

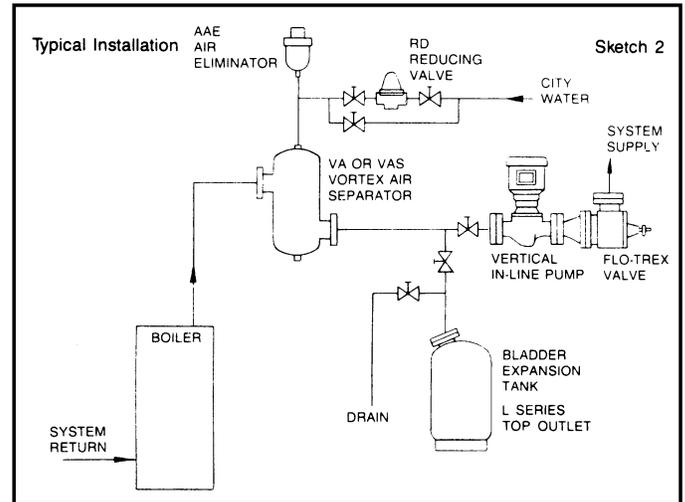
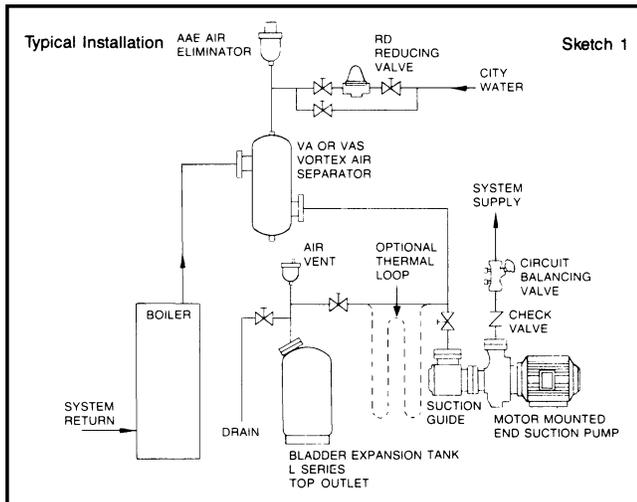
BLADDER EXPANSION TANKS L SERIES - TOP OUTLET

INSTALLATION AND OPERATING INSTRUCTIONS

CAUTION: Do not remove the drain plug or loosen the nuts on the dip tube/flange assembly.

If it is necessary to remove the drain plug, be sure the air pressure in the tank is at zero. Before bleeding to zero psi, isolate the tank from the system by closing the isolation valve. Also, **DO NOT** remove the dip tube/flange assembly before first bleeding to zero gauge pressure.

1. Inspect the Expansion Tank for damage which may have occurred during shipping. If any damage exists, note it on the freight bill and file a claim with the shipping company. **DO NOT INSTALL THE UNIT.**
2. A gate valve, with lockshield recommended to isolate the tank from the system should be installed to facilitate:
 - a) Hydrostatic testing of the system.
 - b) Service of the tank.
3. A drain valve should be installed between the gate valve in #2 and the tank system connection to facilitate service.
4. System air must be purged and not allowed to enter the tank.
5. Check the tank system connection to be sure nothing is obstructing the inlet passage way.
6. Allow at least 18" (457 mm) clearance above the tank for the system connection.
7. See sketches 1 and 2 for typical piping configurations.
8. Tanks are pre-charged at 12 psi (83kPa). Before installing the tank, check the charge with an automotive tire gauge. If the tank charge is not at the desired psi, bleed off or fill to the psi required. Any alteration in the factory pre-charge should be completed **JUST PRIOR** to filling the system with water.
9. Tank connection piping and air separators with air vents should be arranged so that the air will not be trapped in the tank. When possible, connect the piping with the pitch down to the tank, using air vents as illustrated in the sketches.
10. On a closed system, connect the tank on the suction side of the pump. This is the point of no pressure change.



CHANGING A SERIES L BLADDER IN THE FIELD

The L Series water system tank has been designed with a replaceable bladder. It is unlikely that replacement will be necessary; however, should some incident occur which requires the replacement of the bladder, the procedure outlined below should be followed:

- Before proceeding with bladder replacement, read these instructions through and check the "Required tooling and supplies" listing at the end.
1. Isolate the tank from the system. Shut off the automatic fill valve and drain the boiler to release all of the system pressure.
 2. Drain the bladder tank as much as possible through the drain valve installed between the system isolation valve and the tank. Compressed air may be added through the charging valve to assist in draining the tank.
 3. Release air from the tank through the air valve.
 4. Remove the air valve core to bleed the remaining air charge (fig. 1). **CAUTION:** Be sure most of the air has been released before attempting this.
 5. Open the drain plug to remove the water from the tank (fig. 2).
 6. Disconnect the system connection.
 7. Remove the bolted upper flange and dip tube. Prior to removal, mark the mating flanges to match when re-assembling (fig.3).

8. Attached to the upper flange is the bladder support and dip tube (fig. 4). Examine and clean prior to re-assembly.
9. Pump or siphon the water out of the inside of the bladder, if necessary. Do not puncture the bladder.
10. Using a chain block, lift the bladder out of the tank with a twisting motion.
11. Pump out the remaining water from the very bottom of the tank. Hose down the inside walls to remove sediment if necessary.
12. Mop up the remaining water.
13. Dry out the inside of the tank (using a reversed vacuum cleaner).
14. Clean out any remaining dirt.
15. Roll up the replacement bladder (lengthwise) and tie at necessary intervals WITH ROPE to keep it rolled.
16. Insert the new bladder with the arrow on the flange pointing to the top of the tank (fig. 5). Remove the ties as they near the tank opening. With a long wooden stick, clear a path for the dip tube. DO NOT USE A SHARP STICK.
17. Check the top flange marking to be sure the upper/lower flanges line up per # 7 above. Be sure the flange faces are clean and the bladder is positioned correctly in the tank.
18. Assemble the upper mating flange. Cross tighten the bolts evenly in several stages, per the accompanying torque chart.
19. Clean the drain plug and coupling.
20. Install the factory supplied drain plug, using a liberal amount of Tite-Seal Compound 55 or equivalent. **THIS CONNECTION MUST BE ABSOLUTELY AIR-TIGHT.**
21. Install the air valve core. Charge the tank to fill-pressure or minimum operating pressure before the system is filled with water.

22. Using soapy water, check the drain fitting threads, air valve core and flange joint for leakage.
23. Connect the tank to the system. Close the drain valve and open the fill-valve. Replace the lock shield if used and check operation. **ALWAYS PRE-CHARGE THE TANK BEFORE COMPLETING THIS STEP.**

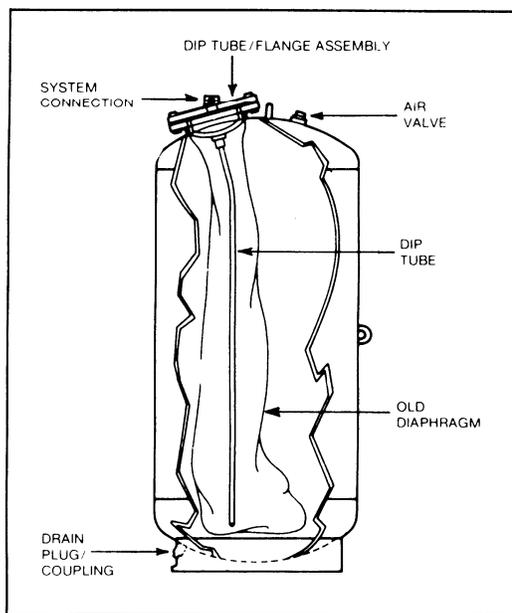
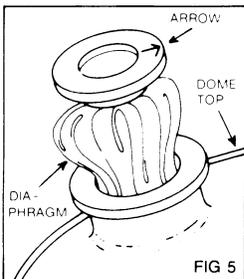
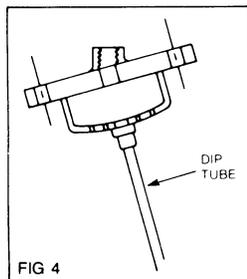
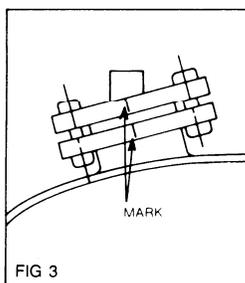
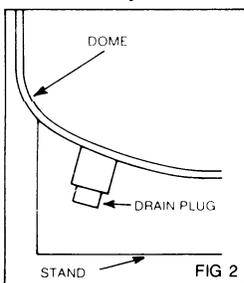
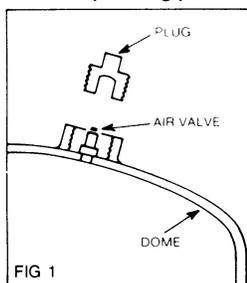
REQUIRED TOOLING & SUPPLIES

1. Plumber's tool box.
2. Source of compressed air.
3. Portable pump with 20 ft. (6096 mm) suction hose.
4. Light with 20 ft. (6096 mm) cord.
5. Power extension cord (as required).
6. Chain block.
7. Rope (to tie diaphragm).
8. Pressure gauge and air valve tool (to remove valve core).
9. New replacement bladder.
10. Long wooden stick (not sharp), at least 1 ft. (305 mm) longer than tank height.

DRY BOLT TORQUE FOR FLANGED TANK OPENINGS

SIZE OPENING	DESIGN PRESSURE		TORQUE	
	psi	kPa	IN-LBS	FT-LBS
6"	125	863	84	7
6"	175	1208	120	10
6"	250	1724	168	14
8"	125	865	168	14
8"	175	1211	240	20
8"	250	1730	336	28
10"	125	863	252	21
10"	175	1208	300	25
10"	250	1724	420	35
14"	125	863	252	21
14"	175	1208	360	30
14"	250	1724	444	37

TORQUE LISTED ARE MINIMUM REQUIREMENTS TO SEAT SEAL GASKET AGAINST DESIGN PRESSURE.



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