

## **Standard Operating Guidelines**

### **FILLING OF SCBA**

Guideline # 220.18

Date: 03/09N

#### **PURPOSE**

To establish a uniform system to train personnel on the proper operation, maintenance and recharging of the cascade system and SCBA bottles in use by the fire department, as per factory and department standards.

#### **RESPONSIBILITY**

All personnel shall abide by the following rules and procedures as established herein. Failure to do so will result in appropriate discipline.

#### **PROCEDURES**

The following procedures have been developed to assist in the training of personnel in the proper use of the air system and the actual use of the system. If any unusual circumstances arise while using the air system and/or you are unsure of what the problem is, stop and seek assistance from a qualified person.

#### **DESCRIPTION**

The Districts SCBA cascade system consists of a in-station Bauer high-pressure compressor system and a mobile Sierra Precision system on Unit 5503.

#### **PREVENTATIVE MAINTAINENCE**

Annual preventative maintenance is performed by Air & Gas Technologies, Inc on both systems. This includes Certified Air Testing quarterly as required by OSHA CFR1910.134. Additionally, before the compressor is used to fill the in station cascade system, the oil level shall be checked. The oil level sight glass is located behind the upper access panel on the left end of the unit. Results of all air testing is reviewed and stored in the Districts office.

## **GENERAL**

Cylinders that need to be filled may only be filled by trained Fire District 3 individuals.

Cylinders that need filling and not filled immediately, should be placed in the filling rack next to the filling station, which is restricted to only holding bottles OKAY to fill.

Cylinders that are placed out of service for any reason shall be tagged with an appropriate tag "OUT OF SERVICE" with reason listed and placed in the "Out Of Service" equipment area so marked in the station.

## **SETTING THE PRESSURE REGULATOR**

Prior to filling a cylinder, open up the bank needed to fill from, and it is required that you check and properly set the pressure regulator. Set the pressure regulator to 4500psi. Should it not be set properly, turn the regulator clockwise to increase the pressure and counterclockwise to decrease the pressure until the fill pressure gauge reads the correct pressure.

## **FILLING CYLINDERS**

Before filling any SCBA cylinder, there are several checks that must be performed:

- Check the hydrostatic test date, five years on all cylinders, if the cylinder is past beyond the five year test date, tag the cylinder out of service and place it in the appropriate out of service area.
- Visually inspect all cylinders for deep gouges, damaged valves, signs of obvious damage (including unraveling) and problems with the pressure gauges. If any damage is found, stop procedure, tag bottles and place in out of service area.
- All cylinders should be inspected /cleaned as needed before filling.

All cylinders ready to be filled should be logged individually in the appropriate fill log/inspection record book.

- If cylinder is from another department, check the capacity of the cylinder before filling.

If any cylinder is from another department and is found to be needing hydro-testing or is damaged, the cylinder is not to be filled. Notify the person who brought the cylinders and explain the problem and the reason the cylinder cannot be filled, without exception!

After completing the above checks, you can start filling the cylinders. When filling a number of SCBA cylinders, try to arrange the cylinders in groups of two that have close to the same starting pressures, then proceed with the following steps

1. Don hearing protection prior to performing tasks that create environments louder than 90 dba.
2. After grouping the cylinders, unlock and open the fill station door, place each cylinder in a compartment and attach the fill hose. Pressure gauge on system and pressure gauge on SCBA cylinder should read equal pressure before proceeding to next step. If a variation in pressure exists, stop the process and try another bottle. If problem still persists, discontinue use of the filling system and mark it out of service. If problem does not exist with fill cylinder, tag original problem bottle out of service for testing.
3. Ensure the bleeder valve on the fill line is closed, then open the cylinders valve. Pressure gauge on system and pressure gauge on SCBA cylinder should read equal pressure before proceeding to next step. If a variation in pressure exists, stop the process and try another bottle. If problem still persists, discontinue use of the filling system and mark it out of service. If problem does not exist with fill cylinder, tag original problem bottle out of service for testing. Close the door and activate the door lock.
4. To begin filling, start with the bank with the lowest pressure, which will typically be Bank 1. Slowly open the valve for the bank. Open fill valve until you barely hear air moving through the system and the needle barely starts to move. NOTE: On occasion the filling process should rotate banks between 1-4 to ensure regular use of all the banks.
5. **The fill rate process should not exceed 400-500 psi per minute; use your best judgment and ensure that the cylinders are filled slowly, and the cylinder does not heat up.**
6. Monitor the gauges and adjust the valve for the bank as necessary.
7. Allow the pressure to equalize between the bank and the cylinders, and then close the bank. If the pressure in the bank is not enough to bring the cylinder to the appropriate pressure, open the next highest bank and continue as you did with the first.
8. When the individual cylinders are brought to the correct pressure, close all bank and fill valves.
9. Unlock and open the fill station door, close all cylinders and bleed off the pressure in the fill lines. Remove the cylinder from the fill compartment. If more cylinders are to be filled, repeated the above steps.
10. **When complete bleed down all pressure from system including the regulator.**

#### **REFILLING THE CASCADE SYSTEM WITH THE COMPRESSOR:**

When you are finished filling cylinders and any of the cascade banks are below 4500 psi., the system should be recharged. The compressor should automatically start but in case someone turned it off, the following procedure should be used:

1. Before the compressor is used to fill the cascade system, the oil level should be checked. The oil level sight glass is located behind the upper access panel on the left end of the unit.
2. Turn on the compressor with the On/Off switch.
3. Banks to be filled must be left open.
4. The compressor will automatically shut off when the system is recharged.
5. Close all banks when system shuts off and banks are full.

#### **REFILLING THE MOBIL CASCADE SYSTEM WITH THE COMPRESSOR:**

When you are finished filling cylinders off of the mobile system and any of the cascade banks are below 5000psi., the system should be recharged. The following procedure should be used:

1. Before the compressor is used to fill the cascade system, the oil level should be checked. The oil level sight glass is located behind the upper access panel on the left end of the unit.
2. Connect the fill line from the compressor to the mobile system and open all banks needing to be filled.
3. If not already in on position, turn on the compressor with the on/off switch.
4. Close all banks when system shuts off and banks are full.
5. The compressor will automatically shut off when system is recharged.
6. Disconnect fill line from the mobile system and coil up and stow on the compressor.

#### **REFILLING THE MOUNTED LARGE AIR BOTTLE ON 5505 WITH THE COMPRESSOR:**

After any use of the large bottle on 5505, the bottle should be recharged. The following procedure should be used:

1. Before the compressor is used to fill the cascade system, the oil level should be checked. The oil level sight glass is located behind the upper access panel on the left end of the unit.

2. Connect the fill line from the compressor to the large bottle and open the valve for filling. The bottle should be refilled to the 5000psi.
3. If not already in on position, turn on the compressor with the on/off switch.
4. The compressor will automatically shut off when system is recharged.
5. Close bottle and disconnect fill line from the bottle, and coil up and stow on the compressor.

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Approved:

Date:  
District Chief:

Date:  
Company Chief

Date:  
Board: