



Bush Pump Cylinder Replacement

Use this guide to replace the cylinder.

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INTRODUCTION

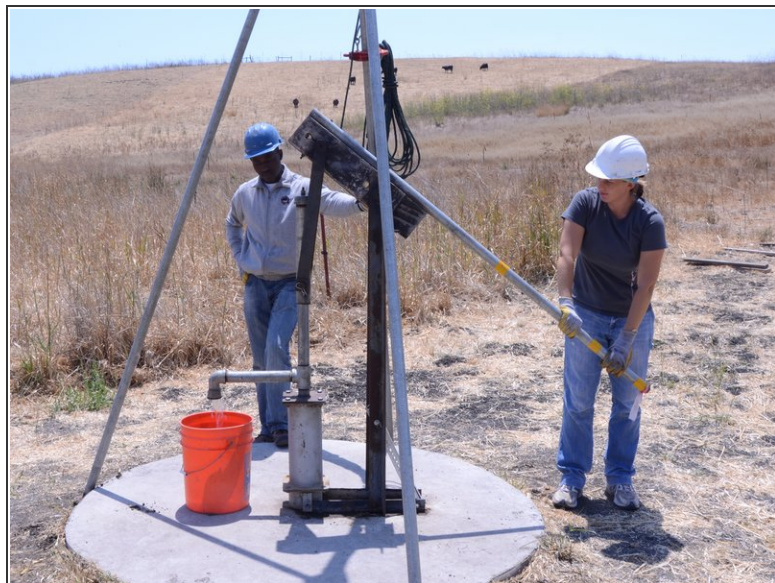
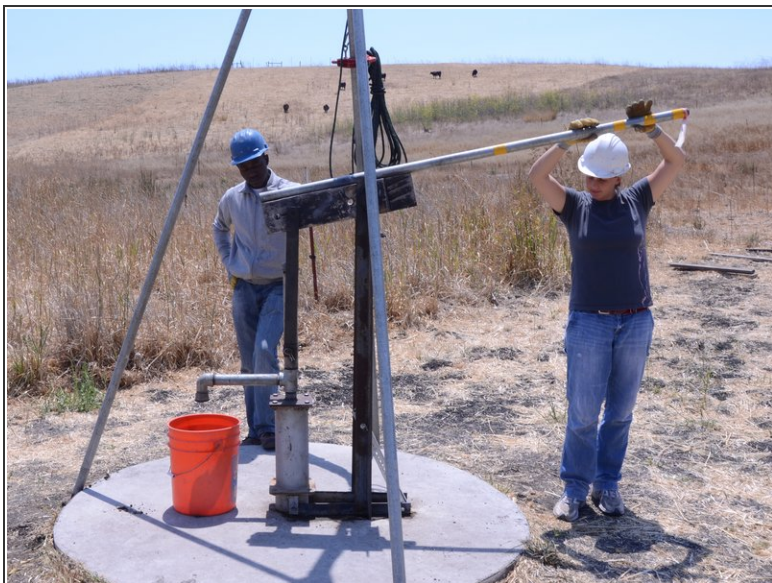
This guide will show you how to remove the cylinder that encases the traveling valve and foot valve.



TOOLS:

- [Pipe Wrench](#) (1)
 - [T-Handle](#) (1)
 - [Large Clamp](#) (1)
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Step 1 — Head and Handle



- Test pump performance by pumping 40 strokes.

☑ An effective pump should return at least 10 liters.

Step 2



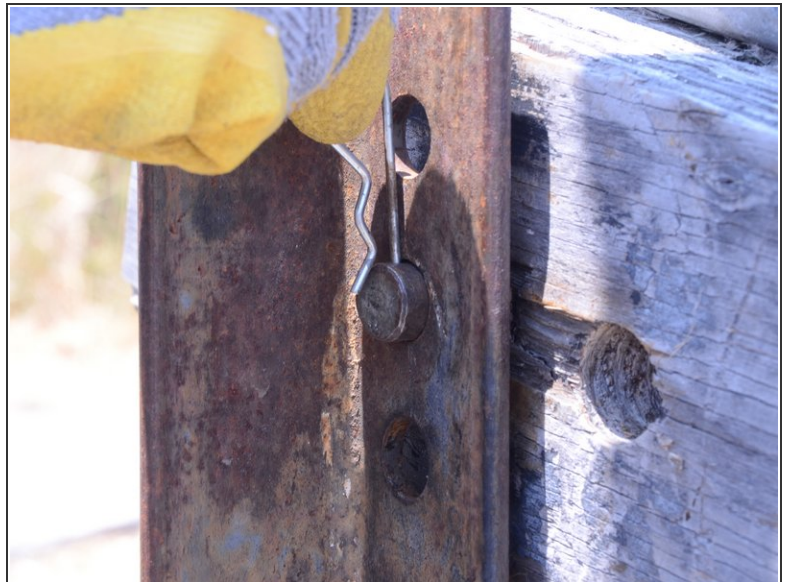
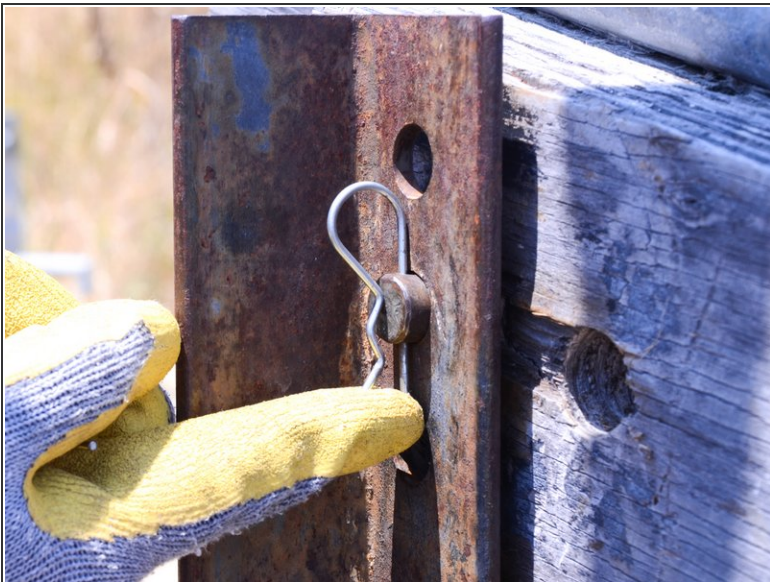
- Remove the two pins connecting the handle to the slider.

Step 3



- Pull the two lever arms away from the slider.

Step 4



- Lift the two pins attaching the pump frame to the head and handle up, off of the pump frame.

Step 5



- ❗ Throughout this step, make sure you support the handle and head with at least three hands.
 - Slide the bearing rod out of the head.
- ❗ Inspect the bearing rod and head for any wear or tear.

Step 6



- Remove the head and handle, and place them on a clean surface to prevent contamination.

Step 7 — Riser Main Slider



- Firmly lift the riser main slider with two hands.

⚠ Use caution not to drop the riser main, as this can damage the pump cylinder.

Step 8



- Use a pipe wrench to fully loosen the above grade riser pipe.

Step 9



- Lift the slider and riser main pipe.
- Place a pump rod clamp around the rod, and tighten it securely against the pump rod.
- Carefully lower the riser main and slider to allow it to rest on the rod clamp.

Step 10



- Loosen and remove both the pump rod jam nut and pump rod nut on the top of the slider.

Step 11



- Remove the riser main slider, and inspect it for wear and tear.
- Set the slider in a sanitary place to prevent contamination.

Step 12 — Above Grade Riser Pipe



- Remove the above grade riser pipe.
- Firmly screw a T-handle onto the pump rod.
 - ⓘ If you are replacing the above ground riser main, leave the T-handle attached until you are ready to install the replacement part.

Step 13 — Spout



- Use a pipe wrench to loosen and remove the pump spout.
- ⓘ Inspect the spout for obstructions or potential contaminants.
- Place the spout on a clean surface to prevent any contamination.

Step 14 — Riser Main



- Place one wrench on the top of one of the pump riser plate bolts.
- Place another wrench around the bottom of the bolt.
- Pull the wrenches apart to loosen the bolt.
- ⓘ Repeat this procedure for the remaining three bolts.

Step 15



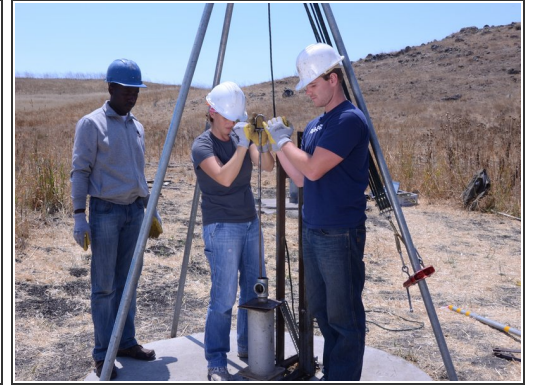
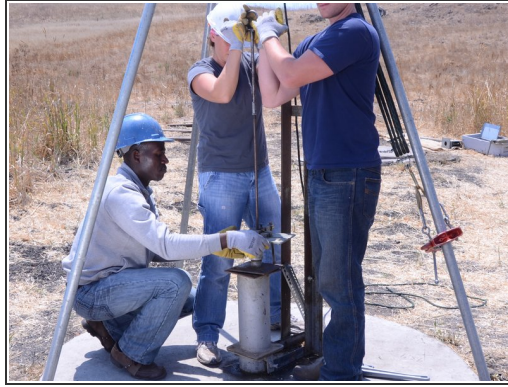
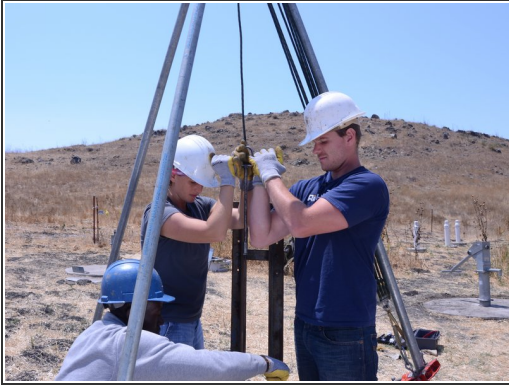
- Remove the four nuts and bolts securing the pump riser plate, and store them in a sanitary container such as a bucket.

Step 16



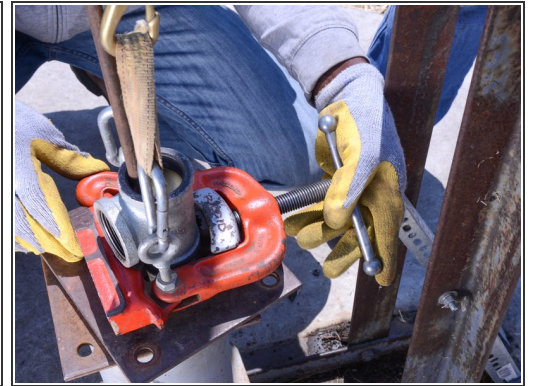
- Rotate the pump plate 45 degrees. This will allow for a better grasp when lifting the plate.

Step 17



- Securely lift the T-handle several inches.
- While 2 people support the T-handle, remove the pump rod clamp.
- Lower the T-handle gently until the pump rod is supporting itself.

Step 18



- i** This particular pump is using a tripod with a block and tackle to lift the riser main. C-wrenches may also be used to lift the riser main.
- Securely clamp and tighten the pipe elevator to the riser main below the spout exit.

Step 19



- Being careful not to let the rope slip, use the block and tackle to lift the riser main until the pipe elevator reaches the block and tackle.

Step 20



- Once the riser main has reached the block and tackle, tighten the base clamp against the riser main.

Step 21



- Secure the base clamp to the frame base using a bolt.
- i** One bolt is typically sufficient to keep the base clamp in place, but you can add another bolt if you wish to further secure it.

Step 22



- While supporting the top portion of the pipe, carefully move the elevator clamp off of the pipe.
- Lower the elevator clamp while providing tension towards the ground to prevent the ropes from tangling in the block and tackle.

Step 23



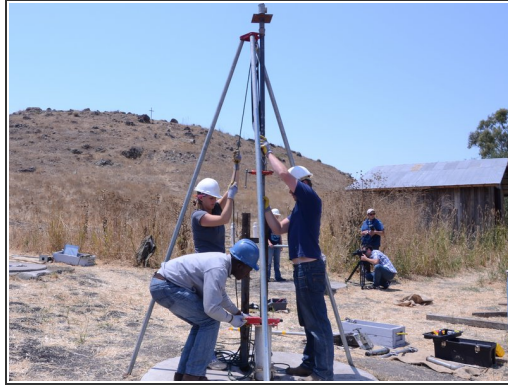
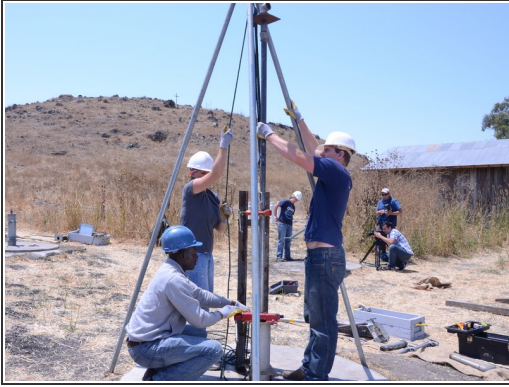
- Attach and tighten the elevator clamp to the riser main as close to the bottom as possible.

Step 24



- Once the elevator clamp is tight, provide tension on the rope.
- While keeping tension on the rope to support the riser, loosen the base clamp.

Step 25



- Use the rope to pull the riser main up as far as comfortable.
- ⚠ Be sure to keep the rope within the confines of the tripod to prevent the tripod from pulling over.
- ⚠ Watch the top of the tripod to align the riser main in the support slot.

Step 26



- Remove the clamp from the riser main, and repeat steps 23-25 until first joint is exposed.

Step 27



- Once the first joint is exposed, tighten the base clamp below the joint.

Step 28



- Remove the elevator clamp from the riser main, and secure it to the tripod to keep it out of the way.

Step 29



- i** Keep the pipe wrench a few inches above the joint in this step.
- Using a pipe wrench, unscrew the first section of the riser main from the connection.

Step 30



- Secure a splash guard over the joint to prevent water from spraying out of the connection when separated.
- Using the pipe wrench, loosen the riser main until water begins to spray into the splash guard.
- i** Do not loosen it any further until the water has stopped spraying.

Step 31



- Remove the splash guard, and finish loosening the riser main.
- Remove the first section of the riser main by lifting it straight up, while supporting the top of the section and keeping the pipe within the support slot on the top of the tripod.

Step 32



- Attach and tighten the rod clamp a few inches below the first pump rod connection.

Step 33



- Using two crescent wrenches, unscrew the pump rod from the remaining portion.
- When the joint is separated, carefully lower the riser main to the ground.

Step 34



- Carefully lower the riser main, horizontally, and place it in a sanitary place, preferably resting above the ground, to prevent contamination.

Step 35



- Remove the T-handle from the separated pump rod.
- Attach the T-handle to the remaining pump rod.
- ⓘ Remove the rod clamp and repeat steps 29-35 until the riser main is completely removed, or until the broken section is reached.

Step 36 — Cylinder



- ⚠ Make sure to keep the cylinder off the ground to prevent contamination.

Step 37



- Using two pipe wrenches, unscrew the cylinder from the riser main.

Step 38



- Slowly pull the cylinder off of the pump rod, exposing the traveling valve and foot valve.

To reassemble your device, follow these instructions in reverse order.