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Model 1996

Use & Care Guide

CONTENTS

BEFORE USING YOUR NEW LABORATORY GLASSWARE WASHER

- Read through this guide before attempting to use your new laboratory glassware washer.
- Make sure the door is properly balanced. To do this, open it a little and release it. It should stay where you released it. If it doesn't, consult the *Installation Instructions* or contact your installer.
- Call your local water company to learn the water hardness in your area. You'll need to know this to determine how much detergent and rinse aid to use.

IMPORTANT SAFETY INSTRUCTIONS

This manual does not cover all possible conditions and situations that may occur. Some situations may arise where use of common sense and caution should always be used when installing, operating, and maintaining any appliance.

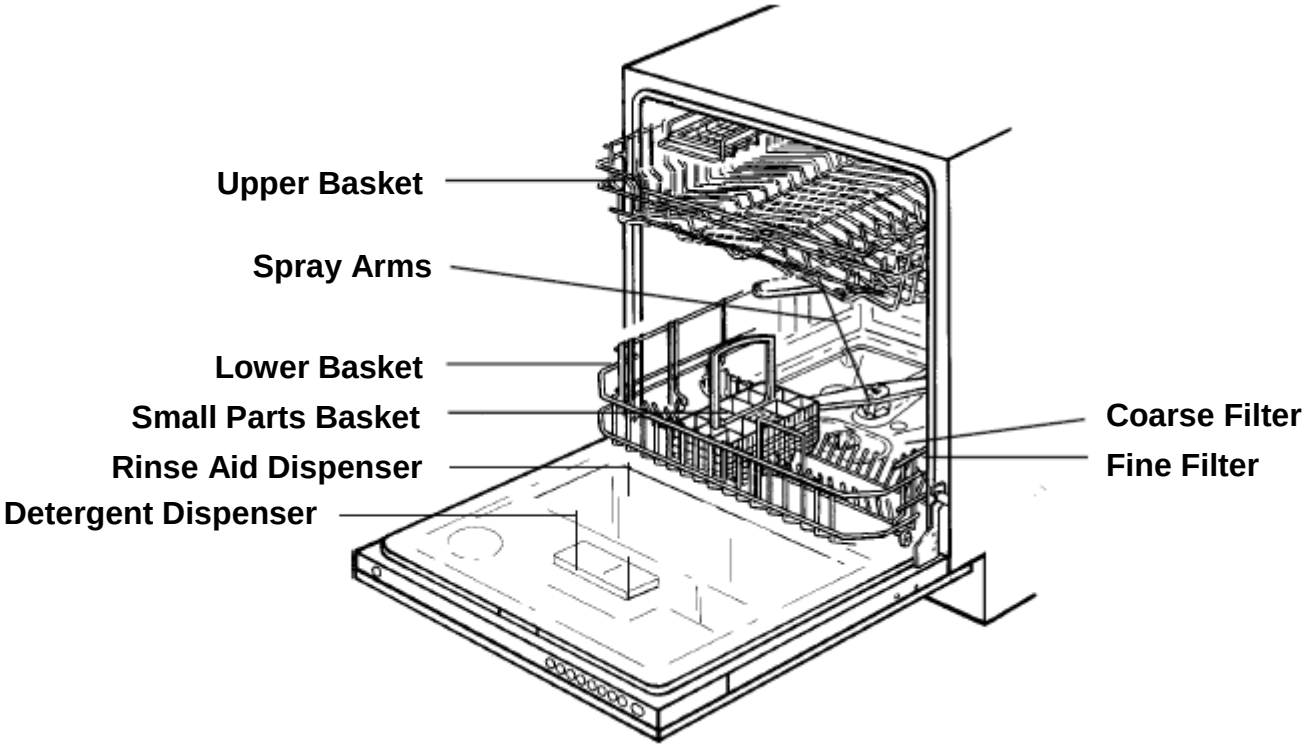
- Read all instructions before using the laboratory glassware washer.
- Laboratory glassware washers must be electrically grounded. Read the *Installation Instructions* for details.
- Use the laboratory glassware washer only for its intended purpose.
- Do not run the laboratory glassware washer while you are out of the laboratory.
- To reduce the risk of injury, keep detergents and rinse aids out of the reach of children.
- Do not load sharp items near the door; you could damage the door seal.
- Place sharp items in the small parts basket with the sharp ends down to avoid the risk of cut-type injuries.
- Do not wash plastic items unless they are marked "dishwasher safe" or the equivalent. For items not marked, check the manufacturer's recommendations.
- Items not "dishwasher safe" could become deformed or melt and create a potential fire hazard.
- Do not touch the heating element during or immediately after use.
- Should a person swallow detergent or rinse aid, give plenty to drink immediately, i.e., one or two glasses of milk or water. Do not try to induce vomiting. Seek medical advice immediately: **1-800-POISON1**.
- If detergent gets in someone's eyes, rinse them with plenty of water for at least 15 minutes.
- Do not operate the laboratory glassware washer unless all enclosure panels are properly in place (i.e., guard plate, access panel, toe kick, etc.)
- Do not tamper with controls by removing or changing.
- Do not abuse, sit on, or stand on the washer door or baskets.
- To reduce the risk of injury, do not allow children to play in or on a laboratory glassware washer.
- Under certain conditions, hydrogen gas may be produced in a hot water system that has not been used for two weeks or more. HYDROGEN GAS IS EXPLOSIVE. If the hot water system has not been used for two weeks, before using the laboratory glassware washer turn on all hot water faucets and let the water flow from each for several minutes. This will release any accumulated hydrogen gas. As the gas is flammable, do not smoke or use an open flame during this time.
- When removing an old laboratory glassware washer from service or discarding it, remove the door to the washing compartment.
- Do not store or use combustible materials, gasoline, or other flammable vapors and liquids in the vicinity of this or any other appliance.
- Disconnect electrical power to laboratory glassware washer before servicing.
- Repairs should be done by a qualified technician.
- Always close the door and start the laboratory glassware washer as soon as you put in the detergent.

GLASSWARE WASHER FEATURES

Your new laboratory glassware washer features a super cleaning system. This means that after the prewash, the water is drained out and the main wash starts with clean water.

If you plan to start your laboratory glassware washer right away, it's not necessary to rinse the labware. You do, however, need to scrape off the large particles before loading.

NOTE: Deviations in features may occur, depending on the model.



LOADING THE UPPER BASKET

After you have scraped off the large particles, place labware in the upper basket.

The 1996 laboratory glassware washer has a row of tines that are adjustable to prevent labware from bumping together (clattering). Load the labware then use the lever to adjust the tines until the items are secure.

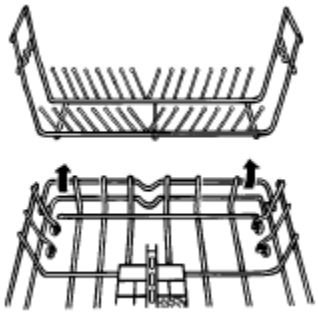
The fold-down shelf on the right side of the basket gives you an additional place to stack beakers, petri dishes, and small bowls. The Model 1996 has a divided cup shelf, which gives you more loading flexibility.

When loading sharp items, always be careful not to cut the rack coating.

LOADING THE LOWER BASKET

Load larger items in the lower basket. The removable plate rack easily lifts out to provide space for large items. Be sure to load labware facing downward or toward the center of the laboratory glassware washer.

Removable Rack
(not on all models)



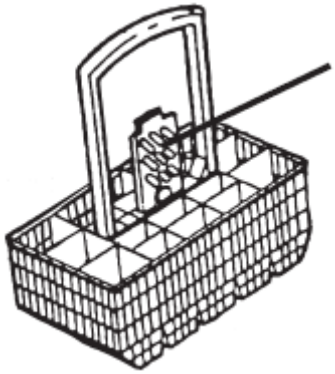
LOADING THE SMALL PARTS BASKET

The small parts basket is designed with 17 compartments to help keep items separated. Load labware with the handles downwards and spread it out as much as possible to avoid nesting. For safety, load sharp items with the handles up.

Small Items Containment Lid

The small parts basket has a lid in the middle that snaps down over the compartments to its left or right to contain small, lightweight items that might slip through the rack tines or get washed out of the basket and fall through onto the heating element. The small items lid is slotted, so you also could use it to keep labware separated.

Small Parts Basket



Small items containment lid

DETERGENT DISPENSER

Universal Scientific glassware washers are designed to be energy efficient. Because the machine uses less water than conventional glassware washers, you also use less detergent and rinse aid. Generally, only one tablespoon of detergent is needed for a normal wash load. The amount of detergent needed for your labware, however, could be more, depending on the hardness of the water in your area. Also, more heavily soiled items need more detergent. (See page 5.)

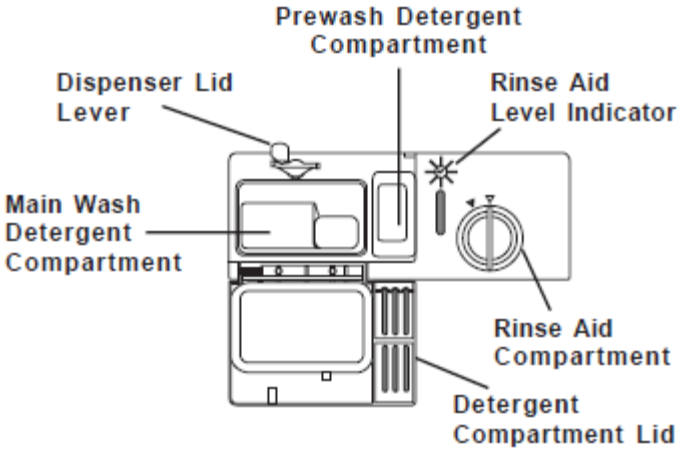
Measure and place detergent for the main wash into the large detergent compartment. The detergent for prewash goes into the small compartment to the right of the main wash compartment. You should use one-half the amount of detergent for the prewash that you use for the main wash. The amount of detergent used for the main wash and prewash combined should never be over three tablespoons.

Always add the detergent just before starting the laboratory glassware washer, otherwise it could get damp and won't dissolve properly.

DETERGENT DISPENSER (continued)

Type of Detergent to Use

We recommend that you use only unscented, granular detergent. Using the wrong detergent could cause flooding and/or damage your laboratory glassware washer. Do not use detergent that has been wet and is clumped. Also, check the expiration date on the container.



AMOUNT OF DETERGENT TO USE

The amount of detergent needed can vary due to differences in water hardness. To determine the water hardness in your area, contact your local water utility or area water softening company. The harder the water, the more detergent you may need. Refer to the chart below for the recommended detergent amounts based on water hardness. Remember, you should adjust the amount of detergent you use by small amounts until you find the correct amount.

RECOMMENDED DETERGENT AMOUNTS BASED ON WATER HARDNESS

WATER HARDNESS	*DETERGENT AMOUNTS*	
Soft (0-3 grains per gallon)	Prewash Main wash	1 teaspoon 1 to 1-1/2 tablespoons
Medium (4-8 grains per gallon)	Prewash Main wash	1 teaspoon 1 to 2 tablespoons
Hard (9+ grains*)	Prewash Main wash	1 teaspoon 2 to 3 tablespoons

***NOTE*: We recommend that you do not add prewash detergent for the Quick or Light wash programs.**

* 12 grains and higher is extremely hard water and detergent alone may not be enough. You may need to use a water softener to maximize the performance of your laboratory glassware washer. Also, in areas with extremely hard water (9+) you may need to wash at lower temperatures to prevent hard water deposits from forming in tank and wash system.

In hard water areas, both the labware and the machine can develop a white or gray film after a while. This can be removed by replacing the prewash detergent with two tablespoons of citric acid. If the water is very hard, use a rinse aid that contains citric acid.

Different brands of detergent have different amounts of phosphorous for softening water. If you have hard water and use a detergent with less than 8.7% phosphorous content, you may need to use more detergent or use a detergent with more than 8.7% phosphorous content.

REMOVING HARD WATER SPOTS FROM LABWARE

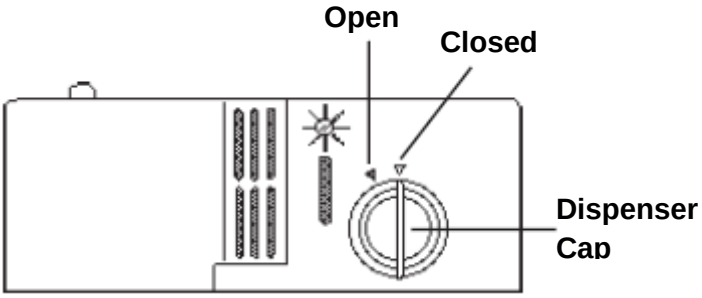
To remove hard water spots, try the following:

1. Run labware through a normal wash program.
2. Remove all metal labware from the laboratory glassware washer.
3. Do not add detergent.
4. Run the labware through a Normal wash program.
4. Pour two cups of vinegar into a bowl and set the bowl face up on the bottom rack of the laboratory glassware washer.

If this doesn't work, try the same process with 1/4 cup of citric acid crystals (available at most drug stores) instead of vinegar.

AMOUNT OF DETERGENT TO USE

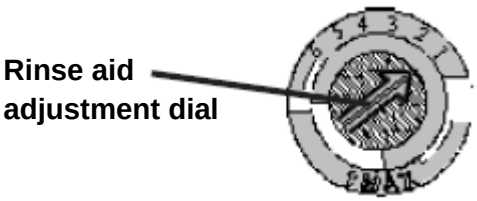
The rinse aid is released during the final rinse to prevent water from forming droplets on your labware that can leave spots and streaks. It also improves drying by allowing water to "sheet" off the labware.
Universal Scientific glassware washers are designed to use liquid rinse aids. The rinse aid dispenser is located inside the door next to the detergent dispenser. (See illustration on page 5.) To fill the dispenser, open the cap and pour the rinse aid into the dispenser until the level indicator turns completely black. The dispenser holds about four ounces of liquid rinse aid.
Be careful not to overfill the dispenser, because this could cause oversudsing. Wipe away any spills with a damp cloth. Don't forget to replace the cap before you close the laboratory glassware washer door.
If you have soft water, rinse aid may cause a white film to develop on your dishes. You may not need rinse aid.



1. **To open the dispenser, turn the cap to the "open" (left) arrow and lift it out.**
2. **Pour the rinse aid into the dispenser, being careful not to overfill.**
3. **Replace the cap by inserting it aligned with "open" arrow and turning it to the closed (right) arrow.**

ADJUSTING THE AMOUNT OF RINSE AID DISPENSED

A measured amount of rinse aid is released during the final rinse. As with detergent, the amount of rinse aid needed for your labware depends on the hardness of the water in your area. (See page 5.) Too much rinse aid can result in lather or foaming and cause cloudiness or streaks on your labware. If the water in your area is very soft, you may not need rinse aid. If you do, you can dilute the rinse aid with an equal amount of water.



The rinse aid dispenser has six settings. Always start with the dispenser set on "1." If spots and poor drying are problems, increase the amount of rinse aid dispensed by removing the dispenser lid and rotating the dial to "2." If the labware still aren't drying properly or are spotted, adjust the dial to the next higher number until your labware is spot-free.

To increase the amount of rinse aid released in the final rinse, turn the adjustment dial to the next higher number.

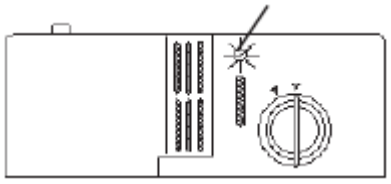
***NOTE*: Only adjust the dial one number at a time.**

WHEN TO REFILL THE RINSE AID DESPENSER

The black dot on the rinse aid dispenser indicates the amount of rinse aid in the dispenser. As the rinse aid diminishes, the size of the black dot decreases. You should never let the rinse aid get below 1/4 full.

As the rinse aid diminishes, the size of the black dot on the rinse aid level indicator changes, as illustrated below.

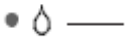
Rinse Aid Level Indicator



- **Full**
- **3/4 full**
- **1/2 full**
- **1/4 full - Should refill to eliminate spotting**
- **Empty**

RINSE AID INDICATOR LIGHT

The Model 1996 has a rinse aid indicator light on the control panel that comes on when the dispenser is empty. After you refill the dispenser, there may be some delay before this light goes out.



Some models have a rinse aid indicator light on the control panel that lights up when the dispenser is almost empty.

CARE AND CLEANING

The interior of your Universal Scientific glassware washer is made of surgical quality stainless steel that has been electro-polished to make it the smoothest surface available. The smooth surface prohibits the accumulation of dirt and bacteria inside the unit. If the water in your area is especially hard, however, lime deposits could form

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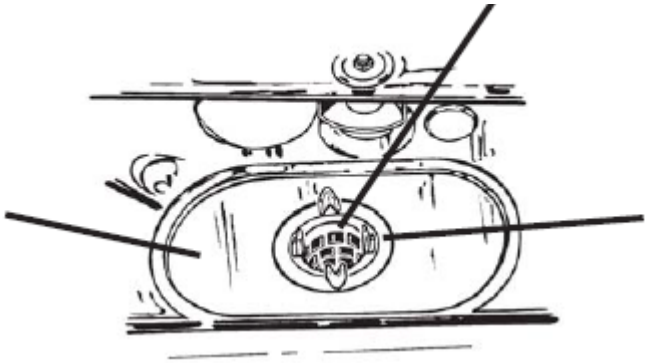
FILTERING SYSTEM

For your convenience, we have placed the drain pump and filtering system within easy reach inside the tub. There are three components of the filtering system: the main filter, the coarse filter, and the fine filter.

Coarse Filter
Larger items that could clog the drain are trapped in the coarse filter. To remove an item caught in this filter, gently squeeze the tabs on the top of this filter and lift it out.

Main Filter
Particles trapped by this filer are pulverized by a special jet on the lower spray arm and washed down the drain.



Fine Filter
This filter holds residue in the sump area and prevents it from being redeposited on the labware during a cycle.

WARNING! Never run the glassware washer without the filters in place.

CLEANING THE FILTERS

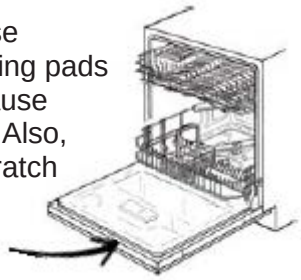
In hard water areas, it may be necessary to clean chemical buildup from the filters every 12 to 18 months. To do this, remove the coarse filter by squeezing the tabs and lifting it out.

Next, unscrew the fine filter and lift it and the main filter out. Wash all three filters gently in hot, soapy water and rinse them thoroughly.

CLEANING THE DOOR

To clean the edge around the door, use only a soft warm, damp rag. To prevent penetration of water into the door lock and electrical components, **do not use a spray cleaner of any kind**.
Also, never use abrasive cleaners or scouring pads on the outer surfaces because they will scratch the finish.
Some papers towels can also scratch or leave marks on the surface.

WARNING!
Never use a spray cleaner of any kind on the door panel. You could damage the door lock and electrical components. And never use abrasive cleaners or scouring pads on the outer surfaces because they will scratch the finish. Also, some paper towels can scratch or leave marks on the stainless steel surface.



CLEANING THE SPRAY ARMS

Spray-arm jets and bearings may sometimes become clogged with hard water chemicals. To remove the spray arms, screw off the nut and take off the washer on top of the spray arm and lift off the arm. Wash the spray arms in warm, soapy water. Use a soft brush to clean the jets.
Rinse thoroughly and replace.

CLEANING THE DRAIN PUMP

On occasion something may get through the filters and into the drain pump. The drain pumps on Universal Scientific Inc. glassware washers are designed to automatically reverse if anything should get caught in the propellers, thus ejecting the item back into the sump area or down the drain. Should you need to remove an obstacle from the drain, first turn the power off then remove the filters (as explained on page 7). Next, lift out the small black insert from the sump area. (You might want to remove any standing water first.) You can then look into the sump area for the item causing the obstruction. Should you find something, simply scoop it out. Be sure to replace the black insert before you put the filters back in.

WARNING!
Never run the laboratory glassware washer with the filters in place.

OVERFILL PROTECTION

Your Universal Scientific washer has an overfill protection device that automatically shuts off the inlet valve and starts the drain pump if the water level in the unit should rise above the normal level. If this happens, turn the water off at the main supply and call for service. If there is water in the base pan due to an overfill or small leak, the water must be removed before the laboratory glassware washer will start.

OVERFILL PROTECTION ON OUR ELECTRONIC MODELS

When an overfill is detected on Models 1996, all of the indicator lights on the control panel will flash at once.

ENERGY SAVING TIPS

- If you plan to wash the labware right away, there's no need to pre-rinse. Simply scrape off large particles and load the labware.
- Wash only full loads.
- Use the Heavy program only for heavily soiled labware.
- Don't use the Temp boost for lightly soiled labware.
- Avoid using Heat dry. (You can speed up the drying process by opening the door slightly to release the moist air.)

SOLUTIONS TO COMMON PROBLEMS

As with any new appliance, it sometimes takes using it a few times to learn to operate it properly. If you are having minor performance problems with your glassware washer, read this section before calling for service. It may save you time and unnecessary expense.

Poor Washing Performance

- The labware may not be loaded properly. Make sure that soiled surfaces are facing downward or toward the center of the laboratory glassware washer. Also, make sure that the labware is not stacked so closely that water can't reach the soiled surfaces.
- Make sure you are using the appropriate program settings for the dirtiness of your labware.
- An item may be obstructing the spray arm rotation. With the baskets loaded and in place, manually turn the spray arms to make sure they move freely.
- Your laboratory glassware washer detergent should be fresh and stored tightly closed in a cool, dry place. Old or caked detergent will not dissolve properly. Wait until you are ready to start the laboratory glassware washer to add the detergent. If you are using the Delay program, make sure the dispenser is dry before adding the detergent.
- Your laboratory glassware washer detergent may be inferior. Try a different brand.
- Make sure the rinse aid dispenser is filled. (See pages 6.)
- If you have hard water in your area, try adding more detergent and increasing the amount of rinse aid dispensed. (See page 6.)
- Check that the spray arm jets are not clogged. (See page 8.)

Poor Drying Performance

- Select the Heat Dry option.
- If you don't want to use Heat Dry, you can decrease the drying time by opening the door slightly to let out the warm, humid air.
- Make sure the rinse aid dispenser is filled. (See page 6.)
- Make sure you use the proper amount of rinse aid. (See page 6.)
- Do not overload the labware and be careful to avoid nesting.
- Load items with concave bottoms tilted so as much water as possible will run off.
- Unload the bottom basket first to avoid spilling water onto the labware when unloading the top basket.
- Labware washed in higher water temperatures will dry faster.
  Certain plastics may need to be towel dried are ready to start the laboratory glassware washer to add the detergent. If you are using the Delay program, make sure the dispenser is dry before adding the detergent.
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- If you have hard water in your area, try adding more detergent and increasing the amount of rinse aid dispensed. (See page 6.)
- Check that the spray arm jets are not clogged. (See page 8.)

Chipped or Broken Labware

- When you load the labware, be sure they're securely in place and will not fall over or strike against each other during the wash.
- Move the baskets in and out slowly to avoid slamming the labware together.
- Make sure not to load labware so high that the spray arms could strike them.
- Make sure tall labware will clear the top of the tub when you push the basket in.
- Always load delicate items in the top basket.
- Do not overload the laboratory glassware washer.
- Do not jam the labware together when loading.

Etching

If you have a cloudy film on your dishes that can't be removed, it could be etching. To prevent etching, try the following:

- Use less detergent. You may be using too much for the water hardness in your area. (See page 5.)
- Use a good quality detergent.
- Do not overload the machine. Water should circulate freely to ensure adequate rinsing and draining.
- Fill the rinse aid dispenser (unless you have soft water in your area; in which case you may not need a rinse aid.) (See page 6.)
- Use a lower water temperature setting.
- Do not use the Heat Dry option.
- Do not pre-rinse the labware; just scrape off large particles.

Stains and Discolorations

Stains or discoloration on labware could be caused by a number of things. Listed below are some of the most common causes.

- Too much iron or manganese in the water can cause yellow or brown marks on your labware. As a temporary solution, in place of the prewash detergent, use one teaspoon to one tablespoon of citric acid crystals. You should consider installing a water filtering system.
- Some stains may need to be removed by handwashing in a solution of 1/2 cup bleach and one quart of water. Be sure to rinse these items thoroughly before putting them in the laboratory glassware washer so there is no bleach residue on the labware.

Plastic Items

- Always check the manufacturer's suggested care instructions before washing plastic in your laboratory glassware washer. Even "dishwasher-safe" items should be loaded in the top basket, away from the heating element.
- Some liquids can discolor plastic. You should rinse these items if you do not plan to run the laboratory glassware washer right away.
- Plastic items dry poorly and may need to be towel dried.

TROUBLESHOOTING

If you should experience a problem with your laboratory glassware washer, you should review the following list of frequently encountered situations. It could save you the cost and inconvenience of a service call. Even though the product is under warranty, if the problem is not caused by defective product workmanship or materials, you will be charged for a service call. Refer to page 12 to determine what is and is not covered under your warranty. If you're still not sure, contact Universal Scientific Inc. before you call a service technician.

Detergent left in compartment

- Be careful not to load items so close to the dispenser that the cover will not open to release the detergent.
- The dispenser is not supposed to open when you use the Rinse program.
- Your laboratory glassware washer detergent should be fresh and stored tightly closed in a cool, dry place. Old or caked detergent should be thrown away because it will not dissolve properly and will leave a gritty residue on the labware.
- Wait until you are ready to start the laboratory glassware washer to add the detergent.
- If you are using the Delay program, make sure the dispenser is dry before adding the detergent.
- The detergent compartment only opens in the main wash programs, not the Rinse program.

Glassware washer does not fill

- Make sure the water supply is turned on.
- Make sure the laboratory glassware washer is turned on and the door is closed securely.
- Check for crimps in the water feed line.
- You may need to adjust the water inlet time to compensate for low water pressure in your area.
- The system is designed to detect an overflow. When it does, it shuts off the circulation pump and turns on the drain pump. (See "Overfill Protection" on page 7.)

Glassware washer leaks

- Use only unscented, granular detergent. Using a liquid detergent could cause oversudsing and leakage.
- You should always use fresh detergent.
- The amount of detergent needed for your labware depends on the hardness of the water in your area. Contact your local utility company to learn the water hardness in your area then refer to the chart on page 5 to determine the amount of detergent you should use.
- Be careful not to overfill the rinse aid dispenser. Spilled rinse aid could cause oversudsing and lead to overflowing. Wipe away any spills with a damp cloth.
- Make sure the laboratory glassware washer is level. (See the installation instructions.)

Laboratory glassware washer will not start

- Make sure the laboratory glassware washer is turned on and the door is closed securely.
- Make sure the Delay option is not turned on.
- Check that the water supply is connected properly and the water is turned on.
- Make sure the power cord is properly plugged into the wall socket.
- Check your fuse box for a blown fuse or tripped circuit breaker.

Laboratory glassware washer does not drain properly

- Make sure that the cycle was complete before you opened the laboratory glassware washer. If not, allow it to complete and check again.
- Some water left in the sump area near the drain is normal.
- If the plumbing code in your area requires an air gap, make sure that the air gap isn't blocked or plugged.
- If the unit is connected to a garbage disposer, make sure the disposer is empty.
- If water backs up into the sink, check the trap for blockage.
- Check the laboratory glassware washer filters and drain area for blockage. (See pages 7 and 8.)
- Check for a kink in the drain hose.
- You may need to adjust the drain time to accommodate longer drain lines, air gaps, etc.

Glassware washer runs too long

- If the temperature of the water entering your laboratory glassware washer is below 120°, the laboratory glassware washer runs longer because it heats the water to the proper temperature for the program selected. Raising your water heater setting may help to shorten the cycle times.

Laboratory glassware washer makes unusual noises

- This usually means that something is not loaded properly. Make sure the labware is securely in place and that nothing has fallen between the basket tines. Also, place small items in the small items compartment and close the lid. (See page 4.)

Warranty Information

Universal Scientific Inc. provides a full one (1) year warranty on all parts and factory workmanship. It expires one (1) year from the date of installation.

We have the option to void the warranty if:

- Non-authorized service group provides service work.
- Accident of abuse.
- Not following operating instrcutions
- Running the D.I. system without water.
- Product failures caused by the use of highly corrosive chemicals or materials.
- Installation does not comply with local codes.
- Washer is installed on a single circuit with other washers, appliances, and or outlets on that circuit.

SERVICE

Your Universal Scientific Inc. Laboratory Glassware Washer is backed by a nationwide network of factory authorized service companies. If you need service please call us at 440-428-7800 and ask for the service department.

