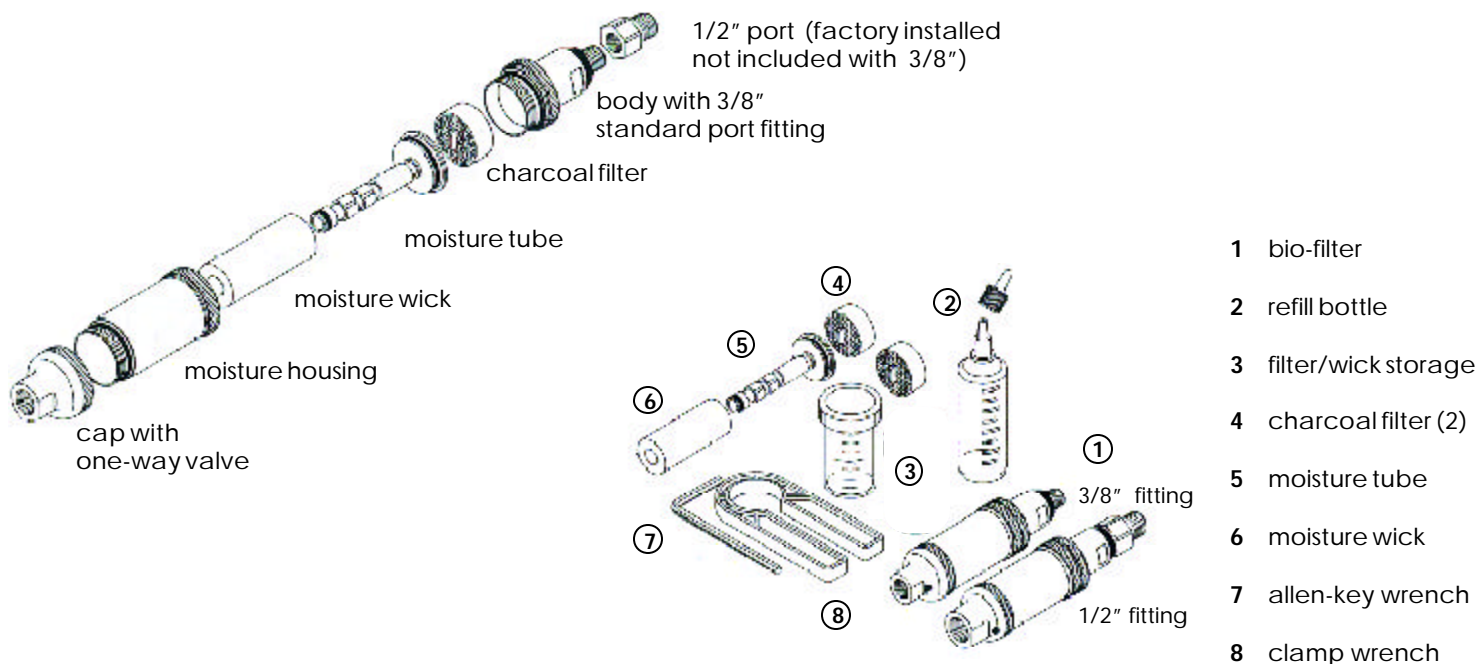


# bio-filter

## ELECTROSTATIC FILTER AND HUMIDIFIER

### Apollo's clean air and moisture system for any regulator



## Introduction

Congratulations on your purchase of the bio-filter air filtration and humidity system. Please read and obey all instructions for use and care of this product. The bio-filter system filters dust, odors, and impurities from diving cylinder air to ensure a healthy air supply. It increases humidity by up to 70% to ensure a more natural air supply. This instruction manual was prepared for those who have obtained a C-card. Store this manual in a safe place, even after reading.

- Read both sides of this instructional insert until you understand the contents completely.
- This regulator accessory is designed strictly for scuba diving use. Do not use for any other purpose.
- Do not use this product if you have not obtained a C-card (attesting to completion of training) from an internationally recognized training agency.

Items with the following headings describe scuba diving techniques and how to handle diving equipment. These sections must be completely understood. Read thoroughly before attempting to use this product.

- ⚠ **DANGER** Indicates an imminently hazardous situation which, if not avoided will result in death or serious injury.
- ⚠ **WARNING** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
- ⚠ **CAUTION** Indicates a potentially hazardous situation in which, if not avoided, may result in minor or moderate injury. It may also be used to alert against any unsafe practices.

- ⚠ **DANGER** Do not use the bio-filter at temperatures at or below 32 degrees Fahrenheit (0 centigrade). Temperatures in this range could cause your regulator to freeze. This could cause the regulator to free flow leading to rapid loss of air.
- ⚠ **WARNING** The bio-filter is only for recreational air diving use to depths not in excess of 130' seawater / 40 meters. Remove the charcoal filter for diving in excess of 130 feet. The system is not for use with nitrox above EAN level 40. Do not use any other mixed gas.
- ⚠ **CAUTION** Bio-filter should never be assembled without moisture housing and tube in place. Omitting these essential components will create leaks and damage internal elements. When you wish to use charcoal filter alone assemble with all parts except moisture wick.
- ⚠ **CAUTION** Only use clean uncontaminated water; preferably distilled to wet the moisture wick. Use of other liquid is not advised as it may cause contamination, damage, and possibly render the bio-filter ineffective.

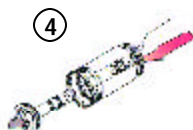
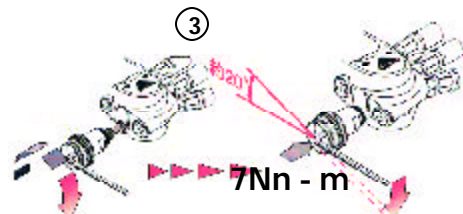
# Installation

The bio-filter may not fit all brands. Always confirm that you have purchased the correct fitting size for your regulator system. The bio-filter air filtration and humidity system is designed for installation in the first stage of your regulator. Do not attempt attachment direct to tank. You will need to remove (unscrew) the hose from your primary second stage at the point it attaches to first stage. Always check o-rings on body and port screws for damage. O-rings should be smooth and free of tears or fraying.

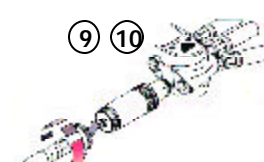
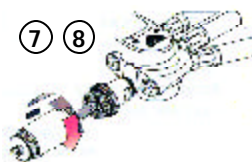
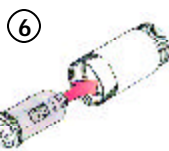
**!** CAUTION Threads of body and port screw may be sharp. Take care when handling to avoid injury.

- 1 Grasp housing and turn cap in a counter clockwise direction until the se sections are separated
- 2 Turn the housing in a counter clockwise direction and until it is separated from the body
- 3 Install body of bio-filter into the primary first stage port of your regulator. Screw in by hand. Once body is installed; insert the allen key and rotate 20° to tighten. Do not overtighten.
- 4 Push the moisture tube from cap side to remove from housing
- 5 Slide a moisture wick (wet) onto the tube
- 6 Slide the tube with wick into housing as indicated
- 7 Place charcoal filter in body with tab side out
- 8 Connect housing to the body
- 9 Connect your regulator hose to the bio-filter cap with wrench. Do not overtighten.
- 10 Connect the cap with hose installed to the housing. Tighten securely by hand.

For best results ask your local shop to install the body and attach hose to cap. The screw torque should be **7 n/m** (Newton Meters)



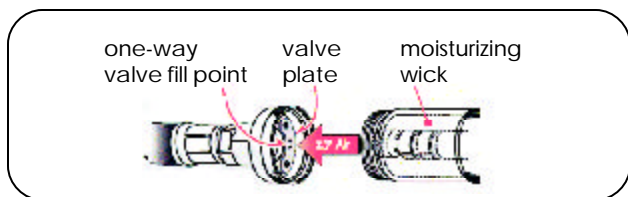
Submerge the moisture pad in clean bottled water (distilled works best). Manipulate to ensure entire wick is saturated and pliable. Lightly squeeze to remove excess water and slide onto the moisture tube until the o-ring at edge of tube is visible.



**!** DANGER Always confirm your breathing system is securely assembled and performing normally prior to entering water.

**!** CAUTION To avoid rust on metal parts and to improve hose life; do not use a hose protector.

## One-way valve (patent pending)



**!** CAUTION Internal pressure is required to seal the valve plate and protect bio-filter from outside elements. Do not submerge bio-filter unless it is under pressure.

**!** CAUTION Do not pull on the plate or detach it from bio-filter by force. Doing so will likely cause poor seal and possible leakage.

**!** CAUTION Bio-filter should never be assembled without moisture housing and tube in place.



**Fill bottle with unit marks and special tip** Typically the bio-filter will require 1.5 units of water before each dive. Replace bottle if tip is damaged or deformed. NOTE Some previous model bio-filters included a different bottle type (no fill tip or scale). Do not attempt to use an older model bottle with the one-way valve fill system.

**Refill with one-way valve** between dives. It is no longer necessary to detach the cap for refill of wick between dives. Always detach the first stage from tank prior to adding water. Insert nozzle of fill bottle into valve opening. Special tip will automatically open valve and allow filling. Each Mark is a unit. Use 1.5 - 2.5 units per refill.

## General use and care



**WARNING** Avoid placing items on your system or allowing any sudden heavy pressure. When breathing system is connected to a tank, take care not to knock over the tank, use system as a handle to pick up tank, or in any other way handle by holding the system. After a day of diving.



**Avoid salt build-up on exterior housing** Remove regulator from tank, unscrew housing from body, remove wick and filter, and lightly rinse exterior housing and threads to remove any salt. Take care not to run water directly into port. Failure to remove all traces of salt may cause metal parts to rust. Never clean with gasoline, paint thinner, alcohol, detergent or other organic solutions. Doing so could cause the luster to fade, resulting in cracks or even warping the shape of product. See below for suggested o-ring maintenance and annual overhaul.

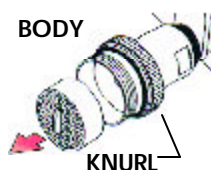


**Moisture Wick** Wick should be removed daily and allowed to dry after each day of diving. Separate housing (unscrew) from body and cap. Push tube with wick out from cap side to remove from housing. Remove the moisture wick from tube and rinse with fresh water. Let wick dry in a shaded area with good ventilation. Do not leave in direct sunlight or in an area where temperature is very high for long periods of time. DO NOT STORE wick in housing or storage container when wet. Failure to dry wick thoroughly will cause molding to occur. When wick becomes dirty or moldy it should be replaced. Do not use a wick in this condition.

## Replacing Charcoal filter

A well cared for bio-filter should be easy to open with a firm grip. However, the clamp wrench is helpful for disassembly when housing and body are difficult to separate (unscrew).

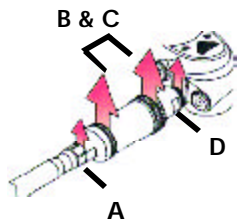
- 1 Regulator should NOT be attached to tank. Position hose between prongs of clamp wrench.
- 2 Slide wrench up over housing and position around knurl (serrated edge) of body.
- 3 Grip the clamp wrench firmly and turn housing counter clockwise until it is separated from body.



### Charcoal Filter

Replace charcoal filter every 50 dives or earlier if the electrostatic filter becomes discolored.

## Maintenance



O-rings indicated in diagram should be checked prior to each use.

**A & D** Check presence and integrity. Replace if experiencing leak from either area.

**B & C** Lubricate and replace as needed. These o-rings should also be checked for presence and integrity anytime the housing is removed or if experiencing a leak from either of the areas indicated.

### See page four

for complete schematics and various o-ring kits available.

3/8 fitting

**A** not included - generally requires same size as D

**B** arp-023 (399-35-92-023)

**C** arp-023 (399-35-92-023)

**D** arp-011 (399-35-92-011)

1/2" fitting

**A** not included - generally requires same size as D

**B** arp-023 (399-35-92-023)

**C** arp-023 (399-35-92-023)

**D** arp-013 (399-35-92-013)

**A** is not part of the bio-filter system. It is an o-ring found on the port screw of your second stage hose.

## O-ring maintenance and recommended annual overhaul

Many o-rings are used in a regulator. Proper maintenance of o-rings is vital to an airtight well performing system. You may need to remove o-ring for lubrication, cleaning or replacement. Threads (where o-ring sits) may be sharp. Take care with hands to avoid injury.

An o-ring cannot function properly when scratches, fraying, sand, dust, and other foreign matter are present. In order to protect o-ring and threads; do not use a screwdriver or any other sharp instrument for checking, placement, or removal. Proper o-ring lubrication is required to prevent surface deterioration. Be sure to use silicone lubricant. Spread lightly on o-ring so the surface shines. Wipe off any excess lubricant.

O-rings B-D along with two additional o-rings for internal portion of housing are available as a service kit.

The body of a bio-filter contains three o-rings. This area requires a higher degree of regulator maintenance knowledge. We strongly recommend you ask your regulator service technician to check and replace these o-rings during your annual regulator overhaul. See page four for kits and schematics.

This is a third generation product. Some details may not apply to older models.

generation product. Some details may differ from older models.

damper  
cover  
ball

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
101  
102

damper in order access and properly exchange the blue o-ring (#14). The stem of #15 is held in cover by damper #12. Submerge cover section in hot (not boiling) water for easier removal of damper.

3.01

Part number	Description
1	Cap
2	O-ring
3	Body
4	Stem
5	Stem
6	Stem
7	Stem
8	Stem
9	Cap
10	O-ring
11	O-ring
12	Cap
13	O-ring
14	O-ring
15	Stem
16	O-ring
17	O-ring
101	O-ring
102	O-ring

Key	Part number	Description
1	Cap	
2	O-ring	
3	Body	
4	Stem	
5	Stem	
6	Stem	
7	Stem	
8	Stem	
9	Cap	
10	O-ring	
11	O-ring	
12	Cap	
13	O-ring	
14	O-ring	
15	Stem	
16	O-ring	
17	O-ring	
101	O-ring	
102	O-ring	

Key	Part number	Description	Key	Part number	Description
1a	2120200100	CAP W/ WATER FILLING PORT S.GD:3/8	11	3993592011	O-RING ARP-011/HS75
1b	2120200110	CAP W/ WATER FILLING PORT S.GD:1/2	12	3123080001	DAMPER (04)
2	3993592023	O-RING ARP-023.HS75	13	3120200016	COVER: MBCR-3 C3601B FOR BF
3	3120200023	HUMIDIFIER TUBE: TEXTURED ALUMINUM FOR BF	14	3993393517	O-RING S-16/HS50 <a href="#">BLUE</a>
4	3102080069	MOISTURIZER TUBE BF, A-107, & 110	15	3120200015	BALL: MBCR-3 C6783B FOR BF
5	1120200003	MOISTURE WICK BF, A-105, 107, & 110	16	3120200018	BALL RECEIVER: WT POM FOR BF
6	3993092004	O-RING P-7	17	3993393518	O-RING S-18/HS70
7	3993592020	O-RING ARP-020/HS75	101	1129800013	ADAPTER FOR BF
8	1120280004	MESH CHARCOAL FILTER BF, A-107, & 110	102	3993592013	O-RING ARP-013/HS75
9	3993592023	O-RING ARP-023/HS75	Parts Key # 101 and 102 are required for 1/2" fitting only		
10	3120200026	CONNECTOR TUBE (04)			

Parts Key # 101 and 102 are required for 1/2" fitting only

112-03-00-001 Refill kit (one wick & three charcoal filters)  
BFT-OR-10-038 Bio-filter 3/8 kit (user serviceable o-rings key #2, 6, 7, 9, and 10)  
BFT-OR-10-012 Bio-filter 1/2 service kit (user serviceable o-rings key #2, 6, 7, 9, and 102)

**! CAUTION** Before using under special conditions and environments, inquire with your Apollo retailer or Apollo Sports USA.