

# SEARS

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## ***KENMORE ELITE DISHWASHERS***



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<b>I.</b>	<b>SAFETY .....</b>	<b>3</b>
IA.	General hazards.....	3
IB.	Electrical shock / fire hazards .....	3
IC.	Plumbing / scalding hazards .....	3
<b>II.</b>	<b>INSTALLATION.....</b>	<b>4</b>
IIA.	Pre-Install checklist.....	4
IIB.	Alignment.....	4
IIC.	Electrical connection .....	5
IID.	Water connection .....	6
IIE.	Drain and condensation hose connections .....	6
<b>III.</b>	<b>OPERATION.....</b>	<b>7</b>
IIIA.	Control layout .....	7
IIIB.	Features .....	7
IIIC.	Entering special programs and coding .....	8
<b>IV.</b>	<b>COMPONENTS .....</b>	<b>12</b>
IVA.	Dishwasher components .....	12
<b>V.</b>	<b>REPAIR .....</b>	<b>28</b>
VA.	Disassembly procedures .....	28
VB.	Water valves.....	31
VC.	Circulation pumps .....	31
VD.	Controls.....	32
VE.	Heaters .....	34
VF.	2-piece drain hose connection.....	36
VG.	Drain pumps.....	36
VH.	Dispensers .....	36
VI.	Door latches.....	37
<b>VI.</b>	<b>FAULT DIAGNOSTICS .....</b>	<b>39</b>
VIA.	Customer service test program.....	39
VIB.	Troubleshooting .....	42
<b>VII.</b>	<b>TECHNICAL SPECIFICATIONS .....</b>	<b>49</b>
<b>VIII.</b>	<b>WIRING DIAGRAMS.....</b>	<b>50</b>

## I. SAFETY

### IA. 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.

### IB. 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.

### IC. 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.

## INSTALLATION

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.

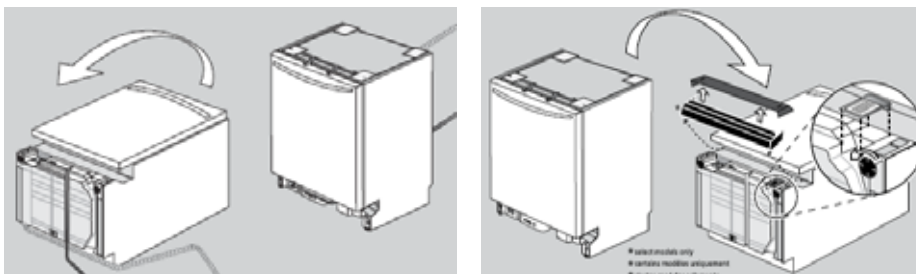
## II. INSTALLATION

### IIA. 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.

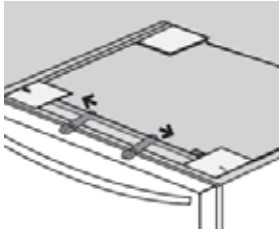
### IIB. Alignment

Gently rest the unit on its back, taking care not to crush the drain hose. Remove the toe panel(s). Loosen front feet slightly. Remove junction box cover and retain for later use. Place dishwasher upright, then level side to side and front to back.

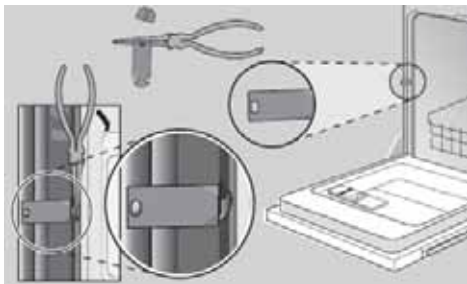


## INSTALLATION

If your dishwasher has pre-attached mounting brackets and you have a wooden under-counter, position brackets as far apart as possible by sliding them within slots in direction of arrows. Do not attach them to the countertop yet.



If your dishwasher has pre-attached mounting brackets and the counter top is stone, use pliers to rotate bracket flanges to remove brackets from the top. Grasp brackets with pliers at perforation and bend until the rounded end breaks free. Discard the ends. Slip brackets through side slots. Using pliers, bend bracket flanges so the brackets will not slip through slots. Do not attach them to the countertop yet.

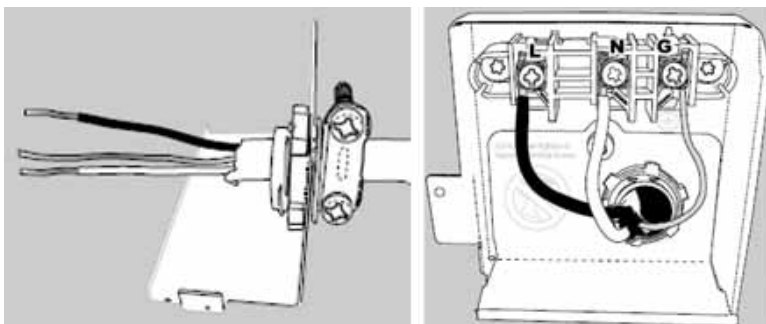


### IIC. Electrical connection

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, use an approved appliance power cord. 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.

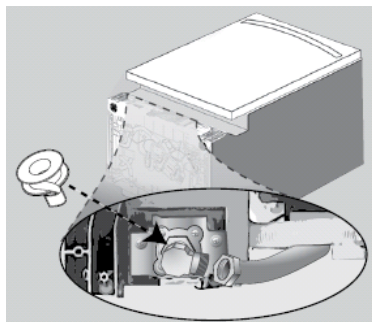


## INSTALLATION

### IID. 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.

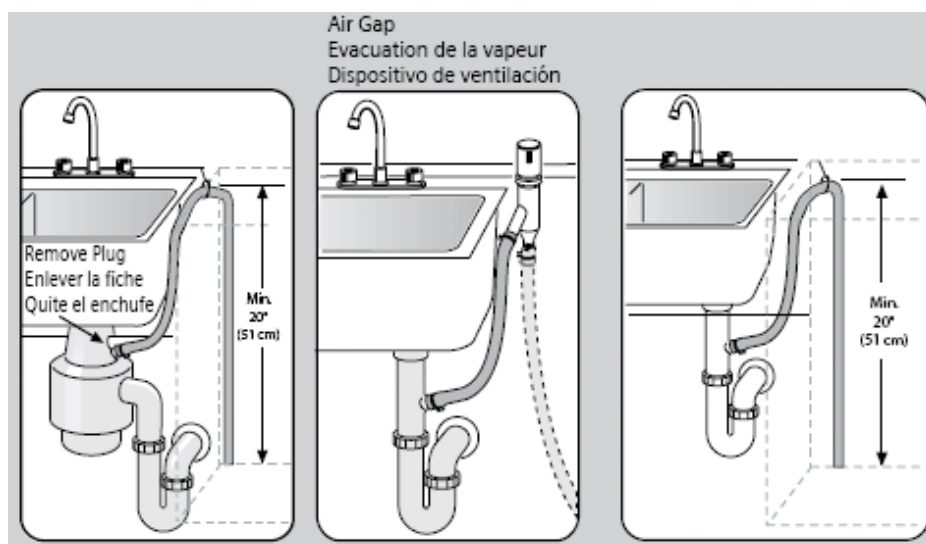


Attach the hot water line to the 90° elbow and route it underneath the unit toward the hot water connection. Make sure the line doesn't contact any moving parts.

### IIE. 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.



### III. OPERATION

#### IIIA. Control layout



#### IIIB. Features

##### Sanitized and Refill Rinse Agent lights

The *Sanitized* light comes on after certain wash programs have finished, showing dishes have been sanitized according to NSF standards. Check the *Use & Care Guide* to confirm which programs qualify as NSF rated.

The *Refill Rinse Agent* light shows rinse-aid needs to be added.



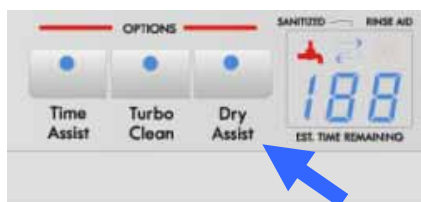
##### Reset ("Cancel – Reset")

To reset, push *Cancel-Reset* buttons at the same time.



##### Dry Assist

With *Dry Assist* the temperature of the rinse water can be raised and the drying time increased for improved drying.



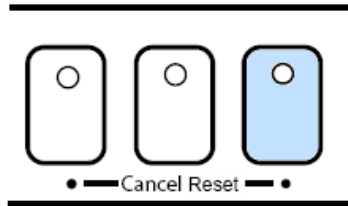
## OPERATION

### Changing basic features

Some features can be changed on the fascia panel.

#### End of cycle tone

The *End of cycle tone volume* can be changed.

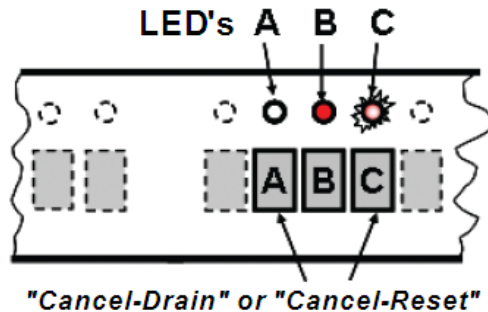


Turn the dishwasher off and then push and hold the right *Cancel Reset* button while turning the dishwasher on – release buttons when a tone sounds or the right *Cancel Reset* button LED lights up.

Pushing the right *Cancel Reset* button changes the setting – push it until the tone is at the desired volume (or the tone stops if it's to be turned off). Push the on/off button to save the setting.

### IIIC. Entering special programs and coding

Controls contain codes for sales demo mode, factory tests, customer service test program, dishwasher configuration and error codes.



While pushing (and holding) any two wash cycle buttons, turn the dishwasher on with the on/off switch. The current coding (e.g. “**C2**”) will show in the display or LED's until you release the buttons. After releasing the buttons, LED “**B**” will be lit and LED “**C**” will flash, confirming you're in the special programs menu. Push button “**B**” repeatedly until you've selected your desired program (see *P(X) Program codes*, “**P1**” or “**P4**” -- programs “**P0**” and “**P3**” are factory tests that aren't to be used).



### **P(X) Program codes**

- P0** = Functional test - used for assembly (*do **not** use*)
- P1** = Customer service test program (*see E(X) error codes*)
- P3** = Endurance / Life test (*do **not** use*)
- P4** = Control coding (*see C(X) control codes*)

### **E(X) Error codes**

- E0** = No errors
- E1** = Heating error
- E2** = NTC error
- E3** = Filling error
- E4** = Water switch cannot be positioned
- E5** = Safety float water level reached
- E6** = Aqua sensor error

### **C(X) Control codes**

- C9** = Sales demo mode

Codes **C1** through **C9** are possible, depending on the model.

**HINT:** Customers pushing and holding *Cancel-Reset* buttons while turning dishwashers on can see strange displays. Whenever you get call about a “strange” display, check if the customer put the dishwasher into the test program or some other program.

### **Sales demo (showroom) program**

#### *Entering sales demo program*

Enter the special program mode – see section III E. Before releasing the two buttons held while you turned the dishwasher on, note the coding on the digital display (e.g. “**C2**”) -- the dishwasher must be returned to this code for resale.

Push button “**B**” repeatedly until the display shows sales demo program mode “**P4**”. Push button “**C**” to confirm it.

Push button “**B**” repeatedly until the display shows sales demo code “**C9**”. Push button “**C**” to confirm it.

Turn power off and then back on. The dishwasher is now in demo mode -- all button lights will light up.

## OPERATION

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### Preparing a dishwasher for showroom use

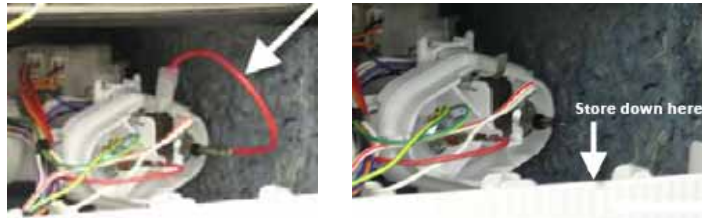
Turn off the power to the dishwasher or disconnect the dishwasher from the electrical power.

**WARNING:** Danger of electrical shock!

Remove the toe kick and locate the drain pump terminal shown below. Disconnect the terminal from the drain pump by squeezing and pulling it out. Cover the terminal with electrical tape to prevent electrical shock.



Disconnect both ends of the short heater **red** wire – see section 5.2.3 to remove right side panel for access. Tape the wire with electrical tape to the plastic base so it can be reconnected for resale.



Do NOT connect dishwasher to a water line, but slowly pour about 4.5 liters of distilled water into the tank. The water level should be near the bottom of the fine filter screen in the sump.

Add a small amount of rinse aid and a 1/2 capful of antibacterial agent (bacteriostat) onto the inner door. Do NOT add bleach.

Reconnect the dishwasher and turn it on by pushing the on/off button. Close the door and run dishwasher for one minute. If necessary, add more water until level reaches the fine filter screen.

### Preparing a showroom dishwasher for resale

To return the dishwasher back to its original condition for resale, enter the special program mode – see section 3.4. Push button “**B**” repeatedly until the display shows sales demo program mode “**P4**”. Push button “**C**” to confirm it.

Push button “**B**” repeatedly until the display shows the original dishwasher code (e.g. “**C1**”, “**C2**”, etc). Push button “**C**” to confirm it.

Turn power off and then back on. The dishwasher now has its original coding. Reconnect the pump and heater that was previously disconnected.

## OPERATION

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### Dispenser

#### Adjusting rinse-aid dosage

The amount of rinse-aid can be adjusted at the dispenser.

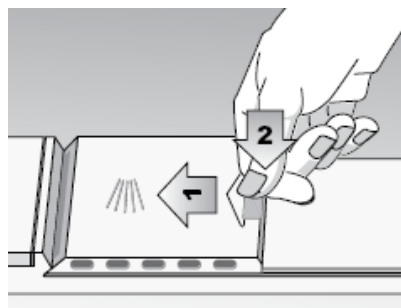


To Decrease  
Streaks on glasses

To Decrease  
Spots on glasses

Rinse-aid can be added by pouring it onto the arrow.

#### Closing dispenser doors



Slide cover fully left.

Push back end of the cover (onto the arrow) down firmly until you hear a click.

## COMPONENTS

### IV.COMPONENTS

#### IVA. Dishwasher components

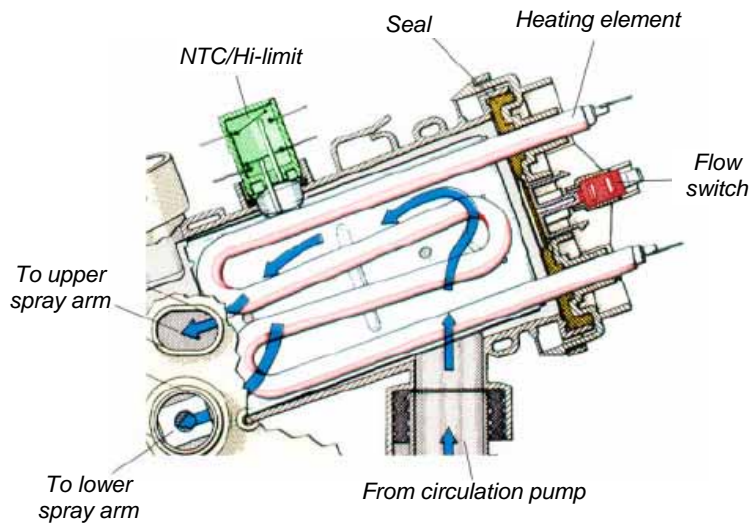
##### Tank

The tank, made of 304 stainless steel, isn't available as a service part.



##### Heater Operation

Dishwashers use flow-through heaters instead of exposed elements, saving space and allowing taller tanks holding larger dinner plates. Flow-through heaters prevent dishware damage from exposed elements and allow water to be continuously filtered and heated.



Filtered water from the sump flows through the circulation pump into the flow-through heater. All heaters are protected by a 185°F Hi-limit (high temperature cutout) and by a flow switch which prevents heaters from operating when no water is flowing.

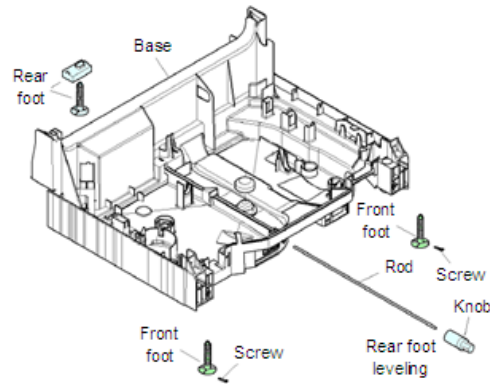
##### Heater ratings

- 120 VAC, 60 Hz, 1200 W
- Heats water about 2°F / minute

## COMPONENTS

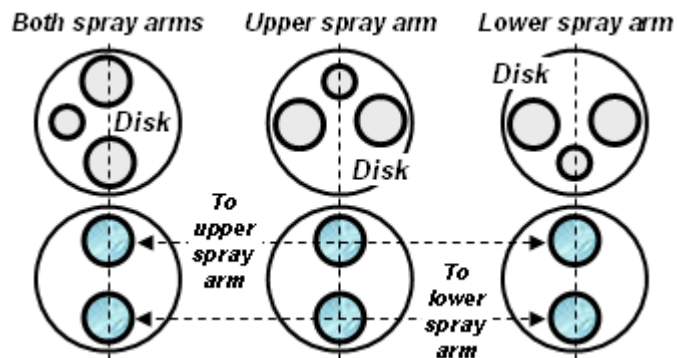
### Leveling feet (front and rear)

The base is supported by three leveling feet, two front and one rear. The rear leveling foot is adjusted from the front. Front feet have provisions for set screws (in installation parts bag).

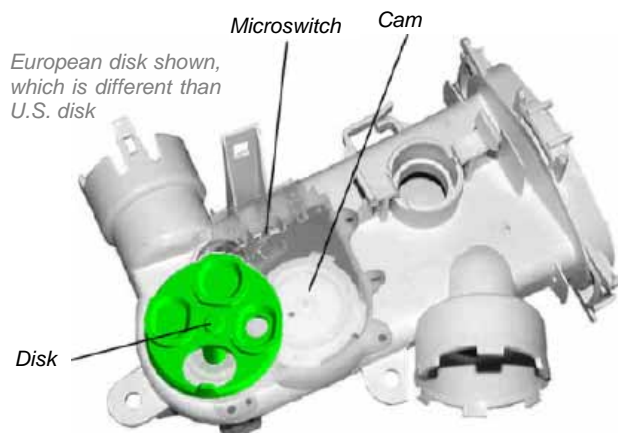


### Water switch

Motor operated water switches are mounted underneath heater assemblies. They consist of a motor-controlled disk with 3 holes which rotates and lines up over two sump ports (upper / lower spray arms) to provide precise water control to upper, lower or both spray arms.



Water switches are used to divert water to upper or lower spray arms. Separate actuators aren't needed.



## COMPONENTS

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Circulation pumps, heaters & sumps for water switch / non-water switch models can't be interchanged.

### Circulation pumps

Bosch dishwashers use separate circulation and drain pumps to reduce overall size, noise, vibration and energy consumption. This allows the use of tall tanks, increasing overall space inside dishwashers where full-sized plates can be placed in both upper and lower racks. Circulation pumps are suspended by rubber straps to further reduce noise and vibration.

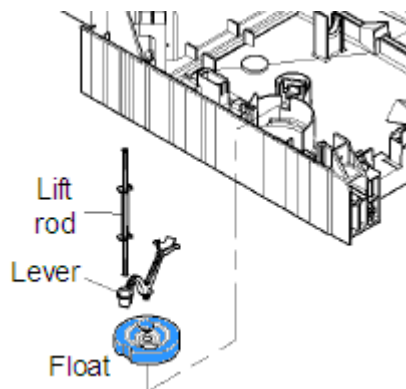
### BLDC

Pump, motor and control come as one unit (# **665510**). Speed changes as needed for wash cycle and washability. Pump is isolated from motor, so there's no seal needed and no need to loosen or replace impellers.



### Float

The float is a safety device which starts the drain pump if there's too much water in the tank. It doesn't act like a bilge pump (i.e. it won't drain water from the base).



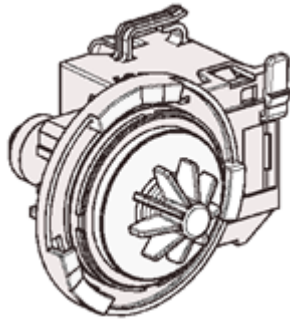
If there's water in the base or the float switch isn't working, error code **E5** is possible.

## COMPONENTS

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### Drain pump

Drain pumps are mounted to sumps in the front of dishwashers -- they're easily accessible from the front of dishwashers by removing toe kicks.



### Pump specifications

Drain pump is rated 120V, 60 Hz, 35W, 0.85A.

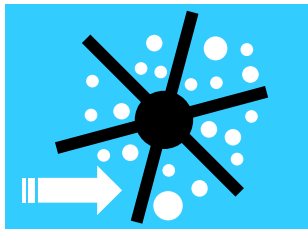
### Solving installation issues

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.

### 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.

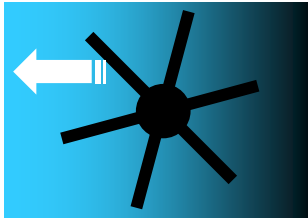


## COMPONENTS

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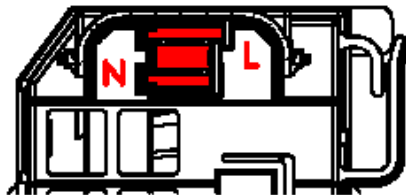
### Siphoning

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.



### Terminal connections (Rast 5 connectors)

Rast 5 terminal connectors provide more positive connections than spade terminals.



Drain pump Rast 5 terminals

### Johnson Tee installations (Washington State)

Drain pumps in installations with Johnson Tees (in Washington State) must use stronger 4-vane pumps (**607468**).

Standard 9-vane drain pumps (**642239**) are quieter and smoother than 4-vane pumps.



### Water fill assembly

The water fill assembly is easily accessed from the left side.

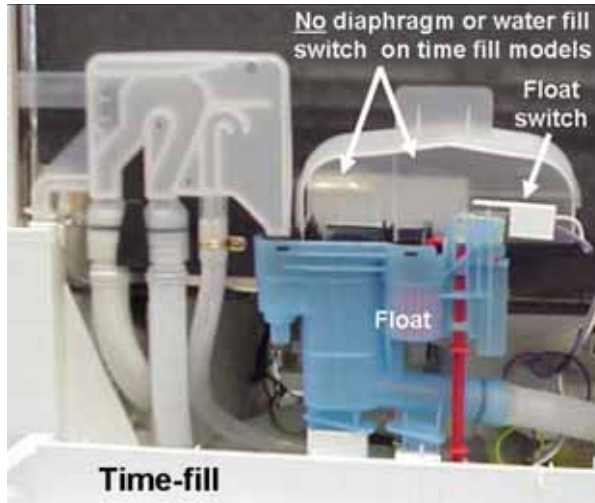
### Time fill

The time-fill water inlet system doesn't have a diaphragm or water level switch. Dishwasher controls allow water to fill for a specific time, relying on consistent water flow through the water inlet valve to provide the correct water level.



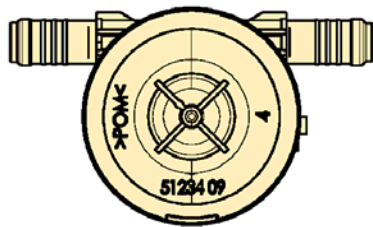
## COMPONENTS

Time-fill water valves look like pressure-fill valves, but have tight part tolerances to insure consistent water levels. Time-fill valves can replace pressure-fill valves, but pressure-fill valves can't replace time-fill valves.



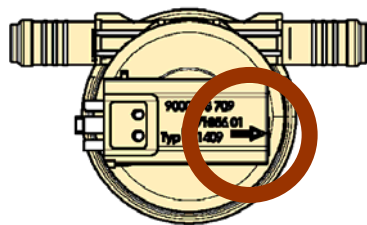
### Flowmeter

Dishwashers use a flowmeter to provide more accurate water filling. An impeller mounted magnet activates a reed switch.



Flowmeters are rated:

- 3.8 – 14 VDC, 1 ma
- 2.5 L / min, 0.5 – 10 bar
- 208 output pulses per liter



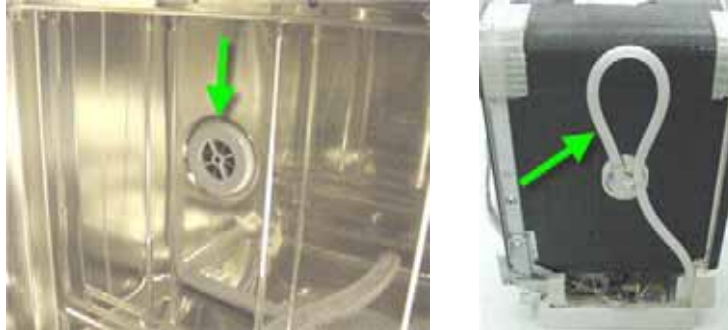
An arrow on the back of the flowmeter shows the water flow direction.

## COMPONENTS

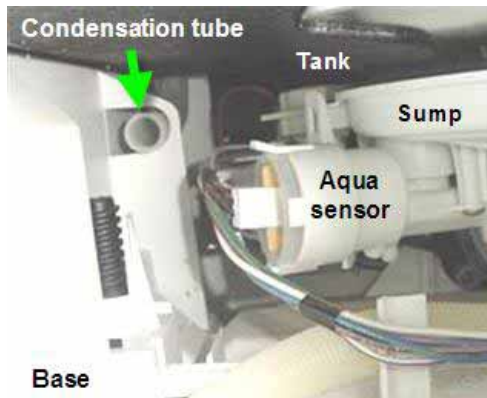
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### **Condensation tube**

The condensation tube is crucial for condensation drying, which dries dishes without a heating element in the bottom of the tank. Condensation tubes exit the dishwasher at the right side of the tank.



Condensation tubes exit in the rear of dishwasher bases, allowing water vapor to evaporate, and aren't connected to customer drains.



### **Door spring**

#### **Using hinge slider (sliding pulley)**

Hinge sliders (sliding hinge pulleys) are used instead of hinge pulleys. Instead of rolling over rotating pulleys, door spring cords slide over pulley sliding surfaces. The sliding surfaces provide better control than rotating pulleys (i.e. reduces possibility of doors slamming closed or falling open).



## COMPONENTS

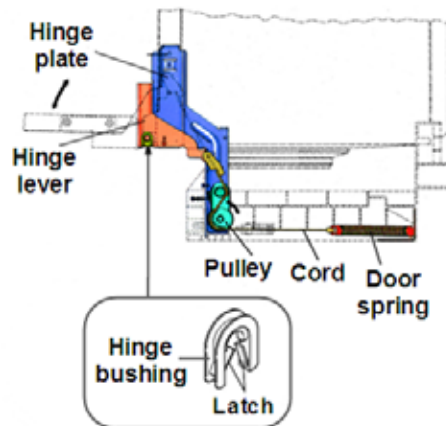
**618605** sliding hinge pulley kit consists of (2) sliding pulleys and (2) cords.

	Existing Door Springs	Door Weight			
		Less than 7 lbs (3.2 kg)	7 to 20 lbs (3.2 to 9.1 kg)	Greater than 20 Lbs (9.1 kg)	Greater than 22 Lbs (10 kg)
All fully integrated dw's with 618605 sliding hinge pulleys	<b>Violet (168568)</b>	Change to <b>168576 Blue</b> springs.	No changes needed.	Add (2) <b>169525</b> adjusting screws or change to <b>187527 Orange</b> springs.	Not Recommended
	<b>Orange (187527)</b>	<b>Not used.</b> If replacing pulleys on older units with 618605 sliding pulleys, change springs from <b>Orange (187527)</b> to <b>Violet (168568)</b> .			

**NOTE:** Dishwashers with 618605 sliding hinge pulleys (i.e. all dw's produced after FD8910) **don't** include 169525 adjusting screws. **If needed, they must be purchased separately.**

### Hinge bushing

Hinge bushings hold doors in place (at hinges), using latches instead of separate locks. Replacement door hinge levers contain hinge bushings.



### Water inlet valve

Dishwashers use standard horizontal coil water inlet valves with (Rast 5) connectors. The valve nestles in the left side of the base and is held into place with two screws.

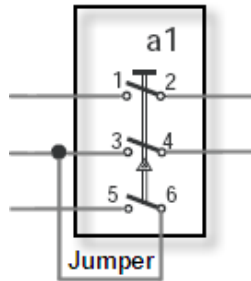


- When reconnecting the water supply to the water valve, don't overtighten the elbow fitting.
- Using Teflon tape on water fittings can help prevent leaking.
- The water valve can be accessed without removing outer door or base cover. However, removing them will provide easier access.

## COMPONENTS

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### On/off switch



The on/off switch turns the dishwasher on and off and is crucial in resetting controls.

Contacts 5 & 6 reset the control. Whenever a control won't reset or won't go into wash programs, check the on/off switch and jumper. Replace switch and jumper if they're faulty.

### Door latch



Other than occasional misalignment, the only door latch repairs will be replacing microswitches. Door latches are held in place in console (frames) by tabs. It's important latches are properly seated in consoles and tabs are fully inserted into latches.

### 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.

### Terminal box

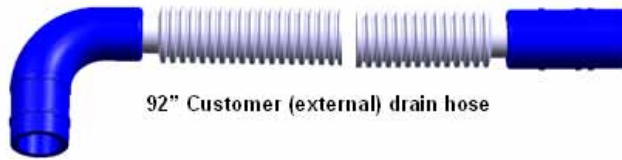
All dishwashers have terminal boxes with covers and conduit exits.



## COMPONENTS

### Drain hose

Dishwashers use a two-hose (internal / external) drain hose system. A customer (external) drain hose (during installation) is connected 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.



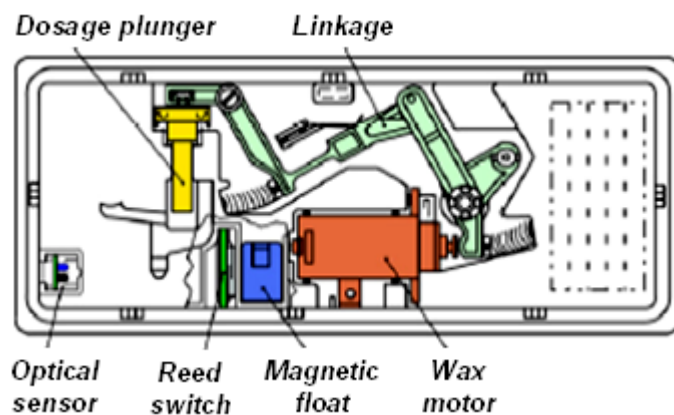
### Dispenser

The dispenser is located near the top of the inner door and reliably dispenses detergent and rinse-aid.



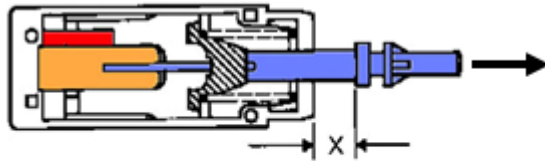
During each wash program, the wax motor opens twice, once to dispense detergent and again to dispense rinse-aid. The wax motor opens the same -- linkages open the detergent door & operate the rinse-aid dosage plunger. Dispensers can have reed switches or optical rinse-aid sensors.

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



The white plastic linkage opens the detergent dispenser door, then cocks in place to dispense rinse-aid when the wax motor operates again. After the 2nd operation, the linkage resets for the next wash.

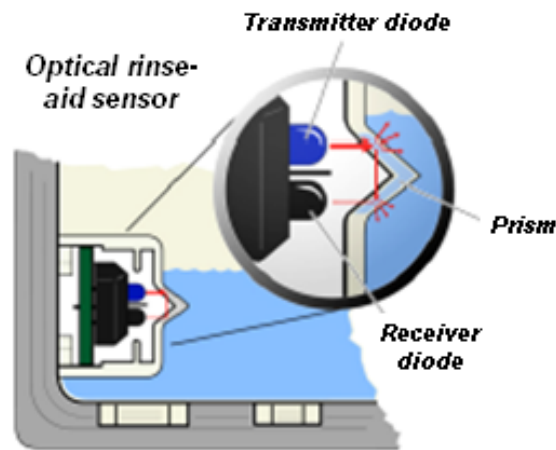
## COMPONENTS



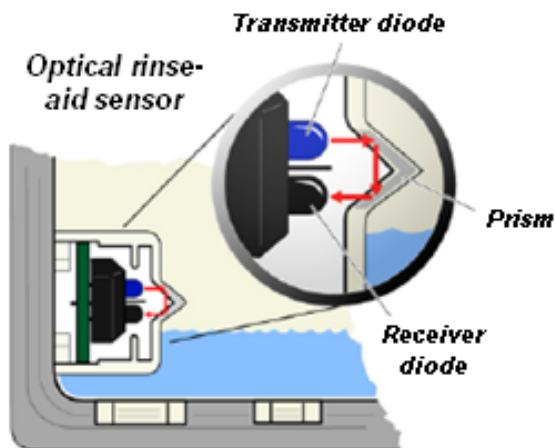
A wax motor heats wax, which expands and pushes a plunger. When the wax cools, a spring pushes the plunger back.

### Optical rinse-aid sensors

Optical rinse-aid sensors determine if rinse-aid is present using a light beam and sensor.



With rinse-aid present, the optical receiver senses a diffused light beam.



When rinse-aid has run out, the optical receiver senses a strong light beam.

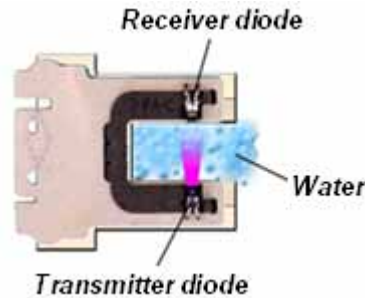
*When rinse-aid has run out, the optical receiver senses a strong light beam.*

**TIP:** It's possible for some clear rinse-aid brands to not diffuse light adequately to show rinse-aid isn't needed.

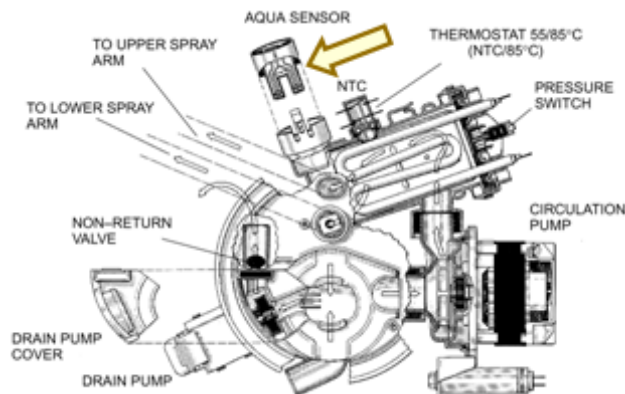
## COMPONENTS

### Aqua sensor

The aqua sensor is located behind the sump, to the left of the heater. It's a two-piece assembly, with a small circuit board in a plastic housing). It senses water cleanliness and allows the dishwasher control to remove pre-wash and/or pre-rinse cycles to save energy (~ 20% energy savings).



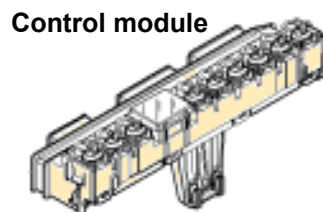
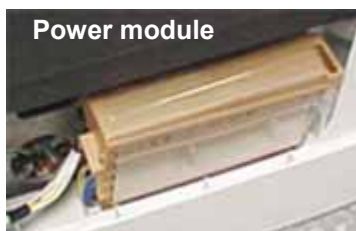
If water is clean enough, it will be kept for the wash cycle. If not, the aqua sensor directs the dishwasher to add an additional pre-rinse or pre-wash cycle.



Dishwashers still operate adequately if aqua sensors fail. Customers will only notice aqua sensors failing if they see their dishwashers running slightly longer or their electric and water usage getting slightly higher.

### Display and power modules

Dishwashers have two controls: a control module in the fascia (control) panel) and a power module in the base on the right side. The power module controls the circulation and drain pumps, while the control module controls the wash programs.



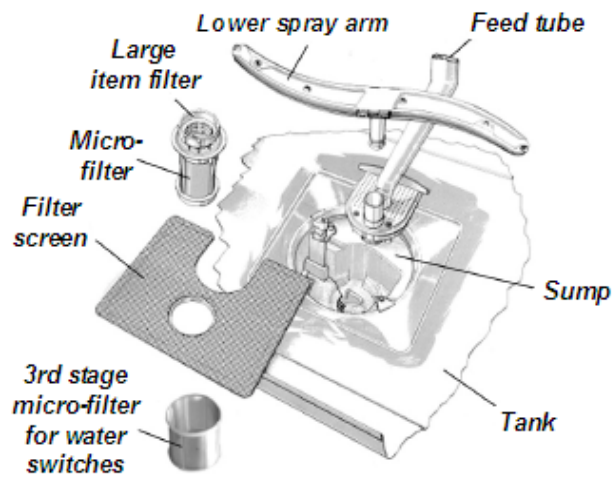
## COMPONENTS

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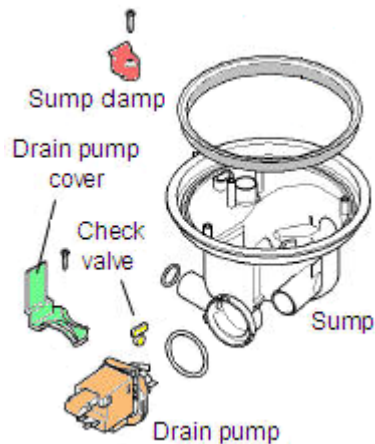
### Sump parts

#### Sump

The sump contains a filter screen, large item (coarse) filter and micro filter.



The sump holds the drain pump cover and check valve.



### Backflow (check) valve

The backflow (check) valve is located in the bottom of the sump near the circulation pump inlet. It prevents waste water from entering the sump.

The valve material is clear, material doesn't swell and provides improved seating after many uses. Part # is **165262**.



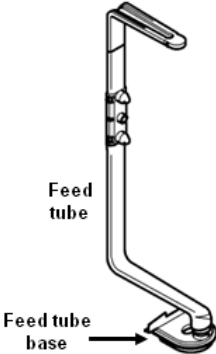
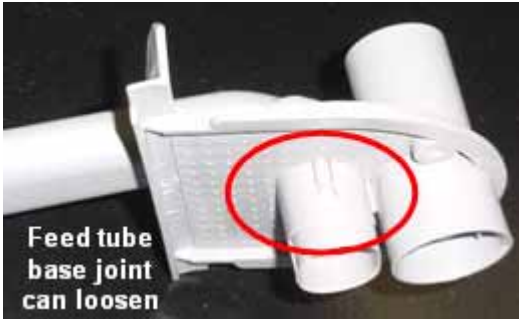
**TIP:** When washability issues arise, replace check valve along with other repairs.



**COMPONENTS**

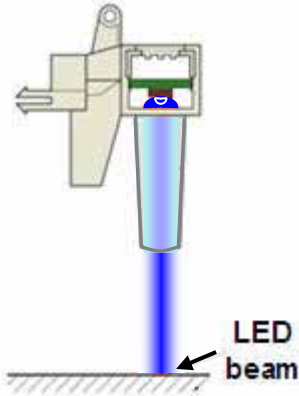
**Spray arm feed tube**

When water doesn't spray from upper spray arms, check feed tube where it enters the sump. Occasionally, the joint between the feed tube and its base can loosen -- the entire feed tube must be replaced.



**Info lights**

Info lights shine a **blue** light onto floors, letting customers know their quiet dishwashers are running. When dishwashers finish wash cycles, info lights shut off.



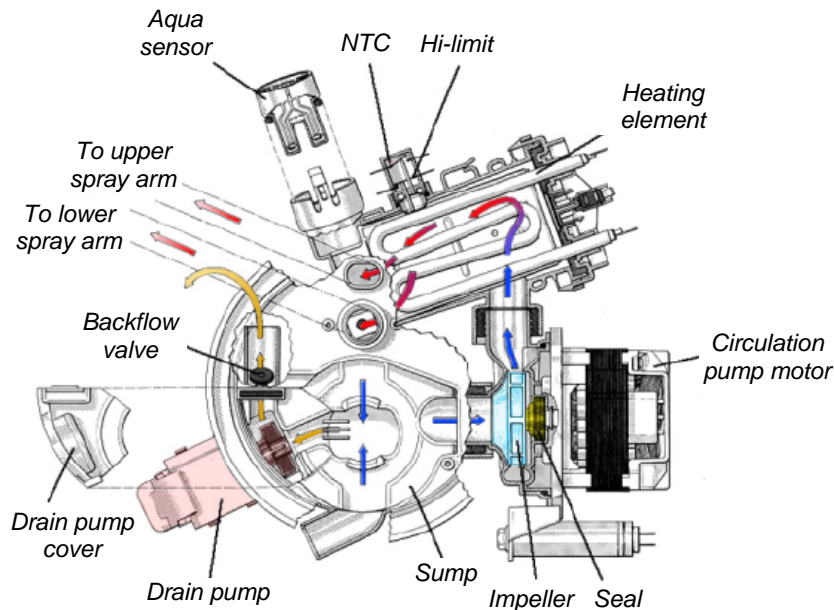
## COMPONENTS

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### Operation

#### Water circulation

The circulation pump pumps water from the sump through a triple filter system to the heater. When water enters the heater, a flow switch determines water is present and allows the heater to be activated. As water flows, it's heated until it reaches the pre-set temperature determined by the cycle. Once it leaves the heater, it flows through the sump into the upper and lower spray arms.



The aqua sensor, drain pump, NTC, Hi-limit and backflow valve are near the heater under the sump. The aqua sensor senses water cleanliness – dishwashers add or subtract rinses as needed. The NTC senses water temperature. The Hi-limit shuts off the heater if the water gets too hot. The backflow valve prevents waste water from entering the dishwasher.

## COMPONENTS

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### 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.

SER 100050089191000015  
MOD 630.13952010  
SN11X5KE ~ 120 V, 12.0 A, 60 Hz @ 0.2 kW ~ 1.2 kW  
Sears Canada Inc., Toronto, Ontario, Canada M5B 2B8  
Product dist. in U.S. by Sears Brands Mgt., Corp., Hoffman Estates, IL 60179

UL LISTED (LISTÉ) C US DISHWASHER (LAVE-VAISSELLE) 75X5 E71378

ENERGY VERIFIED BY Énergétique Vérifié par ETL EP3132762

NSF Residential (RÉSIDENTIEL)

1800-4-MY-HOME Kenmore Elite®

Certified residential dishwashers are not intended for licensed food establishments  
Les lave-vaisselle résidentiels certifiés ne sont pas destinés aux établissements alimentaires agréés.

### Understanding the 17-digit serial #

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

For example, for serial # **10 3 03 0081344 00011 5** (*not shown on label above*)

The first 2 #'s represent a factory code: **10** = dishwasher

The 3rd # represents the last digit of the year: **3** = 2003

The next 2 #'s represent the month: **03** = March

The next 7 #'s represent the model: **0081344** = SHY99A05UC

The next 5 #'s represent the unit made that month: **00011** = 11th SHY99A05UC made that month

The last # represents a check digit = **5** in this case (is dependent on all preceding #'s)

## V. Repair

### VA. Disassembly procedures

Use the following disassembly procedures to access parts such as fascia panels, circulation pumps, heaters and controls.

#### **To remove outer door**

*Tools needed: T20 Torx screwdriver.*

1. Remove six T-20 Torx inner door screws below fascia panel -- three per side (1).
2. Carefully pull bottom of outer door out from dishwasher until top door tabs clear, then pull door down until it releases from dishwasher (2). Take care to not scratch outer door.



**TIP:** 1-piece foam door guards don't need to be removed from doors.

**NOTE:** Outer doors don't need to be removed when dishwashers are flipped upside-down or when fascia panels are removed, but can be if it makes repairs easier.

#### **To remove toe kick**

*Tools needed: Phillips screwdriver.*

1. Remove two Phillips screws and tilt toe kick out from dishwasher.



### To flip dishwasher upside-down

Tools needed: T20 Torx screwdriver, Phillips screwdriver and pliers.

1. Turn off water and electricity. Disconnect dishwasher mounting brackets (1).
2. Remove toe kick by removing two Phillips screws and tilting toe kick out from dishwasher (2).
3. Disconnect water line and electric supply (3).
4. Pull dishwasher out, place a pad or cardboard on the floor and carefully flip the dishwasher upside-down (4).



5. Remove four base screws from front of dishwasher (5).
6. Remove two screws securing water valve to base. There's no need to disconnect valve wire harness or inlet hoses (6).



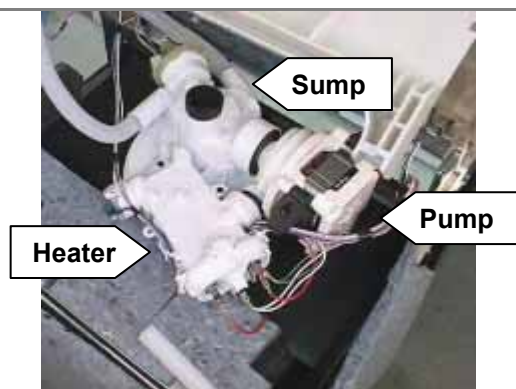
7. Pull wire harness connector from rear of terminal box (7).
8. Push latch on base-mounted control to disconnect it from base (8).



9. Remove both door springs from base (9).
10. Remove two tank screws from rear of dishwasher (10), disconnect both rubber circulation pump supports (11) and carefully lift up base from dishwasher (12).



## Repair



Access to circulation pump, heater and sump after base has been removed.

### **To raise (block up) right side of tank**

*Tools needed: T20 Torx screwdriver and pliers.*

1. Remove one T-20 Torx screw from both rear corners holding tank to base (1) -- removing screw from both sides allows tank to be blocked upward.
2. Remove T-20 Torx screws from front right bottom corner holding tank to base (2).
3. Remove right hinge cover (3) and release right door tension cord from hinge (4).



4. Raise and block up tank as shown with strut onto base (5a), sliding a piece of wood or other solid material between the tank and base to keep tank from falling back onto base (5b).



### VB. Water valves

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

#### To remove water valve

*Tools needed: T20 Torx screwdriver & pliers.*

1. Remove toe kick by removing two Phillips screws and tilting toe kick out from dishwasher.
2. Remove base insulation (on models with insulation).
3. Move sump inlet hose away from water valve (without disconnecting it).
4. Disconnect wires from water valve, including ground wire.
5. Remove two T-20 Torx screws from water valve.
6. Pull valve out from dishwasher and disconnect water hose from rear of valve. 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. On valves with vertical solenoids, the plastic can crack and cause leaking if excessive force is used.
- Using Teflon tape on water fittings can help prevent leaking.
- The water valve can be accessed without removing outer door or base cover. However, removing them will provide easier access.

### VC. Circulation pumps

The circulation pump can be accessed by flipping the dishwasher upside-down. Use the same process to access the heater.

#### For access to circulation pump

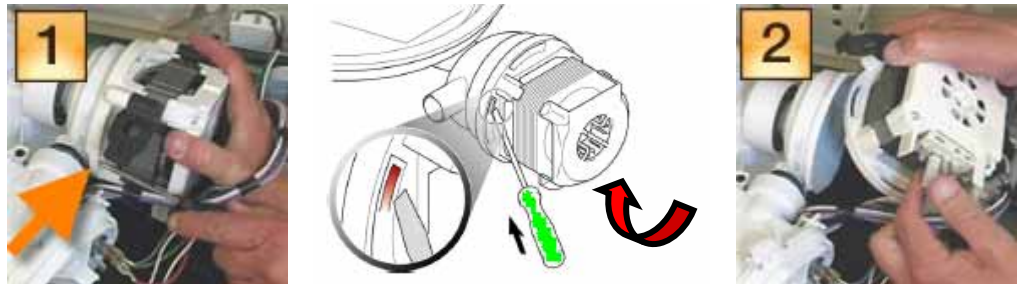
*Tools needed: Phillips and T-20 Torx screwdriver, pliers.*

1. **Remove toe kick** – see section VA.
2. **Flip dishwasher upside-down & remove base** – see section VA.

### To remove complete pump

Tools needed: flat blade screwdriver.

1. Use a small flat blade screwdriver to carefully push in the pump housing latch and rotate the pump clockwise (cw) to remove the pump (1).
2. Disconnect wire harness from pump motor after carefully noting connections (2).



**CAUTION:** Don't grab motor next to the capacitor to avoid jamming your hand on the capacitor.

**TIP:** Pump motors can have a plastic (newer) or metal (older) housing. Pumps with plastic motor housings cannot be removed by blocking up the tank unless the capacitor is removed first (since the capacitor hits the tank when the pump is rotated).

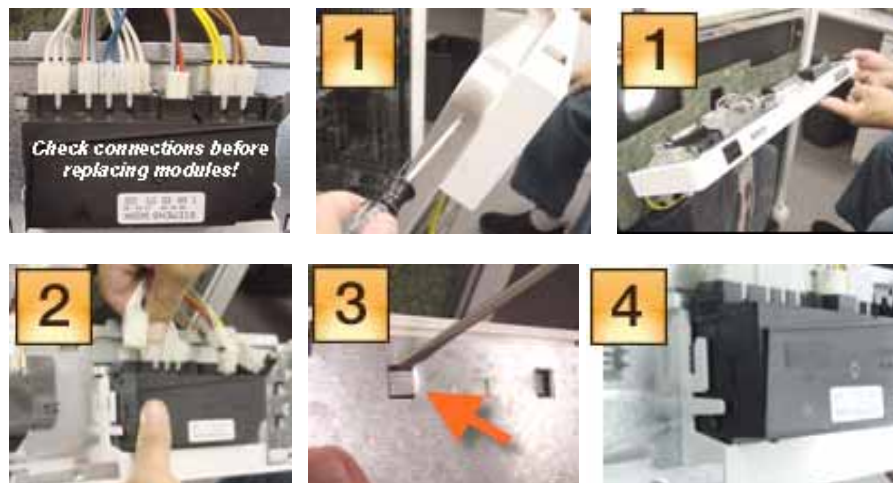
## VD. Controls

### Fascia panel mounted controls

Controls are easily removed from fascia panels by bending console tabs.

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

1. Remove fascia panel by removing T-20 Torx inner door screws.
2. Disconnect wire harnesses from module after noting connector locations.
3. Pry out metal console tabs holding module to console.
4. Carefully pry back plastic tabs, then slide module from console.





**⚠ CAUTION** – 75% of all controls returned for analysis check out OK. Most control issues are due to loose connections.

### **Base mounted controls**

Base mounted controls are located on the base between circulation pumps and heaters, not behind fascia panels. So:

- Dishwashers must be pulled out to change controls.
- Dishwashers must be pulled out to measure voltages & resistances.

### **To access base-mounted controls**

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

1. **Remove outer door** – see section VA.
2. **Remove toe kick** – see section VA.
3. **Raise (block up) tank** – see section VA.

### **To remove right side panel**

*Tools needed: T20 Torx screwdriver.*

Dishwashers have a short side panel on the right side. Removing it provides access to the circulation pump and heater and base-mounted control.

1. To remove right side plastic side panels, tilt top of panel and lift out. Blocking the tank up makes it easier (a screwdriver is needed to remove base screws first).



### **To remove base-mounted controls**

1. Locate control, open control cover and disconnect wire harnesses from module after noting connector locations.



2. Push latch on back of control toward rear of dishwasher, then slide control from base.



**⚠ CAUTION** – 75% of all controls returned for analysis check out OK. Most control issues are due to loose connections.

### VE. Heaters

The heater, NTC and flow switch can be accessed or measured from the right side of the dishwasher, but the heater and NTC can only be removed by removing the base (by flipping the dishwasher upside-down) since the heater fits tightly underneath the tank.

#### For access to heaters & NTC's

*Tools needed: Phillips and T-20 Torx screwdriver, pliers.*

1. **Remove toe kick** – see section VA.
2. **Flip dishwasher upside-down & remove base** – see section VA.

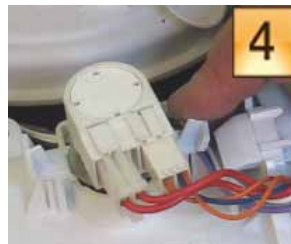
#### To remove heater, NTC & flow switch

1. Loosen pump - heater hose clamp and remove two T-20 Torx screws holding heater assembly to sump.
2. Carefully pull heater from sump & pump. The heater comes as an assembly with housing & gasket.



## Repair

3. Note connections, remove NTC cover and disconnect wires from heater, flow switch, NTC & Hi-Limit.
4. Push NTC latches and lift NTC from heater.



5. To remove flow switch, carefully pry housing away from switch (until tabs clear switch), then snap switch out. Note flow switch can be removed from right side without flipping dishwasher upside-down.

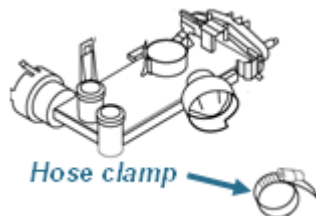


**TIP:** If needed, use rinse-aid to lubricate gaskets to make it easier to assemble heater to sump and pump.



### Softer bearing heaters

All heaters are “softer bearing” and have a gasket assembled to it (to connect to the circulation pump) and use a hose clamp (**172272** provided separately).



### VF. 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.



To remove the internal drain hose, remove a white plastic hose lock and pull the hose from the water level control.

### VG. Drain pumps

To access pump, disconnect inlet hose and pump harness. To remove pump, **(1)** pull latch (on circular collar), **(2)** rotate pump clockwise (cw) ~ 1/8 turn and **(3)** pull out pump. To install new pump, insert @ 2:00 position & rotate counterclockwise (ccw).



### VH. Dispensers

Dispensers can be accessed from the front by removing the outer door.

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

#### **To remove dispensers**

1. **Remove outer door** -- section VA.
2. Disconnect wire harnesses from dispenser. Don't remove the cable tie keeping the harness away from the dispenser. It must be replaced if it's removed.
3. Using a small flat blade screwdriver, push the six inner door tabs holding the dispenser.
4. Carefully push the dispenser in toward the inside of the inner door.



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

## VI. Door latches

Other than occasional misalignment, the only door latch repairs will be replacing microswitches.

### To remove door latches

1. **Remove fascia panel** -- section VD.
2. Locate door latch in console and bend out console metal tabs to allow latch removal.



3. Remove door latch from console.
4. If door latch has a microswitch cover, disconnect wire harness and remove microswitch & cover.
5. Remove microswitch from door latch.



**HINT:** Make sure plastic latch tabs are aligned & metal console tabs are bent back completely during reassembly.

### **Misaligned door latches**

Occasionally integrated dishwasher door latches can be misaligned, causing doors to not close properly or dishwashers to run with doors open (when latches don't reset). Follow these steps to realign door latches.

1. Insert latch tabs into frame.
2. Bend tabs down into latch.
3. Reset latch to open position.



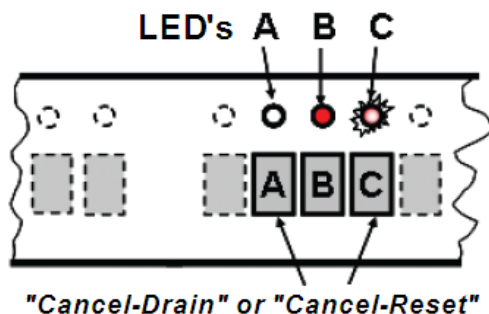
**HINT:** Make sure latch tabs are seated, all fascia frame (console) tabs are bent completely, door strikes are aligned with latches and door latches get reset.

### VI. Fault Diagnostics

#### VIA. Customer service test program

##### Entering customer service test program

Controls contain codes for factory tests, customer service test program, dishwasher configuration and error codes. Consult test programs and error codes for your dishwasher before using the codes from this manual.



1. Open the door.
2. While pushing (and holding) any two wash cycle buttons, turn the dishwasher on with the on/off switch. While the buttons are held, the model coding will show (e.g. “C2”, “C5”, etc.). After releasing the buttons, LED “B” will be lit, LED “C” will flash and “P0” will display, confirming you’re in the special programs menu.
3. To select the test program, push button “B” repeatedly until “P1” is displayed or until LED “C” is lit.
4. Push button “C” to start the program -- LED “C” will blink. Close the door after pushing button “C”). The steps will show on the digital display (e.g.- “S:01”) -- push button “B” to skip a step.

Stored error codes will show on the digital display and LED’s (see *Error code displays* on the next page).


The test program can only be stopped / reset by pushing the on/off button – it can’t be done by turning off the power.

### Error code displays

Error codes can be found using the customer service test program.

1. Open the door.
2. While pushing (and holding) any two wash cycle buttons, turn the dishwasher on with the on/off switch. While the buttons are held, the model coding will show (e.g. "C2", "C5", etc.). After releasing the buttons, LED "B" will be lit and LED "C" will flash and "P0" will display, confirming you're in the special programs menu.
3. Push button "C" to start the Error Code program (instead of pushing "B" to select the test program). As button "C" is held, the earliest cycle with an error code is displayed ("00") – when button "C" is released, the error code is displayed. If there's more than one error code, the code with the highest priority is displayed (see chart below).
4. The last 8 error codes are stored. Repeatedly pushing and releasing button "C" scrolls from the oldest cycle with an error code ("00") to the latest ("07").

Dishwashers can show the following error codes.

<u>Digital display</u>	<u>Error codes</u>	<u>Priority</u>
E0	No errors	
E1	Heating error	high
E2	NTC error	
E3	Filling error	
E4	Water switch error	
E5	Float water level error	
E6	Aqua sensor error	low

Error code **E5** is *safety float water level reached*. If this error code occurs, check the float and float switch, check if water is in the base and check if the water inlet valve has re-seated after closing.

### Clearing error codes

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



## Viewing customer service program

Customer Service Program GV630 TF									
INDEX	Function	Temperature	Time [s]	Sensor	Filling amount	WSP trotted	UR	LR	Comment
							always on	always on	
0	P		15						
1	FWW				1,5 l				
2	PA		5						
3	U + FWW				3,0 l				
4	U + H + ZR	max 72°	120						
5	U + H	60°							
6	U + ZK		120						
7	AS_KAL_IR								
8	SP		30						
9	P		45						
10	U + P		15						

Open the door to (push the buttons to) enter the test program. Close the door to run the test program.

	Function	Temperature	Time (s)	Sensor	Capacity	Rinsing kind
0	P + WWP		15			Bottom basket
1	F				1,5l	Bottom basket
2	U + F				3l	Bottom basket
3	U		2			Bottom basket
4	U + H + ZR + AS_KAL	max. 72°	120			Bottom basket
5	U + H + WWP	max. 72°		Pos. waterswitch		Both Rack
6	U + H	60°C	120			Both Rack
7	U (WS) + H + ZK	max. 72°	120			Alternating
8	WWP			Pos. waterswitch		Top basket
9-14	SP		30			Top basket
15	P		45			Top basket

Push button “**B**” to skip a step.

### Symbol

AS\_KAL\_IR = Calibrate aqua sensor

F = Water fill

FWW = Soft water fill

H = Heating

UK = Bottom rack

OK = Top rack

P = Drain pump

PA = Pause

SP = Intermittent pump

U = Circulate

VF = Pre-fill

WP = Alternate pumping

WWP = Water switch positioning

WS = Alternate rinsing

ZK = Dispense rinse aid

ZR = Dispense detergent

## VIB. Troubleshooting

### Dishwasher troubleshooting

Fault	Steps to determine failure	Failure Resolution
<p><b>No power</b></p>	<ol style="list-style-type: none"> <li>1. Check wiring connections to dishwasher and if supply voltage is <math>\approx 120V</math>.</li> <li>2. Check if wiring connections at interference suppressor (RFI filter) are properly seated.</li> <li>3. Disconnect power and check resistance between following terminals. For all measurements, push on/off switch to close it.               <ol style="list-style-type: none"> <li>A. Black wires of interference suppressor (RFI filter) "L1" terminals.</li> <li>B. On/off switch "L1" terminals 4 (black wire) and 3 (gray-black wire to control).</li> <li>C. "N" white wire and control connector 6-4 yellow wire (with door closed).</li> <li>D. White wires of interference suppressor "N" terminals.</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1. If dishwasher connections are improper, replace cord / wiring with minimum 14 awg (rated 75°C). If voltage isn't 120V, check for open circuit breakers or fuses.</li> <li>2. If connectors aren't seated, reseal them. If connectors are damaged, replace wire harness.</li> <li>3. Replace parts as follows:               <ol style="list-style-type: none"> <li>A. If resistance is <math>\approx 0 \Omega</math> go to step 3B. If not, replace interference suppressor (RFI filter).</li> <li>B. If resistance is <math>\approx 0 \Omega</math>, go to step 3C. If not, replace on/off switch.</li> <li>C. If resistance is <math>\approx 0 \Omega</math>, control is shorted and should be replaced. If not, go to step 3D.</li> <li>D. If resistance is <math>\approx 0 \Omega</math>, replace on/off switch. If not, replace interference suppressor.</li> </ol> </li> </ol>
<p><b>No heat, heating error or NTC error</b></p>	<ol style="list-style-type: none"> <li>1. Run customer service test program and check if spray arms are turning.</li> <li>2. Measure resistance between the NTC orange wires.</li> <li>3. Check resistance between red wire from control to heater thermostat and white or white-red ("N") wire from flow (pressure switch). Before measuring, close the flow (pressure) microswitch by removing it from heater housing and pushing the button.</li> <li>4. Check resistance between thermostat terminals and between heating element terminals (r1).</li> <li>5. With pressure switch removed, check if heater pressure plate moves freely.</li> </ol>	<ol style="list-style-type: none"> <li>1. If spray arms aren't turning, see <i>Circulation Pump Not Running</i>.</li> <li>2. If resistance isn't within the values below, check NTC connections. If connections are OK, replace NTC.               <ul style="list-style-type: none"> <li>• 77° F (25°C) 45840 <math>\Omega</math></li> <li>• 22° F (50°C) 16542 <math>\Omega</math></li> <li>• 140° F (60°C) 11067 <math>\Omega</math></li> </ul> </li> <li>3. If resistance is <u>not</u> <math>\approx 12 \Omega</math>, go to step 4. If resistance is <math>\approx 12 \Omega</math>, go to step 5.</li> <li>4. If thermostat is open (<math>\infty \Omega</math>), replace it. If heating element is open (<math>\infty \Omega</math>), replace heater. If thermostat and heating element aren't open, replace pressure switch.</li> <li>5. If pressure plate moves freely, replace control. If not, replace heater.</li> </ol>

## Fault Diagnostics

Fault	Steps to determine failure	Failure Resolution
<b>Dispenser not operating or rinse aid not being dispensed</b>	<ol style="list-style-type: none"> <li>1. Check if detergent dispenser cover is jammed.</li> <li>2. Check dispenser harness connections to rinse aid dispenser, dispenser actuator (A2) and control.</li> <li>3. Run customer service test program with outer door removed and check if actuator operates. It should operate once to open detergent dispenser door and a second time to dispense rinse aid.</li> <li>4. Check resistance between dispenser actuator terminals.</li> </ol>	<ol style="list-style-type: none"> <li>1. Free jammed cover (by opening and closing it) or replace damaged cover.</li> <li>2. If connectors aren't seated properly, reseal them. If connectors are damaged, replace wire harness.</li> <li>3. If actuator operates, but doesn't open detergent dispenser cover or release rinse aid, replace dispenser linkages.</li> <li>4. If resistance is not between 2050 - 2250 <math>\Omega</math>, replace dispenser actuator. If not, replace control.</li> </ol>
<b>Will not drain</b>	<ol style="list-style-type: none"> <li>1. Check if house drain line is clogged.</li> <li>2. Check that drain hose is no longer than 150" and includes a 20" high loop.</li> <li>3. Check if garbage disposal plug is removed.</li> <li>4. Check if drain hose is clogged or pinched.</li> <li>5. Check if drain pump impeller is blocked.</li> <li>6. Run customer service test program and measure drain pump current while drain pump is activated.</li> <li>7. Check wiring connections at terminal 1 of float switch (white wire), drain motor and control.</li> <li>8. Measure drain pump resistance (between "N" and gray wire from drain pump to control).</li> </ol>	<ol style="list-style-type: none"> <li>1. Unclog drain and check operation.</li> <li>2. Shorten or replace drain hose and add 20" high loop.</li> <li>3. Remove garbage disposal plug.</li> <li>4. Unclog or replace drain hose.</li> <li>5. Unblock impeller and check operation.</li> <li>6. If current is <math>\approx 0.68</math> A and water does not drain, replace drain pump.</li> <li>7. If connectors aren't seated properly, reseal them. If connectors are damaged, replace wire harness.</li> <li>8. If the resistance is between 23 - 28 <math>\Omega</math>, replace control. If not, replace drain pump.</li> </ol>
<b>Circulation pump not running or dishes still dirty</b>	<ol style="list-style-type: none"> <li>1. Run customer service test program and check if dishwasher is filling with enough water.</li> <li>2. Check if water switch failed (i.e. check if only one rack is dirty).</li> <li>3. Run customer service test program and check incoming current to dishwasher while the heater is on.</li> <li>4. Check for clogged spray arms or filters.</li> <li>5. Check if circulation pump rotates freely with power disconnected.</li> <li>6. Check that connections to circulation pump motor, door switch (e1) and control are seated properly and aren't damaged.</li> <li>7. Measure door switch resistance (between door switch terminals 1 and 2) with dishwasher door closed.</li> </ol>	<ol style="list-style-type: none"> <li>1. If not filling, see <i>Will Not Fill</i>.</li> <li>2. Replace heater assembly (with water switch).</li> <li>3. If current draw is <math>\approx 11</math>A, go to step 4. If not, go to step 5.</li> <li>4. Clear any obstructions from filter and spray arms.</li> <li>5. If pump doesn't rotate freely, check for obstructions in pump housing. If there are no obstructions, replace pump.</li> <li>6. If connectors aren't properly seated, reseal them. If connectors are damaged, replace wire harness.</li> <li>7. If the resistance is approximately 0 <math>\Omega</math>, replace circulation pump. If not, replace door switch.</li> </ol>

## Fault Diagnostics

Fault	Steps to determine failure	Failure Resolution
<p><b>Will not fill or does not fill with enough water</b></p>	<ol style="list-style-type: none"> <li>1. Check if water supply is turned on and water pressure is between 15-145 psi (1-10 bar).</li> <li>2. Check if water inlet screen is blocked.</li> <li>3. Check if float switch (e6) has activated or water is in dishwasher base.</li> <li>4. Run customer service test program and measure voltage between water inlet valve terminals.</li> <li>5. Check that orange wire connections to flow meter are seated properly and not damaged.</li> <li>6. Check that connections to float switch (e6) and control are seated properly and not damaged.</li> <li>7. Measure float switch (e6) resistance between terminals 4 &amp; 1 (by measuring between gray wire ("L" terminal) of drain pump (m3) and terminal 3 of on/off switch (a1)).</li> <li>8. Measure water inlet valve resistance (between violet wires).</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn water supply completely on and adjust to proper water pressure.</li> <li>2. Clean out water line and screen.</li> <li>3. Check for leaks and drain water from the base to disengage the float switch. If water won't drain from dishwasher tub, see <i>Will Not Drain</i>.</li> <li>4. If voltage is <u>not</u> <math>\approx 120V</math>, go to step 5. If the voltage is <math>\approx 120V</math>, replace water inlet valve.</li> <li>5. If connectors aren't properly seated, reseal them. If properly seated, replace flow meter or harness.</li> <li>6. If connectors aren't properly seated, reseal them. If connectors are damaged, replace wire harness.</li> <li>7. If resistance is <math>\approx 0 \Omega</math>, the float switch is stuck closed and should be replaced. If resistance is not <math>\approx 0 \Omega</math>, go to step 8.</li> <li>8. If resistance is <math>\approx 950 \Omega</math>, replace control.</li> </ol>

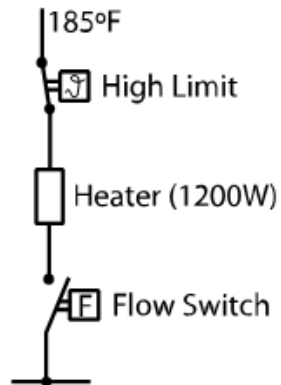
### Heater diagnosing

Test programs heat the water to 150°F at  $\sim 2^\circ F / \text{minute}$ . To save time, don't run the entire test – when water circulates and the heater is on, measure the incoming current to the dishwasher. If the current is  $\sim 11A$ , the heater is OK. If the current is  $\sim 1.5 - 2A$ , the control or heater could be faulty.

At the control or heater, measure the voltage between the large red heater wire and a chassis ground or the dw neutral (WHRD on/off switch or flow switch wire). If the voltage is 120 VAC, the control is OK. If the voltage is 0, the heater relay has failed – replace the control.

## Fault Diagnostics

To check the heater, turn off the dishwasher, block up the tank and check the resistance of each part of the heater as follows.



**Heater ~ 11  $\Omega$**

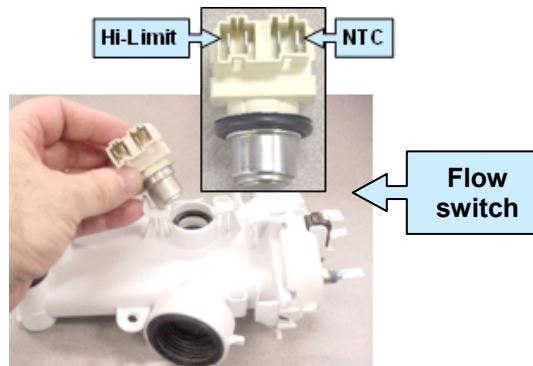
**Hi-Limit ~ .3  $\Omega$**

**Flow switch ~ .4 $\Omega$ .** A spring loaded plunger closes it when water is flowing, so you must remove the microswitch from the heater and close its contacts to measure the resistance.

**TIP:** Current can be measured through the **red** heater wire at the control or heater (~ **9.5A**). There can be more than one red wire, so check the wiring diagram to select the heater wire.

**NOTE:** Open door to run test program.

***Making NTC and Hi-Limit measurements***



### **Controls timing out and showing “1”**

Occasionally dishwashers can run for hours, not finish washing & show a “1” in the display. This means the module has timed out due to an unidentified heating problem -- all heating related parts must be checked until the problem is found.

**Heating system checklist if controls time out:**

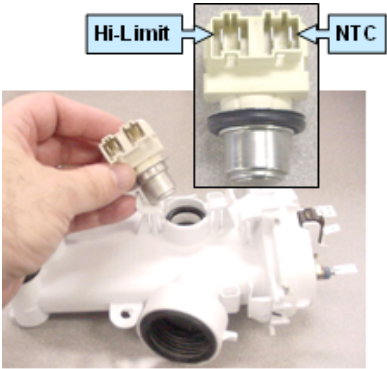
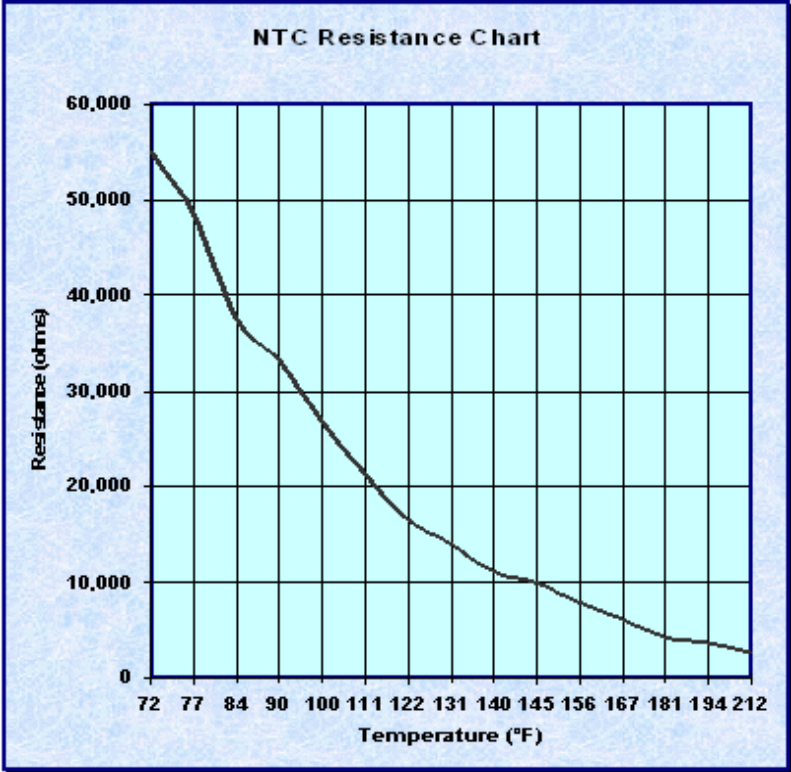
- Check control module heater relay & solder joints.
- Check wire harness & terminals (to control and heater). Controls have been replaced when the problem was loose connections.
- Check heater resistance (~ 11 $\Omega$ ).
- Check flow switch (~ 0.4 $\Omega$ ). If flow switch is OK & water doesn't flow, check circulation pump.

# Fault Diagnostics

- ☑ Check NTC (~ 55kΩ @72°F) and Hi-Limit. See NTC resistance chart (below).

**IMPORTANT:** Whenever a “1” shows in the control display, reset the control after fixing the heating problem by running the dishwasher. The module resets after the 1st run.

### NTC resistance chart



*Where to measure NTC resistances*

### **Water Leaking Past Doors**

Water seldom leaks out of bottom of dishwasher doors. Usually it's a customer or installation issue. Occasionally air pockets (from standing water in loops) or kinks in condensation tubes block condensation tubes and cause leaking. Pressure builds in tanks, blowing water past lower door seals (usually at start of cycles). Draining condensation tubes and straightening out kinks solves these occasional problems.

#### **Checklist if water leaks past doors:**

- Make sure condensation tubes are inserted into bases, not connected to drains or air gaps.
- Clear and drain condensation tubes, including debris in bases.
- Re-drill wood doors to make them square.
- Straighten kinks in condensation tubes.
- Educate customer on oversudsing (from too much detergent/rinse-aid or overly soft water).
- Level dishwasher before attaching under-counter brackets.
- Replace damaged door seals, including replacements cut too short.
- Refill lower racks overfilled with dishes.
- Move flexible cutting boards to left side of dishwasher.

### **Cosmetic / Customer Use / Installation Issues**

- **Control codes during Cancel - Reset** -- Customers have pushed / held *Cancel - Reset* buttons while turning dw's on and entered control coding selection or customer service test programs showing codes such as *E0, P0, P1, C1, P2*, etc.
- **Not cleaning or locking sump filters.**
- **Smelly dishwashers** -- Often occurs from filters not being cleaned, drain hose high loops missing or drain gases being present. If all else is OK, then problem can be preservative not purged from tank door gasket.
- **Doors leaking or not latching** -- Usually an installation issue (dishwasher brackets installed before dishwashers are leveled front to back, tanks & doors out of square, wooden doors not drilled accurately). Can be blockage in condensation tubes or condensation tubes connected to drain hose air gaps.
- **Inner door damage** -- From upper rack during improper shipping and handling (dishwashers clamped on wrong sides or dropped).
- **Doors hit toe kicks** -- Toe kick installation issue.
- **Junction boxes** -- Comes from wires not being connected correctly during installation.

## Fault Diagnostics

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- **Dispensers** -- Customers using too much detergent, not using rinse-aid & not knowing how to close the door.
- **Drain hoses not installed properly** -- Often no air gap or high loop + pinched hoses -- causes poor draining & smelly dishwashers. Most drain pumps are mistakenly replaced for drain hose installation issues.
- **Outer doors** -- Most are dinged during shipment.
- **Damaged water valves** -- Primarily from fittings being overtightened. A damaged valve can allow some water onto kitchen floors.

### **Customer self-help diagnosing**

Dishwashers may occasionally exhibit problems unrelated to a dishwasher failure. The following fixes can be made by customers without calling for repair.

- **Dishes do not dry** -- The rinse agent dispenser may be empty. Check the rinse-aid dispenser and refill it if necessary. Dishware drying can be accelerated and enhanced by opening the dishwasher door slightly and propping it open with the top rack.
- **Indicator light(s) do not come on** -- A fuse may have blown or a circuit breaker tripped. Check the fuse or circuit breaker at your fuse box/breaker box and replace the fuse or reset the breaker if necessary.
- **Dishwasher does not start** -- The dishwasher door may not be properly shut. Make certain the dishwasher door is shut and latched.
- **Dishwasher runs a long time** -- If the dishwasher completes the cycle, but the run time seems exceptionally long, it may be due to cold incoming water. Before starting the dishwasher, open the hot water faucet at the sink nearest the dishwasher. Run the water until it runs hot, then turn off the water and start the dishwasher.
- **Machine cycle does not advance to rinse** -- The water supply line may be shut off. Check the water supply valve and open it if it's shut.
- **White spots left on dishes** -- More rinse agent is needed.
- **Water not pumped from dishwasher** --
  - Make certain the drain hose isn't kinked, clogged, or improperly installed. Make sure the drain hose is at least 20 inches above the floor.
  - Make certain the dishwasher filter system and kitchen sink drain aren't clogged. You may need a plumber rather than a serviceman for the dishwasher. If an air gap is installed at sink, it may be clogged.
- **Detergent dispenser cover will not shut** -- The cover may not have been shut correctly or a cycle was not finished and should've been cancelled.
- **Streaks on glassware** -- Too much rinse agent is being dispensed.
- **Rattling noises** -- Utensils may not be properly arranged.
- **Suds in dishwasher** -- The customer may have used the wrong type of dishwashing detergent. Use only automatic dishwasher detergents.



## Technical Specifications

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- **Unsatisfactory washing results**
  - Incorrect amount of detergent.
  - Utensils incorrectly arranged or rack overloaded.
  - Spray arm rotation blocked by utensils.
  - Spray arm nozzles need cleaning.
  - Filters not properly fitted into position.
  - Unsuitable cycle selected.

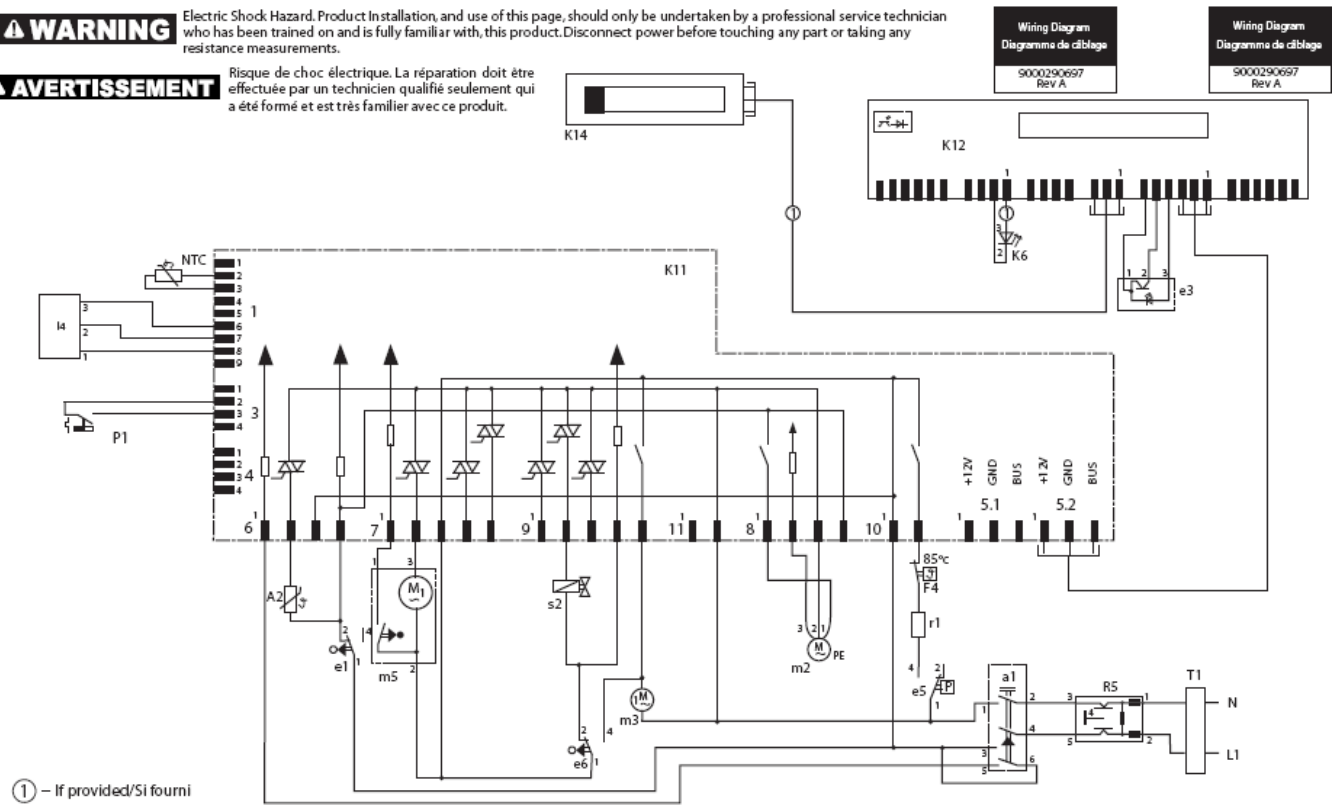
## VII. Technical Specifications

- **Dishwasher ratings** – Dishwashers are rated 120VAC, 60 Hz, 15A, 1450W (max.). Maximum amp draw when heaters running ~ 11A.
- **Heater ratings** – 120VAC, 1200W, flow-through, heats water ~ 2°F / minute.
- **Noise level** – Dependent on model, from 44 db – 56 dB.
- **Circulation pump ratings (BLDC motor)** – 120VAC, 60 Hz, 100W (~ .13 HP), 3-phase.
- **Drain pump ratings** – 110 - 127 VAC, 60 Hz, 35W, .84A, 17Ω (9-vane)
- **Water inlet pressure range** – From 5 – 120 psi (.3 – 8.27 bar).
- **Circulation pump flow rate** – Approximately 60 liters/minute (~ 15.85 gallons/minute) at a pressure of 420 mbar (6.1 psi).
- **Drain pump flow rate** – Approximately 10 liters/minute (~ 2.64 gallons/minute) at a delivery height (head) of .9m (2.95').
- **Water inlet valve flow rate** – Approximately 2 liters/minute (~ .5 gallons/minute).

## VIII. Wiring Diagrams

**⚠ WARNING** Electric Shock Hazard. Product installation, and use of this page, should only be undertaken by a professional service technician who has been trained on and is fully familiar with, this product. Disconnect power before touching any part or taking any resistance measurements.

**⚠ AVERTISSEMENT** Risque de choc électrique. La réparation doit être effectuée par un technicien qualifié seulement qui a été formé et est très familier avec ce produit.



Symbol Key / Symbole	English	Français
NTC	NTC Temperature Sensor	Capteur de température NTC
e3	Optical Rinse Aid Sensor	Capteur optique agent rinçage
I4	Soil Sensor	Capteur de saleté
r1	Heating Element	Élément chauffant
e1	Door Switch	Interrupteur de porte
e5	Pressure Switch	Interrupteur de pression
e6	Safety Float Switch	Interrupteur à flotteur de sécurité
s2	Water Inlet Valve	Soupape entrée d'eau
K11, K12	Control	Contrôle
m2	Main Motor (Sicasym)	Moteur principal (Sicasym)
m3	Drain Motor	Moteur de drainage
m5	Water Switch	Interrupteur d'eau
a1	Main Switch	Interrupteur de principal
A2	Dispenser Actuator	Actionneur de distributeur
F4	Thermostat	Thermostat
K14	Front Display	Affichage avant
K6	Info Light	Voyant Info
T1	Terminal Block	Bloc Terminal
P1	Flow Meter	Mètre d'Écoulement
R5	Interference Suppressor	Dispositif antiparasite d'Interférence

# Wiring Diagrams

