



InnerSpace Systems Corp

P.O. Box 449

Centralia, WA 98531

Phone: (+001) 360.330.9018 Fax: (+001) 360.330.9019

E-mail: info@customrebreathers.com

# Sensor Failure Analysis Form

To help us identify the cause of failure and the associated risk, please complete the following information for the Diving Oxygen Sensor(s) being returned for evaluation and replacement.

Should the returned sensor(s) be deemed damaged or tampered with during our evaluation, such sensor(s) will be considered out-of-warranty sensor(s) and will not be replaced. In the interest of minimizing transportation of sensor(s) with chemicals, failed and out-of-warranty sensors will not be returned unless requested otherwise by you. Any replacement sensor(s) will be sent pursuant to our completion of the failure evaluation.

- 1) Complete form.
- 2) Email or fax form back
- 3) Ship failed Sensor(s) back to the factory or dealer:

Name: Elliot Royce

Address: 103 Siesta Key, Palm Beach FL, 33418

Email: eroyceus@me.com

Sensor Type: SC-1220

Serial Number: ISC 113685, 113686, 113657

Manf Date: 2019-04

Date Installed: 5-6-19

Approx Usage Hrs: 8

Rebreather Type: Meghloody May 15

Describe the **failure symptoms** and behavior noticed to conclude the Sensor is bad:

Opened new sensor in package and normalized in air for 12 hrs before fitting to head and testing in pressure pot as per ISC Test procedure. Sensor failed reading non-linear with a higher than normal output.

1 month after install units would show  
above 8mw

How soon after installation was the failure behavior noticed?

Next Day

What is the ambient temperature? 70°

Temperature variations? +/- 10°

Comments:



InnerSpace Systems Corp

P.O. Box 449

Centralia, WA 98531

Phone: (+001) 360.330.9018 Fax: (+001) 360.330.901

E-mail: [info@customrebreathers.com](mailto:info@customrebreathers.com)

SA-1

## Sensor Failure Analysis Form

To help us identify the cause of failure and the associated risk, please complete the following information for the Diving Oxygen Sensor(s) being returned for evaluation and replacement.

Should the returned sensor(s) be deemed damaged or tampered with during our evaluation, such sensor(s) will be considered out-of-warranty sensor(s) and will not be replaced. In the interest of minimizing transportation of sensor(s) with chemicals, failed and out-of-warranty sensors will not be returned unless requested otherwise by you. Any replacement sensor(s) will be sent pursuant to our completion of the failure evaluation.

- 1) Complete form.
- 2) Email or fax form back
- 3) Ship failed Sensor(s) back to the factory or dealer:

Name: Antonio Simonini

Address: 511 E78th st., Apt 5A, New York, NY 10075

Email: ximox@ximox.com

Sensor Type: SC-I22D

Serial Number: 113594

Manf Date : \_\_\_\_\_

Date Installed: 4/20/2019

Approx Usage Hrs: 10h

Rebreather Type: Meg 2.7

Describe the **failure symptoms** and behavior noticed to conclude the Sensor is bad:

On Jul 5, 2019 while diving in approx. 70ft with a setpoint of 1.2 I noticed sensor 2 (S/N 113594) suddenly dropped to 0.7 for a few seconds (3-4) then quickly went back to reading 1.2. Approximately 10 minutes later the same event repeated again returning to a correct reading a few seconds later. I did not have time to check the APECS controller nor switch to a mv view as the event was very quick. I ascended to a depth of approximately 23ft where I conducted an O2 flush and observed all sensors read above 1.6.

On July 13, 2019 when performing an air calibration I noticed that the sensor would not read past 7.7mv. When I swapped the sensor to a different position the 7.7mv reading followed excluding an issue with the unit. I decided not to dive and when I returned home I performed additional testing. Reading on a extech EX330 multimeter confirmed the low reading of the RB controller (I also measured a good sensor as comparison). Test was then repeated on a precision bench multimeter. The readings on both "bad" and "good" sensors were slightly higher but with identical offsets from the measurements obtained with the rebreather and the handheld multimeter. Test room was at approximately 25.5C

How soon after installation was the failure behavior noticed?

84 days

What is the ambient temperature? 78F ~25.5C

Temperature variations? No



InnerSpace Systems Corp  
P.O. Box 449  
Centralia, WA 98531  
Phone: (+001) 360.330.9018 Fax: (+001) 360.330.9019  
E-mail: info@customrebreathers.com

# Sensor Failure Analysis Form

To help us identify the cause of failure and the associated risk, please complete the following information for the Diving Oxygen Sensor(s) being returned for evaluation and replacement.

Should the returned sensor(s) be deemed damaged or tampered with during our evaluation, such sensor(s) will be considered out-of-warranty sensor(s) and will not be replaced. In the interest of minimizing transportation of sensor(s) with chemicals, failed and out-of-warranty sensors will not be returned unless requested otherwise by you. Any replacement sensor(s) will be sent pursuant to our completion of the failure evaluation.

- 1) Complete form.
- 2) Email or fax form back
- 3) Ship failed Sensor(s) back to the factory or dealer:

Name: Brandon McWilliams

Address: 240 Hitching Post Dr. Bel Air, MD 21014

Email: mcjangles@gmail.com

Sensor Type: SC-I22D

Serial Number: ISC113720, ISC113718

Manf Date : 2019-04

Date Installed: 7/19/2019

Approx Usage Hrs: 4

Rebreather Type: Megalodon

Describe the **failure symptoms** and behavior noticed to conclude the Sensor is bad:

Opened new sensor in package and normalized in air for 12 hrs before fitting to head. Sensor failed reading non-linear with a lower than normal output. Cells read 1.0 maximum while testing. Output 7 mV (or less) 2 days later and would not hold calibration as mV were continuously dropping.

How soon after installation was the failure behavior noticed?

Next Day

What is the ambient temperature? 75F

Temperature variations? \_\_\_\_\_

Comments: \_\_\_\_\_



InnerSpace Systems Corp  
P.O. Box 449  
Centralia, WA 98531  
Phone: (+001) 360.330.9018 Fax: (+001) 360.330.9019  
E-mail: info@customrebreathers.com

DF-2

## Sensor Failure Analysis Form

To help us identify the cause of failure and the associated risk, please complete the following information for the Diving Oxygen Sensor(s) being returned for evaluation and replacement.

Should the returned sensor(s) be deemed damaged or tampered with during our evaluation, such sensor(s) will be considered out-of-warranty sensor(s) and will not be replaced. In the interest of minimizing transportation of sensor(s) with chemicals, failed and out-of-warranty sensors will not be returned unless requested otherwise by you. Any replacement sensor(s) will be sent pursuant to our completion of the failure evaluation.

- 1) Complete form.
- 2) Email or fax form back
- 3) Ship failed Sensor(s) back to the factory or dealer:

Name: Didier Follain-Grisell

Address: 2120 NW 18<sup>th</sup> Street Delray Beach FL 33445

Email: ddafg@godiveflorida.com

Sensor Type: SD122D

Serial Number: ISC113120

Manf Date : 2018-11

Date Installed: 01/11/19

Approx Usage Hrs: 25

Rebreather Type: ISC Pathfinder

Describe the **failure symptoms** and behavior noticed to conclude the Sensor is bad:

~~Sensor started to read low after 6 months of use. Reading was 8.3mV when other two sensors were reading 9.6 mV giving out of tolerance warnings. I read sensors voltage at depth and the difference in mV was also significant however I don't recall the exact numbers.~~

How soon after installation was the failure behavior noticed?

6 months

What is the ambient temperature? 85

Temperature variations? 20 Deg F

Comments: The cells were never exposed to water except normal light condensation vapor in canister possibly.



InnerSpace Systems Corp  
P.O. Box 449  
Centralia, WA 98531

Phone: (+001) 360.330.9018 Fax: (+001) 360.330.9019  
E-mail: info@customrebreathers.com

DF-1

## Sensor Failure Analysis Form

To help us identify the cause of failure and the associated risk, please complete the following information for the Diving Oxygen Sensor(s) being returned for evaluation and replacement.

Should the returned sensor(s) be deemed damaged or tampered with during our evaluation, such sensor(s) will be considered out-of-warranty sensor(s) and will not be replaced. In the interest of minimizing transportation of sensor(s) with chemicals, failed and out-of-warranty sensors will not be returned unless requested otherwise by you. Any replacement sensor(s) will be sent pursuant to our completion of the failure evaluation.

- 1) Complete form.
- 2) Email or fax form back
- 3) Ship failed Sensor(s) back to the factory or dealer:

Name: Didier Follain-Grisell

Address: 2120 NW 18<sup>th</sup> Street Delray Beach FL 33445

Email: ddafig@godiveflorida.com

Sensor Type: SD122D

Serial Number: ISC113121

Manf Date : 2018-11

Date Installed: 01/11/19

Approx Usage Hrs: 58

Rebreather Type: ISC Pathfinder

Describe the **failure symptoms** and behavior noticed to conclude the Sensor is bad:

Sensor started to read low after 8 months of use. Reading was 8.9mV when other two sensors were reading 9.7 and 10.2mV giving out of tolerance warnings. I had several warnings in the past two dives that were 200Ft dives. My two other cells cell 1: 2019-04 installed 06/22/19 and cell 2: 2019-07 installed 08/16/19  
Are doing fine.

How soon after installation was the failure behavior noticed?

8 months

What is the ambient temperature? 85

Temperature variations? 20 Deg F

Comments: The cells were never exposed to water except normal light condensation vapor in canister possibly.