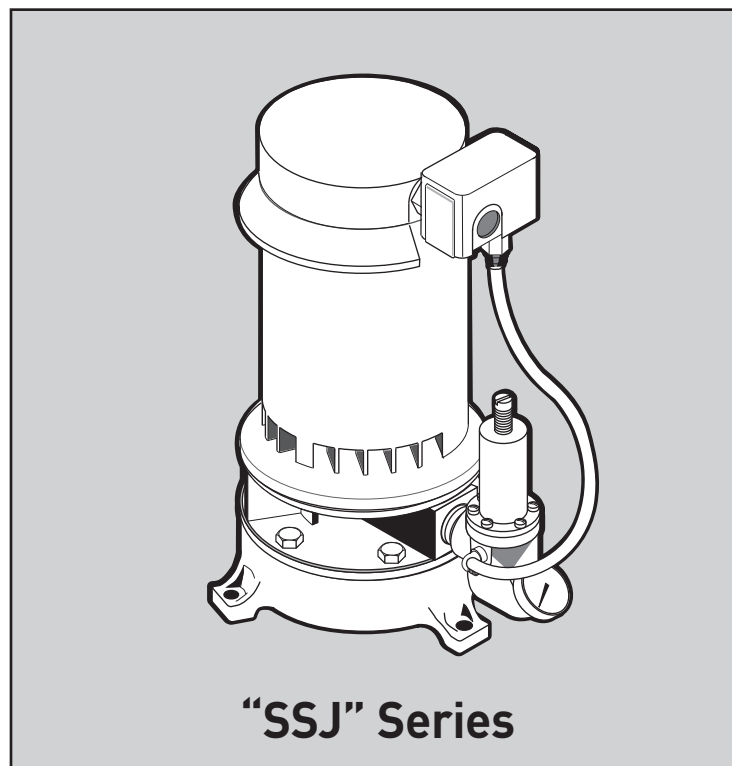


STA-RITE®



Installation/Operation/Parts

For further operating, installation,
or maintenance assistance:

Call 1-888-782-7483

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.

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.

Keep safety labels in good condition.

Replace missing or damaged safety labels.

Make workshops childproof; use padlocks and master switches; remove keys.

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.

ELECTRICAL SAFETY

⚠ 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.

GENERAL SAFETY

⚠ CAUTION Do not touch an operating motor. Modern motors can 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 only water 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; 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.

⚠ 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.

- ⚠** 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.

⚠ WARNING



Hazardous pressure! Install pressure relief valve in discharge pipe.

Release all pressure on system before working on any component.

Thank you for purchasing a top quality, factory tested pump.

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Limited Warranty

STA-RITE warrants to the original consumer purchaser (“Purchaser” or “You”) of the products listed below, that they will be free from defects in material and workmanship for the Warranty Period shown below.

Product	Warranty Period
Water Systems Products — jet pumps, small centrifugal pumps, submersible pumps and related accessories	<i>whichever occurs first:</i> 12 months from date of original installation, or 18 months from date of manufacture
Pro-Source™ Composite Tanks	5 years from date of original installation
Pro-Source™ Steel Pressure Tanks	5 years from date of original installation
Pro-Source™ Epoxy-Lined Tanks	3 years from date of original installation
Sump/Sewage/Effluent Products	12 months from date of original installation, or 18 months from date of manufacture

Our warranty will not apply to any product that, in our sole judgement, has been subject to negligence, misapplication, improper installation, or improper maintenance. Without limiting the foregoing, operating a three phase motor with single phase power through a phase converter will void the warranty. Note also that three phase motors must be protected by three-leg, ambient compensated, extra-quick trip overload relays of the recommended size or the warranty is void.

Your only remedy, and STA-RITE’s only duty, is that STA-RITE repair or replace defective products (at STA-RITE’s choice). You must pay all labor and shipping charges associated with this warranty and must request warranty service through the installing dealer as soon as a problem is discovered. No request for service will be accepted if received after the Warranty Period has expired. This warranty is not transferable.

STA-RITE SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, OR CONTINGENT DAMAGES WHATSOEVER. THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS AND IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE FOREGOING WARRANTIES SHALL NOT EXTEND BEYOND THE DURATION EXPRESSLY PROVIDED HEREIN.

Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on the duration of an implied warranty, 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.

This Limited Warranty is effective June 1, 2011 and replaces all undated warranties and warranties dated before June 1, 2011.

STA-RITE INDUSTRIES

293 Wright Street • Delavan, WI U.S.A. 53115

Phone: 1-888-782-7483 • Fax: 1-800-426-9446 • Web Site: sta-rite.com

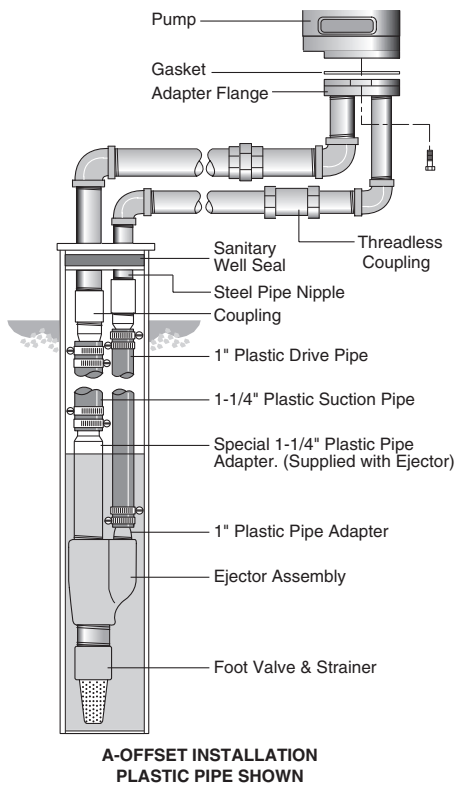
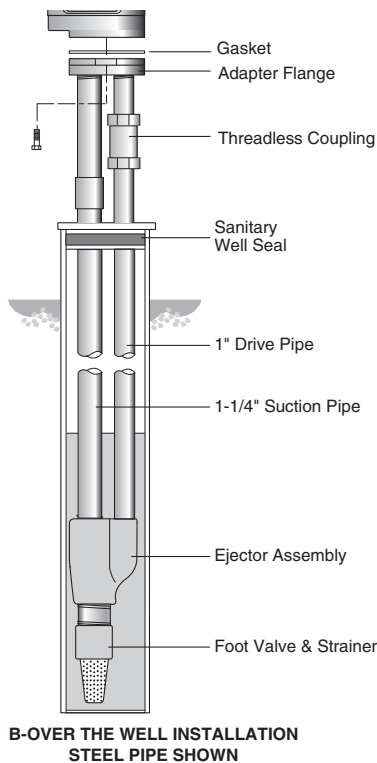


Figure 1: Offset Installation



474 0194

Figure 2: Over the Well Installation

BEFORE YOU INSTALL YOUR PUMP

NOTICE: For proper performance, pump **MUST** be matched to ejector and to well depth. This pump is designed for wells from 25 ft. to 130 ft. depth from well head to water.

- Long runs and many fittings increase friction and reduce flow. Locate pump as close to well as possible: use as few elbows and fittings as possible.
- Be sure well is clear of sand. Sand will plug the pump and void the warranty.
- Protect pump and all piping from freezing. Freezing will split pipe, damage pump and void the warranty. Check locally for frost protection requirements (usually pipe must be 12" below frost line and pump must be insulated).
- Be sure all pipes and foot valve are clean and in good condition.
- Remove air pockets in suction pipe.
- Make sure there are no leaks in the suction pipe. Use PTFE pipe thread sealant tape to seal pipe joints.
- Unions installed near pump and well will aid in servicing. Leave room to use wrenches.
- Plug 1" drive port when installing on shallow well.

IMPORTANT: Your well must be able to replenish the water level faster than the flow out through pump!

PIPING IN THE DEEP WELL

See Figures 1 and 2.

NOTICE: Deep well installations are either single pipe (2" wells) or double pipe (4" and larger wells). In a double pipe installation, the larger pipe is the suction pipe and the smaller pipe is the drive pipe (very deep wells may use suction and drive pipes of the same diameter).

Plastic pipe is ideal for double pipe installations. Due to its light weight, it is easy to handle and does not usually require a block and tackle for installation and removal.

PLASTIC PIPE INSTALLATION – DOUBLE PIPE

NOTE: Use PTFE pipe thread sealant tape on all male threads on plastic pipe and fittings to prevent air leaks in suction piping.

1. Inspect ejector to make sure that nozzle and venturi openings are clean and clear.
2. Inspect pipe for any foreign matter or obstructions.

IMPORTANT: Make sure that no foreign matter enters pipe openings while installing pump.

3. Make sure foot valve operates freely: attach to ejector with a close nipple. Use PTFE pipe thread sealant tape on male threads.
4. Install nozzle and venturi in deep well ejector.
5. Using PTFE pipe thread sealant tape on male threads, install special plastic pipe adapter (supplied with ejector) by screwing adapter into 1-1/4" tapped hole in ejector body (see Figure 1).
6. Thread a 1" plastic pipe adapter into the 1" tapped hole in ejector body (see Figure 1).

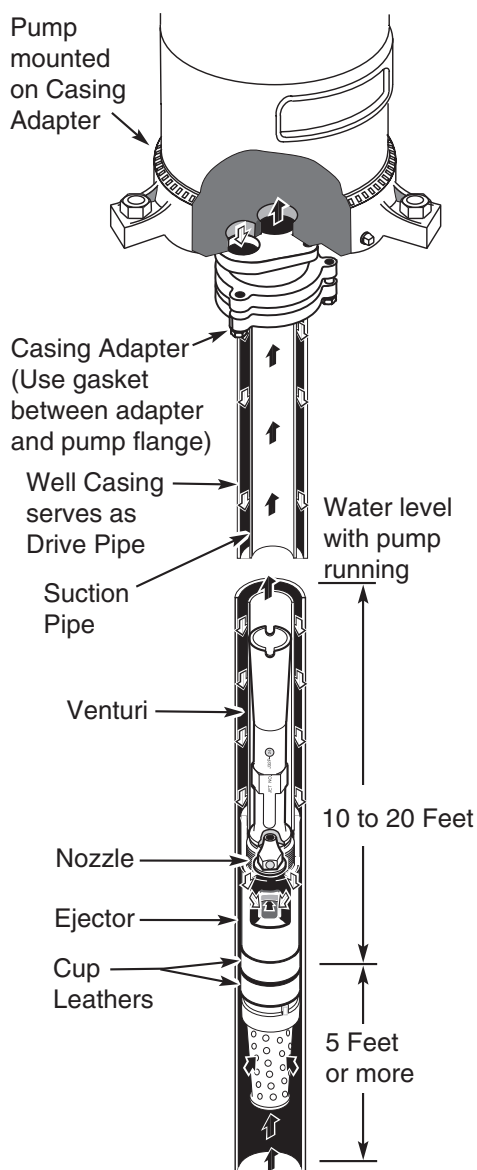


Figure 3

7. Install enough plastic pipe in well casing to put ejector at the proper depth. (Ask your well driller for this information.)

IMPORTANT: As a guide, the ejector should be set at least 10 to 20 feet below the lowest water level with pump running, if possible, but always at least five feet from the bottom of the well.

8. Tighten all hose clamps securely on plastic pipe. Use two clamps per joint to prevent air leaks into suction pipe. Clamp screws should be on opposite sides of the pipe. Fill pipes with water to make sure that foot valve and connections do not leak.
9. Install sanitary well seal on top of well casing; use steel nipple through well seal as shown in Figure 2.

IMPORTANT: Align locating lugs on adapter flange and pump base so that pump discharge aligns with piping.

10. Install 1" (1-1/4") nipple in one side of adapter flange. Slide threadless coupling down over drive pipe from well. Thread adapter flange onto suction pipe from well and align nipple and drive pipe.
11. Slide threadless coupling up and secure nipple to drive pipe.
12. Remove paper backing from adhesive gasket. Apply gasket to adapter flange, making sure that holes line up.
13. Align locating lugs on pump base with lugs on adapter flange; attach pump to flange with cap screws provided.
14. See "Discharge Pipe Sizes" for information regarding correct discharge pipe size.

SINGLE PIPE EJECTOR INSTALLATION

Single pipe installations require (see Figure 3):

- a. Galvanized steel pipe
 - b. Leather packer-type ejector with built-in foot valve
 - c. Turned couplings (supplied with packer-type ejector)
 - d. Well casing adapter.
1. Connect ejector to first length of pipe. Use pipe joint compound sparingly on male threads. Consult Table II for proper venturi and nozzle.
 2. Lower pipe into casing. Use special turned couplings (included with 2" single pipe ejector package) to increase water flow. Use pipe joint compound sparingly on male couplings threads.

NOTICE: Fill pipe with water as each length is added to be sure foot valve and connections do not leak.

3. Add lengths of pipe until the ejector reaches the proper depth. (Your well driller should supply this information.)

IMPORTANT: As a guide, the ejector should be set at least 10 to 20 feet below the lowest water level with pump running, if possible, but always at least 5 feet above the bottom of the well.

4. To properly seat the cup seals, after the ejector is correctly positioned, move the assembly up and down slightly. Water pressure in the casing will then soak the cup seals. They should seal within 2-3 hours after installation.
5. With ejector set, install well casing adapter. Align locating lugs and tighten adapter to form seal with well casing.

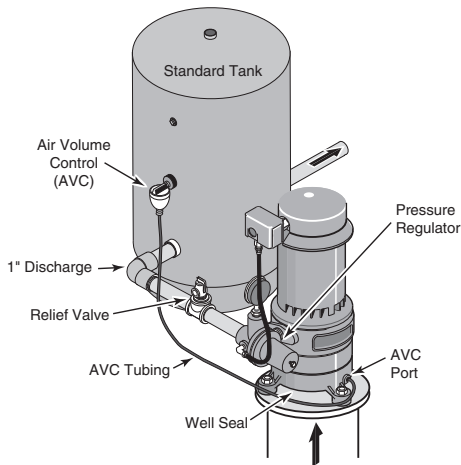


Figure 4: Pump With Standard Tank

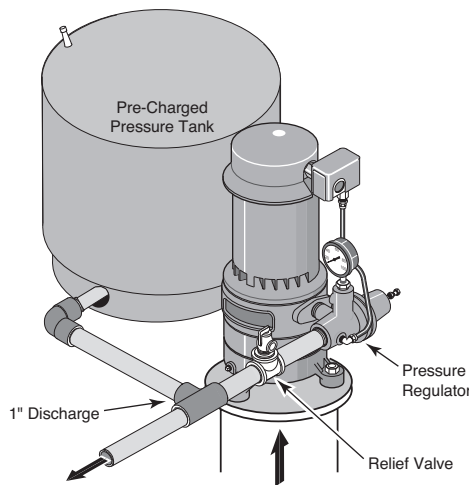


Figure 5: Pump With Pre-charged Tank

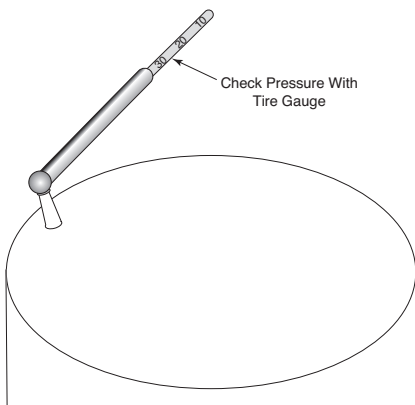


Figure 6: Checking Tank Pre-charge

DISCHARGE PIPE SIZES

1. If increasing discharge pipe size, install reducer in pump discharge port. Do not increase pipe size by stages.
2. When the pump is set away from the points of water use, the discharge pipe size should be increased to reduce pressure losses caused by friction.
 - Up to 100 ft run: Same size as pump discharge port.
 - 100 ft. to 300 ft run: Increase one pipe size.
 - 300 ft. to 600 ft run: Increase two pipe sizes.

PRESSURE TANK INSTALLATION – DEEP WELL

The Pressure Tank provides a reservoir of water under pressure and maintains cushion of air pressure to prevent pipe hammering and possible damage to plumbing components. When water is drawn off through house fixtures, the pressure in the tank is lowered and the pressure switch starts the pump.

STANDARD TANK CONNECTION

When a standard tank is used, an air volume control (AVC) adds air to the tank when it is needed. See Figure 4 for typical standard tank installation. To connect AVC to pump, thread a 1/8" compression fitting into tapped hole on the front of the pump. Cut tubing to length to reach AVC; assemble to fitting on pump and to AVC on tank. See installation instructions provided with tank and AVC.

PRECHARGED TANK CONNECTION

When a precharged tank is used, no AVC is necessary. See Figure 5 for typical precharged tank installation. A precharged tank contains a factory provided air charge.

IMPORTANT: Your pump pressure switch is set for a 20-40 PSI range and requires a tank pre-charge of 18 PSI for proper operation (see Figure 6). See tank owner's manual. An annual check on tank charge is recommended.

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

MOTOR SWITCH SETTINGS

NOTICE: 1/2 HP motors are wired for 115 volts only, and have no motor wiring to change. Your motor terminal board (located under the motor end cover) should look like one of those below. If the motor can operate at either 115 or 230 volts, it is set at the factory to 230 volts. Do not change motor wiring if line voltage is 230 volts, or if you have a single voltage motor.

⚠ CAUTION Never wire a 115 volt motor to a 230 volt line.

Plug Type Voltage Selector

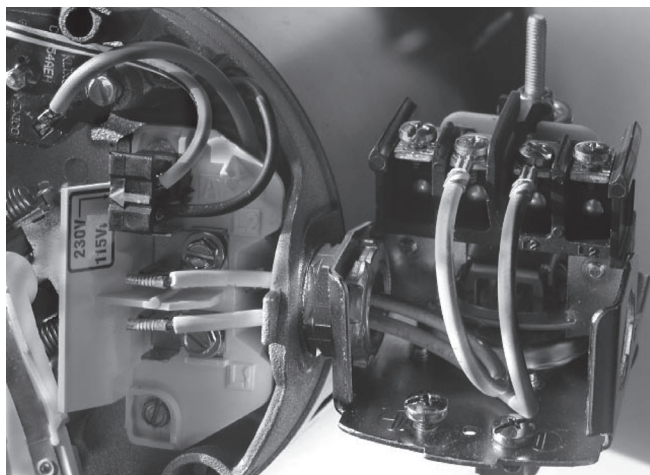


Figure 7: Voltage set to 230 volts, Plug Type

Voltage is factory set to 230 volts. To change to 115 volts:

1. Make sure power is off.
2. Pull the voltage change plug off of the tabs.
3. Move the voltage change plug to the 115 volt position. The plug will now cover 2 metal tabs and the arrow on the plug will line up with the 115V arrow on the label (see Figure 8).

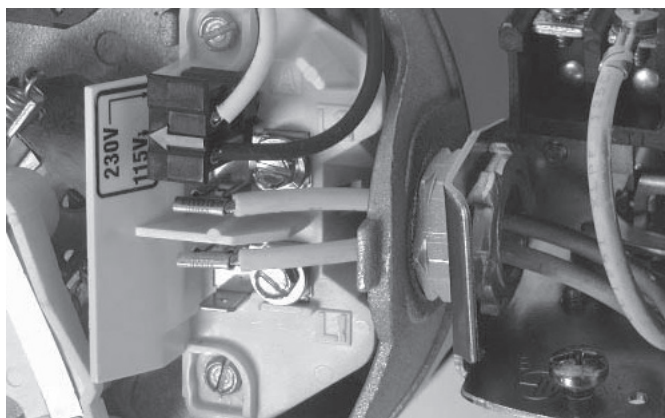


Figure 8: Voltage set to 115 volts, Plug Type

4. Attach the incoming power leads to the two outer screws on the pressure switch as shown in Figure 7.
5. Attach the ground wire to one of the grounding connections, shown in Figure 7.
6. If there are other wires, they should be capped.
7. Reinstall the Motor end cover.

Dial Type Voltage Selector

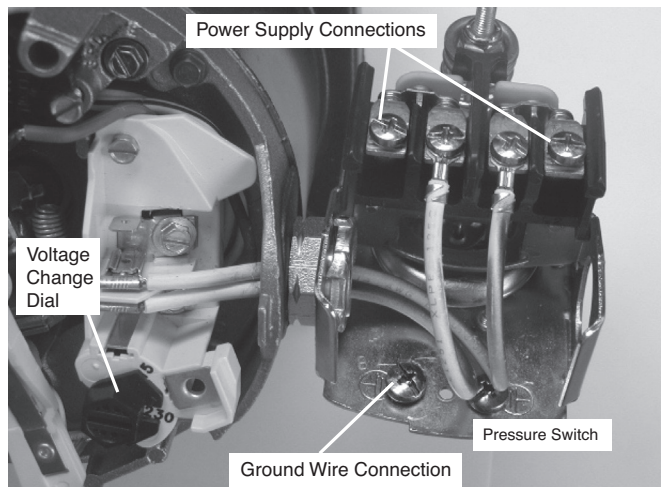


Figure 9: Voltage set to 230 volts, Dial Type

Voltage is factory set to 230 volts. To change to 115 volts:

1. Make sure power is off.
2. Turn the dial counter-clockwise until 115 shows in the dial window as shown in Figure 10.

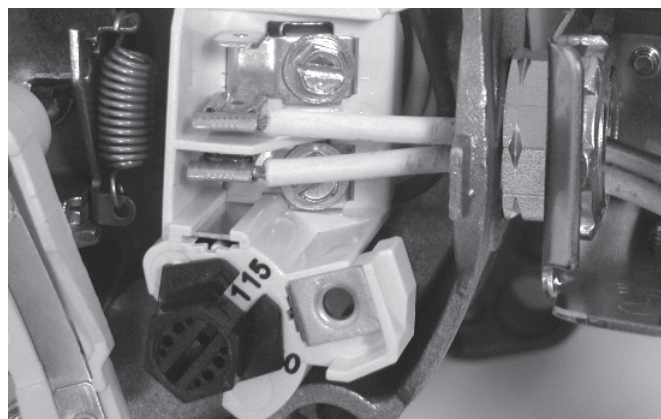


Figure 10: Voltage set to 115 volts, Dial Type

3. Attach the incoming power leads to the two outer screws on the pressure switch as shown in Figure 9.
4. Attach the ground wire to the grounding connections as shown in Figure 9.
5. If there are other wires, they should be capped.
6. Reinstall the Motor end cover.

⚠️ 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. 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 ±10% of the motor nameplate voltage.

NOTICE: 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 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 7. 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 7.

Wiring Chart – Recommended Wire and Fuse Sizes

Motor HP	Volts	Max. Load Amp	Branch Fuse* Rating Amp	DISTANCE IN FEET(METERS) FROM MOTOR TO SUPPLY				
				0 - 100 (0 - 30)	101 - 200 (31 - 61)	201 - 300 (62 - 91)	301 - 400 (92 - 122)	401 - 500 (123 - 152)
				AWG WIRE SIZE (mm ²)				
1/2	115/230	12.4/6.2	15/15	12/14 (3/2)	10/14 (5.5/2)	8/14 (8.4/2)	6/12 (14/3)	6/12 (14/3)
3/4	115/230	14.8/7.4	20/15	12/14 (3/2)	8/14 (8.4/2)	6/14 (14/2)	6/12 (14/3)	4/10 (21/5.5)
1	115/230	19.2/9.6	25/15	10/14 (5.5/2)	8/14 (8.4/2)	6/12 (14/3)	4/10 (21/5.5)	4/10 (21/5.5)

* Time delay fuse or circuit breakers are recommended in any motor circuit.

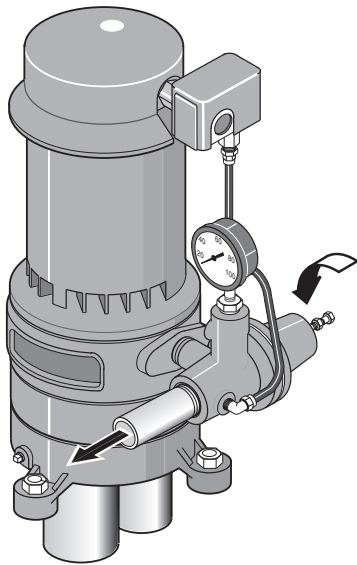


Figure 11: Close Regulator

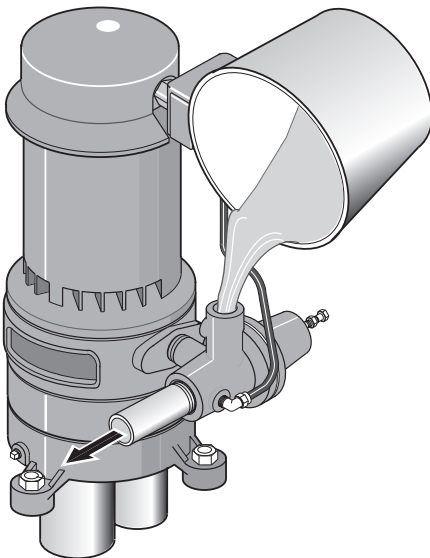


Figure 12: Fill Pump

PRIMING THE PUMP

⚠ WARNING 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 and possibly scalding persons handling pump.

NOTICE: Open water system faucets before priming pump for the first time.

1. Remove pressure gauge.
 - a. Close regulator valve (turn clockwise - see Figure 11).
 - b. Fill pump and suction pipe with water (Figure 12).
 - c. Replace pressure gauge, using PTFE pipe thread sealant tape on thread; tighten gauge.

IMPORTANT: If a priming tee and plug have been provided for a long horizontal run, be sure to fill suction pipe through this tee and replace plug. (Don't forget to use PTFE pipe thread sealant tape on the plug.)

2. Start Pump (Figure 13): Pressure should build rapidly to 50 pounds per square inch or more as ejector and pump prime.

IF NO PRESSURE OR NO WATER, REPEAT STEPS IN No.1 (above) two or three times to remove entrapped air from the suction pipes.

3. If, after priming pump several times, no water is pumped, check the following:
 - a. Suction pipe in the water and has no leaks.

NOTICE: Air can leak in even where water won't leak out. Make sure all joints are tight.
 - b. Control valve, check valve, or foot valve installed and operating correctly.
 - c. Pump trying to lift water more than rated lift for deep well ejector used (including compensation for horizontal offset). See catalog for specifications.
 - d. Be sure pump is not airlocked. In offset installations, pump suction port should be highest point in suction pipe; there should be no sags in suction pipe (run it straight and at a slight angle upward from well head to pump).

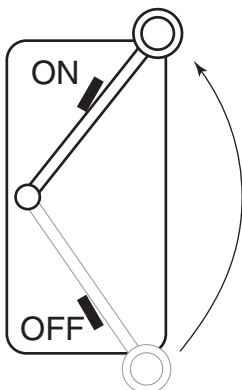


Figure 13: Start Pump

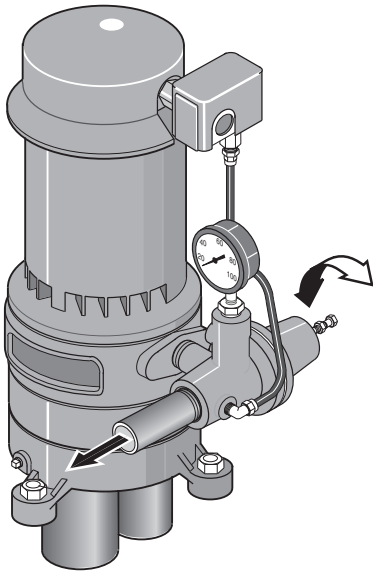


Figure 14: Adjust Regulator
(See Figures 12, 13, 14)

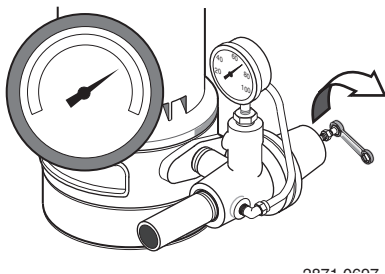


Figure 15: Open Regulator Valve

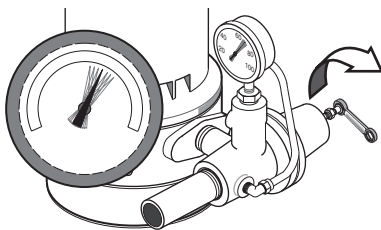


Figure 16: Watch for Pressure Gauge to Flutter

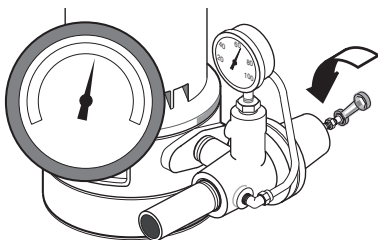


Figure 17: Close Regulator Valve Until Pressure Stabilizes

4. Once unit has primed and pressure stabilized, slowly open (turn counterclockwise - Figure 15) regulator valve until pressure falters (pressure gauge needle flutters; pump may become noisy - see Figure 16). At this point, close (turn clockwise) regulator valve slightly until pressure stabilizes. This setting provides maximum flow (Figure 17).
5. Pump may draw well down far enough at this point to lose its prime. If so, close regulator valve until pressure is stable throughout pumping cycle. Close faucets and allow pump to pressurize tank and shut off.
6. Check system by alternately opening and closing faucets in the system. With faucets open, pressure will drop until pump starts; with faucets closed, pressure will build up until pump shuts off.
7. There are conditions of deep well operation when the regulator valve may be completely open without any faltering of pressure. In this case, operate pump with regulator valve open.

MAINTENANCE

⚠ WARNING Hazardous voltage! Can shock, burn, or cause death.

Disconnect power before working on pump or motor.

If motor is replaced, replace the shaft seal. Keep one on hand for future use.

Be sure to prime pump before starting.

IMPORTANT: Check motor label for lubrication instructions. The mechanical shaft seal in the pump is water lubricated and self-adjusting.

IMPORTANT: Drain pump when disconnecting from service or when it might freeze.

WINTERIZING (FIGURE 18)

1. Precharge Tank:
 - a. Remove drain plug on pump body and disconnect pressure switch tube at regulator.
 - b. Remove pressure gauge to vent pump; drain pressure tank and all piping to a point below frost line.
 - c. Drain any piping that may be cut off from system drain due to check valves in pipe, etc.
2. Standard Tank:
 - a. Follow steps 1a, b, c under "Winterizing," above.
 - b. Disconnect air volume control (AVC) tubing and turn AVC 180° counterclockwise. Any water in AVC will then drain back into tank (see Figure 18).

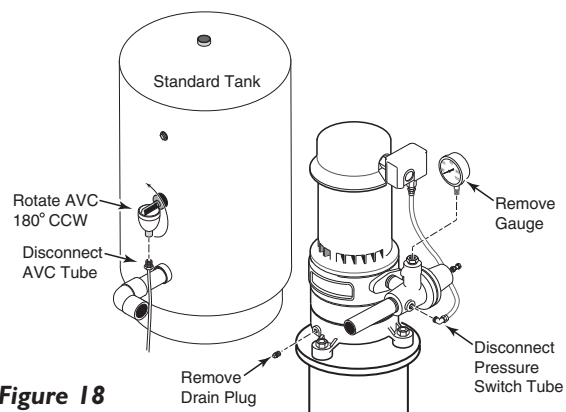


Figure 18

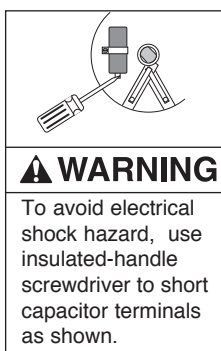
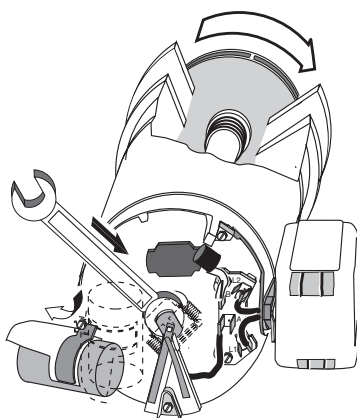


Figure 19: Hold Shaft to Unscrew Impeller

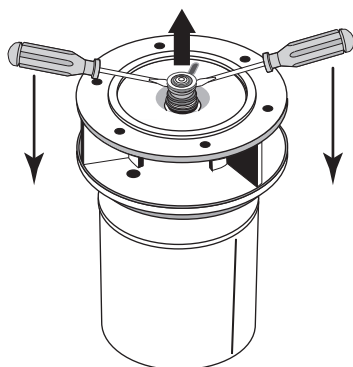


Figure 20

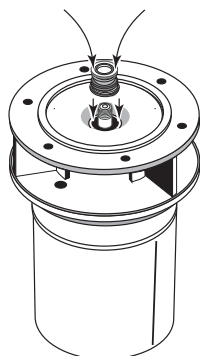


Figure 21: Press in Seal

PUMP DISASSEMBLY

The seal consists primarily of two parts: a rotating member and a floating seat.

CAUTION The highly polished and lapped faces of the seal are easily damaged. Read instructions and handle the seal with care.

1. Be sure disconnect switch is off.
2. Remove wiring from pump.
3. Remove discharge piping to pump.
4. Remove cap screws holding base volute to pump adapter. Piping to the well need not be disturbed. Lift pump motor and adapter assembly off base volute.
5. Dismantle pump: Remove canopy, and by holding the centrifugal switch with a wrench, the impeller can be unscrewed off the pump shaft, exposing the seal (Figure 19). The motor shaft has right hand threads.

REMOVAL OF OLD SEAL

1. After unscrewing the impeller, carefully remove the rotating part of the seal by prying up on the sealing washer using two screwdrivers (Figure 20).
2. Pry loose the floating seat by applying screwdriver between seat and cavity in casting. Remove rubber seat ring. Clean cavity from which seal was removed and clean motor shaft.

INSTALLATION OF NEW SEAL

1. Clean polished surface of floating seat with clean cloth.
2. Wet the O-Ring in the ceramic seat with soap solution.
3. Press seat into cavity firmly and squarely, with finger pressure (Figure 21). If seat will not locate properly, place cardboard washer over polished face of seat and use piece of 3/4" standard pipe for pressing purposes.
4. Dispose of cardboard washer and again make sure that polished surface of seat is free of dirt or foreign particles and has not been scratched or damaged by insertion. Install adapter on motor; be sure regulator lines up with pressure switch.
5. Inspect shaft to make sure it is clean. Clean face of sealing washer with clean cloth.
6. Apply soap solution to inside diameter and outer face of rubber drive ring. Slide seal assembly on shaft (sealing face first), until rubber drive ring slides over shaft shoulder (See Figure 22, Page 12).
7. Screw impeller on shaft until impeller hub hits shaft shoulder. This will automatically locate seal in place and move the sealing washer face up against floating seat face (Figure 23, Page 12).
8. Reassemble remainder of pump in order of disassembly.

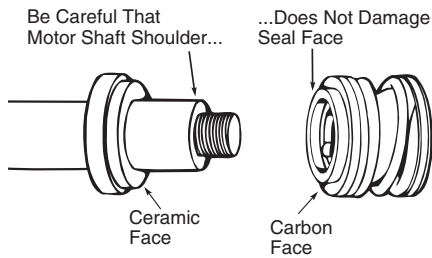


Figure 22: Protect Seal Faces

HOW TO HANDLE A GASEOUS WELL

In some areas well water contains gases which must be allowed to escape before the water is used. To deliver gas-free water suspend a pipe, closed at the bottom and open at the top, so that it surrounds the suction pipe inlet. (See Figure 23). Since the gases rise in the well casing, the water sucked down through the pipe and into the suction pump is free of gas. This type of well must be vented to the outside of any enclosure.

AIR CONTROL IN FLOWING WELLS

Flowing wells or wells with little or no drawdown, could create a special problem in air control in the operation of your standard tank system. In such cases, a pre-charged tank (which needs no air control) is recommended.

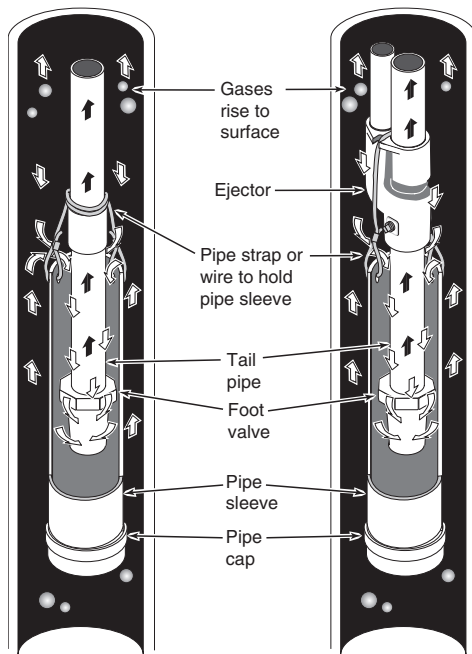
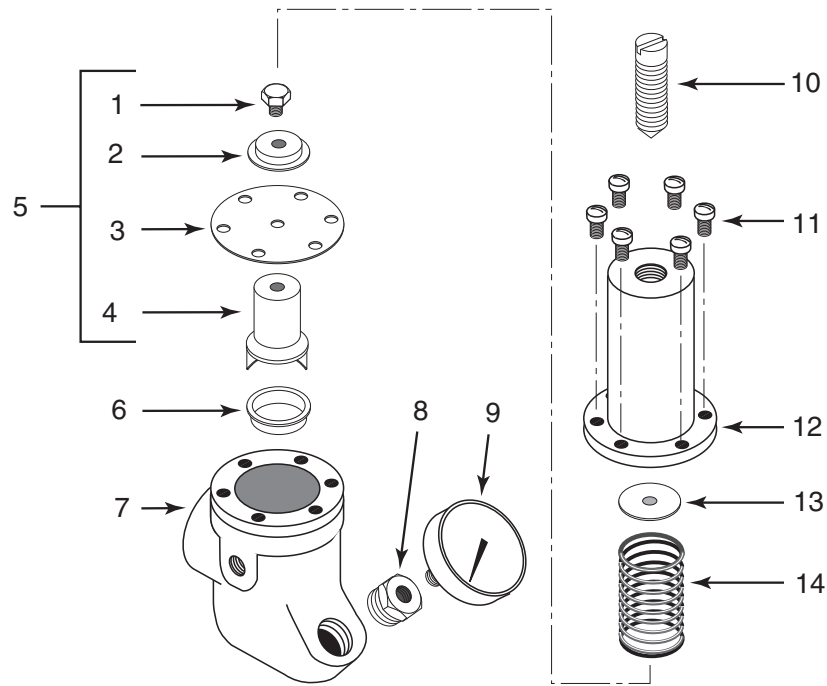


Figure 23: Gas/Air Control in Well



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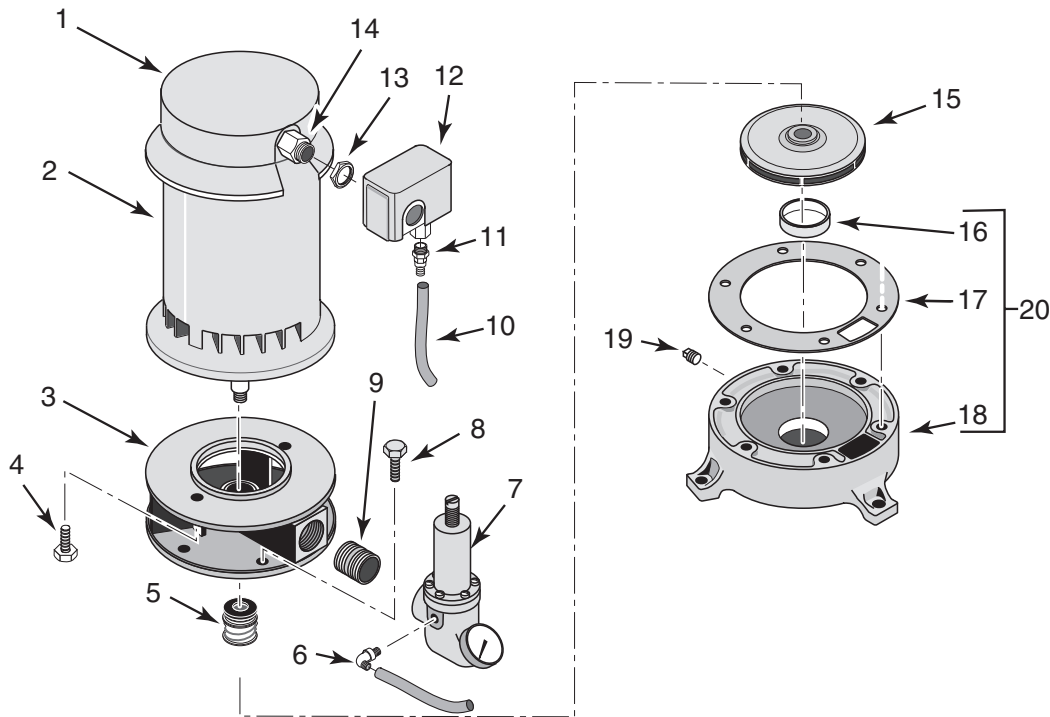
REPAIR PARTS LIST

REF. NO.	DESCRIPTION	MODEL J212-19E	QTY.
1	Adjusting Screw, 1/4x20x3/4"	U30-537ZP	1
2	Spring Follower	J24-7	1
3	Diaphragm	J20-5	1
4	Valve Guide	J42-4	1
5	Diaphragm and Valve Guide Assembly	J120-14	1
6	Valve Seat Only	J66-15	1
7	Regulator Body with Valve Seat	J112-8E	1
8	1/2x1/8" NPT Reducer Bushing	*	1
9	Pressure Gauge**	U239-3	1
10	Adjusting Screw	J28D	1
11	10-32x1/2" Machine Screws	*	6
12	Regular Bonnet	J52-5ZZ	1
13	Spring Button	J48	1
14	Spring	J24-9	1

(*) Standard hardware item, available locally.

(**) Pressure Gauge sold separately, not included with J212-19E, see Page 14.

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REPAIR PARTS LIST

REF. NO.	DESCRIPTION	MODEL AND HORSEPOWER			QTY.
		SSJC 1/2 HP	SSJD 3/4 HP	SSJE 1 HP	
1	Motor Canopy	J18-59	J18-59	J18-59	1
2	Motor	A200CH	A200DH	A200EH	1
3	Adapter	L2-8B	L2-8B	L2-8B	1
4	3/8-16x1" Capscrews	U30-74ZP	U30-74ZP	U30-74ZP	2
5	Shaft seal	U109-6A	U109-6A	U109-6A	1
6	1/4" NPT Barbed Elbow	U111-212T	U111-212T	U111-212T	1
7	Pressure Regulator (See Page 13)	J212-19E	J212-19E	J212-19E	1
7A	Pressure Gauge	U239-3	U239-3	U239-3	1
8	5/16-18x5/8" Capscrews	U30-58ZP	U30-58ZP	U30-58ZP	6
9	1" NPTx2" Nipple	U37-55GPT	U37-55GPT	U37-55GPT	1
10	Tube	U37-672P	U37-672P	U37-672P	1
11	1/4" NPT Barbed Fitting	U111-211T	U111-211T	U111-211T	1
12	Pressure Switch	U217-1215	U217-1215	U217-1215	1
13	1/2" Locknut	U36-112ZP	U36-112ZP	U36-112ZP	1
14	Connector	J43-13C	J43-13C	J43-13C	1
15	Impeller	J105-42P	J105-8PN	J105-22P	1
16	Wear Ring	J8	J8A	J8A	1
17	Gasket	J20-9	J20-9	J20-9	1
18	Volute with Wear Ring	J101-35B	J101-35	J101-35	1
19	1/4 NPT Pipe Plug	U78-941ZPV	U78-941ZPV	U78-941ZPV	1
20	Base Volute Assembly (Includes Key Nos. 8, 16, 17, 18, 19)	J201-35	J201-35	J201-35	1

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Motor will not run	<p>Disconnect switch is off</p> <p>Fuse is blown or circuit breaker tripped</p> <p>Starting switch is defective</p> <p>Wires at motor are loose, disconnected, or wired incorrectly</p> <p>Pressure switch contacts are dirty</p>	<p>Be sure switch is on.</p> <p>Replace fuse or reset circuit breaker.</p> <p>DISCONNECT POWER; Replace starting switch.</p> <p>Refer to instructions on wiring (Pages 7 and 8). DISCONNECT POWER; check and tighten all wiring.</p> <p>⚠️ WARNING Capacitor voltage may be hazardous. To discharge 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.</p> <p>DISCONNECT POWER and file contacts with emery board or nail file.</p>
Motor runs hot and overload kicks off	<p>Motor is wired incorrectly</p> <p>Voltage is too low</p> <p>Pump cycles too frequently</p>	<p>Refer to instructions on wiring.</p> <p>Check with power company. Install heavier wiring if wire size is too small (See Electrical / Wiring Chart).</p> <p>See section below on too frequent cycling.</p>
<p>Motor runs but no water is delivered*</p> <p>* (Notice: Stop pump; then check prime before looking for other causes. Unscrew priming plug and see if water is in priming hole).</p>	<p>Pump in new installation did not pick up prime through:</p> <ol style="list-style-type: none"> 1. Improper priming 2. Air leaks 3. Leaking foot valve or check valve <p>Pump has lost prime through:</p> <ol style="list-style-type: none"> 1. Air leaks 2. Water level below suction pipe inlet <p>Foot valve or strainer is plugged</p> <p>Ejector or impeller is plugged</p> <p>Check valve or foot valve is stuck shut</p> <p>Pipes are frozen</p> <p>Foot valve and/or strainer are buried in sand or mud</p> <p>Water level is too low for shallow well setup to deliver water</p>	<p>In new installation:</p> <ol style="list-style-type: none"> 1. Re-prime according to instructions. 2. Check all connections on suction line, AVC, and ejector with soapy water or shaving cream. 3. Replace foot valve or check valve. <p>In installation already in use:</p> <ol style="list-style-type: none"> 1. Check all connections on suction line and shaft seal. 2. Lower suction line into water and re-prime. If receding water level in well exceeds 25' (7.6M), a deep well pump is needed. <p>Clean foot valve or strainer.</p> <p>Clean ejector or impeller.</p> <p>Replace check valve or foot valve.</p> <p>Thaw pipes. Bury pipes below frost line. Heat pit or pump house.</p> <p>Raise foot valve and/or strainer above bottom of water source.</p> <p>Clean foot valve and strainer.</p> <p>A deep well jet package may be needed (over 25 ft. to water) to deliver water.</p>
Pump does not deliver water to full capacity	<p>Water level in well is lower than estimated</p> <p>Steel piping (if used) is corroded or limed, causing excess friction</p> <p>Piping is too small in size</p> <p>Packed well point</p>	<p>A new jet and venturi combination may be needed.</p> <p>Replace with plastic pipe where possible, otherwise with new steel pipe.</p> <p>Use larger piping.</p> <p>Backflush well point or sink new point.</p>
Pump delivers water but does not shut off or pump cycles too frequently	<p>Pressure switch is out of adjustment or contacts are welded together</p> <p>Faucets have been left open</p> <p>Venturi, nozzle or impeller is clogged</p> <p>Standard pressure tank is waterlogged and has no air cushion</p> <p>Pipes leak</p> <p>Foot valves leak</p> <p>Air charge too low in pre-charged tank</p>	<p>DISCONNECT POWER; adjust or replace pressure switch.</p> <p>Close faucets.</p> <p>Clean venturi, nozzle or impeller.</p> <p>Drain tank to air volume control port. Check AVC for defects. Check all connections for air leaks.</p> <p>Check connections.</p> <p>Replace foot valve.</p> <p>DISCONNECT POWER and open faucets until all pressure is relieved.</p> <p>Using tire pressure gauge, check air pressure in tank at valve stem located on the tank. If less than pressure switch cut-in setting (20-40 PSI), pump air into tank from outside source until air pressure is 2 PSI less than cut-in setting of switch. Check air valve for leaks (use soapy solution) and replace core if necessary.</p>
Air spurts from faucets	<p>Pump is picking up prime</p> <p>Leak in suction side of pump</p> <p>Well is gaseous</p> <p>Intermittent over-pumping of well. (Water drawn down below foot valve.)</p>	<p>When pump has picked up prime, it should pump solid water with no air. Suction pipe is sucking air. Check joints for leaks with soapy water.</p> <p>Consult factory about installing a sleeve in the well</p> <p>Lower foot valve if possible, otherwise restrict pump discharge</p>

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