

BG-4 BENCH STATEMENTS OF FACT

1. A positive pressure leak could be caused by a leakage in or at device components.
2. The battery in the Sentinel should be replaced every 6 months.
3. Dow Corning 111 is to be used to lubricate O-rings.
4. The pressure relief valve is designed to open when the pressure within the breathing circuit is between +20 and +50 millimeters (+2 mbar and +5 mbar) of pressure measured on the water gage.
5. To prepare for testing adjust zero point of the RZ-25 tester.
6. Test adapter is used to connect the BG-4 apparatus to the RZ-25 tester.
7. A leaky exhalation or inhalation valve could be caused by a defective valve seat or valve disc.
8. During the exhalation valve test, if valve is operating properly, -10 mbar is indicated on the pressure gauge.
9. The EPDM breathing hoses use Bayonet Rings.
10. During testing of the inhalation valve, if valve is operating properly, +10 mbar is indicated on the pressure gauge.
11. During the positive pressure leak test, the pressure change within 1 minute must be lower than 1 mbar.
12. Only DRAGERSORB 400 is to be used to fill the refillable cartridge.
13. The factory packed cartridge is good for 4 years from the manufacture date.
14. A positive pressure in the breathing circuit prevents ambient air from entering the system.
15. The BG-4 is approved with a factory/refillable cartridge.
16. The Sentinel monitoring system comprises a sensor unit, switchbox, and Sentinel.
17. A steel cylinder is full at 3135 psi when a + is stamped at hydro test.
18. The BG-4 constant dosage must be 1.5 to 1.9 L/min.
19. The drain valve should not open at less than 10 mbar.
20. A fully filled **steel** oxygen cylinder holds 440 liters of medical oxygen.
21. The accuracy of the Sentinel pressure measurement is +or- 2% of the final value.

22. Never replace the battery in potentially explosive areas.
23. The weight of a fully charged BG-4 apparatus is 15kg (33 lbs.).
24. Check the supply of oxygen gas on the Sentinel at intervals of approximately 15 minutes.
25. During the constant dosage test, the breathing bag is inflated, the RZ-25 tester is set to red dosage, and the pressure relief valve is capped.
26. During the constant dosage test, the needle of the RZ-25 tester should automatically settle between 1.5 and 1.9 LPM.
27. The minimum valve provides greater than 80 L/min flow.
28. The breathing bag has a 5.5 liter volume.
29. Insert speech diaphragm, install retainer ring and tighten with spanner.
30. The belt and harness must be dried prior to storage, to prevent growth of mold and fungus.
31. The pressure reducer must be replaced every 6 years.
32. Symbol X with error code indicates a failed self-check.
33. The **Sentinel pressure sensor** converts pressure into digital signal.
34. The cylinder connector and cylinder valve must not be contaminated with oil or grease.
35. Three hexagon socket head screws are used in the battery cover of the Sentinel.
36. Rubber parts must be particularly protected from direct exposure to radiation.
37. Do not use any solvents, such as acetone, alcohol, benzene, white spirit, trichloroethylene, etc. for cleaning rubber and silicone parts.
38. The first low pressure warning occurs when the pressure drops to approximately 700 psi.
39. At the first low pressure warning approximately 75% of the oxygen has been used up.
40. The last low pressure warning occurs when the pressure drops to approximately 145 psi.
41. During the low pressure warning test, the alarm should activate at approximately 700 psi for a 4 hour apparatus.

42. At the last low pressure warning approximately 95% of the oxygen has been used up.
43. To start the main alarm, press the Yellow panic button in center of the Sentinel.
44. When the first low pressure warning occurs, the alarm sounds intermittently for approximately 30 seconds and the red LED flashes constantly.
45. When the last low pressure warning occurs, the alarm sounds intermittently without stopping and the red LED flashes constantly.
46. Medium pressure in the BG-4 is between 58 psi and 64 psi.
47. Medium pressure is delivered to the minimum valve.
48. The drain valve opens at more than 10 mbar.
49. The BG-4 breathing circuit is designed with an air cooler that can be filled with ice to reduce the temperature of the inhaled breath.
50. Remove the Tally Key to activate the motion sensor.
51. All parts which come in contact with the exhaled air must be thoroughly cleaned and disinfected after use.
52. Disinfect parts by immersing them in a disinfectant bath using an approved disinfectant.
53. Before washing the minimum valve, it is necessary to isolate the minimum valve with plug.
54. Attach minimum valve to breathing bag so that the pin of the minimum valve and the mark on the breathing bag line up.
55. All parts which have been disinfected should be rinsed thoroughly under running water.
56. CO₂ absorber is not approved for use after indicated expiration date.
57. The maximum temperature of the air used to dry parts should not go above 60 degree C (140 degree F).
58. Replace the high pressure O-ring located on the pressure reducer yearly for units which are in constant use.
59. U.S. Department of Transportation requires hydro tests on composite cylinders every 5 years.
60. Replace the O-ring at the plug-in coupling at least once every year for units which are in constant use.

61. The inhalation/exhalation valve should be replaced every 3 years for units which are in constant use.
62. The O-ring under the speech diaphragm should be lubricated with Dow Corning 111.
63. ~~The pressure reducer should be replaced after at least 6 years usage.~~
64. A steel oxygen cylinder must be retested by a certified testing facility every 5 years.
65. The BG-4 is approved for use at temperatures above -5 degree C (23 degree F)
66. A defective pressure reducer should be replaced as needed.
67. Only oxygen (medical grade or better) with > 99.5% purity is to be used to fill the BG-4 oxygen cylinders.
68. The use of ice in the cooling system is only required at ambient temperature above 0 degree C (32 degree F).
69. Pressurized oxygen in contact with oil, grease, or other contamination can result in fire or explosion.
70. It is safe to use the BG 4 for up to 4 hours with a battery warning 1 Icon.
71. The battery must be replaced if battery warning 2 Icon is indicated.
72. A defective pressure reducer is the probable cause if the manual by-pass valve does not blow-off.
73. The green LED flashes to indicate that the Sentinel is operating normally.
74. Bypass output is > 50 L/ min.
75. Relief valve activation is 6 bar or (87 psi).
76. The oxygen cylinder burst disc ruptures at 4,450 psi (307 bar).
77. Refillable cartridge concerns are over packing and under packing.
78. The FPS 7000 masks allow 90% peripheral vision.
79. Polycarbonate or Plexiglas lenses can be used in the mask.
80. A minimum of 2600 psi is needed for a Sentinel to perform a proper high pressure leak test.
81. The drain valve opens at approximately 15 mbar and is therefore out of the RZ reading range.

82. To prepare the ice pack:

Fill the ice receptacle with water up to 2 inches from rim
Freeze at least 16 hours @ -15 degree C (5 degree F)
Fill to rim with water
Freeze again for another 8 hours

83. If the speech diaphragm is deformed or shows signs of damage, it must be replaced.

84. The BG-4 Sentinel lights up when the button is briefly pressed.

85. Press then release the right hand button to display temperature.

86. Do not re-use Factory cartridges.

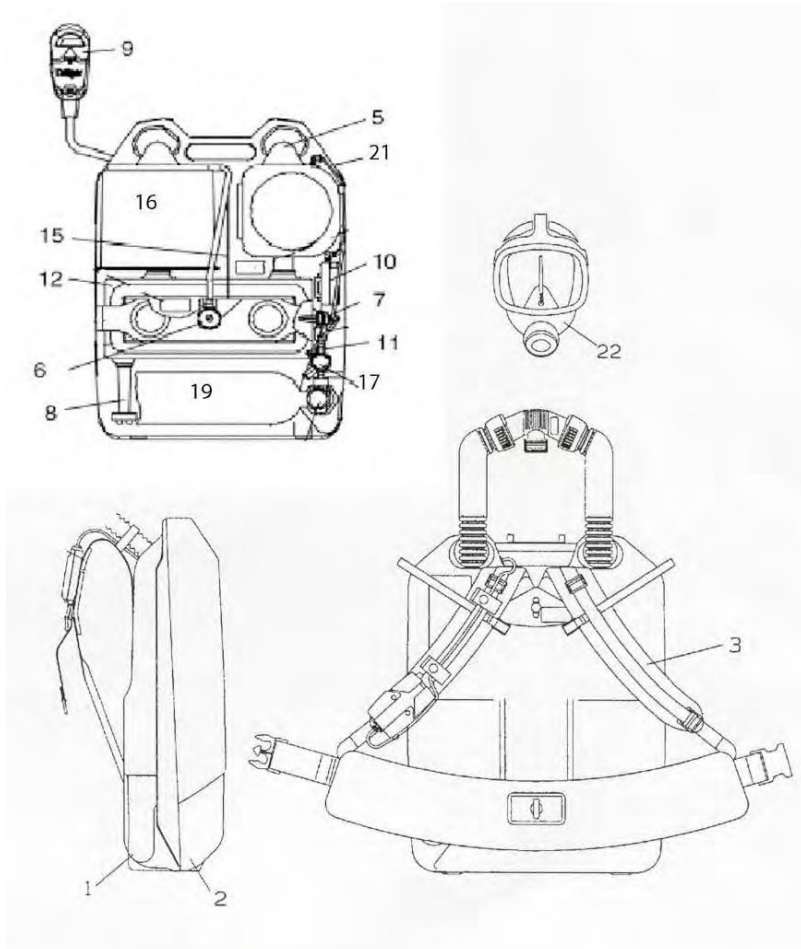
87. The breathing hoses are equipped with anti-crush rings.

88. When conducting component checks use a test pressure between +7 mbar and +10 mbar with a max pressure loss of 1 mbar/min.

89. Only the following batteries are approved for use in the Sentinel:

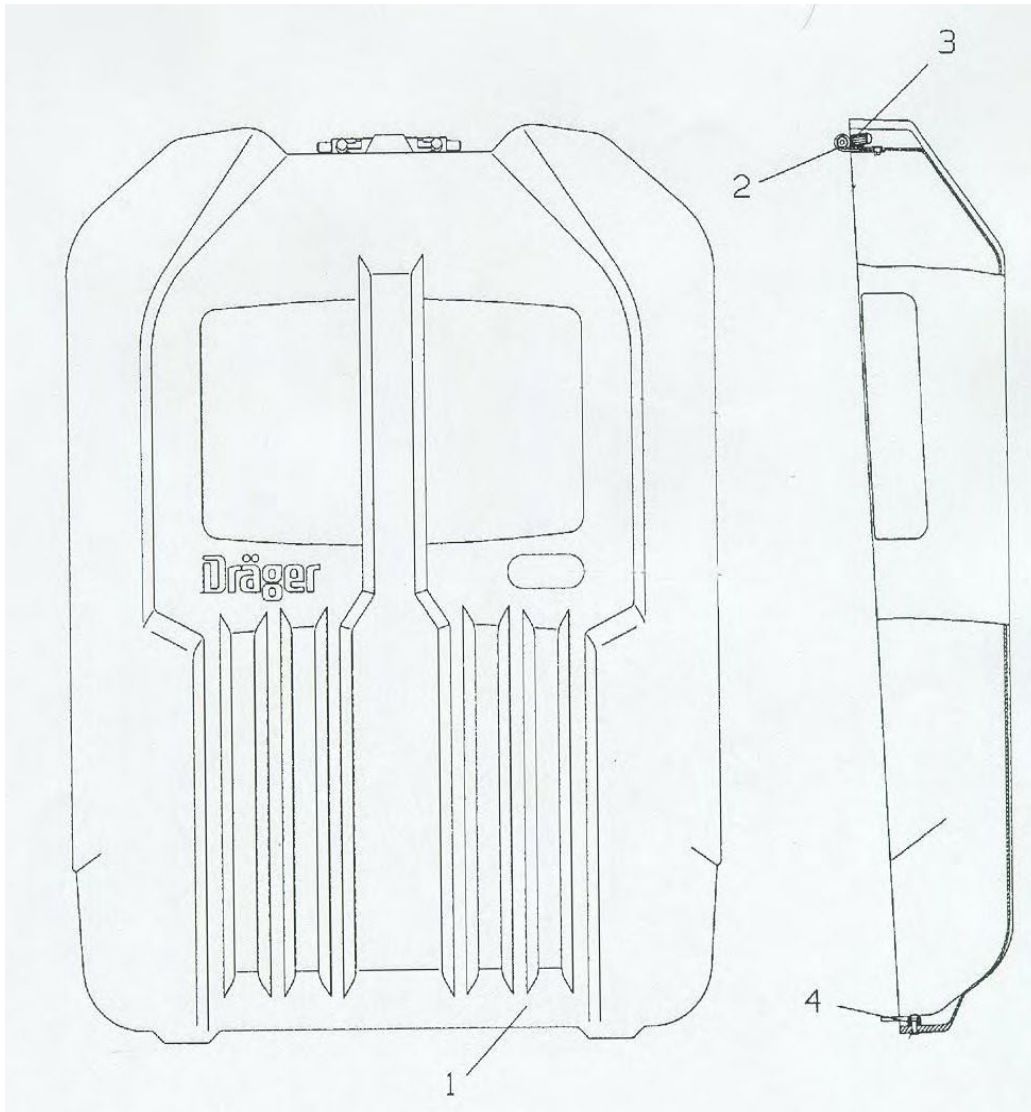
Rayovac
Eveready
Panasonic
Ultra-life Lithium

BG-4



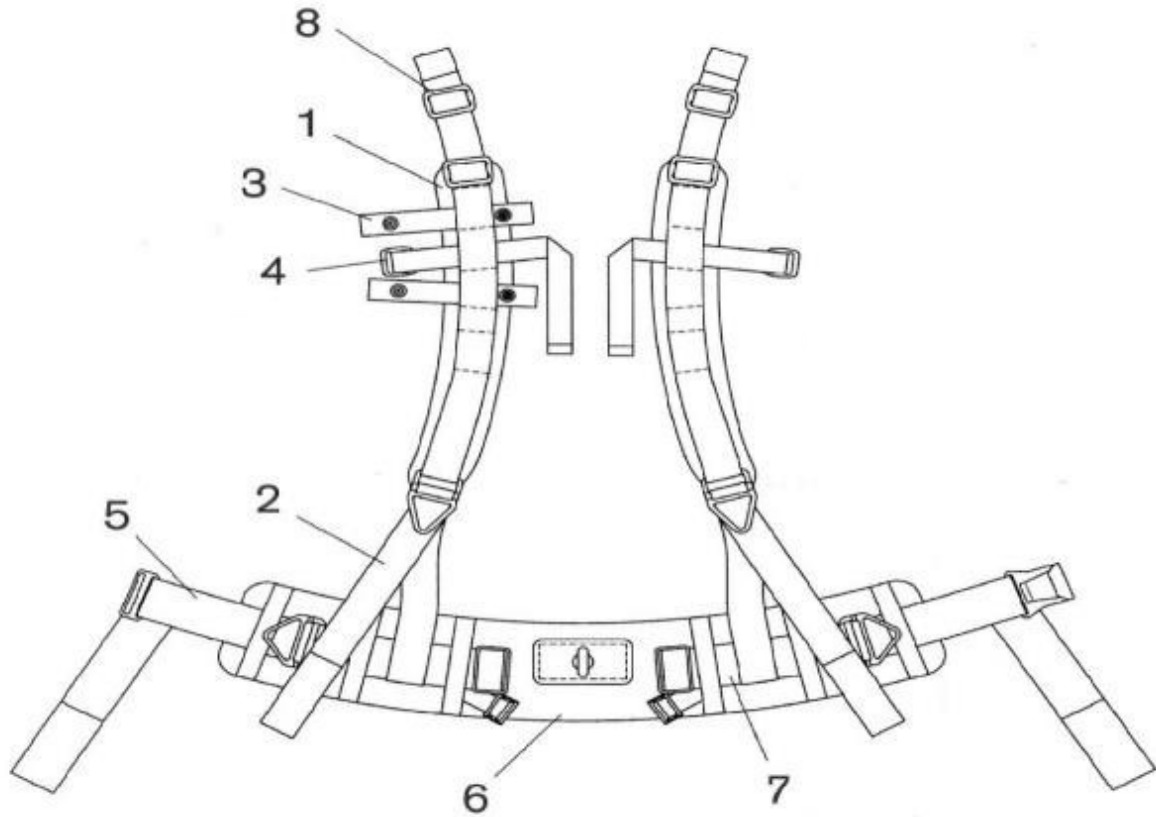
1	2	1	2
Cons. No.	Designation	Cons. No.	Designation
1	Carrying Housing	12	Breathing Bag
2	Cover Shell, complete	15	Lever, Complete
3	Shoulder Pad Assembly	16	Factory/refillable cartridge
5	Cooler	17	Pressure Reducer BG4
6	Relief valve, Complete	19	Oxygen Cylinder
7	Minimum Valve	21	Distribution Hose
8	Drain Valve	22	FPS 7000 Mask
9	Sentinel	-	
10	Switch Box		
11	Pressure Sensor		

Cover



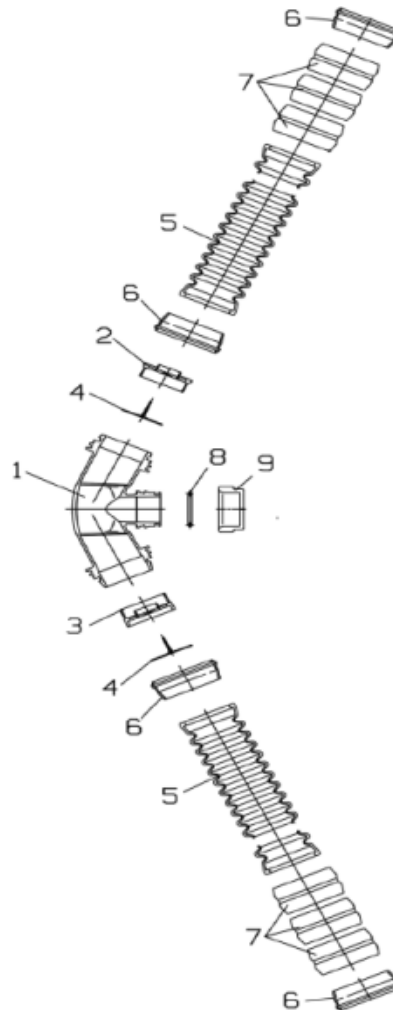
1	2	1	2
Cons. No.	Designation	Cons. No.	Designation
1	Cover Shell	3	Grip Cap
2	Hinge	4	Button

Harness Assembly



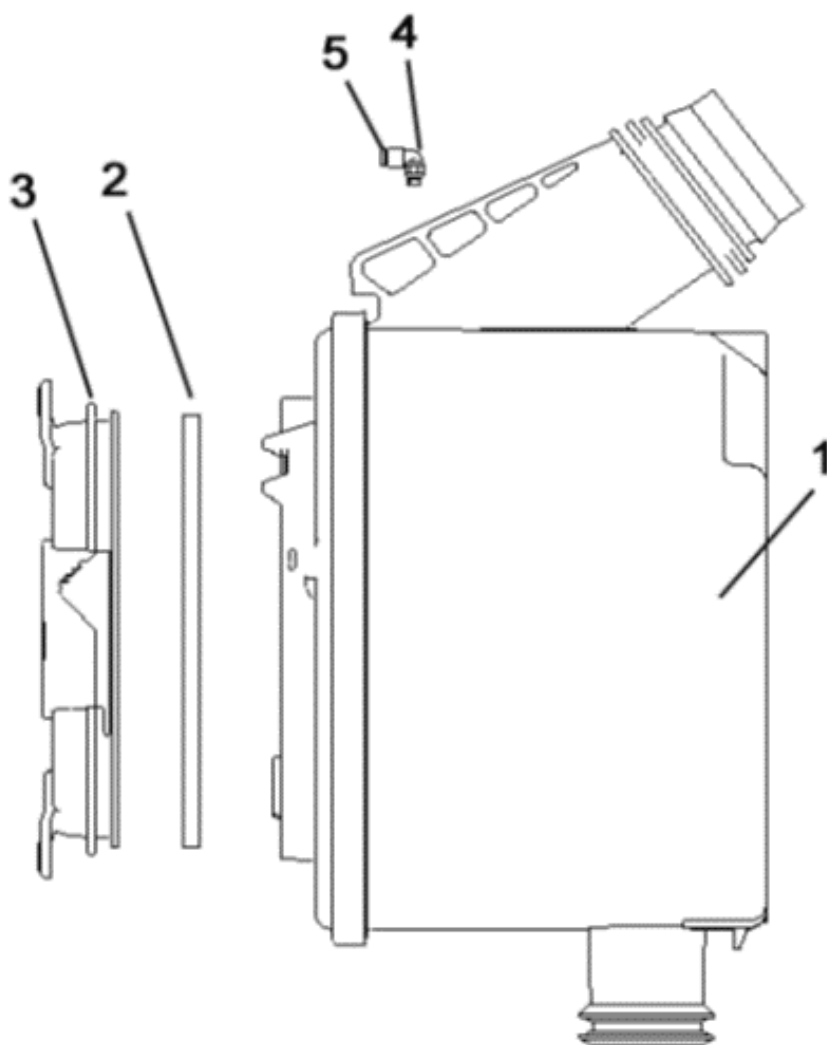
1 Cons. No.	2 Designation	1 Cons. No.	2 Designation
1	Shoulder Pad Assembly	5	Adjusting Belt Assembly
2	Shoulder Adjusting Strap	6	Waist belt
3	Hose Clip	7	Belt Assembly
4	Hose Strap Harness	8	Buckle

Breathing Hose Assembly



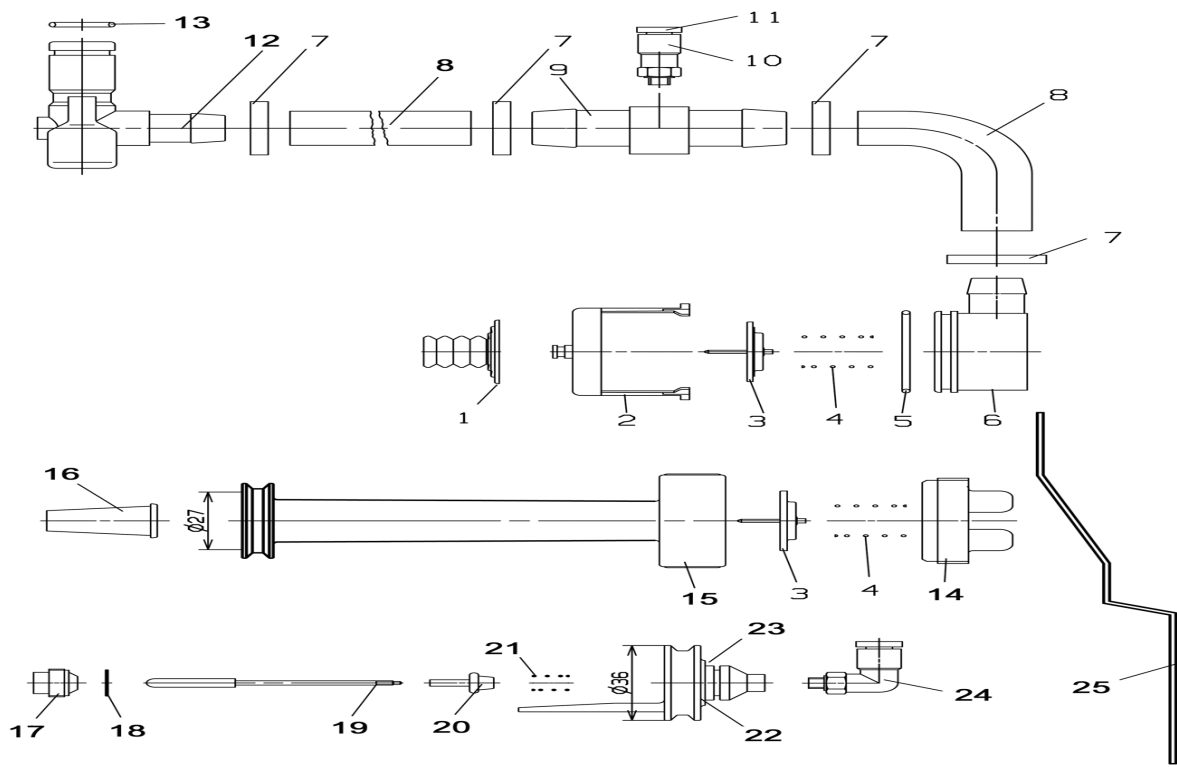
1	2	1	2
Cons. No.	Designation	Cons. No.	Designation
1	Coupling	6	Bayonet Ring
2	Inhalation Valve Seat	7	Anti-Crush rings
3	Exhalation Valve Seat	8	Toroidal Sealing Ring
4	Valve Disc	9	Sealing Cap
5	Corrugated Hose		

Cooling Canister (Revised Drawing)



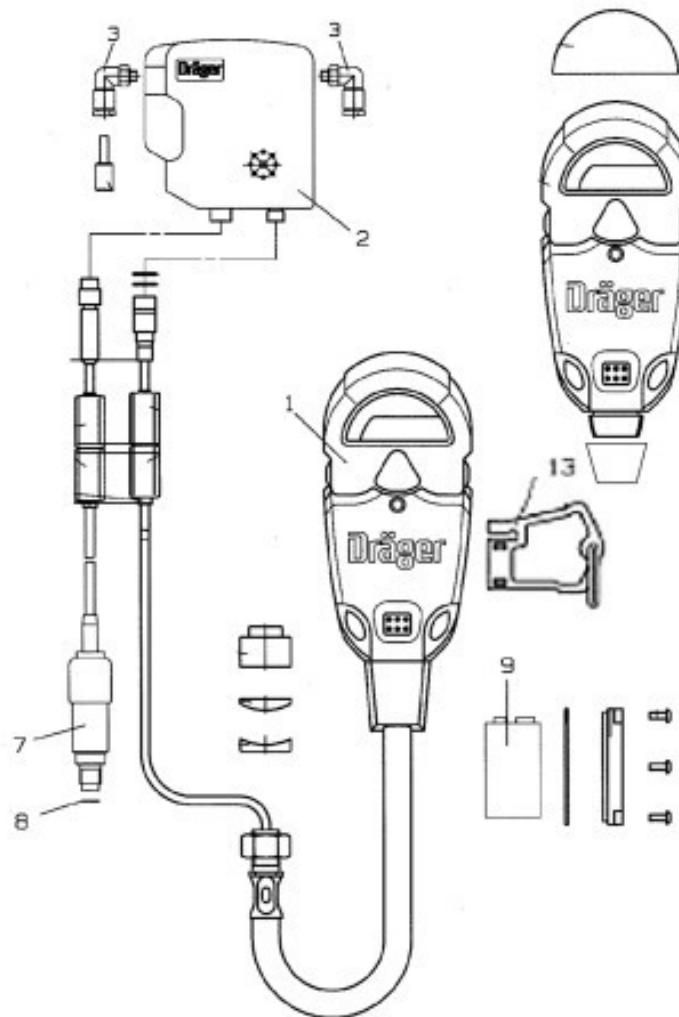
1	2	1	2
Cons. No.	Designation	Cons. No.	Designation
1	Cooler	4	Angle Connector
2	O-Ring, Cooler	5	Reaction Ring
3	Cover		

Drain/Relief/Minimum Valve Assembly (Revised Drawing)



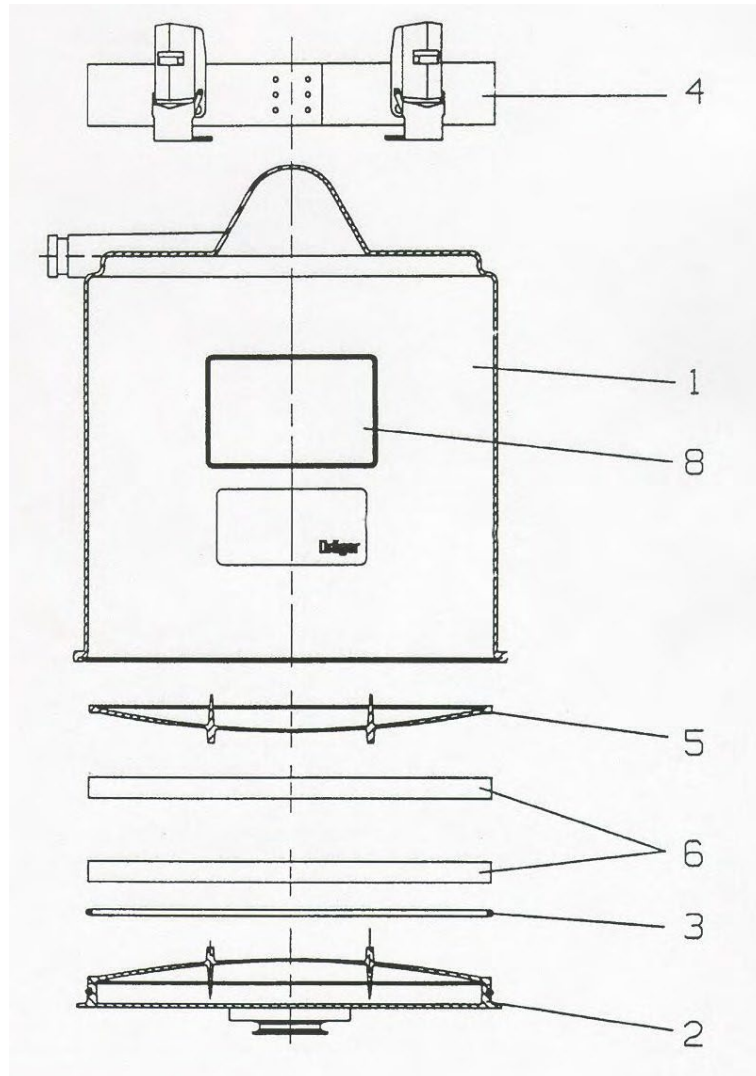
1	2	1	2
Cons. No.	Designation	Cons. No.	Designation
1	Valve Disc	14	Cap, Drain Valve
2	Crater Housing	15-16	Drain Valve & Filter
3	Valve Disc	17-24	Minimum Valve
4	Spring	17	Crater
5	O-Ring	18	Washer
6	Cap	19-20	Rocker Arm
11	Compression Ring	21	Spring
12	Coupling	24	Angle Connector
13	O-Ring	25	Holding Clamp
14-16, 3-4	Drainage Valve		

Sentinel



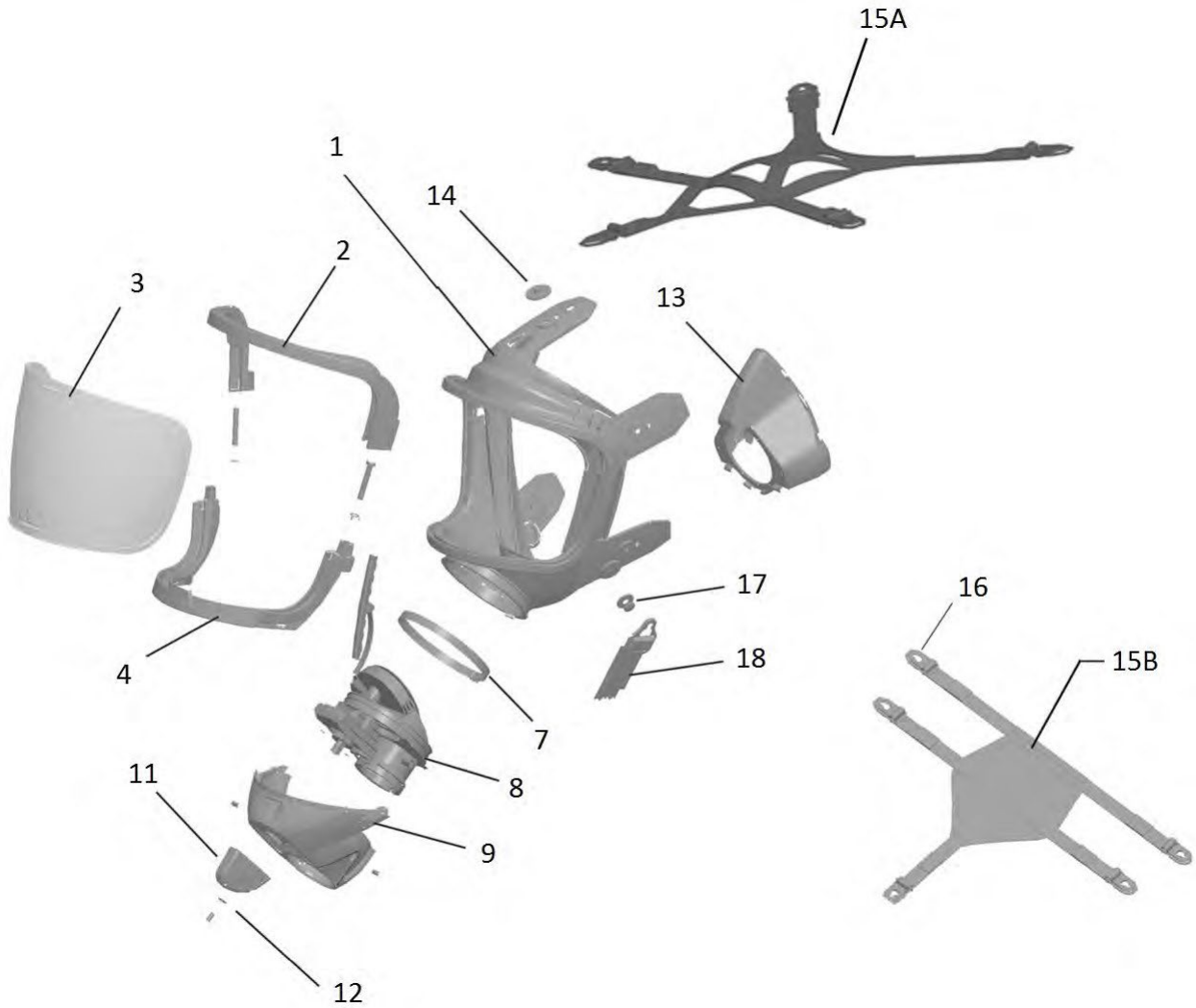
1	2	1	2
Cons. No.	Designation	Cons. No.	Designation
1	Sentinel	8	Copper Ring
2	Switch Box	9	9 volt battery
3	Angle Connector	13	Tally Key
7	Pressure Sensor		

Refillable Cartridge



1	2	1	2
Cons. No.	Designation	Cons. No.	Designation
1-8	Refillable Cartridge	5	Refillable Scrubber Screen
2	Lid	6	Filter Mats
3	Seal, Refillable Cartridge	8	NIOSH Approval Label
4	Strap with Tension Spring Hook		

FPS 7000 Mask



1	2	1	2
Cons. No.	Designation	Cons. No.	Designation
1	Mask Body FPS 7000	13	Inner Mask
2	Upper Visor Frame	14	Button
3	Visor	15A	Head Strap
4	Lower Visor Frame	15B	Hairnet
7	Clamp	16	Sliding Buckle
8	Connector Piece	17	Double Button
9	Cover	18	Neck Strap
11	Turning Knob		
12	Disc		