

Air Cylinder Rebuild Procedure

Scope: This procedure covers standard air cylinders provided with Atwood & Morrill Free Flow Reverse Current Valves and Cylinder Actuated Check Valves.

Purpose: To provide detailed instructions for the replacement of air cylinder seals.

Reference: Exploded view drawing of standard side air cylinder.

Procedure:

I. Disassembly

(A) Remove air cylinder from valve body and bring to a suitable work area. **Note:** Record position of jam nut (1) relative to end of piston rod (3) (i.e., count number of threads exposed). **(B)** Hold piston rod (3) captive by screwing flange nut (2) to the end of the threads or until it is bottomed out on the cylinder cap (4). **(C)** Remove set screw (15) and match mark cylinder cap (4) and cylinder (9). **(D)** The cylinder (9) can now be removed using a chain or strap wrench (right-handed thread). **(E)** Slowly release spring (10) tension by backing off flanged nut (2), when all tension is released the flange nut can be removed. **(F)** Remove piston rod (3) roll pin (8) and spring (10). **Note:** In long stroke cylinders there will be two springs (10) and a spring spacer (16). **(G)** Remove pull down bolt (14) flat washer (13) and piston (11). **(H)** Remove une-epac seal (12). **(I)** Remove cylinder cap seal. **Note:** Depending on design, this will include o-ring (5) or u-cap (6) and retaining clip (7). Clean and inspect all parts that will be re-used. Special attention should be given to the cylinder (9) and piston rod (3); any pits or gouges found would indicate replacement. If there is any rust or corrosion inside the cylinder, it must be replaced. Cylinders are Endurion coated and cannot be polished or honed. Replacement cylinders are in stock for immediate shipment.

II. Reassembly

(A) Replace cylinder cap seal. **Note:** In installations with o-ring (5) seals, it may be helpful to heat the o-ring in warm water. **(B)** Slide the piston rod (3) through the top of the cylinder cap (4). **(C)** Re-install roll pin (8) and spring (10) using new roll pin. **Note:** On long stroke cylinders, there will be 2 springs (10) and a spring spacer (16). **(D)** Re-install piston (11) flat washer (13) and pull down bolt (14) using flat washer (13). Screw down flange nut (2) as in step B of Disassembly. **(F)** Install a new une-epac seal (12). **(G)** Carefully slip the cylinder (9) over the piston (11) being careful not to damage the une-epac seal (12) with the cylinder threads. **(H)** Screw the cylinder (9) on the cylinder cap (4) until the match marks made in step C of Disassembly line up. **Note:** The use of some type of thread sealant is recommended. **(I)** Re-install set screw (15). **Note:** Slight movement of the cylinder (4) may be required to install a set screw. **(J)** Remove the flange nut (2) and jam nut (1) ensuring that the jam nut is at the height recorded in step A of Disassembly. **General Notice:** All new seals should be lightly lubricated with silicone grease or equal.

