

# Washington Township Fire Department Standard Operating Procedure

## Division 200: EMERGENCY OPERATIONS

### Section 202: Emergency Medical Services

#### Subject 202.04: *Medical Oxygen Procedures*



Date: May 9, 2000

Page: 1 of 4

---

---

#### **PURPOSE:**

To establish a uniform system to train personnel on the proper operation/maintenance and procedure in the care and refilling of portable oxygen tanks.

#### **RESPONSIBILITY:**

It is the responsibility of all personnel to follow these procedures. Only those personnel who have been properly trained to use the oxygen cascade shall operate any of its components.

#### **DESCRIPTION:**

The Washington Township Fire Department Oxygen cascade system(s) are made up of 4 "H" size oxygen cylinders connected with a manifold system and a floor mounted steel safety chamber. The cylinders are to be secured at all times. Stations may have separate rooms dedicated to the cascade systems. These areas will be identified as the refill stations. Washington Township makes use of the smaller "D" size portable cylinders during patient care. These are the cylinders that are refilled off of the larger cascade system. Each portable O2 cylinder can be identified by a 3-digit number assigned by Washington Township.

#### **PROCEDURES:**

##### **General Maintenance:**

The following procedures have been developed to assist in the training of personnel in the safe and proper use of the oxygen cascade.

The portable oxygen cylinder should be inspected daily for damage to the cylinder and/or regulator.

Cylinders must be placed in an upright position prior to opening the valve. Whenever possible an O2 cylinder should be kept in an upright position. This could prevent particles from collecting around the neck or valve. Upon opening the valve the valve opening should be aimed in a safe direction, away from the operator. The cylinder is to be opened slowly by hand. **Do not open** a cylinder if it is not in an upright position and aimed in a safe direction.

Oxygen cylinders should be stored in an area free of dirt, oils and greases.

When opening or filling O2 cylinders, the cylinder valve should be opened very slowly, allowing the regulator to pressurize, and then the valve can be fully opened.

All cylinders must be opened and closed by hand. Never use a tool or wrench, except those specially designed for this use.

Firefighters as well as EMS personnel must be familiar with the proper use and care of O2 cylinders.

# Washington Township Fire Department Standard Operating Procedure

## Division 200: EMERGENCY OPERATIONS

### Section 202: Emergency Medical Services

#### Subject 202.04: *Medical Oxygen Procedures*



Date: May 9, 2000

Page: 2 of 4

---

---

Maintenance of any O<sub>2</sub> cylinder must be left to the EMS Captain for disposition.

#### **Procedure for Filling Portable cylinders:**

The portable oxygen cylinder should be inspected prior to each re-fill for the following:

- A. The cylinder valve should be clear of any and all contaminants. If contaminants are present in the valve chamber and removing them is unlikely, do not re-fill the cylinder. Tag the bottle as OOS and notify the FAO with the bottle number. This information must be forwarded to the EMS Captain.
- B. If a cylinder is completely emptied (no pressure) and the regulator has been removed the valve should be closed tightly and a plastic cap placed over the opening until refilled. Plastic caps can be found in the cascade rooms of Station 41 and Station 42. This plastic cap reduces the risk of contaminants entering the valve or the cylinder.
- C. The cylinder must be within its hydrostatic test date (5 years medical cylinder). This is usually found at the valve end of the cylinder, around the neck. It is identified numerically with a listing of the month and year of last test.

If any unusual circumstance arises during the re-fill procedure and you are unsure of the problem, or are unsure of any procedures STOP and seek assistance from another qualified person.

Turn the portable cylinder on to verify O<sub>2</sub> reading in the cylinder. Turn the cylinder off and bleed off pressure.

Remove the regulator and inspect the cylinder and valve opening.

Place the fill valve onto the cylinder and hand tighten only. Place the portable cylinder in the heavy metal protective shield, located on the floor next to the cascade system, and secure the top of the protective shield.

Verify the O<sub>2</sub> pressure readings in the H cylinders that are recorded on the Compressed Air Cascade Usage Chart located at each fill site.

# Washington Township Fire Department Standard Operating Procedure

## Division 200: EMERGENCY OPERATIONS

### Section 202: Emergency Medical Services

#### Subject 202.04: *Medical Oxygen Procedures*



Date: May 9, 2000

Page: 3 of 4

---

---

Begin filling using the H cylinder that is above but closest in pressure to the portable cylinder.

Turn the valve on the H cylinder very slowly while monitoring the pressure gauge located on the manifold. Do not fill rapidly.

After the cylinder is completely opened slowly open the fill valve on the cascade line. Do not open this valve fully. This valve controls the rate of fill. There will be an audible hissing sound present when the cylinder is filling and absent when pressures have equalized.

Portable O2 bottles should be filled at a rate of 200psi per minute. This can be observed by monitoring the pressure gauge. Rapid filling of cylinders is dangerous and is not to be done.

The portable cylinder should never become hot to the touch. If this occurs then filling was too rapid. Discontinue the filling process and allow the cylinder to cool. Heating of O2 cylinders and their components will cause permanent damage and possibly an explosion. The cylinder may become slightly warm to touch. Any increase in temperature will result in loss of pressure after the oxygen has cooled.

After pressures have been equalized, close the fill valve and then close the H cylinder and slowly open the next H cylinder to be used. Repeat this process until the portable cylinder is filled to 2000 psi.

When the cylinder is filled, shut off the fill valve and close the H cylinder. Close the valve on the portable tank. Slowly open the bleed off valve located on the cascade line. After the pressure is bleed off it is safe to open the lid on the protective shield and remove the valve from the cylinder.

#### After Filling is Completed:

Place the plastic cover over the opening to the cascade valve and place the valve in a safe place.

Record all the information on the Compressed Air Cascade Usage Chart.

Examine the portable cylinder valve opening for contaminants. If the opening is clear, attach the O2 regulator onto the cylinder and hand tighten.

Aim the valve opening away from you and slowly open the valve keeping the cylinder upright. By doing this leaks can be detected and corrected. This also allows for a reading of the pressure gauge.

Shut the valve off and bleed the pressure off of the valve. Once again return the cylinder to its designated location.

# Washington Township Fire Department Standard Operating Procedure

**Division 200: EMERGENCY OPERATIONS**

**Section 202: Emergency Medical Services**

**Subject 202.04: *Medical Oxygen Procedures***



Date: May 9, 2000

Page: 4 of 4

---

---

Approved by,

\_\_\_\_\_  
K. C. Parks, Fire Chief

\_\_\_\_\_  
D. A. Cunningham, Deputy Chief