

## Table Layout for Bio-Pak 240-R Contest

<p><b>Test Apparatus With Upper Housing And Hose Connector Installed</b></p>	<p><b>Test Apparatus Mask</b></p> <hr/> <p><b>Test Kit</b></p>	<p><b>Upper Housing With Parts</b></p>	<p><b>Visual Apparatus</b></p>
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VISUAL APPARATUS CHECKS		CONNECTIONS		
✓	<i>Check if ok</i>		· Vent Valve Assembly - Hand Tight	
	UPPER HOUSING		· Diaphragm Worm Gear - Wrench Tight	
	LOWER HOUSING		· Flow Restrictor - Wrench Tight	
	· Harness Assembly		· Breathing Hose Worm Gear - Wrench Tight	
	· External Gage		· Add / Constant Fittings – Hand Tight	
	· O2 Regulator / Seal		Center Section Lid - Hand Tight	
	· RMS		· Center Section Push Pins - Hand Tight	
	CENTER SECTION ASSEMBLY		· Cylinder Connection - Hand Tight	
	· Diaphragm		· Adapter to Facepiece - Hand Tight	
	· O-Ring and Sealing Edges		· Test Fixture Connections - Hand Tight	
	Demand Valve Assembly		TEST APPARATUS	
	Moisture Pads	✓	<i>Check if ok</i>	
	PCM		CONSTANT FLOW TEST	
	CARBON DIOXIDE SCRUBBER		Flow Between 1.6 and 2.4 Lpm - State Reading	
	· Defects / Damage		DEMAND VALVE TEST	
	· Gasket		EMERGENCY BYPASS TEST	
	· Expiration Date		VENT VALVE TEST	
	CENTER SECTION LID ASSEMBLY		At or below 2 inches wg - State Reading	
	· Examine for defects / damage		LOW PRESSURE LEAK TEST	
	· Check O-Ring for damage / lubrication		RMS GAUGE AND TRIM TEST	
	Ice Canisters		Observe lights/gauges +/- 10% - State Reading	
	Coolant Lids		HIGH PRESSURE LEAK TEST	
	CYLINDER TEST		LOW PRESSURE ALARM TEST	
	· Hydrostatic Test Date		Alarm 650-1000 psig – State Reading	
	· Cylinder Pressure on Gauge		Power down below 25 psig	
	· Pressure Rating on Cylinder	VI	C	VISUAL APPARATUS
	HOSES			
	· Sealing Edges			
	· Stretching of Hoses for Pliability			
	Adapter Assembly / Gasket			
	FACE PIECE TEST			
	· Head Strap Assembly	VI	C	TEST APPARATUS
	· Mask Body / Nose Cup			
	· Sealing Edges			
	· Speech Diaphragms			
	· Lens / Anti-Fog Insert			
	· Defog Mask (Simulate)			

# **BIOPAK 240-R VISUAL APPARATUS (BREAK DOWN)**

**Upper Housing Assembly-Removed**  
**Hoses-Removed**  
**Coolant Lids and Ice Canisters - Removed**  
**Center Section Lid Assembly - Removed**  
**Moisture Pads - Removed**  
**Carbon Dioxide Scrubbers and Gasket - Removed**  
**PCM Canister - Removed**  
**Loosen (But do not remove) Flow Restrictor**  
**Center Section – Removed**  
**Diaphragm and worm gear-Removed**  
**Vent Valve Assembly - Removed as a unit**  
**Oxygen Cylinder-Removed**

## **BIOPAK 240-R TOOL KIT**

**Leak Check Adapter Fitting**  
**Flow Test Fixture**  
**Test Key**  
**Vent Valve Hand Wrench**  
**Center Section Pneumatic Plug**  
**Regulator Wash Cover**  
**Combination Pick Tool**  
**#00 Phillips Head Screwdriver**  
**#1 Phillips Head Screwdriver**  
**#2 Phillips Head Screwdriver**  
**1/4" Hex Driver**  
**3/16" Nut Driver**  
**5/16" Nut Driver**  
**9/32" Nut Driver**  
**3/8" x 5/16" Open End Wrench**  
**7/16" Combination Wrench**  
**1/2" Combination Wrench**  
**5/8" x 9/16" Open End Wrench**  
**Stop Watch**  
**Bypass Valve Tool**  
**(2) Slotted Screwdrivers**

## **STATEMENT TO BENCH CONTESTANT**

The bench participant will be provided with two Bio-Pak 240- R apparatus (one disassembled, one assembled), a stopwatch, defogging solution, leak detector fluid, test kit, and tool kit. Only the tools and fluid provided will be used for testing and assembly of the apparatus. The work at the bench will consist of:

1. A visual examination of a disassembled Bio-Pak 240-R and the proper assembly and preparation for use in rescue work. This will include correcting any predetermined problem(s) so that the apparatus is in proper working order. Simulating defogging of the facepiece lens will be done as a part of the visual examination. This visual examination, correcting predetermined problem(s), and proper assembly can be done at any time allowed for the working of the problem.
2. Test the assembled Bio-Pak 240-R apparatus with a tester, and correct the predetermined problem(s) so that the apparatus is in proper working condition. Except for removing the facepiece storage plug on the breathing hoses, the assembled Bio-Pak 240-R apparatus cannot be disassembled to look for problems, until the Flow Test is started. When testing is completed on the assembled Bio-Pak 240-R apparatus, the hoses shall be removed from the tester, connected to the facepiece, and the upper housing installed. This shall be done before the clock is stopped.

When an unplanned deficiency is encountered in the apparatus, the participant will be notified by the judge(s) that the deficiency is not part of the problem. The judge will stop the clock and any time used to correct the deficiency will not be charged to the working time.

A maximum of 30 minutes will be allowed to complete the problem. The judge will tell you when 29 minutes has passed. At the completion of the problem, the judge(s) and the participant will note the working time of the problem with the official timekeeper. Work done after the clock is stopped will not be recognized.