



Fire Protection Training

Procedures Handbook 4300

PERSONAL PROTECTIVE EQUIPMENT

TOPIC: Refilling Breathing Apparatus Cylinders

TIME FRAME: 1 Hour

LEVEL OF INSTRUCTION:

BEHAVIORAL OBJECTIVE:

Condition: A written quiz

Behavior: The student will describe methods of filling self-contained breathing apparatus cylinders and safety applicable precautions

Standard: With a minimum of 70% accuracy

MATERIALS NEEDED:

- Appropriate visual aids
- Audio visual equipment
- Varying types of SCBA cylinders

REFERENCES:

- IFSTA, Essentials of Fire Fighting, 2nd Edition, Chapter 9

PREPARATION: Fire department's endeavor to have extra breathing apparatus cylinders available for lengthy assignments or numerous calls in a short time period. It is every firefighter's responsibility to ensure that all cylinders are properly cared for, maintained, and refilled.

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REFILLING SELF CONTAINED
BREATHING APPARATUS
CYLINDERS

PRESENTATION	APPLICATION
<p>I. METHODS OF REFILLING SCBA CYLINDERS</p> <p>A. Cascade Techniques</p> <ol style="list-style-type: none">1. Large capacity air cylinder<ol style="list-style-type: none">a. At least 300 cubic feetb. Connected to manifoldc. Each supply cylinder has pressure gauge2. Check hydrostatic test date on SCBA cylinder<ol style="list-style-type: none">a. Do not refill if out of date<ol style="list-style-type: none">(1) 5 years for steel and aluminum(2) 3 years for composite3. Inspect SCBA cylinder for damage4. Secure cylinder in a fragment-proof charging station<ol style="list-style-type: none">a. Need not immerse in water; can cause bubbling and delamination of composite cylinders5. Connect charging hose from supply cylinder to SCBA cylinder6. Open SCBA cylinder valve7. Slowly open cascade cylinder<ol style="list-style-type: none">a. Cylinder with the least amount of pressureb. No chattering noise	<p>What refilling system does your department utilize?</p>

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<ul style="list-style-type: none">8. Let pressures equalize9. Close cascade cylinder valve10. Open cascade cylinder valve with next higher pressure11. Continue procedure until SCBA cylinder is charged12. Safety Precautions<ul style="list-style-type: none">a. Do not fill cylinders with out dated hydrostatic test datesb. Do not fill damaged cylindersc. Do not overheat cylinder13. Record pressure on cascade cylinder gauge on record card at end of filling session	
<p>II. COMPRESSORS</p> <p>A. Refilling Procedures</p> <ul style="list-style-type: none">1. Check hydrostatic test date<ul style="list-style-type: none">a. Within 5 years for steelb. Within 3 years for composite2. Check working pressure of cylinder<ul style="list-style-type: none">a. 4500	<p>Instructor Note: See manufacturer's recommendations</p> <p>Refer to departmental policy on recharging cylinders</p>

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<ul style="list-style-type: none">b. 3000c. 20153. Check for "+" sign after most recent hydrostatic test date<ul style="list-style-type: none">a. Permissive 10% overfill if present4. Clear refill station nozzles by discharging short burst of air5. Clear SCBA cylinder valve by discharging short burst of air6. Attach cylinders handtight to refill station nozzles7. Close bleed valves on refill stations8. Fully open SCBA cylinders9. Move all personnel behind fragmentation barrier, and preferably out of room10. From control panel, open fill control valves for appropriate stations<ul style="list-style-type: none">a. Closely monitor all gauges to prevent accidental overfill or over pressurization of cylinders11. From control panel shut refill station valves as SCBA cylinders reach their capacity.12. Once all refill stations are shut off enter refill area.13. Close all SCBA cylinder valves fully14. Open refill station bleed or pressure relief valves and leave open	

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<ul style="list-style-type: none">15. When excess air has bled off remove SCBA cylinders from the refill stations16. Properly store SCBA cylinders17. Fill out appropriate logs and records <p>B. Safety Precautions</p> <ul style="list-style-type: none">1. Fully understand refill procedures2. Don't fill damaged cylinders3. Don't fill cylinders out of hydro4. Don't discharge air toward any other person5. Do not allow unauthorized or unnecessary personnel in the refill area6. Do not heat SCBA cylinders by filling too quickly	

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SUMMARY:

Fire departments must have a reliable and efficient method of refilling cylinders. This is especially important on long duration assignments or where numerous calls are received in a short period of time. Cascade systems and compressor systems are most common.

EVALUATION:

A written quiz.

ASSIGNMENT:

To be determined by instructor(s).