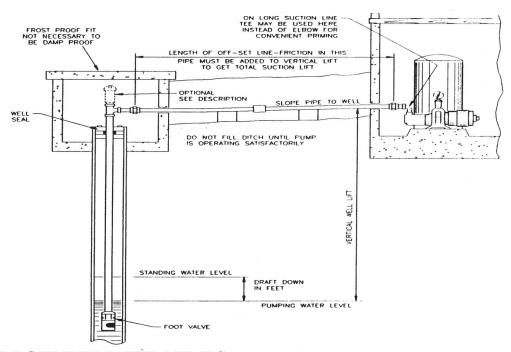




JET PUMP

INSTALLATION MANUAL



SHALLOW WELL JET PUMPS

- STEP 1 Make sure the well is pumped clean and that sand and grit are absent.
- **STEP 2** Before installing a shallow well or centrifugal pump make sure the total suction lift does not exceed 25 feet.
- STEP 3 For convertible jet pumps attach the ejector to the pump housing, making sure that the 1 1/4" and 1" tapped holes in the ejector match up with the 1 1/4" and 1" tapped holes in the pump housing.
- **STEP 4** Install a 1 1/4" foot valve on the bottom of the suction pipe, on driven wells, where the well casing is used as suction pipe, install a 1 1/4" horizonal line check valve.

of the 1 1/4" suction pipe to fit well diameter. Use 1 1/4" tee and a 1 1/4" plug at the top of the well seal to support suction pipe in the well. Install 1 1/4" union between well and 1" pressure pipe that will rest on the well seal to support the pipes and ejector or jet in well. A 1 1/4" tee or elbow can be used on the top of the 1 1/4" suction pipe which needs to be slightly higher than the 1" pressure pipe to make the connection to the pump housing. Install a compression coupling on both suction & pressure pipes staggering them apart from each other. Install 1 1/4" pipe into the 1 1/4" tap in the pump housing. Install 1" pipe in to the 1" tap in the pump housing. Join together with

SHALLOW WELL JET PUMPS CONT.

two unions between the pump and the well. If vertical pump is being used, adapt the 1 1/4" and 1" pipes directly into the 1 1/4" and 1" taps in the pump housing and adapt some type of supports or legs from the foundation to brackets on the pump housing to support the weight of the pipes, ejector or jet in the well.

- **STEP 6** Prime pump by pouring water into the discharge of the pump housing or automatic regulator that is mounted on the discharge of pump.
- STEP 7 Make sure pump is off! Check motor decal and make sure motor is wired for voltage being used. Make your wire connections in the pressure switch.
- STEP 8 Adjust regulator to maximum pressure, and start the pump. When pressure builds up on the pressure guage, start opening regulator slowly. The pump will start discharging water and the pressure will decrease. Continue to slowly open up regulator until pump starts to charge tones or pump starts to lose prime. At this point determine what your operating pressure is by the reading on the pressure guage. Adjust regulator back up about 5 pounds above this tone or prime loss pressure. Put a jam nut on regulator to secure adjustment.
- STEP 9 Make connection on the discharge of pump to the water tank. This connection can be made with galvanized or pvc pipe.

DEEP WELL JET PUMP DOUBLE PIPE

- STEP 1 Make sure the well is pumped clean and that sand and grit are absent.
- STEP 2 Deep well pumps are always installed with the ejector or jet attached to the bottom of the suction and pressure pipe in the well. A foot valve must be used if the ejector does not have a built in check valve. A tail pipe may be used beneath the ejector with the foot valve at the bottom of the tail pipe.

- STEP 3 Connect foot valve to bottom of jet with 1 1/4" galvanized nipple or full length of 1 1/4" galvanized pipe. Connect 1 1/4" galvanized pipe to 1 1/4" tap in ejector or jet body. Connect 1" pipe to the 1" tap in ejector or jet body. Keep adding pipes until you reach the desired depth. As each pipe is added fill each with water after lowering in well.
- STEP 4 Install a double pipe sanitary well seal at the top of the well to keep out contamination and to support the pipe and ejector or jet in well.
- STEP 5 Use 1" galvanized elbow on top of pump. Connect suction pipe into tapped hole in housing or ejector. Pump needs to be installed at an uphill slope from the well with no dips or low spots to eliminate the possibility of air pockets. Pump needs to be mounted onto the foundation for smoother and quieter operation and prolonged motor life.
- **STEP 6** Prime the pump! Be sure the suction pipe and pump housing are full of water with no trapped air pocket in suction line.
- STEP 7 Make sure power is off! Check motor decal and make sure motor is wired for voltage being used. Connect power voltage wire to terminals marked line voltage in pressure switch. Connect ground wire to ground terminal on pressure switch.
- STEP 8 Start pump! If pressure does not build after a reasonable time, stop the pump. Reprime and start again. Allow pump to operate briefly to purge air from the system. This procedure may have to be repeated until pump builds up pressure.
- **STEP 9** Make connection on discharge of pump to water tank. This connection can be made with galvanized or pvc pipe.

DEEP WELL JET PUMP SINGLE PIPE

- STEP 1 Make sure the well is pumped clean and that sand and grit are absent.
- STEP 2 Deep well pumps are always installed with the ejectors or jet attached to the bottom of the suction pipe in the well. A foot valve must be used if the ejector or jet does not have a built in check valve. A tail pipe may be used beneath the ejector or jet with the foot valve mounted on the bottom of the tail pipe.

- STEP 3 Install foot valve to the bottom of the jet or on the bottom of the tail pipe, if the tail pipe is being used. Stretch leather cup washer to open up leathers for a better seal in the well casing. Connect the ejector or jet to 1 1/4" pipe and lower into the well. Keep adding pipes and lowering the ejector or jet into the well to the desired depth. Fill suction pipe with water as it is lowered into the well. Fill the well casing with water as each suction pipe is added.
- STEP 4 Install casing adapter onto 1 1/4" suction pipe, lossen the three flange bolts on the adapter and lower adapter onto the well casing, being careful not to damage the rubber gasket. Make sure the well adapter is all the way around. Tighten the three bolts, each evenly until tight. Fill the well adapter with water making sure both the 1" and 1 1/4" holes are full of water.
- **STEP 5** Mount the pump onto the well adapter with gaskets and bolts, making sure that the 1 1/4" and 1" holes in pump line up with the holes in the adapter.

CAUSE OF TROUBLE

- **STEP 6** Prime the pump by pouring water into the discharge of the pump housing or automatic regulator mounted in discharge of the pump on some models.
- STEP 7 Make sure the power is off! Check motor decal and make sure the motor is wired for the voltage being used. Make your wire connections in the pressure switch.
- STEP 8 Adjust the regulator to maximum pressure, start the pump when the pressure builds up on the pressure guage start opening the regulator slowly. The pump will start discharging water and the pressure will start decreasing as the discharge flow increases. Continue to slowly open up the regulator until pump starts to change tones or pump starts to loose its prime. At this point determine what your operating pressure is by reading the pressure guage. Adjust the regulator back up about 5 pounds above this tone or prime lost pressure. Use a jam nut on regulator to secure this adjustment.
- **STEP 9** Make connection on discharge of pump to water tank. This connection can be made with galvanized or pvc pipe.

HOW TO CORRECT

TROUBLE SHOOTING

A. PUMP WON'T RUN

HOW TO CHECK

1. Blown fuse.	Check to see if fuse is ok	If blown, replace with fuse of proper size.
2. Low in voltage	Use voltmeter to check pressure switch or terminals nearest pump	If voltage is under recommended minimum, check the size of wiring from main switch on property. If ok, contact power company.
3. Loose, broken or incorrect wiring.	Check wiring circuit against diagram. See that all connections are tight and that no short circuits exist because of worn insulation, crossed wire, etc.	Rewire any incorrect circuits. Tighten connections, replace defective wires.
4. Defective Motor		Danair or take to motor shop
5. Defective pressure switch	Check to see that switch is closed	Repair or take to motor shop.
Tubing to pressure switch clogged	Check switch setting. Examine switch contacts for dirt or excessive wear.	Adjust switch settings. Clean contacts with emory cloth if dirty.
	Remove tubing and blow through it.	Clean and replace if plugged.

TROUBLE SHOOTING CONT.

A. PUMP WON'T RUN CONT..

CAUSE OF TROUBLE	HOW TO CHECK	HOW TO CORRECT		
7. Impeller or seal	Turn off power, then use screwdriver to turn impeller or motor.	If impeller won't turn, remove turn housing and locate source of binding.		
8. Defective start capacitor	Use an omhmmeter to check resistance across capacitor. Needle should jump when contact is made. No movement means an open capacitor, no resistance means capacitor is shorted.	Replace capacitor or take motor to a service station.		
9. Motor shorted out	If fuse blows when pump is started (and external wiring is ok) motor is shorted.	Replace Motor		
B. MOTOR O	VERHEATS AND OVERLOAD	TRIPS OUT		
. 1. Incorrect line voltage	Use voltmeter to check at pressure switch or terminals nearest pump	If voltage under recommended minimum, check size of wiring from main switch on property. If ok, contact power company.		
2. Motor wired incorrectly	Check motor wiring diagram	Reconnect for proper voltage as per wiring diagram.		
3. inadequate ventilation	Check air temperature where pump is located. Iif over 100 degrees F overload may be tripped out on external head	Provide adequate ventilation or move pump.		
4. Prolonged low pressure delivery	Continuous operation at very low pressure places heavy overload on pump. This can cause overload protection to trip.	Install globe valve on dicharge line and throttle to increase pressure		
C. PUMP STARTS AND STOPS TOO OFTEN				
1. Leak in the pressure tank	Apply soapy water to entire surface above water line. If bubbles appear, air is leaking from the tank.	Repair leaks or repair tank.		
2. Defective air volume control	This will lead to a waterlogged tank. Make sure control is operating properly. If not, remove and examine for plugging.	Adjust switch settings. Clean with emory cloth if dirty.		
3. Leak on discharge side of system	Make sure all fixtures in plumbing system are shut off. Then check all units (especially ballcocks) for leaks. Listen for noise of water running.	Repair leaks as necessary.		
4. Leak on suction side of system	On shallow well units, install pressure guage on suction side. On deep well systems, attach a pressure guage to the pump. Close the discharge line valve. Then using a bicycle pump or air compressor, apply about 30 psi pressure to the system. If the system will not hold this pressure when the compressor is shut off, there is a leak on the suction side.	Make sure above ground connections are tight. Repeat test. If necessary, pull piping and repair leaks.		
5. Leak in foot valve.	Pull piping and examine foot valve	Repair or replace defective valve		

TROUBLE SHOOTING CONT.

D- PUMP WON'T SHUT OFF

drift. 2. Defective pressure switch 3. Tubing to pressure switch clogged 4. Loss of prime 5. Low well level 6. Plugged ejector E - PUMP OPERATE 1. Low line voltage 2. System incompletely primed 3. Air lock in suction line. Clayburged C	ower switch setting. If pump shuts off this as the trouble. reing may have caused switch contacts to weld" together in closed position. Examine bints and other parts of switch for defects. emove tubing and blow through it. When no water is delivered check prime of tump and well piping. heck well depth against pump performance ble to make sure pump and ejector are	Adjust switch to the proper setting. Replace switch if defective. Clean and replace if plugged. Reprime if necessary
3. Tubing to pressure switch clogged 4. Loss of prime 5. Low well level 6. Plugged ejector E - PUMP OPERATE 1. Low line voltage 2. System incompletely primed 3. Air lock in suction line. Cloput well 4. Undersized piping.	weld together in closed position. Examine bints and other parts of switch for defects. emove tubing and blow through it. //hen no water is delivered check prime of tump and well piping. heck well depth against pump performance	Clean and replace if plugged.
4. Loss of prime Wpu 5. Low well level Class of Plugged ejector E - PUMP OPERATE 1. Low line voltage Use test 2. System incompletely primed Wpu 3. Air lock in suction line. Class of prime work with the pure work with the pure work with the pure work work work with the pure work work work work with the pure work work work work with the pure work work work work work work with the pure work work work work work work work work	/hen no water is delivered check prime of ump and well piping. heck well depth against pump performance	1 1 66
5. Low well level 6. Plugged ejector E - PUMP OPERATE 1. Low line voltage 2. System incompletely primed We put to the put well as a first content of th	ump and well piping. heck well depth against pump performance	Reprime if necessary
6. Plugged ejector E - PUMP OPERATE 1. Low line voltage Use test 2. System incompletely primed Why put and a suction line. Classical primed and a suction line. 4. Undersized piping.		
E - PUMP OPERATE 1. Low line voltage 2. System incompletely primed 3. Air lock in suction line. Clapse words 4. Undersized piping.	roperly sized.	If undersized, replace pump or ejector.
Low line voltage We tell System incompletely primed We put Air lock in suction line. Clapse we we 4. Undersized piping. If	emove ejector and inspect	Clean and reinstall if dirty
2. System incompletely primed W pu 3. Air lock in suction line. Cl pu we 4. Undersized piping.	S BUT DELIVERS LITTLE C	OR NO WATER
3. Air lock in suction line. Cl pu wo	se voltmeter to check at pressure switch or rminals nearest the pump.	If voltage under recommended minimum, check size to see if wiring from main switch on property. If ok contact power company.
4. Undersized piping.	hen no water is delivered, check prime of ump and well piping.	Reprime if necessary.
	heck horizontal piping between well and ump. If it does not pitch upward from the rell to pump, an air lock may form.	Rearrange piping to eliminate air lock.
	System delivery is low, the discharge piping nd/or plumbing lines may be undersized. efigure friction loss.	
an	isconnect air volume control tubing at pump nd plug hole. If capacity increases, a leak xist in the tubing of control.	Tighten all fittings and replace control if necessary.
6. Pressure regulating wire stuck or incorrectly set. (Deep well only)	heck valve setting, inspect valve for defects.	Reset, clean, or replace valve as needed.
on a p di pu pr ho	In shallow well units, install pressure guage in suction side. On deep well systems, attach pressure guage to the pump. Close the ischarge line valve. Then using a bicycle amp or air compressor apply about 30 psi ressure to the system. If the system will not old this pressure when the compressor is shut ff, there is a leak in the suction side.	Make sure above ground connections are tight. Repeat test if necessary, pull piping and repair leaks.
tal	heck well depth against pump performance ble to make sure pump and ejector are sized orrectly.	If undersized, replace pump or ejector.
	heck pump and ejector models against anufacture's performance tables.	Replace ejector if wrong model is being used.

TROUBLE SHOOTING CONT.

E - PUMP OPERATES BUT DELIVERS LITTLE OR NO WATER CONT...

10. Low water level in well.	Shut off pump and allow well to recover. Restart pump and note whether delivery drops after continuos operation.	If well is "weak" lower ejector (deep well pumps) use a tall pipe, or switch from shallow well to deep well equipment.
11. Plugged ejector.	Remove ejector and inspect.	Clean, and reinstall if dirty.
12. Defective or plugged foot valve and/or strainer.	Pull foot valve and inspect. Partial clogging will reduce delivery. Complete clogging will result in no water flow. A defective foot valve may cause pump to loose its prime, resulting in no delivery.	Clean, repair or replace if needed.
13. Worn or defective pump parts or plugged impeller.	Low delivery may result from wear or impeller or other pump parts. Disassemble and inspect.	Replace worn parts on entire pump. Clean parts if required.