

NATIONAL MINE RESCUE ASSOCIATION

TRI-STATE POST NO. 6

Bench Contest

JUDGES PACKET

BG-4



**ODNR MINE SAFETY
TRAINING CENTER
CADIZ, OHIO**

JUNE 5th, 2025

STATEMENT TO BENCH CONTESTANT

The bench participant will be provided with two BG-4 apparatus (one disassembled, one assembled), an RZ-25 or RZ-7000 tester, 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 BG-4 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 BG-4 apparatus with a tester, and correct the predetermined problem(s) so that the apparatus is in proper working condition. Except for removing the sealing cap from the coupling on the breathing hoses, and removing the cover shell, the assembled BG-4 apparatus cannot be disassembled to look for problems, until the hoses are attached to the tester, and the apparatus fails a test. When testing is completed on the assembled BG-4 apparatus, the hoses shall be removed from the tester, connected to the facepiece, and the back cover 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 25 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.

2025 Post # 6

BG-4 Contest

Visual Apparatus Bugs

- 1) Battery door ear broken
(Announce Only)
*S-Finding
S-Fitting
10-doc*
- 2) O-Ring Missing on Cooler Lid
Hand it to them
- 3) Sentinel Lense Cover Missing
Hand it to them
- 4) Screw Missing on Mask (Announce Only)
Left Side of mask - Right if facing
- 5) Shoulder Strap Damaged Wearers Right Side (Announce Only)
Right Side Strap

VISUAL APPARATUS CHECKS		TEST APPARATUS	
✓	Check if ok	✓	Check if ok
	FRAME/HARNESS ASSEMBLY		ZERO TESTER PRIOR TO TESTING
	BREATHING BAG		LOW PRESSURE WARNING TEST 1.4 MBAR MAX.
	CYLINDER TEST		INHALATION VALVE TEST 10 MBAR +
	REGENERATIVE CANISTER		EXHALATION VALVE TEST 10 MBAR -
	SIMULATE ADDING DRAGERSORB		DRAIN VALVE TEST 10 MBAR
	RELIEF VALVE		LEAK TEST with POSITIVE PRESSURE 1 MBAR IN 60 SEC.
	COOLER		RELIEF VALVE TEST
	SIMULATE ADDING ICE		State Opening Pressure 2 TO 5 MBAR
	HOSES		HIGH PRESSURE LEAK TEST OPEN CYL. ICON
	COUPLING		CONSTANT METERING VALVE TEST
	FACE PIECE TEST		State Final Reading 1.5 TO 1.9 L/MIN
	SIMULATE DEFOGGING MASK		MINIMUM VALVE TEST
			State Opening Pressure 0.1 TO 2.5 MBAR
	CONNECTIONS CONNECTED OR GOOD		BYPASS VALVE TEST
	Cap on Drain Valve		ALTERNATE RELIEF VALVE TEST (Optional) 2 TO 5MBAR
	Drain Valve to Breathing Bag		LOW PRESSURE WARNING TEST
	Minimum Valve to Breathing Bag		State Warning Reading APPROX. 700 PSI
	Minimum Valve to O2 Supply Line		BATTERY TEST BATT FULL/ ICON
	Cylinder Connection		
	Regenerative Canister Connections		
	Relief Valve to Regenerative Canister		
	Crossover Hose Switchbox and Relief Valve		
	Cooler to Breathing Bag		
	Distribution Hose		
	Breathing Hoses		
	Hose Adapter on RZ-25 or Test-It 6100		
		VI	C VISUAL APPARATUS
			X Battery Door Ear Broken (Announce Only)
			O-Ring Missing on Cooler Lid
			X Screw Missing On mask (Announce Only)
			X Shoulder Strap Damaged Right Side (Announce Only)
			Sentinel Lense Cover Missing
			TEST APPARATUS
			Hole In drain valve housing
			Hole in relief valve housing
			Relief valve disc removed
			Hole in Dosage Line

BENCH DISCOUNTS

Contestant does not call out each test being conducted.

They should be discounted for failure to verbally identifying each test being conducted under A1 (2 point discount for each test)

Contestant does not find a bug on either the Test or Visual unit.

They should be discounted for failing to identify the bug under A2 (5 point discount) for failing to identify and under A3 (5 point discount) for failing to correct the bug. (Total 10 point discount) for every bug that is missed on either unit.

If the problem design only calls for the contestant to identify a bug and not correct it. In that case they should still be discounted under A2 and A3 for failing to identify and correct the bug (10 point discount).

Contestant does not perform any visual exam or test. (This means they did not do the visual exam or test at all).

They should be discounted for not performing a Visual Exam or Test under A5 (5 point discount) for failing to conduct a visual exam or test.

Contestant does not call out one of the connected or good connections required by the rules to be called out. (Any similar terminology should be accepted)

They should be discounted under A6 (1 point discount for each connection) for failure to tighten connections properly during assembly or testing. This discount is used if they did not call out any of the connected or good connections on your judge's checklist.

Contestant blows into a hose or uses body fluid in any way on the units during the problem or the contestant uses a tool or anything else that they brought with them (Multi- Tool, Keys, Pocket knife, etc.).

They should be discounted under A8 (2 point discount each infraction) for rules not covered on the discount sheet. It is covered in the rules that only the tools and fluid provided will be used during the problem.

Contestant fails to call out any of the required items on your judge's checklist when conducting any of the visual exams

They should be discounted under B2 thru B8 (2 point discount for each item not called o

Contestant fails to zero the tester or mag gauge before testing.

They should be discounted under A7 (10 point discount).