



# INSTALLATION OF THE HAND-OPERATED SUCTION PUMP (WALL MOUNT INLINE TO SUBMERSIBLE/JET PUMP)

LAST UPDATED: March 3, 2021

Read each section carefully before proceeding and follow the instructions step by step.

## CRITICAL INSTALLATION REMINDERS

**1. DO NOT USE ANY KIND OF LIQUID SEALANT/PIPE DOPE**

This can interfere with piston operation. See page X.

**2. THE SUCTION PUMP IS NOT FREEZE PROOF**

**3. MAKE SURE SUCTION PUMP IS FIRMLY MOUNTED**

You will need to make sure the mounting shelf is tied into either wall studs or a concrete wall as the mount will experience side to side torque during pumping.

**4. MAKE SURE THE SUCTION PUMP MOUNT IS LEVEL**

The ball and seat design of the piston requires that the pump be vertically level.

**5. PAY CAREFUL ATTENTION TO EVERYTHING MARKED**



for Warning,



for Caution, and \*\*\* for Note.

**6. IF YOU ARE A HOMEOWNER AND ARE TYING INTO YOUR SUBMERSIBLE LINE WE RECOMMEND THE ASSISTANCE OF A PROFESSIONAL.**

**7. DISCONNECT THE ELECTRICITY FROM THE SUBMERSIBLE OR JET PUMP PRIOR TO SUCTION PUMP INSTALLATION.**

(The following instructions are very detailed and should tell you everything you need to know. If you have questions, please phone 1.877.492.8711 ext. 5)

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## SECTION 1: INTRODUCTION / PARTS SHIPPED / TOOLS REQUIRED

Thank you for purchasing the Suction Pump style Simple Pump Hand Pump. Please carefully read through these instructions. Your time will be well spent.

Please note that there are limits to the depth any suction pump can lift water from. The Simple Pump can pull water from a maximum depth of 25' at sea level and reduces by about 1' for every 900' increase in altitude. For example, if you are located at 4500' altitude you will only be able to lift from 20'.

Please note that the limit of 25' at sea level includes ALL of the vertical distance you are lifting the water. As you are not installing on the well head, you will need to account for the elevation difference between where you measured your water level and where the bottom of the suction pump sits. For example, if your well head is 5' lower than where you are mounting the pump in the basement you need to account for that extra 5' in the total distance you are lifting the water. If your water level at the well head was 13', you are actually lifting the water 18' against the 25' limit.

You will receive your Simple Pump partially assembled. The following section lists the different types of assemblies that you will likely receive. Compare the description to the packing list included with your shipment. The following are the core components. There may be other components on your quote that are not shown here.

### **SUCTION PUMP HEAD ASSEMBLY (PHA-2-S)**

**Suction Pump Head Assembly** – Includes Riser Tube, Pump Head, Pump Rod, Short Piston Rod, Piston, Bottom Check Valve, and Rod Gland.



**Lever Link Arm Bracket Assembly** – Pre-assembled brackets and hardware ready to attach to Lever Arm and Pump Head.



**LEVER ARM (24LA or 36LA)**

**24LA or 36LA** – Pre-assembled with Clevis, Clevis Pin, and Brass shims.



**MOUNTING PLATE**

**Simple Pump Machined Mounting Plate –**

These are fully machined by Simple Pump and provide a solid base to mount the Simple Pump. It comes with the Split Flange already attached, which is used to hold the pump.



**ACCESSORIES ALSO POSSIBLY SHIPPED**

**Seal Kit** – For first maintenance, 3-10 years after installation. SK125CA shown below.



**Check Valve with Pressure Gauge** – For pumping into your home’s pressure tank or uphill.



## **TOOLS AND MATERIALS REQUIRED**

- One (1) Allen Wrench set (English, not metric; 1/4", 3/16")
- Two (2) Channel Lock Pliers large enough to grip 1 3/4" outer diameter pipe
- One (1) Crescent Wrench
- Roll of Teflon tape (Provided)
- Bleach/Water – 1-part bleach to 20 parts water in a 5-gallon bucket

## SECTION 2: DO IT YOURSELF, OR CALL A PROFESSIONAL?

### **INTRODUCTION:**

**As we have no understanding of your ability to perform plumbing or carpentry work, we suggest that you read these instructions thoroughly before making the decision on whether to complete this installation yourself or have a professional do it. Below is a summary of the work that needs to be completed.**

### **Plumbing Tasks:**

1. Tie into the water line coming from your submersible or jet pump. For a submersible pump, tie into this line before your pressure tank (see the Schematic for Submersible Pump). For a jet pump, tie into this line before the jet pump (see the Schematic for Jet Pump).
2. Add one or more ball valves and potentially a check valve to this new plumbing.

### **Carpentry Tasks:**

1. Build a shelf that can handle the forces and torque created when pumping the pump.
2. Attach the shelf securely to the wall. If there are studs in the wall, you will need to make sure the shelf is secured to the studs. If it is a concrete/brick wall, you will need to secure the shelf to the wall using concrete specific fasteners.

### **Mechanical Tasks:**

While the pump will arrive mostly assembled, some basic assembly is required to complete the installation. This includes threading and tightening bolts, inserting clevis pins and connecting threaded fittings.

## SECTION 3: INSTALLATION PREPARATION

### \*\*\* CLEANING PARTS

Using a dilute (20:1) bleach solution, clean the inside of all plumbing materials and the inside of the suction pump head assembly. Take care to remove any remaining solution, debris, dirt, etc. After cleaning, place them where they will not be contaminated prior to installation.

## SECTION 4: BUILDING THE PUMP MOUNT

### INTRODUCTION:

This section explains how the pump needs to be mounted and includes pictures of an example mount.

### SECTION 4.1: BUILDING THE SHELF

The most practical way to mount the pump is using a shelf that it mounted to the wall. This will provide a secure way of mounting and will take up the least amount of space. We suggest that the shelf be a minimum of 20" long and 9" wide. The length allows you to mount the shelf across two wall studs, and the width provides a large enough base to mount the mounting plate to. Below are several pictures showing an example of a shelf used for this application. Any material can be used as long as it is strong and rigid.



## SECTION 4.2: INSTALLING THE SHELF

The location of the shelf is important.

Make sure of two main things.

1. First, there is enough space that you can actuate the handle as well as pump comfortably.
2. Second, that your plumbing can be run to the actual location of the pump.

Dimensions you need to keep in mind when considering the space required for the shelf:

1. The shelf height.

When considering height, know that the pump head assembly's riser tube is about 2 feet long. You will need to make sure that half of the riser tube is below the shelf and half is above. This means that when setting the height of the shelf, you will need to account for the plumbing coming up from the submersible line as well as 12-15" of the pump head assembly.

2. The space above the shelf.

When considering the space above the shelf, know that when 12" of riser tube is above the shelf you will need 42" above the shelf for the 24" lever arm and 54" above for the 36" lever arm in order to perform a complete stroke of the lever arm.

3. The spaces to the left and right of the shelf.

When considering the space to the left and right, keep in mind you can orient the pump for the water to exit to the left or to the right simply by rotating the pump head 180 degrees. Based on which direction you point the output of the pump head, the other side will require 25" of space to perform a full stroke of the 24" lever arm and 37" of space to perform a full stroke of the 36" lever arm. Reference the pictures for an example. NOTE: In the pictures the 24" lever arm was used.



When considering the plumbing, keep in mind that in the event you need to use your hand pump you will be spending some time pumping where it is installed.

1. If possible, run your plumbing along the wall or walls to reduce any potential damage done by walking on or over your plumbing. Spend the extra time to keep the plumbing clean and out of the way.
2. We also suggest that you place a union just below the check valve on the Suction Pump. When maintenance needs to be done on the pump, this union makes it simple to remove and perform the maintenance. Reference the picture below for an example.





## SECTION 5: PLUMBING

### INTRODUCTION:

This section explains the plumbing required to install the Suction Pump such that you can either get water directly from the pump outlet, or connect it to your pressure tank for full use of your home plumbing fixtures.

 **CAUTION: MAKE SURE TO DISCONNECT THE POWER TO YOUR ELECTRIC PUMP WHEN DOING ANY PLUMBING WORK. ALSO BE PREPARED FOR WATER IN YOUR WATER LINE.**

### SECTION 5.1: PLUMBING (PRESSURE TANK HOOKUP OR AT PUMP)

The most flexible way to setup the plumbing will allow for getting water at the pump head or easily pumping into your pressure tank. Most pressure tanks are installed with a spigot right before the input of the water line to the pressure tank. In this configuration we will utilize a short hose to connect the output of the pump to that spigot. If that spigot does not exist it can easily be added. By using a hose to connect to the spigot you can either direct the hose into a bucket to get water easily at the pump head or direct it to the pressure tanks. **Reference Figure 1 if you have a Submersible Pump or Figure 2 if you have a Jet Pump.**

#### PLUMBING PUMP INPUT

1. Find the closest point on the submersible line to where you are going to mount your pump, making sure it is before the pressure tank. You will add a Tee at this location. See Figure 1.2/2.2
2. If a ball valve does not exist between the Tee from Step 1 and the Pressure Tank or Jet Pump one will need to be installed. See Figure 1.3/2.3
3. Above the Tee, before you add the plumbing to connect to your hand pump, you add a ball valve. If the hand pump is not in use this ball valve will be closed. This ensures the water is routed through the same path as normal when the hand pump is not needed. See Figure 1.4/2.4
4. From the ball valve, run the plumbing to about six (6) inches below the bottom of the hand pump.
5. We recommend that you add a union in the plumbing just below the check valve on the bottom of the pump. Leaving six (6) inches between the ball valve and the bottom of the pump allows room for this. The union will make it easier for you to do maintenance on the pump. Reference schematics on the following pages. See Figure 1.5/2.5

#### PLUMBING PUMP OUTPUT

This part is simple.

1. Connect a drinking water safe hose to the end of the check valve and gauge kit provided.
2. Connect the other end of the hose to the spigot near the input of the pressure tank. We suggest you only connect the hose when the hand pump is needed. We also suggest that you remove and drain the hose after use. See Figure 1.6/2.6

FIGURE 1: SCHEMATIC FOR SUBMERSIBLE PUMP



## Suction Pump Installation Schematic (Submersible Pump)

**PROCEED AT YOUR OWN RISK. THIS INSTALLATION REQUIRES PLUMBING MODIFICATIONS. DO NOT ATTEMPT TO MAKE THESE CHANGES UNLESS YOU ARE EXPERIENCED WITH PLUMBING. MAKE SURE TO READ THE FULL SET OF INSTRUCTIONS BEFORE STARTING THE INSTALLATION.**

Below is a list of items that you will need to build or add to the plumbing in order to complete this installation. Note: Make sure the fittings (Tee, Ball Valve, Union) selected can handle up to 100 PSI.

- 1 Build and mount shelf to the wall, making sure it is secure.
- 2 Add a Tee off of the main line from the well to the Pressure Tank
- 3 Add a Ball Valve between the Tee and the Pressure Tank
- 4 Add a Ball Valve between the Tee and the Suction Pump
- 5 Add a Union between the Ball Valve and the Suction Pump, this will make maintenance simpler.
- 6 Typically there is a spigot installed on the home plumbing line near the Pressure Tank. If not, one will need to be added

Note: When using a Ball Valve, it is typically OPEN when the lever is parallel to the piping and typically CLOSED when the lever is perpendicular to the piping.

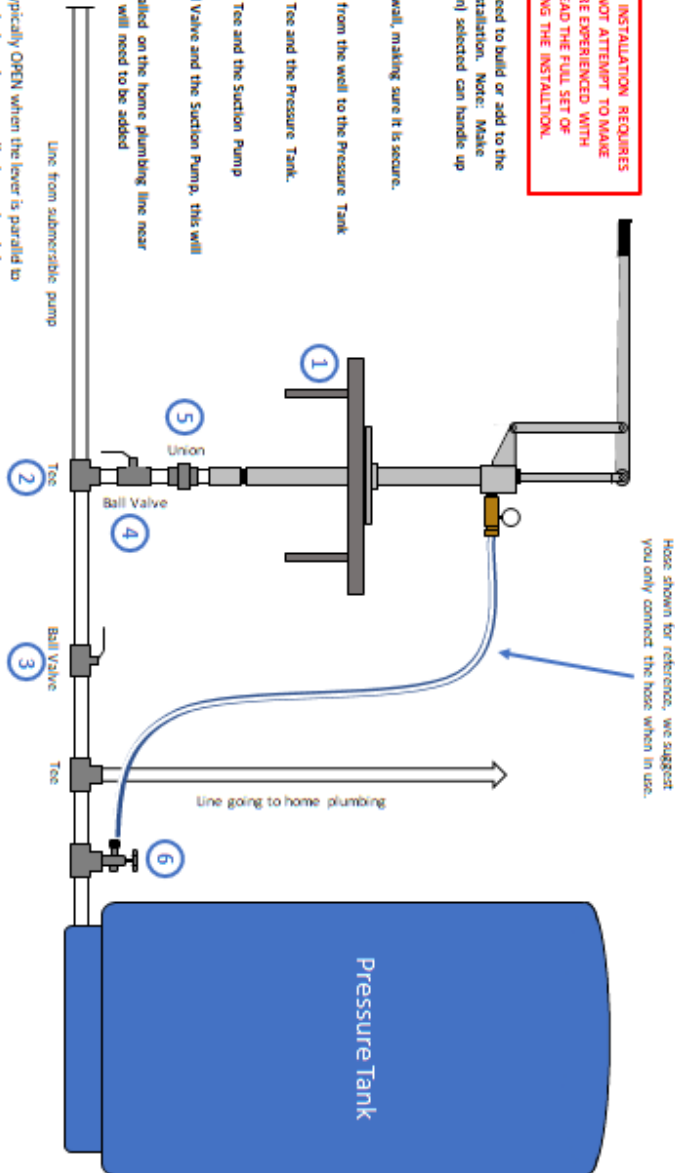


FIGURE 2: SCHEMATIC FOR JET PUMP



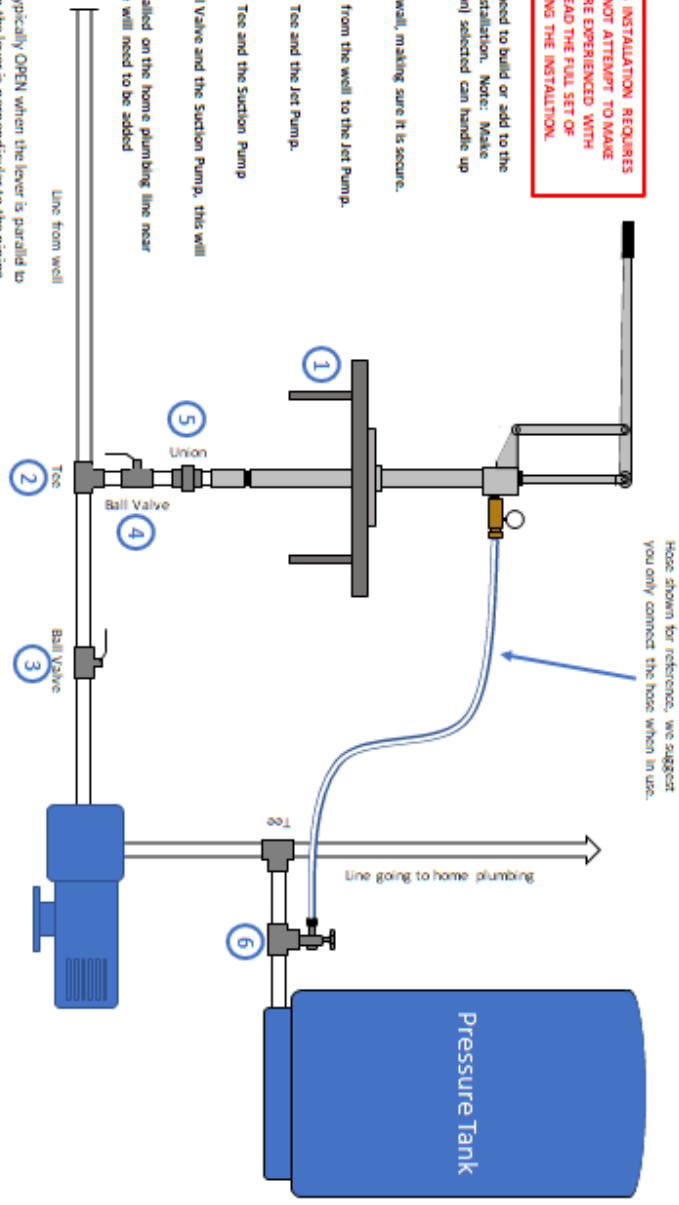
### Suction Pump Installation Schematic (Jet Pump)

**PROCEED AT YOUR OWN RISK. THIS INSTALLATION REQUIRES PLUMBING MODIFICATIONS. DO NOT ATTEMPT TO MAKE THESE CHANGES UNLESS YOU ARE EXPERIENCED WITH PLUMBING. MAKE SURE TO READ THE FULL SET OF INSTRUCTIONS BEFORE STARTING THE INSTALLATION.**

Below is a list of items that you will need to build or add to the plumbing in order to complete this installation. Note: Make sure the fittings (Tee, Ball Valve, Union) selected can handle up to 100 PSI.

- 1 Build and mount shelf to the wall, making sure it is secure.
- 2 Add a Tee off of the main line from the well to the Jet Pump.
- 3 Add a Ball Valve between the Tee and the Jet Pump.
- 4 Add a Ball Valve between the Tee and the Suction Pump
- 5 Add a Union between the Ball Valve and the Suction Pump, this will make maintenance simpler.
- 6 Typically there is a spigot installed on the home plumbing line near the Pressure Tank. If not, one will need to be added

Note: When using a Ball Valve, it is typically OPEN when the lever is parallel to the piping and typically CLOSED when the lever is perpendicular to the piping.



## SECTION 6: PUMP HEAD ASSEMBLY INSTALLATION

### INTRODUCTION:

This section explains the process of mounting your pump and performing the final connection to your plumbing.

### MOUNTING THE PUMP ON A SPLIT FLANGE

You are now going to mount your pump on the mounting shelf that has been securely attached to the wall. Before you start, make sure that the pinch bolt on the split flange as well as the three bolts on top are loose.

1. Insert the bottom of the pump, where the check valve is, through the split flange in the middle of the mounting plate.



2. Lower the pump to the point where half of the riser tube is below and half is above the split flange. This should leave about twelve inches above and below the split flange. This middle point is critical to distribute the forces and torque properly during pumping.
3. Once you have this position look at the orientation of the pump head outlet. Turn the pump head outlet to be in the direction desired based on your mount design.
4. Once it is oriented correctly, tighten the pinch bolt on the side of the split flange very tight.



## PLUMBING CONNECTION

1. Complete the connection from above the ball valve to the bottom of the check valve on the pump. We suggest using a union here to make maintenance of the pump easier. The distance between the ball valve and the bottom of the check valve will likely be a bit different for each installation due to different shelf heights. When adding the union try and get the two pieces of the union as close as possible to each other.
2. If required, you can lift or lower the pump a little bit to complete the connection. This can be done as above by loosening the side pinch bolt on the split flange. Once the connection of the union is made, tighten the side pinch bolt on the split flange, then tighten the three bolts on the top of the split flange.
3. Once this portion of plumbing is done you have completed the input portion of your plumbing!



## SECTION 7: PUMP HANDLE INSTALLATION

### ATTACH THE LEVER ARM TO ITS BRACKET

The 24" or 36" lever arms are supplied partially pre-assembled. We assemble the clevis to the lever arm using two brass shims and the clevis pin. We also assemble the lever bracket to the lever link arm using two brass shims and the clevis pin. This is called the Lever Link Arm Bracket Assembly.

1. Put these two assemblies together before attempting to attach them to the pump head. Placing them on a flat surface will make this step easier.




2. Introduce the first shim between the two mating parts (above right). Use a small screwdriver, or Allen wrench, to reach inside, centering the shim (below right).
3. Then push the clevis pin through partway (below left).



4. Flip the partially connected assemblies over, gently push back the pin out just a bit (not shown). This will give you the clearance to install the second brass shim. As with the first side, use a small screwdriver or Allen wrench to center the shim.
5. Then, press down **on the assembly** (not the clevis pin) so the surface you are on pushes the head of the clevis pin all the way through, upward toward you (not shown).

### **ATTACH THE HANDLE ASSEMBLY TO THE PUMP HEAD**

1. Bring the clevis into position above the 3/4" stainless-steel pump rod.
2. You will be threading stainless-steel into aluminum. Dissimilar metal corrosion is possible, as one might see with an aluminum engine block, with special hardened-steel head bolts. To prevent this, use Permatex Anti-Seize Compound/Lubricant on all threaded connections where a stainless-steel fastener is threaded into aluminum threads.
3. Thread into position (below left).

 **CAUTION: THE THREADS ARE LEFT-HAND THREADS. TIGHTEN BY GOING COUNTERCLOCKWISE, NOT CLOCKWISE.**

4. Bring the lever bracket into position (below right). You should have to lift the pump rod in order to get the holes to align correctly (below right).
5. Secure the four long cap screws using an Allen wrench.





## SECTION 8: PUMPING WATER

### PUMPING INTO PRESSURE

To pump to your home's pressure tank, uphill, or very long distance in a hose you will need to install the check valve (below). We recommend pumping your pressure tank to about 45 psi, do not exceed 50 psi as it could damage your pressure tank. Use the provided gauge to monitor the pressure levels.

### GETTING THE DIRECTION RIGHT

The check valve body has an arrow showing the direction of water flow. This must always be pointing away from the pump head.

The small plug goes in the port nearest to the pump. The pressure gauge goes in the port furthest from the pump.

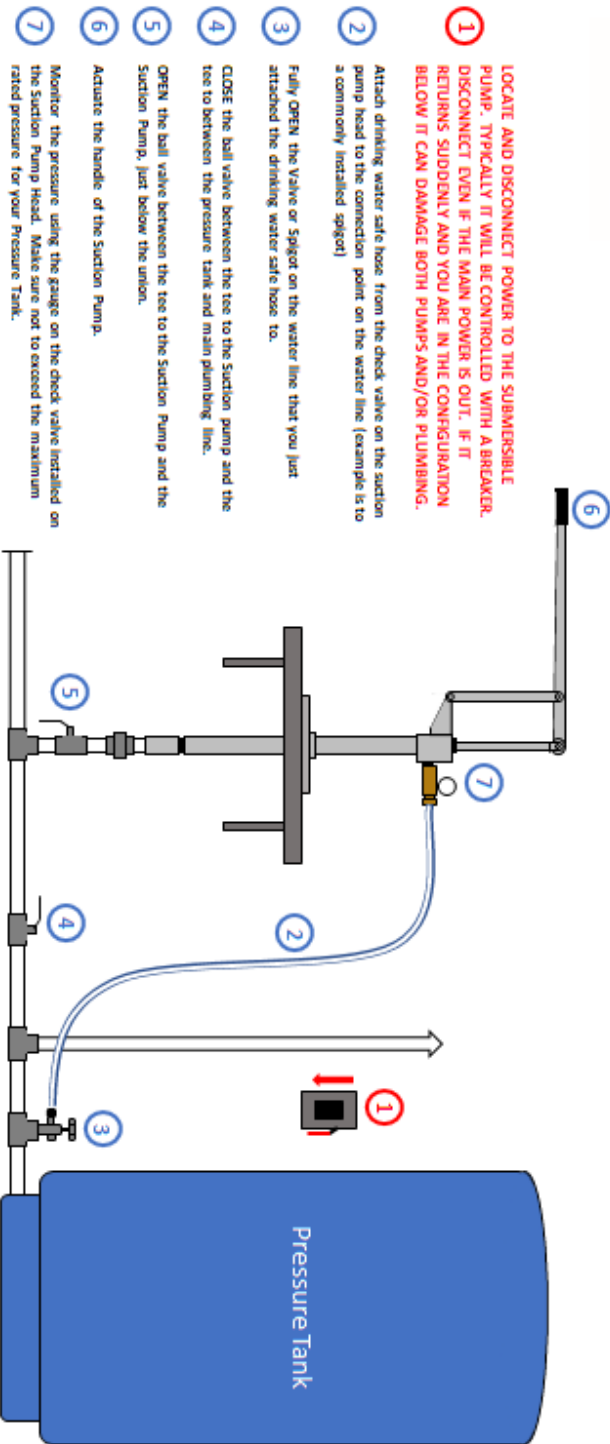
**You may want to purge the air in the connecting hose or pipe**, before the water reaches your pressure tank. Air will not cause any harm to your tank. It will just cause some spluttering at your taps when the water in the tank gets low. You can pump with the house end of the hose/pipe disconnected until water starts to flow, then connect.



FIGURE 3: SUCTION PUMP STARTUP GUIDE (SUBMERSIBLE)



### Suction Pump Startup Guide (Submersible Pump)



**1** LOCATE AND DISCONNECT POWER TO THE SUBMERSIBLE PUMP. TYPICALLY IT WILL BE CONTROLLED WITH A BREAKER. DISCONNECT EVEN IF THE MAIN POWER IS OUT. IF IT RETURNS SUDDENLY AND YOU ARE IN THE CONFIGURATION BELOW IT CAN DAMAGE BOTH PUMPS AND/OR PLUMBING.

**2** Attach drinking water safe hose from the check valve on the suction pump head to the connection point on the water line (example is to a commonly installed spigot)

**3** Fully OPEN the Valve or Spigot on the water line that you just attached the drinking water safe hose to.

**4** CLOSE the ball valve between the tee to the Suction pump and the tee to between the pressure tank and main plumbing line.

**5** OPEN the ball valve between the tee to the Suction Pump and the Suction Pump, just below the union.

**6** Actuate the handle of the Suction Pump.

**7** Monitor the pressure using the gauge on the check valve installed on the Suction Pump Head. Make sure not to exceed the maximum rated pressure for your Pressure Tank.

**Note:** When using a Ball Valve, it is typically OPEN when the lever is parallel to the piping and typically CLOSED when the lever is perpendicular to the piping.

FIGURE 4: SUCTION PUMP STARTUP GUIDE (JET PUMP)



### Suction Pump Startup Guide - (Jet Pump)

- 1 **LOCATE AND DISCONNECT POWER TO THE JET PUMP. TYPICALLY IT WILL BE CONTROLLED WITH A BREAKER. DISCONNECT EVEN IF THE MAIN POWER IS OUT. IF IT RETURNS SUDDENLY AND YOU ARE IN THE CONFIGURATION BELOW IT CAN DAMAGE BOTH PUMPS AND/OR PLUMBING.**
- 2 **Attach drinking water safe hose from the check valve on the suction pump head to the connection point on the water line (example is to a commonly installed spigot)**
- 3 **Fully OPEN the Valve or Spigot on the water line that you just attached the drinking water safe hose to.**
- 4 **CLOSE the ball valve between the tee to the Suction Pump and Jet Pump.**
- 5 **OPEN the ball valve between the tee to the Suction Pump and the Suction Pump, just below the union.**
- 6 **Actuate the handle of the Suction Pump.**
- 7 **Monitor the pressure using the gauge on the check valve installed on the Suction Pump Head. Make sure not to exceed the maximum rated pressure for your Pressure Tank.**

**Note:** When using a Ball Valve, it is typically OPEN when the lever is parallel to the piping and typically CLOSED when the lever is perpendicular to the piping.

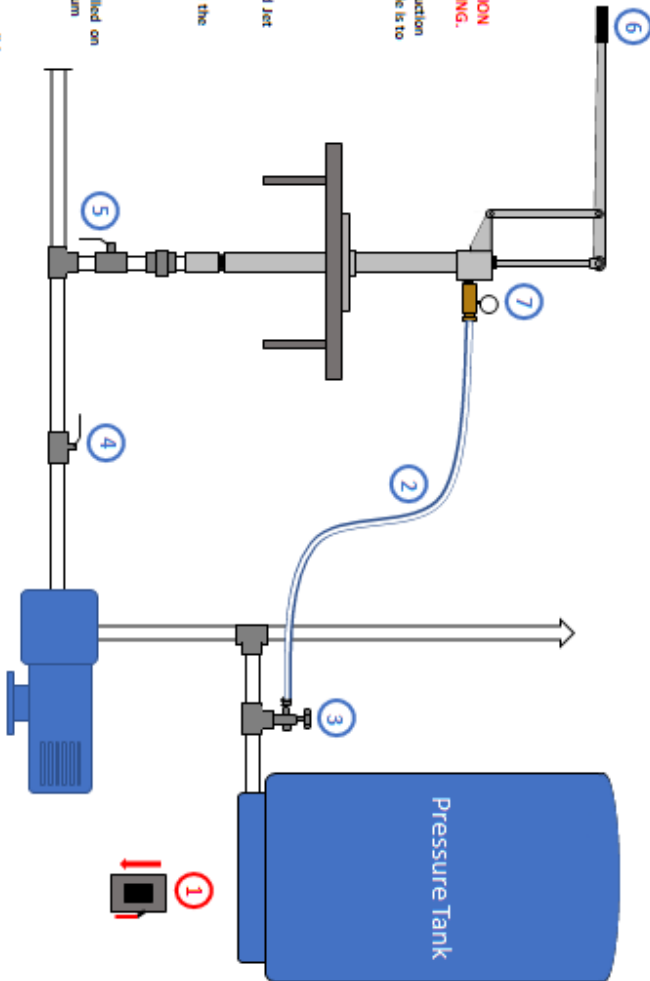
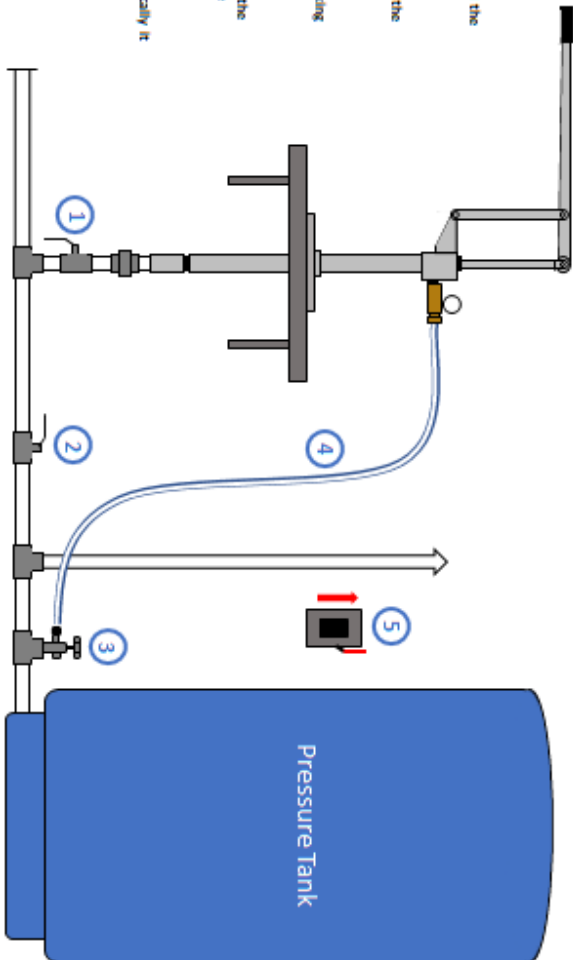


FIGURE 5: SUCTION PUMP SHUTDOWN GUIDE (SUBMERSIBLE)



### Suction Pump Shutdown Guide (Submersible Pump)

- 1 CLOSE the ball valve between the tee to the Suction Pump and the Suction Pump, just below the union.
- 2 OPEN the ball valve between the tee to the Suction pump and the tee to between the pressure tank and main plumbing line.
- 3 Fully CLOSE the Valve or Spigot on the water line that the drinking water safe hose is connected to.
- 4 Remove the drinking water safe hose from the check valve on the suction pump head and the connection point on the water line (example is to a commonly installed spigot)
- 5 Locate and connect the power to the Submersible Pump. Typically it will be controlled with a breaker.



Note: When using a Ball Valve, it is typically OPEN when the lever is parallel to the piping and typically CLOSED when the lever is perpendicular to the piping.

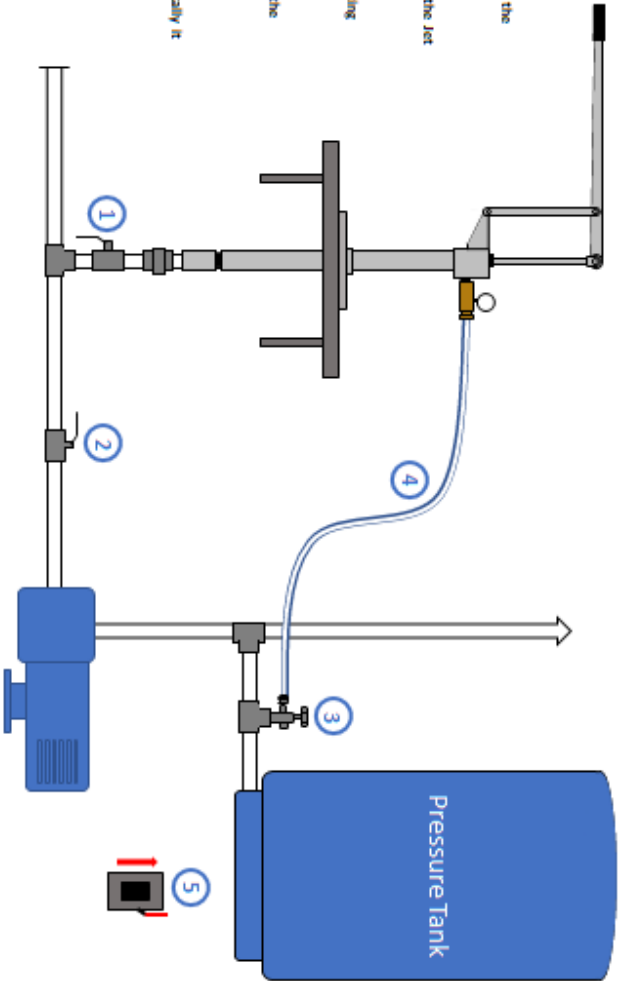
FIGURE 6: SUCTION PUMP SHUTDOWN GUIDE (JET PUMP)



### Suction Pump Shutdown Guide - (Jet Pump)

- 1 CLOSE the ball valve between the tee to the Suction Pump and the Suction Pump, just below the union.
- 2 OPEN the ball valve between the tee to the Suction pump and the Jet Pump.
- 3 Fully CLOSE the Valve or Spigot on the water line that the drinking water safe hose is connected to.
- 4 Remove the drinking water safe hose from the check valve on the suction pump head and the connection point on the water line (example is to a commonly installed spigot)
- 5 Locate and connect the power to the Submersible Pump. Typically it will be controlled with a breaker.

Note: When using a Ball Valve, it is typically OPEN when the lever is parallel to the piping and typically CLOSED when the lever is perpendicular to the piping.



## SECTION 13: ADDITIONAL IMPORTANT INFORMATION

### **OCCASIONAL PUMPING**

If your water has a high suspended solids content or high minerals content, deposits could accumulate on internal parts resulting in the pump not working properly. Work the pump every month or two for a few minutes to prevent deposits from forming. We suggest using the pump every month or two regardless of content to keep the seals soft.