Backsplash

The backsplash is a separate part of the washer that houses the button fingers that press against the buttons on the User Interface (UI) board. The UI and the Inverter Machine Control (IMC) mounts to the backsplash.

The backsplash needs to be removed from the cabinet in order to access components including the control board, water valve, and pressure sensor.

Backsplash Removal

1. Open the lid completely, and then pull both hinge covers directly out. If the hinge covers do not immediately pull out, push in on the side locking tabs through the opening provided.

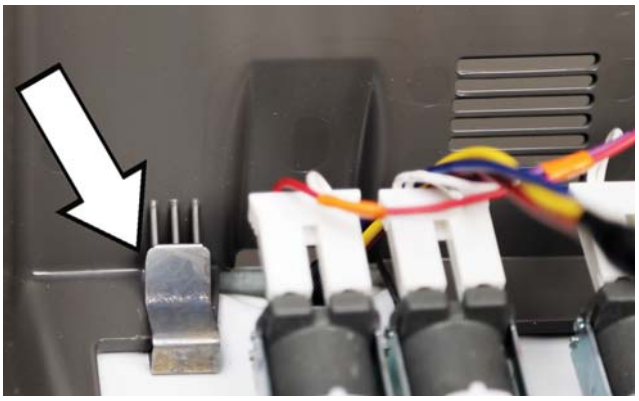
2. Close the lid and lay a towel over the washer to protect the product. Remove the two 1/4 in. hex screws that secure the backsplash to the washer.

NOTICE

Whenever the backsplash assembly is removed, the aluminum tape between the backsplash and the backsplash bottom under the mounting screws must remain intact. This is used to discharge to ground any static that may occur between the two. If it is damaged or torn, it **must** be replaced and be secured under the screws when reassembled.

3. Rotate the front of the backsplash up slightly, then push the backsplash straight back.

4. This disengages the rear cover from the two retention clips. **NOTE**: The following picture illustrates the clip inside the backsplash.

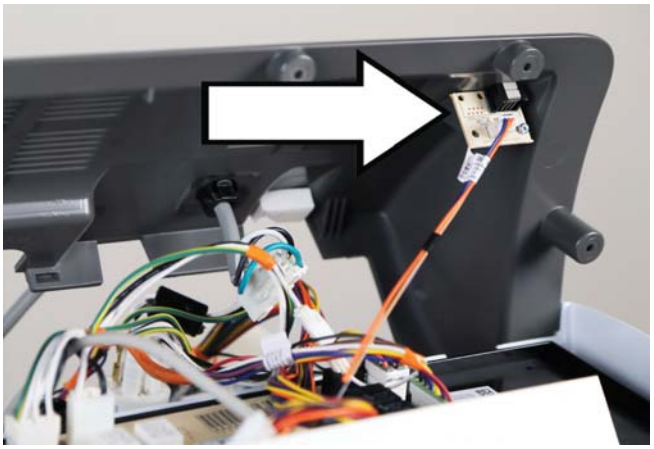


5. Rotate the backsplash towards the front of the washer, and lay it face down on top of the washer.

6. Remove the six dual head screws (1/4 in. hex or T15 Torx) from back cover and disconnect the harness connectors as required.

NOTICE

Handle the harness that goes to the RJ45 board carefully when separating the backsplash. Then disconnect all the harness connectors from the board for replacement.



Backsplash Reassembly

1. Reconnect all of the wire connections to the control board.
2. Reconnect the harness to the ACM/RJ45 board on the rear half of the backsplash.
3. Refasten the rear half of the backsplash to the front half with the dual hex head 1/4 in. T15 Torx screws.
4. Reinstall the backsplash to the top cover, slipping the rear of the backsplash into the clips on the top cover first. Pull the backsplash towards the front of the top cover. Pull the backsplash assembly over the backsplash bottom and reinstall the two 1/4 in. hex screws, one on each side. **NOTE: Be careful not to pinch the harness when reinstalling the backsplash assembly. Make sure that any torn aluminium tape has been replaced and is secured under the two screws.**
5. Raise the lid to the full open position and reinstall the hinge covers.

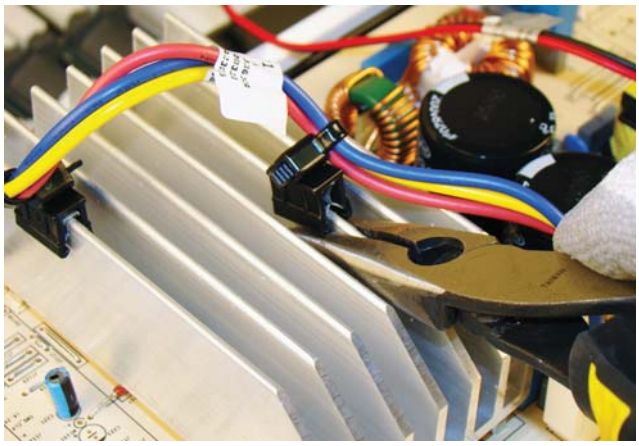
UI Logic Board

The User Interface (UI) board is accessible once the six dual head screws on the back cover of the Backsplash have been removed.

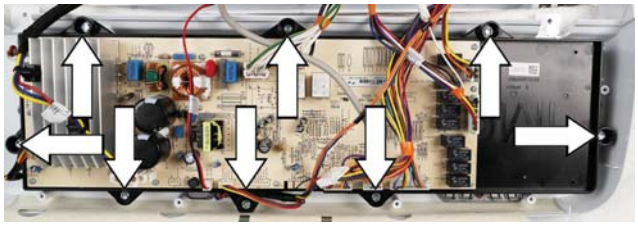
UI Logic Board Removal

To access the board assembly, the backsplash will need to be removed and then opened (See **Backsplash Removal** for instructions).

1. Disconnect all of the wire connectors to the inverter board assembly.
2. Use needle nose pliers to remove all of the clips from the heat sink on the inverter board by placing the pliers under the clip, then pushing the handle of the pliers towards the heat sink. This will allow the clip to release from the heat sink.

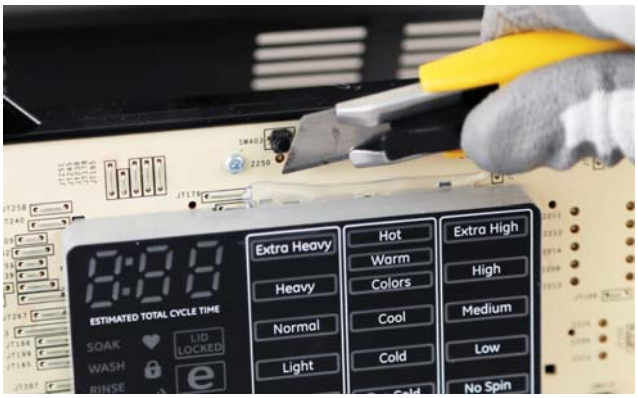


3. Remove the eight 1/4 in. hex head screws that secure the Inverter Machine Control (IMC) board assembly to the backsplash.

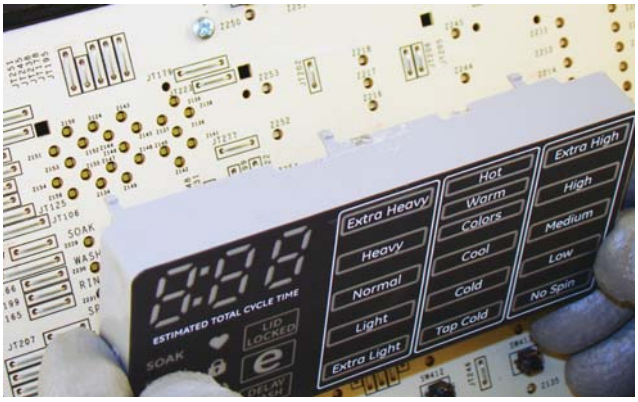


4. Transfer the Cycle Status Lights display to the new control board assembly. Use a razor safety knife and carefully separate the glue securing the Cycle Status Lights display to the UI board.

Note: It does not have to be re-glued back to the UI board.



5. Carefully pull the Cycle Status Lights display away from the UI board.



6. Lift up on the board assemblies' plastic housing to unclip the mounting clips, then flip the board assembly over to access the UI board. Replace the old UI Logic Board with the new UI Logic Board.

Reinstalling the Board Assembly

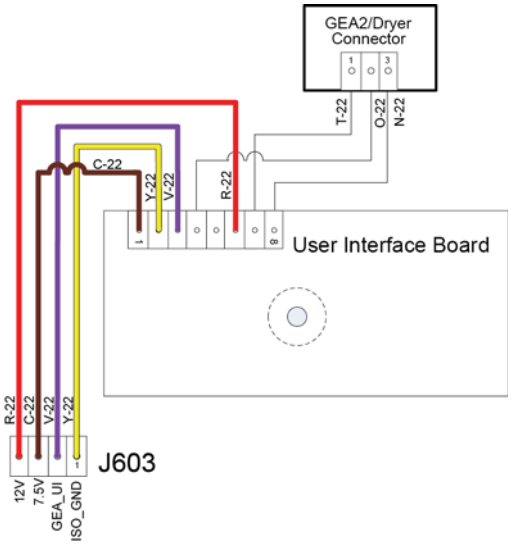
1. Snap the clips on the plastic housing onto the backsplash.
2. Secure the plastic housing with the boards attached to the backsplash using the eight 1/4 in. hex head screws.
3. Reconnect all of the harness connectors to the board assembly.

UI Logic Board Diagnostics

UI Logic Board Voltage

1. Check from the J603 connecter on the inverter board.
2. Look for approximately 12 VDC from the **red** wire (pin 4) to the **yellow** wire (pin 1). There should also be approximately 7.5 VDC from the **brown** wire (pin 3) to the **yellow** wire (pin 1).
3. If either of these voltages are not present, replace the inverter board.
4. If the voltages are present and correct, check for voltage at the user interface (UI) board. If voltage is present there and the UI board does not power on, replace the UI board.

UI Logic Board Strip Circuit



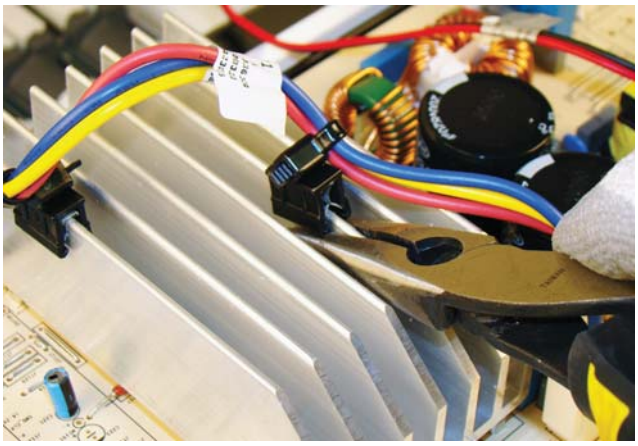
Inverter Machine Control (IMC) Board

The Inverter Machine Control (IMC) board is accessible in the same manner as the UI Logic board, once the six dual head screws on the back cover of the Backsplash have been removed.

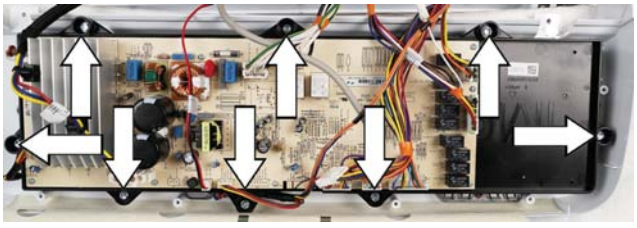
Inverter Machine Control (IMC) Board Removal

To access the IMC board, the backsplash will need to be removed and then opened (See **Backsplash Removal** for instructions).

1. Disconnect all of the wire connectors to the inverter board assembly.
2. Use needle nose pliers to remove all of the clips from the heat sync on the inverter board by placing the pliers under the clip, then pushing the handle of the pliers towards the heat sync. This will allow the clip to release from the heat sync.

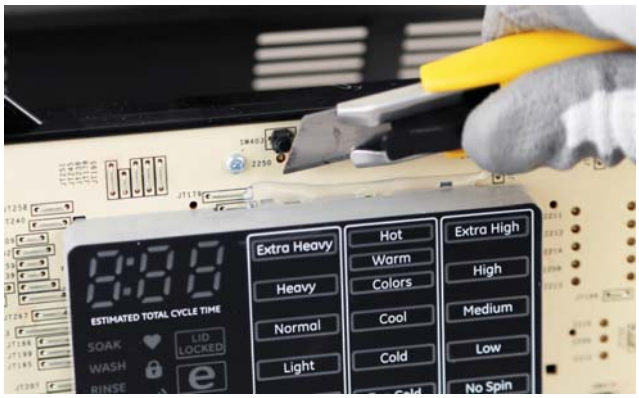


3. Remove the eight 1/4 in. hex head screws that secure the Inverter Machine Control (IMC) board assembly to the backsplash.

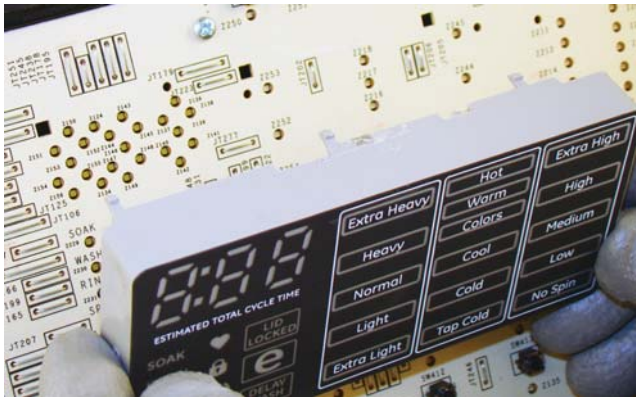


4. Transfer the Cycle Status Lights display to the new control board assembly. Use a razor safety knife and carefully separate the glue securing the Cycle Status Lights display to the UI board.

Note: It does not have to be re-glued back to the UI board.



5. Carefully pull the Cycle Status Lights display away from the UI board.



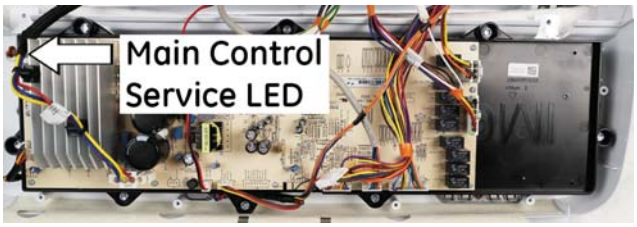
6. Lift up on the board assemblies' plastic housing to unclip the mounting clips.

Inverter Machine Control (IMC) Assembly

1. Snap the clips on the plastic housing onto the backsplash.
2. Secure the plastic housing with the boards attached to the backsplash using the eight 1/4 in. hex head screws.
3. Reconnect all of the harness connectors to the board assembly.

Main Control Service LED

- The Main Control Service LED is located, looking at the board from the front of the washer, at the upper left of the IMC/Invertor Board, alongside the heat sink. The normal status of the LED should be a steady one second on, one second off. If the LED is not lit at all, check the voltage to the inverter board.

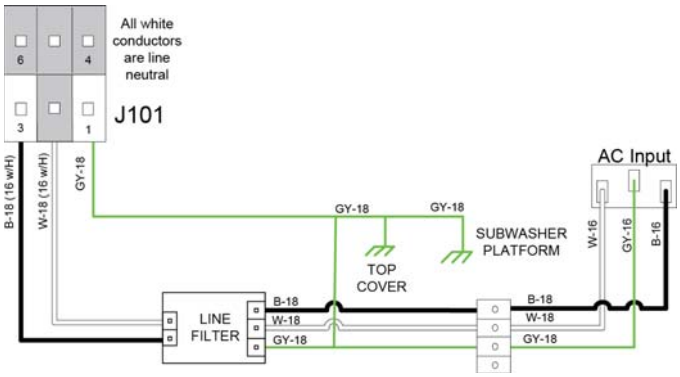


- If voltage is present, and the LED still does not flash, this indicates that the IMC/Inverter Board will need to be replaced. If the LED is flashing 3 flashes and then pauses, the inverter board has an error. Try resetting the board.
- The board can be reset by unplugging the power cord from the wall for at least 60 seconds, and then plugging the power cord back in to the wall.
- If the error persists, put the control into **Service Mode** and check for error codes. If no error codes are present, if the **Service Mode** is unresponsive, or if the UI board does not light up, check for DC voltage going to the UI board. If there is no voltage going to the UI board, and the boards do not light up, replace the Inverter Board.

Inverter Machine Control (IMC) Board Diagnostics

1. First check the house outlet for the proper voltage.
2. Check for 120 VAC to the J101 connector **black** to **white** wires from the **LINE FILTER**.
3. If no voltage is present, check line voltage coming into the line filter from the power cord connector. If there is no voltage coming out of the line filter to the IMC, replace the line filter.
4. If no voltage, check the power cord connector and harness for damage.

Inverter Machine Control (IMC) Board Strip Circuit

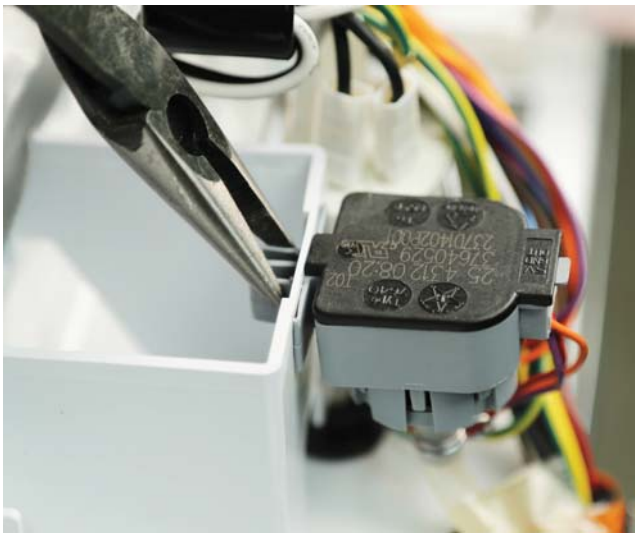


Lid Assembly

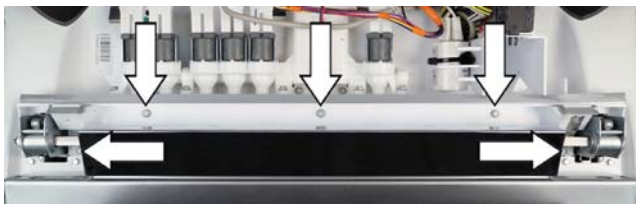
The lid comes as a complete assembly. On all metal lids, the magnet can be ordered separately. On encapsulated glass lids, the glass, magnet and hinge post comes as an assembled part.

Lid Assembly Removal

1. To remove the lid assembly, first remove the backsplash assembly. (See **Backsplash Removal** for instructions).
2. Disconnect the wire connector and the pressure hose from the sensor.
3. Unclip the pressure sensor from the backsplash bottom.



4. To remove the backsplash bottom, remove the five 1/4 in. hex screws, one on each side under the trim cap, and three along the back on backsplash bottom.



5. Slide the backsplash bottom toward the rear of the washer and pull out.
6. Once the backsplash bottom is removed, **open the lid fully** to relieve the spring pressure on hinge spring.

7. Slide the lid assembly to the left.

8. Lift the right side of the lid to clear the hinge and slide the lid to the right to disengage from the left hinge.

Lid Assembly Reinstallation

1. When reinstalling the lid onto the top cover, make sure to center it between the hinges with the lid fully open.
2. Then **reinstall the backsplash bottom before attempting to close the lid**. Doing this will prevent damage to the enamel on the top cover.
3. Slide the post on the lid assembly into the left side hinge first. The left side has more of a rectangular opening on the hinge, so that when installing the right side there is enough space to get the post into the right side hinge.
4. Slide the right side post into the right side hinge. Make sure the lid is centered between the hinges. **Note**: It may need to be moved to the left or the right after the backsplash bottom is in place so there is equal space on each side when the lid is closed.
5. Slip the backsplash bottom in from the back side of the lid.
6. Secure the backsplash bottom to the top cover with the five 1/4 in. hex head screws.
7. Reinstall the backsplash assembly.
8. Close the lid and install the hinge covers.

Hinges

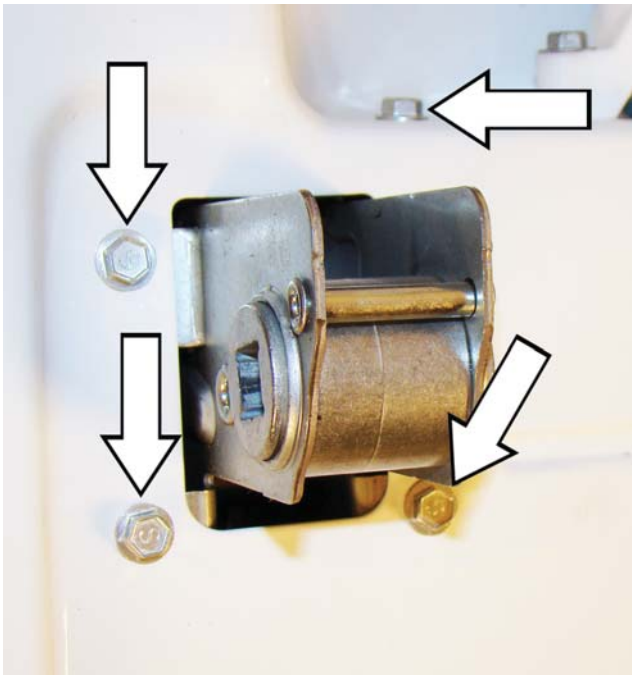
Washers with metal lids have standard hinges that close quickly. The glass encapsulated lids are slow closing so the lid will not drop hard. The right and left hinges are specific to the side they are mounted on.

From front of unit, the left side is a heavy duty coil spring.	From front of unit, the right side hinge has a damper (shock).
	

Hinge Removal

1. Remove the backsplash assembly, including the backsplash bottom and the lid assembly. (See **Backsplash Removal** and **Lid Assembly Removal** for instructions).
2. Raise the top cover (see **Top Cover Removal** instructions). Cut the wire tie that supports the hose on the back tab of the hinge. **Bulk dispense models will have wire ties on *both* hinges.**

3. Remove the three 1/4 in. hex head screws that hold the hinge to the top cover, and the one screw facing the rear of the top cover.



4. Remove the hinge from the underside of the top cover.

Hinge Reinstallation

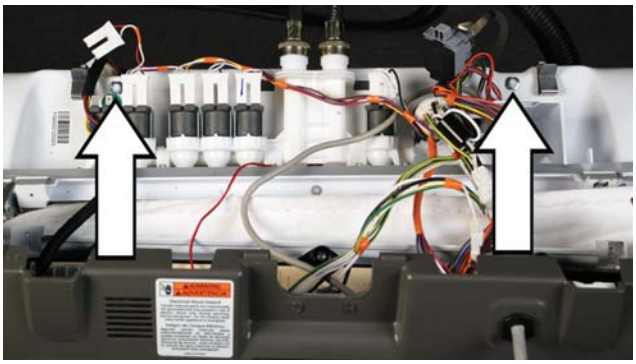
1. Insert the hinge from the underside of the top cover.
2. Reinstall the four 1/4 in. hex head screws that hold the hinge to the top cover.
3. Raise the top cover back up, and install a zip tie back through the hinge to hold the water tube in place.
4. Lower the top cover onto the frame of the outer washer wrapper.
5. Reinstall lid and backsplash assembly.

Top Cover

The top cover is used to house the dispenser cups, lid assembly, hinges, lid lock, lid switch, and the water supply tubes. The lid lock prevents the top cover from opening during operation, providing safety by restricting access to any moving parts.

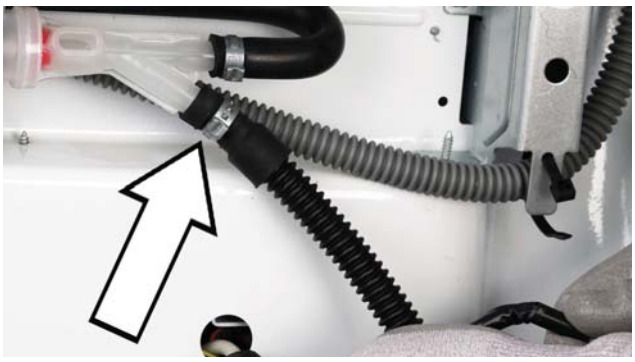
Top Cover Removal

1. Remove the Backsplash and Pressure Sensor assemblies. (See **Backsplash Removal** and **Pressure Sensor Removal** for instructions).
2. Remove the two white 1/4 in. screws at the rear of the cover that secure the cover to the rear rod support, as well as the ground screw connecting the wire to the top cover.



3. Use a putty knife to disengage the cover from the two clips mounted to the front flange of the apron. The front clips that hold the down the top cover to the apron are located approximately 7 inches in from the right and left sides of the washer. Once the cover is disengaged from the apron, lift up the front of the top cover from the front clips securing it to the washer.

4. Remove the hose clamps to disconnect the two bulk dispenser hoses where they connect to the fill funnel.



NOTICE

If the unit being serviced is not a bulk dispenser washer, then Step 4 is unnecessary.

5. Remove the top cover.

It is not necessary to remove the top cover to replace the water valve. See Water Valve Removal for further instructions.

Top Cover Reinstallation

1. At the front of the top cover, make sure to line the front clips on the wrapper and the slots on the top cover together. Once lined up, push down on the top cover to snap the clips into place.

2. If the clip and the slot in the top cover are not lined up, the top cover area where the slot is could be damaged or bent. This damage will result in the clip not locking into place correctly, as seen in the photograph below.

3. Reinstall the two white 1/4 in. hex head screws at the rear of the top cover that hold the top cover to the frame.
4. Reinstall the ground screw at the rear of the top cover.
5. Reinstall the Backsplash. (See **Backsplash Reinstallation** for instructions).

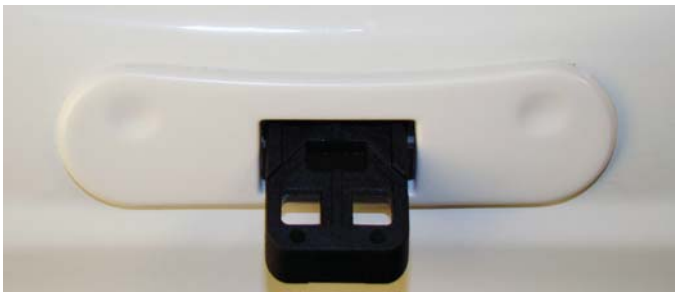
Lid Lock

The lid lock is used to prevent injuries incurred from moving parts. Once the cycle starts, the lid lock is engaged, locking the lid. The lid lock assembly also contains the lid switch. The lid lock and the lid switch are one assembly. The lid switch needs to be operational for the lid lock to activate. The lid lock assembly consists of the lock motor, lock position switches and the lid switch.

Lid Lock Assembly

In an unlocked state, the latch in the bezel will be in a receded state, as shown below. When the lid is closed, the magnets in the lid assembly activate the lid switch, closing the switch.

When the switch circuit is closed, DC voltage is sent back to the inverter board. This prompts the lid lock motor to activate, resulting in the latch extending to a locked state, as seen in the photograph below.



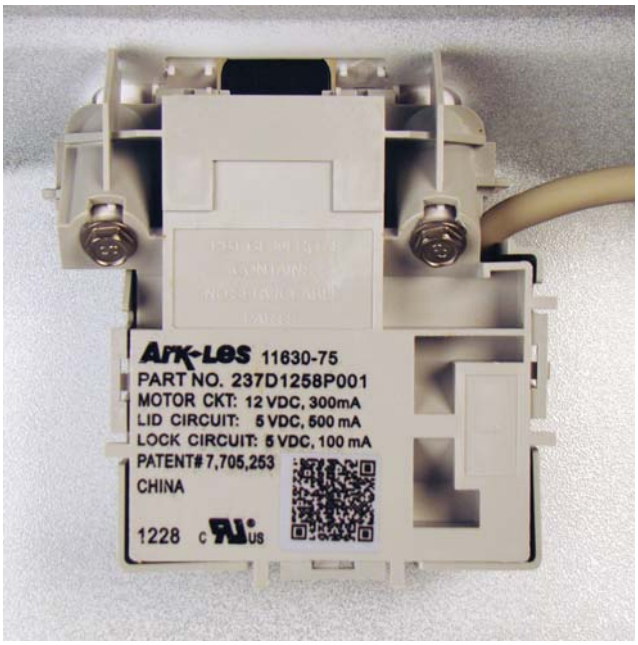
Lid Lock Removal

To remove the lid lock assembly, the backsplash needs to be removed, and the top cover needs to be raised. (See **Backsplash Removal** and **Top Cover Removal** for instructions).

⚠ CAUTION

When raising the top cover, be sure to tape the lid to the top cover to prevent it from opening.

1. Remove the two 1/4 in. hex head screws that mount the lock assembly to the bezel on the top cover.



2. Unclip the harness from the top cover and pull the rubber grommet through the top cover.

Lid Lock Reassembly

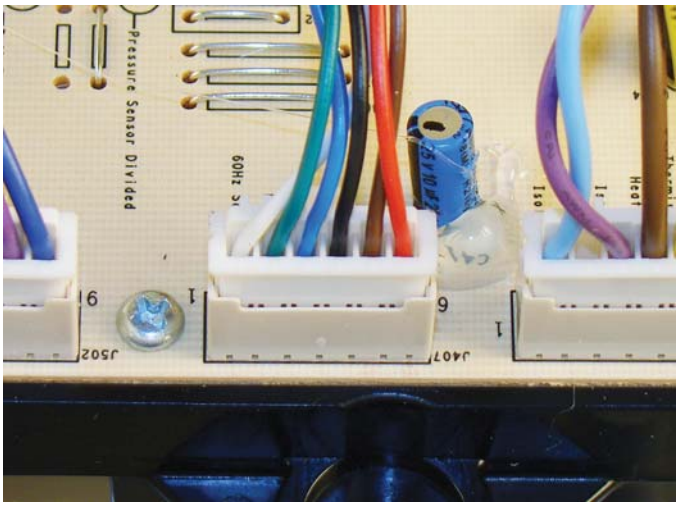
1. Insert the grommet back through the hole in the top cover.
2. When looking at the top cover from the front, route the wire harness up through the underside of the top cover into the side clips.
3. Snap the wire harness into the clips located on the side of the dispenser cup.
4. Holding the bezel in place, and reinstall the lid lock assembly back into position using the two 1/4 in. hex head screws.
5. Reinstall the top cover back on to the cabinet.
6. Reinstall the backsplash assembly to the top cover.

Lid Lock Motor Diagnostics

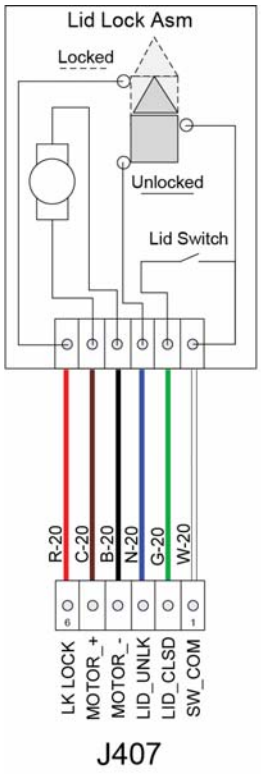
Check the resistance of the lid lock motor from the Inverter Board J407 connector **black** (pin 4) to **brown** (pin 5) wires. The resistance should read approximately 39 ohms.

Lid Lock Motor: The resistance should read approximately 39 ohms. It operates with DC voltage, at approximately 12 VDC.

Lid Lock Position Locked/Unlocked: The lid locked or unlocked signal voltage should be 5 VDC.



Check the lid lock position continuity from the J407 connector **blue** wire (position 3) to the **white** wires when unlocked. When the lid is locked, check the **red** wire (position 6) to the **white** wire (position 1).



Motor Circuit = 12VDC
Black - Brown = 39 Ω

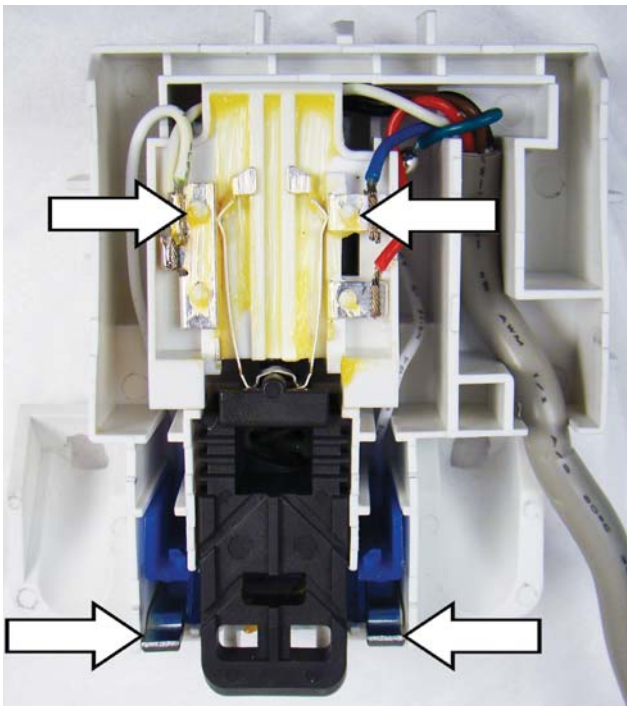
Lid Circuit = 5VDC
Lid Switch
Green - White

Lock Circuit = 5VDC

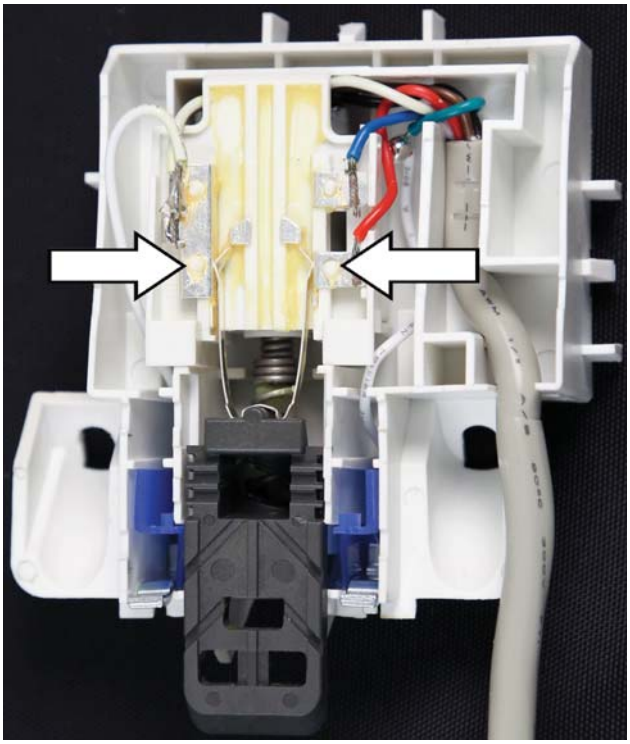
Lid Locked
Red - White

Lid Unlocked
Blue - White

The internal lid switch actuators in the lid lock assembly are closed by the magnets in the lid, shown by the two arrows at the bottom of the photograph below. The upper arrows in the photograph display the contacts of the lid lock assembly latch in an unlocked position.



The photograph below displays the contacts of the lid lock assembly latch in an locked position.

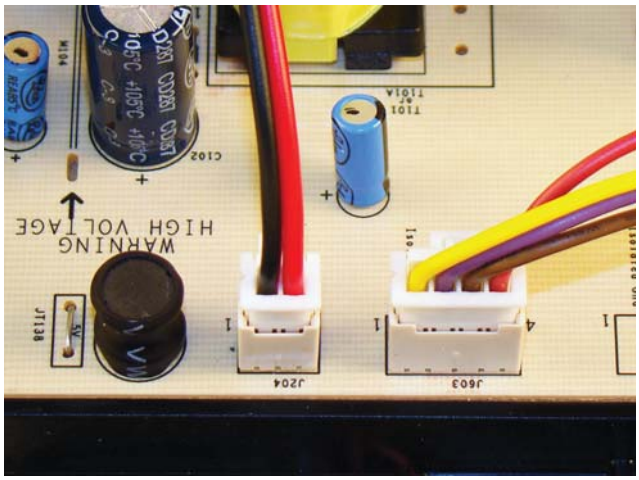


LED Tub Light

The tub light is mounted to the fill funnel assembly. It receives approximately 3.8 VDC from the inverter board at the J204 connector.

LED Tub Light Removal

1. Access to the inverter board is needed to disconnect the LED light harness from the inverter board. (See **Backsplash Removal** for instructions).
2. Disconnect the LED light from the J204 connector on the inverter board.



3. Use pliers to pull the grommet from the bracket of the fill funnel. Then push in on the two side clips of the LED tub light to release the light assembly from the fill funnel.

4. Pull the LED tub light, harness, and the grommet through the fill funnel.

LED Tub Light Reassembly

1. Leading with the wires, route the LED tub light harness through the mounting bracket of the fill funnel and through the hole provided in the top cover.

2. Seat the rubber grommet into the hole in the fill funnel and top cover. The grommet will provide a moisture seal for that area.
3. Reconnect the harness connector to the inverter board.
4. Reinstall the backsplash assembly.

LED Tub Light Diagnostics

Check from the J204 connector on the board.

Look for approximately 3.8 VDC.

If voltage is present, but no light, disconnect power from the washer.

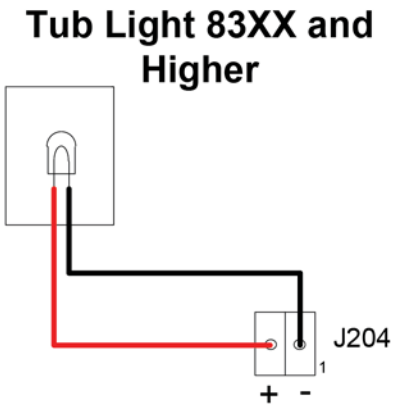
Disconnect the J204 connector from the board.

Set the meter to the DIODE setting.

With your black lead on the **red** wire, and your red lead on the **black** wire, the meter should read approximately 0.727 if good.

If the meter leads are reversed to **red** on **red**, there should be no reading.

LED Tub Light Strip Circuit

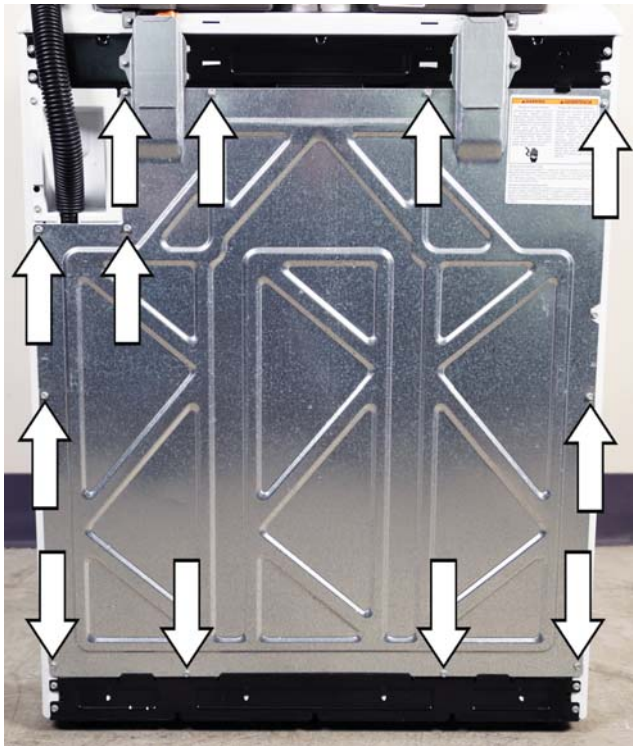


Rear Panel

The rear panel provides access to the rear components that are mounted to the tub assembly. This also is the only access used to remove the basket and the tub assembly. The panel provides a stiffening support for the cabinet assembly when it is screwed to the cabinet.

Rear Panel Removal

1. To remove the rear panel, pull the washer out far enough to access the twelve hex head screws securing the panel to the rear of the washer.



2. Remove the twelve 1/4 in. hex head screws and remove the rear panel from the rear upper suspension bracket and lower rear leveling leg brackets.
3. Once the back panel has been removed, the tub assembly and components become accessible.

Rear Panel Reinstallation

1. Fit the rear panel back into the rear upper suspension bracket and lower rear leveling leg brackets.
2. Reinstall the twelve 1/4 in. hex head screws.

Leveling Legs

Keeping the washer level is critical because the clearance of the tub to the outer cabinet is minimal. It is normal for the tub to bump against the outer wrapper during usage, which the washer uses to sense when the load is out of balance.

Adjustment

Move the washer into its final position. Place a level on a flat top side edge of the washer. Adjust all four leveling legs by screwing them into or out of the foot brackets until the washer is level from left to right and front to back.

Should any of the leveling legs show signs of damage, order a new leg.

Impeller Assembly

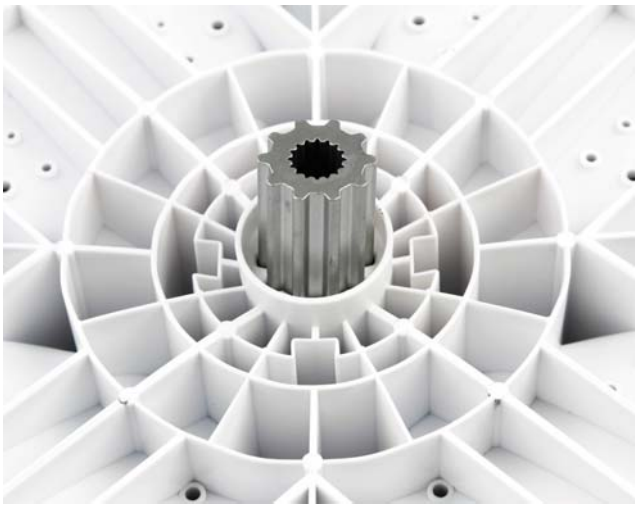
The impeller moves the clothes in the basket. It takes the place of the tall agitator. Impellers are designed to work best moving material around in the basket with low water levels.

Impeller Removal

1. Remove the center cap from the impeller. Take a pocket screwdriver or putty knife and carefully pry the cap off.

2. Remove the 7/16 hex bolt that holds the impeller in place.

3. Lift the impeller up and off the shaft. The coupler may come off with the impeller.



Impeller Reassembly

1. Reinstall the impeller and coupler onto the shaft spline. Install a new 7/16 hex bolt and torque to 60 inch pounds. **A new hex bolt is required because of the specific Loctite that is on the threads of the new bolts.**

NOTICE
DO NOT REUSE THE OLD BOLT WITH REGULAR LOCTITE. USE A NEW BOLT.

Suspension System

Rod and Spring Suspension System

The rod and spring suspension system consists of assemblies which include: four rods each with a hook at the top, and four springs and spring covers that are each supported by a ball joint and ball socket that mount onto the support bracket. They are used to support the tub assembly and assist with balancing the load being washed. The are two rod and spring suspension systems mounted toward the rear of the washer and two toward the front. Each of the four assemblies are the same for the washer they are mounted on.

Suspension System Removal

1. To remove the rod and spring assembly, the top cover assembly and components mounted to it will need to be removed. (See **Top Cover Removal** for instructions).
2. Once the top cover assembly is removed, disengage the suspension rod assembly from the tub by lifting up slightly on the tub assembly. Then slide the rod through the slot on the tub where the spring cover is seated.