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# Installation, Operation, Maintenance Disassembly and Assembly Instructions for Model AL477EP & AL478EP Vapor or Liquid Withdrawal Valve

June 2000

Form FVC 021 - Rev. 1

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

## WARNING

Before installation or removal of any tank valves, the system must be purged completely of all product. 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 for exposure to ammonia. To insure long term safe operation, the manufacturer recommends that under normal service conditions this product should be inspected at least once every five (5) years and be repaired or replaced as required. To prevent the accidental opening of any valve, never carry or grasp a valve by its handwheel or handle.

**CAUTION:** Contact with or inhalation of Liquid Anhydrous Ammonia or L-P 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.

**TOOLS REQUIRED:** Safety Equipment (i.e. gloves, goggles, and clothing), 12" Adjustable Wrench, and 18" Pipe Wrench

## Removal of Tank Valve for Repair or Replacement

**REFER TO FIGURE 1 FOR THE FOLLOWING STEPS:**

- Step 1: Safety equipment (i.e. gloves, goggles and clothing) must be worn before continuing with the next step.
- Step 2: Before removing valve from tank, place in FULL OPEN POSITION to insure all pressure is bled from system.  
Note: An 18" Pipe Wrench will be required. See Warning at top of page.

## Disassembly Procedure For Repair

**REFER TO FIGURE 1 FOR THE FOLLOWING STEPS DEPENDING ON THE TYPE OF REPAIR REQUIRED:**

- Step 1: With valve secured in a bench vise, remove Bonnet (5) from the Body (18), which will expose the complete Bonnet and Stem Assembly. Note: It is important to inspect Disc Holder (8) rotation. If it does not rotate freely, do not use valve but consult your local dealer for instructions. Remove old Gasket (17).
- Step 2: Secure Bonnet (5) in a bench vise and remove both Handwheel and Disc Nuts (1).
- Step 3: Remove Disc Washer (10), Disc (9), Lock Washer (11), and Handwheel (2).
- Step 4: Remove Packing Nut (4), Chevron Packing (13), Male Adapter (14), and Packing Spring (16) over the end of Stem (3).
- Step 5: Rotate Stem (3) clockwise (CW) using Handwheel (2) if necessary, until stem is disengaged from Bonnet (5). Remove old Gasket (15).
- Step 6: Before reassembly, clean and inspect the valve seat at (B). Clean all metal components with solvent and wipe or blow dry with air.

## Assembly Procedure

**DEGREE OF ASSEMBLY DEPENDS UPON TYPE OF REPAIR TO BE MADE.**

**REFER TO FIGURE 1 FOR THE FOLLOWING STEPS:**

- Step 1: Install Disc (9), Disc Washer (10), and Disc Nut (1) to Disc Holder (8). Secure Disc Nut (1) to threads of Disc Holder (8) with center punch mark at thread interface.
- Step 2: Lubricate threads of stem with a good quality grease and install Stem (3) into Bonnet (5) until Disc Holder (9) rests against bottom of bonnet.
- Step 3: With the bonnet and stem assembly secured in a bench vise install Gasket (15) and Packing Spring (16).
- Step 4: Replace O-ring (12) in groove of Packing Nut (4).
- Step 5: Install Chevron Packing (13) and Male Adapter (14) into Packing Nut (4).
- Step 6: Lubricate exposed surface of Stem (3) with John Crane Style 279A Packing Lubricant or equal.
- Step 7: Place Packing Nut (4) with packing in place over Stem (3) and engage bonnet threads in Bonnet (5). Rotate Packing Nut (4) while making contact with bonnet threads. Tighten packing nut with torque wrench to 55 ft-lbs.
- Step 8: Secure Body (18) in vise. Place Body Gasket (17) over bonnet threads and lubricate threads with a good quality grease.
- Step 9: Install bonnet assembly into body and tighten with torque wrench to 95 ft-lbs.
- Step 10: Install Handwheel (2), and tighten Handwheel Nut (1) on Stem (3).
- Step 11: Check stem packing and valve seat for leaks. Operate handwheel full open to full closed to insure smooth operation.

(OVER)

Step 1: Excess Flow Valves are a Safety Device which will Close in the event of a hose failure i.e., pull away or accident which causes the hose to be Severed Completely. It is of utmost importance that these valves be Installed and Operated Properly in order to provide the Safety Protection they were designed to give. Please read and understand Excess Flow Valve Technical Bulletin 7.96. If you do not have a copy you may contact your local distributor or Squibb-Taylor at 1-800-345-8105.

a.) **TO INSPECT:** Push against the end of Check Stem (21) and depress Spring (22) until Check Disc (23) is at full stroke against the Valve Body Seat (A). Release the Check Stem (21), and observe the spring return stroke. If the excess flow assembly does not move freely toward Body Seat (A) or exhibit a snap action on the spring return stroke, do not use valve, but consult your local dealer.

**Installation of New or Repaired Tank Valves**

REFER TO FIGURE 1 FOR THE FOLLOWING STEPS:

- Step 1: Holding the valve in hand, depress and release Check Stem (21) to insure that it is operating smoothly.
- Step 2: Apply Teflon tape or sealant on 1-1/4" NPT Threads, and place handwheel in full open position.
- Step 3: Install valve into threaded tank fitting and tighten to desired position, taking caution to not overtighten.  
CAUTION: Do not damage Check Stem (21) while installing valve.

**Safety Tips for Shut-down and Storage**

**SAFETY TIPS FOR SHUT-DOWN AND STORAGE WHEN TANKS ARE NOT IN USE:**

- Step 1: Make sure all valves are closed with any exposed outlets / inlets capped to keep out debris and moisture, which will help to prevent condensation or corrosion of internal parts.
- Step 2: Store tanks in accordance with federal, state, and local codes and manufacturer's instructions. Check periodically for leakage or excessive pressure build-up. Make corrections or repairs as necessary.

**WARNING:** The Model AL477 is equipped with an open yoke style excess flow valve. In tank applications it must be installed in combination with a 1.652" I.D. dip tube. An undersize dip tube will cause premature closing while withdrawing liquid. An oversize dip tube will not allow the valve to close in the event of a total hose failure. In 2" NPT pipe riser applications it must be installed in combination with a 2" x 1-1/4" NPT reducer bushing and a 2" NPT Tee.

24	1	WARNING LABEL
23	1	CHECK DISC
22	1	SPRING
21	1	CHECK STEM
20	1	1/4" NPT HEX HD. PLUG
19	1	RETAINING SCREW
18	1	BODY
17	1	BODY GASKET
16	1	PACKING SPRING
15	1	GASKET
14	1	MALE ADAPTER
13	2	CHEVRON PACKING
12	1	O-RING
11	1	LOCK WASHER
10	1	DISC WASHER
9	1	DISC
8	1	DISC HOLDER
7	15	BALL
6	1	NUT
5	1	BONNET
4	1	PACKING NUT
3	1	STEM
2	1	HANDWHEEL
1	2	HANDWHEEL NUT/DISC NUT
ITEM	QTY	DESCRIPTION

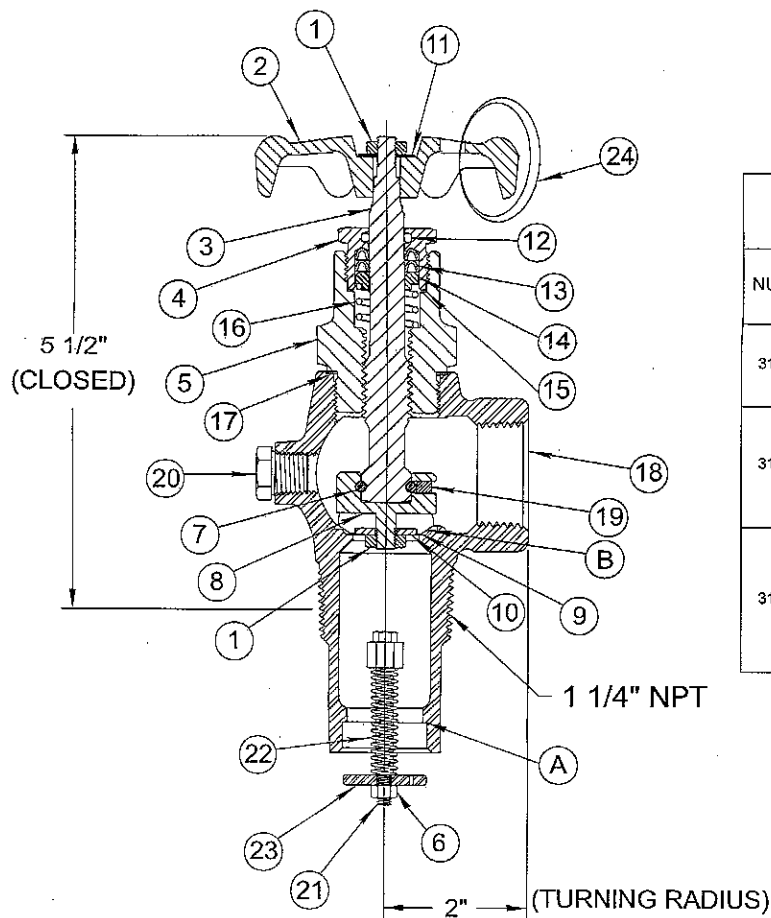


FIG. 1

AVAILABLE KITS		
NUMBER	NAME & PARTS INCLUDED	ASSEMBLY PROCEDURE
310-0022	SEAL KIT ① ⑨ ⑫ ⑬ ⑮ ⑰	STEPS 1 THRU 11
310-1300	STEM & DISC HOLDER ASSEMBLY ① ③ ⑦ ⑧ ⑨ ⑩ ⑱	STEPS 2 THRU 11
310-1100	BONNET ASSEMBLY ① ③ ④ ⑤ ⑦ ⑧ ⑨ ⑩ ⑫ ⑬ ⑭ ⑮ ⑰ ⑱	STEPS 8 THRU 11