

TECHNICAL DATA SHEET

Document # TDS001

Effective Date: 02/18/05

WILCOX'S PATRIOT®

LAND BASED HYBRID LIFE SUPPORT SYSTEM FOR CBRN

BACKGROUND

Operations conducted in chemically, biologically, or potentially contaminated environments require operational personnel to utilize respiratory protective measures. Currently, respiratory protection is limited to Air Purifying Respirators (APR), Powered Air Purifying Respirators (PAPR), Supplied Air Respirators (SAR) or Self Contained Breathing Apparatuses (SCBA). Each of these systems poses their own restrictions and limitations which may include such factors as filter medium limitations (for example, inability to withstand a wide variety of contaminants), mobility restrictions, power consumption, system size and weight, and time-on-target. Lastly, these systems are not modular and will not allow the units to be customized to meet mission specific requirements or scenarios in confined space in low profile conditions, extended missions, or when performing in-field recharging.

FEATURES

The *PATRIOT* is a state of the art Land Based Hybrid Life Support System that was designed with input by the operator for the operator. This hybrid SCBA system is unprecedented in the industry, in that it is the only system in its class to deliver blower or non-blower assisted filtered air (PAPR) or open circuit breathing gas (SCBA) in one integrated system. The *PATRIOT* has been tested and approved to operate in CBRN contaminated environments by the US Department of Defense.

The *PATRIOT* is adaptable to almost any chemical mask. Chemically hardened components allow the operator to wear the *PATRIOT* externally of currently used level 1 containment suits, simplifying the decontamination and recharging procedure. The operator can perform in containment levels (masked up) for an unprecedented eight (8) hours before performing service. Performance levels may vary depending on ambient temperature, the type of filter cartridge, contamination levels, and filter life. 71 minutes of open circuit air and seven (7) hours of battery life supply power to the blower system. The positive pressure air delivered from the *PATRIOT* utilizes the principle of a clean room, but within the operator's mask. If the facial seal is broken, clean air continues to feed the operator. The positive pressure also works as an anti-fog system, providing assistance in keeping the mask clear, allowing an improved field of view than offered in traditional breathing systems.

PATRIOT components are manufactured of chemically hardened high strength polycarbonate materials and aircraft aluminum, flat black hard-coated for durability and covertness in combat operations. The air supply is rechargeable within two (2) minutes at 4,500 PSI. The battery compartment houses eight (8) 3-volt Lithium batteries but requires a minimum of only two (2) for operation.

A unique 2.5 liter breathing bag / inhalation hose is supplied by either compressed air or the blower motor during the exhalation phase of breathing. This allows the operator to retrieve the next inhalation of air from the breathing bag vice, inhaling directly through the filter medium. This feature eliminates the need for multiple filters, which helps reduce weight and bulk to the system. A purge valve allows low pressure air to be introduced directly to the mask. The *PATRIOT* is designed to be modular in design. An extensive list of accessories is available allowing flexibility as mission requirements dictate (see TDS050). With the *PATRIOT*, operators can choose from two sizes of Carbon Fiber cylinders: 285 (Large) or 119 (Small) cu in. Both can be charged to 4500 psi, minimizing weight and cube. Each cylinder can be individually contained in case of catastrophic bottle failure if a bottle were to take a round. Each cylinder is equipped with its own pressure gauge and relief valve.



***PATRIOT* Configured with Left Large Cylinder and Wilcox Exothermic Torch Cutting Module**

WILCOX®

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A unique Universal Load Bearing Backpack System (sold separately, see TDS014) allows for secure attachment of the *PATRIOT*. A quick acting Ditch System (sold separately, requires optional interface plate, see TDS017) allows for expedient removal of the *PATRIOT* in case of emergency. The inhalation hose can be attached to the left or right side of the *PATRIOT* to accommodate left or right handed marksmen.

THIS SYSTEM

The *PATRIOT* operation is simple. The mode selection switch allows the operator to switch breathing modes back and forth between a blower assisted PAPR Mode (snorkle up), a non-blower assisted Covert Mode (snorkle up) and a SCBA Mode (snorkle down). An optional *MultiRAE Air Sensor Module* is currently available for externally monitoring the condition of ambient air when using the *PATRIOT*. This allows the operator to manually switch from filtered air to tank air when ambient air contains low Oxygen or dangerous, non-filterable breathing gasses.

SPECIFICATIONS**SMALL CYLINDERS (119 Cu In) - P/N 2000G01B**Weight

<i>PATRIOT</i> Empty Weight w/ Dual 119 cu in Cylinders	23.2 lbs.
Weight of Compressed Air, Filter, & 8 Batteries	4.5 lbs.
Total Operational Weight	27.7 lbs.

Dimensions

Depth	7.58 in.
Width	11.16 in.
Height	25.51 in.

Capacity (Two Cylinders)

Capacity @ 4500 psi (1178 liters)	40 cu. ft.
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Duration of Compressed Air

Air Supply @ 40 Lpm	30 min.
Blower Battery	7 hrs.
Total Operational Time	7 Hrs, 30 Min

**LARGE CYLINDERS (285 Cu In) - P/N 2000G01A**Weight

<i>PATRIOT</i> Empty Weight w/ Dual 285 cu in Cylinders	29.4 lbs.
Weight of Compressed Air, Filter, & 8 Batteries	9 lbs.
Total Operational Weight	38.4 lbs.

Dimensions

Depth	7.58 in.
Width	14.50 in.
Height	25.51 in.

Capacity (Two Cylinders)

Capacity @ 4500 psi (2859 liters)	101 cu. ft.
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Duration of Compressed Air

Air Supply @ 40 Lpm	71 min.
Blower Battery	7 hrs.
Total Operational Time	8 Hrs.



This breathing mode can also be controlled manually during a loss in tank pressure. During the "Filtered Air Mode" (snorkle up), the air enters the snorkel then passes through the filter bed, capturing contaminants prior to entering the Breathing Bag Hose Assembly.

When operated in the SCBA mode, the filter bed remains sealed from the outside environment, thus eliminating premature failure of the filter due to moisture or air-borne contaminants. Air is introduced from the high-pressure, 4500 psi cylinder(s) to the breathing hose via a high and low-pressure air-reducing regulator. The regulator provides positive pressure (approx. 2 lbs.) to the chemical mask at all times.

The *PATRIOT* is required to operate in conjunction with a chemical mask. For proper operation of the *PATRIOT* system, a positive pressure outlet valve must be installed on the mask. This outlet valve feature can adapt to most chemical masks.

ORDER NUMBER:

- 2000G01A** *PATRIOT* Land Based Hybrid Life Support System with 285 Cu In Cylinders
- 2000G01B** *PATRIOT* Land Based Hybrid Life Support System with 119 Cu In Cylinders
- 2000G01C** *PATRIOT* Land Based Hybrid Life Support System [(1) 285 Cu In Cylinder and (1) Exothermic Cutting Torch Module]

For international sales, please contact the Wilcox Marketing Department. For sales within the Continental United States, please contact Safety Systems Corp.



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