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NASA TECH BRIEF

Lyndon B. Johnson Space Center

Oxygen Cocoon for Patients Under Intensive Care

The problem:

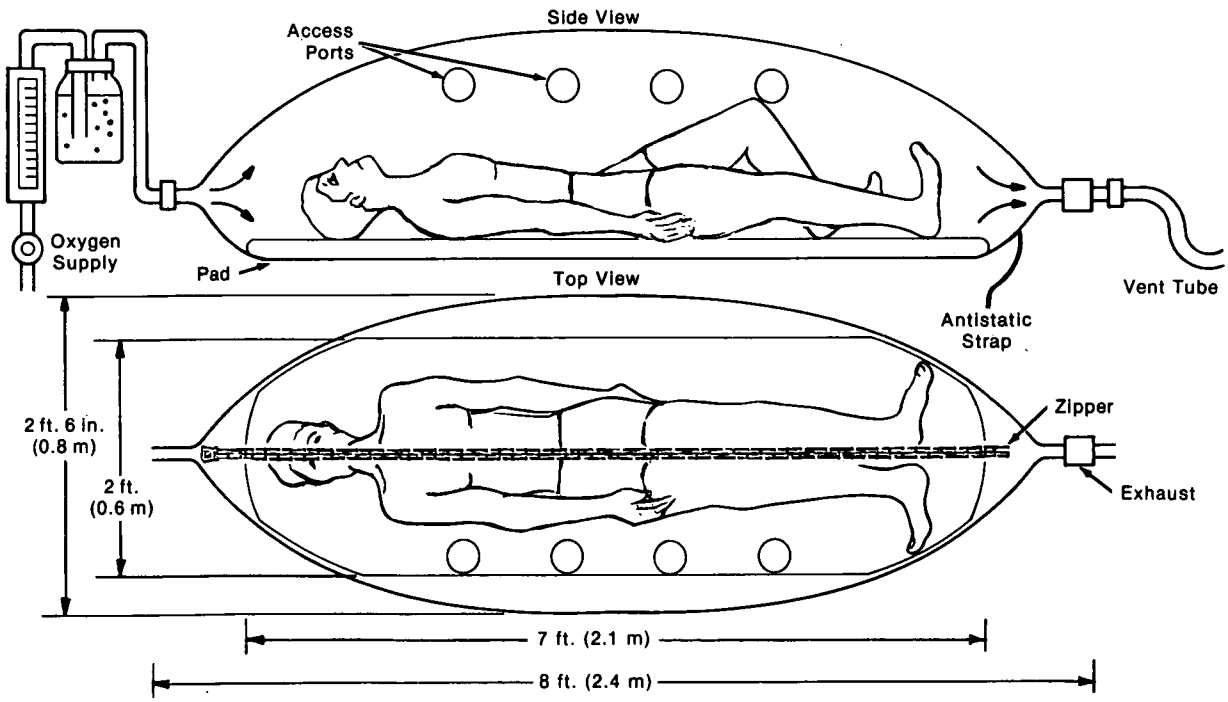
A few medical centers in this country treat burn patients in a high oxygen environment at an increased atmospheric pressure. Special chambers are required for this purpose, along with special attendants. At the present time the attendants are exposed to the 100-percent oxygen environment and increased pressure as well as the patient. This environment is very hazardous from the standpoint of flammability and mildly toxic to the operator, if he is expected to care for several patients in a single day.

The solution:

A relatively inexpensive cocoon is under development which would provide a more comfortable environment for the patient, and a safer environment for the operator as well as the patient.

How it's done:

The cocoon (see figure) is made from Teflon film. It is 8 feet (2.4 m) long and 2.5 feet (0.8 m) in diameter. It includes a full-length, pressure-sealing zipper on the top side. The bottom part is a 7-foot by 2-foot (2.1-m by 0.6-m) rigid pad constructed of burn-resistant material, to support the lying patient. On one end, the cocoon includes an oxygen supply port which is connected to an oxygen feeding apparatus. An exhaust port is on the other end. In addition, there are gloved access ports provided for attendants and the patient.



Oxygen Cocoon

(continued overleaf)

The patient is placed on the cocoon pad with his head toward the oxygen supply port. The cocoon then is placed in a hyperbaric chamber which normally accepts several cocoons. When the chamber pressure reaches 2 atmospheres, the cocoon supply port is opened to admit oxygen. Oxygen flows from the head toward the patient's feet and out through the exhaust port. A number of patients in cocoons can be treated in this way simultaneously.

The cocoon has other uses as well. It can be supplied by filtered air to protect a patient who is highly susceptible to infection. It also can be used to isolate a patient with a serious contagious disease by filtering the air exhausted from the cocoon. Children and adults who cannot tolerate oxygen masks can also be placed in cocoons for more comfort. Oxygen can then be vented outside, greatly reducing the fire hazard in the room.

Note:

Requests for further information may be directed to:

Technology Utilization Officer
Johnson Space Center
Code AT3
Houston, Texas 77058
Reference: TSP75-10079

Patent status:

NASA has decided not to apply for a patent.

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(MSC-12663)

Categories: 05 (Life Sciences)
07 (Machinery)