

Manitoulin-Sudbury District Services Board POLICY & PROCEDURES MANUAL	
Section: G. Emergency Medical Services	Effective Date: March 1, 2010
Topic: 8. Occupational Health and Safety	Replaces: New
Subject: 3.7. Oxygen Regulators	
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PURPOSE

To outline safe workplace process and the safe use of Oxygen Regulators.

APPLICATION

Paramedics, EMAs, Management

PROCEDURE

Rationale for use

The pressure of a gas (oxygen in this situation) within a cylinder is much too high (about 2000 psi in a full cylinder) to be used safely on a patient. Oxygen pressure regulators reduce the high pressure to around 50 psi.

Description

The Compressed Gas Association (CGA) has established specifications for cylinder outlet and regulator inlet fittings that are unique for each commonly used medical gas. On D cylinders the regulator is secured to the cylinder valve assembly by a yoke assembly. The yoke is provided with pins that must mate with corresponding holes in the valve assembly. This is called the Pin-Indexed Safety System (PISS) and designated as CGA-870 (Compressed Gas Association).

FLOPAC INGAGE



Regulators used with M cylinders have a valve assembly with a threaded outlet. All threaded regulator fittings conform with safety systems to prevent the regulator from being connected to a cylinder containing another gas or to a device not designed for use with oxygen.

Procedure for Use

Engagement of the Regulator to the Oxygen Cylinder

- Place the cylinder securely upright and position yourself to the side of it.
- Remove the seal from the cylinder outlet. “Crack the cylinder” (briefly turn the cylinder on and off) with the wrench or knob to clean the valve of any debris. Ensure that the valve opening is not directed towards anyone.
- If present, remove the seal or covering from the oxygen inlet of the

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regulator. Inspect the regulator yoke to be certain that it is the right type for the oxygen cylinder.

For D cylinders

- The yoke should have the appropriate Pin-Indexed fittings. Ensure a new washer is in place on either the regulator or the cylinder (not both). Engage the nipple into the cylinder outlet while also engaging the indexed pins into the appropriate holes. Tighten the yoke securely with the handle.

For M cylinders

- The fittings have specific screw threads which are unique for oxygen cylinders and fittings. Place the oxygen inlet of the regulator against the outlet of the cylinder. The regulator's threaded nut should match the outer diameter of the threaded cylinder outlet. Thread the nut over the outlet and tighten it with a wrench. Do not over tighten.
- Slowly open the oxygen cylinder valve by turning counter-clockwise. Once fully open, close the valve about half a turn to prevent damage caused by forcing' on an already open valve.
- Note the cylinder pressure. If it is 500 psi or less the tank should not be used. Also ensure that there are no audible leaks.
- Attach the desired oxygen administration equipment to the regulator outlet.

Disengagement of the Regulator from the Oxygen Cylinder

- Shut off the control valve of the attached equipment until there is no flow of oxygen.
- Shut off the cylinder valve (fully clockwise).
- "Bleed the valves" - open the control valve and leave it open until there is no flow of oxygen through the attached equipment.
- Shut off the control valve of the attached oxygen administration equipment.

For D cylinders

- Loosen the regulator yoke with the handle. Remove the wrench or knob from the cylinder valve and slide the yoke up and off the cylinder. Replace or remove the cylinder as required.

For M cylinders

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- Using a wrench, loosen the regulator inlet nut threaded onto the cylinder. Remove the regulator, and replace or remove the cylinder as required.

For more detailed instructions, please refer to your in-service training, document references and user's manual.

Precautions

The sudden pressurization of any regulator at the opening of a high pressure cylinder valve can generate extremely high temperatures. Thus, combustible materials such as solvents, lubricating oils, greases, tape residue and greasy hands must not be permitted to come in contact with the cylinder, regulator or hoses.

The sudden pressurization can also result in rupture of pressure gauges and other regulator components. Always stand to one side of this cylinder, and turn on cylinders slowly.

Although oxygen does not burn, it does support combustion and will cause burning objects to flame vigorously. Smoking is not permitted near oxygen equipment and oxygen should not be used near open flame.

Only equipment intended for use with oxygen should be used. Devices intended for use with other gasses should not be modified for use with oxygen.

Ensure washers, valve seats, gauges and other components are in good condition. Never try to repair or modify oxygen equipment.

When finished administering oxygen, always bleed remaining gas from the regulator to prevent damage from the constant pressure. Empty containers should be stored with the valve closed to prevent contamination.

The following should be checked:

- General condition: Regulators should be clean and free of oil and grease. They should be labelled for use with oxygen only.
- Gauges for signs of damage: The gauge needle should not be bent or broken and the lens cover intact. Be sure that pin or screw fittings are undamaged.

Storage:

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After each usage it is to be stored safely and according to our existing policy "Securing Equipment (Policy and Procedure G. 8.4.3.).

Cleaning

The exterior surface of the oxygen regulator may be cleaned with soapy water and the equipment should be thoroughly rinsed and dried. Ensure that cleaning agents do not come in contact with either the pressure inlet or outlet fittings. These agents may be flammable when in contact with oxygen or when exposed to the high temperatures generated in a regulator. Don't immerse a regulator in any fluid. Do not autoclave a regulator.

REFERENCE

Ministry of Health, Emergency Services Branch, 1993, *Patient Care Equipment Manual*, The Crown in Right of the Province of Ontario

Manitoulin-Sudbury District Services Board, *Securing Equipment*, Policy and Procedure G. 8.4.3.