LIMITED WARRANTY AND LIMITATION OF LIABILITY

Superior Pump warrants this product free from material and/or manufacturing defects for one year from date of purchase. As the sole and exclusive remedy for a breach of this limited warranty, if the product is found by Superior Pump to be defective, Superior Pump, at its option, will refund the purchase price or replace the product with an equivalent product if it is returned to the place of purchase or returned postpaid to Superior Pump, ATTN: Warranty Dept., 2301 Traffic St. NE, Minneapolis, MN 55413, with proof of purchase. Any disassembly, modification, or abuse of this product voids this limited warranty. This product is not designed for pumping flammable or corrosive fluids, and use of this product to pump such materials also voids this limited warranty

SUPERIOR PUMP DISCLAIMS ALL OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

IMPORTANT NOTICE: Some commercial and residential insurance policies extend coverage for damages incurred by product failure. In most cases, you will need to have possession of the product to support your claim. In the case where you need to retain possession of the product to support a damage claim you submit to your insurance company, Superior Pump will exchange the unit or refund the original price once the claim is settled with the insurer.

2301 Traffic St. NE
Minneapolis, MN 55413
1-800-495-9278
www.superiorpump.com

OWNER'S MANUAL

INSTALLATION AND OPERATION INSTRUCTIONS FOR:

CAST IRON JET PUMPS
Models: 94501, 94751, 94101

Thank you for purchasing a Superior Pump product. We have taken great care to make sure you are happy with your purchase. If for any reason you have questions concerning your new Superior Pump, call us toll free at 1-800-495-9278, or contact us on the web at www.superiorpumpco.com

Carefully read and understand all of the Warnings and installation instructions in this manual. Failure to follow these instructions could lead to serious bodily injury and/or property damage. Retain these instructions for future reference.

This pump is designed to pump potable water from wells. It will also pump water from lakes, steams or ponds and can be used as a sprinkler pump.

WARNING ⚠ Water and electricity can be dangerous if certain precautions are not adhered to. This pump is designed to operate perfectly safe in a water environment; however, improper use and installation can result in personal harm from electrical shock. Please pay attention to the following warnings.

WARNING ⚠

RISK OF ELECTRICAL SHOCK. **ALL WIRING SHOULD BE COMPLETED BY A LICENSED ELECTRICIAN.** This unit should be connected to a grounded circuit. The motor can be directly wired to the grounded power source or connected with a power cord to a grounded, 3 prong outlet equipped with a ground fault circuit interrupt device (GFCI). It is strongly recommended to use a ground fault interrupt device on any electrical appliance, including this pump, when used in a wet or moist environment. This GFCI (ground fault circuit interrupter) should be listed by Underwriters Laboratories (UL). This is required by many local codes and enforcement agencies. It is strongly recommended by Superior Pump as it provides a much safer installation and will greatly reduce possible injury from electrical shock.

DANGER ⚠ Do not handle the pump or motor with wet hands or while standing on a wet or damp surface. Fatal electrical shock could occur.

NOTICE ⚠ **EXTENSION CORDS**

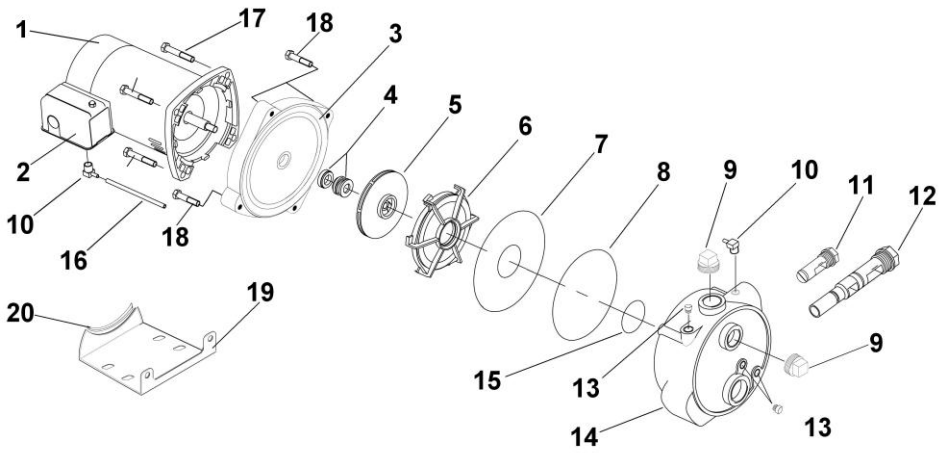
For best performance, it is recommended to connect the pump directly to a grounded power circuit. If the use of an extension cord is necessary, always use a grounded waterproof type cord. Never use less than a 14 gauge extension cord. See the wire sizing chart on page 10 for proper wire sizing.

WARNING ⚠ Do not attempt repairs to the electric motor. All repairs must be completed by a certified repair shop.

WARNING ⚠ **BURN HAZARD.** Do not touch an operating motor. Pump motors are designed to operate at high temperatures.

WARNING ⚠ Always disconnect the power source before attempting to install, service or perform maintenance on the pump. Failure to do so may result in fatal electrical shock.

REPAIR PARTS



REF #	DESCRIPTION	PART # FOR MODEL		
		94501	94751	94101
1	Motor	C48H2EC11B2	C48H2EC11B2	C48H2EC11B3
2	Pressure Switch	99028	99028	99029
3	Seal Plate	99350	99350	99350
4	Shaft Seal	99352	99352	99352
5	Impeller	99354	99355	99356
6	Diffuser	99358	99358	99359
7	Priming Plate	99361	99361	99361
8	Gasket – Pump Housing	99364	99364	99364
9	Plug - 1" NPT	99366	99366	99366
10	Tube Fitting - ¼" NPT x 1/8" Barb	99368	99368	99368
11	Deep Well Plug	99370	99370	99370
12	Shallow Well Injector	99372	99372	99372
13	Plug – ¼" NPT	99020	99020	99020
14	Pump Housing	99380	99380	99380
15	O-Ring	99373	99373	99373
16	Tubing ¼" OD, 1/8" ID	99374	99374	99374
17	Bolt – 3/8" x 1" (Qty – 4)	99376	99376	99376
18	Bolt – 3/8" x 1 ¼" (Qty – 4)	99378	99378	99378
19	Pump Base	99379	99379	99379
20	Motor Pad	99382	99382	99382

MAINTENANCE

Check the air pressure in the tank (pre-charged tank) periodically to ensure it is at the proper level. The pressure should be measured and adjusted only when the tank is empty

PREPARING FOR FREEZING CONDITIONS

1. Disconnect the power and open a faucet to drain the system of water. Remove the plug located on lower face of the pump to drain the water in pump housing. If the pump is connected to a pre-charged tank the bladder will force virtually all water from the tank. There is no need to drain. If the pump is connected to a standard tank, open an outlet at the lowest point in the system to drain.

2. Drain all water in piping below frost line.

SPECIFICATIONS

Power supply requirements	120V, 60 Hz
Motor	120 Volt Continuous Duty, Thermally protected.
Max. Load Amps	6.5 – 94501 6.5 – 94751 8.5 – 94101
Liquid Temperature Range	32° F - 120° F
Circuit Requirements	15 amp
Suction/Discharge Size	1 ¼" Suction, 1" Discharge, 1" Drive
Maximum Pressure	60 PSI (94501) 62 PSI (94751) 64 PSI (94101)

WARNING ⚠ This pump is **NOT** submersible. Keep motor dry at all times. Do not submerge any part of the pump. Keep all electrical connections away from wet and moist environments. Wet connections can cause electrical shock resulting in personal injury. Protect pump and motor from wet weather.

WARNING ⚠ This pump is designed for indoor installations. If it is to be used outdoors, precautions must be made to keep the pump dry at all times. Failure to do so significantly increases the risk of injury from electrical shock.

WARNING ⚠ Do not use this pump to pump chemicals, flammable liquids, sewage, salt water, laundry discharge or corrosive liquids. You could injure yourself and cause serious damage to the pump and/or personal property. Pumping these types of liquids voids the warranty. This pump is designed to pump clear water. If you have any questions call us at 1-800-495-9278 or contact us on the web at www.superiorpumpco.com

WARNING ⚠ Keep fingers and foreign objects away from the ventilation openings on the motor. Do not insert any objects into the motor.

NOTICE ⚠

Your pump motor is equipped with an automatic resetting thermal over-load protector. The thermal overload protector will automatically shut down the motor in an overheat/overload situation. It will then reset itself once the motor cools down. Once cool, the pump will work again. This overload protector is designed as a safety device and it will fail after repeated use. Thermal protector tripping is an indication of motor overloading due to pump discharge restriction, excessive high or low voltage, inadequate wiring or incorrect motor connections. **NOTE:** Pump may re-start unexpectedly after an overload/overheat situation.

NOTICE ⚠

DO NOT RUN PUMP DRY. The internal parts of the pump depend on water for cooling and lubrication. Operating the pump without water may cause the motor to overheat or cause damage to the internal parts of the pump. It may also shorten the life of your pump. Running the pump dry will void the warranty.

NOTICE ⚠ Protect the pump and piping from freezing. Failure to do so could cause severe damage to the pump and/or personal property and will void the warranty.

NOTICE ⚠

Make sure the water source and piping is clear of dirt, sand and other debris that may clog the pump. These materials can damage the internal parts of the pump and will void the warranty

SHALLOW WELL INSTALLATION

INSTALLING / REPLACING AN OLD PUMP

1. Drain and remove piping from old pump. Check the piping for rust, scale etc. Replace if necessary. Your jet pump comes ready to install for shallow well applications.

2. Install the new pump making sure all pipe connections are air and water tight. Use pipe joint compound or Teflon tape on all pipe connections. Make sure all piping is properly supported. ***NOTE: If the suction pipe can suck air, the pump will not be able to pull water from the source.***

INSTALLATION FOR SHALLOW WELL (DRIVEN WELL POINT) (Figure 1)

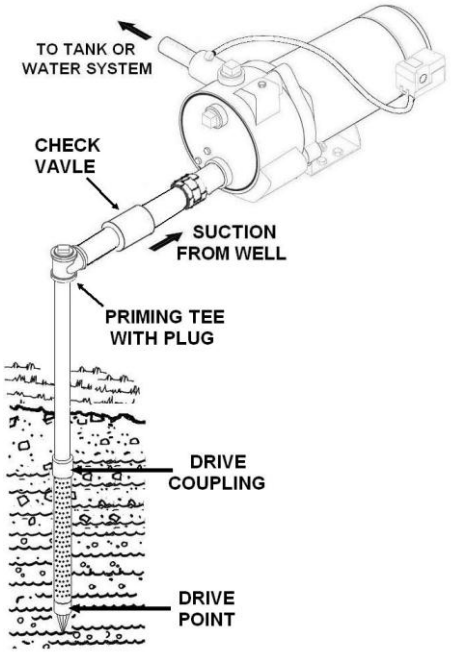


Figure 1

1. Drive the point using drive couplings and a drive cap. Do not use regular pipe fittings as the threads may strip out due to the force of driving the point.

2. Position the pump as close as possible to the water source to keep suction lift as low as possible. ***NOTE: Long lengths of pipe and the use of many fittings will reduce water flow. Use the shortest possible length of pipe and the fewest fittings possible. The suction line should be at least as large as the suction port, in this case 1 ¼"***

3. Install a priming tee with a plug on the suction pipe from the water source (Figure 1). An inline check valve should also be installed on the suction line going to the pump. Install a union or other fitting that will allow the pump to be easily disassembled from the piping for easy servicing. ***Make sure Teflon tape or pipe joint compound is used on all joints***.

NOTE: The above diagram represents a common installation for a well point application. Your installation may vary. If you have any questions regarding your particular installation, please contact us at 1-800-495-9278 or at www.superiorpumpco.com

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSES	HOW TO CORRECT
If the pump does not start or run	▪ Pump is not plugged in, switch/breaker is off	▪ Plug pump in or turn on switch/breaker
	▪ Check for blown fuses or tripped circuit breakers or tripped GFCI outlets	▪ Replace fuse, reset breaker, reset GFCI
	▪ Wire connections are loose or wired incorrectly	▪ Tighten connections or re-wire following wiring diagram on page 10
	▪ Contacts on pressure switch are dirty or worn	▪ Clean or replace pressure switch
Motor runs hot and thermal overload protector turns pump off	▪ Voltage is too low	▪ Use heavier gauge wire
	▪ Motor is not properly vented	▪ Make sure there is adequate room for air to circulate around the pump
If the pump runs but moves little or no water	▪ Loss of prime	▪ Re-prime if necessary. See page 11
	▪ Air lock in suction line	▪ Make sure horizontal piping between the pump and the well pitches upward towards the pump. Otherwise an airlock may form
	▪ Leak in suction line	▪ Check all connections for leaks. Make sure all connections are air tight.
	▪ Discharge or suction pipes may be clogged or corroded	▪ Remove clog or replace pipes if necessary
	▪ Distance from the pump to the water is greater than 25 feet	▪ Change to a deep well application
	▪ Intake screen/foot valve is obstructed	▪ Clean or replace if necessary
	▪ Foot valve or check valve is stuck in the closed position	▪ Inspect, repair or replace if necessary
	▪ Foot valve or check valve is installed backwards	▪ Make sure valve is installed in the correct direction of flow
	▪ Worn, damaged or clogged pump parts (Injector, impeller, diffuser, seal, etc.)	▪ Inspect for wear, damage or clog and clean or replace if necessary
	▪ Foot valve is buried in sand or mud	▪ Raise above surface bottom
	▪ Water level in the well is too low	▪ Lower suction pipe or convert to deep well application
	▪ Well is "dry" or has slow recovery	▪ Move location of well
	▪ Pipes are frozen	▪ Thaw pipes, heat pump house or bury pipes below frost line
Pump starts and stops too often	▪ Water logged tank (Standard Tank)	▪ Drain tank and re-prime pump. The air volume control will supply the correct amount of air in the tank
	▪ Ruptured bladder (Pre-charged Tank)	▪ Replace bladder and/or tank
	▪ Incorrect air pressure in tank (Pre-charged Tank)	▪ Add or release air as needed
	▪ Leak in pressure tank or system piping	▪ Locate and repair leak
	▪ Pressure switch is not properly adjusted	▪ Adjust settings by following instructions under the pressure switch cap
Pump does not shut off	▪ Incorrect pressure switch setting	▪ Lower "cut off" setting. Follow instructions under pressure switch cap
	▪ Bad pressure switch. Contacts stuck in closed position	▪ Replace switch
	▪ Pressure switch tubing clogged	▪ Blow debris from tubing or replace

USING THE JET PUMP AS A SPRINKLER PUMP

This jet pump may also be used as a sprinkler pump. Follow the steps below to make the necessary adjustments.

The pressure switch must be disconnected for the pump to operate properly. If you are using a tank with the pump there is no need to disconnect the pressure switch.

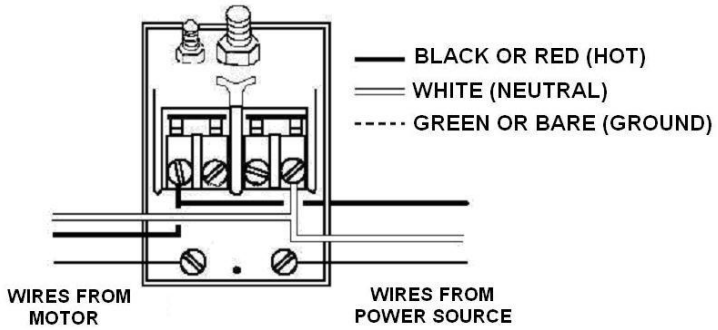


Figure 10

DISCONNECTING THE PRESSURE SWITCH

1. Remove the wires from the two inner screw terminals.

2. Attach these wires to the two outside screw terminals keeping like wires on the same terminals. Your pressure switch is now disconnected.

3. When the pressure switch is disconnected, the pump will not shut off automatically. You will either need to unplug the pump or add an on-off switch in the power supply to turn the pump on and off.

WARNING⚠

Do not run the pump with a closed discharge when the pressure switch is disconnected. Dangerous pressures in the pump can build causing damage to the internal parts of the pump or severe injury to yourself.

INSTALLATION FOR SHALLOW WELL (CASED WELL) (Figure 2)

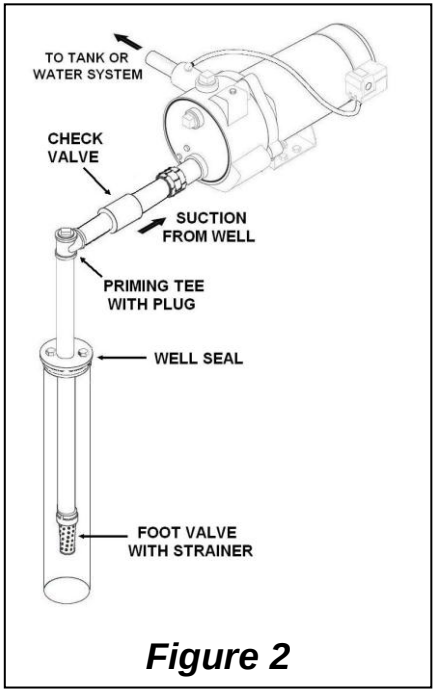


Figure 2

1. Install a foot valve with strainer on the first section of pipe and lower it into the well.

2. Add enough pipe until the foot valve is about 10 feet below the water level. Make sure the foot valve does not rest on the bottom of the well.

3. Install a priming tee with a plug on the suction pipe from the water source. Install a union to allow the pump to be easily disassembled from the piping for easy servicing. ***Make sure Teflon tape or pipe joint compound is used on all joints. The suction pipe should be at least 1 ¼"***

4. Install a well seal to prevent debris and other contaminates from entering the well.

INSTALLATION FOR SHALLOW WELL (SURFACE WATER) (Figure 3)

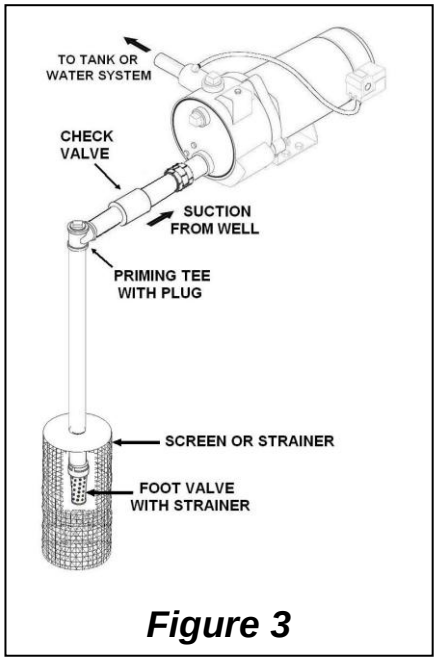


Figure 3

1. Install a foot valve on the first section of pipe and lower it into the water source.

2. Install a priming tee with a plug on the suction pipe from the water source

3. Install a screen or strainer around the foot valve to protect the pump from debris and sediment (Figure 3). Failure to protect the pump from sand, silt and other materials may cause damage to your pump and will void the warranty.

NOTE: The above diagrams represent common installations for a shallow well application. Your installation may vary. If you have any questions regarding your particular installation, please contact us at 1-800-495-9278 or at www.superiorpumpco.com

DEEP WELL INSTALLATION

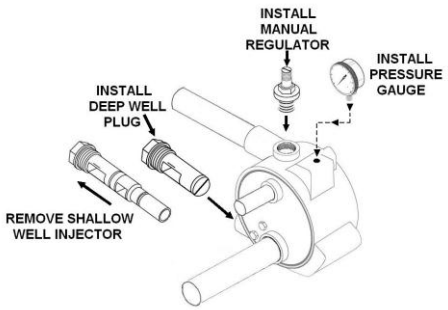


FIGURE 4

DEEP WELL SET UP (Figure 4)

1. Remove the shallow well injector from the side of the pump housing.
2. Install the Deep Well plug (Sold Separately) in place of the shallow well injector.
3. Remove the plug from the top discharge of the pump housing and replace it with the Manual Regulator (Sold Separately)
4. Install a pressure gauge. (Sold Separately)

DEEP WELL INSTALLATION FOR 4" OR LARGER WELL (Figure 5)

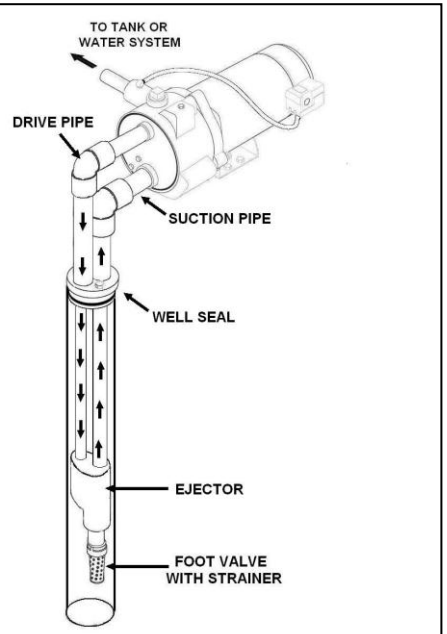


FIGURE 5

1. Install a foot valve with strainer to the bottom of the Ejector.

2. Connect the drive pipe and suction pipe to the deep well ejector. **NOTE:** On Superior Jet Pumps the smaller top pipe is the drive pipe and the larger pipe on the bottom is suction. In certain applications, the pipes may need to be crossed over in order to connect properly to the well head. In this situation, the use of flexible pipe is suggested to connect the drive and suction ports to the well head.

3. Add enough pipe until the foot valve is about 10 feet below the water level. Make sure the foot valve does not rest on the bottom of the well.

4. Install a well seal to prevent debris and other contaminates from entering the well.

NOTE: The above diagram represents a common installation for a 4"deep well application. Your installation may vary. If you have any questions regarding your particular installation, please contact us at 1-800-495-9278 or at www.superiorpumpco.com

PRIMING

CAUTION ⚠

Never run your pump dry. Damage to the internal parts of the pump could result and void the warranty.

WARNING ⚠

Never run the pump with the discharge side of the pump closed. The water inside the pump may boil and reach dangerous pressures which may result in severe burns if handled.

1. Remove the top plug on the discharge port of the pump (shallow well) or the manual regulator (deep well) and fill the pump and all piping with water. Use a funnel if necessary. If you installed a priming tee on the suction side, remove the plug and fill all piping.

2. Replace all plugs making sure all joints are air and water tight. Use Teflon tape or pipe joint compound.

3. Open a faucet to vent the system of air.

4. Turn on the pump. Water should be pumped within 1-2 minutes. If there is no water being pumped after 2 minutes, turn the pump off and repeat the above steps. ***NOTE: if you are pumping from a depth of 20' or more it may take several attempts to prime your pump***.

5. Once the pump is moving water, let the system operate for a few minutes to flush all air out of the pipes.

6. Close the faucet and let pressure build in the tank. Once the pressure reaches the cut-off setting on the pressure switch, the pump will stop. ***NOTE: You may want to install a pressure gauge (not included) to adjust the pressure to meet your needs.***

7. Test the system and pressure switch by opening a faucet to let water drain from the tank. The pump should start once the pressure reaches 20 PSI, ±2 PSI (94501 & 94751) or 30 PSI, ±2 PSI, (94101) ***NOTE: The use of a pressure gauge (not included) is recommended.***

ELECTRICAL CONNECTIONS

NOTE: Your pump comes pre-wired for 120 volt service. The motor is **NOT** convertible to 220 volts.

CONNECTION PROCEDURE

1. Connect the ground wire from the power source to the ground terminal on the pressure switch. Make sure the ground from the power source is connected to a grounded terminal in the service panel, a metal underground water pipe, a metal well casing, or a grounding rod.

2. Connect one hot wire (usually black or red) from the power source to one of the screw terminals on the pressure switch. It doesn't matter which one. Follow wiring diagram in Figure 9.

3. Connect the white (neutral) wire from the power source to the other screw terminal on the pressure switch.

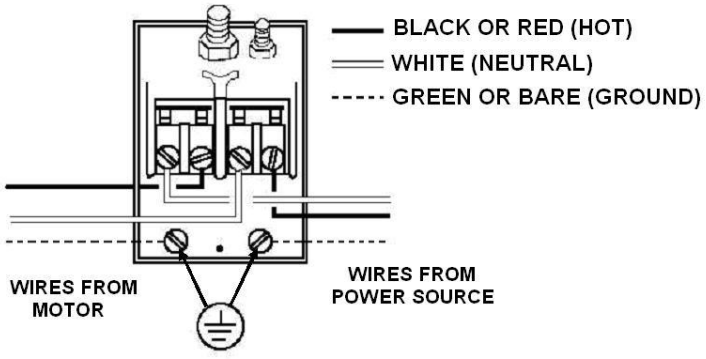


FIGURE 9

If the use of an extension cord is necessary, use the chart below to determine what gauge cord you should use. If you decide to "Hard Wire" your pump, use the appropriate size wire from the wire gauge chart below.

Model	HP	Amps	Distance in Feet from Motor to Power Supply Wire Size (AWG)			
120 Volts			0-100'	101-200'	201-300'	301-400'
94501	½	6.5	14	12	10	8
94751	¾	6.5	14	12	10	8
94101	1	8.5	14	10	10	6

DEEP WELL INSTALLATION FOR 2" WELL (Figure 6)

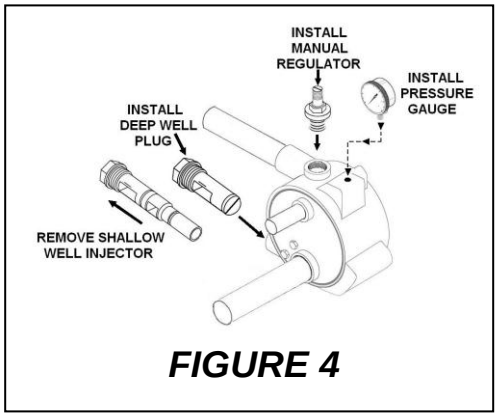


FIGURE 4

DEEP WELL SET UP (Figure 4)

1. Remove the shallow well injector from the side of the pump housing.

2. Install the Deep Well plug (Sold Separately) in place of the shallow well injector.

3. Remove the plug from the top discharge of the pump housing and replace it with the Manual Regulator (Sold Separately)

4. Install a pressure gauge. (Sold Separately)

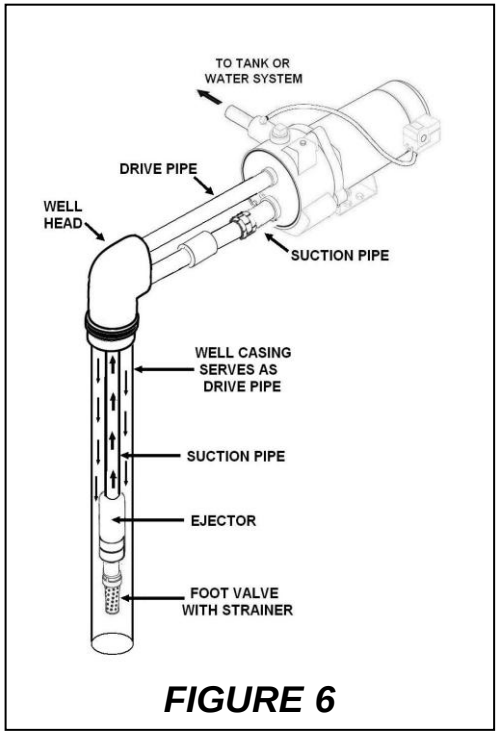


FIGURE 6

1. Connect the suction pipe to the deep well ejector. The well casing in a 2" well acts as the drive pipe. Add enough pipe until the foot valve is about 10 feet below the water level. Make sure the foot valve does not rest on the bottom of the well.

2. Connect the drive pipe and suction pipe to the well head. **NOTE:** On Superior Jet Pumps the smaller top pipe is the drive pipe and the larger pipe on the bottom is suction. In certain applications, the pipes may need to be crossed over in order to connect properly to the well head. In this situation, the use of flexible pipe is suggested to connect the drive and suction ports to the well head.

NOTE: The above installation is a common installation for a 2"deep well application. Your installation may vary. If you have any questions regarding your particular installation, please contact us at 1-800-495-9278 or at www.superiorpumpco.com

CONNECTION TO A WATER TANK

PRECHARGED TANK (Figure 7)

A pre-charged tank stores water & air in two different compartments. The tank contains a flexible bladder which prevents the air from being absorbed into the water. When a faucet is opened in the system, the air pressure in the tank pushes the water out of the bladder. Pre-charged tanks have approximately twice the usable capacity compared to standard tanks with the same volume. The air pressure in the tank must be checked from time to time to ensure it is at the proper level.

STANDARD TANK (Figure 8)

A standard tank stores water and air in the same space. When the tank is full, it contains about 2/3 water and 1/3 air. This type of tank requires an air volume control which replaces lost air due to absorption or leakage.

CONNECTIONS FOR A PRE-CHARGED TANK (Figures 4a & 4b)

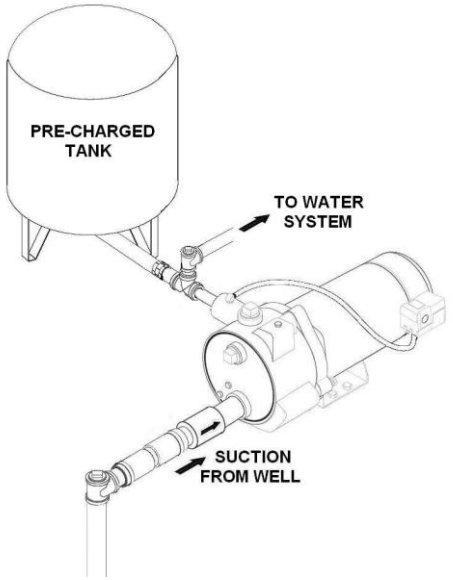


FIGURE 7

1. Install a tee fitting between the pump discharge and the tank.

2. Connect a pipe or hose from the tee to the water system.
NOTE: You may need to use reducing fittings to match your existing plumbing size.

3. Before priming/starting the pump, it's a good idea to check the air pressure in the tank using an air pressure gauge. Make sure there is no water in the tank when checking pressure. Your new pump has either a 20/40 (94501, 94751) or 30/50 (94101) pressure switch pre-wired to it. The pressure in the tank should be 2 PSI less than the "cut on" setting of the pressure switch. ***Example: Model 94751 has a 20/40 pressure switch. The air pressure in the tank should be 18 PSI.***

NOTE: There are many different ways to connect a pump to a tank. The illustration above is a basic pump & tank connection. Your situation may vary. If you have any questions regarding your installation, please contact us at 1-800-495-9278 of at www.superiorpumpco.com

CONNECTIONS FOR A STANDARD TANK (Figure 8)

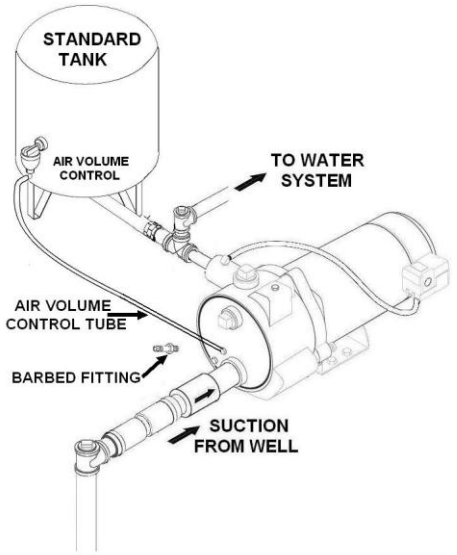


FIGURE 8

1. Install a tee fitting between the pump discharge and the tank.

2. Connect a pipe or hose from the tee to the water system.
NOTE: You may need to use reducing fittings to match your existing plumbing size.

3. Remove the upper ¼" plug from the face of the pump (Figure 11). Install a ¼" NPT x ⅛" barbed fitting in its place. Run a ¼" OD tube from the fitting on the pump to the Air Volume Control (AVC). The AVC will automatically supply the tank with the correct amount of air

NOTE: There are many different ways to connect a pump to a tank. The illustration above is a basic pump & tank connection. Your situation may vary. If you have any questions regarding your installation, please contact us at 1-800-495-9278 of at www.superiorpumpco.com

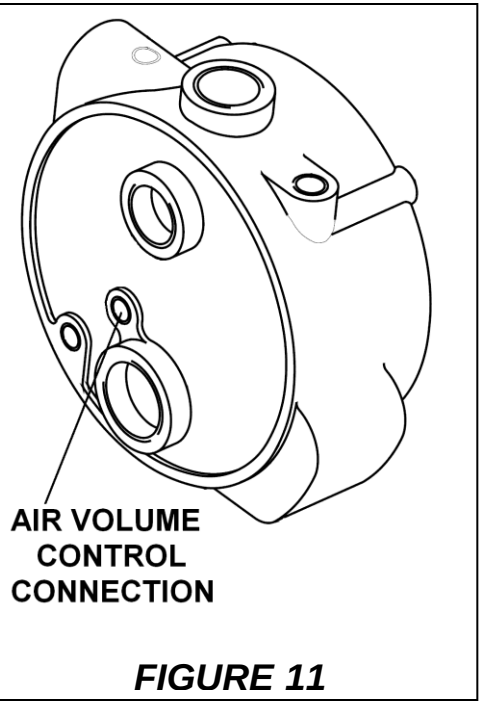


FIGURE 11