

Filling and Bleeding the Air Out of Angle Cylinders

Parts and Tools Needed:

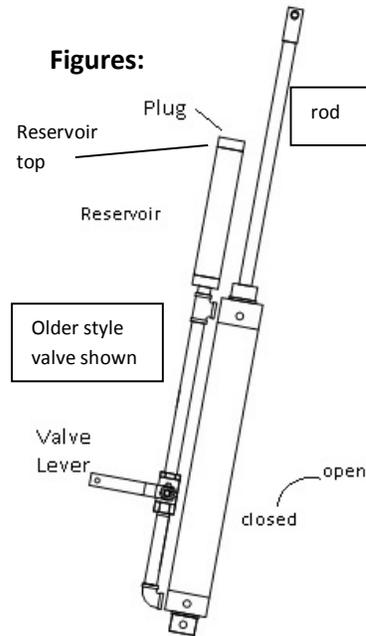
1/4" Allen wrench
 3/16" Allen wrench
 Large adjustable wrench
 Small funnel
 Rag or paper towels
 Small container of water (add a small amount of RV/Marine anti-freeze if the unit is subject to freezing temperatures)

Procedure:

- 1) Loosen the plug at the top of the reservoir. Use the Allen wrench. If the plug is very tight, you *may* have to hold the reservoir top from turning with a large wrench (fig 1).
- 2) Remove the plug and fill the reservoir with water. When filling the reservoir, the cylinder rod should be all the way in: push the wall to the most overhanging position and have someone hold it there while you fill it.
- 3) Hold the valve lever open and **slowly** move the wall back and forth a couple of times. With the wall all the way back, check the level of fluid and top it up if necessary. Leave a small amount of air at the top, @ 1/4" (1 cm) is plenty.
- 4) While holding the wall all the way back, replace the plug and tighten it securely.

If the cylinder seems "spongy" after re-filling, there is air trapped in the lower part of the cylinder. To bleed out the air, do the following:

- Have someone hold the wall then remove the bolt holding the cylinder rod to the rear frame or horizontal.
- With the valve lever open, carefully swing the cylinder down and slowly push the rod in about 2 or 3 inches, then raise the cylinder up and pull the rod out.
- Repeat this several times, until the air is worked out of the cylinder. And replace the rear mounting bolt.



(fig 1) Holding reservoir top while loosening plug





Replacing the Angle Adjuster Cylinder – Laddermill Units

Parts and Tools Needed:

9/16" wrenches (or 14mm)
pliers

Procedure:

1. Put the unit to vertical and either tie the ladder central core to the frame (rope) or have a second person hold the ladder core during the work. (When the cylinder is detached, the core will want to swing to a horizontal position).
2. Remove the cable loop end from the cylinder by rotating the lever on the lever plate to make the cable slack. Remove the loop from the small hook on the lever plate.
3. Turn the cable adjuster nut to align the slots: then remove the cable and housing from the adjuster nut.
4. Undo both ends of the cylinder and remove it.
5. Install the new cylinder.
6. Insert the cable and housing into the adjuster nut.
7. Rotate the lever on the cylinder plate and hook the loop back over the small hook on the lever plate.
8. Test the system by adjusting the wall angle back and forth. See the sheet on adjusting the angle cable if the wall/ladder does not stay in position. This is caused by the cable being too tight and might need more slack to allow the cylinder valve to close completely.



Overall cylinder

Figures:



Lever plate



Rotating lever plate to remove cable end



Aligning cable adjuster nut and bracket to remove cable and housing

Adjuster Cylinder Valve leak repair – M4 Pro or Laddermill

Parts and Tools Needed:

1. ½" socket wrench
2. 14mm or 3/8" wrench
3. Allen key set (imperial)

Procedure:

1. If the cylinder loses fluid, it is usually at the stem of the valve. You will see dripping from under the valve handle. To repair, the cylinder does not have to be removed.
2. First step: remove the valve handle (M4) or cable wheel (Laddermill) by removing the nut that is on the stem.
3. Note the nut that on the stem. This "packing nut" that will adjust a washer inside that seals and prevents leaks.
4. Tighten the packing nut firmly to tighten the washer (14mm/3/8") This should correct the leak.
5. If the cylinder has lost enough fluid to make it operate erratically, you should refill it. The fluid is a mixture of non-toxic antifreeze and water (25% antifreeze). This is an antifreeze that is commonly used in home hot-water furnaces and is easily available at where plumbing supplies are sold.
6. To refill, take out the plug at the top of the reservoir (use a large wrench to prevent the reservoir from turning and an allen wrench to take out the plug). Refill the reservoir using a small funnel. Run the angle back and forth slowly to get out air bubbles and refill until the bubbles stop.
7. The level should be about ½" (2cm) from the top of the reservoir when you are finished.

Figures:

