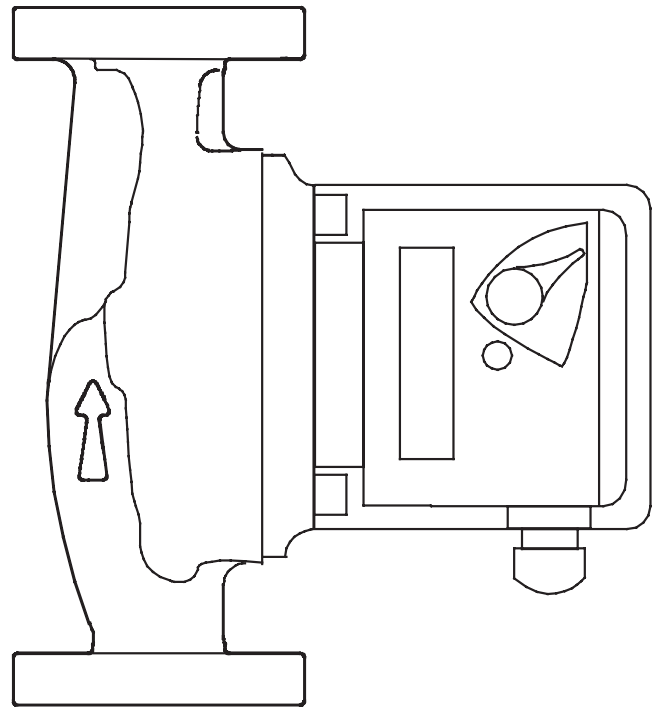




AURORA[®]



1070 SERIES **3-SPEED CIRCULATORS**

INSTRUCTION, INSTALLATION, MAINTENANCE AND REPAIR MANUAL

NOTE! To the installer: Please make sure you provide this manual to the owner of the equipment or to the responsible party who maintains the system.

IMPORTANT NOTE TO INSTALLER:

Read carefully before installing and operating the circulator.

You are about to install a pump model from the finest multi-speed wet rotor circulator line on the market today. Aurora's Model 3-Speed circulators are designed for closed hydronic or potable water systems. Their intended use is for circulating water or glycol solutions. For pumping domestic water use non-ferrous no lead bronze or stainless steel body pump construction.

The 3-Speed is extremely quiet operating and is lubricated by the system liquid being pumped by the circulator.

These circulators are designed to work at temperatures and pressures up to 230°F (110°C) and 150 psi, respectively. For no lead bronze and stainless steel pumps used in potable water systems, it is recommended that the operating temperature of the fluid be kept as low as possible (i.e. below 150°F/66°C) to avoid precipitation of calcium.

When unpacking the circulator, inspect for any damage that may have occurred during transit. Check for loose, missing or damaged parts.

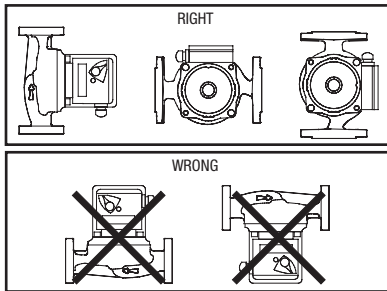
CALIFORNIA PROPOSITION 65 WARNING:

⚠ WARNING This product and related accessories contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

INSTALLATION:

We recommend that any soldering be done before the pump is actually installed. This will eliminate the possibility of solder dropping into the pump body.

Thoroughly flush the system out before installing the circulator.



Before installing, check that the flow direction of the water through the pump body matches the arrow on the circulator body. The circulator is supplied for up discharge installation.

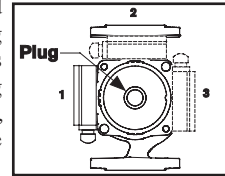
Install the circulator in either the outlet or inlet line to the boiler or hot water heater. It is important to install these circulators with the split between the circulator body and the motor in a vertical position. This ensures efficient operation. See examples.

The circulator shaft must always be in a horizontal position. (The piping can be in a horizontal or vertical run.) Isolation valves should be installed on the discharge and suction side of the pump to facilitate service.

TERMINAL BOX:

Always install the circulator with the terminal box above or beside the motor. If the terminal box is under the motor as initially mounted, remove the motor mounting screws and rotate the motor to the proper position. (See example.)

Ensure the gasket is intact and seated before evenly retightening the mounting screws. To ensure the rotor still spins freely, temporarily remove the plug (located in the middle of the nameplate), insert a flat head screwdriver into the slot in the end of the rotor shaft and turn.



⚠ Warning:

Do not hang items or articles of clothing on the pump as it must breathe air. Do not operate the circulator without the motor plug installed.

ELECTRICAL WIRING:

The electrical wiring must be installed strictly in accordance with National Electrical Code, local codes and regulations.

- a. Electrical installation should be conducted by a qualified electrician.
- b. Always make sure electric power is disconnected before wiring the circulator.

Motor is designed for 60 Hz, 1 phase, 115 volt power.

Wire shall be 14 to 16 gauge solid wire or 16 to 18 gauge stranded wire.

To wire, loosen the screw from the terminal box cover and remove the screw and cover.

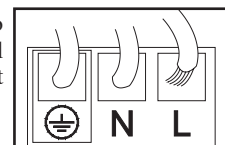
Strip 3/16" of insulation from the ends of the three wires to be connected.

To insert the wires into the terminal strip, flip the terminal lever away from the wire opening and press down firmly. Insert the stripped wire into the opening and release the lever. Tug on the wire gently to ensure it is secured.

Connect the hot wire to terminal "L", the neutral wire to terminal "N", and the ground wire to terminal .

Tighten the terminal box cover.

Motor is thermally protected so overload protection is not necessary. All that is required is a fuse or plug or circuit breaker in the power line.

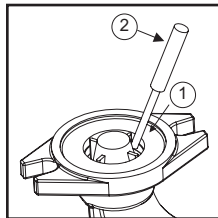


Electrical information can be found on the nameplate of the motor.

1070 SERIES

CHECK VALVE REMOVAL:

1. Insert one end of a screwdriver into the space between the check valve and the outlet of the pump.
2. Gently pry on the other end of the screwdriver to remove the check valve.



START-UP:

These circulators are maintenance free. Self-lubricated by the system fluid, these circulators have no seals to leak or coupling to break.

A proper installation practice recommends to thoroughly flush the system clean of all foreign materials prior to installing the circulator.

Fill the system before starting.

Speed setting of 1070 3-speed circulators:

The speed of these pumps can be adjusted with a 3-speed rotary switch. On speed setting 1, the pump operates at approximately half the performance of the speed setting 3 (maximum speed) and consumes about half the power of full speed operation.

Warning:

Never operate the circulator dry as permanent damage may occur. Never shut off the discharge or restrict suction flow while the circulator is operating.

The venting of the rotor chamber may be done automatically. However, to assure proper and faster venting of this circulator, we recommend the manual venting procedure as follows:

1. Place a container under the back of the circulator to catch any water that may run out.
2. Be sure power to the circulator is off at the fuse or circuit breaker.
3. Loosen plug on the back of the motor but do not remove.
4. Continue until water appears.
5. After a sufficient amount of water free of air bubbles has passed, retighten the plug.
6. The circulator can now be started.

Liquid Temperature	Minimum Inlet Pressure
167°F (75°C)	1.6 ft. (0.5 m)
194°F (90°C)	9.2 ft. (2.8 m)
230°F (110°C)	36.1 ft. (11.0 m)

INSTALLATION TROUBLESHOOTING GUIDE

Fault	Possible Cause	Remedy
Noise from radiator.	Excessive pressure passing the thermostatic valve.	<ul style="list-style-type: none"> • Reduce the speed setting. Flow decreases will reduce system pressure and eliminate the noise.
The radiator is not giving off any heat.	The thermostatic valve is jammed or blocked.	<ul style="list-style-type: none"> • Shut off all other radiators in the system, and set the pump at maximum speed. • Once the blockage has been dislodged reopen the radiators and adjust pump to original speed setting.
The heating system is not balanced.	Pump generates too little (no) output.	<ul style="list-style-type: none"> • Re-assess the system. Fit new commissioning valves on all radiators (may be integrated in the thermostatic valves) to enable an even distribution of the flow.
Incorrect discharge direction.		<ul style="list-style-type: none"> • Turn pump 180 degrees.
Dirty impeller.		<ul style="list-style-type: none"> • Open pump and clean impeller. Note: Close isolation valves if present.
Suction port blocked.		<ul style="list-style-type: none"> • Open pump and clean housing. Note: Close isolation valves if present.
Outlet blocked.		<ul style="list-style-type: none"> • Clean isolation valves.
Isolation valve closed.		<ul style="list-style-type: none"> • Open isolation valves.
Dirty strainer.		<ul style="list-style-type: none"> • Clean strainer.
Air in the pump.		<ul style="list-style-type: none"> • Switch off pump and open bleed screw to vent.
Pump at lowest/med. spd. level.		<ul style="list-style-type: none"> • Set pump to the next higher speed level.
Pump set point is too low.		<ul style="list-style-type: none"> • Increase set point on the pump or controller.
Pump stopped, no power.	Power supply interrupted.	<ul style="list-style-type: none"> • Check the power supply. Attach external power control if necessary.
Fuse tripped or circuit breaker opened.		<ul style="list-style-type: none"> • Repair short-circuited wire. Repair loose contact. • Check for the properly rated fuse. • Check pump motor and lead.
Pump stopped, power supply present.	Thermal switch has actuated.	<ul style="list-style-type: none"> • Reduce ambient temperature. • Clean blocked or slow rotating pumps.
Pump does not start.		<ul style="list-style-type: none"> • Open air vent screw and unlock shaft. Clean pump. • Increase speed/set point. • Replace pump.

1070 SERIES

INSTALLATION TROUBLESHOOTING GUIDE – CONTINUED

Fault	Possible Cause	Remedy
Noises in system, thermostatic valves/pipes.	Pump output too high.	<ul style="list-style-type: none"> • Reduce speed level. • Open bypass/valve. • Install circuit balancing valves to adjust flow. • Check pump selection/system. Adjust pump. Check system/gauges. • Replace pump.
Noisy pump.	Air in pump.	<ul style="list-style-type: none"> • Open bleed screw and vent pump. Vent and top up system with water. • Check expansion tank. • Install air separator.
Cavitation sounds.		<ul style="list-style-type: none"> • Increase inlet pressure. • Reduce temperature. • Throttle back pump. • Reduce speed.
Resonance noises.		<ul style="list-style-type: none"> • Use sound insulation material between the pump and surface to reduce resonance noise. Install expansion joints. Install fixture to change system's natural frequency. • Adjusts pump speed. • Replace pump/motor.
Knocking from foreign bodies in the pump/or on valve.		<ul style="list-style-type: none"> • Clean impeller. • Adjust valve pressure. Adjust valve spring. Turn valve around if installed incorrectly. • Replace pump.

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WARRANTY

Seller warrants equipment (and its component parts) of its own manufacture against defects in materials and workmanship under normal use and service for one (1) year from the date of installation or start-up, or for eighteen (18) months after the date of shipment, whichever occurs first. Seller does not warrant accessories or components that are not manufactured by Seller; however, to the extent possible, Seller agrees to assign to Buyer its rights under the original manufacturer's warranty, without recourse to Seller. Buyer must give Seller notice in writing of any alleged defect covered by this warranty (together with all identifying details, including the serial number, the type of equipment, and the date of purchase) within thirty (30) days of the discovery of such defect during the warranty period. No claim made more than 30 days after the expiration of the warranty period shall be valid. Guarantees of performance and warranties are based on the use of original equipment manufactured (OEM) replacement parts. Seller assumes no responsibility or liability if alterations, non-authorized design modifications and/or non-OEM replacement parts are incorporated. If requested by Seller, any equipment (or its component parts) must be promptly returned to Seller prior to any attempted repair, or sent to an authorized service station designated by Seller, and Buyer shall prepay all shipping expenses. Seller shall not be liable for any loss or damage to goods in transit, nor will any warranty claim be valid unless the returned goods are received intact and undamaged as a result of shipment. Repaired or replaced material returned to customer will be shipped F.O.B., Seller's factory. Seller will not give Buyer credit for parts or equipment returned to Seller, and will not accept delivery of any such parts or equipment, unless Buyer has obtained Seller's approval in writing. The warranty extends to repaired or replaced parts of Seller's manufacture for ninety (90) days or for the remainder of the original warranty period applicable to the equipment or parts being repaired or replaced, whichever is greater. This warranty applies to the repaired or replaced part and is not extended to the product or any other component of the product being repaired. Repair parts of its own manufacture sold after the original warranty period are warranted for a period of one (1) year from shipment against defects in materials and workmanship under normal use and service. This warranty applies to the replacement part only and is not extended to the product or any other component of the product being repaired. Seller may substitute new equipment or improve part(s) of any equipment judged defective without further liability. All repairs or services performed by Seller, which are not covered by this warranty, will be charged in accordance with Seller's standard prices then in effect.

THIS WARRANTY IS THE SOLE WARRANTY OF SELLER AND SELLER HEREBY EXPRESSLY DISCLAIMS AND BUYER WAIVES ALL OTHER WARRANTIES EXPRESSED, IMPLIED IN LAW OR IMPLIED IN FACT, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Seller's sole obligation under this warranty shall be, at its option, to repair or replace any equipment (or its component parts) which has a defect covered by this warranty, or to refund the purchase price of such equipment or part. Under the terms of this warranty, Seller shall not be liable for (a) consequential, collateral, special or liquidated losses or damages; (b) equipment conditions caused by normal wear and tear, abnormal conditions of use, accident, neglect, or misuse of said equipment; (c) the expense of, and loss or damage caused by, repairs or alterations made by anyone other than the Seller; (d) damage caused by abrasive materials, chemicals, scale deposits, corrosion, lightning, improper voltage, mishandling, or other similar conditions; (e) any loss, damage, or expense relating to or resulting from installation, removal or reinstallation of equipment; (f) any labor costs or charges incurred in repairing or replacing defective equipment or parts, including the cost of reinstalling parts that are repaired or replaced by Seller; (g) any expense of shipment of equipment or repaired or replacement parts; or (h) any other loss, damage or expense of any nature.

The above warranty shall not apply to any equipment which may be separately covered by any alternate or special warranties.

PERFORMANCE: In the absence of Certified Pump Performance Tests, equipment performance is not warranted or guaranteed. Performance curves and other information submitted to Buyer are approximate and no warranty or guarantee shall be deemed to arise as a result of such submittal. All testing shall be done in accordance with Seller's standard policy under Hydraulic Institute procedures.

LIABILITY LIMITATIONS: Under no circumstances shall the Seller have any liability under the Order or otherwise for liquidated damages or for collateral, consequential or special damages or for loss of profits, or for actual losses or for loss of production or progress of construction, regardless of the cause of such damages or losses. In any event, Seller's aggregate total liability under the Order or otherwise shall not exceed the contract price.

ACTS OF GOD: Seller shall in no event be liable for delays in delivery of the equipment or other failures to perform caused by fires, acts of God, strikes, labor difficulties, acts of governmental or military authorities, delays in transportation or procuring materials, or causes of any kind beyond Seller's control.

COMPLIANCE WITH LAW: Seller agrees to comply with all United States laws and regulations applicable to the manufacturing of the subject equipment. Such compliance shall include: The Fair Labor Standards Acts of 1938, as amended; Equal Employment Opportunity clauses of Executive Order 11246, as amended; Occupational Safety and Health Act of 1970 and the standards promulgated thereunder, if applicable. Since compliance with the various Federal, State, and Local laws and regulations concerning occupational health and safety, pollution or local codes are affected by the use, installation and operation of the equipment and other matters over which Seller has no control, Seller assumes no responsibility for compliance with those laws and regulations, whether by way of indemnity, warranty, or otherwise. It is incumbent upon the Buyer to specify equipment which complies with local codes and ordinances.



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