



**How to Successfully  
Wash, Disinfect & Dry  
Your  
BioPak 240 Revolution**

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- ◆ **The following information should not be considered a replacement of the User and Benchman Manuals. This handout is a training aid.**
- ◆ **The following information IS NOT a replacement for hands on training by a certified instructor.**
- ◆ **It is imperative that prior to using the BioPak 240R all bench tests must have been performed and documented on the Turn-Around Maintenance tag which is attached to the BioPak 240R. Also, before using the BioPak 240R a fully charged oxygen cylinder, two fully frozen ice canisters and a recharge of carbon dioxide absorbent must be installed.**

# ESSENTIAL WASHING/DISENFECTIONING, RINSING & DRYING STEPS FOR THE BIOPAK 240R

## THIS IS THE FIRST STEP OF A SUCCESSFUL TURN-AROUND MAINTENANCE PROCESS AS OUTLINED ON THE TURN-AROUND MAINTENANCE TAG

This checklist is intended to help the user properly WASH, DISINFECT AND DRY his BioPak 240 Revolution.

As part of turn-around maintenance the BioPak 240R must be thoroughly washed, disinfected, rinsed and dried. IT IS THE FIRST STEP of the process and must be done as soon as possible after each use. Undue delay or failure to wash/disinfect, rinse and dry the BioPak 240R can lead to mold/mildew growth inside the apparatus.

All closed-circuit breathing apparatus (re-breathers) have similar requirements. However, the design of the BioPak 240R makes this process much simpler to perform. Drying of the BioPak 240R can be streamlined by use of the Manifold Dryer System Part # B6-02-5002-86-0.

2008

BIOPAK 240 REVOLUTION  
TURNAROUND MAINTENANCE TAG

UNIT NO: 1875

	DATE	INT.
WASHED/DISENFECTIONED	11 SEP	TDB
O2 CYLINDER REPLACED/FILLED	11 SEP	TDB
FLOW TEST <u>2.2</u> lpm	11 SEP	TDB
CO2 CARTRIDGES REPLACED		
ANTI-FOGGING AGENT APPLIED	11 SEP	TDB
ICE BAG PLACED IN FREEZER	11 SEP	TDB
LOW PRESSURE LEAK TEST	11 SEP	TDB

CAUTION: NEVER ATTEMPT

**WARNING**

- \* INSTALL FROZEN ICE BAGS PRIOR TO USE.
- \* REFER TO USER MANUAL AND/OR MAINTENANCE MANUAL FOR INFORMATION ON USE AND MAINTENANCE OF THIS RESPIRATOR.
- \* RESPIRATOR IS SUITABLE FOR USE ONLY BY PROPERLY TRAINED PERSONNEL.
- \* FAILURE TO PROPERLY USE AND MAINTAIN THIS RESPIRATOR COULD RESULT IN INJURY AND DEATH.

**Note: The order in which items are washed/disinfected and rinsed are arbitrary. BUT any item that has contaminants on them such as oils, grease or large quantities of general dirt and grime must be washed AFTER the Breathing Chamber and/or other components. Use common sense to prevent contaminants suspended in the wash or rinse solution from being deposited in or on the Breathing Chamber or other critical components. In the case where exposed components have considerable contaminants, multiple washes and rinses or the use of multiple wash tubs may be desired.**

**The use of deep wash tubs work the best and allow for multiple persons to work in an area of your choosing. Fill the tubs with clean water and use *one packet* of Biomarine disinfectant (antibacterial) (P/N B6-02-5000-42-0) per gallon of water.**

**It is critical each component is adequately disinfected and rinsed. Allow components to be thoroughly wetted in the disinfectant solution. THOROUGHLY RINSE EACH COMPONENT. Do not allow disinfectant solution to dry on any BioPak 240R component.**

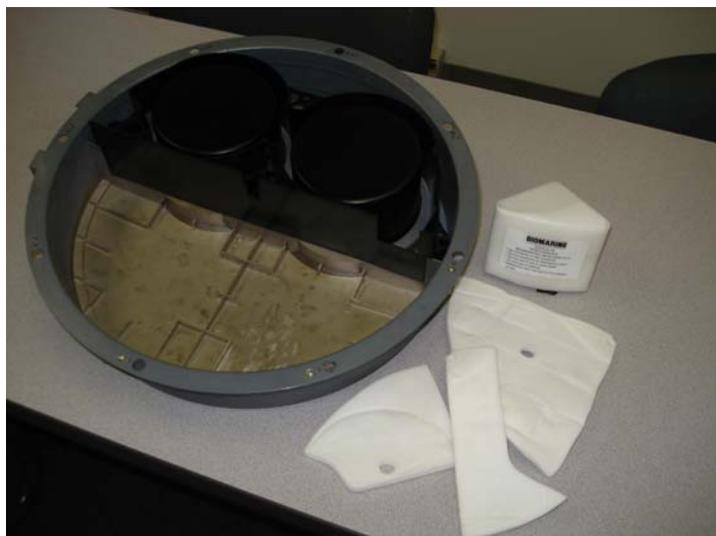


**When washing more than 5 BioPaks consider multiple tubs with multiple wash and/or rinse cycles. This can ensure a more complete washing and rinsing.**

1. Remove the two clamps from the hose set and set the clamps aside for reuse. Ensure the adapter plug is NOT installed. Wash and rinse the hose set with adapter. Wash the face piece. Ensure you wash off ALL the anti-fog spray from inside the face piece. **RINSE THOROUGHLY!**

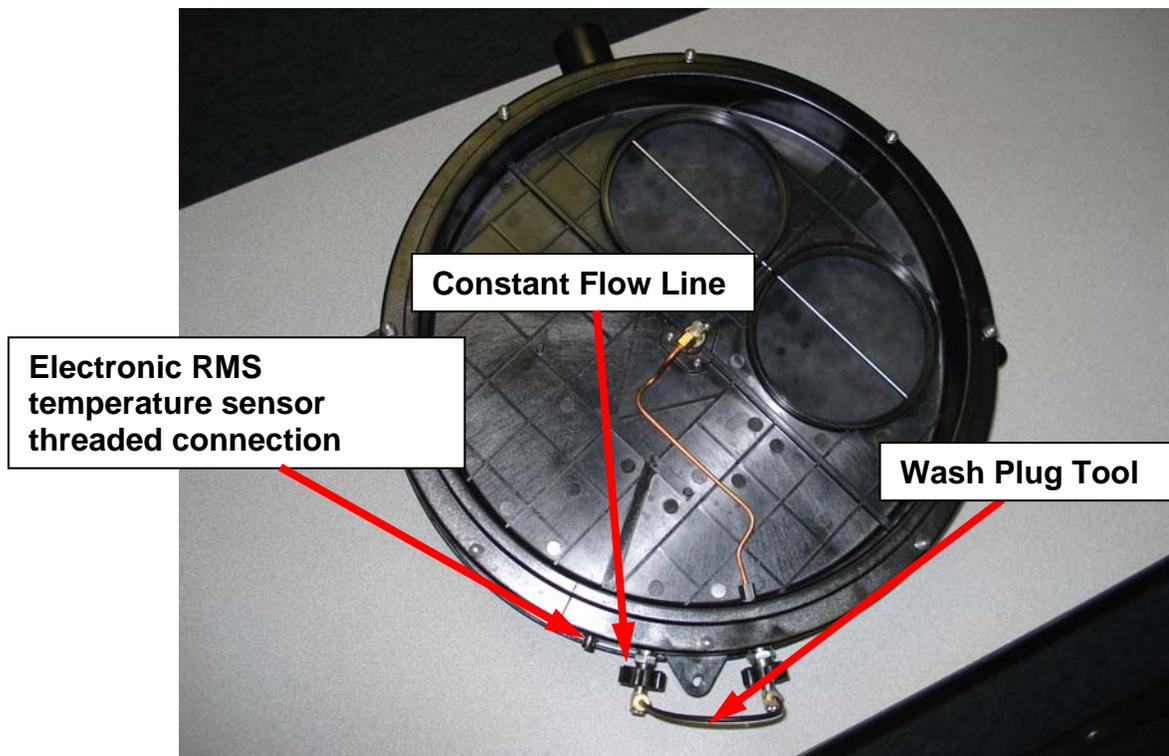


2. Remove the breathing chamber lid, PCM, and three moisture control sponges from the BioPak 240R. Wash and rinse the chamber lid, PCM and moisture control sponges. **RINSE THOROUGHLY!** Make sure you squeeze out the excess water from the moisture control sponges after both the wash and rinse cycle. Set the moisture control sponges on a clean surface and allow to **air dry in a dust free environment.**



3. Remove the four ¼-turn pins from the lower housing mounts on the breathing chamber. Set aside for reuse. Remove the electronic temperature sensor connection from the breathing chamber. This is a threaded connection! Remove the two hand-tight oxygen feed tubes from the chamber. Plug the two oxygen inlet fittings with the plug tool that comes with your service /tool kit. Carefully remove the breathing chamber from the lower housing. Use caution when washing and rinsing this component. The weight of the water may rupture and damage the rubber diaphragm. Allow to diaphragm to become thoroughly wetted with the disinfectant solution. Rotate the breathing chamber like a wheel to move the solution throughout the chamber. Drain the disinfectant solution and then repeat process in the rinse water. **RINSE THOROUGHLY!!!!**

**NOTE:** As soon as you are able remove the constant flow line from the breathing chamber as part of the doffing process. This will help prevent moisture from entering the constant flow feed tube and prevents the moisture from being blown in to the flow meter when conducting the flow test.



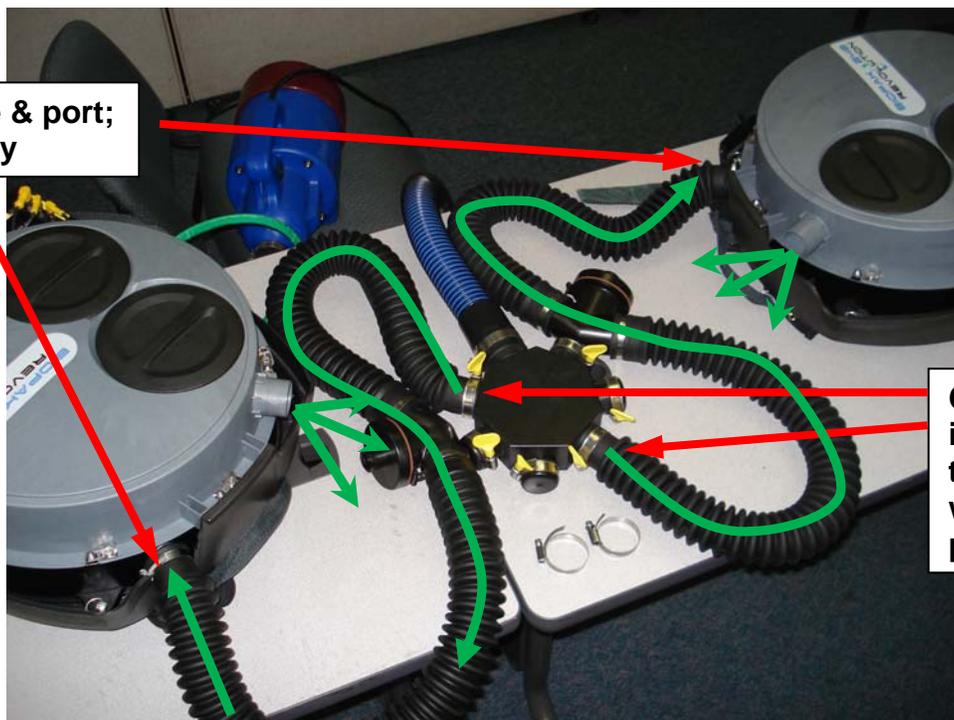
4. Shake excess water from all components. Reinstall the damp breathing chamber, PCM, and **exhalation hose** to the black breathing chamber hose port. Install the breathing chamber lid. Do not attach the oxygen feed lines until the unit is dry. Install the hose adapter cap/plug on to the hose adapter. Using the hose clamps provided with the DRYER, attach the **inhalation hose** of the hose set to the DRYER manifold. **DO NOT INSTALL THE MOISTURE CONTROL SPONGES. THEY MUST AIR DRY.**
5. Repeat for each BioPak 240R that you are drying. On high speed the dryer will dry up to 6 BioPak 240R units in about 2-3 hours. When drying 1 or 2 BioPak 240R units use the low speed.

Be sure to read the BioPak 240R Dryer manual prior to use. See illustrations below for proper use of the Dryer unit.



# DRYER ILLUSTRATIONS

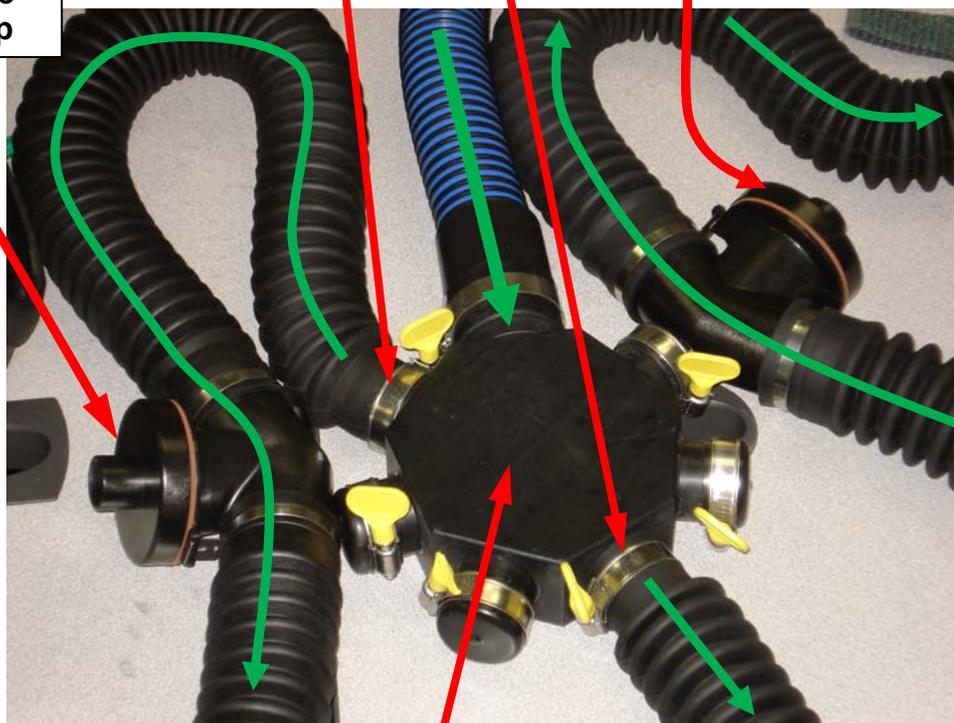
Exhalation hose & port;  
normal assembly



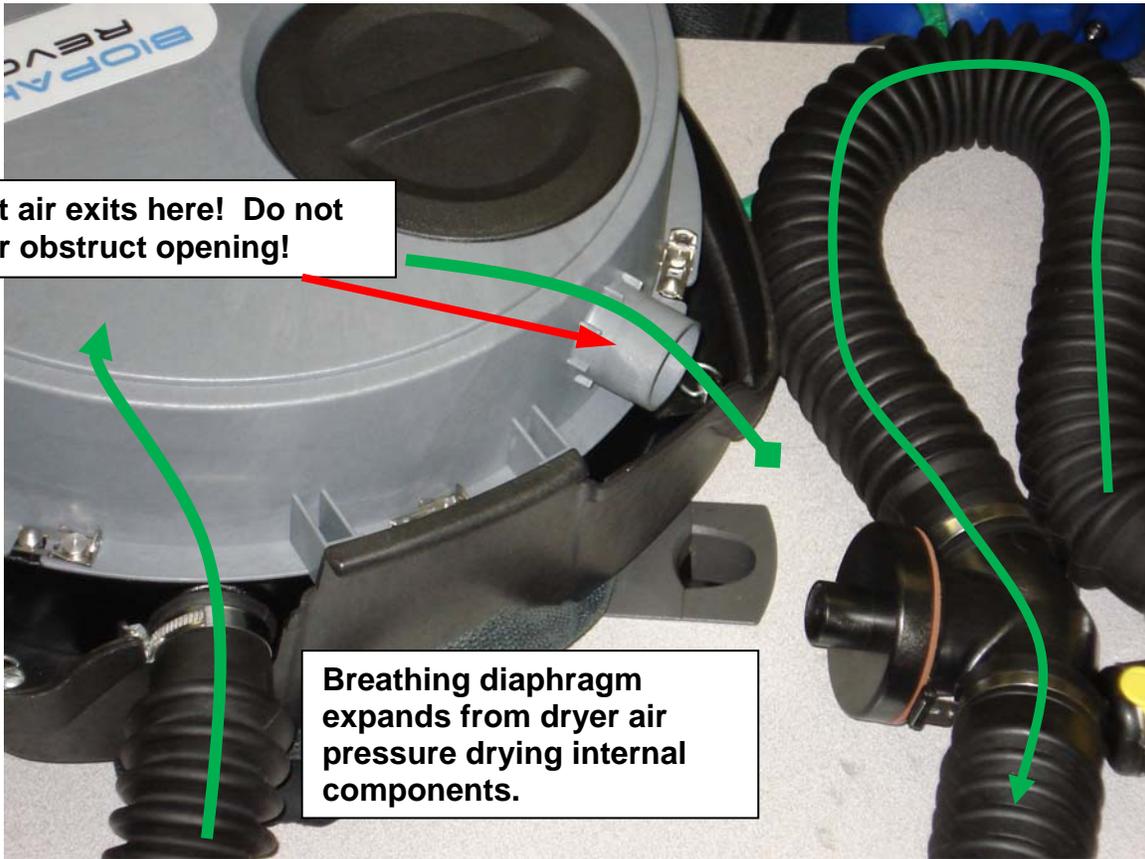
Connect  
inhalation hose  
to dryer manifold  
with clamps  
provided

Install each hose  
adapter plug/cap

Inhalation hose end



Dryer Manifold



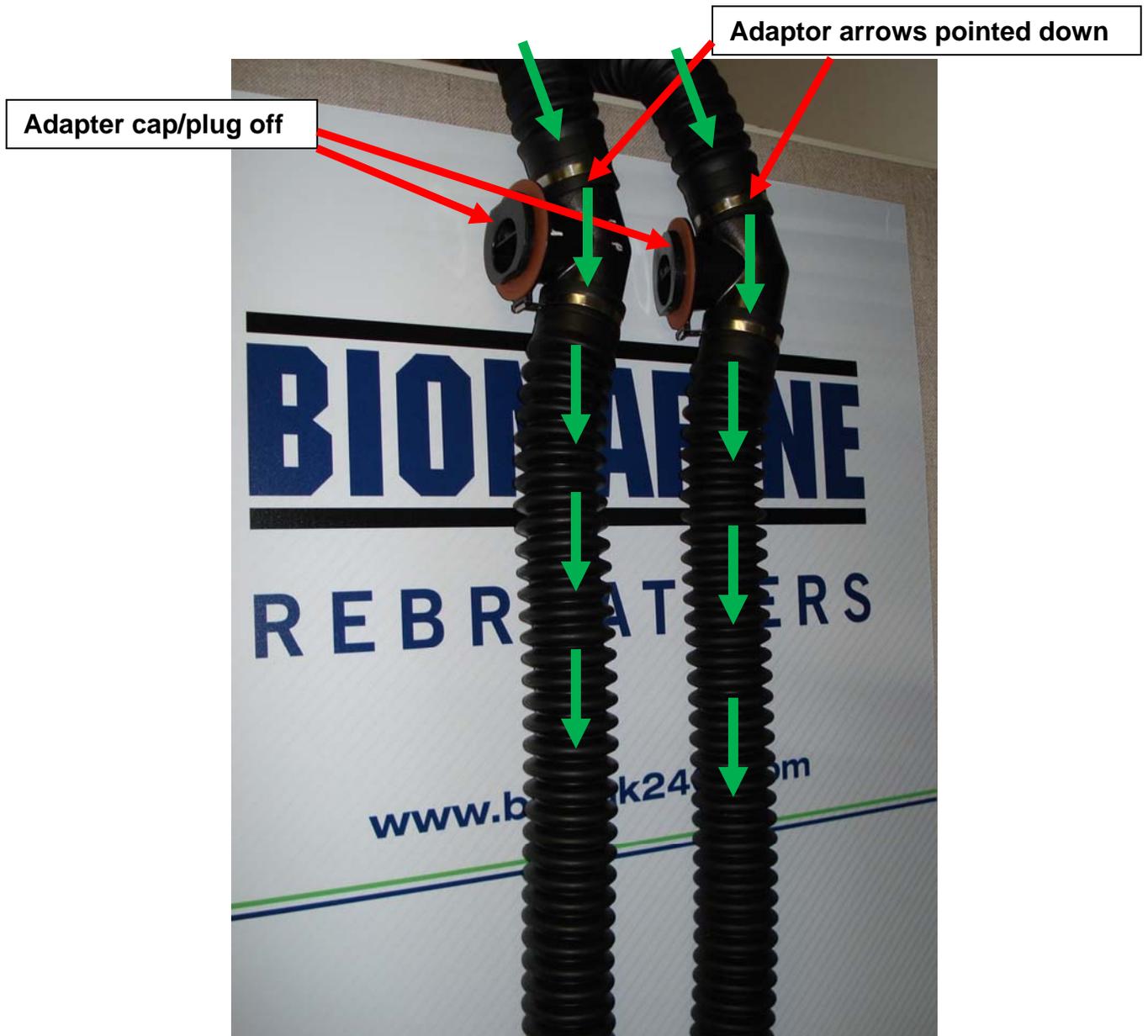
**Exhaust air exits here! Do not cover or obstruct opening!**

**Breathing diaphragm expands from dryer air pressure drying internal components.**

## AIR DRYING OPTION

Those users who do not have the BioPak 240R Dryer should allow the components to air dry in a dust free AND clean environment. The face piece can be placed in a designed mask dryer or allowed to air dry.

Hang hoses with the adaptor arrows pointing down to allow water to drain out and through check valves. Remove the adaptor cap/plug to ensure adequate air flow and to aid in the air drying process.



Place mask on a clean surface as shown below. Use of a table fan can speed up the drying process and increase the odds of a dry mask in the shortest period of time. NEVER store a wet mask in a bag or BioPak case. Apply FIRST coat of anti-fog spray when mask is clean and dry. Store with first coat of anti-fog applied to mask lens.



Always place the breathing chamber with the rubber diaphragm up (off the surface) to ensure sharp objects that may be on the drying table do not damage the diaphragm. Use of a table fan aids in the drying process. To prevent mold and mildew infestation, NEVER store a wet BioPak or mask in the carrying case.



Air drying time is dependent on several factors such as ambient temperature and humidity. If you choose to air dry your BioPak 240R the area must be clean and dust free. Please note if a BioPak 240R is damp it will operate as designed. Under normal operations the breathing gas is close to 100% humidity. Another USER may use the BioPak before a complete drying cycle occurs. **However, take steps to drain and remove as much of the excess water as possible from the hose set, check valves and the diaphragm. Excess water in the breathing loop can cause higher breathing resistance.**