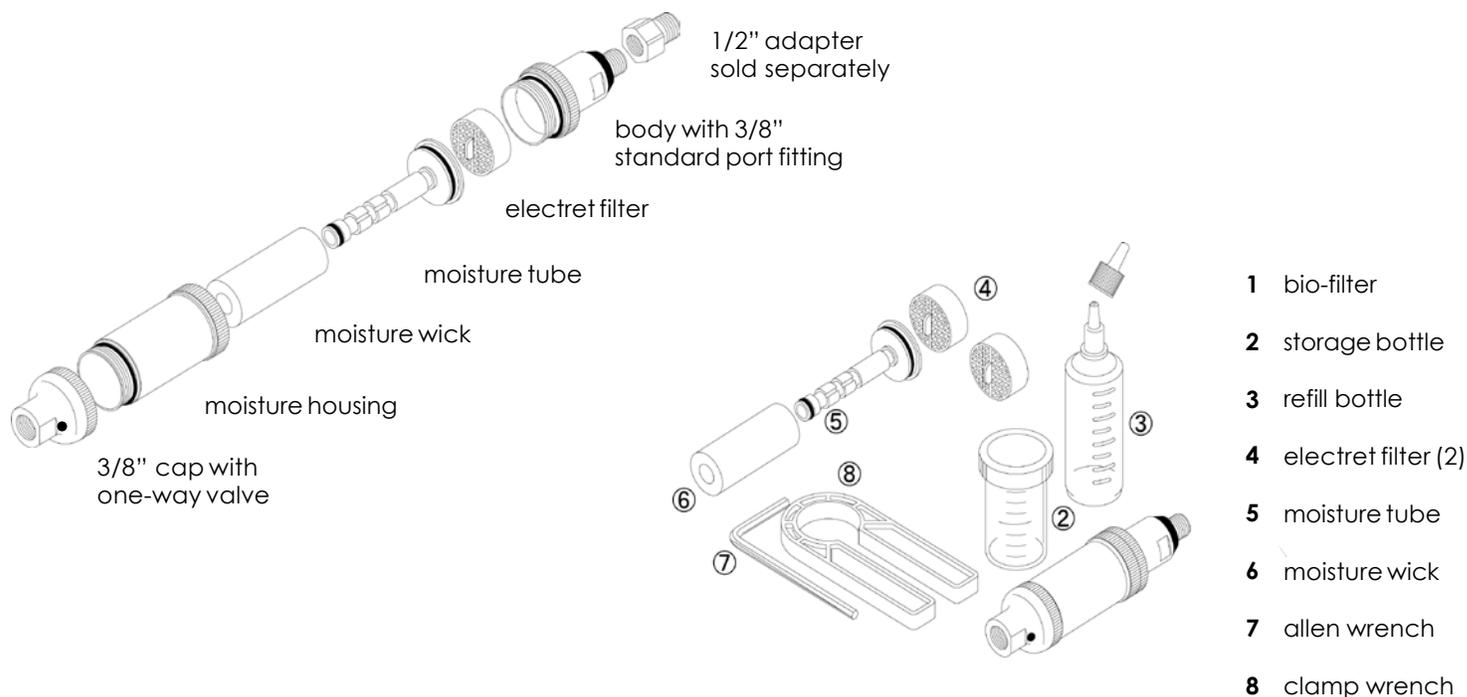


bio-filter

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.

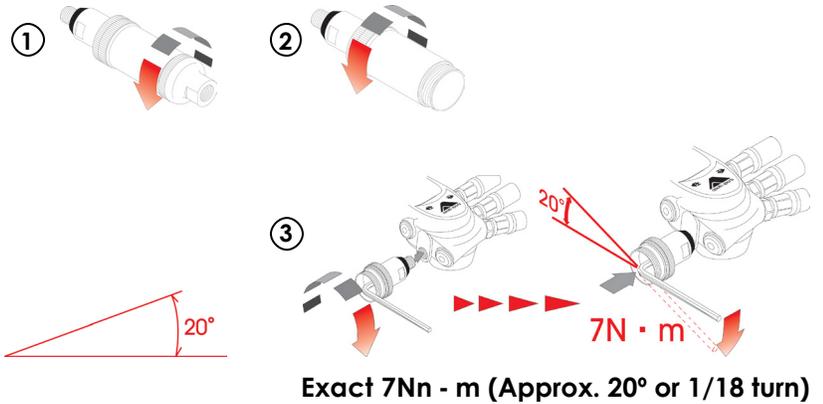
! CAUTION Only use clean uncontaminated water; preferably distilled to wet the moisture wick. Use of other liquid is not advised as it may cause contamination, damage, and possibly render the bio-filter ineffective.

Installation

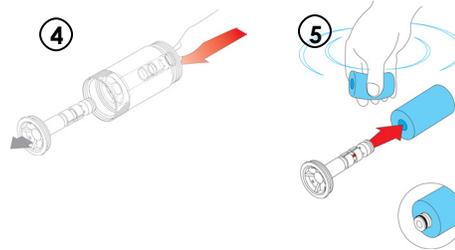
The Bio-filter may not fit all brands. Always confirm that you have purchased the correct fitting size for your regulator system. The Bio-filter air filtration and humidity system is designed for installation in the first stage of your regulator. Do not attempt attachment direct to tank or second stage. 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 these sections are separated
- 2 Turn the housing in a counter clockwise direction until it is separated from the body
- 3 Install body of Bio-filter into primary first stage port of your regulator. Screw in by hand. Once body is installed; insert the Allen wrench and rotate 20° to tighten (about 1/18th turn). Do not over tighten.
- 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 electret 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 over tighten.
- 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)



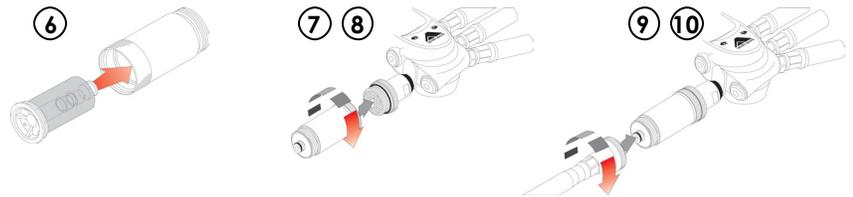
Exact 7Nn - m (Approx. 20° or 1/18 turn)



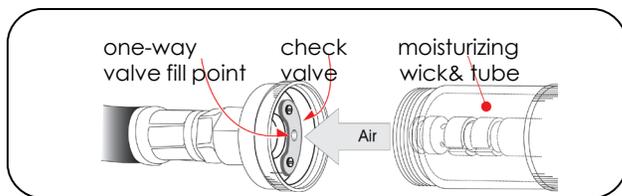
Submerge the white moisture *pad in cup of distilled or clean bottled water for 10-15 minutes. Manipulate to ensure entire wick, including the center, is fully saturated and pliable. Lightly squeeze to remove excess water. Slide onto the moisture tube until the o-ring at edge of tube is visible. *Also referred to as wick or moisture cartridge.

! 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 check valve 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 requires 1.5 units of water before each dive. Replace bottle if tip is damaged or deformed. NOTE Some earlier model bio-filters include 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 to avoid knock over the tank, using 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 from tube. Lightly rinse exterior housing and threads to remove any salt. Reassemble with tube (not wick or filter) and lightly rinse exterior along with your regulator. 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.

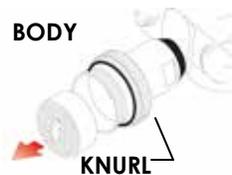


Moisture Wick Wick should be removed daily and allowed to dry after each day of diving. Separate housing (unscrew) from body and cap. Push tube with wick out from cap side to remove from housing. Remove the moisture wick from tube and rinse with fresh water. Let wick dry in a shaded area with good ventilation. 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 Air 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).

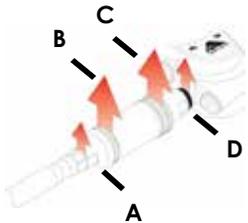
- 1 Regulator should NOT be attached to tank. Position hose between prongs of clamp wrench.
- 2 Slide wrench up over housing and position around knurl (serrated edge) of body.
- 3 Grip the clamp wrench firmly and turn housing counter clockwise until it is separated from body



Electret Filter

Replace every 50 dives, immediately if 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.

A O-ring is not part of the bio-filter system. It is on the port screw of your 2nd stage hose.

B 399-35-92-023
C 399-35-92-023
D 399-35-92-011 (3/8") **D**
399-35-92-013 (1/2")

Full o-ring kit including above on the web at:
www.diveapollo.com

> equipment: bio-filter
> refills

See page four
for complete schematics
o-ring and refill kits.

O-ring maintenance and recommended annual overhaul

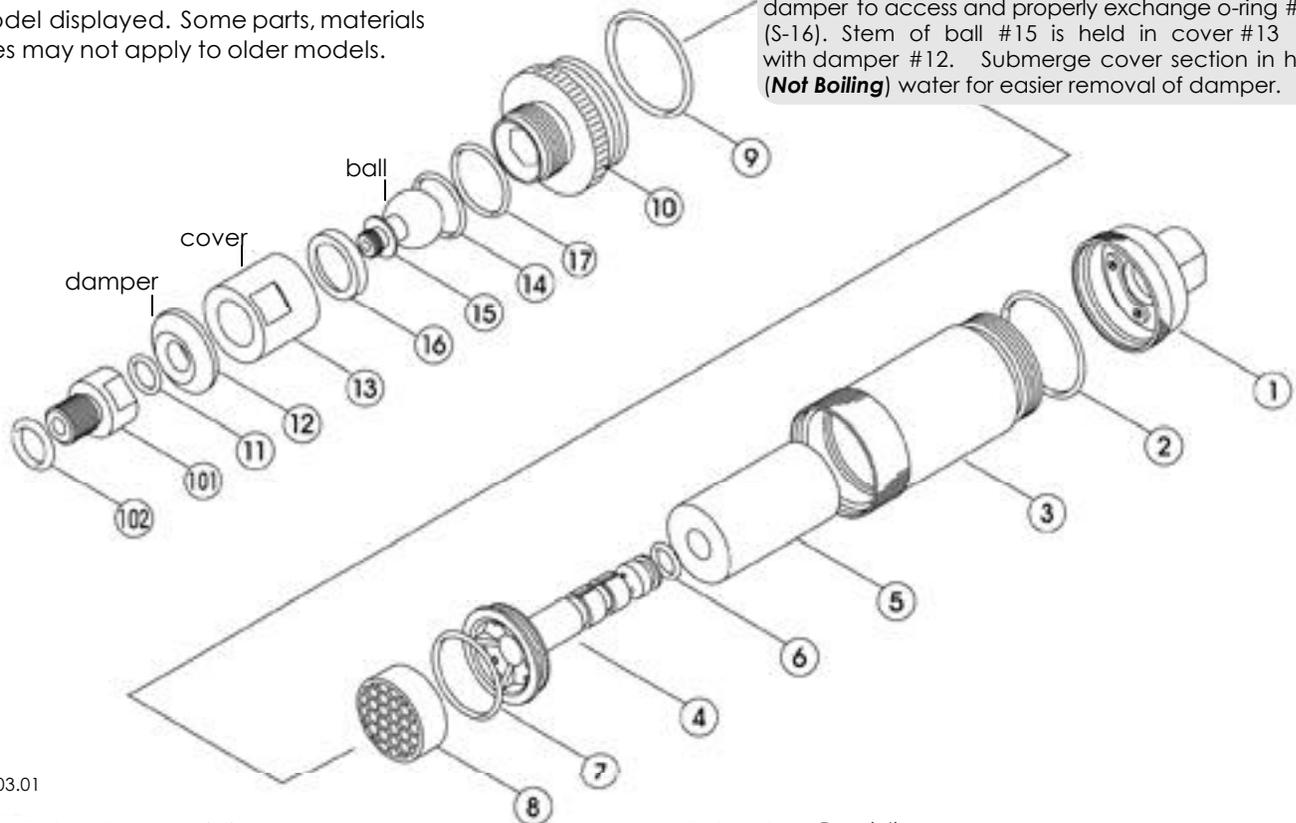
Many o-rings are used in a regulator. Proper maintenance of o-rings is vital to an airtight well performing system. You may need to remove o-ring for lubrication, cleaning or replacement. The threads where o-rings sit may be sharp. Take care with hands to avoid injury.

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.

The body section of Bio-Filter uses several 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. Help avoid undue hardship or damage to your equipment during service by providing technician with copy of this manual.

Schematic Bio-filter with one-way valve
 Current model displayed. Some parts, materials and features may not apply to older models.

Technicians note: Ball stem must be separated from damper to access and properly exchange o-ring #14 (S-16). Stem of ball #15 is held in cover #13 with damper #12. Submerge cover section in hot (**Not Boiling**) water for easier removal of damper.



2005.03.01

Key	Part number	Description	Key	Part number	Description
1a	2120200101	CAP W/ WATER FILLING PORT BRASS:3/8	11	3993592011	O-RING ARP-011/HS75
1b	21202001XX	CAP W/ WATER FILLING PORT AL (2000-2016)	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	3993392513	O-RING S-16/HS50
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 (1/2" Only)
8	112027000E	MESH ELECTRET FILTER BF, A-107, & 110	102	3993592013	O-RING ARP-013/HS75 (1/2" Only)
9	3993592023	O-RING ARP-023/HS75	---	3122000101	CHECK VALVE (FITS CAP 1a & 1b)
10	3120200025	CONNECTOR TUBE BRASS (AL 3120200026)	---	3120010000	SCREW FOR CHECK VALVE

Service & Refill Kits provide parts that occasionally need replacement easily performed by user. Tools and training are required to replace o-rings #11, #14 & #102 and should be serviced by a qualified technician. However, once accessed it is simple to replace and therefore a good idea to have in a spares kit. All O-rings should at minimum be replaced during the annual service of your regulator. Provide your chosen technician with a copy of this manual to avoid undue hardship or damage to your equipment during service.

112-03-00-00E Refill kit (one wick & three electret filters) Suitable for all Bio-filters Year 2000 - Current
 1SK-09-BF-38B * O-ring Kit All Bio-Filter (9 Pcs, Includes all user serviceable o-rings + tech serviceable o-rings 11, 14 & 17)
 * Kit suitable for all Bio-filter. Units with 3/8 fitting and/or older versions may not require all o-rings included with kit.

- !** DANGER Due to safety considerations, those who have not obtained a C-card (attesting to completion of training) from an entity providing diving instruction must not use this product. Make sure you are in good physical condition before you scuba dive. If you begin to feel cold, tired, or unwell, do not overexert. Stop your dive.
- !** WARNING If free-flow leaking occurs and you are not able to correct, temporarily cease use of product and take to your Authorized Apollo reseller for service. The most common cause of free flow is improper pressure setting (1st stage) or problems with seat (1st/2nd stages). You can remove the bio-filter to see if problem ceases. However, the bio-filter has very few parts and the attachment is unlikely to cause a free-flow situation.
- !** CAUTION Before using under special conditions and environments, inquire with your Apollo retailer or Apollo Sports USA.