BOV

MANUAL

Purpose

Divesoft BOV is used to switch between closed circuit and open circuit on closed-circuit diving devices – rebreathers. Divesoft BOV comes with connectors for selected types of rebreathesr. **BOV can only be used with listed rebreather types.** For use on another rebreather, the appropriate connectors must be purchased. For use on other rebreathers, please contact DIVESOFT customer support at support@divesoft.com.

Installation

Before installation, make sure that the directional valves are aligned with the gas flow in your unit. Possible reversed gas flow can cause serious injury or death!

Before installing the BOV with integrated MAVs, check the location of the diluent and oxygen hoses on your rebreather. When the gas flows from left to right (from a diver point of view), Oxygen must be connected to the right MAV and the diluent to the left, while the gas flow from right to left must be connected to the left MAV and the diluent to the right. Inverted connection can cause serious injury or death.

Check that the directional valves are not visibly damaged and attach the appropriate connections to the BOV. In the case of integrated MAVs, set the MAV position towards the front of the BOV so that it is pointing downwards (the closest possible position for the connection of the middle pressure connection of the 2nd stage and the adjustment screw). You get an ergonomic position for controlling manual valves.

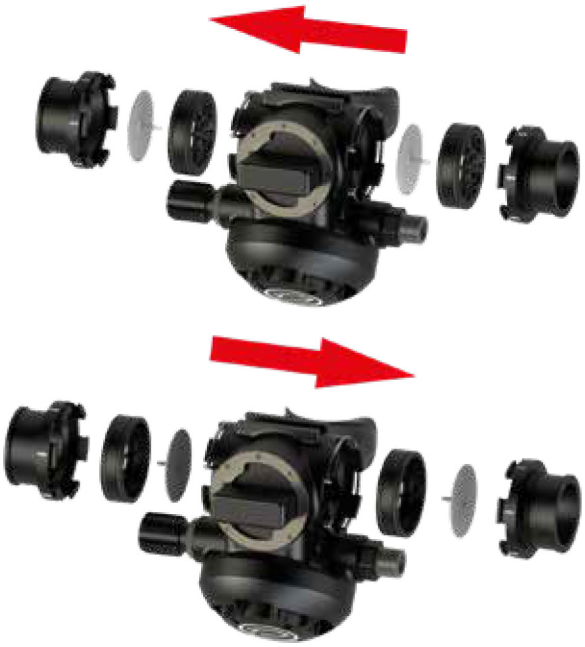
Secure the connections with retaining rings. **The retaining rings must be securely sitting along the entire length of the groove.**

Attach the breathing hose and adjust the position so that when the BOV is mounted on the rebreather, the mouthpiece will point towards the mouth. When used on Liberty, this position is perpendicular to the T-piece.

Install and fasten the tightening rings with screws. Take special care to ensure that the end of the hose is still evenly strapped over the neck of the connector and that there aren't any wrinkles on the hose. This would result in leakage into the breathing hose.

Connect the medium pressure hose to the 2nd stage of the regulator.

Left-to-right flow direction



Right-to-right flow direction

Usage

Perform a seal test of the directional valves. Before diving with the BOV familiarize yourself with the different BOV positions and its usage. Before every dive perform a loop check. If it is not possible to test the tightness of the loop and the valves, do not start a dive. A non tight loop or directional valves can result in serious injury or death.

IBOV lever positions

vertical position = OC
horizontal position = CCR

BOV with ADV positions

Vertical position independent of button position = OC Horizontal position with th button to the right (from a diver viewpoint) = CCR + ADV

Horizontal position with the button to the left = CCR (ADV isolated).

OC position

When the rotary lever is in the vertical position. The BOV acts as a 2nd stage pulmonary regulator. At the same time, flow to the rebreather is closed so that the water is prevented from entering the loop. Always keep your BOV in the OC position, **if the mouthpiece is out of the diver's mouth to prevent flooding of the rebreather.** Flooding the rebreather during a dive can cause serious injury or death.

Pay attention to the breathability of the mixture. **Breating a hypoxic mixtures at a shallow depth or on the surface from an open circuit can cause loss of consciousness, drowning and death. Always be sure that the gas flowing to the BOV 2nd stage is breathable at a given depth!**

When the BOV is connected to a diluent cylinder, in most cases, the supply of respiratory gas for the open circuit is inadequate. It is always necessary to have a backup gas source (a spare bottle with sufficient amount of gas). Keep in mind that in the event of a malfunction you have only a few seconds to switch to the secondary gas source. Keep the backup system permanently on standby.

If you use the same off-board cylinder for bailout and as, for example a gas source for dry suit volume compensation and buoyancy compensation, make sure that the gas supply to the open circuit is sufficient even with the expected expenditure.

BOV can not be used to share gas with a dive partner. Always have a second stage available for a sufficient gas supply in case of emergency.

Only connect quick couplings to the gas intake of the second stage. **The couplings must have sufficient maximum flow rates for respiration even at higher gas densities.**

CCR position

When the rotary lever is in the horizontal position it connects the breathing hoses of the rebreather. In this position, the 2nd stage addition is excluded. In the CCR position, the mouthpiece is connected to the rest of the loop, so **it is important to prevent water from entering the mouthpiece as it would cause the rebreather to flood**.

CCR + ADV position

If BOV is equipped with built-in ADV, BOV has one extra switching position. The vertical position is always an open circuit regardless of whether the button is up or down. Pressing the button allows you to switch between the two horizontal positions.

MAV

Manual add valves placed on the BOV are a great, ergonomic solution. To control them, hold your thumb against the middle-pressure or regulation screw and press the lever with your pointer finger.

MAV diluent flow rate 4.5 L / s
(measured with air, with the first stage: Apeks DST)

MAV oxygen flow rate 1 L / s
which indicatively corresponds to a 0.1 bar partial pressure increase of oxygen per second (depending on the type of CCR used) (measured with the first stage: Apeks DST). In case your BOV is equipped with Single Hose Adapter, **DO NOT use wrench to tighten it. Finger tight is enough in this case**. SHA does not screw all the way in on the lower (2nd stage) thread, few screw threads will be always visible. Overtightening will cause the BOV and MAV to warp which leads to water/ gas leaks and damage to the unit itself.

Maintenance

Basic maintenance
BOV should be kept clean. After each dive, plug all medium pressure inlets and your rinse BOV including the inside of the BOV with clean freshwater at all switch valve positions. Allow water to drain and dry in a shady, ventilated place.

Lubrication

Only use Krytox GPL 201 lubricant to lubricate O-rings on the iBOV. Under no circumstances should silicone based lubricants be used! Silicone lubricants can rupture directional valves and cause leakage. This can cause serious injury or death!

When lubricants other than Krytox GPL 201 are used, the sliding valve is not guaranteed to move correctly and in some cases the valve may become jammed.

Replacing directional valve diaphragms

If you find that the valves leak during the directional valve test, check that they are not blocked by debris or that they are not damaged. If they are damaged or you are not sure what the leakage is caused by, replace the directional valve diaphragms. During replacement, avoid contamination of the directional valve diaphragms. Only handle the diaphragms at the tip of the silicone mandrel. Insert the mandrel into the centre opening of the directional valve basket. **The diaphragm must be on the inner side of the basket.** Gently pull the thorn to lock the mandrel in the cup opening. When returning the basket to the BOV, check the position of the diaphragms in relation to the direction of flow. After installation, test the directional valves.

Adjustment of the inspiration resistance of the ADV

Breathing resistance can be adjusted by gently screwing the screw on the ADV valve. Insert a flat screwdriver into the mouthpiece opening, the screw is located on the opposite wall. Loosen or tighten the resistance adjustment screw. Turn to the right to increase the inspiratory resistance, turning to the left to reduce the inspiratory resistance. Turn the screw in small sections and always retest the resistance. Even little intervention can have a great effect on the inspiratory resistance. The factory setting of the resistance is 38 mbar +/- 2 mbar

Replacement of MAV levers

Unscrew the safety rings on the connections and remove the connectors. Unscew the cap of the lever with a # 1 Philips screwdriver. Remove the old lever whilst holding down the spring. Install the new lever and insert the spring into the grooves in the MAV body and the lever. Place the lid on and secure it in place

Periodic service

BOV must be serviced annually by an authorized Divesoft Service Center. For information on service locations, please visit www.divesoft.com.

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