CAIRE®
A Chart Industries Company

EMS 20

PATIENT
OPERATING
INSTRUCTIONS

EMS 20

Warning Information

Read this page carefully before using your unit.

- The unit contains liquid oxygen which is extremely cold; almost 300 degrees below zero Fahrenheit. Exposure to such a low temperature can cause severe frostbite.

- Liquid and gaseous oxygen, though nonflammable, cause other materials to burn faster than normal. This hazard, along with the low temperature of liquid oxygen, warrants certain safety precautions.
- Do not use or store your unit in an area where combustible materials such as oils, greases, aerosol sprays, lotions or solvents are present.

- **Do not smoke while operating unit.**
- Do not use or store your unit within five feet of electrical appliances, especially stoves, heaters, toasters, and hair dryers.

- Keep your unit in a well-ventilated area.
- In the event of an accidental tip-over, immediately but cautiously return unit into an upright position. **If any liquid oxygen is escaping, leave the area immediately and call your health care provider.**

- **Do not touch the frosted parts of any unit.**
- Do not store or operate the portable coupled to the Liberator/Low Loss.
- Applicable EMC information can be found in the Liberator Service Manual at www.cairemedical.com.

Explanation of Other Symbols

Name and address of manufacturer

Authorized representative in the European Community

Caution, consult accompaning documents

Non-flammable gas

Oxidizing substances

Type B Applied Part (degree of protection against electric shock)

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Specifications:

- Mode of Operation: Continuous
- Type of Protection Against Electric Shock: Internally Powered Equipment
- Degree of Protection Against Electric Shock: Type B Applied Part
- Classification according to the degree of protection against ingress of water: IPX0 - Ordinary Equipment
- Equipment is not suitable for use in the presence of flammable mixtures

Important: Read this manual thoroughly before operating any EMS unit.

Warning: This device is not intended for life sustaining use.

Caution: Use the EMS unit only as directed by Caire Inc. documentation.

Warning: If you feel the equipment is not operating properly, contact Caire Customer Service. Do not attempt to repair or adjust the units yourself.

Introduction

The Caire EMS unit is a liquid oxygen storage and delivery system intended to be connected to an ambulance's current oxygen supply system in place of high pressure cylinders.

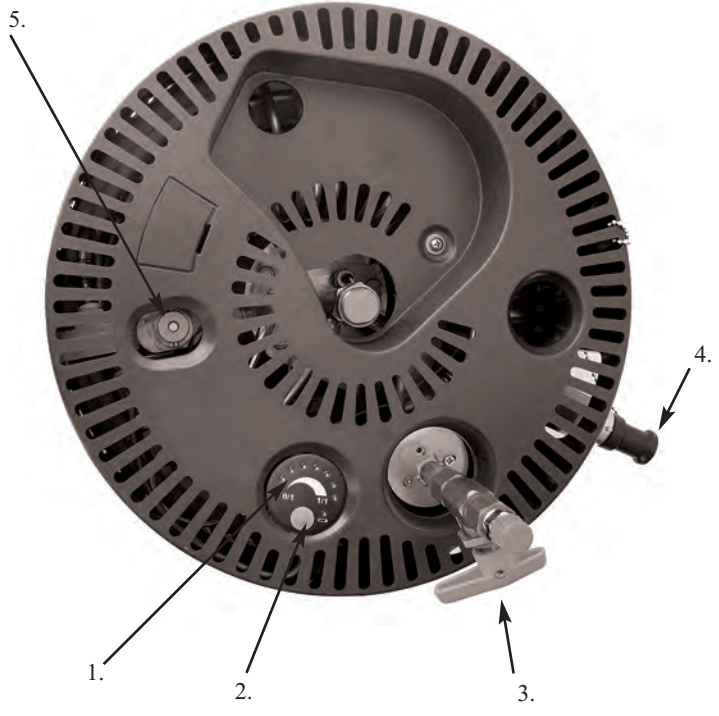
This operating instruction (OI) contains the instructions for using the EMS system, as well as information regarding available accessories. For detailed instructions regarding accessories, please see their respective documentation.

This device is not meant to supply oxygen directly to a patient. A regulation device must be in place between the unit and the patient.

Caire EMS 20

Controls

1. Liquid Level Gauge
2. Liquid Level Switch
3. Output Valve
4. Fill Connection
5. Vent Valve



Operating Instructions

Setup Instructions

1. Remove from shipping carton and remove plugs from quick disconnect valve (QDV) and oxygen gas outlet.

   > **Warning:** *These connection must be dry, because moisture can cause the equipment to freeze together and may cause leakage in the fill connectors.*

2. Position and secure EMS unit in vehicle compartment. Optional Caire mounting bracket.

3. Attach vent line from vent outlet to exterior of vehicle compartment (see Accessories section for more info).

4. Attach vehicle's oxygen plumbing.

5. Attach condensate bottle bracket to EMS unit.

6. Slide condensate bottle into bottle bracket or run condensate drain tube to exterior of vehicle.

7. Fill equipment with liquid oxygen and test vehicle's oxygen delivery systems.

   > **Note:** *Fill source must contain liquid oxygen saturated between 75psi (5.2 bar) and 100psi (6.9 bar). Optimal saturation pressure is 85psi (5.9bar)*

8. Record location of equipment inside vehicle for future reference.

Fill Instructions

1. Weigh unit as required by local and federal standards.

2. Wipe reservoir fill connector and fill source with lint-free rag.

3. Open liquid use valve on fill source and purge transfer line by pressing QDV poppet (at end of transfer line) against non-painted surface for a few seconds.

4. Connect pressure gauge to oxygen outlet and open outlet valve.

5. Open vent valve on EMS unit.

6. Connect transfer line from fill source to EMS to fill. During fill, throttle the vent valve to keep pressure at oxygen outlet at approximately 50psi (3.5 bar).

7. When liquid spurts from vent outlet, perform the following steps in order: close EMS vent valve, turn off outlet valve, disconnect pressure gauge, close liquid fill source, and purge transfer line.

Check Liquid Level

- Depress the push button (liquid level switch) on top of the unit for two seconds minimum. Read the light bar to indicate contents level.

> Caution: The Liberator is empty if only the last segment of the light bar is lit.

- If the Low Battery Indicator lights up when the button is depressed, refer to Technical Service Manual.

> Note: The EMS will continue to supply oxygen even if the Low Battery Indicator lights up, as long as there is liquid oxygen in the unit.

Under certain environmental conditions and with continuous use, the EMS unit may develop an excessive amount of ice on the warming and breathing coils within the shroud. You should defrost the unit between liquid oxygen fills to prevent this ice build-up.

Caution: Always close output valve when not in use.

To defrost the unit:

- Close EMS output valve and allow the unit to warm to room temperature, as indicated by the melting of all ice from the unit.
- Check the condensation collection bottle frequently during defrosting and empty as required.

Cleaning Standard

Warning: Clean only after unit is empty and vented.

- Clean by applying household glass cleaner to a lint-free cloth and wipe external surfaces – do not get glass cleaner on any internal components or valves.
- Allow unit to dry thoroughly before using.

Note: Note to health care provider – for reprocessing procedures, see applicable service manual.

WEEE and RoHS

This symbol is to remind the equipment owners to return it to a recycling facility at the end of its life, per Waste Electrical and Electronic Equipment (WEEE) Directive.

Our products will comply with the Restriction of Hazardous Substances (RoHS) directive. They will not contain more than trace amounts of lead or other hazardous material content.

Accessories

- Vent Kit (P/N 13399524)
- Mounting Bracket (P/N 13187265)
- Adaptor Trans Line Fem with Filter (P/N 97406400)

Notes:

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