

# Operators Manual

Model 3370

Air Cooled Recirculator

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## Section 1. General Information

### 1.1 Warranty

Thank you for your purchase. We are confident it will serve you for a long time. Our warranty to you is as follows:

The manufacturer agrees to correct for the original user of this product, either by repair, or at the manufacturer's election, by replacement, any defect in parts which develops within 24 months after delivery of this product to the original user. The warranty period for labor is 12 months after delivery. In the event of replacement, the replacement unit will be warranted for 90 days or for the remainder of the original unit's parts or labor warranty period, whichever is longer.

If this product should require service, contact the manufacturer's office for instructions. When return of a product is necessary, a return authorization number will be assigned and the product should be shipped, (transportation charges pre-paid), to the indicated service center. To insure prompt handling, the return authorization number should be placed on the outside of the package and a detailed explanation of the defect enclosed with the item. This warranty shall not apply if the defect or malfunction was caused by accident, neglect, unreasonable use, improper service, or other causes not arising out of defects in material or workmanship. There are no warranties, expressed or implied, including, but not limited to, those of merchantability or fitness for a particular purpose which extends beyond the description and period set forth herein.

The manufacturer's sole obligation under this warranty is limited to the repair or replacement of a defective product and the manufacturer shall not, in any event, be liable for any incidental or consequential damages of any kind resulting from use or possession of this product.

Some states do not allow: (A) limitations on how long an implied warranty lasts or (B) the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

### 1.2 Unpacking

Your recirculator is shipped in a special carton. Retain the carton and all packing materials until the unit is completely assembled and working properly. Set up and run the unit immediately to confirm proper operation. Beyond one week, your unit may be warranty repaired, but not replaced. If the unit is damaged or does not operate properly, contact the transportation company, file a damage claim and contact the company where your unit was purchased.

*Read all instructions pertaining to safety, setup and operation.  
Proper operation is the users' responsibility.*

## Section 2. Product Information

### 2.1 Description

This air cooled unit continuously pumps near ambient temperature water from a reservoir to an external heat source, through a cooling radiator, and then returns cooler water to the reservoir. By blowing ambient air over the radiator, water flowing inside is cooled and the heat is exchanged into the atmosphere.

### 2.2 Specification Chart

Cooling Capacity (Using Water @ 25°C)	3700 Watts (12,600 BTU)
Dimensions (w x d x h)	15 x 15 x 25 in. (38 x 38 x 63.5 cm)
External Fluid Connections	Inlet & outlet, 1/2 in. female NPT
Reservoir Capacity	1.3 gallons (4.8L)
Maximum Liquid Temperature	170°F (77°C)
Maximum Fluid Flow Rate	2 gpm (7.57 lpm)
By-Pass Relief Valve	Factory pre-set to 50 psi. Adjustable 20 to 100psi.
Shipping Weight	69 Lbs (31.3kg)
Electrical Specifications	120V, 60Hz, 1ph, 5.5A or 240V, 50Hz, 1ph, 2.75A
Recommended Coolant	Distilled Water

Note: For 50Hz Models, derate cooling by 17%

## Section 3. Operation and Set Up

### 3.1 Location

Locate your recirculator on a level surface free from drafts and direct sunlight. Do not place it where there are corrosive fumes, excessive moisture, high room temperatures, or excessively dusty areas. Recirculators must be 18 inches minimum away from vertical surfaces so air flow is not restricted. Install as close as possible to the heat source. Avoid voltage drops by using properly grounded power outlets wired with 14 gauge or larger diameter wire and if possible, be close to the power distribution panel. The use of extension cords is not recommended. This will avoid low line voltage problems.

### 3.2 Plumbing

The supply inlet and outlet on the rear of the recirculator are plainly marked. Connect the recirculator outlet to the inlet of the heat source. The outlet of the heat source should be connected to the inlet of the recirculator. Use heavy wall tubing, preferably reinforced, to make connections. Minimize bends in the tubing as well as the length of tubing from the recirculator to the heat source. Do not run the connecting tubing near any type of heat source. Be sure all connections are secure and clamped before filling with water.

### 3.3 Filling the Reservoir

Distilled water is recommended. To prevent algae growth in the system, shield tubing from light. Insulation around the tubing will suffice. Use an algaecide in the cooling water to minimize algae growth (PolyScience Lab Algaecide is recommended to prevent algae growth).

Do NOT use chlorine bleach as an algaecide.

Remove the back panel and unscrew the reservoir cap. Carefully fill the reservoir with distilled water. If possible, also fill the inlet and outlet lines. Although additional water may have to be added later to completely fill the system, replace the reservoir cap at this time. Do not replace the back panel until the reservoir and whole system are full.

Wettable components of this recirculator are copper, brass, PVC, polyethylene, nylon and stainless steel. Any fluids used in the circulating system must be compatible with these materials.

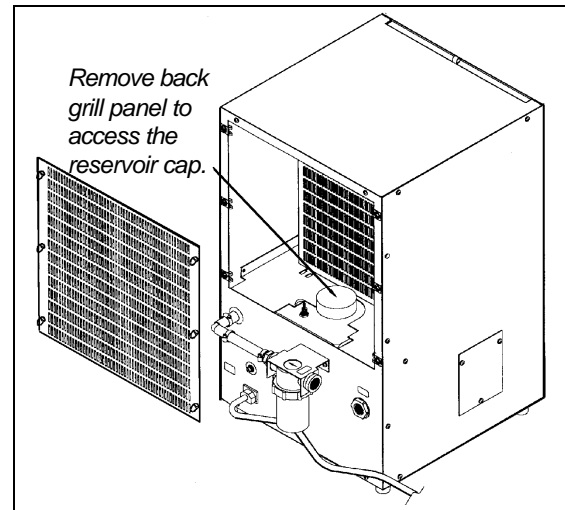


Figure 3.3

Do NOT use the following fluids:

1. Solutions containing automotive antifreeze
2. Hard tap water
3. Deionized water with a specific resistance > 1 megohm
4. Any flammable fluids
5. Any concentrations of acids or bases
6. Chemical solutions with halides, bleach or chromates

WARNING: Do not use a flammable liquid as a fire hazard may result.

### 3.4 Operation

Connect the AC power cord to a power source of the same voltage characteristics as indicated on the serial number label on the rear of the circulator. Be sure that the power outlet is properly grounded.

Press the recirculator ON using the Power Switch on the front panel. If the unit does not start, press the Power Switch OFF, press the circuit breaker button on the rear, then turn the Power Switch ON again.

The cooling fan and pump motor will begin to function.

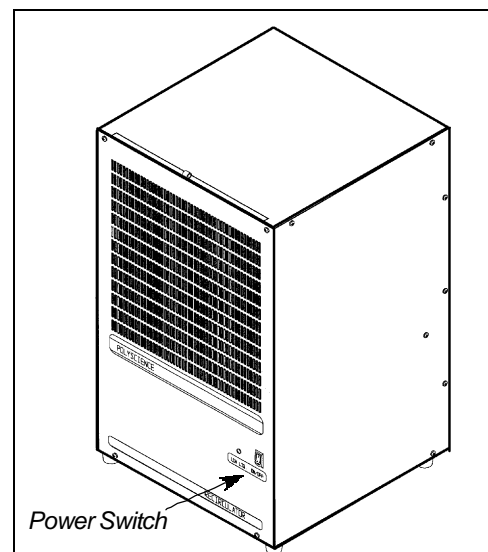


Figure 3.4

Observe the liquid level in the reservoir. If it is low, or if the Low-Liquid Warning light is on, remove the reservoir cap and add water until the reservoir is full. The recirculator may be temporarily operated with the reservoir cap removed when filling. The reservoir cap must not be left open during normal operation. Check all plumbing connections for leaks. If leaks are found, do not continue to operate the recirculator until all connections are secure.

The Low-Liquid Warning light on the front panel will turn on if the fluid in the reservoir is low. When this happens, immediately replace the fluid as necessary.

**NEVER LET THE RECIRCULATOR PUMP RUN DRY.**

### 3.5 Safety By-Pass Relief Valve Adjustment Procedure

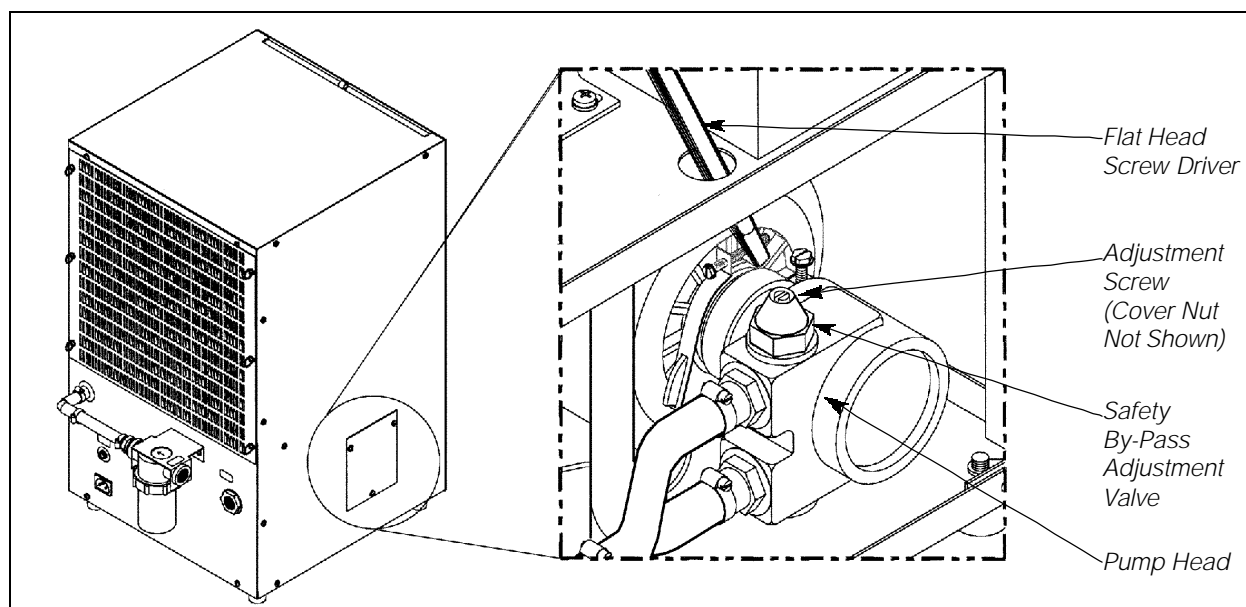


Figure 3.5

To protect the pump in case of blockage or shut off of fluid flow, a Safety By-Pass Relief Valve is built into the pump head. This permits fluid to continue flowing within the pump and minimizes the possibility of damage due to a dry pump.

Adjustment of the Safety By-Pass Pressure Relief (factory set at 50 psi):

1. A fluid-filled pressure gauge with a range of 0 to 150 psi (not supplied) must be attached to the recirculator outlet fitting so as to prevent fluid flow.
2. The reservoir must be filled as indicated in Section 3.4
3. Remove the side access panel from the recirculator to gain access to the Safety By-Pass Adjustment Screw on the Pump Head. (See Fig. 3.5)
4. Turn the unit ON and check for leaks. Be sure pressure gauge is not leaking. The gauge should display approximately 50 psi.
5. Remove the Cover Nut on the Pump Head to access the Adjustment Screw.
6. To **INCREASE** the Safety By-Pass Relief pressure setting, use a flat head screwdriver to turn the Adjustment Screw clockwise. While reading the pressure gauge, turn the screw until the desired setting is achieved. To **DECREASE** the pressure setting, turn the pressure Adjustment Screw counter-clockwise until the desired setting is achieved.

**CAUTION:** Maximum pressure is 100psi. Care must be taken to limit adjustment of Safety By-Pass Relief Valve setting to 100psi or less. Damage may occur at settings exceeding 100 psi and will void warranty.

## Section 4. Maintenance

### 4.1 Air Filter

Set up a periodic maintenance schedule to clean the removable air filter at least monthly. Frequency of cleanings will depend on the atmospheric conditions around the recirculator location, as well as length of time the unit is operated.

### 4.2 Inlet Water Filter

The precision, positive displacement pump can be damaged by mineral scale or other foreign particles in the cooling stream. Therefore the pump inlet is protected by a nylon filter holder containing an 80 mesh stainless steel screen. Clean this screen periodically. To remove any initial particles, clean the screen a few days after first starting the unit.

### 4.3 Positive Displacement Pump Motor

The front and rear bearings of the  $\frac{1}{3}$  HP pump motor require periodic oiling. Unplug the recirculator from the power source. To access the motor, remove the screws which hold the sides and front cover to the recirculator's frame. The pump is located under the fan and heat exchanger. Oiling instructions are on the motor. With heavy use, oil the motor once a year. With medium use, oil every 3 years. With light use, oil every 5 years. For each oiling, use 30 drops of non detergent SAE 20 oil in both bearings.

### 4.4 Periodic Inspection

All components should be inspected at least once a month or more frequently if the recirculator is used continuously. Examine all fittings for leaks and also check the fluid level. If the level is low, check the heat source as well as the recirculator for leaks. Replace the recirculating fluid every three months. If algae growth is noted, replace more frequently.