



Preferred Service

Service Manual

This manual is to be used by qualified appliance technicians only. Viking does not assume any responsibility for property damage or personal injury for improper service procedures done by an unqualified person.

Built-In Dishwasher

This Base Manual covers general and specific information including, but not limited to the following models:

VDB200



SMK-002
May, 2010

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SAVE THESE INSTRUCTIONS

REVIEW ALL SERVICE INFORMATION IN THE APPROPRIATE SERVICE MANUAL AND TECHNICAL SHEETS BEFORE BEGINNING REPAIRS.

Pride and workmanship go into every product to provide our customers with quality appliances. It is possible, however, that during the lifetime of a product, service may be required. Products should be serviced only by a qualified authorized service technician who is familiar with the safety procedures required to perform the repair and is equipped with the proper tools, parts, testing instruments, and the appropriate service manual.

Safety Information

We have provided many important safety messages throughout this manual and on the appliance. **ALWAYS** read and obey all safety messages. This is a safety alert symbol.




This symbol alerts personnel to hazards that can kill or hurt you and others. All safety messages will be preceded by a safety alert symbol and the word "DANGER", "WARNING" or "CAUTION". These words mean:

| |
|--|
|  DANGER |
| <p>Immediate hazards which WILL result in severe personal injury or death.</p> |
|  WARNING |
| <p>Hazards or unsafe practices which COULD result in severe personal injury or death.</p> |
|  CAUTION |
| <p>Hazards or unsafe practices which COULD result in minor personal injury, product or property damage.</p> |

All safety messages will identify the hazard, tell you how to reduce the chance of injury, and inform you what can happen if the instructions are not followed.

| |
|---|
|  WARNING |
| <p>To avoid risk of serious injury or death, repairs should not be attempted by unauthorized personnel.</p> |

| |
|--|
|  CAUTION |
| <p>VIKING will not be responsible for any injury or property damage from improper service procedures. If performing service on your own product, you must assume responsibility for any personal injury or property damage which may result.</p> |

To locate an authorized service agent, call:
 Viking Customer Service
 Phone No. 1-888-845-4641

Address your written correspondence to:
 Viking Preferred Service
 1803 HWY 82 West
 Greenwood, MS 38930

Professional Series Built-In Dishwasher Warranty

One Year Full Warranty

Undercounter dishwashers and all of their component parts, except as detailed below*, are warranted to be free from defective materials or workmanship in normal household use for a period of twelve (12) months from the date of original retail purchase. Viking Range Corporation, warrantor, agrees to repair or replace, at its option, any part which fails or is found to be defective during the warranty period.

*Painted and decorative items are warranted to be free from defective materials or workmanship for a period of ninety (90) days from the date of original retail purchase. ANY DEFECTS MUST BE REPORTED TO THE SELLING DEALER WITHIN NINETY (90) DAYS FROM DATE OF ORIGINAL RETAIL PURCHASE.

Five Year Limited Warranty

Any upper and/or lower nylon rack which rusts due to defective materials or workmanship and any electronic controls which fail due to defective materials or workmanship in normal household use during the second through fifth year from the date of original retail purchase will be repaired or replaced, free of charge for the part itself, with the owner paying all other costs, including labor.

Any motor/pump assembly or water distribution system component as listed below which fails due to defective materials or workmanship in normal household use during the second through fifth year from the date of original retail purchase will be repaired or replaced, free of charge for the part itself, with the owner paying all other costs, including labor.

Motor/Pump and Water Distribution System Components

Circulation motor/pump; Lower wash arm; Drain motor/pump; Tube to upper wash arm; Fill valve; Upper wash arm

Lifetime Limited Warranty

Any stainless steel tank or inner door liner which develops a water leak due to defective materials or workmanship in normal household use during the lifetime of the product will be repaired or replaced, free of charge for the part itself, with the owner paying all other costs, including labor.

Ninety (90) Day Residential Plus Warranty

This warranty applies to applications where use of the product extends beyond normal residential use. Examples are, but not limited to, bed and breakfasts, fire stations, private clubs, churches, etc. This warranty excludes all commercial locations such as restaurants, food service locations and institutional food service locations.

This warranty extends to the original purchaser of the product warranted hereunder and to each transferee owner of the product during the term of the warranty.

This warranty shall apply to products purchased and located in the United States and Canada. Products must be purchased in the country where service is requested. Warranty labor shall be performed by an authorized Viking Range Corporation service agency or representative. Warranty shall not apply to damage resulting from abuse, accident, natural disaster, loss of electrical power to the product for any reason, alteration, improper installation, improper operation or repair or service to the product by anyone other than an authorized Viking Range Corporation service agency or representative. Warranty shall not apply to damage resulting from indoor units being used in outdoor situations. This warranty does not apply to commercial usage. This warranty does not cover any food or medicine loss due to product failure. Warrantor is not responsible for consequential or incidental damage whether arising out of breach of warranty, breach of contract, or otherwise. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Owner shall be responsible for proper installation, providing normal care and maintenance, providing proof of purchase upon request, and making the appliance reasonably accessible for service. If the product or one of its component parts contains a defect or malfunction during the warranty period, after a reasonable number of attempts by the warrantor to remedy the defects or malfunctions, the owner is entitled to either a refund or replacement of the product or its component part or parts. Replacement of a component part includes its free installation. Warrantor's liability on any claim of any kind, with respect to the goods or services covered hereunder, shall in no case exceed the price of the goods or service or part there of which gives rise to the claim.

VIKING RANGE CORPORATION

111 Front Street, Greenwood, Mississippi (MS) 38930 USA

662-455-1200

For more product information, call 1-888-VIKING1 (845-4641), or visit our web site at <http://www.vikingrange.com>

WARRANTY SERVICE

Under the terms of this warranty, service must be performed by a factory authorized Viking Range Corporation service agent or representative. Service will be provided during normal business hours, and labor performed at overtime or premium rates shall not be covered by this warranty. To obtain warranty service, contact the dealer from whom the product was purchased, an authorized Viking Range Corporation service agent, or Viking Range Corporation. Provide model and serial number and date of original purchase. For the name of your nearest authorized Viking Range Corporation service agency, call the dealer from whom the product was purchased or Viking Range Corporation. **IMPORTANT:** Retain proof of original purchase to establish warranty period.

The return of the Owner Registration Card is not a condition of warranty coverage. You should, however, return the Owner Registration Card so that Viking Range Corporation can contact you should any question of safety arise which could affect you.

Any implied warranties of merchantability and fitness applicable to the described halogen elements are limited in duration to the period of coverage of the applicable express written limited warranties set forth above. Some jurisdictions do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which may vary from jurisdiction to jurisdiction.

VIKING RANGE CORPORATION
111 Front Street • Greenwood, Mississippi 38930 USA
(662) 455-1200
www.vikingrange.com

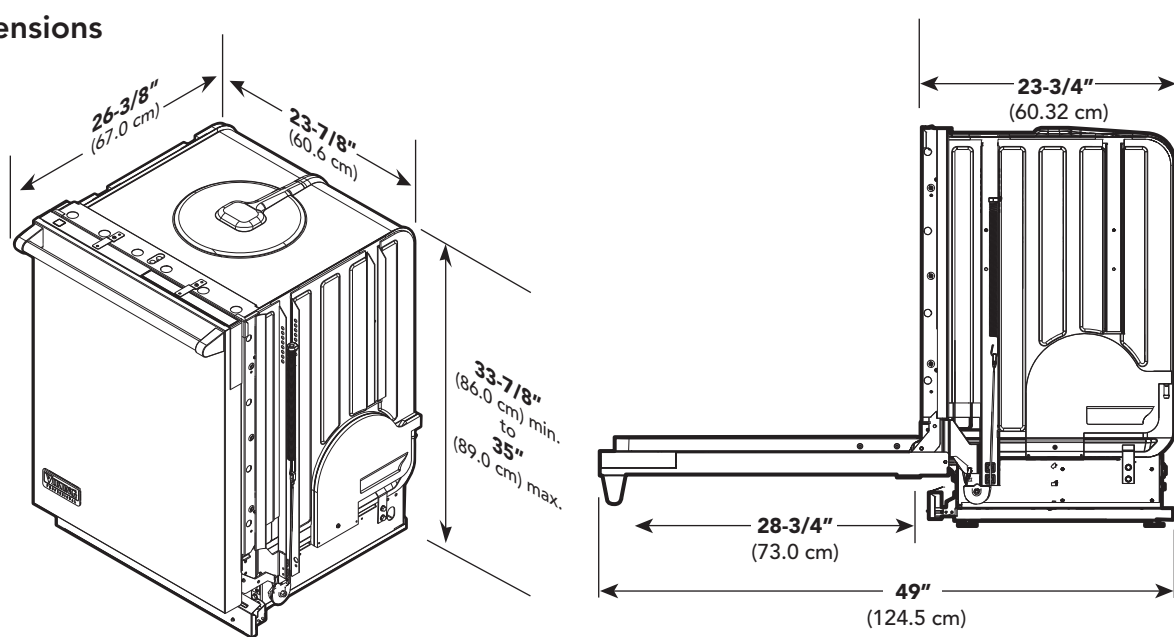
Specification subject to change without notice.

Specifications*

| Built-In Dishwasher | |
|--------------------------------------|--|
| Description | VDB200 |
| Overall width | 23-7/8" (60.6 cm) |
| Overall height | 33-7/8" (86.0 cm) min. to 35" (89.0 cm) max. |
| Overall depth from rear | To edge of side—23-3/4" (60.3 cm)—includes door panel With door open—49" (124.5 cm) |
| Cutout width | 24" (61.0 cm) |
| Cutout height | 34" (86.4 cm) min. to 35" (89.0 cm) max. |
| Cutout depth | 24" (61.0 cm) |
| Electrical requirements | 15.0 amps, 120 VAC/60 Hz; Power cord must be purchased separately |
| Water-heating element rating | 1200 watts |
| Inlet water temperature | 120°F (49°C) recommended; Dishwasher will perform properly with cold water Note: Cycle times will vary |
| Inlet water pressure operating range | 10 to 125 psi (0.69 to 8.62 bar) |
| Inlet water hose | 5' (1.5 m) braided stainless steel water line with 3/8" (0.95 cm) compression fitting connected to dishwasher |
| Drain hose | 7' (2.13 m) 1/2" (1.3 cm) ID "crimp-proof" flexible drain hose attached to dishwasher, connections provided for 5/8" (1.6 cm), 3/4" (1.9 cm) or 1" (2.5 cm), cut as required |
| Drain hose high loop required | Height from floor—20" (51.0 cm) min. |
| Approximate shipping weight | 147 lbs. (66.7 kg) |

*Go to vikingrange.com for the latest specifications.

Dimensions



Warnings

Read and follow all instructions before using this appliance to prevent the potential risk of fire, electric shock, personal injury, or damage to the appliance as a result of improper usage of the appliance. Use appliance only for its intended purpose as described in this manual.

To ensure proper and safe operation: Appliance must be properly installed and grounded by a qualified technician. **DO NOT** attempt to adjust, repair, service, or replace any part of your appliance unless it is specifically recommended in this manual. All other servicing should be referred to a qualified servicer.

Water Supply

WARNING

Plumbing connections must comply with applicable sanitary, safety, and plumbing codes.

- Water pressure for the water supply should be a minimum of 10 to 125 psi. The dishwasher is supplied with a 5' (1.5 m) braided stainless steel water line with 3/8" (0.95 cm) compression fitting connected to dishwasher.
- After determining where the water supply line will connect to the dishwasher, provide a 2" (5.1 cm) access hole and run the water supply line to the approximate fill valve location.
- For service convenience, a shut-off valve (not supplied) should be installed in the supply line in a readily accessible location (such as beneath the sink).
- It is recommended that the dishwasher be connected to a hot water supply. If a cold water supply is used, cycle times will vary.
- It is important that the water supply line and the shut-off valve have a sufficient flow volume. Flush the supply line prior to connecting it to the intake line of the dishwasher.

Drain

- The access hole for the drain line should be 2" square (5.1 cm). Locate as low and as near to the back wall as possible.
- **DO NOT** use any fittings anywhere in the drain line that are less than 1/2" (1.3 cm) ID.

- If the drain line is going to be connected to a food waste disposer, be sure to remove the knockout or plug from the fitting before connecting drain line.
- Drain connection should be a minimum of 9" (22.9 cm) from the floor. If connection is lower, siphoning during cycle can occur.

WARNING

The dishwasher has a factory installed back-flow preventer. **DO NOT** add an additional check valve.

Electrical Connections

This appliance must be grounded. In the event of a malfunction or breakdown, grounding will reduce the risk of electric shock by providing a path of least resistance for electric current.

Note: For this model, a power cord will have to be purchased separately. The plug must be plugged into an appropriate outlet that is installed and grounded in accordance with all local codes and ordinances.

WARNING

Be sure electrical power is turned off at circuit breaker or fuse box before servicing unit. **DO NOT** use an extension cord for this appliance.

WARNING

Improper connection of the equipment – grounding conductor can result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the appliance is properly grounded. **DO NOT** modify the plug if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

Warnings



WARNING

ELECTRICAL SHOCK HAZARD

Electrically ground dishwasher.

Connect ground wire to green ground connector in terminal box.

DO NOT use an extension cord.

Failure to follow these instructions, can result in death, fire or electrical shock.



WARNING

EXCESSIVE WEIGHT HAZARD

Use two or more people to move dishwasher.

Failure to do so can result in back or other injury.



WARNING

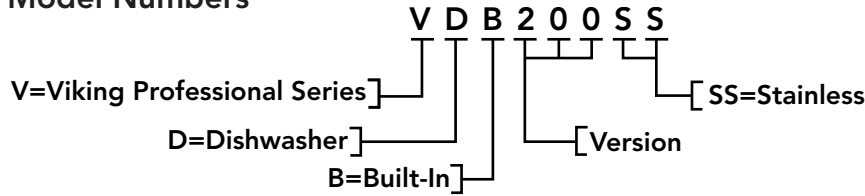
TIP OVER HAZARD

DO NOT push down on open door. Doing so can result in serious injury or cuts.

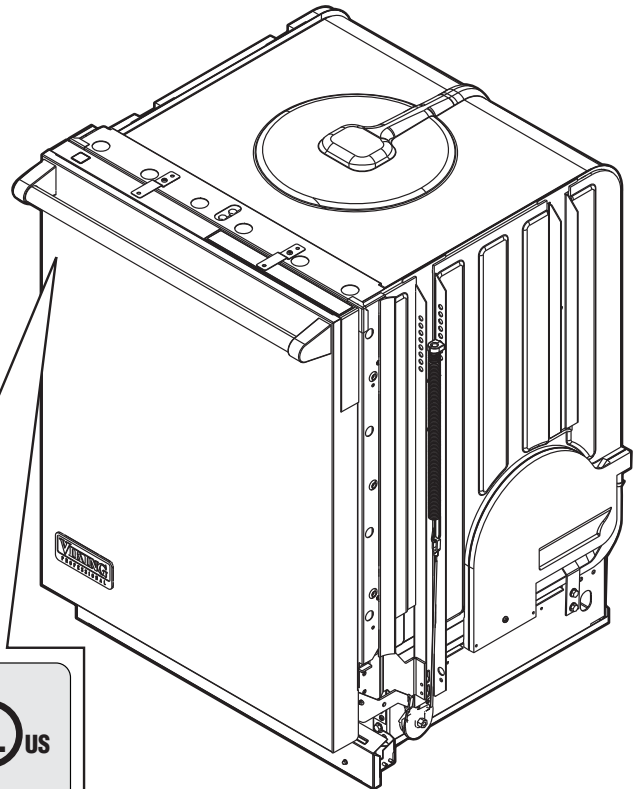
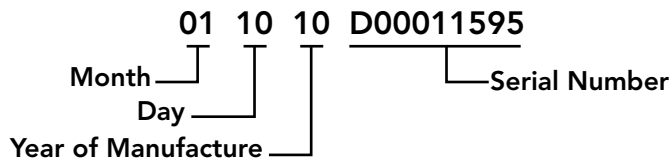
Model-Serial Number Matrix

The serial number and model number for your appliance are located on the identification plate mounted on the inside of the unit.

Model Numbers



Serial Numbers



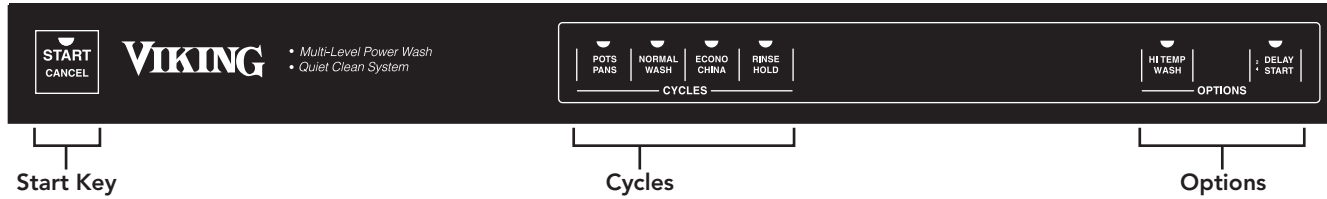
| | | | | |
|-----------------|---------------------------------|---------------------------|--|--------------|
| Made in the USA | HOUSEHOLD DISHWASHER | MODEL VDB200SS | | |
| | VIKING RANGE CORPORATION | 120V 60Hz OPER 12.2A | | |
| | GREENWOOD, MISSISSIPPI | OTHER 15.5A | | |
| | 38930 USA | SERIAL NO 011910D00011595 | | LISTED 3HV V |

01 3597 000

Settings and Functions

Control Operation

The following is the basic layout of the control panel and how it is referenced below.



Wash Cycles

Pots/Pans

Heavily soiled pots, pans and casserole dishes. Long heated pre-wash loosens up encrusted food. High temperature main wash and final rinse.

Normal Wash

Normally soiled plates, glasses, bowls, and lightly soiled pots and pans.

Econo/China

Normally soiled dishware, china and crystal. Lower temperature wash cycle.

Rinse/Hold

All dishware. Short rinse with no heat.

Options

Hi Temp Wash

Increases the temperature of the main wash and final rinse portions of the cycle. May add extra water for improved cleaning performance. Available on Pots/Pans and Normal cycles.

Delay Start

Lets you delay running the dishwasher for up to four hours. To set DELAY START, select the desired wash cycle and option(s). Press the "DELAY START" button once and the number "2" will light, indicating a two-hour delay. If you desire a longer delay, continue pressing the "DELAY START" button to a four-hour delay. The corresponding number on the button will light. Once you have set the desired delay time, press the "START" button and close the door. DELAY START is not available with the Rinse/ Hold cycle.

Audible Sound Signal

A single beep will occur when you select cycles, options and press the "START" key. The end-of-cycle signal consists of two long beeps. If the "START" button is not pressed or if the door is not closed within four seconds of pressing the "START" button, three short beeps will occur. For all other error messages and to deselect the audible sound signal, see Troubleshooting Guide, (page 36).

Settings and Functions

Preparing Dishes

It is not necessary to rinse normal food soils off the dishes before putting them in the dishwasher, although larger solid particles, such as bones, seeds, skins, pits, and toothpicks should be removed.

If you are not going to run the dishwasher immediately after loading, it is best to rinse salty and highly acidic foods off stainless steel, silver, and silverplate flatware. Prolonged contact of foods—including lemon juice, salt, vinegar, mustard, mayonnaise, and salad dressings—with stainless steel can cause corrosion (pitting).

Before Operation

1. Load the dishes per recommended loading.
2. Make sure there is rinse agent in the dispenser. Add rinse agent if needed.
3. Add proper amount of detergent and pre-wash.
4. Select the desired cycle and option(s).
5. Push both top and bottom racks in.
6. Press "START". The START symbol will illuminate to indicate the unit is ready.
7. Close the door tightly until you hear a click. Otherwise the dishwasher will not start.

Option Restrictions

All options are not available for all cycles. Please note the following:

- The option HI TEMP WASH is not available in the ECONO/CHINA cycle.
- No options are available in the RINSE/HOLD cycle.

After selecting the wash cycle and options, depress "START" button. The START symbol will illuminate. This merely means the machine is ready. Close door securely within four seconds of pressing the START button.

Changing a Program After the Unit Has Started

The dishwasher is programmed to stop operating if the door is opened during a cycle. To change a program or option after starting the machine, open the door slightly to let the spray arms stop rotating and avoid getting sprayed with water. Press and hold "START" for four seconds to cancel the current selection, then press the touchpad(s) for your desired selection.

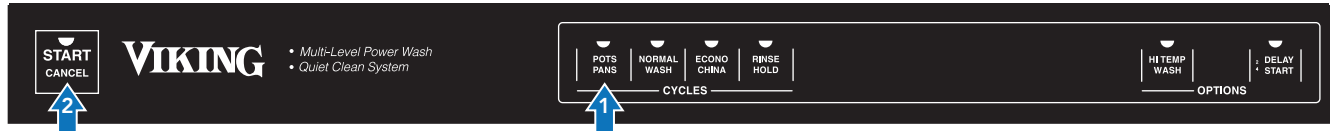
Press "START" again and close the door. The drain pump will run to remove any dirty water from the dishwasher before starting the newly selected cycle. Check to make sure there is still detergent in the detergent dispenser.

Opening the Door After Cycle Has Started

If the door is opened after the cycle has started, the START button will flash to indicate that the dishwasher is in Standby mode. Press the "START" button and close the door securely within four seconds to restart the cycle. If a cycle is canceled, the dishwasher will drain any remaining water in the unit out.

Entering Diagnostic Mode

To enter the Diagnostic mode, press the left most program button five times and then immediately press the "START" button.



The test cycle will run approximately 6-1/2 minutes and will run each component individually. Be sure to close the soap dispenser cup as this function will also be energized opening up the cup.

1. Drains for **85** Seconds.
5 Seconds **On**-5 Seconds **Off**-30 Seconds **On**-5 Seconds **Off**-40 Seconds **On**
2. Fills for **75** seconds.
3. Activates soap dispenser and wash arm diverter sets (duration varies).
4. Circulates top wash arm with heat for **40** seconds.
Note: Heater does not activate until the motor check is complete (16 seconds after motor starts).
5. Water level check and wash arm diverter sets (duration varies).
6. Circulate lower wash arm with heat for **10** seconds.
7. Water level check and wash arm diverter sets (duration varies).
8. Circulate (filter clean) for **10** seconds.
9. Drains for **85** Seconds.
5 Seconds **On**-5 Seconds **Off**-30 Seconds **On**-5 Seconds **Off**-40 Seconds **On**
10. When complete, you will hear two long beeps approximately ten seconds after the drain cycle stops. This is the indication that the test cycle has finished.

Note: During this test cycle, if the control board senses a failure that it is programmed to monitor, it will display an error code.

Fail Codes

| Flash | | Fault | Action |
|------------|-------------|----------------------------------|--|
| Pots/Pans | Normal Wash | | |
| 1 | 1 | Pan Moisture Sensor Disconnected | Verify pan moisture sensor is connected, verify moisture sensor resistance. |
| 1 | 4 | Diverter Time-out | Verify diverter resistance and wiring. |
| 1 | 5 | Drain Error | Verify drain is free and clear of obstructions, verify dishwasher is level, check drain pump resistance, check drain pump for obstructions. Check disposer for plug. |
| 2 | 2 | Fill Time-out | Verify water pressure, verify inlet hose is not restricted, water valve is not restricted. |
| 3 | 1 | UI-MC Communication Error | Check connector between UI and Relay Board. |
| 3 | 3 | Drain Pump Error | Check drain pump resistance, check drain pump for obstructions. |
| 5 | 5 | Internal Error | Press and hold start button for four seconds. If it repeats, replace controls. |
| 1 | 2 | Motor Control Status Error | Check wires between control board and motor Check wires between motor and start capacitor Check for rotor turning freely and check winding resistances Check control Check capacitor |
| 3 | 2 | Pump Flow Error | <ol style="list-style-type: none"> 1. Verify water is fully turned on to dishwasher 2. Verify that fill line is not kinked 3. Verify that dishwasher is level front to back and side to side 4. Verify that filters are not clogged 5. Verify that there has not been a decrease in water pressure 6. Verify that the drain has the proper high loop 7. Verify proper fill level 8. Enable extended fill service mode (press and hold "NORMAL WASH" for 10 seconds) 9. Could be defective wash motor 10. Could be defective water inlet valve 11. Could be defective main control |
| 4 | 1 | Temperature Sensor Error | Check connections. Check for 47k Ω ohms at ambient. |
| 4 | 2 | Wash Heater Error | Check wiring to element. Check for 12 Ω ohms. |
| 4 | 3 | Dispenser Error | Check connections. Check for 8.3 Ω ohms. |
| 4 | 4 | Inlet Valve Error | Check connections. Check for 1.1k Ω ohms. |
| 5 | 4 | Current Sense Error | <ol style="list-style-type: none"> 1. Could be defective main control 2. Could be defective wire harness |
| See Note A | | Pan Moisture | Check the base pan for water. Check for 175k Ω ohms. |
| See Note B | | Power Loss | Reset and test. |

Note A: Both lights flash continuously.

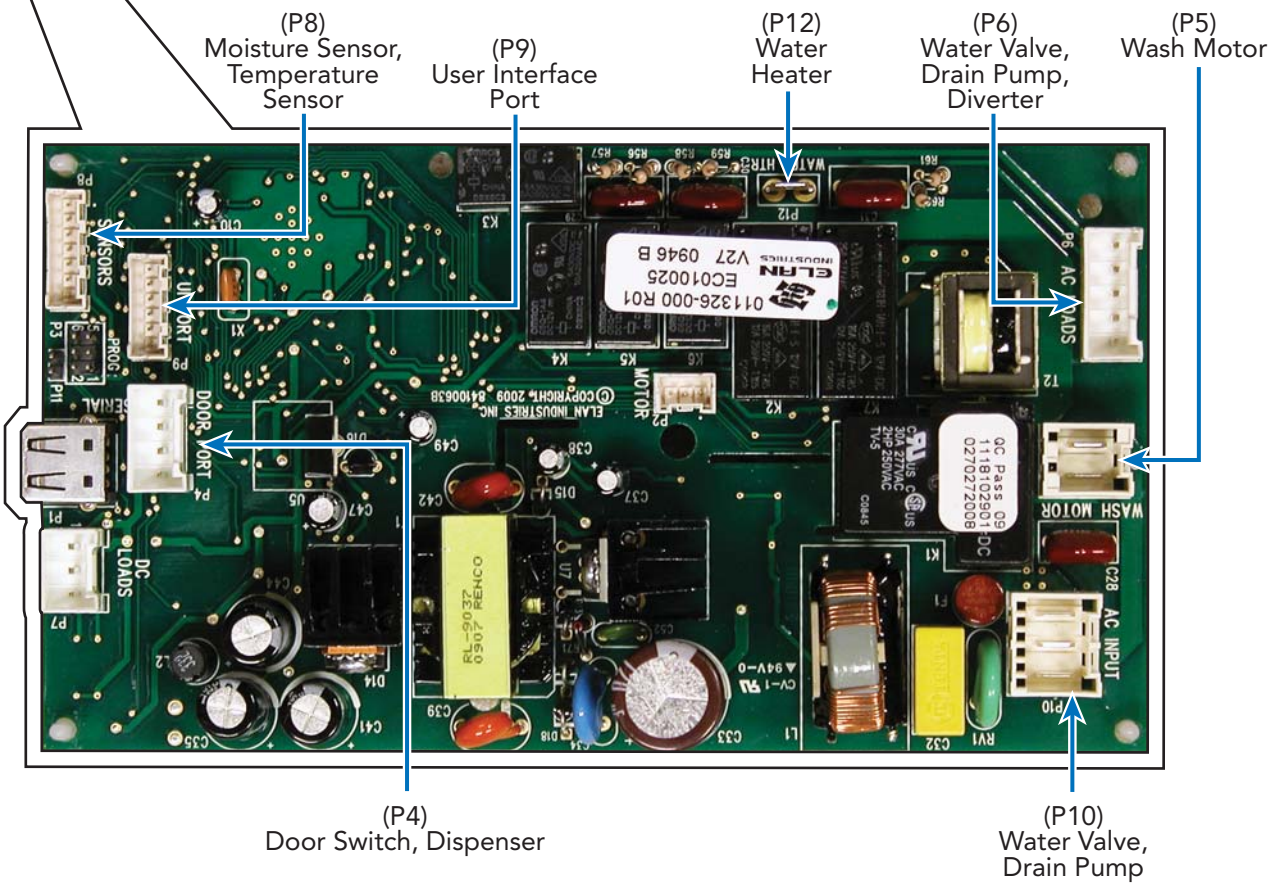
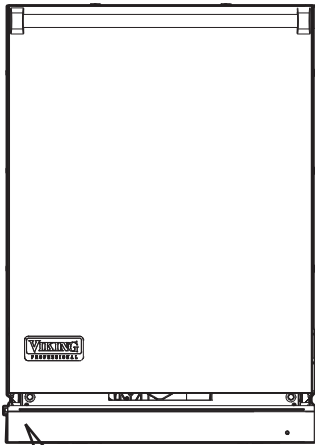
Note B: All lights, except START and RUN (select models), flash continuously.

Note C: To reset unit, press and hold the "START" button for four seconds.

Note D: Numbers listed indicate the times the lights will flash when a specific error is detected.

(For example: For a drain error, the POTS/PANS light will flash once and the NORMAL WASH light will flash five times.)

Parts Location–Control Board



Control Board Test Points

The unit has a control board that controls the functions of the dishwasher. Components can be diagnosed via the control board. With the control board accessed (see *Control Board Disassembly procedure, page 34*), the following can be measured:

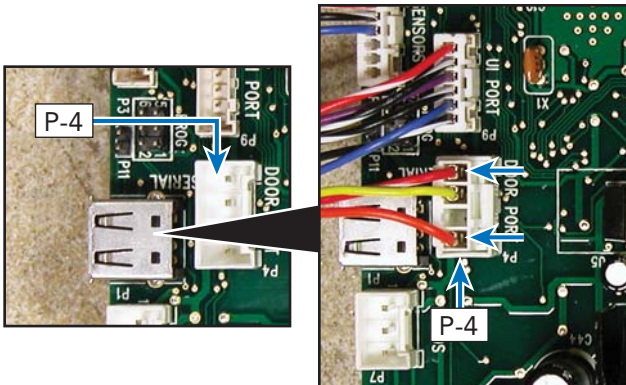
| Component | Control Board Test Point | Readings (Typical) |
|--------------------|----------------------------------|---|
| Door Switch | P4-1 (Yellow) – P4-2 (RD/WH) | 0 Ω door closed ∞ Ω door open |
| Dispenser | P4-1 – P4-4 | 8.3 Ω |
| Wash Motor | P5-1 (Red) – P5-2 (White) | 6.3 Ω |
| Water Valve | P6-3 (Blue) – P10-1 (White) | 1.1K Ω |
| Drain Pump | P6-4 (Brown) – P10-1 (White) | 15.1 Ω |
| Diverter | P6-2 (Gray) – P10-1 (White) | 2.7K Ω |
| Moisture Sensor | P8-1 (Red/White) – P8-2 (Purple) | 175K Ω |
| Temperature Sensor | P8-3 (Black/White) – P8-4 (Blue) | 47K Ω @ 77° (varies based on temp) |
| Water Heater | P12 (Gray) – P10-1 (White) | 12.00 Ω |

Control Board Diagnosis *(Some measurements require power and others require the unit not to be powered.)*

With the control board removed (see *Control Board Disassembly procedure, page 34*), the following components can be diagnosed without removal of the components:

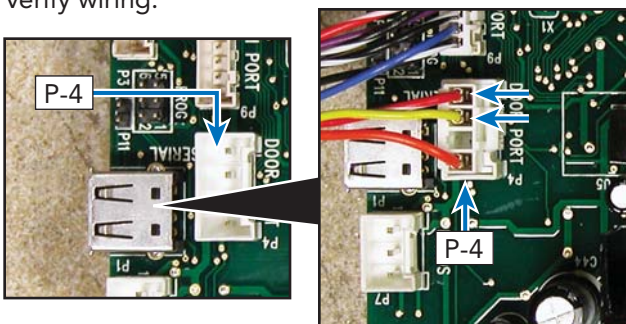
Door Switch

The door interlock switch controls 12 VDC to the control board. When the door is open, the contact opens and the board stops the operation. To check the switch, unplug the moxex connector and check for continuity between P4-1 (red/white) and P4-2 (yellow). With the door closed, the reading should be 0 Ω ohms. Open the door and the reading should be infinity (∞). If the readings are incorrect, check the wiring to the door switch and inspect the door switch.



Detergent Dispenser

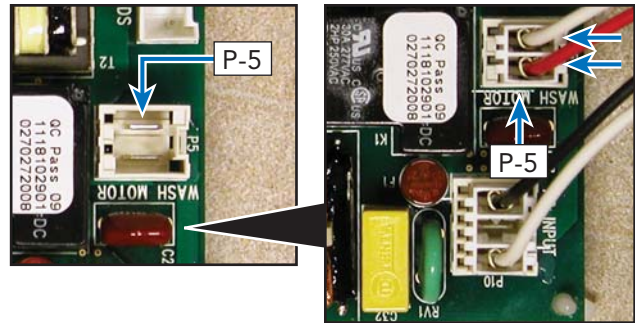
The dishwasher uses a detergent dispenser to release detergent into the tub. As voltage is applied, the latch mechanism releases the dispenser door allowing detergent to enter the tub. Voltage between P4-1 and P4-4 should be 12 VDC when the dispenser is activated. If no voltage is measured, verify wiring.



Note: Testing the soap cup can be achieved in the diagnostic mode.

Circulation Motor

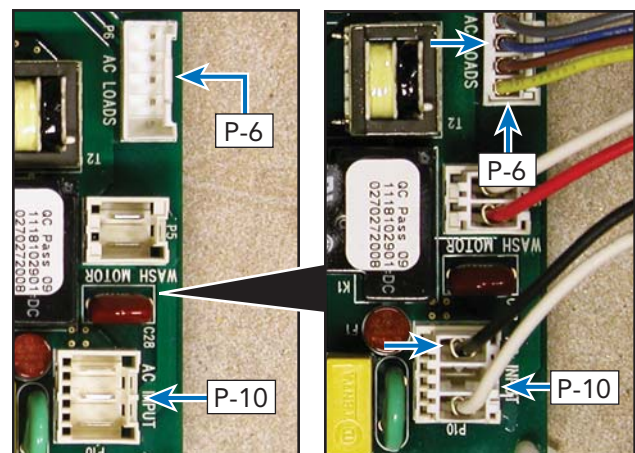
The 200 Series Dishwasher uses a single speed, capacitor assist wash motor. Voltage between P5-1 and P5-2 should be 120 VAC when the motor is activated. If voltage is not present, verify wiring. If voltage is present and the motor is not running, check the capacitor and motor windings for proper readings.



Note: Testing the circulation motor can be achieved in the diagnostic mode.

Fill Valve

The dishwasher uses a fill valve to fill the machine with water. Verify as the valve is energized 120 VAC is present between P6-3 and P10-1. If voltage is present and no water enters, check the water supply and shut off valve to make sure water is being supplied to the unit. If water is present, unplug the wires to the fill valve and using an ohmmeter, check for approximately 1.1k Ω ohms at the coil. If 0 Ω ohms are read, replace the fill valve (see *Fill Valve Disassembly procedure, page 33*).

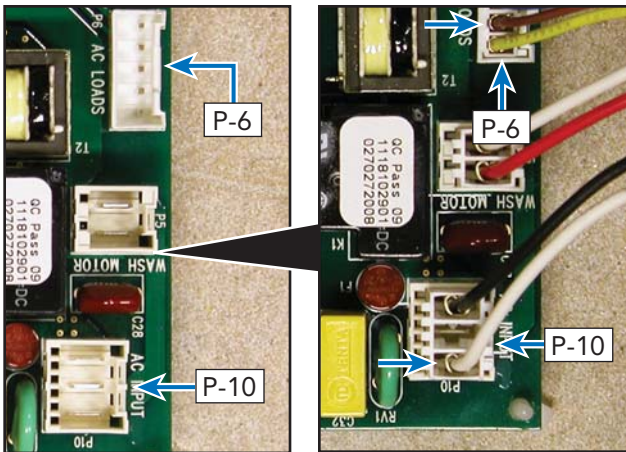


Note: Testing the fill valve can be achieved in the diagnostic mode.

Control Board Diagnosis *(Some measurements require power and others require the unit not to be powered.)*

Drain Motor

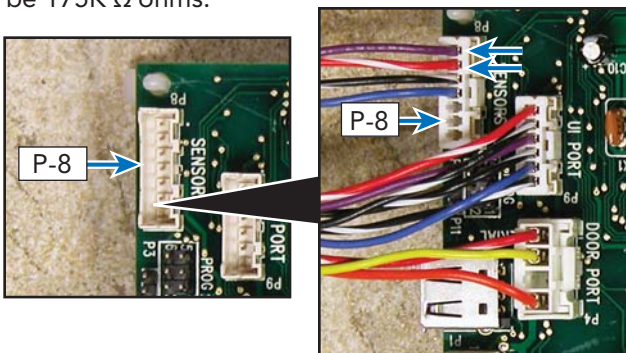
The dishwasher uses a drain motor to remove water from the tub at timed intervals during the wash cycle. In the drain mode, voltage between P6-4 and neutral should be 120 VAC. If voltage is measured, unplug the wires to the drain motor and using an ohmmeter, check for approximately 15.1 Ω ohms at the valve. If 0 Ω ohms are read, replace the drain pump. If readings are correct, remove pump and check for obstructions in the drain pump (see *Drain Motor Disassembly procedure, page 30*).



Note: Testing the drain motor can be achieved in the diagnostic mode.

Moisture Sensor

The dishwasher uses a moisture sensor that is mounted in the base pan of the dishwasher. Any moisture that comes in contact with the sensor will cause the unit to stop filling, operate the drain pump, and signal an error code. If the sensor is open, an open fail code will signal (see *Fail Codes, page 13*). Resistance between P8-1 and P8-2 should be 175K Ω ohms.



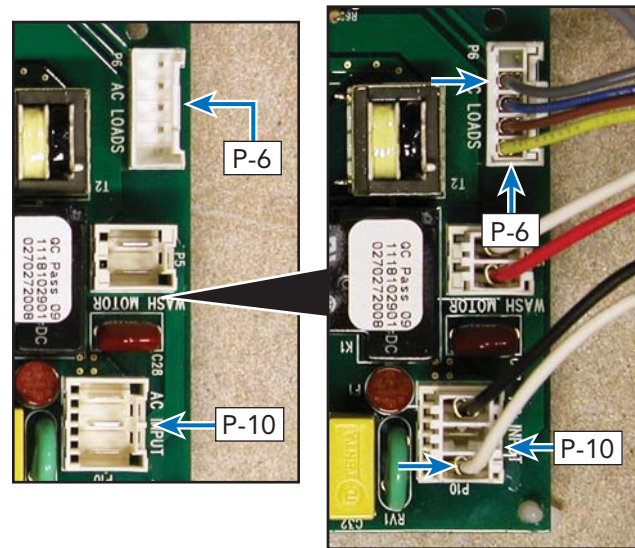
Wash Diverter

The dishwasher uses a wash diverter to divert water to either the upper arm or lower arm during the wash cycle. This allows for low water consumption and a better wash to both upper and lower racks.

At the beginning of each wash cycle, the control board positions the wash diverter to its proper starting position. It is monitored by a built in monitoring switch that sends 120 VAC back to P6-5. Depending on how long the switch is closed determines what position it is in.

To check the wash diverter, check the motor with an ohmmeter between P6-2 and Neutral. It should read approximately 2.7k Ω ohms. If readings are incorrect, verify wiring connections to the diverter. If the wiring is proper, replace the wash diverter (see *Wash Diverter Disassembly procedure, page 30*).

Note: If the diverter does not position itself, a Diverter time out error will display (see *Fail Codes, page 13*).



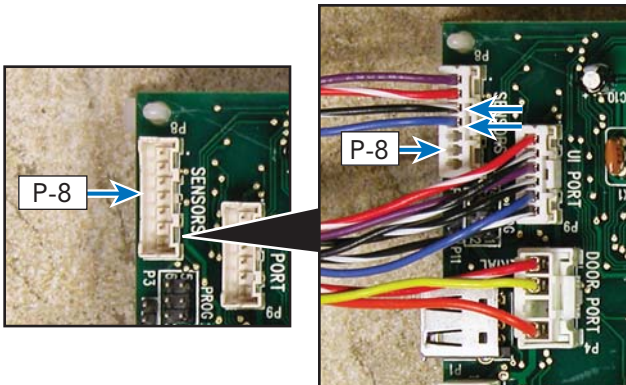
Control Board Diagnosis *(Some measurements require power and others require the unit not to be powered.)*

Water Temperature Sensor

The dishwasher uses a water temperature sensor that is mounted in the sump of the dishwasher. It is an N.T.C (Negative Temperature Coefficient). As the temp of the water rises, the resistance drops (and vice-versa).

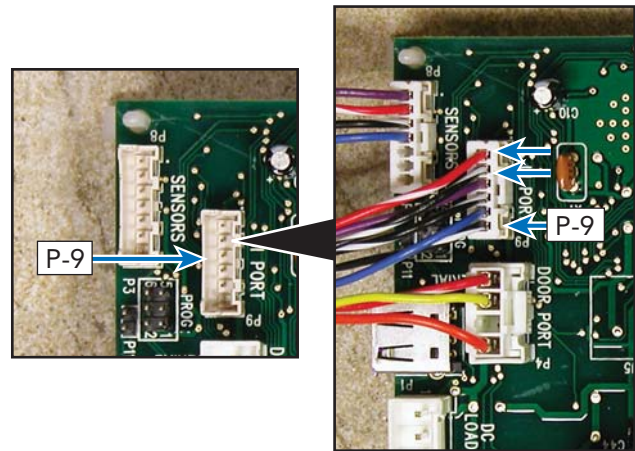
In the 200 Series dishwasher, it also serves as a water input sensor as well. During a fill cycle, an increase or decrease in water temperature is monitored by the control board. This temperature change due to incoming water temperature fluctuations is realized by the board as water entering the machine. If no change in temperature is recorded, a FILL error code will be displayed. If the sensor is open, an OPEN fail code will signal *(Refer to page 13 for fail codes).*

The control board monitors P8-3 – P8-4. Resistance should be $47K \Omega @ 77^\circ$. If no resistance is found, check wiring. If wiring is OK, replacement of the sensor is necessary.

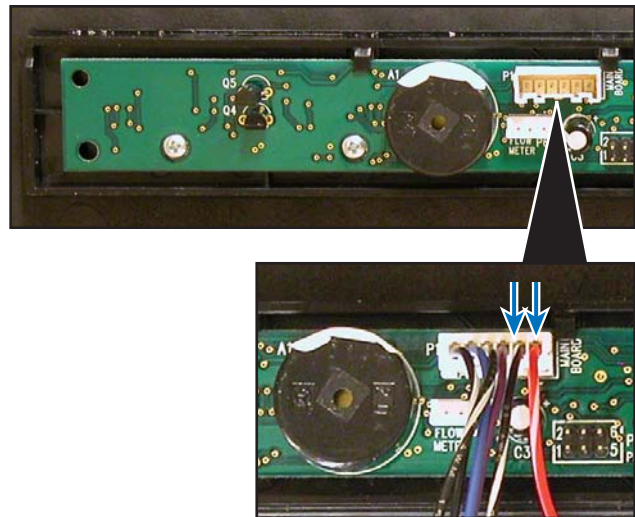


User Interface Port

The user interface allows the end consumer to make cycle selections. As the selection is made, the signal is sent to the control board via a ribbon connection. Voltage between P9-1 and P9-2 should be 12 VDC. If no voltage is found, check ribbon connector. If connector is OK, replacement of the user interface is necessary *(see Control Panel Removal procedure, page 22).*



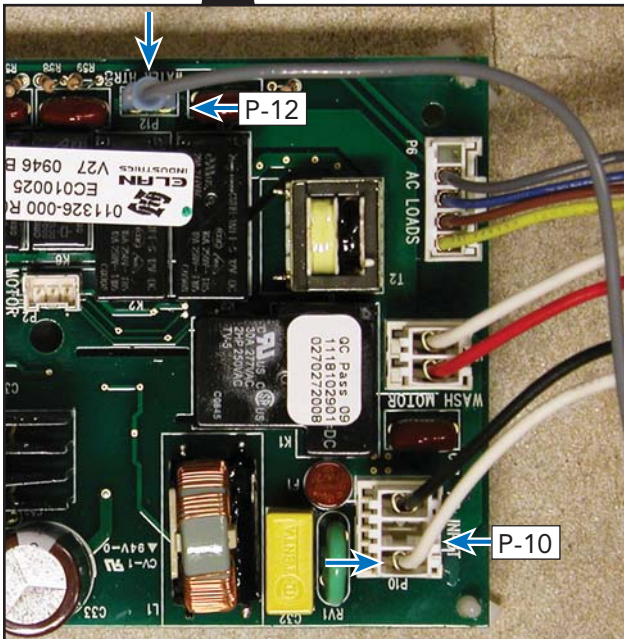
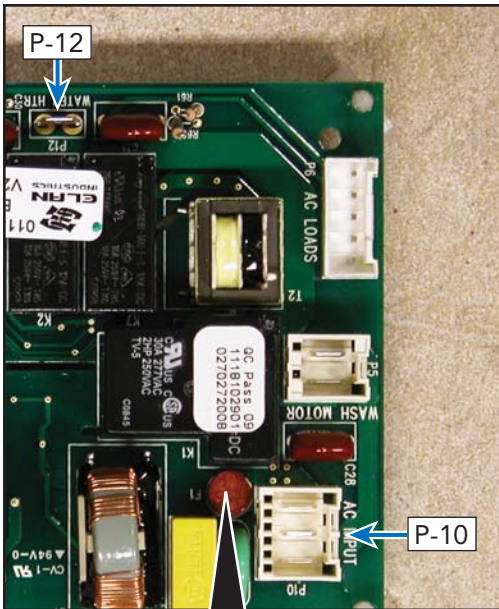
User Interface Board



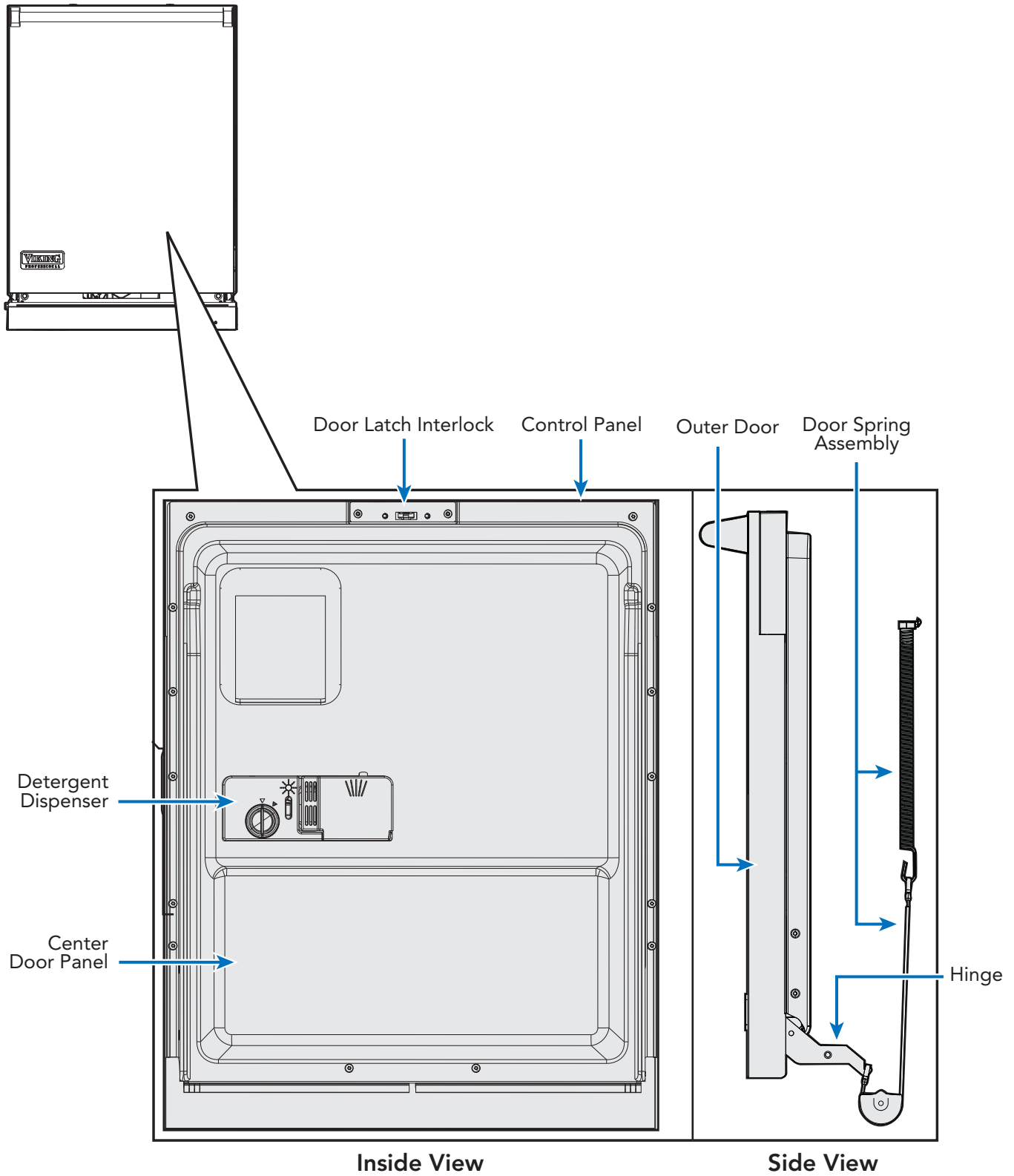
Control Board Diagnosis *(Some measurements require power and others require the unit not to be powered.)*

Water Heater

The unit uses a 120-volt, 1200 watt heater to heat the water during the wash cycle. To check the heater, unplug the gray wire on P12 and using an ohmmeter, check for 12 Ω ohms between the gray wire and Neutral. If 0 Ω ohms are read, check the wiring to the heater. If the wiring is correct, replace the heater. The heater can also be tested in the Diagnostic mode (see page 12).



Parts Location-Door



Door Disassembly

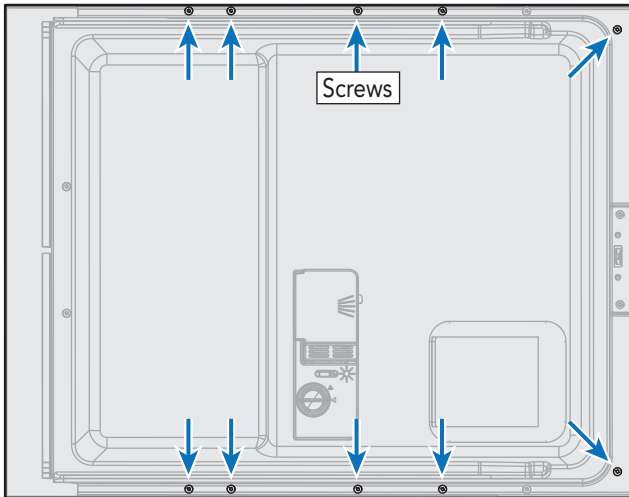
In order to gain access to the internal components of the door, which includes the detergent dispenser, start switch, door interlock, and the user interface, you will need to remove the front door panel and the control panel.

CAUTION

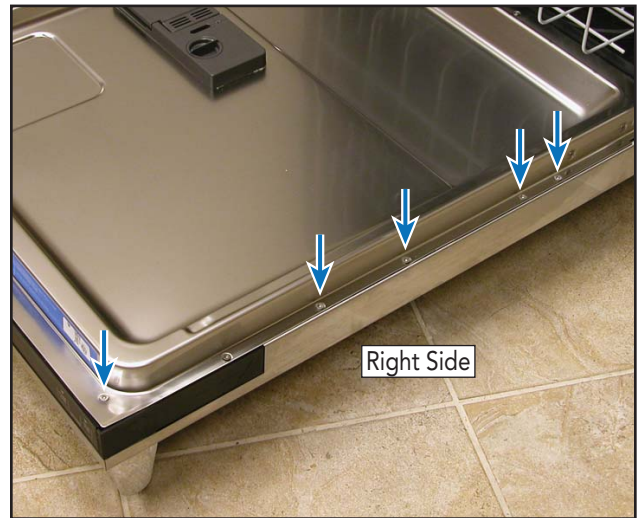
Make sure that the outer door is held in place while removing the screw so that the door does not fall and become dented or scratched. The inner door assembly is sharp and could result in minor personal injury.

Outer Door Removal

In order to gain access to the inner door assembly and detergent dispenser, you must first remove the outer stainless steel or wood door panel. Open the door to a complete 90° angle to expose the securing screws. Using a T15 TORX® screwdriver, remove the ten screws.



The following images show the actual location of the screws.

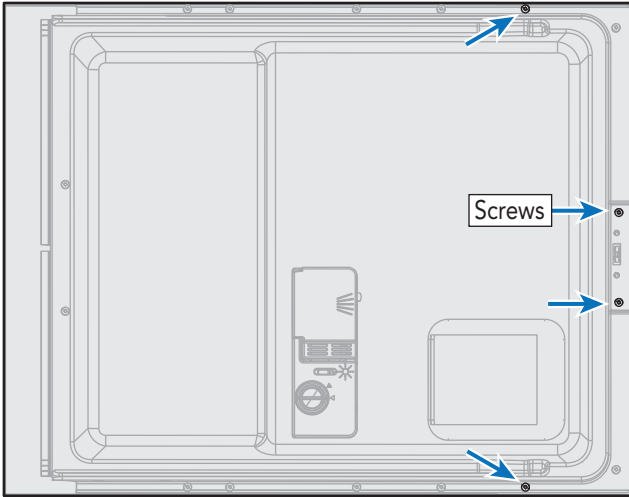


Note: When the outer door has been removed, make sure to store it in a secure area until reassembled, so it does not become scratched or damaged.

Door Disassembly (cont.)

Control Panel Removal

After removing the outer door panel, the next step is to remove the control panel assembly. There are four T15 TORX® screws that hold the control panel in place. Using a T15 TORX® screwdriver, remove the screws shown.



The following images show the actual location of the screws.

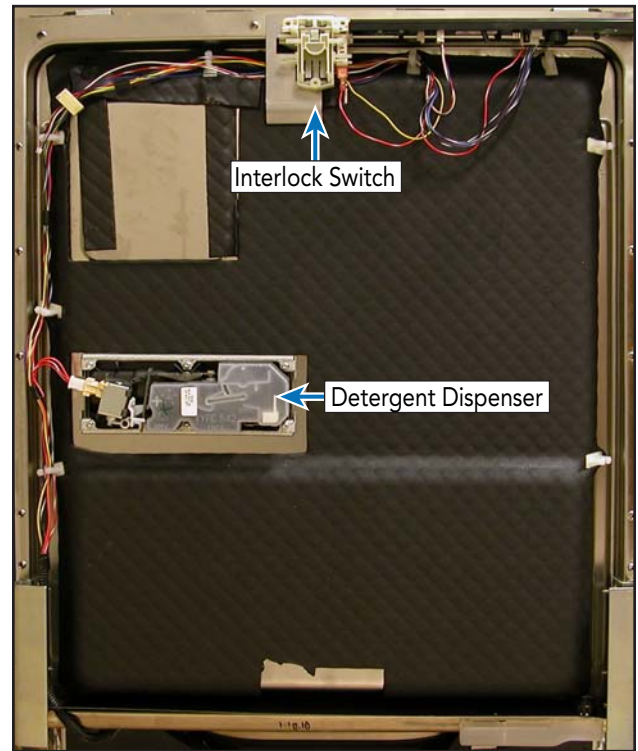


Note: With the outer door panel and the control panel removed, access to the user interface is gained.

Inner Door Components

With the center door panel and control panel removed, you now have access to the inner door components.

The following image shows the inner door with all the panels removed.

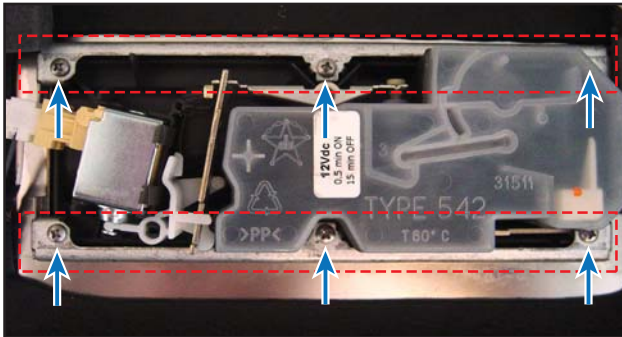


From here you can test the door interlock switch and the detergent dispenser.

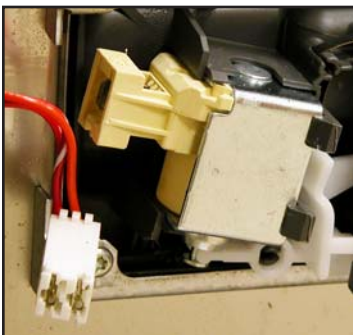
Door Disassembly (cont.)

Detergent Dispenser

The image below shows a close-up of the detergent dispenser. In order to remove the dispenser, first remove the six T15 TORX® 1/2" screws and the two brackets, which hold the dispenser in place (brackets indicated by the red dotted line below).



The image below shows the solenoid unplugged to remove the dispenser assembly. Unplug the two-wire connector plug in order to remove the dispenser.

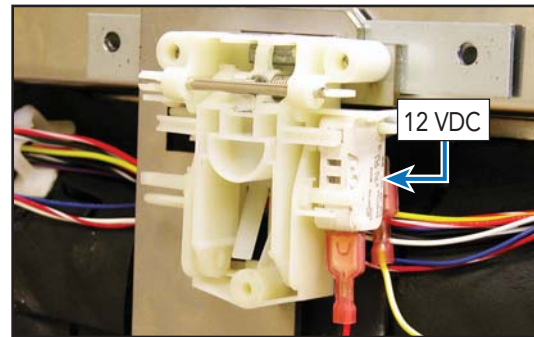


Door Latch Interlock

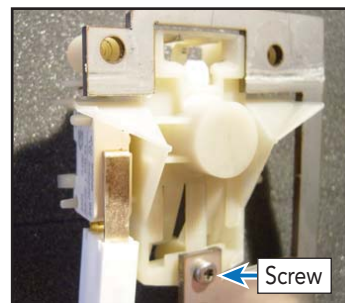
The door latch mechanism is secured to the inner door panel by two T15 TORX® 3/4" screws. With the control panel removed, remove the two screws.



Remove the latch mechanism and unplug the 2-wire connector plug from the micro switch shown below.



If replacing the switch, remove the bracket from the old switch and reinstall on the replacement latch assembly. Remove the TORX® screw shown below.



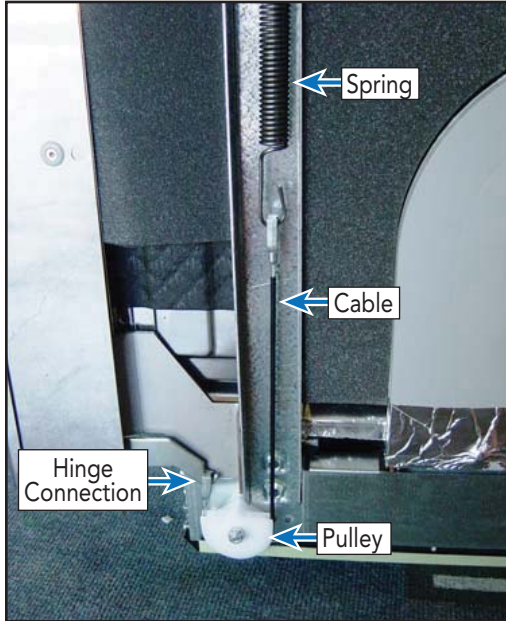
⚠ DANGER

Failure to observe caution could result in electric shock, resulting in permanent injury or DEATH.

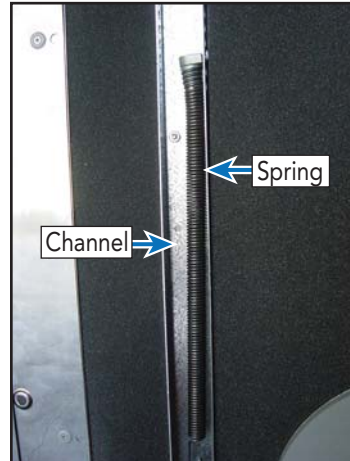
Door Disassembly (cont.)

Door Spring and Cable Assembly

The image below shows the right side door hinge cable, spring, and pulley. The left side is the same.



The image below shows the spring and the channel it rides in. The connection is secured in mounting holes in the channel frame.



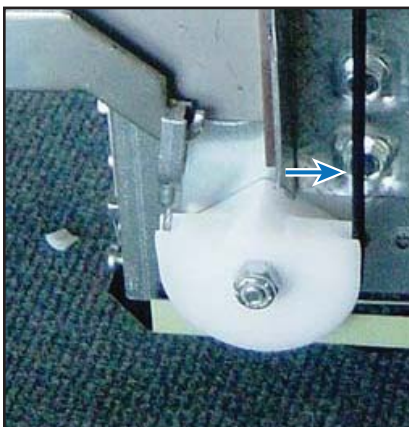
The image below shows the spring in its default location (sixth hole from the top).



CAUTION

Make sure that when removing or adjusting the door spring tension that you are wearing protective gloves and eye wear. Injury can occur should the spring or cable come loose or slip during assembly.

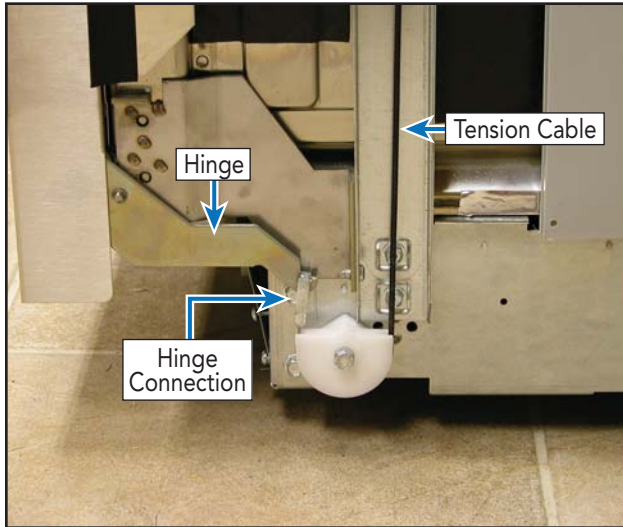
Below is a close-up view of the cable wrapped around the pulley. As the door opens or closes, the cable will ride along the roller creating a smooth movement in the door operation.



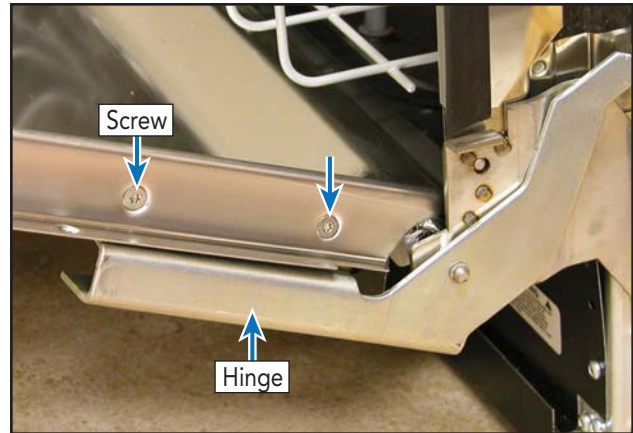
Door Hinge Disassembly

To access door hinge, slide unit out of the installation. Next remove the outer door panel (see *Outer Door Removal* section, page 21).

Disconnect tension cable from hinge.

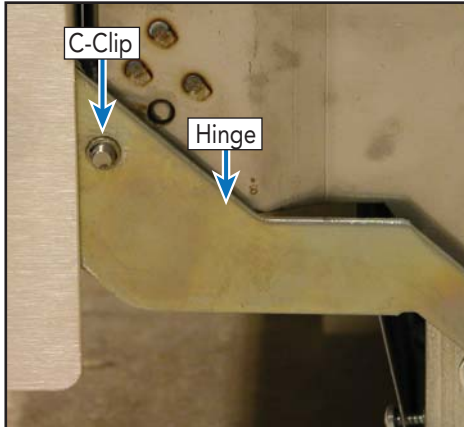


Remove two screws that hold each hinge to the inner door. Repair or replace the hinge as necessary.



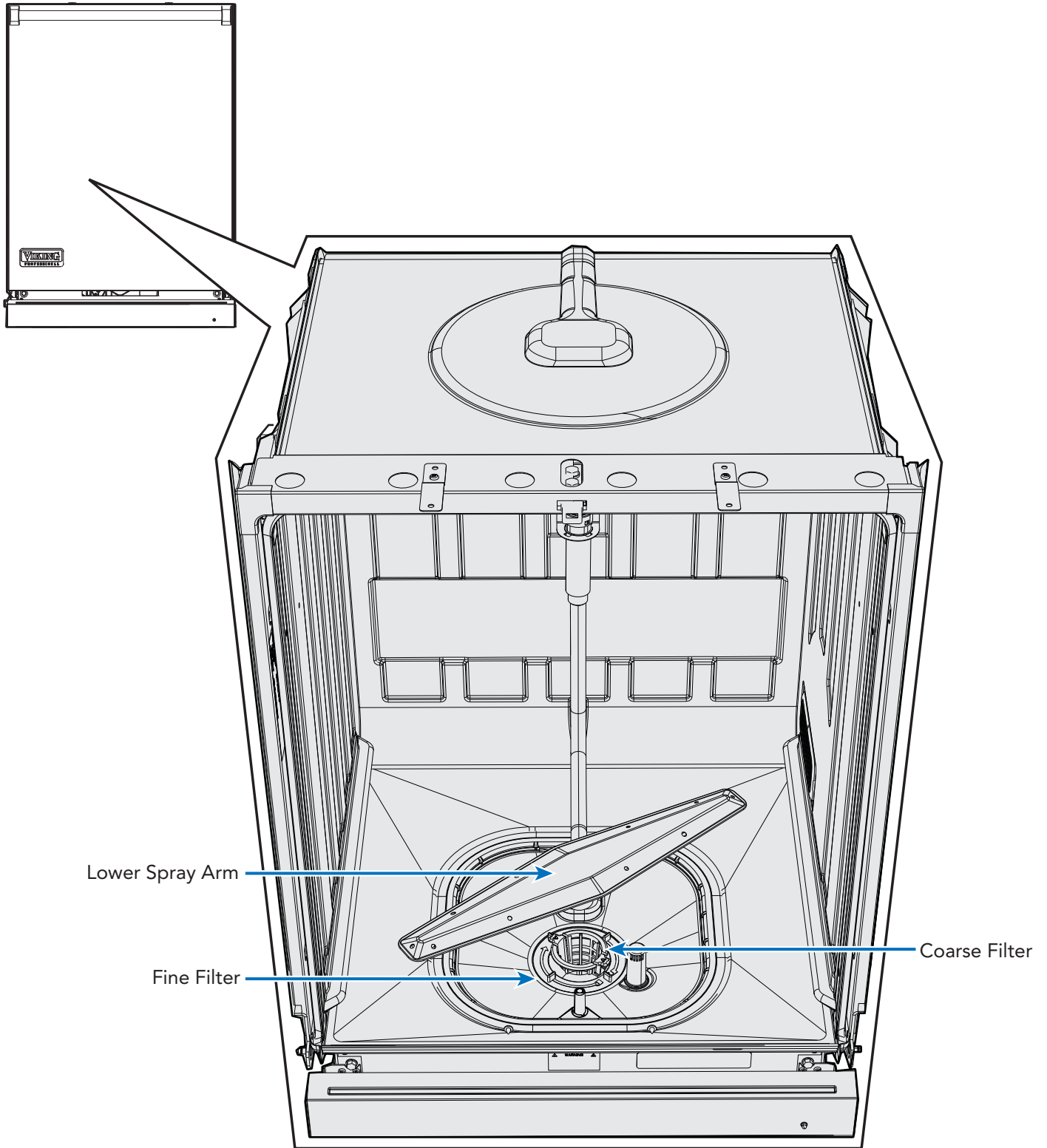
Reverse the procedure to reinstall the hinge.

Remove C-Clip securing hinge.



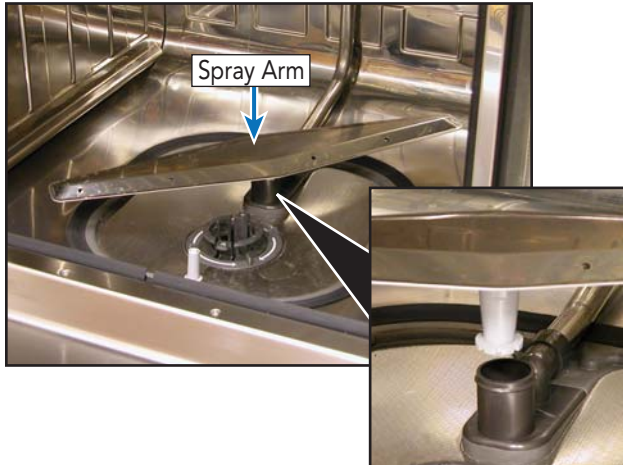
Note: Remove C-Clip slowly (clip has spring and can dislodge).

Parts Location-Interior



Lower Spray Arm Removal

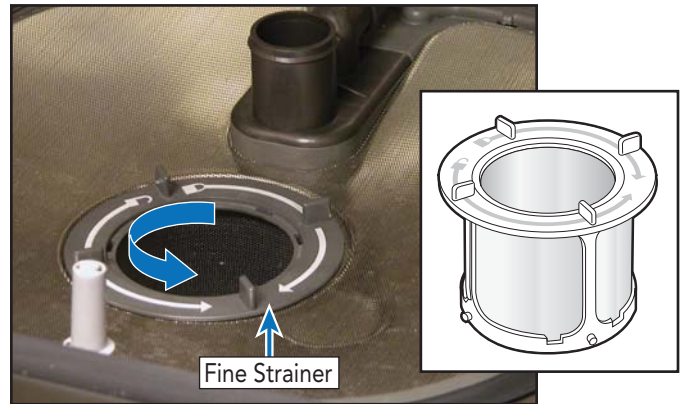
To access lower spray arm, open the door and remove lower rack. Next, unsnap lower spray arm (shown below).



Repair or replace as necessary. Reverse the procedure to reinstall the spray arm.

Fine Strainer Removal

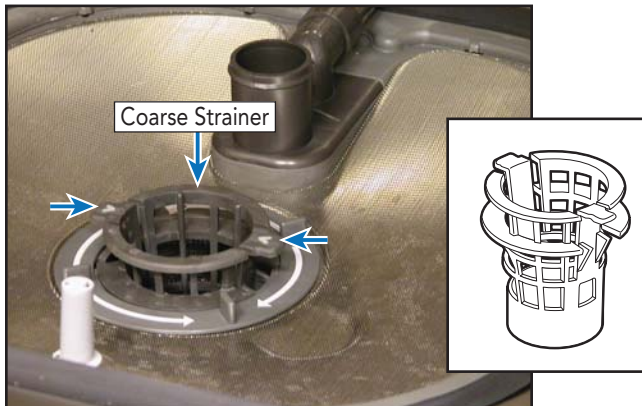
To access fine strainer, open door and remove lower rack. Next, remove coarse strainer (see *Coarse Strainer Removal procedure, lower left*). Slide fine strainer counter-clockwise to disengage.



Lift fine strainer out and repair or replace as necessary. Reverse the procedure to reinstall the fine strainer.

Coarse Strainer Removal

To access coarse strainer, open door and remove lower rack. Next, remove lower spray arm (see *Lower Spray Arm Removal procedure, above*). Squeeze tabs on coarse strainer to release (shown below).

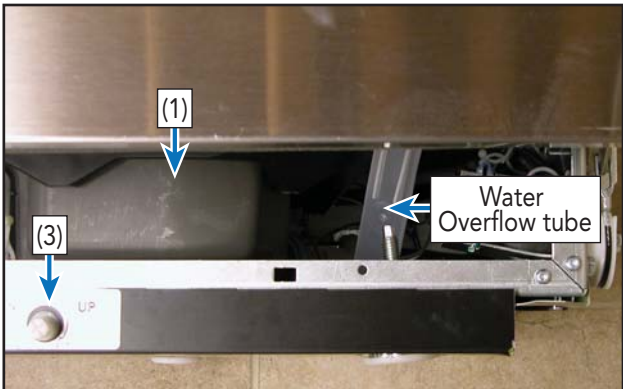


Lift coarse strainer out and repair or replace as necessary. Reverse the procedure to reinstall the coarse strainer.

Base Pan–Front View

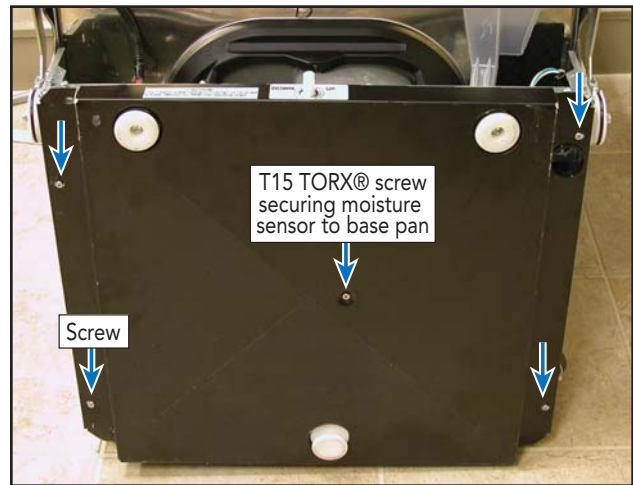
With the machine lying on its back and the toe kick removed, you can look into the base assembly of the dishwasher and check several points before requiring the removal of the unit for service.

In the images below, you can see the sump assembly (1), 12-Pin disconnect pin (2), and the rear leveling leg adjustment screw (3). In order to access and service the remaining components, the base cover will need to be removed to gain access. This includes the drain motor, circulation motor, control board, flow-through water heater, wash temp sensor, water valve, front levelers, and the rear leveler.



Base Cover Disassembly

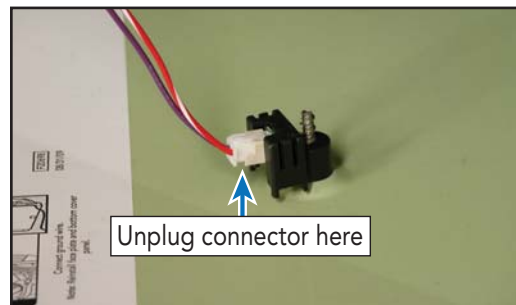
Remove the four T20 TORX® screws that hold the bottom base to the dishwasher superstructure. The image below shows the location of these screws. With the panel removed, locate the moisture sensor and unplug, leaving the moisture sensor attached to the base pan.



⚠ CAUTION

After the four screws that secure the pan to the frame are removed, be careful because the moisture sensor is mounted to the pan and the wiring could be damaged.

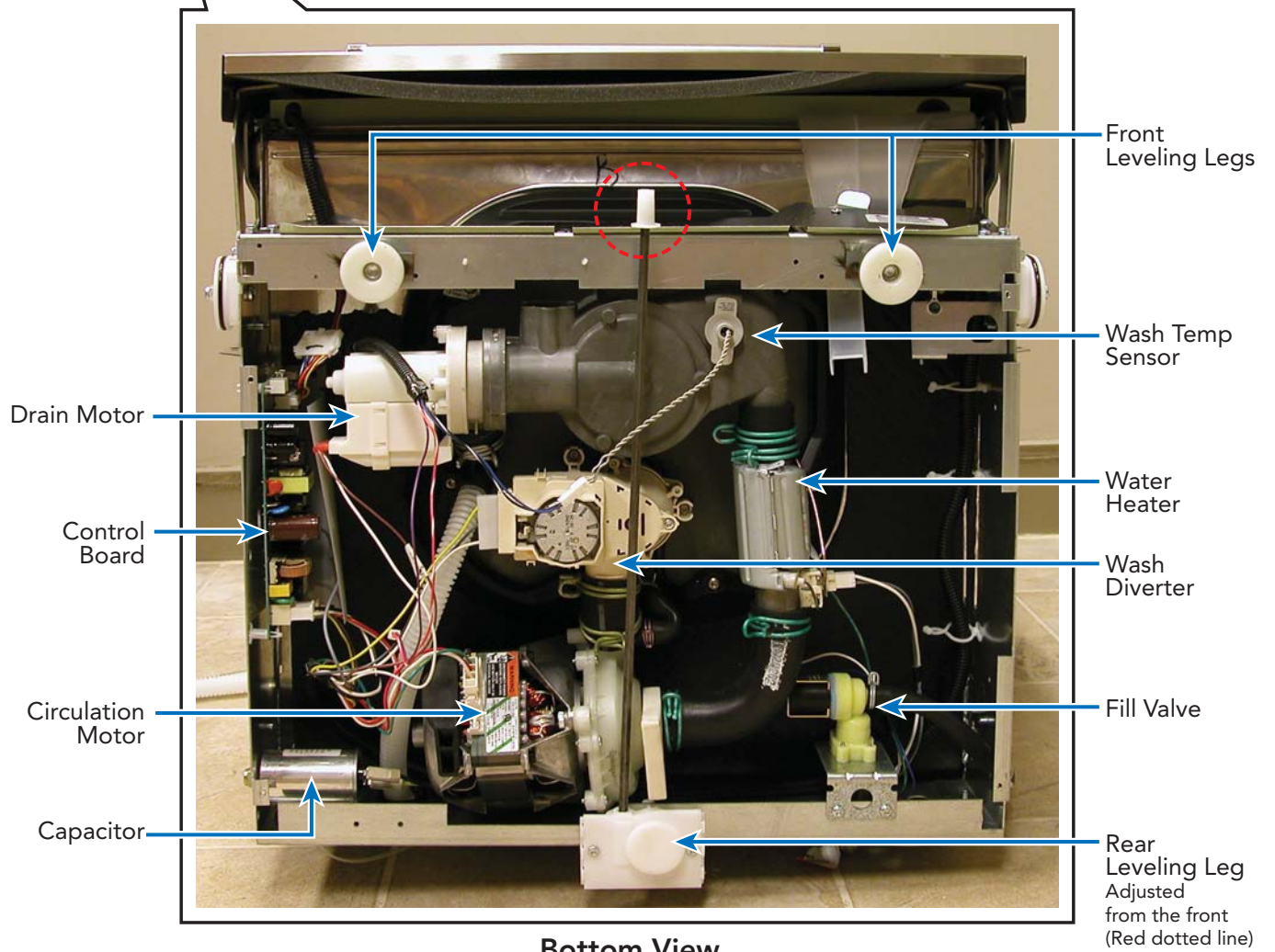
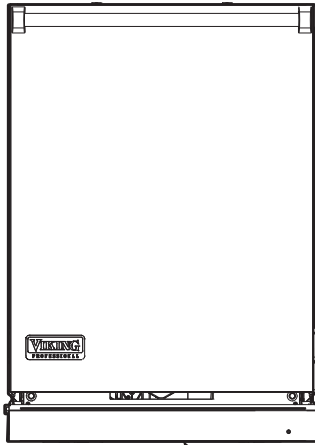
The image below shows the moisture sensor secured to base pan. The sensor is secured in place by one T15 TORX® screw (shown above).



Note: Place base pan in a secured area. Take care not to damage the sensor.

With the base pan removed, you now have access to locate, diagnose, and service all the components in the base of the dishwasher.

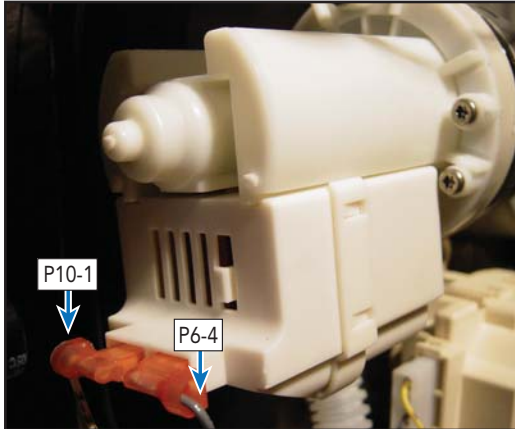
Parts Location-Base Unit



Bottom View

Drain Motor Disassembly

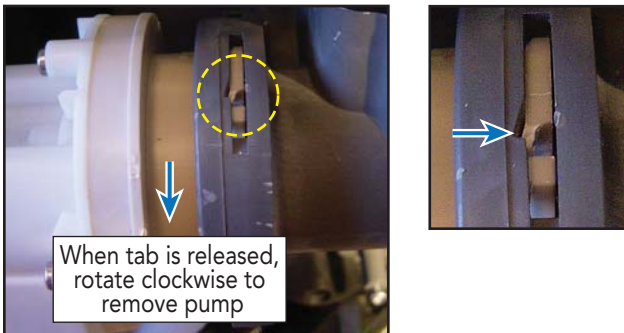
The image below shows the drain motor. When required, the main control sends 120-volts from terminal P6-4 (brown) wire on the control board and Neutral. Unplug the wires to the motor.



Locate the drain hose on the rear of the pump. Using a pair of pliers, disconnect the hose. Image below (left) shows the hose connected and below right shows the hose disconnected.

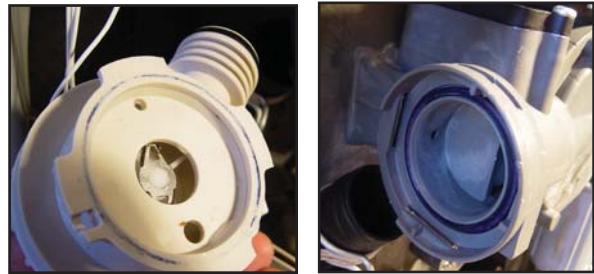


Next, release the drain motor from the sump assembly. Locate the release tab (indicated by the yellow dotted line, below left). Using a flat blade screwdriver, bend the tab in the direction shown by the arrow (below right) to release the pump from the main housing. Grasp the pump and rotate clockwise and the pump can be removed.



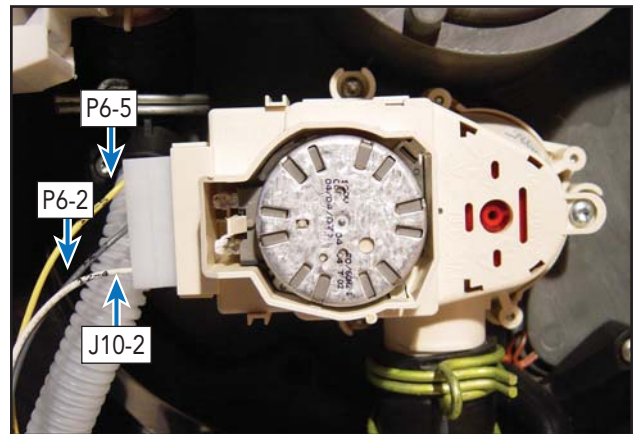
When reinstalling pump, make sure to bend the tab back in place to lock the pump in the sump housing.

The image below (left) shows the pump removed. The image below (right) shows sump area with pump removed. Note the location of the O-ring gasket in the sump. Make sure the gasket is in place when reinstalling the pump or the unit will leak water into the base pan.



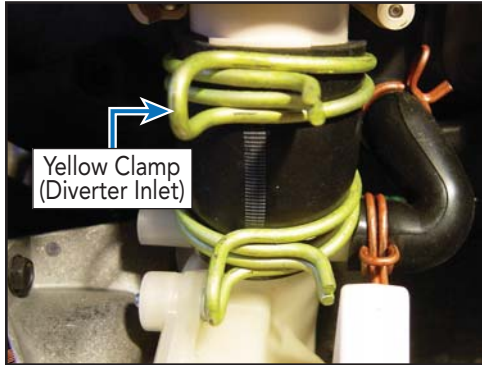
Wash Diverter Disassembly

The wash diverter is designed to direct the water flow to the upper arm, lower arm or both. When required, the main control sends 120-volts AC from terminal P6-2 (gray) wire on the control board and neutral to activate the motor. The yellow wire on the diverter sends line voltage back to the control board to P6-5 (line in-yellow wire) and tells the controller the position of the diverter.

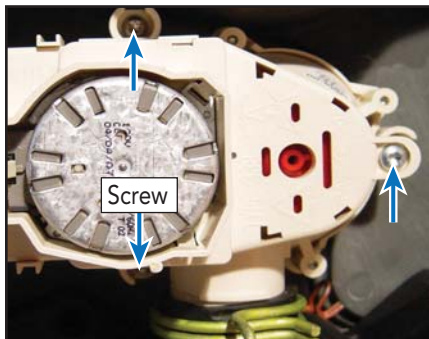


Wash Diverter Disassembly (cont.)

Disconnect the yellow hose clamp connection from the diverter inlet as shown.



The wash diverter is attached to the sump by the use of three T20 TORX® screws. Remove all three screws.



Remove the diverter from the sump assembly. The image below (left) shows the rear of the diverter and below right shows the sump area with the diverter removed.



CAUTION

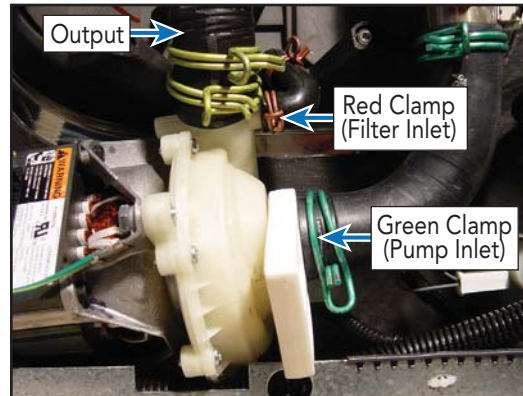
It is recommended that the diverter be taken out before removing the circulation motor. It makes it easier to handle the motor assembly.

Circulation Motor Disassembly

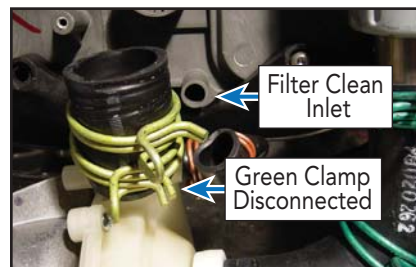
The 200 Series Dishwasher use a single speed, capacitor assist wash motor. Voltage between P5-1 and P5-2 should be 120 VAC. If voltage is not present, verify wiring. If voltage is present and the motor is not running, check the capacitor and motor windings for proper readings.



The image below (with diverter removed) shows the hose connections to the circulation motor inlet, output, and the filter clean sump inlet. Disconnect the green hose clamp from the heater tube to pump inlet as well as the red hose clamp from the filter inlet tube on the pump assembly. Disconnect the pump inlet hose from the pump assembly.

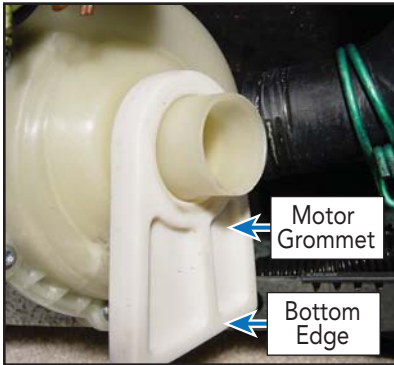


The image below shows the filter inlet hose to the sump disconnected. The arrow points to the "Filter Clean" inlet in the sump. Regardless of the position of the diverter, water is directed to this tube.



Circulation Motor Disassembly (cont.)

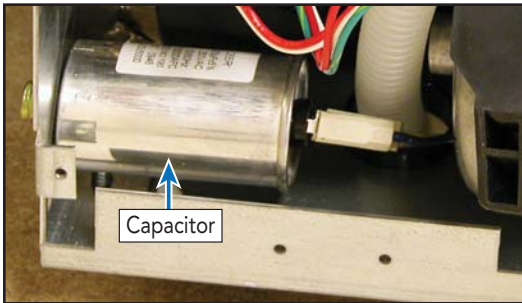
The image below shows the hose disconnected from the pump. Notice that there is a white motor grommet over the pump opening. Make sure it is back in place and bottom edge is facing base pan before reassembly. (The second right image on page 31 shows proper position of grommet).



The motor assembly can now be removed for service.

Capacitor Disassembly

The capacitor is a start capacitor. The start capacitor provides an electrical push to help get the motor rotation started. This is accomplished by creating a current to voltage lag in the start windings of the motor. The slow build up of current allows the motor armature time to react and begin to rotate. Once the motor is very close to its rated speed, the start capacitor and start windings drop out of the circuit. If the capacitor is defective, when voltage is applied the motor will just sit and hum.



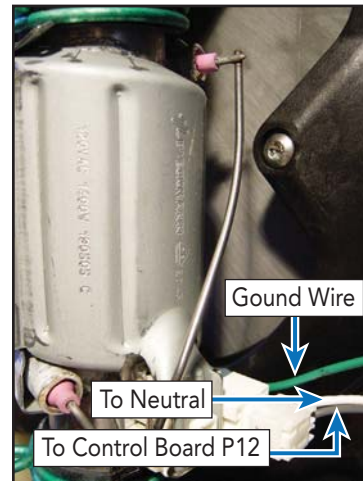
To test the capacitor, place the volt ohmmeter to the 1K Ω ohm scale. Place the meter leads across the terminals of the capacitor and take a reading. Then reverse the meter leads on the capacitor terminals. A reading should be seen momentarily

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in one direction and an open circuit detected in the other. If this occurs the capacitor is good. The readings can also be made at the blue and yellow wire connection at the circulation motor.

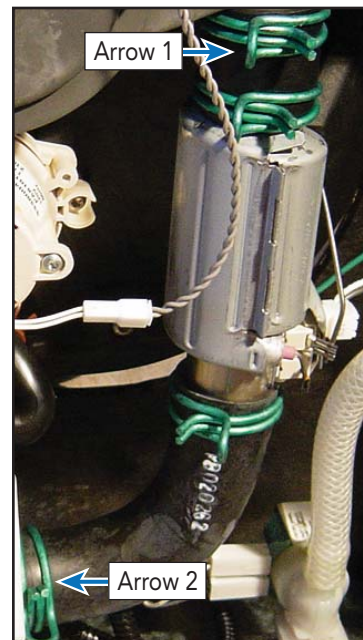
Water Heater Disassembly

The dishwasher uses a flow-through heater that will heat the water as it passes through the center of the heater. In order to remove, unplug the 2-wire



connector that supplies power to the heating element and the ground wire which connects to a spade terminal on the heater housing. This image shows the connections.

Next, disconnect the two clamps that hold the heater assembly to both the sump outlet (Arrow 1) and

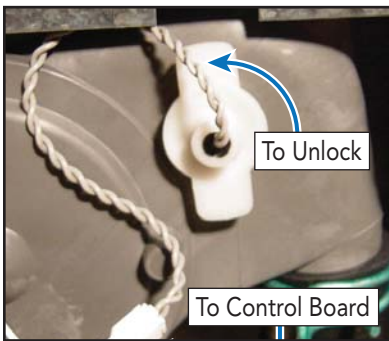


circulation pump inlet (Arrow 2) shown here. The heater can now be removed for service. You will need to transfer the two 1-1/2" OD hoses to the new heater assembly. The element is a 120-volt, 12 ohm, 10 amp, 1200 watt draw. It is controlled from P12 (gray) to Neutral on the main terminal block.

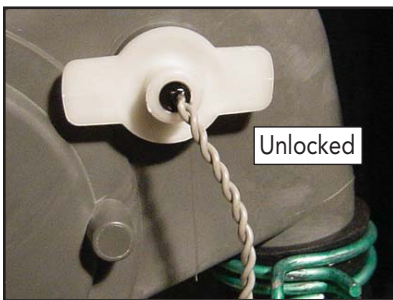
Water Temperature Sensor Disassembly

The water temperature sensor will sense the temperature of the water throughout the wash cycle. It is an N.T.C (Negative Temperature Control) sensor which reads approximately 47k Ω ohms at 77° ambient. As the water temperature rises, the resistance drops.

In order to remove, unplug the 2-wire connector and then twist the sensor counterclockwise to release from the sump assembly. The image below shows the temp sensor in the locked position. Grasp the sensor tabs and twist counterclockwise to release.



The image below shows the temp sensor in the unlocked position.

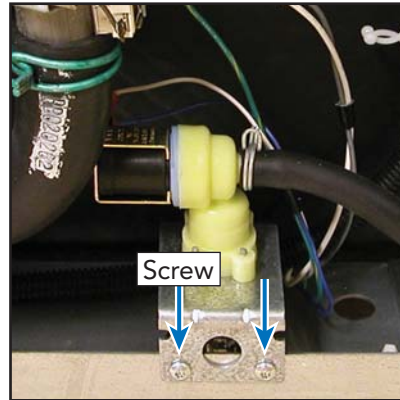


While grasping the tabs, pull the sensor out of the sump assembly as shown.



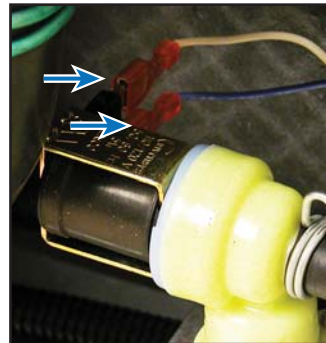
Fill Valve Disassembly

In order to access the fill valve, you will need to lay the unit on its back. Remove the base pan and moisture sensor. The valve is secured to the rear frame with two TORX® screws as shown.



Remove the two screws shown above and remove the fill valve from the base.

Unplug the white and blue wires from the coil, and then disconnect the fill tube from the valve outlet. The fill valve is a 120-volt valve. The coil is a 1.1K Ω ohm coil and is controlled from P6-3 (line voltage-blue) and Neutral on the main terminal block.



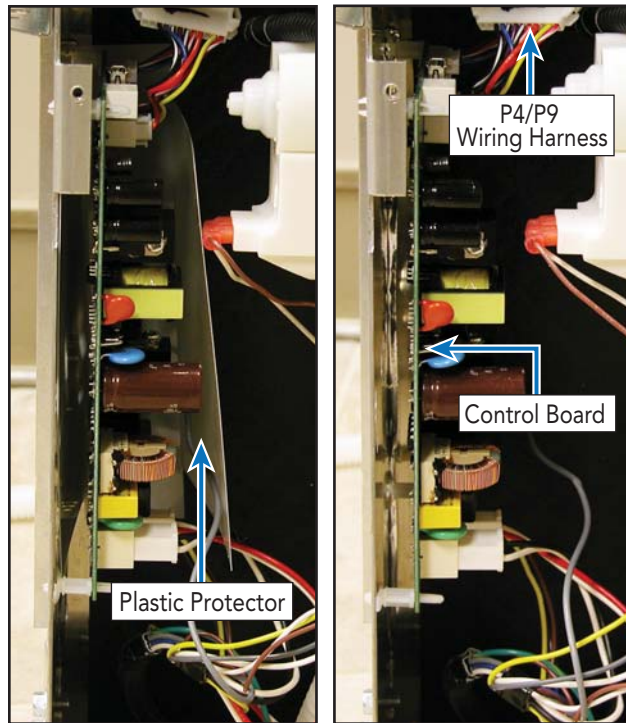
Control Board Disassembly

The control board is secured to the inner left support structure of the dishwasher. Please exercise caution when removing in order to avoid any damage to the board and its components

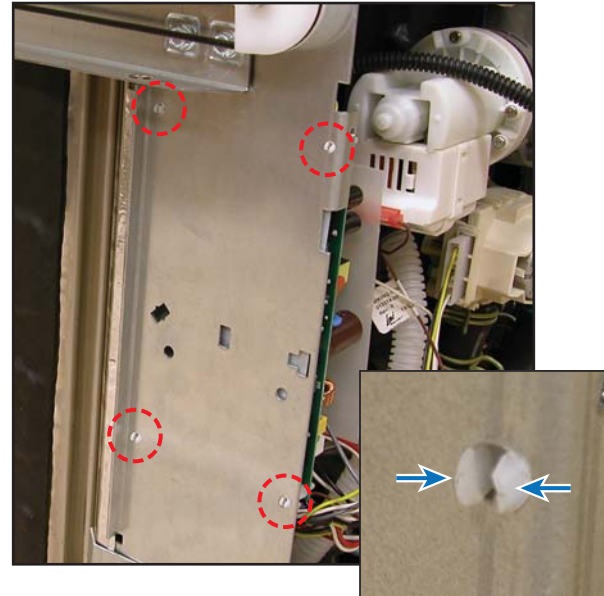
CAUTION

In order to protect the electronic circuits on the board and avoid any damage caused by static discharge, Viking Range Corporation recommends the use of a ground strap.

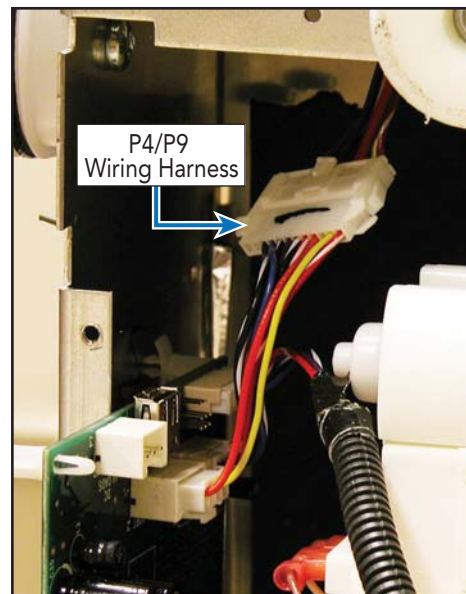
Remove the sheet from the tabs and place aside. The image below (right) shows the protective sheet removed.



The image below shows the locking tabs that hold the control board support (indicated by red dotted lines) to the dishwasher frame. Release these tabs in the directions shown by the arrows.

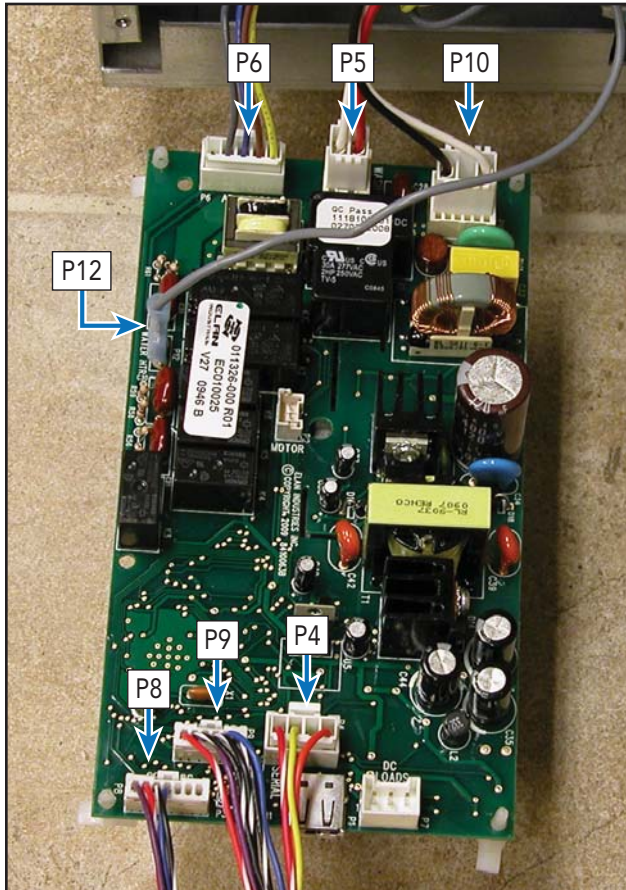


Disconnect P4/P9 wiring harness. Now carefully pull the board down and release from front.



Control Board (cont.)

Disconnect the P4, P5, P6, P8, P9, P10, and P12 connectors from the board.

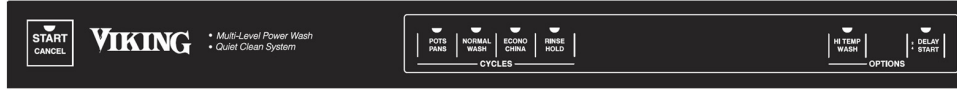


Troubleshooting Guide

Below are some general guides should a problem be detected. Please refer to the test procedures in this manual to determine the defective component.

| Problem | Probable Cause | Correction |
|---|---|---|
| The dishwasher does not start | Door is open "Delay Start" option is ON Water supply is disconnected Power cord is disconnected Fuse is blown | Make sure door is closed and check door switch Turn option OFF Verify supply and check water valve Verify power supply and connection Check breaker |
| Spotting and filming | Hard water Filter block No rinse aid Dishwasher detergent | Check water hardness Check filters for obstructions Add rinse aid and check dispenser Check amount of detergent and verify it is not old and caked |
| Wash arms not rotating freely | Obstruction Low water pressure | Remove obstruction Check water pressure |
| Strainer blocked | Obstruction | Remove obstruction |
| Excessive foam in machine | Improper detergent | Use only dishwasher detergent |
| Small particles deposited on items | Detergent Improper loading Filter clogged | Use fresh detergent Make sure wash arm turns freely Verify filters are free of obstructions |
| Detergent left in detergent compartment | Compartment blocked Old detergent Dispenser | Verify no obstructions Use new detergent Verify dispenser is opening properly |
| Dishes not dry | Rinse aid Improper loading Water temperature Heater | Verify rinse aid in dispenser Verify proper loading Verify proper water temperature Verify heater is working |
| Dishwasher will not fill | Door open Water valve Water supply | Verify door is closed and check door switch (must press start and shut door within four seconds) Check water valve and check for obstructions Verify water supply and check supply line |
| Water backs up in sink when dishwasher drains | Food waste disposer | Verify no obstructions in trap at sink |
| Water left in bottom near filters | Normal | Some water in bottom is normal |
| Dishwasher will not drain | Drain hose Drain pump | Verify hose is not obstructed or kinked Verify no obstructions in pump |

Main Control Board and User Interface Wiring Connections



200 Series

