Operation Manual

Model HP1818

208 - 220 Vac 20 A

Updated: December 2025

Read all instructions thoroughly before operating this equipment

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INTRODUCTION

About the 3D Dyeing Process

Congratulations! You are now the owner of an Omegasonics Dye Tank System.

This machine is specifically designed for dyeing manufactured parts built with Hewlett Packard's Multi Jet Fusion 5200/ 4200 Series printers. The 20 gallon dye machine: dyes parts faster, with more consistent results, uses significantly less dye material, and with 1/3 less labor costs than conventional hot plate methods.

The process dyer uses a dual action, high velocity circulation system to move the heated dye material through printed parts reaching all hard to reach areas. Blind holes and small cavities are completely dyed with precision uniformity to meet automotive industry standards.

WARNINGS

Failure to read these warnings may cause the unit to fail, personal injury or property damage.

- Equipment should only be operated on a single phase, 208 – 220 Vac, 20 Amp **grounded** electrical system. The plug is a Hubbell #2321 twist lock device. A Hubbell #2320A, or compatible twist lock, receptacle is required.

- Never plug in or operate the unit without the appropriate liquid level in the tank (2/3 full).

- Any dye material used in this equipment must be compatible with 300 series stainless steel. Use of chemicals that are acidic (pH level < 5) will void any warranty on the equipment. Examples of acids to avoid include: isopropyl alcohol, hydrochloric acid, sulfuric acid, muriatic acid, and others. These chemicals will cause permanent damage to the stainless steel welds.

- Due to the heated liquid in the tank, use baskets, tongs or wires to insert or remove parts from the tank.

- Do not operate the unit with wet hands.

- Do not open the internal circuitry of the equipment, disassemble any part or parts, or move or remove any components or electrical devices.

- Never attempt to perform maintenance on the equipment when the unit is energized or when the cleaning solution is hot.

- Disconnect the power source when moving the unit to a new location.

- Avoid splashing water outside the tank.

Only qualified technically trained personnel should perform any electrical maintenance on this machine.

SET-UP

General

- Place the machine on a level surface and lock the wheels.
- Be sure the drain valve (located at the back of the machine, see image below) is completely closed (handle perpendicular to the drain) before filling the machine.

- Fill the wash tank with water and the proper dilution of dye material until the machine is 2/3 full. Using hot water will shorten the amount of time required to reach the desired temperature. Check drain assembly to insure that there is no leakage.
- The Model HP1818 tank dimensions are 18” x 18” with a 20” working depth. This tank will hold 25 gallons and has a working volume of approximately 20 gallons. Use this volume for calculating the amount of dye material you will use.
- If the machine does not have enough water, the machine will fail.

- Plug the power cord into a proper electrical outlet and press green **POWER** button.

- Unlock the lid by pulling the hinge, located on the right side of the lid, towards yourself and close the lid over the tank to maximize insulation efficiency

- Set digital temperature controller – see page 7 of this manual for specific programming instructions.

- Set the digital timer – see page 8 of this manual for specific programming instructions

- The HP1818 utilizes (4) 900 Watt built-in silicone heating element and is well insulated. The time required to heat the machine initially will vary between one (1) and two (2) hours. The unit heats water at approximately fifty (50) degrees per hour. After the initial heating period, the temperature will remain constant with very limited electrical draw. It is important that the lid remain closed when not in use to minimize heat loss and evaporation.

- **Note:** The HP1818 is equipped with a 24/7 time clock that is factory set to turn on at 6:00am pst and turn off 6:00pm pst, and to operate Monday – Friday. To change the time and/ or date settings, please see instructions in Troubleshooting Guide located on page 13 of this manual. You can also override the settings and manually turn the controller on.

Digital Temperature

Knowing Your Temperature Controller

- PV: This upper display indicates the actual Process Value (or current temperature) of the bath and cannot be changed manually.
- SV: The lower display indicates the Set Value or desired bath temperature. This Set Value is adjustable.
- ALM 1: If this light is on, it means that the machine is currently heating. It will shut off once the desired temperature has been reached.
- OUT: If this light is on, it means that the bath temperature is out of the preset range of 50˚F - 160˚F. There is a 5˚ hysteresis which means that the heating mechanism (and the OUT light) will go on/off based on a 5˚ variance. This protects the life of the motor contactor.
- AT, ALM 2: Omegasonics use only.
- Return Key ↵

Operation

- The temperature controller is factory set at 180˚F.
- To change the Set Value, lightly press the up or down arrows Pressing and holding down either arrow key will change the displayed value rapidly.
- Upon changing the Set Value, this lower display will flicker indicating the new value is not set. To make this value permanent, press the RETURN Key ↵ .
- Experience shows that the optimum ultrasonic cleaning temperature for most applications is 120˚F - 160˚F.
- When ready to activate the heat, turn the selector switch marked **HEAT** to the **ON** position.

Digital Timer

Operation

- The 4-digit number on the upper display is the amount of time that the machine has been in actual operation. It will count up to the preset value.
- The illuminated 4-digit number on the lower display is the preset value.
- Pressing the **RESET** button will deactivate the timer and reset it to 0. Turning the switch to **RESET** will also deactivate the timer.
- Pressing the **LOCK** button will prevent you from changing the preset time value. **LOCK** will display in the lower orange display.
- The ultrasound is factory set to 15:00 minutes.
- To adjust the preset value, press the blue keys. Press the up arrow key, to increase, or down arrow key, to decrease.
- Left most blue key corresponds to 10 minute increments.
- Second blue key from the left corresponds to 1 minute increments.
- Third blue key from the left corresponds to 10 second increments.
- Right most blue key corresponds to 1 second increments.

- The time is activated by turning the selector switched marked **SONICS** to the **ON** position. The button will return to center. The “OP” light will illuminate on the lower, left side orange display. A red light will illuminate and blink on the upper, left side red display while the timer is operational.

DYEING PROCEDURES

Machine Operation

- If you haven't done so already, press the green button marked **POWER.** The button will illuminate. The control panel is now energized.
- Set the temperature controller to the desired set point.
- Turn the switch marked **HEAT** to the **ON** position.
- Set the digital timer to the desired run time required.
- Once the temperature reaches the desired bath temperature, you can begin the dyeing process.
- To activate the agitation process, turn the switch marked **CYCLE** to the **ON** position. The selector switch will spring back to the center position.
- To deactivate the agitation cycle before the timer has completed its cycle, turn selector switch to the **RESET** position. The selector switch will spring back to the center position.

PROCESS

- Be careful not to overload the system and/or the baskets.
- Many times you can achieve better results by dyeing two smaller loads rather than one large load.
- When lowering the items into the tank via baskets or tongs, be sure to arrange the items so they are not touching the bottom of the tank. They should be suspended at least ½" above the tank bottom. This can be achieved with the use of a tank rack.
- Items should not be stacked too densely.
- The volume of parts to be cleaned should not exceed thirty percent (30%) of the total tank volume.
- Temperature setting is typically 180-200°F
- Cycle time settings are unique to the size and complexity of the parts being dyed. Guidelines are as follows:
    a. Small parts: >2" generally require 15-30 minute intervals
    b. Medium parts: 2" – 10" require 30 – 60 minutes
    c. Larger parts: <10" require 1 – 3 hours plus

NOTE: Thorough cleaning of the dye prior to submerging in the dye tank will greatly enhance the dyeing effectiveness. Cleaning is accomplished by removing the white nylon/ poly-propylene powder using baking soda or some other abrasive. The darker grey the surface is, the better the finished dyed product is.

- Activate the dyeing process by switching **CYCLE** to **ON**.
- Parts being dyed do not require continuous supervision or labor intensive involvement. Parts should however be inspected during the dyeing process.
- Large parts should be rotated 180° midway through the cleaning cycle.
- Visually inspect each part for desired dye penetration after the parts have dried completely. If parts must be handled, wear gloves when touching surfaces to protect against heated parts.
- Remove dyed parts and rinse off all the remaining dye material residue with either of the following methods:
    a. Rinse for one (1) minute in clean, free flowing water.
    b. Rinse in a static bath of fresh water for one (1) minute.
- Parts can be run through a final shot peen process to surface remove minor gradients and goldish residue.

DYE MATERIAL

- Approximately use fifteen (15) ounces of Rit Proline Dye material to the twenty gallon bath of water. This is a ratio of 200:1 of dye material, ie. 1 part dye material to 200 parts water.

EQUIPMENT MAINTENANCE

General

- Keep the bath free of oils, grease and any foreign materials.
- Dye material should be changed periodically depending on usage.

Draining Tank

- Turn equipment off and unplug the power cord.
- Wait at least twenty (20) minutes after the heat circuit is turned off before emptying the tank. Permanent damage to the heater elements will occur if the tank is drained too soon after the heaters are turned off.
- Drain the spent dye solution from the tank using the valve.
- Rinse the inside of the tank with clean water.
- Buff the inside of the tank with a clean, soft cloth. Do not use steel wool cleaning pads as they are too abrasive and will scratch the tank surface.
- Rinse the tank again.
- If the tank will not be used for a long period of time, wipe the inside and the outside of the tank dry with a dry, clean, soft cloth.
- Close the lid on the cleaning tank. The lid should remain closed when the equipment is not in use to keep dust and debris from accumulating.
- This tank cleaning procedure should be performed every time the bath is changed. Always thoroughly inspect drain areas for leaks.

When discharging bath and waste, follow all environmental and regulatory requirements. A reputable and licensed waste transportation firm should perform removal of all waste materials. Omegasonics is not liable for improper handling of waste materials.

LIMITED WARRANTY

Omegasonics warrants the HP1818 for a period of two (2) years from the date of delivery, when used in accordance with the manufacturer's instructions. During the warranty period, Omegasonics will repair or replace free of charge at an authorized repair service center all parts that are defective because of material or workmanship. Freight charges to an authorized service centers are the responsibility of the user.

This warranty does not include damage or product failure, which results from misuse, abuse or transportation damage. This warranty is limited to the original purchaser and is not transferable. Total liability for any reason whatsoever, shall not in any case exceed the cost of repair or replacement of the defective part. In no case shall Omegasonics be responsible for any incidental or consequential damages.

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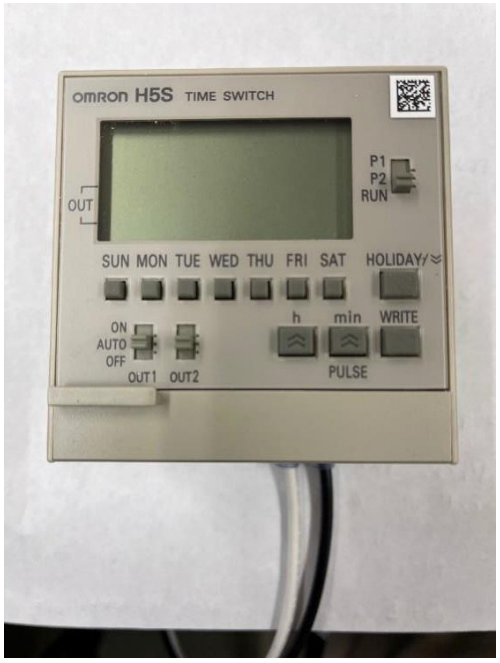
TROUBLE SHOOTING

Changing TIME/ DATE on 24/7 TIME CLOCK



- Move switch from RUN to P1
- ↑ will flash. Press min to change to the desired time. Press **WRITE**
- ↓ will flash. Press h (hours) to change to the desired start time. Press **WRITE**
- If a day of operation needs to be added or deleted, press the button for SUN, MON etc. A black line above the day indicates this will be an operational day.
- Once all parameters are changed, Move switch from P1 to RUN
- To manually override the 24/7 time clock, move the **OUT 1** switch from AUTO to ON to activate the time clock controller.
- To manually turn off the time clock, move the **OUT 1** switch from AUTO to OFF. The entire machine will not be operational

Pump or Plumbing Issues

- The pump and plumbing are accessed from the left end of the machine by removing the Phillips head screws
- If the motor energizes and you can feel air blowing from the back, then this will be a pump head problem.
- Machine will need to be drained before the pump volute can be removed
- Remove volute and inspect impellor or bushing for damage.
- If a leak occurs, tightening will generally fix the issue.

Control panel has lights, but there is no Heat action.

1. Is the water level to the middle height of the tank?
2. If NO - fill water to the appropriate level (14" – 16").
3. If this doesn't correct the problem:
    a. Unplug the machine from the facility power supply.
    b. Remove the panel located on the right end of the machine.
    c. Look for the ice cube relay located at the left end of the back panel.
    d. Flip the window up (window has a red button) – this bypasses the thermal overload. You will see an orange flag visible in the upper right window.
    e. The machine will be operational, but will have no low water level protection.
4. If either instruction does not solve the issue, replace ice cube relay.
5. Go to www.Omegasonics.com to order a replacement ice cube relay.

No lights on the control panel.

1. Is the Power push button pushed in?
2. Is there power to the facility outlet?
3. Turn off Power and unplug the machine.
4. Remove upper panel located on the right end of the machine.
5. Is the circuit breaker energized (UP-Red) or (DOWN-Green)?
6. If the circuit breaker is tripped, re-set the circuit breaker.
7. Plug in machine.
8. Follow the steps above to isolate the exact issue.

Heat is causing the circuit breaker to trip.

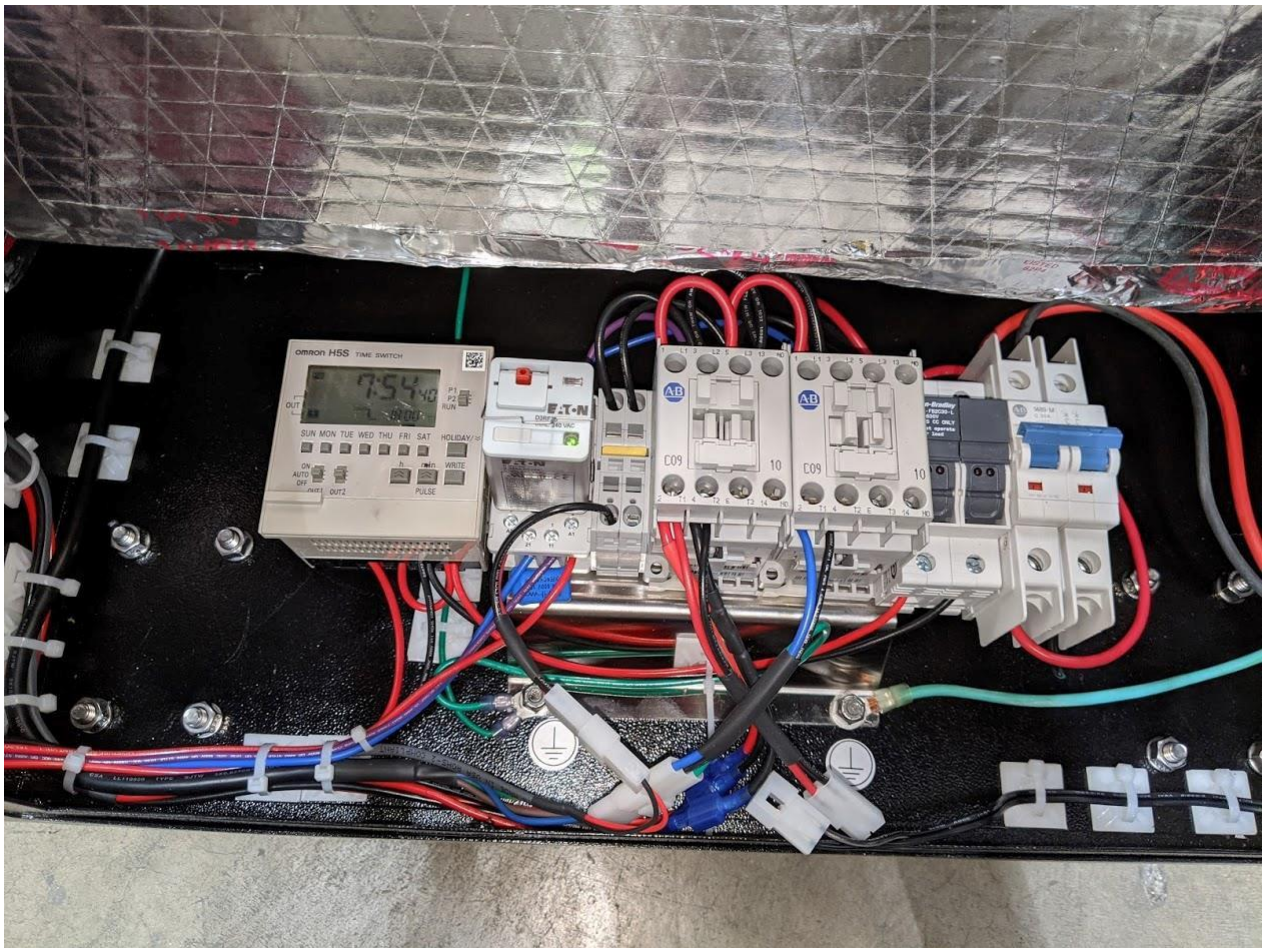
1. Likely cause is a shorted heat blanket.
2. Remove the front (if applicable) and back lower access panels.
3. Inspect the heat blanket(s) – they should be an orange/ pinkish color.
4. If the heat blankets are black or charcoal white, they must be replaced.
5. Go to www.Omegasonics.com to order new heat blanket(s).

Circuit Breaker Nuisance Trips

1. If no specific circuit causes the internal circuit breaker to trip but the issue occurs sporadically, then the circuit breaker will need to be replaced.
2. Go to www.Omegasonics.com to order a new circuit breaker.

NOTE: Always inspect the back panel wires for burnt or loose wires. Burnt wires are typically caused by a loosened connection and must be replaced.

PARTS LIST



24/7 Time Clock | Ice Cube Relay | Heat Contactors | Fuse Holder | Circuit Breaker

- Thermal Overload Auto Reset – *Thermal Overload*
- Digital Timer - *Timer*
- Digital Temperature Controller – *Digital Temp*
- 3 Position Selector (“Cycle”) – *Switch-3 Position Selector*
- 2 Position Selector (“Heat”) – *Switch-2 Position Selector*

- Power Button – *Push Button*
- Motor Contactor –*Contactor-240*
- Heat Blanket – *Heat Blanket-900/240V*
- Ice Cube Relay - *Relay-240*
- *24/7 Time Clock – Time Clock*