OMS® BC Service Manual

Introduction

The internal bladders used in OMS® buoyancy systems are designed to be completely replaceable. The threaded fittings for the inflator airways and dump valves are standardized and serviceable. The internal bladders can be replaced if the become punctured or compromised in any way.

⚠**WARNING**: All OMS Buoyancy Compensators must be serviced on an annual basis. Failure to have your BC serviced on an annual basis and replace worn or broken parts can result in component failure, loss of buoyancy leading to injury or death.

OMS® outer bags are made from 1000 denier Cordura bag backed with 5 oz. of urethane. There is an inner bladder made from either of clear virgin urethane or black 200 denier Nylon back with .12 mm of TPU. Airways and dump valves connect to the inner bladder by a two part fitting system that sandwiches the inner bladder, bag and a double gasket.

Disassembly and Removal of OMS® Internal Bladders

The proper servicing of OMS® BCD's will require the use of a special two part tool. The BC Disassembly Tool is available from OMS® as part# BCA-TOOL.

⚠**WARNING**: Attempting to service OMS® Buoyancy systems without the proper tools and/or training can cause damage to critical parts and sealing surfaces leading to loss of buoyancy and resulting in injury or death.

1. Using the hook end of the BC tool as a spanner, remove inflator mechanisms by unthreading the collar attaching the inflator to the outer bag. The same method is used for removing dump valves.

Disassembly and Removal of OMS® Internal Bladders (Continued)

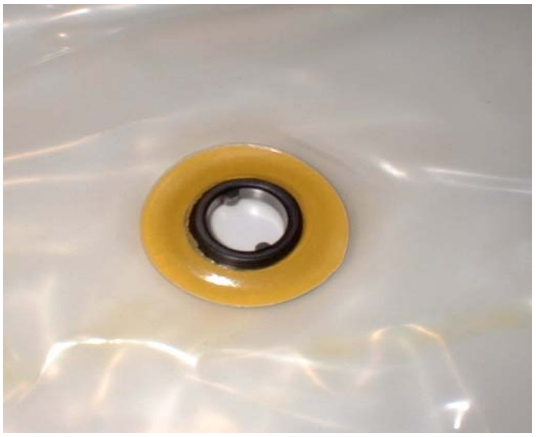
2. With the inflator mechanism removed you will see a twelve sided surface inside the fitting. Mate the surfaces with the similarly shaped end of the BC tool. This holds the outer female fitting (inner coupling Part number BCA 502). Through the hole in the BC tool you will see two projections that are part of the internal male fitting (Seal Ring part no. BCA 500). The second component of the BC tool has two notches to mate with the inner fitting (BCA 500) and hold it still while you rotate the outer fitting(BCA 502) counter-clockwise.

3. With the outer female fitting removed, the inner male fitting (Seal Ring part no. BCA 500) can be gently pushed back into the bladder exposing the double gasket.

Disassembly and Removal of OMS® Internal Bladders (Continued)

4. Once all inflators and dump valves are removed the internal bladder should be free to separate from the bag. Unzip the bag and gently remove the old inner bladder.

5. Remove the internal male fitting (Seal Ring part number BCA 500) from the old inner bladder by folding the bladder material along the diameter of the opening in the bladder. Use the same technique to gently insert the internal male fitting (Seal Ring part number BCA 500) into the new inner bladder. Be extremely careful not to damage the opening to the bladder as it is a critical sealing surface. Insert all internal fitting for inflators and dump valves before installing the inner bladder into the bag.



Assembly of OMS® Internal Bladders and Parts

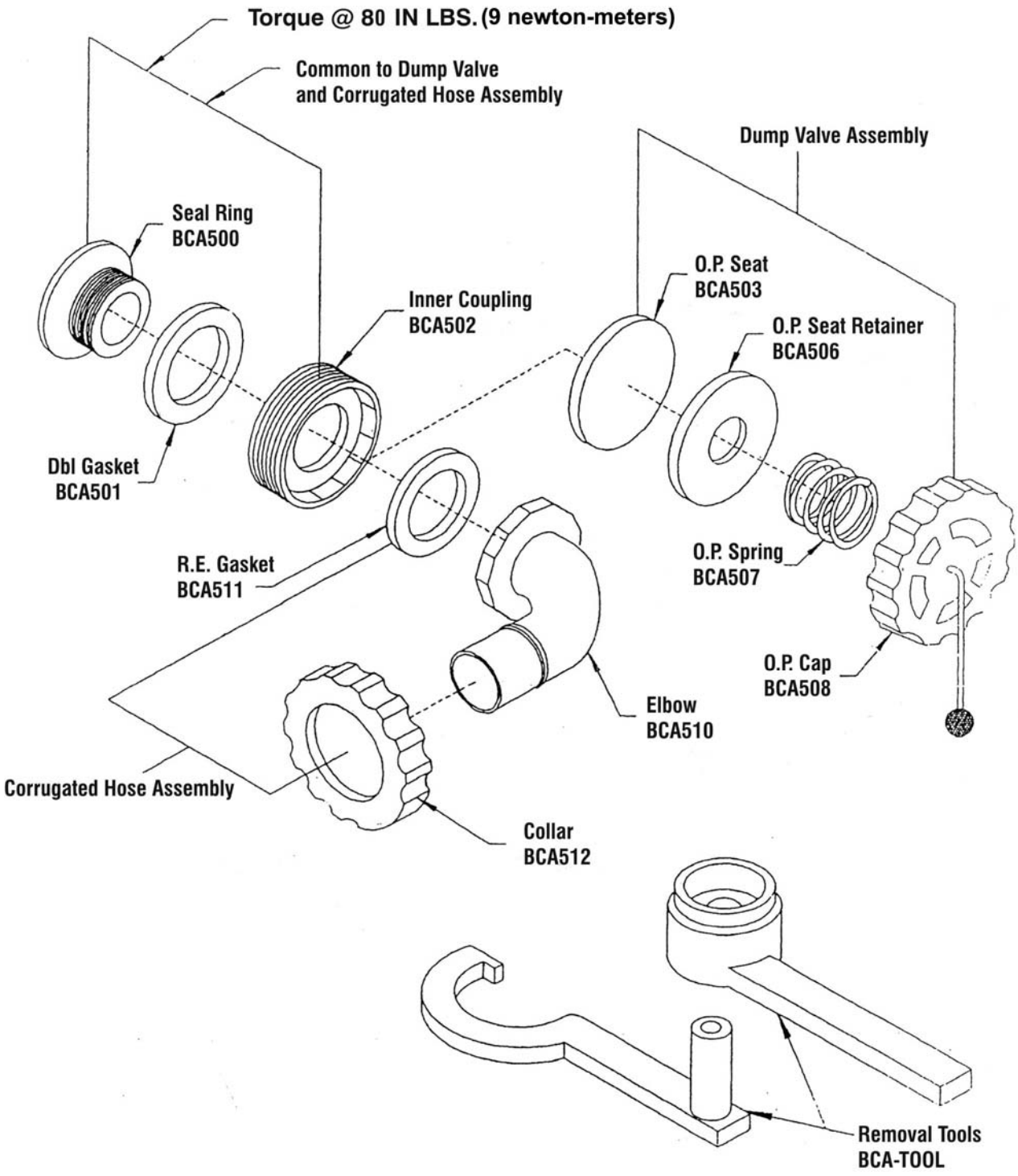
6. Install the inner bladder into the bag. When passing the inner bladder through narrow passages in the bag, gently fold the inner bladder 'accordion' style so that it will unfold flat once inside. Make sure that there are no twists in the bladder or folds upon itself. Also check that the orientation of the openings in the inner bladder match up with the openings of the bag. Once the inner bladder is completely inside the bag you can shift the internal male fitting (Seal Ring part no. BCA 500) around so that it comes out through the opening and use it to align the openings in both bladders.

7. Once the inner bladder is in place, move the internal male fitting (Seal Ring part no. BCA 500) back inside the inner bladder so the double gasket can be installed. Examine the double gasket for tears of flaws before installation. When completely installed one wide flange of the double gasket will be on the inside of the inner bladder and the other wide flange will be outside the bag. Generally, the easiest way to install the double gasket is to install it on the inner bladder first. Once the openings in the inner bladder and outer bag are aligned, then gently work the outer flange of the double gasket out through the opening in the bag.

Assembly of OMS® Internal Bladders and Parts

8. Shift the internal male fitting (Seal Ring part no. BCA 500) inside the bladder so the male threaded end comes up through the double gasket. It is very important that the layers of the inner bladder, gasket flanges and bag are compressed evenly with no folds in the material. Make sure that all layers lay flat before proceeding. While holding the bladder material flat, thread the female external fitting (Inner Coupling BCA 502) onto the exposed male internal fitting (Seal Ring part no. BCA 500).

Use the BC tool to tighten the internal male fitting (Seal Ring part no. BCA 500) against the external female fitting (Inner Coupling (BCA 502) in the same way the tool was used to remove the fittings. Tighten the fitting until they are wrench tight: 80 in-lb. (9 Newton-Meters) and compress the layers of the bladders and gasket. Once these fittings are tight then reinstall dump valves and inflator mechanisms. Remember, there is a heavy rubber gasket that seals the elbow of the inflator mechanism to the bladder fittings. Examine the gasket for cracks or deformations that could prevent an airtight seal. Replace the gasket if necessary.



BC CORRUGATED HOSE AND DUMP VALVE ASSEMBLYS

FIG. 11

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Assembly of OMS® Internal Bladders and Parts

Once the inflators and dump valves are installed add enough air to slightly inflate the inner bladder. Reach into the zippered opening of the bag make sure the inner bladder lays flat with no twists or folds. Add more air so the inner bladder pushes gently against the inside of the bag while continuing to monitor the inner bladder for problems.

9. Zip the bag closed being careful not to catch the inner bladder in the zipper teeth. Inflate the bladder fully using short bursts of air paying attention to any potential problems with the location of the inner bladder. Continue to inflate the bladder until the dump valve vents.

10. Allow the bladder to sit for 6 hours. If after 6 hours the bladder has lost air, immerse the bladder in water to check for leaks

OMS LLC
P.O. Box 146
Montgomery, New York 12540
www.omsdive.com
info@omsdive.com
845 457 1501