

REPLACING AN OLD PUMP

⚠ WARNING 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 the pump in the system. Make sure that all pipe joints in the suction pipe are air-tight as well as water

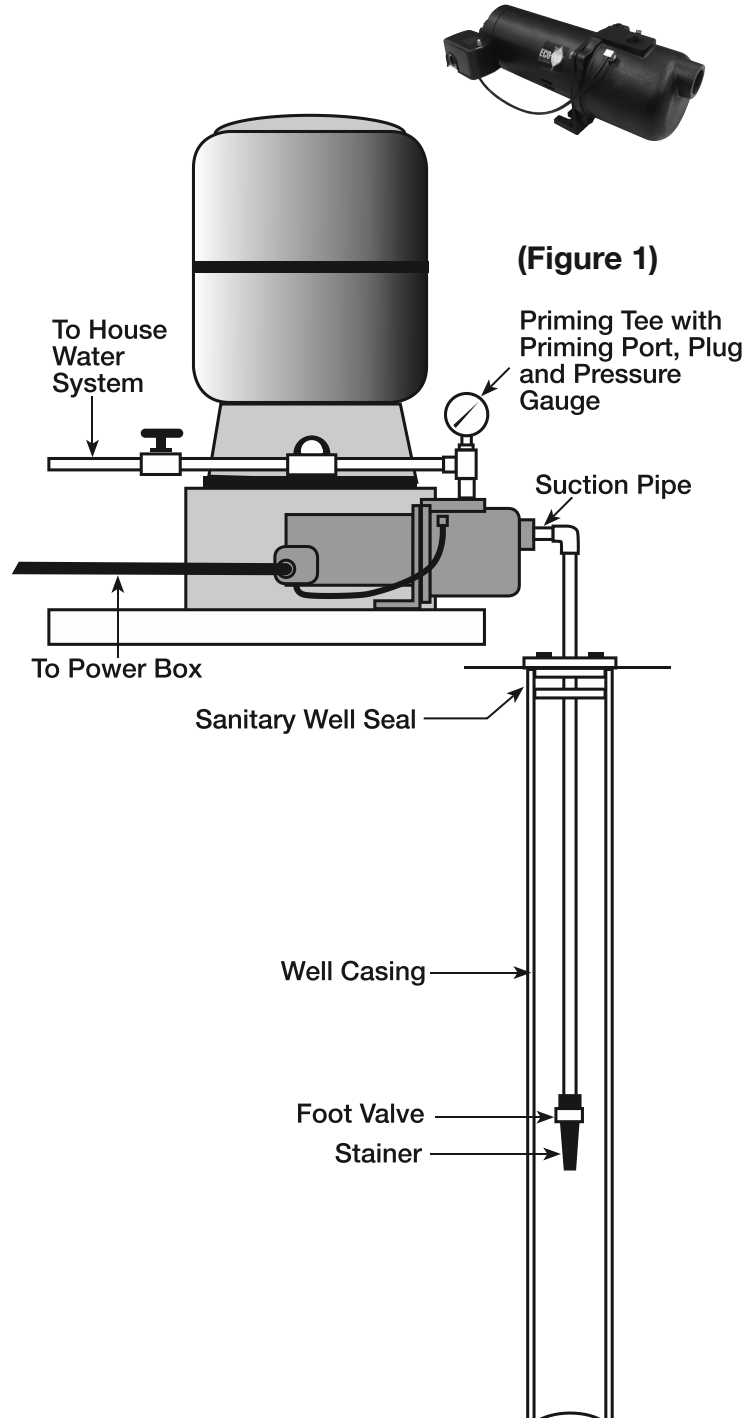
tight. If the suction pipe can suck air, the pump will not be able to pull water from the well.

3. 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 PUMP INSTALLATIONS

Cased Well Installation (Figure 1)

1. Mount the pump as close to the well as possible.
2. Assemble the foot valve, strainer, and well pipe. Make sure that the foot valve works freely.
3. 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.
4. Install a sanitary well seal.
5. Install a priming tee, priming plug, and pressure gauge to pump's discharge port. Connect the pipe from the well to the pump's suction port, using the fewest possible fittings-especially elbows – to reduce friction in the pipe. The suction pipe should be at least as large as the suction port on the pump. Support the pipe so that there are no dips or sags in the pipe, so not to strain the pump body, and so that it slopes slightly upward from the well to the pump (Note: Not doing so can create air locks preventing the pump from working properly). Seal the suction pipe joints with PTFE pipe thread sealant tape or a PTFE-based pipe joint compound. Joints must be air-and-water-tight. If the suction pipe can suck air, the pump cannot pull water from well.
6. See instructions on page 8 for connecting discharge pipe to tank.

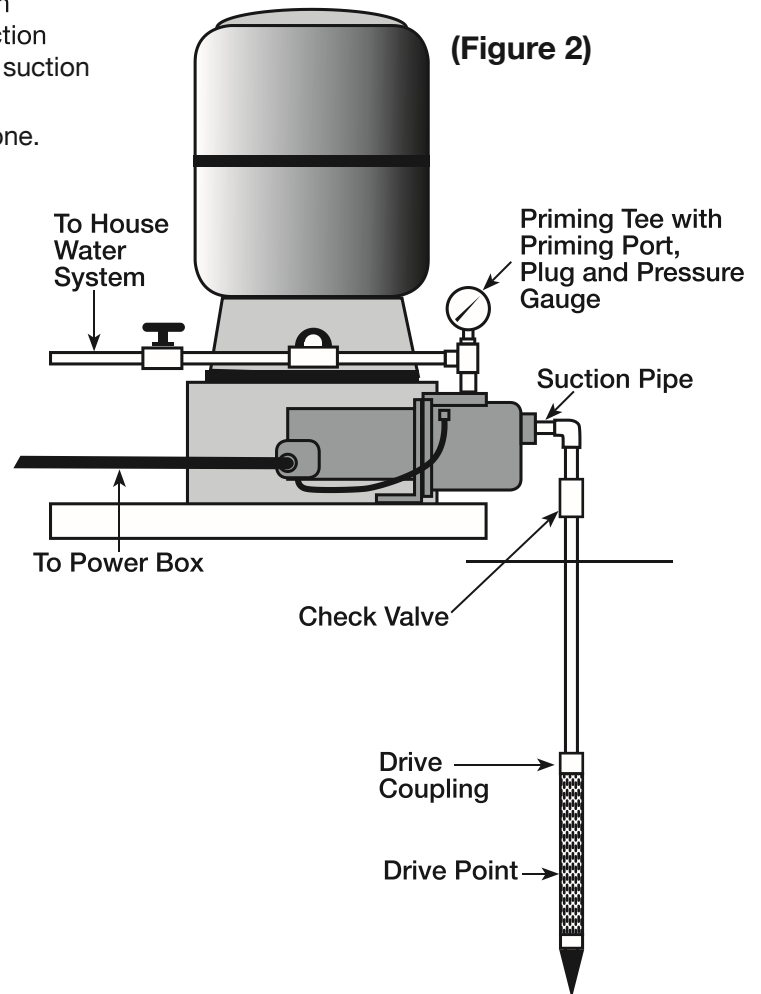


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SHALLOW WELL PUMP INSTALLATIONS

Driven Point Installation (Figure 2)

1. Drive the well point, using “drive couplings” and a “drivecap”. “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.
2. Mount the pump as close to the well as possible.
3. 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.
4. Install a check valve if your pump is not equipped with one.
5. Install a priming tee, priming plug, and pressure gauge to pump’s discharge port. Connect the pipe from the well to the pump’s suction port, using the fewest possible fittings-especially elbows – to reduce friction in the pipe. The suction pipe should be at least as large as the suction port on the pump. Support the pipe so that there are no dips or sags in the pipe, so not to strain the pump body, and so that it slopes slightly upward from the well to the pump (Note: Not doing so can create air locks preventing the pump from working properly). Seal the suction pipe joints with PTFE pipe thread sealant tape or a PTFE-based pipe joint compound. Joints must be air-and-water-tight. If the suction pipe can suck air, the pump cannot pull water from well.
6. If one well point does not supply enough water, consider connecting two or three well points to one suction pipe.
7. See instructions on page 8 for connecting discharge pipe to tank.

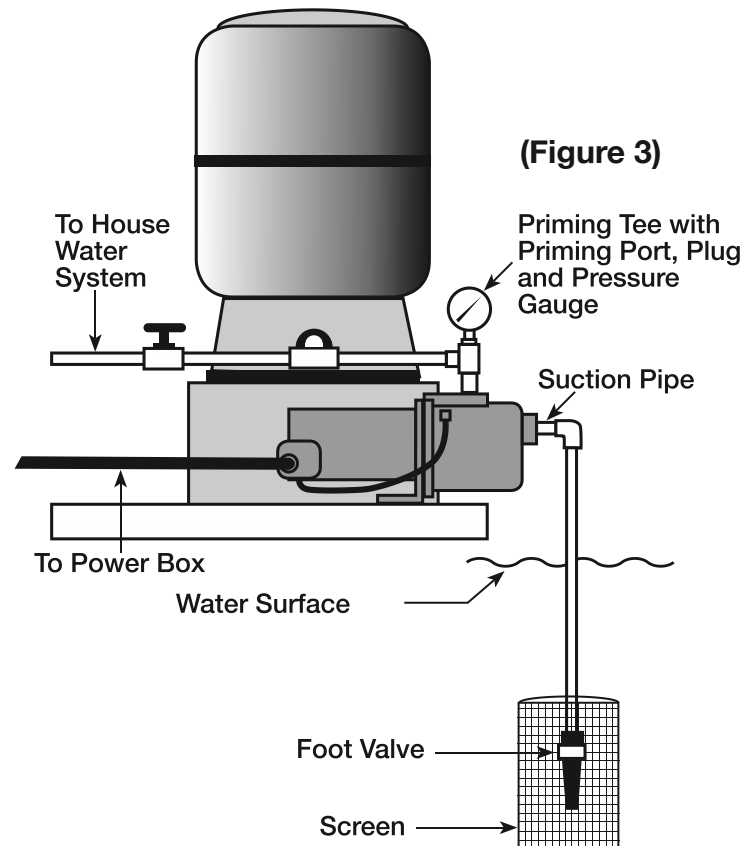


SHALLOW WELL PUMP INSTALLATIONS

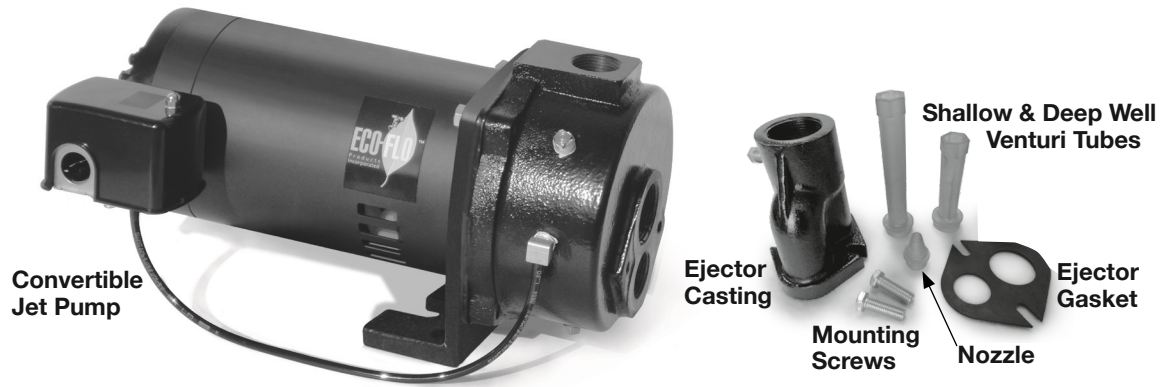
Surface Water Installation (Figure 3)

CAUTION Possible contamination. Do not use surface water for drinking. The installation shown could be used for sprinkler applications.

1. 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.
2. Assemble a foot valve and strainer to the suction pipe. Make sure that the foot valve works freely. Use PTFE pipe thread sealant tape or a PTFE-based pipe joint compound on threaded pipe joints.
3. Install a screen to protect the water system from letting debris enter the system.
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 in order to prevent the pump from sucking air.
5. Install a priming tee, priming plug, and pressure gauge to pump's discharge port. Connect the pipe from the well to the pump's suction port, using the fewest possible fittings-especially elbows – to reduce friction in the pipe. The suction pipe should be at least as large as the suction port on the pump. Support the pipe so that there are no dips or sags in the pipe, so not to strain the pump body, and so that it slopes slightly upward from the well to the pump (Note: Not doing so can create air locks preventing the pump from working properly). Seal the suction pipe joints with PTFE pipe thread sealant tape or a PTFE-based pipe joint compound. Joints must be air-and-water-tight. If the suction pipe can suck air, the pump cannot pull water from well.
6. Joints must be air-and water-tight. If the suction pipe can suck air, the pump cannot pull water from the water source.
7. See instructions on page 8 for connecting discharge pipe to tank.



CONVERTIBLE WELL PUMP INSTALLATIONS



A Convertible Jet Pump can be used either in shallow well applications, (0-25') or in deep well applications, (26' to 75'). Both measurements are from the intake port of the pump to the water source. The pump can be converted shallow to deep or deep to shallow.

When properly installed your jet pump should provide the following performance:

SHALLOW WELL FOR 4" DIAMETER WELL APPLICATION- PUMP PERFORMANCE*

MODEL	HP	MOTOR VOLTAGE	PRESSURE SWITCH SETTINGS	DISTANCE PUMP ABOVE WATER					PRESSURE SHUT-OFF AT MAX. DEPTH
				5'	10'	15'	20'	25'	
				GALLONS PER MINUTE PUMPED					
EFCWJ5-A	1/2	115/230	30-50	6.4	5.4	5.2	4.5	4	57 PSI
EFCWJ7-A	3/4	115/230	30-50	10.1	9.1	8.3	7.5	7.0	56 PSI
EFCWJ10-A	1	115/230	30-50	14.8	12.0	10.8	9	8.7	60 PSI

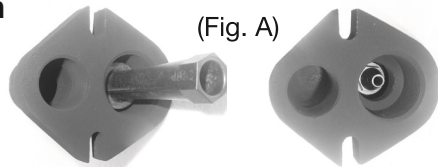
* Performance shown in GPM (gallons per minute) at 40 PSI (pounds per square inch) discharge pressure.

DEEP WELL FOR 4" DIAMETER WELL APPLICATION- PUMP PERFORMANCE*

MODEL	HP	MOTOR VOLTAGE	PRESSURE SWITCH SETTINGS	DISTANCE PUMP ABOVE WATER						PRESSURE SHUT-OFF AT MAX. DEPTH
				20'	30'	40'	50'	60'	70'	
				GALLONS PER MINUTE PUMPED						
EFCWJ5-A	1/2	115/230	30-50	4.5	3.5	2.8	2.3	1.7	-	54 PSI
EFCWJ7-A	3/4	115/230	30-50	7.5	6.5	5.1	4.0	3.0	2.5	56 PSI
EFCWJ10-A	1	115/230	30-50	9.0	8.4	7.3	6.2	5.0	4.4	56 PSI

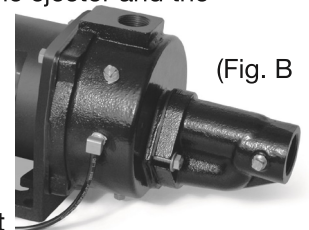
* Performance shown in GPM (gallons per minute) at 40 PSI (pounds per square inch) discharge pressure.

Preparing the Convertible Jet Pump for Shallow Well Application



1. Note the nozzle is used in both shallow well and deep well applications and is installed in the ejector casting at the factory (Fig. A).
2. Use the large end of one of the venturi tubes as a wrench to ensure the nozzle is tight in the ejector housing. The nozzle should be finger tight and one quarter of a turn more using a wrench, a pair of pliers or the venturi tube.
3. Select the venturi tube marked with the horsepower of your pump motor, i.e. 1/2HP or 3/4HP etc, or marked with "SW" denoting for shallow well applications.

4. Install the venturi tube in the ejector housing. (Fig. A)
5. Tighten the venturi tube in the casting finger tight and one quarter additional turn with wrench or pair of pliers.
6. Mount the ejector on to the convertible well pump placing the gasket between the ejector and the jet pump's body (Fig. B).
7. Secure the ejector to the pump body with the screws provided with the ejector kit.
8. Ensure the screws are tight.
9. You have now completed assembling the convertible jet pump for shallow well applications.
10. Install the pump and the balance of the pump accessories, i.e. tees, gauges, etc by following instructions associated with figures 1, 2, and 3.



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CONVERTIBLE WELL PUMP INSTALLATIONS

Preparing the Convertible Jet Pump for Deep Well Application, i.e. 26-75', 4" diameter wells. (Figure 4)

1. Install the pressure regulator control valve along with pressure gauge, and other fittings (see fig. 4). Mount on pump's discharge port.
2. Prepare the ejector.
3. Note the nozzle is installed at the factory in the ejector body (see fig A, page 6).
4. Select and install the venturi tube marked with a DW. DW denotes deep well. Install as described above. (see fig.A, page 6)
5. Install a short pipe and foot valve to the intake end of the ejector to ensure the pipes do not lose water and remain primed when the jet pump's motor is off.
6. Using the proper pipe for each port in the ejector, install pipe on the ejector (Figure 4) and begin lowering it into the water source to the depth you have determined will optimize your pump's water performance.
7. Note the pipes will be two different sizes to optimize the jet pump's performance. One pipe will be 1" and the other will be 1-1/4" in diameter.
8. Attach the opposite ends of the pipes to the intake ports of the jet pump (see Figure4).
9. Install a sanitary well seal and connect the ejector piping to the pump. Use steel nipples through the well seal with flexible poly pipe to avoid crushing the plastic pipe when tightening the seal.
10. 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 PTFE pipe thread sealant tape or a PTFE-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.
11. You are now ready to prime the pump per instructions on page 10.
12. See instructions on page 8 for connecting discharge pipe to tank.

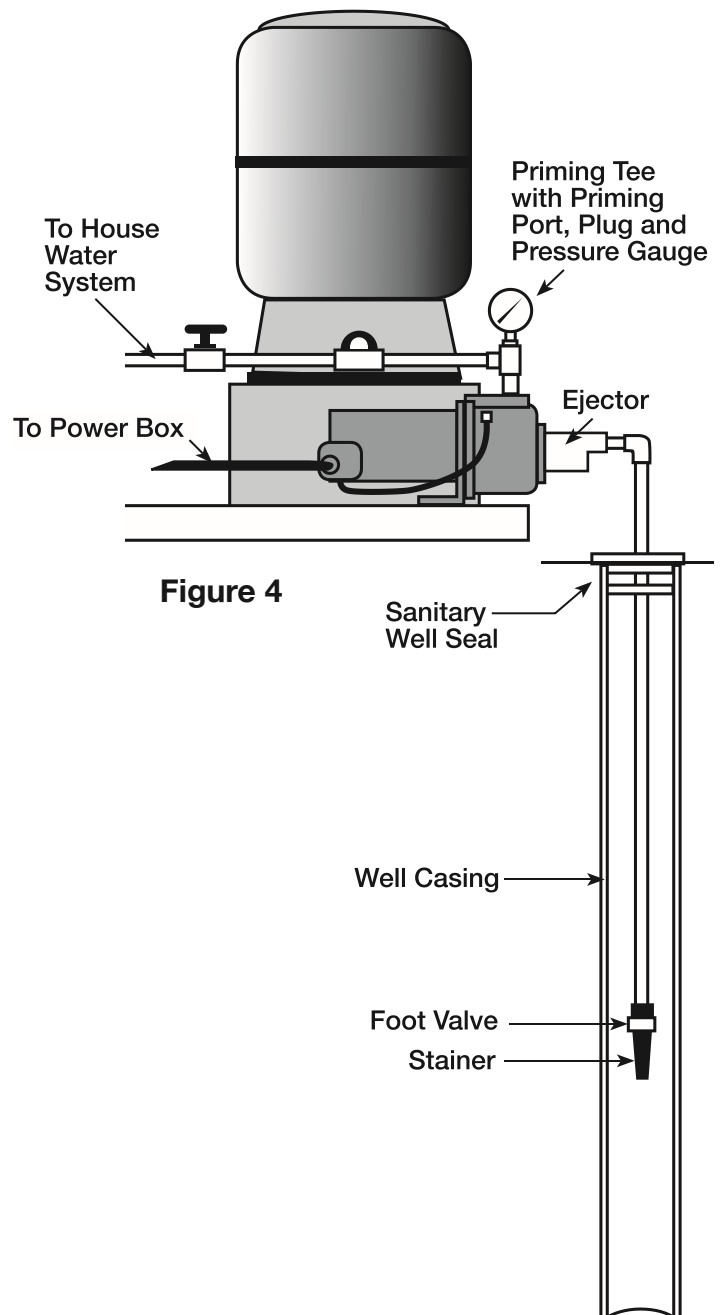


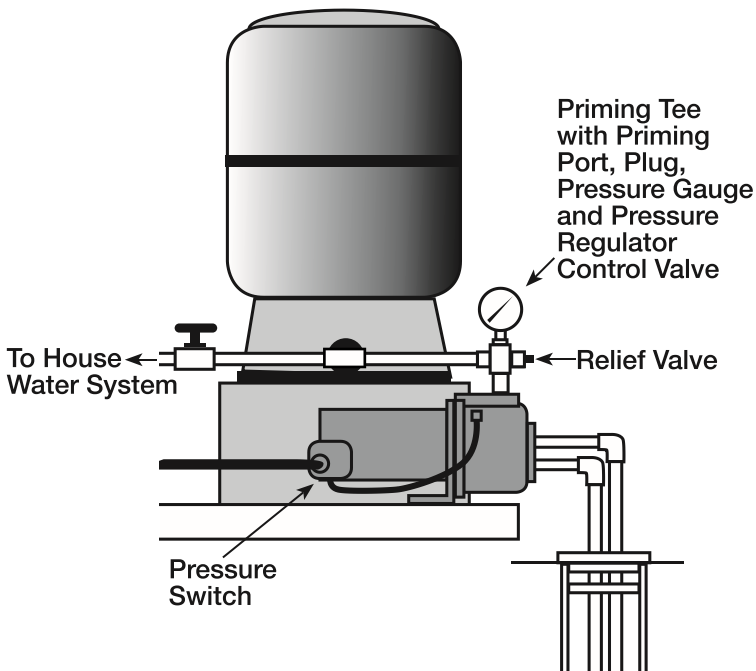
Figure 4

DISCHARGE PIPE AND PRESSURE TANK CONNECTIONS

Connecting Pump Discharge to Pre-Charged Tank Connections (Figure 5)

1. Install two tees in the pump discharge port. The pipe size must be at least as large as the discharge port.
2. Run a pipe from one arm of the tee in the pump's discharge port to the end of the tee installed in the pre-charged tank.
3. Connect the other end of the tank tee to your plumbing system.
4. Cap the remaining openings in the tees with a threaded plug or a pressure gauge.
5. Check the air pressure in the tank using an ordinary tire gauge.
6. The air pressure should be 2 PSI less than the cut in setting of the pump's pressure switch.
7. The pre-charge tank's pressure is measured when there is no water in the tank.
8. For example, if your pump has a 30/50 PSI pressure switch, your pump will turn on when the pressure in the line drops to 30 PSI (cut in pressure) and will turn off when the pressure in the line increases to 50 PSI (cut out pressure). The air pressure in the tank should be set at 28 PSI, (30-2)
9. Fill pump body with water.
10. Go to Electrical section.

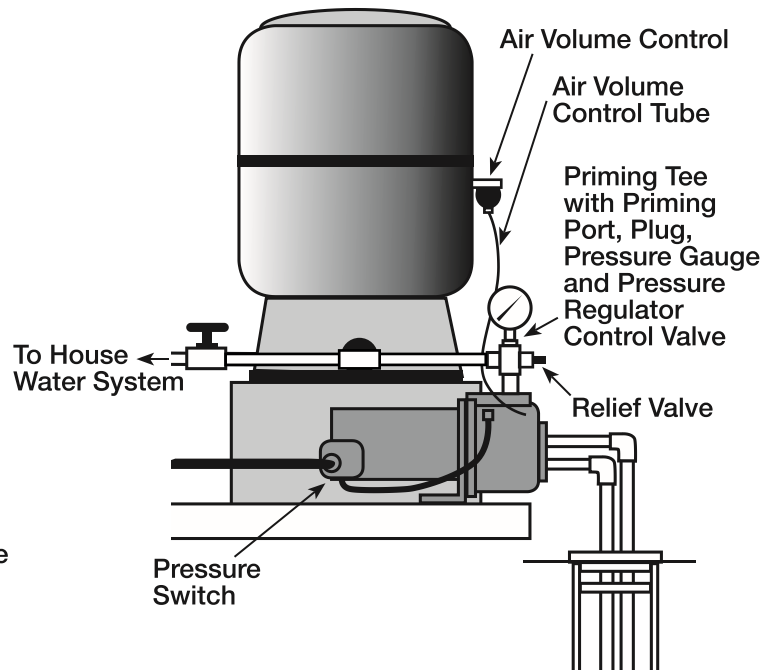
(Figure 5) Precharged Tank Connections Priming tee with priming port, plugs, pressure gauge and pressure regulator control



Connecting Pump Discharge to Standard Tank (Figure 6)

1. Install two tees in the pump discharge port.
2. Run a pipe from one arm of the tee installed in the pump's discharge port to the end of the tee installed in the tank.
3. Connect the other end of the tank tee to your plumbing
4. Install in another opening of the pump tees a reducer bushing down to 1/8" NPT in the tee. Run tubing from the tee to the port on the Air Volume Control (AVC) mounted on the tank.
5. Cap the remaining openings with a threaded plug or pressure gauge.
6. Seal all joints with PTFE pipe thread sealant tape or a PTFE-based pipe joint compound. See instructions provided with the tank and the AVC for details.
7. Pour water in the pump.
8. Go to Electrical section.

(Figure 6) Standard Tank Connections



Sealing Pipe Joints

Use only PTFE pipe thread sealant tape or PTFE-based joint compounds for making all threaded connections to the pump itself. Do not use pipe joint compounds on plastic pumps: they can react with the plastic in pump components. 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.

ELECTRICAL

⚠ WARNING Disconnect power before working on pump, motor, pressure switch or wiring

⚠ CAUTION Motor may be hot. Allow to cool 20 minutes.

⚠ CAUTION Water pressure may have built up in the pump, pipes and/or tank. Drain water to relieve pressure.

Motor Switch Settings (Figure 8)

Motors are designed to run on either 115 volt or 230 volt current. Be sure the motor's wires are attached properly to the motor's control panel for the voltage required.

Wiring Pressure Switch

Attach the wires from the power source to the pressure switch following the directions provided under the cover of the pressure switch. Remove the pressure switch cover and follow wiring directions under the cover lid. Be sure to ground wire the pressure switch to the motor.

Wiring the Motor (Figure 8)

Attach wires between the pressure switch and the motor ensuring the wires are connected to the motor for the proper electrical source voltage, i.e. 115V or 230V- see the wiring diagrams in this manual or under the cover of the motor. Ensure to ground the pressure switch to the motor.

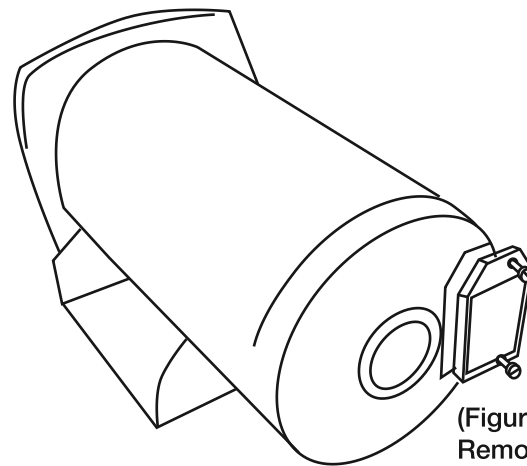
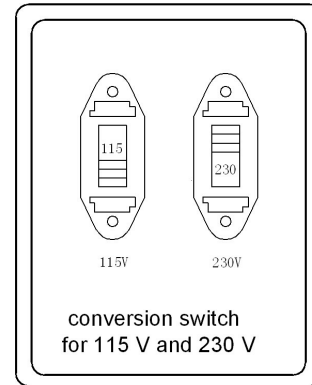
Wiring

⚠ WARNING Risk of electric shock.

Can shock, burn or kill.

1. To avoid dangerous or fatal electrical shock, turn OFF power to motor before working on electrical connections.
2. Ground motor before connecting to electrical power supply. Failure to ground motor can cause severe or fatal electrical shock hazard.
3. Supply voltage must be within +/- 10% of nameplate voltage. Incorrect voltage can cause fire or damage motor and voids warranty. If in doubt consult a licensed electrician.
4. Use wire size specified in Wiring Chart (below). If possible, connect pump to a separate branch circuit with no other appliances on it.
5. Do not ground to a gas supply line.
6. Wire motor according to diagram on motor nameplate. If nameplate diagram differs from diagrams above, follow nameplate diagram.
7. If this procedure or the wiring diagrams are confusing, consult a licensed electrician.

Figure 7



(Figure 8)
Remove Motor End Plate

Wiring Chart Recommended Wire and Fuse Sizes for 115 and 230 volts

MOTOR HP	VOLTS	MAX. LOAD AMP	BRANCH FUSE RATING AMP	AWG MIN. WIRE SIZE (mm ²)	DISTANCE IN FEET FROM MOTOR TO SUPPLY				
					0-100	101-200	201-300	301-400	401-500
					AWG WIRE SIZE (mm ²)				
1/2	115/230	10.6/6.5	15/15	12/14 (3/2)	12/14 (8.4/2)	8/14 (2/2)	6/14 (14/2)	6/12 (14/3)	4/10 (21/5.5)
3/4	115/230	11/6.6	20/15	10/14 (5.5/2)	12/14 (8.4/2)	8/14 (8.4/2)	6/12 (14/3)	4/10 (21/5.5)	4/10 (21/5.5)
1	115/230	11.8/6.7	25/15	10/14 (5.5/2)	6/14 (14/2)	8/14 (8.4/2)	6/12 (14/3)	4/10 (21/5.5)	4/10 (21/5.5)

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