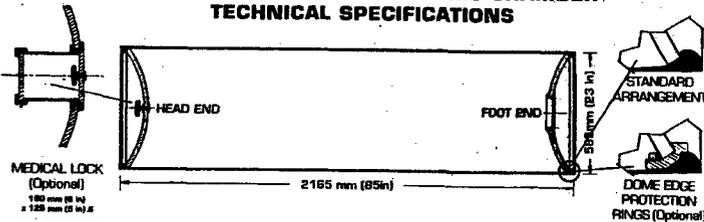


hyperlite
-1-MAN

**FOLDING PORTABLE HYPERBARIC CHAMBER
TECHNICAL SPECIFICATIONS**



DIMENSIONS:	LENGTH	2165 MM	85 IN
	DIAMETER	585 MM	23 IN
VOLUME:		518 LTS	18 FT ³
PRESSURES:	MAXIMUM WORKING	2.1 BAR	30.5 PSI
	HYDROSTATIC TEST	21 MSW	309 FSW
		3.15 MSW	45.6 PSI
WEIGHT:	VESSEL	40 KG	88 LB
	COMPLETE IN CASES	75 KG	165 LB
CASE SIZES:	LARGE	70 x 70 x 60 CM	28 x 28 x 24 IN
	SMALL	62 x 62 x 30 CM	24 x 24 x 12 IN

PRESSURE GAUGES:
Chamber Differential Pressure - MSW, FSW or BAR
Gas Cylinder Supply (HP & LP) - BAR or PSI
Control Box Supply (HP & LP) - BAR or PSI

MATERIALS:
TUBE - Filament wound para-aramid fibre in flexible polymeric silicone matrix.
FABRIC COVER - Treated 100% cotton
END DOMES - Transparent acrylic plastic
PIEWORK - High pressure stainless tungum tube
LIMBICALS - Reinforced synthetic rubber

Hyperlite is a Registered Trade Mark of SOS Limited
This product is patented internationally.

STANDARD ITEMS: Full BIBS system with overboard dump • Two way intercom system • Air & Oxygen HP regulators at supply cylinders • Digital clock/timer • Handle straps with D rings and stabilizers • Dual fluorescent lantern/torch • Chamber transport/storage containers • Protective cotton fabric cover

OPTIONAL EXTRAS: Medical lock in head end dome • Dome edge protection rings • Gas storage cylinders • c/w harnesses ECG, EEG and ventilator connections • Oxygen and carbon dioxide analysers • Lifting sling • Folding stretcher • Air & oxygen cylinder adapters • Pressure gauge in chamber.

LLOYD'S CERTIFICATE

LLOYD'S REGISTER OF SURVEYORS

CERTIFICATE OF FITNESS FOR SERVICE

This is to certify that the above described item has been inspected in accordance with the Rules of the Institution of Mechanical Engineers and the Rules of the Institution of Civil Engineers and is fit for service.

- Approved of the design and construction.
- The construction, material, condition and workmanship comply with the Rules of the Institution of Mechanical Engineers and the Rules of the Institution of Civil Engineers.
- The item is in good condition and fit for service.
- The item is in good condition and fit for service.

[Signature]
LLOYD'S REGISTER OF SURVEYORS
INSPECTION DIVISION

YOUR AGENT IS

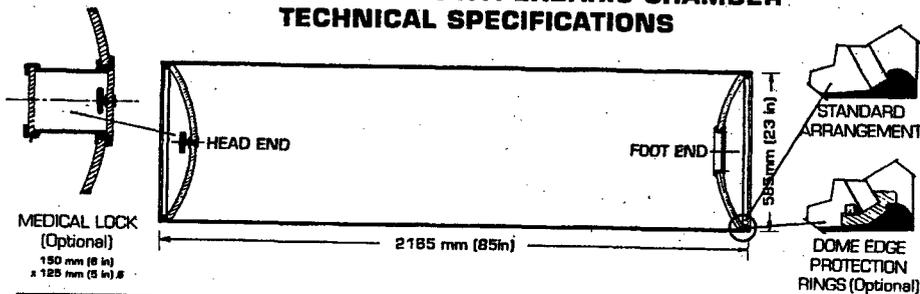
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ENCLOSURE PAGE 2 OF 12 PAGES



hyperlite
1-MAN

**FOLDING PORTABLE HYPERBARIC CHAMBER
TECHNICAL SPECIFICATIONS**



DIMENSIONS:	LENGTH	2185 MM	85 IN
	DIAMETER	230 MM	9 IN
VOLUME:		518 LTS	18 FT ³
		2.1 BAR	30.5 PSI
PRESSURES:	MAXIMUM WORKING	21 MSW	69 FSW
		3.15 BAR	45.6 PSI
	HYDROSTATIC TEST	31.5 MSW	103 FSW
WEIGHT:	VESSEL	40 KG	88 LB
	COMPLETE IN CASES	75 KG	165 LB
CASE SIZES:	LARGE	70 x 70 x 60 CM	28 x 28 x 24 IN
	SMALL	62 x 62 x 30 CM	24 x 24 x 12 IN

PRESSURE GAUGES:
Chamber Differential Pressure - MSW, FSW or BAR
Gas Cylinder Supply (HP & LP) - BAR or PSI
Control Box Supply (HP & LP) - BAR or PSI

MATERIALS:
TUBE Filament wound para-aramid fibre in flexible polymeric silicone matrix.
FABRIC COVER Treated 100% cotton
END DOMES Transparent acrylic plastic
PIPEWORK High pressure stainless tungum tube
UMBILICALS Reinforced synthetic rubber

Hyperlite is a Registered Trade Mark of SOS Limited
This product is patented internationally.

STANDARD ITEMS: Full BIBS system with overboard dump • Two way intercom, system • Air & Oxygen HP regulators at supply cylinders • Digital clock/timer • Handle straps with D rings and stabilizers • Dual fluorescent lantern/torch • Chamber transport/storage containers • Protective cotton fabric cover

OPTIONAL EXTRAS: Medical lock in head end dome • Dome edge protection rings • Gas storage cylinders • c/w harnesses ECG, EEG and ventilator connections • Oxygen and carbon dioxide analysers • Lifting sling • Folding stretcher • Air & oxygen cylinder adapters • Pressure gauge in chamber

LLOYD'S CERTIFICATE

Lloyd's Register (Logo)
Date: 12th April 1992
Certificate No: HJ/COM/200

HYPERLITE 1-MAN PORTABLE HYPERBARIC CHAMBER

This is to certify that the above chamber has been inspected as a new product and has met the requirements laid down by Lloyd's Register under its Rules and Regulations for Construction and Classification of Submersible and Diving Systems.

These are:

- Approved of the design with respect to:
 - Pressure vessel construction
 - Fluid control system
 - Control and monitoring provisions
- The pressure gauges recorded tests in their own discharge working pressure conditions for a period of one hour at the maximum working pressure.
- The pressure cyclic testing preventing relaxation test of the chamber head as a small fit of one year.
- The pressure test through test demonstrating that the chamber can be assembled and disassembled at minimum operating temperature.

Provisional certificates incorporated in this design will be available for Lloyd's Register's certificate for a working pressure of 2.15 bars (31.52 psi) and operating temperature of 27°C (80°F) subject to maintaining the existing manufacturing procedures and in compliance of the following test witnessed by Lloyd's Register inspectors for each test:

- A hydrostatic pressure test to 1.5 times the maximum working pressure and
- A pressure test to maximum working pressure.

J. S. STEVENSON
PRINCIPAL SURVEYOR
OFFSHORE DIVISION

NOTES: This certificate is subject to the terms and conditions prevailing, which form part of the certificate. For details of these conditions, please refer to the Lloyd's Register website.

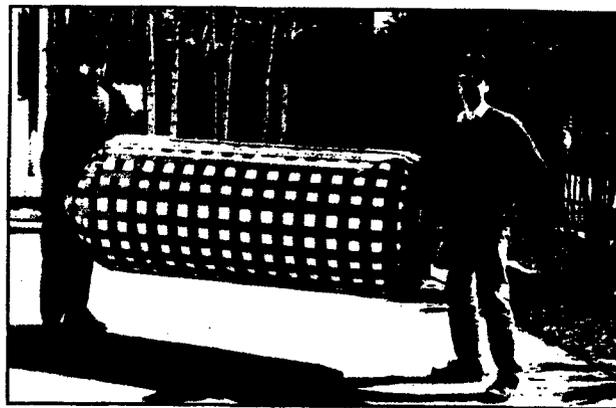
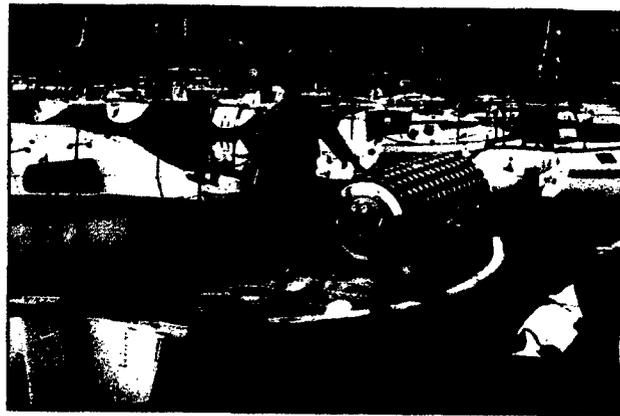
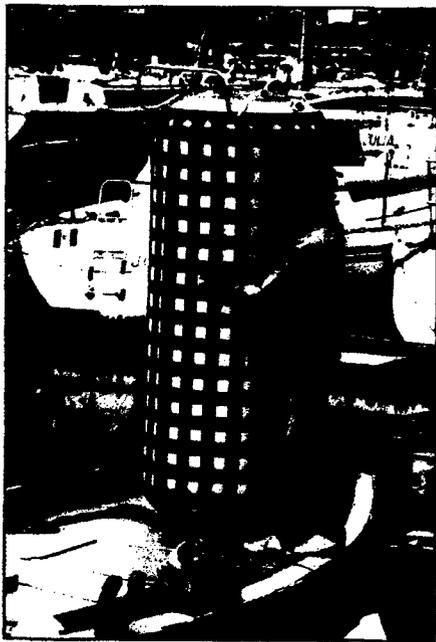
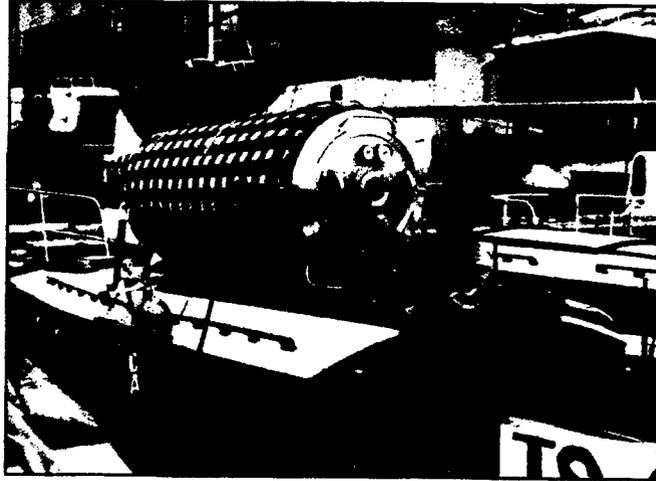
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ENCLOSURE PAGE 2 OF 12 PAGES

DESIGN: ERIC LAYTON (081) 970 4813 PHOTOS: NICK BOYLE © DIVING DISEASES RESEARCH CENTRE LTD.



GSE Flexible Hyperbaric

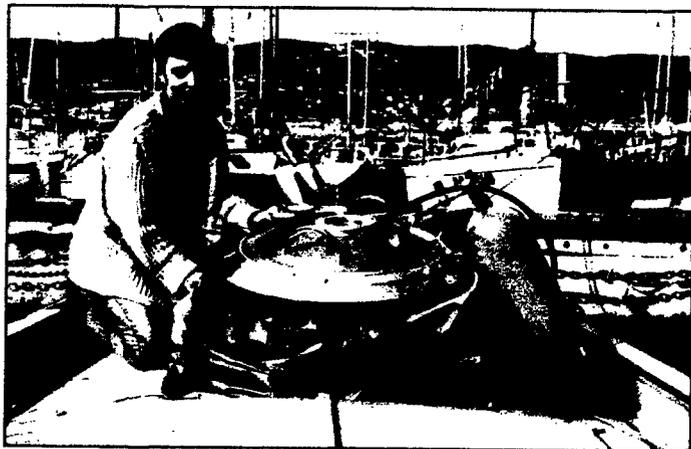


GSE trieste ltd. Sub Sea Operational Services
represented by J.B. Hughes And Associates

4656 Mission Bell Lane - La Mesa, CA 92041
Tel. (619)698-4530 - Fax (619)698-1860

160 PAGE ³ ₇ OF ¹² ₆ PAGES.

The GSE Flexible Hyperbaric Chamber is a variable volume Deck Compression Chamber (DDC) with a flessible pressure hull (GSE patent) made of a composite fabric structure, which allows it to be collapsed into one or two packages for transport. The system is designed and manufactured by a team of experienced divers for the use by divers. It is conceived for the purpose of surfaced or omitted decompression, and is designed to be carried as safety equipment by as small a group as a lone pair of sport divers.



The light weight and small dimensions of the packed 30 inch unit allow it to be shipped as unaccompanied luggage on any air or surface transportation service, and the size of the unit when inflated is still small enough to be conveniently utilized aboard small pleasure craft or even inflatable boats acting as diving platforms.

A certified pressure of up to five (5) bars assures the capability of

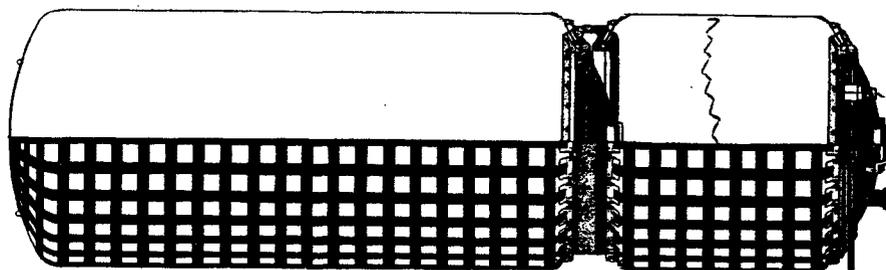
a emergency decompression down to the maximum relief depth contemplated by the U.S. Navy's decompression tables.

MODEL		30"	48"	60"
Length	mm	2100 7,5'	2300	2300
Diameter	mm	780	1200	1500
Standard weight	Kg	52	65	76
Lightweight version	Kg	44	58	68
Operating depth	bar	5	5	5
Register Certification		RINA*	RINA*	RINA*

* Registro Italiano Navale

Such a decompression could be accomplished with as little as a single set of standard twin SCUBA tanks.

The unit comes in its flexible container, ready for use by addition of a compressed air source. Ease of use is such, that the unit can be operated by a single untrained person using only the written instructions that accompany the package.



Larger size units are available as shown in the table above. There are also a number of options for units of all sizes, such as: 1) a second hatch in the opposite end of the chamber; 2) a lock for entrance and exit of medical personnel; and 3) a food lock in the main hatch for transfer under pressure of food, hot drinks and medication.

SURFACE

DECOMPRESSION

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ENCLOSURE (60)

NOMINAL DIMENSIONS & VOLUME:

MODEL 585	CHAMBER LENGTH (nominal)	CHAMBER DIAMETER (max.)	ACRYLIC DOME THICKNESS (ASME PVHO-1 - #)	FLEXIBLE TUBE THICKNESS (approx.)	CHAMBER WEIGHT (nominal)	CHAMBER VOLUME (approx.)
3.1/3	2245 88.5 MM IN	595 23.5 MM IN	20 (25#) 0.8 (1.0#) MM IN	3.8 0.15 MM IN	50 110 KG LB	518 18.3 LTR CU FT

PRESSURE RATINGS:

MAX. WORKING PRESSURE (MWP)		PROD. UNIT TEST PRESSURE		CERTIFIED TEST BURST PRESSURE	
BAR	PSI	BAR	PSI	BAR	PSI
2.1	30.5	3.15	46	13.0	188.5
MSW	FSW	MSW	FSW	MSW	FSW
21	69	31.5	103	130	426

- TEMPERATURE RANGE:** IN USE -20°C (-4°F) TO +40°C (+104°F) [ASME 0°F - 100°F]
TUBE STABILITY -60°C (-75°F) TO +180°C (+350°F)
- DESIGN CODE:** Lloyds Rules & Regs for Submers. & Diving Systems 1989 or ASME PVHO-1 & Code Case 6
- CERTIFYING AUTHORITY:** Lloyds Register/LR Insurance Inc. (Others on Request)
- QUALITY ASSURANCE:** All Chambers Built To BS EN ISO 9001 Quality Standard
- WARRANTY:** Full 1 Yr. Warranty Against Faulty Mat'ls or Workmanship
- PROTOTYPE TESTING:** BURST TEST Non catastrophic failure at 13 Bar
CYCLING 17,000 cycles at 2.1 Bar without failure
DROP TEST 3 ft. Drop, 165 lb. Load, 45° angle, no damage
TUBE Filament wound para-aramid fibre in flexible polymeric silicone matrix
- MATERIALS:** PROT. COVER Flame-master cotton/polyester
END WINDOWS Clear acrylic plastic in Nylon rings (optional)
PIPEWORK Tungum Tube
HOSES Reinforced synthetic rubber
- CONTROL GAUGES:** Chamber pressure Calibrated in bar, msw or fsw
Air and Oxygen Gas container storage pressures
Air and Oxygen Control Box supply pressures
- STANDARD ITEMS INCLUDED:** Full BIBS system with overboard dump
Air & Oxygen HP regulators at supply cylinders Two way intercom system
Lifting handles on straps with attachment rings Digital clock/timer
Chamber transport/storage containers Torch Protective fabric cover
- OPTIONAL EXTRAS:** Medical Lock in Head End Dome
Gas Storage Cylinders c/w Harnesses Folding Litter Heating/Cooling Jacket
LCD and/or Analog Absolute Pressure Gauges Oxygen Monitor Dual Oxygen & CO2 Monitor
Penetrations for Monitoring Equipment CO2 Monitor Air Inlet to Head End of Chamber
Adapters for Air & Oxygen Cylinders Lifting Slings In-line Activated Charcoal Filter
Folding Zipped Storage Bags Caisson Gauge LCD Thermom./Hygrom. with memory
- SHIPPING SIZES/WEIGHTS:** Case 1: 67x67x57 cms (26x26x22 ins) 57 kg (125 lbs)
Case 2: 64x64x29*cms (25x25x12*ins) 38 kg (84 lbs)
(* Add 9 cm (3.5") if medi-lock is supplied) TOTAL 95 kg (209 lbs)

10/97

SOS Limited - 612 Watford Way - London NW7 3JH - England
Telephone: (44)(181) 959 4517 Facsimile: (44)(181) 959 7971

E-Mail: hyper@globalnet.co.uk

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E&OE

HYPERLITE SYSTEM (MODEL 585/3.1/3) complete, including flexible tube, acrylic end domes, fabric cover, HP air & oxygen pressure reducers with hoses, control box, 2-way comms., umbilical, penetrator plate, BIBS mask c/w overboard dump, storage cases (2) & manufacturers manual (in English). All systems supplied with Lloyd's Register Certification.

UK £ 22,950.00

OPTIONAL EXTRAS:

Medical Lock	£2,200.00
Dome Edge Protection Rings (price per pair) *	£1,300.00
ASME Certified to PVHO-1 & Case 6	£1,500.00
Wheeled Internal Litter	£600.00
Remote Air Inlet Tube with Silencer	£100.00
Activated Carbon In-line Filter Assembly for Scuba Air	£200.00
Electrical or Pneumatic Penetrator (excl. fittings) each	£100.00
Abs. Pressure Gauge (unaffected by ambient pressure)	£550.00
Back-up Pressure Gauge (inside chamber)	£100.00
Exhaled Gases Hose Assembly (externally mounted)	£100.00
Digital LCD Thermometer and Hygrometer	£50.00
Air and Oxygen Adapters (three recommended - £120)	ea. £45.00
Oxygen Monitor	£400.00
Lifting Sling (Chamber horizontal)	£200.00
Lifting Sling (Chamber vertical)	£300.00
Folding Dry Zipped Storage Bags (2)	£550.00
Silicone Rubber Repair Kit c/w Dispenser	£120.00
Air Cylinders 15l. 232bar Valve, Boot & Harness (O2cyl +£25)	£200.00
Folding Equipment Trolley (Bag +£20, 4-wheel +£50)	£130.00
Additional Premium for Sales to North America (on total price)	Add 5%

(* Required on military and ASME PVHO-1 Models)

PRICING: All Prices are Ex Works (London) in Pounds Sterling exclusive of VAT or import duties. FOB or CIF prices on request. All currencies are subject to rate of exchange fluctuations.
C & E Code 90192000000

DELIVERY: From 12 weeks of receipt of your order with deposit

PAYMENT: 50% Deposit is payable with order
The balance is payable against shipping documents. All supplies are subject to our standard terms and conditions of sale and are subject to alteration without notice.

BANK INFO: Lloyds Bank plc. 108 Poole Road, Bournemouth BH4 9EQ
Code: 30-91-08 Account: 00648928

SPARES, TRAINING & SUPPORT SERVICES All Prices on application

SOS LIMITED 612 WATFORD WAY LONDON NW7 3JH ENGLAND
TEL:44 (0) 181 959 4517 FAX: 44 (0) 181 959 7971
E-MAIL: hyper@globalnet.co.uk

THE HYPERLITE HYPERBARIC STRETCHER IS SUPPLIED AS A FULLY OPERATIONAL UNIT WITH THE EXCEPTION OF AIR AND OXYGEN CYLINDERS. SUGGESTED OPTIONAL EXTRAS ARE DESCRIBED BELOW. OTHER ITEMS MAY BE DEVELOPED TO CUSTOMER REQUIREMENTS.

DOMED EDGE PROTECTION RINGS These nylon rings offer permanent protection to the edges of the acrylic domes and distribute the high loads found at the dome to tube interface more uniformly and over a larger area.

MEDICAL LOCK The medical lock permits the transfer of food, drink, medications and other items for the comfort of the casualty, in or out of the chamber, through a two door arrangement in the head end dome of the chamber. Whilst the chamber is in operation, one of the two doors will always be in position to maintain the chamber pressure. The other door may be removed for access to the lock. There are bleed screws on both sides of the lock, so that pressures may be equalised between the lock and either the chamber or the environment. The internal dimensions are 12.5 cm. (5") dia. x 14 cm. (5 1/2") long and the volume of the lock is 1720 ml. (105 cu. in.)

HYPERLITES BUILT TO ASME PVHO-1 SAFETY STANDARD The Hyperlite can be manufactured to the above Safety Standard and Code Case 6. The stringent requirements demanded from this Standard add to the cost of such units. Certain optional extras are required on ASME PVHO-1 chambers.

WHEELED INTERNAL LITTER The wheeled internal folding litter (or stretcher) is manufactured using an aluminium tubular frame inserted into a fire retardant cotton mattress with retaining straps along its length. The stretcher has a wheel at both ends so that it can easily be rolled into the flexible tube with the patient strapped in and the BIBS mask attached. The use of the internal stretcher is important for the transfer of injured patients. When not in use, the stretcher parts fit into the storage cases. Weight approx. 7 kg. (16 lb.)

LIFTING SLINGS A lifting sling, complete with a central ring and four lockable cleats is available for winching the Hyperlite complete with accessories. The two pairs of straps differ in length in order that the chamber may be lifted in the head up or head down position. A lifting sling is also available for lifting a chamber with its axis vertical, for vertical entry locks (submarines) or steep stair wells. Lifting slings are supplied with test certs. SWL - 300 Kg (661 lb).

ADDITIONAL PNEUMATIC AND/OR ELECTRICAL CONNECTIONS Customers may require additional pneumatic and/or electrical connections at the penetrator plate for intensive patient monitoring and critical care. E.g.: ECG, BP, IV, Ventilator etc.

AIR AND OXYGEN CYLINDERS Large 15 litre 232 bar SCUBA cylinders with tank boot (and backpacks) are recommended, painted as required. Cylinder valves for air are normally DIN or International, and for oxygen are Bullnose, DIN, Pin Index or CGA.

AIR AND/OR OXYGEN ADAPTERS In view of the different supply valves fitted to air and oxygen cylinders around the world, the chamber supply regulators may require adapters.

continued overleaf

OXYGEN &/OR CARBON DIOXIDE MONITORS These units can be supplied either separately or as a combined unit in order to monitor either the chamber environmental gases or the patients exhaled gases. The oxygen monitors display the partial pressure of oxygen on a digital LCD display in millibars relative to the ambient pressure. The carbon dioxide monitors usually display the percentage CO₂ in either the exhaled gases or the chamber environment.

THERMOMETER/HYGROMETER This compact LCD digital unit indicates both the temperature & relative humidity inside the chamber, viewed through the window.

REMOTE AIR INLET TUBE & SILENCER Chamber air supply and exhaust are normally located on the penetrator plate at the same end of the chamber. With the use of the air inlet tube and silencer option, the supply air diffuses through a silencer at the opposite end of the chamber to the exhaust, ensuring a more efficient exchange of air when flushing the chamber.

EXHALED GASES HOSE ASSEMBLY (Externally mounted) In restricted areas, the exhaled breathing gases, which contain high concentrations of oxygen, may cause a fire hazard. With the use of this assembly, the exhaust gases can be piped to a suitable exhaust location.

BACK-UP PRESSURE GAUGE IN CHAMBER Whilst the pressure gauge on the panel will always display the differential pressure between the chamber and the ambient pressure, the readings will change when ambient pressure changes. (in an aircraft or a submarine). A gauge mounted in the chamber will indicate the chamber pressure relative to the ambient pressure when sealing the chamber.

ABSOLUTE PRESSURE GAUGE (UNAFFECTED BY AMBIENT PRESSURE CHANGES) When the chamber is used for transfer under pressure in areas where the ambient pressure may change, (eg an aircraft or in a submarine), these gauges provide the operator with the true chamber pressure relative to 1 ATA at sea level.

ACTIVATED CARBON FILTER FOR SCUBA AIR Medical air is recommended for the pressurisation of the chamber and for the casualty to breathe during air cycles. When SCUBA air is used for this purpose, it is recommended that an activated charcoal filter is inserted in the line at the air cylinder to avoid any oil contamination in the system.

FOLDED DRY ZIPPED STORAGE BAGS Where storage space is at a premium or where the folded chamber must pass through small apertures, such as in a submarine, these two bags are suitable for the dry storage of the chamber. Note however that the normal rigid cases offer superior protection for the chamber when stored. Approx. sizes: Large Bag 65 cms dia. x 56 cms deep N Small Bag 60 cms dia. x 25 cms deep

FOLDING EQUIPMENT TROLLEYS Designed for heavy duty applications, the two wheel trolley carries up to 130 kg. (285 lb) yet still collapses to a compact size for storage or transportation. It can be upgraded to a four wheel version with two additional castor wheels. A storage bag is also available.

SILICONE RUBBER REPAIR KIT In the event of minor damage being caused to the inner or outer surfaces of the flexible tube, a silicone repair kit, complete with dispenser, is available to ensure the full pressure retaining properties of the chamber. Such repairs may then be carried out without the need for outside assistance. Note that silicone rubbers have a limited uncured shelf life.

Q1 What is a Hyperbaric Stretcher?

A1 A hyperbaric stretcher is a folding portable pressure vessel suitable for the pressurisation and transport under pressure of a person requiring hyperbaric oxygen therapy (HBO). It is rigid when inflated, but when not in use, can be packed away for easy portability.

Q2 What is the purpose of a Hyperbaric Stretcher?

A2 The presence of a hyperbaric stretcher at an accident or emergency site enables a casualty requiring hyperbaric oxygen therapy (HBO) to be treated as soon as the first symptoms of the requirement become apparent. The importance of **immediate** treatment of diving accidents cannot be over emphasised. **Delay** in treatment greatly **reduces** the likelihood of full **resolution**. Due to the lightness and portability of a hyperbaric stretcher, it is almost always possible to have a unit on site, irrespective of the whereabouts of the incident, whereas to have a larger therapeutic chamber available on site is often logistically not possible.

Q3 To what pressure can a Hyperbaric Stretcher be subjected?

A3 Ideally, a hyperbaric stretcher should be capable of operating to a pressure of 2.1 bars above ambient pressure. **Above 3 bars absolute** pressure, pure oxygen becomes toxic very quickly. Furthermore, at 3 bars **absolute** pressure or above, one cannot remove the patient from the hyperbaric stretcher in an emergency, **without life threatening consequences**.

Q4 Are higher pressures never required in the treatment of diving accidents?

A4 Initial treatment therapies for diving accidents are normally conducted at 2.8 bars **absolute**. If resolution does not take place, then the patient may be subjected to higher pressures when transferred into a therapy chamber where full hands-on medical care is available.

Q5 Why does the Hyperlite have a maximum working pressure of 21 msw (69 fsw)?

A5 When the Hyperlite is to be used in reduced atmospheres, such as in an aircraft or at **altitude**, then the differential pressure between the inside and outside of the chamber may exceed 1.8 bars. This has been allowed for in the design of the hyperbaric stretcher.

Q6 Some chambers have a flange attachment so that they may be mated to a therapy chamber? Does the Hyperlite have such a flange?

A6 The Hyperlite was designed with a diameter (585 mm 23 in) small enough to enable it to fit through the door of almost any therapy chamber. A design already exists for the incorporation of a flange attachment for the Hyperlite, in order for it to mate to a therapy chamber.

Q7 What tests have been carried out on the Hyperlite to prove its durability of operation?

A7 The chamber has been subjected to the following tests:

1. **Hydrostatic Burst Test.** The chamber failed at 13 bars (130msw, 426fsw), giving a safety factor in excess of 6:1.

2. **Drop Test.** The chamber was weighted with 75 kg. (165 lb.) of sand and dropped at an angle of 45 degrees on to a rough concrete surface from 3 feet (90cms) above the ground. No damage or pressure loss took place.
3. **Cyclic Test.** The chamber was cycled 17,000 times from atmospheric to maximum working pressure. It did not fail.
4. **Folding and Cold Assembly Tests.** These have been satisfactorily completed.

In addition, the Defence Research Agency, UK, has completed comprehensive trials over a three year period on behalf of the UK Ministry of Defence (Navy) and the unit has been fully accepted as suitable for military use.

Q8 To what Quality Standard are Hyperlite's built?

A8 All Hyperlite's are built to the BS EN ISO 9001 Quality Standard, covering both design and manufacture. This is the highest international standard attainable.

Q9 Is the Hyperlite supplied with a warranty?

A9 The Hyperlite is supplied with a full one year warranty covering materials and workmanship. Each chamber is built either to Lloyd's Register Rules and Regulations and/or to the ASME PVHO-1 Standard.

Q10 How is the Hyperlite tested prior to delivery?

A10 In addition to quality control and visual inspections at all stages of manufacture, each Hyperlite is hydrostatically pressurised to 1.5 times the maximum working pressure for one hour. No water leaks are permissible. This is followed by an air test to maximum working pressure for one hour. All testing may be witnessed by the purchaser's representative.

Q11 How is the Hyperlite protected from over-pressurisation?

A11 The Hyperlite has an emergency blow-off valve set at 23 msw (75 fsw).

Q12 How do you ensure that the operator does not make wrong connections when assembling the Hyperlite?

A12 Each connection is different, either in size or type, so that no hose can be wrongly connected.

Q13 What material is used in the manufacture of the flexible tube to make it so strong and yet be so flexible?

A13 The Hyperlite flexible tube is made using para-aramid fibre. This is an extremely strong abrasion resistant material that is wound in a matrix of silicone rubber. The same material is used in the manufacture of bullet proof vests, conveyor belts, car tyres, brake pads and other protective clothing.

Q14 We have heard that para-aramid fibres can get damaged by self abrasion under pressure and by very acute bending. Won't this affect the integrity of the tube?

A14 No, all the fibres are individually coated during winding to keep them apart from each other. They are then permanently sandwiched in the silicone rubber preventing acute bending. No such damage can occur.

Q15 Does the integrity of the Hyperlite tube suffer damage by folding?

A15 The tube is unlikely to suffer damage from repeated folding during its normal working life.

Q16 Does the Hyperlite tube suffer from being kept folded in the storage cases?

A16 No, silicone rubber will always resume its original shape, even after extended periods in the case. The manufacturer recommends however that the hyperbaric stretcher be removed every six months for a test inflation.

Q17 Does the Hyperlite tube suffer in any way from ultra-violet exposure or other forms of degradation?

A17 No. The silicone rubber does not suffer the degradation from ultra-violet exposure. The para-aramid fibres are protected from radiation as they are completely enclosed within the silicone rubber matrix covering both the exterior and interior of the Hyperlite tube. The storage cases add additional protection from damp and dust.

Q18 Does the Hyperlite tube suffer from the effects of high or low temperature?

A18 The Hyperlite tube remains flexible and operational from -60C to 200C (-15F to 400F). The acrylic end domes should be kept below 40C (104F) in use. For patient comfort, the Hyperlite should ideally be kept below 29C (84F).

Q19 Can repairs be made to a damaged Hyperlite tube?

A19 The inner and outer silicone rubber walls of the tube are fully repairable, using the two part silicone rubber repair kit available from the manufacturers. Any damage to the fibres will need to be inspected by the manufacturer.

Q20 Does the casualty have any way in which he can de-pressurize the Hyperlite in an emergency situation, should the operator becomes incapacitated?

A20 An internal emergency vent can be supplied as an optional extra.

Q21 Can a patient be X-rayed inside the chamber?

A21 By positioning the tube above the chamber and the plate beneath the chamber, any part of a patient can be X-rayed without loss of clarity. The intensity of dosage should not need to be increased.

Q22 Does the Hyperlite float?

A22 The Hyperlite will always remain buoyant when inflated, even with a large heavy casualty and all the services connected.

Q23 Could a patient suffer from claustrophobia in such a small chamber?

A23 This is unlikely as the Hyperlite is supplied with two full diameter transparent domes giving the patient excellent vision from the chamber.

Q24 How much air and oxygen is needed for a therapy?

A24 This will depend upon the pressures to which the Hyperlite will be are the responsibility of the operator and can easily be calculated.

Q25 Is patient monitoring possible inside the Hyperlite?

A25 Provided that the unit has been supplied with the correct penetrations and connections, full monitoring of the patient including ECG (EKG), EEG, BP, Pulse, Oxygen saturation levels and IV sampling etc. are all possible.

Q26 What happens if the condition of the casualty deteriorates and a 'hands-on' situation becomes vital?

A26 This is a situation where the patient must be removed from the Hyperlite without delay. This can be done by fully opening the emergency vent in addition to the chamber exhaust valve. Even from maximum working pressure, the patient can be de-pressurised little over one minute.

Q27 If removal of a diving casualty from the Hyperlite becomes essential, will the return to ambient pressure bring back the 'bends'?

A27 Provided that the patient has been under pressure on oxygen for some time, it may well be that the nitrogen has already been flushed out of the system and the symptoms are unlikely to recur. The patient should however be re-pressurised as soon as possible.

Q28 Can the Hyperlite be carried on scheduled airlines or chartered aircraft?

A28 IATA regulations permit the carriage of the Hyperlite with a casualty in it aboard aircraft in emergency circumstances subject only to agreement with the Carrier. There are no formal restrictions concerning the carriage of air and oxygen cylinders for life support purposes in this situation.

Q29 Can the Hyperlite be used and carried at much lower pressures?

A29 It remains rigid and fully operational at pressures down to 3msw (10fsw).

ENCLOSURE (100)