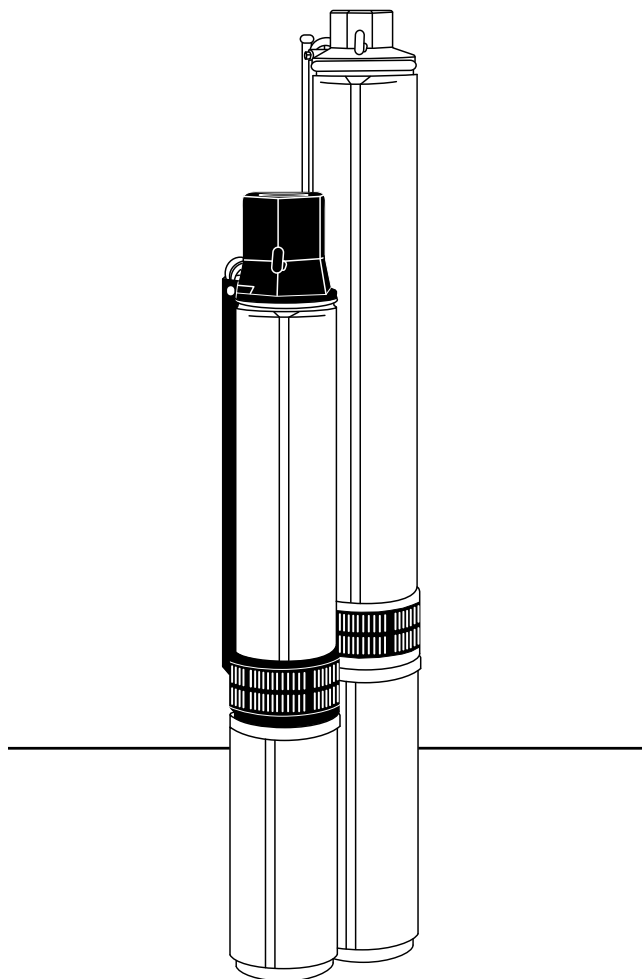




Franklin Electric

4" ENVIRONMENTAL E-SERIES PUMPS OWNER'S MANUAL



BEFORE INSTALLING PUMP, BE SURE TO READ THIS OWNER'S MANUAL CAREFULLY.

CAUTION Fill pump with water before starting or pump will be damaged. The motor on this pump is guaranteed by the manufacturer and in event of failure it must be returned to an authorized service station for repairs. Motor warranty is void if repairs aren't made by an authorized repair station.

INSPECT THE SHIPMENT

Examine the pump when it is received to be sure there has been no damage in shipping. Should any be evident, report it immediately to the dealer from whom the pump was purchased. Please check the pump package to see that it includes pump, motor, and motor leads (if your pump purchase includes a motor). Make certain that your available voltage corresponds to that of your motor.

READ AND FOLLOW SAFETY INSTRUCTIONS

! This is the safety alert symbol. When you see this symbol on your pump or in this manual, look for one of the following signal words and be alert to the potential for personal injury:

DANGER warns about hazards that will cause serious personal injury, death or major property damage if ignored.

WARNING warns about hazards that can cause serious personal injury, death or major property damage if ignored.

CAUTION warns about hazards that will or can cause minor personal injury or major property damage if ignored.

The label **NOTICE** indicates special instructions, which are important but not related to hazards.

Carefully read and follow all safety instructions in this manual and on pump.

! WARNING



Hazardous voltage.
Can shock, burn, or cause death.

Ground pump before connecting to power supply. Disconnect power before working on pump, motor or tank.

Keep safety labels in good condition.

Replace missing or damaged safety labels.

! Wire motor for correct voltage. See "Electrical" section of this manual and motor nameplate.

! Ground motor before connecting to power supply.

! Meet National Electrical Code, Canadian Electrical Code and local codes for all wiring.

! Follow wiring instructions in this manual when

connecting motor to power lines.

ATTENTION!

IMPORTANT INFORMATION FOR INSTALLERS OF THIS EQUIPMENT!

THIS EQUIPMENT IS INTENDED FOR INSTALLATION



BY TECHNICALLY QUALIFIED PERSONNEL. FAILURE TO INSTALL IT IN COMPLIANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES, AND WITH FRANKLIN ELECTRIC RECOMMENDATIONS, MAY RESULT IN ELECTRICAL SHOCK OR FIRE HAZARD, UNSATISFACTORY PERFORMANCE, AND EQUIPMENT FAILURE. FRANKLIN INSTALLATION INFORMATION IS AVAILABLE FROM PUMP MANUFACTURERS AND DISTRIBUTORS, AND DIRECTLY FROM FRANKLIN ELECTRIC. CALL FRANKLIN TOLL FREE 800-348-2420 FOR INFORMATION. RETAIN THIS INFORMATION SHEET WITH THE EQUIPMENT FOR FUTURE REFERENCE.



SERIOUS OR FATAL ELECTRICAL SHOCK MAY RESULT FROM FAILURE TO CONNECT THE

MOTOR, CONTROL ENCLOSURES, METAL PLUMBING, AND ALL OTHER METAL NEAR THE MOTOR OR CABLE, TO THE POWER SUPPLY GROUND TERMINAL USING WIRE NO SMALLER THAN MOTOR CABLE WIRES. TO REDUCE RISK OF ELECTRICAL SHOCK, DISCONNECT POWER BEFORE WORKING ON OR AROUND THE WATER SYSTEM. DO NOT USE PUMP IN SWIMMING AREAS.

DO NOT INSTALL PUMP IN ANY LOCATION CLASSIFIED AS HAZARDOUS BY NATIONAL OR LOCAL ELECTRICAL CODES.

INSTALLATION RECORDS

To keep an accurate record of your installation, be sure to fill out the data below:

Purchased From: _____

Date of Installation: _____

Pump Model No: _____

Pump Date Code: _____

Inside diameter of well: _____

Pump Setting: _____

Drop Pipe Size: _____

Wire Size (pump to control box): _____

Wire Size (control box to power source): _____

Make of Motor

Amps: _____

HP: _____

Volts: _____

Ph: _____

Make of Control Box

HP: _____

Volts: _____

Power Supply

Volts: _____

HZ: _____

TEST RUNNING

If test running pump before installation:

1. Ensure the power supply corresponds with that shown on the nameplate of the motor.
2. Install pump and components appropriate for the test.
3. Make sure power supply is turned off and circuit breaker or disconnect switch is open. Make electrical connections appropriate to your motor as shown in Fig. 1 or 2.
4. Run pump and motor unit for a few seconds to ensure that it is in working order.

SUITABILITY OF WATER SOURCE

Water from an undeveloped source often contains an excessive amount of sand, dirt, and abrasives which can damage the pump. Make arrangements to ensure an adequate flow of water over the motor for cooling purposes. Determine the correct pump setting by taking into account the static water level and the draw down at the proposed pumping rate.

SPlicing THE POWER CABLE

Follow the instructions enclosed in the cable splicing kit you purchase.

DROP PIPE

Galvanized pipe is recommended for suspending submersible pumps. Plastic pipe may be used only when observing the plastic pipe manufacturer's recommendations of depth and pressure. Give special consideration to:

1. A safety cable to prevent loss of pump if pipe should break.
2. Torque arrestor just above pump to prevent chafing the cable when pump and pipe twist during the starting and stopping cycle. (See Figure 1)

Schedule 40 galvanized pipe is suitable for settings to 600 feet (180m). For deeper settings, use schedule 40 pipe for the bottom 600 feet (180m), and schedule 80 for the remainder.

Take great care to keep pipes clean and free from pebbles, scale and thread chips. Make sound, air-tight connections at all fittings. Pipe sealant is recommended.

CHECK VALVES

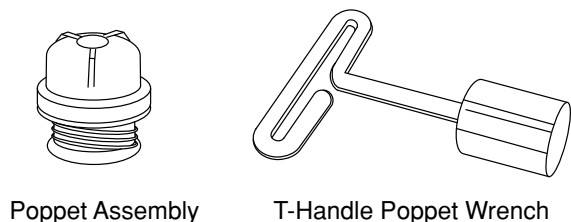
Many pumps have a built-in or externally supplied check valve. For a pump without one, install a check valve immediately above the pump. Install an additional check valve above the ground. If the pump is more than 100 feet (30m) below the surface, install another check valve in the drop pipe 100 feet (30m) above it. For pump settings deeper than 200 feet (60m), install additional check valves at intervals of 100 feet (30m).

REMOVABLE POPPET CHECK VALVE

4" submersible pumps with a 1-1/4" discharge are supplied with a REMOVABLE poppet style check valve assembly. The check valve can be removed from the pump discharge when the pump is installed in applications where drain back is desired.

⚠ WARNING Fluid draining back through the pump can cause the pump to rotate backwards. If pump/motor starts during this time; damage to the pump can occur.

The check valve can be removed with the use of the T-Handle Poppet Wrench(part no. 23498207). Ordered separately. Or, with standard needle nose pliers. The



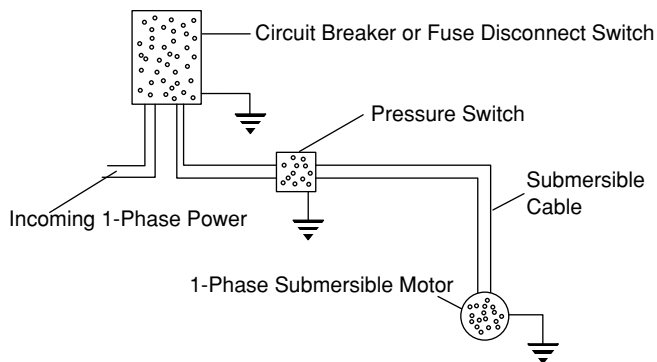
poppet assembly is left hand threaded and is removed by turning **CLOCKWISE**.

If reinstalling a popppet check valve assembly, the assembly should be tightened to 15 inch-pounds.

ELECTRICAL INFORMATION

1. Employ a licensed electrician to perform the wiring. All wiring must be done in accordance with applicable national and local electrical codes.
2. Check that the power supply corresponds with the electrical rating of the submersible motor and the control box(if required). Make sure that the control box electrical rating matches the motor electrical rating.
3. Every installation requires a fused disconnect switch or circuit breaker.
4. Every installation must be grounded. There must be a reliable ground connection between the pump and the distribution panel. The motor lead incorporates a green grounding conductor.
5. Lightning arrestors are recommended for every installation. All stainless steel, single phase motors thru 5HP have built-in lightning arrestors. 4" 3-phase motor requires a separate lightning arrestor installed as close to the installation as possible. Install the arrestor in accordance with manufacturers recommendations. A lightning arrestor provides protection against induced voltage surges on secondary power lines; it is not effective against direct hits.
6. Mount the control box in an area protected from rain, snow, direct sunlight or other high temperatures as this may cause tripping of the overload protector. Also protect the control box from extreme cold (below 25° F/-32° C) as this may have adverse effects on starting capacitor.
7. A two-wire pump does not require a motor control

FIGURE 1 - 2-WIRE, 1-PHASE, 1/2 THRU 1-1/2 HP PUMP WIRING DIAGRAM



box, since all electrical components are built inside the motor. Fig. 1 shows a typical wiring diagram for a two-wire installation.

8. A three-wire, single-phase pump requires a motor control box incorporating overload relays. Fig. 2 shows a typical wiring diagram for a three-wire, single-phase installation. Note that a magnetic contactor must be used if the switch electrical rating is not sufficient to handle the submersible motor electrical rating. The switch would then be incorporated into a pilot circuit to control the magnetic contactor. Make the connections at the control box in accordance with the wiring diagram in the control box to avoid damage to the motor.

9. Use an ohmmeter to make continuity and insulation checks after the installation is completed.

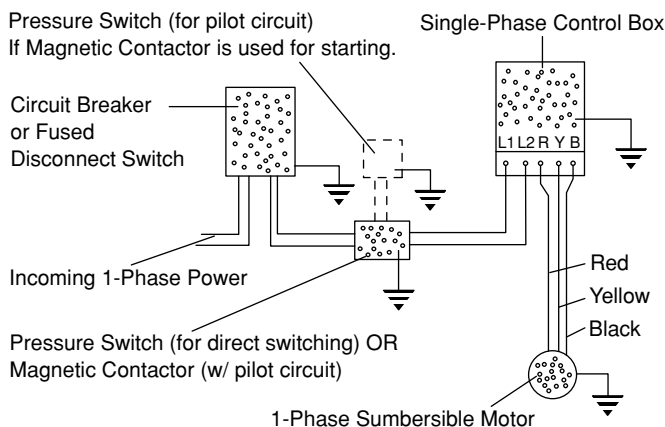
10. Place the additional pump nameplate onto the submersible label and place both onto disconnect switch or circuit breaker box for future reference.

WATER SOURCE TEST

Check the pump performance before making the final connection to the discharge system.

1. Install a gate valve on the end of the pipe. Partially open the valve.

FIGURE 2 - 3-WIRE, 1-PHASE, 1/2 THRU 3 HP PUMP WIRING DIAGRAM



Note: Order of red, yellow and black may vary from control box to control box. Always connect like colors.

2. Start the pump.
3. Open valve gradually to give full flow.
4. If the discharge is not clear, let the pump run until water clears. If water does not clear in 30 minutes, stop the pump and take the necessary steps to correct the condition. After the water has appeared clear, check for sand by discharging into a clean bucket or suitable container.
5. Close valve until maximum required system flow rate is obtained (this should correspond to the cut-in

pressure of the pressure switch). Ensure that the output of the pump at this setting is not greater than the yield. This can be checked by monitoring drawdown level and ensuring that the level is stable at the maximum required system flow rate.

⚠ CAUTION Never run pump unless it's completely submerged in water. If run without water, the pump and motor could be damaged. Note also that air drawn into the pump can cause an airlock under certain conditions.

TROUBLESHOOTING

Problem	Possible Cause
Unit fails to start	<ol style="list-style-type: none"> 1. Electrical trouble, call dealer or electrician. 2. Drawdown protection device has pump turned off. 3. Overload tripped. 4. Reset low pressure cutoff switch if installed.
Pump fails to deliver water	<ol style="list-style-type: none"> 1. Air lock in pump. 2. Clogged intake screen. 3. Insufficient application yield.
Pump gives reduced output	<ol style="list-style-type: none"> 1. Insufficient application yield. 2. Worn pump. 3. Clogged intake screen. 4. Low voltage. 5. Incorrect rotation, 3-phase only.
Pump cycles too frequently (if installed with pressure switch)	<ol style="list-style-type: none"> 1. Excessive pressure drop between pressure switch and pressure tank. 2. "Cut-in" pressure at pressure tank too high. 3. "Cut-out" pressure at pressure tank too low. 4. Waterlogged pressure tank. 5. Start and stop electrodes of floatless liquid level control set too close together. 6. Tank sized too small to meet system requirements.
Overloads trip	<ol style="list-style-type: none"> 1. Electrical trouble, call dealer or electrician.
Pressure switch cycles rapidly when pump starts, (if installed with pressure switch)	<ol style="list-style-type: none"> 1. Pressure switch too far from pressure tank. 2. Adjust air charge of tank to manufacturer's recommendations.

U.S. LIMITED WARRANTY*

Franklin Electric Co., Inc.

Franklin Electric Co., Inc. warrants its new products to be free of defects in material and workmanship for a period of 1 year from date of installation or 2 years from date of manufacture, whichever comes first, **WHEN** installed in clean, potable water applications. Warranty does not cover applications pumping saltwater or other corrosive liquids. Consult and adhere to local codes for all applications. Franklin Electric Co., Inc. also provides additional warranty coverage on specific products as specified herein.

Franklin Electric's warranty obligation with regard to equipment not of its own manufacture is limited to the warranty actually extended to Franklin Electric by its suppliers.

This warranty extends only to the original retail purchaser and only during the time in which the original retail purchaser occupies the site where the product was originally installed.

Requests for service under this warranty shall be made by contacting the installing Franklin Electric dealer (point of purchase) as soon as possible after the discovery of any alleged defect. Franklin Electric will subsequently take corrective action as promptly as reasonably possible.

Franklin Electric at its discretion may replace or repair any product that fails under this warranty after inspection by an authorized company representative or after Franklin Electric has received the product at our factory. Replacement or repair cannot be made until after the product is inspected. All charges or expenses for freight to and from the factory, removal and reinstallation of the product, or installation of a replacement product are the responsibility of the purchaser.

THIS WARRANTY SUPERSEDES ANY WARRANTY NOT DATED OR BEARING AN EARLIER DATE. ANY IMPLIED WARRANTIES WHICH THE PURCHASER MAY HAVE, INCLUDING MERCHANT ABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL NOT EXTEND BEYOND THE APPLICABLE WARRANTY PERIOD. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. IN NO EVENT SHALL FRANKLIN ELECTRIC BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above may not apply to you.

This warranty does not apply to any product which has been subjected to negligence, alteration, accident, abuse, misuse, improper installation, vandalism, civil disturbances, or acts of God. The only warranties authorized by Franklin Electric are those set forth herein. Franklin Electric does not authorize other persons to extend any warranties with respect to its products, nor will Franklin Electric assume liability for any unauthorized warranties made in connection with the sale of its products.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE.

* Contact Franklin Electric Co., Inc. Export Division for International Warranty.



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