

Instruction Sheet

Expansion Tanks

(BLADDER TYPE)

1. Note location on the tank of the system connection, charging valve enclosure, and the drain plug. Note labels on the tank or refer to Diagram #1 – Location of Tank Fittings.
2. Carefully start to unscrew the shipping pipe-plug in the system connection coupling located at the center of the cover flange. Pause before completely removing to allow any trapped air to escape without “popping” the plug. There should not be much, if any, air pressure under this plug.
3. Remove the 1½” pipe plug covering the charging valve enclosure.

CAUTION: DO NOT REMOVE THE PIPE PLUGS LOCATED ON THE SIDE AND BOTTOM OF THE TANK (TANK DRAINS). THESE PLUGS SHOULD NEVER BE REMOVED UNLESS NECESSARY AND THEN ONLY AFTER THE AIR PRESSURE IN THE TANK HAS BEEN BLEDED OFF TO ZERO GAUGE PRESSURE. BEFORE BLEEDING OFF ANY OF THE AIR CHARGE ALWAYS ISOLATE THE TANK FROM THE SYSTEM WITH A SHUT-OFF VALVE.

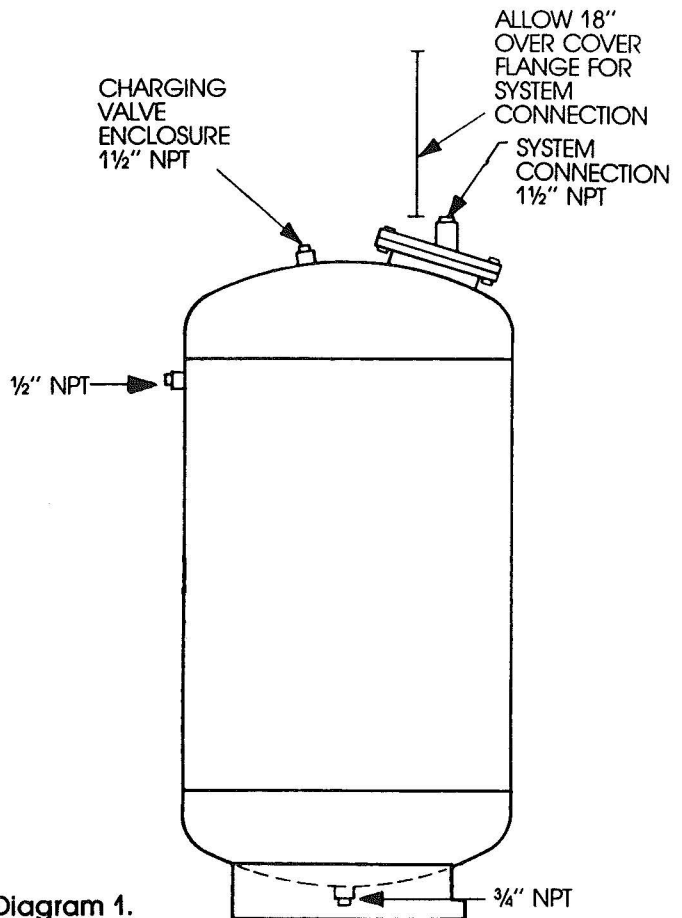


Diagram 1.

4. Before making any connections to the tank, check the tank air charge. Use an accurate automotive or similar type gauge on the air valve located under the pipe plug in step #3. The air charge pressure must be equal to the pre-charge pressure specified for the system. Refer to the label on the tank for the specified tank pre-charge pressure. In most cases the specified tank pre-charge pressure is equal to the system fill pressure at the tank location. Use Diagram #3 Air Charge Check Chart to correct the value read on the pressure gauge for the ambient temperature at the tank location.
5. After making sure that the air charge pressure is correct, replace the pipe plug over the charging valve for protection.
6. The pipe connection to the system may now be made. The piping requirements for captive air tanks are different from those of plain steel expansion tanks, note the Captive Air Tank Piping Diagrams. Piping and air elimination devices should be arranged so that air will not be trapped in the tank, above the tank, or in the nozzle. Pitch the piping connection up away from the tank and use automatic air vents where necessary, note the piping diagram.
7. Locate the tank connection as close as possible to the suction side of the pump. This ensures that the pressures realized from the pump head will be additive in the system. A combination shut-off and drain valve should be located in the connection piping to provide for tank isolation during the initial hydrostatic test.

TANKS

1. Note location of the tank of the system connection, charging valve enclosure, coupling and the drain plug. Note labels on the tank or refer to Diagram #2 – Location of Tank Fittings.
2. Carefully start to unscrew the shipping pipe-cap on the system connection located in the center of the tank head. Pause before completely removing to allow any trapped air to escape without “popping” the cap. There should not be much, if any, air pressure under this cap.
3. Remove the 1½” pipe plug covering the charging valve enclosure.

CAUTION: DO NOT REMOVE THE PIPE PLUGS LOCATED ON THE SIDE, AND BOTTOM ON THE TANK (TANK DRAINS). THESE PLUGS SHOULD NEVER BE REMOVED UNLESS NECESSARY AND THEN ONLY AFTER THE AIR PRESSURE IN THE TANK HAS BEEN BLED OFF TO ZERO GAUGE PRESSURE. BEFORE BLEEDING OFF ANY OF THE AIR CHARGE ALWAYS ISOLATE THE TANK FROM THE SYSTEM WITH A SHUT-OFF VALVE.

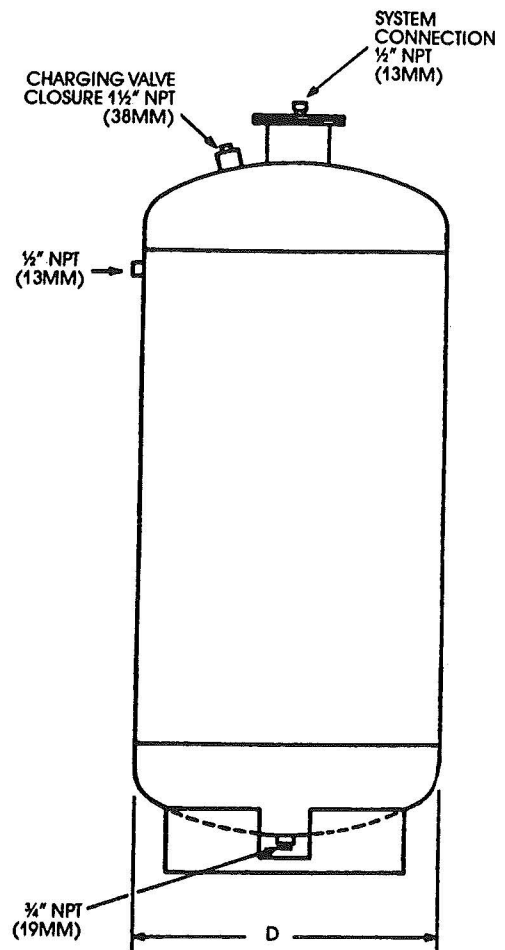


Diagram 2.

4. Before making any connections to the tank, check the tank air charge. Use an accurate automotive or similar type gauge on the air valve located under the pipe plug in step #3. The air charge pressure must be equal to the pre-charge pressure specified for the system. Refer to the label on the tank for the specified pre-charge pressure. In most cases the specified tank pre-charge pressure is equal to the system fill pressure at the tank location. Use diagram #2 Air Charge Check Chart to correct, value read on the pressure gauge for the ambient temperature at the tank location.
5. After making sure that the air charge pressure is correct, replace the pipe plug over the charging valve for protection.
6. The pipe connection to the system may now be made. The piping requirements for captive air tanks are different from those of plain steel expansion tanks, note the Captive Air Tank Piping Diagrams. Piping and air elimination devices should be arranged so that air will not be trapped in the tank, above the tank, or in the nozzle. Pitch the piping connection up away from the tank and use automatic air vents where necessary, note the piping diagram.
7. Locate the tank connection as close as practicable to the suction side of the pump. This ensures that the pressures realized from the pump head will be additive in the system. A combination shut-off and drain valve should be located in the connection piping to provide for tank isolation during the initial hydrostatic test.

AIR CHARGE CHECK CHART

AMBIENT TEMPERATURE, °F									
Specified Pre Charge Pressure, P.S.I. (at 68°F)	36	44	52	60	68	76	84	92	100
12	10.4	10.8	11.2	11.6	12.0	12.4	12.8	13.2	13.6
20	17.9	18.4	18.9	19.5	20.0	20.5	21.1	21.6	22.1
30	27.3	28.0	28.6	29.3	30.0	30.7	31.4	32.0	32.7
40	36.7	37.5	38.2	39.2	40.0	40.8	41.6	42.5	43.3
50	46.1	47.1	48.0	49.0	50.0	51.0	52.0	52.9	53.9
60	55.5	56.6	57.7	58.9	60.0	61.1	62.3	63.4	64.5
70	64.9	66.1	67.4	68.7	70.0	71.3	72.6	73.9	75.1

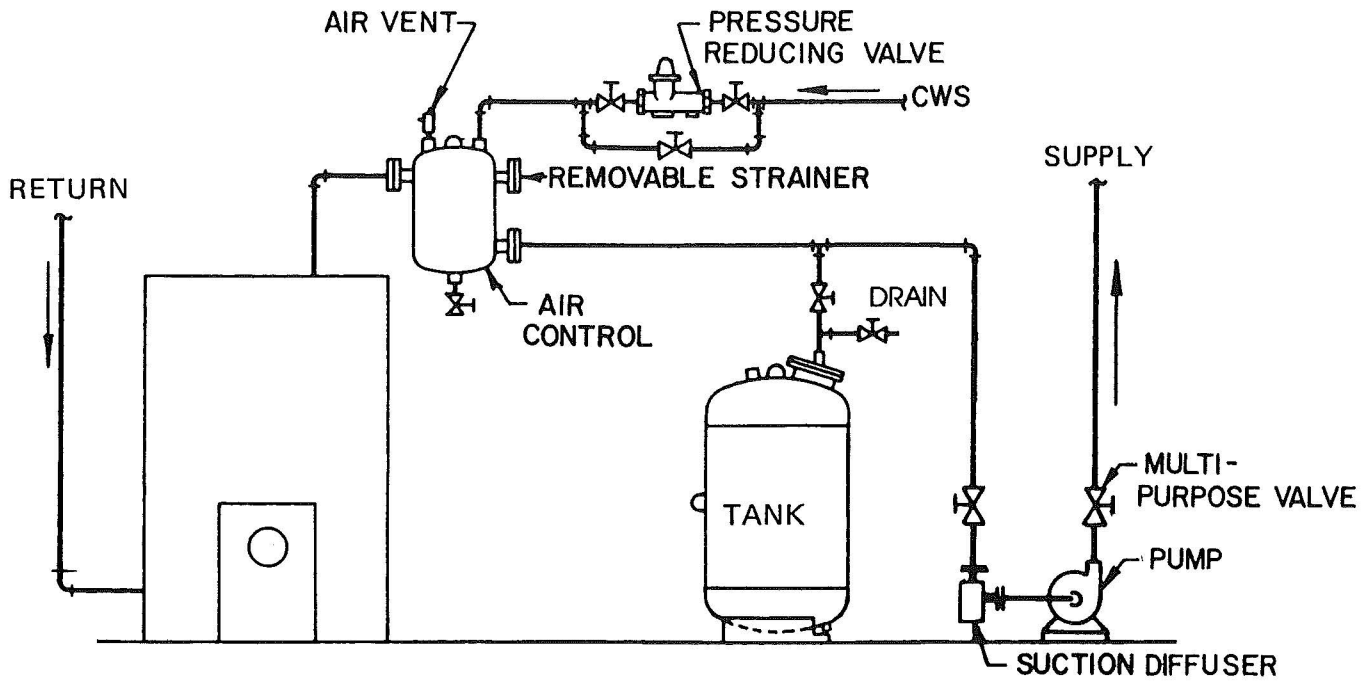
Diagram 3

HOW TO USE THE CHART

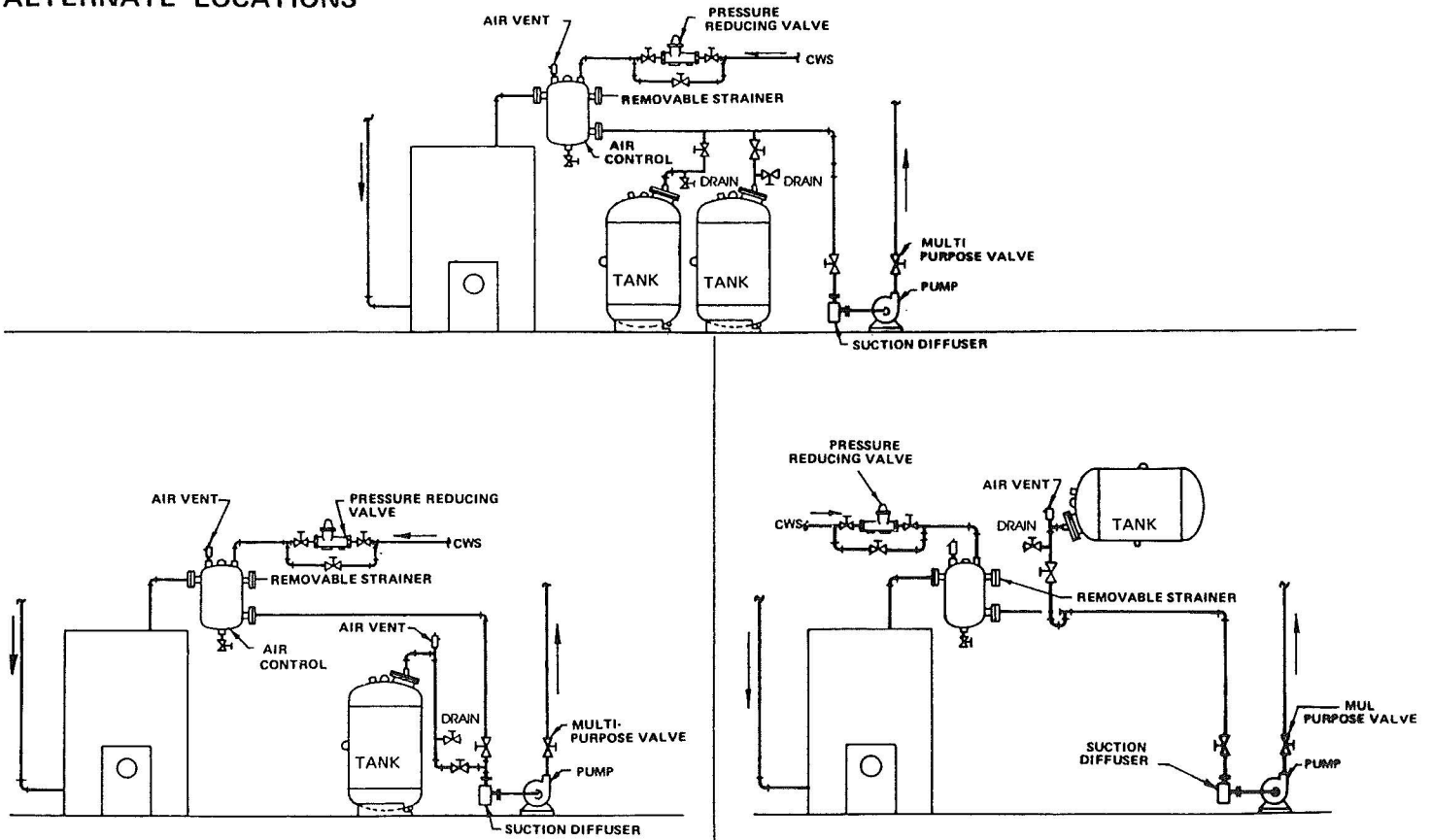
1. Determine ambient air temperature where the tank is being checked.
2. Locate the specified pre-charge pressure in the left hand column.
3. Follow across horizontally to the number under the ambient air temperature.
4. The number found under Step 3 is the temperature corrected air charge pressure in p.s.i. and should agree with the gauge reading observed at the tank.
5. If the temperature corrected air charge pressure differs by more than 1 p.s.i. from the pre-charge pressure specified for the system then correct it by bleeding pressure through the air charge valve, or by adding pressure with an air compressor.

PIPING DIAGRAMS

RECOMMENDED LOCATION



ALTERNATE LOCATIONS



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