

# One Way Valve

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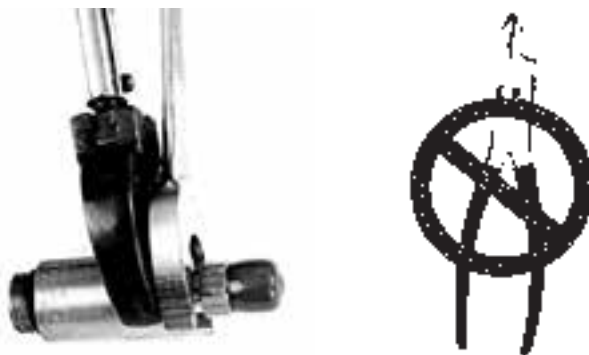
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### 1.1 One Way Valve

**NOTE:** The one-way valve assembly should be disassembled, cleaned and the three O-rings should be replaced at least annually. Damaged and/or corroded parts should be replaced. A repair kit is available for replacement parts, KMDSI Part #525-330.

**⚠ CAUTION**

**Do not use pliers on the main body of the one way valve. You may damage the valve if pliers are used.**



*Do not use pliers on the main body of the one way valve*

#### 1.1.1 Disassembly Of The One Way Valve

**Tools Required:**

- Soft Jaw Vise
- 1" Open End Wrench Attachment on Torque Wrench  
*(If no vise is available use a backup 1 inch open end wrench)*

To disassemble and inspect the one way valve assembly:

- 1) The one way valve assembly must be removed from the side block. Use the open end wrench to remove it.
- 2) After the one way valve has been removed, use two wrenches or hold the hex part of the body in a soft jaw vise while removing the seat with a wrench.

**⚠ CAUTION**

**Use two wrenches or hold the hex part of the body in a vise while removing or turning the seat with a wrench. Do not use pliers on the main body of the one-way valve. You may damage the valve if pliers are used.**

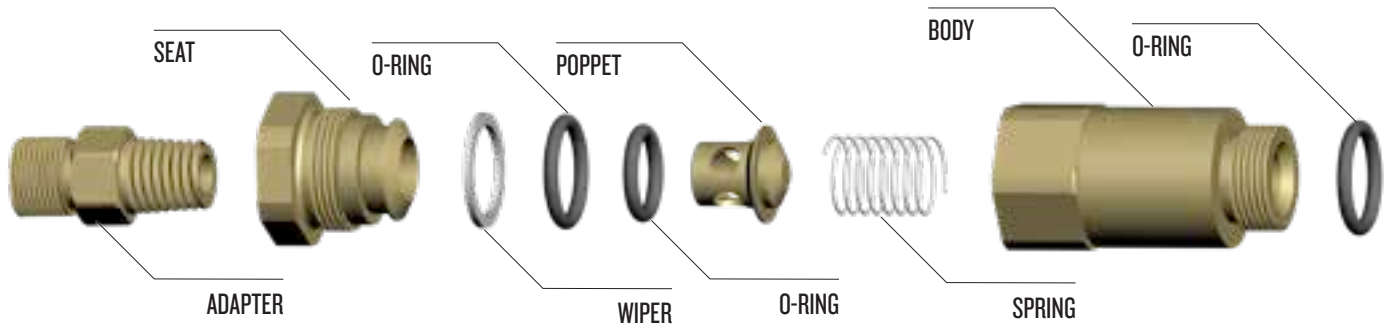
As the seat is removed, the wiper and the O-ring slide out in place in a groove on the seat. The poppet and the poppet O-ring usually come out in the seat being followed by the spring.

The only functional part remaining in the valve body is a non-moving, pressed-in cage. The function of the cage is to contain the poppet during high gas flows.

**⚠ WARNING**

**Do not attempt to move or remove the cage that sits inside the non-return (one-way) valve. Any attempt to remove this part can cause the non-return valve to fail, which can lead to serious personal injury or death.**

- 3) Inspect the body interior for foreign matter of



*Correct assembly order of the one way valve.*

any type and clean, if necessary. Clean in accordance with the KMDSI cleaning instructions. If corrosion is present, clean using the acidic solution as outlined in the KMDSI cleaning procedures.

4) Inspect the seat, wiper, O-ring, poppet O-ring and poppet for wear, replace if necessary. Note: If removing or replacing the wiper, be certain to note whether it is located on the seat. Be sure each part is clean and all components are lightly lubricated with the appropriate lubricant.

A repair kit is available for replacement parts, (Part #525-330). This one-way valve kit is also included in all the standard helmet and BandMask soft goods kits. All O-rings should be replaced during normal/annual overhauls.

5) Be careful to wipe the poppet and poppet O-ring thoroughly, removing nearly all silicone to prevent foreign materials from sticking to these components.

6) Replace the spring.

### 1.1.2 Reassembly of the One Way Valve

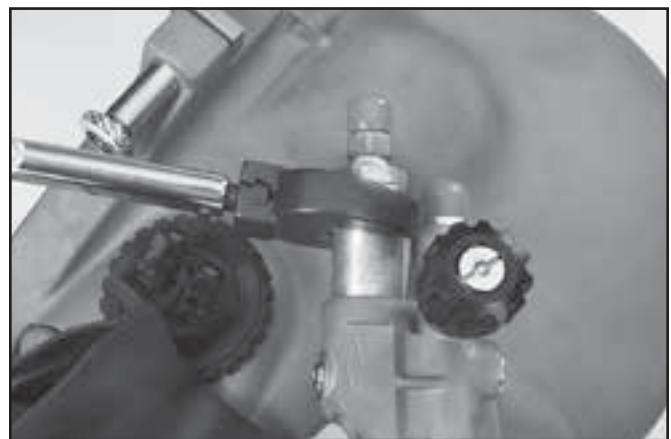
1) Slide the new O-ring over the poppet.

2) Insert the new spring into the valve body, followed by the poppet.

Note the position of the wiper.

3) Next, install the new wiper and new O-ring on the seat. Thread the seat into the valve body.

4) Torque the seat with a torque wrench while holding the body in a soft jaw vise or wrench. See Appendix Contents, Torque Specs on page APNDX-19 .



*Torque the one-way valve (non-return) into the sideblock with a torque wrench. See Appendix Contents, Torque Specs on page APNDX-19.*

5) If the adapter has been removed, it must be cleaned and wrapped with Teflon® tape before re-installing.

### **⚠ WARNING**

**Do not allow any Teflon® tape to cover the end of the adapter, or to enter the one-way valve. Loose pieces of Teflon® tape can interfere with the performance of the one-way valve or the regulator and may block the diver's air supply. This could lead to death through suffocation.**

### 1.1.3 One Way Valve Check

#### ⚠ WARNING

**Never dive if the one way valve is not operating properly. If the hose for breathing gas or air fitting breaks while operating underwater a serious injury could result to the diver's lungs and/or eyes. In extreme cases this could be fatal.**

The one way valve must be tested daily prior to the commencement of diving operations.

There are two methods for testing the one way valve.

- 1) Orally
- 2) Using regulated low pressure.

#### ⚠ WARNING

**The one way valve must be tested daily, prior to commencement of diving operations. Failure of the one way valve could cause serious injury or death.**

Either the emergency or the free flow valve must be open when performing the test.

#### 1.1.3.1 Oral One Way Valve Check

1) Test the one way valve for proper operation by blowing and sucking (cycling) on the umbilical adaptor. No gas should be drawn through the one way valve. If you are able to suck any air through the one way valve, it is not working properly and **should not be used**.



#### 1.1.3.2 Low Pressure One Way Valve Check

- 1) Close the emergency and defogger control knobs and screw in the adjustment knob on the regulator all the way.
- 2) Attach a regulated gas supply (normally using the EGS system), adjusted to between 135–150 psig (9.3–10.3 bar), to the emergency valve.
- 3) Open the emergency supply valve all the way and then slowly open the gas supply.
- 4) Check for gas exiting from the one way valve. There should be no gas exiting the umbilical adaptor. If any gas exits through the one way valve it is not working properly and **should not be used**.



*Checking the one way valve. With the bail-out bottle connected to the emergency valve, no gas should escape through the one-way valve when the EGS valve and cylinder valve are opened.*