

CONTESTANT NAME _____ TEAM NUMBER _____

KENTUCKY POST 2 BENCH CONTEST
BIO MARINE 240 R
May 10, 2013
CIRCLE THE CORRECT ANSWER

1. Facepiece failing positive and/or negative testing during user donning could be caused by _____ facepiece fit.
 - A. Loose
 - B. Poor
 - C. Tight

2. The Center Section Lid O-Ring should be replaced as _____.
 - A. Required
 - B. Recommended
 - C. Needed

3. The low oxygen alarm must activate between _____ psig and is indicated by a flashing red light and audible alarm.
 - A. 600-700
 - B. 650-750
 - C. 700-750

4. High breathing resistance during _____ could be caused by Bent valve in breathing chamber not opening properly.
 - A. Exhalation
 - B. Inhalation
 - C. Use

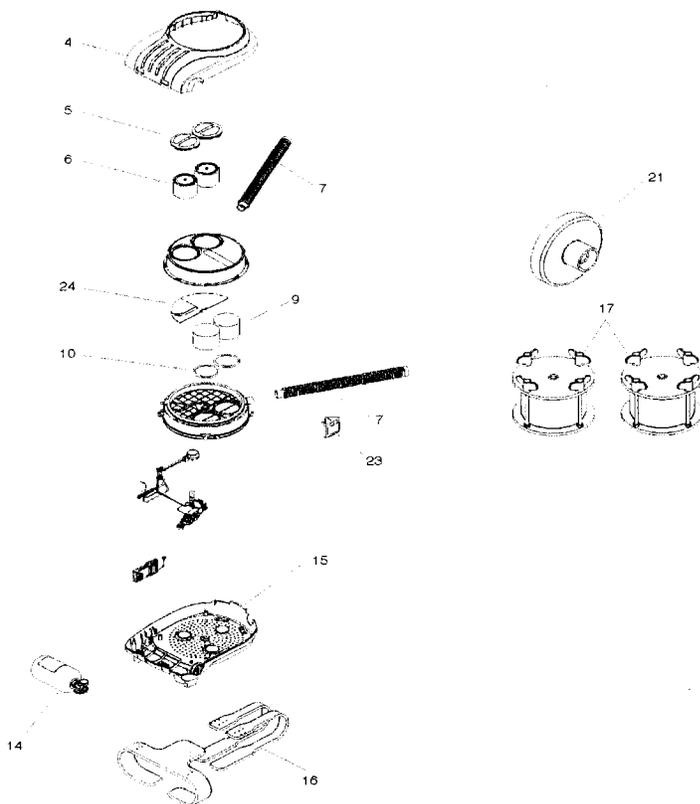
5. Not achieving full 4-hour duration of BioPak during use could be caused by a pressure _____ Failure.
 - A. Gauge
 - B. Regulator
 - C. Valve

6. Biopak _____ volume is over 6 liters.
- A. Tidal
 - B. Total
 - C. Breathing
7. The RMS will automatically power down once the system pressure has dropped below _____ psig.
- A. 30
 - B. 20
 - C. 25
8. In the event the SCBA fails flow testing during Turn-Around or Long-term Maintenance the flow restrictor is most likely _____ and will require replacement.
- A. Damaged
 - B. Clogged
 - C. Misaligned
9. The oxygen cylinder pressure gauge and the RMS gauge pressure readings shall match within +/- _____ %.
- A. 10
 - B. 5
 - C. 15
10. To get the most accurate flow meter reading you must have a minimum of _____ psi (104 bar) in the cylinder.
- A. 1500
 - B. 1200
 - C. 1400
11. Over pressurization of the SCBA with the test keys installed beyond _____" of water column could damage the vent valve and diaphragm.
- A. 6
 - B. 8
 - C. 10

12. Failure to install the Phase Change _____ Canister into the center section prior to use will result in increased breathing gas temperature.
- A. Chemical
 - B. Material
 - C. Absorbent
13. Do not expose opened CO₂ scrubber cartridges to ambient air for more than _____ minutes.
- A. 20
 - B. 30
 - C. 60
14. Freeze the ice canisters for a minimum of eight (8) hours before use at a maximum temperature of _____ degrees F (-12 C).
- A. 10
 - B. 15
 - C. 5
15. If the lower housing is being washed, always leave the cylinder securely attached to the _____ so that the area remains clean, dry and free of contamination.
- A. Apparatus
 - B. Regulator
 - C. Coupling
16. Replace the battery when the low battery alarm has activated, after 200 hours of use or every _____ months whichever comes first.
- A. 12
 - B. 3
 - C. 6
17. A foreign gas may cause cylinder _____.
- A. Corrosion
 - B. Malfunction
 - C. Failure

18. DOT requires carbon fiber wrapped aluminum cylinders be tested by an approved facility on a _____-year cycle from the date of manufacture.
- A. 10
 - B. 6
 - C. 5
19. Oxygen will _____ the combustion of other materials so that materials that normally will not burn in air may burn in oxygen-rich atmospheres; and, materials that do burn in air will burn more vigorously and at a higher temperature in oxygen-rich atmospheres.
- A. Enhance
 - B. Increase
 - C. Stimulate
20. The BioPak 240 Revolution is suitable for respiratory protection during entry into and escape from oxygen deficient atmospheres with a temperature range of _____ degree F (-15C) to 110 degree F (43C).
- A. 5
 - B. 10
 - C. 15

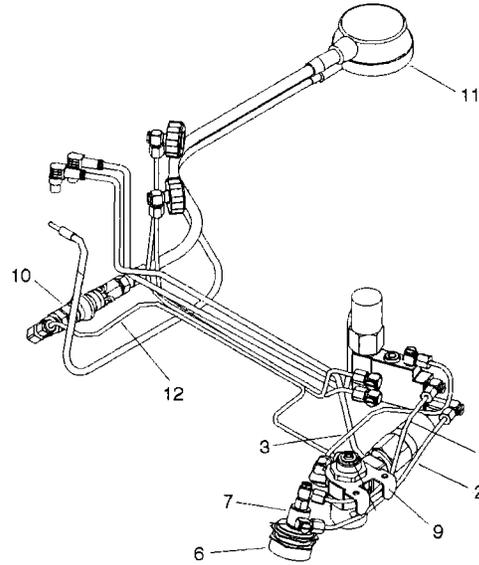
BioPak 240 Revolution Complete



1	2		1	2
Cons. No.	Designation		Cons. No.	Designation
4	_____ Housing Assembly	(21)	16	Harness Assembly
5	_____ Lid	(22)	17	Ice _____ Freeze Form (24)
6	Ice Canister		21	Facepiece Storage Plug
7	Breathing Hose		23	(PCM) Heat Exchanger
14	O ₂ _____	(23)	24	_____ Absorbent Pad Set (25)
15	Lower Housing Assembly			

- | | | | | |
|-------------|-------------|-------------|--------------|-------------|
| (21) | (22) | (23) | (24) | (25) |
| A. Lower | A. Coolant | A. Bottle | A. Cooler | A. Moisture |
| B. Upper | B. Cooler | B. Tank | B. Canister | B. Heat |
| C. Total | C. Canister | C. Cylinder | C. Container | C. Water |

Pneumatic Assembly



1 Cons. No.	2 Designation	1 Cons. No.	2 Designation
1	Bypass _____ Tube (26)	9	Oxygen _____ Assembly (29)
2	Bypass _____ Tube (27)	10	Remote Gauge Shut Off Assembly
3	Oxygen Feed Tube	11	_____ Gauge Assembly (30)
6	Bypass _____ Push Button (28)	12	Remote Gauge Feed Tube Assembly
7	Bypass Valve		

(26)
A. Feed
B. Return
C. Valve

(27)
A. Feed
B. Return
C. Valve

(28)
A. Valve
B. Gauge
C. Control

(29)
A. Gauge
B. Manifold
C. Regulator

(30)
A. Oxygen
B. Remote
C. Main

**KENTUCKY POST 2 BENCH CONTEST
BIO MARINE 240 R
MAY 10, 2013
ANSWER KEY**

TEST QUESTION	STATEMENT NUMBER
1. B. Poor	#95
2. C. Needed	#88
3. B. 650-750	#83
4. A. Exhalation	#70
5. B-Regulator	#67
6. A. Tidal	#77
7. C-25	#54
8. B-Clogged	#61
9. A-10	#48
10. A-1500	#43
11. B-8	#45
12. B-Material	#36
13. A-20	#39
14. A-10	#34
15. B-Regulator	#24
16. C-6	#20
17. A-Corrosion	#14
18. C-5	#16
19. A-Enhance	#8

TEST QUESTION**STATEMENT NUMBER****20. A-5****#11****21. B-Upper****BIOPAK 240 REVOLUTION COMPLETE****22. A-Coolant****BIOPAK 240 REVOLUTION COMPLETE****23. C- Cylinder****BIOPAK 240 REVOLUTION COMPLETE****24. B- Canister****BIOPAK 240 REVOLUTION COMPLETE****25. A- Moisture****BIOPAK 240 REVOLUTION COMPLETE****26. A- Feed****PNEUMATIC ASSEMBLY****27. B- Return****PNEUMATIC ASSEMBLY****28. A- Valve****PNEUMATIC ASSEMBLY****29. C-Regulator****PNEUMATIC ASSEMBLY****30. B-Remote****PNEUMATIC ASSEMBLY**

KENTUCKY POST #2
2013 BG4 WRITTEN TEST

1. To prepare for testing adjust _____ point of the RZ-25 tester.
A. Center
B. Testing
C. Zero

2. The EPDM breathing hoses use _____ turn connectors.
A. Complete
B. Full
C. Quarter

3. The factory filled cartridge is good for ____ years from the manufacture date.
A. 3
B. 4
C. 6

4. The BG-4 _____ dosage must be 1.5 to 1.9 L/min.
A. Functioning
B. Constant
C. Operating

5. The accuracy of the Sentinel pressure measurement is +or- 2% of the ____ value.
A. Total
B. Final
C. Pressure

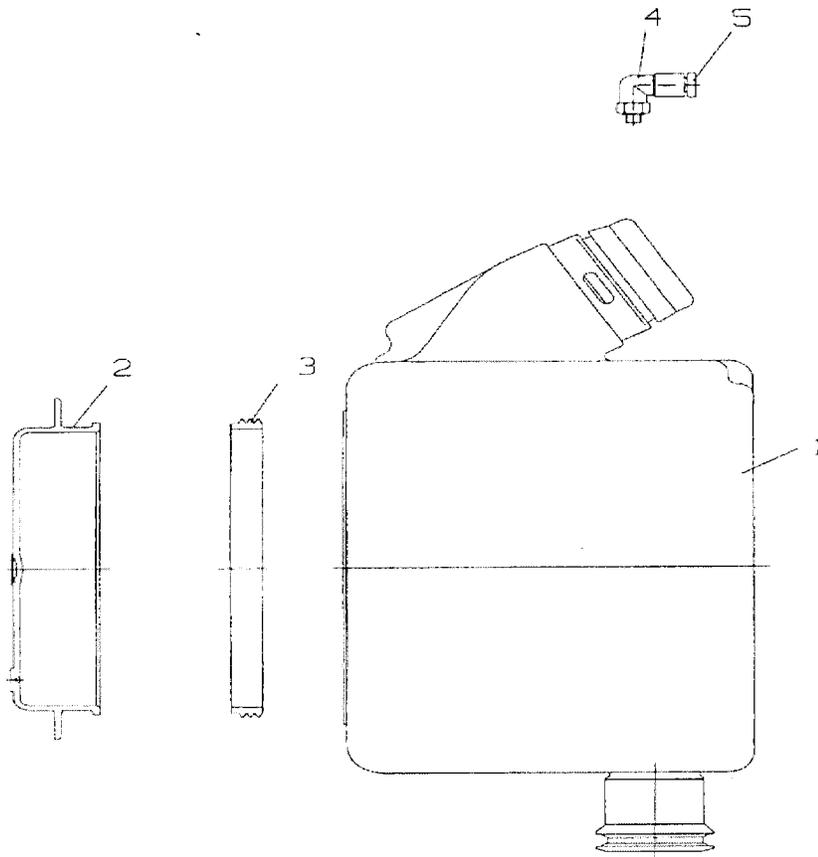
6. First stage reducer bypass output is > _____ L/min.
A. 20
B. 10
C. 50

7. The minimum valve provides greater than _____ L/min flow.
A. 80
B. 90
C. 50

8. The pressure reducer must be rebuilt/overhauled every _____ years.
- A. 5
 - B. 7
 - C. 6
9. At the first low pressure warning approximately _____% of the oxygen has been used up.
- A. 75
 - B. 85
 - C. 95
10. During the low pressure warning test, the alarm should activate at approximately _____ PSI for a 4 hour apparatus.
- A. 700
 - B. 800
 - C. 500
11. Medium pressure in the BG-4 is between 58 psi and _____ psi.
- A. 64
 - B. 65
 - C. 60
12. Before washing the minimum valve, it is necessary to _____ the minimum valve with plug.
- A. Block
 - B. Isolate
 - C. Secure
13. The maximum temperature of the air used to dry parts should not go above _____ degree C (140 degree F).
- A. 90
 - B. 60
 - C. 70
14. The inhalation valve should be replaced every _____ years for units which are in constant use.
- A. 3 years
 - B. 5 years
 - C. 2 years

15. The pressure reducer should be returned to the manufacturer or their agent for complete overhaul after at least _____ years usage.
- A. 6years**
 - B. 3 years**
 - C. 4 years**
16. Only oxygen (medical grade or better) with _____ purity is to be used to fill the BG-4 oxygen cylinders.
- A. 99.5%**
 - B. >99.5%**
 - C. 98%**
17. It is safe to use the PSS BG 4 for up to ___ hours with a battery warning 1 Icon.
- A. 8**
 - B. 4**
 - C. 12**
18. The _____ LED flashes to indicate that the Sentinel is operating normally.
- A. Yellow**
 - B. Red**
 - C. Green**
19. Relief valve activation is _____ bar or (87 psi).
- A. 10**
 - B. 8**
 - C. 6**
20. The drainage valve opens at approximately _____ mbar and is therefore out of the RZ reading range.
- A. 10**
 - B. 12**
 - C. 15**

COOLING CANISTER



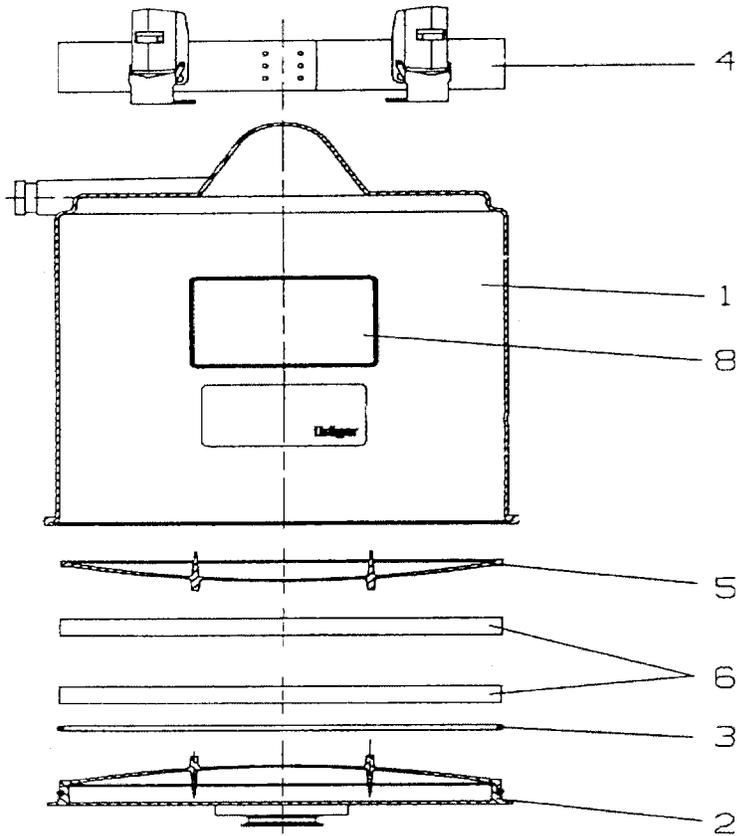
1 Cons. No. Designation	1 Cons. No. Designation
2 Cooler	2 Angle _____ (22)
_____ for Cooler (21)	5 _____ Ring (23)
3 Gasket	

- (21)**
 A. Lid
 B. Cover
 C. Top

- (22)**
 A. Connector
 B. Connection
 C. Line

- (23)**
 A. Reactor
 B. Reacting
 C. Reaction

Refillable Cartridge



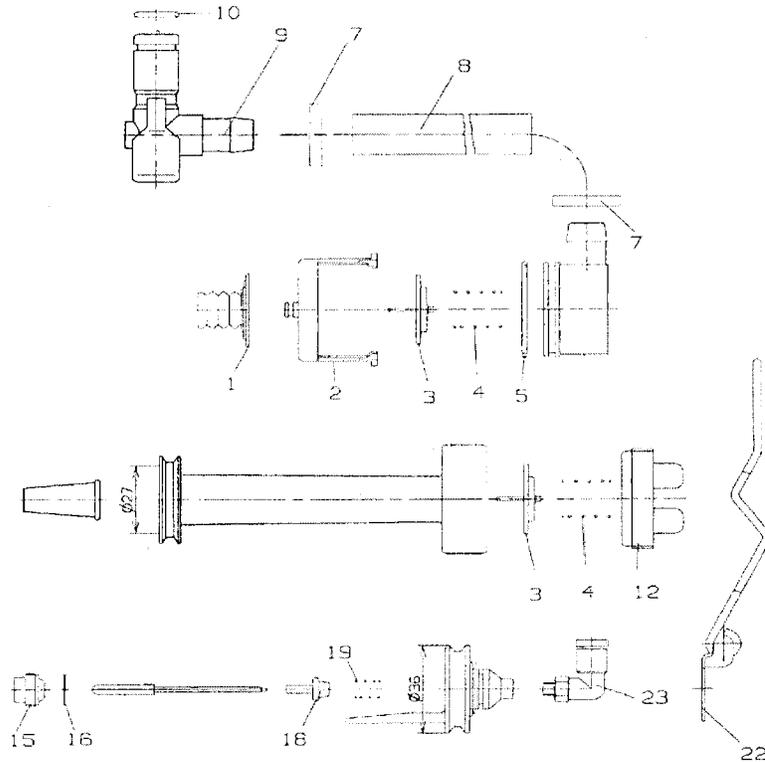
1 Cons. No.	2 Designation	1 Cons. No.	2 Designation
1	Refillable _____ (24)	5	___ Scrubber Screen (25)
2	Lid	6	_____ Mats (26)
3	Seal, Refillable Cartridge	8	NIOSH Approval Label
4	Strap with Tension Spring Hook		

- (24)**
- A. Canister
 - B. Container
 - C. Cartridge

- (25)**
- A. Refillable
 - B. Reusable
 - C. Regenerative

- (26)**
- A. Filter
 - B. Replaceable
 - C. Filler

Drain/Relief/Minimum Valve Assembly



1 Cons. No.	2 Designation	1 Cons. No.	2 Designation
1	Valve Disc	12	Cap
2	_____ Case (27)	15	Valve Crater
3	Valve Disc	16	Washer
4	Relief / Drain Valve Spring	18	Valve _____ (29)
5	O-Ring	19	Spring
7	Clamp Fitting	22	Clamp, Minimum Valve
8	Hose	23	Angle _____ (30)
9	_____ (28)		
10	O-Ring		

- | | | | |
|-------------|---------------|-------------|--------------|
| (27) | (28) | (29) | (30) |
| A. Crater | A. Coupler | A. Disc | A. Connector |
| B. Valve | B. Coupling | B. Seat | B. Coupling |
| C. Clamp | C. Connecting | C. Plate | C. Valve |

KENTUCKY POST #2
2013 BG4 WRITTEN TEST
ANSWER KEY(Correct answer is in Red and underlined)

1. To prepare for testing adjust _____ point of the RZ-25 tester.
A. Center
B. Testing
C. Zero

2. The EPDM breathing hoses use _____ turn connectors.
A. Complete
B. Full
C. Quarter

3. The factory filled cartridge is good for ____ years from the manufacture date.
A. 3
B. 4
C. 6

4. The BG-4 _____ dosage must be 1.5 to 1.9 L/ min.
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B. Constant
C. Operating

5. The accuracy of the Sentinel pressure measurement is +or- 2% of the ____ value.
A. Total
B. Final
C. Pressure

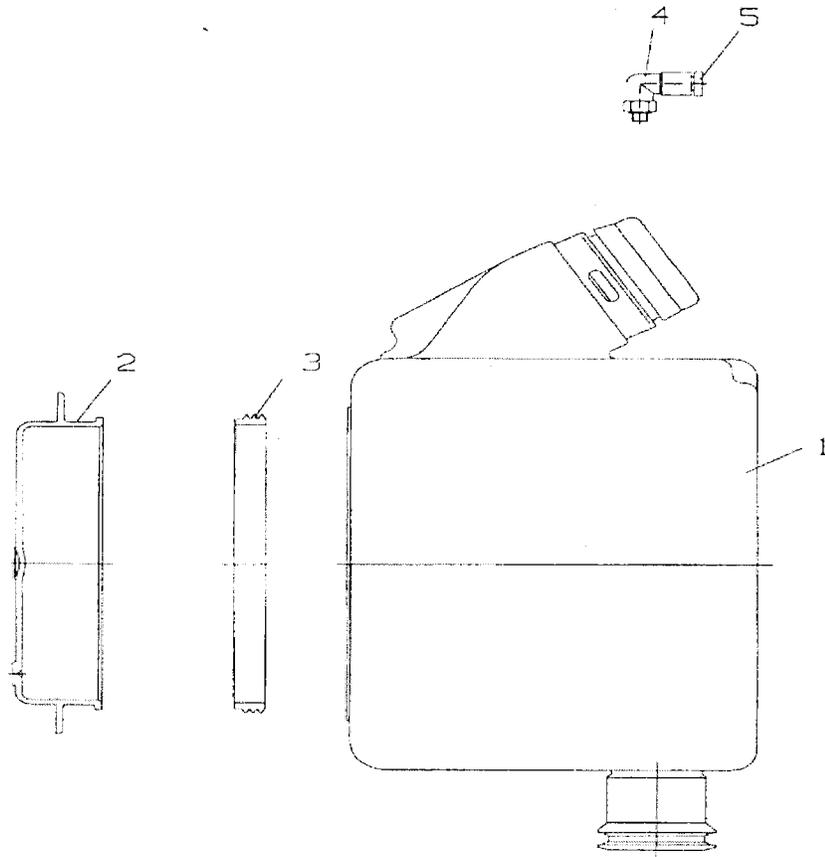
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B. 10
C. 50

7. The minimum valve provides greater than _____ L/ min flow.
A. 80
B. 90
C. 50

8. The pressure reducer must be rebuilt/overhauled every _____ years.
- A. 5
 - B. 7
 - C. 6
9. At the first low pressure warning approximately _____% of the oxygen has been used up.
- A. 75
 - B. 85
 - C. 95
10. During the low pressure warning test, the alarm should activate at approximately _____ PSI for a 4 hour apparatus.
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 - B. 800
 - C. 500
11. Medium pressure in the BG-4 is between 58 psi and _____ psi.
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 - B. 65
 - C. 60
12. Before washing the minimum valve, it is necessary to _____ the minimum valve with plug.
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 - B. Isolate
 - C. Secure
13. The maximum temperature of the air used to dry parts should not go above _____ degree C (140 degree F).
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18. The _____ LED flashes to indicate that the Sentinel is operating normally.
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 - B. Red**
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19. Relief valve activation is _____ bar or (87 psi).
- A. 10**
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20. The drainage valve opens at approximately _____ mbar and is therefore out of the RZ reading range.
- A. 10**
 - B. 12**
 - C. 15

COOLING CANISTER



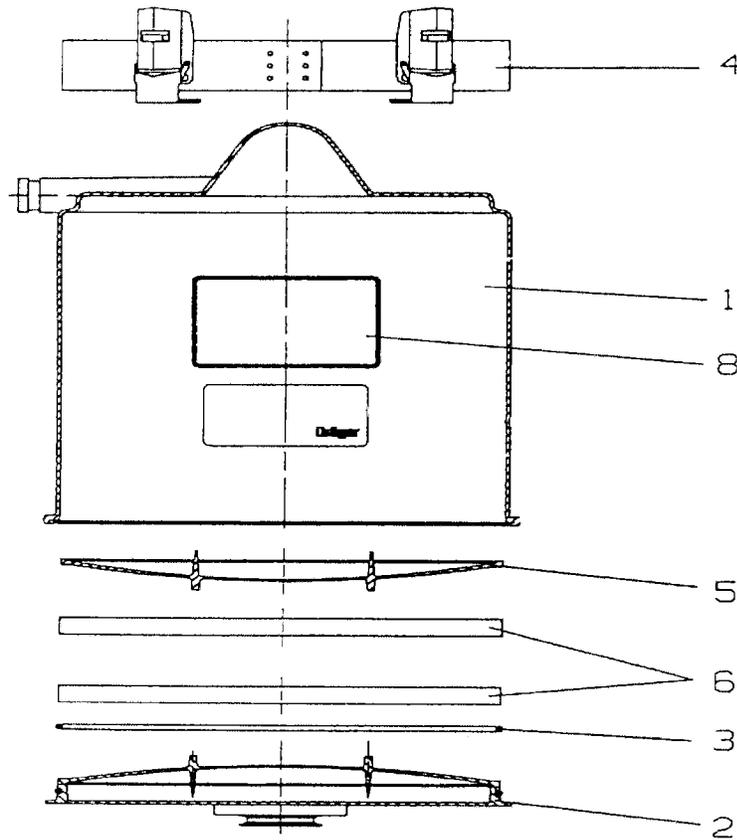
1 Cons. No.	2 Designation	1 Cons. No.	2 Designation
1	Cooler	4	Angle _____ (22)
2	_____ for Cooler (21)	5	_____ Ring (23)
3	Gasket		

- (21)**
 A. Lid
B. Cover
 C. Top

- (22)**
A. Connector
 B. Connection
 C. Line

- (23)**
 A. Reactor
 B. Reacting
C. Reaction

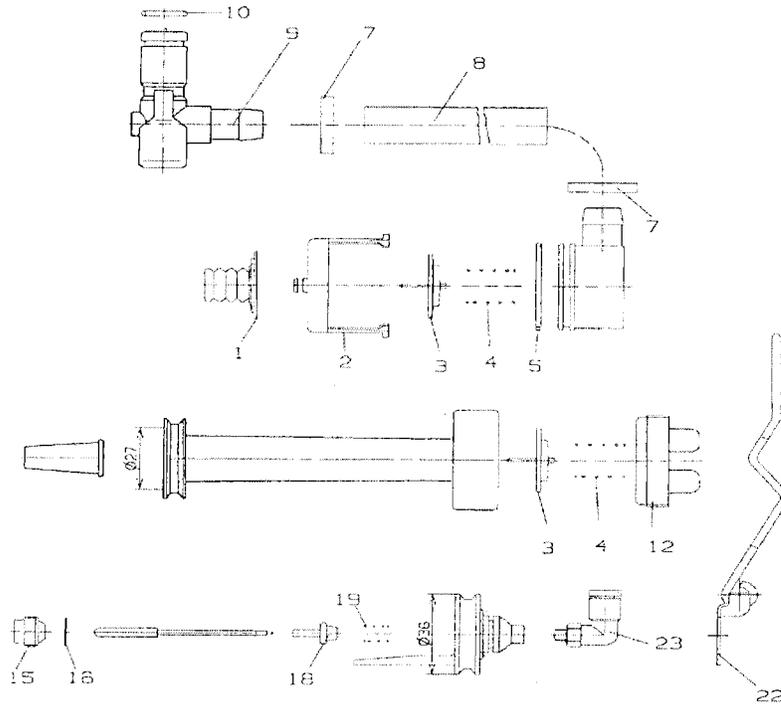
Refillable Cartridge



1 2	1 2
Cons. No. Designation	Cons. No. Designation
1 Refillable _____ (24) 2 Lid 3 Seal, Refillable Cartridge 4 Strap with Tension Spring Hook	5 ___ Scrubber Screen(25) 6 _____ Mats (26) 8 NIOSH Approval Label

- | | | |
|---|---|--|
| (24)
A. Canister
B. Container
C. <u>Cartridge</u> | (25)
<u>A. Refillable</u>
B. Reusable
C. Regenerative | (26)
<u>A. Filter</u>
B. Replaceable
C. Filler |
|---|---|--|

Drain/Relief/Minimum Valve Assembly



1 Cons. No.	2 Designation	1 Cons. No.	2 Designation
1	Valve Disc	12	Cap
2	_____ Case (27)	15	Valve Crater
3	Valve Disc	16	Washer
4	Relief / Drain Valve Spring	18	Valve _____ (29)
5	O-Ring	19	Spring
7	Clamp Fitting	22	Clamp, Minimum Valve
8	Hose	23	Angle _____ (30)
9	_____ (28)		
10	O-Ring		

- | | | | |
|-------------|---------------|-------------|--------------|
| (27) | (28) | (29) | (30) |
| A. Crater | A. Coupler | A. Disc | A. Connector |
| B. Valve | B. Coupling | B. Seat | B. Coupling |
| C. Clamp | C. Connecting | C. Plate | C. Valve |

POST 5
2013 BG4 WRITTEN TEST
ANSWER KEY(Correct answer is in Red and underlined)

Statement Question # from Page #	ANSWER
1. Statement #5 Page 13	C- Zero
2. Statement # 9 Page 13	C- Quarter
3. Statement # 13 Page 13	B- 4
4. Statement #18 Page 14	B- Constant
5. Statement # 21 Page 14	B-Final
6. Statement # 24 Page 14	C-50
7. Statement # 30 Page 14	A- 80
8. Statement #34 Page 14	C-6
9. Statement #42 Page 15	A-75
10. Statement # 44 Page 15	A-700
11. Statement # 49 Page 15	A-64
12. Statement #57 Page 16	B-Isolate
13. Statement # 61 Page 16	B-60
14. Statement # 65 Page 16	A-3 years
15. Statement # 68 Page 16	A-6 years
16. Statement # 73 Page 17	B >99.5%
17. Statement # 76 Page 17	B-4
18. Statement # 79 Page 17	C- Green
19. Statement # 82 Page 17	C-6
20. Statement # 88 Page 18	C-15
21. Cooling Canister	B- Cover
22. Cooling Canister	A- Connector
23. Cooling Canister	C- Reaction
24. Refillable Cartridge	C- Cartridge
25. Refillable Cartridge	A- Refillable
26. Refillable Cartridge	A- Filter
27. Drain/Relief/Minimum Valve Assembly	A- Crater
28. Drain/Relief/Minimum Valve Assembly	B- Coupling
29. Drain/Relief/Minimum Valve Assembly	C-Plate
30. Drain/Relief/Minimum Valve Assembly	A- Connector