



Little Red Booster Pumps

Installation, Operation, & Service Instructions

INSTALLER: PLEASE LEAVE THIS MANUAL FOR THE OWNER'S USE.

NOTE:

Bell & Gossett recommends Bronze Booster Pumps be used for pumping potable water.

DESCRIPTION

The Little Red Booster Pump features oil lubricated bearings, carbon/ceramic seal, non-overloading permanent split-capacitor motor with thermal protection and quiet-operating construction.

PUMP APPLICATION


The Little Red Booster Pump may be used for water circulating applications in hydronic and solar systems. It may also be used for domestic water, but should be equipped with a bronze pump body.



SAFETY INSTRUCTION

This safety alert symbol will be used in this manual and on the pump safety instruction decal to draw attention to safety related instructions. When used, the safety alert symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! FAILURE TO FOLLOW THE INSTRUCTION MAY RESULT IN A SAFETY HAZARD.

Your Little Red Booster Pump should have the warning label displayed to the right (Fig. 2) affixed to the motor housing and the warnings and cautions displayed at right (Fig. 3) clearly marked in raised letters on the motor end covers. If any of these warnings and cautions are missing or illegible, contact your local Bell & Gossett Representative for a replacement.

 **WARNING:** Before installing, using or servicing this product. Read the warning notes and instructions in instruction manual. Failure to do so may result in injury or property damage.

ADDITIONAL SAFETY REQUIREMENTS

1. Electrical connections to be made by qualified electrician in accordance with all national, state and local codes.
2. Adequate electrical grounding is required for the safe operation of the Little Red Booster Pump, and the use of grounded metal conduit assures this requirement. If the means of connection to the supply-connection box (wiring compartment) is other than grounded metal conduit, ground the pump back to the service by connecting a copper conductor, at least the size of the circuit conductors supplying the pump, to the green grounding screw provided within the wiring compartment.

Replace conduit box cover and secure with screws.
3. The maximum working pressure of the pump is listed on the pump nameplate, do not exceed this pressure.



FIG. 2

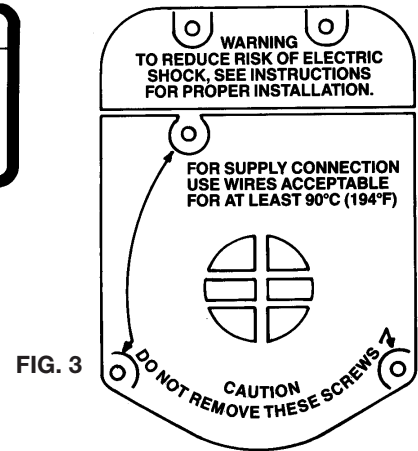




FIG. 3


4. This pump is for indoor use only.

The motor housing cover is a functional component designed to prevent accidental contact with the motor fan. Do not remove this cover unless power to the pump is disconnected and locked out.


 **WARNING: Rotating Component Hazard**
Do not operate pump without all guards in place. Failure to follow these instructions could result in serious personal injury or death, and property damage.

 **WARNING: Excessive Pressure Hazard
Volumetric Expansion**
The heating of water and other fluids causes volumetric expansion. The associated forces may cause failure of the system components and release of high temperature fluids. This will be prevented by installing properly sized and located compression tanks and pressure relief valves. Failure to follow these instructions could result in serious personal injury or death, and property damage.


REMOVAL OF PUMP FROM EXISTING SYSTEM FOR REPLACEMENT

 **WARNING: Electrical Shock Hazard**
Disconnect and lockout the power before servicing. Failure to follow these instructions could result in serious personal injury or death.


1. Close the valves on the suction and discharge sides of the pump. (If no valves have been installed, it may be necessary to drain the system.)


 **WARNING: Hot Water Hazard**
Before draining the system, allow water to cool at least 100°F (38°C), open the drain valve (take precautions against water damage) and leave the drain valve open until servicing is complete. Failure to follow these instructions could result in serious personal injury, death and/or property damage.

2. Remove the conduit box cover by removing the two screws at the top of the cover.


 **WARNING: Unexpected Start-Up Hazard**
Single phase motors are equipped with automatic reset overload protectors. The pump can restart without warning. Disconnect and lockout power before servicing. Failure to follow these instructions could result in serious personal injury, death and/or property damage.

3. Disconnect the electrical supply lines to the pump.

 **CAUTION: Temperature Hazard**
Check surfaces for high temperatures, allow the pump temperature to reach approximately 100°F (38°C), before proceeding. Failure to follow these instructions could result in moderate personal injury and/or property damage.

 **WARNING: High Pressure Hazard**
Pressure may be present in the pump body. This pressure can be relieved by loosening the flange bolts and shifting the pump assembly slightly to allow the pressurized water to escape. Failure to follow these instructions could result in serious personal injury or death.

4. Remove the four flange nuts and bolts and remove the pump from the piping.

 **WARNING: Hot Water Hazard**
Whenever disassembling a gasket joint, always use a new gasket upon reassembly. NEVER RE-USE OLD GASKETS. Failure to follow these instructions could result in serious personal injury, death and/or property damage.

PUMP INSTALLATION

Locate the pump so there is sufficient room for inspection, maintenance and service. Bell & Gossett recommends the installation of service valves on the suction and discharge of all circulators to facilitate servicing or replacement of the circulator without draining the system.

Install suction and discharge flanges on the pipe ends. The use of Teflon[®] tape sealer or a high quality thread sealant is recommended.

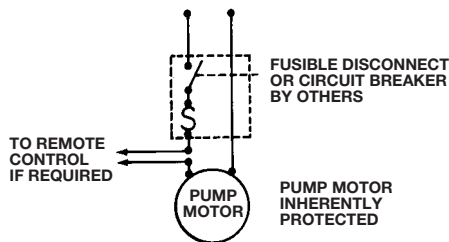
Be sure to minimize any pipe-strain on the pump. Support the suction and discharge piping by the use of pipe hangers near the pump. Line up the vertical and horizontal piping so that the bolt-holes in the pipe flanges match the bolt-holes in the pipe flanges. **[DO NOT ATTEMPT TO SPRING THE SUCTION OR DISCHARGE LINES IN POSITION. THIS MAY RESULT IN UNWANTED STRESS IN THE PUMP BODY, FLANGE CONNECTIONS AND PIPING.]** The code for Pressure Piping (ANSI B31.1) lists many types of support available for various applications.

Bell & Gossett flange gaskets must be installed between the Little Red pump body flanges and the suction and discharge pipe flanges. Suitable fasteners for this connection are also supplied in the Bell & Gossett fastener pack.

TYPICAL INSTALLATION SCHEMATIC

POWER SOURCE 115 Volt, 60 Hz, 1Ø

FIG. 5



ELECTRICAL WIRING

- Loosen screws securing the conduit box (wiring compartment) cover, removing screws and cover.
- Select one of the two holes in the side of the conduit box and wire the motor to a 115 volt, 60 hertz, single phase power source with number 14 AWG copper electrical wire. Refer to your local code for wiring restrictions. Plug the unused hole in the side of the conduit box with the plug provided.
- Connect the ground wire to the inside of the conduit box with the green screw provided.

NOTE: Supply and grounding wires must be suitable for at least 90°C (194°F).



WARNING: Electrical Shock Hazard

Be certain that all connections are secure and the conduit box cover is closed before electrical power is connected. Failure to follow these instructions could result in serious personal injury or death.

ELECTRICAL CHARACTERISTICS

Model LR-20BF is rated at 1/20 HP, 115 volts, 1.1 F.L. amps, 60 HZ, 1Ø (single phase), 2900 RPM.

Model LR-15B is rated at 1/12 HP, 115 volts, 1.75 F.L. amps, 60 HZ, 1Ø (single phase), 3150 RPM.

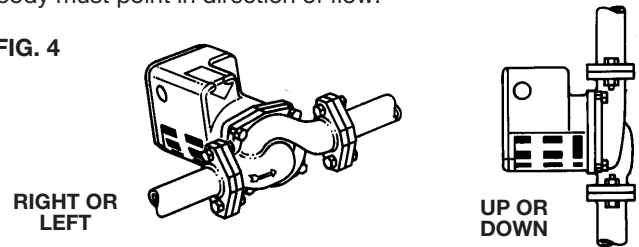
Little Red Booster Pumps are protected with an inherent over-heating device and do not require external overload protection.

Apply torque in even increments to both flange bolts until a value of 175 in-lbs (2.01 Kg-m) is reached. Both the suction and discharge flanges must be torqued in this manner.

MODE OF DISCHARGE

The Little Red Booster Pump can be installed to discharge up or down, horizontally left or right, but the oiling port must always be in the twelve o'clock position (on top). Arrow on body must point in direction of flow.

FIG. 4



WARNING: Electrical Shock Hazard

Disconnect and lockout the power before servicing. Failure to follow these instructions could result in serious personal injury or death.

SYSTEM PREPARATION

Prior to pump start up, closed heating and cooling systems should be cleaned, drained, and refilled with clean water. System pH must be maintained between 7 and 9.

Pressurize the pump body slowly while checking for leaks at all gasketed joints.



WARNING: Hot Water Leakage Hazard

Pressurize the pump body slowly while checking for leaks at all joints with gaskets. Failure to follow these instructions could result in serious personal injury and/or property damage.

PRIMING

Do not run the pump dry. These pumps must be filled with liquid before being placed in service. Air should be vented from the system by means of an air vent located at a high point in the system.

LUBRICATION

All new Bell & Gossett Little Red Booster Pumps are thoroughly tested at the factory and have been enhanced with a superior lubrication system which requires a minimum of attention. Please refer to the recommended lubrication instructions noted below for the type of pump service required.

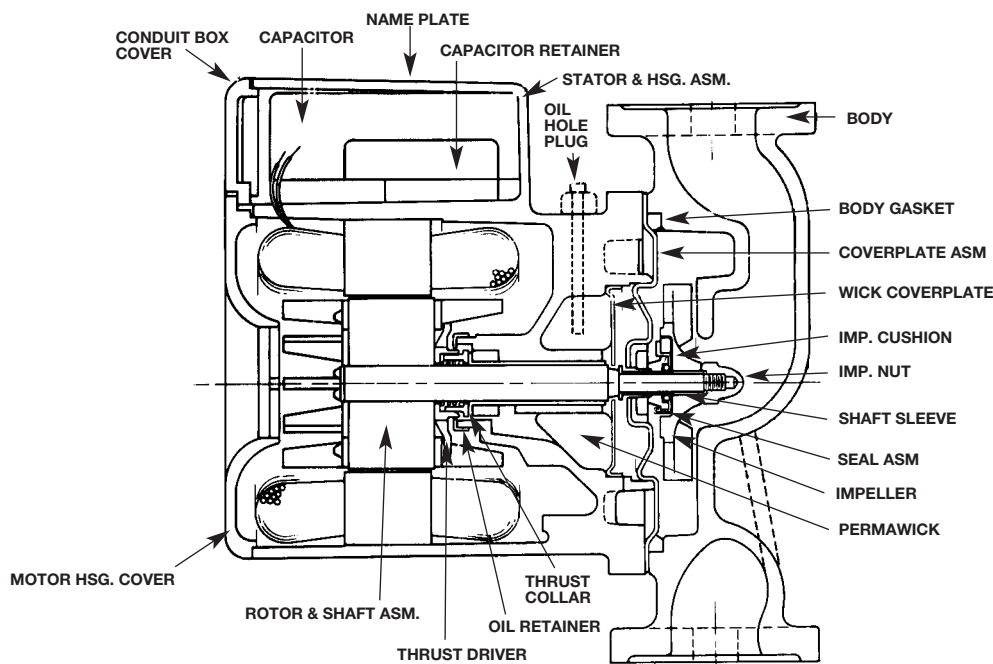
- At installation: Pumps have been factory lubricated and do not require additional lubrication at start-up.
- Heating system operation: Pumps should be lubricated at the start of every heating season. Add one tube (5cc) of Bell & Gossett P15775 lubricating oil.
- Continuous duty: Pump should be lubricated every six (6) months. Add one tube (5cc) of Bell & Gossett P15775 lubricating oil.

NOTE: In lieu of genuine Bell & Gossett P15775 lubricating oil, use one teaspoon of Mobile 1, SAE 5W-30, motor oil as required.

IMPORTANT: Over oiling of the pump will result in the overflow of oil from the oil reservoir.

*Teflon[®] is a registered trademark of E.I. DuPont de Nemours and Company.

FIG. 6



INSTRUCTIONS FOR PUMP REPAIR

1. Follow steps 1 through 4 of section titled "REMOVAL OF PUMP FROM EXISTING SYSTEM FOR REPLACEMENT."
2. Loosen the four capscrews that hold the motor housing to the pump body. Remove these screws and remove the housing from the pump body.
3. Place the pump on a flat work surface and insert the plastic assembly tool (furnished with the repair kit) into the rear motor housing coverplate middle horizontal vent holes. Push forward until it engages the rotor cooling fins. This will lock the rotor allowing removal of the impeller.
4. Remove the impeller nut – left hand thread! – from the pump shaft. Remove the impeller and rotating seal assembly.
5. Clean the ceramic seat with a clean rag and inspect for grooving or cracks. If it shows no grooving or cracks, it may be cleaned and reused.
6. If the ceramic is to be replaced, the face plate must be removed from the motor housing. Remove it by gently prying it away from the motor housing.
7. Remove the damaged ceramic seat and boot if necessary. Reinstall new parts in the face plate recess and reposition the face plate on the motor housing. Gently tap the face plate evenly around its diameter driving it into the recess provided in the motor housing.
8. Press the rotor fully forward with the plastic assembly tool. Clean the shaft and sleeve before installing the seal.
9. Press the replacement carbon seal assembly firmly into the recess in the back side of the impeller.
10. Assemble the seal/impeller assembly to the pump shaft by pushing the rotor fully forward with the plastic assembly tool. Then slide the seal/impeller assembly onto the pump shaft until the seal face contacts the ceramic seat.
11. Continue holding the rotor fully forward with the assembly tool. Install and torque the impeller nut – left hand thread! – to 15 in-lb (0.17 Kg-m) torque.
12. Clean the recess in the pump body and install a new body gasket.
13. Install the pump in the body and secure with four cap-screws. Apply torque evenly in a criss cross pattern to 40 in-lb (0.46 Kg-m) increments to a torque of 80 in-lb (0.92 Kg-m).
14. Reinstall into the system using new flange gaskets. For instructions, see sections "PUMP INSTALLATIONS" through and including "LUBRICATION."

PERIODIC INSPECTION

Bell & Gossett Booster Pumps are designed to provide years of trouble free service. It is recommended that periodic inspections be made to check for potential problems with the pump. If

any leakage or evidence of leakage is present repair or replace the unit.



Bell & Gossett

USA
 Bell & Gossett
 8200 N. Austin Avenue
 Morton Grove, IL 60053
 Phone: (847) 966-3700
 Facsimile: (847) 966-9052
<http://www.bellgossett.com>



**ISO 9001
 Certified**

INTL.
 Bell & Gossett / Export Dept.
 8200 N. Austin Avenue
 Morton Grove, IL 60053
 Phone: (847) 966-3700
 Facsimile: (847) 966-8366
<http://www.bellgossett.com>

CANADA
 Fluid Products Canada
 55 Royal Road
 Guelph, Ontario,
 N1H 1T1, Canada
 Phone: (519) 821-1900