

**SUBJECT:** PRESSURE VESSEL MAINTENANCE**SECTION:** 202.15**REVISED:** NOVEMBER 1, 2007**PAGE(S):** 4

## PURPOSE

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To provide a workable system for maintenance and record keeping on all pressurized vessels.

## POLICY

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- A. All pressurized vessels shall be numbered and recorded in the Firehouse Database.
- B. All pressurized vessels owned or utilized by the Fire Department shall be scheduled for hydrostatic testing in accordance with the following:
  - 1. All air bottles (SCBA cylinders & cascade cylinders) - at five (5) year intervals.
  - 2. All oxygen bottles - at five (5) year intervals
- C. Fire Department members shall insure that all pressure vessel fittings are kept free of grease and oil.
- D. All Fire Department members shall utilize proper safety procedures during refilling and general bottle usage procedures. NO SCBA cylinder shall be filled outside the confines of the enclosed fill station. All oxygen cylinders shall be placed in the open cylinder at the cascade system.

## PROCEDURE FOR NEW CYLINDERS

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- A. Receive cylinder from distribution.
- B. Fill cylinder (if empty) and check for obvious leaks or defects.
- C. Place Reading Fire Department sticker on the cylinder along with assigned inventory number from the Firehouse Database.
- D. Place cylinder in service as directed from the Maintenance Officer.

## PROCEDURE FOR HYDROSTATIC TESTING

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- A. Hydrostatic test dates shall be monitored on an annual basis by the Maintenance Officer through utilization of the Firehouse Database.
- B. When cylinders are to be serviced (hydrostatic test), remove the cylinder from service.
- C. Send the cylinder to the appropriate testing agency for hydrostatic testing.
- D. Upon receiving the cylinder back from the testing agency, check the cylinder for air, leaks, and/or defects.
- E. Place the cylinder back in service as directed.
- F. The Maintenance Officer shall be responsible for updating the hydrostatic test date in the Firehouse Database.
- G. If there is a problem, such as a leak, notify the Maintenance Officer and avoid placing the cylinder in service.

## PROCEDURES FOR FILLING CYLINDERS

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- A. This procedure is designed for oxygen and compressed air cylinders ONLY.
- B. Proper safety precautions shall be followed.
- C. Bottles needing refilling must be removed from their brackets or harness prior to refilling. No SCBA cylinder shall be filled outside the confines of the enclosed fill station and oxygen cylinders shall be filled in the cylinder at the cascade system.
- D. To utilize the Cascade Bottle System, the following steps should be followed:
  - 1. Attach the correct filling hose to its valve.
  - 2. Open the valve on the cylinder to be filled.
  - 3. Open Cascade Bottle with lowest pressure first, and keep it open until it stops pressurizing the cylinder being filled.
  - 4. Shut the valve and then open the next highest bottle and allow it to pressurize the cylinder being filled.

5. Continue this process until the entire Cascade System has been utilized or the cylinder has been filled.
  6. Next, return to the cylinder which is being filled, and shut its valve completely.
  7. With the valve closed on the cylinder being filled, bleed the remaining pressure.
  8. After the valves on all bottles are closed, return to the cylinder that has been filled and slowly and carefully remove the filling hose.
  9. Remember to open and close each Cascade Bottle slowly and when the pressure equalizes, close its valve.
- E. Fill oxygen cylinders to the maximum pressure of 2200 psi. Oxygen cylinders should be pressurized to no LESS than 1700 psi.
- F. Fill SCBA cylinders to the maximum pressure of 4500 psi. SCBA cylinders should be pressurized to no LESS than 4000 psi.

### **CASCADE SYSTEM RESUPPLY - OXYGEN**

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The following information concerns the oxygen Cascade System located at the Valley Fire Station.

- A. When oxygen bottles reach a low pressure of 400 lbs. or less, they should be removed from the Cascade System and placed in reserve for squad use, given its pressure is over 50 psi. Bottles below 50 psi., will be taken out of service and sent to the supplier for exchange.
- B. To insure that an exchange of bottles has taken place, we will use the following procedures:
  1. On the same day that the bottles are exchanged, the full cylinders will be put back into the system.
  2. The pressures shall be checked on the bottles and the number one (1) through three (3) positions aligned accordingly.
- C. When oxygen cylinders in each squad reach 50 psi. it should be replaced by the number one (1) bottle in the Cascade System, realigning the bottles accordingly after replacing a third bottle.

## CASCADE SYSTEM RESUPPLY – BREATHING AIR

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- A. Assure that all valves at the fill station are closed. Utilizing the “TO” valves at the top of the fill station, slowly open valves 1 through 4 individually, allowing the pressure in all the storage cylinders to equalize.
- B. Activate the compressor via the power switch and allow the storage storage cylinders to fill completely; the compressor shall fill the cylinders to 4500 psi. and then shut down automatically.
- C. Close the “TO” valves at the top of the fill station and turn off the compressor via the power switch.

## RESPONSIBILITY

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- A. The overall responsibility for maintenance and record keeping on all pressure vessels shall be with the Maintenance Officer.
- B. Unit Commanders are responsible for insuring that Departmental policies and procedures concerning pressure vessels are correctly carried out.