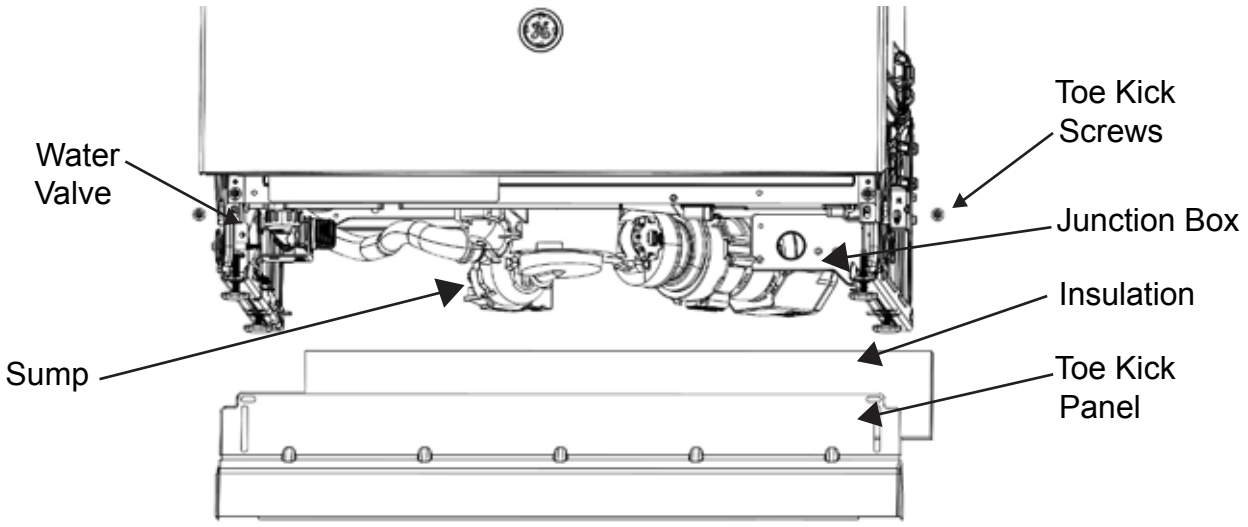


Top Control

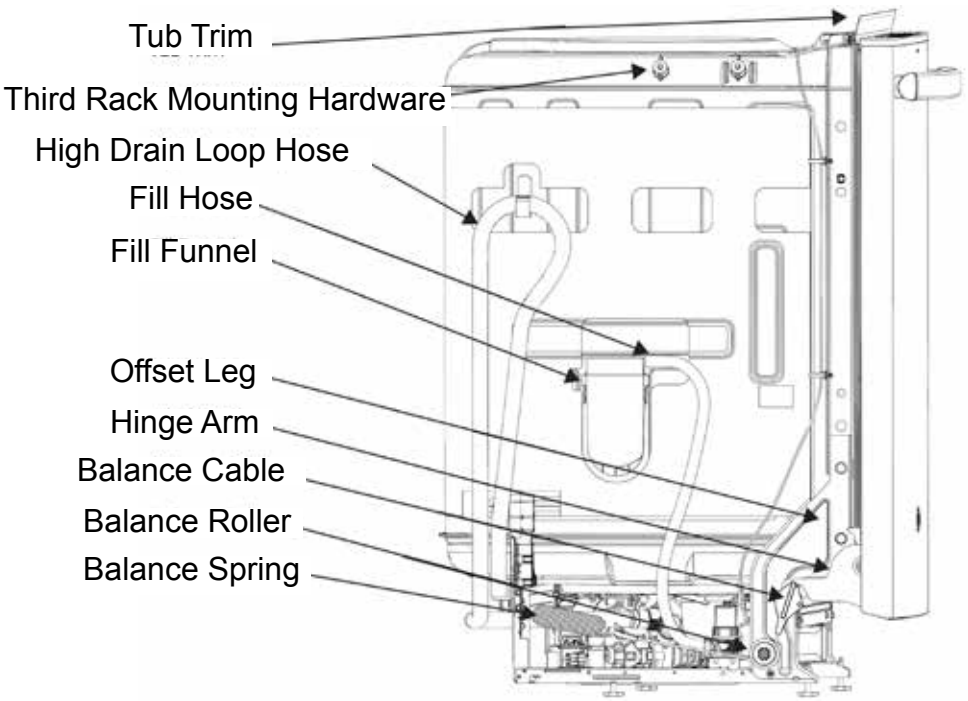




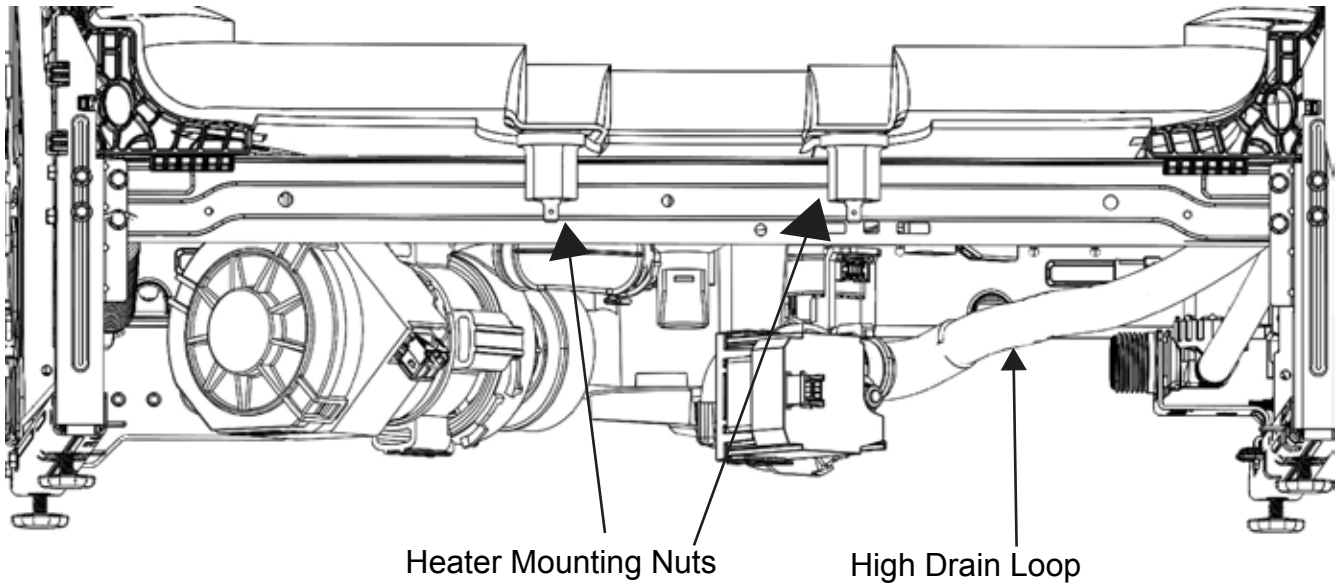
Toe Kick Area



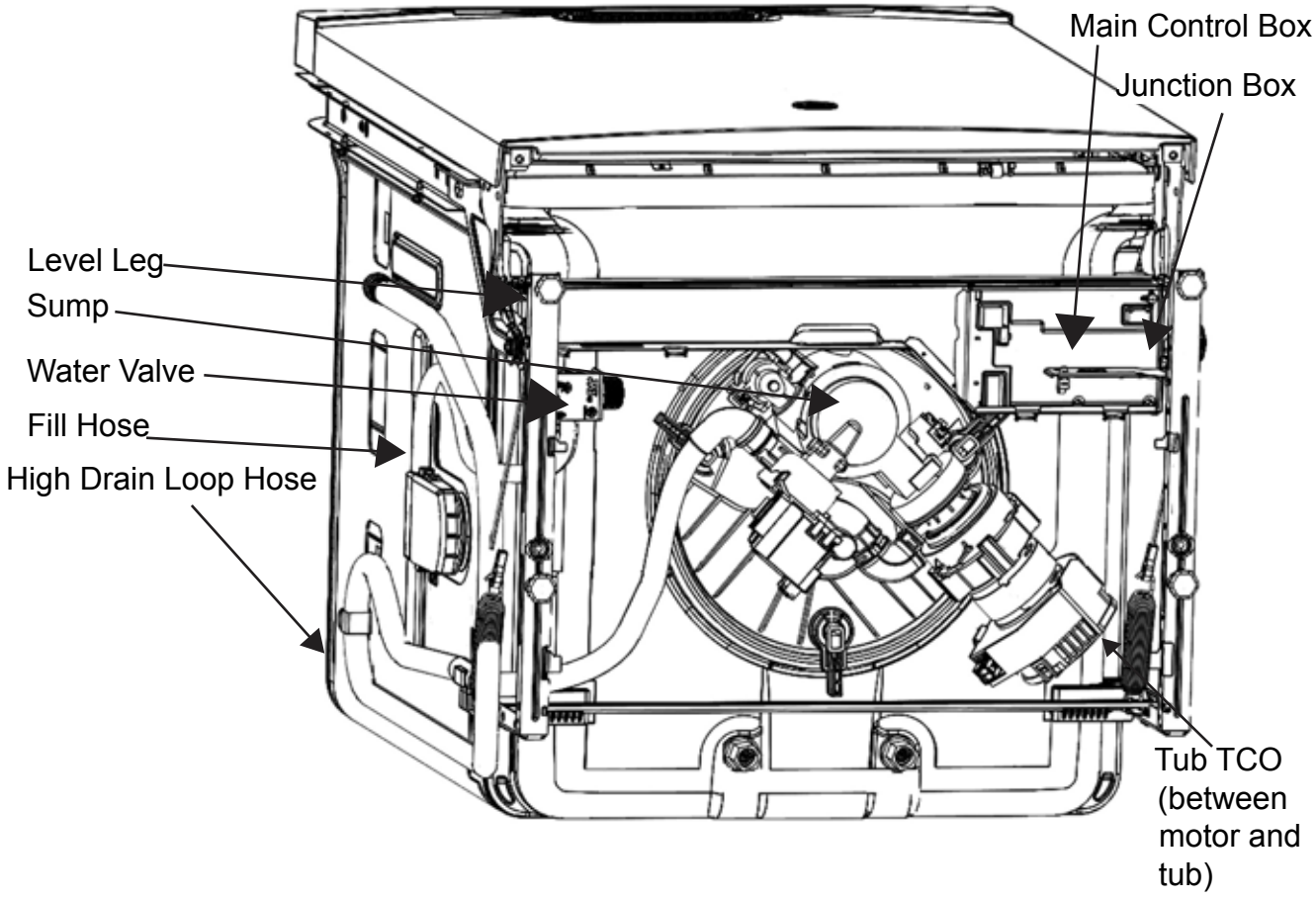
Side



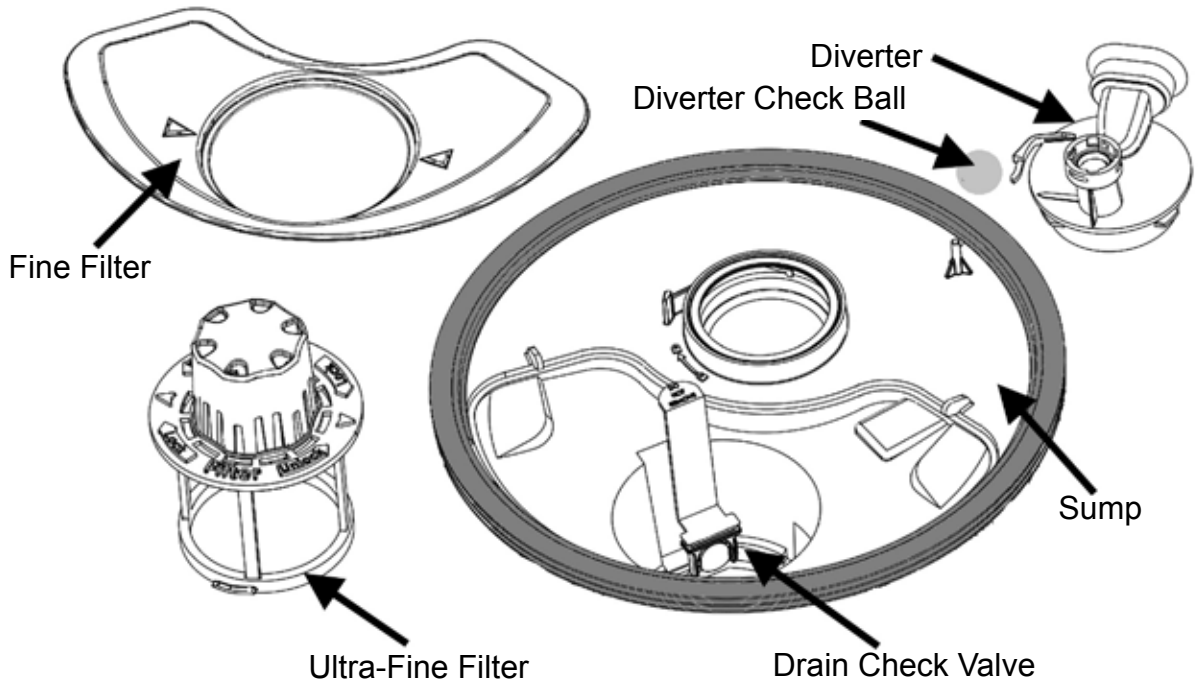
Back


Heater Mounting Nuts
High Drain Loop

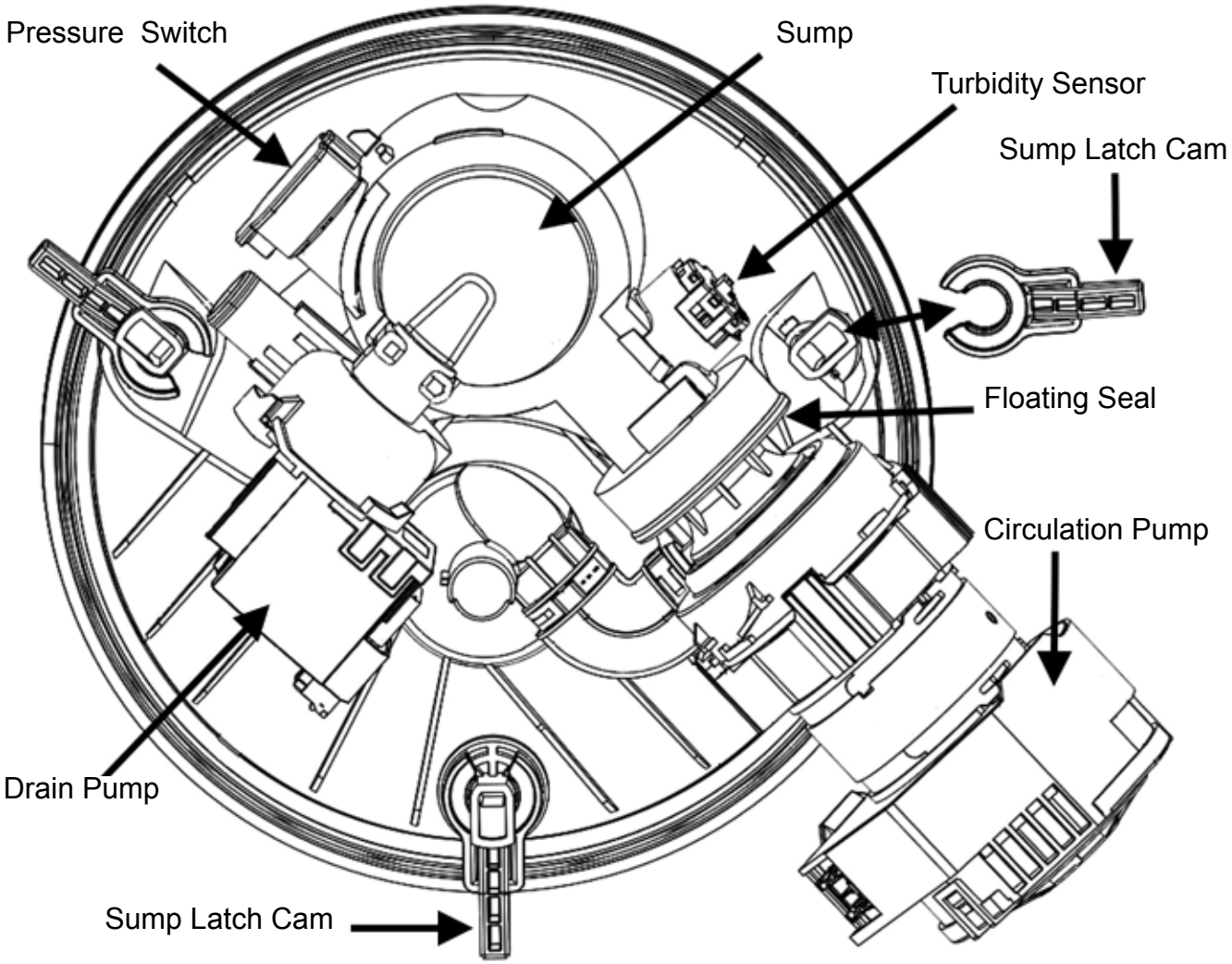
Bottom


Main Control Box
Junction Box
Level Leg
Sump
Water Valve
Fill Hose
High Drain Loop Hose
Tub TCO
(between
motor and
tub)

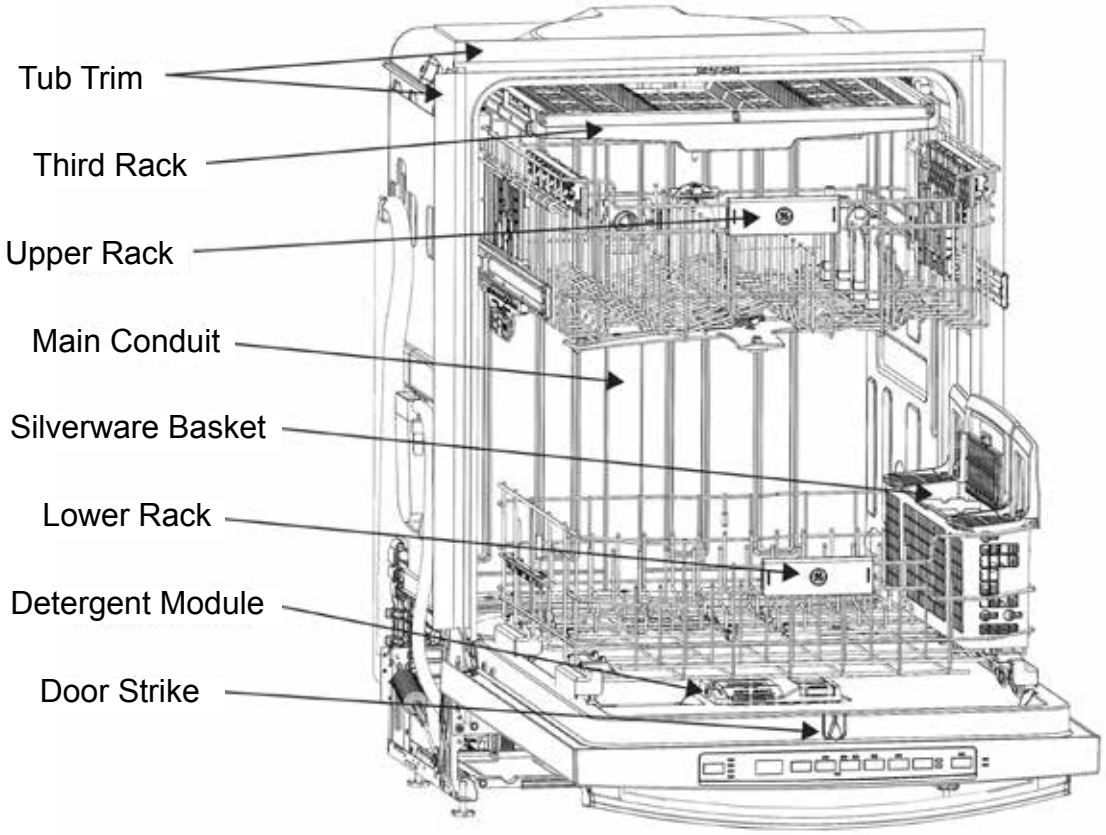
Sump (Top)



Sump (Bottom)



Inside



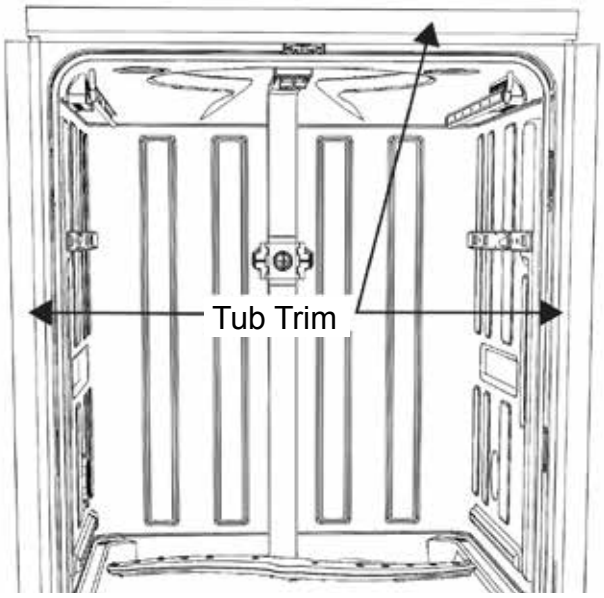
Appearances may vary throughout this service guide. Some models do not have all features shown or may be different depending the model number.

Tub and Structure

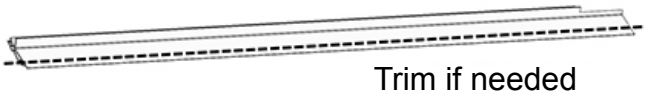
The Tub and Structure section of this guide will cover the toe kick, junction box, racks, leveling, door balance, gaskets, trim (some models), main control board, door, door components, as well as the removing and separation of the screwless appearance door. It will also cover the sump module and removal. Details of the sump components will be covered in the **Circulation System** or **Drain System** sections of this guide.

Tub Trim (Some Models)

Some models include tub trim, which clips to the plastic tub to reduce sound levels and provides a cleaner appearance to the installation.



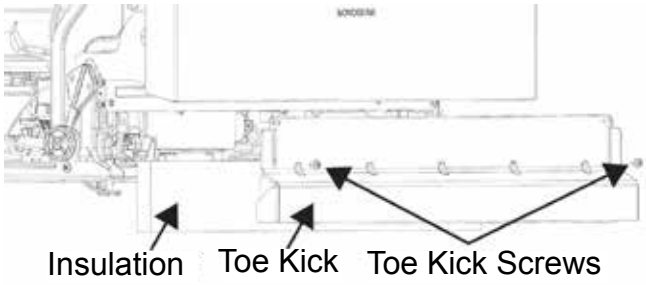
If the cutout prevents the dishwasher from being fully installed, or if the trim rolls inward preventing the door from closing, it may be trimmed to fit properly. The wiper edge must contact the cabinet to be an effective sound barrier.



WARNING: GE Factory Service Technicians are REQUIRED to follow Lockout / Tagout (LOTO) 6 Step Process prior to beginning repair.

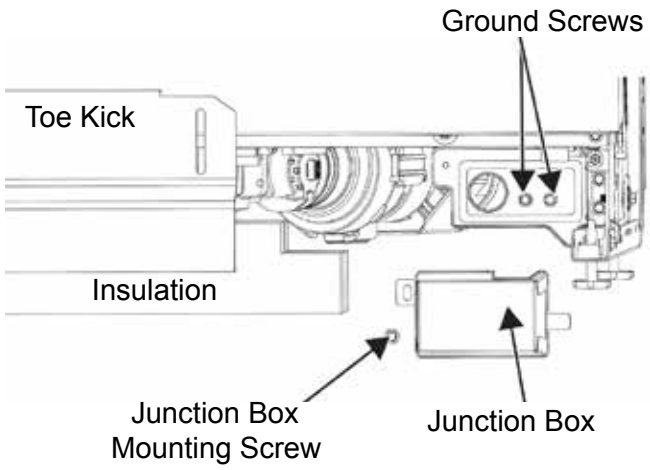
Toe Kick

The toe kick panel is a safety and decorative panel covering the machine area of the dishwasher. The panel provides a safety barrier, closing the front of the dishwasher machine compartment. To remove the panel, remove two 1/4-in. hex-head screws and pull the panel away from the dishwasher.



Junction Box and House Wiring Connection

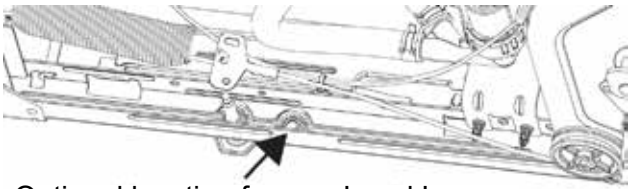
The junction box is located behind the toe kick on the right hand side of the dishwasher. The junction box is where the 120 VAC house voltage connects to the dishwasher. The dishwasher may be hardwired or an optional cord may be installed (available separately, **Part #**: WX09X70910), which plugs into a wall outlet and connects to the harness plug into the control (see the Installation Guide provided with the appliance). The cover is held in place with a 1/4-in. hex-head screw on the left side, and tab on the right side. To remove the cover, remove the screw and pull out and to left to release the tab. It is helpful to squeeze the top and bottom of the box when removing and installing.



Leveling Legs

There are four leveling legs located on the base rails of the dishwasher.

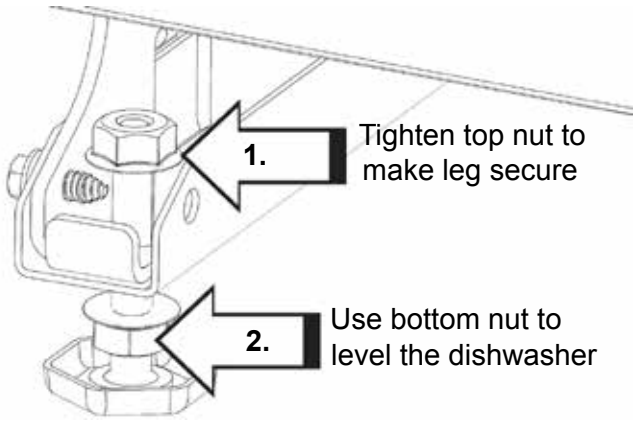
To access the level legs, remove the toe kick and insulation (some models). To raise the dishwasher, turn the level legs counter-clockwise.



Optional location for rear Level Leg

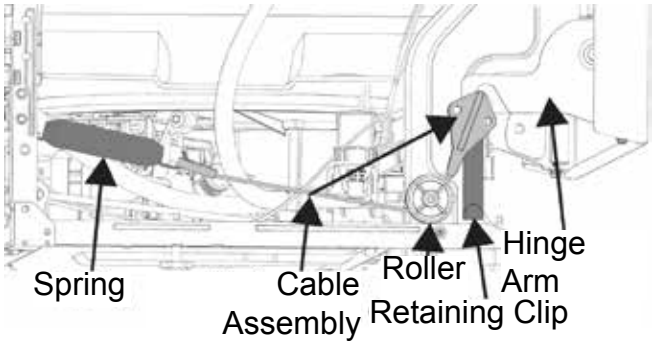
If a leveling leg will not keep the dishwasher level because the support rail is stripped, the dishwasher may be repaired by using two 1/2-in. hex nuts with 1/4-in., 20 thread size as jam nuts. Rear level legs have an optional location to repair.

Place one nut on the leg and install the new leg onto the dishwasher damaged frame. Use the bottom nut to level the dishwasher. When it is level, use the remaining nut on the top to firmly secure the leg to the base rail or frame.



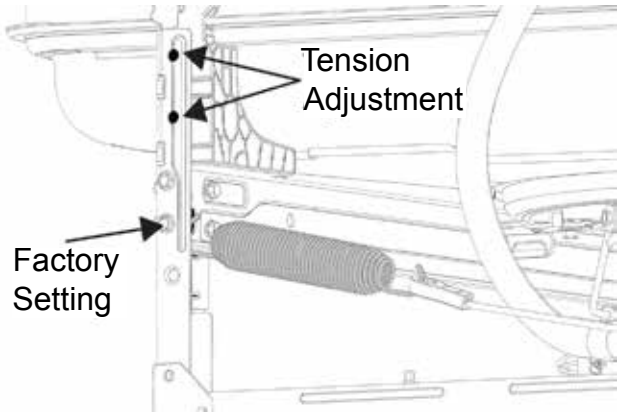
Door Balance System

The door balance system is comprised of springs, cable assemblies, rollers, retaining clip and hinge arms.



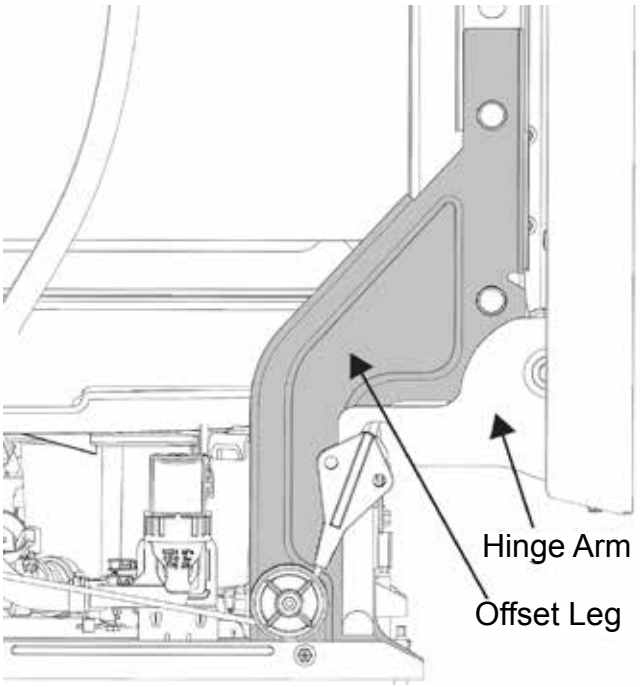
Door Springs and Cables

The spring is adjustable as it attaches to the rear of the leg base assembly. There are two holes in the leg and factory setting on a support screw. Higher connection on the rear frame on the leg causes more tension on the spring. The spring connects to a cable which connects to the hinge arm using a roller as a tensioner.



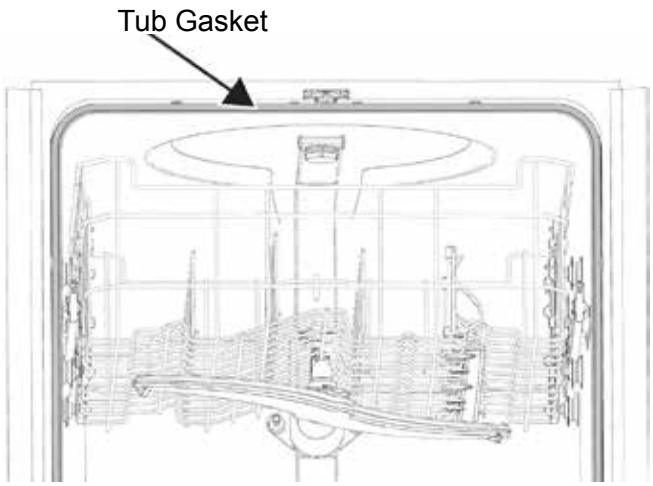
Hinges

The hinge system is comprised of offset legs (part of the tub and structure system and not a replaceable part) and hinge arms. The hinge system allows the door to be removed while the dishwasher remains installed.

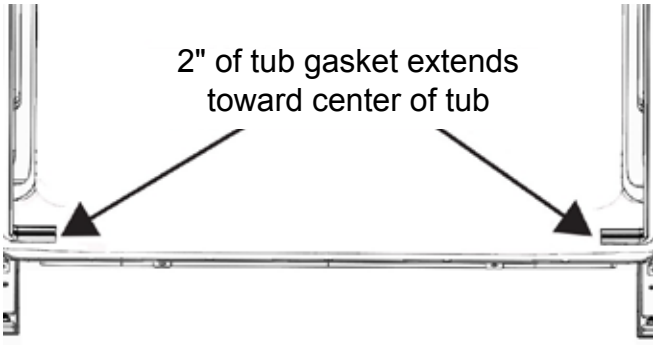


Information on door removal can be found under the **Door** section later in this guide.

Tub Gasket



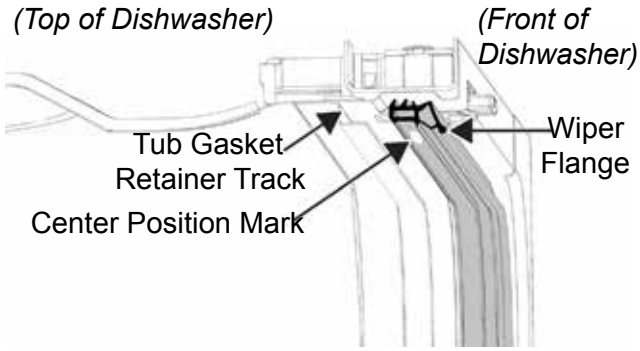
The tub gasket seals the top and sides of the tub to the door. The retainer is part of the stainless steel tub. The seal pushes into the retainer area of the tub, and no sealant or RTV is used to install the tub gasket. When installing the tub gasket, there will be a 2-inch extension at the bottom of the tub on each side.



To Remove Tub Gasket: Pull the gasket from the retainer area.

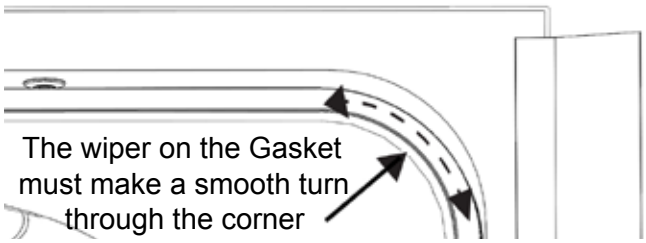
Tub Gasket Installation

1. The center of the gasket has a mark which is placed pointing to the inside of the dishwasher. This position will orient the gasket wiper to face the inside of the dishwasher and to the inner door.



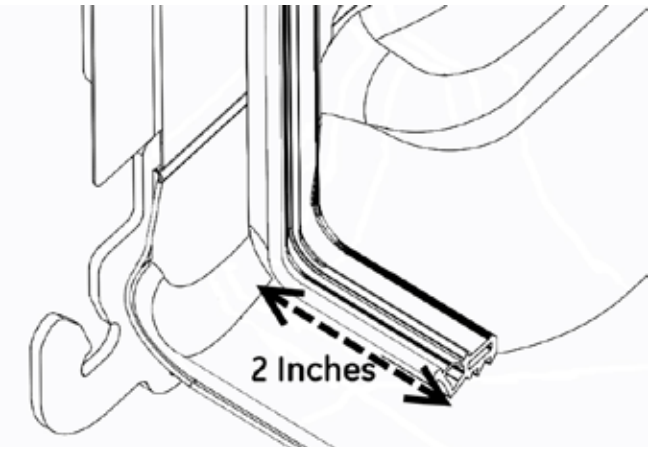
2. Start by placing the mark down and align with the tub latch. Push the gasket into the track, working outward to the top corners.

3. Push the gasket into the track through the corners, making sure the wiper portion of the gasket does not turn inward or outward causing the gasket to not have an even plane around the corners. Stretching the gasket may cause the gasket to roll in or out, which will cause the new gasket to leak. If the gasket wiper rolls in or out, pull the gasket out of the track and reinsert into place.



(*Continued next page*)

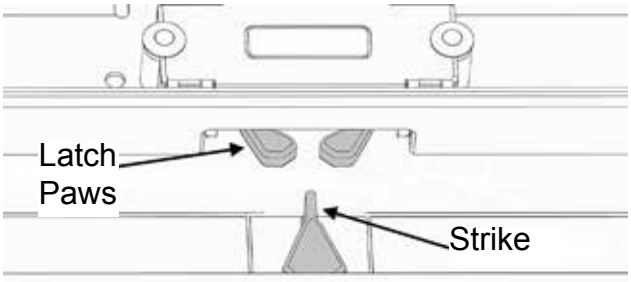
4. Continue to push the gasket into the track to the bottom of the tub and extending the gasket 2 inches to the center of the tub.



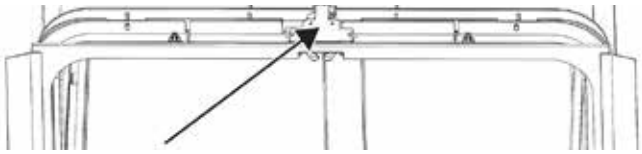
5. Always run the dishwasher to test for leaks.

Latch System

The door switches are rated at 13.5 VDC. The door latch switches open and close the line and neutral break relays on the main control. The latch assembly is located on top of the tub. A strike on the door activates the switches, and the latch assembly holds the door in when the door is latched closed.



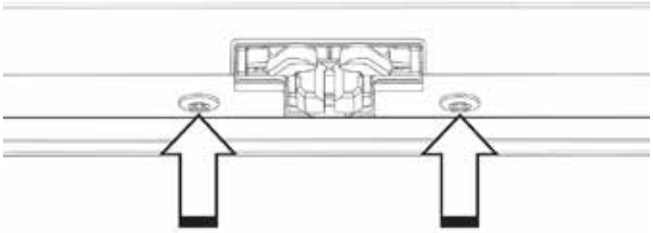
The dishwasher must be pulled out 6 to 8 inches from its installed position to replace the latch switch.



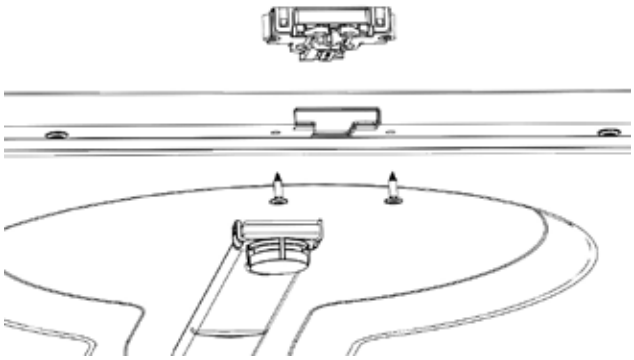
Latch Switch

To Replace the Door Latch / Switch Assembly

1. Remove power to the dishwasher.
2. Remove the dishwasher from its installed position, approximately 6 to 8 inches.
3. Remove two screws, (R2 Robertson / Carpenters Bit or #2 Phillips screw-driver).



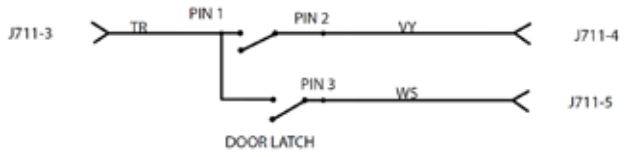
4. Disconnect the wiring to the switch.



Latch Switch Diagnosis

Diagnoses can be accomplished in Consumer Error Mode (see **Consumer Error Mode** in the **Electronic Controls** section of this service guide) or with an ohm meter at the main control board as described below.

1. Access the main board.
2. Locate and disconnect connector J711.
3. Check continuity from pin 3 (**tan** and **red**) to pin 4 (**violet** and **yellow**) and pin 3 (**tan** and **red**) to pin 5 (**white** and **silver**). Both should be open when the door is open and closed when the door is closed.

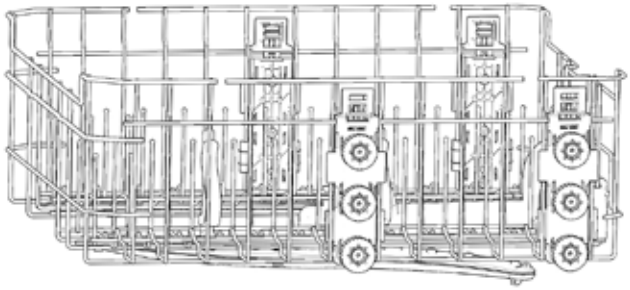


Racks

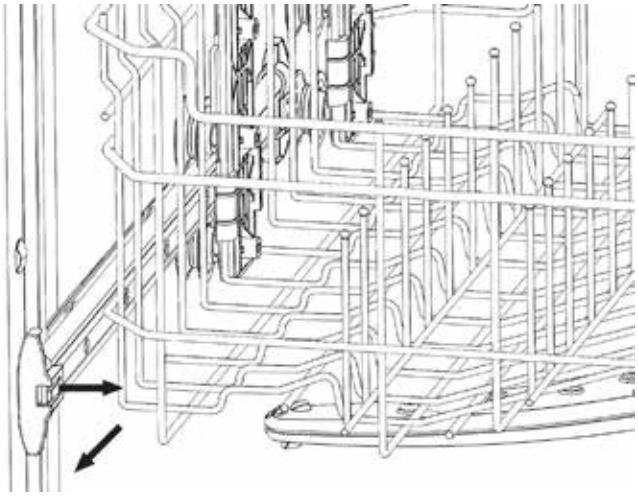
Upper Rack

Two upper rack configurations are available, depending on the model: Wheels on Rails or Full Extension Rails.

Wheels on Rails



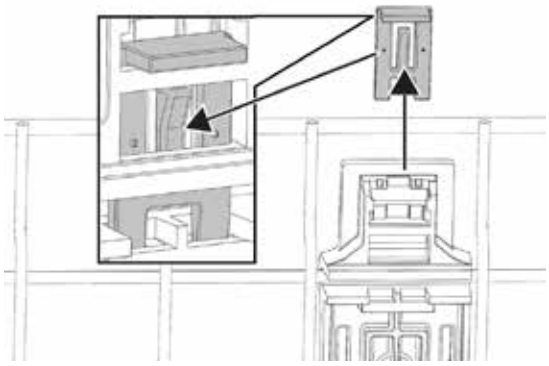
To remove the rack from the dishwasher, pull the rail assembly out a few inches for easier access. Pull the tab on the end cap to the center of the dishwasher and pull the end cap off the rail.



The rack may now be removed.

Upper Rack Rollers and Brackets

The upper rack roller brackets are locked into place with a clip. The clip must be removed to remove the roller brackets from the rack. Press in on the tab and lift the locking clip.

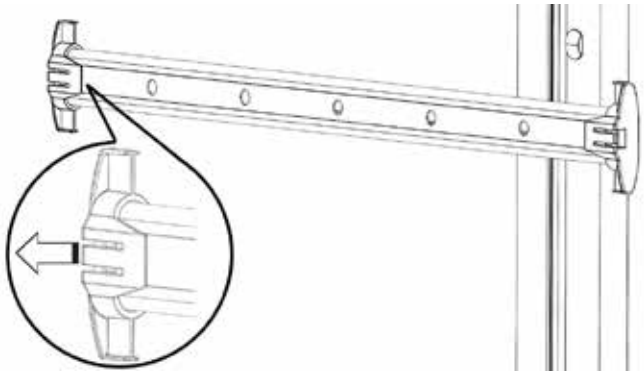


Tub Rollers

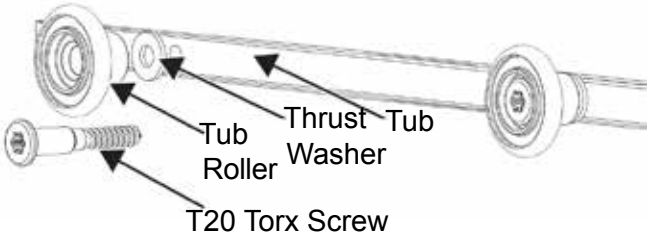
The tub rollers are attached to the tub with a screw in each roller.

To Remove the Tub Rollers

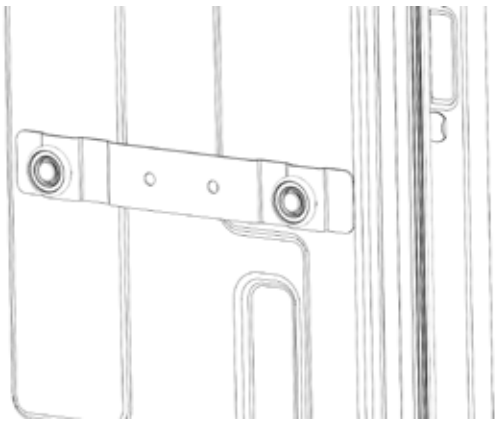
1. Remove the upper rail by removing the rear end cap.



2. Remove the T20 Torx screw securing each roller to the tub.



Model GDF570SGJ upper rack rollers mounted to the tub are permanently attached to a bracket which is toxed/riveted to the tub assembly. These rollers are non-replaceable.



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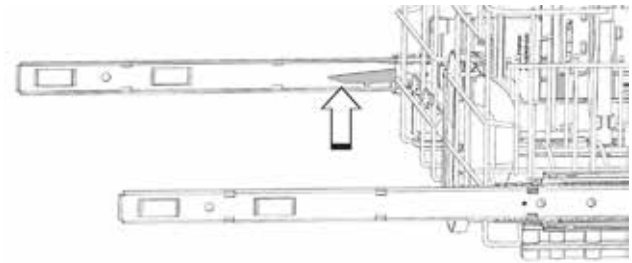
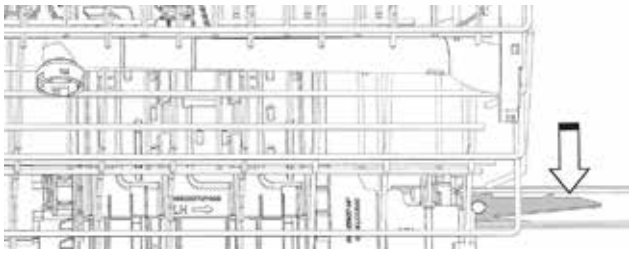
Full Extension Rails

To remove the upper rack and full extension rails:

1. Extend to the full outward position.
2. Push up on the right side track lever and down on the left side track lever.



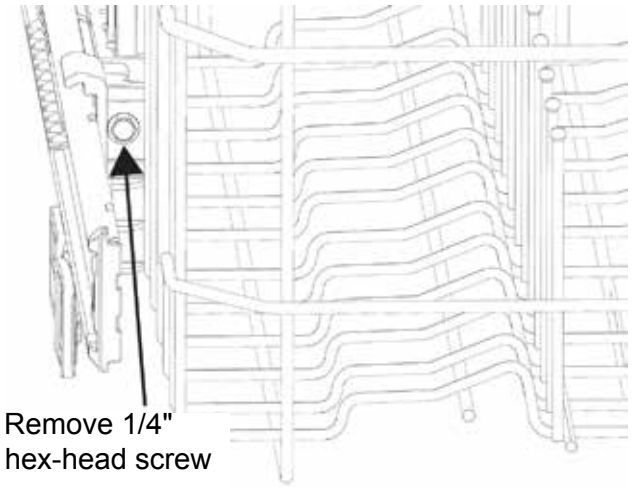


3. Pull the rack off of the inner track.

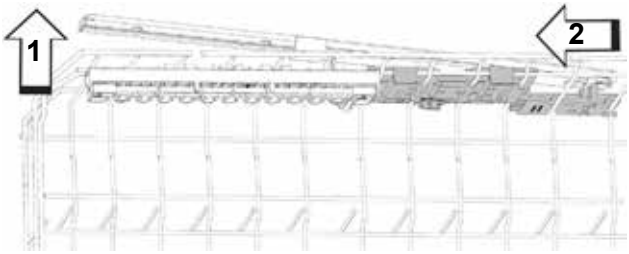
When reinstalling the rack, guide the tracks onto the rails and push it all the way in to lock it in place.

Rails: The rails are attached to the stainless steel tub and are a non-replaceable part.

Tracks: Removal of the tracks from the upper rack is accomplished by removing the one 1/4-in. hex-head screw from the front of the adjustable bracket.

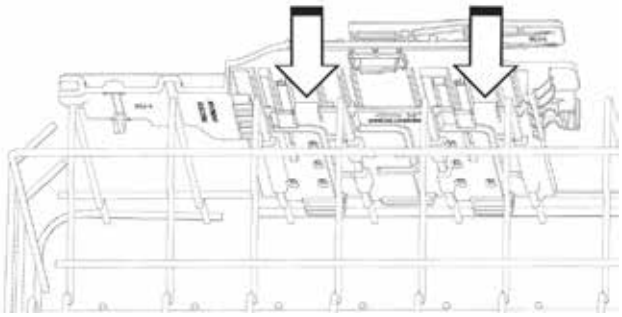


Pull out 1/2-in. and slide the rail toward the front of the rack, releasing the rail from the rear tab.

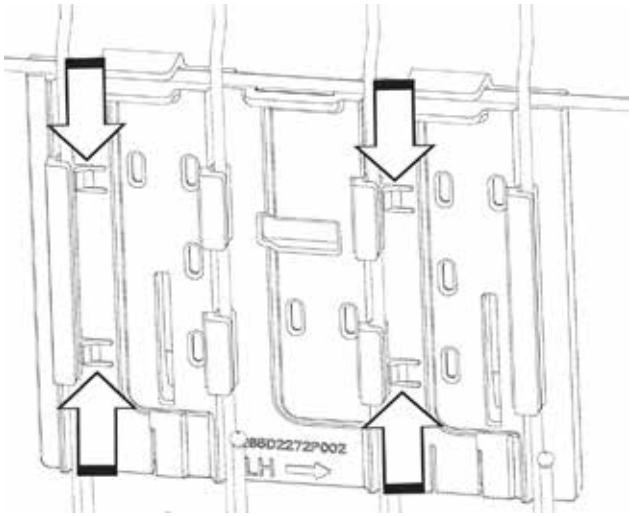


Adjustable Bracket: To remove the adjustable rack bracket from the rack bracket:

1. Remove the rack and rail.
2. Place the rack on a protective surface, upside down.
3. Push in on the adjusting lever to slide it all the way down.
4. Use a flat-blade screw-driver to release two tabs and allow the adjustable bracket to slide off the rack bracket.



Stationary Bracket: The bracket is snapped onto the rack, and can be removed by pressing in on four tabs to release, then sliding the bracket to the front of the rack, and pivoting off of the rack.



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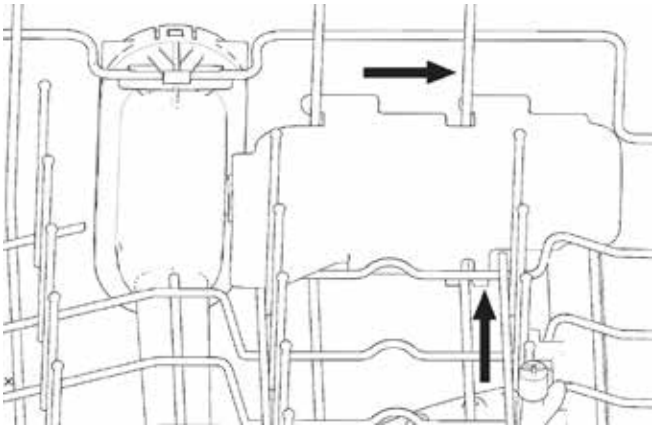
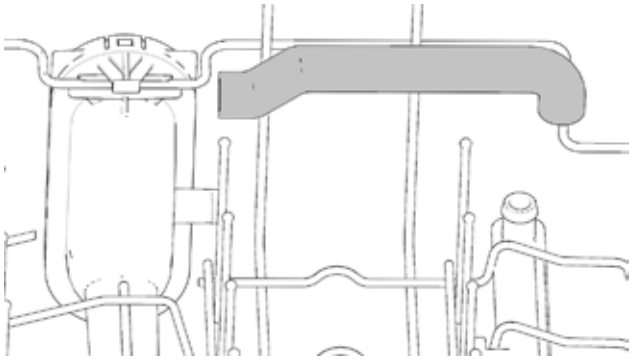
Bottle Wash Components (Some Models)

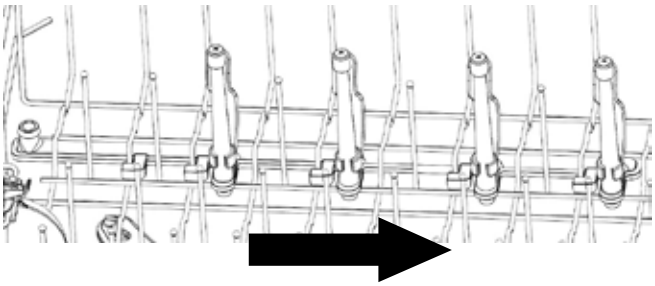
To remove the bottle wash components, remove the cover by releasing the clip at the bottom and slide the cover to the right.



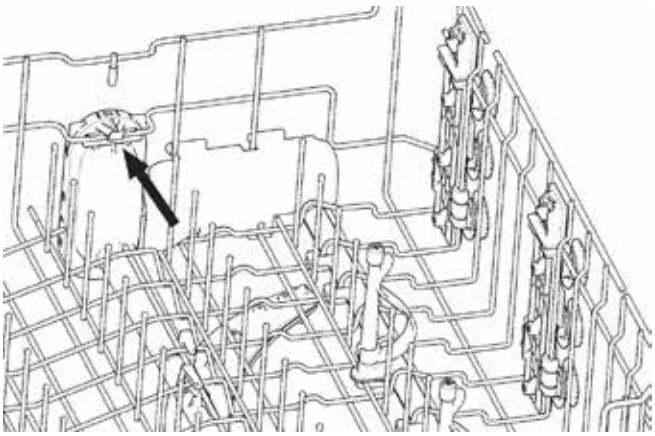
Disconnect the hose.



Slide the bottle wash manifold to the front (right) of the rack.



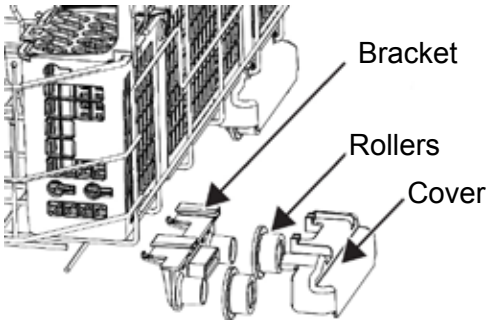
To remove the mid conduit, push on the tab and slide the conduit to the back of the rack.



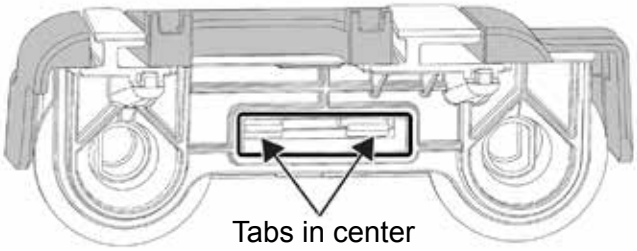
Lower Rack

Several lower racks are available with different tine configurations; consult the Owner's Manual for details on the lower racks.

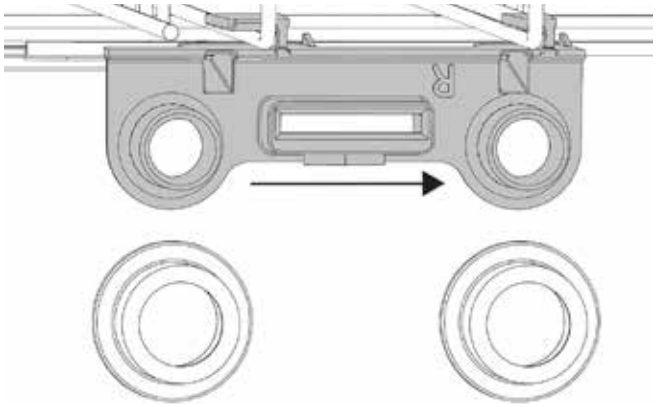
The lower rack roller assemblies consist of brackets, rollers, and covers (left or right, two per side) as well as rollers (four per side).



To remove the lower rack rollers, lift up on the cover (shaded grey in the image below) to release; then pull out on the cover to unclip the center tabs.



The rollers will slide off the bracket and the bracket (shaded grey in the image below) is pushed to the rear of the rack to remove.



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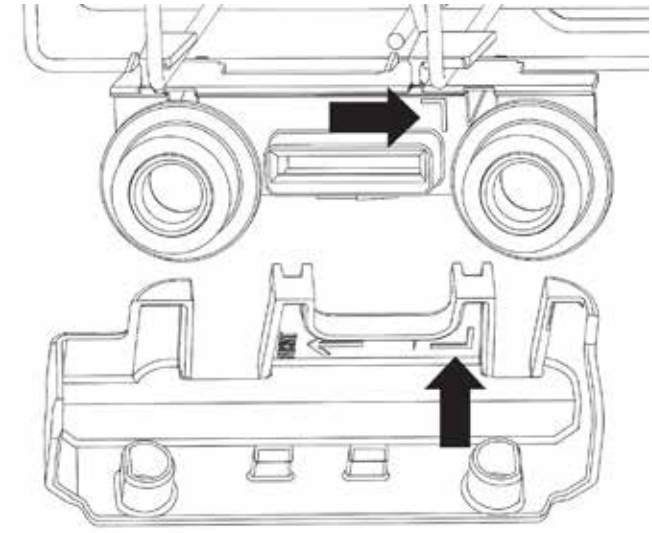
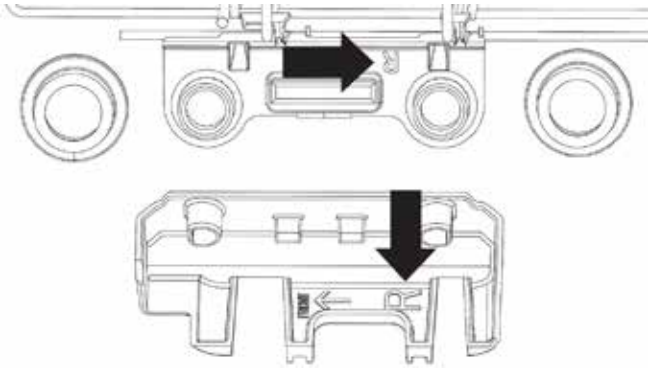
The left and right brackets and covers are different part numbers and are marked L or R (left or right) on the inside to insure proper installation.

Left Side



Right Side



Silverware Baskets

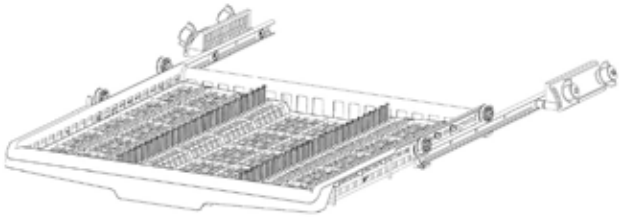
There are a variety of silverware baskets and configurations available. Consult the Owner's Manual for silverware basket information.

Third Rack (Some Models)

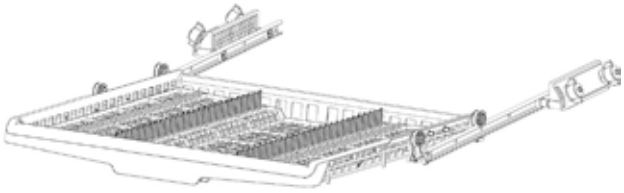
The third rack is designed to place silverware, cutlery and other utensils at the top of the dishwasher for easier access.

To Remove the Basket and Frame as an Assembly:

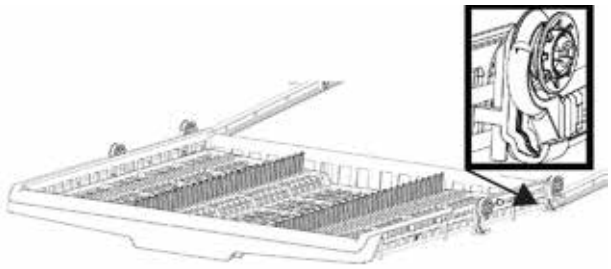
1. Pull the rack out to full extension.



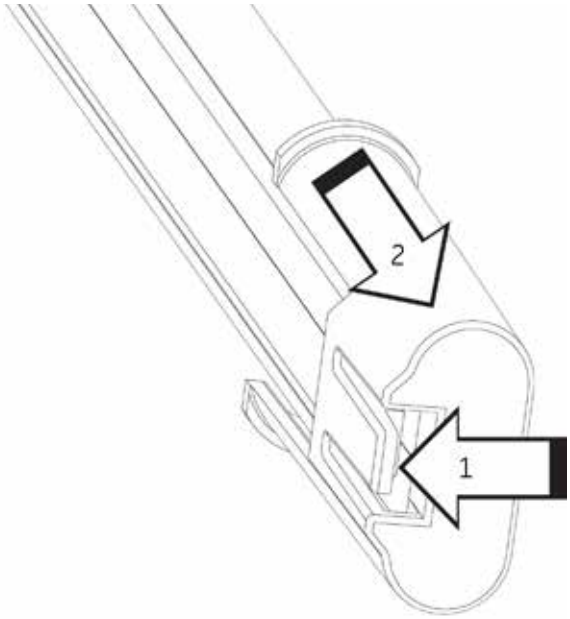
2. Lift and continue to pull the rack out.



3. When rear rollers contact the stop, lift and continue to pull the rack off the rails.



The rails may be removed by releasing the rear end cap. Push the tab and remove the endcap.



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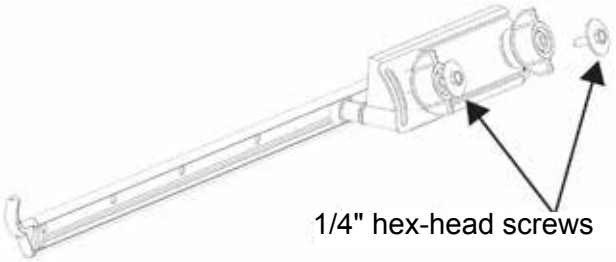
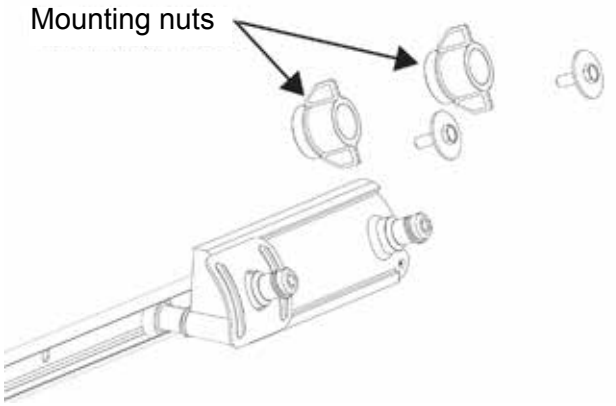
Third Rack Brackets

To remove the brackets, the dishwasher must be removed from installation.

1. Remove the basket and the frame.
2. Remove two 1/4-in. hex-head screws.

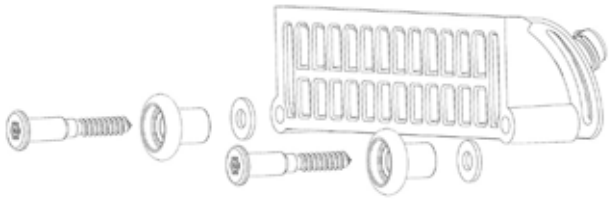


3. Remove the two mounting nuts.

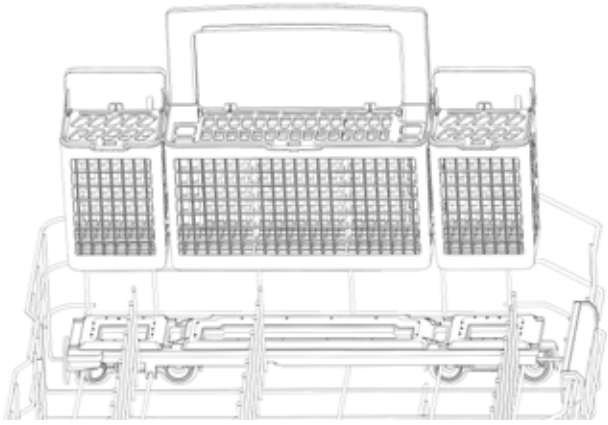


4. Remove the bracket from inside the dishwasher.

Third Rack Rail Rollers are secured to the bracket with T-20 Torx-head screws.

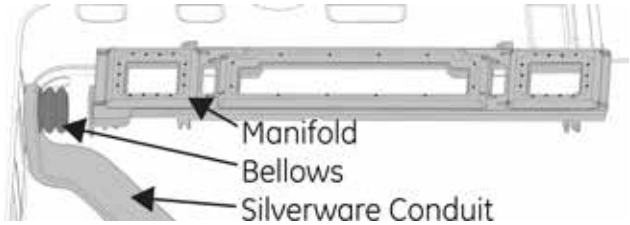


Silverware Wash

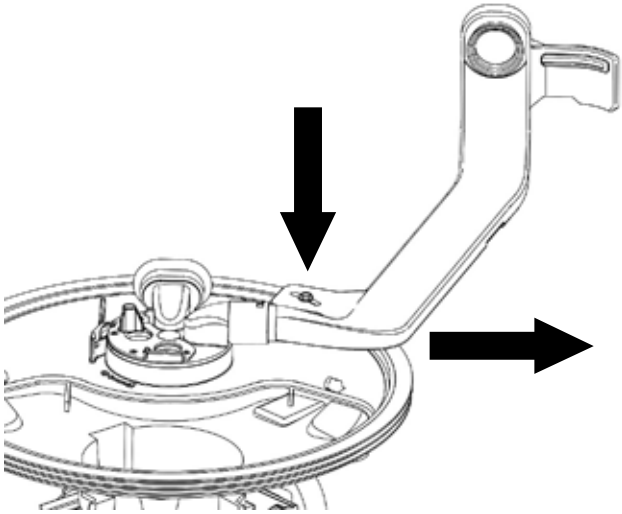


Appearances may vary throughout this service guide. Some models do not have all features shown or may be different depending on the model number.

The spray system Manifold is mounted to the lower rack. A bellows seals the conduit to the manifold.



To remove the silverware conduit, remove one 1/4-in. hex-head screw and pull the conduit to the right.



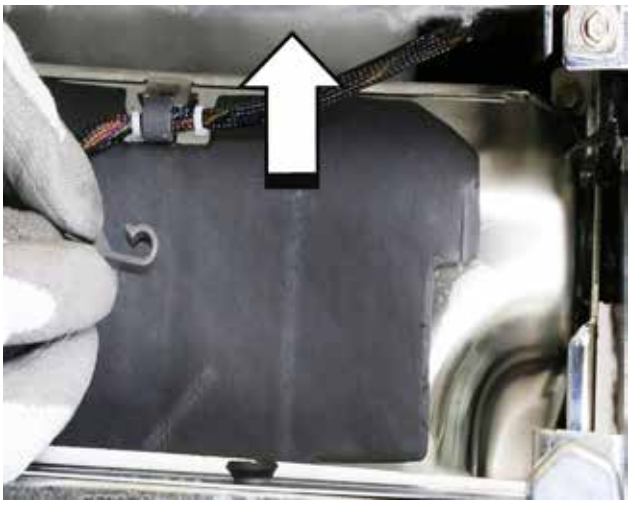
Door

The door has DC voltage only and has a screwless appearance. The door contains a User Interface (UI) Board with all tactile switches on the board. Some models have a seven-segment display; others have LED indicator lights. The door also houses the detergent module, bottom door seal and a venting system (see the **Dry System** section in this service guide).

Door Removal

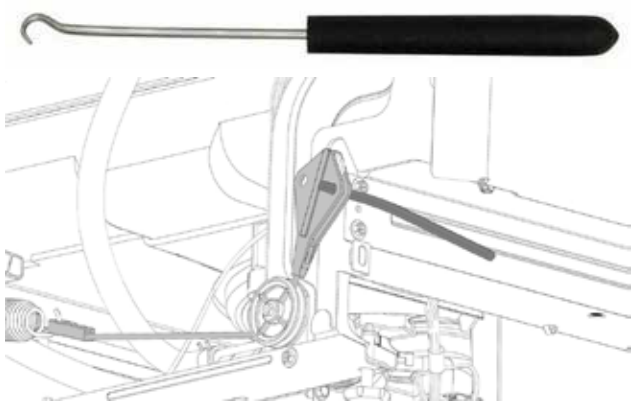
1. Remove power to the dishwasher, close and latch the door.
2. Remove the toe kick and insulation, if applicable.
3. Disconnect the door wire harness at the bottom of the main control cover.

4. Release the wire clip holding the harness to the tub. Push up on the wire harness to release the harness.

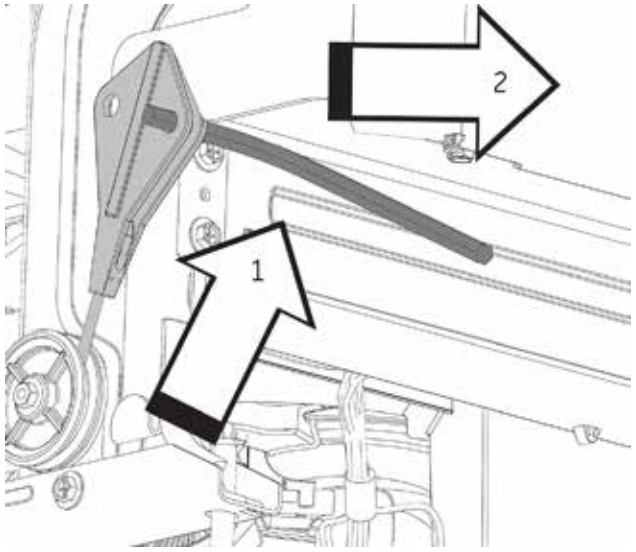


WARNING: GE Factory Service Technicians are REQUIRED to follow Lockout / Tagout (LOTO) 6 Step Process prior to beginning repair.

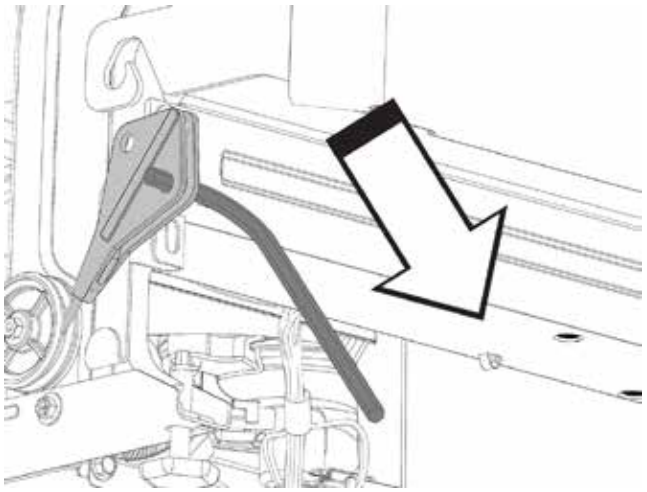
5. Locate the door balance cable and insert an Allen wrench or tool formed into a hook (as shown below).



6. Lift the cable up and slide forward.

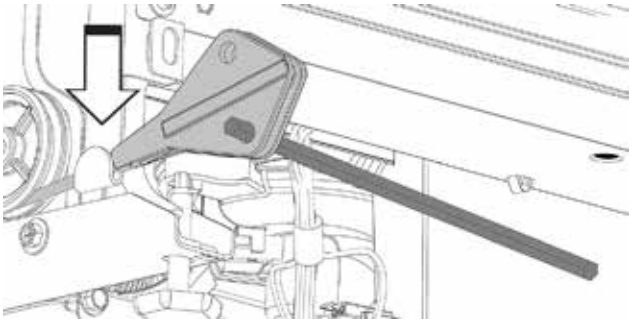


7. Slide the cable down and away from the dishwasher. Do not release tension from the cable.



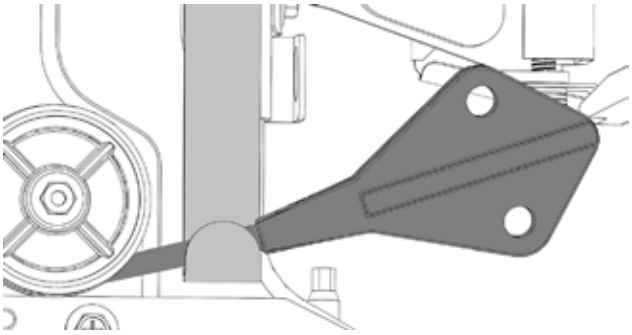
(*Continued next page*)

8. Slide the cable into the cable clip to prevent the spring from disconnecting from the cable.



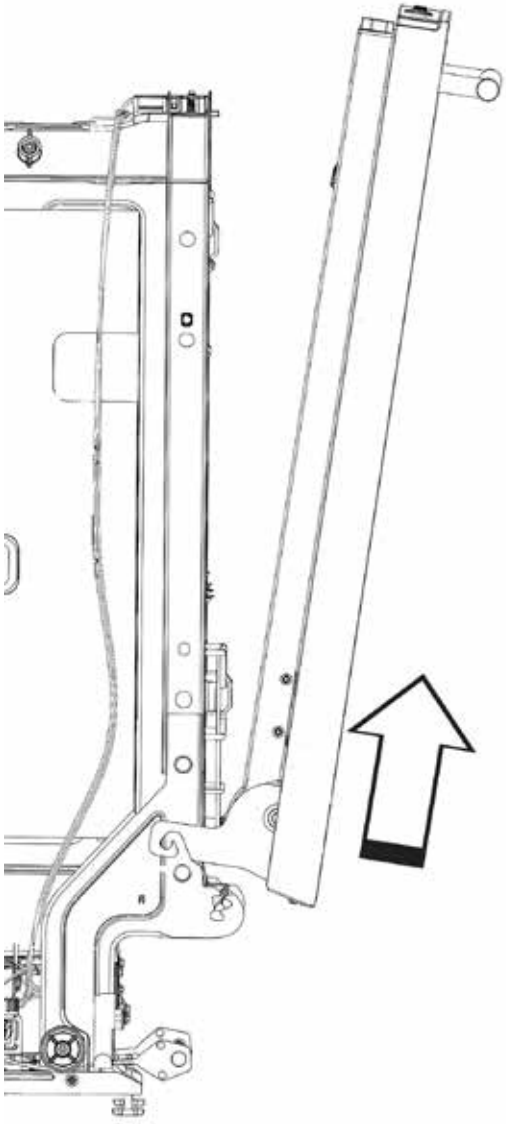
CAUTION: If the cable is released, the spring and cable may become disconnected. Depending on the model and installation, reconnecting may require the dishwasher to be removed from installation.

The cable seated correctly into the clip is shown below.



9. Repeat steps 5 through 8 on the opposite side.

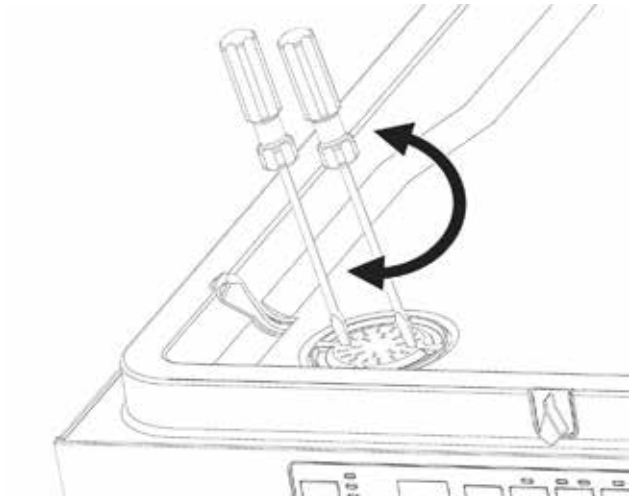
10. Standing in front of the dishwasher, open the door a few inches, then lift the door and hinge arms off of the offset leg.



When installing the door onto the dishwasher, make sure the hinge pins located on the hinge arms are placed fully on the offset legs (both sides).

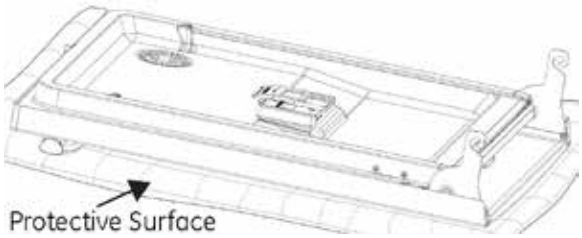
Inner Door Vent Cover

The inner door vent cover must be removed on front control models (with passive vent) to allow the front control console to be removed from the inner door. Insert two pocket style flat-blade screw-drivers into the vent, then turn counter-clockwise to remove.

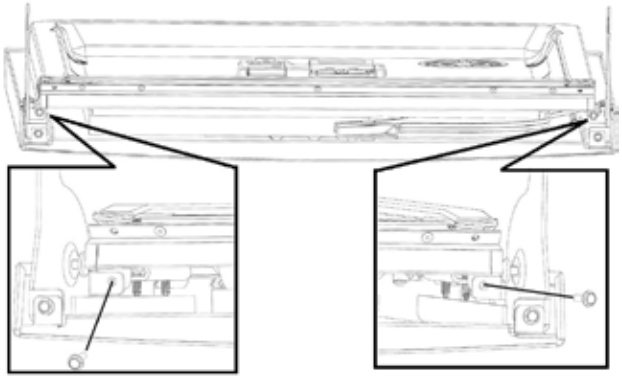


To Separate the Door:

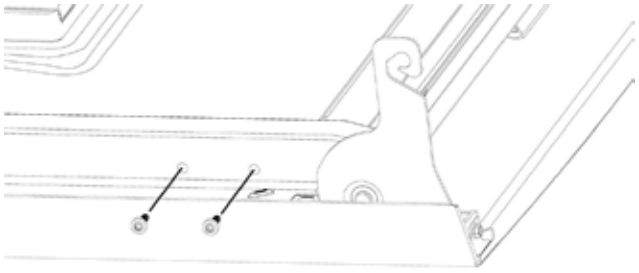
1. Remove the door.
2. Place the door with the outer side on to a protective surface.



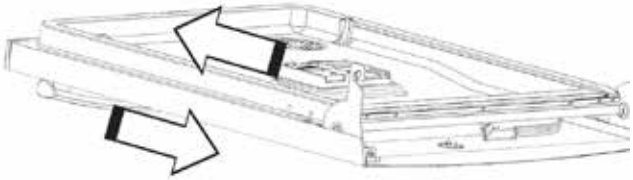
3. Remove two 1/4-in. hex-head screws inside the bottom of the door.



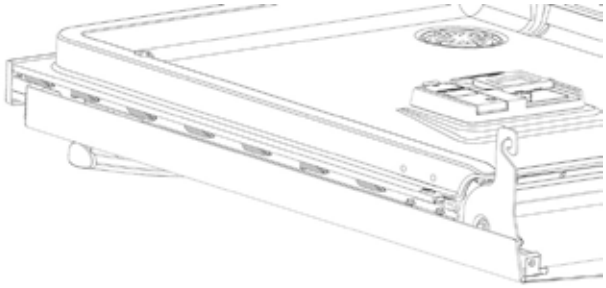
4. Remove four T-25 Torx screws (two each side) that secure the inner door to the hinge assemblies.



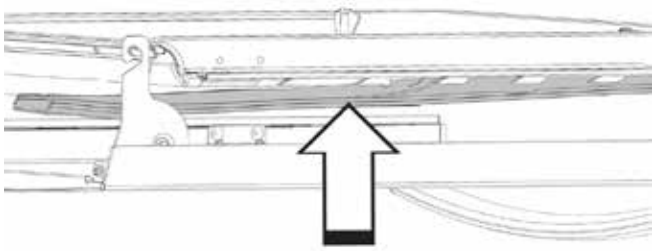
5. Slide the inner panel toward the top and the outer panel to the bottom to disengage the attachment strips. **NOTE**: The hinges are secured to the outer door panel.



6. The attachment strips will disengage from the outer panel.



7. Support the vent conduit while lifting the inner door from the outer door panel.

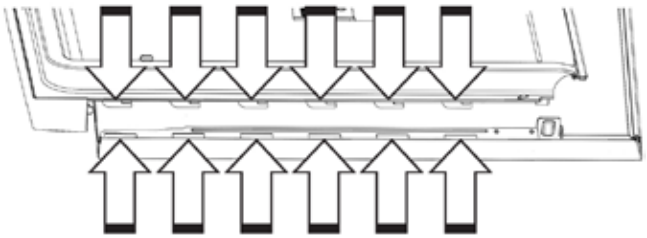


(*Continued next page*)

To Reassemble the Door:

1. Place the outer panel face down on a protected surface.

2. Place the inner door face up, and position six attachment tabs into the cutouts of the outer panel.



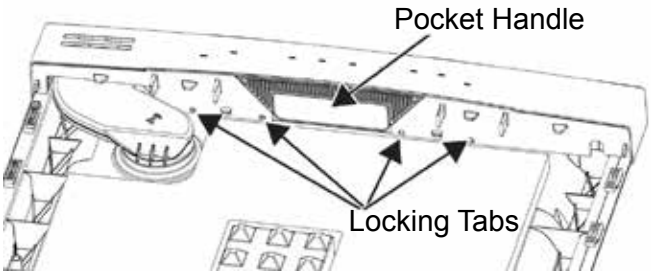
Outer door has cutouts to receive inner door tabs

3. Press firmly together while sliding the inner panel onto the outer panel. Use care to make sure that the outer panel mates properly to the front console or top console. The below illustration has a portion of the door sectioned or cut out to show the outer door panel engaged with the attach tabs of the inner door.

4. Reinstall screws and reinstall the door.

Front Control Console

Models GDF565 and GDT565 have a passive vent as shown below. The front control console is held in place by four tabs on the pocket handle.

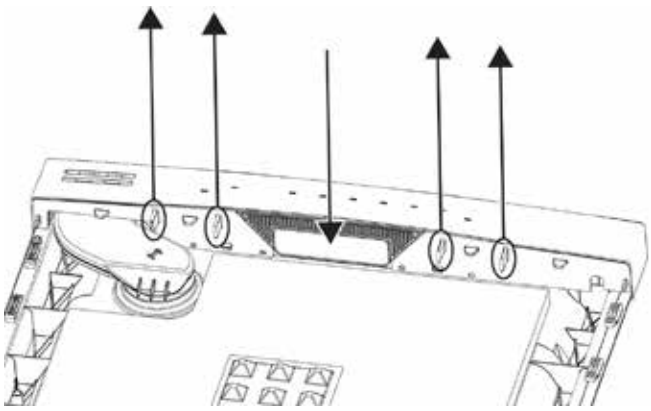


Front Control Console Removal

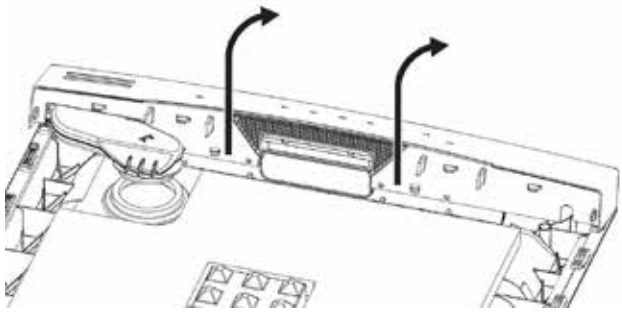
1. Remove the door and separate the inner and outer door panels.

2. Remove the vent cover from the inner door.

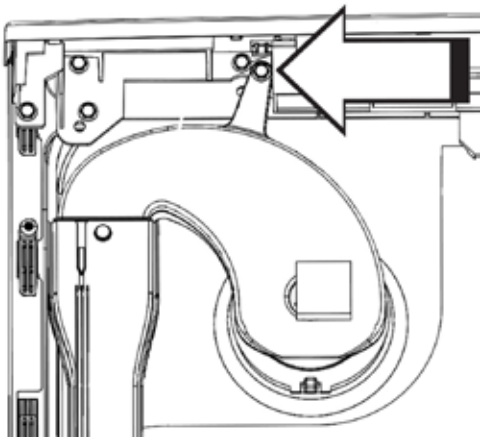
3. Push down on the pocket handle, then lift up and away from the console on the tabs to release the console from the pocket handle.



4. Tilt the bottom upward. When both sides are released, rotate the console to release the tabs at the top of the console.



All other models have a power vent assembly to aid drying. The vent assembly mounts to the Inner Door as shown below. Please see the vent (**Inner Door Vent Cover**, **Vent Parts**, **Venting/ Airflow**) and power dry (**Power Dry System Removal**, **Power Dry Forced Air**) sections of this guide for details.

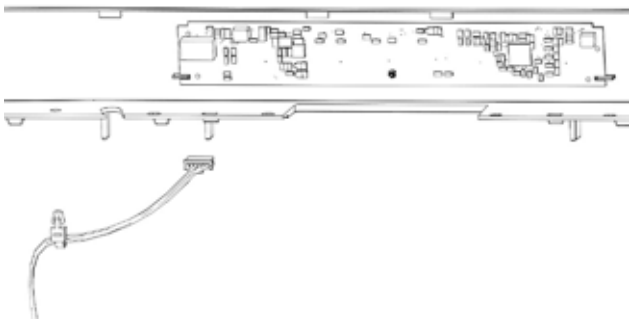


User Interface (UI)

All UI's (User Interface's) are Cap (Capacitance) Touch. There are no buttons, light pipes or sealing components. The front or top console (depending model) is assembled to the UI and available as one component.

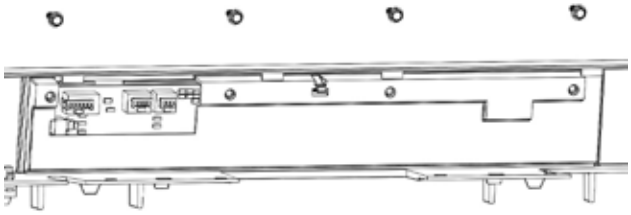
Example of Cap Touch Console Front

Example of Cap Touch Console Rear

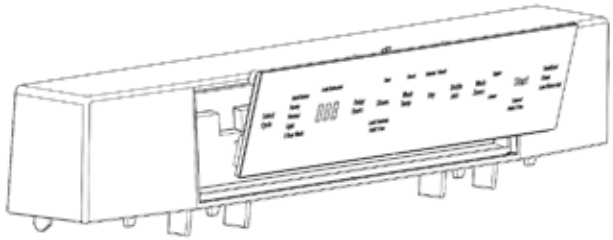


Model GDF565 UI is part of the front console.

To remove all other front control UI's, separate the door, disconnect the wire harness and remove four 1/4-in. hex-head screws.

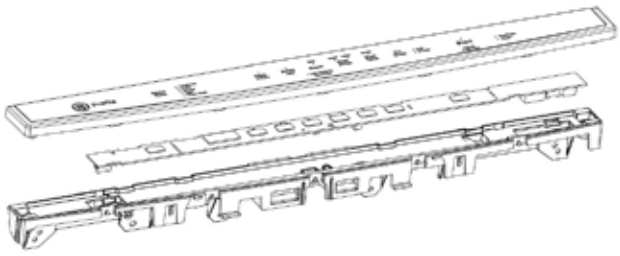


The control will be removed from the front

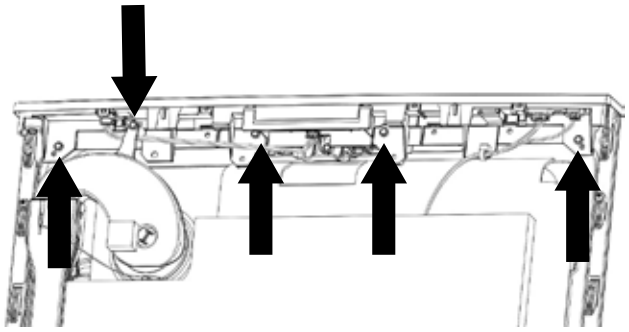


Top Control User Interface (UI)

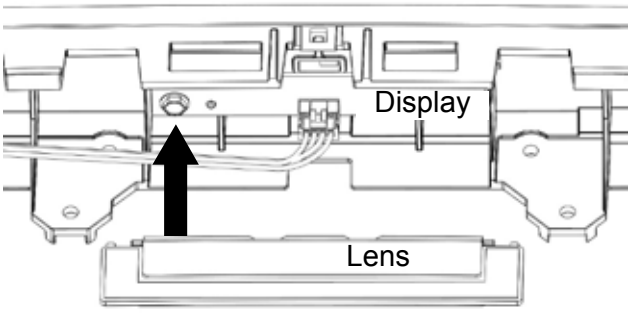
The top control User Interface (UI) come as an assembly, including the top console, UI and bottom console



To remove the UI assembly, remove five 1/4-in. hex-head screws from the top control.



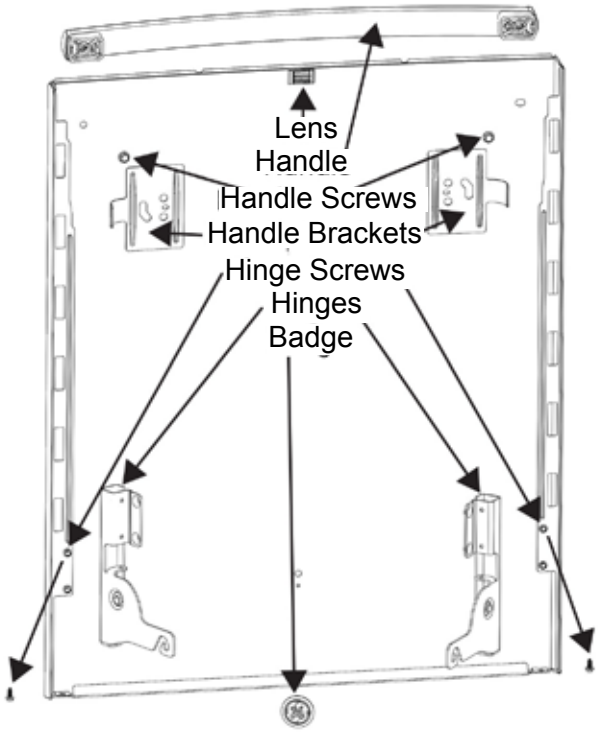
Some models have a display on the front panel, it is secured to the bottom of the UI assembly with one 1/4-in. hex-head screw. The lens is adhered to the outer door panel.



Outer Door Panel

Appearances may vary throughout this service guide. Some models do not have all features shown or may be different depending the model number.

Components



Bar Handle

The bar handle is attached to the outer door panel. The handle is an assembly with end caps pre-attached.

Bar Handle Removal

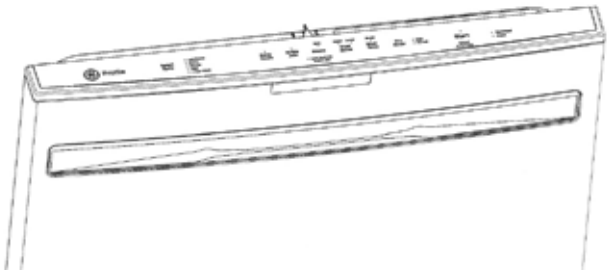
1. Remove and separate the door.
2. Remove two 3/8-in. hex-head screws holding the handle.

Hinges

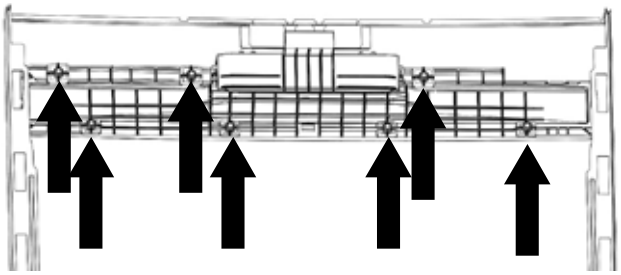
To remove the hinges from the outer door panel, remove six 1/4-in. hex-head screws.

Pocket Handle

Some models have a pocket handle mounted to the outer door panel.



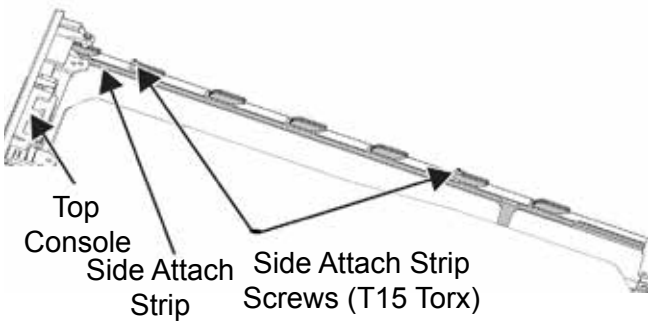
To remove the pocket handle, remove seven 1/4-in. hex-head screws.



Inner Door Panel

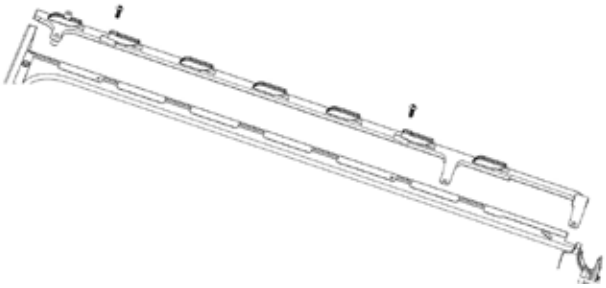
SS Door Attach Strips

Attachment strips are used to help secure the inner and outer door panels.



Side Attachment Strip(s) Removal

1. Remove and separate the inner and outer door panels.
2. Remove the front control console or top control panel.
3. Remove the two T15 Torx screws on the side attach strips.
4. Slide the strip inward to remove.

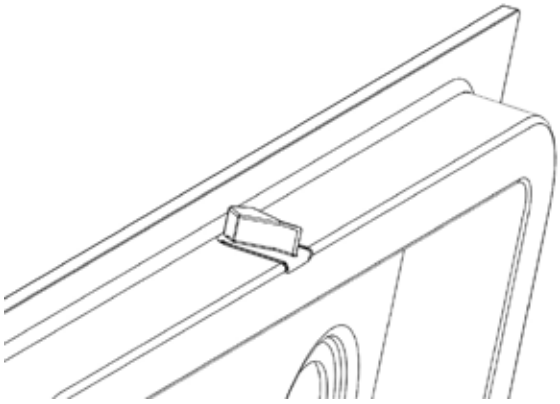


Top Attachment Strip Removal

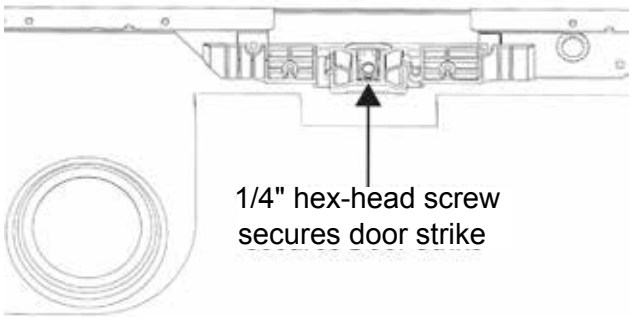
The door strike must be removed first (see **Door Strike**, in this section of this service guide).

The top attach strip may now be removed by sliding the strip down (the side attachment strips must be removed first).

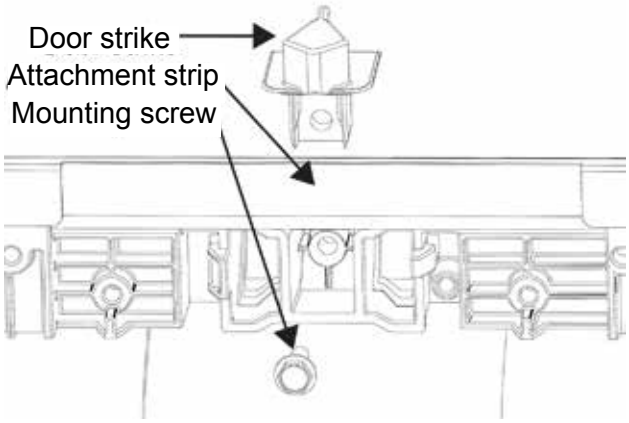
Door Strike



With the User Interface (UI) and Console (pocket handle on front control models) removed, there is clear access to the 1/4-in. hex-head screw that secures the strike to the inner door and top attach strip.



Remove the 1/4-in. hex-head screw, remove the door strike. Top attachment strip may now be removed.



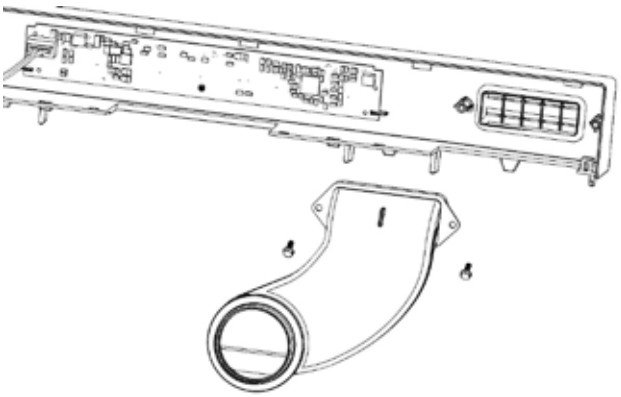
Door Gasket

The inner door panel must be replaced to replace the door gasket (bottom of the door).

Vent Parts

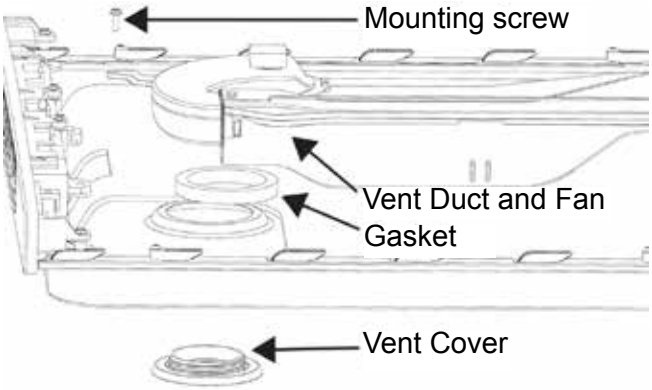
Front Control Model (GDF565SSNxSS and GDT565SSNxSS)

Model GDF565 and GDT565 have a passive vent through the Control Panel. All other models have a Power Dry system.



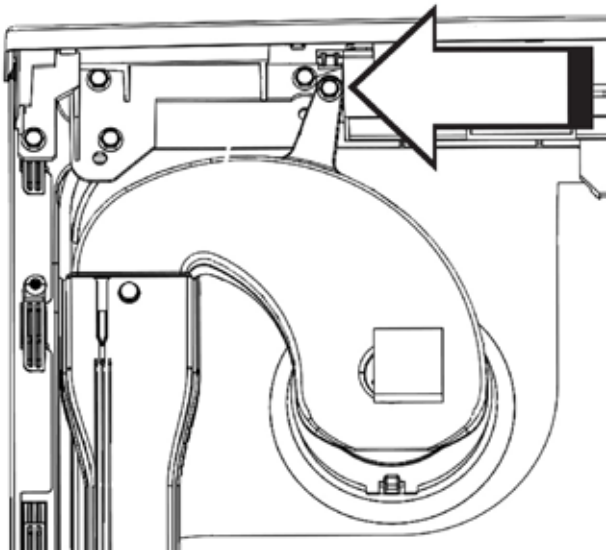
Power Dry Models

Power Dry Models have a 13.5 VDC fan and ducting to the bottom of the door. The Power Dry system must be removed to access the door control components. Operation, specifications and diagnostics will be covered in the Dry System section of this service guide.

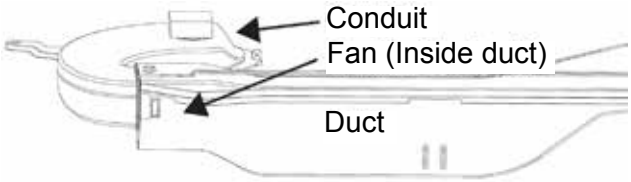


Power Dry System Removal

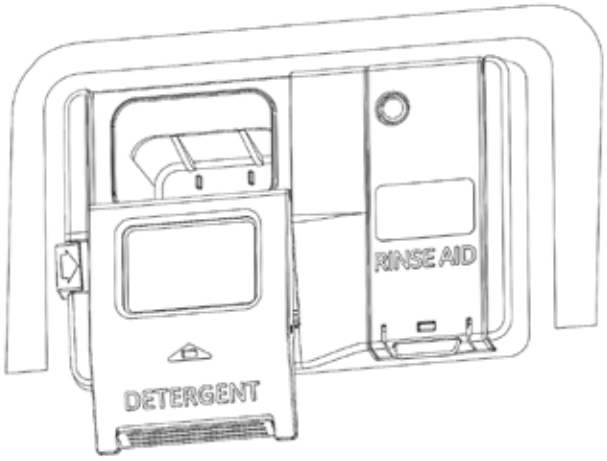
1. Remove the inner door vent cover.
2. Disconnect the wire harness from the fan to the User Interface (UI) control.
3. Remove the 1/4-in. hex-head screw.



4. The vent conduit, fan and the duct are removed as an assembly.



Detergent Dispenser



The detergent module is Solenoid operated, using 13.5 VDC (from the User Interface) to activate the solenoid.

Some models have a rinse agent dispenser. The dispenser holds 3.5 oz. (100 ml) of rinse agent. Under normal conditions, this will last approximately one month.

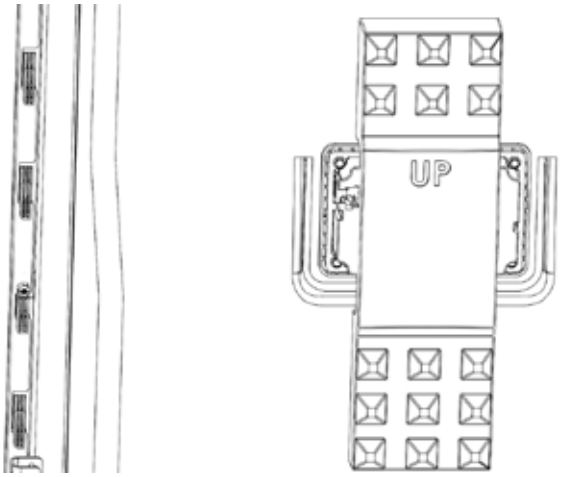
The module receives 13.5 VDC for 1 second to activate the detergent cup. To activate the rinse aid, the module receives 13.5 VDC for a period of 15 seconds.

To Diagnose Detergent Module

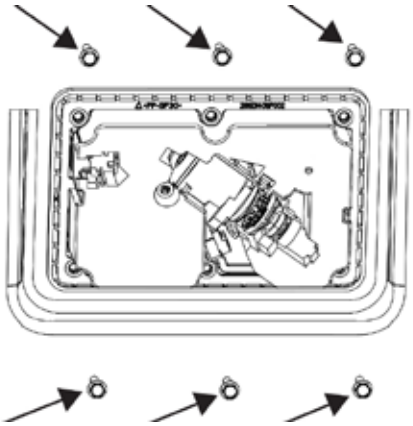
1. Remove power, then remove and separate the door.
2. The inner panel may be set into the dishwasher and latched in the closed position.
3. Reapply power.
4. Place the dishwasher into Service Mode (see **Service Mode**, in the **Electronic Controls** section in this guide), then activate the detergent test to check for 13.5 VDC to the detergent module. Service Mode will provide a 15 second activation time. The resistance for the detergent module solenoid is 32Ω (+ or – 10%).

Detergent Module Removal

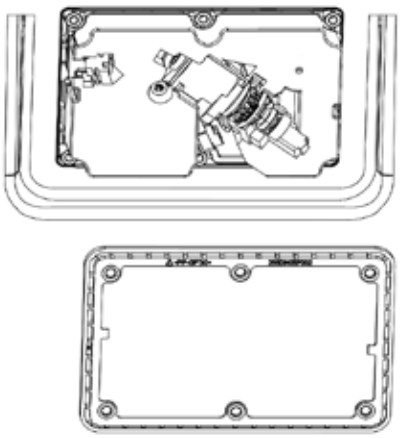
1. Remove power to the dishwasher.
2. Remove and separate the door.
3. Remove the EPS cover. The double backed tape is used to secure and is reusable. When reinstalling the EPS cover, the UP indicator must be toward the top of the door.



4. Remove six 1/4-in. hex-head screws.



5. The mounting plate removes from inside the door.

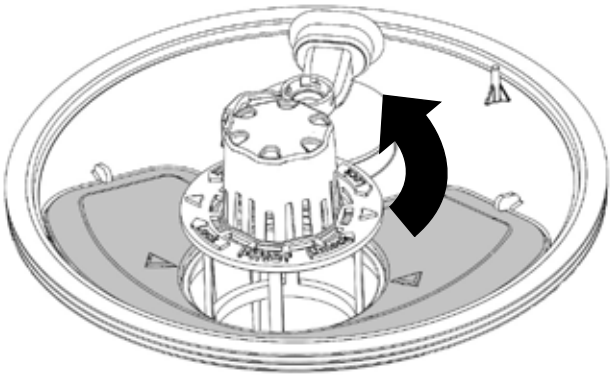


6. The detergent module can now be removed from the inner door panel.

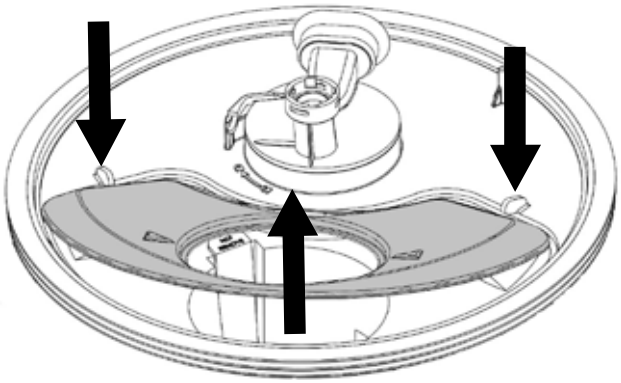
Sump Module

Appearances may vary throughout this service guide. Some models do not have all features shown or may be different depending the model number.

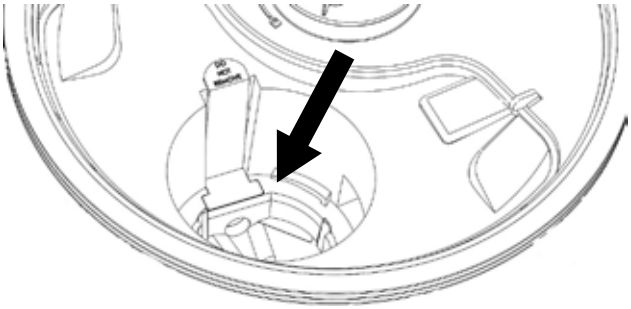
The Ultra-Fine Filter is a twist lock design and consumer cleanable. To remove, turn counter-clockwise.

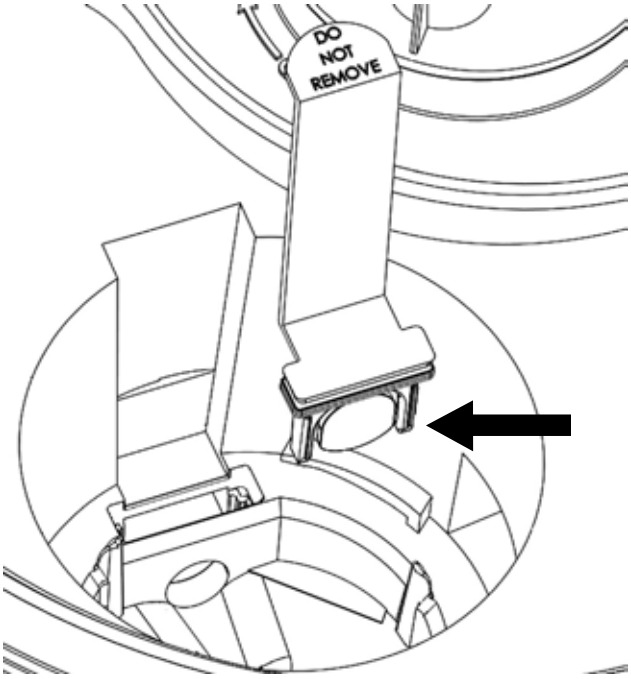


The fine filter is secured by the ultra-fine filter and two tabs. To remove, remove the ultra-fine filter and lift up on the front, allowing the back to slide out of the tabs.



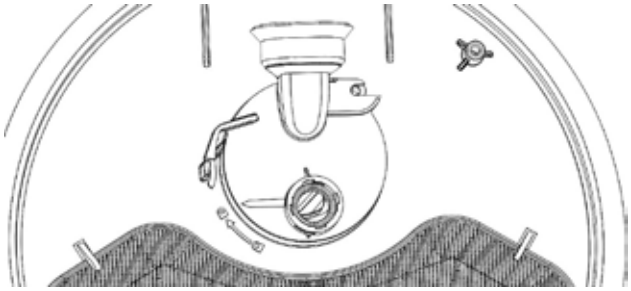
The Drain Check Valve is located inside the sump bottom. To access, remove both filters and pull the assembly from inside the sump.



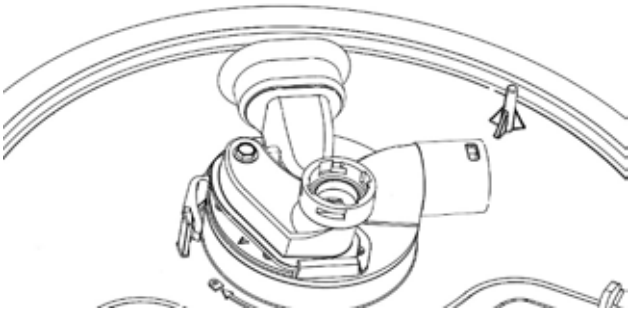


Also located on the top side of the sump are the diverter components. The bottom of the diverter is molded into the sump. A check ball or two port diverter and a pressure diverter are used in these models. The pressure diverter may use 3 or 4 ports controlling reversing spray arm on some models and silverware wash on some models. Full details on both diverters is found in the circulation section of this service guide.

Two Port Diverter



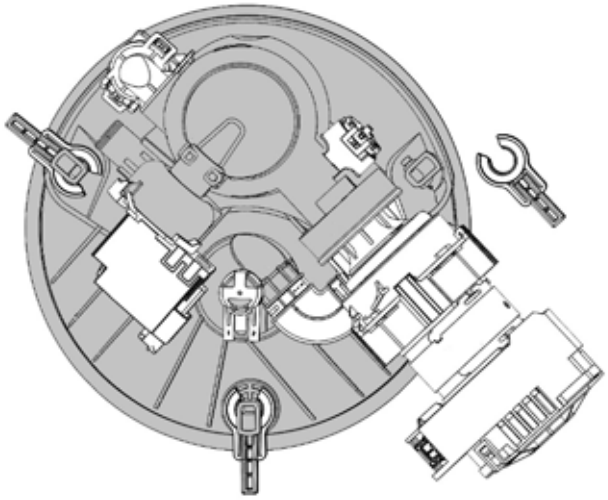
Four Port Pressure Diverter



Components on the bottom of the sump include a pressure switch, turbidity sensor, drain pump, circulation pump and some models have a diverter location switch.

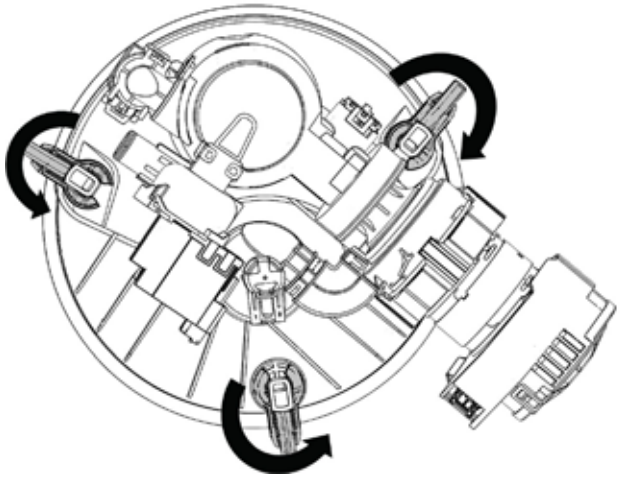
The sump module is front serviceable with the dishwasher remaining in the installed location by removing the door for easier access. This section of the guide only covers the sump removal. Components and diagnostics of the sump module may be found in the **Fill System**, **Circulation System** or **Drain System** sections of this service guide.

The shaded portions indicated molded sump.

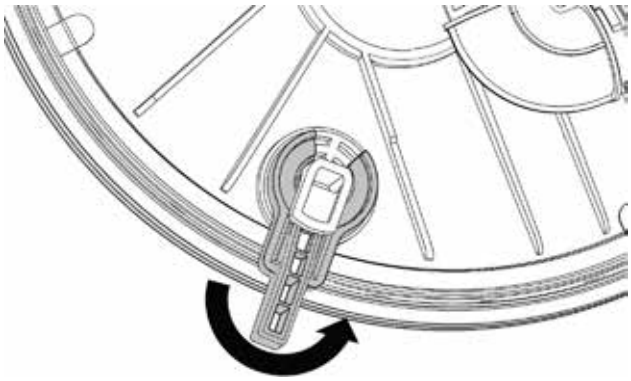


Sump Latch Cams

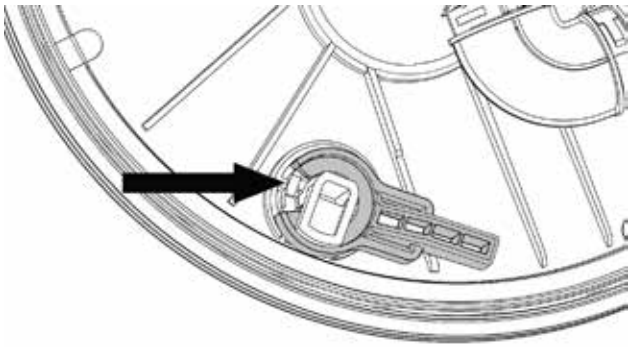
Sump latch cams twist and lock the sump into place, they are cammed for easy removal. The below illustrations show rotation and the stops built into the sump. The top of the illustration represents sump position as located to the front of the dishwasher.



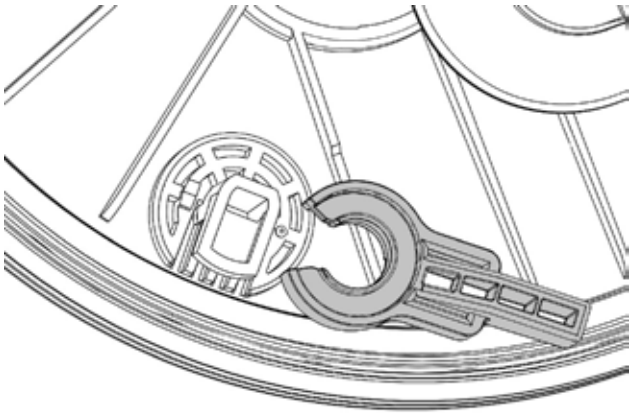
This image is the rear latch cam.



The below illustration shows the cam rotated to remove the sump. The arrow is pointing to the stop feature molded into the sump.

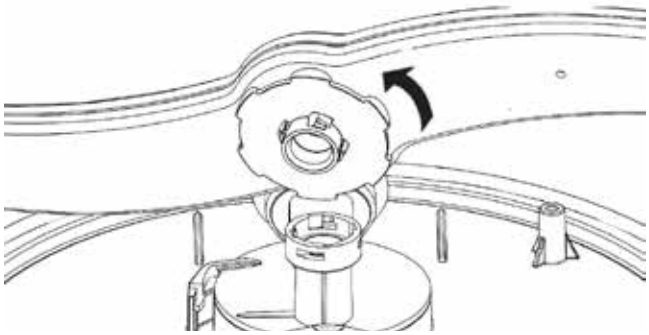


With the cam in the unlatched position and the lock tab exposed, the cam can be removed or replaced as needed by sliding it away from the post.

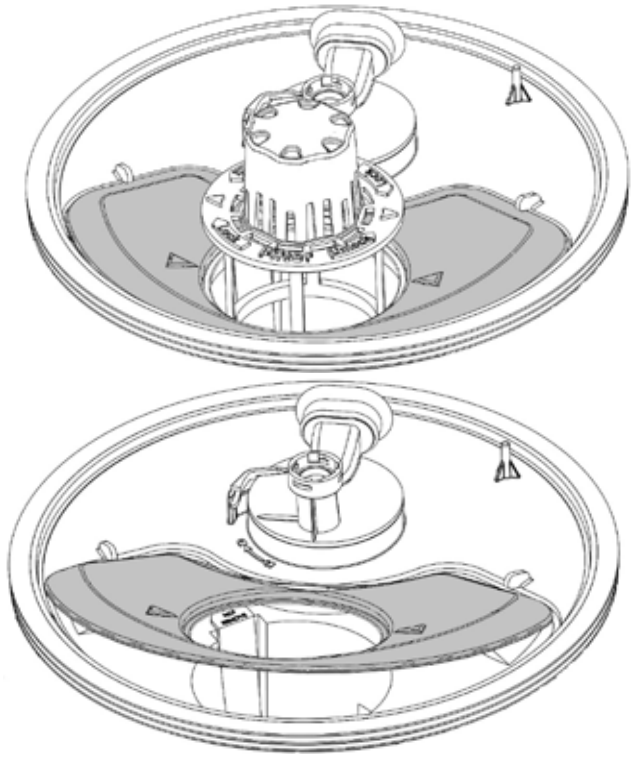


Sump Module Removal

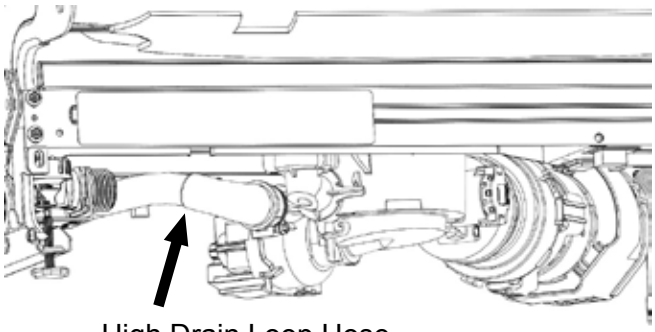
1. Remove power to the dishwasher.
2. Remove the upper and lower racks.
3. Remove the toe kick.
4. Remove the door (see **Door Removal**, under Door, in the Tub and Structure section of this service guide).
5. Remove the lower spray arm (turn the locking nut counter-clockwise).



6. Remove the fine filter and coarse filter (turn counter-clockwise to remove).



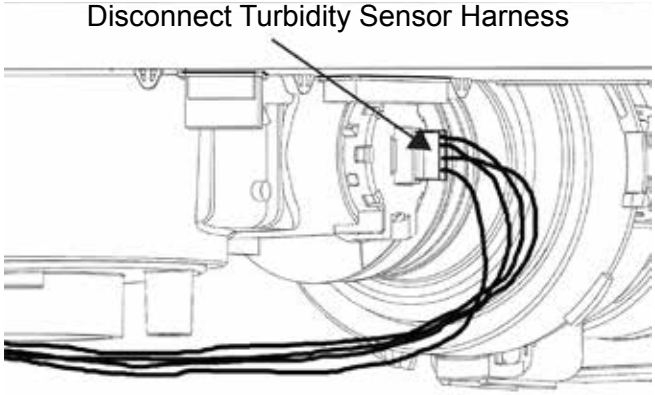
7. Remove the main conduit (see the **Circulation System** section of this service guide).
8. Loosen the high drain loop hose clamp (1/4-in. hex-head) and remove the hose from the drain pump (there will be a small amount of water in the sump, pump and hose).



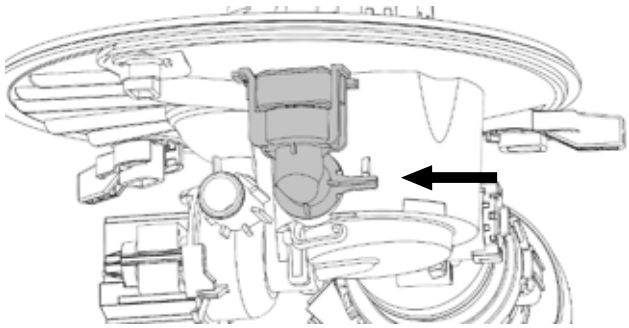
High Drain Loop Hose

9. Disconnect the turbidity sensor harness (some models).

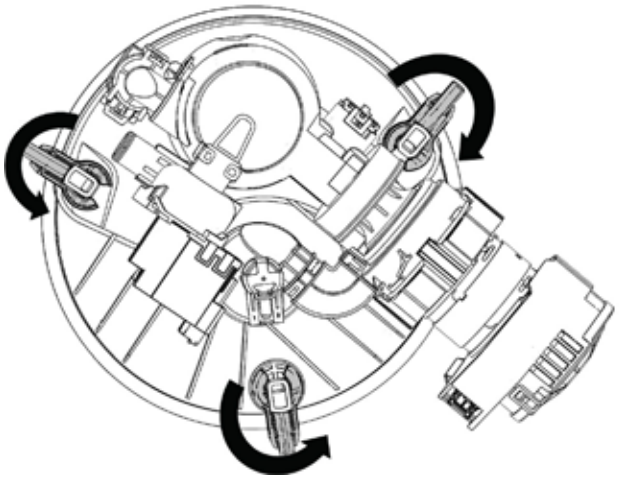
Disconnect Turbidity Sensor Harness



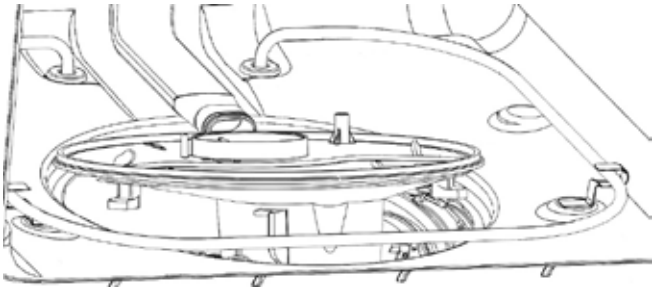
10. Remove the pressure switch (refer to the pressure switch portion of the fill section of this guide).



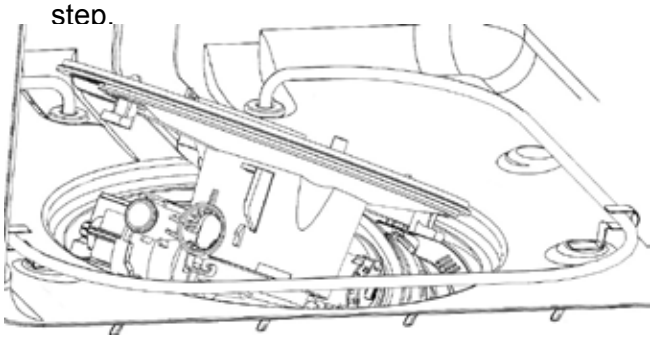
11. Unlatch three sump latches. All three latches can be reached from the front of the dishwasher in most installations. If the dishwasher does not have the legs extended, the dishwasher may have to be removed from its installed position.



12. Push the sump from the bottom into the tub.



13. Grasp the sump from inside. Use care, tilt and lift to bring the sump into the tub. Bring the drain pump up and in first. This allows access to disconnect the wiring in the next step.



NOTE: It is important to route the wire harnesses in the same locations to prevent future damage to the harness.

14. Disconnect the circulation pump wiring, drain pump wiring and flood switch wiring.

Appearances may vary throughout this service guide. Some models do not have all features shown or may be different depending the model number.

Sump Gasket

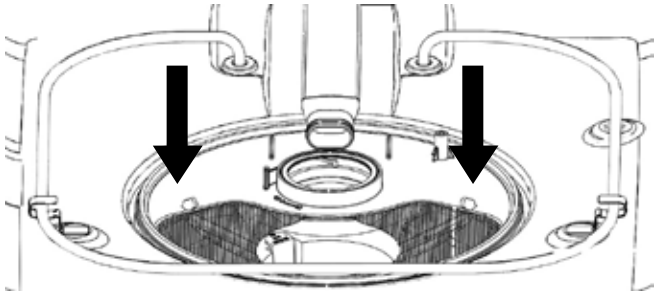
Stressing or softening the gasket ribs (pressing the ribs against a hard surface, see below) will make a new gasket seat easier. Lubricating with a small amount of rinse agent or water will also ease installation.

Installing Sump Module

While inserting the sump assembly back into the tub, use care to ensure the sump assembly wiring and components are not pinched between the sump and the tub.

NOTE: Using rinse aid or water on the sump gasket will aid sump installation.

1. Reconnect wiring to the pumps and flood switch. Do not connect the turbidity sensor until after the sump module is back in place (step 5) to prevent damage to the connector.
2. Align the main conduit connection out of the diverter on the sump module to the rear of the tub and main conduit
3. Press firmly into place, using both hands to push down on the sump module.



4. Latch the three sump latch cams. The latch cams must not be used to pull the sump module into place.
5. Connect the turbidity sensor and high drain loop hose.

Electronic Controls

The Main Control Board is located under the dishwasher. It is supplied 120 VAC from the consumer's home. Outputs include 120 VAC to the heating element, wash and drain motors. The control also supplies 13.5 VDC to the fill system, door switches, turbidity sensor (some models), the User Interface (UI) board and detergent module in the door.

Critical Errors

Critical errors will turn a cycle off and show a display alerting the consumer of a fault which will not allow the dishwasher to function or cause an undesirable condition.

No Water Detected

In the event the internal water level does not change, the cycle will be cancelled and the user interface will display the following:

- **Models with SSD Screens**: H20 will be displayed on the SSD screen.
- **Models without SSD Screens**: Wash Temp LED will blink continuously.

The water may be turned off. The consumer is directed to verify the water supply line is connected properly, the supply line valve is turned on, and restart the cycle. If this fails, the consumer is directed to call for service.

Pressure Sensor Errors

In the event that the pressure sensor signal is undetectable or irrational, the cycle will be canceled and the user interface will display the following:

- **Models with SSD**: PrS or PrF will be displayed.
- **Models without SSD**: Dry LED or Wash Temp+Dry LEDs will blink.

The control does not see a change in pressure during fill. Verify pressure sensor harness, then replace pressure sensor if needed.

Continuous Fill Error

In the event consecutive signals from the pressure sensor detect high water level, the drain pump will run and the user interface will display the following:

- **Models with SSD Screens**: CFE will be displayed on the SSD screen.
- **Models without SSD Screens**: Cycle Indication LEDs will blink continuously.

The consumer is directed to turn off the water supply. Diagnose reasons for water valve not shutting off.

User Interface (UI) Diagnostics

No display or LED's will light.

Check for 120 VAC entering the main control. If no volts are found, check the home breaker. If main control has 120 VAC, check to see if the service LED on the main control is flashing. If no, replace the MC board. If there is a flash, check the door harness and connections. Replace the User Interface (UI).

If any of the mentioned LED's illuminate, it indicates the fault condition is present. These fault displays cannot be cleared manually; they will be automatically cleared by the control when the fault condition is no longer present.

ANY KEY PRESSES OTHER THAN CYCLE SELECT WILL EXIT THIS MODE.

Main Control Diagnostics

The Service LED has a continuous flash which only advises the main control has power and the control software is operating.

Consumer Error Mode

To Enter Consumer Error Mode: With the dishwasher in Standby Mode (not running a cycle), press and hold the Cycle Select or furthest button on left (some models) and Start buttons simultaneously for 5 seconds.

On entry into the Consumer Error Mode, the control reports the door status for 10 seconds.

- All LEDs are solidly illuminated, if the door is detected as closed.
- All LEDs are flashing, if the door is detected as open.
- The SSD (Seven-Segment Display) will indicate the User Interface (UI) software version (without a decimal). For example, software version 8.08 will display as 808.

After the door check, the control will enter a mode to display any error codes that are currently detected by the control.

LED	Error Type	Error Causes
Dry/ Dry Boost	Wash Temperature Error	Minimum wash temperature of 120°F was not reached in 3 of the past 5 wash cycles.
Temp/ Boost/ Hi Temp Wash	Thermistor Error	Control detecting short or open circuit at thermistor.
Clean	Turbidity Sensor Error	Control detecting short or open circuit at turbidity sensor. May also occur on models without turbidity sensor.
Lock	Always Illuminated	Illuminates when Error Code Display Mode is active.

Consumer Error Mode will time out after 5 minutes.

ANY KEY PRESSES OTHER THAN CYCLE SELECT WILL EXIT THIS MODE.

Service Mode

Entering Service Mode

NOTE: Entering Service Mode resets the CSM.

The dishwasher must be in Consumer Error Mode to enter Service Mode. Entering Service Mode will reset the CSM, allowing loads to be checked for the cause of the CSM to trip. The control will blink the Normal LED every few seconds for the number of times corresponding to the load being tested.

While in Consumer Error Mode

- Press and hold Cycle Select or furthest button on left (some models) for 5 seconds.
- Press Cycle Select or furthest button on left (some models) to select or increment each test.
- Press Start, to start and stop each test.

LED Blink #	Load to Control	Timeout / Notes
1	Drain Pump	Attempts to empty. Takes approximately 75 seconds from normal level.
2	Water Valve	Attempts to fill to normal level. Takes approximately 1 minute.
3	Circulation Pump	Changes spray arm (via changing diverter) every 30 seconds. Runs for maximum of 2 minutes.
4	Heater	Turns on heater for a maximum of 2 minutes.
5	Detergent Module	Turns on detergent module solenoid for a maximum of 2 minutes.
6	Dry Fan	Turns the door fan ON/ OFF for models that support this feature.
7	Heater Relay Test	If the CSM trips, replace the heating element

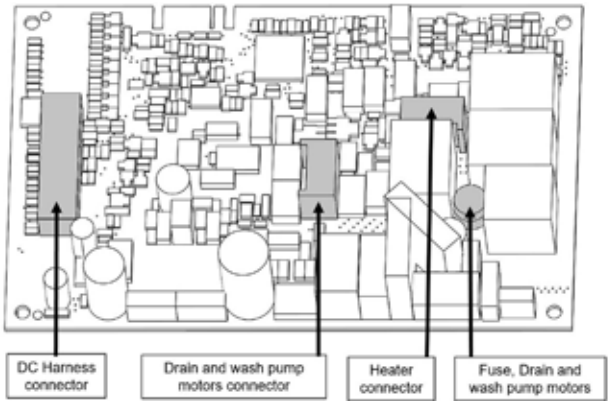
Service Mode will exit after 5 minutes of inactivity.

Exit Service Mode by pressing and holding the Cycle Select and Start pads for 5 seconds, or by pressing any other pad.

Diagnosing Electronic Control Boards

Diagnosing the main control and User Interface (UI) control are covered in this section. Many components can be checked from the main control, which can be accessed with the door on or removed if needed. Some connectors are located through the bottom cover to allow easy access to AC supply connector, door harness and ACM or Appliance Control Module. The Connect Plus Module (sold separately) allows the appliance to communicate with the utility meter when peak rates occur, and allows the appliance to respond and operate in a manner that will reduce energy usage of that appliance at high/ critical demand rates. For more information on the module and display, refer to the separate Connect Plus documents.

WARNING: GE Factory Service Technicians are REQUIRED to follow Lockout / Tagout (LOTO) 6 Step Process prior to beginning repair.



CSM (Current Sense Module)

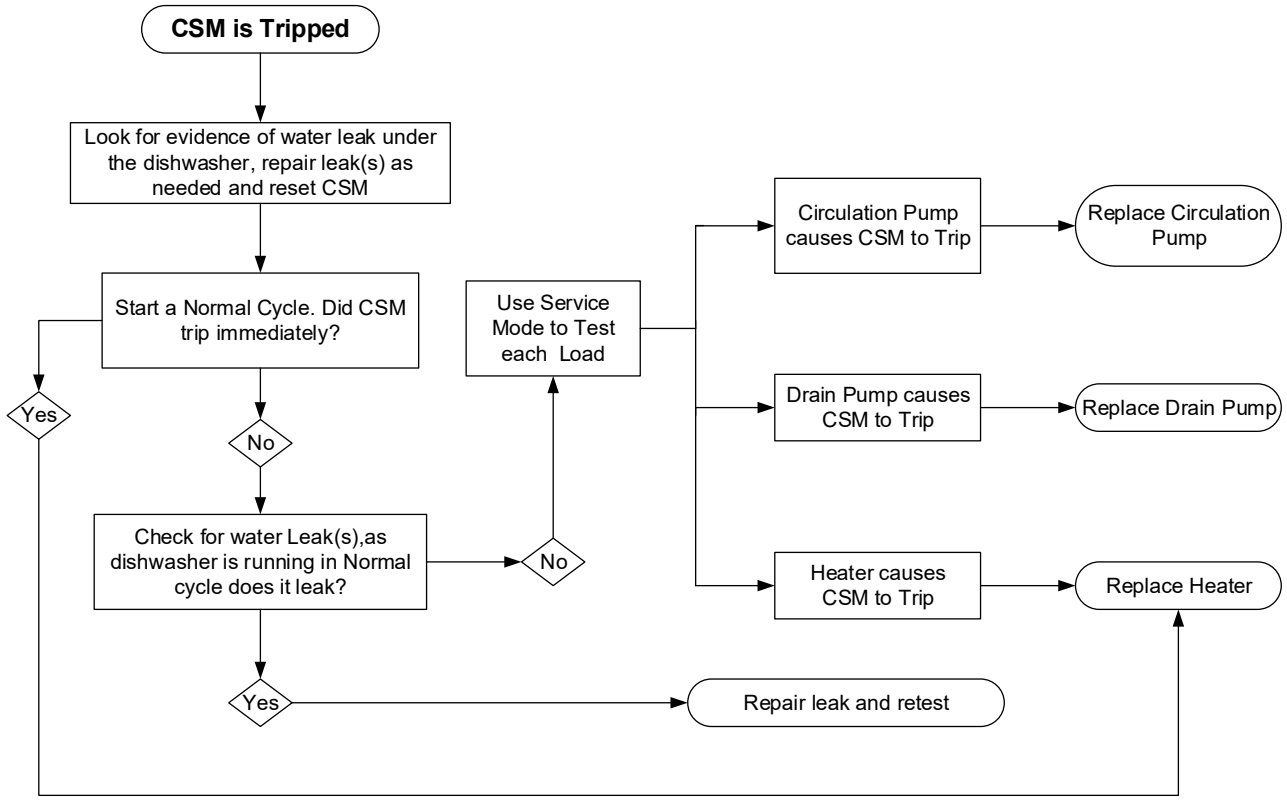
A CSM is a protective device that is part of GE, Profile, Haier, Cafe and Monogram Dishwashers and located on the main control board. This device is designed to trip if current leakage to ground is above 20mA ± 5mA is detected. The CSM functions similar to commercially available GFCI's. If tripped, the dishwasher is non-responsive and all the LED's will flash until the CSM is reset. Cycling power or entering **Service Mode** will reset the CSM. The Service LED on the main control flashes to advise the control software is functioning.

The cause of tripping is likely 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. 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 water caused the CSM to trip, the leak must be repaired. The dishwasher may run until a leak causes the trip to reoccur. Resetting the CSM without fixing the underlying issue will likely result in a repeat call. Always perform a visual inspection of the exposed heating element, looking specifically for cracks, splits, or swelling of the sheath.

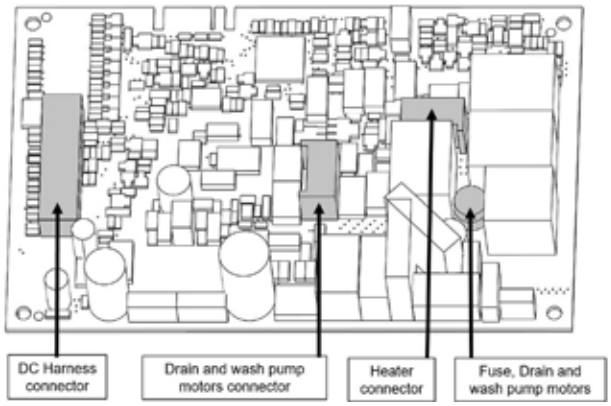
CSM Diagnostics

The CSM and Heater may be tested by running test 7 in **Service Mode**

NOTE: Normal water level must be present when checking the circulation pump, drain pump, and the heater.



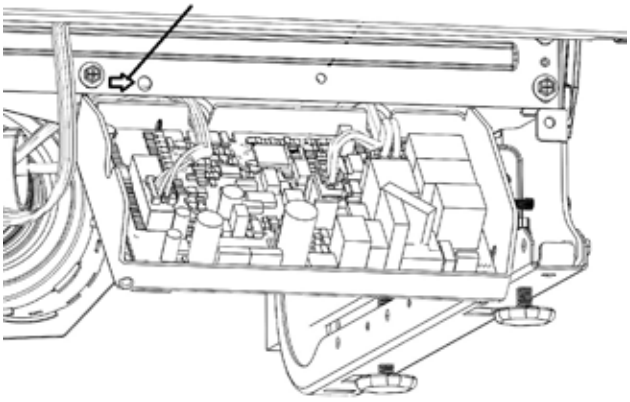
Top Side of Main Control



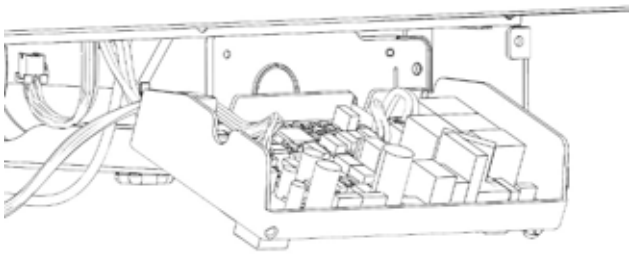
WARNING: GE Factory Service Technicians are REQUIRED to follow Lockout / Tagout (LOTO) 6 Step Process prior to beginning repair.

To Access Main Control Board:

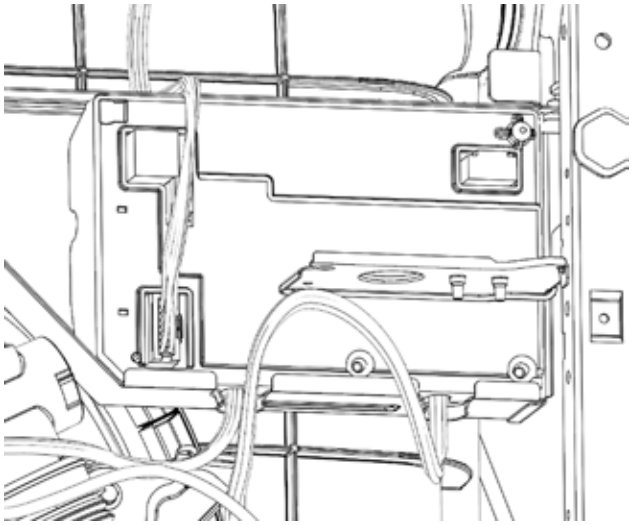
1. Remove power to the dishwasher.
2. Remove the toe kick panel.
3. Remove the door (optional).
4. Remove the junction box cover.
5. Remove the 1/4-inch hex-head screw on control box.



6. Pull down on the bottom cover at the front of the control box. While pulling down on the front of the bottom cover, slide the cover forward to clear the back lip and junction box bracket.



7. Pull cover and control forward, taking care not to damage the board or the wiring.
8. To remove the control board from the bottom cover, remove the ground screw and release the standoffs.
9. Use care when reinstalling the main control board to prevent wire pinching. Make sure the harnesses are routed properly, through the access ports in the control area and above the sump hoses to keep them from snagging on the floor.

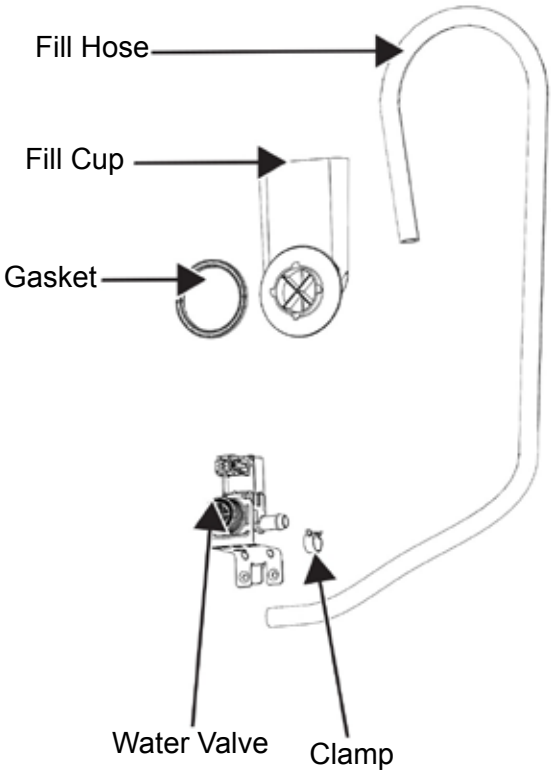


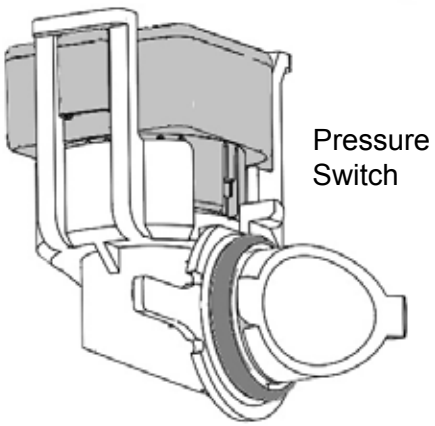
10. All ground screws must be reinstalled.

Fill System

The dishwasher has a fill volume of approximately .83 gallons of water and is a DC volt circuit. The water valve is rated at 13.5 VDC, resistance is 32 ohms and has a flowrate of .83 GPM. The fill time is 1 minute. The water valve is located in the front left corner, under the dishwasher.

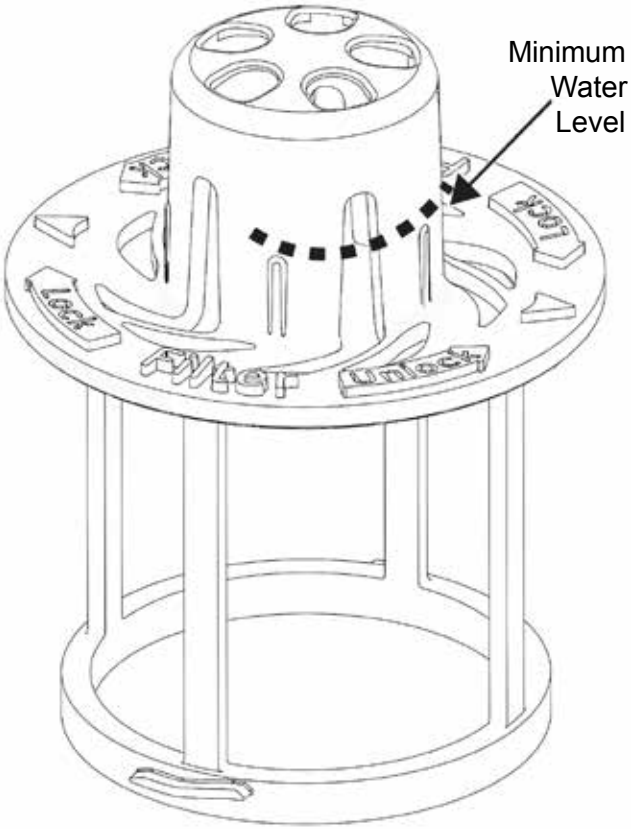
Components





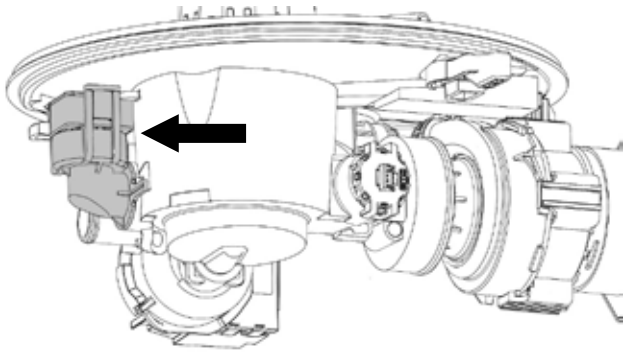
Water Level

To check for proper water level, place the dishwasher in Service Mode and run the Fill Test (see **Service Mode** in the **Electronic Controls** section in this service guide). Water must reach the level shown below.



Pressure Switch

A pressure switch is used to monitor water level. The switch provides feedback to the control. The pressure switch is located on the front of the sump.



Below are some of the new actions the control can monitor and react to with different situations.

No Water Detected: In the event the internal water level does not change, the cycle will be cancelled and the user interface will display the following:

- **Models with SSD Screens**: H20 will be displayed on the SSD screen.
- **Models without SSD Screens**: Wash Temp LED will blink continuously.

The consumer is directed to verify the water supply line is connected properly, the supply line valve is turned on, and restart the cycle.

Pressure Sensor Errors

In the event that the pressure sensor signal is undetectable or irrational, the cycle will be canceled and the User Interface will display the following:

- **Models with SSD**: PrS or PrF will be displayed.
- **Models without SSD**: Dry LED or Wash Temp+Dry LEDs will blink.
  Verify pressure sensor harness, then replace pressure sensor if needed.

Continuous Fill Error

In the event consecutive signals from the pressure sensor detect high water level, the user interface will display the following:

- **Models with SSD Screens**: CFE will be displayed on the SSD screen.
- **Models without SSD Screens**: Cycle Indication LEDs will blink continuously.

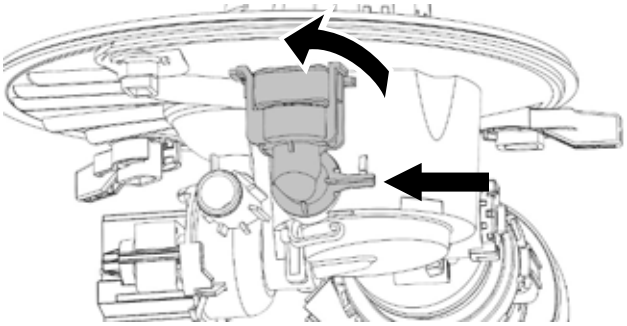
The consumer is directed to turn water supply off and call for service.

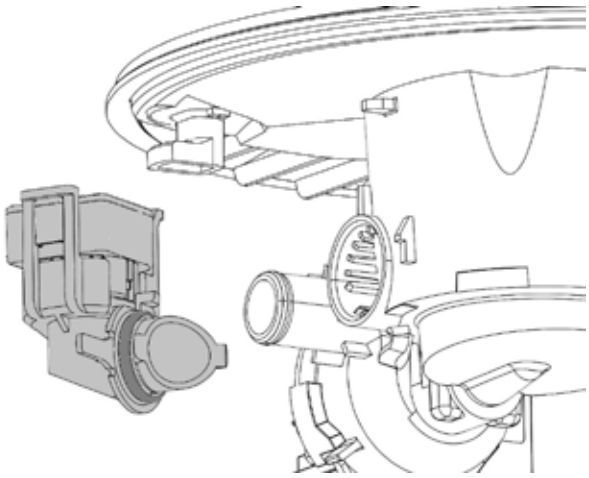
Testing the Pressure Sensor: To verify the pressure sensor is receiving power, remove the connector from the sensor and test for 5 VDC between Pin 2 (+) and Pin 3 (-) on the sensor. To verify the sensor is properly sending the water level signal to the machine control, test for frequency (0 - 5 VDC) between Pin 7 (+) and Pin 12 (-) on the machine control connector J806, as shown in the diagram. Use the chart on the next page to determine if the output frequency corresponds to the water level observed inside the dishwasher.

NOTE: When flood trip point is reached (40.11 - 39.69 Hz), the drain pump will turn on.

Pressure Switch Removal

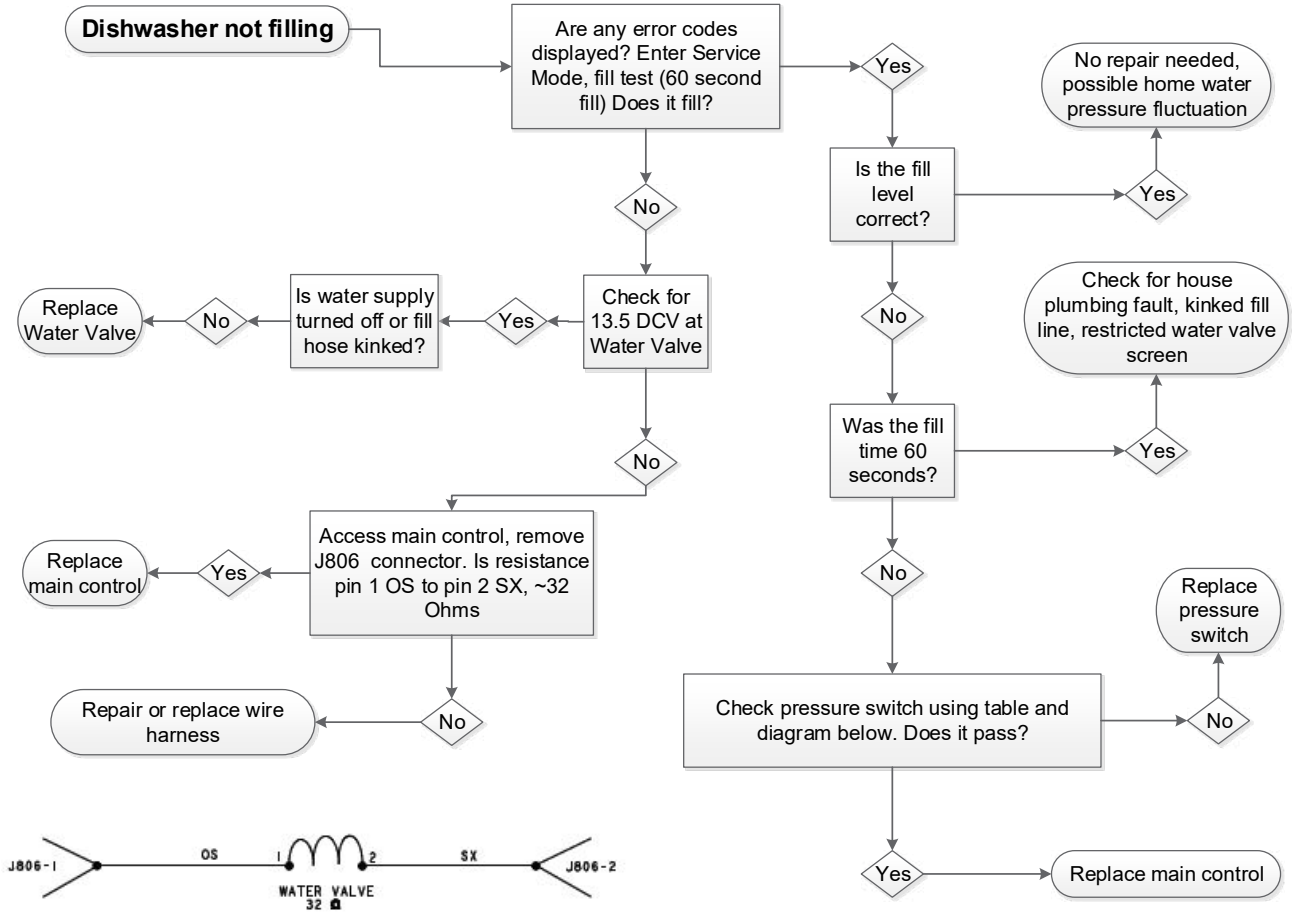
1. Remove power to the dishwasher.
2. Remove the toe kick.
3. Carefully pull the locking tab toward you and turn the pressure switch counter-clockwise while pulling the switch out.



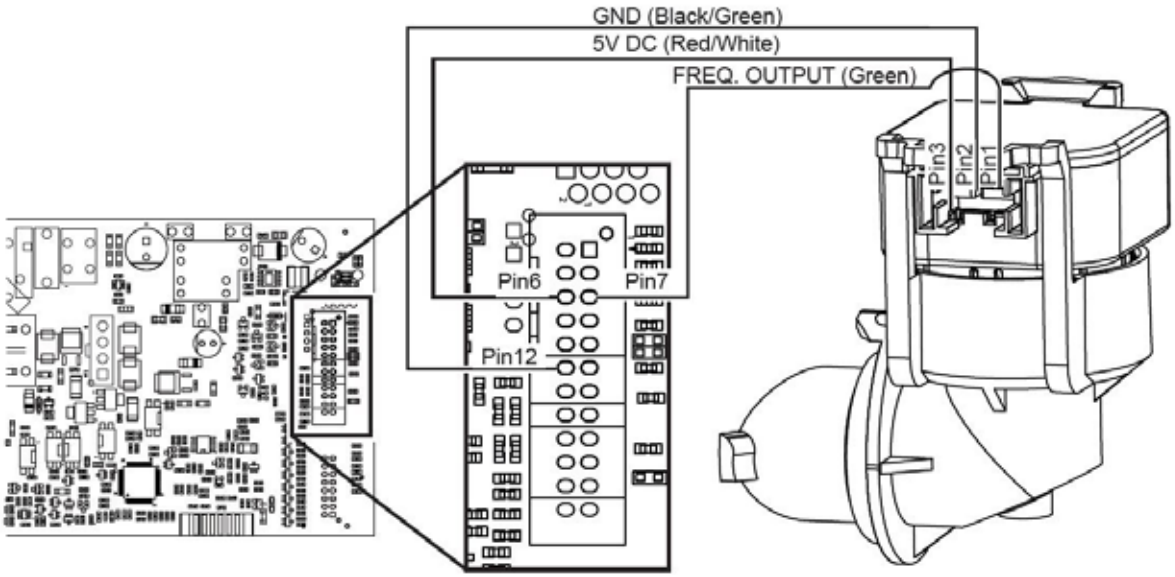


4. Remove the harness from the sensor.

No Fill Diagnostics

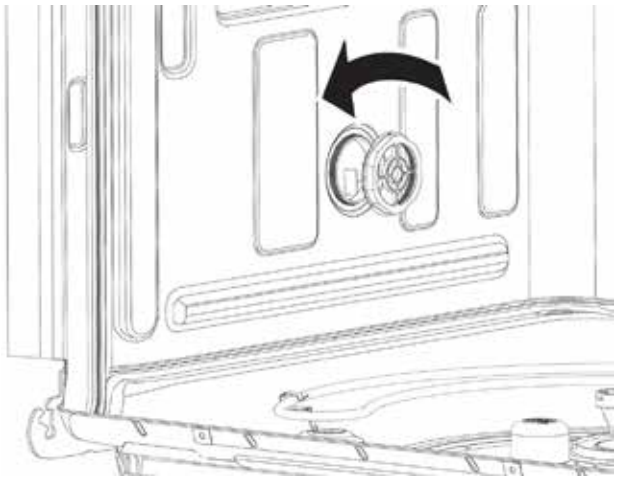


0 - 5 VDC Freq. Output (Hz)	Internal Water Level Description
44.27 - 43.94	Dry
40.77 - 40.44	Typical Fill
40.11 - 39.69	Flood Trip Point - Drain Pump Runs
39.61 - 39.12	Water Over Tub Lip

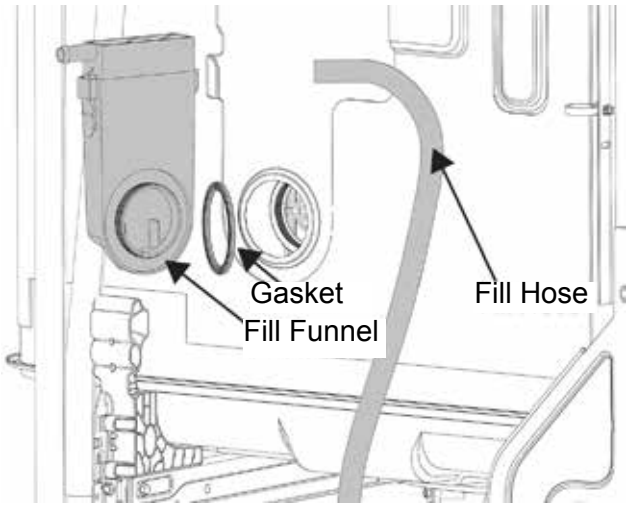


Fill Funnel and Hose

The Fill Funnel is located on the left side of the dishwasher tub and must be removed from installation to gain access. Remove by turning the mounting nut counter-clockwise from inside the tub.



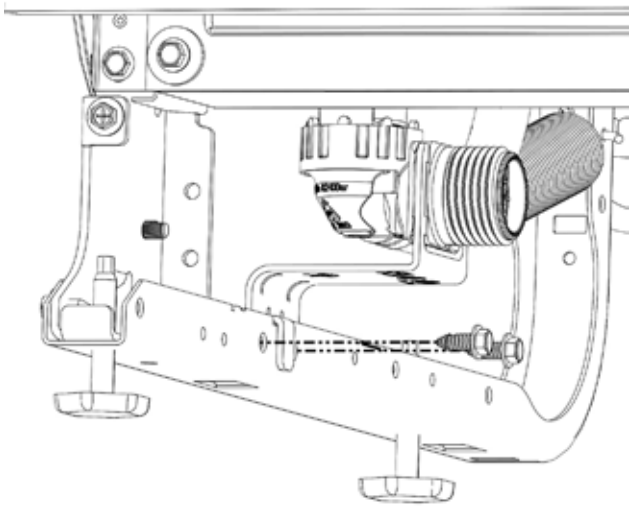
The fill funnel may now be removed from the outside of the tub. There is a gasket between the fill funnel and tub. The fill hose connects the water valve to the fill funnel.



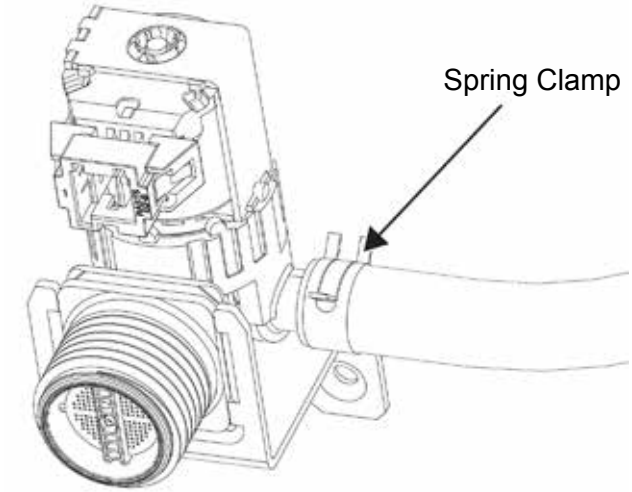
Fill Valve

Water Valve Removal

1. Remove power to the dishwasher.
2. Remove the toe kick.
3. Remove two 1/4-in. hex-head screws from the bracket to the leg assembly.



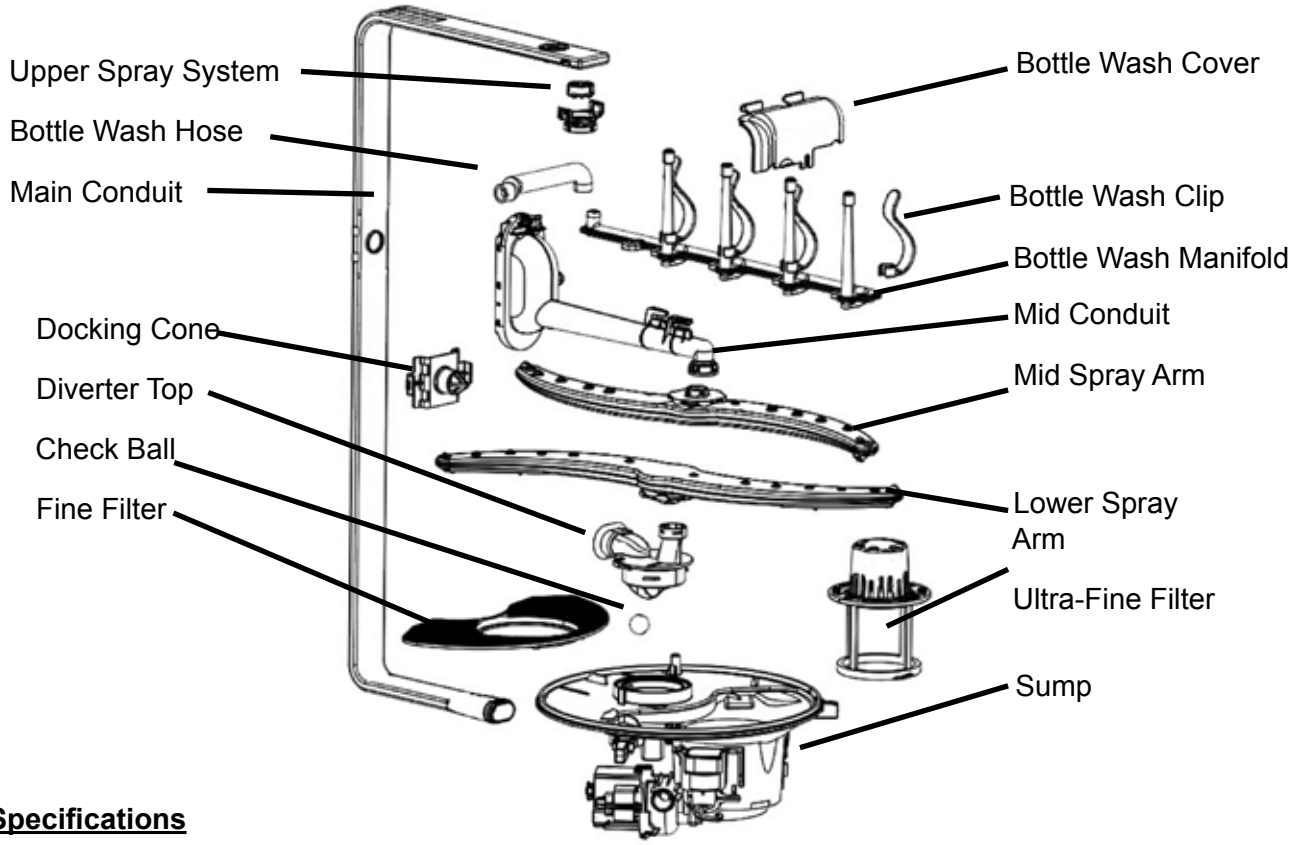
4. Slide the bracket off of the leg.
5. Remove the wire harness.
6. Remove the fill hose by using pliers to remove tension on the spring clamp.



Circulation System

With only .80 gallons of water, filtration is the start of improved performance. Water is cleaned through the fine and ultra-fine filters before it enters the main pump. Water must also flow through the Piranha Hard-Food Disposal and finally into the wash pump assembly. Clean filtered water then flows into the diverter system which directs it to either the lower spray arm or mid spray arm and upper sprayer. Water is jetted through more jets and with more power due to different wash zones created by the diverter.

This section will discuss wash system filtration, operation, components, removal procedures and diagnostics. The new 2019 Stainless Steel Tub Dishwasher features alternating spray arms allowing low water use, helping energy efficiency. A diverter system is used to isolate the wash arms and is controlled by cycling the wash pump as described later in this section. Some models have a wash zone feature which allows the consumer the flexibility of washing in the lower or upper racks only. Using this feature will shorten the cycle time by 30%. When Bottle Wash is selected, the upper rack time is increased allowing the bottle wash feature to be used for maximum cleaning. Filtration has been greatly improved to allow clean filtered water to circulate during wash. The fine and ultra-fine filters are consumer removable and cleanable.



Specifications

- **Single Speed Circulation Pump**: 120 VAC, .8 amps – 3.8 LRA, 8 GPM @ 5PSI
- **Heater**: 120 VAC, 18 ohms wet – 28.8 ohm dry, 6.67 amp wet -4.17 dry, Watts 800 wet /500 dry +/- 5%
- **Detergent Cup**: 13.5 VDC, 32 ohms, .5 second to release detergent cup, 15 seconds to release Rinse Aid (see the **Door** section of **Tub and Structure** in this service guide).
- **Turbidity Sensor**: 5 VDC to LED, 10k ohms
- **Thermistor** (in turbidity sensor)
- **Spray Arm Rotation**:

Spray Arm	RPM
Lower	50 RPM CW +/- 10%
Middle	30 RPM CCW +/- 10%

CW*: Clockwise* **CCW***: Counter-Clockwise*

Diagnostics

Clear Door Diagnostic Tool

The Clear Door (**Part #**: WX05X20002) provides technicians with a tool to accurately diagnose 2012 and newer dishwashers. Viewing the wash zones not only includes more accuracy, it will reduce diagnostic time, reduce repeat calls and will increase technician confidence. There may also be situations where the clear door can be used to show a consumer the dishwasher is operating properly.

Poor wash results can be due to many different things. The clear door allows operation and visibility of spray arms including rotation, slow or non-rotation, leaks between wash components, restrictions and spray jet pattern.

Proper spray arm speeds have a tolerance of +/- 5 RPM. The lower spray arm turns clockwise at approximately 50 RPM. The mid spray arm turns approximately 30 RPM counter-clockwise. The upper sprayer cannot be counted but can be viewed for proper operation.

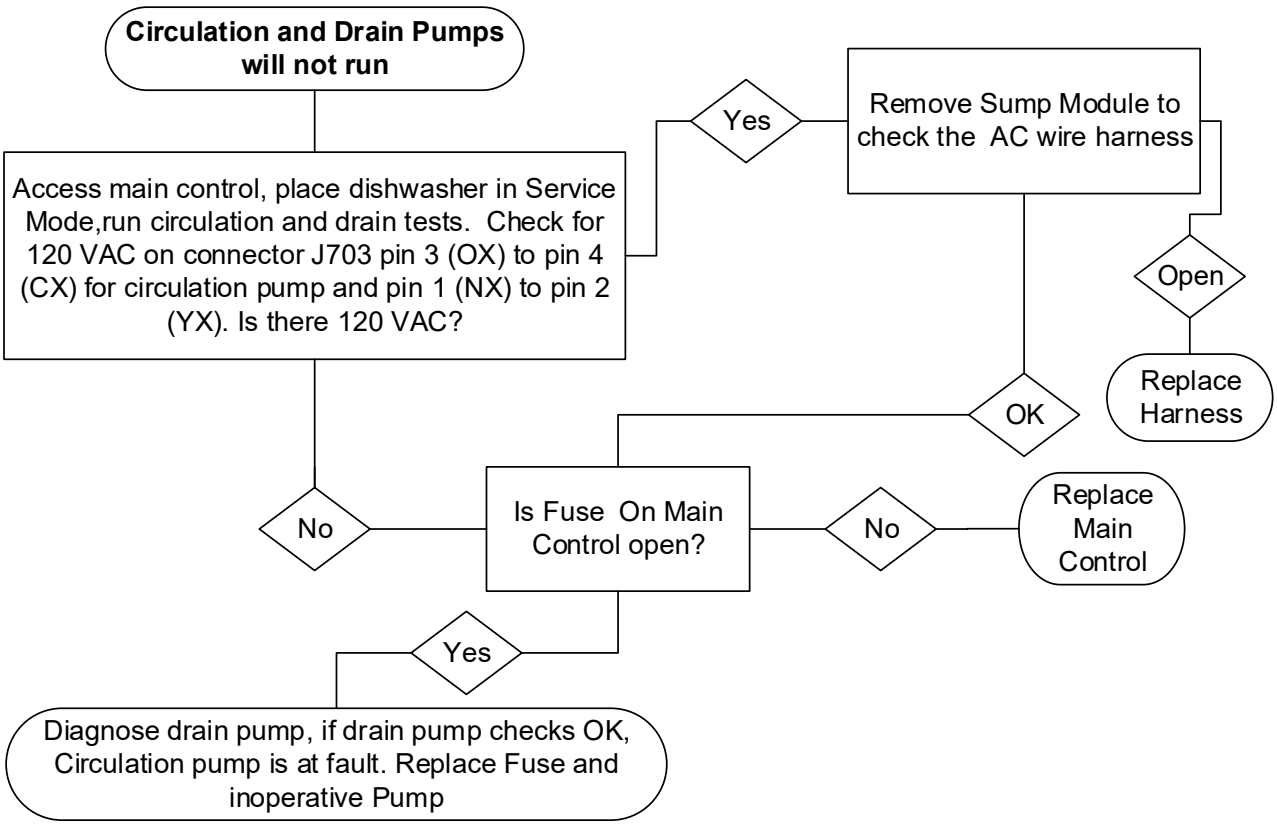
To Use WX05X20002 Clear Door

1. Place the dishwasher in service mode to fill, circulate and drain. Details on Consumer Error Mode and Service Mode can be found in dishwasher mini manuals and this service guide. All models have the same entry directions. Different controls have different ways to communicate results and progress.
2. Remove the bottom rack for an unobstructed view of the lower spray arm.
3. Enter Consumer Error Mode.
4. Enter Service Mode.
5. Open the dishwasher door all the way to 90 degrees.
6. Place the WX05X20002 Clear Door into the tub opening starting at the bottom.

WARNING: To prevent any damage, do not close the dishwasher door when the clear door is in use.

7. The clear door has a latch strike. When pushed into the latched position, it will activate the door switch assembly. The dishwasher may not start if the door is installed to low.
8. Initiate Fill; the dishwasher will fill for 60 seconds.
9. Initiate the circulate test to view the circulation system in action.
10. Service mode will initiate a 2-minute circulate test 30 seconds lower clockwise (CW), 2 to 3 seconds lower counter-clockwise (CCW) (will not reach full speed unless dishwasher is in a main wash cycle) and 30 seconds upper spray system. This pattern will repeat.
11. Use a flashlight for better visibility. Look for leaks in all areas including between the conduits and wash components.
12. Determine potential areas for further inspection and diagnoses.
13. Initiate drain; the dishwasher will drain for approximately 70 seconds.
14. Remove the WX05X20002 Clear Door.
15. Proceed with any inspections, diagnoses and repairs as detailed in the **No Circulation and Drain** flow chart. Some components may cause different symptoms depending on the severity of part failure.

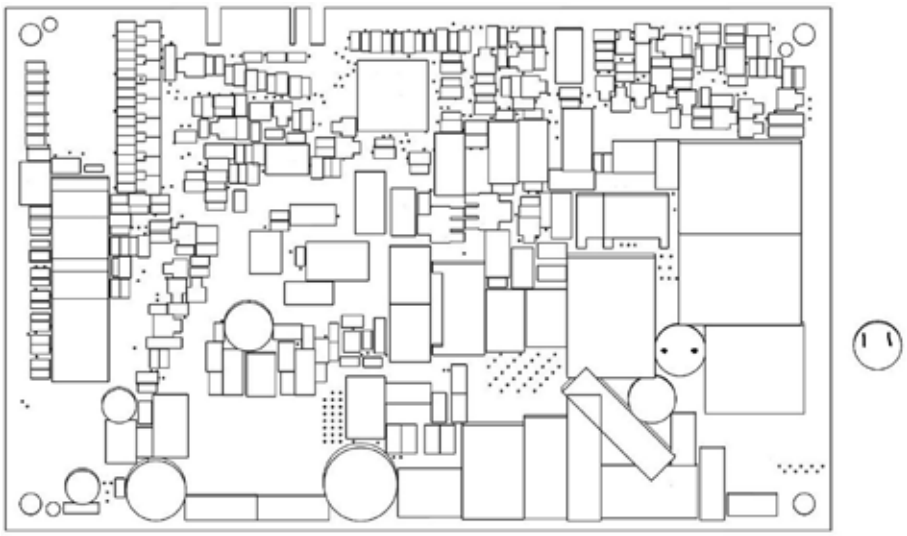
No Circulation and Drain



Motors Fuse

A motors fuse is located on the main control board. If found open while testing for no circulation and drain pump operation, the fuse and bad pump motor must be replaced. If 120 VAC is not present at J703-3 to J703-4 for circulation pump or J703-1 to J703-2 for drain pump, remove and check the fuse at the points shown in the below illustration. If an open fuse is found, replace the fuse and bad pump. The Drain pump can be diagnosed by removing connector J703 from the control and check the **blue** to **yellow** wires using a multimeter on the highest resistance setting. If the reading is between 0.3 – 5.0 mega-ohm, then the drain pump is good. If it measures OL (overload or open) it indicates a bad drain pump. If the drain motor checks OK, replace the circulation pump motor.

The circulation pump is a DC motor and cannot be checked for a resistance reading, it contains internal diodes and rectifiers.



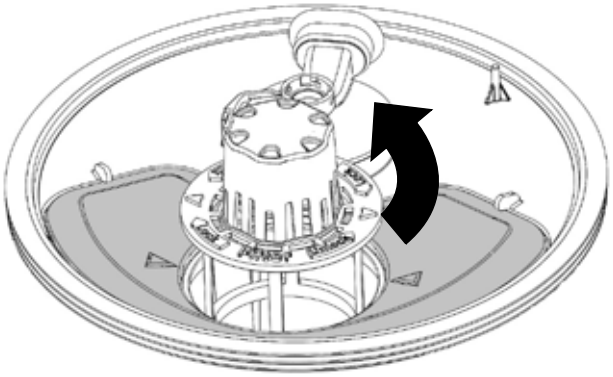
Pump Motors Fuse Test Points

Filtration

Good filtration is key to good wash performance.

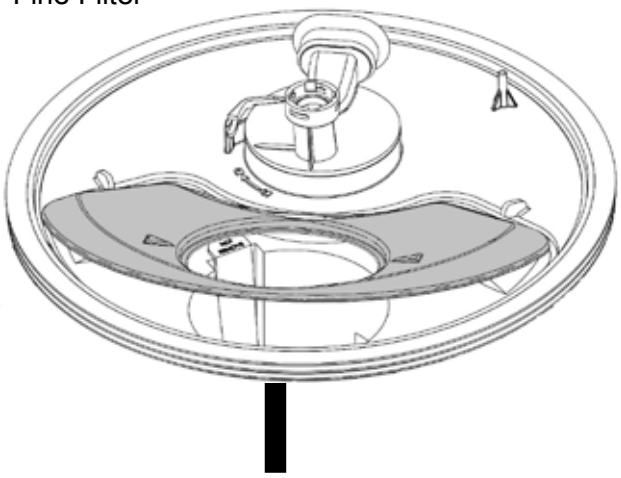
The Ultra-Fine filter is consumer removable with a twist lock design. The Owner's Manual advises the consumer to remove and clean every 60 days or more frequently depending on use. **NOTE**: Using brushes or scouring pads will damage the filter. To remove, turn the filter counter-clockwise and lift from the sump.

Ultra-Fine Filter



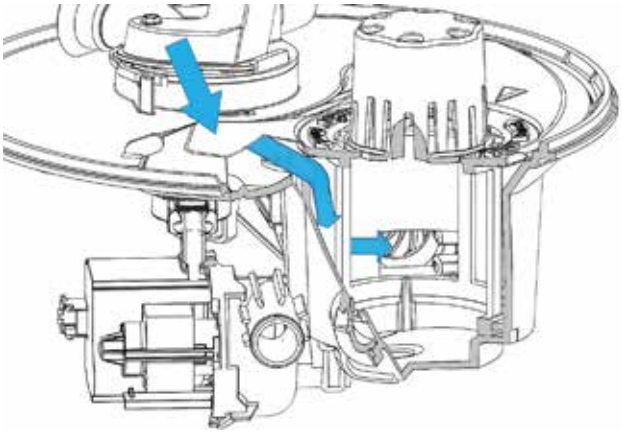
The Fine Filter is located on the sump assembly and should be cleaned each year or as needed for optimum performance. To remove the fine filter, remove the ultra-fine filter and lift the front of the fine filter to release it from the rear tabs on the sump.

Fine Filter

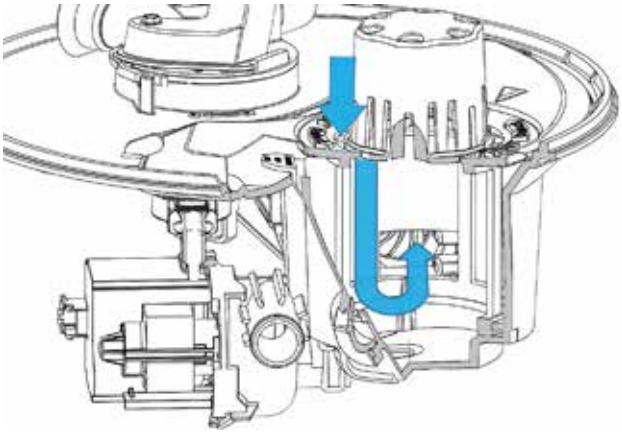


Water is filtered as water flows through both fine and ultra-fine filters. Clean filtered water provides for improved washability.

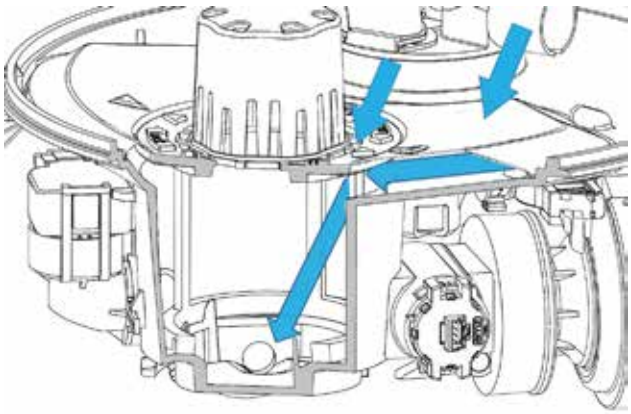
The Fine Filter water path is shown below. Water passes through the fine filter and flows on the outside of the ultra-fine filter; passes through the turbidity sensor and into the circulation pump.



The ultra-fine filter water path is shown below. Water enters the top of the filter, into the sump and through the ultra-fine filter mesh screen. The water mixes with the water that has passed through the fine filter, passes the turbidity sensor and into the circulation pump.



When the dishwasher drains, water is pulled through the ultra-fine filter to help clean it and out the drain port.

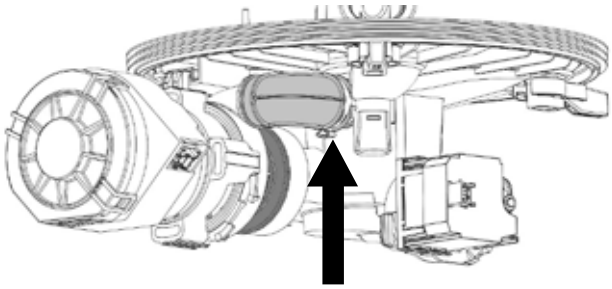


Circulation Motor and Pump Assembly

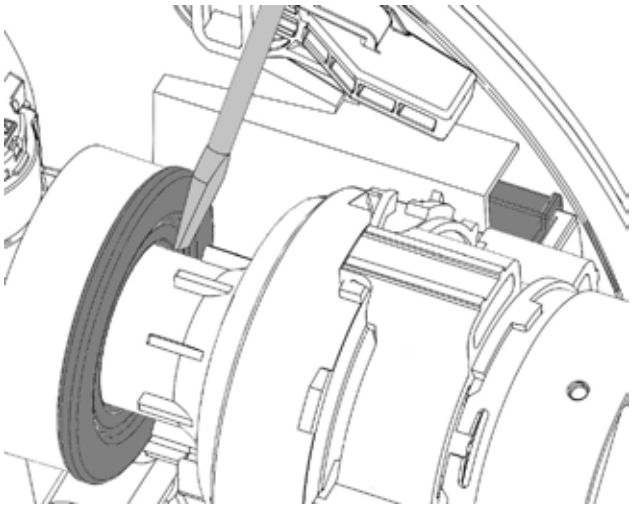
The circulation motor is a DC Brushed Motor; it has onboard AC to DC rectification. Resistance cannot be properly checked on this motor because of the rectifier and diodes inside the motor shield.

Circulation Pump Motor Assembly Removal

1. Disconnect power to the dishwasher. Remove the toe kick panel, door and sump (see **Door Removal** under **Door**, and **Sump Module Removal** under **Sump Module**, in the **Tub and Structure** section of this guide).
2. Loosen the outlet wash motor (diverter) clamp.

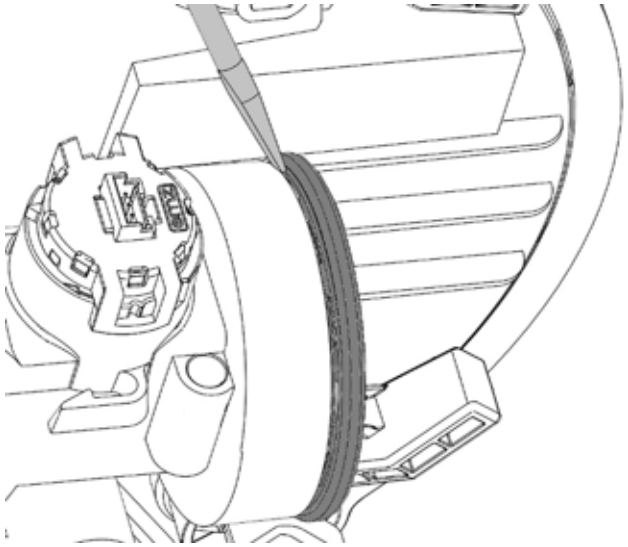


3. Use a large flat-blade screw-driver to slide the circulation motor out of the floating seal. As the pump assembly is removed from the seal, slide the wash motor off of the hanger (use care to not lose the hanger grommet), and remove and discard the one time use clamp.

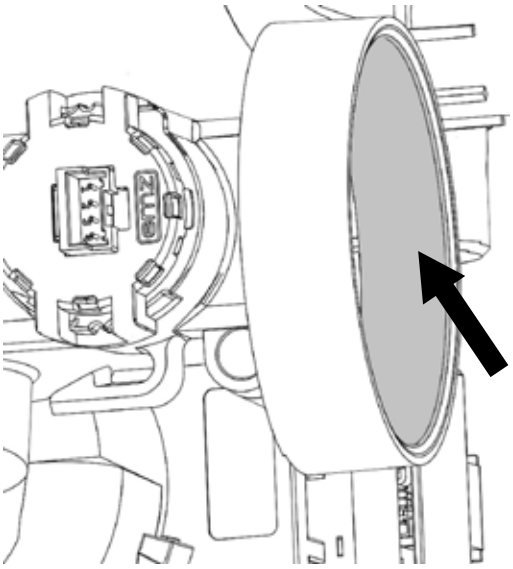


WARNING: GE Factory Service Technicians are REQUIRED to follow Lockout / Tagout (LOTO) 6 Step Process prior to beginning repair.

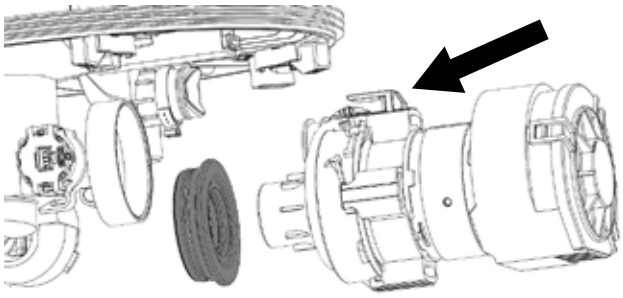
Use the flat-blade screw-driver to remove the floating seal from the sump, using care not to damage the inside sealing surface.



Floating Seal Sealing Surface



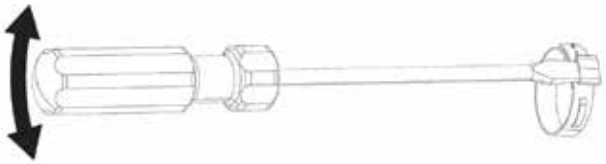
Pump Assembly Grommet



For diagnostic information, please see the **Motors Fuse**, located under **No Circulation and Drain** in this section of this guide.

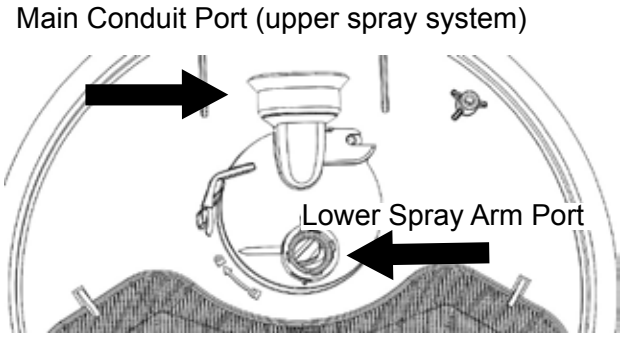
(*Continued next page*)

Clamp Removal Tip: Use a small screw-driver inserted into the ear of the clamp and move the handle back and forth to loosen the clamp. The clamp can be removed and discarded when the component is removed. The clamp kit (**Part #**: WD02X25470) contains a single clamp for the diverter connection.

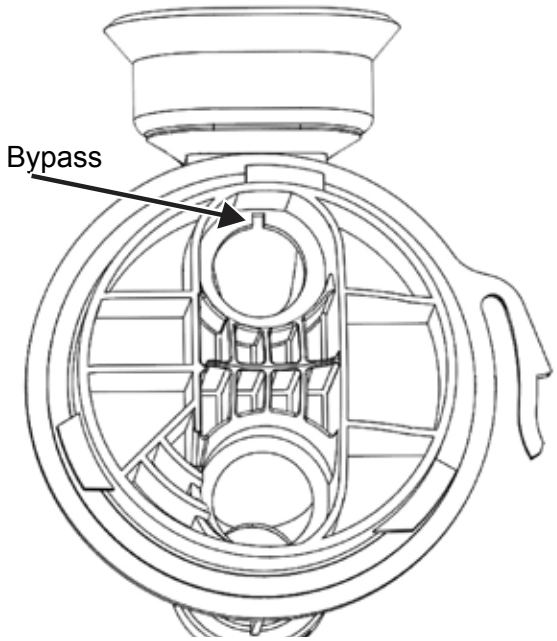


Two Port Diverter

The Diverter is the key component which allows low water use, by alternating water to the lower spray arm or mid spray arm, bottle wash (some models) and upper spray system.

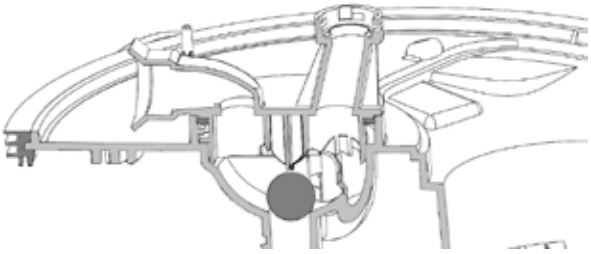


The lower portion of the diverter is molded into the sump. Shown below is the bottom side of the diverter top. Notice the bypass notch in the upper spray system port.

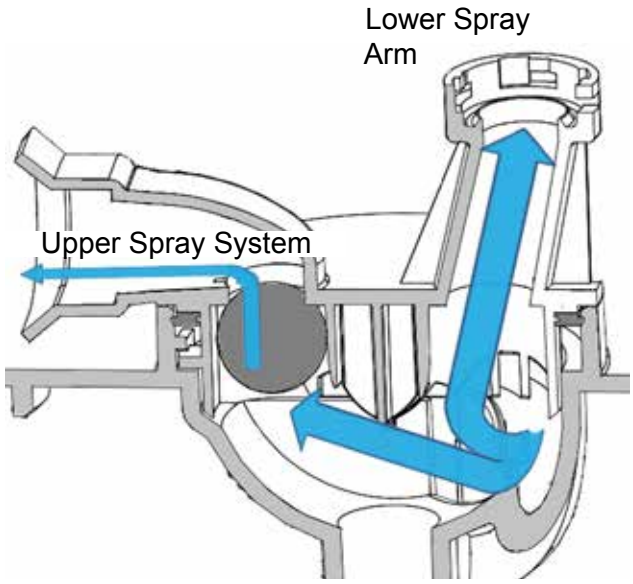


Operation

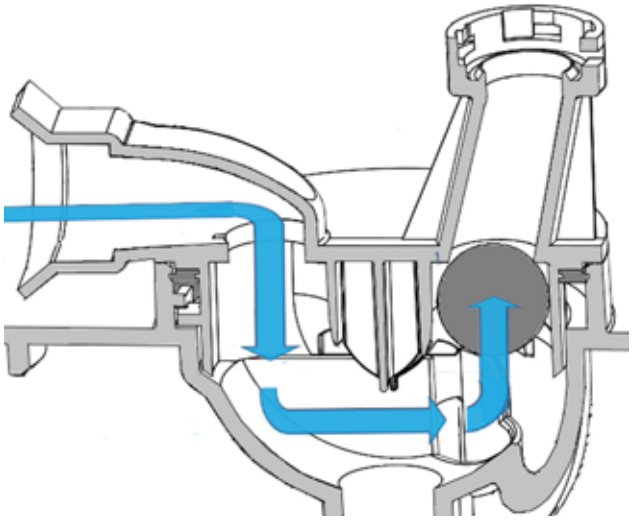
- The “Bypass” allows water to bypass the check ball in the diverter as described in the next step. The dishwasher is in Off or Standby mode, no pump operation. The check ball is at the bottom of the diverter.



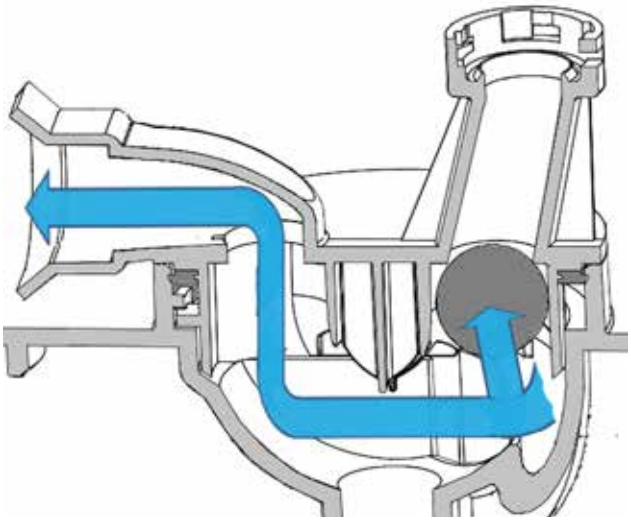
- The wash pump turns on, water flows to the lower spray arm, and the check ball blocks the rear port or upper spray conduit. The bypass allows low pressure and low volume water to enter the main conduit, filling the conduit with no actual spray from the mid and upper wash components.



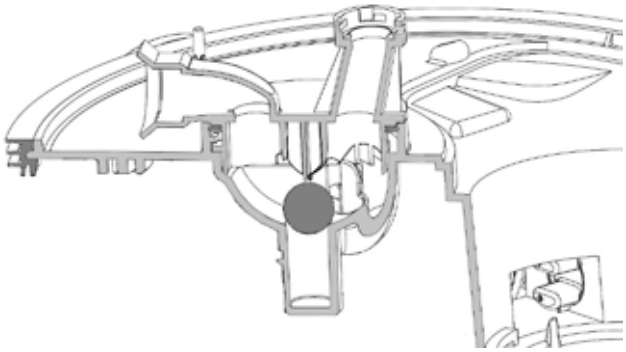
- The wash pump cycles off for one second. Water that is in the rear conduit forces the check ball to the lower spray port.



- The wash pump cycles on, and water pressure keeps the check ball positioned to block water entering the lower spray arm. Water flows to the mid spray arm and upper sprayer.



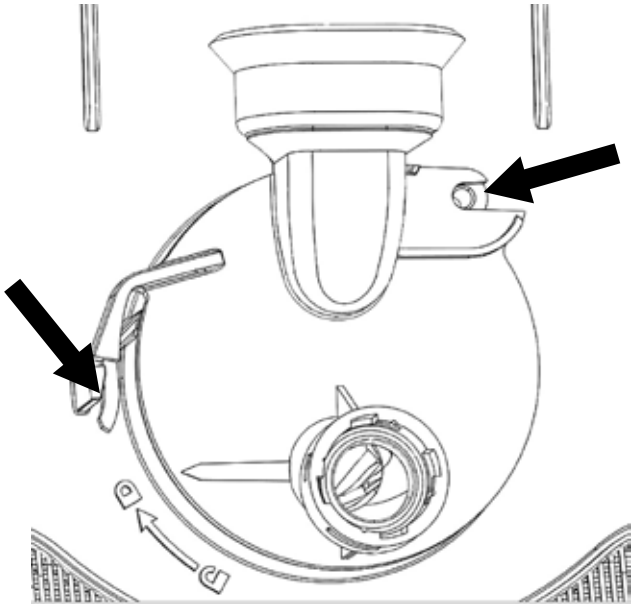
- The wash pump cycles off for eight seconds. The water pressure in the spray arms equalizes, and the check ball is in the bottom or home position.



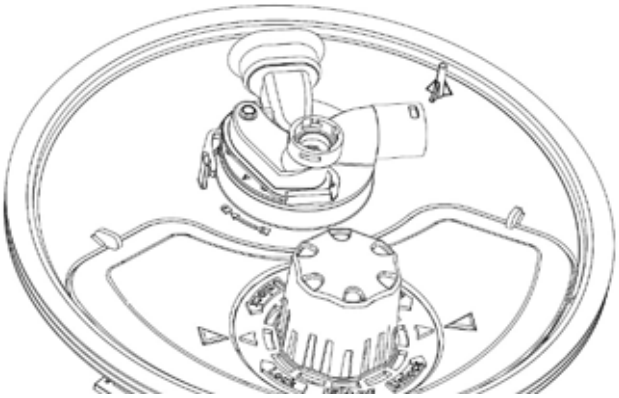
- When the wash pump starts, the check ball again seals the rear port or upper spray arms. The cycle repeats.

Two Port Diverter Removal

The diverter top may be removed by removing one 1/4-in. hex-head screw and pressing in on the locking tab and turning counter clockwise to remove. Removing the top will expose the diverter check ball.



Pressure Diverter (Four Port)



The Diverter is the key component which allows lower water use, by alternating water to the:

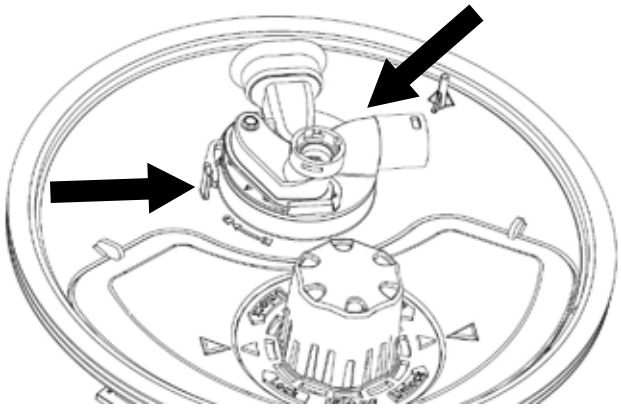
- Lower spray arm
- Silverware wash
- Mid/upper spray system (bottle wash)
- Mid spray arm and upper spray system) or lower spray arm reverse (some models)

Operation

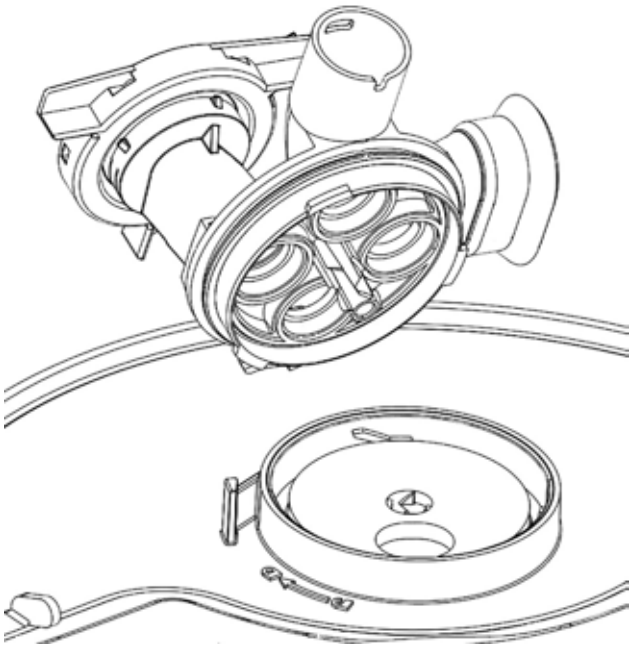
The rotation of the pressure diverter is counter-clockwise as viewed from the top. The control will seek the lower primary as the start of the circulation cycle. Lower reverse and silverware wash are only used during the main wash segment of a cycle. A short spray will be detected from the silverware wash, mid and upper spray systems as well as the lower reverse until the diverter is positioned to the lower primary port.

Pressure Diverter Removal

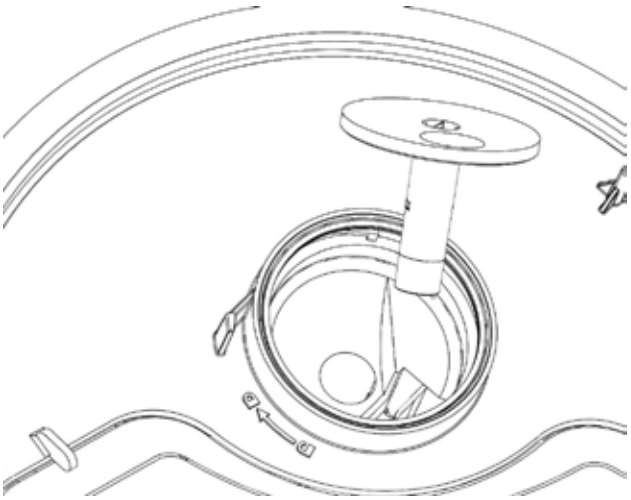
The diverter top may be removed by pressing in on the locking tab and turning counter-clockwise to remove.



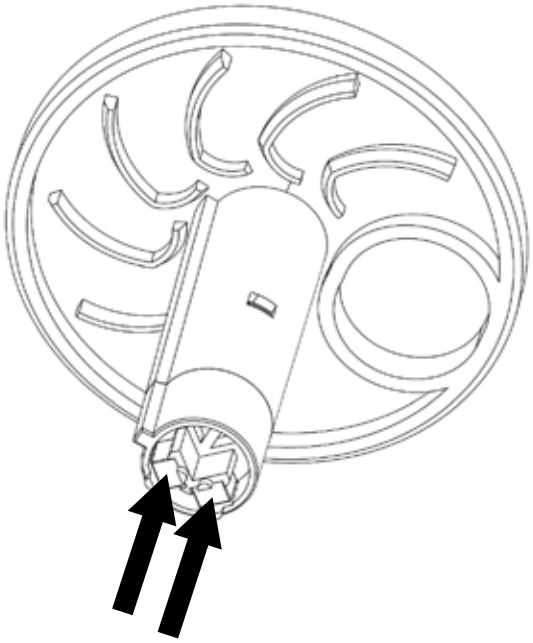
Lift to remove the diverter top and access the diverter plate.



The diverter plate may be lifted out of the diverter body. The diverter body is molded into the sump.



This view illustrates the bottom of the diverter to show magnets located on the bottom of the diverter plate.



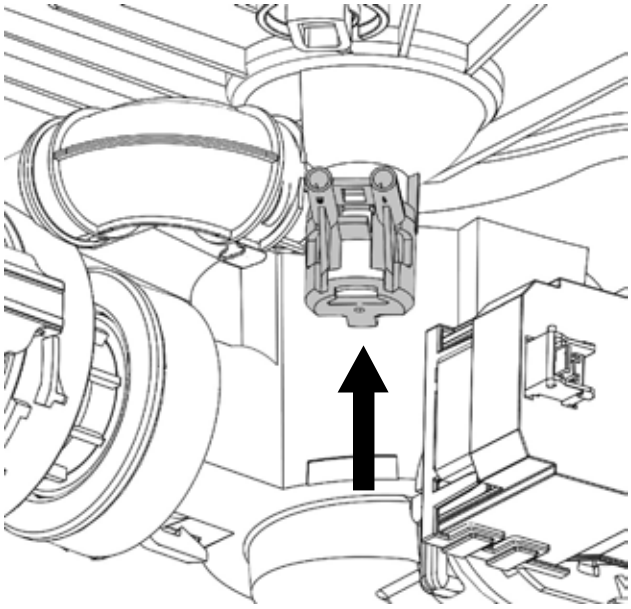
Pressure Diverter Switch

Operation

A diverter sensor is used to detect the position of the diverter. A sensor contains two reed switches used on the outside of the diverter. The sensor is part of the DC harness.

The main control seeks the Lower Primary as the first full circulation segment in the main wash, followed by Lower Reverse wash, Upper Spray System (which includes Mid Spray Arm), bottle wash and upper spray system. Silverware Wash is the last of the rotation before repeating the full rotation until the main wash is complete. Silverware wash and lower reverse are not used in pre- or post-rinse segments of the cycle.

- **Lower Primary**
- **Lower Reverse**
- **Mid and Upper Spray Systems**
- **Silverware Wash**



Appearances may vary throughout this service guide. Some models do not have all features shown or may be different depending the model number.

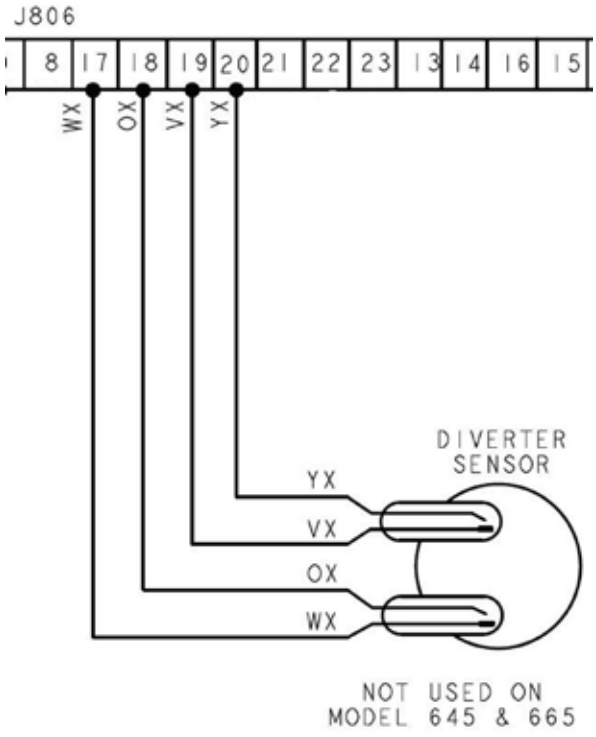
Pressure Diverter Sensor / Switch Diagnosing

Use a Clear Door (**Part #**: WX05X20002) to diagnose an inoperative diverter. If a diverter is not changing positions when the circulation motor stops and starts, and the dishwasher has proper water level with a normal spray pattern on the zone that is working, the diverter is mechanically inoperative and should be replaced.

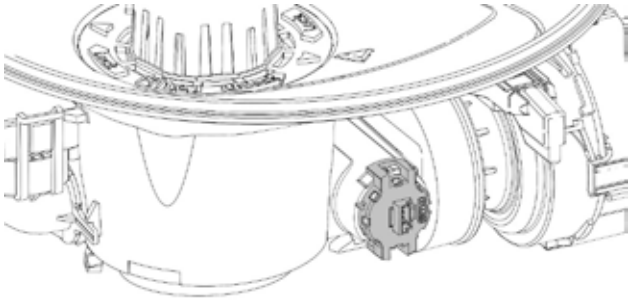
A dishwasher that starts and stops every 3 to 5 seconds, may indicate low water level or a bad sensor/switch. If the water changes wash zones as viewed with the clear door, the sensor/switch, connections or harness may be at fault.

A magnet can be placed on the end of the sensor/switch to activate and test the switches. Each switch will close as the magnet triggers as described below.

1. Access the sensor (see **Sump Module Removal** section of this service guide).
2. Push in on the tab to release the sensor and lift up to remove.
3. Access connector J806 on the main control.
4. Continuity can be checked across **white**/**orange** (pin 17 and pin 18) and **violet**/**yellow** (pin 19 and pin 20). An open circuit should be read. To close each switch, place a magnet at the end of the sensor to close the switch.



Turbidity Sensor and Thermistor



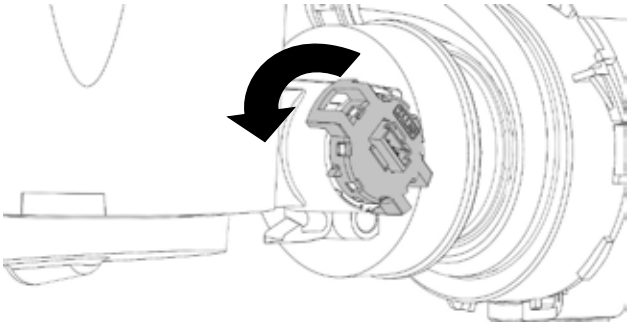
Operation

The Turbidity Sensor measures the amount of suspended particles in the filtered wash water. The Thermistor is also located within the turbidity sensor. The sensor assembly contains a LED transmitter which emits light and a receptor (similar to a photo-cell) which receives light. The wash water passes between the transmitter and receptor, the control interprets these readings to determine the soil level and if any prewash or rinse cycles may be skipped. The cycle design sets parameters to a maximum cycle length; and the turbidity response will shorten the overall cycle length if the soil level is below the cycle preset specifications. By measuring several times during a cycle to monitor soil levels, energy can be saved by removing unneeded rinses, thus shortening the overall cycle time.

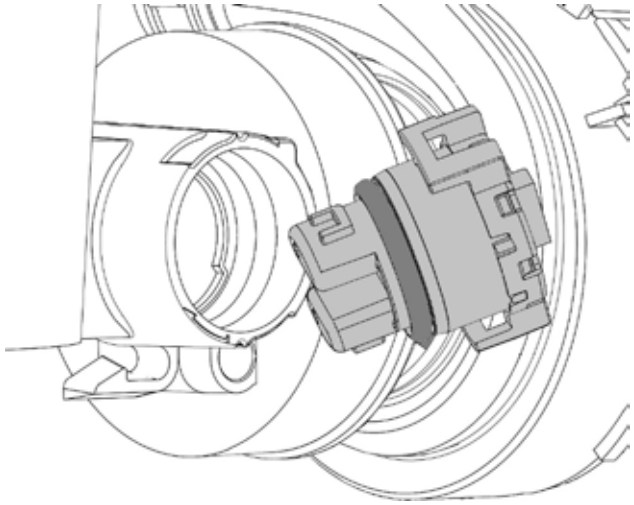
If the turbidity sensor fails open or shorted, the control will default to the maximum fills and circulation time that the control is programmed for.

Turbidity Sensor Removal

1. Turn the sensor counter-clockwise.



2. Pull the sensor out of the sump.



Thermistor

The Thermistor is located inside the turbidity sensor. The thermistor monitors water temperature in the tub. If the thermistor opens or shorts it will cause an error (see **Consumer Error Mode** in the **Electronic Controls** section of this service guide). If it fails in open or shorted, the control will default to the longest time algorithm.

Thermistor Specifications

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

Turbidity Sensor Calibration

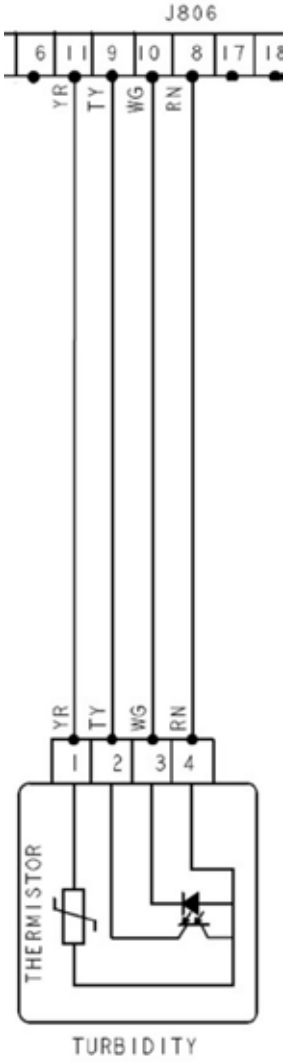
Calibration occurs every 100 cycles. After the final rinse but before dry, the control will add three extra rinse cycles. The first cycle will fill, circulate two minutes and drain. The second cycle will be a fill and drain. The third cycle will be a fill, circulate, calibrate and drain. The cycle will now advance to dry and complete.

Replacement controls will enter a calibration at the end of the first cycle that the control completes, as mentioned above. If the first cycle is interrupted and calibration does not occur, calibration will retry on the next cycle, until it is completed. Calibration will not occur on demand.

Turbidity Sensor Diagnostics

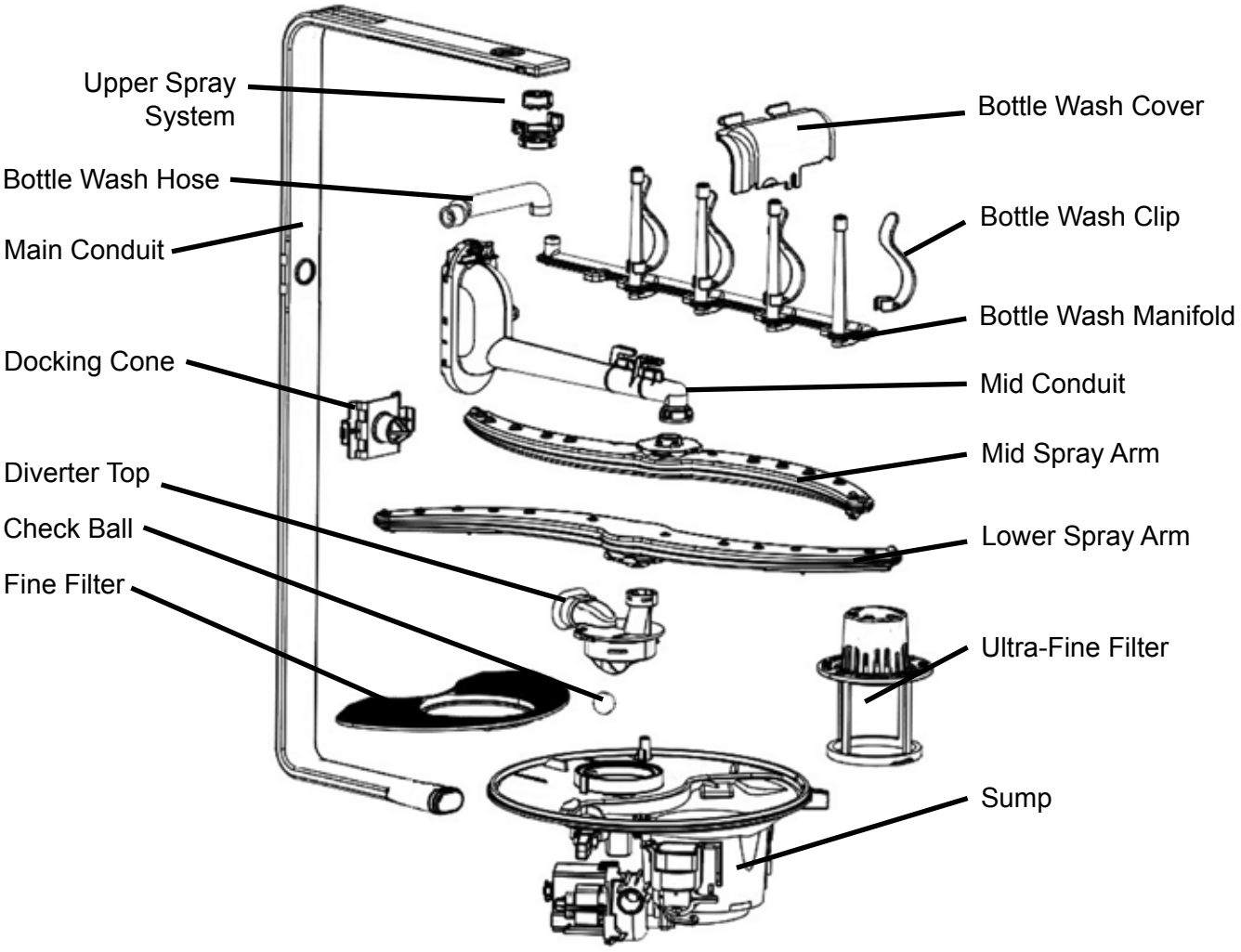
If the turbidity sensor fails open or shorted, the control will default to the maximum fills and circulation time that the control is programmed for. Use **Consumer Error Mode** to look for Turbidity Sensor Faults.

To check the thermistor, access the Main Control (see the **Electronic Controls** section of this service guide), check resistance on connector J806, pin 11, YR to pin 8, RN. The sensor may also be removed and the two outside terminals may be checked. Use the table to the left to calculate the correct resistance reading.



Conduits and Spray Arms

Appearances may vary throughout this service guide (Two Port model shown below). Some models do not have all features shown or may be different depending the model number.

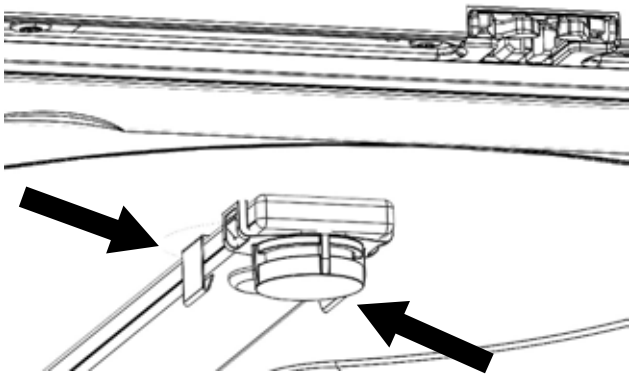


Main Conduit

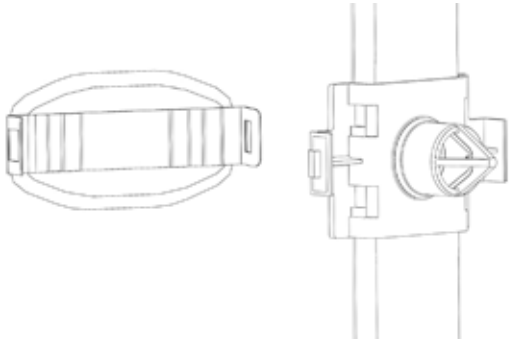
The Main Conduit supplies water to the mid spray arm, bottle wash and the upper spray system.

Main Conduit Removal

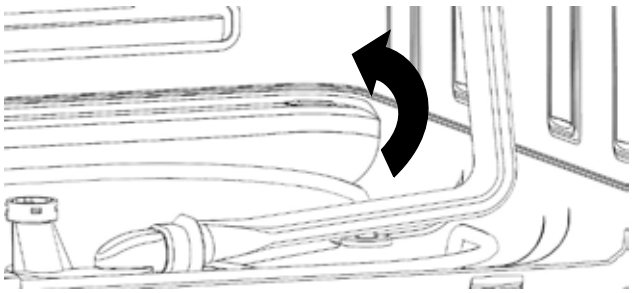
1. Remove both lower and upper racks.
2. Remove the lower spray arm.
3. Unclip the top of the conduit from the tub clip at the tub top.



4. Remove the mid spray arm docking port by releasing the tabs on each side of the docking cone. The docking cone will remain attached to the main conduit.



5. Pull the top of the conduit out of the dishwasher to remove the bottom from the diverter top.

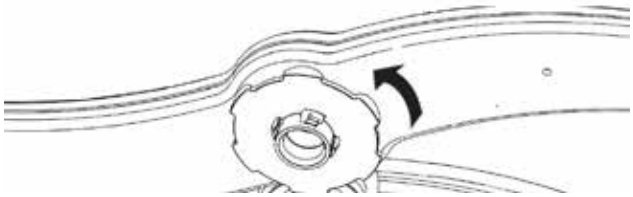


Spray Arms

Lower and Mid Spray Arms are twist lock design and are the similar size and shape. The lower spray arm has heat shields on the bottom and is attached to the diverter. It is possible to reverse the spray arms, which will result in poor washability complaints. Care must be taken to reassemble in the proper position. Some models have an upper spray system which is also twist lock.

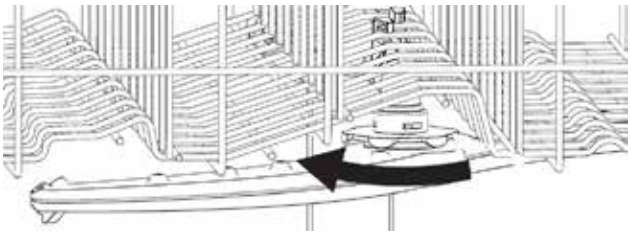
Lower Spray Arm

The Lower Spray Arm provides an upward directed water flow, which turns clockwise when in operation. The arm, bearing, and nut come as a complete assembly and has a twist lock design. To remove, turn the nut counter-clockwise. Only the lower spray arm has heat shields.



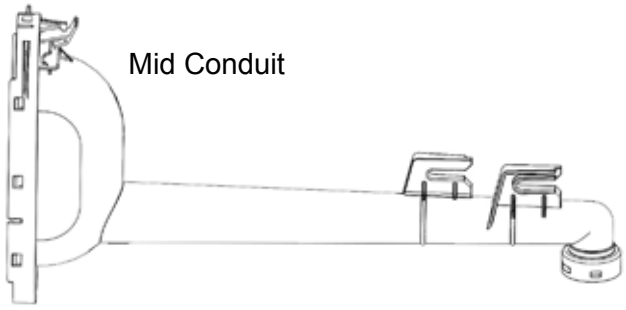
Middle Spray Arm

The Mid Spray Arm provides an upward directed spray pattern to the upper rack. To remove the mid spray arm, turn the nut clockwise (looking down through the upper rack).

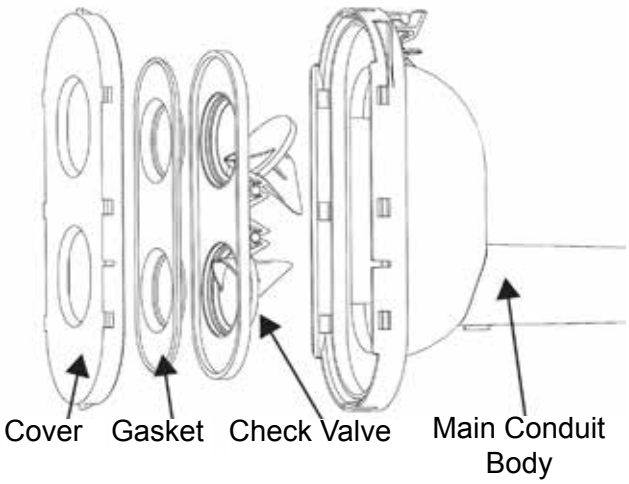


Middle Conduits

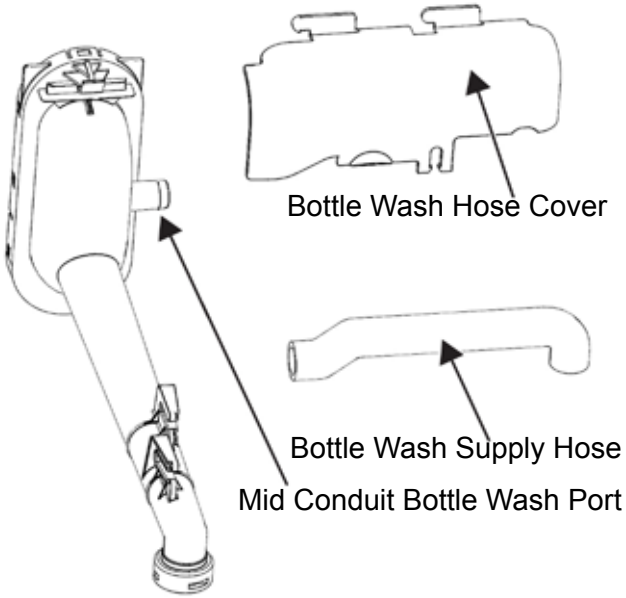
The Mid-Level Conduit supplies water from the main conduit to the mid spray arm and bottle wash feature (some models). All models have adjustable racks. An adjustable conduit is used to allow proper engagement of the main conduit to the mid conduit in both rack positions.



The adjustable conduit has an internal check valve to block wash water from exiting the wash system, keeping water directed into the mid spray arm. The middle conduit is replaced as an assembly, and individual parts for the assembly are not available separately.



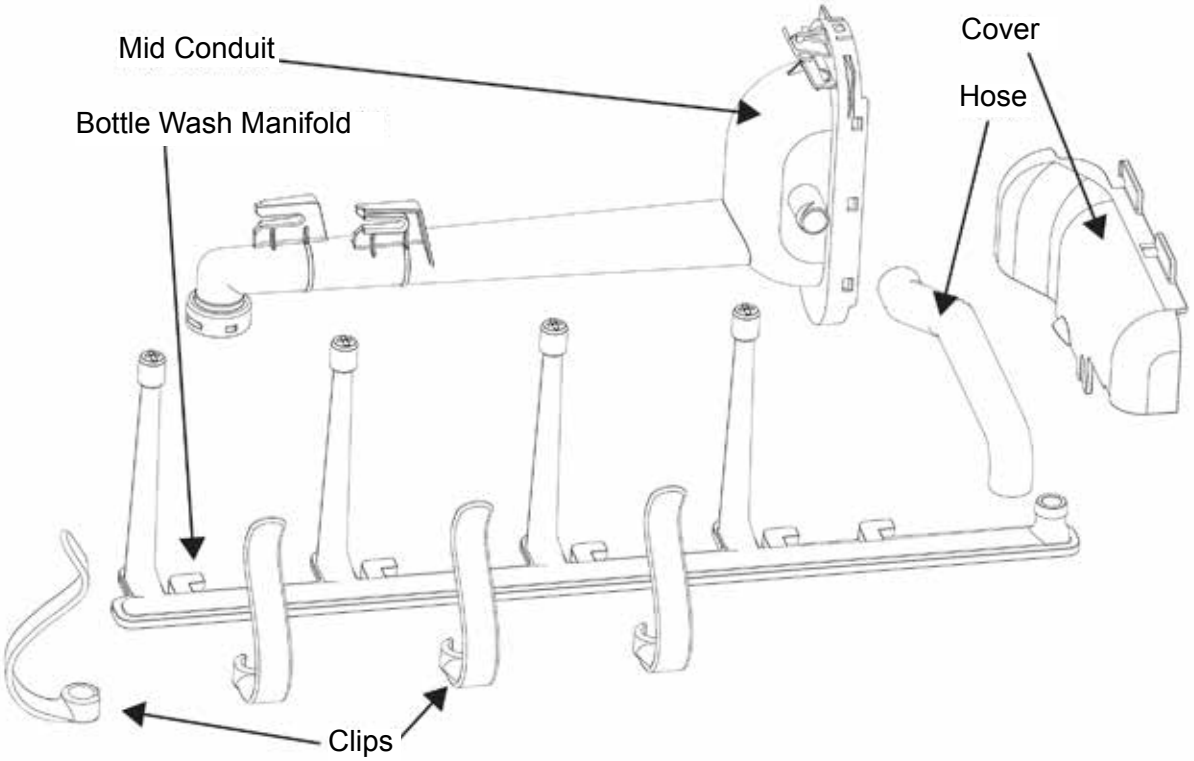
Some models have a port on the right side to allow water flow to the bottle wash feature.



Bottle Wash System (Some Models)

The Bottle Wash is designed to wash sports bottles, baby bottles, or any dishwasher safe container with a smaller mouth which blocks water from entering the container using normal spray arm jets. This feature insures clean containers. Water is active anytime that the upper spray arm is operational.

Selecting the bottle wash option on the control changes the wash algorithm. The upper spray arm and bottle wash jets are cycled for a longer time, and 23 minutes is added to most cycles when selected. Illustrations for the bottle wash system and removal may be found under **Upper Rack** in the **Racks** section of this service guide.

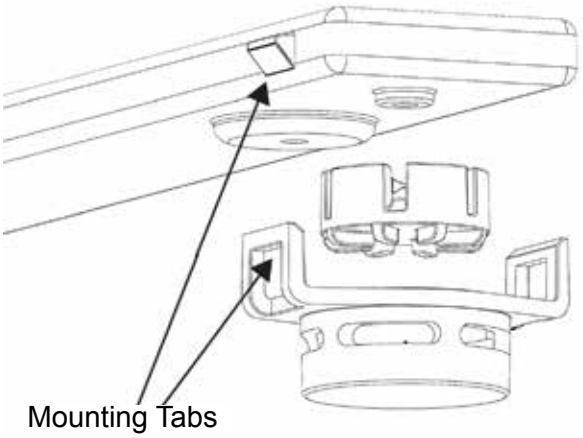


Upper Spray System

The upper sprayer provides a gentle shower down to the top rack.

The spray bracket is attached to the main conduit by means of tabs.

To remove the upper spray system, use a small screw-driver to release the spray system bracket tabs from the main conduit.



Drain System

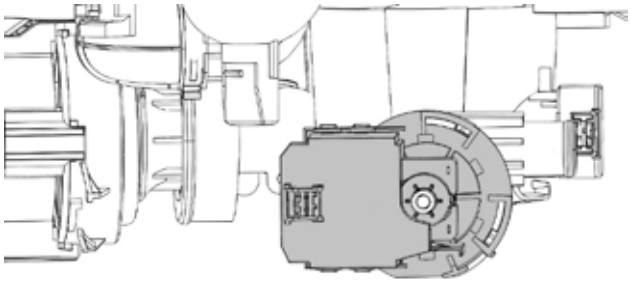
Operation

The Drain Pump operates on 120 VAC.

Drain water will back flush the fine filter through the coarse filter, allowing food particles to settle through the floor plate and into the drain pump. It may be normal for the drain pump to start and stop several times during a drain cycle if the pressure sensor does not detect a drain.

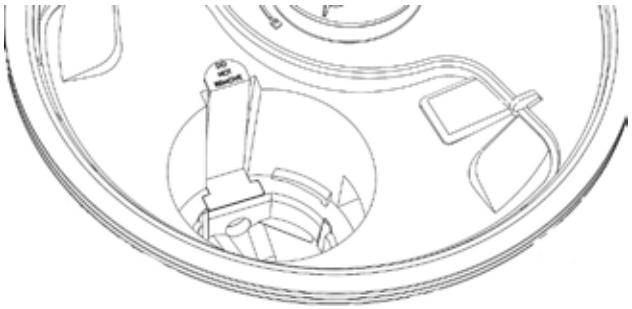
Drain Pump Diagnostics

If the fuse for the motors (located on the main control) is found open, remove connector J703 from the control and check the **blue** to **yellow** wires using a multimeter on the highest resistance setting. If the reading is between 0.3 – 5.0 mega-ohms then that would indicate a good pump. If it measures OL (OverLoad), it indicates an open circuit and that the drain pump is bad. If the drain motor checks OK, replace the circulation pump motor.

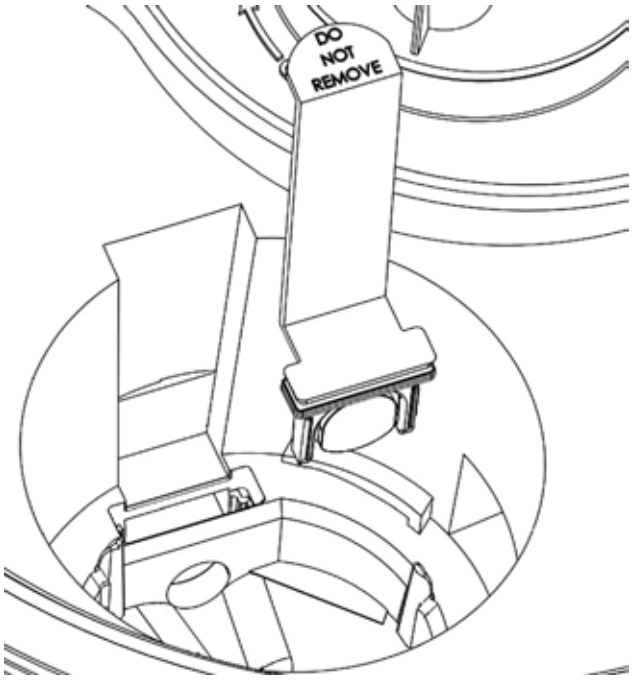


Drain Components

The Drain Pump is located on the left side of the sump assembly and uses a twist lock connection to the sump. As described in the sump section of this guide, a drain check valve is located inside the sump collection chamber.

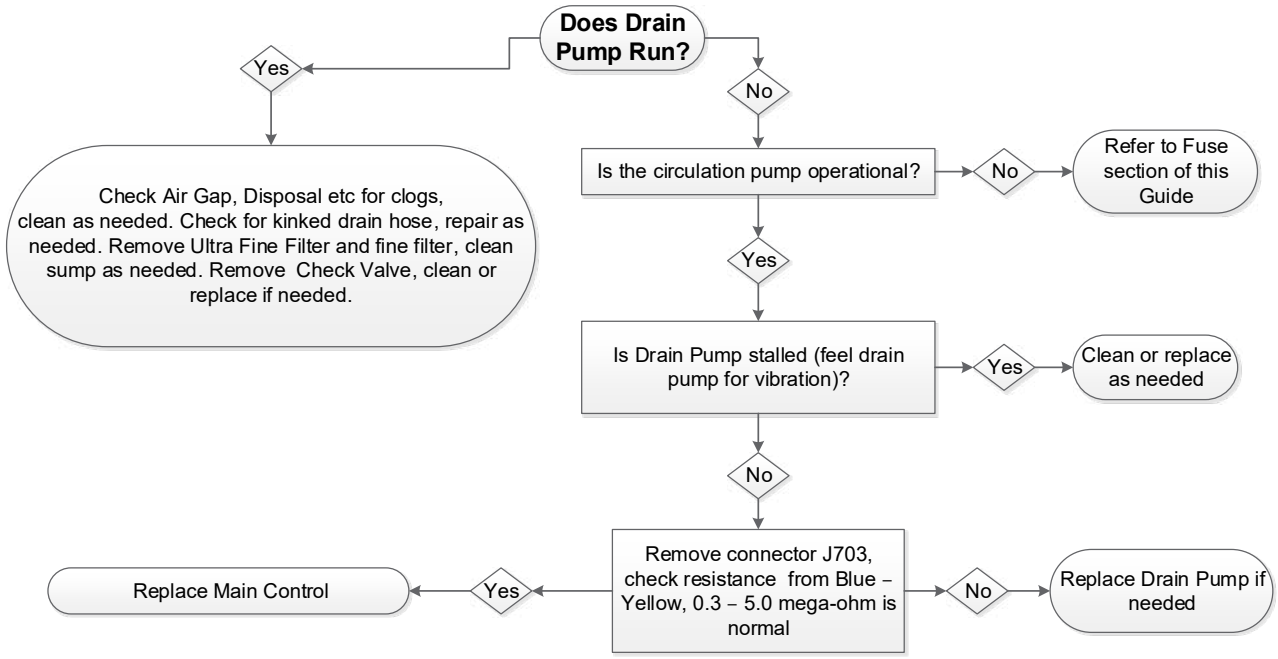


It can be removed by lifting the bracket out of the sump.



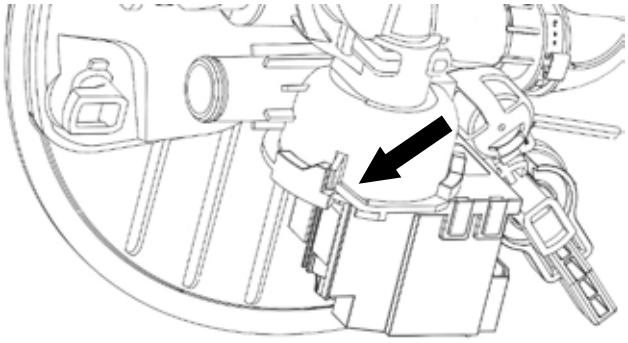
The do not remove note on the check valve bracket is meant for the consumer.

Drain Pump Strip Circuit

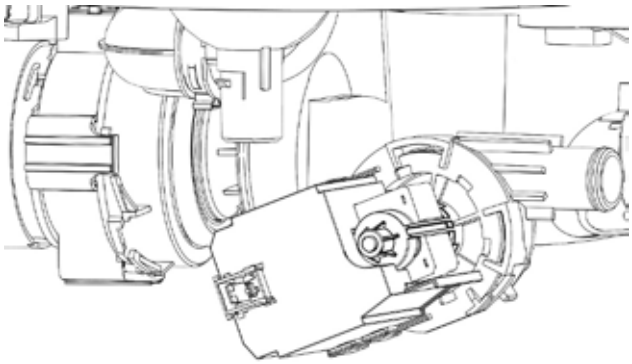


Drain Pump Removal or Replacement

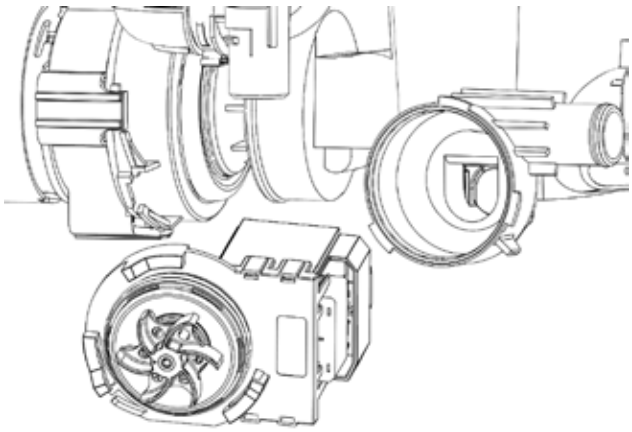
1. Remove power to the dishwasher.
2. Remove the door (see **Door Removal**, under **Door**, in the **Tub and Structure** section of this service guide).
3. Remove the sump assembly (see **Sump Module Removal**, under **Sump Module** in the **Tub and Structure** section of this service guide).
4. Press in on the locking tab.



5. Rotate the pump assembly counter clockwise (as viewed from the front of the pump) to remove.



6. Pull out on the pump to finish removal.



Dry System

Introduction and Operation

The dual wattage Calrod Heater serves both to heat the water during a wash cycle and to heat the air during the dry cycle. Heat and air circulation are required for good dry performance. Air circulation is natural convection with air entering through the fill funnel, then exiting through the vent on some models. Some models have a power fan in the door to aid drying.

Dual wattage occurs due to the heat level in the element raising the resistance of the internal element. As water quenches the heat on the case, resistance lowers and wattage rises.

During dry, the heat element cycles after an initial 6 minute ON time to 60 seconds OFF, 60 seconds ON for 28 minutes during a Normal cycle with no wash boost options selected. Boost wash options will change the time needed due to hotter temperatures in rinse for options and cycle selected. The table below advises heater algorithms and dry times.

Heated Dry Element Algorithm

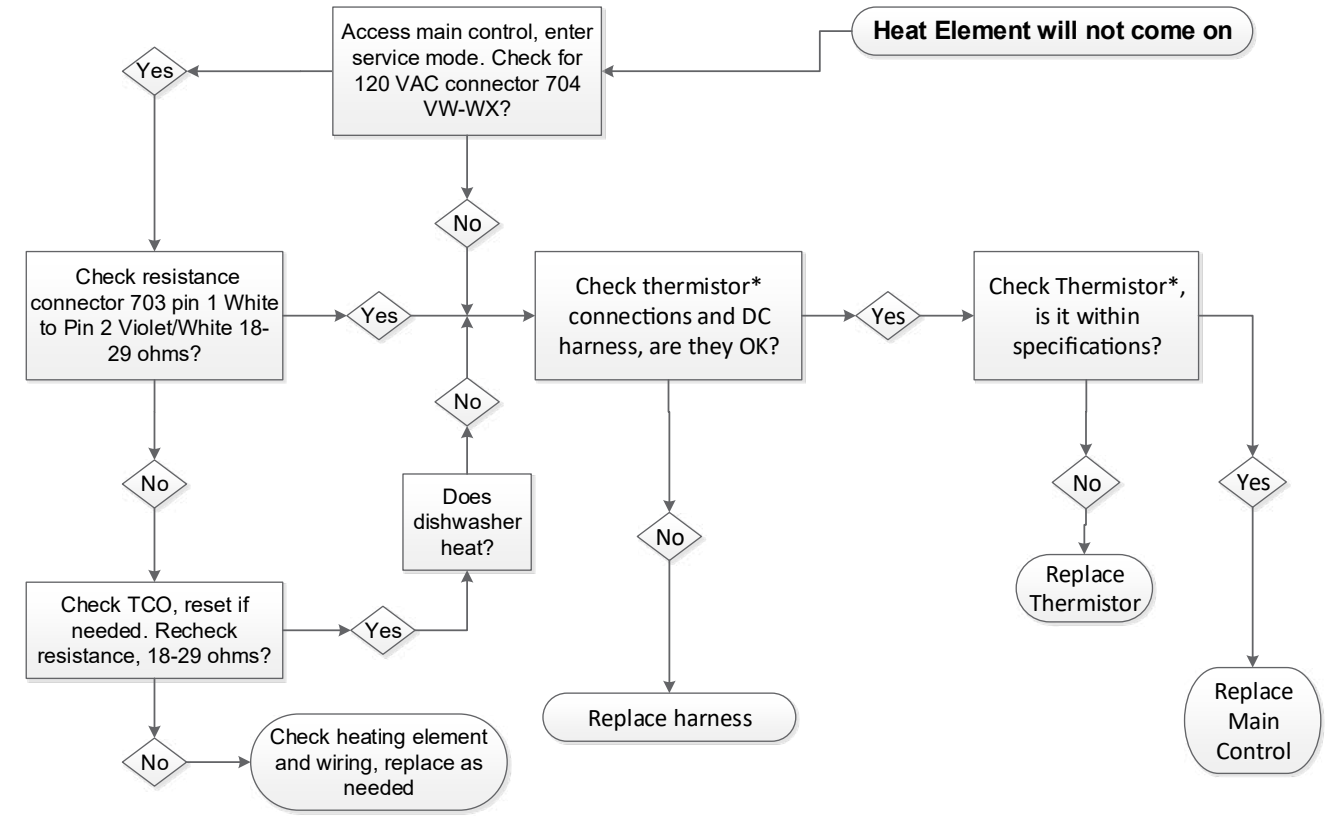
4 Pass Heater Algorithm, Dry Cycle	
Normal with Heated Dry	
Time (minutes)	**Calrod Description**
7	Calrod on
27	Calrod Pulse - 2 minute on/1 minute off
14	Calrod off - Cool Down
Normal with Temp Boost or Sani Selected	
7	Calrod on
57	Calrod Pulse - 2 minute on/1 minute off
Normal with Boost Dry	
7	Calrod On
57	Calrod Pulse - 1 minute on/1 minute off
15	Calrod Off - Cool Down

Specifications

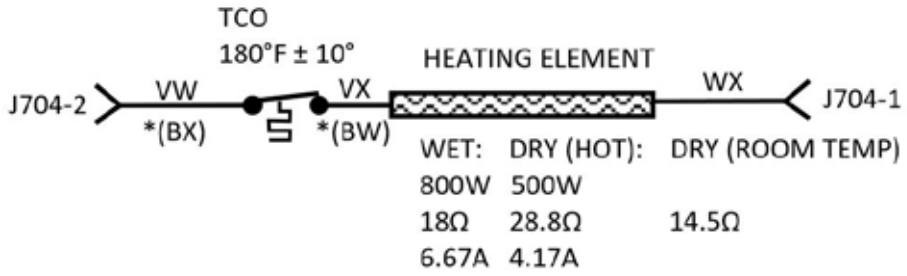
The Calrod Heating element is rated at 120 VAC.

Heater 120 VAC			
	Wet	**Dry**	
Watts	800	500	+/- 5%
Ohms	18	26.8 (hot) 14.5 (Room Temp)	+/- 5%
Amps	6.67	4.17	+/- 5%

Diagnostics



Strip Circuit



WARNING: GE Factory Service Technicians are REQUIRED to follow Lockout / Tagout (LOTO) 6 Step Process prior to beginning repair.

Heat Element Removal

The heater may be removed by one of two methods. The first method requires door and sump removal to gain access to the element nuts. The second method requires the dishwasher be removed from its installation.

Element Removal Without Uninstalling the Dishwasher

1. Disconnect power to the dishwasher.
2. Remove the lower rack.
3. Remove the door (see **Door Removal** under **Door** in the **Tub and Structure** section of this service guide).
4. Remove the sump assembly (see **Sump Module Removal** under **Sump Module** in the **Tub and Structure** section of this service guide).
5. Disconnect the two wire leads to the heater.
6. Remove the two 15/16-in. heater nuts.
7. Remove the heater from inside the dishwasher.

Element Removal by Uninstalling the Dishwasher

1. Disconnect power to the dishwasher.
2. Remove the lower rack.
3. Remove the door (see **Door Removal**).
4. Remove the dishwasher from its installed position and place on its back.

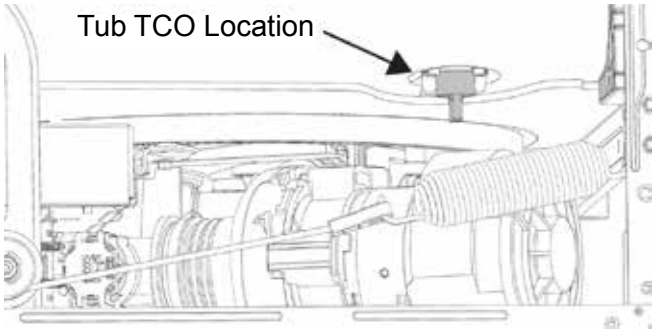
WARNING: If the door is not removed and the dishwasher is not placed on its back, there is a TIP RISK.

5. Disconnect the two wire leads to the heater.
6. Remove the two 15/16-in. heater nuts.
7. Remove the heater from inside the dishwasher.

Tub TCO

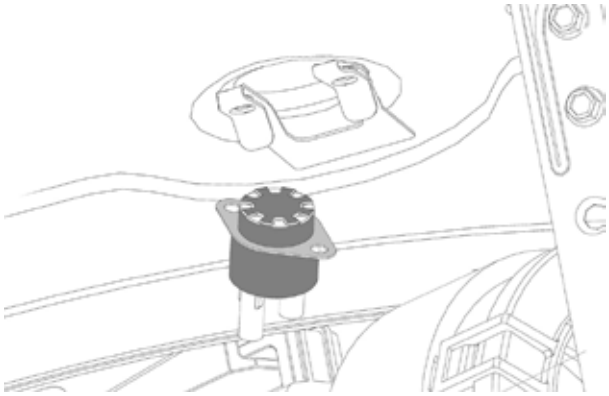
If the TCO is open, the thermistor must be checked. If the thermistor checks good, then the water level should be checked. A low water level may cause overheating of stainless steel tubs. The TCO is located on the right side of the tub, approximately 16 inches from the front of the tub.

The TCO is in a series circuit with the Calrod Heater.



No water or low water may cause the Tub TCO to trip. Always check for proper water level if the TCO is open.

The TCO is secured in place with a slide-in mounting clip.

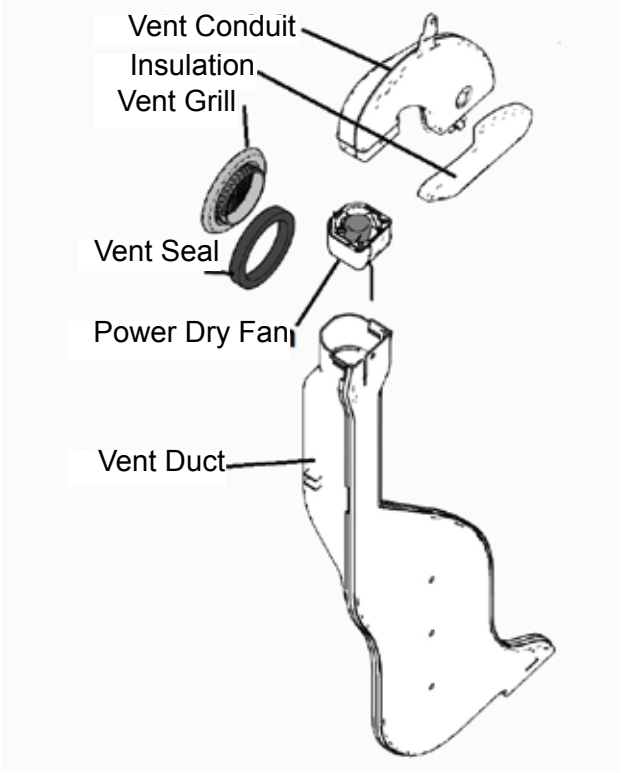


Venting/Airflow

To remove the vent, the door must be removed and separated (see the **Door** section of **Tub and Structure** in this service guide).

Power Dry Forced Air

This design also uses the Exposed Heater and adds a powered vent fan located in the door (see the **Door** section under **Tub and Structure** in this service guide for removal instructions).



Operation

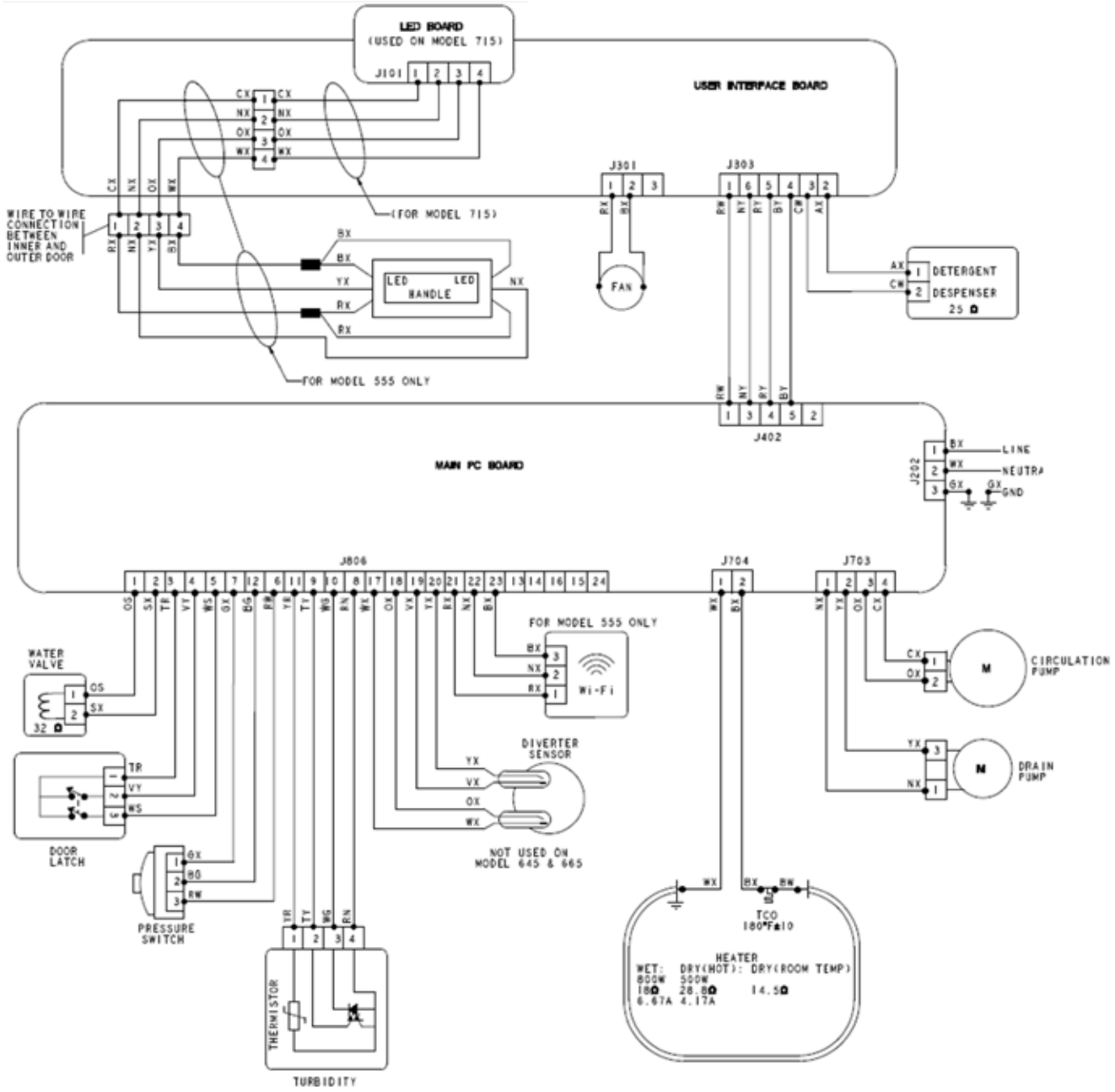
Heater operation is the same as the passive system. The fan is a brushless motor and operated by 13.5 VDC and runs at 6,000 RPM. There are no consistent resistance readings to make a viable ohm check. A power dry cycle is 50 minutes, then the Clean light comes on. If the consumer does not open the door, the fan will run an extra 90 minutes before shutting off. If the consumer opens the door, the fan will shut off and not restart should the door be closed and latched.

Diagnostics

The door will have to be removed and separated. The door can be plugged back in and put into Service Mode to make voltage checks. 12 to 14 VDC can be checked at the User Interface (UI) board, connector J402 (2-pin connector) from **red** to **black**.

Schematic

Appearances may vary throughout this service guide. Some models do not have all features shown or may be different depending the model number.



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