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1 SAFETY

1.1 General hazards

Don’t use the dishwasher until it is completely installed. When opening the door on an uninstalled dishwasher, carefully open the door while supporting the rear of the unit. Failure to follow this warning can cause the dishwasher to tip over and result in serious injury.

In some conditions, hydrogen gas can form in a hot water system that has not been used for weeks. Hydrogen gas is explosive. Before filling a dishwasher from a system that has been off for weeks, run the water from a nearby faucet in a well ventilated area until there is no sound or evidence of gas.

Temperatures required for soldering and sweating will damage the dishwasher’s base and water inlet valve. If plumbing lines are to be soldered or sweated, keep the heat source at least 6 inches (152.4 mm) away from the dishwasher’s base and water inlet valve.

Removing any cover or pulling the dishwasher from the cabinet can expose hot water connections, electrical power and sharp edges or points. Handle with care. Always wear gloves and safety glasses.

1.2 Electrical shock / fire hazards

Don’t allow electrical and water supply lines to touch. Don’t work on an energized circuit. Doing so could result in serious injury or death. Only qualified electricians should perform electrical work. Don’t attempt any work on the dishwasher electric supply circuit until you are certain the circuit is de-energized.

Make sure electrical work is properly installed. There should be no loose electrical connections. Ensure all electrical connections are properly made.

The customer has the responsibility of ensuring that the dishwasher electrical installation is in compliance with all national and local electrical codes and ordinances. The dishwasher is designed for an electrical supply of 120VAC, 60 Hz, connected to a dishwasher-dedicated, properly grounded electrical circuit with a fuse or breaker rated for 15 amps. Electrical supply conductors shall be a minimum #14 AWG copper only wire rated at 75°C (167°F) or higher.

This appliance must be connected to a grounded metal, permanent wiring system, or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment-grounding terminal or lead on the appliance. Don’t use extension cords.

1.3 Plumbing / scalding hazards

Don’t perform any work on a charged hot water line. Serious injury could result. Only qualified plumbers should perform plumbing work. Don’t attempt any work on the dishwasher hot water supply plumbing until you are certain the hot water supply is shut off.

Don’t over tighten the 90° elbow. Doing so may damage the water inlet valve and cause a water leak. Temperatures required for soldering and sweating will damage the dishwasher’s water inlet valve. If plumbing lines are to be soldered or sweated, keep the heat source at least 6 inches (152.4 mm) away from the dishwasher’s water inlet valve.

Check local plumbing codes for approved plumbing procedures and accessories. All plumbing should be done in accordance with national and local codes.

These instructions depict an installation method for stainless steel braided hose or PEX hot water supply lines. If using copper tubing or other material for water supply, defer to a licensed plumber for proper installation.
2 INSTALLATION

2.1 Pre-Install checklist

☐ Unpack unit. Retain packing material until installation is successful. Remove packing material from inside the dishwasher.
☐ Inspect parts to ensure you have all the necessary materials.
☐ Flush household hot water supply for at least two minutes.
☐ Measure the enclosure area. The opening must be at least 34" (87 cm) high and 23-5/8" (60-61 cm) wide.
☐ The opening must be close enough to the sink for water line and drain hose plumbing access.
☐ Unit must be installed close enough to the sink so that drain hose length does not exceed 92" (234 cm) and a high loop is raised at least 20" (51 cm) above the floor.
☐ Wooden openings must be sanded smooth and metal openings must be covered by a protective gasket.
☐ Is your water heater set at 120°F (49°C) and does water pressure measure 15-145 psi (1-10 bar)?
☐ If installing in a corner, the dishwasher door must clear cabinet hardware.
☐ Determine mounting method based on dishwasher model and countertop type, whether top or side mount.

2.2 Alignment

Carefully place dishwasher on its back to pre-adjust all three feet -- turn feet clockwise to raise or counter-clockwise to lower. Maximum height with feet fully extended is 34.5". Place dishwasher upright, then level side to side and front to back. When done, insert leg leveler locking screw in back foot.

Regardless of countertop surface, mounting brackets are attached on the side of dishwashers. They are screwed into screw bosses on the side dishwasher frame, then into the cabinetry.

2.3 Electrical connection

Install according to national and local codes.

Carefully place dishwasher on its back to make electrical connections to the terminal block. Turn power off at the fuse box. Extend power cord approximately 21" from the left side of the opening, and 30" from the back wall, making sure the cord doesn’t contact any moving parts.

Strip outer casing of electrical wire to expose 2.5" - 3" (65 - 76 mm) of inner wires, then strip 1/2" (13 mm) casing from each wire. If plugging the dishwasher into an outlet, contact customer service to order approved power cord accessory kit (SGZPC001UC). Insert cord through a strain relief (not included) and install to strain relief plate. Attach wires to terminal block (black – L (hot), white – N (neutral) & green – G (ground). Unscrew terminal screws, but don’t loosen or remove them as they may become damaged. Attach wires snugly, but don’t overtighten.
2.4 Water connection

Install according to national and local codes.

Carefully place dishwasher on its back to make water connections to the water inlet valve. Use a 90° elbow fitting with Teflon tape as needed. Don’t overtighten.

Attach the hot water line to the 90° elbow and route it underneath the unit toward the hot water connection. Make sure the line doesn’t contact any moving parts.

2.5 Drain and condensation hose connections

Plumbing installations will vary - refer to local codes. The maximum length of the drain hose, including leading to an air gap (if any) is 150" (381 cm). Make sure a high loop is raised at least 20" (51 cm) above the floor.

Drain hose has its own adapter – connect directly to plumbing connection and secure with supplied hose clamp. Don’t connect to condensation hose.
3 OPERATION

3.1 Control layout

3.2 Using controls

Wash programs don't have dedicated buttons, but are selected by scrolling with left ("<") and right (">") scroll buttons. After turning on dishwashers, scroll left or right to the desired wash program (shown by lit LED displays between scroll buttons). To start the desired program, press the Start button.

3.3 Reset ("Cancel – drain")

To reset, press and hold Start button until Active light goes out or when display shows "0.01". Wait about one minute for dishwasher to stop draining. To reset dishwasher, turn it off after it stops.

3.4 Changing basic settings

Extra Dry feature can be turned on or off and rinse-aid dosage can be changed using dishwasher controls.

3.4.1 SHE3AR5 models with LED’s

Turn dishwasher on, press and hold “>” button, then press and hold Start button. Clean and Sanitized lights will be flashing (Extra Dry mode). When lights are flashing, release buttons.

**SHE lights**

<table>
<thead>
<tr>
<th>SHE Extra Dry</th>
<th>Clean</th>
<th>Sanitized</th>
<th>Rinse Agent</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHE Rinse Aid</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Press “>” button to scroll between Extra Dry and Rinse Aid modes. Press “<” button to scroll to desired setting. Press Start button to save settings and exit basic settings.

### 3.4.2 SHE3ARF models with digital displays

Turn dishwasher on, press and hold “>” button, then press and hold Start button. Sanitized light will be flashing (Extra Dry mode). When light is flashing, release button.

<table>
<thead>
<tr>
<th>SHE basic settings</th>
<th>SHE LED displays</th>
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<tbody>
<tr>
<td>Extra Dry (off)</td>
<td>○ ○ ○ ○ ○</td>
</tr>
<tr>
<td>Extra Dry (on)</td>
<td>○ ○ ○ ○ ○</td>
</tr>
<tr>
<td>Rinse Aid (none)</td>
<td>○ ○ ○ ○ ○</td>
</tr>
<tr>
<td>Rinse Aid (low)</td>
<td>○ ○ ○ ○ ○</td>
</tr>
<tr>
<td>Rinse Aid (medium)</td>
<td>○ ○ ○ ○ ○</td>
</tr>
<tr>
<td>Rinse Aid (high)</td>
<td>○ ○ ○ ○ ○</td>
</tr>
</tbody>
</table>

SHE LED displays

SHE basic settings

<table>
<thead>
<tr>
<th>SHE lights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean</td>
</tr>
</tbody>
</table>

### 3.5 Special programs (codings)

Controls can run customer service tests, show error codes, run sales demo programs and run factory tests. The same procedure is used to access all programs – don’t run factory tests.

All programs are listed for questions about unknown codes or displays occasionally encountered on dishwashers.
To enter Special programs, press and hold “>” and Delay buttons, then turn dishwasher on. When Special programs are accessed, left program light will flash and 2nd program light from left will be lit (see below). On models with digital displays, the display will show “P0”.

- To scroll through programs, press “<” button.
- To start programs shown with “*”, press “>” button.
- **To exit Special programs, turn dishwasher off**
  - Programs shown with “+” are started with the Start button (don’t run these programs).
  - Run only programs shown in **bold** type (error codes, customer service & sales demo).

### 3.6 Sales demo (showroom) program

#### 3.6.1 Preparing dishwashers

Unlike with traditional dishwashers, do **NOT** disconnect drain pumps when using sales demo programs. Dishwasher controls run safety checks – if drain pumps or heat pumps are disconnected, dishwashers will **NOT** run.

No disconnections are needed – just add one (1) gallon of water (with bacteria stat) to dishwasher tanks. Heat pumps will run and lights will light when program buttons are pressed. Drain pumps do not run. It’s not necessary to plug drain hoses, but it’s a good practice to prevent any possible water leakage.

#### 3.6.2 Selecting Sales demo mode

- **Entering Special programs** – Press and hold “>” and Delay buttons, then turn dishwasher on. Left program light will flash and 2nd program light from left will be lit. (on models with digital displays, the display will show “P0”).
- **Selecting sales demo program** - Press “<” button to scroll to customer service test program. Left three LED displays will be lit (on models with digital displays, the display will show “P7”).
- **Using sale demo program** - Press “>” button to start program. **Active** and **Regular Wash** lights will always be lit (on models with digital displays, the display will always show “1:23”). Pressing buttons will light corresponding light.
- **Exiting sales demo program** - Press and hold “>”and Delay buttons, then turn dishwasher off to exit program. Pressing on/off button during sales demo program shows how dishwasher resets, but does not reset dishwasher, turn dishwasher off or exit sales demo program.

<table>
<thead>
<tr>
<th>SHE LED displays</th>
<th>SHE digital display</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHE Special programs</td>
<td>SHE LED displays</td>
</tr>
<tr>
<td>Error codes* / Functional test+</td>
<td>P0</td>
</tr>
<tr>
<td>Customer service test*</td>
<td>P1</td>
</tr>
<tr>
<td>High voltage test*</td>
<td>P2</td>
</tr>
<tr>
<td>Endurance run+</td>
<td>P3</td>
</tr>
<tr>
<td>UL program*</td>
<td>P6</td>
</tr>
<tr>
<td>Showroom (sales demo)*</td>
<td>P7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SHE Sales demo pgm*</th>
<th>SHE LED displays</th>
<th>SHE digital display</th>
</tr>
</thead>
<tbody>
<tr>
<td>P7</td>
<td>P7</td>
<td></td>
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</tbody>
</table>
4 COMPONENTS

HINT: = A video is available on QF. There is no link for this icon – clicking onto it doesn’t take you to the video.

4.1 Control and power modules

Ascenta dishwashers have two control modules, a control module (with display, lights & buttons) in the fascia (control) panel and a power module in the base on the right side. The power module controls the BLDC drain pump and heat pump.

1. Control module (in fascia panel).

The wire harness connected to the control module is a separate harness.

4.2 Door latch

The door latch is mounted on top of the tank and doesn’t contain a microswitch. It uses a Hall-effect sensor in the door to sense the door latch magnet to determine if the door is open or closed. The Hall-effect sensor is held by two T-10 Torx screws. The door latch is held by one T-20 Torx screw and two tank tabs.
The dishwasher won't start if the door isn't closed securely. Push the door closed until the door latch closes (i.e. until the latch clicks). If the dishwasher starts, educate the customer on closing the door securely.

If the dishwasher won't start when the door has been securely closed, check the door latch with a magnet. Hold the magnet over the Hall Effect sensor (located just left of the left screw) – if the dishwasher starts, the sensor didn't sense the door latch magnet.

Occasionally a door can catch on the door seal and not close securely. If the door or door seal is misaligned, realign it. If the door latch is broken, replace it.

4.3 Dispenser

The dispenser, located in the middle of the inner door, reliably dispenses detergent and rinse-aid.

During each wash program, the dispenser operates twice, once to dispense detergent and again to dispense rinse-aid.

1. Coil
2. Actuator
3. Rinse-aid pump
4. Optical rinse-aid sensor
5. Cover release lever

The coil (1) moves the detergent cover actuator (2) and is powered by 160 VDC pulses from the control. When the coil is switched on, the actuator moves to the left. The actuator is connected by a plastic link to the detergent cover release lever (5). When the actuator turns the lever, the detergent cover opens.

A "latching mechanism" between the coil actuator and rinse-aid valve prevents rinse aid from being dispensed when the coil is initially actuated. After the detergent cover has opened, the mechanism changes position like a ballpoint pen (when it’s clicked), preventing the detergent cover from moving and allowing the rinse-aid pump to dispense rinse aid.

Each 160 VDC control pulse dispenses 1 ml of rinse aid. The total amount of rinse-aid depends on the dispenser setting. A vent equalizes the pressure in the dispenser so rinse-aid is dispensed accurately.
The actuator is “reset” when the detergent door is opened so the detergent cover opens first the next time the coil is activated.

Detergent tablets dissolve more slowly if there’s moisture left in the detergent dispenser. Two plastic ribs in the detergent cup prevent detergent tablets from “sticking” to the cup.

**CAUTION:** Inner door edges are sharp! Cover door edges and remove dispenser carefully.

### 4.4 Heat pump

There’s no flow-through heater, flow switch or Hi-Limit cutout – the circulation pump has a flow-through heated cylinder. The 120 VAC, 1200W heater cylinder provides more heating surface area and heats water a bit faster than traditional flow-through heating elements (~ 2°F / minute). The circulation pump (portion) has a 3-pole BLDC motor controlled by the power module.

The dishwasher won’t run if the heat pump is disconnected or disabled.
4.5 Drain pump

The BLDC 9-vane drain pump has variable speed and direction. The power control module controls speed and direction, detects end of draining and blocked rotor and corrects locked rotor conditions. The dishwasher won't run if the drain pump is disconnected or disabled.

To remove the drain pump, rotate it clockwise and pull it out.

4.5.1 Solving installation issues

Often improper installations, not drain pump issues, cause dishwashers to not drain properly.

- **Must have drain hoses with high loops (min. 20" high) or drains with air gaps.**
- **Drain hoses are 6’ long and can be up to 10’ long.**
- **Secure drain hoses to rear of dishwashers with non-metal bands.**
- **Make sure drain hoses aren’t kinked.**

4.5.2 Cavitating

**Cavitating** may occur in any type of pump when impellers spin faster (from low inlet or outlet pressure), creating air pockets around impellers. Cavitating pumps can be noisy. Air gaps/high loops keep water contacting pump outlets, preventing air pockets from forming.

4.5.3 Siphoning

**Siphoning** may occur in any type of drain pump when low water flow allows a siphon (suction) to develop, pulling waste water back into the pump. Sump check valves along with air gaps/high loops prevent siphons from being created.
4.6  Float

The float is a safety device which starts the drain pump if there's too much water in the tank.

4.7  Water inlet / condensation system

Unlike prior dishwashers, Ascenta dishwashers use a common water inlet and condensation system. Instead of feeding water into the bottom of the tank, dishwashers fill into the left side of the tank. Instead of condensation exiting from the right side of the tank, it exits the left side of the tank through the water inlet.

There are three hoses connected to the water inlet system, the water inlet hose (from the water inlet valve), condensation (breather) hose and internal drain hose. The internal drain hose has a factory made high loop (~ 15" above the floor) and connects to the external customer drain hose.

Ascenta dishwashers use a time-fill. Maximum customer (external) drain hose length is 92".

Water inlet system and hoses are shown below.
4.7.1 Water inlet valve

Ascenta dishwashers use standard horizontal coil water inlet valve with (Rast 5) connector. The valve nestles in the left side of the base on base tabs and is held into place with two screws.

4.8 Door spring

The door spring mechanism uses a “sliding” pulley and cord to provide proper tension and enable self-closing. The fixed sliding pulley is attached by two screws (including one inside the bottom pulley). The cord slides on the pulley, using the friction between it and the cord to provide better control.

The spring slides into a slotted pocket in the side of the base and connects to the cord. Springs are color coded for specific tensions.

4.9 Terminal box

All dishwashers have terminal boxes with covers and conduit exits.

4.9.1 Terminal block

Terminal blocks clearly show line (L), neutral (N) & ground (G) connections. Dishwasher wire harnesses have spade terminals which connect to terminals on the rear of the terminal block.

Terminal blocks can’t be installed in the field – the terminal box assy with terminal block must be ordered. The terminal box assy assures the terminal block is properly grounded to the terminal box.
4.10 Aqua sensor

The aqua sensor is located above the drain pump. It's a one-piece assembly, not a small circuit board pulled out of a plastic housing. It senses water cleanliness and allows the dishwasher control to determine removing cycles to save energy.

If water is clean enough, it will be kept for the wash cycle. If not, the aqua sensor directs the dishwasher to add an additional pre-rinse or pre-wash cycle.

Dishwashers still operate adequately if aqua sensors fail. Customers with lightly soiled or pre-rinsed dishes may notice wash cycles lasting slightly longer.

4.11 Drain hose

Ascenta dishwashers use a two-hose (internal / external) drain hose system. A 92" long external drain hose is connected (during installation) to the internal drain hose, with the 90° elbow pointing toward the customer drain. The external drain hose connects directly to the customer drain system without an adapter.

The 90° elbow in the hose should be pointed toward the dishwasher drain connection.

The internal drain hose is held in place at the sump exit by a white plastic hose lock (1).
4.11.1 Hose system

Several hoses run underneath dishwasher bases: internal drain hose, condensation tube and water inlet hose. The internal drain hose connects to the sump and the other hoses connect to the water inlet / condensation system.

1. Inlet hose
2. Condensation tube
3. Internal drain hose
4. Condensation tube exit

The condensation tube attaches to the base – don’t connect it to a drain.

4.12 Sump parts

The sump contains a filter screen, coarse filter and micro filter.

1. Coarse filter
2. Microfilter
3. Filter screen

The sump holds the drain pump cover and suction cap. The suction cap provides a proper flow rate of water through the sump and access to the heat pump impeller.

1. Suction cap
2. Drain pump cover
4.12.1 Backflow valve

The backflow valve is located inside the sump at the internal drain hose inlet. It prevents waste water from entering the sump.

1. Backflow valve assembly
2. Flap

4.13 Tank with base and sump

4.13.1 Tank, base and sump assembly

The tank, base and sump are assembled as one unit and aren’t available as a service part. If plastic cable holders, part holders and screw holes are damaged or stripped, the entire dishwasher must be replaced.

4.13.2 Rear leveling foot

The rear leveling foot can’t be adjusted from the front – the rear foot is the same as front feet and is adjusted the same way. The base has provision for two rear feet in the rear corners, but the center foot factory mounting should be used (below left).

Factory feet positions, like the center rear foot (1), have provisions for set screws (below right). Outside rear positions don’t have set screw positions and shouldn’t be used. Set screws are in the installation parts bag.

1 – Center rear foot set screw location
4.14 Serial label (warranty information)

The serial label, located on the right side of the inner door, contains the dishwasher model, serial and index (KI) #’s.

4.14.1 Understanding the FD # (customer serial #)

This is the serial # used for customer and warranty repairs, commonly known as the “FD #”. It’s located under the model #.

FD9006 00067

The FD # shows the production date:

- The first 2 #s represent the year: 90 = 2010
- The next 2 #s represent the month: 06 = June
- The next 5 #s represent the unit made that month: 00067 = 67th dishwasher made that month

4.14.2 Understanding the 17-digit factory serial #

This is a more detailed serial # used by the factory for analysis of returned units. It’s located in the bottom right corner of the label.

10 0 06 0088966 000677

This serial aids the factory in researching and verifying parts of the dishwasher.

- The first 2 #’s represent a factory code: 10 = New Bern dishwasher
- The 3rd # represents the last digit of the year: 0 = 2010
- The next 2 #’s represent the month: 06 = June
- The next 7 #’s represent the model: 0088966 = SHE4AP05UC
- The next 5 #’s represent the unit made that month: 00067 = 67th dishwasher made that month
- The last # represents a check digit = 7 in this case (is dependent on all preceding #’s)
5 REPAIR

5.1 Access

5.1.1 Repair access chart

Use the following chart to determine how to access parts.

<table>
<thead>
<tr>
<th>Part serviced</th>
<th>Front serviceable - no removal needed</th>
<th>Side / front serviceable - pull out dishwasher</th>
<th>Bottom serviceable - pull out &amp; flip dishwasher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control / display</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base mounted control</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Door latch sensor</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Door latch</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Dispenser</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water valve</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Filters / spray arms / fill tube</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sump access</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hinges</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower door seal</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fascia panel</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On/off switch</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terminal block</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drain pump</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Float</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water inlet system</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Condensation tube</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heat pump</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aqua sensor</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**HINT:** 🎥 = A video is available on QF. There is no link for this icon – clicking onto it doesn’t take you to the video.

5.1.2 Front access

Many parts such as door latch Hall Effect sensors (1), dispensers (2), controls (3), and fascia panels (4) are accessed from the front. Removing the outer door is needed for dispenser and bottom front access.

5.1.2.1 To remove outer door

Removing the outer door is needed for front access for removing dispensers and bottom access / flipping dishwashers upside-down for removing heat pumps. For most dishwashers, the short bottom six (6) screws hold outer doors.

Tools needed: T20 Torx screwdriver.

1. Remove six (6) short T-20 Torx inner door screws below fascia panel -- three per side *(next page, left)*.
2. Carefully pull bottom of outer door out from dishwasher until top door tabs clear, then pull door down until it releases from dishwasher *(next page, right)*. Take care to not scratch outer door.
**TIP:** Outer doors with foam door guards don’t need the door guards removed unless the outer door is being replaced.

5.1.2.2 To remove fascia panel

Fascia panels and outer doors are both removed by removing inner door screws. For most dishwashers, the top four (4) screws hold the fascia panel.

*Tools needed:* *T-20 Torx screwdriver.*

1. Remove fascia panel by removing six (6) long fascia panel screws from top of inner door *(below left)*. If needed, remove outer door first (section 5.2.1.1).
2. Lift fascia panel out from door. Be careful to not damage wire harnesses. The long six (6) fascia screws are different than the short six (6) outer door screws, so don’t mix screws when removing both fascia panel and outer door *(below right).*

5.1.3 Side and bottom front access

5.1.3.1 Left side access

The water inlet system, condensation (breather) hose, water inlet hose and internal drain hose are accessible from the left side.

5.1.3.2 Right side access (power module)

The power module is accessible from the right side.
5.1.4 Pulling out dishwashers

Follow these instructions to pull out dishwashers for side or bottom front access.

5.1.4.1 To remove toe kick

Tools needed: T20 Torx & #2 Phillips screwdrivers.

1. Where necessary for access, remove outer door – section 5.1.2.1.
2. Remove two (2) Phillips #2 screws and tilt bottom of toe kick out and up from dishwasher.

5.1.4.2 Disconnect & pull out dishwasher

Tools needed: T20 Torx & #2 Phillips screwdrivers and pliers or wrench.

1. Remove toe kick – section 5.1.4.1.
2. Disconnect dishwasher mounting brackets (below left).
3. Turn off water and disconnect water line (below right).
4. Turn off electricity and disconnect electric supply by unplugging power cord or disconnecting wire harness / loosening strain relief (below).
5. If needed, remove terminal box by loosening two screws at ends of terminal block, pulling box from dishwasher and disconnecting harness connector from rear of box (below).
6. Slide dishwasher out completely (below).
5.1.5 Bottom access

The water inlet valve (1), drain pump (3), terminal box (4), float (5), heat pump (6) and aqua sensor (7) are accessible from the bottom front of the dishwasher. Many parts can be accessed from the front without flipping the dishwasher upside-down. However, for best access, especially to the heat pump and float, flip the dishwasher upside-down. The sump (2) is part of the base and cannot be replaced.

5.1.6 Flipping dishwashers

Follow these instructions to flip dishwashers upside-down or on their backs for bottom access.

5.1.6.1 To flip dishwasher for bottom access

Tools needed: T20 Torx, #2 Phillips and flat blade screwdrivers.

1. Remove toe kick – section 5.1.4.1.
2. Disconnect & pull out dishwasher – section 5.1.4.2.
3. Remove all water from dishwasher sump and hoses.
4. Slide dishwasher out completely (below left).
5. Remove both racks (below center).
6. Place a pad or cardboard on the floor and carefully flip the dishwasher upside-down or on it’s back (below right).
7. Whether the dishwasher is upside-down or on it’s back, all bottom accessible parts are accessible (see below).
5.2 Controls

5.2.1 Fascia panel mounted controls (front button models)

Controls are easily removed from fascia panels by prying plastic tabs.

*Tools needed:* T-20 Torx & flat blade screwdrivers.

1. **Remove fascia panel** – section 5.1.2.2. If needed, remove outer door first.
2. Disconnect short wire harnesses from both ends of fascia panel (see below).
3. Remove handle trays (1) before removing controls (2). To remove handle trays, carefully pry in plastic clips.
4. Remove controls by carefully prying clips from one side to the other (below left) and gently lifting controls up as you pry clips.
5. When reassembling fascia panels to doors, make sure fascia panel tabs enter outer door slots.

**CAUTION** – 80% of all controls returned for analysis check out OK. Most control issues are due to loose connections.
5.2.2 Base mounted controls (power modules)

Power modules are located in the base on the right side of dishwashers, not behind fascia panels. So:

- Dishwashers must be pulled out to change controls.
- Dishwashers must be pulled out to measure voltages & resistances (at the control).

5.2.2.1 To access base-mounted controls

Tools needed: T20 Torx, #2 Phillips and flat blade screwdriver.

1. Remove toe kick – section 5.1.4.1.
2. Disconnect & pull out dishwasher – section 5.1.4.2.

5.2.2.2 To remove base-mounted controls

Tools needed: Flat blade screwdriver

1. Two plastic base tabs hold the power module in place. To remove power module, gently pry tabs until they clear module (below left), move bottom of module (in toward heat pump) until it clears base (below right) and pull module from base.

2. Pry cover tabs to open cover (below left), then disconnect wire harnesses from power module (below right).
Not all terminals are used. To protect power modules, two plugs are used to cover unused terminals.

5.3 Dispensers

Although many dispenser components can be replaced, it’s quicker to replace the entire dispenser.

5.3.1 To remove dispensers

Tools needed: T20 Torx & flat blade screwdrivers.

1. **Remove outer door** – section 5.1.2.1.
2. Disconnect wire harnesses from dispenser **after noting connector locations** (below left).
3. Remove cable guide (below right).
4. Carefully pry inner door flanges (1) away from the tabs (2) on the top and bottom of the dispenser (see below).

⚠️ CAUTION – 80% of all controls returned for analysis check out OK. Most control issues are due to loose connections.
5. Carefully push the dispenser **in** through the inner door (i.e. toward the dishwasher tank).

**CAUTION:** Inner door edges are sharp! Cover door edges and remove dispenser carefully.

### 5.3.2 To install dispensers

1. Where necessary, bend back inner door flanges so they can snap into dispenser tabs.
2. To aid installation, coat dispenser seal with rinse-aid.
3. Carefully push the dispenser **out** through the inner door (i.e. from inside the dishwasher toward the front of the dishwasher).
4. Snap inner door flanges onto or into dispenser tabs.
5. Replace cable guide.
6. Reconnect dispenser wire harnesses.
7. Replace outer door.

### 5.4 Door latches

The door latch is mounted on top of the tank and contains a magnet, not a microswitch. A Hall-effect sensor in the door senses the magnet when the door or closed.

Confirm whether the latch is misaligned before replacing the latch or sensor. Check the sensor with a magnet to confirm if it's properly sensing the latch (see section 6.3.1.1).

#### 5.4.1 To remove door latch Hall Effect sensor

**Tools required:** T10 Torx, T20 Torx & flat blade screwdrivers.

1. *Remove outer door* – section 5.1.2.1.
2. *Remove fascia panel* -- section 5.1.2.2.
3. Disconnect wire harness from sensor (*below left*).
4. To remove sensor, open door and remove (2) T-10 Torx screws from the top center of the door (*below center*).

**HINT:** When replacing a door latch, make sure the door latch is aligned and the sensor detects the door latch magnet.
5.4.2 To remove door latch

Tools needed: T20 Torx & #2 Phillips screwdrivers and pliers or wrench.

1. **Remove toe kick** – section 5.1.4.1
2. **Disconnect & pull out dishwasher** – section 5.1.4.2.
3. Remove frame stiffener by removing (4) T-20 Torx four screws *(below left)*.
4. Remove door latch by removing (1) T-20 screw and rotating the latch up away from the tank tabs *(below center and right)*.

5.5 Water valves

Access the water valve from the front of the dishwasher base by removing the toe kick.

5.5.1 To remove water valve

Tools needed: T20 Torx & #2 Phillips screwdrivers and pliers.

1. **Remove outer door** – section 5.1.2.1.
2. **Remove toe kick** – section 5.1.4.1
3. Remove base insulation (on models with insulation).
4. Turn off water and disconnect water line *(below left)*.
5. Turn off electricity and disconnect electric supply by unplugging power cord or disconnecting wire harness / loosening strain relief *(below center & right)*.
6. Remove two (2) T-20 Torx screws from water valve *(below left)*.
7. Disconnect wire harness from water valve *(below center)*.
8. Pull valve out from dishwasher, loosen hose clamp and disconnect water hose from rear of valve *(below right)*. Remove any water from sump & base.
CONNECTION HINTS:

- Water connection 3/8" NPT female. Inlet water pressure range 5 - 120 psi (0.3 – 8.27 bars).
- When reconnecting the water supply to the water valve, don’t overtighten the elbow fitting.
- Using Teflon tape on water fittings can help prevent leaking.

5.6 Drain pumps

Tools needed: T20 Torx & #2 Phillips screwdrivers and pliers.

1. Remove outer door – section 5.1.2.1.
2. Remove toe kick – section 5.1.4.1.
3. Remove base insulation (on models with insulation).
4. Turn off water and disconnect water line (below left).
5. Turn off electricity and disconnect electric supply by unplugging power cord or disconnecting wire harness / loosening strain relief (below center & right).
6. Remove the drain pump by rotating it clockwise and pulling it out (below left).
7. Disconnect wire harness from drain pump (below center).

5.7 Water inlet & condensation tube

The water inlet and condensation tube are easily accessed from the left side of the dishwasher. The water inlet hose and condensation tube connect to the same assembly.

Tools needed: T20 Torx & #2 Phillips screwdrivers and pliers.

1. Remove toe kick – section 5.1.4.1.
2. Disconnect & pull out dishwasher – section 5.1.4.2.
3. Remove lower rack (below left).
4. Unscrew condensation tube cap ccw (counterclockwise) from inside of tank (below right).
5. Loosen hose clamp from water inlet hose *(below left).*
6. Pull out water inlet hose from water inlet *(below center).*
7. Pull out drain hose from water inlet *(below right).*
8. Pull out condensation tube from water inlet and base *(below left & center).*
9. Pull out water inlet from tank *(below right).*

### 5.8 Sump parts

The inside of the sump is easily accessed for maintenance and cleaning drain and provides access to the drain pump cover and suction cap (“heat pump access cover”).

**Tools needed:** Flat blade screwdriver.

1. Pull out both racks *(below left).*
2. Pull out lower spray arm *(below center).*
3. Unscrew microfilter counterclockwise (ccw) and lift out microfilter and fine filter screen *(below right).*
4. Carefully pop out drain pump cover *(below left).*
5. Carefully pop out suction cap *(below left).*
5.9 Inner doors

Inner doors rarely need to be removed for repairs, but need to be removed to access the lower door seal and door hinge lever.

Tools needed: T20 Torx & #2 Phillips screwdrivers and pliers.

1. **Remove outer door** – section 5.1.2.1.
2. **Remove toe kick** – section 5.1.4.1.
3. Remove base insulation (on models with insulation).
4. **Disconnect & pull out dishwasher** – section 5.1.4.2. Pull dishwasher out enough to clear hinges.
5. **Remove fascia panel** – section 5.1.2.2. This eliminates disconnecting and reconnecting all wire harnesses.
6. If replacing inner door, **remove dispenser** – section 5.3.1.
7. If the lower door seal sticks to the inner door, separate the seal from the door by hand (below left).
8. Disconnect door springs from hinge levers (below center). For easier removal, pull the cord over the bottom pulley first to release spring tension.
9. Remove two (2) hinge screws on both sides of inner door (below right). The bottom screws also hold the lower door seal.

**CAUTION:** Inner door edges (at the hinge) are sharp! Cover door edges and remove the door carefully.

5.10 Door hinge levers

1. **Remove inner door** – section 5.9.
2. Remove right hinge ground wire.

3. Pry open hinge bushing latches and lift hinge levers from hinge plates. Hinge bushings should be replaced after latches have been pried open.
5.11 Lower door seals

The lower door seal is attached by two of the four inner door screws. It is removed along with the inner door.

Tools needed: T20 Torx & #2 Phillips screwdrivers and pliers.

1. **Remove inner door** – section 5.9. The lower door seal will be loose since it’s two (2) screws were removed when the inner door was removed (below left). If the seal sticks to the inner door, separate the seal from the door by hand (below left).

2. Remove lower door seal (below right).

---

5.12 Heat pump disassembly

The heat pump is best accessed from the bottom of the dishwasher by flipping it upside-down or on it’s back. Use the same process to access the float and aqua sensor.

Tools needed: T20 Torx, #2 Phillips & small flat blade screwdrivers and pliers.

1. **Remove toe kick** – section 5.1.4.1.
2. **Flip dishwasher for access** – section 5.1.6.1.
3. Remove hose clamp to separate pump from adapter (below left).
4. Disconnect support strap (below center).
5. To remove pump, slide pump off sump at seal ring (below right). The seal ring can't be field removed from the heat pump.
6. Disconnect the two (2) pump wire harnesses (below left). To remove the small connector for the sensor harness with black wires, un latch it from it's terminal (below center).
7. If necessary, remove the adapter by removing four (4) screws (below right).

**TIP:** The replacement heat pump comes with motor, pump, seal ring and hose clamp.

**NOTE:** The motor can't be separated from the pump and the seal ring can't be field installed.

### 5.13 Float (safety system)

**Tools needed:** T20 Torx, #2 Phillips & small flat blade screwdrivers.

The float is best accessed from the bottom of the dishwasher by flipping it upside-down or on it's back. Several plastic pieces snap into place and must be carefully removed in sequence.

1. **Remove toe kick** – section 5.1.4.1.
2. **Flip dishwasher for access** – section 5.1.6.1.
3. Unscrew one housing screw (below left) and push one cover tab (below right) to remove cover from float assembly.
4. Float lever has tabs which lock onto the knob of the push rod. Carefully push the push rod knob away from the lever (below left).
5. Remove the float housing screw and remove the float housing with lever (below center).
6. Remove the wire harness (below right).
7. Carefully pull the float lever from the housing (below left).
8. Carefully pry the microswitch from the housing (below right).
9. Push the float into the tank and remove it (below).

5.14 2-piece drain hose connection

Drain hoses come in two pieces, an external (customer) drain hose and an internal drain hose. The 90° elbow of the external hose is connected to the outlet of the internal hose (pointing toward the drain) and is held in place by a hose clamp.

5.14.1 Removing internal drain hose

Tools needed: #2 Phillips & small flat blade screwdrivers.

1. Remove toe kick – section 5.1.4.1.
2. Flip dishwasher for access – section 5.1.6.1.
3. Lift off the white plastic hose lock at the sump (near the drain pump) and pull out the drain hose w/ O-ring (below).
4. Carefully pry out the white plastic hose lock at the rear of the dishwasher where the external drain hose connects to it (below center) and slide the hose out from the bracket (below right).

1. Drain hose lock
6 FAULT DIAGNOSTICS

6.1 Error codes (service / customer)

6.1.1 Entering error code program

Press and hold “>” and Delay buttons, then turn dishwasher on. Left program light will flash, 2nd program light from left will be lit and digital display will show “P0”). Press “>” button to start program. Last 8 error codes will show. Press “>” button to scroll through error codes. Turn dishwasher off to exit program.

6.1.2 Error code displays

<table>
<thead>
<tr>
<th>Component</th>
<th>Failure Bit’s</th>
<th>short failure description</th>
<th>7-seg. Display</th>
<th>LED Display</th>
<th>Failure State</th>
<th>7-seg. Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>general</td>
<td>31</td>
<td>overload drain pump</td>
<td>E:32</td>
<td>Run</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>overload circulation pump</td>
<td>E:31</td>
<td>Run</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>29</td>
<td>over voltage</td>
<td>E:30</td>
<td>Run</td>
<td></td>
<td></td>
</tr>
<tr>
<td>aquasensor</td>
<td>27</td>
<td>calibration failure</td>
<td>E:28</td>
<td>Run</td>
<td></td>
<td></td>
</tr>
<tr>
<td>waterswitch</td>
<td>25</td>
<td>reference cam not detected</td>
<td>E:26</td>
<td>Run</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>blockade</td>
<td>E:25</td>
<td>Run</td>
<td></td>
<td></td>
</tr>
<tr>
<td>drain pump</td>
<td>23</td>
<td>no drain flow possible</td>
<td>E:24</td>
<td>End E:24</td>
<td>Run</td>
<td></td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>col error (FS)</td>
<td>E:23</td>
<td>End E:23</td>
<td>Run</td>
<td></td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>reserved</td>
<td>E:22</td>
<td>Run</td>
<td>Run</td>
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<td></td>
<td>20</td>
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<td>19</td>
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<td>E:20</td>
<td>Run</td>
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<td></td>
<td>18</td>
<td>reserved</td>
<td>E:19</td>
<td>Run</td>
<td>Run</td>
<td></td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>volume flow too low</td>
<td>E:18</td>
<td>Wait/Abort</td>
<td>Run</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>volume flow too high</td>
<td>E:17</td>
<td>Abort E:17</td>
<td>Run</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>volume flow without</td>
<td>E:16</td>
<td>End/O.d. E:16</td>
<td>Run</td>
<td></td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>water in base carrier</td>
<td>E:15</td>
<td>End/O.d. E:15</td>
<td>Run</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>flow meter error</td>
<td>E:14</td>
<td>Abort E:14</td>
<td>Run</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>boil protect (75°C) (FS)</td>
<td>E:13</td>
<td>Run</td>
<td>Run</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>center resistance not in</td>
<td>E:12</td>
<td>Run</td>
<td>Run</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>NTC1 NTC2 failure</td>
<td>E:11</td>
<td>Run</td>
<td>Run</td>
<td>Run</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>(absolute, symmetry) (FS)</td>
<td></td>
<td>Run</td>
<td>Run</td>
<td>Run</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>resistance too high</td>
<td>E:10</td>
<td>Run</td>
<td>Run</td>
<td>Run</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>burn through / safety</td>
<td>E:09</td>
<td>Run</td>
<td>Run</td>
<td>Run</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>relay error</td>
<td>E:08</td>
<td>Run</td>
<td>Run</td>
<td>Run</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Zeolith / Optional</td>
<td>E:07</td>
<td>Run</td>
<td>Run</td>
<td>Run</td>
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<td></td>
<td>4</td>
<td>Electronic error</td>
<td>E:06</td>
<td>Stop E:06</td>
<td>Run</td>
<td>Run</td>
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<tr>
<td></td>
<td>3</td>
<td>sensor error (FS)</td>
<td>E:05</td>
<td>Abort E:05</td>
<td>Run</td>
<td>Run</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>impulses without</td>
<td>E:04</td>
<td>Run</td>
<td>Run</td>
<td>Run</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>activation (WW - Tita)</td>
<td>E:03</td>
<td>Run</td>
<td>Run</td>
<td>Run</td>
</tr>
<tr>
<td>Power</td>
<td>0</td>
<td>working and safety</td>
<td>E:02</td>
<td>End E:03</td>
<td>Run</td>
<td>Run</td>
</tr>
<tr>
<td>module</td>
<td></td>
<td>relay error (FS)</td>
<td></td>
<td></td>
<td>Run</td>
<td>Run</td>
</tr>
<tr>
<td>No failure</td>
<td></td>
<td>BLDC – Control (FS)</td>
<td>E:01</td>
<td>End E:01</td>
<td>Run</td>
<td>Run</td>
</tr>
</tbody>
</table>

LED display    Digital display

Error code program

LED off    LED on    LED flash
6.1.3 Explaining digital and LED error code displays

Digital error codes **only** show on dishwashers with digital displays.

Dishwashers show the same LED display for many error codes, so it's **not** possible to determine which specific error code occurred. For example, LED display ☐ ☐ ☐ shows for any power module failure causing digital error codes E:01, E:02, E:03 and E:05.

- **E:01 BLDC - control**
- **E:02 working relay error**
- **E:03 working and safety relay errors**
- **E:05 impulses without activation**

**LED display**

- ☐ ☐ ☐

**LED legend:**

- ☐ = LED off
- ☐ = LED on
- ☐ = LED flashing

---

6.1.4 Error code troubleshooting

6.1.4.1 No failures

**Digital display**

- **E:00 No failures**

**LED display**

- ☐ ☐ ☐

6.1.4.2 Power module error codes

**Digital display**

- **E:01 BLDC control**
  - Power module BLDC controller failed; functional safety error.
  - Replace power module
- **E:02 Working relay error**
  - Power module working (primary) relay failed; safety (backup) relay running dishwasher.
  - Replace power module
- **E:03 Working and safety relay error**
  - Working (primary) relay and safety (backup) relays failed.
  - Replace power module
- **E:05 Impulses without activation**
  - Code not used

---

**Refill Rinse-Aid, Half Load & Child Lock** LED’s aren’t used for error codes

---
6.1.4.3 Door latch error codes

**Digital display**
- **E:06 Sensor error**
  - Door latch sensor not detected, functional safety error.
  - Align door latch above sensor (located inside inner door).

**LED display**
- ![LED display](image)

1. Hall Effect sensor at top of door
2. Door latch on top of tank

6.1.4.4 Heat pump error codes (heating)

**Digital display**
- **E:08 No load in heat pump**
  - No water in heat pump
  - Check water supply

**E:09 Burn through / safety relay error**
- Power module controlling relay not switching / stuck closed
  - Replace power module

**E:10 Resistance too high**
- Heater resistance too high
  - Replace heat pump

**E:11 NTC1 / NTC 2 failure (absolute / symmetry)**
- NTC1 to NTC 2 internal check failed, functional safety error.
  - Replace heat pump

**E:12 Heater NTC’s comparison check failed**
- Heater NTC’s have different resistances
  - Replace heat pump

**E:13 Water temperature too high**
- Boil protect level (75ºC / 167ºF) exceeded, functional safety error.
  - Replace heat pump
6.1.4.5 Filling error codes

Digital error codes E:08 – E:13 are shown with one LED display: ○ ○ ○. They have different causes, such as faulty heat pump, faulty power module or insufficient water supply.

Troubleshooting is needed to determine the cause.

6.1.4.6 Heat pump error codes (circulating)

Digital display
- **E:14** Flow meter error
  - Code not used (no flow meter)
- **E:15** Water in base
  - Code not used (bases are open)
- **E:16** Volume flow without activation
  - Code not used (no flow meter)
- **E:17** Volume flow too high
  - Water volume too high, safety float activated
- **E:18** Volume flow too low
  - Water volume too low, heat pump motor load too low.
  - Check water supply

LED display
- **E:20** Heater error
  - Heater system check failed; functional safety error.
  - Replace heat pump
- **E:21** Blockage
  - Heat pump unable to circulate and clear blockage.
  - Replace heat pump
### 6.1.4.7 Drain pump error codes

**Digital display**
- **E:23** Coil error
  - System check of drain pump motor coil failed, functional safety error.
  - Replace drain pump
- **E:24** No drain flow possible
  - Drain pump is running but unable to remove the water, drain system blockage.
  - Check for blockage of drain hose, pump, backflow valve
- **E:25** Blockage
  - Drain pump unable to rotate, attempts to clear failed.
  - Check for debris at drain pump

**LED display**
- ○ ○ ○

### 6.1.4.8 Water switch error codes

**Digital display**
- **E:26** Reference cam not detected
  - Code not used (no water switch)

**LED display**
- ○ ○ ○

### 6.1.4.9 Aqua sensor error codes

**Digital display**
- **E:28** Calibration failure
  - Aqua sensor failed to calibrate

**LED display**
- ○ ○ ○

### 6.1.5 General error codes (digital display only)

**Digital display**
- **E:30** Overvoltage
  - System check of drain pump motor coil failed, functional safety error.
- **E:31** Overloaded heat pump
  - Check for debris at heat pump
- **E:32** Overloaded drain pump
  - Check for debris at drain pump
  - Check for blockage of drain hose
  - Check drain hose installation

**LED display**
- ○ ○ ○

### 6.1.6 Customer error codes (digital display only)

Dishwashers with digital displays have error codes seen by customers. Viewing the error code (Display Failure Memory) chart, the last two columns (under “Customer Failure display”) show error codes seen by customers in the digital display. The first two columns (under “Customer Service Failure display”) show error codes seen in the error code program. Error code displays are identical – the only difference being some service error codes (e.g. **E:08, E:16**) can’t be seen by customers.
6.1.7 Clearing error codes

To clear error codes, run the customer service test program.

6.1.8 Error code E:24 for drain obstructions

If a dishwasher doesn’t drain properly and/or shows an E:24 error code, the problem usually is not with the control or drain pump. To solve the issue, (1) the control must be reset and (2) the obstructions generating the error code must be cleaned out.

6.1.8.1 To reset the control

1. With the door closed and the dishwasher turned on, press and hold the Start button for ~ five (5) seconds -- the display should show "01" or "00". Press the On/off button (turning the dishwasher off) and the control should be reset.

2. If step one (above) didn’t work, remove the toe kick and disconnect the drain pump harness from the drain pump. Make sure the connector isn’t touching anything – tape the connector if necessary. With the door closed, press the On/off button to turn the dishwasher on. You should hear the control turn on and control relays click on and off. Wait about 30 seconds with the power on, then press the On/off button to turn the dishwasher off. With the power off, reconnect the drain pump harness and reinstall the toe kick. With the door closed, press the On/off button to turn the dishwasher on. The control should be reset.

6.1.8.2 Clearing obstructions

With the dishwasher installed and drain hose connected, open the door to the dishwasher and remove the sump filter. Add water to the sump until it is filled. Then gently lift up on the safety float (1) until the float switch closes (~ ¼”). The drain pump should turn on and drain the water out.

1. Safety float
2. Suction cap
3. Drain pump cover
4. Backflow (check) valve
5. Flap
3. If the drain pump doesn’t turn on, remove the drain pump cover (3), check for obstructions and make sure the pump impeller turns freely.

4. Carefully remove the suction cap (2) from the sump and make sure the heat pump impeller turns freely (using a 5 mm nut driver).

**TIP:** Opening and closing the door bypasses the E:24 error code, allowing the dishwasher to continue in the wash cycle (unless it is reset).

### 6.1.9 Error code E:25 for loose drain pump cover

If a dishwasher doesn’t drain properly and / or shows an E:25 error code, the problem could be the drain pump cover wasn’t replaced properly (i.e. not completely seated and locked into position). Loose drain pump covers allow more water flow to the drain pump, increasing the pump load, drawing more current and causing an E:25 error code.

The **Clean** light can come on, giving the impression the dishwasher finished it's cycle when it actually didn’t.

Occasionally E:23 and E:24 error codes can occur as well.

---

### 6.2 Customer service test program

#### 6.2.1 Entering customer service test program

**6.2.1.1 SHE “Evolution” models**

Press and hold “>” and *Delay* buttons, then turn dishwasher on. Left program light will flash and 2nd program light from left will be lit (on SHE5AM models, digital display will show “P0”). Press “<” button **once** to scroll to customer service test program. Left program light will be lit and digital display will show “P1”. Press “>” button to start program. Turn dishwasher off to exit program.

### LED display

#### Digital display

<table>
<thead>
<tr>
<th>Special programs</th>
<th>LED display</th>
<th>Digital display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error codes* / <strong>Functional test</strong></td>
<td>P0</td>
<td>P1</td>
</tr>
<tr>
<td><strong>Customer service test</strong>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Running customer service test program clears error codes.

---

**CAUTION** – 80% of all controls returned for analysis check out OK. Most control issues are due to loose connections.
### 6.2.2 Viewing customer service program

#### Customer Service Program

<table>
<thead>
<tr>
<th>Step</th>
<th>Displayed step</th>
<th>Action</th>
<th>Can advance step</th>
<th>Time</th>
<th>Temperature</th>
<th>Water amount</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>Check Coil</td>
<td>no</td>
<td>--</td>
<td></td>
<td></td>
<td>Checks pumps and other components (when switched on)</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>Drain Pump</td>
<td>yes</td>
<td>15s</td>
<td>3.0 L</td>
<td></td>
<td>Drain pump OK</td>
</tr>
<tr>
<td>2</td>
<td>1.2</td>
<td>Filling</td>
<td>partly</td>
<td>72s</td>
<td></td>
<td>4.0 L</td>
<td>Checks if water level above filter level</td>
</tr>
<tr>
<td>3</td>
<td>3.4</td>
<td>Pause</td>
<td>yes</td>
<td>10s</td>
<td></td>
<td></td>
<td>Checks water level</td>
</tr>
<tr>
<td>4</td>
<td>5,6,10,11</td>
<td>Drain Pump</td>
<td>yes</td>
<td>20s</td>
<td>empty</td>
<td></td>
<td>Sump base completely empty</td>
</tr>
<tr>
<td>5</td>
<td>12,13,14</td>
<td>Filling + Main Pump</td>
<td>no</td>
<td>96s</td>
<td></td>
<td></td>
<td>Checks if water level at top of coarse filter - main pump starts at displayed step 13</td>
</tr>
<tr>
<td>6</td>
<td>15</td>
<td>Main Pump + Soap Dispenser</td>
<td>yes</td>
<td>10s</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>16</td>
<td>Main Pump + Aqua Sensor Calibration</td>
<td>partly</td>
<td>110s</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>17</td>
<td>Main Pump + Heating</td>
<td>yes</td>
<td>5s</td>
<td>104°F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>18</td>
<td>Pause</td>
<td>yes</td>
<td>5s</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>19</td>
<td>Main Pump</td>
<td>yes</td>
<td>5s</td>
<td></td>
<td></td>
<td>Start main pump</td>
</tr>
<tr>
<td>11</td>
<td>20</td>
<td>Main Pump + Rinse Agent + Heating</td>
<td>yes</td>
<td>60s</td>
<td></td>
<td></td>
<td># of dispenser coil impulses = rinse agent setting</td>
</tr>
<tr>
<td>12</td>
<td>21</td>
<td>Main Pump + Heating</td>
<td>yes</td>
<td>149°F</td>
<td></td>
<td></td>
<td>About 2.5°F/min</td>
</tr>
<tr>
<td>13</td>
<td>22</td>
<td>Main Pump</td>
<td>yes</td>
<td>15s</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>24</td>
<td>Drain Pump</td>
<td>no</td>
<td>--</td>
<td></td>
<td></td>
<td>Displays &quot;0&quot; when done</td>
</tr>
</tbody>
</table>

**Hint:** If a failure occurs the program goes on, stops or ends according to the failure handling.

**Remark:** Filling can not be stepped over
6.3 Troubleshooting

6.3.1 Dishwasher won’t start

6.3.1.1 Door ajar or faulty door latch

The dishwasher won’t start if the door isn't closed securely. Push the door closed until the door latch closes (i.e. until the latch clicks). If the dishwasher starts, educate the customer on closing the door securely.

![Image showing door latch with a magnet]

If the dishwasher won’t start when the door has been securely closed, check the door latch with a magnet. Hold the magnet over the Hall Effect sensor (located just left of the left screw) – if the dishwasher starts, the sensor didn’t sense the door latch magnet.

Occasionally a door can catch on the door seal and not close securely. If the door or door seal is misaligned, realign it. If the door latch is broken, replace it.

6.3.1.2 Disabled or faulty pumps

If the dishwasher won’t start, check if the following parts are disconnected or disabled. If they aren’t connected, reconnect them. If faulty, replace them.

- Heat pump
- Drain pump

Dishwasher controls run safety checks – if drain pumps or heat pumps are disconnected, dishwashers will NOT run.

6.3.2 Protection of heater if there’s no water

Two NTC’s protect the heater. Both NTC’s are checked by the control – if they overheat, the control shuts down the dishwasher (E:08 error code). The dishwasher shuts down if only one NTC returns a signal (E:12 error code) or if they show different values (E:11 error code).

6.3.3 Drain pump

There is a single 3-pin connector, connecting to the 3-pole BLDC pump motor.

Resistances as follows:

1 – 2: 90 Ω (@ 72 °F)
2 – 3: 90 Ω (@ 72 °F)
3 – 1: 90 Ω (@ 72 °F)
6.3.4 Heat pump terminal measurements

There are two connectors, 7-pin and 3-pin.

6.3.4.1 7-pin connector (heater / NTC’s / pump ground)

The 7-pin connector connects to the heat pump heater, NTC’s and ground.

6.3.4.2 3-pin connector (3-pole BLDC motor)

The 3-pin connector connects to the 3-pole BLDC motor. The power control module controls motor speed, starting and stopping.
## 6.3.5 Troubleshooting chart

<table>
<thead>
<tr>
<th>DW Symptoms (seen during wash cycles)</th>
<th>Error Code Display (from cs test program)</th>
<th>Error Code LED's -- Active / Clean / Sanitized</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>No errors</td>
<td>E:00</td>
<td>[ ] [ ] [ ]</td>
<td>No errors.</td>
</tr>
<tr>
<td>Wash cycle abruptly ends with Clean LED glowing OR dw runs without heating (heating problem)</td>
<td>E:01 pump starting / switching defect OR E:02 defective working relay OR E:03 defective heating relay</td>
<td>[ ] [ ] [ ]</td>
<td>Replace power module (located in base).</td>
</tr>
<tr>
<td>Wash cycle abruptly ends with Clean LED glowing (heat pump problem)</td>
<td>E:20 heat pump winding resistance is wrong OR E:21 heat pump is blocked / clogged OR</td>
<td>[ ] [ ] [ ]</td>
<td>Check continuity between heat pump (m2) and power module harness connector. Measure heat pump resistance between any 2 terminals. If $\approx 13\Omega$ @ room temp, replace power module. If not, replace heat pump. Remove debris / obstructions from heat pump. If pump impeller is stuck, replace heat pump.</td>
</tr>
<tr>
<td>(drain pump problem)</td>
<td>E:23 drain pump winding resistance is wrong OR</td>
<td>[ ] [ ] [ ]</td>
<td>Check continuity between drain pump (m3) and power module harness connector. Measure drain pump resistance between any 2 terminals. If $\approx 90\Omega$ @ room temp, replace power module. If not, replace drain pump. Remove garbage disposal plug. Make sure drain hose is &lt; 150&quot; and includes a 20&quot; high loop. Unclog house drain line, drain hoses (int. / ext.), pump &amp; backflow valve.</td>
</tr>
<tr>
<td></td>
<td>E:24 dw won't drain OR</td>
<td>[ ] [ ] [ ]</td>
<td>Remove debris / obstructions from drain pump. Remove sump drain pump cover and confirm drain pump impeller is turning freely. Make sure sump drain pump cover is seated correctly (see Section 6.3.5).</td>
</tr>
<tr>
<td>DW Symptoms (seen during wash cycles)</td>
<td>Error Code Display (from cs test program)</td>
<td>Error Code LED's -- Active / Clean / Sanitized</td>
<td>Solution</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>------------------------------------------</td>
<td>----------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>LED is flashing &amp; dw can't operate</td>
<td>E:06 defective door latch</td>
<td>🟪🟦〇</td>
<td>Check continuity between door switch (e1) and power module harness connector. Measure voltage across door latch connector. If &gt; 10V, replace door latch. If &lt; 10 V, replace power module.</td>
</tr>
<tr>
<td>Not heating</td>
<td>E:08 heat pump detects low water level</td>
<td>🟪〇〇</td>
<td>Check water supply &amp; repair any leaks. Check continuity between water inlet valve (s2) and power module harness connector. Measure voltage across water inlet valve terminals (s2) during step 1 of customer service test program. If ≈ 120V, replace water inlet valve. If not ≈ 120V, replace power module.</td>
</tr>
<tr>
<td></td>
<td>E:09 open heating element circuit OR</td>
<td>🟪〇〇</td>
<td>Check continuity between heating element (r1) and power module harness connector. Measure heating element (r1) resistance, which should be ≈ 5Ω between terminals 1-2 &amp; 2-3 and ≈ 10Ω between terminals 1-3 @ room temp. If not, replace heat pump. If so, replace power module.</td>
</tr>
<tr>
<td></td>
<td>E:12 heating element resistances not balanced</td>
<td>🟪〇〇</td>
<td>Decalcify heater with appropriate cleaner. If problem persists after heating element has been decalcified, replace heat pump.</td>
</tr>
<tr>
<td></td>
<td>E:10 not enough heat</td>
<td>🟪〇〇</td>
<td>Check continuity between NTC and power module harness connector. Measure NTC resistance, which should be ≈ 10kΩ between terminals 1-2 &amp; 2-3 and ≈ 20kΩ between terminals 1-3 @ room temp. If not, replace heat pump. If so, replace power module.</td>
</tr>
<tr>
<td></td>
<td>E:11 NTC or NTC wiring harness error</td>
<td>🟪〇〇</td>
<td>Make sure water inlet temp is &lt; 75°C / 167°F.</td>
</tr>
<tr>
<td></td>
<td>E:13 water too hot (&gt; 75°C / 167°F)</td>
<td>🟪〇〇</td>
<td>Remove debris / obstructions from drain pump / drain hose. Make sure float &amp; float switch aren't stuck.</td>
</tr>
<tr>
<td>Water doesn't fill and drain pump runs continually</td>
<td>E:15 float switch activated and dishwasher runs continually</td>
<td>🟪〇〇</td>
<td></td>
</tr>
<tr>
<td>DW Symptoms (seen during wash cycles)</td>
<td>Error Code Display (from cs test program)</td>
<td>Error Code LED's -- Active / Clean / Sanitized</td>
<td>Solution</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>------------------------------------------</td>
<td>----------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Water doesn't fill &amp; drain pump runs (cont)</td>
<td></td>
<td></td>
<td>Make sure water inlet valve isn't stuck &quot;open&quot;. Check float switch and wire harness (to power module).</td>
</tr>
<tr>
<td>Aqua sensor doesn't run during wash cycle</td>
<td><strong>E:28</strong> aqua sensor not properly calibrated</td>
<td>☐ ☐ ☐</td>
<td>Check continuity between aqua sensor (I4) and power module harness connector. Make sure aqua sensor is clean where it enters the sump. If electrical connections are good and the aqua sensor is clean, replace the aqua sensor.</td>
</tr>
<tr>
<td>No power</td>
<td>House wiring isn't 120V</td>
<td></td>
<td>Check house wiring connections and if supply voltage is ≈ 98 - 120VAC to power module harness connector.</td>
</tr>
<tr>
<td></td>
<td>Open &quot;On/Off&quot; OR &quot;Start&quot; switch</td>
<td></td>
<td>Check &quot;On/Off&quot; switch &amp; power module connections. Measure &quot;On/Off&quot; switch resistance. If it's '∞' Ω in &quot;on&quot; position, replace it. If only drain pump is running, check if float switch has operated (see E:15 error code above). If no LED's flash when &quot;On/Off&quot; switch is pressed and the dishwasher door is open, replace operating module (in fascia panel).</td>
</tr>
<tr>
<td>Dispenser not operating</td>
<td>Detergent dispenser door jammed OR loose wiring connections</td>
<td></td>
<td>Make sure dispenser detergent door isn't jammed. Check connections between rinse-aid dispenser, dispenser actuator (a2) and power module harness connector. Check dispenser actuator operation while running customer service test program (steps 15 &amp; 20). If actuator operates, but doesn't open detergent dispenser cover, replace dispenser. If actuator doesn't operate, replace power module.</td>
</tr>
<tr>
<td>Rinse-aid LED is glowing</td>
<td>No rinse-aid OR loose wiring connections</td>
<td></td>
<td>Refill rinse aid, if empty. Check connections between rinse-aid dispenser (e3) &amp; operating module harness connector (K12).</td>
</tr>
<tr>
<td>DW Symptoms (seen during wash cycles)</td>
<td>Error Code Display (from cs test program)</td>
<td>Error Code LED's -- Active / Clean / Sanitized</td>
<td>Solution</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>No drying</td>
<td>No rinse aid</td>
<td></td>
<td>Educate customer on using and refilling rinse aid.</td>
</tr>
<tr>
<td></td>
<td>Dispenser rinse aid setting = 0</td>
<td></td>
<td>Set rinse aid setting to “4” if it is at “0”.</td>
</tr>
<tr>
<td></td>
<td><em>Extra Dry Heat</em> option hasn't been turned on</td>
<td></td>
<td>Activate <em>Extra Dry Heat</em> option, if it's not activated and is available on the dishwasher.</td>
</tr>
<tr>
<td>Washability issue (heat pump runs, but dishes still dirty)</td>
<td>Clogged spray arms or filters.</td>
<td></td>
<td>Remove debris / obstructions from filter and spray arms.</td>
</tr>
<tr>
<td></td>
<td>Spray arms not rotating</td>
<td></td>
<td>Make sure spray arms are properly attached and rotate freely.</td>
</tr>
<tr>
<td></td>
<td>Make sure spray arms are properly aligned with the supply tube.</td>
<td></td>
<td>Make sure spray arms are properly aligned with the supply tube.</td>
</tr>
<tr>
<td>Dishwasher won’t start</td>
<td>Door is ajar</td>
<td></td>
<td>Educate customer on closing door securely (<em>see Section 6.3.1.1</em>).</td>
</tr>
<tr>
<td></td>
<td>Heat pump has failed</td>
<td></td>
<td>Replace faulty heat pump (<em>see section 6.3.1.2</em>).</td>
</tr>
<tr>
<td></td>
<td>Drain pump has failed</td>
<td></td>
<td>Replace faulty drain pump (<em>see section 6.3.1.2</em>).</td>
</tr>
<tr>
<td>General errors</td>
<td>E:30 overvoltage</td>
<td>○ ○ ○</td>
<td>Remove debris / obstructions from heat pump.</td>
</tr>
<tr>
<td></td>
<td>E:31 overloaded heat pump</td>
<td></td>
<td>Remove debris / obstructions from drain pump.</td>
</tr>
<tr>
<td></td>
<td>E:32 overloaded drain pump</td>
<td></td>
<td>Remove debris / obstructions from drain hose. Check drain hose installation.</td>
</tr>
</tbody>
</table>
6.3.6 Strip circuits
7 TECHNICAL SPECIFICATIONS

Dishwasher ratings – 120 VAC, 60 Hz, 12 A, 1450 W
Heater ratings – 120 VAC, 1200 W
Heat pump – 120 VAC, 80 W, 3-pole BLDC, class F insulation
Drain pump – 3-pole BLDC, 35-65 Hz, 0.19A, 20W, class F insulation
Max drain hose length – 92” (no extension kit available)
Heating rate – 2°F/minute
Noise ratings – 50 dB