

H₂O dyssey

Redundant Air Systems



RAS1



RAS2

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INTRODUCTION

Congratulations on your purchase of an H2Odysey Redundant Air System. This product is manufactured using high grade materials and state-of-the-art machining. It is a high performance underwater life support system. It has been designed, manufactured and tested by experienced divers.

READ THIS MANUAL THOROUGHLY AND CAREFULLY BEFORE USING THIS REGULATOR

The use of S.C.U.B.A. (Self Contained Underwater Breathing Apparatus) equipment is hazardous for the untrained individual. Therefore, before attempting to use any S.C.U.B.A. and / or any related equipment, an individual must receive training and certification. Use of this equipment by untrained individuals is hazardous and can result in serious injury or death. H2Odysey will not be held liable for any injuries resulting from this product even if H2Odysey has been advised of such occurrences or damages.

OPERATION

All H2Odysey Regulator combinations are made up of First Stage and Second Stage assemblies. The function of the First Stage is to reduce high pressure air output of the scuba cylinder to an intermediate air pressure of approximately 9.65 Bar, 140 P.S.I.G. @ 3000 lbs and Intermediate pressure decreases approximately 10 psi for every 1000 lbs used from the tank. H2Odysey Second Stages are engineered to reduce the intermediate pressure to ambient pressure in the divers mouth. When the air flow in the Second stage is activated, the First Stage immediately senses the intermediate air pressure drop, causing the high pressure seat to open and deliver the appropriate volume of air required by the Second Stage.

WARNING

H2Odysey SCUBA Diving Regulators are designed to be used with CLEAN-FILTERED air. They may be used with “EANX” gas, commonly called “NITROX”, providing that the standards for purity are in conformance. H2Odysey Regulators may be used with natural air unless Nitrox ready. Do not use this equipment with any other gas or enriched oxygen mixture ABOVE 21%. Failure to adhere to this warning may result in serious injury due to fire and explosion or the serious deterioration or failure of the equipment.

**The NITROX version of the RAS is 100% O² Ready.
Be certain that the tank used IS O² Ready.**

Per the European Standard, EN 132 annex A the following applies:

A.1 Composition of Air

Table 1. Composition of natural air

Components	Mass%	Vol%
Oxygen	23.14	20.9476
Nitrogen	75.52	78.084
Argon	1.288	0.934
Carbon dioxide	0.048	0.0314
Hydrogen	0.000003	0.00005
Neon	0.00127	0.001818
Helium	0.000073	0.000524
Krypton	0.000030	0.000114
Xenon	0.000039	0.0000087

A.2 Purity of Breathable Air

The breathable air shall meet the following standards of purity.

- If not specified otherwise the contaminants shall be kept to a minimum, but in any event shall not exceed the permissible exposure level.

- The mineral oil content shall be such that the air is without odor of oil.

NOTE: The odor threshold is in the region of 0.3 mg/m³

- In self-contained open-circuit compressed air breathing apparatus, the water content shall not exceed 30 mg/m³ for 300 bar or 50 mg/m³ for 200 bar apparatus.

- In compressed air line breathing apparatus air should be used having a dew point sufficiently low to prevent internal freezing.

Where national or state regulations exist they shall be observed.

CAUTION

According to EN 250, S.C.U.B.A. shall be equipped with at least the following sub-assemblies:

- a) Air Cylinder(s) with cylinder valve(s) and carrying frame.
- b) Demand Regulator (First and Second Stage).
- c) Safety Device / pressure gauge.
- d) Carrying Systems / body harness.
- e) Facepiece: Mouthpiece assembly or full face mask or diving helmet.

H2Odysey Regulators

WARNING

DO NOT ATTACH A LOW PRESSURE HOSE TO A HIGH PRESSURE PORT (MARKED HP) OR A HIGH PRESSURE HOSE TO A LOW PRESSURE PORT.

WARNING: ONLY Second Stages DESIGNED TO OPERATE AT 120-145 p.s.i. INTERMEDIATE PRESSURE CAN BE USED with H2Odysey First Stage regulators.

First Stage Regulators

FEATURES:

- Standard Piston Mechanism
- 2 Low Pressure Ports
- 2 High Pressure Ports-1 for fill valve-1 for pressure indicator or gauge (optional)
- 1 Burst Disc
- Working intermediate pressure of 120/140 P.S.I.
- Standard 3/4" threading to fit any standard aluminum tank
- Quick disconnect (female) for fast removal of 2nd stage hose

Second Stage Regulators

FEATURES:

- Downstream Flow
- 360° Swivel under regulator for easy hand off
- Silicone Mouthpiece
- Large Silicone Diaphragm
- Dual Exhaust Valves
- Dual Exhaust Manifold
- Large Purge Button
- 39" hose with male quick disconnect fitting

NITROX Version has Viton O-rings and has been O² cleaned.

CAUTION

Diving in cold water (below 10c. / 50f.) without special equipment and training may cause serious injury or death.

* RG-2V First stage is not environmentally sealed.

Before attempting cold water or ice diving, you must receive training and certification in the techniques used in cold water or ice diving from a recognized certification agency and follow all recommended procedures. However, due to variables such as water temperature, salinity, depth, breathing rate, lung volume and moisture content in the compressed breathing air, the possibility of ice formation still exists. Ice formation can interfere with the proper operation of the regulator, causing free-flow or blockage of air which may result in personal injury or death.

DO NOT ATTEMPT A DIVE WITH A FREE FLOWING REGULATOR

CAUTION

Prior to diving, DO NOT OPERATE Regulator out of water in cold air (0 deg. C); avoid breathing from Regulator or purging the Regulator when the ambient air is at or near freezing.

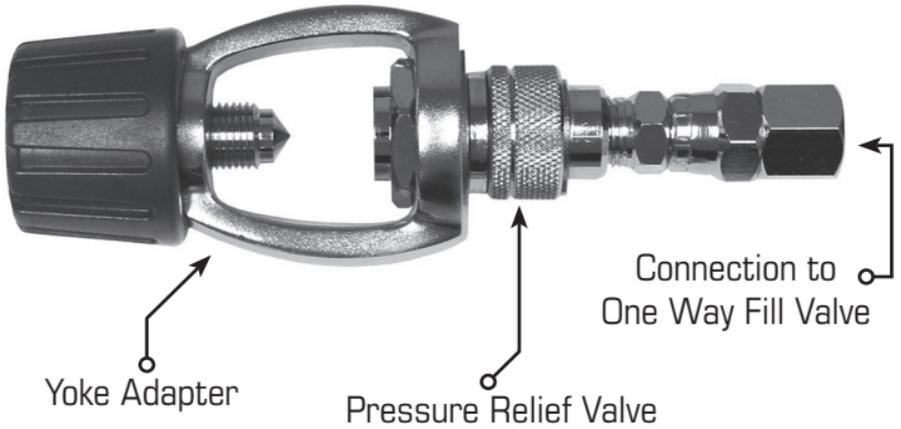
WARNING

Do not connect Low Pressure hoses to High Pressure Ports.

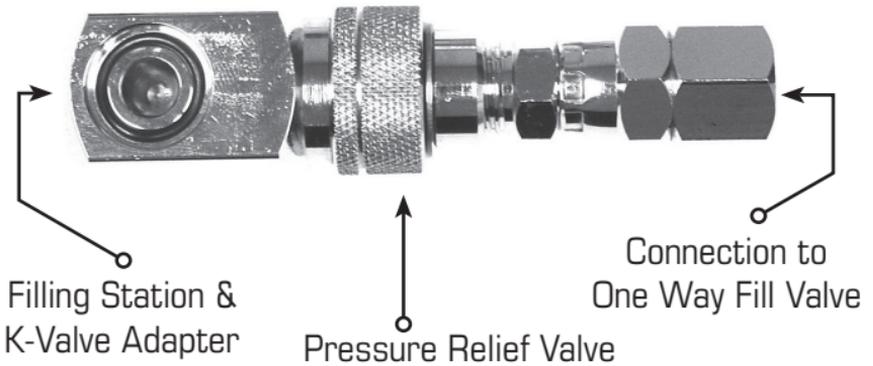
NOTE

MAXIMUM RECOMMENDED OPERATING DEPTH FOR ALL H2Odysey REGULATORS IS 50 METERS (164 FEET).

Yoke Fill Adapter



Station Fill Adapter



Redundant Air System Features

2nd Stages



RAS1



RAS2

1st Stage



GPB



Button Gauge
(optional)

PI



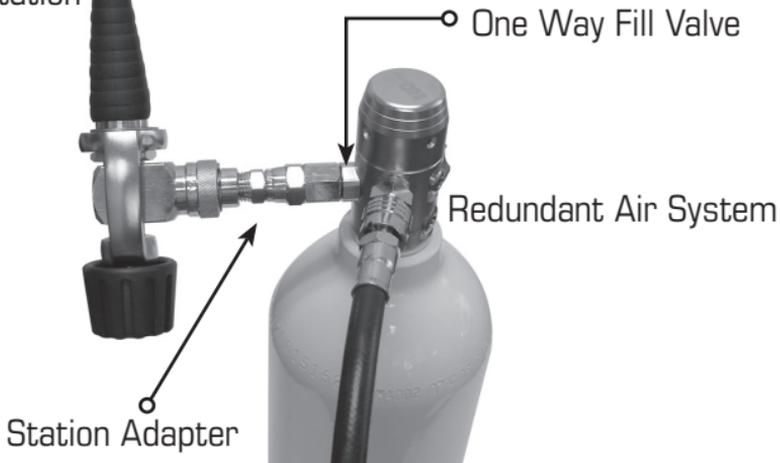
Pressure Indicator
(optional)

PRE-DIVE PROCEDURE

1. Inspect the swivel and swivel connections for any corrosion. Be certain all connections are tight. Do not use the Regulator System if any problems are found
2. Inspect First Stage Regulator. Regularly check that the sintered filter is free of rust, corrosion, or other contaminants. To check the sintered filter: **BE SURE THE CYLINDER AND UNIT ARE NOT PRESSURIZED BY DEPRESSING THE PURGE VALVE UNTIL ALL AIR HAS BEEN RELASED.** Next, unscrew the first stage from the cylinder by grasping the first stage tightly and turning counterclockwise. The filter can be found at the bottom of the threaded portion of the fist stage which screws into the cylinder. If you notice ANY rust, corrosion, or other contaminants contact your authorized H2Odyssey Service Center or H2Odyssey, refer to How You Can Get Service on page 16.
3. **Be sure the first stage is securely screwed into a 3,000 P.S.I., Low Pressure cylinder. Warning: using the Redundant Air System with a cylinder that is above 3000 P.S.I. and/or Medium or High Pressure may result in serious injury or death.** Screw the first stage into the cylinder clockwise. Be careful not to cross thread the first stage and the cylinder by slowly turning the first stage clockwise until the threads slide easily into place. If you feel any resistance whatsoever stop turning clockwise and start turning the unit counterclockwise and try again until threads slide into place without resistance. **BE SURE TO SCREW THE FIRST STAGE INTO THE CYLINDER AS SNUGLY AS POSSIBLE WITHOUT OVERTIGHTENING AND DAMAGING THE O-RING.**

Station Fill

Whip From
Fill Station



4. Pressurize Regulator System.
a. Remove black plastic cap from fill port on the RAS, attach filler to fill port by turning clockwise until firmly snug.

WARNING: Filling the Redundant Air System from a cylinder that is above 3000 P.S.I. and/or Medium or High Pressure may result in serious injury or death.

Station Filler

b. Attach air station whip to station filler just like you would attach the whip to a "j" or "k" valve.

Make sure that the tank is lying down on floor or in water basin. The tank will want to tip over so make sure the tank is secure before filling.

c. Very slowly begin to fill tank until you hear air flowing then immediately cease opening valve.

Note: Opening air station valve too quickly will result in a “Hot Fill”, filling this system with hot air will cause the tank to lose volume as the air in the cylinder cools down.

This process may take several minutes so be patient, the additional volume you have (using a slow fill process) may be the difference between a safe ascen tand a serious injury.

d. Once you hear the system stop filling, allow to sit for a minute before jamming additional air up to 3000 p.s.i. (204 bar). Do not exceed maximum fill pressure of 3000 p.s.i. After turning off filling station turn pressure relief valve to allow built up pressure to escape before trying to remove station filler valve.

WARNING: KEEP FACE AND EYES AWAY FROM PRESSURE RELIEF VALVE WHEN RELEASING BUILT UP PRESSURE. FAILURE TO DO SO COULD RESULT IN A SERIOUS EYE INJURY.

Yoke Filler (see pg 12)

b. Screw the nut opposite the Yoke Adapter on the RAS Yoke Filler Adapter to the One-Way Fill Valve on the Redundant Air System by:

1. unscrewing the One-Way Fill Valve Cap Cover on the Redundant Air System

2. gently screwing the nut opposite the Yoke Adapter onto the One-Way Fill Valve on the Redundant Air System (be careful not to cross-thread).

Hand tighten the nut onto the One-Way Fill Valve until is it completely snug, using your fingers only (be sure there is no slack or looseness-before opening the “fill-from-cylinder” valve).

c. Very, very slowly and carefully open the valve on the “fill-from-cylinder” until you can hear air passing from one tank to the other and then immediately cease opening the valve. Note: Opening the valve too quickly will result in a “Hot Fill” and will fill the RAS with hot air which will cause the RAS to lose volume as the air inside the cylinder cools. This may take several minutes so be patient, the extra volume that you will receive by filling SLOWLY may be the difference between a safe resurface or serious injury or death.

d. Once the two tanks have equalized pressure and there is no longer any “filling sound” to be heard open the valve on the “fill-from-cylinder” all the way to ensure maximum fill and then completely shutoff/close the valve on the “fill-from-cylinder”. Once the “fill-from-cylinder” valve is completely shut off/closed turn the pressure reliefvalve on the filler to release the pressure inside the RAS Yoke FillerAdapter.

WARNING: KEEP FACE AND EYES AWAY FROM PRESSURE RELIEF VALVE WHEN TURNING THE PRESSURE RELIEF VALVE. FAILURE TO DO SO COULD RESULT INSERIOUS EYE INJURY.

5. Air Purge System. Depress the purge on the Second Stage Regulator two or three times to blow out any dust or foreign material. Take several breaths from the regulator second stage prior to entering the water to assure the Regulator is clear and operating correctly. Prior to diving, DO NOT operate Regulator out of water in cold air; avoid breathing from the Regulator or purging the Regulator when the ambient air is at or near freezing temperature.

6. Inspect Second Stage Regulator(s) and Quick Disconnect. Visually inspect the Second Stage Regulator(s) with careful attention to the mouthpiece area. Be sure there are no holes in the mouthpiece, and that the mouthpiece clamp is on and secure. Check all components in the Quick Disconnect to ensure that all nuts and bolts are securely screwed together and listen for hissing due to air leakage.

Yoke Fill

One Way Fill Valve

Yoke Adapter

Redundant Air System



Larger Tank

POST-DIVE PROCEDURE

1. After diving, turn on/off valve to off position by twisting clockwise until stopped.
2. Purge remaining air out of system by depressing 2nd stage regulator.
3. Rinse the entire Regulator in clean, fresh water, preferably warm (not hot). Direct water through the mouthpiece and over the entire regulator. Remove any residual water and allow to air dry. DO NOT depress the purge on the Second Stage while cleaning the system. If the purge is depressed water could enter the system possibly causing damage to the First and Second Stages.
4. Keep your Regulator in a clean, dry area where it will not be exposed to rough handling, extreme heat or extreme cold. Storage temperature from 32 f. to 90 f.

MAINTENANCE

H2Odysey recommends that your H2Odysey Diving Regulator and / or Octopus be inspected and serviced on a yearly basis by a H2Odysey Authorized Service Center to assure proper performance. For further information regarding H2Odysey Service Centers, please contact H2Odysey, 975 Park Center Dr., Vista, CA 92081, or call 760-599-4097, 8:00 am to 4:30 pm Pacific Standard Time.

NITROX Version of RAS

1. Always be sure to use Viton O-rings.
2. Use an O₂ ready lubricant.

CAUTION / WARNING

- #1: This S.C.U.B.A.. Diving Equipment should be used ONLY by properly trained individuals.
- #2: DO NOT use this equipment in environments it was not designed for.
- #3: Proper care and maintenance of this equipment is necessary for proper operation.
- #4: Use proper diving procedures while using this equipment.
- #5: Use this equipment in conjunction with other life support equipment while SCUBA diving.
- #6: Dive only to safe and accepted sport diving limits.
- #7: Have your H2Odysey SCUBA equipment serviced annually by an authorized H2Odysey Service Center.
- #8: DO NOT use this equipment if ANY unsafe or questionable situation arises.

LIMITED WARRANTY

WHAT IS COVERED

This warranty covers to the original owner, all defects in material or workmanship in any Regulator sold by H2Odysey.

WHAT IS NOT COVERED

This warranty does not cover damage, failure or loss caused by wear and/or tear, failure to perform normal maintenance on H2Odysey items, cosmetic damage such as scratches, nicks, dents or discoloration or any damage failure or loss caused by:

- 1: Accident, misuse, neglect, abuse, or improper maintenance.
- 2: Failure to follow instructions in the USERS GUIDE.
- 3: Rental, Training Class, Military, or Commercial usage.
- 4: Use by uncertified (i.e.. PADI, NAUI, SSI, etc.) persons.

FOR HOW LONG

The warranty coverage has a two year Limited Warranty by H2Odysey

WHAT H2Odysey WILL DO TO CORRECT DEFECTS

Within the warranty period, H2Odysey will at its option, either repair or replace (with same or equivalent product) the defective in warranty product, part or accessory. Cost of labor for warranty is not covered by warranty. The product must be accompanied by a dated proof of purchase for warranty service. As a matter of warranty policy, H2Odysey will not refund the consumers purchase price.

WARRANTY (cont.)

NO LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES

Repair or replacement of defective products, parts or accessories specified above are your sole remedy under this warranty and IN NO EVENT SHALL H2Odysey BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

HOW YOU CAN GET SERVICE

Contact your authorized H2Odysey Service Center or write to H2Odysey, 975 Park Center Dr., Vista, CA 92081, for the name and address of your nearest authorized H2Odysey Service Center or call 800-999-0019 or visit our website at www.h2odysey.com.

YOUR RIGHTS UNDER THE LAW

This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

IMPORTANT NOTE

The above warranty applies to product sold and serviced in North America and Caribbean.

Product purchased in the United States, Canada, or Caribbean but serviced in other countries will be subject to the warranty conditions in effect in the country of use and service.

NOTES

NAME: _____

ADDRESS: _____

CITY: _____

STATE: _____

ZIP: _____

COUNTRY: _____

POSTAL CODE: _____

MODEL NUMBER: _____

MODEL NUMBER: _____

MODEL NUMBER: _____

MODEL NUMBER: _____

DATE PURCHASED: _____

SERVICE DATES: _____

SERVICE DATES: _____

SERVICE DATES: _____

SERVICE DATES: _____

