

Emergency Hand Pump Install Guide

Your emergency hand pump is able to install into your well along side the submersible pump for emergency pumping by hand. You will need the following tools to install your emergency hand pump.

A Set of English Allen Wrenches. The Safety Tool which is a fork-shaped tool, that comes with your emergency hand pump. This helps to support the drop pipe at the bell to keep it from falling into the well. You will also need 2 channel locks to grip the 1-3/4" OD PVC Pipe. 2 vise grips for tightening, a roll of teflon tape or pipe dope. You will also want a Bleach and Water mixture made up of 1 part Bleach to 24 parts water. You will also want wire cutters and strippers for changing from a normal well seal to our special emergency hand pump well cover, which you install your emergency hand pump through along side the pipe coming up from your submersible pump.

Most people can install this emergency hand pump with the help of one additional person. If you feel that this is a challenge, you may want to have a professional install it for you.

If you have your submersible pump discharging out of the well through the well seal, you will need to use care to lift the pipe up and place a holding tool onto the pipe to secure it so it will not drop into the well. Now you remove the well seal and place the emergency hand pump well cap over the submersible pump pipe.

BEWARE, the pipe may be real heavy, and if you do not have adequate tools to handle the weight, you could drop the pump into the bottom of the well. Before trying to do this, get information about how deep the pump is set. If this sounds like a challenge, you may want to have a professional change out the well seal and place the emergency hand pump well cap in place. Then after the well cap is supporting the submersible pump and pipe, you will be able to install the emergency hand pump.

If your submersible pump discharges out of the well below ground, you have a pitless adapter. As long as your well casing is large enough to allow a piece of pipe with a 1" coupling on it, to pass by the pitless adapter, you will be able to change out your well cap and replace it with the emergency hand pump well cap. Once this is done, you can proceed to install the emergency hand pump. During the well cap change, you will need to **TURN OFF THE ELECTRICAL POWER TO YOUR SUBMERSIBLE PUMP.** You will need to separate the pump wire from the electrical wire coming from the power source to your well, and route it through the new emergency hand pump well cap. This may require you to install flexible conduit for the wire to go through to your splice box where you will reconnect to the power source. Make sure you do not have excess wire bunched up in the well casing under the cap. Also make sure you have a clear unobstructed passage down to the water. Your emergency hand pump will install in the well down into the water, above your submersible pump, which may be 20' to 100' below the emergency hand pump.

Examine the electrical wire for splice connections under the well cap. Usually they will be wire nuts taped over with electrical tape. They may be spliced together with crimp connections and taped over. **CHECK AGAIN THAT YOUR ELECTRICAL POWER IS TURNED OFF.** Separate the wire connections and route the wires through the 1" pipe size hole in the emergency hand pump well cap. You will probably have 3 or 4 wires. Note the colors, as these have to be reconnected to the same colors when spliced back together. Secure some twine to the wires, so they will not slip back into the well, and drop.

Be sure the well casing is smooth and clear of any slag from torch cutting off the pipe. If necessary, use a file and remove the rough edges. Now that you have the wires through the cover, slide the well cover down over the casing and secure it to the casing with the four outer set screws, using the Allen wrenches.

Once the power wires are reconnected to the same color wires, you are ready to return the power to your submersible pump, and make certain that the pump works as normal. The emergency hand pump can now be installed through the split flange on the well cap.

Once you have the well cap changed, the hard work is behind you. Now you will start the process of installing the drop pipes and rods that will connect your pumping cylinder to the pumping head.

Now we are ready to start installing the string of pipe and rods, into the well. **IT IS EXTREMELY EASY TO DROP THE ENTIRE STRING OF PIPE INTO THE BOTTOM OF THE WELL, SO USE CARE AND EVERY PRECAUTION. GETTING A STRING OF PIPE AND ROD OUT OF THE BOTTOM OF THE WELL IS NEARLY IMPOSSIBLE.**

Tools need to install the pipe are:

Safety tool -- included with every pump. This is the fork shaped too, used while assembling the piping and feeding it down the well.

1 Pair of Channel Locks: to grip the 1-3/4" outer diameter of the PVC pipe.

2 Vise Grips

Allen Wrench Set in English sizes.

Roll of Teflon Tape or pipe dope.

Bleach/water mix of 1 part bleach to 24 parts water.

Lay out all your parts to make sure they are all there and ready to install. The model 100L emergency hand pump will have identical pipes, except the top pipe that screws into the bottom of the pumping head, will have a weep hole which is 1/16" located 48" down from the top. This piece will be labeled with the word WEEP in black magic marker and has a white label with 109DPTBE-48 noted on it.

Lay out your pipes with the capped end away from you. Wipe the outside of the pipe thoroughly, and rinse the inside of the pipe, taking care to remove any debris, dirt, PVC shavings, ect. You will find the rods, shipped inside the pipe. Check the instructions for proper orientation of the rod ends.

Take the pump cylinder with piston rod male threads protruding and thread on a female end of a sucker rod. Tighten the sucker rod couplers with 2 pair of vise grips.

Apply at least 3 wraps of teflon tape to the male threads on the PVC drop pie. Thread the drop pipe into the top of the pumping cylinder, using care not to cross thread the connection. The first PVC drop pipe will thread directly into the 100CA pumping cylinder threads. Wipe any pipe dope or debris from the pumping cylinder and pour bleach solution over the pump cylinder, using care not to get bleach on your clothes.

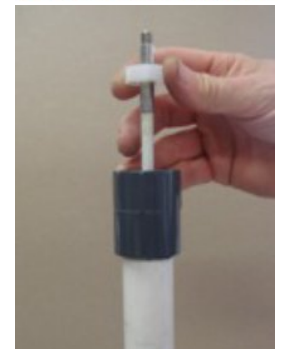
FROM THIS POINT FORWARD YOU NEED AT LEAST 2 PEOPLE TO INSTALL THE EMERGENCY HAND PUMP.

Now stand the pipe and cylinder assembly on end with the cylinder end down. Slide the assembly down into the flange on the well cap, and place the safety tool fork on top of the flange to hold the pipe when it meets the coupling. Once you have the belled end coupling resting on the safety tool fork, you can let go and prepare the next pipe and rod for installation. You should now be looking at the female belled end of the pipe with the male end of the sucker rod facing up, protruding about 4" above the belled end coupling.



100CA to bottom drop pipe

Your rod should be pushed to the bottom of the pumping cylinder. Now take a sucker rod guide, and slide it over the protruding male rod end and into the female belled coupling end of the PVC pipe. Now take the next fiberglass sucker rod and connect the female end of the rod to the male end sticking up. Tighten the sucker rod couplers with 2 pair of vise grips until there is a very small gap or no gap between the male and female rod couplers. Now stand the next piece of PVC pipe up with the end cap down. While the first person holds the female end of the pipe just installed into the well, the second person can remove the protective cap from the drop pipe, and apply at least 3 layers of teflon tape to the threads, and raise the PVC pipe up and slide it down over the fiberglass rod. Thread it into the female belled end coupling and tighten the pipe together making sure you do not cross thread the connection. Use one of the vise grips to hold the female end of the already installed pipe that is resting on the safety tool fork.



DO NOT TIGHTEN TO MORE THAN 3/4" OF THREAD ENGAGEMENT

OR YOU MAY DISTORT THE ROD GUIDE. DO NOT LET THE FEMALE BELL END SPIN ON THE SAFETY TOOL FORK, AS IT MAY WORK ITS WAY OUT.



Now while the string of pipe is being held by one person, lift it up and have the second person remove the safety tool fork, and lower the pipe into the flange on the cap. As soon as the female bell coupling on the pipe is through the flange, reinsert the safety tool fork to protect against dropping the pipe into the well.

Note: This process is repeated for each section of standard drop pipe. When you suspect you are nearing the water level, pull up on the sucker rod at any time. If you are not in the water, the rod should fall quickly. When you are in the water, the rod will fall more slowly. Sometimes, as the pipe is lowered, a gurgling sound can be heard when the pump goes into the water. You can also stroke the rod repeatedly and water will be pumped up the string of pipe. When you are in water, the stroke of the rod will become harder after 10 or more strokes. The string of pipe will also become heavier when it is full of water.

DO NOT TORQUE THE SECTIONS OF DROP PIPE, AS THIS CAN DISTORT THE ROD GUIDE, AND CAUSE SEVERE BINDING. THE MALE NPT THREADS ARE TAPERED AND EXCESSIVE TORQUE IS NOT NECESSARY TO PREVENT LEAKAGE.

TIGHTEN TO A MAXIMUM OF 3/4" OF THREAD ENGAGEMENT.

When you are ready for the top drop pipe, install it just like the others. Lower this last drop pipe down to the safety tool fork, just like the others you completed so far. Ideally you should have 4" of sucker rod protruding through the upward facing female bell end. The drop pipe length adjustment kit is used to correct the drop pipe length relative to the sucker rod length. By selecting the appropriate schedule 80, gray nipple, you can adjust the drop pipe length as required to end up with 4 inches of sucker rod protruding. The objective is to have the lever arm at the surface be in sync with the piston inside the pump cylinder at the bottom. The lever arm mechanism (at the pump head) limits the pump stroke to 10 inches. The pump cylinder at the bottom of the string has a 14 inch stroke area available. If everything is installed perfectly, the 10 inches of lever arm movement will occur in the middle of the 14 inches of pump cylinder.



Installing the pump head requires 1 pair of channel locks, two vise grips and the Allen wrench set.

Find the 3/4" diameter top pump rod and thread it onto the sucker rod at the well cover. Tighten with 2 pair of vise grips. Grip the 3/4" rod only on the flats near the top end.

Attach the lever bracket to the pump head with 1/4" Allen screws provided. The straight side of the bracket should be at the top.

Slide the pump head over the 3/4" shaft and align and thread onto the top drop pipe. Make sure the pump head is perfectly vertical.

Use the 1/4" Allen wrench to find the clamping screw inside the split flange.

Lift and remove the safety tool and lower the riser tube into the split flange. This is a snug fit and may require a short shot of pan release spray such as PAM. Rotate the assembly clockwise and the pump will work its way through the split flange. Continue until the pump head is at a convenient height. Tighten the split flange clamp screw pretty tight.

Attach the clevis to the top pump shaft and tighten while gripping the shaft only near the end next to the clevis. These threads are LEFT HAND THREADS, so that when tightened the other previously tightened sucker rod connections are not loosened.



Female Bell End with Sucker Rod protruding



Top Drop Pipe to bottom of riser tube

Slide the link arm over the lever bracket aligning the holes. Insert the clevis pin. These go in a little hard, and a little vaseline on the tip helps.

Assemble the lever handle to the lever link arm and clevis using the remaining clevis pins making sure to install the two brass wear shims.

It will require about one stroke for each foot of water level depth, to get the water up to the pump head. If your water level is 100', it will require about 100 strokes to lift the water up to the pump head. There is a very small bleeder hole 1/16" in diameter, which is about 4' below the pump head, drilled into the top drop pipe. This weep hole will take about 15 minutes to drain back down to prevent freezing. Each time you go out to pump water, you need to lift the water up from the weep hole level, and it may take 6 to 8 strokes to lift the water back up to the pump head. The check valves in the pump cylinder allow a very small amount of leakage over time. Over several days or weeks, you may need to pump a few extra strokes to get water back to the top.

REMOVING HANDLE FOR SECURITY

In some circumstances, you may wish to remove the handle and take it with you. Reinstalling it for each use. This is a simple procedure that takes just a few minutes. (Please keep in mind that the threads on the 3/4" stainless steel rod and clevis are LEFT HAND.)

First – what NOT TO DO ... Do not remove any of the three clevis pins. Leave the complete lever arm linkage in one connection grouping.

Remove the 4 1/4"=2- x 1/2" hex head cap screws where the lever bracket is attached to the flat, machined face of the pump head.

The use the lever arm (with the lever link arm and lever bracket still connected) as a wrench handle to unscrew the clevis from the 3/4" stainless rod in the pump head. (You may need to use a crescent wrench to hold the 3/4" stainless rod from rotating when disconnecting the clevis.)

