
# WATER BATHS
# Economy

MODELS: W6A, W14A, W20A

INSTALLATION AND OPERATION MANUAL

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# LAB Online Exhibition

Operation Manual

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Action movie

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# TABLE OF CONTENTS




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These units are general purpose water baths for professional, industrial or educational use where the preparation or testing of materials is done at approximately atmospheric pressure and no flammable, volatile or combustible materials are being heated. These units are not intended for hazardous or household locations or use.

Section 1

# RECEIVING AND INSPECTION

**Your satisfaction and safety require a complete understanding of this unit. Read the instructions thoroughly and be sure all operators are given adequate training before attempting to put the unit in use. NOTE: This equipment must be used only for its intended application; any alternations or modifications will void your warranty.**

**1.1** **Inspection:** The carrier, when accepting shipment, also accepts responsibility for safe delivery and is liable for loss or damage. On delivery, inspect for visible exterior damage, note and describe on the freight bill any damage found, and enter your claim on the form supplied by the carrier.

**1.2** Inspect for concealed loss or damage on the unit itself. If any, the carrier will arrange for official inspection to substantiate your claim.

**1.3** **Return Shipment:** If for any reason you must return the unit, contact your service representative for authorization and supply complete data plate information. For information on where to contact Customer Service please see the manual cover.

**1.4** **Accessories:** Verify that all of the equipment indicated on the packing slip is including with the unit. Carefully check all packaging before discarding. Each unit comes equipped with a thermometer, thermometer clip and bath cover.

Section 2

# GRAPHIC SYMBOLS

Your water bath has been provided with a display of graphic symbols which should help in the use and function of the available user adjustable components.

**2.1**  Indicates **" Consult your Manual "**

**2.2**  Indicates **" AC Power On "**

**2.3**  Indicates **" Heating "**

**2.4**  Indicates **" Adjustable Temperature "**

**2.5**  Indicates **"Manual Adjustment "**

**2.6**  Indicates **"Shock Hazard"** behind partition

**2.7**  Indicates **"Protective Earth Ground"**

Section 3

# INSTALLATION

Local city, county, or other ordinances may govern the use of this equipment. If you have any questions about local requirements, please contact the appropriate local agency. Installation may be performed by the end user.

Under normal circumstances this unit is intended for use inside, at room temperatures between 5° and 40°C, at no greater than 80% Relative Humidity ( at 25°C ) and with a supply voltage that does not vary by more than 10%. Customer service should be contacted for operating conditions outside of these limits.

**3.1** **Power Source:** Check the data plate for voltage and ampere requirements. If matched to your power source, plug the power cord into a grounded outlet. This unit is intended for 50/60 HZ application. VOLTAGE SHOULD NOT VARY MORE THAN 10% FROM THE DATA PLATE RATING. A separate circuit is recommended to preclude loss of product due to overloading or circuit failure. NOTE: Electrical supply to the unit must conform to all national and local electrical codes.

**3.2** **Location:** In selecting a location, consider all conditions which might effect performance, such as heat from radiators, ovens autoclaves, etc. Avoid direct sun, fast-moving air currents, heating/cooling ducts and high traffic areas. Allow a minimum of 5cm between the unit and walls or partitions which might obstruct free airflow.

**3.3** **Lifting / Handling:** These units maybe heavy for some people and care should be taken to use appropriate lifting devices that are sufficiently rated for these loads. Units should only be lifted from their bottom surfaces. Cords and knobs are not adequate for lifting or stabilization. The unit should be completely restrained from tipping during lifting or transport. All moving parts, should be removed during transfer to prevent shifting and damage.

**3.4** **Cleaning:** The water bath was cleaned at the factory, but not sterilized. Clean the inside of the bath thoroughly with a disinfectant that is appropriate for your application. DO NOT USE chlorine-based bleaches or abrasives as this can damage the stainless steel tank. DO NOT USE spray cleaners that might leak

through openings and cracks and get on electrical parts or that may contain solvents that will harm the coatings. A similar periodic cleaning is recommended.

**WARNING:** Never clean the unit with alcohol or flammable cleaners with the unit connected to the electrical supply. Always disconnect the unit from the electrical service when cleaning and assure all volatile or flammable cleaners are evaporated and dry before reattaching the unit to the power supply.

**3.5 Bath Cover:** Using the bath cover supplied with your accessories will accelerate heat-up time and reduce evaporation. The cover must be used to reach set points above 60°C. Note that the bath cover is not designed to be airtight and create a pressurized environment.

Section 4

# CONTROLS OVERVIEW( See Figure 1 )

**4.1** **Power Switch:** The main power I/O (On/Off) switch is located on the front panel and controls all power to the unit. It must be in the ON position before any systems are operational. The green pilot lamp in the switch will be on when the unit is energized.

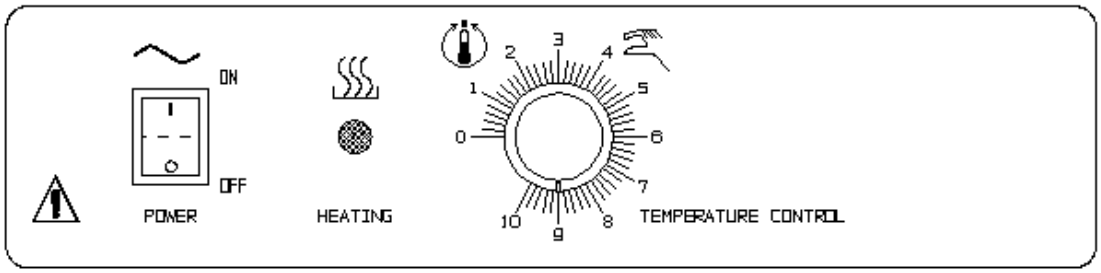
**4.2** **Temperature Controller:** Marked TEMPERATURE, this controller allows for a selection of water bath operating temperatures on a scale of 1 to 10. This scale does not represent temperature but allows for reference points when setting temperature.

**4.3** **Heating Lamp:** This pilot lamp is marked HEATING and is ON when the Temperature Controller has activated the heating element to reach and maintain set point.

**4.4** **Fuse(s):** Located at the back of the unit within the power inlet, the fuse acts as a circuit breaker and will cut off power to the unit if there is an electrical surge or malfunction. The fuse must be in place for the unit to operate. Please note that there is an option for the use of two (2) fuses to satisfy operating requirements in some countries. The plugged hole adjacent to the inlet can be fitted with a fuse holder that can be wired in line with the power inlet if required. Please contact customer service if more information is needed regarding this option.

**4.5** **Thermal Limit:** A factory set, non-adjustable component of the element assembly. The Thermal Limit is independent of the Temperature Controller and will cut power to the heating element in the unlikely event that the controller fails and temperature rises past set point. The Thermal Limit is activated when temperatures reach 121°C.

**Figure 1**
**Control Panel Overview**



Section 5

# OPERATION

**WARNING: THESE BATHS ARE NOT INTENDED FOR USE AS ACID BATHS. USE AS AN ACID BATH WILL CAUSE SEVERE DAMAGE TO BATH COMPONENTS. DO NOT USE DEIONIZED WATER, TAP WATER OR CHEMICALS. USE DISTILLED WATER ONLY. DO NOT TURN THE UNIT ON UNLESS WATER IS IN THE TANK.**

**5.1** Check the power supply against unit serial plate; they must match. Plug the service cord into the electrical outlet.

**5.2** Fill the bath to your required depth with DISTILLED WATER. Do not use tap water. Do not use deionized water. Note that normal depth is two-thirds full, but depth must be at least 5cm ( two inches ).

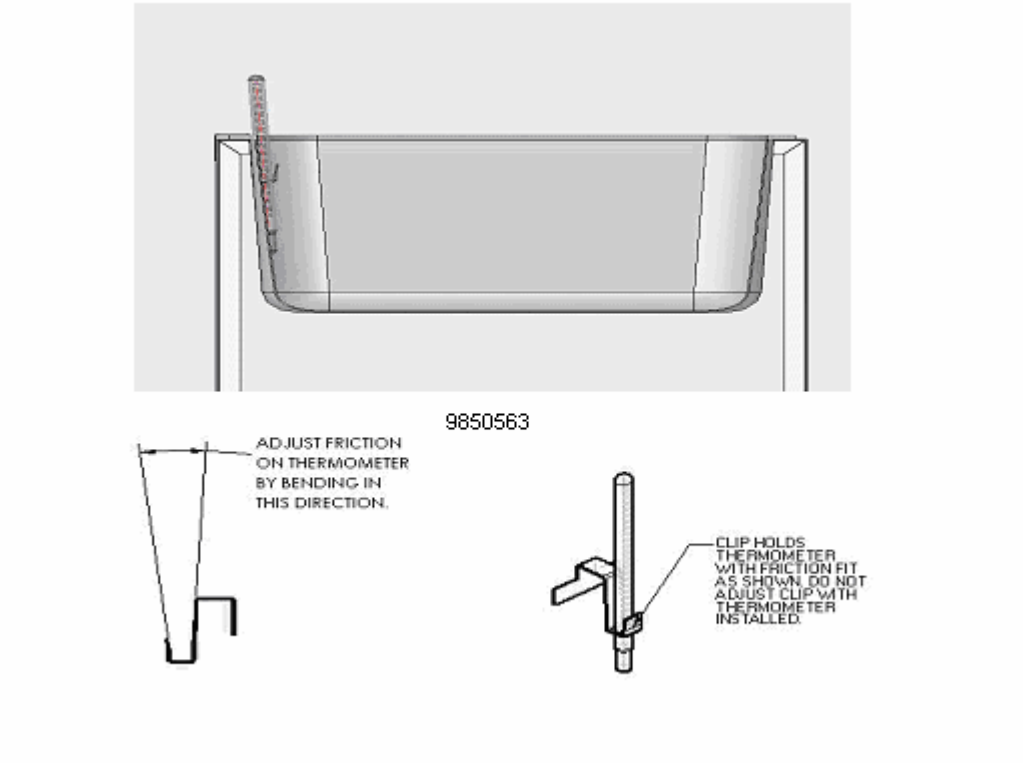
**5.3** Place the thermometer through the clip ( from your accessory kit ) as shown in **Figure 2** and place in desired position.

**5.4** Push the power switch to the I/ON position.

**5.5** **Set Temperature Controller:** Set the temperature controller to 10. When the thermometer reads the desired temperature turn the controller counterclockwise until the HEATING light goes off. Wait for the temperature to stabilize. Adjust the controller up or down as necessary until the desired temperature is obtained. The temperature is considered stable after the thermometer maintains a constant value for 60 minutes.

**5.6** Place samples in bath as desired.

## Figure 2
## Thermometer Placement



Section 6

# MAINTENANCE

**Note: Prior to any maintenance or service on this unit, disconnect power cord from electrical supply.**

**6.1 Cleaning:** Heavy water bath use causes soiling. Clean the bath with mild soap and water solution, rinse with clean water and wipe dry with a soft cloth. Stainless steel does not rust, but foreign materials in the tank may rust or leave rust spots. If corrosion is seen, scrub out the stains with a mild abrasive, never steel wool. DO NOT USE chlorine-based bleaches or harsh abrasives as this can damage the stainless steel tank. DO NOT USE spray cleaners that might leak through openings and cracks and get on electrical parts or that may contain solvents that will harm the coatings. A similar periodic cleaning is recommended.

**WARNING:** Never clean the unit with alcohol or flammable cleaners with the unit connected to the electrical supply. Always disconnect the unit from the electrical service when cleaning and assure all volatile or flammable cleaners are evaporated and dry before reattaching the unit to the power supply.

**6.2 Heating and Water Level:** the heating element of this bath does not contact the tank bottom, thus will not burn out if the tank is allowed to run dry. However, a tank going dry during operation can strain interior surfaces so this should not be allowed to occur. During operation a minimum of 5cm (two inches) of distilled water should be in the tank.

**6.3 Test-tube Racks:** If the water bath tank boils dry while containing plastic-ware, the plastic will melt. If you intend to use test-tube racks that are wire, or plastic coated wire that may wear and expose metal, damage may occur to the tank. It is recommended that all-plastic racks be used, and that the tank never be allowed to boil dry.

Section 7

# TROUBLESHOOTING

## TEMPERATURE

| | |
|---|---|
| Temperature too high | |
| | 1/ Controller set too high-see section 5.5<br>2/ Controller failed on – call Customer Service.<br>3/ Wiring error – call Customer Service. |
| Temperature spikes over set point and th settles to<br>set point | |
| | Recalibrate – see section 5.5 |
| Temperature too low | |
| | 1/ Controller set too low – see section 5.5<br>2/ Bath temperature not recovered from water being added – wait for thermometer to stabilize.<br>3/ Unit not recovered from power failure or being turned off – bath will need a minimum of 2 hours to warm up and stabilize.<br>4/ Element failure – compare current draw to data plate.<br>5/ Controller failure – confirm with front panel lights that controller is calling for heat.<br>6/ Wiring problem – check all functions and compare wiring to wiring schematic in section 8.0 - especially around any areas recently worked on. |
| Unit will not heat over a temperature that below set point | |
| | 1/ Confirm that amperage and voltage match data plate.<br>2/ Confirm that set point is set high enough.<br>3/ Check calibration – using independent thermometer, follow instructions in section 5.5 |
| Unit will not heat up at all | |
| | 1/ Check amperage – amperage should be virtually at maximum rated (data plate) amperage.<br>2/ Has the fuse/circuit breaker blown? |
| Temperature unstable | |
| | 1/ This can be normal, especially without the use of bath cover.<br>2/ Is ambient room temperature radically changing – either door opening or room airflow from heaters or air conditioning ? – stabilize ambient conditions.<br>3/ Calibration sensitivity – recalibrate, see section 5.5. Call customer service if re-calibration does not resolve fluctuation.<br>4/ Assure that the bath is at least 1/3 full. |
| Will not maintain set point | |
| | 1/ Assure that set point is at least 5 degrees over ambient room temperature.<br>2/ See if ambient is fluctuating. |

| MECHANICAL | |
|---|---|
| Water leaking | |
| | 1/ Dry bath and check the tank with flashlight to see if leak is noticeable.<br>2/ Fill tank again and see if leak repeats and find source of leak. Call Customer Service if continues. |
| Holes or rust in tank | |
| | 1/ Assure that clean, distilled water is used – Deionized water, tap water and chemicals should never be used in the tank. USE DISTILLED WATER ONLY.<br>2/ Assure that no test sample has leaked into bath water.<br>3/ No metallic products should be in the tank with exception of a polymer coated rack. |
| **OTHER** | |
| unit or wall fuse/circuit breaker is blown | |
| | 1/ Check wall power source.<br>2/ Compare current draw and compare to specs on data plate.<br>3/ See what other loads are on the wall circuit. |
| unit will not turn on | |
| | 1/ Check wall power source<br>2/ Check fuse/circuit breaker on unit or in wall.<br>3/ Check all wiring connections, esp. around the on/off switch. |
| Unit is smoking – out of box box | |
| | This is not an uncommon occurrence for new units. The elements will burn off protective coatings. Run the bath at high temperature for one hour until smoke dissipates. |

# Service

If this product should require service, contact your Customer Service representative. Should return of the product be necessary, a return authorization number must be obtained and a product shipped to the proper service center. To ensure prompt handling, the return authorization number should be placed on the outside of the package or container. Make sure a detailed explanation of the reason for return is enclosed with the unit. For information on where to contact Customer Service, please see the manual cover.

Section 8

# PARTS LIST

| Description | 115V | 220V |
|---|---|---|
| | | |
| Element –W6A | 9570704 | 9570575 |
| Element – W14A | 9570714 | 9570732 |
| Element – W20A | 9570576 | 9570733 |
| Fuse, 6.3 amp 220V | 3300515 | 3300515 |
| Gable Covers – W6A | 9750508 | 9750508 |
| Gable Covers – W14A | 9750509 | 9750509 |
| Gable Covers – W20A | 9750510 | 9750510 |
| I/O (On/Off) Power Switch | 103351 | 103351 |
| Internal High Limit - non-adjustable | 1750584 | 1750584 |
| Pilot Light | 200021 | 200021 |
| Power Cord – European | NA | 180050 |
| Power Cord | 1800516 | 101990 |
| Rubber Feet w/Screws | 300091 | 300091 |
| Tank Gasket | 3450548 | 3450548 |
| Tanks – W6A | 890058 | 890058 |
| Tanks – W14A | 890062 | 890062 |
| Tanks – W20A | 890060 | 890060 |
| Temperature Control Knob | X1000771 | X1000771 |
| Temperature Controller | 100001 | 100001 |

# UNIT SPECIFICATIONS

| Weight | Shipping | Net |
|---|---|---|
| W6A | 17 lbs. | 12 lbs. |
| W14A | 23 lbs. | 15.6 lbs. |
| W20A | 28.8 lbs. | 22.5 lbs. |

| Dimensions | Exterior WxDxH (in.) | Interior WxDxH (in.) |
|---|---|---|
| W6A | 13.3 x 10.5 x 9.3 | 11.8 x 5.8 x 6 |
| W14A | 13.3 x 17.5 x 9.5 | 11.8 x 12.8 x 5.8 |
| W20A | 27.5 x 16.5 x 17.5 | 11.5 x 19.5 x 6 |

| Capacity | Liters |
|---|---|
| W6A | 5 |
| W14A | 12 |
| W20A | 16 |

| Temperature | Range | Uniformity |
|---|---|---|
| W6A | Amb. +5 to 100°C | ±.2 @ 37°C |
| W14A | Amb. +5 to 100°C | ±.2 @ 37°C |
| W20A | Amb. +5 to 100°C | ±.2 @ 37°C |

# WIRE DIAGRAM