

zeagle®

SYSTEMS, INC.

**Octopus (Safe Second)
Owner's Manual**



**Envoy Octo
320-3110**



**CW Octo
320-5010**



**ZX Octo
320-1110**

This owner's manual uses signal words recommended by the American National Standards Institute (see ANSI Z535.4) to designate levels of hazard seriousness. These signal words and their designations are as follows:



DANGER: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.



WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

Note to European Customers: The Zeagle Octopus regulator models Envoy Octo 320-3110 and ZX Octo 320-1110 have passed EN250:2000 tests for CE Certification. However, they were not submitted for cold water testing under EN250:2000 Section 5.11.3 and therefore are simply not rated by the EU for diving in water temperatures below 50° F. (10° C.).

The CW 320-5010 model, has not yet been submitted for EN250 Certification and is not CE marked for sale in the European Community.

EN250:2000 Certification extends to 50 m.

Breathing air used in Zeagle Scuba regulators should meet European EN12021 standards.

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Congratulations on your Zeagle Regulator purchase!

Your new Zeagle ZX, CW or Envoy Octopus regulator, has been designed and manufactured to the highest possible standards of performance and reliability. With the reasonable care outlined in this manual it will provide you with many years of diving enjoyment.

Since 1979, Zeagle Systems Inc. has been providing divers with Scuba equipment and Buoyancy Control Devices. Zeagle Systems and our worldwide network of authorized dealers are always ready to serve you. For more information on our products, and for the dealer nearest you, visit our web site at www.zeagle.com. Thank you for choosing Zeagle!

Safety Information

Read these instructions carefully before using your regulator, and keep this manual for future reference.

Following the care and maintenance section at the end of this booklet will help ensure reliable service.



Limited Lifetime Warranty To The Original Owner

1. Your regulator is guaranteed against defects in materials and workmanship. This guarantee does not cover normal wear, or damage from accident, abuse, neglect, alterations, improper usage, or failure to follow reasonable care and maintenance as outlined in this manual. Under this limited warranty, Zeagle will either repair or replace, at its sole option, any original equipment or parts that fail to perform as intended. Shipping and Labor charges are not included and must be paid by you. This Limited Lifetime Warranty excludes filters, hoses, O-rings, diaphragms and mouthpieces, which are warranted for two years from the regulator's date of purchase. The second stage serial number is stamped on the mouthpiece tube. To read this serial number you must fold back the flexible silicone mouthpiece to expose the numbers. Each serial number consists of a pre-fix letter followed by six numbers.

2. For proof of original ownership, you must save the original purchase receipt. It is your record of when and where the regulator was purchased. It also lets you know when your annual service should be performed. If you bring your regulator for service at a Zeagle dealer who has not done business with you before, they will ask you for receipts to show you are the original owner and you have had the regulator serviced annually.

3. To keep the original-owner Limited Lifetime Warranty in effect, you must have your regulator inspected and serviced annually, within 30 days before or after the anniversary of the purchase date. Failure to do so will invalidate your warranty. This servicing must be performed by an authorized Zeagle dealer. Save the receipts from this servicing for your records.

To register your regulator purchase with Zeagle, fill out and return your product registration card or go to www.zeagle.com to register your regulator within 30 days of purchase.



4. This limited warranty applies only to the original purchaser, and then only to certified divers.
5. Sometimes products from other manufacturers are attached to Zeagle Equipment. This warranty does not cover those other products or make any claims as to the performance or suitability of those other products.
6. This limited warranty applies only to regulators sold in the USA through authorized Zeagle Systems dealers.
7. This warranty gives you specific legal rights. You may also have other rights that may vary from state to state.
8. This specific warranty applies only to regulators purchased from Authorized Zeagle Dealers located within the United States. Warranty coverage in countries other than the US varies. Outside the US your dealer will be able to get further Warranty information from the Authorized Zeagle Regional Distributor.

Zeagle expressly limits any and all warranties, expressed or implied, to the terms of the limited warranty as set forth above. Your remedies are limited to those contained herein and are in lieu of all other remedies, whether based on breach of warranty or contract, negligence, strict product liability or other tort. Zeagle specifically disclaims liability for any consequential, special or indirect damages arising out of the use of Zeagle Equipment.





CAUTION

Scuba products are subject to conditions of extreme wear and corrosion. Inspection and maintenance are required to ensure continued performance. Zeagle recommends that you have your regulator inspected and serviced once a year on the anniversary date of its purchase at any authorized Zeagle dealer worldwide. Zeagle Scuba equipment should be used by certified Scuba divers only.



WARNING

1. Scuba diving is an adventuresome activity that involves a degree of risk. Zeagle Systems Inc. Self Contained Underwater Breathing Apparatus (SCUBA) equipment is only to be used by those trained and certified by a nationally recognized scuba training agency. Diving without the necessary training in safe diving procedures, or without observing the practices outlined by your training agency for your level of certification, is extremely hazardous and could result in serious personal injury or death. This owner's manual is in no way meant to be a substitute for the instruction received from a certified scuba training agency.

2. Zeagle regulators must be serviced only by dealers or technicians trained and authorized to service Zeagle Scuba equipment. At no time should any unauthorized person attempt to repair the regulator or adjust any nuts, bolts or screws other than those used to mount the regulator to, or dismount it from the tank valve. Scuba equipment that is not properly serviced might malfunction during use, putting the diver at risk of serious personal injury or death.





CAUTION

1. The high-pressure outlets (HP Ports) on Scuba 1st Stages are distinctly larger than the low-pressure outlets. Only devices with fittings, hoses and components designed for the full tank pressure that the regulator will be mounted on, such as Submersible Pressure Gauges, are to be installed in these ports.
2. During installation, the O-ring hose fittings will seal with hand-tight pressure, but may come loose during use if not tightened carefully with a small wrench. Proper torque for the hose fittings is 40-45 in lbs. (4.5 - 5 joules) Excessive tightening will not help the seal and may damage the parts (see DEMA Guidelines No. 101, Low Pressure Hose Installation Caution Statement; ANSI American National Standard for Underwater Safety, paragraph 9.3.1).



NITROX USE

Zeagle regulators are manufactured using materials suitable for use with oxygen enriched gases (i.e., Nitrox, etc.) providing the oxygen content does not exceed 40%. The regulator must be kept “Oxygen Clean” and used only with certified clean air mixtures to maintain this status. Once the regulator is used with air not certified to be clean for enriched air use, the regulator will have to be cleaned again for enriched air use by a certified technician.



DANGER

Using nitrox (i.e., gas mixtures containing oxygen in excess of 21%) requires special training and procedures. Improper use of nitrox can lead to personal injury, convulsions, drowning, and death.



DANGER

Use of gas mixtures containing oxygen in excess of 40% with this regulator, can lead to fires and explosions, causing severe personal injury and death.



Model Features & Differences

The **Envoy Octopus (320-3110)** has same high performance flow capacity as the CW and ZX models. It has the Dive / pre-Dive Lever which is very important in Octopus regulators to control unwanted venturi free-flows when the regulator is not in the diver's mouth. It is the lightest of these three Zeagle Octopus models.



The **CW Octopus (320-5010)** is mechanically the same as the Envoy Octopus, with the addition of a finned Heat Sink at the inlet side of the regulator. This heat sink absorbs latent heat from the surrounding water which helps warm the air coming from the first stage before it cools the lever assembly. This makes it a good choice for cold water and ice diving.

The **ZX Octopus (320-1110)** is mechanically the same as the CW Octopus, with the addition of a Breathing Effort Control Knob on the side of the regulator opposite the hose. This knob controls the initial cracking effort of the second stage and can be adjusted counterclockwise for minimum inhalation effort, or clockwise to increase the inhalation effort to prevent free flows when heading into a strong current. The ZX Octo is really a Zeagle primary 2nd stage with a yellow cover.



RESISTANCE CONTROL KNOB (ZX Octopus Only)

This knob adjusts the spring load on the second stage valve and so varies the initial inhalation effort. To adjust the Resistance Control Knob to the easiest breathing setting, turn the knob fully counter-clockwise (fig. 6). Sometimes a slight hissing flow of air may be heard at this setting. If this occurs, turn the knob clockwise (fig. 7) just enough to stop the hissing.

Fig. 6



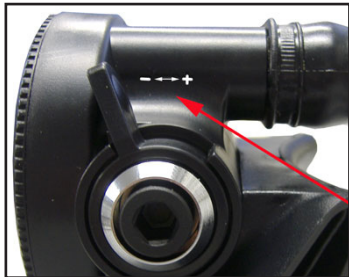
Counter Clockwise

Fig. 7



Clockwise

DIVE / PRE-DIVE VENTURI LEVER



This lever controls the regulator's Venturi Boost. The Plus and Minus Positions for the lever are marked on the case beside the lever. To avoid unexpected venturi free flows at the surface, or when jumping into the water, the lever should be set in the PRE-DIVE "-" (forward) position shown at the left. Because an Octopus regulator often spends the

entire dive out of the diver's mouth, it should be left during the entire dive, with the lever in the minus position to avoid unintentional free-flows. If the Octopus regulator is used, the lever can be moved to the DIVE "+" (back) position. However, if an emergency occurs and the user forgets to move the lever to the DIVE "+" (back) position, the regulator will still deliver its full capacity of air, it will just have a slightly higher inhalation effort.



COLD WATER DIVING

Cold water is defined as water at a temperature of 50 degrees F (10° C) or lower. In cold water there is a risk of the first or second stage freezing. The risk of freezing is increased as the ambient temperature gets lower, the air flow increases, and/or the moisture content of the air supply increases. Regulators for cold water use should have environmentally sealed first stages to prevent water entry and lower the chance of freezing. The second stages should have extra heat absorbing features such as the metal Heat-sink found on the Zeagle **ZX** and **CW** Octopus regulators. Extra care should be taken with Octopus regulators used in cold water diving because unlike the primary second stage, they do not spend the entire dive in the diver's mouth, gaining the benefits of warm exhaled breath. It is not possible to completely eliminate regulator freezing under all conditions. In order to reduce the possibility you should:

1. Start the dive with the regulators as warm as possible. If the air temperature is far below freezing, try to warm the regulators by pouring warm water over them or dunking them in warm water just before entry.
2. If an Octopus regulator is put into the mouth underwater (IF safely possible), try to start the breathing cycle with a long exhalation to get the interior of the 2nd stage as warm as possible before the first breath is drawn.
3. Avoid pushing the purge button in the second stage during cold water diving operations.
4. Avoid high rates of breathing, and excessive inflation of buoyancy devices or dry suits. The deeper the dive the greater the risk.
5. Do not practice unnecessary buddy breathing, etc.
6. Do not use your regulator to fill lift bags, etc.
7. Keep YOUR regulator in YOUR mouth. In an emergency, offer or take the spare regulator. When taking the spare regulator, do not hit the purge button to clear the water (if possible). Clear the regulator with as long a first exhalation as is safely possible.



PRE-DIVE CHECK (*entire regulator*)

1. Before mounting any Scuba regulator onto a tank valve, you must open the valve briefly to blow out any water trapped in the outlet area of the valve. Failing to perform this simple step will often result in water and contaminants being blown into the interior of the regulator, which in turn will cause future mechanical problems in the regulator.
2. Prior to each dive always check to make certain your regulator has no potential water leaks by inhaling lightly on the regulator with the dust cap properly installed, or the tank air valve turned off. You should be able to draw in very little if any air. If you can draw in any quantity of air, either the exhaust valve is failing to seal properly, or there may be a pinhole leak in the mouthpiece or second stage diaphragm.
3. Mount the 1st stage regulator on the tank valve with the clear diaphragm end (with the black logo showing underneath) facing down.
4. Just before turning on the tank air valve, check to make sure that the yoke nut or DIN connection is tight and that the regulator body is aligned properly, with no kinks in the hoses. In the case of DIN connections, check that the DIN connector O-ring on the regulator is in place before installing the regulator into the valve. Always carry spare DIN connection O-rings (Zeagle p/n 160-0111-N7).
5. Turn the tank valve on VERY slowly. Check for air leaks and proper breathing function of the regulator.



WARNING

If you hear any unusual leaks, turn the tank valve off. Do not use the regulator until the source of the leak has been found and corrected by an authorized Zeagle Scuba service technician. Always mount the regulator on the valve with the clear diaphragm end (with black logo showing underneath) pointed downwards.



POST-DIVE CARE

1. After the dive, dry the dust cap and place it securely on the 1st stage regulator inlet. On multiple tank dives, keep water out of the regulator inlet when changing the tanks. Neglect of these simple procedures is a major cause of corrosion and wear in scuba regulators.

2. With the dust cap securely in place, rinse the first and second stage in clean fresh water. DO NOT purge the regulator before or during rinsing since this may introduce water into the second stage and the low-pressure hose. After rinsing, reconnect the regulator to an air supply and thoroughly shake all excess water from the second stage. Press the Purge cover (with the regulator attached to a pressure source) several times to blow the rinse water out of the inner mechanism. Allow the entire regulator to air dry before storing. For reasons of hygiene, equipment subjected to frequent use in training, rental, etc. should finally be rinsed in water containing a suitable sterilizing agent. The best sterilizing solutions for your regulator are soap based. If any stronger chemicals are used, make the immersion very brief and rinse the regulator out again thoroughly. Failure to rinse sterilizing chemicals out of the regulator will cause serious damage to plastic parts of the regulator. This will result in cracking of hard plastic parts and shrinking or swelling of soft plastic parts.

NOTE: DO NOT USE SOLVENT CHEMICALS TO CLEAN THE REGULATOR

3. Store the clean dry regulator in a clean bag or storage box, away from sunlight, excessive heat and humidity.

4. The ZX has a Resistance Control Knob. The Valve Seal in the second stage will give longer service if the Resistance Control Knob on the ZX second stage is turned fully counter clockwise when the regulator is stored longer than a week.



MAINTENANCE

It is essential that your regulator is checked at least annually by an authorized Zeagle regulator technician. Unusually heavy use, or use in dirty or contaminated water may result in the need for more frequent service. A service record has been provided at the end of this manual to assist you in keeping your regulator's service up to date.

Ask your Zeagle dealer for information on the following products to use with your Zeagle Regulator, adding to your diving enjoyment and safety. You can also find information on Zeagle products at www.zeagle.com.

- Zeagle Instruments
- Zeagle Alternate Air Sources
- Zeagle BCD's
- Zeagle Regulators

The Code of the Responsible Diver

- *“As a responsible diver I understand the risks I may encounter while diving. I will seek experience and knowledge from those with more and will share mine with those who have less.”*
- *“Superior divers use their superior knowledge to stay out of situations that would require their superior skills.”*
- *“Your equipment can be excellent, but it is not responsible for you.”*
- *“Your training can be excellent, but it is not responsible for you.”*
- *“Your buddy can be excellent, but he is not responsible for you.”*
- *“You are responsible for you: Be excellent!”*



SPECIFICATIONS

Envoy Octopus 320-3110: Downstream valve, balanced diaphragm with a Diver Adjustable Dive/Pre Dive Venturi Lever

CW Envoy Octopus 320-5010: Has all of the Envoy Octopus features, plus a finned Heat-sink for added resistance to freezing.

ZX Octopus Model 320-1110: Has all of the Envoy and CW Octopus features, plus a Control Knob for fine breathing effort adjustments.

HOSE LENGTH	36 in. (.914 m)
HOSE WEIGHT40 lb. (.180 kg)
ENVOY OCTO WEIGHT413 lb. (.187 kg) (w/o hose)
CW OCTO WEIGHT488 lb. (.221 kg) (w/o hose)
ZX OCTO WEIGHT550 lb. (.249 kg) (w/o hose)

MATERIALS:

Cover	Flexible Thermoplastic
Case	Thermoplastic
Poppet Seat	Elastomer
O-Rings	Buna-N
Diaphragm	Elastomeric Polymer
Exhaust Valve	Elastomer
Mouthpiece	Silicone



Notes:

The date of purchase, dive store, and contact information at the store should be written on this page. A copy of the receipt should also be stapled to this page for future records. **KEEP YOUR RECEIPTS TO SHOW PROOF OF BEING THE ORIGINAL OWNER**



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European Certification Information

EC Type examination (Article 10) by:

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UK.

Notified Body Number 0120

Meets EN250:2000 Standards