GE APPLIANCES
a Haier company

Technical Service Guide

April 2020

UltraFresh Front Load Washer

GFW510SCN*

GFW510SCV*

GFW550SPN*

GFW550SPR*

GFW550SSN*

GFW650SPN*

GFW650SSN*

GFW655SPV*

GFW655SSV*

GFW850SPN*

GFW850SSN*

PFW870SPV*

PFW870SSV*

PFW950SPT*

PFW955SPW*

31-9327

Rev.2 ~ *04/30/2024*

Safety Information

WARNING

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 Information

GE / Profile

geappliances.com

1. Search the model number.
2. Click the “Owner Support” tab.
3. Click on “Use and Care Manual.”
4. Locate the Warranty page.

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Safety Requirements

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

Plano-type Safety Glasses

Prescription Safety Glasses
Must be ANSI Z87.1-2003 compliant

Cut-resistant Gloves

Cut-resistant Sleeves

Electrically Rated Gloves and Cut-resistant Gloves

Composite or Steel-toed Work Shoe

WARNING

Prior to disassembly of the appliance to access components, GE Appliance Factory Service technicians are REQUIRED to follow this Lockout/Tagout (LOTO) six-step process:

Step 1: Plan and prepare
Step 2: Shut down the appliance
Step 3: Isolate the appliance
Step 4: Apply LOTO device and lock
Step 5: Control (discharge) stored energy
Step 6: Verify the appliance is locked out

Nomenclature

Model Number

P F W 9 5 0 S P W 0 D S

Brand
G: GE
P: Profile

Configuration
F: Front Load

Platform
W: Washer

Series/ Features

Product Type
S: Standard/Stationary

Partner Type
C: Contract Only
P: Premium (color adder)
S: Standard/Core Partner

Model Year
W: 2024

Engineering Revision:

Color
DG: Diamond Grey
GN: Forest Green
DS: Dark Slate
RS: Royal Sapphire Blue
SN: Satin Nickel
WW: White

Model number nomenclature can be used to determine features and specifications of the appliance.

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: LZ123456S = June 2024

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

The Mini Manual is located under the top cover, inside a plastic envelope, taped to the top of the dispenser assembly.

The Model Serial ID Tag is located on the front panel, behind the door, at the lower center of the door opening.

Common Icons and Terminology

Icons

Back Button:

This interactive button appears at the bottom-left of every page in the Service Guide. Click or press the Back Button to return to the previously viewed page (PDF only).

NOTE: This feature is useful when clicking a hyperlink to consult a different section; however, be aware that it also applies when scrolling through pages. Examples:

- If clicking a hyperlink on page 34 to jump to page 57, click the Back Button to return to page 34.
- If clicking a hyperlink on page 34 to jump to page 57, then scrolling to page 58, clicking the Back Button will return to page 57.

Diagnosing:

Removal:

WARNING:

Terms / Measurements

VAC Volts Alternating Current (ex: 120-VAC)

VDC Volts Direct Current (ex: 12.5-VDC)

ohm (Ω) Unit of electrical resistance (ex: 16Ω)

kΩ Kilo-ohm (ex: 0.41kΩ)

mm Millimeters (180-mm)

in. Inches (12-in.)

°F Degrees Fahrenheit (ex: 170°F)

°C Degrees Celsius (ex: 80°C)

CW Clockwise

CCW Counter-clockwise

N.O. Normally Open (N.O.)

N.C. Normally Closed (N.C.)

Common Tools

Multimeter: Used to test voltage, current, and resistance of electrical components or circuits; also called an **ohmmeter**

Phillips-head: Type of screw head, driver, or bit with four points in a cross-shaped pattern

Flat-head: Type of screw head, driver, or bit with one straight, flat side; also known as **flat-blade** or **slotted**

Hex-head: Type of screw head, driver, bolt, or bit with a six-point hexagon pattern

Star bit: Type of screw-driver bit with six points instead of flat sides; also called a **Torx bit**

Allen wrench: Used to remove or tighten specific types of bolts; also called a **hex key**

Tongue-and-Groove Pliers: Type of plumbing pliers with an adjustable pivot; also called **water pump pliers**, **multi-grips**, or **Channellocks** (brand name)

Putty-knife: Wide, flat metal tool used for applying putty or prying apart components

Specifications

WARNING **Electrical Shock Hazard**

Death or serious injury can result from failure to follow these instructions:

- **Service on this appliance must be conducted by a qualified GE Appliance service technician only.**
- Disconnect power before servicing this appliance.
- Reconnect all grounding devices after servicing this appliance.
- Replace all parts and panels before operating this appliance.

Product Specifications

Overall Depth	32-in. (GFW655/650/550/510) 34-in. (PFW955/950/870/GFW850)
Overall Height (Leveling Legs Retracted)	39-3/4-in.
Overall Height (Leveling Legs Extended)	40-5/8-in.
Overall Width	28-in.

Electrical Specifications

Drive Motor	3.5Ω +/- 7%
Water Valve Coil	1070Ω +/- 10%
Door Lock Coil	120Ω+/- 8%
Vent Damper Motor	4.3 kΩ +/- 30 Ω
Over Night Ready/ ONR Fan	AC TO DC CONVERTER, CAN'T MEASURE
Drain Pump Motor	19.5Ω +/- 10%
Heater	14.85Ω +/- 5%

Thermistor Resistance Table

Temp (°C)	Temp (°F)	Resistance Ω
-10	14	548722
-5	23	45778
0	32	35975
5	41	28516
10	50	22763
15	59	18279
20	68	14772
25	77	11981
30	86	9786
35	95	8047
40	104	6653
45	113	5523
50	122	4608
55	131	3856
60	140	3243
65	149	2744
70	158	2332
75	167	1990
80	176	1704
85	185	1464
90	194	1262
95	203	1093
100	212	949.9

Installation

Location Requirements

The washer should be installed on a floor strong enough to support it fully loaded.

It should NOT be installed in the following locations:

- In an area exposed to dripping water or outside weather conditions. The ambient temperature should never be below 60°F (15.6°C) for proper washer operation.
- On carpet. The floor MUST be a hard surface with a maximum slope of 1/2″ per foot (1.27cm per 30cm). To make sure the washer does not vibrate or move, the floor may need to be reinforced.

NOTE: If floor is in poor condition, use 3/4″ impregnated plywood sheet solidly attached to existing floor covering.

Leveling

With the washer in its final position, place a level on top of the washer (if the washer is installed under a counter, the washer should not be able to rock). Adjust the front leveling legs up or down to ensure the washer is resting solidly. Turn the lock nuts on each leg up toward the base of the washer and snug with a wrench.

NOTE: Keep the leg extension at a minimum to prevent excessive vibration. The farther out the legs are extended, the more the washer will vibrate.

Water Supply Requirements

- The faucets MUST be 3/4-in. (1.9-cm) garden hose-type so inlet hoses can be connected.
- Water pressure MUST be between 10 and 120 pounds per square inch. The local water department can advise the consumer of their water pressure.
- The hot water temperature should be set to deliver water at 120° to 140°F (48°–60°C) to provide proper Automatic Temperature Control (ATC) performance.

Additional Specifications

- A 115-volt, 60-Hz, 15- or 20-amp power supply is required.
- An individual properly grounded branch circuit or circuit breaker is recommended.

⚠ WARNING **Electrical Shock Hazard**

- It is required that the appliance be plugged into a grounded 3-prong outlet.
- Ground prong should not be removed.
- Use of a 2-prong adapter or an extension cord is prohibited.
- A frayed or damaged power cord should be replaced immediately.

Drain Requirements

- Drain capable of eliminating 10-gallons (38-L) per minute.
- Standpipe diameter of 1-1/4-in. (3.18-cm) minimum.
- The standpipe height above the floor should be:
  - Minimum height: 24-in. (61-cm)
  - Maximum height: 96-in. (244-cm)

NOTE: Placing the drain hose too far down the drain pipe can cause a siphoning action. No more than 7 inches of hose should be in the drain pipe. There must be an air gap around the drain hose. A snug fit can cause a siphoning action.

Drain Hose Extension

There is a drain hose extension kit to allow for additional length to the washer drain hose. Only one should be used. The washer drain hose extension kit part number is **WH49X316**. The drain hose extension is approximately 44-in. long. The maximum height the drain will pump out is 96-inches.

Clearances

- If the appliance is being installed next to a wall, leave sufficient space on the hinge side to allow the door to fully open.
- Minimum Clearances:

  Sides: 0-in.

  Top: 0-in.

  Rear: 0-in.*

  Sides: 0-in.

- Consideration must be given to provide adequate clearance for installation and service.
- Closet doors must be louvered or otherwise ventilated and have at least 60 square inches (387.1 cm2) of open area. If the closet contains both a washer and a dryer, doors must contain a minimum of 120 square inches (774.2 cm2) of open area.

* To enable 0” clearance on the back of the washer, you must use 90° elbow hoses. Otherwise the washer may require some additional clearance to avoid rubbing of the hoses against the back wall.

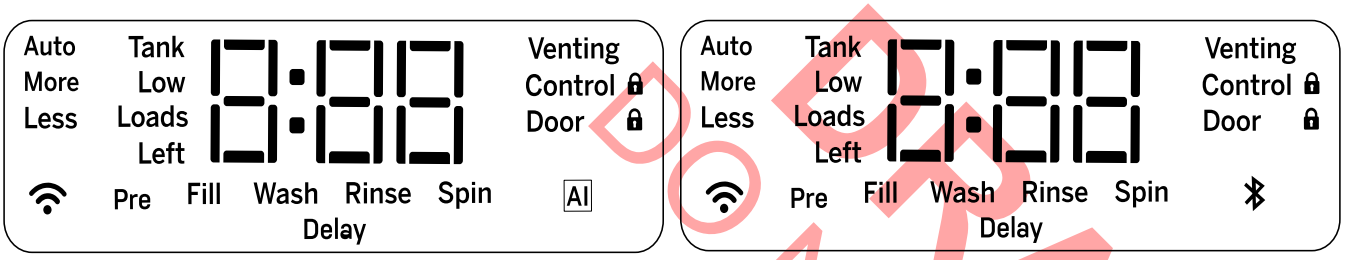
Accessories

WX14X10011	6-ft Stainless Steel Washer Hoses with 90° Elbows; 2-Pack
WH1X2267	Rubber Washer (1) and Screen (1)
GFR0728SNWW	White Riser
GFR0728PNSN	Satin Nickel Riser
GFR0728PNRS	Royal Sapphire Riser
GFR0728PNDG	Diamond Gray Riser
GFR0728PTDS	Metallic Carbon Riser
GFP1528SNWW	White Pedestal
GFP1528PNSN	Satin Nickel Pedestal
GFP1528PNRS	Royal Sapphire Pedestal
GFP1528PNDG	Diamond Gray Pedestal
GFP1528PTDS	Metallic Carbon Pedestal
GFA28KITN	Stacking Kit for Dryer over Washer
WH49X316	Washer drain hose extension kit - Approximately 44”
PM7X2	Universal low profile washer floor tray

Reversing Door Swing

The door swing is reversible (optional on some models only). (See **Door Reversal**)

Control Panel Operation



Display Features and Appearance Will Vary

Display and Status Lights

- **Wi-Fi ( ) :** Allows the appliance to communicate with a smartphone for remote appliance monitoring, control and notifications. It stays lit whenever the washer is on and is connected. It will blink during the commissioning process or if it loses connection to the network.
- **Venting (on some models) :** Venting will blink to indicate that you can select the **ULTRAFRESH VENT** feature at the end of the cycle. It then stays illuminated once selected until venting is complete.
- **Control Lock (Control) :** The controls on the washer are locked when this icon is illuminated. Press and hold the **Control Lock** pad to unlock the controls.
- **Door Lock (Door) :** This icon will illuminate while the door is locked and will blink while the washer is in the process of pausing and then unlocking.
- **Smart AI :** This icon will illuminate when the Smart AI features of the washer are active.
- **Auto, More, Less (on some models) :** The SmartDispense will automatically dose detergent according to the weight and soil level of the clothes. This feature can be adjusted to dose MORE or LESS detergent or turn it OFF to manually dose detergent.
- **Tank Low (on some models) :** At start up the unit displays when the SmartDispense tank needs to be re-filled. Typically, this first lights up when there are approximately 8 - 10 loads of detergent remaining.
- **Loads Left (on some models) :** Displays the estimated number of wash loads left for the amount of detergent in the SmartDispense tank.
- **Delay (on some models) :** When selecting a delay start to your wash, this will be indicated by either a light next to the pad or with the word “Delay” in the center of the options window. The display will also countdown the hours until the cycle begins.

On some models, the display shows the approximate time remaining until the end of the cycle and the washer cycle status (Prewash, Fill, Wash, Rinse and Spin).

NOTE: The cycle time is affected by how long it takes the washer to fill. This depends on the water pressure in the home. The “smart” timer “learns” the amount of time it takes to fill the washer and adjusts the total time accordingly.

On some models, if an out-of-balance condition is detected by the washer, the Spin status light or Spin option selection light will blink during the remaining portion of the cycle and will stay illuminated for a short time after cycle completion. When this occurs, the washer is taking actions to correct the out-of-balance condition and complete the cycle normally. In some cases, the washer may not be able to balance the load and spin up to full speed.

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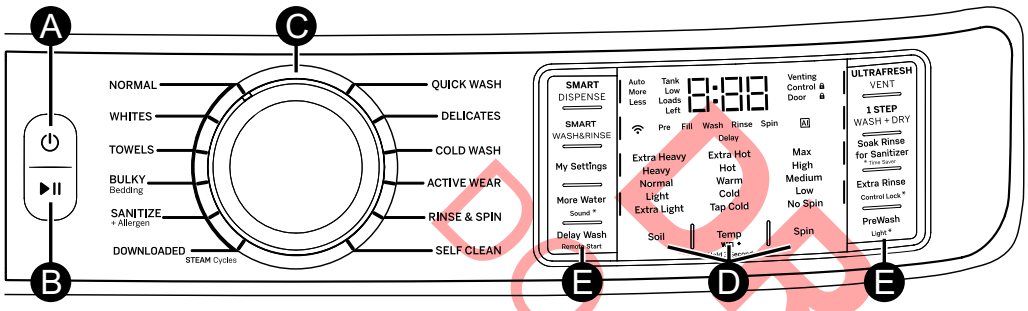
- **Model: PFW955**



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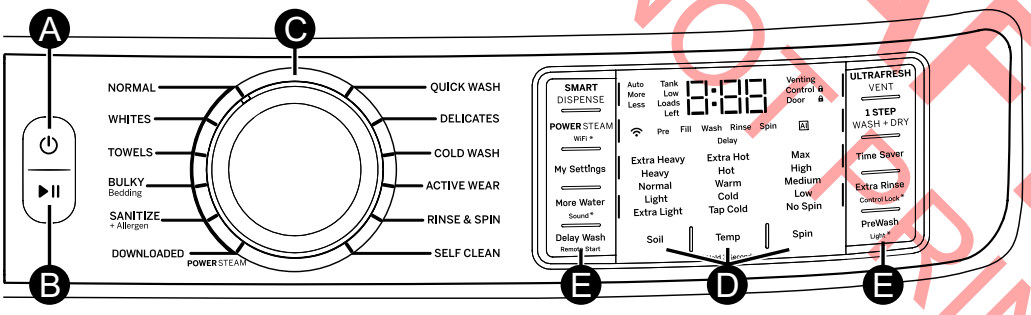
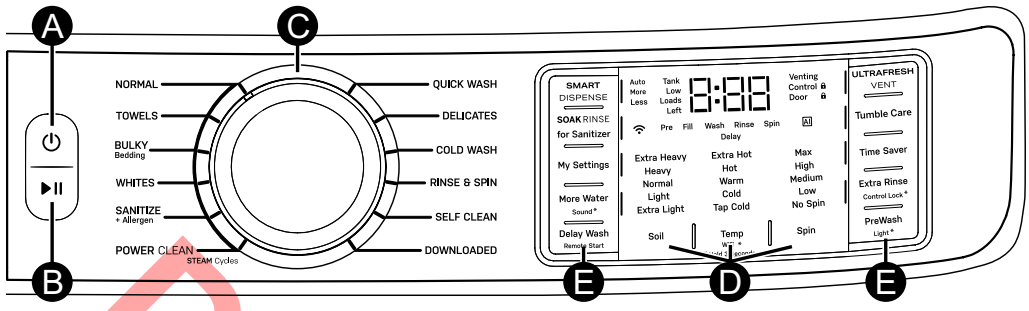
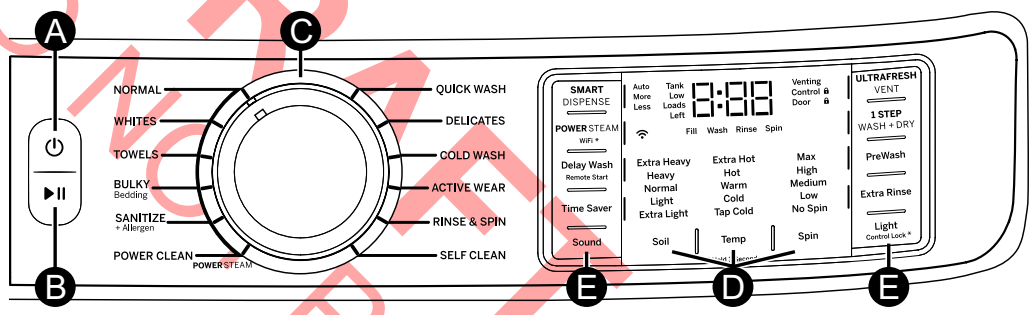


- **Model: PFW870**



- **Model: GFW850**



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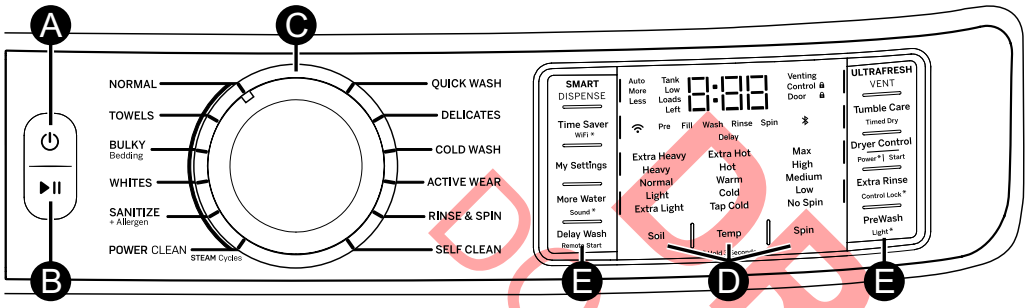
- **Model: GFW655**



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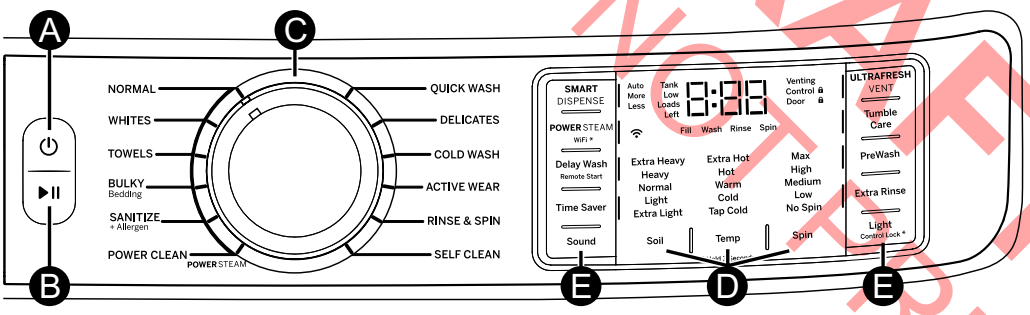

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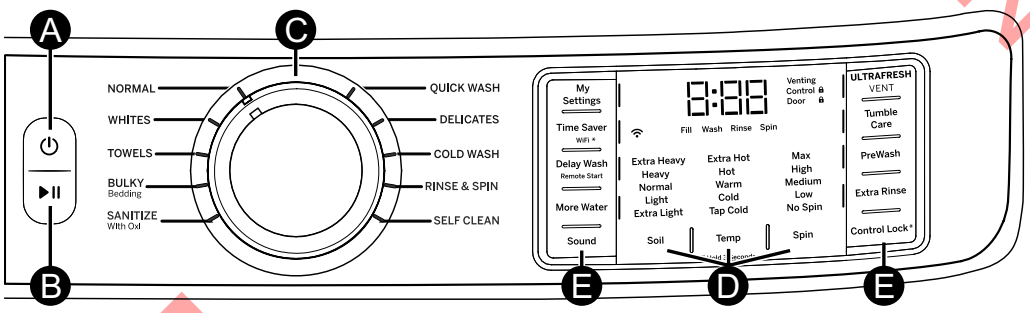

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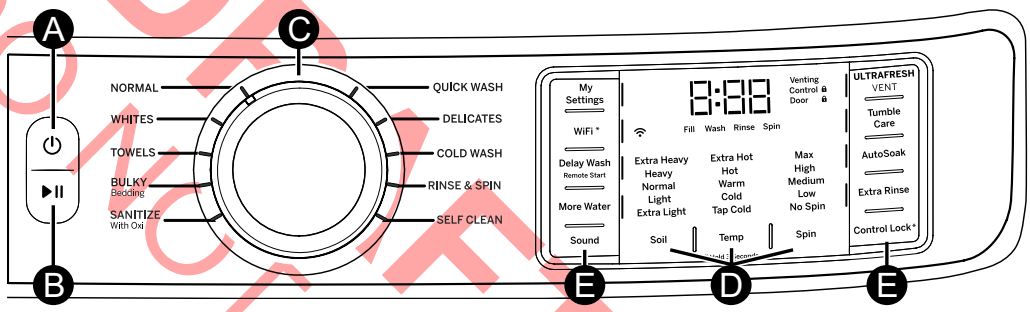
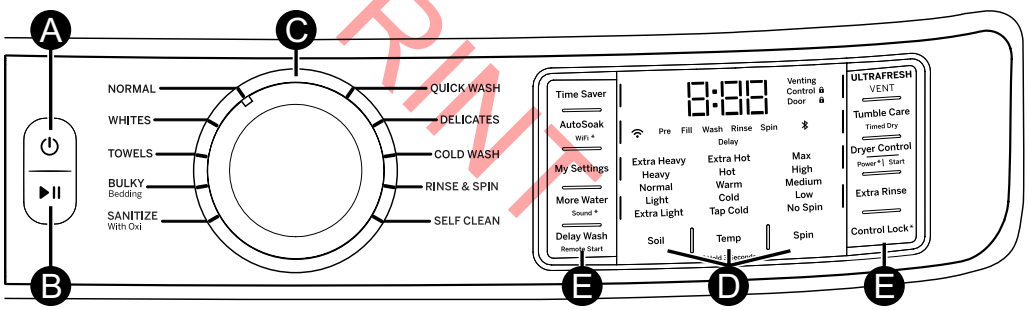


- **Model: GFW510SCV**



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Ⓐ Power

Press Power to "wake up" the display. If the display is active, press Power to put the washer in standby mode. **NOTE:** Pressing Power does not disconnect the appliance from the power supply.

Ⓑ Start and Pause

Press to start a cycle. If the washer is running, pressing it once will pause the washer and unlock the door. It will take a few seconds for the door to unlock after pressing **Pause**. Press again to restart the wash cycle.

NOTE: If washer is paused and cycle is not restarted within 15 minutes, the current wash cycle will be cancelled.

NOTE: The washer performs automatic system checks after pressing the Start pad. Water will flow in 45 seconds or less. The door may lock and unlock and the pump activate before water flows.

Ⓒ Wash Cycles

The cycles are optimized for specific types of loads.

Ⓓ Settings

Individual settings for soil level (**SOIL**), water temperature (**TEMP**) and spin speed (**SPIN**) can be set from the minimum to maximum.

SOIL: Changing the soil level increases or decreases the wash time to remove different amounts of soil.

To change the soil level, press the **SOIL** button until you have reached the desired setting. Choose between **Extra Light**, **Light**, **Normal**, **Heavy** or **Extra Heavy** soil levels on most cycles.

TEMP: Adjust to select the proper water temperature for the cycle. The **AutoSoak** and **PreWash** rinse water is always cold to help reduce energy usage and reduce setting of stains and wrinkles.

To change the wash temperature, press the Temp pad until you have reached the desired setting. Th consumer can choose between Tap Cold, Cold, Warm, Hot or Extra Hot on most cycles. By design, to protect fabrics, not all wash temperatures are available for certain wash cycles. Extra Hot temperatures are enabled by the internal heater on models equipped with Steam capabilities. **NOTE:** The first 10 seconds of the wash fill is always cold. This feature assists in conditioning the fabric and preventing stains from setting on garments.

SPIN: Adjusting the spin speed changes the final spin speed of the cycles. Higher spin speeds are **not** available on certain cycles, such as **DELICATES** and **ACTIVE WEAR**.

NOTE: This washer features a dBT™ (Dynamic Balancing Technology) system. This patented onboard sensing technology enables real-time balancing of the spin cycle for each load, saving time and providing a quiet wash. This should lead to more consistent wash times and an overall reduction in noise and vibration. If the washer should experience any excessive noise, vibration or shaking, simply **Pause** the washer, open the door, and manually redistribute the load before restarting the cycle.

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Options

SMARTDISPENSE™ (on some models) : When selected, this feature will automatically add detergent to the wash, eliminating the need to add detergent for each load.

My Settings (on some models) : To save favorite settings for a given cycle, set the desired options for Soil, Spin and Temp levels, extra rinse and other settings. Hold down the **My Settings** pad for 3 seconds. A beep will sound to indicate the selections for this cycle have been saved. Consumer can choose to create **My Settings** for other cycles.

STEAM/POWER STEAM (on some models) : The steam feature adds steam into the washer before the wash cycle begins to assist with loosening stains on the **NORMAL**, **WHITES**, **TOWELS**, **BULKY Bedding**, **SANITIZE+Allergen** and **POWER CLEAN** cycles.

To use:

1. Press the **Power** pad to “wake up” the washer and select a wash cycle.
2. Use the SmartHQ App or press the **POWER STEAM** pad (on some models) to activate steam.
3. Press the Start/Pause pad.

Wi-Fi (may be a shared pad with other options) : Press and hold the Wi-Fi pad for 3 seconds to activate.

Smart Wash and Smart Rinse (on some models) : When enabled, the **Smart Wash** option will automatically sense the soil level of the load and adjust the wash cycle accordingly (adding or removing agitation and soaking times) to achieve excellent wash performance while minimizing wear.

Smart Rinse (on some models) : The **Smart Rinse** feature senses the amount of soil and detergent in the current laundry cycle and determines whether additional water is needed to ensure a thorough rinse keeping fabrics performing like new for longer.

Delay Wash/Remote Start : A consumer can delay the start of a wash cycle for up to 24 hours or remote start the washer by using the **Delay Wash/Remote Start** feature. Press to step by hours or hold to scroll the **Delay Wash** pad to set the amount of time wanted to delay the start of the wash cycle. If the washer is connected to Wi-Fi, the first selection, “AP”, can be selected to enable remote starting of the washer from the GE Appliance Smartphone app. Or, if desired, select a delay time in hours, the machine will count down and start automatically following this period. Press the **Start** pad once the **Delay Wash** setting is configured to the proper setting to enable this feature. To cancel this option, simply power off and power on the controls.

NOTE: If the door is not fully closed, a reminder signal will beep.

NOTE: If the door is opened when the delay is counting down, the machine will enter the pause state. Close the door and press Start again in order to restart the countdown.

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Time Saver (on some models) : This option reduces the overall washer cycle time by optimizing the wash, rinse and spin actions and/or gently raising the wash temperature to get clothes cleaned faster. Option is available on NORMAL, WHITES, TOWELS, DELICATES, BULKY Bedding and ACTIVE WEAR cycles. Total wash time will vary based on cycle chosen and options selected.

To use:

1. Turn power on and select a wash cycle which has **Time Saver** as an option.
2. Press the **Time Saver** pad to reduce the overall wash time.
3. Press the **Start/Pause** pad.

More Water (on some models) : This option adds approximately 3 gallons to the wash and rinse portions of the cycle. If the option is selected before the cycle starts, the water will be added from the beginning of the wash cycle and later to the rinse. If the option is selected during the wash portion, more water will be added at this point and later to the rinse. Likewise, if the **More Water** option is selected after the wash portion has completed, the washer will add more water to the rinse only. If wash and rinse have completed, the **More Water** pad will no longer be active.

ULTRAFRESH VENT System with ODORBLOCK™ (on GE Appliances and Profile models only) : The **ULTRAFRESH VENT** System with OdorBlock was designed to eliminate excess moisture in the washer following a wash cycle to help prevent odors from developing. This washer was designed to drain water at the end of the cycle more effectively. Following the wash cycle, the user can then choose to leave the door open or select the **ULTRAFRESH VENT** feature to assist with drying out the gasket and other areas of the washer. The OdorBlock system features multiple components which are manufactured with Microban® antimicrobial technology.* Microban is a safe and effective antimicrobial technology that will last the life the washer.

ULTRAFRESH VENT is available after the wash cycle is complete and have removed cleaned laundry. Once the door is closed, a notification tune will play and the **ULTRAFRESH VENT** pad LED will blink.

Upon pressing the pad, **ULTRAFRESH VENT** will begin. To select **ULTRAFRESH VENT** at any other point, power on the washer, ensure a cycle is not actively running, and remove any garments from the basket, then press and release the **ULTRAFRESH VENT** pad so that the notification tune plays and the **ULTRAFRESH VENT** pad LED begins to blink. Then press the **ULTRAFRESH VENT** pad again to start the feature. During the operation of **ULTRAFRESH VENT** the door will remain locked and the washer will intermittently spin at low speeds for up to 8 hours. Profile models utilize a sensor to determine end time. If garments are detected in the basket during **ULTRAFRESH VENT**, the washer will instead run **TUMBLE CARE** or **1 STEP WASH + DRY**, based on option availability for the model. The **ULTRAFRESH VENT** feature may be cancelled at any time by pressing the **POWER** pad, turning the cycle knob, or pressing the **ULTRAFRESH VENT** pad.

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SmartHQ App Enabled : There are several options that support your WiFi connected washer available through the SmartHQ App. Not only does this App enable the washer to receive over the air upgrades and updates to the washers software, but it unlocks special features for the washer. Among those features are **Adaptive SmartDispense**, **Adaptive My Settings** and **Stain Removal Guide**.

1 STEP WASH + DRY (on some models) : This option is available on all cycles except **Self Clean**. The **1 STEP WASH + DRY** is intended for small loads only. Use when clothes need to be washed, dried and ready to wear or finished the next morning. This feature will tumble clothes and introduce a constant stream of air into the washer compartment upon completion of select wash cycles. Although the drying portion is set to 8 hours, the clothes can be removed at any time by pressing **Start/Pause** or **Power** to cancel the cycle.

Tumble Care (on some models) : Tumbles garments periodically for up to 8 hours after the wash cycle is complete to lessen the setting of wrinkles and creases when you are not able to move clothing to the dryer right away. At the end of the cycle, the display will scroll “END” and after ten minutes the **Tumble Care** will begin. It can be stopped at any time by pressing the **Power** pad.

PreWash (on some models) : Prewash is an extra wash before the main wash. Use it for heavily soiled clothes or for clothes with a care label that recommends prewashing before washing. Be sure to add liquid or powder high-efficiency detergent, or the proper wash additive to the prewash dispenser. Washers equipped with **SmartDispense** will automatically add the proper amount of detergent for prewash based on the load size.

PreWash must be selected prior to pressing **Start.**

The PreWash feature will fill the washer (adding the prewash detergent), tumble the clothes, drain and spin. Then the washer will run the selected wash cycle.

NOTE: In some special cycles, the prewash is selected automatically as the default. PreWash can be turned off at any time. The main wash will use new detergent from the manual detergent compartment and from the SmartDispense tank (on some models).

AutoSoak (on some models) : For soaking your garments prior to the wash cycle. This option begins with a brief tumble and then proceeds to soak the clothes with water and detergent for a specified period of time. Once complete, the cycle will continue automatically. **AutoSoak** must be selected prior to pressing the start pad. The **AutoSoak** time will add an additional 15 minutes, 30 minutes, 1 hour or 2 hours to the overall wash time. High-efficiency detergent from the main wash compartment in the dispenser is used for the **AutoSoak** period and main wash cycle.

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Soak Rinse (on some models) : Select this feature when laundry sanitizer is used. This feature is recommended for special case loads only, not for typical use. Press **Soak Rinse for Sanitizer** button to enable. An additional chime will occur and the cycle time will increase due to additional soaking time to activate the laundry sanitizer. To cancel the option, press the Soak Rinse for Sanitizer button again. **NOTE:** Fill the fabric softener compartment in the dispenser drawer with the recommended amount of laundry sanitizer.

Extra Rinse : This option allows for an extra rinse during a cycle to remove excess dirt and detergent from soiled loads.

Press the **Extra Rinse** pad to select.

NOTE: On **RINSE & SPIN** cycle, a **Drain and Spin** cycle can be achieved by pressing the **Extra Rinse** pad until the LED is no longer illuminated.

Light (on some models) : The basket light will turn on and remain on for 5 minutes when the door opens, **Start/Pause** pad is pressed, or by pressing the **Light** pad. The basket light can be turned off by pressing the **Light** pad.

Sound : To change the loudness of the end of cycle signal and the press pad volume, press the **Sound** pad as many times as needed to reach the desired volume. On some models there are four sound levels including off, other models have Off/On with press and hold function.

Control Lock (Light-Control Lock pad) (depending on model) : The user can lock the controls to prevent any selections from being made, or the user can lock or unlock the controls after a cycle has started.

Children cannot accidentally start the washer by touching pads with this option selected.

To lock/unlock the washer, press and hold the **Control Lock/Light-Control Lock** pad for 3 seconds. A sound is made to indicate the lock/unlock status. The control lock icon on the display will light up when it is on.

NOTE: The **Power** pad can still be used when the machine is locked.

Dryer Control – Bluetooth® Pairing (on some models) :

1. Power on both the washer and the dryer but do not start any cycles.
2. Press and hold the **Tumble Care** button on the washer for 5 seconds until the Bluetooth® LED ( ) starts to flash and you hear an audible tone.
3. Open and close the dryer door 3 times within 10 seconds to make it discoverable to the washer.
4. The washer will attempt to discover the dryer, the Bluetooth® icon will flash and both displays will blink " - - - ".
5. The Bluetooth® icon on the washer should illuminate solid signifying that the machines are now paired. The display on the washer will display "**bt**" once pairing is complete.
6. If the Bluetooth® units fail to pair, repeat above steps 1-5.
7. To unpair the machines, press and hold the **Tumble Care** button for 10 seconds or open and close the dryer door 3 times within 10 seconds.

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How to use the Dryer Control Feature (on some models) :

1. Power on the washer.
2. Press and hold the **Dryer Control** button on the washer for 3 seconds to power on the dryer.
3. The dryer's cycle selection will flash to display the recommended sensor cycle that pairs to the last completed washer cycle as the washer display reads "**drY**".
4. To use this cycle, press the **Dryer Control** button to start the dryer. The dryer can be paused by opening its door or pressing the **Dryer Control** button. To restart the dryer with its door closed, press the **Dryer Control** button again.
5. To select **Timed Dry** instead of the sensor dry cycle, press the **Timed Dry** button on the washer while the display says "**drY**". Repeated presses of this button will step through preset **Timed Dry** times (default is 10 minutes).
6. Once you've selected the **Timed Dry** cycle's duration, press the **Dryer Control** button within 10 seconds to start the dryer.

NOTE: The dryer's control panel is fully functional even when you are using **Dryer Control** through the washer. Powering off the washer will not power off the dryer when a dry cycle is in progress.

SmartDispense™ (some models)

When selected, this feature will automatically add detergent to the wash, eliminating the need to add detergent for each load.

The detergent amount selection on the control panel will default to **AUTO** when first powering up the washing machine. When **AUTO** is selected, the amount of detergent needed for each laundry load will automatically be determined based on the size of the load the machine senses.

For **AUTO**, the washer will dispense approximately 1.5 oz of detergent for an 8 lb normal load. For other loads, it will adjust proportionally based on the size of load and garment type. If you select **LESS**, the amount of detergent will be reduced by 40%. This may be desired for higher concentrate detergents or if the home has very soft water. For heavily soiled loads, the user may want to select **MORE** to add 40% more detergent than the **AUTO** level. The user can set the brand/type of detergent in the SmartHQ App so that the washer can make adjustments based on detergent manufacturers recommendations.

NOTE: Not all cycles will allow the use of the SmartDispense feature. If the light is not illuminated and pressing the **SMART DISPENSE** pad results in a beeping tone, then SmartDispense is not allowed for the cycle that has been selected. Detergent will need to be added directly to the detergent compartment for these cycles.

Manually Adding Detergent

If it is desired to manually add detergent for a particular load:

1. Press the **SMART DISPENSE** pad on the control panel until its light turns off which indicates the SmartDispense feature has been turned off.
2. Set the flap in the detergent compartment to the type of detergent to be used - Powder or Liquid.
3. Add the desired amount of detergent into the detergent compartment.

NOTE: If the display indicates that the SmartDispense tank is estimating there is insufficient detergent to wash a load, the SmartDispense light will flash. The washer can still run a cycle, but it recommended to add detergent in the manual detergent compartment or refill the SmartDispense tank.

Prewash Compartment (some models)

Only use the prewash compartment if selecting the **PreWash** cycle for heavily soiled clothes. Add measured detergent or prewash additive to the back left prewash compartment of the dispenser drawer.

- Detergent or prewash additive is flushed from the dispenser in the **PreWash** (if selected).
- Detergent usage may need to be adjusted for water temperature, water hardness, size and soil level of the load. Using too much detergent in the washer can lead to over sudsing and detergent residue being left on the clothes.

Detergent Compartment

Only use high-efficiency detergent in this washer. Do NOT fill high-efficiency detergent over the MAX line. Use detergent manufacturer's recommended amount.

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- **Powder Detergent** : Lift the flap up for powder detergent. This must be done to dissolve and flush detergent properly. Follow the detergent manufacturer's instructions when measuring the amount of powder detergent to use.
- **Liquid Detergent** : Keep the flap down for liquid detergent. This retains the liquid detergent until it automatically flushes at the start of the wash cycle. Follow the detergent manufacturer's instructions when measuring the amount of liquid detergent to use.

Detergent usage may need to be adjusted for water temperature, water hardness, size and soil level of the load. Avoid using too much detergent in your washer as it can lead to oversudsing, detergent residue being left on the clothes, and could extend wash times.

Do not put clumped detergent in the dispenser. Clumped detergent can cause a leak.

Do NOT put detergent packets in the dispenser drawer.

Liquid Bleach Compartment

If desired, measure out the recommended amount of liquid bleach, not to exceed 1/3 cup (80 ml) and pour into the compartment labeled "LIQUID BLEACH".

It is recommended to use High-Efficiency (HE) bleach in this front-load washer.

Do not exceed the maximum fill line. Overfilling can cause early dispensing of the bleach which could result in damaged clothes.

NOTE: Do not use powdered bleach or laundry

detergent/additive packets in the dispenser.

Fabric Softener Compartment

If desired, pour the recommended amount of liquid fabric softener into the compartment labeled "FABRIC SOFTENER".

Use only liquid fabric softener in the dispenser.

Do not exceed the maximum fill line. Overfilling can cause early dispensing of the fabric softener, which could stain clothes.

NOTE: Do not pour fabric softener directly on the wash load.

NOTE: The fabric softener compartment will be siphoned in the final rinse of the wash cycle. This compartment can also be used to accommodate other liquid rinse aids such as sanitizers and fabric enhancing liquids.

The use of these other products must be certified by the liquid manufacturer for safety in the use of a residential washing machine and combination washer/dryer. Please check carefully, as certain liquids may invalidate the warranty on the washer.

Drain Pump Filter

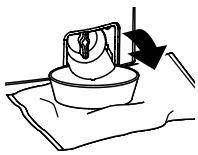
Clean EVERY MONTH to remove any items that may have been caught in the filter or housing.

Due to the nature of the front-load washer, it is sometimes possible for small articles to pass to the pump. The washer has a filter to capture lost items so they are not dumped to the drain. To retrieve lost items, clean out the pump filter.

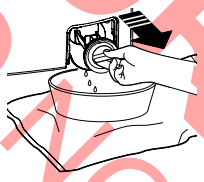
1. Using a small flat-head screw-driver or coin, open the access door.

2. Place a shallow pan or dish under the pump access door and towels on the floor in front of the washer to protect the floor. It is normal to catch about a cup of water when the filter is removed.

3. Pull down the pour spout.



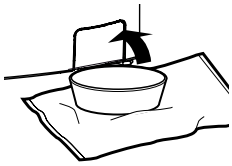
4. Turn the pump filter counter-clockwise (CCW) and remove the filter slowly, controlling the flow of the draining water.



5. Remove the filter and clean the debris from the filter.

6. Replace the filter and turn clockwise (CW). Tighten securely.

7. Flip up the pour spout.



8. Close the access door by hooking the bottom tabs first, then rotating the access door shut.

Stacking Instructions

If stacking the washer and dryer, order stacking kit part number **GFA28KITN** to be used for this dryer.

Kit sold separately.

Stack dryer only on washer. Do not stack washer on dryer, washer on washer or dryer on dryer.

Do not modify this installation kit. Any modification will void the product Warranty.

Disconnect power before installing.

Two or more people are recommended to safely lift the dryer into and out of position.

Avoid damage to the existing utility services.

DO NOT place the washer on top of the dryer.

Location Requirements

When installed in a location other than an alcove or closet, the minimum clearance to combustible surfaces and for air opening are:

0-in. both sides*

0" rear

0" top.

The rear of the dryer should face a wall. Consideration must be given to provide adequate clearance for installation and service.

When installed in an alcove or closet:

- The dryer MUST be vented to the outdoors.
- Minimum clearance between dryer cabinet and adjacent walls or other surfaces is:

  0" either side*

  0" front

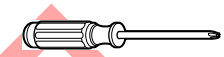
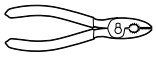
  0" rear

  0" top

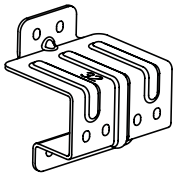
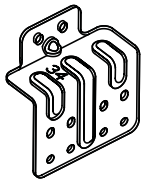
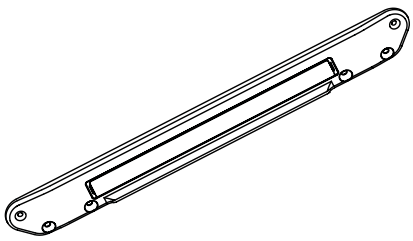
  * For improved performance, a 1/2-in. clearance is suggested on either side.

- The rear of the dryer should face a wall.
- Closet doors must be louvered or otherwise ventilated and have at least 60 square inches of open area. If the closet contains both a washer and a dryer, doors must contain a minimum of 120 square inches of open area.

Tools Needed:

- Phillips-head Screw-driver 
- Level 
- Gloves 
- Open End Wrench 
- Pliers 

Stacking Kit Contents:

- Bracket 32 (2) 
- Bracket 34 (2) 
- Spacer (2) 
- #8 1/2-in. Screws (16) 

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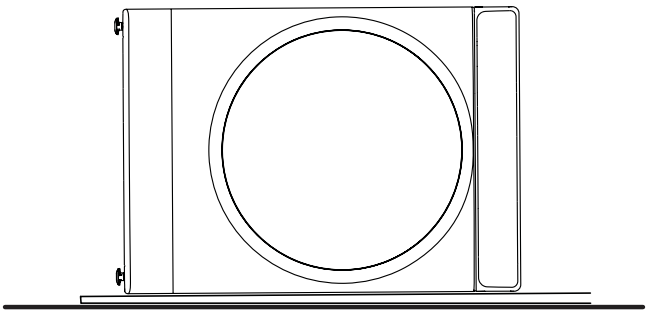
INSTALLATION PREPARATION:

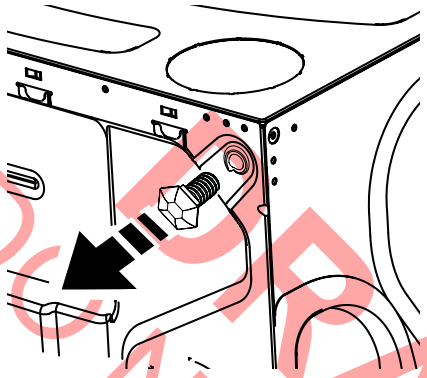
1. Remove the packaging.
2. Flatten the product carton to use as a pad to lay the dryer down on its back or side. Continue using the carton to protect the finished floor in front of the installation location.

INSTALLATION:

1. Carefully lay the dryer on its back or side. Use the packing material so you don't scratch the finish on the dryer.

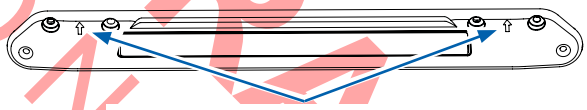


2. Use an open-end wrench or pliers to remove the dryer leveling legs. **NOTE:** Retain the leveling legs for future use.



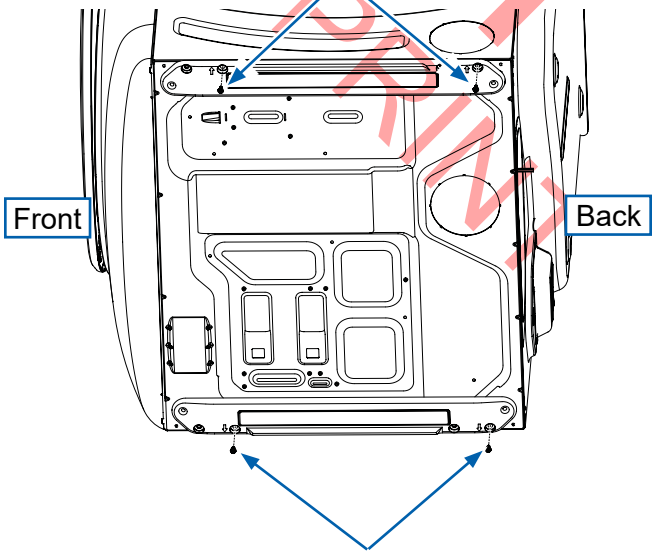
3. Locate a spacer on the bottom side with its holes over the leveling leg holes. Attach spacer using two #8 1/2-in. Phillips-head screws. Attach the second spacer on the other bottom side using 2 screws.

NOTE: The arrows on the spacers should point to the outside.



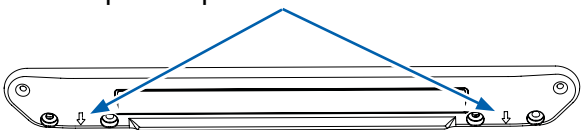
Make sure the arrows on the spacers point to the outside.

Attach spacer using two screws



Attach spacer using two screws

Make sure the arrows on the spacers point to the outside.



Washer Depth	Dryer Depth	Bracket Number
32-inch	32-inch	32
34-inch	32-inch	34

4. Select the appropriate brackets for your model sizes. Using the outside holes in the bracket, attach it to the top left corner of the washer back using four screws. Repeat on the top right corner of the washer back.

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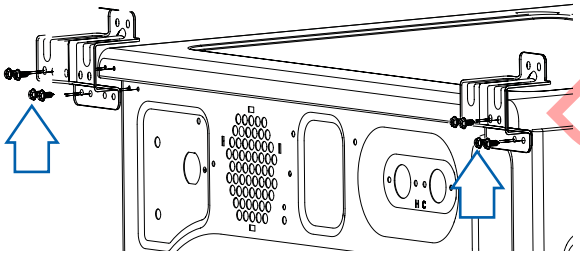
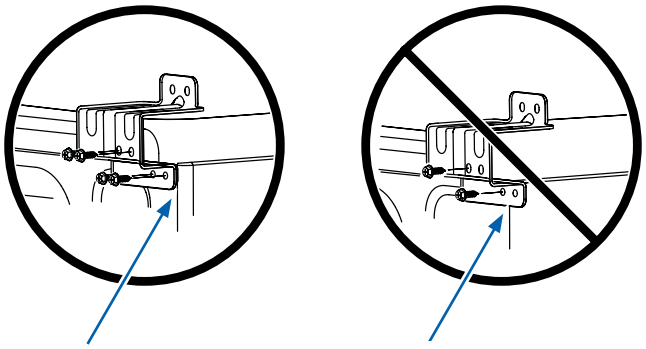
32 Brackets for 32-Inch Washer and Dryer Combinations

Attach brackets to washer using four screws on each side.





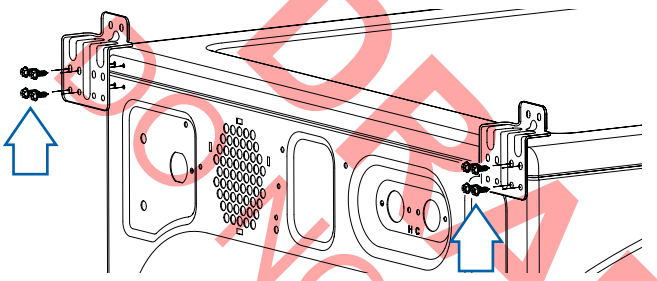
Install brackets flush at washers edges

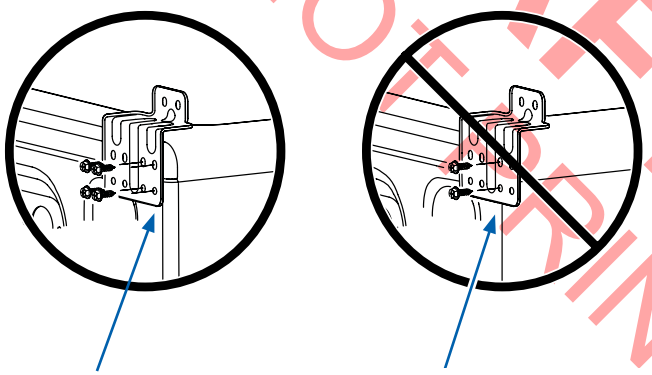
Do not install brackets overhanging washers edges

OR

34 Brackets for 34-Inch Washer and 32-Inch Dryer Combinations

Attach brackets to washer using 4 screws on each side.





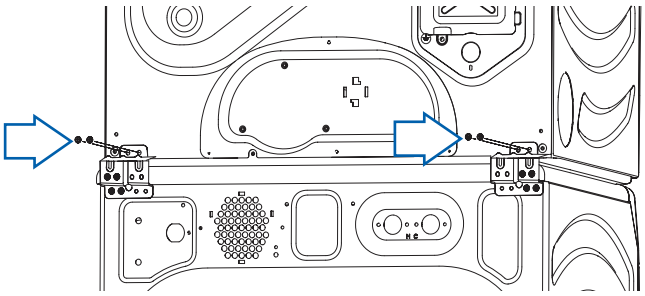
Install brackets flush at washers edges

Do not install brackets overhanging washers edges

5. Place the washer in the approximate final installation location.
6. Make sure the washer is level. Refer to the washer Installation Instructions for details.
7. Upright the dryer.
8. Reverse the washer and dryer door swings, if desired, before stacking the dryer on the washer. See the washer and dryer Installation Instructions for details.
9. Lift the dryer onto the top of the washer. Be sure to lift the dryer high enough to clear the washer control panel. Be careful not to scratch the top of the washer with the spacers. Protect the washer control panel with cardboard or other protection.
10. Align the holes in the back of the dryer with the holes in the bracket sticking up from the washer. Attach both brackets to the dryer with two screws on each side.

32 Brackets for 32-Inch Washer and Dryer Combinations

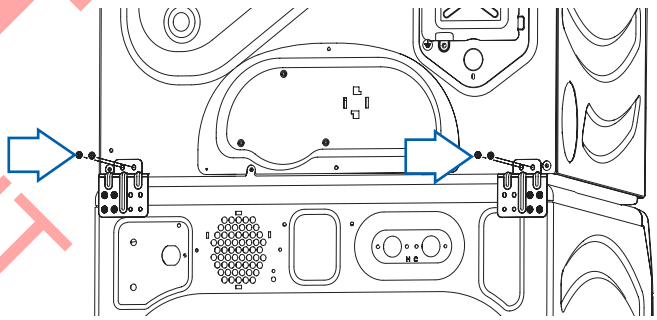
Attach brackets to washer using two screws on each side.



OR

34 Brackets for 34-Inch Washer and 32-Inch Dryer Combinations

Attach brackets to washer using two screws on each side.



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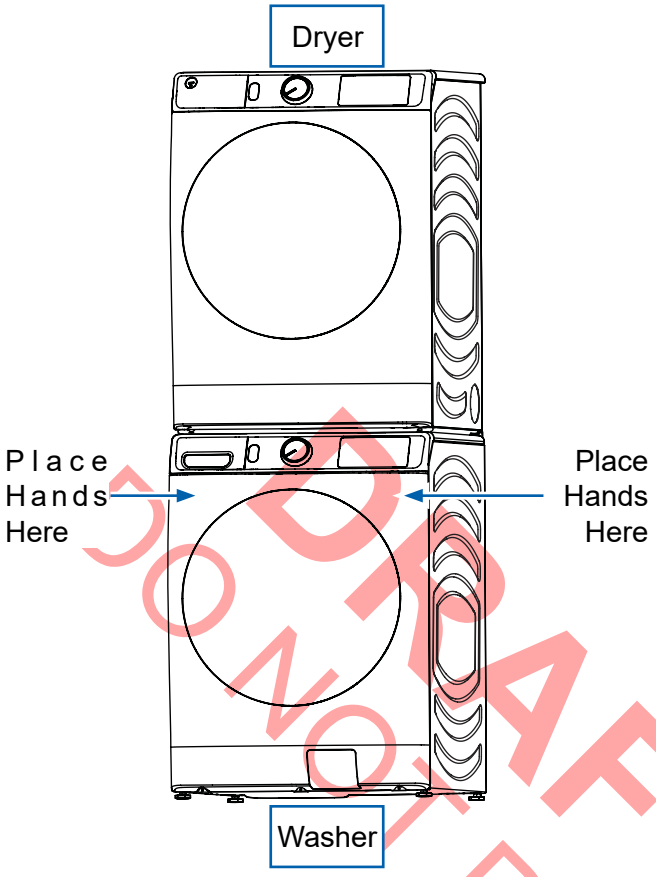
CAUTION: Do not push on the dryer once installed to top of the washer. Pushing on the dryer may result in pinched fingers.

11. Refer to the washer Installation Instructions to complete the washer installation.
12. Refer to the dryer Installation Instructions to complete the dryer installation.
13. Carefully slide or walk the stacked washer and dryer into place. Use felt pads or other sliding device to assist moving and to protect flooring.
14. Verify the units are level. Make adjustments to the washer feet if necessary to level. It is always best to set the washer feet to the minimum height necessary to level the washer and dryer properly.



Cabinet and Structure

Cabinet Component Locator

Control Panel

The control panel is held in place with five Phillips-head screws behind the dispenser drawer and two tabs on the right side of the control panel. When the dispenser drawer is removed, the RJ45 connector can be accessed.

Control Panel Removal

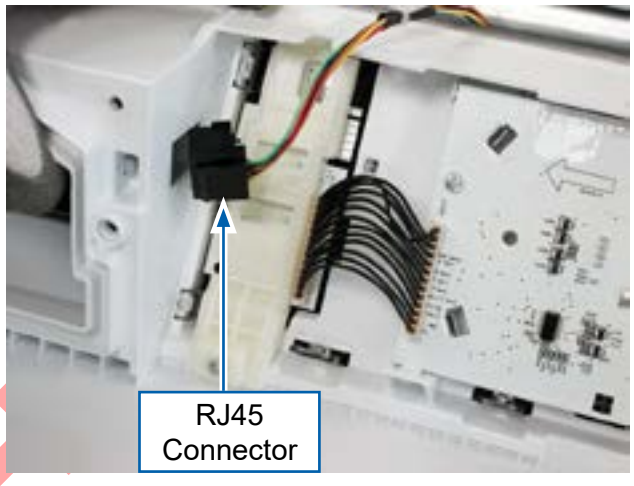
1. Pull the dispenser out to the stop position.
2. Press down on the lock tab, then pull the dispenser drawer out from the control panel.

3. Remove five Phillips-head screws from the control panel dispenser recess.

4. Pull control panel out slightly and raise the left side of the control panel upwards. This will disengage the top left side tab.

5. Pull control panel up and off from the front panel and disconnect the harness.

6. Push in on the tab that secures the RJ45 connector to the control panel.



User Interface (UI) Board

The User Interface (UI) Board is mounted to the control panel assembly under the plastic cover. It consists of the display board, cycle select board and the power/pause button board. They are all connected together and come all as one part.

NOTE: The cycle select knob does not need to be removed as it will stay with the control panel.

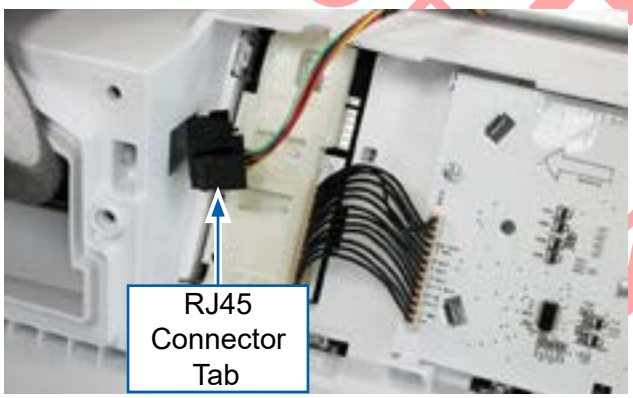
User Interface (UI) Board Diagnosing

The User Interface (UI) board is powered by the Main Board from the CN1 connector. If the User Interface board is not working, check for approximately 12 VDC from pin 1 to pin 3 on the 7-pin connector from the main board to the User Interface board. If voltage is present at the UI Board, replace the UI board. If no voltage, check harness and connectors. If good, replace the main board.

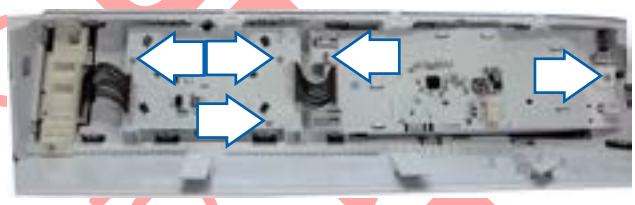
User Interface (UI) Board Removal

1. Remove control panel (see Control Panel Removal).
2. Remove harness that supply DC voltage to the UI board.

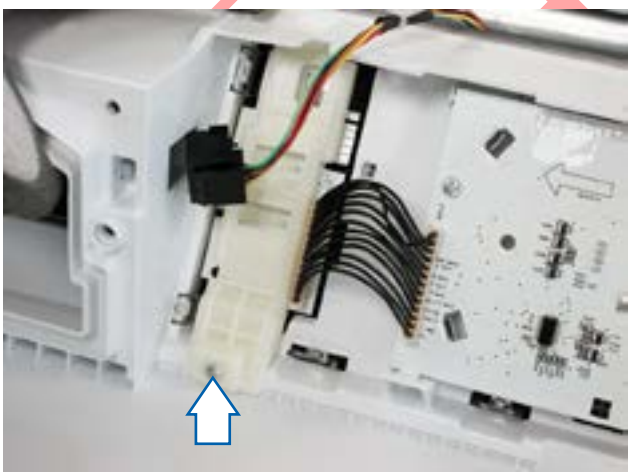
3. Disconnect the RJ45 connector by pushing in the tab on the connector. Then rotate the connector from the control panel.



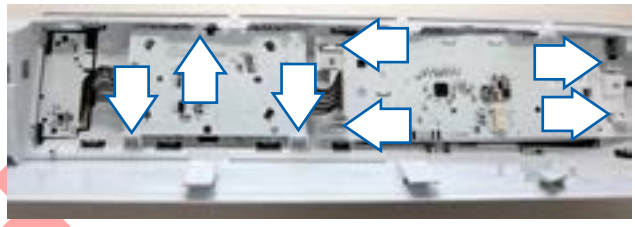
4. Remove the cycle select knob by pulling outward or carefully using a putty knife or flat-head screwdriver to pry the knob outwards, away from the control panel.
5. Remove five Phillips-head screws securing the two larger parts of the UI board to the control panel.



6. Remove one Phillips-head screw securing the power/pause button to the control panel.



7. While pushing in on the seven clips that holds the UI board to the control panel assembly, pull upwards on the UI Board. If the board is not held with an upward pressure on it, the clips will refasten, not letting the board to disengage from the control panel assembly.



Top Panel

Removal of the top panel provides access to the dispenser assembly, water valves, water level sensor, main board, humdity sensor board, accelerometer, overnight dry fan, overnight filter.

Top Panel Removal

1. Remove control panel (see Control Panel Removal).
2. Remove three Phillips-head screws at the front of the top cover.

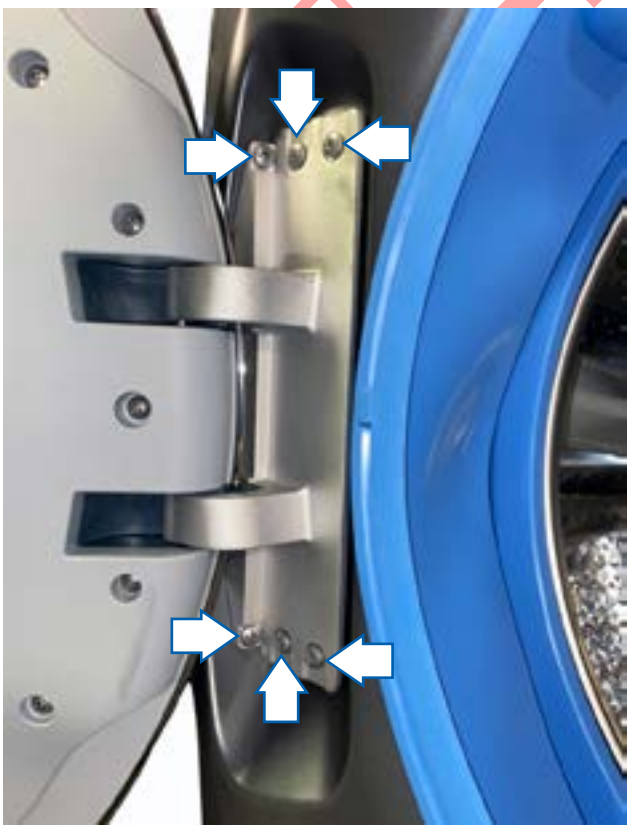
3. Pull top panel forward to disengage rear guide posts and then lift up.

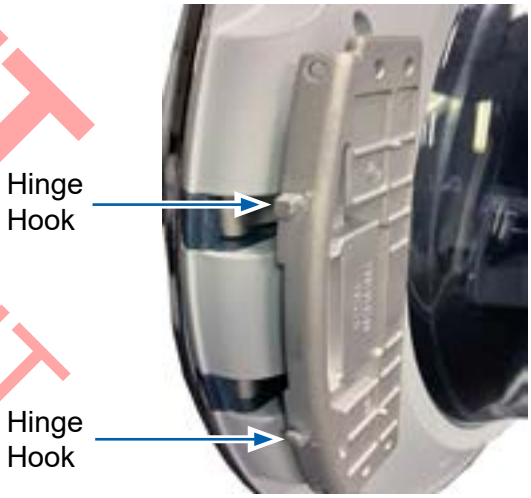
Door

The door is reversible and can be ordered as a complete assembly (hinge included). The door hinge is attached to the front panel with six Phillips-head screws and two hooks that engage the two cutouts in the front panel.

Door Removal

1. Remove six (6) Phillips-head screws that hold the hinge to the front panel. **NOTE:** The door hinge is attached to the front panel with six (6) Phillips-head screws and two hinge hooks that engage two cutouts in the front panel. The door will stay in place when the screws are removed.





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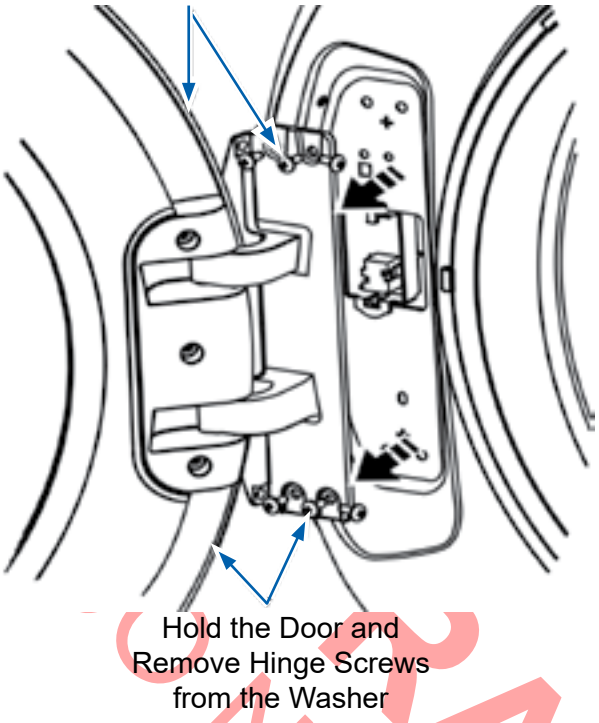
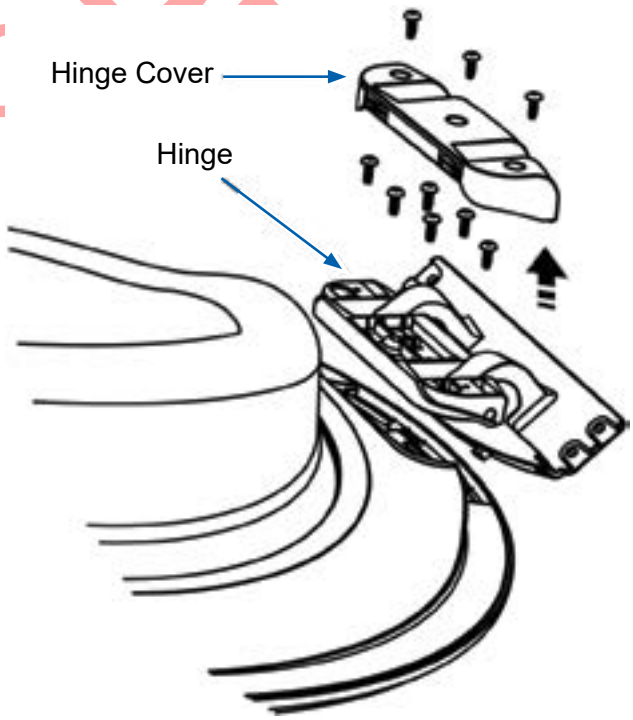
2. Lift the door and hinge 1/4-inch, to disengage the hinge hooks from the front panel, and pull outward to remove the door.

Door Reversal

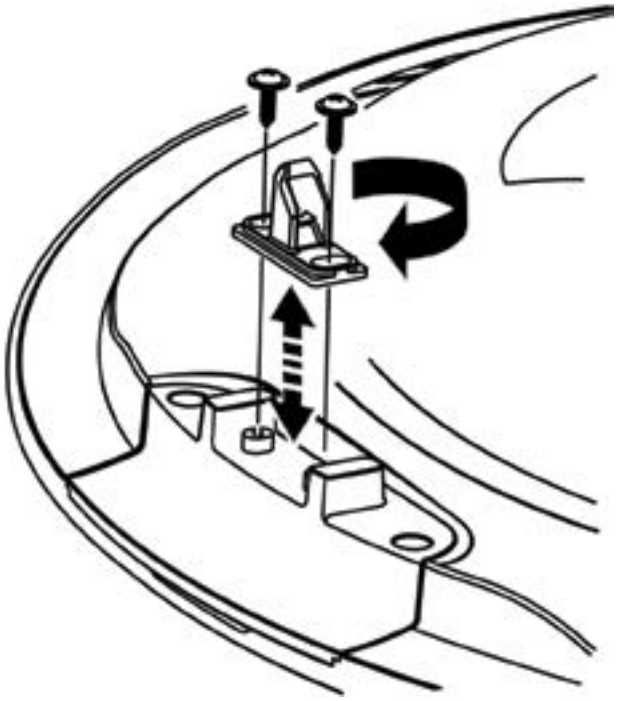
1. Remove door assembly
   - Open washer door.
   - While supporting door, remove six screws from the hinge in the washer face.
   - Lift door assembly to remove it from the washer face and set it on a protective surface.



2. Remove hinge cover and door hinge
   - Remove three Phillips-head screws from the hinge cover and remove the cover.
   - Remove six screws from the hinge and remove the hinge from the door.



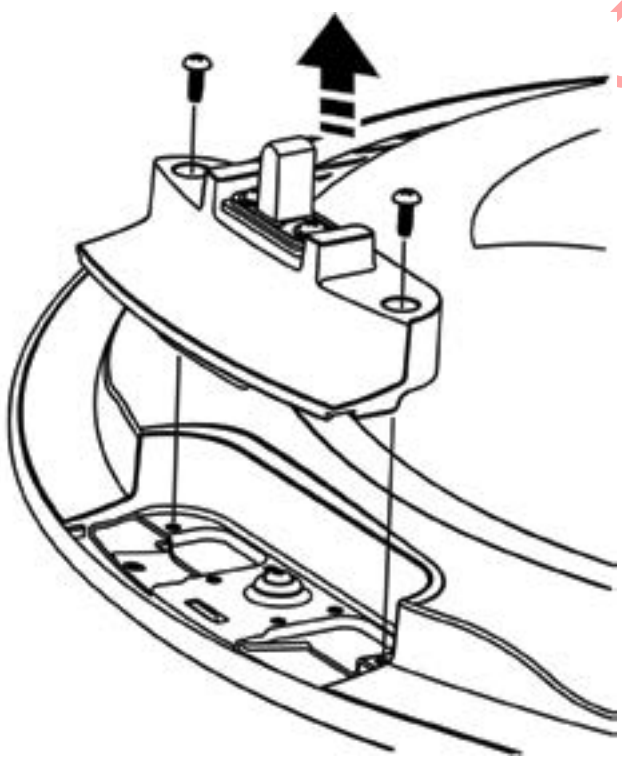
3. Remove, Reverse And Replace Door Striker
   - Remove two Phillips-head screws from the striker. Rotate striker 180° and reinstall striker with its screws.



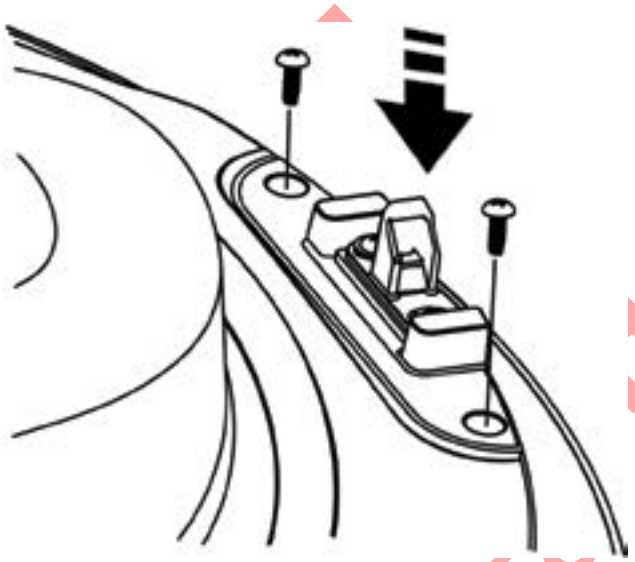
(Continued next page)

4. Remove, reverse and replace door striker

- Remove two Phillips-head screws from the striker assembly and remove the assembly by pulling it toward the center, pushing it up and pulling it out.

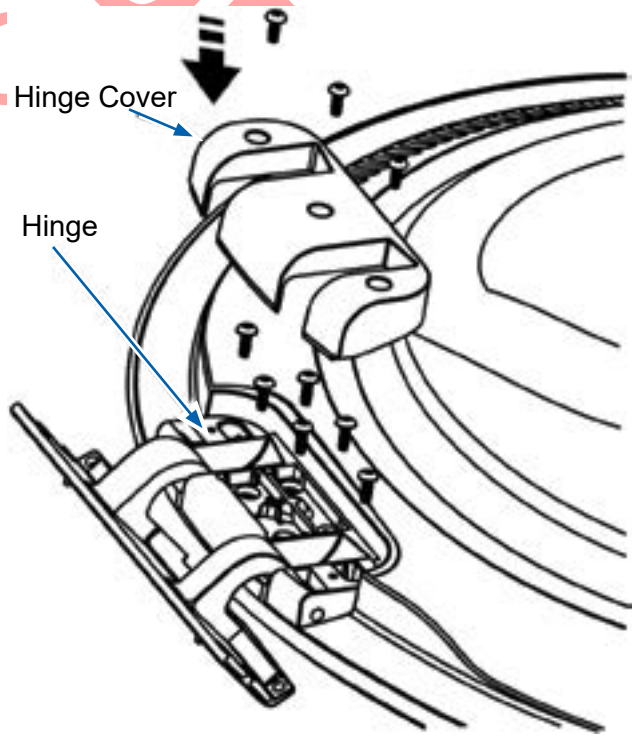


- Rotate the striker assembly and replace it on the opposite side with its screws.

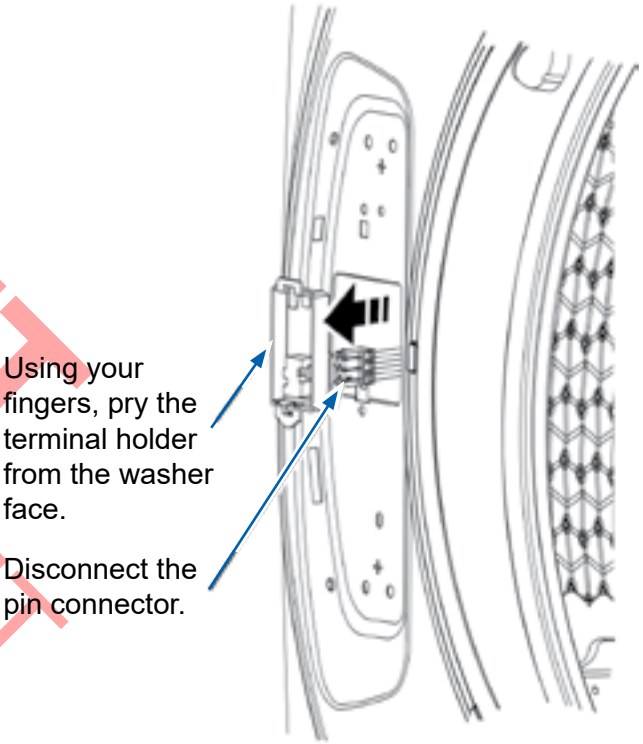


5. Replace door hinge and cover on the opposite side

- Rotate the door hinge and replace it on the oppositeside with its screws.
- Rotate the door hinge cover and replace it on the opposite side with its screws.



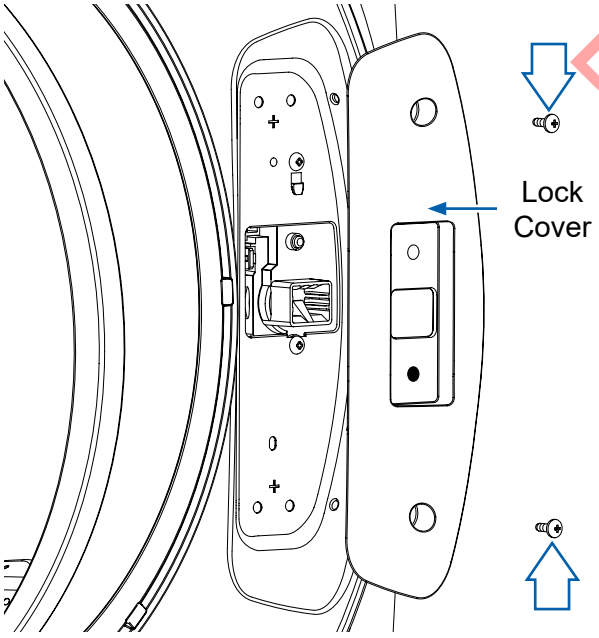
6. Remove terminal holder and disconnect pin connector from the washer



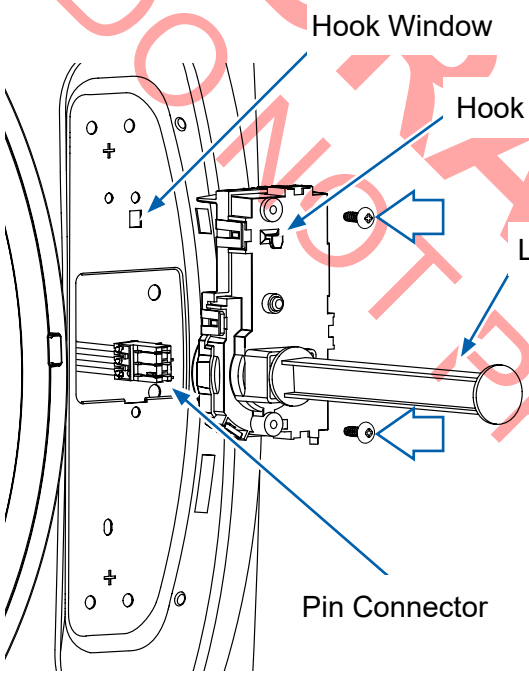
(Continued next page)

7. Remove lock assembly and install on the other side of washer

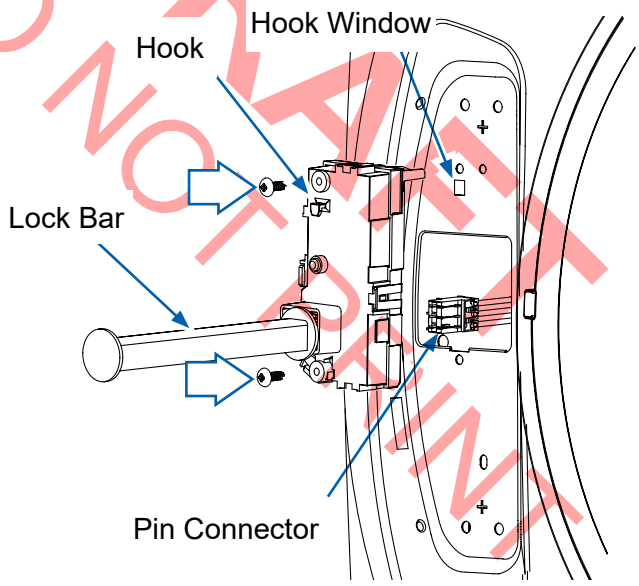
- Remove two Phillips-head screws from the lock cover and remove it from the washer face.



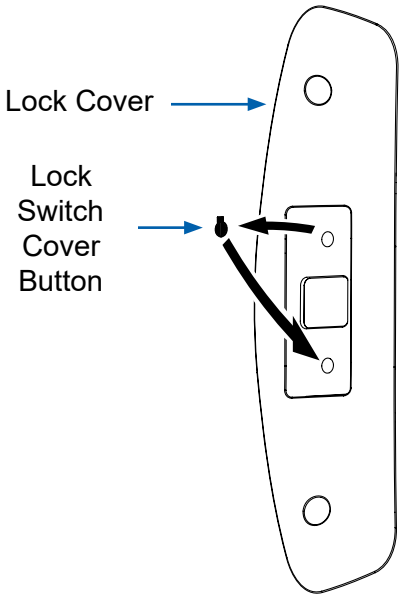
- Insert the provided lock bar into the lock mechanism in the washer face. Remove the lock assembly by removing two Phillips-head screws, using the lock bar to lift it up to unhook, tilting and pulling it out of the washer face. Disconnect its pin connector by unsnapping its locks.



- DO NOT rotate lock assembly. Move it to the opposite side of the washer and connect the pin connector making sure it is fully snap locked together. Tilt and insert the lock assembly into the washer face, lift it up and latch its hook into its window. Replace its screws. Remove the lock bar from the assembly and retain for future use.



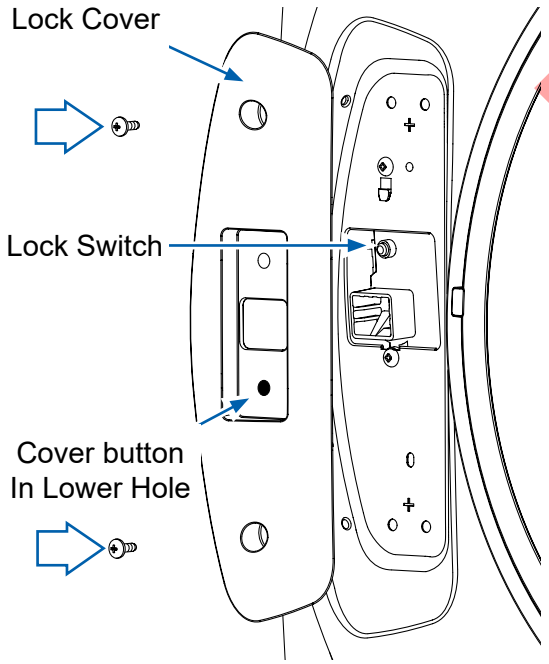
- Remove the lock switch cover button from the back of the lock cover plate and replace it in the opposite hole in the lock cover plate. **NOTE:** The cover button must be reinstalled into the lower hole in the lock cover plate as shown.



Front Side View

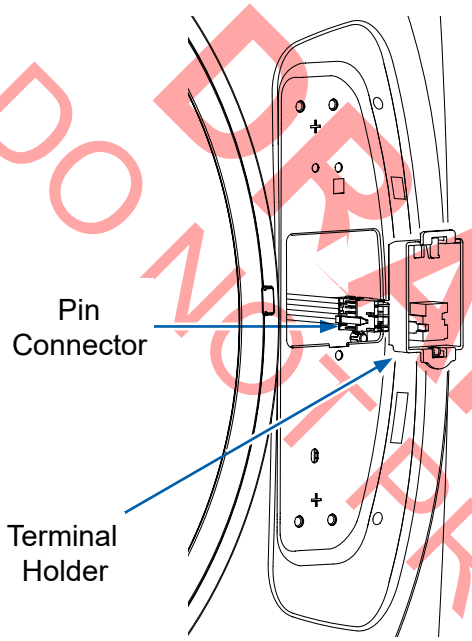
(Continued next page)

- Install the lock cover over the lock assembly, making sure the locating post fits into the locating hole and that the lock switch operates freely. Replace two Phillips-head screws.



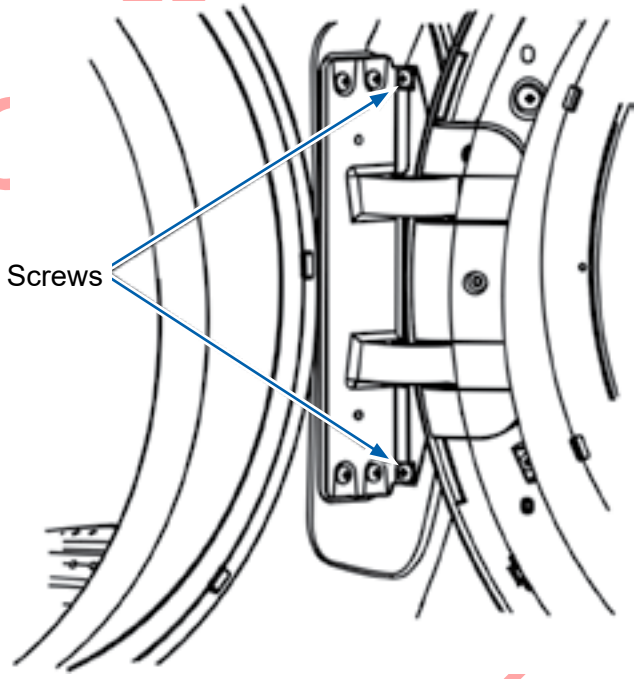
8. Reconnect pin connector from washer and replace terminal holder

- Reconnect the pin connector and press the terminal holder back into the washer face on the opposite side.



9. Replace door assembly

- Lift the door assembly into place and secure it onto the washer face with six Phillips-head screws.



- Close washer door.

  NOTE: Make sure the door opens and closes correctly. If not, repeat all steps making sure all parts and screws are securely seated.

- Connect power cord and turn on the breaker.
- Run the washer through a complete cycle to verify proper operation.

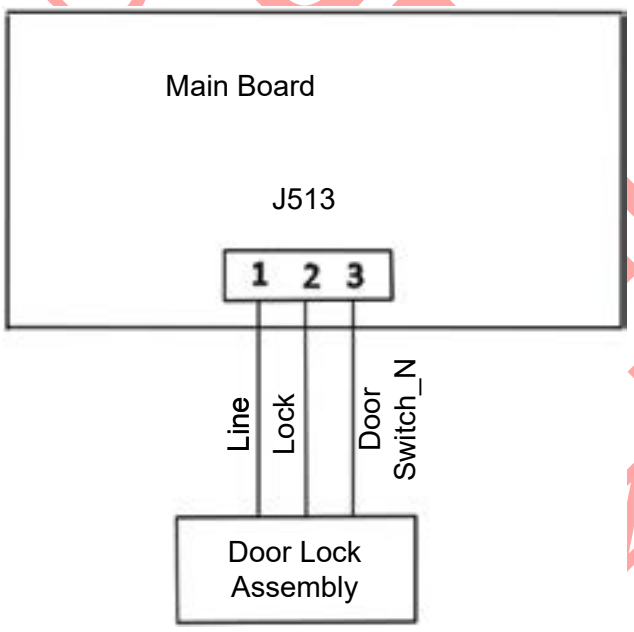
Door Lock

The door lock assembly consists of the door switch and locking mechanism. The lock mechanism functions are as follows:

- To transition the lid lock solenoid, the control shall drive the lock coil for exactly 5 AC half-cycles (40 milli-seconds +/- 10 ms.).
- The control shall wait 1-second before reading the lock feedback to see if the transition is successful.
- The control shall wait at least 1.5-seconds between retries if a lock transition fails.
- The control shall try up to three times if the lock transition fails (a minimum 1.5-seconds delay between each try is required).
- If the lock is not successful after three tries, it shall provide a 30-second cool down period before trying again.
- After cool down the control will try an additional four times (with delay). If the four tries are unsuccessful, a 180-second cool down will be applied and a "Critical Lid Lock Fault" will be set.

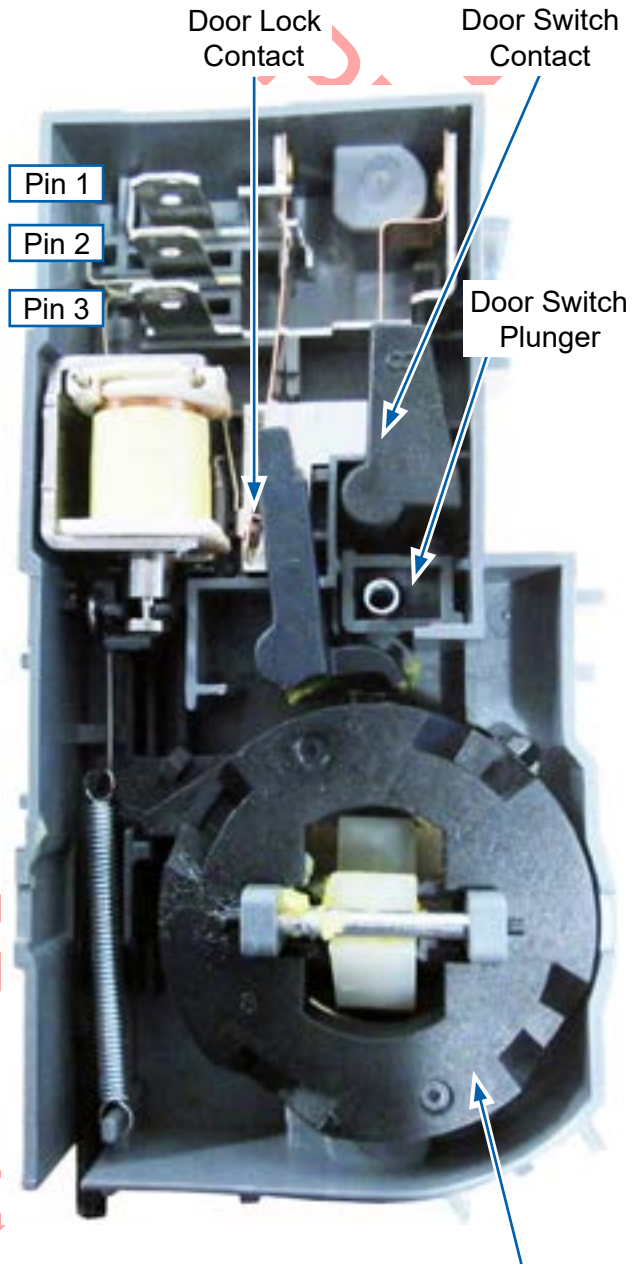
Retry logic should reset on successful lock attempt or on critical lid lock fault.

Door Lock Assembly Diagnosing



When locked J513 pin 2 is line

1. To check the door switch, with the door closed, pins 1 to 2 will read open/no continuity, and pins 2 to 3 will read 120 ohms +/-8%. If no reading from pins 2 to 3, replace the door lock assembly.
2. To check the door lock, with the door closed, pins 1 to 2 will read open/no continuity, and pins 2 to 3 will read 120 ohms +/-8%. If no reading from pins 2 to 3, replace the door lock assembly.
3. With the door unlocked and open, pins 1 to 2 and pins 2 to 3 will read open/no continuity. If there is a reading, replace the door lock assembly.



Shown in unlocked position door open.

(Continued next page)

The image below shows the door lock assembly in the locked position. If the door is locked with clothes in the washer, remove the top panel, reach inside down to the bottom of the lock assembly and push the button in.

When reversing the door assembly, the lock assembly will need to be moved to the opposite side as well. Using the latch tool will assist with removing the lock assembly.

Lock Assembly Removal/Reversal

1. Remove two Phillip's-head screws securing the door latch cover to the front panel.

2. Remove door lock by utilizing latch tool, supplied to the consumer with the washer, to hold the door lock assembly and removing two Phillips-head screws securing the door lock assembly to the panel.

NOTE: The lock assembly can be removed without removing the gasket.

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(Continued next page)

3. Remove lock assembly from front panel and disconnect harness from door lock assembly and set aside.

4. Remove door assembly (See **Door Removal**) to reveal and remove the door latch harness holder.

5. Push the tab securing the harness holder to the front panel and remove. Disconnect the harness connector from the holder.

6. Disconnect the harness connector from the holder.

7. If just reversing the door, reconnect the lock assembly to the harness connector on the opposite side.

Front Panel

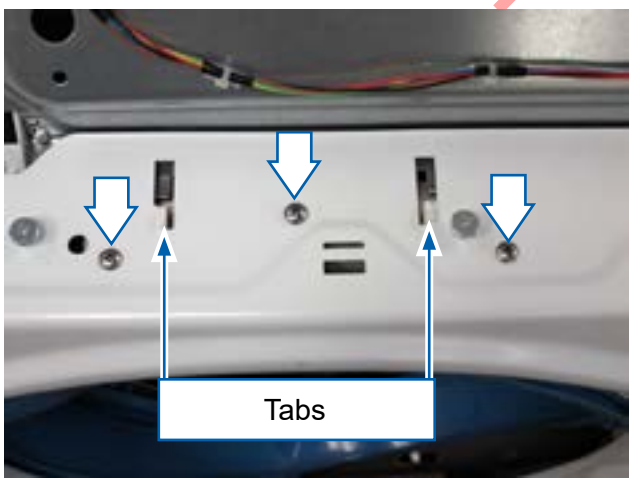
The front panel is inserted onto four posts that are attached to each side of the cabinet and held in place with four Phillips-head screws. A tub gasket provides a watertight seal between the front panel and outer tub. The front of the tub gasket is secured to the front panel flange by a spring and wire located in the fold of the gasket. The door, door lock assembly, and vent damper are attached to the front panel.

Front Panel Removal

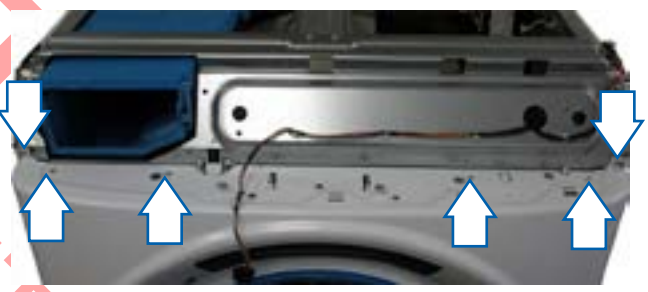
1. Remove control panel (see **Control Panel Removal**).

2. Remove tub gasket (see **Tub Gasket Removal**).

3. Remove three Phillips-head screws securing the vent damper to the front panel, located top-center of the front panel. Slide the damper toward the back to release the vent damper mounting tabs from the front panel.



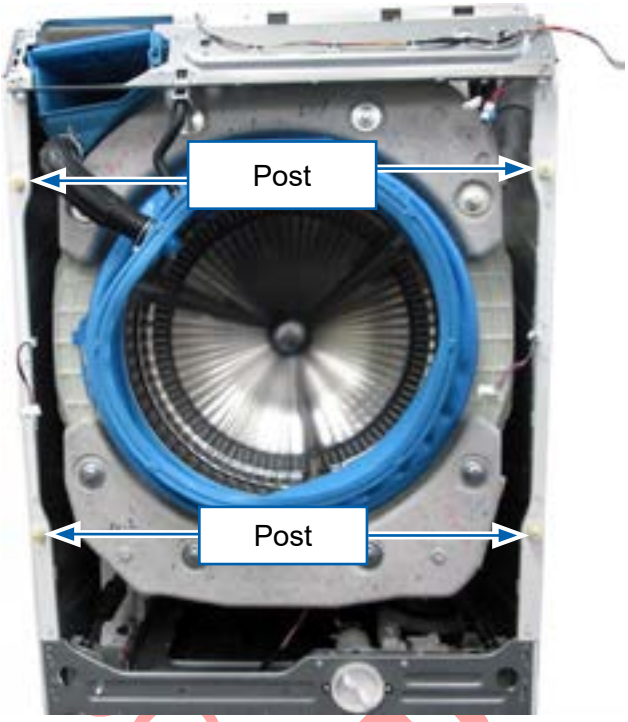
4. Remove six Phillips-head screws at the top of the front panel. The far right screw is a post screw.



NOTE: The drain filter funnel and access door do NOT need to be removed to remove the front panel.

5. Remove three Phillips-head screws from the bottom of the front panel.

6. Lift up and pull out to disengage the front panel from the four posts on the cabinet.



7. Disconnect wiring connector from the door lock assembly.

8. Remove front panel.

NOTE: If reinstalling the original front panel, protect from damage and scratches.

Rear Cover

The rear cover must be removed to access the belt, pulley, pressure chamber, drive motor, and turbidity sensor (on PFW955 models).

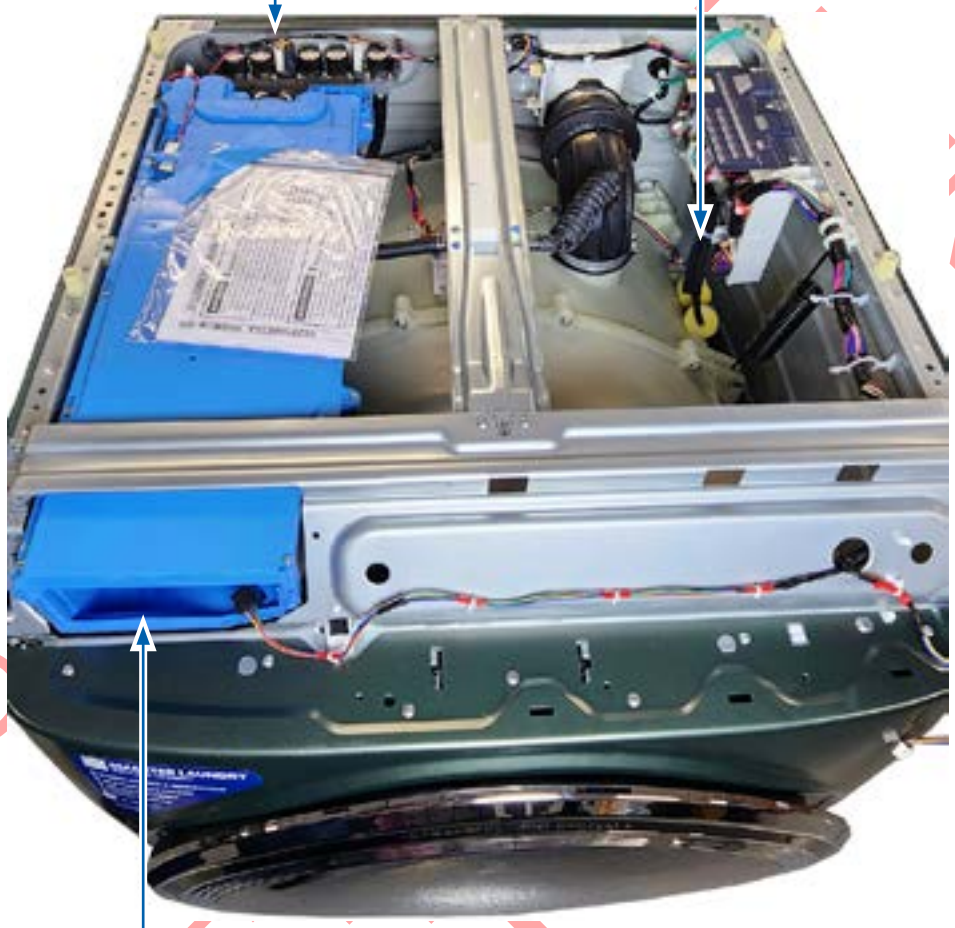
Rear Cover Removal

1. Remove eight Phillips-head screws.

2. Pull the bottom of the panel outward slightly and slide downward to remove from the underside.

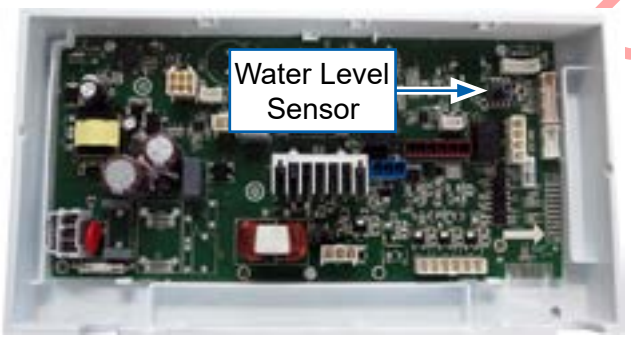
Fill System

Fill System Components Locator



Water Level Pressure Sensor

The water level sensor is located on the main board. A pressure hose connects to the water level sensor at the main board and pressure chamber at the bottom-rear of the outer tub.

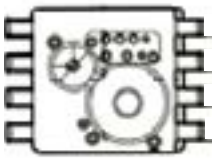


Water Level Sensor Diagnosing

The DC voltage is monitored by the main board, which turns off the water valves when the desired water level is achieved.

Sensor output voltage can be read from the pressure sensor between pins 3 and 4. If shorted between pin 2 and pin 3, it will cause the board to shut down. The board will come back on when short is removed.

1. Not usable
2. Power supply[+]
3. Ground
4. Output



5. Not usable
5. Not usable
5. Not usable
5. Not usable

When the water level rises in the washer tub, air is trapped in the pressure chamber located at the bottom-rear of the outer tub.

As the water level rises, the air pressure in the pressure chamber increases. The pressure is translated into a DC voltage signal by the water level sensor.

The DC voltage will vary, depending upon water level, as seen in the **Pressure Sensor Inches To Voltage** table as shown in the next column.

Pressure Sensor Inches To Voltage		
Course	**Water Height (Inches)**	**Voltage (DC)**
Empty	0"	0.5
Normal Wash	1.86"	0.81
Normal Rinse	2.4"	0.9
Quick Wash	1.86"	0.81
Quick Wash Rinse	2.4"	0.9
Bulky Bedding Wash	2.75"	0.96
Bulky Bedding Rinse	3"	1
Rinse Spin Rinse	2.4	0.9
Self-Clean Wash	4"	1.16
Self-Clean Rinse	4"	1.16
Door Open	7.25"	1.7
Overflow	11"	2.32
Lowest Point In Basket	0.8"	0.63

Water Levels

The wash water level is approximately 1.86-inches deep at the bottom center of the wash basket. **NOTE:** Only approximately 1-in. of water is actually visable.

The drain pump will be activated when the main board detects over 2.32 VDC (Overflow). In flood protection mode (Overflow), the pump will run until reset level is reached. Flood protection is active even in idle state, as long as the door is closed.

Operation of the water level sensor can be checked by using Service Mode test 10 (See Service Mode).

Specific failures associated with the water level sensor can initiate fault codes 6, 8, 20, 25, and 65 (See Fault Codes).

Water Valves

Depending on the washer being serviced, a one and two solenoid valves (GFW510 models), four solenoid valve (GFW550), or five solenoid (GFW650 and up) water valve assembly will be present.

The water valve assembly is located at the rear of the cabinet and held in place with four Phillips-head screws.

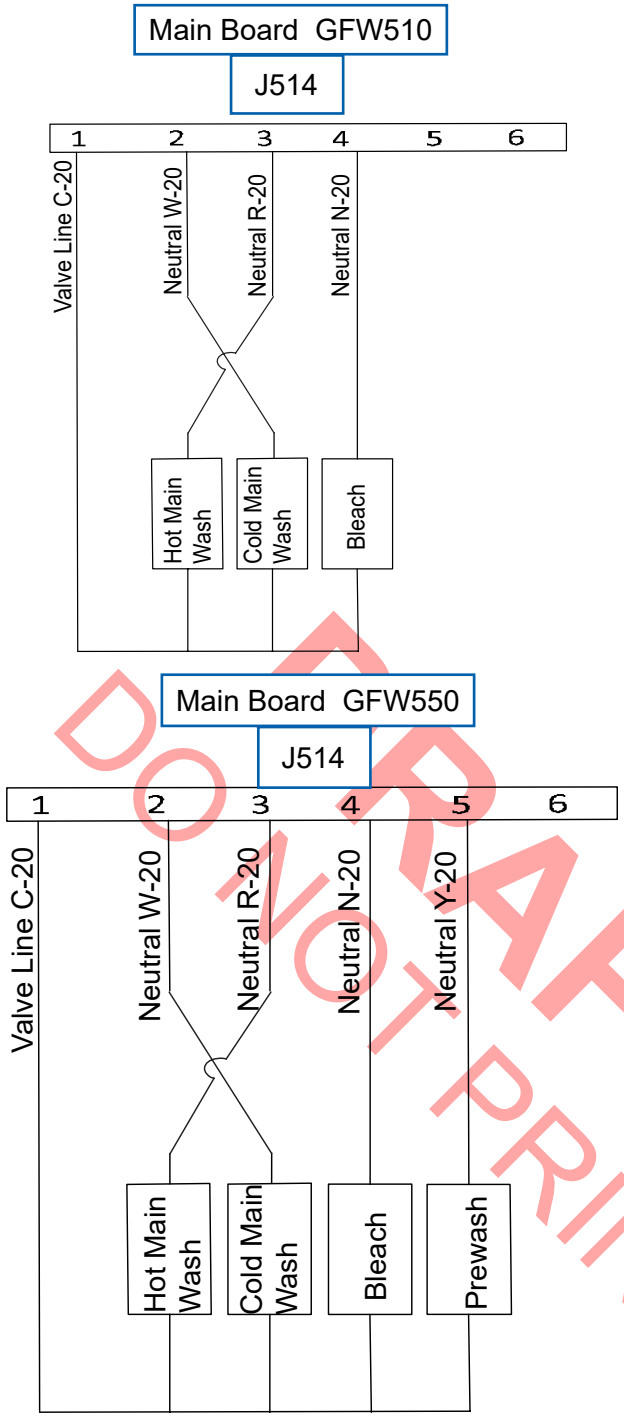
(Continued next page)

Water Valve Diagnosing

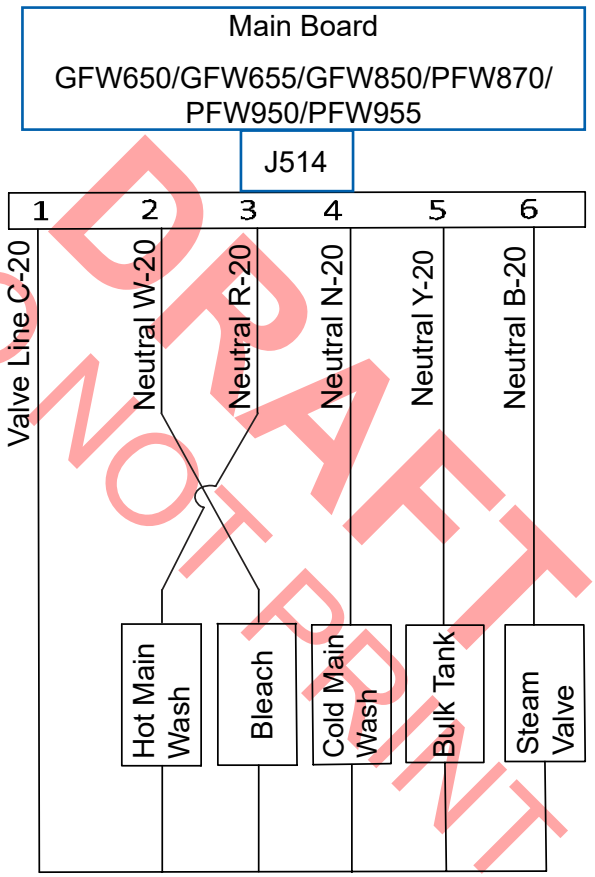
Each solenoid coil has an approximate resistance value of 1070 ohms +/-10%.

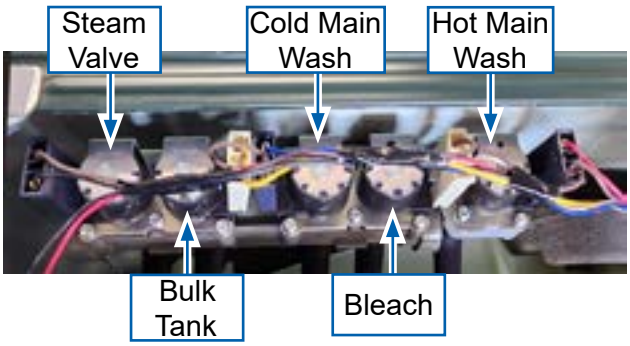
Operation of the water valves can be checked by using Service Mode tests: 6, 7, 8, 19, 21, 22, and 23 (See **Service Mode**).

Failures associated with the water valves can initiate the Consumer Help Indicator, "H2O SUPPLY", if no water enters or is turned off at the house supply. Or any of the following fault codes: 6, 8, 19, 20, 25, 27, or 65 (See **Fault Codes**).



NOTE: Prewash is only on the GFW550 Model.





Water Valve Assembly

GFW650/GFW655/GFW850/PFW870/
PFW950/PFW955

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(*Continued next page*)

Flow Rate Diagnosing

To ensure proper flow rate (supply water pressure), service mode test 10: Pressure Sensor test should complete in less than 3 minutes and 15 seconds. If it takes longer, check to ensure the incoming water pressure is 20 psi minimum at the washer while the washer is filling. Verify the inlet fill screens are clear of debris and that the supply water faucets are turned on completely.

Water Valve Removal

1. Remove top panel (see Top Panel Removal).
2. Disconnect wire harnesses from solenoid coils.
3. Note the location of the water valves outlet hoses and disconnect the hoses:

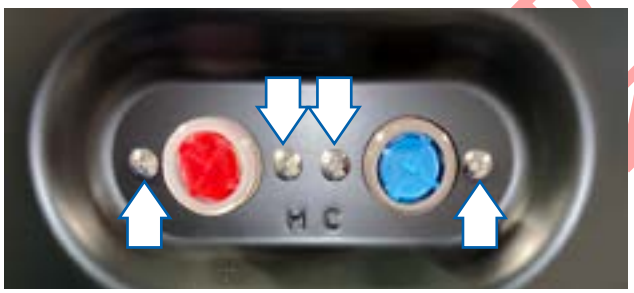
NOTE: The valve outlet hoses can be difficult to remove.

   a. Squeeze the clamp and slide it back.

   b. If necessary, carefully break the hose loose by inserting a small flat-blade screw-driver under the hose to break the seal.

   c. Remove the hose.

4. Remove four Phillips-head screws securing the water valves to the cabinet.

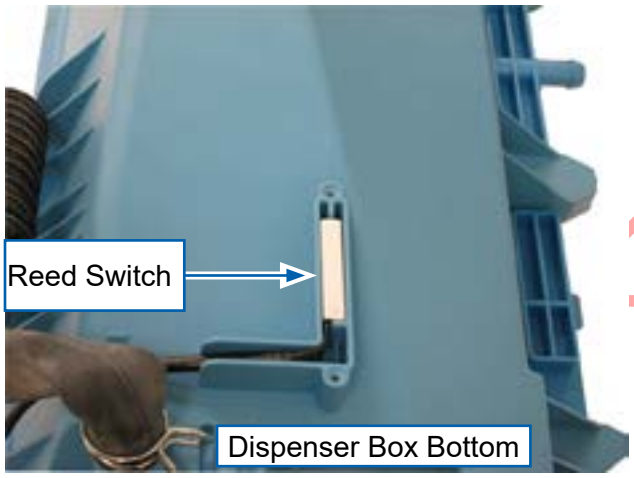


Bulk Dispenser Assembly

The dispenser assembly provides automatic dispensing of detergent, prewash, bleach and fabric softener as long as the user fills the compartments prior to starting the washer.

The products added to the dispenser are diluted with water before they are dispensed into the wash tub. This is accomplished by the water valves and a plastic conveyer snapped to the top of the dispenser that directs the outputs from the valves to the detergent, prewash, bleach and softener chambers. The bulk tank uses water pressure to pull detergent from the tank utilizing a check valve inside the dispenser assembly. There is also a float that has a magnet on the bottom of it. When the detergent level is low, it activates the reed switch on the bottom of the dispenser box alerting the tank is low.

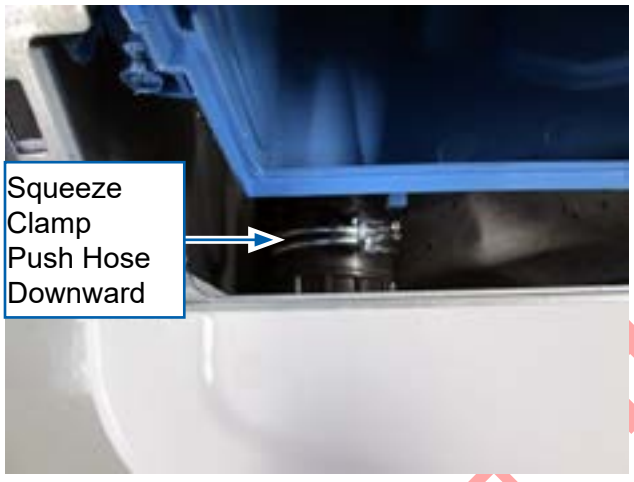
(*Continued next page*)



The bleach cup will always and automatically flush with water near the end of every wash cycle before going into rinse. There is not a consumer selectable function.

Dispenser Assembly Removal

1. Remove control panel (see **Control Panel Removal**).
2. Remove top panel (see **Top Panel Removal**).
3. Squeeze the large hose clamp and slide it down onto the tub fill hose.
4. Remove the tub fill hose from the dispenser box.



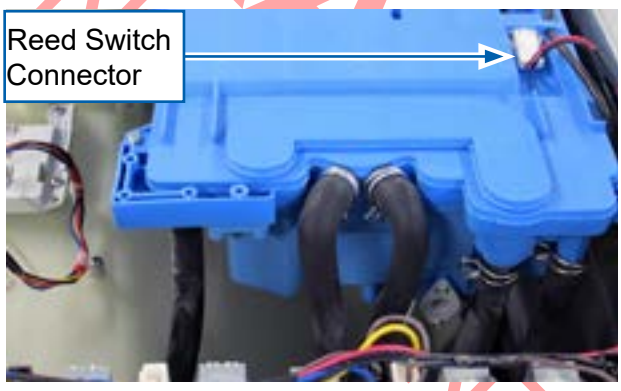
5. Remove the inlet and the dispenser vent hoses from the dispenser:

   a. Squeeze each clamp and slide it back.

   b. If necessary, carefully break each hose loose by inserting a small flat-blade screw-driver under the hose to break the seal.

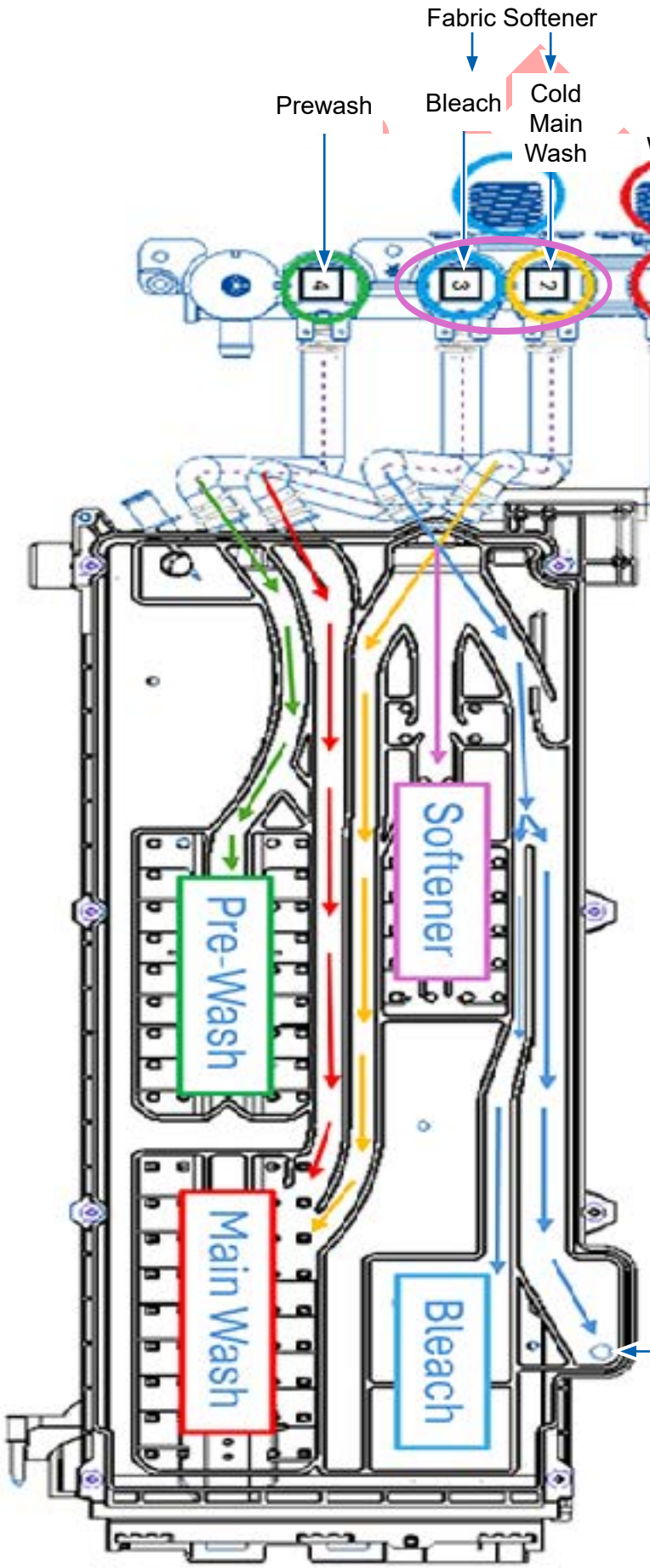
   c. Remove the hoses.

   d. Disconnect the reed switch harness connector.



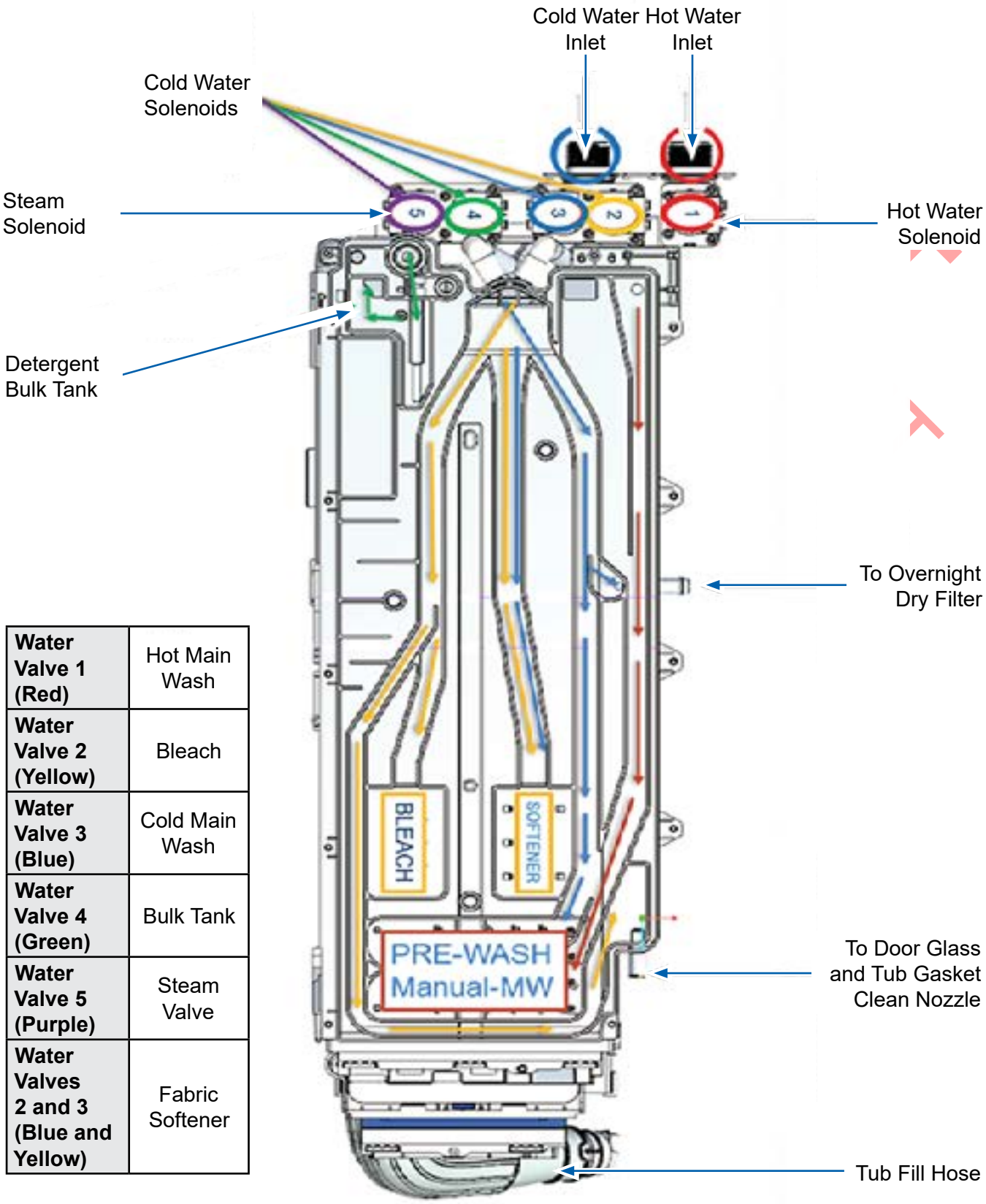
6. Slide box toward the rear to disengage tab from the side rail.

Dispenser Water Flow (Manual Dispense Models GFW510* and GFW550*)



Water Valve 1 (Red)	Hot Main Wash
Water Valve 2 (Yellow)	Cold Main Wash
Water Valve 3 (Blue)	Bleach
Water Valve 4 (Green)	Prewash
Water Valves 2 and 3 (Plum)	Fabric Softener

Dispenser Water Flow (Smart Dispense Models GFW650*, GFW655*, GFW850*, PFW870*, PFW950*, PFW955*)



Water Valve 1 (Red)	Hot Main Wash
Water Valve 2 (Yellow)	Bleach
Water Valve 3 (Blue)	Cold Main Wash
Water Valve 4 (Green)	Bulk Tank
Water Valve 5 (Purple)	Steam Valve
Water Valves 2 and 3 (Blue and Yellow)	Fabric Softener

Drain System

Drain Filter

The drain pump comes with a consumer cleanable filter. It is accessible through an access door at the bottom of the front panel. To access the filter:

1. Use a coin or small flat-blade screwdriver to open the access door.

2. Fold the drain pump funnel down, turn the filter counter-clockwise (CCW) and pull it from the drain pump.

Caution: Under some conditions, up to one quart of water may drain out when the pump drain filter is removed. Ensure to have a shallow pan to catch the excess water.

Drain Pump

The pump consists of a 120 VAC, 60 Hz motor, impeller, impeller housing, and a removable filter that helps prevent foreign objects from entering the pump impeller and drain outlet.

Drain Pump Diagnosing

- The pump runs whenever the washer is in the spin function of a cycle.
- The pump runs if the water level sensor detects voltage over 2.32 VDC (Overflow level), and the washer is plugged in (see **Water Level Pressure Sensor**).
- The pump is capable of eliminating up to 10 gallons per minute.
- Recommended minimum standpipe diameter is 1 1/4-inches.
- Standpipe minimum height is 24-inches, measured from the floor at the washer location.
- Standpipe maximum height is 96-inches, measured from the floor at the washer location.
- The pump motor has an approximate resistance value of 19.5 Ω +/-10%.

The resistance can be checked from the main board, connector J512 pin 2 to pin 3.

Operation of the drain pump can be checked by using Service Mode test 12 (see the **Service Mode**).

Specific failures associated with the drain pump can initiate Fault Code 18 (see **Fault Codes**).

The drain pump is attached to the chassis bottom with two Phillips-head screws. The front of the pump has two stabilizing posts that go through two rubber grommets in the chassis front.

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(*Continued next page*)

Drain Pump Removal

1. Ensure water is drained from the washer as explained in the Drain Filter section.
2. Remove the front panel (see Front Panel Removal).
3. Remove the tub to pump hose and drain hose from the drain pump.

4. Disconnect the harness connectors from the drain pump.
5. Remove two Phillips-head screws securing the drain pump to the chassis bottom.

6. Slide drain pump toward the rear. This will release the two stabilizing posts that go through two rubber grommets in the chassis front. Lift the pump out from the cabinet.

Drive System

Drive Motor Assembly

The drive motor assembly consists of a reversible, variable speed, 3-phase induction DC motor, and sensor. The motor drives the tub drive pulley with a 7-rib belt. The sensor monitors drive motor RPM. The drive motor is checked from the front of the washer and removed from the rear.

Drive Motor Diagnosing

Resistance can be measured at the drive motor wire connector. The drive motor windings have an approximate resistance value of 3.5 Ω +/-7% between any two of the three wires. If resistance is missing from any one of the phases, replace the drive motor.

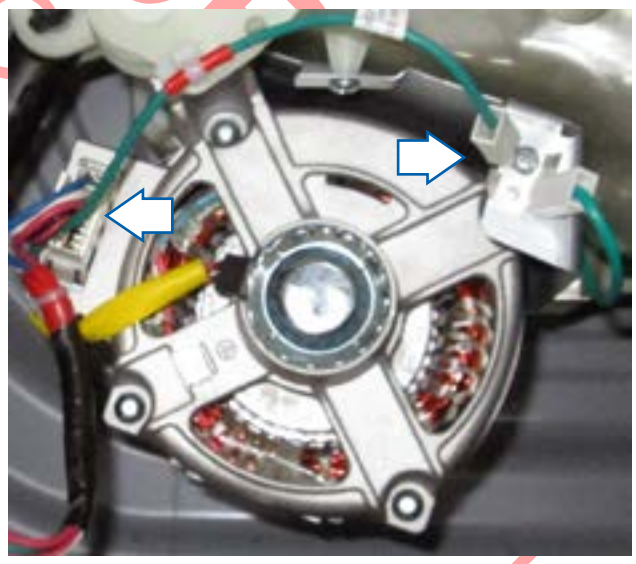
- **Red** to **white**: 3.5 Ω +/-7%
- **Red** to **blue**: 3.5 Ω +/-7%
- **White** to **blue**: 3.5 Ω +/-7%

Operation of the drive motor can be checked by using Service Mode tests 15 and 26 (see **Service Mode**).

Specific failures associated with the drive motor assembly can initiate Fault Code 3 (see **Fault Codes**).

Drive Motor Removal

1. Remove rear cover (see **Rear Cover Removal**).
2. Disconnect the harness from the drive motor along with the ground terminals as looking at the drive motor from the front of the washer.



3. Remove drive belt from drive motor pulley and drive pulley.

4. Remove the 13-mm bolt that secures the drive motor to the tub.

(*Continued next page*)

5. Slide the drive motor toward the rear of the washer and set it on the washer base.

6. Push forward on the tub assembly and rotate the drive motor shaft upwards to remove the motor from the rear of the washer.

NOTE: When reinstalling the drive belt, insure it is positioned using the inner most motor pulley grooves as shown below.

Also, to make it easier to reinstall the drive belt, a wire tie can be used to hold the belt onto the drive pulley as it is rotated.

Drive Motor Inverter Board

The drive motor inverter board converts the input AC voltage to a high DC voltage to energize the drive motor. The drive motor inverter board receives a DC communication voltage from the power board which will make the motor rotate back and forth for agitation or ramp up to a high-speed spin. The inverter board is enclosed in a protective housing and cover located inside the cabinet, at the bottom left of the washer cabinet. The inverter assembly needs to be uninstalled to remove the inverter box cover.

Drive Motor Inverter Diagnosing

The main board supplies 120 VAC from J506 connector pin 2 white wire to pin 3 black wire, to inverter board connector J101 pin 3 to pin 4. It then converts the 120 VAC to a variable DC voltage that goes out to the motor.

CAUTION: DO NOT test the output DC voltage from the inverter to the motor!!

Verify the resistance between any two wires that connect to the drive motor. The resistance should read approximately 3.5 Ω (ohms) +/- 7% for each motor phase winding. If proper drive motor resistance is verified and the drive motor inverter has 120 VAC at the J101 connector, replace the drive motor inverter board.

The drive motor inverter board receives commands at J301 from the main board J601 connector.

BACK

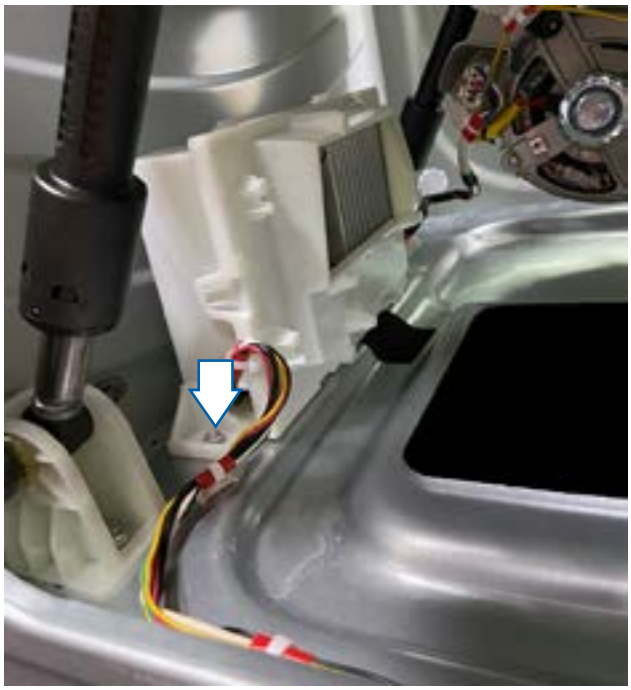
(Continued next page)

Drive Motor Inverter Board Removal

1. Remove control panel (see **Control Panel Removal**).

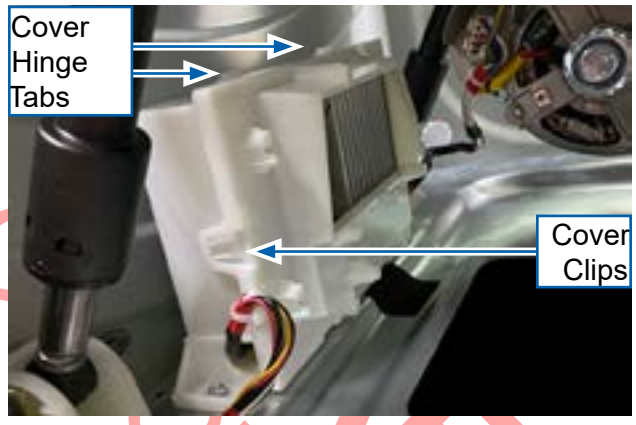
1. Remove front panel (see **Front Panel Removal**).

2. Remove one 3/8" hex-head/Phillips-head screw.



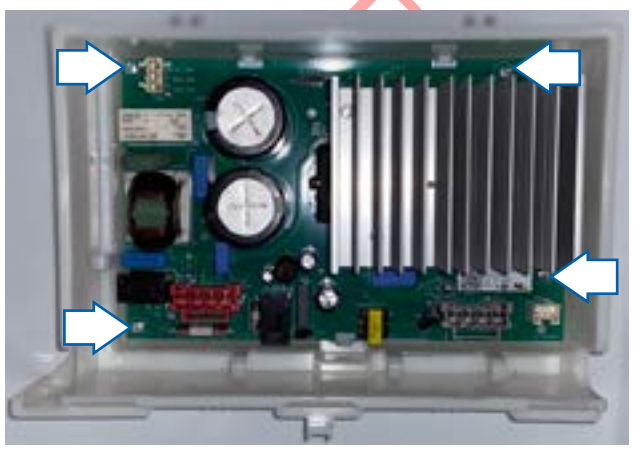
3. Slide the drive motor inverter board assembly slightly toward the front of the washer and lift to unseat from the base panel.

4. Unclip the clips that secure the inverter box cover to the inverter box.

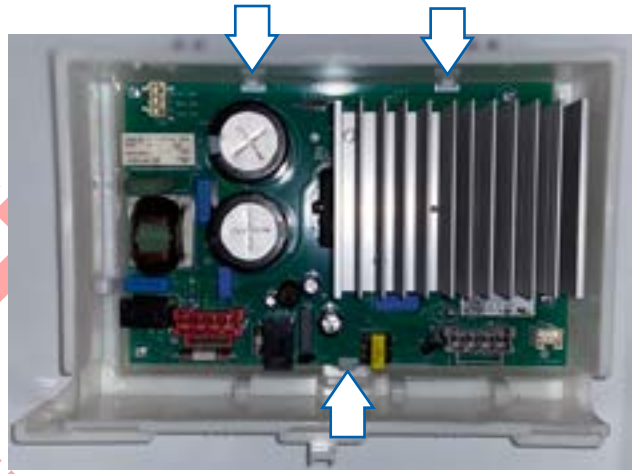


5. Disconnect wiring harness connectors from the inverter board.

6. Remove four Phillips-head screws.

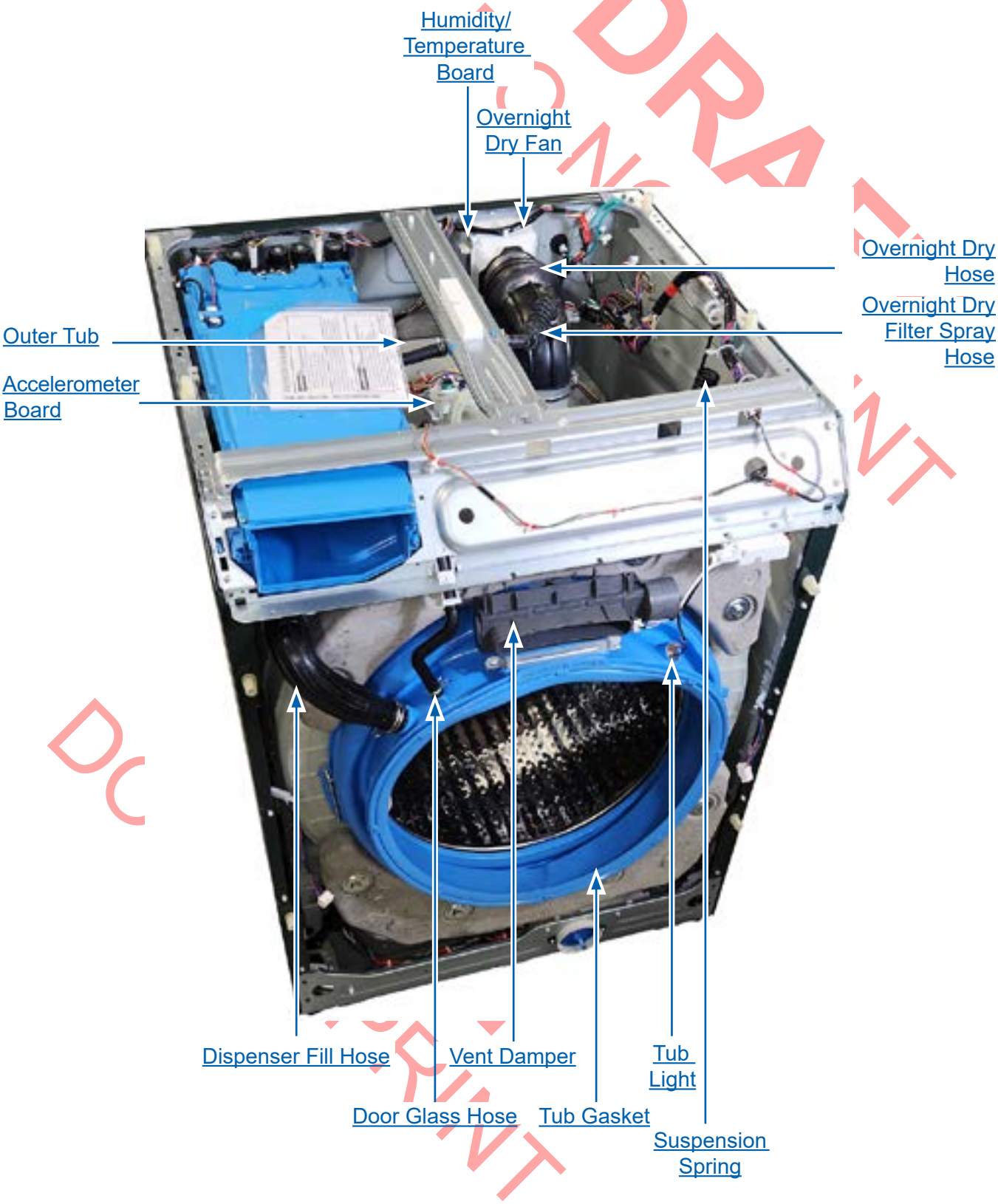


7. There are three tabs securing the drive motor inverter board to the housing. Detach and remove the inverter board from the housing.



Subwasher

Subwasher Components Locator



BACK

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Subwasher Components Locator

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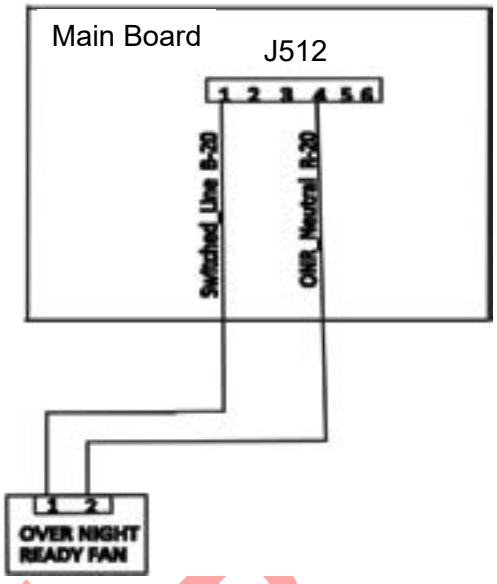
Turbidity Sensor (PFW955 Models Only)

Overnight Dry Fan

The overnight dry fan is used for the 1-Step Wash and Dry cycle of small loads. The 1-Step Wash and Dry cycle is the only cycle when the fan is used. It is not used for the UltraFresh or Tumble Care cycles.

Overnight Dry Fan Diagnosing

The overnight dry fan (ONR Fan) has an AC to DC rectifiier, therefore the resistance of the ONR fan motor can not be read with a voltmeter. Supply voltage (120 VAC) may be checked at main board connector J512, pin 1 to pin 4 while running service mode test 25.

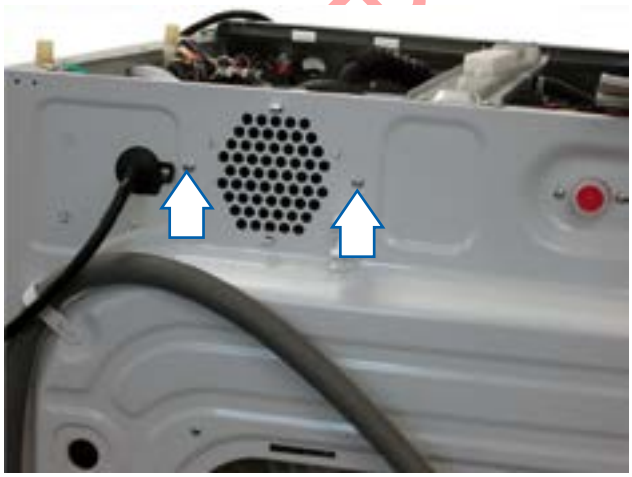


Overnight Dry Fan Removal

1. Remove control panel (see Control Panel Removal).
2. Remove top panel (see Top Panel Removal).
3. Remove the overnight dry hose from the fan housing by pulling up on the hose clip lip.

4. Disconnect fan harness and humidity board connectors (on some models).

5. Remove two Philips-head screws securing the fan housing to the cabinet. The screws are located on the rear of the washer cabinet.



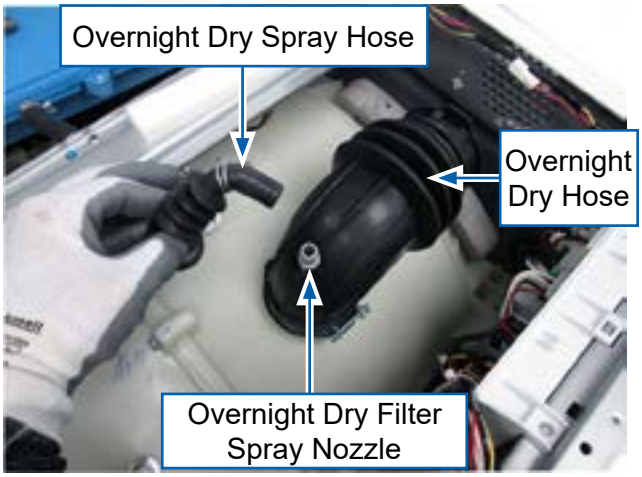
6. Remove fan from the fan housing. When reinstalling the fan into the housing, ensure the tag on the fan is facing out toward where the hose connects to the housing.

Overnight Dry Filter

Located inside the tub is the overnight dry filter, a self-cleaning screen filter.

Overnight Dry Filter Removal

1. To access this filter if it needs to be replaced, remove the hose clamp securing the overnight dry spray hose to the overnight spray nozzle in overnight hose. This is what cleans the filter in the tub.



2. Then remove the clamp that secures the overnight hose to the tub.
3. Lift the hose away from the tub to expose the filter screen.
4. Remove the filter from the tub and clean or replace as needed.

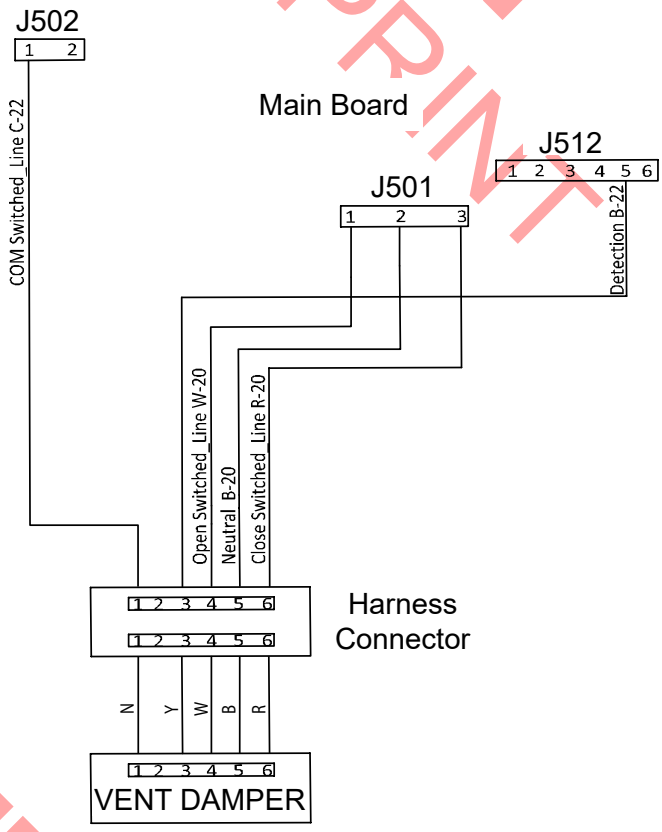
NOTE: There is a small tab to hold Overnight Dry Filter in place in the outer tub. When installing the Overnight Dry Filter, it should be pushed fully down into place.

Vent Damper

The vent damper is used to allow fresh air inside of the tub and basket to help eliminate odors, keep the tub and basket dry when not in use and allow air to circulate when using the 1-Step Wash and Dry feature. It is located at the front of the washer. Screwed to the front panel and clamped to the tub gasket. The vent damper housing color may vary, but there is no difference between them.

Vent Damper Diagnosing

A quick check for the vent damper is to insert a finger into the opening to verify the damper door is not loose in the housing. If good, check vent damper operation using service mode test 24.



- Run Service Mode test 24.
- Pressing **Start** will toggle the vent damper state opened and closed.
- When vent damper feedback indicates that vent damper is open, the soil level "**Light**" LED will blink.
- When vent damper feedback indicates that vent damper is closed, the soil level "**Extra Light**" LED will blink.

BACK

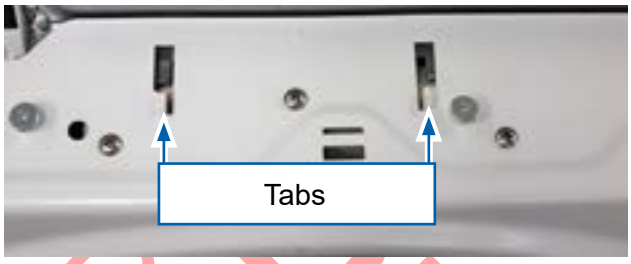
(Continued next page)

NOTE: The door must be closed to perform this test. To verify if the vent damper is opening and closing, open the door, press and hold the door switch button in, then press the Start button to toggle the vent damper open or closed. The vent damper can be seen through the grill at the top of the door opening.

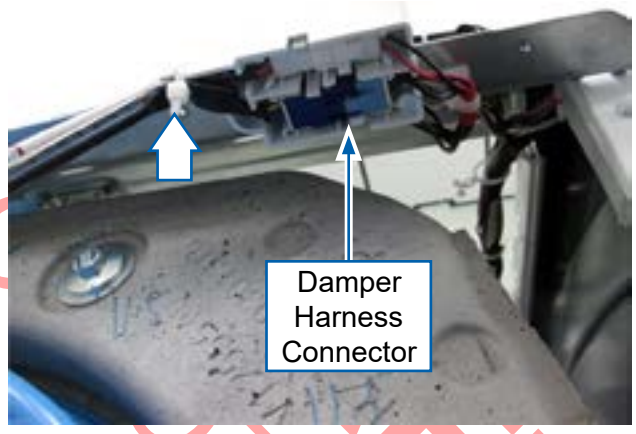
Vent Damper Removal

1. Remove control panel (see **Control Panel Removal**).
2. Remove three Phillips-head screws securing the vent damper to the front panel, located top center of the front panel.

3. Slide vent damper toward the back, releasing the tabs from the panel.



4. Remove tub gasket from front panel (see **Tub Gasket Removal**).
5. Remove front panel (see **Front Panel Removal**).
6. Remove wire-tie securing the damper harness to the harness connector holder.



7. Disconnect vent damper harness connector.
8. Remove vent damper clamp that secures damper to the tub gasket, and remove vent damper.

NOTE: Although removing the wire-tie and disconnecting the vent damper connector can be difficult, vent damper removal can be accomplished without removing the front panel. But the wire-tie must be reinstalled.

Humidity/Temperature Board

The humidity/temperature board is located on the left side (when facing the washer from the front) of the overnight dry fan housing. The humidity/temperature board is currently installed only on PFW955, PFW950 and PFW870 washer models.

The humidity sensor monitors the humidity of the air flowing into and out of the washer through the rear air vent. This information is used during the UltraFresh Vent+ cycle to determine when the inside of the washer has been dehumidified and is close to ambient conditions. This board only functions during the UltraFresh Vent+ cycle.

The temperature sensor feature on the humidity board is **NOT** utilized for washer operation.

Humidity/Temperature Board Diagnosing

- Run Service Mode Test 27 (see Service Mode).
- If the humidity or temperature readings from service mode test 27 is out of range, check all humidity board wiring connections.
- If above repair actions don't clear the fault, replace humidity board

Service Mode Test 27: Humidity/Temperature Board:

- Pressing **Start** will start the test.

  Once the test is started, the system will show the actual humidity value in the SDD.

  a. While showing humidity the soil level "**Light**" LED will blink.

  b. Humidity value will be in Relative Humidity Percentage X 10 it means a 75.3 % will be shown as "753".

- By pressing **Start** again the system will show the actual temperature value (the one coming from the humidity board) in the SDD.

  a. While showing the temperature the soil level "**Extra Light**" LED will blink.

  b. The temperature value will be in Fahrenheit x10 it means 68.3 F will be shown as "683".

- By pressing **Start** again, the system will be back to step 1 (show humidity again).

NOTE: This test is only applicable for PFW955, PFW950 and PFW870 models with humidity/temperature sensor board.

Humidity/Temperature Board Removal

1. Remove control panel (see Control Panel Removal).
2. Remove top panel (see Top Panel Removal).
3. Disconnect wiring connectors from humidity/temperature board.
4. Remove one Phillips-head screw and remove humidity/temperature board from overnight ready fan housing.

Tub Light LED

The tub light is an LED light used to illuminate the basket to make viewing easier for the consumer. It is mounted into the door gasket. The tub light will turn on when the door is opened or if turned on from the control panel. The LED will turn off after five minutes. If the light is already on and the door is opened; the 5-minute timer will restart. When the door is closed, the light will turn off.

NOTE: The GFW510* and GFW550* models **do not** have a tub light.

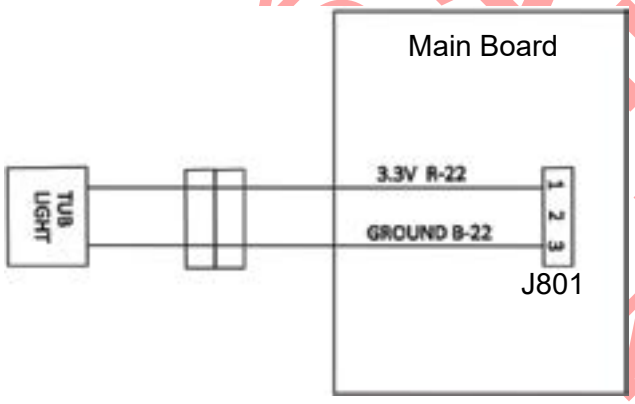
Tub Light LED Diagnosing

The LED tub light is a diode that lights up. It operates on approximately 3.3 VDC. The voltage is checked from the J801 connector on the main board. If voltage is present but the LED does not light up, verify the light is good following the steps below.

1. Disconnect the J801 from the main board or disconnect the in-line connector to the LED.
2. Set the meter to Diode setting.
3. With the black lead of the meter on the **red** wire of the LED, and the red lead of the meter on the **black** wire of the LED, the meter should read approximately 0.727, if good.

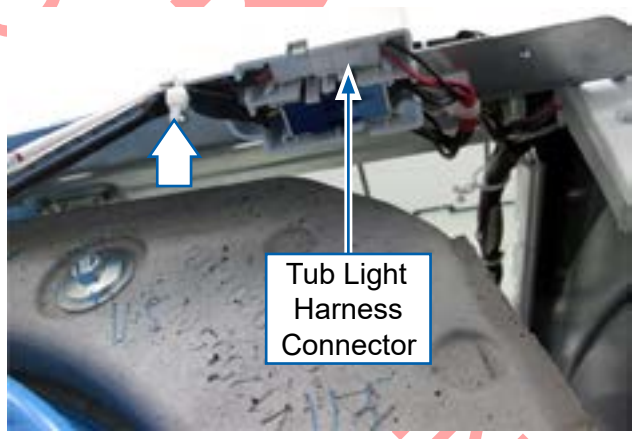
If the red lead of the meter is on the **red** wire and the black lead on the **black** wire, there should be no reading.

There is also an inline connector for the tub light. The complete main harness does not need to be replaced unless the harness is found to be the fault.



Tub Light Removal

1. Remove control panel (see **Control Panel Removal**).
2. Remove front panel (see **Front Panel Removal**).
3. Remove wire-tie securing the tub light connector to the harness connector holder.



4. Push the light through the gasket from the inside.

Tub Gasket

The tub gasket provides a watertight seal between the front panel and the outer tub. The front of the tub gasket is secured to the front panel flange by a wire clamp located in the fold of the gasket. The back of the tub gasket is attached to the outer tub lip with a wire and bolt gasket clamp.

Tub Gasket Removal

1. Remove control panel (see **Control Panel Removal**).
2. Remove top panel (see **Top Panel Removal**).
3. Open and remove the door assembly for easy handling of the front panel.
4. Remove tub gasket clamp by grasping the wire clamp spring eyelet with pliers at the bottom of the tub gasket, pull down and away from the gasket. Tuck the gasket inward.

5. Remove front panel (see **Front Panel Removal**).
6. Disconnect the hose that connects to the glass clean nozzle.

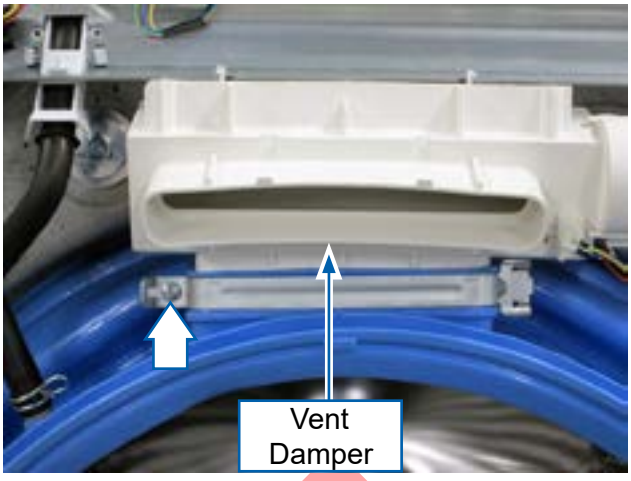
7. Pull the nozzle out from the inside of the gasket. There is a notch for positioning when reinstalling.

8. Disconnect the fill hose from the gasket. It is a resistance fit to the gasket. Pull it out of the opening. No need to disconnect the hose clamp.

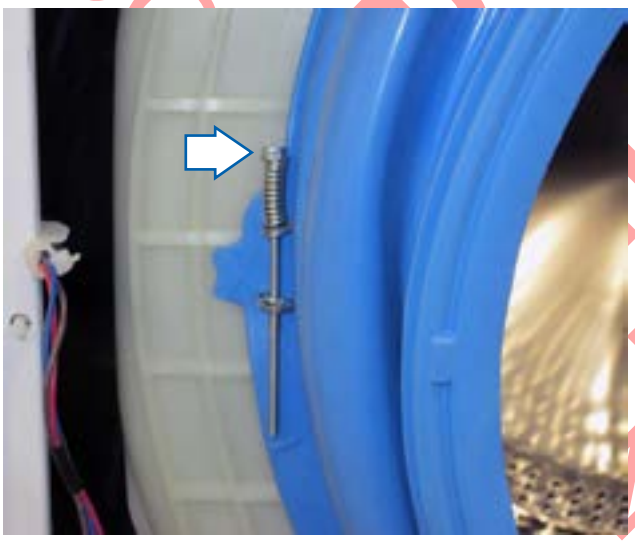
(*Continued next page*)

9. Remove the LED tub light by pushing it through to the outside of the gasket.

10. Remove one Phillips-head screw from clamp securing vent damper to tub gasket.



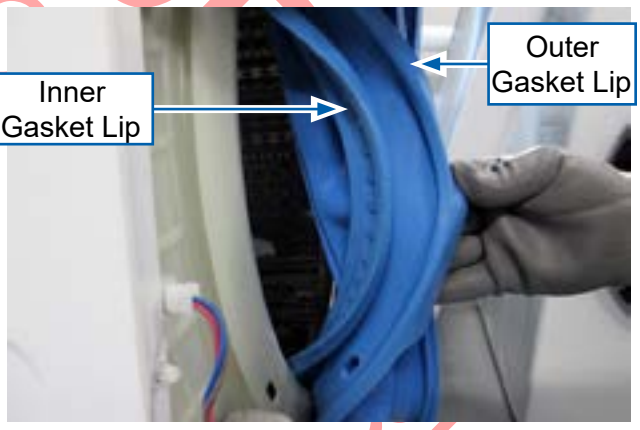
11. Remove inner clamp using a 9/32-in. socket, turning the 9/32-in. hex-head screw counter-clockwise (CCW) to loosen.



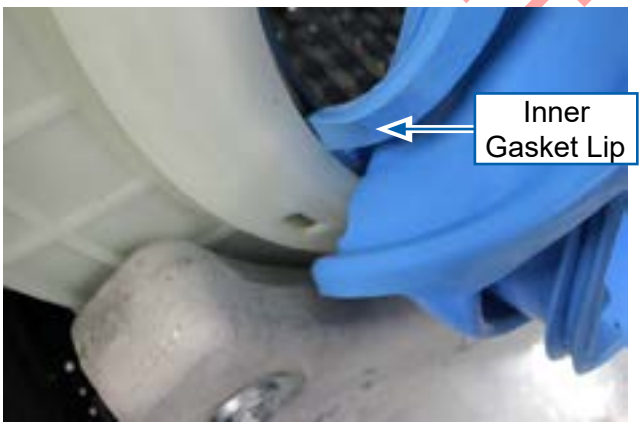
12. Pull the clamp and gasket away from the tub.

Tub Gasket Reinstallation

1. When reinstalling the gasket, lubricate both inner and outer lips of the gasket with liquid detergent. This will make the gasket slip into position easily. Ensure the tub gasket to tub locator holes are aligned when installing tub gasket.

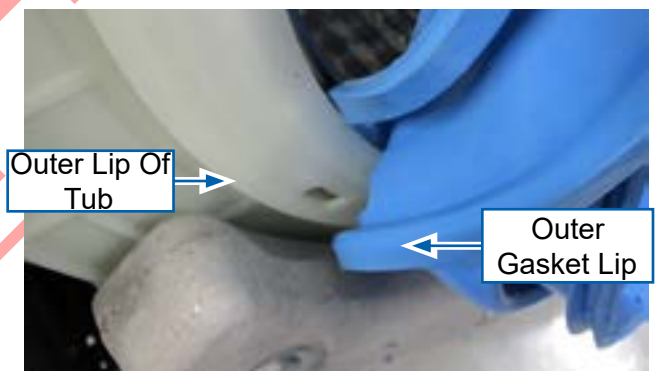


2. Insert the inner lip of the gasket between the basket and the tub ensuring it is seated all the way in position.



3. Ensure that the gasket does not rub the basket by rotating the basket. If it rubs the basket, make adjustments as needed before installing the inner clamp.

4. Push the outer lip of the gasket over the outer lip of the tub. The lubricant (liquid detergent) will allow the gasket to slip into place.



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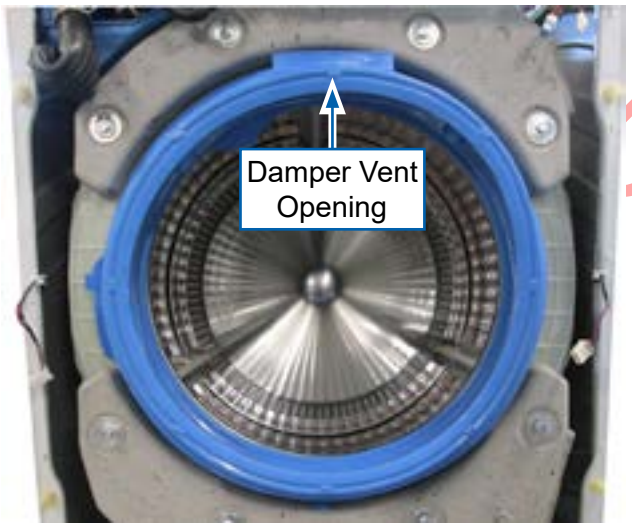
5. Verify the gasket is properly positioned. The damper vent opening should be located at the 12 o'clock position.

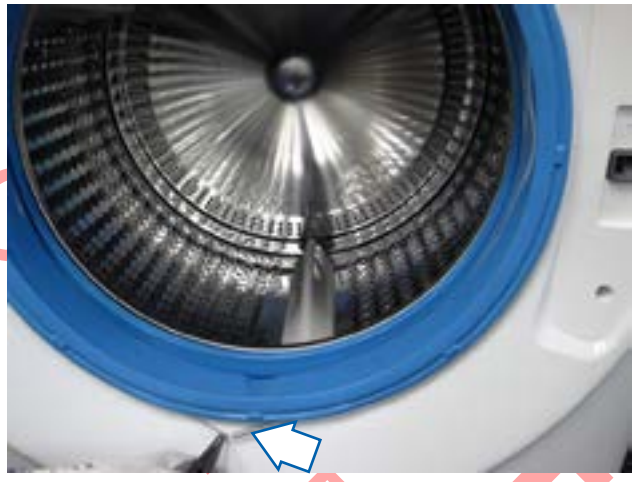


6. Reinstall the inner gasket clamp. The screw part of the clamp should be located at the 9 o'clock position.

7. Reinstall the front panel, lock assembly, and door.

8. With the spring of the wire clamp at the bottom of the tub gasket (boot), insert the wire clamp into the lip of the gasket.

9. Using pliers, pull the spring of the wire clamp, stretching it so the rest of the wire clamp can be inserted into the lip of the gasket.



10. Again, ensure the gasket is still seated flat against the front panel. If not, make necessary adjustments.

11. Reinstall the tub LED light, door glass spray nozzle, damper and dispenser fill hose nozzle into the gasket.

Heater Relay

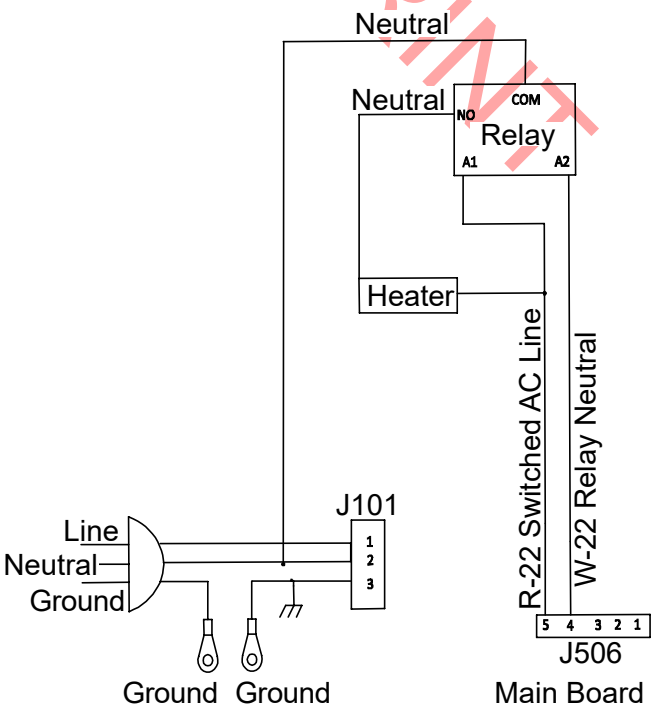
Early production models GFW650SPN0SN, GFW650SSN0WW, GFW850SPN0DG, GFW850SPN0RS, and GFW850SSN0WW were produced using a separate, stand-alone heater relay to control heater operation.

The heater relay is located attached to the heat shield above the main board.

The heater operates only when **Steam** or **Extra Hot** options are selected.

Heater Relay Diagnosing

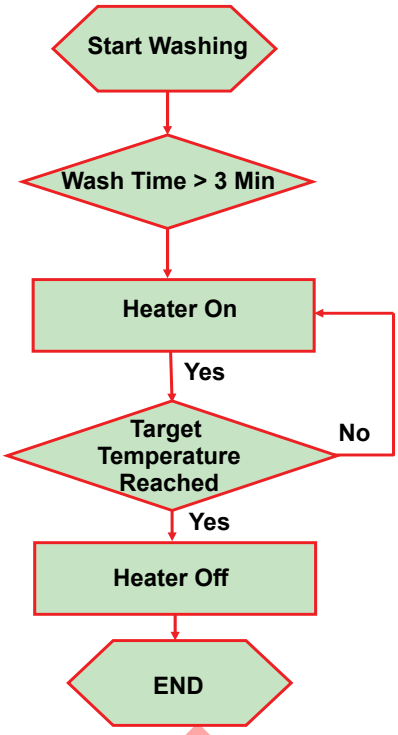
1. Turn heater on using Service Mode Test 20 (see Service Mode).
2. Verify the displayed temperature shown during Service Mode Test 20 increases.
3. If the temperature does not increase during Service Mode Test 20, restart Service Mode Test 20 and verify 120 VAC is present at main board connector J506, pin 5 to pin 4.
4. If voltage is present at connector J506, verify 120 VAC at the heater relay terminals A1 to A2.
5. If no voltage is present at heater relay terminals A1 to A2, check wiring harness continuity and replace harness if open circuit.
6. If voltage is present at heater relay terminals A1 to A2, verify 120 VAC from heater relay terminals A1 to the normally open (NO) heater relay terminal.
7. If no voltage is present at heater relay terminals A1 to the normally open (NO) heater relay terminal, the heater relay has failed. The heater relay is not a service part and can not be replaced.
8. If voltage is present at heater relay terminals A1 to the normally open (NO) heater relay terminal, verify 120 VAC at heater wiring terminals.
9. If no voltage is present at heater, check wiring harness continuity and replace harness if open circuit.
10. If voltage is present at heater, replace heater assembly.



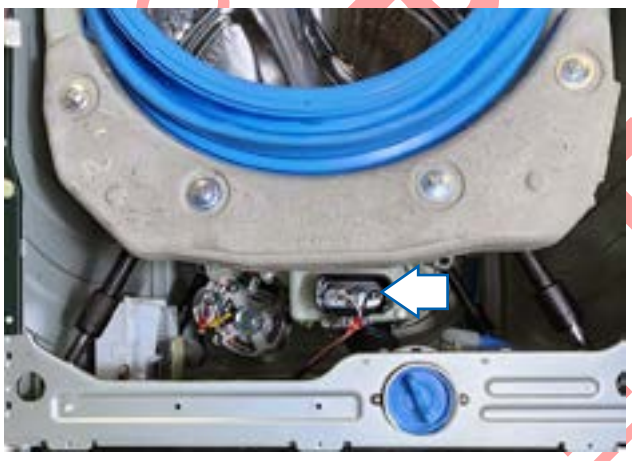
Heater Assembly

- The heater operates only when **Steam** or **Extra Hot** options are selected (on some models).
- The control does not pause to allow the heater to heat the wash water to the target temperature.

Heater Algorithm



The heater assembly is located at the bottom front of the outer tub. It is accessed by removing the front panel.



The heater assembly is held in place by a bracket attached to the outside of the outer tub, and a 10-mm hex-nut which presses a rubber gasket against the tub opening.

When the 10-mm hex-nut is tightened, it squeezes the rubber gasket between two mounting plates to seal the heater assembly to the opening of the tub.

Heating Element Diagnosing

Voltage, amperage, and resistance can be checked from the J506 connector pins 4 to 5 on the main board.

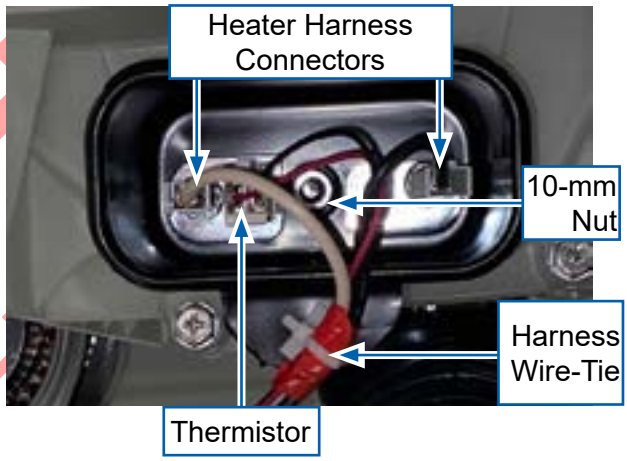
- 120 VAC
- Approximately 1,000 watts
- Approximately 8.3 amps
- 14.85 Ω (ohms) +/-5%

Operation of the heater can be checked by using Service Mode Test 20 (see **Service Mode**).

Specific failures associated with the heater assembly can initiate Fault Codes 37 (see **Fault Codes**).

Heater Removal

1. Drain the washer using the drain pump filter (see **Drain Pump Filter**).
2. Remove front panel (see **Front Panel Removal**).
3. Disconnect thermistor harness connector.
4. Disconnect heater harness connectors from heater.
5. Remove wire-tie securing harness to heater sheild.



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6. Loosen the 10-mm hex-nut until it is flush with the end of the stud.

7. Push inward on the 10-mm hex-nut to relax the rubber gasket.

8. Grasp and pull the heater straight out from the outer tub.

Heater Installation

1. When reinstalling the heater, ensure that it slides into the heater support bracket attached to the inside of the tub as shown below.

2. Seat the heater assembly in the tub opening.

3. Install the 10-mm hex-nut and use a torque wrench to tighten the 10-mm hex-nut to 35 to 40 inch-pounds (in-lb) of torque.

CAUTION: Proper torque must be applied to the 10-mm hex-nut to assure a proper seal. Under-torqueing could cause water leakage; over-torqueing could cause the tub to crack.

4. Connect the thermistor wire harness.

5. Connect the heater harness connectors to the heater.

Thermistor

The control uses a water temperature sensor (thermistor) to regulate the wash water temperature.

To determine the temperature of the incoming water, the washer control measures the difference between the voltage sent and the voltage returned from the water temperature sensor. The washer control then makes temperature adjustments by activating the appropriate water valve.

Thermistor Diagnosing

The thermistor has a negative temperature coefficient (as temperature increases, resistance decreases).

Resistance can be measured at the thermistor wire harness. Make sure to disconnect the wire harness to isolate the thermistor before taking resistance readings.

Temp °C	Temp °F	Approx. Ω (ohms)
-10°	14°	548722
-5°	23°	45778
0°	32°	35975
5°	41°	28516
10°	50°	22763
15°	59°	18279
20°	68°	14772
25°	77°	11981
30°	86°	9786
35°	95°	8047
40°	104°	6653
45°	113°	5523
50°	122°	4608
55°	131°	3856
60°	140°	3243
65°	149°	2744
70°	158°	2332
75°	167°	1990
80°	176°	1704
85°	185°	1464
90°	194°	1262
95°	203°	1093
100°	212°	949.9

(*Continued next page*)

Operation of the thermistor can be checked by using Service mode test 8 (see **Service Mode**).

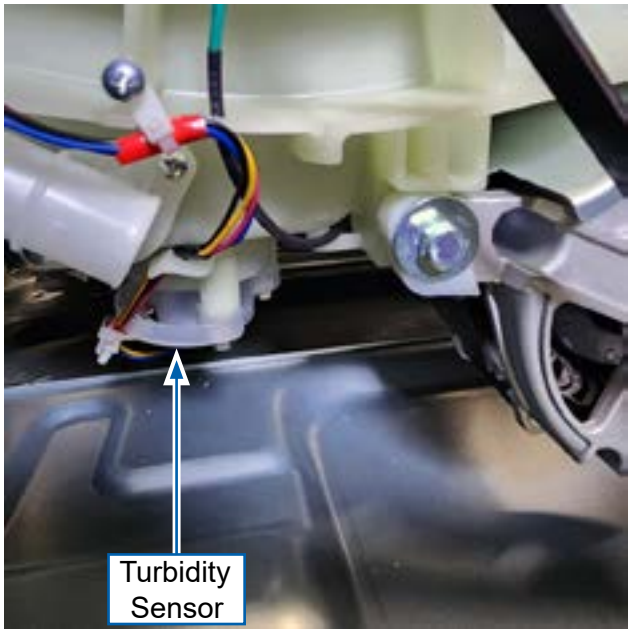
Specific failures associated with the thermistor can initiate Fault Code F3 (see **Fault Codes**).

NOTE: The thermistor is part of the heater assembly. If the thermistorhas failed, replace the heater assembly.

Heater Assembly

Water Quality (Turbidity) Sensor

Water Quality (Turbidity) Sensor senses the dirt level of the water (water clarity) using light (optical sensor). Based on the water clarity at various points in the wash cycle, the washer will adjust the wash duration or add an extra rinse when Smart Wash & Rinse is enabled. The turbidity sensor is located at the bottom-rear of the tub assembly.



Turbidity Sensor Diagnosing

- Run Service Mode Test 28 (see Service Mode).
- If the turbidity reading from service mode test 28 is out of range, press and hold the **Start** button for 3 seconds to calibrate the sensor.
- Check all turbidity sensor connections.
- If above repair actions don't clear the fault, replace tub mounted sensor.

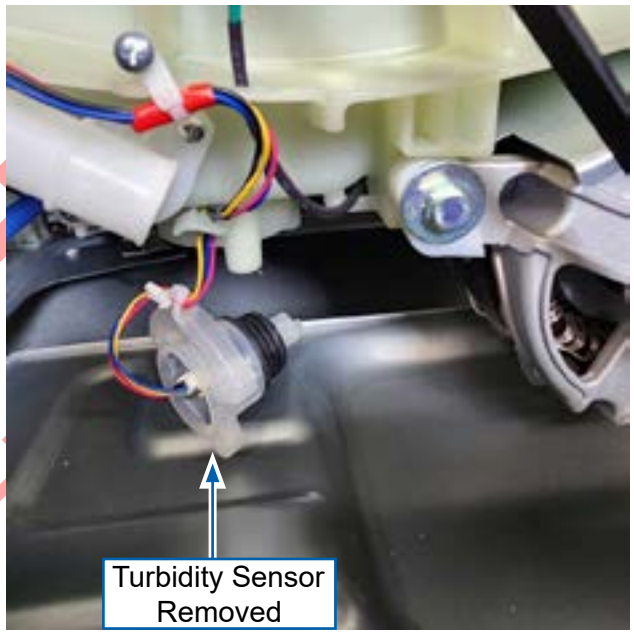
Service Mode Test 28:

- Pressing **Start** will start the test.
- The washer will fill with cold water to submerge the sensor while the seven-segment display flashes "88".
- Once the fill is complete, press the **Start** button to toggle through the following sensor readings.
  - Turbidity (**WASH** LED ON)
  - Conductivity (**RINSE** LED ON)
  - Temperature (**SPIN** LED ON)
- With a function selected, the 7-Segment Display will display the following:
  - "00" while calibrating (turbidity function only) or reading.
  - "01" if reading is in expected range
  - "02" if reading is out of range or sensor is not responding.
- If the Turbidity function displays "02", press and hold the **Start** button for 3 seconds to calibrate. **NOTE:** Only the Turbidity function can be calibrated. If "02" continues to be displayed, check all sensor connections, and replace the sensor if nessasary.

Turbidity Sensor Removal

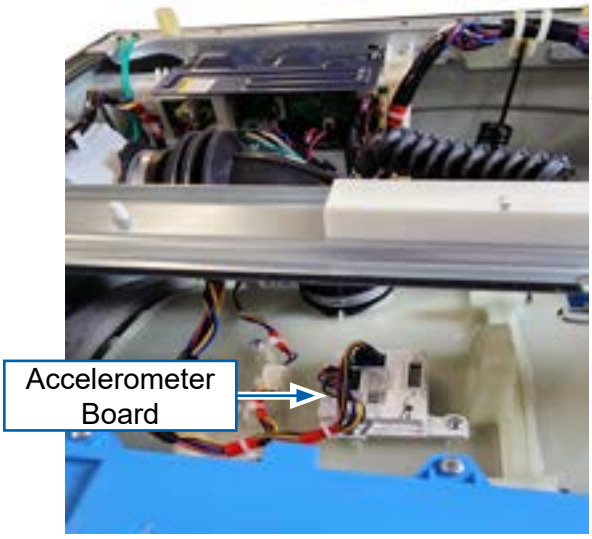
Turbidity sensor is located at the bottom-rear of the tub assembly.

1. Remove rear access cover (see Rear Cover Removal).
2. Disconnect the wiring connector from the turbidity sensor.
3. Remove three 10-mm hex-head screws securing the turbidity sensor to the tub.
4. Pull down to remove turbidity sensor from tub.



Accelerometer Board

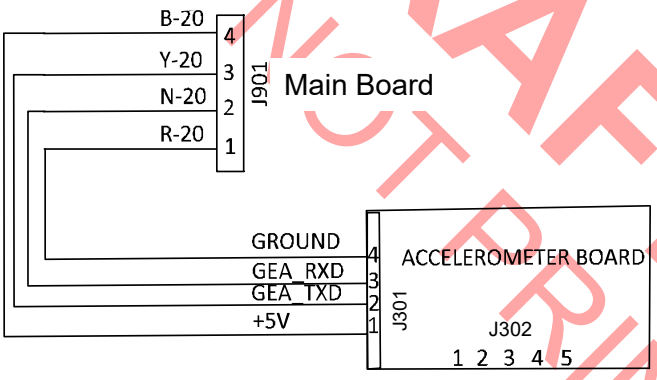
The accelerometer board is located on the top side of the tub directly under the cross brace.



The accelerometer senses when the load is off balance. Upon acceleration of the basket during spin, the accelerometer sends a signal back to the main board. This will cause the main board to stop the spin cycle and try to rebalance the load.

Accelerometer Board Diagnosing

Check for 5 VDC from pin 1 to pin 4 at connector J301 on the accelerometer board. If voltage is present, replace the accelerometer board. If no voltage, check between pin 1 and pin 4 at J901 connector on the main board. If voltage is present, check the harness continuity. If no voltage is present at J901 of the main board, replace the main board.



Accelerometer Board Removal

1. Remove the control panel (see Control Panel Removal).
2. Remove top cover (see Top Panel Removal).
3. Remove three Phillips-head screws securing the accelerometer board to the tub.
4. Disconnect the wiring harness connector or connectors from the accelerometer board.

NOTE: There is a wire-tie securing the harness to the accelerometer board that needs to be removed. This can be done by squeezing the barbed end of the wire-tie using a pair of needle-nose pliers.

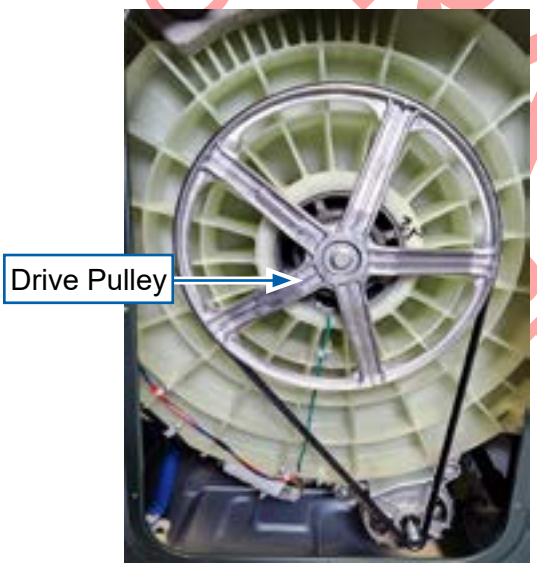
Outer Tub Assembly

The outer tub assembly is constructed in two halves and contains the wash basket. The bearing and seal assembly is part of the outer tub rear half. The outer tub assembly is supported by two suspension springs and four dampers. Each spring is located between the top of the tub assembly and a cabinet top brace, one on each side. Washer stabilization is achieved by the use of four dampers that are located between the bottom of the tub assembly and chassis, two on each side.

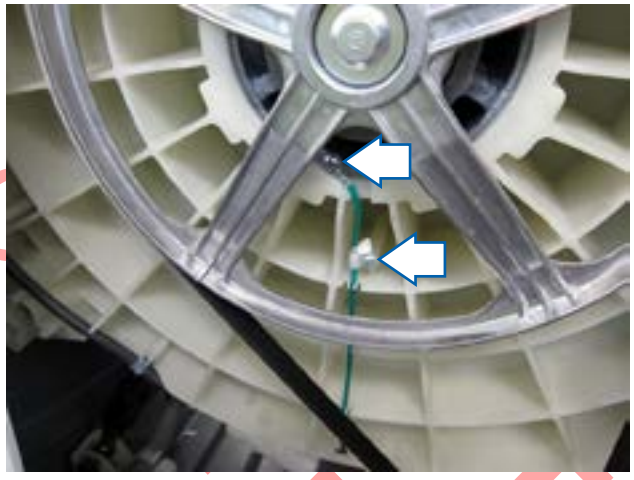
Outer Tub Assembly Removal

Removing the outer tub assembly requires it to be taken apart while still in the cabinet.

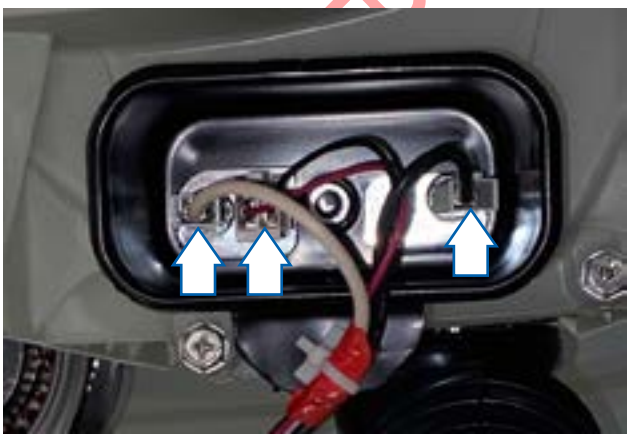
1. Ensure washer is empty using the drain pump filter (see **Drain Pump Filter**).
2. Remove control panel (see **Control Panel Removal**).
3. Remove top cover (see **Top Panel Removal**).
4. Remove front panel (see **Front Panel Removal**).
5. Remove rear cover (see **Rear Cover Removal**).
6. Remove the drive belt from the drive motor and drive pulley.
7. Using a 15-mm socket, remove the drive pulley from the basket shaft on the rear of the washer.



8. Disconnect the green ground wire from the tub bearing on the rear tub to the motor shield.



9. Disconnect wiring from the heater and thermistor.



10. Remove the heater assembly from the front side of the tub (see **Heater Removal**).
11. Remove the pressure chamber from the rear of the tub. Disconnect the pressure hose and remove two Phillips-head screws securing the pressure chamber to the tub.

(*Continued next page*)

12. Remove the drain hose from the bottom of the tub.

13. Remove the tub fill hose and door glass clean hose from the tub gasket (see **Tub Gasket Removal**).

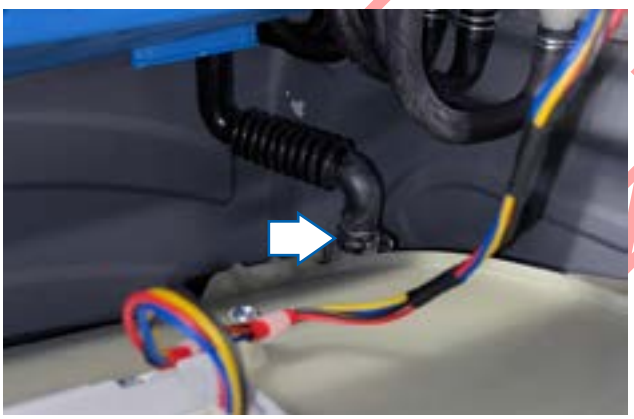
14. Remove overnight dry fan and hoses (see **Overnight Dry Fan Removal**).

15. Disconnect accelerometer wiring connector and remove accelerometer (see **Acclerometer Board Removal**).

16. Remove the two front counter weights by removing the eight 13-mm bolts securing the weights to the tub; there are four for the top weight and four for the bottom weight. There are mounting guide posts molded onto the tub so the weights will not fall when the bolts are removed.

CAUTION: The counter weights are approximately 15-pounds each, and could cause injury if dropped on fingers or toes.

17. Disconnect the steam fill hose from the tub.



18. Disengage the front dampers from the tub (see **Dampers**).

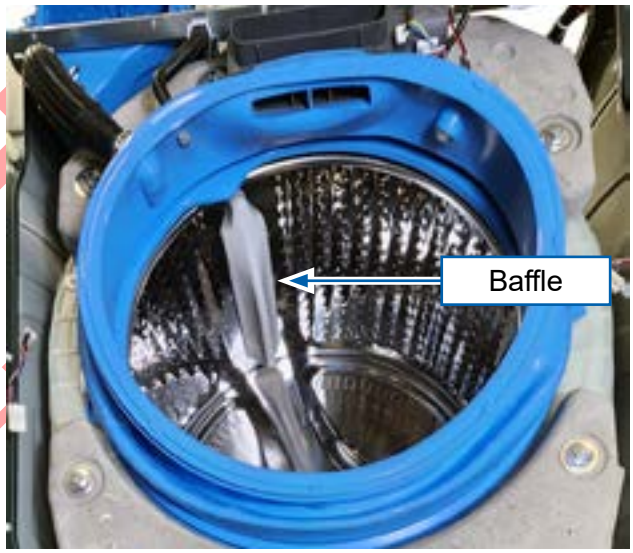
19. Remove fifteen 10-mm bolts securing the tub front half to the tub rear half.

NOTE: There is a seal between the front and rear halves of the tub. If the seal is damaged when separating, replace it.

20. Slide the inner basket out of the rear half of the tub.

NOTE: The rear tub seal and bearing are pressed into the rear half of the tub. To replace them, the rear tub half will need to be replaced.

21. The basket baffles can be remove by removing two Phillips-head screws and sliding the baffle toward the front of the basket and pulling out.



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22. Disengage the two remaining dampers from the tub.

23. Disengage suspension springs supporting the rear half of the tub and remove the rear tub half.

NOTE: Both the right and left suspension springs connect to the molded tub spring mounts. For proper balance, ensure that the suspension springs are installed in the original tub mount locations.

32-in. Depth Models: Suspension Spring Connection Location

GFW510

GFW550

GFW650

GFW655

34-in. Depth Models: Suspension Spring Connection Location

GFW850

PFW870

PFW950

PFW955

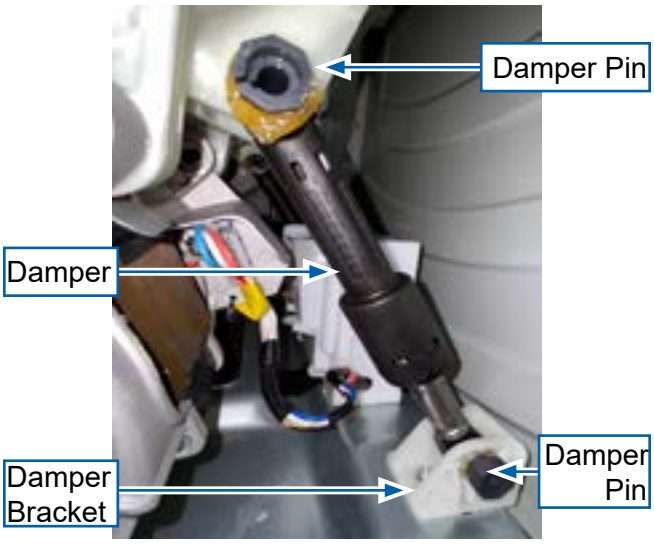
Suspension System

Suspension Springs (x2)

Dampers (x4)

Dampers

There are four dampers securing the tub to the bottom chassis. There are two dampers on the left side, and two dampers on the right side. Each of the four dampers are attached to the outer tub and the bottom damper brackets with a plastic removable damper pin.

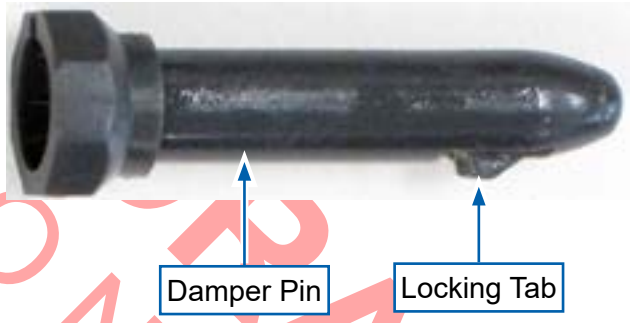


The bracket is secured to the bottom of the chassis with a combination 8-mm hex-head Phillips-head bolt.

Damper Removal

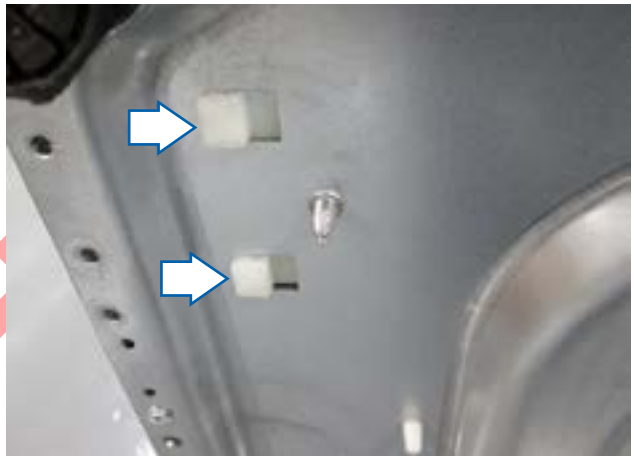
1. Depending on the damper being repaired, remove the front panel or the rear access panel (see **Front Panel Removal** or **Rear Cover Removal**).
2. Remove the plastic damper pin from the top and bottom of the damper that secures it to the tub and the base bracket. The locking tab on the damper pin needs to be pushed in for the pin to come out.

NOTE: A 1/2-inch socket works well to hold the locking tab in while pulling the damper pin out.



3. Remove damper from washer.
4. If the damper bracket needs to be replaced, a Phillips-head or 8-mm socket can be used to remove the bolt.

5. Then slide the damper bracket away from the cabinet side to remove it from the washer base.



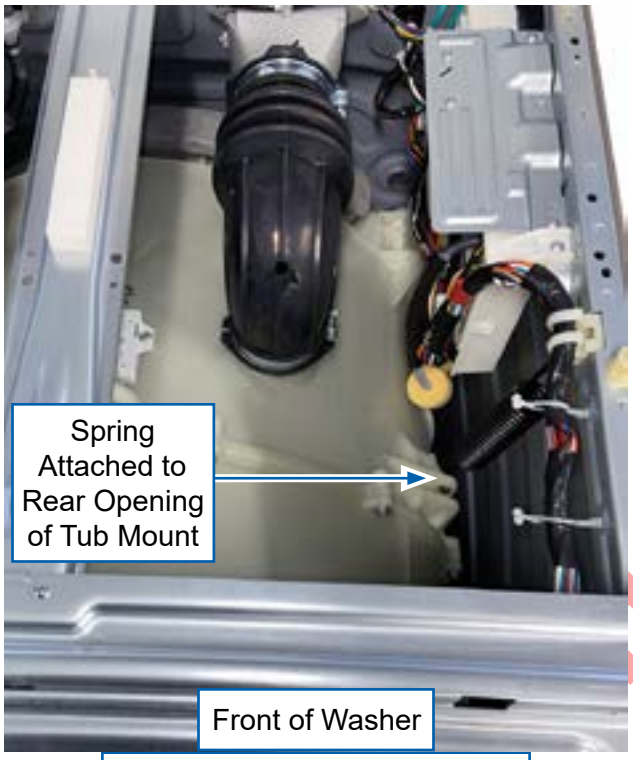
Suspension Springs

There are two suspension springs utilized to support the outer tub assembly. The suspension springs are attached to the left and right top sides of the washer cabinet and connect to the outer tub in the openings of the molded tub spring mounts. The connection location of the suspension springs to the outer tub will be different depending on the model is being serviced. For 32-in. depth models (GFW510, GFW550, GFW650, and GFW655) the rear tub mount hole is utilized. For 34-in. depth models (GFW850, PFW870, PFW950, and PFW955) the front tub mount hole is utilized.

Suspension Springs Removal

1. Remove control panel (see **Control Panel Removal**).
2. Remove top cover (see **Top Panel Removal**).
3. If removing the left (facing the washer front the front) suspension spring, remove the dispenser assembly (see **Dispenser Assembly Removal**).
4. Pull upward on the outer tub assembly to take tension off of the suspension spring and remove the spring from molded tub mount and the top of the cabinet side.

NOTE: Both the right and left suspension springs connect to the molded tub spring mounts. For proper balance, ensure that the suspension springs are installed in the original tub mount locations.



32-in. Depth Models: Suspension Spring Connection Location

GFW510

GFW550

GFW650

GFW655

34-in. Depth Models: Suspension Spring Connection Location

GFW850

PFW870

PFW950

PFW955

Consumer Fault Code Mode

To Enter Consumer Fault Code Mode:

- From an idle state only (all LED's off), press and hold Start pad for 10 seconds.
- After holding Start pad for 10 seconds, all LED's will turn on, signifying user may release Start pad.

To Navigate Consumer Fault Code Mode:

- The Pause and Door Lock LED's should be constantly blinking while in CFCM.
- The first fault, if present, will show on the display.
- Pressing the Start pad will display the next fault code: Fault code will blink on the Seven Segment Display (SSD).
- At the end of the fault list, or if no faults present: Seven Segment Display (SSD) will blink "—".

Exiting Consumer Fault Code Mode Entry

- Pressing any pad (other than Start) or turning any knob will exit Consumer Fault Code Mode.
- Consumer Fault Code Mode will time out after 10 minutes.

Consumer Help Indicator (CHI)	
CHI is the way to communicate a simple remedy for some situations that the consumer can perform without the need to call for service. The chart below describes the helpful messages the consumer may notice scrolling on the display when they return to start another load. These messages will provide simple remedies the consumer can quickly perform.	
"Spin" light blinking	If an out-of-balance condition is detected by the washer, the Spin light will blink during the remaining portion of the cycle and will stay illuminated for a short time after cycle completion. When this occurs, the washer is taking actions to correct the out-of-balance condition and complete the cycle normally. In some cases, the washer may not be able to balance the load and spin up to full speed. If the load is more wet than normal at the end of the cycle, redistribute the load evenly in the wash basket and run a Drain & Spin cycle.
"H2O SUPPLY" (Water not entering washer)	Check house water supply. Forget to turn on one or both supply valves after installation or coming back from vacation? As soon as the message starts to scroll, the washer will initiate a 4-minute lock-out period. The washer controls won't respond/change during this time. After the 4 minutes, begin cycle again. If trying to bypass the lock-out period by unplugging the washer, the 4-minute timer will start over again.
"CAnCELEd"	"CAnCELEd" may scroll on the display if the machine was paused for longer than 24 hours, water was left in the machine for 15-minutes with door open, or if the machine has stopped itself before the cycle completed due to certain errors. As soon as the message starts to scroll, the washer will initiate a 4-minute lock-out period. The washer controls won't respond/change during this time. After the 4-minute period, begin the cycle again. If trying to bypass the lock-out period by unplugging the washer, the 4-minute timer will start over again. If the problem persists, call GE Appliances at 800.GE.CARES (800.432.2737) for service.
"Door"	Will be display if after three cycles have been started without opening the door. Washer will not start another cycle until the door is opened. If it still will not start after the door is opened, it is a possible door switch issue.

Service Mode

The washer has a Service Mode that can be utilized by the service technician in order to test critical components and to access fault codes. This Service Mode will help the service technician to quickly identify failed or improper operation of washer components.

Diagnostic Guide

Before testing the washer operation using the Service Mode, check the following:

1. Is the power cord firmly plugged into the outlet?
2. Has the house fuse or circuit breaker tripped or blown?
3. Are both the hot and the cold water faucets open and are the hoses not kinked or clogged?
4. Before opening the washer to access electrical components, remove power to the washer.
5. Check all connections. Look for broken or loose wires, failed terminal, or wires not pressed into connections thoroughly.
6. Check and clean connectors in common areas where the possibility of corrosion can occur.
7. Resistance check must be made with power cord unplugged from outlet, and with wiring harness or connectors disconnected.

To Enter Service Mode:

- Press and hold Start pad while rotating the cycle selection knob seven clicks and then release the Start pad.

To Navigate Service Mode:

- Once service mode is entered all LEDs will be flashing.
- The cycle selection Knob is now used to control the test selection menu.
  - – Rotating the knob clockwise will increment the test numbers in the display.
  - – Rotating the knob counter clockwise will decrement the test number in the display.
- Once test number is selected, pressing Start will begin the selected test.

To Exit Service Mode:

- Service mode will time out after 30 minutes if there is no user activity.
- Press and hold (3 second) Start pad.
- Press Power pad.

(*Continued next page*)

Service Mode Tests

Test No.	Test Name	Description
0	All LED's on	All LED's on the display will blink including "88" on the SSD at a rate of 1Hz
1	Fault Codes	• Pressing Start pad will blink the first fault code. • Display fault code in SSD. • At end of list, OR if no fault codes are present, unit will flash "- -". • Use the fault table. • Faults with an ID greater than 100 will not be displayed. These are "engineering faults".
2	Personality ID	• Pressing Start/Pause will start the test. • Flash the set personality after pressing Start. • Use SSD to show personality.
3	MC Application Version (Critical)	After selecting this test, press the Start pad to toggle through the software version number as follows: Example: v01.23 • First Press: "01" on SSD • Second Press: "23" on SSD
4	MC Application Version (Non Critical)	After selecting this test, press the Start pad to toggle through the software version number as follows: Example: v01.23 • First Press: "01" on SSD • Second Press: "23" on SSD
5	MC Parametric Version (Non Critical)	After selecting this test, press the Start pad to toggle through the software version number as follows: Example: v01.23 • First Press: "01" on SSD • Second Press: "23" on SSD **NOTE:** We only show the Non-Critical version number because the Critical parametric version number must match the application Non-Critical version number for the control to boot. If you get to service mode, then the parametric Critical version is correct.
6	Hot Water Valve	• When the test is started the display will go blank, the door will lock, and the hot water valve will turn on. • Pressing Start will toggle the hot water valve on and off. • Door will lock while test is active. • Test will have a timeout for how long valve will be on (1 minute). • The valve will turn off when the test is exited.
7	Cold Water Valve	• When the test is started the display will go blank, the door will lock, and the cold water valve will turn on. • Pressing Start/Pause will toggle the cold water valve on and off. • Door will lock while test is active. • Test will have a timeout for how long valve will be on (1 minute). • The valve will turn off when the test is exited.
8	Fabric Softener Dispenser	• When the test is started the display will go blank, the door will lock, and the fabric softener valve will turn on. • Pressing Start/Pause will toggle the fabric softener valve on and off. • Door will lock while test is active. • Test will have a timeout for how long valve will be on (1 minute). • The valve will turn off when the test is exited.

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(*Continued next page*)

Test No.	Test Name	Description
10	Pressure Sensor	• Pressing Start will start the test. • Door will lock while test is active. • Pressure sensor test will have a timeout. • Cold valve will turn on at start of the test. • The test will watch for the following pressure levels: 3", 4", 5", 6", 7". • At start of the test, the following LEDs will start blinking: Extra Light, Light, Normal, Heavy, Extra Heavy. • As each pressure level is crossed, the corresponding LED will stop blinking. **NOTE:** To ensure proper flow rate, this test should complete in leass than 3 minutes and 15 seconds. If it takes longer, check to ensure the incoming water pressure is 20 psi minimum at the washer while the washer is filling and that the inlet fill screens are clear of debris.
12	Drain Pump	• When the test is started the display will go blank, and the drain pump will turn on. • Pressing Start/Pause will toggle the drain pump on and off. • Test will have a timeout for how long the drain pump will be on (1minute). • The drain pump will turn off when the test is exited.
13	Door Switch	• Pressing Start will start the test. • When the door is open, the Soil Level "Light" LED will blink. • When the door is closed, the Soil Level "Extra Light" LED will blink.
14	Spin	• Pressing Start will start the test. • Spin test will perform child safety (Energizes the drain pump for two short pulses). • The door must be closed to start the test. If door is open, the lock LED will blink. • When started, the display will go blank, the door will be locked, and the unit will begin spinning. **NOTE:** No RPM feedback is displayed during the spin test. For RPM feedback shown on the display, perform test 26 - Accelerated Spin Test.When mode shift is complete, the unit will begin spinning. • Spin test will have a timeout (4 minutes). • No OOB detection during the spin. • The spin will stop when the test is exited. • The door will unlock once the speed reaches 0 after the test is exited.
15	Tumble	• Pressing Start will start the test. • When started, the test shall perform child safety (Energizes the drain pump for two short pulses), the door shall lock, then the basket will rotate counter-clockwise (CCW) for 10 seconds, pause for 1 second, then rotate clockwise (CW) for 10 seconds, and repeat this sequence until the tumble test is exited. NOTE: No RPM feedback is displayed during the tumble test. For RPM feedback shown on the display, perform test 26 - Accelerated Spin Test. • The tumble will stop when the test is exited.
16	Clear All Fault Codes	• Pressing Start will clear all Fault codes.
17	Change Personality	• Pressing Start will start the test. • Pressing the Start pad will display the next valid personality. • Pressing and holding the Start pad for 3 seconds will save the personality and reboot the system.
19	Bulk Detergent Dispense Valve	• When the test is started the display will go blank, the door will lock, and the bulk detergent dispenser valve will turn on. • Pressing Start will toggle the valve on and off. • Test requires door to close before beginning. Door will lock while test is active. • Test will have a timeout for how long valve will be on (10 seconds using the control panel or 20 seconds using SmartHQ Service). • The valve will turn off when the test is exited.

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(*Continued next page*)

Test No.	Test Name	Description
20	Heater and Thermistor	• Pressing Start will start the test. • Heater test should perform child safety (Energizes the drain pump for two short pulses). • The door must be closed and locked during the test. If the door is open, the lock LED will blink. • When started, the door will lock and the steam valve will turn on to submerge the heating element in water. • After fill, the heater will turn on and the inner basket may tumble periodically. • The test will have a timeout (5 minutes). • The SSD display will show the thermistor temperature when the test is started and when the test is paused.
21	Prewash Valve	• When the test is started the display will go blank, the door will lock, and the prewash valve will turn on. • Pressing Start will toggle the valve on and off. • Test requires door to close before beginning. Door will lock while test is active. • Test will have a timeout for how long valve will be on (1 minute). • The valve will turn off when the test is exited.
22	Steam Valve	• When the test is started the display will go blank, the door will lock, and the steam valve will turn on. • Pressing Start will toggle the valve on and off. • Test will have a timeout for how long valve will be on (1 minute). • The valve will turn off when the test is exited.
23	Bleach Valve	• When the test is started the display will go blank, the door will lock, and the bleach valve will turn on. • Pressing Start will toggle the valve on and off. • Test will have a timeout for how long valve will be on (1 minute). • The valve will turn off when the test is exited.
24	Vent Damper	• Pressing Start will toggle the damper state. • When the damper feedback indicates that the damper is open, the Soil Level "Light" LED will blink. • When the damper feedback indicates that the damper is closed, the Soil Level "Extra Light" LED will blink. **NOTE:** The door must be closed to perform this test. To verify if the vent damper is opening and closing, open the door, press and hold the door switch button in, then press the Start button to toggle the vent damper open or closed. The vent damper can be seen through the grill at the top of the door opening.
25	Over Night Ready Fan/ ONR Fan	• Pressing Start will toggle the fan state. • When the fan is on, the Soil Level "Light" LED will blink. • When the fan is off, the Soil Level "Extra Light" LED will blink. • Not all models have a ONR fan.
26	Accelerated Spin Test	• Pressing Start will start the test. • Spin test will perform child safety (Energizes the drain pump for two short pulses). • The door must be closed to start the test. If the door is open, the lock LED will blink. • Damper must be closed to start ramp up. • The door will be locked. • Spin test will have a timeout (approximately 2 minutes). • No OOB detection during the spin. • The spin will stop when the test is exited. • The damper will be open and door will unlock once the speed reaches 0 after the test is exited. • Seven Segment Display (SSD) will display the current speed. The SSD only has 3 digits so the displayed speed needs to be multiplied by 10. For example, the SSD shows 110 so the speed is 1,100 RPM.

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Test No.	Test Name	Description
27	Humidity / Temperature board (PFW955, PFW950 and PFW870 models only) - Display Value	• Pressing Start will start the test. • Once the test is started, the system will show the actual humidity value in the SDD. a. While showing humidity the Soil Level “Light” LED will blink. b. Humidity value will be in Relative Humidity Percentage X 10 it means a 75.3 % will be shown as “753”. • By pressing Start again the system will show the actual temperature value (the one coming from the humidity board) in the SDD. a. While showing the temperature the Soil Level “Extra Light” LED will blink. b. The temperature value will be in Fahrenheit x10 it means 68.3 F will be shown as “683”. • By pressing Start again, the system will be back to step 1 (show humidity again). **NOTE:** This test is only applicable for PFW955, PFW950 and PFW870 models with humidity sensor board.
28	Water Quality Sensor (Turbidity Sensor) (PFW955 model only)	• Pressing Start will start the test. The washer will fill with cold water to submerge the sensor while the SSD flashes "88". Once the fill is complete, press the Start button to toggle through the following sensor readings: - Turbidity (WASH LED on) - Conductivity (RINSE LED on) - Temperature (SPIN LED on) • With a function selected, the SSD will display the following: - “00” while calibrating (turbidity function only) or reading. - “01” if reading is in expected range - “02” if reading is out of range or sensor is not responding. If the Turbidity function displays “02”, press and hold the Start button for 3 seconds to calibrate. **NOTE:** Only the Turbidity function can be calibrated. If “02” continues to be displayed, check all sensor connections, and then replace the sensor.

Fault Codes

To Access Fault Codes:

- Enter Service Mode and run test **1** (see Service Mode).
- Upon entering test **1**, by pressing the Start button, the first fault code will blink/flash in the seven-segment display (SSD).

To Navigate Fault Codes:

- Pressing the Start button will show the next fault code.
- At the end of the fault code list, OR if no fault codes are present, the display will flash"- -".

To Clear Fault Codes:

- Run Service Mode test **16** to clear all fault codes.

Fault Code List

Fault Code	Description	Trigger Condition	Action
1	Lock Monitor	This fault is set if the motor shaft speed exceeds 45 RPM for 5 seconds while in spin mode and unlocked. This fault can also occur if the basket is manually spun by hand.	• Verify door fully closes to ensure door locks. • Check the door lock using service mode spin test 14 to verify door lock operation. • Use service mode test 13 (Door Switch test) to ensure system detects correct door state (door open when opened and door closed when closed). • Verify that the door lock is not blocked by any external debris. • Check door switch continuity at main board (J513). • Check door lock wiring harness from main board (J513) to lock assembly for damage and continuity. • Replace door lock.
2	Door Monitor	Control did not get Door closed signal from switch while motor was moving. Could mean the switch didn't close or control didn't get the signal because of lack of connection.	• Check the door lock using Service Mode spin test 14. • Check door lock harness connectors both at main board (J513) and door lock assembly. • Replace door lock if this happens frequently.

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Fault Code	Description	Trigger Condition	Action
3	Locked Rotor Monitor	For 5 straight seconds control not seeing signal changes indicating the motor is turning while trying to spin. Could mean the motor isn't rotating or control didn't get the signal because of lack of connection.	• Physically check the washer for anything preventing motor movement. • Measure resistance of each motor phase winding. Make sure motor resistances match the values in the Resistance Table. • Verify speed sensor (hall sensor) and motor wiring connectors are properly connected to the inverter board (J502 and J401) and motor. Run spin test 14. If speed sensor is bad or disconnected, the basket will start to spin normally and stop after approx. 5 seconds. If basket spins for approx. 15 seconds, speed sensor is most likely NOT the cause.. • TCO should reset in approximately 45 minutes. If TCO is tripped, make sure motor moves freely and that nothing is jamming it. Replace motor if it does not move freely. • If fault persist, replace inverter board.
6	Critical Flood Level by Pressure	Control received an extended period of pressure readings that is nearing over-flow levels. Voltage Output must be present. Could mean water did get that high due to briefly stuck water valve. Voltage output of sensor too high for actual water level because of sensor or water in pressure tube increasing pressure.	• Check pressure tube for pinches. • Check pressure tube for trapped water. • Check water valve operation and for any leaking water valves. • Use pressure sensor test 10 to ensure correct pressure sensor operation. • Ensure pressure chamber port is free from obstruction using drill bit size 1/16-in. by hand so as not to drill through the inner wall.

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Fault Code	Description	Trigger Condition	Action
8	Pressure Sensor Loss	Determines if appropriate pressure changes are seen during fill. It assumes there is a pressure leak, a clog in the pressure hose/system delaying the increase in pressure, or a significant amount water leaking out.	• Verify house water supply valves are turned on. • Verify water valve operation using service mode water valve tests 6, 7, 8, 19, 21, 22, & 23. • Check pressure tube for pinches. • Use pressure sensor test 10 to ensure correct pressure sensor operation and proper water supply flow rate. • Check pressure tube for trapped water. • Ensure pressure chamber port is free from obstruction using drill bit size 1/16-in. by hand so as not to drill through the inner wall. • Verify standpipe height is within guidelines of the Installation Instructions. • Verify depth of drain hose in the house standpipe. 5-inches max insertion into standpipe. Improper drain hose installation may cause siphoning. • May be caused by lower water pressure and large absorbent loads. Diagnose any water supply issues and customer education on loading.
9	Door Switch Redundancy	Three cycles have been completed without any door opening.	• Open and close the door to clear the fault. • Check door switch harness and connectors at door switch and main board (J513). • Use service mode test 13 (Door Switch test) to ensure system detects correct door state (door open when opened and door closed when closed • Consumer education that four cycles cannot be run back-to-back without opening and closing the door. • If the fault does not clear, replace the door lock.
14	Bluetooth® Communication Pairing Failure Reported	Raised when the Bluetooth®/ WiFi module fails to establish a Bluetooth® pairing connection	• Fault cleared by system reboot (Cycle power by unplugging washer from supply outlet for at least 30 seconds and reconnect) or Bluetooth® pairing connection has been established. • Check Dryer Bluetooth®/Wi-Fi module. • If fault persists, check wiring harness and connections at the Bluetooth®/Wi-Fi module and main board (J302). • Replace Bluetooth®/Wi-Fi module.
15	Water Temp Sensor Invalid	The thermistor is disconnected, not present, or has failed.	• Run Service Mode heater and thermistor test 20 to verify heater and thermistor. • Check thermistor resistance at main board connector (J701). Verify the thermistor resistance matches the Thermistor Resistance Table. • Check thermistor wiring harness and connections. • Replace heater assembly.
16	Bluetooth® Communication Pairing Failure Reported	Raised when the Bluetooth®/ WiFi module fails to establish a Bluetooth® pairing connection.	• Fault cleared by system reboot (Cycle power by unplugging washer from supply outlet for at least 30 seconds and reconnect) or Bluetooth® pairing connection has been established. • Check Dryer Bluetooth®/Wi-Fi module.. • If fault persists, check wiring harness and connections at the Bluetooth®/Wi-Fi module and main board (J302). • Replace Bluetooth®/WiFi Module.

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Fault Code	Description	Trigger Condition	Action
17	Dry Load Sense Timeout	Dry load sense times out and moves to the next part of the cycle. This occurs when the washer is not reaching the target speed within a defined time limit for load type.	• Check for water in the bottom of the basket. If so, drain and try cycle again. • Check the basket for excessive friction. Basket should spin freely. If not, find source of friction and remove it. • This fault code may also occur if a cycle is started with wet clothes.
18	Drain Pump Clearing Algorithm Failed	Pressure sensor indicates water in the tub after attempting to drain.	• Fill tub using Service Mode test 7 and check drain pump operation using Service Mode test 12. • Check drain hose for blockages. • Confirm standpipe height is within recommended guidelines. • If pump does not operate, check that the resistance of the pump matches resistance table and verify 120 VAC while pump is operating at J512. • Check pressure tube for pinches where it goes through top cover grommet. • Use pressure sensor test 10 to ensure correct pressure sensor operation. • Check pressure tube for trapped water. • Ensure pressure chamber port is free from obstruction using drill bit size 1/16-in. by hand so as not to drill through the inner wall.
19	UI State Timeout	This will happen if a cycle is paused for greater than 24 hours or if the pressure sensor reads greater than 0.5-in. while the machine is off for greater than 24 hours.	• Check for leaking water valves. • Use pressure sensor test 10 to ensure correct pressure sensor operation. • Consumer education on leaving sopping wet items in basket for more than 24 hours. • Pausing the machine for greater than 24 hours can cause this. • Can be caused by out-of-balance. • Can be caused by starting a cycle with the "no spin" option selected. • Check the output voltage from the pressure sensor to ensure it matches the water level in the basket per the Water Level table and Pressure Sensor diagram in this mini-manual. To measure output voltage, connect multimeter probes between pin 4 and pin 3. Check pressure tube for trapped water. • Ensure pressure chamber port is free from obstruction using drill bit size 1/16-in. by hand.
20	Critical Flood Level by Gallons	Water volume into the tub exceeded gallons limit as calculated by the control.	• Check pressure tube for pinches. • Check pressure tube for trapped water. • Check for any leaking water valves. • Use pressure sensor test 10 to ensure correct pressure sensor operation and proper water supply flow rate. • Check the output voltage from the pressure sensor to ensure it matches the water level • in the basket per the Water Level table and Pressure Sensor diagram in this manual To measure output voltage, connect multimeter probes between pin 4 and pin 3. **NOTE:** Shorting pin 3 to pin 2 of pressure sensor may cause main board to shut down. • Ensure pressure chamber port is free from obstruction using drill bit size 1/16” by hand so as not to drill through the inner wall.

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Fault Code	Description	Trigger Condition	Action
22	Out of Balance (OOB) During Dry Load Sense	Large wet/OOB load being washed. This is set if OOB condition is detected during dry load sense algorithm. Dry load sense will be abandoned and wet load sense will be started.	• Check for excessively OOB load. Customer Education on how to distribute load. • Check the basket for excessive friction or for being excessively out of round. Basket should spin freely and without wobble. If friction is found, remove it. Replace basket if damaged or out of round. • Check for loose wiring connector at the motor and inverter board (J502 speed sensor circuit).
23	Critical Door Lock Failure	Cycle canceled due to inability to lock door.	• Verify door fully closes to ensure door locks. • Check the door lock using service mode spin test 14 to verify door lock operation • Use service mode test 13 (Door Switch test) to ensure system detects correct door state (door open when opened and door closed when closed) • Verify that the door lock is not blocked by any external debris. • Check door switch continuity at main board (J513). • Check door lock wiring harness from main board (J513) to lock assembly for damage and continuity. • Replace door lock.
24	Door Logic Failure	Door switch failure. This fault is set if the system perceives the door to be both OPEN and LOCKED for 5 consecutive seconds.	• Check the door lock using service mode spin test 14 to ensure door lock operation. • Use service mode test 13 to ensure system can detect the correct door state. • Check door lock wiring harness from main board (J513) to lock assembly for damage and continuity. • Replace door lock and door lock harness then perform the following actions: • Run a spin cycle. Pull up on the door during spin for more than 5 seconds • and see if this fault occurs.
25, 65	Pressure Sensor Dropout, Pressure Sensor Continuous Gallons Monitor	This fault is set when the pressure is above 6-in., then later drops to less than 1-in. for 5 seconds without draining.	• Check to make sure house water supply valves are turned on. • Check water valve operation. • Verify standpipe height is within guidelines of the Installation Instructions. • Check pressure tube for pinches where it goes through control board. • Use pressure sensor test 10 to ensure correct pressure sensor operation. • Check pressure tube for trapped water. • Ensure pressure chamber port is free from obstruction using drill bit size 1/16-in. by hand so as not to drill through the inner wall.

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Fault Code	Description	Trigger Condition	Action
26, 31	Out of Balance (OOB) Ended Final Spin	Washer detected an out of balance load and was unable to reach final target spin speed.	• Run Drain & Spin cycle to ensure basket reaches final spin speed and the Spin LED does not blink (a blinking Spin LED indicates that an out of balance was detected during final spin). • Check for tub damage, basket damage. • Verify suspension (springs and dampers) is properly seated. • Check to make sure unit is firmly seated on all four legs, doesn't rock, and is leveled. • If washer spins properly, educate consumer on how to properly load and distribute their clothes in the washer basket to prevent an OOB. • Verify accelerometer board is firmly mounted to tub and doesn't have excessive play. • Check accelerometer board harness connections at main board (J901) and accelerometer. • If the washer doesn’t spin properly, replace the accelerometer board.
27	Water Accessibility	Water was left in unit for 15 minutes with door open.	• Check for leaking water valves. • Use pressure sensor test 10 to ensure correct pressure sensor operation.. • Consumer education on leaving door open for more than 15 minutes during a cycle. • Consumer education on leaving sopping wet items in basket for more than 15 minutes with door open. • Can be caused by starting a cycle with the “no spin” option selected.
29	Suds Lock Abatement Failure	Cycle has terminated due to too many suds.	• Ensure basket is able to rotate freely. Check inner tub sidewalls for anything that can obstruct basket movement. • Consumer education on correct detergent usage. • Ensure consumer is using the proper amount of HE detergent.
30	Stuck Button Fault	A button is detected as being pressed for more than 60 seconds.	• Check for proper alignment/installation of the control panel and user interface board. • Check for any foreign substance on cap touch button areas.
32, 77	Critical Door Lock Failure: Can’t Unlock Door, Inverter Power and Door Lock Monitor	Cycle canceled due to inability to unlock door. System requests inverter power full and door is unlocked.	• Verify door fully closes to ensure door locks. • Check the door lock using service mode spin test 14 to verify door lock operation. • Use service mode test 13 (Door Switch test) to ensure system detects correct door state (door open when opened and door closed when closed) • Verify that the door lock is not blocked by any external debris. • Check door switch continuity at main board (J513). • Check door lock wiring harness from main board (J513) to lock assembly for damage and continuity. • Replace door lock.

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Fault Code	Description	Trigger Condition	Action
33, 34, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 66, 67, 68, 69, 71, 72, 73, 74, 83, 92	Inverter Fault	Any of these faults can be set if the inverter board reports a fault.	• Run Service Mode spin test 14 to full completion. If cycle fully completes, no further action required. • Check line voltage at main board (J101) and inverter board (J101) for 102VAC-132VAC.Check all inverter board harness connections. • Check all wiring harness connections on inverter board (J101, J301, J401, J502). • Measure resistance of each motor phase winding. Make sure motor resistances match the values in the Resistance Table. Replace motor if any abnormal resistance readings. • If the above repair actions don't clear the fault, replace inverter board.
35, 59, 60, 61, 63, 64, 87, 88, 89, 90	Accelerometer Faults	Any of these faults can be set if the accelerometer board reports a fault.	• Run Service Mode spin test 14 to full completion. If cycle fully completes, no further action required. • Verify accelerometer board is firmly mounted to tub and doesn't have excessive play. • Check accelerometer board harness connections at main board (J901) and accelerometer. • If the above repair actions don't clear the fault, replace accelerometer board.
37	Heater	Fault is set if the thermistor doesn't see at least 3 degrees Fahrenheit heat rise after the heater has been on for 5 minutes.	• Run Service Mode heater and thermistor test 20 to verify heater and thermistor. • Check heater harness connections at main board (J506) and at heater. • Check thermistor harness connections at main board (J701) and at thermistor. • Verify thermistor resistance matches the Thermistor Resistance Table. • Verify heater resistance matches the value in Resistance Table. • Replace heater assembly.
38, 39, 40, 84	Vent Damper	Failed to transition to desired state. Or no feedback from door to damper.	• Run Service Mode damper test 24 to verify feedback open/close. • Verify damper motor resistance matches the value in Resistance Table. • Check harness and connectors at main board (J501, J502, J512) and damper assembly. • Replace damper assembly.

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Fault Code	Description	Trigger Condition	Action
57	Door Lock Fault Water Above Door by Pressure	This fault is set when door lock feedback is unlock while water level detected by pressure sensor is above the door threshold.	• Ensure door fully closes to ensure door locks. • Check the door lock using service mode spin test 14 to verify door lock operation. • Use service mode test 13 (Door Switch test) to ensure system detects correct door state (door open when opened and door closed when closed) • Verify standpipe height is within guidelines of the Installation Instructions. • Check depth of drain hose in the house standpipe. 5 inches max insertion into drain. Can be cause by siphoning. • Check for leaking water valves. • Check water valve operation. • Check pressure tube for trapped water. Use pressure sensor test 10 to ensure correct pressure sensor operation and proper water supply flow rate. • Check pressure tube for pinches. • Ensure pressure chamber port is free from obstruction using drill bit size 1/16” by hand so as not to drill through the inner wall.
58, 93	Main Board Component Failure	A main board component has failed.	• Replace main board.
62	Inverter Power And Door Lock Monitor	The fault is set when the system request inverter power full and the door in unlocked for more than 5 seconds.	• See Fault Code 2.
70	Inverter Volt/ Hertz Start Up	Inverter volt hertz start up is set 5 times in one cycle.	• Verify supply voltage and frequency at supply outlet and main board (J101). • Replace the inverter.
78	Board Communication API Mismatch	The Main Board detects that it doesn't have the same API version as another board.	• Update software
80	Humidity/ Temperature Board Failure	This condition is set when humidity sensor confronts any of following fault conditions: - Humidity sensor 12c Communication Failure - Humidity data out of range (0-100 RH) - Temperature data out of range (0°F to 248°F (-17.8°C to 120°C))	• Run service mode test 27 first to determine if the humidity board is providing feedback. • Check humidity/temperature board, wiring and connections at humidity sensor board (J101), accelerometer board (J302 and J301), main board (J901). • If fault persists, replace humidity board.

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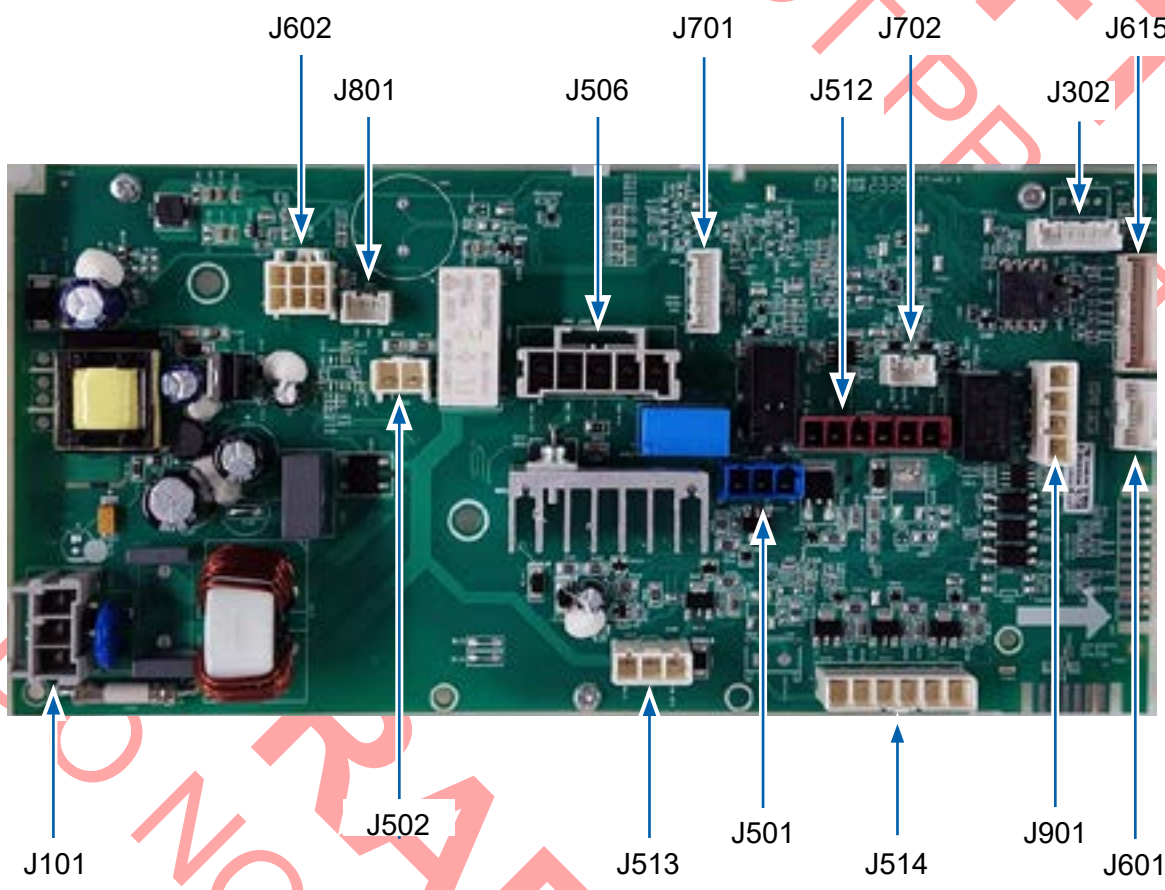
Fault Code	Description	Trigger Condition	Action
81	Humidity/ Temperature Board Heartbeat Failure	No communication between the MC and humidity sensor board for 15 seconds.	• Check humidity/temperature board, wiring and connections at humidity sensor board (J101), accelerometer board (J302 and J301), main board (J901). • Replace humidity sensor board wiring harness. • If fault persists, replace humidity sensor board.
91	UI - Main Board Heartbeat Timeout	No communication between UI and Main Board for 10 seconds.	• Check UI harness connections. • Check Main Board (J615) to UI board (J101) voltages. If no voltage output at main board (J615), replace main board. If voltage at UI board (J101) checks good, replace UI board.
94	Water Quality Sensor (Turbidity Sensor) Fault	Water Quality Fault in Erd_Tub MountedSensorFault. Detail information (calibration failure, measurement timeout, etc.) is available from snapshot data).	• Run Service Mode Test 28. • If the turbidity reading from service mode Test 28 is out of range, press and hold the Start button for 3 seconds to calibrate the sensor. • Check all Water Quality sensor connections. • If above repair actions don't clear the fault, replace tub mounted sensor.
98	Humidity Sensor I2c Communication Failure	No response regarding to request read humidity data from sensor for 10 second on board.	• Check humidity/temperature board, wiring and connections at humidity sensor board (J101), accelerometer board (J302 and J301), main board (J901). • Replace humidity sensor board wiring harness. • Replace humidity sensor board if fault persist.

NOTE: It's important to note that fault codes should only be used to help identify those components which require testing. Never replace a part based solely on a fault code. The control can generate a false fault if the right conditions exist. Use the code only as a reference and always check the component before replacing.

Board Connector Locator

Main Board Connector Locator



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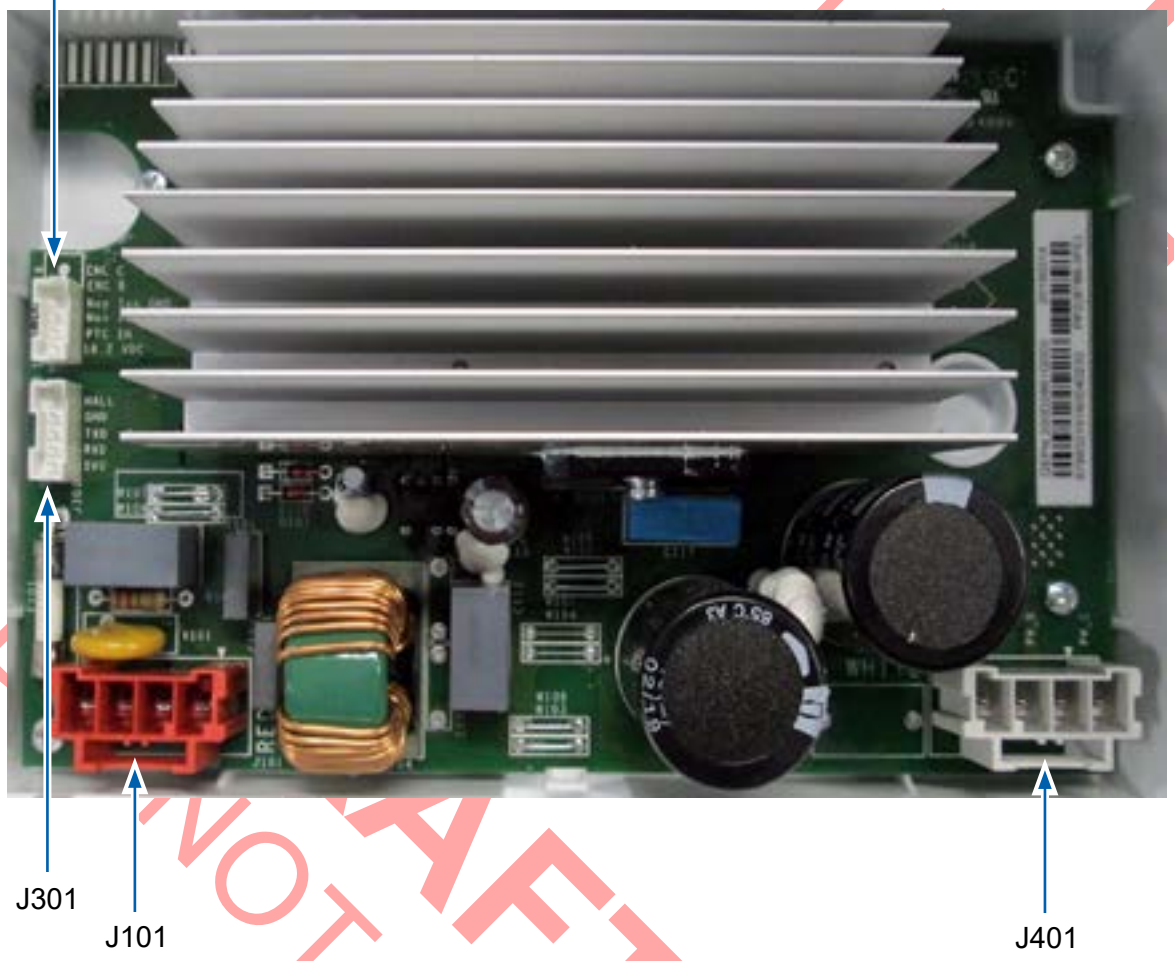
Drive Motor Inverter Board Connector Locator



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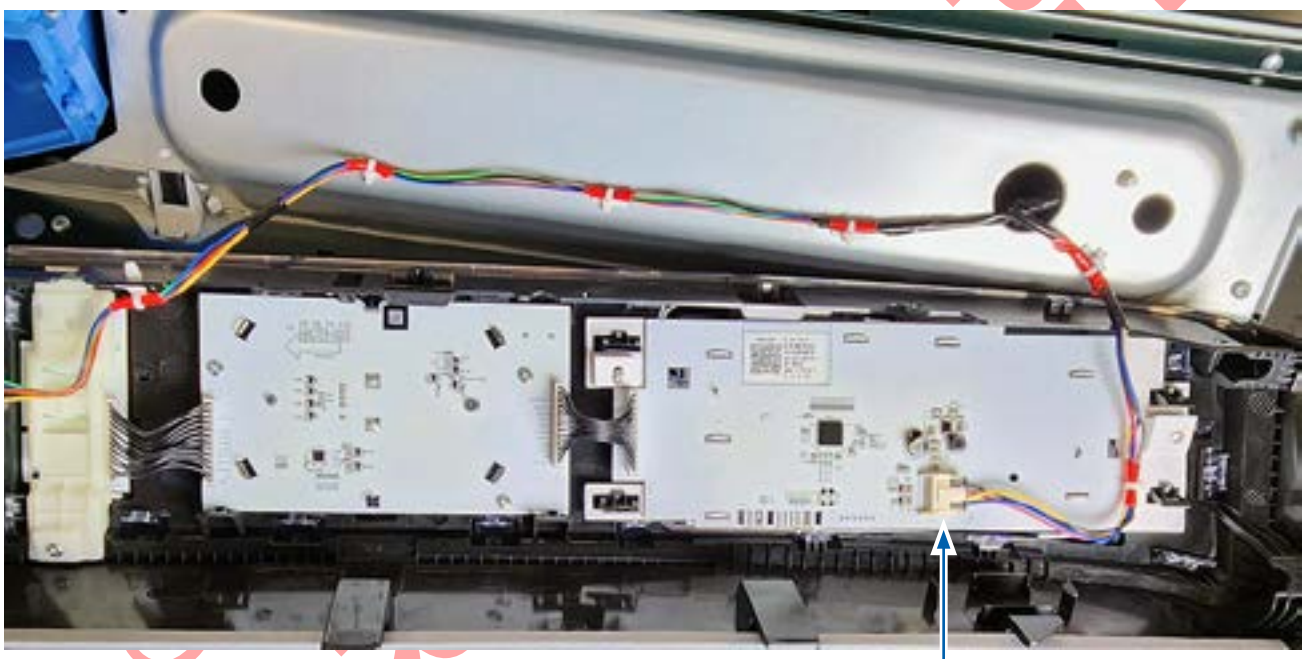

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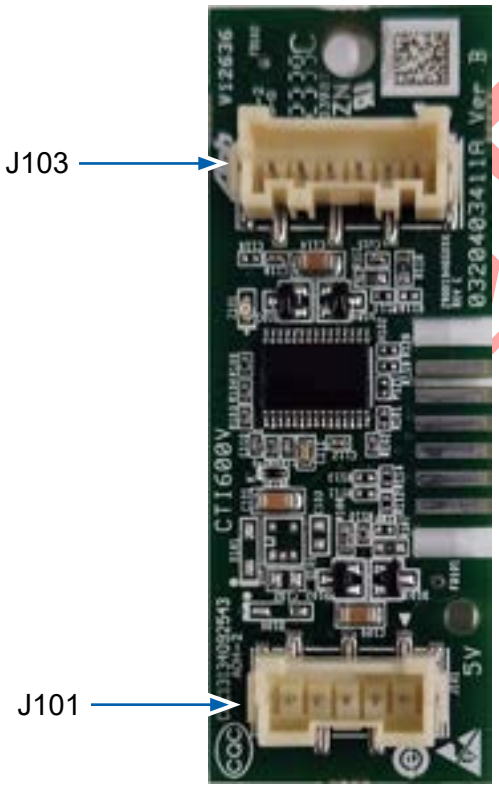
Humidity Board Connector Locator



Wi-Fi Board Connector Locator

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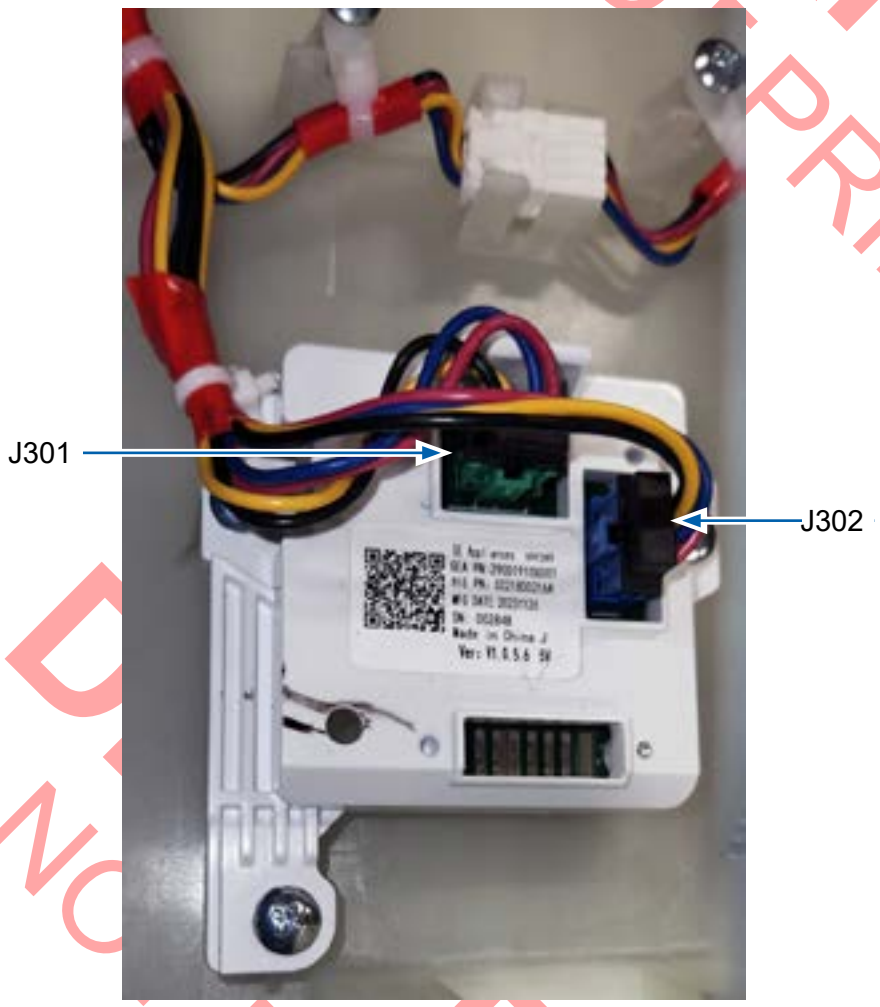
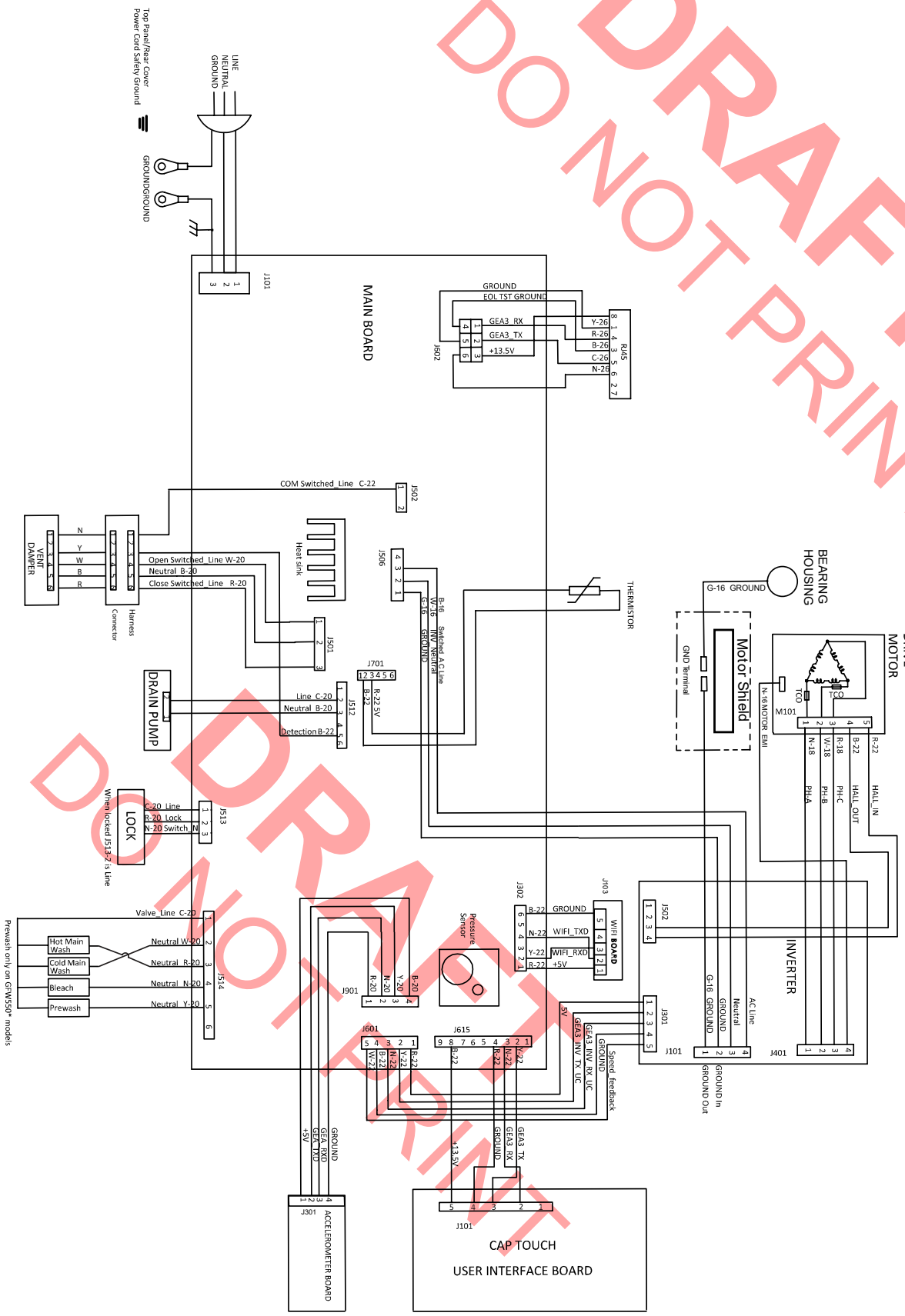
Accelerometer Board Connector Locator



Schematic

Models: GFW510*/GFW550*



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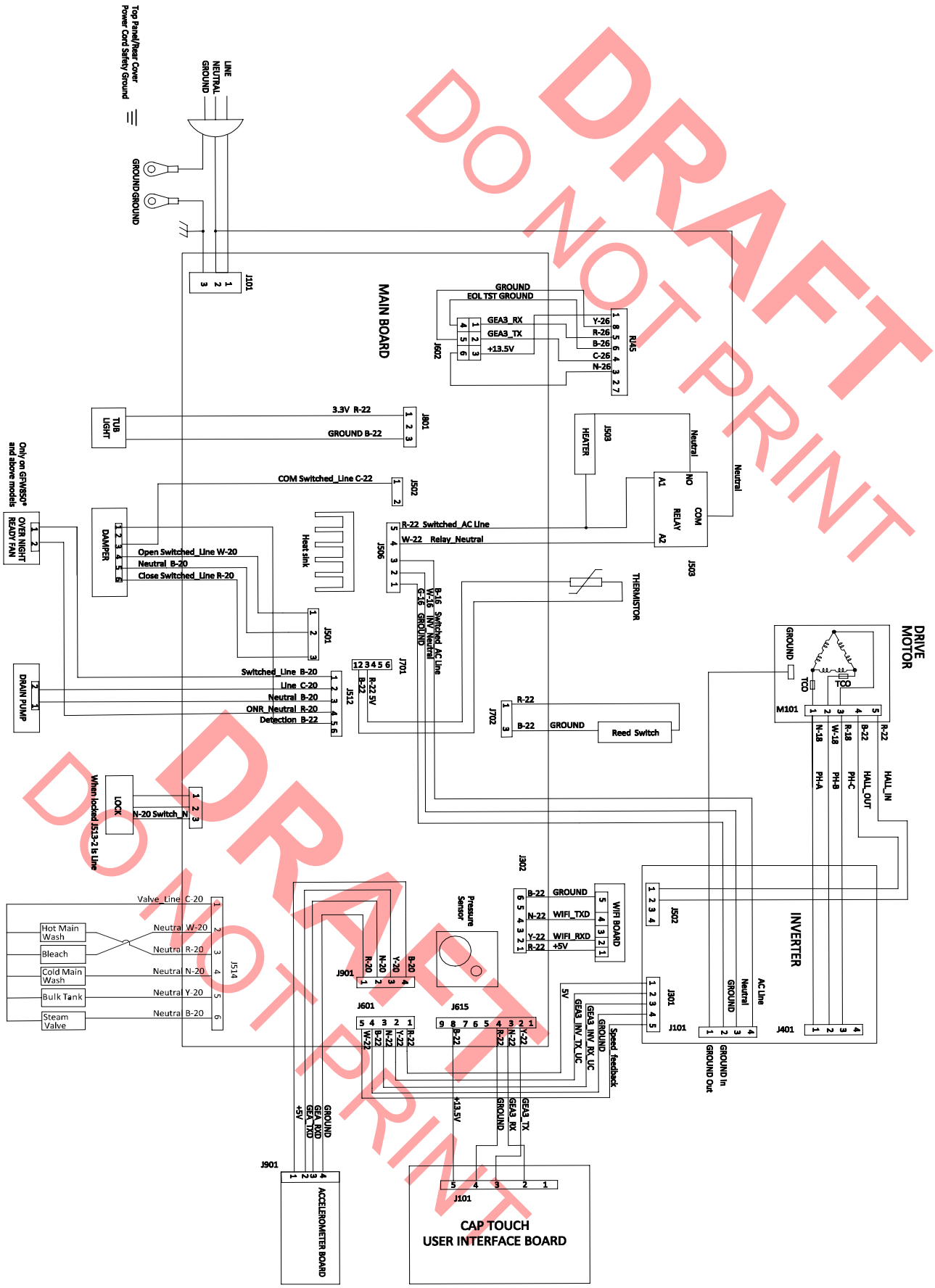
Models: GFW650SPN0SN / GFW650SSN0WW / GFW850SPN0DG / GFW850SPN0RS / GFW850SSN0WW



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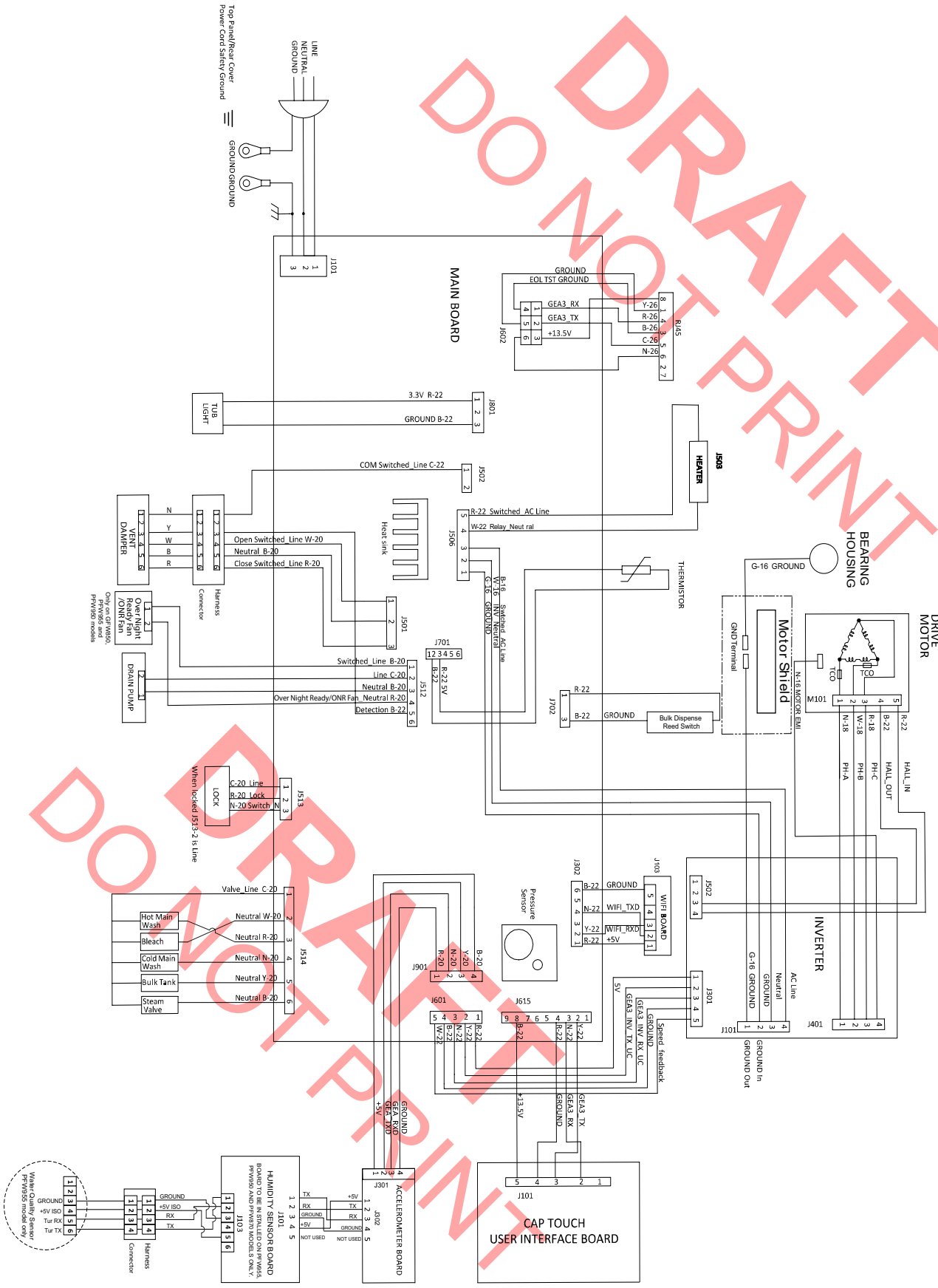
Egineering Digits 1 and Up



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