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Rapid Diver



User's Manual

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Rapid Diver User's Manual PN 18591
Rapid Diver BC1760101UV

Please read the instructions in this manual carefully before using this product. If you have questions regarding the use of this product, please contact Aqualung Military Professional via our website at www.milproaqualung.com

Warnings, Cautions and Notes

Pay special attention to information provided in Warnings, Cautions and Notes that are accompanied by one of these symbols.



A **WARNING** indicates a procedure or situation that, if not avoided, could result in serious injury or death to the user.



A **CAUTION** indicates any situation or technique that could cause damage to the product and could subsequently result in injury to the user.



A NOTE is used to emphasize important points, tips and reminders.

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GENERAL PRECAUTIONS AND WARNINGS

CE Conformity - This BC conforms to EN1809:2014/A1:2016 under Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment and REGULATION 2016/425 on personal protective equipment. It was controlled by ITALCERT, Notified Body n°0426, Viale Sarca 336 - I 20126 Milano, ITALY. Declaration of conformity for this product may be found at www.milproaqualung.com This article of PPE is intended to allow a diver to control their buoyancy. Proper control of buoyancy is necessary to reduce the risk of several hazards associated with SCUBA diving, notably air embolism (from rapid ascent), nitrogen narcosis (from diving too deep), or drowning (being unable to reach the surface if the gas supply is depleted).



WARNING: Before using this buoyancy compensator (BC), you must receive instruction, certification in SCUBA diving and buoyancy control from a recognized training agency. Use of SCUBA equipment by uncertified or untrained persons is dangerous and can result in injury or death.



WARNING: It is imperative that manufacturer prescribed service on this product is performed by a manufacturer trained service technician according to the procedures outlined in our technical manual once a year under normal prescribed use OR more often if operating in an environment where harsh / heavy / in water or training use may exist.



WARNING: Your BC is not a lift bag. DO NOT use it to bring heavy objects to the surface. Doing so may cause permanent damage to the BC, and could also result in serious injury or death due to embolism or decompression sickness.



WARNING: In an emergency such as an out of air situation or uncontrolled descent, it is important to remove and jettison weight immediately. DO NOT depend solely on using your BC's power inflator to lift you to the surface.



WARNING: In the event of an uncontrolled, rapid ascent, it is important to immediately begin venting air from the BC. Continue venting air to slow your ascent rate if neutral buoyancy cannot be reestablished.



WARNING: DO NOT inhale from your oral inflator. The BC may contain harmful contaminants or gases, which could cause suffocation or injury.



WARNING: This is NOT a life jacket or a rescue device: It does not guarantee a head up position of the wearer at the surface. It is not designed to provide face-up flotation in all situations; therefore it does not meet regulations for a life preserver or personal flotation device (PFD). If you become unconscious in the water without a buddy present to immediately give assistance, you may suffer serious injury or death from drowning.



WARNING: Although this manual provides some basic guidelines for certain buoyancy control techniques, it is not a substitute for training from a professional diving instructor. Failure to weight yourself properly may create a hazardous condition that could lead to serious injury or death. If you are unsure how to weight yourself in order to achieve optimum buoyancy underwater and on the surface, do not dive until you have obtained the necessary instruction from your diving instructor or an Authorized Aqualung Distributor.



WARNING: This BC is designed for use with compressed air or Nitrox/EAN (enriched air nitrox) mixtures not exceeding 40% oxygen. Any use of gas mixtures with increased oxygen content or the addition of helium or other substances may cause corrosion, deterioration and/or premature aging of the BC leading to component failure of the metal and rubber parts. The component failures could lead to a loss of buoyancy control and/or pressure integrity of the BC resulting in injury or death. Non-standard breathing mixtures may also present a risk of fire or explosion. The use of Nitrox/EAN requires additional training, failure to observe this warning may result in injury or death. Use only nitrogen/oxygen mixtures containing no more than 40% oxygen.



NOTE: Become familiar with your BC in a controlled environment such as a swimming pool, in order to weight yourself properly and to become comfortable with using its many features and adjustments.

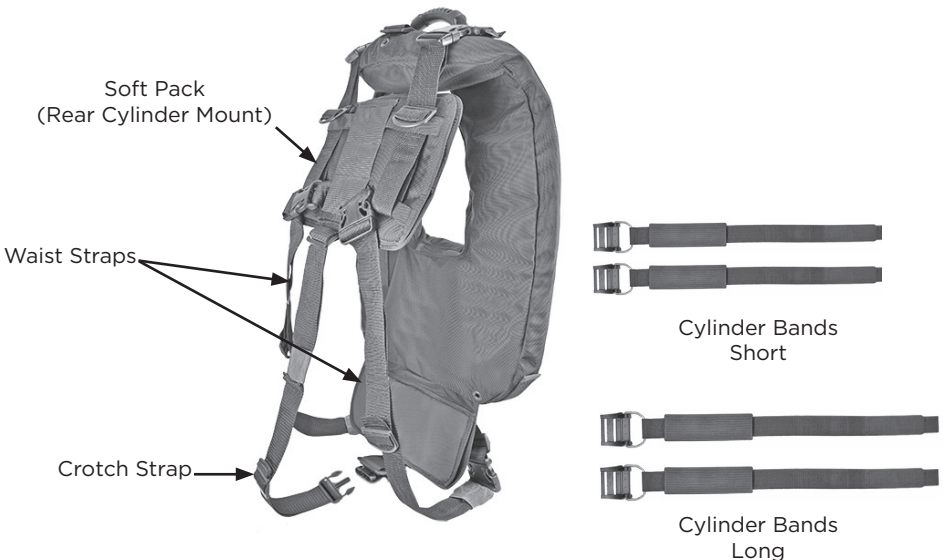
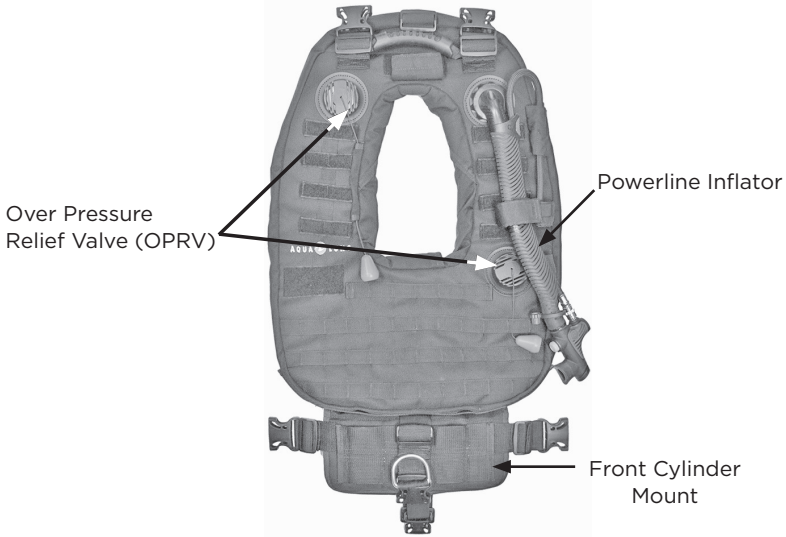
PRODUCT DESCRIPTION

The Rapid Diver is the next generation of BCDs for all your public safety missions. It has enhanced MOLLE strap system with additional strap areas for accessories. The horizontally attachment of the front cylinder will create a more streamlined position and allows you a greater motion in the water.

Rapid Diver Component Identification



NOTE: A water hydration bladder can fit inside the soft pack pocket. Water hydration bladders are not available through Aqualung.



PREPARATION AND SETUP

Front Mount Assembly

A cylinder can be attached horizontally to the front cylinder mount on the BC (Fig. 1). This will create a more streamlined position and allows for greater range of motion in the water.

1. Place the BC on a flat surface with the front cylinder mount face-up (Fig. 1).



NOTE: The short cylinder bands must be used to set-up a front cylinder mount configuration.



Fig. 1

2. Insert the open end of the cylinder band through the webbing on the bottom of the BC. Position the ribbed side of the traction sleeve face up. Insert the cylinder band into the top of the traction sleeve, under the front cylinder mount straps and out the bottom of the traction sleeve (Fig. 2). The traction sleeve should be positioned directly over the front cylinder mount (Fig. 3). Repeat process for other cylinder band.

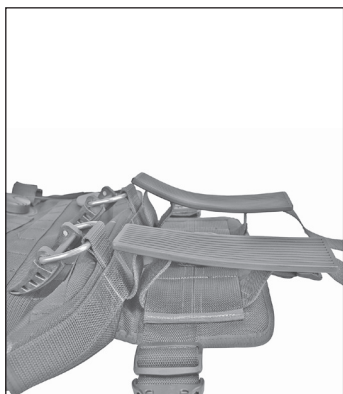


Fig. 2



Fig. 3

3. The procedure for weaving the cylinder band through the cam buckle is covered in **Threading the Cam-Buckle section of this manual.**

4. Open the cylinder band buckles and loosen the bands.

5. Insert the cylinder into the bands from the right side. Position the cylinder so that the valve on/off handle is pointed down towards the diver's feet (Fig. 4).

6. The procedure for securing the cylinder band to the cylinder is covered in **Securing the Band to the Cylinder section of this manual.**

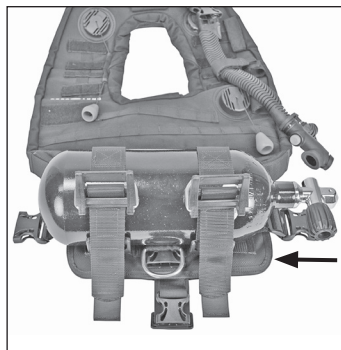


Fig. 4



Fig. 5

7. Assemble the regulator first stage to the cylinder valve. Make sure the first stage faces towards the diver (Fig. 5a). The procedure for connecting the MP inflator hose to the regulator is covered in the **Attaching the MP Inflator Hose section of this manual.**

8. Route the MP hose through the three hook and loop attachments (Fig. 5b-d).

9. Connect the MP inflator hose and secure it in place using the hook and loop attachment (Fig. 5e). The procedure for connecting the MP inflator hose is covered in the **Inflation Methods section of this manual.**

Rear Mount Assembly

A cylinder can be attached vertically to the soft pack on the rear of the BC (Fig. 6). This configuration allows for larger cylinders to be used when needed.

1. Place the soft pack on a flat surface with the rear cylinder mount face-up (Fig. 6).

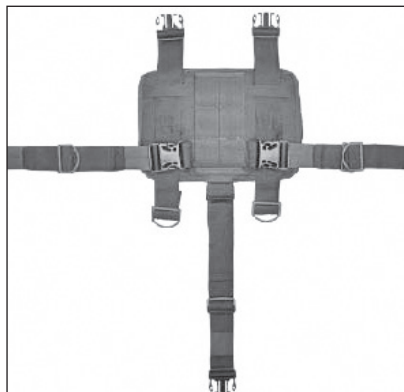


Fig. 6



NOTE: The long cylinder bands must be used to set-up a rear cylinder mount configuration.

2. Position the ribbed side of the traction sleeve face up. Insert the open end of the cylinder band into left side of the traction sleeve, under the rear cylinder mount straps and out the right side of the traction sleeve (Fig. 7). The traction sleeve should be positioned directly over the rear cylinder mount (Fig. 8). Repeat process for other cylinder band.

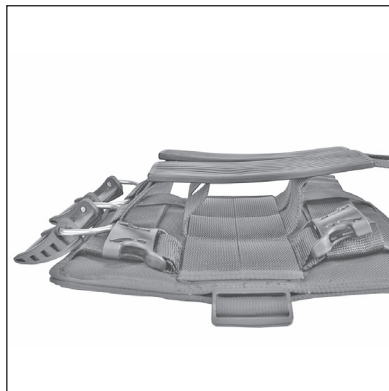


Fig. 7

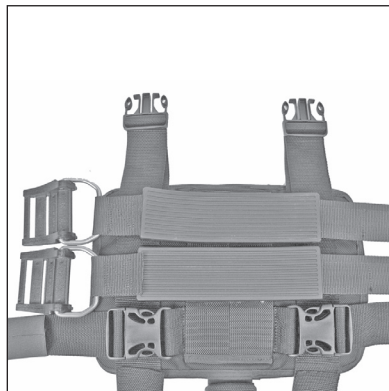


Fig. 8

3. The procedure for weaving the cylinder band through the cam buckle is covered in **Threading the Cam-Buckle section of this manual.**

4. Open the cylinder band buckles and loosen the bands.

5. Slide the cylinder band over the cylinder so the soft pack is at the desired position in relation to the cylinder valve. Make sure the cylinder valve air outlet is facing the back of the soft pack (Fig. 9).



Fig. 9

6. The procedure for securing the cylinder band to the cylinder is covered in **Securing the Band to the Cylinder section of this manual.**

7. Assemble the regulator first stage to the cylinder valve. The procedure for connecting the MP inflator hose to the regulator is covered in the **Attaching the MP Inflator Hose** section of this manual.



NOTE: When using the BC with a rear mount cylinder set up, a standard SCUBA regulator configuration must be used.

8. Connect the MP inflator hose and secure it in place using the hook and loop attachment (Fig. 5e). The procedure for connecting the MP inflator hose is covered in the **Inflation Methods section of this manual.**

Threading the Cam Buckle

1. Firmly grasp the metal D-ring with your left hand (Fig. 10).

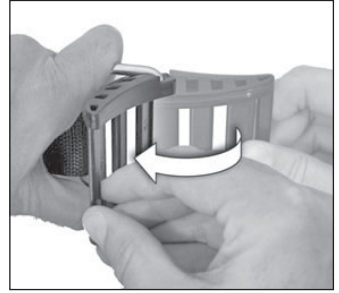


Fig. 10

2. While firmly holding the metal D-ring, rotate buckle back towards the webbing. The buckle should form an angle with the metal D-ring (Fig. 11).



Fig. 11

3. Insert band through the metal D-ring, then through the middle slot of the buckle (Fig. 12).



Fig. 12

4. Insert band through the inside slot of the buckle (Fig. 13).

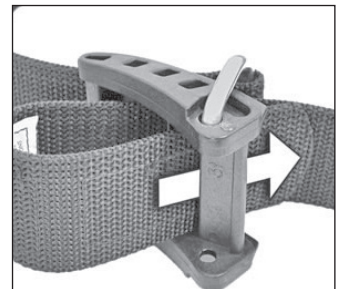


Fig. 13



NOTE: Threading steps are imprinted on the plastic cam buckle.

Securing the Band to the Cylinder



NOTE: Ensure the cam buckles are positioned on the bottom of the cylinder when using a front mount set-up.



WARNING: Verify the tension of the cylinder band prior to every dive. Failure to do so may result in the cylinder slipping during the course of a dive.

1. While holding the cylinder secure, pull the free end of the cylinder band webbing until there is a very tight fit between the cylinder mount and the cylinder (Fig. 14).

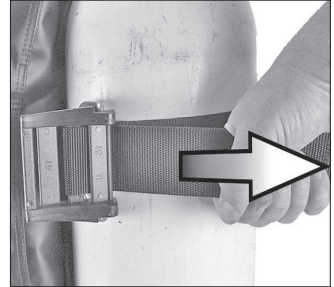


Fig. 14

2. Close the buckle halfway to hold the cylinder band taut and thread the free end of the band through the open slot in the end of the buckle (Fig. 15).



Fig. 15

3. Pull the cam buckle closed so that it lies flat against the cylinder. Secure the end of the cylinder band with the hook & loop attachment. (Fig. 16).

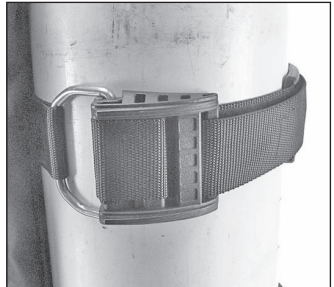


Fig. 16

4. Check the cylinder band is secure by pulling on the band while holding the cylinder at the valve. If the cylinder band moves, it is too loose. Repeat steps 1-3.

DONNING AND ADJUSTMENT PROCEDURES



NOTE: The BC can be balanced on the cam buckles for quick access when donning the system in the front mount configuration.

To ensure proper performance, make sure your BC is set-up and adjusted as follows (Fig. 17):

1. Connect both shoulder strap buckles on the soft pack to the top of the BC and adjust as necessary.
2. Attach both waist straps buckles to the soft pack and front cylinder mount. The waist straps should be oriented so they adjust forward.
3. Make sure the lower waist strap buckles are adjusted all the way forward and tucked into the elastic retainer. Adjust the upper waist strap buckles half way.
4. The crotch strap should only be connected to the rear buckle at this time.



Fig. 17

5. Place your arms through the waist straps and grab the outside of the BC. Raise the BC up and place your head through the opening and lower it onto your shoulders (Fig. 18).



WARNING: When donning the BC using a larger cylinder in the rear mount configuration, the assistance of a buddy is required to lift the cylinder in order to prevent serious injury.



Fig. 18

6. Pull one waist strap forward while simultaneously lifting the cylinder until it is even with your stomach. Repeat the process to tighten opposite waist strap (Fig. 19).



NOTE: If using the rear mount configuration with a larger cylinder, bend forward at the waist and adjust the waist straps to a comfortable length.



Fig. 19

7. The excess waist strap webbing can be stored between the BC and your chest (Fig. 20).



Fig. 20

8. Bring the free end of the crotch strap between your legs and fasten it to the front buckle (Fig. 21).



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

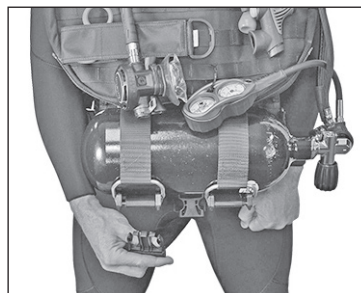


Fig. 21

Attaching the MP Hose to the First Stage

Aqualung recommends that you bring your buoyancy compensator, together with your regulator, to your Authorized Aqualung Distributor for the installation of the MP inflator hose. If it is not possible to return the BC with your regulator to your Authorized Aqualung Distributor, you may install the MP quick disconnect inflator hose by carefully performing the steps in the following procedure.



WARNING: DO NOT connect the inflator hose to a high pressure (HP) port (greater than 200 psi / 14 bar). This may cause the hose to burst when pressurized, which can result in serious injury. If you are unsure which regulator port is medium pressure (MP) or high pressure (HP), consult your regulator owner's manual or your dealer before attaching the hose.

- Remove the inflator hose from the power inflator body by gripping the grooved sleeve over the quick disconnect coupling with your thumb and forefinger, then slide the sleeve back.
- Remove the port plug from a MP port on the regulator using an appropriately sized wrench.
- Check to ensure the o-ring is present and in good condition. Screw the threaded end of the hose into the port and tighten to 40 in-lbs (4.5 Nm) with a 9/16" wrench.

INFLATION METHODS

Power Inflation

For the power inflator to operate, the medium pressure (MP) inflator hose must be connected. Remove the dust cap on the quick disconnect fitting. Connect the MP hose by gripping the grooved sleeve at the connection fitting (Fig. 22d) with your thumb and forefinger, and slide the sleeve back. Place the connection fitting over the quick disconnect fitting (Fig. 22c) and firmly push inward while releasing the sleeve. Check to ensure that the hose is securely attached. After the hose is attached to the power inflator, pressurize the first stage regulator by slowly opening the cylinder valve.

To inflate your BC with medium pressure air, depress the power inflator button (Fig. 22e). Do not hold the inflator button depressed continuously underwater, as this could cause you to become excessively buoyant. Instead, depress the button in short bursts until you become neutrally buoyant.

The working pressure of the power inflator is as follows: 103 PSI (7 BAR) minimum to 294 PSI (20 BAR) maximum.

Oral Inflation

To orally inflate your BC, place your lips on the oral inflator mouthpiece (Fig. 22a) and exhale a small amount of air into the mouthpiece to purge any water that may still be in the housing. While continuing to exhale into the mouthpiece, depress the oral inflator button (Fig. 22b) to inflate the BC. Immediately after exhaling, release the oral inflator button to prevent air from escaping.

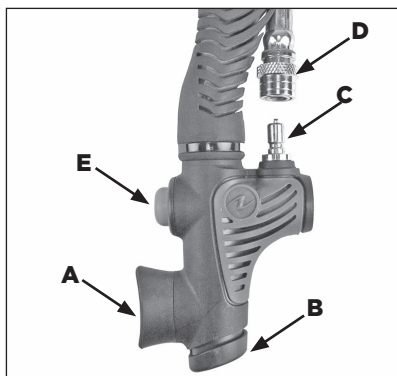


Fig. 22

DEFLATION METHODS

Throughout the course of a dive, it will be necessary to release air from the BC using one of the three methods described in the following instructions. Each method uses a valve that is in a different location. The method you choose at any time may depend on whether you are making your initial descent feet first, head first or maintaining neutral buoyancy underwater. Always remember to utilize the valve that is at the highest point on the bladder, depending on your position in the water.

The deflation rate of the power inflator is as follows: 20 Newtons per second.

Deflation (Oral Inflator)

To deflate the BC using the oral inflator, lift the inflator body to its highest possible position (above the head). Press the oral inflator button (Fig. 22b) to start venting air. To close the valve, release the oral inflator button.

Deflation (Inflator Dump Valve)

Your BC comes equipped with a inflator dump valve (Fig. 23f) on the top of the airway assembly. The inflator dump valve has a cable inside the hose that attaches the lower inflator to a dump valve at the top of the airway assembly. You can vent air from the BC by gently pulling straight down on the lower inflator. To close the valve, stop pulling down and release the inflator.

Deflation (Dump Valve)

Your BC comes equipped with a dump valve / over pressure relief valve (OPRV) (Fig. 23g). The primary function is to relieve excess air pressure inside the bladder. If the internal pressure exceeds the spring pressure, the OPRV automatically opens to release air, preventing damage to the BC. The dump valve can also be opened manually by pulling on the pull knob and cord assembly to quickly dump air from the BC. To close the dump valve, release the knob and cord assembly.

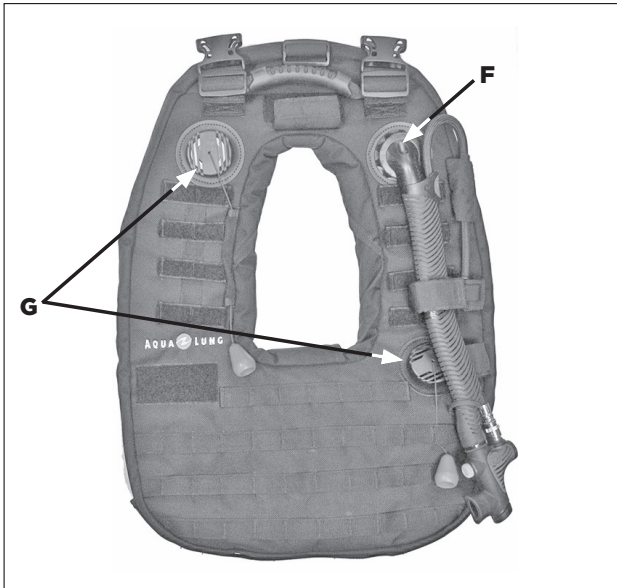


Fig. 23



CAUTION: The proper function of the over pressure relief valve (OPRV) is vital to prevent damage to the BC bladder. Unauthorized service or tampering may render this valve inoperable and could cause the bladder to leak or burst. This type of damage is not repairable and is not covered under warranty.



WARNING: Most training agencies recommend that you should descend in an upright, feet-first position, in order to maintain a slower and more controlled descent. This is especially true if you experience difficulty equalizing your ears or if you are descending in low visibility conditions.

BUOYANCY AND CYLINDER CAPABILITIES



A tag attached to each BC contains specific information regarding the characteristics of your particular model BC, such as buoyancy and cylinder capabilities (Fig. 24). It is important to review this information in order to know the proper cylinder sizes that may be used and to ensure the amount of weight being used does not exceed the buoyancy of the BC.



Fig. 24



NOTE: The BC tag above is an example only. Reference the specific tag located on your model BC.

Rapid Diver BC Chart	
BC Size	One size fits all
Cylinder Capacity	 Front: D max: 14,2 cm (5,6 in) Cap: 4 L (Max.)  Back: D max: 20,5 cm (8,1 in) Cap: 15 L (Max.)

PRE-USE INSPECTION

Before each use, your BC must be given a thorough visual inspection and functional test. NEVER dive with a BC that shows signs of damage to any of its components until it has received a complete inspection and service from an Authorized Aqualung Distributor.

1. Visually inspect the entire BC for cuts, punctures, frayed seams, excessive abrasion, damaged or missing hardware and other damage of any kind.
2. Connect the power inflator to a source of clean air, via the MP quick disconnect hose. Depress and release the inflator button intermittently to ensure that the airflow is unobstructed and that the airflow stops completely when the button is released **(See Inflation Methods)**.
3. Manually operate each dump valve by pulling on the pull knob and cord assembly to release air from inside the BC, then fully inflate the BC until the (OPRV) opens **(See Deflation Methods)**. Examine the operation of the (OPRV) / dump valve by repeatedly inflating the BC to ensure the valve opens to relieve excess pressure, yet closes immediately afterwards to allow the bladder to remain taut and fully inflated.
4. Check the function of the oral inflator button and inflator dump valve **(See Deflation Methods)** to ensure a rapid and unobstructed exhaust from each valve. Fully inflate the BC once again and disconnect the MP hose from the power inflator. Let the BC stand for 10 minutes and listen for any leaks.



WARNING: If you can hear any leaks or if the bladder begins to deflate within 10 minutes, DO NOT attempt to use the BC until it has received a complete inspection and service from an Authorized Aqualung Distributor.

5. Make a final check of the cylinder band tension to ensure it has been secured properly. Re-tighten if necessary.

POST-USE CARE AND MAINTENANCE

1. Avoid prolonged exposure to direct sunlight and extreme heat. Nylon fabric can quickly fade when exposed to the sun's ultraviolet rays and extreme heat may damage the welded bladder seams.
2. Avoid repeated or prolonged use in heavily chlorinated water, which can cause the BC fabric to discolor and decay prematurely.
3. Do not allow the BC to chafe against any sharp objects or rough surfaces that could abrade or puncture the bladder. Do not set or drop heavy objects such as block weights on the BC.
4. Avoid any contact with oil, gasoline, aerosols or chemical solvents.
5. To preserve the life of the bladder, rinse it inside and out with fresh water after every day of use, using the following procedure:
 - Pressurize the power inflator with medium pressure (MP) air via the MP hose.



CAUTION: Before rinsing, ensure that the inflator is pressurized with air. This will prevent debris and contaminants from entering the valve mechanism if the inflator button is accidentally depressed.

- Using a garden hose, direct water through the oral inflator mouthpiece to flush the interior of the bladder and then thoroughly rinse the exterior of the BC.
- Swish the water around to remove any mineral deposits, then invert the BC so the inflator mouthpiece is the lowest point. Completely drain the bladder of water through the oral inflator.
- After rinsing, inflate the BC and allow it to dry inside and out.
- Fully inflate the BC and set aside for 10 minutes. Check the firmness of the BC after the time has elapsed. If leakage is detected, return the BC to maintenance personnel for inspection.

Storage

Store the BC partially inflated, away from direct sunlight and in a clean, dry area. Do not store the BC in an enclosed space, such as a car trunk, where temperatures may fall below -18°C / 0°F or rise above 49°C / 120°F.

Transport

Do not allow the BC to chafe against any sharp objects or rough surfaces that could abrade or puncture the bladder. Do not set or drop heavy objects such as block weights on the BC. This BC should be exposed to temperatures no lower than -20°C / -4°F and no higher than 65°C / 150°F.

INSPECTION AND SERVICE

1. It cannot be assumed that the BC is in good working order on the basis that it has received little use since it was last serviced. Remember that prolonged or improper storage can still result in internal corrosion and/or deterioration of o-ring seals and valve springs, as well as bladder seam degradation.
2. It is imperative that manufacturer prescribed service on your BC is performed by a manufacturer trained service technician according to the procedures outlined in our Technical Manual at least once a year under normal prescribed use OR more frequently if operating in an environment where harsh / heavy / in-water or training may exist. Manufacturer prescribed service consists of:
 - Complete overhaul of the power inflator.
 - Inspection of the over pressure relief valve(s).
 - Inflation test: Fully inflate the vest and set aside for 10 minutes. If a puncture is detected, utilize BC patch kit to repair the hole. Reference Lit PN 18301 provided with the repair kit.
3. DO NOT attempt to perform any disassembly or service of your BC. Doing so may cause the BC to dangerously malfunction. All service must be performed by a manufacturer trained service technician.

TECHNICAL SPECIFICATIONS

Weight	3.8 kg / 8.3 lb
Outer Container	1050 Light Ballistic with MOLLE attachments
Bladder	Heavy duty urethane
Inflator & MP Hose	Powerline inflator with 68.5 cm / 27 inch braided MP hose
Dump Valves	(1) rapid exhaust valve on inflator (2) universal dump valves
BC Attachment	Soft pack with rubber grip pad. Water hydration bladder can fit inside pocket on soft pack
Cylinder Attachment	Horizontally on front cylinder mount using (2) short universal cylinder bands Vertically on rear cylinder mount using (2) long universal cylinder bands

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