



INSTALLATION INSTRUCTIONS FOR THE PUMP INSTALLATION LIFT

LAST UPDATED: June 25, 2018

(The following instructions are very detailed, and should tell you everything you need to know. If you have questions, please phone 775-267-1093.)



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SECTION 1: INTRODUCTION—SPECIFICATIONS—APPLICATIONS

Thank you for purchasing the Pump Installation Lift from Simple Pump. The Pump Installation Lift (Pump Lift) is a manual mechanism that uses a crank to drive opposing gripper belts that lift up to 300 lbs. of a Simple Pump system.

For example, a Simple Pump system, with its 1" PVC drop pipe, installed down to 325 feet in a well with a static water level of 300 feet, will contain up to 90 lbs. of water and 170 lbs. of drop pipe plus sucker rod, for a total of 260 pounds.

The lifting capability of the Pump Lift is directly related to the belt traction between the pipe wall and the gripper belts. Iron oxide bacteria (slime), algae growth on the outside of the PVC pipe, or any substance that makes the gripper belts slippery will diminish the total lifting capability.

SPECIFICATIONS

Shipping Weight:	40 lbs.
Maximum Supported Lifting Weight:	300 lbs.
Gripper belt composition:	Woven polyester substrate with high coefficient of friction-synthetic rubber; diamond-pattern contact surface.

RECOMMENDED OPERATING ENVIRONMENT AND APPLICATIONS

The Pump Installation Lift is designed specifically for use in rural areas in developing countries, but, of course, may be useful to any well company as the lift reduces the investment in tools and heavy equipment and large vehicles required to install most other hand pumps.

Compared to a pump commonly used for deep water applications, the Simple Pump is much lighter. Simple Pump recommends deploying two individuals to install or remove a pump sets serving wells with a static water level deeper than 200 feet. Using the Pump Lift, one person can safely install or remove a Simple Pump in wells with static levels less than 200 feet.

SECTION 2: CONTENTS, TOOLS REQUIRED AND ASSEMBLY

CONTENTS OF BOX

- (1) Pump Installation Lift -- fully assembled except for SS handle.
- (1) Stainless steel crank handle with 5/16-18 x 3/4" SS SHCS threaded onto it.

TOOLS REQUIRED

- (2) Allen wrenches
 - 1/4" Allen wrench for
 - 5/16-18 x 3/4" SS SHCS bolt anchoring the Pump Installation Lift handle to it lever arm.
 - 5/16-18x1-1/4 SS SHCS pinch bolt, and 3 bolts anchoring the split flange, on cap.
 - 3/16" Allen wrench for (4) 1/4-20x1" SS SHCS tensioner bolts.
- (2) Channel locks (for removing the lever arm)
- (2) Vice grips (for removing sucker rods)

ASSEMBLY

Carefully remove the Pump Installation Life and the crank handle.
Attach the stainless steel crank handle.

SECTION 3: UN-INSTALLING (REMOVING) A PUMP SYSTEM

This manual assumes that you are starting with a Simple Pump that is completely installed. We start with a step-by-step explanation of removal rather than installation because the weight of the pump system is usually much heavier when removing than when installing.

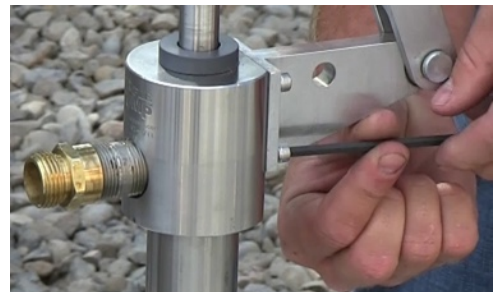
The reason: A stainless ball valve fits precisely into the bottom of the pump cylinder hand, holding the column of water up potentially for months. This enables users to obtain water with very few strokes, rather than having to pump from static water level every time water is required.

This column of water adds 30 pounds to the total weight of the pump set, for every 100 feet of drop pipe above the static water level.

REMOVE THE PUMP HEAD

To remove the pump head, first remove the lever arm mechanism.

Using the 3/16" Allen wrench, remove each of the four fasteners that hold the lever arm mechanism to the pump head.



Unscrew the clevis from the pump rod using your vice grip or channel lock. Move the lever arm clockwise while keeping the pump rod from rotating. The direction you unscrew is the opposite of normal -- turn clockwise to remove, rather than the normal counterclockwise.

You will remove the whole assembly of lever link arm, bracket, and lever arm from the 3/4" stainless rod.



Using the 1/4" Allen wrench, **loosen the pinch bolt and the 3 mounting bolts on the split flange (left)** enough to pull the pump head (including riser tube) up out of the well.

Raise the pump head and riser tube (right). It should be high enough so that the exposed length of riser tube is longer than the length of the gripper belts. Then, tighten the pinch bolt enough to keep the riser tube in place.



Remove the pump head by unscrewing it (below) -- rotating it in a counterclockwise motion. You may need to first loosen it with a channel lock.



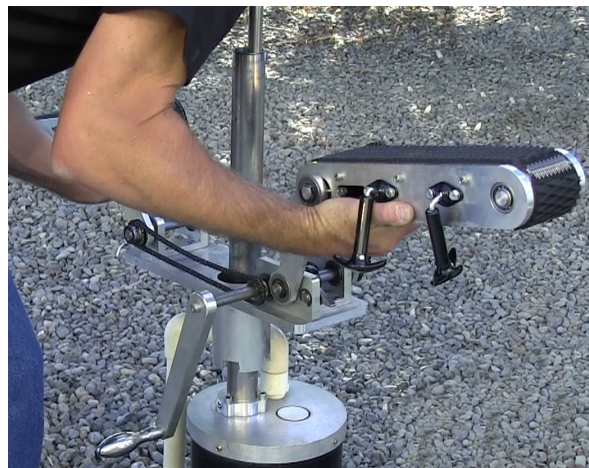
After removing the pump head, check to make sure stationary O-ring at the top of the riser tube remains there (right, white arrow).



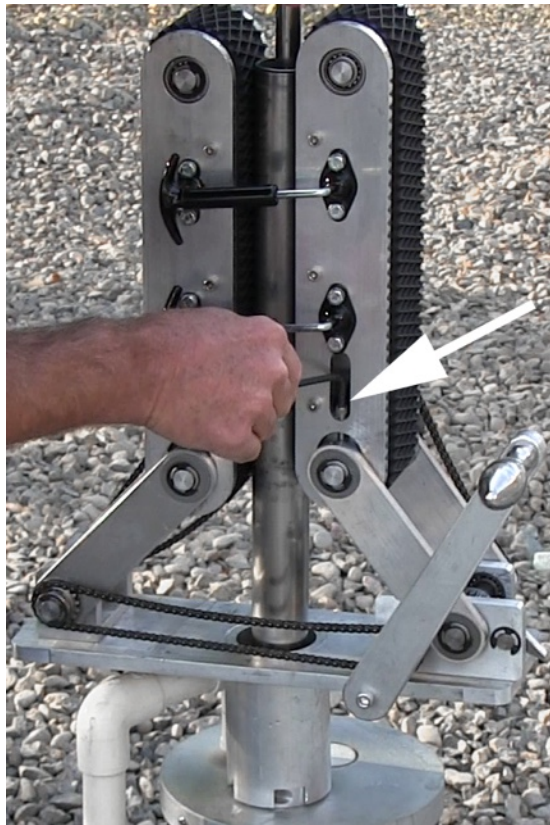
Lift the pump assembly over the riser tube...



...and gently lower it down onto the cap



Pay attention to the access ports on the Pump Installation Lift. Rotate the entire mechanism until an access port is positioned to allow an Allen wrench access to the pinch bolt (right -- note the white arrow).



Attach the four tensioners (left). There are two on each side -- only two are visible in the photo (left).

Note that there are four Allen head bolts (two (2) on each side) that push the bearing down to increase the tension in the belts (right, white arrow).

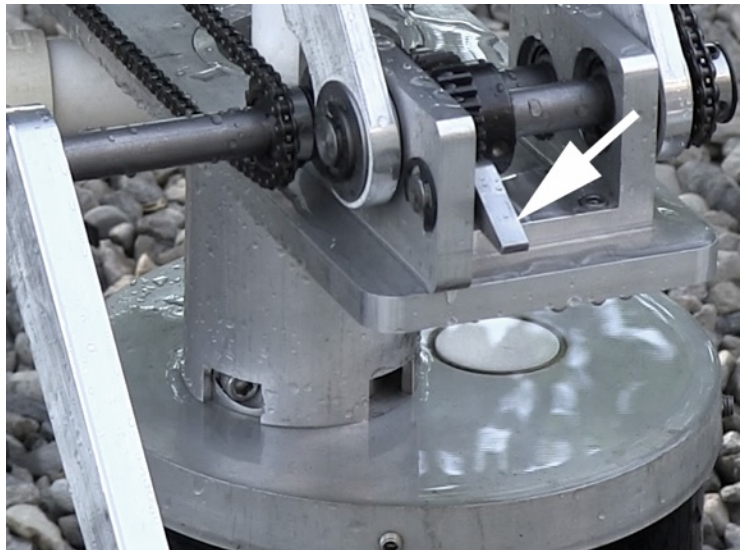
You will not know whether they need to be tightened until you start cranking -- several steps later. If the belts slip, use a 3/16 inch Allen wrench to tighten the adjustment screws that push the bearing mount down, which then increases tension on the belt.

Preparing for removal (right): In order to start pulling out the pump set (next step), you loosen the pinch bolt. Before that, make sure that the pawl is in the down position -- see photo on right.

If it is in the up position, the ratchet and pawl mechanism will not be engaged. When it is not engaged, there is nothing to keep the pump set from falling into the well, after the pinch bolt is loosened.

Loosen the pinch bolt in the split flange to allow the riser tube to move, when cranking starts. See the arrow in the top picture on p. 6 -- it points at where the pinch bolt is accessed.

Start cranking. If the pump set does not move upward, it is very likely that there is slippage in the belts. See bottom picture and text, p. 7.



Using the channel locks, **begin the removal process by removing the riser tube from the stainless nipple.** (right)



Remove the 3/4" stainless rod from the topmost sucker rod (left). To remove the 3/4" stainless rod without damaging it, attach your channel lock (or vice grips) to its flat section, at its top.

Start cranking to expose the top drop pipe for removal (right). Bring it up far enough so the connection is accessible. Remove the first drop pipe.

CENTERING THE DROP PIPE

Sometimes the drop pipe held between the gripper belts starts to track away from their center. More cranking could move the drop pipe so far sideways that the Lift may lose its grip.

This is when you need to move the pump set back downward, and then start cranking it upward again, gently guiding the drop pipe to track correctly.

TO CRANK BACK DOWNWARDS

To set the Pump Lift so it will allow you to lower the set back into the well, turn the crank backward slightly, to remove the pressure on the pawl. Then, **while holding the crank handle, move the pawl to the upright position** (below). Then, you can lower the pump system.

Put the pawl back in the down position to resume removal.



Disconnect the first sucker rod from the second (right). Use two vice grips, or a vice grip and pliers.

The initial disconnection may be a bit difficult because of the dimple that is designed into the female end, to function as a mechanical lock. It may need more force than you might expect. After you overcome the lock, it will unscrew easily.

CONTINUE THE PROCESS UNTIL FINISHED

From this point forward, the disassembly and removal of the pump is a repetitive process where you are removing 9-foot lengths of drop pipe, sucker rod, and rod guide.

To use the Pump Installation Lift to install a pump, make sure you also read the manual covering the installation of Simple Pump hand pumps, [Installation and Maintenance for the Hand Operated Simple Pump System.](#)



SECTION 4: CARE AND MAINTENANCE

ASSEMBLING SUCKER RODS AGAIN AND AGAIN

Each female sucker rod end (right) is dimpled (arrow). The dimple functions as a mechanical disruption of the threads, and therefore mechanical lock. As the male end is screwed in, when the two sucker rods are just about completely tightened, shoulder to shoulder, the male threads are disrupted, creating a lock.

The more a Simple Pump has been installed and removed, the more likely this mechanical lock is going to be ineffective. So, on the third time that the Simple Pump is installed, it may be wise to use Loctite non-permanent thread bonder, or a similar compound, before threading the male end into the female. This prevents the unlikely possibility that the sucker rods will slowly unscrew over years of use.



125CA (5 GPM CYLINDER) CUSTOMERS ONLY—CYLINDER BUSHING

Sometimes it is difficult to bring the pump cylinder up past the split flange, because the outside diameter of the bushing at its top is a bit wide (below). If you encountered this difficulty, file down the the bushing all around the outside of the bushing, to prevent the problem from happening again.

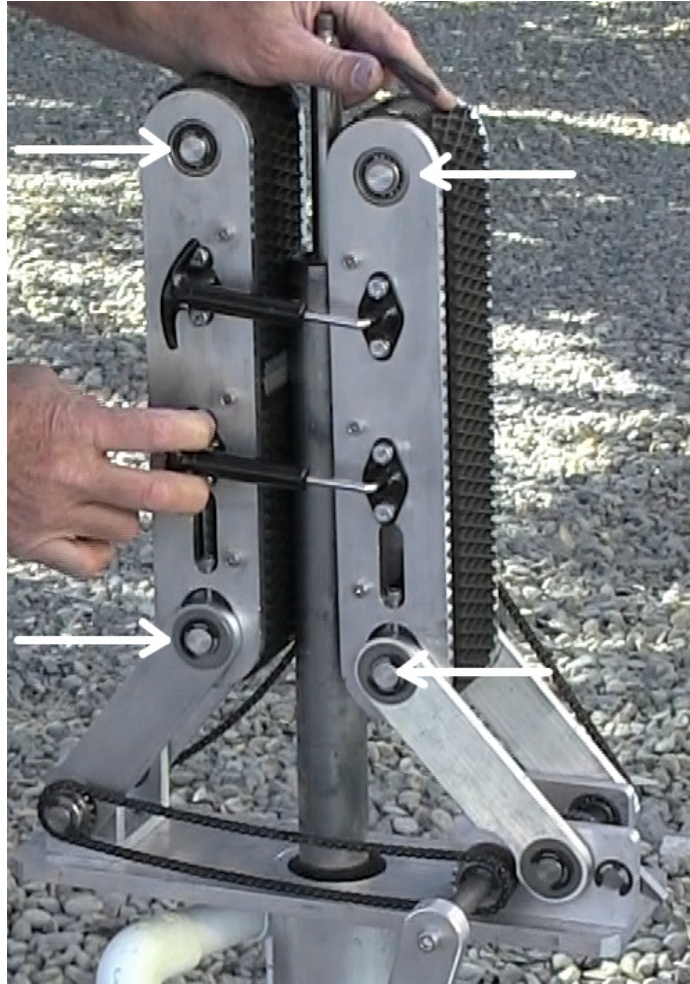
CLEANING THE BELTS

If the gripper belts become dirty with slime or algae growth, normal mild cleaners will remove them. Just clean with warm, soapy water. Do not use: acetone, ketone, lacquer thinner, gasoline or other solvents.

LUBRICATION

Place a light oil on all of the chains and sprockets after every use, and before using when the Lift has been stored for more than a few days. Sprockets are all the structures with externally visible teeth that either move chains or are part of the ratchet and pawl mechanism.

Oil on the underside of the gripper belts and on the drive rollers should be avoided. The drive rollers are what engage the gripper belts.



SECTION 5: WARRANTY

Warranty in case of manufacturing defects for the Pump Installation Lift is 2 years from date of purchase.

Wear parts not included under the warranty are the gripper belts, drive roller gripper surface.

The expected life of gripper belts is 4-5 years.