



NO LIMIT

**REGULATOR  
OWNER'S GUIDE**

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## WARNINGS, CAUTIONS AND NOTICES

Certain symbols and signal words are used throughout this document to direct your attention to issues that may affect your safety. The intended use of these symbols and signal words is as follows:



### **WARNING:**

Indicates a potentially hazardous condition or practice which, if not avoided or corrected, may result in serious injury or death.



### **CAUTION:**

Indicates a potentially hazardous condition or practice which, if not avoided or corrected, may result in minor to moderate injury or damage to equipment.



### **NOTICE:**

Used to point out or emphasize important condition or fact.

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## **TRADEMARK, TRADE NAME, AND SERVICE MARK NOTICE**

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## **PATENT NOTICE**

U.S. Patents have been issued to protect the following design features: Orthodontic Mouthpiece (U.S. Patent No. 4,466,434) and Second Stage Regulator Depth Compensating Adjustment Mechanism (U.S. Patent No. 5,660,502).

## **CE CERTIFICATION MANUFACTURER**

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## **EC TYPE EXAMINATION CONDUCTED BY:**

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All products sold by Huish Outdoors in the EU meet the following requirements where applicable. Compliance with the following where applicable.

EN 250:2014: This standard describes certain minimum performance requirements for SCUBA regulators sold in the EU. Testing identifies regulators that should not be used in water colder than 50 °F/ 10 °C, these regulators are marked >10 °C.

EN ISO 12209:2013: This regulator's thread and yoke connection conforms to ISO 12209:2013. Maximum working pressure:300 bar (4351 PSI).

EN13949:2003: This standard describes special qualification testing for regulators that are to be used with gases whose oxygen content is greater than 22%. Regulators that have passed testing are marked NITROX/O2.

EN144-3: This standard describes the M26 regulator inlet fitting and M26 valve that must be used with gases containing over 22% oxygen sold in the EU (European Union). These inlet fittings and valves are marked with the maximum rated working pressure.

EN12021: This standard specifies the allowable contaminants and component gases that make up compressed air. This standard is the equivalent of the USA Compressed Gas Association's Grade E air. Both standards allow very small amounts of contaminants that are not harmful to breathe, but can cause a problem if present in systems using gases with a high percentage of oxygen.

**Declaration of Conformity – [www.huishoutdoors.com/eu-declarations/](http://www.huishoutdoors.com/eu-declarations/)**

## **WARRANTY INFORMATION**

For details, refer to the Product Registration Card provided by your Authorized Hollis Dealer. For additional information, visit the Hollis web site at: [www.Hollis.com](http://www.Hollis.com)



## INTRODUCTION

### THANK YOU FOR CHOOSING A REGULATOR PRODUCT FROM HOLLIS!

Features and operation of the various models of Hollis regulator first and second stages currently available are described in this owner's guide, and/or any addendum or supplement provided with it.

By following the instructions in this guide, you will understand how your regulator product works, how to make best use of its features, and how to maintain it for long term use.

Some information presented may not be applicable to the specific model of regulator or accessory that you purchased.



### GENERAL WARNINGS:

- It is essential that the diver read this guide and become familiar with the proper setup, use and care of any Hollis regulator model. If the instructions given in this guide are not understood and followed, possible injury or death may result.
- This regulator product is intended for use only by divers who have received certification from a nationally recognized course in basic open water SCUBA or higher.
- This regulator must not be used by untrained persons who may not have knowledge of the potential risks and hazards of SCUBA diving.
- This regulator must be used together with an instrument that measures and indicates the user's air supply pressure.
- As with all underwater life support equipment, improper use or misuse of this product can cause serious injury or death.
- Read and understand the User's Guide completely before diving with any Hollis regulator.
- If you do not fully understand how to use your new Hollis regulator, or if you have any questions, you should seek instruction in its use from your authorized Hollis Dealer before use.
- Before each dive, inspect and test this regulator for proper operation. If any part does not function properly, DO NOT USE!
- Air supplies used with the regulator must meet requirements for breathable air: Grade E in the U.S.A. or EN 12021 Annex A standards in Europe.
- If you intend to dive in conditions other than those in which you received basic open water training, such as in cold water or other more severe environments, consult a professional dive instructor who is familiar with local conditions for supplemental training and best practices for that specific area. This training should include any special preparation of or handling of the equipment you intend to use. If you have not prepared for diving in an unfamiliar environment do not dive. The Authorized Hollis Dealer in the area in which you want to dive should be able to provide guidance.

## NITROX/O2

Hollis regulators sold throughout most of the world and outside of the EU are built using oxygen compatible components and are cleaned for service with gasses having oxygen content up to 40%. These oxygen enriched mixtures are commonly referred to in recreational SCUBA diving as “Nitrox”.



### WARNING:

- **Oxygen exposure can be toxic and can cause injury or death. Air contains 20.9% oxygen; a gas with more than 22% oxygen is considered to have a high percentage of oxygen and is called NITROX. Diving with Nitrox requires specialized advanced training and you must not dive with Nitrox unless certified for this specialty by a nationally-recognized training agency.**
- **Oxygen accelerates combustion. Use of Nitrox or oxygen introduces a risk of a catastrophic fire, the risk increases with the percentage of oxygen in the gas. Special care must be taken to reduce this risk.**
- **Regulators used with Nitrox or oxygen must be cleaned at least annually or any time normal compressed air has been used.**
- **Regulators used with gasses having oxygen content exceeding 41% must be serviced by Hollis trained personnel in a facility equipped to oxygen clean and assemble regulators for oxygen use.**

Nitrox has different depth and time limits than air and these limits change with the percentage of oxygen in the Nitrox. Hollis Nitrox dive computers can help monitor these safety limits.

Much of the information below is provided in compliance with EN13949 and EN144-3; this information documents best practices for using gasses with oxygen content above 22%.

Regulators sold in the EU for use with Nitrox or oxygen are subjected to more extensive cleaning procedures and must be tested to assure that the components and lubricants are safe for use in 100% oxygen at high pressure and at elevated temperature. This testing is described in EN13949:2003; regulators that have passed this testing are marked NITROX/O2. In the EU, regulators that have passed this testing are supplied with an EN144-3 M26 inlet fitting, marked with its maximum rated working pressure.

The regulator and all attached accessories must be prepared for oxygen exposure. This preparation involves special cleaning and the use of special oxygen safe components and lubricants.

Air used in SCUBA diving may contain minute amounts of flammable hydrocarbons that are considered safe to breathe. Over time these hydrocarbons may accumulate and represent a fire risk if used with Nitrox or oxygen. Specially filtered air is available, called hyper-filtered air. Regulators to be used with Nitrox and oxygen must not be used with normal compressed air.

## DIVING IN COLD WATER



### WARNING:

- **SCUBA diving in water colder than 50°F/10°C requires special equipment, training, and preparation to prevent injury or death. Training for cold water is available from a recognized and accredited SCUBA training organization.**
- **When regulators get cold and wet, freezing can occur. Regulator freezing can result in rapid loss of air that may lead to injury or death.**

When a regulator operates and the gas flows through it, there is a natural chilling effect as the gas experiences a rapid drop in pressure. The gas can become much colder than the surrounding water and can compromise regulator performance, primarily from the formation of ice inside the regulator. Under these conditions the regulator can experience an uncontrollable free flow.

This effect occurs more rapidly as diving depth is increased and as water temperatures decrease below 50°F (10°C) and approach the freezing point of water at 32°F (0°C).



If this occurs while you are diving, you must have an emergency plan to allow you to surface without injury. This is the reason for the requirement for special training for diving in cold water.

For diving activity that occurs at water temperatures between 50°F (10°C) and 32°F (0°C), it is impossible to predict the temperature at which a regulator may freeze due to the number of variables involved.

Training is available to address concerns with diving at these reduced temperatures and application of adaptive measures can reduce the risk that a regulator issue will occur and how to deal with it if it does occur.

Notice: Certification of regulators and valves in the European Union (EU) provides no additional guidance for use of regulators approved for use below 10°C (39°F), other than a prohibition for use below 4°C (39°F) regardless of adaptive measures applied.

There are measures that can be taken to reduce the risk that a regulator will freeze.

Hollis offers the following information regarding best practices to address this issue, but they are absolutely not a substitute for specialized training and practice under supervised and controlled conditions.

### **Cold water best practices that will help reduce the occurrence of regulator freezing:**

- Use properly maintained, good working dive equipment designed for cold water diving.
- Use air specially dried for cold water diving in your tanks.
- Warm the regulator, tank, BC, diver insulation, and the diver before the dive.
- Open the tank valve slowly to reduce internal pressure drop cold.
- Do not use the BC inflator, dry suit inflator, or purge button before going diving.
- Keep the primary second stage dry before taking the first breath.
- Do not breathe from the regulator until you are in the water.
- Do not remove the regulator from your mouth while diving.
- Do not allow an alternate air source to free flow.
- Remove the regulator from your mouth when the dive is over.
- Remember to rewarm all equipment and yourself before a second dive.

## **SETUP & DIVE**

A SCUBA regulator reduces the high pressure air stored in a cylinder to breathing pressure using two pressure reduction valves.

The First Stage valve automatically reduces the High Pressure air to a lower pressure which fills the hoses; this is called Intermediate Stage Pressure (ISP). The ISP is routed by low pressure hoses to the primary second stage which reduces the ISP to breathing pressure, also called ambient pressure. The ISP is also routed in other low pressure hoses to BC inflators, Dry Suit fill valves, and to Alternate Air second stages.

The Second Stage, also called a Demand Valve, closes and stops air flow when the diver is exhaling, and opens to supply air when the diver inhales. These are very simple valves and very dependable when properly maintained and serviced.



## **WARNING:**

- Improper installation of accessories may result in injury or death.
- We strongly recommend that the installation of accessories be done by Hollis trained personnel in an authorized service facility.
- Failure to prepare your First Stage properly for use in harsh environmental conditions, such as being subjected to sediment or the possible buildup of ice, or salt crystals, may result in injury or death.
- Under no circumstances should adjustment of an Hollis first stage regulator be performed by anyone other than an Authorized Hollis Dealer. Doing so may cause failure underwater, resulting in injury or death.

## **REGULATOR FIRST STAGES**

Operation of your first stage is not visible when using a regulator. The first stage converts the tank's high pressure air to an intermediate pressure of approximately 140 psi that can be handled by the regulator second stage to deliver a smooth flow of breathing gas upon demand (i.e., when you inhale).

Intermediate pressure gas is also available for inflation of a BCD or dry suit.

If diving with a DIN inlet fitting, check the sealing o-ring on the regulator DIN inlet fitting (refer to Fig. 1) for damage and replace if required.

Check the regulator inlet for contamination and clean or return to an authorized service facility if required.



**FIG. 1**

## **PREPARATION TO MOUNT A REGULATOR ON A CYLINDER**



## **WARNING:**

- Inspect the tank valve for contamination or damage, clean or replace as required.
- High pressure cylinders present a risk of injury or death.
- Care must be taken to avoid impact to the cylinder or valve.
- Always open cylinder valves very slowly.
- Always point the valve outlet away from persons when opening.

## **MOUNTING A REGULATOR WITH A YOKE INLET FITTING**

1. Turn the yoke screw/knob to remove the inlet protector cap and remove the inlet protector cap from the sealing face of the regulator inlet fitting (fig. 2).
2. Check the sealing face of the regulator inlet fitting for damage and service as required (fig. 3).
3. Place the regulator on the valve so the regulator inlet sealing face mates with the o-ring on the valve face. Check the hose orientation to assure that the primary second stage hose will be routed over the diver's right shoulder.
4. Tighten the yoke screw/knob to seal the regulator to the cylinder, finger tight only.
5. If a pressure gauge is attached, ensure it is not facing a person.
6. Slowly open the cylinder valve. It should take a few seconds to pressurize the regulator.
7. Once a regulator is pressurized, fully open the valve and turn clockwise 1/2 turn.
8. Check the pressure gauge, and while observing the pressure gauge, take a few breaths from the regulator. The pressure indicator should not move while breathing. Read the Diving in Cold Water section for cold water best practices, which prohibit test breathing.



**FIG. 2**



**FIG. 3**



## REMOVING A REGULATOR WITH A YOKE INLET FITTING

1. After the valve has been depressurized, loosen the yoke/screw knob enough to remove the regulator.
2. Dry the inlet protector cap and place it over the regulator inlet.
3. Tighten the yoke/screw knob to secure to inlet protector cap.

## MOUNTING A REGULATOR WITH A DIN INLET FITTING

1. Remove the DIN inlet protector cap. (fig. 4)
2. Insert the DIN inlet fitting into the DIN valve and check the hose orientation to assure that the primary second stage hose will be routed over the diver's right shoulder.
3. If a pressure gauge is attached, ensure it is not facing a person.
4. Turn the DIN hand wheel clockwise to seal, finger tight only.
5. Slowly open the cylinder valve. It should take a few seconds to pressurize the regulator.
6. Once the regulator is pressurized, fully open the valve and turn clockwise 1/2 turn.
7. Check the pressure gauge, and while observing the pressure gauge take a few breaths from the regulator. The pressure indicator should not move while breathing.
8. Read the Diving in Cold Water section for cold water best practices, which prohibit test breathing. Regulator removal from a cylinder after the dive.



FIG. 4

## REMOVING A REGULATOR WITH A DIN INLET FITTING

1. Turn the valve hand wheel clockwise to close the valve.
2. Press the regulator purge valve to depressurize the valve, confirm with the pressure gauge.
3. After the valve has been depressurized, loosen the DIN hand wheel and remove the regulator.
4. Dry the inlet protector cap and place it over the regulator DIN inlet.
5. Ensure that the protective cover is secure on the DIN inlet (fig. 4).

## ADJUSTMENTS PRIOR TO ENTERING THE WATER

If present, set the dive-pre-dive Venturi switch (Fig. 5/6\_a) to positive (+) or dive, and turn the breathing effort adjustment knob (Fig. 3/4\_b) counter clockwise until it stops and then turn it clockwise one turn.

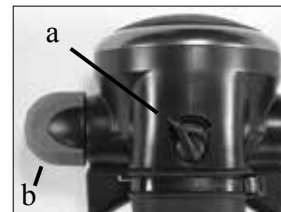


FIG. 5

## ADJUSTMENTS DURING THE DIVE

The breathing effort adjustment knob (Fig. 5 & 6) can be turned to change the breathing effort to suit the diver's comfort.

## ADJUSTMENTS AFTER THE DIVE

If present, set the dive-pre-dive Venturi switch to - or pre-dive. Press the regulator purge valve to depressurize the valve, and confirm with the pressure gauge.

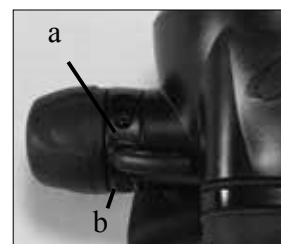


FIG. 6



## POST DIVE

- After use, the regulator must be cleaned and dried before storage.
- Before cleaning the regulator, assure that the inlet protector cap is in place. If equipped with a breathing effort adjustment knob, the knob should be turned clockwise until it clicks.
- The best way to clean the regulator is to place the regulator on a cylinder, pressurize the regulator, then immerse the regulator and the cylinder in a container of warm fresh water and soak for 30 minutes or more.
- If a cylinder is not available, ensure that the inlet protector cap is securely in place and immerse in a shallow container of warm water and soak for 30 minutes or more.
- After cleaning, wipe the regulator with a towel and hang to air dry.
- Do not store the regulator with hoses tightly coiled.

## REPAIRS AND SERVICE



### **WARNING:**

**DO NOT attempt to disassemble or repair the first or second stages, or to adjust the first stage. Doing so could cause malfunction while underwater, possibly resulting in serious injury or death. It will also void the regulator's limited warranty.**

In the event that any component of your regulator assembly requires any form of repair or service, return it to your local Authorized Hollis Dealer for professional service by a trained technician authorized to perform Hollis factory authorized service.

At least once a year, your complete regulator assembly should be inspected and serviced by an Authorized Hollis Dealer. More frequent service is recommended if you dive in severe conditions or more frequently than an average diver (see guidelines).

### **ANNUAL SERVICE CONSISTS OF:**

- Inspection
- Complete disassembly
- Complete reassembly
- Thorough cleaning and evaluation of reusable parts
- Replacement of non-reusable parts
- Final adjustment and testing

Costs for routine inspection and Annual Service are understood to be a normal part of operation, and are not covered by the regulator's limited warranty.

If Warranty Service is requested, or routine service parts are requested in accordance with a Registered Service Agreement, present the appropriate documents (i.e., card, receipts, and service records) to the Authorized Hollis Dealer when the regulator is delivered for service.

## GUIDELINE FOR HOLLIS REGULATOR EQUIPMENT MINIMUM SERVICE INTERVALS

Due to variations of use and storage time that Hollis Regulator equipment may be subjected to, the Guidelines and defined Intervals given herein are subject to the discretion of the owner of the specific product. Inspection and/or service indicated must be performed only by an Authorized Hollis Dealer.

### Personally owned equipment used for recreational diving activity:

- Equipment used 100 dives or less per year should be inspected at least once per year.
- Equipment used more than 100 dives per year should be serviced after 100 dives prior to further use.
- Equipment stored more than 6 months should be inspected/serviced as required, prior to use.

### Equipment used for dive training and/or consumer rental activities:

- Equipment should be inspected prior to every use.
- Equipment should be serviced at least once every 6 months regardless of use.
- Equipment should be serviced after 100 dives prior to further use.
- Equipment stored for more than 3 months should be inspected/serviced as required, prior to use.

### Regardless of ownership or intended use:

- Equipment should be inspected/serviced if it displays any signs of leakage, malfunction, free flowing, any signs of deterioration, or improper performance or breathing effort.
- Equipment should be inspected/serviced if the first stage inlet filter shows any sign of residue or discoloration.
- Equipment must be inspected annually and serviced as needed or every other year, whichever comes first.

## RECORDS

First Stage Model \_\_\_\_\_ First Stage Serial # \_\_\_\_\_

Second Stage Model \_\_\_\_\_ Second Stage Serial # \_\_\_\_\_

Octopus Model \_\_\_\_\_ Octopus Serial # \_\_\_\_\_

Date of Purchase \_\_\_\_\_ Hollis Dealer \_\_\_\_\_

Dealer Phone No. \_\_\_\_\_

## INSPECTION / SERVICE RECORD

| Date Service Performed |  | Dealer / |
|------------------------|--|----------|
|                        |  |          |
|                        |  |          |
|                        |  |          |
|                        |  |          |
|                        |  |          |



## HOLLIS REGULATORS FIRST / SECOND STAGE PAIRING

### FIRST STAGE

|              |                                                                                                                 | DC3                                                                                              | DC7                                                                                              | HO2                                                                                     | DCX                                                                                                |
|--------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
|              |                                                                                                                 | <br>EN250A:2014 | <br>EN250A:2014 | <br> | <br>EN250A:2014 |
| SECOND STAGE | 500SE<br><br>EN250A:2014 >10°C |                                                                                                  | ✓                                                                                                |                                                                                         |                                                                                                    |
|              | LX100<br><br>EN250A:2014       | ✓                                                                                                |                                                                                                  |                                                                                         |                                                                                                    |
|              | LX150<br><br>EN250A:2014      | ✓                                                                                                | ✓                                                                                                | ✓                                                                                       |                                                                                                    |
|              | LX200<br><br>EN250A:2014     |                                                                                                  |                                                                                                  |                                                                                         | ✓                                                                                                  |



### WARNING:

Regulators qualified as escape devices should have “A” CE Identification marking, i.e. EN250A:2014

Scuba devices configured for and used by more than one diver at the same time must not be used at depths greater than 30 m and in water temperatures less than 10°C.





**TOLL-FREE: 1-888-270-8595**

**WWW.HOLLIS.COM**