

# MEDICAL LIQUID OXYGEN SYSTEMS

ISO 9001 & AS9100 Certified  
MIL-STD-810 Qualified  
CAGE CODE 19062



# MEDICAL LIQUID OXYGEN GENERATORS/SYSTEM

## OXYGEN GENERATOR AND LIQUEFIER (OGL)

P/N 50C-0103-5 (TAN) | NSN 3655-01-631-2889  
 P/N 50C-0103-7 (DARK GREEN)

The Oxygen Generator and Liquefier (OGL) liquefies and stores for transfer of liquid oxygen (LOX) to portable devices.

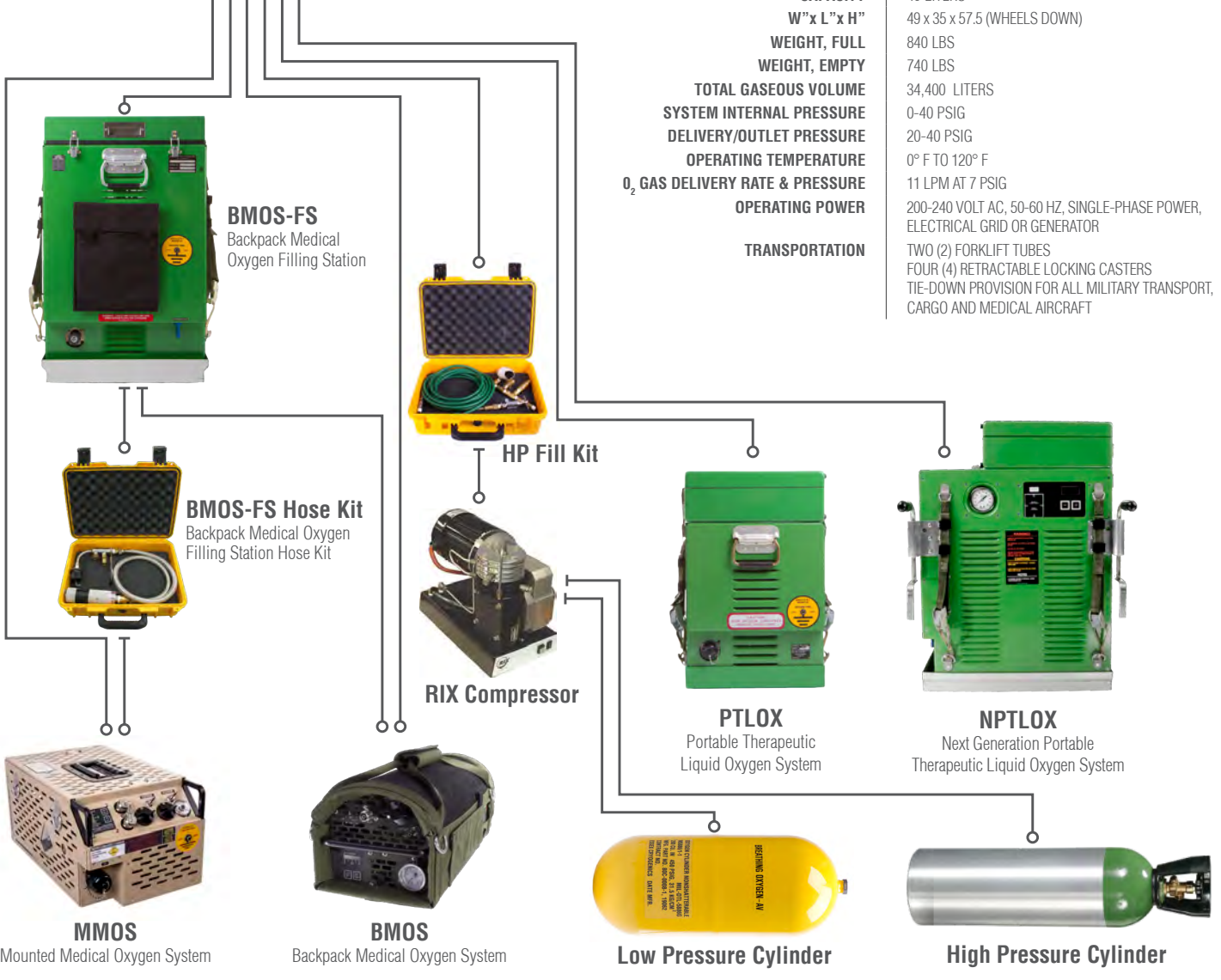
- FDA 510(k) Clearance Number K131990
- Generates 1 liquid liter of 93% USP oxygen per hour.
- Onboard LOX storage vessel.
- Portable – designed for fork lift or pallet transport.
- Able to fill BMOS, BMOS-FS, MMOS, NPTLOX and PTLOX.
- System performance data logging and fault output capability.
- PC Boards with on-board watchdog timer.
- User-friendly to allow for easier operator interface – plug in, turn on and forget.
- Designed for reliability in harsh conditions (10° - 120° F).
- Zero Loss Feature – will re-liquefy any oxygen gas that boils off when in standby mode.
- System automatically starts and stops based on liquid level in the 40 liter tank.
- Provides 11 L/min 93% USP gas for filling HP cylinders.
- Washable/Reusable Filters.

### APPLICATIONS

Medevac (fixed and rotary wing), ground transport, parachutist and ground evacuation.



LOX FILLING DIAGRAM



<b>CAPACITY</b>	40 LITERS
<b>W" x L" x H"</b>	49 x 35 x 57.5 (WHEELS DOWN)
<b>WEIGHT, FULL</b>	840 LBS
<b>WEIGHT, EMPTY</b>	740 LBS
<b>TOTAL GASEOUS VOLUME</b>	34,400 LITERS
<b>SYSTEM INTERNAL PRESSURE</b>	0-40 PSIG
<b>DELIVERY/OUTLET PRESSURE</b>	20-40 PSIG
<b>OPERATING TEMPERATURE</b>	0° F TO 120° F
<b>O<sub>2</sub> GAS DELIVERY RATE &amp; PRESSURE</b>	11 LPM AT 7 PSIG
<b>OPERATING POWER</b>	200-240 VOLT AC, 50-60 HZ, SINGLE-PHASE POWER, ELECTRICAL GRID OR GENERATOR
<b>TRANSPORTATION</b>	TWO (2) FORKLIFT TUBES FOUR (4) RETRACTABLE LOCKING CASTERS TIE-DOWN PROVISION FOR ALL MILITARY TRANSPORT, CARGO AND MEDICAL AIRCRAFT

# MEDICAL LIQUID OXYGEN SYSTEMS

## BACKPACK MEDICAL OXYGEN SYSTEM (BMOS)

P/N 50C-0089-4 | NSN 3655-01-628-1034

The Backpack Medical Oxygen System (BMOS) is a low pressure, portable 2 liter liquid oxygen storage and gaseous delivery system that has been tested to MIL-STD-810 and requires no external power. It has also been successfully tested to work in tandem with commonly used ventilators. FDA Life Support device 510(k) 071581.

### APPLICATIONS

Can be carried or worn by parachutists and ground support personnel.



<b>CAPACITY</b>	2 LITERS
<b>W" x L" x H"</b>	7.5 x 17.5 x 6.5
<b>WEIGHT, FULL</b>	19 LBS
<b>WEIGHT, EMPTY</b>	14 LBS
<b>TOTAL GASEOUS VOLUME</b>	1,720 LITERS
<b>SYSTEM INTERNAL PRESSURE</b>	45-65 PSIG
<b>MAX FLOW RATE</b>	15 LPM
<b>DELIVERY/OUTLET PRESSURE</b>	50 ± 5 PSIG
<b>OPERATING TEMPERATURE</b>	32° F TO 120° F
<b>INDICATOR POWER</b>	SIX (6) AA BATTERIES
<b>FLOW CONTROL VALVE</b>	BUILT-IN , 0 TO 15 LPM WITH 11 SETTINGS (0.5, 1, 2, 3, 4, 5, 6, 8, 10, 12, 15 LPM)
<b>FILL CONNECTION</b>	CRU-50/A FILL VALVE

## MOUNTED MEDICAL OXYGEN SYSTEM (MMOS)

P/N 50C-0105-1

The Mounted Medical Oxygen System (MMOS) is a low pressure, portable 4 liter liquid oxygen storage and gaseous delivery system that has been tested to MIL-STD-810 and requires no external power. It has also been successfully tested to work in tandem with commonly used ventilators. The BMOS-FS Hose Kit connects the MMOS to the BMOS-FS for refilling. FDA Life Support device 510(k) number K113767.

### APPLICATIONS

Can be carried by ground support personnel and can also be mounted in an aircraft, helicopter or ground vehicle.



<b>CAPACITY</b>	4 LITERS
<b>W" x L" x H"</b>	11.2 x 17 x 9
<b>WEIGHT, FULL</b>	35 LBS
<b>WEIGHT, EMPTY</b>	25 LBS
<b>TOTAL GASEOUS VOLUME</b>	3,440 LITERS
<b>SYSTEM INTERNAL PRESSURE</b>	85-120 PSIG
<b>MAX FLOW RATE</b>	30 LPM
<b>DELIVERY/OUTLET PRESSURE</b>	50 ± 5 PSIG
<b>OPERATING TEMPERATURE</b>	-40° F TO 130° F
<b>INDICATOR POWER</b>	ONE (1) 9-VOLT BATTERY
<b>FLOW CONTROL VALVE</b>	BUILT-IN , 0 TO 15 LPM WITH 11 SETTINGS (0.5, 1, 2, 3, 4, 5, 6, 8, 10, 12, 15 LPM)
<b>OUTLET CONNECTION</b>	TWO (2) DISS 1240 PORTS AND TWO (2) FLOW CONTROL VALVES WITH 1/8" BARB PORTS
<b>FILL CONNECTION</b>	CRU-50/A FILL VALVE



## BACKPACK MEDICAL OXYGEN SYSTEM FILLING STATION (BMOS-FS)

P/N 50C-0083-3 (GREEN) | NSN 3655-01-601-2275,  
P/N 50C-0083-4 (DARK GREEN)

The BMOS Filling Station (BMOS-FS) is a low pressure, portable 20 liter liquid oxygen storage device designed to fill multiple BMOS or MMOS systems prior to use. Average filling time is approximately three minutes to fill either system. Requires no external power and has a built-in flow control valve. Tested to MIL-STD-810.

The BMOS-FS Hose Kit, P/N 50C-0116-1, is used to connect the MMOS for refilling. See page 16.

### APPLICATIONS

Can be carried by two ground support personnel and can also be mounted in an aircraft, helicopter or ground vehicle.

<b>CAPACITY</b>	20 LITERS
<b>W”x L”x H”</b>	22 x 24 x 30
<b>WEIGHT, FULL</b>	125 LBS
<b>WEIGHT, EMPTY</b>	75 LBS
<b>TOTAL GASEOUS VOLUME</b>	17,200 LITERS
<b>SYSTEM INTERNAL PRESSURE</b>	28-55 PSIG
<b>DELIVERY/OUTLET PRESSURE</b>	28-55 PSIG
<b>OPERATING TEMPERATURE</b>	32° F TO 120° F
<b>INDICATOR POWER</b>	TWO (2) 9-VOLT LITHIUM BATTERIES

# MEDICAL LIQUID OXYGEN SYSTEMS

## NEXT GENERATION PORTABLE THERAPEUTIC LIQUID OXYGEN SYSTEM (NPTLOX)

P/N 50C-0083-1 | NSN 6530-01-585-4676  
 SHOWN WITH INCLUDED ACCESSORY KIT  
 P/N 50C-0021-0001-1 (ACCESSORY KIT ONLY)

The NPTLOX is a low pressure portable 20 liter liquid oxygen storage and gaseous delivery system. It has been successfully tested to work in tandem with commonly used ventilators. FDA Life Support device 510(k) number K033000.

### APPLICATIONS

Can be carried by ground support personnel and can also be mounted in an aircraft or ground vehicle.



<b>CAPACITY</b>	20 LITERS
<b>W"x L"x H"</b>	22 x 24 x 32
<b>WEIGHT, FULL</b>	155 LBS
<b>WEIGHT, EMPTY</b>	105 LBS
<b>TOTAL GASEOUS VOLUME</b>	17,200 LITERS
<b>SYSTEM INTERNAL PRESSURE</b>	85-120 PSIG
<b>MAX FLOW RATE</b>	66 LPM
<b>DELIVERY/OUTLET PRESSURE</b>	50 ± 5 PSIG
<b>OPERATING TEMPERATURE</b>	32° F TO 110° F
<b>INDICATOR POWER</b>	TWO (2) 9-VOLT LITHIUM BATTERIES
<b>OUTLET CONNECTION</b>	SIX (6) SCHRADER QUICK DISCONNECT PORTS
<b>FILL CONNECTION</b>	CRU-50/A FILL VALVE
<b>ACCESSORY KIT INCLUDES</b>	THREE (3) 20' MEDICAL GRADE HOSES
<i>P/N 50C-0021-0001-1</i>	THREE (3) FLOW CONTROL VALVES: 0 TO 15 LPM WITH 11 SETTINGS (0.5, 1, 2, 3, 4, 5, 6, 8, 10, 12, 15 LPM)
	THREE (3) HUMIDIFIER BOTTLES
	THREE (3) SCHRADER QUICK DISCONNECT ADAPTERS



### DURATION OF REMAINING OXYGEN SUPPLY (flow rate/minute)

LITERS OF LOX	LITERS OF GAS	60 L/MIN	45 L/MIN	30 L/MIN	15 L/MIN
20	17,200	287	382	573	1,147
19	16,340	272	363	545	1,089
18	15,480	258	344	516	1,032
17	14,620	244	325	487	975
16	13,760	229	306	459	917
15	12,900	215	287	430	860
14	12,040	201	268	401	803
13	11,180	186	248	373	745
12	10,320	172	229	344	688
11	9,460	158	210	315	631
10	8,600	143	191	287	573
9	7,740	129	172	258	516
8	6,880	115	153	229	459
7	6,020	100	134	201	401
6	5,160	86	115	172	344
5	4,300	72	96	143	287
4	3,440	57	76	115	229
3	2,580	43	57	86	172
2	1,720	29	38	57	115
1	860	14	19	29	57

# PORTABLE THERAPEUTIC LIQUID OXYGEN SYSTEM (PTLOX)

P/N 50C-0021-1 | NSN 6530-01-222-9494  
 SHOWN WITH INCLUDED ACCESSORY KIT

The PTLOX is a low pressure portable 10 liter liquid oxygen storage and gaseous delivery system. It has been successfully tested to work in tandem with commonly used ventilators. FDA Life Support device 510(k) number K880183.

## APPLICATIONS

Can be carried by ground support personnel and can also be mounted in an aircraft or ground vehicle.

<b>CAPACITY</b>	10 LITERS
<b>W”x L”x H”</b>	18.2 x 20 x 24
<b>WEIGHT, FULL</b>	80 LBS
<b>WEIGHT, EMPTY</b>	55 LBS
<b>TOTAL GASEOUS VOLUME</b>	8,600 LITERS
<b>SYSTEM INTERNAL PRESSURE</b>	85-120 PSIG
<b>MAX FLOW RATE</b>	45 LPM
<b>DELIVERY/OUTLET PRESSURE</b>	50 ± 5 PSIG
<b>OPERATING TEMPERATURE</b>	40° F TO 140° F
<b>INDICATOR POWER</b>	TWO (2) 9-VOLT ALKALINE BATTERIES
<b>OUTLET CONNECTION</b>	THREE (3) SCHRADER QUICK DISCONNECT PORTS
<b>FILL CONNECTION</b>	CRU-50/A FILL VALVE
<b>ACCESSORY KIT INCLUDES</b>	THREE (3) 20' MEDICAL GRADE HOSES
<i>P/N 50C-0021-0001</i>	THREE (3) FLOW CONTROL VALVES: 0 TO 15 LPM WITH 11 SETTINGS (0.5, 1, 2, 3, 4, 5, 6, 8, 10, 12, 15 LPM)
	THREE (3) HUMIDIFIER BOTTLES



## DURATION OF REMAINING OXYGEN SUPPLY

(flow rate/minute)

LITERS OF LOX	LITERS OF GAS	45 L/MIN	30 L/MIN	15 L/MIN
10	8,600	191	287	573
9	7,740	172	258	516
8	6,880	153	229	459
7	6,020	134	201	401
6	5,160	115	172	344
5	4,300	96	143	287
4	3,440	76	115	229
3	2,580	57	86	172
2	1,720	38	57	115
1	860	19	29	57



# GROUND SUPPORT EQUIPMENT

ISO 9001 & AS9100 Certified  
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# GROUND SUPPORT EQUIPMENT LOX VALVES



## LOX FILL, BUILDUP AND VENT VALVE

P/N 0580560100-1  
NSN 1660-01-092-5376

The Fill, Buildup and Vent Valve is an automatic-acting type valve that provides a safe, rapid method to control liquid and gaseous oxygen flow during the fill-up and operation of cryogenic converters.

- Meets and/or exceeds functional and environmental requirements of MIL-PRF-25961
- Designed to mate with the standard liquid oxygen filler valve per MIL-PRF-38201
- Check valve in the fill port prevents reverse flow of liquid gases
- Constructed of aluminum with stainless steel poppets and Teflon seals
- CRU-50/A connection



## LIN FILLER VALVE

P/N 20C-0021-4  
NSN 4820-01-207-3166

## LOX FILLER VALVE

P/N 20C-0021-2  
NSN 4820-00-796-9680

Liquid Oxygen and Nitrogen Filler Valves are specifically designed to service liquid oxygen and nitrogen systems for military aircraft.

- Perform in accordance with MIL-PRF-38201
- Automatically open and close when activated by the mating component
- Pin quantity and size variations provided for proper coupling
- CRU-59/E connection



# GROUND SUPPORT EQUIPMENT LOX CARTS

## 50 GALLON LOX CART

P/N 50C-0014-1 (DARK GREEN) | NSN 3655-01-066-6214 | TMU-27/M  
P/N 50C-0014-5 (WHITE) | NSN 3655-01-456-0123

The 50 Gallon LOX Cart is a mobile liquid oxygen storage tank assembly that allows for maximum reliability and portability with minimal maintenance. The 50 Gallon LOX Cart can be used with any LOX converter that uses a CRU-50/A fill connection, including all Essex LOX Converters, BMOS, BMOS-FS, MMOS, NPTLOX and PTLOX. Meets and/or exceeds functional and environmental requirements of MIL-PRF-38170. Tested to MIL-STD-810 and conforms to mobility requirements of SAE-A58090 (MIL-M-8090, Type II, Group A equipment).

<b>CAPACITY</b>	50 GALLONS
<b>W"x L"x H"</b>	54 x 85 x 39
<b>WEIGHT, FULL</b>	1160 LBS
<b>WEIGHT, EMPTY</b>	685 LBS
<b>SYSTEM INTERNAL PRESSURE</b>	0-65 PSIG
<b>DELIVERY/OUTLET PRESSURE</b>	20-65 PSIG
<b>OPERATING TEMPERATURE</b>	-65° F TO 125° F
<b>FILL CONNECTION</b>	INSULATED TRANSFER HOSE (WILL WORK WITH ANY PORTABLE LOX DEVICE HAVING A STANDARD CRU-50 FILL CONNECTION)
<b>OUTLET PORT</b>	CRU-59/E FILL VALVE ON TEN (10) FOOT HOSE
<b>TRANSPORTATION</b>	STANDARD LUNETTE EYE WITH THREE (3) WHEELS (RETRACTABLE FRONT WHEEL), MANUAL PARKING BRAKE, LIFT/TIE DOWN RINGS





## 500 GALLON LOX TRAILER

P/N 50C-0115-1 (LOX) | NSN 3655-01-626-3554

P/N 50C-0115-2 (LIN) | NSN 3655-01-626-3553

The 500 Gallon LOX Trailer is a mobile liquid oxygen storage tank assembly.

The 500 Gallon LOX Trailer can be used with all Essex LOX Converters, BMOS, BMOS-FS, MMOS, NPTLOX, PTLOX and 50 Gallon LOX Carts.

A 500 Gallon LIN Trailer for the transport and storage of liquid nitrogen is also available.

- ASME certified tank builder
- Trailer Mounted and Forklift Compatible
- Unit is Qualified to Air Force PD13WRGRVEA05
- Tested to MIL-STD-810

<b>CAPACITY</b>	500 GALLONS
<b>DIMENSIONS (W" x L" x H")</b>	84 x 136 x 96
<b>OVERALL CUBE</b>	633 FT <sup>3</sup>
<b>FULL WEIGHT</b>	9500 LBS w/ LOX   8000 LBS w/ LIN
<b>EMPTY WEIGHT</b>	4500 LBS
<b>SYSTEM INTERNAL PRESSURE</b>	0-65 PSIG
<b>LOX DELIVERY/OUTLET PRESSURE</b>	30-50 PSIG
<b>OPERATING TEMPERATURE</b>	-40°F TO +140°F
<b>STORAGE TEMPERATURE</b>	-60°F TO +160°F
<b>OUTLET PORTS</b>	10' SERVICING HOSE PER MIL-H-27301 WITH SERVICING COUPLING FOR LOX PER 8991174 OR LIN PER 8991172 ADDITIONAL 10' SERVICING HOSE PER MIL-PRF-83772 WITH THE MATING SERVICING COUPLING AND CRU-59/E FILL VALVE. TRAILER PER SAE AS8090, TYPE II, GROUP C WITH LUNETTE COUPLER PER A-A 52464, TYPE II
<b>TRANSPORTING</b>	TIE-DOWN PROVISIONS PER MIL-HDBK-1791 & USAF 4887796 LIFTING RINGS FOR CRANE COMPATIBILITY FORKLIFT TUBES FOR FORKLIFT COMPATIBILITY



# GROUND SUPPORT EQUIPMENT ACCESSORIES



## LOX PERSONAL PROTECTION EQUIPMENT

P/N 50C-0107-0903-1, -2, -3, -4 (Kits include Gloves, Apron, & Face Shield)  
 P/N 50C-0107-0900-1, -2, -3, -4 (Cryogenic Elbow Length Gloves)  
 P/N 50C-0107-0902 (Cryogenic Apron 42" Long)  
 P/N 50C-0107-0901 (Face Shield)

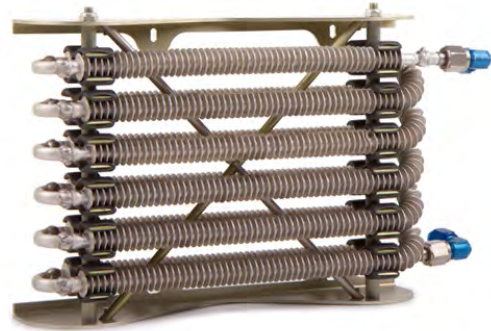
Personal Protection Equipment (PPE) must be worn when filling, draining or purging LOX or other cryogenic devices. The extreme cold of the liquid can freeze unprotected skin cause severe frostbite. Essex offers face shields, cryogenic aprons and cryogenic gloves available separately or in kits in various sizes.

*Actual items may vary slightly in appearance from those pictured.*

## LOX HEAT EXCHANGER

P/N 50C-0007 | NSN 1660-01-042-3234

LOX Heat Exchanger warms incoming gaseous or liquid oxygen within 20 degrees of the ambient temperature prior to delivery to a pilot, aircraft crew or medical patient for breathing. A variety of sizes and configurations are available.



## LOX FILL HARNESS KIT

P/N 50C-0097-10  
 P/N 50C-0097-15

LOX Fill Harness Kit connects a Liquid Oxygen Cylinder (VGL) with a LOX converter or system for filling. The kit includes a relief valve, manual vent valve, CRU-59 LOX filler valve and hose assembly in either a 10' or 15' length.

<b>W"x L"x H"</b>	23 x 18.5 x 7
<b>WEIGHT</b>	15 LBS
<b>RELIEF VALVE SETTING</b>	400 PSIG
<b>SUPPLY CONNECTION</b>	CRU-59/E FILL VALVE

## PURGE KIT

P/N 50C-0068-2

The Purge Kit, coupled with an adequate supply of gas, removes moisture from cryogenic vessels, system lines, valves and their components. Can be used with pure gaseous nitrogen, oxygen or air. Adapters and hoses can be designed to fit specific applications upon request.

<b>W"x L"x H"</b>	18.5 x 14 x 7
<b>WEIGHT</b>	18 LBS
<b>SAFETY BURST DISC PRESSURE</b>	150 ± 10 PSIG
<b>INLET FLOW &amp; PRESSURE</b>	100 LPM AT 55 PSIG
<b>HEATER OUTLET TEMPERATURE</b>	250° F ± 20 ° F
<b>OPERATING POWER</b>	110 VOLTS AC, 60 HZ, SINGLE PHASE
<b>OUTLET CONNECTION</b>	CRU-59/E OR ALOX
<b>SUPPLY CONNECTION</b>	37 DEGREE FLARE FITTING





## HIGH PRESSURE FILL KIT

P/N 50C-0110-1 | NSN 3655-01-614-1496

High Pressure Fill Kit connects the OGL with a high pressure oxygen compressor to fill high pressure cylinders with 93% USP oxygen. The kit includes a 20' low pressure oxygen hose and a 4' high pressure braided hose with a relief valve, manual vent valve and pressure gauge. The high pressure oxygen compressor is not included. Items are packaged in a protective storage case.

<b>W"x L"x H"</b>	18.5 x 14 x 7
<b>WEIGHT</b>	12 LBS
<b>RELIEF VALVE SETTING</b>	75 PSIG
<b>SAFETY BURST DISC PRESSURE</b>	150 ± 10 PSIG
<b>INLET AND FLOW PRESSURE</b>	0 ± 25 PSIG
<b>ACCESSORIES INCLUDED</b>	ONE (1) 20' MEDICAL HOSE ONE (1) 4' HIGH PRESSURE HOSE ASSEMBLY ONE (1) CGA 540 CONNECTION ONE (1) CGA 870 YOKE CONNECTION

## BACKPACK MEDICAL OXYGEN SYSTEM FILLING STATION HOSE KIT

P/N 50C-0116-1

BMOS-FS Hose Kit connects the MMOS to the BMOS-FS for refilling. The kit includes a relief valve, burst disc, CRU-50 LOX filler valve and CRU-59 LOX filler valve attached to a 4' cryogenic transfer hose. Items are packaged in a protective storage case.

<b>W"x L"x H"</b>	18.5 x 14 x 7
<b>WEIGHT</b>	13 LBS
<b>RELIEF VALVE SETTING</b>	75 PSIG
<b>SAFETY BURST DISC PRESSURE</b>	150 ± 10 PSIG
<b>OUTLET CONNECTION</b>	CRU-59/E FILL VALVE ON 4' HOSE
<b>SUPPLY CONNECTION</b>	CRU-50/A FILL FITTING



## MISCELLANEOUS ACCESSORIES

<b>10' Cryogenic Hose</b> 50/500 Gallon LOX Carts	P/N 50C-0084-10 P/N 50C-0014-0170   MIL-PRF-83772
<b>15' Cryogenic Hose</b> 50/500 Gallon LOX Carts	P/N 50C-0084-15 P/N 50C-0014-0500   MIL-PRF-83772
<b>Drain Tank</b>	P/N 50C-0009-2
<b>Portable Efficiency Meter</b>	P/N 50C-0016-2
<b>Portable Quantity Gauging System</b>	P/N 50C-0022-1
<b>LOX Purge Fitting</b>	P/N 50C-0014-0111
<b>LIN Purge Fitting</b>	P/N 50C-0014-0250
<b>Supply Quick Disconnect</b>	P/N 528000-7
<b>Vent Quick Disconnect</b>	P/N 256000-7