



## OPERATOR'S MANUAL

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## GLASSWARE WASHERS



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**Part Number 100002431**

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### **Original Instructions**

The U.S. English version of this document is the original instructions.

All other languages are a translation of the original instructions.

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## Important Symbols



WARNING! INJURY OR EVEN DEATH MAY RESULT IF A RECOMMENDATION MARKED WITH THIS SYMBOL IS NOT HEEDDED.



CRUSH HAZARD. KEEP HANDS CLEAR WHEN OPERATING DOOR.



ELECTRIC SHOCK DANGER! USE APPROPRIATE CAUTION TO AVOID INJURY OR DEATH.



CORROSIVE CHEMICAL. WEAR SUITABLE GLOVES, SAFETY GLASSES, AND PROTECTIVE CLOTHING.



BURN DANGER! POTENTIALLY HOT SURFACE. USE APPROPRIATE CAUTION.



PROPERTY CAUTION! TO PREVENT DAMAGE TO CHAMBER EQUIPMENT AND/OR LOAD, ADHERE TO PROCEDURES MARKED BY THIS SYMBOL.



DO NOT STORE FLAMMABLE MATERIALS IN CHAMBER.



PRACTICAL OPERATING TIP. THESE RECOMMENDATIONS STREAMLINE UNIT OPERATION AND PREVENT COMMON OPERATOR ERRORS.



WEAR SAFETY GLASSES.



EXPLOSIVE MATERIALS HAZARD! KEEP OBJECTS AWAY FROM HEAT.

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## Safety Warnings

- ✓ Always verify that the electric service and other utilities match the unit's requirements before connecting to power.
- ✓ Always read the instruction manual before operating the washer.
- ✓ Always wear safety glasses when using glass flasks.
- ✓ Always practice team lifting when moving heavy equipment.
- ✓ Always ensure that only an authorized technician services the washer.
- ✓ Always assume that external and internal parts may be very hot. Utilize personal protective equipment to avoid burns.
- ✓ Never clean with solvents. Use mild detergent and water only.
- ✓ Never operate the unit without all covers in place.
- ✓ Never use with toxic, corrosive, flammable or organic materials unless special precautions are in place to prevent injury to personnel or damage to equipment.

## Warranty Information

VWR washers are warranted by SP Scientific to be free of defects in material and workmanship when operated under normal conditions as specified in the instructions provided in this manual. Please take this opportunity to locate the serial tag on your new VWR and record the information below for future reference. SP Scientific also recommends that you complete and return your unit's warranty registration card.

Model Number \_\_\_\_\_

Serial Number \_\_\_\_\_

Part Number \_\_\_\_\_

### Limited Warranty

SP Scientific (the "Company") shall warrant each of its products against defects in material or workmanship for a period of 12 months from the date of shipment provided that the product is used in a reasonable manner under appropriate conditions and consistent with the applicable operating instructions.

The obligation of the Company shall be, at its option, to repair or replace, without charge any parts that prove to be defective within the warranty period, if the purchaser notifies the Company promptly in writing of such defect. No product shall be returned to the Company without prior approval of the Company.

This limited warranty shall cover the costs of parts and labor to repair or replace all defective product(s) at the Seller's factory. For all products installed by the Company and located within the Company service travel areas, this warranty shall cover transportation charges to ship the product to and from the Company's factory and/or the costs of travel, room and board if the Company's employees conduct repair at the Buyer's location. In lieu of repair or replacement at the Company's factory, the Company may, in its discretion, authorize a third party to perform the repair or replacement at the Buyer's location, and at the Company's sole expense.

The Company shall not be responsible for labor charges payable with respect to persons other than Company employees. Replacement or repair of parts pursuant to this warranty shall not in any way extend the original warranty period. The Company shall not be responsible for any unauthorized repairs, replacements or product modifications, nor will it be responsible for any product failures resulting from such unauthorized repairs, replacements or product modifications negligently or otherwise made by persons other than Company employees or authorized representatives of the Company. The buyer shall assume transportation charges to ship the product to and from the Company's factory and the costs of travel, room and board if the Company's employees conduct repair at the Buyer's location within the warranty period if the product was not installed by the Company's and/or is not located within the Company's service travel areas.

THE COMPANY DOES NOT MAKE AND EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO THE SALE, INSTALLATION, DESIGN OR USE OF ITS PRODUCTS. ADDITIONALLY, THE COMPANY SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF OR ANY DEFECTS IN ITS PRODUCTS.

The Company's employees are available to provide general advice to customers concerning the use of the Company's products; however, oral representations are not warranties with respect to particular products or their uses and may not be relied upon if they are inconsistent with the relevant product specifications for the items set forth herein.

Notwithstanding the above, the terms and conditions set forth in the Company's formal sales contracts shall be controlling and supersede any inconsistent terms contained herein, and any changes to such contracts must be made in writing and signed by an authorized executive of the Company.



WARNING! THE DISPOSAL AND/OR EMISSION OF SUBSTANCES USED IN CONNECTION WITH THIS EQUIPMENT MAY BE GOVERNED BY VARIOUS FEDERAL, STATE OR LOCAL REGULATIONS. ALL USERS OF THIS EQUIPMENT ARE URGED TO BECOME FAMILIAR WITH ANY REGULATIONS THAT APPLY IN THE USERS AREA CONCERNING THE DUMPING OF WASTE MATERIALS IN OR UPON WATER, LAND OR AIR AND TO COMPLY WITH SUCH REGULATIONS.

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# Introduction

## Overview

VWR glassware washers offer extreme durability with stainless steel chambers, easy-to-use touch-based controls, six cycle program selections, selectable wash temperature, deionized (DI) water final rinsing<sup>1</sup> and a variety of time- and energy-saving settings.

Equipped with built-in door dispensers for detergent and liquid neutralizer, all models are available in the undercounter configuration, as well as freestanding and mobile configurations. A wide variety of optional specialty baskets and inserts are available to facilitate washing test tubes, Petri dishes, small graduated cylinders, bottles and other loads that require special consideration. Most models can also accommodate optional spindle racks for more effective cleaning of narrow-neck glassware such as volumetric and Erlenmeyer flasks.

## Key Features

- Digital microprocessor controller with display.
- Five selectable wash cycle settings.
- Separate wash and drain pumps.
- Optional final deionized water rinses for some cycles.
- Triple filtration system to protect plumbing and pumps from broken glass and debris.
- Dual drying fans for optimal drying.

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<sup>1</sup> Deionized water rinsing is not available on some units.



# Installation and Startup

## Initial Inspection

Your VWR glassware washer was carefully packed and thoroughly inspected before leaving the factory. However, in the unlikely event that shipping damage has occurred, retain all packing material and contact your freight carrier immediately.



DO NOT ACCEPT damaged shipments from a carrier without a signed notification of damages.

Upon receiving your shipment, inspect all contents of your equipment for damage. Check packing material for small accessory items. Remove all packing material carefully and inspect for concealed shipping damage. Inspect the inside of the machine for any visible damage. If concealed damage or loss is discovered, contact the freight carrier immediately.<sup>2</sup> Keep all contents, packing material and related paperwork intact until a written report is obtained.

**Note:** SP Scientific will cooperate in the matter of collecting your claim, but is not responsible for the collection or free replacement of the material. When possible, replacement parts will be shipped and invoiced to you, making them a part of your claim.

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<sup>2</sup> "Concealed damage or loss" refers to damage or loss that does not become apparent until the merchandise has been unpacked and inspected. Should damage or loss be discovered, you may make a written request for inspection by the carrier's agent within 15 days of the delivery date. You may then file a claim with the freight carrier or SP Scientific, depending on the terms of your shipment. If your shipment was "FOB Destination" file your claim with SP Scientific and include the inspection report and any other supporting documents. If your shipment was "FOB Shipping Point" file your claim with the freight carrier and include the inspection report and any other supporting documents.

## Service Connections



**PROPERTY CAUTION! ONLY QUALIFIED PERSONNEL FAMILIAR WITH LOCAL PLUMBING AND ELECTRICAL CODES AND ORDINANCES SHOULD INSTALL THE WASHER. FOR A FIRST-TIME INSTALLATION, ALL SITE PREPARATION WORK MUST BE COMPLETED BEFORE THE WASHER CAN BE INSTALLED WITH FINAL UTILITY CONNECTIONS. IF THE NEW WASHER REPLACES AN EXISTING UNIT, VERIFY THAT ALL PLUMBING AND ELECTRICAL CONNECTIONS ARE PROPERLY SIZED AND LOCATED.**

The service connections that you intend to use must meet the following requirements:

Requirement	Specification
Tap Water Supply (All Models)	<ul style="list-style-type: none"> <li>Minimum Flow Requirement: 3 gpm (11 lpm) @ 18 – 60 psig (124 – 414 kPa)</li> <li>Although not required, hot water speeds water heat-up and decreases cycle time. Hot water supply must not exceed 60 °C (140 °F)</li> </ul>
Deionized Water Supply (All Models Except H-1105)	<ul style="list-style-type: none"> <li>Minimum Flow Requirement: 3 gpm (11 lpm) @ 18 - 60 psig (124 - 414 kPa)</li> <li>Resistivity <math>\leq 1 \text{ M}\Omega/\text{cm}</math></li> <li>Although not required, installing a shutoff valve (not supplied) in the water supply line at a readily accessible location will help facilitate service of the unit.</li> </ul>
Electrical Requirements (All Models)	<ul style="list-style-type: none"> <li>120 VAC, 1<math>\phi</math>, 60 Hz, 15 A.</li> <li>Installation Overvoltage Category II.</li> <li>Main supply voltage fluctuations not to exceed <math>\pm 10\%</math> of normal voltage.</li> </ul>
Environmental Conditions	<ul style="list-style-type: none"> <li>This product is intended for indoor use in the following environmental conditions:</li> <li>Altitudes up to 6500 ft (2000 m)</li> <li>Temperatures from 5 to 40 °C (41 to 104 °F)</li> <li>Maximum relative humidity of 80% for temperatures up to 31 °C (88 °F), decreasing linearly to 50% relative humidity at 40 °C (104 °F).</li> </ul>

## Required Plumbing Supplies

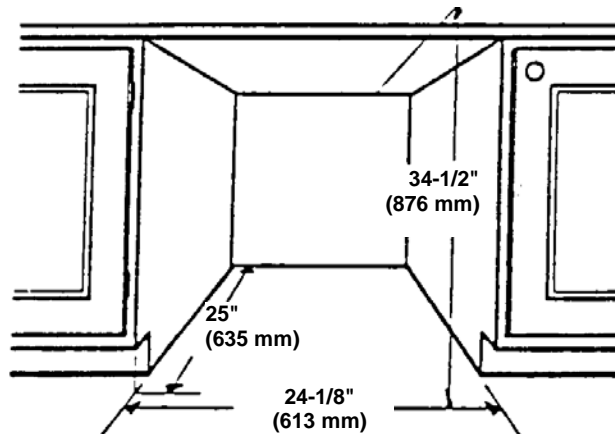
Your unit is supplied with rear-mounted PEX plastic hose with 3/8-inch brass compression fittings<sup>3</sup> for connection to your facility's tap and DI water supplies (if applicable). Mating extension hoses are available with the Facility Installation Kit, and various hose and compression adaptors will be provided for additional water and plumbing needs. It is recommended that you install a shutoff valve at the water supply connection. An appropriate fitting for connecting the supplied drain hose to the drain system is also required.

<sup>3</sup> Model H-1105 uses a compression fitting.

## Dimensional Requirements

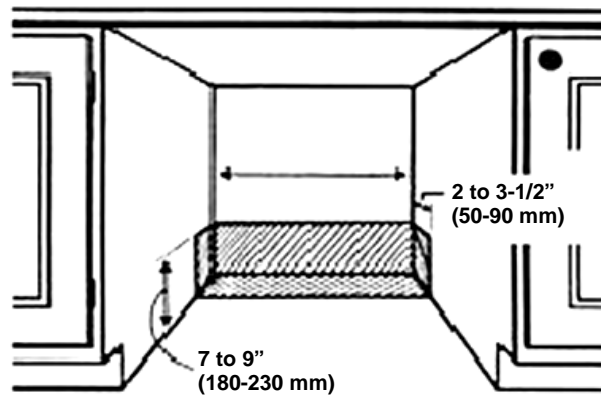
For all units, allow at least 26.5 inches of clearance in front of the unit for door extension and at least two (2) inches of clearance on each side of the door. Prepare an installation space or cabinet recess consistent with these and the other dimensions as specified for your model.

Recommended cabinet recess dimensions for undercounter washers are shown below.



## Undercounter Washer Site Preparation

During undercounter washer installation, ensure that the water and electrical services enter the cabinet recess within the shaded area shown below.



## Water Connections

Plan the fitting connections and the route for water supply tubing from the washer to your water supplies. Drill appropriately sized cabinet entry holes as required, keeping within the shaded area pictured on the previous page. With the washer outside of the cabinet recess, feed the water supply tubing through the cabinet hole(s) toward the water source connectors. Route the unit's drain hose toward a connection to your facility's main drain, but do not make any connections at this time.

For units requiring a DI water connection, use plastic or stainless fittings. Brass fittings may corrode from DI water and are therefore not recommended.

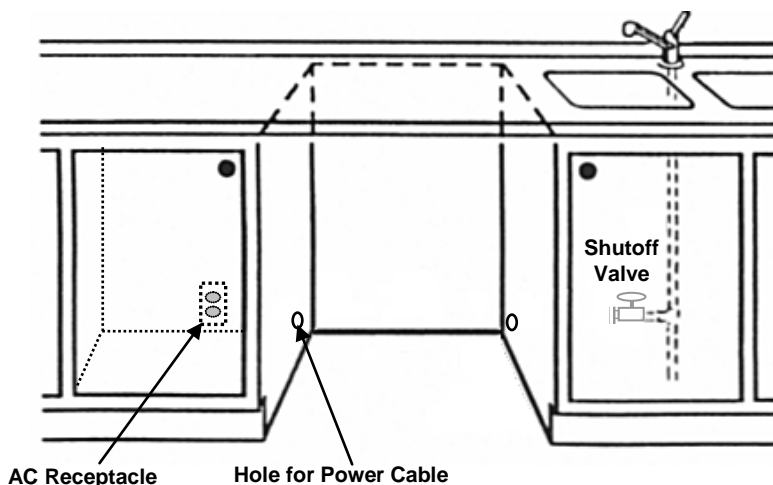
## Electrical Connection



**WARNING! THE ELECTRICAL RECEPTACLE MUST BE PROPERLY GROUNDED AND COMPLY WITH APPLICABLE PORTIONS OF NATIONAL AND LOCAL ELECTRICAL CODES. ALL WASHER SERVICING SHOULD OCCUR WITH THE POWER CORD DISCONNECTED FROM POWER.**

For convenience, the unit is provided with a prewired electrical cable and plug. Locate or install a code-conforming electrical receptacle within reach of the washer's supplied cable. The electrical supply should be a dedicated circuit that is properly grounded and equipped with an appropriately-sized breaker.

Drill a cabinet entry hole for the power cable. Refer to the image below:



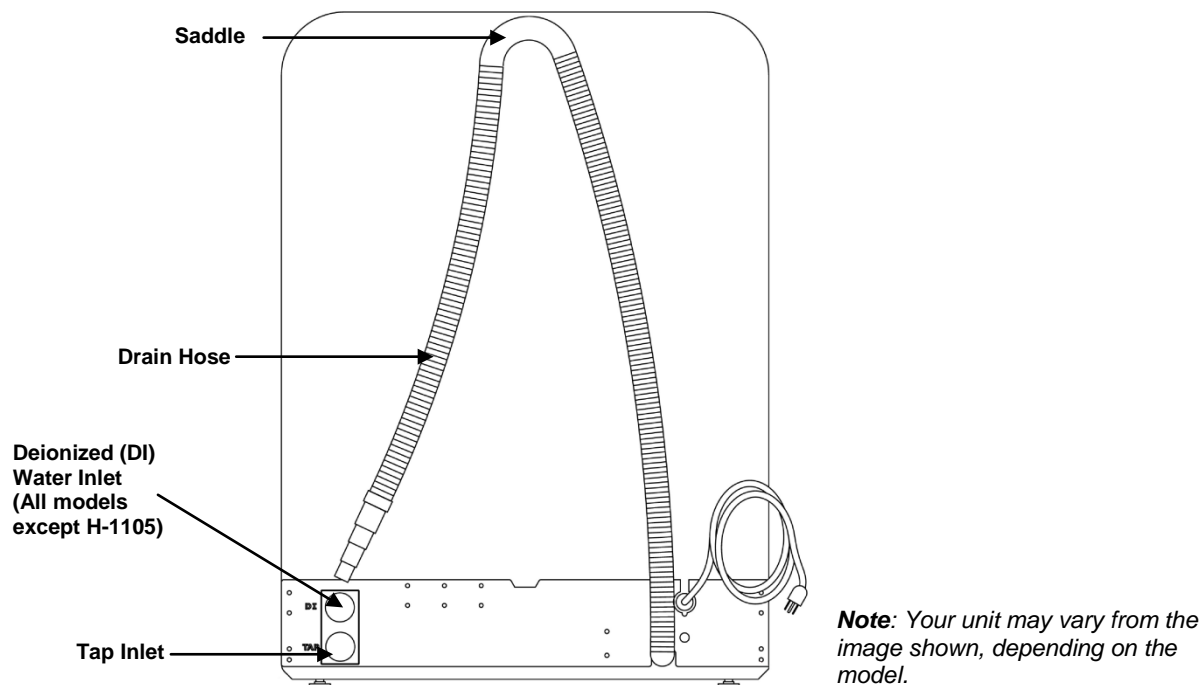
Your VWR glassware washer should not share a circuit with any other appliances. Provide a local disconnect or switch to ensure safe maintenance access.

## Freestanding Washer Site Preparation

For freestanding units, ensure that the water and electrical service connections have sufficient slack. Excessive tension in water hoses strains fitting connections and can cause host leakage and/or breakage.

Position the unit on a firm, level floor. Follow the instructions in the Washer Setup section of this chapter to level and secure the unit.

## Approximate Rear Connection Locations

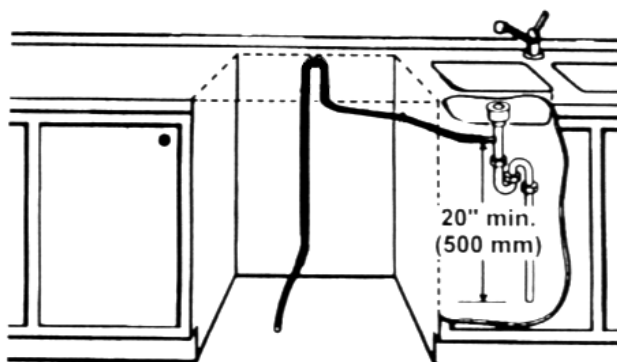


## Washer Setup

Your VWR glassware washer must be enclosed on the top and back, and on both sides. The cabinet enclosure into which undercounter units are installed supplies this protection. Freestanding and mobile units are wrapped with stainless steel panels.

To install your VWR glassware washer:

1. Connect the washer drain hose to your facility's main drain, ensuring that the "high-loop" configuration is preserved (as shown below).



The drain connection must conform to the following requirements:

- No part of the drain hose should exceed 35 inches (90 cm) above the bottom of the washer.

- The drain connection must be at least 20 inches (50 cm) above the bottom of the washer.
- The drain hose should extend no more than 10 feet (3 m).
- Any joints or fittings must be 3/4-inch (18 mm) ID or larger.
- Do not connect the drain hose directly to a floor well or its equivalent as this could cause a siphoning action that could empty the machine during cycles. Never connect the drain line to a check valve.
- Do not route the washer drain through a vent or air gap, as this may impede flow during some drain phases. If the drain cannot be hard-piped, secure the drain hose over an open counter drain or floor drain instead.



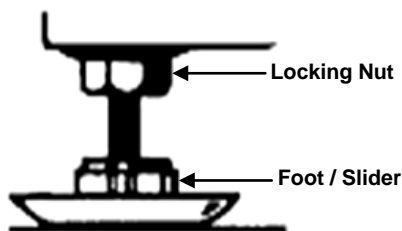
PRACTICAL OPERATING TIP. DRILL AN APPROPRIATELY SIZED CABINET ENTRY HOLE AS REQUIRED TO REACH THE DRAIN CONNECTION. FEED THE SUPPLIED DRAIN HOSE THROUGH THE CABINET HOLE TOWARD THE DRAIN CONNECTION AND CONNECT THE DRAIN HOSE TO YOUR DRAIN.

2. Connect the washer to a tap water supply and tighten all connections securely. If your unit is equipped with a DI water connection, connect the DI water supply and tighten all connections securely.
3. Connect the unit to the appropriate electrical supply.
4. Test the unit for leaks before leveling and securing the washer in place.

To test for leaks:

- Turn on the electrical power and water supplies.
  - Close and secure the door.
  - Select and operate a Daily Wash. This cycle executes both tap water and DI water rinses (if applicable).
  - While the cycle is operating, carefully check all water supply and drain connections to ensure that there are no leaks. Correct any observed leaks before continuing.
5. Position the unit in its final location. For freestanding and mobile units, secure the unit by depressing the caster break levers on the unit's casters.
  6. Adjust the leveling legs as required.

On undercounter units, leg height may be adjusted by using a 5/8-inch (16 mm) wrench. Any inclination must be  $\leq 2$  degrees. Use the locking nut to lock your adjustments

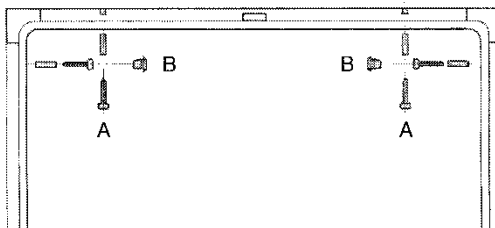




7. Secure the washer in its final location.

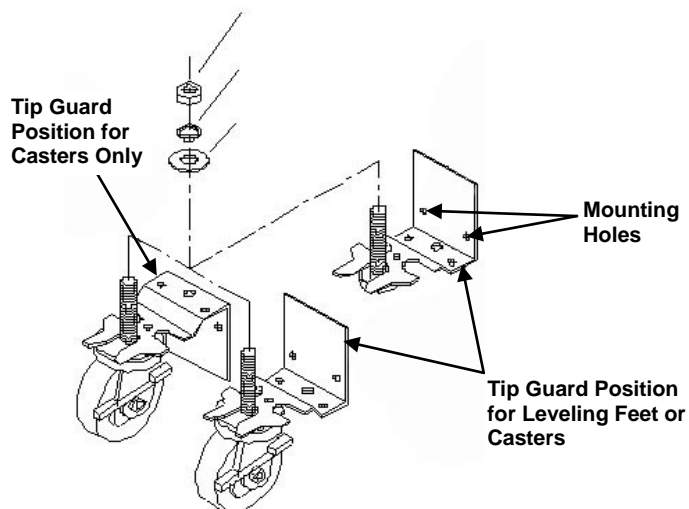
- **For undercounter units:**

To prevent forward tilting when downward force is applied to the open door, or when heavily loaded baskets are pulled outward, use the supplied screws to fasten the washer to the cabinet. Secure the washer to the cabinet using either option "A" or option "B" (one screw on each side) as follows:



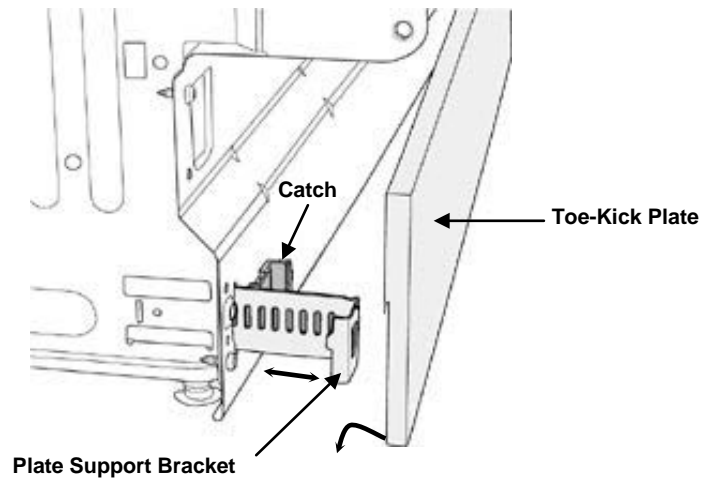
- **For freestanding and mobile units:**

If your application creates a potential for forward tilting, use the supplied Tip Guards or similar brackets to secure the washer's rear casters to the wall or floor.



8. Install the optional Toe-Kick Plate, if desired. The Toe-Kick Plate attaches to the washer's lower front to optimize appearance, but is not required for operation of your unit.

To install the Toe-Kick Plate, position each of the two Plate Support Brackets inward or outward to the desired depth (pulling its catch inward to release the bracket). Then, simply hook the Toe-Kick Plate on to the front of the bracket.

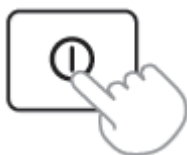


# Washer Components



**Note:** Your unit may vary from the image shown, depending on the model.

## On / Off Power Switch



Open your washer's door to view the On/Off power switch and control panel. Pushing down on the On/Off power switch will turn the washer on and off. When on, the unit will energize and the control panel indicator will illuminate.



## Handle Cover

To unlatch the door, insert your hand, palm up, into the handle cover and pull the latch forward. When closing the door, push the door closed firmly to reactivate the latch. A switch within the door handle detects when the door is opened.

## Ventilation Port

During the drying phase, fan-circulated air exhausts from this port. Avoid obstructing this port during washer operation.

## Control Panel

VWR glassware washers are equipped with a user-friendly panel of touch-based controls and indicator lights, located on the upper ledge of the door. Note that operating the control panel requires a light touch of the fingertip rather than a hard push.



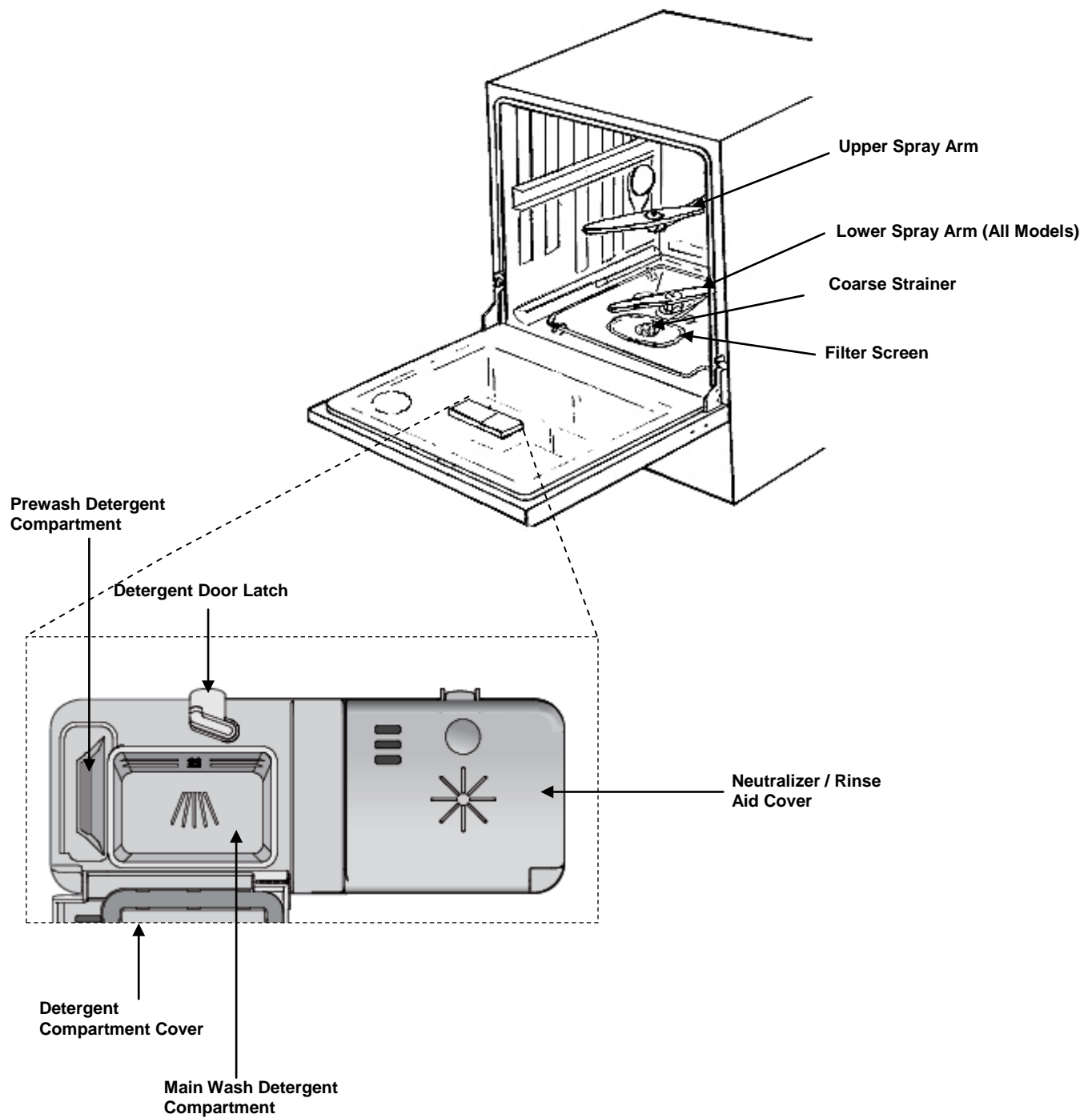
1. Navigation button < (left)
2. Navigation button > (right)
3. Option/Set
4. Display
5. Rinse Aid Indicator
6. Salt Indicator<sup>4</sup>
7. Start/Stop

**Note:** For descriptions of available cycle programs, please see the Operation section of this manual (i.e., Chapter 4).

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<sup>4</sup> Salt indicator functionality not available on all units.

## Internal Components



## Detergent / Neutralizer Dispenser

- The Detergent Door Latch opens the spring-loaded Detergent Door when pressed. After detergent filling, snap the door closed.
- The Pre-Wash and Main Wash detergent compartments can be filled with detergent according to preference. During cycles, any detergent loaded into the Pre-Wash compartment dissolves passively into the chamber early in the cycle. The Detergent Door later opens automatically at the start of the Main Wash phase, emptying the Main Wash compartment.
- If neutralizer is desired, open the Neutralizer Dispenser latch and pour neutralizer into the well to fill the dispenser. The dispenser injects a metered dose of neutralizer into the chamber during the penultimate Rinse phase.

## Spray Arms

During the Pre-Wash, Main Wash and Rinse phases of each cycle, these rotating nozzles shower the underside of the load with circulating water.

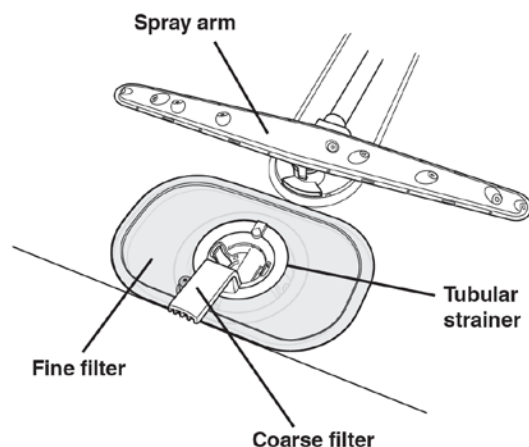
## Filtration

### Coarse Strainer

This strainer removes large debris items from water circulation. Check and clean it regularly to prevent obstructions to water flow. The strainer rests inside the Fine Filter Basket.

### Filter Screen

This filter helps remove smaller particles from the water circulation path. Check and clean it regularly to prevent obstructions to water circulation. The filter is fastened to the base of the washer chamber by the Fine Filter Basket, which is hand-screwed into place.



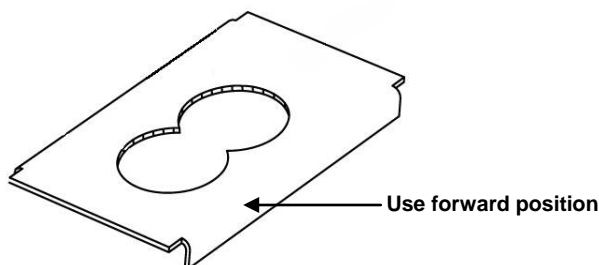
## Racks

Lower and upper spray arms dispense tap and deionized<sup>5</sup> water upward onto glassware loaded in standard VWR open racks.

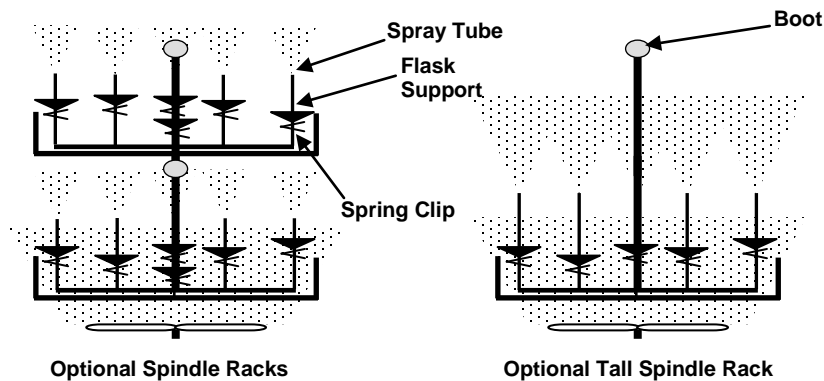
Standard open racks provide ample loading space for glassware, specialty racks, baskets and inserts.

## Optional Spindle Racks

VWR washer models H-1125, H-1175, H-1595-DS and H-1595-SS can also accept optional spindle racks, which provide an effective means to thoroughly wash the interiors of narrow-neck glassware such as volumetric and Erlenmeyer flasks. Ensure that spindles are inserted through the deck plates in the forward position.



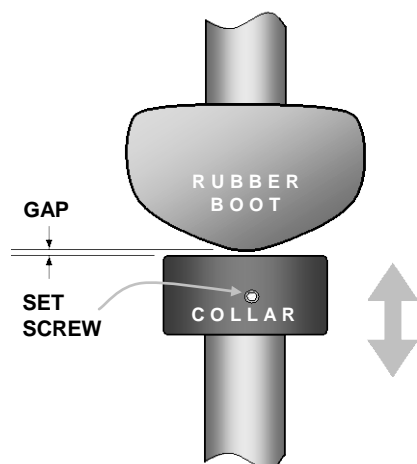
As illustrated below, optional spindle racks must provide proper "boot sealing" and therefore cannot be intermixed with standard open racks:



When using spindle racks, the height of each plastic flask support must be set to ensure that the spray tube does not touch the bottom of the inverted glassware positioned above it. Do this by squeezing and then repositioning the spring clip.

<sup>5</sup> Deionized water is available on models H-1115, H-1125, H-1175 and H-1595 only.

If your unit is equipped with optional spindle racks, check the rack collar gap on each rack before using it for the first time and adjust if necessary. The gap should be approximately the thickness of a postcard.



To adjust the gap, loosen the collar's setscrew and move the collar up or down to achieve proper gap. Re-tighten the setscrew before using the rack.



# Operation

## Cycle Overview

Your VWR glassware washer allows you to select and customize a variety of cycle phases to design a cycle best suited for your application. In the Main Wash and Heated Rinse phases, an inline heating element heats water to a programmed temperature.<sup>6</sup> Cycles then proceed through the following sequence of phases:



Overall time to complete a cycle varies depending on the cycle and control panel functions selected, and the facility's water temperature. Although not required, hot source water speeds water heat-up and dry time, decreasing overall cycle time.

**Note:** On some program cycles, not all of the phases are utilized. DI Water Rinse phases do not apply to model H-1105.

## Pre-Washes

In Pre-Wash phases, the chamber sump well fills with tap water and the circulation pump activates to wet down the load from the rotating spray arms and from the spindles, if equipped with an optional spindle rack.

## Main Wash

The chamber fills with tap water, which is heated to the temperature setpoint. At the start of the Main Wash phase, the detergent compartment cover hinges open to introduce detergent. The load is bathed with recirculating heated water. The Main Wash phase concludes by draining all water from the chamber.

## Rinses

During each rinse phase, water fills the chamber and then circulates over the load. The final Rinse phase is heated to the temperature called for by the selected program and option-button settings. If neutralizer is loaded, it is delivered into the chamber during the Rinse phase(s). Rinsing concludes by draining all water from the chamber.

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<sup>6</sup> Heated-Phase durations are determined by the cycle program selected and the required water heat-up time. Therefore, total cycle time is influenced by the source-water temperature and operator control selections.

## Drying

During the Drying phase, two separate fans circulate and vent chamber air to speed drying. Although not required, hot source water speeds water heat-up and dry time, decreasing overall cycle time.

## Detergent Recommendations

Use only detergents or wetting agents intended for use in glassware washers.

**Note:** Do not load detergent or neutralizer into the unit for Rinse cycles.

## Select Dosage

Excessive neutralizer/rinse aid can lead to foam buildup. If your water is particularly soft, you can dilute the rinse aid (e.g., 1 part rinse aid and 1 part water). Too much neutralizer/rinse aid can cause streaks on glassware, while too little can result in water stains.

## Before Starting a Cycle

8. Open any required tap and/or deionized water supply shut-off valves, and turn on any switch or circuit breaker supplying AC voltage to the washer.
9. If optional spindle rack use is desired, remove both standard open racks and replace them with upper and lower spindle racks, or with one tall spindle rack.  
**Note:** The collar gap must be adjusted before the first use of a spindle rack.
10. Choose the basket and insert accessories appropriate for the type load you will be washing (e.g., test tube baskets for test tubes).
11. Load objects with the concave side down to prevent items from protruding into the path of the spray arm(s).
12. Load the Neutralizer/Rinse Aid Dispenser as desired. Close and latch the Detergent Door when done.
13. Firmly push the washer door closed to latch it securely. Cycles will not begin until the door is latched.

## Starting a Cycle

14. Turn the washer on by pressing the On/Off power switch. The control panel's display and indicators will energize.
15. Search for cycle options by using the left and right arrow buttons.
16. After selecting a cycle option, select the desired program type by pressing the control panel's Option/Set button until the desired program is displayed. To exit the Option/Set menu, cycle through until the Exit option is displayed; touch the Option/Set button to select Exit.
17. Depending on which cycle is selected, you will see options to delay the start of a cycle, set long or short drying times, set a time for a program (only available in the Time Program selection) or change the temperature to a lower setting (only available in the Heavy Wash selection).

18. To begin the cycle, press the Start/Stop button. The section of the control panel that displays the selected cycle's time will begin to flash. It will continue flashing until the door is closed.
19. To stop or cancel an active cycle, gently touch and hold the Start/Stop button for three seconds.

### Control Panel

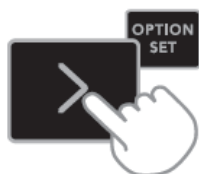


20. Navigation button < (left)
21. Navigation button > (right)
22. Option/Set
23. Display
24. Rinse Aid Indicator
25. Salt Indicator<sup>7</sup>
26. Start/Stop

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<sup>7</sup> Salt indicator functionality not available on all units.

## Selecting a Program



Use the left and right arrow buttons in addition to the Option/Set button to cycle through the available programs until the desired program is displayed.

- **Normal Wash.** Select for normally soiled loads.
- **Rinse.** Select to rinse loaded items that you are not yet ready to wash.
- **Time Program.** For lightly to heavily soiled loads, depending on selected time. Longer time provides for a more thorough wash.
- **Heavy Wash.** Select for heavily soiled loads.
- **Daily Wash.** Select for daily washing.

## Heavy Wash “Time Saver” Option

Heavy Wash is the only cycle selection that allows the user to program the wash at a different temperature. By selecting the Time Saver option through the Option/Set menu, the temperature of the wash cycle is reduced to 55 °C (as opposed to the default 70 °C).

## Stopping or Changing a Program

If a program needs to be changed during an active cycle, open the door and press and hold Start/Stop for three seconds. Add more detergent if the lid on the detergent dispenser has opened. Then choose a new program, press Start/Stop and close the door.

## Option/Set Navigation

Press Option/Set and then the left and right navigation buttons to select an option for a wash cycle. Confirm your selection by pressing Option/Set.

### Drying Options

Through the Option/Set menu on a selected cycle, a wash cycle can be programmed to have either a long or short drying time. This selection determines how long the dual fans will run after a wash cycle is completed.



When a drying option is set as Long, the white indicator light on the Right Arrow Button will light up and stay lit during the duration of the cycle.

### Delayed Start

Through the Option/Set menu on a selected cycle, a wash cycle's start time can be delayed by up to 24 hours, selected in increments of one hour.

Press the left and right navigation buttons to select the desired amount of time. Press Start/Stop after a selection has been made. The washer will count down 1 hour at a time and starts after the selected delay.



When a delay is set, a white indicator light will illuminate on the Option/Set button.

Press and hold Start/Stop for three seconds if you want to cancel the Delayed Start option.

### Set Time

Select the Time Program by cycling through the menu with the left and right arrow buttons. Touch the Option/Set button to go into the Set Time screen. This will allow adjustment to the duration of the cycle.

Cycle through the seven Set Time options with the left and right arrow buttons. Times will increase in 15 minute increments for the first four selections. After one hour is reached on the display, times will cycle through 30 minute increments, up to 2:30.

To exit Set Time setup, press the Option/Set button.

## Start/Stop

Use this button to begin or end a cycle. If no cycle is running, pressing Start/Stop will activate the selected program. To stop an active cycle, press and hold Start/Stop for three seconds.

## Pausing a Cycle

To pause cycle operation, insert your hand, palm up, into the door's handle cover and pull the latch. Wait a few moments for spray-arm movement to stop and pull the door slightly open. To resume the cycle from the point at which it paused, close the door and ensure that it is securely latched.

**Note:** *If a cycle is terminated (e.g., the door is opened or a power failure occurs), the water introduction sequence will not reset until the cycle is allowed to run through to the Drying phase and the drying fan runs. Unless the unit enters the Drying phase, the valve sequence will continue from where it was terminated, even if the cycle is restarted.*

# Safety Features

## Overfill Protection

In the unlikely event that an equipment malfunction causes the chamber to overfill, an overflow float sensor device automatically activates chamber draining.

## Door Switch

The unit is equipped with a door switch that will automatically suspend operation of the washer if the door is opened during a cycle. The wash cycle will continue from the point of interruption after the door is closed.

**Note:** *The washer will not start until the door is properly closed.*

---

PRACTICAL OPERATING TIP. SAFE OPERATION REQUIRES KNOWLEDGEABLE OPERATORS. TO ENSURE SAFE OPERATION, PLEASE FOLLOW THESE RECOMMENDATIONS:



- Read all instructions carefully before using the washer.
  - Properly ground the glassware washer prior to operation.
  - Utilize only detergents and neutralizers recommended by SP Scientific for use in glassware washers.
  - Before opening the door, always listen for signs of washer operation and wait for the sounds of rotating spray arms and circulating water to stop.
  - Do not wash plastic items unless they are marked "washer safe." Check with the item's manufacturer if unmarked.
  - Remove the door before discarding an old washer.
-





# Maintenance



ALWAYS REMOVE POWER FROM THE UNIT BEFORE PERFORMING MAINTENANCE PROCEDURES.

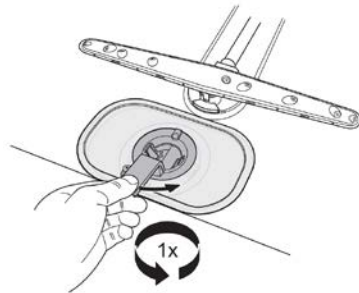
ALWAYS NOTIFY SP SCIENTIFIC SERVICE BEFORE PERFORMING REPAIRS TO A UNIT THAT IS UNDER WARRANTY. FAILURE TO NOTIFY SP SCIENTIFIC SERVICE WILL VOID THE FACTORY WARRANTY.

## Daily Maintenance

Inspect and clean the following chamber components daily, or at a frequency appropriate for your facility's washer usage and load characteristics.

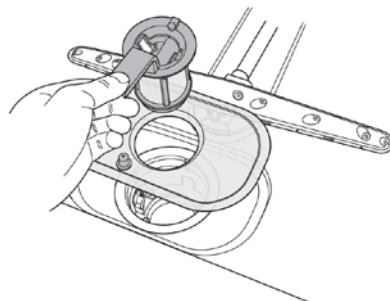
### Coarse Filter

The coarse filter is a cylindrical sieve that catches larger pieces of debris. To remove the coarse filter, turn the plastic handle counter-clockwise and lift up.



### Fine Filter

The fine filter is a flat mesh sieve that catches smaller pieces of debris during draining. Regular inspection is important to prevent the accumulation of lime sediment or other deposits that may clog the mesh of this filter over time. To remove the fine filter, remove the coarse filter and lift the fine filter up. Clean the filter by gently rubbing it with a brush or similar device.

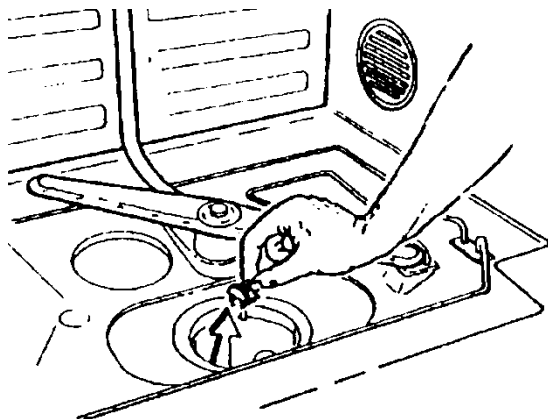


## Reassembling Filters

To reassemble the filters, reverse the process used for removal. Replace the fine mesh filter and insert the coarse filter into position. Turn the plastic handle clockwise to secure the filters in place.

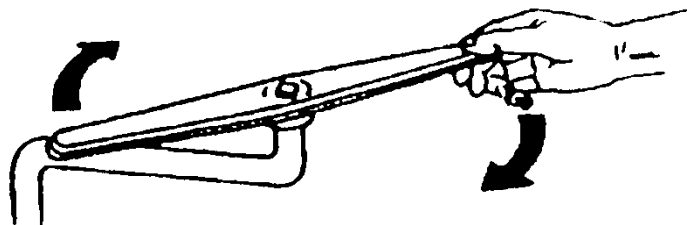
## Weekly Maintenance

Clean exterior washer surfaces with warm soapy water if necessary. On a weekly or monthly schedule, inspect the Outlet Pump fins and nearby piping for debris. Clean with a 4-inch (10 cm) pipe cleaner if necessary. The Outlet Pump area is accessible beneath a removable plug located at the 9 o'clock position in the floor beneath the Fine Filter Basket.



Examine the holes in the top surface of the Spray Arms and optional spindles, if equipped, for mineral deposits or clogs. Remove any such blockages with a needle, wire or other appropriate tool.

Inspect Spray Arms to verify smooth rotation.

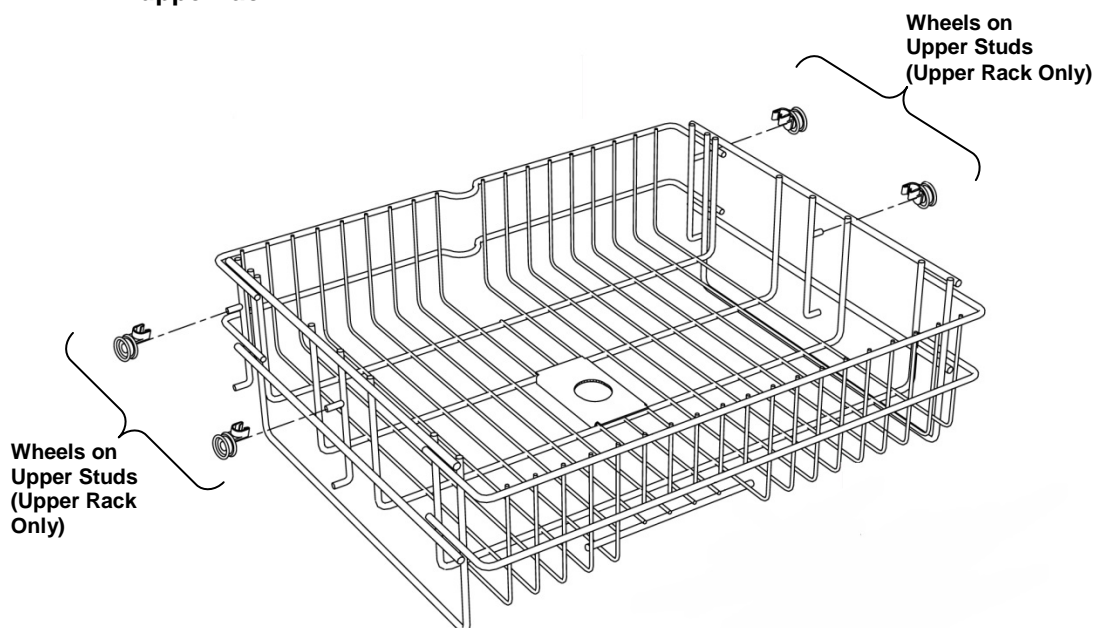


If a spray arm is not rotating freely, look for debris or mineral deposits at the arm's axle joint. If you have difficulty cleaning the axle in place, remove the spray arm for closer inspection. To remove the spray arm from its axle, apply quick upward pressure on the arm while bracing to prevent hitting nearby parts when the arm snaps free. Clean debris as necessary.

## Reassembling Racks

Take care to reassemble racks in the correct configuration if they are disassembled during cleaning.

The image below illustrates the correct position for reassembling the wheels of the **upper rack**.



**Reassembly of Upper Rack**

## Unheated Storage

Always drain all water from the washer before storing it for any extended period. This includes any water trapped in the washer's internal pumps and inlet valves. Malfunctions caused by component freezing are excluded from warranty coverage.

## Cleaning

The inner chamber of your VWR glassware washer is made of stainless steel and is typically kept clean through normal use. However, if you have calciferous (hard) water, lime deposits can form in the washer. In this case, add two tablespoons of citric acid to the washer detergent compartment and run a normal wash program.

The following table outlines other effective methods for cleaning stainless steel.



PROPERTY CAUTION! ALWAYS USE THE MILDEST CLEANING PROCEDURE THAT WILL DO THE JOB EFFECTIVELY. RUB IN THE DIRECTION OF POLISHED LINES TO MAXIMIZE EFFECTIVENESS AND AVOID MARRING THE SURFACE. RINSE THOROUGHLY WITH WATER AFTER EVERY CLEANING AND WIPE DRY.

Cleaning Required	Cleaning Agent <sup>8</sup>	Application Method <sup>9</sup>	Effect on Finish
HEAT TINT OR HEAVY DISCOLORATION	Penny-Brite or Copper-Brite	Use in direction of polish lines on No. 4 (polished) finish. Wipe with dry cloth.	May scratch No. 2 (mil) and Nos. 7 and 8 (polished) finishes.
	Paste Nu-Steel, DuBois Temp, Tarnite, or Kelox	Rub with dry cloth or stainless steel wool.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mil) and No. 7 and 8 (polished) finishes.
	Revere Stainless Steel Cleaner, Take-Off, or AC-60	Apply with damp sponge or cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2
	Allen Polish, Steel Bright, Wyandotte, Bob-O, Zud, Dubrite, or Prepare Dex	Rub with a damp cloth.	Use in direction of polish lines on No. 4 (polished) finish. May scratch No. 2 (mil) and Nos. 7 and 8 (polished) finishes.
TENACIOUS DEPOSITS, RUSTY DISCOLORATIONS, INDUSTRIAL ATMOSPHERIC STAINS.	Oakite No. 33, Dilac, Texo 12, Texo N.Y., Flash-Klenz, Caddy Cleaner, Turco Scale 4368, or Permag 57	Swab and soak with clean cloth. Allow to stand 15 minutes or more, per directions on package. Then rinse and dry.	Satisfactory for use on all finishes.
HARD WATER SPOTS AND SCALE.	Vinegar	Swab or wipe with cloth. Rinse with water and dry.	Satisfactory for use on all finishes.
	Dilac, Oakite No 33, Texo 12, Texo N.Y.	Swab with cloth or soak. Let stand 10-15 minutes. Always follow with neutralizer rise and dry.	Satisfactory for use on all finishes. Effective on tenacious deposits or where scale has built up.

<sup>8</sup> Use of proprietary names is only intended to indicate a type of cleaner, and does not constitute any endorsement (nor does omission of any proprietary name imply its inadequacy). All products should be used in strict accordance with instructions and warnings on the product package.

<sup>9</sup> In all applications, a stainless steel wool, sponge fibrous brush, or pad is recommended. Avoid use of ordinary steel wool or steel brushes for scouring stainless steel.

# Appendix A: Troubleshooting

Problems	Possible Causes	Action
<b>Glassware hazy or not clean.</b>	Too little water.	Check that the water valve is fully open. Make sure that the water pressure meets the specification. Check any strainers in the water supply line for clogging; clean as required. Check drain hose.
	Incorrect dosage of detergent.	Dispense according to the level of water hardness.
	Hard water.	If your facility has hard water, try adding more detergent and/or more neutralizer.
	Wrong detergent.	Change detergent as required.
	The spray arms rotate poorly or are not rotating.	Check that spray arms rotate freely and that load items do not obstruct movement. Lift off the arms and clean.
	Holes on spray arms clogged.	Clean as required.
	Wrong wash program selected.	Heavier programs are longer, and use higher temperatures for dirtier loads. Use a heavier program better suited for the load.
	Incorrect loading of the dishwasher.	Try not to place too much tall glassware in the corners of the baskets. Make sure washer is not overloaded and that items are not blocked from receiving spray.
	Glassware has tipped over during the wash.	Load the glassware securely.
<b>Stains or film on glassware.</b>	Excessive neutralizer is causing over-foaming.	Decrease neutralizer metering.
	Phosphate-free detergent in combination with hard water.	Change detergent.
	Too high a temperature and/or too much detergent can cause etching on glass.	Wash glassware at a low temperature and use detergent sparingly.
<b>Water remains in washer after use, or excessive water in sump area.</b>	Too high dosage of rinse aid.	Reduce dosage. Try diluting the rinse aid with water (e.g., 1 part rinse aid, 1 part water).
	Coarse filter clogged.	Clean as required.
	Outlet pump fins clogged.	Clean as required.
	Drainage hose is kinked, folded, out of saddle or extended too long.	Correct as required.
<b>Washer cycles take too long to</b>	Drainage hose is clogged.	Clean as required.
	Tap water not hot enough.	Check tap water temperature.

Problems	Possible Causes	Action
<b>complete.</b>		Colder temperatures prolong cycle time.
<b>Washer will not start or cannot select and begin a cycle.</b>	Power problem.	Check breaker.
	Door not completely latched.	Push the door firmly to engage the latch.
	Washer is in Delay Start mode.	Ensure the Delay Start indicator is off.
<b>Marks or discoloration.</b>	Mineral-rich water.	Check water hardness.
	Wrong type of detergent.	Use correct amount and type of detergent.
<b>Yellowish marks.</b>	Iron-rich water.	Temporary Solution: Pour approximately 0.5 oz (15 ml) of citric acid into the Pre-Wash Detergent Compartment and run the Heavy program. Permanent Solution: Install an iron removal system in the water supply.
<b>Silicon Film.</b>	Softened hard water.	Add additional detergent to the wash. To improve rinsing, do not load the machine to full capacity.
<b>Glassware does not dry sufficiently.</b>	Machine is not fully loaded.	Load the machine fully.
	Rinse aid is out or set for too small a dosage.	Fill or increase the amount of rinse aid.
	High residual moisture in internal chamber.	Open the door slightly once the program has finished.
	Items incorrectly loaded.	Load items with concave side down.
	Standing water in washer.	Check drain system and outlet pump.
<b>Door will not close.</b>	The baskets are not correctly placed.	Make sure the baskets are in a horizontal position. Check that the basket water connector is aligned with the spray pipe.
<b>Rattling sound heard during washing.</b>	The glassware is not properly loaded or the spray arms are not rotating.	Check that the glassware is loaded securely. Spin the spray arms to make sure they rotate.
<b>Machine will not start.</b>	You have forgotten to switch on the main switch.	Check.
	The door is not closed properly.	Check.
	The circuit breaker has tripped.	Check.
	The unit's rear ETL circuit breaker has tripped.	Check.
	The plug is not plugged in.	Check.
	The water tap is off.	Check.
	Overfilling/leakage.	Call SP Scientific Service at (877) 548-4666.

## Appendix B: Fault Indicators

If there is an error in the washer, it will make a ringing sound to signal that there is a fault. The washer will present the fault description on the control panel display. To view, open the washer door to see the panel on the upper ledge.

Display Description	Action
<b>Too much water in the machine.</b>	Call SP Scientific Service at (877) 548-4666.
<b>Water inlet fault.</b>	Check that the water is on.
<b>Valve leakage.</b>	Switch off the water tap and call SP Scientific Service at (877) 548-4666.
<b>Blocked drain.</b>	See possible causes in Appendix A: Troubleshooting.
<b>Clogged filter.</b>	Clean the filters. See the Maintenance chapter for more information.

**Note:** To remove fault indicators from the display, push the On/Off Power Switch twice to turn it off and back on again.







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