Rescue Helicopter Medical Oxygen Requirements

With the absence of an oxygen contents gauge inside the cabin of both HFZ but also applicable to IBK and HYP, both of which have digital gauges in the cabin, the following SOP shall apply to all company rescue helicopters to ensure sufficient quantities of medical oxygen are available to patients during missions;

1. For inter-hospital patient transfers to hospitals outside of the local area (e.g. Wellington, Gisborne, Hamilton and Auckland) a full D size cylinder of medical oxygen must be installed prior to lift-off.

2. For all EMS missions and inter-hospital transfers within the local area (e.g. Wairoa Hospital for the Hastings base and Te Puia Springs Hospital for the Gisborne Base) there must be at least half a bottle of medical oxygen available in the D cylinder or it is to be replaced with a full one.

3. For all EMS or inter-hospital transfer flights, one “A” size cylinder of medical oxygen which is at least half fill must also be carried as a reserve and for patient loading/unloading.

Systems

1. The rescue helicopter medical-oxygen systems are installed under a CAA approved modification. You will find that each of these modifications have the following associated with them;

    - Aircraft flight manual supplement
    - Maintenance requirements

2. This aircraft flight manual supplement will contain vital information and more than likely will detail the following;

    - Description of system
    - Limitations
    - Emergency Procedures
    - Normal procedures associated with the installation and removal of such a system and check intervals
    - Weight and balance data

3. It is imperative in the interests of safety that pilots and persons performing maintenance (changing of medical-oxygen cylinders) understand and are fully aware of the procedures/instructions and requirements laid out in these supplements. Persons performing such maintenance must be trained to do so by an L.A.M.E. (CAR 43.51 (b)).

Safety Precautions

As well as the safety precautions contained within the aircraft flight manual supplement, it is essential that the following basic safety precautions are understood and followed when changing or handling medical oxygen bottles aboard the rescue helicopters;

- Although oxygen is non-flammable it will support combustion of most materials when sufficient heat exists for ignition. One source of ignition is contamination particles which can be accelerated to sonic velocities in the high flow portions of an oxygen system. Extreme care must be taken with the cleanliness of each oxygen system and in particular **oils, grease, dirt** and **hydrocarbons** are **not to be used** or present around or near any oxygen system.

- Ensure hands are clean prior to handling any part of the oxygen system.

- Ensure area is free of contaminated rags.

- All oxygen lines should be capped off if not replacing bottles immediately in order to reduce the risk of contaminants entering the system. Cap off with an approved oxygen cap only, never use tape, plastic bags as this could lead to contamination of the system. In particular this applies to HGB when it is used for commercial or private operations not requiring the presence of a medical oxygen bottle.

- To reduce the risk of fire inside the oxygen system, valves must always be turned on **SLOWLY**.

- After turning off the oxygen system always depressurize the system.

- When changing oxygen cylinders always wear the safety glasses supplied.

Summary

Medical-oxygen posses a real risk to our flying environment. Take the time to thoroughly familiarize yourselves with each aircrafts oxygen system, its procedures, limitations and maintenance requirements.

Below is the BOC oxygen cylinder safety pamphlet which you should also be familiar with.

cylinder safety

top ten steps

1. Read labels and Material Safety Data Sheet (MSDS) before use.
2. Store upright and use in well ventilated, secure areas away from pedestrian or vehicle thoroughfare.
3. Guard cylinders against being knocked violently or allowed to fall.
4. Wear safety shoes, glasses and gloves when handling & connecting cylinders.
5. Always move cylinders securely with an appropriate trolley. Take care not to turn the valve on when moving a cylinder.
6. Keep in a cool, well ventilated area, away from heat sources, sources of ignition and combustible materials, especially flammable gases.
7. Keep full and empty cylinders separate.
8. Keep ammonia based leak detection solutions, oil and grease away from cylinders and valves.
9. Never use force when opening or closing valves.
10. Don't repaint or disguise markings and damage. If damaged, return to BOC immediately.

Further details regarding these steps and other actions you can take for safer storage and handling are on the back of this flyer.

BOC

Safety is of paramount importance to BOC - there are no higher priorities for us than the health and safety of our employees, customers, suppliers and the community.

This poster provides important information on the safe handling and storage of gas cylinders. Please display it prominently near your cylinder storage area.

Remember, always read the label & Material Safety Data Sheet (MSDS) before use.

Storage of cylinders

All cylinders should be considered and treated as full, regardless of their content. This means:

- Keep cylinders away from artificial heat sources (eg. flames or heaters).
- Do not store cylinders near combustible materials or flammable liquids.
- Keep flammable gases away from sources of ignition.
- Keep cylinders in well drained areas, out of water pools or ponds.
- The storage area should be kept well ventilated and clean at all times. Ideally do not store in confined spaces.
- Avoid below ground storage, where possible. Where impractical, consider enclosed space risks.
- There should be good access to the storage area for delivery vehicles. The ground surface should be reasonably level and firm (preferably concrete).
- Storage area should be designed to prevent unauthorised entry, to protect untrained people from hazards and guard cylinders from theft.
- Different types of gases must be stored separately, in accordance with State Dangerous Goods legislation. Also refer to AS4332 (The Storage and Handling of Gases in Cylinders).
- Stores must clearly show signage in accordance with state Dangerous Goods regulations. This includes Class Diamonds; HAZCHEM; no smoking and naked flame warning signs.
- Full and empty cylinders should be kept separate.
- Toxic and corrosive gases should be stored separately from all other gases.
- Liquefied flammable cylinders must be stored upright on a firm, level floor (ideally concrete). This is also preferable for most other gas cylinders.
- Store cylinders away from heavy traffic and emergency exits.
- Rotate stock of full cylinders, and use cylinders on a 'first in, first out' basis.
- Never repaint or obscure cylinder label, even if cylinder is rusty, dirty or damaged. This can result in unsafe situations.
- Never apply any unauthorised labels or markings to cylinders, unless advised by BOC to identify faulty cylinders.
- Avoid storing cylinders below 0°C. Some mixtures may separate below this.
- Regularly check for leaks and faults.
- Keep ammonia based leak detection solutions, oil and grease away from cylinders and valves.
- Never use force when opening or closing valves.

Handling of cylinders

When handling gas cylinders, and in line with current manual handling regulations, it is advisable that the following precautions are followed:

- Larger cylinders are heavy. Manual handling risk assessments and training should be undertaken.
- Safety shoes, glasses and gloves should be worn when handling and connecting cylinders
- Cylinders should be handled with care and not knocked violently or allowed to fall.
- Cylinders should be moved with the appropriate size and type of trolley.
- Ensure you do not inadvertently turn the cylinder valve on when moving a cylinder.
- Cylinder valves must be closed when moving cylinders and equipment should be detached.
- Only people trained in cylinder manual handling should move cylinders over short distance.
- Over longer distances, use appropriate trolleys or pallets, and firmly secure cylinders into them.
- Never roll cylinders along the ground as this may cause the valve to open accidentally. It may also damage the cylinder, label and paintwork.

BOC

cylinder safety

PLAN FOR EMERGENCIES

- If a cylinder is damaged contact BOC immediately.
- Those people with a responsibility for storing or using gas cylinders should be trained and familiar with the procedures to be followed in case of an emergency.
- Storage area layouts and emergency procedures should be carefully planned, recognising the possibility of an emergency arising.

In case of emergency, call 111 and BOC on 0800 111 333

BOC is a leading provider of gases and related products, services and solutions in the South Pacific.

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