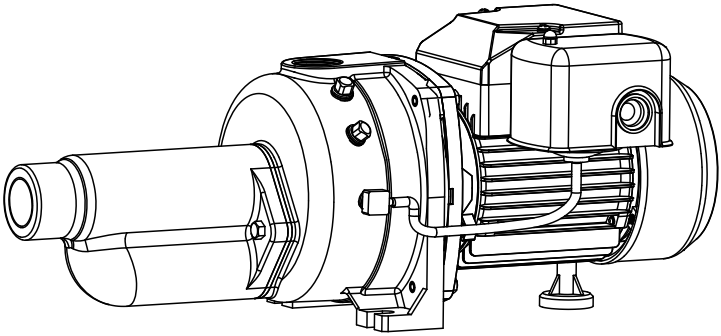
MASTERCRAFT™/MC

CONVERTIBLE

JET PUMP



Model No. 062-3590-8

IMPORTANT:
Please read this manual carefully before running this convertible jet pump and save it for reference.

INSTRUCTION MANUAL

TABLE OF CONTENTS

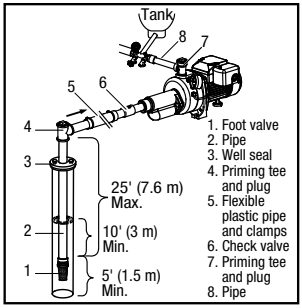
NOTE:
If any parts are missing or damaged, or if you have any questions, please call our toll-free helpline at 1-800-689-9928.

SAVE THESE INSTRUCTIONS
This manual contains important safety and operating instructions.
Read all instructions and follow them with use of this product.

1 PIPING CONNECTION

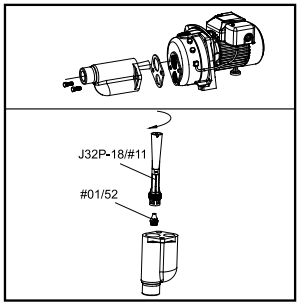
1a SHALLOW WELL APPLICATION 0 to 25' (0 to 7.6 m)

- Connect a rigid pipe to the foot valve.
- Connect the tee to the pipe, and slide the pipe assembly into the well.
- Connect the pipe assembly with pump and connect the pump with water system.

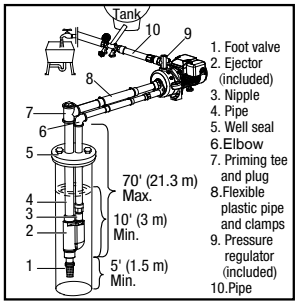


1b DEEP WELL APPLICATION 25 to 70' (7.6 to 21.3 m)

- Remove the pre-assembled ejector first, then remove the pre-assembled nozzle and venturi.
- Install the included nozzle and venturi for deep well application.

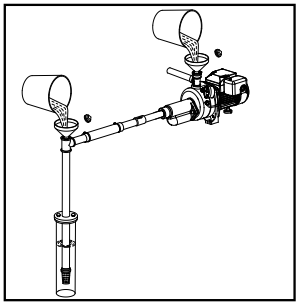


- Connect the foot valve to the ejector. Connect the rigid pipe to the ejector and slide the pipe assembly into the well.
- Connect the pipe assembly with the pump. Connect the pump with water system.

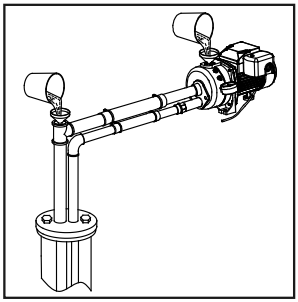


2 PRIME THE PUMP AND PIPE

2a SHALLOW WELL



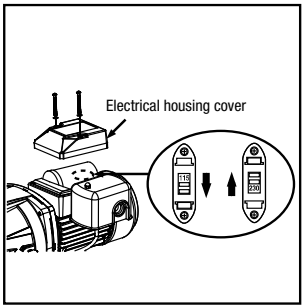
2a DEEP WELL

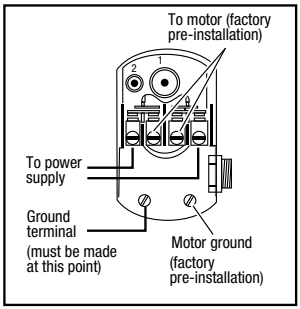


- Fill pump and piping through priming tee.

3 VOLTAGE SETTING

- This pump is pre-wired at 230 V.
- If the power source is 115 V, remove the electrical housing cover. Flip the switch to 115 V. Replace the cover.





4 CONNECT THE POWER SUPPLY WIRING TO THE PRESSURE SWITCH

- Remove the pressure switch cover on the pump to expose the wiring terminals.
- Connect the green ground wire of the power supply to the switch ground terminal.
- Connect the power supply wires to the two outside terminals and replace the switch cover.

TECHNICAL SPECIFICATIONS

Temperature	32 to 77ºF (0 to 25ºC)
Maximum flow	492 U.S. GPH (1862 L/h)
Impeller	Plastic
Solids handling	0" (0 mm) spherical
Discharge size	1" (2.5 cm) national pipe thread (NPT)
Suction size	1 1/4" (3.2 cm) national pipe thread (NPT)
Seal	Mechanical seal
Upper bearing	Ball bearing
Lower bearing	Ball bearing
Single phase	Permanent split capacitor (PSC)
Motor protection	Auto-reset thermal overload protection in motor
Construction material	Aluminum alloy for motor house; plastic for diffuser and impeller; cast iron for pump body
Motor	NEMAL, torque curve, squirrel cage induction, class B insulation

MOTOR AND ELECTRICAL

SKU number	062-3590-8
HP	1/2
Volt	115/230 factory pre-set 230
Hz	60
RPM	3450
Full load amps	8/4

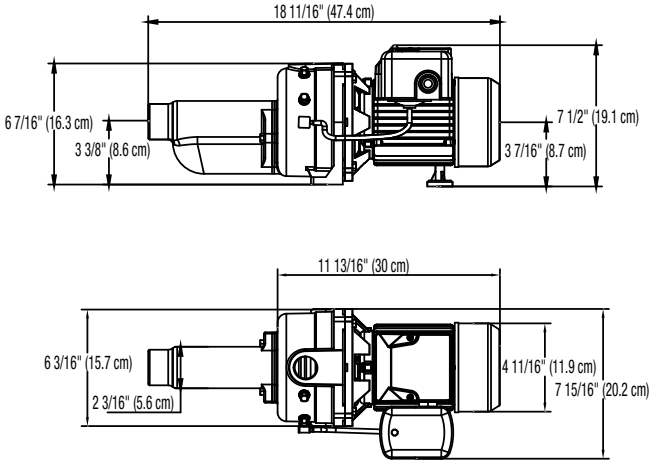
NOTE:
The suction pipe size should not be less than 1 1/4" (3.2 cm). The suction size of this pump is 1 1/4" (3.2 cm) national pipe thread (NPT).

PERFORMANCE CHART

Lift height/ metres	5' (1.5 m)	10' (3 m)	20' (6 m)	30' (9.1 m)	40' (12.2 m)	50' (15.2 m)	60' (18.2 m)	70' (21.3 m)
Gallons per hour/ Litres per hour	450 (1703)	396 (1499)	330 (1249)	300 (1136)	282 (1067)	228 (863)	210 (791)	132 (500)

All performances shown at 40 PSI discharge pressure.
*Friction loss in piping not included in measurement.

DIMENSIONS



SAFETY GUIDELINES

This manual contains information that relates to protecting personal safety and preventing equipment problems. It is very important to read this manual carefully and understand it thoroughly before using this product.

- These precautions are intended for the personal safety of the operator and others working with the operator. Failure to follow these instructions may result in a permanent loss of vision, serious personal or even fatal injury, property damage and/or tool damage. Please take the time to read and understand them.
- Wear safety glasses with side shields when operating the pump and verify that others in the work area are also wearing safety glasses. Safety glasses must conform to both American National Standards Institute (ANSI Z87.1) and Canadian Standards Association (CSA Z94.3) standards requirements and must provide protection from flying particles from the front and the sides. Failure to comply may result in moderate injury.
- The motor of this pump has a thermal protector that will trip if the motor becomes too hot. The protector will reset itself once the motor cools down and an acceptable temperature has been reached. The pump may restart unexpectedly if it is plugged in.
- This pump is made of high-strength, corrosion-resistant materials. It will provide trouble-free service for a long time when properly installed, maintained, and used. However, inadequate electrical power to the pump, dirt, or debris may cause the pump to fail. Please carefully read the manual and follow the instructions regarding common pump problems and remedies.
- Mastercraft Canada is not responsible for losses, injury, or death resulting from a failure to observe these safety precautions, or the misuse or abuse of pumps or equipment.

DANGER!

- Keep children away from the work area. Do not allow children to handle the pump.
- Follow all electrical and safety codes, particularly the Canadian Electrical Code, and local codes and ordinances.
- Disconnect the power supply to the pump, drain all water and release all pressure from the water system before servicing any pump component.
- Risk of fire or explosion: Do not pump flammable or explosive liquids such as oil, gasoline, kerosene, ethanol, etc. Do not use in the presence of flammable or explosive vapours. Using this pump with or near flammable liquids can cause an explosion or fire, resulting in property damage, serious personal injury and/or death.
- Risk of electric shock: Never remove the ground terminal on the three-pronged power plug of the pump as the ground terminal is designed for protection. Do not adjust any electrical appliance or product without disconnecting the power supply. Do not stand on wet or damp surface or in water when the pump is connected. Avoid handling the pump with wet hands.
- Risk of burns: Do not touch the motor housing during operation. The motor is designed to operate at high temperatures. Do not disassemble the motor housing
- Ensure the electrical power source is adequate for the requirements of the pump.
- Extension cords may not deliver sufficient voltage to the pump motor. Extension cords present a life-threatening safety hazard if the insulation becomes damaged or the connection ends fall into water. The use of an extension cord to power this pump is not permitted.
- This is a dual voltage 115/230 V pump. VOLTAGE SELECTOR INSIDE IS PRESET TO 230 V. For 115 V selection, please open the terminal cover and set the switch to the proper voltage. All wiring should be performed by a qualified electrician.
- The pump should be connected to a 230 V/115 V, GFCI outlet protected with a 10 A (230 V) / 20 A (115 V) fuse or circuit breaker.
- Indoor use only: Enclosure type 2.

CAUTION!

- Know the pump and its applications, limitations, and potential hazards.
- Secure the discharge line before starting the pump. An unsecured discharge line will whip, possibly causing personal injury and/or property damage.

UNPACKING

- Upon receiving the pump, it should be inspected for damage or shortages. If damage has occurred, file a claim immediately with the carrier that delivered the pump. If the manual is removed from the packaging, do not lose or misplace.

STORAGE

- Short Term—Pumps are manufactured for efficient performance following short, inoperative periods in storage. For best results, pumps can be retained in storage, as factory assembled, in a dry atmosphere with constant temperatures for up to six (6) months.
- Long Term—For storage of six (6) months, to twenty-four (24) months, the units should be stored in a temperature-controlled area: a roofed-over, walled enclosure that provides protection from the elements (rain, snow, wind, dust, etc.), and where the temperature can be maintained between 4 and 40°C (40 and 104°F). If extended high humidity is expected to be a problem, all exposed parts should be inspected before storage and all surfaces that have the paint scratched, damaged, or worn should be recoated with a water-based, air-dry enamel paint. All surfaces should then be sprayed with a rust-inhibiting oil.
- Pump should be stored in its original shipping container. On initial start up, rotate impeller by hand to assure seal and impeller rotate freely.

INSTALLATION

SUCTION

- All joints and connections must be AIRTIGHT. A single leak will prevent the proper operation of the pump. Wrap thread tape clockwise on all threaded connections. For all non-threaded connections, you must use PVC purple primer and PVC cement to ensure airtight seals. Measure all pipe lengths before attaching.
- A foot valve is a check valve that is used to keep the water from running back into the well from the pump and maintain hydraulic pressure when the pump is not running. If the foot valve does not hold the water, the pump will lose its prime and will not pump water. If the foot valve open pressure is too high (the spring is too stiff), or the flow area is too small, the pump suction head and flow rate will significantly drop.

CAUTION!

- Secure the pump to a solid base. This will aid in keeping the pump in a vertical orientation. This is critical in keeping the pump operating at maximum efficiency. It will also help prevent the pump from clogging resulting in premature failure.
- Periodically inspect the pump and system components. Disconnect the pump from the power supply before inspecting.
- Never run the pump dry, as doing so may damage the mechanical seal and void the warranty. This pump has to be primed before starting.

WARNING!

- Protect the electrical cord from sharp objects, hot surfaces, oil, and chemicals. Avoid kinking the cord. Do not use damaged or worn cords.
- Failure to comply with the instructions and designed operation of this unit may void the warranty. Attempting to use a damaged pump can result in property damage, serious personal injury and/or death.

ELECTRICAL CONNECTIONS

- It is recommended all electrical work be performed by a licensed electrician.
- Before wiring the pressure switch, turn off the power source to which you are connecting to avoid potentially life-threatening electric shock.

SAFETY GUIDELINES

WIRE SIZE

- When wiring from the power source to the pressure switch, it is recommended that you use either a 14-gauge or 12-gauge cord.

PRE-OPERATION: CHECK VOLTAGE AND PHASE

- Before operating pump, check to make sure that the voltage and phase information stamped on the pump's identification plate matches the available power.

IDENTIFICATION PLATE

- Note the numbers on the pump's identification plate and record at the end of the manual for future reference.

INSULATION TEST

- Before the pump is put into service, an insulation (megger) test should be performed on it. The ohm values as well as the volts and amps should be recorded.

PUMP TEST

- After the pump has been properly wired and primed, it is advisable to check the system by filling with liquid and allowing the pump to operate through its pumping cycle.
- A 30/50 PSI pressure switch has been installed on the pump. The pressure switch allows for automatic operation. The pump starts when pressure drops to the "cut-in" setting (30 PSI pre-set).
- In order for the pump and tank to operate properly, the pressure tank needs to be drained of all water BEFORE INSTALLING THE NEW PUMP. After draining, if you are using the supplied 30/50 PSI pressure switch at the pre-set settings, add or adjust the air pressure in the tank to 28 PSI of pressure BEFORE start up.

MAINTENANCE

- No other maintenance is required.

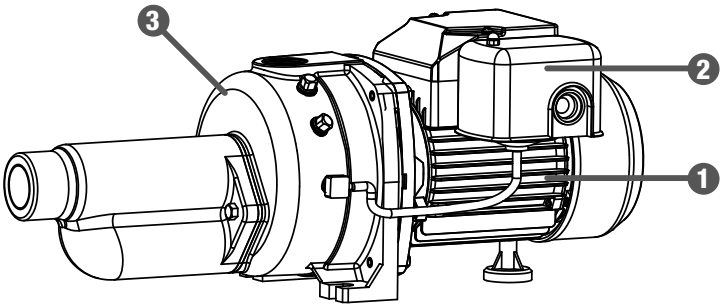
CAUTION!

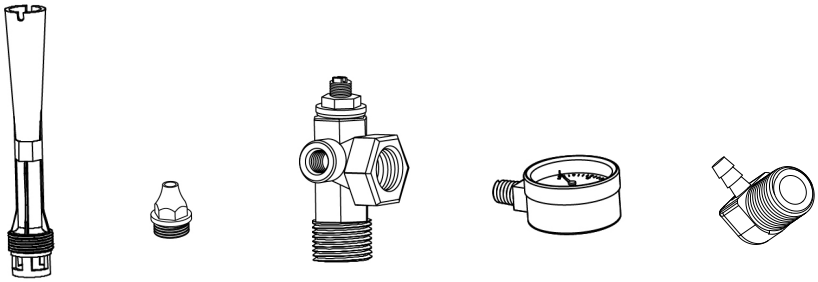
- Risk of electric shock. Do not remove cord and/or strain relief. Do not connect conduit to pump.

PARTS LIST

PART	DESCRIPTION	QUANTITY
1	1/2 HP motor	1
2	Pressure switch	1
3	Cast-iron housing	1
4	Venturi tube	1

PART	DESCRIPTION	QUANTITY
5	Nozzle	1
6	Pressure regulator	1
7	Pressure gauge	1
8	Brass elbow	1

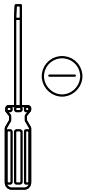




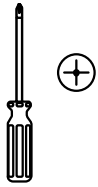
APPLICATION

This unit is a convertible jet pump designed for pumping water where the water level is less than 70' (21.3 m) deep. If the water level to the pump is deeper than 70' (21.3 m), a deep well submersible pump should be selected. A pressure switch pre-set at 30 PSI "on"/ 50 PSI "off" has been installed on the pump. The pressure switch will automatically turn the pump on and off based on the system pressure.

TOOLS REQUIRED (NOT INCLUDED)



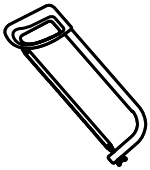
Flathead screwdriver



Cross-head screwdriver

ABS or PVC cement
(to match the pipe)

Pipe wrench



Hacksaw

Thread tape

Safety goggles

Tape measure

DETERMINE THE DEPTH OF YOUR WELL

Tie a small but heavy weight such as a fishing weight to the end of a piece of cotton string. Lower the weight into the well until it reaches the bottom of the well. Make a mark on the string at ground level. Pull the weight out of the well and measure from the bottom of the weight to the ground level mark. This is the depth of your well. Subtract 5' (1.5 m) from the depth of your well. If this number is less than 25' (7.6 m), shallow well installation should be used. If this number is more than 25' (7.6 m) and less than 70' (21.3 m), deep well installation should be used. If this number is more than 70' (21.3 m), a deep well submersible pump should be selected. Measure the ground level mark to the mark where the cotton string is wetted. This number is your well's water level. The pump should be at least 10' (3 m) below the well's water level while the pump is running in order to prevent the pump from sucking air due to water level drawdown.

LOCATION OF THE PUMP

Decide on the area for the pump installation. Select a pump location with adequate space for future pump maintenance. It can be located in the basement or utility room of the house, at the well, or between the house and the well. If installed outside of the house, it should be protected by a pump house with auxiliary heat to prevent possible freezing. Protect the pump against flooding and excess moisture. The well also should be protected for sanitary reasons. Mount the pump as close to the well as possible.

TANKS — PRE-CHARGED STORAGE

For best performance of the pump, it is recommended that you use a diaphragm pressure tank (sold separately). It is best to have this in place before installing the pump. A pre-charged storage tank has a flexible bladder or diaphragm that acts as a barrier between the compressed air and water. This barrier prevents the air from being absorbed into the water and allows the water to be acted on by compressed air at initially higher than atmospheric pressures (pre-charged). More usable water is provided than with a conventional type tank.

DANGER!

Risk of electric shock. Can shock, burn or kill. Pump should always be electrically grounded to a suitable electrical ground such as a grounded water pipe or a properly-grounded metallic raceway, or ground wire system. Do not cut off the round ground pin.

The pump body may explode if used as a booster pump unless a relief valve capable of passing full pump flow at 75 PSI (517 kPa) is installed.

CAUTION!

In order for the pump and tank to operate properly, the pressure tank needs to be drained of all water BEFORE INSTALLING THE NEW PUMP. After draining, if you are using the supplied 30/50 PSI pressure switch at the pre-set settings, add or adjust the air pressure in the tank to 28 PSI of pressure BEFORE start up.

For wells 25' (7.6 m) or less in depth, shallow well installations should be used. The shallow well installations have only one single pipe between the pump and well water.

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

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

Pump water only with this pump.

Periodically inspect the pump and system components.

Wear safety glasses at all times when working on pumps.

Keep the work area clean, uncluttered and properly lighted. Store properly all unused tools and equipment.

Keep visitors at a safe distance from the work areas.

WARNING!

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

SHALLOW WELL INSTALLATION

MATERIALS REQUIRED (NOT INCLUDED)

One can PVC purple primer and one can PVC cement (read instructions carefully)	One well seal with vent plug
One can thread compound (read instructions carefully)	Foot valve
Non-stick tape	Discharge/priming tee and plug
Rigid pipe	Relief valve
Check valve	Adaptor
Flexible plastic pipe/clamps	Tank
Tank tee	

NOTE:
A foot valve is a check valve that is used to keep the water from running back into the well from the pump and maintains hydraulic pressure when the pump is not running. If the foot valve does not hold the water, the pump will lose its prime and will not pump water. If the foot valve open pressure is too high (the spring is too stiff), or the flow area is too small, the pump suction head and flow rate will significantly drop.
The suction pipe size should not be less than 1 1/4" (3.2 cm). The suction size of this pump is 1 1/4" (3.2 cm) national pipe thread (NPT) .

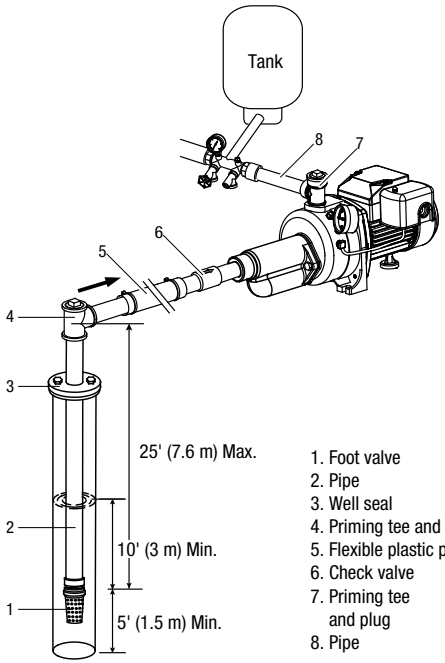
CAUTION!
To avoid skin burns, unplug the pump and allow time for it to cool after periods of extended use.

WARNING!
All joints and connections must be AIRTIGHT. A single leak will prevent the proper operation of the pump. Wrap thread tape clockwise on all threaded connections. For all non-threaded connections, you must use PVC purple primer and PVC cement to ensure airtight seals. Measure all pipe lengths before attaching.
The pump can shock, burn or kill. Disconnect power to pump before working on pump or motor.

REPLACING AN EXISTING PUMP

1. Drain and remove the old pump. Check the old pipe for scale, lime, rust, etc., and replace it if necessary.
2. Install the pressure gauge in the pump body (position as shown in the below figure).
3. Install the pump in the system. Make sure that all pipe joints in the suction pipe are airtight as well as watertight. If the suction pipe can suck air, the pump will not be able to pull water from the well.
4. Adjust the pump mounting height so that the plumbing connections do not put a strain on the pump body. Support the pipe so that the pump body does not take the weight of piping or fittings.

You have just completed the well plumbing for your new shallow well jet pump. Please go to discharge pipe and tank connections.



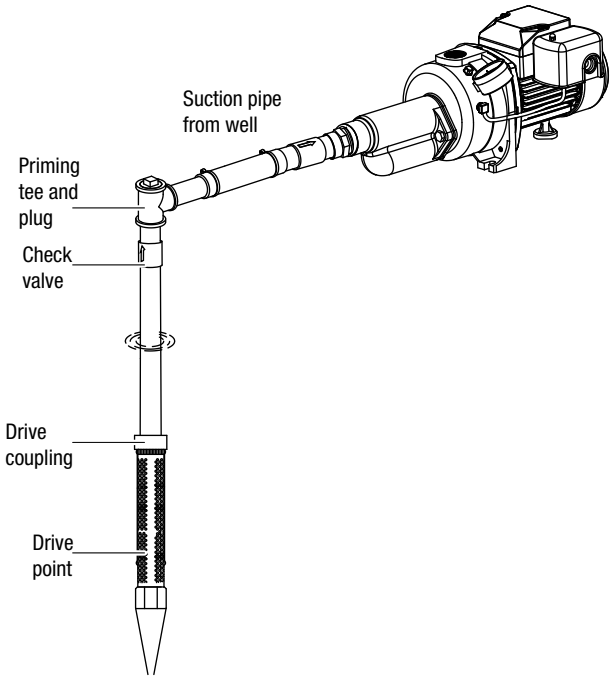
1. Foot valve
2. Pipe
3. Well seal
4. Priming tee and plug
5. Flexible plastic pipe and clamps
6. Check valve
7. Priming tee and plug
8. Pipe

NEW SHALLOW WELL INSTALLATION

Well Point Installation

1. Install pressure gauge in the pump body (position as shown in the below figure).
2. Drive the well, using “drive couplings” and a “drive cap”. “Drive fittings” are threaded all the way through and allow the pipe ends to butt against each other so that the driving force of the maul is carried by the pipe and not by the threads. The ordinary fittings found in hardware stores are not threaded all the way through the fitting and can collapse under impact. “Drive fittings” are also smoother than standard plumbing fittings, making ground penetration easier.
3. Mount the pump as close to the well as possible.
4. Use the fewest possible fittings (especially elbows) when connecting the pipe from the well point to the pump suction port. The suction pipe should be at least as large as the suction port on the pump (include a check valve). 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 cause an airlock in the pump). Seal the suction pipe joints with PTFE pipe thread sealant tape or a PTFE-based pipe joint compound approved for use on PVC. Joints must be airtight and watertight.

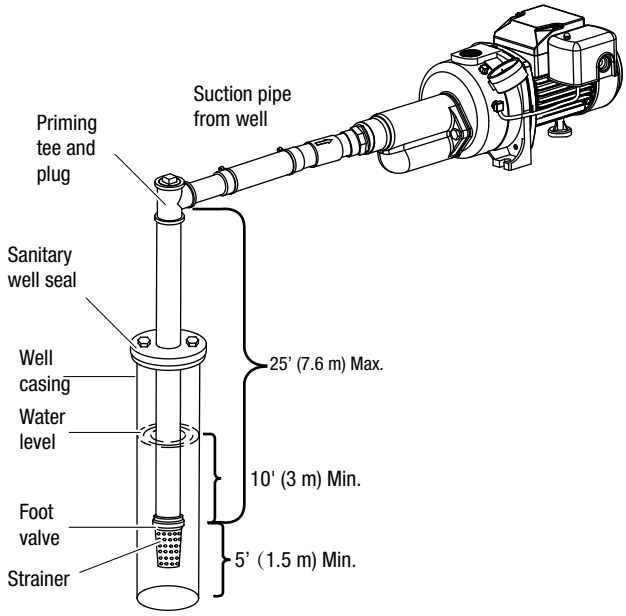
If the suction pipe can suck air, the pump cannot pull water from the well. If one well point does not supply enough water, consider connecting two or three well points to one suction pipe.
You have just completed the suction piping for your new shallow well jet pump. Please go to discharge pipe and tank connections.



Cased Well Installation — 2" (5 cm) or Larger Casing

1. Install the pressure gauge in the pump body (position as shown in the below figure).
2. Mount the pump as close to the well as possible.
3. Assemble the foot valve, strainer, and well pipe. Make sure that the foot valve works freely.
4. Lower the pipe into the well until the strainer is 5' (1.5 m) above the bottom of the well. It should also be at least 10' (3 m) below the well's water level while the pump is running in order to prevent the pump from sucking air. Install a sanitary well seal.
5. Install a priming tee, priming plug, and suction pipe to the drop pipe.

If the distance from the well to the pump is substantial, add a priming tee at the pump. Connect the pipe from the well to the pump suction port, using the fewest possible fittings – especially elbows – as fittings increase friction in the pipe. The suction pipe should be at least as large as the suction port on the pump. 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 airtight and watertight. If the suction pipe can suck air, the pump cannot pull water from the well.
You have just completed the suction piping for your new shallow well jet pump. Please go discharge pipe and tank connections.

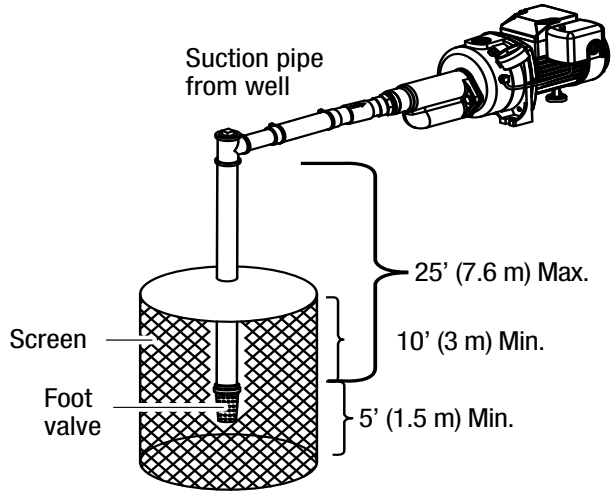


Installation for Surface Water

1. Install the pressure gauge in the pump body (position as shown in the below figure).
2. The pump should be installed as close to the water as possible, with the fewest possible fittings (especially elbows) in the suction pipe. The suction pipe should be at least as large as the suction port on the pump.
3. Assemble a foot valve and suction pipe. 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. Protect the foot valve assembly from fish, trash, etc., by installing a screen around it.
4. Lower the pipe into the water until the strainer is 5' (1.5 m) above the bottom. It should also be at least 10' (3 m) below the water level in order to prevent the pump from sucking air.
5. Install a priming tee, priming plug, and suction pipe to the pump.

Support the pipe so that there are no dips or sags in the pipe, so it doesn't strain the pump body, and so that it slopes slightly upward from the well to the pump (high spots can cause air pockets which can air lock the pump). Seal the suction pipe joints with PTFE pipe thread sealant tape or a PTFE-based pipe joint compound. Joints must be airtight and watertight. If the suction pipe can suck air, the pump cannot pull water from the well.

You have just completed the plumbing for your new shallow well jet pump. Please go to discharge pipe and tank connections.



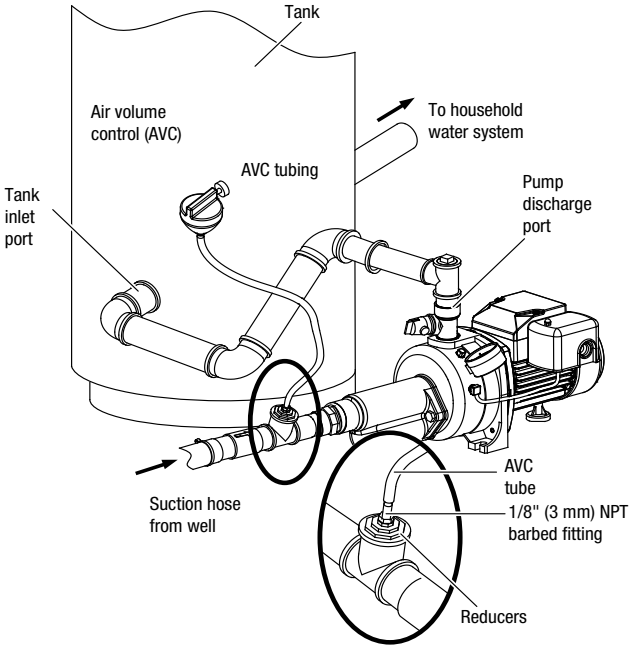
CAUTION!
Possible contamination. Do not use surface water for drinking.

Discharge Pipe and Pressure Tank Connections

Standard Tank Connection

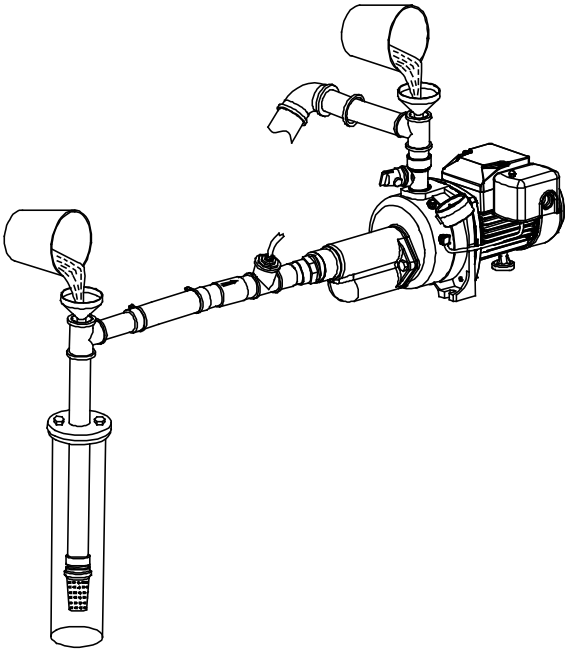
1. Install a close nipple and a tee in the pump discharge port. Mount a relief valve in one arm of the tee.
2. Install a second close nipple and tee in the open arm of the first tee. Put a priming plug in one arm of the second tee.
3. Run a pipe from the open arm of the second tee to the inlet port of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

You have just completed the tank connection for your jet pump. Please go to electrical hookup.



PRIMING

1. Fill the pump through the pump outlet. Fill all piping between the pump and the well, and make sure that all piping in the well is full. If you have also installed a priming tee in the suction piping, remove the plug from the tee and fill the suction piping.
2. Replace all fill plugs.

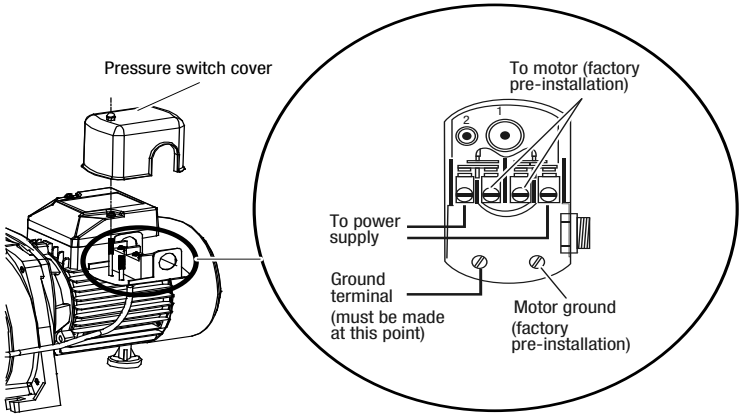


CAUTION!
Never run pump dry. Running pump without water may cause pump to overheat, damaging the seal and possibly causing burns to persons handling pump. Fill pump with water before starting.

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

PRESSURE SWITCH ASSEMBLY INSTRUCTIONS

To complete the installation, you must connect the power source to the pressure switch. A 30/50 PSI pressure switch has been installed on the pump. The pressure switch allows for automatic operation; the pump starts when pressure drops to the “cut-in” setting (30 PSI pre-set).



To wire the pressure switch:

- Remove the pressure switch cover on the pump to expose the wiring terminals.
- Connect the green ground wire of the power supply to the switch ground terminal.
- Connect the power supply wires to the two outside terminals and replace the switch cover.

SETTING THE VOLTAGE

- This pump is pre-wired at 230 V.
- If the power source is 115 V, remove the electrical housing cover. Flip the switch to 115 V. Replace the cover.

NOTE: All electrical work should be performed by a licensed electrician.

CAUTION!

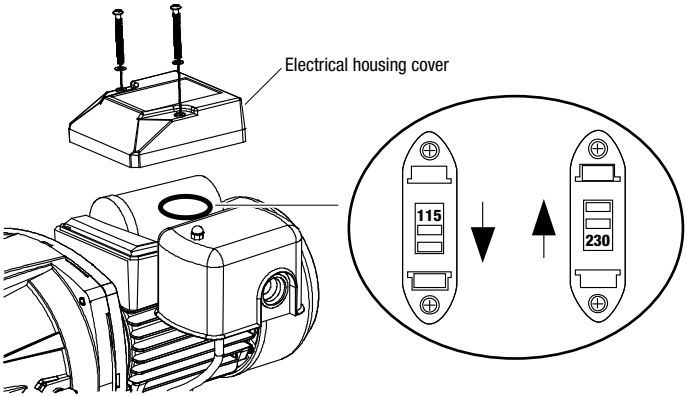
Do NOT use a pressure switch set at a pressure greater than 50 PSI. The pump will not create pressures greater than 50 PSI, so the pump will never shut off, resulting in damage to the pump and voiding the warranty.

WARNING!

It is recommended all electrical work be performed by a licensed electrician.

Before wiring the pressure switch, turn off the power source to which you are connecting to avoid potentially life-threatening electric shock.

When wiring from the power source to the pressure switch, it is recommended that you use either a 14-gauge or 12-gauge cord.



START THE PUMP

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

Congratulations on a successful installation.

If you were unsuccessful, please refer to Troubleshooting or call our customer service technical staff.

DEEP WELL INSTALLATION

MATERIALS REQUIRED (NOT INCLUDED)

One can PVC purple primer and one can PVC cement (read instructions carefully)	One well seal with vent plug
One can thread compound (read instructions carefully)	Foot valve
Non-stick tape	Discharge/priming tee and plug
Rigid pipe	Relief valve
Check valve	Adaptor
Flexible plastic pipe/clamps	Tank
Elbow	Tank tee
Nipple	

REPLACING AN EXISTING PUMP

1. Drain and remove the old pump and the ejector in the well. Check pipe for scale, lime, rust, etc., and replace it if necessary.
   Your old ejector (in the well) can't be properly matched to your new pump. You must use the ejector included with your new pump.
2. Refer the following instructions to finish the new pump installation.

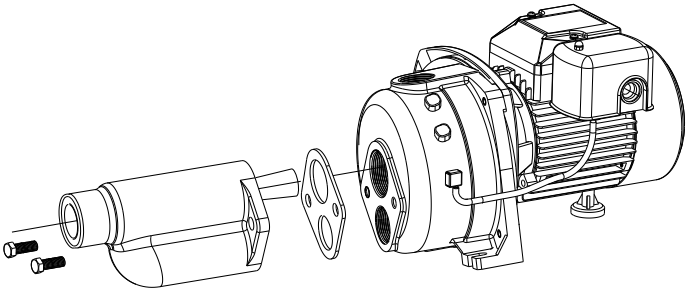
NOTE:
A foot valve is a check valve that is used to keep the water from running back into the well from the pump and maintains hydraulic pressure when the pump is not running. If the foot valve does not hold the water, the pump will lose its prime and will not pump water. If the foot valve open pressure is too high (the spring is too stiff), or the flow area is too small, the pump suction head and flow rate will significantly drop.

CAUTION!
To avoid skin burns, unplug the pump and allow time for it to cool after periods of extended use.

WARNING!
All joints and connections must be AIRTIGHT. A single leak will prevent the proper operation of the pump. Wrap thread tape clockwise on all threaded connections. For all non-threaded connections, you must use PVC purple primer and PVC cement to ensure airtight seals. Measure all pipe lengths before attaching.

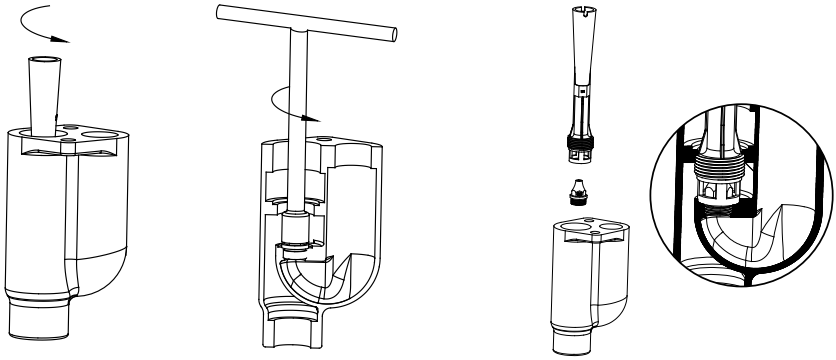
NEW DEEP WELL INSTALLATION
4" (10.2 cm) or Larger Well

1. Remove the pre-assembled ejector first, then remove the pre-assembled nozzle and venturi. Your old ejector (in the well) can't be properly matched to your new pump. You must use the ejector included with your new pump.



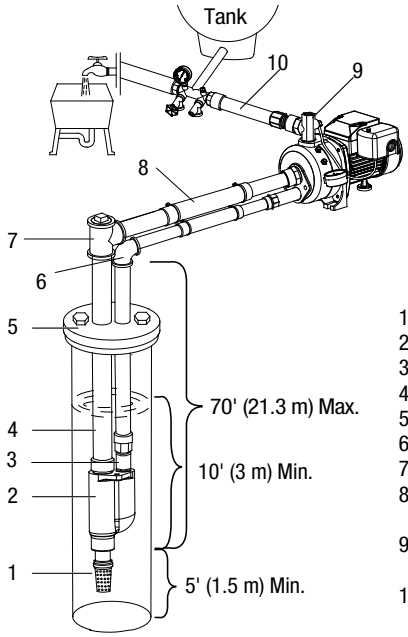
2. Attach the nozzle and venturi to the ejector.

- Wrap the threads of the venturi tube (J32P-18/#11) and the nozzle (#01/52) with thread tape.
- Use the 5/8" (1.6 cm) socket to thread the nozzle (#01/52) in the ejector, then thread the venturi tube (J32P- 18/#11) in the ejector.



3. Mount the pump as close to the well as possible.
4. Connect two pipes [1" (2.5 cm) drive, 1 1/4" (3.2 cm) suction] to the ejector and lower the ejector into the well until it is 5' (1.5 m) from the bottom. It should also be at least 10' (3 m) below the well's water level while the pump is running in order to prevent the pump from sucking air.
5. Install a sanitary well seal and connect the ejector piping to the pump. Use steel nipples through the well seal with flexible plastic pipe to avoid crushing the plastic pipe when tightening the seal.
6. 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 cause an airlock in 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.

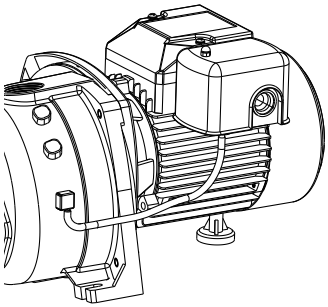
You have just completed the plumbing for your new double pipe deep well jet pump. Please go to priming.



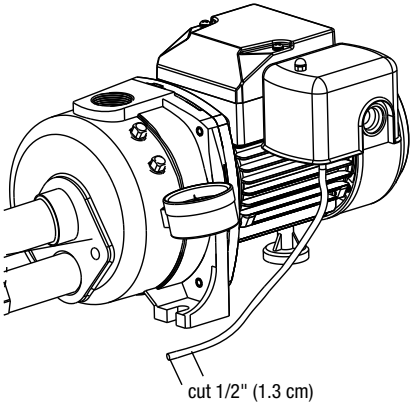
1. Foot valve
2. Ejector (included)
3. Nipple
4. Pipe
5. Well seal
6. Elbow
7. Priming tee and plug
8. Flexible plastic pipe and clamps
9. Pressure regulator (included)
10. Pipe

PRIMING

1. Pull out the pressure tube from the 90° elbow insert. Unthread and remove the elbow insert from the pump body.



2. Wrap the threads of the 1/4” (6 mm) pressure gauge (included) or a 1/4” (6 mm) plug (not included) with thread tape and thread it in the elbow insert hole. Cut off the expanded portion of the pressure tube.



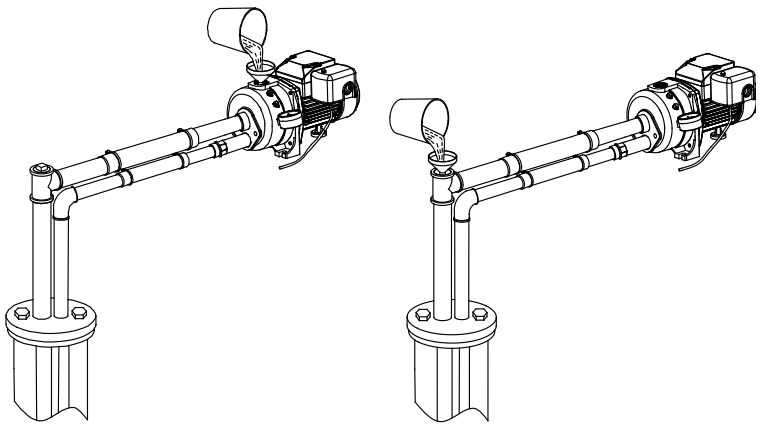
3. Fill the pump through the pump outlet. Fill all piping between the pump and the well, and make sure that all piping in the well is full. If you have also installed a priming tee in the suction piping, remove the plug from the tee and fill the suction piping. Replace all fill plugs.

CAUTION!

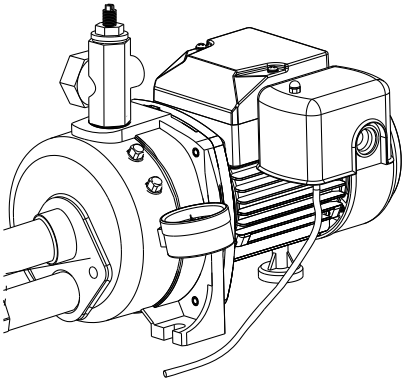
Risk of burns. Never run pump dry. Running pump without water may cause pump to overheat, damaging the seal and possibly causing burns to persons handling pump. Fill pump with water before starting.

WARNING!

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

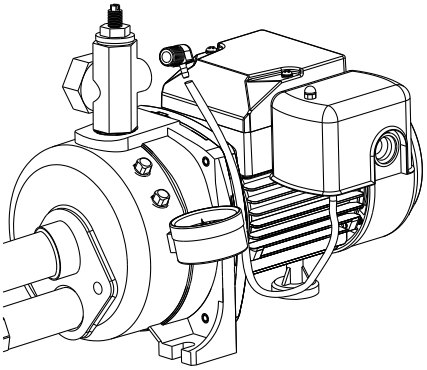


4. Install the pressure regulator (included) into the top of the pump and close the pressure regulator completely.

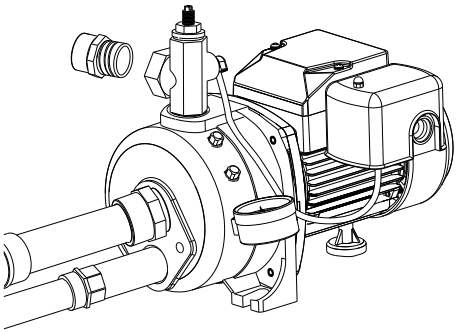


5. Thread the 1/4” (6 mm) elbow insert into the 1/4” (6 mm) hole on the side of the pressure regulator. Slide the pressure tubing (attached with the pump pressure switch or included in regulator kit) over the 1/4” (6 mm) brass elbow and the pressure switch connector.

NOTE:
This pressure regulator is a normally-closed valve installed at the discharge of the pump to provide an obstruction to flow and thereby regulate the pump pressure and provide back pressure for the ejector. Failure to use this item may result in a loss of prime and/or a low pressure.

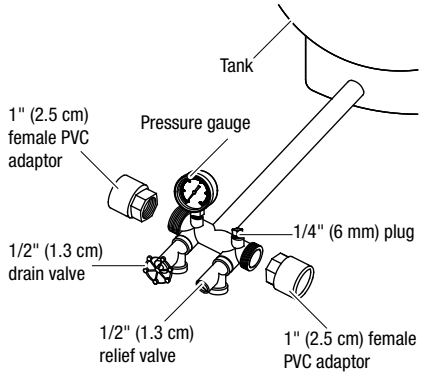


6. Wrap thread tape around the threads of a 3/4" (1.9 cm) MNPT x 1" (2.5 cm) slip PVC adaptor (sold separately), and thread the adaptor in the pressure regulator.

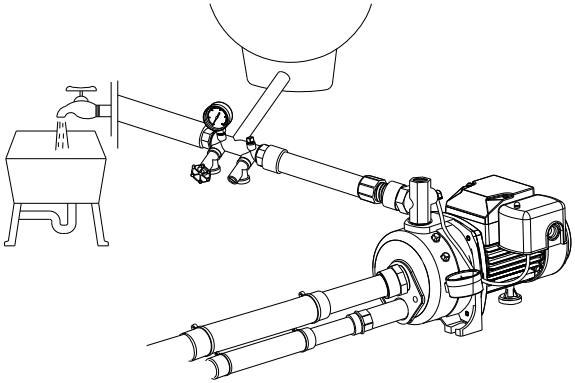


Discharge Pipe and Pressure Tank Connections

- Wrap all threads with thread tape.
- In order for the pump and the pressure tank (sold separately) to operate properly, the pressure tank needs to be drained of all water BEFORE INSTALLING IT TO THE PUMP.
- Thread a 10" (25.4 cm) tank tee (sold separately) or another appropriate sized tee into the pressure tank.
- Plug one outlet on top of the tank tee with a 1/4" (6 mm) plug (sold separately) and install a pressure gauge (sold separately) on the other outlet on top of the tank tee.
- Thread two 1" (2.5 cm) female PVC adaptors (sold separately) onto the two inlet sides of tank tee.
- Thread a 1/2" (1.3 cm) relief valve and a 1/2" (1.3 cm) drain valve (both sold separately) to the front of the tank tee.



- Using PVC purple primer and PVC cement, attach a section of 1” (2.5 cm) PVC pipe (sold separately) as needed to connect the 3/4” (1.9 cm) MNPT x 1” (2.5 cm) slip PVC adaptor in the pressure regulator.
- Attach another section of 1” (2.5 cm) PVC pipe (sold separately) as needed to connect the other 1” (2.5 cm) female PVC adaptor on the tank tee to the water system from the house.



CAUTION!

Do NOT use a pressure switch set at a pressure greater than 50 PSI. The pump will not create pressures greater than 50 PSI, so the pump will never shut off, resulting in damage to the pump and voiding the warranty.

WARNING!

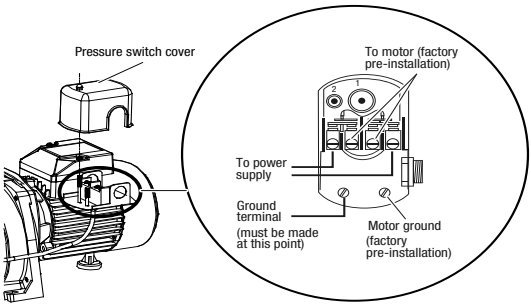
It is recommended all electrical work be performed by a licensed electrician.

Before wiring the pressure switch, turn off the power source to which you are connecting to avoid potentially life-threatening electric shock.

When wiring from the power source to the pressure switch, it is recommended that you use either a 14-gauge or 12-gauge cord.

PRESSURE SWITCH ASSEMBLY INSTRUCTIONS

To complete the installation, you must connect the power source to the pressure switch. A 30/50 PSI pressure switch has been installed on the pump. The pressure switch allows for automatic operation; the pump starts when pressure drops to the "cut-in" setting (30 PSI pre-set).



To wire the pressure switch:

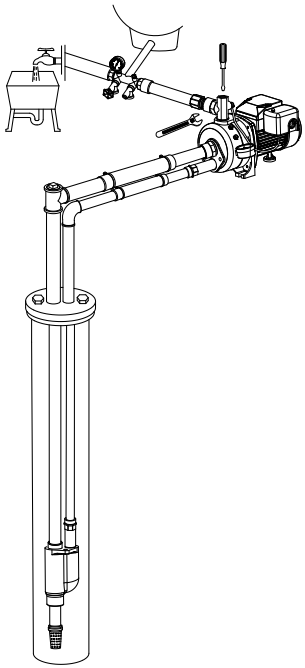
- Remove the pressure switch cover on the pump to expose the wiring terminals.
- Connect the green ground wire of the power supply to the switch ground terminal.
- Connect the power supply wires to the two outside terminals and replace the switch cover.

SETTING THE VOLTAGE

- This pump is pre-wired at 230 V.
- If the power source is 115 V, remove the electrical housing cover. Flip the switch to 115 V. Replace the cover.

START THE PUMP

1. Turn the regulator adjustment screw down tightly.
2. Turn the power on. Start the pump and watch the pressure gauge. The pressure should build rapidly to 50 PSI as the pump primes.
3. After 2 or 3 minutes, the gauge should show pressure. If not, stop the pump, remove the fill plugs, reopen the control valve, and refill the pump and piping. You may have to repeat this two or three times in order to get all the trapped air out of the piping. Don't forget to close the pressure regulator each time before you start the pump.
4. When water pressure has built up and is maintained by the pump, slowly open the pressure regulator while watching the pressure gauge needle. Slowly unscrew the adjusting screw until maximum water flow is obtained without dropping to zero.
   If pressure falls completely, retighten the screw and readjust. If no pressure shows, stop the pump, remove the pressure regulator from pump, add more water, and try again.
5. After the pump has built up pressure in the system and shut off, check the pressure switch operation by opening a faucet or two and running enough water out to bleed off pressure until the pump starts. The pump should start when pressure drops to 30 PSI and stop when pressure reaches 50 PSI. Run the pump through one or two complete cycles to verify correct operation. This will also help clean the system of dirt and scale dislodged during installation.



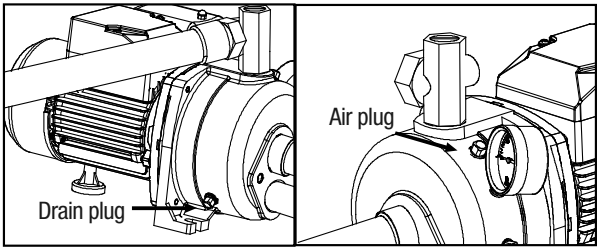
NOTE:

All electrical work should be performed by a licensed electrician.
Before starting the pump, close the pressure regulator completely.

DRAINING THE PUMP

Drain openings are provided on all models. To drain the pump:

- Unplug the pump from power supply outlet.
- Remove drain plug close to the inlet hole and air plug located on the top of the pump close to the outlet hole to vent the piping system.
- Drain all piping to a point below the freeze line. This will drain the pump.



NOTE:
While this will drain the pump, it will not necessarily drain all the unprotected parts of the piping system. To drain tank, disconnect the piping at the tank outlet.

WARNING!
Disconnect power and release all pressure from the system before attempting to install, service, relocate or perform any maintenance.

TROUBLESHOOTING

Problem	Possible Causes	Corrective Action
Pump does not start or run.	The switch is off. There is a blown fuse or tripped breaker. The pressure switch contacts are dirty. The wires at the motor are loose or wired incorrectly.	Turn the power switch on. Replace the fuse or reset the circuit breaker. DISCONNET THE POWER. File or clean the switch contacts. DISCONNECT THE POWER. Follow the wiring instructions to check and tighten the wires.
Pump will not prime.	The pump was primed improperly or air is trapped in the pipe. There is an air leak. The water level is below the suction pipe inlet. The foot valve is plugged or leaks.	DISCONNECT THE POWER. Adjust pump height and make the pipe slope down to the well. Remove the discharge tee and re-prime. Check all connections and fix the leakage. Lower the suction pipe. If the water level is more than 25' (7.6 m), use deep well installation. Clean or replace the foot valve.
Pump operates but pumps little or no water.	The foot valve is buried in sand or mud. The ejector or impeller is plugged. The foot valve or inlet strainer is clogged. The water level is below the maximum lift specification. The voltage is not correct. The pressure regulator is not set up correctly.	Lift the suction pipe. Clean the ejector or impeller. Clean or replace as necessary. Select a convertible jet pump. Check the voltage switch. Readjust the pressure regulator.
Pump starts and stops too often.	The tank was pre-charged incorrectly. There is a ruptured diaphragm/ bladder (pre-charged tank)/or has no air cushion. The pipes are leaking. The foot valve leaks. The pressure switch is not adjusted correctly.	Add or release air as needed. Replace the tank/refill the air. Repair the pipe connections or replace the pipes. Repair or replace the foot valve. Closely look at the pressure gauge to see the pump On/Off points are around 30 PSI/50 PSI. If not, adjust or replace the pressure switch.

Problem	Possible Causes	Corrective Action
Pump starts and stops too often.	The air charge is too low in the pre-charged tank.	DISCONNECT POWER and open faucets until all pressure is relieved. Using tire pressure gauge, check air pressure in the tank at the valve stem located on the tank. If less than pressure switch cut-in setting (30 PSI), pump air into the tank from an outside source until air pressure is 2 PSI less than the cut-in setting of the switch. Check the air valve for leaks (use soapy solution) and replace core if necessary.
Pump does not shut off.	Water level is lower than estimated. The pipes leak. The pressure switch is not set correctly.	Use a deep well installation. Locate and repair the leak or reconnect. Reset or replace the pressure switch.

This Mastercraft product is guaranteed for a period of **three (3) years** from the date of original retail purchase, against defects in materials and workmanship.

Subject to the conditions and limitations described below, this product, if returned to us with proof of purchase within the stated warranty period and if covered under this warranty, will be repaired or replaced (with the same model, or one of equal value or specification), at our option. We will bear the cost of any repair or replacement and any costs of labour relating thereto.

These warranties are subject to the following conditions and limitations :

a. a bill of sale verifying the purchase and purchase date must be provided;

b. this warranty will not apply to any product or part thereof which is worn or broken or which has become inoperative due to abuse, misuse, accidental damage, neglect or lack of proper installation, operation or maintenance (as outlined in the applicable owner's manual or operating instructions) or which is being used for industrial, professional, commercial or rental purposes;

c. this warranty will not apply to normal wear and tear or to expendable parts or accessories that may be supplied with the product which are expected to become inoperative or unusable after a reasonable period of use;

d. this warranty will not apply to routine maintenance and consumable items such as, but not limited to, lubricants, fluids, tune-ups or adjustments;

e. this warranty will not apply where damage is caused by repairs made or attempted by others (i.e., persons not authorized by the manufacturer);

f. this warranty will not apply to any product that was sold to the original purchaser as a reconditioned or refurbished product (unless otherwise specified in writing);

g. this warranty will not apply to any product or part thereof if any part from another manufacturer is installed therein or any repairs or alterations have been made or attempted by unauthorized persons;

h. this warranty will not apply to normal deterioration of the exterior finish, such as, but not limited to, scratches, dents, paint chips, or to any corrosion or discolouring by heat, abrasive and chemical cleaners; and

i. this warranty will not apply to component parts sold by and identified as the product of another company, which shall be covered under the product manufacturer's warranty, if any.

Additional Limitations

This warranty applies only to the original purchaser and may not be transferred. Neither the retailer not the manufacturer shall be liable for any other expense, loss or damage, including, without limitation, any indirect, incidental, consequential or exemplary damages arising in connection with the sale, use or inability to use this product.

Notice to Consumer

This warranty gives you specific legal rights, and you may have other rights, which may vary from province to province. The provisions contained in this warranty are not intended to limit, modify, take away from, disclaim or exclude any statutory warranties set forth in any applicable provincial or federal legislation.

Made in China

Imported for
Mastercraft Canada Toronto, Canada M4S 2B8