



Buoyancy Compensator User's Guide

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Buoyancy Compensator **User's Guide**

Thank you for choosing OMS,

OMS buoyancy compensators have been constructed from rugged materials with unique features adaptable to advanced underwater environments. The general design philosophy allows for complete system integration of a number of components achieving high lift capacities, low drag, and increased safety through redundancy. With a selection of different harnesses, different air cells and accessories, a diver can configure his or her system for the specific environment they are operating in. This equipment is intended for use by individuals with the training and experience to dive these environments safely.

General Precautions & Warnings

- Before using this buoyancy compensator (BC), you must receive instruction and 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.
- Read this owner's manual completely before attempting to use your BC, and become familiar with it first 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.
- Before every dive, perform a complete pre-dive inspection according to the procedure prescribed in this manual, to ensure that all components are functioning properly and no signs of damage or leaks are present. If you find that your BC is not functioning properly or is damaged, remove it from service until it can be repaired.
- 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.
- 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.
- 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.

- Do not inhale from your oral inflator. The BC may contain harmful contaminants or gasses, which could cause suffocation or injury.
- The function of your buoyancy compensator is to help you maintain neutral buoyancy while in a comfortably balanced, face-down swimming position underwater. It is also designed to provide you with flotation so that you can rest on the surface, but it is not designed to function as a life preserver or personal flotation device (PFD). A buoyancy compensator (BC) is not a life jacket. It is not designed to provide face-up flotation in all situations, and therefore it does not meet U.S. Coast Guard regulations for a life preserver or personal flotation device (PFD).
- Have your OMS equipment inspected and serviced annually by an authorized OMS dealer or at any time you have any concerns about your equipment's function or condition.



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Introduction to OMS

Buoyancy Compensators

OMS buoyancy systems are built around a modular design that allows a diver to customize his system. Typically, a complete system consists of a harness system, an air cell, accessory pockets, and a system to attach cylinders. It is important for a diver to configure a system that fits properly and has enough lift to comfortably support the diver and cylinders at the surface. Tools and emergency items (marker buoys, signal devices, etc.) should be secured such that they are easily available yet do not pose an entanglement hazard to guidelines and mooring ropes. All this is possible with OMS products.

Harnesses

IQ Pack A ‘soft pack’ harness system that can be used as part of a light weight travel rig or can be fitted with a metal back plate for use with high capacity dual cylinders.

One Piece Harness A simple harness with no sternum strap or shoulder release buckles, minimal harness for maximum reliability.

Standard Harness System A single side release on the shoulder strap makes for easy doffing. This harness includes features like extra ‘D’ rings and a sternum strap assembly.

Comfort Harness A full featured harness with side release buckles on both padded shoulder straps. This harness includes a sternum strap and adjustable ‘D’ ring attachment points.

These harnesses can be assembled with OMS stainless steel or aluminum back plates.

Air Cells

OMS air cells (BCs) are available in different lift capacities and different configurations. It is extremely important that the air cell you select has enough buoyancy to support the diver and cylinders at the surface. OMS air cells are available with redundant internal bladders and with elastomeric retraction bands to help minimize the volume of the uninflated BC. Standardized fittings allow inflator mechanisms and dump valves to be configured a number of different way.

Lift (lbs) Single	#32	#35	#45	#60	#94
Retraction Bands	N/A	N/A	• Optional	• Optional	<input checked="" type="checkbox"/>
Dual Bladder	N/A	N/A	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Assembly of the IQ Pack Harness System

Attaching the Bladder and Single Tank

A bladder can be attached to the IQ Pack with two nylon tank bands. Locate the sewn webbing slots sewn onto the back of the IQ Pack. Thread a nylon tank band through the top slot and another through the bottom slot. Next, thread the free ends of the tank bands through the corresponding slots in the bladder. As the tank bands are tightened onto the tank the bladder and harness will be securely sandwiched together against the tank.



Optional Bookscrews

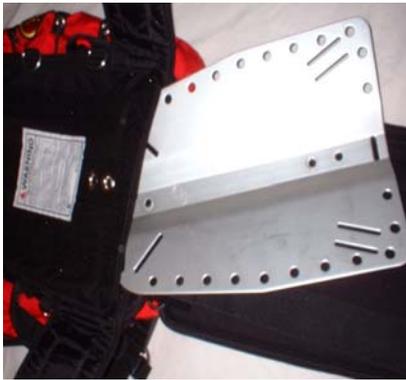
If the BC is to be used primarily as a 'soft pack' (no back plate), the diver should consider purchasing a set of OMS 'bookscrews'. Installation of the book screws will allow the BC to be handled as a single component even when not attached to a tank. To install the bookscrews, grasp the top of the IQ pack's back pad and peel it downward revealing the grommet holes. Insert the slot head screw through the grommet hole of the harness then through the matching grommet hole of the bladder. Insert the narrow end of the female nut through the grommet hole of the bladder from the back. Mate the threads of the male and female parts then tighten them to secure the bladder against the harness.



Assembly of the IQ Pack Harness System

Attaching the Single Tank Adaptor

The OMS single tank adaptor may be used to secure a single tank to an IQ Pack that has a back plate installed. To install a back plate, grasp the top of the IQ Pack's back pad and peel it completely downward revealing an opening at the bottom of the harness. Slide a back plate up into the slot aligning the grommet holes with the bolt holes in the back plate. Insert the bolt studs of the Single Tank Adaptor through the grommet holes in the back of the bladder through the boltholes of the back plate and through the corresponding holes in the harness. Hold the adaptor, bladder and harness together and place the large washer over the bolt stud then the split lock washer followed by the wing nut. Tighten the wing nut securely then press the back pad back into place against the Velcro strips.





BCs

OMS BCs (Air Cells)

OMS BCs are constructed from 1000 denier Cordura backed with 5 ounce urethane housing an inner bladder of virgin urethane for superior durability. They are available in several different lift capacities with single and double internal bladders. Inflator mechanisms and dump valves are standardized making them interchangeable and completely serviceable.

The Non Banded Single Bladder is the simplest air cell that OMS offers. It comes fully assembled and can be mounted on any OMS plate or harness system. The BC is attached to the harness with the warning label against the diver's back such that the string from the pull dump is closest to the diver.



This BC can be attached to any OMS back plate system using the bolts from a set of steel bands for doubles or the bolts from a single tank adapter. Nylon tank bands can be used to attach it to the IQ Pack.



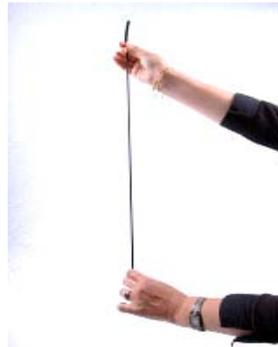
OMS BCs with Retraction Bands

OMS BCs are available with elastomeric retraction bands that keep the BC compact when not fully inflated. They also aid in deflation by preventing localized air trapping.

WARNING! Failure to follow these assembly instructions can cause BCD failure resulting in **PERSONAL INJURY OR DEATH!**

Assembly of Elastomeric Banded BCs

OMS Banded BCs come with a set of twelve Elastomeric Retraction Bands. Pre-stretch the bands to their limit before installation (repeat this 2-3 times for each band). This process makes the stringing and tying the elastomeric bands easier.



Lay the BC flat with the OMS logo upward. Thread each band individually through the grommet tabs around the outer edge of the BC.



Assembly of Elastomeric Banded BCs (continued)

Once all the bands have been threaded, fully inflate the BC until the dump valve vents. **It is extremely important that the BC is fully inflated while the bands are tied into place! Installing the bands on an uninflated BC can compromise the BCD's lift capacity!** Thread the top of each band through the inner rows of grommet holes and stretch them around to tie the ends together in a square knot on the tank side of the BC (opposite the side with a warning label). Make sure the bands are tied snug against the BC. You should be able to easily slide your finger between the BC and the band.



Once all the knots are tied, pull each of them around so that it is safely tucked near the backside of each inner grommet (tank side/no-label side). Deflate the BC and check that it deflates evenly around the entire circumference. Orally inflate the BC to be sure the bands are not too snug. You should be able to orally inflate the BC with little effort. If there is excessive resistance to oral inflation loosen the bands.



Assembly of Elastomeric Banded BCs (continued)

The air cell is now ready for use. Changes to the diver's lateral trim can be made by adjusting the tension of individual bands. Be sure that you are properly weighted before starting any dive.

WARNING! Improper weighting can cause uncontrolled descent or ascent resulting in **PERSONAL INJURY OR DEATH!**

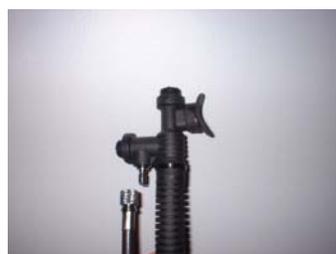




Inflators and Dump Valves

OMS Inflators

The threaded end of the Quick Disconnect hose attaches to a low pressure port of the diver's first stage. The Quick Disconnect end is attached to the inflator mechanism by pulling back on the collar and pressing it onto the Quick Disconnect nipple.



Inflate the BC by pressing the power inflation button. Use short bursts to control the amount of air entering the BC. The oral inflation mouthpiece allows for oral inflation by exhaling into the mouth piece while completely depressing the deflate button.

OMS Inflators (continued)

Air can be vented by depressing the deflate button or by using the pull dump.

OMS Dump Valves

Air can also be vented from the BC by gently pulling on the pull dump cord. OMS BCDs are available with lower dump valve located at the bottom of the BC or upper dump valves on the diver's shoulder. Some models are equipped with both.



Pull dumps should be inspected regularly by fully inflating the BC to insure they vent properly. Also, be sure to thoroughly rinse them after each dive to prevent debris from becoming trapped in the seal causing air to leak from the BC.

WARNING! Repeated improper use of the Oral Inflation/ Deflation mechanism or dump valves assemblies may allow water to enter the BC with a subsequent reduction in buoyancy. Reduced buoyancy can cause a loss of buoyancy control resulting in PERSONAL INJURY OR DEATH



Attaching Cylinders

There are a number of different ways to attach cylinders to OMS BCDs depending on the size of cylinder, number of cylinders and the type of harness being used.

Nylon Tank Bands

Single tanks are usually attached using nylon 'cam' buckles. The nylon strap weaves through a buckle that tightens the strap against the tank. It is important that the strap is correctly woven through the buckle otherwise there will be insufficient tension to securely hold the tank. Also, remember that the nylon stretches when wet so it is important to soak the nylon strap in water before tightening the cam band. The slots on the cam buckle are numbered to aid in threading the strap.



Attaching Cylinders (continued)

Single Tank Adaptor

The Single Tank Adaptor is a bracket that allows a single tank to be attached to an OMS harness system equipped with a metal back plate. This makes switching back and forth between double and single tanks easier and faster. It also provides a more stable mount for larger, heavier high capacity tanks.

The Single Tank Adaptor is installed by passing the bolts of the adaptor through the grommet holes of the BC then through the matching holes on the back plate. Be sure that the BC is oriented with the warning label against the diver's back.



Install the flat washer first (against the backplate or harness) then the split lock washer. Thread the wingnuts onto the bolts and tighten securely by hand. Next install two nylon cam bands through the slots on the Single Tank Adaptor. Weave the webbing of the tank band through the cam buckle using the weave outlined on page 34. Remember, all nylon webbing stretches when wet so be sure to soak the nylon tank bands in water before tightening.

Attaching Cylinders (continued)

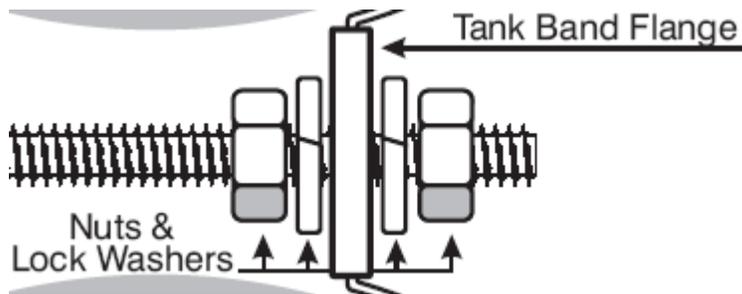
Attaching Dual Cylinders

Dual Cylinders are attached to OMS buoyancy systems using stainless steel bands bolted to a back plate. It is recommended that OMS bands are used because they are precisely sized for OMS manifolds. Slight differences in the distance between the cylinders and the width of the manifold can place dangerous physical stress across the manifold. Make sure that you have the bands properly sized for the cylinders you intend to use and the manifold you plan to use.

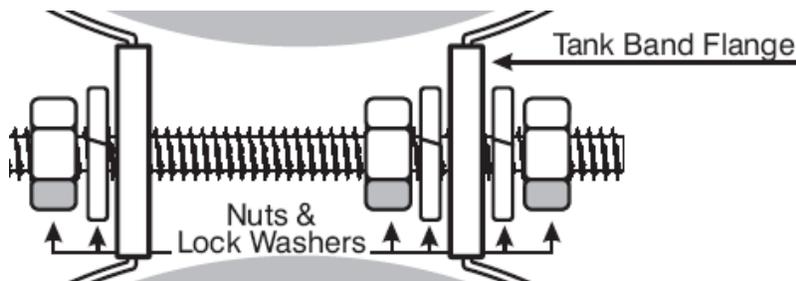
A stainless steel tank band kit should include:

- stainless steel bands
- threaded rods
- 2 wingnuts
- 2 flat washers
- 6 split lock washers
- 6 hex nuts

Insert the threaded rods halfway through the hole in the center of the tank band. Thread a hex nut and a split lock washer onto the threaded rod before it passes through the second hole in the band. As the rod passes out through the second hole you will have a hex nut and washer trapped in the band. Now thread another lock washer and hex nut onto the threaded rod so that the hex nuts can be tightened against each other sandwiching one wall of the band between the two lock washers. Tighten these together so that about an inch of the threaded rod projects past the hex nuts.



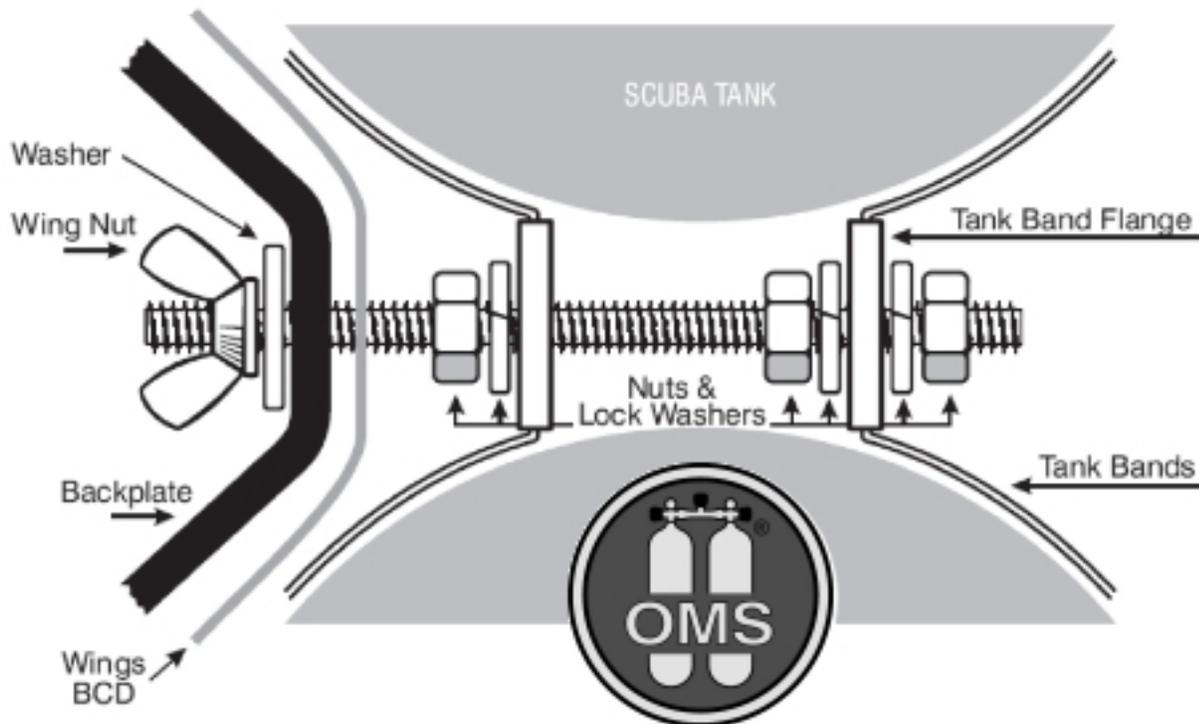
Next, place the tank bands over the cylinders and space them according to the placement of the holes on the BC and back plate. The bands are compressed against the cylinders by installing a lock washer and hex nut on the unsecured end of the threaded rod. This end of the threaded rod should project out further than the end that has been secured with the pairs of hex nuts and washers.



Attaching Cylinders (continued)

Attaching Dual Cylinders (continued)

Tighten the single hex nut so the bands compress around the cylinder. The bands should be tightened so there is no movement of the cylinders. It is important that the bands secure the cylinders and protect the manifold from physical stress. Next, the long end of the threaded rod goes through the grommets in the BC then through the back plate and is secured with a flat washer and wing nut. The BC is oriented with the warning label facing the diver's back.



You may have to adjust the position of the threaded rod so that the wing nut side doesn't touch the diver's back.



Installing Accessories

Integrated Weight Pocket Installation (part #BCA-IWP)

1. Secure the weight pocket by threading the waist strap of the harness through the first webbing loop sewn onto the back of the pocket. Be aware the loops for standard 2" webbing are located under the large loops for cummerbunds.
2. Install a 2" delrin slide onto the waist strap so the webbing passing over the middle bar is against the diver's body.
3. Thread the webbing through the second loop.



Installing Accessories *(continued)*

Compact Weight Pocket Installation (part #BCA-270)

The BCA-270 Compact Weight Pocket carries up to eight pounds in an inner pocket secured by a quick release buckle. It has a sewn-in slide keeper to thread onto the waist belt of a harness and a D-ring where the No-sag Strap can attach the pocket higher on the diver's harness for more support.



Thread the waist belt of the harness through the slide keeper on the pocket. Make sure they are positioned with the D-ring on top and the logo upright. When the pocket is in position on the waist belt, thread the waist band through the webbing loops on the back of the pocket.



Once the loaded pocket is inserted, snap the male and female quick release buckles together. Pull the webbing on the male quick release buckle tight to minimize shifting weights.



Operations

Pre-Dive Checks

- Check all fittings and connections for damaged components (cracks, tears, etc.)
- Inflate each BC until the dump valve vents, leave inflated for 30 minutes.
- On dual bladder models test each bladder separately (do not inflate both bladders at the same time)
- With the BC fully inflated check that pull dump cord or folds in the BC are not trapped by the retraction bands
- Check the security of weight systems before entering the water.
- After entry, inspect units for bubbles indicating leaks.
- Test pull dumps for smooth operation and positive seal.

Operations

- **WARNING :** Before using this buoyancy compensator (BC), you must receive instruction and 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.
- Inflate the BC with short controlled bursts of air by pressing the inflate button.
- The unit can be inflated orally through the oral inflator. Depress the deflate button completely and exhale into the oral inflator.
- On dual bladder models, the bladder against the diver's back is the primary bladder. Do not inflate both bladders at the same time. This could decrease the overall lift provided by the jacket.
- Deflate the jacket by pressing the deflate button on the inflator or by pulling a pull dump. Use proper descent techniques taught in scuba training.

WARNING! Repeated improper use of the Oral Inflation/ Deflation mechanism or dump valves assemblies may allow water to enter the BC with a subsequent reduction in buoyancy. Reduced buoyancy can cause a loss of buoyancy control resulting in PERSONAL INJURY OR DEATH

Post-Dive Checks

- Connect the inflator to an air supply to pressurize the inflator mechanism then use a garden hose to direct fresh water into the oral inflator while pressing the deflate button.
- Partially inflate the unit and allow the water to wash around the interior of the bladder. Drain completely and store partially inflated away from temperature extremes and direct sunlight.
- Do not attempt to service a malfunctioning piece of equipment. Take it to an authorized OMS dealer for repair.



WARRANTY

WARRANTY AND LIMITATION OF LIABILITY

1. OMS® warrants to the purchaser that goods sold by OMS® to the purchaser will be free from manufacturing defects in materials and workmanship for a period of ninety (90) days after the date of purchase from an authorized OMS® dealer.
2. EXCEPT AS EXPRESSLY SET FORTH IN SECTION 1 "WARRANTY AND LIMITATION OF LIABILITY", COMPANY MAKES NO WARRANTIES TO THE PURCHASER, WRITTEN OR ORAL, EXPRESS, IMPLIED OR STATUTORY, IN ANY MANNER OR FORM WHATSOEVER INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE, WHICH ARE HEREBY EXPRESSLY DISCLAIMED.
3. The warranty does not apply to goods that have been subject to abuse, misuse, neglect, improper installation or alteration after delivery to the carrier for shipment to the purchaser. At OMS'® request, the purchaser shall return goods to OMS® at its Middletown, NY, office for verification that the warranty set forth in these terms and conditions as limited by this paragraph is applicable. Any such returns are subject to the provisions in the RETURN POLICY Section.
4. In the event OMS® determines that the warranty set forth above in #1 of this Section are limited by #3 in this Section is applicable to any goods, OMS® shall, as the purchaser's sole remedy, replace, repair or at OMS'® sole discretion, issue to the purchaser a credit for an amount not to exceed the original purchase price paid by the purchaser for the affected goods. OMS® shall have no liability with respect to warranty claims made by the purchaser more than ninety (90) days after OMS'® sale of the goods involved to the purchaser. In no event shall OMS® be liable to the purchaser for a special, incidental or consequential damages. OMS® shall have no liability to the purchaser for any delay or failure in carrying out its obligation to the purchaser for reasons beyond OMS'® control, including without limitation, acts of God, war, natural disasters, labor disputes, changes in or compliance with laws, regulations or governmental policies and shortages of supplies and services. OMS® may extend delivery until any such cause of delay has been removed, or at its option, cancel the undelivered portion of any order so affected without liability to the purchaser; except for the return of any payment made by the purchaser to OMS® with respect to any undelivered portion of the order so canceled.

