



293 Wright Street • Delavan, WI 53115

# Models 3PL, 5PL, 7PL, 10PL, 10PLS11C, 15PLS11C

# Convertible Jet Pumps

## INSTALLATION, OPERATION, & PARTS MANUAL

### DESCRIPTION

Corrosion resistant convertible jet pumps (Models 3PL, 5PL, 7PL, 10PL, 10PLS11C and 15PLS11C) are adaptable to either shallow or deep well installations. A shallow well ejector (purchase separately) is used for suction lifts of 25 feet or less and can be used with drilled (cased) wells, driven well points, and cisterns or lakes. With a deep well ejector installed, the convertible jet pump can be used on wells up to 110' deep (depending on ejector package used). Pump is equipped with a capacitor start motor and a 30-50 psi preset pressure switch.

### UNPACKING

Open carton and remove pump. Check for loose, missing, or damaged parts.

### GENERAL SAFETY INFORMATION

#### 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 property damage if ignored.

**NOTE:** Indicates special instructions which are important but not related to hazards.

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

Keep safety labels in good condition.

Replace missing or damaged safety labels.

### Electrical Safety

**⚠ 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.

**⚠ WARNING** **Capacitor voltage may be hazardous.** To discharge motor capacitor, hold insulated handle screwdriver **BY THE HANDLE** and short capacitor terminals together. Do not touch metal screwdriver blade or capacitor terminals. If in doubt, consult a qualified electrician.

**⚠** Wire motor for correct voltage. See "Electrical" section of this manual, motor nameplate, and diagram inside motor junction box cover.

**⚠** Ground motor before connecting to power supply.

**⚠** Meet United States National Electrical Code, Canadian Electrical Code, and local codes for all wiring.

**⚠** Follow wiring instructions in this manual and in motor junction box when connecting motor to power lines.

### General Safety

**⚠ WARNING** **Hazardous pressure!** Do not run pump against closed discharge. Release all pressure on system before working on any component.

**⚠ CAUTION** Do not touch an operating motor. Modern motors are designed to operate at high temperatures. To avoid burns when servicing pump, allow it to cool for 20 minutes after shut-down before handling.

Do not allow pump or any system component to freeze. To do so will void warranty.

Pump water only with this pump.

Periodically inspect pump and system components.

Wear safety glasses at all times when working on pumps.

Keep work area clean, uncluttered and properly lighted; properly store all unused tools and equipment.

Keep visitors at a safe distance from the work areas.

**⚠ WARNING** **Pump body may explode if used as a booster pump unless relief valve capable of passing full pump flow at 75 psi is installed.**

# PERFORMANCE

**TABLE I – 4” Double Pipe Deep Well Performance and Ejector Chart - Ejector Package BK4800**

Feet to Water	Model 3PL Pressure in PSI					Model 5PL Pressure in PSI				
	20	30	40	50	60	20	30	40	50	60
	GPM with J32P-24 Venturi and #54 Nozzle					GPM with J32P-24 Venturi and #51 Nozzle				
30	9.8	7.2	4.5	2.2	–	10.0	8.8	6.5	4.1	2.1
40	8.3	5.8	3.5	1.4	–	9.0	7.5	5.1	3.0	1.0
50	7.0	4.5	2.3	–	–	8.3	6.4	4.0	2.0	–
60	5.5	3.3	1.3	–	–	6.8	5.0	3.0	1.0	–
70	–	–	–	–	–	5.6	4.0	1.8	–	–
80	–	–	–	–	–	4.0	2.5	0.75	–	–

**TABLE II – 2” Single Pipe Deep Well Performance and Ejector Chart - Ejector Package BK4830, BK4840**

Feet to Water	Model 3PL Pressure in PSI				Model 5PL Pressure in PSI			
	20	30	40	50	20	30	40	50
	GPM with J32P-24 Venturi and #54 Nozzle				GPM with J32P-24 Venturi and #54 Nozzle			
30	9.7	7.0	4.5	2.8	10.0	8.6	6.2	3.8
40	8.1	5.4	3.3	2.3	8.8	7.25	4.8	2.75
50	6.7	4.0	2.6	1.7	8.5	6.0	5.5	1.6
					GPM with J32P-18 Venturi and #52 Nozzle			
60	3.8	2.9	2.0	1.1	4.2	3.3	2.6	1.9
70	3.2	2.3	1.5	0.7	3.6	2.8	2.1	1.3
80	–	–	–	–	3.0	2.25	1.6	1.0
90	–	–	–	–	2.5	1.75	1.2	0.6
100	GPM with J32P-18 Venturi and #52 Nozzle				2.0	1.3	.75	–

**TABLE III – Shallow Well Performance and Ejector Chart - Ejector Package BK4875**

Feet to Water	Model 3PL Pressure in PSI					Model 5PL Pressure in PSI				
	20	30	40	50	60	20	30	40	50	60
	GPM with J32P-72 Venturi and #51 Nozzle					GPM with J32P-63 Venturi and #51 Nozzle				
5	9.5	9.2	9.0	5.8	3.0	16.2	15.8	15.3	8.7	1.3
10	8.2	8.0	7.8	5.2	2.3	14.2	14.0	13.8	7.2	–
15	7.2	6.8	6.8	4.5	1.8	12.2	12.0	11.8	5.3	–
20	5.7	5.7	5.7	3.8	–	9.7	9.7	9.2	3.7	–
25	4.3	4.3	4.3	3.2	–	7.2	6.8	6.8	–	–

## PERFORMANCE

**TABLE IV – 4” Double Pipe Deep Well Performance and Ejector Chart - Ejector Package BK4800**

Feet to Water	Model 7PL, 10PLS11C Pressure in PSI					Model 10PL, 15PLS11C Pressure in PSI				
	20	30	40	50	60	20	30	40	50	60
	GPM with J32P-24 Venturi and #51 Nozzle					GPM with J32P-28 Venturi and #55 Nozzle				
30	11.0	10.0	8.4	6.6	4.8	24.5	19.0	13.2	9.4	7.2
40	9.6	9.6	7.25	4.5	3.6	19.0	14.5	9.5	7.5	5.6
50	9.5	8.1	6.2	4.5	2.75	13.0	9.75	8.0	6.2	4.3
60	8.2	6.6	5.0	3.3	1.9	10.0	8.2	6.5	4.8	3.0
70	7.2	5.7	4.1	2.5	1.0	8.4	7.0	5.3	3.6	2.0
						GPM with J32P-22 Venturi and #53 Nozzle				
80	5.4	3.9	2.9	1.5	–	6.2	5.5	4.4	2.9	1.4
90	4.2	3.2	2.0	.75	–	5.0	4.4	3.2	1.9	–
100	–	–	–	–	–	3.5	3.2	2.2	1.1	–
110	–	–	–	–	–	2.5	2.25	1.5	–	–

**TABLE V – 2” Single Pipe Deep Well Performance and Ejector Chart - Ejector Package BK4830, BK4840**

Feet to Water	Model 7PL, 10PLS11C Pressure in PSI				Model 10PL, 15PLS11C Pressure in PSI			
	20	30	40	50	20	30	40	50
	GPM with J32P-29 Venturi and #54 Nozzle				GPM with J32P-29 Venturi and #54 Nozzle			
30	17.8	14.4	10.6	6.4	18.6	15.6	12.3	8.7
40	9.2	11.0	7.4	4.7	15.25	12.4	9.2	6.0
50	8.5	6.0	3.7	1.6	12.3	9.0	6.4	3.2
	GPM with J32P-18 Venturi and #52 Nozzle				GPM with J32P-29 Venturi and #54 Nozzle			
60	5.5	3.75	3.75	3.0	9.75	7.0	4.7	1.1
	GPM with J32P-18 Venturi and #52 Nozzle				GPM with J32P-18 Venturi and #52 Nozzle			
70	5.0	4.1	3.25	2.5	5.1	4.3	3.7	3.0
80	4.3	3.5	2.7	2.0	4.6	3.9	3.25	2.6
90	3.75	3.0	2.25	1.5	4.0	3.3	2.75	2.1
100	3.25	2.5	1.75	1.1	3.6	3.0	2.4	1.75
110	2.5	1.8	1.25	0.7	2.75	2.25	1.75	1.25

**TABLE VI – Shallow Well Performance and Ejector Chart - Ejector Package BK4875**

Feet to Water	Model 10PLS11C Pressure in PSI					Model 15PLS11C Pressure in PSI				
	20	30	40	50	60	20	30	40	50	60
	GPM with N32P-64 Venturi and #54 Nozzle					GPM with N32P-65 Venturi and #51 Nozzle				
5	21.3	21.0	20.7	13.2	4.2	26.3	26.2	26.2	21.3	8.0
10	18.8	18.7	18.3	11.1	1.7	23.7	23.3	23.2	19.2	3.5
15	16.0	15.8	15.7	8.9	–	20.3	20.2	20.0	16.3	–
20	12.8	12.7	12.3	5.7	–	16.2	16.0	15.8	11.2	–
25	8.5	8.5	8.5	–	–	11.5	11.3	11.3	–	–

## SPECIFICATIONS

Horsepower (3PL)	1/3
(5PL)	1/2
(7PL)	3/4
(10PL)	1
(10PLS11C)	1
(15PLS11C)	1-1/2
Volts @ 60 Hz.	115/230
Phase	1
Motor connected for	.230V
Pressure Switch Setting	.30-50 PSI
Height	11-3/4"
Width	10-3/4"
Length (3PL)	17"
(5PL)	17-3/4"
(7PL, 10PLS11C)	18-1/4"
(10PL, 15PLS11C)	18-3/4"
Port Size - Inlet	1-1/4"
Port Size - Outlet	1"
Weight (3PL)	27 lbs.
(5PL)	28 lbs.
(7PL, 10PLS11C)	30 lbs.
(10PL, 15PLS11C)	36 lbs.

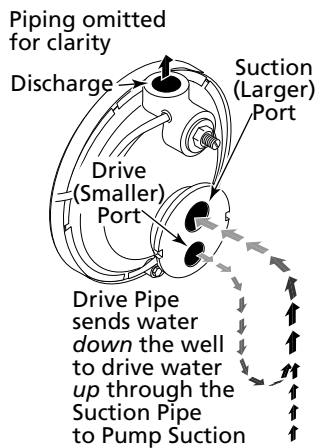


Figure 1 – Drive and Suction Functions

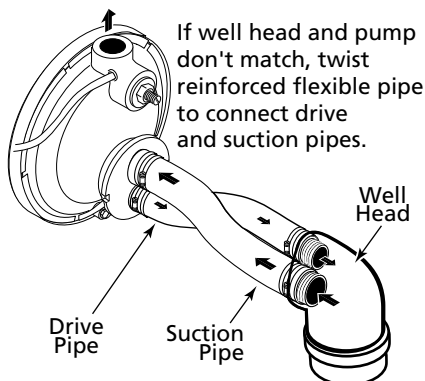


Figure 2 – Reversed Connections to Well

## INSTALLATION

### Replacing An Existing Pump

#### DEEP WELL

**▲WARNING** **Hazardous voltage.** Disconnect power to pump before working on pump or motor.

1. Drain and remove the old pump. Check pipe for scale, lime, rust, etc., and replace it if necessary.
2. If your old pump has the suction pipe (the larger port – See Figure 1) below the drive port, you will need to install flexible pipe between the well head and the pump so that the connection will be correct (See Figure 2).

**NOTE:** Your old ejector (in the well) may not be properly matched to your new pump. If the pump does not perform properly, we recommend that you install a Berkeley ejector package to match your pump and well.

3. Install the pump in the system. Make sure that all pipe joints in the suction pipe are air-tight as well as water tight. If the suction pipe can suck air, the pump will not be able to pull water from the well.
4. Adjust the pump mounting height so that the plumbing connections do not put a strain on the pump body. Support the pipe so that the pump body does not take the weight of piping or fittings.

#### SHALLOW WELL

**▲WARNING** **Hazardous voltage.** Disconnect power to pump before working on pump or motor.

1. Drain and remove the old pump. Check the old pipe for scale, lime, rust, etc., and replace it if necessary.
2. Install Berkeley ejector kit Model BK4875 (kits are sold separately). Follow the instructions provided with the kit. Be sure to align the venturi with the top hole on the front of the pump (See Figure 3).

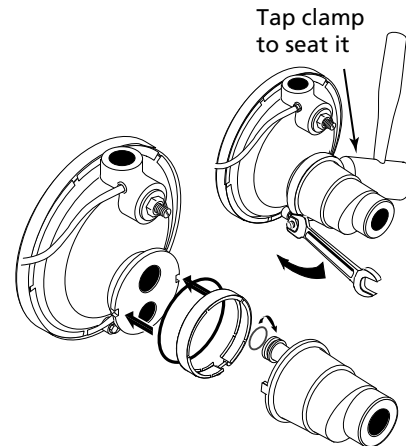


Figure 3 – Mount Ejector – Shallow Well

**NOTE:** Always replace the ejector when replacing the pump in a shallow well installation.

3. Install the pump in the system. Make sure that all pipe joints in the suction pipe are air-tight as well as water tight. If the suction pipe can suck air, the pump will not be able to pull water from the well.
4. Adjust the pump mounting height so that the plumbing connections do not put a strain on the pump body. Support the pipe so that the pump body does not take the weight of piping or fittings.

## New Shallow Well, Driven Point Installation (Figure 4)

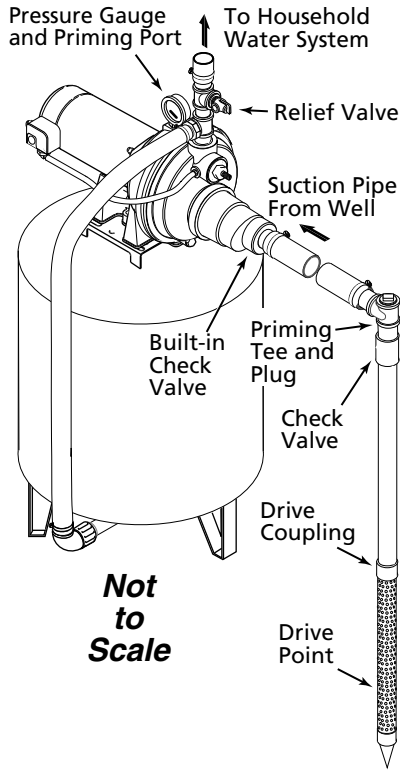


Figure 4 – Driven Point Installation

1. Install Berkeley ejector kit BK4875 (kits are sold separately). Follow the instructions provided with the kit. Align the venturi with the top hole on the front of the pump (See Figure 3).
2. Drive the well, using “drive couplings” and a “drive cap”. “Drive fittings” are threaded all the way through and allow the pipe ends to butt against each other so that the driving force of the maul is carried by the pipe and not by the threads. The ordinary fittings found in hardware stores are not threaded all the way through the fitting and can collapse under impact. “Drive fittings” are also smoother than standard plumbing fittings, making ground penetration easier.
3. Mount the pump as close to the well as possible.
4. Use the fewest possible fittings (especially elbows) when connecting the pipe from the well point to the pump suction port. The suction pipe should be at least as large as the suction port on the pump (include a check valve – See Figure 4). Support the pipe so that there are no dips or sags in the pipe, so it doesn’t strain the pump body, and so that it slopes slightly upward from the well to the pump (high spots can cause air pockets which can air lock the pump). Seal the suction pipe joints with teflon tape or pipe joint compound approved for use on PVC. Joints must be air- and water-tight. If the suction pipe can suck air, the pump cannot pull water from the well. If one well point does not supply enough water, consider connecting two or three well points to one suction pipe.

## Cased Well Installation, 2” or Larger Casing (Figure 5)

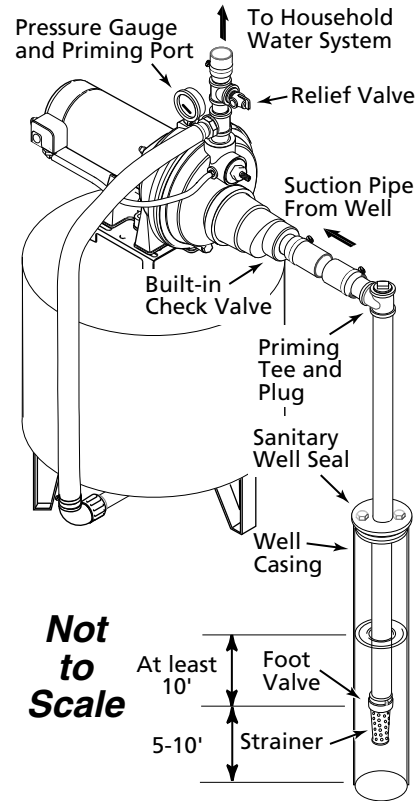


Figure 5 – Cased Well Installation

1. Install Berkeley ejector kit BK4875 (kits are sold separately). Follow the instructions provided with the kit. Align the venturi with the top hole on the front of the pump (See Figure 3).
2. Mount the pump as close to the well as possible.
3. Assemble the foot valve, strainer, and well pipe (See Figure 5). Make sure that the foot valve works freely.
4. Lower the pipe into the well until the strainer is five feet above the bottom of the well. It should also be at least 10 feet below the well’s water level while the pump is running in order to prevent the pump from sucking air. Install a sanitary well seal.
5. Install a priming tee, priming plug, and suction pipe to the pump (See Figure 5). Connect the pipe from the well to the pump suction port, using the fewest possible fittings (especially elbows) as fittings increase friction in the pipe. The suction pipe should be at least as large as the suction port on the pump. Use teflon tape or a teflon-based pipe joint compound on threaded pipe joints. Support the pipe so that there are no dips or sags in the pipe, so it doesn’t strain the pump body, and so that it slopes slightly upward from the well to the pump (high spots can cause air pockets which can air lock the pump). Seal the suction pipe joints with teflon tape or a teflon based pipe joint compound. Joints must be air and water-tight. If the suction pipe can suck air, the pump cannot pull water from the well.

## INSTALLATION FOR SURFACE WATER

1. Install Berkeley ejector kit BK4875 (sold separately). Follow the instructions provided with the kit. Align the venturi with the top hole on the front of the pump (See Figure 6).

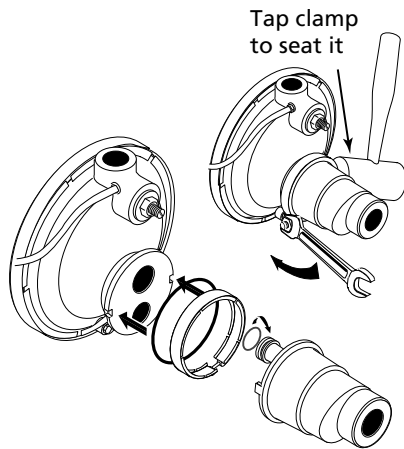


Figure 6 – Install Ejector

2. The pump should be installed as close to the water as possible, with the fewest possible fittings (especially elbows) in the suction pipe. The suction pipe should be at least as large as the suction port on the pump.
3. Assemble a foot valve and suction pipe (See Figure 7). Make sure that the foot valve works freely. Use teflon tape or a teflon-based pipe joint compound on threaded pipe joints. Protect the foot valve assembly from fish, trash, etc, by installing a screen around it (See Figure 7).

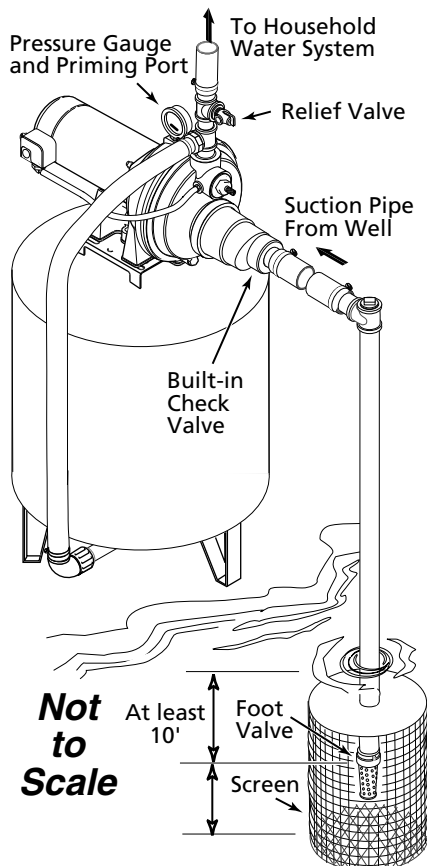


Figure 7 – Surface Water Installation

4. Lower the pipe into the water until the strainer is five feet above the bottom. It should also be at least 10 feet below the water level while the pump is running in order to prevent the pump from sucking air.
5. Install a priming tee, priming plug, and suction pipe to the pump (See Figure 7). Support the pipe so that there are no dips or sags in the pipe, so it doesn't strain the pump body, and so that it slopes slightly upward from the well to the pump (high spots can cause air pockets which can air lock the pump). Seal the suction pipe joints with teflon tape or a teflon-based pipe joint compound. Joints must be air and water-tight. If the suction pipe can suck air, the pump cannot pull water from the well.

## New Deep Well 4" Or Larger Well (Figure 8)

1. Assemble Berkeley ejector kit BK4800 (sold separately). Follow the instructions included with the kit in order to match the nozzle and venturi to your well conditions.
2. Mount the pump as close to the well as possible.
3. Connect two pipes (1" drive, 1-1/4" suction) to the ejector and lower the ejector into the well until it is five feet from the bottom. It should also be at least 10 feet below the well's water level while the pump is running in order to prevent the pump from sucking air.
4. Install a sanitary well seal and connect the ejector piping to the pump. Flexible poly pipe is recommended for ease of installation. However, use steel nipples through the well seal as tightening the well seal on plastic pipe can crush the pipe.
5. Support the pipe so that there are no dips or sags in the pipe, so it doesn't strain the pump body, and so that it slopes slightly upward from the well to the pump (high spots can cause air pockets which can air lock the pump). Seal the suction pipe joints with teflon tape or a teflon-based pipe joint compound. Joints must be air and water-tight. If the suction pipe can suck air, the pump cannot pull water from the well.

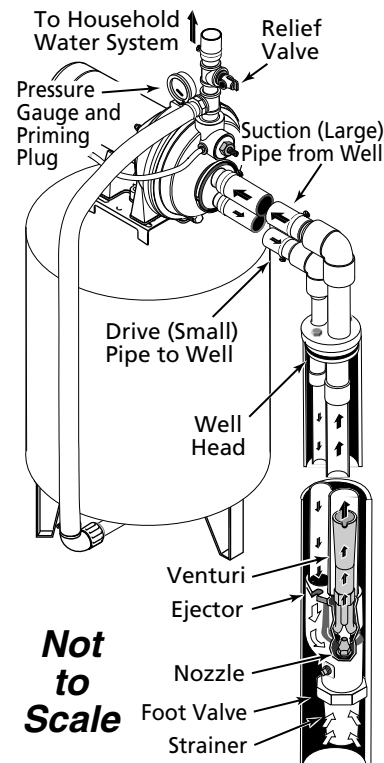


Figure 8 – 4" and Larger Deep Well



## New Deep Well 2" Well (Figure 9)

1. Mount the pump as close to the well as possible.
2. Assemble Berkeley ejector kit BK4840 (sold separately), well piping, and well head adapter according to the instructions provided with the ejector package (See Figure 9.) Use galvanized drop pipe with turned couplings to allow proper flow. Follow the instructions included with the kit in order to match the nozzle and venturi to your well conditions.
3. Run two pipes (one smaller drive pipe, one larger suction pipe) from the well to the pump. Support the pipe so that there are no dips or sags in the pipe, so it doesn't strain the pump body, and so that it slopes slightly upward from the well to the pump (high spots can cause air pockets which can air lock the pump). Seal the suction pipe joints with teflon tape or a teflon-based pipe joint compound. Joints must be air and water-tight. If the suction pipe can suck air, the pump cannot pull water from the well.

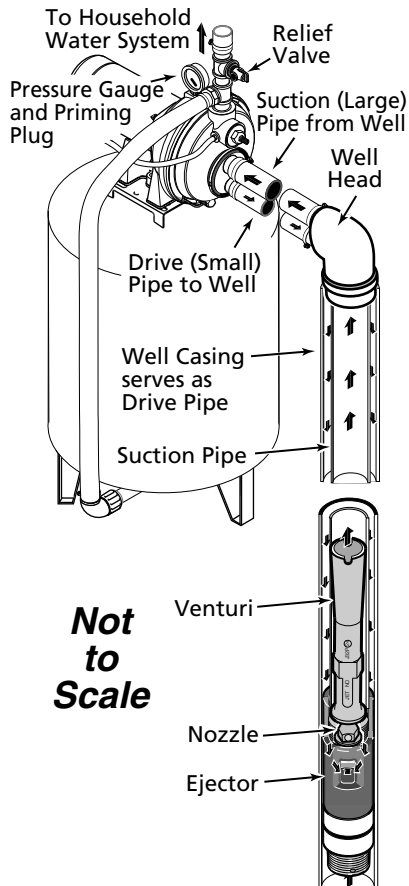


Figure 9 – 2" (Single Pipe) Deep Well

## Discharge Pipe and Pressure Tank Connections

### PRE-CHARGE TANK CONNECTION (FIGURE 10)

1. Install a close nipple and a tee in the pump discharge port (See Figure 10). The pipe size must be at least as large as the discharge port. Run a pipe or reinforced hose from one arm of the tee to the port on the pre-charged tank.
2. Install a second close nipple and tee with a relief valve in the tee.
3. Connect the other end of the second discharge tee to your plumbing system.
4. Check the pre-charge of air in the tank with an ordinary tire gauge. The pre-charge should be 2 psi less than the

cut-in setting of the pump's pressure switch. The pre-charge is measured when there is no water pressure in the tank. Your new pump has a 30/50 psi switch, so adjust the tank pre-charge pressure to 28 psi.

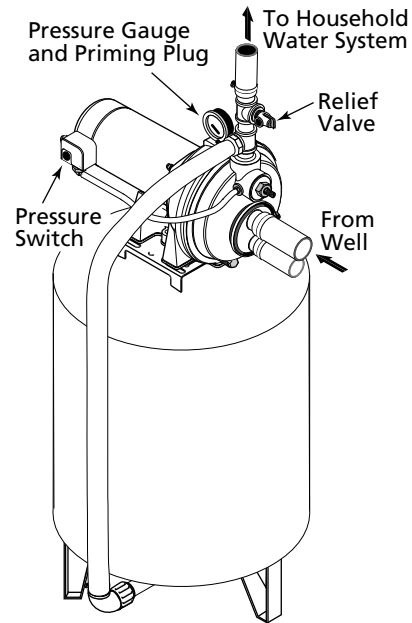


Figure 10 – Pre-charged Tank Connections

### STANDARD TANK CONNECTION (FIGURE 11)

1. Install a close nipple and a tee in the pump discharge port. Mount a relief valve in one arm of the tee.
2. Install a second close nipple and tee in the open arm of the first tee. Put a priming plug in one arm of the second tee.
3. Run a pipe from the open arm of the second tee to the inlet port of your tank. The pipe size must be at least as large as the pump discharge port.
4. Remove the 1/8" NPT pipe plug from the pump Air Volume Control (AVC) port (See Figure 11). Run tubing from the pump's AVC port to the port on the AVC mounted on the tank. See instructions provided with tank and AVC for details.

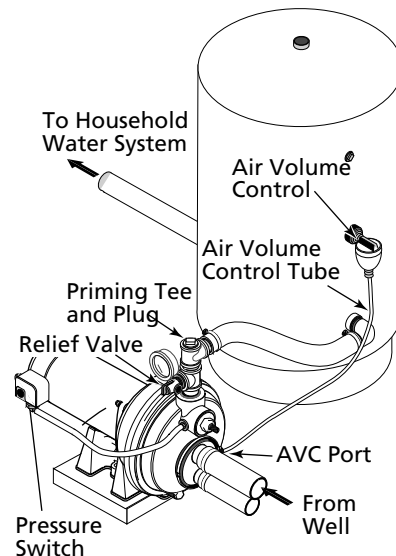
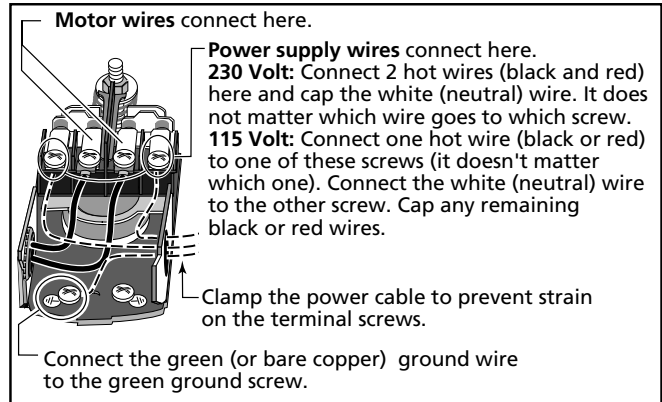
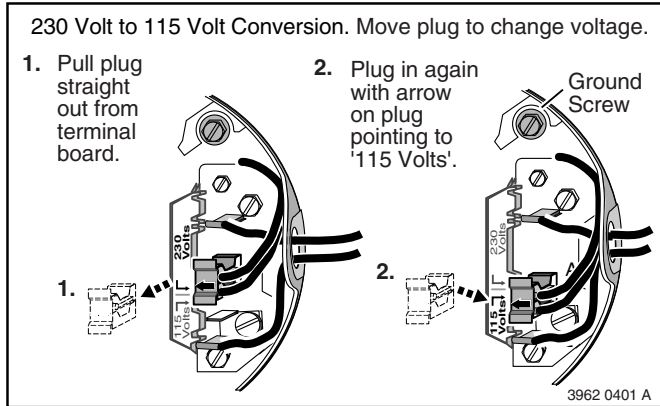
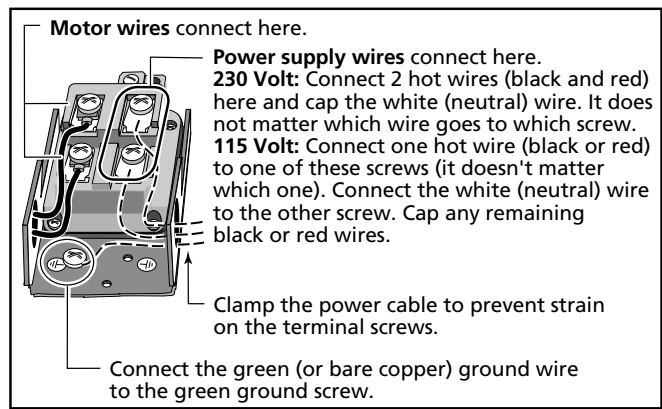
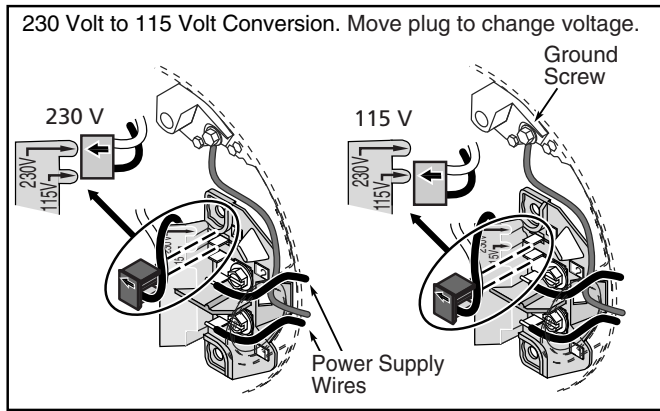


Figure 11 – Standard Tank Connections

# ELECTRICAL INSTALLATION



**Figure 12 – Motor wiring connections through Pressure Switch. Match motor voltage to line voltage.**

**⚠ WARNING Hazardous voltage.** Disconnect power before working on pump, motor, pressure switch, or wiring. Your Motor Terminal Board (under the motor end cover) and Pressure Switch look like one of those shown above. Convert to 115 Volts as shown. Do not change motor wiring if line voltage is 230 Volts or if you have a single voltage motor. Connect power supply as shown for your type of switch and your supply voltage.

**⚠ WARNING Hazardous voltage. Can shock, burn, or kill.** Connect ground wire before connecting power supply wires. Use the wire size (including the ground wire) specified in the wiring chart (Page 10). If possible, connect the pump to a separate branch circuit with no other appliances on it.

**⚠ WARNING Explosion hazard.** Do not ground to a gas supply line.

## Wiring Connections

**⚠ WARNING Fire hazard.** Incorrect voltage can cause a fire or seriously damage the motor and voids the warranty. The supply voltage must be within  $\pm 10\%$  of the motor nameplate voltage.

**NOTE:** Dual-voltage motors are factory wired for 230 volts. If

necessary, reconnect the motor for 115 volts, as shown. Do not alter the wiring in single voltage motors. Install, ground, wire, and maintain your pump in compliance with the United States National Electrical Code (NEC) or the Canadian Electrical Code (CEC), as applicable, and with all local codes and ordinances that apply. Consult your local building inspector for code information.

## Connection Procedure

1. Connect the ground wire first as shown in Figure 12. The ground wire must be a solid copper wire at least as large as the power supply wires.
2. There must be a solid metal connection between the pressure switch and the motor for motor grounding protection. If the pressure switch is not connected to the motor, connect the green ground screw in the switch to the green ground screw under the motor end cover. Use a solid copper wire at least as large as the power supply wires.
3. Connect the ground wire to a grounded lead in a service panel, to a metal underground water pipe, to a metal well casing at least ten feet (3M) long, or to a ground electrode provided by the power company or the hydro authority.
4. Connect the power supply wires to the pressure switch as shown in Figure 12.



# WIRING CHART – RECOMMENDED WIRE AND FUSE SIZES

Model	Volts	Max. Load Amps	Branch Fuse Rating Amps*	Distance in Feet from Motor to Supply				
				0 - 100	101 - 200	201 - 300	301 - 400	401 - 500
3PL	115/230	8.8/4.4	15/15	14/14	12/14	10/14	8/14	8/12
5PL	115/230	12.2/6.1	20/15	12/14	10/14	8/14	6/12	6/12
7PL	115/230	14.8/7.4	20/15	12/14	8/14	6/14	6/12	4/10
10PL	115/230	16.2/8.1	25/15	10/14	8/14	6/14	6/12	4/10
10PLS11C	115/230	14.8/7.4	20/15	12/14	8/14	6/14	6/12	4/10
15PLS11C	115/230	16.2/8.1	25/15	10/14	8/14	6/14	6/12	4/10

(\*) Fusetrons are recommended instead of fuses on all motor circuits.

## OPERATION

### Preparing to Start the Pump – Deep Well

**CAUTION** Never run pump dry. Running pump without water may cause pump to overheat, damaging seal and possibly causing burns to persons handling pump. Fill pump with water before starting.

**WARNING** Never run pump against closed discharge. To do so can boil water inside pump, causing hazardous pressure in unit, risk of explosion and possibly scalding persons handling pump.

1. Open the control valve as far as possible (See Figure 13). Then remove the priming plug from the pump and fill the pump, fill all piping between the pump and the well, and make sure that all piping in the well is full. If you have also installed a priming tee in the suction piping, remove the plug from the tee and fill the suction piping.

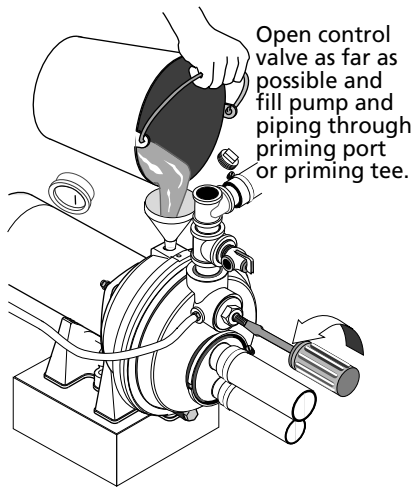


Figure 13 – Fill Pump

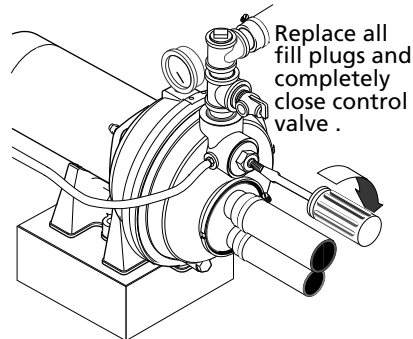


Figure 14 – Prime Pump

2. Replace all fill plugs and close the control valve completely (See Figure 14).
3. Power on! Start the pump and watch the pressure gauge. The pressure should build rapidly to 50 psi as the pump primes.
4. After 2 or 3 minutes, the gauge should show pressure. If not, stop the pump, remove the fill plugs, reopen the control valve, and refill the pump and piping. You may have to repeat this two or three times in order to get all the trapped air out of the piping. Don't forget to close the control valve each time before you start the pump.
5. When pressure has built up and stabilized at about 50 psi, slowly open the control valve (See Figure 15) and let the pressure drop until the pressure gauge needle starts to flutter. When the needle flutters, close the valve just enough to stop the flutter (See Figure 15). Your pump is now operating at its most efficient point.

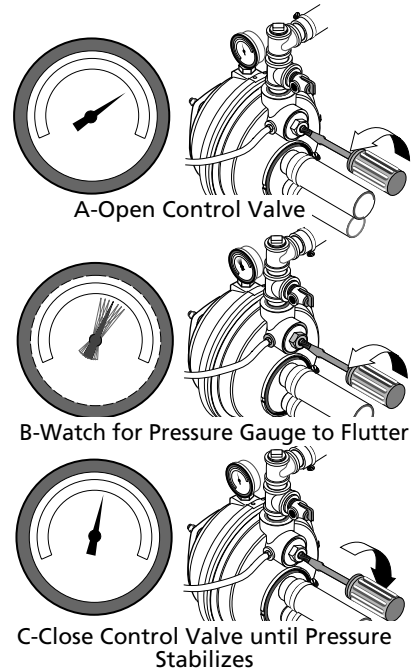


Figure 15 – Set Control Valve

6. After the pump has built up pressure in the system and shut off, check the pressure switch operation by opening a faucet or two and running enough water out to bleed off pressure until the pump starts. The pump should start when pressure drops to 30 psi and stop when pressure reaches 50 psi. Run the pump through one or two complete cycles to verify correct operation. This will also help clean the system of dirt and scale dislodged during installation.

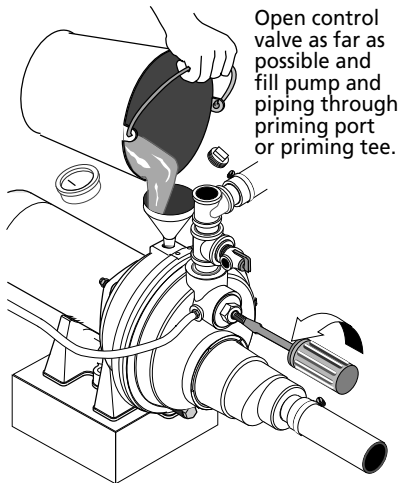
**If you were unsuccessful, please refer to the Troubleshooting section (Page 10) or call our customer service technical staff.**

### Preparing to Start the Pump – Shallow Well

**▲ CAUTION** Never run pump dry. Running pump without water may cause pump to overheat, damaging seal and possibly causing burns to persons handling pump. Fill pump with water before starting.

**▲ WARNING** Never run pump against closed discharge. To do so can boil water inside pump, causing hazardous pressure in unit, risk of explosion and possibly scalding persons handling pump.

1. Open the control valve as far as possible (See Figure 16). Then remove the priming plug from the pump and fill the pump, fill all piping between the pump and the well, and make sure that all piping in the well is full. If you have also installed a priming tee in the suction piping, remove the plug from the tee and fill the suction piping.



**Figure 16 – Open Control Valve**

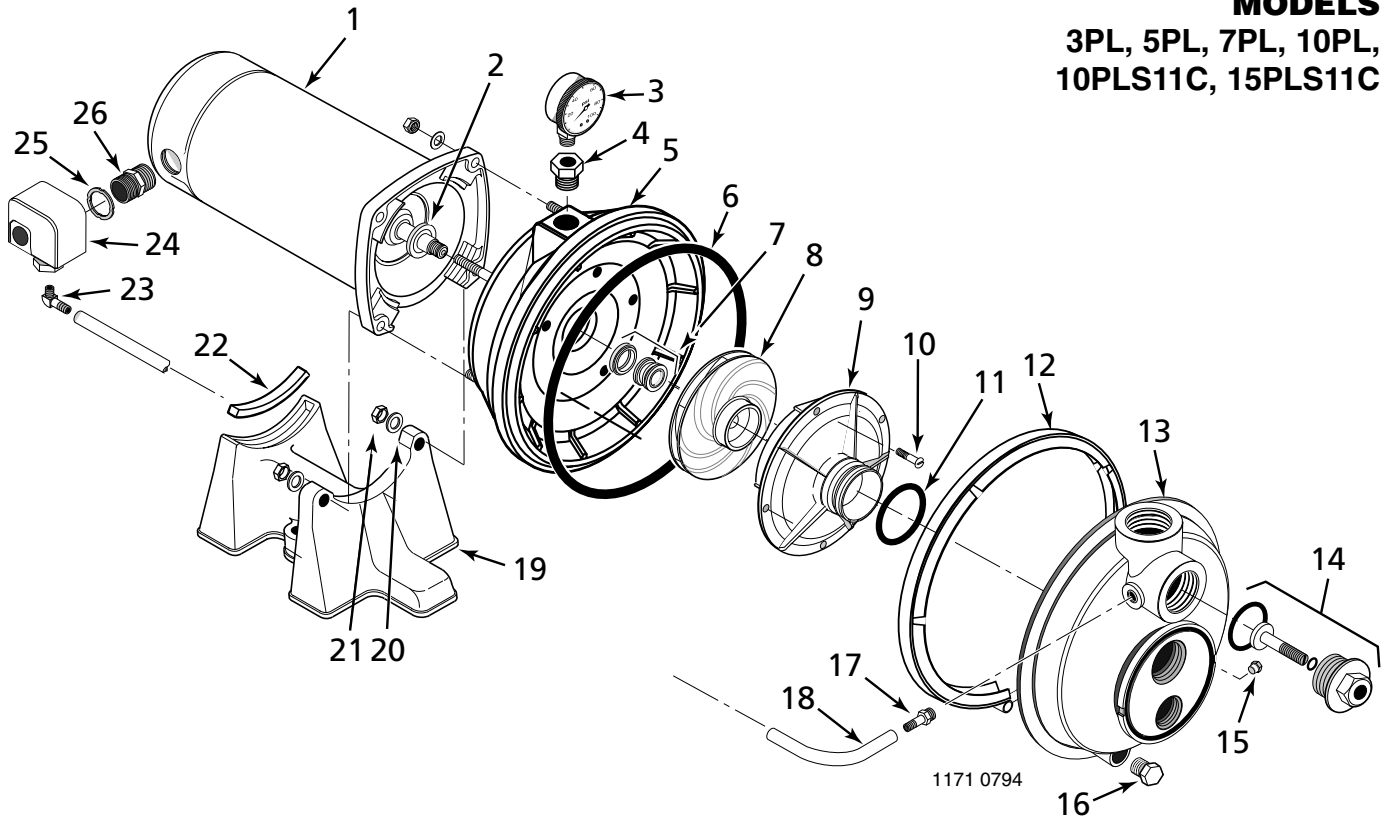
2. Replace all fill plugs. Leave the control valve open (in a shallow well installation, the control valve always stays open).
3. Power on! Start the pump. The pump should pump water in two or three minutes.
4. If you don't have water after 2 or 3 minutes, stop the pump and remove the fill plugs. Refill the pump and piping. You may have to repeat this two or three times in order to get all the trapped air out of the piping. The control valve remains open throughout this procedure.
5. After the pump has built up pressure in the system and shut off, check the pressure switch operation by opening a faucet or two and running enough water out to bleed off pressure until the pump starts. The pump should start when pressure drops to 30 psi and stop when pressure reaches 50 psi. Run the pump through one or two complete cycles to verify correct operation. This will also help clean the system of dirt and scale dislodged during installation.

**If you were unsuccessful, please refer to the Troubleshooting section (Page 10) or call our customer service technical staff.**

# TROUBLESHOOTING CHART

Symptoms	Things to Do:
A. Motor will not run.	<p>A. Check that the disconnect switch is ON and that the circuit breaker has not tripped or the fuse has not blown.</p> <p>DISCONNECT POWER and make sure that wires connecting motor to power supply and pressure switch are tight and correctly connected (see Page 7).</p> <p>If the remedies above do not solve the problem, call your well professional.</p>
B. Motor runs hot and overload trips.	<p>B. Turn to electrical instructions on Page 7 and verify that motor is correctly wired.</p> <p>Check with the power company or hydro authority to make sure that the voltage at the pump is within <math>\pm 10\%</math> of the motor's rated nameplate voltage.</p> <p>DISCONNECT POWER and make sure that the wires connecting the motor to the power supply are sized according to Wiring Chart, Page 7.</p> <p>If not, rewire according to the instructions on Page 7.</p> <p>If the pump is cycling too frequently, see Section E, below.</p>
C. Motor runs but no water is delivered.	<p>C. FIRST, check the prime; that is, make sure that the pump and all the suction piping plus the piping in the well are full of water. If they aren't, fill them up.</p> <p>In cold weather, make sure that the pipes and pump are not frozen. If they are, thaw them, watching out for split pipes and fittings as you work. Heat the pump pit or pump house and bury all piping below the frost line.</p> <p>Other possible causes (call your pump professional if you suspect one of these): Air leaks in the suction line, dropping water level in the well, foot valve stuck or plugged, ejector plugged, impeller plugged, foot valve or strainer stuck in the mud in the bottom of the well, a shallow well pump installed on a well with more than 25 ft depth to water (in this case a deep well jet pump is needed).</p>
D. Pump does not deliver water to full capacity.	<p>D. Possible causes are: the well water level is lower than estimated, making a different nozzle/venturi combination necessary; steel piping (if used) is corroded or limed, restricting capacity and increasing friction; or the piping is too small for the installation. Consult your well professional for any of these conditions.</p>
E. Pump cycles too frequently or does not shut off at all.	<p>E. Make sure no faucets have been left open.</p> <p>If system has a standard tank, make sure it isn't waterlogged. If it is, drain it down to the level of the air volume control. Make sure the AVC isn't defective and that there are no leaks at any connections.</p> <p>If system has a precharged tank, <b>disconnect power</b>, open all system faucets and bleed all pressure off of tank. Use a tire gauge to check the air pressure in the tank. This should be lower than the cut-in setting of the pressure switch by 2 PSI (that is, if the pressure switch starts the pump at 30 PSI, the precharge should be 28 PSI). Check the air valve for leaks (use a soap solution) and replace the core if necessary.</p> <p>If you suspect any of the following conditions, consult your well professional: leaky pipes, leaky foot valve, water level in the well lower than estimated, clogged ejector or impeller.</p>
F. Air spurts from faucets.	<p>F. Pump may still be priming; when priming is complete all air will have been ejected from the system.</p> <p>If you suspect leaks in the suction piping, gasses in the well, or that the pump is intermittently overpumping the well (that is, drawing the water level down below the foot valve), consult your well professional.</p>
G. Pump leaks around clamp.	<p>G. Tighten clamp nut 1-2 turns. <i>Do not overtighten.</i></p>

**MODELS**  
**3PL, 5PL, 7PL, 10PL,**  
**10PLS11C, 15PLS11C**



**REPLACEMENT PARTS LIST**

Key No.	Description	Qty.	3PL	5PL	7PL	10PL	10PLS11C	15PLS11C
1	Motor	1	A100BHL	A100CHL	A100DHL	A100EHL	A100ELL	A100FLL
2	Water slinger	1	17351-0009	17351-0009	17351-0009	17351-0009	17351-0009	17351-0009
3	Pressure gauge	1	U239-3	U239-3	U239-3	U239-3	U239-3	U239-3
4	1/2 x 1/8" NPT Reducer bushing	1	U78-107PT	U78-107PT	U78-107PT	U78-107PT	U78-107PT	U78-107PT
5	Pump body, back half	1	L176-47P	L176-47P	L176-47P	L176-47P	L176-47P	L176-47P
6	O-ring	1	U9-399	U9-399	U9-399	U9-399	U9-399	U9-399
7	Shaft seal	1	U109-6A	U109-6A	U109-6A	U109-6A	U109-6A	U109-6A
8	Impeller	1	J105-40PE	J105-42PT	J105-8PAN	J105-22PA	J105-8PAN	J105-22PA
9	Diffuser	1	J1-39P	J1-39P	J1-40P	J1-40PA	J1-40P	J1-40PA
**	Lockwasher	5	U43-21SS	U43-21SS	U43-21SS	U43-21SS	U43-21SS	U43-21SS
10	#8 - 32 x 7/8" lg. Screw, S.S.	5	*	*	*	*	*	*
11	Diffuser O-ring	1	U9-199	U9-199	U9-199	U9-199	U9-199	U9-199
12	Pump body clamp	1	C19-54SS	C19-54SS	C19-54SS	C19-54SS	C19-54SS	C19-54SS
13	Pump body, front half	1	L76-37P	L76-37P	L76-37P	L76-37P	L76-37P	L76-37P
14	Control valve	1	L162-10PS	L162-10PS	L162-10PS	L162-10PS	L162-10PS	L162-10PS
15	1/8" NPT Pipe plug	1	*	*	*	*	*	*
16	1/4" NPT Pipe plug	1	*	*	*	*	*	*
17	1/4" NPT straight barbed fitting	1	*	*	*	*	*	*
18	Switch tube	1	U37-671P	U37-671P	U37-671P	U37-671P	U37-671P	U37-671P
19	Base	1	C4-42P	C4-42P	C4-42P	C4-42P	C4-42P	C4-42P
20	5/16" Washer, S.S.	4	*	*	*	*	*	*
21	5/16" - 18 Hex head nut, S.S.	4	*	*	*	*	*	*
22	Motor pad	1	C35-11	C35-11	C35-11	C35-11	C35-11	C35-11
23	1/4" NPT Elbow barbed fitting	1	*	*	*	*	*	*
24	Pressure switch	1	U217-1216	U217-1216	U217-1216	U217-1217	U217-1216	U217-1217
25	1/2" Locknut	1	*	*	*	*	*	*
26	Connector	1	L43-5C	L43-5C	L43-5C	L43-5C	L43-5C	L43-5C
	• Ejector Kit – Shallow well	1	BK4875	BK4875	BK4875	BK4875	BK4875	BK4875
	• Ejector Kit – Deep well (4" dia. well)	1	BK4800	BK4800	BK4800	BK4800	BK4800	BK4800
	• Ejector Kit – Deep well (2" single pipe well)	1	BK4840	BK4840	BK4840	BK4840	BK4840	BK4840

\* Standard hardware item, purchase locally.  
 • Not shown and not included. Order separately.  
 \*\* Not illustrated.

## **BERKELEY LIMITED WARRANTY**

Berkeley/Wicor Canada Company ("Wicor") warrants to the original consumer purchaser ("Purchaser") of its products that they are free from defects in material or workmanship.

If within twelve (12) months from the date of installation or twenty-four (24) months from the date of manufacture any such product shall prove to be defective, it shall be repaired or replaced at Berkeley's/Wicor's option, subject to the terms and conditions set forth below.

### **General Terms and Conditions**

Purchaser must pay all labor and shipping charges necessary to replace product covered by this warranty. This warranty shall not apply to products which, in the sole judgement of Berkeley/Wicor, have been subject to negligence, abuse, accident, misapplication, tampering, alteration; nor due to improper installation, operation, maintenance or storage; nor to other than normal application, use or service, including but not limited to, operational failures caused by corrosion, rust or other foreign materials in the system, or operation at pressures in excess of recommended maximums.

Requests for service under this warranty shall be made by contacting the installing Berkeley/Wicor dealer as soon as possible after the discovery of any alleged defect. Berkeley/Wicor will subsequently take corrective action as promptly as reasonably possible. No requests for service under this warranty will be accepted if received more than 30 days after the term of the warranty.

The warranty on all three phase submersible motors is void if three-leg overload protection of recommended size is not used.

This warranty sets forth Berkeley's/Wicor's sole obligation and purchaser's exclusive remedy for defective products.

**BERKELEY/WICOR SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, OR CONTINGENT DAMAGES WHATSOEVER.**

**THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS WARRANTIES. IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL NOT EXTEND BEYOND THE DURATION OF THE APPLICABLE EXPRESS WARRANTIES PROVIDED HEREIN.**

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

**In the U.S.: Berkeley, 293 Wright St., Delavan, WI 53115**

**In Canada: Wicor Canada Company, 1800 Courtney Park Drive East, Unit 5-7, Mississauga, Ontario L5T 1W1**