



India Mark II Foot Valve Assembly Replacement

Inspect, repair, or replace the foot valve assembly in an India Mark II water hand pump.

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INTRODUCTION

Inspect, repair, or replace the foot valve assembly in an India Mark II water hand pump.

TOOLS:

- [C-Wrench \(2\)](#)
- [Open End Wrench \(2\)](#)
An adjustable type wrench will allow you to use one wrench on various bolts and nuts.
- [Pipe Wrench \(2\)](#)
- [Smart Wrench \(1\)](#)

Step 1 — Cover Plate



- Use a wrench to remove the bolt on the top of the cover plate.
- *i* When replacing the cover plate, this bolt only needs to be hand tight.

Step 2



- Remove the top cover by pulling it straight off the pump.
- *i* Store the top cover in a sanitary place, preferably above ground, to prevent contamination.

Step 3 — Head Section



- Pull the pump handle all the way down and hold it in this position, exposing the pump rod.
- Place the spacer around the pump rod and under the chain attachment point.

⚠ Make sure the spacer is beveled side down, and flat side up.

- Lift the pump lever until there is no tension in the chain and hold it in this position.

Step 4



- Remove the bolt connecting the chain to the pump handle.
- Remove the chain from the handle.

Step 5



- There are 4 bolts securing the head section to the water tank, located at the corners of head section base.
- ⚠ Continue supporting the pump handle so the pump head doesn't fall off when all the bolts are removed.
- Remove the 4 bolts on the base of the water tank.

Step 6



- Lift the pump head off of the water tank and place in a sanitary place, preferably above ground, to prevent contamination.

Step 7 — Water Tank



- Lift the plunger assembly and separator plate and place a rod clamp below the separator plate.
- Tighten the rod clamp and gently set the separator plate on top of it.
- Remove the spacer.

Step 8



- Hold the rod clamp steady while removing the chain from the pump rod. Check the chain for signs of damage.
- Extend the chain sideways and use it as a lever as demonstrated in the first picture.
- Remove the lock nut by turning it counterclockwise.
- Remove the separator plate.

Step 9



- Reinstall the lock nut.
- Install a T-handle, screwing it down against the lock nut.

Step 10



- Lift up on the T-handle to take pressure off the rod clamp.
- Remove the rod clamp and slowly lower the T-handle.

⚠ The pump rod will rest on the end cap, located below the cylinder of the pump. It is important to lower the T-handle slowly to prevent damage to the pump.

Step 11



- There are 4 bolts securing the water tank to the pump base. They are located at the bottom corners of the water tank.
- Remove the 4 bolts on the base of the water tank.

Step 12



- Lift the water tank up approximately 1 foot.
- Place a base clamp around the exposed pipe and tighten it against the riser main.

Step 13



- Secure the base clamp to the pump base with two bolt and nut sets installed on opposite sides of each other.
 - Hand tight will be sufficient for securing the base clamp.
 - Use the nuts and bolts removed from the water tank base or head section base.

Step 14



- Turn the water tank counterclockwise until it comes free from the pipe.
- ⚠ Make sure to keep the tank level to prevent cross threading.
- Lift the water tank up against the T-handle and secure the rod clamp to the pump rod.

Step 15



- Remove the T-handle.
- Remove the water tank and check for signs of blockage.
- Store in a sanitary place to prevent contamination.

Step 16 — Pipe



- Place a pipe coupler over the pump rod.
- Install the T-handle onto the pump rod.

Step 17



- Lift up on the T-handle to take pressure off the rod clamp.
- Loosen and remove the rod clamp.
- Screw the pipe coupling onto the threaded riser main end and slowly lower the T-handle.

Step 18



- ① You will need at least three people to perform pipe lifting. Two people to lift, and one person to operate the base clamp. Workers should constantly be communicating whether they are ready, lifting, and whether or not the base clamp is secure.
- Have two people place C wrenches on the riser main on opposite sides of each other.
- ② C-wrenches should always be placed such that their openings are opposite and they do not contact each other, the base clamp, or the pipe coupling.
- Have the two people with C-wrenches apply light upward pressure to the riser main while the base clamp operator loosens the clamp.
- Lift the pipe evenly, not exceeding the comfortable lifting height of either lifter. Re-secure the base clamp once the maximum lifting height has been reached.
- Lower the C-wrenches and repeat this step until the pipe coupling reaches the base clamp.

Step 19



- When you reach the pipe coupling, open the clamp more to allow it to pass through. Lift the riser main approximately one foot above the clamp and re-secure the pipe.
(i) Make multiple lifts if necessary to achieve the desired coupling height.

Step 20



- Place one pipe wrench on the exposed coupling and another on the riser main above the coupling. Have a third person stabilize the upper pipe.
 - Be sure to place the open end of the pipe wrench towards the direction that you will turning the wrenches.
- Hold the wrench on the coupling steady while the wrench on the riser main is rotated counterclockwise until the pipe comes free.
- Lift the upper pipe and place the rod clamp onto the pump rod below the pump rod coupling.

Step 21



- Lift and hold the upper pipe high enough to expose the pump rod coupling.
- Place one open end wrench over the lower portion of the pump rod coupling. Hold this wrench steady.
- Place another wrench on the upper portion of the pump rod coupling. Turn this wrench counterclockwise until the coupling separates.
- Pull the upper pipe away from the pump and lay it on its side away from the pump.
 - Do not lay the pipe directly in grass or dirt, as you may get contaminants into the pipe that could obstruct water flow.

Step 22



- Remove the T-handle from the pump rod.
- Install the T-handle on the pump rod still in the well.

Step 23



- Lift up on the T-handle to take pressure off the rod clamp.
- Loosen and remove the rod clamp.
- Gently lower the T-handle.
- Repeat steps 18 through 23 until you reach the pump cylinder.
(i) The pump cylinder will not fit through the base clamp, but should be visible through the base clamp.

Step 24 — Pump Cylinder



- When you reach the pump cylinder, lift the pipe so that the pump cylinder is just below the base clamp, but is not contacting it.
- Secure the riser main with the base clamp.
- Stabilize the pipe by holding it and unbolt the base clamp from the pump base.
- Lift the riser main, pump cylinder, and base clamp straight up out of the well.
- Set the cylinder down carefully to prevent damage, preferably on a clean surface.

Step 25



- Loosen and remove the base clamp.
- Lay the pump cylinder on its side.

Step 26



- Use two pipe wrenches to separate the riser main and pump cylinder.
- Separate the pump cylinder from the pipe.

(i) The pump cylinder is still attached to the riser main via the pump rod.

Step 27



- Slide the pump cylinder down far enough to expose the pump rod joint.
- Separate the pump cylinder from the pipe and push rod using two crescent wrenches.

Step 28 — Foot Valve Assembly



- Place one pipe wrench on the pump cylinder body and another pipe wrench on the lower end cap.
- Turn the lower end cap counterclockwise until it separates from the pump body.
- Remove the lower end cap.

(i) The lower end cap contains the foot valve assembly.

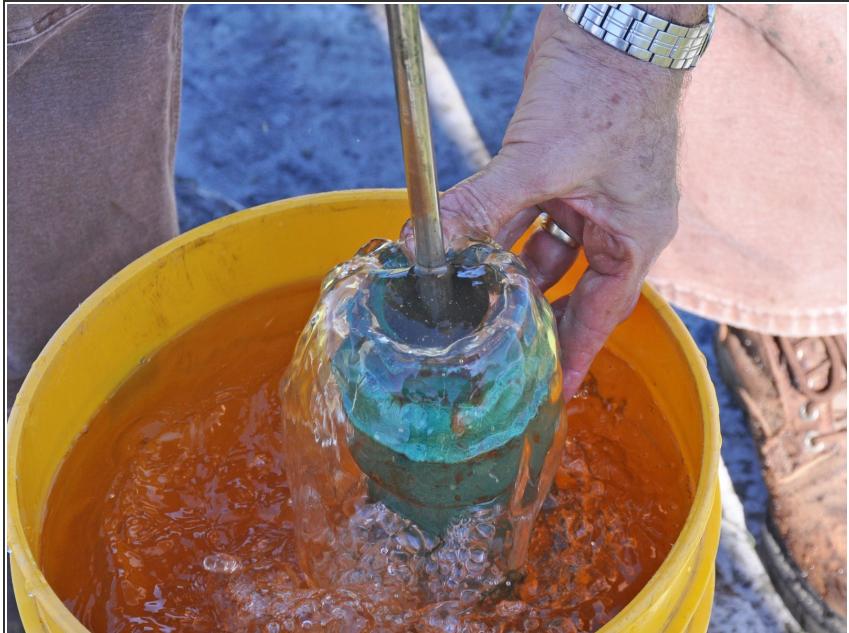
Step 29



- Remove the foot valve by pulling it straight out of the end cap.
- Pull the lower seal out if it did not come out with the foot valve.
- Check the foot valve components for wear or damage.

(i) The third picture shows foot valve component order.

Step 30



- After reassembling the pump cylinder, test it by moving the valve up and down in a bucket of water to make sure all components were reinstalled properly.
- ➡ Water should flow out the top of the pump on the upward stroke of the valve and no water should push through the bottom of the pump on the down stroke.

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