



New York State
Department of Health
Bureau of Emergency Medical Services

POLICY STATEMENT

Supersedes /Updates: All Previous

No. 98 - 06

Date 5/10/98

Re: Ambulance Oxygen
Systems &
Equipment

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This policy updates a number of previously issued policy statements and memorandums sent to services over the last several years detailing use and safety concerns for oxygen delivery equipment. This policy supersedes all previously issued statements.

AMBULANCE OXYGEN SYSTEMS

Oxygen delivery systems in ambulances are a potential source of hazard if the distribution system and cylinders are not properly installed and maintained. Oxygen systems in ambulance vehicles need to be maintained in accordance with the original equipment manufacturer's (OEM) specifications and inspected periodically for leaks, cleanliness and system integrity. Any unexplained noise or loss of oxygen gas *should* be investigated thoroughly. Caution should be exercised when replacing any component in the system to avoid installing an incompatible or incorrect piece of equipment (eg. liter flow regulator to replace a pressure reduction valve). *At no time should adhesive tape or similar materials, or petroleum products be used to seal connections or repair leaks.*

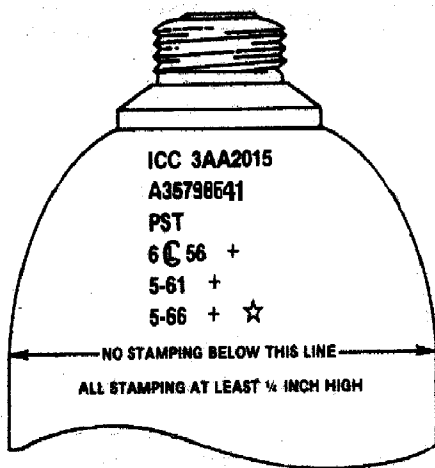
OXYGEN CYLINDERS

Poorly maintained or the incorrect handling of oxygen cylinders can be hazardous to staff and/or patients. The Department recommends that all providers become familiar with the applicable Federal US DOT regulations (CFR-49-100/199) pertaining to the maintenance of oxygen cylinders.

Services should take all necessary measures to ensure cylinder integrity. Specific attention should be given to the following areas concerning oxygen cylinders.

- a. Cylinder leaks, abnormal bulging, defective or inoperative valves or safety devices.

- b. Physical presence of rust or corrosion on a cylinder or cylinder neck.
- c. Any foreign substances or residues, such as from adhesive tape around the cylinder neck, oxygen valve or regulator assembly. The presence of these materials may hamper the ability of the oxygen delivery equipment to work properly and in some cases may have the potential to cause fire or explosion.
- d. All oxygen cylinders must have proper hydrostatic testing and be marked appropriately. Services need to be aware of the specific requirements for the testing requirements of steel and aluminum tanks (eg. ten (10) years initial testing for steel cylinders and five (5) years for aluminum cylinders). Figure A identifies the proper definitions and markings for pressurized gas cylinders.



Plus sign indicates cylinder may be overcharged 10%

5 - 66

Latest date indicates last cylinder retest



Five pointed star symbol indicates a ten year retest interval

Fig. A

Any cylinder placed in service by an EMS service, whether or not it is currently on a vehicle, must be within test requirements as evidenced by a valid hydrostatic test date imprinted on the cylinder.

Paper labels on a cylinder usually indicate a gas expiration date and are not a valid cylinder test date.

MINIMUM SUPPLY/CYLINDER PRESSURE

An adequate supply of oxygen must be available at the beginning and at all times during a shift or ambulance call. To meet the requirements of 800.24.b, the Department will accept a minimum of 2,000 psi in any combination of portable cylinders (eg. 1 @ 1700 and 1 @ 700) on a vehicle at the beginning of the shift. Oxygen used during a shift must be documented on a PCR. One portable cylinder must contain at least 500 psi at any time. A vehicle with less than 500 psi in one portable cylinder must be considered out of service until restocked.

An 'installed' cylinder (H, K, Q, etc.) must contain at least 500 psi.

Services must develop policies and procedures to address cylinder replacement when there is a low volume (eg. 500, 700 psi) and such replacement needs to be based on the number of cylinders carried, resupply capability, shift length, etc.

INSTALLED OXYGEN SYSTEMS WITH HUMIDIFIERS

The Department recommends that disposable type oxygen humidifiers be the unit of choice. Services that continue to use non-disposable humidifiers must take steps to ensure the sanitary condition of the system at all times including a separate supply of sterile water, as required by 800.23(a). At no time is water to be stored in a 'refillable' humidifier. Any refillable system must be *dry* unless it is currently in patient use, as open sterile water can quickly become contaminated with microorganisms.

OXYGEN CYLINDER SECURING DEVICES

Part 800.23 (e) requires that each pressurized gas cylinder in any ambulance be mechanically secured. For installed oxygen systems, this must be accomplished by using the OEM supplied securing system or a similar replacement system that is maintained in proper condition. Portable and spare cylinders, must be mechanically fixed in place using a cup & yoke or equivalent device.

Portable cylinders may be packaged in a rigid or padded protective case and then stored in a cabinet or strapped to the ambulance cot with the head of the cot in the elevated position. In all situations the cylinder head and regulator are to be protected. *At no time are oxygen cylinders to be stored in a cabinet or under the squad bench held in place by other items of equipment.*

LIQUID OXYGEN SYSTEMS

Liquid oxygen systems are beginning to be used in ambulance vehicles as a “bulk” source. Each service is advised to fully research the feasibility of using a liquid oxygen system prior to making a decision to use this type of system. Issues concerning the use of liquid oxygen systems include but are not limited to:

- a. Liquid oxygen systems bleed off almost constantly, and may waste a lot of oxygen making these systems unsuitable for low volume ambulance vehicles where more oxygen will be exhausted than used.
- b. Liquid oxygen systems may be classified as a hazardous material in certain quantities, and in some jurisdictions are prohibited on thoroughfares, bridges and/or tunnels.
- c. Source and ability to refill the unit.

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