



**Rapid Diver™ BC**

**Owner's Manual**



## Introduction

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### Thanks for Choosing Zeagle!

We value your decision to invest in a Zeagle Buoyancy Control System. Please have your authorized Zeagle Dealer familiarize you with the operation and care of your new Zeagle **Rapid Diver™** Buoyancy Compensator\* (BC) and go over your Owner's Manual with you. Have your Dealer sign the appropriate line on the service record at the end of this manual, after he has performed this service. Before you use your BC for the first time, be sure your Dealer has performed the Dealer prep check list. Please save and refer to this Owner's Manual from time to time to enable you to fully understand and benefit from this fine product.

SCUBA Diving is an extremely enjoyable pastime when done with proper training, good equipment, and knowledge of both your equipment and your diving environment. **This Zeagle Buoyancy Control System is intended for use only by individuals practicing safe diving principles.**

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\*Buoyancy Compensator (BC) and Buoyancy Control Device (BCD) are synonymous for the same piece of SCUBA diving equipment.



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## Warranty Information

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### **WARNING**

#### **Owner's Responsibilities**

- Zeagle Systems, Inc. requires that the end user of this system be certified by a nationally or internationally recognized SCUBA certification agency and adequately trained in its use by a certified SCUBA instructor with thorough knowledge and experience in the use of Zeagle Systems, Inc. equipment.
- An annual inspection performed by an authorized Zeagle Dealer is required for the safe operation of this system.
- **Your Zeagle BC is NOT a personal flotation device and should not be used as a life jacket. The BC does NOT guarantee a heads up position of the wearer at the surface.**
- All emergency procedures should be practiced periodically in shallow water (10 feet or 3 m) to maintain preparedness in the event an actual emergency should occur.
- The owner is ultimately responsible for completing the Warranty Registration by filling out the form included with the BCD and mailing it to Zeagle Systems, Inc., or by going to the Product Registration page at [www.zeagle.com](http://www.zeagle.com). One of these methods must be completed within 30 days of purchase.
- For assistance with preparation, questions or service, contact your local authorized Zeagle Dealer or Zeagle Systems, Inc.

### **IMPORTANT**

#### **LIMITED LIFETIME GUARANTEE TO THE ORIGINAL OWNER**

Your BC is guaranteed against defects in materials and workmanship. This guarantee does **not** cover damages from accident, abuse, neglect, alterations, improper usage, normal wear & tear or failure to provide reasonable care. To validate your warranty you must fill out and return your warranty registration by regular mail or e-mail, within 30 days of purchase. All warranty claims will be handled through Zeagle, or an authorized Zeagle Dealer.



## General Information and Specifications

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### **IMPORTANT**

This Buoyancy Compensator's Owner's Manual contains important safety, maintenance, and operation information.

**Read this manual thoroughly before diving.**

Important information on the assembly, operation, and maintenance of your BC is designated throughout this manual with the "IMPORTANT" graphic and the symbol shown above.

This owner's manual also uses the following "WARNING" graphic and symbol shown below to designate that special attention needs to be given to the manual, otherwise, a potentially hazardous situation which, if not avoided, may result in injury or death.

### **WARNING**

### **WARNING**

SCUBA diving is an adventuresome activity and some risks are involved. Please be sure that you and your dive partner have current certifications and follow all of the recommendations of your certifying agency and that all equipment is used and maintained according to the manufacturer's recommendations. Failure to follow these guidelines can result in serious injury or death.



## General Information & Specifications

### SCUBA Cylinder Selection and Configuration

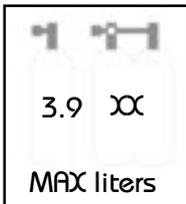
Your over-all buoyancy depends on a combination of the buoyancy of all your diving equipment added to your own body's buoyancy. The Zeagle System is designed to work with a variety of tank sizes and configurations.

#### **WARNING**

Failure to comply with the following information may result in an improper buoyancy configuration. You must maintain neutral buoyancy while diving to prevent injury or death.

#### **IMPORTANT**

The maximum single and double cylinder size specifications (in liters) for the BC is found on a tank pictogram on the warning label. This label is found on the BC, inside the vest. If the double cylinder pictogram has a "**XX**" in it, then the BC has been designed for single cylinder use only. If the single and double cylinder pictograms have numbers in them, then the BC has been designed for either single or double cylinder use. The number in the pictogram indicates the largest cylinder size recommended, in liters.



**Tank Pictogram**

Cylinder **dimensions** and **capacity** are two quantities which are important to understand when configuring your equipment. Cylinder dimensions are the actual, outside dimensions of a SCUBA cylinder (also called the tank). Zeagle **Rapid Diver™** BC's are designed specifically for SCUBA cylinders which have a maximum diameter of 5.25 in (13.3 cm). Consult your local authorized Zeagle Dealer if you have any questions regarding cylinder **dimensions**.

Cylinder **capacity** is the volume of the SCUBA cylinder. When expressed in cubic feet, the volume is given for compressed gas. When expressed in liters, the volume is given for the actual volume of the cylinder based on the interior dimensions of the cylinder (water capacity). The Zeagle **Rapid Diver's** maximum recommended cylinder capacity is 30 ft<sup>3</sup> (3.9 liters). Once again, if you have a question, consult your local authorized Zeagle Dealer.



## General Information and Specifications

### Surface Buoyancy of BC's

Your BC's buoyancy, has been rated by Zeagle Systems, Inc. Buoyancy figures were measured in fresh water at sea level, and were rounded down to the nearest pound. For buoyancies listed in the metric system, buoyancy is measured in multiples of 10 Newtons, then rounded down to the next lowest multiple.

The buoyancy of your BC is printed on a label, located on the bladder assembly, as shown on page 8. A typical label for a BC will look like the example below. This particular label indicates that the bladder assembly is rated at 25 lbs ( 11.3 kg) buoyancy.



### Operating Temperature Range

Table 1.0

Air	-4° to +122° F	-20° to +50° C
Water	+28° to +104° F	- 2° to +40° C

#### WARNING

Special Instruction in cold water diving methods, and the specific use of this product is required prior to cold water diving (temperatures below 10° C / 50° F). This instruction is beyond the scope of this Owner's Manual. Diving without this instruction could result in injury or death. Consult your SCUBA instructor for this instruction prior to using this product in cold water.

### Shelf Life

The shelf life for a new, unused BC when deflated and stored in a dry place at room temperature, with no exposure to ultraviolet (UV), light is seven years. Refer to page 18 for Storage and Post Dive BC Cleaning information.



## Function of the Rapid-Diver System

### The Zeagle Buoyancy Control System

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The function of the Zeagle buoyancy control system is to add to your diving enjoyment. It is designed to provide you with a comfortable way of “wearing” your SCUBA system, a resting platform while on the surface, and an easy means of controlling your buoyancy while diving.

#### Tactical Swimmer's Vest

The Rapid-Diver can be worn without a tank or regulator as a Swimmer's Vest. The vest portion of the system should fit so that it wraps partially around the front of the diver. The vest should lay comfortably on the shoulders without the neck opening pressing on the back of the neck. See Figure 1. You will be able to tighten the waist strap(s) so the vest fits quite snugly around the upper body. In order to prevent the BC from shifting while swimming, you can adjust the two waist straps independently. If the vest is uncomfortably tight when the strap is fastened, you will need to adjust the strap.



Fig. 1



## Function of the Zeagle System

Your **Rapid Diver™** includes a Power Inflator that allows you to inflate the BCD by pushing on the white button "A" to use air from the cylinder, or by putting your lips to the mouthpiece and pressing the button "B". Both of these techniques should be demonstrated by your instructor and practiced in a safe shallow pool until they are mastered. See Figure 2 below.



Fig. 2



### WARNING

NEVER breathe from the bladder assembly. The bladder assembly was not designed as an auxiliary air source and may contain harmful contaminants, which if inhaled, may cause injury or death.



## Assembling the Life-Support System onto the Rapid Diver

When you first receive the **Rapid Diver™** System, it is unassembled in its box or bag (See Fig 3). This chapter describes how to assemble the components of the Rapid Diver System. Before you can use the Rapid Diver system you have to install the Life-Support components of either the Razor Tank/Valve combination or a standard valve and regulator such as the ReZort.



Fig. 3

Note: When the Rapid Diver system arrives new at the dive store it is completely unassembled without the valve or RaZor in the tank and no gauge installed on the first stage. It is beyond the scope of this manual to cover the assembly from that point. Information needed to assemble a brand new Rapid Diver regulator to its tank is covered in the Service Manuals available only to authorized Zeagle Dealers.



**Note:** Tank bands expand and lengthen when wet. See Figure 5 below with black arrows pointing to the tanks bands. For this reason, you will get a tighter fit if you make your initial adjustments with tank bands that have been wet for at least 20 minutes. To thread the buckles for the first time;

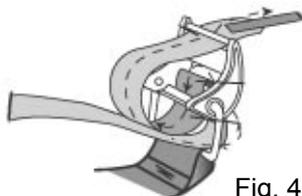


Fig. 4

- If the Tank Straps were completely removed from the Rapid Diver to make it as light as possible for Swim-Vest use, the straps will have to be re-threaded into the BC. First thread the flat end of the cylinder bands through the tank attachment strap slots located on the Rapid Diver (behind the area where the tank will be located). Thread the straps through the slots from the top to the bottom.
- Next bring the flat end of the straps up and thread them through the buckle. See Figure 4. Threading instructions are also embossed on the side of the plastic buckle.



Fig. 5

- Open the cylinder band buckles and loosen the bands.
- Slide the tank into the bands from the diver's left side. Position the tank so that the valve's handle is pointing down towards the diver's feet. See Figure 5.
- After Looping the webbing through final slot in buckle, check to be sure that the Valve is lined vertically with the diver's left edge of the BC. "Cam" the buckle over for extra tension.
- Lock the buckle by engaging the Velcro material on the tank band.

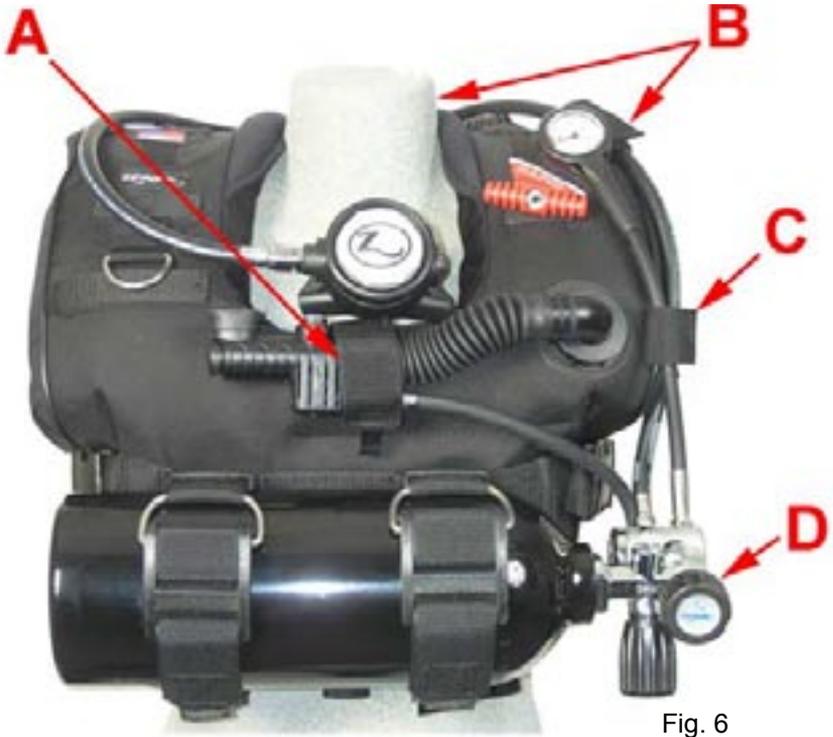


Fig. 6

- Add the first stage to the valve making sure that the yoke knob is facing away from the diver. See "D" in Figure 6.
- Fasten the 2nd stage regulator hose over the neck using the three Velcro attachments. See "B" & "C" in Figure 6. (Note: The Velcro Fastener behind the neck is hidden in this view.)
- Fasten the pressure gauge hose vertically using the Velcro attachment. See "C" in Figure 6
- Fasten the hose to the Power Inflator using the Quick Disconnect fitting. Once the QD fitting is fastened, use the Velcro Fastener to hold it in place. See "A" in Figure 6
- Turn the tank valve on carefully listening for leaks. If any leaks are heard, do not dive with the unit until the cause of the leakage is corrected.



## Fitting and Assembly

### Initial Adjustments for Proper Fit

The **Rapid Diver™** System allows the diver a universal fit feature. For proper performance, please be sure that your system fits as described below. For initial adjustments, loosen the waist and back strap and then put the BC on (**before** attaching it to a SCUBA cylinder) and adjust the shoulders and waist as follows.

1. Loosen all of the straps and make sure all clips are secured before donning. Make sure you have at least a few inches of strap loose to ensure an easy adjustment. Place your elbows through the arm-straps as shown



Fig. 7



2. Raise the Rapid Diver over your head. Put your head through the opening in the **Rapid Diver™** and lower the system onto your shoulders.

Fig. 8



3. The system should be worn with the tank even with your sternum. Hold the tank with one hand. With the other hand, reach behind to grab the loose strap and tighten it snugly. Do the same for the opposite side. See Figure 9.

Fig. 9



4. Pull both adjustment straps forward and down at the same time to properly position the **Rapid Diver™**.

 **WARNING**

Adjust the BC so that it does not restrict your breathing. Restriction of normal breathing while wearing your BC could result in injury or death. Before each dive, check all bands, straps, clips, and/or waist straps for proper adjustment.



5. To control the excess strap, stow it between the bladder and your chest.

4. With assistance, make sure the shoulder straps are adjusted properly. There should be about three inches between your neck and the collar of the BC.





## Pre-dive Assembly and Inspection

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### Over Pressure Valve (OPV)

The over pressure / dump valve is typically located on the top left shoulder area of the bladder assembly. As its name implies, the OP Valve prevents over inflation of the bladder. The valve automatically releases air when the internal bladder pressure exceeds the valve's spring pressure. The valve will automatically close when the internal bladder pressure becomes less than the valve's spring pressure. **The OP Valve should be inspected before every dive for proper operation.**

### Manual Dump Valve (MD Valve)

Your OP Valve is equipped with a manual dump system to allow you to easily dump air from the BC as you adjust your buoyancy. To manually dump air using this system, pull the red "T" Handle down until proper buoyancy is achieved.

### Remote Exhaust Valve (RE Valve)

Your BC may be equipped with a remote exhaust valve. If it is, it is located on the upper left, just over the shoulder, on the bladder assembly. The RE Valve is another way to "dump" or exhaust air manually as you adjust for neutral buoyancy. The RE Valve operates by simply pulling on the power inflator mechanism and corrugated rubber hose.

### **i** IMPORTANT

**The RE Valve should be inspected before every dive for proper operation. Also, inspect that both threaded caps on the RE Valve, are tightened securely. The exhaust cap must be tightened a minimum 1/12 turn (3/8 inch) after it first contacts the body. The RE Valve was designed to be serviced. Without proper tightening of these caps, they may loosen over time and be lost.**

### Power Inflator/ Oral Inflator Mechanism

Your Rapid-Diver BC is equipped with a power inflator/oral inflator mechanism. This unit consists of an Oral Valve Mouthpiece, Oral Valve Button, and Pneumatic Inflation Valve (PIV). The PIV can operate over a pressure range of 95-200 psi (6.5-13.8 bar). To inflate the BC using the PIV, attach the low pressure hose using the quick disconnect (QD) fitting and depress the PIV button. To inflate the BC using the oral inflator, depress the Oral Valve Dump Button and breathe into the Oral Valve Mouthpiece.

**CHECK ALL MECHANISMS BEFORE EVERY DIVE FOR PROPER OPERATION AND LEAKS.**

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## Diving with the Rapid-Diver System

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### Pre-Dive Check:

Prior to each dive, always check to make certain your **Rapid Diver™** BC has no obvious leaks, by inflating the bladder until the over pressure relief valve vents. Listen for air leaks. If any are found, then service is necessary by an authorized Zeagle technician. Never dive with a leaking or malfunctioning BC.

### Diving

- Your final buoyancy is primarily affected by your body, your thermal suit, your diving cylinder, and your lead weights. It is **adjusted** with your BCD. Both too little and too much lead ballast on your weight belt can be dangerous. To determine the proper amount of lead ballast weight needed for your system, go (with another diver) to a shallow safe location with the type (fresh or salt) of water you will be diving in later. During the test, wear a **near empty** cylinder of the same size and material you will be using. With a safety diver present, carefully add or remove weights from your system until you float vertically at the surface at eye level with a full breath of air (and a near empty cylinder). The near empty cylinder is important. Many divers weight themselves for a full cylinder, and then have trouble staying down later in the dive as the cylinder gains buoyancy.
  - Start your descent by releasing air slowly by pulling gently on the red dump handle which sits in front of the diver's left shoulder. **DO NOT USE EXCESSIVE FORCE AS THIS COULD SERIOUSLY DAMAGE THE SYSTEM.** Let out just enough air to start your descent. As you descend and when you reach your desired depth you will need to add air to your Zeagle BC by pressing on the air inlet button of your low pressure inflator to attain "neutral" buoyancy.
  - It may be necessary to adjust the waist during the dive due to the compression and expansion of your diving suit.
  - You will need to add air to the BC as you descend and exhaust air from the BC as you ascend, to maintain neutral buoyancy throughout your dive.
  - When you begin your ascent at the termination of your dive, you must **release air** from your BC by pulling gently on the red dump handle which sits in front of the diver's left shoulder. Be sure you are vertical with your left side slightly higher than your right side to vent the BC. You should release air so as to maintain rate of ascent of one foot per second or less. To maintain a safe ascent rate, you must **swim** to the surface. Do not use your BCD to pull you to the surface, as this may result in fast ascents. **Control your Ascent Rate!**
  - Inflate your **Rapid Diver™** BC when you reach the surface to attain a **comfortable** degree of buoyancy. Do not Overinflate the BCD.
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## Emergency Procedures

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### Problem Management

#### **Inflator problem**

Inflators may fail due to foreign material in the mechanism, damage from impact by tanks or weights, or other causes. **Practice** the procedures below (in a safe location with your buddy) for your safety.

#### **Inflator fails to operate**

Check to see that the low pressure hose is properly connected. Orally inflate the bladder if necessary to establish proper buoyancy.

#### **Inflator valve sticks open**

Should the inflator valve stick open, causing an uncontrolled filling of the bladder and/or excessive leakage of air at the inflator, hold exhaust valve open and over your head to vent excess air as you disconnect the low pressure hose from the inflator. Abort the dive.

#### **Exhaust valve or over pressure valve sticks open**

If the exhaust valve on the inflator sticks open, hold the inflator in the lowest position possible, to allow the bladder to hold air from that level up. Abort the dive and attempt to swim slowly, 1 ft per 2 sec (0.3 m per 2 seconds), or less, to the surface. Should excessive negative buoyancy be created, your weights may need to be released. Weight release at depth should only be done according to the standards set by your certification agency.

#### **Failure to hold air**

If for any reason the system should fail to hold an adequate amount of air to provide necessary buoyancy, abort the dive and attempt to swim slowly, 1 ft per 2 seconds (.3 m per 2 seconds) or less, to the surface. Should excessive negative buoyancy be created, your weights may need to be released. Weight release at depth should only be done according to the standards set by your certification agency.

The above is based on recreational no decompression diving. Decompression divers must have complete redundant systems to handle all problems underwater.

### **i IMPORTANT**

If at any time abnormal performance or malfunction is experienced, the system must be serviced by an authorized Zeagle Dealer prior to any further use.



## Maintenance

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**The reliability and correct functioning of your equipment depends on the care it receives.**

### Post Dive BC Cleaning:

- Rinse the **Rapid Diver™** BCD thoroughly with fresh water after each use.
- Rinse the inside of the bladder by holding the exhaust button on the inflator system open and allowing fresh water to partially fill the bladder. “Slosh” the water around to dissolve any salt crystals (salt crystals can damage the bladder over time). Drain the bladder completely and repeat.
- Hang the BCD upside down and allow it to dry while partially inflated. Drain any residual water through the exhaust hose while the BCD is hanging upside down.
- Store the BCD partially inflated in a cool, dark, dry place.

### Inspection and Service Interval

Your **Rapid Diver™** BCD (including the Inflator) should be inspected and maintained by an Authorized Zeagle Dealer at least once a year, and more often if you dive frequently. This is a required action to keep your warranty in effect. There is a Service Record in the back of this manual for the Dealer to record the service performed.

### Installation of New Parts/ Alterations



Use of non-factory parts or accessories, or any change to the product not specifically authorized by Zeagle Systems, Inc., or performed by an unauthorized repair facility, may cause improper operation, damage, or leakage of the BC resulting in a loss of buoyancy control or air holding capability. This could result in injury or death, plus will void your warranty. Replace worn or damaged items with approved, factory supplied or specified parts ONLY.



# Buoyancy System Accessories

## Tank Band Mount p/n 8029R

The same Band Assembly that mounts the tank in front of the Rapid-Diver, can be installed in the backplate to hold a fully redundant rear-mounted tank and regulator.



## 20 cu ft Aluminum Tank Sanded finish 331-1001 Black finish 331-1002

Shown with the optional Valve 331-2001

A Zeagle Exclusive. The perfect size and fit for the Rapid Diver.



## Utility Belt p/n 8099

Shown with optional 8051R 10 lb Weight / Utility Pockets with Zipper and Velcro openings. (8050S 4 lb Pockets are Available but not shown.)



**Envoy - ReZort** p/n 350-5210  
Envoy 2nd stage and ReZort 1st Stage. A simple, rugged and serviceable, yet high performance design.



**Envoy - RaZor** p/n 350-6240  
Envoy 2nd stage and RaZor 1st stage. The RaZor is a compact combination of a Valve and Regulator.



**Zeagle BC Knife**  
5402



**BC Pocket**  
(Clip Closure)  
8033CC



**Diver Tool Kits**  
8135 without slate  
8135S with slate



**EMT Shears**  
8134



**Strobe/Flashlight**  
8036



**Tech Utility Pocket**  
2 zip compartments  
8033

# SERVICE RECORD

DATE	SERVICE PERFORMED	SERVICE CENTER	TECHNICIAN #
	Owner Orientation: Dealer Preparation:		

**Attach the original or a copy of your purchase receipt to this booklet and store it in a safe place. Your receipt may be needed for warranty validation if you take your BCD to a different Zeagle Dealer for service.**

## Locating Service and Support

The Dealer that sold you your Buoyancy Compensator will be able to assist you with additional questions regarding product operation, warranty, and service. Go to [www.zeagle.com](http://www.zeagle.com) for dealer locations near you.

### Your Local Zeagle Dealer:

(Dealer to affix stamp here)



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