



## Repair Instructions for Seal Replacement Kits No. 1600-0101 and 1635-0101

June 2000

Form FVC 008

**KEEP THIS DOCUMENT WITH THE PRODUCT UNTIL IT REACHES THE END USER.**

### WARNING

Use proper safety equipment at all times. An abundant supply of clean water must be readily available and easily accessible as a means of providing immediate first-aid treatment of exposure to ammonia. Purge FLO-TROL of all product before attempting repair.

**CAUTION:** Contact with or inhalation of Liquid Anhydrous Ammonia or LP-Gas or their vapors can cause serious injury or death. Dispersment must be in accordance with local regulations. For the proper handling and storage of Anhydrous Ammonia refer to ANSI Standard K61.1 For the proper handling and storage of Liquefied Petroleum Gas refer to NFPA Pamphlet 58.

### Repair or Replace Diaphragm & Packing

- Step 1: Safety equipment (i.e. gloves, goggles and clothing) must be worn before continuing with the next step.
- Step 2: Be sure all tank valves are closed before starting maintenance.
- Step 3: Purge FLO-TROL completely of all product.
- Step 4: Remove FLO-TROL from mounting plate or service valve.
- Step 5: Turn control pointer No. 1600-15 clockwise to full open position. Remove dial stop screw No. 1600-19. Loosen pointer screw No. 1600-16 and remove pointer.
- Step 6: Using a thick board with a hole large enough for the stem and packing nut to pass through, place FLO-TROL face down on board.
- Step 7: Loosen all eight body flange bolts No. 1600-26. Remove six of the eight bolts first. Holding down on the top half of FLO-TROL and keeping spring in compressed state, remove the two remaining bolts. Slowly remove top half of FLO-TROL straight upward.
- Step 8: To replace diaphragm No. 1600-27 or 1635-27, remove nut No. 1600-29 or 1635-29 and diaphragm plate No. 1600-28 or 1635-28 from sleeve No. 1600-31 or 1635-31. When reassembling diaphragm plate, be sure rounded edge of plate is against the diaphragm.
- Step 9: After replacing diaphragm, check diaphragm sleeve assembly by sliding over orifice tube No. 1600-32 or 1635-32 to insure that the sleeve slides freely.  
Note: If spring or tube and sleeve need to be replaced, now is the time to do so. If tube and sleeve need to be replaced, they must be replaced as a matched set from the factory. Please specify model number of FLO-TROL when ordering replacement parts.
- Step 10: To reassemble FLO-TROL, center diaphragm assembly on flange bolt holes of body with long neck of orifice sleeve up. At this point it is most desirable to have some 1/4" or 5/16" dowel pins approximately 1-1/2" long to insert through the diaphragm holes into bolt holes of body. A minimum of four pins would help keep the diaphragm aligned and in place for the next step.
- Step 11: Stand diaphragm spring No. 1600-33 or 1635-33 on diaphragm assembly centered around nut No. 1600-29 or 1635-29.
- Step 12: Center back half of body on diaphragm spring and compress downward. Use care when orifice stem enters the diaphragm sleeve. Check diaphragm for wrinkles and alignment before bolting body flanges together. Tighten body bolts in a criss-cross pattern to avoid cocking the body to one side.
- Step 13: To replace packing No. 1600-23, loosen and remove packing nut No. 1600-25. Remove the old packing, taking care not to damage threads on front body or marring surface of the valve stem. Make sure that packing retainer No. 1635-24 is still in the opening of body. Place the two (2) pieces of packing No. 1600-23 over the valve stem.  
Note: The cut section of one piece of packing must be assembled opposite (or 180°) from the cut section of the second piece of packing. Push the two pieces of packing into the opening of the body and carefully tap down until there are enough threads showing to allow engagement of the packing nut with the body. Assemble packing nut to body and tighten to a snug position to seat the packing. Loosen slightly to allow ease of turning of the stem for calibration procedures.

(OVER)

### Repair or Replace Diaphragm & Packing (cont'd)

- Step 14: Recalibrate the FLO-TROL as follows: Tighten pointer on stem (in any position), rotate pointer and stem counter-clockwise until it stops (do not force). Repeat rotating to a firm stop several times for a correct "feel" (not forcing at the stopped position). Loosen pointer screw and rotate pointer on stem (making sure that stem does not move) "zeroing-in" to the "95" on dial "sighting" down the left (or straight) side of pointer while double checking to be sure that the pointer "zeros-in" on dial "95", then tighten the pointer screw. If necessary, repeat recalibration procedure for proper adjustment. After unit is calibrated, turn pointer to number "15" dial setting and install dial stop screw No. 1600-19.

### Replace Strainer and Strainer Gasket

- Step 1: Loosen and remove 1600-4 strainer plug. Strainer No. 1635-3 should come out at the same time - as it is normally attached to boss on strainer plug. If not, remove the strainer with a pair of pliers. Discard the old strainer and gasket.
- Step 2: Clean strainer plug thoroughly. Place small end of strainer No. 1635-3 over boss of strainer plug. Place gasket No. 1600-5 over strainer and onto gasket surface of plug. Strainer should stay on plug by itself. Push the strainer through opening of body until strainer engages union adapter counterbore. Start threads of strainer plug into body making sure that gasket enters gasket recess of body. Tighten the strainer plug. Do not use any type of sealant on threads. Plug will seal when tightened against the gasket.

### Repair Shut-Off

- Step 1: To replace hat gasket No. 1600-123 (407-2005), leave shut-off assembly in the FLO-TROL and index it to the closed position. Remove 1600-119 roll pin (use long nose 1/8" punch). Loosen 1600-102 swivel nut and remove upper assembly. Lift out hat gasket over stem. Place new hat gasket, small end first, over stem and into lower body. Replace swivel nut and upper assembly and tighten. Align cross hole of Clevis No. 1600-107 with cross hole of stem. Install new 1600-119 roll pin to a flush or just below flush position in clevis, taking care not to bend the roll pin.
- Step 2: To replace disc No. 1600-126, index the shut-off to the open position and then remove the shut-off assembly from FLO-TROL. Disc will be exposed for replacement. Loosen disc nut and remove washer and old disc. Place new disc on disc holder, assemble washer and the disc nut. Tighten disc nut carefully and stake lightly to keep nut from vibrating loose.
- Step 3: Place new gasket No. 1600-39 (316-2016) in gasket recess of rear body. Install shut-off assembly and tighten, making sure that gasket stays in recess of the body.
- Step 4: Replace the old 1600-111 torsion spring with the new torsion spring furnished in the kit.
- Step 5: Shut-off Adjustment: Should the valve leak at seat, adjustment can be made by loosening lock nut No. 1600-104 and screw fork assembly downward or upward until flag (in flat position) has about 1/8" play or rotary movement. Retighten the lock nut. To set direction of the rope lever pull, loosen swivel nut No. 1600-102 and rotate the fork assembly to any desired direction. Retighten swivel nut.

Install FLO-TROL to the mounting plate or the service valve.

**Caution:** Make sure that the shut-off on FLO-TROL is in closed position. Open liquid service valve slowly and observe FLO-TROL for possible leaks. Refer to the owner's manual for operating instructions or contact your local serviceman or dealer if FLO-TROL does not function properly.