Has Your Rebreather Been Tested?

With the growing number of un-proven Rebreathers appearing on the market it is critical for the diver to know if their rebreather tests positive for AEDS (Acquired Electronics Deficiency Syndrome).

Symptoms:

- Loss of data around sources of EMI (Electro Magnetic Interference)
- Spurious Warnings
- Inability to fight off ESD (Electro Static Discharge)

Discerning divers recognize the value of time proven equipment that has also passed rigorous third part laboratory testing. EN 14143:2003 Respiratory Equipment-Self-Contained Re-breathing Diving Apparatus requirements sub-section 5.13.3, electromagnetic compatibility (EMC) and EN standards 61000-6-1, and IEC 61000-4-2 electromagnetic discharge defines specific tests for electronics installed in rebreather equipment to determine the robustness of the electronics and it's ability to withstand EMI threats in the diving environment. InnerSpace Systems Corporation is pleased to publish the results of the EMI testing mandated by EN14143. Details may be downloaded from our web site www.customrebreathers.com. The specific tests required and passed are:

InnerSpace Systems Corp. APECS 2.5 Electronics Test Results

Result	Standard	Description	Specified Requirement	Performance Criteria	Comments
Pass 	IEC 61000-4-2	Electrostatic Discharge Immunity	EN61000-6-1	Criteria B	Tested up to 8 kv discharge and 4 kv Contact.
Pass 	IEC 61000-4-3	RF Field Immunity	EN61000-6-1	Criteria A	3 V/M, 80 to 1000 MHz
Pass 	IEC 61000-4-8	Magnetic Field Immunity	EN61000-6-1	Criteria A	3 A/M, 50 and 60 Hz
Pass 	EN55022	Radiated Emissions	EN55022	Class B	

Juergensen Marine Hammer Head Electronics

Result	Standard	Description	Specified Requirement	Performance Criteria	Comments
FAIL 	IEC 61000-4-2	Electrostatic Discharge Immunity	EN61000-6-1	Criteria B	**Reset and lost data, Primary display scrambled unit destroyed.**
FAIL 	IEC 61000-4-3	RF Field Immunity	EN61000-6-1	Criteria A	**Secondary Handset failed, stuck in Alert.**
Pass 	IEC 61000-4-8	Magnetic Field Immunity	EN61000-6-1	Criteria A	3 A/M, 50 and 60 Hz
Pass 	EN55022	Radiated Emissions	EN55022	Class B	

Has Your Rebreather Been Tested?

With all of the "hype" on scrubber performance has your manufacturer tested their products to standards and published the results? InnerSpace Systems has tested their products in independent labs and are proud to stand by their results. Below is a summary of the actual lab tests, more information can be found on our web-site, www.customrebreathers.com.

InnerSpace Systems Approved Scrubber Devices

Depth: 50 meters, Ventilation 40 lpm, Tidal Volume 2.0, Breathing Rate 20 BPM, Air	Scrubber Weight - lbs (kg)	WOB (J/l)
CisLunar Radial	5.5 (2.49)	1.22
ISC Axial	5.5 (2.49)	1.26
Extend Air RPC	5.5 (2.49	1.12
ISC Radial	7.5 (3.4)	1.06

Depth: 40 meters, Ventilation 40 lpm, TV 2.0, BR 20 BPM, Air	Scrubber Weight - lbs (kg)	Duration .5% CO2	Min / kg
CisLunar Radial	5.5 (2.49)	1:35	:38.2/kg
ISC Radial	7.5 (3.4)	3:30	:58.3/kg
ISC Axial	5.5 (2.49)	2:00	:48.2/kg

Juergensen Marine / Golem Radial (Not Approved) vs. ISC Axial

Depth: 50 meters, Ventilation 40 lpm, TV 2.0, BR 20 BPM, Air	Scrubber Weight - lbs (kg)	Duration .5% CO2	Min / kg
ISC Axial	5.5 (2.49)	2:00	:48.2/kg
Golem Radial	8.0 (3.6)	2:25	:40.2/kg

The ISC Axial Scrubber is 17% more efficient (Min/kg) than the Golem Radial!
The ISC Radial is 32% more efficient (Min/kg) than the Golem Radial!

Juergensen Marine / Golem Gear Bail Out Valve

Ventilation 62.5 RMV, TV 2.5 l, BR 25 bpm, 40m, Air	USN Cat 1 Test Goal WOB - 1.37 J/l	Result
Golem Gear BOV	2.07 J/l	✗ Fail

The Golem/Juergensen HH BOV **fails** to meet the U.S. Navy's Class A CAT 1 UBA list. For a regulator to make the ANU list it must have a WOB no higher than 1.37 J/l to a depth of 60.7 msw (198 fsw). For more info visit our website, www.customrebreathers.com.